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MICROWAVE ACOUSTICS HANDBOOK, VOLUME 4, BULK WAVE VELOCITIES--ETC(U)

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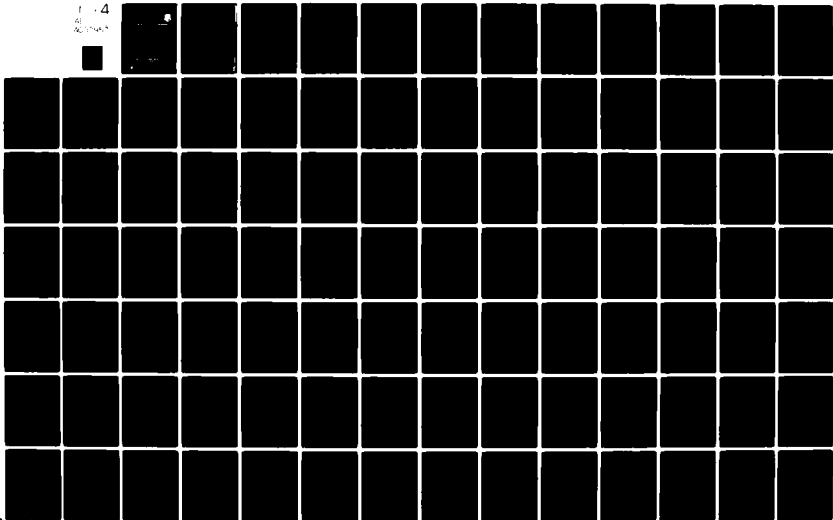
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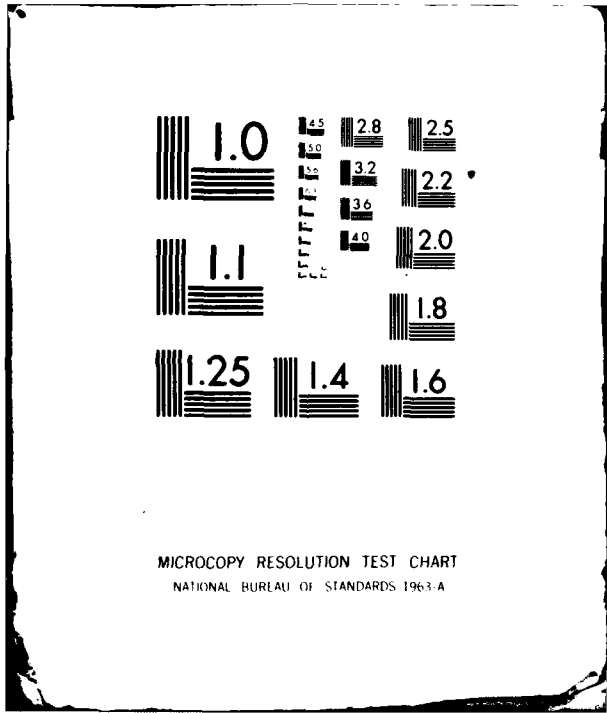
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS 1963-A

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PROGRESS REPORT  
Volume 4, Part 1, 1957  
Neurological Data

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| Information useful for the design of acoustic delay lines, resonators, and<br>other miniature, low-cost devices for use in communications and electronic<br>sensing is given in this report.<br>Numerical data on bulk acoustic wave velocities and power flow angles<br>are given for longitudinal, and two shear waves for various orientations of the<br>following single crystalline materials: Ba <sub>2</sub> NaNb <sub>5</sub> O <sub>15</sub> , Bi <sub>12</sub> GeO <sub>20</sub> , CdS,<br>Diamond, Eu <sub>3</sub> Fe <sub>5</sub> O <sub>15</sub> , GaAs, Gadolinium Gallium Garnet, Germanium, InSb. |                       |  |  |

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20. (Cont)

InAs, Lead Molybdate, PbS,  $\text{LiNbO}_3$ ,  $\text{LiTaO}_3$ , MgO, Quartz, Rutile, Sapphire, Silicon, Spinel,  $\text{TeO}_2$ , YAG, YGaG, YIG, and ZnO. This present volume is intended to be used as a supplement to Volume 3 whenever accurate numerical data is required rather than the more convenient graphical information.

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## Preface

The increasing use of acoustic devices in military and commercial systems has prompted the generation of this Microwave Acoustic Handbook series. Other volumes, either published or in preparation, are: Volume 1A, Surface Wave Velocities; Volume 2, Surface Wave Velocities—Numerical Data; Volume 3, Bulk Wave Velocities (Report Number RADC-TR-80-188). All have different report numbers. This fourth volume consists of numerical data corresponding to many of the graphical curves presented in Volume 3. As this volume is intended as a supplement to Volume 3, particularly for the serious acoustic design engineer, none of the fundamental notation or theory is repeated here. Rather, the reader is urged to consult Volume 3 prior to utilization of the numerical data contained in the present volume.

In using the data of this volume the reader should be alert to the following potential pitfall. The assignment of first or second shear designations to a particular shear mode does not necessarily correspond to the designation used in Volume 3; interchanges can even occur within a given orientation.

The authors wish to acknowledge the support of E. Cronin, J. Cooney and R.G. Gosselin in the compilation of this report. The computer programming assistance provided by R. T. Delmonico and E. D. Conway of ACSI and J. V. O'Brien formerly of Dabovich and Company was obtained under Air Force Contract.

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Microwave Acoustics Handbook  
Volume 4. Bulk Wave Velocities  
Numerical Data

1. BULK WAVE NUMERICAL DATA

The following pages consist of computer generated numerical printout for a variety of single crystalline materials and orientations. These orientations are defined in Figure 1. The material constants used to generate this data are those given<sup>1</sup> in Volume 3.

The numerical printout contains the following information. The first column is the variable Euler<sup>2</sup> angle for the particular cut under investigation, LNGVEL is the longitudinal wave velocity, and LPHI12 and LPHI13 are the longitudinal wave power flow angles. Similar sets of data follow for the first and second shear modes. Note that the first and second shear modes do not necessarily correspond to the fast and slow shear waves and that differences in labels can exist between Volumes 3 and 4.

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(Received for publication 16 June 1980)

1. Slobodnik, A. J., Jr., Delmonico, R. T., and Conway, E. D. (1980) Microwave Acoustics Handbook Volume 3. Bulk Wave Velocities, National Technical Information Services, Springfield, Virginia 22151.
2. Goldstein, H. (1950) Classical Mechanics, Addison-Wesley, New York.

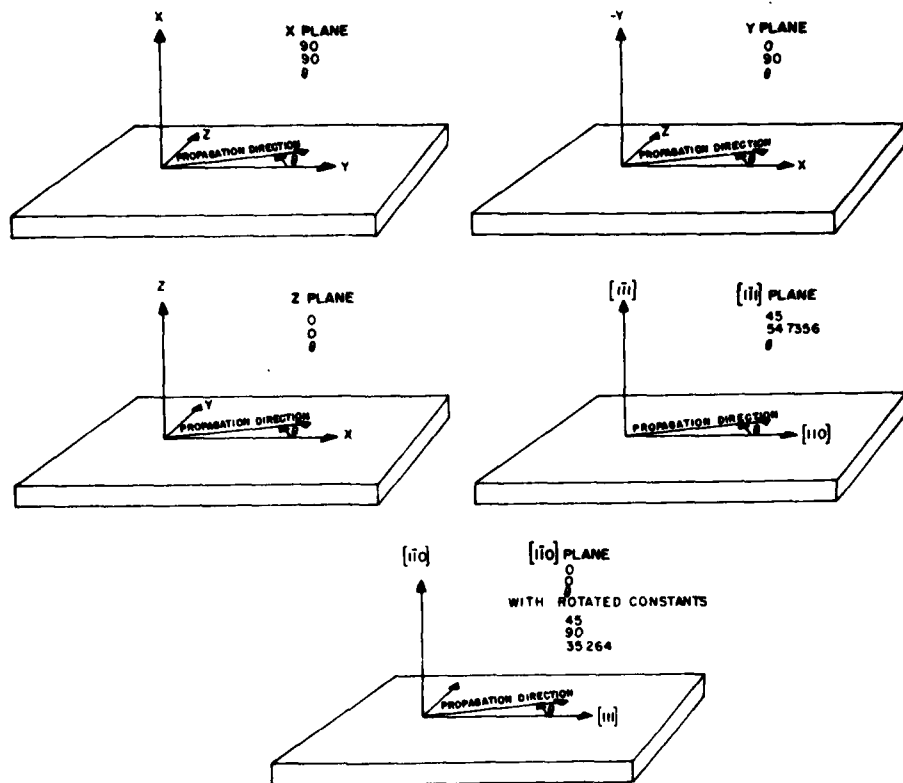


Figure 1. Euler Angle Notation for Acoustic Bulk Wave Propagation. The X plane can also be called the YZ plane, the Y plane can be referred to as the XZ plane, and the Z plane is also known as the XY plane

X-PLANE (YZ-PLANE) BARIUM SODIUM NIORATE

BULK

|     | LMGVEL   | LPMI12  | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 6026.696 | -8.000  | -0.000 | 3766.769 | 0.000   | 0.000   | 3653.660 | 0.000   | 0.000   |
| 1.  | 6026.307 | -3.70   | -0.000 | 3766.694 | -1.130  | 0.000   | 3653.615 | -1.10   | 0.000   |
| 2.  | 6025.140 | -7.50   | -0.000 | 3766.666 | -2.560  | 0.000   | 3653.455 | -1.190  | 0.000   |
| 3.  | 6023.197 | -1.120  | -0.000 | 3766.687 | -3.590  | 0.000   | 3653.186 | -2.290  | 0.000   |
| 4.  | 6020.479 | -1.690  | -0.000 | 3765.557 | -5.520  | 0.000   | 3652.816 | -3.600  | 0.000   |
| 5.  | 6016.990 | -1.860  | -0.000 | 3764.077 | -6.660  | 0.000   | 3652.339 | -4.460  | 0.000   |
| 6.  | 6012.733 | -2.230  | -0.000 | 3764.046 | -7.800  | 0.000   | 3651.757 | -5.700  | 0.000   |
| 7.  | 6007.713 | -2.600  | -0.000 | 3763.066 | -9.100  | 0.000   | 3651.074 | -7.460  | 0.000   |
| 8.  | 6001.935 | -2.970  | -0.000 | 3761.941 | -1.040  | 0.000   | 3650.286 | -7.750  | 0.000   |
| 9.  | 6795.405 | -3.350  | -0.000 | 3760.666 | -1.170  | 0.000   | 3649.404 | -8.640  | 0.000   |
| 10. | 6788.131 | -3.690  | -0.000 | 3779.250 | -1.290  | 0.000   | 3648.422 | -9.530  | 0.000   |
| 11. | 6780.121 | -4.050  | -0.000 | 3777.688 | -1.420  | 0.000   | 3647.344 | -1.610  | 0.000   |
| 12. | 6771.363 | -4.480  | -0.000 | 3775.985 | -1.540  | 0.000   | 3646.173 | -1.100  | 0.000   |
| 13. | 6761.927 | -4.750  | -0.000 | 3774.142 | -1.660  | 0.000   | 3644.912 | -1.160  | 0.000   |
| 14. | 6751.764 | -5.100  | -0.000 | 3772.161 | -1.760  | 0.000   | 3643.563 | -1.290  | 0.000   |
| 15. | 6740.985 | -5.440  | -0.000 | 3770.844 | -1.900  | 0.000   | 3642.129 | -1.330  | 0.000   |
| 16. | 6729.363 | -5.760  | -0.000 | 3767.794 | -2.020  | 0.000   | 3640.613 | -1.400  | 0.000   |
| 17. | 6717.151 | -6.110  | -0.000 | 3765.413 | -2.130  | 0.000   | 3639.019 | -1.470  | 0.000   |
| 18. | 6704.263 | -6.430  | -0.000 | 3762.904 | -2.240  | 0.000   | 3637.350 | -1.540  | 0.000   |
| 19. | 6690.774 | -6.750  | -0.000 | 3760.270 | -2.350  | 0.000   | 3635.611 | -1.600  | 0.000   |
| 20. | 6676.641 | -7.060  | -0.000 | 3757.514 | -2.460  | 0.000   | 3633.804 | -1.660  | 0.000   |
| 21. | 6661.901 | -7.370  | -0.000 | 3754.636 | -2.560  | 0.000   | 3631.933 | -1.720  | 0.000   |
| 22. | 6646.571 | -7.670  | -0.000 | 3751.646 | -2.670  | 0.000   | 3630.004 | -1.770  | 0.000   |
| 23. | 6630.672 | -7.960  | -0.000 | 3748.542 | -2.760  | 0.000   | 3628.020 | -1.820  | 0.000   |
| 24. | 6614.223 | -8.240  | -0.000 | 3745.328 | -2.860  | 0.000   | 3625.986 | -1.860  | 0.000   |
| 25. | 6597.246 | -8.510  | -0.000 | 3742.005 | -2.950  | 0.000   | 3623.907 | -1.900  | 0.000   |
| 26. | 6579.763 | -8.760  | -0.000 | 3738.586 | -3.040  | 0.000   | 3621.786 | -1.940  | 0.000   |
| 27. | 6561.796 | -9.030  | -0.000 | 3735.069 | -3.130  | 0.000   | 3619.629 | -1.970  | 0.000   |
| 28. | 6543.375 | -9.270  | -0.000 | 3731.456 | -3.210  | 0.000   | 3617.441 | -2.000  | 0.000   |
| 29. | 6524.521 | -9.500  | -0.000 | 3727.754 | -3.300  | 0.000   | 3615.226 | -2.020  | 0.000   |
| 30. | 6505.262 | -9.720  | -0.000 | 3723.966 | -3.370  | 0.000   | 3612.990 | -2.040  | 0.000   |
| 31. | 6485.627 | -9.930  | -0.000 | 3720.097 | -3.440  | 0.000   | 3610.737 | -2.050  | 0.000   |
| 32. | 6465.666 | -10.120 | -0.000 | 3716.152 | -3.510  | 0.000   | 3608.472 | -2.060  | 0.000   |
| 33. | 6445.350 | -10.300 | -0.000 | 3712.134 | -3.580  | 0.000   | 3606.200 | -2.070  | 0.000   |
| 34. | 6424.771 | -10.460 | -0.000 | 3708.045 | -3.640  | 0.000   | 3603.927 | -2.070  | 0.000   |
| 35. | 6403.943 | -10.610 | -0.000 | 3703.902 | -3.700  | 0.000   | 3601.656 | -2.070  | 0.000   |
| 36. | 6382.902 | -10.740 | -0.000 | 3699.696 | -3.750  | 0.000   | 3599.393 | -2.060  | 0.000   |
| 37. | 6361.685 | -10.860 | -0.000 | 3695.438 | -3.800  | 0.000   | 3597.142 | -2.050  | 0.000   |
| 38. | 6340.331 | -10.950 | -0.000 | 3691.132 | -3.840  | 0.000   | 3594.907 | -2.030  | 0.000   |
| 39. | 6318.479 | -11.020 | -0.000 | 3686.783 | -3.880  | 0.000   | 3592.692 | -2.010  | 0.000   |
| 40. | 6297.372 | -11.060 | -0.000 | 3682.397 | -3.920  | 0.000   | 3590.503 | -1.990  | 0.000   |
| 41. | 6275.853 | -11.110 | -0.000 | 3677.976 | -3.950  | 0.000   | 3588.341 | -1.960  | 0.000   |
| 42. | 6254.369 | -11.120 | -0.000 | 3673.532 | -3.960  | 0.000   | 3586.211 | -1.930  | 0.000   |
| 43. | 6232.967 | -11.100 | -0.000 | 3669.065 | -4.000  | 0.000   | 3584.115 | -1.900  | 0.000   |
| 44. | 6211.697 | -11.060 | -0.000 | 3664.581 | -4.020  | 0.000   | 3582.056 | -1.870  | 0.000   |
| 45. | 6190.510 | -10.980 | -0.000 | 3660.086 | -4.030  | 0.000   | 3580.036 | -1.830  | 0.000   |
| 46. | 6169.761 | -10.890 | -0.000 | 3655.585 | -4.040  | 0.000   | 3578.057 | -1.800  | 0.000   |
| 47. | 6149.204 | -10.760 | -0.000 | 3651.085 | -4.040  | 0.000   | 3576.120 | -1.760  | 0.000   |
| 48. | 6128.999 | -10.590 | -0.000 | 3646.589 | -4.040  | 0.000   | 3574.226 | -1.720  | 0.000   |
| 49. | 6109.206 | -10.400 | -0.000 | 3642.105 | -4.030  | 0.000   | 3572.374 | -1.660  | 0.000   |

X-PLANE (YZ-PLANE) BARIUM SODIUM NIOBATE

BULK

|     | LNGVEL   | LPHI12  | LPHI13 | FSPVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|---------|--------|----------|--------|--------|----------|--------|--------|
| 50. | 6089.880 | -10.170 | 0.000  | 3637.636 | -4.020 | 0.000  | 3570.563 | -1.650 | 0.000  |
| 51. | 6071.110 | -9.980  | 0.000  | 3633.192 | -4.006 | 0.000  | 3568.793 | -1.610 | 0.000  |
| 52. | 6052.938 | -9.590  | 0.000  | 3628.774 | -3.960 | 0.000  | 3567.061 | -1.560 | 0.000  |
| 53. | 6035.444 | -9.240  | 0.000  | 3624.386 | -3.950 | 0.000  | 3565.365 | -1.550 | 0.000  |
| 54. | 6018.697 | -8.850  | 0.000  | 3620.042 | -3.920 | 0.000  | 3563.701 | -1.520 | 0.000  |
| 55. | 6002.773 | -8.410  | 0.000  | 3615.739 | -3.880 | 0.000  | 3562.064 | -1.500 | 0.000  |
| 56. | 5987.746 | -7.930  | 0.000  | 3611.485 | -3.840 | 0.000  | 3560.449 | -1.460 | 0.000  |
| 57. | 5973.693 | -7.480  | 0.000  | 3607.266 | -3.790 | 0.000  | 3558.852 | -1.470 | 0.000  |
| 58. | 5960.693 | -6.820  | 0.000  | 3603.147 | -3.740 | 0.000  | 3557.265 | -1.460 | 0.000  |
| 59. | 5948.825 | -6.280  | 0.000  | 3599.073 | -3.680 | 0.000  | 3555.682 | -1.460 | 0.000  |
| 60. | 5938.167 | -5.530  | 0.000  | 3595.070 | -3.620 | 0.000  | 3554.094 | -1.470 | 0.000  |
| 61. | 5928.798 | -4.800  | 0.000  | 3591.142 | -3.550 | 0.000  | 3552.496 | -1.460 | 0.000  |
| 62. | 5920.797 | -4.040  | 0.000  | 3587.295 | -3.480 | 0.000  | 3550.877 | -1.510 | 0.000  |
| 63. | 5914.236 | -3.220  | 0.000  | 3583.533 | -3.406 | 0.000  | 3549.231 | -1.543 | 0.000  |
| 64. | 5909.189 | -2.370  | 0.000  | 3579.862 | -3.320 | 0.000  | 3547.550 | -1.570 | 0.000  |
| 65. | 5905.720 | -1.460  | 0.000  | 3576.286 | -3.230 | 0.000  | 3545.825 | -1.620 | 0.000  |
| 66. | 5903.889 | -0.550  | 0.000  | 3572.810 | -3.140 | 0.000  | 3544.051 | -1.670 | 0.000  |
| 67. | 5903.747 | 0.400   | 0.000  | 3569.436 | -3.050 | 0.000  | 3542.222 | -1.720 | 0.000  |
| 68. | 5905.333 | 1.370   | 0.000  | 3566.175 | -2.950 | 0.000  | 3540.333 | -1.780 | 0.000  |
| 69. | 5908.674 | 2.340   | 0.000  | 3563.025 | -2.850 | 0.000  | 3538.380 | -1.840 | 0.000  |
| 70. | 5913.776 | 3.320   | 0.000  | 3559.992 | -2.740 | 0.000  | 3536.364 | -1.900 | 0.000  |
| 71. | 5920.637 | 4.260   | 0.000  | 3557.080 | -2.630 | 0.000  | 3534.284 | -1.960 | 0.000  |
| 72. | 5929.216 | 5.200   | 0.000  | 3554.294 | -2.510 | 0.000  | 3532.145 | -2.010 | 0.000  |
| 73. | 5939.459 | 6.080   | 0.000  | 3551.636 | -2.390 | 0.000  | 3529.953 | -2.060 | 0.000  |
| 74. | 5951.276 | 6.900   | 0.000  | 3549.110 | -2.270 | 0.000  | 3527.716 | -2.100 | 0.000  |
| 75. | 5964.546 | 7.630   | 0.000  | 3546.720 | -2.150 | 0.000  | 3525.446 | -2.123 | 0.000  |
| 76. | 5979.118 | 8.260   | 0.000  | 3544.469 | -2.020 | 0.000  | 3523.159 | -2.130 | 0.000  |
| 77. | 5994.794 | 8.780   | 0.000  | 3542.359 | -1.890 | 0.000  | 3520.873 | -2.120 | 0.000  |
| 78. | 6011.344 | 9.150   | 0.000  | 3540.394 | -1.750 | 0.000  | 3518.606 | -2.100 | 0.000  |
| 79. | 6028.499 | 9.370   | 0.000  | 3538.577 | -1.620 | 0.000  | 3516.384 | -2.050 | 0.000  |
| 80. | 6045.954 | 9.410   | 0.000  | 3536.909 | -1.480 | 0.000  | 3514.224 | -1.970 | 0.000  |
| 81. | 6063.371 | 9.270   | 0.000  | 3535.393 | -1.340 | 0.000  | 3512.169 | 0.000  | 0.000  |
| 82. | 6080.387 | 8.940   | 0.000  | 3534.031 | -1.190 | 0.000  | 3510.231 | 0.000  | 0.000  |
| 83. | 6096.623 | 8.400   | 0.000  | 3532.825 | -1.050 | 0.000  | 3508.441 | 0.000  | 0.000  |
| 84. | 6111.693 | 7.670   | 0.000  | 3531.777 | -0.900 | 0.000  | 3506.826 | 0.000  | 0.000  |
| 85. | 6125.218 | 6.740   | 0.000  | 3530.887 | -0.750 | 0.000  | 3505.411 | 0.000  | 0.000  |
| 86. | 6136.844 | 5.630   | 0.000  | 3530.157 | -0.600 | 0.000  | 3504.219 | 0.000  | 0.000  |
| 87. | 6146.251 | 4.370   | 0.000  | 3529.589 | -0.450 | 0.000  | 3503.270 | 0.000  | 0.000  |
| 88. | 6153.173 | 2.990   | 0.000  | 3529.182 | -0.300 | 0.000  | 3502.500 | 0.000  | 0.000  |
| 89. | 6157.410 | 1.520   | 0.000  | 3528.938 | -0.150 | 0.000  | 3502.161 | 0.000  | 0.000  |
| 90. | 6158.836 | -0.800  | 0.000  | 3528.857 | 0.000  | 0.000  | 3502.021 | 0.000  | 0.000  |
| 91. | 6157.410 | -1.520  | 0.000  | 3528.938 | 0.150  | 0.000  | 3502.161 | 0.000  | 0.000  |
| 92. | 6153.173 | -2.990  | 0.000  | 3529.182 | 0.300  | 0.000  | 3502.500 | 0.000  | 0.000  |
| 93. | 6146.251 | -4.370  | 0.000  | 3529.589 | 0.450  | 0.000  | 3503.270 | 0.000  | 0.000  |
| 94. | 6136.844 | -5.630  | 0.000  | 3530.157 | 0.600  | 0.000  | 3504.219 | 0.000  | 0.000  |
| 95. | 6125.218 | -6.740  | 0.000  | 3530.887 | 0.750  | 0.000  | 3505.411 | 0.000  | 0.000  |
| 96. | 6111.693 | -7.670  | 0.000  | 3531.777 | 0.900  | 0.000  | 3506.826 | 0.000  | 0.000  |
| 97. | 6096.623 | -8.400  | 0.000  | 3532.825 | 1.050  | 0.000  | 3508.441 | 0.000  | 0.000  |
| 98. | 6080.387 | -8.940  | 0.000  | 3534.031 | 1.190  | 0.000  | 3510.231 | 0.000  | 0.000  |
| 99. | 6063.371 | -9.270  | 0.000  | 3535.393 | 1.340  | 0.000  | 3512.169 | 0.000  | 0.000  |

X-PLANE (YZ-PLANE) BARIUM SODIUM NIOBATE

BULK

|      | LNQWEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 6045.954 | -9.410 | -0.000 | 3536.909 | 1.480   | -0.000  | 3514.829 | 1.970   | -0.000  |
| 101. | 6028.499 | -9.370 | -0.000 | 3530.577 | 1.620   | -0.000  | 3516.384 | 2.050   | -0.000  |
| 102. | 6011.344 | -9.150 | -0.000 | 3540.394 | 1.750   | -0.000  | 3516.086 | 2.100   | -0.000  |
| 103. | 5994.794 | -8.760 | -0.000 | 3542.359 | 1.890   | -0.000  | 3520.873 | 2.120   | -0.000  |
| 104. | 5979.118 | -8.260 | -0.000 | 3544.469 | 2.020   | -0.000  | 3523.159 | 2.130   | -0.000  |
| 105. | 5964.548 | -7.630 | -0.000 | 3546.720 | 2.150   | -0.000  | 3525.466 | 2.120   | -0.000  |
| 106. | 5951.276 | -6.900 | -0.000 | 3549.110 | 2.270   | -0.000  | 3527.716 | 2.100   | -0.000  |
| 107. | 5939.459 | -6.080 | -0.000 | 3551.636 | 2.390   | -0.000  | 3529.953 | 2.060   | -0.000  |
| 108. | 5929.216 | -5.200 | -0.000 | 3554.294 | 2.510   | -0.000  | 3532.145 | 2.010   | -0.000  |
| 109. | 5920.637 | -4.280 | -0.000 | 3557.060 | 2.630   | -0.000  | 3534.284 | 1.960   | -0.000  |
| 110. | 5913.776 | -3.320 | -0.000 | 3559.992 | 2.740   | -0.000  | 3536.364 | 1.900   | -0.000  |
| 111. | 5908.674 | -2.340 | -0.000 | 3563.025 | 2.850   | -0.000  | 3538.380 | 1.840   | -0.000  |
| 112. | 5905.333 | -1.370 | -0.000 | 3566.115 | 2.950   | -0.000  | 3540.333 | 1.780   | -0.000  |
| 113. | 5903.747 | -0.400 | -0.000 | 3569.436 | 3.056   | -0.000  | 3542.222 | 1.720   | -0.000  |
| 114. | 5903.809 | .550   | -0.000 | 3572.810 | 3.140   | -0.000  | 3544.051 | 1.670   | -0.000  |
| 115. | 5905.720 | 1.460  | -0.000 | 3576.286 | 3.220   | -0.000  | 3545.823 | 1.620   | -0.000  |
| 116. | 5909.169 | 2.370  | 0.000  | 3579.862 | 3.320   | -0.000  | 3547.550 | 1.570   | -0.000  |
| 117. | 5914.236 | 3.220  | 0.000  | 3583.533 | 3.400   | -0.000  | 3549.231 | 1.540   | -0.000  |
| 118. | 5920.797 | 4.040  | 0.000  | 3587.295 | 3.480   | -0.000  | 3550.877 | 1.510   | -0.000  |
| 119. | 5928.790 | 4.800  | 0.000  | 3591.142 | 3.550   | -0.000  | 3552.496 | 1.480   | -0.000  |
| 120. | 5938.167 | 5.530  | 0.000  | 3595.070 | 3.620   | -0.000  | 3554.094 | 1.470   | -0.000  |
| 121. | 5948.825 | 6.200  | 0.000  | 3599.073 | 3.680   | -0.000  | 3555.682 | 1.460   | -0.000  |
| 122. | 5960.693 | 6.620  | 0.000  | 3603.147 | 3.740   | -0.000  | 3557.265 | 1.460   | -0.000  |
| 123. | 5973.693 | 7.400  | 0.000  | 3607.286 | 3.790   | -0.000  | 3558.852 | 1.470   | -0.000  |
| 124. | 5987.746 | 7.930  | 0.000  | 3611.485 | 3.846   | -0.000  | 3560.449 | 1.460   | -0.000  |
| 125. | 6002.773 | 8.410  | 0.000  | 3615.739 | 3.880   | -0.000  | 3562.064 | 1.500   | -0.000  |
| 126. | 6018.697 | 8.850  | 0.000  | 3620.042 | 3.920   | -0.000  | 3563.701 | 1.520   | -0.000  |
| 127. | 6035.444 | 9.240  | 0.000  | 3624.380 | 3.950   | -0.000  | 3565.365 | 1.550   | -0.000  |
| 128. | 6052.938 | 9.590  | 0.000  | 3628.774 | 3.980   | -0.000  | 3567.061 | 1.580   | -0.000  |
| 129. | 6071.110 | 9.900  | 0.000  | 3633.192 | 4.000   | -0.000  | 3568.793 | 1.610   | -0.000  |
| 130. | 6089.888 | 10.170 | 0.000  | 3637.638 | 4.024   | -0.000  | 3570.563 | 1.650   | -0.000  |
| 131. | 6109.200 | 10.400 | 0.000  | 3642.105 | 4.030   | -0.000  | 3572.374 | 1.680   | -0.000  |
| 132. | 6128.999 | 10.590 | 0.000  | 3646.599 | 4.040   | -0.000  | 3574.226 | 1.720   | -0.000  |
| 133. | 6149.204 | 10.760 | 0.000  | 3651.085 | 4.040   | -0.000  | 3576.120 | 1.760   | -0.000  |
| 134. | 6169.761 | 10.690 | 0.000  | 3655.565 | 4.040   | -0.000  | 3578.057 | 1.800   | -0.000  |
| 135. | 6190.610 | 10.990 | 0.000  | 3660.066 | 4.030   | -0.000  | 3580.036 | 1.830   | -0.000  |
| 136. | 6211.697 | 11.060 | 0.000  | 3664.581 | 4.020   | -0.000  | 3582.056 | 1.870   | -0.000  |
| 137. | 6232.967 | 11.100 | 0.000  | 3669.085 | 4.000   | -0.000  | 3584.115 | 1.900   | -0.000  |
| 138. | 6254.369 | 11.120 | 0.000  | 3673.592 | 3.990   | -0.000  | 3586.211 | 1.930   | -0.000  |
| 139. | 6275.853 | 11.110 | 0.000  | 3677.976 | 3.950   | -0.000  | 3588.341 | 1.960   | -0.000  |
| 140. | 6297.372 | 11.080 | 0.000  | 3682.337 | 3.920   | -0.000  | 3590.503 | 1.990   | -0.000  |
| 141. | 6318.879 | 11.020 | 0.000  | 3686.703 | 3.880   | -0.000  | 3592.692 | 2.010   | -0.000  |
| 142. | 6340.331 | 10.950 | 0.000  | 3691.132 | 3.840   | -0.000  | 3594.907 | 2.030   | -0.000  |
| 143. | 6361.685 | 10.860 | 0.000  | 3695.438 | 3.800   | -0.000  | 3597.142 | 2.050   | -0.000  |
| 144. | 6382.982 | 10.740 | 0.000  | 3699.696 | 3.750   | -0.000  | 3599.393 | 2.060   | -0.000  |
| 145. | 6403.943 | 10.610 | 0.000  | 3703.902 | 3.700   | -0.000  | 3601.656 | 2.070   | -0.000  |
| 146. | 6424.771 | 10.460 | 0.000  | 3708.069 | 3.640   | -0.000  | 3603.927 | 2.070   | -0.000  |
| 147. | 6445.350 | 10.300 | 0.000  | 3712.134 | 3.580   | -0.000  | 3606.200 | 2.060   | -0.000  |
| 148. | 6465.646 | 10.120 | 0.000  | 3716.152 | 3.510   | -0.000  | 3608.472 | 2.060   | -0.000  |
| 149. | 6485.627 | 9.930  | 0.000  | 3720.097 | 3.440   | -0.000  | 3610.737 | 2.050   | -0.000  |

X-PLANE (YZ-PLANE) BARIUM SODIUM NIOBATE

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 6505.262 | 9.720  | 0.000  | 3723.966 | 3.370   | -0.000  | 3612.990 | 2.040   | 0.000   |
| 151. | 6525.521 | 9.500  | 0.000  | 3727.754 | 3.300   | -0.000  | 3615.226 | 2.020   | 0.000   |
| 152. | 6543.375 | 9.270  | 0.000  | 3731.456 | 3.210   | -0.000  | 3617.441 | 2.000   | 0.000   |
| 153. | 6561.798 | 9.030  | 0.000  | 3735.065 | 3.130   | -0.000  | 3619.629 | 1.970   | 0.000   |
| 154. | 6579.763 | 8.780  | 0.000  | 3738.568 | 3.040   | -0.000  | 3621.786 | 1.940   | 0.000   |
| 155. | 6597.246 | 8.510  | 0.000  | 3742.009 | 2.950   | -0.000  | 3623.907 | 1.900   | 0.000   |
| 156. | 6614.223 | 8.240  | 0.000  | 3745.328 | 2.860   | -0.000  | 3625.986 | 1.860   | 0.000   |
| 157. | 6630.672 | 7.960  | 0.000  | 3748.542 | 2.760   | -0.000  | 3628.020 | 1.820   | 0.000   |
| 158. | 6646.571 | 7.670  | 0.000  | 3751.646 | 2.670   | -0.000  | 3630.004 | 1.770   | 0.000   |
| 159. | 6661.901 | 7.370  | 0.000  | 3754.638 | 2.560   | -0.000  | 3631.933 | 1.720   | 0.000   |
| 160. | 6676.641 | 7.060  | 0.000  | 3757.514 | 2.460   | -0.000  | 3633.804 | 1.660   | 0.000   |
| 161. | 6690.774 | 6.750  | 0.000  | 3760.270 | 2.350   | -0.000  | 3635.611 | 1.600   | 0.000   |
| 162. | 6704.283 | 6.430  | 0.000  | 3762.904 | 2.240   | -0.000  | 3637.350 | 1.540   | 0.000   |
| 163. | 6717.151 | 6.110  | 0.000  | 3765.413 | 2.130   | -0.000  | 3639.019 | 1.470   | 0.000   |
| 164. | 6729.363 | 5.780  | 0.000  | 3767.794 | 2.020   | -0.000  | 3640.613 | 1.400   | 0.000   |
| 165. | 6740.905 | 5.440  | 0.000  | 3770.044 | 1.900   | -0.000  | 3642.129 | 1.330   | 0.000   |
| 166. | 6751.764 | 5.100  | 0.000  | 3772.161 | 1.780   | -0.000  | 3643.563 | 1.250   | 0.000   |
| 167. | 6761.927 | 4.750  | 0.000  | 3774.142 | 1.660   | -0.000  | 3644.912 | 1.180   | 0.000   |
| 168. | 6771.363 | 4.400  | 0.000  | 3775.985 | 1.540   | -0.000  | 3646.173 | 1.100   | 0.000   |
| 169. | 6780.121 | 4.050  | 0.000  | 3777.688 | 1.420   | -0.000  | 3647.344 | 1.010   | 0.000   |
| 170. | 6788.131 | 3.690  | 0.000  | 3779.250 | 1.290   | -0.000  | 3648.422 | .930    | 0.000   |
| 171. | 6795.405 | 3.330  | 0.000  | 3780.666 | 1.170   | -0.000  | 3649.404 | .848    | -0.000  |
| 172. | 6801.935 | 2.970  | 0.000  | 3781.941 | 1.040   | -0.000  | 3650.286 | .750    | -0.000  |
| 173. | 6807.713 | 2.600  | 0.000  | 3783.068 | .910    | -0.000  | 3651.074 | .660    | -0.000  |
| 174. | 6812.733 | 2.230  | 0.000  | 3784.046 | .780    | -0.000  | 3651.757 | .570    | -0.000  |
| 175. | 6816.990 | 1.860  | 0.000  | 3784.877 | .660    | -0.000  | 3652.339 | .480    | -0.000  |
| 176. | 6820.479 | 1.490  | 0.000  | 3785.557 | .520    | -0.000  | 3652.816 | .388    | -0.000  |
| 177. | 6823.197 | 1.120  | 0.000  | 3786.087 | .390    | -0.000  | 3653.166 | .290    | -0.000  |
| 178. | 6825.140 | .750   | 0.000  | 3786.466 | .260    | -0.000  | 3653.455 | .190    | -0.000  |
| 179. | 6826.307 | .370   | 0.000  | 3786.694 | .130    | -0.000  | 3653.615 | .100    | -0.000  |
| 180. | 6826.696 | -0.000 | 0.000  | 3786.769 | -0.000  | -0.000  | 3653.666 | -0.000  | -0.000  |

Y-PLANE (X7-PLANE) CAPTUM SCOTUP NICATE

|     | LXVEL    | LY-112   | LY-113 | FSRVEL   | FSP-112  | FSP-113 | SSRVEL   | SSP-112 | SSP-113 |
|-----|----------|----------|--------|----------|----------|---------|----------|---------|---------|
| 0.  | 6715.232 | 0.600    | 0.000  | 2786.769 | 0.000    | 0.000   | 2638.239 | 0.000   | 0.000   |
| 1.  | 6714.866 | -2.260   | 0.000  | 2786.696 | -1.348   | -0.000  | 2638.156 | 0.000   | 0.000   |
| 2.  | 6713.766 | -7.200   | 0.000  | 2786.476 | -2.290   | -0.000  | 2637.976 | 0.000   | 0.000   |
| 3.  | 6711.926 | -11.070  | 0.000  | 2786.016 | -4.930   | -0.000  | 2637.673 | 0.000   | 0.000   |
| 4.  | 6705.374 | -14.720  | 0.000  | 2785.476 | -7.580   | -0.000  | 2637.251 | 0.000   | 0.000   |
| 5.  | 6706.087 | -17.750  | 0.000  | 2784.667 | -10.220  | -0.000  | 2636.710 | 0.000   | 0.000   |
| 6.  | 6702.675 | -21.140  | 0.000  | 2783.774 | -12.860  | -0.000  | 2636.052 | 0.000   | 0.000   |
| 7.  | 6657.344 | -24.650  | 0.000  | 2782.657 | -15.490  | -0.000  | 2635.280 | 0.000   | 0.000   |
| 8.  | 6653.658 | -27.640  | 0.000  | 2781.458 | -18.120  | -0.000  | 2634.396 | 0.000   | 0.000   |
| 9.  | 6695.747 | -31.150  | 0.000  | 2780.057 | -20.750  | -0.000  | 2629.442 | 0.000   | 0.000   |
| 10. | 6678.885 | -34.640  | 0.000  | 2778.457 | -23.380  | -0.000  | 2628.382 | 0.000   | 0.000   |
| 11. | 6671.332 | -37.880  | 0.000  | 2776.775 | -25.990  | -0.000  | 2627.101 | 0.000   | 0.000   |
| 12. | 6663.052 | -41.220  | 0.000  | 2774.905 | -28.580  | -0.000  | 2625.681 | 0.000   | 0.000   |
| 13. | 6654.173 | -44.650  | 0.000  | 2772.877 | -31.150  | -0.000  | 2624.086 | 0.000   | 0.000   |
| 14. | 6644.586 | -48.200  | 0.000  | 2770.657 | -33.700  | -0.000  | 2622.252 | 0.000   | 0.000   |
| 15. | 6634.336 | -51.820  | 0.000  | 2768.267 | -36.220  | -0.000  | 2620.133 | 0.000   | 0.000   |
| 16. | 6623.446 | -55.460  | 0.000  | 2765.651 | -38.720  | -0.000  | 2617.785 | 0.000   | 0.000   |
| 17. | 6611.918 | -59.120  | 0.000  | 2762.871 | -41.190  | -0.000  | 2615.262 | 0.000   | 0.000   |
| 18. | 6600.768 | -62.800  | 0.000  | 2760.010 | -43.630  | -0.000  | 2612.513 | 0.000   | 0.000   |
| 19. | 6577.030 | -66.700  | 0.000  | 2757.010 | -46.040  | -0.000  | 2610.494 | 0.000   | 0.000   |
| 20. | 6572.654 | -70.600  | 0.000  | 2754.576 | -48.420  | -0.000  | 2611.448 | 0.000   | 0.000   |
| 21. | 6555.725 | -74.600  | 0.000  | 2751.410 | -50.780  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 22. | 6545.240 | -78.600  | 0.000  | 2748.116 | -53.120  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 23. | 6530.207 | -82.600  | 0.000  | 2744.657 | -55.440  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 24. | 6514.650 | -86.600  | 0.000  | 2741.155 | -57.740  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 25. | 6498.585 | -90.600  | 0.000  | 2737.502 | -60.020  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 26. | 6472.044 | -94.440  | 0.000  | 2732.735 | -62.280  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 27. | 6455.027 | -98.200  | 0.000  | 2728.660 | -64.520  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 28. | 6447.551 | -101.900 | 0.000  | 2725.080 | -66.740  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 29. | 6425.721 | -105.600 | 0.000  | 2721.601 | -68.940  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 30. | 6411.482 | -109.200 | 0.000  | 2717.622 | -71.120  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 31. | 6392.871 | -112.700 | 0.000  | 2713.264 | -73.280  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 32. | 6377.026 | -116.100 | 0.000  | 2709.016 | -75.420  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 33. | 6358.677 | -119.500 | 0.000  | 2704.588 | -77.540  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 34. | 6335.154 | -122.800 | 0.000  | 2700.085 | -79.640  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 35. | 6315.350 | -126.000 | 0.000  | 2695.512 | -81.720  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 36. | 6295.420 | -129.200 | 0.000  | 2690.876 | -83.780  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 37. | 6275.278 | -132.400 | 0.000  | 2686.180 | -85.820  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 38. | 6255.002 | -135.500 | 0.000  | 2681.421 | -87.840  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 39. | 6234.634 | -138.600 | 0.000  | 2676.625 | -89.840  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 40. | 6214.213 | -141.700 | 0.000  | 2671.756 | -91.820  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 41. | 6193.782 | -144.800 | 0.000  | 2666.852 | -93.780  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 42. | 6173.266 | -147.900 | 0.000  | 2662.016 | -95.720  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 43. | 6152.675 | -150.900 | 0.000  | 2657.086 | -97.640  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 44. | 6132.057 | -153.900 | 0.000  | 2652.127 | -99.540  | -0.000  | 2611.442 | 0.000   | 0.000   |
| 45. | 6111.384 | -156.800 | 0.000  | 2647.175 | -101.420 | -0.000  | 2611.442 | 0.000   | 0.000   |
| 46. | 6090.652 | -159.700 | 0.000  | 2642.207 | -103.280 | -0.000  | 2611.442 | 0.000   | 0.000   |
| 47. | 6070.052 | -162.600 | 0.000  | 2637.230 | -105.120 | -0.000  | 2611.442 | 0.000   | 0.000   |
| 48. | 6054.601 | -165.500 | 0.000  | 2632.274 | -106.940 | -0.000  | 2611.442 | 0.000   | 0.000   |
| 49. | 6035.925 | -168.400 | 0.000  | 2627.322 | -108.740 | -0.000  | 2611.442 | 0.000   | 0.000   |



Y-PLANE (XZ-PLANE) EFFILP SCIIUM NICEATE

|     | LAGVEL   | LPM112  | LPM111 | FSPM111  | FSPM112 | FSPM113 | SSPM111  | SSPM112 | SSPM113 |
|-----|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 6037.734 | -5.650  | 0.000  | 3622.327 | -4.450  | -0.000  | 3565.510 | -0.380  | 0.000   |
| 51. | 6006.058 | -5.440  | 0.000  | 3637.476 | -4.440  | -0.000  | 3565.231 | -0.210  | 0.000   |
| 52. | 5983.096 | -5.070  | 0.000  | 3652.594 | -4.430  | -0.000  | 3565.043 | -0.130  | 0.000   |
| 53. | 5966.773 | -4.760  | 0.000  | 3667.748 | -4.420  | -0.000  | 3564.937 | 0.000   | -0.000  |
| 54. | 5959.236 | -4.260  | 0.000  | 3682.944 | -4.350  | -0.000  | 3564.907 | 0.000   | -0.000  |
| 55. | 5956.557 | -7.820  | 0.000  | 3598.169 | -4.310  | -0.000  | 3565.016 | 0.050   | -0.000  |
| 56. | 5922.705 | -7.320  | 0.000  | 3592.462 | -4.260  | -0.000  | 3565.016 | 0.050   | -0.000  |
| 57. | 5916.075 | -6.770  | 0.000  | 3588.444 | -4.210  | -0.000  | 3565.130 | 0.120   | -0.000  |
| 58. | 5958.446 | -6.120  | 0.000  | 3584.267 | -4.150  | -0.000  | 3565.262 | 0.120   | -0.000  |
| 59. | 5908.032 | -5.480  | 0.000  | 3579.762 | -4.090  | -0.000  | 3565.395 | 0.120   | -0.000  |
| 60. | 5877.859 | -4.750  | 0.000  | 3575.325 | -4.020  | -0.000  | 3565.512 | 0.050   | -0.000  |
| 61. | 5871.085 | -3.660  | 0.000  | 3570.650 | -3.952  | -0.000  | 3565.592 | 0.050   | -0.000  |
| 62. | 5864.682 | -2.310  | 0.000  | 3566.724 | -3.870  | -0.000  | 3565.618 | -0.010  | -0.000  |
| 63. | 5858.667 | -2.260  | 0.000  | 3562.572 | -3.780  | -0.000  | 3565.568 | -0.050  | 0.000   |
| 64. | 5856.636 | -1.350  | 0.000  | 3558.510 | -3.690  | -0.000  | 3565.423 | -0.100  | 0.000   |
| 65. | 5855.092 | -1.350  | 0.000  | 3554.522 | -3.600  | -0.000  | 3565.164 | -0.300  | 0.000   |
| 66. | 5855.266 | 1.600   | 0.000  | 3550.705 | -3.500  | -0.000  | 3564.772 | -0.450  | 0.000   |
| 67. | 5853.240 | 1.650   | 0.000  | 3546.673 | -3.400  | -0.000  | 3564.233 | -0.576  | 0.000   |
| 68. | 5851.042 | 2.650   | 0.000  | 3542.368 | -3.250  | -0.000  | 3562.653 | -0.720  | 0.000   |
| 69. | 5866.667 | 3.680   | -0.000 | 3538.673 | -3.170  | -0.000  | 3562.656 | -0.650  | 0.000   |
| 70. | 5876.210 | 4.710   | -0.000 | 3536.515 | -3.050  | -0.000  | 3561.600 | -0.600  | 0.000   |
| 71. | 5885.564 | 5.730   | -0.000 | 3532.260 | -2.930  | -0.000  | 3560.335 | -1.270  | 0.000   |
| 72. | 5896.715 | 6.670   | -0.000 | 3528.064 | -2.800  | -0.000  | 3558.950 | -1.400  | 0.000   |
| 73. | 5908.551 | 7.550   | -0.000 | 3522.864 | -2.670  | -0.000  | 3557.332 | -1.500  | 0.000   |
| 74. | 5922.095 | 8.410   | -0.000 | 3517.664 | -2.530  | -0.000  | 3555.563 | -1.570  | 0.000   |
| 75. | 5937.067 | 9.130   | -0.000 | 3512.615 | -2.400  | -0.000  | 3553.642 | -1.600  | 0.000   |
| 76. | 5954.348 | 9.750   | -0.000 | 3507.821 | -2.250  | -0.000  | 3551.591 | -1.600  | 0.000   |
| 77. | 5973.716 | 10.240  | -0.000 | 3503.284 | -2.110  | -0.000  | 3549.436 | -1.500  | 0.000   |
| 78. | 5995.996 | 10.570  | -0.000 | 3500.007 | -1.960  | -0.000  | 3547.205 | -1.300  | 0.000   |
| 79. | 6018.632 | 10.770  | -0.000 | 3500.007 | -1.800  | -0.000  | 3544.945 | -1.100  | 0.000   |
| 80. | 6032.550 | 10.760  | -0.000 | 3500.045 | -1.650  | -0.000  | 3542.682 | -0.800  | 0.000   |
| 81. | 6048.289 | 10.460  | -0.000 | 3505.265 | -1.490  | -0.000  | 3540.461 | -0.500  | 0.000   |
| 82. | 6071.444 | 10.040  | -0.000 | 3507.756 | -1.330  | -0.000  | 3538.325 | -0.200  | 0.000   |
| 83. | 6095.701 | 9.400   | -0.000 | 3508.419 | -1.170  | -0.000  | 3536.315 | -0.700  | 0.000   |
| 84. | 6105.540 | 8.550   | -0.000 | 3508.267 | -1.010  | -0.000  | 3534.474 | -1.400  | 0.000   |
| 85. | 6121.600 | 7.460   | -0.000 | 3508.291 | -0.840  | -0.000  | 3532.041 | -1.400  | 0.000   |
| 86. | 6135.507 | 6.280   | -0.000 | 3508.663 | -0.670  | -0.000  | 3530.451 | -1.170  | 0.000   |
| 87. | 6149.922 | 4.880   | -0.000 | 3508.663 | -0.510  | -0.000  | 3529.336 | -0.900  | 0.000   |
| 88. | 6158.582 | 3.280   | -0.000 | 3508.082 | -0.340  | -0.000  | 3528.521 | -0.630  | 0.000   |
| 89. | 6157.262 | 1.670   | -0.000 | 3502.111 | -0.170  | -0.000  | 3528.024 | -0.210  | 0.000   |
| 90. | 6158.636 | -0.000  | -0.000 | 3502.021 | 0.000   | -0.000  | 3528.057 | 0.000   | 0.000   |
| 91. | 6157.262 | -0.600  | -0.000 | 3502.111 | 0.000   | -0.000  | 3529.024 | 0.310   | 0.000   |
| 92. | 6158.502 | -0.330  | -0.000 | 3502.382 | 0.340   | -0.000  | 3529.521 | 0.610   | 0.000   |
| 93. | 6149.922 | -0.280  | -0.000 | 3502.663 | 0.510   | -0.000  | 3530.332 | 0.980   | 0.000   |
| 94. | 6138.507 | -0.280  | -0.000 | 3502.663 | 0.670   | -0.000  | 3531.451 | 1.170   | 0.000   |
| 95. | 6121.600 | -0.280  | -0.000 | 3504.271 | 0.670   | -0.000  | 3532.641 | 1.410   | 0.000   |
| 96. | 6106.540 | -0.950  | -0.000 | 3505.957 | 1.010   | -0.000  | 3534.474 | 1.680   | 0.000   |
| 97. | 6085.701 | -0.440  | -0.000 | 3508.419 | 1.170   | -0.000  | 3536.315 | 1.700   | 0.000   |
| 98. | 6071.444 | -10.040 | -0.000 | 3507.756 | 1.330   | -0.000  | 3538.325 | 1.900   | 0.000   |
| 99. | 6052.248 | -10.410 | -0.000 | 3506.663 | 1.490   | -0.000  | 3540.461 | 2.000   | 0.000   |

V-PLANE (XZ-PLANE) EARLIUM SCCTIUM NICKARTE

|      | LNVEL    | LFPI12  | LPPI12 | FSRVEL   | FSPI12 | SSRVEL   | SSPI12 | SSRM12 |
|------|----------|---------|--------|----------|--------|----------|--------|--------|
| 100. | 6022.550 | -10.770 | -0.000 | 2510.946 | 1.658  | 2542.602 | 2.460  | 0.000  |
| 101. | 6012.672 | -10.770 | -0.000 | 2512.752 | 1.800  | 2544.905 | 2.180  | 0.000  |
| 102. | 5952.905 | -10.570 | -0.000 | 2514.407 | 1.566  | 2547.285 | 2.000  | 0.000  |
| 103. | 5972.715 | -10.240 | -0.000 | 2516.984 | 2.110  | 2549.476 | 2.020  | 0.000  |
| 104. | 5955.348 | -9.750  | -0.000 | 2519.921 | 2.255  | 2551.591 | 1.950  | 0.000  |
| 105. | 5928.067 | -9.120  | -0.000 | 2521.815 | 2.400  | 2553.642 | 1.800  | 0.000  |
| 106. | 5922.085 | -8.400  | -0.000 | 2524.463 | 2.520  | 2555.553 | 1.710  | 0.000  |
| 107. | 5907.551 | -7.570  | -0.000 | 2527.260 | 2.677  | 2557.332 | 1.550  | 0.000  |
| 108. | 5894.715 | -6.670  | -0.000 | 2530.204 | 2.800  | 2558.985 | 1.400  | 0.000  |
| 109. | 5882.564 | -5.710  | -0.000 | 2533.250 | 2.920  | 2560.535 | 1.220  | 0.000  |
| 110. | 5874.210 | -4.710  | -0.000 | 2536.415 | 3.050  | 2561.980 | 1.050  | 0.000  |
| 111. | 5866.657 | -3.660  | -0.000 | 2539.672 | 3.170  | 2563.336 | 0.850  | 0.000  |
| 112. | 5861.042 | -2.560  | -0.000 | 2542.960 | 3.260  | 2564.531 | 0.720  | 0.000  |
| 113. | 5857.240 | -1.420  | -0.000 | 2546.292 | 3.400  | 2564.233 | 0.570  | 0.000  |
| 114. | 5855.266 | -0.260  | -0.000 | 2549.670 | 3.500  | 2564.272 | 0.430  | 0.000  |
| 115. | 5855.082 | 0.760   | 0.000  | 2553.092 | 3.600  | 2564.154 | 0.300  | 0.000  |
| 116. | 5856.626 | 1.760   | 0.000  | 2556.550 | 3.690  | 2563.423 | 0.180  | 0.000  |
| 117. | 5859.862 | 2.740   | 0.000  | 2560.042 | 3.760  | 2562.566 | 0.050  | 0.000  |
| 118. | 5864.652 | 3.700   | 0.000  | 2563.572 | 3.820  | 2561.518 | -0.010 | 0.000  |
| 119. | 5871.045 | 4.640   | 0.000  | 2570.090 | 3.950  | 2560.292 | -0.050 | 0.000  |
| 120. | 5878.850 | 5.560   | 0.000  | 2576.735 | 4.020  | 2558.952 | -0.080 | 0.000  |
| 121. | 5888.012 | 6.460   | 0.000  | 2583.502 | 4.090  | 2557.395 | -0.120 | 0.000  |
| 122. | 5898.445 | 7.340   | 0.000  | 2590.387 | 4.150  | 2555.622 | -0.150 | 0.000  |
| 123. | 5910.075 | 8.200   | 0.000  | 2597.394 | 4.210  | 2553.610 | -0.180 | 0.000  |
| 124. | 5922.805 | 9.040   | 0.000  | 2604.524 | 4.260  | 2551.310 | -0.200 | 0.000  |
| 125. | 5936.551 | 9.860   | 0.000  | 2611.776 | 4.310  | 2548.687 | -0.220 | 0.000  |
| 126. | 5951.226 | 10.660  | 0.000  | 2619.144 | 4.350  | 2545.807 | -0.240 | 0.000  |
| 127. | 5966.772 | 11.440  | 0.000  | 2626.620 | 4.380  | 2542.638 | -0.260 | 0.000  |
| 128. | 5983.188 | 12.200  | 0.000  | 2634.204 | 4.410  | 2539.202 | -0.270 | 0.000  |
| 129. | 6000.458 | 12.940  | 0.000  | 2641.896 | 4.440  | 2535.541 | -0.280 | 0.000  |
| 130. | 6017.724 | 13.660  | 0.000  | 2649.697 | 4.450  | 2531.695 | -0.290 | 0.000  |
| 131. | 6035.925 | 14.360  | 0.000  | 2657.608 | 4.470  | 2527.697 | -0.290 | 0.000  |
| 132. | 6054.601 | 15.040  | 0.000  | 2665.629 | 4.470  | 2523.487 | -0.280 | 0.000  |
| 133. | 6073.658 | 15.700  | 0.000  | 2673.760 | 4.470  | 2519.002 | -0.260 | 0.000  |
| 134. | 6093.112 | 16.340  | 0.000  | 2682.002 | 4.470  | 2514.281 | -0.230 | 0.000  |
| 135. | 6112.904 | 16.960  | 0.000  | 2690.355 | 4.460  | 2509.360 | -0.190 | 0.000  |
| 136. | 6132.967 | 17.560  | 0.000  | 2698.819 | 4.450  | 2504.285 | -0.140 | 0.000  |
| 137. | 6153.207 | 18.140  | 0.000  | 2707.394 | 4.430  | 2499.092 | -0.080 | 0.000  |
| 138. | 6173.626 | 18.700  | 0.000  | 2716.070 | 4.400  | 2493.815 | -0.010 | 0.000  |
| 139. | 6193.222 | 19.240  | 0.000  | 2724.848 | 4.370  | 2488.397 | 0.050  | 0.000  |
| 140. | 6214.002 | 19.760  | 0.000  | 2733.728 | 4.330  | 2482.882 | 0.120  | 0.000  |
| 141. | 6234.863 | 20.260  | 0.000  | 2742.700 | 4.290  | 2477.213 | 0.190  | 0.000  |
| 142. | 6255.807 | 20.740  | 0.000  | 2751.765 | 4.250  | 2471.435 | 0.250  | 0.000  |
| 143. | 6276.827 | 21.200  | 0.000  | 2760.921 | 4.200  | 2465.594 | 0.300  | 0.000  |
| 144. | 6297.920 | 21.640  | 0.000  | 2770.168 | 4.140  | 2459.636 | 0.340  | 0.000  |
| 145. | 6318.180 | 22.060  | 0.000  | 2779.506 | 4.080  | 2453.607 | 0.370  | 0.000  |
| 146. | 6338.614 | 22.460  | 0.000  | 2788.935 | 4.020  | 2447.554 | 0.390  | 0.000  |
| 147. | 6358.227 | 22.840  | 0.000  | 2798.455 | 3.950  | 2441.424 | 0.400  | 0.000  |
| 148. | 6378.026 | 23.200  | 0.000  | 2808.066 | 3.880  | 2435.264 | 0.400  | 0.000  |
| 149. | 6398.011 | 23.550  | 0.000  | 2817.768 | 3.800  | 2429.031 | 0.390  | 0.000  |

Y-PLANE (XZ-PLANE) EFFIUM SCIIUP NICRATE

|      | LPGWFL   | LPH112 | LPH113 | FSFVEL   | FSP112 | FSP113 | SSRVEL   | SSP112 | SSP113 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 150. | 6411.482 | 9.350  | 0.000  | 3717.628 | 3.720  | -0.000 | 3551.907 | 1.670  | 0.000  |
| 151. | 6425.731 | 9.140  | 0.000  | 3721.001 | 3.640  | -0.000 | 3553.964 | 1.650  | 0.000  |
| 152. | 6442.561 | 8.920  | 0.000  | 3725.886 | 3.550  | -0.000 | 3556.042 | 1.630  | 0.000  |
| 153. | 6462.077 | 8.680  | 0.000  | 3732.060 | 3.450  | -0.000 | 3558.131 | 1.610  | 0.000  |
| 154. | 6482.044 | 8.440  | 0.000  | 3739.325 | 3.360  | -0.000 | 3560.225 | 1.590  | 0.000  |
| 155. | 6499.580 | 8.190  | 0.000  | 3747.583 | 3.260  | -0.000 | 3562.315 | 1.570  | 0.000  |
| 156. | 6514.655 | 7.950  | 0.000  | 3756.852 | 3.150  | -0.000 | 3564.392 | 1.550  | 0.000  |
| 157. | 6530.207 | 7.690  | 0.000  | 3767.116 | 3.050  | -0.000 | 3566.451 | 1.530  | 0.000  |
| 158. | 6545.240 | 7.390  | 0.000  | 3778.410 | 2.940  | -0.000 | 3568.462 | 1.510  | 0.000  |
| 159. | 6555.720 | 7.080  | 0.000  | 3790.676 | 2.820  | -0.000 | 3570.479 | 1.490  | 0.000  |
| 160. | 6571.650 | 6.760  | 0.000  | 3804.826 | 2.710  | -0.000 | 3572.434 | 1.470  | 0.000  |
| 161. | 6587.010 | 6.460  | 0.000  | 3820.810 | 2.590  | -0.000 | 3574.341 | 1.450  | 0.000  |
| 162. | 6595.744 | 6.170  | 0.000  | 3838.517 | 2.470  | -0.000 | 3576.193 | 1.430  | 0.000  |
| 163. | 6595.744 | 5.890  | 0.000  | 3857.971 | 2.350  | -0.000 | 3577.982 | 1.550  | 0.000  |
| 164. | 6623.446 | 5.540  | 0.000  | 3879.181 | 2.220  | -0.000 | 3579.705 | 1.530  | 0.000  |
| 165. | 6634.370 | 5.220  | 0.000  | 3892.167 | 2.090  | -0.000 | 3581.353 | 1.480  | 0.000  |
| 166. | 6644.516 | 4.920  | 0.000  | 3906.927 | 1.960  | -0.000 | 3582.922 | 1.380  | 0.000  |
| 167. | 6654.173 | 4.560  | 0.000  | 3923.457 | 1.830  | -0.000 | 3584.406 | 1.300  | 0.000  |
| 168. | 6663.062 | 4.250  | 0.000  | 3941.765 | 1.700  | -0.000 | 3585.801 | 1.250  | 0.000  |
| 169. | 6671.322 | 3.890  | 0.000  | 3961.775 | 1.560  | -0.000 | 3587.101 | 1.150  | 0.000  |
| 170. | 6678.845 | 3.510  | 0.000  | 3983.457 | 1.420  | -0.000 | 3588.307 | 1.080  | 0.000  |
| 171. | 6685.747 | 3.150  | 0.000  | 3996.857 | 1.280  | -0.000 | 3589.403 | .950   | 0.000  |
| 172. | 6691.850 | 2.810  | 0.000  | 4011.957 | 1.150  | -0.000 | 3590.296 | .850   | 0.000  |
| 173. | 6697.164 | 2.490  | 0.000  | 4028.767 | 1.020  | -0.000 | 3591.200 | .750   | 0.000  |
| 174. | 6702.075 | 2.140  | 0.000  | 4047.274 | .860   | -0.000 | 3592.053 | .650   | 0.000  |
| 175. | 6706.087 | 1.750  | 0.000  | 4067.487 | .720   | -0.000 | 3592.710 | .540   | 0.000  |
| 176. | 6709.374 | 1.420  | 0.000  | 4089.316 | .580   | -0.000 | 3593.251 | .440   | 0.000  |
| 177. | 6711.935 | 1.070  | 0.000  | 4095.826 | .430   | -0.000 | 3593.672 | .350   | 0.000  |
| 178. | 6712.766 | .720   | 0.000  | 4095.426 | .280   | -0.000 | 3593.976 | .280   | 0.000  |
| 179. | 6714.865 | .360   | 0.000  | 4095.686 | .140   | -0.000 | 3594.158 | .180   | 0.000  |
| 180. | 6715.232 | -0.000 | -0.000 | 4095.765 | -0.000 | -0.000 | 3594.215 | -0.000 | -0.000 |

2-FLARE (XY-PLANE) BARIUM SODIUM NIOBATE

|     | LAGVEL   | LPM12 | LPM13 | FSEVEL   | FSPM12 | FSPM13 | SSRMEL   | SSPM12 | SSPM13 |
|-----|----------|-------|-------|----------|--------|--------|----------|--------|--------|
| 0.  | 6715.22  | 0.000 | 0.000 | 3766.769 | 0.000  | 0.000  | 3324.219 | 0.000  | 0.000  |
| 1.  | 6715.362 | 1.180 | 0.000 | 3766.559 | -0.370 | 0.000  | 3324.224 | 0.000  | 0.000  |
| 2.  | 6715.843 | 1.880 | 0.000 | 3715.928 | -0.730 | 0.000  | 3324.238 | 0.000  | 0.000  |
| 3.  | 6716.605 | 2.650 | 0.000 | 3704.060 | -1.050 | 0.000  | 3324.262 | 0.000  | 0.000  |
| 4.  | 6717.668 | 3.500 | 0.000 | 3702.421 | -1.440 | 0.000  | 3324.296 | 0.000  | 0.000  |
| 5.  | 6719.021 | 4.420 | 0.000 | 3701.559 | -1.790 | 0.000  | 3324.340 | 0.000  | 0.000  |
| 6.  | 6720.664 | 5.400 | 0.000 | 3701.302 | -2.120 | 0.000  | 3324.393 | 0.000  | 0.000  |
| 7.  | 6722.568 | 6.450 | 0.000 | 3700.655 | -2.450 | 0.000  | 3324.456 | 0.000  | 0.000  |
| 8.  | 6724.762 | 7.580 | 0.000 | 3700.659 | -2.770 | 0.000  | 3324.528 | 0.000  | 0.000  |
| 9.  | 6727.227 | 8.780 | 0.000 | 3700.302 | -3.070 | 0.000  | 3324.610 | 0.000  | 0.000  |
| 10. | 6730.942 | 1.000 | 0.000 | 3766.611 | -3.350 | 0.000  | 3324.701 | 0.000  | 0.000  |
| 11. | 6732.844 | 1.450 | 0.000 | 3762.504 | -3.620 | 0.000  | 3324.802 | 0.000  | 0.000  |
| 12. | 6736.846 | 1.900 | 0.000 | 3758.304 | -3.870 | 0.000  | 3324.913 | 0.000  | 0.000  |
| 13. | 6739.424 | 2.350 | 0.000 | 3753.727 | -4.100 | 0.000  | 3325.032 | 0.000  | 0.000  |
| 14. | 6742.955 | 2.770 | 0.000 | 3748.912 | -4.310 | 0.000  | 3325.162 | 0.000  | 0.000  |
| 15. | 6746.741 | 3.150 | 0.000 | 3743.871 | -4.500 | 0.000  | 3325.300 | 0.000  | 0.000  |
| 16. | 6750.651 | 3.540 | 0.000 | 3738.611 | -4.670 | 0.000  | 3325.442 | 0.000  | 0.000  |
| 17. | 6754.766 | 3.880 | 0.000 | 3733.221 | -4.810 | 0.000  | 3325.604 | 0.000  | 0.000  |
| 18. | 6759.050 | 4.180 | 0.000 | 3727.662 | -4.930 | 0.000  | 3325.770 | 0.000  | 0.000  |
| 19. | 6763.485 | 4.440 | 0.000 | 3722.060 | -5.030 | 0.000  | 3325.945 | 0.000  | 0.000  |
| 20. | 6767.973 | 4.660 | 0.000 | 3716.246 | -5.100 | 0.000  | 3326.128 | 0.000  | 0.000  |
| 21. | 6772.507 | 4.840 | 0.000 | 3710.225 | -5.140 | 0.000  | 3326.320 | 0.000  | 0.000  |
| 22. | 6776.560 | 4.980 | 0.000 | 3704.055 | -5.170 | 0.000  | 3326.521 | 0.000  | 0.000  |
| 23. | 6781.122 | 5.080 | 0.000 | 3697.755 | -5.160 | 0.000  | 3326.730 | 0.000  | 0.000  |
| 24. | 6785.768 | 5.140 | 0.000 | 3691.345 | -5.130 | 0.000  | 3326.948 | 0.000  | 0.000  |
| 25. | 6790.360 | 5.160 | 0.000 | 3684.833 | -5.070 | 0.000  | 3327.174 | 0.000  | 0.000  |
| 26. | 6794.860 | 5.140 | 0.000 | 3678.222 | -4.990 | 0.000  | 3327.408 | 0.000  | 0.000  |
| 27. | 6799.237 | 5.080 | 0.000 | 3671.522 | -4.890 | 0.000  | 3327.649 | 0.000  | 0.000  |
| 28. | 6803.942 | 4.980 | 0.000 | 3664.811 | -4.760 | 0.000  | 3327.899 | 0.000  | 0.000  |
| 29. | 6808.352 | 4.840 | 0.000 | 3658.095 | -4.610 | 0.000  | 3328.156 | 0.000  | 0.000  |
| 30. | 6812.768 | 4.660 | 0.000 | 3651.272 | -4.430 | 0.000  | 3328.420 | 0.000  | 0.000  |
| 31. | 6817.056 | 4.440 | 0.000 | 3644.342 | -4.230 | 0.000  | 3328.691 | 0.000  | 0.000  |
| 32. | 6821.241 | 4.180 | 0.000 | 3637.322 | -4.020 | 0.000  | 3328.969 | 0.000  | 0.000  |
| 33. | 6825.311 | 3.900 | 0.000 | 3630.222 | -3.780 | 0.000  | 3329.253 | 0.000  | 0.000  |
| 34. | 6829.253 | 3.540 | 0.000 | 3623.042 | -3.520 | 0.000  | 3329.544 | 0.000  | 0.000  |
| 35. | 6833.058 | 3.150 | 0.000 | 3615.782 | -3.250 | 0.000  | 3329.840 | 0.000  | 0.000  |
| 36. | 6836.708 | 2.700 | 0.000 | 3608.442 | -2.960 | 0.000  | 3330.143 | 0.000  | 0.000  |
| 37. | 6840.201 | 2.200 | 0.000 | 3601.021 | -2.650 | 0.000  | 3330.451 | 0.000  | 0.000  |
| 38. | 6843.524 | 1.650 | 0.000 | 3593.521 | -2.330 | 0.000  | 3330.764 | 0.000  | 0.000  |
| 39. | 6846.670 | 1.060 | 0.000 | 3586.042 | -2.000 | 0.000  | 3331.081 | 0.000  | 0.000  |
| 40. | 6849.621 | 0.450 | 0.000 | 3578.582 | -1.660 | 0.000  | 3331.404 | 0.000  | 0.000  |
| 41. | 6852.400 | 0.000 | 0.000 | 3571.142 | -1.320 | 0.000  | 3331.730 | 0.000  | 0.000  |
| 42. | 6855.072 | 0.000 | 0.000 | 3563.722 | -0.960 | 0.000  | 3332.060 | 0.000  | 0.000  |
| 43. | 6857.543 | 0.000 | 0.000 | 3556.322 | -0.600 | 0.000  | 3332.393 | 0.000  | 0.000  |
| 44. | 6859.857 | 0.000 | 0.000 | 3548.942 | -0.240 | 0.000  | 3332.729 | 0.000  | 0.000  |
| 45. | 6862.062 | 0.000 | 0.000 | 3541.582 | 0.120  | 0.000  | 3333.068 | 0.000  | 0.000  |
| 46. | 6864.120 | 0.000 | 0.000 | 3534.242 | 0.440  | 0.000  | 3333.406 | 0.000  | 0.000  |
| 47. | 6866.025 | 0.000 | 0.000 | 3526.912 | 0.740  | 0.000  | 3333.752 | 0.000  | 0.000  |
| 48. | 6867.695 | 0.000 | 0.000 | 3519.582 | 1.090  | 0.000  | 3334.096 | 0.000  | 0.000  |
| 49. | 6869.167 | 0.000 | 0.000 | 3512.242 | 1.540  | 0.000  | 3334.440 | 0.000  | 0.000  |

2-PLANE (XY-PLANE) BARIUM SODIUM NIOBATE

|      | LAGVEL  | LPF112  | LPF113 | FSPVEL   | FSPF112 | FSPF113 | SSRVEL   | SSPF112 | SSPF113 |
|------|---------|---------|--------|----------|---------|---------|----------|---------|---------|
| 50.  | 688.865 | .380    | 0.000  | 3226.212 | 1.000   | 0.000   | 3644.785 | .310    | 0.000   |
| 51.  | 688.855 | .320    | 0.000  | 3228.471 | 2.210   | 0.000   | 3645.131 | .310    | 0.000   |
| 52.  | 689.240 | .180    | 0.000  | 3231.029 | 2.528   | 0.000   | 3645.475 | .310    | 0.000   |
| 53.  | 689.524 | .080    | 0.000  | 3234.052 | 2.630   | 0.000   | 3645.819 | .310    | 0.000   |
| 54.  | 689.617 | -0.010  | 0.000  | 3237.351 | 2.120   | 0.000   | 3646.161 | .310    | 0.000   |
| 55.  | 689.511 | -0.556  | 0.000  | 3240.955 | 2.330   | 0.000   | 3646.501 | .310    | 0.000   |
| 56.  | 689.226 | -1.880  | 0.000  | 3244.879 | 3.658   | 0.000   | 3646.832 | .300    | 0.000   |
| 57.  | 688.764 | -3.280  | 0.000  | 3249.073 | 5.090   | 0.000   | 3647.173 | .300    | 0.000   |
| 58.  | 688.132 | -4.740  | 0.000  | 3253.525 | 6.510   | 0.000   | 3647.504 | .300    | 0.000   |
| 59.  | 687.342 | -6.100  | 0.000  | 3258.224 | 7.910   | 0.000   | 3647.831 | .290    | 0.000   |
| 60.  | 686.401 | -7.400  | 0.000  | 3263.127 | 9.290   | 0.000   | 3648.154 | .290    | 0.000   |
| 61.  | 685.316 | -8.550  | 0.000  | 3268.244 | 10.640  | 0.000   | 3648.472 | .280    | 0.000   |
| 62.  | 684.086 | -9.500  | 0.000  | 3273.521 | 11.970  | 0.000   | 3648.785 | .280    | 0.000   |
| 63.  | 682.774 | -10.200 | 0.000  | 3278.943 | 13.280  | 0.000   | 3649.092 | .270    | 0.000   |
| 64.  | 681.334 | -10.700 | 0.000  | 3284.464 | 14.570  | 0.000   | 3649.392 | .270    | 0.000   |
| 65.  | 679.750 | -11.000 | 0.000  | 3290.117 | 15.830  | 0.000   | 3649.686 | .260    | 0.000   |
| 66.  | 678.075 | -11.150 | 0.000  | 3295.837 | 17.070  | 0.000   | 3649.972 | .250    | 0.000   |
| 67.  | 676.342 | -11.100 | 0.000  | 3301.556 | 18.290  | 0.000   | 3650.251 | .250    | 0.000   |
| 68.  | 674.540 | -10.800 | 0.000  | 3307.306 | 19.490  | 0.000   | 3650.521 | .240    | 0.000   |
| 69.  | 672.647 | -10.300 | 0.000  | 3313.040 | 20.670  | 0.000   | 3650.783 | .230    | 0.000   |
| 70.  | 670.622 | -9.500  | 0.000  | 3318.770 | 21.830  | 0.000   | 3651.036 | .220    | 0.000   |
| 71.  | 668.525 | -8.500  | 0.000  | 3324.350 | 22.980  | 0.000   | 3651.279 | .210    | 0.000   |
| 72.  | 666.321 | -7.300  | 0.000  | 3329.872 | 24.100  | 0.000   | 3651.512 | .210    | 0.000   |
| 73.  | 664.052 | -6.000  | 0.000  | 3335.270 | 25.200  | 0.000   | 3651.735 | .200    | 0.000   |
| 74.  | 661.774 | -4.500  | 0.000  | 3340.518 | 26.280  | 0.000   | 3651.948 | .190    | 0.000   |
| 75.  | 659.451 | -2.800  | 0.000  | 3345.550 | 27.340  | 0.000   | 3652.145 | .180    | 0.000   |
| 76.  | 657.055 | -1.000  | 0.000  | 3350.462 | 28.380  | 0.000   | 3652.340 | .170    | 0.000   |
| 77.  | 654.575 | .750    | 0.000  | 3355.110 | 29.500  | 0.000   | 3652.518 | .160    | 0.000   |
| 78.  | 652.074 | 1.900   | 0.000  | 3359.512 | 30.720  | 0.000   | 3652.685 | .150    | 0.000   |
| 79.  | 649.552 | 2.900   | 0.000  | 3363.646 | 32.000  | 0.000   | 3652.839 | .140    | 0.000   |
| 80.  | 647.024 | 3.600   | 0.000  | 3367.462 | 33.220  | 0.000   | 3652.981 | .130    | 0.000   |
| 81.  | 644.455 | 4.100   | 0.000  | 3371.032 | 34.500  | 0.000   | 3653.110 | .110    | 0.000   |
| 82.  | 641.827 | 4.300   | 0.000  | 3374.247 | 35.850  | 0.000   | 3653.222 | .100    | 0.000   |
| 83.  | 639.157 | 4.200   | 0.000  | 3377.122 | 37.250  | 0.000   | 3653.325 | .090    | 0.000   |
| 84.  | 636.456 | 3.800   | 0.000  | 3379.643 | 38.700  | 0.000   | 3653.418 | .070    | 0.000   |
| 85.  | 633.751 | 3.100   | 0.000  | 3381.752 | 40.200  | 0.000   | 3653.494 | .060    | 0.000   |
| 86.  | 631.026 | 2.200   | 0.000  | 3383.576 | 41.700  | 0.000   | 3653.557 | .050    | 0.000   |
| 87.  | 628.292 | 1.100   | 0.000  | 3385.068 | 43.200  | 0.000   | 3653.606 | .040    | 0.000   |
| 88.  | 625.567 | 0.000   | 0.000  | 3386.267 | 44.700  | 0.000   | 3653.640 | .030    | 0.000   |
| 89.  | 622.772 | -0.700  | 0.000  | 3387.125 | 46.200  | 0.000   | 3653.661 | .020    | 0.000   |
| 90.  | 619.956 | -1.300  | 0.000  | 3387.695 | 47.700  | 0.000   | 3653.666 | .010    | 0.000   |
| 91.  | 617.127 | -1.800  | 0.000  | 3388.017 | 49.200  | 0.000   | 3653.661 | .000    | 0.000   |
| 92.  | 614.292 | -2.200  | 0.000  | 3388.032 | 50.700  | 0.000   | 3653.640 | .000    | 0.000   |
| 93.  | 611.452 | -2.500  | 0.000  | 3387.792 | 52.200  | 0.000   | 3653.606 | .000    | 0.000   |
| 94.  | 608.611 | -2.700  | 0.000  | 3387.258 | 53.700  | 0.000   | 3653.557 | .000    | 0.000   |
| 95.  | 605.772 | -2.800  | 0.000  | 3386.372 | 55.200  | 0.000   | 3653.500 | .000    | 0.000   |
| 96.  | 602.936 | -2.800  | 0.000  | 3385.182 | 56.700  | 0.000   | 3653.426 | .000    | 0.000   |
| 97.  | 600.107 | -2.700  | 0.000  | 3383.642 | 58.200  | 0.000   | 3653.329 | .000    | 0.000   |
| 98.  | 597.287 | -2.500  | 0.000  | 3381.702 | 59.700  | 0.000   | 3653.226 | .000    | 0.000   |
| 99.  | 594.467 | -2.200  | 0.000  | 3379.312 | 61.200  | 0.000   | 3653.110 | .000    | 0.000   |
| 100. | 591.655 | -1.800  | 0.000  | 3376.522 | 62.700  | 0.000   | 3652.981 | .000    | 0.000   |

Z-PLANE (XY-PLANE) GARIUP SCRIUP NIORATE

|      | LANGUOL  | LFR112 | LFR113 | FSEVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 100. | 6274.024 | .600   | 0.000  | 3767.452 | -1.228 | 0.000  | 3652.591 | -.120  | 0.000  |
| 101. | 6275.452 | .718   | 0.000  | 3767.646 | -1.448 | 0.000  | 3652.895 | -.230  | 0.000  |
| 102. | 6276.974 | .750   | 0.000  | 3759.512 | -1.728 | 0.000  | 3652.685 | -.140  | 0.000  |
| 103. | 6278.576 | .750   | 0.000  | 3759.110 | -1.958 | 0.000  | 3652.512 | -.160  | 0.000  |
| 104. | 6248.255 | .820   | 0.000  | 3750.462 | -4.160 | 0.000  | 3652.740 | -.178  | 0.000  |
| 105. | 6241.991 | .850   | 0.000  | 3745.590 | -4.358 | 0.000  | 3652.149 | -.168  | 0.000  |
| 106. | 6243.774 | .860   | 0.000  | 3742.519 | -4.528 | 0.000  | 3651.940 | -.190  | 0.000  |
| 107. | 6245.592 | .880   | 0.000  | 3735.270 | -4.678 | 0.000  | 3651.735 | -.200  | 0.000  |
| 108. | 6247.431 | .880   | 0.000  | 3728.872 | -4.808 | 0.000  | 3651.512 | -.210  | 0.000  |
| 109. | 6249.276 | .890   | 0.000  | 3724.350 | -4.908 | 0.000  | 3651.279 | -.210  | 0.000  |
| 110. | 6251.122 | .890   | 0.000  | 3718.718 | -4.980 | 0.000  | 3651.036 | -.220  | 0.000  |
| 111. | 6252.947 | .890   | 0.000  | 3713.040 | -5.048 | 0.000  | 3650.783 | -.230  | 0.000  |
| 112. | 6254.740 | .890   | 0.000  | 3707.306 | -5.088 | 0.000  | 3650.521 | -.240  | 0.000  |
| 113. | 6256.488 | .890   | 0.000  | 3701.516 | -5.098 | 0.000  | 3650.251 | -.250  | 0.000  |
| 114. | 6258.176 | .890   | 0.000  | 3695.667 | -5.078 | 0.000  | 3649.972 | -.250  | 0.000  |
| 115. | 6259.799 | .890   | 0.000  | 3689.112 | -5.000 | 0.000  | 3649.686 | -.260  | 0.000  |
| 116. | 6261.334 | .890   | 0.000  | 3684.484 | -4.978 | 0.000  | 3649.392 | -.270  | 0.000  |
| 117. | 6262.774 | .890   | 0.000  | 3678.943 | -4.900 | 0.000  | 3649.092 | -.270  | 0.000  |
| 118. | 6264.106 | .890   | 0.000  | 3673.521 | -4.778 | 0.000  | 3648.785 | -.280  | 0.000  |
| 119. | 6265.316 | .890   | 0.000  | 3668.284 | -4.648 | 0.000  | 3648.472 | -.280  | 0.000  |
| 120. | 6266.481 | .890   | 0.000  | 3663.127 | -4.468 | 0.000  | 3648.154 | -.290  | 0.000  |
| 121. | 6267.342 | .890   | 0.000  | 3658.224 | -4.310 | 0.000  | 3647.831 | -.290  | 0.000  |
| 122. | 6268.133 | .890   | 0.000  | 3653.559 | -4.110 | 0.000  | 3647.504 | -.300  | 0.000  |
| 123. | 6268.764 | .890   | 0.000  | 3649.073 | -3.890 | 0.000  | 3647.173 | -.300  | 0.000  |
| 124. | 6269.226 | .890   | 0.000  | 3644.809 | -3.650 | 0.000  | 3646.832 | -.300  | 0.000  |
| 125. | 6269.511 | .890   | 0.000  | 3640.965 | -3.390 | 0.000  | 3646.491 | -.310  | 0.000  |
| 126. | 6269.613 | .890   | 0.000  | 3637.351 | -3.168 | 0.000  | 3646.161 | -.310  | 0.000  |
| 127. | 6269.524 | .890   | 0.000  | 3634.057 | -2.918 | 0.000  | 3645.819 | -.310  | 0.000  |
| 128. | 6269.240 | .890   | 0.000  | 3631.059 | -2.658 | 0.000  | 3645.475 | -.310  | 0.000  |
| 129. | 6268.755 | .890   | 0.000  | 3628.421 | -2.390 | 0.000  | 3645.131 | -.310  | 0.000  |
| 130. | 6268.055 | .890   | 0.000  | 3626.213 | -2.168 | 0.000  | 3644.785 | -.310  | 0.000  |
| 131. | 6267.157 | .890   | 0.000  | 3624.325 | -1.958 | 0.000  | 3644.440 | -.310  | 0.000  |
| 132. | 6266.055 | .890   | 0.000  | 3622.817 | -1.768 | 0.000  | 3644.096 | -.310  | 0.000  |
| 133. | 6264.726 | .890   | 0.000  | 3621.696 | -1.608 | 0.000  | 3643.752 | -.310  | 0.000  |
| 134. | 6263.207 | .890   | 0.000  | 3620.958 | -1.468 | 0.000  | 3643.408 | -.310  | 0.000  |
| 135. | 6261.462 | .890   | 0.000  | 3620.617 | -1.350 | 0.000  | 3643.064 | -.310  | 0.000  |
| 136. | 6259.507 | .890   | 0.000  | 3620.706 | -1.248 | 0.000  | 3642.720 | -.300  | 0.000  |
| 137. | 6257.343 | .890   | 0.000  | 3621.112 | -1.168 | 0.000  | 3642.373 | -.300  | 0.000  |
| 138. | 6254.972 | .890   | 0.000  | 3621.816 | -1.108 | 0.000  | 3642.029 | -.300  | 0.000  |
| 139. | 6252.400 | .890   | 0.000  | 3622.827 | -1.068 | 0.000  | 3641.730 | -.300  | 0.000  |
| 140. | 6249.631 | .890   | 0.000  | 3624.055 | -1.048 | 0.000  | 3641.484 | -.300  | 0.000  |
| 141. | 6246.670 | .890   | 0.000  | 3625.495 | -1.048 | 0.000  | 3641.291 | -.300  | 0.000  |
| 142. | 6243.524 | .890   | 0.000  | 3627.132 | -1.068 | 0.000  | 3641.144 | -.300  | 0.000  |
| 143. | 6240.201 | .890   | 0.000  | 3628.963 | -1.108 | 0.000  | 3641.044 | -.300  | 0.000  |
| 144. | 6236.708 | .890   | 0.000  | 3630.987 | -1.168 | 0.000  | 3641.000 | -.300  | 0.000  |
| 145. | 6232.956 | .890   | 0.000  | 3633.206 | -1.248 | 0.000  | 3641.020 | -.300  | 0.000  |
| 146. | 6228.952 | .890   | 0.000  | 3635.618 | -1.348 | 0.000  | 3641.104 | -.300  | 0.000  |
| 147. | 6224.711 | .890   | 0.000  | 3638.222 | -1.468 | 0.000  | 3641.253 | -.300  | 0.000  |
| 148. | 6220.243 | .890   | 0.000  | 3641.022 | -1.608 | 0.000  | 3641.466 | -.300  | 0.000  |
| 149. | 6217.056 | .890   | 0.000  | 3644.022 | -1.768 | 0.000  | 3641.731 | -.300  | 0.000  |

7-PLANE (XY-PLANE) PARTIAL SCOUT NICEATE

|      | LAGEV    | LFP-112 | LFP-113 | FSRVEL   | FSFP-112 | FSP-113 | SRVEL    | SSP-112 | SSP-113 |
|------|----------|---------|---------|----------|----------|---------|----------|---------|---------|
| 150. | 6712.762 | -2.050  | 0.000   | 1668.260 | 4.430    | 0.000   | 2626.620 | -0.240  | 0.000   |
| 151. | 6702.552 | -2.170  | 0.000   | 1665.315 | 4.610    | 0.000   | 2630.456 | -0.240  | 0.000   |
| 152. | 6703.942 | -2.160  | 0.000   | 1670.564 | 4.760    | 0.000   | 2637.895 | -0.220  | 0.000   |
| 153. | 6755.412 | -2.150  | 0.000   | 1675.973 | 4.950    | 0.000   | 2637.646 | -0.220  | 0.000   |
| 154. | 6754.860 | -2.210  | 0.000   | 1681.522 | 4.950    | 0.000   | 2637.406 | -0.210  | 0.000   |
| 155. | 6758.360 | -2.220  | 0.000   | 1687.152 | 5.070    | 0.000   | 2637.174 | -0.210  | 0.000   |
| 156. | 6785.708 | -2.220  | 0.000   | 1652.945 | 5.130    | 0.000   | 2636.948 | -0.200  | 0.000   |
| 157. | 6781.122 | -2.210  | 0.000   | 1652.755 | 5.160    | 0.000   | 2636.730 | -0.150  | 0.000   |
| 158. | 6772.520 | -2.200  | 0.000   | 1704.565 | 5.170    | 0.000   | 2636.521 | -0.190  | 0.000   |
| 159. | 6772.027 | -2.190  | 0.000   | 1710.475 | 5.140    | 0.000   | 2636.320 | -0.180  | 0.000   |
| 160. | 6767.271 | -2.150  | 0.000   | 1715.246 | 5.180    | 0.000   | 2636.120 | -0.170  | 0.000   |
| 161. | 6762.185 | -2.110  | 0.000   | 1725.000 | 5.850    | 0.000   | 2635.925 | -0.160  | 0.000   |
| 162. | 6752.850 | -2.060  | 0.000   | 1727.662 | 4.520    | 0.000   | 2635.770 | -0.150  | 0.000   |
| 163. | 6754.706 | -2.060  | 0.000   | 1733.221 | 4.810    | 0.000   | 2635.604 | -0.150  | 0.000   |
| 164. | 6750.651 | -1.940  | 0.000   | 1733.621 | 4.670    | 0.000   | 2635.448 | -0.140  | 0.000   |
| 165. | 6746.741 | -1.860  | 0.000   | 1742.271 | 4.500    | 0.000   | 2635.280 | -0.120  | 0.000   |
| 166. | 6742.921 | -1.780  | 0.000   | 1748.913 | 4.310    | 0.000   | 2635.162 | -0.120  | 0.000   |
| 167. | 6735.424 | -1.650  | 0.000   | 1753.722 | 4.180    | 0.000   | 2635.033 | -0.110  | 0.000   |
| 168. | 6736.046 | -1.550  | 0.000   | 1754.304 | 3.270    | 0.000   | 2634.913 | -0.100  | 0.000   |
| 169. | 6732.884 | -1.450  | 0.000   | 1762.684 | 3.620    | 0.000   | 2634.802 | -0.100  | 0.000   |
| 170. | 6725.942 | -1.270  | 0.000   | 1766.611 | 3.350    | 0.000   | 2634.701 | -0.050  | 0.000   |
| 171. | 6727.237 | -1.260  | 0.000   | 1770.302 | 3.070    | 0.000   | 2634.610 | -0.020  | 0.000   |
| 172. | 6724.782 | -1.140  | 0.000   | 1773.650 | 2.770    | 0.000   | 2634.522 | -0.070  | 0.000   |
| 173. | 6722.688 | -1.010  | 0.000   | 1776.655 | 2.450    | 0.000   | 2634.456 | -0.060  | 0.000   |
| 174. | 6720.864 | -0.870  | 0.000   | 1775.212 | 2.130    | 0.000   | 2634.392 | -0.050  | 0.000   |
| 175. | 6715.021 | -0.720  | 0.000   | 1781.555 | 1.750    | 0.000   | 2634.340 | -0.040  | 0.000   |
| 176. | 6717.666 | -0.550  | 0.000   | 1783.423 | 1.440    | 0.000   | 2634.296 | -0.020  | 0.000   |
| 177. | 6716.605 | -0.450  | 0.000   | 1784.680 | 1.090    | 0.000   | 2634.262 | -0.020  | 0.000   |
| 178. | 6715.843 | -0.300  | 0.000   | 1785.928 | 0.730    | 0.000   | 2634.232 | -0.020  | 0.000   |
| 179. | 6715.345 | -0.150  | 0.000   | 1785.555 | 0.370    | 0.000   | 2634.224 | -0.010  | 0.000   |
| 180. | 6715.222 | 0.000   | 0.000   | 1786.769 | -0.000   | 0.000   | 2634.215 | 0.000   | 0.000   |

7-PLANE (XY-PLANE) BISMUTH GERMANIUM OXIDE (SLODODNIK ET AL)

|     | LMGVEL   | LMPII2  | LMPII3 | FSPVEL   | FSPHI2 | FSPHI3 | SSRVEL   | SSPHI2  | SSPHI3 |
|-----|----------|---------|--------|----------|--------|--------|----------|---------|--------|
| 0.  | 3730.819 | 0.000   | 0.000  | 1664.854 | 0.000  | 0.000  | 1664.854 | 0.000   | 0.000  |
| 1.  | 3729.700 | -1.560  | 0.000  | 1664.968 | .450   | 0.000  | 1665.569 | 2.810   | 0.000  |
| 2.  | 3728.743 | -1.120  | 0.000  | 1665.309 | .980   | 0.000  | 1667.710 | 5.599   | 0.000  |
| 3.  | 3727.151 | -1.680  | 0.000  | 1665.876 | 1.349  | 0.000  | 1671.264 | 8.310   | 0.000  |
| 4.  | 3726.925 | -2.240  | 0.000  | 1666.665 | 1.770  | 0.000  | 1676.228 | 10.920  | 0.000  |
| 5.  | 3722.871 | -2.790  | 0.000  | 1667.673 | 2.190  | 0.000  | 1682.549 | 13.420  | 0.000  |
| 6.  | 3718.592 | -3.340  | 0.000  | 1668.893 | 2.609  | 0.000  | 1690.223 | 15.780  | 0.000  |
| 7.  | 3716.497 | -3.880  | 0.000  | 1670.320 | 3.000  | 0.000  | 1699.204 | 17.980  | 0.000  |
| 8.  | 3709.792 | -4.420  | 0.000  | 1671.947 | 3.389  | 0.000  | 1709.451 | 20.010  | 0.000  |
| 9.  | 3706.487 | -4.950  | 0.000  | 1673.764 | 3.740  | 0.000  | 1720.914 | 21.870  | 0.000  |
| 10. | 3698.592 | -5.470  | 0.000  | 1675.762 | 4.089  | 0.000  | 1733.551 | 23.570  | 0.000  |
| 11. | 3692.119 | -5.990  | 0.000  | 1677.931 | 4.390  | 0.000  | 1747.294 | 25.090  | 0.000  |
| 12. | 3685.082 | -6.490  | 0.000  | 1680.259 | 4.690  | 0.000  | 1762.088 | 26.459  | 0.000  |
| 13. | 3677.495 | -6.980  | 0.000  | 1682.736 | 4.950  | 0.000  | 1777.864 | 27.680  | 0.000  |
| 14. | 3669.375 | -7.450  | 0.000  | 1685.347 | 5.190  | 0.000  | 1794.566 | 28.680  | 0.000  |
| 15. | 3660.742 | -7.920  | 0.000  | 1688.090 | 5.410  | 0.000  | 1812.113 | 29.570  | 0.000  |
| 16. | 3651.614 | -8.360  | 0.000  | 1690.921 | 5.590  | 0.000  | 1830.434 | 30.320  | 0.000  |
| 17. | 3642.015 | -8.790  | 0.000  | 1693.855 | 5.750  | 0.000  | 1849.481 | 30.960  | 0.000  |
| 18. | 3631.970 | -9.190  | 0.000  | 1696.866 | 5.870  | 0.000  | 1869.111 | 31.430  | 0.000  |
| 19. | 3621.506 | -9.589  | 0.000  | 1699.944 | 5.970  | 0.000  | 1889.306 | 31.809  | 0.000  |
| 20. | 3610.652 | -9.930  | 0.000  | 1703.069 | 6.040  | 0.000  | 1909.967 | 32.040  | 0.000  |
| 21. | 3599.442 | -10.270 | 0.000  | 1706.226 | 6.070  | 0.000  | 1931.014 | 32.180  | 0.000  |
| 22. | 3587.910 | -10.560 | 0.000  | 1709.401 | 6.089  | 0.000  | 1952.357 | 32.219  | 0.000  |
| 23. | 3576.007 | -10.830 | 0.000  | 1712.578 | 6.060  | 0.000  | 1973.909 | 32.130  | 0.000  |
| 24. | 3564.643 | -11.060 | 0.000  | 1715.741 | 6.010  | 0.000  | 1995.590 | 31.969  | 0.000  |
| 25. | 3552.796 | -11.260 | 0.000  | 1718.876 | 5.939  | 0.000  | 2017.307 | 31.550  | 0.000  |
| 26. | 3539.485 | -11.390 | 0.000  | 1721.966 | 5.829  | 0.000  | 2038.964 | 31.267  | 0.000  |
| 27. | 3526.926 | -11.480 | 0.000  | 1724.998 | 5.690  | 0.000  | 2060.679 | 30.769  | 0.000  |
| 28. | 3514.917 | -11.520 | 0.000  | 1727.956 | 5.529  | 0.000  | 2081.743 | 30.159  | 0.000  |
| 29. | 3501.943 | -11.500 | 0.000  | 1730.828 | 5.340  | 0.000  | 2102.659 | 29.440  | 0.000  |
| 30. | 3489.572 | -11.410 | 0.000  | 1733.598 | 5.130  | 0.000  | 2123.127 | 28.510  | 0.000  |
| 31. | 3477.379 | -11.260 | 0.000  | 1736.255 | 4.909  | 0.000  | 2143.039 | 27.650  | 0.000  |
| 32. | 3465.443 | -11.029 | 0.000  | 1738.796 | 4.640  | 0.000  | 2162.288 | 26.589  | 0.000  |
| 33. | 3453.847 | -10.710 | 0.000  | 1741.179 | 4.370  | 0.000  | 2180.762 | 25.370  | 0.000  |
| 34. | 3442.680 | -10.300 | 0.000  | 1743.423 | 4.070  | 0.000  | 2198.349 | 24.030  | 0.000  |
| 35. | 3432.034 | -9.810  | 0.000  | 1745.508 | 3.760  | 0.000  | 2214.937 | 22.540  | 0.000  |
| 36. | 3422.084 | -9.210  | 0.000  | 1747.425 | 3.430  | 0.000  | 2230.397 | 20.980  | 0.000  |
| 37. | 3412.688 | -8.520  | 0.000  | 1749.163 | 3.040  | 0.000  | 2244.624 | 19.110  | 0.000  |
| 38. | 3404.190 | -7.740  | 0.000  | 1750.716 | 2.730  | 0.000  | 2257.504 | 17.170  | 0.000  |
| 39. | 3396.576 | -6.889  | 0.000  | 1752.077 | 2.360  | 0.000  | 2268.937 | 15.070  | 0.000  |
| 40. | 3389.965 | -5.870  | 0.000  | 1753.238 | 1.990  | 0.000  | 2279.797 | 12.820  | 0.000  |
| 41. | 3384.431 | -4.810  | 0.000  | 1754.196 | 1.600  | 0.000  | 2289.009 | 10.440  | 0.000  |
| 42. | 3380.044 | -3.680  | 0.000  | 1754.946 | 1.200  | 0.000  | 2293.687 | 7.950   | 0.000  |
| 43. | 3376.866 | -2.490  | 0.000  | 1755.493 | .810   | 0.000  | 2298.164 | 5.350   | 0.000  |
| 44. | 3374.948 | -1.250  | 0.000  | 1755.807 | .400   | 0.000  | 2300.991 | 2.690   | 0.000  |
| 45. | 3374.295 | 0.000   | 0.000  | 1755.915 | 0.000  | 0.000  | 2300.991 | 0.000   | 0.000  |
| 46. | 3374.940 | 1.250   | 0.000  | 1755.807 | -.400  | 0.000  | 2298.164 | -2.690  | 0.000  |
| 47. | 3376.866 | 2.490   | 0.000  | 1755.493 | -.810  | 0.000  | 2293.687 | -5.350  | 0.000  |
| 48. | 3380.044 | 3.680   | 0.000  | 1754.946 | -1.200 | 0.000  | 2289.009 | -7.950  | 0.000  |
| 49. | 3384.431 | 4.810   | 0.000  | 1754.196 | -1.600 | 0.000  | 2287.009 | -10.440 | 0.000  |



Z-PLANE (XY-PLANE) BISMUTH GERMANIUM OXIDE (SILOMONIK ET AL)

|     | LGMJEL   | LPMI12 | LPMI13 | FSPM12   | FSPM13 | SSRM12   | SSRM13  |
|-----|----------|--------|--------|----------|--------|----------|---------|
| 50. | 3389.965 | 5.870  | 0.000  | 1753.238 | -1.990 | 2278.797 | -12.828 |
| 51. | 3396.576 | 6.950  | 0.000  | 1952.077 | -2.360 | 2268.939 | 0.000   |
| 52. | 3404.188 | 7.740  | 0.000  | 1750.716 | -2.730 | 2257.508 | 0.000   |
| 53. | 3412.680 | 8.520  | 0.000  | 1749.163 | -3.090 | 2244.626 | 0.000   |
| 54. | 3422.004 | 9.210  | 0.000  | 1747.625 | -3.430 | 2230.397 | 0.000   |
| 55. | 3432.036 | 9.810  | 0.000  | 1745.508 | -3.760 | 2214.939 | 0.000   |
| 56. | 3442.688 | 10.300 | 0.000  | 1743.423 | -4.070 | 2198.749 | 0.000   |
| 57. | 3453.847 | 10.710 | 0.000  | 1741.179 | -4.370 | 2180.762 | 0.000   |
| 58. | 3465.443 | 11.020 | 0.000  | 1738.786 | -4.640 | 2162.284 | 0.000   |
| 59. | 3477.379 | 11.260 | 0.000  | 1736.255 | -4.900 | 2143.839 | 0.000   |
| 60. | 3489.572 | 11.410 | 0.000  | 1733.598 | -5.130 | 2123.127 | 0.000   |
| 61. | 3501.943 | 11.500 | 0.000  | 1730.828 | -5.340 | 2102.151 | 0.000   |
| 62. | 3514.417 | 11.520 | 0.000  | 1727.956 | -5.520 | 2081.743 | 0.000   |
| 63. | 3526.926 | 11.480 | 0.000  | 1724.998 | -5.690 | 2060.879 | 0.000   |
| 64. | 3539.485 | 11.390 | 0.000  | 1721.966 | -5.820 | 2038.964 | 0.000   |
| 65. | 3551.795 | 11.250 | 0.000  | 1718.876 | -5.930 | 2017.307 | 0.000   |
| 66. | 3564.443 | 11.060 | 0.000  | 1715.741 | -6.010 | 1995.597 | 0.000   |
| 67. | 3576.997 | 10.830 | 0.000  | 1712.574 | -6.060 | 1973.904 | 0.000   |
| 68. | 3587.910 | 10.560 | 0.000  | 1709.401 | -6.080 | 1952.353 | 0.000   |
| 69. | 3598.442 | 10.270 | 0.000  | 1706.226 | -6.070 | 1931.010 | 0.000   |
| 70. | 3610.652 | 9.970  | 0.000  | 1703.069 | -6.040 | 1909.967 | 0.000   |
| 71. | 3621.586 | 9.580  | 0.000  | 1699.944 | -5.970 | 1889.305 | 0.000   |
| 72. | 3631.970 | 9.190  | 0.000  | 1696.868 | -5.870 | 1869.111 | 0.000   |
| 73. | 3642.815 | 8.790  | 0.000  | 1693.855 | -5.750 | 1849.461 | 0.000   |
| 74. | 3651.614 | 8.360  | 0.000  | 1690.921 | -5.590 | 1830.435 | 0.000   |
| 75. | 3660.742 | 7.920  | 0.000  | 1688.080 | -5.410 | 1812.113 | 0.000   |
| 76. | 3669.375 | 7.450  | 0.000  | 1685.347 | -5.190 | 1794.564 | 0.000   |
| 77. | 3677.695 | 6.980  | 0.000  | 1682.736 | -4.950 | 1777.068 | 0.000   |
| 78. | 3685.882 | 5.490  | 0.000  | 1680.259 | -4.690 | 1762.084 | 0.000   |
| 79. | 3692.119 | 5.990  | 0.000  | 1677.931 | -4.390 | 1747.294 | 0.000   |
| 80. | 3698.592 | 5.470  | 0.000  | 1675.762 | -4.000 | 1733.551 | 0.000   |
| 81. | 3704.687 | 4.950  | 0.000  | 1673.754 | -3.740 | 1720.914 | 0.000   |
| 82. | 3709.792 | 4.420  | 0.000  | 1671.947 | -3.390 | 1708.451 | 0.000   |
| 83. | 3714.697 | 3.880  | 0.000  | 1670.320 | -3.000 | 1696.284 | 0.000   |
| 84. | 3718.592 | 3.340  | 0.000  | 1668.893 | -2.600 | 1684.223 | 0.000   |
| 85. | 3722.071 | 2.790  | 0.000  | 1667.673 | -2.190 | 1682.549 | 0.000   |
| 86. | 3724.925 | 2.240  | 0.000  | 1666.665 | -1.770 | 1681.229 | 0.000   |
| 87. | 3727.151 | 1.680  | 0.000  | 1665.876 | -1.340 | 1679.266 | 0.000   |
| 88. | 3728.743 | 1.120  | 0.000  | 1665.309 | -0.900 | 1677.710 | 0.000   |
| 89. | 3729.780 | 0.560  | 0.000  | 1664.968 | -0.450 | 1666.564 | 0.000   |
| 90. | 3730.019 | -0.000 | 0.000  | 1664.854 | 0.000  | 1665.769 | 0.000   |
| 91. | 3729.780 | -0.560 | 0.000  | 1664.968 | 0.450  | 1665.564 | 0.000   |
| 92. | 3728.743 | -1.120 | 0.000  | 1665.309 | 0.900  | 1667.710 | 0.000   |
| 93. | 3727.151 | -1.680 | 0.000  | 1665.876 | 1.340  | 1674.266 | 0.000   |
| 94. | 3724.925 | -2.240 | 0.000  | 1666.665 | 1.770  | 1679.266 | 0.000   |
| 95. | 3722.071 | -2.790 | 0.000  | 1667.673 | 2.190  | 1682.549 | 0.000   |
| 96. | 3718.592 | -3.340 | 0.000  | 1668.893 | 2.600  | 1684.223 | 0.000   |
| 97. | 3714.697 | -3.880 | 0.000  | 1670.320 | 3.000  | 1696.284 | 0.000   |
| 98. | 3709.792 | -4.420 | 0.000  | 1671.947 | 3.390  | 1708.451 | 0.000   |
| 99. | 3704.687 | -4.950 | 0.000  | 1673.754 | 3.740  | 1720.914 | 0.000   |

7-PLANE (XY-PLANE) BISMUTH GERMANIUM OXIDE (SLODONTK ET AL)

|      | LMGVEL   | LPHI12  | LPHI11 | FRVEL    | FSPH12 | FSPH11 | SSRVEL   | SSPH12  | SSPH13 |
|------|----------|---------|--------|----------|--------|--------|----------|---------|--------|
| 100. | 1698.592 | -5.470  | 0.000  | 1675.762 | 4.000  | 0.000  | 1733.551 | 21.579  | 0.000  |
| 101. | 1692.119 | -5.990  | 0.000  | 1677.931 | 4.390  | 0.000  | 1747.204 | 25.090  | 0.000  |
| 102. | 1685.082 | -6.490  | 0.000  | 1680.259 | 4.690  | 0.000  | 1762.004 | 26.450  | 0.000  |
| 103. | 1677.495 | -6.980  | 0.000  | 1682.736 | 4.950  | 0.000  | 1777.869 | 27.640  | 0.000  |
| 104. | 1669.375 | -7.450  | 0.000  | 1685.447 | 5.190  | 0.000  | 1794.565 | 28.680  | 0.000  |
| 105. | 1660.742 | -7.920  | 0.000  | 1688.080 | 5.410  | 0.000  | 1812.113 | 29.570  | 0.000  |
| 106. | 1651.614 | -8.360  | 0.000  | 1690.921 | 5.590  | 0.000  | 1830.836 | 30.320  | 0.000  |
| 107. | 1642.015 | -8.790  | 0.000  | 1693.955 | 5.750  | 0.000  | 1849.861 | 30.940  | 0.000  |
| 108. | 1631.970 | -9.190  | 0.000  | 1697.080 | 5.870  | 0.000  | 1869.111 | 31.470  | 0.000  |
| 109. | 1621.505 | -9.560  | 0.000  | 1699.944 | 5.970  | 0.000  | 1889.306 | 31.800  | 0.000  |
| 110. | 1610.652 | -9.930  | 0.000  | 1703.069 | 6.040  | 0.000  | 1909.967 | 32.040  | 0.000  |
| 111. | 1599.442 | -10.270 | 0.000  | 1706.225 | 6.070  | 0.000  | 1931.010 | 32.140  | 0.000  |
| 112. | 1587.910 | -10.560 | 0.000  | 1709.411 | 6.080  | 0.000  | 1952.353 | 32.210  | 0.000  |
| 113. | 1576.097 | -10.830 | 0.000  | 1712.578 | 6.060  | 0.000  | 1973.900 | 32.170  | 0.000  |
| 114. | 1564.043 | -11.060 | 0.000  | 1715.741 | 6.010  | 0.000  | 1995.591 | 31.940  | 0.000  |
| 115. | 1551.796 | -11.250 | 0.000  | 1718.876 | 5.930  | 0.000  | 2017.307 | 31.550  | 0.000  |
| 116. | 1538.405 | -11.390 | 0.000  | 1721.966 | 5.820  | 0.000  | 2038.964 | 31.260  | 0.000  |
| 117. | 1526.925 | -11.480 | 0.000  | 1724.998 | 5.690  | 0.000  | 2060.872 | 30.750  | 0.000  |
| 118. | 1516.417 | -11.520 | 0.000  | 1727.956 | 5.520  | 0.000  | 2081.747 | 30.150  | 0.000  |
| 119. | 1505.963 | -11.500 | 0.000  | 1730.828 | 5.340  | 0.000  | 2102.659 | 29.440  | 0.000  |
| 120. | 1495.572 | -11.410 | 0.000  | 1733.594 | 5.130  | 0.000  | 2123.127 | 28.610  | 0.000  |
| 121. | 1487.379 | -11.260 | 0.000  | 1736.255 | 4.900  | 0.000  | 2143.030 | 27.650  | 0.000  |
| 122. | 1465.443 | -11.020 | 0.000  | 1738.746 | 4.650  | 0.000  | 2162.284 | 26.580  | 0.000  |
| 123. | 1453.847 | -10.710 | 0.000  | 1741.174 | 4.370  | 0.000  | 2180.762 | 25.370  | 0.000  |
| 124. | 1442.580 | -10.300 | 0.000  | 1743.423 | 4.070  | 0.000  | 2198.349 | 24.030  | 0.000  |
| 125. | 1432.034 | -9.810  | 0.000  | 1745.508 | 3.760  | 0.000  | 2214.932 | 22.540  | 0.000  |
| 126. | 1422.004 | -9.210  | 0.000  | 1747.425 | 3.430  | 0.000  | 2230.397 | 20.900  | 0.000  |
| 127. | 1412.604 | -8.520  | 0.000  | 1749.153 | 3.090  | 0.000  | 2244.626 | 19.110  | 0.000  |
| 128. | 1404.100 | -7.740  | 0.000  | 1750.716 | 2.730  | 0.000  | 2257.504 | 17.170  | 0.000  |
| 129. | 1396.576 | -6.850  | 0.000  | 1752.077 | 2.360  | 0.000  | 2269.972 | 15.070  | 0.000  |
| 130. | 1389.945 | -5.870  | 0.000  | 1753.248 | 1.990  | 0.000  | 2281.997 | 12.820  | 0.000  |
| 131. | 1384.411 | -4.810  | 0.000  | 1754.196 | 1.600  | 0.000  | 2293.603 | 10.440  | 0.000  |
| 132. | 1378.064 | -3.680  | 0.000  | 1754.946 | 1.200  | 0.000  | 2294.867 | 7.950   | 0.000  |
| 133. | 1376.866 | -2.490  | 0.000  | 1755.493 | .810   | 0.000  | 2294.164 | 5.350   | 0.000  |
| 134. | 1374.940 | -1.250  | 0.000  | 1755.807 | .400   | 0.000  | 2300.991 | 2.690   | 0.000  |
| 135. | 1374.295 | 0.000   | 0.000  | 1755.915 | -0.000 | 0.000  | 2301.937 | -0.000  | 0.000  |
| 136. | 1374.940 | 1.250   | 0.000  | 1755.807 | .400   | 0.000  | 2300.991 | -2.690  | 0.000  |
| 137. | 1376.866 | 2.490   | 0.000  | 1755.493 | .810   | 0.000  | 2294.867 | -5.350  | 0.000  |
| 138. | 1380.044 | 3.680   | 0.000  | 1754.946 | 1.200  | 0.000  | 2293.607 | -7.950  | 0.000  |
| 139. | 1384.411 | 4.810   | 0.000  | 1754.196 | 1.600  | 0.000  | 2293.603 | -10.440 | 0.000  |
| 140. | 1389.945 | 5.870   | 0.000  | 1753.248 | 1.990  | 0.000  | 2287.997 | -12.820 | 0.000  |
| 141. | 1396.576 | 6.850   | 0.000  | 1752.077 | 2.360  | 0.000  | 2279.997 | -15.070 | 0.000  |
| 142. | 1404.100 | 7.740   | 0.000  | 1750.716 | 2.730  | 0.000  | 2269.972 | -17.170 | 0.000  |
| 143. | 1412.604 | 8.520   | 0.000  | 1749.153 | 3.090  | 0.000  | 2257.504 | -19.110 | 0.000  |
| 144. | 1422.004 | 9.210   | 0.000  | 1747.425 | 3.430  | 0.000  | 2244.626 | -20.900 | 0.000  |
| 145. | 1432.034 | 9.810   | 0.000  | 1745.508 | 3.760  | 0.000  | 2230.397 | -22.540 | 0.000  |
| 146. | 1442.604 | 10.300  | 0.000  | 1743.423 | 4.070  | 0.000  | 2214.932 | -24.030 | 0.000  |
| 147. | 1453.847 | 10.710  | 0.000  | 1741.174 | 4.370  | 0.000  | 2198.349 | -25.370 | 0.000  |
| 148. | 1465.443 | 11.020  | 0.000  | 1738.746 | 4.650  | 0.000  | 2180.762 | -26.580 | 0.000  |
| 149. | 1477.379 | 11.250  | 0.000  | 1736.255 | 4.900  | 0.000  | 2162.284 | -27.650 | 0.000  |

Z-PLANE (XY-PLANE) BISMUTH GERMANIUM OXIDE (SLODOWNIK ET AL)

|      | LMGDEL   | LPWI12 | LPWI11 | FSRVEL   | FSRVL2 | FSRHI13 | SSRVL2   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|--------|---------|----------|---------|---------|
| 150. | 1489.572 | 11.410 | 0.000  | 1733.598 | -5.130 | 0.000   | 2123.127 | -28.610 | 0.000   |
| 151. | 1501.963 | 11.500 | 0.000  | 1730.828 | -5.360 | 0.000   | 2102.859 | -29.448 | 0.000   |
| 152. | 1514.417 | 11.520 | 0.000  | 1727.956 | -5.524 | 0.000   | 2081.743 | -30.150 | 0.000   |
| 153. | 1526.926 | 11.480 | 0.000  | 1724.998 | -5.690 | 0.000   | 2060.879 | -30.760 | 0.000   |
| 154. | 1539.405 | 11.390 | 0.000  | 1721.966 | -5.820 | 0.000   | 2038.964 | -31.260 | 0.000   |
| 155. | 1551.706 | 11.250 | 0.000  | 1718.876 | -5.930 | 0.000   | 2017.307 | -31.650 | 0.000   |
| 156. | 1564.043 | 11.060 | 0.000  | 1715.741 | -6.010 | 0.000   | 1995.590 | -31.940 | 0.000   |
| 157. | 1576.097 | 10.830 | 0.000  | 1712.574 | -6.060 | 0.000   | 1973.904 | -32.130 | 0.000   |
| 158. | 1587.910 | 10.560 | 0.000  | 1709.491 | -6.080 | 0.000   | 1952.453 | -32.210 | 0.000   |
| 159. | 1599.442 | 10.270 | 0.000  | 1706.226 | -6.070 | 0.000   | 1931.010 | -32.180 | 0.000   |
| 160. | 1610.552 | 9.930  | 0.000  | 1703.069 | -6.040 | 0.000   | 1909.967 | -32.040 | 0.000   |
| 161. | 1621.506 | 9.580  | 0.000  | 1699.944 | -5.970 | 0.000   | 1889.306 | -31.800 | 0.000   |
| 162. | 1631.970 | 9.190  | 0.000  | 1696.868 | -5.870 | 0.000   | 1869.111 | -31.470 | 0.000   |
| 163. | 1642.015 | 8.790  | 0.000  | 1693.855 | -5.750 | 0.000   | 1849.461 | -30.940 | 0.000   |
| 164. | 1651.614 | 8.360  | 0.000  | 1690.921 | -5.590 | 0.000   | 1830.836 | -30.320 | 0.000   |
| 165. | 1660.742 | 7.920  | 0.000  | 1688.080 | -5.410 | 0.000   | 1812.113 | -29.570 | 0.000   |
| 166. | 1669.375 | 7.450  | 0.000  | 1685.317 | -5.190 | 0.000   | 1794.566 | -28.680 | 0.000   |
| 167. | 1677.495 | 6.900  | 0.000  | 1682.716 | -4.950 | 0.000   | 1777.864 | -27.640 | 0.000   |
| 168. | 1685.082 | 6.400  | 0.000  | 1680.259 | -4.690 | 0.000   | 1762.084 | -26.450 | 0.000   |
| 169. | 1692.119 | 5.990  | 0.000  | 1677.931 | -4.390 | 0.000   | 1747.284 | -25.090 | 0.000   |
| 170. | 1698.592 | 5.470  | 0.000  | 1675.762 | -4.090 | 0.000   | 1733.551 | -23.570 | 0.000   |
| 171. | 1704.487 | 4.950  | 0.000  | 1673.764 | -3.740 | 0.000   | 1720.914 | -21.870 | 0.000   |
| 172. | 1709.792 | 4.420  | 0.000  | 1671.947 | -3.340 | 0.000   | 1709.451 | -20.010 | 0.000   |
| 173. | 1714.497 | 3.880  | 0.000  | 1670.320 | -2.900 | 0.000   | 1699.204 | -17.980 | 0.000   |
| 174. | 1718.592 | 3.340  | 0.000  | 1668.893 | -2.600 | 0.000   | 1690.223 | -15.780 | 0.000   |
| 175. | 1722.071 | 2.790  | 0.000  | 1667.673 | -2.190 | 0.000   | 1682.543 | -13.420 | 0.000   |
| 176. | 1724.925 | 2.240  | 0.000  | 1666.655 | -1.770 | 0.000   | 1676.224 | -10.920 | 0.000   |
| 177. | 1727.151 | 1.680  | 0.000  | 1665.876 | -1.340 | 0.000   | 1671.264 | -8.310  | 0.000   |
| 178. | 1728.743 | 1.120  | 0.000  | 1665.309 | -0.900 | 0.000   | 1667.710 | -5.590  | 0.000   |
| 179. | 1729.700 | 0.560  | 0.000  | 1664.954 | -0.450 | 0.000   | 1665.569 | -2.810  | 0.000   |
| 180. | 1730.019 | -0.000 | 0.000  | 1664.854 | 0.000  | 0.000   | 1664.854 | 0.000   | 0.000   |

111-PLANE BISMUTH GERMANIUM OXIDE (SLOBODNIK AND SETAIRES) BULK

|     | LNGVEL   | LPHI12 | LPHI13  | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 0.  | 3374.295 | 0.000  | -0.000  | 2301.937 | -0.000  | 0.000   | 1752.915 | 0.000   | 0.000   |
| 1.  | 3374.452 | .300   | -.670   | 2301.510 | -1.220  | 1.050   | 1756.174 | .970    | .970    |
| 2.  | 3374.919 | .600   | -1.340  | 2300.233 | -2.430  | 2.050   | 1756.949 | 1.930   | 1.930   |
| 3.  | 3375.691 | .900   | -2.000  | 2298.114 | -3.620  | 3.120   | 1756.238 | 2.860   | 2.860   |
| 4.  | 3376.757 | 1.170  | -2.650  | 2295.166 | -4.760  | 4.130   | 1760.038 | 3.630   | 3.630   |
| 5.  | 3378.102 | 1.440  | -3.280  | 2291.416 | -5.920  | 5.130   | 1762.344 | 4.750   | 4.750   |
| 6.  | 3379.789 | 1.660  | -3.900  | 2286.884 | -7.020  | 6.090   | 1765.146 | 5.660   | 5.700   |
| 7.  | 3381.556 | 1.900  | -4.490  | 2281.601 | -8.070  | 7.030   | 1768.444 | 6.540   | 6.600   |
| 8.  | 3383.620 | 2.100  | -5.070  | 2275.605 | -9.070  | 7.940   | 1772.220 | 7.390   | 7.400   |
| 9.  | 3385.873 | 2.270  | -5.610  | 2268.934 | -10.020 | 8.610   | 1776.464 | 8.210   | 8.300   |
| 10. | 3388.288 | 2.410  | -6.130  | 2261.633 | -10.900 | 9.648   | 1781.183 | 8.590   | 8.700   |
| 11. | 3390.835 | 2.520  | -6.630  | 2253.751 | -11.710 | 10.430  | 1786.300 | 9.740   | 9.970   |
| 12. | 3393.483 | 2.600  | -7.090  | 2245.335 | -12.460 | 11.170  | 1791.856 | 10.430  | 10.700  |
| 13. | 3396.202 | 2.650  | -7.530  | 2236.433 | -13.130 | 11.660  | 1797.808 | 11.070  | 11.400  |
| 14. | 3398.960 | 2.670  | -7.930  | 2227.152 | -13.720 | 12.540  | 1804.130 | 11.660  | 12.100  |
| 15. | 3401.726 | 2.660  | -8.310  | 2217.500 | -14.220 | 13.150  | 1810.793 | 12.180  | 12.670  |
| 16. | 3404.471 | 2.620  | -8.660  | 2207.585 | -14.620 | 13.720  | 1817.760 | 12.630  | 13.150  |
| 17. | 3407.165 | 2.560  | -8.980  | 2197.420 | -14.930 | 14.240  | 1824.992 | 12.990  | 13.500  |
| 18. | 3409.775 | 2.470  | -9.270  | 2187.144 | -15.120 | 14.710  | 1832.438 | 13.260  | 13.700  |
| 19. | 3412.288 | 2.350  | -9.540  | 2176.824 | -15.160 | 15.140  | 1840.041 | 13.410  | 13.800  |
| 20. | 3414.666 | 2.210  | -9.770  | 2166.557 | -15.100 | 15.530  | 1847.730 | 13.440  | 13.800  |
| 21. | 3416.890 | 2.050  | -9.990  | 2156.453 | -14.860 | 15.670  | 1855.424 | 13.310  | 13.600  |
| 22. | 3418.938 | 1.880  | -10.160 | 2146.634 | -14.410 | 16.160  | 1863.020 | 13.090  | 13.250  |
| 23. | 3420.792 | 1.680  | -10.340 | 2137.245 | -13.740 | 16.410  | 1870.397 | 12.470  | 12.920  |
| 24. | 3422.434 | 1.470  | -10.480 | 2126.450 | -12.600 | 16.620  | 1877.410 | 11.660  | 12.200  |
| 25. | 3423.848 | 1.240  | -10.600 | 2120.437 | -11.530 | 16.790  | 1883.887 | 10.560  | 11.500  |
| 26. | 3425.024 | 1.010  | -10.700 | 2113.416 | -9.910  | 16.910  | 1889.629 | 9.140   | 10.700  |
| 27. | 3425.949 | .760   | -10.770 | 2107.620 | -7.910  | 17.000  | 1894.422 | 7.320   | 10.000  |
| 28. | 3426.615 | .510   | -10.830 | 2103.269 | -5.530  | 17.070  | 1896.046 | 5.130   | 9.100   |
| 29. | 3427.016 | .260   | -10.860 | 2100.565 | -2.850  | 17.100  | 1900.315 | 2.650   | 8.200   |
| 30. | 3427.152 | 0.000  | -10.870 | 2099.647 | -0.000  | 17.110  | 1901.087 | -0.000  | 7.500   |
| 31. | 3427.016 | -.260  | -10.860 | 2100.565 | 2.850   | 17.100  | 1900.315 | -2.650  | 6.800   |
| 32. | 3426.615 | -.510  | -10.830 | 2103.269 | 5.530   | 17.070  | 1896.046 | -5.130  | 6.100   |
| 33. | 3425.949 | -.760  | -10.770 | 2107.620 | 7.910   | 17.000  | 1894.422 | -7.320  | 5.500   |
| 34. | 3425.024 | -1.010 | -10.700 | 2113.416 | 9.910   | 16.910  | 1889.629 | -9.140  | 4.900   |
| 35. | 3423.848 | -1.240 | -10.600 | 2120.437 | 11.530  | 16.790  | 1883.887 | -10.560 | 4.400   |
| 36. | 3422.434 | -1.470 | -10.480 | 2126.450 | 12.800  | 16.620  | 1877.410 | -11.660 | 4.000   |
| 37. | 3420.792 | -1.660 | -10.340 | 2137.245 | 13.740  | 16.410  | 1870.397 | -12.470 | 3.600   |
| 38. | 3418.938 | -1.860 | -10.160 | 2146.634 | 14.410  | 16.160  | 1863.020 | -13.090 | 3.200   |
| 39. | 3416.890 | -2.050 | -9.990  | 2156.453 | 14.860  | 15.670  | 1855.424 | -13.310 | 2.900   |
| 40. | 3414.666 | -2.210 | -9.770  | 2166.557 | 15.100  | 15.530  | 1847.730 | -13.440 | 2.600   |
| 41. | 3412.288 | -2.350 | -9.540  | 2176.824 | 15.160  | 15.140  | 1840.041 | -13.410 | 2.300   |
| 42. | 3409.775 | -2.470 | -9.270  | 2187.144 | 15.120  | 14.710  | 1832.438 | -13.260 | 2.000   |
| 43. | 3407.165 | -2.560 | -8.980  | 2197.420 | 14.930  | 14.240  | 1824.992 | -12.990 | 1.700   |
| 44. | 3404.471 | -2.620 | -8.660  | 2207.585 | 14.620  | 13.720  | 1817.760 | -12.630 | 1.500   |
| 45. | 3401.726 | -2.660 | -8.310  | 2217.500 | 14.220  | 13.150  | 1810.793 | -12.180 | 1.300   |
| 46. | 3398.960 | -2.670 | -7.930  | 2227.152 | 13.720  | 12.540  | 1804.130 | -11.660 | 1.100   |
| 47. | 3396.202 | -2.650 | -7.530  | 2236.433 | 13.130  | 11.660  | 1797.808 | -11.070 | 1.000   |
| 48. | 3393.483 | -2.600 | -7.090  | 2245.335 | 12.460  | 11.170  | 1791.856 | -10.430 | 0.900   |
| 49. | 3390.835 | -2.520 | -6.630  | 2253.751 | 11.710  | 10.430  | 1786.300 | -9.740  | 0.800   |

111-PLANE BISMUTH GERMANIUM OXIDE (SLOBODNIK AND SETHARES) BULK

|     | LMSVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13  | SSRVEL   | SSPH12  | SSPH13  |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 3388.288 | -2.410 | -6.130 | 2261.633 | 10.900  | 9.640   | 1761.163 | -6.990  | 9.170   |
| 51. | 3365.873 | -2.270 | -5.610 | 2260.934 | 10.020  | 8.610   | 1776.464 | -6.210  | 0.340   |
| 52. | 3303.620 | -2.100 | -5.070 | 2275.605 | 9.070   | 7.940   | 1772.220 | -7.390  | 7.480   |
| 53. | 3351.556 | -1.900 | -4.490 | 2281.601 | 8.070   | 7.030   | 1766.444 | -6.540  | 8.600   |
| 54. | 3379.789 | -1.680 | -3.900 | 2286.884 | 7.020   | 6.090   | 1765.148 | -5.660  | 5.700   |
| 55. | 3376.182 | -1.440 | -3.280 | 2291.416 | 5.920   | 5.130   | 1762.344 | -4.750  | 4.760   |
| 56. | 3376.757 | -1.170 | -2.650 | 2295.168 | 4.760   | 4.130   | 1760.038 | -3.830  | 3.840   |
| 57. | 3375.691 | -0.900 | -2.000 | 2298.114 | 3.620   | 3.120   | 1758.238 | -2.860  | 2.890   |
| 58. | 3374.919 | -0.600 | -1.340 | 2300.233 | 2.430   | 2.090   | 1756.949 | -1.930  | 1.930   |
| 59. | 3374.652 | -0.300 | -0.670 | 2301.510 | 1.220   | 1.050   | 1756.174 | -0.970  | 0.970   |
| 60. | 3374.295 | -0.000 | -0.000 | 2301.937 | 0.000   | 0.000   | 1755.915 | 0.000   | 0.000   |
| 61. | 3374.452 | .300   | .670   | 2301.510 | -1.220  | -1.020  | 1756.174 | .970    | -0.970  |
| 62. | 3374.919 | .600   | 1.340  | 2300.233 | -2.430  | -2.090  | 1756.949 | 1.930   | -1.930  |
| 63. | 3375.691 | .900   | 2.000  | 2298.114 | -3.620  | -3.120  | 1758.238 | 2.860   | -2.860  |
| 64. | 3376.757 | 1.170  | 2.650  | 2295.169 | -4.760  | -4.130  | 1760.038 | 3.830   | -3.830  |
| 65. | 3378.102 | 1.440  | 3.280  | 2291.417 | -5.920  | -5.130  | 1762.344 | 4.750   | -4.750  |
| 66. | 3379.709 | 1.680  | 3.900  | 2286.884 | -7.020  | -6.050  | 1765.148 | 5.660   | -5.700  |
| 67. | 3381.556 | 1.900  | 4.490  | 2281.601 | -8.070  | -7.030  | 1768.444 | 6.540   | -6.540  |
| 68. | 3383.620 | 2.100  | 5.070  | 2275.605 | -9.070  | -7.940  | 1772.220 | 7.390   | -7.480  |
| 69. | 3385.873 | 2.270  | 5.610  | 2268.934 | -10.020 | -8.610  | 1776.464 | 8.210   | -8.340  |
| 70. | 3388.288 | 2.410  | 6.130  | 2261.633 | -10.900 | -9.640  | 1781.163 | 9.170   | -9.170  |
| 71. | 3390.835 | 2.520  | 6.630  | 2253.751 | -11.710 | -10.430 | 1786.300 | 9.740   | -9.970  |
| 72. | 3393.683 | 2.600  | 7.090  | 2245.339 | -12.460 | -11.170 | 1791.656 | 10.430  | -10.700 |
| 73. | 3396.202 | 2.650  | 7.530  | 2236.453 | -13.130 | -11.860 | 1797.608 | 11.080  | -11.400 |
| 74. | 3398.960 | 2.670  | 7.930  | 2227.152 | -13.720 | -12.540 | 1804.130 | 11.660  | -12.130 |
| 75. | 3401.721 | 2.660  | 8.310  | 2217.500 | -14.220 | -13.150 | 1810.793 | 12.160  | -12.670 |
| 76. | 3404.471 | 2.620  | 8.660  | 2207.565 | -14.620 | -13.720 | 1817.761 | 12.630  | -13.540 |
| 77. | 3407.165 | 2.560  | 8.980  | 2197.420 | -14.930 | -14.240 | 1824.992 | 13.090  | -14.110 |
| 78. | 3409.779 | 2.470  | 9.270  | 2187.144 | -15.120 | -14.710 | 1832.438 | 13.260  | -14.670 |
| 79. | 3412.286 | 2.350  | 9.540  | 2176.824 | -15.180 | -15.140 | 1840.041 | 13.410  | -15.260 |
| 80. | 3414.666 | 2.210  | 9.770  | 2166.357 | -15.100 | -15.530 | 1847.731 | 13.440  | -15.690 |
| 81. | 3416.890 | 2.050  | 9.990  | 2156.635 | -14.860 | -15.870 | 1855.424 | 13.310  | -16.140 |
| 82. | 3418.936 | 1.860  | 10.180 | 2146.635 | -14.410 | -16.160 | 1863.020 | 13.000  | -16.590 |
| 83. | 3420.792 | 1.660  | 10.340 | 2137.245 | -13.740 | -16.410 | 1870.398 | 12.470  | -16.920 |
| 84. | 3422.433 | 1.470  | 10.480 | 2128.450 | -12.800 | -16.620 | 1877.411 | 11.680  | -17.250 |
| 85. | 3423.868 | 1.240  | 10.600 | 2120.437 | -11.530 | -16.790 | 1883.887 | 10.560  | -17.540 |
| 86. | 3425.023 | 1.010  | 10.700 | 2113.418 | -9.810  | -16.910 | 1889.629 | 9.140   | -17.700 |
| 87. | 3425.946 | .760   | 10.770 | 2107.620 | -7.910  | -17.000 | 1894.422 | 7.320   | -17.820 |
| 88. | 3426.615 | .510   | 10.830 | 2103.269 | -5.530  | -17.070 | 1898.049 | 5.130   | -18.120 |
| 89. | 3427.017 | .260   | 10.860 | 2100.566 | 0.000   | -17.100 | 1901.007 | 2.650   | -18.240 |
| 90. | 3427.152 | -0.000 | 10.870 | 2099.648 | 0.000   | -17.110 | 1903.315 | 0.000   | -18.240 |
| 91. | 3427.017 | -.260  | 10.860 | 2100.566 | 2.850   | -17.100 | 1905.049 | -2.650  | -18.210 |
| 92. | 3426.615 | -.510  | 10.830 | 2103.269 | 5.530   | -17.070 | 1894.422 | -5.130  | -18.120 |
| 93. | 3425.946 | -.760  | 10.770 | 2107.620 | 7.910   | -17.000 | 1889.629 | -7.320  | -17.700 |
| 94. | 3425.023 | -1.010 | 10.700 | 2113.418 | 9.910   | -16.910 | 1883.887 | -9.140  | -17.250 |
| 95. | 3422.433 | -1.240 | 10.600 | 2120.437 | 11.530  | -16.750 | 1877.411 | -10.560 | -16.920 |
| 96. | 3420.792 | -1.470 | 10.480 | 2128.450 | 12.800  | -16.620 | 1870.398 | -9.140  | -16.590 |
| 97. | 3418.936 | -1.660 | 10.340 | 2137.245 | 13.740  | -16.410 | 1863.020 | -7.320  | -16.210 |
| 98. | 3416.890 | -1.860 | 10.180 | 2146.635 | 14.410  | -16.160 | 1855.424 | -5.130  | -15.820 |
| 99. | 3414.666 | -2.050 | 9.990  | 2156.635 | 14.860  | -15.870 | 1847.731 | -2.650  | -15.690 |

111-PLANE BISMUTH GERMANIUM OXIDE (SLOBODNIK AND SETHARES) BULK

|      | LNVEL    | LPM12  | LPM13   | FSRVEL   | FSPM12  | FSPM13  | SSRVEL   | SSPM12  | SSPM13   |
|------|----------|--------|---------|----------|---------|---------|----------|---------|----------|
| 100. | 3414.666 | -2.210 | 9.770   | 2166.557 | 15.100  | -15.530 | 1647.731 | -13.440 | 1647.731 |
| 101. | 3412.266 | -2.950 | 9.540   | 2176.824 | 15.180  | -15.140 | 1640.041 | -13.410 | 1640.041 |
| 102. | 3409.779 | -2.470 | 9.270   | 2187.144 | 15.120  | -14.710 | 1632.438 | -13.260 | 1632.438 |
| 103. | 3407.165 | -2.560 | 8.980   | 2197.820 | 14.930  | -14.240 | 1624.992 | -12.990 | 1624.992 |
| 104. | 3404.471 | -2.620 | 8.660   | 2207.565 | 14.620  | -13.720 | 1617.761 | -12.630 | 1617.761 |
| 105. | 3401.726 | -2.660 | 8.310   | 2217.500 | 14.220  | -13.150 | 1610.793 | -12.160 | 1610.793 |
| 106. | 3398.960 | -2.670 | 7.930   | 2227.152 | 13.720  | -12.540 | 1604.130 | -11.660 | 1604.130 |
| 107. | 3396.202 | -2.650 | 7.530   | 2236.453 | 13.130  | -11.860 | 1597.808 | -11.140 | 1597.808 |
| 108. | 3393.463 | -2.600 | 7.090   | 2245.335 | 12.460  | -11.170 | 1591.856 | -10.430 | 1591.856 |
| 109. | 3390.835 | -2.520 | 6.630   | 2253.751 | 11.710  | -10.430 | 1586.300 | -9.740  | 1586.300 |
| 110. | 3388.288 | -2.410 | 6.130   | 2261.633 | 10.900  | -9.640  | 1581.163 | -8.990  | 1581.163 |
| 111. | 3385.873 | -2.270 | 5.610   | 2268.934 | 10.020  | -8.810  | 1576.464 | -8.210  | 1576.464 |
| 112. | 3383.620 | -2.100 | 5.070   | 2275.605 | 9.070   | -7.940  | 1572.220 | -7.390  | 1572.220 |
| 113. | 3381.556 | -1.900 | 4.490   | 2281.601 | 8.070   | -7.030  | 1568.444 | -6.540  | 1568.444 |
| 114. | 3379.705 | -1.660 | 3.900   | 2286.884 | 7.020   | -6.090  | 1565.148 | -5.660  | 1565.148 |
| 115. | 3378.182 | -1.440 | 3.280   | 2291.417 | 5.920   | -5.130  | 1562.344 | -4.780  | 1562.344 |
| 116. | 3376.757 | -1.170 | 2.650   | 2295.169 | 4.780   | -4.130  | 1560.038 | -3.830  | 1560.038 |
| 117. | 3375.691 | -0.900 | 2.000   | 2298.114 | 3.620   | -3.120  | 1558.238 | -2.860  | 1558.238 |
| 118. | 3374.919 | -0.600 | 1.340   | 2300.233 | 2.436   | -2.090  | 1556.949 | -1.930  | 1556.949 |
| 119. | 3374.452 | -0.300 | 0.670   | 2301.510 | 1.220   | -1.050  | 1556.174 | -0.970  | 1556.174 |
| 120. | 3374.295 | 0.000  | 0.000   | 2301.937 | 0.000   | 0.000   | 1555.915 | -0.000  | 1555.915 |
| 121. | 3374.452 | .300   | -0.570  | 2301.510 | -1.220  | 1.050   | 1556.174 | 0.970   | 1556.174 |
| 122. | 3374.919 | .600   | -1.340  | 2300.233 | -2.436  | 2.090   | 1556.949 | 1.930   | 1556.949 |
| 123. | 3375.691 | .900   | -2.000  | 2298.114 | -3.620  | 3.120   | 1558.238 | 2.860   | 1558.238 |
| 124. | 3376.757 | 1.170  | -2.650  | 2295.166 | -4.780  | 4.130   | 1560.038 | 3.830   | 1560.038 |
| 125. | 3378.182 | 1.440  | -3.280  | 2291.416 | -5.920  | 5.130   | 1562.344 | 4.780   | 1562.344 |
| 126. | 3379.705 | 1.660  | -3.900  | 2286.884 | -7.020  | 6.090   | 1565.148 | 5.660   | 1565.148 |
| 127. | 3381.556 | 1.900  | -4.490  | 2281.601 | -8.070  | 7.030   | 1568.444 | 6.540   | 1568.444 |
| 128. | 3383.620 | 2.100  | -5.070  | 2275.605 | -9.070  | 7.940   | 1572.220 | 7.390   | 1572.220 |
| 129. | 3385.873 | 2.270  | -5.610  | 2268.934 | -10.020 | 8.810   | 1576.464 | 8.210   | 1576.464 |
| 130. | 3388.288 | 2.410  | -6.130  | 2261.633 | -10.900 | 9.640   | 1581.163 | 8.990   | 1581.163 |
| 131. | 3390.835 | 2.520  | -6.638  | 2253.751 | -11.710 | 10.430  | 1586.300 | 9.740   | 1586.300 |
| 132. | 3393.483 | 2.600  | -7.090  | 2245.339 | -12.466 | 11.170  | 1591.856 | 10.430  | 1591.856 |
| 133. | 3396.282 | 2.650  | -7.530  | 2236.453 | -13.130 | 11.860  | 1597.808 | 11.070  | 1597.808 |
| 134. | 3398.960 | 2.678  | -7.930  | 2227.152 | -13.720 | 12.540  | 1604.130 | 11.660  | 1604.130 |
| 135. | 3401.726 | 2.660  | -8.310  | 2217.500 | -14.220 | 13.150  | 1610.793 | 12.160  | 1610.793 |
| 136. | 3404.471 | 2.620  | -8.660  | 2207.565 | -14.620 | 13.720  | 1617.760 | 12.630  | 1617.760 |
| 137. | 3407.165 | 2.560  | -8.980  | 2197.820 | -14.930 | 14.240  | 1624.992 | 12.990  | 1624.992 |
| 138. | 3409.779 | 2.470  | -9.270  | 2187.144 | -15.120 | 14.710  | 1632.438 | 13.260  | 1632.438 |
| 139. | 3412.266 | 2.350  | -9.540  | 2176.824 | -15.180 | 15.140  | 1640.041 | 13.410  | 1640.041 |
| 140. | 3414.666 | 2.210  | -9.770  | 2166.557 | -15.100 | 15.530  | 1647.730 | 13.440  | 1647.730 |
| 141. | 3416.890 | 2.050  | -9.990  | 2156.453 | -14.860 | 15.670  | 1655.824 | 13.510  | 1655.824 |
| 142. | 3418.938 | 1.880  | -10.100 | 2146.634 | -14.410 | 15.160  | 1663.020 | 13.500  | 1663.020 |
| 143. | 3420.792 | 1.660  | -10.340 | 2137.245 | -13.740 | 14.610  | 1670.397 | 13.470  | 1670.397 |
| 144. | 3422.434 | 1.470  | -10.480 | 2128.450 | -12.800 | 14.020  | 1677.910 | 13.410  | 1677.910 |
| 145. | 3423.868 | 1.240  | -10.600 | 2120.437 | -11.530 | 13.290  | 1683.847 | 13.300  | 1683.847 |
| 146. | 3425.024 | 1.010  | -10.700 | 2113.418 | -9.910  | 12.500  | 1689.629 | 13.140  | 1689.629 |
| 147. | 3425.949 | .768   | -10.770 | 2107.620 | -7.910  | 11.660  | 1694.822 | 12.940  | 1694.822 |
| 148. | 3426.615 | .518   | -10.830 | 2103.269 | -5.530  | 10.780  | 1698.046 | 12.810  | 1698.046 |
| 149. | 3427.018 | .268   | -10.860 | 2100.565 | -2.850  | 10.000  | 1700.315 | 12.650  | 1700.315 |

111-PLANE BISMUTH GERMANIUM OXIDE (SLOBODNIK AND SETHARES)

BULK

|      | LMGVEL   | LPM112 | LPM113  | FSRVEL   | FSPM112 | FSPM113 | SSRVEL   | SSPM112 | SSPM113 |
|------|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 150. | 3427.152 | -0.000 | -10.070 | 2099.647 | 0.000   | 17.110  | 1901.087 | 0.000   | 18.240  |
| 151. | 3427.016 | -1.260 | -10.860 | 2100.565 | 2.054   | 17.100  | 1900.315 | -2.650  | 10.210  |
| 152. | 3426.615 | -1.510 | -10.830 | 2103.265 | 5.530   | 17.070  | 1896.048 | -5.130  | 10.120  |
| 153. | 3425.949 | -1.760 | -10.770 | 2107.620 | 7.910   | 17.000  | 1894.822 | -7.320  | 17.960  |
| 154. | 3425.024 | -1.010 | -10.700 | 2113.416 | 9.910   | 16.910  | 1893.625 | -9.140  | 17.700  |
| 155. | 3423.648 | -1.240 | -10.600 | 2120.437 | 11.530  | 16.790  | 1893.887 | -10.580 | 17.540  |
| 156. | 3422.434 | -1.470 | -10.480 | 2128.450 | 12.800  | 16.620  | 1893.997 | -11.660 | 17.250  |
| 157. | 3420.792 | -1.680 | -10.340 | 2137.245 | 13.740  | 16.410  | 1893.920 | -12.470 | 16.920  |
| 158. | 3418.936 | -1.860 | -10.180 | 2146.634 | 14.410  | 16.160  | 1893.824 | -13.060 | 16.520  |
| 159. | 3416.890 | -2.050 | -9.990  | 2156.453 | 14.860  | 15.870  | 1893.730 | -13.310 | 16.140  |
| 160. | 3414.666 | -2.210 | -9.770  | 2166.557 | 15.100  | 15.550  | 1893.641 | -13.440 | 15.690  |
| 161. | 3412.268 | -2.350 | -9.540  | 2176.824 | 15.160  | 15.140  | 1893.560 | -13.410 | 15.280  |
| 162. | 3409.779 | -2.470 | -9.270  | 2187.144 | 15.120  | 14.710  | 1893.486 | -13.260 | 14.870  |
| 163. | 3407.165 | -2.560 | -8.980  | 2197.420 | 14.930  | 14.240  | 1893.422 | -12.990 | 14.410  |
| 164. | 3404.471 | -2.620 | -8.660  | 2207.565 | 14.624  | 13.720  | 1893.366 | -12.630 | 13.940  |
| 165. | 3401.726 | -2.660 | -8.310  | 2217.500 | 14.220  | 13.150  | 1893.318 | -12.180 | 13.470  |
| 166. | 3398.960 | -2.670 | -7.930  | 2227.152 | 13.720  | 12.540  | 1893.276 | -11.660 | 12.990  |
| 167. | 3396.202 | -2.650 | -7.530  | 2236.453 | 13.130  | 11.880  | 1893.238 | -11.070 | 12.510  |
| 168. | 3393.463 | -2.600 | -7.090  | 2245.339 | 12.460  | 11.170  | 1893.204 | -10.430 | 12.030  |
| 169. | 3390.835 | -2.520 | -6.630  | 2253.751 | 11.710  | 10.430  | 1893.173 | -9.740  | 11.550  |
| 170. | 3388.266 | -2.410 | -6.130  | 2261.633 | 10.900  | 9.640   | 1893.143 | -9.000  | 11.070  |
| 171. | 3385.873 | -2.270 | -5.610  | 2269.934 | 10.020  | 8.810   | 1893.114 | -8.210  | 10.590  |
| 172. | 3383.620 | -2.100 | -5.070  | 2275.601 | 9.070   | 7.940   | 1893.086 | -7.390  | 10.110  |
| 173. | 3381.556 | -1.900 | -4.490  | 2281.601 | 8.070   | 7.030   | 1893.060 | -6.540  | 9.630   |
| 174. | 3379.709 | -1.680 | -3.900  | 2286.864 | 7.020   | 6.090   | 1893.036 | -5.660  | 9.150   |
| 175. | 3378.102 | -1.440 | -3.280  | 2291.416 | 5.920   | 5.130   | 1893.013 | -4.750  | 8.670   |
| 176. | 3376.757 | -1.170 | -2.650  | 2295.166 | 4.780   | 4.130   | 1892.990 | -3.830  | 8.190   |
| 177. | 3375.691 | -900   | -2.000  | 2298.114 | 3.620   | 3.120   | 1892.968 | -2.880  | 7.710   |
| 178. | 3374.919 | -680   | -1.340  | 2300.233 | 2.430   | 2.090   | 1892.949 | -1.930  | 7.230   |
| 179. | 3374.452 | -500   | -0.670  | 2301.510 | 1.220   | 1.050   | 1892.934 | -0.970  | 6.750   |
| 180. | 3374.295 | 0.000  | 0.000   | 2301.937 | -0.000  | -0.000  | 1892.921 | 0.000   | 6.270   |

| 110-PLANE BISMUTH GERMANIUM OXIDE (SLOBODNIK AND SETHARES) |          |        |          |         |        |          |         |        |  |  |
|--|----------|--------|----------|---------|--------|----------|---------|--------|--|--|
| BULK   |          |        |          |         |        |          |         |        |  |  |
|  | LPHI12   | LPMI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |  |  |
| 0.   | 3310.409 | -0.000 | 2111.051 | -14.970 | 0.000  | 2111.044 | 14.970  | -0.000 |  |  |
| 1.   | 3310.657 | -0.000 | 2101.120 | -15.270 | -0.000 | 2120.402 | 13.650  | 0.000  |  |  |
| 2.   | 3311.424 | 1.040  | 2091.031 | -15.560 | -0.000 | 2129.050 | 12.310  | 0.000  |  |  |
| 3.   | 3312.760 | 1.610  | 2080.794 | -15.846 | -0.000 | 2136.603 | 10.650  | 0.000  |  |  |
| 4.   | 3314.650 | 2.220  | 2070.420 | -16.110 | -0.000 | 2143.321 | 9.290   | 0.000  |  |  |
| 5.   | 3317.247 | 2.850  | 2059.920 | -16.370 | -0.000 | 2148.907 | 7.660   | -0.000 |  |  |
| 6.   | 3320.459 | 3.500  | 2049.304 | -16.610 | -0.000 | 2153.393 | 5.560   | 0.000  |  |  |
| 7.   | 3324.346 | 4.170  | 2038.583 | -16.840 | -0.000 | 2156.740 | 4.200   | 0.000  |  |  |
| 8.   | 3328.921 | 4.840  | 2027.770 | -17.050 | -0.000 | 2158.912 | 2.400   | -0.000 |  |  |
| 9.   | 3334.133 | 5.520  | 2016.875 | -17.250 | -0.000 | 2159.888 | 0.560   | 0.000  |  |  |
| 10.  | 3340.160 | 6.180  | 2005.912 | -17.430 | -0.000 | 2159.651 | -1.290  | 0.000  |  |  |
| 11.  | 3346.815 | 6.830  | 1994.892 | -17.600 | -0.000 | 2158.196 | -3.140  | 0.000  |  |  |
| 12.  | 3354.143 | 7.450  | 1983.827 | -17.750 | -0.000 | 2155.527 | -4.970  | 0.000  |  |  |
| 13.  | 3362.124 | 8.050  | 1972.732 | -17.886 | -0.000 | 2151.655 | -6.760  | 0.000  |  |  |
| 14.  | 3370.729 | 8.610  | 1961.616 | -17.990 | -0.000 | 2146.602 | -8.550  | 0.000  |  |  |
| 15.  | 3379.925 | 9.130  | 1950.500 | -18.080 | -0.000 | 2140.396 | -10.270 | 0.000  |  |  |
| 16.  | 3389.622 | 9.600  | 1939.390 | -18.160 | -0.000 | 2133.075 | -11.930 | 0.000  |  |  |
| 17.  | 3399.928 | 10.030 | 1928.303 | -18.210 | -0.000 | 2124.680 | -13.520 | 0.000  |  |  |
| 18.  | 3410.645 | 10.410 | 1917.252 | -18.240 | -0.000 | 2115.260 | -15.030 | 0.000  |  |  |
| 19.  | 3421.775 | 10.730 | 1906.252 | -18.250 | -0.000 | 2104.869 | -16.470 | 0.000  |  |  |
| 20.  | 3433.265 | 11.010 | 1895.316 | -18.230 | -0.000 | 2093.564 | -17.810 | 0.000  |  |  |
| 21.  | 3445.084 | 11.230 | 1884.463 | -18.190 | -0.000 | 2081.408 | -19.070 | 0.000  |  |  |
| 22.  | 3457.118 | 11.400 | 1873.703 | -18.130 | -0.000 | 2068.465 | -20.240 | 0.000  |  |  |
| 23.  | 3469.374 | 11.520 | 1863.052 | -18.040 | -0.000 | 2054.601 | -21.330 | 0.000  |  |  |
| 24.  | 3481.779 | 11.590 | 1852.526 | -17.930 | -0.000 | 2040.487 | -22.310 | 0.000  |  |  |
| 25.  | 3494.282 | 11.610 | 1842.139 | -17.780 | -0.000 | 2025.591 | -23.210 | 0.000  |  |  |
| 26.  | 3506.831 | 11.590 | 1831.906 | -17.610 | -0.000 | 2010.188 | -24.020 | 0.000  |  |  |
| 27.  | 3519.378 | 11.530 | 1821.843 | -17.410 | -0.000 | 1994.346 | -24.730 | 0.000  |  |  |
| 28.  | 3531.875 | 11.420 | 1811.966 | -17.180 | -0.000 | 1978.146 | -25.350 | 0.000  |  |  |
| 29.  | 3544.277 | 11.260 | 1802.288 | -16.930 | -0.000 | 1961.655 | -25.890 | 0.000  |  |  |
| 30.  | 3556.540 | 11.100 | 1792.825 | -16.640 | -0.000 | 1944.951 | -26.310 | 0.000  |  |  |
| 31.  | 3568.622 | 10.890 | 1783.593 | -16.320 | -0.000 | 1928.106 | -26.650 | 0.000  |  |  |
| 32.  | 3580.485 | 10.640 | 1774.606 | -15.960 | -0.000 | 1911.201 | -26.890 | 0.000  |  |  |
| 33.  | 3592.089 | 10.360 | 1765.879 | -15.580 | -0.000 | 1894.306 | -27.030 | 0.000  |  |  |
| 34.  | 3603.401 | 10.060 | 1757.426 | -15.160 | -0.000 | 1877.496 | -27.060 | 0.000  |  |  |
| 35.  | 3614.385 | 9.720  | 1749.262 | -14.710 | -0.000 | 1860.848 | -26.590 | 0.000  |  |  |
| 36.  | 3625.012 | 9.370  | 1741.402 | -14.220 | -0.000 | 1844.434 | -26.610 | 0.000  |  |  |
| 37.  | 3635.251 | 8.990  | 1733.856 | -13.710 | -0.000 | 1828.330 | -26.520 | 0.000  |  |  |
| 38.  | 3645.075 | 8.590  | 1726.644 | -13.160 | -0.000 | 1812.608 | -26.110 | 0.000  |  |  |
| 39.  | 3654.458 | 8.170  | 1719.773 | -12.570 | -0.000 | 1797.340 | -25.560 | 0.000  |  |  |
| 40.  | 3663.376 | 7.730  | 1713.258 | -11.960 | -0.000 | 1782.598 | -24.920 | 0.000  |  |  |
| 41.  | 3671.806 | 7.270  | 1707.110 | -11.310 | -0.000 | 1768.450 | -24.130 | 0.000  |  |  |
| 42.  | 3679.729 | 6.800  | 1701.342 | -10.630 | -0.000 | 1754.965 | -23.210 | 0.000  |  |  |
| 43.  | 3687.125 | 6.320  | 1695.964 | -9.930  | -0.000 | 1742.208 | -22.140 | 0.000  |  |  |
| 44.  | 3693.977 | 5.820  | 1690.967 | -9.190  | -0.000 | 1730.241 | -20.530 | 0.000  |  |  |
| 45.  | 3700.269 | 5.310  | 1686.419 | -8.420  | -0.000 | 1719.124 | -19.560 | 0.000  |  |  |
| 46.  | 3705.988 | 4.800  | 1682.271 | -7.640  | -0.000 | 1708.914 | -18.060 | 0.000  |  |  |
| 47.  | 3711.119 | 4.270  | 1678.550 | -6.820  | -0.000 | 1699.663 | -16.440 | 0.000  |  |  |
| 48.  | 3715.653 | 3.730  | 1675.264 | -5.990  | -0.000 | 1691.420 | -14.660 | 0.000  |  |  |
| 49.  | 3719.579 | 3.190  | 1672.416 | -5.130  | -0.000 | 1684.228 | -12.750 | 0.000  |  |  |



110-PLANE BISMUTH GERMANIUM OXIDE (SLORONIK AND SETHARES)

BULK

|     | LNVEL    | LPMI2   | LPMI3  | FSRVEL   | FSPMI2 | FSPMI3 | SSRVEL   | SSPMI2  | SSPMI3 |
|-----|----------|---------|--------|----------|--------|--------|----------|---------|--------|
| 50. | 3722.809 | 2.650   | -0.000 | 1670.820 | -4.250 | 0.000  | 1676.125 | -10.720 | 0.000  |
| 51. | 3725.576 | 2.090   | -0.000 | 1668.073 | -3.360 | -0.000 | 1673.155 | -0.550  | 0.000  |
| 52. | 3727.633 | 1.530   | -0.000 | 1666.563 | -2.440 | -0.000 | 1669.314 | -6.360  | 0.000  |
| 53. | 3729.056 | .970    | -0.000 | 1665.550 | -1.560 | -0.000 | 1666.693 | -4.070  | 0.000  |
| 54. | 3729.846 | .410    | -0.000 | 1664.979 | -.670  | -0.000 | 1664.178 | -1.730  | 0.000  |
| 55. | 3729.997 | -.150   | -0.000 | 1664.836 | -.220  | 0.000  | 1664.878 | -.240   | 0.000  |
| 56. | 3729.509 | -.710   | -0.000 | 1665.223 | 1.150  | 0.000  | 1665.809 | 2.970   | 0.000  |
| 57. | 3729.305 | -1.270  | -0.000 | 1666.036 | 2.060  | 0.000  | 1667.911 | 5.920   | 0.000  |
| 58. | 3726.625 | -1.830  | -0.000 | 1667.313 | 2.960  | 0.000  | 1671.192 | 7.550   | 0.000  |
| 59. | 3724.235 | -2.390  | -0.000 | 1669.045 | 3.850  | 0.000  | 1675.633 | 9.730   | 0.000  |
| 60. | 3721.219 | -2.960  | -0.000 | 1671.230 | 4.730  | 0.000  | 1681.210 | 11.810  | 0.000  |
| 61. | 3717.582 | -3.480  | -0.000 | 1673.885 | 5.590  | 0.000  | 1687.892 | 13.780  | 0.000  |
| 62. | 3713.334 | -4.020  | -0.000 | 1676.944 | 6.430  | 0.000  | 1695.844 | 15.620  | 0.000  |
| 63. | 3708.483 | -4.550  | -0.000 | 1680.461 | 7.250  | 0.000  | 1704.425 | 17.330  | 0.000  |
| 64. | 3703.041 | -5.070  | -0.000 | 1684.409 | 8.060  | 0.000  | 1714.189 | 18.890  | 0.000  |
| 65. | 3697.016 | -5.580  | -0.000 | 1688.779 | 8.830  | 0.000  | 1724.884 | 20.310  | 0.000  |
| 66. | 3690.428 | -6.090  | -0.000 | 1693.564 | 9.580  | 0.000  | 1736.457 | 21.590  | 0.000  |
| 67. | 3683.267 | -6.580  | -0.000 | 1698.755 | 10.300 | 0.000  | 1748.059 | 22.720  | 0.000  |
| 68. | 3675.610 | -7.050  | -0.000 | 1704.340 | 10.990 | 0.000  | 1761.999 | 23.710  | 0.000  |
| 69. | 3667.417 | -7.520  | -0.000 | 1710.310 | 11.660 | 0.000  | 1775.642 | 24.570  | 0.000  |
| 70. | 3658.726 | -7.960  | -0.000 | 1716.653 | 12.290 | 0.000  | 1790.312 | 25.290  | 0.000  |
| 71. | 3649.560 | -8.390  | -0.000 | 1723.357 | 12.890 | 0.000  | 1805.340 | 25.860  | 0.000  |
| 72. | 3639.941 | -8.800  | -0.000 | 1730.441 | 13.460 | 0.000  | 1821.657 | 26.340  | 0.000  |
| 73. | 3629.895 | -9.190  | -0.000 | 1737.800 | 13.990 | 0.000  | 1838.740 | 26.890  | 0.000  |
| 74. | 3619.446 | -9.560  | -0.000 | 1745.513 | 14.480 | 0.000  | 1853.867 | 27.320  | 0.000  |
| 75. | 3608.628 | -9.900  | -0.000 | 1753.536 | 14.950 | 0.000  | 1868.613 | 27.040  | 0.000  |
| 76. | 3597.467 | -10.220 | -0.000 | 1761.884 | 15.380 | 0.000  | 1883.556 | 27.060  | 0.000  |
| 77. | 3585.966 | -10.510 | -0.000 | 1770.453 | 15.790 | 0.000  | 1903.221 | 26.970  | 0.000  |
| 78. | 3574.251 | -10.770 | -0.000 | 1779.320 | 16.160 | 0.000  | 1920.132 | 26.770  | 0.000  |
| 79. | 3562.268 | -11.000 | -0.000 | 1788.438 | 16.490 | 0.000  | 1937.014 | 26.460  | 0.000  |
| 80. | 3550.085 | -11.200 | -0.000 | 1797.794 | 16.790 | 0.000  | 1953.793 | 26.100  | 0.000  |
| 81. | 3537.744 | -11.360 | -0.000 | 1807.372 | 17.070 | 0.000  | 1970.394 | 25.610  | 0.000  |
| 82. | 3525.266 | -11.480 | -0.000 | 1817.157 | 17.310 | 0.000  | 1986.741 | 25.040  | 0.000  |
| 83. | 3512.756 | -11.570 | -0.000 | 1827.135 | 17.520 | 0.000  | 2002.761 | 24.370  | 0.000  |
| 84. | 3500.202 | -11.610 | -0.000 | 1837.229 | 17.710 | 0.000  | 2018.360 | 23.600  | 0.000  |
| 85. | 3487.671 | -11.610 | -0.000 | 1847.605 | 17.860 | 0.000  | 2033.524 | 22.750  | 0.000  |
| 86. | 3475.214 | -11.560 | -0.000 | 1858.057 | 17.990 | 0.000  | 2048.101 | 21.800  | 0.000  |
| 87. | 3462.861 | -11.460 | -0.000 | 1868.661 | 18.090 | 0.000  | 2062.102 | 20.770  | 0.000  |
| 88. | 3450.725 | -11.310 | 0.000  | 1879.372 | 18.170 | 0.000  | 2075.393 | 19.640  | 0.000  |
| 89. | 3438.799 | -11.120 | 0.000  | 1890.144 | 18.220 | 0.000  | 2087.929 | 18.420  | 0.000  |
| 90. | 3427.156 | -10.870 | 0.000  | 1901.082 | 18.250 | 0.000  | 2099.643 | 17.110  | 0.000  |
| 91. | 3415.850 | -10.570 | 0.000  | 1912.083 | 18.250 | 0.000  | 2110.473 | 15.720  | 0.000  |
| 92. | 3404.932 | -10.210 | 0.000  | 1923.041 | 18.230 | 0.000  | 2120.358 | 14.420  | 0.000  |
| 93. | 3394.452 | -9.810  | 0.000  | 1934.153 | 18.160 | 0.000  | 2129.243 | 12.690  | 0.000  |
| 94. | 3384.459 | -9.360  | 0.000  | 1945.254 | 18.120 | 0.000  | 2137.077 | 11.060  | 0.000  |
| 95. | 3374.998 | -8.860  | 0.000  | 1956.370 | 18.040 | 0.000  | 2143.614 | 9.370   | 0.000  |
| 96. | 3366.110 | -8.320  | 0.000  | 1967.488 | 17.930 | 0.000  | 2149.416 | 7.620   | 0.000  |
| 97. | 3357.831 | -7.740  | 0.000  | 1978.593 | 17.810 | 0.000  | 2153.946 | 5.830   | 0.000  |
| 98. | 3350.191 | -7.130  | 0.000  | 1989.674 | 17.670 | 0.000  | 2157.067 | 4.010   | 0.000  |
| 99. | 3343.216 | -6.490  | -0.000 | 2000.717 | 17.510 | 0.000  | 2159.116 | 2.160   | -0.000 |

|      | 110-PLANE BISMUTH GERMANIUM OXIDE (SLOBODNIK AND SETHARES) |        |          |         |         |          |         |         |        |        | BULK |  |
|------|--|--------|----------|---------|---------|----------|---------|---------|--------|--------|------|--|
|      | LMPI12   | LMPI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |        |        |      |  |
| 100. | 3336.923   | 0.000  | 2011.708 | 17.340  | 0.000   | 2154.928 | 0.000   | 0.000   | -0.000 | -0.000 |      |  |
| 101. | 3331.323   | 0.000  | 2822.637 | 17.150  | 0.000   | 2159.523 | -1.530  | 0.000   | -0.000 | -0.000 |      |  |
| 102. | 3326.419   | 0.000  | 2033.490 | 16.940  | 0.000   | 2155.117 | -3.350  | 0.000   | -0.000 | -0.000 |      |  |
| 103. | 3322.209   | 0.000  | 2944.256 | 16.720  | 0.000   | 2151.164 | -5.130  | 0.000   | -0.000 | -0.000 |      |  |
| 104. | 3318.680   | 0.000  | 2854.923 | 16.480  | 0.000   | 2146.091 | -6.860  | 0.000   | -0.000 | -0.000 |      |  |
| 105. | 3315.617   | 0.000  | 2865.479 | 16.240  | 0.000   | 2139.944 | -8.530  | 0.000   | -0.000 | -0.000 |      |  |
| 106. | 3313.595   | 0.000  | 2075.914 | 15.970  | 0.000   | 2132.773 | -10.120 | 0.000   | -0.000 | -0.000 |      |  |
| 107. | 3311.985   | 0.000  | 2886.217 | 15.700  | 0.000   | 2124.638 | -11.630 | 0.000   | -0.000 | -0.000 |      |  |
| 108. | 3310.953   | 0.000  | 2096.377 | 15.410  | 0.000   | 2115.602 | -13.850 | 0.000   | -0.000 | -0.000 |      |  |
| 109. | 3310.464   | 0.000  | 2106.384 | 15.110  | 0.000   | 2105.733 | -14.380 | 0.000   | -0.000 | -0.000 |      |  |
| 110. | 3310.476   | 0.000  | 2116.228 | 14.800  | 0.000   | 2095.102 | -15.600 | 0.000   | -0.000 | -0.000 |      |  |
| 111. | 3310.947   | 0.000  | 2125.900 | 14.460  | 0.000   | 2083.783 | -16.720 | 0.000   | -0.000 | -0.000 |      |  |
| 112. | 3311.835   | 0.000  | 2135.390 | 14.150  | 0.000   | 2071.851 | -17.750 | 0.000   | -0.000 | -0.000 |      |  |
| 113. | 3313.895   | 0.000  | 2144.688 | 13.810  | 0.000   | 2059.382 | -18.660 | 0.000   | -0.000 | -0.000 |      |  |
| 114. | 3314.885   | 0.000  | 2153.787 | 13.460  | 0.000   | 2046.453 | -19.460 | 0.000   | -0.000 | -0.000 |      |  |
| 115. | 3316.562   | 0.000  | 2162.676 | 13.100  | 0.000   | 2033.140 | -20.190 | 0.000   | -0.000 | -0.000 |      |  |
| 116. | 3318.684   | 0.000  | 2171.352 | 12.730  | 0.000   | 2019.518 | -20.800 | 0.000   | -0.000 | -0.000 |      |  |
| 117. | 3321.813   | 0.000  | 2179.882 | 12.360  | 0.000   | 2005.662 | -21.310 | 0.000   | -0.000 | -0.000 |      |  |
| 118. | 3323.510   | 0.000  | 2188.020 | 11.970  | 0.000   | 1991.844 | -21.730 | 0.000   | -0.000 | -0.000 |      |  |
| 119. | 3326.140   | 0.000  | 2195.999 | 11.580  | 0.000   | 1977.535 | -22.040 | 0.000   | -0.000 | -0.000 |      |  |
| 120. | 3328.870   | 0.000  | 2203.731 | 11.190  | 0.000   | 1963.405 | -22.270 | 0.000   | -0.000 | -0.000 |      |  |
| 121. | 3331.670   | 0.000  | 2211.210 | 10.780  | 0.000   | 1949.319 | -22.390 | 0.000   | -0.000 | -0.000 |      |  |
| 122. | 3334.510   | 0.000  | 2218.429 | 10.370  | 0.000   | 1935.344 | -22.430 | 0.000   | -0.000 | -0.000 |      |  |
| 123. | 3337.365   | 0.000  | 2225.382 | 9.960   | 0.000   | 1921.541 | -22.370 | 0.000   | -0.000 | -0.000 |      |  |
| 124. | 3340.211   | 0.000  | 2232.063 | 9.530   | 0.000   | 1907.971 | -22.210 | 0.000   | -0.000 | -0.000 |      |  |
| 125. | 3343.026   | 0.000  | 2238.467 | 9.110   | 0.000   | 1894.691 | -21.970 | 0.000   | -0.000 | -0.000 |      |  |
| 126. | 3345.792   | 0.000  | 2244.587 | 8.680   | 0.000   | 1881.758 | -21.630 | 0.000   | -0.000 | -0.000 |      |  |
| 127. | 3348.490   | 0.000  | 2250.420 | 8.240   | 0.000   | 1869.223 | -21.210 | 0.000   | -0.000 | -0.000 |      |  |
| 128. | 3351.105   | 0.000  | 2255.960 | 7.800   | 0.000   | 1857.139 | -20.680 | 0.000   | -0.000 | -0.000 |      |  |
| 129. | 3353.623   | 0.000  | 2261.202 | 7.350   | 0.000   | 1845.522 | -20.070 | 0.000   | -0.000 | -0.000 |      |  |
| 130. | 3356.033   | 0.000  | 2266.142 | 6.900   | 0.000   | 1834.589 | -19.370 | 0.000   | -0.000 | -0.000 |      |  |
| 131. | 3358.322   | 0.000  | 2270.777 | 6.450   | 0.000   | 1824.052 | -18.570 | 0.000   | -0.000 | -0.000 |      |  |
| 132. | 3360.482   | 0.000  | 2275.101 | 5.990   | 0.000   | 1814.221 | -17.600 | 0.000   | -0.000 | -0.000 |      |  |
| 133. | 3362.505   | 0.000  | 2279.113 | 5.530   | 0.000   | 1805.055 | -16.710 | 0.000   | -0.000 | -0.000 |      |  |
| 134. | 3364.383   | 0.000  | 2282.809 | 5.070   | 0.000   | 1796.588 | -15.640 | 0.000   | -0.000 | -0.000 |      |  |
| 135. | 3366.111   | 0.000  | 2286.185 | 4.610   | 0.000   | 1788.852 | -14.500 | 0.000   | -0.000 | -0.000 |      |  |
| 136. | 3367.683   | 0.000  | 2289.239 | 4.140   | 0.000   | 1781.877 | -13.260 | 0.000   | -0.000 | -0.000 |      |  |
| 137. | 3369.094   | 0.000  | 2291.969 | 3.670   | 0.000   | 1775.688 | -11.960 | 0.000   | -0.000 | -0.000 |      |  |
| 138. | 3370.342   | 0.000  | 2294.372 | 3.200   | 0.000   | 1770.309 | -10.560 | 0.000   | -0.000 | -0.000 |      |  |
| 139. | 3371.422   | 0.000  | 2296.447 | 2.730   | 0.000   | 1765.768 | -9.130  | 0.000   | -0.000 | -0.000 |      |  |
| 140. | 3372.333   | 0.000  | 2298.192 | 2.250   | 0.000   | 1762.058 | -7.630  | 0.000   | -0.000 | -0.000 |      |  |
| 141. | 3373.073   | 0.000  | 2299.605 | 1.780   | 0.000   | 1759.216 | -6.080  | 0.000   | -0.000 | -0.000 |      |  |
| 142. | 3373.639   | 0.000  | 2300.686 | 1.300   | 0.000   | 1757.246 | -4.460  | 0.000   | -0.000 | -0.000 |      |  |
| 143. | 3374.031   | 0.000  | 2301.433 | 0.830   | 0.000   | 1756.155 | -2.860  | 0.000   | -0.000 | -0.000 |      |  |
| 144. | 3374.248   | 0.000  | 2301.846 | 0.350   | 0.000   | 1755.946 | -1.220  | 0.000   | -0.000 | -0.000 |      |  |
| 145. | 3374.289   | 0.000  | 2301.925 | -0.130  | 0.000   | 1756.621 | 0.440   | 0.000   | -0.000 | -0.000 |      |  |
| 146. | 3374.155   | 0.000  | 2301.670 | -0.600  | 0.000   | 1758.177 | 2.890   | 0.000   | -0.000 | -0.000 |      |  |
| 147. | 3373.846   | 0.000  | 2301.880 | -1.080  | 0.000   | 1760.600 | 5.330   | 0.000   | -0.000 | -0.000 |      |  |
| 148. | 3373.362   | 0.000  | 2301.157 | -1.560  | 0.000   | 1763.986 | 6.900   | 0.000   | -0.000 | -0.000 |      |  |
| 149. | 3372.784   | 0.000  | 2298.900 | -2.030  | 0.000   |          |         | 0.000   | -0.000 | -0.000 |      |  |

110-PLANE BISMUTH GERMANIUM OXIDE (SLOBODNIK AND SETHARES) BULK

|      | LHGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 3371.873 | -0.690 | 0.000  | 2297.312 | -2.590  | 0.000   | 1766.057 | 8.430   | 0.000   |
| 151. | 3370.873 | -1.060 | 0.000  | 2295.393 | -2.560  | 0.000   | 1773.047 | 9.500   | 0.000   |
| 152. | 3369.704 | -1.220 | 0.000  | 2293.144 | -3.450  | 0.000   | 1776.856 | 11.310  | 0.000   |
| 153. | 3368.369 | -1.360 | 0.000  | 2290.568 | -3.920  | 0.000   | 1782.464 | 12.660  | 0.000   |
| 154. | 3366.872 | -1.540 | 0.000  | 2287.667 | -4.390  | 0.000   | 1782.844 | 13.920  | 0.000   |
| 155. | 3365.218 | -1.690 | 0.000  | 2284.442 | -4.650  | 0.000   | 1800.970 | 15.110  | 0.000   |
| 156. | 3363.410 | -1.840 | 0.000  | 2280.897 | -5.320  | 0.000   | 1809.610 | 16.220  | 0.000   |
| 157. | 3361.455 | -1.960 | 0.000  | 2277.034 | -5.760  | 0.000   | 1819.331 | 17.230  | 0.000   |
| 158. | 3359.358 | -2.110 | 0.000  | 2272.857 | -6.230  | 0.000   | 1829.497 | 18.160  | 0.000   |
| 159. | 3357.125 | -2.240 | 0.000  | 2268.368 | -6.650  | 0.000   | 1840.264 | 19.000  | 0.000   |
| 160. | 3354.775 | -2.360 | 0.000  | 2263.571 | -7.140  | 0.000   | 1851.685 | 19.750  | 0.000   |
| 161. | 3352.387 | -2.470 | 0.000  | 2258.471 | -7.590  | 0.000   | 1863.460 | 20.410  | 0.000   |
| 162. | 3349.736 | -2.560 | 0.000  | 2253.072 | -8.030  | 0.000   | 1875.789 | 20.970  | 0.000   |
| 163. | 3347.075 | -2.650 | 0.000  | 2247.377 | -8.470  | 0.000   | 1888.540 | 21.440  | 0.000   |
| 164. | 3344.339 | -2.710 | 0.000  | 2241.391 | -8.900  | 0.000   | 1901.663 | 21.820  | 0.000   |
| 165. | 3341.545 | -2.770 | 0.000  | 2235.121 | -9.330  | 0.000   | 1915.103 | 22.110  | 0.000   |
| 166. | 3338.711 | -2.800 | 0.000  | 2228.570 | -9.760  | 0.000   | 1928.804 | 22.310  | 0.000   |
| 167. | 3335.857 | -2.810 | 0.000  | 2221.744 | -10.180 | 0.000   | 1942.705 | 22.410  | 0.000   |
| 168. | 3333.087 | -2.800 | 0.000  | 2214.650 | -10.590 | 0.000   | 1956.747 | 22.420  | 0.000   |
| 169. | 3330.165 | -2.760 | 0.000  | 2207.293 | -11.000 | 0.000   | 1970.864 | 22.340  | 0.000   |
| 170. | 3327.416 | -2.690 | 0.000  | 2199.679 | -11.400 | 0.000   | 1984.992 | 22.160  | 0.000   |
| 171. | 3324.737 | -2.590 | 0.000  | 2191.816 | -11.790 | 0.000   | 1999.062 | 21.690  | 0.000   |
| 172. | 3322.173 | -2.460 | 0.000  | 2183.711 | -12.160 | 0.000   | 2013.003 | 21.520  | 0.000   |
| 173. | 3319.760 | -2.300 | 0.000  | 2175.369 | -12.560 | 0.000   | 2026.745 | 21.050  | 0.000   |
| 174. | 3317.535 | -2.090 | 0.000  | 2166.800 | -12.930 | 0.000   | 2040.213 | 20.490  | 0.000   |
| 175. | 3315.538 | -1.850 | 0.000  | 2158.010 | -13.290 | 0.000   | 2053.332 | 19.630  | 0.000   |
| 176. | 3313.807 | -1.570 | 0.000  | 2149.009 | -13.640 | 0.000   | 2066.026 | 19.060  | 0.000   |
| 177. | 3312.386 | -1.240 | 0.000  | 2139.803 | -13.990 | 0.000   | 2078.223 | 18.190  | 0.000   |
| 178. | 3311.317 | -0.870 | 0.000  | 2130.682 | -14.330 | 0.000   | 2089.641 | 17.220  | 0.000   |
| 179. | 3310.643 | -0.460 | 0.000  | 2120.815 | -14.650 | 0.000   | 2100.886 | 16.140  | 0.000   |
| 180. | 3310.409 | -0.000 | 0.000  | 2111.051 | -14.970 | 0.000   | 2111.044 | 14.970  | 0.000   |

|     | Z-PLANE (XY-PLANE) BISMUTH GERMANIUM OXIDE (KRAUT ET AL) |        |          |         |         |          |         |         |          |         | BULK  |       |
|-----|--|--------|----------|---------|---------|----------|---------|---------|----------|---------|-------|-------|
|     | LPMI12   | LPMI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |          |         |       |       |
| 0.  | 0.000  | 0.000  | 1665.507 | 0.000   | 0.000   | 1665.507 | 0.000   | 0.000   | 1665.507 | 0.000   | 0.000 | 0.000 |
| 1.  | -0.570   | 0.000  | 1665.621 | 0.450   | 0.000   | 1666.239 | 2.660   | 0.000   | 1666.239 | 2.660   | 0.000 | 0.000 |
| 2.  | -1.150   | 0.000  | 1665.963 | 0.000   | 0.000   | 1666.430 | 5.720   | 0.000   | 1666.430 | 5.720   | 0.000 | 0.000 |
| 3.  | -1.720   | 0.000  | 1666.532 | 1.360   | 0.000   | 1667.071 | 8.590   | 0.000   | 1667.071 | 8.590   | 0.000 | 0.000 |
| 4.  | -2.260   | 0.000  | 1667.324 | 2.200   | 0.000   | 1672.193 | 11.170  | 0.000   | 1672.193 | 11.170  | 0.000 | 0.000 |
| 5.  | -2.850   | 0.000  | 1668.334 | 2.200   | 0.000   | 1683.623 | 13.720  | 0.000   | 1683.623 | 13.720  | 0.000 | 0.000 |
| 6.  | -3.410   | 0.000  | 1669.599 | 2.610   | 0.000   | 1691.478 | 16.120  | 0.000   | 1691.478 | 16.120  | 0.000 | 0.000 |
| 7.  | -3.970   | 0.000  | 1670.990 | 3.010   | 0.000   | 1700.673 | 18.360  | 0.000   | 1700.673 | 18.360  | 0.000 | 0.000 |
| 8.  | -4.510   | 0.000  | 1672.621 | 3.390   | 0.000   | 1711.163 | 20.430  | 0.000   | 1711.163 | 20.430  | 0.000 | 0.000 |
| 9.  | -5.060   | 0.000  | 1674.444 | 3.750   | 0.000   | 1722.991 | 22.320  | 0.000   | 1722.991 | 22.320  | 0.000 | 0.000 |
| 10. | -5.590   | 0.000  | 1676.446 | 4.090   | 0.000   | 1735.834 | 24.040  | 0.000   | 1735.834 | 24.040  | 0.000 | 0.000 |
| 11. | -6.120   | 0.000  | 1678.624 | 4.410   | 0.000   | 1749.904 | 25.560  | 0.000   | 1749.904 | 25.560  | 0.000 | 0.000 |
| 12. | -6.630   | 0.000  | 1680.960 | 4.700   | 0.000   | 1765.049 | 26.950  | 0.000   | 1765.049 | 26.950  | 0.000 | 0.000 |
| 13. | -7.130   | 0.000  | 1683.444 | 4.970   | 0.000   | 1781.204 | 28.150  | 0.000   | 1781.204 | 28.150  | 0.000 | 0.000 |
| 14. | -7.620   | 0.000  | 1686.063 | 5.210   | 0.000   | 1798.301 | 29.200  | 0.000   | 1798.301 | 29.200  | 0.000 | 0.000 |
| 15. | -8.100   | 0.000  | 1688.805 | 5.420   | 0.000   | 1816.266 | 30.100  | 0.000   | 1816.266 | 30.100  | 0.000 | 0.000 |
| 16. | -8.560   | 0.000  | 1691.694 | 5.610   | 0.000   | 1835.032 | 30.860  | 0.000   | 1835.032 | 30.860  | 0.000 | 0.000 |
| 17. | -9.000   | 0.000  | 1694.797 | 5.760   | 0.000   | 1854.516 | 31.480  | 0.000   | 1854.516 | 31.480  | 0.000 | 0.000 |
| 18. | -9.420   | 0.000  | 1697.619 | 5.950   | 0.000   | 1874.643 | 31.970  | 0.000   | 1874.643 | 31.970  | 0.000 | 0.000 |
| 19. | -9.810   | 0.000  | 1700.705 | 6.090   | 0.000   | 1895.333 | 32.340  | 0.000   | 1895.333 | 32.340  | 0.000 | 0.000 |
| 20. | -10.150  | 0.000  | 1703.040 | 6.090   | 0.000   | 1916.503 | 32.590  | 0.000   | 1916.503 | 32.590  | 0.000 | 0.000 |
| 21. | -10.530  | 0.000  | 1707.007 | 6.090   | 0.000   | 1938.071 | 32.730  | 0.000   | 1938.071 | 32.730  | 0.000 | 0.000 |
| 22. | -10.850  | 0.000  | 1710.132 | 6.100   | 0.000   | 1959.952 | 32.760  | 0.000   | 1959.952 | 32.760  | 0.000 | 0.000 |
| 23. | -11.130  | 0.000  | 1713.376 | 6.070   | 0.000   | 1982.056 | 32.660  | 0.000   | 1982.056 | 32.660  | 0.000 | 0.000 |
| 24. | -11.370  | 0.000  | 1716.551 | 6.020   | 0.000   | 2004.302 | 32.500  | 0.000   | 2004.302 | 32.500  | 0.000 | 0.000 |
| 25. | -11.570  | 0.000  | 1719.695 | 5.940   | 0.000   | 2026.591 | 32.210  | 0.000   | 2026.591 | 32.210  | 0.000 | 0.000 |
| 26. | -11.730  | 0.000  | 1722.795 | 5.830   | 0.000   | 2048.832 | 31.820  | 0.000   | 2048.832 | 31.820  | 0.000 | 0.000 |
| 27. | -11.840  | 0.000  | 1725.815 | 5.700   | 0.000   | 2070.931 | 31.320  | 0.000   | 2070.931 | 31.320  | 0.000 | 0.000 |
| 28. | -11.890  | 0.000  | 1728.803 | 5.540   | 0.000   | 2092.768 | 30.720  | 0.000   | 2092.768 | 30.720  | 0.000 | 0.000 |
| 29. | -11.860  | 0.000  | 1731.683 | 5.350   | 0.000   | 2114.301 | 30.000  | 0.000   | 2114.301 | 30.000  | 0.000 | 0.000 |
| 30. | -11.800  | 0.000  | 1734.462 | 5.140   | 0.000   | 2135.366 | 29.170  | 0.000   | 2135.366 | 29.170  | 0.000 | 0.000 |
| 31. | -11.660  | 0.000  | 1737.127 | 4.910   | 0.000   | 2155.075 | 28.220  | 0.000   | 2155.075 | 28.220  | 0.000 | 0.000 |
| 32. | -11.430  | 0.000  | 1739.665 | 4.650   | 0.000   | 2175.716 | 27.140  | 0.000   | 2175.716 | 27.140  | 0.000 | 0.000 |
| 33. | -11.120  | 0.000  | 1742.066 | 4.300   | 0.000   | 2196.774 | 25.530  | 0.000   | 2196.774 | 25.530  | 0.000 | 0.000 |
| 34. | -10.710  | 0.000  | 1744.317 | 4.080   | 0.000   | 2212.332 | 24.260  | 0.000   | 2212.332 | 24.260  | 0.000 | 0.000 |
| 35. | -10.210  | 0.000  | 1746.406 | 3.770   | 0.000   | 2230.069 | 23.000  | 0.000   | 2230.069 | 23.000  | 0.000 | 0.000 |
| 36. | -9.610   | 0.000  | 1748.330 | 3.440   | 0.000   | 2246.064 | 21.430  | 0.000   | 2246.064 | 21.430  | 0.000 | 0.000 |
| 37. | -8.900   | 0.000  | 1750.073 | 3.100   | 0.000   | 2260.796 | 19.610  | 0.000   | 2260.796 | 19.610  | 0.000 | 0.000 |
| 38. | -8.090   | 0.000  | 1751.631 | 2.740   | 0.000   | 2274.143 | 17.630  | 0.000   | 2274.143 | 17.630  | 0.000 | 0.000 |
| 39. | -7.170   | 0.000  | 1752.996 | 2.370   | 0.000   | 2285.991 | 15.500  | 0.000   | 2285.991 | 15.500  | 0.000 | 0.000 |
| 40. | -6.160   | 0.000  | 1754.161 | 1.990   | 0.000   | 2296.230 | 13.200  | 0.000   | 2296.230 | 13.200  | 0.000 | 0.000 |
| 41. | -5.050   | 0.000  | 1755.122 | 1.600   | 0.000   | 2304.760 | 10.760  | 0.000   | 2304.760 | 10.760  | 0.000 | 0.000 |
| 42. | -3.860   | 0.000  | 1755.873 | 1.210   | 0.000   | 2311.692 | 6.190   | 0.000   | 2311.692 | 6.190   | 0.000 | 0.000 |
| 43. | -2.610   | 0.000  | 1756.413 | .610    | 0.000   | 2316.355 | 5.520   | 0.000   | 2316.355 | 5.520   | 0.000 | 0.000 |
| 44. | -1.320   | 0.000  | 1756.737 | .400    | 0.000   | 2319.295 | 2.760   | 0.000   | 2319.295 | 2.760   | 0.000 | 0.000 |
| 45. | 0.000  | 0.000  | 1756.646 | 0.000   | 0.000   | 2320.279 | 0.000   | 0.000   | 2320.279 | 0.000   | 0.000 | 0.000 |
| 46. | 1.320  | 0.000  | 1756.737 | -.400   | 0.000   | 2315.295 | -2.760  | 0.000   | 2315.295 | -2.760  | 0.000 | 0.000 |
| 47. | 2.610  | 0.000  | 1756.413 | -.810   | 0.000   | 2316.355 | -5.520  | 0.000   | 2316.355 | -5.520  | 0.000 | 0.000 |
| 48. | 3.860  | 0.000  | 1755.873 | -1.210  | 0.000   | 2311.692 | -8.190  | 0.000   | 2311.692 | -8.190  | 0.000 | 0.000 |
| 49. | 5.050  | 0.000  | 1755.122 | -1.600  | 0.000   | 2304.760 | -10.760 | 0.000   | 2304.760 | -10.760 | 0.000 | 0.000 |

Z-PLANE (XY-PLANE) BISMUTH GERMANIUM OXIDE (KRAUT ET AL) BULK

|     | LNVEL    | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 3866.216 | 6.160  | 0.000  | 1754.161 | -1.990  | 0.000   | 2296.230 | -13.200 | 0.000   |
| 51. | 3993.136 | 7.170  | 0.000  | 1752.996 | -2.370  | 0.000   | 2265.991 | -15.500 | 0.000   |
| 52. | 3801.086 | 8.090  | 0.000  | 1751.631 | -2.740  | 0.000   | 2274.143 | -17.630 | 0.000   |
| 53. | 3489.976 | 8.900  | 0.000  | 1750.073 | -3.100  | 0.000   | 2260.746 | -19.610 | 0.000   |
| 54. | 3419.697 | 9.610  | 0.000  | 1748.330 | -3.440  | 0.000   | 2246.064 | -21.430 | 0.000   |
| 55. | 3438.149 | 10.210 | 0.000  | 1746.406 | -3.770  | 0.000   | 2230.069 | -23.060 | 0.000   |
| 56. | 3441.230 | 10.710 | 0.000  | 1744.317 | -4.080  | 0.000   | 2212.932 | -24.560 | 0.000   |
| 57. | 3452.839 | 11.120 | 0.000  | 1742.066 | -4.380  | 0.000   | 2194.774 | -25.930 | 0.000   |
| 58. | 3464.880 | 11.430 | 0.000  | 1739.665 | -4.650  | 0.000   | 2175.716 | -27.140 | 0.000   |
| 59. | 3477.254 | 11.660 | 0.000  | 1737.127 | -4.910  | 0.000   | 2155.875 | -28.220 | 0.000   |
| 60. | 3489.891 | 11.800 | 0.000  | 1734.462 | -5.140  | 0.000   | 2135.366 | -29.170 | 0.000   |
| 61. | 3502.693 | 11.860 | 0.000  | 1731.683 | -5.350  | 0.000   | 2114.301 | -30.000 | 0.000   |
| 62. | 3515.590 | 11.850 | 0.000  | 1728.803 | -5.540  | 0.000   | 2092.786 | -30.720 | 0.000   |
| 63. | 3528.509 | 11.840 | 0.000  | 1725.835 | -5.700  | 0.000   | 2070.931 | -31.320 | 0.000   |
| 64. | 3541.386 | 11.730 | 0.000  | 1722.795 | -5.830  | 0.000   | 2048.632 | -31.820 | 0.000   |
| 65. | 3554.161 | 11.570 | 0.000  | 1719.694 | -5.940  | 0.000   | 2026.591 | -32.210 | 0.000   |
| 66. | 3566.778 | 11.370 | 0.000  | 1716.551 | -6.020  | 0.000   | 2004.302 | -32.500 | 0.000   |
| 67. | 3579.186 | 11.130 | 0.000  | 1713.376 | -6.070  | 0.000   | 1982.896 | -32.660 | 0.000   |
| 68. | 3591.339 | 10.850 | 0.000  | 1710.192 | -6.100  | 0.000   | 1959.952 | -32.760 | 0.000   |
| 69. | 3603.194 | 10.530 | 0.000  | 1707.007 | -6.190  | 0.000   | 1936.071 | -32.730 | 0.000   |
| 70. | 3614.712 | 10.190 | 0.000  | 1703.840 | -6.250  | 0.000   | 1916.503 | -32.590 | 0.000   |
| 71. | 3625.858 | 9.810  | 0.000  | 1700.705 | -6.300  | 0.000   | 1895.333 | -32.340 | 0.000   |
| 72. | 3636.598 | 9.420  | 0.000  | 1697.619 | -6.390  | 0.000   | 1874.643 | -31.970 | 0.000   |
| 73. | 3646.903 | 9.000  | 0.000  | 1694.597 | -6.460  | 0.000   | 1854.516 | -31.400 | 0.000   |
| 74. | 3656.746 | 8.560  | 0.000  | 1691.654 | -6.510  | 0.000   | 1835.032 | -30.860 | 0.000   |
| 75. | 3666.181 | 8.100  | 0.000  | 1688.805 | -6.540  | 0.000   | 1816.268 | -30.100 | 0.000   |
| 76. | 3674.946 | 7.620  | 0.000  | 1686.063 | -6.520  | 0.000   | 1798.301 | -29.200 | 0.000   |
| 77. | 3683.265 | 7.130  | 0.000  | 1683.444 | -6.470  | 0.000   | 1781.204 | -28.120 | 0.000   |
| 78. | 3691.034 | 6.630  | 0.000  | 1680.960 | -6.400  | 0.000   | 1765.049 | -26.450 | 0.000   |
| 79. | 3698.238 | 6.120  | 0.000  | 1678.624 | -6.410  | 0.000   | 1749.984 | -25.580 | 0.000   |
| 80. | 3704.863 | 5.590  | 0.000  | 1676.448 | -6.400  | 0.000   | 1735.834 | -24.040 | 0.000   |
| 81. | 3710.895 | 5.060  | 0.000  | 1674.444 | -6.370  | 0.000   | 1722.501 | -22.320 | 0.000   |
| 82. | 3716.322 | 4.510  | 0.000  | 1672.621 | -6.330  | 0.000   | 1711.163 | -20.430 | 0.000   |
| 83. | 3721.135 | 3.970  | 0.000  | 1670.990 | -6.300  | 0.000   | 1700.673 | -18.360 | 0.000   |
| 84. | 3725.323 | 3.410  | 0.000  | 1669.559 | -6.260  | 0.000   | 1691.474 | -16.120 | 0.000   |
| 85. | 3729.080 | 2.850  | 0.000  | 1668.334 | -6.200  | 0.000   | 1683.623 | -13.720 | 0.000   |
| 86. | 3731.799 | 2.260  | 0.000  | 1667.324 | -6.170  | 0.000   | 1677.143 | -11.170 | 0.000   |
| 87. | 3734.074 | 1.720  | 0.000  | 1666.532 | -6.1340 | 0.000   | 1672.071 | -8.500  | 0.000   |
| 88. | 3735.702 | 1.150  | 0.000  | 1665.963 | -6.090  | 0.000   | 1668.430 | -5.720  | 0.000   |
| 89. | 3736.680 | 0.570  | 0.000  | 1665.621 | -6.050  | 0.000   | 1666.239 | -2.680  | 0.000   |
| 90. | 3737.006 | -0.000 | 0.000  | 1665.507 | 0.000   | 0.000   | 1665.507 | 0.000   | 0.000   |
| 91. | 3736.680 | -0.570 | 0.000  | 1665.621 | 0.450   | 0.000   | 1666.239 | 2.680   | 0.000   |
| 92. | 3735.702 | -1.150 | 0.000  | 1665.963 | 0.900   | 0.000   | 1668.430 | 5.720   | 0.000   |
| 93. | 3734.074 | -1.720 | 0.000  | 1666.532 | 1.340   | 0.000   | 1672.071 | 8.500   | 0.000   |
| 94. | 3731.799 | -2.260 | 0.000  | 1667.324 | 1.780   | 0.000   | 1677.143 | 11.170  | 0.000   |
| 95. | 3729.080 | -2.850 | 0.000  | 1668.334 | 2.200   | 0.000   | 1683.623 | 13.720  | 0.000   |
| 96. | 3725.323 | -3.410 | 0.000  | 1669.559 | 2.610   | 0.000   | 1691.474 | 16.120  | 0.000   |
| 97. | 3721.135 | -3.970 | 0.000  | 1670.990 | 3.010   | 0.000   | 1700.673 | 18.360  | 0.000   |
| 98. | 3716.322 | -4.510 | 0.000  | 1672.621 | 3.390   | 0.000   | 1711.163 | 20.430  | 0.000   |
| 99. | 3710.895 | -5.060 | 0.000  | 1674.444 | 3.750   | 0.000   | 1722.501 | 22.320  | 0.000   |

Z-PLANE (XY-PLANE) BISMUTH GERMANIUM OXIDE (KKAUT ET AL) BULK

|      | LMGVEL   | LPMI12  | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 3784.863 | -5.590  | 0.000  | 1676.448 | 4.090   | 0.000   | 1735.834 | 24.040  | 0.000   |
| 101. | 3698.236 | -6.120  | 0.000  | 1678.624 | 4.410   | 0.000   | 1749.904 | 25.580  | 0.000   |
| 102. | 3691.034 | -6.630  | 0.000  | 1680.960 | 4.700   | 0.000   | 1765.054 | 26.950  | 0.000   |
| 103. | 3683.265 | -7.130  | 0.000  | 1683.444 | 4.970   | 0.000   | 1781.284 | 28.150  | 0.000   |
| 104. | 3674.946 | -7.620  | 0.000  | 1686.063 | 5.210   | 0.000   | 1798.301 | 29.200  | 0.000   |
| 105. | 3666.101 | -8.100  | 0.000  | 1688.805 | 5.420   | 0.000   | 1816.268 | 30.100  | 0.000   |
| 106. | 3656.746 | -8.560  | 0.000  | 1691.654 | 5.610   | 0.000   | 1835.032 | 30.860  | 0.000   |
| 107. | 3646.903 | -9.000  | 0.000  | 1694.597 | 5.760   | 0.000   | 1854.516 | 31.400  | 0.000   |
| 108. | 3636.598 | -9.420  | 0.000  | 1697.615 | 5.890   | 0.000   | 1874.643 | 31.970  | 0.000   |
| 109. | 3625.858 | -9.810  | 0.000  | 1700.705 | 5.990   | 0.000   | 1895.333 | 32.340  | 0.000   |
| 110. | 3614.712 | -10.190 | 0.000  | 1703.840 | 6.050   | 0.000   | 1916.593 | 32.590  | 0.000   |
| 111. | 3603.194 | -10.530 | 0.000  | 1707.007 | 6.090   | 0.000   | 1938.071 | 32.730  | 0.000   |
| 112. | 3591.339 | -10.850 | 0.000  | 1710.192 | 6.100   | 0.000   | 1959.952 | 32.760  | 0.000   |
| 113. | 3579.106 | -11.130 | 0.000  | 1713.378 | 6.070   | 0.000   | 1982.058 | 32.680  | 0.000   |
| 114. | 3566.776 | -11.370 | 0.000  | 1716.551 | 6.020   | 0.000   | 2004.302 | 32.500  | 0.000   |
| 115. | 3554.161 | -11.570 | 0.000  | 1719.695 | 5.940   | 0.000   | 2026.591 | 32.210  | 0.000   |
| 116. | 3541.386 | -11.730 | 0.000  | 1722.795 | 5.830   | 0.000   | 2048.632 | 31.820  | 0.000   |
| 117. | 3528.509 | -11.840 | 0.000  | 1725.835 | 5.700   | 0.000   | 2070.931 | 31.320  | 0.000   |
| 118. | 3515.590 | -11.950 | 0.000  | 1728.803 | 5.540   | 0.000   | 2092.788 | 30.720  | 0.000   |
| 119. | 3502.693 | -12.000 | 0.000  | 1731.683 | 5.350   | 0.000   | 2114.301 | 30.000  | 0.000   |
| 120. | 3489.891 | -12.000 | 0.000  | 1734.462 | 5.140   | 0.000   | 2135.366 | 29.170  | 0.000   |
| 121. | 3477.259 | -12.000 | 0.000  | 1737.127 | 4.910   | 0.000   | 2155.675 | 28.220  | 0.000   |
| 122. | 3464.800 | -12.000 | 0.000  | 1739.665 | 4.650   | 0.000   | 2175.716 | 27.140  | 0.000   |
| 123. | 3452.435 | -12.120 | 0.000  | 1742.066 | 4.380   | 0.000   | 2194.774 | 25.930  | 0.000   |
| 124. | 3441.230 | -12.170 | 0.000  | 1744.317 | 4.080   | 0.000   | 2212.932 | 24.560  | 0.000   |
| 125. | 3430.145 | -12.210 | 0.000  | 1746.406 | 3.770   | 0.000   | 2230.069 | 23.060  | 0.000   |
| 126. | 3419.697 | -9.610  | 0.000  | 1748.330 | 3.440   | 0.000   | 2246.064 | 21.430  | 0.000   |
| 127. | 3409.976 | -8.900  | 0.000  | 1750.073 | 3.100   | 0.000   | 2260.796 | 19.610  | 0.000   |
| 128. | 3401.088 | -8.090  | 0.000  | 1751.631 | 2.740   | 0.000   | 2274.143 | 17.630  | 0.000   |
| 129. | 3393.136 | -7.170  | 0.000  | 1752.996 | 2.370   | 0.000   | 2285.231 | 15.500  | 0.000   |
| 130. | 3386.216 | -6.160  | 0.000  | 1754.161 | 1.990   | 0.000   | 2296.230 | 13.200  | 0.000   |
| 131. | 3380.416 | -5.050  | 0.000  | 1755.122 | 1.600   | 0.000   | 2304.760 | 10.760  | 0.000   |
| 132. | 3375.816 | -3.860  | 0.000  | 1755.873 | 1.210   | 0.000   | 2311.492 | 8.190   | 0.000   |
| 133. | 3372.461 | -2.610  | 0.000  | 1756.413 | .810    | 0.000   | 2316.355 | 5.520   | 0.000   |
| 134. | 3370.460 | 0.000   | 0.000  | 1756.737 | .400    | 0.000   | 2319.295 | 2.760   | 0.000   |
| 135. | 3369.783 | 0.000   | 0.000  | 1756.846 | -0.000  | 0.000   | 2320.279 | -0.000  | 0.000   |
| 136. | 3370.460 | 1.320   | 0.000  | 1756.737 | -4.00   | 0.000   | 2319.295 | -2.760  | 0.000   |
| 137. | 3372.461 | 2.610   | 0.000  | 1756.413 | -8.00   | 0.000   | 2316.355 | -5.520  | 0.000   |
| 138. | 3375.816 | 3.860   | 0.000  | 1755.873 | -12.10  | 0.000   | 2311.492 | -8.190  | 0.000   |
| 139. | 3380.416 | 5.050   | 0.000  | 1755.122 | -16.00  | 0.000   | 2304.760 | -10.760 | 0.000   |
| 140. | 3386.216 | 6.160   | 0.000  | 1754.161 | -19.90  | 0.000   | 2296.230 | -13.200 | 0.000   |
| 141. | 3393.136 | 7.170   | 0.000  | 1752.996 | -23.70  | 0.000   | 2285.231 | -15.500 | 0.000   |
| 142. | 3401.088 | 8.090   | 0.000  | 1751.631 | -27.40  | 0.000   | 2274.143 | -17.630 | 0.000   |
| 143. | 3409.976 | 8.900   | 0.000  | 1750.073 | -31.00  | 0.000   | 2260.796 | -19.610 | 0.000   |
| 144. | 3419.697 | 9.610   | 0.000  | 1748.330 | -34.40  | 0.000   | 2246.064 | -21.430 | 0.000   |
| 145. | 3430.145 | 10.210  | 0.000  | 1746.406 | -37.70  | 0.000   | 2230.069 | -23.060 | 0.000   |
| 146. | 3441.230 | 10.710  | 0.000  | 1744.317 | -40.80  | 0.000   | 2212.932 | -24.560 | 0.000   |
| 147. | 3452.435 | 11.120  | 0.000  | 1742.066 | -43.80  | 0.000   | 2194.774 | -25.930 | 0.000   |
| 148. | 3464.800 | 11.430  | 0.000  | 1739.665 | -46.50  | 0.000   | 2175.716 | -27.140 | 0.000   |
| 149. | 3477.259 | 11.660  | 0.000  | 1737.127 | -49.910 | 0.000   | 2155.675 | -28.220 | 0.000   |

|      | Z-PLANE (XY-PLANE) BISMUTH GERMANIUM OXIDE (KRAUT ET AL) |        |        |          |        |          |         |        |  |  | BULK |  |
|------|--|--------|--------|----------|--------|----------|---------|--------|--|--|------|--|
|      | LPHI12   | LPHI13 | FSRVEL | FSPH12   | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |  |  |      |  |
| 150. | 3489.891   | 11.800 | 0.000  | 1734.462 | -5.140 | 2135.366 | -29.170 | 0.000  |  |  |      |  |
| 151. | 3502.693   | 11.880 | 0.000  | 1731.683 | -5.350 | 2114.301 | -30.000 | 0.000  |  |  |      |  |
| 152. | 3515.509   | 11.850 | 0.000  | 1728.803 | -5.540 | 2092.788 | -30.720 | 0.000  |  |  |      |  |
| 153. | 3528.509   | 11.640 | 0.000  | 1725.835 | -5.780 | 2070.931 | -31.320 | 0.000  |  |  |      |  |
| 154. | 3541.386   | 11.730 | 0.000  | 1722.795 | -5.830 | 2048.832 | -31.620 | 0.000  |  |  |      |  |
| 155. | 3554.161   | 11.570 | 0.000  | 1719.695 | -5.940 | 2026.591 | -32.210 | 0.000  |  |  |      |  |
| 156. | 3566.778   | 11.370 | 0.000  | 1716.551 | -6.020 | 2004.302 | -32.500 | 0.000  |  |  |      |  |
| 157. | 3579.186   | 11.130 | 0.000  | 1713.378 | -6.070 | 1982.058 | -32.600 | 0.000  |  |  |      |  |
| 158. | 3591.339   | 10.850 | 0.000  | 1710.192 | -6.100 | 1959.952 | -32.760 | 0.000  |  |  |      |  |
| 159. | 3603.194   | 10.530 | 0.000  | 1707.007 | -6.090 | 1938.071 | -32.730 | 0.000  |  |  |      |  |
| 160. | 3614.712   | 10.190 | 0.000  | 1703.840 | -6.050 | 1916.503 | -32.590 | 0.000  |  |  |      |  |
| 161. | 3625.858   | 9.810  | 0.000  | 1700.705 | -5.990 | 1895.333 | -32.340 | 0.000  |  |  |      |  |
| 162. | 3636.598   | 9.420  | 0.000  | 1697.619 | -5.890 | 1874.643 | -31.970 | 0.000  |  |  |      |  |
| 163. | 3646.903   | 9.000  | 0.000  | 1694.597 | -5.760 | 1854.516 | -31.460 | 0.000  |  |  |      |  |
| 164. | 3656.746   | 8.560  | 0.000  | 1691.654 | -5.610 | 1835.032 | -30.860 | 0.000  |  |  |      |  |
| 165. | 3666.101   | 8.100  | 0.000  | 1688.805 | -5.420 | 1816.268 | -30.100 | 0.000  |  |  |      |  |
| 166. | 3674.948   | 7.620  | 0.000  | 1686.063 | -5.210 | 1798.301 | -29.200 | 0.000  |  |  |      |  |
| 167. | 3683.265   | 7.130  | 0.000  | 1683.444 | -4.970 | 1781.234 | -26.150 | 0.000  |  |  |      |  |
| 168. | 3691.034   | 6.630  | 0.000  | 1680.960 | -4.700 | 1765.045 | -26.550 | 0.000  |  |  |      |  |
| 169. | 3698.236   | 6.120  | 0.000  | 1678.624 | -4.410 | 1749.904 | -25.580 | 0.000  |  |  |      |  |
| 170. | 3704.863   | 5.590  | 0.000  | 1676.448 | -4.090 | 1735.834 | -24.040 | 0.000  |  |  |      |  |
| 171. | 3710.895   | 5.060  | 0.000  | 1674.444 | -3.750 | 1722.901 | -22.320 | 0.000  |  |  |      |  |
| 172. | 3716.322   | 4.510  | 0.000  | 1672.621 | -3.390 | 1711.163 | -20.430 | 0.000  |  |  |      |  |
| 173. | 3721.135   | 3.970  | 0.000  | 1670.990 | -3.010 | 1700.673 | -18.360 | 0.000  |  |  |      |  |
| 174. | 3725.323   | 3.410  | 0.000  | 1669.559 | -2.610 | 1691.478 | -16.120 | 0.000  |  |  |      |  |
| 175. | 3728.880   | 2.850  | 0.000  | 1668.334 | -2.200 | 1683.623 | -13.720 | 0.000  |  |  |      |  |
| 176. | 3731.799   | 2.280  | 0.000  | 1667.324 | -1.760 | 1677.143 | -11.170 | 0.000  |  |  |      |  |
| 177. | 3734.074   | 1.720  | 0.000  | 1666.532 | -1.340 | 1672.071 | -8.500  | 0.000  |  |  |      |  |
| 178. | 3735.702   | 1.150  | 0.000  | 1665.963 | -0.900 | 1668.430 | -5.720  | 0.000  |  |  |      |  |
| 179. | 3736.680   | .570   | 0.000  | 1665.621 | -0.450 | 1666.239 | -2.880  | 0.000  |  |  |      |  |
| 180. | 3737.006   | -0.000 | 0.000  | 1665.507 | 0.000  | 1665.507 | 0.000   | 0.000  |  |  |      |  |

111-PLANE BISMUTH GERMANIUM OXIDE (KRAUT ET AL)

BULK

|     | LNQUEL   | LPWH12  | LPWH13  | FSRVEL   | FSPWH12 | FSPWH13 | SSRVEL   | SSPWH12 | SSPWH13 |
|-----|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| 0.  | 3369.783 | 0.000   | 0.000   | 2320.279 | -0.000  | 0.000   | 1756.846 | -0.000  | 0.000   |
| 1.  | 3369.946 | .320    | -7.710  | 2319.837 | -1.250  | 1.060   | 1757.116 | 1.010   | 1.000   |
| 2.  | 3370.434 | .630    | -1.410  | 2318.514 | -2.500  | 2.160   | 1757.926 | 3.010   | 2.400   |
| 3.  | 3371.240 | .940    | -2.110  | 2316.318 | -3.720  | 3.230   | 1759.274 | 4.000   | 2.970   |
| 4.  | 3372.353 | 1.230   | -2.790  | 2313.266 | -4.920  | 4.240   | 1761.155 | 4.000   | 3.970   |
| 5.  | 3373.756 | 1.500   | -3.460  | 2309.379 | -6.080  | 5.300   | 1763.565 | 4.960   | 4.930   |
| 6.  | 3375.435 | 1.760   | -4.100  | 2304.684 | -7.210  | 6.300   | 1766.497 | 5.910   | 5.860   |
| 7.  | 3377.362 | 1.990   | -4.730  | 2299.212 | -8.290  | 7.270   | 1769.941 | 6.820   | 6.810   |
| 8.  | 3379.513 | 2.150   | -5.330  | 2293.000 | -9.320  | 8.210   | 1773.087 | 7.710   | 7.720   |
| 9.  | 3381.862 | 2.360   | -5.900  | 2286.091 | -10.290 | 9.100   | 1776.323 | 8.570   | 8.600   |
| 10. | 3384.378 | 2.510   | -6.440  | 2278.530 | -11.200 | 9.960   | 1780.233 | 9.370   | 9.370   |
| 11. | 3387.031 | 2.620   | -6.960  | 2270.367 | -12.030 | 10.770  | 1784.601 | 10.150  | 10.270  |
| 12. | 3389.788 | 2.710   | -7.440  | 2261.655 | -12.680 | 11.540  | 1789.406 | 10.870  | 11.060  |
| 13. | 3392.616 | 2.760   | -7.890  | 2252.452 | -13.490 | 12.260  | 1800.626 | 11.540  | 11.820  |
| 14. | 3395.484 | 2.760   | -8.310  | 2242.816 | -14.090 | 12.930  | 1807.233 | 12.150  | 12.570  |
| 15. | 3398.360 | 2.770   | -8.700  | 2232.815 | -14.610 | 13.560  | 1814.195 | 12.690  | 13.230  |
| 16. | 3401.211 | 2.730   | -9.060  | 2222.525 | -15.030 | 14.150  | 1821.477 | 13.150  | 13.800  |
| 17. | 3404.009 | 2.660   | -9.400  | 2212.010 | -15.350 | 14.680  | 1829.037 | 13.530  | 14.270  |
| 18. | 3406.722 | 2.560   | -9.700  | 2201.355 | -15.560 | 15.170  | 1836.822 | 13.810  | 14.600  |
| 19. | 3409.325 | 2.440   | -9.970  | 2190.650 | -15.630 | 15.610  | 1844.774 | 14.010  | 14.860  |
| 20. | 3411.791 | 2.300   | -10.220 | 2179.993 | -15.560 | 16.000  | 1852.821 | 14.010  | 15.060  |
| 21. | 3414.097 | 2.130   | -10.440 | 2169.497 | -15.320 | 16.350  | 1860.876 | 13.880  | 15.200  |
| 22. | 3416.220 | 1.950   | -10.630 | 2159.290 | -14.860 | 16.660  | 1868.836 | 13.570  | 15.300  |
| 23. | 3418.140 | 1.740   | -10.800 | 2149.516 | -14.210 | 16.910  | 1876.573 | 13.030  | 15.370  |
| 24. | 3419.841 | 1.520   | -10.950 | 2140.352 | -13.250 | 17.130  | 1883.937 | 12.220  | 15.070  |
| 25. | 3421.306 | 1.290   | -11.070 | 2131.991 | -11.970 | 17.300  | 1890.745 | 11.060  | 14.320  |
| 26. | 3422.523 | 1.040   | -11.170 | 2124.655 | -10.310 | 17.440  | 1896.791 | 9.560   | 13.200  |
| 27. | 3423.460 | .790    | -11.240 | 2118.566 | -8.240  | 17.530  | 1901.644 | 7.660   | 11.390  |
| 28. | 3424.170 | .530    | -11.300 | 2114.026 | -5.770  | 17.600  | 1905.673 | 5.400   | 10.240  |
| 29. | 3424.567 | .270    | -11.330 | 2111.189 | -2.980  | 17.630  | 1908.068 | 2.793   | 10.630  |
| 30. | 3424.726 | 0.000   | -11.340 | 2110.225 | -0.000  | 17.650  | 1908.845 | -0.000  | 10.660  |
| 31. | 3424.567 | -2.270  | -11.330 | 2111.189 | 2.960   | 17.630  | 1908.068 | -2.790  | 10.630  |
| 32. | 3424.170 | -4.530  | -11.300 | 2114.026 | 5.770   | 17.600  | 1905.673 | -5.400  | 10.240  |
| 33. | 3423.460 | -6.790  | -11.240 | 2118.566 | 8.240   | 17.530  | 1901.644 | -7.660  | 10.390  |
| 34. | 3422.523 | -9.040  | -11.170 | 2124.655 | 10.310  | 17.440  | 1896.791 | -9.560  | 10.240  |
| 35. | 3421.306 | -11.290 | -11.070 | 2131.991 | 11.970  | 17.300  | 1890.745 | -11.060 | 10.350  |
| 36. | 3419.841 | -13.520 | -10.950 | 2140.352 | 13.250  | 17.130  | 1883.937 | -12.220 | 10.670  |
| 37. | 3418.140 | -15.740 | -10.800 | 2149.516 | 14.210  | 16.910  | 1876.573 | -13.030 | 10.730  |
| 38. | 3416.220 | -17.950 | -10.630 | 2159.290 | 14.880  | 16.660  | 1868.836 | -13.570 | 10.900  |
| 39. | 3414.097 | -20.130 | -10.440 | 2169.497 | 15.320  | 16.350  | 1860.876 | -13.880 | 10.950  |
| 40. | 3411.791 | -22.300 | -10.220 | 2179.993 | 15.560  | 16.000  | 1852.821 | -14.010 | 10.850  |
| 41. | 3409.325 | -24.440 | -9.970  | 2190.650 | 15.630  | 15.610  | 1844.774 | -13.970 | 10.600  |
| 42. | 3406.722 | -26.660 | -9.700  | 2201.355 | 15.560  | 15.170  | 1836.822 | -13.610 | 10.000  |
| 43. | 3404.009 | -28.860 | -9.400  | 2212.010 | 15.350  | 14.680  | 1829.037 | -13.150 | 10.430  |
| 44. | 3401.212 | -31.030 | -9.060  | 2222.525 | 15.030  | 14.150  | 1821.477 | -13.150 | 10.800  |
| 45. | 3398.360 | -33.170 | -8.700  | 2232.815 | 14.610  | 13.560  | 1814.195 | -12.690 | 11.230  |
| 46. | 3395.485 | -35.270 | -8.310  | 2242.816 | 14.090  | 12.930  | 1807.233 | -12.150 | 11.620  |
| 47. | 3392.616 | -37.360 | -7.890  | 2252.452 | 13.490  | 12.260  | 1800.626 | -11.540 | 11.820  |
| 48. | 3389.788 | -39.440 | -7.440  | 2261.655 | 12.680  | 11.540  | 1794.406 | -10.670 | 11.060  |
| 49. | 3387.031 | -41.620 | -6.960  | 2270.367 | 12.030  | 10.770  | 1788.601 | -10.150 | 10.270  |



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BULK

|     | LNGVEL   | LPMI12 | LPMI13 | FSRWEL   | FSPMI12 | FSPMI13 | SSRWEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 3384.378 | -2.510 | -6.443 | 2278.530 | 11.200  | 9.960   | 1783.233 | -9.380  | 9.450   |
| 51. | 3381.862 | -2.360 | -5.900 | 2286.091 | 10.290  | 9.100   | 1776.323 | -8.570  | 8.600   |
| 52. | 3379.513 | -2.150 | -5.330 | 2293.000 | 9.320   | 8.210   | 1773.007 | -7.710  | 7.720   |
| 53. | 3377.362 | -1.990 | -4.730 | 2299.211 | 8.290   | 7.270   | 1769.941 | -6.820  | 6.810   |
| 54. | 3375.435 | -1.760 | -4.100 | 2304.683 | 7.210   | 6.300   | 1766.497 | -5.910  | 5.860   |
| 55. | 3373.756 | -1.500 | -3.460 | 2309.379 | 6.080   | 5.300   | 1763.565 | -4.960  | 4.930   |
| 56. | 3372.353 | -1.230 | -2.790 | 2313.266 | 4.920   | 4.220   | 1761.155 | -4.000  | 3.970   |
| 57. | 3371.240 | -940   | -2.110 | 2316.316 | 3.720   | 3.230   | 1759.274 | -3.010  | 2.970   |
| 58. | 3370.434 | -630   | -1.410 | 2318.514 | 2.500   | 2.160   | 1757.926 | -2.010  | 2.000   |
| 59. | 3369.946 | -320   | -710   | 2319.837 | 1.250   | 1.080   | 1757.116 | -1.010  | 1.000   |
| 60. | 3369.783 | -8.008 | -0.000 | 2320.279 | 0.000   | 0.000   | 1756.846 | 0.000   | -0.000  |
| 61. | 3369.546 | .320   | .710   | 2319.837 | -1.250  | -1.060  | 1757.116 | 1.010   | -1.000  |
| 62. | 3370.434 | .630   | 1.410  | 2318.514 | -2.500  | -2.160  | 1757.926 | 2.020   | -2.000  |
| 63. | 3371.240 | .940   | 2.110  | 2316.316 | -3.720  | -3.230  | 1759.274 | 3.010   | -2.990  |
| 64. | 3372.353 | 1.230  | 2.790  | 2313.266 | -4.920  | -4.280  | 1761.155 | 4.000   | -3.970  |
| 65. | 3373.756 | 1.500  | 3.460  | 2309.379 | -6.080  | -5.300  | 1763.565 | 4.960   | -4.930  |
| 66. | 3375.435 | 1.760  | 4.100  | 2304.684 | -7.210  | -6.300  | 1766.497 | 5.910   | -5.860  |
| 67. | 3377.362 | 1.990  | 4.730  | 2299.212 | -8.290  | -7.270  | 1769.941 | 6.820   | -6.810  |
| 68. | 3379.513 | 2.150  | 5.330  | 2293.000 | -9.320  | -8.210  | 1773.007 | 7.710   | -7.720  |
| 69. | 3381.862 | 2.360  | 5.900  | 2286.091 | -10.290 | -9.100  | 1776.323 | 8.570   | -8.600  |
| 70. | 3384.378 | 2.510  | 6.440  | 2278.530 | -11.200 | -9.960  | 1783.234 | 9.380   | -9.400  |
| 71. | 3387.031 | 2.620  | 6.960  | 2270.367 | -12.030 | -10.770 | 1786.601 | 10.120  | -10.210 |
| 72. | 3389.786 | 2.710  | 7.440  | 2261.655 | -12.800 | -11.540 | 1794.407 | 10.870  | -11.060 |
| 73. | 3392.616 | 2.760  | 7.890  | 2252.452 | -13.490 | -12.260 | 1800.626 | 11.540  | -11.820 |
| 74. | 3395.464 | 2.770  | 8.310  | 2242.818 | -14.090 | -12.930 | 1807.233 | 12.150  | -12.540 |
| 75. | 3398.360 | 2.730  | 8.700  | 2232.819 | -14.610 | -13.560 | 1814.195 | 12.690  | -13.230 |
| 76. | 3401.211 | 2.660  | 9.060  | 2222.525 | -15.030 | -14.140 | 1821.178 | 13.190  | -13.600 |
| 77. | 3404.006 | 2.560  | 9.400  | 2212.010 | -15.350 | -14.680 | 1828.037 | 13.530  | -13.900 |
| 78. | 3406.722 | 2.440  | 9.700  | 2201.355 | -15.560 | -15.170 | 1836.682 | 13.810  | -14.190 |
| 79. | 3409.325 | 2.300  | 9.970  | 2190.650 | -15.630 | -15.610 | 1844.774 | 14.060  | -14.480 |
| 80. | 3411.791 | 2.130  | 10.220 | 2179.894 | -15.560 | -16.000 | 1852.621 | 14.010  | -14.800 |
| 81. | 3414.097 | 1.950  | 10.440 | 2169.496 | -15.320 | -16.350 | 1860.876 | 13.880  | -15.050 |
| 82. | 3416.220 | 1.740  | 10.630 | 2159.290 | -14.980 | -16.660 | 1869.636 | 13.570  | -15.240 |
| 83. | 3418.140 | 1.520  | 10.800 | 2149.510 | -14.520 | -16.910 | 1878.533 | 13.030  | -15.380 |
| 84. | 3419.841 | 1.290  | 10.950 | 2140.353 | -13.950 | -17.130 | 1888.937 | 12.220  | -15.600 |
| 85. | 3421.306 | 1.040  | 11.070 | 2131.991 | -13.290 | -17.300 | 1890.745 | 11.060  | -15.800 |
| 86. | 3422.523 | .750   | 11.170 | 2124.655 | -12.540 | -17.440 | 1896.731 | 9.560   | -16.200 |
| 87. | 3423.480 | .530   | 11.240 | 2118.506 | -11.700 | -17.530 | 1901.645 | 7.660   | -16.350 |
| 88. | 3424.170 | .270   | 11.300 | 2114.026 | -10.770 | -17.600 | 1905.673 | 5.400   | -16.500 |
| 89. | 3424.586 | 0.000  | 11.330 | 2111.189 | -9.960  | -17.630 | 1908.085 | 2.780   | -16.630 |
| 90. | 3424.726 | -270   | 11.340 | 2110.225 | 0.000   | -17.630 | 1908.885 | -0.600  | -16.680 |
| 91. | 3424.586 | -270   | 11.330 | 2111.189 | 2.980   | -17.630 | 1908.085 | -2.790  | -16.680 |
| 92. | 3424.170 | -530   | 11.300 | 2114.026 | 5.770   | -17.600 | 1905.673 | -5.400  | -16.500 |
| 93. | 3423.480 | -750   | 11.240 | 2118.506 | 8.240   | -17.530 | 1901.645 | -7.660  | -16.350 |
| 94. | 3422.523 | -1.040 | 11.170 | 2124.655 | 10.310  | -17.440 | 1896.731 | -9.560  | -16.200 |
| 95. | 3421.306 | -1.290 | 11.070 | 2131.991 | 11.970  | -17.300 | 1890.745 | -11.060 | -16.000 |
| 96. | 3419.841 | -1.520 | 10.950 | 2140.353 | 13.250  | -17.130 | 1888.937 | -12.220 | -15.800 |
| 97. | 3418.140 | -1.740 | 10.800 | 2149.516 | 14.210  | -16.910 | 1878.533 | -13.030 | -15.600 |
| 98. | 3416.220 | -1.950 | 10.630 | 2159.290 | 14.800  | -16.660 | 1869.636 | -13.570 | -15.380 |
| 99. | 3414.097 | -2.130 | 10.440 | 2169.496 | 15.320  | -16.350 | 1860.876 | -14.010 | -15.050 |

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BULK

|      | LNGVEL   | LPMI12 | LPMI13  | FSRVEL   | FSPH12  | FSPH13  | SSRVEL   | SSPH12  | SSPH13  |
|------|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 100. | 3411.791 | -2.300 | 10.220  | 2179.994 | 15.560  | -16.000 | 1652.821 | -14.010 | -16.090 |
| 101. | 3409.325 | -2.440 | 9.970   | 2190.650 | 15.630  | -15.630 | 1646.774 | -13.970 | -15.800 |
| 102. | 3406.722 | -2.560 | 9.700   | 2201.355 | 15.560  | -15.170 | 1636.622 | -13.610 | -15.060 |
| 103. | 3404.088 | -2.660 | 9.400   | 2212.010 | 15.350  | -14.680 | 1629.037 | -13.530 | -14.490 |
| 104. | 3401.211 | -2.730 | 9.060   | 2222.525 | 15.030  | -14.140 | 1621.476 | -13.450 | -13.660 |
| 105. | 3398.360 | -2.770 | 8.700   | 2232.819 | 14.610  | -13.560 | 1614.195 | -12.690 | -13.230 |
| 106. | 3395.484 | -2.780 | 8.310   | 2242.818 | 14.090  | -12.930 | 1607.233 | -12.150 | -12.540 |
| 107. | 3392.616 | -2.760 | 7.890   | 2252.452 | 13.440  | -12.260 | 1600.626 | -11.820 | -11.820 |
| 108. | 3389.788 | -2.710 | 7.440   | 2261.655 | 12.680  | -11.540 | 1794.407 | -10.670 | -11.060 |
| 109. | 3387.031 | -2.620 | 6.960   | 2270.367 | 12.030  | -10.770 | 1786.601 | -10.150 | -10.270 |
| 110. | 3384.376 | -2.510 | 6.440   | 2278.530 | 11.200  | -9.960  | 1783.234 | -9.360  | -9.430  |
| 111. | 3381.862 | -2.360 | 5.900   | 2286.091 | 10.290  | -9.100  | 1776.323 | -8.570  | -8.650  |
| 112. | 3379.513 | -2.190 | 5.330   | 2293.000 | 9.320   | -8.210  | 1773.067 | -7.710  | -7.720  |
| 113. | 3377.362 | -1.990 | 4.730   | 2299.212 | 8.290   | -7.270  | 1769.941 | -6.820  | -6.810  |
| 114. | 3375.435 | -1.760 | 4.100   | 2304.664 | 7.210   | -6.300  | 1766.477 | -5.910  | -5.860  |
| 115. | 3373.758 | -1.500 | 3.460   | 2309.379 | 6.060   | -5.300  | 1763.155 | -4.960  | -4.930  |
| 116. | 3372.353 | -1.230 | 2.790   | 2313.266 | 4.920   | -4.260  | 1761.155 | -4.000  | -3.970  |
| 117. | 3371.240 | -0.940 | 2.110   | 2316.318 | 3.720   | -3.230  | 1759.274 | -3.010  | -2.950  |
| 118. | 3370.434 | -0.630 | 1.410   | 2318.514 | 2.500   | -2.160  | 1757.926 | -2.020  | -2.000  |
| 119. | 3369.946 | -0.320 | 0.710   | 2319.837 | 1.250   | -1.060  | 1757.116 | -1.010  | -1.000  |
| 120. | 3369.763 | 0.000  | -0.000  | 2320.274 | -0.000  | 0.000   | 1756.646 | -0.000  | -0.000  |
| 121. | 3369.966 | .320   | -1.710  | 2319.837 | -1.250  | 1.060   | 1757.116 | 1.010   | 1.010   |
| 122. | 3370.434 | .630   | -1.410  | 2316.514 | -2.500  | 2.160   | 1759.274 | 2.010   | 2.000   |
| 123. | 3371.240 | .940   | -2.110  | 2316.318 | -3.720  | 3.230   | 1759.274 | 3.010   | 2.950   |
| 124. | 3372.353 | 1.230  | -2.790  | 2313.266 | -4.920  | 4.260   | 1761.155 | 4.000   | 3.970   |
| 125. | 3373.756 | 1.500  | -3.460  | 2309.379 | -6.080  | 5.300   | 1763.155 | 4.560   | 4.530   |
| 126. | 3375.435 | 1.760  | -4.100  | 2304.663 | -7.210  | 6.300   | 1766.477 | 5.910   | 5.860   |
| 127. | 3377.362 | 1.990  | -4.730  | 2299.211 | -8.240  | 7.270   | 1769.941 | 6.820   | 6.810   |
| 128. | 3379.513 | 2.190  | -5.330  | 2293.000 | -9.320  | 8.210   | 1773.067 | 7.710   | 7.720   |
| 129. | 3381.862 | 2.360  | -5.900  | 2286.091 | -10.290 | 9.100   | 1776.323 | 8.570   | 8.650   |
| 130. | 3384.378 | 2.510  | -6.440  | 2278.530 | -11.200 | 9.960   | 1783.233 | 9.360   | 9.430   |
| 131. | 3387.031 | 2.620  | -6.960  | 2270.367 | -12.030 | 10.770  | 1786.601 | 10.150  | 10.270  |
| 132. | 3389.788 | 2.710  | -7.440  | 2261.655 | -12.800 | 11.540  | 1794.406 | 10.670  | 11.060  |
| 133. | 3392.616 | 2.760  | -7.890  | 2252.452 | -13.440 | 12.260  | 1800.626 | 11.820  | 11.820  |
| 134. | 3395.485 | 2.780  | -8.310  | 2242.818 | -14.090 | 12.930  | 1807.232 | 12.150  | 12.540  |
| 135. | 3398.360 | 2.770  | -8.700  | 2232.819 | -14.610 | 13.560  | 1814.195 | 12.690  | 13.230  |
| 136. | 3401.212 | 2.730  | -9.060  | 2222.525 | -15.030 | 14.140  | 1821.477 | 13.060  | 13.660  |
| 137. | 3404.089 | 2.660  | -9.400  | 2212.010 | -15.350 | 14.680  | 1829.037 | 13.450  | 14.490  |
| 138. | 3406.722 | 2.560  | -9.700  | 2201.355 | -15.560 | 15.170  | 1836.622 | 13.610  | 15.060  |
| 139. | 3409.325 | 2.440  | -9.970  | 2190.650 | -15.630 | 15.630  | 1844.774 | 13.970  | 15.600  |
| 140. | 3411.791 | 2.300  | -10.220 | 2179.993 | -15.560 | 16.000  | 1852.821 | 14.010  | 16.590  |
| 141. | 3414.097 | 2.130  | -10.440 | 2169.497 | -15.320 | 16.350  | 1860.876 | 14.010  | 16.590  |
| 142. | 3416.820 | 1.950  | -10.630 | 2159.290 | -15.060 | 16.680  | 1868.856 | 13.970  | 16.960  |
| 143. | 3419.140 | 1.740  | -10.800 | 2149.518 | -14.720 | 17.000  | 1876.573 | 13.030  | 17.330  |
| 144. | 3421.841 | 1.520  | -10.950 | 2140.352 | -14.250 | 17.130  | 1883.937 | 12.220  | 17.670  |
| 145. | 3424.306 | 1.290  | -11.070 | 2131.991 | -13.720 | 17.300  | 1890.745 | 11.060  | 17.950  |
| 146. | 3427.523 | 1.040  | -11.170 | 2124.655 | -13.160 | 17.440  | 1896.791 | 9.560   | 18.200  |
| 147. | 3431.480 | .790   | -11.240 | 2118.586 | -12.440 | 17.530  | 1901.844 | 7.660   | 18.390  |
| 148. | 3434.170 | .530   | -11.300 | 2114.026 | -11.570 | 17.600  | 1905.873 | 5.460   | 18.540  |
| 149. | 3436.587 | .270   | -11.330 | 2111.169 | -10.660 | 17.630  | 1908.066 | 2.790   | 18.630  |

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|---|----------|--------|---------|----------|---------|---------|----------|----------|---------|--|
|   | LANGVEL  | LPHI12 | LPHI13  | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12  | SSPHI13 |  |
| 150.  | 3624.726 | -0.000 | -11.340 | 2110.225 | 0.000   | 17.050  | 1908.085 | 0.000    | 16.660  |  |
| 151.  | 3624.587 | -0.270 | -11.330 | 2111.169 | 2.980   | 17.630  | 1908.068 | -2.790   | 16.630  |  |
| 152.  | 3624.170 | -0.530 | -11.300 | 2114.026 | 5.770   | 17.600  | 1905.673 | -5.400   | 16.540  |  |
| 153.  | 3623.460 | -0.790 | -11.240 | 2118.586 | 8.240   | 17.530  | 1901.844 | -7.680   | 16.350  |  |
| 154.  | 3622.523 | -1.040 | -11.170 | 2124.655 | 10.310  | 17.440  | 1896.791 | -9.580   | 16.200  |  |
| 155.  | 3621.306 | -1.290 | -11.070 | 2131.91  | 11.970  | 17.300  | 1893.745 | -11.060  | 17.920  |  |
| 156.  | 3619.841 | -1.520 | -10.950 | 2140.352 | 13.250  | 17.130  | 1893.937 | -12.220  | 17.670  |  |
| 157.  | 3618.140 | -1.740 | -10.800 | 2149.516 | 14.210  | 16.910  | 1876.573 | -13.030  | 17.330  |  |
| 158.  | 3616.220 | -1.950 | -10.630 | 2159.290 | 14.860  | 16.660  | 1860.836 | -13.2570 | 16.990  |  |
| 159.  | 3614.097 | -2.130 | -10.440 | 2169.497 | 15.320  | 16.350  | 1860.876 | -13.680  | 16.550  |  |
| 160.  | 3611.791 | -2.300 | -10.220 | 2179.993 | 15.560  | 16.000  | 1852.821 | -14.010  | 16.090  |  |
| 161.  | 3609.325 | -2.440 | -9.970  | 2190.650 | 15.630  | 15.610  | 1844.774 | -13.570  | 15.600  |  |
| 162.  | 3606.722 | -2.560 | -9.700  | 2201.355 | 15.560  | 15.170  | 1836.622 | -13.610  | 15.060  |  |
| 163.  | 3604.005 | -2.660 | -9.400  | 2212.010 | 15.350  | 14.660  | 1829.037 | -13.530  | 14.730  |  |
| 164.  | 3601.211 | -2.730 | -9.060  | 2222.525 | 15.030  | 14.150  | 1821.977 | -13.150  | 13.880  |  |
| 165.  | 3598.360 | -2.770 | -8.700  | 2232.819 | 14.610  | 13.560  | 1814.195 | -12.690  | 13.230  |  |
| 166.  | 3595.464 | -2.760 | -8.310  | 2242.818 | 14.090  | 12.930  | 1807.233 | -12.150  | 12.540  |  |
| 167.  | 3592.516 | -2.760 | -7.890  | 2252.452 | 13.490  | 12.260  | 1800.626 | -11.540  | 11.820  |  |
| 168.  | 3589.788 | -2.710 | -7.440  | 2261.655 | 12.800  | 11.540  | 1794.406 | -10.870  | 11.060  |  |
| 169.  | 3587.031 | -2.620 | -6.980  | 2270.367 | 12.030  | 10.770  | 1788.601 | -10.150  | 10.270  |  |
| 170.  | 3584.378 | -2.510 | -6.440  | 2278.530 | 11.200  | 9.960   | 1783.233 | -9.360   | 9.450   |  |
| 171.  | 3581.862 | -2.360 | -5.900  | 2286.091 | 10.250  | 9.100   | 1778.323 | -8.570   | 8.600   |  |
| 172.  | 3579.513 | -2.190 | -5.330  | 2293.000 | 9.320   | 8.210   | 1773.887 | -7.710   | 7.720   |  |
| 173.  | 3577.362 | -1.990 | -4.730  | 2299.212 | 8.290   | 7.270   | 1769.941 | -6.820   | 6.810   |  |
| 174.  | 3575.435 | -1.760 | -4.100  | 2304.684 | 7.210   | 6.300   | 1766.497 | -5.910   | 5.860   |  |
| 175.  | 3573.756 | -1.500 | -3.460  | 2309.379 | 6.050   | 5.300   | 1763.565 | -4.960   | 4.830   |  |
| 176.  | 3572.353 | -1.230 | -2.790  | 2313.266 | 4.920   | 4.260   | 1761.155 | -4.000   | 3.870   |  |
| 177.  | 3571.240 | -0.940 | -2.110  | 2316.318 | 3.750   | 3.830   | 1759.274 | -3.010   | 2.990   |  |
| 178.  | 3570.434 | -0.630 | -1.410  | 2318.514 | 2.500   | 2.160   | 1757.926 | -2.020   | 2.000   |  |
| 179.  | 3569.946 | -0.320 | -0.710  | 2319.837 | 1.250   | 1.060   | 1757.116 | -1.010   | 1.000   |  |
| 180.  | 3569.783 | 0.000  | 0.000   | 2320.279 | -0.000  | -0.000  | 1756.846 | 0.000    | -0.000  |  |

| 110-PLANE BISMUTH GERMANIUM OXIDE (KRAUT ET AL) |          |        |         |        |          |         |      |  |  |
|---|----------|--------|---------|--------|----------|---------|------|--|--|
|   | LPMI12   | LPMI13 | FSPM12  | FSPM13 | SSPMI12  | SSPMI13 | BULK |  |  |
|   |          |        |         |        |          |         |      |  |  |
| 0.  | -0.000   | 0.000  | 15.250  | 0.000  | 2124.567 | -0.000  |      |  |  |
| 1.  | 0.530    | -0.000 | 13.920  | 0.000  | 2114.376 | -0.000  |      |  |  |
| 2.  | 3302.945 | 0.000  | 12.490  | 0.000  | 2104.022 | -0.000  |      |  |  |
| 3.  | 3304.361 | -0.000 | 10.970  | 0.000  | 2093.515 | -0.000  |      |  |  |
| 4.  | 3306.410 | 0.000  | 9.350   | 0.000  | 2082.867 | -0.000  |      |  |  |
| 5.  | 3309.125 | -0.000 | 7.660   | 0.000  | 2072.007 | -0.000  |      |  |  |
| 6.  | 3312.533 | 0.000  | 5.900   | 0.000  | 2061.186 | -0.000  |      |  |  |
| 7.  | 3316.654 | -0.000 | 4.080   | 0.000  | 2050.180 | -0.000  |      |  |  |
| 8.  | 3321.501 | 0.000  | 2.220   | -0.000 | 2039.076 | -0.000  |      |  |  |
| 9.  | 3327.080 | -0.000 | 0.330   | 0.000  | 2027.887 | -0.000  |      |  |  |
| 10.   | 3333.390 | 0.000  | -1.560  | 0.000  | 2016.626 | -0.000  |      |  |  |
| 11.   | 3340.415 | -0.000 | -3.460  | 0.000  | 2005.305 | -0.000  |      |  |  |
| 12.   | 3348.151 | 0.000  | -5.360  | 0.000  | 1993.936 | -0.000  |      |  |  |
| 13.   | 3356.561 | -0.000 | -7.200  | 0.000  | 1982.537 | -0.000  |      |  |  |
| 14.   | 3365.617 | 0.000  | -9.010  | 0.000  | 1971.116 | -0.000  |      |  |  |
| 15.   | 3375.201 | -0.000 | -10.750 | 0.000  | 1959.669 | -0.000  |      |  |  |
| 16.   | 3385.511 | 0.000  | -12.430 | 0.000  | 1948.209 | -0.000  |      |  |  |
| 17.   | 3396.260 | -0.000 | -14.040 | 0.000  | 1936.671 | -0.000  |      |  |  |
| 18.   | 3407.478 | 0.000  | -15.560 | 0.000  | 1925.059 | -0.000  |      |  |  |
| 19.   | 3419.111 | -0.000 | -17.000 | 0.000  | 1914.197 | -0.000  |      |  |  |
| 20.   | 3431.105 | 0.000  | -18.350 | 0.000  | 1902.952 | -0.000  |      |  |  |
| 21.   | 3443.405 | -0.000 | -19.610 | 0.000  | 1891.766 | -0.000  |      |  |  |
| 22.   | 3455.954 | 0.000  | -20.780 | 0.000  | 1880.716 | -0.000  |      |  |  |
| 23.   | 3468.697 | -0.000 | -21.650 | 0.000  | 1869.756 | -0.000  |      |  |  |
| 24.   | 3481.580 | 0.000  | -22.630 | 0.000  | 1858.925 | -0.000  |      |  |  |
| 25.   | 3494.549 | -0.000 | -23.720 | 0.000  | 1848.235 | -0.000  |      |  |  |
| 26.   | 3507.552 | 0.000  | -24.820 | 0.000  | 1837.702 | -0.000  |      |  |  |
| 27.   | 3520.539 | -0.000 | -25.820 | 0.000  | 1827.342 | -0.000  |      |  |  |
| 28.   | 3533.462 | 0.000  | -25.640 | 0.000  | 1817.172 | -0.000  |      |  |  |
| 29.   | 3546.273 | -0.000 | -26.350 | 0.000  | 1807.205 | -0.000  |      |  |  |
| 30.   | 3558.930 | 0.000  | -26.780 | 0.000  | 1797.459 | -0.000  |      |  |  |
| 31.   | 3571.390 | -0.000 | -27.100 | 0.000  | 1787.949 | -0.000  |      |  |  |
| 32.   | 3583.612 | 0.000  | -27.330 | 0.000  | 1778.690 | -0.000  |      |  |  |
| 33.   | 3595.560 | -0.000 | -27.460 | 0.000  | 1769.698 | -0.000  |      |  |  |
| 34.   | 3607.195 | 0.000  | -27.490 | 0.000  | 1760.987 | -0.000  |      |  |  |
| 35.   | 3618.493 | -0.000 | -27.410 | 0.000  | 1752.573 | -0.000  |      |  |  |
| 36.   | 3629.413 | 0.000  | -27.220 | 0.000  | 1744.470 | -0.000  |      |  |  |
| 37.   | 3639.929 | -0.000 | -26.920 | 0.000  | 1736.693 | -0.000  |      |  |  |
| 38.   | 3650.012 | 0.000  | -26.500 | 0.000  | 1729.255 | -0.000  |      |  |  |
| 39.   | 3659.636 | -0.000 | -25.960 | 0.000  | 1722.170 | -0.000  |      |  |  |
| 40.   | 3668.783 | 0.000  | -25.290 | 0.000  | 1715.451 | -0.000  |      |  |  |
| 41.   | 3677.425 | -0.000 | -24.450 | 0.000  | 1709.110 | -0.000  |      |  |  |
| 42.   | 3685.543 | 0.000  | -23.550 | 0.000  | 1703.160 | -0.000  |      |  |  |
| 43.   | 3693.118 | -0.000 | -22.470 | 0.000  | 1697.612 | -0.000  |      |  |  |
| 44.   | 3700.134 | 0.000  | -21.250 | 0.000  | 1692.477 | -0.000  |      |  |  |
| 45.   | 3706.576 | -0.000 | -19.870 | 0.000  | 1687.764 | -0.000  |      |  |  |
| 46.   | 3712.428 | 0.000  | -18.360 | 0.000  | 1683.483 | -0.000  |      |  |  |
| 47.   | 3717.678 | -0.000 | -16.690 | 0.000  | 1679.643 | -0.000  |      |  |  |
| 48.   | 3722.316 | 0.000  | -14.890 | 0.000  | 1676.251 | -0.000  |      |  |  |
| 49.   | 3726.332 | -0.000 | -12.950 | 0.000  | 1673.315 | -0.000  |      |  |  |

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|     | LNGVEL   | LPHI12  | LPHI13 | FSRVEL   | FSRPH12 | FSPH13 | SSRVEL   | SSRPH12 | SSPH13 |
|-----|----------|---------|--------|----------|---------|--------|----------|---------|--------|
| 50. | 3729.716 | 2.700   | -0.000 | 1670.999 | -10.890 | 0.000  | 1670.839 | -4.400  | -0.000 |
| 51. | 3732.463 | 2.160   | -0.000 | 1673.935 | -8.720  | 0.000  | 1668.830 | -3.490  | -0.000 |
| 52. | 3736.567 | 1.570   | -0.000 | 1670.040 | -6.466  | 0.000  | 1667.291 | -2.560  | -0.000 |
| 53. | 3736.024 | .990    | -0.000 | 1667.336 | -4.140  | 0.000  | 1666.226 | -1.630  | -0.000 |
| 54. | 3736.830 | .420    | -0.000 | 1665.836 | -1.760  | 0.000  | 1665.636 | -.690   | 0.000  |
| 55. | 3736.584 | -.150   | -0.000 | 1665.523 | .250    | 0.000  | 1665.549 | .250    | 0.000  |
| 56. | 3736.485 | -.720   | -0.000 | 1666.477 | 3.020   | -0.000 | 1665.886 | 1.130   | -0.000 |
| 57. | 3735.336 | -1.300  | -0.000 | 1668.614 | 5.370   | -0.000 | 1666.729 | 2.120   | -0.000 |
| 58. | 3733.537 | -1.870  | -0.000 | 1671.950 | 7.670   | -0.000 | 1666.045 | 3.050   | -0.000 |
| 59. | 3731.093 | -2.440  | -0.000 | 1676.465 | 9.600   | 0.000  | 1669.032 | 3.970   | 0.000  |
| 60. | 3728.006 | -3.000  | -0.000 | 1682.135 | 12.000  | 0.000  | 1672.088 | 4.870   | 0.000  |
| 61. | 3724.289 | -3.550  | -0.000 | 1688.925 | 13.990  | -0.000 | 1674.008 | 5.760   | 0.000  |
| 62. | 3719.964 | -4.100  | -0.000 | 1696.812 | 15.860  | -0.000 | 1677.966 | 6.630   | 0.000  |
| 63. | 3714.982 | -4.640  | -0.000 | 1705.742 | 17.590  | -0.000 | 1681.615 | 7.460   | 0.000  |
| 64. | 3709.412 | -5.160  | -0.000 | 1715.673 | 19.160  | -0.000 | 1685.609 | 8.300   | 0.000  |
| 65. | 3703.247 | -5.710  | -0.000 | 1726.553 | 20.620  | -0.000 | 1690.195 | 9.100   | 0.000  |
| 66. | 3696.501 | -6.220  | -0.000 | 1738.327 | 21.910  | 0.000  | 1695.136 | 9.870   | 0.000  |
| 67. | 3689.107 | -6.720  | -0.000 | 1750.936 | 23.060  | -0.000 | 1700.491 | 10.610  | 0.000  |
| 68. | 3681.323 | -7.210  | -0.000 | 1764.322 | 24.060  | -0.000 | 1706.252 | 11.320  | 0.000  |
| 69. | 3672.926 | -7.650  | -0.000 | 1778.416 | 24.930  | -0.000 | 1712.510 | 12.000  | 0.000  |
| 70. | 3664.016 | -8.150  | -0.000 | 1793.191 | 25.660  | -0.000 | 1718.952 | 12.640  | 0.000  |
| 71. | 3654.614 | -8.590  | -0.000 | 1808.461 | 26.260  | -0.000 | 1725.666 | 13.260  | 0.000  |
| 72. | 3644.743 | -9.020  | -0.000 | 1824.273 | 26.740  | -0.000 | 1733.139 | 13.830  | 0.000  |
| 73. | 3634.428 | -9.420  | -0.000 | 1840.515 | 27.050  | 0.000  | 1740.756 | 14.360  | 0.000  |
| 74. | 3623.696 | -9.810  | -0.000 | 1857.115 | 27.330  | 0.000  | 1749.709 | 14.890  | 0.000  |
| 75. | 3612.575 | -10.170 | -0.000 | 1873.999 | 27.600  | -0.000 | 1758.978 | 15.360  | 0.000  |
| 76. | 3601.084 | -10.500 | -0.000 | 1891.092 | 27.890  | 0.000  | 1769.550 | 15.800  | 0.000  |
| 77. | 3589.286 | -10.810 | -0.000 | 1908.316 | 27.410  | -0.000 | 1774.412 | 16.210  | 0.000  |
| 78. | 3577.191 | -11.080 | -0.000 | 1925.603 | 27.220  | -0.000 | 1783.547 | 16.560  | 0.000  |
| 79. | 3564.838 | -11.330 | -0.000 | 1942.872 | 26.940  | -0.000 | 1792.940 | 16.920  | 0.000  |
| 80. | 3552.269 | -11.540 | -0.000 | 1960.047 | 26.560  | 0.000  | 1802.577 | 17.220  | 0.000  |
| 81. | 3539.525 | -11.720 | -0.000 | 1977.054 | 26.090  | -0.000 | 1812.441 | 17.500  | 0.000  |
| 82. | 3526.650 | -11.860 | -0.000 | 1993.817 | 25.520  | 0.000  | 1822.517 | 17.740  | 0.000  |
| 83. | 3513.667 | -11.960 | -0.000 | 2010.262 | 24.860  | -0.000 | 1832.790 | 17.950  | 0.000  |
| 84. | 3500.666 | -12.020 | -0.000 | 2026.311 | 24.110  | -0.000 | 1843.243 | 18.140  | 0.000  |
| 85. | 3487.694 | -12.030 | -0.000 | 2041.893 | 23.270  | 0.000  | 1853.861 | 18.290  | 0.000  |
| 86. | 3474.764 | -11.990 | -0.000 | 2056.932 | 22.330  | -0.000 | 1864.626 | 18.420  | 0.000  |
| 87. | 3461.946 | -11.910 | -0.000 | 2071.355 | 21.290  | -0.000 | 1875.524 | 18.520  | 0.000  |
| 88. | 3449.300 | -11.770 | -0.000 | 2085.091 | 20.170  | -0.000 | 1886.546 | 18.590  | 0.000  |
| 89. | 3436.876 | -11.560 | -0.000 | 2098.069 | 18.950  | -0.000 | 1897.671 | 18.630  | 0.000  |
| 90. | 3424.750 | -11.340 | -0.000 | 2110.220 | 17.650  | -0.000 | 1908.880 | 18.660  | 0.000  |
| 91. | 3412.920 | -11.040 | 0.000  | 2121.680 | 16.250  | -0.000 | 1920.163 | 18.650  | 0.000  |
| 92. | 3401.500 | -10.650 | -0.000 | 2131.784 | 14.770  | -0.000 | 1931.502 | 18.630  | 0.000  |
| 93. | 3390.523 | -10.200 | -0.000 | 2141.074 | 13.200  | -0.000 | 1942.805 | 18.580  | 0.000  |
| 94. | 3380.042 | -9.630  | -0.000 | 2149.294 | 11.550  | -0.000 | 1954.297 | 18.510  | 0.000  |
| 95. | 3370.105 | -9.320  | 0.000  | 2156.396 | 9.840   | -0.000 | 1965.722 | 18.420  | 0.000  |
| 96. | 3360.757 | -8.760  | -0.000 | 2162.336 | 8.060   | -0.000 | 1977.146 | 18.310  | 0.000  |
| 97. | 3352.036 | -8.160  | -0.000 | 2167.077 | 6.230   | -0.000 | 1988.560 | 18.160  | 0.000  |
| 98. | 3343.982 | -7.530  | -0.000 | 2170.590 | 4.370   | -0.000 | 1999.945 | 18.040  | 0.000  |
| 99. | 3336.619 | -6.860  | 0.000  | 2172.657 | 2.470   | -0.000 | 2011.289 | 17.670  | 0.000  |

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BULK

|      | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 3329.966 | -6.160 | 0.000  | 2173.066 | .570    | -0.000  | 2022.260 | 17.630  | 0.000   |
| 101. | 3324.043 | -5.470 | 0.000  | 2173.615 | -1.330  | 0.000   | 2033.804 | 17.490  | 0.000   |
| 102. | 3318.051 | -4.760 | -0.000 | 2172.112 | -3.200  | -0.000  | 2044.950 | 17.280  | 0.000   |
| 103. | 3314.388 | -4.050 | 0.000  | 2169.376 | -5.050  | -0.000  | 2056.005 | 17.050  | 0.000   |
| 104. | 3310.646 | -3.350 | 0.000  | 2165.436 | -6.640  | -0.000  | 2066.957 | 16.810  | 0.000   |
| 105. | 3307.607 | -2.670 | 0.000  | 2160.325 | -8.560  | -0.000  | 2077.794 | 16.550  | 0.000   |
| 106. | 3305.247 | -2.020 | -0.000 | 2154.099 | -10.220 | -0.000  | 2086.506 | 16.280  | 0.000   |
| 107. | 3303.537 | -1.390 | 0.000  | 2146.798 | -11.760 | 0.000   | 2094.081 | 16.000  | 0.000   |
| 108. | 3302.441 | -0.800 | 0.000  | 2138.465 | -13.260 | -0.000  | 2101.506 | 15.700  | 0.000   |
| 109. | 3301.921 | -0.250 | 0.000  | 2129.235 | -14.630 | 0.000   | 2113.776 | 15.390  | 0.000   |
| 110. | 3301.933 | .260   | 0.000  | 2119.107 | -15.910 | -0.000  | 2129.879 | 15.080  | 0.000   |
| 111. | 3302.435 | .730   | 0.000  | 2108.161 | -17.070 | -0.000  | 2139.802 | 14.750  | 0.000   |
| 112. | 3303.376 | 1.140  | -0.000 | 2096.531 | -18.140 | -0.000  | 2145.536 | 14.410  | 0.000   |
| 113. | 3304.719 | 1.510  | 0.000  | 2084.237 | -19.090 | -0.000  | 2151.077 | 14.060  | 0.000   |
| 114. | 3306.409 | 1.640  | 0.000  | 2071.379 | -19.940 | -0.000  | 2156.411 | 13.700  | 0.000   |
| 115. | 3308.604 | 2.120  | -0.000 | 2058.035 | -20.660 | -0.000  | 2161.530 | 13.340  | 0.000   |
| 116. | 3310.661 | 2.350  | 0.000  | 2044.287 | -21.320 | -0.000  | 2166.426 | 12.960  | 0.000   |
| 117. | 3313.136 | 2.550  | 0.000  | 2030.211 | -21.660 | -0.000  | 2171.092 | 12.580  | 0.000   |
| 118. | 3315.790 | 2.700  | 0.000  | 2015.885 | -22.290 | -0.000  | 2203.519 | 12.190  | 0.000   |
| 119. | 3318.566 | 2.820  | -0.000 | 2001.386 | -22.630 | -0.000  | 2211.700 | 11.790  | 0.000   |
| 120. | 3321.468 | 2.910  | 0.000  | 1986.787 | -22.670 | -0.000  | 2219.626 | 11.380  | 0.000   |
| 121. | 3324.463 | 2.960  | 0.000  | 1972.160 | -23.010 | 0.000   | 2227.296 | 10.970  | 0.000   |
| 122. | 3327.481 | 2.990  | 0.000  | 1957.575 | -23.060 | 0.000   | 2234.637 | 10.550  | 0.000   |
| 123. | 3330.515 | 2.990  | 0.000  | 1943.096 | -23.010 | -0.000  | 2241.825 | 10.130  | 0.000   |
| 124. | 3333.539 | 2.960  | 0.000  | 1928.796 | -22.860 | -0.000  | 2246.674 | 9.700   | 0.000   |
| 125. | 3336.531 | 2.920  | 0.000  | 1914.731 | -22.620 | 0.000   | 2255.237 | 9.260   | 0.000   |
| 126. | 3339.471 | 2.850  | 0.000  | 1900.963 | -22.290 | -0.000  | 2261.511 | 8.820   | 0.000   |
| 127. | 3342.330 | 2.770  | 0.000  | 1887.551 | -21.860 | -0.000  | 2267.489 | 8.380   | 0.000   |
| 128. | 3345.110 | 2.680  | 0.000  | 1874.549 | -21.340 | -0.000  | 2273.167 | 7.930   | 0.000   |
| 129. | 3347.794 | 2.570  | 0.000  | 1862.010 | -20.720 | -0.000  | 2278.539 | 7.460   | 0.000   |
| 130. | 3350.356 | 2.450  | -0.000 | 1849.984 | -20.000 | -0.000  | 2283.602 | 7.020   | 0.000   |
| 131. | 3352.790 | 2.320  | 0.000  | 1838.520 | -19.150 | -0.000  | 2288.351 | 6.580   | 0.000   |
| 132. | 3355.087 | 2.160  | 0.000  | 1827.662 | -18.290 | -0.000  | 2292.783 | 6.090   | 0.000   |
| 133. | 3357.234 | 2.030  | 0.000  | 1817.452 | -17.290 | -0.000  | 2296.894 | 5.630   | 0.000   |
| 134. | 3359.235 | 1.870  | 0.000  | 1807.930 | -16.200 | -0.000  | 2300.681 | 5.160   | 0.000   |
| 135. | 3361.073 | 1.710  | 0.000  | 1799.132 | -15.020 | -0.000  | 2304.140 | 4.660   | 0.000   |
| 136. | 3362.745 | 1.550  | 0.000  | 1791.093 | -13.750 | -0.000  | 2307.270 | 4.210   | 0.000   |
| 137. | 3364.247 | 1.380  | 0.000  | 1783.842 | -12.400 | -0.000  | 2310.067 | 3.730   | 0.000   |
| 138. | 3365.574 | 1.210  | 0.000  | 1777.408 | -10.960 | -0.000  | 2312.524 | 3.250   | 0.000   |
| 139. | 3366.724 | 1.038  | 0.000  | 1771.815 | -9.480  | -0.000  | 2314.655 | 2.770   | 0.000   |
| 140. | 3367.694 | .860   | -0.000 | 1767.085 | -7.920  | -0.000  | 2316.482 | 2.250   | 0.000   |
| 141. | 3368.481 | .680   | 0.000  | 1763.234 | -6.310  | -0.000  | 2317.690 | 1.610   | 0.000   |
| 142. | 3369.084 | .500   | 0.000  | 1760.279 | -4.660  | -0.000  | 2317.997 | 1.330   | 0.000   |
| 143. | 3369.501 | .320   | 0.000  | 1758.230 | -2.970  | -0.000  | 2319.763 | .840    | 0.000   |
| 144. | 3369.732 | .130   | 0.000  | 1757.095 | -1.260  | -0.000  | 2320.186 | .360    | 0.000   |
| 145. | 3369.776 | -.050  | 0.000  | 1756.878 | .450    | 0.000   | 2320.287 | -.130   | 0.000   |
| 146. | 3369.633 | -.230  | 0.000  | 1757.580 | 2.170   | 0.000   | 2320.086 | -.610   | 0.000   |
| 147. | 3369.304 | -.410  | 0.000  | 1759.196 | 3.870   | 0.000   | 2319.481 | -1.100  | 0.000   |
| 148. | 3368.789 | -.590  | 0.000  | 1761.727 | 5.540   | 0.000   | 2318.455 | -1.560  | 0.000   |
| 149. | 3368.088 | -.770  | 0.000  | 1765.157 | 7.170   | 0.000   | 2317.168 | -2.060  | 0.000   |

|      | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|---------|--------|
| 150. | 3367.205 | -0.950 | 0.000  | 1769.674 | 8.750  | 0.000  | 2315.541 | -2.550  | -0.000 |
| 151. | 3366.139 | -1.130 | 0.000  | 1774.662 | 10.260 | 0.000  | 2313.574 | -3.030  | -0.000 |
| 152. | 3364.895 | -1.300 | 0.000  | 1780.702 | 11.740 | 0.000  | 2311.271 | -3.510  | -0.000 |
| 153. | 3363.475 | -1.470 | 0.000  | 1787.570 | 13.120 | -0.000 | 2308.631 | -3.990  | 0.000  |
| 154. | 3361.083 | -1.640 | 0.000  | 1795.241 | 14.430 | 0.000  | 2305.659 | -4.460  | 0.000  |
| 155. | 3358.123 | -1.800 | 0.000  | 1803.665 | 15.650 | 0.000  | 2302.355 | -4.930  | 0.000  |
| 156. | 3355.200 | -1.960 | 0.000  | 1812.864 | 16.760 | 0.000  | 2298.722 | -5.400  | 0.000  |
| 157. | 3352.121 | -2.110 | 0.000  | 1822.759 | 17.830 | 0.000  | 2294.764 | -5.870  | -0.000 |
| 158. | 3353.891 | -2.250 | 0.000  | 1833.316 | 18.760 | 0.000  | 2290.483 | -6.340  | -0.000 |
| 159. | 3351.521 | -2.390 | 0.000  | 1844.500 | 19.630 | 0.000  | 2285.883 | -6.800  | -0.000 |
| 160. | 3349.018 | -2.510 | 0.000  | 1856.267 | 20.350 | 0.000  | 2280.968 | -7.260  | 0.000  |
| 161. | 3346.395 | -2.630 | 0.000  | 1868.569 | 21.050 | 0.000  | 2275.741 | -7.720  | 0.000  |
| 162. | 3343.662 | -2.730 | 0.000  | 1881.359 | 21.620 | 0.000  | 2270.207 | -8.170  | -0.000 |
| 163. | 3340.834 | -2.820 | 0.000  | 1894.585 | 22.100 | 0.000  | 2264.370 | -8.610  | 0.000  |
| 164. | 3337.926 | -2.890 | 0.000  | 1908.192 | 22.480 | 0.000  | 2258.235 | -9.060  | -0.000 |
| 165. | 3334.957 | -2.940 | 0.000  | 1922.124 | 22.760 | 0.000  | 2251.808 | -9.490  | 0.000  |
| 166. | 3331.945 | -2.980 | 0.000  | 1936.322 | 22.950 | 0.000  | 2245.092 | -9.930  | 0.000  |
| 167. | 3328.913 | -2.990 | 0.000  | 1950.724 | 23.040 | 0.000  | 2238.096 | -10.350 | 0.000  |
| 168. | 3325.884 | -2.980 | 0.000  | 1965.266 | 23.040 | 0.000  | 2230.823 | -10.770 | 0.000  |
| 169. | 3322.885 | -2.940 | 0.000  | 1979.882 | 22.950 | 0.000  | 2223.280 | -11.190 | 0.000  |
| 170. | 3319.944 | -2.870 | 0.000  | 1994.584 | 22.750 | 0.000  | 2215.474 | -11.600 | -0.000 |
| 171. | 3317.095 | -2.760 | 0.000  | 2009.059 | 22.460 | 0.000  | 2207.412 | -12.000 | 0.000  |
| 172. | 3314.369 | -2.620 | 0.000  | 2023.476 | 22.060 | 0.000  | 2199.100 | -12.390 | 0.000  |
| 173. | 3311.804 | -2.450 | 0.000  | 2037.679 | 21.590 | 0.000  | 2190.546 | -12.700 | 0.000  |
| 174. | 3309.435 | -2.230 | 0.000  | 2051.592 | 21.000 | 0.000  | 2181.757 | -13.160 | 0.000  |
| 175. | 3307.316 | -1.970 | 0.000  | 2065.136 | 20.300 | 0.000  | 2172.742 | -13.530 | -0.000 |
| 176. | 3305.476 | -1.670 | 0.000  | 2078.234 | 19.500 | 0.000  | 2163.519 | -13.890 | 0.000  |
| 177. | 3303.964 | -1.320 | 0.000  | 2090.894 | 18.600 | 0.000  | 2154.066 | -14.250 | 0.000  |
| 178. | 3302.826 | -0.930 | 0.000  | 2102.767 | 17.590 | 0.000  | 2144.422 | -14.590 | -0.000 |
| 179. | 3302.112 | -0.490 | 0.000  | 2114.045 | 16.470 | 0.000  | 2134.585 | -14.920 | -0.000 |
| 180. | 3301.863 | -0.000 | 0.000  | 2124.559 | 15.250 | 0.000  | 2124.567 | -15.250 | -0.000 |

BULK

110-PLANE BISMUTH GERMANIUM OXIDE (KRAUT ET AL)

| X-PLANE (YZ-PLANE) CADMIUM SULPHIDE |          |        |        |          |         |         |          |         |         |
|-------------------------------------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
|                                     | LNQVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
| 0.                                  | 4337.906 | 0.000  | 0.000  | 1796.298 | 0.000   | 0.000   | 1936.952 | 0.000   | 0.000   |
| 1.                                  | 4337.811 | -1.140 | 0.000  | 1796.567 | 0.000   | 0.000   | 1938.929 | -0.000  | -0.000  |
| 2.                                  | 4337.526 | -2.290 | 0.000  | 1797.372 | 1.960   | 0.000   | 1936.862 | -1.160  | -0.000  |
| 3.                                  | 4337.052 | -4.300 | 0.000  | 1798.712 | 2.930   | 0.000   | 1936.751 | -2.400  | -0.000  |
| 4.                                  | 4336.390 | -5.780 | 0.000  | 1800.584 | 3.890   | 0.000   | 1936.595 | -3.200  | -0.000  |
| 5.                                  | 4335.539 | -7.100 | 0.000  | 1802.967 | 4.840   | 0.000   | 1936.394 | -4.000  | -0.000  |
| 6.                                  | 4334.583 | -8.660 | 0.000  | 1805.914 | 5.780   | 0.000   | 1936.150 | -4.800  | -0.000  |
| 7.                                  | 4333.282 | -9.990 | 0.000  | 1809.361 | 6.690   | 0.000   | 1937.862 | -5.400  | -0.000  |
| 8.                                  | 4331.878 | -1.130 | 0.000  | 1813.320 | 7.560   | 0.000   | 1937.531 | -6.300  | -0.000  |
| 9.                                  | 4330.293 | -1.270 | 0.000  | 1817.785 | 8.450   | 0.000   | 1937.156 | -7.100  | -0.000  |
| 10.                                 | 4328.532 | -1.400 | 0.000  | 1822.745 | 9.290   | 0.000   | 1936.739 | -7.800  | -0.000  |
| 11.                                 | 4326.597 | -1.530 | 0.000  | 1828.190 | 10.100  | 0.000   | 1936.260 | -8.600  | -0.000  |
| 12.                                 | 4324.453 | -1.660 | 0.000  | 1834.106 | 10.870  | 0.000   | 1935.779 | -9.300  | -0.000  |
| 13.                                 | 4322.223 | -1.760 | 0.000  | 1840.484 | 11.610  | -0.000  | 1935.237 | -1.010  | 0.000   |
| 14.                                 | 4319.794 | -1.900 | 0.000  | 1847.304 | 12.310  | -0.000  | 1934.655 | -1.080  | 0.000   |
| 15.                                 | 4317.212 | -2.020 | 0.000  | 1854.550 | 12.970  | -0.000  | 1934.033 | -1.150  | 0.000   |
| 16.                                 | 4314.484 | -2.130 | 0.000  | 1862.202 | 13.560  | -0.000  | 1933.372 | -1.220  | 0.000   |
| 17.                                 | 4311.617 | -2.230 | 0.000  | 1870.240 | 14.140  | -0.000  | 1932.672 | -1.290  | 0.000   |
| 18.                                 | 4308.621 | -2.330 | 0.000  | 1878.639 | 14.650  | -0.000  | 1931.936 | -1.350  | 0.000   |
| 19.                                 | 4305.586 | -2.420 | 0.000  | 1887.375 | 15.110  | -0.000  | 1931.162 | -1.420  | 0.000   |
| 20.                                 | 4302.282 | -2.500 | 0.000  | 1896.419 | 15.520  | -0.000  | 1930.353 | -1.460  | 0.000   |
| 21.                                 | 4298.963 | -2.570 | 0.000  | 1905.741 | 15.860  | -0.000  | 1929.509 | -1.540  | 0.000   |
| 22.                                 | 4295.560 | -2.630 | 0.000  | 1915.310 | 16.150  | -0.000  | 1928.632 | -1.600  | 0.000   |
| 23.                                 | 4292.069 | -2.670 | 0.000  | 1925.092 | 16.380  | -0.000  | 1927.722 | -1.660  | 0.000   |
| 24.                                 | 4288.566 | -2.710 | 0.000  | 1935.049 | 16.540  | -0.000  | 1926.780 | -1.720  | 0.000   |
| 25.                                 | 4285.007 | -2.730 | 0.000  | 1945.143 | 16.640  | -0.000  | 1925.807 | -1.770  | 0.000   |
| 26.                                 | 4281.431 | -2.740 | 0.000  | 1955.333 | 16.790  | -0.000  | 1924.805 | -1.830  | 0.000   |
| 27.                                 | 4277.857 | -2.730 | 0.000  | 1965.577 | 16.840  | -0.000  | 1923.775 | -1.880  | 0.000   |
| 28.                                 | 4274.306 | -2.710 | 0.000  | 1975.830 | 16.840  | -0.000  | 1922.717 | -1.930  | 0.000   |
| 29.                                 | 4270.801 | -2.670 | 0.000  | 1986.045 | 16.370  | -0.000  | 1921.634 | -1.970  | 0.000   |
| 30.                                 | 4267.364 | -2.610 | 0.000  | 1996.176 | 16.120  | -0.000  | 1920.526 | -2.020  | 0.000   |
| 31.                                 | 4264.019 | -2.530 | 0.000  | 2006.173 | 15.810  | -0.000  | 1919.395 | -2.060  | 0.000   |
| 32.                                 | 4260.791 | -2.430 | 0.000  | 2015.985 | 15.420  | -0.000  | 1918.242 | -2.100  | 0.000   |
| 33.                                 | 4257.706 | -2.320 | 0.000  | 2025.561 | 14.950  | -0.000  | 1917.069 | -2.140  | 0.000   |
| 34.                                 | 4254.791 | -2.180 | 0.000  | 2034.850 | 14.410  | -0.000  | 1915.876 | -2.170  | 0.000   |
| 35.                                 | 4252.071 | -2.020 | 0.000  | 2043.801 | 13.800  | -0.000  | 1914.666 | -2.200  | 0.000   |
| 36.                                 | 4249.575 | -1.840 | 0.000  | 2052.360 | 13.120  | -0.000  | 1913.439 | -2.230  | 0.000   |
| 37.                                 | 4247.327 | -1.630 | 0.000  | 2060.477 | 12.360  | -0.000  | 1912.197 | -2.260  | 0.000   |
| 38.                                 | 4245.357 | -1.410 | 0.000  | 2068.102 | 11.530  | -0.000  | 1910.942 | -2.260  | 0.000   |
| 39.                                 | 4243.668 | -1.170 | 0.000  | 2075.284 | 10.630  | -0.000  | 1909.676 | -2.310  | 0.000   |
| 40.                                 | 4242.386 | -9.910 | 0.000  | 2081.877 | 9.660   | -0.000  | 1908.399 | -2.330  | 0.000   |
| 41.                                 | 4241.356 | -6.630 | 0.000  | 2087.534 | 8.620   | -0.000  | 1907.113 | -2.340  | 0.000   |
| 42.                                 | 4240.738 | -3.330 | 0.000  | 2092.714 | 7.530   | -0.000  | 1905.820 | -2.360  | 0.000   |
| 43.                                 | 4240.515 | -0.020 | 0.000  | 2097.176 | 6.360   | -0.000  | 1904.521 | -2.370  | 0.000   |
| 44.                                 | 4240.703 | 3.100  | -0.000 | 2100.683 | 5.170   | -0.000  | 1903.216 | -2.370  | 0.000   |
| 45.                                 | 4241.318 | 6.650  | -0.000 | 2103.604 | 3.920   | -0.000  | 1901.912 | -2.380  | 0.000   |
| 46.                                 | 4242.375 | 9.900  | -0.000 | 2105.909 | 2.630   | -0.000  | 1900.606 | -2.380  | 0.000   |
| 47.                                 | 4243.882 | 1.340  | -0.000 | 2107.174 | 1.310   | -0.000  | 1999.300 | -2.360  | 0.000   |
| 48.                                 | 4245.847 | 1.700  | -0.000 | 2107.580 | -0.040  | -0.000  | 1997.997 | -2.360  | 0.000   |
| 49.                                 | 4248.272 | 2.050  | -0.000 | 2107.114 | -1.410  | 0.000   | 1996.697 | -2.370  | 0.000   |



X-PLANE (YZ-PLANE) CADMIUM SULPHIDE

|     | LMGVEL   | LPHI12 | LPHI13 | FISWEL   | FSPHI12 | FSPHI13 | SSRWEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 4251.159 | 2.440  | -0.000 | 2105.767 | -2.790  | 0.000   | 1795.403 | -2.360  | 0.000   |
| 51. | 4254.503 | 2.750  | -0.000 | 2103.536 | -4.160  | 0.000   | 1794.115 | -2.350  | 0.000   |
| 52. | 4258.297 | 3.090  | -0.000 | 2100.422 | -5.530  | 0.000   | 1792.837 | -2.330  | 0.000   |
| 53. | 4262.530 | 3.420  | -0.000 | 2096.435 | -6.690  | 0.000   | 1791.568 | -2.310  | 0.000   |
| 54. | 4267.189 | 3.740  | -0.000 | 2091.507 | -8.220  | 0.000   | 1790.312 | -2.290  | 0.000   |
| 55. | 4272.255 | 4.040  | -0.000 | 2085.899 | -9.510  | 0.000   | 1789.068 | -2.270  | 0.000   |
| 56. | 4277.707 | 4.320  | -0.000 | 2079.395 | -10.770 | 0.000   | 1787.840 | -2.240  | 0.000   |
| 57. | 4283.522 | 4.580  | -0.000 | 2072.104 | -11.960 | 0.000   | 1786.627 | -2.210  | 0.000   |
| 58. | 4289.672 | 4.820  | -0.000 | 2064.062 | -13.130 | 0.000   | 1785.433 | -2.180  | 0.000   |
| 59. | 4296.130 | 5.030  | -0.000 | 2055.310 | -14.230 | 0.000   | 1784.256 | -2.140  | 0.000   |
| 60. | 4302.864 | 5.220  | -0.000 | 2045.890 | -15.250 | 0.000   | 1783.104 | -2.100  | 0.000   |
| 61. | 4309.841 | 5.380  | -0.000 | 2035.852 | -16.210 | 0.000   | 1781.972 | -2.060  | 0.000   |
| 62. | 4317.026 | 5.520  | -0.000 | 2025.249 | -17.090 | 0.000   | 1780.864 | -2.020  | 0.000   |
| 63. | 4324.384 | 5.620  | -0.000 | 2014.136 | -17.890 | 0.000   | 1779.782 | -1.970  | 0.000   |
| 64. | 4331.877 | 5.700  | -0.000 | 2002.573 | -18.610 | 0.000   | 1778.725 | -1.920  | 0.000   |
| 65. | 4339.469 | 5.750  | -0.000 | 1990.522 | -19.240 | 0.000   | 1777.697 | -1.870  | 0.000   |
| 66. | 4347.122 | 5.770  | -0.000 | 1978.346 | -19.770 | 0.000   | 1776.697 | -1.820  | 0.000   |
| 67. | 4354.798 | 5.770  | -0.000 | 1965.819 | -20.220 | 0.000   | 1775.728 | -1.760  | 0.000   |
| 68. | 4362.460 | 5.730  | -0.000 | 1953.104 | -20.560 | 0.000   | 1774.791 | -1.700  | 0.000   |
| 69. | 4370.070 | 5.670  | -0.000 | 1940.272 | -20.800 | 0.000   | 1773.886 | -1.640  | 0.000   |
| 70. | 4377.593 | 5.580  | -0.000 | 1927.395 | -20.940 | 0.000   | 1773.015 | -1.580  | 0.000   |
| 71. | 4384.993 | 5.470  | -0.000 | 1914.546 | -20.960 | 0.000   | 1772.180 | -1.510  | 0.000   |
| 72. | 4392.234 | 5.330  | -0.000 | 1901.796 | -20.900 | 0.000   | 1771.380 | -1.450  | 0.000   |
| 73. | 4399.284 | 5.170  | -0.000 | 1889.223 | -20.710 | 0.000   | 1770.618 | -1.380  | 0.000   |
| 74. | 4406.111 | 4.980  | -0.000 | 1876.895 | -20.400 | 0.000   | 1769.894 | -1.310  | 0.000   |
| 75. | 4412.864 | 4.760  | -0.000 | 1864.803 | -19.970 | 0.000   | 1769.209 | -1.230  | 0.000   |
| 76. | 4418.593 | 4.550  | -0.000 | 1853.259 | -19.430 | 0.000   | 1768.564 | -1.160  | 0.000   |
| 77. | 4424.952 | 4.310  | -0.000 | 1842.092 | -18.750 | 0.000   | 1767.960 | -1.080  | 0.000   |
| 78. | 4430.593 | 4.040  | -0.000 | 1831.446 | -17.960 | 0.000   | 1767.397 | -1.010  | 0.000   |
| 79. | 4435.874 | 3.760  | -0.000 | 1821.392 | -17.040 | 0.000   | 1766.877 | -0.930  | 0.000   |
| 80. | 4440.772 | 3.470  | -0.000 | 1811.985 | -15.990 | 0.000   | 1766.399 | -0.850  | 0.000   |
| 81. | 4445.265 | 3.160  | -0.000 | 1803.284 | -14.820 | 0.000   | 1765.965 | -0.770  | 0.000   |
| 82. | 4449.336 | 2.840  | -0.000 | 1795.344 | -13.530 | 0.000   | 1765.576 | -0.680  | 0.000   |
| 83. | 4452.968 | 2.510  | -0.000 | 1788.215 | -12.130 | 0.000   | 1765.231 | -0.600  | 0.000   |
| 84. | 4456.146 | 2.170  | -0.000 | 1781.941 | -10.620 | 0.000   | 1764.931 | -0.520  | 0.000   |
| 85. | 4458.857 | 1.820  | -0.000 | 1776.562 | -9.010  | 0.000   | 1764.676 | -0.430  | 0.000   |
| 86. | 4461.089 | 1.460  | -0.000 | 1772.113 | -7.320  | 0.000   | 1764.468 | -0.350  | 0.000   |
| 87. | 4462.835 | 1.100  | -0.000 | 1768.623 | -5.560  | 0.000   | 1764.305 | -0.260  | 0.000   |
| 88. | 4464.087 | 0.740  | -0.000 | 1766.113 | -3.740  | 0.000   | 1764.189 | -0.170  | 0.000   |
| 89. | 4464.840 | 0.370  | -0.000 | 1764.601 | -1.880  | 0.000   | 1764.119 | 0.000   | 0.000   |
| 90. | 4465.092 | -0.000 | -0.000 | 1764.096 | 0.000   | 0.000   | 1764.096 | 0.000   | 0.000   |
| 91. | 4464.840 | -0.370 | -0.000 | 1764.601 | 1.880   | 0.000   | 1764.119 | 0.170   | 0.000   |
| 92. | 4464.087 | -0.740 | -0.000 | 1766.113 | 3.740   | 0.000   | 1764.305 | 0.260   | 0.000   |
| 93. | 4462.835 | -1.100 | -0.000 | 1768.623 | 5.560   | 0.000   | 1764.468 | 0.350   | 0.000   |
| 94. | 4461.089 | -1.460 | -0.000 | 1772.113 | 7.320   | 0.000   | 1764.676 | 0.430   | 0.000   |
| 95. | 4458.857 | -1.820 | -0.000 | 1776.562 | 9.010   | 0.000   | 1764.931 | 0.520   | 0.000   |
| 96. | 4456.146 | -2.170 | -0.000 | 1781.941 | 10.620  | 0.000   | 1765.231 | 0.600   | 0.000   |
| 97. | 4452.968 | -2.510 | -0.000 | 1788.215 | 12.130  | 0.000   | 1765.576 | 0.680   | 0.000   |
| 98. | 4449.336 | -2.840 | -0.000 | 1795.344 | 13.530  | 0.000   | 1765.965 | 0.770   | 0.000   |
| 99. | 4445.265 | -3.160 | -0.000 | 1803.284 | 14.820  | 0.000   | 1765.965 | 0.770   | 0.000   |

X-PLANE (YZ-PLANE) CADMIUM SULPHIDE

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 4440.772 | -3.470 | -0.000 | 1811.985 | 15.950  | 0.000   | 1766.399 | .650    | 0.000   |
| 101. | 4435.874 | -3.760 | -0.000 | 1821.392 | 17.040  | 0.000   | 1766.877 | .530    | 0.000   |
| 102. | 4430.593 | -4.040 | -0.000 | 1831.446 | 17.960  | 0.000   | 1767.397 | 1.010   | 0.000   |
| 103. | 4424.952 | -4.310 | -0.000 | 1842.092 | 18.750  | 0.000   | 1767.960 | 1.000   | 0.000   |
| 104. | 4418.973 | -4.550 | -0.000 | 1853.259 | 19.430  | 0.000   | 1766.564 | 1.160   | 0.000   |
| 105. | 4412.664 | -4.760 | -0.000 | 1864.883 | 19.970  | 0.000   | 1769.209 | 1.230   | 0.000   |
| 106. | 4406.111 | -4.980 | -0.000 | 1876.895 | 20.400  | 0.000   | 1769.894 | 1.310   | 0.000   |
| 107. | 4399.284 | -5.170 | -0.000 | 1889.223 | 20.710  | 0.000   | 1770.618 | 1.360   | 0.000   |
| 108. | 4392.234 | -5.330 | -0.000 | 1901.796 | 20.900  | 0.000   | 1771.360 | 1.450   | 0.000   |
| 109. | 4384.993 | -5.470 | -0.000 | 1914.546 | 20.960  | 0.000   | 1772.180 | 1.510   | 0.000   |
| 110. | 4377.593 | -5.580 | -0.000 | 1927.395 | 20.960  | 0.000   | 1773.015 | 1.500   | 0.000   |
| 111. | 4370.070 | -5.670 | -0.000 | 1940.272 | 20.860  | 0.000   | 1773.866 | 1.640   | 0.000   |
| 112. | 4362.460 | -5.730 | -0.000 | 1953.104 | 20.560  | 0.000   | 1774.791 | 1.700   | 0.000   |
| 113. | 4354.796 | -5.770 | -0.000 | 1965.815 | 20.220  | 0.000   | 1775.728 | 1.760   | 0.000   |
| 114. | 4347.122 | -5.770 | -0.000 | 1978.366 | 19.770  | 0.000   | 1776.697 | 1.820   | 0.000   |
| 115. | 4339.469 | -5.750 | -0.000 | 1990.622 | 19.240  | 0.000   | 1777.697 | 1.870   | 0.000   |
| 116. | 4331.877 | -5.700 | -0.000 | 2002.573 | 18.610  | 0.000   | 1778.725 | 1.920   | 0.000   |
| 117. | 4324.384 | -5.620 | -0.000 | 2014.136 | 17.890  | 0.000   | 1779.782 | 1.970   | 0.000   |
| 118. | 4317.026 | -5.520 | -0.000 | 2025.249 | 17.090  | 0.000   | 1780.864 | 2.020   | 0.000   |
| 119. | 4309.841 | -5.380 | -0.000 | 2035.852 | 16.210  | 0.000   | 1781.972 | 2.060   | 0.000   |
| 120. | 4302.864 | -5.220 | -0.000 | 2045.890 | 15.250  | 0.000   | 1783.104 | 2.100   | 0.000   |
| 121. | 4296.130 | -5.030 | -0.000 | 2055.310 | 14.230  | 0.000   | 1784.258 | 2.140   | 0.000   |
| 122. | 4289.632 | -4.820 | -0.000 | 2064.062 | 13.130  | 0.000   | 1785.433 | 2.180   | 0.000   |
| 123. | 4283.322 | -4.580 | -0.000 | 2072.104 | 11.960  | 0.000   | 1786.627 | 2.210   | 0.000   |
| 124. | 4277.197 | -4.320 | -0.000 | 2079.395 | 10.770  | 0.000   | 1787.840 | 2.240   | 0.000   |
| 125. | 4271.255 | -4.040 | -0.000 | 2085.899 | 9.510   | 0.000   | 1789.068 | 2.270   | 0.000   |
| 126. | 4265.469 | -3.740 | -0.000 | 2091.587 | 8.220   | 0.000   | 1790.312 | 2.290   | 0.000   |
| 127. | 4260.000 | -3.420 | -0.000 | 2096.435 | 6.890   | 0.000   | 1791.566 | 2.310   | 0.000   |
| 128. | 4254.829 | -3.090 | -0.000 | 2100.422 | 5.530   | 0.000   | 1792.837 | 2.330   | 0.000   |
| 129. | 4250.000 | -2.750 | -0.000 | 2103.536 | 4.160   | 0.000   | 1794.115 | 2.350   | 0.000   |
| 130. | 4245.559 | -2.440 | -0.000 | 2105.767 | 2.790   | 0.000   | 1795.403 | 2.360   | 0.000   |
| 131. | 4241.472 | -2.050 | -0.000 | 2107.114 | 1.410   | 0.000   | 1796.697 | 2.370   | 0.000   |
| 132. | 4240.000 | -1.700 | -0.000 | 2107.580 | .040    | 0.000   | 1797.997 | 2.380   | 0.000   |
| 133. | 4243.882 | -1.340 | -0.000 | 2107.174 | -1.310  | 0.000   | 1799.300 | 2.380   | 0.000   |
| 134. | 4242.375 | -990   | -0.000 | 2105.909 | -2.630  | 0.000   | 1800.606 | 2.380   | 0.000   |
| 135. | 4241.318 | -650   | -0.000 | 2103.804 | -3.920  | 0.000   | 1801.912 | 2.380   | 0.000   |
| 136. | 4240.793 | -310   | -0.000 | 2100.883 | -5.170  | 0.000   | 1803.218 | 2.370   | 0.000   |
| 137. | 4240.515 | .020   | 0.000  | 2097.176 | -6.380  | 0.000   | 1804.521 | 2.370   | 0.000   |
| 138. | 4240.738 | .330   | 0.000  | 2092.714 | -7.530  | 0.000   | 1805.820 | 2.300   | 0.000   |
| 139. | 4241.356 | .630   | 0.000  | 2087.534 | -8.620  | 0.000   | 1807.113 | 2.340   | 0.000   |
| 140. | 4242.346 | .910   | 0.000  | 2081.677 | -9.660  | 0.000   | 1808.399 | 2.330   | 0.000   |
| 141. | 4243.688 | 1.170  | 0.000  | 2075.184 | -10.630 | 0.000   | 1809.676 | 2.310   | 0.000   |
| 142. | 4245.357 | 1.410  | 0.000  | 2068.102 | -11.530 | 0.000   | 1810.942 | 2.280   | 0.000   |
| 143. | 4247.327 | 1.630  | 0.000  | 2060.477 | -12.360 | 0.000   | 1812.197 | 2.260   | 0.000   |
| 144. | 4249.575 | 1.840  | 0.000  | 2052.360 | -13.120 | 0.000   | 1813.439 | 2.230   | 0.000   |
| 145. | 4252.071 | 2.020  | 0.000  | 2043.881 | -13.800 | 0.000   | 1814.666 | 2.200   | 0.000   |
| 146. | 4254.791 | 2.180  | 0.000  | 2034.850 | -14.410 | 0.000   | 1815.876 | 2.170   | 0.000   |
| 147. | 4257.706 | 2.320  | 0.000  | 2025.561 | -14.950 | 0.000   | 1817.069 | 2.140   | 0.000   |
| 148. | 4260.791 | 2.430  | 0.000  | 2015.985 | -15.420 | 0.000   | 1818.242 | 2.100   | 0.000   |
| 149. | 4264.019 | 2.530  | 0.000  | 2006.173 | -15.810 | 0.000   | 1819.395 | 2.060   | 0.000   |

X-PLANE (YZ-PLANE) CADMIUM SULPHIDE

|      | LPHI12   | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|----------|---------|--------|----------|--------|--------|
| 150. | 4267.364 | 0.000  | 1996.176 | -16.120 | -0.000 | 1620.526 | 2.020  | 0.000  |
| 151. | 4270.801 | 0.000  | 1986.045 | -16.370 | -0.000 | 1621.634 | 1.970  | 0.000  |
| 152. | 4274.306 | 0.000  | 1975.830 | -16.540 | -0.000 | 1622.717 | 1.930  | 0.000  |
| 153. | 4277.857 | 0.000  | 1965.577 | -16.640 | -0.000 | 1623.775 | 1.880  | 0.000  |
| 154. | 4281.431 | 0.000  | 1955.333 | -16.790 | -0.000 | 1624.805 | 1.830  | 0.000  |
| 155. | 4285.007 | 0.000  | 1945.143 | -16.840 | -0.000 | 1625.807 | 1.770  | 0.000  |
| 156. | 4288.566 | 0.000  | 1935.849 | -16.940 | -0.000 | 1626.780 | 1.720  | 0.000  |
| 157. | 4292.069 | 0.000  | 1925.992 | -16.980 | -0.000 | 1627.722 | 1.660  | 0.000  |
| 158. | 4295.560 | 0.000  | 1915.310 | -16.150 | -0.000 | 1628.632 | 1.600  | 0.000  |
| 159. | 4298.963 | 0.000  | 1905.741 | -15.660 | -0.000 | 1629.509 | 1.540  | 0.000  |
| 160. | 4302.282 | 0.000  | 1896.419 | -15.520 | -0.000 | 1630.353 | 1.480  | 0.000  |
| 161. | 4305.506 | 0.000  | 1887.375 | -15.110 | -0.000 | 1631.162 | 1.420  | 0.000  |
| 162. | 4308.621 | 0.000  | 1878.539 | -14.650 | -0.000 | 1631.936 | 1.350  | 0.000  |
| 163. | 4311.617 | 0.000  | 1870.240 | -14.140 | -0.000 | 1632.672 | 1.290  | 0.000  |
| 164. | 4314.484 | 0.000  | 1862.202 | -13.580 | -0.000 | 1633.372 | 1.220  | 0.000  |
| 165. | 4317.212 | 0.000  | 1854.550 | -12.970 | -0.000 | 1634.033 | 1.150  | 0.000  |
| 166. | 4319.794 | 0.000  | 1847.304 | -12.310 | -0.000 | 1634.655 | 1.080  | 0.000  |
| 167. | 4322.223 | 0.000  | 1840.484 | -11.610 | -0.000 | 1635.237 | 1.010  | 0.000  |
| 168. | 4324.493 | 0.000  | 1834.100 | -10.870 | 0.000  | 1635.779 | .930   | -0.000 |
| 169. | 4326.597 | 0.000  | 1828.190 | -10.160 | 0.000  | 1636.280 | .860   | -0.000 |
| 170. | 4328.532 | 0.000  | 1822.745 | -9.290  | 0.000  | 1636.739 | .780   | -0.000 |
| 171. | 4330.293 | 0.000  | 1817.785 | -8.450  | 0.000  | 1637.156 | .710   | -0.000 |
| 172. | 4331.878 | 0.000  | 1813.320 | -7.560  | 0.000  | 1637.531 | .630   | -0.000 |
| 173. | 4333.282 | 0.000  | 1809.361 | -6.590  | 0.000  | 1637.862 | .550   | -0.000 |
| 174. | 4334.503 | 0.000  | 1805.914 | -5.700  | 0.000  | 1638.150 | .480   | -0.000 |
| 175. | 4335.539 | 0.000  | 1802.987 | -4.840  | 0.000  | 1638.394 | .400   | -0.000 |
| 176. | 4336.390 | 0.000  | 1800.504 | -3.890  | 0.000  | 1638.595 | .320   | -0.000 |
| 177. | 4337.052 | 0.000  | 1798.712 | -2.930  | 0.000  | 1638.751 | .240   | -0.000 |
| 178. | 4337.526 | 0.000  | 1797.372 | -1.960  | 0.000  | 1638.862 | .160   | -0.000 |
| 179. | 4337.811 | 0.000  | 1796.567 | -0.980  | 0.000  | 1638.929 | .080   | -0.000 |
| 180. | 4337.906 | -0.000 | 1796.298 | -0.000  | 0.000  | 1638.952 | 0.000  | 0.000  |

Z-PLANE (XY-PLANE) DIAMOND

|     | LWVEL     | LPHI13 | FSRVEL    | FSPHI12 | FSPHI13 | BULK      | SSPHI12 | SSPHI13 |
|-----|-----------|--------|-----------|---------|---------|-----------|---------|---------|
| 0.  | 17503.661 | 0.000  | 0.000     | 0.000   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 1.  | 17504.853 | 0.000  | 12602.750 | -0.640  | 0.000   | 12604.361 | -0.000  | 0.000   |
| 2.  | 17508.420 | 0.000  | 12797.872 | -1.660  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 3.  | 17514.330 | 1.320  | 12789.782 | -2.480  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 4.  | 17522.533 | 1.750  | 12778.542 | -3.280  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 5.  | 17532.957 | 2.150  | 12764.236 | -4.060  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 6.  | 17545.515 | 2.540  | 12746.968 | -4.810  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 7.  | 17560.104 | 2.910  | 12726.863 | -5.520  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 8.  | 17576.606 | 3.250  | 12704.064 | -6.200  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 9.  | 17594.890 | 3.560  | 12678.726 | -6.840  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 10. | 17614.816 | 3.850  | 12651.826 | -7.440  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 11. | 17636.243 | 4.110  | 12621.142 | -7.990  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 12. | 17659.012 | 4.340  | 12589.265 | -8.490  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 13. | 17682.968 | 4.540  | 12555.544 | -8.950  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 14. | 17707.952 | 4.710  | 12520.333 | -9.350  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 15. | 17733.805 | 4.840  | 12483.687 | -9.710  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 16. | 17760.378 | 4.950  | 12445.865 | -10.010 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 17. | 17787.489 | 5.030  | 12407.876 | -10.260 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 18. | 17815.011 | 5.090  | 12367.526 | -10.460 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 19. | 17842.785 | 5.110  | 12327.421 | -10.610 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 20. | 17870.669 | 5.110  | 12286.964 | -10.710 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 21. | 17898.523 | 5.080  | 12246.353 | -10.760 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 22. | 17926.214 | 5.040  | 12205.764 | -10.760 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 23. | 17953.614 | 4.960  | 12165.445 | -10.710 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 24. | 17980.691 | 4.870  | 12125.522 | -10.610 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 25. | 18007.662 | 4.760  | 12086.192 | -10.470 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 26. | 18032.886 | 4.630  | 12047.627 | -10.260 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 27. | 18057.971 | 4.480  | 12009.995 | -10.040 | 0.000   | 12604.361 | 0.000   | 0.000   |
| 28. | 18082.222 | 4.310  | 11973.452 | -9.760  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 29. | 18105.947 | 4.130  | 11938.152 | -9.440  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 30. | 18127.862 | 3.940  | 11904.240 | -9.070  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 31. | 18149.089 | 3.730  | 11871.851 | -8.670  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 32. | 18169.157 | 3.510  | 11841.117 | -8.220  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 33. | 18187.997 | 3.280  | 11812.156 | -7.740  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 34. | 18205.749 | 3.040  | 11785.088 | -7.230  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 35. | 18222.787 | 2.790  | 11760.012 | -6.680  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 36. | 18238.578 | 2.540  | 11737.027 | -6.100  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 37. | 18253.943 | 2.270  | 11716.222 | -5.500  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 38. | 18268.937 | 2.000  | 11697.675 | -4.870  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 39. | 18282.215 | 1.730  | 11681.458 | -4.220  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 40. | 18294.647 | 1.450  | 11667.631 | -3.540  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 41. | 18306.389 | 1.160  | 11656.246 | -2.860  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 42. | 18317.378 | 0.870  | 11647.347 | -2.150  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 43. | 18327.638 | 0.580  | 11640.966 | -1.440  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 44. | 18337.179 | 0.290  | 11637.126 | -0.720  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 45. | 18345.994 | 0.000  | 11635.847 | 0.000   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 46. | 18354.079 | -0.250 | 11637.126 | 0.720   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 47. | 18361.536 | -0.500 | 11640.966 | 1.440   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 48. | 18368.374 | -0.750 | 11647.347 | 2.150   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 49. | 18374.609 | -1.000 | 11656.246 | 2.860   | 0.000   | 12604.361 | 0.000   | 0.000   |

Z-PLANE (XY-PLANE) DIAMOND

|     | LNGVEL    | LPMI12 | LPMI13 | FSRVEL    | FSPMI12 | FSPMI13 | SSRVEL    | SSPMI12 | SSPMI13 |
|-----|-----------|--------|--------|-----------|---------|---------|-----------|---------|---------|
| 50. | 18204.047 | -1.450 | 0.000  | 11667.631 | 3.540   | 0.000   | 12604.361 | -0.000  | 0.000   |
| 51. | 18272.215 | -1.730 | 0.000  | 11681.458 | 4.220   | 0.000   | 12604.361 | -0.600  | 0.000   |
| 52. | 18266.837 | -2.000 | 0.000  | 11697.675 | 4.870   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 53. | 18249.943 | -2.270 | 0.000  | 11716.222 | 5.500   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 54. | 18236.570 | -2.540 | 0.000  | 11737.027 | 6.100   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 55. | 18221.757 | -2.790 | 0.000  | 11760.012 | 6.660   | 0.000   | 12604.361 | -0.000  | 0.000   |
| 56. | 18205.549 | -3.040 | 0.000  | 11785.088 | 7.230   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 57. | 18187.997 | -3.280 | 0.000  | 11812.158 | 7.740   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 58. | 18169.157 | -3.510 | 0.000  | 11841.117 | 8.220   | 0.000   | 12604.361 | -0.000  | 0.000   |
| 59. | 18149.089 | -3.730 | 0.000  | 11871.851 | 8.670   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 60. | 18127.862 | -3.940 | 0.000  | 11904.240 | 9.070   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 61. | 18105.547 | -4.130 | 0.000  | 11938.152 | 9.440   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 62. | 18082.222 | -4.310 | 0.000  | 11973.452 | 9.760   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 63. | 18057.971 | -4.480 | 0.000  | 12009.955 | 10.040  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 64. | 18032.886 | -4.630 | 0.000  | 12047.927 | 10.280  | 0.000   | 12604.361 | -0.000  | 0.000   |
| 65. | 18007.062 | -4.760 | 0.000  | 12086.192 | 10.470  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 66. | 17980.601 | -4.870 | 0.000  | 12125.522 | 10.610  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 67. | 17953.614 | -4.960 | 0.000  | 12165.445 | 10.710  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 68. | 17926.214 | -5.040 | 0.000  | 12205.784 | 10.760  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 69. | 17898.523 | -5.080 | 0.000  | 12246.353 | 10.760  | 0.000   | 12604.361 | -0.000  | 0.000   |
| 70. | 17870.669 | -5.110 | 0.000  | 12286.964 | 10.710  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 71. | 17842.785 | -5.110 | 0.000  | 12327.421 | 10.610  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 72. | 17815.011 | -5.090 | 0.000  | 12367.526 | 10.460  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 73. | 17787.489 | -5.030 | 0.000  | 12407.076 | 10.260  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 74. | 17760.370 | -4.950 | 0.000  | 12445.855 | 10.010  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 75. | 17733.805 | -4.840 | 0.000  | 12483.657 | 9.710   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 76. | 17707.952 | -4.710 | 0.000  | 12520.333 | 9.350   | 0.000   | 12604.361 | -0.600  | 0.000   |
| 77. | 17682.966 | -4.540 | 0.000  | 12555.994 | 8.950   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 78. | 17659.012 | -4.340 | 0.000  | 12589.265 | 8.490   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 79. | 17636.243 | -4.110 | 0.000  | 12621.142 | 7.990   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 80. | 17614.818 | -3.850 | 0.000  | 12651.026 | 7.440   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 81. | 17594.890 | -3.560 | 0.000  | 12678.726 | 6.840   | 0.000   | 12604.361 | -0.000  | 0.000   |
| 82. | 17576.606 | -3.250 | 0.000  | 12704.084 | 6.200   | 0.000   | 12604.361 | -0.000  | 0.000   |
| 83. | 17560.104 | -2.910 | 0.000  | 12726.863 | 5.520   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 84. | 17545.515 | -2.540 | 0.000  | 12746.966 | 4.810   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 85. | 17532.957 | -2.150 | 0.000  | 12764.236 | 4.060   | 0.000   | 12604.361 | -0.000  | 0.000   |
| 86. | 17522.533 | -1.750 | 0.000  | 12778.512 | 3.280   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 87. | 17514.330 | -1.320 | 0.000  | 12789.782 | 2.480   | 0.000   | 12604.361 | 0.000   | 0.000   |
| 88. | 17508.420 | -0.890 | 0.000  | 12797.872 | 1.660   | 0.000   | 12604.361 | -0.000  | 0.000   |
| 89. | 17504.853 | -0.450 | 0.000  | 12802.750 | 0.840   | 0.000   | 12604.361 | -0.000  | 0.000   |
| 90. | 17503.661 | 0.000  | 0.000  | 12804.381 | -0.000  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 91. | 17504.853 | 0.450  | 0.000  | 12802.750 | -0.840  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 92. | 17508.420 | 0.890  | 0.000  | 12797.872 | -1.660  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 93. | 17514.330 | 1.320  | 0.000  | 12789.782 | -2.480  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 94. | 17522.533 | 1.750  | 0.000  | 12780.542 | -3.280  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 95. | 17532.957 | 2.150  | 0.000  | 12764.236 | -4.060  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 96. | 17545.515 | 2.540  | 0.000  | 12746.966 | -4.810  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 97. | 17560.104 | 2.910  | 0.000  | 12726.863 | -5.520  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 98. | 17576.606 | 3.250  | 0.000  | 12704.084 | -6.200  | 0.000   | 12604.361 | 0.000   | 0.000   |
| 99. | 17594.890 | 3.560  | 0.000  | 12678.726 | -6.840  | 0.000   | 12604.361 | 0.000   | 0.000   |

BULK

|      | Z-PLANE (XY-PLANE) DIAMOND |        |           |         | BULK    |           |         |         |
|------|----------------------------|--------|-----------|---------|---------|-----------|---------|---------|
|      | LPHI12                     | LPHI13 | FSRVEL    | FSPHI12 | FSPHI13 | SSRVEL    | SSPHI12 | SSPHI13 |
| 100. | 17614.816                  | 0.000  | 12651.026 | -7.440  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 101. | 17836.243                  | 0.000  | 12621.142 | -7.990  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 102. | 17659.812                  | 0.000  | 12589.265 | -8.490  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 103. | 17682.966                  | 0.000  | 12555.594 | -8.950  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 104. | 17707.952                  | 0.000  | 12520.333 | -9.350  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 105. | 17733.805                  | 0.000  | 12483.687 | -9.710  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 106. | 17760.370                  | 0.000  | 12445.865 | -10.010 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 107. | 17787.489                  | 0.000  | 12407.076 | -10.260 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 108. | 17815.011                  | 0.000  | 12367.526 | -10.460 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 109. | 17842.785                  | 0.000  | 12327.421 | -10.610 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 110. | 17870.669                  | 0.000  | 12286.964 | -10.710 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 111. | 17898.523                  | 0.000  | 12246.353 | -10.760 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 112. | 17926.214                  | 0.000  | 12205.784 | -10.760 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 113. | 17953.614                  | 0.000  | 12165.445 | -10.710 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 114. | 17980.601                  | 0.000  | 12125.522 | -10.610 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 115. | 18007.062                  | 0.000  | 12086.192 | -10.470 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 116. | 18032.886                  | 0.000  | 12047.627 | -10.260 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 117. | 18057.971                  | 0.000  | 12009.995 | -10.040 | 0.000   | 12804.381 | -0.000  | 0.000   |
| 118. | 18082.222                  | 0.000  | 11973.452 | -9.760  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 119. | 18105.547                  | 0.000  | 11938.152 | -9.440  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 120. | 18127.662                  | 0.000  | 11904.240 | -9.070  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 121. | 18149.089                  | 0.000  | 11871.851 | -8.670  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 122. | 18169.157                  | 0.000  | 11841.117 | -8.220  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 123. | 18187.997                  | 0.000  | 11812.158 | -7.740  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 124. | 18205.545                  | 0.000  | 11785.086 | -7.230  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 125. | 18221.757                  | 0.000  | 11760.012 | -6.660  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 126. | 18236.570                  | 0.000  | 11737.027 | -6.100  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 127. | 18249.943                  | 0.000  | 11716.222 | -5.500  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 128. | 18261.837                  | 0.000  | 11697.675 | -4.870  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 129. | 18272.215                  | 0.000  | 11681.456 | -4.220  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 130. | 18281.047                  | 0.000  | 11667.631 | -3.540  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 131. | 18288.389                  | 0.000  | 11656.246 | -2.860  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 132. | 18293.976                  | 0.000  | 11647.347 | -2.150  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 133. | 18298.038                  | 0.000  | 11640.966 | -1.440  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 134. | 18300.679                  | 0.000  | 11637.126 | -0.720  | 0.000   | 12804.381 | -0.000  | 0.000   |
| 135. | 18301.294                  | 0.000  | 11635.847 | 0.000   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 136. | 18300.479                  | 0.000  | 11637.128 | 0.720   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 137. | 18298.036                  | 0.000  | 11640.966 | 1.440   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 138. | 18293.976                  | 0.000  | 11647.347 | 2.150   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 139. | 18288.389                  | 0.000  | 11656.246 | 2.860   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 140. | 18281.047                  | 0.000  | 11667.631 | 3.540   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 141. | 18272.215                  | 0.000  | 11681.456 | 4.220   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 142. | 18261.837                  | 0.000  | 11697.675 | 4.870   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 143. | 18249.943                  | 0.000  | 11716.222 | 5.500   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 144. | 18236.570                  | 0.000  | 11737.027 | 6.100   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 145. | 18221.757                  | 0.000  | 11760.012 | 6.660   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 146. | 18205.545                  | 0.000  | 11785.086 | 7.230   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 147. | 18187.997                  | 0.000  | 11812.158 | 7.740   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 148. | 18169.157                  | 0.000  | 11841.117 | 8.220   | 0.000   | 12804.381 | -0.000  | 0.000   |
| 149. | 18149.089                  | 0.000  | 11871.851 | 8.670   | 0.000   | 12804.381 | -0.000  | 0.000   |

| Z-PLANE (XY-PLANE) DIAMONO |           |        |        |           |         |         |           |         |         |
|----------------------------|-----------|--------|--------|-----------|---------|---------|-----------|---------|---------|
|                            | LNGVEL    | LPHI12 | LPHI13 | FSRVEL    | FSPHI12 | FSPHI13 | SSRVEL    | SSPHI12 | SSPHI13 |
| 150.                       | 18127.862 | -3.940 | 0.000  | 11904.240 | 9.070   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 151.                       | 18135.947 | -4.130 | 0.000  | 11938.152 | 9.440   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 152.                       | 18082.222 | -4.310 | 0.000  | 11873.452 | 9.760   | 0.000   | 12004.361 | -0.000  | 0.000   |
| 153.                       | 18057.971 | -4.480 | 0.000  | 12009.995 | 10.040  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 154.                       | 18032.686 | -4.630 | 0.000  | 12047.627 | 10.260  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 155.                       | 18007.062 | -4.760 | 0.000  | 12086.192 | 10.470  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 156.                       | 17980.601 | -4.870 | 0.000  | 12125.522 | 10.610  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 157.                       | 17953.614 | -4.960 | 0.000  | 12165.445 | 10.710  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 158.                       | 17926.214 | -5.040 | 0.000  | 12205.784 | 10.760  | 0.000   | 12004.361 | -0.000  | 0.000   |
| 159.                       | 17898.523 | -5.080 | 0.000  | 12246.353 | 10.760  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 160.                       | 17870.669 | -5.110 | 0.000  | 12286.964 | 10.710  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 161.                       | 17842.785 | -5.110 | 0.000  | 12327.421 | 10.610  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 162.                       | 17815.011 | -5.090 | 0.000  | 12367.526 | 10.460  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 163.                       | 17787.469 | -5.030 | 0.000  | 12407.076 | 10.260  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 164.                       | 17760.370 | -4.950 | 0.000  | 12445.865 | 10.010  | 0.000   | 12004.361 | 0.000   | 0.000   |
| 165.                       | 17733.805 | -4.840 | 0.000  | 12483.587 | 9.710   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 166.                       | 17707.952 | -4.710 | 0.000  | 12520.333 | 9.350   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 167.                       | 17682.968 | -4.540 | 0.000  | 12555.594 | 8.950   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 168.                       | 17659.012 | -4.340 | 0.000  | 12589.265 | 8.490   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 169.                       | 17636.243 | -4.110 | 0.000  | 12621.142 | 7.990   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 170.                       | 17614.616 | -3.850 | 0.000  | 12651.026 | 7.440   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 171.                       | 17594.890 | -3.560 | 0.000  | 12678.726 | 6.840   | 0.000   | 12004.361 | -0.000  | 0.000   |
| 172.                       | 17576.606 | -3.250 | 0.000  | 12704.064 | 6.200   | 0.000   | 12004.361 | -0.000  | 0.000   |
| 173.                       | 17560.104 | -2.910 | 0.000  | 12726.863 | 5.520   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 174.                       | 17545.515 | -2.540 | 0.000  | 12746.968 | 4.810   | 0.000   | 12004.361 | -0.000  | 0.000   |
| 175.                       | 17532.957 | -2.150 | 0.000  | 12764.236 | 4.060   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 176.                       | 17522.533 | -1.750 | 0.000  | 12778.542 | 3.260   | 0.000   | 12004.361 | -0.000  | 0.000   |
| 177.                       | 17514.330 | -1.320 | 0.000  | 12789.782 | 2.460   | 0.000   | 12004.361 | -0.000  | 0.000   |
| 178.                       | 17508.420 | -0.850 | 0.000  | 12797.872 | 1.660   | 0.000   | 12004.361 | -0.000  | 0.000   |
| 179.                       | 17504.853 | -0.450 | 0.000  | 12802.750 | 0.840   | 0.000   | 12004.361 | 0.000   | 0.000   |
| 180.                       | 17503.661 | 0.000  | 0.000  | 12804.361 | -0.000  | 0.000   | 12004.361 | 0.000   | 0.000   |

111-PLANE DIAMOND

|     | LNGLVEL   | LPHI12 | LPHI13 | FSRVEL    | FSPHI12 | FSPHI13 | SSRVEL    | SSPHI12 | SSPHI13 |
|-----|-----------|--------|--------|-----------|---------|---------|-----------|---------|---------|
| 0.  | 18301.294 | -0.000 | 0.000  | 12804.381 | -0.000  | 0.000   | 11635.647 | 0.000   | 0.000   |
| 1.  | 18301.366 | .030   | .220   | 12803.664 | -.370   | -.260   | 11638.523 | .380    | -.244   |
| 2.  | 18301.580 | .050   | .450   | 12801.516 | -.730   | -.520   | 11638.549 | .760    | -.480   |
| 3.  | 18301.935 | .060   | .690   | 12797.946 | -1.100  | -.780   | 11641.917 | 1.140   | -.720   |
| 4.  | 18302.426 | .100   | .890   | 12792.969 | -1.460  | -1.030  | 11646.614 | 1.510   | -.960   |
| 5.  | 18303.047 | .120   | 1.110  | 12786.607 | -1.610  | -1.260  | 11652.622 | 1.670   | -1.130  |
| 6.  | 18303.793 | .140   | 1.320  | 12778.886 | -2.150  | -1.530  | 11659.919 | 2.230   | -1.420  |
| 7.  | 18304.654 | .160   | 1.540  | 12769.840 | -2.490  | -1.760  | 11668.475 | 2.560   | -1.650  |
| 8.  | 18305.620 | .180   | 1.740  | 12759.510 | -2.620  | -2.020  | 11678.255 | 2.920   | -1.810  |
| 9.  | 18306.661 | .200   | 1.940  | 12747.941 | -3.130  | -2.250  | 11689.221 | 3.240   | -2.010  |
| 10. | 18307.825 | .210   | 2.140  | 12735.187 | -3.430  | -2.470  | 11701.325 | 3.550   | -2.200  |
| 11. | 18309.039 | .220   | 2.330  | 12721.306 | -3.720  | -2.690  | 11714.515 | 3.640   | -2.500  |
| 12. | 18310.310 | .230   | 2.510  | 12706.372 | -3.960  | -2.910  | 11728.730 | 4.110   | -2.700  |
| 13. | 18311.624 | .240   | 2.680  | 12690.456 | -4.230  | -3.110  | 11743.902 | 4.360   | -2.890  |
| 14. | 18312.965 | .240   | 2.850  | 12673.643 | -4.450  | -3.300  | 11759.054 | 4.540   | -3.070  |
| 15. | 18314.320 | .240   | 3.010  | 12656.831 | -4.650  | -3.490  | 11776.800 | 4.790   | -3.240  |
| 16. | 18315.674 | .240   | 3.160  | 12637.726 | -4.820  | -3.670  | 11794.339 | 4.960   | -3.400  |
| 17. | 18317.011 | .240   | 3.300  | 12618.850 | -4.960  | -3.830  | 11812.466 | 5.090   | -3.550  |
| 18. | 18318.317 | .230   | 3.430  | 12599.540 | -5.060  | -3.950  | 11831.032 | 5.190   | -3.620  |
| 19. | 18319.578 | .220   | 3.550  | 12579.954 | -5.120  | -4.140  | 11849.906 | 5.240   | -3.820  |
| 20. | 18320.780 | .210   | 3.660  | 12560.276 | -5.120  | -4.270  | 11868.906 | 5.240   | -3.940  |
| 21. | 18321.911 | .200   | 3.770  | 12540.719 | -5.070  | -4.400  | 11887.826 | 5.180   | -4.050  |
| 22. | 18322.957 | .180   | 3.860  | 12521.533 | -4.940  | -4.510  | 11906.423 | 5.040   | -4.150  |
| 23. | 18323.909 | .160   | 3.940  | 12503.014 | -4.730  | -4.620  | 11924.406 | 4.820   | -4.220  |
| 24. | 18324.755 | .140   | 4.010  | 12485.511 | -4.430  | -4.710  | 11941.433 | 4.500   | -4.250  |
| 25. | 18325.467 | .120   | 4.070  | 12469.431 | -4.000  | -4.750  | 11957.102 | 4.070   | -4.350  |
| 26. | 18326.097 | .100   | 4.120  | 12455.237 | -3.446  | -4.660  | 11970.953 | 3.500   | -4.430  |
| 27. | 18326.578 | .070   | 4.164  | 12443.434 | -2.750  | -4.910  | 11982.486 | 2.750   | -4.430  |
| 28. | 18326.925 | .050   | 4.190  | 12434.430 | -2.750  | -4.950  | 11991.195 | 2.750   | -4.430  |
| 29. | 18327.135 | .030   | 4.201  | 12428.974 | -1.990  | -4.950  | 11991.195 | 2.750   | -4.430  |
| 30. | 18327.205 | .000   | 4.210  | 12427.084 | 0.000   | -4.570  | 11996.633 | 1.950   | -4.470  |
| 31. | 18327.135 | -.030  | 4.200  | 12428.974 | .990    | -4.560  | 11996.633 | 0.600   | -4.470  |
| 32. | 18326.925 | -.050  | 4.190  | 12434.430 | 1.930   | -4.950  | 11991.195 | -1.950  | -4.450  |
| 33. | 18326.578 | -.070  | 4.160  | 12443.434 | 2.750   | -4.910  | 11982.486 | -2.750  | -4.430  |
| 34. | 18326.097 | -.100  | 4.120  | 12455.237 | 3.440   | -4.860  | 11970.953 | -3.500  | -4.400  |
| 35. | 18325.467 | -.120  | 4.070  | 12469.431 | 4.000   | -4.790  | 11957.102 | -4.070  | -4.350  |
| 36. | 18324.755 | -.140  | 4.010  | 12485.511 | 4.430   | -4.710  | 11941.433 | -4.500  | -4.250  |
| 37. | 18323.909 | -.160  | 3.940  | 12503.014 | 4.730   | -4.620  | 11924.406 | -4.820  | -4.220  |
| 38. | 18322.957 | -.180  | 3.860  | 12521.533 | 4.940   | -4.510  | 11906.423 | -5.040  | -4.140  |
| 39. | 18321.911 | -.200  | 3.770  | 12540.719 | 5.070   | -4.400  | 11887.826 | -5.180  | -4.050  |
| 40. | 18320.780 | -.210  | 3.660  | 12560.276 | 5.120   | -4.270  | 11868.906 | -5.240  | -3.940  |
| 41. | 18319.578 | -.220  | 3.550  | 12579.954 | 5.120   | -4.140  | 11849.906 | -5.240  | -3.820  |
| 42. | 18318.317 | -.230  | 3.430  | 12599.540 | 5.060   | -3.950  | 11831.032 | -5.190  | -3.620  |
| 43. | 18317.011 | -.240  | 3.300  | 12618.850 | 4.960   | -3.830  | 11812.466 | -5.090  | -3.550  |
| 44. | 18315.674 | -.240  | 3.160  | 12637.726 | 4.620   | -3.670  | 11794.339 | -4.960  | -3.400  |
| 45. | 18314.320 | -.240  | 3.010  | 12656.831 | 4.650   | -3.490  | 11776.800 | -4.790  | -3.240  |
| 46. | 18312.965 | -.240  | 2.850  | 12673.643 | 4.450   | -3.300  | 11759.054 | -4.590  | -3.070  |
| 47. | 18311.624 | -.240  | 2.680  | 12690.456 | 4.230   | -3.110  | 11743.902 | -4.360  | -2.890  |
| 48. | 18310.310 | -.230  | 2.510  | 12706.372 | 3.960   | -2.910  | 11728.730 | -4.110  | -2.700  |
| 49. | 18309.039 | -.220  | 2.330  | 12721.306 | 3.720   | -2.690  | 11714.515 | -3.640  | -2.500  |

BULK



111-PLANE DIAMOND

|     | LPHI12    | LPHI13 | FSRVEL    | FSPHI12 | FSPHI13 | SSRVEL    | SSPHI12 | SSPHI13 |
|-----|-----------|--------|-----------|---------|---------|-----------|---------|---------|
| 50. | 10307.625 | 2.140  | 12735.487 | 3.430   | -2.470  | 11701.325 | -3.550  | -2.300  |
| 51. | 10306.681 | 1.940  | 12747.941 | 3.130   | -2.250  | 11699.221 | -3.240  | -2.090  |
| 52. | 10305.620 | -1.160 | 12759.510 | 2.820   | -2.020  | 11678.255 | -2.520  | -1.670  |
| 53. | 10304.653 | 1.740  | 12769.840 | 2.490   | -1.780  | 11668.475 | -2.500  | -1.650  |
| 54. | 10303.793 | -1.400 | 12778.886 | 2.150   | -1.530  | 11659.919 | -2.230  | -1.420  |
| 55. | 10303.047 | 1.110  | 12786.607 | 1.810   | -1.280  | 11652.622 | -1.670  | -1.190  |
| 56. | 10302.426 | -0.890 | 12792.969 | 1.460   | -1.030  | 11646.614 | -1.510  | -0.960  |
| 57. | 10301.935 | 0.680  | 12797.946 | 1.100   | -0.780  | 11641.917 | -1.140  | -0.720  |
| 58. | 10301.580 | 0.450  | 12801.516 | 0.730   | -0.520  | 11638.549 | -0.480  | -0.480  |
| 59. | 10301.366 | -0.300 | 12803.664 | 0.370   | -0.260  | 11636.523 | -0.360  | -0.360  |
| 60. | 10301.294 | 0.000  | 12804.381 | -0.000  | 0.000   | 11635.047 | -0.000  | -0.000  |
| 61. | 10301.366 | -0.300 | 12803.664 | -0.370  | -0.260  | 11636.523 | -0.360  | -0.360  |
| 62. | 10301.580 | 0.450  | 12801.516 | -0.730  | -0.520  | 11638.549 | -0.480  | -0.480  |
| 63. | 10301.935 | 0.680  | 12797.946 | -1.100  | -0.780  | 11641.917 | -0.720  | -0.720  |
| 64. | 10302.426 | -0.890 | 12792.969 | -1.460  | -1.030  | 11646.614 | -1.140  | -1.140  |
| 65. | 10303.046 | 1.120  | 12786.606 | -1.810  | -1.280  | 11652.622 | -1.510  | -1.510  |
| 66. | 10303.793 | -1.400 | 12778.886 | -2.150  | -1.530  | 11659.919 | -1.670  | -1.670  |
| 67. | 10304.654 | 1.540  | 12769.840 | -2.450  | -1.780  | 11668.474 | -1.650  | -1.650  |
| 68. | 10305.620 | -1.700 | 12759.510 | -2.820  | -2.020  | 11678.255 | -1.520  | -1.520  |
| 69. | 10306.681 | 2.000  | 12747.941 | -3.130  | -2.250  | 11699.221 | -1.230  | -1.230  |
| 70. | 10307.825 | -2.140 | 12735.487 | -3.430  | -2.470  | 11701.325 | -0.960  | -0.960  |
| 71. | 10309.039 | 2.200  | 12721.306 | -3.720  | -2.690  | 11714.515 | -0.640  | -0.640  |
| 72. | 10310.310 | -2.300 | 12706.372 | -3.960  | -2.910  | 11728.730 | -0.300  | -0.300  |
| 73. | 10311.624 | 2.400  | 12690.455 | -4.230  | -3.110  | 11743.902 | 0.110   | 0.110   |
| 74. | 10312.966 | -2.400 | 12673.843 | -4.450  | -3.300  | 11759.954 | 0.360   | 0.360   |
| 75. | 10314.321 | 3.010  | 12656.031 | -4.620  | -3.470  | 11776.080 | 0.590   | 0.590   |
| 76. | 10315.674 | -2.600 | 12637.726 | -4.820  | -3.670  | 11794.339 | 0.790   | 0.790   |
| 77. | 10317.011 | 3.160  | 12616.849 | -4.960  | -3.830  | 11812.460 | 0.950   | 0.950   |
| 78. | 10318.317 | -2.200 | 12599.540 | -5.060  | -3.950  | 11831.032 | 1.090   | 1.090   |
| 79. | 10319.576 | 2.300  | 12579.954 | -5.120  | -4.040  | 11849.906 | 1.240   | 1.240   |
| 80. | 10320.740 | -2.100 | 12560.276 | -5.120  | -4.040  | 11868.906 | 1.390   | 1.390   |
| 81. | 10321.911 | 2.000  | 12540.719 | -5.070  | -3.970  | 11887.626 | 1.540   | 1.540   |
| 82. | 10322.956 | -1.600 | 12521.533 | -4.940  | -3.840  | 11906.423 | 1.690   | 1.690   |
| 83. | 10323.909 | 1.600  | 12503.014 | -4.730  | -3.620  | 11924.406 | 1.820   | 1.820   |
| 84. | 10324.755 | -1.400 | 12485.511 | -4.430  | -3.320  | 11941.433 | 1.940   | 1.940   |
| 85. | 10325.487 | 1.200  | 12469.431 | -4.000  | -2.900  | 11957.102 | 2.040   | 2.040   |
| 86. | 10326.097 | -1.000 | 12455.237 | -3.440  | -2.340  | 11970.953 | 2.110   | 2.110   |
| 87. | 10326.576 | 0.700  | 12443.434 | -2.750  | -1.650  | 11982.485 | 2.150   | 2.150   |
| 88. | 10326.925 | -0.500 | 12434.829 | -1.930  | -1.090  | 11991.195 | 2.150   | 2.150   |
| 89. | 10327.135 | 0.300  | 12428.974 | -0.990  | -0.000  | 11996.632 | 2.110   | 2.110   |
| 90. | 10327.205 | -0.000 | 12427.084 | 0.000   | 0.000   | 11998.403 | 2.000   | 2.000   |
| 91. | 10327.135 | -0.300 | 12428.974 | 0.990   | 0.990   | 11998.403 | 1.820   | 1.820   |
| 92. | 10326.925 | 0.500  | 12434.829 | 1.930   | 1.930   | 11991.195 | 1.600   | 1.600   |
| 93. | 10326.576 | -0.700 | 12443.434 | 2.750   | 2.750   | 11982.485 | 1.350   | 1.350   |
| 94. | 10326.097 | -1.000 | 12455.237 | 3.440   | 3.440   | 11970.953 | 1.090   | 1.090   |
| 95. | 10325.487 | -1.200 | 12469.431 | 3.940   | 3.940   | 11957.102 | 0.820   | 0.820   |
| 96. | 10324.755 | -1.400 | 12485.511 | 4.430   | 4.430   | 11941.433 | 0.500   | 0.500   |
| 97. | 10323.909 | -1.600 | 12503.014 | 4.730   | 4.730   | 11924.406 | 0.220   | 0.220   |
| 98. | 10322.956 | -1.800 | 12521.533 | 4.940   | 4.940   | 11906.423 | 0.000   | 0.000   |
| 99. | 10321.911 | -2.000 | 12540.719 | 5.070   | 5.070   | 11887.626 | -0.160  | -0.160  |

111-PLANE DIAMOND

BULK

|      | LNGLVEL   | LPMLI2 | LPMLI3 | FSRVEL    | FSPMLI2 | FSPMLI3 | SSRVEL    | SSPMLI2 | SSPMLI3 |
|------|-----------|--------|--------|-----------|---------|---------|-----------|---------|---------|
| 100. | 10320.760 | -210   | -3.660 | 12560.276 | 5.120   | 4.270   | 11060.906 | -5.240  | 3.540   |
| 101. | 10319.578 | -220   | -3.550 | 12579.954 | 5.120   | 4.140   | 11049.906 | -5.240  | 3.020   |
| 102. | 10318.317 | -230   | -3.430 | 12599.540 | 5.060   | 3.990   | 11031.032 | -5.190  | 3.620   |
| 103. | 10317.011 | -240   | -3.300 | 12618.049 | 4.960   | 3.830   | 11012.460 | -5.090  | 3.550   |
| 104. | 10315.674 | -240   | -3.160 | 12637.726 | 4.820   | 3.670   | 11794.939 | -4.960  | 3.400   |
| 105. | 10314.321 | -240   | -3.010 | 12656.031 | 4.650   | 3.490   | 11776.800 | -4.790  | 3.240   |
| 106. | 10312.966 | -240   | -2.850 | 12673.643 | 4.450   | 3.300   | 11759.954 | -4.590  | 3.070   |
| 107. | 10311.624 | -240   | -2.680 | 12690.455 | 4.230   | 3.110   | 11743.902 | -4.360  | 2.890   |
| 108. | 10310.310 | -230   | -2.510 | 12706.372 | 3.960   | 2.910   | 11720.730 | -4.110  | 2.780   |
| 109. | 10309.039 | -220   | -2.330 | 12721.306 | 3.720   | 2.690   | 11714.515 | -3.840  | 2.580   |
| 110. | 10307.825 | -210   | -2.140 | 12735.187 | 3.430   | 2.470   | 11701.325 | -3.550  | 2.300   |
| 111. | 10306.661 | -200   | -1.940 | 12747.941 | 3.130   | 2.250   | 11689.221 | -3.240  | 2.090   |
| 112. | 10305.620 | -160   | -1.740 | 12759.510 | 2.820   | 2.020   | 11678.255 | -2.920  | 1.870   |
| 113. | 10304.654 | -160   | -1.540 | 12769.840 | 2.490   | 1.780   | 11668.474 | -2.580  | 1.640   |
| 114. | 10303.793 | -140   | -1.320 | 12778.886 | 2.150   | 1.530   | 11659.919 | -2.230  | 1.420   |
| 115. | 10303.046 | -120   | -1.110 | 12786.806 | 1.810   | 1.280   | 11652.622 | -1.870  | 1.190   |
| 116. | 10302.426 | -100   | -0.900 | 12792.969 | 1.460   | 1.030   | 11646.014 | -1.510  | 0.960   |
| 117. | 10301.935 | -060   | -0.670 | 12797.946 | 1.100   | 0.760   | 11641.917 | -1.140  | 0.720   |
| 118. | 10301.560 | -050   | -0.450 | 12801.516 | 0.730   | 0.520   | 11630.549 | -0.760  | 0.490   |
| 119. | 10301.366 | -030   | -0.220 | 12803.664 | 0.370   | 0.260   | 11619.823 | -0.380  | 0.240   |
| 120. | 10301.294 | -0.000 | 0.000  | 12804.381 | 0.000   | 0.000   | 11610.847 | 0.000   | 0.000   |
| 121. | 10301.366 | 0.030  | 0.220  | 12803.664 | -0.370  | -0.260  | 11619.823 | -0.380  | -0.240  |
| 122. | 10301.560 | 0.050  | 0.450  | 12801.516 | -0.730  | -0.520  | 11630.549 | -0.760  | -0.490  |
| 123. | 10301.935 | 0.060  | 0.670  | 12797.946 | -1.100  | -0.760  | 11641.917 | -1.140  | -0.720  |
| 124. | 10302.426 | 0.100  | 0.900  | 12792.969 | -1.460  | -1.030  | 11646.014 | -1.510  | -0.960  |
| 125. | 10303.047 | 0.120  | 1.110  | 12786.807 | -1.810  | -1.280  | 11652.622 | -1.870  | -1.190  |
| 126. | 10303.793 | 0.140  | 1.320  | 12778.886 | -2.150  | -1.530  | 11659.919 | -2.230  | -1.420  |
| 127. | 10304.653 | 0.160  | 1.540  | 12769.840 | -2.490  | -1.780  | 11668.475 | -2.580  | -1.640  |
| 128. | 10305.620 | 0.180  | 1.740  | 12759.510 | -2.820  | -2.020  | 11678.255 | -2.920  | -1.870  |
| 129. | 10306.661 | 0.200  | 1.940  | 12747.941 | -3.130  | -2.250  | 11689.221 | -3.240  | -2.100  |
| 130. | 10307.825 | 0.210  | 2.140  | 12735.187 | -3.430  | -2.470  | 11701.325 | -3.550  | -2.300  |
| 131. | 10309.039 | 0.220  | 2.330  | 12721.306 | -3.720  | -2.690  | 11714.515 | -3.840  | -2.490  |
| 132. | 10310.310 | 0.230  | 2.510  | 12706.372 | -3.960  | -2.910  | 11720.730 | -4.110  | -2.700  |
| 133. | 10311.624 | 0.240  | 2.680  | 12690.456 | -4.230  | -3.110  | 11743.902 | -4.360  | -2.890  |
| 134. | 10312.965 | 0.240  | 2.850  | 12673.643 | -4.450  | -3.300  | 11759.954 | -4.590  | -3.070  |
| 135. | 10314.320 | 0.240  | 3.010  | 12656.031 | -4.650  | -3.490  | 11776.800 | -4.790  | -3.240  |
| 136. | 10315.674 | 0.240  | 3.160  | 12637.726 | -4.820  | -3.670  | 11794.939 | -4.960  | -3.400  |
| 137. | 10317.011 | 0.240  | 3.300  | 12618.049 | -4.960  | -3.830  | 11812.460 | -5.090  | -3.550  |
| 138. | 10318.317 | 0.230  | 3.430  | 12599.540 | -5.060  | -3.950  | 11831.032 | -5.190  | -3.620  |
| 139. | 10319.578 | 0.220  | 3.550  | 12579.954 | -5.120  | -4.140  | 11849.906 | -5.240  | -3.680  |
| 140. | 10320.760 | 0.200  | 3.660  | 12560.277 | -5.120  | -4.270  | 11868.906 | -5.240  | -3.740  |
| 141. | 10321.911 | 0.200  | 3.770  | 12540.719 | -5.070  | -4.400  | 11887.826 | -5.180  | -3.800  |
| 142. | 10322.957 | 0.160  | 3.860  | 12521.533 | -4.940  | -4.510  | 11906.423 | -5.040  | -3.860  |
| 143. | 10323.909 | 0.160  | 3.940  | 12503.014 | -4.730  | -4.620  | 11924.906 | -4.820  | -3.920  |
| 144. | 10324.755 | 0.140  | 4.010  | 12485.511 | -4.430  | -4.710  | 11941.433 | -4.490  | -3.980  |
| 145. | 10325.467 | 0.120  | 4.070  | 12469.431 | -4.000  | -4.750  | 11957.102 | -4.070  | -3.980  |
| 146. | 10326.097 | 0.100  | 4.120  | 12455.237 | -3.440  | -4.860  | 11970.953 | -3.500  | -3.940  |
| 147. | 10326.576 | 0.070  | 4.160  | 12443.434 | -2.750  | -4.910  | 11982.906 | -2.750  | -3.890  |
| 148. | 10326.925 | 0.050  | 4.190  | 12434.530 | -1.930  | -4.950  | 11991.195 | -1.950  | -3.840  |
| 149. | 10327.135 | 0.030  | 4.200  | 12428.974 | -0.990  | -4.970  | 11996.633 | -1.010  | -3.790  |

| 111-PLANE DIAGONO |           |        |        |           |         |         |           |         |         |      |
|-------------------|-----------|--------|--------|-----------|---------|---------|-----------|---------|---------|------|
|                   | LNGVEL    | LPHI12 | LPHI13 | FSPVEL    | FSPHI12 | FSPHI13 | SSRVEL    | SSPHI12 | SSPHI13 | BULK |
| 150.              | 18327.205 | 0.000  | 4.210  | 12427.064 | -0.000  | -4.990  | 11998.493 | -0.000  | -4.470  |      |
| 151.              | 18327.135 | -0.030 | 4.200  | 12428.974 | .990    | -4.970  | 11996.693 | -1.010  | -4.470  |      |
| 152.              | 18326.925 | -0.050 | 4.190  | 12434.530 | 1.930   | -4.950  | 11991.195 | -1.950  | -4.450  |      |
| 153.              | 18326.576 | -0.070 | 4.160  | 12443.434 | 2.750   | -4.910  | 11982.496 | -2.790  | -4.430  |      |
| 154.              | 18326.097 | -0.100 | 4.120  | 12455.237 | 3.440   | -4.860  | 11970.953 | -3.500  | -4.400  |      |
| 155.              | 18325.487 | -0.120 | 4.070  | 12469.431 | 4.000   | -4.790  | 11957.192 | -4.070  | -4.350  |      |
| 156.              | 18324.755 | -0.140 | 4.010  | 12485.511 | 4.430   | -4.710  | 11941.433 | -4.500  | -4.290  |      |
| 157.              | 18323.905 | -0.160 | 3.940  | 12503.014 | 4.730   | -4.620  | 11924.496 | -4.820  | -4.220  |      |
| 158.              | 18322.957 | -0.180 | 3.860  | 12521.533 | 4.940   | -4.510  | 11906.423 | -5.040  | -4.140  |      |
| 159.              | 18321.911 | -0.200 | 3.770  | 12540.719 | 5.070   | -4.400  | 11887.826 | -5.160  | -4.050  |      |
| 160.              | 18320.780 | -0.210 | 3.660  | 12560.276 | 5.120   | -4.270  | 11868.906 | -5.240  | -3.940  |      |
| 161.              | 18319.574 | -0.220 | 3.550  | 12579.954 | 5.120   | -4.140  | 11849.906 | -5.240  | -3.820  |      |
| 162.              | 18318.317 | -0.230 | 3.430  | 12599.540 | 5.060   | -3.990  | 11831.032 | -5.190  | -3.690  |      |
| 163.              | 18317.011 | -0.240 | 3.300  | 12618.850 | 4.960   | -3.830  | 11812.460 | -5.090  | -3.550  |      |
| 164.              | 18315.674 | -0.240 | 3.160  | 12637.726 | 4.820   | -3.670  | 11794.339 | -4.960  | -3.400  |      |
| 165.              | 18314.320 | -0.240 | 3.010  | 12656.031 | 4.650   | -3.490  | 11776.800 | -4.790  | -3.240  |      |
| 166.              | 18312.965 | -0.240 | 2.850  | 12673.643 | 4.450   | -3.300  | 11759.954 | -4.590  | -3.070  |      |
| 167.              | 18311.624 | -0.240 | 2.660  | 12690.450 | 4.230   | -3.110  | 11743.992 | -4.360  | -2.890  |      |
| 168.              | 18310.310 | -0.230 | 2.510  | 12706.372 | 3.980   | -2.910  | 11728.730 | -4.110  | -2.700  |      |
| 169.              | 18309.039 | -0.220 | 2.330  | 12721.306 | 3.720   | -2.690  | 11714.515 | -3.840  | -2.500  |      |
| 170.              | 18307.825 | -0.210 | 2.140  | 12735.187 | 3.430   | -2.470  | 11701.325 | -3.550  | -2.300  |      |
| 171.              | 18306.661 | -0.200 | 1.940  | 12747.941 | 3.130   | -2.250  | 11689.221 | -3.240  | -2.090  |      |
| 172.              | 18305.620 | -0.160 | 1.740  | 12759.510 | 2.820   | -2.020  | 11678.255 | -2.920  | -1.870  |      |
| 173.              | 18304.654 | -0.160 | 1.540  | 12769.840 | 2.490   | -1.780  | 11668.475 | -2.580  | -1.650  |      |
| 174.              | 18303.793 | -0.140 | 1.320  | 12778.865 | 2.150   | -1.530  | 11659.919 | -2.230  | -1.420  |      |
| 175.              | 18303.047 | -0.120 | 1.110  | 12786.607 | 1.810   | -1.280  | 11652.622 | -1.870  | -1.190  |      |
| 176.              | 18302.426 | -0.100 | .890   | 12792.969 | 1.460   | -1.030  | 11646.614 | -1.510  | -0.960  |      |
| 177.              | 18301.935 | -0.080 | .670   | 12797.946 | 1.100   | -0.780  | 11641.917 | -1.140  | -0.720  |      |
| 178.              | 18301.560 | -0.050 | .450   | 12801.516 | .730    | -0.520  | 11638.549 | -0.760  | -0.460  |      |
| 179.              | 18301.366 | -0.030 | .220   | 12803.664 | .370    | -0.260  | 11636.523 | -0.380  | -0.240  |      |
| 180.              | 18301.294 | -0.000 | -0.000 | 12804.381 | 0.000   | -0.000  | 11635.647 | 0.000   | 0.000   |      |

| 110-PLANE DIAMOND |           |        |        |           |        |        |           |        |        |
|-------------------|-----------|--------|--------|-----------|--------|--------|-----------|--------|--------|
|                   | LNVEL     | LPHI12 | LPHI13 | FSRVEL    | FSPH12 | FSPH13 | SSRWEL    | SSPH12 | SSPH13 |
| 0.                | 18559.555 | 0.000  | -0.000 | 12037.976 | 5.310  | 0.000  | 12037.961 | -5.310 | -0.000 |
| 1.                | 18556.985 | -2.200 | -0.000 | 12057.580 | 5.350  | -0.000 | 12019.205 | -4.910 | -0.000 |
| 2.                | 18557.252 | -4.410 | -0.000 | 12077.384 | 5.390  | 0.000  | 12001.984 | -4.480 | -0.000 |
| 3.                | 18554.329 | -6.620 | -0.000 | 12097.346 | 5.420  | 0.000  | 11986.386 | -4.040 | -0.000 |
| 4.                | 18550.192 | -8.840 | 0.000  | 12117.446 | 5.440  | 0.000  | 11972.483 | -3.570 | -0.000 |
| 5.                | 18544.820 | -1.060 | 0.000  | 12137.653 | 5.460  | 0.000  | 11960.331 | -3.090 | 0.000  |
| 6.                | 18538.197 | -1.280 | 0.000  | 12157.944 | 5.470  | 0.000  | 11949.904 | -2.590 | 0.000  |
| 7.                | 18530.310 | -1.510 | 0.000  | 12178.295 | 5.470  | 0.000  | 11941.491 | -2.060 | 0.000  |
| 8.                | 18521.152 | -1.740 | -0.000 | 12198.679 | 5.470  | 0.000  | 11934.690 | -1.550 | -0.000 |
| 9.                | 18510.715 | -1.960 | -0.000 | 12219.072 | 5.460  | -0.000 | 11930.215 | -1.020 | -0.000 |
| 10.               | 18499.009 | -2.150 | -0.000 | 12239.450 | 5.440  | 0.000  | 11927.486 | -0.480 | -0.000 |
| 11.               | 18486.027 | -2.420 | -0.000 | 12259.788 | 5.420  | 0.000  | 11926.729 | .680   | -0.000 |
| 12.               | 18471.781 | -2.640 | 0.000  | 12280.060 | 5.390  | 0.000  | 11927.447 | .610   | -0.000 |
| 13.               | 18456.282 | -2.860 | 0.000  | 12300.243 | 5.360  | 0.000  | 11931.142 | 1.150  | -0.000 |
| 14.               | 18439.547 | -3.050 | 0.000  | 12320.313 | 5.320  | 0.000  | 11936.309 | 1.650  | -0.000 |
| 15.               | 18421.596 | -3.300 | 0.000  | 12340.246 | 5.270  | 0.000  | 11943.434 | 2.220  | -0.000 |
| 16.               | 18402.453 | -3.510 | 0.000  | 12360.018 | 5.210  | 0.000  | 11952.495 | 2.750  | -0.000 |
| 17.               | 18382.149 | -3.720 | 0.000  | 12379.606 | 5.150  | -0.000 | 11963.461 | 3.260  | -0.000 |
| 18.               | 18360.717 | -3.920 | -0.000 | 12398.987 | 5.090  | 0.000  | 11976.296 | 3.760  | -0.000 |
| 19.               | 18338.194 | -4.120 | 0.000  | 12418.138 | 5.020  | 0.000  | 11990.993 | 4.250  | 0.000  |
| 20.               | 18314.623 | -4.310 | -0.000 | 12437.038 | 4.940  | -0.000 | 12007.379 | 4.720  | 0.000  |
| 21.               | 18290.051 | -4.490 | 0.000  | 12455.664 | 4.860  | 0.000  | 12025.512 | 5.160  | -0.000 |
| 22.               | 18264.530 | -4.660 | 0.000  | 12473.995 | 4.770  | 0.000  | 12045.263 | 5.590  | 0.000  |
| 23.               | 18238.116 | -4.820 | 0.000  | 12492.011 | 4.680  | 0.000  | 12066.614 | 6.000  | -0.000 |
| 24.               | 18210.876 | -4.970 | -0.000 | 12509.889 | 4.580  | 0.000  | 12089.422 | 6.360  | -0.000 |
| 25.               | 18182.871 | -5.110 | -0.000 | 12527.611 | 4.480  | 0.000  | 12113.615 | 6.700  | 0.000  |
| 26.               | 18154.174 | -5.230 | -0.000 | 12543.957 | 4.380  | 0.000  | 12139.092 | 7.020  | -0.000 |
| 27.               | 18124.863 | -5.340 | -0.000 | 12560.506 | 4.260  | 0.000  | 12165.748 | 7.300  | -0.000 |
| 28.               | 18095.021 | -5.440 | -0.000 | 12576.645 | 4.150  | 0.000  | 12193.468 | 7.550  | 0.000  |
| 29.               | 18064.735 | -5.520 | -0.000 | 12592.350 | 4.030  | 0.000  | 12222.132 | 7.770  | 0.000  |
| 30.               | 18034.098 | -5.590 | 0.000  | 12607.606 | 3.910  | 0.000  | 12251.613 | 7.950  | 0.000  |
| 31.               | 18003.209 | -5.630 | -0.000 | 12622.399 | 3.780  | 0.000  | 12281.776 | 8.050  | 0.000  |
| 32.               | 17972.171 | -5.660 | -0.000 | 12636.702 | 3.650  | 0.000  | 12312.485 | 8.190  | -0.000 |
| 33.               | 17941.094 | -5.660 | -0.000 | 12650.511 | 3.510  | 0.000  | 12343.689 | 8.250  | -0.000 |
| 34.               | 17910.090 | -5.650 | -0.000 | 12663.806 | 3.370  | 0.000  | 12374.940 | 8.200  | -0.000 |
| 35.               | 17879.260 | -5.610 | 0.000  | 12676.572 | 3.230  | 0.000  | 12406.382 | 8.000  | 0.000  |
| 36.               | 17848.787 | -5.550 | -0.000 | 12688.797 | 3.090  | 0.000  | 12437.752 | 8.200  | -0.000 |
| 37.               | 17818.738 | -5.470 | 0.000  | 12700.467 | 2.940  | 0.000  | 12468.888 | 8.100  | 0.000  |
| 38.               | 17789.266 | -5.360 | -0.000 | 12711.956 | 2.790  | 0.000  | 12499.820 | 8.100  | 0.000  |
| 39.               | 17760.505 | -5.230 | 0.000  | 12722.090 | 2.640  | -0.000 | 12529.779 | 7.760  | -0.000 |
| 40.               | 17732.591 | -5.070 | -0.000 | 12732.020 | 2.480  | 0.000  | 12559.193 | 7.530  | -0.000 |
| 41.               | 17705.665 | -4.880 | 0.000  | 12741.348 | 2.320  | 0.000  | 12587.690 | 7.260  | -0.000 |
| 42.               | 17679.867 | -4.670 | -0.000 | 12750.064 | 2.160  | 0.000  | 12615.096 | 6.940  | -0.000 |
| 43.               | 17655.334 | -4.430 | 0.000  | 12758.156 | 2.000  | -0.000 | 12641.243 | 6.560  | -0.000 |
| 44.               | 17632.206 | -4.160 | 0.000  | 12765.622 | 1.840  | 0.000  | 12665.964 | 6.160  | -0.000 |
| 45.               | 17610.617 | -3.870 | 0.000  | 12772.446 | 1.670  | 0.000  | 12689.096 | 5.750  | -0.000 |
| 46.               | 17590.697 | -3.550 | 0.000  | 12778.629 | 1.500  | 0.000  | 12710.487 | 5.270  | -0.000 |
| 47.               | 17572.570 | -3.210 | 0.000  | 12784.158 | 1.340  | -0.000 | 12729.986 | 4.760  | -0.000 |
| 48.               | 17556.353 | -2.840 | 0.000  | 12789.028 | 1.170  | 0.000  | 12747.454 | 4.220  | 0.000  |
| 49.               | 17542.153 | -2.460 | 0.000  | 12793.236 | .990   | 0.000  | 12762.775 | 3.650  | 0.000  |

110-PLANE DIAMOND

|     | LMGWEL    | LPHI12 | LPHI13 | FSPH12    | FSPH13 | SSPH12    | SSPH13 |
|-----|-----------|--------|--------|-----------|--------|-----------|--------|
| 50. | 17530.067 | -2.060 | 0.000  | 12736.776 | 0.000  | 12775.626 | -0.000 |
| 51. | 17520.177 | -1.640 | 0.000  | 12799.645 | 0.000  | 12786.515 | -0.000 |
| 52. | 17512.553 | -1.210 | 0.000  | 12801.839 | 0.000  | 12794.759 | 0.000  |
| 53. | 17507.250 | -0.770 | 0.000  | 12803.357 | 0.000  | 12800.496 | -0.000 |
| 54. | 17504.307 | -0.330 | 0.000  | 12804.197 | 0.000  | 12803.681 | -0.000 |
| 55. | 17503.744 | .120   | 0.000  | 12804.357 | -0.000 | 12804.291 | -0.000 |
| 56. | 17505.565 | .560   | 0.000  | 12803.838 | -0.000 | 12802.319 | -0.000 |
| 57. | 17509.756 | 1.010  | 0.000  | 12802.640 | -0.000 | 12797.762 | -0.000 |
| 58. | 17516.292 | 1.440  | 0.000  | 12800.765 | -0.000 | 12790.715 | -0.000 |
| 59. | 17525.120 | 1.860  | 0.000  | 12798.214 | -0.000 | 12781.171 | -0.000 |
| 60. | 17536.180 | 2.270  | 0.000  | 12794.990 | -0.000 | 12769.224 | -0.000 |
| 61. | 17549.394 | 2.670  | 0.000  | 12791.047 | -0.000 | 12754.463 | -0.000 |
| 62. | 17564.671 | 3.040  | 0.000  | 12786.539 | 0.000  | 12738.493 | 0.000  |
| 63. | 17581.910 | 3.390  | 0.000  | 12781.320 | 0.000  | 12719.935 | -0.000 |
| 64. | 17600.999 | 3.720  | 0.000  | 12775.446 | -0.000 | 12699.420 | -0.000 |
| 65. | 17621.816 | 4.020  | 0.000  | 12768.924 | 0.000  | 12677.041 | -0.000 |
| 66. | 17644.235 | 4.300  | 0.000  | 12761.760 | 0.000  | 12653.049 | -0.000 |
| 67. | 17668.121 | 4.560  | 0.000  | 12753.942 | -0.000 | 12627.605 | -0.000 |
| 68. | 17693.339 | 4.780  | 0.000  | 12745.539 | -0.000 | 12600.772 | -0.000 |
| 69. | 17719.751 | 4.980  | 0.000  | 12736.496 | -0.000 | 12572.768 | -0.000 |
| 70. | 17747.215 | 5.160  | 0.000  | 12726.651 | 0.000  | 12543.766 | -0.000 |
| 71. | 17775.594 | 5.300  | 0.000  | 12716.607 | -0.000 | 12513.937 | -0.000 |
| 72. | 17804.747 | 5.420  | 0.000  | 12705.778 | -0.000 | 12483.454 | -0.000 |
| 73. | 17834.541 | 5.520  | 0.000  | 12694.375 | 0.000  | 12452.468 | -0.000 |
| 74. | 17864.840 | 5.590  | -0.000 | 12682.411 | 0.000  | 12421.207 | -0.000 |
| 75. | 17895.517 | 5.640  | 0.000  | 12669.898 | -0.000 | 12389.779 | -0.000 |
| 76. | 17926.444 | 5.660  | 0.000  | 12656.651 | 0.000  | 12356.366 | -0.000 |
| 77. | 17957.501 | 5.660  | 0.000  | 12643.283 | 0.000  | 12327.126 | -0.000 |
| 78. | 17988.571 | 5.650  | 0.000  | 12629.209 | 0.000  | 12296.212 | -0.000 |
| 79. | 18019.544 | 5.610  | 0.000  | 12614.646 | -0.000 | 12265.774 | 0.000  |
| 80. | 18050.312 | 5.550  | 0.000  | 12599.606 | -0.000 | 12235.954 | 0.000  |
| 81. | 18080.776 | 5.480  | 0.000  | 12584.113 | 0.000  | 12206.688 | -0.000 |
| 82. | 18110.839 | 5.390  | 0.000  | 12568.177 | -0.000 | 12176.706 | -0.000 |
| 83. | 18140.411 | 5.250  | -0.000 | 12551.620 | 0.000  | 12151.534 | -0.000 |
| 84. | 18169.407 | 5.170  | 0.000  | 12535.056 | -0.000 | 12125.486 | -0.000 |
| 85. | 18197.748 | 5.040  | 0.000  | 12517.911 | 0.000  | 12100.675 | -0.000 |
| 86. | 18225.359 | 4.890  | 0.000  | 12500.338 | 0.000  | 12077.201 | -0.000 |
| 87. | 18252.171 | 4.740  | 0.000  | 12482.539 | 0.000  | 12055.162 | -0.000 |
| 88. | 18278.120 | 4.570  | 0.000  | 12464.355 | 0.000  | 12034.644 | -0.000 |
| 89. | 18303.146 | 4.390  | 0.000  | 12445.665 | 0.000  | 12015.725 | -0.000 |
| 90. | 18327.196 | 4.210  | 0.000  | 12427.092 | 0.000  | 11998.489 | -0.000 |
| 91. | 18350.219 | 4.020  | -0.000 | 12408.056 | 0.000  | 11982.950 | -0.000 |
| 92. | 18372.172 | 3.820  | -0.000 | 12388.781 | 0.000  | 11969.269 | -0.000 |
| 93. | 18393.013 | 3.610  | 0.000  | 12369.288 | 0.000  | 11957.436 | -0.000 |
| 94. | 18412.707 | 3.400  | 0.000  | 12349.600 | 0.000  | 11947.471 | -0.000 |
| 95. | 18431.224 | 3.190  | 0.000  | 12329.740 | 0.000  | 11939.429 | -0.000 |
| 96. | 18448.536 | 2.970  | -0.000 | 12309.732 | 0.000  | 11933.336 | -0.000 |
| 97. | 18464.620 | 2.750  | 0.000  | 12289.599 | 0.000  | 11929.208 | -0.000 |
| 98. | 18479.460 | 2.520  | 0.000  | 12269.366 | -0.000 | 11927.057 | -0.000 |
| 99. | 18493.040 | 2.300  | -0.000 | 12249.056 | 0.000  | 11926.684 | -0.000 |

110-PLANE DIAMOND

|      | LMGVEL    | LPHI12 | LPHI13 | FSRVEL    | FSPH12 | FSPH13 | SRVEL     | SSPH12 | SSPH13 |
|------|-----------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| 100. | 10505.351 | 2.070  | -0.000 | 1220.694  | -5.450 | 0.000  | 11926.664 | .770   | -0.000 |
| 101. | 10516.367 | 1.640  | -0.000 | 1208.305  | -5.470 | 0.000  | 11932.442 | 1.300  | 0.000  |
| 102. | 10526.147 | 1.620  | 0.000  | 12167.913 | -5.470 | 0.000  | 11938.137 | 1.630  | -0.000 |
| 103. | 10534.632 | 1.390  | -0.000 | 12167.544 | -5.470 | 0.000  | 11945.742 | 2.350  | -0.000 |
| 104. | 10541.850 | 1.170  | 0.000  | 12147.221 | -5.470 | 0.000  | 11955.219 | 2.450  | -0.000 |
| 105. | 10547.611 | .940   | 0.000  | 12126.971 | -5.450 | 0.000  | 11966.525 | 3.340  | -0.000 |
| 106. | 10552.529 | .730   | 0.000  | 12106.819 | -5.430 | 0.000  | 11979.610 | 3.620  | -0.000 |
| 107. | 10556.023 | .510   | 0.000  | 12086.789 | -5.410 | 0.000  | 11994.416 | 4.270  | -0.000 |
| 108. | 10558.314 | .300   | -0.000 | 12066.906 | -5.370 | 0.000  | 12010.879 | 4.710  | -0.000 |
| 109. | 10559.429 | .090   | -0.000 | 12047.197 | -5.330 | 0.000  | 12028.928 | 5.120  | -0.000 |
| 110. | 10559.358 | -1.100 | 0.000  | 12027.684 | -5.260 | -0.000 | 12046.485 | 5.510  | 0.000  |
| 111. | 10558.256 | -1.300 | 0.000  | 12008.394 | -5.230 | -0.000 | 12063.466 | 5.670  | 0.000  |
| 112. | 10556.039 | -1.460 | 0.000  | 11989.351 | -5.160 | -0.000 | 12091.786 | 6.210  | 0.000  |
| 113. | 10552.790 | -1.660 | 0.000  | 11970.580 | -5.100 | -0.000 | 12115.348 | 6.520  | 0.000  |
| 114. | 10548.554 | -1.630 | 0.000  | 11952.103 | -5.020 | -0.000 | 12140.051 | 6.790  | 0.000  |
| 115. | 10543.360 | -1.150 | 0.000  | 11933.947 | -4.940 | -0.000 | 12162.794 | 7.040  | 0.000  |
| 116. | 10537.322 | -1.150 | 0.000  | 11916.133 | -4.850 | 0.000  | 12192.454 | 7.250  | 0.000  |
| 117. | 10530.635 | -1.290 | 0.000  | 11898.686 | -4.750 | 0.000  | 12219.930 | 7.440  | 0.000  |
| 118. | 10522.780 | -1.420 | 0.000  | 11881.625 | -4.650 | 0.000  | 12246.180 | 7.590  | -0.000 |
| 119. | 10514.421 | -1.540 | 0.000  | 11864.983 | -4.540 | -0.000 | 12276.842 | 7.780  | 0.000  |
| 120. | 10505.425 | -1.650 | 0.000  | 11848.771 | -4.420 | -0.000 | 12306.028 | 7.950  | -0.000 |
| 121. | 10495.861 | -1.740 | 0.000  | 11833.015 | -4.300 | -0.000 | 12335.532 | 8.100  | 0.000  |
| 122. | 10485.803 | -1.830 | 0.000  | 11817.735 | -4.170 | 0.000  | 12365.221 | 8.250  | 0.000  |
| 123. | 10475.326 | -1.690 | 0.000  | 11802.952 | -4.030 | 0.000  | 12394.483 | 8.420  | 0.000  |
| 124. | 10464.504 | -1.950 | 0.000  | 11748.687 | -3.840 | -0.000 | 12424.623 | 8.770  | -0.000 |
| 125. | 10453.432 | -1.990 | 0.000  | 11778.957 | -3.750 | -0.000 | 12454.063 | 9.000  | -0.000 |
| 126. | 10442.178 | -2.010 | 0.000  | 11761.762 | -3.590 | -0.000 | 12483.148 | 9.250  | 0.000  |
| 127. | 10430.832 | -2.020 | 0.000  | 11749.181 | -3.440 | 0.000  | 12511.741 | 9.500  | 0.000  |
| 128. | 10419.477 | -2.020 | 0.000  | 11737.169 | -3.270 | 0.000  | 12539.705 | 9.750  | 0.000  |
| 129. | 10408.199 | -2.000 | 0.000  | 11725.764 | -3.100 | -0.000 | 12566.906 | 10.000 | 0.000  |
| 130. | 10397.086 | -1.960 | 0.000  | 11714.981 | -2.930 | 0.000  | 12593.210 | 10.250 | 0.000  |
| 131. | 10386.221 | -1.910 | 0.000  | 11704.835 | -2.750 | -0.000 | 12618.446 | 10.500 | 0.000  |
| 132. | 10375.685 | -1.850 | 0.000  | 11695.340 | -2.570 | -0.000 | 12642.608 | 10.750 | 0.000  |
| 133. | 10365.573 | -1.770 | -0.000 | 11686.510 | -2.380 | 0.000  | 12665.423 | 11.000 | 0.000  |
| 134. | 10355.952 | -1.670 | 0.000  | 11678.356 | -2.190 | -0.000 | 12686.912 | 11.250 | 0.000  |
| 135. | 10346.905 | -1.560 | 0.000  | 11670.890 | -2.000 | -0.000 | 12706.843 | 11.500 | 0.000  |
| 136. | 10338.505 | -1.440 | 0.000  | 11664.122 | -1.800 | 0.000  | 12725.170 | 11.750 | 0.000  |
| 137. | 10330.619 | -1.310 | 0.000  | 11658.062 | -1.610 | 0.000  | 12741.746 | 12.000 | 0.000  |
| 138. | 10323.913 | -1.160 | 0.000  | 11652.715 | -1.400 | -0.000 | 12756.599 | 12.250 | 0.000  |
| 139. | 10317.843 | -1.010 | 0.000  | 11648.099 | -1.200 | -0.000 | 12769.529 | 12.500 | 0.000  |
| 140. | 10312.661 | -0.850 | 0.000  | 11644.210 | -0.990 | -0.000 | 12780.504 | 12.750 | 0.000  |
| 141. | 10308.411 | -0.660 | 0.000  | 11641.056 | -0.790 | -0.000 | 12789.463 | 13.000 | 0.000  |
| 142. | 10305.129 | -0.500 | -0.000 | 11638.643 | -0.560 | 0.000  | 12796.355 | 13.250 | 0.000  |
| 143. | 10302.843 | -0.320 | 0.000  | 11636.973 | -0.370 | -0.000 | 12801.143 | 13.500 | 0.000  |
| 144. | 10301.573 | -0.140 | 0.000  | 11636.050 | -0.160 | 0.000  | 12803.796 | 13.750 | 0.000  |
| 145. | 10301.330 | .058   | 0.000  | 11635.873 | .060   | 0.000  | 12804.306 | 14.000 | 0.000  |
| 146. | 10302.116 | .230   | 0.000  | 11636.444 | .270   | 0.000  | 12802.663 | 14.250 | 0.000  |
| 147. | 10303.924 | .428   | 0.000  | 11637.762 | .480   | 0.000  | 12798.879 | 14.500 | 0.000  |
| 148. | 10306.739 | .590   | 0.000  | 11639.825 | .690   | 0.000  | 12792.976 | 14.750 | 0.000  |
| 149. | 10310.536 | .770   | 0.000  | 11642.629 | .890   | 0.000  | 12784.987 | 15.000 | 0.000  |

110-PLANE DIAMOND

|      | LPMI12    | LPMI13 | FSRVEL    | FSPMI12 | FSPMI13 | SSRVEL    | SSPMI12 | SSPMI13 |
|------|-----------|--------|-----------|---------|---------|-----------|---------|---------|
| 150. | 18315.284 | 0.930  | 11646.172 | 1.100   | 0.000   | 12774.957 | -2.630  | 0.000   |
| 151. | 18320.940 | 1.090  | 11650.448 | 1.310   | 0.000   | 12762.941 | -3.340  | 0.000   |
| 152. | 18327.459 | 1.240  | 11655.451 | 1.510   | 0.000   | 12749.007 | -3.820  | 0.000   |
| 153. | 18334.784 | 1.380  | 11661.173 | 1.710   | 0.000   | 12733.232 | -4.290  | 0.000   |
| 154. | 18342.855 | 1.510  | 11667.606 | 1.910   | 0.000   | 12715.701 | -4.730  | 0.000   |
| 155. | 18351.606 | 1.620  | 11674.745 | 2.100   | 0.000   | 12696.509 | -5.150  | 0.000   |
| 156. | 18360.965 | 1.720  | 11682.576 | 2.300   | 0.000   | 12675.758 | -5.550  | 0.000   |
| 157. | 18370.857 | 1.810  | 11691.089 | 2.480   | 0.000   | 12653.557 | -5.920  | 0.000   |
| 158. | 18381.203 | 1.880  | 11700.271 | 2.670   | 0.000   | 12630.023 | -6.260  | 0.000   |
| 159. | 18391.921 | 1.940  | 11710.112 | 2.850   | 0.000   | 12605.276 | -6.560  | 0.000   |
| 160. | 18402.928 | 1.960  | 11720.596 | 3.020   | 0.000   | 12579.441 | -6.840  | 0.000   |
| 161. | 18414.139 | 2.010  | 11731.709 | 3.190   | 0.000   | 12552.647 | -7.080  | 0.000   |
| 162. | 18425.466 | 2.020  | 11743.437 | 3.360   | 0.000   | 12525.027 | -7.300  | 0.000   |
| 163. | 18436.829 | 2.020  | 11755.762 | 3.520   | 0.000   | 12496.714 | -7.470  | 0.000   |
| 164. | 18448.137 | 2.000  | 11768.668 | 3.670   | 0.000   | 12467.644 | -7.620  | 0.000   |
| 165. | 18459.306 | 1.970  | 11782.138 | 3.820   | 0.000   | 12436.554 | -7.750  | 0.000   |
| 166. | 18470.258 | 1.920  | 11796.153 | 3.970   | 0.000   | 12404.961 | -7.860  | 0.000   |
| 167. | 18480.905 | 1.860  | 11810.694 | 4.110   | 0.000   | 12373.261 | -7.940  | 0.000   |
| 168. | 18491.170 | 1.780  | 11825.742 | 4.240   | 0.000   | 12343.530 | -7.990  | 0.000   |
| 169. | 18500.977 | 1.650  | 11841.276 | 4.360   | 0.000   | 12314.922 | -7.980  | 0.000   |
| 170. | 18510.250 | 1.590  | 11857.276 | 4.460   | 0.000   | 12290.570 | -7.900  | 0.000   |
| 171. | 18518.919 | 1.460  | 11873.719 | 4.600   | 0.000   | 12261.603 | -7.750  | 0.000   |
| 172. | 18526.914 | 1.350  | 11890.565 | 4.700   | 0.000   | 12233.168 | -7.510  | 0.000   |
| 173. | 18534.171 | 1.220  | 11907.851 | 4.800   | 0.000   | 12203.329 | -7.350  | 0.000   |
| 174. | 18540.627 | 1.070  | 11925.495 | 4.890   | 0.000   | 12176.266 | -7.150  | 0.000   |
| 175. | 18546.226 | 0.910  | 11943.492 | 4.960   | 0.000   | 12152.077 | -6.910  | 0.000   |
| 176. | 18550.911 | 0.750  | 11961.821 | 5.060   | 0.000   | 12126.472 | -6.640  | 0.000   |
| 177. | 18554.631 | 0.570  | 11980.456 | 5.130   | 0.000   | 12102.760 | -6.360  | 0.000   |
| 178. | 18557.341 | 0.390  | 11999.374 | 5.200   | 0.000   | 12079.862 | -6.030  | 0.000   |
| 179. | 18558.995 | 0.200  | 12018.550 | 5.260   | 0.000   | 12056.217 | -5.660  | 0.000   |
| 180. | 18559.555 | 0.000  | 12037.961 | 5.310   | 0.000   | 12037.976 | -5.310  | 0.000   |

BULK

Z-PLANE (XY-PLANE) EUROPIUM IRON GARNET

BULK

|     | LNGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 6322.037 | 0.000  | 0.000  | 3403.354 | 0.000   | 0.000   | 3403.354 | 0.000   | 0.000   |
| 1.  | 6322.103 | 0.070  | 0.000  | 3403.354 | -0.000  | 0.000   | 3403.235 | -0.230  | 0.000   |
| 2.  | 6322.301 | 1.140  | 0.000  | 3403.354 | 0.000   | 0.000   | 3402.876 | -1.450  | 0.000   |
| 3.  | 6322.629 | 2.000  | 0.000  | 3403.354 | 0.000   | 0.000   | 3402.280 | -6.670  | 0.000   |
| 4.  | 6323.086 | 2.770  | 0.000  | 3403.354 | 0.000   | 0.000   | 3401.451 | -8.670  | 0.000   |
| 5.  | 6323.669 | 3.460  | 0.000  | 3403.354 | 0.000   | 0.000   | 3400.391 | -11.110 | 0.000   |
| 6.  | 6324.376 | 4.000  | 0.000  | 3403.354 | 0.000   | 0.000   | 3479.107 | -1.320  | 0.000   |
| 7.  | 6325.202 | 4.600  | 0.000  | 3403.354 | 0.000   | 0.000   | 3477.605 | -1.520  | 0.000   |
| 8.  | 6326.143 | 5.200  | 0.000  | 3403.354 | 0.000   | 0.000   | 3475.692 | -1.710  | 0.000   |
| 9.  | 6327.195 | 5.700  | 0.000  | 3403.354 | 0.000   | 0.000   | 3473.376 | -1.900  | 0.000   |
| 10. | 6328.352 | 6.300  | 0.000  | 3403.354 | -0.000  | 0.000   | 3471.669 | -2.060  | 0.000   |
| 11. | 6329.607 | 6.660  | 0.000  | 3403.354 | 0.000   | 0.000   | 3469.579 | -2.250  | 0.000   |
| 12. | 6330.955 | 7.200  | 0.000  | 3403.354 | 0.000   | 0.000   | 3467.119 | -2.400  | 0.000   |
| 13. | 6332.369 | 7.600  | 0.000  | 3403.354 | -0.000  | 0.000   | 3464.501 | -2.550  | 0.000   |
| 14. | 6333.900 | 8.000  | 0.000  | 3403.354 | 0.000   | 0.000   | 3461.737 | -2.600  | 0.000   |
| 15. | 6335.462 | 8.600  | 0.000  | 3403.354 | 0.000   | 0.000   | 3458.841 | -2.600  | 0.000   |
| 16. | 6337.126 | 8.700  | 0.000  | 3403.354 | 0.000   | 0.000   | 3455.628 | -2.510  | 0.000   |
| 17. | 6338.823 | 8.900  | 0.000  | 3403.354 | 0.000   | 0.000   | 3452.713 | -3.000  | 0.000   |
| 18. | 6340.567 | 9.160  | 0.000  | 3403.354 | 0.000   | 0.000   | 3449.511 | -3.680  | 0.000   |
| 19. | 6342.347 | 9.300  | 0.000  | 3403.354 | 0.000   | 0.000   | 3446.237 | -3.140  | 0.000   |
| 20. | 6344.155 | 9.400  | 0.000  | 3403.354 | 0.000   | 0.000   | 3442.507 | -3.140  | 0.000   |
| 21. | 6345.982 | 9.500  | 0.000  | 3403.354 | 0.000   | 0.000   | 3439.539 | -3.220  | 0.000   |
| 22. | 6347.818 | 9.500  | 0.000  | 3403.354 | 0.000   | 0.000   | 3436.148 | -3.240  | 0.000   |
| 23. | 6349.656 | 9.500  | 0.000  | 3403.354 | 0.000   | 0.000   | 3432.751 | -3.240  | 0.000   |
| 24. | 6351.466 | 9.400  | 0.000  | 3403.354 | 0.000   | 0.000   | 3429.364 | -3.230  | 0.000   |
| 25. | 6353.299 | 9.200  | 0.000  | 3403.354 | 0.000   | 0.000   | 3426.005 | -3.200  | 0.000   |
| 26. | 6355.086 | 9.200  | 0.000  | 3403.354 | 0.000   | 0.000   | 3422.688 | -3.150  | 0.000   |
| 27. | 6356.835 | 9.000  | 0.000  | 3403.354 | 0.000   | 0.000   | 3419.431 | -3.690  | 0.000   |
| 28. | 6358.550 | 8.700  | 0.000  | 3403.354 | 0.000   | 0.000   | 3416.240 | -3.010  | 0.000   |
| 29. | 6360.210 | 8.400  | 0.000  | 3403.354 | 0.000   | 0.000   | 3413.157 | -2.920  | 0.000   |
| 30. | 6361.812 | 8.100  | 0.000  | 3403.354 | 0.000   | 0.000   | 3410.170 | -2.620  | 0.000   |
| 31. | 6363.346 | 7.700  | 0.000  | 3403.354 | 0.000   | 0.000   | 3407.303 | -2.700  | 0.000   |
| 32. | 6364.811 | 7.300  | 0.000  | 3403.354 | 0.000   | 0.000   | 3404.569 | -2.570  | 0.000   |
| 33. | 6366.195 | 6.900  | 0.000  | 3403.354 | 0.000   | 0.000   | 3401.761 | -2.420  | 0.000   |
| 34. | 6367.492 | 6.660  | 0.000  | 3403.354 | 0.000   | 0.000   | 3399.553 | -2.260  | 0.000   |
| 35. | 6368.697 | 6.000  | 0.000  | 3403.354 | 0.000   | 0.000   | 3397.294 | -2.100  | 0.000   |
| 36. | 6369.804 | 5.400  | 0.000  | 3403.354 | 0.000   | 0.000   | 3395.217 | -1.920  | 0.000   |
| 37. | 6370.809 | 4.900  | 0.000  | 3403.354 | 0.000   | 0.000   | 3393.332 | -1.730  | 0.000   |
| 38. | 6371.707 | 4.300  | 0.000  | 3403.354 | 0.000   | 0.000   | 3391.646 | -1.530  | 0.000   |
| 39. | 6372.493 | 3.800  | 0.000  | 3403.354 | 0.000   | 0.000   | 3390.169 | -1.330  | 0.000   |
| 40. | 6373.164 | 3.200  | 0.000  | 3403.354 | 0.000   | 0.000   | 3388.906 | -1.120  | 0.000   |
| 41. | 6373.718 | 2.500  | 0.000  | 3403.354 | 0.000   | 0.000   | 3387.665 | -0.900  | 0.000   |
| 42. | 6374.151 | 1.900  | 0.000  | 3403.354 | 0.000   | 0.000   | 3387.050 | -0.680  | 0.000   |
| 43. | 6374.462 | 1.300  | 0.000  | 3403.354 | 0.000   | 0.000   | 3386.465 | -0.450  | 0.000   |
| 44. | 6374.649 | 0.600  | 0.000  | 3403.354 | -0.000  | 0.000   | 3386.113 | -0.230  | 0.000   |
| 45. | 6374.711 | 0.000  | 0.000  | 3403.354 | 0.000   | 0.000   | 3385.996 | 0.000   | 0.000   |
| 46. | 6374.649 | -0.600 | 0.000  | 3403.354 | 0.000   | 0.000   | 3386.113 | 0.230   | 0.000   |
| 47. | 6374.462 | -1.300 | 0.000  | 3403.354 | -0.000  | 0.000   | 3386.465 | 0.450   | 0.000   |
| 48. | 6374.151 | -1.900 | 0.000  | 3403.354 | -0.000  | 0.000   | 3387.050 | 0.680   | 0.000   |
| 49. | 6373.718 | -2.500 | 0.000  | 3403.354 | -0.000  | 0.000   | 3387.665 | 0.900   | 0.000   |



Z-PLANE (XY-PLANE) EUROPIUM IRON GARNET

|     | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 50. | 6373.164 | -.320  | 0.000  | 3483.354 | 0.000  | 0.000  | 3388.906 | 1.120  | 0.000  |
| 51. | 6372.493 | -.360  | 0.000  | 3483.354 | 0.000  | 0.000  | 3390.169 | 1.330  | 0.000  |
| 52. | 6371.707 | -.430  | 0.000  | 3483.354 | 0.000  | 0.000  | 3391.646 | 1.530  | 0.000  |
| 53. | 6370.889 | -.490  | 0.000  | 3483.354 | 0.000  | 0.000  | 3393.332 | 1.730  | 0.000  |
| 54. | 6369.804 | -.540  | 0.000  | 3483.354 | 0.000  | 0.000  | 3395.217 | 1.920  | 0.000  |
| 55. | 6368.697 | -.600  | 0.000  | 3483.354 | 0.000  | 0.000  | 3397.264 | 2.100  | 0.000  |
| 56. | 6367.492 | -.650  | 0.000  | 3483.354 | 0.000  | 0.000  | 3399.593 | 2.260  | 0.000  |
| 57. | 6366.195 | -.690  | 0.000  | 3483.354 | 0.000  | 0.000  | 3401.981 | 2.420  | 0.000  |
| 58. | 6364.811 | -.730  | 0.000  | 3483.354 | 0.000  | 0.000  | 3404.569 | 2.570  | 0.000  |
| 59. | 6363.348 | -.770  | 0.000  | 3483.354 | 0.000  | 0.000  | 3407.303 | 2.700  | 0.000  |
| 60. | 6361.812 | -.810  | 0.000  | 3483.354 | 0.000  | 0.000  | 3410.170 | 2.820  | 0.000  |
| 61. | 6360.210 | -.840  | 0.000  | 3483.354 | 0.000  | 0.000  | 3413.157 | 2.924  | 0.000  |
| 62. | 6358.550 | -.870  | 0.000  | 3483.354 | 0.000  | 0.000  | 3416.248 | 3.010  | 0.000  |
| 63. | 6356.839 | -.900  | 0.000  | 3483.354 | 0.000  | 0.000  | 3419.431 | 3.090  | 0.000  |
| 64. | 6355.086 | -.920  | 0.000  | 3483.354 | 0.000  | 0.000  | 3422.688 | 3.158  | 0.000  |
| 65. | 6353.299 | -.930  | 0.000  | 3483.354 | 0.000  | 0.000  | 3426.005 | 3.200  | 0.000  |
| 66. | 6351.486 | -.940  | 0.000  | 3483.354 | 0.000  | 0.000  | 3429.364 | 3.230  | 0.000  |
| 67. | 6349.656 | -.950  | 0.000  | 3483.354 | 0.000  | 0.000  | 3432.751 | 3.244  | 0.000  |
| 68. | 6347.818 | -.950  | 0.000  | 3483.354 | 0.000  | 0.000  | 3436.146 | 3.240  | 0.000  |
| 69. | 6345.982 | -.950  | 0.000  | 3483.354 | 0.000  | 0.000  | 3439.539 | 3.220  | 0.000  |
| 70. | 6344.155 | -.940  | 0.000  | 3483.354 | 0.000  | 0.000  | 3442.907 | 3.190  | 0.000  |
| 71. | 6342.347 | -.930  | 0.000  | 3483.354 | 0.000  | 0.000  | 3446.237 | 3.140  | 0.000  |
| 72. | 6340.567 | -.910  | 0.000  | 3483.354 | 0.000  | 0.000  | 3449.511 | 3.080  | 0.000  |
| 73. | 6338.823 | -.890  | 0.000  | 3483.354 | 0.000  | 0.000  | 3452.713 | 3.000  | 0.000  |
| 74. | 6337.126 | -.870  | 0.000  | 3483.354 | 0.000  | 0.000  | 3455.828 | 2.910  | 0.000  |
| 75. | 6335.482 | -.840  | 0.000  | 3483.354 | 0.000  | 0.000  | 3458.861 | 2.800  | 0.000  |
| 76. | 6333.900 | -.800  | 0.000  | 3483.354 | 0.000  | 0.000  | 3461.737 | 2.680  | 0.000  |
| 77. | 6332.389 | -.760  | 0.000  | 3483.354 | 0.000  | 0.000  | 3464.501 | 2.550  | 0.000  |
| 78. | 6330.955 | -.720  | 0.000  | 3483.354 | 0.000  | 0.000  | 3467.119 | 2.410  | 0.000  |
| 79. | 6329.607 | -.660  | 0.000  | 3483.354 | 0.000  | 0.000  | 3469.579 | 2.250  | 0.000  |
| 80. | 6328.352 | -.630  | 0.000  | 3483.354 | 0.000  | 0.000  | 3471.889 | 2.060  | 0.000  |
| 81. | 6327.195 | -.570  | 0.000  | 3483.354 | 0.000  | 0.000  | 3473.976 | 1.900  | 0.000  |
| 82. | 6326.143 | -.520  | 0.000  | 3483.354 | 0.000  | 0.000  | 3475.892 | 1.710  | 0.000  |
| 83. | 6325.202 | -.460  | 0.000  | 3483.354 | 0.000  | 0.000  | 3477.605 | 1.520  | 0.000  |
| 84. | 6324.376 | -.400  | 0.000  | 3483.354 | 0.000  | 0.000  | 3479.107 | 1.320  | 0.000  |
| 85. | 6323.669 | -.340  | 0.000  | 3483.354 | 0.000  | 0.000  | 3480.331 | 1.110  | 0.000  |
| 86. | 6323.066 | -.270  | 0.000  | 3483.354 | 0.000  | 0.000  | 3481.481 | .890   | 0.000  |
| 87. | 6322.629 | -.200  | 0.000  | 3483.354 | 0.000  | 0.000  | 3482.280 | .670   | 0.000  |
| 88. | 6322.301 | -.140  | 0.000  | 3483.354 | 0.000  | 0.000  | 3482.876 | .450   | 0.000  |
| 89. | 6322.103 | -.070  | 0.000  | 3483.354 | 0.000  | 0.000  | 3483.235 | .230   | 0.000  |
| 90. | 6322.037 | 0.000  | 0.000  | 3483.354 | 0.000  | 0.000  | 3483.354 | 0.000  | 0.000  |
| 91. | 6322.103 | -.070  | 0.000  | 3483.354 | 0.000  | 0.000  | 3483.235 | -.230  | 0.000  |
| 92. | 6322.301 | -.140  | 0.000  | 3483.354 | 0.000  | 0.000  | 3482.876 | -.450  | 0.000  |
| 93. | 6322.629 | -.200  | 0.000  | 3483.354 | 0.000  | 0.000  | 3482.280 | -.670  | 0.000  |
| 94. | 6323.066 | -.270  | 0.000  | 3483.354 | 0.000  | 0.000  | 3481.481 | -.890  | 0.000  |
| 95. | 6323.669 | -.340  | 0.000  | 3483.354 | 0.000  | 0.000  | 3480.391 | -1.110 | 0.000  |
| 96. | 6324.376 | -.400  | 0.000  | 3483.354 | 0.000  | 0.000  | 3479.107 | -1.320 | 0.000  |
| 97. | 6325.202 | -.460  | 0.000  | 3483.354 | 0.000  | 0.000  | 3477.605 | -1.520 | 0.000  |
| 98. | 6326.143 | -.520  | 0.000  | 3483.354 | 0.000  | 0.000  | 3475.892 | -1.710 | 0.000  |
| 99. | 6327.195 | -.570  | 0.000  | 3483.354 | 0.000  | 0.000  | 3473.976 | -1.900 | 0.000  |

Z-PLANE (XY-PLANE) EUROPIUM IRON GARNET

BULK

|      | LNVEL    | LPM112 | LPM113 | FSRVEL   | FSPM112 | FSPM113 | SSRVEL   | SSPM112 | SSPM113 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 108. | 6328.352 | .630   | 0.000  | 3483.354 | 0.000   | 0.000   | 3471.669 | -2.060  | 0.000   |
| 109. | 6329.607 | .660   | 0.000  | 3483.354 | 0.000   | 0.000   | 3469.574 | -2.250  | 0.000   |
| 110. | 6330.955 | .720   | 0.000  | 3483.354 | 0.000   | 0.000   | 3467.119 | -2.400  | 0.000   |
| 111. | 6332.389 | .780   | 0.000  | 3483.354 | -0.000  | 0.000   | 3464.501 | -2.550  | 0.000   |
| 112. | 6333.900 | .800   | 0.000  | 3483.354 | 0.000   | 0.000   | 3461.737 | -2.600  | 0.000   |
| 113. | 6335.482 | .840   | 0.000  | 3483.354 | 0.000   | 0.000   | 3458.841 | -2.600  | 0.000   |
| 114. | 6337.126 | .870   | 0.000  | 3483.354 | 0.000   | 0.000   | 3455.828 | -2.910  | 0.000   |
| 115. | 6338.823 | .890   | 0.000  | 3483.354 | 0.000   | 0.000   | 3452.713 | -3.000  | 0.000   |
| 116. | 6340.567 | .910   | 0.000  | 3483.354 | 0.000   | 0.000   | 3449.511 | -3.000  | 0.000   |
| 117. | 6342.347 | .930   | 0.000  | 3483.354 | 0.000   | 0.000   | 3446.237 | -3.140  | 0.000   |
| 118. | 6344.155 | .940   | 0.000  | 3483.354 | 0.000   | 0.000   | 3442.907 | -3.190  | 0.000   |
| 119. | 6345.982 | .950   | 0.000  | 3483.354 | 0.000   | 0.000   | 3439.539 | -3.220  | 0.000   |
| 120. | 6347.816 | .950   | 0.000  | 3483.354 | 0.000   | 0.000   | 3436.140 | -3.240  | 0.000   |
| 121. | 6349.656 | .950   | 0.000  | 3483.354 | 0.000   | 0.000   | 3432.751 | -3.240  | 0.000   |
| 122. | 6351.486 | .940   | 0.000  | 3483.354 | 0.000   | 0.000   | 3429.364 | -3.230  | 0.000   |
| 123. | 6353.299 | .930   | 0.000  | 3483.354 | 0.000   | 0.000   | 3426.005 | -3.200  | 0.000   |
| 124. | 6355.086 | .920   | 0.000  | 3483.354 | 0.000   | 0.000   | 3422.688 | -3.150  | 0.000   |
| 125. | 6356.839 | .900   | 0.000  | 3483.354 | 0.000   | 0.000   | 3419.431 | -3.090  | 0.000   |
| 126. | 6358.550 | .870   | 0.000  | 3483.354 | 0.000   | 0.000   | 3416.240 | -3.010  | 0.000   |
| 127. | 6360.210 | .840   | 0.000  | 3483.354 | 0.000   | 0.000   | 3413.157 | -2.920  | 0.000   |
| 128. | 6361.812 | .810   | 0.000  | 3483.354 | 0.000   | 0.000   | 3410.170 | -2.820  | 0.000   |
| 129. | 6363.346 | .770   | 0.000  | 3483.354 | 0.000   | 0.000   | 3407.303 | -2.700  | 0.000   |
| 130. | 6364.811 | .730   | 0.000  | 3483.354 | 0.000   | 0.000   | 3404.569 | -2.570  | 0.000   |
| 131. | 6366.195 | .690   | 0.000  | 3483.354 | 0.000   | 0.000   | 3401.981 | -2.420  | 0.000   |
| 132. | 6367.492 | .650   | 0.000  | 3483.354 | 0.000   | 0.000   | 3399.553 | -2.260  | 0.000   |
| 133. | 6368.697 | .600   | 0.000  | 3483.354 | 0.000   | 0.000   | 3397.294 | -2.100  | 0.000   |
| 134. | 6369.804 | .540   | 0.000  | 3483.354 | 0.000   | 0.000   | 3395.217 | -1.920  | 0.000   |
| 135. | 6370.809 | .490   | 0.000  | 3483.354 | 0.000   | 0.000   | 3393.332 | -1.730  | 0.000   |
| 136. | 6371.787 | .430   | 0.000  | 3483.354 | -0.000  | 0.000   | 3391.646 | -1.530  | 0.000   |
| 137. | 6372.693 | .360   | 0.000  | 3483.354 | 0.000   | 0.000   | 3390.169 | -1.330  | 0.000   |
| 138. | 6373.464 | .320   | 0.000  | 3483.354 | 0.000   | 0.000   | 3388.906 | -1.120  | 0.000   |
| 139. | 6374.116 | .250   | 0.000  | 3483.354 | 0.000   | 0.000   | 3387.869 | -900    | 0.000   |
| 140. | 6374.651 | .190   | 0.000  | 3483.354 | 0.000   | 0.000   | 3387.050 | -660    | 0.000   |
| 141. | 6374.962 | .130   | 0.000  | 3483.354 | 0.000   | 0.000   | 3386.465 | -450    | 0.000   |
| 142. | 6375.051 | .060   | 0.000  | 3483.354 | 0.000   | 0.000   | 3386.113 | -230    | 0.000   |
| 143. | 6374.649 | -0.060 | 0.000  | 3483.354 | 0.000   | 0.000   | 3385.996 | -0.000  | 0.000   |
| 144. | 6374.462 | -0.130 | 0.000  | 3483.354 | 0.000   | 0.000   | 3386.113 | .230    | 0.000   |
| 145. | 6374.151 | -0.190 | 0.000  | 3483.354 | 0.000   | 0.000   | 3386.465 | .450    | 0.000   |
| 146. | 6373.718 | -0.250 | 0.000  | 3483.354 | 0.000   | 0.000   | 3387.050 | .660    | 0.000   |
| 147. | 6373.164 | -0.320 | 0.000  | 3483.354 | 0.000   | 0.000   | 3387.865 | .960    | 0.000   |
| 148. | 6372.493 | -0.380 | 0.000  | 3483.354 | 0.000   | 0.000   | 3388.906 | 1.120   | 0.000   |
| 149. | 6371.787 | -0.430 | 0.000  | 3483.354 | 0.000   | 0.000   | 3390.169 | 1.330   | 0.000   |
| 150. | 6370.809 | -0.490 | 0.000  | 3483.354 | -0.000  | 0.000   | 3391.646 | 1.530   | 0.000   |
| 151. | 6369.804 | -0.540 | 0.000  | 3483.354 | 0.000   | 0.000   | 3393.332 | 1.730   | 0.000   |
| 152. | 6368.697 | -0.600 | 0.000  | 3483.354 | 0.000   | 0.000   | 3395.217 | 1.920   | 0.000   |
| 153. | 6367.492 | -0.660 | 0.000  | 3483.354 | 0.000   | 0.000   | 3397.294 | 2.100   | 0.000   |
| 154. | 6366.195 | -0.730 | 0.000  | 3483.354 | 0.000   | 0.000   | 3399.553 | 2.260   | 0.000   |
| 155. | 6364.811 | -0.770 | 0.000  | 3483.354 | -0.000  | 0.000   | 3401.981 | 2.420   | 0.000   |
| 156. | 6363.346 | -0.770 | 0.000  | 3483.354 | 0.000   | 0.000   | 3404.569 | 2.570   | 0.000   |
| 157. | 6363.346 | -0.770 | 0.000  | 3483.354 | -0.000  | 0.000   | 3407.303 | 2.700   | 0.000   |

| Z-PLANE (XY-PLANE) EUROPIUM IRON GARNET |          |        |        |          |        |        |          |        |        |
|---|----------|--------|--------|----------|--------|--------|----------|--------|--------|
|   | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SRVEL    | SSPH12 | SSPH13 |
| 150.                                    | 6351.812 | -0.010 | 0.000  | 3483.354 | 0.000  | 0.000  | 3410.170 | 2.620  | 0.000  |
| 151.                                    | 6380.216 | -0.640 | 0.000  | 3483.354 | 0.000  | 0.000  | 3413.157 | 3.920  | 0.000  |
| 152.                                    | 6388.550 | -0.670 | 0.000  | 3483.354 | -0.000 | 0.000  | 3416.246 | 3.010  | 0.000  |
| 153.                                    | 6356.039 | -0.900 | 0.000  | 3483.354 | 0.000  | 0.000  | 3419.431 | 3.090  | 0.000  |
| 154.                                    | 6355.086 | -0.920 | 0.000  | 3483.354 | 0.000  | 0.000  | 3422.688 | 3.190  | 0.000  |
| 155.                                    | 6353.299 | -0.930 | 0.000  | 3483.354 | 0.000  | 0.000  | 3426.005 | 3.280  | 0.000  |
| 156.                                    | 6351.486 | -0.940 | 0.000  | 3483.354 | 0.000  | 0.000  | 3429.364 | 3.290  | 0.000  |
| 157.                                    | 6349.656 | -0.950 | 0.000  | 3483.354 | -0.000 | 0.000  | 3432.751 | 3.240  | 0.000  |
| 158.                                    | 6347.818 | -0.950 | 0.000  | 3483.354 | -0.000 | 0.000  | 3436.146 | 3.240  | 0.000  |
| 159.                                    | 6365.982 | -0.950 | 0.000  | 3483.354 | -0.000 | 0.000  | 3439.539 | 3.220  | 0.000  |
| 160.                                    | 6344.155 | -0.940 | 0.000  | 3483.354 | 0.000  | 0.000  | 3442.937 | 3.190  | 0.000  |
| 161.                                    | 6342.347 | -0.930 | 0.000  | 3483.354 | 0.000  | 0.000  | 3446.237 | 3.140  | 0.000  |
| 162.                                    | 6340.567 | -0.910 | 0.000  | 3483.354 | 0.000  | 0.000  | 3449.511 | 3.660  | 0.000  |
| 163.                                    | 6338.823 | -0.890 | 0.000  | 3483.354 | 0.000  | 0.000  | 3452.713 | 3.000  | 0.000  |
| 164.                                    | 6337.126 | -0.870 | 0.000  | 3483.354 | 0.000  | 0.000  | 3455.826 | 2.910  | 0.000  |
| 165.                                    | 6335.482 | -0.840 | 0.000  | 3483.354 | 0.000  | 0.000  | 3458.841 | 2.800  | 0.000  |
| 166.                                    | 6333.900 | -0.800 | 0.000  | 3483.354 | 0.000  | 0.000  | 3461.737 | 2.660  | 0.000  |
| 167.                                    | 6332.389 | -0.760 | 0.000  | 3483.354 | 0.000  | 0.000  | 3464.501 | 2.550  | 0.000  |
| 168.                                    | 6330.955 | -0.720 | 0.000  | 3483.354 | 0.000  | 0.000  | 3467.119 | 2.400  | 0.000  |
| 169.                                    | 6329.607 | -0.660 | 0.000  | 3483.354 | -0.000 | 0.000  | 3469.579 | 2.250  | 0.000  |
| 170.                                    | 6328.352 | -0.630 | 0.000  | 3483.354 | 0.000  | 0.000  | 3471.869 | 2.080  | 0.000  |
| 171.                                    | 6327.195 | -0.570 | 0.000  | 3483.354 | 0.000  | 0.000  | 3473.976 | 1.900  | 0.000  |
| 172.                                    | 6326.143 | -0.520 | 0.000  | 3483.354 | -0.000 | 0.000  | 3475.892 | 1.710  | 0.000  |
| 173.                                    | 6325.202 | -0.460 | 0.000  | 3483.354 | 0.000  | 0.000  | 3477.605 | 1.520  | 0.000  |
| 174.                                    | 6324.376 | -0.400 | 0.000  | 3483.354 | 0.000  | 0.000  | 3479.107 | 1.320  | 0.000  |
| 175.                                    | 6323.669 | -0.340 | 0.000  | 3483.354 | 0.000  | 0.000  | 3480.391 | 1.110  | 0.000  |
| 176.                                    | 6323.066 | -0.270 | 0.000  | 3483.354 | 0.000  | 0.000  | 3481.451 | 0.890  | 0.000  |
| 177.                                    | 6322.629 | -0.260 | 0.000  | 3483.354 | -0.000 | 0.000  | 3482.280 | 0.670  | 0.000  |
| 178.                                    | 6322.301 | -0.140 | 0.000  | 3483.354 | -0.000 | 0.000  | 3482.876 | 0.450  | 0.000  |
| 179.                                    | 6322.103 | -0.070 | 0.000  | 3483.354 | 0.000  | 0.000  | 3483.235 | 0.230  | 0.000  |
| 180.                                    | 6322.037 | 0.000  | 0.000  | 3483.354 | -0.000 | 0.000  | 3483.354 | 0.000  | 0.000  |

111-PLANE EUROPIUM IRON GARNET

|     | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 6374.711 | -0.000 | 0.000  | 3403.354 | -0.000  | 0.000   | 3305.996 | 0.000   | -0.000  |
| 1.  | 6374.712 | 0.000  | 0.050  | 3403.295 | -0.110  | -0.080  | 3306.055 | 0.110   | -0.080  |
| 2.  | 6374.714 | 0.000  | 0.090  | 3403.119 | -0.220  | -0.160  | 3306.233 | 0.230   | -0.160  |
| 3.  | 6374.716 | 0.000  | 0.140  | 3402.825 | -0.330  | -0.230  | 3306.528 | 0.340   | -0.240  |
| 4.  | 6374.723 | 0.000  | 0.180  | 3402.416 | -0.440  | -0.310  | 3306.939 | 0.450   | -0.320  |
| 5.  | 6374.729 | 0.000  | 0.230  | 3401.892 | -0.550  | -0.390  | 3307.466 | 0.570   | -0.400  |
| 6.  | 6374.737 | 0.000  | 0.270  | 3401.256 | -0.650  | -0.460  | 3308.105 | 0.700   | -0.470  |
| 7.  | 6374.746 | 0.000  | 0.310  | 3400.516 | -0.750  | -0.540  | 3308.855 | 0.830   | -0.540  |
| 8.  | 6374.756 | -0.010 | 0.350  | 3479.657 | -0.850  | -0.618  | 3309.712 | 0.960   | -0.620  |
| 9.  | 6374.767 | -0.010 | 0.400  | 3478.700 | -0.950  | -0.680  | 3308.674 | 0.960   | -0.650  |
| 10. | 6374.779 | -0.010 | 0.440  | 3477.643 | -1.040  | -0.750  | 3391.735 | 1.070   | -0.760  |
| 11. | 6374.791 | -0.010 | 0.480  | 3476.491 | -1.130  | -0.820  | 3392.092 | 1.160   | -0.830  |
| 12. | 6374.804 | -0.010 | 0.520  | 3475.249 | -1.210  | -0.880  | 3394.140 | 1.250   | -0.900  |
| 13. | 6374.818 | -0.010 | 0.550  | 3473.922 | -1.290  | -0.950  | 3395.472 | 1.330   | -0.960  |
| 14. | 6374.832 | -0.010 | 0.590  | 3472.517 | -1.360  | -1.010  | 3396.863 | 1.400   | -1.020  |
| 15. | 6374.846 | -0.010 | 0.620  | 3471.041 | -1.430  | -1.060  | 3398.365 | 1.460   | -1.060  |
| 16. | 6374.860 | -0.010 | 0.650  | 3469.503 | -1.480  | -1.110  | 3399.909 | 1.520   | -1.100  |
| 17. | 6374.874 | -0.010 | 0.680  | 3467.910 | -1.530  | -1.170  | 3401.507 | 1.560   | -1.130  |
| 18. | 6374.887 | -0.010 | 0.710  | 3466.276 | -1.560  | -1.220  | 3403.147 | 1.600   | -1.160  |
| 19. | 6374.901 | -0.010 | 0.740  | 3464.610 | -1.590  | -1.260  | 3404.818 | 1.620   | -1.210  |
| 20. | 6374.913 | -0.010 | 0.760  | 3462.929 | -1.600  | -1.310  | 3406.504 | 1.630   | -1.310  |
| 21. | 6374.925 | -0.010 | 0.780  | 3461.250 | -1.590  | -1.350  | 3408.189 | 1.620   | -1.350  |
| 22. | 6374.936 | -0.010 | 0.800  | 3459.592 | -1.550  | -1.360  | 3409.851 | 1.580   | -1.360  |
| 23. | 6374.946 | 0.000  | 0.820  | 3457.981 | -1.500  | -1.410  | 3411.467 | 1.520   | -1.410  |
| 24. | 6374.955 | 0.000  | 0.840  | 3456.446 | -1.410  | -1.440  | 3413.005 | 1.430   | -1.440  |
| 25. | 6374.962 | 0.000  | 0.850  | 3455.025 | -1.280  | -1.460  | 3414.429 | 1.300   | -1.460  |
| 26. | 6374.969 | 0.000  | 0.860  | 3453.758 | -1.110  | -1.460  | 3415.694 | 1.130   | -1.460  |
| 27. | 6374.974 | 0.000  | 0.870  | 3452.696 | -0.900  | -1.500  | 3416.763 | 0.910   | -1.440  |
| 28. | 6374.976 | 0.000  | 0.870  | 3451.888 | -0.630  | -1.510  | 3417.573 | 0.640   | -1.400  |
| 29. | 6374.980 | 0.000  | 0.880  | 3451.380 | -0.330  | -1.510  | 3418.081 | 0.380   | -1.350  |
| 30. | 6374.980 | -0.000 | 0.880  | 3451.207 | 0.000   | -1.520  | 3418.255 | 0.000   | -1.310  |
| 31. | 6374.980 | -0.000 | 0.880  | 3451.380 | 0.330   | -1.510  | 3418.081 | 0.330   | -1.270  |
| 32. | 6374.977 | -0.000 | 0.870  | 3451.688 | 0.630   | -1.510  | 3417.573 | 0.640   | -1.240  |
| 33. | 6374.974 | -0.000 | 0.870  | 3452.696 | 0.900   | -1.500  | 3416.763 | 0.910   | -1.190  |
| 34. | 6374.969 | -0.000 | 0.860  | 3453.758 | 1.110   | -1.460  | 3415.698 | 1.130   | -1.130  |
| 35. | 6374.962 | -0.000 | 0.850  | 3455.025 | 1.260   | -1.460  | 3414.429 | 1.300   | -1.060  |
| 36. | 6374.955 | -0.000 | 0.840  | 3456.446 | 1.410   | -1.440  | 3413.005 | 1.430   | -0.940  |
| 37. | 6374.946 | -0.000 | 0.820  | 3457.981 | 1.500   | -1.410  | 3411.467 | 1.520   | -0.810  |
| 38. | 6374.936 | -0.010 | 0.800  | 3459.592 | 1.550   | -1.380  | 3409.851 | 1.580   | -0.700  |
| 39. | 6374.925 | -0.010 | 0.780  | 3461.250 | 1.590   | -1.350  | 3408.189 | 1.620   | -0.620  |
| 40. | 6374.913 | -0.010 | 0.760  | 3462.929 | 1.600   | -1.310  | 3406.504 | 1.630   | -0.560  |
| 41. | 6374.901 | -0.010 | 0.740  | 3464.610 | 1.590   | -1.260  | 3404.818 | 1.620   | -0.510  |
| 42. | 6374.887 | -0.010 | 0.710  | 3466.276 | 1.560   | -1.220  | 3403.147 | 1.600   | -0.470  |
| 43. | 6374.874 | -0.010 | 0.680  | 3467.910 | 1.530   | -1.170  | 3401.507 | 1.560   | -0.430  |
| 44. | 6374.860 | -0.010 | 0.650  | 3469.503 | 1.480   | -1.120  | 3399.909 | 1.520   | -0.400  |
| 45. | 6374.846 | -0.010 | 0.620  | 3471.041 | 1.430   | -1.060  | 3398.365 | 1.460   | -0.380  |
| 46. | 6374.832 | -0.010 | 0.590  | 3472.517 | 1.360   | -1.010  | 3396.863 | 1.400   | -0.360  |
| 47. | 6374.818 | -0.010 | 0.550  | 3473.922 | 1.290   | -0.950  | 3395.472 | 1.330   | -0.340  |
| 48. | 6374.804 | -0.010 | 0.520  | 3475.249 | 1.210   | -0.880  | 3394.140 | 1.250   | -0.320  |
| 49. | 6374.791 | -0.010 | 0.480  | 3476.491 | 1.130   | -0.820  | 3392.092 | 1.160   | -0.300  |

111-PLANE EUROPIUM IRON GARNET

BULK

|     | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 50. | 6378.779 | -0.010 | 0.440  | 3477.643 | 1.040  | -0.750 | 3391.735 | -1.070 | -0.760 |
| 51. | 6378.767 | -0.010 | 0.400  | 3478.700 | 0.950  | -0.680 | 3390.674 | -0.980 | -0.690 |
| 52. | 6378.756 | -0.010 | 0.360  | 3479.657 | 0.850  | -0.610 | 3389.712 | -0.880 | -0.620 |
| 53. | 6378.746 | -0.000 | 0.310  | 3480.510 | 0.750  | -0.540 | 3388.955 | -0.790 | -0.550 |
| 54. | 6378.737 | -0.000 | 0.270  | 3481.256 | 0.650  | -0.460 | 3388.105 | -0.700 | -0.470 |
| 55. | 6378.729 | -0.000 | 0.230  | 3481.992 | 0.550  | -0.390 | 3387.466 | -0.610 | -0.400 |
| 56. | 6378.723 | -0.000 | 0.180  | 3482.816 | 0.440  | -0.310 | 3386.939 | -0.520 | -0.320 |
| 57. | 6378.716 | -0.000 | 0.140  | 3482.825 | 0.330  | -0.230 | 3386.528 | -0.430 | -0.240 |
| 58. | 6378.714 | -0.000 | 0.090  | 3483.119 | 0.220  | -0.160 | 3386.233 | -0.340 | -0.160 |
| 59. | 6378.712 | -0.000 | 0.050  | 3483.295 | 0.110  | -0.080 | 3385.996 | -0.250 | -0.080 |
| 60. | 6378.711 | 0.000  | 0.000  | 3483.354 | -0.000 | 0.000  | 3385.855 | -0.160 | -0.000 |
| 61. | 6378.712 | 0.000  | -0.050 | 3483.295 | -0.110 | 0.060  | 3385.712 | -0.070 | 0.060  |
| 62. | 6378.714 | 0.000  | -0.100 | 3483.119 | -0.220 | 0.160  | 3385.570 | 0.020  | 0.160  |
| 63. | 6378.716 | 0.000  | -0.140 | 3482.825 | -0.330 | 0.230  | 3385.428 | 0.110  | 0.230  |
| 64. | 6378.723 | 0.000  | -0.180 | 3482.816 | -0.440 | 0.310  | 3385.286 | 0.200  | 0.310  |
| 65. | 6378.729 | 0.000  | -0.230 | 3481.992 | -0.550 | 0.390  | 3385.144 | 0.290  | 0.390  |
| 66. | 6378.737 | 0.000  | -0.270 | 3481.256 | -0.650 | 0.460  | 3384.999 | 0.380  | 0.460  |
| 67. | 6378.746 | 0.000  | -0.310 | 3480.510 | -0.750 | 0.540  | 3384.857 | 0.470  | 0.540  |
| 68. | 6378.756 | 0.010  | -0.360 | 3479.657 | -0.850 | 0.610  | 3384.712 | 0.560  | 0.610  |
| 69. | 6378.767 | 0.010  | -0.400 | 3478.700 | -0.950 | 0.680  | 3384.567 | 0.650  | 0.680  |
| 70. | 6378.779 | 0.010  | -0.440 | 3477.643 | -1.040 | 0.750  | 3384.422 | 0.740  | 0.750  |
| 71. | 6378.791 | 0.010  | -0.480 | 3476.491 | -1.130 | 0.820  | 3384.277 | 0.830  | 0.820  |
| 72. | 6378.804 | 0.010  | -0.520 | 3475.245 | -1.210 | 0.890  | 3384.140 | 0.920  | 0.890  |
| 73. | 6378.816 | 0.010  | -0.550 | 3473.922 | -1.290 | 0.950  | 3384.005 | 1.010  | 0.950  |
| 74. | 6378.832 | 0.010  | -0.590 | 3472.517 | -1.360 | 1.010  | 3383.872 | 1.100  | 1.020  |
| 75. | 6378.846 | 0.010  | -0.620 | 3471.041 | -1.430 | 1.060  | 3383.740 | 1.190  | 1.090  |
| 76. | 6378.860 | 0.010  | -0.650 | 3469.503 | -1.480 | 1.120  | 3383.609 | 1.280  | 1.130  |
| 77. | 6378.874 | 0.010  | -0.680 | 3467.910 | -1.530 | 1.170  | 3401.507 | 1.370  | 1.180  |
| 78. | 6378.887 | 0.010  | -0.710 | 3466.276 | -1.560 | 1.220  | 3403.147 | 1.460  | 1.230  |
| 79. | 6378.901 | 0.010  | -0.740 | 3464.610 | -1.590 | 1.260  | 3404.816 | 1.550  | 1.270  |
| 80. | 6378.913 | 0.010  | -0.760 | 3462.929 | -1.600 | 1.310  | 3406.504 | 1.630  | 1.310  |
| 81. | 6378.925 | 0.010  | -0.780 | 3461.244 | -1.590 | 1.350  | 3408.189 | 1.620  | 1.350  |
| 82. | 6378.936 | 0.010  | -0.800 | 3459.592 | -1.550 | 1.380  | 3409.851 | 1.580  | 1.360  |
| 83. | 6378.946 | 0.000  | -0.820 | 3457.981 | -1.500 | 1.410  | 3411.467 | 1.520  | 1.410  |
| 84. | 6378.955 | 0.000  | -0.840 | 3456.446 | -1.410 | 1.440  | 3413.005 | 1.430  | 1.440  |
| 85. | 6378.962 | 0.000  | -0.850 | 3455.024 | -1.410 | 1.460  | 3414.429 | 1.300  | 1.460  |
| 86. | 6378.969 | 0.000  | -0.860 | 3453.756 | -1.280 | 1.480  | 3415.698 | 1.130  | 1.480  |
| 87. | 6378.974 | 0.000  | -0.870 | 3452.696 | -1.110 | 1.500  | 3416.763 | 0.910  | 1.490  |
| 88. | 6378.976 | 0.000  | -0.870 | 3451.888 | -0.830 | 1.510  | 3417.573 | 0.640  | 1.500  |
| 89. | 6378.980 | 0.000  | -0.860 | 3451.360 | -0.330 | 1.510  | 3418.081 | 0.330  | 1.510  |
| 90. | 6378.980 | -0.000 | -0.880 | 3451.207 | 0.000  | 1.520  | 3418.255 | -0.000 | 1.510  |
| 91. | 6378.980 | -0.000 | -0.880 | 3451.380 | 0.330  | 1.510  | 3418.081 | -0.330 | 1.510  |
| 92. | 6378.976 | -0.000 | -0.870 | 3451.888 | 0.630  | 1.500  | 3417.573 | -0.640 | 1.500  |
| 93. | 6378.974 | -0.000 | -0.870 | 3452.696 | 0.900  | 1.500  | 3416.763 | -0.910 | 1.490  |
| 94. | 6378.969 | -0.000 | -0.860 | 3453.756 | 1.110  | 1.460  | 3415.698 | -1.130 | 1.460  |
| 95. | 6378.962 | -0.000 | -0.850 | 3455.024 | 1.280  | 1.460  | 3414.429 | -1.300 | 1.460  |
| 96. | 6378.955 | -0.000 | -0.840 | 3456.446 | 1.410  | 1.440  | 3413.005 | -1.430 | 1.440  |
| 97. | 6378.946 | -0.000 | -0.820 | 3457.981 | 1.500  | 1.410  | 3411.467 | -1.520 | 1.410  |
| 98. | 6378.936 | -0.010 | -0.800 | 3459.592 | 1.550  | 1.360  | 3409.851 | -1.580 | 1.360  |
| 99. | 6378.925 | -0.010 | -0.780 | 3461.249 | 1.590  | 1.350  | 3408.169 | -1.620 | 1.350  |

111-PLANE EUROPIUM IRON GARNET

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 100. | 6374.913 | -0.10  | -0.760 | 3462.929 | 1.600  | 1.310  | 3406.504 | -1.630 | 1.310  |
| 101. | 6374.901 | -0.10  | -0.740 | 3464.610 | 1.590  | 1.260  | 3404.816 | -1.620 | 1.270  |
| 102. | 6374.887 | -0.10  | -0.710 | 3466.276 | 1.560  | 1.220  | 3403.147 | -1.600 | 1.230  |
| 103. | 6374.874 | -0.10  | -0.680 | 3467.910 | 1.530  | 1.170  | 3401.507 | -1.560 | 1.150  |
| 104. | 6374.860 | -0.10  | -0.650 | 3469.503 | 1.480  | 1.120  | 3399.909 | -1.520 | 1.130  |
| 105. | 6374.846 | -0.10  | -0.620 | 3471.041 | 1.430  | 1.060  | 3398.365 | -1.460 | 1.080  |
| 106. | 6374.832 | -0.10  | -0.590 | 3472.517 | 1.360  | 1.010  | 3396.883 | -1.400 | 1.020  |
| 107. | 6374.818 | -0.10  | -0.550 | 3473.922 | 1.290  | 0.950  | 3395.472 | -1.330 | 0.900  |
| 108. | 6374.804 | -0.10  | -0.520 | 3475.249 | 1.210  | 0.880  | 3394.140 | -1.250 | 0.830  |
| 109. | 6374.791 | -0.10  | -0.480 | 3476.491 | 1.130  | 0.820  | 3392.892 | -1.160 | 0.780  |
| 110. | 6374.779 | -0.10  | -0.440 | 3477.643 | 1.040  | 0.750  | 3391.735 | -1.070 | 0.730  |
| 111. | 6374.767 | -0.10  | -0.400 | 3478.700 | 0.950  | 0.680  | 3390.674 | -0.960 | 0.680  |
| 112. | 6374.756 | -0.10  | -0.360 | 3479.657 | 0.850  | 0.610  | 3389.712 | -0.880 | 0.620  |
| 113. | 6374.746 | -0.000 | -0.310 | 3480.510 | 0.750  | 0.540  | 3388.855 | -0.780 | 0.550  |
| 114. | 6374.737 | -0.000 | -0.270 | 3481.256 | 0.650  | 0.460  | 3388.105 | -0.670 | 0.470  |
| 115. | 6374.729 | -0.000 | -0.230 | 3481.892 | 0.550  | 0.390  | 3387.466 | -0.570 | 0.400  |
| 116. | 6374.723 | -0.000 | -0.180 | 3482.416 | 0.440  | 0.310  | 3386.939 | -0.450 | 0.320  |
| 117. | 6374.716 | -0.000 | -0.140 | 3482.825 | 0.330  | 0.230  | 3386.528 | -0.340 | 0.240  |
| 118. | 6374.714 | -0.000 | -0.090 | 3483.119 | 0.220  | 0.160  | 3386.233 | -0.230 | 0.160  |
| 119. | 6374.712 | -0.000 | 0.000  | 3483.295 | 0.110  | 0.060  | 3385.955 | 0.000  | 0.000  |
| 120. | 6374.711 | -0.000 | 0.000  | 3483.354 | 0.000  | 0.000  | 3385.696 | 0.000  | 0.000  |
| 121. | 6374.712 | 0.000  | 0.050  | 3483.295 | -0.110 | -0.060 | 3385.455 | 0.110  | -0.080 |
| 122. | 6374.714 | 0.000  | 0.090  | 3483.119 | -0.220 | -0.160 | 3385.233 | 0.230  | -0.160 |
| 123. | 6374.716 | 0.000  | 0.140  | 3482.825 | -0.330 | -0.230 | 3385.028 | 0.340  | -0.240 |
| 124. | 6374.723 | 0.000  | 0.180  | 3482.416 | -0.440 | -0.310 | 3384.839 | 0.450  | -0.320 |
| 125. | 6374.729 | 0.000  | 0.230  | 3481.892 | -0.550 | -0.390 | 3384.666 | 0.570  | -0.400 |
| 126. | 6374.737 | 0.000  | 0.270  | 3481.256 | -0.650 | -0.460 | 3384.510 | 0.670  | -0.470 |
| 127. | 6374.746 | 0.000  | 0.310  | 3480.510 | -0.750 | -0.540 | 3384.365 | 0.780  | -0.500 |
| 128. | 6374.756 | 0.000  | 0.360  | 3479.657 | -0.850 | -0.610 | 3384.233 | 0.880  | -0.520 |
| 129. | 6374.767 | 0.000  | 0.400  | 3478.700 | -0.950 | -0.680 | 3384.105 | 0.980  | -0.550 |
| 130. | 6374.779 | 0.000  | 0.440  | 3477.643 | -1.040 | -0.750 | 3383.974 | 1.070  | -0.580 |
| 131. | 6374.791 | 0.000  | 0.480  | 3476.491 | -1.130 | -0.820 | 3383.855 | 1.160  | -0.610 |
| 132. | 6374.804 | 0.000  | 0.520  | 3475.245 | -1.210 | -0.880 | 3383.742 | 1.250  | -0.640 |
| 133. | 6374.816 | 0.000  | 0.550  | 3473.922 | -1.290 | -0.950 | 3383.635 | 1.330  | -0.670 |
| 134. | 6374.832 | 0.000  | 0.590  | 3472.517 | -1.360 | -1.010 | 3383.533 | 1.400  | -0.700 |
| 135. | 6374.846 | 0.000  | 0.620  | 3471.041 | -1.430 | -1.060 | 3383.435 | 1.460  | -0.730 |
| 136. | 6374.860 | 0.000  | 0.650  | 3469.503 | -1.480 | -1.120 | 3383.340 | 1.520  | -0.760 |
| 137. | 6374.874 | 0.000  | 0.680  | 3467.910 | -1.530 | -1.170 | 3383.247 | 1.560  | -0.790 |
| 138. | 6374.887 | 0.000  | 0.710  | 3466.276 | -1.560 | -1.220 | 3383.157 | 1.600  | -0.820 |
| 139. | 6374.901 | 0.000  | 0.740  | 3464.610 | -1.590 | -1.260 | 3404.816 | 1.620  | -0.850 |
| 140. | 6374.913 | 0.000  | 0.760  | 3462.929 | -1.600 | -1.310 | 3406.504 | 1.630  | -0.880 |
| 141. | 6374.925 | 0.000  | 0.780  | 3461.250 | -1.590 | -1.350 | 3408.189 | 1.620  | -0.910 |
| 142. | 6374.936 | 0.000  | 0.800  | 3459.592 | -1.550 | -1.360 | 3409.851 | 1.560  | -0.940 |
| 143. | 6374.946 | 0.000  | 0.820  | 3457.981 | -1.500 | -1.410 | 3411.487 | 1.520  | -0.970 |
| 144. | 6374.955 | 0.000  | 0.840  | 3456.446 | -1.440 | -1.440 | 3413.005 | 1.480  | -1.000 |
| 145. | 6374.962 | 0.000  | 0.850  | 3454.925 | -1.260 | -1.460 | 3414.429 | 1.300  | -1.060 |
| 146. | 6374.969 | 0.000  | 0.860  | 3453.478 | -1.110 | -1.480 | 3415.848 | 1.130  | -1.100 |
| 147. | 6374.974 | 0.000  | 0.870  | 3452.086 | -0.900 | -1.500 | 3417.263 | 0.910  | -1.150 |
| 148. | 6374.977 | 0.000  | 0.870  | 3451.686 | -0.630 | -1.510 | 3418.673 | 0.640  | -1.200 |
| 149. | 6374.980 | 0.000  | 0.860  | 3451.380 | -0.330 | -1.510 | 3419.061 | 0.350  | -1.210 |

111-PLANE EUROPIUM IRON GARNET

BULK

|      | LPM12  | LPM13  | FSRVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |
|------|--------|--------|----------|--------|--------|----------|--------|--------|
| 150. | 0.000  | .880   | 3451.207 | -0.000 | -1.520 | 3416.255 | -0.000 | -1.510 |
| 151. | -0.000 | .880   | 3451.340 | .330   | -1.510 | 3416.081 | -.330  | -1.510 |
| 152. | -0.000 | .870   | 3451.886 | .630   | -1.510 | 3417.573 | -.640  | -1.500 |
| 153. | -0.000 | .870   | 3452.696 | .900   | -1.500 | 3416.696 | -.910  | -1.490 |
| 154. | -0.000 | .860   | 3453.758 | 1.110  | -1.460 | 3415.696 | -1.130 | -1.460 |
| 155. | -0.000 | .850   | 3455.025 | 1.280  | -1.460 | 3414.429 | -1.300 | -1.460 |
| 156. | -0.000 | .840   | 3456.446 | 1.410  | -1.440 | 3413.005 | -1.430 | -1.440 |
| 157. | -0.000 | .820   | 3457.981 | 1.500  | -1.410 | 3411.467 | -1.520 | -1.410 |
| 158. | -0.010 | .800   | 3459.592 | 1.550  | -1.360 | 3409.651 | -1.580 | -1.360 |
| 159. | -0.010 | .780   | 3461.250 | 1.590  | -1.350 | 3408.189 | -1.620 | -1.350 |
| 160. | -0.010 | .760   | 3462.929 | 1.600  | -1.310 | 3406.504 | -1.630 | -1.310 |
| 161. | -0.010 | .740   | 3464.610 | 1.590  | -1.260 | 3404.818 | -1.620 | -1.270 |
| 162. | -0.010 | .710   | 3466.276 | 1.560  | -1.220 | 3403.147 | -1.600 | -1.230 |
| 163. | -0.010 | .680   | 3467.910 | 1.530  | -1.170 | 3401.507 | -1.560 | -1.100 |
| 164. | -0.010 | .650   | 3469.503 | 1.480  | -1.120 | 3399.909 | -1.520 | -1.130 |
| 165. | -0.010 | .620   | 3471.041 | 1.430  | -1.060 | 3398.365 | -1.460 | -1.060 |
| 166. | -0.010 | .590   | 3472.517 | 1.360  | -1.010 | 3396.883 | -1.400 | -1.020 |
| 167. | -0.010 | .550   | 3473.922 | 1.290  | -.950  | 3395.472 | -1.330 | -.960  |
| 168. | -0.010 | .520   | 3475.249 | 1.210  | -.860  | 3394.140 | -1.250 | -.940  |
| 169. | -0.010 | .480   | 3476.491 | 1.130  | -.820  | 3392.892 | -1.160 | -.830  |
| 170. | -0.010 | .440   | 3477.643 | 1.040  | -.750  | 3391.735 | -1.070 | -.760  |
| 171. | -0.010 | .400   | 3478.700 | .950   | -.660  | 3390.674 | -.980  | -.690  |
| 172. | -0.010 | .360   | 3479.657 | .850   | -.610  | 3389.712 | -.900  | -.620  |
| 173. | -0.000 | .310   | 3480.510 | .750   | -.540  | 3388.855 | -.780  | -.550  |
| 174. | -0.000 | .270   | 3481.256 | .650   | -.460  | 3388.105 | -.670  | -.470  |
| 175. | -0.000 | .230   | 3481.892 | .550   | -.390  | 3387.466 | -.570  | -.440  |
| 176. | -0.000 | .180   | 3482.416 | .440   | -.310  | 3386.939 | -.450  | -.320  |
| 177. | -0.000 | .140   | 3482.825 | .330   | -.230  | 3386.528 | -.340  | -.240  |
| 178. | -0.000 | .090   | 3483.119 | .220   | -.160  | 3386.233 | -.230  | -.160  |
| 179. | -0.000 | .050   | 3483.295 | .110   | -.080  | 3386.055 | -.110  | -.080  |
| 180. | 0.000  | -0.000 | 3483.354 | -0.000 | 0.000  | 3385.996 | 0.000  | 0.000  |

110-PLANE EUROPIUM IRON GARNET

BULK

|     | LNGVEL   | LPM12  | LPM13  | FSRVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |
|-----|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 0.  | 6392.173 | 0.000  | 0.000  | 3416.757 | 1.550  | -0.000 | 3416.756 | -1.550 | -0.000 |
| 1.  | 6392.130 | -0.040 | -0.000 | 3420.375 | 1.560  | 0.000  | 3417.217 | -1.410 | -0.000 |
| 2.  | 6392.002 | -0.090 | 0.000  | 3422.011 | 1.560  | 0.000  | 3415.820 | -1.270 | 0.000  |
| 3.  | 6391.784 | -0.140 | 0.000  | 3423.662 | 1.590  | 0.000  | 3414.573 | -1.120 | 0.000  |
| 4.  | 6391.475 | -0.160 | 0.000  | 3425.326 | 1.600  | 0.000  | 3413.462 | -0.970 | 0.000  |
| 5.  | 6391.074 | -0.230 | 0.000  | 3427.001 | 1.610  | 0.000  | 3412.552 | -0.820 | 0.000  |
| 6.  | 6390.578 | -0.280 | 0.000  | 3428.685 | 1.620  | 0.000  | 3411.786 | -0.650 | 0.000  |
| 7.  | 6389.988 | -0.330 | 0.000  | 3430.375 | 1.620  | 0.000  | 3411.194 | -0.490 | 0.000  |
| 8.  | 6389.303 | -0.360 | 0.000  | 3432.071 | 1.620  | 0.000  | 3410.772 | -0.320 | 0.000  |
| 9.  | 6388.522 | -0.430 | 0.000  | 3433.770 | 1.620  | 0.000  | 3410.525 | -0.150 | 0.000  |
| 10. | 6387.647 | -0.470 | 0.000  | 3435.465 | 1.620  | 0.000  | 3410.454 | 0.000  | 0.000  |
| 11. | 6386.677 | -0.520 | 0.000  | 3437.166 | 1.620  | 0.000  | 3410.559 | 0.150  | 0.000  |
| 12. | 6385.615 | -0.570 | 0.000  | 3438.861 | 1.610  | 0.000  | 3410.641 | 0.360  | 0.000  |
| 13. | 6384.461 | -0.620 | 0.000  | 3440.545 | 1.610  | 0.000  | 3411.297 | 0.520  | 0.000  |
| 14. | 6383.219 | -0.660 | 0.000  | 3442.231 | 1.600  | 0.000  | 3411.925 | 0.690  | 0.000  |
| 15. | 6381.890 | -0.710 | 0.000  | 3443.902 | 1.590  | 0.000  | 3412.724 | 0.650  | 0.000  |
| 16. | 6380.478 | -0.750 | 0.000  | 3445.562 | 1.560  | 0.000  | 3413.680 | 1.010  | 0.000  |
| 17. | 6378.986 | -0.790 | 0.000  | 3447.209 | 1.560  | 0.000  | 3414.814 | 1.160  | 0.000  |
| 18. | 6377.418 | -0.830 | 0.000  | 3448.839 | 1.540  | 0.000  | 3416.097 | 1.310  | 0.000  |
| 19. | 6375.776 | -0.860 | 0.000  | 3450.453 | 1.530  | 0.000  | 3417.529 | 1.450  | 0.000  |
| 20. | 6374.070 | -0.900 | 0.000  | 3452.046 | 1.510  | 0.000  | 3419.105 | 1.500  | 0.000  |
| 21. | 6372.300 | -0.930 | 0.000  | 3453.619 | 1.480  | 0.000  | 3420.816 | 1.700  | 0.000  |
| 22. | 6370.472 | -0.960 | 0.000  | 3455.168 | 1.460  | 0.000  | 3422.655 | 1.620  | 0.000  |
| 23. | 6368.593 | -0.980 | 0.000  | 3456.691 | 1.430  | 0.000  | 3424.613 | 1.930  | 0.000  |
| 24. | 6366.668 | -1.000 | 0.000  | 3458.188 | 1.410  | 0.000  | 3426.680 | 2.030  | 0.000  |
| 25. | 6364.704 | -1.020 | 0.000  | 3459.656 | 1.380  | 0.000  | 3428.847 | 2.120  | 0.000  |
| 26. | 6362.706 | -1.040 | 0.000  | 3461.094 | 1.350  | 0.000  | 3431.103 | 2.200  | 0.000  |
| 27. | 6360.682 | -1.050 | 0.000  | 3462.499 | 1.320  | 0.000  | 3433.437 | 2.260  | 0.000  |
| 28. | 6358.639 | -1.060 | 0.000  | 3463.871 | 1.280  | 0.000  | 3435.837 | 2.320  | 0.000  |
| 29. | 6356.564 | -1.060 | 0.000  | 3465.207 | 1.250  | 0.000  | 3438.293 | 2.370  | 0.000  |
| 30. | 6354.453 | -1.060 | 0.000  | 3466.505 | 1.210  | 0.000  | 3440.742 | 2.400  | 0.000  |
| 31. | 6352.465 | -1.050 | 0.000  | 3467.765 | 1.170  | 0.000  | 3443.321 | 2.420  | 0.000  |
| 32. | 6350.417 | -1.050 | 0.000  | 3468.985 | 1.130  | 0.000  | 3445.870 | 2.430  | 0.000  |
| 33. | 6348.386 | -1.040 | 0.000  | 3470.164 | 1.090  | 0.000  | 3448.424 | 2.430  | 0.000  |
| 34. | 6346.380 | -1.030 | 0.000  | 3471.299 | 1.050  | 0.000  | 3450.972 | 2.420  | 0.000  |
| 35. | 6344.407 | -1.010 | 0.000  | 3472.390 | 1.010  | 0.000  | 3453.501 | 2.390  | 0.000  |
| 36. | 6342.475 | -0.990 | 0.000  | 3473.436 | 0.970  | 0.000  | 3455.999 | 2.350  | 0.000  |
| 37. | 6340.590 | -0.960 | 0.000  | 3474.434 | 0.920  | 0.000  | 3458.452 | 2.300  | 0.000  |
| 38. | 6338.761 | -0.930 | 0.000  | 3475.385 | 0.870  | 0.000  | 3460.850 | 2.240  | 0.000  |
| 39. | 6336.994 | -0.900 | 0.000  | 3476.286 | 0.830  | 0.000  | 3463.180 | 2.170  | 0.000  |
| 40. | 6335.296 | -0.860 | 0.000  | 3477.138 | 0.780  | 0.000  | 3465.430 | 2.090  | 0.000  |
| 41. | 6333.675 | -0.820 | 0.000  | 3477.938 | 0.730  | 0.000  | 3467.589 | 2.000  | 0.000  |
| 42. | 6332.138 | -0.770 | 0.000  | 3478.686 | 0.680  | 0.000  | 3469.647 | 1.890  | 0.000  |
| 43. | 6330.689 | -0.730 | 0.000  | 3479.380 | 0.630  | 0.000  | 3471.593 | 1.760  | 0.000  |
| 44. | 6329.336 | -0.680 | 0.000  | 3480.022 | 0.580  | 0.000  | 3473.417 | 1.660  | 0.000  |
| 45. | 6328.084 | -0.630 | 0.000  | 3480.608 | 0.530  | 0.000  | 3475.111 | 1.530  | 0.000  |
| 46. | 6326.936 | -0.570 | 0.000  | 3481.139 | 0.470  | 0.000  | 3476.665 | 1.400  | 0.000  |
| 47. | 6325.903 | -0.510 | 0.000  | 3481.615 | 0.420  | 0.000  | 3478.072 | 1.260  | 0.000  |
| 48. | 6324.983 | -0.450 | 0.000  | 3482.033 | 0.370  | 0.000  | 3479.325 | 1.110  | 0.000  |
| 49. | 6324.183 | -0.380 | 0.000  | 3482.395 | 0.310  | 0.000  | 3480.417 | 0.950  | 0.000  |



110-PLANE EUROPIUM IRON GARNET

BULK

|     | LPMI12   | LPMI13 | FSPWEL   | FSPM12 | FSPM13 | SSRWEL   | SSPM12 | SSPM13 |
|-----|----------|--------|----------|--------|--------|----------|--------|--------|
| 50. | 6323.506 | 0.000  | 3482.700 | .250   | -0.000 | 3481.343 | .790   | 0.000  |
| 51. | 6322.954 | -0.000 | 3482.947 | .210   | 0.000  | 3482.098 | .630   | 0.000  |
| 52. | 6322.530 | -0.000 | 3483.136 | .150   | 0.000  | 3482.679 | .460   | -0.000 |
| 53. | 6322.236 | -0.000 | 3483.266 | .100   | 0.000  | 3483.062 | .300   | -0.000 |
| 54. | 6322.073 | -0.000 | 3483.339 | .040   | 0.000  | 3483.305 | .040   | -0.000 |
| 55. | 6322.042 | 0.000  | 3483.352 | -0.000 | 0.000  | 3483.348 | -0.000 | -0.000 |
| 56. | 6322.142 | 0.000  | 3483.306 | -0.070 | 0.000  | 3483.210 | -0.220 | -0.000 |
| 57. | 6322.375 | 0.000  | 3483.205 | -0.120 | 0.000  | 3482.891 | -0.360 | -0.000 |
| 58. | 6322.736 | 0.000  | 3483.043 | -0.160 | 0.000  | 3482.394 | -0.550 | -0.000 |
| 59. | 6323.229 | 0.000  | 3482.824 | -0.230 | 0.000  | 3481.721 | -0.720 | -0.000 |
| 60. | 6323.848 | 0.000  | 3482.546 | -0.290 | 0.000  | 3480.875 | -0.800 | -0.000 |
| 61. | 6324.590 | 0.000  | 3482.211 | -0.340 | 0.000  | 3479.860 | -1.030 | -0.000 |
| 62. | 6325.454 | 0.000  | 3481.819 | -0.400 | 0.000  | 3478.683 | -1.130 | -0.000 |
| 63. | 6326.435 | 0.000  | 3481.371 | -0.450 | 0.000  | 3477.348 | -1.330 | -0.000 |
| 64. | 6327.529 | 0.000  | 3480.866 | -0.500 | 0.000  | 3475.862 | -1.470 | -0.000 |
| 65. | 6328.732 | 0.000  | 3480.305 | -0.550 | 0.000  | 3474.233 | -1.600 | -0.000 |
| 66. | 6330.036 | 0.000  | 3479.690 | -0.610 | 0.000  | 3472.470 | -1.730 | -0.000 |
| 67. | 6331.442 | 0.000  | 3479.020 | -0.660 | 0.000  | 3470.580 | -1.840 | -0.000 |
| 68. | 6332.939 | 0.000  | 3478.297 | -0.710 | 0.000  | 3468.574 | -1.950 | -0.000 |
| 69. | 6334.521 | 0.000  | 3477.522 | -0.760 | 0.000  | 3466.461 | -2.050 | -0.000 |
| 70. | 6336.183 | 0.000  | 3476.694 | -0.810 | 0.000  | 3464.252 | -2.130 | -0.000 |
| 71. | 6337.916 | 0.000  | 3475.817 | -0.850 | 0.000  | 3461.959 | -2.210 | -0.000 |
| 72. | 6339.719 | 0.000  | 3474.889 | -0.900 | 0.000  | 3459.592 | -2.280 | -0.000 |
| 73. | 6341.575 | 0.000  | 3473.913 | -0.940 | 0.000  | 3457.163 | -2.330 | -0.000 |
| 74. | 6343.490 | 0.000  | 3472.889 | -0.980 | 0.000  | 3454.685 | -2.370 | -0.000 |
| 75. | 6345.444 | 0.000  | 3471.820 | -1.030 | 0.000  | 3452.169 | -2.400 | -0.000 |
| 76. | 6347.436 | 0.000  | 3470.705 | -1.080 | 0.000  | 3449.629 | -2.420 | -0.000 |
| 77. | 6349.455 | 0.000  | 3469.547 | -1.120 | 0.000  | 3447.076 | -2.430 | -0.000 |
| 78. | 6351.496 | 0.000  | 3468.346 | -1.160 | 0.000  | 3444.523 | -2.430 | -0.000 |
| 79. | 6353.551 | 0.000  | 3467.105 | -1.190 | 0.000  | 3441.983 | -2.410 | -0.000 |
| 80. | 6355.611 | 0.000  | 3465.824 | -1.230 | 0.000  | 3439.468 | -2.380 | -0.000 |
| 81. | 6357.670 | 0.000  | 3464.506 | -1.270 | 0.000  | 3436.990 | -2.340 | -0.000 |
| 82. | 6359.720 | 0.000  | 3463.151 | -1.300 | 0.000  | 3434.562 | -2.290 | -0.000 |
| 83. | 6361.754 | 0.000  | 3461.761 | -1.330 | 0.000  | 3432.195 | -2.230 | 0.000  |
| 84. | 6363.765 | 0.000  | 3460.339 | -1.360 | 0.000  | 3429.901 | -2.160 | -0.000 |
| 85. | 6365.746 | 0.000  | 3458.885 | -1.390 | 0.000  | 3427.691 | -2.070 | -0.000 |
| 86. | 6367.690 | 0.000  | 3457.401 | -1.420 | 0.000  | 3425.576 | -1.960 | -0.000 |
| 87. | 6369.591 | 0.000  | 3455.890 | -1.450 | 0.000  | 3423.565 | -1.870 | -0.000 |
| 88. | 6371.444 | 0.000  | 3454.353 | -1.470 | 0.000  | 3421.669 | -1.760 | -0.000 |
| 89. | 6373.242 | 0.000  | 3452.791 | -1.500 | 0.000  | 3419.896 | -1.640 | 0.000  |
| 90. | 6374.980 | 0.000  | 3451.207 | -1.520 | 0.000  | 3418.255 | -1.510 | 0.000  |
| 91. | 6376.652 | 0.000  | 3449.603 | -1.540 | 0.000  | 3416.754 | -1.370 | -0.000 |
| 92. | 6378.255 | 0.000  | 3447.980 | -1.560 | 0.000  | 3415.401 | -1.230 | 0.000  |
| 93. | 6379.784 | 0.000  | 3446.341 | -1.570 | 0.000  | 3414.200 | -1.080 | -0.000 |
| 94. | 6381.234 | 0.000  | 3444.687 | -1.590 | 0.000  | 3413.159 | -920   | -0.000 |
| 95. | 6382.682 | 0.000  | 3443.021 | -1.590 | 0.000  | 3412.281 | -760   | 0.000  |
| 96. | 6384.066 | 0.000  | 3441.344 | -1.600 | 0.000  | 3411.572 | -600   | -0.000 |
| 97. | 6385.381 | 0.000  | 3439.659 | -1.610 | 0.000  | 3411.034 | -430   | -0.000 |
| 98. | 6386.617 | 0.000  | 3437.967 | -1.620 | 0.000  | 3410.670 | -270   | -0.000 |
| 99. | 6387.701 | 0.000  | 3436.270 | -1.620 | 0.000  | 3410.482 | -100   | -0.000 |

110-PLANE EUROPIUM IRON GARNET

|      | LMGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 6388.121 | .450   | 0.000  | 3434.572 | -1.620  | 0.000   | 3410.470 | .070    | 0.000   |
| 101. | 6388.946 | .400   | 0.000  | 3432.673 | -1.620  | 0.000   | 3410.634 | .240    | 0.000   |
| 102. | 6389.677 | .350   | 0.000  | 3431.175 | -1.620  | 0.000   | 3410.973 | .410    | 0.000   |
| 103. | 6390.312 | .300   | 0.000  | 3429.462 | -1.620  | 0.000   | 3411.466 | .560    | 0.000   |
| 104. | 6390.852 | .250   | 0.000  | 3427.794 | -1.610  | 0.000   | 3412.170 | .740    | 0.000   |
| 105. | 6391.297 | .200   | 0.000  | 3426.115 | -1.600  | 0.000   | 3413.022 | .900    | 0.000   |
| 106. | 6391.650 | .160   | 0.000  | 3424.446 | -1.590  | 0.000   | 3414.036 | 1.050   | 0.000   |
| 107. | 6391.910 | .110   | 0.000  | 3422.788 | -1.580  | 0.000   | 3415.212 | 1.200   | 0.000   |
| 108. | 6392.081 | .060   | 0.000  | 3421.145 | -1.570  | 0.000   | 3416.539 | 1.350   | 0.000   |
| 109. | 6392.163 | .020   | 0.000  | 3419.516 | -1.550  | 0.000   | 3418.013 | 1.460   | 0.000   |
| 110. | 6392.161 | -.020  | 0.000  | 3417.909 | -1.540  | 0.000   | 3419.626 | 1.610   | 0.000   |
| 111. | 6392.077 | -.060  | 0.000  | 3416.320 | -1.520  | 0.000   | 3421.371 | 1.730   | 0.000   |
| 112. | 6391.914 | -.100  | 0.000  | 3414.754 | -1.490  | 0.000   | 3423.239 | 1.850   | 0.000   |
| 113. | 6391.676 | -.140  | 0.000  | 3413.211 | -1.470  | 0.000   | 3425.221 | 1.950   | 0.000   |
| 114. | 6391.367 | -.180  | 0.000  | 3411.695 | -1.450  | 0.000   | 3427.307 | 2.040   | 0.000   |
| 115. | 6390.992 | -.210  | 0.000  | 3410.206 | -1.420  | 0.000   | 3429.489 | 2.130   | 0.000   |
| 116. | 6390.554 | -.240  | 0.000  | 3408.747 | -1.390  | 0.000   | 3431.754 | 2.200   | 0.000   |
| 117. | 6390.059 | -.270  | 0.000  | 3407.319 | -1.360  | 0.000   | 3434.093 | 2.270   | 0.000   |
| 118. | 6389.511 | -.290  | 0.000  | 3405.925 | -1.330  | 0.000   | 3436.493 | 2.320   | 0.000   |
| 119. | 6388.917 | -.320  | 0.000  | 3404.566 | -1.290  | 0.000   | 3438.944 | 2.360   | 0.000   |
| 120. | 6388.281 | -.340  | 0.000  | 3403.244 | -1.260  | 0.000   | 3441.434 | 2.390   | 0.000   |
| 121. | 6387.609 | -.350  | 0.000  | 3401.960 | -1.220  | 0.000   | 3443.950 | 2.410   | 0.000   |
| 122. | 6386.906 | -.370  | 0.000  | 3400.716 | -1.180  | 0.000   | 3446.481 | 2.410   | 0.000   |
| 123. | 6386.179 | -.360  | 0.000  | 3399.513 | -1.140  | 0.000   | 3449.014 | 2.410   | 0.000   |
| 124. | 6385.433 | -.390  | 0.000  | 3398.354 | -1.100  | 0.000   | 3451.537 | 2.390   | 0.000   |
| 125. | 6384.674 | -.390  | 0.000  | 3397.235 | -1.060  | 0.000   | 3454.038 | 2.360   | 0.000   |
| 126. | 6383.907 | -.350  | 0.000  | 3396.170 | -1.010  | 0.000   | 3456.505 | 2.320   | 0.000   |
| 127. | 6383.140 | -.350  | 0.000  | 3395.146 | -.960   | 0.000   | 3458.925 | 2.270   | 0.000   |
| 128. | 6382.376 | -.390  | 0.000  | 3394.175 | -.920   | 0.000   | 3461.288 | 2.210   | 0.000   |
| 129. | 6381.623 | -.380  | 0.000  | 3393.252 | -.870   | 0.000   | 3463.581 | 2.140   | 0.000   |
| 130. | 6380.885 | -.370  | 0.000  | 3392.380 | -.820   | 0.000   | 3465.794 | 2.050   | 0.000   |
| 131. | 6380.169 | -.360  | 0.000  | 3391.559 | -.770   | 0.000   | 3467.916 | 1.950   | 0.000   |
| 132. | 6379.476 | -.350  | 0.000  | 3390.792 | -.720   | 0.000   | 3469.936 | 1.860   | 0.000   |
| 133. | 6378.818 | -.330  | 0.000  | 3390.079 | -.660   | 0.000   | 3471.845 | 1.750   | 0.000   |
| 134. | 6378.194 | -.310  | 0.000  | 3389.421 | -.610   | 0.000   | 3473.633 | 1.630   | 0.000   |
| 135. | 6377.611 | -.290  | 0.000  | 3388.819 | -.560   | 0.000   | 3475.293 | 1.500   | 0.000   |
| 136. | 6377.071 | -.270  | 0.000  | 3388.273 | -.500   | 0.000   | 3476.814 | 1.370   | 0.000   |
| 137. | 6376.580 | -.240  | 0.000  | 3387.785 | -.450   | 0.000   | 3478.191 | 1.230   | 0.000   |
| 138. | 6376.140 | -.210  | 0.000  | 3387.354 | -.390   | 0.000   | 3479.416 | 1.080   | 0.000   |
| 139. | 6375.755 | -.180  | 0.000  | 3386.982 | -.330   | 0.000   | 3480.484 | .930    | 0.000   |
| 140. | 6375.427 | -.150  | 0.000  | 3386.664 | -.270   | 0.000   | 3481.389 | .780    | 0.000   |
| 141. | 6375.159 | -.120  | 0.000  | 3386.415 | -.220   | 0.000   | 3482.127 | .620    | 0.000   |
| 142. | 6374.952 | -.090  | 0.000  | 3386.221 | -.160   | 0.000   | 3482.699 | .450    | 0.000   |
| 143. | 6374.808 | -.060  | 0.000  | 3386.087 | -.100   | 0.000   | 3483.086 | .290    | 0.000   |
| 144. | 6374.729 | -.020  | 0.000  | 3386.012 | -.040   | 0.000   | 3483.307 | .120    | 0.000   |
| 145. | 6374.713 | .010   | 0.000  | 3385.998 | .020    | 0.000   | 3483.346 | -.040   | 0.000   |
| 146. | 6374.763 | .040   | 0.000  | 3386.044 | .070    | 0.000   | 3483.213 | -.210   | 0.000   |
| 147. | 6374.876 | .070   | 0.000  | 3386.150 | .130    | 0.000   | 3482.902 | -.360   | 0.000   |
| 148. | 6375.054 | .110   | 0.000  | 3386.316 | .190    | 0.000   | 3482.417 | -.540   | 0.000   |
| 149. | 6375.293 | .140   | 0.000  | 3386.542 | .250    | 0.000   | 3481.759 | -.700   | 0.000   |

BULK

110-PLANE EUROPIUM IRON GARNET

BULK

|      | LANGVEL  | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 6375.593 | .170   | 0.000  | 3366.827 | .316    | 0.000   | 3480.932 | -.860   | 0.000   |
| 151. | 6375.951 | .200   | 0.000  | 3387.171 | .360    | 0.000   | 3479.940 | -1.014  | 0.000   |
| 152. | 6376.366 | .230   | 0.000  | 3387.574 | .420    | 0.000   | 3476.789 | -1.160  | 0.000   |
| 153. | 6376.833 | .250   | 0.000  | 3386.836 | .470    | -0.000  | 3477.483 | -1.300  | 0.000   |
| 154. | 6377.350 | .260   | 0.000  | 3386.554 | .530    | 0.000   | 3476.026 | -1.440  | 0.000   |
| 155. | 6377.914 | .300   | 0.000  | 3389.130 | .580    | 0.000   | 3474.433 | -1.570  | 0.000   |
| 156. | 6378.519 | .320   | 0.000  | 3389.762 | .640    | 0.000   | 3472.705 | -1.690  | 0.000   |
| 157. | 6379.162 | .340   | 0.000  | 3390.449 | .690    | 0.000   | 3470.852 | -1.810  | 0.000   |
| 158. | 6379.839 | .360   | 0.000  | 3391.191 | .740    | 0.000   | 3468.843 | -1.910  | 0.000   |
| 159. | 6380.544 | .370   | 0.000  | 3391.986 | .800    | 0.000   | 3466.688 | -2.010  | 0.000   |
| 160. | 6381.273 | .380   | 0.000  | 3392.834 | .850    | 0.000   | 3464.436 | -2.100  | 0.000   |
| 161. | 6382.019 | .390   | 0.000  | 3393.733 | .890    | 0.000   | 3462.180 | -2.180  | 0.000   |
| 162. | 6382.779 | .390   | 0.000  | 3394.683 | .940    | 0.000   | 3460.048 | -2.240  | 0.000   |
| 163. | 6383.545 | .390   | 0.000  | 3395.682 | .990    | 0.000   | 3457.854 | -2.300  | 0.000   |
| 164. | 6384.313 | .390   | 0.000  | 3396.729 | 1.030   | 0.000   | 3455.207 | -2.340  | 0.000   |
| 165. | 6385.076 | .390   | 0.000  | 3397.822 | 1.060   | 0.000   | 3452.721 | -2.380  | 0.000   |
| 166. | 6385.829 | .380   | 0.000  | 3398.960 | 1.120   | 0.000   | 3450.207 | -2.400  | 0.000   |
| 167. | 6386.566 | .370   | 0.000  | 3400.143 | 1.160   | 0.000   | 3447.677 | -2.410  | 0.000   |
| 168. | 6387.281 | .360   | 0.000  | 3401.367 | 1.200   | 0.000   | 3445.144 | -2.410  | 0.000   |
| 169. | 6387.968 | .350   | 0.000  | 3402.633 | 1.240   | 0.000   | 3442.619 | -2.400  | 0.000   |
| 170. | 6388.622 | .330   | 0.000  | 3403.937 | 1.280   | 0.000   | 3440.115 | -2.370  | 0.000   |
| 171. | 6389.236 | .300   | 0.000  | 3405.279 | 1.310   | 0.000   | 3437.645 | -2.340  | 0.000   |
| 172. | 6389.807 | .280   | -0.000 | 3406.657 | 1.340   | 0.000   | 3435.219 | -2.290  | 0.000   |
| 173. | 6390.327 | .250   | -0.000 | 3408.069 | 1.380   | 0.000   | 3432.849 | -2.230  | 0.000   |
| 174. | 6390.792 | .220   | -0.000 | 3409.513 | 1.410   | -0.000  | 3430.548 | -2.170  | 0.000   |
| 175. | 6391.196 | .190   | 0.000  | 3410.988 | 1.430   | -0.000  | 3428.326 | -2.090  | 0.000   |
| 176. | 6391.539 | .160   | -0.000 | 3412.492 | 1.460   | -0.000  | 3426.193 | -2.000  | 0.000   |
| 177. | 6391.811 | .120   | -0.000 | 3414.023 | 1.480   | -0.000  | 3424.160 | -1.900  | 0.000   |
| 178. | 6392.010 | .080   | -0.000 | 3415.578 | 1.510   | -0.000  | 3422.237 | -1.790  | 0.000   |
| 179. | 6392.131 | .040   | -0.000 | 3417.157 | 1.530   | -0.000  | 3420.434 | -1.670  | 0.000   |
| 180. | 6392.173 | 0.000  | -0.000 | 3418.756 | 1.550   | 0.000   | 3418.757 | -1.550  | 0.000   |

Z-PLANE (XY-PLANE) GADOLINIUM GALLIUM GARNET

|     | LNCVEL   | LPH112 | LPH113 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 6347.249 | 0.000  | 0.000  | 3567.782 | 0.000   | 0.000   | 3567.782 | 0.000   | 0.000   |
| 1.  | 6347.317 | .070   | 0.000  | 3567.782 | 0.000   | 0.000   | 3567.661 | -2.220  | 0.000   |
| 2.  | 6347.520 | .140   | 0.000  | 3567.782 | -0.000  | 0.000   | 3567.299 | -4.440  | 0.000   |
| 3.  | 6347.858 | .210   | 0.000  | 3567.782 | 0.000   | 0.000   | 3566.698 | -6.660  | 0.000   |
| 4.  | 6348.328 | .280   | 0.000  | 3567.782 | 0.000   | 0.000   | 3565.860 | -8.880  | 0.000   |
| 5.  | 6348.929 | .340   | 0.000  | 3567.782 | -0.000  | 0.000   | 3564.791 | -1.090  | 0.000   |
| 6.  | 6349.657 | .410   | 0.000  | 3567.782 | 0.000   | 0.000   | 3563.495 | -1.300  | 0.000   |
| 7.  | 6350.507 | .470   | 0.000  | 3567.782 | 0.000   | 0.000   | 3561.978 | -1.500  | 0.000   |
| 8.  | 6351.477 | .530   | 0.000  | 3567.782 | 0.000   | 0.000   | 3560.250 | -1.690  | 0.000   |
| 9.  | 6352.560 | .590   | 0.000  | 3567.782 | 0.000   | 0.000   | 3558.317 | -1.870  | 0.000   |
| 10. | 6353.750 | .640   | 0.000  | 3567.782 | 0.000   | 0.000   | 3556.190 | -2.050  | 0.000   |
| 11. | 6355.043 | .690   | 0.000  | 3567.782 | 0.000   | 0.000   | 3553.880 | -2.210  | 0.000   |
| 12. | 6356.430 | .740   | 0.000  | 3567.782 | -0.000  | 0.000   | 3551.398 | -2.370  | 0.000   |
| 13. | 6357.906 | .780   | 0.000  | 3567.782 | 0.000   | 0.000   | 3548.750 | -2.510  | 0.000   |
| 14. | 6359.461 | .820   | 0.000  | 3567.782 | 0.000   | 0.000   | 3545.960 | -2.640  | 0.000   |
| 15. | 6361.089 | .860   | 0.000  | 3567.782 | 0.000   | 0.000   | 3543.047 | -2.760  | 0.000   |
| 16. | 6362.781 | .890   | 0.000  | 3567.782 | 0.000   | 0.000   | 3540.008 | -2.870  | 0.000   |
| 17. | 6364.528 | .910   | 0.000  | 3567.782 | 0.000   | 0.000   | 3536.865 | -2.960  | 0.000   |
| 18. | 6366.322 | .940   | 0.000  | 3567.782 | 0.000   | 0.000   | 3533.635 | -3.030  | 0.000   |
| 19. | 6368.153 | .950   | 0.000  | 3567.782 | 0.000   | 0.000   | 3530.334 | -3.100  | 0.000   |
| 20. | 6370.013 | .960   | 0.000  | 3567.782 | 0.000   | 0.000   | 3526.977 | -3.140  | 0.000   |
| 21. | 6371.893 | .970   | 0.000  | 3567.782 | 0.000   | 0.000   | 3523.580 | -3.170  | 0.000   |
| 22. | 6373.782 | .970   | 0.000  | 3567.782 | 0.000   | 0.000   | 3520.162 | -3.190  | 0.000   |
| 23. | 6375.672 | .970   | 0.000  | 3567.782 | 0.000   | 0.000   | 3516.737 | -3.190  | 0.000   |
| 24. | 6377.554 | .960   | 0.000  | 3567.782 | 0.000   | 0.000   | 3513.323 | -3.190  | 0.000   |
| 25. | 6379.418 | .950   | 0.000  | 3567.782 | 0.000   | 0.000   | 3509.937 | -3.190  | 0.000   |
| 26. | 6381.256 | .940   | 0.000  | 3567.782 | 0.000   | 0.000   | 3506.594 | -3.180  | 0.000   |
| 27. | 6383.059 | .920   | 0.000  | 3567.782 | -0.000  | 0.000   | 3503.312 | -3.180  | 0.000   |
| 28. | 6384.818 | .890   | 0.000  | 3567.782 | -0.000  | 0.000   | 3500.105 | -3.160  | 0.000   |
| 29. | 6386.525 | .860   | 0.000  | 3567.782 | 0.000   | 0.000   | 3496.989 | -2.960  | 0.000   |
| 30. | 6388.172 | .830   | 0.000  | 3567.782 | 0.000   | 0.000   | 3493.980 | -2.770  | 0.000   |
| 31. | 6389.751 | .790   | 0.000  | 3567.782 | 0.000   | 0.000   | 3491.091 | -2.650  | 0.000   |
| 32. | 6391.255 | .750   | 0.000  | 3567.782 | 0.000   | 0.000   | 3488.337 | -2.520  | 0.000   |
| 33. | 6392.677 | .710   | 0.000  | 3567.782 | -0.000  | 0.000   | 3485.731 | -2.380  | 0.000   |
| 34. | 6394.010 | .680   | 0.000  | 3567.782 | 0.000   | 0.000   | 3483.264 | -2.230  | 0.000   |
| 35. | 6395.249 | .610   | 0.000  | 3567.782 | 0.000   | 0.000   | 3481.010 | -2.060  | 0.000   |
| 36. | 6396.387 | .560   | 0.000  | 3567.782 | 0.000   | 0.000   | 3478.916 | -1.880  | 0.000   |
| 37. | 6397.415 | .500   | 0.000  | 3567.782 | 0.000   | 0.000   | 3477.019 | -1.700  | 0.000   |
| 38. | 6398.342 | .440   | 0.000  | 3567.782 | 0.000   | 0.000   | 3475.321 | -1.510  | 0.000   |
| 39. | 6399.150 | .380   | 0.000  | 3567.782 | 0.000   | 0.000   | 3473.833 | -1.300  | 0.000   |
| 40. | 6399.840 | .320   | 0.000  | 3567.782 | -0.000  | 0.000   | 3472.562 | -1.100  | 0.000   |
| 41. | 6400.408 | .260   | 0.000  | 3567.782 | 0.000   | 0.000   | 3471.514 | -0.860  | 0.000   |
| 42. | 6400.853 | .200   | 0.000  | 3567.782 | 0.000   | 0.000   | 3470.693 | -0.670  | 0.000   |
| 43. | 6401.173 | .130   | 0.000  | 3567.782 | 0.000   | 0.000   | 3470.104 | -0.450  | 0.000   |
| 44. | 6401.365 | .070   | 0.000  | 3567.782 | -0.000  | 0.000   | 3469.750 | -0.220  | 0.000   |
| 45. | 6401.429 | 0.000  | 0.000  | 3567.782 | 0.000   | 0.000   | 3469.631 | 0.000   | 0.000   |
| 46. | 6401.365 | -.070  | 0.000  | 3567.782 | 0.000   | 0.000   | 3469.750 | .220    | 0.000   |
| 47. | 6401.173 | -.130  | 0.000  | 3567.782 | 0.000   | 0.000   | 3470.104 | .450    | 0.000   |
| 48. | 6400.853 | -.200  | 0.000  | 3567.782 | 0.000   | 0.000   | 3470.693 | .670    | 0.000   |
| 49. | 6400.408 | -.260  | 0.000  | 3567.782 | 0.000   | 0.000   | 3471.514 | .860    | 0.000   |

BULK

Z-PLANE (XY-PLANE) GADOLINIUM GALLIUM GARNET

BULK

|     | LSRVEL   | LPHI12 | LPHI13 | FSPVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 6399.840 | -320   | 0.000  | 3567.762 | 0.000   | 0.000   | 3472.562 | 1.100   | 0.000   |
| 51. | 6399.150 | -308   | 0.000  | 3567.762 | -0.000  | 0.000   | 3473.833 | 1.300   | 0.000   |
| 52. | 6398.342 | -440   | 0.000  | 3567.762 | 0.000   | 0.000   | 3475.321 | 1.510   | 0.000   |
| 53. | 6397.419 | -500   | 0.000  | 3567.762 | 0.000   | 0.000   | 3477.819 | 1.700   | 0.000   |
| 54. | 6396.387 | -560   | 0.000  | 3567.762 | 0.000   | 0.000   | 3478.918 | 1.680   | 0.000   |
| 55. | 6395.249 | -610   | 0.000  | 3567.762 | 0.000   | 0.000   | 3481.010 | 2.060   | 0.000   |
| 56. | 6394.010 | -660   | 0.000  | 3567.762 | -0.000  | 0.000   | 3483.284 | 2.230   | 0.000   |
| 57. | 6392.677 | -710   | 0.000  | 3567.762 | 0.000   | 0.000   | 3485.731 | 2.300   | 0.000   |
| 58. | 6391.255 | -750   | 0.000  | 3567.762 | 0.000   | 0.000   | 3484.337 | 2.520   | 0.000   |
| 59. | 6389.751 | -790   | 0.000  | 3567.762 | 0.000   | 0.000   | 3481.091 | 2.650   | 0.000   |
| 60. | 6388.172 | -830   | 0.000  | 3567.762 | 0.000   | 0.000   | 3493.980 | 2.770   | 0.000   |
| 61. | 6386.525 | -860   | 0.000  | 3567.762 | 0.000   | 0.000   | 3496.989 | 2.670   | 0.000   |
| 62. | 6384.816 | -890   | 0.000  | 3567.762 | 0.000   | 0.000   | 3500.105 | 2.560   | 0.000   |
| 63. | 6383.059 | -920   | 0.000  | 3567.762 | 0.000   | 0.000   | 3503.312 | 3.040   | 0.000   |
| 64. | 6381.256 | -940   | 0.000  | 3567.762 | 0.000   | 0.000   | 3506.594 | 3.100   | 0.000   |
| 65. | 6379.410 | -958   | 0.000  | 3567.762 | -0.000  | 0.000   | 3509.937 | 3.150   | 0.000   |
| 66. | 6377.556 | -968   | 0.000  | 3567.762 | 0.000   | 0.000   | 3513.323 | 3.180   | 0.000   |
| 67. | 6375.672 | -978   | 0.000  | 3567.762 | -0.000  | 0.000   | 3516.737 | 3.190   | 0.000   |
| 68. | 6373.762 | -970   | 0.000  | 3567.762 | 0.000   | 0.000   | 3520.162 | 3.190   | 0.000   |
| 69. | 6371.893 | -970   | 0.000  | 3567.762 | 0.000   | 0.000   | 3523.580 | 3.170   | 0.000   |
| 70. | 6370.013 | -968   | 0.000  | 3567.762 | -0.000  | 0.000   | 3526.977 | 3.140   | 0.000   |
| 71. | 6368.153 | -958   | 0.000  | 3567.762 | 0.000   | 0.000   | 3530.334 | 3.100   | 0.000   |
| 72. | 6366.322 | -940   | 0.000  | 3567.762 | -0.000  | 0.000   | 3533.635 | 3.030   | 0.000   |
| 73. | 6364.526 | -910   | 0.000  | 3567.762 | 0.000   | 0.000   | 3536.865 | 2.960   | 0.000   |
| 74. | 6362.781 | -890   | 0.000  | 3567.762 | -0.000  | 0.000   | 3540.008 | 2.670   | 0.000   |
| 75. | 6361.089 | -860   | 0.000  | 3567.762 | 0.000   | 0.000   | 3543.047 | 2.760   | 0.000   |
| 76. | 6359.461 | -820   | 0.000  | 3567.762 | 0.000   | 0.000   | 3545.968 | 2.640   | 0.000   |
| 77. | 6357.906 | -780   | 0.000  | 3567.762 | 0.000   | 0.000   | 3548.756 | 2.510   | 0.000   |
| 78. | 6356.430 | -740   | 0.000  | 3567.762 | 0.000   | 0.000   | 3551.398 | 2.370   | 0.000   |
| 79. | 6355.043 | -690   | 0.000  | 3567.762 | 0.000   | 0.000   | 3553.880 | 2.210   | 0.000   |
| 80. | 6353.750 | -640   | 0.000  | 3567.762 | 0.000   | 0.000   | 3556.190 | 2.050   | 0.000   |
| 81. | 6352.560 | -590   | 0.000  | 3567.762 | 0.000   | 0.000   | 3558.317 | 1.870   | 0.000   |
| 82. | 6351.477 | -530   | 0.000  | 3567.762 | 0.000   | 0.000   | 3560.250 | 1.690   | 0.000   |
| 83. | 6350.507 | -470   | 0.000  | 3567.762 | 0.000   | 0.000   | 3561.976 | 1.500   | 0.000   |
| 84. | 6349.657 | -410   | 0.000  | 3567.762 | 0.000   | 0.000   | 3563.495 | 1.300   | 0.000   |
| 85. | 6348.929 | -340   | 0.000  | 3567.762 | 0.000   | 0.000   | 3564.791 | 1.090   | 0.000   |
| 86. | 6348.328 | -280   | 0.000  | 3567.762 | 0.000   | 0.000   | 3565.860 | .880    | 0.000   |
| 87. | 6347.858 | -210   | 0.000  | 3567.762 | 0.000   | 0.000   | 3566.698 | .660    | 0.000   |
| 88. | 6347.520 | -140   | 0.000  | 3567.762 | 0.000   | 0.000   | 3567.299 | .440    | 0.000   |
| 89. | 6347.317 | -70    | 0.000  | 3567.762 | -0.000  | 0.000   | 3567.661 | .220    | 0.000   |
| 90. | 6347.249 | 0.000  | 0.000  | 3567.762 | 0.000   | 0.000   | 3567.762 | 0.000   | 0.000   |
| 91. | 6347.317 | .070   | 0.000  | 3567.762 | 0.000   | 0.000   | 3567.661 | -.220   | 0.000   |
| 92. | 6347.520 | 140    | 0.000  | 3567.762 | 0.000   | 0.000   | 3567.299 | -.440   | 0.000   |
| 93. | 6347.858 | 210    | 0.000  | 3567.762 | 0.000   | 0.000   | 3566.698 | -.660   | 0.000   |
| 94. | 6348.328 | 280    | 0.000  | 3567.762 | -0.000  | 0.000   | 3565.860 | -.880   | 0.000   |
| 95. | 6348.929 | 340    | 0.000  | 3567.762 | 0.000   | 0.000   | 3564.791 | -1.090  | 0.000   |
| 96. | 6349.657 | 410    | 0.000  | 3567.762 | 0.000   | 0.000   | 3563.495 | -1.300  | 0.000   |
| 97. | 6350.507 | 470    | 0.000  | 3567.762 | -0.000  | 0.000   | 3561.976 | -1.500  | 0.000   |
| 98. | 6351.477 | 530    | 0.000  | 3567.762 | 0.000   | 0.000   | 3560.250 | -1.690  | 0.000   |
| 99. | 6352.560 | 590    | 0.000  | 3567.762 | 0.000   | 0.000   | 3558.317 | -1.870  | 0.000   |

Z-PLANE (XY-PLANE) GADOLINIUM GALLIUM GARNET

BULK

|      | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 100. | 6353.750 | .640   | 0.000  | 3567.782 | 0.000  | 0.000  | 3556.190 | -2.650 | 0.000  |
| 101. | 6355.043 | .690   | 0.000  | 3567.782 | -0.000 | 0.000  | 3553.080 | -2.210 | 0.000  |
| 102. | 6356.430 | .740   | 0.000  | 3567.782 | 0.000  | 0.000  | 3551.334 | -2.370 | 0.000  |
| 103. | 6357.906 | .780   | 0.000  | 3567.782 | -0.000 | 0.000  | 3548.756 | -2.510 | 0.000  |
| 104. | 6359.461 | .820   | 0.000  | 3567.782 | 0.000  | 0.000  | 3545.968 | -2.640 | 0.000  |
| 105. | 6361.889 | .860   | 0.000  | 3567.782 | 0.000  | 0.000  | 3543.087 | -2.760 | 0.000  |
| 106. | 6362.781 | .890   | 0.000  | 3567.782 | 0.000  | 0.000  | 3540.008 | -2.870 | 0.000  |
| 107. | 6364.526 | .910   | 0.000  | 3567.782 | 0.000  | 0.000  | 3536.865 | -2.960 | 0.000  |
| 108. | 6366.322 | .940   | 0.000  | 3567.782 | 0.000  | 0.000  | 3533.635 | -3.030 | 0.000  |
| 109. | 6368.153 | .950   | 0.000  | 3567.782 | 0.000  | 0.000  | 3530.334 | -3.100 | 0.000  |
| 110. | 6370.813 | .960   | 0.000  | 3567.782 | 0.000  | 0.000  | 3526.977 | -3.140 | 0.000  |
| 111. | 6371.893 | .970   | 0.000  | 3567.782 | 0.000  | 0.000  | 3523.560 | -3.170 | 0.000  |
| 112. | 6373.782 | .970   | 0.000  | 3567.782 | 0.000  | 0.000  | 3520.162 | -3.190 | 0.000  |
| 113. | 6375.672 | .970   | 0.000  | 3567.782 | 0.000  | 0.000  | 3516.737 | -3.190 | 0.000  |
| 114. | 6377.554 | .960   | 0.000  | 3567.782 | 0.000  | 0.000  | 3513.323 | -3.140 | 0.000  |
| 115. | 6379.410 | .950   | 0.000  | 3567.782 | 0.000  | 0.000  | 3509.937 | -3.150 | 0.000  |
| 116. | 6381.256 | .940   | 0.000  | 3567.782 | 0.000  | 0.000  | 3506.594 | -3.100 | 0.000  |
| 117. | 6383.059 | .920   | 0.000  | 3567.782 | 0.000  | 0.000  | 3503.312 | -3.040 | 0.000  |
| 118. | 6384.818 | .890   | 0.000  | 3567.782 | 0.000  | 0.000  | 3500.105 | -2.960 | 0.000  |
| 119. | 6386.525 | .860   | 0.000  | 3567.782 | 0.000  | 0.000  | 3496.989 | -2.870 | 0.000  |
| 120. | 6388.172 | .830   | 0.000  | 3567.782 | -0.000 | 0.000  | 3493.940 | -2.770 | 0.000  |
| 121. | 6389.751 | .790   | 0.000  | 3567.782 | 0.000  | 0.000  | 3491.051 | -2.650 | 0.000  |
| 122. | 6391.255 | .750   | 0.000  | 3567.782 | -0.000 | 0.000  | 3488.337 | -2.520 | 0.000  |
| 123. | 6392.677 | .710   | 0.000  | 3567.782 | 0.000  | 0.000  | 3485.731 | -2.380 | 0.000  |
| 124. | 6394.010 | .660   | 0.000  | 3567.782 | 0.000  | 0.000  | 3483.264 | -2.230 | 0.000  |
| 125. | 6395.249 | .610   | 0.000  | 3567.782 | -0.000 | 0.000  | 3481.010 | -2.080 | 0.000  |
| 126. | 6396.387 | .560   | 0.000  | 3567.782 | 0.000  | 0.000  | 3478.918 | -1.900 | 0.000  |
| 127. | 6397.419 | .508   | 0.000  | 3567.782 | 0.000  | 0.000  | 3477.019 | -1.700 | 0.000  |
| 128. | 6398.342 | .440   | 0.000  | 3567.782 | -0.000 | 0.000  | 3475.321 | -1.510 | 0.000  |
| 129. | 6399.150 | .380   | 0.000  | 3567.782 | 0.000  | 0.000  | 3473.833 | -1.300 | 0.000  |
| 130. | 6399.840 | .320   | 0.000  | 3567.782 | 0.000  | 0.000  | 3472.562 | -1.100 | 0.000  |
| 131. | 6400.408 | .260   | 0.000  | 3567.782 | 0.000  | 0.000  | 3471.514 | -0.860 | 0.000  |
| 132. | 6400.853 | .200   | 0.000  | 3567.782 | 0.000  | 0.000  | 3470.693 | -0.670 | 0.000  |
| 133. | 6401.173 | .130   | 0.000  | 3567.782 | 0.000  | 0.000  | 3470.184 | -0.500 | 0.000  |
| 134. | 6401.365 | -.070  | 0.000  | 3567.782 | 0.000  | 0.000  | 3469.750 | -0.250 | 0.000  |
| 135. | 6401.429 | -0.000 | 0.000  | 3567.782 | 0.000  | 0.000  | 3469.631 | 0.000  | 0.000  |
| 136. | 6401.365 | -.070  | 0.000  | 3567.782 | 0.000  | 0.000  | 3469.750 | .220   | 0.000  |
| 137. | 6401.173 | -0.130 | 0.000  | 3567.782 | 0.000  | 0.000  | 3470.184 | .450   | 0.000  |
| 138. | 6400.853 | -0.200 | 0.000  | 3567.782 | 0.000  | 0.000  | 3470.693 | .670   | 0.000  |
| 139. | 6400.406 | -0.260 | 0.000  | 3567.782 | 0.000  | 0.000  | 3471.514 | .880   | 0.000  |
| 140. | 6399.840 | -0.320 | 0.000  | 3567.782 | 0.000  | 0.000  | 3472.562 | 1.000  | 0.000  |
| 141. | 6399.150 | -0.360 | 0.000  | 3567.782 | 0.000  | 0.000  | 3473.833 | 1.300  | 0.000  |
| 142. | 6398.342 | -0.440 | 0.000  | 3567.782 | 0.000  | 0.000  | 3475.321 | 1.510  | 0.000  |
| 143. | 6397.419 | -0.500 | 0.000  | 3567.782 | 0.000  | 0.000  | 3477.019 | 1.700  | 0.000  |
| 144. | 6396.387 | -0.560 | 0.000  | 3567.782 | 0.000  | 0.000  | 3478.918 | 1.860  | 0.000  |
| 145. | 6395.249 | -0.610 | 0.000  | 3567.782 | 0.000  | 0.000  | 3481.010 | 2.060  | 0.000  |
| 146. | 6394.010 | -0.660 | 0.000  | 3567.782 | -0.000 | 0.000  | 3483.264 | 2.300  | 0.000  |
| 147. | 6392.677 | -0.710 | 0.000  | 3567.782 | 0.000  | 0.000  | 3485.731 | 2.520  | 0.000  |
| 148. | 6391.255 | -0.750 | 0.000  | 3567.782 | 0.000  | 0.000  | 3488.337 | 2.650  | 0.000  |
| 149. | 6389.751 | -0.790 | 0.000  | 3567.782 | -0.000 | 0.000  | 3491.051 | 2.650  | 0.000  |

Z-PLANE (XY-PLANE) GADOLINIUM GALLIUM GARNET

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 6306.172 | -830   | 0.000  | 3567.782 | 0.000   | 0.000   | 3493.980 | 2.770   | 0.000   |
| 151. | 6306.525 | -860   | 0.000  | 3567.782 | 0.000   | 0.000   | 3496.989 | 2.670   | 0.000   |
| 152. | 6304.816 | -890   | 0.000  | 3567.782 | 0.000   | 0.000   | 3500.105 | 2.960   | 0.000   |
| 153. | 6303.059 | -920   | 0.000  | 3567.782 | 0.000   | 0.000   | 3503.312 | 3.040   | 0.000   |
| 154. | 6301.256 | -940   | 0.000  | 3567.782 | 0.000   | 0.000   | 3506.594 | 3.100   | 0.000   |
| 155. | 6379.416 | -950   | 0.000  | 3567.782 | 0.000   | 0.000   | 3509.937 | 3.150   | 0.000   |
| 156. | 6377.554 | -960   | 0.000  | 3567.782 | 0.000   | 0.000   | 3513.323 | 3.100   | 0.000   |
| 157. | 6375.672 | -970   | 0.000  | 3567.782 | 0.000   | 0.000   | 3516.737 | 3.190   | 0.000   |
| 158. | 6373.782 | -970   | 0.000  | 3567.782 | 0.000   | 0.000   | 3520.162 | 3.150   | 0.000   |
| 159. | 6371.893 | -970   | 0.000  | 3567.782 | -0.000  | 0.000   | 3523.580 | 3.170   | 0.000   |
| 160. | 6370.013 | -960   | 0.000  | 3567.782 | -0.000  | 0.000   | 3526.977 | 3.140   | 0.000   |
| 161. | 6368.153 | -950   | 0.000  | 3567.782 | 0.000   | 0.000   | 3530.334 | 3.100   | 0.000   |
| 162. | 6366.322 | -940   | 0.000  | 3567.782 | 0.000   | 0.000   | 3533.635 | 3.030   | 0.000   |
| 163. | 6364.526 | -910   | 0.000  | 3567.782 | 0.000   | 0.000   | 3536.865 | 2.560   | 0.000   |
| 164. | 6362.761 | -890   | 0.000  | 3567.782 | 0.000   | 0.000   | 3540.008 | 2.670   | 0.000   |
| 165. | 6361.009 | -860   | 0.000  | 3567.782 | 0.000   | 0.000   | 3543.047 | 2.760   | 0.000   |
| 166. | 6359.461 | -820   | 0.000  | 3567.782 | 0.000   | 0.000   | 3545.968 | 2.640   | 0.000   |
| 167. | 6357.906 | -760   | 0.000  | 3567.782 | 0.000   | 0.000   | 3548.756 | 2.510   | 0.000   |
| 168. | 6356.430 | -740   | 0.000  | 3567.782 | 0.000   | 0.000   | 3551.398 | 2.370   | 0.000   |
| 169. | 6355.043 | -690   | 0.000  | 3567.782 | 0.000   | 0.000   | 3553.880 | 2.210   | 0.000   |
| 170. | 6353.750 | -640   | 0.000  | 3567.782 | -0.000  | 0.000   | 3556.190 | 2.050   | 0.000   |
| 171. | 6352.560 | -590   | 0.000  | 3567.782 | -0.000  | 0.000   | 3558.317 | 1.870   | 0.000   |
| 172. | 6351.477 | -530   | 0.000  | 3567.782 | 0.000   | 0.000   | 3560.250 | 1.650   | 0.000   |
| 173. | 6349.657 | -470   | 0.000  | 3567.782 | 0.000   | 0.000   | 3561.976 | 1.500   | 0.000   |
| 174. | 6348.929 | -340   | 0.000  | 3567.782 | 0.000   | 0.000   | 3563.495 | 1.300   | 0.000   |
| 175. | 6348.328 | -260   | 0.000  | 3567.782 | 0.000   | 0.000   | 3564.791 | 1.090   | 0.000   |
| 176. | 6347.858 | -210   | 0.000  | 3567.782 | 0.000   | 0.000   | 3565.860 | .860    | 0.000   |
| 177. | 6347.520 | -140   | 0.000  | 3567.782 | 0.000   | 0.000   | 3566.698 | .660    | 0.000   |
| 178. | 6347.317 | -670   | 0.000  | 3567.782 | 0.000   | 0.000   | 3567.299 | .440    | 0.000   |
| 179. | 6347.249 | 0.000  | 0.000  | 3567.782 | -0.000  | 0.000   | 3567.661 | .220    | 0.000   |
| 180. |          |        |        |          |         |         | 3567.782 | 0.000   | 0.000   |

111-PLANE GADOLINIUM GALLIUM GARNET

BULK

|     | LNGLVL   | LPMI12 | LPMI13 | FSPVEL   | FSPMI12  | FSPMI13  | SSRVEL   | SSPMI12 | SSPMI13  |
|-----|----------|--------|--------|----------|----------|----------|----------|---------|----------|
| 0.  | 6401.429 | -0.000 | 0.000  | 3567.782 | -0.000   | 0.000    | 3469.631 | 0.600   | 0.000    |
| 1.  | 6401.430 | 0.000  | 0.050  | 3567.722 | -1.110   | -0.080   | 3469.691 | .110    | -0.080   |
| 2.  | 6401.432 | 0.000  | 0.090  | 3567.544 | -2.200   | -1.150   | 3469.670 | .230    | -1.160   |
| 3.  | 6401.436 | 0.000  | 0.140  | 3567.246 | -3.300   | -2.230   | 3470.167 | .340    | -2.230   |
| 4.  | 6401.441 | 0.000  | 0.190  | 3566.835 | -4.400   | -3.310   | 3470.502 | .450    | -3.310   |
| 5.  | 6401.448 | 0.000  | 0.230  | 3566.307 | -5.500   | -4.400   | 3471.112 | .560    | -4.390   |
| 6.  | 6401.456 | 0.000  | 0.280  | 3565.865 | -6.600   | -5.460   | 3471.756 | .660    | -5.460   |
| 7.  | 6401.466 | 0.010  | 0.320  | 3564.913 | -7.740   | -6.530   | 3472.511 | .770    | -6.540   |
| 8.  | 6401.477 | 0.010  | 0.370  | 3564.052 | -8.940   | -7.600   | 3473.375 | .870    | -7.610   |
| 9.  | 6401.488 | 0.010  | 0.410  | 3563.087 | -10.200  | -8.740   | 3474.343 | .960    | -8.750   |
| 10. | 6401.501 | 0.010  | 0.450  | 3562.021 | -11.510  | -9.910   | 3475.412 | 1.060   | -9.920   |
| 11. | 6401.514 | 0.010  | 0.490  | 3560.859 | -12.870  | -11.140  | 3476.576 | 1.140   | -11.150  |
| 12. | 6401.529 | 0.010  | 0.530  | 3559.606 | -14.290  | -12.430  | 3477.835 | 1.230   | -12.440  |
| 13. | 6401.543 | 0.010  | 0.570  | 3558.266 | -15.770  | -13.780  | 3479.177 | 1.300   | -13.790  |
| 14. | 6401.558 | 0.010  | 0.600  | 3556.851 | -17.300  | -15.190  | 3480.598 | 1.380   | -15.200  |
| 15. | 6401.573 | 0.010  | 0.640  | 3555.363 | -18.890  | -16.660  | 3482.091 | 1.440   | -16.670  |
| 16. | 6401.588 | 0.010  | 0.670  | 3553.811 | -20.540  | -18.190  | 3483.647 | 1.490   | -18.200  |
| 17. | 6401.603 | 0.010  | 0.700  | 3552.206 | -22.250  | -19.780  | 3485.256 | 1.540   | -19.790  |
| 18. | 6401.618 | 0.010  | 0.730  | 3550.558 | -24.020  | -21.430  | 3486.909 | 1.570   | -21.440  |
| 19. | 6401.632 | 0.010  | 0.750  | 3548.878 | -25.850  | -23.140  | 3488.592 | 1.600   | -23.150  |
| 20. | 6401.645 | 0.010  | 0.780  | 3547.184 | -27.740  | -24.910  | 3490.291 | 1.600   | -24.920  |
| 21. | 6401.656 | 0.010  | 0.800  | 3545.490 | -29.690  | -26.740  | 3491.986 | 1.590   | -26.750  |
| 22. | 6401.670 | 0.010  | 0.820  | 3543.819 | -31.700  | -28.630  | 3493.662 | 1.560   | -28.640  |
| 23. | 6401.680 | 0.010  | 0.840  | 3542.195 | -33.770  | -30.580  | 3495.289 | 1.500   | -30.590  |
| 24. | 6401.690 | 0.000  | 0.860  | 3540.546 | -35.900  | -32.590  | 3496.839 | 1.410   | -32.600  |
| 25. | 6401.698 | 0.000  | 0.870  | 3539.215 | -38.090  | -34.660  | 3498.274 | 1.260   | -34.670  |
| 26. | 6401.705 | 0.000  | 0.880  | 3537.935 | -40.340  | -36.790  | 3499.552 | 1.110   | -36.800  |
| 27. | 6401.710 | 0.000  | 0.890  | 3536.866 | -42.650  | -38.980  | 3500.624 | .850    | -38.990  |
| 28. | 6401.714 | 0.000  | 0.890  | 3536.054 | -45.020  | -41.230  | 3501.440 | .630    | -41.240  |
| 29. | 6401.716 | 0.000  | 0.900  | 3535.542 | -47.450  | -43.540  | 3502.127 | .330    | -43.550  |
| 30. | 6401.717 | 0.000  | 0.900  | 3535.366 | -50.000  | -45.910  | 3501.952 | 0.000   | -45.920  |
| 31. | 6401.716 | 0.000  | 0.900  | 3535.542 | -52.600  | -48.340  | 3501.440 | -.330   | -48.350  |
| 32. | 6401.714 | 0.000  | 0.890  | 3536.054 | -55.260  | -50.830  | 3500.624 | -.630   | -50.840  |
| 33. | 6401.710 | 0.000  | 0.890  | 3536.866 | -57.980  | -53.380  | 3499.552 | -.850   | -53.390  |
| 34. | 6401.705 | 0.000  | 0.880  | 3537.935 | -60.760  | -56.000  | 3498.274 | -1.110  | -56.010  |
| 35. | 6401.696 | 0.000  | 0.870  | 3539.215 | -63.600  | -58.690  | 3496.839 | -1.410  | -58.700  |
| 36. | 6401.690 | 0.000  | 0.860  | 3540.546 | -66.500  | -61.450  | 3495.289 | -1.740  | -61.460  |
| 37. | 6401.680 | 0.000  | 0.840  | 3542.195 | -69.460  | -64.280  | 3493.662 | -2.100  | -64.290  |
| 38. | 6401.670 | 0.000  | 0.820  | 3543.811 | -72.480  | -67.190  | 3491.986 | -2.490  | -67.200  |
| 39. | 6401.656 | 0.000  | 0.800  | 3545.490 | -75.560  | -70.180  | 3490.291 | -2.900  | -70.190  |
| 40. | 6401.645 | 0.000  | 0.780  | 3547.184 | -78.700  | -73.250  | 3488.592 | -3.330  | -73.260  |
| 41. | 6401.632 | 0.000  | 0.750  | 3548.878 | -81.900  | -76.400  | 3486.909 | -3.780  | -76.410  |
| 42. | 6401.616 | 0.000  | 0.730  | 3550.558 | -85.160  | -79.630  | 3485.256 | -4.250  | -79.640  |
| 43. | 6401.603 | 0.000  | 0.700  | 3552.206 | -88.480  | -82.940  | 3483.647 | -4.740  | -82.950  |
| 44. | 6401.588 | 0.000  | 0.670  | 3553.811 | -91.860  | -86.330  | 3482.091 | -5.250  | -86.340  |
| 45. | 6401.573 | 0.000  | 0.640  | 3555.363 | -95.300  | -89.800  | 3480.598 | -5.780  | -89.810  |
| 46. | 6401.558 | 0.000  | 0.600  | 3556.851 | -98.800  | -93.340  | 3479.177 | -6.330  | -93.350  |
| 47. | 6401.543 | 0.000  | 0.570  | 3558.266 | -102.360 | -96.950  | 3477.835 | -6.900  | -96.960  |
| 48. | 6401.529 | 0.000  | 0.530  | 3559.606 | -106.000 | -100.630 | 3476.578 | -7.490  | -100.640 |
| 49. | 6401.514 | 0.000  | 0.490  | 3560.859 | -109.710 | -104.380 |          |         |          |



111-PLANE GADOLINIUM GALLIUM GARNET

|     | LMSVEL   | LPM12 | LPM13 | FSRVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |
|-----|----------|-------|-------|----------|--------|--------|----------|--------|--------|
| 50. | 6401.501 | -0.02 | .450  | 3562.021 | 1.030  | -0.740 | 3475.412 | -1.060 | -0.750 |
| 51. | 6401.480 | -0.02 | .410  | 3563.087 | .940   | -0.670 | 3474.343 | -0.960 | -0.600 |
| 52. | 6401.477 | -0.02 | .370  | 3564.052 | .840   | -0.600 | 3473.375 | -0.870 | -0.510 |
| 53. | 6401.466 | -0.02 | .320  | 3564.913 | .740   | -0.530 | 3472.511 | -0.770 | -0.440 |
| 54. | 6401.456 | -0.00 | .280  | 3565.665 | .640   | -0.460 | 3471.756 | -0.660 | -0.370 |
| 55. | 6401.448 | -0.00 | .230  | 3566.307 | .540   | -0.390 | 3471.112 | -0.560 | -0.310 |
| 56. | 6401.441 | -0.00 | .190  | 3566.835 | .430   | -0.310 | 3470.582 | -0.450 | -0.230 |
| 57. | 6401.436 | -0.00 | .140  | 3567.248 | .330   | -0.230 | 3470.167 | -0.340 | -0.160 |
| 58. | 6401.432 | -0.00 | .090  | 3567.544 | .220   | -0.150 | 3469.870 | -0.230 | -0.080 |
| 59. | 6401.430 | -0.00 | .050  | 3567.722 | .110   | -0.080 | 3469.691 | -0.110 | -0.000 |
| 60. | 6401.429 | 0.00  | 0.00  | 3567.722 | .000   | 0.000  | 3469.691 | 0.000  | 0.000  |
| 61. | 6401.430 | 0.00  | -0.05 | 3567.544 | -.110  | .150   | 3469.870 | .230   | .160   |
| 62. | 6401.432 | 0.00  | -0.10 | 3567.248 | -.220  | .230   | 3470.167 | .340   | .230   |
| 63. | 6401.436 | 0.00  | -0.14 | 3566.835 | -.330  | .310   | 3470.582 | .450   | .310   |
| 64. | 6401.441 | 0.00  | -0.19 | 3566.307 | -.430  | .360   | 3471.112 | .560   | .350   |
| 65. | 6401.446 | 0.00  | -0.23 | 3565.665 | -.540  | .460   | 3471.756 | .660   | .400   |
| 66. | 6401.456 | 0.00  | -0.28 | 3564.913 | -.640  | .530   | 3472.511 | .770   | .540   |
| 67. | 6401.466 | 0.00  | -0.32 | 3564.052 | -.740  | .600   | 3473.375 | .870   | .610   |
| 68. | 6401.477 | 0.01  | -0.37 | 3563.087 | -.840  | .670   | 3474.343 | .960   | .660   |
| 69. | 6401.486 | 0.01  | -0.41 | 3562.021 | -.940  | .740   | 3475.412 | 1.060  | .750   |
| 70. | 6401.501 | 0.01  | -0.45 | 3560.855 | -1.030 | .810   | 3476.578 | 1.180  | .820   |
| 71. | 6401.514 | 0.01  | -0.49 | 3559.606 | -1.110 | .870   | 3477.835 | 1.230  | .860   |
| 72. | 6401.529 | 0.01  | -0.53 | 3558.260 | -1.200 | .920   | 3479.177 | 1.300  | .940   |
| 73. | 6401.543 | 0.01  | -0.57 | 3556.851 | -1.270 | .950   | 3480.596 | 1.360  | 1.000  |
| 74. | 6401.556 | 0.01  | -0.60 | 3555.363 | -1.340 | 1.000  | 3482.091 | 1.440  | 1.060  |
| 75. | 6401.573 | 0.01  | -0.64 | 3553.811 | -1.400 | 1.050  | 3483.647 | 1.500  | 1.110  |
| 76. | 6401.588 | 0.01  | -0.67 | 3552.206 | -1.460 | 1.100  | 3485.256 | 1.570  | 1.160  |
| 77. | 6401.603 | 0.01  | -0.70 | 3550.557 | -1.510 | 1.150  | 3486.909 | 1.620  | 1.200  |
| 78. | 6401.616 | 0.01  | -0.73 | 3548.870 | -1.560 | 1.200  | 3488.592 | 1.670  | 1.240  |
| 79. | 6401.632 | 0.01  | -0.75 | 3547.184 | -1.570 | 1.240  | 3490.291 | 1.690  | 1.260  |
| 80. | 6401.645 | 0.01  | -0.76 | 3545.490 | -1.560 | 1.320  | 3491.980 | 1.590  | 1.300  |
| 81. | 6401.658 | 0.01  | -0.80 | 3543.819 | -1.560 | 1.360  | 3493.662 | 1.560  | 1.360  |
| 82. | 6401.670 | 0.01  | -0.82 | 3542.195 | -1.470 | 1.420  | 3495.352 | 1.410  | 1.440  |
| 83. | 6401.680 | 0.01  | -0.86 | 3540.648 | -1.350 | 1.460  | 3497.044 | 1.240  | 1.470  |
| 84. | 6401.690 | 0.00  | -0.87 | 3539.215 | -1.260 | 1.470  | 3498.734 | 1.060  | 1.440  |
| 85. | 6401.698 | 0.00  | -0.88 | 3537.835 | -1.100 | 1.460  | 3499.424 | .890   | 1.400  |
| 86. | 6401.705 | 0.00  | -0.89 | 3536.542 | -.660  | 1.470  | 3500.114 | .630   | 1.360  |
| 87. | 6401.710 | 0.00  | -0.89 | 3535.366 | -.320  | 1.460  | 3500.804 | .330   | 1.300  |
| 88. | 6401.716 | 0.00  | -0.90 | 3534.242 | 0.000  | 1.490  | 3501.494 | 0.000  | 1.240  |
| 89. | 6401.716 | 0.00  | -0.90 | 3533.166 | 0.000  | 1.490  | 3502.184 | 0.000  | 1.180  |
| 90. | 6401.717 | 0.00  | -0.90 | 3532.142 | 0.000  | 1.490  | 3502.874 | 0.000  | 1.120  |
| 91. | 6401.716 | -0.00 | -0.90 | 3531.166 | .620   | 1.490  | 3503.564 | 0.330  | 1.060  |
| 92. | 6401.714 | -0.00 | -0.89 | 3530.242 | 1.100  | 1.470  | 3504.254 | 0.890  | 1.000  |
| 93. | 6401.710 | -0.00 | -0.89 | 3529.366 | 1.260  | 1.460  | 3504.944 | 1.260  | 0.940  |
| 94. | 6401.705 | -0.00 | -0.87 | 3528.542 | 1.390  | 1.440  | 3505.634 | 1.440  | 0.880  |
| 95. | 6401.698 | -0.00 | -0.86 | 3527.835 | 1.470  | 1.420  | 3506.324 | 1.470  | 0.820  |
| 96. | 6401.690 | -0.00 | -0.84 | 3527.184 | 1.560  | 1.360  | 3507.014 | 1.560  | 0.760  |
| 97. | 6401.680 | -0.01 | -0.82 | 3526.542 | 1.600  | 1.300  | 3507.704 | 1.600  | 0.700  |
| 98. | 6401.670 | -0.01 | -0.80 | 3525.940 | 1.560  | 1.240  | 3508.394 | 1.560  | 0.640  |
| 99. | 6401.656 | -0.01 | -0.78 | 3525.366 | 1.500  | 1.180  | 3509.084 | 1.500  | 0.580  |

111-PLANE GADOLINIUM GALLIUM GARNET

|      | LPMI12 | LPMI13 | FSPVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 0.000  | -0.10  | 3547.104 | 1.570   | 1.290   | 3430.291 | -1.600  | 1.200   |
| 101. | 0.000  | -0.10  | 3548.078 | 1.560   | 1.240   | 3488.592 | -1.590  | 1.250   |
| 102. | 0.000  | -0.10  | 3550.557 | 1.540   | 1.200   | 3486.909 | -1.570  | 1.210   |
| 103. | 0.000  | -0.10  | 3552.206 | 1.510   | 1.150   | 3485.256 | -1.540  | 1.160   |
| 104. | 0.000  | -0.10  | 3553.811 | 1.460   | 1.100   | 3483.647 | -1.490  | 1.110   |
| 105. | 0.000  | -0.10  | 3555.363 | 1.400   | 1.050   | 3482.091 | -1.440  | 1.060   |
| 106. | 0.000  | -0.10  | 3556.851 | 1.340   | 0.990   | 3480.546 | -1.380  | 1.000   |
| 107. | 0.000  | -0.10  | 3558.268 | 1.270   | 0.930   | 3479.177 | -1.330  | 0.940   |
| 108. | 0.000  | -0.10  | 3559.606 | 1.200   | 0.870   | 3477.835 | -1.280  | 0.880   |
| 109. | 0.000  | -0.10  | 3560.859 | 1.110   | 0.810   | 3476.576 | -1.230  | 0.820   |
| 110. | 0.000  | -0.10  | 3562.021 | 1.030   | 0.740   | 3475.412 | -1.180  | 0.760   |
| 111. | 0.000  | -0.10  | 3563.087 | 0.940   | 0.670   | 3474.343 | -1.130  | 0.690   |
| 112. | 0.000  | -0.10  | 3564.052 | 0.840   | 0.600   | 3473.375 | -1.080  | 0.610   |
| 113. | 0.000  | -0.10  | 3564.913 | 0.740   | 0.530   | 3472.511 | -1.030  | 0.540   |
| 114. | 0.000  | -0.10  | 3565.665 | 0.640   | 0.460   | 3471.756 | -0.980  | 0.480   |
| 115. | 0.000  | -0.10  | 3566.307 | 0.540   | 0.380   | 3471.112 | -0.930  | 0.390   |
| 116. | 0.000  | -0.10  | 3566.835 | 0.430   | 0.310   | 3470.582 | -0.880  | 0.310   |
| 117. | 0.000  | -0.10  | 3567.248 | 0.330   | 0.230   | 3470.167 | -0.830  | 0.230   |
| 118. | 0.000  | -0.10  | 3567.544 | 0.220   | 0.150   | 3469.870 | -0.780  | 0.150   |
| 119. | 0.000  | -0.10  | 3567.722 | 0.110   | 0.080   | 3469.691 | -0.730  | 0.080   |
| 120. | 0.000  | 0.000  | 3567.782 | 0.000   | 0.000   | 3469.631 | 0.000   | -0.000  |
| 121. | 0.000  | 0.000  | 3567.722 | -0.110  | -0.060  | 3469.691 | 0.110   | -0.060  |
| 122. | 0.000  | 0.000  | 3567.544 | -0.220  | -0.150  | 3469.870 | 0.230   | -0.150  |
| 123. | 0.000  | 0.000  | 3567.248 | -0.330  | -0.230  | 3470.167 | 0.340   | -0.230  |
| 124. | 0.000  | 0.000  | 3566.835 | -0.430  | -0.310  | 3470.582 | 0.450   | -0.310  |
| 125. | 0.000  | 0.000  | 3566.307 | -0.540  | -0.380  | 3471.112 | 0.560   | -0.380  |
| 126. | 0.000  | 0.000  | 3565.665 | -0.640  | -0.460  | 3471.756 | 0.660   | -0.460  |
| 127. | 0.000  | 0.000  | 3564.913 | -0.740  | -0.530  | 3472.511 | 0.770   | -0.530  |
| 128. | 0.000  | 0.000  | 3564.052 | -0.840  | -0.600  | 3473.375 | 0.870   | -0.600  |
| 129. | 0.000  | 0.000  | 3563.087 | -0.940  | -0.670  | 3474.343 | 0.960   | -0.670  |
| 130. | 0.000  | 0.000  | 3562.021 | -1.030  | -0.740  | 3475.412 | 1.060   | -0.740  |
| 131. | 0.000  | 0.000  | 3560.859 | -1.110  | -0.810  | 3476.576 | 1.140   | -0.810  |
| 132. | 0.000  | 0.000  | 3559.606 | -1.200  | -0.870  | 3477.835 | 1.230   | -0.870  |
| 133. | 0.000  | 0.000  | 3558.268 | -1.270  | -0.930  | 3479.177 | 1.300   | -0.940  |
| 134. | 0.000  | 0.000  | 3556.851 | -1.340  | -0.990  | 3480.596 | 1.360   | -1.000  |
| 135. | 0.000  | 0.000  | 3555.363 | -1.400  | -1.050  | 3482.091 | 1.440   | -1.060  |
| 136. | 0.000  | 0.000  | 3553.811 | -1.460  | -1.100  | 3483.647 | 1.490   | -1.110  |
| 137. | 0.000  | 0.000  | 3552.206 | -1.510  | -1.150  | 3485.256 | 1.540   | -1.160  |
| 138. | 0.000  | 0.000  | 3550.557 | -1.540  | -1.200  | 3486.909 | 1.570   | -1.210  |
| 139. | 0.000  | 0.000  | 3548.078 | -1.560  | -1.240  | 3488.592 | 1.590   | -1.250  |
| 140. | 0.000  | 0.000  | 3547.104 | -1.570  | -1.250  | 3490.291 | 1.600   | -1.260  |
| 141. | 0.000  | 0.000  | 3545.490 | -1.560  | -1.240  | 3491.986 | 1.590   | -1.250  |
| 142. | 0.000  | 0.000  | 3543.819 | -1.530  | -1.210  | 3493.662 | 1.560   | -1.230  |
| 143. | 0.000  | 0.000  | 3542.195 | -1.470  | -1.150  | 3495.289 | 1.500   | -1.160  |
| 144. | 0.000  | 0.000  | 3540.646 | -1.390  | -1.070  | 3496.839 | 1.410   | -1.080  |
| 145. | 0.000  | 0.000  | 3539.215 | -1.290  | -0.970  | 3498.274 | 1.290   | -0.980  |
| 146. | 0.000  | 0.000  | 3537.935 | -1.190  | -0.870  | 3499.552 | 1.190   | -0.980  |
| 147. | 0.000  | 0.000  | 3536.866 | -1.100  | -0.780  | 3500.624 | 1.100   | -0.980  |
| 148. | 0.000  | 0.000  | 3536.054 | -0.990  | -0.680  | 3501.440 | 0.990   | -0.980  |
| 149. | 0.000  | 0.000  | 3535.542 | -0.890  | -0.590  | 3501.952 | 0.890   | -0.980  |

111-PLANE GADOLINIUM GALLIUM GARNET

|      | LNGL     | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 6401.717 | 0.000  | .900   | 3535.366 | -0.000  | -1.450  | 3502.127 | -0.000  | -1.460  |
| 151. | 6401.716 | -0.000 | .900   | 3535.542 | .320    | -1.490  | 3501.952 | -0.330  | -1.460  |
| 152. | 6401.714 | -0.000 | .890   | 3536.054 | .620    | -1.460  | 3501.640 | -0.630  | -1.460  |
| 153. | 6401.710 | -0.000 | .890   | 3536.866 | .860    | -1.470  | 3498.624 | -0.890  | -1.470  |
| 154. | 6401.705 | -0.000 | .880   | 3537.939 | 1.100   | -1.460  | 3499.552 | -1.110  | -1.450  |
| 155. | 6401.698 | -0.000 | .870   | 3539.215 | 1.260   | -1.440  | 3498.274 | -1.280  | -1.440  |
| 156. | 6401.690 | -0.000 | .860   | 3540.646 | 1.390   | -1.420  | 3496.839 | -1.410  | -1.410  |
| 157. | 6401.680 | -0.010 | .840   | 3542.195 | 1.470   | -1.390  | 3495.289 | -1.500  | -1.390  |
| 158. | 6401.670 | -0.010 | .820   | 3543.619 | 1.530   | -1.360  | 3493.662 | -1.560  | -1.360  |
| 159. | 6401.658 | -0.010 | .800   | 3545.430 | 1.566   | -1.320  | 3491.988 | -1.590  | -1.330  |
| 160. | 6401.645 | -0.010 | .780   | 3547.184 | 1.578   | -1.290  | 3490.291 | -1.600  | -1.290  |
| 161. | 6401.632 | -0.010 | .750   | 3548.876 | 1.560   | -1.240  | 3488.592 | -1.590  | -1.250  |
| 162. | 6401.610 | -0.010 | .730   | 3550.556 | 1.540   | -1.200  | 3486.909 | -1.570  | -1.210  |
| 163. | 6401.603 | -0.010 | .700   | 3552.206 | 1.510   | -1.150  | 3485.256 | -1.540  | -1.160  |
| 164. | 6401.588 | -0.010 | .670   | 3553.811 | 1.460   | -1.100  | 3483.647 | -1.490  | -1.110  |
| 165. | 6401.573 | -0.010 | .640   | 3555.363 | 1.400   | -1.050  | 3482.091 | -1.440  | -1.060  |
| 166. | 6401.558 | -0.010 | .600   | 3556.851 | 1.340   | -0.990  | 3480.598 | -1.380  | -1.000  |
| 167. | 6401.543 | -0.010 | .570   | 3558.266 | 1.270   | -0.930  | 3479.177 | -1.300  | -0.940  |
| 168. | 6401.529 | -0.010 | .530   | 3559.606 | 1.200   | -0.870  | 3477.835 | -1.230  | -0.860  |
| 169. | 6401.514 | -0.010 | .490   | 3560.859 | 1.110   | -0.810  | 3476.578 | -1.140  | -0.820  |
| 170. | 6401.501 | -0.010 | .450   | 3562.021 | 1.030   | -0.740  | 3475.412 | -1.060  | -0.750  |
| 171. | 6401.486 | -0.010 | .410   | 3563.087 | .940    | -0.670  | 3474.343 | -0.960  | -0.680  |
| 172. | 6401.477 | -0.010 | .370   | 3564.052 | .840    | -0.600  | 3473.375 | -0.870  | -0.610  |
| 173. | 6401.466 | -0.010 | .320   | 3564.913 | .740    | -0.530  | 3472.511 | -0.770  | -0.540  |
| 174. | 6401.456 | -0.000 | .280   | 3565.665 | .640    | -0.460  | 3471.756 | -0.660  | -0.460  |
| 175. | 6401.446 | -0.000 | .230   | 3566.307 | .540    | -0.360  | 3471.112 | -0.560  | -0.350  |
| 176. | 6401.441 | -0.000 | .190   | 3566.835 | .430    | -0.310  | 3470.582 | -0.450  | -0.310  |
| 177. | 6401.436 | -0.000 | .140   | 3567.248 | .330    | -0.230  | 3470.167 | -0.340  | -0.230  |
| 178. | 6401.432 | -0.000 | .090   | 3567.544 | .220    | -0.150  | 3469.870 | -0.230  | -0.160  |
| 179. | 6401.430 | -0.000 | .050   | 3567.722 | .110    | -0.060  | 3469.691 | -0.110  | -0.060  |
| 180. | 6401.429 | 0.000  | 0.000  | 3567.782 | -0.000  | -0.000  | 3469.631 | 0.000   | 0.000   |

110-PLANE GADOLINIUM GALLIUM GARNET

|     | LHGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SRVEL    | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 0.  | 6419.387 | 0.000  | -0.000 | 3502.654 | 1.520  | -0.000 | 3502.653 | -1.520 | -0.000 |
| 1.  | 6419.344 | -0.040 | -0.000 | 3504.285 | 1.540  | -0.000 | 3501.102 | -1.390 | -0.000 |
| 2.  | 6419.211 | -0.090 | -0.000 | 3505.934 | 1.550  | -0.000 | 3499.693 | -1.250 | -0.000 |
| 3.  | 6418.988 | -0.140 | -0.000 | 3507.598 | 1.560  | -0.000 | 3498.436 | -1.110 | -0.000 |
| 4.  | 6418.670 | -0.190 | -0.000 | 3509.276 | 1.570  | -0.000 | 3497.335 | -0.960 | -0.000 |
| 5.  | 6418.256 | -0.240 | -0.000 | 3510.964 | 1.580  | -0.000 | 3496.394 | -0.800 | -0.000 |
| 6.  | 6417.749 | -0.290 | -0.000 | 3512.662 | 1.590  | -0.000 | 3495.627 | -0.640 | -0.000 |
| 7.  | 6417.142 | -0.340 | -0.000 | 3514.366 | 1.590  | -0.000 | 3495.027 | -0.480 | -0.000 |
| 8.  | 6416.436 | -0.390 | -0.000 | 3516.076 | 1.600  | -0.000 | 3494.601 | -0.320 | -0.000 |
| 9.  | 6415.636 | -0.440 | -0.000 | 3517.788 | 1.600  | -0.000 | 3494.351 | -0.150 | -0.000 |
| 10. | 6414.736 | -0.490 | -0.000 | 3519.501 | 1.600  | -0.000 | 3494.278 | 0.020  | -0.000 |
| 11. | 6413.739 | -0.530 | -0.000 | 3521.213 | 1.590  | -0.000 | 3494.363 | 0.180  | -0.000 |
| 12. | 6412.647 | -0.580 | -0.000 | 3522.921 | 1.590  | -0.000 | 3494.605 | 0.350  | -0.000 |
| 13. | 6411.462 | -0.630 | -0.000 | 3524.623 | 1.560  | -0.000 | 3495.123 | 0.510  | -0.000 |
| 14. | 6410.185 | -0.680 | -0.000 | 3526.316 | 1.570  | -0.000 | 3495.756 | 0.670  | -0.000 |
| 15. | 6408.820 | -0.720 | -0.000 | 3528.003 | 1.560  | -0.000 | 3496.559 | 0.830  | -0.000 |
| 16. | 6407.368 | -0.760 | -0.000 | 3529.677 | 1.550  | -0.000 | 3497.529 | 0.990  | -0.000 |
| 17. | 6405.835 | -0.810 | -0.000 | 3531.337 | 1.540  | -0.000 | 3498.663 | 1.140  | -0.000 |
| 18. | 6404.223 | -0.850 | -0.000 | 3532.981 | 1.520  | -0.000 | 3499.954 | 1.280  | -0.000 |
| 19. | 6402.537 | -0.880 | -0.000 | 3534.607 | 1.500  | -0.000 | 3501.396 | 1.420  | -0.000 |
| 20. | 6400.781 | -0.920 | -0.000 | 3536.214 | 1.480  | -0.000 | 3502.983 | 1.550  | -0.000 |
| 21. | 6398.962 | -0.950 | -0.000 | 3537.795 | 1.460  | -0.000 | 3504.706 | 1.680  | -0.000 |
| 22. | 6397.083 | -0.980 | -0.000 | 3539.361 | 1.440  | -0.000 | 3506.554 | 1.790  | -0.000 |
| 23. | 6395.151 | -1.000 | -0.000 | 3540.896 | 1.410  | -0.000 | 3508.531 | 1.900  | -0.000 |
| 24. | 6393.172 | -1.030 | -0.000 | 3542.407 | 1.390  | -0.000 | 3510.634 | 2.000  | -0.000 |
| 25. | 6391.152 | -1.050 | -0.000 | 3543.887 | 1.360  | -0.000 | 3512.797 | 2.080  | -0.000 |
| 26. | 6389.098 | -1.060 | -0.000 | 3545.336 | 1.330  | -0.000 | 3515.071 | 2.160  | -0.000 |
| 27. | 6387.016 | -1.080 | -0.000 | 3546.753 | 1.300  | -0.000 | 3517.423 | 2.230  | -0.000 |
| 28. | 6384.915 | -1.090 | -0.000 | 3548.136 | 1.260  | -0.000 | 3519.842 | 2.290  | -0.000 |
| 29. | 6382.801 | -1.090 | -0.000 | 3549.483 | 1.230  | -0.000 | 3522.338 | 2.330  | -0.000 |
| 30. | 6380.681 | -1.090 | -0.000 | 3550.793 | 1.190  | -0.000 | 3524.837 | 2.360  | -0.000 |
| 31. | 6378.564 | -1.090 | -0.000 | 3552.063 | 1.160  | -0.000 | 3527.368 | 2.380  | -0.000 |
| 32. | 6376.457 | -1.080 | -0.000 | 3553.293 | 1.120  | -0.000 | 3529.957 | 2.390  | -0.000 |
| 33. | 6374.368 | -1.070 | -0.000 | 3554.481 | 1.080  | -0.000 | 3532.533 | 2.390  | -0.000 |
| 34. | 6372.305 | -1.050 | -0.000 | 3555.626 | 1.040  | -0.000 | 3535.103 | 2.380  | -0.000 |
| 35. | 6370.275 | -1.040 | -0.000 | 3556.726 | 0.990  | -0.000 | 3537.654 | 2.350  | -0.000 |
| 36. | 6368.266 | -1.020 | -0.000 | 3557.780 | 0.950  | -0.000 | 3540.173 | 2.320  | -0.000 |
| 37. | 6366.347 | -0.990 | -0.000 | 3558.787 | 0.910  | -0.000 | 3542.648 | 2.270  | -0.000 |
| 38. | 6364.464 | -0.960 | -0.000 | 3559.746 | 0.860  | -0.000 | 3545.067 | 2.210  | -0.000 |
| 39. | 6362.646 | -0.920 | -0.000 | 3560.655 | 0.810  | -0.000 | 3547.418 | 2.140  | -0.000 |
| 40. | 6360.899 | -0.880 | -0.000 | 3561.513 | 0.770  | -0.000 | 3549.688 | 2.060  | -0.000 |
| 41. | 6359.211 | -0.840 | -0.000 | 3562.320 | 0.720  | -0.000 | 3551.868 | 1.970  | -0.000 |
| 42. | 6357.646 | -0.790 | -0.000 | 3563.074 | 0.670  | -0.000 | 3553.944 | 1.870  | -0.000 |
| 43. | 6356.137 | -0.750 | -0.000 | 3563.775 | 0.620  | -0.000 | 3555.908 | 1.760  | -0.000 |
| 44. | 6354.764 | -0.690 | -0.000 | 3564.421 | 0.570  | -0.000 | 3557.750 | 1.640  | -0.000 |
| 45. | 6353.475 | -0.640 | -0.000 | 3565.012 | 0.520  | -0.000 | 3559.459 | 1.510  | -0.000 |
| 46. | 6352.295 | -0.590 | -0.000 | 3565.566 | 0.470  | -0.000 | 3561.028 | 1.380  | -0.000 |
| 47. | 6351.229 | -0.520 | -0.000 | 3566.027 | 0.420  | -0.000 | 3562.448 | 1.240  | -0.000 |
| 48. | 6350.282 | -0.460 | -0.000 | 3566.450 | 0.360  | -0.000 | 3563.713 | 1.090  | -0.000 |
| 49. | 6349.456 | -0.390 | -0.000 | 3566.815 | 0.310  | -0.000 | 3564.816 | 0.940  | -0.000 |

BULK

110-PLANE GADOLINIUM GALLIUM GARNET

BULK

|     | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 50. | 6348.761 | -1.330 | 0.000  | 3567.122 | .266   | -0.000 | 3565.751 | .760   | -0.000 |
| 51. | 6348.193 | -.260  | 0.000  | 3567.371 | .200   | 0.000  | 3566.513 | .620   | -0.000 |
| 52. | 6347.756 | -.190  | 0.000  | 3567.561 | .150   | 0.000  | 3567.100 | .460   | -0.000 |
| 53. | 6347.453 | -.120  | 0.000  | 3567.693 | .090   | 0.000  | 3567.507 | .290   | -0.000 |
| 54. | 6347.286 | -.050  | 0.000  | 3567.766 | .040   | -0.000 | 3567.732 | .040   | -0.000 |
| 55. | 6347.254 | .020   | 0.000  | 3567.780 | -.010  | -0.000 | 3567.775 | -.010  | -0.000 |
| 56. | 6347.357 | .090   | 0.000  | 3567.735 | -.070  | -0.000 | 3567.636 | -.210  | -0.000 |
| 57. | 6347.596 | .160   | 0.000  | 3567.631 | -.120  | -0.000 | 3567.314 | -.360  | -0.000 |
| 58. | 6347.970 | .230   | 0.000  | 3567.466 | -.160  | -0.000 | 3566.612 | -.540  | -0.000 |
| 59. | 6348.476 | .300   | 0.000  | 3567.247 | -.230  | -0.000 | 3566.132 | -.710  | -0.000 |
| 60. | 6349.113 | .360   | 0.000  | 3566.967 | -.280  | 0.000  | 3565.278 | -.870  | -0.000 |
| 61. | 6349.878 | .430   | 0.000  | 3566.629 | -.340  | 0.000  | 3564.254 | -1.020 | -0.000 |
| 62. | 6350.767 | .490   | 0.000  | 3566.234 | -.390  | -0.000 | 3563.065 | -1.170 | -0.000 |
| 63. | 6351.777 | .550   | 0.000  | 3565.781 | -.440  | -0.000 | 3561.717 | -1.310 | -0.000 |
| 64. | 6352.904 | .610   | 0.000  | 3565.272 | -.490  | -0.000 | 3560.218 | -1.450 | -0.000 |
| 65. | 6354.142 | .670   | 0.000  | 3564.707 | -.550  | -0.000 | 3558.573 | -1.580 | -0.000 |
| 66. | 6355.487 | .720   | -0.000 | 3564.087 | -.600  | 0.000  | 3556.793 | -1.700 | -0.000 |
| 67. | 6356.932 | .770   | 0.000  | 3563.411 | -.650  | -0.000 | 3554.886 | -1.820 | -0.000 |
| 68. | 6358.473 | .820   | 0.000  | 3562.682 | -.700  | 0.000  | 3552.861 | -1.920 | -0.000 |
| 69. | 6360.101 | .860   | 0.000  | 3561.900 | -.740  | -0.000 | 3550.729 | -2.020 | -0.000 |
| 70. | 6361.812 | .900   | 0.000  | 3561.066 | -.790  | -0.000 | 3548.580 | -2.100 | -0.000 |
| 71. | 6363.598 | .940   | 0.000  | 3560.181 | -.840  | -0.000 | 3546.416 | -2.180 | -0.000 |
| 72. | 6365.451 | .970   | 0.000  | 3559.246 | -.890  | -0.000 | 3544.248 | -2.240 | -0.000 |
| 73. | 6367.364 | 1.000  | 0.000  | 3558.262 | -.930  | 0.000  | 3542.078 | -2.300 | -0.000 |
| 74. | 6369.331 | 1.030  | 0.000  | 3557.230 | -.970  | -0.000 | 3539.908 | -2.340 | -0.000 |
| 75. | 6371.342 | 1.050  | -0.000 | 3556.151 | -1.020 | -0.000 | 3537.748 | -2.370 | -0.000 |
| 76. | 6373.391 | 1.060  | 0.000  | 3555.027 | -1.060 | -0.000 | 3535.580 | -2.390 | -0.000 |
| 77. | 6375.465 | 1.070  | 0.000  | 3553.859 | -1.100 | 0.000  | 3533.413 | -2.390 | -0.000 |
| 78. | 6377.568 | 1.080  | 0.000  | 3552.649 | -1.140 | -0.000 | 3531.248 | -2.370 | -0.000 |
| 79. | 6379.681 | 1.090  | 0.000  | 3551.397 | -1.180 | 0.000  | 3529.038 | -2.370 | -0.000 |
| 80. | 6381.801 | 1.090  | -0.000 | 3550.106 | -1.210 | -0.000 | 3526.780 | -2.350 | -0.000 |
| 81. | 6383.916 | 1.090  | 0.000  | 3548.776 | -1.250 | -0.000 | 3524.485 | -2.310 | -0.000 |
| 82. | 6386.027 | 1.080  | 0.000  | 3547.410 | -1.260 | -0.000 | 3522.157 | -2.260 | -0.000 |
| 83. | 6388.118 | 1.070  | -0.000 | 3546.009 | -1.310 | -0.000 | 3519.800 | -2.190 | -0.000 |
| 84. | 6390.186 | 1.050  | 0.000  | 3544.575 | -1.340 | -0.000 | 3517.416 | -2.120 | -0.000 |
| 85. | 6392.223 | 1.040  | 0.000  | 3543.104 | -1.370 | -0.000 | 3515.000 | -2.040 | -0.000 |
| 86. | 6394.222 | 1.020  | -0.000 | 3541.613 | -1.400 | -0.000 | 3512.561 | -1.950 | -0.000 |
| 87. | 6396.177 | .990   | 0.000  | 3540.090 | -1.430 | -0.000 | 3510.100 | -1.840 | -0.000 |
| 88. | 6398.082 | .960   | 0.000  | 3538.540 | -1.450 | -0.000 | 3507.625 | -1.730 | -0.000 |
| 89. | 6399.930 | .930   | 0.000  | 3536.965 | -1.470 | 0.000  | 3505.130 | -1.610 | -0.000 |
| 90. | 6401.717 | .900   | 0.000  | 3535.368 | -1.490 | 0.000  | 3502.610 | -1.480 | -0.000 |
| 91. | 6403.436 | .860   | 0.000  | 3533.751 | -1.510 | -0.000 | 3500.060 | -1.350 | -0.000 |
| 92. | 6405.083 | .830   | -0.000 | 3532.115 | -1.530 | 0.000  | 3497.485 | -1.210 | 0.000  |
| 93. | 6406.655 | .780   | 0.000  | 3530.462 | -1.540 | -0.000 | 3494.844 | -1.060 | -0.000 |
| 94. | 6408.145 | .740   | 0.000  | 3528.795 | -1.560 | 0.000  | 3492.134 | -.910  | -0.000 |
| 95. | 6409.552 | .700   | -0.000 | 3527.115 | -1.570 | -0.000 | 3489.360 | -.750  | -0.000 |
| 96. | 6410.871 | .650   | -0.000 | 3525.424 | -1.580 | -0.000 | 3486.520 | -.590  | -0.000 |
| 97. | 6412.099 | .610   | 0.000  | 3523.725 | -1.590 | -0.000 | 3483.610 | -.430  | -0.000 |
| 98. | 6413.236 | .560   | 0.000  | 3522.019 | -1.590 | -0.000 | 3480.640 | -.260  | -0.000 |
| 99. | 6414.277 | .510   | 0.000  | 3520.305 | -1.600 | 0.000  | 3477.610 | -.090  | -0.000 |

110-PLANE GADOLINIUM GALLIUM GARNET

BULK

|      | LNGL     | LNGL12 | LNGL13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 100. | 6415.223 | .460   | -0.000 | 3518.597 | -1.600 | 0.000  | 3494.294 | .670   | -0.000 |
| 101. | 6416.071 | .410   | -0.000 | 3516.884 | -1.600 | 0.000  | 3494.461 | .240   | -0.000 |
| 102. | 6416.822 | .360   | -0.000 | 3515.173 | -1.600 | 0.000  | 3494.604 | .400   | -0.000 |
| 103. | 6417.475 | .310   | 0.000  | 3513.466 | -1.590 | 0.000  | 3495.322 | .670   | -0.000 |
| 104. | 6418.030 | .260   | -0.000 | 3511.764 | -1.590 | 0.000  | 3496.013 | .730   | -0.000 |
| 105. | 6418.688 | .210   | 0.000  | 3510.071 | -1.580 | 0.000  | 3496.672 | .680   | -0.000 |
| 106. | 6419.117 | .160   | 0.000  | 3508.386 | -1.570 | 0.000  | 3497.896 | 1.040  | -0.000 |
| 107. | 6419.117 | .110   | 0.000  | 3506.718 | -1.560 | 0.000  | 3499.000 | 1.100  | -0.000 |
| 108. | 6419.293 | .070   | 0.000  | 3505.061 | -1.540 | 0.000  | 3500.418 | 1.320  | -0.000 |
| 109. | 6419.378 | .020   | 0.000  | 3503.421 | -1.530 | 0.000  | 3501.904 | 1.460  | -0.000 |
| 110. | 6419.378 | .020   | 0.000  | 3501.799 | -1.510 | 0.000  | 3503.530 | 1.590  | 0.000  |
| 111. | 6419.289 | .070   | 0.000  | 3500.198 | -1.490 | 0.000  | 3505.289 | 1.710  | 0.000  |
| 112. | 6419.121 | .110   | 0.000  | 3498.619 | -1.470 | 0.000  | 3507.171 | 1.620  | 0.000  |
| 113. | 6418.877 | .140   | 0.000  | 3497.064 | -1.450 | 0.000  | 3509.169 | 1.920  | 0.000  |
| 114. | 6418.559 | .180   | 0.000  | 3495.535 | -1.420 | 0.000  | 3511.273 | 2.010  | 0.000  |
| 115. | 6418.173 | .210   | -0.000 | 3494.034 | -1.400 | 0.000  | 3513.471 | 2.090  | 0.000  |
| 116. | 6417.723 | .250   | 0.000  | 3492.563 | -1.370 | 0.000  | 3515.755 | 2.170  | 0.000  |
| 117. | 6417.214 | .270   | 0.000  | 3491.124 | -1.340 | 0.000  | 3518.112 | 2.230  | 0.000  |
| 118. | 6416.652 | .300   | 0.000  | 3489.719 | -1.310 | 0.000  | 3520.532 | 2.260  | 0.000  |
| 119. | 6416.040 | .320   | 0.000  | 3488.349 | -1.270 | 0.000  | 3523.002 | 2.320  | 0.000  |
| 120. | 6415.367 | .340   | 0.000  | 3487.016 | -1.240 | 0.000  | 3525.512 | 2.350  | 0.000  |
| 121. | 6414.695 | .360   | 0.000  | 3485.722 | -1.200 | 0.000  | 3528.048 | 2.370  | 0.000  |
| 122. | 6413.973 | .380   | 0.000  | 3484.468 | -1.160 | 0.000  | 3530.600 | 2.370  | 0.000  |
| 123. | 6413.225 | .390   | 0.000  | 3483.256 | -1.120 | 0.000  | 3533.153 | 2.370  | 0.000  |
| 124. | 6412.458 | .400   | 0.000  | 3482.087 | -1.080 | 0.000  | 3535.697 | 2.350  | 0.000  |
| 125. | 6411.677 | .400   | 0.000  | 3480.964 | -1.040 | 0.000  | 3538.216 | 2.320  | 0.000  |
| 126. | 6410.885 | .400   | 0.000  | 3479.886 | -.990  | 0.000  | 3540.705 | 2.280  | 0.000  |
| 127. | 6410.100 | .400   | 0.000  | 3478.856 | -.950  | 0.000  | 3543.146 | 2.230  | 0.000  |
| 128. | 6409.315 | .400   | 0.000  | 3477.876 | -.900  | 0.000  | 3545.526 | 2.170  | 0.000  |
| 129. | 6408.540 | .390   | 0.000  | 3476.945 | -.850  | 0.000  | 3547.840 | 2.100  | 0.000  |
| 130. | 6407.781 | .380   | 0.000  | 3476.066 | -.810  | 0.000  | 3550.072 | 2.020  | 0.000  |
| 131. | 6407.044 | .370   | 0.000  | 3475.239 | -.760  | 0.000  | 3552.211 | 1.930  | 0.000  |
| 132. | 6406.333 | .360   | 0.000  | 3474.466 | -.700  | 0.000  | 3554.249 | 1.830  | 0.000  |
| 133. | 6405.655 | .360   | 0.000  | 3473.747 | -.650  | 0.000  | 3556.174 | 1.720  | 0.000  |
| 134. | 6405.013 | .360   | 0.000  | 3473.084 | -.600  | 0.000  | 3557.977 | 1.600  | 0.000  |
| 135. | 6404.412 | .360   | 0.000  | 3472.477 | -.550  | 0.000  | 3559.650 | 1.480  | 0.000  |
| 136. | 6403.857 | .370   | 0.000  | 3471.927 | -.490  | 0.000  | 3561.185 | 1.350  | 0.000  |
| 137. | 6403.352 | .350   | 0.000  | 3471.435 | -.440  | 0.000  | 3562.574 | 1.210  | 0.000  |
| 138. | 6402.899 | .320   | 0.000  | 3471.001 | -.380  | 0.000  | 3563.810 | 1.070  | 0.000  |
| 139. | 6402.503 | .290   | 0.000  | 3470.626 | -.330  | 0.000  | 3564.807 | .920   | 0.000  |
| 140. | 6402.165 | .260   | 0.000  | 3470.310 | -.270  | 0.000  | 3565.600 | .760   | 0.000  |
| 141. | 6401.889 | .230   | 0.000  | 3470.054 | -.210  | 0.000  | 3566.244 | .610   | 0.000  |
| 142. | 6401.677 | .200   | 0.000  | 3469.858 | -.160  | 0.000  | 3567.116 | .450   | 0.000  |
| 143. | 6401.529 | .160   | 0.000  | 3469.723 | -.100  | 0.000  | 3567.513 | .280   | 0.000  |
| 144. | 6401.447 | .130   | 0.000  | 3469.648 | -.040  | 0.000  | 3567.733 | .120   | 0.000  |
| 145. | 6401.431 | .100   | 0.000  | 3469.634 | .020   | 0.000  | 3567.776 | -.040  | 0.000  |
| 146. | 6401.482 | .040   | 0.000  | 3469.680 | .070   | 0.000  | 3567.639 | -.210  | 0.000  |
| 147. | 6401.599 | .000   | 0.000  | 3469.787 | .130   | 0.000  | 3567.326 | -.370  | 0.000  |
| 148. | 6401.781 | .110   | 0.000  | 3469.954 | .190   | 0.000  | 3566.836 | -.530  | 0.000  |
| 149. | 6402.027 | .140   | 0.000  | 3470.182 | .240   | 0.000  | 3566.172 | -.690  | 0.000  |

110-PLANE GADOLINIUM GALLIUM GARNET

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 150. | 6402.336 | .170   | 0.000  | 3470.469 | .300   | 0.000  | 3565.336 | -1.650 | 0.000  |
| 151. | 6402.705 | .200   | 0.000  | 3470.816 | .360   | 0.000  | 3564.338 | -1.000 | 0.000  |
| 152. | 6403.131 | .230   | 0.000  | 3471.222 | .410   | 0.000  | 3563.177 | -1.140 | 0.000  |
| 153. | 6403.612 | .268   | 0.000  | 3471.687 | .470   | 0.000  | 3561.859 | -1.280 | 0.000  |
| 154. | 6404.144 | .290   | 0.000  | 3472.210 | .520   | 0.000  | 3560.393 | -1.420 | 0.000  |
| 155. | 6404.724 | .310   | 0.000  | 3472.790 | .560   | -0.000 | 3558.784 | -1.550 | 0.000  |
| 156. | 6405.367 | .330   | 0.000  | 3473.427 | .630   | 0.000  | 3557.041 | -1.670 | 0.000  |
| 157. | 6406.089 | .350   | 0.000  | 3474.120 | .660   | 0.000  | 3555.172 | -1.780 | 0.000  |
| 158. | 6406.705 | .360   | 0.000  | 3474.867 | .730   | -0.000 | 3553.166 | -1.880 | 0.000  |
| 159. | 6407.430 | .390   | 0.000  | 3475.669 | .760   | 0.000  | 3551.044 | -1.980 | 0.000  |
| 160. | 6408.179 | .400   | 0.000  | 3476.524 | .830   | 0.000  | 3548.904 | -2.070 | 0.000  |
| 161. | 6408.947 | .400   | 0.000  | 3477.450 | .880   | -0.000 | 3546.629 | -2.140 | 0.000  |
| 162. | 6409.728 | .400   | 0.000  | 3478.387 | .930   | 0.000  | 3544.278 | -2.210 | 0.000  |
| 163. | 6410.516 | .400   | 0.000  | 3479.394 | .970   | -0.000 | 3541.864 | -2.260 | 0.000  |
| 164. | 6411.306 | .400   | 0.000  | 3480.449 | 1.020  | 0.000  | 3539.397 | -2.310 | 0.000  |
| 165. | 6412.091 | .400   | 0.000  | 3481.551 | 1.060  | -0.000 | 3536.890 | -2.340 | 0.000  |
| 166. | 6412.865 | .390   | 0.000  | 3482.699 | 1.100  | 0.000  | 3534.356 | -2.360 | 0.000  |
| 167. | 6413.623 | .380   | 0.000  | 3483.891 | 1.140  | 0.000  | 3531.805 | -2.370 | 0.000  |
| 168. | 6414.356 | .370   | 0.000  | 3485.125 | 1.180  | -0.000 | 3529.252 | -2.370 | 0.000  |
| 169. | 6415.065 | .350   | 0.000  | 3486.400 | 1.220  | 0.000  | 3526.707 | -2.360 | 0.000  |
| 170. | 6415.737 | .330   | 0.000  | 3487.715 | 1.260  | 0.000  | 3524.183 | -2.340 | 0.000  |
| 171. | 6416.369 | .310   | 0.000  | 3489.068 | 1.290  | 0.000  | 3521.692 | -2.300 | 0.000  |
| 172. | 6416.955 | .290   | 0.000  | 3490.457 | 1.320  | 0.000  | 3519.247 | -2.260 | 0.000  |
| 173. | 6417.490 | .260   | 0.000  | 3491.880 | 1.350  | 0.000  | 3516.859 | -2.200 | 0.000  |
| 174. | 6417.966 | .230   | 0.000  | 3493.336 | 1.380  | -0.000 | 3514.539 | -2.130 | 0.000  |
| 175. | 6418.385 | .200   | 0.000  | 3494.823 | 1.410  | 0.000  | 3512.299 | -2.050 | 0.000  |
| 176. | 6418.736 | .160   | 0.000  | 3496.339 | 1.440  | 0.000  | 3510.149 | -1.960 | 0.000  |
| 177. | 6419.015 | .120   | 0.000  | 3497.881 | 1.460  | -0.000 | 3508.101 | -1.870 | 0.000  |
| 178. | 6419.220 | .080   | -0.000 | 3499.449 | 1.480  | 0.000  | 3506.162 | -1.780 | 0.000  |
| 179. | 6419.345 | .040   | 0.000  | 3501.041 | 1.500  | -0.000 | 3504.344 | -1.640 | 0.000  |
| 180. | 6419.387 | 0.000  | 0.000  | 3502.653 | 1.520  | 0.000  | 3502.654 | -1.520 | -0.000 |

Z-PLANE (XY-PLANE) GALLIUM ARSENIIDE

BULK

|     | LNGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 4733.978 | 8.000  | 0.000  | 3347.428 | 0.000   | 0.000   | 3347.428 | 0.000   | 0.000   |
| 1.  | 4734.923 | 1.310  | 0.000  | 3347.437 | -0.000  | 0.000   | 3346.850 | -2.620  | 0.000   |
| 2.  | 4737.765 | 3.580  | 0.000  | 3347.464 | 0.000   | 0.000   | 3342.054 | -5.200  | 0.000   |
| 3.  | 4742.400 | 3.860  | 0.000  | 3347.509 | 0.000   | 0.000   | 3335.486 | -7.720  | 0.000   |
| 4.  | 4748.817 | 5.010  | 0.000  | 3347.571 | 0.000   | 0.000   | 3326.343 | -10.140 | 0.000   |
| 5.  | 4756.904 | 6.110  | 0.000  | 3347.651 | 0.000   | 0.000   | 3314.767 | -12.430 | 0.000   |
| 6.  | 4766.549 | 7.110  | 0.000  | 3347.746 | 0.000   | 0.000   | 3300.683 | -14.590 | 0.000   |
| 7.  | 4777.625 | 8.020  | 0.000  | 3347.861 | 0.000   | 0.000   | 3284.832 | -16.540 | 0.000   |
| 8.  | 4789.994 | 8.850  | 0.000  | 3347.990 | 0.000   | 0.000   | 3266.789 | -18.440 | 0.000   |
| 9.  | 4803.514 | 9.510  | 0.000  | 3348.134 | 0.000   | 0.000   | 3246.855 | -20.140 | 0.000   |
| 10. | 4818.081 | 10.100 | 0.000  | 3348.293 | 0.000   | 0.000   | 3225.260 | -21.660 | 0.000   |
| 11. | 4833.430 | 10.590 | 0.000  | 3348.466 | 0.000   | 0.000   | 3202.151 | -23.070 | 0.000   |
| 12. | 4849.542 | 10.990 | 0.000  | 3348.651 | 0.000   | 0.000   | 3177.698 | -24.320 | 0.000   |
| 13. | 4866.241 | 11.290 | 0.000  | 3348.849 | 0.000   | 0.000   | 3152.066 | -25.440 | 0.000   |
| 14. | 4883.399 | 11.500 | 0.000  | 3349.056 | 0.000   | 0.000   | 3125.417 | -26.420 | 0.000   |
| 15. | 4900.896 | 11.640 | 0.000  | 3349.277 | 0.000   | 0.000   | 3097.909 | -27.280 | 0.000   |
| 16. | 4918.618 | 11.710 | 0.000  | 3349.504 | 0.000   | 0.000   | 3069.693 | -28.030 | 0.000   |
| 17. | 4936.460 | 11.720 | 0.000  | 3349.740 | 0.000   | 0.000   | 3040.918 | -28.660 | 0.000   |
| 18. | 4954.326 | 11.660 | 0.000  | 3349.983 | 0.000   | 0.000   | 3011.723 | -29.180 | 0.000   |
| 19. | 4972.124 | 11.550 | 0.000  | 3350.230 | 0.000   | 0.000   | 2982.248 | -29.600 | 0.000   |
| 20. | 4989.774 | 11.390 | 0.000  | 3350.483 | 0.000   | 0.000   | 2952.622 | -29.920 | 0.000   |
| 21. | 5007.198 | 11.190 | 0.000  | 3350.738 | 0.000   | 0.000   | 2922.976 | -30.140 | 0.000   |
| 22. | 5024.328 | 10.950 | 0.000  | 3350.995 | 0.000   | 0.000   | 2893.432 | -30.250 | 0.000   |
| 23. | 5041.099 | 10.670 | 0.000  | 3351.253 | 0.000   | 0.000   | 2864.112 | -30.260 | 0.000   |
| 24. | 5057.455 | 10.360 | 0.000  | 3351.511 | 0.000   | 0.000   | 2835.132 | -30.160 | 0.000   |
| 25. | 5073.341 | 10.010 | 0.000  | 3351.766 | 0.000   | 0.000   | 2806.606 | -29.980 | 0.000   |
| 26. | 5088.708 | 9.650  | 0.000  | 3352.018 | 0.000   | 0.000   | 2778.565 | -29.690 | 0.000   |
| 27. | 5103.514 | 9.250  | 0.000  | 3352.268 | 0.000   | 0.000   | 2751.357 | -29.270 | 0.000   |
| 28. | 5117.717 | 8.840  | 0.000  | 3352.508 | 0.000   | 0.000   | 2724.847 | -28.750 | 0.000   |
| 29. | 5131.280 | 8.400  | 0.000  | 3352.744 | 0.000   | 0.000   | 2699.219 | -28.100 | 0.000   |
| 30. | 5144.170 | 7.950  | 0.000  | 3352.971 | 0.000   | 0.000   | 2674.572 | -27.330 | 0.000   |
| 31. | 5156.357 | 7.490  | 0.000  | 3353.190 | 0.000   | 0.000   | 2651.001 | -26.430 | 0.000   |
| 32. | 5167.812 | 7.000  | 0.000  | 3353.396 | 0.000   | 0.000   | 2628.600 | -25.400 | 0.000   |
| 33. | 5178.511 | 6.510  | 0.000  | 3353.586 | 0.000   | 0.000   | 2607.459 | -24.230 | 0.000   |
| 34. | 5188.432 | 6.000  | 0.000  | 3353.761 | 0.000   | 0.000   | 2587.663 | -22.920 | 0.000   |
| 35. | 5197.553 | 5.490  | 0.000  | 3353.923 | 0.000   | 0.000   | 2569.292 | -21.460 | 0.000   |
| 36. | 5205.850 | 4.960  | 0.000  | 3354.112 | 0.000   | 0.000   | 2552.424 | -19.860 | 0.000   |
| 37. | 5213.329 | 4.430  | 0.000  | 3354.256 | 0.000   | 0.000   | 2537.126 | -18.120 | 0.000   |
| 38. | 5219.954 | 3.890  | 0.000  | 3354.365 | 0.000   | 0.000   | 2523.470 | -16.230 | 0.000   |
| 39. | 5225.719 | 3.350  | 0.000  | 3354.438 | 0.000   | 0.000   | 2511.510 | -14.200 | 0.000   |
| 40. | 5230.613 | 2.800  | 0.000  | 3354.594 | 0.000   | 0.000   | 2501.296 | -12.050 | 0.000   |
| 41. | 5234.632 | 2.240  | 0.000  | 3354.674 | 0.000   | 0.000   | 2492.880 | -9.750  | 0.000   |
| 42. | 5237.763 | 1.680  | 0.000  | 3354.736 | 0.000   | 0.000   | 2486.293 | -7.430  | 0.000   |
| 43. | 5240.004 | 1.120  | 0.000  | 3354.781 | 0.000   | 0.000   | 2481.567 | -5.000  | 0.000   |
| 44. | 5241.350 | 0.560  | 0.000  | 3354.808 | 0.000   | 0.000   | 2478.723 | -2.510  | 0.000   |
| 45. | 5241.799 | 0.000  | 0.000  | 3354.817 | 0.000   | 0.000   | 2477.773 | 0.000   | 0.000   |
| 46. | 5241.350 | -0.560 | 0.000  | 3354.808 | 0.000   | 0.000   | 2478.723 | 2.510   | 0.000   |
| 47. | 5240.004 | -1.120 | 0.000  | 3354.781 | 0.000   | 0.000   | 2481.567 | 5.000   | 0.000   |
| 48. | 5237.763 | -1.680 | 0.000  | 3354.736 | 0.000   | 0.000   | 2486.293 | 7.430   | 0.000   |
| 49. | 5234.632 | -2.240 | 0.000  | 3354.674 | 0.000   | 0.000   | 2492.880 | 9.790   | 0.000   |



Z-PLANE (XY-PLANE) GALLIUM ARSENIDE

|     | LNGVEL   | LPHI12  | LPHI13 | FSPVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12  | SSPM13 |
|-----|----------|---------|--------|----------|--------|--------|----------|---------|--------|
| 50. | 5230.615 | -2.000  | 0.000  | 3354.894 | -0.090 | 0.000  | 2501.296 | 12.050  | 0.000  |
| 51. | 5235.719 | -3.350  | 0.000  | 3354.490 | -0.100 | 0.000  | 2511.510 | 14.200  | 0.000  |
| 52. | 5239.934 | -4.090  | 0.000  | 3354.385 | -0.120 | 0.000  | 2523.470 | 16.230  | 0.000  |
| 53. | 5243.329 | -4.830  | 0.000  | 3354.256 | -0.130 | 0.000  | 2537.128 | 18.120  | 0.000  |
| 54. | 5205.856 | -4.960  | 0.000  | 3354.112 | -0.150 | 0.000  | 2552.424 | 19.660  | 0.000  |
| 55. | 5197.553 | -5.490  | 0.000  | 3353.953 | -0.160 | 0.000  | 2569.292 | 21.460  | 0.000  |
| 56. | 5188.432 | -6.000  | 0.000  | 3353.781 | -0.160 | 0.000  | 2587.663 | 22.920  | 0.000  |
| 57. | 5178.511 | -6.510  | 0.000  | 3353.596 | -0.190 | 0.000  | 2607.459 | 24.230  | 0.000  |
| 58. | 5167.812 | -7.000  | 0.000  | 3353.396 | -0.200 | 0.000  | 2626.600 | 25.400  | 0.000  |
| 59. | 5156.357 | -7.450  | 0.000  | 3353.190 | -0.210 | 0.000  | 2651.881 | 26.430  | 0.000  |
| 60. | 5144.170 | -7.950  | 0.000  | 3352.971 | -0.220 | 0.000  | 2674.372 | 27.330  | 0.000  |
| 61. | 5131.260 | -8.400  | 0.000  | 3352.744 | -0.230 | 0.000  | 2699.219 | 28.100  | 0.000  |
| 62. | 5117.717 | -8.840  | 0.000  | 3352.506 | -0.230 | 0.000  | 2724.647 | 28.750  | 0.000  |
| 63. | 5103.514 | -9.250  | 0.000  | 3352.266 | -0.240 | 0.000  | 2751.357 | 29.270  | 0.000  |
| 64. | 5088.706 | -9.650  | 0.000  | 3352.018 | -0.250 | 0.000  | 2776.645 | 29.660  | 0.000  |
| 65. | 5073.341 | -10.010 | 0.000  | 3351.766 | -0.250 | 0.000  | 2806.606 | 29.980  | 0.000  |
| 66. | 5057.455 | -10.360 | 0.000  | 3351.511 | -0.250 | 0.000  | 2835.132 | 30.160  | 0.000  |
| 67. | 5041.099 | -10.670 | 0.000  | 3351.253 | -0.250 | 0.000  | 2864.112 | 30.260  | 0.000  |
| 68. | 5024.326 | -10.950 | 0.000  | 3350.995 | -0.250 | 0.000  | 2893.432 | 30.250  | 0.000  |
| 69. | 5007.158 | -11.390 | 0.000  | 3350.736 | -0.250 | 0.000  | 2922.976 | 30.140  | 0.000  |
| 70. | 4989.774 | -11.550 | 0.000  | 3350.483 | -0.250 | 0.000  | 2952.622 | 29.520  | 0.000  |
| 71. | 4972.124 | -11.550 | 0.000  | 3350.230 | -0.250 | 0.000  | 2982.248 | 29.600  | 0.000  |
| 72. | 4954.326 | -11.660 | 0.000  | 3349.983 | -0.240 | 0.000  | 3011.723 | 29.160  | 0.000  |
| 73. | 4936.460 | -11.720 | 0.000  | 3349.740 | -0.230 | 0.000  | 3040.916 | 28.660  | 0.000  |
| 74. | 4918.616 | -11.710 | 0.000  | 3349.504 | -0.230 | 0.000  | 3069.693 | 28.030  | 0.000  |
| 75. | 4900.886 | -11.640 | 0.000  | 3349.277 | -0.220 | 0.000  | 3097.909 | 27.260  | 0.000  |
| 76. | 4883.399 | -11.500 | 0.000  | 3349.056 | -0.210 | 0.000  | 3125.417 | 26.420  | 0.000  |
| 77. | 4866.241 | -11.250 | 0.000  | 3348.849 | -0.200 | 0.000  | 3152.066 | 25.440  | 0.000  |
| 78. | 4849.542 | -10.950 | 0.000  | 3348.651 | -0.190 | 0.000  | 3177.698 | 24.320  | 0.000  |
| 79. | 4833.430 | -10.590 | 0.000  | 3348.466 | -0.160 | 0.000  | 3202.151 | 23.070  | 0.000  |
| 80. | 4818.041 | -10.100 | 0.000  | 3348.293 | -0.160 | 0.000  | 3225.260 | 21.660  | 0.000  |
| 81. | 4803.514 | -9.510  | 0.000  | 3348.134 | -0.150 | 0.000  | 3246.655 | 20.140  | 0.000  |
| 82. | 4789.994 | -8.820  | 0.000  | 3347.990 | -0.130 | 0.000  | 3266.769 | 18.440  | 0.000  |
| 83. | 4777.625 | -8.020  | 0.000  | 3347.861 | -0.120 | 0.000  | 3284.832 | 16.590  | 0.000  |
| 84. | 4766.549 | -7.110  | 0.000  | 3347.746 | -0.100 | 0.000  | 3300.883 | 14.590  | 0.000  |
| 85. | 4756.904 | -6.110  | 0.000  | 3347.651 | -0.090 | 0.000  | 3314.767 | 12.430  | 0.000  |
| 86. | 4748.017 | -5.010  | 0.000  | 3347.571 | -0.070 | 0.000  | 3326.343 | 10.140  | 0.000  |
| 87. | 4742.400 | -3.640  | 0.000  | 3347.509 | -0.050 | 0.000  | 3335.486 | 7.720   | 0.000  |
| 88. | 4737.745 | -2.590  | 0.000  | 3347.464 | -0.040 | 0.000  | 3342.894 | 5.200   | 0.000  |
| 89. | 4734.923 | -1.310  | 0.000  | 3347.437 | 0.000  | 0.000  | 3346.090 | 2.620   | 0.000  |
| 90. | 4733.976 | 0.000   | 0.000  | 3347.426 | 0.000  | 0.000  | 3347.426 | 0.000   | 0.000  |
| 91. | 4734.923 | 1.310   | 0.000  | 3347.437 | 0.000  | 0.000  | 3346.090 | -2.620  | 0.000  |
| 92. | 4737.745 | 2.590   | 0.000  | 3347.464 | 0.000  | 0.000  | 3335.486 | -5.200  | 0.000  |
| 93. | 4742.400 | 3.640   | 0.000  | 3347.509 | 0.050  | 0.000  | 3326.343 | -7.720  | 0.000  |
| 94. | 4748.017 | 5.010   | 0.000  | 3347.571 | 0.070  | 0.000  | 3314.767 | -10.140 | 0.000  |
| 95. | 4756.904 | 6.110   | 0.000  | 3347.651 | 0.090  | 0.000  | 3300.883 | -12.430 | 0.000  |
| 96. | 4766.549 | 7.110   | 0.000  | 3347.746 | 0.100  | 0.000  | 3284.832 | -14.590 | 0.000  |
| 97. | 4777.625 | 8.020   | 0.000  | 3347.861 | 0.120  | 0.000  | 3266.769 | -16.590 | 0.000  |
| 98. | 4789.994 | 8.820   | 0.000  | 3348.056 | 0.130  | 0.000  | 3246.655 | -18.440 | 0.000  |
| 99. | 4803.514 | 9.510   | 0.000  | 3348.134 | 0.150  | 0.000  | 3225.417 | -20.140 | 0.000  |

| Z-PLANE (XY-PLANE) GALLIUM ARSENIDE |          |        |        |          |        |        |          |         |        |
|-------------------------------------|----------|--------|--------|----------|--------|--------|----------|---------|--------|
|                                     | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |
| 100.                                | 4618.041 | 10.100 | 0.000  | 3348.293 | .160   | 0.000  | 3225.260 | -21.680 | 0.000  |
| 101.                                | 4633.430 | 10.590 | 0.000  | 3348.466 | .160   | 0.000  | 3202.151 | -23.070 | 0.000  |
| 102.                                | 4649.542 | 10.940 | 0.000  | 3348.651 | .190   | 0.000  | 3177.698 | -24.320 | 0.000  |
| 103.                                | 4666.241 | 11.250 | 0.000  | 3348.849 | .200   | 0.000  | 3152.066 | -25.440 | 0.000  |
| 104.                                | 4683.399 | 11.500 | 0.000  | 3349.058 | .210   | 0.000  | 3125.417 | -26.420 | 0.000  |
| 105.                                | 4901.896 | 11.640 | 0.000  | 3349.277 | .220   | 0.000  | 3097.909 | -27.280 | 0.000  |
| 106.                                | 4918.618 | 11.710 | 0.000  | 3349.504 | .230   | 0.000  | 3069.693 | -28.030 | 0.000  |
| 107.                                | 4936.460 | 11.720 | 0.000  | 3349.740 | .230   | 0.000  | 3040.918 | -28.660 | 0.000  |
| 108.                                | 4954.326 | 11.660 | 0.000  | 3349.983 | .240   | 0.000  | 3011.723 | -29.160 | 0.000  |
| 109.                                | 4972.124 | 11.550 | 0.000  | 3350.230 | .250   | 0.000  | 2982.248 | -29.600 | 0.000  |
| 110.                                | 4989.774 | 11.390 | 0.000  | 3350.483 | .250   | 0.000  | 2952.622 | -29.920 | 0.000  |
| 111.                                | 5007.156 | 11.190 | 0.000  | 3350.736 | .250   | 0.000  | 2922.976 | -30.140 | 0.000  |
| 112.                                | 5024.326 | 10.950 | 0.000  | 3350.995 | .250   | 0.000  | 2893.432 | -30.250 | 0.000  |
| 113.                                | 5041.099 | 10.670 | 0.000  | 3351.253 | .250   | 0.000  | 2864.112 | -30.260 | 0.000  |
| 114.                                | 5057.455 | 10.360 | 0.000  | 3351.511 | .250   | 0.000  | 2835.132 | -30.160 | 0.000  |
| 115.                                | 5073.341 | 10.010 | 0.000  | 3351.766 | .250   | 0.000  | 2806.606 | -29.960 | 0.000  |
| 116.                                | 5088.706 | 9.650  | 0.000  | 3352.016 | .250   | 0.000  | 2778.645 | -29.660 | 0.000  |
| 117.                                | 5103.514 | 9.290  | 0.000  | 3352.266 | .240   | 0.000  | 2751.357 | -29.270 | 0.000  |
| 118.                                | 5117.717 | 8.840  | 0.000  | 3352.506 | .230   | 0.000  | 2724.847 | -28.790 | 0.000  |
| 119.                                | 5131.280 | 8.400  | 0.000  | 3352.744 | .230   | 0.000  | 2699.219 | -28.100 | 0.000  |
| 120.                                | 5144.170 | 7.950  | 0.000  | 3352.971 | .220   | 0.000  | 2674.572 | -27.330 | 0.000  |
| 121.                                | 5156.357 | 7.490  | 0.000  | 3353.190 | .210   | 0.000  | 2651.011 | -26.430 | 0.000  |
| 122.                                | 5167.812 | 7.000  | 0.000  | 3353.396 | .200   | 0.000  | 2628.600 | -25.400 | 0.000  |
| 123.                                | 5178.511 | 6.510  | 0.000  | 3353.596 | .190   | 0.000  | 2607.459 | -24.230 | 0.000  |
| 124.                                | 5188.432 | 6.000  | 0.000  | 3353.781 | .180   | 0.000  | 2587.683 | -22.920 | 0.000  |
| 125.                                | 5197.553 | 5.490  | 0.000  | 3353.953 | .160   | 0.000  | 2569.292 | -21.460 | 0.000  |
| 126.                                | 5205.858 | 4.960  | 0.000  | 3354.112 | .150   | 0.000  | 2552.424 | -19.860 | 0.000  |
| 127.                                | 5213.329 | 4.430  | 0.000  | 3354.256 | .130   | 0.000  | 2537.128 | -16.120 | 0.000  |
| 128.                                | 5219.954 | 3.690  | 0.000  | 3354.385 | .120   | 0.000  | 2523.470 | -16.230 | 0.000  |
| 129.                                | 5225.719 | 3.350  | 0.000  | 3354.494 | .100   | 0.000  | 2511.510 | -14.200 | 0.000  |
| 130.                                | 5230.615 | 2.800  | 0.000  | 3354.594 | .090   | 0.000  | 2501.298 | -12.050 | 0.000  |
| 131.                                | 5234.632 | 2.250  | 0.000  | 3354.674 | .070   | 0.000  | 2492.880 | -9.790  | 0.000  |
| 132.                                | 5237.763 | 1.680  | 0.000  | 3354.736 | .050   | 0.000  | 2486.293 | -7.430  | 0.000  |
| 133.                                | 5240.004 | 1.120  | 0.000  | 3354.781 | .040   | 0.000  | 2481.567 | -5.000  | 0.000  |
| 134.                                | 5241.350 | .560   | 0.000  | 3354.808 | .020   | 0.000  | 2476.723 | -2.510  | 0.000  |
| 135.                                | 5241.799 | -0.000 | 0.000  | 3354.817 | -0.000 | 0.000  | 2472.773 | 0.000   | 0.000  |
| 136.                                | 5241.350 | -0.560 | 0.000  | 3354.808 | -0.020 | 0.000  | 2468.723 | 2.510   | 0.000  |
| 137.                                | 5237.763 | -1.120 | 0.000  | 3354.781 | -0.040 | 0.000  | 2464.567 | 5.000   | 0.000  |
| 138.                                | 5234.632 | -1.680 | 0.000  | 3354.736 | -0.050 | 0.000  | 2460.293 | 7.430   | 0.000  |
| 139.                                | 5230.615 | -2.250 | 0.000  | 3354.674 | -0.070 | 0.000  | 2452.880 | 9.790   | 0.000  |
| 140.                                | 5225.719 | -2.800 | 0.000  | 3354.594 | -0.090 | 0.000  | 2451.298 | 12.050  | 0.000  |
| 141.                                | 5221.954 | -3.350 | 0.000  | 3354.498 | -0.100 | 0.000  | 2451.510 | 14.200  | 0.000  |
| 142.                                | 5219.954 | -3.690 | 0.000  | 3354.385 | -0.120 | 0.000  | 2453.470 | 16.230  | 0.000  |
| 143.                                | 5218.329 | -4.430 | 0.000  | 3354.236 | -0.130 | 0.000  | 2457.128 | 18.120  | 0.000  |
| 144.                                | 5215.856 | -4.960 | 0.000  | 3354.112 | -0.150 | 0.000  | 2452.424 | 19.860  | 0.000  |
| 145.                                | 5197.553 | -5.490 | 0.000  | 3353.953 | -0.160 | 0.000  | 2459.292 | 21.460  | 0.000  |
| 146.                                | 5188.432 | -6.000 | 0.000  | 3353.781 | -0.160 | 0.000  | 2467.663 | 22.920  | 0.000  |
| 147.                                | 5178.511 | -6.510 | 0.000  | 3353.596 | -0.190 | 0.000  | 2478.459 | 24.230  | 0.000  |
| 148.                                | 5167.812 | -7.000 | 0.000  | 3353.396 | -0.200 | 0.000  | 2490.600 | 25.400  | 0.000  |
| 149.                                | 5156.357 | -7.490 | 0.000  | 3353.190 | -0.210 | 0.000  | 2499.219 | 26.430  | 0.000  |

BULK

2-PLANE (XY-PLANE) GALLIUM ARSENIIDE

|      | LNGWEL   | LPHI12  | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 5144.170 | -7.950  | 0.000  | 3352.971 | -220    | 0.000   | 2674.572 | 27.330  | 0.000   |
| 151. | 5131.280 | -8.400  | 0.000  | 3352.744 | -230    | 0.000   | 2693.215 | 26.100  | 0.000   |
| 152. | 5117.717 | -8.848  | 0.000  | 3352.508 | -230    | 0.000   | 2744.847 | 26.750  | 0.000   |
| 153. | 5103.514 | -9.250  | 0.000  | 3352.266 | -240    | 0.000   | 2751.357 | 29.270  | 0.000   |
| 154. | 5088.708 | -9.650  | 0.000  | 3352.018 | -250    | 0.000   | 2778.645 | 29.680  | 0.000   |
| 155. | 5073.341 | -10.010 | 0.000  | 3351.766 | -250    | 0.000   | 2806.606 | 29.960  | 0.000   |
| 156. | 5057.455 | -10.340 | 0.000  | 3351.511 | -250    | 0.000   | 2835.132 | 30.180  | 0.000   |
| 157. | 5041.099 | -10.670 | 0.000  | 3351.253 | -250    | 0.000   | 2864.112 | 30.260  | 0.000   |
| 158. | 5024.328 | -10.950 | 0.000  | 3350.995 | -250    | 0.000   | 2893.432 | 30.250  | 0.000   |
| 159. | 5007.198 | -11.150 | 0.000  | 3350.738 | -250    | 0.000   | 2922.976 | 30.140  | 0.000   |
| 160. | 4989.774 | -11.350 | 0.000  | 3350.483 | -250    | 0.000   | 2952.622 | 29.920  | 0.000   |
| 161. | 4972.124 | -11.550 | 0.000  | 3350.230 | -250    | 0.000   | 2982.248 | 29.500  | 0.000   |
| 162. | 4954.326 | -11.660 | 0.000  | 3349.983 | -240    | 0.000   | 3011.723 | 29.180  | 0.000   |
| 163. | 4936.468 | -11.720 | 0.000  | 3349.740 | -230    | 0.000   | 3040.918 | 28.660  | 0.000   |
| 164. | 4918.618 | -11.710 | 0.000  | 3349.504 | -230    | 0.000   | 3069.693 | 28.030  | 0.000   |
| 165. | 4900.896 | -11.640 | 0.000  | 3349.277 | -220    | 0.000   | 3097.909 | 27.260  | 0.000   |
| 166. | 4883.399 | -11.500 | 0.000  | 3349.058 | -210    | 0.000   | 3125.417 | 26.420  | 0.000   |
| 167. | 4866.241 | -11.290 | 0.000  | 3348.849 | -200    | 0.000   | 3152.066 | 25.440  | 0.000   |
| 168. | 4849.542 | -10.980 | 0.000  | 3348.651 | -190    | 0.000   | 3177.696 | 24.320  | 0.000   |
| 169. | 4833.430 | -10.550 | 0.000  | 3348.466 | -180    | 0.000   | 3202.151 | 23.070  | 0.000   |
| 170. | 4818.041 | -10.100 | 0.000  | 3348.293 | -160    | 0.000   | 3225.260 | 21.660  | 0.000   |
| 171. | 4803.514 | -9.510  | 0.000  | 3348.134 | -150    | 0.000   | 3246.855 | 20.140  | 0.000   |
| 172. | 4789.994 | -8.820  | 0.000  | 3347.990 | -130    | 0.000   | 3266.769 | 18.440  | 0.000   |
| 173. | 4777.625 | -8.020  | 0.000  | 3347.861 | -120    | 0.000   | 3284.832 | 16.590  | 0.000   |
| 174. | 4766.545 | -7.110  | 0.000  | 3347.748 | -100    | 0.000   | 3300.883 | 14.540  | 0.000   |
| 175. | 4756.904 | -6.110  | 0.000  | 3347.651 | -80     | 0.000   | 3314.767 | 12.430  | 0.000   |
| 176. | 4748.817 | -5.010  | 0.000  | 3347.571 | -70     | 0.000   | 3326.343 | 10.140  | 0.000   |
| 177. | 4742.400 | -3.840  | 0.000  | 3347.509 | -60     | 0.000   | 3335.466 | 7.720   | 0.000   |
| 178. | 4737.745 | -2.590  | 0.000  | 3347.464 | -50     | 0.000   | 3342.094 | 5.200   | 0.000   |
| 179. | 4734.923 | -1.310  | 0.000  | 3347.437 | -40     | 0.000   | 3346.090 | 2.620   | 0.000   |
| 180. | 4733.976 | 0.000   | 0.000  | 3347.428 | -30     | 0.000   | 3347.428 | 0.000   | 0.000   |

111-PLANE GALLIUM ARSENIDE

BULK

|     | LMGVEL   | LPM12  | LPM13 | FSRVEL   | FSPM12  | FSPM13  | SSRVEL   | SSPM12  | SSPM13  |
|-----|----------|--------|-------|----------|---------|---------|----------|---------|---------|
| 0.  | 5241.799 | -0.000 | 0.000 | 3354.817 | -0.000  | 0.000   | 2477.773 | 0.000   | -0.000  |
| 1.  | 5241.807 | .110   | .480  | 3354.293 | -1.030  | -0.710  | 2476.297 | 1.390   | -0.000  |
| 2.  | 5242.149 | .220   | .950  | 3352.723 | -2.050  | -1.420  | 2479.867 | 2.770   | -1.590  |
| 3.  | 5242.581 | .320   | 1.420 | 3350.115 | -3.060  | -2.130  | 2482.475 | 4.120   | -2.300  |
| 4.  | 5243.180 | .430   | 1.880 | 3346.461 | -4.060  | -2.830  | 2486.110 | 5.450   | -3.150  |
| 5.  | 5243.937 | .520   | 2.340 | 3341.836 | -5.040  | -3.520  | 2490.756 | 6.740   | -3.910  |
| 6.  | 5244.843 | .610   | 2.790 | 3336.206 | -6.000  | -4.200  | 2496.390 | 7.990   | -4.650  |
| 7.  | 5245.888 | .690   | 3.220 | 3329.614 | -6.930  | -4.870  | 2502.917 | 9.190   | -5.370  |
| 8.  | 5247.059 | .770   | 3.650 | 3322.092 | -7.830  | -5.520  | 2510.507 | 10.330  | -6.080  |
| 9.  | 5248.342 | .830   | 4.060 | 3313.677 | -8.700  | -6.160  | 2518.942 | 11.390  | -6.730  |
| 10. | 5249.722 | .890   | 4.460 | 3304.410 | -9.530  | -6.760  | 2526.222 | 12.390  | -7.370  |
| 11. | 5251.184 | .940   | 4.840 | 3294.338 | -10.310 | -7.360  | 2533.310 | 13.300  | -7.960  |
| 12. | 5252.710 | .970   | 5.200 | 3283.513 | -11.040 | -7.970  | 2540.155 | 14.140  | -8.500  |
| 13. | 5254.284 | .990   | 5.550 | 3271.993 | -11.720 | -8.530  | 2546.699 | 14.800  | -9.000  |
| 14. | 5255.887 | 1.010  | 5.880 | 3259.844 | -12.330 | -9.070  | 2552.876 | 15.520  | -9.500  |
| 15. | 5257.501 | 1.010  | 6.190 | 3247.137 | -12.880 | -9.550  | 2558.613 | 16.060  | -10.000 |
| 16. | 5259.110 | 1.000  | 6.490 | 3233.954 | -13.350 | -10.000 | 2563.830 | 16.490  | -10.400 |
| 17. | 5260.695 | .960   | 6.760 | 3220.385 | -13.730 | -10.560 | 2568.630 | 16.800  | -10.870 |
| 18. | 5262.240 | .950   | 7.010 | 3206.534 | -14.000 | -11.010 | 2572.436 | 16.980  | -11.220 |
| 19. | 5263.728 | .910   | 7.250 | 3192.516 | -14.160 | -11.430 | 2575.382 | 17.010  | -11.530 |
| 20. | 5265.143 | .860   | 7.460 | 3178.472 | -14.170 | -11.830 | 2577.469 | 16.670  | -11.800 |
| 21. | 5266.471 | .800   | 7.650 | 3164.552 | -14.030 | -12.210 | 2578.629 | 16.350  | -12.030 |
| 22. | 5267.697 | .730   | 7.820 | 3150.942 | -13.660 | -12.560 | 2578.879 | 16.000  | -12.220 |
| 23. | 5268.811 | .660   | 7.980 | 3137.853 | -13.100 | -12.860 | 2578.205 | 15.200  | -12.350 |
| 24. | 5269.799 | .570   | 8.110 | 3125.534 | -12.250 | -13.170 | 2576.559 | 14.110  | -12.500 |
| 25. | 5270.653 | .490   | 8.220 | 3114.267 | -11.070 | -13.430 | 2573.856 | 12.670  | -12.500 |
| 26. | 5271.363 | .400   | 8.310 | 3104.370 | -9.530  | -13.650 | 2570.779 | 10.850  | -12.650 |
| 27. | 5271.923 | .300   | 8.380 | 3096.180 | -7.610  | -13.840 | 2566.990 | 8.620   | -12.650 |
| 28. | 5272.327 | .200   | 8.430 | 3090.028 | -5.330  | -13.970 | 2562.437 | 6.010   | -12.710 |
| 29. | 5272.571 | .100   | 8.460 | 3086.203 | -2.750  | -14.060 | 2557.157 | 3.090   | -12.720 |
| 30. | 5272.652 | .000   | 8.470 | 3084.904 | 0.000   | -14.050 | 2551.294 | 0.000   | -12.720 |
| 31. | 5272.571 | -.100  | 8.460 | 3086.203 | 2.750   | -14.060 | 2544.992 | -3.090  | -12.720 |
| 32. | 5272.327 | -.200  | 8.430 | 3090.028 | 5.330   | -13.970 | 2538.157 | -6.010  | -12.710 |
| 33. | 5271.923 | -.300  | 8.380 | 3096.180 | 7.610   | -13.840 | 2530.990 | -8.620  | -12.650 |
| 34. | 5271.363 | -.400  | 8.310 | 3104.370 | 9.530   | -13.650 | 2522.779 | -10.850 | -12.650 |
| 35. | 5270.653 | -.490  | 8.220 | 3114.267 | 11.070  | -13.430 | 2513.856 | -12.670 | -12.500 |
| 36. | 5269.799 | -.570  | 8.110 | 3125.534 | 12.250  | -13.170 | 2504.559 | -14.110 | -12.500 |
| 37. | 5268.811 | -.660  | 7.980 | 3137.853 | 13.100  | -12.860 | 2495.205 | -15.200 | -12.350 |
| 38. | 5267.697 | -.730  | 7.820 | 3150.942 | 13.660  | -12.560 | 2485.079 | -16.000 | -12.220 |
| 39. | 5266.471 | -.800  | 7.650 | 3164.552 | 14.030  | -12.210 | 2474.429 | -16.550 | -12.030 |
| 40. | 5265.143 | -.860  | 7.460 | 3178.472 | 14.170  | -11.830 | 2462.437 | -16.670 | -11.800 |
| 41. | 5263.728 | -.910  | 7.250 | 3192.516 | 14.160  | -11.430 | 2450.382 | -17.010 | -11.530 |
| 42. | 5262.240 | -.950  | 7.010 | 3206.534 | 14.000  | -11.010 | 2438.326 | -16.980 | -11.220 |
| 43. | 5260.695 | -.980  | 6.760 | 3220.385 | 13.730  | -10.560 | 2426.436 | -16.800 | -10.870 |
| 44. | 5259.110 | -1.000 | 6.490 | 3233.954 | 13.350  | -10.090 | 2414.699 | -16.450 | -10.400 |
| 45. | 5257.581 | -1.010 | 6.190 | 3247.137 | 12.880  | -9.590  | 2403.163 | -16.160 | -10.000 |
| 46. | 5255.887 | -1.010 | 5.880 | 3259.844 | 12.330  | -9.070  | 2392.876 | -15.820 | -9.500  |
| 47. | 5254.284 | -.990  | 5.550 | 3271.993 | 11.720  | -8.530  | 2383.699 | -14.860 | -9.000  |
| 48. | 5252.710 | -.970  | 5.200 | 3283.513 | 11.040  | -7.970  | 2375.156 | -14.140 | -8.500  |
| 49. | 5251.184 | -.940  | 4.840 | 3294.338 | 10.310  | -7.360  | 2368.310 | -13.300 | -7.960  |

111-PLANE GALLIUM ARSENIDE

BULK

|     | LNGVEL   | LPM12  | LPM13 | FSRVEL   | FSPM12  | FSPM13 | SSRVEL   | SSPM12  | SSPM13 |
|-----|----------|--------|-------|----------|---------|--------|----------|---------|--------|
| 58. | 5249.722 | -0.850 | 4.460 | 3384.810 | 9.530   | -6.760 | 2528.222 | -12.390 | -7.370 |
| 59. | 5249.362 | -0.830 | 4.060 | 3313.677 | 8.700   | -6.160 | 2518.942 | -11.390 | -6.730 |
| 52. | 5247.859 | -0.770 | 3.650 | 3322.092 | 7.830   | -5.520 | 2510.517 | -10.330 | -6.060 |
| 53. | 5245.888 | -0.650 | 3.220 | 3329.614 | 6.930   | -4.670 | 2502.987 | -9.190  | -5.370 |
| 54. | 5244.843 | -0.610 | 2.790 | 3336.206 | 6.000   | -4.200 | 2496.390 | -7.990  | -4.650 |
| 55. | 5243.937 | -0.520 | 2.340 | 3341.838 | 5.040   | -3.520 | 2490.756 | -6.740  | -3.910 |
| 56. | 5243.140 | -0.430 | 1.800 | 3346.481 | 4.060   | -2.630 | 2486.110 | -5.450  | -3.150 |
| 57. | 5242.581 | -0.320 | 1.420 | 3350.115 | 3.060   | -2.130 | 2482.475 | -4.120  | -2.350 |
| 58. | 5242.149 | -0.220 | .950  | 3352.723 | 2.050   | -1.420 | 2479.867 | -2.770  | -1.590 |
| 59. | 5241.867 | -0.110 | .460  | 3354.293 | 1.030   | -0.710 | 2478.297 | -1.390  | -0.800 |
| 60. | 5241.799 | 0.000  | 0.000 | 3354.817 | -0.000  | 0.000  | 2477.773 | -0.000  | 0.000  |
| 61. | 5241.867 | .110   | .480  | 3354.293 | -1.030  | .710   | 2478.297 | 1.390   | 0.800  |
| 62. | 5242.149 | .220   | .950  | 3352.723 | -2.050  | 1.420  | 2479.867 | 2.770   | 1.590  |
| 63. | 5242.581 | .320   | 1.420 | 3350.115 | -3.060  | 2.130  | 2482.475 | 4.120   | 2.350  |
| 64. | 5243.140 | .430   | 1.800 | 3346.481 | -4.060  | 2.630  | 2486.110 | 5.450   | 3.150  |
| 65. | 5243.937 | .520   | 2.340 | 3341.838 | -5.040  | 3.520  | 2490.756 | 6.740   | 3.910  |
| 66. | 5244.843 | .610   | 2.790 | 3336.206 | -6.000  | 4.200  | 2496.390 | 7.990   | 4.650  |
| 67. | 5245.888 | .650   | 3.220 | 3329.614 | -6.930  | 4.670  | 2502.987 | 9.190   | 5.370  |
| 68. | 5247.059 | .700   | 3.650 | 3322.092 | -7.830  | 5.520  | 2510.516 | 10.330  | 6.060  |
| 69. | 5248.342 | .830   | 4.060 | 3313.677 | -8.700  | 6.160  | 2518.942 | 11.390  | 6.730  |
| 70. | 5249.722 | .980   | 4.460 | 3304.810 | -9.530  | 6.760  | 2528.222 | 12.390  | 7.370  |
| 71. | 5251.164 | .940   | 4.840 | 3294.338 | -10.310 | 7.360  | 2538.310 | 13.300  | 7.950  |
| 72. | 5252.710 | .970   | 5.200 | 3283.513 | -11.040 | 7.970  | 2549.155 | 14.140  | 8.550  |
| 73. | 5254.264 | .990   | 5.550 | 3271.993 | -11.720 | 8.530  | 2560.699 | 14.880  | 9.090  |
| 74. | 5255.867 | 1.010  | 5.880 | 3259.844 | -12.330 | 9.070  | 2572.876 | 15.520  | 9.590  |
| 75. | 5257.582 | 1.010  | 6.190 | 3247.137 | -12.860 | 9.590  | 2585.613 | 16.060  | 10.000 |
| 76. | 5259.110 | 1.000  | 6.490 | 3233.954 | -13.350 | 10.090 | 2598.630 | 16.490  | 10.400 |
| 77. | 5260.655 | .980   | 6.760 | 3220.385 | -13.730 | 10.560 | 2612.436 | 16.800  | 10.870 |
| 78. | 5262.240 | .950   | 7.010 | 3206.534 | -14.000 | 11.010 | 2626.326 | 16.980  | 11.220 |
| 79. | 5263.726 | .910   | 7.250 | 3192.516 | -14.160 | 11.430 | 2640.382 | 17.010  | 11.530 |
| 80. | 5265.143 | .860   | 7.460 | 3178.472 | -14.170 | 11.630 | 2654.464 | 16.670  | 11.800 |
| 81. | 5266.471 | .800   | 7.650 | 3164.552 | -14.030 | 12.210 | 2668.429 | 16.550  | 12.030 |
| 82. | 5267.698 | .730   | 7.820 | 3150.942 | -13.660 | 12.560 | 2682.078 | 16.000  | 12.220 |
| 83. | 5268.811 | .660   | 7.980 | 3137.853 | -13.100 | 12.660 | 2695.204 | 15.200  | 12.300 |
| 84. | 5269.799 | .570   | 8.110 | 3125.533 | -12.250 | 13.170 | 2707.558 | 14.110  | 12.350 |
| 85. | 5270.653 | .490   | 8.220 | 3114.267 | -11.070 | 13.430 | 2716.856 | 12.670  | 12.590 |
| 86. | 5271.363 | .400   | 8.310 | 3104.370 | -9.530  | 13.650 | 2726.779 | 10.650  | 12.690 |
| 87. | 5271.923 | .300   | 8.380 | 3096.140 | -7.610  | 13.640 | 2736.990 | 8.620   | 12.690 |
| 88. | 5272.327 | .200   | 8.430 | 3090.826 | -5.330  | 13.970 | 2743.157 | 6.010   | 12.710 |
| 89. | 5272.571 | .100   | 8.460 | 3086.283 | -2.750  | 14.060 | 2748.991 | 3.090   | 12.720 |
| 90. | 5272.653 | 0.000  | 8.470 | 3084.984 | 0.000   | 14.090 | 2748.293 | -0.000  | 12.720 |
| 91. | 5272.571 | -0.100 | 8.460 | 3086.283 | 2.750   | 14.060 | 2746.991 | -3.090  | 12.720 |
| 92. | 5272.327 | -0.200 | 8.430 | 3090.826 | 5.330   | 13.970 | 2743.157 | -6.010  | 12.710 |
| 93. | 5271.923 | -0.300 | 8.380 | 3096.140 | 7.610   | 13.640 | 2736.990 | -8.620  | 12.690 |
| 94. | 5271.363 | -0.400 | 8.310 | 3104.370 | 9.530   | 13.650 | 2726.779 | -10.650 | 12.690 |
| 95. | 5270.653 | -0.490 | 8.220 | 3114.267 | 11.070  | 13.430 | 2716.856 | -12.670 | 12.590 |
| 96. | 5269.799 | -0.570 | 8.110 | 3125.533 | 12.250  | 13.170 | 2707.558 | -14.110 | 12.350 |
| 97. | 5268.811 | -0.660 | 7.980 | 3137.853 | 13.100  | 12.660 | 2695.204 | -15.200 | 12.300 |
| 98. | 5267.698 | -0.730 | 7.820 | 3150.942 | 13.660  | 12.560 | 2682.078 | -16.000 | 12.220 |
| 99. | 5266.471 | -0.800 | 7.650 | 3164.552 | 14.030  | 12.210 | 2668.429 | -16.550 | 12.030 |

111-PLANE GALLIUM ARSENIDE

BULK

|      | LNGVEL   | LPM112 | LPM113 | FSRVEL   | FSPM112 | FSPM113 | SSRVEL   | SSPM112 | SSPM113 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 5265.143 | -0.860 | -7.460 | 3170.472 | 14.170  | 11.630  | 2554.469 | -16.670 | 11.600  |
| 101. | 5263.728 | -0.910 | -7.250 | 3192.518 | 14.160  | 11.430  | 2640.382 | -17.010 | 11.530  |
| 102. | 5262.290 | -0.960 | -7.010 | 3206.534 | 14.000  | 11.010  | 2626.326 | -16.590 | 11.270  |
| 103. | 5260.695 | -0.980 | -6.760 | 3220.385 | 13.730  | 10.560  | 2612.436 | -16.800 | 10.870  |
| 104. | 5259.110 | -1.000 | -6.490 | 3233.954 | 13.350  | 10.090  | 2598.630 | -16.490 | 10.460  |
| 105. | 5257.502 | -1.010 | -6.190 | 3247.137 | 12.860  | 9.590   | 2585.613 | -16.060 | 10.050  |
| 106. | 5255.867 | -1.010 | -5.860 | 3259.844 | 12.330  | 9.070   | 2572.876 | -15.520 | 9.590   |
| 107. | 5254.284 | -0.990 | -5.550 | 3271.993 | 11.720  | 8.530   | 2560.699 | -14.880 | 9.090   |
| 108. | 5252.710 | -0.970 | -5.200 | 3283.513 | 11.040  | 7.970   | 2549.155 | -14.140 | 8.550   |
| 109. | 5251.144 | -0.940 | -4.840 | 3294.336 | 10.310  | 7.360   | 2538.310 | -13.300 | 7.960   |
| 110. | 5249.722 | -0.890 | -4.460 | 3304.410 | 9.530   | 6.760   | 2528.222 | -12.390 | 7.310   |
| 111. | 5248.342 | -0.830 | -4.060 | 3313.677 | 8.700   | 6.160   | 2518.942 | -11.390 | 6.730   |
| 112. | 5247.059 | -0.770 | -3.650 | 3322.092 | 7.830   | 5.520   | 2510.516 | -10.330 | 6.060   |
| 113. | 5245.868 | -0.690 | -3.220 | 3329.614 | 6.930   | 4.870   | 2502.987 | -9.190  | 5.370   |
| 114. | 5244.843 | -0.610 | -2.790 | 3336.206 | 6.000   | 4.200   | 2496.390 | -7.990  | 4.620   |
| 115. | 5243.937 | -0.520 | -2.340 | 3341.836 | 5.040   | 3.520   | 2490.756 | -6.740  | 3.810   |
| 116. | 5243.180 | -0.430 | -1.880 | 3346.461 | 4.060   | 2.830   | 2486.110 | -5.450  | 3.150   |
| 117. | 5242.581 | -0.320 | -1.420 | 3350.115 | 3.060   | 2.130   | 2482.475 | -4.120  | 2.500   |
| 118. | 5242.149 | -0.220 | -0.950 | 3352.723 | 2.050   | 1.420   | 2479.867 | -2.770  | 1.930   |
| 119. | 5241.887 | -0.110 | -0.480 | 3354.293 | 1.030   | 0.710   | 2478.297 | -1.390  | 1.350   |
| 120. | 5241.799 | -0.000 | 0.000  | 3354.817 | 0.000   | 0.000   | 2477.773 | 0.000   | 0.800   |
| 121. | 5241.887 | 0.110  | 0.480  | 3354.293 | -1.030  | -0.710  | 2478.297 | 1.390   | 1.350   |
| 122. | 5242.149 | 0.220  | 0.950  | 3352.723 | -2.050  | -1.420  | 2479.867 | 2.770   | 2.830   |
| 123. | 5242.581 | 0.320  | 1.420  | 3350.115 | -3.060  | -2.130  | 2482.475 | 4.120   | 4.260   |
| 124. | 5243.180 | 0.430  | 1.880  | 3346.461 | -4.060  | -2.830  | 2486.110 | 5.450   | 5.450   |
| 125. | 5243.937 | 0.520  | 2.340  | 3341.836 | -5.040  | -3.520  | 2490.756 | 6.740   | 6.740   |
| 126. | 5244.843 | 0.610  | 2.790  | 3336.206 | -6.000  | -4.200  | 2496.390 | 7.990   | 7.990   |
| 127. | 5245.868 | 0.690  | 3.220  | 3329.614 | -6.930  | -4.870  | 2502.987 | 9.190   | 9.190   |
| 128. | 5247.059 | 0.770  | 3.650  | 3322.092 | -7.830  | -5.520  | 2510.517 | 10.330  | 10.330  |
| 129. | 5248.342 | 0.830  | 4.060  | 3313.677 | -8.700  | -6.160  | 2518.942 | 11.390  | 11.390  |
| 130. | 5249.722 | 0.890  | 4.460  | 3304.410 | -9.530  | -6.760  | 2528.222 | 12.390  | 12.390  |
| 131. | 5251.144 | 0.940  | 4.840  | 3294.336 | -10.310 | -7.360  | 2538.310 | 13.300  | 13.300  |
| 132. | 5252.710 | 0.970  | 5.200  | 3283.513 | -11.040 | -7.970  | 2549.155 | 14.140  | 14.140  |
| 133. | 5254.284 | 0.990  | 5.550  | 3271.993 | -11.720 | -8.530  | 2560.699 | 14.880  | 14.880  |
| 134. | 5255.867 | 1.010  | 5.860  | 3259.844 | -12.330 | -9.070  | 2572.876 | 15.520  | 15.520  |
| 135. | 5257.501 | 1.010  | 6.190  | 3247.137 | -12.860 | -9.590  | 2585.613 | 16.060  | 16.060  |
| 136. | 5259.110 | 1.000  | 6.490  | 3233.954 | -13.350 | -10.090 | 2598.631 | 16.490  | 16.490  |
| 137. | 5260.695 | 0.980  | 6.760  | 3220.385 | -13.730 | -10.560 | 2612.436 | 16.800  | 16.800  |
| 138. | 5262.290 | 0.960  | 7.010  | 3206.534 | -14.000 | -11.010 | 2626.326 | 16.990  | 16.990  |
| 139. | 5263.728 | 0.910  | 7.250  | 3192.518 | -14.160 | -11.430 | 2640.382 | 17.010  | 17.010  |
| 140. | 5265.143 | 0.860  | 7.460  | 3170.472 | -14.170 | -11.630 | 2654.469 | 16.670  | 16.670  |
| 141. | 5266.471 | 0.800  | 7.650  | 3164.952 | -14.000 | -12.120 | 2668.429 | 16.590  | 16.590  |
| 142. | 5267.697 | 0.730  | 7.820  | 3150.942 | -13.680 | -12.560 | 2682.079 | 16.000  | 16.000  |
| 143. | 5268.811 | 0.660  | 7.980  | 3137.853 | -13.100 | -12.860 | 2695.205 | 15.200  | 15.200  |
| 144. | 5269.799 | 0.570  | 8.110  | 3125.534 | -12.250 | -13.170 | 2707.599 | 14.110  | 14.110  |
| 145. | 5270.653 | 0.450  | 8.220  | 3114.267 | -11.070 | -13.430 | 2718.856 | 12.670  | 12.670  |
| 146. | 5271.363 | 0.400  | 8.310  | 3104.370 | -9.530  | -13.650 | 2728.774 | 10.650  | 10.650  |
| 147. | 5271.923 | 0.300  | 8.380  | 3096.180 | -7.610  | -13.840 | 2736.990 | 8.620   | 8.620   |
| 148. | 5272.327 | 0.260  | 8.430  | 3090.028 | -5.930  | -13.970 | 2743.157 | 6.010   | 6.010   |
| 149. | 5272.571 | 0.100  | 8.460  | 3086.283 | -2.750  | -14.060 | 2746.992 | 3.090   | 3.090   |

111-PLANE GALLIUM ARSENIOE

BULK

|      | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 5272.852 | 0.000  | 6.470  | 3084.904 | -0.000  | -14.090 | 2746.294 | -0.000  | -12.720 |
| 151. | 5272.571 | -1.00  | 6.460  | 3086.203 | 2.756   | -14.060 | 2746.992 | -3.090  | -12.720 |
| 152. | 5272.327 | -2.00  | 6.430  | 3090.628 | 5.330   | -13.970 | 2743.157 | -6.010  | -12.710 |
| 153. | 5271.923 | -3.00  | 6.380  | 3096.180 | 7.610   | -13.840 | 2736.990 | -6.820  | -12.690 |
| 154. | 5271.363 | -4.00  | 6.310  | 3104.370 | 9.590   | -13.690 | 2726.779 | -10.690 | -12.650 |
| 155. | 5270.653 | -4.90  | 6.220  | 3114.267 | 11.070  | -13.490 | 2718.856 | -12.670 | -12.590 |
| 156. | 5269.799 | -5.70  | 6.110  | 3125.934 | 12.250  | -13.170 | 2707.559 | -14.110 | -12.560 |
| 157. | 5268.811 | -6.60  | 7.980  | 3137.853 | 13.100  | -12.660 | 2695.205 | -15.200 | -12.360 |
| 158. | 5267.697 | -7.50  | 7.820  | 3150.942 | 13.680  | -12.560 | 2682.079 | -16.000 | -12.220 |
| 159. | 5266.471 | -8.00  | 7.650  | 3184.552 | 14.030  | -12.210 | 2666.429 | -16.590 | -12.030 |
| 160. | 5265.143 | -8.60  | 7.460  | 3178.472 | 14.170  | -11.830 | 2654.469 | -16.870 | -11.800 |
| 161. | 5263.728 | -9.10  | 7.250  | 3192.516 | 14.160  | -11.430 | 2640.382 | -17.010 | -11.530 |
| 162. | 5262.240 | -9.50  | 7.010  | 3206.534 | 14.000  | -11.010 | 2626.326 | -16.900 | -11.220 |
| 163. | 5260.695 | -9.80  | 6.760  | 3220.585 | 13.730  | -10.560 | 2612.436 | -16.600 | -10.870 |
| 164. | 5259.110 | -1.000 | 6.490  | 3233.954 | 13.350  | -10.090 | 2598.630 | -16.440 | -10.480 |
| 165. | 5257.501 | -1.010 | 6.190  | 3247.137 | 12.886  | -9.590  | 2585.613 | -16.060 | -10.050 |
| 166. | 5255.867 | -1.010 | 5.880  | 3259.844 | 12.330  | -9.070  | 2572.676 | -15.520 | -9.590  |
| 167. | 5254.264 | -9.90  | 5.550  | 3271.993 | 11.720  | -8.530  | 2560.699 | -14.660 | -9.000  |
| 168. | 5252.710 | -9.70  | 5.200  | 3283.513 | 11.046  | -7.970  | 2549.155 | -14.140 | -8.500  |
| 169. | 5251.184 | -9.40  | 4.840  | 3294.338 | 10.310  | -7.380  | 2538.310 | -13.300 | -7.986  |
| 170. | 5249.722 | -8.90  | 4.460  | 3304.410 | 9.530   | -6.760  | 2526.222 | -12.390 | -7.370  |
| 171. | 5248.342 | -8.50  | 4.060  | 3313.677 | 8.700   | -6.160  | 2510.942 | -11.390 | -6.730  |
| 172. | 5247.059 | -7.70  | 3.650  | 3322.092 | 7.830   | -5.520  | 2500.517 | -10.330 | -6.060  |
| 173. | 5245.880 | -6.90  | 3.220  | 3329.614 | 6.930   | -4.870  | 2502.987 | -9.190  | -5.370  |
| 174. | 5244.843 | -6.10  | 2.790  | 3336.206 | 6.000   | -4.200  | 2496.390 | -7.990  | -4.650  |
| 175. | 5243.937 | -5.20  | 2.340  | 3341.836 | 5.040   | -3.520  | 2490.756 | -6.740  | -3.910  |
| 176. | 5243.180 | -4.30  | 1.880  | 3346.481 | 4.060   | -2.830  | 2486.110 | -5.450  | -3.150  |
| 177. | 5242.581 | -3.60  | 1.420  | 3350.115 | 3.060   | -2.130  | 2482.475 | -4.120  | -2.380  |
| 178. | 5242.149 | -2.20  | .950   | 3352.723 | 2.050   | -1.420  | 2479.867 | -2.770  | -1.690  |
| 179. | 5241.867 | -1.10  | .480   | 3354.293 | 1.030   | -0.710  | 2476.297 | -1.390  | -1.000  |
| 180. | 5241.759 | 0.000  | -0.000 | 3354.817 | -0.000  | 0.000   | 2477.773 | 0.000   | 0.000   |

110-PLANE GALLIUM ARSENIDE

BULK

|     | LMGVEL   | LPHI12  | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|---------|--------|----------|---------|--------|----------|--------|--------|
| 0.  | 5406.502 | 0.000   | -0.000 | 2797.062 | -16.970 | 0.000  | 2797.050 | 16.970 | -0.000 |
| 1.  | 5406.250 | -0.400  | -0.000 | 2783.472 | -15.940 | 0.000  | 2612.796 | 16.540 | 0.000  |
| 2.  | 5405.245 | -1.020  | 0.000  | 2770.140 | -14.610 | 0.000  | 2627.627 | 16.540 | 0.000  |
| 3.  | 5403.554 | -1.240  | -0.000 | 2757.923 | -13.590 | 0.000  | 2642.823 | 16.540 | 0.000  |
| 4.  | 5401.165 | -1.670  | -0.000 | 2746.877 | -12.290 | 0.000  | 2656.066 | 16.500 | 0.000  |
| 5.  | 5398.066 | -2.100  | -0.000 | 2737.051 | -10.900 | 0.000  | 2673.235 | 16.640 | 0.000  |
| 6.  | 5394.256 | -2.540  | -0.000 | 2728.491 | -9.430  | 0.000  | 2686.412 | 16.750 | 0.000  |
| 7.  | 5389.723 | -3.020  | -0.000 | 2721.236 | -7.900  | 0.000  | 2503.580 | 16.650 | 0.000  |
| 8.  | 5384.463 | -3.420  | -0.000 | 2715.326 | -6.300  | 0.000  | 2510.719 | 16.530 | 0.000  |
| 9.  | 5378.475 | -3.670  | -0.000 | 2710.767 | -4.650  | 0.000  | 2933.611 | 16.390 | 0.000  |
| 10. | 5371.757 | -4.320  | -0.000 | 2707.645 | -2.950  | 0.000  | 2946.660 | 16.240 | 0.000  |
| 11. | 5364.306 | -4.770  | -0.000 | 2705.917 | -1.230  | 0.000  | 2963.768 | 16.070 | 0.000  |
| 12. | 5356.133 | -5.220  | -0.000 | 2705.616 | .510    | 0.000  | 2976.638 | 15.650 | 0.000  |
| 13. | 5347.233 | -5.670  | -0.000 | 2706.755 | 2.256   | 0.000  | 2993.374 | 15.630 | 0.000  |
| 14. | 5337.614 | -6.110  | -0.000 | 2709.327 | 3.980   | 0.000  | 3007.979 | 15.470 | 0.000  |
| 15. | 5327.203 | -6.550  | -0.000 | 2713.324 | 5.650   | 0.000  | 3022.437 | 15.250 | 0.000  |
| 16. | 5316.250 | -6.950  | -0.000 | 2718.751 | 7.360   | 0.000  | 3036.735 | 15.010 | 0.000  |
| 17. | 5304.524 | -7.430  | -0.000 | 2725.575 | 8.980   | 0.000  | 3056.855 | 14.760 | 0.000  |
| 18. | 5292.117 | -7.890  | -0.000 | 2733.778 | 10.550  | 0.000  | 3066.784 | 14.500 | 0.000  |
| 19. | 5279.844 | -8.260  | 0.000  | 2743.330 | 12.040  | 0.000  | 3076.506 | 14.220 | 0.000  |
| 20. | 5265.321 | -8.650  | 0.000  | 2754.197 | 13.470  | 0.000  | 3092.012 | 13.530 | 0.000  |
| 21. | 5250.967 | -9.090  | -0.000 | 2766.338 | 14.810  | 0.000  | 3105.203 | 13.640 | 0.000  |
| 22. | 5236.000 | -9.460  | -0.000 | 2774.708 | 16.060  | 0.000  | 3118.300 | 13.330 | 0.000  |
| 23. | 5220.444 | -9.860  | -0.000 | 2794.257 | 17.220  | 0.000  | 3131.074 | 13.020 | 0.000  |
| 24. | 5204.323 | -10.230 | -0.000 | 2809.927 | 18.290  | 0.000  | 3143.569 | 12.630 | 0.000  |
| 25. | 5187.865 | -10.560 | -0.000 | 2826.660 | 19.260  | 0.000  | 3155.761 | 12.360 | 0.000  |
| 26. | 5170.500 | -10.920 | -0.000 | 2844.390 | 20.140  | 0.000  | 3167.699 | 12.020 | 0.000  |
| 27. | 5152.861 | -11.240 | 0.000  | 2863.046 | 20.910  | 0.000  | 3179.311 | 11.660 | 0.000  |
| 28. | 5134.783 | -11.530 | 0.000  | 2882.556 | 21.590  | 0.000  | 3190.607 | 11.310 | 0.000  |
| 29. | 5116.306 | -11.800 | 0.000  | 2902.841 | 22.170  | 0.000  | 3201.576 | 10.940 | 0.000  |
| 30. | 5097.472 | -12.050 | -0.000 | 2923.819 | 22.650  | 0.000  | 3212.286 | 10.570 | 0.000  |
| 31. | 5078.328 | -12.270 | -0.000 | 2945.403 | 23.030  | 0.000  | 3222.494 | 10.190 | 0.000  |
| 32. | 5058.925 | -12.460 | -0.000 | 2967.503 | 23.320  | 0.000  | 3232.425 | 9.610  | 0.000  |
| 33. | 5039.317 | -12.620 | 0.000  | 2990.024 | 23.510  | 0.000  | 3241.992 | 9.410  | 0.000  |
| 34. | 5019.564 | -12.740 | -0.000 | 3012.865 | 23.600  | 0.000  | 3251.166 | 9.020  | 0.000  |
| 35. | 4999.731 | -12.820 | -0.000 | 3035.925 | 23.580  | 0.000  | 3259.999 | 8.620  | 0.000  |
| 36. | 4979.889 | -12.850 | 0.000  | 3059.094 | 23.470  | 0.000  | 3268.495 | 8.210  | 0.000  |
| 37. | 4960.113 | -12.630 | 0.000  | 3082.259 | 23.260  | 0.000  | 3276.455 | 7.600  | 0.000  |
| 38. | 4940.485 | -12.760 | 0.000  | 3105.303 | 22.940  | 0.000  | 3284.062 | 7.360  | 0.000  |
| 39. | 4921.094 | -12.630 | 0.000  | 3128.103 | 22.520  | 0.000  | 3291.301 | 6.960  | 0.000  |
| 40. | 4902.035 | -12.430 | 0.000  | 3150.530 | 21.980  | 0.000  | 3298.185 | 6.540  | 0.000  |
| 41. | 4883.410 | -12.170 | 0.000  | 3172.452 | 21.330  | 0.000  | 3304.489 | 6.110  | 0.000  |
| 42. | 4865.326 | -11.620 | 0.000  | 3193.731 | 20.560  | 0.000  | 3310.447 | 5.680  | 0.000  |
| 43. | 4847.898 | -11.400 | 0.000  | 3214.224 | 19.670  | 0.000  | 3315.974 | 5.240  | 0.000  |
| 44. | 4831.245 | -10.690 | 0.000  | 3233.787 | 18.650  | 0.000  | 3321.066 | 4.610  | 0.000  |
| 45. | 4815.493 | -10.290 | 0.000  | 3252.270 | 17.500  | 0.000  | 3325.927 | 4.370  | 0.000  |
| 46. | 4800.769 | -9.660  | 0.000  | 3269.523 | 16.210  | 0.000  | 3329.927 | 3.520  | 0.000  |
| 47. | 4787.283 | -8.610  | 0.000  | 3285.399 | 14.790  | 0.000  | 3333.669 | 3.460  | 0.000  |
| 48. | 4774.921 | -7.920  | 0.000  | 3299.749 | 13.230  | 0.000  | 3337.001 | 3.030  | 0.000  |
| 49. | 4764.049 | -6.940  | 0.000  | 3312.435 | 11.540  | 0.000  | 3339.661 | 2.590  | 0.000  |



110-PLANE GALLIUM ARSENIIDE

|     | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |
|-----|----------|--------|--------|----------|---------|--------|----------|---------|--------|
| 50. | 4754.784 | -5.888 | 0.000  | 3333.325 | 9.740   | -0.000 | 3342.266 | 2.140   | 0.000  |
| 51. | 4749.932 | -4.730 | 0.000  | 3332.301 | 7.820   | -0.000 | 3344.214 | 1.690   | 0.000  |
| 52. | 4743.887 | -3.520 | 0.000  | 3339.262 | 5.800   | -0.000 | 3345.703 | 1.240   | -0.000 |
| 53. | 4736.821 | -2.260 | 0.000  | 3344.125 | 3.720   | -0.000 | 3346.733 | .780    | 0.000  |
| 54. | 4734.498 | -.960  | 0.000  | 3346.833 | 1.600   | 0.000  | 3347.303 | .330    | 0.000  |
| 55. | 4734.044 | .350   | 0.000  | 3347.412 | -.120   | 0.000  | 3347.351 | -.570   | 0.000  |
| 56. | 4735.488 | 1.650  | 0.000  | 3345.674 | -2.720  | -0.000 | 3347.060 | -1.570  | -0.000 |
| 57. | 4738.883 | 2.930  | 0.000  | 3341.823 | -4.830  | -0.000 | 3346.247 | -1.020  | -0.880 |
| 58. | 4743.947 | 4.170  | 0.000  | 3335.843 | -6.880  | 0.000  | 3344.974 | -1.470  | -0.300 |
| 59. | 4750.854 | 5.350  | 0.000  | 3327.807 | -8.840  | 0.000  | 3343.242 | -1.920  | -0.000 |
| 60. | 4759.441 | 6.450  | 0.000  | 3317.806 | -10.710 | 0.000  | 3341.053 | -2.370  | -0.000 |
| 61. | 4769.686 | 7.470  | 0.000  | 3305.952 | -12.456 | 0.000  | 3338.407 | -2.820  | -0.000 |
| 62. | 4781.238 | 8.400  | 0.000  | 3292.371 | -14.070 | 0.000  | 3335.388 | -3.270  | -0.880 |
| 63. | 4794.214 | 9.240  | 0.000  | 3277.197 | -15.560 | 0.000  | 3331.758 | -3.710  | -0.000 |
| 64. | 4808.488 | 9.970  | 0.000  | 3260.576 | -16.910 | 0.000  | 3327.760 | -4.160  | -0.000 |
| 65. | 4823.691 | 10.620 | 0.000  | 3242.654 | -18.120 | 0.000  | 3323.317 | -4.600  | -0.000 |
| 66. | 4839.934 | 11.170 | 0.000  | 3223.583 | -19.200 | 0.000  | 3318.432 | -5.040  | -0.000 |
| 67. | 4857.011 | 11.630 | 0.000  | 3203.510 | -20.160 | 0.000  | 3313.110 | -5.470  | -0.000 |
| 68. | 4874.880 | 12.010 | 0.000  | 3182.584 | -20.980 | 0.000  | 3307.354 | -5.900  | -0.000 |
| 69. | 4893.184 | 12.310 | 0.000  | 3160.946 | -21.650 | 0.000  | 3301.171 | -6.330  | -0.000 |
| 70. | 4912.051 | 12.540 | 0.000  | 3138.743 | -22.260 | 0.000  | 3294.565 | -6.760  | -0.000 |
| 71. | 4931.297 | 12.700 | 0.000  | 3116.103 | -22.760 | 0.000  | 3287.541 | -7.160  | -0.000 |
| 72. | 4950.825 | 12.800 | 0.000  | 3093.159 | -23.120 | 0.000  | 3280.105 | -7.600  | -0.000 |
| 73. | 4970.542 | 12.850 | 0.000  | 3070.035 | -23.390 | 0.000  | 3272.264 | -8.010  | -0.000 |
| 74. | 4990.362 | 12.840 | 0.000  | 3046.854 | -23.550 | 0.000  | 3264.025 | -8.420  | -0.000 |
| 75. | 5010.209 | 12.780 | -0.000 | 3023.729 | -23.600 | 0.000  | 3255.394 | -8.830  | -0.600 |
| 76. | 5030.088 | 12.680 | 0.000  | 3000.771 | -23.560 | -0.000 | 3246.378 | -9.230  | -0.000 |
| 77. | 5049.692 | 12.540 | 0.000  | 2978.086 | -23.420 | 0.000  | 3236.286 | -9.620  | -0.000 |
| 78. | 5069.199 | 12.370 | 0.000  | 2955.776 | -23.180 | 0.000  | 3227.226 | -10.010 | -0.000 |
| 79. | 5088.472 | 12.160 | -0.000 | 2933.937 | -22.840 | 0.000  | 3217.107 | -10.390 | -0.000 |
| 80. | 5107.458 | 11.930 | 0.000  | 2912.662 | -22.410 | 0.000  | 3206.837 | -10.770 | -0.000 |
| 81. | 5126.109 | 11.680 | 0.000  | 2892.039 | -21.880 | 0.000  | 3195.625 | -11.140 | -0.000 |
| 82. | 5144.381 | 11.380 | 0.000  | 2872.153 | -21.250 | 0.000  | 3184.683 | -11.500 | -0.000 |
| 83. | 5162.232 | 11.070 | 0.000  | 2853.084 | -20.520 | 0.000  | 3173.219 | -11.850 | -0.000 |
| 84. | 5179.625 | 10.740 | -0.000 | 2834.908 | -19.690 | 0.000  | 3161.444 | -12.200 | -0.000 |
| 85. | 5196.526 | 10.400 | 0.000  | 2817.697 | -18.760 | 0.000  | 3149.369 | -12.530 | -0.000 |
| 86. | 5212.984 | 10.040 | -0.000 | 2801.517 | -17.740 | 0.000  | 3137.006 | -12.860 | -0.000 |
| 87. | 5228.729 | 9.660  | -0.000 | 2786.432 | -16.620 | 0.000  | 3124.366 | -13.180 | -0.000 |
| 88. | 5243.977 | 9.260  | 0.000  | 2772.499 | -15.410 | 0.000  | 3111.462 | -13.500 | -0.000 |
| 89. | 5258.623 | 8.880  | 0.000  | 2759.772 | -14.110 | 0.000  | 3098.305 | -13.800 | -0.000 |
| 90. | 5272.647 | 8.470  | -0.000 | 2748.298 | -12.730 | 0.000  | 3084.910 | -14.090 | -0.000 |
| 91. | 5286.029 | 8.050  | 0.000  | 2738.120 | -11.260 | 0.000  | 3071.288 | -14.370 | -0.000 |
| 92. | 5298.752 | 7.630  | -0.000 | 2729.277 | -9.730  | 0.000  | 3057.454 | -14.640 | -0.000 |
| 93. | 5310.881 | 7.200  | 0.000  | 2721.799 | -8.130  | 0.000  | 3043.422 | -14.890 | -0.000 |
| 94. | 5322.162 | 6.760  | 0.000  | 2715.713 | -6.480  | 0.000  | 3029.207 | -15.140 | -0.000 |
| 95. | 5332.826 | 6.320  | 0.000  | 2711.038 | -4.790  | 0.000  | 3014.822 | -15.370 | -0.000 |
| 96. | 5342.762 | 5.880  | 0.000  | 2707.770 | -3.070  | 0.000  | 3000.284 | -15.590 | -0.000 |
| 97. | 5352.022 | 5.430  | 0.000  | 2705.976 | -1.330  | 0.000  | 2985.608 | -15.790 | -0.000 |
| 98. | 5360.540 | 4.980  | -0.000 | 2705.598 | 0.410   | 0.000  | 2970.810 | -15.990 | -0.000 |
| 99. | 5368.332 | 4.530  | -0.000 | 2706.652 | 2.140   | 0.000  | 2955.910 | -16.160 | -0.000 |

110-PLANE GALLIUM ARSENIDE

|      | LNGVEL   | LSPH12 | LPH113 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|---------|--------|
| 100. | 5375.395 | 4.080  | -0.000 | 2709.126 | 3.850  | 0.000  | 2940.914 | -16.320 | 0.000  |
| 101. | 5381.728 | 3.640  | 0.000  | 2713.011 | 5.520  | 0.000  | 2925.849 | -16.470 | -0.000 |
| 102. | 5387.331 | 3.190  | 0.000  | 2718.278 | 7.150  | 0.000  | 2910.730 | -16.600 | -0.000 |
| 103. | 5392.206 | 2.750  | 0.000  | 2724.902 | 8.720  | 0.000  | 2895.574 | -16.710 | -0.000 |
| 104. | 5396.358 | 2.310  | 0.000  | 2732.051 | 10.220 | 0.000  | 2880.399 | -16.800 | -0.000 |
| 105. | 5399.792 | 1.870  | 0.000  | 2742.004 | 11.640 | 0.000  | 2865.223 | -16.870 | -0.000 |
| 106. | 5402.514 | 1.440  | 0.000  | 2752.561 | 12.990 | 0.000  | 2850.066 | -16.930 | -0.000 |
| 107. | 5404.533 | 1.020  | -0.000 | 2764.231 | 14.250 | 0.000  | 2834.946 | -16.970 | -0.000 |
| 108. | 5405.661 | .600   | -0.000 | 2777.044 | 15.420 | 0.000  | 2819.861 | -16.990 | -0.000 |
| 109. | 5406.508 | .190   | -0.000 | 2790.942 | 16.490 | 0.000  | 2804.893 | -16.990 | -0.000 |
| 110. | 5406.490 | -.210  | -0.000 | 2805.865 | 17.460 | 0.000  | 2789.994 | -16.950 | -0.000 |
| 111. | 5405.823 | -.600  | 0.000  | 2821.748 | 18.360 | 0.000  | 2775.221 | -16.900 | -0.000 |
| 112. | 5404.523 | -.960  | 0.000  | 2838.524 | 19.150 | 0.000  | 2760.578 | -16.820 | -0.000 |
| 113. | 5402.611 | -1.340 | -0.000 | 2856.123 | 19.840 | 0.000  | 2746.090 | -16.730 | 0.000  |
| 114. | 5400.108 | -1.700 | 0.000  | 2874.470 | 20.440 | 0.000  | 2731.777 | -16.610 | -0.000 |
| 115. | 5397.039 | -2.030 | -0.000 | 2893.491 | 20.950 | 0.000  | 2717.660 | -16.460 | -0.000 |
| 116. | 5393.428 | -2.360 | -0.000 | 2913.106 | 21.360 | 0.000  | 2703.760 | -16.250 | -0.000 |
| 117. | 5389.306 | -2.660 | -0.000 | 2933.235 | 21.690 | 0.000  | 2690.096 | -16.050 | 0.000  |
| 118. | 5384.700 | -2.950 | 0.000  | 2953.797 | 21.920 | 0.000  | 2676.686 | -15.800 | 0.000  |
| 119. | 5379.645 | -3.210 | 0.000  | 2974.707 | 22.080 | 0.000  | 2663.559 | -15.610 | 0.000  |
| 120. | 5374.175 | -3.460 | 0.000  | 2995.860 | 22.140 | 0.000  | 2650.727 | -15.320 | 0.000  |
| 121. | 5368.327 | -3.680 | 0.000  | 3017.229 | 22.120 | 0.000  | 2638.212 | -15.010 | 0.000  |
| 122. | 5362.140 | -3.880 | -0.000 | 3038.866 | 22.020 | 0.000  | 2626.035 | -14.670 | 0.000  |
| 123. | 5355.657 | -4.050 | 0.000  | 3060.101 | 21.840 | 0.000  | 2614.215 | -14.310 | 0.000  |
| 124. | 5348.922 | -4.190 | -0.000 | 3081.445 | 21.580 | 0.000  | 2602.772 | -13.910 | 0.000  |
| 125. | 5341.981 | -4.310 | 0.000  | 3102.606 | 21.230 | 0.000  | 2591.725 | -13.460 | 0.000  |
| 126. | 5334.884 | -4.400 | -0.000 | 3123.497 | 20.810 | 0.000  | 2581.092 | -13.020 | 0.000  |
| 127. | 5327.680 | -4.450 | -0.000 | 3144.022 | 20.310 | 0.000  | 2570.891 | -12.540 | 0.000  |
| 128. | 5320.423 | -4.470 | -0.000 | 3164.091 | 19.730 | 0.000  | 2561.140 | -12.020 | 0.000  |
| 129. | 5313.167 | -4.460 | -0.000 | 3183.612 | 19.060 | 0.000  | 2551.856 | -11.460 | -0.000 |
| 130. | 5305.969 | -4.420 | -0.000 | 3202.494 | 18.340 | 0.000  | 2543.056 | -10.910 | 0.000  |
| 131. | 5298.884 | -4.330 | 0.000  | 3220.647 | 17.530 | 0.000  | 2534.755 | -10.310 | 0.000  |
| 132. | 5291.972 | -4.210 | 0.000  | 3237.983 | 16.650 | 0.000  | 2526.969 | -9.680  | 0.000  |
| 133. | 5285.290 | -4.060 | 0.000  | 3254.415 | 15.690 | 0.000  | 2519.712 | -9.030  | 0.000  |
| 134. | 5278.897 | -3.870 | -0.000 | 3269.650 | 14.650 | 0.000  | 2512.997 | -8.350  | 0.000  |
| 135. | 5272.846 | -3.640 | -0.000 | 3284.230 | 13.550 | 0.000  | 2506.837 | -7.650  | -0.000 |
| 136. | 5267.200 | -3.380 | -0.000 | 3297.455 | 12.370 | 0.000  | 2501.244 | -6.930  | -0.000 |
| 137. | 5262.005 | -3.090 | -0.000 | 3309.457 | 11.140 | 0.000  | 2496.227 | -6.190  | 0.000  |
| 138. | 5257.315 | -2.760 | -0.000 | 3320.171 | 9.840  | 0.000  | 2491.796 | -5.430  | 0.000  |
| 139. | 5253.175 | -2.400 | -0.000 | 3329.532 | 8.460  | 0.000  | 2487.984 | -4.650  | 0.000  |
| 140. | 5249.627 | -2.020 | -0.000 | 3337.486 | 7.060  | 0.000  | 2484.732 | -3.860  | -0.000 |
| 141. | 5246.707 | -1.620 | 0.000  | 3343.984 | 5.630  | 0.000  | 2482.110 | -3.060  | -0.000 |
| 142. | 5244.447 | -1.200 | -0.000 | 3348.987 | 4.150  | 0.000  | 2480.101 | -2.250  | -0.000 |
| 143. | 5242.869 | -.770  | -0.000 | 3352.464 | 2.650  | 0.000  | 2478.711 | -1.430  | 0.000  |
| 144. | 5241.992 | -.330  | -0.000 | 3354.394 | 1.130  | 0.000  | 2477.942 | -.610   | 0.000  |
| 145. | 5241.824 | .110   | 0.000  | 3354.762 | -.400  | -0.000 | 2477.795 | .220    | 0.000  |
| 146. | 5242.367 | .560   | 0.000  | 3353.569 | -1.930 | 0.000  | 2478.271 | 1.040   | 0.000  |
| 147. | 5243.616 | 1.000  | 0.000  | 3350.820 | -3.450 | -0.000 | 2479.368 | 1.660   | 0.000  |
| 148. | 5245.556 | 1.430  | 0.000  | 3346.534 | -.940  | 0.000  | 2481.089 | 2.600   | 0.000  |
| 149. | 5248.168 | 1.640  | 0.000  | 3340.737 | -0.400 | -0.000 | 2483.448 | 3.450   | 0.000  |

BULK

AD-A092 957

ROME AIR DEVELOPMENT CENTER GRIFFISS AFB NY F/G 20/1  
MICROWAVE ACOUSTICS HANDBOOK, VOLUME 4. BULK WAVE VELOCITIES-NU--ETC(U)  
JUN 80 A J SLOBODNIK, R T DELMONICO  
RADC-TR-80-190

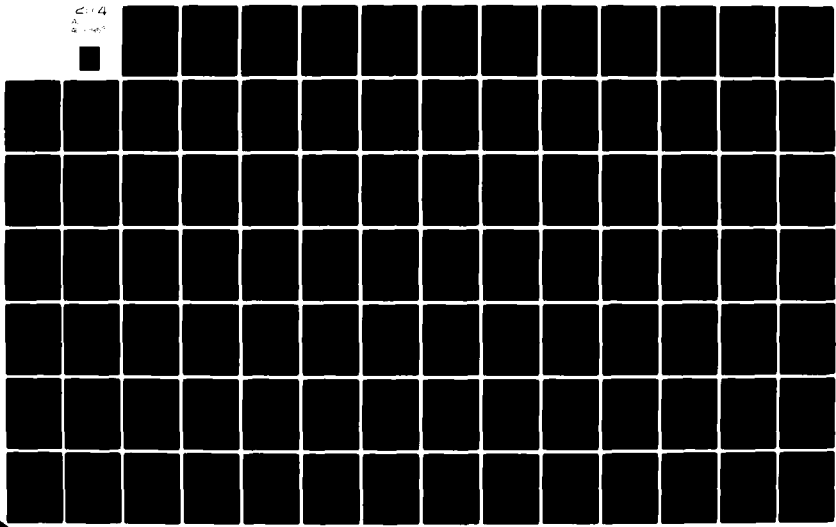
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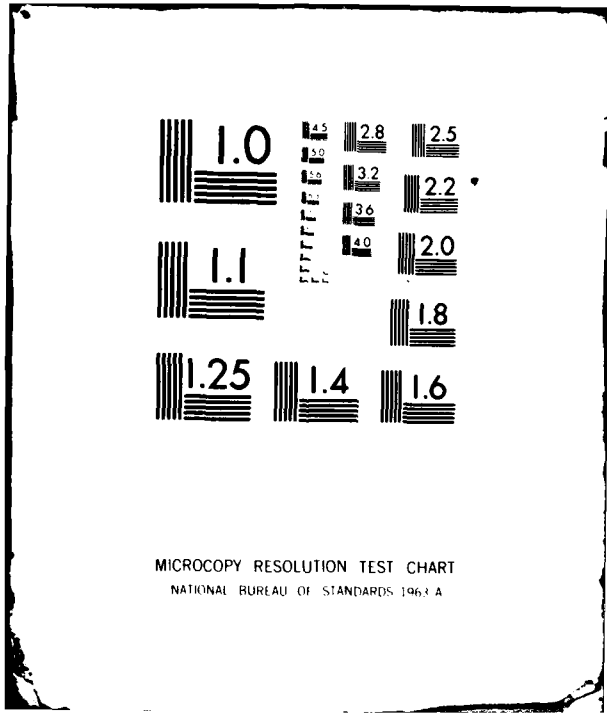
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS 1963-A

110-PLANE GALLIUM ARSENIDE

BULK

|      | LNGVEL   | LPM12 | LPM13  | FSRVEL   | FSPM12  | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |
|------|----------|-------|--------|----------|---------|--------|----------|--------|--------|
| 150. | 5251.424 | 2.230 | 0.000  | 3233.465 | -7.830  | -0.000 | 2486.363 | 4.280  | 0.000  |
| 151. | 5255.289 | 2.600 | 0.000  | 3324.761 | -9.200  | -0.000 | 2489.313 | 5.060  | 0.000  |
| 152. | 5259.726 | 2.940 | 0.000  | 3314.679 | -10.530 | -0.000 | 2494.063 | 5.830  | 0.000  |
| 153. | 5264.688 | 3.250 | 0.000  | 3303.276 | -11.800 | -0.000 | 2498.604 | 6.540  | 0.000  |
| 154. | 5270.129 | 3.520 | 0.000  | 3290.620 | -13.006 | -0.000 | 2504.126 | 7.310  | 0.000  |
| 155. | 5275.955 | 3.770 | 0.000  | 3276.780 | -14.140 | -0.000 | 2510.020 | 8.020  | 0.000  |
| 156. | 5282.233 | 3.970 | 0.000  | 3261.832 | -15.210 | -0.000 | 2516.474 | 8.710  | 0.000  |
| 157. | 5288.786 | 4.150 | 0.000  | 3245.857 | -16.200 | -0.000 | 2523.477 | 9.360  | 0.000  |
| 158. | 5295.597 | 4.280 | 0.000  | 3228.937 | -17.120 | -0.000 | 2531.015 | 10.020 | 0.000  |
| 159. | 5302.607 | 4.360 | 0.000  | 3211.156 | -17.970 | -0.000 | 2539.075 | 10.630 | 0.000  |
| 160. | 5309.759 | 4.440 | 0.000  | 3192.604 | -18.740 | -0.000 | 2547.641 | 11.210 | 0.000  |
| 161. | 5316.955 | 4.470 | 0.000  | 3173.376 | -19.430 | -0.000 | 2556.699 | 11.770 | 0.000  |
| 162. | 5324.256 | 4.470 | 0.000  | 3153.597 | -20.050 | -0.000 | 2566.231 | 12.300 | 0.000  |
| 163. | 5331.494 | 4.430 | 0.000  | 3133.236 | -20.590 | -0.000 | 2576.222 | 12.600 | 0.000  |
| 164. | 5338.648 | 4.360 | 0.000  | 3112.507 | -21.050 | -0.000 | 2586.653 | 13.270 | 0.000  |
| 165. | 5345.669 | 4.250 | 0.000  | 3091.462 | -21.430 | -0.000 | 2597.507 | 13.710 | 0.000  |
| 166. | 5352.507 | 4.120 | 0.000  | 3070.193 | -21.730 | -0.000 | 2608.766 | 14.120 | 0.000  |
| 167. | 5359.114 | 3.960 | 0.000  | 3048.789 | -21.950 | -0.000 | 2620.411 | 14.500 | 0.000  |
| 168. | 5365.446 | 3.760 | 0.000  | 3027.342 | -22.090 | -0.000 | 2632.421 | 14.860 | 0.000  |
| 169. | 5371.459 | 3.560 | 0.000  | 3005.940 | -22.140 | -0.000 | 2644.779 | 15.180 | 0.000  |
| 170. | 5377.113 | 3.330 | 0.000  | 2984.673 | -22.120 | -0.000 | 2657.464 | 15.460 | 0.000  |
| 171. | 5382.368 | 3.070 | 0.000  | 2963.629 | -22.010 | -0.000 | 2670.455 | 15.740 | 0.000  |
| 172. | 5387.190 | 2.800 | 0.000  | 2942.892 | -21.810 | -0.000 | 2683.734 | 15.960 | 0.000  |
| 173. | 5391.545 | 2.500 | 0.000  | 2922.546 | -21.530 | -0.000 | 2697.274 | 16.130 | 0.000  |
| 174. | 5395.480 | 2.190 | 0.000  | 2902.680 | -21.150 | -0.000 | 2711.071 | 16.300 | 0.000  |
| 175. | 5398.768 | 1.860 | 0.000  | 2883.369 | -20.690 | -0.000 | 2725.086 | 16.540 | 0.000  |
| 176. | 5401.502 | 1.510 | 0.000  | 2864.694 | -20.130 | -0.000 | 2739.311 | 16.670 | -0.000 |
| 177. | 5403.695 | 1.150 | 0.000  | 2846.733 | -19.460 | -0.000 | 2753.719 | 16.760 | 0.000  |
| 178. | 5405.287 | .760  | 0.000  | 2829.559 | -18.740 | -0.000 | 2768.291 | 16.670 | 0.000  |
| 179. | 5406.255 | .400  | 0.000  | 2813.246 | -17.900 | -0.000 | 2783.004 | 16.430 | -0.000 |
| 180. | 5406.562 | 0.000 | -0.000 | 2797.862 | -16.970 | -0.000 | 2797.850 | 16.570 | -0.000 |

Z-PLANE (XY-PLANE) GERMANIUM

BULK

|     | LMVEL    | LPM112 | LPM113 | FSRWEL   | FSPM112 | FSPM113 | SSRWEL   | SSPM112 | SSPM113 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 4924.230 | 0.000  | 0.000  | 3548.000 | 0.000   | 0.000   | 3548.000 | 0.000   | 0.000   |
| 1.  | 4925.114 | 1.170  | 0.000  | 3547.584 | -2.250  | 0.000   | 3546.600 | 0.000   | 0.000   |
| 2.  | 4927.731 | 2.310  | 0.000  | 3543.949 | -4.470  | 0.000   | 3546.600 | -0.000  | 0.000   |
| 3.  | 4932.045 | 3.420  | 0.000  | 3537.937 | -6.630  | 0.000   | 3548.000 | 0.000   | 0.000   |
| 4.  | 4938.000 | 4.460  | 0.000  | 3529.615 | -8.720  | 0.000   | 3548.000 | 0.000   | 0.000   |
| 5.  | 4945.524 | 5.470  | 0.000  | 3519.076 | -10.710 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 6.  | 4954.499 | 6.360  | 0.000  | 3506.430 | -12.580 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 7.  | 4964.010 | 7.200  | 0.000  | 3491.603 | -14.330 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 8.  | 4976.360 | 7.940  | 0.000  | 3475.334 | -15.950 | 0.000   | 3548.000 | -0.000  | 0.000   |
| 9.  | 4988.994 | 8.580  | 0.000  | 3457.172 | -17.440 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 10. | 4982.591 | 9.130  | 0.000  | 3437.469 | -18.600 | 0.000   | 3548.000 | -0.000  | 0.000   |
| 11. | 5017.817 | 9.590  | 0.000  | 3416.379 | -20.020 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 12. | 5032.145 | 9.970  | 0.000  | 3394.057 | -21.120 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 13. | 5047.048 | 10.260 | 0.000  | 3370.656 | -22.100 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 14. | 5064.006 | 10.480 | 0.000  | 3346.331 | -22.960 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 15. | 5080.510 | 10.630 | 0.000  | 3321.223 | -23.700 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 16. | 5097.269 | 10.710 | 0.000  | 3295.476 | -24.340 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 17. | 5114.124 | 10.730 | 0.000  | 3269.227 | -24.870 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 18. | 5131.042 | 10.690 | 0.000  | 3242.609 | -25.310 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 19. | 5147.916 | 10.610 | 0.000  | 3215.750 | -25.640 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 20. | 5164.671 | 10.480 | 0.000  | 3188.774 | -25.860 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 21. | 5181.228 | 10.300 | 0.000  | 3161.600 | -26.020 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 22. | 5197.522 | 10.050 | 0.000  | 3134.944 | -26.060 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 23. | 5213.490 | 9.640  | 0.000  | 3108.315 | -26.020 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 24. | 5229.076 | 9.160  | 0.000  | 3082.023 | -25.870 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 25. | 5244.227 | 8.260  | 0.000  | 3056.172 | -25.640 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 26. | 5258.096 | 6.920  | 0.000  | 3030.862 | -25.300 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 27. | 5273.037 | 6.570  | 0.000  | 3006.191 | -24.670 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 28. | 5286.612 | 6.190  | 0.000  | 2982.254 | -24.330 | 0.000   | 3548.000 | -0.000  | 0.000   |
| 29. | 5299.584 | 7.790  | 0.000  | 2959.141 | -23.700 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 30. | 5311.919 | 7.380  | 0.000  | 2936.941 | -22.960 | 0.000   | 3548.000 | -0.000  | 0.000   |
| 31. | 5323.506 | 6.950  | 0.000  | 2915.739 | -22.110 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 32. | 5334.559 | 6.510  | 0.000  | 2895.614 | -21.160 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 33. | 5344.012 | 6.050  | 0.000  | 2876.645 | -20.090 | 0.000   | 3548.000 | -0.000  | 0.000   |
| 34. | 5354.323 | 5.580  | 0.000  | 2858.904 | -18.920 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 35. | 5363.071 | 5.100  | 0.000  | 2842.459 | -17.640 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 36. | 5371.030 | 4.620  | 0.000  | 2827.376 | -16.250 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 37. | 5378.208 | 4.120  | 0.000  | 2813.714 | -14.750 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 38. | 5384.566 | 3.620  | 0.000  | 2801.526 | -13.160 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 39. | 5390.102 | 3.120  | 0.000  | 2790.862 | -11.470 | 0.000   | 3548.000 | 0.000   | 0.000   |
| 40. | 5394.803 | 2.600  | 0.000  | 2781.764 | -9.700  | 0.000   | 3548.000 | 0.000   | 0.000   |
| 41. | 5398.661 | 2.040  | 0.000  | 2774.269 | -7.860  | 0.000   | 3548.000 | 0.000   | 0.000   |
| 42. | 5401.669 | 1.570  | 0.000  | 2768.407 | -5.950  | 0.000   | 3548.000 | 0.000   | 0.000   |
| 43. | 5403.821 | 1.050  | 0.000  | 2764.203 | -3.990  | 0.000   | 3548.000 | 0.000   | 0.000   |
| 44. | 5405.114 | .520   | 0.000  | 2761.674 | -2.010  | 0.000   | 3548.000 | 0.000   | 0.000   |
| 45. | 5405.546 | 0.000  | 0.000  | 2760.830 | 0.000   | 0.000   | 3548.000 | 0.000   | 0.000   |
| 46. | 5405.114 | -0.520 | 0.000  | 2761.674 | 2.010   | 0.000   | 3548.000 | 0.000   | 0.000   |
| 47. | 5403.821 | -1.050 | 0.000  | 2764.203 | 3.990   | 0.000   | 3548.000 | 0.000   | 0.000   |
| 48. | 5401.669 | -1.570 | 0.000  | 2768.407 | 5.950   | 0.000   | 3548.000 | 0.000   | 0.000   |
| 49. | 5398.661 | -2.050 | 0.000  | 2774.269 | 7.860   | 0.000   | 3548.000 | 0.000   | 0.000   |

Z-PLANE (XY-PLANE) GERMANIUM

|     | LNLEVEL  | LPHI12  | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SRVEL    | SSPH12 | SSPH13 |
|-----|----------|---------|--------|----------|---------|--------|----------|--------|--------|
| 50. | 5394.803 | -2.600  | 0.000  | 2781.764 | 9.700   | 0.000  | 3548.800 | 0.000  | 0.000  |
| 51. | 5398.182 | -3.128  | 0.000  | 2790.862 | 11.470  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 52. | 5384.566 | -6.620  | 0.000  | 2681.526 | 13.160  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 53. | 5378.200 | -6.120  | 0.000  | 2613.714 | 14.750  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 54. | 5371.830 | -6.620  | 0.000  | 2627.376 | 16.250  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 55. | 5365.871 | -5.100  | 0.000  | 2682.459 | 17.840  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 56. | 5354.323 | -5.500  | 0.000  | 2656.904 | 18.920  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 57. | 5344.812 | -6.050  | 0.000  | 2676.645 | 20.040  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 58. | 5334.559 | -6.510  | 0.000  | 2695.614 | 21.160  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 59. | 5323.586 | -6.950  | 0.000  | 2915.739 | 22.110  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 60. | 5311.919 | -7.360  | 0.000  | 2936.941 | 22.960  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 61. | 5299.584 | -7.790  | 0.000  | 2959.141 | 23.700  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 62. | 5286.612 | -8.190  | 0.000  | 2982.254 | 24.330  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 63. | 5273.037 | -8.570  | 0.000  | 3006.191 | 24.870  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 64. | 5258.896 | -8.920  | 0.000  | 3030.862 | 25.300  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 65. | 5244.227 | -9.260  | 0.000  | 3056.172 | 25.640  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 66. | 5228.076 | -9.560  | 0.000  | 3082.823 | 25.870  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 67. | 5213.498 | -9.840  | 0.000  | 3108.315 | 26.020  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 68. | 5197.522 | -10.090 | 0.000  | 3134.944 | 26.060  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 69. | 5181.228 | -10.300 | 0.000  | 3161.800 | 26.020  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 70. | 5164.671 | -10.460 | 0.000  | 3188.774 | 25.880  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 71. | 5147.916 | -10.610 | 0.000  | 3215.750 | 25.640  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 72. | 5131.062 | -10.690 | 0.000  | 3242.609 | 25.310  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 73. | 5114.124 | -10.730 | 0.000  | 3269.227 | 24.870  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 74. | 5097.249 | -10.710 | 0.000  | 3295.476 | 24.340  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 75. | 5080.510 | -10.630 | 0.000  | 3321.223 | 23.700  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 76. | 5064.008 | -10.460 | 0.000  | 3346.331 | 22.960  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 77. | 5047.848 | -10.260 | 0.000  | 3370.654 | 22.100  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 78. | 5031.145 | -9.970  | 0.000  | 3394.057 | 21.120  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 79. | 5017.817 | -9.590  | 0.000  | 3416.379 | 20.020  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 80. | 5002.591 | -9.130  | 0.000  | 3437.469 | 16.000  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 81. | 4988.994 | -8.560  | 0.000  | 3457.172 | 17.440  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 82. | 4976.360 | -7.940  | 0.000  | 3475.334 | 15.950  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 83. | 4964.818 | -7.200  | 0.000  | 3491.833 | 14.330  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 84. | 4954.459 | -6.350  | 0.000  | 3506.430 | 12.560  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 85. | 4945.524 | -5.470  | 0.000  | 3519.876 | 10.710  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 86. | 4938.888 | -4.460  | 0.000  | 3529.615 | 6.720   | 0.000  | 3548.800 | 0.000  | 0.000  |
| 87. | 4932.849 | -3.420  | 0.000  | 3537.937 | 6.630   | 0.000  | 3548.800 | 0.000  | 0.000  |
| 88. | 4927.731 | -2.310  | 0.000  | 3543.949 | 4.470   | 0.000  | 3548.800 | 0.000  | 0.000  |
| 89. | 4923.114 | -1.170  | 0.000  | 3547.564 | 2.250   | 0.000  | 3548.800 | 0.000  | 0.000  |
| 90. | 4922.238 | 0.000   | 0.000  | 3548.800 | -0.000  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 91. | 4923.114 | 1.170   | 0.000  | 3547.564 | -2.250  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 92. | 4927.731 | 2.310   | 0.000  | 3543.949 | -4.470  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 93. | 4932.849 | 3.420   | 0.000  | 3537.937 | -6.630  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 94. | 4938.888 | 4.460   | 0.000  | 3529.615 | -8.720  | 0.000  | 3548.800 | 0.000  | 0.000  |
| 95. | 4945.524 | 5.470   | 0.000  | 3519.876 | -10.710 | 0.000  | 3548.800 | 0.000  | 0.000  |
| 96. | 4954.459 | 6.350   | 0.000  | 3506.430 | -12.560 | 0.000  | 3548.800 | 0.000  | 0.000  |
| 97. | 4964.818 | 7.200   | 0.000  | 3491.833 | -14.330 | 0.000  | 3548.800 | 0.000  | 0.000  |
| 98. | 4976.360 | 7.940   | 0.000  | 3475.334 | -15.950 | 0.000  | 3548.800 | 0.000  | 0.000  |
| 99. | 4988.994 | 8.560   | 0.000  | 3457.172 | -17.440 | 0.000  | 3548.800 | 0.000  | 0.000  |

Z-PLANE (XY-PLANE) GERMANIUM

|      | LPHI12 | LPHI13 | FSRWEL   | FSPH12  | FSPH13 | SSRWEL   | SSPH12 | SSPH13 |
|------|--------|--------|----------|---------|--------|----------|--------|--------|
| 100. | 9.130  | 0.000  | 3437.469 | -16.800 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 101. | 9.590  | 0.000  | 3416.379 | -20.020 | 0.000  | 3546.800 | -0.000 | 0.000  |
| 102. | 9.970  | 0.000  | 3394.057 | -21.120 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 103. | 10.260 | 0.000  | 3370.658 | -22.100 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 104. | 10.480 | 0.000  | 3346.331 | -22.960 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 105. | 10.630 | 0.000  | 3321.223 | -23.700 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 106. | 10.710 | 0.000  | 3295.476 | -24.340 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 107. | 10.730 | 0.000  | 3269.227 | -24.870 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 108. | 10.650 | 0.000  | 3242.605 | -25.310 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 109. | 10.610 | 0.000  | 3215.750 | -25.640 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 110. | 10.460 | 0.000  | 3188.774 | -25.880 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 111. | 10.300 | 0.000  | 3161.800 | -26.020 | 0.000  | 3546.800 | -0.600 | 0.000  |
| 112. | 10.090 | 0.000  | 3134.944 | -26.060 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 113. | 9.840  | 0.000  | 3108.315 | -26.020 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 114. | 9.560  | 0.000  | 3082.023 | -25.870 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 115. | 9.260  | 0.000  | 3056.172 | -25.640 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 116. | 8.920  | 0.000  | 3030.862 | -25.300 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 117. | 8.570  | 0.000  | 3006.191 | -24.870 | 0.000  | 3546.800 | 0.600  | 0.000  |
| 118. | 8.190  | 0.000  | 2982.294 | -24.330 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 119. | 7.790  | 0.000  | 2959.141 | -23.700 | 0.000  | 3546.800 | -0.000 | 0.000  |
| 120. | 7.360  | 0.000  | 2936.941 | -22.960 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 121. | 6.950  | 0.000  | 2915.739 | -22.110 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 122. | 6.510  | 0.000  | 2895.614 | -21.160 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 123. | 6.050  | 0.000  | 2876.645 | -20.050 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 124. | 5.580  | 0.000  | 2858.984 | -18.920 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 125. | 5.100  | 0.000  | 2842.459 | -17.640 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 126. | 4.620  | 0.000  | 2827.376 | -16.250 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 127. | 4.120  | 0.000  | 2813.714 | -14.750 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 128. | 3.620  | 0.000  | 2801.526 | -13.160 | 0.000  | 3546.800 | -0.600 | 0.000  |
| 129. | 3.120  | 0.000  | 2790.862 | -11.470 | 0.000  | 3546.800 | 0.000  | 0.000  |
| 130. | 2.600  | 0.000  | 2781.764 | -9.700  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 131. | 2.090  | 0.000  | 2774.265 | -7.860  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 132. | 1.570  | 0.000  | 2768.407 | -5.950  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 133. | 1.050  | 0.000  | 2764.203 | -3.990  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 134. | 0.520  | 0.000  | 2761.674 | -2.010  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 135. | -0.000 | 0.000  | 2760.830 | 0.000   | 0.000  | 3546.800 | 0.000  | 0.000  |
| 136. | -0.520 | 0.000  | 2761.674 | 2.010   | 0.000  | 3546.800 | 0.000  | 0.000  |
| 137. | -1.050 | 0.000  | 2764.203 | 3.990   | 0.000  | 3546.800 | 0.000  | 0.000  |
| 138. | -1.570 | 0.000  | 2768.407 | 5.950   | 0.000  | 3546.800 | 0.000  | 0.000  |
| 139. | -2.090 | 0.000  | 2774.269 | 7.860   | 0.000  | 3546.800 | 0.000  | 0.000  |
| 140. | -2.600 | 0.000  | 2781.764 | 9.700   | 0.000  | 3546.800 | 0.000  | 0.000  |
| 141. | -3.120 | 0.000  | 2790.862 | 11.470  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 142. | -3.620 | 0.000  | 2801.526 | 13.160  | 0.000  | 3546.800 | -0.000 | 0.000  |
| 143. | -4.120 | 0.000  | 2813.714 | 14.750  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 144. | -4.620 | 0.000  | 2827.376 | 16.250  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 145. | -5.100 | 0.000  | 2842.459 | 17.640  | 0.000  | 3546.800 | -0.000 | 0.000  |
| 146. | -5.580 | 0.000  | 2858.984 | 18.920  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 147. | -6.050 | 0.000  | 2876.645 | 20.050  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 148. | -6.510 | 0.000  | 2895.614 | 21.160  | 0.000  | 3546.800 | 0.000  | 0.000  |
| 149. | -6.950 | 0.000  | 2915.739 | 22.110  | 0.000  | 3546.800 | 0.000  | 0.000  |



| Z-PLANE (XY-PLANE) GERMANIUM |          |         |        |          |        |          |        |        |        |
|------------------------------|----------|---------|--------|----------|--------|----------|--------|--------|--------|
|                              | LMGVEL   | LPHI12  | LPHI13 | FSPH12   | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |        |
| 150.                         | 531.919  | -7.360  | 0.000  | 2336.941 | 22.960 | 3546.800 | 0.000  | 0.000  | SSPH13 |
| 151.                         | 529.564  | -7.790  | 0.000  | 2959.141 | 23.700 | 3546.800 | 0.000  | 0.000  | SSPH12 |
| 152.                         | 526.612  | -8.190  | 0.000  | 2982.254 | 24.330 | 3546.800 | 0.000  | 0.000  |        |
| 153.                         | 5273.037 | -8.970  | 0.000  | 3006.191 | 24.670 | 3546.800 | 0.000  | 0.000  |        |
| 154.                         | 5256.096 | -8.920  | 0.000  | 3030.062 | 25.300 | 3546.800 | 0.000  | 0.000  |        |
| 155.                         | 5244.227 | -9.260  | 0.000  | 3056.172 | 25.640 | 3546.800 | 0.000  | 0.000  |        |
| 156.                         | 5229.076 | -9.560  | 0.000  | 3082.023 | 25.870 | 3546.800 | -0.000 | 0.000  |        |
| 157.                         | 5213.490 | -9.840  | 0.000  | 3108.515 | 26.020 | 3546.800 | 0.000  | 0.000  |        |
| 158.                         | 5197.522 | -10.090 | 0.000  | 3134.944 | 26.060 | 3546.800 | -0.000 | 0.000  |        |
| 159.                         | 5181.226 | -10.300 | 0.000  | 3161.000 | 26.020 | 3546.800 | 0.000  | 0.000  |        |
| 160.                         | 5164.671 | -10.460 | 0.000  | 3186.774 | 25.800 | 3546.800 | 0.000  | 0.000  |        |
| 161.                         | 5147.916 | -10.610 | 0.000  | 3215.750 | 25.640 | 3546.800 | 0.000  | 0.000  |        |
| 162.                         | 5131.042 | -10.690 | 0.000  | 3242.609 | 25.310 | 3546.800 | 0.000  | 0.000  |        |
| 163.                         | 5114.124 | -10.730 | 0.000  | 3269.227 | 24.870 | 3546.800 | 0.000  | 0.000  |        |
| 164.                         | 5097.249 | -10.710 | 0.000  | 3295.476 | 24.340 | 3546.800 | -0.000 | 0.000  |        |
| 165.                         | 5080.510 | -10.630 | 0.000  | 3321.223 | 23.700 | 3546.800 | 0.000  | 0.000  |        |
| 166.                         | 5064.006 | -10.480 | 0.000  | 3346.331 | 22.960 | 3546.800 | 0.000  | 0.000  |        |
| 167.                         | 5047.046 | -10.260 | 0.000  | 3370.650 | 22.100 | 3546.800 | 0.000  | 0.000  |        |
| 168.                         | 5032.145 | -9.970  | 0.000  | 3394.057 | 21.120 | 3546.800 | 0.000  | 0.000  |        |
| 169.                         | 5017.017 | -9.550  | 0.000  | 3416.379 | 20.020 | 3546.800 | -0.000 | 0.000  |        |
| 170.                         | 5002.591 | -9.130  | 0.000  | 3437.469 | 18.800 | 3546.800 | 0.000  | 0.000  |        |
| 171.                         | 4988.994 | -8.580  | 0.000  | 3457.172 | 17.440 | 3546.800 | -0.000 | 0.000  |        |
| 172.                         | 4976.360 | -7.940  | 0.000  | 3475.334 | 15.950 | 3546.800 | 0.000  | 0.000  |        |
| 173.                         | 4964.016 | -7.200  | 0.000  | 3491.603 | 14.330 | 3546.800 | -0.000 | 0.000  |        |
| 174.                         | 4954.499 | -6.360  | 0.000  | 3506.430 | 12.580 | 3546.800 | -0.000 | 0.000  |        |
| 175.                         | 4945.524 | -5.470  | 0.000  | 3519.076 | 10.716 | 3546.800 | 0.000  | 0.000  |        |
| 176.                         | 4936.604 | -4.460  | 0.000  | 3529.615 | 8.720  | 3546.800 | -0.000 | 0.000  |        |
| 177.                         | 4932.049 | -3.420  | 0.000  | 3537.937 | 6.630  | 3546.800 | -0.000 | 0.000  |        |
| 178.                         | 4927.731 | -2.310  | 0.000  | 3543.949 | 4.478  | 3546.800 | 0.000  | 0.000  |        |
| 179.                         | 4925.114 | -1.170  | 0.000  | 3547.504 | 2.250  | 3546.800 | 0.000  | 0.000  |        |
| 180.                         | 4924.230 | 0.000   | 0.000  | 3548.000 | -0.000 | 3546.800 | 0.000  | 0.000  |        |

111-PLANE GERMANIUM

|     | LNGVEL   | LPMI2  | LPMI3 | FSRVEL   | FSPMI2  | FSPMI3  | SSRVEL   | SSPMI2  | SSPMI3  |
|-----|----------|--------|-------|----------|---------|---------|----------|---------|---------|
| 0.  | 5405.546 | -8.000 | 0.000 | 3540.000 | -0.000  | 0.000   | 2760.030 | 0.000   | -0.000  |
| 1.  | 5405.617 | .090   | .430  | 3540.331 | -0.870  | -0.610  | 2761.294 | 1.100   | -0.640  |
| 2.  | 5405.828 | .170   | .960  | 3546.926 | -1.730  | -1.230  | 2762.684 | 2.200   | -1.200  |
| 3.  | 5406.178 | .250   | 1.290 | 3544.591 | -2.590  | -1.830  | 2764.995 | 3.260   | -1.810  |
| 4.  | 5406.563 | .330   | 1.710 | 3541.337 | -3.430  | -2.440  | 2768.216 | 4.330   | -2.530  |
| 5.  | 5407.275 | .410   | 2.120 | 3537.179 | -4.270  | -3.030  | 2772.333 | 5.360   | -3.140  |
| 6.  | 5408.009 | .480   | 2.530 | 3532.136 | -5.080  | -3.620  | 2777.328 | 6.390   | -3.740  |
| 7.  | 5408.855 | .550   | 2.930 | 3526.231 | -5.870  | -4.190  | 2783.178 | 7.350   | -4.320  |
| 8.  | 5409.803 | .600   | 3.320 | 3519.493 | -6.630  | -4.760  | 2789.855 | 8.260   | -4.890  |
| 9.  | 5410.843 | .660   | 3.690 | 3511.953 | -7.370  | -5.310  | 2797.330 | 9.150   | -5.430  |
| 10. | 5411.962 | .700   | 4.060 | 3503.649 | -8.070  | -5.840  | 2805.566 | 9.970   | -5.960  |
| 11. | 5413.148 | .740   | 4.410 | 3494.622 | -8.740  | -6.360  | 2814.523 | 10.70   | -6.460  |
| 12. | 5414.386 | .760   | 4.740 | 3484.919 | -9.360  | -6.860  | 2824.155 | 11.420  | -6.940  |
| 13. | 5415.664 | .760   | 5.060 | 3474.592 | -9.930  | -7.350  | 2834.411 | 12.040  | -7.390  |
| 14. | 5416.966 | .790   | 5.370 | 3463.700 | -10.450 | -7.810  | 2845.234 | 12.580  | -7.810  |
| 15. | 5418.278 | .800   | 5.650 | 3452.307 | -10.910 | -8.260  | 2856.559 | 13.040  | -8.260  |
| 16. | 5419.566 | .790   | 5.920 | 3440.487 | -11.310 | -8.690  | 2868.314 | 13.420  | -8.570  |
| 17. | 5420.876 | .770   | 6.180 | 3428.321 | -11.620 | -9.090  | 2880.518 | 13.690  | -8.890  |
| 18. | 5422.134 | .750   | 6.410 | 3415.903 | -11.850 | -9.460  | 2892.778 | 13.660  | -9.200  |
| 19. | 5423.345 | .720   | 6.630 | 3403.339 | -12.020 | -9.740  | 2905.209 | 13.980  | -9.470  |
| 20. | 5424.498 | .660   | 6.830 | 3390.751 | -12.150 | -10.000 | 2917.828 | 13.800  | -9.710  |
| 21. | 5425.581 | .630   | 7.010 | 3378.279 | -12.240 | -10.240 | 2930.255 | 13.560  | -9.920  |
| 22. | 5426.581 | .560   | 7.170 | 3366.090 | -12.300 | -10.460 | 2942.405 | 13.100  | -10.050 |
| 23. | 5427.489 | .520   | 7.310 | 3354.373 | -12.330 | -10.660 | 2954.087 | 12.440  | -10.230 |
| 24. | 5428.296 | .460   | 7.430 | 3343.352 | -12.320 | -10.820 | 2965.079 | 11.540  | -10.430 |
| 25. | 5428.993 | .390   | 7.540 | 3333.280 | -12.280 | -11.070 | 2975.126 | 10.350  | -10.650 |
| 26. | 5429.573 | .310   | 7.620 | 3324.036 | -12.170 | -11.230 | 2983.948 | 8.650   | -10.890 |
| 27. | 5430.030 | .240   | 7.690 | 3317.127 | -12.000 | -11.400 | 2991.244 | 7.030   | -11.140 |
| 28. | 5430.360 | .160   | 7.730 | 3311.639 | -11.800 | -11.580 | 2996.720 | 4.690   | -11.400 |
| 29. | 5430.560 | .080   | 7.750 | 3308.226 | -11.580 | -11.730 | 3001.280 | 2.520   | -11.650 |
| 30. | 5430.626 | .000   | 7.770 | 3307.871 | -11.350 | -11.850 | 3004.818 | 0.000   | -11.890 |
| 31. | 5430.659 | -.080  | 7.760 | 3308.228 | -11.100 | -11.940 | 3007.124 | -2.520  | -12.140 |
| 32. | 5430.660 | -.160  | 7.730 | 3311.639 | -10.840 | -12.000 | 2996.720 | -4.890  | -12.400 |
| 33. | 5430.630 | -.240  | 7.690 | 3317.127 | -10.560 | -12.040 | 2983.946 | -7.020  | -12.650 |
| 34. | 5429.573 | -.310  | 7.620 | 3324.036 | -10.240 | -12.070 | 2965.079 | -8.650  | -12.900 |
| 35. | 5428.296 | -.390  | 7.540 | 3333.280 | -9.880  | -12.070 | 2954.087 | -10.350 | -13.150 |
| 36. | 5426.993 | -.460  | 7.430 | 3343.352 | -9.500  | -11.940 | 2942.405 | -11.540 | -13.400 |
| 37. | 5425.573 | -.520  | 7.310 | 3354.373 | -9.070  | -11.730 | 2929.244 | -12.440 | -13.650 |
| 38. | 5424.498 | -.560  | 7.170 | 3366.090 | -8.600  | -11.580 | 2917.828 | -13.100 | -13.900 |
| 39. | 5423.345 | -.600  | 6.990 | 3378.279 | -8.100  | -11.400 | 2905.209 | -13.540 | -14.150 |
| 40. | 5422.134 | -.620  | 6.830 | 3390.751 | -7.500  | -11.170 | 2892.778 | -13.600 | -14.400 |
| 41. | 5420.876 | -.700  | 6.630 | 3403.339 | -6.800  | -10.900 | 2880.518 | -13.660 | -14.650 |
| 42. | 5419.566 | -.750  | 6.410 | 3415.903 | -6.000  | -10.580 | 2868.314 | -13.420 | -14.900 |
| 43. | 5418.278 | -.790  | 6.180 | 3428.321 | -5.100  | -10.240 | 2856.559 | -13.050 | -15.150 |
| 44. | 5416.966 | -.800  | 5.920 | 3440.487 | -4.100  | -9.880  | 2845.234 | -12.580 | -15.400 |
| 45. | 5415.664 | -.790  | 5.650 | 3452.307 | -3.000  | -9.500  | 2834.411 | -12.040 | -15.650 |
| 46. | 5414.386 | -.760  | 5.370 | 3463.700 | -1.800  | -9.070  | 2824.155 | -11.420 | -15.900 |
| 47. | 5413.148 | -.700  | 5.060 | 3474.592 | -0.500  | -8.600  | 2814.523 | -10.700 | -16.150 |
| 48. | 5411.962 | -.740  | 4.740 | 3484.919 | .800    | -8.100  | 2805.566 | -9.970  | -16.400 |
| 49. | 5410.843 | -.740  | 4.410 | 3494.622 | 1.740   | -7.500  | 2814.523 | -9.150  | -16.650 |

111-PLANE GERMANIUM

|     | LMGVEL   | LPM112 | LPM113 | FSRWEL   | FSPM12  | FSPM13 | SSRWEL   | SSPM12  | SSPM13 |
|-----|----------|--------|--------|----------|---------|--------|----------|---------|--------|
| 50. | 5411.962 | -1.780 | 4.060  | 3503.649 | 8.070   | -5.640 | 2885.566 | -9.970  | -2.960 |
| 51. | 5418.843 | -0.660 | 3.690  | 3511.953 | 7.370   | -5.310 | 2797.330 | -9.150  | -5.430 |
| 52. | 5489.803 | -0.600 | 3.320  | 3519.493 | 6.630   | -4.760 | 2783.895 | -8.280  | -0.830 |
| 53. | 5488.855 | -0.550 | 2.930  | 3526.231 | 5.870   | -4.190 | 2783.178 | -7.350  | -0.320 |
| 54. | 5488.009 | -0.480 | 2.530  | 3532.136 | 5.080   | -3.620 | 2777.328 | -6.390  | -3.740 |
| 55. | 5487.275 | -0.410 | 2.120  | 3537.179 | 4.270   | -3.030 | 2772.334 | -5.340  | -3.140 |
| 56. | 5486.662 | -0.330 | 1.710  | 3541.337 | 3.430   | -2.440 | 2768.217 | -4.350  | -2.530 |
| 57. | 5486.176 | -0.250 | 1.290  | 3544.591 | 2.590   | -1.830 | 2764.995 | -3.280  | -1.910 |
| 58. | 5485.828 | -0.170 | 0.860  | 3546.926 | 1.730   | -1.230 | 2762.684 | -2.280  | -1.280 |
| 59. | 5485.617 | 0.000  | 0.430  | 3548.331 | 0.870   | -0.610 | 2761.294 | -1.180  | -0.640 |
| 60. | 5485.546 | 0.000  | 0.000  | 3548.800 | -0.000  | 0.000  | 2760.830 | -0.000  | -0.000 |
| 61. | 5485.617 | 0.050  | -0.430 | 3548.331 | -0.870  | 0.610  | 2761.294 | 1.100   | 0.640  |
| 62. | 5485.828 | 0.170  | -0.860 | 3546.926 | -1.730  | 1.230  | 2762.684 | 2.200   | 1.280  |
| 63. | 5486.176 | 0.250  | -1.290 | 3544.591 | -2.590  | 1.830  | 2764.995 | 3.280   | 1.910  |
| 64. | 5486.663 | 0.330  | -1.710 | 3541.337 | -3.430  | 2.440  | 2768.216 | 4.350   | 2.530  |
| 65. | 5487.275 | 0.410  | -2.120 | 3537.179 | -4.270  | 3.030  | 2772.333 | 5.340   | 3.140  |
| 66. | 5488.009 | 0.480  | -2.530 | 3532.136 | -5.080  | 3.620  | 2777.328 | 6.390   | 3.740  |
| 67. | 5488.855 | 0.550  | -2.930 | 3526.231 | -5.870  | 4.190  | 2783.178 | 7.350   | 4.320  |
| 68. | 5489.803 | 0.600  | -3.320 | 3519.493 | -6.630  | 4.760  | 2783.895 | 8.280   | 4.850  |
| 69. | 5418.843 | 0.660  | -3.690 | 3511.953 | -7.370  | 5.310  | 2797.330 | 9.150   | 5.430  |
| 70. | 5411.962 | 0.700  | -4.060 | 3503.649 | -8.070  | 5.640  | 2885.566 | 9.970   | 5.960  |
| 71. | 5413.148 | 0.740  | -4.410 | 3494.622 | -8.740  | 6.360  | 2814.523 | 10.720  | 6.460  |
| 72. | 5414.386 | 0.760  | -4.740 | 3484.919 | -9.360  | 6.660  | 2824.155 | 11.420  | 6.940  |
| 73. | 5415.664 | 0.760  | -5.060 | 3474.592 | -9.930  | 7.350  | 2834.431 | 12.040  | 7.370  |
| 74. | 5416.966 | 0.740  | -5.370 | 3463.700 | -10.450 | 7.610  | 2843.234 | 12.560  | 7.820  |
| 75. | 5418.278 | 0.600  | -5.650 | 3452.307 | -10.910 | 8.250  | 2856.999 | 13.050  | 8.200  |
| 76. | 5419.587 | 0.750  | -5.920 | 3440.486 | -11.310 | 8.690  | 2868.314 | 13.420  | 8.570  |
| 77. | 5420.876 | 0.770  | -6.180 | 3428.321 | -11.620 | 9.090  | 2880.418 | 13.690  | 8.900  |
| 78. | 5422.134 | 0.750  | -6.410 | 3415.903 | -11.850 | 9.440  | 2892.778 | 13.660  | 9.240  |
| 79. | 5423.345 | 0.720  | -6.630 | 3403.339 | -11.970 | 9.740  | 2905.288 | 13.540  | 9.470  |
| 80. | 5424.496 | 0.660  | -6.830 | 3390.750 | -11.960 | 10.160 | 2917.828 | 13.800  | 9.710  |
| 81. | 5425.581 | 0.630  | -7.010 | 3378.279 | -11.840 | 10.580 | 2930.295 | 13.940  | 9.920  |
| 82. | 5426.581 | 0.580  | -7.170 | 3366.090 | -11.530 | 10.600 | 2942.405 | 13.100  | 10.090 |
| 83. | 5427.485 | 0.520  | -7.310 | 3354.373 | -11.030 | 11.070 | 2954.087 | 12.440  | 10.230 |
| 84. | 5428.296 | 0.460  | -7.430 | 3343.352 | -10.290 | 11.320 | 2965.074 | 11.540  | 10.350 |
| 85. | 5428.993 | 0.390  | -7.540 | 3333.279 | -9.280  | 11.540 | 2975.156 | 10.350  | 10.430 |
| 86. | 5429.573 | 0.310  | -7.620 | 3324.436 | -8.190  | 11.730 | 2983.948 | 9.650   | 10.500 |
| 87. | 5430.838 | 0.240  | -7.690 | 3317.126 | -6.950  | 11.860 | 2991.948 | 7.050   | 10.540 |
| 88. | 5430.368 | 0.160  | -7.730 | 3311.639 | -5.440  | 12.000 | 2996.728 | 4.650   | 10.580 |
| 89. | 5430.559 | 0.080  | -7.768 | 3308.228 | -4.440  | 12.070 | 3000.124 | 2.520   | 10.570 |
| 90. | 5430.626 | -0.000 | -7.770 | 3307.071 | 0.000   | 12.100 | 3003.124 | 0.000   | 10.570 |
| 91. | 5430.559 | -0.060 | -7.760 | 3306.224 | 2.290   | 12.070 | 3005.124 | -2.520  | 10.570 |
| 92. | 5430.368 | -0.160 | -7.730 | 3311.639 | 4.440   | 12.000 | 2999.728 | -4.650  | 10.580 |
| 93. | 5430.838 | -0.240 | -7.690 | 3317.126 | 6.950   | 11.860 | 2991.948 | -7.050  | 10.540 |
| 94. | 5429.573 | -0.310 | -7.620 | 3324.436 | 7.970   | 11.730 | 2983.948 | -8.650  | 10.500 |
| 95. | 5428.993 | -0.390 | -7.548 | 3333.279 | 9.260   | 11.540 | 2975.156 | -10.350 | 10.430 |
| 96. | 5428.296 | -0.460 | -7.430 | 3343.352 | 10.290  | 11.320 | 2965.074 | -11.540 | 10.350 |
| 97. | 5427.485 | -0.520 | -7.310 | 3354.373 | 11.030  | 11.070 | 2954.087 | -12.440 | 10.230 |
| 98. | 5426.581 | -0.580 | -7.170 | 3366.090 | 11.530  | 10.600 | 2942.405 | -13.420 | 10.090 |
| 99. | 5425.581 | -0.630 | -7.010 | 3378.279 | 11.840  | 10.580 | 2930.295 | -13.940 | 9.920  |

111-PLANE GERMANIUM

BULK

|      | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13  | SSRVEL   | SSPH12  | SSPH13  |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 5424.496 | -.660  | -0.830 | 3390.750 | 11.970  | 10.160  | 2517.028 | -13.600 | 5.710   |
| 101. | 5423.345 | -.720  | -0.630 | 3403.339 | 11.970  | 9.840   | 2905.288 | -13.900 | 9.470   |
| 102. | 5422.134 | -.750  | -0.410 | 3415.983 | 11.850  | 9.460   | 2692.778 | -13.660 | 9.240   |
| 103. | 5420.876 | -.770  | -0.180 | 3428.321 | 11.620  | 9.090   | 2480.418 | -13.690 | 0.900   |
| 104. | 5419.587 | -.790  | -0.920 | 3440.406 | 11.310  | 8.690   | 2268.314 | -13.420 | 0.570   |
| 105. | 5418.276 | -.800  | -5.650 | 3452.307 | 10.910  | 8.260   | 2056.559 | -13.650 | 0.200   |
| 106. | 5416.966 | -.790  | -5.370 | 3465.700 | 10.450  | 7.810   | 2049.234 | -12.560 | 7.610   |
| 107. | 5415.664 | -.780  | -0.060 | 3474.592 | 9.930   | 7.350   | 2834.411 | -12.040 | 7.330   |
| 108. | 5414.386 | -.760  | -4.740 | 3484.919 | 9.360   | 6.860   | 2624.155 | -11.420 | 0.940   |
| 109. | 5413.146 | -.740  | -4.410 | 3494.622 | 8.740   | 6.360   | 2614.523 | -10.720 | 0.460   |
| 110. | 5411.962 | -.700  | -4.060 | 3503.649 | 8.070   | 5.840   | 2605.566 | -9.570  | 0.400   |
| 111. | 5410.843 | -.660  | -3.690 | 3511.953 | 7.370   | 5.310   | 2797.330 | -9.150  | 0.330   |
| 112. | 5409.803 | -.680  | -3.320 | 3519.493 | 6.630   | 4.760   | 2789.855 | -8.280  | 0.890   |
| 113. | 5408.855 | -.550  | -2.930 | 3526.231 | 5.870   | 4.150   | 2783.178 | -7.350  | 4.320   |
| 114. | 5408.009 | -.460  | -2.530 | 3532.136 | 5.060   | 3.620   | 2777.328 | -6.390  | 3.740   |
| 115. | 5407.275 | -.410  | -2.120 | 3537.179 | 4.270   | 3.030   | 2772.333 | -5.300  | 3.440   |
| 116. | 5406.663 | -.330  | -1.710 | 3541.337 | 3.430   | 2.440   | 2768.216 | -4.340  | 2.530   |
| 117. | 5406.176 | -.250  | -1.298 | 3544.591 | 2.590   | 1.830   | 2764.935 | -3.260  | 1.310   |
| 118. | 5405.823 | -.170  | -.860  | 3546.926 | 1.730   | 1.230   | 2762.684 | -2.200  | 1.260   |
| 119. | 5405.617 | -.090  | -.430  | 3548.331 | .870    | .610    | 2761.294 | -1.100  | .640    |
| 120. | 5405.546 | -0.000 | 0.000  | 3548.800 | 0.000   | 0.000   | 2760.830 | 0.000   | -0.600  |
| 121. | 5405.617 | .090   | .430   | 3548.331 | -.070   | -.610   | 2761.294 | 1.100   | -0.640  |
| 122. | 5405.823 | .170   | .860   | 3546.926 | -1.730  | -1.230  | 2762.684 | 2.200   | -1.260  |
| 123. | 5406.176 | .250   | 1.290  | 3544.591 | -2.590  | -1.830  | 2764.935 | 3.260   | -1.310  |
| 124. | 5406.662 | .330   | 1.710  | 3541.337 | -3.430  | -2.440  | 2766.217 | 4.340   | -2.530  |
| 125. | 5407.275 | .410   | 2.120  | 3537.179 | -4.270  | -3.030  | 2772.334 | 5.300   | -3.440  |
| 126. | 5408.009 | .460   | 2.530  | 3532.136 | -5.060  | -3.620  | 2777.328 | 6.390   | -3.740  |
| 127. | 5408.855 | .550   | 2.930  | 3526.231 | -5.870  | -4.150  | 2783.178 | 7.350   | -4.320  |
| 128. | 5409.803 | .600   | 3.320  | 3519.493 | -6.630  | -4.760  | 2789.855 | 8.280   | -4.890  |
| 129. | 5410.843 | .660   | 3.690  | 3511.953 | -7.370  | -5.310  | 2797.330 | 9.150   | -5.830  |
| 130. | 5411.962 | .700   | 4.060  | 3503.649 | -8.070  | -5.840  | 2805.566 | 9.970   | -6.830  |
| 131. | 5413.148 | .740   | 4.410  | 3494.622 | -8.740  | -6.360  | 2814.523 | 10.720  | -7.890  |
| 132. | 5414.386 | .760   | 4.740  | 3484.919 | -9.360  | -6.860  | 2824.155 | 11.420  | -8.940  |
| 133. | 5415.664 | .780   | 5.060  | 3474.592 | -9.930  | -7.350  | 2834.411 | 12.040  | -9.970  |
| 134. | 5416.966 | .790   | 5.370  | 3463.700 | -10.450 | -7.810  | 2844.911 | 12.580  | -10.970 |
| 135. | 5418.276 | .800   | 5.650  | 3452.307 | -10.910 | -8.260  | 2856.554 | 13.050  | -11.970 |
| 136. | 5419.586 | .740   | 5.920  | 3440.487 | -11.310 | -8.690  | 2868.314 | 13.420  | -12.970 |
| 137. | 5420.876 | .770   | 6.180  | 3428.321 | -11.620 | -9.090  | 2880.416 | 13.690  | -13.970 |
| 138. | 5422.134 | .750   | 6.410  | 3415.983 | -11.850 | -9.460  | 2892.778 | 13.860  | -14.970 |
| 139. | 5423.345 | .720   | 6.630  | 3403.339 | -11.970 | -9.840  | 2905.289 | 13.900  | -15.970 |
| 140. | 5424.496 | .680   | 6.830  | 3390.751 | -11.990 | -10.160 | 2917.828 | 13.500  | -16.970 |
| 141. | 5425.581 | .630   | 7.010  | 3378.279 | -11.840 | -10.500 | 2930.255 | 13.500  | -17.970 |
| 142. | 5426.581 | .540   | 7.170  | 3366.050 | -11.530 | -10.800 | 2942.405 | 13.100  | -18.970 |
| 143. | 5427.489 | .520   | 7.310  | 3354.375 | -11.030 | -11.070 | 2954.087 | 12.440  | -19.970 |
| 144. | 5428.296 | .460   | 7.430  | 3343.360 | -10.290 | -11.320 | 2965.079 | 11.540  | -20.970 |
| 145. | 5428.993 | .390   | 7.540  | 3333.260 | -9.260  | -11.540 | 2975.126 | 10.350  | -21.970 |
| 146. | 5429.573 | .310   | 7.620  | 3324.438 | -7.970  | -11.730 | 2983.946 | 8.850   | -22.970 |
| 147. | 5430.030 | .240   | 7.690  | 3317.127 | -6.350  | -11.860 | 2991.244 | 7.620   | -23.970 |
| 148. | 5430.360 | .160   | 7.730  | 3311.639 | -4.440  | -12.000 | 2996.720 | 6.890   | -24.970 |
| 149. | 5430.559 | .060   | 7.760  | 3308.226 | -2.230  | -12.070 | 3000.124 | 2.520   | -25.970 |

BULK

111-PLANE GERMANIUM

|      | LMGVEL   | LPHI12 | LPHI13 | FSRWEL   | FSPHI12 | FSPHI13 | SSRWEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 5438.626 | 0.000  | 7.770  | 3307.071 | -0.000  | -12.100 | 3081.280 | -0.000  | -10.570 |
| 151. | 5438.559 | -0.060 | 7.768  | 3388.228 | 2.290   | -12.070 | 3080.124 | -2.520  | -10.570 |
| 152. | 5438.360 | -0.160 | 7.750  | 3311.639 | 4.440   | -12.000 | 2996.720 | -4.690  | -10.560 |
| 153. | 5430.830 | -0.240 | 7.690  | 3317.127 | 6.350   | -11.680 | 2991.244 | -7.830  | -10.540 |
| 154. | 5429.573 | -0.310 | 7.620  | 3324.438 | 7.970   | -11.730 | 2863.946 | -6.650  | -10.500 |
| 155. | 5428.993 | -0.390 | 7.540  | 3333.260 | 9.280   | -11.540 | 2975.126 | -10.350 | -10.430 |
| 156. | 5428.296 | -0.460 | 7.430  | 3343.352 | 10.290  | -11.320 | 2965.079 | -11.540 | -10.350 |
| 157. | 5427.489 | -0.520 | 7.310  | 3354.373 | 11.030  | -11.070 | 2954.087 | -12.440 | -10.230 |
| 158. | 5426.581 | -0.560 | 7.170  | 3366.030 | 11.530  | -10.800 | 2422.505 | -13.100 | -10.090 |
| 159. | 5425.561 | -0.600 | 7.010  | 3378.279 | 11.840  | -10.500 | 2938.255 | -13.540 | -9.920  |
| 160. | 5424.498 | -0.680 | 6.830  | 3390.751 | 11.980  | -10.180 | 2917.828 | -13.600 | -9.710  |
| 161. | 5423.345 | -0.720 | 6.630  | 3403.339 | 11.970  | -9.640  | 2905.289 | -13.500 | -9.470  |
| 162. | 5422.134 | -0.750 | 6.410  | 3415.903 | 11.850  | -9.480  | 2692.778 | -13.660 | -9.200  |
| 163. | 5420.876 | -0.778 | 6.180  | 3428.321 | 11.620  | -9.090  | 2880.416 | -13.690 | -8.900  |
| 164. | 5419.586 | -0.790 | 5.920  | 3440.487 | 11.310  | -8.690  | 2868.314 | -13.420 | -8.570  |
| 165. | 5418.278 | -0.800 | 5.650  | 3452.387 | 10.910  | -8.260  | 2856.559 | -13.050 | -8.200  |
| 166. | 5416.966 | -0.790 | 5.370  | 3463.780 | 10.450  | -7.810  | 2845.234 | -12.500 | -7.810  |
| 167. | 5415.664 | -0.760 | 5.060  | 3474.592 | 9.930   | -7.350  | 2834.411 | -12.040 | -7.350  |
| 168. | 5414.386 | -0.740 | 4.740  | 3484.919 | 9.360   | -6.860  | 2824.155 | -11.420 | -6.940  |
| 169. | 5413.148 | -0.740 | 4.410  | 3494.622 | 8.740   | -6.360  | 2814.523 | -10.720 | -6.460  |
| 170. | 5411.962 | -0.700 | 4.060  | 3503.664 | 8.070   | -5.840  | 2805.566 | -9.970  | -5.960  |
| 171. | 5410.843 | -0.660 | 3.690  | 3511.953 | 7.370   | -5.310  | 2797.330 | -9.150  | -5.430  |
| 172. | 5409.803 | -0.600 | 3.320  | 3519.493 | 6.630   | -4.760  | 2789.855 | -8.260  | -4.890  |
| 173. | 5408.855 | -0.550 | 2.930  | 3526.231 | 5.870   | -4.190  | 2783.178 | -7.350  | -4.320  |
| 174. | 5408.009 | -0.480 | 2.530  | 3532.136 | 5.060   | -3.620  | 2777.328 | -6.390  | -3.740  |
| 175. | 5407.275 | -0.410 | 2.120  | 3537.179 | 4.270   | -3.030  | 2772.333 | -5.360  | -3.140  |
| 176. | 5406.663 | -0.330 | 1.710  | 3541.337 | 3.430   | -2.440  | 2768.216 | -4.350  | -2.530  |
| 177. | 5406.178 | -0.250 | 1.290  | 3544.521 | 2.590   | -1.830  | 2764.995 | -3.260  | -1.910  |
| 178. | 5405.828 | -0.170 | 0.860  | 3546.926 | 1.730   | -1.230  | 2762.684 | -2.200  | -1.260  |
| 179. | 5405.617 | -0.090 | 0.430  | 3548.331 | 0.870   | -0.610  | 2761.294 | -1.100  | -0.640  |
| 180. | 5405.546 | 0.000  | -0.000 | 3548.000 | -0.000  | 0.000   | 2760.830 | 0.000   | 0.000   |

110-PLANE GERMANIUM

|     | LPHI12  | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|---------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 0.000   | 0.000  | 3046.224 | 14.180  | 0.000   | 3046.214 | -14.170 | 0.000   |
| 1.  | -0.370  | -0.000 | 3059.692 | 14.210  | 0.000   | 3033.253 | -13.290 | 0.000   |
| 2.  | -1.740  | -0.000 | 3073.260 | 14.230  | 0.000   | 3021.235 | -12.330 | 0.000   |
| 3.  | -1.130  | -0.000 | 3086.898 | 14.240  | 0.000   | 3010.222 | -11.300 | 0.000   |
| 4.  | -1.520  | -0.000 | 3100.591 | 14.220  | 0.000   | 3000.261 | -10.200 | 0.000   |
| 5.  | -1.910  | -0.000 | 3114.320 | 14.190  | 0.000   | 2991.398 | -9.030  | 0.000   |
| 6.  | -2.320  | -0.000 | 3128.068 | 14.140  | 0.000   | 2983.672 | -7.610  | 0.000   |
| 7.  | -2.720  | -0.000 | 3141.819 | 14.070  | 0.000   | 2977.121 | -6.540  | 0.000   |
| 8.  | -3.130  | -0.000 | 3155.556 | 13.990  | 0.000   | 2971.777 | -5.210  | 0.000   |
| 9.  | -3.540  | 0.000  | 3169.262 | 13.900  | 0.000   | 2967.665 | -3.650  | 0.000   |
| 10. | -3.950  | 0.000  | 3182.922 | 13.790  | 0.000   | 2964.809 | -2.460  | 0.000   |
| 11. | -4.370  | -0.000 | 3196.518 | 13.660  | 0.000   | 2963.227 | -1.840  | 0.000   |
| 12. | -4.760  | -0.000 | 3210.037 | 13.520  | 0.000   | 2962.929 | .390    | 0.000   |
| 13. | -5.190  | -0.000 | 3223.461 | 13.370  | 0.000   | 2963.925 | 1.820   | 0.000   |
| 14. | -5.600  | -0.000 | 3236.777 | 13.210  | 0.000   | 2966.216 | 3.250   | 0.000   |
| 15. | -6.010  | -0.000 | 3249.969 | 13.030  | 0.000   | 2969.799 | 4.660   | 0.000   |
| 16. | -6.410  | -0.000 | 3263.023 | 12.840  | 0.000   | 2974.660 | 6.050   | 0.000   |
| 17. | -6.810  | -0.000 | 3275.924 | 12.640  | 0.000   | 2980.600 | 7.410   | 0.000   |
| 18. | -7.210  | -0.000 | 3288.660 | 12.430  | 0.000   | 2988.167 | 8.730   | 0.000   |
| 19. | -7.550  | 0.000  | 3301.215 | 12.200  | 0.000   | 2996.800 | 9.990   | 0.000   |
| 20. | -7.970  | 0.000  | 3313.578 | 11.970  | 0.000   | 3006.611 | 11.210  | 0.000   |
| 21. | -8.340  | 0.000  | 3325.736 | 11.730  | 0.000   | 3017.586 | 12.360  | 0.000   |
| 22. | -8.700  | 0.000  | 3337.675 | 11.480  | 0.000   | 3029.685 | 13.450  | 0.000   |
| 23. | -9.050  | -0.000 | 3349.384 | 11.210  | 0.000   | 3042.865 | 14.470  | 0.000   |
| 24. | -9.350  | -0.000 | 3360.851 | 10.940  | 0.000   | 3057.078 | 15.420  | 0.000   |
| 25. | -9.710  | -0.000 | 3372.065 | 10.660  | 0.000   | 3072.270 | 16.260  | 0.000   |
| 26. | -10.020 | -0.000 | 3383.014 | 10.380  | 0.000   | 3088.385 | 17.070  | 0.000   |
| 27. | -10.300 | 0.000  | 3393.667 | 10.080  | 0.000   | 3105.399 | 17.780  | 0.000   |
| 28. | -10.570 | 0.000  | 3404.076 | 9.780   | 0.000   | 3123.128 | 18.410  | 0.000   |
| 29. | -10.820 | 0.000  | 3414.168 | 9.470   | 0.000   | 3141.621 | 18.950  | 0.000   |
| 30. | -11.040 | 0.000  | 3423.955 | 9.160   | 0.000   | 3160.763 | 19.410  | 0.000   |
| 31. | -11.240 | 0.000  | 3433.428 | 8.830   | 0.000   | 3180.475 | 19.790  | 0.000   |
| 32. | -11.410 | 0.000  | 3442.578 | 8.500   | 0.000   | 3200.674 | 20.070  | 0.000   |
| 33. | -11.540 | -0.000 | 3451.395 | 8.170   | 0.000   | 3221.273 | 20.270  | 0.000   |
| 34. | -11.640 | 0.000  | 3459.873 | 7.830   | 0.000   | 3242.161 | 20.390  | 0.000   |
| 35. | -11.700 | -0.000 | 3468.002 | 7.490   | 0.000   | 3263.300 | 20.410  | 0.000   |
| 36. | -11.720 | 0.000  | 3475.776 | 7.140   | 0.000   | 3284.530 | 20.340  | 0.000   |
| 37. | -11.690 | 0.000  | 3483.188 | 6.780   | 0.000   | 3305.767 | 20.180  | 0.000   |
| 38. | -11.610 | 0.000  | 3490.231 | 6.420   | 0.000   | 3326.899 | 19.920  | 0.000   |
| 39. | -11.480 | -0.000 | 3496.898 | 6.060   | 0.000   | 3347.812 | 19.560  | 0.000   |
| 40. | -11.290 | 0.000  | 3503.184 | 5.690   | 0.000   | 3368.387 | 19.110  | 0.000   |
| 41. | -11.830 | 0.000  | 3509.083 | 5.320   | 0.000   | 3388.499 | 16.540  | 0.000   |
| 42. | -10.700 | 0.000  | 3514.590 | 4.950   | 0.000   | 3408.020 | 17.670  | 0.000   |
| 43. | -10.310 | 0.000  | 3519.700 | 4.570   | 0.000   | 3426.816 | 17.090  | 0.000   |
| 44. | -9.830  | 0.000  | 3524.408 | 4.190   | 0.000   | 3444.758 | 16.200  | 0.000   |
| 45. | -9.270  | 0.000  | 3528.711 | 3.810   | 0.000   | 3461.703 | 15.190  | 0.000   |
| 46. | -8.630  | 0.000  | 3532.605 | 3.420   | 0.000   | 3477.515 | 14.060  | 0.000   |
| 47. | -7.910  | 0.000  | 3536.085 | 3.040   | 0.000   | 3492.057 | 12.610  | 0.000   |
| 48. | -7.100  | 0.000  | 3539.150 | 2.650   | 0.000   | 3505.197 | 11.450  | 0.000   |
| 49. | -6.220  | 0.000  | 3541.796 | 2.260   | 0.000   | 3516.807 | 9.900   | 0.000   |

BULK

110-PLANE GERMANIUM

BULK

|     | LPMI12   | LPMI13 | FSPVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 4943.470 | 0.000  | 3544.022 | 1.470   | 0.000   | 3526.769 | 0.000   | 0.000   |
| 51. | 4936.310 | 0.000  | 3545.425 | 1.470   | 0.000   | 3534.976 | 0.000   | 0.000   |
| 52. | 4930.756 | 0.000  | 3547.284 | 1.080   | 0.000   | 3541.339 | 0.000   | 0.000   |
| 53. | 4926.874 | 0.000  | 3548.156 | .690    | 0.000   | 3545.783 | 0.000   | 0.000   |
| 54. | 4924.713 | 0.000  | 3548.685 | .290    | 0.000   | 3548.257 | 0.000   | 0.000   |
| 55. | 4924.299 | .310   | 3548.786 | -1.100  | 0.000   | 3546.731 | 0.000   | 0.000   |
| 56. | 4925.638 | 0.000  | 3548.460 | -1.500  | 0.000   | 3547.194 | 0.000   | 0.000   |
| 57. | 4928.712 | 0.000  | 3547.707 | -1.890  | 0.000   | 3543.679 | 0.000   | 0.000   |
| 58. | 4933.484 | 0.000  | 3546.529 | -1.290  | 0.000   | 3538.214 | 0.000   | 0.000   |
| 59. | 4939.895 | 0.000  | 3544.926 | -1.660  | 0.000   | 3538.687 | 0.000   | 0.000   |
| 60. | 4947.872 | 0.000  | 3542.899 | -2.070  | 0.000   | 3521.721 | 0.000   | 0.000   |
| 61. | 4957.323 | 0.000  | 3540.451 | -2.460  | 0.000   | 3518.875 | 0.000   | 0.000   |
| 62. | 4968.148 | 0.000  | 3537.594 | -2.850  | 0.000   | 3498.442 | 0.000   | 0.000   |
| 63. | 4980.237 | 0.000  | 3534.294 | -3.240  | 0.000   | 3484.545 | 0.000   | 0.000   |
| 64. | 4993.476 | 0.000  | 3530.600 | -3.630  | 0.000   | 3469.316 | 0.000   | 0.000   |
| 65. | 5007.746 | 0.000  | 3526.430 | -4.016  | 0.000   | 3452.889 | 0.000   | 0.000   |
| 66. | 5022.929 | 0.000  | 3521.973 | -4.390  | 0.000   | 3435.401 | 0.000   | 0.000   |
| 67. | 5038.910 | 0.000  | 3517.052 | -4.778  | 0.000   | 3416.931 | 0.000   | 0.000   |
| 68. | 5055.573 | 0.000  | 3511.732 | -5.140  | 0.000   | 3397.794 | 0.000   | 0.000   |
| 69. | 5072.812 | 0.000  | 3506.017 | -5.520  | 0.000   | 3377.945 | 0.000   | 0.000   |
| 70. | 5090.521 | 0.000  | 3499.913 | -5.890  | 0.000   | 3357.573 | 0.000   | 0.000   |
| 71. | 5108.601 | 0.000  | 3493.425 | -6.250  | 0.000   | 3336.804 | 0.000   | 0.000   |
| 72. | 5126.961 | 0.000  | 3486.555 | -6.610  | 0.000   | 3315.761 | 0.000   | 0.000   |
| 73. | 5145.512 | 0.000  | 3479.320 | -6.976  | 0.000   | 3294.560 | 0.000   | 0.000   |
| 74. | 5164.174 | 0.000  | 3471.716 | -7.320  | 0.000   | 3273.313 | 0.000   | 0.000   |
| 75. | 5182.872 | 0.000  | 3463.754 | -7.670  | 0.000   | 3252.128 | 0.000   | 0.000   |
| 76. | 5201.535 | 0.000  | 3455.439 | -8.010  | 0.000   | 3231.109 | 0.000   | 0.000   |
| 77. | 5220.090 | 0.000  | 3446.741 | -8.350  | 0.000   | 3210.353 | 0.000   | 0.000   |
| 78. | 5238.502 | 0.000  | 3437.768 | -8.680  | 0.000   | 3189.953 | 0.000   | 0.000   |
| 79. | 5256.691 | 0.000  | 3428.466 | -9.000  | 0.000   | 3170.001 | 0.000   | 0.000   |
| 80. | 5274.615 | 0.000  | 3418.826 | -9.320  | 0.000   | 3150.500 | 0.000   | 0.000   |
| 81. | 5292.226 | 0.000  | 3408.877 | -9.640  | 0.000   | 3131.771 | 0.000   | 0.000   |
| 82. | 5309.482 | 0.000  | 3398.627 | -9.940  | 0.000   | 3113.652 | 0.000   | 0.000   |
| 83. | 5326.343 | 0.000  | 3388.087 | -10.240 | 0.000   | 3096.294 | 0.000   | 0.000   |
| 84. | 5342.772 | 0.000  | 3377.256 | -10.530 | 0.000   | 3079.765 | 0.000   | 0.000   |
| 85. | 5358.736 | 0.000  | 3366.176 | -10.810 | 0.000   | 3064.130 | 0.000   | 0.000   |
| 86. | 5374.206 | 0.000  | 3354.827 | -11.090 | 0.000   | 3049.448 | 0.000   | 0.000   |
| 87. | 5389.153 | 0.000  | 3343.231 | -11.350 | 0.000   | 3035.774 | 0.000   | 0.000   |
| 88. | 5403.553 | 0.000  | 3331.399 | -11.610 | 0.000   | 3023.159 | 0.000   | 0.000   |
| 89. | 5417.382 | 0.000  | 3319.343 | -11.860 | 0.000   | 3011.648 | 0.000   | 0.000   |
| 90. | 5430.621 | 0.000  | 3307.076 | -12.100 | 0.000   | 3001.203 | 0.000   | 0.000   |
| 91. | 5443.250 | 0.000  | 3294.609 | -12.320 | 0.000   | 2992.121 | 0.000   | 0.000   |
| 92. | 5455.255 | 0.000  | 3281.937 | -12.540 | 0.000   | 2984.132 | 0.000   | 0.000   |
| 93. | 5466.620 | 0.000  | 3269.132 | -12.750 | 0.000   | 2977.403 | 0.000   | 0.000   |
| 94. | 5477.334 | 0.000  | 3256.148 | -12.940 | 0.000   | 2971.936 | 0.000   | 0.000   |
| 95. | 5487.385 | 0.000  | 3243.020 | -13.120 | 0.000   | 2967.745 | 0.000   | 0.000   |
| 96. | 5496.765 | 0.000  | 3229.761 | -13.290 | 0.000   | 2964.845 | 0.000   | 0.000   |
| 97. | 5505.468 | 0.000  | 3216.386 | -13.450 | 0.000   | 2963.238 | 0.000   | 0.000   |
| 98. | 5513.486 | 0.000  | 3202.910 | -13.600 | 0.000   | 2962.924 | 0.000   | 0.000   |
| 99. | 5520.810 | 0.000  | 3189.348 | -13.730 | 0.000   | 2963.983 | 0.000   | 0.000   |

110-PLANE GERMANIUM

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 5527.460 | 3.730  | 0.000  | 3175.716 | -13.050 | 0.000   | 2966.159 | 3.200   | -0.000  |
| 101. | 5533.412 | 3.320  | 0.000  | 3162.030 | -13.950 | 0.000   | 2969.681 | 4.570   | -0.000  |
| 102. | 5538.676 | 2.910  | 0.000  | 3148.306 | -14.040 | 0.000   | 2974.447 | 5.920   | -0.000  |
| 103. | 5543.253 | 2.510  | 0.000  | 3134.560 | -14.110 | 0.000   | 2980.432 | 7.220   | -0.000  |
| 104. | 5547.148 | 2.100  | 0.000  | 3120.808 | -14.170 | 0.000   | 2987.697 | 8.460   | -0.000  |
| 105. | 5550.367 | 1.700  | -0.000 | 3107.068 | -14.210 | 0.000   | 2995.938 | 9.660   | 0.000   |
| 106. | 5552.918 | 1.310  | 0.000  | 3093.356 | -14.230 | 0.000   | 3005.366 | 10.790  | 0.000   |
| 107. | 5554.809 | 920    | 0.000  | 3079.689 | -14.240 | 0.000   | 3015.908 | 11.650  | -0.000  |
| 108. | 5556.051 | 540    | 0.000  | 3066.086 | -14.230 | 0.000   | 3027.459 | 12.640  | -0.000  |
| 109. | 5556.656 | 170    | 0.000  | 3052.553 | -14.200 | 0.000   | 3039.947 | 13.770  | 0.000   |
| 110. | 5556.648 | -150   | 0.000  | 3039.139 | -14.150 | -0.000  | 3053.438 | 14.610  | 0.000   |
| 111. | 5556.016 | -540   | 0.000  | 3025.830 | -14.080 | -0.000  | 3067.756 | 15.360  | 0.000   |
| 112. | 5554.804 | -690   | 0.000  | 3012.655 | -13.990 | -0.000  | 3082.081 | 16.000  | 0.000   |
| 113. | 5553.022 | -1.220 | 0.000  | 2999.632 | -13.860 | -0.000  | 3098.749 | 16.690  | 0.000   |
| 114. | 5550.692 | -1.540 | 0.000  | 2986.778 | -13.760 | -0.000  | 3115.294 | 17.230  | 0.000   |
| 115. | 5547.837 | -1.840 | -0.000 | 2974.113 | -13.610 | 0.000   | 3132.650 | 17.690  | 0.000   |
| 116. | 5544.483 | -2.130 | 0.000  | 2961.652 | -13.440 | -0.000  | 3150.146 | 18.070  | 0.000   |
| 117. | 5540.655 | -2.400 | -0.000 | 2949.415 | -13.250 | 0.000   | 3168.309 | 18.360  | 0.000   |
| 118. | 5536.384 | -2.660 | 0.000  | 2937.620 | -13.040 | 0.000   | 3186.665 | 18.610  | 0.000   |
| 119. | 5531.700 | -2.890 | 0.000  | 2925.603 | -12.800 | 0.000   | 3205.739 | 18.760  | 0.000   |
| 120. | 5526.637 | -3.110 | 0.000  | 2914.223 | -12.540 | -0.000  | 3224.653 | 18.840  | -0.000  |
| 121. | 5521.230 | -3.310 | 0.000  | 2903.056 | -12.260 | 0.000   | 3244.126 | 18.850  | -0.000  |
| 122. | 5515.517 | -3.460 | 0.000  | 2892.201 | -11.960 | 0.000   | 3263.485 | 18.760  | 0.000   |
| 123. | 5509.537 | -3.630 | 0.000  | 2881.673 | -11.640 | -0.000  | 3282.843 | 18.640  | 0.000   |
| 124. | 5503.330 | -3.760 | 0.000  | 2871.469 | -11.290 | -0.000  | 3302.120 | 18.430  | 0.000   |
| 125. | 5496.942 | -3.850 | 0.000  | 2861.665 | -10.920 | 0.000   | 3321.233 | 18.150  | -0.000  |
| 126. | 5490.417 | -3.930 | -0.000 | 2852.217 | -10.530 | 0.000   | 3340.100 | 17.800  | 0.030   |
| 127. | 5483.802 | -3.970 | 0.000  | 2843.151 | -10.120 | 0.000   | 3358.536 | 17.360  | -0.000  |
| 128. | 5477.146 | -3.990 | 0.000  | 2834.511 | -9.680  | 0.000   | 3376.759 | 16.860  | 0.000   |
| 129. | 5470.500 | -3.970 | 0.000  | 2826.282 | -9.230  | 0.000   | 3394.366 | 16.320  | 0.000   |
| 130. | 5463.913 | -3.920 | 0.000  | 2818.466 | -8.750  | 0.000   | 3411.434 | 15.700  | 0.000   |
| 131. | 5457.436 | -3.840 | 0.000  | 2811.139 | -8.260  | 0.000   | 3427.621 | 15.000  | 0.000   |
| 132. | 5451.128 | -3.730 | 0.000  | 2804.251 | -7.740  | -0.000  | 3443.468 | 14.240  | 0.000   |
| 133. | 5445.035 | -3.590 | -0.000 | 2797.634 | -7.210  | 0.000   | 3458.295 | 13.410  | 0.000   |
| 134. | 5439.211 | -3.420 | 0.000  | 2791.991 | -6.660  | 0.000   | 3472.227 | 12.520  | 0.000   |
| 135. | 5433.706 | -3.220 | 0.000  | 2786.461 | -6.090  | -0.000  | 3485.190 | 11.570  | 0.000   |
| 136. | 5428.573 | -2.960 | 0.000  | 2781.523 | -5.510  | 0.000   | 3497.115 | 10.560  | 0.000   |
| 137. | 5423.856 | -2.720 | -0.000 | 2777.097 | -4.910  | 0.000   | 3507.935 | 9.500   | 0.000   |
| 138. | 5419.600 | -2.430 | 0.000  | 2773.190 | -4.310  | 0.000   | 3517.591 | 8.390   | 0.000   |
| 139. | 5415.846 | -2.110 | 0.000  | 2769.809 | -3.660  | 0.000   | 3526.026 | 7.230   | 0.000   |
| 140. | 5412.631 | -1.760 | 0.000  | 2766.961 | -3.060  | 0.000   | 3533.192 | 6.030   | 0.000   |
| 141. | 5409.967 | -1.430 | -0.000 | 2764.650 | -2.420  | 0.000   | 3539.045 | 4.800   | 0.000   |
| 142. | 5407.941 | -1.060 | 0.000  | 2762.861 | -1.760  | -0.000  | 3543.551 | 3.540   | 0.000   |
| 143. | 5406.514 | -0.660 | 0.000  | 2761.656 | -1.130  | -0.000  | 3546.682 | 2.250   | 0.000   |
| 144. | 5405.720 | -0.290 | 0.000  | 2760.978 | -0.460  | 0.000   | 3548.419 | 0.960   | 0.000   |
| 145. | 5405.560 | 100    | 0.000  | 2760.844 | 170     | 0.000   | 3548.751 | -0.340  | -0.000  |
| 146. | 5406.060 | 490    | 0.000  | 2761.268 | 620     | 0.000   | 3547.677 | -1.640  | -0.000  |
| 147. | 5407.169 | 880    | 0.000  | 2762.234 | 1470    | 0.000   | 3545.202 | -2.930  | 0.000   |
| 148. | 5408.945 | 1.250  | 0.000  | 2763.747 | 2.120   | 0.000   | 3541.342 | -4.210  | -0.000  |
| 149. | 5411.310 | 1.610  | 0.000  | 2765.803 | 2.760   | 0.000   | 3536.120 | -5.450  | -0.000  |



110-PLANE GERMANIUM

BULK

|      | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 5414.859 | 1.960  | 0.000  | 2768.398 | 3.390   | 0.000   | 3529.569 | -6.670  | 0.000   |
| 151. | 5417.763 | 2.260  | 0.000  | 2771.526 | 4.020   | 0.000   | 3521.726 | -7.650  | -0.000  |
| 152. | 5421.787 | 2.560  | 0.000  | 2775.188 | 4.630   | 0.000   | 3512.641 | -8.580  | -0.000  |
| 153. | 5426.292 | 2.860  | 0.000  | 2779.370 | 5.230   | 0.000   | 3502.363 | -10.070 | -0.000  |
| 154. | 5431.235 | 3.110  | 0.000  | 2784.067 | 5.820   | 0.000   | 3490.952 | -11.100 | -0.000  |
| 155. | 5436.571 | 3.330  | 0.000  | 2789.271 | 6.390   | 0.000   | 3478.470 | -12.080 | -0.000  |
| 156. | 5442.250 | 3.510  | 0.000  | 2794.973 | 6.950   | 0.000   | 3464.987 | -13.000 | -0.000  |
| 157. | 5448.222 | 3.670  | 0.000  | 2801.163 | 7.490   | -0.000  | 3450.573 | -13.860 | 0.000   |
| 158. | 5454.436 | 3.800  | 0.000  | 2807.829 | 8.020   | 0.000   | 3435.304 | -14.650 | -0.000  |
| 159. | 5460.940 | 3.950  | 0.000  | 2814.962 | 8.520   | 0.000   | 3419.256 | -15.360 | -0.000  |
| 160. | 5467.760 | 3.950  | 0.000  | 2822.547 | 9.010   | 0.000   | 3402.510 | -16.040 | -0.000  |
| 161. | 5474.805 | 3.960  | 0.000  | 2830.574 | 9.470   | 0.060   | 3385.146 | -16.630 | -0.000  |
| 162. | 5480.663 | 3.960  | 0.000  | 2839.027 | 9.920   | 0.000   | 3367.247 | -17.130 | 0.000   |
| 163. | 5487.303 | 3.950  | 0.000  | 2847.893 | 10.340  | 0.000   | 3348.895 | -17.610 | 0.000   |
| 164. | 5493.877 | 3.950  | 0.000  | 2857.158 | 10.740  | 0.000   | 3330.174 | -17.990 | 0.000   |
| 165. | 5500.335 | 3.610  | 0.000  | 2866.806 | 11.120  | 0.000   | 3311.167 | -18.310 | 0.000   |
| 166. | 5506.633 | 3.690  | 0.000  | 2876.822 | 11.480  | 0.000   | 3291.957 | -18.550 | 0.000   |
| 167. | 5512.725 | 3.550  | 0.000  | 2887.190 | 11.810  | 0.000   | 3272.627 | -18.730 | 0.000   |
| 168. | 5518.570 | 3.390  | 0.000  | 2897.893 | 12.120  | 0.000   | 3253.260 | -18.850 | 0.000   |
| 169. | 5524.126 | 3.210  | 0.000  | 2908.915 | 12.410  | 0.000   | 3233.935 | -18.860 | 0.000   |
| 170. | 5529.356 | 3.000  | 0.000  | 2920.236 | 12.660  | 0.000   | 3214.735 | -18.610 | 0.000   |
| 171. | 5534.223 | 2.770  | 0.000  | 2931.847 | 12.930  | 0.000   | 3195.738 | -18.650 | 0.000   |
| 172. | 5538.693 | 2.520  | -0.000 | 2943.722 | 13.150  | -0.000  | 3177.023 | -18.500 | 0.000   |
| 173. | 5542.733 | 2.260  | -0.000 | 2955.848 | 13.350  | 0.000   | 3158.665 | -18.230 | 0.000   |
| 174. | 5546.315 | 1.960  | -0.000 | 2968.205 | 13.530  | 0.000   | 3140.740 | -17.660 | -0.000  |
| 175. | 5549.409 | 1.680  | 0.000  | 2980.776 | 13.690  | -0.000  | 3123.320 | -17.460 | 0.000   |
| 176. | 5551.969 | 1.370  | 0.000  | 2993.543 | 13.830  | 0.000   | 3106.478 | -16.960 | -0.000  |
| 177. | 5554.033 | 1.040  | 0.000  | 3006.466 | 13.940  | 0.000   | 3090.282 | -16.380 | 0.000   |
| 178. | 5555.516 | .710   | -0.000 | 3019.594 | 14.040  | -0.000  | 3074.798 | -15.720 | -0.000  |
| 179. | 5556.420 | .360   | 0.000  | 3032.841 | 14.120  | -0.000  | 3060.092 | -14.950 | -0.000  |
| 180. | 5556.725 | 0.000  | -0.000 | 3046.214 | 14.170  | -0.000  | 3046.224 | -14.160 | -0.000  |

7-PLANE (XY-PLANE) INDIUM ANTIMONIDE

BULK

|     | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSKVEL   | SSPH12  | SSPH13 |
|-----|----------|--------|--------|----------|--------|--------|----------|---------|--------|
| 0.  | 3412.645 | 0.300  | 0.000  | 2287.781 | 0.000  | 0.000  | 2287.787 | 0.000   | 0.000  |
| 1.  | 3413.338 | 1.250  | 0.000  | 2287.789 | 0.000  | 0.000  | 2286.814 | -2.770  | 0.000  |
| 2.  | 3415.275 | 2.470  | 0.000  | 2287.793 | 0.000  | 0.000  | 2283.925 | -5.150  | 0.000  |
| 3.  | 3416.472 | 3.660  | 0.000  | 2287.802 | 0.000  | 0.000  | 2279.137 | -6.150  | 0.000  |
| 4.  | 3422.867 | 4.750  | 0.000  | 2287.813 | 0.000  | 0.000  | 2272.502 | -10.760 | 0.000  |
| 5.  | 3428.459 | 5.850  | 0.000  | 2287.828 | 0.000  | 0.000  | 2264.087 | -13.210 | 0.000  |
| 6.  | 3435.118 | 6.920  | 0.000  | 2287.845 | 0.000  | 0.000  | 2253.372 | -15.530 | 0.000  |
| 7.  | 3442.772 | 7.710  | 0.000  | 2287.866 | 0.000  | 0.000  | 2242.252 | -17.100 | 0.000  |
| 8.  | 3451.355 | 8.500  | 0.000  | 2287.885 | 0.000  | 0.000  | 2229.027 | -19.110 | 0.000  |
| 9.  | 3460.753 | 9.150  | 0.000  | 2287.916 | 0.000  | 0.000  | 2214.808 | -21.570 | 0.000  |
| 10. | 3470.876 | 9.750  | 0.000  | 2287.945 | 0.000  | 0.000  | 2199.507 | -23.270 | 0.000  |
| 11. | 3481.627 | 10.250 | 0.000  | 2287.976 | 0.000  | 0.000  | 2183.442 | -24.220 | 0.000  |
| 12. | 3492.913 | 10.700 | 0.000  | 2288.010 | 0.000  | 0.000  | 2165.325 | -26.220 | 0.000  |
| 13. | 3504.837 | 11.020 | 0.000  | 2288.046 | 0.000  | 0.000  | 2144.295 | -27.490 | 0.000  |
| 14. | 3516.708 | 11.250 | 0.000  | 2288.084 | 0.000  | 0.000  | 2124.426 | -28.620 | 0.000  |
| 15. | 3528.047 | 11.420 | 0.000  | 2288.124 | 0.000  | 0.000  | 2103.863 | -29.620 | 0.000  |
| 16. | 3541.573 | 11.520 | 0.000  | 2288.166 | 0.000  | 0.000  | 2082.705 | -30.500 | 0.000  |
| 17. | 3554.210 | 11.540 | 0.000  | 2288.205 | 0.000  | 0.000  | 2061.070 | -31.270 | 0.000  |
| 18. | 3566.886 | 11.510 | 0.000  | 2288.253 | 0.000  | 0.000  | 2039.053 | -31.920 | 0.000  |
| 19. | 3579.531 | 11.420 | 0.000  | 2288.294 | 0.000  | 0.000  | 2016.760 | -32.470 | 0.000  |
| 20. | 3592.105 | 11.280 | 0.000  | 2288.344 | 0.000  | 0.000  | 1994.291 | -32.910 | 0.000  |
| 21. | 3604.531 | 11.100 | 0.000  | 2288.391 | 0.000  | 0.000  | 1971.743 | -33.240 | 0.000  |
| 22. | 3616.745 | 10.870 | 0.000  | 2288.438 | 0.000  | 0.000  | 1949.212 | -33.470 | 0.000  |
| 23. | 3628.759 | 10.610 | 0.000  | 2288.485 | 0.000  | 0.000  | 1926.792 | -33.550 | 0.000  |
| 24. | 3640.469 | 10.310 | 0.000  | 2288.532 | 0.000  | 0.000  | 1904.573 | -33.600 | 0.000  |
| 25. | 3651.856 | 9.950  | 0.000  | 2288.579 | 0.000  | 0.000  | 1882.647 | -33.500 | 0.000  |
| 26. | 3662.854 | 9.520  | 0.000  | 2288.625 | 0.000  | 0.000  | 1861.101 | -33.290 | 0.000  |
| 27. | 3673.518 | 9.240  | 0.000  | 2288.670 | 0.000  | 0.000  | 1840.022 | -32.950 | 0.000  |
| 28. | 3683.729 | 8.850  | 0.000  | 2288.714 | 0.000  | 0.000  | 1819.394 | -32.450 | 0.000  |
| 29. | 3693.467 | 8.400  | 0.000  | 2288.757 | 0.000  | 0.000  | 1799.203 | -31.850 | 0.000  |
| 30. | 3702.766 | 7.950  | 0.000  | 2288.799 | 0.000  | 0.000  | 1779.429 | -31.160 | 0.000  |
| 31. | 3711.540 | 7.500  | 0.000  | 2288.839 | 0.000  | 0.000  | 1760.052 | -30.270 | 0.000  |
| 32. | 3719.807 | 7.020  | 0.000  | 2288.877 | 0.000  | 0.000  | 1744.550 | -29.220 | 0.000  |
| 33. | 3727.524 | 6.530  | 0.000  | 2288.913 | 0.000  | 0.000  | 1727.944 | -26.020 | 0.000  |
| 34. | 3734.637 | 6.020  | 0.000  | 2288.947 | 0.000  | 0.000  | 1712.411 | -26.640 | 0.000  |
| 35. | 3741.209 | 5.510  | 0.000  | 2288.978 | 0.000  | 0.000  | 1698.034 | -25.880 | 0.000  |
| 36. | 3747.288 | 4.980  | 0.000  | 2289.007 | 0.000  | 0.000  | 1684.756 | -23.320 | 0.000  |
| 37. | 3752.866 | 4.450  | 0.000  | 2289.033 | 0.000  | 0.000  | 1672.697 | -21.350 | 0.000  |
| 38. | 3757.944 | 3.910  | 0.000  | 2289.057 | 0.000  | 0.000  | 1661.913 | -19.250 | 0.000  |
| 39. | 3761.622 | 3.340  | 0.000  | 2289.078 | 0.000  | 0.000  | 1652.450 | -16.920 | 0.000  |
| 40. | 3765.162 | 2.810  | 0.000  | 2289.095 | 0.000  | 0.000  | 1644.375 | -14.420 | 0.000  |
| 41. | 3768.066 | 2.250  | 0.000  | 2289.110 | 0.000  | 0.000  | 1637.707 | -11.760 | 0.000  |
| 42. | 3770.333 | 1.650  | 0.000  | 2289.121 | 0.000  | 0.000  | 1632.405 | -8.950  | 0.000  |
| 43. | 3771.954 | 1.130  | 0.000  | 2289.129 | 0.000  | 0.000  | 1628.736 | -6.000  | 0.000  |
| 44. | 3772.926 | .570   | 0.000  | 2289.134 | 0.000  | 0.000  | 1626.478 | -3.440  | 0.000  |
| 45. | 3773.253 | 0.000  | 0.000  | 2289.136 | 0.000  | 0.000  | 1625.725 | 0.000   | 0.000  |
| 46. | 3772.926 | -0.510 | 0.000  | 2289.134 | 0.000  | 0.000  | 1626.478 | 3.040   | 0.000  |
| 47. | 3771.954 | -1.130 | 0.000  | 2289.129 | 0.000  | 0.000  | 1628.736 | 6.000   | 0.000  |
| 48. | 3770.333 | -1.650 | 0.000  | 2289.121 | 0.000  | 0.000  | 1632.405 | 8.950   | 0.000  |
| 49. | 3768.066 | -2.250 | 0.000  | 2289.110 | 0.000  | 0.000  | 1637.707 | 11.760  | 0.000  |

Z-PLANE (XY-PLANE) INDIUM ANTIMONIDE

|     | LNGVEL   | LPMI12  | LPMI13 | FSRVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12  | SSPM13 |
|-----|----------|---------|--------|----------|--------|--------|----------|---------|--------|
| 50. | 3765.462 | -2.810  | 0.000  | 2289.095 | -0.020 | 0.000  | 1644.375 | 14.420  | 0.000  |
| 51. | 3761.622 | -3.360  | 0.000  | 2289.076 | -0.030 | 0.000  | 1652.458 | 16.520  | 0.000  |
| 52. | 3757.454 | -3.910  | 0.000  | 2289.057 | -0.030 | 0.000  | 1661.913 | 19.250  | 0.000  |
| 53. | 3752.866 | -4.450  | 0.000  | 2289.033 | -0.040 | 0.000  | 1672.697 | 21.360  | 0.000  |
| 54. | 3747.264 | -4.960  | 0.000  | 2289.007 | -0.040 | 0.000  | 1684.756 | 23.320  | 0.000  |
| 55. | 3741.269 | -5.510  | 0.000  | 2288.976 | -0.040 | 0.000  | 1698.034 | 25.000  | 0.000  |
| 56. | 3734.683 | -6.020  | 0.000  | 2288.947 | -0.050 | 0.000  | 1712.471 | 26.640  | 0.000  |
| 57. | 3727.524 | -6.530  | 0.000  | 2288.913 | -0.050 | 0.000  | 1727.999 | 28.020  | 0.000  |
| 58. | 3719.807 | -7.020  | 0.000  | 2288.877 | -0.050 | 0.000  | 1744.550 | 29.230  | 0.000  |
| 59. | 3711.540 | -7.500  | 0.000  | 2288.839 | -0.060 | 0.000  | 1762.052 | 30.270  | 0.000  |
| 60. | 3702.766 | -7.960  | 0.000  | 2288.799 | -0.060 | 0.000  | 1780.429 | 31.160  | 0.000  |
| 61. | 3693.487 | -8.400  | 0.000  | 2288.757 | -0.060 | 0.000  | 1799.603 | 31.890  | 0.000  |
| 62. | 3683.729 | -8.830  | 0.000  | 2288.714 | -0.060 | 0.000  | 1819.494 | 32.490  | 0.000  |
| 63. | 3673.516 | -9.240  | 0.000  | 2288.670 | -0.060 | 0.000  | 1840.022 | 32.950  | 0.000  |
| 64. | 3662.884 | -9.620  | 0.000  | 2288.625 | -0.070 | 0.000  | 1861.101 | 33.290  | 0.000  |
| 65. | 3651.856 | -9.960  | 0.000  | 2288.579 | -0.070 | 0.000  | 1882.647 | 33.500  | 0.000  |
| 66. | 3640.469 | -10.310 | 0.000  | 2288.532 | -0.070 | 0.000  | 1904.773 | 33.600  | 0.000  |
| 67. | 3628.759 | -10.610 | 0.000  | 2288.485 | -0.070 | 0.000  | 1928.792 | 33.590  | 0.000  |
| 68. | 3616.765 | -10.870 | 0.000  | 2288.438 | -0.070 | 0.000  | 1949.212 | 33.470  | 0.000  |
| 69. | 3604.531 | -11.100 | 0.000  | 2288.391 | -0.070 | 0.000  | 1971.743 | 33.240  | 0.000  |
| 70. | 3592.105 | -11.260 | 0.000  | 2288.344 | -0.070 | 0.000  | 1994.291 | 32.910  | 0.000  |
| 71. | 3579.538 | -11.420 | 0.000  | 2288.296 | -0.070 | 0.000  | 2016.760 | 32.470  | 0.000  |
| 72. | 3566.886 | -11.510 | 0.000  | 2288.253 | -0.060 | 0.000  | 2039.053 | 31.920  | 0.000  |
| 73. | 3554.210 | -11.540 | 0.000  | 2288.209 | -0.060 | 0.000  | 2061.070 | 31.270  | 0.000  |
| 74. | 3541.573 | -11.520 | 0.000  | 2288.166 | -0.060 | 0.000  | 2082.709 | 30.500  | 0.000  |
| 75. | 3529.047 | -11.420 | 0.000  | 2288.124 | -0.060 | 0.000  | 2103.663 | 29.620  | 0.000  |
| 76. | 3516.706 | -11.260 | 0.000  | 2288.064 | -0.060 | 0.000  | 2124.426 | 20.620  | 0.000  |
| 77. | 3504.633 | -11.020 | 0.000  | 2288.046 | -0.050 | 0.000  | 2144.285 | 27.490  | 0.000  |
| 78. | 3492.910 | -10.760 | 0.000  | 2288.010 | -0.050 | 0.000  | 2163.329 | 26.220  | 0.000  |
| 79. | 3481.627 | -10.590 | 0.000  | 2287.976 | -0.050 | 0.000  | 2181.442 | 24.620  | 0.000  |
| 80. | 3470.876 | -9.750  | 0.000  | 2287.945 | -0.040 | 0.000  | 2196.507 | 23.270  | 0.000  |
| 81. | 3460.753 | -9.150  | 0.000  | 2287.916 | -0.040 | 0.000  | 2214.406 | 21.570  | 0.000  |
| 82. | 3451.355 | -8.500  | 0.000  | 2287.889 | -0.040 | 0.000  | 2229.027 | 19.710  | 0.000  |
| 83. | 3442.776 | -7.710  | 0.000  | 2287.866 | -0.030 | 0.000  | 2242.252 | 17.700  | 0.000  |
| 84. | 3435.116 | -6.820  | 0.000  | 2287.845 | -0.030 | 0.000  | 2253.972 | 15.530  | 0.000  |
| 85. | 3428.459 | -5.850  | 0.000  | 2287.826 | -0.020 | 0.000  | 2264.067 | 13.210  | 0.000  |
| 86. | 3422.687 | -4.750  | 0.000  | 2287.813 | -0.020 | 0.000  | 2272.502 | 10.760  | 0.000  |
| 87. | 3418.472 | -3.660  | 0.000  | 2287.802 | -0.010 | 0.000  | 2279.137 | 8.190   | 0.000  |
| 88. | 3415.275 | -2.460  | 0.000  | 2287.793 | -0.010 | 0.000  | 2283.925 | 5.510   | 0.000  |
| 89. | 3413.338 | -1.250  | 0.000  | 2287.789 | -0.000 | 0.000  | 2286.814 | 2.770   | 0.000  |
| 90. | 3412.689 | 0.000   | 0.000  | 2287.787 | -0.000 | 0.000  | 2287.787 | 0.000   | 0.000  |
| 91. | 3413.358 | 1.250   | 0.000  | 2287.789 | 0.000  | 0.000  | 2286.819 | -2.770  | 0.000  |
| 92. | 3415.275 | 2.470   | 0.000  | 2287.793 | 0.000  | 0.000  | 2283.925 | -5.510  | 0.000  |
| 93. | 3418.472 | 3.660   | 0.000  | 2287.802 | 0.010  | 0.000  | 2279.137 | -8.190  | 0.000  |
| 94. | 3422.687 | 4.750   | 0.000  | 2287.813 | 0.020  | 0.000  | 2272.502 | -10.760 | 0.000  |
| 95. | 3428.459 | 5.850   | 0.000  | 2287.826 | 0.020  | 0.000  | 2264.067 | -13.210 | 0.000  |
| 96. | 3435.116 | 6.820   | 0.000  | 2287.845 | 0.030  | 0.000  | 2253.972 | -15.530 | 0.000  |
| 97. | 3442.776 | 7.710   | 0.000  | 2287.866 | 0.030  | 0.000  | 2242.252 | -17.700 | 0.000  |
| 98. | 3451.355 | 8.500   | 0.000  | 2287.889 | 0.030  | 0.000  | 2229.027 | -19.710 | 0.000  |
| 99. | 3460.753 | 9.150   | 0.000  | 2287.916 | 0.040  | 0.000  | 2214.406 | -21.570 | 0.000  |

| Z-PLANE (XY-PLANE) INDIUM ANTIMONIDE |          |        |        |          |        |          |        |         |        |      |  |
|--------------------------------------|----------|--------|--------|----------|--------|----------|--------|---------|--------|------|--|
|                                      | LNGLVEL  | LPHI12 | LPHI13 | FSPH12   | FSPH13 | SSRVEL   | SSRVEL | SSPH12  | SSPH13 | BULK |  |
| 100.                                 | 3470.876 | 9.750  | 0.000  | 2247.945 | 0.046  | 2190.507 | 0.000  | 23.270  | 0.000  |      |  |
| 101.                                 | 3481.827 | 10.290 | 0.000  | 2287.976 | .050   | 2181.442 | 0.000  | -24.420 | 0.000  |      |  |
| 102.                                 | 3492.910 | 10.700 | 0.000  | 2288.010 | .050   | 2163.325 | 0.000  | -26.220 | 0.000  |      |  |
| 103.                                 | 3504.633 | 11.020 | 0.000  | 2288.046 | .050   | 2144.285 | 0.000  | -27.450 | 0.000  |      |  |
| 104.                                 | 3516.706 | 11.260 | 0.000  | 2288.084 | .060   | 2124.426 | 0.000  | -28.620 | 0.000  |      |  |
| 105.                                 | 3529.947 | 11.520 | 0.000  | 2288.124 | .060   | 2103.863 | 0.000  | -29.620 | 0.000  |      |  |
| 106.                                 | 3541.573 | 11.520 | 0.000  | 2288.166 | .060   | 2082.709 | 0.000  | -30.500 | 0.000  |      |  |
| 107.                                 | 3554.210 | 11.540 | 0.000  | 2288.209 | .060   | 2061.070 | 0.000  | -31.270 | 0.000  |      |  |
| 108.                                 | 3568.886 | 11.510 | 0.000  | 2288.253 | .066   | 2039.053 | 0.000  | -31.920 | 0.000  |      |  |
| 109.                                 | 3579.536 | 11.420 | 0.000  | 2288.296 | .070   | 2016.760 | 0.000  | -32.470 | 0.000  |      |  |
| 110.                                 | 3592.105 | 11.280 | 0.000  | 2288.344 | .070   | 1994.291 | 0.000  | -32.910 | 0.000  |      |  |
| 111.                                 | 3604.531 | 11.100 | 0.000  | 2288.391 | .070   | 1971.743 | 0.000  | -33.240 | 0.000  |      |  |
| 112.                                 | 3616.765 | 10.870 | 0.000  | 2288.438 | .070   | 1949.212 | 0.000  | -33.470 | 0.000  |      |  |
| 113.                                 | 3628.769 | 10.610 | 0.000  | 2288.485 | .070   | 1926.742 | 0.000  | -33.590 | 0.000  |      |  |
| 114.                                 | 3640.469 | 10.310 | 0.000  | 2288.532 | .070   | 1904.273 | 0.000  | -33.600 | 0.000  |      |  |
| 115.                                 | 3651.856 | 9.980  | 0.000  | 2288.579 | .070   | 1882.647 | 0.000  | -33.500 | 0.000  |      |  |
| 116.                                 | 3662.884 | 9.620  | 0.000  | 2288.625 | .070   | 1861.101 | 0.000  | -33.290 | 0.000  |      |  |
| 117.                                 | 3673.516 | 9.240  | 0.000  | 2288.670 | .066   | 1840.022 | 0.000  | -32.950 | 0.000  |      |  |
| 118.                                 | 3683.725 | 8.830  | 0.000  | 2288.714 | .060   | 1819.494 | 0.000  | -32.490 | 0.000  |      |  |
| 119.                                 | 3693.487 | 8.400  | 0.000  | 2288.757 | .060   | 1799.603 | 0.000  | -31.990 | 0.000  |      |  |
| 120.                                 | 3702.766 | 7.960  | 0.000  | 2288.799 | .060   | 1780.425 | 0.000  | -31.460 | 0.000  |      |  |
| 121.                                 | 3711.546 | 7.500  | 0.000  | 2288.839 | .060   | 1762.052 | 0.000  | -30.270 | 0.000  |      |  |
| 122.                                 | 3719.807 | 7.020  | 0.000  | 2288.877 | .050   | 1744.550 | 0.000  | -29.230 | 0.000  |      |  |
| 123.                                 | 3727.524 | 6.530  | 0.000  | 2288.913 | .050   | 1727.999 | 0.000  | -28.020 | 0.000  |      |  |
| 124.                                 | 3734.683 | 6.020  | 0.000  | 2288.947 | .050   | 1712.471 | 0.000  | -26.640 | 0.000  |      |  |
| 125.                                 | 3741.285 | 5.510  | 0.000  | 2288.976 | .040   | 1696.034 | 0.000  | -25.060 | 0.000  |      |  |
| 126.                                 | 3747.268 | 4.960  | 0.000  | 2289.007 | .040   | 1684.756 | 0.000  | -23.320 | 0.000  |      |  |
| 127.                                 | 3752.666 | 4.450  | 0.000  | 2289.033 | .040   | 1672.697 | 0.000  | -21.300 | 0.000  |      |  |
| 128.                                 | 3757.454 | 3.910  | 0.000  | 2289.057 | .030   | 1661.913 | 0.000  | -19.250 | 0.000  |      |  |
| 129.                                 | 3761.622 | 3.360  | 0.000  | 2289.078 | .030   | 1652.456 | 0.000  | -16.950 | 0.000  |      |  |
| 130.                                 | 3765.162 | 2.810  | 0.000  | 2289.095 | .020   | 1644.375 | 0.000  | -14.420 | 0.000  |      |  |
| 131.                                 | 3768.066 | 2.250  | 0.000  | 2289.110 | .020   | 1637.707 | 0.000  | -11.760 | 0.000  |      |  |
| 132.                                 | 3770.333 | 1.690  | 0.000  | 2289.121 | .010   | 1632.465 | 0.000  | -8.950  | 0.000  |      |  |
| 133.                                 | 3771.954 | 1.130  | 0.000  | 2289.129 | .010   | 1626.736 | 0.000  | -6.040  | 0.000  |      |  |
| 134.                                 | 3772.926 | .570   | 0.000  | 2289.134 | 0.000  | 1626.478 | 0.000  | -3.040  | 0.000  |      |  |
| 135.                                 | 3773.253 | 0.000  | 0.000  | 2289.136 | -0.000 | 1625.725 | 0.000  | 0.000   | 0.000  |      |  |
| 136.                                 | 3772.928 | -.570  | 0.000  | 2289.134 | -0.000 | 1626.478 | 0.000  | 3.040   | 0.000  |      |  |
| 137.                                 | 3771.954 | -1.130 | 0.000  | 2289.129 | -0.010 | 1626.736 | 0.000  | 6.040   | 0.000  |      |  |
| 138.                                 | 3770.333 | -1.690 | 0.000  | 2289.121 | -0.010 | 1632.465 | 0.000  | 8.950   | 0.000  |      |  |
| 139.                                 | 3768.066 | -2.250 | 0.000  | 2289.110 | -0.020 | 1637.707 | 0.000  | 11.760  | 0.000  |      |  |
| 140.                                 | 3765.162 | -2.810 | 0.000  | 2289.095 | -0.020 | 1644.375 | 0.000  | 14.420  | 0.000  |      |  |
| 141.                                 | 3761.622 | -3.360 | 0.000  | 2289.078 | -0.030 | 1652.456 | 0.000  | 16.920  | 0.000  |      |  |
| 142.                                 | 3757.454 | -3.910 | 0.000  | 2289.057 | -0.030 | 1661.913 | 0.000  | 19.250  | 0.000  |      |  |
| 143.                                 | 3752.666 | -4.450 | 0.000  | 2289.033 | -0.040 | 1672.697 | 0.000  | 21.300  | 0.000  |      |  |
| 144.                                 | 3747.268 | -4.960 | 0.000  | 2289.007 | -0.040 | 1684.756 | 0.000  | 23.320  | 0.000  |      |  |
| 145.                                 | 3741.285 | -5.510 | 0.000  | 2288.976 | -0.040 | 1696.034 | 0.000  | 25.060  | 0.000  |      |  |
| 146.                                 | 3734.683 | -6.020 | 0.000  | 2288.947 | -0.050 | 1712.471 | 0.000  | 26.640  | 0.000  |      |  |
| 147.                                 | 3727.524 | -6.530 | 0.000  | 2288.913 | -0.050 | 1727.999 | 0.000  | 28.020  | 0.000  |      |  |
| 148.                                 | 3719.807 | -7.020 | 0.000  | 2288.877 | -0.050 | 1744.550 | 0.000  | 29.230  | 0.000  |      |  |
| 149.                                 | 3711.546 | -7.500 | 0.000  | 2288.839 | -0.060 | 1762.052 | 0.000  | 30.270  | 0.000  |      |  |

Z-PLANE (XY-PLANE) IODIUM ANTIMONIDE

|      | LNGVEL   | LPHI12  | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|---------|--------|----------|--------|--------|----------|--------|--------|
| 150. | 3702.766 | -7.960  | 0.000  | 2286.795 | -.060  | 0.000  | 1780.429 | 31.160 | 0.000  |
| 151. | 3693.487 | -6.400  | 0.000  | 2288.757 | -.060  | 0.000  | 1799.603 | 31.690 | 0.000  |
| 152. | 3663.729 | -8.830  | 0.000  | 2288.714 | -.060  | 0.000  | 1813.494 | 32.490 | 0.000  |
| 153. | 3673.516 | -9.240  | 0.000  | 2288.670 | -.060  | 0.000  | 1840.022 | 32.950 | 0.000  |
| 154. | 3662.884 | -9.620  | 0.000  | 2288.625 | -.070  | 0.000  | 1861.101 | 33.250 | 0.000  |
| 155. | 3651.856 | -9.960  | 0.000  | 2288.579 | -.070  | 0.000  | 1882.647 | 33.500 | 0.000  |
| 156. | 3640.469 | -10.310 | 0.000  | 2288.532 | -.070  | 0.000  | 1904.573 | 33.600 | 0.000  |
| 157. | 3628.759 | -10.610 | 0.000  | 2288.485 | -.070  | 0.000  | 1926.792 | 33.590 | 0.000  |
| 158. | 3616.765 | -10.870 | 0.000  | 2288.438 | -.070  | 0.000  | 1949.212 | 33.470 | 0.000  |
| 159. | 3604.531 | -11.100 | 0.000  | 2288.391 | -.070  | 0.000  | 1971.743 | 33.240 | 0.000  |
| 160. | 3592.105 | -11.260 | 0.000  | 2288.344 | -.070  | 0.000  | 1994.291 | 32.510 | 0.000  |
| 161. | 3579.536 | -11.420 | 0.000  | 2288.298 | -.070  | 0.000  | 2016.760 | 32.470 | 0.000  |
| 162. | 3566.866 | -11.510 | 0.000  | 2288.253 | -.060  | 0.000  | 2039.053 | 31.520 | 0.000  |
| 163. | 3554.210 | -11.540 | 0.000  | 2288.209 | -.060  | 0.000  | 2061.070 | 31.270 | 0.000  |
| 164. | 3541.573 | -11.520 | 0.000  | 2288.166 | -.060  | 0.000  | 2082.709 | 30.500 | 0.000  |
| 165. | 3529.047 | -11.420 | 0.000  | 2288.124 | -.060  | 0.000  | 2103.663 | 29.620 | 0.000  |
| 166. | 3516.708 | -11.260 | 0.000  | 2288.084 | -.050  | 0.000  | 2124.426 | 28.620 | 0.000  |
| 167. | 3504.633 | -11.020 | 0.000  | 2288.046 | -.050  | 0.000  | 2144.285 | 27.490 | 0.000  |
| 168. | 3492.910 | -10.700 | 0.000  | 2288.010 | -.050  | 0.000  | 2163.329 | 26.220 | 0.000  |
| 169. | 3481.627 | -10.290 | 0.000  | 2287.976 | -.050  | 0.000  | 2181.442 | 24.620 | 0.000  |
| 170. | 3470.876 | -9.790  | 0.000  | 2287.945 | -.040  | 0.000  | 2198.507 | 23.270 | 0.000  |
| 171. | 3460.753 | -9.190  | 0.000  | 2287.916 | -.040  | 0.000  | 2214.408 | 21.570 | 0.000  |
| 172. | 3451.355 | -8.500  | 0.000  | 2287.889 | -.040  | 0.000  | 2229.027 | 19.710 | 0.000  |
| 173. | 3442.778 | -7.710  | 0.000  | 2287.866 | -.030  | 0.000  | 2242.252 | 17.700 | 0.000  |
| 174. | 3435.116 | -6.820  | 0.000  | 2287.845 | -.030  | 0.000  | 2253.972 | 15.530 | 0.000  |
| 175. | 3428.459 | -5.850  | 0.000  | 2287.828 | -.020  | 0.000  | 2264.487 | 13.210 | 0.000  |
| 176. | 3422.867 | -4.790  | 0.000  | 2287.813 | -.020  | 0.000  | 2272.502 | 10.760 | 0.000  |
| 177. | 3418.472 | -3.660  | 0.000  | 2287.802 | -.010  | 0.000  | 2279.137 | 8.190  | 0.000  |
| 178. | 3415.275 | -2.470  | 0.000  | 2287.793 | 0.000  | 0.000  | 2283.925 | 5.510  | 0.000  |
| 179. | 3413.336 | -1.250  | 0.000  | 2287.789 | -0.000 | 0.000  | 2286.819 | 2.770  | 0.000  |
| 180. | 3412.609 | 0.000   | 0.000  | 2287.787 | -0.000 | 0.000  | 2287.787 | 0.000  | 0.000  |

111-PLANE INDIUM ANTIMONIDE

BULK

|     | LPM12    | LPM13 | F SRVEL  | FSPM12  | FSPM13  | SSRVEL   | SSPM12  | SSPM13  |
|-----|----------|-------|----------|---------|---------|----------|---------|---------|
| 0.  | 3773.293 | 0.000 | 2209.136 | 0.000   | 0.000   | 1625.725 | 0.000   | SSPM13  |
| 1.  | 3773.306 | .460  | 2208.755 | -1.090  | -7.770  | 1620.136 | 0.000   | -0.600  |
| 2.  | 3773.464 | .180  | 2287.615 | -2.180  | -1.540  | 1627.375 | 3.320   | -5.760  |
| 3.  | 3773.726 | .390  | 2285.815 | -3.280  | -2.560  | 1629.430 | 6.550   | -1.540  |
| 4.  | 3774.066 | .360  | 2283.076 | -4.320  | -3.050  | 1632.293 | 9.550   | -2.900  |
| 5.  | 3774.545 | .440  | 2279.701 | -5.370  | -3.600  | 1635.949 | 12.270  | -4.470  |
| 6.  | 3775.094 | .510  | 2275.603 | -6.400  | -4.540  | 1640.382 | 15.400  | -5.600  |
| 7.  | 3775.727 | .580  | 2270.804 | -7.390  | -5.270  | 1645.564 | 18.500  | -6.510  |
| 8.  | 3776.436 | .650  | 2265.323 | -8.360  | -5.560  | 1651.464 | 21.270  | -7.340  |
| 9.  | 3777.214 | .700  | 2259.187 | -9.300  | -6.670  | 1658.098 | 24.500  | -8.130  |
| 10. | 3778.051 | .750  | 2252.424 | -10.190 | -7.350  | 1665.376 | 27.500  | -8.890  |
| 11. | 3778.938 | .790  | 2245.067 | -11.040 | -8.020  | 1673.279 | 30.400  | -9.650  |
| 12. | 3779.864 | .820  | 2237.151 | -11.830 | -8.660  | 1681.766 | 33.200  | -10.270 |
| 13. | 3780.820 | .840  | 2228.715 | -12.570 | -9.260  | 1690.789 | 35.900  | -10.800 |
| 14. | 3781.795 | .850  | 2219.816 | -13.250 | -9.860  | 1700.295 | 38.500  | -11.250 |
| 15. | 3782.777 | .850  | 2210.493 | -13.890 | -10.460 | 1710.227 | 41.000  | -11.600 |
| 16. | 3783.756 | .850  | 2200.810 | -14.370 | -11.020 | 1720.519 | 43.500  | -11.890 |
| 17. | 3784.722 | .830  | 2190.831 | -14.600 | -11.520 | 1731.099 | 45.900  | -12.150 |
| 18. | 3785.663 | .800  | 2180.631 | -15.126 | -12.050 | 1741.885 | 48.200  | -12.380 |
| 19. | 3786.570 | .770  | 2170.297 | -15.310 | -12.550 | 1752.785 | 50.500  | -12.580 |
| 20. | 3787.434 | .730  | 2159.928 | -15.360 | -13.000 | 1763.804 | 52.800  | -12.750 |
| 21. | 3788.244 | .680  | 2149.639 | -15.220 | -13.430 | 1774.991 | 55.100  | -12.900 |
| 22. | 3789.093 | .620  | 2139.567 | -14.871 | -13.830 | 1786.333 | 57.400  | -13.050 |
| 23. | 3789.874 | .560  | 2129.805 | -14.200 | -14.210 | 1797.857 | 59.700  | -13.200 |
| 24. | 3790.278 | .490  | 2120.732 | -13.360 | -14.540 | 1809.575 | 62.000  | -13.350 |
| 25. | 3790.600 | .410  | 2112.366 | -12.100 | -14.850 | 1821.390 | 64.300  | -13.500 |
| 26. | 3791.234 | .340  | 2105.812 | -10.430 | -15.110 | 1833.300 | 66.600  | -13.650 |
| 27. | 3791.577 | .260  | 2099.926 | -8.350  | -15.320 | 1845.304 | 68.900  | -13.800 |
| 28. | 3791.824 | .170  | 2094.342 | -5.850  | -15.480 | 1857.394 | 71.200  | -13.950 |
| 29. | 3791.973 | .090  | 2091.695 | -3.020  | -15.600 | 1869.579 | 73.500  | -14.100 |
| 30. | 3792.023 | .000  | 2090.526 | 0.000   | -15.610 | 1881.857 | 75.800  | -14.250 |
| 31. | 3791.973 | -.050 | 2091.495 | 3.020   | -15.560 | 1894.234 | 78.100  | -14.400 |
| 32. | 3791.824 | -.170 | 2094.342 | 5.850   | -15.450 | 1906.700 | 80.400  | -14.550 |
| 33. | 3791.577 | -.260 | 2098.920 | 8.350   | -15.320 | 1919.254 | 82.700  | -14.700 |
| 34. | 3791.234 | -.340 | 2105.812 | 10.430  | -15.110 | 1931.894 | 85.000  | -14.850 |
| 35. | 3790.800 | -.410 | 2112.366 | 12.100  | -14.850 | 1944.619 | 87.300  | -15.000 |
| 36. | 3790.278 | -.490 | 2120.732 | 13.360  | -14.540 | 1957.429 | 89.600  | -15.150 |
| 37. | 3789.674 | -.560 | 2129.805 | 14.200  | -14.210 | 1970.324 | 91.900  | -15.300 |
| 38. | 3788.993 | -.620 | 2139.567 | 14.870  | -13.830 | 1983.304 | 94.200  | -15.450 |
| 39. | 3788.244 | -.680 | 2149.639 | 15.220  | -13.430 | 1996.368 | 96.500  | -15.600 |
| 40. | 3787.434 | -.730 | 2159.928 | 15.360  | -13.000 | 2009.516 | 98.800  | -15.750 |
| 41. | 3786.570 | -.770 | 2170.297 | 15.310  | -12.550 | 2022.749 | 101.100 | -15.900 |
| 42. | 3785.663 | -.800 | 2180.631 | 15.126  | -12.050 | 2036.166 | 103.400 | -16.050 |
| 43. | 3784.722 | -.830 | 2190.831 | 14.800  | -11.550 | 2049.769 | 105.700 | -16.200 |
| 44. | 3783.756 | -.850 | 2200.810 | 14.370  | -11.020 | 2063.557 | 108.000 | -16.350 |
| 45. | 3782.777 | -.850 | 2210.493 | 13.890  | -10.460 | 2077.530 | 110.300 | -16.500 |
| 46. | 3781.795 | -.850 | 2219.816 | 13.250  | -9.860  | 2091.689 | 112.600 | -16.650 |
| 47. | 3780.820 | -.840 | 2228.715 | 12.570  | -9.260  | 2106.034 | 114.900 | -16.800 |
| 48. | 3779.864 | -.820 | 2237.151 | 11.830  | -8.660  | 2120.567 | 117.200 | -16.950 |
| 49. | 3778.938 | -.790 | 2245.067 | 11.040  | -8.020  | 2135.289 | 119.500 | -17.100 |

111-PLANE INDIUM ANTIMONIDE

|     | LNGVEL   | LPMI12 | LPMI13 | FSPVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 3778.051 | -75.0  | 4.370  | 2252.424 | 10.190  | -7.350  | 1662.376 | -14.640 | -8.890  |
| 51. | 3777.214 | -70.0  | 3.960  | 2259.187 | 9.300   | -6.670  | 1658.094 | -13.500 | -8.130  |
| 52. | 3776.436 | -65.0  | 3.560  | 2265.323 | 8.360   | -5.960  | 1651.405 | -12.270 | -7.340  |
| 53. | 3775.727 | -60.0  | 3.160  | 2270.804 | 7.390   | -5.270  | 1645.565 | -10.950 | -6.510  |
| 54. | 3775.094 | -55.0  | 2.730  | 2275.603 | 6.400   | -4.540  | 1640.382 | -9.540  | -5.650  |
| 55. | 3774.545 | -50.0  | 2.290  | 2279.701 | 5.370   | -3.800  | 1635.849 | -8.070  | -4.750  |
| 56. | 3774.087 | -45.0  | 1.840  | 2283.076 | 4.320   | -3.050  | 1632.293 | -6.530  | -3.800  |
| 57. | 3773.726 | -40.0  | 1.390  | 2285.720 | 3.260   | -2.300  | 1629.430 | -4.950  | -2.900  |
| 58. | 3773.464 | -35.0  | 0.930  | 2287.615 | 2.160   | -1.540  | 1627.375 | -3.320  | -1.940  |
| 59. | 3773.306 | -30.0  | 0.460  | 2288.755 | 1.090   | -0.770  | 1626.138 | -1.670  | -0.900  |
| 60. | 3773.253 | 0.000  | 0.000  | 2289.136 | 0.000   | 0.000   | 1625.725 | -0.000  | -0.000  |
| 61. | 3773.306 | 0.050  | -0.460 | 2288.755 | -1.050  | 0.770   | 1626.136 | 1.670   | 0.900   |
| 62. | 3773.464 | 0.160  | -0.930 | 2287.615 | -2.160  | 1.540   | 1627.375 | 3.320   | 1.940   |
| 63. | 3773.726 | 0.270  | -1.390 | 2285.720 | -3.260  | 2.300   | 1629.430 | 4.950   | 2.900   |
| 64. | 3774.087 | 0.360  | -1.840 | 2283.076 | -4.320  | 3.050   | 1632.293 | 6.530   | 3.800   |
| 65. | 3774.546 | 0.440  | -2.290 | 2279.701 | -5.370  | 3.600   | 1635.849 | 8.070   | 4.750   |
| 66. | 3775.094 | 0.510  | -2.730 | 2275.603 | -6.400  | 4.250   | 1640.382 | 9.540   | 5.650   |
| 67. | 3775.727 | 0.580  | -3.160 | 2270.804 | -7.390  | 4.860   | 1645.565 | 10.950  | 6.510   |
| 68. | 3776.436 | 0.650  | -3.560 | 2265.323 | -8.360  | 5.490   | 1651.405 | 12.270  | 7.340   |
| 69. | 3777.214 | 0.700  | -3.960 | 2259.187 | -9.300  | 6.070   | 1658.094 | 13.500  | 8.130   |
| 70. | 3778.051 | 0.750  | -4.370 | 2252.424 | -10.190 | 6.600   | 1665.376 | 14.640  | 8.890   |
| 71. | 3778.936 | 0.790  | -4.750 | 2245.067 | -11.040 | 7.120   | 1673.274 | 15.640  | 9.600   |
| 72. | 3779.864 | 0.820  | -5.110 | 2237.151 | -11.830 | 7.620   | 1681.766 | 16.620  | 10.260  |
| 73. | 3780.820 | 0.840  | -5.460 | 2228.715 | -12.570 | 8.090   | 1690.769 | 17.450  | 10.890  |
| 74. | 3781.755 | 0.850  | -5.780 | 2219.816 | -13.250 | 8.540   | 1700.295 | 18.150  | 11.490  |
| 75. | 3782.777 | 0.850  | -6.090 | 2210.493 | -13.850 | 8.970   | 1710.227 | 18.730  | 12.060  |
| 76. | 3783.756 | 0.850  | -6.390 | 2200.810 | -14.370 | 9.380   | 1720.519 | 19.190  | 12.600  |
| 77. | 3784.722 | 0.850  | -6.680 | 2190.831 | -14.800 | 9.760   | 1731.054 | 19.560  | 13.110  |
| 78. | 3785.663 | 0.850  | -6.910 | 2180.631 | -15.120 | 10.120  | 1741.685 | 19.860  | 13.600  |
| 79. | 3786.570 | 0.850  | -7.140 | 2170.297 | -15.310 | 10.460  | 1752.705 | 19.650  | 13.610  |
| 80. | 3787.434 | 0.850  | -7.360 | 2159.926 | -15.350 | 10.780  | 1763.694 | 19.460  | 13.700  |
| 81. | 3788.244 | 0.850  | -7.550 | 2149.639 | -15.220 | 11.080  | 1774.490 | 19.150  | 13.740  |
| 82. | 3788.994 | 0.850  | -7.720 | 2139.567 | -14.970 | 11.360  | 1785.033 | 18.740  | 13.700  |
| 83. | 3789.674 | 0.850  | -7.880 | 2129.865 | -14.620 | 11.620  | 1795.157 | 18.240  | 13.600  |
| 84. | 3790.276 | 0.850  | -8.030 | 2120.731 | -13.360 | 11.860  | 1804.675 | 17.660  | 13.460  |
| 85. | 3790.800 | 0.850  | -8.120 | 2112.366 | -12.100 | 12.080  | 1813.366 | 16.930  | 13.280  |
| 86. | 3791.234 | 0.850  | -8.210 | 2105.011 | -10.830 | 12.280  | 1820.997 | 16.150  | 13.060  |
| 87. | 3791.577 | 0.850  | -8.290 | 2098.920 | -9.550  | 12.460  | 1827.304 | 15.320  | 12.790  |
| 88. | 3791.824 | 0.850  | -8.340 | 2094.342 | -8.300  | 12.610  | 1834.974 | 14.450  | 12.480  |
| 89. | 3791.973 | 0.850  | -8.370 | 2091.695 | -7.020  | 12.740  | 1841.674 | 13.550  | 12.130  |
| 90. | 3792.023 | 0.850  | -8.380 | 2090.528 | 0.000   | 12.850  | 1847.974 | 12.600  | 11.750  |
| 91. | 3791.973 | -0.050 | -8.370 | 2091.495 | 3.020   | 12.940  | 1852.037 | 11.650  | 11.250  |
| 92. | 3791.824 | -0.170 | -8.340 | 2094.342 | 5.050   | 13.000  | 1854.974 | 10.600  | 10.700  |
| 93. | 3791.577 | -0.260 | -8.290 | 2098.920 | 6.350   | 13.020  | 1857.304 | 9.460   | 10.000  |
| 94. | 3791.234 | -0.340 | -8.210 | 2105.011 | 7.830   | 13.000  | 1859.974 | 8.240   | 9.150   |
| 95. | 3790.800 | -0.410 | -8.120 | 2112.366 | 9.480   | 12.940  | 1862.037 | 6.950   | 8.150   |
| 96. | 3790.276 | -0.450 | -8.010 | 2120.731 | 11.360  | 12.850  | 1863.366 | 5.500   | 7.000   |
| 97. | 3789.674 | -0.560 | -7.880 | 2129.865 | 13.360  | 12.740  | 1864.675 | 4.000   | 5.700   |
| 98. | 3788.994 | -0.620 | -7.720 | 2139.567 | 14.260  | 12.610  | 1865.376 | 2.450   | 4.250   |
| 99. | 3788.244 | -0.680 | -7.550 | 2149.639 | 15.220  | 12.460  | 1865.033 | 0.800   | 2.650   |

111-PLANE INDIUM ANTIMONIDE

BULK

|      | LMGVL    | LPM12  | LPM13  | FSRVEL   | FSPM12  | FSPM13  | SSRVEL   | SSPM12  | SSPM13  |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 3787.434 | -0.730 | -7.360 | 2159.924 | 15.350  | 13.000  | 1763.694 | -14.460 | 13.900  |
| 101. | 3786.570 | -0.770 | -7.140 | 2170.297 | 15.310  | 12.550  | 1752.785 | -14.650 | 13.610  |
| 102. | 3785.663 | -0.600 | -6.910 | 2180.631 | 15.120  | 12.660  | 1741.085 | -14.600 | 13.260  |
| 103. | 3784.722 | -0.830 | -6.680 | 2190.831 | 14.800  | 11.550  | 1731.099 | -14.500 | 12.960  |
| 104. | 3783.756 | -0.650 | -6.390 | 2200.810 | 14.370  | 11.020  | 1720.519 | -14.190 | 12.470  |
| 105. | 3782.777 | -0.650 | -6.090 | 2210.493 | 13.850  | 10.460  | 1710.227 | -16.730 | 11.990  |
| 106. | 3781.795 | -0.850 | -5.760 | 2219.816 | 13.250  | 9.660   | 1700.295 | -16.190 | 11.460  |
| 107. | 3780.820 | -0.840 | -5.460 | 2228.719 | 12.570  | 9.280   | 1690.789 | -17.450 | 10.890  |
| 108. | 3779.864 | -0.820 | -5.110 | 2237.151 | 11.830  | 8.660   | 1681.766 | -16.620 | 10.260  |
| 109. | 3778.936 | -0.790 | -4.750 | 2245.067 | 11.040  | 8.020   | 1673.279 | -15.690 | 9.600   |
| 110. | 3778.051 | -0.750 | -4.370 | 2252.424 | 10.190  | 7.350   | 1665.376 | -14.640 | 8.930   |
| 111. | 3777.214 | -0.760 | -3.960 | 2259.187 | 9.300   | 6.670   | 1658.090 | -13.500 | 8.130   |
| 112. | 3776.436 | -0.650 | -3.580 | 2265.323 | 8.360   | 5.960   | 1651.484 | -12.270 | 7.340   |
| 113. | 3775.727 | -0.560 | -3.160 | 2270.804 | 7.390   | 5.270   | 1645.569 | -10.950 | 6.510   |
| 114. | 3775.054 | -0.510 | -2.730 | 2275.603 | 6.400   | 4.540   | 1640.382 | -9.540  | 5.650   |
| 115. | 3774.546 | -0.440 | -2.290 | 2279.701 | 5.370   | 3.820   | 1635.945 | -8.070  | 4.770   |
| 116. | 3774.086 | -0.360 | -1.840 | 2283.078 | 4.320   | 3.050   | 1626.136 | -6.530  | 3.840   |
| 117. | 3773.726 | -0.270 | -1.390 | 2285.720 | 3.260   | 2.300   | 1622.293 | -4.950  | 2.900   |
| 118. | 3773.464 | -0.180 | -0.930 | 2287.615 | 2.160   | 1.540   | 1627.375 | -3.320  | 1.940   |
| 119. | 3773.306 | -0.090 | -0.460 | 2288.755 | 1.090   | 0.770   | 1626.136 | -1.670  | 0.970   |
| 120. | 3773.253 | -0.000 | 0.000  | 2289.136 | 0.000   | 0.000   | 1625.725 | 0.000   | -0.000  |
| 121. | 3773.306 | 0.090  | 0.660  | 2288.755 | -1.090  | -0.770  | 1626.136 | 1.670   | -0.970  |
| 122. | 3773.464 | 0.180  | 1.230  | 2287.615 | -2.160  | -1.540  | 1627.375 | 3.320   | -1.940  |
| 123. | 3773.726 | 0.270  | 1.780  | 2285.720 | -3.260  | -2.300  | 1622.293 | 4.950   | -2.900  |
| 124. | 3774.086 | 0.360  | 2.330  | 2283.078 | -4.320  | -3.050  | 1627.375 | 6.530   | -3.840  |
| 125. | 3774.546 | 0.440  | 2.890  | 2279.701 | -5.370  | -3.800  | 1635.945 | 8.070   | -4.750  |
| 126. | 3775.054 | 0.510  | 3.430  | 2275.603 | -6.400  | -4.540  | 1640.382 | 9.540   | -5.650  |
| 127. | 3775.727 | 0.560  | 3.960  | 2270.804 | -7.390  | -5.270  | 1645.569 | 10.950  | -6.510  |
| 128. | 3776.436 | 0.650  | 4.500  | 2265.323 | -8.360  | -6.000  | 1651.485 | 12.270  | -7.340  |
| 129. | 3777.214 | 0.700  | 5.030  | 2259.187 | -9.300  | -6.670  | 1658.090 | 13.500  | -8.130  |
| 130. | 3778.051 | 0.750  | 5.560  | 2252.424 | -10.190 | -7.350  | 1665.376 | 14.640  | -8.930  |
| 131. | 3778.936 | 0.790  | 6.090  | 2245.067 | -11.040 | -8.020  | 1673.279 | 15.690  | -9.600  |
| 132. | 3779.864 | 0.800  | 6.620  | 2237.151 | -11.830 | -8.660  | 1681.766 | 16.620  | -10.260 |
| 133. | 3780.820 | 0.800  | 7.150  | 2228.719 | -12.570 | -9.280  | 1690.789 | 17.450  | -10.890 |
| 134. | 3781.795 | 0.800  | 7.680  | 2220.715 | -13.250 | -9.860  | 1700.295 | 18.150  | -11.460 |
| 135. | 3782.777 | 0.810  | 8.200  | 2212.894 | -13.850 | -10.460 | 1710.227 | 18.730  | -11.990 |
| 136. | 3783.756 | 0.850  | 8.730  | 2205.010 | -14.370 | -11.020 | 1720.519 | 19.190  | -12.470 |
| 137. | 3784.722 | 0.830  | 9.260  | 2197.831 | -14.800 | -11.550 | 1731.099 | 19.500  | -12.960 |
| 138. | 3785.663 | 0.800  | 9.790  | 2190.810 | -15.120 | -12.060 | 1741.085 | 19.660  | -13.260 |
| 139. | 3786.570 | 0.770  | 10.320 | 2183.631 | -15.310 | -12.550 | 1752.785 | 19.650  | -13.610 |
| 140. | 3787.434 | 0.730  | 10.850 | 2176.297 | -15.350 | -13.000 | 1763.694 | 19.460  | -13.900 |
| 141. | 3788.244 | 0.660  | 11.380 | 2168.816 | -15.220 | -13.430 | 1774.891 | 19.050  | -14.190 |
| 142. | 3788.993 | 0.620  | 11.910 | 2161.157 | -14.870 | -13.830 | 1785.033 | 18.400  | -14.460 |
| 143. | 3789.674 | 0.560  | 12.440 | 2153.269 | -14.260 | -14.210 | 1795.157 | 17.460  | -14.700 |
| 144. | 3790.278 | 0.490  | 12.970 | 2145.136 | -13.360 | -14.540 | 1804.675 | 16.190  | -14.900 |
| 145. | 3790.800 | 0.410  | 13.500 | 2136.766 | -12.100 | -14.850 | 1813.366 | 14.530  | -15.070 |
| 146. | 3791.234 | 0.340  | 14.030 | 2128.162 | -10.430 | -15.110 | 1821.997 | 12.440  | -15.200 |
| 147. | 3791.577 | 0.260  | 14.560 | 2119.342 | -8.350  | -15.320 | 1827.304 | 9.690   | -15.270 |
| 148. | 3791.824 | 0.170  | 15.090 | 2110.312 | -5.150  | -15.460 | 1827.037 | 6.500   | -15.300 |
| 149. | 3791.973 | 0.090  | 15.620 | 2101.095 | -3.020  | -15.550 | 1824.174 | 3.520   | -15.300 |



111-PLANE INDIUM ANTIMONIDE

BULK

|      | LNGLVEL  | LPHI12  | LPHI13 | FSRVEL   | FSPH12 | FSPH13  | SSRVEL   | SSPH12  | SSPH13  |
|------|----------|---------|--------|----------|--------|---------|----------|---------|---------|
| 150. | 3792.023 | 0.000   | 8.380  | 2090.526 | -0.066 | -15.610 | 1035.976 | -0.000  | -14.600 |
| 151. | 3791.973 | -0.050  | 8.370  | 2091.495 | 3.020  | -15.560 | 1834.979 | -3.550  | -14.600 |
| 152. | 3791.824 | -1.170  | 8.340  | 2094.342 | 5.650  | -15.460 | 1632.037 | -6.900  | -14.750 |
| 153. | 3791.577 | -2.260  | 8.290  | 2098.920 | 8.350  | -15.320 | 1027.304 | -9.650  | -14.700 |
| 154. | 3791.234 | -3.540  | 8.210  | 2105.012 | 10.430 | -15.110 | 1020.997 | -12.440 | -14.700 |
| 155. | 3790.800 | -4.910  | 8.120  | 2112.366 | 12.100 | -14.850 | 1013.366 | -14.530 | -14.700 |
| 156. | 3790.278 | -6.490  | 8.010  | 2120.732 | 13.360 | -14.540 | 1004.672 | -16.190 | -14.500 |
| 157. | 3789.674 | -8.260  | 7.880  | 2129.065 | 14.260 | -14.210 | 1795.157 | -17.460 | -14.500 |
| 158. | 3788.993 | -10.200 | 7.720  | 2139.567 | 14.670 | -13.830 | 1765.033 | -18.400 | -14.300 |
| 159. | 3788.244 | -12.300 | 7.550  | 2149.639 | 15.220 | -13.430 | 1774.491 | -19.050 | -14.100 |
| 160. | 3787.434 | -14.500 | 7.360  | 2154.928 | 15.350 | -13.000 | 1763.694 | -19.460 | -13.900 |
| 161. | 3786.576 | -16.800 | 7.140  | 2170.297 | 15.310 | -12.560 | 1752.765 | -19.650 | -13.610 |
| 162. | 3785.663 | -19.200 | 6.910  | 2180.631 | 15.120 | -12.000 | 1741.005 | -19.600 | -13.200 |
| 163. | 3784.722 | -21.700 | 6.660  | 2190.831 | 14.800 | -11.510 | 1731.039 | -19.500 | -12.700 |
| 164. | 3783.756 | -24.300 | 6.390  | 2200.810 | 14.370 | -11.020 | 1720.519 | -19.300 | -12.200 |
| 165. | 3782.777 | -27.000 | 6.090  | 2210.493 | 13.850 | -10.440 | 1710.227 | -19.000 | -11.700 |
| 166. | 3781.795 | -29.800 | 5.760  | 2215.816 | 13.250 | -9.860  | 1700.245 | -18.600 | -11.200 |
| 167. | 3780.820 | -32.700 | 5.460  | 2220.719 | 12.570 | -9.280  | 1690.789 | -18.100 | -10.700 |
| 168. | 3779.864 | -35.700 | 5.110  | 2237.151 | 11.830 | -8.660  | 1681.768 | -17.500 | -10.200 |
| 169. | 3778.936 | -38.800 | 4.750  | 2245.067 | 11.040 | -8.020  | 1673.279 | -16.800 | -9.700  |
| 170. | 3778.051 | -42.000 | 4.370  | 2252.424 | 10.190 | -7.350  | 1665.376 | -16.000 | -9.200  |
| 171. | 3777.214 | -45.300 | 3.980  | 2259.187 | 9.300  | -6.670  | 1658.090 | -15.100 | -8.700  |
| 172. | 3776.436 | -48.700 | 3.580  | 2265.323 | 8.360  | -5.910  | 1651.464 | -14.200 | -8.200  |
| 173. | 3775.727 | -52.200 | 3.180  | 2270.804 | 7.390  | -5.270  | 1645.569 | -13.300 | -7.700  |
| 174. | 3775.094 | -55.800 | 2.730  | 2275.603 | 6.400  | -4.540  | 1640.362 | -12.400 | -7.200  |
| 175. | 3774.545 | -59.500 | 2.290  | 2279.701 | 5.370  | -3.800  | 1635.893 | -11.500 | -6.700  |
| 176. | 3774.066 | -63.300 | 1.840  | 2283.076 | 4.320  | -3.050  | 1632.293 | -10.600 | -6.200  |
| 177. | 3773.728 | -67.200 | 1.390  | 2285.720 | 3.260  | -2.300  | 1629.430 | -9.700  | -5.700  |
| 178. | 3773.464 | -71.100 | .930   | 2287.615 | 2.180  | -1.540  | 1627.375 | -8.800  | -5.200  |
| 179. | 3773.306 | -75.000 | .460   | 2288.755 | 1.090  | -0.770  | 1625.130 | -7.900  | -4.700  |
| 180. | 3773.253 | -78.900 | -0.000 | 2289.136 | -0.000 | 0.000   | 1625.725 | -7.000  | -4.200  |

110-PLANE INDIUM ANTIMONIDE

|     | LNGVEL   | LPHI12  | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRWEL   | SSPHI12 | SSPHI13 |
|-----|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 3867.072 | 0.000   | -0.000 | 1872.600 | -19.200 | 0.000   | 1872.599 | 19.200  | 0.000   |
| 1.  | 3886.838 | -4.400  | -0.000 | 1861.808 | -18.060 | -0.000  | 1884.016 | 19.190  | 0.000   |
| 2.  | 3886.130 | -8.000  | -0.000 | 1851.409 | -16.840 | -0.000  | 1895.489 | 19.160  | 0.000   |
| 3.  | 3884.936 | -1.220  | -0.000 | 1842.059 | -15.490 | -0.000  | 1907.004 | 19.110  | 0.000   |
| 4.  | 3883.246 | -1.640  | -0.000 | 1833.603 | -14.030 | -0.000  | 1918.545 | 19.030  | 0.000   |
| 5.  | 3881.060 | -2.060  | -0.000 | 1826.084 | -12.450 | -0.000  | 1930.094 | 18.930  | 0.000   |
| 6.  | 3878.364 | -2.500  | -0.000 | 1819.537 | -10.760 | -0.000  | 1941.651 | 18.810  | 0.000   |
| 7.  | 3875.155 | -2.930  | -0.000 | 1813.996 | -9.020  | -0.000  | 1953.166 | 18.660  | 0.000   |
| 8.  | 3871.431 | -3.370  | -0.000 | 1809.495 | -7.170  | -0.000  | 1964.693 | 18.520  | 0.000   |
| 9.  | 3867.185 | -3.820  | -0.000 | 1806.055 | -5.260  | -0.000  | 1976.157 | 18.350  | 0.000   |
| 10. | 3862.426 | -4.260  | -0.000 | 1803.697 | -3.290  | -0.000  | 1987.565 | 18.160  | 0.000   |
| 11. | 3857.144 | -4.710  | -0.000 | 1802.437 | -1.290  | -0.000  | 1998.904 | 17.950  | 0.000   |
| 12. | 3851.343 | -5.150  | -0.000 | 1802.286 | .740    | -0.000  | 2010.162 | 17.720  | 0.000   |
| 13. | 3845.026 | -5.600  | -0.000 | 1803.249 | 2.770   | -0.000  | 2021.326 | 17.490  | 0.000   |
| 14. | 3838.196 | -6.040  | -0.000 | 1805.326 | 4.760   | -0.000  | 2032.365 | 17.230  | -0.000  |
| 15. | 3830.856 | -6.440  | -0.000 | 1808.516 | 6.760   | -0.000  | 2043.326 | 16.960  | 0.000   |
| 16. | 3823.016 | -6.910  | -0.000 | 1812.804 | 8.690   | -0.000  | 2054.140 | 16.680  | 0.000   |
| 17. | 3814.684 | -7.340  | -0.000 | 1818.176 | 10.524  | -0.000  | 2064.813 | 16.390  | 0.000   |
| 18. | 3805.864 | -7.770  | 0.000  | 1824.618 | 12.340  | -0.000  | 2075.337 | 16.090  | 0.000   |
| 19. | 3796.566 | -8.160  | -0.000 | 1832.097 | 14.030  | -0.000  | 2085.699 | 15.770  | 0.000   |
| 20. | 3786.810 | -8.550  | -0.000 | 1840.586 | 15.630  | -0.000  | 2095.691 | 15.440  | 0.000   |
| 21. | 3776.600 | -8.930  | -0.000 | 1850.056 | 17.120  | -0.000  | 2105.502 | 15.100  | 0.000   |
| 22. | 3765.956 | -9.360  | -0.000 | 1860.462 | 18.490  | -0.000  | 2115.123 | 14.750  | 0.000   |
| 23. | 3754.892 | -9.760  | -0.000 | 1871.764 | 19.760  | -0.000  | 2125.344 | 14.390  | 0.000   |
| 24. | 3743.427 | -10.120 | -0.000 | 1883.915 | 20.910  | -0.000  | 2134.757 | 14.020  | 0.000   |
| 25. | 3731.562 | -10.460 | -0.000 | 1896.866 | 21.940  | -0.000  | 2143.993 | 13.650  | 0.000   |
| 26. | 3719.379 | -10.790 | 0.000  | 1910.561 | 22.850  | -0.000  | 2152.923 | 13.260  | 0.000   |
| 27. | 3706.842 | -11.100 | 0.000  | 1924.945 | 23.640  | -0.000  | 2161.660 | 12.870  | 0.000   |
| 28. | 3693.996 | -11.390 | 0.000  | 1939.957 | 24.320  | -0.000  | 2170.155 | 12.460  | 0.000   |
| 29. | 3680.875 | -11.650 | -0.000 | 1955.532 | 24.890  | -0.000  | 2178.402 | 12.060  | 0.000   |
| 30. | 3667.506 | -11.890 | 0.000  | 1971.605 | 25.340  | -0.000  | 2186.393 | 11.640  | 0.000   |
| 31. | 3653.925 | -12.100 | 0.000  | 1988.107 | 25.690  | -0.000  | 2194.120 | 11.220  | 0.000   |
| 32. | 3640.169 | -12.280 | 0.000  | 2004.964 | 25.920  | -0.000  | 2201.579 | 10.790  | 0.000   |
| 33. | 3626.275 | -12.420 | -0.000 | 2022.102 | 26.050  | -0.000  | 2208.762 | 10.350  | 0.000   |
| 34. | 3612.299 | -12.530 | -0.000 | 2039.442 | 26.070  | -0.000  | 2215.663 | 9.910   | 0.000   |
| 35. | 3598.276 | -12.550 | -0.000 | 2056.904 | 25.960  | -0.000  | 2222.276 | 9.470   | 0.000   |
| 36. | 3584.262 | -12.610 | 0.000  | 2074.405 | 25.790  | -0.000  | 2228.597 | 9.020   | 0.000   |
| 37. | 3570.312 | -12.670 | 0.000  | 2091.856 | 25.460  | -0.000  | 2234.619 | 8.560   | 0.000   |
| 38. | 3556.486 | -12.490 | 0.000  | 2109.170 | 25.080  | -0.000  | 2240.339 | 8.100   | 0.000   |
| 39. | 3542.846 | -12.340 | 0.000  | 2126.253 | 24.530  | -0.000  | 2245.751 | 7.640   | 0.000   |
| 40. | 3529.460 | -12.130 | 0.000  | 2143.009 | 23.880  | -0.000  | 2250.850 | 7.170   | 0.000   |
| 41. | 3516.402 | -11.840 | 0.000  | 2159.341 | 23.110  | -0.000  | 2255.634 | 6.700   | 0.000   |
| 42. | 3503.745 | -11.490 | 0.000  | 2175.148 | 22.220  | -0.000  | 2260.090 | 6.220   | 0.000   |
| 43. | 3491.571 | -11.090 | 0.000  | 2190.326 | 21.200  | -0.000  | 2264.236 | 5.750   | 0.000   |
| 44. | 3479.961 | -10.540 | 0.000  | 2204.775 | 20.050  | -0.000  | 2268.051 | 5.270   | 0.000   |
| 45. | 3469.001 | -9.940  | 0.000  | 2218.386 | 18.770  | -0.000  | 2271.535 | 4.760   | 0.000   |
| 46. | 3458.777 | -9.240  | 0.000  | 2231.055 | 17.350  | -0.000  | 2274.687 | 4.300   | 0.000   |
| 47. | 3449.375 | -8.460  | 0.000  | 2242.680 | 15.790  | -0.000  | 2277.503 | 3.610   | 0.000   |
| 48. | 3440.681 | -7.600  | 0.000  | 2253.162 | 14.100  | -0.000  | 2279.983 | 3.320   | 0.000   |
| 49. | 3433.375 | -6.650  | 0.000  | 2262.405 | 12.280  | -0.000  | 2282.123 | 2.630   | 0.000   |

BULK

110-PLANE INDIUM ANTIMONIDE

|     | LMVEL    | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |
|-----|----------|--------|--------|----------|---------|--------|----------|---------|--------|
| 50. | 3426.935 | -5.620 | 0.000  | 2270.322 | 10.340  | -0.000 | 2283.523 | 2.340   | 0.000  |
| 51. | 3421.626 | -4.520 | 0.000  | 2276.036 | 6.290   | -0.000 | 2285.381 | 1.650   | 0.000  |
| 52. | 3417.514 | -3.360 | 0.000  | 2281.079 | 6.150   | -0.000 | 2286.496 | 1.350   | 0.000  |
| 53. | 3414.640 | -2.150 | 0.000  | 2285.399 | 3.900   | -0.000 | 2287.267 | .860    | 0.000  |
| 54. | 3413.041 | -.920  | 0.000  | 2287.357 | 1.660   | -0.000 | 2287.693 | .360    | 0.000  |
| 55. | 3412.734 | .330   | 0.000  | 2287.775 | -.130   | -0.000 | 2287.732 | -.600   | 0.000  |
| 56. | 3413.725 | 1.570  | 0.000  | 2286.515 | -2.860  | 0.000  | 2287.511 | -.630   | -0.000 |
| 57. | 3416.001 | 2.790  | 0.000  | 2283.733 | -5.110  | 0.000  | 2286.903 | -1.120  | -0.000 |
| 58. | 3419.534 | 3.900  | 0.000  | 2279.403 | -7.250  | 0.000  | 2285.950 | -1.610  | -0.000 |
| 59. | 3424.245 | 5.110  | 0.000  | 2273.576 | -9.300  | 0.000  | 2284.654 | -2.110  | -0.000 |
| 60. | 3430.198 | 6.170  | 0.000  | 2266.312 | -11.360 | 0.000  | 2283.016 | -2.600  | -0.000 |
| 61. | 3437.210 | 7.160  | 0.000  | 2257.684 | -13.260 | 0.000  | 2281.036 | -3.090  | -0.000 |
| 62. | 3445.248 | 8.070  | 0.000  | 2247.776 | -15.010 | 0.000  | 2278.716 | -3.580  | -0.000 |
| 63. | 3455.232 | 8.850  | 0.000  | 2236.679 | -16.630 | 0.000  | 2276.056 | -4.070  | -0.000 |
| 64. | 3464.076 | 9.620  | 0.000  | 2224.489 | -18.120 | 0.000  | 2273.064 | -4.560  | -0.000 |
| 65. | 3474.702 | 10.270 | 0.000  | 2211.310 | -19.460 | 0.000  | 2269.737 | -5.040  | -0.000 |
| 66. | 3486.015 | 10.820 | 0.000  | 2197.245 | -20.680 | 0.000  | 2266.079 | -5.520  | -0.000 |
| 67. | 3497.934 | 11.290 | 0.000  | 2182.396 | -21.760 | 0.000  | 2262.092 | -6.000  | -0.000 |
| 68. | 3510.373 | 11.690 | 0.000  | 2166.074 | -22.710 | 0.000  | 2257.701 | -6.480  | -0.000 |
| 69. | 3523.251 | 12.000 | 0.000  | 2150.777 | -23.540 | 0.000  | 2253.150 | -6.950  | -0.000 |
| 70. | 3536.492 | 12.250 | 0.000  | 2134.208 | -24.240 | 0.000  | 2248.157 | -7.420  | -0.000 |
| 71. | 3550.020 | 12.420 | 0.000  | 2117.267 | -24.830 | 0.000  | 2242.332 | -7.880  | -0.000 |
| 72. | 3563.767 | 12.540 | 0.000  | 2100.051 | -25.300 | 0.000  | 2237.377 | -8.350  | -0.000 |
| 73. | 3577.666 | 12.600 | 0.000  | 2082.653 | -25.650 | 0.000  | 2231.477 | -8.800  | -0.000 |
| 74. | 3591.657 | 12.600 | 0.000  | 2065.165 | -25.900 | 0.000  | 2225.297 | -9.260  | -0.000 |
| 75. | 3605.683 | 12.560 | 0.000  | 2047.674 | -26.040 | 0.000  | 2218.821 | -9.700  | -0.000 |
| 76. | 3619.689 | 12.460 | 0.000  | 2030.266 | -26.070 | 0.000  | 2212.055 | -10.150 | -0.000 |
| 77. | 3633.627 | 12.350 | 0.000  | 2013.022 | -26.000 | 0.000  | 2205.004 | -10.560 | -0.000 |
| 78. | 3647.452 | 12.150 | 0.000  | 1996.023 | -25.610 | 0.000  | 2197.675 | -11.020 | -0.000 |
| 79. | 3661.120 | 12.000 | 0.000  | 1979.345 | -25.520 | 0.000  | 2190.073 | -11.440 | -0.000 |
| 80. | 3674.594 | 11.770 | 0.000  | 1963.061 | -25.120 | 0.000  | 2182.206 | -11.860 | -0.000 |
| 81. | 3687.037 | 11.520 | 0.000  | 1947.242 | -24.600 | 0.000  | 2174.079 | -12.270 | -0.000 |
| 82. | 3700.016 | 11.240 | 0.000  | 1931.986 | -23.960 | 0.000  | 2165.700 | -12.660 | -0.000 |
| 83. | 3713.502 | 10.940 | 0.000  | 1917.288 | -23.240 | 0.000  | 2157.076 | -13.080 | -0.000 |
| 84. | 3727.066 | 10.620 | 0.000  | 1903.241 | -22.360 | 0.000  | 2148.215 | -13.460 | -0.000 |
| 85. | 3737.083 | 10.260 | 0.000  | 1889.931 | -21.410 | 0.000  | 2139.125 | -13.850 | -0.000 |
| 86. | 3745.525 | 9.930  | 0.000  | 1877.396 | -20.310 | 0.000  | 2129.814 | -14.220 | -0.000 |
| 87. | 3760.785 | 9.560  | 0.000  | 1865.667 | -19.110 | 0.000  | 2120.290 | -14.580 | -0.000 |
| 88. | 3773.629 | 9.180  | 0.000  | 1854.453 | -17.760 | 0.000  | 2110.562 | -14.940 | -0.000 |
| 89. | 3782.046 | 8.780  | 0.000  | 1844.937 | -16.340 | 0.000  | 2100.639 | -15.280 | -0.000 |
| 90. | 3792.019 | 8.360  | 0.000  | 1835.981 | -14.860 | 0.000  | 2090.532 | -15.610 | -0.000 |
| 91. | 3804.595 | 7.960  | 0.000  | 1828.020 | -13.450 | 0.000  | 2080.246 | -15.940 | -0.000 |
| 92. | 3818.581 | 7.540  | 0.000  | 1821.066 | -11.400 | 0.000  | 2069.800 | -16.250 | -0.000 |
| 93. | 3819.145 | 7.120  | 0.000  | 1815.207 | -9.500  | 0.000  | 2059.136 | -16.550 | -0.000 |
| 94. | 3827.219 | 6.680  | 0.000  | 1810.464 | -7.660  | 0.000  | 2048.447 | -16.830 | -0.000 |
| 95. | 3834.725 | 6.250  | 0.000  | 1806.585 | -5.720  | 0.000  | 2037.584 | -17.110 | -0.000 |
| 96. | 3841.866 | 5.800  | 0.000  | 1804.082 | -3.720  | 0.000  | 2026.559 | -17.370 | -0.000 |
| 97. | 3848.426 | 5.360  | 0.000  | 1802.612 | -1.720  | 0.000  | 2015.443 | -17.610 | -0.000 |
| 98. | 3854.471 | 4.920  | 0.000  | 1802.227 | .330    | 0.000  | 2004.228 | -17.840 | -0.000 |
| 99. | 3859.998 | 4.470  | 0.000  | 1802.965 | 2.350   | 0.000  | 1992.926 | -18.060 | -0.000 |

## 110-PLANE INDIUM ANTIMONIDE

|      | LANGVEL  | LPHI12 | LPHI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 3865.006 | 4.030  | 0.000  | 1804.806 | 4.340   | 0.000   | 1841.549 | -10.260 | -0.000  |
| 101. | 3869.492 | 3.580  | -0.000 | 1807.738 | 6.280   | 0.000   | 1978.110 | -16.440 | -0.000  |
| 102. | 3873.462 | 3.140  | -0.000 | 1811.742 | 8.160   | 0.000   | 1990.622 | -16.610 | -0.000  |
| 103. | 3876.913 | 2.700  | 0.000  | 1816.795 | 9.960   | 0.000   | 1947.038 | -16.750 | -0.000  |
| 104. | 3879.851 | 2.270  | 0.000  | 1822.870 | 11.660  | 0.000   | 1935.552 | -16.860 | -0.000  |
| 105. | 3882.276 | 1.840  | 0.000  | 1829.935 | 13.300  | 0.000   | 1923.998 | -16.990 | -0.000  |
| 106. | 3884.201 | 1.410  | 0.000  | 1837.954 | 14.910  | 0.000   | 1912.469 | -17.070 | -0.000  |
| 107. | 3885.627 | 1.000  | -0.000 | 1846.867 | 16.220  | 0.000   | 1900.920 | -17.140 | -0.000  |
| 108. | 3886.564 | .590   | -0.000 | 1856.691 | 17.510  | 0.000   | 1889.425 | -17.160 | -0.000  |
| 109. | 3887.020 | .190   | 0.000  | 1867.315 | 18.650  | 0.000   | 1877.980 | -17.200 | -0.000  |
| 110. | 3887.008 | -.210  | 0.000  | 1878.722 | 19.750  | 0.000   | 1866.599 | -17.260 | -0.000  |
| 111. | 3886.536 | -.590  | -0.000 | 1890.846 | 20.650  | 0.000   | 1855.237 | -17.170 | -0.000  |
| 112. | 3885.624 | -1.130 | 0.000  | 1903.641 | 21.530  | 0.000   | 1844.030 | -17.120 | -0.000  |
| 113. | 3884.280 | -1.310 | 0.000  | 1917.046 | 22.250  | 0.000   | 1832.933 | -17.030 | -0.000  |
| 114. | 3882.523 | -1.650 | 0.000  | 1931.002 | 22.870  | 0.000   | 1822.021 | -16.920 | -0.000  |
| 115. | 3880.371 | -1.960 | -0.000 | 1945.451 | 23.370  | 0.000   | 1811.192 | -16.790 | -0.000  |
| 116. | 3877.842 | -2.250 | -0.000 | 1960.330 | 23.760  | 0.000   | 1800.520 | -16.620 | -0.000  |
| 117. | 3874.956 | -2.520 | -0.000 | 1975.576 | 24.060  | 0.000   | 1790.022 | -16.420 | -0.000  |
| 118. | 3871.736 | -2.840 | -0.000 | 1991.125 | 24.280  | 0.000   | 1779.713 | -16.190 | -0.000  |
| 119. | 3868.206 | -3.120 | -0.000 | 2006.912 | 24.350  | 0.000   | 1769.609 | -17.930 | 0.000   |
| 120. | 3864.390 | -3.350 | 0.000  | 2022.871 | 24.410  | 0.000   | 1759.727 | -17.640 | -0.000  |
| 121. | 3860.315 | -3.560 | -0.000 | 2038.935 | 24.340  | 0.000   | 1750.081 | -17.310 | -0.000  |
| 122. | 3856.010 | -3.750 | 0.000  | 2055.036 | 24.170  | 0.000   | 1740.669 | -16.950 | 0.000   |
| 123. | 3851.503 | -3.910 | 0.000  | 2071.112 | 23.930  | 0.000   | 1731.566 | -16.560 | -0.000  |
| 124. | 3846.820 | -4.050 | -0.000 | 2087.090 | 23.540  | 0.000   | 1722.727 | -16.120 | 0.000   |
| 125. | 3842.015 | -4.150 | -0.000 | 2102.904 | 23.170  | 0.000   | 1714.167 | -15.660 | -0.000  |
| 126. | 3837.101 | -4.230 | -0.000 | 2118.467 | 22.670  | 0.000   | 1705.962 | -15.150 | -0.000  |
| 127. | 3832.115 | -4.280 | -0.000 | 2133.772 | 22.090  | 0.000   | 1698.065 | -14.610 | -0.000  |
| 128. | 3827.106 | -4.290 | -0.000 | 2148.651 | 21.420  | 0.000   | 1690.512 | -14.040 | 0.000   |
| 129. | 3822.103 | -4.260 | -0.000 | 2163.176 | 20.660  | 0.000   | 1683.316 | -13.420 | 0.000   |
| 130. | 3817.145 | -4.230 | -0.000 | 2177.169 | 19.850  | 0.000   | 1676.491 | -12.760 | -0.000  |
| 131. | 3812.273 | -4.140 | -0.000 | 2190.595 | 18.950  | 0.000   | 1670.050 | -12.090 | -0.000  |
| 132. | 3807.525 | -4.020 | -0.000 | 2203.396 | 17.970  | 0.000   | 1664.004 | -11.360 | -0.000  |
| 133. | 3802.941 | -3.870 | -0.000 | 2215.514 | 16.910  | 0.000   | 1658.366 | -10.630 | -0.000  |
| 134. | 3798.560 | -3.660 | -0.000 | 2226.885 | 15.770  | 0.000   | 1653.146 | -9.840  | -0.000  |
| 135. | 3794.421 | -3.460 | -0.000 | 2237.452 | 14.570  | 0.000   | 1648.356 | -9.030  | -0.000  |
| 136. | 3790.560 | -3.210 | -0.000 | 2247.162 | 13.290  | 0.000   | 1644.004 | -8.190  | -0.000  |
| 137. | 3787.013 | -2.930 | 0.000  | 2255.965 | 11.950  | 0.000   | 1640.100 | -7.320  | -0.000  |
| 138. | 3783.614 | -2.610 | -0.000 | 2263.813 | 10.550  | 0.000   | 1636.691 | -6.430  | -0.000  |
| 139. | 3780.992 | -2.260 | -0.000 | 2270.664 | 9.090   | 0.000   | 1633.665 | -5.510  | -0.000  |
| 140. | 3778.576 | -1.920 | 0.000  | 2276.480 | 7.580   | 0.000   | 1631.148 | -4.560  | -0.000  |
| 141. | 3776.590 | -1.530 | -0.000 | 2281.226 | 6.030   | 0.000   | 1629.105 | -3.630  | -0.000  |
| 142. | 3775.052 | -1.140 | -0.000 | 2284.861 | 4.440   | 0.000   | 1627.539 | -2.670  | -0.000  |
| 143. | 3773.980 | -.730  | -0.000 | 2287.419 | 2.830   | 0.000   | 1626.456 | -1.700  | 0.000   |
| 144. | 3773.384 | -.310  | 0.000  | 2288.827 | 1.200   | 0.000   | 1625.856 | -.720   | -0.000  |
| 145. | 3773.269 | .110   | 0.000  | 2289.096 | -.430   | 0.000   | 1625.742 | .260    | -0.000  |
| 146. | 3773.639 | .520   | 0.000  | 2288.225 | -2.060  | -0.000  | 1626.112 | 1.240   | 0.000   |
| 147. | 3774.467 | .940   | 0.000  | 2286.215 | -3.650  | -0.000  | 1626.968 | 2.210   | -0.000  |
| 148. | 3775.807 | 1.350  | 0.000  | 2283.090 | -5.280  | -0.000  | 1628.306 | 3.160   | -0.000  |
| 149. | 3777.584 | 1.740  | 0.000  | 2278.856 | -6.850  | -0.000  | 1630.124 | 4.140   | -0.000  |

110-PLANE INDIUM ANTIMONIDE

BULK

|      | LINGVEL  | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 3779.800 | 2.110  | 0.000  | 2273.540 | -6.300  | 0.000   | 1632.416 | 5.000   | 0.000   |
| 151. | 3782.433 | 2.460  | 0.000  | 2267.173 | -9.860  | -0.000  | 1635.134 | 6.000   | 0.000   |
| 152. | 3785.850 | 2.760  | 0.000  | 2259.791 | -11.290 | -0.000  | 1638.415 | 6.500   | 0.000   |
| 153. | 3788.845 | 3.060  | 0.000  | 2251.433 | -12.670 | -0.000  | 1642.105 | 7.780   | 0.000   |
| 154. | 3792.562 | 3.350  | 0.000  | 2242.145 | -13.970 | -0.000  | 1646.217 | 6.640   | 0.000   |
| 155. | 3796.574 | 3.560  | 0.000  | 2231.976 | -15.210 | -0.000  | 1650.631 | 9.460   | 0.000   |
| 156. | 3800.845 | 3.780  | 0.000  | 2220.976 | -16.360 | -0.000  | 1655.049 | 10.260  | 0.000   |
| 157. | 3805.336 | 3.950  | 0.000  | 2209.206 | -17.470 | -0.000  | 1661.231 | 11.030  | 0.000   |
| 158. | 3810.014 | 4.090  | 0.000  | 2196.720 | -18.490 | 0.000   | 1667.136 | 11.760  | 0.000   |
| 159. | 3814.832 | 4.260  | 0.000  | 2183.579 | -19.430 | -0.000  | 1673.402 | 12.460  | 0.000   |
| 160. | 3819.755 | 4.260  | 0.000  | 2169.647 | -20.300 | -0.000  | 1680.048 | 13.120  | 0.000   |
| 161. | 3824.742 | 4.290  | 0.000  | 2155.987 | -21.060 | 0.000   | 1687.070 | 13.750  | 0.000   |
| 162. | 3829.755 | 4.290  | 0.000  | 2140.863 | -21.760 | -0.000  | 1694.427 | 14.350  | 0.000   |
| 163. | 3834.756 | 4.260  | 0.000  | 2125.743 | -22.410 | -0.000  | 1702.133 | 14.900  | 0.000   |
| 164. | 3839.706 | 4.190  | 0.000  | 2110.293 | -22.950 | -0.000  | 1710.265 | 15.420  | 0.000   |
| 165. | 3844.571 | 4.100  | 0.000  | 2094.579 | -23.400 | -0.000  | 1718.658 | 15.910  | 0.000   |
| 166. | 3849.316 | 3.960  | 0.000  | 2078.670 | -23.760 | 0.000   | 1727.326 | 16.360  | 0.000   |
| 167. | 3853.906 | 3.830  | 0.000  | 2062.633 | -24.070 | -0.000  | 1736.349 | 16.770  | 0.000   |
| 168. | 3858.310 | 3.650  | 0.000  | 2046.535 | -24.270 | -0.000  | 1745.616 | 17.150  | 0.000   |
| 169. | 3862.447 | 3.450  | 0.000  | 2030.444 | -24.390 | -0.000  | 1755.144 | 17.490  | 0.000   |
| 170. | 3866.439 | 3.230  | 0.000  | 2014.427 | -24.410 | 0.000   | 1764.916 | 17.600  | 0.000   |
| 171. | 3870.107 | 2.950  | 0.000  | 1998.551 | -24.350 | 0.000   | 1774.917 | 18.680  | 0.000   |
| 172. | 3873.477 | 2.720  | 0.000  | 1982.862 | -24.190 | 0.000   | 1785.131 | 19.320  | 0.000   |
| 173. | 3876.523 | 2.430  | 0.000  | 1967.465 | -23.930 | 0.000   | 1795.542 | 19.530  | 0.000   |
| 174. | 3879.223 | 2.130  | 0.000  | 1952.424 | -23.560 | 0.000   | 1806.134 | 19.710  | 0.000   |
| 175. | 3881.556 | 1.810  | 0.000  | 1937.765 | -23.120 | 0.000   | 1816.891 | 18.860  | 0.000   |
| 176. | 3883.501 | 1.480  | 0.000  | 1923.566 | -22.560 | -0.000  | 1827.746 | 16.990  | 0.000   |
| 177. | 3885.042 | 1.130  | 0.000  | 1909.895 | -21.690 | -0.000  | 1838.637 | 19.000  | 0.000   |
| 178. | 3886.161 | 0.760  | 0.000  | 1896.806 | -21.110 | -0.000  | 1849.494 | 19.150  | 0.000   |
| 179. | 3886.842 | 0.350  | 0.000  | 1884.359 | -20.210 | -0.000  | 1861.233 | 19.150  | 0.000   |
| 180. | 3887.072 | 0.000  | -0.000 | 1872.608 | -19.200 | -0.000  | 1874.599 | 19.200  | 0.000   |

Z-PLANE (XY-PLANE) INDIUM ARSENIDE

|     | LANGVEL  | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSKVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 3822.601 | 0.000  | 0.000  | 2635.453 | 0.000   | 0.000   | 2635.453 | 0.000   | 0.000   |
| 1.  | 3823.446 | 1.450  | 0.000  | 2634.227 | -3.050  | 0.000   | 2635.454 | 0.000   | 0.000   |
| 2.  | 3825.968 | 2.670  | 0.000  | 2630.564 | -6.050  | 0.000   | 2635.456 | 0.000   | 0.000   |
| 3.  | 3830.125 | 4.240  | 0.000  | 2624.507 | -8.970  | 0.000   | 2635.459 | 0.000   | 0.000   |
| 4.  | 3835.653 | 5.630  | 0.000  | 2616.126 | -11.770 | 0.000   | 2635.463 | -0.000  | 0.000   |
| 5.  | 3843.067 | 6.740  | 0.000  | 2605.520 | -14.410 | 0.000   | 2635.469 | 0.000   | 0.000   |
| 6.  | 3851.661 | 7.630  | 0.000  | 2592.798 | -16.890 | 0.000   | 2635.476 | 0.000   | 0.000   |
| 7.  | 3861.520 | 8.810  | 0.000  | 2576.091 | -19.160 | 0.000   | 2635.484 | 0.000   | 0.000   |
| 8.  | 3872.515 | 9.660  | 0.000  | 2561.541 | -21.290 | 0.000   | 2635.493 | 0.000   | 0.000   |
| 9.  | 3884.527 | 10.420 | 0.000  | 2543.294 | -23.220 | 0.000   | 2635.504 | 0.000   | 0.000   |
| 10. | 3897.413 | 11.050 | 0.000  | 2523.503 | -24.970 | 0.000   | 2635.515 | 0.000   | 0.000   |
| 11. | 3911.047 | 11.560 | 0.000  | 2502.320 | -26.560 | 0.000   | 2635.527 | 0.000   | 0.000   |
| 12. | 3925.304 | 11.970 | 0.000  | 2479.896 | -27.980 | 0.000   | 2635.540 | 0.000   | 0.000   |
| 13. | 3940.063 | 12.260 | 0.000  | 2456.360 | -29.250 | 0.000   | 2635.554 | 0.000   | 0.000   |
| 14. | 3955.210 | 12.500 | 0.000  | 2431.915 | -30.390 | 0.000   | 2635.569 | 0.000   | 0.000   |
| 15. | 3970.636 | 12.630 | 0.000  | 2406.643 | -31.390 | 0.000   | 2635.585 | 0.000   | 0.000   |
| 16. | 3986.247 | 12.650 | 0.000  | 2380.649 | -32.270 | 0.000   | 2635.601 | 0.000   | 0.000   |
| 17. | 4001.947 | 12.660 | 0.000  | 2354.212 | -33.030 | 0.000   | 2635.616 | 0.000   | 0.000   |
| 18. | 4017.651 | 12.660 | 0.000  | 2327.311 | -33.660 | 0.000   | 2635.635 | 0.000   | 0.000   |
| 19. | 4033.282 | 12.640 | 0.000  | 2300.115 | -34.220 | 0.000   | 2635.653 | 0.000   | 0.000   |
| 20. | 4048.767 | 12.620 | 0.000  | 2272.747 | -34.650 | 0.000   | 2635.671 | 0.000   | 0.000   |
| 21. | 4064.043 | 12.060 | 0.000  | 2245.317 | -34.960 | 0.000   | 2635.689 | 0.000   | 0.000   |
| 22. | 4079.046 | 11.720 | 0.000  | 2217.940 | -35.210 | 0.000   | 2635.717 | 0.000   | 0.000   |
| 23. | 4093.725 | 11.470 | 0.000  | 2190.725 | -35.330 | 0.000   | 2635.720 | 0.000   | 0.000   |
| 24. | 4108.036 | 11.130 | 0.000  | 2163.778 | -35.340 | 0.000   | 2635.744 | 0.000   | 0.000   |
| 25. | 4121.923 | 10.750 | 0.000  | 2137.205 | -35.240 | 0.000   | 2635.762 | 0.000   | 0.000   |
| 26. | 4135.349 | 10.350 | 0.000  | 2111.110 | -35.020 | 0.000   | 2635.780 | 0.000   | 0.000   |
| 27. | 4148.276 | 9.920  | 0.000  | 2085.593 | -34.690 | 0.000   | 2635.798 | 0.000   | 0.000   |
| 28. | 4160.671 | 9.470  | 0.000  | 2060.755 | -34.220 | 0.000   | 2635.815 | 0.000   | 0.000   |
| 29. | 4172.592 | 9.000  | 0.000  | 2036.654 | -33.630 | 0.000   | 2635.832 | 0.000   | 0.000   |
| 30. | 4183.741 | 8.520  | 0.000  | 2013.507 | -32.860 | 0.000   | 2635.840 | 0.000   | 0.000   |
| 31. | 4194.361 | 8.010  | 0.000  | 1991.208 | -31.960 | 0.000   | 2635.864 | 0.000   | 0.000   |
| 32. | 4204.341 | 7.450  | 0.000  | 1970.130 | -30.920 | 0.000   | 2635.879 | 0.000   | 0.000   |
| 33. | 4213.659 | 6.960  | 0.000  | 1950.121 | -29.690 | 0.000   | 2635.893 | 0.000   | 0.000   |
| 34. | 4222.266 | 6.420  | 0.000  | 1931.350 | -28.270 | 0.000   | 2635.906 | 0.000   | 0.000   |
| 35. | 4230.235 | 5.670  | 0.000  | 1913.699 | -26.650 | 0.000   | 2635.918 | 0.000   | 0.000   |
| 36. | 4237.461 | 5.300  | 0.000  | 1897.846 | -24.830 | 0.000   | 2635.930 | 0.000   | 0.000   |
| 37. | 4243.961 | 4.770  | 0.000  | 1883.267 | -22.800 | 0.000   | 2635.940 | 0.000   | 0.000   |
| 38. | 4249.722 | 4.160  | 0.000  | 1870.225 | -20.560 | 0.000   | 2635.949 | 0.000   | 0.000   |
| 39. | 4254.736 | 3.570  | 0.000  | 1858.795 | -18.110 | 0.000   | 2635.957 | 0.000   | 0.000   |
| 40. | 4258.992 | 2.960  | 0.000  | 1849.021 | -15.460 | 0.000   | 2635.964 | 0.000   | 0.000   |
| 41. | 4262.465 | 2.350  | 0.000  | 1840.955 | -12.630 | 0.000   | 2635.970 | 0.000   | 0.000   |
| 42. | 4265.207 | 1.800  | 0.000  | 1834.639 | -9.620  | 0.000   | 2635.974 | 0.000   | 0.000   |
| 43. | 4267.195 | 1.200  | 0.000  | 1830.104 | -6.490  | 0.000   | 2635.977 | 0.000   | 0.000   |
| 44. | 4268.325 | 0.600  | 0.000  | 1827.374 | -3.270  | 0.000   | 2635.979 | 0.000   | 0.000   |
| 45. | 4268.715 | 0.000  | 0.000  | 1826.462 | 0.000   | 0.000   | 2635.980 | 0.000   | 0.000   |
| 46. | 4268.325 | -0.600 | 0.000  | 1827.374 | 3.270   | 0.000   | 2635.979 | -0.000  | 0.000   |
| 47. | 4267.195 | -1.200 | 0.000  | 1830.104 | 6.490   | 0.000   | 2635.977 | -0.000  | 0.000   |
| 48. | 4265.207 | -1.800 | 0.000  | 1834.639 | 9.620   | 0.000   | 2635.974 | -0.000  | 0.000   |
| 49. | 4262.465 | -2.350 | 0.000  | 1840.955 | 12.630  | 0.000   | 2635.970 | -0.000  | 0.000   |

Z-PLANE (XY-PLANE) INDIUM ARSENIDE

|     | LPMI12   | LPMI13  | FSRVEL   | FSPMI12 | FSPMI13 | SSKVEL   | SSPMI12 | SSPMI13 |
|-----|----------|---------|----------|---------|---------|----------|---------|---------|
| 50. | 4258.992 | 0.000   | 1849.021 | 15.460  | 0.000   | 2835.964 | -0.010  | 0.000   |
| 51. | 4254.736 | -3.570  | 1858.795 | 16.110  | 0.000   | 2835.957 | -0.010  | 0.000   |
| 52. | 4249.722 | -4.160  | 1870.229 | 20.560  | 0.000   | 2835.949 | -0.010  | 0.000   |
| 53. | 4243.961 | -4.730  | 1883.267 | 22.800  | 0.000   | 2835.940 | -0.010  | 0.000   |
| 54. | 4237.461 | -5.300  | 1897.846 | 24.830  | 0.000   | 2835.930 | -0.010  | 0.000   |
| 55. | 4230.235 | -5.870  | 1913.899 | 26.650  | 0.000   | 2835.918 | -0.010  | 0.000   |
| 56. | 4222.296 | -6.420  | 1931.350 | 28.270  | 0.000   | 2835.906 | -0.020  | 0.000   |
| 57. | 4213.659 | -6.960  | 1950.121 | 29.690  | 0.000   | 2835.893 | -0.020  | 0.000   |
| 58. | 4194.341 | -7.490  | 1970.130 | 30.921  | 0.000   | 2835.875 | -0.020  | 0.000   |
| 59. | 4174.361 | -8.010  | 1991.268 | 31.980  | 0.000   | 2835.864 | -0.020  | 0.000   |
| 60. | 4153.741 | -8.520  | 2013.507 | 32.860  | 0.000   | 2835.848 | -0.020  | 0.000   |
| 61. | 4132.502 | -9.000  | 2036.894 | 33.630  | 0.000   | 2835.832 | -0.020  | 0.000   |
| 62. | 4110.671 | -9.470  | 2060.755 | 34.320  | 0.000   | 2835.815 | -0.020  | 0.000   |
| 63. | 4148.276 | -9.920  | 2085.593 | 34.890  | 0.000   | 2835.798 | -0.020  | 0.000   |
| 64. | 4135.349 | -10.350 | 2111.110 | 35.260  | 0.000   | 2835.780 | -0.020  | 0.000   |
| 65. | 4121.923 | -10.750 | 2137.205 | 35.240  | 0.000   | 2835.762 | -0.020  | 0.000   |
| 66. | 4106.036 | -11.130 | 2163.778 | 35.340  | 0.000   | 2835.744 | -0.020  | 0.000   |
| 67. | 4093.729 | -11.470 | 2190.725 | 35.330  | 0.000   | 2835.726 | -0.020  | 0.000   |
| 68. | 4079.046 | -11.780 | 2217.940 | 35.210  | 0.000   | 2835.707 | -0.020  | 0.000   |
| 69. | 4064.043 | -12.060 | 2245.317 | 34.980  | 0.000   | 2835.689 | -0.020  | 0.000   |
| 70. | 4048.767 | -12.250 | 2272.747 | 34.650  | 0.000   | 2835.671 | -0.020  | 0.000   |
| 71. | 4033.282 | -12.470 | 2300.116 | 34.220  | 0.000   | 2835.653 | -0.020  | 0.000   |
| 72. | 4017.651 | -12.600 | 2327.311 | 33.680  | 0.000   | 2835.635 | -0.020  | 0.000   |
| 73. | 4001.947 | -12.680 | 2354.212 | 33.030  | 0.000   | 2835.618 | -0.020  | 0.000   |
| 74. | 3986.247 | -12.690 | 2380.699 | 32.270  | 0.000   | 2835.601 | -0.020  | 0.000   |
| 75. | 3970.636 | -12.630 | 2406.643 | 31.390  | 0.000   | 2835.585 | -0.020  | 0.000   |
| 76. | 3955.210 | -12.500 | 2431.915 | 30.350  | 0.000   | 2835.569 | -0.020  | 0.000   |
| 77. | 3940.063 | -12.280 | 2456.380 | 29.250  | 0.000   | 2835.554 | -0.020  | 0.000   |
| 78. | 3925.304 | -11.970 | 2479.896 | 27.980  | 0.000   | 2835.540 | -0.020  | 0.000   |
| 79. | 3911.047 | -11.560 | 2502.320 | 26.560  | 0.000   | 2835.527 | -0.020  | 0.000   |
| 80. | 3897.413 | -11.050 | 2523.503 | 24.970  | 0.000   | 2835.515 | -0.010  | 0.000   |
| 81. | 3884.527 | -10.420 | 2543.294 | 23.220  | 0.000   | 2835.504 | -0.010  | 0.000   |
| 82. | 3872.515 | -9.660  | 2561.941 | 21.290  | 0.000   | 2835.493 | -0.010  | 0.000   |
| 83. | 3861.520 | -8.810  | 2578.891 | 19.160  | 0.000   | 2835.484 | -0.010  | 0.000   |
| 84. | 3851.661 | -7.830  | 2592.796 | 16.890  | 0.000   | 2835.476 | -0.010  | 0.000   |
| 85. | 3843.067 | -6.740  | 2605.520 | 14.410  | 0.000   | 2835.469 | -0.010  | 0.000   |
| 86. | 3835.853 | -5.530  | 2616.128 | 11.770  | 0.000   | 2835.463 | 0.000   | 0.000   |
| 87. | 3830.125 | -4.240  | 2624.507 | 8.870   | 0.000   | 2835.454 | 0.000   | 0.000   |
| 88. | 3825.960 | -2.870  | 2630.964 | 6.850   | 0.000   | 2835.456 | -0.000  | 0.000   |
| 89. | 3823.446 | -1.450  | 2634.227 | 3.050   | 0.000   | 2835.454 | 0.000   | 0.000   |
| 90. | 3822.601 | 0.000   | 2635.453 | -0.000  | 0.000   | 2835.453 | 0.000   | 0.000   |
| 91. | 3823.446 | 1.450   | 2634.227 | -3.050  | 0.000   | 2835.454 | 0.000   | 0.000   |
| 92. | 3825.968 | 2.670   | 2630.964 | -6.050  | 0.000   | 2835.456 | 0.000   | 0.000   |
| 93. | 3830.125 | 4.240   | 2624.507 | -8.970  | 0.000   | 2835.459 | 0.000   | 0.000   |
| 94. | 3835.853 | 5.530   | 2616.128 | -11.770 | 0.000   | 2835.463 | -0.000  | 0.000   |
| 95. | 3843.067 | 6.740   | 2605.520 | -14.410 | 0.000   | 2835.469 | -0.010  | 0.000   |
| 96. | 3851.661 | 7.830   | 2592.796 | -16.890 | 0.000   | 2835.476 | -0.010  | 0.000   |
| 97. | 3861.520 | 8.810   | 2578.891 | -19.160 | 0.000   | 2835.484 | -0.010  | 0.000   |
| 98. | 3872.515 | 9.660   | 2561.941 | -21.290 | 0.000   | 2835.493 | -0.010  | 0.000   |
| 99. | 3884.527 | 10.420  | 2543.294 | -23.220 | 0.000   | 2835.504 | -0.010  | 0.000   |

BULK

Z-PLANE (XY-PLANE) INDIUM ARSENIDE

BULK

|      | LNGLVL   | LPMI12 | LPMI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 3897.413 | 11.050 | 0.000  | 2523.503 | -24.470 | 0.000   | 2635.515 | .010    | 0.000   |
| 101. | 3911.047 | 11.560 | 0.000  | 2502.320 | -26.560 | 0.000   | 2635.527 | .020    | 0.000   |
| 102. | 3925.304 | 11.970 | 0.000  | 2479.886 | -27.960 | 0.000   | 2635.540 | .020    | 0.000   |
| 103. | 3940.063 | 12.260 | 0.000  | 2456.380 | -29.250 | 0.000   | 2635.554 | .020    | 0.000   |
| 104. | 3955.210 | 12.540 | 0.000  | 2431.915 | -30.390 | 0.000   | 2635.569 | .020    | 0.000   |
| 105. | 3970.636 | 12.630 | 0.000  | 2406.643 | -31.390 | 0.000   | 2635.584 | .020    | 0.000   |
| 106. | 3986.247 | 12.650 | 0.000  | 2380.695 | -32.270 | 0.000   | 2635.601 | .020    | 0.000   |
| 107. | 4001.947 | 12.680 | 0.000  | 2354.212 | -33.030 | 0.000   | 2635.618 | .020    | 0.000   |
| 108. | 4017.651 | 12.600 | 0.000  | 2327.311 | -33.660 | 0.000   | 2635.635 | .020    | 0.000   |
| 109. | 4033.282 | 12.470 | 0.000  | 2300.116 | -34.220 | 0.000   | 2635.653 | .020    | 0.000   |
| 110. | 4048.767 | 12.250 | 0.000  | 2272.747 | -34.650 | 0.000   | 2635.671 | .020    | 0.000   |
| 111. | 4064.043 | 12.060 | 0.000  | 2245.317 | -34.960 | 0.000   | 2635.689 | .020    | 0.000   |
| 112. | 4079.046 | 11.780 | 0.000  | 2217.940 | -35.210 | 0.000   | 2635.707 | .020    | 0.000   |
| 113. | 4093.729 | 11.470 | 0.000  | 2190.725 | -35.330 | 0.000   | 2635.726 | .020    | 0.000   |
| 114. | 4108.036 | 11.130 | 0.000  | 2163.776 | -35.340 | 0.000   | 2635.744 | .020    | 0.000   |
| 115. | 4121.923 | 10.750 | 0.000  | 2137.205 | -35.240 | 0.000   | 2635.762 | .020    | 0.000   |
| 116. | 4135.349 | 10.350 | 0.000  | 2111.110 | -35.020 | 0.000   | 2635.780 | .020    | 0.000   |
| 117. | 4148.276 | 9.920  | 0.000  | 2085.593 | -34.690 | 0.000   | 2635.798 | .020    | 0.000   |
| 118. | 4160.671 | 9.470  | 0.000  | 2060.755 | -34.220 | 0.000   | 2635.815 | .020    | 0.000   |
| 119. | 4172.502 | 9.000  | 0.000  | 2036.654 | -33.630 | 0.000   | 2635.832 | .020    | 0.000   |
| 120. | 4183.741 | 8.520  | 0.000  | 2013.507 | -32.860 | 0.000   | 2635.848 | .020    | 0.000   |
| 121. | 4194.361 | 8.010  | 0.000  | 1991.288 | -31.960 | 0.000   | 2635.864 | .020    | 0.000   |
| 122. | 4204.341 | 7.490  | 0.000  | 1970.130 | -30.920 | 0.000   | 2635.879 | .020    | 0.000   |
| 123. | 4213.659 | 6.960  | 0.000  | 1950.121 | -29.850 | 0.000   | 2635.893 | .020    | 0.000   |
| 124. | 4222.296 | 6.420  | 0.000  | 1931.350 | -28.750 | 0.000   | 2635.906 | .020    | 0.000   |
| 125. | 4230.235 | 5.870  | 0.000  | 1913.659 | -26.560 | 0.000   | 2635.916 | .010    | 0.000   |
| 126. | 4237.461 | 5.310  | 0.000  | 1897.846 | -24.650 | 0.000   | 2635.930 | .010    | 0.000   |
| 127. | 4243.961 | 4.750  | 0.000  | 1883.267 | -22.800 | 0.000   | 2635.940 | .010    | 0.000   |
| 128. | 4249.722 | 4.160  | 0.000  | 1870.225 | -20.560 | 0.000   | 2635.949 | .010    | 0.000   |
| 129. | 4254.736 | 3.570  | 0.000  | 1858.795 | -18.110 | 0.000   | 2635.957 | .010    | 0.000   |
| 130. | 4258.992 | 2.940  | 0.000  | 1849.021 | -15.460 | 0.000   | 2635.964 | .010    | 0.000   |
| 131. | 4262.465 | 2.340  | 0.000  | 1840.955 | -12.630 | 0.000   | 2635.970 | .010    | 0.000   |
| 132. | 4265.207 | 1.660  | 0.000  | 1834.655 | -9.620  | 0.000   | 2635.974 | 0.000   | 0.000   |
| 133. | 4267.155 | 1.200  | 0.000  | 1830.104 | -6.490  | 0.000   | 2635.977 | 0.000   | 0.000   |
| 134. | 4268.325 | .660   | 0.000  | 1827.374 | -3.270  | 0.000   | 2635.979 | 0.000   | 0.000   |
| 135. | 4268.715 | -0.000 | 0.000  | 1826.462 | 0.000   | 0.000   | 2635.980 | 0.000   | 0.000   |
| 136. | 4268.325 | -6.000 | 0.000  | 1827.374 | 3.270   | 0.000   | 2635.979 | 0.000   | 0.000   |
| 137. | 4267.155 | -1.200 | 0.000  | 1830.104 | 6.490   | 0.000   | 2635.977 | 0.000   | 0.000   |
| 138. | 4265.207 | -1.800 | 0.000  | 1834.659 | 9.620   | 0.000   | 2635.974 | 0.000   | 0.000   |
| 139. | 4262.465 | -2.390 | 0.000  | 1840.955 | 12.630  | 0.000   | 2635.970 | 0.000   | 0.000   |
| 140. | 4258.992 | -2.960 | 0.000  | 1849.021 | 15.460  | 0.000   | 2635.964 | 0.000   | 0.000   |
| 141. | 4254.736 | -3.570 | 0.000  | 1858.795 | 18.110  | 0.000   | 2635.957 | 0.000   | 0.000   |
| 142. | 4249.722 | -4.160 | 0.000  | 1870.229 | 20.560  | 0.000   | 2635.949 | 0.000   | 0.000   |
| 143. | 4243.961 | -4.730 | 0.000  | 1883.267 | 22.800  | 0.000   | 2635.940 | 0.000   | 0.000   |
| 144. | 4237.461 | -5.300 | 0.000  | 1897.846 | 24.650  | 0.000   | 2635.930 | 0.000   | 0.000   |
| 145. | 4230.235 | -5.870 | 0.000  | 1913.659 | 26.560  | 0.000   | 2635.916 | 0.000   | 0.000   |
| 146. | 4222.296 | -6.420 | 0.000  | 1931.350 | 28.270  | 0.000   | 2635.906 | 0.000   | 0.000   |
| 147. | 4213.659 | -6.960 | 0.000  | 1950.121 | 29.690  | 0.000   | 2635.893 | 0.000   | 0.000   |
| 148. | 4204.341 | -7.490 | 0.000  | 1970.130 | 30.920  | 0.000   | 2635.879 | 0.000   | 0.000   |
| 149. | 4194.361 | -8.010 | 0.000  | 1991.288 | 31.960  | 0.000   | 2635.864 | 0.000   | 0.000   |



|      | Z-PLANE (XY-PLANE) INDIUM ARSENIDE |         |        |          | BULK    |          |         |         |
|------|------------------------------------|---------|--------|----------|---------|----------|---------|---------|
|      | LPHI12                             | LPHI13  | FSRVEL | FSPHI12  | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
| 150. | 4103.741                           | -8.920  | 0.000  | 2013.507 | 32.860  | 2635.046 | -0.020  | 0.000   |
| 151. | 4172.502                           | -9.000  | 0.000  | 2036.694 | 33.630  | 2635.832 | -0.020  | 0.000   |
| 152. | 4160.671                           | -9.870  | 0.000  | 2060.755 | 34.220  | 2635.815 | -0.020  | 0.000   |
| 153. | 4148.276                           | -9.920  | 0.000  | 2085.593 | 34.690  | 2635.796 | -0.020  | 0.000   |
| 154. | 4135.345                           | -10.350 | 0.000  | 2111.110 | 35.020  | 2635.780 | -0.020  | 0.000   |
| 155. | 4121.923                           | -10.750 | 0.000  | 2137.205 | 35.240  | 2635.762 | -0.020  | 0.000   |
| 156. | 4108.036                           | -11.130 | 0.000  | 2163.778 | 35.330  | 2635.744 | -0.020  | 0.000   |
| 157. | 4093.729                           | -11.470 | 0.000  | 2190.725 | 35.210  | 2635.726 | -0.020  | 0.000   |
| 158. | 4079.046                           | -11.780 | 0.000  | 2217.940 | 34.560  | 2635.699 | -0.020  | 0.000   |
| 159. | 4064.043                           | -12.060 | 0.000  | 2245.317 | 34.650  | 2635.671 | -0.020  | 0.000   |
| 160. | 4048.767                           | -12.290 | 0.000  | 2272.747 | 34.220  | 2635.653 | -0.020  | 0.000   |
| 161. | 4033.262                           | -12.470 | 0.000  | 2300.116 | 33.460  | 2635.635 | -0.020  | 0.000   |
| 162. | 4017.651                           | -12.600 | 0.000  | 2327.311 | 33.030  | 2635.616 | -0.020  | 0.000   |
| 163. | 4001.947                           | -12.660 | 0.000  | 2354.212 | 32.270  | 2635.601 | -0.020  | 0.000   |
| 164. | 3986.247                           | -12.650 | 0.000  | 2380.695 | 31.390  | 2635.585 | -0.020  | 0.000   |
| 165. | 3970.638                           | -12.630 | 0.000  | 2406.843 | 30.390  | 2635.569 | -0.020  | 0.000   |
| 166. | 3955.219                           | -12.500 | 0.000  | 2431.915 | 29.250  | 2635.554 | -0.020  | 0.000   |
| 167. | 3940.063                           | -12.260 | 0.000  | 2456.366 | 27.300  | 2635.540 | -0.020  | 0.000   |
| 168. | 3925.304                           | -11.970 | 0.000  | 2479.896 | 26.560  | 2635.527 | -0.020  | 0.000   |
| 169. | 3911.047                           | -11.560 | 0.000  | 2502.320 | 24.970  | 2635.515 | -0.010  | 0.000   |
| 170. | 3897.413                           | -11.050 | 0.000  | 2523.503 | 23.220  | 2635.504 | -0.010  | 0.000   |
| 171. | 3884.527                           | -10.420 | 0.000  | 2543.294 | 21.290  | 2635.493 | -0.010  | 0.000   |
| 172. | 3872.519                           | -9.660  | 0.000  | 2561.541 | 19.180  | 2635.484 | -0.010  | 0.000   |
| 173. | 3861.520                           | -8.810  | 0.000  | 2578.091 | 16.690  | 2635.476 | -0.010  | 0.000   |
| 174. | 3851.661                           | -7.830  | 0.000  | 2592.796 | 14.410  | 2635.469 | -0.010  | 0.000   |
| 175. | 3843.067                           | -6.740  | 0.000  | 2605.520 | 11.770  | 2635.463 | -0.000  | 0.000   |
| 176. | 3835.653                           | -5.530  | 0.000  | 2616.126 | 8.970   | 2635.459 | -0.000  | 0.000   |
| 177. | 3830.125                           | -4.240  | 0.000  | 2624.507 | 6.050   | 2635.456 | -0.000  | 0.000   |
| 178. | 3825.968                           | -2.870  | 0.000  | 2630.564 | 3.050   | 2635.454 | -0.000  | 0.000   |
| 179. | 3823.446                           | -1.450  | 0.000  | 2634.227 | -0.000  | 2635.453 | -0.000  | 0.000   |
| 180. | 3822.601                           | 0.000   | 0.000  | 2635.453 | -0.000  | 2635.453 | -0.000  | 0.000   |

111-PLANE INDIUM ARSENIIDE

BULK

|     | LPMI12   | LPMI13  | FSRVEL | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|---------|--------|---------|---------|----------|---------|---------|
| 0.  | 4268.715 | -0.000  | 0.000  | 0.000   | 0.000   | 1826.462 | 0.000   | 0.000   |
| 1.  | 4268.785 | .110    | .500   | -1.150  | -1.620  | 1826.462 | 0.000   | -1.000  |
| 2.  | 4268.994 | .210    | 1.000  | -2.300  | -3.440  | 1826.462 | 3.610   | -1.030  |
| 3.  | 4269.338 | .310    | 1.490  | -3.440  | -4.560  | 1826.462 | 5.370   | -3.000  |
| 4.  | 4269.815 | .420    | 1.980  | -4.560  | -5.660  | 1826.462 | 7.090   | -4.080  |
| 5.  | 4270.418 | .510    | 2.460  | -5.660  | -6.740  | 1826.462 | 8.750   | -5.010  |
| 6.  | 4271.140 | .600    | 2.930  | -6.740  | -7.800  | 1826.462 | 10.340  | -6.000  |
| 7.  | 4271.972 | .680    | 3.390  | -7.800  | -8.840  | 1826.462 | 11.850  | -7.010  |
| 8.  | 4272.905 | .750    | 3.840  | -8.840  | -9.860  | 1826.462 | 13.270  | -8.000  |
| 9.  | 4273.927 | .820    | 4.280  | -9.860  | -10.860 | 1826.462 | 14.580  | -9.000  |
| 10. | 4275.027 | .870    | 4.690  | -10.860 | -11.840 | 1826.462 | 15.780  | -10.000 |
| 11. | 4276.192 | .920    | 5.100  | -11.840 | -12.800 | 1826.462 | 16.870  | -11.000 |
| 12. | 4277.409 | .950    | 5.480  | -12.800 | -13.740 | 1826.462 | 17.850  | -12.000 |
| 13. | 4278.663 | .970    | 5.850  | -13.740 | -14.660 | 1826.462 | 18.730  | -13.000 |
| 14. | 4279.941 | .990    | 6.200  | -14.660 | -15.560 | 1826.462 | 19.520  | -14.000 |
| 15. | 4281.226 | .950    | 6.520  | -15.560 | -16.440 | 1826.462 | 20.230  | -15.000 |
| 16. | 4282.510 | .960    | 6.830  | -16.440 | -17.300 | 1826.462 | 20.870  | -16.000 |
| 17. | 4283.774 | .960    | 7.120  | -17.300 | -18.140 | 1826.462 | 21.440  | -17.000 |
| 18. | 4285.006 | .930    | 7.390  | -18.140 | -18.960 | 1826.462 | 21.950  | -18.000 |
| 19. | 4286.192 | .890    | 7.630  | -18.960 | -19.760 | 1826.462 | 22.410  | -19.000 |
| 20. | 4287.321 | .840    | 7.860  | -19.760 | -20.540 | 1826.462 | 22.830  | -20.000 |
| 21. | 4288.380 | .780    | 8.060  | -20.540 | -21.300 | 1826.462 | 23.210  | -21.000 |
| 22. | 4289.358 | .720    | 8.240  | -21.300 | -22.040 | 1826.462 | 23.550  | -22.000 |
| 23. | 4290.246 | .640    | 8.400  | -22.040 | -22.760 | 1826.462 | 23.850  | -23.000 |
| 24. | 4291.035 | .560    | 8.540  | -22.760 | -23.460 | 1826.462 | 24.120  | -24.000 |
| 25. | 4291.716 | .480    | 8.660  | -23.460 | -24.140 | 1826.462 | 24.360  | -25.000 |
| 26. | 4292.283 | .390    | 8.760  | -24.140 | -24.800 | 1826.462 | 24.570  | -26.000 |
| 27. | 4292.725 | .290    | 8.830  | -24.800 | -25.440 | 1826.462 | 24.750  | -27.000 |
| 28. | 4293.051 | .200    | 8.890  | -25.440 | -26.060 | 1826.462 | 24.900  | -28.000 |
| 29. | 4293.246 | .100    | 8.920  | -26.060 | -26.660 | 1826.462 | 25.030  | -29.000 |
| 30. | 4293.311 | -0.000  | 8.930  | -26.660 | -27.240 | 1826.462 | 25.140  | -30.000 |
| 31. | 4293.246 | -1.100  | 8.920  | -27.240 | -27.800 | 1826.462 | 25.230  | -31.000 |
| 32. | 4293.051 | -2.200  | 8.890  | -27.800 | -28.340 | 1826.462 | 25.300  | -32.000 |
| 33. | 4292.725 | -3.300  | 8.830  | -28.340 | -28.860 | 1826.462 | 25.350  | -33.000 |
| 34. | 4292.283 | -4.350  | 8.760  | -28.860 | -29.360 | 1826.462 | 25.390  | -34.000 |
| 35. | 4291.716 | -5.400  | 8.660  | -29.360 | -29.840 | 1826.462 | 25.410  | -35.000 |
| 36. | 4291.035 | -6.500  | 8.540  | -29.840 | -30.300 | 1826.462 | 25.420  | -36.000 |
| 37. | 4289.246 | -7.600  | 8.400  | -30.300 | -30.740 | 1826.462 | 25.420  | -37.000 |
| 38. | 4287.321 | -8.720  | 8.240  | -30.740 | -31.160 | 1826.462 | 25.410  | -38.000 |
| 39. | 4285.380 | -9.800  | 8.060  | -31.160 | -31.560 | 1826.462 | 25.390  | -39.000 |
| 40. | 4283.321 | -10.840 | 7.860  | -31.560 | -31.940 | 1826.462 | 25.360  | -40.000 |
| 41. | 4281.152 | -11.850 | 7.630  | -31.940 | -32.300 | 1826.462 | 25.320  | -41.000 |
| 42. | 4278.815 | -12.800 | 7.390  | -32.300 | -32.640 | 1826.462 | 25.270  | -42.000 |
| 43. | 4276.338 | -13.740 | 7.120  | -32.640 | -32.960 | 1826.462 | 25.210  | -43.000 |
| 44. | 4273.815 | -14.660 | 6.830  | -32.960 | -33.260 | 1826.462 | 25.140  | -44.000 |
| 45. | 4271.226 | -15.560 | 6.520  | -33.260 | -33.540 | 1826.462 | 25.060  | -45.000 |
| 46. | 4268.563 | -16.440 | 6.200  | -33.540 | -33.800 | 1826.462 | 24.970  | -46.000 |
| 47. | 4265.815 | -17.300 | 5.850  | -33.800 | -34.040 | 1826.462 | 24.870  | -47.000 |
| 48. | 4262.972 | -18.140 | 5.480  | -34.040 | -34.260 | 1826.462 | 24.760  | -48.000 |
| 49. | 4259.994 | -18.960 | 5.100  | -34.260 | -34.460 | 1826.462 | 24.640  | -49.000 |

111-PLANE INDIUM ARSENIIDE

BULK

|     | LNWEL    | LPHI12 | LPHI13 | FSRWEL   | FSRH12 | FSRH13 | SRWEL    | SSRH12  | SSRH13 |
|-----|----------|--------|--------|----------|--------|--------|----------|---------|--------|
| 50. | 4275.027 | -0.670 | 4.690  | 2591.409 | 10.730 | -7.770 | 1074.880 | -15.600 | SSRH13 |
| 51. | 4273.927 | -0.620 | 4.260  | 2599.613 | 9.750  | -7.060 | 1067.969 | -14.500 | -3.410 |
| 52. | 4272.905 | -0.750 | 3.840  | 2607.059 | 8.810  | -6.320 | 1057.905 | -13.270 | -0.620 |
| 53. | 4271.972 | -0.680 | 3.390  | 2613.711 | 7.600  | -5.570 | 1050.689 | -11.650 | -1.790 |
| 54. | 4271.140 | -0.600 | 2.930  | 2619.539 | 6.700  | -4.600 | 1044.300 | -10.300 | -6.910 |
| 55. | 4270.416 | -0.510 | 2.460  | 2624.516 | 5.660  | -4.020 | 1036.949 | -8.750  | -2.000 |
| 56. | 4269.815 | -0.420 | 1.980  | 2628.616 | 4.560  | -3.230 | 1034.484 | -7.090  | -4.906 |
| 57. | 4269.338 | -0.310 | 1.490  | 2631.828 | 3.440  | -2.430 | 1030.988 | -5.370  | -3.000 |
| 58. | 4268.994 | -0.210 | 1.000  | 2634.131 | 2.300  | -1.620 | 1026.470 | -3.610  | -2.000 |
| 59. | 4268.765 | -0.110 | 0.500  | 2635.517 | 1.150  | -0.810 | 1024.967 | -1.810  | -1.030 |
| 60. | 4268.715 | 0.000  | 0.000  | 2635.900 | -0.000 | 0.000  | 1024.462 | -0.000  | -0.600 |
| 61. | 4268.765 | 0.110  | -0.500 | 2635.517 | 1.150  | 0.810  | 1024.967 | 1.810   | 1.030  |
| 62. | 4268.994 | 0.210  | -1.000 | 2634.131 | 2.300  | 1.620  | 1026.470 | 3.610   | 2.000  |
| 63. | 4269.338 | 0.310  | -1.490 | 2631.828 | 3.440  | 2.430  | 1030.988 | 5.370   | 3.000  |
| 64. | 4269.815 | 0.420  | -1.980 | 2628.616 | 4.560  | 3.230  | 1034.484 | 7.090   | 4.000  |
| 65. | 4270.416 | 0.510  | -2.460 | 2624.516 | 5.660  | 4.020  | 1036.949 | 8.750   | 5.000  |
| 66. | 4271.140 | 0.600  | -2.930 | 2619.539 | 6.700  | 4.600  | 1044.300 | 10.300  | 6.000  |
| 67. | 4271.972 | 0.680  | -3.390 | 2613.711 | 7.600  | 5.570  | 1050.689 | 11.650  | 6.910  |
| 68. | 4272.905 | 0.750  | -3.840 | 2607.059 | 8.810  | 6.320  | 1057.905 | 13.270  | 7.790  |
| 69. | 4273.928 | 0.820  | -4.260 | 2599.613 | 9.750  | 7.060  | 1065.969 | 14.500  | 8.620  |
| 70. | 4275.026 | 0.670  | -4.690 | 2591.409 | 10.730 | 7.770  | 1074.880 | 15.600  | 9.410  |
| 71. | 4276.192 | 0.920  | -5.100 | 2582.487 | 11.620 | 8.470  | 1084.469 | 16.690  | 10.110 |
| 72. | 4277.409 | 0.920  | -5.480 | 2572.693 | 12.450 | 9.150  | 1094.003 | 17.670  | 10.800 |
| 73. | 4278.663 | 0.970  | -5.850 | 2562.678 | 13.220 | 9.800  | 1103.573 | 18.650  | 11.490 |
| 74. | 4279.941 | 0.990  | -6.200 | 2551.898 | 13.920 | 10.440 | 1113.185 | 19.630  | 12.190 |
| 75. | 4281.228 | 0.990  | -6.520 | 2540.616 | 14.550 | 11.050 | 1122.839 | 20.060  | 12.630 |
| 76. | 4282.510 | 0.960  | -6.830 | 2528.904 | 15.090 | 11.630 | 1131.514 | 20.520  | 13.120 |
| 77. | 4283.774 | 0.960  | -7.120 | 2516.864 | 15.530 | 12.180 | 1141.214 | 20.820  | 13.500 |
| 78. | 4285.006 | 0.930  | -7.390 | 2504.526 | 15.890 | 12.730 | 1150.941 | 20.970  | 13.900 |
| 79. | 4286.192 | 0.890  | -7.630 | 2492.056 | 16.040 | 13.240 | 1161.031 | 20.970  | 14.200 |
| 80. | 4287.321 | 0.840  | -7.860 | 2479.554 | 16.060 | 13.720 | 1171.345 | 20.700  | 14.500 |
| 81. | 4288.360 | 0.720  | -8.060 | 2467.163 | 15.920 | 14.160 | 1181.824 | 20.260  | 14.800 |
| 82. | 4289.355 | 0.640  | -8.240 | 2455.046 | 15.540 | 14.610 | 1192.034 | 19.520  | 15.100 |
| 83. | 4290.247 | 0.640  | -8.400 | 2443.394 | 14.900 | 15.060 | 1202.034 | 18.500  | 15.400 |
| 84. | 4291.035 | 0.580  | -8.540 | 2432.430 | 13.940 | 15.360 | 1212.214 | 17.100  | 15.700 |
| 85. | 4291.716 | 0.480  | -8.660 | 2422.406 | 12.610 | 15.660 | 1222.117 | 15.360  | 16.000 |
| 86. | 4292.263 | 0.390  | -8.760 | 2413.610 | 10.670 | 15.960 | 1231.269 | 13.100  | 16.300 |
| 87. | 4292.729 | 0.290  | -8.830 | 2406.335 | 8.660  | 16.190 | 1240.084 | 10.430  | 16.300 |
| 88. | 4293.052 | 0.200  | -8.890 | 2400.874 | 6.680  | 16.360 | 1247.486 | 7.270   | 16.300 |
| 89. | 4293.246 | 0.100  | -8.920 | 2397.462 | 3.130  | 16.470 | 1254.001 | 3.740   | 16.300 |
| 90. | 4293.311 | -0.000 | -8.930 | 2396.330 | 0.000  | 16.510 | 1260.133 | 0.000   | 16.300 |
| 91. | 4293.246 | -0.100 | -8.920 | 2397.462 | 3.130  | 16.470 | 1266.001 | -3.740  | 16.300 |
| 92. | 4293.052 | -0.200 | -8.890 | 2400.874 | 6.680  | 16.360 | 1271.486 | -7.270  | 16.300 |
| 93. | 4292.729 | -0.290 | -8.830 | 2406.335 | 8.660  | 16.190 | 1276.024 | -10.430 | 16.300 |
| 94. | 4292.263 | -0.390 | -8.760 | 2413.610 | 10.670 | 15.960 | 1279.214 | -13.100 | 16.300 |
| 95. | 4291.716 | -0.480 | -8.660 | 2422.406 | 12.610 | 15.660 | 1281.117 | -15.360 | 16.300 |
| 96. | 4291.035 | -0.580 | -8.540 | 2432.430 | 13.940 | 15.360 | 1281.670 | -17.100 | 16.300 |
| 97. | 4290.247 | -0.640 | -8.400 | 2443.394 | 15.090 | 15.060 | 1281.214 | -18.500 | 16.300 |
| 98. | 4289.355 | -0.720 | -8.240 | 2455.046 | 15.540 | 14.610 | 1280.009 | -19.500 | 16.300 |
| 99. | 4288.360 | -0.780 | -8.060 | 2467.163 | 15.920 | 14.160 | 1280.284 | -20.260 | 16.300 |

111-PLANE INDIUM ARSENIDE

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SRVEL    | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 4287.321 | -8.640 | -7.660 | 2479.554 | 16.060  | 13.720  | 1994.235 | -20.700 | 14.560  |
| 101. | 4286.192 | -8.890 | -7.630 | 2492.056 | 16.060  | 13.240  | 1981.035 | -20.930 | 14.200  |
| 102. | 4285.006 | -9.330 | -7.390 | 2504.526 | 15.850  | 12.730  | 1967.631 | -20.970 | 13.540  |
| 103. | 4283.774 | -9.600 | -7.120 | 2516.844 | 15.530  | 12.200  | 1954.733 | -20.620 | 13.190  |
| 104. | 4282.510 | -9.900 | -6.830 | 2528.984 | 15.090  | 11.630  | 1941.414 | -20.520 | 13.120  |
| 105. | 4281.226 | -9.900 | -6.520 | 2540.616 | 14.550  | 11.050  | 1929.415 | -20.060 | 12.850  |
| 106. | 4279.941 | -9.900 | -6.200 | 2551.836 | 13.920  | 10.440  | 1917.345 | -19.470 | 12.090  |
| 107. | 4278.663 | -9.570 | -5.850 | 2562.678 | 13.220  | 9.800   | 1905.763 | -18.730 | 11.440  |
| 108. | 4277.409 | -9.500 | -5.460 | 2572.893 | 12.450  | 9.150   | 1894.609 | -17.670 | 10.600  |
| 109. | 4276.192 | -9.200 | -5.100 | 2582.447 | 11.620  | 8.470   | 1884.469 | -16.890 | 10.110  |
| 110. | 4275.028 | -8.700 | -4.690 | 2591.409 | 10.730  | 7.770   | 1874.946 | -16.890 | 9.640   |
| 111. | 4273.926 | -8.200 | -4.280 | 2599.633 | 9.790   | 7.060   | 1865.369 | -16.560 | 9.200   |
| 112. | 4272.905 | -7.750 | -3.880 | 2607.059 | 8.810   | 6.320   | 1856.269 | -14.560 | 8.620   |
| 113. | 4271.972 | -7.660 | -3.390 | 2613.711 | 7.800   | 5.570   | 1847.669 | -13.270 | 7.790   |
| 114. | 4271.140 | -6.600 | -2.930 | 2619.539 | 6.740   | 4.800   | 1839.609 | -11.650 | 6.910   |
| 115. | 4270.416 | -5.100 | -2.460 | 2624.516 | 5.660   | 4.020   | 1832.349 | -10.340 | 6.050   |
| 116. | 4269.815 | -4.200 | -1.980 | 2628.616 | 4.560   | 3.230   | 1826.894 | -8.750  | 5.050   |
| 117. | 4269.338 | -3.100 | -1.490 | 2631.828 | 3.440   | 2.300   | 1822.478 | -7.650  | 4.000   |
| 118. | 4268.994 | -2.100 | -1.000 | 2634.131 | 2.300   | 1.620   | 1819.086 | -5.370  | 3.000   |
| 119. | 4268.785 | -1.100 | -0.500 | 2635.517 | 1.150   | 0.810   | 1816.867 | -3.610  | 2.000   |
| 120. | 4268.715 | -0.000 | 0.000  | 2635.980 | 0.000   | 0.000   | 1815.862 | -1.610  | 1.000   |
| 121. | 4268.785 | 1.100  | 0.500  | 2635.517 | -1.150  | -0.810  | 1816.867 | 1.610   | 0.000   |
| 122. | 4268.994 | 2.100  | 1.000  | 2634.131 | -2.300  | -1.620  | 1822.478 | 3.610   | 1.000   |
| 123. | 4269.338 | 3.100  | 1.490  | 2631.828 | -3.440  | -2.300  | 1826.894 | 5.370   | 2.000   |
| 124. | 4269.815 | 4.200  | 1.980  | 2628.616 | -4.560  | -3.230  | 1832.349 | 7.650   | 3.000   |
| 125. | 4270.416 | 5.100  | 2.460  | 2624.516 | -5.660  | -4.020  | 1839.609 | 10.340  | 4.000   |
| 126. | 4271.140 | 6.000  | 2.930  | 2619.539 | -6.740  | -4.800  | 1847.669 | 13.270  | 5.000   |
| 127. | 4271.972 | 6.600  | 3.390  | 2613.711 | -7.800  | -5.570  | 1856.269 | 16.560  | 6.000   |
| 128. | 4272.905 | 7.000  | 3.840  | 2607.059 | -8.810  | -6.320  | 1865.369 | 19.470  | 7.000   |
| 129. | 4273.926 | 7.200  | 4.280  | 2599.633 | -9.790  | -7.060  | 1874.946 | 22.000  | 8.000   |
| 130. | 4275.028 | 6.700  | 4.690  | 2591.409 | -10.730 | -7.770  | 1884.469 | 24.100  | 8.620   |
| 131. | 4276.192 | 5.920  | 5.100  | 2582.447 | -11.620 | -8.470  | 1894.609 | 25.800  | 9.000   |
| 132. | 4277.409 | 4.950  | 5.460  | 2572.893 | -12.450 | -9.150  | 1905.763 | 27.100  | 9.200   |
| 133. | 4278.663 | 3.970  | 5.850  | 2562.678 | -13.220 | -9.800  | 1917.345 | 28.000  | 9.200   |
| 134. | 4279.941 | 2.900  | 6.200  | 2551.836 | -13.920 | -10.440 | 1929.415 | 28.500  | 9.100   |
| 135. | 4281.228 | 1.900  | 6.520  | 2540.616 | -14.550 | -11.050 | 1941.414 | 28.600  | 8.900   |
| 136. | 4282.510 | 9.800  | 6.830  | 2528.984 | -15.090 | -11.630 | 1954.733 | 28.200  | 8.600   |
| 137. | 4283.774 | 9.600  | 7.120  | 2516.844 | -15.530 | -12.200 | 1967.631 | 27.500  | 8.200   |
| 138. | 4285.006 | 8.800  | 7.390  | 2504.526 | -16.060 | -12.730 | 1981.035 | 26.500  | 7.700   |
| 139. | 4286.192 | 7.800  | 7.630  | 2492.056 | -16.500 | -13.240 | 1994.235 | 25.200  | 7.100   |
| 140. | 4287.321 | 6.400  | 7.660  | 2479.554 | -16.800 | -13.720 | 2007.264 | 23.700  | 6.400   |
| 141. | 4288.380 | 4.900  | 7.060  | 2467.163 | -17.000 | -14.180 | 2020.000 | 22.000  | 5.600   |
| 142. | 4289.356 | 3.200  | 6.240  | 2455.046 | -17.100 | -14.610 | 2032.214 | 20.500  | 4.700   |
| 143. | 4290.286 | 1.600  | 5.400  | 2443.394 | -17.000 | -15.000 | 2043.670 | 18.500  | 3.800   |
| 144. | 4291.035 | 0.600  | 4.540  | 2432.430 | -16.800 | -15.360 | 2054.117 | 16.500  | 2.900   |
| 145. | 4291.716 | 0.400  | 3.660  | 2422.408 | -16.600 | -15.660 | 2063.269 | 14.500  | 2.000   |
| 146. | 4292.283 | 0.300  | 2.760  | 2413.610 | -16.300 | -15.960 | 2070.824 | 12.500  | 1.100   |
| 147. | 4292.739 | 0.250  | 1.830  | 2406.335 | -16.000 | -16.150 | 2076.466 | 10.400  | 0.200   |
| 148. | 4293.051 | 0.200  | 0.890  | 2400.875 | -15.600 | -16.360 | 2080.000 | 7.200   | 0.300   |
| 149. | 4293.246 | 0.100  | 0.920  | 2397.462 | -15.100 | -16.470 | 2082.000 | 3.740   | 0.300   |

111-PLANE INDIUM ARSENIIDE

BULK

|      | LNVEL    | LPM112  | LPM113 | FSRWEL   | FSPM12 | FSPM13  | SSRWEL   | SSPM12  | SSPM13  |
|------|----------|---------|--------|----------|--------|---------|----------|---------|---------|
| 150. | 4293.311 | 0.000   | 8.930  | 2396.330 | -0.000 | -16.510 | 2081.193 | -0.000  | -10.830 |
| 151. | 4293.246 | -1.100  | 8.920  | 2397.462 | 3.130  | -16.470 | 2080.001 | -3.740  | -10.830 |
| 152. | 4293.051 | -2.200  | 8.890  | 2400.875 | 6.060  | -16.360 | 2076.406 | -7.270  | -10.830 |
| 153. | 4292.729 | -3.290  | 8.830  | 2406.335 | 8.660  | -16.150 | 2070.024 | -10.430 | -10.830 |
| 154. | 4292.283 | -4.350  | 8.760  | 2413.610 | 10.870 | -15.960 | 2063.269 | -13.140 | -10.830 |
| 155. | 4291.716 | -5.460  | 8.660  | 2422.401 | 12.610 | -15.660 | 2054.117 | -15.360 | -10.830 |
| 156. | 4291.035 | -6.560  | 8.540  | 2432.430 | 13.940 | -15.360 | 2043.670 | -17.140 | -10.830 |
| 157. | 4290.246 | -7.640  | 8.400  | 2443.394 | 14.900 | -15.000 | 2032.214 | -18.500 | -10.830 |
| 158. | 4289.356 | -8.720  | 8.240  | 2455.046 | 15.740 | -14.610 | 2020.010 | -19.520 | -10.830 |
| 159. | 4288.360 | -9.780  | 8.060  | 2467.163 | 16.460 | -14.180 | 2007.264 | -20.240 | -10.830 |
| 160. | 4287.321 | -10.840 | 7.860  | 2479.555 | 17.060 | -13.720 | 1994.235 | -20.700 | -10.830 |
| 161. | 4286.192 | -11.890 | 7.630  | 2492.056 | 17.540 | -13.240 | 1981.035 | -20.530 | -10.830 |
| 162. | 4285.006 | -12.930 | 7.390  | 2504.526 | 17.900 | -12.730 | 1967.831 | -20.970 | -10.830 |
| 163. | 4283.774 | -13.960 | 7.120  | 2516.844 | 18.150 | -12.200 | 1954.753 | -20.620 | -10.830 |
| 164. | 4282.510 | -14.980 | 6.830  | 2528.905 | 18.300 | -11.630 | 1941.915 | -20.520 | -10.830 |
| 165. | 4281.222 | -15.990 | 6.520  | 2540.616 | 18.350 | -11.050 | 1929.415 | -20.060 | -10.830 |
| 166. | 4279.941 | -16.990 | 6.200  | 2551.896 | 18.320 | -10.440 | 1917.345 | -19.470 | -10.830 |
| 167. | 4278.663 | -17.970 | 5.850  | 2562.678 | 18.220 | -9.800  | 1905.783 | -18.730 | -10.830 |
| 168. | 4277.405 | -18.920 | 5.480  | 2572.893 | 18.050 | -9.150  | 1894.803 | -17.870 | -10.830 |
| 169. | 4276.192 | -19.870 | 5.100  | 2582.407 | 17.820 | -8.470  | 1884.469 | -16.890 | -10.830 |
| 170. | 4275.027 | -20.800 | 4.700  | 2591.409 | 17.530 | -7.770  | 1874.840 | -15.800 | -10.830 |
| 171. | 4273.827 | -21.720 | 4.280  | 2599.613 | 17.190 | -7.060  | 1865.969 | -14.580 | -10.830 |
| 172. | 4272.905 | -22.630 | 3.840  | 2607.059 | 16.810 | -6.320  | 1857.905 | -13.270 | -10.830 |
| 173. | 4271.872 | -23.530 | 3.390  | 2613.711 | 16.400 | -5.570  | 1850.609 | -11.850 | -10.830 |
| 174. | 4271.440 | -24.420 | 2.930  | 2619.539 | 15.960 | -4.800  | 1844.360 | -10.340 | -10.830 |
| 175. | 4270.815 | -25.300 | 2.460  | 2624.516 | 15.500 | -4.020  | 1838.949 | -8.750  | -10.830 |
| 176. | 4269.815 | -26.170 | 1.980  | 2628.616 | 15.020 | -3.230  | 1834.404 | -7.090  | -10.830 |
| 177. | 4269.336 | -27.040 | 1.490  | 2631.826 | 14.540 | -2.430  | 1830.908 | -5.370  | -10.830 |
| 178. | 4268.994 | -27.910 | 1.000  | 2634.151 | 14.050 | -1.620  | 1828.476 | -3.610  | -10.830 |
| 179. | 4268.785 | -28.780 | .500   | 2635.517 | 13.550 | -0.810  | 1826.967 | -1.810  | -10.830 |
| 180. | 4268.715 | 0.000   | -0.000 | 2635.980 | -0.000 | -0.000  | 1826.462 | 0.000   | -10.830 |

110-PLANE INDIUM ARSENIDE

BULK

|     | LNGVEL   | LPHI12  | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | JSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 4407.817 | 0.000   | -0.000 | 2130.541 | -20.550 | 0.000   | 2130.530 | 20.550  | 0.000   |
| 1.  | 4407.535 | -8.20   | -0.000 | 2117.057 | -19.410 | -0.000  | 2144.507 | 20.520  | 0.000   |
| 2.  | 4406.662 | -8.650  | -0.000 | 2104.520 | -16.140 | -0.000  | 2158.546 | 20.470  | 0.000   |
| 3.  | 4405.244 | -1.250  | -0.000 | 2093.010 | -16.750 | -0.000  | 2172.630 | 20.400  | 0.000   |
| 4.  | 4403.214 | -1.740  | -0.000 | 2082.559 | -15.240 | -0.000  | 2186.740 | 20.300  | 0.000   |
| 5.  | 4400.580 | -2.150  | -0.000 | 2073.227 | -13.600 | -0.000  | 2200.058 | 20.160  | 0.000   |
| 6.  | 4397.336 | -2.660  | -0.000 | 2065.054 | -11.860 | -0.000  | 2214.769 | 20.040  | 0.000   |
| 7.  | 4393.477 | -3.110  | -0.000 | 2058.059 | -10.020 | -0.000  | 2229.054 | 19.860  | 0.000   |
| 8.  | 4388.936 | -3.560  | -0.000 | 2052.364 | -8.060  | -0.000  | 2243.036 | 19.700  | 0.000   |
| 9.  | 4383.692 | -4.010  | -0.000 | 2047.944 | -6.060  | -0.000  | 2257.064 | 19.500  | 0.000   |
| 10. | 4378.162 | -4.520  | -0.000 | 2044.008 | -3.970  | -0.000  | 2270.756 | 19.250  | 0.000   |
| 11. | 4371.806 | -5.000  | -0.000 | 2042.935 | -1.840  | -0.000  | 2284.019 | 19.050  | 0.000   |
| 12. | 4364.824 | -5.470  | -0.000 | 2042.520 | 3.320   | -0.000  | 2298.537 | 18.810  | 0.000   |
| 13. | 4357.215 | -5.940  | -0.000 | 2043.393 | 2.460   | -0.000  | 2312.137 | 18.540  | 0.000   |
| 14. | 4348.995 | -6.410  | -0.000 | 2045.615 | 4.640   | -0.000  | 2325.604 | 18.260  | 0.000   |
| 15. | 4340.155 | -6.860  | 0.000  | 2049.182 | 6.760   | -0.000  | 2338.923 | 17.970  | 0.000   |
| 16. | 4330.707 | -7.350  | 0.000  | 2054.085 | 8.830   | -0.000  | 2352.061 | 17.660  | 0.000   |
| 17. | 4320.659 | -7.810  | -0.000 | 2060.308 | 10.620  | -0.000  | 2365.062 | 17.350  | 0.000   |
| 18. | 4310.020 | -8.270  | -0.000 | 2067.826 | 12.740  | -0.000  | 2377.063 | 17.010  | 0.000   |
| 19. | 4298.800 | -8.720  | -0.000 | 2076.617 | 14.560  | -0.000  | 2388.061 | 16.670  | 0.000   |
| 20. | 4287.013 | -9.160  | -0.000 | 2086.642 | 16.270  | -0.000  | 2402.848 | 16.320  | 0.000   |
| 21. | 4274.673 | -9.590  | -0.000 | 2097.863 | 17.670  | -0.000  | 2415.012 | 15.950  | 0.000   |
| 22. | 4261.796 | -10.020 | -0.000 | 2110.236 | 19.350  | -0.000  | 2426.741 | 15.560  | 0.000   |
| 23. | 4248.400 | -10.470 | -0.000 | 2123.711 | 20.700  | -0.000  | 2438.024 | 15.150  | 0.000   |
| 24. | 4234.506 | -10.930 | -0.000 | 2138.235 | 21.930  | -0.000  | 2450.051 | 14.800  | 0.000   |
| 25. | 4220.135 | -11.210 | 0.006  | 2153.746 | 23.040  | -0.000  | 2461.213 | 14.390  | -0.000  |
| 26. | 4205.312 | -11.560 | -0.000 | 2170.167 | 24.020  | -0.000  | 2472.037 | 13.960  | 0.000   |
| 27. | 4190.065 | -11.930 | -0.000 | 2187.487 | 24.860  | -0.000  | 2482.696 | 13.560  | 0.000   |
| 28. | 4174.422 | -12.260 | -0.000 | 2205.575 | 25.620  | -0.000  | 2493.000 | 13.140  | 0.000   |
| 29. | 4158.410 | -12.560 | -0.000 | 2224.378 | 26.240  | -0.000  | 2503.000 | 12.700  | 0.000   |
| 30. | 4142.086 | -12.840 | -0.000 | 2243.016 | 26.740  | -0.000  | 2512.680 | 12.260  | 0.000   |
| 31. | 4125.467 | -13.090 | -0.000 | 2263.512 | 27.130  | -0.000  | 2522.055 | 11.810  | 0.000   |
| 32. | 4108.604 | -13.310 | 0.000  | 2284.877 | 27.400  | -0.000  | 2531.054 | 11.360  | 0.000   |
| 33. | 4091.562 | -13.560 | 0.000  | 2305.122 | 27.570  | -0.000  | 2539.797 | 10.900  | 0.000   |
| 34. | 4074.333 | -13.650 | 0.000  | 2326.257 | 27.620  | -0.000  | 2548.156 | 10.430  | 0.000   |
| 35. | 4057.033 | -13.750 | -0.000 | 2347.565 | 27.570  | -0.000  | 2556.160 | 9.960   | 0.000   |
| 36. | 4039.701 | -13.810 | 0.000  | 2369.006 | 27.400  | -0.000  | 2563.623 | 9.480   | 0.000   |
| 37. | 4022.404 | -13.810 | -0.000 | 2390.617 | 27.120  | -0.000  | 2571.116 | 9.000   | 0.000   |
| 38. | 4005.213 | -13.760 | 0.000  | 2411.710 | 26.730  | -0.000  | 2578.041 | 8.520   | 0.000   |
| 39. | 3988.206 | -13.660 | 0.000  | 2432.772 | 26.220  | -0.000  | 2584.592 | 8.030   | 0.000   |
| 40. | 3971.465 | -13.450 | 0.000  | 2453.486 | 25.560  | -0.000  | 2590.765 | 7.540   | 0.000   |
| 41. | 3955.081 | -13.190 | 0.000  | 2473.732 | 24.820  | -0.000  | 2596.555 | 7.040   | 0.000   |
| 42. | 3939.145 | -12.840 | 0.000  | 2493.363 | 23.930  | -0.000  | 2601.956 | 6.540   | 0.000   |
| 43. | 3923.771 | -12.410 | 0.000  | 2512.310 | 22.500  | -0.000  | 2606.966 | 6.040   | 0.000   |
| 44. | 3908.056 | -11.870 | 0.000  | 2530.376 | 21.720  | -0.000  | 2611.561 | 5.530   | 0.000   |
| 45. | 3895.115 | -11.240 | 0.000  | 2547.452 | 20.400  | -0.000  | 2615.796 | 5.020   | 0.000   |
| 46. | 3882.064 | -10.510 | 0.000  | 2563.395 | 18.910  | -0.000  | 2619.608 | 4.510   | 0.000   |
| 47. | 3870.022 | -9.660  | 0.000  | 2578.067 | 17.270  | -0.000  | 2623.015 | 4.000   | 0.000   |
| 48. | 3859.105 | -8.710  | 0.000  | 2591.335 | 15.470  | -0.000  | 2626.015 | 3.490   | 0.000   |
| 49. | 3849.429 | -7.650  | 0.000  | 2603.067 | 13.520  | -0.000  | 2628.004 | 2.970   | 0.000   |

110-PLANE INDIUM ARSENIIDE

BULK

|     | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 3641.102 | -6.480 | 0.000  | 2613.162 | 11.410  | -0.000  | 2630.791 | 2.460   | 0.000   |
| 51. | 3634.224 | -5.230 | 0.000  | 2621.449 | 9.170   | -0.000  | 2632.544 | 1.940   | -0.000  |
| 52. | 3626.061 | -3.900 | 0.000  | 2627.092 | 6.820   | 0.000   | 2633.692 | 1.420   | 0.000   |
| 53. | 3625.142 | -2.500 | 0.000  | 2632.395 | 4.370   | 0.000   | 2634.625 | .900    | 0.000   |
| 54. | 3623.059 | -1.070 | 0.000  | 2634.902 | 1.870   | 0.000   | 2635.380 | .360    | 0.000   |
| 55. | 3622.660 | .360   | 0.000  | 2635.439 | -.140   | -0.000  | 2635.382 | -.670   | 0.000   |
| 56. | 3623.951 | 1.830  | 0.000  | 2633.029 | -3.200  | -0.000  | 2635.120 | -.660   | -0.000  |
| 57. | 3626.913 | 3.240  | 0.000  | 2630.263 | -5.660  | 0.000   | 2634.364 | -1.180  | -0.000  |
| 58. | 3631.506 | 4.610  | 0.000  | 2624.727 | -8.060  | 0.000   | 2633.232 | -1.700  | -0.000  |
| 59. | 3637.670 | 5.900  | 0.000  | 2617.259 | -10.370 | 0.000   | 2631.665 | -2.210  | 0.000   |
| 60. | 3645.324 | 7.110  | 0.000  | 2608.036 | -12.540 | 0.000   | 2629.663 | -2.730  | 0.000   |
| 61. | 3654.376 | 8.220  | 0.000  | 2597.071 | -14.570 | 0.000   | 2627.268 | -3.250  | 0.000   |
| 62. | 3664.722 | 9.220  | 0.000  | 2584.513 | -16.440 | 0.000   | 2624.482 | -3.760  | 0.000   |
| 63. | 3676.247 | 10.120 | 0.000  | 2570.467 | -18.160 | 0.000   | 2621.267 | -4.270  | 0.000   |
| 64. | 3688.037 | 10.910 | 0.000  | 2555.127 | -19.720 | 0.000   | 2617.645 | -4.760  | 0.000   |
| 65. | 3902.372 | 11.590 | 0.000  | 2538.570 | -21.120 | 0.000   | 2613.620 | -5.250  | 0.000   |
| 66. | 3916.736 | 12.170 | 0.000  | 2522.933 | -22.360 | 0.000   | 2609.194 | -5.680  | 0.000   |
| 67. | 3931.815 | 12.650 | 0.000  | 2508.415 | -23.460 | 0.000   | 2604.370 | -6.060  | 0.000   |
| 68. | 3947.456 | 13.030 | 0.000  | 2483.009 | -24.420 | 0.000   | 2599.152 | -6.400  | 0.000   |
| 69. | 3963.682 | 13.340 | 0.000  | 2463.108 | -25.240 | 0.000   | 2593.546 | -6.700  | 0.000   |
| 70. | 3980.266 | 13.560 | 0.000  | 2442.599 | -25.930 | 0.000   | 2587.553 | -7.000  | 0.000   |
| 71. | 3997.154 | 13.710 | 0.000  | 2421.687 | -26.500 | 0.000   | 2581.190 | -7.250  | 0.000   |
| 72. | 4014.272 | 13.790 | 0.000  | 2400.489 | -26.950 | 0.000   | 2574.431 | -7.470  | 0.000   |
| 73. | 4031.529 | 13.810 | 0.000  | 2379.128 | -27.260 | 0.000   | 2567.311 | -7.660  | 0.000   |
| 74. | 4048.852 | 13.760 | 0.000  | 2357.690 | -27.500 | 0.000   | 2559.826 | -7.820  | 0.000   |
| 75. | 4066.175 | 13.700 | 0.000  | 2336.306 | -27.610 | 0.000   | 2551.983 | -7.940  | 0.000   |
| 76. | 4083.435 | 13.570 | 0.000  | 2315.067 | -27.610 | 0.000   | 2543.786 | -8.020  | 0.000   |
| 77. | 4100.572 | 13.410 | 0.000  | 2294.074 | -27.500 | 0.000   | 2535.244 | -8.060  | 0.000   |
| 78. | 4117.556 | 13.200 | 0.000  | 2273.416 | -27.270 | 0.000   | 2526.363 | -8.060  | 0.000   |
| 79. | 4134.275 | 12.970 | 0.000  | 2253.191 | -26.940 | 0.000   | 2517.150 | -8.020  | 0.000   |
| 80. | 4150.740 | 12.700 | 0.000  | 2233.479 | -26.490 | 0.000   | 2507.612 | -7.940  | 0.000   |
| 81. | 4166.911 | 12.410 | 0.000  | 2214.366 | -25.920 | 0.000   | 2497.758 | -7.820  | 0.000   |
| 82. | 4182.729 | 12.090 | 0.000  | 2195.931 | -25.240 | 0.000   | 2487.597 | -7.660  | 0.000   |
| 83. | 4198.167 | 11.750 | 0.000  | 2178.250 | -24.440 | 0.000   | 2477.136 | -7.470  | 0.000   |
| 84. | 4213.193 | 11.390 | 0.000  | 2161.396 | -23.520 | 0.000   | 2466.385 | -7.250  | 0.000   |
| 85. | 4227.781 | 11.010 | 0.000  | 2145.437 | -22.470 | 0.000   | 2455.353 | -7.000  | 0.000   |
| 86. | 4241.903 | 10.620 | 0.000  | 2130.439 | -21.300 | 0.000   | 2444.050 | -6.700  | 0.000   |
| 87. | 4255.537 | 10.210 | 0.000  | 2116.462 | -20.000 | 0.000   | 2432.486 | -6.350  | 0.000   |
| 88. | 4268.661 | 9.800  | 0.000  | 2103.562 | -18.540 | 0.000   | 2420.672 | -5.970  | 0.000   |
| 89. | 4281.257 | 9.370  | 0.000  | 2091.732 | -17.040 | 0.000   | 2408.618 | -5.560  | 0.000   |
| 90. | 4293.307 | 8.930  | 0.000  | 2081.197 | -15.360 | 0.000   | 2396.335 | -5.100  | 0.000   |
| 91. | 4304.796 | 8.480  | 0.000  | 2071.820 | -13.610 | 0.000   | 2383.835 | -4.600  | 0.000   |
| 92. | 4315.710 | 8.030  | 0.000  | 2063.637 | -11.740 | 0.000   | 2371.130 | -4.070  | 0.000   |
| 93. | 4326.039 | 7.570  | 0.000  | 2056.659 | -9.760  | 0.000   | 2358.232 | -3.520  | 0.000   |
| 94. | 4335.771 | 7.100  | 0.000  | 2051.331 | -7.740  | 0.000   | 2345.154 | -2.950  | 0.000   |
| 95. | 4344.899 | 6.640  | 0.000  | 2047.131 | -5.640  | 0.000   | 2331.904 | -2.360  | 0.000   |
| 96. | 4353.414 | 6.170  | 0.000  | 2044.273 | -3.500  | 0.000   | 2318.511 | -1.740  | 0.000   |
| 97. | 4361.312 | 5.650  | 0.000  | 2042.764 | -1.340  | 0.000   | 2304.972 | -1.090  | 0.000   |
| 98. | 4368.589 | 5.220  | 0.000  | 2042.603 | .620    | 0.000   | 2291.306 | -.420   | 0.000   |
| 99. | 4375.240 | 4.750  | 0.000  | 2043.746 | 2.970   | 0.000   | 2277.532 | .250    | 0.000   |

110-PLANE INDIUM ARSENIIDE

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|---------|--------|
| 100. | 4381.266 | 4.270  | 0.000  | 2046.300 | 5.060  | -0.000 | 2263.660 | -19.400 | 0.000  |
| 101. | 4386.665 | 3.600  | 0.000  | 2050.127 | 7.130  | -0.000 | 2289.787 | -19.610 | 0.000  |
| 102. | 4391.439 | 3.330  | -0.000 | 2055.244 | 9.110  | -0.000 | 2235.669 | -19.600 | 0.000  |
| 103. | 4395.592 | 2.670  | 0.000  | 2061.621 | 11.000 | -0.000 | 2221.621 | -19.970 | 0.000  |
| 104. | 4399.125 | 2.410  | 0.038  | 2064.224 | 12.600 | -0.000 | 2207.621 | -20.120 | 0.000  |
| 105. | 4402.046 | 1.950  | 0.000  | 2076.012 | 14.460 | -0.000 | 2193.404 | -20.250 | 0.000  |
| 106. | 4404.360 | 1.500  | -0.000 | 2087.941 | 16.056 | -0.000 | 2179.627 | -20.350 | 0.000  |
| 107. | 4406.077 | 1.060  | -0.000 | 2098.962 | 17.500 | -0.000 | 2165.169 | -20.440 | 0.000  |
| 108. | 4407.204 | .620   | 0.000  | 2111.021 | 18.830 | -0.000 | 2151.127 | -20.500 | 0.000  |
| 109. | 4407.754 | .200   | -0.000 | 2124.062 | 20.030 | -0.000 | 2137.110 | -20.540 | 0.000  |
| 110. | 4407.735 | -.220  | 0.000  | 2138.024 | 21.100 | -0.000 | 2123.162 | -20.550 | 0.000  |
| 111. | 4407.172 | -.626  | 0.000  | 2152.844 | 22.060 | -0.000 | 2109.336 | -20.540 | 0.000  |
| 112. | 4406.070 | -1.020 | -0.000 | 2168.456 | 22.890 | -0.000 | 2095.600 | -20.500 | 0.000  |
| 113. | 4404.450 | -1.400 | 0.000  | 2184.792 | 23.650 | -0.000 | 2081.392 | -20.430 | 0.000  |
| 114. | 4402.329 | -1.760 | -0.000 | 2201.780 | 24.230 | -0.000 | 2066.532 | -20.330 | 0.000  |
| 115. | 4399.730 | -2.110 | -0.000 | 2219.365 | 24.720 | -0.000 | 2050.240 | -20.210 | 0.000  |
| 116. | 4396.674 | -2.450 | 0.000  | 2237.425 | 25.110 | -0.000 | 2042.135 | -20.050 | 0.000  |
| 117. | 4393.164 | -2.760 | -0.000 | 2255.932 | 25.460 | 0.000  | 2029.236 | -19.650 | 0.000  |
| 118. | 4389.266 | -3.060 | 0.000  | 2274.744 | 25.500 | 0.000  | 2016.564 | -19.630 | 0.000  |
| 119. | 4385.013 | -3.330 | 0.000  | 2293.933 | 25.660 | 0.000  | 2004.336 | -19.370 | 0.000  |
| 120. | 4380.387 | -3.580 | -0.000 | 2313.272 | 25.660 | 0.000  | 1991.979 | -19.070 | 0.000  |
| 121. | 4375.444 | -3.810 | 0.000  | 2332.731 | 25.560 | 0.000  | 1980.105 | -18.740 | 0.000  |
| 122. | 4370.216 | -4.020 | 0.000  | 2352.232 | 25.400 | 0.000  | 1966.536 | -18.370 | 0.000  |
| 123. | 4364.740 | -4.200 | 0.000  | 2371.693 | 25.130 | 0.000  | 1957.246 | -17.960 | 0.000  |
| 124. | 4359.051 | -4.350 | 0.000  | 2391.036 | 24.770 | 0.000  | 1946.400 | -17.510 | 0.000  |
| 125. | 4353.190 | -4.470 | -0.000 | 2410.179 | 24.330 | 0.000  | 1935.867 | -17.020 | 0.000  |
| 126. | 4347.150 | -4.550 | -0.000 | 2428.042 | 23.800 | 0.000  | 1925.716 | -16.490 | 0.000  |
| 127. | 4341.116 | -4.610 | -0.000 | 2447.545 | 23.150 | 0.000  | 1915.970 | -15.920 | 0.000  |
| 128. | 4334.995 | -4.630 | -0.000 | 2465.608 | 22.450 | 0.000  | 1906.642 | -15.310 | 0.000  |
| 129. | 4328.873 | -4.620 | -0.000 | 2483.152 | 21.710 | -0.000 | 1897.752 | -14.660 | 0.000  |
| 130. | 4322.801 | -4.570 | 0.000  | 2500.097 | 20.950 | -0.000 | 1889.316 | -13.970 | 0.000  |
| 131. | 4316.826 | -4.490 | 0.000  | 2516.366 | 19.910 | 0.000  | 1881.351 | -13.240 | 0.000  |
| 132. | 4310.997 | -4.360 | -0.000 | 2531.863 | 18.660 | -0.000 | 1873.873 | -12.460 | 0.000  |
| 133. | 4305.364 | -4.200 | -0.000 | 2546.573 | 17.760 | -0.000 | 1866.697 | -11.650 | 0.000  |
| 134. | 4299.974 | -4.000 | -0.000 | 2560.364 | 16.600 | 0.000  | 1860.437 | -10.810 | 0.000  |
| 135. | 4294.876 | -3.770 | -0.000 | 2573.166 | 15.330 | -0.000 | 1854.506 | -9.920  | 0.000  |
| 136. | 4290.116 | -3.500 | 0.000  | 2584.973 | 14.000 | -0.000 | 1849.117 | -9.010  | 0.000  |
| 137. | 4285.736 | -3.190 | -0.000 | 2595.661 | 12.590 | 0.000  | 1844.260 | -8.060  | 0.000  |
| 138. | 4281.766 | -2.850 | 0.000  | 2605.195 | 11.120 | 0.000  | 1840.007 | -7.080  | 0.000  |
| 139. | 4278.298 | -2.490 | -0.000 | 2613.519 | 9.580  | -0.000 | 1836.307 | -6.080  | 0.000  |
| 140. | 4275.309 | -2.090 | -0.000 | 2620.569 | 8.000  | 0.000  | 1833.166 | -5.050  | 0.000  |
| 141. | 4272.849 | -1.660 | 0.000  | 2626.362 | 6.360  | -0.000 | 1830.633 | -4.010  | 0.000  |
| 142. | 4270.945 | -1.240 | -0.000 | 2630.805 | 4.650  | 0.000  | 1828.713 | -2.950  | 0.000  |
| 143. | 4269.617 | -.790  | 0.000  | 2633.892 | 2.990  | 0.000  | 1827.365 | -1.870  | 0.000  |
| 144. | 4268.878 | -.340  | 0.000  | 2635.604 | 1.270  | 0.000  | 1826.625 | -.000   | 0.000  |
| 145. | 4268.736 | .120   | 0.000  | 2635.931 | -.460  | 0.000  | 1826.483 | .290    | 0.000  |
| 146. | 4269.194 | .560   | 0.000  | 2634.872 | -2.160 | 0.000  | 1826.843 | 1.370   | -0.000 |
| 147. | 4270.245 | 1.030  | 0.000  | 2632.432 | -3.890 | 0.000  | 1828.004 | 2.440   | -0.000 |
| 148. | 4271.880 | 1.460  | 0.000  | 2628.626 | -5.560 | 0.000  | 1829.663 | 3.510   | -0.000 |
| 149. | 4274.080 | 1.900  | 0.000  | 2623.477 | -7.220 | 0.000  | 1831.917 | 4.560   | -0.000 |



110-PLANE INDIUM ARSENIDE

BULK

|      | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SRVEL    | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 150. | 4276.823 | 2.310  | 0.000  | 2617.015 | -8.840  | 0.000  | 1634.761 | 5.550  | 0.000  |
| 151. | 4280.860 | 2.660  | 0.000  | 2609.278 | -10.400 | 0.000  | 1838.489 | 6.610  | 0.000  |
| 152. | 4283.818 | 3.040  | 0.000  | 2600.309 | -11.910 | 0.000  | 1842.193 | 7.680  | -0.000 |
| 153. | 4287.999 | 3.360  | 0.000  | 2590.158 | -13.340 | 0.000  | 1846.764 | 8.560  | 0.000  |
| 154. | 4292.584 | 3.640  | 0.000  | 2578.882 | -14.710 | 0.000  | 1851.894 | 9.430  | -0.000 |
| 155. | 4297.526 | 3.960  | 0.000  | 2566.541 | -16.010 | 0.000  | 1857.711 | 10.300 | -0.000 |
| 156. | 4302.787 | 4.110  | 0.000  | 2553.199 | -17.230 | 0.000  | 1863.763 | 11.260 | 0.000  |
| 157. | 4308.311 | 4.290  | 0.000  | 2538.925 | -18.370 | 0.000  | 1870.517 | 12.090 | -0.000 |
| 158. | 4314.054 | 4.430  | 0.000  | 2523.765 | -19.430 | 0.000  | 1877.760 | 12.830 | -0.000 |
| 159. | 4319.966 | 4.530  | 0.000  | 2507.865 | -20.420 | 0.000  | 1885.437 | 13.530 | -0.000 |
| 160. | 4325.996 | 4.600  | 0.000  | 2491.224 | -21.320 | 0.000  | 1893.713 | 14.340 | -0.000 |
| 161. | 4332.102 | 4.630  | 0.000  | 2473.956 | -22.130 | 0.000  | 1902.531 | 15.010 | -0.000 |
| 162. | 4338.231 | 4.620  | 0.000  | 2456.131 | -22.870 | 0.000  | 1911.214 | 15.640 | -0.000 |
| 163. | 4344.337 | 4.580  | 0.000  | 2437.825 | -23.520 | 0.000  | 1921.066 | 16.230 | -0.000 |
| 164. | 4350.376 | 4.510  | 0.000  | 2419.122 | -24.090 | 0.000  | 1931.028 | 16.780 | -0.000 |
| 165. | 4356.304 | 4.410  | 0.000  | 2400.101 | -24.570 | 0.000  | 1941.382 | 17.260 | -0.000 |
| 166. | 4362.079 | 4.270  | 0.000  | 2380.843 | -24.970 | 0.000  | 1952.109 | 17.750 | -0.000 |
| 167. | 4367.660 | 4.110  | 0.000  | 2361.427 | -25.280 | 0.000  | 1963.190 | 18.180 | -0.000 |
| 168. | 4373.010 | 3.910  | 0.000  | 2341.935 | -25.510 | 0.000  | 1974.606 | 18.570 | -0.000 |
| 169. | 4378.092 | 3.700  | 0.000  | 2322.447 | -25.650 | 0.000  | 1986.338 | 18.920 | -0.000 |
| 170. | 4382.871 | 3.450  | 0.000  | 2303.041 | -25.690 | 0.000  | 1998.364 | 19.230 | -0.000 |
| 171. | 4387.316 | 3.150  | 0.000  | 2283.746 | -25.640 | 0.000  | 2010.667 | 19.510 | -0.000 |
| 172. | 4391.394 | 2.900  | 0.000  | 2264.795 | -25.500 | 0.000  | 2023.225 | 19.750 | -0.000 |
| 173. | 4395.079 | 2.600  | 0.000  | 2246.111 | -25.260 | 0.000  | 2036.020 | 19.960 | -0.000 |
| 174. | 4398.343 | 2.270  | 0.000  | 2227.822 | -24.920 | 0.000  | 2049.030 | 20.130 | 0.000  |
| 175. | 4401.161 | 1.930  | 0.000  | 2210.005 | -24.470 | -0.000 | 2062.236 | 20.260 | 0.000  |
| 176. | 4403.510 | 1.570  | 0.000  | 2192.733 | -23.920 | -0.000 | 2075.620 | 20.390 | 0.000  |
| 177. | 4405.369 | 1.200  | 0.000  | 2176.001 | -23.250 | 0.000  | 2089.160 | 20.470 | 0.000  |
| 178. | 4406.718 | .810   | 0.000  | 2160.118 | -22.470 | -0.000 | 2102.838 | 20.520 | -0.000 |
| 179. | 4407.539 | .410   | 0.000  | 2144.916 | -21.570 | 0.000  | 2116.834 | 20.550 | -0.000 |
| 180. | 4407.817 | 0.000  | 0.000  | 2130.541 | -20.550 | -0.000 | 2130.330 | 20.550 | -0.000 |

X-PLANE (YZ-PLANE) LEAD MOLYBDATE

BULK

|     | LNGVEL   | LPMI12 | LPMI13  | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 0.  | 4006.740 | -0.000 | -15.090 | 2123.012 | 0.000   | 43.640  | 1960.032 | -0.600  | -0.000  |
| 1.  | 4006.671 | -1.10  | -15.080 | 2123.381 | 1.130   | 43.740  | 1959.500 | -1.760  | 1.000   |
| 2.  | 4006.664 | -2.30  | -15.070 | 2124.466 | 2.210   | 43.470  | 1957.923 | -3.490  | 1.000   |
| 3.  | 4006.120 | -3.40  | -15.040 | 2126.225 | 3.190   | 43.620  | 1955.351 | -5.100  | 1.000   |
| 4.  | 4005.636 | -4.50  | -15.000 | 2128.577 | 4.030   | 42.450  | 1951.661 | -6.560  | 2.330   |
| 5.  | 4005.015 | -5.70  | -14.950 | 2131.434 | 4.730   | 41.760  | 1947.548 | -7.860  | 3.410   |
| 6.  | 4004.256 | -6.80  | -14.890 | 2134.700 | 5.270   | 41.010  | 1942.511 | -8.950  | 4.540   |
| 7.  | 4003.359 | -7.90  | -14.820 | 2138.281 | 5.670   | 40.210  | 1936.052 | -9.960  | 5.650   |
| 8.  | 4002.323 | -9.10  | -14.730 | 2142.086 | 5.940   | 39.390  | 1930.666 | -10.790 | 6.800   |
| 9.  | 4001.146 | -1.020 | -14.640 | 2146.041 | 6.100   | 38.560  | 1924.040 | -11.460 | 8.000   |
| 10. | 3999.836 | -1.130 | -14.540 | 2150.068 | 6.150   | 37.740  | 1917.056 | -12.050 | 9.200   |
| 11. | 3998.384 | -1.250 | -14.420 | 2154.110 | 6.120   | 36.920  | 1909.782 | -12.510 | 10.400  |
| 12. | 3996.794 | -1.360 | -14.300 | 2158.112 | 6.010   | 36.120  | 1902.204 | -12.860 | 11.600  |
| 13. | 3995.065 | -1.480 | -14.160 | 2162.030 | 5.840   | 35.340  | 1894.616 | -13.160 | 12.800  |
| 14. | 3993.196 | -1.590 | -14.020 | 2165.825 | 5.620   | 34.560  | 1886.635 | -13.370 | 14.000  |
| 15. | 3991.169 | -1.710 | -13.870 | 2169.665 | 5.360   | 33.840  | 1878.981 | -13.500 | 15.200  |
| 16. | 3989.042 | -1.820 | -13.700 | 2173.522 | 5.060   | 33.120  | 1871.097 | -13.570 | 16.400  |
| 17. | 3986.755 | -1.940 | -13.530 | 2177.172 | 4.720   | 32.410  | 1863.223 | -13.580 | 17.600  |
| 18. | 3984.329 | -2.060 | -13.350 | 2179.194 | 4.370   | 31.720  | 1855.394 | -13.530 | 18.800  |
| 19. | 3981.763 | -2.170 | -13.160 | 2181.973 | 3.960   | 31.050  | 1847.644 | -13.430 | 20.000  |
| 20. | 3979.056 | -2.290 | -12.960 | 2184.493 | 3.580   | 30.390  | 1840.003 | -13.270 | 21.200  |
| 21. | 3976.210 | -2.410 | -12.750 | 2186.743 | 3.170   | 29.740  | 1832.500 | -13.070 | 22.400  |
| 22. | 3973.223 | -2.520 | -12.540 | 2188.712 | 2.740   | 29.100  | 1825.164 | -12.810 | 23.600  |
| 23. | 3970.056 | -2.640 | -12.320 | 2190.393 | 2.300   | 28.460  | 1818.021 | -12.510 | 24.800  |
| 24. | 3966.829 | -2.760 | -12.090 | 2191.775 | 1.850   | 27.860  | 1811.095 | -12.160 | 26.000  |
| 25. | 3963.421 | -2.880 | -11.850 | 2192.864 | 1.400   | 27.250  | 1804.410 | -11.760 | 27.200  |
| 26. | 3959.673 | -3.000 | -11.610 | 2193.646 | 0.940   | 26.650  | 1797.940 | -11.320 | 28.400  |
| 27. | 3956.185 | -3.120 | -11.360 | 2194.122 | 0.480   | 26.050  | 1791.654 | -10.840 | 29.600  |
| 28. | 3952.357 | -3.230 | -11.110 | 2194.290 | 0.020   | 25.460  | 1785.523 | -10.310 | 30.800  |
| 29. | 3948.390 | -3.350 | -10.850 | 2194.151 | -0.440  | 24.860  | 1779.516 | -9.750  | 32.000  |
| 30. | 3944.283 | -3.470 | -10.590 | 2193.704 | -0.900  | 24.300  | 1773.652 | -9.140  | 33.200  |
| 31. | 3940.036 | -3.590 | -10.320 | 2192.953 | -1.350  | 23.720  | 1767.946 | -8.510  | 34.400  |
| 32. | 3935.654 | -3.710 | -10.050 | 2191.899 | -1.800  | 23.150  | 1762.374 | -7.860  | 35.600  |
| 33. | 3931.134 | -3.830 | -9.770  | 2190.547 | -2.250  | 22.590  | 1756.926 | -7.190  | 36.800  |
| 34. | 3926.477 | -3.940 | -9.490  | 2188.900 | -2.690  | 22.030  | 1751.595 | -6.530  | 38.000  |
| 35. | 3921.685 | -4.060 | -9.210  | 2186.963 | -3.120  | 21.470  | 1746.374 | -5.860  | 39.200  |
| 36. | 3916.759 | -4.160 | -8.930  | 2184.742 | -3.540  | 20.920  | 1741.261 | -5.190  | 40.400  |
| 37. | 3911.701 | -4.250 | -8.640  | 2182.244 | -3.960  | 20.370  | 1736.252 | -4.520  | 41.600  |
| 38. | 3906.512 | -4.410 | -8.360  | 2179.476 | -4.360  | 19.830  | 1731.344 | -3.850  | 42.800  |
| 39. | 3901.195 | -4.520 | -8.070  | 2176.446 | -4.750  | 19.290  | 1726.522 | -3.180  | 44.000  |
| 40. | 3895.751 | -4.630 | -7.780  | 2173.161 | -5.140  | 18.750  | 1721.854 | -2.510  | 45.200  |
| 41. | 3890.184 | -4.740 | -7.490  | 2169.632 | -5.510  | 18.220  | 1717.323 | -1.840  | 46.400  |
| 42. | 3884.496 | -4.850 | -7.200  | 2165.867 | -5.860  | 17.700  | 1712.916 | -1.170  | 47.600  |
| 43. | 3878.691 | -4.950 | -6.920  | 2161.877 | -6.200  | 17.160  | 1708.617 | -0.500  | 48.800  |
| 44. | 3872.771 | -5.050 | -6.630  | 2157.671 | -6.530  | 16.660  | 1704.424 | 0.170   | 50.000  |
| 45. | 3866.741 | -5.150 | -6.350  | 2153.262 | -6.840  | 16.150  | 1700.331 | 0.840   | 51.200  |
| 46. | 3860.605 | -5.250 | -6.070  | 2148.660 | -7.130  | 15.640  | 1696.335 | 1.510   | 52.400  |
| 47. | 3854.366 | -5.340 | -5.790  | 2143.877 | -7.410  | 15.140  | 1692.427 | 2.180   | 53.600  |
| 48. | 3848.034 | -5.430 | -5.510  | 2138.927 | -7.660  | 14.650  | 1688.602 | 2.850   | 54.800  |
| 49. | 3841.610 | -5.510 | -5.240  | 2133.820 | -7.920  | 14.160  | 1684.954 | 3.520   | 56.000  |

X-PLANE (YZ-PLANE) LEAD HOLYBDATE

|     | LPHI12 | LPHI13 | FSRVEL   | FSPH112 | FSPH113 | SSKVEL   | SSPH112 | SSPH113 |
|-----|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | -5.590 | -4.970 | 2128.571 | -8.140  | 13.600  | 1759.375 | 6.480   | 3.260   |
| 51. | -5.660 | -4.710 | 2123.192 | -8.350  | 13.200  | 1763.053 | 7.160   | 2.740   |
| 52. | -5.730 | -4.450 | 2117.697 | -8.540  | 12.740  | 1767.101 | 7.610   | 2.240   |
| 53. | -5.750 | -4.190 | 2112.100 | -8.700  | 12.270  | 1771.504 | 8.420   | 1.750   |
| 54. | -5.840 | -3.940 | 2106.415 | -8.850  | 11.820  | 1776.253 | 8.980   | 1.290   |
| 55. | -5.890 | -3.700 | 2100.656 | -9.000  | 11.370  | 1781.300 | 9.510   | 0.840   |
| 56. | -5.930 | -3.460 | 2094.974 | -9.080  | 10.930  | 1786.653 | 9.990   | 0.410   |
| 57. | -5.940 | -3.230 | 2089.474 | -9.160  | 10.450  | 1792.262 | 10.430  | 0.010   |
| 58. | -5.940 | -3.000 | 2084.081 | -9.220  | 10.070  | 1798.164 | 10.820  | -0.370  |
| 59. | -5.990 | -2.780 | 2077.172 | -9.260  | 9.650   | 1804.275 | 11.170  | -0.730  |
| 60. | -6.000 | -2.570 | 2071.255 | -9.280  | 9.240   | 1810.591 | 11.470  | -1.060  |
| 61. | -5.950 | -2.370 | 2065.366 | -9.270  | 8.830   | 1817.086 | 11.710  | -1.360  |
| 62. | -5.970 | -2.170 | 2059.502 | -9.240  | 8.440   | 1823.733 | 11.910  | -1.640  |
| 63. | -5.940 | -1.980 | 2053.680 | -9.180  | 8.050   | 1830.506 | 12.060  | -1.890  |
| 64. | -5.900 | -1.800 | 2047.917 | -9.110  | 7.670   | 1837.378 | 12.160  | -2.110  |
| 65. | -5.640 | -1.630 | 2042.227 | -9.010  | 7.300   | 1844.319 | 12.210  | -2.310  |
| 66. | -5.770 | -1.470 | 2036.624 | -8.890  | 6.930   | 1851.301 | 12.210  | -2.470  |
| 67. | -5.650 | -1.320 | 2031.124 | -8.750  | 6.560   | 1858.425 | 12.160  | -2.610  |
| 68. | -5.590 | -1.170 | 2025.739 | -8.560  | 6.230   | 1865.673 | 12.070  | -2.730  |
| 69. | -5.460 | -1.040 | 2020.484 | -8.370  | 5.860   | 1873.204 | 11.920  | -2.810  |
| 70. | -5.360 | -0.910 | 2015.373 | -8.150  | 5.510   | 1881.059 | 11.730  | -2.860  |
| 71. | -5.220 | -0.790 | 2010.418 | -7.910  | 5.220   | 1889.269 | 11.490  | -2.910  |
| 72. | -5.060 | -0.680 | 2005.632 | -7.640  | 4.900   | 1897.825 | 11.200  | -2.920  |
| 73. | -4.850 | -0.580 | 2001.028 | -7.360  | 4.550   | 1906.876 | 10.870  | -2.870  |
| 74. | -4.700 | -0.490 | 1996.616 | -7.050  | 4.260   | 1916.440 | 10.490  | -2.810  |
| 75. | -4.500 | -0.410 | 1992.413 | -6.720  | 3.960   | 1926.532 | 10.070  | -2.640  |
| 76. | -4.260 | -0.340 | 1988.424 | -6.370  | 3.660   | 1937.162 | 9.610   | -2.470  |
| 77. | -4.050 | -0.270 | 1984.663 | -6.010  | 3.400   | 1948.303 | 9.110   | -2.260  |
| 78. | -3.810 | -0.220 | 1981.138 | -5.620  | 3.130   | 1959.950 | 8.570   | -2.030  |
| 79. | -3.540 | -0.170 | 1977.859 | -5.220  | 2.850   | 1972.106 | 7.990   | -1.780  |
| 80. | -3.270 | -0.130 | 1974.835 | -4.800  | 2.560   | 1984.766 | 7.380   | -1.520  |
| 81. | -2.980 | -0.090 | 1972.074 | -4.360  | 2.290   | 1997.932 | 6.740   | -1.260  |
| 82. | -2.660 | -0.070 | 1969.583 | -3.920  | 2.030   | 2011.602 | 6.070   | -1.000  |
| 83. | -2.370 | -0.050 | 1967.365 | -3.460  | 1.770   | 2025.876 | 5.370   | -0.740  |
| 84. | -2.050 | -0.030 | 1965.435 | -2.990  | 1.510   | 2040.754 | 4.630   | -0.480  |
| 85. | -1.730 | -0.020 | 1963.796 | -2.500  | 1.250   | 2056.231 | 3.850   | -0.210  |
| 86. | -1.390 | -0.010 | 1962.446 | -2.010  | 1.000   | 2072.399 | 3.070   | 0.060   |
| 87. | -1.050 | -0.000 | 1961.392 | -1.510  | 0.750   | 2089.252 | 2.370   | 0.340   |
| 88. | -0.700 | -0.000 | 1960.637 | -1.010  | 0.500   | 2106.895 | 1.690   | 0.620   |
| 89. | -0.350 | 0.000  | 1960.184 | -0.510  | 0.250   | 2125.328 | 1.000   | 0.900   |
| 90. | 0.000  | 0.000  | 1960.032 | 0.000   | 0.000   | 2144.559 | 0.300   | 1.180   |
| 91. | 0.350  | 0.000  | 1960.104 | 0.510   | -0.250  | 2164.586 | -0.390  | 1.460   |
| 92. | 0.700  | 0.000  | 1960.637 | 1.010   | -0.500  | 2185.409 | -1.080  | 1.740   |
| 93. | 1.050  | 0.000  | 1961.392 | 1.510   | -0.750  | 2207.028 | -1.770  | 2.020   |
| 94. | 1.390  | 0.010  | 1962.446 | 2.010   | -1.000  | 2229.451 | -2.460  | 2.300   |
| 95. | 1.730  | 0.020  | 1963.796 | 2.500   | -1.250  | 2252.674 | -3.150  | 2.580   |
| 96. | 2.050  | 0.030  | 1965.435 | 2.980   | -1.510  | 2276.700 | -3.840  | 2.860   |
| 97. | 2.370  | 0.050  | 1967.369 | 3.460   | -1.760  | 2301.527 | -4.530  | 3.140   |
| 98. | 2.680  | 0.070  | 1969.583 | 3.920   | -2.030  | 2327.156 | -5.220  | 3.420   |
| 99. | 2.960  | 0.090  | 1972.074 | 4.360   | -2.290  | 2353.589 | -5.910  | 3.700   |

|      | X-PLANE (YZ-PLANE) LEAD MOLYBDATE |        |        |          |         |         |          |         |         |  |
|------|-----------------------------------|--------|--------|----------|---------|---------|----------|---------|---------|--|
|      | LNGVEL                            | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |  |
| 100. | 3651.204                          | 3.270  | .130   | 1974.835 | 4.800   | -2.560  | 1937.196 | -7.300  | 2.200   |  |
| 101. | 3655.002                          | 3.540  | .170   | 1977.859 | 5.220   | -2.830  | 1932.635 | -7.990  | 2.360   |  |
| 102. | 3659.103                          | 3.810  | .220   | 1981.136 | 5.620   | -3.110  | 1927.730 | -8.570  | 2.500   |  |
| 103. | 3663.493                          | 4.050  | .270   | 1984.563 | 6.010   | -3.400  | 1922.503 | -9.110  | 2.620   |  |
| 104. | 3668.157                          | 4.280  | .340   | 1988.824 | 6.370   | -3.680  | 1916.379 | -9.610  | 2.730   |  |
| 105. | 3673.079                          | 4.500  | .410   | 1992.413 | 6.720   | -3.960  | 1911.182 | -10.070 | 2.810   |  |
| 106. | 3678.245                          | 4.700  | .490   | 1996.616 | 7.050   | -4.220  | 1905.140 | -10.450 | 2.870   |  |
| 107. | 3683.637                          | 4.890  | .560   | 2001.028 | 7.360   | -4.500  | 1898.876 | -10.700 | 2.910   |  |
| 108. | 3689.240                          | 5.060  | .680   | 2005.632 | 7.640   | -4.780  | 1892.425 | -11.000 | 2.920   |  |
| 109. | 3695.036                          | 5.220  | .790   | 2010.416 | 7.910   | -5.020  | 1885.804 | -11.450 | 2.910   |  |
| 110. | 3701.010                          | 5.360  | .910   | 2015.373 | 8.150   | -5.250  | 1879.059 | -11.730 | 2.860   |  |
| 111. | 3707.145                          | 5.480  | 1.040  | 2020.404 | 8.370   | -5.460  | 1872.204 | -11.920 | 2.610   |  |
| 112. | 3713.425                          | 5.590  | 1.170  | 2025.735 | 8.560   | -5.630  | 1865.273 | -12.070 | 2.730   |  |
| 113. | 3719.834                          | 5.690  | 1.320  | 2031.124 | 8.730   | -5.780  | 1858.295 | -12.180 | 2.810   |  |
| 114. | 3726.356                          | 5.770  | 1.470  | 2036.524 | 8.880   | -5.930  | 1851.301 | -12.210 | 2.470   |  |
| 115. | 3732.977                          | 5.840  | 1.630  | 2042.227 | 9.010   | -6.070  | 1844.319 | -12.210 | 2.310   |  |
| 116. | 3739.660                          | 5.900  | 1.800  | 2047.917 | 9.110   | -6.200  | 1837.376 | -12.160 | 2.110   |  |
| 117. | 3746.453                          | 5.940  | 1.980  | 2053.680 | 9.160   | -6.320  | 1830.506 | -12.060 | 1.890   |  |
| 118. | 3753.260                          | 5.970  | 2.170  | 2059.502 | 9.246   | -6.440  | 1823.733 | -11.910 | 1.690   |  |
| 119. | 3760.148                          | 5.990  | 2.370  | 2065.368 | 9.270   | -6.530  | 1817.066 | -11.710 | 1.360   |  |
| 120. | 3767.044                          | 6.000  | 2.570  | 2071.263 | 9.260   | -6.600  | 1810.591 | -11.470 | 1.000   |  |
| 121. | 3773.956                          | 6.000  | 2.780  | 2077.172 | 9.260   | -6.650  | 1804.275 | -11.170 | .730    |  |
| 122. | 3780.873                          | 5.960  | 3.000  | 2083.051 | 9.220   | -6.680  | 1798.164 | -10.820 | .570    |  |
| 123. | 3787.761                          | 5.960  | 3.230  | 2088.974 | 9.160   | -6.690  | 1792.282 | -10.430 | -0.010  |  |
| 124. | 3794.672                          | 5.930  | 3.460  | 2094.837 | 9.080   | -6.680  | 1786.653 | -9.990  | -0.410  |  |
| 125. | 3801.534                          | 5.890  | 3.700  | 2100.656 | 8.960   | -6.650  | 1781.300 | -9.510  | -0.870  |  |
| 126. | 3808.359                          | 5.840  | 3.940  | 2106.415 | 8.850   | -6.600  | 1776.243 | -8.980  | -1.290  |  |
| 127. | 3815.136                          | 5.790  | 4.190  | 2112.100 | 8.700   | -6.540  | 1771.504 | -8.420  | -1.770  |  |
| 128. | 3821.857                          | 5.730  | 4.450  | 2117.697 | 8.540   | -6.460  | 1767.101 | -7.810  | -2.240  |  |
| 129. | 3828.515                          | 5.660  | 4.710  | 2123.192 | 8.350   | -6.350  | 1763.053 | -7.160  | -2.740  |  |
| 130. | 3835.102                          | 5.590  | 4.970  | 2128.571 | 8.140   | -6.220  | 1759.375 | -6.460  | -3.250  |  |
| 131. | 3841.610                          | 5.510  | 5.240  | 2133.820 | 7.920   | -6.080  | 1756.082 | -5.770  | -3.790  |  |
| 132. | 3848.034                          | 5.430  | 5.510  | 2138.927 | 7.680   | -5.940  | 1753.189 | -5.020  | -4.340  |  |
| 133. | 3854.366                          | 5.340  | 5.790  | 2143.877 | 7.410   | -5.790  | 1750.707 | -4.250  | -4.890  |  |
| 134. | 3860.605                          | 5.250  | 6.070  | 2148.660 | 7.130   | -5.640  | 1748.647 | -3.460  | -5.470  |  |
| 135. | 3866.741                          | 5.150  | 6.350  | 2153.282 | 6.840   | -5.480  | 1747.017 | -2.650  | -6.010  |  |
| 136. | 3872.771                          | 5.050  | 6.630  | 2157.671 | 6.530   | -5.310  | 1745.824 | -1.830  | -6.570  |  |
| 137. | 3878.691                          | 4.950  | 6.920  | 2161.877 | 6.200   | -5.140  | 1745.076 | -0.990  | -7.130  |  |
| 138. | 3884.496                          | 4.850  | 7.200  | 2165.867 | 5.860   | -4.960  | 1744.774 | -0.140  | -7.690  |  |
| 139. | 3890.184                          | 4.740  | 7.490  | 2169.632 | 5.500   | -4.780  | 1744.923 | 0.700   | -8.230  |  |
| 140. | 3895.751                          | 4.630  | 7.780  | 2173.161 | 5.140   | -4.600  | 1745.522 | 1.550   | -8.770  |  |
| 141. | 3901.195                          | 4.520  | 8.070  | 2176.446 | 4.750   | -4.420  | 1746.572 | 2.350   | -9.300  |  |
| 142. | 3906.512                          | 4.410  | 8.360  | 2179.476 | 4.360   | -4.240  | 1748.066 | 3.230   | -9.820  |  |
| 143. | 3911.701                          | 4.290  | 8.640  | 2182.244 | 3.960   | -4.060  | 1750.009 | 4.070   | -10.310 |  |
| 144. | 3916.759                          | 4.160  | 8.930  | 2184.742 | 3.540   | -3.880  | 1752.367 | 4.850   | -10.790 |  |
| 145. | 3921.685                          | 4.060  | 9.210  | 2186.963 | 3.120   | -3.700  | 1755.195 | 5.630   | -11.250 |  |
| 146. | 3926.477                          | 3.940  | 9.490  | 2188.900 | 2.690   | -3.520  | 1758.426 | 6.390   | -11.680 |  |
| 147. | 3931.134                          | 3.830  | 9.770  | 2190.547 | 2.250   | -3.340  | 1762.070 | 7.130   | -12.090 |  |
| 148. | 3935.654                          | 3.710  | 10.050 | 2191.899 | 1.800   | -3.150  | 1766.114 | 7.830   | -12.480 |  |
| 149. | 3940.036                          | 3.590  | 10.320 | 2192.953 | 1.350   | -2.970  | 1770.546 | 8.510   | -12.810 |  |

X-PLANE (YZ-PLANE) LEAD MOLYBDATE

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13  | SSRVEL   | SSPH12 | SSPH13  |
|------|----------|--------|--------|----------|--------|---------|----------|--------|---------|
| 150. | 3944.283 | 3.470  | 10.590 | 2193.704 | .500   | -24.300 | 1775.352 | 9.443  | -13.120 |
| 151. | 3948.390 | 3.350  | 10.650 | 2194.151 | .440   | -24.860 | 1780.516 | 9.750  | -13.400 |
| 152. | 3952.357 | 3.230  | 11.110 | 2194.290 | -.020  | -25.460 | 1786.023 | 10.310 | -13.650 |
| 153. | 3956.185 | 3.120  | 11.360 | 2194.122 | -.460  | -26.050 | 1791.654 | 10.840 | -13.900 |
| 154. | 3959.873 | 3.000  | 11.610 | 2193.646 | -.940  | -26.650 | 1797.990 | 11.320 | -14.150 |
| 155. | 3963.521 | 2.860  | 11.850 | 2192.864 | -1.400 | -27.250 | 1804.410 | 11.760 | -14.400 |
| 156. | 3966.829 | 2.760  | 12.090 | 2191.779 | -1.850 | -27.860 | 1811.035 | 12.160 | -14.650 |
| 157. | 3970.096 | 2.640  | 12.320 | 2190.393 | -2.300 | -28.480 | 1816.021 | 12.510 | -14.900 |
| 158. | 3973.223 | 2.520  | 12.540 | 2188.712 | -2.740 | -29.100 | 1820.184 | 12.810 | -15.150 |
| 159. | 3976.210 | 2.410  | 12.750 | 2186.743 | -3.170 | -29.740 | 1823.590 | 13.070 | -15.400 |
| 160. | 3979.056 | 2.250  | 12.960 | 2184.493 | -3.580 | -30.390 | 1840.003 | 13.270 | -15.650 |
| 161. | 3981.763 | 2.170  | 13.160 | 2181.973 | -3.950 | -31.050 | 1847.644 | 13.430 | -15.900 |
| 162. | 3984.329 | 2.060  | 13.350 | 2179.154 | -4.370 | -31.720 | 1855.344 | 13.530 | -16.150 |
| 163. | 3986.755 | 1.940  | 13.530 | 2176.172 | -4.720 | -32.410 | 1863.233 | 13.590 | -16.400 |
| 164. | 3989.042 | 1.820  | 13.700 | 2172.922 | -5.060 | -33.120 | 1871.057 | 13.570 | -16.650 |
| 165. | 3991.189 | 1.710  | 13.870 | 2169.465 | -5.380 | -33.840 | 1878.981 | 13.560 | -16.900 |
| 166. | 3993.196 | 1.590  | 14.020 | 2165.825 | -5.620 | -34.560 | 1886.635 | 13.370 | -17.150 |
| 167. | 3995.065 | 1.460  | 14.160 | 2162.030 | -5.840 | -35.340 | 1894.610 | 13.160 | -17.400 |
| 168. | 3996.794 | 1.360  | 14.300 | 2158.112 | -6.010 | -36.120 | 1902.284 | 12.890 | -17.650 |
| 169. | 3998.364 | 1.250  | 14.420 | 2154.110 | -6.120 | -36.920 | 1909.782 | 12.510 | -17.900 |
| 170. | 3999.836 | 1.130  | 14.540 | 2150.068 | -6.150 | -37.740 | 1917.056 | 12.000 | -18.150 |
| 171. | 4001.146 | 1.020  | 14.640 | 2146.041 | -6.100 | -38.560 | 1924.040 | 11.460 | -18.400 |
| 172. | 4002.323 | .910   | 14.730 | 2142.066 | -5.940 | -39.350 | 1930.666 | 10.790 | -18.650 |
| 173. | 4003.359 | .790   | 14.820 | 2138.261 | -5.670 | -40.210 | 1936.852 | 9.960  | -18.900 |
| 174. | 4004.256 | .680   | 14.890 | 2134.700 | -5.270 | -41.010 | 1942.511 | 8.990  | -19.150 |
| 175. | 4005.015 | .570   | 14.950 | 2131.434 | -4.730 | -41.760 | 1947.549 | 7.860  | -19.400 |
| 176. | 4005.636 | .450   | 15.000 | 2128.577 | -4.030 | -42.450 | 1951.961 | 6.560  | -19.650 |
| 177. | 4006.120 | .340   | 15.040 | 2126.221 | -3.190 | -43.020 | 1955.731 | 5.100  | -19.900 |
| 178. | 4006.464 | .230   | 15.070 | 2124.468 | -2.210 | -43.470 | 1957.923 | 3.490  | -20.150 |
| 179. | 4006.671 | .110   | 15.080 | 2123.381 | -1.130 | -43.740 | 1959.500 | 1.760  | -20.400 |
| 180. | 4006.740 | -0.000 | 15.090 | 2123.012 | 0.000  | -43.840 | 1960.032 | -0.600 | -20.650 |

Z-PLANE (XY-PLANE) LEAD MOLYBDATE

|     | LWCVEL   | LQY112  | LQY113 | FSRWEL   | FSPH12  | FSPH13 | SSRWEL   | SSPH12 | SSPH13 |
|-----|----------|---------|--------|----------|---------|--------|----------|--------|--------|
| 0.  | 4006.740 | 15.090  | 0.010  | 2123.012 | -43.840 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 1.  | 4025.607 | 15.030  | 0.000  | 2087.018 | -44.970 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 2.  | 4044.473 | 14.900  | 0.000  | 2050.296 | -45.900 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 3.  | 4063.329 | 14.700  | 0.000  | 2012.992 | -46.900 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 4.  | 4081.511 | 14.450  | 0.000  | 1975.266 | -47.720 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 5.  | 4099.807 | 14.140  | 0.000  | 1937.198 | -48.450 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 6.  | 4117.667 | 13.790  | 0.000  | 1898.983 | -49.000 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 7.  | 4135.079 | 13.400  | 0.000  | 1860.714 | -49.540 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 8.  | 4152.021 | 12.980  | 0.000  | 1822.501 | -50.100 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 9.  | 4168.449 | 12.520  | 0.000  | 1784.707 | -50.451 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 10. | 4184.310 | 12.070  | 0.000  | 1747.199 | -50.710 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 11. | 4199.551 | 11.520  | 0.000  | 1710.217 | -50.854 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 12. | 4214.185 | 10.980  | 0.000  | 1673.098 | -50.880 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 13. | 4228.068 | 10.420  | 0.000  | 1636.420 | -50.770 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 14. | 4241.301 | 9.850   | 0.000  | 1600.307 | -50.510 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 15. | 4253.775 | 9.250   | 0.000  | 1565.226 | -50.080 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 16. | 4265.485 | 8.650   | 0.000  | 1531.478 | -49.450 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 17. | 4276.409 | 8.000   | 0.000  | 1500.007 | -48.600 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 18. | 4286.526 | 7.300   | 0.000  | 1471.794 | -47.470 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 19. | 4295.820 | 6.750   | 0.000  | 1451.570 | -46.040 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 20. | 4304.273 | 6.100   | 0.000  | 1426.719 | -44.220 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 21. | 4311.877 | 5.440   | 0.000  | 1403.178 | -41.970 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 22. | 4318.504 | 4.770   | 0.000  | 1382.319 | -39.190 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 23. | 4324.459 | 4.100   | 0.000  | 1363.493 | -35.790 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 24. | 4329.427 | 3.420   | 0.000  | 1346.079 | -31.600 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 25. | 4333.501 | 2.740   | 0.000  | 1330.885 | -26.800 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 26. | 4336.575 | 2.060   | 0.000  | 1324.539 | -21.090 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 27. | 4338.643 | 1.370   | 0.000  | 1317.049 | -14.540 | 0.000  | 1960.032 | 0.000  | 0.000  |
| 28. | 4340.703 | 0.680   | 0.000  | 1312.501 | -7.440  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 29. | 4340.752 | -0.000  | 0.000  | 1311.114 | 0.000   | 0.000  | 1960.032 | 0.000  | 0.000  |
| 30. | 4340.290 | -0.590  | 0.000  | 1312.543 | 7.540   | 0.000  | 1960.032 | 0.000  | 0.000  |
| 31. | 4338.918 | -1.370  | 0.000  | 1317.172 | 14.670  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 32. | 4336.537 | -2.070  | 0.000  | 1324.653 | 21.160  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 33. | 4333.451 | -2.750  | 0.000  | 1335.049 | 26.870  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 34. | 4329.364 | -3.430  | 0.000  | 1348.241 | 31.750  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 35. | 4324.344 | -4.110  | 0.000  | 1364.132 | 35.840  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 36. | 4318.517 | -4.780  | 0.000  | 1382.593 | 39.230  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 37. | 4311.772 | -5.450  | 0.000  | 1403.485 | 42.000  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 38. | 4304.162 | -6.110  | 0.000  | 1426.655 | 44.250  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 39. | 4295.695 | -6.740  | 0.000  | 1451.945 | 46.060  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 40. | 4286.391 | -7.400  | 0.000  | 1478.149 | 47.490  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 41. | 4276.262 | -8.030  | 0.000  | 1506.222 | 48.510  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 42. | 4265.327 | -8.650  | 0.000  | 1536.875 | 49.160  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 43. | 4253.505 | -9.260  | 0.000  | 1570.947 | 50.000  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 44. | 4241.122 | -9.850  | 0.000  | 1606.379 | 50.520  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 45. | 4227.900 | -10.430 | 0.000  | 1653.907 | 50.770  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 46. | 4213.955 | -10.990 | 0.000  | 1674.807 | 50.880  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 47. | 4199.353 | -11.520 | 0.000  | 1710.726 | 50.850  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 48. | 4184.093 | -12.040 | 0.000  | 1747.717 | 50.710  | 0.000  | 1960.032 | 0.000  | 0.000  |
| 49. | 4168.225 | -12.520 | 0.000  | 1785.232 | 50.450  | 0.000  | 1960.032 | 0.000  | 0.000  |

Z-PLANE (XY-PLANE) LEAD MOLYBDATE

| LNLEVEL | LPHI12   | LPHI13 | FSPH12   | FSPH13 | SSPH12   | SSPH13 |
|---------|----------|--------|----------|--------|----------|--------|
| 50.     | 4151.789 | 0.000  | 1823.129 | 0.000  | 1850.032 | 0.000  |
| 51.     | 4138.931 | 0.070  | 1851.269 | 0.000  | 1850.032 | 0.000  |
| 52.     | 4117.402 | 0.070  | 1894.515 | 0.000  | 1850.032 | 0.000  |
| 53.     | 4099.556 | 0.030  | 1937.720 | 0.000  | 1850.032 | 0.000  |
| 54.     | 4081.356 | 0.010  | 1975.773 | 0.000  | 1850.032 | 0.000  |
| 55.     | 4062.870 | 0.000  | 2013.514 | 0.000  | 1850.032 | 0.000  |
| 56.     | 4044.172 | 0.000  | 2050.811 | 0.000  | 1850.032 | 0.000  |
| 57.     | 4025.164 | 0.000  | 2087.523 | 0.000  | 1850.032 | 0.000  |
| 58.     | 4006.679 | 0.000  | 2123.507 | 0.000  | 1850.032 | 0.000  |
| 59.     | 3987.674 | 0.000  | 2158.613 | 0.000  | 1850.032 | 0.000  |
| 60.     | 3969.040 | 0.000  | 2192.866 | 0.000  | 1850.032 | 0.000  |
| 61.     | 3950.636 | 0.000  | 2225.557 | 0.000  | 1850.032 | 0.000  |
| 62.     | 3932.472 | 0.000  | 2257.090 | 0.000  | 1850.032 | 0.000  |
| 63.     | 3915.409 | 0.000  | 2287.079 | 0.000  | 1850.032 | 0.000  |
| 64.     | 3898.454 | 0.000  | 2315.357 | 0.000  | 1850.032 | 0.000  |
| 65.     | 3882.666 | 0.000  | 2341.716 | 0.000  | 1850.032 | 0.000  |
| 66.     | 3867.011 | 0.000  | 2366.823 | 0.000  | 1850.032 | 0.000  |
| 67.     | 3851.458 | 0.000  | 2390.945 | 0.000  | 1850.032 | 0.000  |
| 68.     | 3836.077 | 0.000  | 2414.440 | 0.000  | 1850.032 | 0.000  |
| 69.     | 3820.841 | 0.000  | 2436.501 | 0.000  | 1850.032 | 0.000  |
| 70.     | 3805.712 | 0.000  | 2457.592 | 0.000  | 1850.032 | 0.000  |
| 71.     | 3790.651 | 0.000  | 2477.753 | 0.000  | 1850.032 | 0.000  |
| 72.     | 3775.691 | 0.000  | 2497.425 | 0.000  | 1850.032 | 0.000  |
| 73.     | 3760.851 | 0.000  | 2516.574 | 0.000  | 1850.032 | 0.000  |
| 74.     | 3746.111 | 0.000  | 2535.253 | 0.000  | 1850.032 | 0.000  |
| 75.     | 3731.456 | 0.000  | 2553.559 | 0.000  | 1850.032 | 0.000  |
| 76.     | 3716.859 | 0.000  | 2571.564 | 0.000  | 1850.032 | 0.000  |
| 77.     | 3702.294 | 0.000  | 2589.254 | 0.000  | 1850.032 | 0.000  |
| 78.     | 3687.754 | 0.000  | 2606.594 | 0.000  | 1850.032 | 0.000  |
| 79.     | 3673.214 | 0.000  | 2623.546 | 0.000  | 1850.032 | 0.000  |
| 80.     | 3658.654 | 0.000  | 2640.064 | 0.000  | 1850.032 | 0.000  |
| 81.     | 3644.054 | 0.000  | 2656.204 | 0.000  | 1850.032 | 0.000  |
| 82.     | 3629.394 | 0.000  | 2671.924 | 0.000  | 1850.032 | 0.000  |
| 83.     | 3614.654 | 0.000  | 2687.284 | 0.000  | 1850.032 | 0.000  |
| 84.     | 3599.814 | 0.000  | 2702.244 | 0.000  | 1850.032 | 0.000  |
| 85.     | 3584.854 | 0.000  | 2716.764 | 0.000  | 1850.032 | 0.000  |
| 86.     | 3569.754 | 0.000  | 2730.804 | 0.000  | 1850.032 | 0.000  |
| 87.     | 3554.494 | 0.000  | 2744.324 | 0.000  | 1850.032 | 0.000  |
| 88.     | 3539.054 | 0.000  | 2757.384 | 0.000  | 1850.032 | 0.000  |
| 89.     | 3523.414 | 0.000  | 2770.044 | 0.000  | 1850.032 | 0.000  |
| 90.     | 3507.554 | 0.000  | 2782.264 | 0.000  | 1850.032 | 0.000  |
| 91.     | 3491.454 | 0.000  | 2794.004 | 0.000  | 1850.032 | 0.000  |
| 92.     | 3475.094 | 0.000  | 2805.324 | 0.000  | 1850.032 | 0.000  |
| 93.     | 3458.454 | 0.000  | 2816.284 | 0.000  | 1850.032 | 0.000  |
| 94.     | 3441.514 | 0.000  | 2826.844 | 0.000  | 1850.032 | 0.000  |
| 95.     | 3424.254 | 0.000  | 2836.964 | 0.000  | 1850.032 | 0.000  |
| 96.     | 3406.654 | 0.000  | 2846.604 | 0.000  | 1850.032 | 0.000  |
| 97.     | 3388.694 | 0.000  | 2855.824 | 0.000  | 1850.032 | 0.000  |
| 98.     | 3370.354 | 0.000  | 2864.584 | 0.000  | 1850.032 | 0.000  |
| 99.     | 3351.614 | 0.000  | 2872.944 | 0.000  | 1850.032 | 0.000  |
| 99.     | 3332.454 | 0.000  | 2880.864 | 0.000  | 1850.032 | 0.000  |

Z-PLANE (XY-PLANE) LEAD MOLYBDATE

|      | LNGVEL   | LPHI12  | LPHI13 | FSRVFL   | FSPHI12 | FSPHI13 | SSPWFL   | SSPHI12 | SSPHI13 |
|------|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 4184.310 | 12.030  | 0.000  | 1747.199 | -59.710 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 101. | 4199.561 | 11.524  | 0.000  | 1710.217 | -50.850 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 102. | 4214.155 | 10.984  | 0.000  | 1673.904 | -50.889 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 103. | 4228.088 | 10.420  | 0.000  | 1638.420 | -50.770 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 104. | 4241.301 | 9.850   | 0.000  | 1603.907 | -50.510 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 105. | 4254.774 | 9.250   | 0.000  | 1570.526 | -50.080 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 106. | 4268.485 | 8.650   | 0.000  | 1538.434 | -49.450 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 107. | 4282.409 | 8.030   | 0.000  | 1507.407 | -48.600 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 108. | 4296.525 | 7.390   | 0.000  | 1477.474 | -47.470 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 109. | 4295.420 | 6.750   | 0.000  | 1451.590 | -46.040 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 110. | 4304.273 | 6.100   | 0.000  | 1426.714 | -44.220 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 111. | 4311.872 | 5.460   | 0.000  | 1403.174 | -41.970 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 112. | 4318.504 | 4.770   | 0.000  | 1382.319 | -39.190 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 113. | 4324.459 | 4.100   | 0.000  | 1363.493 | -35.790 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 114. | 4329.427 | 3.420   | 0.000  | 1346.439 | -31.690 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 115. | 4333.501 | 2.740   | 0.000  | 1334.885 | -26.400 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 116. | 4336.675 | 2.060   | 0.000  | 1324.539 | -21.080 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 117. | 4338.943 | 1.370   | 0.000  | 1317.089 | -14.540 | 0.000   | 1060.032 | 0.000   | 0.000   |
| 118. | 4340.307 | 0.680   | 0.000  | 1312.601 | -7.440  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 119. | 4340.752 | -0.000  | 0.000  | 1311.114 | 0.050   | 0.000   | 1060.032 | 0.000   | 0.000   |
| 120. | 4340.290 | -0.690  | 0.000  | 1312.643 | 7.450   | 0.000   | 1060.032 | 0.000   | 0.000   |
| 121. | 4338.914 | -1.380  | 0.000  | 1317.172 | 14.670  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 122. | 4336.537 | -2.070  | 0.000  | 1324.663 | 21.160  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 123. | 4333.161 | -2.750  | 0.000  | 1335.049 | 26.870  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 124. | 4328.786 | -3.430  | 0.000  | 1348.261 | 31.760  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 125. | 4323.411 | -4.110  | 0.000  | 1364.132 | 35.840  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 126. | 4318.037 | -4.780  | 0.000  | 1382.593 | 39.230  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 127. | 4311.772 | -5.450  | 0.000  | 1403.445 | 42.000  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 128. | 4304.512 | -6.110  | 0.000  | 1426.655 | 44.250  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 129. | 4295.256 | -6.760  | 0.000  | 1451.945 | 45.060  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 130. | 4285.001 | -7.400  | 0.000  | 1479.149 | 47.430  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 131. | 4272.742 | -8.030  | 0.000  | 1508.222 | 48.510  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 132. | 4259.487 | -8.650  | 0.000  | 1538.875 | 49.460  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 133. | 4251.232 | -9.260  | 0.000  | 1570.992 | 50.090  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 134. | 4241.122 | -9.850  | 0.000  | 1604.379 | 50.520  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 135. | 4227.900 | -10.430 | 0.000  | 1638.907 | 50.770  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 136. | 4211.656 | -10.990 | 0.000  | 1674.407 | 50.880  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 137. | 4199.353 | -11.520 | 0.000  | 1710.726 | 50.950  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 138. | 4186.037 | -12.040 | 0.000  | 1747.717 | 50.710  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 139. | 4168.225 | -12.520 | 0.000  | 1785.232 | 50.450  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 140. | 4151.782 | -12.980 | 0.000  | 1823.129 | 50.090  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 141. | 4134.831 | -13.410 | 0.000  | 1861.269 | 49.630  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 142. | 4117.402 | -13.800 | 0.000  | 1899.515 | 49.080  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 143. | 4099.555 | -14.150 | 0.000  | 1937.774 | 48.440  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 144. | 4081.356 | -14.450 | 0.000  | 1975.777 | 47.710  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 145. | 4062.870 | -14.700 | 0.000  | 2013.514 | 46.890  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 146. | 4044.172 | -14.900 | 0.000  | 2050.811 | 45.970  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 147. | 4025.344 | -15.030 | 0.000  | 2087.593 | 44.950  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 148. | 4006.479 | -15.090 | 0.000  | 2123.507 | 43.820  | 0.000   | 1060.032 | 0.000   | 0.000   |
| 149. | 3987.674 | -15.070 | 0.000  | 2158.613 | 42.580  | 0.000   | 1060.032 | 0.000   | 0.000   |



Z-PLANE (YY-PLANE) LEAD MOLYBDATE

|      | LNGVEL   | LPHI12  | LPHI13 | FSPJFL   | FSPM12  | FSPM13 | SSPJFL   | SSPM12 | SSPM13 |
|------|----------|---------|--------|----------|---------|--------|----------|--------|--------|
| 150. | 1969.840 | -14.960 | 0.000  | 2192.686 | 43.200  | 0.000  | 1969.832 | 0.000  | 0.000  |
| 151. | 1990.596 | -14.750 | 0.000  | 2225.567 | 38.500  | 0.000  | 1990.872 | 0.000  | 0.000  |
| 152. | 1932.772 | -14.430 | 0.000  | 2257.090 | 36.010  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 153. | 1915.808 | -14.000 | 0.000  | 2287.079 | 36.150  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 154. | 1998.753 | -13.430 | 0.000  | 2315.357 | 31.100  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 155. | 1982.966 | -12.720 | 0.000  | 2341.736 | 31.030  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 156. | 1959.211 | -11.960 | 0.000  | 2366.029 | 29.310  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 157. | 1954.558 | -10.950 | 0.000  | 2388.045 | 26.500  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 158. | 1982.877 | -9.580  | 0.000  | 2407.596 | 23.600  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 159. | 1931.833 | -8.360  | 0.000  | 2424.501 | 20.150  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 160. | 1922.841 | -6.890  | 0.000  | 2438.502 | 16.530  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 161. | 1915.762 | -5.200  | 0.000  | 2449.717 | 12.660  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 162. | 1910.591 | -3.580  | 0.000  | 2457.753 | 8.560   | 0.000  | 1969.812 | 0.000  | 0.000  |
| 163. | 1907.457 | -1.900  | 0.000  | 2462.604 | 4.310   | 0.000  | 1969.832 | 0.000  | 0.000  |
| 164. | 1906.416 | 0.000   | 0.000  | 2464.213 | -0.000  | 0.000  | 1969.832 | 0.000  | 0.000  |
| 165. | 1907.886 | 1.430   | 0.000  | 2462.559 | -4.370  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 166. | 1810.649 | 1.630   | 0.000  | 2457.563 | -8.620  | 0.000  | 1969.812 | 0.000  | 0.000  |
| 167. | 1915.847 | 5.310   | 0.000  | 2449.544 | -12.710 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 168. | 1922.994 | 9.090   | 0.000  | 2438.416 | -16.580 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 169. | 1931.970 | 12.730  | 0.000  | 2424.295 | -20.200 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 170. | 1942.676 | 17.070  | 0.000  | 2407.342 | -23.530 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 171. | 1954.838 | 11.330  | 0.000  | 2387.756 | -26.540 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 172. | 1969.409 | 11.330  | 0.000  | 2365.707 | -29.320 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 173. | 1983.178 | 12.730  | 0.000  | 2341.346 | -31.860 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 174. | 1993.979 | 13.440  | 0.000  | 2318.976 | -34.130 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 175. | 1915.645 | 14.000  | 0.000  | 2286.674 | -36.180 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 176. | 1933.019 | 14.540  | 0.000  | 2256.662 | -38.030 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 177. | 1950.949 | 14.760  | 0.000  | 2225.120 | -39.710 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 178. | 1969.297 | 14.960  | 0.000  | 2192.221 | -41.220 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 179. | 1987.934 | 15.070  | 0.000  | 2158.131 | -42.500 | 0.000  | 1969.812 | 0.000  | 0.000  |
| 180. | 4006.740 | 15.040  | 0.000  | 2123.012 | -43.840 | 0.000  | 1969.812 | 0.000  | 0.000  |

Z-PLANE (XY-PLANE) LEAD SULPHIDE

|     | LMGWEL   | LPHI12  | LPHI13 | FSRWEL   | FSPH12  | FSPH13 | SSRWEL   | SSPH12 | SSPH13 |
|-----|----------|---------|--------|----------|---------|--------|----------|--------|--------|
| 0.  | 4066.120 | 0.000   | 0.000  | 1751.190 | 0.000   | 0.000  | 1751.190 | 0.000  | 0.000  |
| 1.  | 4065.771 | -0.560  | 0.000  | 1752.001 | 3.030   | 0.000  | 1751.190 | -0.000 | 0.000  |
| 2.  | 4064.724 | -1.130  | 0.000  | 1754.429 | 6.030   | 0.000  | 1751.190 | 0.000  | 0.000  |
| 3.  | 4062.980 | -1.650  | 0.000  | 1756.463 | 8.940   | 0.000  | 1751.190 | 0.000  | 0.000  |
| 4.  | 4060.544 | -2.250  | 0.000  | 1758.081 | 11.750  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 5.  | 4057.420 | -2.600  | 0.000  | 1771.256 | 14.410  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 6.  | 4053.613 | -3.350  | 0.000  | 1779.951 | 16.910  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 7.  | 4049.130 | -3.900  | 0.000  | 1790.124 | 19.230  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 8.  | 4043.982 | -4.440  | 0.000  | 1801.725 | 21.360  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 9.  | 4038.176 | -4.970  | 0.000  | 1814.694 | 23.300  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 10. | 4031.726 | -5.450  | 0.000  | 1828.984 | 25.050  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 11. | 4024.645 | -6.010  | 0.000  | 1844.515 | 26.610  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 12. | 4016.947 | -6.510  | 0.000  | 1861.220 | 27.990  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 13. | 4008.649 | -7.060  | 0.000  | 1879.025 | 29.200  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 14. | 3999.769 | -7.460  | 0.000  | 1897.853 | 30.240  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 15. | 3990.329 | -7.940  | 0.000  | 1917.622 | 31.130  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 16. | 3980.351 | -8.380  | 0.000  | 1938.246 | 31.860  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 17. | 3969.860 | -8.810  | 0.000  | 1959.645 | 32.460  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 18. | 3958.884 | -9.210  | 0.000  | 1981.726 | 32.920  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 19. | 3947.453 | -9.600  | 0.000  | 2004.395 | 33.250  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 20. | 3935.599 | -9.950  | 0.000  | 2027.575 | 33.470  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 21. | 3923.360 | -10.280 | 0.000  | 2051.158 | 33.570  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 22. | 3910.774 | -10.580 | 0.000  | 2075.054 | 33.550  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 23. | 3897.884 | -10.840 | 0.000  | 2099.166 | 33.430  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 24. | 3884.730 | -11.060 | 0.000  | 2123.396 | 33.200  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 25. | 3871.366 | -11.250 | 0.000  | 2147.643 | 32.870  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 26. | 3857.884 | -11.360 | 0.000  | 2171.804 | 32.430  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 27. | 3844.291 | -11.470 | 0.000  | 2195.774 | 31.860  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 28. | 3830.673 | -11.500 | 0.000  | 2219.446 | 31.230  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 29. | 3817.101 | -11.480 | 0.000  | 2242.704 | 30.660  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 30. | 3803.648 | -11.380 | 0.000  | 2265.450 | 29.960  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 31. | 3790.396 | -11.220 | 0.000  | 2287.552 | 29.070  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 32. | 3777.432 | -10.940 | 0.000  | 2308.897 | 27.940  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 33. | 3764.846 | -10.660 | 0.000  | 2329.364 | 26.480  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 34. | 3752.733 | -10.250 | 0.000  | 2348.828 | 24.780  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 35. | 3741.194 | -9.750  | 0.000  | 2367.195 | 23.230  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 36. | 3730.330 | -9.110  | 0.000  | 2384.246 | 21.530  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 37. | 3720.245 | -8.460  | 0.000  | 2399.953 | 19.670  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 38. | 3711.043 | -7.670  | 0.000  | 2414.159 | 17.660  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 39. | 3702.823 | -6.790  | 0.000  | 2426.747 | 15.500  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 40. | 3695.681 | -5.820  | 0.000  | 2437.610 | 13.100  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 41. | 3689.704 | -4.780  | 0.000  | 2446.647 | 10.730  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 42. | 3684.970 | -3.640  | 0.000  | 2453.772 | 8.160   | 0.000  | 1751.190 | 0.000  | 0.000  |
| 43. | 3681.541 | -2.460  | 0.000  | 2458.914 | 5.500   | 0.000  | 1751.190 | 0.000  | 0.000  |
| 44. | 3679.464 | -1.240  | 0.000  | 2462.021 | 2.770   | 0.000  | 1751.190 | 0.000  | 0.000  |
| 45. | 3678.766 | 0.000   | 0.000  | 2463.060 | -0.000  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 46. | 3679.464 | 1.240   | 0.000  | 2462.021 | -2.770  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 47. | 3681.541 | 2.460   | 0.000  | 2458.914 | -5.500  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 48. | 3684.970 | 3.640   | 0.000  | 2453.772 | -8.160  | 0.000  | 1751.190 | 0.000  | 0.000  |
| 49. | 3689.704 | 4.760   | 0.000  | 2446.647 | -10.730 | 0.000  | 1751.190 | 0.000  | 0.000  |

BULK

Z-PLANE (XY-PLANE) LEAD SULPHIDE

|     | LPHI12   | LPHI13 | FSRWEL   | FSPHI12 | FSPHI13 | SSRWEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 5.820    | 0.000  | 2437.610 | -13.186 | 0.000   | 1751.190 | -0.600  | 0.000   |
| 51. | 6.790    | 0.000  | 2426.747 | -15.506 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 52. | 7.670    | 0.000  | 2414.159 | -17.660 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 53. | 8.460    | 0.000  | 2399.953 | -19.670 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 54. | 9.150    | 0.000  | 2384.246 | -21.530 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 55. | 9.750    | 0.000  | 2367.165 | -23.230 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 56. | 10.250   | 0.000  | 2346.828 | -24.780 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 57. | 10.680   | 0.000  | 2329.364 | -26.180 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 58. | 10.950   | 0.000  | 2308.697 | -27.440 | 0.000   | 1751.190 | -0.000  | 0.000   |
| 59. | 11.220   | 0.000  | 2287.552 | -28.570 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 60. | 11.380   | 0.000  | 2265.450 | -29.580 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 61. | 11.480   | 0.000  | 2242.705 | -30.460 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 62. | 11.560   | 0.000  | 2219.446 | -31.230 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 63. | 11.470   | 0.000  | 2195.774 | -31.680 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 64. | 11.360   | 0.000  | 2171.804 | -32.430 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 65. | 11.250   | 0.000  | 2147.643 | -32.670 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 66. | 11.060   | 0.000  | 2123.396 | -33.200 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 67. | 10.640   | 0.000  | 2099.166 | -33.430 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 68. | 3910.774 | 0.000  | 2075.054 | -33.550 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 69. | 3923.360 | 0.000  | 2051.158 | -33.570 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 70. | 3935.599 | 0.000  | 2027.575 | -33.470 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 71. | 3947.453 | 0.000  | 2004.399 | -33.250 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 72. | 3958.884 | 0.000  | 1981.726 | -32.520 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 73. | 3969.860 | 0.000  | 1959.645 | -32.460 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 74. | 3980.351 | 0.000  | 1936.246 | -31.860 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 75. | 3990.325 | 0.000  | 1917.622 | -31.130 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 76. | 3999.769 | 0.000  | 1897.853 | -30.240 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 77. | 4008.649 | 0.000  | 1879.825 | -29.200 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 78. | 4016.947 | 0.000  | 1861.820 | -27.990 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 79. | 4024.645 | 0.000  | 1844.515 | -26.610 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 80. | 4031.726 | 0.000  | 1826.984 | -25.050 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 81. | 4038.176 | 0.000  | 1814.699 | -23.300 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 82. | 4043.982 | 0.000  | 1801.725 | -21.380 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 83. | 4049.130 | 0.000  | 1790.124 | -19.230 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 84. | 4053.613 | 0.000  | 1779.951 | -16.910 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 85. | 4057.420 | 0.000  | 1771.256 | -14.410 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 86. | 4060.544 | 0.000  | 1764.081 | -11.750 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 87. | 4062.980 | 0.000  | 1758.463 | -6.946  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 88. | 4064.724 | 0.000  | 1754.429 | -6.030  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 89. | 4065.771 | 0.000  | 1752.001 | 0.000   | 0.000   | 1751.190 | 0.000   | 0.000   |
| 90. | 4066.120 | 0.000  | 1751.190 | 0.000   | 0.000   | 1751.190 | 0.000   | 0.000   |
| 91. | 4065.771 | 0.000  | 1752.001 | 3.030   | 0.000   | 1751.190 | -0.600  | 0.000   |
| 92. | 4064.724 | 0.000  | 1754.429 | 6.030   | 0.000   | 1751.190 | 0.000   | 0.000   |
| 93. | 4062.980 | 0.000  | 1758.463 | 6.940   | 0.000   | 1751.190 | 0.000   | 0.000   |
| 94. | 4060.544 | 0.000  | 1764.081 | 11.750  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 95. | 4057.420 | 0.000  | 1771.256 | 14.410  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 96. | 4053.613 | 0.000  | 1779.951 | 16.910  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 97. | 4049.130 | 0.000  | 1790.124 | 19.230  | 0.000   | 1751.190 | -0.000  | 0.000   |
| 98. | 4043.982 | 0.000  | 1801.725 | 21.360  | 0.000   | 1751.190 | -0.000  | 0.000   |
| 99. | 4038.176 | 0.000  | 1814.699 | 23.300  | 0.000   | 1751.190 | 0.000   | 0.000   |

BULK

Z-PLANE (XY-PLANE) LEAD SULPHIDE

BULK

|      | LANGVEL  | LPHI12  | LPHI13 | FSRWEL   | FSPMI12 | FSPMI13 | SSKVEL   | SSPMI12 | SSPMI13 |
|------|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 4031.726 | -5.490  | 0.000  | 1828.984 | 25.050  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 101. | 4024.645 | -6.010  | 0.000  | 1844.515 | 26.610  | 0.000   | 1751.190 | -0.000  | 0.000   |
| 102. | 4016.947 | -6.510  | 0.000  | 1861.220 | 27.950  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 103. | 4008.649 | -7.000  | 0.000  | 1879.025 | 29.200  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 104. | 3999.769 | -7.480  | 0.000  | 1897.853 | 30.240  | 0.000   | 1751.190 | -0.000  | 0.000   |
| 105. | 3990.329 | -7.940  | 0.000  | 1917.622 | 31.130  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 106. | 3980.351 | -8.380  | 0.000  | 1938.246 | 31.860  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 107. | 3969.860 | -8.810  | 0.000  | 1959.645 | 32.460  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 108. | 3958.884 | -9.210  | 0.000  | 1981.726 | 32.920  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 109. | 3947.453 | -9.640  | 0.000  | 2004.399 | 33.250  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 110. | 3935.555 | -10.000 | 0.000  | 2027.575 | 33.470  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 111. | 3923.360 | -10.260 | 0.000  | 2051.156 | 33.570  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 112. | 3910.774 | -10.560 | 0.000  | 2075.054 | 33.550  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 113. | 3897.884 | -10.840 | 0.000  | 2099.166 | 33.430  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 114. | 3884.736 | -11.060 | 0.000  | 2123.396 | 33.200  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 115. | 3871.366 | -11.250 | 0.000  | 2147.643 | 32.870  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 116. | 3857.884 | -11.360 | 0.000  | 2171.804 | 32.430  | 0.000   | 1751.190 | -0.000  | 0.000   |
| 117. | 3844.291 | -11.470 | 0.000  | 2195.774 | 31.880  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 118. | 3830.673 | -11.500 | 0.000  | 2219.446 | 31.230  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 119. | 3817.101 | -11.480 | 0.000  | 2242.709 | 30.460  | 0.000   | 1751.190 | -0.000  | 0.000   |
| 120. | 3803.648 | -11.360 | 0.000  | 2265.450 | 29.560  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 121. | 3790.396 | -11.220 | 0.000  | 2287.552 | 28.570  | 0.000   | 1751.190 | -0.000  | 0.000   |
| 122. | 3777.432 | -10.980 | 0.000  | 2308.897 | 27.440  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 123. | 3764.846 | -10.660 | 0.000  | 2329.364 | 26.160  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 124. | 3752.733 | -10.250 | 0.000  | 2348.826 | 24.760  | 0.000   | 1751.190 | -0.000  | 0.000   |
| 125. | 3741.194 | -9.750  | 0.000  | 2367.185 | 23.230  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 126. | 3730.330 | -9.150  | 0.000  | 2384.248 | 21.530  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 127. | 3720.245 | -8.460  | 0.000  | 2399.953 | 19.670  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 128. | 3711.043 | -7.670  | 0.000  | 2414.159 | 17.660  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 129. | 3702.823 | -6.750  | 0.000  | 2426.747 | 15.500  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 130. | 3695.681 | -5.620  | 0.000  | 2437.610 | 13.180  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 131. | 3689.704 | -4.760  | 0.000  | 2446.647 | 10.730  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 132. | 3684.970 | -3.640  | 0.000  | 2453.772 | 8.160   | 0.000   | 1751.190 | 0.000   | 0.000   |
| 133. | 3681.541 | -2.460  | 0.000  | 2458.914 | 5.500   | 0.000   | 1751.190 | 0.000   | 0.000   |
| 134. | 3679.464 | -1.240  | 0.000  | 2462.021 | 2.770   | 0.000   | 1751.190 | 0.000   | 0.000   |
| 135. | 3678.768 | 0.000   | 0.000  | 2463.060 | -0.000  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 136. | 3679.464 | 1.240   | 0.000  | 2462.021 | -2.770  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 137. | 3681.541 | 2.460   | 0.000  | 2458.914 | -5.560  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 138. | 3684.970 | 3.640   | 0.000  | 2453.772 | -8.160  | 0.000   | 1751.190 | 0.000   | 0.000   |
| 139. | 3689.704 | 4.760   | 0.000  | 2446.647 | -10.730 | 0.000   | 1751.190 | -0.000  | 0.000   |
| 140. | 3695.681 | 5.620   | 0.000  | 2437.610 | -13.160 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 141. | 3702.823 | 6.750   | 0.000  | 2426.747 | -15.500 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 142. | 3711.043 | 7.670   | 0.000  | 2414.159 | -17.660 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 143. | 3720.245 | 8.460   | 0.000  | 2399.953 | -19.670 | 0.000   | 1751.190 | -0.000  | 0.000   |
| 144. | 3730.330 | 9.150   | 0.000  | 2384.248 | -21.530 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 145. | 3741.194 | 9.750   | 0.000  | 2367.185 | -23.230 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 146. | 3752.733 | 10.250  | 0.000  | 2348.826 | -24.760 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 147. | 3764.846 | 10.660  | 0.000  | 2329.364 | -26.160 | 0.000   | 1751.190 | 0.000   | 0.000   |
| 148. | 3777.432 | 10.980  | 0.000  | 2308.897 | -27.440 | 0.000   | 1751.190 | -0.000  | 0.000   |
| 149. | 3790.396 | 11.220  | 0.000  | 2287.552 | -28.570 | 0.000   | 1751.190 | -0.000  | 0.000   |

| Z-PLANE (XY-PLANE) LEAD SULPHIDE |          | BULK   |          |         |         |          |         |         |
|----------------------------------|----------|--------|----------|---------|---------|----------|---------|---------|
| LNGVEL                           | LPHI12   | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
| 150.                             | 3803.646 | 11.360 | 2265.450 | 0.000   | -29.560 | 1751.190 | 0.000   | 0.000   |
| 151.                             | 3817.101 | 11.460 | 2242.709 | 0.000   | -31.460 | 1751.190 | 0.000   | 0.000   |
| 152.                             | 3830.673 | 11.500 | 2219.446 | 0.000   | -31.230 | 1751.190 | 0.000   | 0.000   |
| 153.                             | 3844.291 | 11.470 | 2195.774 | 0.000   | -31.680 | 1751.190 | 0.000   | 0.000   |
| 154.                             | 3857.884 | 11.300 | 2171.804 | 0.000   | -32.430 | 1751.190 | 0.000   | 0.000   |
| 155.                             | 3871.386 | 11.250 | 2147.643 | 0.000   | -32.870 | 1751.190 | 0.000   | 0.000   |
| 156.                             | 3884.738 | 11.060 | 2123.396 | 0.000   | -33.200 | 1751.190 | 0.000   | 0.000   |
| 157.                             | 3897.884 | 10.840 | 2099.166 | 0.000   | -33.430 | 1751.190 | 0.000   | 0.000   |
| 158.                             | 3910.774 | 10.560 | 2075.054 | 0.000   | -33.590 | 1751.190 | 0.000   | 0.000   |
| 159.                             | 3923.360 | 10.280 | 2051.158 | 0.000   | -33.570 | 1751.190 | 0.000   | 0.000   |
| 160.                             | 3935.999 | 9.990  | 2027.575 | 0.000   | -33.470 | 1751.190 | 0.000   | 0.000   |
| 161.                             | 3947.453 | 9.600  | 2004.399 | 0.000   | -33.250 | 1751.190 | 0.000   | 0.000   |
| 162.                             | 3958.884 | 9.210  | 1981.726 | 0.000   | -32.920 | 1751.190 | 0.000   | 0.000   |
| 163.                             | 3969.860 | 8.610  | 1959.645 | 0.000   | -32.460 | 1751.190 | 0.000   | 0.000   |
| 164.                             | 3980.351 | 8.360  | 1938.246 | 0.000   | -31.860 | 1751.190 | 0.000   | 0.000   |
| 165.                             | 3990.329 | 7.940  | 1917.622 | 0.000   | -31.130 | 1751.190 | 0.000   | 0.000   |
| 166.                             | 3999.769 | 7.480  | 1897.853 | 0.000   | -30.240 | 1751.190 | 0.000   | 0.000   |
| 167.                             | 4008.649 | 7.000  | 1879.025 | 0.000   | -29.200 | 1751.190 | 0.000   | 0.000   |
| 168.                             | 4016.947 | 6.510  | 1861.220 | 0.000   | -27.990 | 1751.190 | 0.000   | 0.000   |
| 169.                             | 4024.645 | 6.010  | 1844.512 | 0.000   | -26.610 | 1751.190 | 0.000   | 0.000   |
| 170.                             | 4031.726 | 5.490  | 1828.984 | 0.000   | -25.050 | 1751.190 | 0.000   | 0.000   |
| 171.                             | 4038.176 | 4.970  | 1814.699 | 0.000   | -23.300 | 1751.190 | 0.000   | 0.000   |
| 172.                             | 4043.982 | 4.440  | 1801.725 | 0.000   | -21.360 | 1751.190 | 0.000   | 0.000   |
| 173.                             | 4049.130 | 3.900  | 1790.124 | 0.000   | -19.230 | 1751.190 | 0.000   | 0.000   |
| 174.                             | 4053.613 | 3.350  | 1779.951 | 0.000   | -16.910 | 1751.190 | 0.000   | 0.000   |
| 175.                             | 4057.420 | 2.805  | 1771.256 | 0.000   | -14.410 | 1751.190 | 0.000   | 0.000   |
| 176.                             | 4060.544 | 2.250  | 1764.061 | 0.000   | -11.750 | 1751.190 | 0.000   | 0.000   |
| 177.                             | 4062.940 | 1.690  | 1758.463 | 0.000   | -8.940  | 1751.190 | 0.000   | 0.000   |
| 178.                             | 4064.724 | 1.130  | 1754.429 | 0.000   | -6.030  | 1751.190 | 0.000   | 0.000   |
| 179.                             | 4065.771 | 0.560  | 1752.001 | 0.000   | -3.030  | 1751.190 | 0.000   | 0.000   |
| 180.                             | 4066.120 | -0.000 | 1751.190 | 0.000   | 0.000   | 1751.190 | 0.000   | 0.000   |

111-PLANE LEAD SULPHIDE

|     | LNGVEL   | LPHI12 | LPHI13  | FSRVEL   | FSPHI12 | FSPHI13 | SSRWEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 0.  | 3678.768 | 0.000  | 0.000   | 2863.060 | -0.000  | 0.000   | 1751.190 | -0.000  | 0.000   |
| 1.  | 3678.058 | 0.160  | -1.760  | 2862.590 | -1.250  | 1.070   | 1751.002 | 1.770   | 1.250   |
| 2.  | 3679.127 | 0.320  | -1.930  | 2861.181 | -2.500  | 2.140   | 1753.075 | 3.520   | 2.450   |
| 3.  | 3679.573 | 0.470  | -2.280  | 2858.840 | -3.740  | 3.200   | 1755.425 | 5.250   | 3.720   |
| 4.  | 3680.188 | 0.620  | -3.020  | 2855.577 | -4.500  | 4.250   | 1750.731 | 6.550   | 4.550   |
| 5.  | 3680.965 | 0.760  | -3.750  | 2851.404 | -5.160  | 5.280   | 1762.890 | 8.580   | 6.110   |
| 6.  | 3681.894 | 0.890  | -4.460  | 2846.341 | -7.340  | 6.250   | 1767.775 | 10.150  | 7.260   |
| 7.  | 3682.965 | 1.010  | -5.150  | 2840.406 | -8.450  | 7.220   | 1773.935 | 11.600  | 8.370   |
| 8.  | 3684.162 | 1.120  | -5.820  | 2833.631 | -9.610  | 8.240   | 1781.746 | 13.050  | 9.430   |
| 9.  | 3685.472 | 1.210  | -6.470  | 2826.030 | -10.650 | 9.170   | 1788.380 | 14.440  | 10.420  |
| 10. | 3686.879 | 1.290  | -7.090  | 2817.660 | -11.730 | 10.070  | 1796.005 | 15.690  | 11.420  |
| 11. | 3688.366 | 1.350  | -7.660  | 2808.534 | -12.720 | 10.940  | 1805.906 | 16.820  | 12.330  |
| 12. | 3689.916 | 1.400  | -8.240  | 2798.696 | -13.660 | 11.770  | 1815.605 | 17.810  | 13.150  |
| 13. | 3691.510 | 1.430  | -8.770  | 2788.194 | -14.550 | 12.570  | 1826.457 | 18.670  | 13.890  |
| 14. | 3693.131 | 1.450  | -9.270  | 2777.070 | -15.390 | 13.330  | 1837.856 | 19.420  | 14.740  |
| 15. | 3694.766 | 1.450  | -9.740  | 2765.376 | -16.180 | 14.050  | 1849.435 | 20.470  | 15.420  |
| 16. | 3696.380 | 1.430  | -10.180 | 2753.167 | -16.860 | 14.730  | 1861.732 | 21.100  | 16.020  |
| 17. | 3697.974 | 1.400  | -10.560 | 2740.505 | -17.460 | 15.360  | 1874.402 | 21.610  | 16.520  |
| 18. | 3699.523 | 1.350  | -10.960 | 2727.460 | -18.020 | 15.990  | 1887.024 | 21.990  | 17.120  |
| 19. | 3701.013 | 1.290  | -11.300 | 2714.110 | -18.450 | 16.560  | 1891.069 | 22.240  | 17.570  |
| 20. | 3702.427 | 1.220  | -11.610 | 2700.545 | -18.750 | 17.100  | 1914.726 | 22.330  | 17.900  |
| 21. | 3703.752 | 1.130  | -11.890 | 2686.884 | -18.910 | 17.600  | 1920.404 | 22.240  | 18.300  |
| 22. | 3704.974 | 1.030  | -12.140 | 2673.249 | -18.600 | 18.160  | 1928.207 | 21.940  | 18.580  |
| 23. | 3706.082 | 0.930  | -12.360 | 2659.814 | -18.590 | 18.450  | 1955.726 | 21.360  | 18.600  |
| 24. | 3707.064 | 0.810  | -12.550 | 2646.752 | -17.960 | 18.680  | 1960.624 | 20.830  | 18.970  |
| 25. | 3707.912 | 0.690  | -12.710 | 2634.464 | -18.520 | 19.230  | 1981.215 | 19.630  | 19.000  |
| 26. | 3708.616 | 0.560  | -12.840 | 2623.200 | -18.260 | 19.810  | 1992.540 | 17.600  | 19.180  |
| 27. | 3709.171 | 0.420  | -12.940 | 2613.472 | -17.800 | 20.020  | 2003.906 | 17.000  | 19.190  |
| 28. | 3709.571 | 0.260  | -13.010 | 2605.853 | -9.360  | 20.210  | 2002.313 | 14.160  | 19.130  |
| 29. | 3709.812 | 0.140  | -13.050 | 2600.946 | -5.010  | 20.160  | 2014.091 | 10.320  | 19.150  |
| 30. | 3709.893 | 0.000  | -13.070 | 2599.246 | -0.000  | 20.210  | 2014.091 | 5.450   | 19.150  |
| 31. | 3709.812 | -0.140 | -13.050 | 2600.946 | 5.010   | 20.160  | 2014.091 | -0.000  | 19.150  |
| 32. | 3709.571 | -0.260 | -13.010 | 2605.853 | 9.360   | 20.020  | 2003.906 | -7.490  | 19.180  |
| 33. | 3709.171 | -0.420 | -12.940 | 2613.472 | 12.800  | 19.810  | 2002.313 | -10.320 | 19.150  |
| 34. | 3708.616 | -0.560 | -12.840 | 2623.200 | 15.260  | 19.680  | 1992.540 | -14.160 | 19.130  |
| 35. | 3707.912 | -0.690 | -12.710 | 2634.464 | 16.920  | 19.550  | 1981.215 | -17.000 | 19.150  |
| 36. | 3707.064 | -0.810 | -12.550 | 2646.752 | 17.980  | 19.230  | 1960.624 | -19.030 | 19.090  |
| 37. | 3706.082 | -0.930 | -12.360 | 2659.814 | 18.590  | 18.680  | 1955.726 | -20.430 | 18.970  |
| 38. | 3704.974 | -1.030 | -12.140 | 2673.249 | 18.600  | 18.160  | 1928.207 | -21.360 | 18.600  |
| 39. | 3703.752 | -1.130 | -11.890 | 2686.884 | 18.910  | 17.600  | 1920.404 | -21.940 | 18.580  |
| 40. | 3702.427 | -1.220 | -11.610 | 2700.545 | 18.750  | 17.100  | 1914.726 | -22.240 | 18.300  |
| 41. | 3701.013 | -1.290 | -11.300 | 2714.110 | 18.450  | 16.560  | 1905.906 | -22.330 | 18.000  |
| 42. | 3699.523 | -1.350 | -10.960 | 2727.460 | 18.020  | 15.990  | 1891.069 | -22.240 | 17.570  |
| 43. | 3697.974 | -1.400 | -10.560 | 2740.505 | 17.460  | 15.360  | 1874.402 | -21.990 | 17.120  |
| 44. | 3696.380 | -1.430 | -10.180 | 2753.167 | 16.860  | 14.730  | 1861.732 | -21.610 | 16.620  |
| 45. | 3694.766 | -1.450 | -9.740  | 2765.376 | 16.180  | 14.050  | 1849.435 | -21.100 | 16.020  |
| 46. | 3693.131 | -1.450 | -9.270  | 2777.070 | 15.390  | 13.330  | 1837.856 | -20.470 | 15.420  |
| 47. | 3691.510 | -1.430 | -8.770  | 2788.194 | 14.550  | 12.570  | 1826.457 | -19.420 | 14.740  |
| 48. | 3689.916 | -1.400 | -8.240  | 2798.696 | 13.660  | 11.770  | 1815.605 | -18.670 | 14.000  |
| 49. | 3688.366 | -1.350 | -7.660  | 2808.534 | 12.720  | 10.940  | 1805.906 | -17.910 | 13.190  |
|     |          |        |         |          |         |         |          |         | 12.330  |

111-PLANE LEAD SULPHIDE

|     | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 3606.079 | -1.290 | -7.090 | 2417.660 | 11.730  | 10.070  | 1796.805 | -15.690 | 10.070  |
| 51. | 3685.472 | -1.210 | -6.870 | 2426.036 | 10.690  | 9.170   | 1766.380 | -14.440 | 9.170   |
| 52. | 3684.162 | -1.120 | -5.620 | 2433.631 | 9.610   | 8.240   | 1780.746 | -13.090 | 8.240   |
| 53. | 3682.965 | -1.010 | -5.150 | 2440.408 | 8.490   | 7.280   | 1773.935 | -11.660 | 7.280   |
| 54. | 3681.894 | -0.900 | -4.460 | 2446.341 | 7.340   | 6.290   | 1767.975 | -10.150 | 6.290   |
| 55. | 3680.965 | -0.760 | -3.750 | 2451.404 | 6.160   | 5.260   | 1762.090 | -8.500  | 5.260   |
| 56. | 3680.168 | -0.620 | -3.020 | 2455.577 | 4.960   | 4.250   | 1756.701 | -6.540  | 4.250   |
| 57. | 3679.573 | -0.470 | -2.260 | 2458.840 | 3.740   | 3.200   | 1751.425 | -5.250  | 3.200   |
| 58. | 3679.127 | -0.320 | -1.530 | 2461.181 | 2.500   | 2.140   | 1746.701 | -3.520  | 2.140   |
| 59. | 3678.858 | -0.160 | -0.760 | 2462.590 | 1.250   | 1.070   | 1742.690 | -1.770  | 1.070   |
| 60. | 3678.766 | -0.000 | 0.000  | 2463.060 | 0.000   | 0.000   | 1739.190 | 0.000   | 0.000   |
| 61. | 3678.856 | 0.160  | 0.760  | 2462.590 | -1.250  | -1.070  | 1735.602 | 1.770   | -1.070  |
| 62. | 3679.127 | 0.320  | 1.530  | 2461.182 | -2.500  | -2.140  | 1733.075 | 3.520   | -2.140  |
| 63. | 3679.572 | 0.470  | 2.260  | 2458.840 | -3.740  | -3.200  | 1731.425 | 5.250   | -3.200  |
| 64. | 3680.168 | 0.620  | 3.020  | 2455.577 | -4.960  | -4.250  | 1730.746 | 6.540   | -4.250  |
| 65. | 3680.965 | 0.760  | 3.750  | 2451.404 | -6.160  | -5.260  | 1730.360 | 7.720   | -5.260  |
| 66. | 3681.894 | 0.890  | 4.460  | 2446.341 | -7.340  | -6.290  | 1730.000 | 8.500   | -6.290  |
| 67. | 3682.965 | 1.010  | 5.150  | 2440.408 | -8.490  | -7.280  | 1730.335 | 9.430   | -7.280  |
| 68. | 3684.162 | 1.120  | 5.620  | 2433.631 | -9.610  | -8.240  | 1731.425 | 10.150  | -8.240  |
| 69. | 3685.472 | 1.210  | 6.070  | 2426.036 | -10.690 | -9.170  | 1733.075 | 10.690  | -9.170  |
| 70. | 3686.876 | 1.290  | 7.090  | 2417.660 | -11.730 | -10.070 | 1735.602 | 11.440  | -10.070 |
| 71. | 3688.366 | 1.350  | 7.680  | 2408.534 | -12.720 | -10.940 | 1739.190 | 12.240  | -10.940 |
| 72. | 3689.916 | 1.400  | 8.240  | 2398.696 | -13.660 | -10.540 | 1743.425 | 13.090  | -10.540 |
| 73. | 3691.510 | 1.430  | 8.770  | 2388.195 | -14.550 | -10.240 | 1748.246 | 14.000  | -10.240 |
| 74. | 3693.131 | 1.450  | 9.270  | 2377.070 | -15.390 | -10.000 | 1753.602 | 14.930  | -10.000 |
| 75. | 3694.760 | 1.450  | 9.740  | 2365.376 | -16.160 | -9.810  | 1759.425 | 15.870  | -9.810  |
| 76. | 3696.360 | 1.430  | 10.180 | 2353.167 | -16.860 | -9.660  | 1765.701 | 16.820  | -9.660  |
| 77. | 3697.973 | 1.400  | 10.580 | 2340.505 | -17.480 | -9.560  | 1772.425 | 17.780  | -9.560  |
| 78. | 3699.523 | 1.350  | 10.960 | 2327.460 | -18.020 | -9.500  | 1779.602 | 18.750  | -9.500  |
| 79. | 3701.013 | 1.290  | 11.300 | 2314.111 | -18.450 | -9.460  | 1787.246 | 19.720  | -9.460  |
| 80. | 3702.427 | 1.220  | 11.610 | 2300.549 | -18.750 | -9.430  | 1795.360 | 20.700  | -9.430  |
| 81. | 3703.752 | 1.130  | 11.890 | 2286.884 | -18.910 | -9.400  | 1803.935 | 21.680  | -9.400  |
| 82. | 3704.974 | 1.030  | 12.140 | 2273.250 | -18.980 | -9.360  | 1812.966 | 22.660  | -9.360  |
| 83. | 3706.082 | 0.930  | 12.360 | 2259.614 | -18.950 | -9.320  | 1822.425 | 23.640  | -9.320  |
| 84. | 3707.064 | 0.810  | 12.550 | 2246.792 | -18.820 | -9.280  | 1832.360 | 24.620  | -9.280  |
| 85. | 3707.911 | 0.690  | 12.710 | 2234.664 | -18.600 | -9.240  | 1842.726 | 25.600  | -9.240  |
| 86. | 3708.616 | 0.560  | 12.840 | 2223.200 | -18.260 | -9.190  | 1853.500 | 26.580  | -9.190  |
| 87. | 3709.171 | 0.420  | 12.940 | 2213.473 | -17.800 | -9.130  | 1864.726 | 27.560  | -9.130  |
| 88. | 3709.571 | 0.260  | 13.010 | 2205.053 | -17.240 | -9.060  | 1876.425 | 28.540  | -9.060  |
| 89. | 3709.812 | 0.140  | 13.050 | 2200.948 | -16.500 | -9.000  | 1888.602 | 29.520  | -9.000  |
| 90. | 3709.893 | 0.000  | 13.070 | 2199.248 | 0.000   | -8.940  | 1901.246 | 30.500  | -8.940  |
| 91. | 3709.812 | -0.140 | 13.050 | 2200.948 | 5.010   | -8.880  | 1914.425 | 31.480  | -8.880  |
| 92. | 3709.571 | -0.280 | 13.010 | 2205.053 | 9.360   | -8.810  | 1928.190 | 32.460  | -8.810  |
| 93. | 3709.171 | -0.420 | 12.940 | 2213.473 | 12.800  | -8.740  | 1942.425 | 33.440  | -8.740  |
| 94. | 3708.616 | -0.560 | 12.840 | 2223.200 | 15.260  | -8.660  | 1957.190 | 34.420  | -8.660  |
| 95. | 3707.911 | -0.690 | 12.710 | 2234.664 | 16.920  | -8.580  | 1972.425 | 35.400  | -8.580  |
| 96. | 3707.064 | -0.810 | 12.550 | 2246.792 | 17.980  | -8.500  | 1988.190 | 36.380  | -8.500  |
| 97. | 3706.082 | -0.930 | 12.360 | 2259.614 | 18.590  | -8.420  | 1994.425 | 37.360  | -8.420  |
| 98. | 3704.974 | -1.030 | 12.140 | 2273.250 | 18.860  | -8.340  | 1991.246 | 38.340  | -8.340  |
| 99. | 3703.752 | -1.130 | 11.890 | 2286.884 | 18.910  | -8.260  | 1988.602 | 39.320  | -8.260  |

111-PLANE LEAD SULPHIDE

|      | LMGVEL   | LMPI12 | LMPI13  | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 100. | 3702.627 | -1.220 | 11.610  | 2300.544 | 18.750  | -17.100 | 1414.726 | -22.330 | -17.900 |
| 101. | 3701.813 | -1.250 | 11.300  | 2314.111 | 18.450  | -16.560 | 1901.069 | -22.240 | -17.970 |
| 102. | 3699.523 | -1.350 | 10.960  | 2327.460 | 18.020  | -15.990 | 1687.624 | -21.590 | -17.120 |
| 103. | 3697.973 | -1.400 | 10.560  | 2340.505 | 17.460  | -15.360 | 1674.485 | -21.610 | -16.620 |
| 104. | 3696.360 | -1.430 | 10.160  | 2353.167 | 16.860  | -14.730 | 1661.732 | -21.100 | -16.000 |
| 105. | 3694.760 | -1.450 | 9.740   | 2365.376 | 16.160  | -14.050 | 1649.435 | -20.470 | -15.420 |
| 106. | 3693.131 | -1.450 | 9.270   | 2377.070 | 15.390  | -13.330 | 1637.658 | -19.720 | -14.740 |
| 107. | 3691.510 | -1.430 | 8.770   | 2388.195 | 14.550  | -12.570 | 1626.458 | -18.470 | -14.000 |
| 108. | 3689.916 | -1.400 | 8.240   | 2398.696 | 13.660  | -11.770 | 1615.865 | -17.910 | -13.150 |
| 109. | 3688.366 | -1.350 | 7.680   | 2408.534 | 12.720  | -10.940 | 1605.986 | -16.850 | -12.330 |
| 110. | 3686.875 | -1.290 | 7.090   | 2417.666 | 11.730  | -10.070 | 1596.805 | -15.690 | -11.420 |
| 111. | 3685.472 | -1.210 | 6.470   | 2426.036 | 10.690  | -9.170  | 1588.300 | -14.440 | -10.420 |
| 112. | 3684.162 | -1.120 | 5.820   | 2433.631 | 9.610   | -8.240  | 1580.746 | -13.090 | -9.440  |
| 113. | 3682.964 | -1.010 | 5.150   | 2440.405 | 8.490   | -7.260  | 1573.935 | -11.660 | -8.440  |
| 114. | 3681.894 | -0.850 | 4.460   | 2446.341 | 7.340   | -6.290  | 1567.975 | -10.150 | -7.200  |
| 115. | 3680.965 | -0.760 | 3.750   | 2451.404 | 6.160   | -5.260  | 1562.890 | -8.560  | -6.110  |
| 116. | 3680.188 | -0.620 | 3.020   | 2455.577 | 4.960   | -4.250  | 1558.701 | -6.930  | -5.030  |
| 117. | 3679.572 | -0.470 | 2.280   | 2458.840 | 3.740   | -3.200  | 1555.425 | -5.250  | -3.720  |
| 118. | 3679.127 | -0.320 | 1.530   | 2461.102 | 2.500   | -2.140  | 1553.075 | -3.520  | -2.490  |
| 119. | 3678.858 | -0.160 | 0.760   | 2462.590 | 1.250   | -1.070  | 1551.662 | -1.770  | -1.250  |
| 120. | 3678.764 | 0.000  | -0.000  | 2463.060 | -0.000  | 0.000   | 1551.190 | -0.000  | -0.000  |
| 121. | 3678.858 | .160   | -.760   | 2462.590 | 1.250   | 1.070   | 1551.662 | 1.770   | 1.250   |
| 122. | 3679.127 | .320   | -1.530  | 2461.102 | 2.500   | 2.140   | 1553.075 | 3.520   | 2.490   |
| 123. | 3679.572 | .470   | -2.280  | 2458.840 | 3.740   | 3.200   | 1555.425 | 5.250   | 3.720   |
| 124. | 3680.188 | .620   | -3.020  | 2455.577 | 4.960   | 4.250   | 1558.701 | 6.930   | 5.030   |
| 125. | 3680.965 | .760   | -3.750  | 2451.404 | 6.160   | 5.260   | 1562.890 | 8.560   | 6.110   |
| 126. | 3681.894 | .850   | -4.460  | 2446.341 | 7.340   | 6.290   | 1567.975 | 10.150  | 7.200   |
| 127. | 3682.964 | 1.010  | -5.150  | 2440.405 | 8.490   | 7.260   | 1573.935 | 11.660  | 8.340   |
| 128. | 3684.162 | 1.120  | -5.820  | 2433.631 | 9.610   | 8.240   | 1580.746 | 13.090  | 9.440   |
| 129. | 3685.472 | 1.210  | -6.470  | 2426.036 | 10.690  | 9.170   | 1588.300 | 14.440  | 10.420  |
| 130. | 3686.875 | 1.290  | -7.090  | 2417.666 | 11.730  | 10.070  | 1596.805 | 15.690  | 11.420  |
| 131. | 3688.366 | 1.350  | -7.680  | 2408.534 | 12.720  | 10.940  | 1605.986 | 16.850  | 12.330  |
| 132. | 3689.916 | 1.400  | -8.240  | 2398.698 | 13.660  | 11.770  | 1615.865 | 17.910  | 13.150  |
| 133. | 3691.510 | 1.430  | -8.770  | 2388.194 | 14.550  | 12.570  | 1626.457 | 18.870  | 14.000  |
| 134. | 3693.131 | 1.450  | -9.270  | 2377.070 | 15.390  | 13.330  | 1637.658 | 19.740  | 14.800  |
| 135. | 3694.760 | 1.450  | -9.740  | 2365.376 | 16.160  | 14.050  | 1649.435 | 20.470  | 15.420  |
| 136. | 3696.361 | 1.430  | -10.160 | 2353.167 | 16.860  | 14.730  | 1661.732 | 21.100  | 16.000  |
| 137. | 3697.974 | 1.400  | -10.560 | 2340.505 | 17.460  | 15.360  | 1674.485 | 21.610  | 16.620  |
| 138. | 3699.523 | 1.350  | -10.960 | 2327.460 | 18.020  | 15.990  | 1687.624 | 21.990  | 17.120  |
| 139. | 3701.013 | 1.290  | -11.300 | 2314.110 | 18.450  | 16.560  | 1701.069 | 22.240  | 17.570  |
| 140. | 3702.627 | 1.220  | -11.610 | 2300.544 | 18.750  | 17.100  | 1714.726 | 22.330  | 17.900  |
| 141. | 3703.752 | 1.130  | -11.890 | 2286.684 | 18.310  | 17.660  | 1728.464 | 22.240  | 18.300  |
| 142. | 3704.974 | 1.030  | -12.140 | 2273.249 | 18.660  | 18.060  | 1742.207 | 21.940  | 18.500  |
| 143. | 3706.082 | .930   | -12.360 | 2259.814 | 18.850  | 18.450  | 1755.726 | 21.360  | 18.600  |
| 144. | 3707.064 | .810   | -12.550 | 2246.792 | 18.990  | 18.660  | 1768.824 | 20.430  | 18.600  |
| 145. | 3707.912 | .650   | -12.710 | 2234.464 | 19.020  | 19.230  | 1781.219 | 19.030  | 18.500  |
| 146. | 3708.616 | .560   | -12.840 | 2223.200 | 19.260  | 19.550  | 1792.540 | 17.000  | 18.100  |
| 147. | 3709.171 | .420   | -12.940 | 2213.472 | 19.600  | 19.810  | 1802.313 | 14.160  | 17.100  |
| 148. | 3709.571 | .280   | -13.010 | 2205.853 | 19.880  | 20.020  | 1809.966 | 10.320  | 15.100  |
| 149. | 3709.812 | .140   | -13.050 | 2200.948 | 20.000  | 20.160  | 1814.991 | 5.490   | 13.100  |



111-PLANE LEAD SULPHIDE

|      | LNGVEL   | LPH112  | LPH113  | FSRWEL   | FSPH112 | FSPH113 | SSRWEL   | SSPH112 | SSPH113 |
|------|----------|---------|---------|----------|---------|---------|----------|---------|---------|
| 150. | 3709.893 | -0.000  | -13.070 | 2199.246 | 0.000   | 20.210  | 2016.598 | 0.000   | 19.100  |
| 151. | 3709.812 | -1.140  | -13.050 | 2200.948 | 5.010   | 20.160  | 2014.091 | -5.490  | 19.100  |
| 152. | 3709.571 | -2.260  | -13.010 | 2205.653 | 9.310   | 20.020  | 2009.986 | -10.320 | 19.100  |
| 153. | 3709.171 | -4.420  | -12.940 | 2213.472 | 12.600  | 19.810  | 2002.313 | -14.160 | 19.190  |
| 154. | 3708.616 | -6.560  | -12.840 | 2223.200 | 15.260  | 19.560  | 1992.840 | -17.600 | 19.800  |
| 155. | 3707.912 | -8.690  | -12.710 | 2234.464 | 18.920  | 19.230  | 1981.219 | -19.030 | 19.030  |
| 156. | 3707.064 | -10.810 | -12.550 | 2246.792 | 17.500  | 18.660  | 1968.054 | -20.430 | 18.970  |
| 157. | 3706.082 | -12.930 | -12.360 | 2259.814 | 18.550  | 18.450  | 1955.726 | -21.360 | 18.800  |
| 158. | 3704.974 | -15.030 | -12.140 | 2273.249 | 18.880  | 18.060  | 1942.207 | -21.940 | 18.580  |
| 159. | 3703.752 | -17.130 | -11.890 | 2286.884 | 18.910  | 17.600  | 1928.404 | -22.240 | 18.300  |
| 160. | 3702.427 | -19.220 | -11.610 | 2300.549 | 18.750  | 17.100  | 1914.726 | -22.330 | 17.900  |
| 161. | 3701.013 | -21.290 | -11.300 | 2314.110 | 18.450  | 16.560  | 1901.069 | -22.240 | 17.570  |
| 162. | 3699.523 | -23.350 | -10.960 | 2327.460 | 18.020  | 15.950  | 1887.624 | -21.990 | 17.120  |
| 163. | 3697.974 | -25.400 | -10.580 | 2340.505 | 17.480  | 15.360  | 1874.495 | -21.610 | 16.620  |
| 164. | 3696.380 | -27.430 | -10.160 | 2353.167 | 16.860  | 14.730  | 1861.732 | -21.100 | 16.050  |
| 165. | 3694.760 | -29.450 | -9.740  | 2365.376 | 16.160  | 14.050  | 1849.435 | -20.470 | 15.420  |
| 166. | 3693.131 | -31.450 | -9.270  | 2377.070 | 15.390  | 13.330  | 1837.650 | -19.720 | 14.740  |
| 167. | 3691.510 | -33.430 | -8.770  | 2388.194 | 14.550  | 12.570  | 1826.457 | -18.870 | 14.000  |
| 168. | 3689.916 | -35.390 | -8.240  | 2398.696 | 13.660  | 11.770  | 1815.805 | -17.910 | 13.150  |
| 169. | 3688.366 | -37.340 | -7.680  | 2408.534 | 12.720  | 10.940  | 1805.696 | -16.850 | 12.330  |
| 170. | 3686.875 | -39.280 | -7.090  | 2417.660 | 11.730  | 10.070  | 1795.805 | -15.690 | 11.420  |
| 171. | 3685.472 | -41.210 | -6.470  | 2426.036 | 10.690  | 9.170   | 1786.380 | -14.440 | 10.450  |
| 172. | 3684.162 | -43.120 | -5.820  | 2433.631 | 9.610   | 8.250   | 1780.746 | -13.090 | 9.430   |
| 173. | 3682.965 | -45.010 | -5.150  | 2440.406 | 8.470   | 7.260   | 1773.935 | -11.660 | 8.370   |
| 174. | 3681.894 | -46.890 | -4.460  | 2446.341 | 7.340   | 6.260   | 1767.975 | -10.150 | 7.220   |
| 175. | 3680.965 | -48.760 | -3.750  | 2451.404 | 6.160   | 5.260   | 1762.890 | -8.580  | 6.010   |
| 176. | 3680.188 | -50.620 | -3.020  | 2455.577 | 4.960   | 4.250   | 1758.701 | -6.940  | 4.930   |
| 177. | 3679.573 | -52.470 | -2.280  | 2458.840 | 3.740   | 3.200   | 1755.425 | -5.250  | 3.720   |
| 178. | 3679.127 | -54.320 | -1.530  | 2461.181 | 2.500   | 2.140   | 1753.075 | -3.520  | 2.450   |
| 179. | 3678.856 | -56.160 | -0.760  | 2462.590 | 1.250   | 1.070   | 1751.662 | -1.770  | 1.220   |
| 180. | 3678.768 | 0.000   | 0.000   | 2463.060 | -0.000  | -0.000  | 1751.190 | 0.000   | -0.000  |

110-PLANE LEAD SULPHIDE

BULK

|     | LNQVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 3540.245 | -0.000 | 0.000  | 2250.930 | -15.600 | 0.000   | 2250.921 | 15.600  | -0.000  |
| 1.  | 3540.685 | .830   | 0.000  | 2239.872 | -15.520 | -0.000  | 2261.230 | 13.733  | 0.000   |
| 2.  | 3542.051 | 1.700  | -0.000 | 2228.636 | -16.230 | -0.000  | 2270.182 | 11.773  | 0.000   |
| 3.  | 3544.368 | 2.600  | -0.000 | 2217.233 | -16.530 | -0.000  | 2277.715 | 9.730   | 0.000   |
| 4.  | 3547.666 | 3.510  | -0.000 | 2205.675 | -16.810 | 0.000   | 2283.745 | 7.620   | -0.000  |
| 5.  | 3551.966 | 4.430  | 0.000  | 2193.972 | -17.090 | -0.000  | 2288.376 | 5.460   | -0.000  |
| 6.  | 3557.275 | 5.350  | -0.000 | 2182.134 | -17.350 | -0.000  | 2291.447 | 3.300   | 0.000   |
| 7.  | 3563.584 | 6.240  | -0.000 | 2170.186 | -17.590 | 0.000   | 2292.996 | 1.130   | 0.000   |
| 8.  | 3570.878 | 7.110  | 0.000  | 2158.126 | -17.820 | 0.000   | 2293.031 | -1.030  | 0.000   |
| 9.  | 3575.130 | 7.950  | -0.000 | 2145.973 | -18.040 | -0.000  | 2291.071 | -3.120  | 0.000   |
| 10. | 3580.303 | 8.730  | -0.000 | 2133.734 | -18.230 | -0.000  | 2288.046 | -5.210  | 0.000   |
| 11. | 3598.352 | 9.460  | 0.000  | 2121.439 | -18.420 | -0.000  | 2288.299 | -7.210  | 0.000   |
| 12. | 3609.223 | 10.140 | 0.000  | 2109.087 | -18.560 | -0.000  | 2278.501 | -9.120  | 0.000   |
| 13. | 3620.855 | 10.740 | 0.000  | 2096.696 | -18.730 | -0.000  | 2271.550 | -10.540 | -0.000  |
| 14. | 3633.184 | 11.290 | -0.000 | 2084.281 | -18.850 | -0.000  | 2263.274 | -12.660 | 0.000   |
| 15. | 3646.142 | 11.760 | -0.000 | 2071.857 | -18.960 | -0.000  | 2253.824 | -14.280 | -0.000  |
| 16. | 3659.658 | 12.170 | -0.000 | 2059.440 | -19.050 | 0.000   | 2243.275 | -15.790 | 0.000   |
| 17. | 3673.655 | 12.510 | -0.000 | 2047.043 | -19.110 | -0.000  | 2231.705 | -17.190 | -0.000  |
| 18. | 3688.075 | 12.760 | -0.000 | 2034.684 | -19.150 | 0.000   | 2219.196 | -18.490 | 0.000   |
| 19. | 3702.834 | 12.990 | -0.000 | 2022.378 | -19.170 | -0.000  | 2205.827 | -19.660 | -0.000  |
| 20. | 3717.866 | 13.140 | -0.000 | 2010.142 | -19.170 | -0.000  | 2191.662 | -20.770 | 0.000   |
| 21. | 3733.104 | 13.230 | -0.000 | 1997.990 | -19.140 | -0.000  | 2176.041 | -21.760 | 0.000   |
| 22. | 3748.662 | 13.270 | -0.000 | 1985.941 | -19.080 | -0.000  | 2161.305 | -22.640 | 0.000   |
| 23. | 3763.935 | 13.260 | -0.000 | 1974.010 | -19.000 | -0.000  | 2145.394 | -23.440 | -0.000  |
| 24. | 3779.415 | 13.200 | -0.000 | 1962.214 | -18.900 | -0.000  | 2128.945 | -24.140 | 0.000   |
| 25. | 3794.852 | 13.090 | -0.000 | 1950.571 | -18.760 | -0.000  | 2112.117 | -24.750 | 0.000   |
| 26. | 3810.195 | 12.940 | -0.000 | 1939.097 | -18.590 | -0.000  | 2094.303 | -25.270 | 0.000   |
| 27. | 3825.403 | 12.760 | -0.000 | 1927.810 | -18.390 | -0.000  | 2077.614 | -25.700 | 0.000   |
| 28. | 3840.420 | 12.540 | -0.000 | 1916.727 | -18.160 | -0.000  | 2060.097 | -26.060 | 0.000   |
| 29. | 3855.202 | 12.280 | -0.000 | 1905.865 | -17.900 | -0.000  | 2042.469 | -26.310 | 0.000   |
| 30. | 3869.711 | 12.000 | -0.000 | 1895.241 | -17.610 | -0.000  | 2024.063 | -26.490 | 0.000   |
| 31. | 3883.905 | 11.650 | -0.000 | 1884.872 | -17.280 | -0.000  | 2007.286 | -26.560 | 0.000   |
| 32. | 3897.750 | 11.350 | -0.000 | 1874.775 | -16.920 | -0.000  | 1989.032 | -26.580 | 0.000   |
| 33. | 3911.212 | 10.990 | -0.000 | 1864.967 | -16.530 | 0.000   | 1972.599 | -26.490 | 0.000   |
| 34. | 3924.258 | 10.610 | -0.000 | 1855.464 | -16.100 | -0.000  | 1955.535 | -26.310 | 0.000   |
| 35. | 3936.860 | 10.210 | -0.000 | 1846.284 | -15.630 | -0.000  | 1938.023 | -26.040 | 0.000   |
| 36. | 3948.991 | 9.790  | -0.000 | 1837.441 | -15.130 | -0.000  | 1922.464 | -25.660 | 0.000   |
| 37. | 3960.626 | 9.350  | -0.000 | 1828.953 | -14.590 | -0.000  | 1906.579 | -25.210 | 0.000   |
| 38. | 3971.740 | 8.690  | -0.000 | 1820.833 | -14.010 | -0.000  | 1891.167 | -24.650 | 0.000   |
| 39. | 3982.314 | 8.430  | -0.000 | 1813.098 | -13.400 | -0.000  | 1876.304 | -23.960 | 0.000   |
| 40. | 3992.327 | 7.950  | -0.000 | 1805.761 | -12.750 | -0.000  | 1862.047 | -23.210 | 0.000   |
| 41. | 4001.761 | 7.450  | -0.000 | 1798.836 | -12.070 | -0.000  | 1848.450 | -22.330 | 0.000   |
| 42. | 4010.599 | 6.950  | -0.000 | 1792.337 | -11.350 | -0.000  | 1835.563 | -21.340 | 0.000   |
| 43. | 4018.826 | 6.440  | -0.000 | 1786.277 | -10.610 | -0.000  | 1823.437 | -20.230 | -0.000  |
| 44. | 4026.426 | 5.920  | -0.000 | 1780.666 | -9.820  | -0.000  | 1812.115 | -19.020 | 0.000   |
| 45. | 4033.392 | 5.390  | -0.000 | 1775.517 | -9.010  | -0.000  | 1801.653 | -17.690 | 0.000   |
| 46. | 4039.709 | 4.850  | -0.000 | 1770.839 | -8.170  | -0.000  | 1792.040 | -16.240 | 0.000   |
| 47. | 4045.366 | 4.310  | -0.000 | 1766.642 | -7.310  | -0.000  | 1783.430 | -14.700 | 0.000   |
| 48. | 4050.357 | 3.770  | -0.000 | 1762.935 | -6.420  | -0.000  | 1775.764 | -13.040 | 0.000   |
| 49. | 4054.672 | 3.220  | -0.000 | 1759.725 | -5.500  | -0.000  | 1769.067 | -11.300 | -0.000  |

110-PLANE LEAD SULPHIDE

|     | LPHI12   | LPHI13  | FSPVEL   | FSPH12 | FSPH13 | SSKVEL   | SSPH12 | SSPH13 |
|-----|----------|---------|----------|--------|--------|----------|--------|--------|
| 50. | 4050.306 | -0.000  | 1757.019 | -4.570 | -0.000 | 1263.433 | -9.480 | 0.000  |
| 51. | 4061.252 | 2.100   | 1754.823 | -3.626 | -0.000 | 1750.033 | -7.560 | 0.000  |
| 52. | 4063.507 | 1.540   | 1753.141 | -2.660 | -0.000 | 1750.296 | -5.560 | 0.000  |
| 53. | 4065.066 | 9.00    | 1751.976 | -1.700 | -0.000 | 1752.047 | -3.570 | 0.000  |
| 54. | 4065.931 | 4.20    | 1751.331 | -7.720 | -0.000 | 1751.488 | -1.520 | 0.000  |
| 55. | 4066.096 | -1.50   | 1751.228 | 2.260  | 0.000  | 1751.236 | 2.600  | 0.000  |
| 56. | 4065.562 | -7.10   | 1751.607 | 1.240  | 0.000  | 1752.064 | 4.640  | 0.000  |
| 57. | 4064.331 | -1.260  | 1752.526 | 2.210  | 0.000  | 1754.005 | 6.630  | 0.000  |
| 58. | 4062.483 | -1.640  | 1753.965 | 3.170  | 0.000  | 1757.030 | 8.570  | 0.000  |
| 59. | 4059.782 | -2.400  | 1755.919 | 4.130  | -0.000 | 1761.131 | 10.440 | 0.000  |
| 60. | 4056.472 | -2.950  | 1758.385 | 5.070  | 0.000  | 1766.290 | 12.230 | 0.000  |
| 61. | 4052.476 | -3.510  | 1761.350 | 5.950  | -0.000 | 1772.406 | 13.530 | 0.000  |
| 62. | 4047.606 | -4.060  | 1764.831 | 6.840  | 0.000  | 1779.093 | 15.530 | 0.000  |
| 63. | 4042.482 | -4.600  | 1768.798 | 7.770  | -0.000 | 1787.883 | 17.020 | 0.000  |
| 64. | 4036.455 | -5.140  | 1773.250 | 8.620  | 0.000  | 1797.320 | 18.400 | 0.000  |
| 65. | 4029.795 | -5.670  | 1778.176 | 9.440  | 0.000  | 1807.070 | 19.670 | 0.000  |
| 66. | 4022.492 | -6.140  | 1783.572 | 10.240 | 0.000  | 1817.592 | 20.830 | 0.000  |
| 67. | 4014.554 | -6.710  | 1789.421 | 11.010 | 0.000  | 1825.742 | 21.870 | 0.000  |
| 68. | 4006.007 | -7.220  | 1795.715 | 11.740 | 0.000  | 1842.276 | 22.810 | 0.000  |
| 69. | 3996.853 | -7.720  | 1802.440 | 12.440 | -0.000 | 1855.544 | 23.630 | 0.000  |
| 70. | 3987.111 | -8.200  | 1809.594 | 13.100 | -0.000 | 1869.596 | 24.350 | 0.000  |
| 71. | 3976.800 | -8.660  | 1817.133 | 13.730 | -0.000 | 1884.360 | 24.960 | 0.000  |
| 72. | 3965.936 | -9.140  | 1825.073 | 14.320 | -0.000 | 1899.240 | 25.470 | 0.000  |
| 73. | 3954.546 | -9.580  | 1833.390 | 14.860 | -0.000 | 1914.519 | 25.600 | 0.000  |
| 74. | 3942.646 | -10.010 | 1842.067 | 15.400 | 0.000  | 1931.061 | 26.200 | 0.000  |
| 75. | 3930.263 | -10.420 | 1851.090 | 15.860 | -0.000 | 1947.605 | 26.420 | 0.000  |
| 76. | 3917.423 | -10.810 | 1860.442 | 16.330 | -0.000 | 1964.489 | 26.550 | 0.000  |
| 77. | 3904.154 | -11.190 | 1870.108 | 16.740 | -0.000 | 1981.652 | 26.590 | 0.000  |
| 78. | 3890.466 | -11.530 | 1880.071 | 17.120 | 0.000  | 1999.030 | 26.540 | 0.000  |
| 79. | 3876.452 | -11.860 | 1890.314 | 17.460 | -0.000 | 2016.557 | 26.410 | 0.000  |
| 80. | 3862.087 | -12.150 | 1900.820 | 17.770 | -0.000 | 2034.107 | 26.190 | 0.000  |
| 81. | 3847.425 | -12.420 | 1911.572 | 18.050 | 0.000  | 2051.793 | 25.660 | 0.000  |
| 82. | 3832.517 | -12.660 | 1922.553 | 18.290 | -0.000 | 2069.364 | 25.490 | 0.000  |
| 83. | 3817.356 | -12.860 | 1933.746 | 18.500 | -0.000 | 2086.612 | 25.010 | 0.000  |
| 84. | 3802.110 | -13.030 | 1945.133 | 18.680 | -0.000 | 2104.063 | 24.440 | 0.000  |
| 85. | 3786.705 | -13.150 | 1956.659 | 18.830 | -0.000 | 2121.545 | 23.700 | 0.000  |
| 86. | 3771.245 | -13.230 | 1968.424 | 18.960 | -0.000 | 2137.602 | 23.030 | 0.000  |
| 87. | 3755.772 | -13.270 | 1980.293 | 19.050 | -0.000 | 2153.099 | 22.190 | 0.000  |
| 88. | 3740.349 | -13.260 | 1992.284 | 19.120 | -0.000 | 2169.618 | 21.250 | 0.000  |
| 89. | 3725.037 | -13.150 | 2004.394 | 19.160 | -0.000 | 2184.759 | 20.210 | 0.000  |
| 90. | 3709.899 | -13.070 | 2016.593 | 19.180 | -0.000 | 2199.243 | 19.070 | 0.000  |
| 91. | 3695.003 | -12.850 | 2028.866 | 19.170 | -0.000 | 2212.988 | 17.820 | 0.000  |
| 92. | 3680.416 | -12.640 | 2041.204 | 19.140 | -0.000 | 2225.913 | 16.470 | 0.000  |
| 93. | 3666.210 | -12.330 | 2053.585 | 19.060 | -0.000 | 2237.936 | 15.010 | 0.000  |
| 94. | 3652.456 | -11.960 | 2065.994 | 19.000 | -0.000 | 2248.977 | 13.440 | 0.000  |
| 95. | 3639.226 | -11.520 | 2078.417 | 18.910 | 0.000  | 2258.955 | 11.770 | 0.000  |
| 96. | 3626.552 | -11.010 | 2090.836 | 18.790 | -0.000 | 2267.935 | 9.590  | 0.000  |
| 97. | 3614.622 | -10.430 | 2103.242 | 18.650 | -0.000 | 2275.422 | 8.120  | 0.000  |
| 98. | 3603.384 | -9.750  | 2115.615 | 18.500 | -0.000 | 2281.767 | 6.120  | 0.000  |
| 99. | 3592.941 | -9.060  | 2127.941 | 18.320 | -0.000 | 2286.769 | 3.160  | 0.000  |

110-PLANE LEAD SULPHIDE

|      | LNGLVL   | LPMI12 | LPMI13 | FSPMVL   | FSPM12 | FSPM13 | SSRMVL   | SSPM12  | SSPM13 |
|------|----------|--------|--------|----------|--------|--------|----------|---------|--------|
| 108. | 3583.344 | -8.20  | 0.000  | 2140.208 | 19.130 | -0.000 | 2230.370 | 4.130   | 0.000  |
| 109. | 3574.855 | -7.310 | 0.000  | 2152.501 | 17.920 | -0.000 | 2292.526 | 2.030   | 0.000  |
| 109. | 3566.905 | -6.660 | 0.000  | 2164.506 | 17.700 | -0.000 | 2293.200 | -1.110  | 0.000  |
| 109. | 3560.129 | -5.770 | 0.000  | 2176.511 | 17.460 | -0.000 | 2292.368 | -2.260  | 0.000  |
| 109. | 3554.346 | -4.660 | 0.000  | 2186.403 | 17.210 | -0.000 | 2290.016 | -4.450  | 0.000  |
| 108. | 3545.572 | -3.940 | -0.000 | 2200.168 | 16.940 | -0.000 | 2286.146 | -6.610  | 0.000  |
| 108. | 3545.402 | -3.030 | 0.000  | 2211.796 | 16.660 | -0.000 | 2284.771 | -8.740  | 0.000  |
| 107. | 3543.023 | -2.120 | 0.000  | 2223.274 | 16.370 | -0.000 | 2273.919 | -10.810 | 0.000  |
| 108. | 3541.215 | -1.240 | 0.000  | 2234.590 | 16.070 | -0.000 | 2265.829 | -12.610 | 0.000  |
| 108. | 3540.343 | -0.350 | 0.000  | 2245.733 | 15.750 | -0.000 | 2255.952 | -14.730 | 0.000  |
| 110. | 3540.365 | .420   | -0.000 | 2256.693 | 15.420 | -0.000 | 2244.953 | -16.540 | -0.000 |
| 111. | 3541.233 | 1.100  | 0.000  | 2267.455 | 15.000 | 0.000  | 2232.704 | -18.250 | -0.000 |
| 112. | 3542.890 | 1.860  | 0.000  | 2278.020 | 14.730 | 0.000  | 2214.205 | -19.640 | -0.000 |
| 113. | 3545.275 | 2.620  | 0.000  | 2286.366 | 14.370 | 0.000  | 2204.764 | -21.310 | -0.000 |
| 114. | 3548.323 | 3.100  | 0.000  | 2290.466 | 14.010 | -0.000 | 2189.297 | -22.860 | -0.000 |
| 115. | 3551.969 | 3.620  | 0.000  | 2308.377 | 13.630 | -0.000 | 2172.920 | -23.690 | -0.000 |
| 115. | 3556.143 | 4.070  | 0.000  | 2318.024 | 13.240 | -0.000 | 2152.755 | -24.570 | -0.000 |
| 117. | 3560.779 | 4.460  | 0.000  | 2327.419 | 12.850 | 0.000  | 2137.905 | -25.550 | -0.000 |
| 118. | 3565.810 | 4.760  | 0.000  | 2336.555 | 12.450 | 0.000  | 2119.476 | -26.600 | -0.000 |
| 119. | 3571.170 | 5.050  | 0.000  | 2345.424 | 12.040 | 0.000  | 2101.572 | -27.530 | -0.000 |
| 120. | 3576.795 | 5.260  | 0.000  | 2354.017 | 11.630 | -0.000 | 2084.299 | -28.133 | -0.000 |
| 121. | 3582.627 | 5.400  | 0.000  | 2362.328 | 11.200 | -0.000 | 2067.761 | -28.620 | -0.000 |
| 122. | 3588.606 | 5.500  | -0.000 | 2370.344 | 10.760 | -0.000 | 2042.062 | -29.590 | -0.000 |
| 123. | 3594.679 | 5.550  | 0.000  | 2378.073 | 10.340 | -0.000 | 2022.335 | -29.230 | -0.000 |
| 124. | 3600.793 | 5.560  | 0.000  | 2385.445 | 9.900  | 0.000  | 2002.591 | -29.360 | -0.000 |
| 125. | 3606.901 | 5.530  | 0.000  | 2392.607 | 9.460  | 0.000  | 1983.010 | -29.360 | -0.000 |
| 126. | 3612.958 | 5.450  | 0.000  | 2399.405 | 9.010  | -0.000 | 1963.696 | -24.230 | -0.000 |
| 127. | 3618.921 | 5.340  | 0.000  | 2405.881 | 8.550  | -0.000 | 1944.688 | -26.590 | -0.000 |
| 128. | 3624.752 | 5.200  | 0.000  | 2412.032 | 8.090  | -0.000 | 1926.120 | -28.070 | -0.000 |
| 129. | 3630.416 | 5.020  | 0.000  | 2417.852 | 7.630  | -0.000 | 1908.072 | -27.400 | 0.000  |
| 130. | 3635.879 | 4.820  | 0.000  | 2423.337 | 7.160  | -0.000 | 1890.633 | -27.400 | 0.000  |
| 131. | 3641.111 | 4.590  | 0.000  | 2428.481 | 6.690  | 0.000  | 1873.889 | -26.590 | -0.000 |
| 132. | 3646.084 | 4.310  | 0.000  | 2433.282 | 6.220  | -0.000 | 1857.923 | -25.820 | -0.000 |
| 133. | 3650.774 | 4.040  | 0.000  | 2437.734 | 5.740  | -0.000 | 1842.815 | -24.490 | -0.000 |
| 134. | 3655.158 | 3.790  | 0.000  | 2441.836 | 5.260  | -0.000 | 1828.641 | -23.210 | -0.000 |
| 135. | 3659.215 | 3.460  | 0.000  | 2445.502 | 4.780  | -0.000 | 1815.473 | -21.790 | -0.000 |
| 136. | 3662.927 | 3.160  | -0.000 | 2448.972 | 4.290  | -0.000 | 1803.378 | -20.130 | 0.000  |
| 137. | 3666.277 | 2.830  | 0.000  | 2452.001 | 3.810  | 0.000  | 1792.420 | -18.340 | -0.000 |
| 138. | 3669.252 | 2.490  | 0.000  | 2454.667 | 3.320  | -0.000 | 1782.656 | -16.390 | -0.000 |
| 139. | 3671.840 | 2.140  | 0.000  | 2456.970 | 2.830  | 0.000  | 1774.136 | -14.200 | 0.000  |
| 140. | 3674.029 | 1.770  | -0.000 | 2458.905 | 2.340  | 0.000  | 1766.106 | -12.030 | -0.000 |
| 141. | 3675.811 | 1.410  | 0.000  | 2460.473 | 1.850  | -0.000 | 1758.009 | -9.640  | -0.000 |
| 142. | 3677.179 | 1.030  | 0.000  | 2461.672 | 1.350  | -0.000 | 1756.472 | -7.150  | -0.000 |
| 143. | 3678.127 | .660   | 0.000  | 2462.501 | .860   | -0.000 | 1753.321 | -4.500  | -0.000 |
| 144. | 3678.693 | .280   | 0.000  | 2462.960 | .360   | -0.000 | 1751.573 | -1.550  | -0.000 |
| 145. | 3678.793 | -.100  | 0.000  | 2463.047 | -.130  | 0.000  | 1751.239 | .700    | 0.000  |
| 146. | 3678.428 | -.480  | 0.000  | 2462.764 | -.620  | 0.000  | 1752.320 | 3.340   | 0.000  |
| 147. | 3677.679 | -.860  | 0.000  | 2462.110 | -1.120 | 0.000  | 1754.810 | 5.950   | 0.000  |
| 148. | 3676.506 | -1.230 | 0.000  | 2461.089 | -1.610 | -0.000 | 1756.696 | 8.460   | 0.000  |
| 149. | 3674.921 | -1.600 | 0.000  | 2459.691 | -2.110 | -0.000 | 1763.956 | 10.920  | 0.000  |

110-PLANE LEAD SULPHIDE

|      | LNGVEL   | LPMI12 | LPMI13 | FSPV12   | FSPV13 | FSPMI12 | FSPMI13 | SSRV12   | SSRV13 | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|--------|---------|---------|----------|--------|---------|---------|
| 150. | 3622.923 | -1.970 | 0.000  | 2457.929 | 0.000  | -2.600  | 0.000   | 1770.291 | 0.000  | 13.231  | 0.000   |
| 151. | 3670.523 | -2.320 | 0.000  | 2855.800 | 0.000  | -3.090  | 0.000   | 1778.476 | 0.000  | 15.410  | 0.000   |
| 152. | 3667.729 | -2.670 | 0.000  | 2853.305 | 0.000  | -3.560  | -0.000  | 1787.659 | 0.000  | 17.440  | 0.000   |
| 153. | 3664.554 | -3.010 | 0.000  | 2450.446 | 0.000  | -4.060  | -0.000  | 1796.061 | 0.000  | 19.310  | 0.000   |
| 154. | 3661.011 | -3.330 | 0.000  | 2447.227 | 0.000  | -4.550  | -0.000  | 1805.627 | 0.000  | 21.610  | 0.000   |
| 155. | 3657.114 | -3.650 | 0.000  | 2443.649 | 0.000  | -5.030  | -0.000  | 1822.296 | 0.000  | 22.940  | 0.000   |
| 156. | 3652.883 | -3.940 | 0.000  | 2439.714 | 0.000  | -5.510  | 0.000   | 1836.004 | 0.000  | 23.910  | 0.000   |
| 157. | 3648.335 | -4.220 | 0.000  | 2435.427 | 0.000  | -5.950  | 0.000   | 1850.660 | 0.000  | 25.110  | 0.000   |
| 158. | 3643.492 | -4.480 | 0.000  | 2430.790 | 0.000  | -6.470  | 0.000   | 1866.221 | 0.000  | 26.150  | 0.000   |
| 159. | 3638.379 | -4.720 | 0.000  | 2425.800 | 0.000  | -6.940  | 0.000   | 1882.636 | 0.000  | 27.040  | 0.000   |
| 160. | 3633.021 | -4.930 | 0.000  | 2420.483 | 0.000  | -7.410  | 0.000   | 1899.759 | 0.000  | 27.770  | 0.000   |
| 161. | 3627.446 | -5.120 | 0.000  | 2414.821 | 0.000  | -7.870  | -0.000  | 1917.531 | 0.000  | 28.360  | 0.000   |
| 162. | 3621.692 | -5.280 | 0.000  | 2408.826 | 0.000  | -8.340  | -0.000  | 1935.065 | 0.000  | 28.810  | 0.000   |
| 163. | 3615.766 | -5.400 | 0.000  | 2402.502 | 0.000  | -8.790  | 0.000   | 1954.671 | 0.000  | 29.130  | 0.000   |
| 164. | 3609.769 | -5.490 | 0.000  | 2395.855 | 0.000  | -9.250  | 0.000   | 1973.858 | 0.000  | 29.320  | 0.000   |
| 165. | 3603.686 | -5.550 | 0.000  | 2388.891 | 0.000  | -9.690  | 0.000   | 1993.329 | 0.000  | 29.370  | 0.000   |
| 166. | 3597.563 | -5.560 | 0.000  | 2381.614 | 0.000  | -10.130 | 0.000   | 2012.969 | 0.000  | 29.310  | 0.000   |
| 167. | 3591.464 | -5.530 | 0.000  | 2374.032 | 0.000  | -10.570 | 0.000   | 2032.736 | 0.000  | 29.120  | 0.000   |
| 168. | 3585.434 | -5.460 | 0.000  | 2366.150 | 0.000  | -11.000 | 0.000   | 2052.477 | 0.000  | 28.810  | 0.000   |
| 169. | 3579.526 | -5.330 | 0.000  | 2357.975 | 0.000  | -11.430 | 0.000   | 2072.104 | 0.000  | 28.360  | 0.000   |
| 170. | 3573.786 | -5.150 | 0.000  | 2349.514 | 0.000  | -11.850 | 0.000   | 2091.515 | 0.000  | 27.430  | 0.000   |
| 171. | 3568.302 | -4.910 | 0.000  | 2340.775 | 0.000  | -12.260 | 0.000   | 2110.806 | 0.000  | 27.160  | 0.000   |
| 172. | 3563.106 | -4.620 | -0.000 | 2331.764 | 0.000  | -12.660 | 0.000   | 2129.272 | 0.000  | 26.360  | 0.000   |
| 173. | 3558.278 | -4.280 | 0.000  | 2322.490 | 0.000  | -13.060 | 0.000   | 2147.409 | 0.000  | 25.450  | 0.000   |
| 174. | 3553.877 | -3.840 | -0.000 | 2312.961 | 0.000  | -13.450 | 0.000   | 2164.910 | 0.000  | 24.410  | 0.000   |
| 175. | 3549.974 | -3.360 | -0.000 | 2303.166 | 0.000  | -13.830 | -0.000  | 2181.671 | 0.000  | 23.250  | 0.000   |
| 176. | 3546.635 | -2.810 | -0.000 | 2293.172 | 0.000  | -14.200 | -0.000  | 2197.291 | 0.000  | 21.960  | 0.000   |
| 177. | 3543.925 | -2.150 | 0.000  | 2282.930 | 0.000  | -14.570 | -0.000  | 2212.570 | 0.000  | 20.540  | 0.000   |
| 178. | 3541.920 | -1.520 | 0.000  | 2272.470 | 0.000  | -14.920 | -0.000  | 2226.510 | 0.000  | 19.010  | 0.000   |
| 179. | 3540.673 | -0.750 | -0.000 | 2261.799 | 0.000  | -15.260 | -0.000  | 2239.323 | 0.000  | 17.360  | 0.000   |
| 180. | 3540.245 | -0.000 | -0.000 | 2250.930 | 0.000  | -15.600 | -0.000  | 2250.921 | 0.000  | 15.600  | 0.000   |

X-PLANE (YZ-PLANE) LITHIUM NIOBATE (SMITH AND WELSH)

BULK

|     | LNVEL    | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 6883.076 | 9.360  | 0.000  | 4496.162 | -12.090 | -0.000  | 3962.377 | 6.660   | -0.000  |
| 1.  | 6903.291 | 9.660  | 0.000  | 4478.837 | -12.760 | -0.000  | 3970.326 | 6.440   | -0.000  |
| 2.  | 6924.136 | 9.910  | 0.000  | 4460.756 | -13.360 | -0.000  | 3978.029 | 6.230   | -0.000  |
| 3.  | 6945.489 | 10.090 | 0.000  | 4441.693 | -13.990 | -0.000  | 3985.478 | 6.010   | -0.000  |
| 4.  | 6967.227 | 10.200 | 0.000  | 4422.441 | -14.370 | -0.000  | 3992.666 | 5.780   | -0.000  |
| 5.  | 6989.231 | 10.270 | 0.000  | 4402.530 | -14.666 | -0.000  | 3999.565 | 5.550   | -0.000  |
| 6.  | 7011.387 | 10.260 | 0.000  | 4382.286 | -14.910 | -0.000  | 4006.229 | 5.310   | -0.000  |
| 7.  | 7033.585 | 10.240 | 0.000  | 4361.632 | -15.090 | -0.000  | 4012.590 | 5.070   | -0.000  |
| 8.  | 7055.721 | 10.160 | 0.000  | 4341.285 | -15.160 | -0.000  | 4018.662 | 4.830   | -0.000  |
| 9.  | 7077.696 | 10.040 | 0.000  | 4320.785 | -15.190 | -0.000  | 4024.435 | 4.590   | -0.000  |
| 10. | 7099.416 | 9.670  | 0.000  | 4300.354 | -15.140 | -0.000  | 4029.916 | 4.330   | -0.000  |
| 11. | 7120.800 | 9.670  | 0.000  | 4280.187 | -15.016 | -0.000  | 4035.086 | 4.070   | -0.000  |
| 12. | 7141.759 | 9.440  | 0.000  | 4260.336 | -14.810 | -0.000  | 4039.945 | 3.820   | -0.000  |
| 13. | 7162.221 | 9.170  | 0.000  | 4240.901 | -14.540 | -0.000  | 4044.469 | 3.550   | -0.000  |
| 14. | 7182.115 | 8.860  | 0.000  | 4221.957 | -14.220 | -0.000  | 4048.712 | 3.250   | -0.000  |
| 15. | 7201.377 | 8.560  | 0.000  | 4203.502 | -13.830 | -0.000  | 4052.610 | 3.020   | -0.000  |
| 16. | 7219.948 | 8.220  | 0.000  | 4185.644 | -13.400 | -0.000  | 4056.180 | 2.750   | -0.000  |
| 17. | 7237.774 | 7.860  | 0.000  | 4168.404 | -12.910 | -0.000  | 4059.418 | 2.460   | -0.000  |
| 18. | 7254.806 | 7.480  | 0.000  | 4152.517 | -12.370 | -0.000  | 4062.321 | 2.210   | -0.000  |
| 19. | 7271.005 | 7.060  | 0.000  | 4137.029 | -11.790 | -0.000  | 4064.866 | 1.930   | -0.000  |
| 20. | 7286.329 | 6.670  | 0.000  | 4122.381 | -11.180 | -0.000  | 4067.111 | 1.660   | -0.000  |
| 21. | 7300.746 | 6.250  | 0.000  | 4108.604 | -10.530 | -0.000  | 4069.093 | 1.380   | -0.000  |
| 22. | 7314.227 | 5.820  | 0.000  | 4095.723 | -9.860  | -0.000  | 4070.931 | 1.100   | -0.000  |
| 23. | 7326.751 | 5.360  | 0.000  | 4083.754 | -9.170  | -0.000  | 4071.723 | 0.820   | -0.000  |
| 24. | 7338.290 | 4.930  | 0.000  | 4072.706 | -8.470  | -0.000  | 4072.568 | 0.540   | -0.000  |
| 25. | 7348.854 | 4.480  | 0.000  | 4062.587 | -7.760  | -0.000  | 4073.466 | 0.260   | -0.000  |
| 26. | 7358.411 | 4.030  | 0.000  | 4053.363 | -7.050  | 0.000   | 4073.215 | -0.020  | 0.000   |
| 27. | 7366.965 | 3.580  | 0.000  | 4045.065 | -6.350  | 0.000   | 4073.017 | -0.300  | 0.000   |
| 28. | 7374.516 | 3.140  | 0.000  | 4037.671 | -5.660  | 0.000   | 4072.469 | -0.500  | 0.000   |
| 29. | 7381.070 | 2.690  | 0.000  | 4031.114 | -4.990  | 0.000   | 4071.575 | -0.660  | 0.000   |
| 30. | 7386.635 | 2.250  | 0.000  | 4025.377 | -4.350  | 0.000   | 4070.333 | -1.140  | 0.000   |
| 31. | 7391.226 | 1.830  | 0.000  | 4020.420 | -3.740  | 0.000   | 4068.746 | -1.420  | 0.000   |
| 32. | 7394.863 | 1.410  | 0.000  | 4016.192 | -3.170  | 0.000   | 4066.819 | -1.700  | 0.000   |
| 33. | 7397.569 | 1.000  | 0.000  | 4012.639 | -2.650  | 0.000   | 4064.541 | -1.970  | 0.000   |
| 34. | 7399.372 | 0.600  | 0.000  | 4009.699 | -2.170  | 0.000   | 4061.926 | -2.250  | 0.000   |
| 35. | 7400.304 | 0.230  | 0.000  | 4007.304 | -1.760  | 0.000   | 4059.977 | -2.520  | 0.000   |
| 36. | 7400.402 | -0.140 | 0.000  | 4005.383 | -1.400  | 0.000   | 4057.692 | -2.790  | 0.000   |
| 37. | 7399.706 | -0.460 | 0.000  | 4003.657 | -1.110  | 0.000   | 4055.075 | -3.060  | 0.000   |
| 38. | 7398.263 | -0.800 | 0.000  | 4002.645 | -0.850  | 0.000   | 4049.430 | -3.330  | 0.000   |
| 39. | 7396.121 | -1.100 | 0.000  | 4001.662 | -0.740  | 0.000   | 4043.661 | -3.590  | 0.000   |
| 40. | 7393.333 | -1.370 | 0.000  | 4000.618 | -0.660  | 0.000   | 4039.273 | -3.650  | 0.000   |
| 41. | 7389.954 | -1.620 | 0.000  | 4000.023 | -0.660  | 0.000   | 4034.369 | -4.110  | 0.000   |
| 42. | 7386.045 | -1.850 | 0.000  | 3999.184 | -0.730  | 0.000   | 4029.153 | -4.370  | 0.000   |
| 43. | 7381.667 | -2.040 | 0.000  | 3998.206 | -0.800  | 0.000   | 4023.635 | -4.620  | 0.000   |
| 44. | 7376.886 | -2.210 | 0.000  | 3997.000 | -1.110  | 0.000   | 4017.810 | -4.860  | 0.000   |
| 45. | 7371.766 | -2.340 | 0.000  | 3995.466 | -1.420  | 0.000   | 4011.702 | -5.110  | 0.000   |
| 46. | 7366.377 | -2.450 | 0.000  | 3993.521 | -1.800  | 0.000   | 4005.300 | -5.350  | 0.000   |
| 47. | 7360.786 | -2.530 | 0.000  | 3991.070 | -2.240  | 0.000   | 3998.617 | -5.580  | 0.000   |
| 48. | 7355.063 | -2.570 | 0.000  | 3988.032 | -2.760  | -0.000  | 3991.654 | -5.810  | 0.000   |
| 49. | 7349.277 | -2.590 | 0.000  | 3984.327 | -3.340  | -0.000  | 3984.434 | -6.040  | 0.000   |

X-PLANE (YZ-PLANE) LITHIUM NIOBATE (SMITH AND WELSH)

BULK

|     | LPHI12   | LPHI13 | FSRWEL   | FSPHI12 | FSPHI13 | SSRWEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 7343.494 | 0.000  | 3979.881 | -3.980  | 0.000   | 3976.948 | -6.260  | 0.000   |
| 51. | 7337.781 | 0.000  | 3974.628 | -4.660  | 0.000   | 3969.204 | -9.470  | 0.000   |
| 52. | 7332.199 | 0.000  | 3968.511 | -5.420  | 0.000   | 3961.226 | -8.660  | 0.000   |
| 53. | 7326.811 | 0.000  | 3961.479 | -6.190  | 0.000   | 3953.008 | -8.090  | 0.000   |
| 54. | 7321.670 | 0.000  | 3953.496 | -7.000  | 0.000   | 3944.599 | -7.260  | 0.000   |
| 55. | 7316.828 | 0.000  | 3944.532 | -7.820  | 0.000   | 3935.093 | -7.260  | 0.000   |
| 56. | 7312.331 | 0.000  | 3934.572 | -8.660  | 0.000   | 3927.016 | -7.460  | 0.000   |
| 57. | 7308.220 | 0.000  | 3923.615 | -9.500  | 0.000   | 3917.940 | -7.640  | 0.000   |
| 58. | 7304.526 | 0.000  | 3911.670 | -10.320 | 0.000   | 3908.072 | -7.810  | 0.000   |
| 59. | 7301.282 | 0.000  | 3899.224 | -11.120 | 0.000   | 3898.762 | -7.980  | 0.000   |
| 60. | 7298.503 | 0.000  | 3884.929 | -11.890 | 0.000   | 3889.606 | -8.130  | 0.000   |
| 61. | 7296.205 | 0.000  | 3870.223 | -12.620 | 0.000   | 3879.027 | -8.260  | 0.000   |
| 62. | 7294.395 | 0.000  | 3854.712 | -13.250 | 0.000   | 3869.900 | -8.420  | 0.000   |
| 63. | 7293.071 | 0.000  | 3838.474 | -13.890 | 0.000   | 3859.033 | -8.550  | 0.000   |
| 64. | 7292.220 | 0.000  | 3821.603 | -14.420 | 0.000   | 3849.640 | -8.660  | 0.000   |
| 65. | 7291.851 | 0.000  | 3804.204 | -14.970 | 0.000   | 3839.332 | -8.740  | 0.000   |
| 66. | 7291.923 | 0.000  | 3786.395 | -15.210 | 0.000   | 3828.919 | -8.900  | 0.000   |
| 67. | 7292.415 | 0.000  | 3766.302 | -15.460 | 0.000   | 3818.445 | -9.090  | 0.000   |
| 68. | 7293.308 | 0.000  | 3750.062 | -15.590 | 0.000   | 3807.030 | -9.080  | 0.000   |
| 69. | 7294.559 | 0.000  | 3731.817 | -15.610 | 0.000   | 3797.176 | -9.160  | 0.000   |
| 70. | 7296.134 | 0.000  | 3713.717 | -15.500 | 0.000   | 3786.471 | -9.220  | 0.000   |
| 71. | 7297.993 | 0.000  | 3695.916 | -15.280 | 0.000   | 3775.721 | -9.280  | 0.000   |
| 72. | 7300.095 | 0.000  | 3678.958 | -14.890 | 0.000   | 3764.941 | -9.330  | 0.000   |
| 73. | 7302.395 | 0.000  | 3661.828 | -14.360 | 0.000   | 3754.145 | -9.360  | 0.000   |
| 74. | 7304.850 | 0.000  | 3645.650 | -13.730 | 0.000   | 3743.344 | -9.360  | 0.000   |
| 75. | 7307.414 | 0.000  | 3630.763 | -12.940 | 0.000   | 3732.554 | -9.400  | 0.000   |
| 76. | 7310.045 | 0.000  | 3616.769 | -12.020 | 0.000   | 3721.706 | -9.400  | 0.000   |
| 77. | 7312.696 | 0.000  | 3603.944 | -10.970 | 0.000   | 3711.054 | -9.340  | 0.000   |
| 78. | 7315.332 | 0.000  | 3592.429 | -9.790  | 0.000   | 3700.371 | -9.370  | 0.000   |
| 79. | 7317.907 | 0.000  | 3582.336 | -8.500  | 0.000   | 3689.752 | -9.330  | 0.000   |
| 80. | 7320.385 | 0.000  | 3573.769 | -7.110  | 0.000   | 3679.209 | -9.290  | 0.000   |
| 81. | 7322.732 | 0.000  | 3566.802 | -5.630  | 0.000   | 3668.756 | -9.230  | 0.000   |
| 82. | 7324.916 | 0.000  | 3561.504 | -4.090  | 0.000   | 3658.407 | -9.160  | 0.000   |
| 83. | 7326.907 | 0.000  | 3557.922 | -2.500  | 0.000   | 3648.174 | -9.070  | 0.000   |
| 84. | 7328.682 | 0.000  | 3556.084 | -.890   | 0.000   | 3638.074 | -8.980  | 0.000   |
| 85. | 7330.217 | 0.000  | 3556.002 | .730    | 0.000   | 3628.117 | -8.870  | 0.000   |
| 86. | 7331.496 | 0.000  | 3557.666 | 2.330   | 0.000   | 3618.310 | -8.750  | 0.000   |
| 87. | 7332.503 | 0.000  | 3561.048 | 3.690   | 0.000   | 3608.690 | -8.610  | 0.000   |
| 88. | 7333.229 | 0.000  | 3566.103 | 5.340   | 0.000   | 3599.245 | -8.460  | 0.000   |
| 89. | 7333.667 | 0.000  | 3572.767 | 6.810   | 0.000   | 3589.996 | -8.300  | 0.000   |
| 90. | 7333.813 | 0.000  | 3580.960 | 8.130   | 0.000   | 3580.960 | -8.130  | 0.000   |
| 91. | 7333.668 | 0.000  | 3590.590 | 9.350   | 0.000   | 3572.145 | -7.940  | 0.000   |
| 92. | 7333.234 | 0.000  | 3601.549 | 10.440  | 0.000   | 3563.265 | -7.740  | 0.000   |
| 93. | 7332.519 | 0.000  | 3613.719 | 11.410  | 0.000   | 3554.232 | -7.530  | 0.000   |
| 94. | 7331.532 | 0.000  | 3626.974 | 12.260  | 0.000   | 3547.157 | -7.310  | 0.000   |
| 95. | 7330.283 | 0.000  | 3641.176 | 12.970  | 0.000   | 3541.354 | -7.070  | 0.000   |
| 96. | 7328.787 | 0.000  | 3656.193 | 13.540  | 0.000   | 3537.632 | -6.820  | 0.000   |
| 97. | 7327.859 | 0.000  | 3671.875 | 13.990  | 0.000   | 3524.604 | -6.560  | 0.000   |
| 98. | 7325.115 | 0.000  | 3688.082 | 14.310  | 0.000   | 3517.679 | -6.290  | 0.000   |
| 99. | 7322.973 | 0.000  | 3704.670 | 14.510  | 0.000   | 3511.066 | -6.010  | 0.000   |

| LNGVEL | X-PLANE (YZ-PLANE) LITHIUM NIOBATE (SMITH AND WELSH) |        |          |        | BULK   |          |        |        |
|--------|--|--------|----------|--------|--------|----------|--------|--------|
|        | LPH12  | LPH13  | FSPVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
| 100.   | -1.080   | -0.000 | 3721.501 | 14.590 | 0.000  | 3504.781 | -5.120 | 0.000  |
| 101.   | -1.150   | -0.000 | 3738.439 | 14.566 | 0.000  | 3490.827 | -5.441 | 0.000  |
| 102.   | -1.210   | -0.000 | 3755.355 | 14.836 | 0.000  | 3493.215 | -5.100 | 0.000  |
| 103.   | -1.270   | -0.000 | 3772.129 | 14.500 | 0.000  | 3487.953 | -4.770 | 0.000  |
| 104.   | -1.320   | -0.000 | 3788.645 | 13.956 | 0.000  | 3483.051 | -4.440 | 0.000  |
| 105.   | -1.360   | -0.000 | 3804.813 | 13.510 | 0.000  | 3478.514 | -4.100 | 0.000  |
| 106.   | -1.400   | -0.000 | 3820.530 | 13.060 | 0.000  | 3474.351 | -3.750 | 0.000  |
| 107.   | -1.440   | -0.000 | 3835.721 | 12.550 | 0.000  | 3470.567 | -3.390 | 0.000  |
| 108.   | -1.460   | -0.000 | 3850.321 | 12.000 | 0.000  | 3467.169 | -3.030 | 0.000  |
| 109.   | -1.510   | -0.000 | 3864.275 | 11.416 | 0.000  | 3464.161 | -2.660 | 0.000  |
| 110.   | -1.550   | -0.000 | 3877.544 | 10.800 | 0.000  | 3461.549 | -2.290 | 0.000  |
| 111.   | -1.590   | -0.000 | 3890.100 | 10.160 | 0.000  | 3459.336 | -1.910 | 0.000  |
| 112.   | -1.640   | -0.000 | 3901.925 | 9.560  | 0.000  | 3457.526 | -1.530 | 0.000  |
| 113.   | -1.690   | -0.000 | 3913.025 | 8.940  | 0.000  | 3456.122 | -1.140 | 0.000  |
| 114.   | -1.750   | -0.000 | 3923.412 | 8.330  | 0.000  | 3455.126 | -0.750 | 0.000  |
| 115.   | -1.810   | -0.000 | 3933.099 | 7.760  | 0.000  | 3454.539 | -0.360 | 0.000  |
| 116.   | -1.890   | -0.000 | 3942.125 | 7.210  | 0.000  | 3454.363 | 0.030  | 0.000  |
| 117.   | -1.960   | -0.000 | 3950.532 | 6.710  | 0.000  | 3454.597 | 0.420  | 0.000  |
| 118.   | -2.080   | -0.000 | 3958.375 | 6.260  | 0.000  | 3455.242 | 0.810  | 0.000  |
| 119.   | -2.190   | -0.000 | 3965.713 | 5.860  | 0.000  | 3456.247 | 1.200  | 0.000  |
| 120.   | -2.310   | -0.000 | 3972.616 | 5.530  | 0.000  | 3457.759 | 1.580  | 0.000  |
| 121.   | -2.450   | -0.000 | 3979.159 | 5.260  | 0.000  | 3459.626 | 1.960  | 0.000  |
| 122.   | -2.600   | -0.000 | 3985.421 | 5.050  | 0.000  | 3461.696 | 2.340  | 0.000  |
| 123.   | -2.770   | -0.000 | 3991.486 | 4.920  | 0.000  | 3464.065 | 2.710  | 0.000  |
| 124.   | -2.950   | -0.000 | 3997.441 | 4.860  | 0.000  | 3467.629 | 3.080  | 0.000  |
| 125.   | -3.140   | -0.000 | 4003.373 | 4.870  | 0.000  | 3471.002 | 3.440  | 0.000  |
| 126.   | -3.340   | -0.000 | 4009.371 | 4.950  | 0.000  | 3474.920 | 3.800  | 0.000  |
| 127.   | -3.550   | -0.000 | 4015.524 | 5.100  | 0.000  | 3479.137 | 4.150  | 0.000  |
| 128.   | -3.780   | -0.000 | 4021.917 | 5.320  | 0.000  | 3483.726 | 4.490  | 0.000  |
| 129.   | -4.010   | -0.000 | 4028.634 | 5.610  | 0.000  | 3488.660 | 4.820  | 0.000  |
| 130.   | -4.250   | -0.000 | 4035.754 | 5.960  | 0.000  | 3493.992 | 5.140  | 0.000  |
| 131.   | -4.490   | -0.000 | 4043.354 | 6.360  | 0.000  | 3499.653 | 5.460  | 0.000  |
| 132.   | -4.740   | -0.000 | 4051.502 | 6.810  | 0.000  | 3505.655 | 5.780  | 0.000  |
| 133.   | -5.000   | -0.000 | 4060.263 | 7.310  | 0.000  | 3511.969 | 6.050  | 0.000  |
| 134.   | -5.250   | -0.000 | 4069.692 | 7.840  | 0.000  | 3518.646 | 6.330  | 0.000  |
| 135.   | -5.510   | -0.000 | 4079.836 | 8.400  | 0.000  | 3525.614 | 6.600  | 0.000  |
| 136.   | -5.760   | -0.000 | 4090.742 | 8.990  | 0.000  | 3532.885 | 6.860  | 0.000  |
| 137.   | -6.010   | -0.000 | 4102.436 | 9.590  | 0.000  | 3540.440 | 7.110  | 0.000  |
| 138.   | -6.250   | -0.000 | 4114.942 | 10.200 | 0.000  | 3548.290 | 7.340  | 0.000  |
| 139.   | -6.460   | -0.000 | 4128.274 | 10.800 | 0.000  | 3556.402 | 7.560  | 0.000  |
| 140.   | -6.700   | -0.000 | 4142.433 | 11.400 | 0.000  | 3564.771 | 7.770  | 0.000  |
| 141.   | -6.910   | -0.000 | 4157.414 | 11.970 | 0.000  | 3573.366 | 7.970  | 0.000  |
| 142.   | -7.100   | -0.000 | 4173.195 | 12.520 | 0.000  | 3582.233 | 8.160  | 0.000  |
| 143.   | -7.280   | -0.000 | 4189.760 | 13.040 | 0.000  | 3591.302 | 8.330  | 0.000  |
| 144.   | -7.430   | -0.000 | 4207.059 | 13.520 | 0.000  | 3600.578 | 8.490  | 0.000  |
| 145.   | -7.560   | -0.000 | 4225.048 | 13.950 | 0.000  | 3610.049 | 8.630  | 0.000  |
| 146.   | -7.660   | -0.000 | 4243.667 | 14.320 | 0.000  | 3619.703 | 8.760  | 0.000  |
| 147.   | -7.730   | -0.000 | 4262.845 | 14.640 | 0.000  | 3629.525 | 8.880  | 0.000  |
| 148.   | -7.770   | -0.000 | 4282.514 | 14.850 | 0.000  | 3639.504 | 8.990  | 0.000  |
| 149.   | -7.770   | -0.000 | 4302.573 | 15.070 | 0.000  | 3649.624 | 9.090  | 0.000  |



X-PLANE (YZ-PLANE) LITHIUM NIOBATE (SMITH AND WELSH)

|      | LMPH12 | LPH13  | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|--------|--------|----------|---------|--------|----------|--------|--------|
| 150. | -7.740 | -0.000 | 4322.928 | 15.180  | 0.000  | 3659.073 | 9.170  | 0.000  |
| 151. | -7.660 | -0.000 | 4343.472 | 15.200  | 0.000  | 3670.236 | 9.240  | 0.000  |
| 152. | -7.540 | -0.000 | 4364.091 | 15.140  | 0.000  | 3689.704 | 9.290  | 0.000  |
| 153. | -7.370 | -0.000 | 4384.659 | 15.000  | 0.000  | 3711.254 | 9.340  | 0.000  |
| 154. | -7.150 | -0.000 | 4405.049 | 14.760  | 0.000  | 3731.666 | 9.370  | 0.000  |
| 155. | -6.870 | -0.000 | 4425.122 | 14.430  | 0.000  | 3751.954 | 9.390  | 0.000  |
| 156. | -6.540 | -0.000 | 4444.736 | 14.000  | 0.000  | 3772.110 | 9.400  | 0.000  |
| 157. | -6.150 | -0.000 | 4463.751 | 13.470  | 0.000  | 3792.069 | 9.400  | 0.000  |
| 158. | -5.710 | -0.000 | 4482.013 | 12.850  | 0.000  | 3811.681 | 9.380  | 0.000  |
| 159. | -5.200 | -0.000 | 4499.377 | 12.120  | 0.000  | 3830.822 | 9.360  | 0.000  |
| 160. | -4.640 | -0.000 | 4515.696 | 11.300  | 0.000  | 3849.497 | 9.320  | 0.000  |
| 161. | -4.020 | -0.000 | 4530.826 | 10.360  | 0.000  | 3867.623 | 9.270  | 0.000  |
| 162. | -3.350 | -0.000 | 4544.629 | 9.380   | 0.000  | 3885.108 | 9.210  | 0.000  |
| 163. | -2.630 | -0.000 | 4556.976 | 8.260   | 0.000  | 3901.941 | 9.150  | 0.000  |
| 164. | -1.860 | -0.000 | 4567.752 | 7.110   | 0.000  | 3918.021 | 9.070  | 0.000  |
| 165. | -1.060 | -0.000 | 4576.846 | 5.860   | 0.000  | 3933.341 | 8.960  | 0.000  |
| 166. | -0.230 | -0.000 | 4584.171 | 4.560   | 0.000  | 3947.907 | 8.820  | 0.000  |
| 167. | 0.620  | -0.000 | 4589.655 | 3.260   | 0.000  | 3961.606 | 8.660  | 0.000  |
| 168. | 1.490  | -0.000 | 4593.244 | 1.860   | 0.000  | 3974.429 | 8.480  | 0.000  |
| 169. | 2.350  | -0.000 | 4594.905 | .450    | 0.000  | 3986.374 | 8.290  | 0.000  |
| 170. | 3.200  | -0.000 | 4594.627 | -0.990  | 0.000  | 3997.429 | 8.260  | 0.000  |
| 171. | 4.030  | -0.000 | 4592.418 | -2.260  | 0.000  | 4007.595 | 8.110  | 0.000  |
| 172. | 4.820  | -0.000 | 4588.310 | -3.600  | 0.000  | 4016.800 | 7.950  | 0.000  |
| 173. | 5.590  | -0.000 | 4582.350 | -4.910  | 0.000  | 4025.003 | 7.780  | 0.000  |
| 174. | 6.390  | -0.000 | 4574.607 | -6.150  | 0.000  | 4032.244 | 7.620  | 0.000  |
| 175. | 6.970  | -0.000 | 4565.163 | -7.340  | 0.000  | 4038.529 | 7.440  | 0.000  |
| 176. | 7.570  | -0.000 | 4554.115 | -8.450  | 0.000  | 4043.719 | 7.250  | 0.000  |
| 177. | 8.120  | -0.000 | 4541.572 | -9.450  | 0.000  | 4047.755 | 7.060  | 0.000  |
| 178. | 8.610  | -0.000 | 4527.651 | -10.450 | 0.000  | 4050.600 | 6.860  | 0.000  |
| 179. | 9.030  | -0.000 | 4512.470 | -11.310 | 0.000  | 4052.277 | 6.660  | 0.000  |
| 180. | 9.380  | -0.000 | 4496.182 | -12.090 | 0.000  | 4052.737 | 6.460  | 0.000  |

Y-PLANE (XZ-PLANE) LITHIUM NIOBATE (SMITH AND WELSH)

BULK

|     | LNGVEL   | LPM12 | LPM13 | FSRVEL   | FSPM12  | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |
|-----|----------|-------|-------|----------|---------|--------|----------|--------|--------|
| 0.  | 6614.376 | 0.000 | 0.000 | 4002.076 | 0.000   | 0.000  | 4050.767 | 0.000  | 0.000  |
| 1.  | 6615.293 | 0.910 | 0.660 | 4001.055 | -1.400  | -1.770 | 4050.759 | -1.340 | 0.300  |
| 2.  | 6616.025 | 1.800 | 1.320 | 4790.796 | -2.780  | -1.540 | 4058.136 | -1.670 | 0.590  |
| 3.  | 6622.544 | 2.670 | 1.966 | 4793.735 | -4.130  | -2.290 | 4057.099 | -1.610 | 0.090  |
| 4.  | 6628.797 | 3.510 | 2.590 | 4786.727 | -5.440  | -3.010 | 4095.053 | -1.340 | 1.100  |
| 5.  | 6636.716 | 4.310 | 3.170 | 4777.045 | -6.700  | -3.700 | 4093.080 | -1.660 | 1.440  |
| 6.  | 6646.215 | 5.050 | 3.740 | 4767.181 | -7.860  | -4.350 | 4051.007 | -1.500 | 1.760  |
| 7.  | 6657.194 | 5.740 | 4.260 | 4754.838 | -9.000  | -4.900 | 4040.931 | -2.300 | 2.040  |
| 8.  | 6669.545 | 6.370 | 4.760 | 4740.933 | -10.040 | -5.510 | 4045.070 | -2.610 | 2.320  |
| 9.  | 6683.150 | 6.940 | 5.210 | 4725.592 | -10.990 | -6.010 | 4042.664 | -2.510 | 2.000  |
| 10. | 6697.007 | 7.440 | 5.620 | 4708.945 | -11.860 | -6.460 | 4036.695 | -3.200 | 2.000  |
| 11. | 6713.629 | 7.870 | 6.000 | 4691.125 | -12.640 | -6.850 | 4034.376 | -3.490 | 3.140  |
| 12. | 6730.251 | 8.240 | 6.320 | 4672.267 | -13.340 | -7.150 | 4030.120 | -3.700 | 3.430  |
| 13. | 6747.626 | 8.550 | 6.620 | 4652.505 | -13.950 | -7.470 | 4023.345 | -4.010 | 3.600  |
| 14. | 6765.636 | 8.800 | 6.870 | 4631.968 | -14.480 | -7.690 | 4020.267 | -4.260 | 3.510  |
| 15. | 6784.161 | 8.990 | 7.090 | 4610.784 | -14.940 | -7.860 | 4014.906 | -4.480 | 4.100  |
| 16. | 6803.004 | 9.130 | 7.270 | 4589.073 | -15.320 | -7.970 | 4009.283 | -4.690 | 4.400  |
| 17. | 6822.298 | 9.220 | 7.420 | 4566.946 | -15.630 | -8.040 | 4003.421 | -4.830 | 4.640  |
| 18. | 6841.700 | 9.260 | 7.530 | 4544.516 | -15.870 | -8.050 | 3997.344 | -5.000 | 4.800  |
| 19. | 6861.195 | 9.250 | 7.620 | 4521.684 | -16.050 | -8.010 | 3991.076 | -5.210 | 5.110  |
| 20. | 6880.691 | 9.210 | 7.680 | 4499.138 | -16.170 | -7.930 | 3984.646 | -5.340 | 5.340  |
| 21. | 6900.104 | 9.130 | 7.710 | 4476.365 | -16.240 | -7.810 | 3976.079 | -5.450 | 5.570  |
| 22. | 6919.357 | 9.010 | 7.720 | 4453.644 | -16.260 | -7.640 | 3971.405 | -5.540 | 5.800  |
| 23. | 6938.378 | 8.860 | 7.710 | 4431.046 | -16.230 | -7.450 | 3964.050 | -5.600 | 6.030  |
| 24. | 6957.100 | 8.690 | 7.680 | 4408.635 | -16.160 | -7.220 | 3957.844 | -5.640 | 6.270  |
| 25. | 6975.466 | 8.490 | 7.620 | 4386.469 | -16.050 | -6.960 | 3951.012 | -5.660 | 6.510  |
| 26. | 6993.419 | 8.270 | 7.550 | 4364.600 | -15.900 | -6.670 | 3944.182 | -5.600 | 6.730  |
| 27. | 7010.912 | 8.020 | 7.460 | 4343.075 | -15.720 | -6.370 | 3937.375 | -5.640 | 7.010  |
| 28. | 7027.901 | 7.760 | 7.360 | 4321.935 | -15.510 | -6.050 | 3930.613 | -5.610 | 7.280  |
| 29. | 7044.349 | 7.490 | 7.240 | 4301.221 | -15.270 | -5.720 | 3923.912 | -5.560 | 7.560  |
| 30. | 7060.222 | 7.200 | 7.110 | 4280.966 | -14.990 | -5.350 | 3917.204 | -5.500 | 7.800  |
| 31. | 7075.451 | 6.910 | 6.970 | 4261.209 | -14.690 | -4.950 | 3910.737 | -5.450 | 8.010  |
| 32. | 7090.134 | 6.600 | 6.810 | 4241.977 | -14.360 | -4.710 | 3904.271 | -5.390 | 8.210  |
| 33. | 7104.131 | 6.250 | 6.650 | 4223.304 | -14.000 | -4.380 | 3897.879 | -5.340 | 8.400  |
| 34. | 7117.468 | 5.960 | 6.470 | 4205.222 | -13.610 | -4.070 | 3891.549 | -5.300 | 8.600  |
| 35. | 7130.134 | 5.660 | 6.290 | 4187.764 | -13.190 | -3.770 | 3885.256 | -5.250 | 8.830  |
| 36. | 7142.123 | 5.340 | 6.100 | 4170.964 | -12.740 | -3.450 | 3878.977 | -5.310 | 9.040  |
| 37. | 7153.434 | 5.020 | 5.900 | 4154.857 | -12.250 | -3.230 | 3872.668 | -5.360 | 9.240  |
| 38. | 7164.068 | 4.710 | 5.690 | 4139.479 | -11.730 | -2.990 | 3866.286 | -5.450 | 9.440  |
| 39. | 7174.031 | 4.400 | 5.480 | 4124.864 | -11.170 | -2.770 | 3859.779 | -5.500 | 9.610  |
| 40. | 7183.333 | 4.090 | 5.270 | 4111.045 | -10.590 | -2.560 | 3853.094 | -5.570 | 9.800  |
| 41. | 7191.986 | 3.800 | 5.050 | 4098.050 | -9.970  | -2.420 | 3846.173 | -5.600 | 10.000 |
| 42. | 7200.008 | 3.510 | 4.830 | 4085.901 | -9.330  | -2.270 | 3838.362 | -5.620 | 10.200 |
| 43. | 7207.417 | 3.240 | 4.600 | 4074.606 | -8.690  | -2.130 | 3831.413 | -5.600 | 10.350 |
| 44. | 7214.237 | 2.970 | 4.370 | 4064.167 | -8.040  | -2.010 | 3823.464 | -5.540 | 10.540 |
| 45. | 7220.494 | 2.720 | 4.150 | 4054.559 | -7.410  | -1.900 | 3815.150 | -5.450 | 10.740 |
| 46. | 7226.216 | 2.460 | 3.920 | 4045.747 | -6.810  | -1.790 | 3806.395 | -5.340 | 10.940 |
| 47. | 7231.435 | 2.260 | 3.690 | 4037.675 | -6.260  | -1.690 | 3797.622 | -5.200 | 11.140 |
| 48. | 7236.103 | 2.050 | 3.470 | 4030.271 | -5.760  | -1.600 | 3787.649 | -5.000 | 11.340 |
| 49. | 7240.495 | 1.860 | 3.240 | 4023.448 | -5.340  | -1.510 | 3777.704 | -4.800 | 11.540 |

Y-PLANE (XZ-PLANE) LITHIUM NIOBATE (SMITH AND WELSH)

BULK

|     | LMGWEL   | LPHI12 | LPHI13 | FSRWEL   | FSPH12  | FSPH13 | SSRWEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 50. | 7244.409 | 1.690  | 3.020  | 4017.106 | -5.000  | -1.440 | 3767.428 | -9.010 | 16.110 |
| 51. | 7247.961 | 1.530  | 2.810  | 4011.141 | -4.750  | -1.370 | 3756.070 | -9.250 | 16.300 |
| 52. | 7251.192 | 1.400  | 2.590  | 4005.441 | -4.560  | -1.330 | 3746.083 | -9.450 | 16.620 |
| 53. | 7254.140 | 1.260  | 2.390  | 3999.895 | -4.510  | -1.300 | 3735.121 | -9.600 | 16.800 |
| 54. | 7256.845 | 1.170  | 2.190  | 3994.394 | -4.600  | -1.330 | 3724.043 | -9.710 | 17.020 |
| 55. | 7259.346 | 1.090  | 1.990  | 3988.834 | -4.620  | -1.310 | 3712.902 | -9.770 | 17.100 |
| 56. | 7261.601 | 1.020  | 1.810  | 3983.115 | -4.750  | -1.360 | 3701.751 | -9.700 | 17.310 |
| 57. | 7263.886 | .970   | 1.630  | 3977.145 | -5.040  | -1.430 | 3690.643 | -9.750 | 17.410 |
| 58. | 7265.999 | .940   | 1.460  | 3970.842 | -5.300  | -1.540 | 3679.624 | -9.600 | 17.400 |
| 59. | 7268.051 | .920   | 1.300  | 3964.132 | -5.730  | -1.670 | 3668.740 | -9.510 | 17.530 |
| 60. | 7270.074 | .910   | 1.150  | 3956.949 | -6.150  | -1.830 | 3658.035 | -9.450 | 17.540 |
| 61. | 7272.095 | .920   | 1.010  | 3949.241 | -6.610  | -2.010 | 3647.550 | -9.250 | 17.620 |
| 62. | 7274.139 | .930   | .880   | 3940.962 | -7.110  | -2.220 | 3637.323 | -9.030 | 17.610 |
| 63. | 7276.228 | .950   | .760   | 3932.079 | -7.630  | -2.450 | 3627.391 | -8.770 | 17.380 |
| 64. | 7278.370 | .990   | .650   | 3922.570 | -8.170  | -2.700 | 3617.769 | -8.490 | 17.200 |
| 65. | 7280.603 | 1.020  | .550   | 3912.423 | -8.720  | -2.960 | 3608.353 | -8.170 | 17.100 |
| 66. | 7282.913 | 1.060  | .460   | 3901.637 | -9.260  | -3.240 | 3599.176 | -7.820 | 16.950 |
| 67. | 7285.313 | 1.100  | .380   | 3890.220 | -9.800  | -3.520 | 3590.310 | -7.440 | 16.650 |
| 68. | 7287.803 | 1.140  | .300   | 3878.193 | -10.320 | -3.800 | 3581.666 | -7.020 | 16.360 |
| 69. | 7290.382 | 1.160  | .240   | 3865.544 | -10.810 | -4.080 | 3573.216 | -6.570 | 16.030 |
| 70. | 7293.042 | 1.210  | .190   | 3852.433 | -11.260 | -4.350 | 3564.991 | -6.100 | 15.650 |
| 71. | 7295.773 | 1.240  | .140   | 3838.766 | -11.700 | -4.610 | 3556.920 | -5.550 | 15.220 |
| 72. | 7298.562 | 1.260  | .100   | 3824.698 | -12.080 | -4.840 | 3549.034 | -5.050 | 14.740 |
| 73. | 7301.392 | 1.260  | .070   | 3810.233 | -12.410 | -5.050 | 3541.362 | -4.460 | 14.210 |
| 74. | 7304.243 | 1.240  | .040   | 3795.466 | -12.680 | -5.230 | 3533.912 | -3.860 | 13.630 |
| 75. | 7307.095 | 1.200  | .020   | 3780.446 | -12.900 | -5.360 | 3526.674 | -3.250 | 13.010 |
| 76. | 7309.924 | 1.260  | .010   | 3765.281 | -13.040 | -5.450 | 3519.644 | -2.600 | 12.330 |
| 77. | 7312.706 | 1.230  | -0.000 | 3750.038 | -13.120 | -5.490 | 3512.819 | -1.910 | 11.610 |
| 78. | 7315.415 | 1.200  | -0.010 | 3734.803 | -13.130 | -5.480 | 3506.196 | -1.210 | 10.840 |
| 79. | 7318.026 | 1.158  | -0.020 | 3719.659 | -13.070 | -5.408 | 3500.008 | -.460  | 10.030 |
| 80. | 7320.512 | 1.080  | -0.020 | 3704.691 | -12.940 | -5.260 | 3494.179 | .280   | 9.100  |
| 81. | 7322.850 | 1.010  | -0.020 | 3689.980 | -12.730 | -5.050 | 3488.690 | 1.020  | 8.300  |
| 82. | 7325.014 | .930   | -0.020 | 3675.604 | -12.460 | -4.760 | 3483.534 | 1.630  | 7.330  |
| 83. | 7326.982 | .830   | -0.010 | 3661.651 | -12.120 | -4.410 | 3478.702 | 2.160  | 6.400  |
| 84. | 7328.734 | .730   | -0.010 | 3648.181 | -11.710 | -3.960 | 3474.193 | 2.630  | 5.450  |
| 85. | 7330.250 | .620   | -0.010 | 3635.266 | -11.250 | -3.480 | 3469.961 | 3.040  | 4.500  |
| 86. | 7331.514 | .510   | -0.010 | 3622.967 | -10.720 | -2.910 | 3466.091 | 3.310  | 3.610  |
| 87. | 7332.511 | .390   | -0.000 | 3611.342 | -10.140 | -2.270 | 3462.503 | 3.440  | 2.670  |
| 88. | 7333.232 | .260   | -0.000 | 3600.436 | -9.510  | -1.570 | 3459.293 | 3.420  | 1.700  |
| 89. | 7333.667 | .130   | -0.000 | 3590.299 | -8.840  | -.810  | 3456.451 | 3.260  | .860   |
| 90. | 7333.813 | -0.000 | -0.000 | 3580.960 | -8.130  | 0.000  | 3453.960 | 2.950  | 0.000  |
| 91. | 7333.667 | -1.130 | -0.000 | 3572.451 | -7.390  | .660   | 3451.799 | 2.510  | -0.010 |
| 92. | 7333.232 | -2.260 | -0.000 | 3564.793 | -6.620  | 1.750  | 3450.030 | 1.950  | -1.500 |
| 93. | 7332.511 | -3.390 | -0.000 | 3558.003 | -5.840  | 3.610  | 3448.342 | 1.240  | -2.200 |
| 94. | 7331.514 | -4.510 | -0.010 | 3552.091 | -5.040  | 6.160  | 3446.767 | 0.400  | -2.910 |
| 95. | 7330.250 | -5.620 | -0.010 | 3547.061 | -4.240  | 9.560  | 3445.266 | -1.260 | -3.400 |
| 96. | 7328.734 | -6.730 | -0.010 | 3542.913 | -3.430  | 13.810 | 3444.811 | -2.170 | -3.900 |
| 97. | 7326.982 | -7.830 | -0.010 | 3539.642 | -2.630  | 18.810 | 3445.451 | -3.210 | -4.410 |
| 98. | 7325.014 | -8.930 | -0.020 | 3537.235 | -1.830  | 24.560 | 3446.651 | -4.460 | -4.760 |
| 99. | 7322.850 | -1.010 | -0.020 | 3535.690 | -1.050  | 31.000 | 3448.342 | -5.810 | -5.000 |

Y-PLANE (XZ-PLANE) LITHIUM NIOBATE (SMITH AND WELSH)

BULK

|      | LMQVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 100. | 7320.512 | -1.060 | -0.020 | 3534.979 | -0.260 | 9.160  | 3704.691 | 12.540 | -2.260 |
| 101. | 7316.026 | -1.150 | -0.020 | 3535.086 | 0.460  | 10.030 | 3714.659 | 13.070 | -2.440 |
| 102. | 7315.415 | -1.260 | -0.010 | 3535.996 | 1.210  | 10.840 | 3718.003 | 13.130 | -2.440 |
| 103. | 7312.706 | -1.230 | -0.000 | 3537.679 | 1.910  | 11.620 | 3750.358 | 13.120 | -2.450 |
| 104. | 7309.924 | -1.260 | 0.010  | 3540.114 | 2.600  | 12.330 | 3765.281 | 13.040 | -2.450 |
| 105. | 7307.095 | -1.260 | 0.020  | 3543.274 | 3.250  | 13.010 | 3780.448 | 12.890 | -2.430 |
| 106. | 7304.243 | -1.280 | 0.040  | 3547.132 | 3.860  | 13.630 | 3795.458 | 12.600 | -2.420 |
| 107. | 7301.392 | -1.260 | 0.070  | 3551.662 | 4.480  | 14.210 | 3810.233 | 12.410 | -2.400 |
| 108. | 7298.562 | -1.260 | 1.00   | 3556.834 | 5.050  | 14.740 | 3824.698 | 12.080 | -2.400 |
| 109. | 7295.773 | -1.240 | 1.40   | 3562.620 | 5.550  | 15.220 | 3838.766 | 11.700 | -2.400 |
| 110. | 7293.042 | -1.210 | 1.90   | 3568.991 | 6.100  | 15.650 | 3852.433 | 11.260 | -2.350 |
| 111. | 7290.382 | -1.160 | 2.40   | 3575.916 | 6.570  | 16.030 | 3865.594 | 10.810 | -2.400 |
| 112. | 7287.803 | -1.140 | 3.00   | 3583.366 | 7.020  | 16.360 | 3878.193 | 10.320 | -3.000 |
| 113. | 7285.313 | -1.100 | 3.60   | 3591.310 | 7.440  | 16.650 | 3890.220 | 9.800  | -3.520 |
| 114. | 7282.913 | -1.060 | 4.60   | 3599.716 | 7.820  | 16.850 | 3901.637 | 9.260  | -3.240 |
| 115. | 7280.603 | -1.020 | 5.50   | 3608.553 | 8.170  | 17.100 | 3912.423 | 8.720  | -2.900 |
| 116. | 7278.378 | -0.990 | 6.50   | 3617.859 | 8.470  | 17.280 | 3922.570 | 8.170  | -2.450 |
| 117. | 7276.228 | -0.950 | 7.60   | 3627.391 | 8.770  | 17.360 | 3932.079 | 7.630  | -2.450 |
| 118. | 7274.139 | -0.930 | 8.60   | 3637.323 | 9.030  | 17.470 | 3941.902 | 7.110  | -2.220 |
| 119. | 7272.095 | -0.920 | 1.010  | 3647.550 | 9.250  | 17.520 | 3949.241 | 6.610  | -2.010 |
| 120. | 7270.074 | -0.910 | 1.150  | 3658.035 | 9.430  | 17.540 | 3956.949 | 6.150  | -1.830 |
| 121. | 7268.051 | -0.920 | 1.300  | 3668.740 | 9.570  | 17.530 | 3964.132 | 5.730  | -1.670 |
| 122. | 7265.995 | -0.940 | 1.460  | 3678.624 | 9.680  | 17.480 | 3970.842 | 5.350  | -1.540 |
| 123. | 7263.886 | -0.970 | 1.630  | 3690.643 | 9.750  | 17.410 | 3977.145 | 5.000  | -1.450 |
| 124. | 7261.681 | -1.020 | 1.810  | 3701.751 | 9.760  | 17.310 | 3983.115 | 4.790  | -1.360 |
| 125. | 7259.346 | -1.090 | 1.990  | 3712.982 | 9.770  | 17.160 | 3988.634 | 4.620  | -1.310 |
| 126. | 7256.845 | -1.170 | 2.190  | 3724.043 | 9.710  | 17.020 | 3994.394 | 4.600  | -1.330 |
| 127. | 7254.140 | -1.260 | 2.390  | 3735.121 | 9.600  | 16.840 | 3999.845 | 4.510  | -1.300 |
| 128. | 7251.192 | -1.400 | 2.590  | 3746.083 | 9.450  | 16.620 | 4005.441 | 4.560  | -1.330 |
| 129. | 7247.961 | -1.530 | 2.810  | 3756.870 | 9.250  | 16.360 | 4011.141 | 4.750  | -1.370 |
| 130. | 7244.489 | -1.650 | 3.020  | 3767.426 | 9.010  | 16.110 | 4017.106 | 5.000  | -1.440 |
| 131. | 7240.495 | -1.860 | 3.240  | 3777.704 | 8.720  | 15.850 | 4023.448 | 5.340  | -1.510 |
| 132. | 7236.183 | -2.050 | 3.470  | 3787.649 | 8.400  | 15.600 | 4030.271 | 5.760  | -1.500 |
| 133. | 7231.435 | -2.260 | 3.690  | 3797.222 | 8.050  | 15.400 | 4037.675 | 6.260  | -1.690 |
| 134. | 7226.216 | -2.440 | 3.920  | 3806.395 | 7.690  | 14.700 | 4045.747 | 6.810  | -1.790 |
| 135. | 7220.494 | -2.720 | 4.150  | 3815.150 | 7.310  | 14.270 | 4054.299 | 7.410  | -1.500 |
| 136. | 7214.237 | -2.970 | 4.370  | 3823.484 | 6.940  | 13.820 | 4064.167 | 8.040  | -2.010 |
| 137. | 7207.417 | -3.240 | 4.600  | 3831.413 | 6.600  | 13.350 | 4074.608 | 8.690  | -2.130 |
| 138. | 7200.808 | -3.510 | 4.830  | 3838.962 | 6.260  | 12.870 | 4085.901 | 9.330  | -2.270 |
| 139. | 7193.966 | -3.600 | 5.050  | 3846.173 | 6.000  | 12.360 | 4098.050 | 9.970  | -2.420 |
| 140. | 7183.333 | -4.090 | 5.270  | 3853.094 | 5.770  | 11.890 | 4111.045 | 10.590 | -2.500 |
| 141. | 7174.031 | -4.600 | 5.480  | 3859.779 | 5.560  | 11.410 | 4124.864 | 11.170 | -2.770 |
| 142. | 7164.068 | -4.710 | 5.690  | 3866.266 | 5.450  | 10.940 | 4139.479 | 11.730 | -2.590 |
| 143. | 7153.434 | -5.020 | 5.900  | 3872.666 | 5.360  | 10.460 | 4154.857 | 12.250 | -3.230 |
| 144. | 7142.123 | -5.340 | 6.100  | 3878.977 | 5.310  | 10.040 | 4170.964 | 12.740 | -3.450 |
| 145. | 7130.134 | -5.660 | 6.290  | 3885.256 | 5.250  | 9.630  | 4187.704 | 13.190 | -3.770 |
| 146. | 7117.466 | -5.980 | 6.470  | 3891.549 | 5.300  | 9.230  | 4205.222 | 13.610 | -4.070 |
| 147. | 7104.131 | -6.290 | 6.658  | 3897.879 | 5.340  | 8.860  | 4223.304 | 14.000 | -4.360 |
| 148. | 7090.134 | -6.600 | 6.810  | 3904.271 | 5.390  | 8.510  | 4241.977 | 14.360 | -4.710 |
| 149. | 7075.691 | -6.910 | 6.970  | 3910.737 | 5.450  | 8.170  | 4261.209 | 14.690 | -5.000 |

|      | Y-PLANE (XZ-PLANE) LITHIUM NIOBATE (SMITH AND WELSH) |       |          |        |        |          |        |        |  |  | BULK |  |  |  |  |  |  |  |  |  |  |
|------|--|-------|----------|--------|--------|----------|--------|--------|--|--|------|--|--|--|--|--|--|--|--|--|--|
|      | LPM12  | LPM13 | FSRVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 150. | 7060.222   | 7.110 | 3917.204 | 5.500  | 7.060  | 4200.968 | 14.990 | -5.390 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 151. | 7046.349   | 7.240 | 3923.912 | 5.560  | 7.560  | 4301.221 | 15.270 | -6.170 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 152. | 7027.901   | 7.360 | 3930.613 | 5.610  | 7.260  | 4321.335 | 15.510 | -6.050 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 153. | 7010.912   | 7.060 | 3937.375 | 5.640  | 7.010  | 4343.075 | 15.720 | -6.370 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 154. | 6993.419   | 7.590 | 3944.162 | 5.660  | 6.750  | 4364.600 | 15.900 | -6.660 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 155. | 6975.466   | 7.620 | 3951.012 | 5.660  | 6.510  | 4386.469 | 16.050 | -6.900 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 156. | 6957.100   | 7.660 | 3957.844 | 5.640  | 6.270  | 4400.635 | 16.160 | -7.220 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 157. | 6938.378   | 7.710 | 3964.650 | 5.600  | 6.030  | 4431.046 | 16.230 | -7.440 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 158. | 6919.357   | 7.720 | 3971.405 | 5.540  | 5.600  | 4453.644 | 16.260 | -7.670 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 159. | 6900.104   | 7.710 | 3978.079 | 5.450  | 5.570  | 4476.365 | 16.240 | -7.810 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 160. | 6880.691   | 7.660 | 3984.846 | 5.340  | 5.340  | 4499.136 | 16.170 | -7.930 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 161. | 6861.195   | 7.620 | 3991.076 | 5.210  | 5.110  | 4521.664 | 16.050 | -8.010 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 162. | 6841.700   | 7.530 | 3997.341 | 5.060  | 4.860  | 4544.218 | 15.870 | -8.050 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 163. | 6822.256   | 7.420 | 4003.421 | 4.890  | 4.640  | 4566.948 | 15.630 | -8.040 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 164. | 6803.084   | 7.270 | 4009.283 | 4.690  | 4.400  | 4589.073 | 15.320 | -7.970 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 165. | 6784.161   | 7.090 | 4014.906 | 4.460  | 4.160  | 4611.704 | 14.940 | -7.860 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 166. | 6765.638   | 6.870 | 4020.267 | 4.260  | 3.910  | 4631.366 | 14.460 | -7.690 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 167. | 6747.628   | 6.620 | 4025.345 | 4.010  | 3.660  | 4652.505 | 13.950 | -7.470 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 168. | 6730.251   | 6.320 | 4030.120 | 3.760  | 3.400  | 4672.267 | 13.340 | -7.190 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 169. | 6713.629   | 5.990 | 4034.576 | 3.490  | 3.140  | 4691.125 | 12.640 | -6.850 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 170. | 6697.887   | 5.620 | 4038.695 | 3.200  | 2.870  | 4708.345 | 11.860 | -6.460 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 171. | 6683.150   | 5.210 | 4042.654 | 2.910  | 2.600  | 4725.542 | 10.990 | -6.010 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 172. | 6669.545   | 4.760 | 4045.870 | 2.610  | 2.320  | 4740.933 | 10.040 | -5.510 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 173. | 6657.194   | 4.260 | 4048.901 | 2.300  | 2.040  | 4754.836 | 9.000  | -4.950 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 174. | 6646.215   | 3.740 | 4051.547 | 1.960  | 1.760  | 4777.045 | 7.860  | -4.350 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 175. | 6636.716   | 3.170 | 4053.800 | 1.660  | 1.470  | 4777.045 | 6.700  | -3.700 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 176. | 6628.797   | 2.500 | 4055.653 | 1.340  | 1.180  | 4786.727 | 5.440  | -3.010 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 177. | 6622.544   | 1.960 | 4057.099 | 1.010  | .890   | 4793.735 | 4.130  | -2.290 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 178. | 6618.025   | 1.320 | 4058.136 | .670   | .590   | 4798.796 | 2.760  | -1.540 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 179. | 6615.293   | .660  | 4058.759 | .340   | .300   | 4801.655 | 1.400  | -0.770 |  |  |      |  |  |  |  |  |  |  |  |  |  |
| 180. | 6614.376   | 0.000 | 4058.967 | -0.000 | -0.000 | 4802.878 | -0.000 | 0.000  |  |  |      |  |  |  |  |  |  |  |  |  |  |

Z-PLANE (XY-PLANE) LITHIUM NIOBATE (SMITH AND WELSH)

BULK

|     | LMGWEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 6814.370 | 0.000  | 0.000  | 4802.878 | 0.000   | 0.000   | 4058.967 | 0.000   | 0.000   |
| 1.  | 6815.256 | .870   | -.660  | 4801.810 | -1.460  | 1.770   | 4058.799 | -.270   | -.350   |
| 2.  | 6817.875 | 1.720  | -1.320 | 4798.628 | -2.690  | 1.540   | 4058.594 | -.590   | -.890   |
| 3.  | 6822.187 | 2.540  | -1.960 | 4793.390 | -4.260  | 2.300   | 4057.450 | -.820   | -1.190  |
| 4.  | 6828.115 | 3.320  | -2.590 | 4786.193 | -5.560  | 3.040   | 4056.266 | -1.100  | -1.490  |
| 5.  | 6835.556 | 4.030  | -3.190 | 4777.168 | -6.760  | 3.770   | 4054.739 | -1.380  | -1.790  |
| 6.  | 6844.384 | 4.670  | -3.770 | 4766.475 | -7.850  | 4.460   | 4052.866 | -1.660  | -2.100  |
| 7.  | 6854.455 | 5.230  | -4.310 | 4754.229 | -8.800  | 5.140   | 4051.644 | -1.940  | -2.400  |
| 8.  | 6865.612 | 5.720  | -4.830 | 4740.842 | -9.620  | 5.780   | 4048.973 | -2.230  | -2.700  |
| 9.  | 6877.685 | 6.110  | -5.310 | 4726.322 | -10.290 | 6.390   | 4045.151 | -2.510  | -2.990  |
| 10. | 6890.504 | 6.420  | -5.760 | 4710.966 | -10.810 | 6.970   | 4041.081 | -2.790  | -3.280  |
| 11. | 6703.893 | 6.640  | -6.180 | 4695.003 | -11.160 | 7.520   | 4036.268 | -3.070  | -3.570  |
| 12. | 6717.680 | 6.720  | -6.570 | 4678.658 | -11.400 | 8.040   | 4034.325 | -3.340  | -3.830  |
| 13. | 6731.696 | 6.830  | -6.920 | 4662.154 | -11.470 | 8.520   | 4033.067 | -3.590  | -4.080  |
| 14. | 6745.778 | 6.810  | -7.240 | 4645.702 | -11.410 | 8.960   | 4025.516 | -3.820  | -4.220  |
| 15. | 6759.772 | 6.720  | -7.530 | 4629.499 | -11.210 | 9.400   | 4020.705 | -4.020  | -4.350  |
| 16. | 6773.530 | 6.560  | -7.800 | 4613.729 | -10.990 | 9.780   | 4015.674 | -4.190  | -4.450  |
| 17. | 6786.917 | 6.340  | -8.040 | 4598.556 | -10.470 | 10.140  | 4010.473 | -4.300  | -4.530  |
| 18. | 6799.805 | 6.060  | -8.260 | 4584.122 | -9.940  | 10.460  | 4005.162 | -4.370  | -4.590  |
| 19. | 6812.076 | 5.730  | -8.450 | 4570.553 | -9.330  | 10.750  | 3999.811 | -4.360  | -4.630  |
| 20. | 6823.629 | 5.350  | -8.620 | 4557.952 | -8.640  | 11.000  | 3994.499 | -4.320  | -4.650  |
| 21. | 6834.362 | 4.930  | -8.780 | 4546.401 | -7.890  | 11.220  | 3989.309 | -4.260  | -4.660  |
| 22. | 6844.190 | 4.480  | -8.910 | 4535.967 | -7.100  | 11.420  | 3984.333 | -4.190  | -4.660  |
| 23. | 6853.039 | 3.990  | -9.020 | 4526.696 | -6.270  | 11.590  | 3979.664 | -4.100  | -4.640  |
| 24. | 6860.839 | 3.470  | -9.120 | 4518.627 | -5.410  | 11.730  | 3975.392 | -4.000  | -4.620  |
| 25. | 6867.536 | 2.930  | -9.200 | 4511.779 | -4.520  | 11.850  | 3971.605 | -3.890  | -4.590  |
| 26. | 6873.079 | 2.360  | -9.270 | 4506.168 | -3.630  | 11.940  | 3968.385 | -3.770  | -4.550  |
| 27. | 6877.431 | 1.750  | -9.320 | 4501.800 | -2.730  | 12.010  | 3965.802 | -3.640  | -4.500  |
| 28. | 6880.561 | 1.200  | -9.360 | 4498.679 | -1.820  | 12.060  | 3963.914 | -3.500  | -4.450  |
| 29. | 6882.446 | .600   | -9.380 | 4496.807 | -.910   | 12.090  | 3962.763 | -3.360  | -4.400  |
| 30. | 6883.078 | 0.000  | -9.380 | 4496.182 | 0.000   | 12.090  | 3962.377 | 0.000   | -4.360  |
| 31. | 6882.446 | -.600  | -9.360 | 4496.807 | .910    | 12.060  | 3962.763 | .640    | -4.320  |
| 32. | 6880.561 | -1.200 | -9.360 | 4498.679 | 1.820   | 12.010  | 3963.914 | 1.260   | -4.280  |
| 33. | 6877.431 | -1.790 | -9.320 | 4501.800 | 2.730   | 12.010  | 3965.802 | 1.860   | -4.250  |
| 34. | 6873.079 | -2.360 | -9.270 | 4506.168 | 3.630   | 11.940  | 3968.385 | 2.420   | -4.220  |
| 35. | 6867.536 | -2.930 | -9.200 | 4511.779 | 4.520   | 11.850  | 3971.605 | 2.900   | -4.190  |
| 36. | 6860.839 | -3.470 | -9.120 | 4518.627 | 5.410   | 11.730  | 3975.392 | 3.340   | -4.160  |
| 37. | 6853.039 | -3.990 | -9.020 | 4526.696 | 6.270   | 11.590  | 3979.664 | 3.700   | -4.120  |
| 38. | 6844.190 | -4.480 | -8.910 | 4535.967 | 7.100   | 11.420  | 3984.333 | 3.980   | -4.080  |
| 39. | 6834.362 | -4.930 | -8.780 | 4546.401 | 7.850   | 11.230  | 3989.309 | 4.190   | -4.040  |
| 40. | 6823.629 | -5.350 | -8.620 | 4557.952 | 8.450   | 11.000  | 3994.499 | 4.320   | -4.000  |
| 41. | 6812.076 | -5.730 | -8.450 | 4570.553 | 8.930   | 10.750  | 3999.811 | 4.360   | -3.960  |
| 42. | 6799.805 | -6.060 | -8.260 | 4584.122 | 9.300   | 10.460  | 4005.162 | 4.370   | -3.920  |
| 43. | 6786.917 | -6.340 | -8.040 | 4598.556 | 9.590   | 10.140  | 4010.473 | 4.300   | -3.880  |
| 44. | 6773.530 | -6.560 | -7.800 | 4613.729 | 10.470  | 9.780   | 4015.674 | 4.160   | -3.830  |
| 45. | 6759.772 | -6.720 | -7.530 | 4629.499 | 11.210  | 9.400   | 4020.705 | 4.020   | -3.780  |
| 46. | 6745.778 | -6.810 | -7.240 | 4645.702 | 11.410  | 9.060   | 4025.516 | 3.820   | -3.720  |
| 47. | 6731.696 | -6.830 | -6.920 | 4662.154 | 11.470  | 8.520   | 4030.067 | 3.590   | -3.650  |
| 48. | 6717.680 | -6.780 | -6.570 | 4678.658 | 11.400  | 8.040   | 4034.325 | 3.340   | -3.580  |
| 49. | 6703.893 | -6.640 | -6.180 | 4695.003 | 11.160  | 7.520   | 4038.269 | 3.070   | -3.520  |

Z-PLANE (XY-PLANE) LITHIUM NIOBATE (SMITH AND WELSH)

BULK

|     | LNGVEL   | LPM112 | LPM113 | FSRVEL   | FSPM112 | FSPM113 | SSRVEL   | SSPM112 | SSPM113 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 6690.504 | -6.420 | -5.760 | 4710.966 | 10.810  | 6.970   | 4041.081 | 2.790   | -3.420  |
| 51. | 6677.685 | -6.110 | -5.310 | 4726.322 | 10.290  | 6.350   | 4045.151 | 2.510   | -2.710  |
| 52. | 6665.612 | -5.720 | -4.830 | 4740.842 | 9.626   | 5.760   | 4048.073 | 2.230   | -2.400  |
| 53. | 6654.455 | -5.230 | -4.310 | 4754.298 | 8.800   | 5.140   | 4050.644 | 1.940   | -2.100  |
| 54. | 6644.384 | -4.870 | -3.770 | 4766.475 | 7.850   | 4.460   | 4052.866 | 1.660   | -1.750  |
| 55. | 6635.356 | -4.030 | -3.190 | 4777.168 | 6.760   | 3.770   | 4054.739 | 1.350   | -1.450  |
| 56. | 6628.115 | -3.320 | -2.590 | 4786.193 | 5.560   | 3.040   | 4056.266 | 1.100   | -1.150  |
| 57. | 6622.187 | -2.540 | -1.960 | 4793.390 | 4.260   | 2.300   | 4057.450 | .820    | -.890   |
| 58. | 6617.875 | -1.720 | -1.320 | 4798.628 | 2.890   | 1.540   | 4058.294 | .520    | -.590   |
| 59. | 6615.256 | -.870  | -.660  | 4801.810 | 1.460   | .770    | 4058.749 | .270    | -.360   |
| 60. | 6614.378 | 0.000  | -0.000 | 4802.878 | 0.000   | 0.000   | 4058.967 | 0.000   | 0.000   |
| 61. | 6615.256 | .870   | .660   | 4801.810 | -1.460  | -.770   | 4058.749 | -.270   | -.360   |
| 62. | 6617.875 | 1.720  | 1.320  | 4798.628 | -2.890  | -1.540  | 4058.294 | -.520   | -.590   |
| 63. | 6622.187 | 2.540  | 1.960  | 4793.390 | -4.260  | -2.300  | 4057.450 | -.820   | -.890   |
| 64. | 6628.115 | 3.320  | 2.590  | 4786.193 | -5.560  | -3.040  | 4056.266 | -1.100  | -1.150  |
| 65. | 6635.356 | 4.030  | 3.190  | 4777.168 | -6.760  | -3.770  | 4054.739 | -1.350  | -1.450  |
| 66. | 6644.384 | 4.870  | 3.770  | 4766.475 | -7.850  | -4.460  | 4052.866 | -1.660  | -1.750  |
| 67. | 6654.455 | 5.230  | 4.310  | 4754.298 | -8.800  | -5.140  | 4050.644 | -1.940  | -2.100  |
| 68. | 6665.612 | 5.720  | 4.830  | 4740.842 | -9.626  | -5.760  | 4048.073 | -2.230  | -2.400  |
| 69. | 6677.685 | 6.110  | 5.310  | 4726.322 | -10.290 | -6.350  | 4045.151 | -2.510  | -2.710  |
| 70. | 6690.504 | 6.420  | 5.760  | 4710.966 | -10.810 | -6.970  | 4041.081 | -2.790  | -3.020  |
| 71. | 6703.893 | 6.540  | 6.180  | 4695.003 | -11.160 | -7.520  | 4036.269 | -3.070  | -3.320  |
| 72. | 6717.680 | 6.760  | 6.570  | 4678.858 | -11.400 | -8.040  | 4030.325 | -3.340  | -3.650  |
| 73. | 6731.696 | 6.830  | 6.820  | 4662.154 | -11.470 | -8.520  | 4025.067 | -3.590  | -3.920  |
| 74. | 6745.778 | 6.810  | 7.240  | 4645.702 | -11.410 | -8.960  | 4020.705 | -4.020  | -4.500  |
| 75. | 6759.772 | 6.720  | 7.530  | 4629.499 | -11.210 | -9.400  | 4015.674 | -4.180  | -4.710  |
| 76. | 6773.530 | 6.560  | 7.800  | 4613.724 | -10.890 | -9.760  | 4010.473 | -4.300  | -4.830  |
| 77. | 6786.917 | 6.340  | 8.040  | 4598.556 | -10.470 | -10.140 | 4005.162 | -4.370  | -4.870  |
| 78. | 6799.805 | 6.060  | 8.260  | 4584.122 | -9.940  | -10.460 | 4000.611 | -4.300  | -4.830  |
| 79. | 6812.078 | 5.730  | 8.450  | 4570.553 | -9.330  | -10.750 | 3995.839 | -4.320  | -4.850  |
| 80. | 6823.629 | 5.350  | 8.620  | 4557.952 | -8.640  | -11.000 | 3991.439 | -4.190  | -4.650  |
| 81. | 6834.362 | 4.930  | 8.780  | 4546.401 | -7.890  | -11.230 | 3987.305 | -4.150  | -4.600  |
| 82. | 6844.190 | 4.480  | 8.910  | 4535.967 | -7.100  | -11.420 | 3983.433 | -3.980  | -4.400  |
| 83. | 6853.039 | 3.950  | 9.020  | 4526.698 | -6.270  | -11.590 | 3979.864 | -3.700  | -4.200  |
| 84. | 6860.839 | 3.470  | 9.120  | 4518.627 | -5.410  | -11.730 | 3976.592 | -3.540  | -4.020  |
| 85. | 6867.536 | 2.930  | 9.200  | 4511.779 | -4.520  | -11.850 | 3973.605 | -2.920  | -3.440  |
| 86. | 6873.079 | 2.360  | 9.270  | 4506.166 | -3.630  | -11.940 | 3968.385 | -2.440  | -2.960  |
| 87. | 6877.431 | 1.790  | 9.320  | 4501.800 | -2.730  | -12.010 | 3965.802 | -1.860  | -2.400  |
| 88. | 6880.561 | 1.200  | 9.360  | 4498.679 | -1.820  | -12.050 | 3963.914 | -1.260  | -1.820  |
| 89. | 6882.448 | .600   | 9.380  | 4496.807 | -.910   | -12.060 | 3962.763 | -.640   | -1.640  |
| 90. | 6883.078 | -0.000 | 9.380  | 4496.182 | 0.000   | -12.050 | 3962.377 | 0.000   | -1.600  |
| 91. | 6882.448 | -.600  | 9.380  | 4496.607 | .910    | -12.060 | 3962.763 | .640    | -1.600  |
| 92. | 6880.561 | -1.200 | 9.360  | 4498.679 | 1.820   | -12.050 | 3963.914 | 1.260   | -1.600  |
| 93. | 6877.431 | -1.790 | 9.320  | 4501.800 | 2.730   | -12.010 | 3965.802 | 1.860   | -1.260  |
| 94. | 6873.079 | -2.360 | 9.270  | 4506.166 | 3.630   | -11.940 | 3968.385 | 2.440   | -1.260  |
| 95. | 6867.536 | -2.930 | 9.200  | 4511.779 | 4.520   | -11.850 | 3971.605 | 2.920   | -1.260  |
| 96. | 6860.839 | -3.470 | 9.120  | 4518.627 | 5.410   | -11.730 | 3975.592 | 3.540   | -1.260  |
| 97. | 6853.039 | -3.950 | 9.020  | 4526.698 | 6.270   | -11.590 | 3979.864 | 3.700   | -1.260  |
| 98. | 6844.190 | -4.480 | 8.910  | 4535.967 | 7.100   | -11.420 | 3984.333 | 3.980   | -1.260  |
| 99. | 6834.362 | -4.930 | 8.780  | 4546.401 | 7.890   | -11.230 | 3989.309 | 4.190   | -1.260  |

Z-PLANE (XY-PLANE) LITHIUM NIOBATE (SMITH AND WELSH)

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 108. | 6823.629 | -5.350 | 8.620  | 4557.952 | 8.640   | -11.000 | 3994.494 | 4.320   | 5.700   |
| 101. | 6812.076 | -5.730 | 8.450  | 4570.553 | 9.330   | -10.750 | 3959.511 | 4.360   | 5.500   |
| 102. | 6799.805 | -6.060 | 8.260  | 4584.122 | 9.940   | -10.460 | 4005.162 | 4.370   | 5.270   |
| 103. | 6786.917 | -6.340 | 8.040  | 4598.596 | 10.470  | -10.140 | 4010.473 | 4.300   | 5.030   |
| 104. | 6773.530 | -6.560 | 7.800  | 4613.729 | 10.890  | -9.760  | 4015.674 | 4.100   | 4.770   |
| 105. | 6759.772 | -6.720 | 7.530  | 4629.495 | 11.210  | -9.400  | 4020.705 | 4.020   | 4.500   |
| 106. | 6745.778 | -6.810 | 7.240  | 4645.702 | 11.410  | -9.050  | 4025.516 | 3.820   | 4.220   |
| 107. | 6731.696 | -6.830 | 6.920  | 4662.154 | 11.470  | -8.520  | 4030.067 | 3.520   | 3.920   |
| 108. | 6717.680 | -6.760 | 6.570  | 4678.658 | 11.400  | -8.040  | 4034.325 | 3.340   | 3.650   |
| 109. | 6703.893 | -6.640 | 6.160  | 4695.003 | 11.160  | -7.520  | 4038.269 | 3.070   | 3.320   |
| 110. | 6690.504 | -6.420 | 5.760  | 4710.966 | 10.810  | -6.970  | 4041.881 | 2.790   | 3.020   |
| 111. | 6677.605 | -6.110 | 5.310  | 4726.332 | 10.290  | -6.390  | 4045.151 | 2.510   | 2.710   |
| 112. | 6665.612 | -5.720 | 4.830  | 4740.842 | 9.620   | -5.760  | 4048.073 | 2.230   | 2.400   |
| 113. | 6654.455 | -5.230 | 4.310  | 4754.256 | 8.800   | -5.140  | 4050.644 | 1.940   | 2.100   |
| 114. | 6644.384 | -4.670 | 3.770  | 4766.475 | 7.850   | -4.460  | 4052.866 | 1.660   | 1.700   |
| 115. | 6635.556 | -4.030 | 3.190  | 4777.166 | 6.760   | -3.770  | 4054.735 | 1.360   | 1.400   |
| 116. | 6628.115 | -3.320 | 2.590  | 4786.193 | 5.560   | -3.040  | 4056.266 | 1.100   | 1.190   |
| 117. | 6622.107 | -2.540 | 1.960  | 4793.390 | 4.260   | -2.310  | 4057.450 | 0.820   | 0.900   |
| 118. | 6617.875 | -1.720 | 1.320  | 4798.626 | 2.890   | -1.540  | 4058.294 | 0.550   | 0.500   |
| 119. | 6615.256 | -0.870 | 0.660  | 4801.810 | 1.460   | -0.770  | 4058.799 | 0.270   | 0.300   |
| 120. | 6614.378 | 0.000  | 0.000  | 4802.876 | -0.000  | 0.000   | 4058.907 | 0.000   | 0.000   |
| 121. | 6615.256 | 0.870  | -0.660 | 4801.810 | -1.460  | 0.770   | 4058.799 | -0.270  | -0.300  |
| 122. | 6617.875 | 1.720  | -1.320 | 4798.626 | -2.890  | 1.540   | 4058.294 | -0.550  | -0.500  |
| 123. | 6622.107 | 2.540  | -1.960 | 4793.390 | -4.260  | 2.310   | 4057.450 | -0.820  | -0.900  |
| 124. | 6628.115 | 3.320  | -2.590 | 4786.193 | -5.560  | 3.040   | 4056.266 | -1.100  | -1.190  |
| 125. | 6635.556 | 4.030  | -3.190 | 4777.168 | -6.760  | 3.770   | 4054.735 | -1.360  | -1.400  |
| 126. | 6644.384 | 4.670  | -3.770 | 4766.475 | -7.850  | 4.460   | 4052.866 | -1.660  | -1.700  |
| 127. | 6654.455 | 5.230  | -4.310 | 4754.256 | -8.600  | 5.140   | 4050.644 | -1.940  | -2.100  |
| 128. | 6665.612 | 5.720  | -4.630 | 4740.842 | -9.020  | 5.720   | 4048.073 | -2.230  | -2.400  |
| 129. | 6677.685 | 6.110  | -4.830 | 4726.332 | -9.250  | 6.350   | 4045.151 | -2.510  | -2.710  |
| 130. | 6690.504 | 6.420  | -5.010 | 4710.966 | -9.400  | 6.970   | 4041.881 | -2.790  | -3.020  |
| 131. | 6703.893 | 6.640  | -5.160 | 4695.003 | -9.510  | 7.520   | 4038.269 | -3.070  | -3.320  |
| 132. | 6717.680 | 6.760  | -5.170 | 4678.658 | -9.470  | 8.040   | 4034.325 | -3.340  | -3.650  |
| 133. | 6731.696 | 6.830  | -5.020 | 4662.154 | -9.330  | 8.520   | 4030.067 | -3.520  | -3.920  |
| 134. | 6745.778 | 6.810  | -4.740 | 4645.702 | -9.110  | 8.980   | 4025.516 | -3.620  | -4.220  |
| 135. | 6759.772 | 6.720  | -4.360 | 4629.495 | -8.810  | 9.400   | 4020.705 | -3.650  | -4.500  |
| 136. | 6773.530 | 6.560  | -3.900 | 4613.729 | -8.470  | 9.760   | 4015.674 | -3.600  | -4.770  |
| 137. | 6786.917 | 6.340  | -3.400 | 4598.596 | -8.090  | 10.140  | 4010.473 | -3.400  | -4.930  |
| 138. | 6799.805 | 6.060  | -2.800 | 4584.122 | -7.640  | 10.460  | 4005.162 | -3.100  | -5.270  |
| 139. | 6812.076 | 5.730  | -2.100 | 4570.593 | -7.160  | 10.750  | 3999.811 | -2.700  | -5.500  |
| 140. | 6823.629 | 5.350  | -1.300 | 4557.952 | -6.640  | 11.000  | 3994.494 | -2.300  | -5.700  |
| 141. | 6834.362 | 4.930  | -0.400 | 4546.401 | -6.060  | 11.230  | 3989.511 | -1.900  | -5.900  |
| 142. | 6844.190 | 4.480  | 0.500  | 4535.967 | -5.420  | 11.420  | 3984.333 | -1.500  | -6.060  |
| 143. | 6853.039 | 3.990  | 1.400  | 4526.698 | -4.750  | 11.550  | 3979.664 | -1.100  | -6.200  |
| 144. | 6860.839 | 3.470  | 2.200  | 4518.627 | -4.050  | 11.730  | 3975.392 | -0.700  | -6.320  |
| 145. | 6867.556 | 2.930  | 2.900  | 4511.775 | -3.320  | 11.850  | 3971.605 | -0.300  | -6.430  |
| 146. | 6873.079 | 2.360  | 3.400  | 4506.168 | -2.570  | 11.940  | 3968.385 | -0.000  | -6.520  |
| 147. | 6877.431 | 1.790  | 3.800  | 4501.800 | -1.800  | 12.010  | 3965.802 | -0.400  | -6.590  |
| 148. | 6880.561 | 1.200  | 4.000  | 4498.679 | -1.020  | 12.050  | 3963.914 | -0.800  | -6.620  |
| 149. | 6882.448 | 0.600  | 4.100  | 4496.807 | -0.210  | 12.060  | 3962.763 | -1.100  | -6.650  |



Z-PLANE (XY-PLANE) LITHIUM NIOBATE (SMITH AND WELSH)

BULK

|      | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|--------|--------|----------|--------|--------|----------|--------|--------|
| 150. | 0.000  | -9.380 | 4496.182 | 0.000  | 12.090 | 3962.377 | 0.000  | -0.000 |
| 151. | -0.000 | -9.380 | 4496.807 | .910   | 12.080 | 3962.763 | .840   | -0.000 |
| 152. | -1.200 | -9.360 | 4498.679 | 1.820  | 12.050 | 3963.914 | 1.260  | -0.000 |
| 153. | -1.790 | -9.320 | 4501.800 | 2.730  | 12.010 | 3965.002 | 1.660  | -0.000 |
| 154. | -2.380 | -9.270 | 4506.168 | 3.630  | 11.940 | 3966.085 | 2.420  | -0.000 |
| 155. | -2.930 | -9.200 | 4511.779 | 4.520  | 11.850 | 3971.605 | 2.900  | -0.000 |
| 156. | -3.470 | -9.120 | 4518.627 | 5.410  | 11.730 | 3975.392 | 3.340  | -0.000 |
| 157. | -3.990 | -9.020 | 4526.696 | 6.270  | 11.590 | 3977.684 | 3.700  | -0.000 |
| 158. | -4.480 | -8.910 | 4535.967 | 7.100  | 11.420 | 3984.333 | 3.980  | -0.000 |
| 159. | -4.930 | -8.780 | 4546.401 | 7.890  | 11.230 | 3989.309 | 4.190  | -0.000 |
| 160. | -5.350 | -8.620 | 4557.952 | 8.640  | 11.000 | 3994.499 | 4.320  | -0.000 |
| 161. | -5.730 | -8.450 | 4570.553 | 9.330  | 10.750 | 3999.011 | 4.360  | -0.000 |
| 162. | -6.080 | -8.260 | 4584.122 | 9.940  | 10.460 | 4002.162 | 4.370  | -0.000 |
| 163. | -6.340 | -8.040 | 4598.556 | 10.470 | 10.140 | 4003.873 | 4.300  | -0.000 |
| 164. | -6.560 | -7.800 | 4613.729 | 10.890 | 9.780  | 4005.164 | 4.180  | -0.000 |
| 165. | -6.720 | -7.530 | 4629.499 | 11.210 | 9.400  | 4020.705 | 4.020  | -0.000 |
| 166. | -6.810 | -7.240 | 4645.702 | 11.410 | 8.960  | 4025.516 | 3.820  | -0.000 |
| 167. | -6.830 | -6.920 | 4662.154 | 11.470 | 8.520  | 4030.067 | 3.590  | -0.000 |
| 168. | -6.780 | -6.570 | 4678.658 | 11.400 | 8.040  | 4034.325 | 3.340  | -0.000 |
| 169. | -6.640 | -6.190 | 4695.003 | 11.180 | 7.520  | 4038.269 | 3.070  | -0.000 |
| 170. | -6.420 | -5.760 | 4710.966 | 10.810 | 6.970  | 4041.001 | 2.790  | -0.000 |
| 171. | -6.110 | -5.310 | 4726.322 | 10.290 | 6.350  | 4043.511 | 2.510  | -0.000 |
| 172. | -5.720 | -4.830 | 4740.842 | 9.620  | 5.760  | 4045.073 | 2.230  | -0.000 |
| 173. | -5.230 | -4.310 | 4754.298 | 8.800  | 5.140  | 4050.644 | 1.940  | -0.000 |
| 174. | -4.670 | -3.770 | 4766.475 | 7.850  | 4.460  | 4052.666 | 1.660  | -0.000 |
| 175. | -4.030 | -3.190 | 4777.168 | 6.760  | 3.770  | 4054.734 | 1.360  | -0.000 |
| 176. | -3.320 | -2.590 | 4786.193 | 5.560  | 3.040  | 4056.266 | 1.100  | -0.000 |
| 177. | -2.540 | -1.960 | 4793.390 | 4.260  | 2.300  | 4057.490 | .820   | -0.000 |
| 178. | -1.720 | -1.320 | 4798.626 | 2.890  | 1.540  | 4058.294 | .590   | -0.000 |
| 179. | -0.870 | -0.660 | 4801.810 | 1.460  | .770   | 4058.799 | .270   | -0.000 |
| 180. | 0.000  | -0.000 | 4802.876 | -0.000 | -0.000 | 4058.967 | -0.000 | -0.000 |

|     | LANGVEL  | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 6854.190 | 9.210  | 0.000  | 4459.129 | -11.930 | -0.000  | 3994.672 | 6.640   | -0.000  |
| 1.  | 6873.916 | 9.460  | 0.000  | 4442.251 | -12.570 | -0.000  | 4002.917 | 6.610   | -0.000  |
| 2.  | 6894.209 | 9.660  | 0.000  | 4424.603 | -13.110 | -0.000  | 4010.977 | 6.360   | -0.000  |
| 3.  | 6914.944 | 9.830  | 0.000  | 4406.314 | -13.570 | -0.000  | 4018.565 | 6.140   | -0.000  |
| 4.  | 6936.004 | 9.930  | 0.000  | 4387.511 | -13.950 | -0.000  | 4025.908 | 5.900   | -0.000  |
| 5.  | 6957.274 | 9.970  | 0.000  | 4368.320 | -14.240 | -0.000  | 4033.076 | 5.650   | -0.000  |
| 6.  | 6978.645 | 9.960  | 0.000  | 4348.862 | -14.450 | -0.000  | 4039.909 | 5.390   | -0.000  |
| 7.  | 7000.011 | 9.900  | 0.000  | 4329.255 | -14.570 | -0.000  | 4046.334 | 5.140   | -0.000  |
| 8.  | 7021.373 | 9.800  | 0.000  | 4309.610 | -14.620 | -0.000  | 4052.265 | 4.890   | -0.000  |
| 9.  | 7042.735 | 9.670  | 0.000  | 4290.037 | -14.600 | -0.000  | 4056.450 | 4.610   | -0.000  |
| 10. | 7063.110 | 9.490  | 0.000  | 4270.637 | -14.540 | -0.000  | 4059.224 | 4.340   | -0.000  |
| 11. | 7083.513 | 9.260  | 0.000  | 4251.506 | -14.440 | -0.000  | 4061.077 | 4.070   | -0.000  |
| 12. | 7103.967 | 9.030  | 0.000  | 4232.733 | -14.310 | -0.000  | 4062.848 | 3.790   | -0.000  |
| 13. | 7122.901 | 8.760  | 0.000  | 4214.403 | -13.810 | -0.000  | 4064.506 | 3.510   | -0.000  |
| 14. | 7141.747 | 8.460  | 0.000  | 4196.593 | -13.460 | -0.000  | 4066.050 | 3.230   | -0.000  |
| 15. | 7159.946 | 8.130  | 0.000  | 4179.371 | -13.050 | -0.000  | 4067.487 | 2.950   | -0.000  |
| 16. | 7177.442 | 7.790  | 0.000  | 4162.803 | -12.000 | -0.000  | 4068.819 | 2.660   | -0.000  |
| 17. | 7194.185 | 7.420  | 0.000  | 4146.943 | -11.530 | -0.000  | 4070.052 | 2.380   | -0.000  |
| 18. | 7210.130 | 7.040  | 0.000  | 4131.840 | -11.530 | -0.000  | 4071.184 | 2.100   | -0.000  |
| 19. | 7225.236 | 6.640  | 0.000  | 4117.537 | -10.940 | -0.000  | 4072.217 | 1.820   | -0.000  |
| 20. | 7238.475 | 6.230  | 0.000  | 4104.067 | -10.320 | -0.000  | 4073.150 | 1.540   | -0.000  |
| 21. | 7250.812 | 5.810  | 0.000  | 4091.456 | -9.670  | -0.000  | 4073.883 | 1.260   | -0.000  |
| 22. | 7262.225 | 5.380  | 0.000  | 4078.724 | -9.010  | -0.000  | 4074.516 | 0.980   | -0.000  |
| 23. | 7272.694 | 4.950  | 0.000  | 4066.863 | -8.330  | -0.000  | 4075.049 | 0.700   | -0.000  |
| 24. | 7281.206 | 4.510  | 0.000  | 4055.935 | -7.640  | -0.000  | 4075.482 | 0.420   | -0.000  |
| 25. | 7296.750 | 4.070  | 0.000  | 4045.876 | -6.950  | -0.000  | 4075.915 | 0.140   | -0.000  |
| 26. | 7305.322 | 3.630  | 0.000  | 4041.699 | -6.270  | -0.000  | 4076.348 | 0.000   | -0.000  |
| 27. | 7312.923 | 3.190  | 0.000  | 4034.360 | -5.590  | -0.000  | 4076.781 | 0.000   | -0.000  |
| 28. | 7319.557 | 2.760  | 0.000  | 4027.896 | -4.940  | -0.000  | 4077.214 | 0.000   | -0.000  |
| 29. | 7325.235 | 2.330  | 0.000  | 4022.211 | -4.320  | -0.000  | 4077.647 | 0.000   | -0.000  |
| 30. | 7329.970 | 1.910  | 0.000  | 4017.287 | -3.720  | -0.000  | 4078.080 | 0.000   | -0.000  |
| 31. | 7333.783 | 1.500  | 0.000  | 4013.075 | -3.160  | -0.000  | 4078.513 | 0.000   | -0.000  |
| 32. | 7336.696 | 1.110  | 0.000  | 4009.523 | -2.650  | -0.000  | 4078.946 | 0.000   | -0.000  |
| 33. | 7338.736 | .720   | 0.000  | 4006.571 | -2.150  | -0.000  | 4079.379 | 0.000   | -0.000  |
| 34. | 7339.942 | .360   | 0.000  | 4004.152 | -1.760  | -0.000  | 4079.812 | 0.000   | -0.000  |
| 35. | 7340.344 | .010   | 0.000  | 4002.196 | -1.430  | -0.000  | 4080.245 | 0.000   | -0.000  |
| 36. | 7335.987 | -0.320 | 0.000  | 4000.626 | -1.150  | -0.000  | 4080.678 | 0.000   | -0.000  |
| 37. | 7338.916 | -0.630 | 0.000  | 3999.361 | -0.930  | -0.000  | 4081.111 | 0.000   | -0.000  |
| 38. | 7337.161 | -0.920 | 0.000  | 3998.326 | -0.760  | -0.000  | 4081.544 | 0.000   | -0.000  |
| 39. | 7334.834 | -1.160 | 0.000  | 3997.425 | -0.600  | -0.000  | 4081.977 | 0.000   | -0.000  |
| 40. | 7331.931 | -1.410 | 0.000  | 3996.565 | -0.460  | -0.000  | 4082.410 | 0.000   | -0.000  |
| 41. | 7328.534 | -1.620 | 0.000  | 3995.664 | -0.330  | -0.000  | 4082.843 | 0.000   | -0.000  |
| 42. | 7324.703 | -1.800 | 0.000  | 3994.631 | -0.210  | -0.000  | 4083.276 | 0.000   | -0.000  |
| 43. | 7320.503 | -1.960 | 0.000  | 3993.364 | -0.100  | -0.000  | 4083.709 | 0.000   | -0.000  |
| 44. | 7316.001 | -2.080 | 0.000  | 3991.776 | -0.000  | -0.000  | 4084.142 | 0.000   | -0.000  |
| 45. | 7311.264 | -2.170 | 0.000  | 3989.777 | -0.000  | -0.000  | 4084.575 | 0.000   | -0.000  |
| 46. | 7306.361 | -2.230 | 0.000  | 3987.281 | -0.000  | -0.000  | 4085.008 | 0.000   | -0.000  |
| 47. | 7301.359 | -2.260 | 0.000  | 3984.204 | -0.000  | -0.000  | 4085.441 | 0.000   | -0.000  |
| 48. | 7296.327 | -2.260 | 0.000  | 3980.468 | -0.000  | -0.000  | 4085.874 | 0.000   | -0.000  |
| 49. | 7291.331 | -2.230 | 0.000  | 3976.001 | -0.000  | -0.000  | 4086.307 | 0.000   | -0.000  |

X-PLANE (YZ-PLANE) LITHIUM NIOBATE (WARNEK ET AL)

|     | LNGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 50. | 7286.435 | -2.170 | 0.000  | 3970.737 | -4.690  | -0.000 | 3996.299 | -6.600 | 0.000  |
| 51. | 7281.701 | -2.050 | 0.000  | 3964.619 | -5.420  | -0.000 | 3987.694 | -7.620 | 0.000  |
| 52. | 7277.167 | -1.960 | 0.000  | 3957.596 | -6.190  | -0.000 | 3979.194 | -7.240 | 0.000  |
| 53. | 7272.947 | -1.840 | 0.000  | 3949.636 | -6.960  | -0.000 | 3970.210 | -7.450 | 0.000  |
| 54. | 7269.030 | -1.690 | -0.000 | 3940.706 | -7.600  | -0.000 | 3961.030 | -7.660 | 0.000  |
| 55. | 7265.460 | -1.510 | -0.000 | 3930.792 | -8.630  | -0.000 | 3951.623 | -7.860 | 0.000  |
| 56. | 7262.335 | -1.330 | -0.000 | 3919.090 | -9.450  | -0.000 | 3942.033 | -8.050 | 0.000  |
| 57. | 7259.626 | -1.120 | -0.000 | 3908.011 | -10.270 | -0.000 | 3932.175 | -8.230 | 0.000  |
| 58. | 7257.376 | -0.910 | -0.000 | 3895.176 | -11.070 | -0.000 | 3922.151 | -8.410 | 0.000  |
| 59. | 7255.610 | -0.690 | -0.000 | 3881.423 | -11.840 | -0.000 | 3911.943 | -8.580 | 0.000  |
| 60. | 7254.332 | -0.470 | -0.000 | 3866.801 | -12.560 | -0.000 | 3901.261 | -8.740 | 0.000  |
| 61. | 7253.548 | -0.240 | -0.000 | 3851.375 | -13.230 | -0.000 | 3891.016 | -8.890 | 0.000  |
| 62. | 7253.256 | -0.020 | -0.000 | 3835.219 | -13.840 | -0.000 | 3880.321 | -9.030 | 0.000  |
| 63. | 7253.447 | 0.150  | -0.000 | 3818.424 | -14.360 | -0.000 | 3869.467 | -9.170 | 0.000  |
| 64. | 7254.104 | 0.400  | -0.000 | 3801.090 | -14.830 | -0.000 | 3858.526 | -9.290 | 0.000  |
| 65. | 7255.207 | 0.600  | -0.000 | 3783.329 | -15.200 | -0.000 | 3847.450 | -9.410 | 0.000  |
| 66. | 7256.729 | 0.780  | -0.000 | 3765.283 | -15.460 | -0.000 | 3836.272 | -9.520 | 0.000  |
| 67. | 7258.638 | 0.950  | -0.000 | 3747.023 | -15.620 | -0.000 | 3825.005 | -9.610 | 0.000  |
| 68. | 7260.900 | 1.100  | -0.000 | 3728.745 | -15.660 | -0.000 | 3813.662 | -9.700 | 0.000  |
| 69. | 7263.476 | 1.230  | -0.000 | 3710.574 | -15.590 | -0.000 | 3802.255 | -9.780 | 0.000  |
| 70. | 7266.323 | 1.340  | -0.000 | 3692.655 | -15.390 | -0.000 | 3790.795 | -9.840 | 0.000  |
| 71. | 7269.396 | 1.430  | -0.000 | 3675.139 | -15.060 | -0.000 | 3779.317 | -9.890 | 0.000  |
| 72. | 7272.656 | 1.500  | -0.000 | 3658.175 | -14.610 | -0.000 | 3767.793 | -9.930 | 0.000  |
| 73. | 7276.050 | 1.560  | -0.000 | 3641.912 | -14.010 | -0.000 | 3756.270 | -9.970 | 0.000  |
| 74. | 7279.535 | 1.560  | -0.000 | 3626.494 | -13.290 | -0.000 | 3744.753 | -9.990 | 0.000  |
| 75. | 7283.065 | 1.590  | -0.000 | 3612.061 | -12.430 | -0.000 | 3733.255 | -9.990 | 0.000  |
| 76. | 7286.594 | 1.560  | -0.000 | 3598.744 | -11.450 | -0.000 | 3721.791 | -9.950 | 0.000  |
| 77. | 7290.075 | 1.250  | -0.000 | 3586.667 | -10.340 | -0.000 | 3710.376 | -9.910 | 0.000  |
| 78. | 7293.470 | 1.500  | -0.000 | 3575.940 | -9.320  | -0.000 | 3699.023 | -9.840 | 0.000  |
| 79. | 7296.751 | 1.440  | -0.000 | 3566.684 | -7.790  | -0.000 | 3687.748 | -9.750 | 0.000  |
| 80. | 7299.862 | 1.360  | -0.000 | 3558.924 | -6.260  | -0.000 | 3676.564 | -9.640 | 0.000  |
| 81. | 7302.776 | 1.260  | -0.000 | 3552.789 | -4.900  | -0.000 | 3665.487 | -9.470 | 0.000  |
| 82. | 7305.463 | 1.150  | -0.000 | 3548.314 | -3.360  | -0.000 | 3654.530 | -9.250 | 0.000  |
| 83. | 7307.894 | 1.030  | -0.000 | 3545.534 | -1.780  | -0.000 | 3643.709 | -9.000 | 0.000  |
| 84. | 7310.046 | 0.908  | -0.000 | 3544.469 | 0.000   | -0.000 | 3633.037 | -8.740 | 0.000  |
| 85. | 7311.696 | 0.760  | -0.000 | 3545.120 | 1.350   | -0.000 | 3622.529 | -8.480 | 0.000  |
| 86. | 7313.433 | 0.620  | -0.000 | 3547.470 | 2.950   | -0.000 | 3612.200 | -8.220 | 0.000  |
| 87. | 7314.639 | 0.470  | -0.000 | 3551.846 | 4.460   | -0.000 | 3602.063 | -8.070 | 0.000  |
| 88. | 7315.505 | 0.310  | -0.000 | 3557.117 | 5.900   | -0.000 | 3592.133 | -8.500 | 0.000  |
| 89. | 7316.026 | 0.160  | -0.000 | 3564.296 | 7.260   | -0.000 | 3582.424 | -8.720 | 0.000  |
| 90. | 7316.200 | 0.000  | -0.000 | 3572.948 | 8.530   | -0.000 | 3572.948 | -8.530 | 0.000  |
| 91. | 7316.027 | -0.150 | -0.000 | 3582.973 | 9.690   | -0.000 | 3563.720 | -8.320 | -0.000 |
| 92. | 7315.512 | -0.310 | -0.000 | 3594.268 | 10.730  | -0.000 | 3554.753 | -8.100 | -0.000 |
| 93. | 7314.663 | -0.460 | -0.000 | 3606.718 | 11.660  | -0.000 | 3546.060 | -7.870 | -0.000 |
| 94. | 7313.486 | -0.600 | -0.000 | 3620.199 | 12.450  | -0.000 | 3537.653 | -7.620 | -0.000 |
| 95. | 7312.001 | -0.740 | -0.000 | 3634.584 | 13.120  | -0.000 | 3529.544 | -7.360 | -0.000 |
| 96. | 7310.215 | -0.870 | -0.000 | 3649.736 | 13.670  | -0.000 | 3521.747 | -7.100 | -0.000 |
| 97. | 7308.147 | -0.990 | -0.000 | 3665.522 | 14.090  | -0.000 | 3514.271 | -6.800 | -0.000 |
| 98. | 7305.815 | -1.100 | -0.000 | 3681.833 | 14.500  | -0.000 | 3507.530 | -6.500 | -0.000 |
| 99. | 7303.237 | -1.210 | -0.000 | 3698.443 | 14.570  | -0.000 | 3500.332 | -6.190 | -0.000 |

| X-PLANE (YZ-PLANE) LITHIUM NIOBATE (WARNER ET AL) |          |        |        |          |         |         |          |         |         |
|---|----------|--------|--------|----------|---------|---------|----------|---------|---------|
|   | LNGVEL   | LPHI12 | LPHI13 | FSPVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
| 100.  | 7300.431 | -1.310 | -0.000 | 3715.311 | 14.640  | 0.000   | 3493.889 | -5.864  | 0.000   |
| 101.  | 7297.417 | -1.400 | -0.000 | 3732.276 | 14.610  | 0.000   | 3487.610 | -5.930  | 0.000   |
| 102.  | 7294.213 | -1.460 | -0.000 | 3749.221 | 14.470  | 0.000   | 3482.106 | -5.150  | 0.000   |
| 103.  | 7290.837 | -1.560 | -0.000 | 3766.025 | 14.250  | 0.000   | 3476.783 | -4.630  | 0.000   |
| 104.  | 7287.306 | -1.620 | -0.000 | 3782.582 | 13.950  | 0.000   | 3471.852 | -4.470  | 0.000   |
| 105.  | 7283.634 | -1.680 | -0.000 | 3798.796 | 13.580  | 0.000   | 3467.319 | -4.090  | 0.000   |
| 106.  | 7279.835 | -1.740 | -0.000 | 3814.575 | 13.140  | 0.000   | 3463.131 | -3.710  | 0.000   |
| 107.  | 7275.920 | -1.750 | -0.000 | 3829.856 | 12.650  | 0.000   | 3459.476 | -3.320  | 0.000   |
| 108.  | 7271.855 | -1.540 | -0.000 | 3844.561 | 12.110  | 0.000   | 3456.179 | -2.930  | 0.000   |
| 109.  | 7267.767 | -1.890 | -0.000 | 3858.642 | 11.540  | 0.000   | 3453.304 | -2.530  | 0.000   |
| 110.  | 7263.537 | -1.930 | -0.000 | 3872.059 | 10.950  | 0.000   | 3450.856 | -2.120  | 0.000   |
| 111.  | 7259.205 | -1.960 | -0.000 | 3884.783 | 10.340  | 0.000   | 3448.843 | -1.710  | 0.000   |
| 112.  | 7254.767 | -2.030 | -0.000 | 3896.800 | 9.730   | 0.000   | 3447.263 | -1.300  | 0.000   |
| 113.  | 7250.215 | -2.050 | -0.000 | 3908.106 | 9.120   | 0.000   | 3446.120 | -0.880  | 0.000   |
| 114.  | 7245.539 | -2.150 | -0.000 | 3918.708 | 8.530   | 0.000   | 3445.417 | -0.460  | 0.000   |
| 115.  | 7240.725 | -2.210 | -0.000 | 3928.626 | 7.960   | 0.000   | 3445.154 | -0.040  | 0.000   |
| 116.  | 7235.756 | -2.290 | -0.000 | 3937.840 | 7.420   | 0.000   | 3445.331 | .360    | 0.000   |
| 117.  | 7230.619 | -2.370 | -0.000 | 3946.535 | 6.920   | 0.000   | 3445.949 | .800    | 0.000   |
| 118.  | 7225.288 | -2.470 | -0.000 | 3954.622 | 6.460   | 0.000   | 3447.027 | 1.220   | 0.000   |
| 119.  | 7219.741 | -2.570 | -0.000 | 3962.195 | 6.060   | 0.000   | 3448.502 | 1.630   | 0.000   |
| 120.  | 7213.956 | -2.650 | -0.000 | 3969.324 | 5.710   | 0.000   | 3450.432 | 2.040   | 0.000   |
| 121.  | 7207.907 | -2.820 | -0.000 | 3976.079 | 5.430   | 0.000   | 3452.795 | 2.450   | 0.000   |
| 122.  | 7201.560 | -2.960 | 0.000  | 3982.532 | 5.190   | 0.000   | 3455.587 | 2.850   | 0.000   |
| 123.  | 7194.915 | -3.110 | 0.000  | 3988.766 | 5.050   | 0.000   | 3458.802 | 3.250   | 0.000   |
| 124.  | 7187.922 | -3.270 | 0.000  | 3994.863 | 4.960   | 0.000   | 3462.437 | 3.640   | 0.000   |
| 125.  | 7180.564 | -3.450 | 0.000  | 4000.906 | 4.950   | 0.000   | 3466.484 | 4.020   | 0.000   |
| 126.  | 7172.817 | -3.630 | 0.000  | 4006.982 | 5.000   | 0.000   | 3470.939 | 4.390   | 0.000   |
| 127.  | 7164.659 | -3.830 | 0.000  | 4013.173 | 5.120   | 0.000   | 3475.794 | 4.760   | 0.000   |
| 128.  | 7156.070 | -4.040 | 0.000  | 4019.565 | 5.310   | 0.000   | 3481.041 | 5.120   | 0.000   |
| 129.  | 7147.033 | -4.250 | 0.000  | 4026.238 | 5.560   | 0.000   | 3486.672 | 5.480   | 0.000   |
| 130.  | 7137.530 | -4.470 | 0.000  | 4033.289 | 5.870   | 0.000   | 3492.670 | 5.800   | 0.000   |
| 131.  | 7127.551 | -4.700 | 0.000  | 4040.733 | 6.230   | 0.000   | 3499.051 | 6.120   | 0.000   |
| 132.  | 7117.084 | -4.930 | 0.000  | 4048.696 | 6.650   | 0.000   | 3505.761 | 6.440   | 0.000   |
| 133.  | 7106.125 | -5.160 | 0.000  | 4057.222 | 7.110   | 0.000   | 3512.856 | 6.740   | 0.000   |
| 134.  | 7094.671 | -5.400 | 0.000  | 4066.367 | 7.600   | 0.000   | 3520.288 | 7.030   | 0.000   |
| 135.  | 7082.722 | -5.630 | 0.000  | 4076.174 | 8.130   | 0.000   | 3528.003 | 7.310   | 0.000   |
| 136.  | 7070.286 | -5.870 | 0.000  | 4086.696 | 8.660   | 0.000   | 3536.022 | 7.570   | 0.000   |
| 137.  | 7057.372 | -6.090 | 0.000  | 4097.953 | 9.240   | 0.000   | 3544.402 | 7.820   | 0.000   |
| 138.  | 7043.994 | -6.310 | 0.000  | 4109.971 | 9.810   | 0.000   | 3553.041 | 8.060   | 0.000   |
| 139.  | 7030.171 | -6.530 | 0.000  | 4122.765 | 10.360  | 0.000   | 3561.956 | 8.280   | 0.000   |
| 140.  | 7015.927 | -6.730 | 0.000  | 4136.337 | 10.940  | 0.000   | 3571.134 | 8.490   | 0.000   |
| 141.  | 7001.292 | -6.920 | 0.000  | 4150.681 | 11.450  | 0.000   | 3580.562 | 8.690   | 0.000   |
| 142.  | 6986.299 | -7.090 | 0.000  | 4165.782 | 12.010  | 0.000   | 3590.226 | 8.840   | 0.000   |
| 143.  | 6970.987 | -7.240 | 0.000  | 4181.613 | 12.590  | 0.000   | 3600.116 | 9.040   | 0.000   |
| 144.  | 6955.403 | -7.370 | 0.000  | 4198.137 | 12.950  | 0.000   | 3610.214 | 9.190   | 0.000   |
| 145.  | 6939.595 | -7.480 | 0.000  | 4215.306 | 13.360  | 0.000   | 3620.507 | 9.330   | 0.000   |
| 146.  | 6923.620 | -7.560 | -0.000 | 4233.063 | 13.710  | 0.000   | 3630.901 | 9.460   | 0.000   |
| 147.  | 6907.540 | -7.610 | -0.000 | 4251.342 | 14.010  | 0.000   | 3641.422 | 9.570   | 0.000   |
| 148.  | 6891.423 | -7.630 | -0.000 | 4270.064 | 14.240  | 0.000   | 3652.415 | 9.670   | 0.000   |
| 149.  | 6875.342 | -7.610 | -0.000 | 4289.142 | 14.400  | 0.000   | 3663.347 | 9.760   | 0.000   |

X-PLANE (YZ-PLANE) LITHIUM NIOBATE (WARNER ET AL)

BULK

|      | LPM12    | LPM13  | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|----------|---------|--------|----------|--------|--------|
| 150. | 6859.376 | -0.000 | 4304.442 | 14.490  | 0.000  | 3674.432 | 9.030  | 0.000  |
| 151. | 6843.610 | -0.000 | 4327.917 | 14.530  | 0.000  | 3695.566 | 9.890  | 0.000  |
| 152. | 6826.135 | -0.000 | 4347.515 | 14.430  | 0.000  | 3696.625 | 9.990  | -0.000 |
| 153. | 6813.045 | -0.000 | 4366.975 | 14.270  | 0.000  | 3706.163 | 9.970  | 0.000  |
| 154. | 6798.442 | -0.000 | 4386.230 | 14.020  | 0.000  | 3713.566 | 9.990  | 0.000  |
| 155. | 6784.426 | -0.000 | 4405.146 | 13.670  | 0.000  | 3731.023 | 9.990  | 0.000  |
| 156. | 6771.113 | -0.000 | 4423.590 | 13.230  | 0.000  | 3742.515 | 9.990  | 0.000  |
| 157. | 6758.605 | -0.000 | 4441.416 | 12.700  | 0.000  | 3754.030 | 9.970  | 0.000  |
| 158. | 6747.015 | -0.000 | 4458.465 | 12.070  | 0.000  | 3765.573 | 9.940  | 0.000  |
| 159. | 6736.455 | -0.000 | 4474.653 | 11.350  | 0.000  | 3777.070 | 9.900  | 0.000  |
| 160. | 6727.032 | -0.000 | 4489.781 | 10.530  | 0.000  | 3788.567 | 9.850  | 0.000  |
| 161. | 6718.853 | -0.000 | 4503.732 | 9.620   | 0.000  | 3798.032 | 9.790  | 0.000  |
| 162. | 6712.015 | -0.000 | 4516.377 | 8.620   | 0.000  | 3811.449 | 9.720  | 0.000  |
| 163. | 6706.611 | -0.000 | 4527.595 | 7.550   | 0.000  | 3822.005 | 9.630  | 0.000  |
| 164. | 6702.721 | -0.000 | 4537.277 | 6.400   | 0.000  | 3834.086 | 9.540  | 0.000  |
| 165. | 6700.415 | -0.000 | 4545.329 | 5.190   | 0.000  | 3845.284 | 9.430  | 0.000  |
| 166. | 6699.748 | -0.000 | 4551.660 | 3.930   | 0.000  | 3856.361 | 9.320  | 0.000  |
| 167. | 6700.760 | -0.000 | 4556.215 | 2.630   | 0.000  | 3867.365 | 9.190  | 0.000  |
| 168. | 6703.473 | -0.000 | 4558.955 | 1.310   | 0.000  | 3878.225 | 9.060  | 0.000  |
| 169. | 6707.092 | -0.000 | 4559.846 | -0.030  | 0.000  | 3888.948 | 8.920  | 0.000  |
| 170. | 6714.004 | -0.000 | 4558.885 | -1.360  | 0.000  | 3893.523 | 8.770  | 0.000  |
| 171. | 6721.778 | -0.000 | 4556.066 | -2.690  | 0.000  | 3903.337 | 8.610  | 0.000  |
| 172. | 6731.167 | -0.000 | 4551.469 | -3.990  | 0.000  | 3912.100 | 8.440  | 0.000  |
| 173. | 6742.106 | -0.000 | 4545.141 | -5.190  | 0.000  | 3920.541 | 8.270  | 0.000  |
| 174. | 6754.517 | -0.000 | 4537.113 | -6.370  | 0.000  | 3928.108 | 8.060  | 0.000  |
| 175. | 6768.310 | -0.000 | 4527.400 | -7.490  | 0.000  | 3935.770 | 7.890  | 0.000  |
| 176. | 6783.382 | -0.000 | 4516.364 | -8.540  | 0.000  | 3943.215 | 7.700  | 0.000  |
| 177. | 6799.624 | -0.000 | 4503.848 | -9.510  | 0.000  | 3950.444 | 7.490  | 0.000  |
| 178. | 6816.920 | -0.000 | 4490.059 | -10.410 | 0.000  | 3957.434 | 7.280  | 0.000  |
| 179. | 6835.150 | -0.000 | 4475.106 | -11.210 | 0.000  | 3964.182 | 7.070  | 0.000  |
| 180. | 6854.190 | -0.000 | 4459.129 | -11.930 | 0.000  | 3970.677 | 6.840  | 0.000  |

Y-PLANE (XZ-PLANE) LITHIUM NIOBATE (WARNER ET AL)

BULK

|     | LNQVEL   | LPH12 | LPH13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13  |
|-----|----------|-------|-------|----------|---------|--------|----------|--------|---------|
| 0.  | 6572.023 | 0.000 | 0.000 | 4794.767 | 0.000   | 0.000  | 4073.205 | 0.000  | 0.000   |
| 1.  | 6572.907 | 1.880 | 1.660 | 4793.794 | -1.330  | -1.740 | 4078.972 | -1.380 | -1.280  |
| 2.  | 6575.547 | 1.750 | 1.310 | 4790.083 | -2.650  | -1.460 | 4076.271 | -1.750 | -1.250  |
| 3.  | 6579.915 | 2.600 | 1.950 | 4786.067 | -3.940  | -2.200 | 4077.105 | -1.120 | -1.630  |
| 4.  | 6585.960 | 3.420 | 2.570 | 4779.397 | -5.190  | -2.650 | 4075.476 | -1.490 | -1.490  |
| 5.  | 6593.617 | 4.150 | 3.160 | 4770.942 | -6.390  | -3.540 | 4073.396 | -1.860 | -1.370  |
| 6.  | 6602.803 | 4.920 | 3.720 | 4760.789 | -7.520  | -4.160 | 4070.866 | -2.220 | -1.630  |
| 7.  | 6613.424 | 5.550 | 4.250 | 4749.036 | -8.590  | -4.730 | 4067.696 | -2.570 | -1.900  |
| 8.  | 6625.375 | 6.210 | 4.740 | 4735.793 | -9.500  | -5.260 | 4064.497 | -2.910 | -2.150  |
| 9.  | 6638.544 | 6.760 | 5.190 | 4721.176 | -10.490 | -5.720 | 4060.601 | -3.250 | -2.410  |
| 10. | 6652.813 | 7.250 | 5.600 | 4705.313 | -11.330 | -6.140 | 4056.463 | -3.570 | -2.670  |
| 11. | 6668.062 | 7.660 | 5.970 | 4688.324 | -12.000 | -6.490 | 4051.650 | -3.880 | -2.930  |
| 12. | 6684.166 | 8.050 | 6.300 | 4670.339 | -12.750 | -6.790 | 4046.683 | -4.170 | -3.130  |
| 13. | 6701.013 | 8.350 | 6.590 | 4651.401 | -13.340 | -7.030 | 4041.200 | -4.450 | -3.300  |
| 14. | 6718.476 | 8.600 | 6.840 | 4631.072 | -13.860 | -7.210 | 4035.910 | -4.710 | -3.590  |
| 15. | 6736.448 | 8.750 | 7.050 | 4611.631 | -14.300 | -7.340 | 4029.956 | -4.950 | -3.810  |
| 16. | 6754.815 | 8.930 | 7.230 | 4590.866 | -14.680 | -7.410 | 4023.724 | -5.180 | -4.020  |
| 17. | 6773.472 | 9.020 | 7.370 | 4569.691 | -14.990 | -7.430 | 4017.241 | -5.360 | -4.200  |
| 18. | 6792.322 | 9.060 | 7.460 | 4548.157 | -15.240 | -7.400 | 4010.536 | -5.500 | -4.400  |
| 19. | 6811.270 | 9.070 | 7.560 | 4526.479 | -15.430 | -7.320 | 4003.641 | -5.710 | -4.600  |
| 20. | 6830.230 | 9.030 | 7.610 | 4504.622 | -15.570 | -7.190 | 3996.505 | -5.830 | -4.800  |
| 21. | 6849.120 | 8.950 | 7.640 | 4482.703 | -15.660 | -7.030 | 3989.402 | -5.930 | -5.000  |
| 22. | 6867.866 | 8.840 | 7.640 | 4460.792 | -15.700 | -6.820 | 3982.123 | -6.010 | -5.200  |
| 23. | 6886.355 | 8.710 | 7.620 | 4438.954 | -15.700 | -6.580 | 3974.783 | -6.060 | -5.400  |
| 24. | 6904.656 | 8.540 | 7.580 | 4417.245 | -15.670 | -6.320 | 3967.412 | -6.080 | -5.700  |
| 25. | 6922.575 | 8.350 | 7.520 | 4395.716 | -15.600 | -6.020 | 3960.041 | -6.000 | -5.920  |
| 26. | 6940.117 | 8.140 | 7.440 | 4374.414 | -15.500 | -5.610 | 3952.690 | -6.000 | -6.100  |
| 27. | 6957.224 | 7.910 | 7.340 | 4353.390 | -15.370 | -5.370 | 3945.409 | -6.010 | -6.440  |
| 28. | 6973.858 | 7.670 | 7.230 | 4332.670 | -15.210 | -5.030 | 3938.196 | -5.950 | -6.670  |
| 29. | 6989.965 | 7.410 | 7.100 | 4312.295 | -15.020 | -4.660 | 3931.077 | -5.800 | -6.900  |
| 30. | 7005.572 | 7.140 | 6.960 | 4292.297 | -14.800 | -4.320 | 3924.063 | -5.600 | -7.120  |
| 31. | 7020.595 | 6.860 | 6.810 | 4272.710 | -14.560 | -3.970 | 3917.102 | -5.420 | -7.350  |
| 32. | 7035.031 | 6.570 | 6.640 | 4253.566 | -14.290 | -3.630 | 3910.373 | -5.260 | -7.590  |
| 33. | 7048.864 | 6.270 | 6.470 | 4234.896 | -13.990 | -3.250 | 3903.686 | -5.150 | -7.840  |
| 34. | 7062.082 | 5.960 | 6.280 | 4216.736 | -13.670 | -2.850 | 3897.085 | -5.010 | -8.090  |
| 35. | 7074.675 | 5.660 | 6.090 | 4199.119 | -13.310 | -2.460 | 3890.546 | -4.840 | -8.340  |
| 36. | 7086.640 | 5.360 | 5.890 | 4182.084 | -12.910 | -2.040 | 3884.033 | -4.690 | -8.590  |
| 37. | 7097.977 | 5.060 | 5.680 | 4165.670 | -12.480 | -1.610 | 3877.505 | -4.530 | -8.840  |
| 38. | 7108.689 | 4.790 | 5.470 | 4149.917 | -12.010 | -1.150 | 3870.911 | -4.360 | -9.090  |
| 39. | 7118.784 | 4.500 | 5.250 | 4134.867 | -11.500 | -0.760 | 3864.192 | -4.170 | -9.340  |
| 40. | 7128.272 | 4.220 | 5.030 | 4120.560 | -10.960 | -0.360 | 3857.289 | -3.990 | -9.590  |
| 41. | 7137.168 | 3.950 | 4.810 | 4107.031 | -10.380 | -0.160 | 3850.136 | -3.820 | -9.840  |
| 42. | 7145.489 | 3.690 | 4.580 | 4094.310 | -9.770  | -0.100 | 3842.673 | -3.650 | -10.090 |
| 43. | 7153.257 | 3.440 | 4.350 | 4082.418 | -9.150  | -0.290 | 3834.842 | -3.490 | -10.340 |
| 44. | 7160.494 | 3.200 | 4.120 | 4071.359 | -8.520  | -0.520 | 3826.596 | -3.320 | -10.590 |
| 45. | 7167.227 | 2.970 | 3.890 | 4061.124 | -7.900  | -0.790 | 3817.902 | -3.150 | -10.840 |
| 46. | 7173.464 | 2.760 | 3.660 | 4051.682 | -7.300  | -1.130 | 3808.742 | -2.980 | -11.090 |
| 47. | 7179.296 | 2.560 | 3.430 | 4042.984 | -6.750  | -1.050 | 3799.114 | -2.810 | -11.340 |
| 48. | 7184.696 | 2.360 | 3.200 | 4034.963 | -6.250  | -1.050 | 3789.035 | -2.650 | -11.590 |
| 49. | 7189.718 | 2.210 | 2.980 | 4027.535 | -5.820  | -1.020 | 3779.156 | -2.490 | -11.840 |

Y-PLANE (XZ-PLANE) LITHIUM NIOBATE (WARNER ET AL)

|     | LNGVEL   | LPMI12 | LPMI13 | FSPVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSRMI12 | SSRMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 7194.396 | 2.060  | 2.760  | 4020.603 | -5.470  | -1.000  | 3767.660 | -9.540  | 16.140  |
| 51. | 7198.766 | 1.930  | 2.550  | 4014.063 | -5.200  | -1.560  | 3756.460 | -9.620  | 16.440  |
| 52. | 7202.669 | 1.810  | 2.340  | 4007.603 | -5.030  | -1.560  | 3744.999 | -10.040 | 16.710  |
| 53. | 7206.736 | 1.710  | 2.140  | 4001.714 | -4.940  | -1.990  | 3733.328 | -10.220 | 16.940  |
| 54. | 7210.406 | 1.630  | 1.940  | 3995.665 | -4.950  | -1.020  | 3721.521 | -10.340 | 17.130  |
| 55. | 7213.914 | 1.560  | 1.760  | 3989.612 | -5.030  | -1.070  | 3709.636 | -10.420 | 17.200  |
| 56. | 7217.295 | 1.510  | 1.580  | 3983.396 | -5.190  | -1.140  | 3697.733 | -10.440 | 17.420  |
| 57. | 7220.562 | 1.460  | 1.410  | 3976.947 | -5.430  | -1.240  | 3685.670 | -10.420 | 17.520  |
| 58. | 7223.804 | 1.450  | 1.250  | 3970.103 | -5.720  | -1.360  | 3674.101 | -10.340 | 17.560  |
| 59. | 7226.991 | 1.440  | 1.100  | 3963.031 | -6.060  | -1.510  | 3662.475 | -10.230 | 17.610  |
| 60. | 7230.162 | 1.440  | .960   | 3955.429 | -6.460  | -1.670  | 3651.052 | -10.070 | 17.610  |
| 61. | 7233.357 | 1.450  | .820   | 3947.323 | -6.930  | -1.660  | 3639.666 | -9.870  | 17.610  |
| 62. | 7236.579 | 1.470  | .700   | 3938.672 | -7.410  | -2.170  | 3628.366 | -9.630  | 17.500  |
| 63. | 7239.847 | 1.490  | .590   | 3929.443 | -7.910  | -2.830  | 3616.393 | -9.350  | 17.360  |
| 64. | 7243.176 | 1.520  | .490   | 3919.617 | -8.420  | -2.550  | 3604.187 | -9.030  | 17.230  |
| 65. | 7246.571 | 1.550  | .400   | 3909.181 | -8.950  | -2.800  | 3591.307 | -8.600  | 17.000  |
| 66. | 7250.036 | 1.550  | .320   | 3898.136 | -9.470  | -3.070  | 3579.030 | -8.290  | 16.800  |
| 67. | 7253.576 | 1.620  | .250   | 3886.490 | -9.960  | -3.340  | 3566.153 | -7.860  | 16.520  |
| 68. | 7257.162 | 1.640  | .190   | 3874.262 | -10.400 | -3.600  | 3553.794 | -7.400  | 16.200  |
| 69. | 7260.846 | 1.670  | .140   | 3861.480 | -10.960 | -3.860  | 3541.373 | -6.960  | 15.830  |
| 70. | 7264.564 | 1.690  | .100   | 3848.181 | -11.400 | -4.120  | 3528.736 | -6.370  | 15.420  |
| 71. | 7268.314 | 1.700  | .060   | 3834.409 | -11.810 | -4.350  | 3515.116 | -5.810  | 14.990  |
| 72. | 7272.062 | 1.700  | .030   | 3820.216 | -12.170 | -4.570  | 3500.135 | -5.210  | 14.440  |
| 73. | 7275.845 | 1.700  | .010   | 3805.661 | -12.490 | -4.750  | 3484.135 | -4.590  | 13.800  |
| 74. | 7279.591 | 1.680  | -.010  | 3790.806 | -12.760 | -4.910  | 3467.236 | -3.950  | 13.200  |
| 75. | 7283.266 | 1.650  | -.030  | 3775.726 | -12.970 | -5.030  | 3450.366 | -3.290  | 12.630  |
| 76. | 7286.908 | 1.610  | -.030  | 3760.467 | -13.120 | -5.100  | 3432.256 | -2.530  | 11.940  |
| 77. | 7290.432 | 1.560  | -.040  | 3745.166 | -13.200 | -5.130  | 3423.407 | -1.790  | 11.200  |
| 78. | 7293.829 | 1.500  | -.040  | 3729.847 | -13.220 | -5.110  | 3423.407 | -1.030  | 10.430  |
| 79. | 7297.074 | 1.420  | -.040  | 3714.603 | -13.160 | -5.030  | 3422.714 | -.220   | 9.620   |
| 80. | 7300.141 | 1.330  | -.040  | 3699.515 | -13.070 | -4.850  | 3422.668 | .540    | 8.770   |
| 81. | 7303.003 | 1.240  | -.030  | 3684.660 | -12.890 | -4.690  | 3423.007 | 1.360   | 7.910   |
| 82. | 7305.637 | 1.130  | -.030  | 3670.116 | -12.640 | -4.420  | 3423.783 | 2.160   | 7.020   |
| 83. | 7308.020 | 1.010  | -.020  | 3655.951 | -12.330 | -4.090  | 3428.567 | 3.000   | 6.110   |
| 84. | 7310.130 | .880   | -.020  | 3642.250 | -11.950 | -3.690  | 3432.246 | 3.630   | 5.200   |
| 85. | 7311.949 | .750   | -.010  | 3629.066 | -11.510 | -3.230  | 3436.623 | 4.650   | 4.200   |
| 86. | 7313.461 | .610   | -.010  | 3616.465 | -11.020 | -2.770  | 3442.297 | 5.470   | 3.300   |
| 87. | 7314.651 | .460   | -.010  | 3604.504 | -10.470 | -2.110  | 3446.660 | 6.270   | 2.500   |
| 88. | 7315.509 | .310   | -.000  | 3593.234 | -9.870  | -1.460  | 3450.901 | 7.050   | 1.800   |
| 89. | 7316.027 | .160   | -.000  | 3582.702 | -9.220  | -.750   | 3454.005 | 7.610   | 1.000   |
| 90. | 7316.200 | -.000  | -.000  | 3572.946 | -8.530  | 0.000   | 3456.702 | 8.000   | 0.000   |
| 91. | 7316.027 | -.160  | -.000  | 3564.005 | -7.810  | 1.630   | 3459.234 | 8.270   | -.750   |
| 92. | 7315.509 | -.310  | -.000  | 3555.901 | -7.050  | 3.350   | 3461.504 | 8.870   | -1.490  |
| 93. | 7314.651 | -.460  | -.010  | 3548.660 | -6.270  | 5.000   | 3463.665 | 9.420   | -2.110  |
| 94. | 7313.461 | -.610  | -.010  | 3542.297 | -5.470  | 6.270   | 3465.465 | 9.870   | -2.700  |
| 95. | 7311.949 | -.750  | -.010  | 3536.823 | -4.650  | 7.020   | 3466.966 | 10.070  | -3.230  |
| 96. | 7310.130 | -.880  | -.020  | 3532.246 | -3.830  | 7.510   | 3468.250 | 10.470  | -3.690  |
| 97. | 7308.020 | -1.010 | -.020  | 3528.567 | -3.000  | 6.110   | 3469.555 | 10.920  | -4.050  |
| 98. | 7305.637 | -1.130 | -.030  | 3525.783 | -2.160  | 4.200   | 3470.116 | 11.200  | -4.340  |
| 99. | 7303.003 | -1.240 | -.030  | 3523.007 | -1.360  | 2.510   | 3464.660 | 11.640  | -4.610  |

BULK

Y-PLANE (XZ-PLANE) LITHIUM NIOBATE (WARNER ET AL)

BULK

|      | LINVEL   | LPHI12 | LPHI13 | FSPVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 100. | 7380.141 | -1.330 | -0.040 | 3222.868 | -0.546 | 8.770  | 3694.515 | 13.070 | -1.090 |
| 101. | 7297.074 | -1.420 | -0.040 | 3222.714 | 0.250  | 9.620  | 3714.603 | 13.180 | -2.030 |
| 102. | 7293.625 | -1.500 | -0.040 | 3223.487 | 1.030  | 10.430 | 3725.647 | 13.220 | -2.110 |
| 103. | 7290.432 | -1.560 | -0.040 | 3224.928 | 1.790  | 11.200 | 3745.168 | 13.200 | -2.130 |
| 104. | 7286.908 | -1.610 | -0.030 | 3227.255 | 2.530  | 11.540 | 3760.487 | 13.120 | -2.100 |
| 105. | 7283.286 | -1.650 | -0.030 | 3230.366 | 3.250  | 12.630 | 3775.726 | 12.970 | -2.030 |
| 106. | 7279.591 | -1.680 | -0.010 | 3234.235 | 3.930  | 13.260 | 3790.800 | 12.760 | -1.990 |
| 107. | 7275.849 | -1.700 | -0.010 | 3238.835 | 4.590  | 13.690 | 3805.661 | 12.490 | -1.970 |
| 108. | 7272.082 | -1.700 | -0.030 | 3244.139 | 5.210  | 14.440 | 3820.216 | 12.170 | -1.920 |
| 109. | 7268.314 | -1.700 | -0.060 | 3250.116 | 5.810  | 14.950 | 3834.409 | 11.810 | -1.870 |
| 110. | 7264.564 | -1.690 | -0.100 | 3256.738 | 6.376  | 15.420 | 3848.181 | 11.400 | -1.820 |
| 111. | 7260.846 | -1.670 | -0.140 | 3263.973 | 6.900  | 15.830 | 3861.400 | 10.960 | -1.760 |
| 112. | 7257.182 | -1.640 | -0.190 | 3271.785 | 7.400  | 16.200 | 3874.262 | 10.460 | -1.690 |
| 113. | 7253.576 | -1.620 | -0.250 | 3280.153 | 7.866  | 16.520 | 3886.490 | 9.950  | -1.620 |
| 114. | 7250.036 | -1.550 | -0.320 | 3289.830 | 8.290  | 16.800 | 3898.136 | 9.470  | -1.570 |
| 115. | 7246.571 | -1.520 | -0.400 | 3299.987 | 8.660  | 17.040 | 3909.181 | 8.950  | -1.520 |
| 116. | 7243.176 | -1.520 | -0.440 | 3308.187 | 9.030  | 17.230 | 3919.617 | 8.420  | -1.470 |
| 117. | 7239.847 | -1.490 | -0.590 | 3318.393 | 9.350  | 17.360 | 3929.443 | 7.850  | -1.420 |
| 118. | 7236.579 | -1.470 | -0.780 | 3328.966 | 9.630  | 17.500 | 3938.672 | 7.410  | -1.370 |
| 119. | 7233.357 | -1.450 | -0.820 | 3339.866 | 9.870  | 17.570 | 3947.323 | 6.930  | -1.320 |
| 120. | 7230.166 | -1.440 | -0.960 | 3351.052 | 10.070 | 17.610 | 3955.425 | 6.460  | -1.270 |
| 121. | 7226.951 | -1.440 | -1.100 | 3362.479 | 10.230 | 17.610 | 3963.031 | 6.000  | -1.220 |
| 122. | 7223.804 | -1.440 | -1.250 | 3374.101 | 10.346 | 17.560 | 3970.103 | 5.720  | -1.170 |
| 123. | 7220.582 | -1.440 | -1.410 | 3385.870 | 10.420 | 17.520 | 3976.947 | 5.430  | -1.120 |
| 124. | 7217.295 | -1.450 | -1.580 | 3397.833 | 10.440 | 17.420 | 3983.396 | 5.030  | -1.070 |
| 125. | 7213.914 | -1.460 | -1.760 | 3409.836 | 10.420 | 17.250 | 3989.612 | 4.590  | -1.020 |
| 126. | 7210.486 | -1.460 | -1.940 | 3421.821 | 10.340 | 17.130 | 3995.685 | 4.120  | -0.970 |
| 127. | 7206.736 | -1.470 | -2.140 | 3433.828 | 10.220 | 16.940 | 4001.714 | 3.630  | -0.920 |
| 128. | 7202.869 | -1.480 | -2.340 | 3444.995 | 10.040 | 16.710 | 4007.603 | 3.120  | -0.870 |
| 129. | 7198.764 | -1.490 | -2.550 | 3456.460 | 9.820  | 16.440 | 4014.063 | 2.600  | -0.820 |
| 130. | 7194.396 | -1.500 | -2.760 | 3467.860 | 9.540  | 16.140 | 4020.603 | 2.070  | -0.770 |
| 131. | 7189.716 | -1.520 | -2.980 | 3478.836 | 9.210  | 15.800 | 4027.535 | 1.540  | -0.720 |
| 132. | 7184.696 | -1.530 | -3.200 | 3489.835 | 8.850  | 15.430 | 4034.963 | 1.020  | -0.670 |
| 133. | 7179.296 | -1.560 | -3.430 | 3499.114 | 8.460  | 15.010 | 4042.984 | 0.500  | -0.620 |
| 134. | 7173.484 | -1.560 | -3.660 | 3508.742 | 8.040  | 14.570 | 4051.682 | 0.000  | -0.570 |
| 135. | 7167.227 | -1.570 | -3.890 | 3517.902 | 7.630  | 14.090 | 4061.124 | 0.000  | -0.520 |
| 136. | 7160.494 | -1.570 | -4.120 | 3526.596 | 7.220  | 13.590 | 4071.359 | 0.000  | -0.470 |
| 137. | 7153.297 | -1.540 | -4.350 | 3534.863 | 6.840  | 13.070 | 4082.416 | 0.000  | -0.420 |
| 138. | 7145.689 | -1.540 | -4.580 | 3542.673 | 6.500  | 12.540 | 4094.310 | 0.000  | -0.370 |
| 139. | 7137.168 | -1.540 | -4.810 | 3550.136 | 6.200  | 12.010 | 4107.031 | 0.000  | -0.320 |
| 140. | 7128.272 | -1.540 | -5.030 | 3557.269 | 5.950  | 11.480 | 4120.567 | 0.000  | -0.270 |
| 141. | 7118.784 | -1.540 | -5.250 | 3564.192 | 5.760  | 10.960 | 4134.867 | 0.000  | -0.220 |
| 142. | 7108.889 | -1.470 | -5.470 | 3570.911 | 5.620  | 10.460 | 4149.917 | 0.000  | -0.170 |
| 143. | 7097.377 | -1.500 | -5.680 | 3577.505 | 5.530  | 9.970  | 4165.670 | 0.000  | -0.120 |
| 144. | 7086.640 | -1.530 | -5.890 | 3584.033 | 5.490  | 9.510  | 4182.084 | 0.000  | -0.070 |
| 145. | 7074.675 | -1.560 | -6.090 | 3590.546 | 5.480  | 9.070  | 4199.119 | 0.000  | -0.020 |
| 146. | 7062.082 | -1.560 | -6.280 | 3597.085 | 5.510  | 8.650  | 4216.736 | 0.000  | 0.030  |
| 147. | 7048.664 | -1.570 | -6.470 | 3583.686 | 5.570  | 8.270  | 4234.896 | 0.000  | 0.080  |
| 148. | 7035.031 | -1.570 | -6.640 | 3510.373 | 5.640  | 7.900  | 4253.566 | 0.000  | 0.130  |
| 149. | 7020.595 | -1.560 | -6.810 | 3517.162 | 5.720  | 7.560  | 4272.710 | 0.000  | 0.180  |



|      | Y-PLANE (XZ-PLANE) LITHIUM NIOBATE (WARNER ET AL) |       |          |        | BULK   |          |        |        |
|------|---|-------|----------|--------|--------|----------|--------|--------|
|      | LPM12   | LPM13 | FSRVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |
| 150. | -7.140  | 6.960 | 3924.063 | 5.800  | 7.240  | 4292.297 | 14.600 | -4.320 |
| 151. | -7.430  | 7.100 | 3931.077 | 5.800  | 6.550  | 4312.295 | 15.020 | -4.000 |
| 152. | -7.670  | 7.230 | 3938.156 | 5.950  | 6.070  | 4322.670 | 15.210 | -3.000 |
| 153. | -7.910  | 7.340 | 3945.409 | 6.010  | 6.410  | 4333.390 | 15.370 | -2.370 |
| 154. | -8.140  | 7.440 | 3952.638 | 6.060  | 6.160  | 4344.419 | 15.500 | -2.710 |
| 155. | -8.350  | 7.520 | 3960.041 | 6.060  | 5.920  | 4355.710 | 15.600 | -2.020 |
| 156. | -8.540  | 7.560 | 3967.412 | 6.080  | 5.700  | 4367.245 | 15.670 | -1.320 |
| 157. | -8.710  | 7.620 | 3974.783 | 6.080  | 5.460  | 4378.954 | 15.700 | -0.590 |
| 158. | -8.840  | 7.640 | 3982.123 | 6.010  | 5.270  | 4390.792 | 15.700 | 0.000  |
| 159. | -8.950  | 7.640 | 3989.402 | 5.930  | 5.060  | 4402.703 | 15.660 | -0.030 |
| 160. | -9.030  | 7.610 | 3996.585 | 5.830  | 4.850  | 4414.622 | 15.570 | -0.130 |
| 161. | -9.070  | 7.560 | 4003.641 | 5.710  | 4.650  | 4426.479 | 15.430 | -0.320 |
| 162. | -9.060  | 7.480 | 4010.536 | 5.550  | 4.440  | 4438.197 | 15.240 | -0.450 |
| 163. | -9.020  | 7.370 | 4017.241 | 5.360  | 4.240  | 4450.691 | 14.990 | -0.530 |
| 164. | -8.930  | 7.230 | 4023.724 | 5.180  | 4.020  | 4463.006 | 14.680 | -0.410 |
| 165. | -8.750  | 7.050 | 4029.956 | 4.960  | 3.810  | 4475.031 | 14.300 | -0.300 |
| 166. | -8.600  | 6.840 | 4035.910 | 4.710  | 3.590  | 4486.767 | 13.860 | -0.210 |
| 167. | -8.350  | 6.590 | 4041.560 | 4.450  | 3.360  | 4511.461 | 13.340 | -0.030 |
| 168. | -8.050  | 6.300 | 4046.883 | 4.170  | 3.130  | 4570.339 | 12.750 | -0.770 |
| 169. | -7.660  | 5.970 | 4051.856 | 3.860  | 2.900  | 4688.324 | 12.060 | -0.470 |
| 170. | -7.250  | 5.600 | 4056.463 | 3.570  | 2.650  | 4705.313 | 11.330 | -0.150 |
| 171. | -6.760  | 5.190 | 4060.691 | 3.250  | 2.410  | 4721.170 | 10.490 | -0.720 |
| 172. | -6.210  | 4.740 | 4064.497 | 2.910  | 2.150  | 4735.793 | 9.560  | -0.260 |
| 173. | -5.550  | 4.250 | 4067.896 | 2.570  | 1.900  | 4749.036 | 8.550  | -0.730 |
| 174. | -4.920  | 3.720 | 4070.866 | 2.220  | 1.630  | 4760.709 | 7.520  | -0.160 |
| 175. | -4.190  | 3.160 | 4073.396 | 1.860  | 1.370  | 4770.942 | 6.390  | -0.540 |
| 176. | -3.420  | 2.570 | 4075.478 | 1.490  | 1.100  | 4779.397 | 5.150  | -0.690 |
| 177. | -2.600  | 1.950 | 4077.105 | 1.120  | 0.830  | 4786.067 | 3.940  | -0.200 |
| 178. | -1.750  | 1.310 | 4078.271 | 0.750  | 0.550  | 4790.883 | 2.650  | -1.460 |
| 179. | -0.860  | 0.660 | 4078.972 | 0.360  | 0.260  | 4793.794 | 1.330  | -0.700 |
| 180. | -0.000  | 0.000 | 4079.205 | -0.000 | -0.000 | 4794.767 | -0.000 | 0.000  |

Z-PLANE (XY-PLANE) LITHIUM NIOBATE (WARNER ET AL)

BULK

|     | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 6572.023 | 0.000  | 0.000  | 4794.767 | 0.000   | 0.000   | 4079.205 | 0.000   | 0.000   |
| 1.  | 6572.957 | 0.930  | -0.660 | 4793.601 | -1.590  | 0.740   | 4079.071 | -0.220  | -0.200  |
| 2.  | 6575.740 | 1.840  | -1.310 | 4790.125 | -3.160  | 1.480   | 4078.669 | -0.430  | -0.570  |
| 3.  | 6580.321 | 2.720  | -1.950 | 4784.404 | -4.660  | 2.210   | 4077.996 | -0.650  | -0.930  |
| 4.  | 6586.615 | 3.540  | -2.570 | 4776.543 | -6.060  | 2.920   | 4077.050 | -0.870  | -1.320  |
| 5.  | 6594.510 | 4.300  | -3.170 | 4766.684 | -7.400  | 3.620   | 4075.626 | -1.100  | -1.800  |
| 6.  | 6603.068 | 4.960  | -3.740 | 4755.802 | -8.590  | 4.290   | 4074.320 | -1.330  | -2.400  |
| 7.  | 6614.533 | 5.570  | -4.280 | 4741.697 | -9.630  | 4.930   | 4072.526 | -1.560  | -3.100  |
| 8.  | 6626.333 | 6.070  | -4.790 | 4726.990 | -10.530 | 5.550   | 4070.440 | -1.800  | -3.800  |
| 9.  | 6639.086 | 6.490  | -5.270 | 4711.117 | -11.260 | 6.140   | 4068.056 | -2.040  | -4.500  |
| 10. | 6652.615 | 6.800  | -5.710 | 4694.323 | -11.840 | 6.700   | 4065.372 | -2.290  | -5.200  |
| 11. | 6666.725 | 7.030  | -6.120 | 4676.856 | -12.250 | 7.240   | 4062.387 | -2.530  | -5.900  |
| 12. | 6681.236 | 7.160  | -6.490 | 4658.964 | -12.500 | 7.740   | 4059.102 | -2.770  | -6.600  |
| 13. | 6695.974 | 7.210  | -6.840 | 4640.886 | -12.590 | 8.220   | 4055.526 | -3.010  | -7.300  |
| 14. | 6710.762 | 7.180  | -7.150 | 4622.860 | -12.530 | 8.670   | 4051.671 | -3.230  | -8.000  |
| 15. | 6725.441 | 7.060  | -7.430 | 4605.097 | -12.320 | 9.090   | 4047.557 | -3.430  | -8.700  |
| 16. | 6739.859 | 6.900  | -7.690 | 4587.802 | -11.990 | 9.460   | 4043.213 | -3.610  | -9.400  |
| 17. | 6753.873 | 6.660  | -7.920 | 4571.157 | -11.520 | 9.850   | 4038.676 | -3.750  | -10.100 |
| 18. | 6767.353 | 6.360  | -8.130 | 4555.324 | -10.950 | 10.160  | 4034.000 | -3.840  | -10.800 |
| 19. | 6780.179 | 6.010  | -8.320 | 4540.441 | -10.260 | 10.460  | 4029.239 | -3.890  | -11.500 |
| 20. | 6792.241 | 5.610  | -8.490 | 4526.624 | -9.526  | 10.750  | 4024.466 | -3.870  | -12.200 |
| 21. | 6803.441 | 5.170  | -8.630 | 4513.966 | -8.700  | 10.950  | 4019.760 | -3.790  | -12.900 |
| 22. | 6813.692 | 4.690  | -8.760 | 4502.545 | -7.820  | 11.210  | 4015.206 | -3.630  | -13.600 |
| 23. | 6822.914 | 4.170  | -8.870 | 4492.406 | -6.900  | 11.530  | 4010.932 | -3.400  | -14.300 |
| 24. | 6831.041 | 3.630  | -8.960 | 4483.588 | -5.940  | 11.860  | 4006.933 | -3.090  | -15.000 |
| 25. | 6838.015 | 3.060  | -9.040 | 4476.115 | -4.970  | 12.200  | 4003.392 | -2.700  | -15.700 |
| 26. | 6843.786 | 2.470  | -9.100 | 4469.997 | -3.950  | 12.550  | 4000.365 | -2.250  | -16.400 |
| 27. | 6848.315 | 1.870  | -9.150 | 4465.240 | -2.950  | 12.860  | 3997.926 | -1.740  | -17.100 |
| 28. | 6851.572 | 1.250  | -9.190 | 4461.844 | -2.000  | 13.160  | 3996.137 | -1.190  | -17.800 |
| 29. | 6853.535 | 0.630  | -9.210 | 4459.807 | -1.000  | 13.520  | 3995.045 | -0.620  | -18.500 |
| 30. | 6854.190 | -0.000 | -9.210 | 4459.129 | 0.000   | 13.930  | 3994.677 | 0.000   | -19.200 |
| 31. | 6853.535 | -0.630 | -9.210 | 4461.844 | 1.000   | 14.300  | 3995.045 | 0.620   | -19.900 |
| 32. | 6851.572 | -1.250 | -9.190 | 4465.240 | 2.000   | 14.650  | 3996.137 | 1.190   | -20.600 |
| 33. | 6848.315 | -1.870 | -9.150 | 4469.997 | 2.990   | 15.000  | 3997.926 | 1.740   | -21.300 |
| 34. | 6843.786 | -2.470 | -9.100 | 4465.997 | 3.940   | 15.350  | 4000.365 | 2.250   | -22.000 |
| 35. | 6838.015 | -3.060 | -9.040 | 4476.115 | 4.970   | 15.660  | 4003.392 | 2.700   | -22.700 |
| 36. | 6831.041 | -3.630 | -8.960 | 4483.588 | 5.940   | 15.990  | 4006.933 | 3.090   | -23.400 |
| 37. | 6822.914 | -4.170 | -8.870 | 4492.406 | 6.900   | 16.300  | 4010.932 | 3.400   | -24.100 |
| 38. | 6813.692 | -4.690 | -8.760 | 4502.545 | 7.820   | 16.600  | 4015.206 | 3.630   | -24.800 |
| 39. | 6803.441 | -5.170 | -8.630 | 4513.966 | 8.700   | 16.900  | 4019.760 | 3.790   | -25.500 |
| 40. | 6792.241 | -5.610 | -8.490 | 4526.624 | 9.520   | 17.200  | 4024.466 | 3.870   | -26.200 |
| 41. | 6780.179 | -6.010 | -8.320 | 4540.441 | 10.260  | 17.500  | 4029.239 | 3.890   | -26.900 |
| 42. | 6767.353 | -6.360 | -8.130 | 4555.324 | 10.950  | 17.800  | 4034.000 | 3.840   | -27.600 |
| 43. | 6753.873 | -6.660 | -7.920 | 4571.157 | 11.520  | 18.100  | 4038.676 | 3.750   | -28.300 |
| 44. | 6739.859 | -6.900 | -7.690 | 4587.802 | 11.990  | 18.400  | 4043.213 | 3.610   | -29.000 |
| 45. | 6725.441 | -7.060 | -7.430 | 4605.097 | 12.320  | 18.600  | 4047.557 | 3.430   | -29.700 |
| 46. | 6710.762 | -7.180 | -7.150 | 4622.860 | 12.530  | 18.800  | 4051.671 | 3.230   | -30.400 |
| 47. | 6695.974 | -7.210 | -6.840 | 4640.886 | 12.590  | 19.000  | 4055.526 | 3.010   | -31.100 |
| 48. | 6681.236 | -7.160 | -6.490 | 4658.964 | 12.500  | 19.200  | 4059.102 | 2.770   | -31.800 |
| 49. | 6666.725 | -7.030 | -6.120 | 4676.856 | 12.250  | 19.400  | 4062.387 | 2.530   | -32.500 |

Z-PLANE (XY-PLANE) LITHIUM NIOBATE (WARNER ET AL)

BULK

|     | LMGVEL   | LPN12  | LPN13  | FSRWEL   | FSPN12  | FSPN13  | SSRWEL   | SSPN12 | SSPN13 |
|-----|----------|--------|--------|----------|---------|---------|----------|--------|--------|
| 50. | 6652.615 | -6.800 | -5.710 | 4694.323 | 11.840  | 6.700   | 4065.372 | 2.250  | -2.660 |
| 51. | 6639.088 | -6.490 | -5.270 | 4711.117 | 11.260  | 6.140   | 4068.056 | 2.040  | -2.560 |
| 52. | 6626.333 | -6.070 | -4.790 | 4726.990 | 10.530  | 5.550   | 4070.440 | 1.800  | -2.200 |
| 53. | 6614.533 | -5.570 | -4.280 | 4741.697 | 9.630   | 4.930   | 4072.526 | 1.560  | -1.900 |
| 54. | 6603.868 | -4.980 | -3.740 | 4755.002 | 8.590   | 4.290   | 4074.320 | 1.330  | -1.690 |
| 55. | 6594.510 | -4.300 | -3.170 | 4766.684 | 7.400   | 3.620   | 4075.826 | 1.100  | -1.400 |
| 56. | 6586.615 | -3.540 | -2.570 | 4776.543 | 6.060   | 2.920   | 4077.050 | 0.870  | -1.120 |
| 57. | 6580.321 | -2.720 | -1.950 | 4784.404 | 4.660   | 2.210   | 4077.996 | 0.650  | -0.830 |
| 58. | 6575.740 | -1.840 | -1.310 | 4790.125 | 3.160   | 1.460   | 4078.669 | 0.430  | -0.500 |
| 59. | 6572.957 | -0.930 | -0.660 | 4793.601 | 1.590   | 0.740   | 4079.071 | 0.220  | -0.280 |
| 60. | 6572.023 | 0.000  | -0.000 | 4794.767 | 0.000   | -0.000  | 4079.205 | 0.000  | 0.000  |
| 61. | 6572.957 | -0.930 | 0.660  | 4793.601 | -1.590  | -0.740  | 4079.071 | -0.220 | -0.280 |
| 62. | 6575.740 | 1.840  | 1.310  | 4790.125 | -3.160  | -1.460  | 4078.669 | -0.430 | -0.500 |
| 63. | 6580.321 | 2.720  | 1.950  | 4784.404 | -4.660  | -2.210  | 4077.996 | -0.650 | -0.830 |
| 64. | 6586.615 | 3.540  | 2.570  | 4776.543 | -6.000  | -2.920  | 4077.050 | -0.870 | -1.120 |
| 65. | 6594.510 | 4.300  | 3.170  | 4766.684 | -7.400  | -3.620  | 4075.826 | -1.100 | -1.400 |
| 66. | 6603.868 | 4.980  | 3.740  | 4755.002 | -8.590  | -4.290  | 4074.320 | -1.330 | -1.690 |
| 67. | 6614.533 | 5.570  | 4.280  | 4741.697 | -9.630  | -4.930  | 4072.526 | -1.560 | -1.900 |
| 68. | 6626.333 | 6.070  | 4.790  | 4726.990 | -10.530 | -5.550  | 4070.440 | -1.800 | -2.200 |
| 69. | 6639.088 | 6.490  | 5.270  | 4711.117 | -11.260 | -6.140  | 4068.056 | -2.040 | -2.560 |
| 70. | 6652.615 | 6.800  | 5.710  | 4694.323 | -11.840 | -6.700  | 4065.372 | -2.250 | -2.660 |
| 71. | 6666.725 | 7.030  | 6.120  | 4676.856 | -12.260 | -7.240  | 4062.387 | -2.430 | -2.830 |
| 72. | 6681.238 | 7.160  | 6.490  | 4658.964 | -12.590 | -7.740  | 4059.102 | -2.570 | -2.970 |
| 73. | 6695.974 | 7.210  | 6.840  | 4640.868 | -12.850 | -8.220  | 4055.526 | -2.680 | -3.080 |
| 74. | 6710.762 | 7.180  | 7.150  | 4622.860 | -13.030 | -8.670  | 4051.671 | -2.730 | -3.130 |
| 75. | 6725.441 | 7.060  | 7.430  | 4605.097 | -13.320 | -9.090  | 4047.557 | -2.840 | -3.240 |
| 76. | 6739.859 | 6.900  | 7.690  | 4587.802 | -13.990 | -9.480  | 4043.213 | -3.010 | -3.410 |
| 77. | 6753.873 | 6.660  | 7.920  | 4571.157 | -14.520 | -9.850  | 4038.678 | -3.170 | -3.580 |
| 78. | 6767.353 | 6.380  | 8.130  | 4555.324 | -14.950 | -10.160 | 4034.000 | -3.340 | -3.750 |
| 79. | 6780.175 | 6.010  | 8.320  | 4540.441 | -15.260 | -10.460 | 4029.239 | -3.690 | -3.990 |
| 80. | 6792.241 | 5.610  | 8.490  | 4526.624 | -15.520 | -10.710 | 4024.466 | -3.870 | -4.170 |
| 81. | 6803.441 | 5.170  | 8.630  | 4513.968 | -15.700 | -10.950 | 4019.760 | -3.750 | -3.950 |
| 82. | 6813.692 | 4.690  | 8.760  | 4502.545 | -15.820 | -11.210 | 4015.206 | -3.630 | -3.830 |
| 83. | 6822.914 | 4.170  | 8.870  | 4492.406 | -15.900 | -11.350 | 4010.902 | -3.400 | -3.600 |
| 84. | 6831.041 | 3.630  | 8.960  | 4483.566 | -15.940 | -11.540 | 4006.933 | -3.090 | -3.290 |
| 85. | 6838.015 | 3.060  | 9.040  | 4476.115 | -15.660 | -11.660 | 4003.392 | -2.700 | -2.900 |
| 86. | 6843.786 | 2.470  | 9.100  | 4469.997 | -15.390 | -11.760 | 4000.365 | -2.250 | -2.450 |
| 87. | 6848.315 | 1.870  | 9.150  | 4465.240 | -15.040 | -11.840 | 3997.926 | -1.740 | -2.040 |
| 88. | 6851.572 | 1.250  | 9.190  | 4461.844 | -14.690 | -11.690 | 3996.137 | -1.190 | -1.490 |
| 89. | 6853.535 | 0.630  | 9.210  | 4459.807 | -14.200 | -11.420 | 3994.045 | -0.620 | -1.020 |
| 90. | 6854.190 | -0.000 | 9.210  | 4459.129 | 0.000   | -11.930 | 3994.677 | 0.000  | -0.600 |
| 91. | 6853.535 | -0.630 | 9.210  | 4459.807 | 1.000   | -11.920 | 3995.045 | 0.620  | 0.000  |
| 92. | 6851.572 | -1.250 | 9.190  | 4461.844 | 2.000   | -11.690 | 3996.137 | 1.190  | 0.880  |
| 93. | 6848.315 | -1.870 | 9.150  | 4465.240 | 2.990   | -11.840 | 3997.926 | 1.740  | 1.670  |
| 94. | 6843.786 | -2.470 | 9.100  | 4469.997 | 3.990   | -11.760 | 4000.365 | 2.250  | 2.040  |
| 95. | 6838.015 | -3.060 | 9.040  | 4476.115 | 4.970   | -11.660 | 4003.392 | 2.700  | 2.500  |
| 96. | 6831.041 | -3.630 | 8.960  | 4483.566 | 5.940   | -11.540 | 4006.933 | 3.090  | 2.840  |
| 97. | 6822.914 | -4.170 | 8.870  | 4492.406 | 6.900   | -11.390 | 4010.902 | 3.400  | 3.140  |
| 98. | 6813.692 | -4.690 | 8.760  | 4492.406 | 7.820   | -11.210 | 4015.206 | 3.630  | 3.400  |
| 99. | 6803.441 | -5.170 | 8.630  | 4513.968 | 8.700   | -11.090 | 4019.760 | 3.750  | 3.590  |

Z-PLANE (XY-PLANE) LITHIUM NIOBATE (WARNER ET AL)

|      | LNGVEL   | LPM12  | LPM13  | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 6792.241 | -5.610 | 8.490  | 4826.624 | 9.520   | -10.750 | 4024.466 | 3.670   | -10.750 |
| 101. | 6780.174 | -6.010 | 8.320  | 4840.441 | 10.260  | -10.460 | 4029.239 | 3.690   | -10.460 |
| 102. | 6767.353 | -6.360 | 8.130  | 4855.324 | 10.990  | -10.180 | 4034.000 | 3.680   | -10.180 |
| 103. | 6753.873 | -6.660 | 7.920  | 4871.157 | 11.520  | -9.860  | 4036.676 | 3.650   | -9.860  |
| 104. | 6739.859 | -6.900 | 7.690  | 4887.802 | 11.990  | -9.460  | 4038.213 | 3.610   | -9.460  |
| 105. | 6725.441 | -7.060 | 7.430  | 4905.097 | 12.320  | -9.050  | 4047.257 | 3.430   | -9.050  |
| 106. | 6710.762 | -7.180 | 7.150  | 4922.860 | 12.530  | -8.670  | 4051.671 | 3.230   | -8.670  |
| 107. | 6695.974 | -7.210 | 6.840  | 4940.888 | 12.590  | -8.220  | 4055.526 | 3.010   | -8.220  |
| 108. | 6681.236 | -7.160 | 6.490  | 4958.964 | 12.500  | -7.740  | 4059.102 | 2.770   | -7.740  |
| 109. | 6666.725 | -7.030 | 6.120  | 4976.856 | 12.250  | -7.240  | 4062.387 | 2.530   | -7.240  |
| 110. | 6652.615 | -6.800 | 5.710  | 4994.323 | 11.840  | -6.700  | 4065.372 | 2.290   | -6.700  |
| 111. | 6639.086 | -6.490 | 5.270  | 5011.117 | 11.260  | -6.140  | 4068.056 | 2.040   | -6.140  |
| 112. | 6626.333 | -6.070 | 4.790  | 5026.990 | 10.530  | -5.550  | 4070.440 | 1.800   | -5.550  |
| 113. | 6614.533 | -5.570 | 4.280  | 5041.697 | 9.630   | -4.930  | 4072.526 | 1.560   | -4.930  |
| 114. | 6603.866 | -4.960 | 3.740  | 5055.002 | 8.590   | -4.290  | 4074.320 | 1.330   | -4.290  |
| 115. | 6594.510 | -4.300 | 3.170  | 5066.684 | 7.400   | -3.620  | 4075.826 | 1.100   | -3.620  |
| 116. | 6586.615 | -3.540 | 2.570  | 5076.543 | 6.060   | -2.920  | 4077.050 | .870    | -2.920  |
| 117. | 6580.321 | -2.720 | 1.950  | 5084.404 | 4.660   | -2.210  | 4077.996 | .650    | -2.210  |
| 118. | 6575.740 | -1.840 | 1.310  | 5090.125 | 3.160   | -1.460  | 4078.669 | .430    | -1.460  |
| 119. | 6572.957 | -.930  | .660   | 5093.601 | 1.590   | -.740   | 4079.071 | .220    | -.740   |
| 120. | 6572.023 | 0.000  | 0.000  | 4994.767 | -0.000  | 0.000   | 4079.205 | -0.600  | 0.000   |
| 121. | 6572.957 | .930   | -0.660 | 4993.601 | -1.590  | .740    | 4079.071 | -.220   | -.740   |
| 122. | 6575.740 | 1.840  | -1.310 | 4990.125 | -3.160  | 1.460   | 4078.669 | -.430   | 1.460   |
| 123. | 6580.321 | 2.720  | -1.950 | 4984.404 | -4.660  | 2.210   | 4077.996 | -.650   | 2.210   |
| 124. | 6586.615 | 3.540  | -2.570 | 4976.543 | -6.060  | 2.920   | 4077.050 | -.870   | 2.920   |
| 125. | 6594.510 | 4.300  | -3.170 | 4966.684 | -7.400  | 3.620   | 4075.826 | -1.100  | 3.620   |
| 126. | 6603.866 | 4.960  | -3.740 | 4955.002 | -8.590  | 4.290   | 4074.320 | -1.330  | 4.290   |
| 127. | 6614.533 | 5.570  | -4.280 | 4941.697 | -9.630  | 4.930   | 4072.526 | -1.560  | 4.930   |
| 128. | 6626.333 | 6.070  | -4.790 | 4926.990 | -10.530 | 5.550   | 4070.440 | -1.800  | 5.550   |
| 129. | 6639.086 | 6.490  | -5.270 | 4911.117 | -11.260 | 6.140   | 4068.056 | -2.040  | 6.140   |
| 130. | 6652.615 | 6.800  | -5.710 | 4894.323 | -11.840 | 6.700   | 4065.372 | -2.290  | 6.700   |
| 131. | 6666.725 | 7.030  | -6.120 | 4876.856 | -12.250 | 7.240   | 4062.387 | -2.530  | 7.240   |
| 132. | 6681.236 | 7.160  | -6.490 | 4858.964 | -12.500 | 7.740   | 4059.102 | -2.770  | 7.740   |
| 133. | 6695.974 | 7.210  | -6.840 | 4840.888 | -12.590 | 8.220   | 4055.526 | -3.010  | 8.220   |
| 134. | 6710.762 | 7.160  | -7.150 | 4822.860 | -12.530 | 8.670   | 4051.671 | -3.230  | 8.670   |
| 135. | 6725.441 | 7.060  | -7.430 | 4805.097 | -12.320 | 9.090   | 4047.257 | -3.430  | 9.090   |
| 136. | 6739.859 | 6.900  | -7.690 | 4787.802 | -11.990 | 9.480   | 4043.213 | -3.610  | 9.480   |
| 137. | 6753.873 | 6.660  | -7.920 | 4771.157 | -11.520 | 9.850   | 4038.213 | -3.750  | 9.850   |
| 138. | 6767.353 | 6.360  | -8.130 | 4755.324 | -10.950 | 10.180  | 4034.000 | -3.840  | 10.180  |
| 139. | 6780.174 | 6.010  | -8.320 | 4740.441 | -10.260 | 10.460  | 4029.239 | -3.690  | 10.460  |
| 140. | 6792.241 | 5.610  | -8.490 | 4726.624 | -9.520  | 10.750  | 4024.466 | -3.670  | 10.750  |
| 141. | 6803.841 | 5.170  | -8.630 | 4713.968 | -8.700  | 10.990  | 4019.700 | -3.790  | 10.990  |
| 142. | 6813.692 | 4.690  | -8.760 | 4702.545 | -7.820  | 11.210  | 4015.206 | -3.630  | 11.210  |
| 143. | 6822.914 | 4.170  | -8.870 | 4692.406 | -6.900  | 11.390  | 4010.902 | -3.400  | 11.390  |
| 144. | 6831.841 | 3.630  | -8.960 | 4683.588 | -5.940  | 11.540  | 4006.933 | -3.090  | 11.540  |
| 145. | 6838.015 | 3.060  | -9.040 | 4676.115 | -4.970  | 11.660  | 4003.392 | -2.700  | 11.660  |
| 146. | 6843.786 | 2.470  | -9.100 | 4669.997 | -3.990  | 11.760  | 4000.365 | -2.250  | 11.760  |
| 147. | 6848.315 | 1.870  | -9.150 | 4665.240 | -2.990  | 11.840  | 3997.926 | -1.740  | 11.840  |
| 148. | 6851.572 | 1.250  | -9.190 | 4661.844 | -2.000  | 11.650  | 3996.137 | -1.190  | 11.650  |
| 149. | 6853.535 | .630   | -9.210 | 4659.607 | -1.000  | 11.520  | 3995.045 | -.620   | 11.520  |

BULK

|      | Z-PLANE (XY-PLANE) LITHIUM NIOBATE (WARNER ET AL) |        |        |          |         |         |          |         |         |  | BULK |  |
|------|---|--------|--------|----------|---------|---------|----------|---------|---------|--|------|--|
|      | LANGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |  |      |  |
| 150. | 6054.190  | -0.000 | -9.210 | 4459.125 | 0.000   | 11.530  | 3934.677 | 0.000   | -6.840  |  |      |  |
| 151. | 6053.535  | -6.30  | -9.210 | 4459.807 | 1.000   | 11.520  | 3925.045 | .620    | -6.030  |  |      |  |
| 152. | 6051.572  | -1.250 | -9.190 | 4461.844 | 2.000   | 11.090  | 3946.137 | 1.140   | -8.000  |  |      |  |
| 153. | 6048.315  | -1.670 | -9.150 | 4465.240 | 2.950   | 11.640  | 3977.920 | 1.740   | -8.770  |  |      |  |
| 154. | 6043.786  | -2.470 | -9.100 | 4469.997 | 3.590   | 11.760  | 4000.365 | 2.250   | -8.870  |  |      |  |
| 155. | 6038.015  | -3.060 | -9.040 | 4476.115 | 4.970   | 11.660  | 4003.392 | 2.700   | -8.500  |  |      |  |
| 156. | 6031.041  | -3.630 | -8.960 | 4483.566 | 5.940   | 11.540  | 4006.933 | 3.090   | -8.440  |  |      |  |
| 157. | 6022.914  | -4.170 | -8.870 | 4492.406 | 6.500   | 11.350  | 4010.902 | 3.400   | -8.310  |  |      |  |
| 158. | 6013.692  | -4.650 | -8.760 | 4502.545 | 7.620   | 11.210  | 4015.206 | 3.630   | -8.150  |  |      |  |
| 159. | 6003.641  | -5.170 | -8.630 | 4513.968 | 8.700   | 10.990  | 4019.760 | 3.790   | -7.970  |  |      |  |
| 160. | 6792.241  | -5.610 | -8.490 | 4526.624 | 9.520   | 10.750  | 4024.466 | 3.870   | -7.740  |  |      |  |
| 161. | 6780.174  | -6.010 | -8.320 | 4540.441 | 10.260  | 10.480  | 4029.239 | 3.890   | -7.500  |  |      |  |
| 162. | 6767.353  | -6.360 | -8.130 | 4555.324 | 10.950  | 10.160  | 4034.000 | 3.840   | -7.250  |  |      |  |
| 163. | 6753.873  | -6.660 | -7.920 | 4571.157 | 11.520  | 9.850   | 4038.678 | 3.750   | -6.980  |  |      |  |
| 164. | 6739.859  | -6.900 | -7.690 | 4587.802 | 11.990  | 9.460   | 4043.213 | 3.610   | -6.700  |  |      |  |
| 165. | 6725.641  | -7.060 | -7.430 | 4605.097 | 12.320  | 9.050   | 4047.557 | 3.430   | -6.410  |  |      |  |
| 166. | 6710.762  | -7.180 | -7.150 | 4622.860 | 12.530  | 8.620   | 4051.671 | 3.230   | -6.110  |  |      |  |
| 167. | 6695.974  | -7.210 | -6.840 | 4640.886 | 12.590  | 8.220   | 4055.520 | 3.010   | -5.800  |  |      |  |
| 168. | 6681.238  | -7.160 | -6.490 | 4658.964 | 12.500  | 7.740   | 4059.152 | 2.770   | -5.470  |  |      |  |
| 169. | 6666.725  | -7.030 | -6.120 | 4676.856 | 12.250  | 7.240   | 4062.367 | 2.530   | -5.140  |  |      |  |
| 170. | 6652.615  | -6.800 | -5.710 | 4694.323 | 11.640  | 6.700   | 4065.322 | 2.240   | -4.800  |  |      |  |
| 171. | 6639.066  | -6.490 | -5.270 | 4711.117 | 11.260  | 6.140   | 4068.056 | 2.040   | -4.500  |  |      |  |
| 172. | 6626.333  | -6.070 | -4.790 | 4726.990 | 10.930  | 5.550   | 4070.440 | 1.800   | -4.200  |  |      |  |
| 173. | 6614.533  | -5.570 | -4.280 | 4741.697 | 9.630   | 4.930   | 4072.526 | 1.560   | -3.900  |  |      |  |
| 174. | 6603.866  | -4.980 | -3.740 | 4755.002 | 8.590   | 4.250   | 4074.320 | 1.330   | -3.600  |  |      |  |
| 175. | 6594.510  | -4.300 | -3.170 | 4766.684 | 7.400   | 3.620   | 4075.820 | 1.100   | -3.400  |  |      |  |
| 176. | 6586.615  | -3.540 | -2.570 | 4776.543 | 6.080   | 2.520   | 4077.050 | .870    | -3.120  |  |      |  |
| 177. | 6580.321  | -2.720 | -1.950 | 4784.404 | 4.660   | 2.210   | 4077.996 | .650    | -2.850  |  |      |  |
| 178. | 6575.740  | -1.840 | -1.310 | 4790.125 | 3.160   | 1.420   | 4078.669 | .430    | -2.500  |  |      |  |
| 179. | 6572.957  | -0.930 | -0.660 | 4793.601 | 1.590   | .740    | 4079.071 | .220    | -2.200  |  |      |  |
| 180. | 6572.023  | 0.000  | -0.000 | 4794.767 | -0.000  | -0.000  | 4079.295 | -0.000  | -0.000  |  |      |  |

X-PLANE (YZ-PLANE) LITHIUM NIOBATE (KOROLYUK ET AL)

|     | LNGVEL   | LPHI12 | LPHI13 | FSPVEL   | FSPHI12 | FSPHI13 | SSPVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 5838.704 | 10.300 | 0.000  | 4410.045 | -12.274 | -0.000  | 3938.755 | 5.859   | -0.000  |
| 1.  | 5868.703 | 10.550 | 0.000  | 4337.045 | -12.730 | -0.000  | 3905.700 | 5.579   | -0.000  |
| 2.  | 5883.251 | 10.740 | 0.000  | 4374.475 | -13.124 | -0.000  | 3928.024 | 5.800   | -0.000  |
| 3.  | 5906.227 | 10.870 | 0.000  | 4357.500 | -13.814 | -0.000  | 3958.524 | 5.260   | -0.000  |
| 4.  | 5929.516 | 10.950 | 0.000  | 4339.241 | -13.534 | -0.000  | 3964.782 | 5.070   | -0.000  |
| 5.  | 5953.007 | 10.980 | 0.000  | 4320.415 | -13.760 | -0.000  | 3970.803 | 4.657   | -0.000  |
| 6.  | 5976.592 | 10.971 | 0.000  | 4302.337 | -13.420 | -0.000  | 3976.577 | 4.657   | -0.000  |
| 7.  | 7000.168 | 10.910 | 0.000  | 4283.914 | -13.800 | -0.000  | 3982.094 | 4.660   | -0.000  |
| 8.  | 7023.660 | 10.800 | 0.000  | 4265.650 | -13.700 | -0.000  | 3987.757 | 4.220   | -0.000  |
| 9.  | 7045.914 | 10.660 | 0.000  | 4247.542 | -13.560 | -0.000  | 3992.357 | 3.994   | -0.000  |
| 10. | 7069.994 | 10.480 | 0.000  | 4229.941 | -13.704 | -0.000  | 3997.085 | 3.774   | -0.000  |
| 11. | 7092.524 | 10.260 | 0.000  | 4212.754 | -13.010 | -0.000  | 4001.530 | 3.547   | -0.000  |
| 12. | 7114.712 | 10.021 | 0.000  | 4196.077 | -12.650 | -0.000  | 4005.714 | 3.300   | -0.000  |
| 13. | 7136.381 | 9.750  | 0.000  | 4179.905 | -12.239 | -0.000  | 4009.507 | 3.070   | -0.000  |
| 14. | 7157.472 | 9.444  | 0.000  | 4164.222 | -11.770 | -0.000  | 4013.213 | 2.839   | -0.000  |
| 15. | 7177.921 | 9.124  | 0.000  | 4149.047 | -11.250 | -0.000  | 4016.824 | 2.590   | -0.000  |
| 16. | 7197.678 | 8.770  | 0.000  | 4134.371 | -10.690 | -0.000  | 4019.350 | 2.350   | -0.000  |
| 17. | 7216.686 | 8.410  | 0.000  | 4120.201 | -10.040 | -0.000  | 4021.800 | 2.100   | -0.000  |
| 18. | 7234.900 | 8.020  | 0.000  | 4106.532 | -9.450  | -0.000  | 4024.201 | 1.850   | -0.000  |
| 19. | 7252.278 | 7.631  | 0.000  | 4093.366 | -8.740  | -0.000  | 4026.555 | 1.610   | -0.000  |
| 20. | 7268.742 | 7.210  | 0.000  | 4080.706 | -8.000  | -0.000  | 4028.865 | 1.360   | -0.000  |
| 21. | 7284.391 | 6.760  | 0.000  | 4068.557 | -7.300  | -0.000  | 4030.130 | 1.110   | -0.000  |
| 22. | 7299.046 | 6.340  | 0.000  | 4056.904 | -6.670  | -0.000  | 4031.367 | 869     | -0.000  |
| 23. | 7312.752 | 5.910  | 0.000  | 4045.752 | -6.050  | -0.000  | 4032.565 | 519     | -0.000  |
| 24. | 7325.481 | 5.470  | 0.000  | 4035.112 | -5.270  | -0.000  | 4033.855 | 759     | -0.000  |
| 25. | 7337.217 | 5.010  | 0.000  | 4024.974 | -4.520  | -0.000  | 4035.134 | 100     | -0.000  |
| 26. | 7347.958 | 4.560  | 0.000  | 4015.349 | -3.820  | -0.000  | 4036.404 | 150     | -0.000  |
| 27. | 7357.673 | 4.110  | 0.000  | 4006.231 | -3.140  | -0.000  | 4037.673 | 200     | -0.000  |
| 28. | 7366.365 | 3.650  | 0.000  | 3997.621 | -2.490  | -0.000  | 4038.942 | 250     | -0.000  |
| 29. | 7374.037 | 3.200  | 0.000  | 3989.512 | -1.840  | -0.000  | 4040.211 | 300     | -0.000  |
| 30. | 7380.786 | 2.760  | 0.000  | 3981.915 | -1.300  | -0.000  | 4041.480 | 350     | -0.000  |
| 31. | 7386.604 | 2.320  | 0.000  | 3974.830 | -0.770  | -0.000  | 4042.749 | 400     | -0.000  |
| 32. | 7391.225 | 1.890  | 0.000  | 3968.260 | -0.240  | -0.000  | 4044.018 | 450     | -0.000  |
| 33. | 7395.000 | 1.470  | 0.000  | 3962.200 | 0.280   | -0.000  | 4045.287 | 500     | -0.000  |
| 34. | 7397.942 | 1.060  | 0.000  | 3956.650 | 0.800   | -0.000  | 4046.556 | 550     | -0.000  |
| 35. | 7399.780 | 0.660  | 0.000  | 3951.600 | 1.320   | -0.000  | 4047.825 | 600     | -0.000  |
| 36. | 7400.846 | 0.280  | 0.000  | 3947.050 | 1.840   | -0.000  | 4049.094 | 650     | -0.000  |
| 37. | 7401.077 | -0.080 | 0.000  | 3943.000 | 2.360   | -0.000  | 4050.363 | 700     | -0.000  |
| 38. | 7400.514 | -0.420 | 0.000  | 3939.450 | 2.880   | -0.000  | 4051.632 | 750     | -0.000  |
| 39. | 7399.261 | -0.740 | 0.000  | 3936.400 | 3.400   | -0.000  | 4052.901 | 800     | -0.000  |
| 40. | 7397.186 | -1.040 | 0.000  | 3933.850 | 3.920   | -0.000  | 4054.170 | 850     | -0.000  |
| 41. | 7394.522 | -1.320 | 0.000  | 3931.800 | 4.440   | -0.000  | 4055.439 | 900     | -0.000  |
| 42. | 7391.264 | -1.570 | 0.000  | 3930.250 | 4.960   | -0.000  | 4056.708 | 950     | -0.000  |
| 43. | 7387.469 | -1.800 | 0.000  | 3929.200 | 5.480   | -0.000  | 4057.977 | 1000    | -0.000  |
| 44. | 7383.199 | -2.000 | 0.000  | 3928.650 | 6.000   | -0.000  | 4059.246 | 1050    | -0.000  |
| 45. | 7378.515 | -2.160 | 0.000  | 3928.600 | 6.520   | -0.000  | 4060.515 | 1100    | -0.000  |
| 46. | 7373.484 | -2.310 | 0.000  | 3929.050 | 7.040   | -0.000  | 4061.784 | 1150    | -0.000  |
| 47. | 7368.171 | -2.420 | 0.000  | 3929.999 | 7.560   | -0.000  | 4063.053 | 1200    | -0.000  |
| 48. | 7362.642 | -2.500 | 0.000  | 3931.449 | 8.080   | -0.000  | 4064.322 | 1250    | -0.000  |
| 49. | 7356.964 | -2.560 | 0.000  | 3933.400 | 8.600   | -0.000  | 4065.591 | 1300    | -0.000  |

X-PLANE (V7-PLANE) LITHIUM NIORATE (KOROLYUK ET AL)

|     | LMGVEL   | LPHI12 | LPHI11 | FSPH12   | FSPH11  | SSPH12   | SSPH11 |
|-----|----------|--------|--------|----------|---------|----------|--------|
| 50. | 7351.203 | -2.580 | 0.000  | 4033.715 | -3.180  | 394.945  | 0.000  |
| 51. | 7345.824 | -2.589 | 0.000  | 4029.319 | -3.989  | 3936.948 | 7.820  |
| 52. | 7339.690 | -2.549 | 0.000  | 4023.916 | -4.927  | 3929.754 | -5.800 |
| 53. | 7334.061 | -2.449 | -0.000 | 4017.460 | -5.700  | 3922.354 | 0.000  |
| 54. | 7328.593 | -2.400 | -0.000 | 4009.914 | -6.500  | 3914.754 | 0.000  |
| 55. | 7323.341 | -2.300 | -0.000 | 4001.252 | -7.530  | 3906.965 | 0.000  |
| 56. | 7318.352 | -2.170 | -0.000 | 3991.459 | -8.464  | 3898.967 | 0.000  |
| 57. | 7313.570 | -2.030 | -0.000 | 3980.536 | -9.190  | 3891.857 | 0.000  |
| 58. | 7309.332 | -1.970 | -0.000 | 3968.494 | -10.310 | 3884.554 | 0.000  |
| 59. | 7305.371 | -1.690 | -0.000 | 3955.359 | -11.200 | 3874.109 | 0.000  |
| 60. | 7301.911 | -1.510 | -0.000 | 3941.170 | -12.050 | 3865.581 | 0.000  |
| 61. | 7298.673 | -1.310 | -0.000 | 3925.944 | -12.849 | 3856.768 | 0.000  |
| 62. | 7295.968 | -1.120 | -0.000 | 3909.867 | -13.640 | 3847.491 | 0.000  |
| 63. | 7293.702 | -0.920 | -0.000 | 3892.902 | -14.330 | 3838.493 | 0.000  |
| 64. | 7291.877 | -0.720 | -0.000 | 3875.145 | -14.950 | 3828.860 | 0.000  |
| 65. | 7290.405 | -0.530 | -0.000 | 3856.625 | -15.440 | 3820.683 | 0.000  |
| 66. | 7289.514 | -0.340 | -0.000 | 3837.942 | -15.920 | 3811.484 | 0.000  |
| 67. | 7289.943 | -0.170 | -0.000 | 3818.658 | -16.254 | 3802.104 | 0.000  |
| 68. | 7284.756 | 0.000  | -0.000 | 3799.145 | -16.470 | 3792.716 | 0.000  |
| 69. | 7288.940 | -0.150 | -0.000 | 3783.275 | -16.570 | 3783.520 | 0.000  |
| 70. | 7289.442 | -0.290 | -0.000 | 3769.451 | -16.540 | 3773.788 | 0.000  |
| 71. | 7290.234 | -0.420 | -0.000 | 3748.698 | -16.340 | 3764.245 | 0.000  |
| 72. | 7291.294 | -0.530 | -0.000 | 3721.623 | -16.090 | 3754.760 | 0.000  |
| 73. | 7292.573 | -0.620 | -0.000 | 3701.192 | -15.750 | 3745.228 | 0.000  |
| 74. | 7294.037 | -0.690 | -0.000 | 3685.464 | -15.470 | 3735.702 | 0.000  |
| 75. | 7295.644 | -0.750 | -0.000 | 3668.604 | -15.150 | 3726.194 | 0.000  |
| 76. | 7297.367 | -0.790 | -0.000 | 3657.767 | -14.840 | 3716.715 | 0.000  |
| 77. | 7299.196 | -0.820 | -0.000 | 3648.091 | -14.440 | 3707.274 | 0.000  |
| 78. | 7300.979 | -0.820 | -0.000 | 3634.714 | -13.940 | 3697.894 | 0.000  |
| 79. | 7302.400 | -0.910 | -0.000 | 3612.759 | -13.000 | 3688.575 | 0.000  |
| 80. | 7304.565 | -0.990 | -0.000 | 3602.336 | -12.700 | 3679.312 | 0.000  |
| 81. | 7306.502 | -0.750 | -0.000 | 3593.539 | -12.230 | 3670.172 | 0.000  |
| 82. | 7307.921 | -0.700 | -0.000 | 3585.442 | -11.670 | 3661.126 | 0.000  |
| 83. | 7309.417 | -0.640 | -0.000 | 3581.108 | -11.070 | 3652.166 | 0.000  |
| 84. | 7310.765 | -0.570 | -0.000 | 3577.564 | -10.420 | 3643.370 | 0.000  |
| 85. | 7311.943 | -0.490 | -0.000 | 3575.440 | -9.750  | 3634.699 | 0.000  |
| 86. | 7312.934 | -0.400 | -0.000 | 3575.930 | -9.100  | 3625.157 | 0.000  |
| 87. | 7313.723 | -0.310 | -0.000 | 3577.813 | -8.540  | 3617.744 | 0.000  |
| 88. | 7314.295 | -0.210 | -0.000 | 3581.450 | -8.110  | 3609.581 | 0.000  |
| 89. | 7314.644 | -0.100 | -0.000 | 3586.781 | -7.610  | 3601.550 | 0.000  |
| 90. | 7314.761 | -0.000 | -0.000 | 3593.730 | -7.030  | 3593.719 | 0.000  |
| 91. | 7314.641 | -0.110 | -0.000 | 3602.206 | -6.330  | 3585.104 | -0.000 |
| 92. | 7314.298 | -0.210 | -0.000 | 3612.196 | -5.520  | 3576.697 | -0.000 |
| 93. | 7313.697 | -0.320 | -0.000 | 3623.307 | -4.580  | 3571.505 | -0.000 |
| 94. | 7312.872 | -0.420 | -0.000 | 3635.647 | -3.510  | 3564.552 | -0.000 |
| 95. | 7311.817 | -0.520 | -0.000 | 3649.109 | -2.310  | 3557.844 | -0.000 |
| 96. | 7310.538 | -0.620 | -0.000 | 3663.474 | -1.070  | 3551.313 | 0.000  |
| 97. | 7309.043 | -0.720 | -0.000 | 3678.517 | 0.200   | 3545.134 | 0.000  |
| 98. | 7307.337 | -0.810 | -0.000 | 3694.214 | 1.500   | 3539.274 | 0.000  |
| 99. | 7305.429 | -0.900 | -0.000 | 3710.381 | 2.810   | 3533.641 | 0.000  |

X-PLANE (YZ-PLANE) LITHIUM NITRATE (KOPOLYUK ET AL)

|      | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | -0.999 | -0.010 | 3726.875 | 14.330  | 0.000   | 3529.297 | -4.439  | 0.000   |
| 101. | -1.071 | -0.030 | 3743.562 | 14.370  | 0.000   | 3523.241 | -4.568  | 0.000   |
| 102. | -1.150 | -0.050 | 3760.311 | 14.310  | 0.000   | 3515.492 | -4.240  | 0.000   |
| 103. | -1.230 | -0.070 | 3777.000 | 14.151  | 0.000   | 3514.055 | -3.990  | 0.000   |
| 104. | -1.310 | -0.090 | 3793.535 | 13.910  | 0.000   | 3509.976 | -3.700  | 0.000   |
| 105. | -1.390 | -0.110 | 3809.754 | 13.590  | 0.000   | 3506.147 | -3.400  | 0.000   |
| 106. | -1.460 | -0.130 | 3825.674 | 13.200  | 0.000   | 3502.677 | -3.090  | 0.000   |
| 107. | -1.540 | -0.150 | 3841.045 | 12.750  | 0.000   | 3499.567 | -2.790  | 0.000   |
| 108. | -1.620 | -0.170 | 3855.951 | 12.260  | 0.000   | 3496.757 | -2.460  | 0.000   |
| 109. | -1.700 | -0.190 | 3870.244 | 11.740  | 0.000   | 3494.311 | -2.130  | 0.000   |
| 110. | -1.780 | -0.210 | 3884.004 | 11.180  | 0.000   | 3492.217 | -1.810  | 0.000   |
| 111. | -1.860 | -0.230 | 3897.179 | 10.510  | 0.000   | 3490.465 | -1.490  | 0.000   |
| 112. | -1.940 | -0.250 | 3909.822 | 9.740   | 0.000   | 3489.071 | -1.180  | 0.000   |
| 113. | -2.020 | -0.270 | 3921.874 | 8.870   | 0.000   | 3488.037 | -0.890  | 0.000   |
| 114. | -2.100 | -0.290 | 3932.374 | 7.910   | 0.000   | 3487.359 | -0.670  | 0.000   |
| 115. | -2.180 | -0.310 | 3942.366 | 6.870   | 0.000   | 3487.027 | -0.500  | 0.000   |
| 116. | -2.260 | -0.330 | 3951.902 | 5.760   | 0.000   | 3487.063 | -0.380  | 0.000   |
| 117. | -2.340 | -0.350 | 3961.039 | 4.590   | 0.000   | 3487.457 | -0.300  | 0.000   |
| 118. | -2.420 | -0.370 | 3970.752 | 3.360   | 0.000   | 3488.209 | -0.240  | 0.000   |
| 119. | -2.500 | -0.390 | 3979.976 | 2.080   | 0.000   | 3489.314 | -0.190  | 0.000   |
| 120. | -2.580 | -0.410 | 3988.699 | 0.750   | 0.000   | 3490.742 | -0.150  | 0.000   |
| 121. | -2.660 | -0.430 | 3996.957 | 5.980   | 0.000   | 3492.599 | 1.870   | 0.000   |
| 122. | -2.740 | -0.450 | 4004.714 | 5.770   | -0.000  | 3494.767 | 2.200   | 0.000   |
| 123. | -2.820 | -0.470 | 4012.018 | 5.530   | -0.000  | 3497.241 | 2.520   | 0.000   |
| 124. | -2.900 | -0.490 | 4018.818 | 5.250   | -0.000  | 3500.033 | 2.840   | 0.000   |
| 125. | -2.980 | -0.510 | 4025.146 | 4.930   | -0.000  | 3503.135 | 3.150   | 0.000   |
| 126. | -3.060 | -0.530 | 4031.057 | 4.570   | -0.000  | 3506.565 | 3.450   | 0.000   |
| 127. | -3.140 | -0.550 | 4036.507 | 4.170   | -0.000  | 3510.374 | 3.750   | 0.000   |
| 128. | -3.220 | -0.570 | 4041.557 | 3.740   | -0.000  | 3514.605 | 4.050   | 0.000   |
| 129. | -3.300 | -0.590 | 4046.274 | 3.280   | -0.000  | 3519.281 | 4.370   | 0.000   |
| 130. | -3.380 | -0.610 | 4050.624 | 2.790   | -0.000  | 3524.414 | 4.610   | 0.000   |
| 131. | -3.460 | -0.630 | 4054.589 | 2.270   | -0.000  | 3529.925 | 4.800   | 0.000   |
| 132. | -3.540 | -0.650 | 4058.152 | 1.720   | -0.000  | 3534.772 | 4.940   | 0.000   |
| 133. | -3.620 | -0.670 | 4061.307 | 1.150   | -0.000  | 3540.025 | 5.090   | 0.000   |
| 134. | -3.700 | -0.690 | 4064.057 | 0.560   | -0.000  | 3545.701 | 5.260   | 0.000   |
| 135. | -3.780 | -0.710 | 4066.407 | 7.780   | -0.000  | 3551.844 | 5.470   | 0.000   |
| 136. | -3.860 | -0.730 | 4068.357 | 8.230   | -0.000  | 3558.501 | 5.700   | 0.000   |
| 137. | -3.940 | -0.750 | 4070.004 | 8.600   | -0.000  | 3565.714 | 5.990   | 0.000   |
| 138. | -4.020 | -0.770 | 4071.352 | 8.890   | -0.000  | 3573.505 | 6.310   | 0.000   |
| 139. | -4.100 | -0.790 | 4072.401 | 9.100   | -0.000  | 3581.806 | 6.670   | 0.000   |
| 140. | -4.180 | -0.810 | 4073.157 | 10.150  | -0.000  | 3590.659 | 7.070   | 0.000   |
| 141. | -4.260 | -0.830 | 4073.624 | 11.020  | -0.000  | 3600.014 | 7.500   | 0.000   |
| 142. | -4.340 | -0.850 | 4073.807 | 11.640  | -0.000  | 3610.829 | 7.960   | 0.000   |
| 143. | -4.420 | -0.870 | 4073.714 | 12.010  | -0.000  | 3623.154 | 8.450   | 0.000   |
| 144. | -4.500 | -0.890 | 4073.357 | 12.230  | -0.000  | 3637.045 | 8.970   | 0.000   |
| 145. | -4.580 | -0.910 | 4072.742 | 12.300  | -0.000  | 3652.559 | 9.520   | 0.000   |
| 146. | -4.660 | -0.930 | 4071.889 | 12.250  | -0.000  | 3669.754 | 10.090  | 0.000   |
| 147. | -4.740 | -0.950 | 4070.814 | 12.080  | -0.000  | 3688.601 | 10.680  | 0.000   |
| 148. | -4.820 | -0.970 | 4069.547 | 11.800  | -0.000  | 3709.174 | 11.290  | 0.000   |
| 149. | -4.900 | -0.990 | 4068.122 | 11.420  | -0.000  | 3731.559 | 11.920  | 0.000   |



X-PLANE (YZ-PLANE) LITHIUM NIORATE (KOPOLYK ET AL)

|      | LNGVEL   | LOH12  | LOH13 | FSRVEL   | FSPH12  | FSPH13 | CSPVEL   | SSPH12 | SSPH13 |
|------|----------|--------|-------|----------|---------|--------|----------|--------|--------|
| 154. | 5807.860 | -9.200 | 0.000 | 4424.693 | 13.279  | 0.000  | 7671.970 | 9.100  | 0.000  |
| 151. | 5798.931 | -9.879 | 0.000 | 4342.795 | 13.194  | 0.000  | 7651.151 | 9.150  | 0.000  |
| 152. | 5776.467 | -7.807 | 0.000 | 4456.099 | 13.044  | 0.000  | 7590.610 | 9.210  | 0.000  |
| 153. | 5758.561 | -7.537 | 0.000 | 4377.594 | 12.790  | 0.000  | 7590.747 | 8.250  | 0.000  |
| 154. | 5743.334 | -7.100 | 0.000 | 4394.756 | 12.463  | 0.000  | 7709.134 | 8.240  | 0.000  |
| 155. | 5728.995 | -5.809 | 0.000 | 4411.456 | 12.044  | 0.000  | 7718.584 | 9.300  | 0.000  |
| 155. | 5715.356 | -5.350 | 0.000 | 4427.452 | 11.577  | 0.000  | 7724.077 | 9.310  | 0.000  |
| 157. | 5702.833 | -5.850 | 0.000 | 4442.939 | 10.420  | 0.000  | 7747.117 | 9.300  | 0.000  |
| 154. | 5691.440 | -5.249 | 0.000 | 4457.452 | 10.239  | 0.000  | 7756.547 | 9.270  | 0.000  |
| 159. | 5681.290 | -4.657 | 0.000 | 4478.959 | 9.440   | 0.000  | 7766.164 | 9.240  | 0.000  |
| 160. | 5672.489 | -3.970 | 0.000 | 4487.741 | 9.577   | 0.000  | 7756.164 | 9.200  | 0.000  |
| 161. | 5665.100 | -3.240 | 0.000 | 4494.595 | 7.617   | 0.000  | 7775.679 | 9.200  | 0.000  |
| 162. | 5659.735 | -2.479 | 0.000 | 4504.294 | 5.640   | 0.000  | 7745.144 | 9.180  | 0.000  |
| 163. | 5655.158 | -1.659 | 0.000 | 4512.504 | 5.440   | 0.000  | 7794.574 | 9.090  | 0.000  |
| 164. | 5652.678 | -1.790 | 0.000 | 4519.759 | 4.377   | 0.000  | 7811.264 | 8.010  | 0.000  |
| 165. | 5651.952 | 0.000  | 0.000 | 4524.502 | 3.120   | 0.000  | 7821.507 | 7.940  | 0.000  |
| 166. | 5653.019 | 0.973  | 0.000 | 4527.949 | 1.840   | 0.000  | 7831.661 | 7.950  | 0.000  |
| 167. | 5655.902 | 1.870  | 0.000 | 4529.671 | 0.620   | 0.000  | 7840.714 | 7.950  | 0.000  |
| 168. | 5658.604 | 2.740  | 0.000 | 4529.647 | -0.559  | 0.000  | 7848.661 | 7.950  | 0.000  |
| 169. | 5667.117 | 3.540  | 0.000 | 4524.797 | -1.919  | 0.000  | 7854.587 | 7.820  | 0.000  |
| 170. | 5675.402 | 4.440  | 0.000 | 4524.797 | -3.150  | 0.000  | 7867.211 | 7.890  | 0.000  |
| 171. | 5685.414 | 5.310  | 0.000 | 4519.194 | -4.750  | 0.000  | 7875.787 | 7.150  | 0.000  |
| 172. | 5697.089 | 5.090  | 0.000 | 4512.391 | -5.520  | 0.000  | 7884.202 | 7.020  | 0.000  |
| 173. | 5710.745 | 6.470  | 0.000 | 4504.004 | -6.637  | 0.000  | 7892.474 | 6.870  | 0.000  |
| 174. | 5725.092 | 7.500  | 0.000 | 4494.150 | -7.670  | 0.000  | 7900.585 | 6.720  | 0.000  |
| 175. | 5741.229 | 8.124  | 0.000 | 4482.419 | -8.640  | 0.000  | 7908.514 | 6.560  | 0.000  |
| 176. | 5758.547 | 9.580  | 0.000 | 4470.419 | -9.430  | 0.000  | 7916.277 | 6.390  | 0.000  |
| 177. | 5777.220 | 9.149  | 0.000 | 4456.761 | -10.140 | 0.000  | 7923.837 | 6.220  | 0.000  |
| 178. | 5796.838 | 9.520  | 0.000 | 4442.079 | -11.070 | 0.000  | 7931.104 | 6.040  | 0.000  |
| 179. | 5817.374 | 9.990  | 0.000 | 4426.469 | -11.710 | 0.000  | 7938.355 | 5.860  | 0.000  |
| 180. | 5838.704 | 10.307 | 0.000 | 4410.045 | -12.270 | 0.000  |          |        |        |

Y-PLANE (XZ-PLANE) LITHIUM NIOBATE (KOROLYUK ET AL)

|     | LNG/EL   | LPHI12 | LPHI13 | FSRWEL   | FSPHI12 | FSPHI13 | SSRWEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 6555.816 | 0.000  | 0.000  | 4760.940 | 0.000   | 0.000   | 4010.295 | 0.000   | 0.000   |
| 1.  | 6556.710 | 0.890  | 1.740  | 4759.956 | -1.570  | -1.790  | 4010.160 | -0.224  | -2.40   |
| 2.  | 6559.782 | 1.740  | 1.470  | 4757.135 | -2.590  | -1.570  | 4009.757 | -0.444  | 0.60    |
| 3.  | 6563.902 | 2.540  | 2.190  | 4752.467 | -3.450  | -2.330  | 4009.074 | -0.660  | 0.90    |
| 4.  | 6569.926 | 3.470  | 2.940  | 4745.998 | -5.070  | -3.460  | 4008.133 | -0.800  | 0.90    |
| 5.  | 6577.688 | 4.240  | 3.550  | 4737.795 | -6.240  | -3.760  | 4006.924 | -1.000  | 1.150   |
| 6.  | 6587.012 | 5.010  | 4.130  | 4727.915 | -7.160  | -4.630  | 4005.567 | -1.300  | 1.370   |
| 7.  | 6597.805 | 5.700  | 4.740  | 4716.515 | -8.410  | -5.050  | 4003.756 | -1.590  | 1.600   |
| 8.  | 6609.969 | 5.340  | 5.340  | 4703.634 | -9.390  | -5.620  | 4001.907 | -1.790  | 1.830   |
| 9.  | 6623.394 | 5.910  | 5.950  | 4689.404 | -10.290 | -6.140  | 4000.517 | -1.990  | 2.050   |
| 10. | 6637.967 | 7.830  | 6.330  | 4673.942 | -11.120 | -6.600  | 4000.200 | -2.070  | 2.280   |
| 11. | 6653.572 | 7.800  | 5.750  | 4657.165 | -11.000 | -7.010  | 4000.590 | -2.240  | 2.500   |
| 12. | 6670.098 | 8.200  | 7.150  | 4639.795 | -12.550 | -7.360  | 4001.777 | -2.390  | 2.720   |
| 13. | 6687.404 | 8.610  | 7.490  | 4621.350 | -13.150 | -7.660  | 4000.771 | -2.500  | 2.950   |
| 14. | 6705.398 | 9.390  | 7.830  | 4602.147 | -13.570 | -7.900  | 4000.594 | -2.600  | 3.170   |
| 15. | 6723.981 | 9.110  | 8.050  | 4582.301 | -14.130 | -8.090  | 4000.274 | -2.680  | 3.400   |
| 16. | 6742.981 | 9.270  | 8.290  | 4561.970 | -14.510 | -8.230  | 4000.909 | -2.810  | 3.520   |
| 17. | 6762.360 | 9.390  | 8.490  | 4541.104 | -14.840 | -8.320  | 4000.517 | -2.910  | 3.650   |
| 18. | 6781.993 | 9.660  | 8.570  | 4519.954 | -15.100 | -8.360  | 4000.154 | -3.000  | 3.880   |
| 19. | 6801.789 | 9.490  | 8.750  | 4498.531 | -15.300 | -8.360  | 4000.764 | -3.150  | 4.110   |
| 20. | 6821.659 | 9.600  | 8.850  | 4477.045 | -15.440 | -8.320  | 4000.917 | -3.200  | 4.340   |
| 21. | 6841.521 | 9.430  | 8.910  | 4455.477 | -15.540 | -8.230  | 4000.023 | -3.280  | 4.570   |
| 22. | 6861.294 | 9.350  | 8.950  | 4433.831 | -15.580 | -8.110  | 4000.095 | -3.270  | 4.800   |
| 23. | 6880.918 | 9.230  | 8.950  | 4412.246 | -15.580 | -7.960  | 4000.144 | -3.240  | 5.030   |
| 24. | 6900.315 | 9.090  | 8.940  | 4390.697 | -15.540 | -7.780  | 4000.194 | -3.200  | 5.270   |
| 25. | 6919.429 | 8.920  | 8.910  | 4369.692 | -15.460 | -7.580  | 4000.324 | -3.230  | 5.500   |
| 26. | 6938.204 | 8.730  | 8.850  | 4348.735 | -15.340 | -7.350  | 4000.460 | -3.320  | 5.740   |
| 27. | 6956.590 | 8.510  | 8.740  | 4328.074 | -15.180 | -7.110  | 4000.625 | -3.260  | 6.000   |
| 28. | 6974.542 | 8.280  | 8.590  | 4307.771 | -14.980 | -6.850  | 4000.824 | -3.220  | 6.260   |
| 29. | 6992.018 | 8.130  | 8.490  | 4287.556 | -14.760 | -6.590  | 4000.697 | -3.210  | 6.500   |
| 30. | 7009.983 | 7.770  | 8.450  | 4268.374 | -14.490 | -6.320  | 4000.961 | -3.200  | 6.740   |
| 31. | 7025.405 | 7.500  | 8.320  | 4249.341 | -14.190 | -6.050  | 4001.027 | -3.210  | 7.000   |
| 32. | 7041.257 | 7.220  | 8.170  | 4230.979 | -13.840 | -5.780  | 4001.174 | -3.240  | 7.270   |
| 33. | 7056.515 | 6.920  | 8.010  | 4213.004 | -13.460 | -5.520  | 4001.320 | -3.290  | 7.540   |
| 34. | 7071.162 | 6.530  | 7.830  | 4195.713 | -13.050 | -5.260  | 4001.407 | -3.310  | 7.800   |
| 35. | 7085.182 | 6.320  | 7.650  | 4179.032 | -12.590 | -5.070  | 4001.520 | -3.510  | 8.050   |
| 36. | 7098.564 | 6.020  | 7.450  | 4163.159 | -12.080 | -4.790  | 4001.625 | -3.640  | 8.300   |
| 37. | 7111.302 | 5.710  | 7.250  | 4147.995 | -11.530 | -4.500  | 4001.645 | -3.690  | 8.550   |
| 38. | 7123.391 | 5.410  | 7.030  | 4133.637 | -10.940 | -4.370  | 4001.604 | -3.610  | 8.990   |
| 39. | 7134.833 | 5.100  | 6.820  | 4120.131 | -10.300 | -4.180  | 4001.539 | -3.490  | 9.440   |
| 40. | 7145.630 | 4.800  | 6.590  | 4107.517 | -9.530  | -3.990  | 4001.443 | -3.290  | 9.900   |
| 41. | 7155.798 | 4.510  | 6.350  | 4095.823 | -8.630  | -3.800  | 4001.316 | -3.160  | 10.400  |
| 42. | 7165.324 | 4.220  | 6.120  | 4085.062 | -8.220  | -3.610  | 4001.165 | -3.030  | 10.900  |
| 43. | 7174.284 | 3.940  | 5.910  | 4075.229 | -7.510  | -3.420  | 4001.046 | -2.830  | 11.400  |
| 44. | 7182.569 | 3.670  | 5.640  | 4066.294 | -6.830  | -3.200  | 4001.000 | -2.630  | 11.900  |
| 45. | 7190.315 | 3.400  | 5.390  | 4058.206 | -6.190  | -2.980  | 4000.967 | -2.440  | 12.400  |
| 46. | 7197.506 | 3.150  | 5.140  | 4050.890 | -5.620  | -2.750  | 4000.977 | -2.270  | 12.900  |
| 47. | 7204.167 | 2.920  | 4.890  | 4044.252 | -5.130  | -2.520  | 4000.964 | -2.100  | 13.400  |
| 48. | 7210.324 | 2.690  | 4.640  | 4038.184 | -4.720  | -2.290  | 4000.947 | -1.950  | 13.900  |
| 49. | 7215.086 | 2.460  | 4.490  | 4032.566 | -4.410  | -2.070  | 4000.924 | -1.840  | 14.400  |

Y-PLANE (X7-PLANE) LITHIUM NIORATE (KOROLYUK ET AL)

|     | LNGVEL   | LPH12  | LPH11  | FSPR2    | FSPH20  | FSPH13 | SSRVL    | SSPH12 | SSPH11 |
|-----|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 50. | 7221.243 | 2.20   | 4.450  | 4027.282 | -4.200  | -1.870 | 1795.988 | -0.150 | 15.180 |
| 51. | 7225.067 | 2.100  | 3.980  | 4022.206 | -4.000  | -1.700 | 1745.205 | -0.160 | 15.540 |
| 52. | 7230.511 | 1.943  | 3.650  | 4017.220 | -4.050  | -1.550 | 1774.247 | -0.510 | 15.750 |
| 53. | 7236.608 | 1.790  | 3.420  | 4012.213 | -4.130  | -1.430 | 1763.163 | -0.610 | 15.920 |
| 54. | 7238.393 | 1.650  | 3.190  | 4007.000 | -4.200  | -1.350 | 1752.025 | -0.660 | 16.160 |
| 55. | 7241.901 | 1.531  | 2.960  | 4001.724 | -4.280  | -1.300 | 1740.885 | -0.670 | 16.200 |
| 56. | 7245.165 | 1.430  | 2.740  | 3996.057 | -4.300  | -1.300 | 1729.785 | -0.640 | 16.310 |
| 57. | 7248.219 | 1.340  | 2.530  | 3990.002 | -5.150  | -1.330 | 1718.775 | -0.580 | 16.420 |
| 58. | 7251.093 | 1.270  | 2.320  | 3983.490 | -5.550  | -1.400 | 1707.894 | -0.480 | 16.500 |
| 59. | 7253.820 | 1.210  | 2.120  | 3976.462 | -6.010  | -1.510 | 1697.174 | -0.350 | 16.560 |
| 60. | 7256.429 | 1.160  | 1.910  | 3968.859 | -6.500  | -1.550 | 1686.557 | -0.190 | 16.600 |
| 61. | 7258.947 | 1.120  | 1.750  | 3960.672 | -7.020  | -1.630 | 1676.067 | -0.080 | 16.620 |
| 62. | 7261.398 | 1.100  | 1.540  | 3951.943 | -7.560  | -1.640 | 1666.337 | -0.790 | 16.610 |
| 63. | 7263.803 | 1.080  | 1.420  | 3942.361 | -8.110  | -1.620 | 1656.594 | -0.550 | 16.570 |
| 64. | 7266.182 | 1.070  | 1.270  | 3932.274 | -8.670  | -1.540 | 1647.165 | -0.280 | 16.540 |
| 65. | 7268.551 | 1.070  | 1.130  | 3921.427 | -9.230  | -1.520 | 1638.075 | -0.790 | 16.480 |
| 66. | 7270.921 | 1.070  | 1.010  | 3909.994 | -9.780  | -1.320 | 1629.357 | -7.670 | 16.270 |
| 67. | 7273.303 | 1.080  | 0.890  | 3897.914 | -10.300 | -1.430 | 1621.017 | -7.330 | 16.090 |
| 68. | 7275.702 | 1.090  | 0.770  | 3885.259 | -10.810 | -1.530 | 1613.065 | -6.970 | 15.940 |
| 69. | 7278.120 | 1.100  | 0.670  | 3872.067 | -11.270 | -1.640 | 1605.514 | -6.580 | 15.820 |
| 70. | 7280.557 | 1.100  | 0.580  | 3858.334 | -11.700 | -1.780 | 1598.594 | -6.160 | 15.720 |
| 71. | 7283.009 | 1.110  | 0.500  | 3844.175 | -12.080 | -1.960 | 1592.061 | -5.720 | 15.640 |
| 72. | 7285.470 | 1.110  | 0.430  | 3829.616 | -12.410 | -2.100 | 1586.044 | -5.260 | 15.570 |
| 73. | 7287.930 | 1.110  | 0.350  | 3814.744 | -12.680 | -2.210 | 1580.555 | -4.760 | 15.520 |
| 74. | 7290.378 | 1.100  | 0.310  | 3799.708 | -12.880 | -2.300 | 1575.533 | -4.250 | 15.450 |
| 75. | 7292.800 | 1.080  | 0.250  | 3784.474 | -13.020 | -2.360 | 1571.294 | -3.700 | 15.370 |
| 76. | 7295.181 | 1.060  | 0.210  | 3769.143 | -13.090 | -2.400 | 1567.577 | -3.130 | 15.260 |
| 77. | 7297.584 | 1.050  | 0.170  | 3753.911 | -13.090 | -2.420 | 1564.495 | -2.530 | 15.180 |
| 78. | 7299.752 | 0.990  | 0.140  | 3738.769 | -13.010 | -2.430 | 1562.081 | -1.910 | 15.090 |
| 79. | 7301.906 | 0.940  | 0.110  | 3723.795 | -12.860 | -2.430 | 1560.359 | -1.260 | 14.990 |
| 80. | 7303.949 | 0.900  | 0.090  | 3709.105 | -12.630 | -2.430 | 1559.357 | -0.500 | 14.880 |
| 81. | 7305.862 | 0.830  | 0.070  | 3694.795 | -12.330 | -2.430 | 1559.094 | 0.110  | 14.730 |
| 82. | 7307.627 | 0.760  | 0.050  | 3680.932 | -11.960 | -2.430 | 1559.611 | 0.830  | 14.540 |
| 83. | 7309.229 | 0.680  | 0.040  | 3667.582 | -11.530 | -2.430 | 1560.816 | 1.580  | 14.300 |
| 84. | 7310.651 | 0.600  | 0.030  | 3654.844 | -11.030 | -2.430 | 1563.037 | 2.330  | 14.000 |
| 85. | 7311.880 | 0.510  | 0.020  | 3642.760 | -10.470 | -2.430 | 1565.997 | 3.110  | 13.650 |
| 86. | 7312.983 | 0.410  | 0.010  | 3631.364 | -9.860  | -2.430 | 1569.799 | 3.890  | 13.250 |
| 87. | 7313.710 | 0.310  | 0.010  | 3620.734 | -9.200  | -2.470 | 1574.471 | 4.690  | 12.800 |
| 88. | 7314.292 | 0.210  | 0.000  | 3610.899 | -8.510  | -2.470 | 1580.015 | 5.470  | 12.300 |
| 89. | 7314.644 | 0.110  | 0.000  | 3601.850 | -7.780  | -2.430 | 1586.435 | 6.250  | 11.750 |
| 90. | 7314.761 | -0.000 | -0.000 | 3593.730 | -7.030  | 0.000  | 1593.734 | 7.030  | 11.150 |
| 91. | 7314.644 | -0.110 | 0.000  | 3586.435 | -6.250  | 0.920  | 1601.890 | 7.780  | 10.500 |
| 92. | 7314.292 | -0.210 | 0.000  | 3580.015 | -5.470  | 1.080  | 1610.899 | 8.510  | 9.800  |
| 93. | 7313.710 | -0.310 | 0.010  | 3574.471 | -4.690  | 2.060  | 1620.734 | 9.200  | 9.050  |
| 94. | 7312.983 | -0.410 | 0.010  | 3569.799 | -3.890  | 3.050  | 1631.364 | 9.860  | 8.250  |
| 95. | 7311.880 | -0.510 | 0.020  | 3565.992 | -3.110  | 4.050  | 1642.750 | 10.470 | 7.400  |
| 96. | 7310.651 | -0.600 | 0.030  | 3563.037 | -2.330  | 5.030  | 1654.944 | 11.030 | 6.500  |
| 97. | 7309.229 | -0.680 | 0.040  | 3560.916 | -1.580  | 6.000  | 1667.597 | 11.530 | 5.550  |
| 98. | 7307.627 | -0.760 | 0.050  | 3559.611 | -0.830  | 7.000  | 1680.872 | 11.960 | 4.550  |
| 99. | 7305.862 | -0.830 | 0.070  | 3559.099 | -0.110  | 8.000  | 1694.795 | 12.300 | 3.500  |

Y-PLANE (XZ-PLANE) LITHIUM NIORATE (KOROLYUK ET AL)

|      | LMPH12 | LPH111 | FSRVFL   | FRPH12 | FSPH13 | SSRVFL   | SSPH12 | SSPH13 |
|------|--------|--------|----------|--------|--------|----------|--------|--------|
| 109. | -0.899 | .098   | 3559.157 | .591   | 9.490  | 3709.106 | 12.630 | SSPH13 |
| 101. | -0.943 | .110   | 3560.359 | 1.260  | 10.310 | 3723.745 | 12.869 | -5.549 |
| 102. | -0.990 | .140   | 3562.081 | 1.910  | 11.080 | 3738.749 | 13.019 | -5.770 |
| 103. | -1.039 | .170   | 3564.496 | 2.539  | 11.800 | 3753.911 | 13.099 | -5.830 |
| 104. | -1.060 | .210   | 3567.577 | 3.130  | 12.460 | 3769.183 | 13.099 | -5.929 |
| 105. | -1.089 | .250   | 3571.299 | 3.700  | 13.070 | 3784.674 | 13.020 | -5.744 |
| 106. | -1.109 | .300   | 3575.633 | 4.250  | 13.620 | 3799.404 | 12.899 | -5.510 |
| 107. | -1.110 | .350   | 3580.555 | 4.769  | 14.120 | 3814.384 | 12.680 | -5.430 |
| 108. | -1.111 | .400   | 3586.040 | 5.260  | 14.570 | 3829.635 | 12.460 | -5.210 |
| 109. | -1.111 | .450   | 3592.061 | 5.720  | 14.970 | 3844.175 | 12.090 | -4.960 |
| 110. | -1.100 | .500   | 3598.594 | 6.160  | 15.320 | 3858.034 | 11.700 | -4.589 |
| 111. | -1.100 | .570   | 3605.614 | 6.580  | 15.620 | 3872.047 | 11.279 | -4.339 |
| 112. | -1.090 | .670   | 3613.096 | 6.979  | 15.880 | 3885.252 | 10.819 | -4.179 |
| 113. | -1.080 | .790   | 3621.017 | 7.339  | 16.099 | 3897.614 | 10.309 | -3.759 |
| 114. | -1.070 | 1.000  | 3629.352 | 7.670  | 16.270 | 3909.944 | 9.749  | -3.439 |
| 115. | -1.070 | 1.130  | 3638.076 | 7.999  | 16.400 | 3921.427 | 9.239  | -3.120 |
| 116. | -1.070 | 1.270  | 3647.165 | 8.289  | 16.500 | 3932.224 | 8.679  | -2.849 |
| 117. | -1.080 | 1.420  | 3656.594 | 8.550  | 16.570 | 3942.363 | 8.110  | -2.549 |
| 118. | -1.100 | 1.580  | 3666.337 | 8.789  | 16.610 | 3951.843 | 7.569  | -2.279 |
| 119. | -1.120 | 1.750  | 3676.367 | 9.009  | 16.620 | 3960.672 | 7.029  | -2.049 |
| 120. | -1.160 | 1.930  | 3686.657 | 9.199  | 16.600 | 3968.861 | 6.509  | -1.839 |
| 121. | -1.210 | 2.120  | 3697.176 | 9.350  | 16.560 | 3976.462 | 6.010  | -1.659 |
| 122. | -1.279 | 2.330  | 3707.894 | 9.489  | 16.500 | 3983.491 | 5.559  | -1.510 |
| 123. | -1.349 | 2.560  | 3718.776 | 9.589  | 16.420 | 3989.962 | 5.150  | -1.409 |
| 124. | -1.439 | 2.789  | 3729.786 | 9.640  | 16.310 | 3995.857 | 4.799  | -1.330 |
| 125. | -1.539 | 2.960  | 3740.885 | 9.670  | 16.200 | 4001.174 | 4.500  | -1.300 |
| 126. | -1.650 | 3.190  | 3752.025 | 9.669  | 16.060 | 4007.009 | 4.299  | -1.359 |
| 127. | -1.789 | 3.420  | 3763.163 | 9.619  | 15.920 | 4012.213 | 4.139  | -1.430 |
| 128. | -1.940 | 3.650  | 3774.242 | 9.510  | 15.750 | 4017.229 | 4.060  | -1.559 |
| 129. | -2.100 | 3.909  | 3785.205 | 9.360  | 15.580 | 4022.205 | 4.090  | -1.700 |
| 130. | -2.299 | 4.150  | 3795.988 | 9.159  | 15.380 | 4027.242 | 4.209  | -1.879 |
| 131. | -2.480 | 4.390  | 3806.526 | 8.890  | 15.160 | 4032.564 | 4.419  | -2.070 |
| 132. | -2.689 | 4.640  | 3816.746 | 8.570  | 14.930 | 4038.184 | 4.619  | -2.290 |
| 133. | -2.929 | 4.870  | 3826.587 | 8.209  | 14.660 | 4044.252 | 4.720  | -2.529 |
| 134. | -3.159 | 5.140  | 3835.977 | 7.789  | 14.370 | 4050.891 | 4.820  | -2.759 |
| 135. | -3.400 | 5.390  | 3844.963 | 7.320  | 14.040 | 4058.205 | 4.900  | -2.990 |
| 136. | -3.670 | 5.640  | 3853.200 | 6.820  | 13.680 | 4066.294 | 5.030  | -3.200 |
| 137. | -3.940 | 5.889  | 3860.964 | 6.330  | 13.290 | 4075.229 | 5.110  | -3.410 |
| 138. | -4.220 | 6.120  | 3868.146 | 5.830  | 12.860 | 4085.062 | 5.220  | -3.610 |
| 139. | -4.510 | 6.350  | 3874.762 | 5.360  | 12.400 | 4095.862 | 5.360  | -3.810 |
| 140. | -4.800 | 6.590  | 3880.843 | 4.920  | 11.930 | 4107.517 | 5.460  | -4.010 |
| 141. | -5.100 | 6.820  | 3886.439 | 4.530  | 11.440 | 4120.131 | 5.620  | -4.210 |
| 142. | -5.410 | 7.030  | 3891.608 | 4.199  | 10.950 | 4133.677 | 5.810  | -4.410 |
| 143. | -5.710 | 7.250  | 3896.415 | 3.910  | 10.460 | 4147.995 | 6.010  | -4.589 |
| 144. | -6.020 | 7.450  | 3900.925 | 3.680  | 9.980  | 4163.159 | 6.210  | -4.790 |
| 145. | -6.350 | 7.650  | 3905.201 | 3.510  | 9.510  | 4179.082 | 6.400  | -5.029 |
| 146. | -6.680 | 7.830  | 3909.303 | 3.389  | 9.069  | 4195.713 | 6.580  | -5.260 |
| 147. | -6.920 | 8.010  | 3913.280 | 3.299  | 8.630  | 4213.004 | 6.760  | -5.520 |
| 148. | -7.220 | 8.170  | 3917.176 | 3.240  | 8.220  | 4230.989 | 6.930  | -5.780 |
| 149. | -7.500 | 8.320  | 3921.027 | 3.210  | 7.830  | 4249.381 | 7.100  | -6.050 |

Y-PLANE (X7-PLANE) LITHIUM NIORATE (KOROLYUK ET AL)

|      | LMW12    | LMW11  | FSRWEL   | FSPM12 | FSPM13 | SSRWEL   | SSPM12 | SSPM13 |
|------|----------|--------|----------|--------|--------|----------|--------|--------|
| 158. | 7808.983 | -7.770 | 3924.861 | 3.204  | 7.450  | 4768.374 | 14.680 | -6.120 |
| 159. | 5992.018 | -9.030 | 1928.697 | 3.210  | 7.100  | 4287.056 | 14.759 | -6.590 |
| 160. | 5974.542 | -9.280 | 3932.550 | 3.220  | 6.760  | 4307.771 | 14.909 | -6.850 |
| 161. | 5956.590 | -9.510 | 3936.426 | 3.264  | 6.480  | 4328.070 | 15.180 | -7.110 |
| 162. | 5938.204 | -9.730 | 3940.329 | 3.320  | 6.170  | 4348.785 | 15.360 | -7.150 |
| 163. | 5919.429 | -9.920 | 3944.255 | 3.270  | 5.850  | 4369.692 | 15.650 | -7.580 |
| 164. | 5900.315 | -9.090 | 3948.198 | 3.289  | 5.570  | 4390.997 | 15.940 | -7.740 |
| 165. | 5880.918 | -9.230 | 3952.149 | 3.280  | 5.300  | 4412.296 | 16.240 | -7.960 |
| 166. | 5861.294 | -9.350 | 3956.095 | 3.270  | 5.040  | 4433.931 | 16.540 | -8.110 |
| 167. | 5841.421 | -9.430 | 3960.023 | 3.264  | 4.790  | 4455.437 | 16.840 | -8.230 |
| 168. | 5821.559 | -9.480 | 3963.917 | 3.200  | 4.550  | 4477.085 | 17.140 | -8.320 |
| 169. | 5801.789 | -9.400 | 3967.760 | 3.150  | 4.310  | 4498.981 | 17.440 | -8.360 |
| 170. | 5781.993 | -9.460 | 3971.533 | 3.080  | 4.080  | 4520.964 | 17.740 | -8.360 |
| 171. | 5762.350 | -9.390 | 3975.223 | 3.000  | 3.850  | 4543.184 | 18.040 | -8.340 |
| 172. | 5742.983 | -9.270 | 3978.809 | 2.910  | 3.620  | 4565.920 | 18.340 | -8.290 |
| 173. | 5723.861 | -9.110 | 3982.273 | 2.800  | 3.400  | 4589.301 | 18.640 | -8.200 |
| 174. | 5705.398 | -8.950 | 3985.599 | 2.680  | 3.170  | 4612.317 | 18.940 | -8.080 |
| 175. | 5687.444 | -8.650 | 3988.771 | 2.540  | 2.950  | 4635.959 | 19.240 | -7.950 |
| 176. | 5670.090 | -8.280 | 3991.773 | 2.390  | 2.720  | 4659.795 | 19.540 | -7.760 |
| 177. | 5653.572 | -7.880 | 3994.590 | 2.230  | 2.500  | 4683.365 | 19.840 | -7.510 |
| 178. | 5637.967 | -7.430 | 3997.209 | 2.070  | 2.280  | 4707.942 | 20.140 | -7.200 |
| 179. | 5622.296 | -6.910 | 3999.617 | 1.890  | 2.050  | 4733.404 | 20.440 | -6.840 |
| 180. | 5606.450 | -6.340 | 4001.803 | 1.700  | 1.830  | 4759.634 | 20.740 | -6.430 |
| 181. | 5590.485 | -5.700 | 4003.756 | 1.500  | 1.600  | 4786.514 | 21.040 | -5.970 |
| 182. | 5574.385 | -5.010 | 4005.462 | 1.300  | 1.370  | 4814.045 | 21.340 | -5.470 |
| 183. | 5557.809 | -4.260 | 4006.924 | 1.090  | 1.150  | 4842.295 | 21.640 | -4.930 |
| 184. | 5540.926 | -3.470 | 4008.133 | .880   | .920   | 4871.367 | 21.940 | -4.360 |
| 185. | 5523.802 | -2.640 | 4009.075 | .660   | .660   | 4901.252 | 22.240 | -3.680 |
| 186. | 5506.382 | -1.780 | 4010.160 | .220   | .220   | 4931.955 | 22.540 | -2.900 |
| 187. | 5488.710 | -.890  | 4010.234 | -.000  | -.000  | 4963.490 | 22.840 | -2.000 |
| 188. | 5470.816 | -0.000 | 4010.234 | -.000  | -.000  | 4995.870 | 23.140 | -1.000 |

7-PLANE (XY-PLANE) LITHIUM NIDRATE (KOROLYUK ET AL)

|     | LNGVEL   | LPH12  | LPH11   | FSPVEL   | FSPH12  | FSPH11 | SSRVEL   | SSPH12 | SSPH11 |
|-----|----------|--------|---------|----------|---------|--------|----------|--------|--------|
| 0.  | 5555.816 | 9.000  | 0.000   | 4760.900 | 0.000   | 0.000  | 4814.295 | 0.000  | 0.000  |
| 1.  | 5555.766 | 9.971  | -0.740  | 4759.713 | -1.630  | 0.790  | 4810.186 | -0.180 | -0.230 |
| 2.  | 5555.512 | 1.943  | -1.470  | 4755.174 | -3.240  | 1.570  | 4808.858 | -0.450 | -0.580 |
| 3.  | 5564.069 | 2.717  | -2.140  | 4750.387 | -4.780  | 2.340  | 4809.314 | -0.540 | -0.720 |
| 4.  | 5570.378 | 3.530  | -2.810  | 4742.335 | -6.250  | 3.090  | 4804.541 | -0.910 | -1.160 |
| 5.  | 5574.180 | 4.290  | -3.550  | 4732.282 | -7.680  | 3.820  | 4807.545 | -1.200 | -1.400 |
| 6.  | 5547.488 | 4.960  | -4.130  | 4720.355 | -8.830  | 4.520  | 4805.322 | -1.100 | -1.550 |
| 7.  | 5594.095 | 5.561  | -4.730  | 4706.755 | -9.920  | 5.190  | 4804.857 | -1.200 | -1.590 |
| 8.  | 5600.833 | 5.050  | -5.350  | 4691.700 | -10.860 | 5.830  | 4803.175 | -1.480 | -1.590 |
| 9.  | 5522.521 | 5.474  | -5.930  | 4675.474 | -11.560 | 6.430  | 4801.242 | -1.840 | -2.140 |
| 10. | 5635.975 | 5.783  | -6.330  | 4658.169 | -12.260 | 7.010  | 4800.081 | -1.880 | -2.160 |
| 11. | 5650.012 | 7.019  | -6.840  | 4640.112 | -12.710 | 7.550  | 4806.675 | -2.070 | -2.550 |
| 12. | 5664.449 | 7.141  | -7.260  | 4621.711 | -13.010 | 8.050  | 4804.072 | -2.270 | -2.310 |
| 13. | 5679.105 | 7.190  | -7.650  | 4602.937 | -13.140 | 8.540  | 4801.154 | -2.650 | -3.160 |
| 14. | 5693.812 | 7.160  | -8.000  | 4584.274 | -13.120 | 8.990  | 4808.056 | -2.530 | -3.820 |
| 15. | 5705.410 | 7.061  | -8.337  | 4565.754 | -12.860 | 9.410  | 4804.774 | -2.700 | -3.570 |
| 16. | 5722.744 | 6.880  | -8.590  | 4547.675 | -12.550 | 9.800  | 4811.257 | -2.930 | -3.820 |
| 17. | 5736.575 | 6.549  | -8.870  | 4530.137 | -12.210 | 10.150 | 4807.674 | -3.040 | -4.160 |
| 18. | 5750.070 | 6.347  | -9.100  | 4513.592 | -11.650 | 10.490 | 4803.962 | -3.110 | -4.390 |
| 19. | 5762.411 | 5.991  | -9.310  | 4497.781 | -10.990 | 10.780 | 4800.140 | -3.150 | -4.510 |
| 20. | 5774.747 | 5.500  | -9.460  | 4483.045 | -10.230 | 11.050 | 4805.451 | -3.170 | -4.820 |
| 21. | 5785.900 | 5.143  | -9.550  | 4469.522 | -9.300  | 11.300 | 4807.612 | -3.190 | -5.114 |
| 22. | 5795.953 | 4.567  | -9.400  | 4457.261 | -8.441  | 11.510 | 4809.004 | -2.910 | -5.140 |
| 23. | 5805.197 | 4.143  | -9.920  | 4445.333 | -7.520  | 11.690 | 4805.501 | -2.720 | -5.330 |
| 24. | 5813.235 | 3.591  | -10.170 | 4434.781 | -6.510  | 11.850 | 4802.441 | -2.450 | -5.674 |
| 25. | 5820.118 | 3.021  | -10.170 | 4424.645 | -5.470  | 11.980 | 4809.714 | -2.170 | -5.580 |
| 26. | 5825.798 | 2.430  | -10.190 | 4414.908 | -4.500  | 12.090 | 4807.384 | -1.740 | -5.670 |
| 27. | 5830.235 | 1.833  | -10.240 | 4406.730 | -3.374  | 12.170 | 4805.541 | -1.110 | -5.750 |
| 28. | 5833.498 | 1.213  | -10.230 | 4413.044 | -2.220  | 12.230 | 4804.247 | -0.840 | -5.800 |
| 29. | 5835.269 | 0.580  | -10.370 | 4410.790 | -1.130  | 12.270 | 4803.525 | 0.150  | -5.840 |
| 30. | 5835.838 | -0.050 | -10.310 | 4410.070 | -0.020  | 12.240 | 4803.814 | 0.590  | -5.840 |
| 31. | 5835.079 | -0.540 | -10.310 | 4410.737 | 1.090   | 12.240 | 4803.913 | 1.150  | -5.840 |
| 32. | 5833.020 | -1.100 | -10.210 | 4412.913 | 2.100   | 12.250 | 4805.212 | 1.820  | -5.810 |
| 33. | 5828.567 | -1.920 | -10.250 | 4416.438 | 3.100   | 12.200 | 4806.544 | 2.600  | -5.750 |
| 34. | 5825.041 | -2.520 | -10.130 | 4421.519 | 4.090   | 12.120 | 4804.882 | 3.480  | -5.700 |
| 35. | 5819.173 | -3.110 | -10.170 | 4428.474 | 5.470   | 12.020 | 4801.558 | 4.400  | -5.510 |
| 36. | 5812.103 | -3.580 | -10.040 | 4436.607 | 6.520   | 11.890 | 4804.638 | 5.360  | -5.500 |
| 37. | 5803.990 | -4.230 | -9.910  | 4446.154 | 7.560   | 11.740 | 4804.041 | 6.370  | -5.370 |
| 38. | 5794.563 | -4.740 | -9.810  | 4457.139 | 8.420   | 11.560 | 4801.715 | 7.420  | -5.210 |
| 39. | 5784.219 | -5.230 | -9.670  | 4469.463 | 9.150   | 11.340 | 4805.555 | 8.590  | -5.060 |
| 40. | 5772.927 | -5.670 | -9.510  | 4483.070 | 10.000  | 11.100 | 4809.895 | 9.870  | -4.860 |
| 41. | 5760.776 | -6.070 | -9.330  | 4497.872 | 11.070  | 10.830 | 4807.854 | 11.270 | -4.580 |
| 42. | 5747.965 | -6.420 | -9.110  | 4513.757 | 11.750  | 10.530 | 4807.307 | 12.710 | -4.820 |
| 43. | 5734.303 | -6.720 | -8.840  | 4530.592 | 12.310  | 10.200 | 4801.234 | 14.180 | -4.180 |
| 44. | 5720.213 | -6.960 | -8.520  | 4548.273 | 12.740  | 9.830  | 4804.947 | 15.690 | -3.940 |
| 45. | 5705.725 | -7.130 | -8.330  | 4566.625 | 13.070  | 9.460  | 4808.873 | 17.220 | -3.880 |
| 46. | 5690.993 | -7.230 | -8.030  | 4585.198 | 13.280  | 9.020  | 4801.401 | 18.870 | -3.830 |
| 47. | 5676.140 | -7.260 | -7.670  | 4604.048 | 13.250  | 8.570  | 4804.048 | 20.650 | -3.160 |
| 48. | 5661.359 | -7.200 | -7.240  | 4622.910 | 13.110  | 8.090  | 4807.771 | 22.550 | -2.900 |
| 49. | 5646.813 | -7.060 | -6.960  | 4641.553 | 12.810  | 7.570  | 4800.391 | 24.570 | -2.640 |

7-PLANE (XY-PLANE) LITHIUM NITRATE (KOPOLYK ET AL)

|     | LNWEL    | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13  | SSPVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|---------|---------|----------|--------|--------|
| 50. | 543.591  | -6.989 | -6.470 | 469.701  | 12.450  | 7.020   | 402.741  | 1.869  | -2.189 |
| 51. | 5516.147 | -5.500 | -5.910 | 4677.042 | 11.729  | 5.840   | 4094.879 | 1.530  | -2.120 |
| 52. | 5606.198 | -5.090 | -5.370 | 4693.487 | 19.930  | 5.820   | 4086.748 | 1.430  | -1.970 |
| 53. | 5594.622 | -5.570 | -4.830 | 4709.640 | 9.970   | 5.180   | 4099.377 | 1.230  | -1.520 |
| 54. | 5543.399 | -4.970 | -4.290 | 4722.313 | 9.470   | 4.500   | 4099.748 | 1.030  | -1.170 |
| 55. | 5576.700 | -4.280 | -3.550 | 4736.286 | 7.820   | 3.790   | 4010.888 | .860   | -1.130 |
| 56. | 5555.882 | -3.510 | -2.880 | 4764.559 | 5.250   | 3.060   | 4011.787 | .650   | -1.190 |
| 57. | 5550.583 | -2.670 | -2.130 | 4782.358 | 4.760   | 2.390   | 4012.867 | .460   | -1.550 |
| 58. | 5556.215 | -1.700 | -1.450 | 4788.144 | 3.200   | 1.570   | 4012.812 | .270   | -1.420 |
| 59. | 5553.562 | -0.660 | -0.730 | 4761.612 | 1.580   | .740    | 4013.132 | .090   | -1.180 |
| 50. | 5552.774 | .063   | -.810  | 4762.701 | -0.880  | -0.950  | 4013.127 | -.090  | .150   |
| 51. | 5553.454 | 1.023  | .750   | 4761.390 | -1.730  | -1.850  | 4012.907 | -1.200 | .290   |
| 52. | 5553.422 | 1.340  | 1.880  | 4757.705 | -1.350  | -1.570  | 4012.641 | -1.470 | .520   |
| 53. | 5551.534 | 2.324  | 2.210  | 4741.112 | -4.900  | -2.410  | 4011.954 | -.550  | .750   |
| 54. | 5559.057 | 3.550  | 2.930  | 4743.529 | -5.370  | -3.160  | 4010.844 | -.840  | .990   |
| 55. | 5576.155 | 4.410  | 3.570  | 4737.274 | -7.730  | -3.890  | 4009.506 | -1.060 | 1.230  |
| 56. | 5585.709 | 5.090  | 4.210  | 4721.143 | -8.360  | -4.500  | 4009.317 | -1.230 | 1.470  |
| 57. | 5595.570 | 5.640  | 4.810  | 4707.349 | -10.050 | -5.270  | 4006.541 | -1.460 | 1.720  |
| 58. | 5593.565 | 6.190  | 5.380  | 4692.007 | -10.990 | -5.910  | 4004.804 | -1.640 | 1.970  |
| 59. | 5521.512 | 5.590  | 5.810  | 4675.531 | -11.760 | -6.520  | 4022.576 | -1.850 | 2.220  |
| 70. | 5535.225 | 5.910  | 6.630  | 4658.137 | -12.470 | -7.100  | 4007.944 | -2.050 | 2.470  |
| 71. | 5649.515 | 7.130  | 6.870  | 4640.047 | -12.820 | -7.540  | 3907.557 | -2.270 | 2.730  |
| 72. | 5666.203 | 7.260  | 7.260  | 4621.429 | -13.100 | -8.150  | 3904.766 | -2.480 | 2.990  |
| 73. | 5679.104 | 7.310  | 7.550  | 4602.589 | -13.220 | -8.530  | 3931.529 | -2.580 | 3.250  |
| 74. | 5698.050 | 7.270  | 8.010  | 4583.763 | -13.190 | -8.840  | 3988.253 | -2.470 | 3.510  |
| 75. | 5708.878 | 7.160  | 8.420  | 4565.175 | -13.000 | -9.080  | 3944.557 | -2.360 | 3.750  |
| 76. | 5725.435 | 5.980  | 9.410  | 4547.031 | -12.530 | -8.880  | 3909.965 | -2.200 | 4.110  |
| 77. | 5737.579 | 6.740  | 8.870  | 4529.524 | -12.230 | -10.230 | 3976.908 | -2.320 | 4.350  |
| 78. | 5751.190 | 5.430  | 9.110  | 4512.824 | -11.650 | -10.560 | 3972.977 | -3.410 | 4.480  |
| 79. | 5766.116 | 5.080  | 9.310  | 4497.031 | -10.970 | -10.850 | 3969.572 | -3.450 | 4.590  |
| 80. | 5776.279 | 5.570  | 9.430  | 4482.423 | -10.200 | -11.110 | 3964.504 | -3.430 | 4.900  |
| 81. | 5787.570 | 5.220  | 9.550  | 4468.955 | -9.350  | -11.150 | 3950.391 | -3.350 | 5.080  |
| 82. | 5797.901 | 4.730  | 9.730  | 4456.764 | -8.330  | -11.550 | 3955.407 | -3.230 | 5.250  |
| 83. | 5807.195 | 4.210  | 9.970  | 4445.914 | -7.460  | -11.730 | 3952.632 | -3.020 | 5.390  |
| 84. | 5815.384 | 3.660  | 10.070 | 4436.454 | -6.450  | -11.880 | 3949.144 | -2.750 | 5.520  |
| 85. | 5822.410 | 3.090  | 10.110 | 4428.418 | -5.410  | -12.000 | 3946.035 | -2.410 | 5.620  |
| 86. | 5828.224 | 2.500  | 10.140 | 4421.876 | -4.350  | -12.100 | 3943.371 | -2.010 | 5.710  |
| 87. | 5832.786 | 1.890  | 10.230 | 4416.692 | -3.270  | -12.170 | 3941.227 | -1.560 | 5.770  |
| 88. | 5836.067 | 1.260  | 10.270 | 4413.022 | -2.180  | -12.220 | 3939.644 | -1.060 | 5.820  |
| 89. | 5838.044 | .650   | 10.290 | 4410.819 | -1.090  | -12.250 | 3938.674 | -.560  | 5.850  |
| 90. | 5839.704 | -0.000 | 10.310 | 4409.845 | 0.000   | -12.270 | 3938.155 | 0.000  | 5.860  |
| 91. | 5841.046 | -0.630 | 10.290 | 4410.619 | 1.090   | -12.250 | 3939.679 | .560   | 5.850  |
| 92. | 5836.067 | -1.260 | 10.230 | 4413.022 | 2.180   | -12.220 | 3941.227 | 1.060  | 5.820  |
| 93. | 5832.786 | -1.890 | 10.270 | 4416.692 | 3.270   | -12.170 | 3941.227 | 1.560  | 5.770  |
| 94. | 5828.224 | -2.500 | 10.140 | 4421.876 | 4.350   | -12.100 | 3943.371 | 2.010  | 5.710  |
| 95. | 5822.410 | -3.090 | 10.110 | 4428.418 | 5.410   | -12.000 | 3946.035 | 2.410  | 5.620  |
| 96. | 5815.384 | -3.660 | 10.070 | 4436.454 | 6.450   | -11.880 | 3949.144 | 2.750  | 5.520  |
| 97. | 5807.195 | -4.210 | 9.970  | 4445.914 | 7.460   | -11.730 | 3952.632 | 3.020  | 5.390  |
| 98. | 5797.901 | -4.730 | 9.730  | 4456.764 | 8.330   | -11.550 | 3956.407 | 3.230  | 5.250  |
| 99. | 5787.570 | -5.220 | 9.450  | 4468.955 | 9.150   | -11.150 | 3960.391 | 3.350  | 5.080  |

Z-PLANE (XY-PLANE) LITHIUM NIOSBATE (KOPOLYUK ET AL)

|      | LINGVEL  | LPMI12 | LPMI11 | FSRWEL   | FSPMI12 | FSPMI13 | SSRWEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 5776.279 | -5.670 | 9.490  | 4482.423 | 10.200  | -11.110 | 3864.584 | 3.430   | 4.900   |
| 101. | 5764.116 | -6.080 | 9.310  | 4497.081 | 10.977  | -10.950 | 3951.672 | 3.450   | 4.590   |
| 102. | 5751.100 | -6.430 | 9.190  | 4512.024 | 11.650  | -10.560 | 3972.027 | 3.410   | 4.680   |
| 103. | 5737.579 | -6.740 | 8.870  | 4528.524 | 12.230  | -10.230 | 3976.908 | 3.320   | 4.250   |
| 104. | 5723.435 | -6.980 | 8.510  | 4547.031 | 12.680  | -9.880  | 3980.865 | 3.200   | 4.010   |
| 105. | 5708.478 | -7.160 | 8.120  | 4565.175 | 13.000  | -9.490  | 3984.657 | 3.048   | 3.764   |
| 106. | 5694.050 | -7.270 | 7.610  | 4583.753 | 13.190  | -9.090  | 3988.253 | 2.871   | 3.510   |
| 107. | 5679.104 | -7.310 | 7.090  | 4602.569 | 13.227  | -8.530  | 3991.628 | 2.680   | 3.250   |
| 108. | 5664.203 | -7.260 | 6.560  | 4621.429 | 13.180  | -8.150  | 3994.765 | 2.480   | 2.990   |
| 109. | 5649.515 | -7.130 | 6.020  | 4640.047 | 12.920  | -7.640  | 3997.657 | 2.271   | 2.730   |
| 110. | 5635.225 | -6.920 | 5.490  | 4658.197 | 12.174  | -7.100  | 4000.294 | 2.061   | 2.470   |
| 111. | 5621.512 | -6.590 | 4.910  | 4675.631 | 11.760  | -6.520  | 4002.674 | 1.850   | 2.220   |
| 112. | 5608.565 | -6.190 | 4.290  | 4692.047 | 10.990  | -5.910  | 4004.804 | 1.640   | 1.970   |
| 113. | 5596.570 | -5.680 | 3.610  | 4707.349 | 10.050  | -5.270  | 4006.681 | 1.444   | 1.720   |
| 114. | 5585.709 | -5.090 | 2.810  | 4721.149 | 8.960   | -4.560  | 4008.310 | 1.231   | 1.470   |
| 115. | 5576.155 | -4.410 | 1.910  | 4733.274 | 7.730   | -3.790  | 4009.694 | 1.000   | 1.230   |
| 116. | 5568.067 | -3.550 | 0.910  | 4743.520 | 6.374   | -2.960  | 4010.844 | .860    | .990    |
| 117. | 5561.584 | -2.520 | 0.000  | 4751.712 | 4.900   | -2.140  | 4011.754 | .650    | .750    |
| 118. | 5556.622 | -1.940 | 1.480  | 4757.745 | 3.350   | -1.630  | 4012.441 | .471    | .520    |
| 119. | 5552.868 | -1.020 | .750   | 4761.390 | 1.730   | -1.050  | 4012.997 | .280    | .280    |
| 120. | 5552.774 | -0.050 | -0.010 | 4762.701 | .000    | -0.500  | 4013.127 | .190    | .190    |
| 121. | 5553.562 | .060   | -0.730 | 4761.512 | -1.580  | .740    | 4013.112 | -0.090  | -0.140  |
| 122. | 5556.215 | 1.790  | -1.450 | 4758.144 | -3.200  | 1.530   | 4012.412 | -0.270  | -0.420  |
| 123. | 5560.683 | 2.570  | -2.180 | 4752.358 | -4.760  | 2.300   | 4012.467 | -0.460  | -0.550  |
| 124. | 5565.882 | 3.510  | -2.890 | 4744.359 | -6.250  | 3.060   | 4011.747 | -0.590  | -0.690  |
| 125. | 5574.790 | 4.260  | -3.550 | 4734.246 | -7.620  | 3.790   | 4010.084 | -0.640  | -0.740  |
| 126. | 5583.999 | 4.970  | -4.210 | 4722.313 | -8.870  | 4.500   | 4009.374 | -1.030  | -1.170  |
| 127. | 5594.622 | 5.570  | -4.810 | 4708.540 | -9.970  | 5.180   | 4008.537 | -1.030  | -1.170  |
| 128. | 5605.399 | 6.090  | -5.370 | 4693.447 | -10.930 | 5.820   | 4007.574 | -1.230  | -1.430  |
| 129. | 5619.147 | 6.580  | -5.910 | 4677.092 | -11.720 | 6.440   | 4006.474 | -1.430  | -1.670  |
| 130. | 5632.681 | 6.830  | -6.400 | 4659.701 | -12.350 | 7.020   | 4005.261 | -1.640  | -1.920  |
| 131. | 5646.113 | 7.060  | -6.860 | 4641.553 | -12.910 | 7.570   | 4003.991 | -1.850  | -2.180  |
| 132. | 5661.359 | 7.200  | -7.240 | 4622.030 | -13.310 | 8.090   | 3997.771 | -2.050  | -2.460  |
| 133. | 5676.148 | 7.260  | -7.570 | 4604.044 | -13.350 | 8.570   | 3994.905 | -2.250  | -2.900  |
| 134. | 5690.903 | 7.230  | -7.820 | 4585.154 | -13.240 | 9.020   | 3991.981 | -2.650  | -3.430  |
| 135. | 5705.725 | 7.130  | -8.030 | 4566.475 | -13.070 | 9.440   | 3988.474 | -2.820  | -3.940  |
| 136. | 5720.213 | 6.960  | -8.220 | 4548.223 | -12.760 | 9.830   | 3984.947 | -2.991  | -4.500  |
| 137. | 5734.303 | 6.720  | -8.390 | 4530.492 | -12.310 | 10.200  | 3981.238 | -3.110  | -5.170  |
| 138. | 5747.865 | 6.420  | -8.410 | 4513.757 | -11.750 | 10.530  | 3977.597 | -3.210  | -5.840  |
| 139. | 5760.776 | 6.070  | -8.320 | 4497.872 | -11.070 | 10.830  | 3973.464 | -3.270  | -6.560  |
| 140. | 5772.927 | 5.670  | -8.150 | 4483.070 | -10.300 | 11.100  | 3969.444 | -3.240  | -7.340  |
| 141. | 5784.219 | 5.230  | -7.910 | 4469.463 | -9.450  | 11.340  | 3965.555 | -3.230  | -8.160  |
| 142. | 5794.563 | 4.740  | -7.610 | 4457.139 | -8.520  | 11.560  | 3961.915 | -3.120  | -9.010  |
| 143. | 5803.880 | 4.230  | -7.260 | 4446.158 | -7.540  | 11.740  | 3958.050 | -2.940  | -9.940  |
| 144. | 5812.103 | 3.690  | -6.860 | 4436.603 | -6.520  | 11.890  | 3954.534 | -2.700  | -10.940 |
| 145. | 5819.173 | 3.110  | -6.420 | 4428.478 | -5.470  | 12.020  | 3951.554 | -2.400  | -12.000 |
| 146. | 5825.041 | 2.520  | -6.000 | 4421.819 | -4.390  | 12.120  | 3948.845 | -2.030  | -13.120 |
| 147. | 5829.667 | 1.920  | -5.620 | 4416.638 | -3.300  | 12.200  | 3946.684 | -1.620  | -14.300 |
| 148. | 5833.020 | 1.300  | -5.290 | 4412.943 | -2.190  | 12.250  | 3945.012 | -1.160  | -15.610 |
| 149. | 5835.079 | .680   | -5.030 | 4410.737 | -1.090  | 12.280  | 3943.917 | -.690   | -16.980 |



7-PLANE (XY-PLANE) LITHIUM NIOBATE (KOROLYUK ET AL)

|      | LMVEL    | LMH12  | LMH13   | FSPWFL   | FSPH12 | FSPH13 | SSWVEL   | SSPH12 | SSPH13 |
|------|----------|--------|---------|----------|--------|--------|----------|--------|--------|
| 148. | 5875.870 | 0.000  | -10.717 | 4410.020 | 0.020  | 12.280 | 3963.814 | -0.150 | 0.000  |
| 151. | 5835.269 | -0.580 | -10.317 | 4410.790 | 1.110  | 12.270 | 3963.524 | 0.379  | -5.870 |
| 152. | 5837.400 | -1.210 | -10.250 | 4413.044 | 2.230  | 12.230 | 3946.287 | 0.949  | -5.880 |
| 153. | 5838.236 | -1.870 | -10.258 | 4415.780 | 3.320  | 12.170 | 3945.581 | 1.314  | -5.750 |
| 154. | 5828.790 | -2.430 | -10.150 | 4421.900 | 4.400  | 12.080 | 3947.384 | 1.780  | -5.270 |
| 155. | 5828.118 | -3.020 | -10.030 | 4428.665 | 5.470  | 11.980 | 3948.718 | 2.180  | -5.080 |
| 156. | 5813.235 | -3.590 | -9.920  | 4436.784 | 6.510  | 11.850 | 3952.881 | 2.650  | -5.070 |
| 157. | 5805.197 | -4.140 | -9.870  | 4446.333 | 7.520  | 11.690 | 3955.501 | 2.720  | -5.330 |
| 158. | 5796.063 | -4.560 | -9.870  | 4457.251 | 8.480  | 11.510 | 3958.004 | 2.919  | -5.180 |
| 159. | 5785.900 | -5.180 | -9.660  | 4469.522 | 9.390  | 11.300 | 3962.617 | 3.059  | -5.010 |
| 160. | 5775.787 | -5.580 | -9.480  | 4483.045 | 10.250 | 11.050 | 3966.751 | 3.159  | -4.820 |
| 161. | 5762.411 | -5.990 | -9.210  | 4497.741 | 10.990 | 10.780 | 3970.180 | 3.180  | -4.510 |
| 162. | 5750.070 | -6.380 | -8.970  | 4513.582 | 11.660 | 10.480 | 3973.982 | 3.110  | -4.390 |
| 163. | 5735.675 | -6.680 | -8.870  | 4530.187 | 12.210 | 10.150 | 3977.674 | 3.040  | -4.160 |
| 164. | 5722.744 | -6.980 | -8.580  | 4547.575 | 12.650 | 9.800  | 3981.297 | 2.939  | -3.920 |
| 165. | 5708.410 | -7.080 | -8.320  | 4565.764 | 12.960 | 9.410  | 3984.771 | 2.790  | -3.570 |
| 166. | 5693.812 | -7.160 | -8.000  | 4584.274 | 13.120 | 8.990  | 3988.065 | 2.680  | -3.420 |
| 167. | 5679.105 | -7.190 | -7.650  | 4602.907 | 13.160 | 8.560  | 3991.154 | 2.450  | -3.160 |
| 168. | 5664.484 | -7.180 | -7.290  | 4621.711 | 13.010 | 8.080  | 3994.037 | 2.270  | -2.910 |
| 169. | 5650.012 | -7.010 | -6.880  | 4640.182 | 12.710 | 7.550  | 3996.675 | 2.079  | -2.650 |
| 170. | 5635.976 | -6.780 | -6.390  | 4658.169 | 12.260 | 7.010  | 3999.081 | 1.839  | -2.390 |
| 171. | 5622.521 | -6.470 | -5.830  | 4675.424 | 11.680 | 6.430  | 4001.280 | 1.580  | -2.140 |
| 172. | 5609.833 | -6.060 | -5.350  | 4691.700 | 10.960 | 5.830  | 4003.175 | 1.340  | -1.900 |
| 173. | 5598.095 | -5.560 | -4.790  | 4706.755 | 9.920  | 5.190  | 4004.857 | 1.090  | -1.550 |
| 174. | 5587.480 | -4.980 | -4.120  | 4720.355 | 8.830  | 4.520  | 4006.322 | 1.100  | -1.400 |
| 175. | 5578.180 | -4.290 | -3.590  | 4732.282 | 7.600  | 3.820  | 4007.585 | 0.910  | -1.150 |
| 176. | 5570.328 | -3.530 | -2.980  | 4742.376 | 6.250  | 3.090  | 4008.581 | 0.770  | -0.930 |
| 177. | 5564.068 | -2.710 | -2.190  | 4750.387 | 4.780  | 2.340  | 4009.314 | 0.599  | -0.690 |
| 178. | 5559.512 | -1.860 | -1.470  | 4756.174 | 3.240  | 1.570  | 4009.854 | 0.360  | -0.460 |
| 179. | 5555.744 | -0.930 | -0.780  | 4759.713 | 1.630  | 0.790  | 4010.184 | 0.180  | -0.230 |
| 180. | 5555.816 | 0.000  | -0.010  | 4760.900 | -0.000 | -0.000 | 4010.295 | -0.000 | 0.000  |

X-PLANE (YZ-PLANE) LITHIUM TANTALATE (SMITH AND WELSH)

BULK

|     | LANGVEL  | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 5668.667 | 12.630 | 0.000  | 3682.959 | -16.510 | -0.000  | 3530.313 | -6.390  | 0.000   |
| 1.  | 5711.428 | 12.910 | 0.000  | 3682.438 | -17.250 | -0.000  | 3523.432 | -6.374  | 0.000   |
| 2.  | 5734.515 | 13.110 | 0.000  | 3641.143 | -17.660 | -0.000  | 3510.542 | -6.340  | 0.000   |
| 3.  | 5757.995 | 13.230 | 0.000  | 3619.220 | -18.410 | -0.000  | 3504.600 | -6.330  | 0.000   |
| 4.  | 5781.744 | 13.300 | 0.000  | 3596.812 | -18.640 | -0.000  | 3503.067 | -6.260  | 0.000   |
| 5.  | 5805.646 | 13.300 | 0.000  | 3574.055 | -19.160 | -0.000  | 3496.399 | -6.200  | 0.000   |
| 6.  | 5829.599 | 13.240 | 0.000  | 3551.076 | -19.390 | -0.000  | 3489.605 | -6.140  | 0.000   |
| 7.  | 5853.497 | 13.140 | 0.000  | 3528.003 | -19.530 | -0.000  | 3483.295 | -6.070  | 0.000   |
| 8.  | 5877.251 | 12.920 | 0.000  | 3504.946 | -19.590 | -0.000  | 3476.676 | -5.990  | 0.000   |
| 9.  | 5900.776 | 12.740 | 0.000  | 3482.022 | -19.550 | -0.000  | 3470.527 | -5.910  | 0.000   |
| 10. | 5923.995 | 12.560 | 0.000  | 3459.330 | -19.440 | -0.000  | 3464.345 | -5.820  | 0.000   |
| 11. | 5946.637 | 12.300 | 0.000  | 3436.969 | -19.250 | -0.000  | 3458.120 | -5.710  | 0.000   |
| 12. | 5969.219 | 12.010 | 0.000  | 3415.032 | -18.960 | -0.000  | 3452.200 | -5.600  | 0.000   |
| 13. | 5991.141 | 11.690 | 0.000  | 3393.604 | -18.630 | -0.000  | 3446.441 | -5.480  | 0.000   |
| 14. | 6012.491 | 11.350 | 0.000  | 3372.767 | -18.210 | -0.000  | 3440.743 | -5.350  | 0.000   |
| 15. | 6033.242 | 10.980 | 0.000  | 3352.595 | -17.720 | -0.000  | 3435.142 | -5.220  | 0.000   |
| 16. | 6053.352 | 10.600 | 0.000  | 3333.159 | -17.160 | -0.000  | 3429.796 | -5.167  | 0.000   |
| 17. | 6072.782 | 10.200 | 0.000  | 3314.522 | -16.540 | -0.000  | 3424.563 | -5.120  | 0.000   |
| 18. | 6091.500 | 9.790  | 0.000  | 3296.742 | -15.850 | -0.000  | 3419.450 | -4.770  | 0.000   |
| 19. | 6109.477 | 9.370  | 0.000  | 3279.874 | -15.110 | -0.000  | 3414.461 | -4.600  | 0.000   |
| 20. | 6126.687 | 8.940  | 0.000  | 3263.965 | -14.300 | -0.000  | 3409.509 | -4.430  | 0.000   |
| 21. | 6143.109 | 8.500  | 0.000  | 3249.058 | -13.450 | -0.000  | 3404.595 | -4.220  | 0.000   |
| 22. | 6158.726 | 8.050  | 0.000  | 3235.186 | -12.540 | -0.000  | 3401.077 | -4.060  | 0.000   |
| 23. | 6173.524 | 7.600  | 0.000  | 3222.367 | -11.600 | -0.000  | 3396.961 | -3.870  | 0.000   |
| 24. | 6187.491 | 7.150  | 0.000  | 3210.661 | -10.610 | -0.000  | 3393.053 | -3.670  | 0.000   |
| 25. | 6200.619 | 6.700  | 0.000  | 3200.091 | -9.590  | -0.000  | 3389.359 | -3.470  | 0.000   |
| 26. | 6212.905 | 6.240  | 0.000  | 3190.630 | -8.550  | -0.000  | 3385.862 | -3.260  | 0.000   |
| 27. | 6224.346 | 5.790  | 0.000  | 3182.630 | -7.480  | -0.000  | 3382.306 | -3.040  | 0.000   |
| 28. | 6234.942 | 5.340  | 0.000  | 3175.130 | -6.400  | -0.000  | 3379.605 | -2.820  | 0.000   |
| 29. | 6244.697 | 4.900  | 0.000  | 3169.092 | -5.310  | -0.000  | 3376.813 | -2.600  | 0.000   |
| 30. | 6253.617 | 4.460  | 0.000  | 3164.190 | -4.230  | -0.000  | 3374.227 | -2.370  | 0.000   |
| 31. | 6261.710 | 4.020  | 0.000  | 3160.410 | -3.150  | -0.000  | 3371.941 | -2.140  | 0.000   |
| 32. | 6268.967 | 3.590  | 0.000  | 3157.736 | -2.080  | -0.000  | 3369.660 | -1.900  | 0.000   |
| 33. | 6275.461 | 3.160  | 0.000  | 3156.147 | -1.030  | -0.000  | 3366.042 | -1.660  | 0.000   |
| 34. | 6281.147 | 2.770  | 0.000  | 3155.616 | -0.900  | -0.000  | 3360.465 | -1.420  | 0.000   |
| 35. | 6286.062 | 2.370  | 0.000  | 3156.113 | 1.930   | -0.000  | 3365.138 | -1.170  | 0.000   |
| 36. | 6290.224 | 1.980  | 0.000  | 3157.603 | 2.840   | -0.000  | 3364.165 | -0.920  | 0.000   |
| 37. | 6293.655 | 1.600  | 0.000  | 3160.049 | 3.700   | -0.000  | 3363.247 | -0.670  | 0.000   |
| 38. | 6296.377 | 1.240  | 0.000  | 3163.407 | 4.520   | -0.000  | 3362.684 | -0.420  | 0.000   |
| 39. | 6298.414 | 0.890  | 0.000  | 3167.634 | 5.260   | -0.000  | 3362.376 | -0.170  | 0.000   |
| 40. | 6299.793 | 0.550  | 0.000  | 3172.661 | 5.950   | -0.000  | 3362.329 | 0.060   | 0.000   |
| 41. | 6300.540 | 0.230  | 0.000  | 3178.497 | 6.640   | -0.000  | 3362.537 | 0.330   | 0.000   |
| 42. | 6300.684 | -0.080 | 0.000  | 3185.030 | 7.230   | -0.000  | 3363.002 | 0.600   | 0.000   |
| 43. | 6300.254 | -0.370 | 0.000  | 3192.224 | 7.760   | -0.000  | 3363.724 | 0.830   | 0.000   |
| 44. | 6299.262 | -0.640 | 0.000  | 3200.022 | 8.230   | -0.000  | 3364.700 | 1.080   | 0.000   |
| 45. | 6297.000 | -0.900 | 0.000  | 3208.366 | 8.640   | -0.000  | 3365.930 | 1.320   | 0.000   |
| 46. | 6295.640 | -1.140 | 0.000  | 3217.202 | 8.990   | -0.000  | 3367.413 | 1.570   | 0.000   |
| 47. | 6293.435 | -1.360 | 0.000  | 3226.464 | 9.280   | -0.000  | 3369.145 | 1.810   | 0.000   |
| 48. | 6290.621 | -1.570 | 0.000  | 3236.095 | 9.510   | -0.000  | 3371.124 | 2.020   | 0.000   |
| 49. | 6287.431 | -1.760 | 0.000  | 3246.035 | 9.510   | -0.000  | 3373.348 | 2.260   | 0.000   |

X-PLANE (YZ-PLANE) LITHIUM TANTALATE (SMITH AND WELSH)

BULK

|     | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 6283.301 | -1.930 | -0.000 | 3456.223 | 9.860   | -0.000  | 3375.013 | 2.510   | -0.000  |
| 51. | 6280.066 | -2.060 | -0.000 | 3466.600 | 9.860   | -0.000  | 3376.516 | 2.740   | -0.000  |
| 52. | 6275.960 | -2.210 | -0.000 | 3477.107 | 9.870   | -0.000  | 3381.452 | 2.960   | -0.000  |
| 53. | 6271.620 | -2.330 | -0.000 | 3487.688 | 9.880   | 0.000   | 3384.619 | 3.180   | -0.000  |
| 54. | 6267.079 | -2.420 | -0.000 | 3498.285 | 9.840   | 0.000   | 3384.010 | 3.390   | -0.000  |
| 55. | 6262.373 | -2.500 | -0.000 | 3508.843 | 9.750   | 0.000   | 3391.623 | 3.600   | -0.000  |
| 56. | 6257.576 | -2.560 | -0.000 | 3519.310 | 9.610   | 0.000   | 3395.450 | 3.800   | -0.000  |
| 57. | 6252.600 | -2.610 | -0.000 | 3529.633 | 9.430   | 0.000   | 3393.457 | 3.990   | -0.000  |
| 58. | 6247.597 | -2.640 | -0.000 | 3539.763 | 9.210   | 0.000   | 3403.729 | 4.100   | -0.000  |
| 59. | 6242.560 | -2.650 | -0.000 | 3549.654 | 8.950   | 0.000   | 3406.159 | 4.360   | -0.000  |
| 60. | 6237.516 | -2.650 | -0.000 | 3559.254 | 8.650   | 0.000   | 3412.052 | 4.540   | -0.000  |
| 61. | 6232.499 | -2.630 | -0.000 | 3568.538 | 8.310   | 0.000   | 3417.650 | 4.700   | -0.000  |
| 62. | 6227.532 | -2.600 | -0.000 | 3577.449 | 7.950   | 0.000   | 3422.617 | 4.850   | -0.000  |
| 63. | 6222.641 | -2.550 | -0.000 | 3585.957 | 7.550   | 0.000   | 3427.766 | 5.020   | -0.000  |
| 64. | 6217.852 | -2.500 | -0.000 | 3594.026 | 7.120   | 0.000   | 3433.121 | 5.160   | -0.000  |
| 65. | 6213.185 | -2.430 | -0.000 | 3601.626 | 6.670   | 0.000   | 3438.614 | 5.300   | -0.000  |
| 66. | 6208.662 | -2.350 | -0.000 | 3608.729 | 6.200   | 0.000   | 3444.237 | 5.430   | -0.000  |
| 67. | 6204.300 | -2.260 | -0.000 | 3615.307 | 5.710   | 0.000   | 3450.043 | 5.550   | -0.000  |
| 68. | 6200.116 | -2.160 | -0.000 | 3621.339 | 5.200   | 0.000   | 3455.944 | 5.670   | -0.000  |
| 69. | 6196.125 | -2.060 | -0.000 | 3626.806 | 4.660   | 0.000   | 3462.033 | 5.770   | -0.000  |
| 70. | 6192.336 | -1.950 | -0.000 | 3631.690 | 4.140   | 0.000   | 3468.191 | 5.870   | -0.000  |
| 71. | 6188.765 | -1.840 | -0.000 | 3635.976 | 3.590   | 0.000   | 3474.460 | 5.960   | -0.000  |
| 72. | 6185.414 | -1.720 | -0.000 | 3639.655 | 3.040   | 0.000   | 3480.842 | 6.040   | -0.000  |
| 73. | 6182.291 | -1.600 | -0.000 | 3642.724 | 2.480   | 0.000   | 3487.315 | 6.120   | -0.000  |
| 74. | 6179.400 | -1.470 | -0.000 | 3645.169 | 1.920   | 0.000   | 3493.862 | 6.190   | -0.000  |
| 75. | 6176.742 | -1.350 | -0.000 | 3646.997 | 1.360   | 0.000   | 3500.582 | 6.240   | -0.000  |
| 76. | 6174.318 | -1.230 | -0.000 | 3648.180 | .750    | 0.000   | 3507.432 | 6.280   | -0.000  |
| 77. | 6172.125 | -1.110 | -0.000 | 3648.751 | .230    | 0.000   | 3514.403 | 6.320   | -0.000  |
| 78. | 6170.159 | -.990  | -0.000 | 3648.701 | -.320   | 0.000   | 3521.495 | 6.360   | -0.000  |
| 79. | 6168.415 | -.870  | -0.000 | 3648.030 | -.870   | 0.000   | 3527.611 | 6.390   | -0.000  |
| 80. | 6166.886 | -.760  | -0.000 | 3646.766 | -1.416  | 0.000   | 3534.593 | 6.400   | -0.000  |
| 81. | 6165.564 | -.650  | -0.000 | 3644.903 | -1.940  | 0.000   | 3541.520 | 6.400   | -0.000  |
| 82. | 6164.436 | -.550  | -0.000 | 3642.452 | -2.470  | 0.000   | 3548.459 | 6.410   | -0.000  |
| 83. | 6163.497 | -.450  | -0.000 | 3639.430 | -2.960  | 0.000   | 3555.440 | 6.400   | -0.000  |
| 84. | 6162.730 | -.360  | -0.000 | 3635.850 | -3.470  | 0.000   | 3562.375 | 6.360   | -0.000  |
| 85. | 6162.122 | -.280  | -0.000 | 3631.729 | -3.960  | 0.000   | 3569.323 | 6.300   | -0.000  |
| 86. | 6161.661 | -.210  | -0.000 | 3627.084 | -4.430  | 0.000   | 3576.254 | 6.230   | -0.000  |
| 87. | 6161.330 | -.140  | -0.000 | 3621.934 | -4.860  | 0.000   | 3583.161 | 6.240   | -0.000  |
| 88. | 6161.124 | -.090  | -0.000 | 3616.298 | -5.320  | 0.000   | 3590.035 | 6.240   | -0.000  |
| 89. | 6160.997 | -.040  | -0.000 | 3610.197 | -5.690  | 0.000   | 3596.869 | 6.150   | -0.000  |
| 90. | 6160.962 | 0.000  | -0.000 | 3603.653 | -6.130  | 0.000   | 3603.653 | 6.130   | -0.000  |
| 91. | 6160.991 | .030   | -0.000 | 3596.690 | -6.550  | -0.000  | 3610.351 | 6.070   | -0.000  |
| 92. | 6161.067 | .050   | -0.000 | 3589.331 | -6.870  | -0.000  | 3617.044 | 5.990   | -0.000  |
| 93. | 6161.172 | .060   | -0.000 | 3581.603 | -7.210  | -0.000  | 3623.634 | 5.910   | -0.000  |
| 94. | 6161.286 | .060   | -0.000 | 3573.531 | -7.520  | -0.000  | 3630.144 | 5.830   | -0.000  |
| 95. | 6161.392 | .050   | -0.000 | 3565.143 | -7.810  | -0.000  | 3636.587 | 5.740   | -0.000  |
| 96. | 6161.471 | .030   | -0.000 | 3556.466 | -8.060  | -0.000  | 3642.895 | 5.640   | -0.000  |
| 97. | 6161.503 | 0.000  | 0.000  | 3547.536 | -8.320  | -0.000  | 3649.121 | 5.540   | -0.000  |
| 98. | 6161.470 | -.040  | -0.000 | 3538.376 | -8.530  | -0.000  | 3655.237 | 5.430   | -0.000  |
| 99. | 6161.351 | -.090  | -0.000 | 3529.027 | -8.710  | -0.000  | 3661.236 | 5.310   | -0.000  |

|      | X-PLANE (YZ-PLANE) LITHIUM TANTALATE (SMITH AND WELSH) |         |          |         |         |          |         |         |  |  | BULK |  |
|------|--|---------|----------|---------|---------|----------|---------|---------|--|--|------|--|
|      | LPHI12   | LPHI13  | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |  |  |      |  |
| 100. | 6161.126   | 0.000   | 3519.515 | -6.866  | -0.000  | 3667.115 | 5.150   | -0.000  |  |  |      |  |
| 101. | 6160.781   | -0.220  | 3509.879 | -8.990  | -0.000  | 3672.804 | 5.060   | -0.000  |  |  |      |  |
| 102. | 6160.290   | -0.300  | 3500.154 | -9.070  | -0.000  | 3670.476 | 4.530   | -0.000  |  |  |      |  |
| 103. | 6159.637   | -0.400  | 3490.376 | -9.130  | -0.000  | 3683.947 | 4.600   | -0.000  |  |  |      |  |
| 104. | 6158.801   | -0.500  | 3480.591 | -9.150  | -0.000  | 3689.270 | 4.600   | -0.000  |  |  |      |  |
| 105. | 6157.764   | -0.610  | 3470.833 | -9.120  | -0.000  | 3694.439 | 4.510   | -0.000  |  |  |      |  |
| 106. | 6156.505   | -0.730  | 3461.146 | -9.060  | -0.000  | 3699.449 | 4.360   | -0.000  |  |  |      |  |
| 107. | 6155.006   | -0.870  | 3451.573 | -8.960  | -0.000  | 3704.294 | 4.210   | -0.000  |  |  |      |  |
| 108. | 6153.246   | -1.010  | 3442.155 | -8.820  | -0.000  | 3708.966 | 4.050   | -0.000  |  |  |      |  |
| 109. | 6151.211   | -1.160  | 3432.945 | -8.630  | -0.000  | 3713.466 | 3.890   | -0.000  |  |  |      |  |
| 110. | 6148.878   | -1.330  | 3423.990 | -8.390  | -0.000  | 3717.708 | 3.730   | -0.000  |  |  |      |  |
| 111. | 6146.229   | -1.500  | 3415.330 | -8.110  | -0.000  | 3721.923 | 3.560   | -0.000  |  |  |      |  |
| 112. | 6143.246   | -1.650  | 3407.015 | -7.760  | -0.000  | 3725.065 | 3.390   | -0.000  |  |  |      |  |
| 113. | 6139.912   | -1.860  | 3399.105 | -7.390  | -0.000  | 3729.022 | 3.210   | -0.000  |  |  |      |  |
| 114. | 6136.205   | -2.060  | 3391.639 | -6.960  | -0.000  | 3733.177 | 3.040   | -0.000  |  |  |      |  |
| 115. | 6132.120   | -2.250  | 3384.671 | -6.470  | -0.000  | 3736.532 | 2.860   | -0.000  |  |  |      |  |
| 116. | 6127.629   | -2.510  | 3376.253 | -5.930  | -0.000  | 3739.602 | 2.670   | -0.000  |  |  |      |  |
| 117. | 6122.720   | -2.740  | 3367.436 | -5.340  | -0.000  | 3742.625 | 2.490   | -0.000  |  |  |      |  |
| 118. | 6117.376   | -2.960  | 3357.265 | -4.690  | -0.000  | 3745.356 | 2.300   | -0.000  |  |  |      |  |
| 119. | 6111.588   | -3.230  | 3346.803 | -4.000  | -0.000  | 3747.674 | 2.110   | -0.000  |  |  |      |  |
| 120. | 6105.336   | -3.460  | 3335.086 | -3.250  | -0.000  | 3750.175 | 1.920   | -0.000  |  |  |      |  |
| 121. | 6098.610   | -3.750  | 3323.166 | -2.450  | -0.000  | 3752.256 | 1.730   | -0.000  |  |  |      |  |
| 122. | 6091.398   | -4.010  | 3310.993 | -1.600  | -0.000  | 3754.119 | 1.530   | -0.000  |  |  |      |  |
| 123. | 6083.682   | -4.290  | 3302.650 | -0.220  | -0.000  | 3755.758 | 1.330   | -0.000  |  |  |      |  |
| 124. | 6075.472   | -4.570  | 3292.365 | 1.190   | -0.000  | 3757.172 | 1.140   | -0.000  |  |  |      |  |
| 125. | 6066.735   | -4.850  | 3283.365 | 2.190   | -0.000  | 3758.360 | 0.940   | -0.000  |  |  |      |  |
| 126. | 6057.484   | -5.140  | 3273.680 | 3.220   | -0.000  | 3759.320 | 0.740   | -0.000  |  |  |      |  |
| 127. | 6047.700   | -5.440  | 3264.840 | 4.270   | -0.000  | 3760.053 | 0.540   | -0.000  |  |  |      |  |
| 128. | 6037.353   | -5.740  | 3256.160 | 5.330   | -0.000  | 3760.556 | 0.340   | -0.000  |  |  |      |  |
| 129. | 6026.530   | -6.040  | 3248.607 | 6.410   | -0.000  | 3760.829 | 0.140   | -0.000  |  |  |      |  |
| 130. | 6015.135   | -6.340  | 3242.652 | 7.460   | -0.000  | 3760.877 | -0.060  | -0.000  |  |  |      |  |
| 131. | 6003.213   | -6.640  | 3237.830 | 8.560   | -0.000  | 3760.687 | -0.260  | -0.000  |  |  |      |  |
| 132. | 5990.752   | -6.940  | 3233.630 | 9.620   | -0.000  | 3760.271 | -0.460  | -0.000  |  |  |      |  |
| 133. | 5977.764   | -7.240  | 3229.630 | 10.670  | -0.000  | 3759.626 | -0.660  | -0.000  |  |  |      |  |
| 134. | 5964.254   | -7.530  | 3225.850 | 11.640  | -0.000  | 3758.752 | -0.860  | -0.000  |  |  |      |  |
| 135. | 5950.232   | -7.830  | 3222.034 | 12.600  | -0.000  | 3757.650 | -1.060  | -0.000  |  |  |      |  |
| 136. | 5935.711   | -8.110  | 3432.946 | 13.600  | -0.000  | 3756.352 | -1.260  | -0.000  |  |  |      |  |
| 137. | 5920.705   | -8.390  | 3446.970 | 14.530  | -0.000  | 3754.759 | -1.460  | -0.000  |  |  |      |  |
| 138. | 5905.234   | -8.660  | 3462.105 | 15.350  | -0.000  | 3752.992 | -1.650  | -0.000  |  |  |      |  |
| 139. | 5893.317   | -8.920  | 3478.298 | 16.200  | -0.000  | 3750.993 | -1.840  | -0.000  |  |  |      |  |
| 140. | 5872.961   | -9.160  | 3495.518 | 17.040  | -0.000  | 3748.775 | -2.040  | -0.000  |  |  |      |  |
| 141. | 5856.253   | -9.400  | 3513.722 | 17.820  | -0.000  | 3746.339 | -2.230  | -0.000  |  |  |      |  |
| 142. | 5839.167   | -9.610  | 3532.855 | 18.530  | -0.000  | 3743.689 | -2.420  | -0.000  |  |  |      |  |
| 143. | 5821.755   | -9.800  | 3552.870 | 19.170  | -0.000  | 3740.826 | -2.600  | -0.000  |  |  |      |  |
| 144. | 5804.071   | -9.970  | 3573.669 | 19.740  | -0.000  | 3737.754 | -2.790  | -0.000  |  |  |      |  |
| 145. | 5786.149   | -10.120 | 3595.262 | 20.240  | -0.000  | 3734.477 | -2.970  | -0.000  |  |  |      |  |
| 146. | 5768.047   | -10.230 | 3617.450 | 20.620  | -0.000  | 3730.997 | -3.150  | -0.000  |  |  |      |  |
| 147. | 5749.821   | -10.320 | 3640.222 | 20.920  | -0.000  | 3727.319 | -3.320  | -0.000  |  |  |      |  |
| 148. | 5731.537   | -10.360 | 3663.461 | 20.130  | -0.000  | 3723.446 | -3.500  | -0.000  |  |  |      |  |
| 149. | 5713.264   | -10.370 | 3687.064 | 20.250  | -0.000  | 3719.362 | -3.660  | -0.000  |  |  |      |  |

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MICROWAVE ACOUSTICS HANDBOOK, VOLUME 4, BULK WAVE VELOCITIES-NU--ETC(U)

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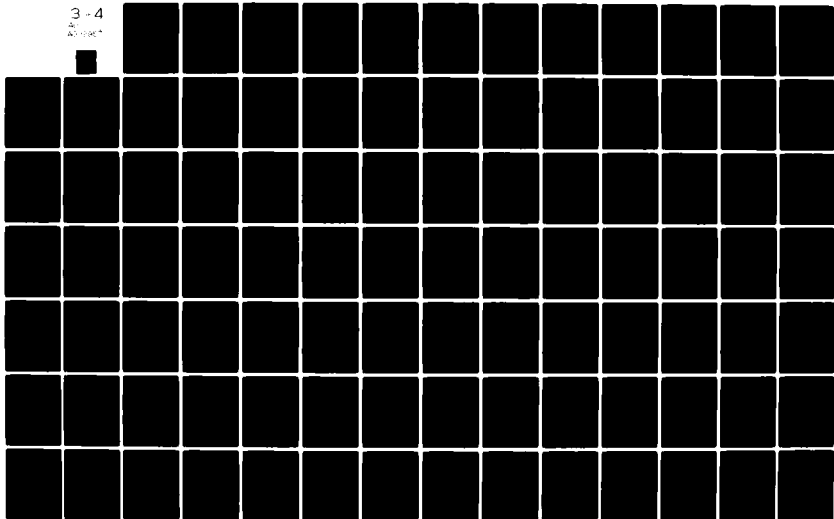
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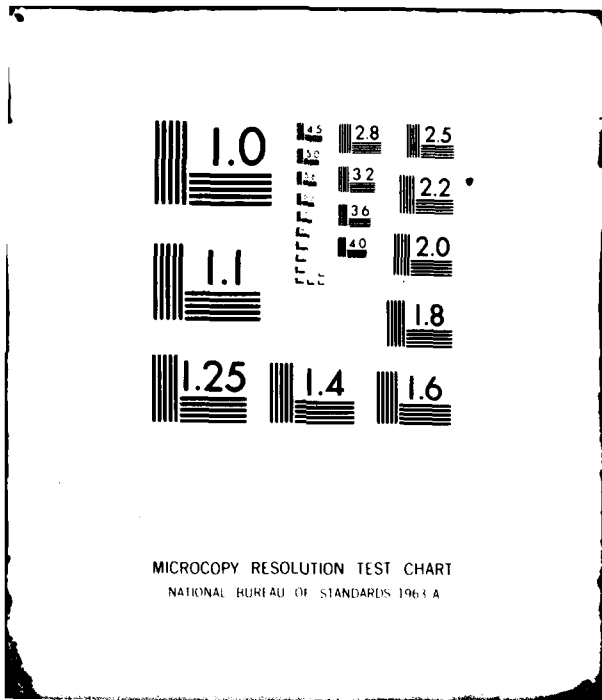
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS 1963 A

|      | X-PLANE (YZ-PLANE) LITHIUM TANTALATE (SMITH AND WELSH) |        |          |         |         |          |         |         |          |  | BULK |  |
|------|--|--------|----------|---------|---------|----------|---------|---------|----------|--|------|--|
|      | LPHI12   | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 | LNGVEL   |  |      |  |
| 150. | -10.330  | 0.000  | 3710.915 | 20.260  | -0.000  | 3710.132 | -3.630  | -0.000  | 5695.082 |  |      |  |
| 151. | -10.230  | 0.000  | 3734.894 | 20.210  | 0.000   | 3710.701 | -3.530  | -0.000  | 5677.074 |  |      |  |
| 152. | -10.050  | 0.000  | 3750.870 | 20.040  | 0.000   | 3706.992 | -4.130  | -0.000  | 5655.336 |  |      |  |
| 153. | -9.600   | 0.000  | 3782.704 | 19.760  | 0.000   | 3701.311 | -4.310  | -0.000  | 5641.966 |  |      |  |
| 154. | -9.600   | 0.000  | 3806.249 | 19.370  | 0.000   | 3696.364 | -4.460  | -0.000  | 5625.076 |  |      |  |
| 155. | -9.260   | 0.000  | 3829.351 | 18.960  | 0.000   | 3691.254 | -4.600  | -0.000  | 5608.781 |  |      |  |
| 156. | -8.830   | 0.000  | 3851.816 | 18.230  | 0.000   | 3685.959 | -4.750  | -0.000  | 5593.207 |  |      |  |
| 157. | -8.330   | 0.000  | 3873.567 | 17.470  | 0.000   | 3680.574 | -4.860  | -0.000  | 5578.486 |  |      |  |
| 158. | -7.730   | 0.000  | 3894.339 | 16.560  | 0.000   | 3675.115 | -5.020  | -0.000  | 5564.756 |  |      |  |
| 159. | -7.050   | 0.000  | 3913.985 | 15.560  | 0.000   | 3669.317 | -5.140  | -0.000  | 5552.156 |  |      |  |
| 160. | -6.280   | 0.000  | 3932.328 | 14.410  | 0.000   | 3663.460 | -5.270  | -0.000  | 5540.636 |  |      |  |
| 161. | -5.410   | 0.000  | 3949.132 | 13.120  | 0.000   | 3657.333 | -5.380  | -0.000  | 5530.933 |  |      |  |
| 162. | -4.460   | 0.000  | 3964.485 | 11.700  | 0.000   | 3651.160 | -5.490  | -0.000  | 5522.590 |  |      |  |
| 163. | -3.430   | 0.000  | 3977.888 | 10.160  | 0.000   | 3645.279 | -5.600  | -0.000  | 5515.937 |  |      |  |
| 164. | -2.320   | 0.000  | 3989.253 | 8.510   | 0.000   | 3639.705 | -5.700  | -0.000  | 5511.093 |  |      |  |
| 165. | -1.160   | 0.000  | 3998.612 | 6.770   | 0.000   | 3634.598 | -5.790  | -0.000  | 5508.161 |  |      |  |
| 166. | 0.050  | 0.000  | 4005.779 | 4.940   | 0.000   | 3629.120 | -5.880  | -0.000  | 5507.224 |  |      |  |
| 167. | 1.280  | 0.000  | 4010.676 | 3.060   | 0.000   | 3619.554 | -5.960  | -0.000  | 5508.338 |  |      |  |
| 168. | 2.520  | 0.000  | 4013.252 | 1.150   | 0.000   | 3612.323 | -6.040  | -0.000  | 5513.536 |  |      |  |
| 169. | 3.750  | 0.000  | 4013.459 | -0.760  | 0.000   | 3606.219 | -6.110  | -0.000  | 5516.817 |  |      |  |
| 170. | 4.950  | 0.000  | 4011.399 | -2.650  | 0.000   | 3599.499 | -6.170  | -0.000  | 5524.157 |  |      |  |
| 171. | 6.100  | 0.000  | 4007.025 | -4.490  | 0.000   | 3592.840 | -6.220  | -0.000  | 5533.495 |  |      |  |
| 172. | 7.160  | 0.000  | 4000.438 | -6.260  | 0.000   | 3585.700 | -6.270  | -0.000  | 5544.762 |  |      |  |
| 173. | 8.150  | 0.000  | 3991.734 | -7.950  | 0.000   | 3578.004 | -6.310  | -0.000  | 5557.645 |  |      |  |
| 174. | 9.100  | 0.000  | 3981.031 | -9.550  | 0.000   | 3571.901 | -6.360  | -0.000  | 5572.624 |  |      |  |
| 175. | 9.930  | 0.000  | 3968.462 | -10.990 | 0.000   | 3565.019 | -6.370  | -0.000  | 5588.965 |  |      |  |
| 176. | 10.660   | 0.000  | 3954.173 | -12.340 | 0.000   | 3558.066 | -6.390  | -0.000  | 5606.723 |  |      |  |
| 177. | 11.250   | 0.000  | 3938.310 | -13.560 | 0.000   | 3551.110 | -6.400  | -0.000  | 5625.744 |  |      |  |
| 178. | 11.830   | 0.000  | 3921.057 | -14.670 | 0.000   | 3544.160 | -6.410  | -0.000  | 5645.877 |  |      |  |
| 179. | 12.270   | 0.000  | 3902.511 | -15.650 | 0.000   | 3537.225 | -6.400  | -0.000  | 5666.966 |  |      |  |
| 180. | 12.630   | 0.000  | 3882.959 | -16.510 | 0.000   | 3530.313 | -6.390  | -0.000  | 5688.867 |  |      |  |

Y-PLANE (XZ-PLANE) LITHIUM TANTALATE (SMITH AND WELSH) BULK

|     | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13  | SSRVEL   | SSPH12 | SSPH13  |
|-----|----------|--------|--------|----------|---------|---------|----------|--------|---------|
| 0.  | 5952.395 | 0.000  | 0.000  | 4211.571 | 0.000   | 0.000   | 3367.006 | 0.000  | 0.000   |
| 1.  | 5953.333 | 1.110  | 0.660  | 4210.373 | -1.070  | -1.010  | 3367.218 | 0.000  | -0.350  |
| 2.  | 5956.135 | 2.240  | 1.710  | 4206.794 | -3.710  | -2.000  | 3367.614 | 0.510  | -0.760  |
| 3.  | 5960.759 | 3.250  | 2.530  | 4200.079 | -5.506  | -2.540  | 3368.272 | 0.770  | -1.110  |
| 4.  | 5967.138 | 4.250  | 3.330  | 4192.703 | -7.220  | -3.510  | 3369.152 | 1.020  | -1.560  |
| 5.  | 5975.182 | 5.190  | 4.080  | 4182.363 | -8.860  | -4.818  | 3370.371 | 1.270  | -2.030  |
| 6.  | 5984.783 | 6.060  | 4.790  | 4169.979 | -10.400 | -6.430  | 3371.606 | 1.520  | -2.530  |
| 7.  | 5995.819 | 6.840  | 5.450  | 4155.688 | -11.830 | -7.430  | 3373.493 | 1.760  | -3.070  |
| 8.  | 6008.158 | 7.538  | 6.050  | 4139.636 | -13.150 | -8.360  | 3375.429 | 2.000  | -3.640  |
| 9.  | 6021.684 | 8.140  | 6.600  | 4121.981 | -14.350 | -9.160  | 3377.607 | 2.230  | -4.240  |
| 10. | 6036.196 | 8.670  | 7.090  | 4102.884 | -15.430 | -9.820  | 3380.021 | 2.460  | -4.860  |
| 11. | 6051.616 | 9.110  | 7.540  | 4082.506 | -16.400 | -10.360 | 3382.667 | 2.680  | -5.510  |
| 12. | 6067.789 | 9.470  | 7.930  | 4061.008 | -17.250 | -10.780 | 3385.534 | 2.880  | -6.180  |
| 13. | 6084.586 | 9.760  | 8.270  | 4038.550 | -17.990 | -11.090 | 3388.616 | 3.060  | -6.870  |
| 14. | 6101.803 | 10.010 | 8.560  | 4015.284 | -18.630 | -11.290 | 3391.982 | 3.270  | -7.580  |
| 15. | 6119.565 | 10.130 | 8.820  | 3991.361 | -19.160 | -11.380 | 3395.382 | 3.450  | -8.310  |
| 16. | 6137.524 | 10.230 | 9.030  | 3966.922 | -19.600 | -11.460 | 3399.043 | 3.610  | -9.060  |
| 17. | 6155.660 | 10.270 | 9.210  | 3942.106 | -19.940 | -11.500 | 3402.871 | 3.760  | -9.830  |
| 18. | 6173.883 | 10.260 | 9.350  | 3917.847 | -20.190 | -11.500 | 3406.851 | 3.900  | -10.620 |
| 19. | 6192.108 | 10.210 | 9.470  | 3891.871 | -20.350 | -11.330 | 3410.965 | 4.010  | -11.430 |
| 20. | 6210.250 | 10.110 | 9.550  | 3866.702 | -20.420 | -11.420 | 3415.192 | 4.100  | -12.260 |
| 21. | 6228.266 | 9.980  | 9.610  | 3841.660 | -20.400 | -11.460 | 3419.507 | 4.170  | -13.110 |
| 22. | 6246.088 | 9.830  | 9.640  | 3816.864 | -20.290 | -11.500 | 3423.883 | 4.210  | -13.980 |
| 23. | 6263.609 | 9.650  | 9.650  | 3792.431 | -20.090 | -11.500 | 3428.283 | 4.210  | -14.870 |
| 24. | 6280.830 | 9.440  | 9.650  | 3768.480 | -19.790 | -11.470 | 3432.667 | 4.160  | -15.780 |
| 25. | 6297.711 | 9.210  | 9.620  | 3745.135 | -19.390 | -11.420 | 3436.983 | 4.060  | -16.710 |
| 26. | 6314.189 | 8.960  | 9.580  | 3722.526 | -18.860 | -11.350 | 3441.194 | 3.890  | -17.660 |
| 27. | 6330.236 | 8.690  | 9.520  | 3700.798 | -18.200 | -11.260 | 3445.127 | 3.680  | -18.630 |
| 28. | 6345.824 | 8.410  | 9.450  | 3680.112 | -17.360 | -11.200 | 3448.763 | 3.260  | -19.620 |
| 29. | 6360.926 | 8.120  | 9.370  | 3660.659 | -16.370 | -11.130 | 3451.932 | 2.740  | -20.630 |
| 30. | 6375.514 | 7.830  | 9.270  | 3642.664 | -15.120 | -11.070 | 3454.453 | 2.020  | -21.660 |
| 31. | 6389.566 | 7.520  | 9.160  | 3626.392 | -13.600 | -11.030 | 3456.100 | 1.070  | -22.710 |
| 32. | 6403.112 | 7.210  | 9.040  | 3612.143 | -11.770 | -11.030 | 3456.607 | -0.150 | -23.780 |
| 33. | 6416.083 | 6.850  | 8.920  | 3600.219 | -9.640  | -11.070 | 3455.701 | -1.610 | -24.870 |
| 34. | 6428.492 | 6.570  | 8.788  | 3590.861 | -7.300  | -11.130 | 3453.165 | -3.220 | -25.980 |
| 35. | 6440.332 | 6.250  | 8.640  | 3584.162 | -4.920  | -11.200 | 3448.925 | -4.810 | -27.110 |
| 36. | 6451.599 | 5.940  | 8.480  | 3580.806 | -2.720  | -11.260 | 3443.111 | -6.310 | -28.260 |
| 37. | 6462.293 | 5.628  | 8.330  | 3578.897 | -0.840  | -11.300 | 3436.033 | -7.200 | -29.430 |
| 38. | 6472.413 | 5.300  | 8.160  | 3578.829 | 0.660   | -11.320 | 3428.097 | -7.630 | -30.610 |
| 39. | 6481.964 | 4.950  | 7.990  | 3579.399 | 1.800   | -11.310 | 3419.709 | -8.100 | -31.800 |
| 40. | 6490.949 | 4.660  | 7.810  | 3581.853 | 2.650   | -11.290 | 3411.218 | -8.070 | -33.000 |
| 41. | 6499.377 | 4.380  | 7.630  | 3585.106 | 3.270   | -11.250 | 3402.980 | -7.820 | -34.210 |
| 42. | 6507.256 | 4.080  | 7.440  | 3588.947 | 3.720   | -11.200 | 3394.968 | -7.400 | -35.430 |
| 43. | 6514.595 | 3.790  | 7.250  | 3593.204 | 4.030   | -11.140 | 3387.547 | -6.860 | -36.660 |
| 44. | 6521.407 | 3.510  | 7.050  | 3597.753 | 4.250   | -11.060 | 3380.766 | -6.230 | -37.900 |
| 45. | 6527.785 | 3.240  | 6.850  | 3602.449 | 4.340   | -10.980 | 3374.689 | -5.530 | -39.150 |
| 46. | 6533.582 | 2.970  | 6.650  | 3607.365 | 4.460   | -10.840 | 3369.365 | -4.800 | -40.410 |
| 47. | 6538.814 | 2.710  | 6.450  | 3612.292 | 4.480   | -10.770 | 3364.823 | -4.040 | -41.680 |
| 48. | 6543.058 | 2.460  | 6.240  | 3617.229 | 4.460   | -10.660 | 3361.079 | -3.260 | -42.960 |
| 49. | 6546.851 | 2.230  | 6.030  | 3622.137 | 4.410   | -10.530 | 3356.137 | -2.480 | -44.250 |



Y-PLANE (XZ-PLANE) LITHIUM TANTALATE (SMITH AND WELSH)

BULK

|     | LMGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 6152.011 | 2.000  | 5.020  | 3626.980 | 4.340   | -10.350 | 3355.994 | -1.710  | -0.650  |
| 51. | 6155.557 | 1.740  | 5.606  | 3631.728 | 4.230   | -10.240 | 3354.636 | -0.950  | -0.200  |
| 52. | 6156.786 | 1.580  | 5.390  | 3636.353 | 4.110   | -10.080 | 3354.053 | -0.700  | 0.700   |
| 53. | 6161.483 | 1.380  | 5.170  | 3640.833 | 3.960   | -9.900  | 3354.219 | -0.520  | 0.410   |
| 54. | 6163.983 | 1.200  | 4.960  | 3645.144 | 3.800   | -9.720  | 3354.111 | 1.220   | 1.030   |
| 55. | 6165.989 | 1.020  | 4.740  | 3649.268 | 3.620   | -9.530  | 3356.701 | 1.690   | 1.310   |
| 56. | 6167.761 | 0.860  | 4.520  | 3653.187 | 3.420   | -9.330  | 3358.961 | 2.520   | 1.500   |
| 57. | 6169.240 | 0.710  | 4.310  | 3656.883 | 3.210   | -9.110  | 3361.857 | 3.130   | 1.620   |
| 58. | 6170.445 | 0.570  | 4.100  | 3660.341 | 2.990   | -8.890  | 3365.357 | 3.690   | 1.620   |
| 59. | 6171.398 | 0.440  | 3.880  | 3663.546 | 2.750   | -8.660  | 3369.427 | 4.220   | 2.040   |
| 60. | 6172.119 | 0.330  | 3.670  | 3666.488 | 2.510   | -8.430  | 3374.032 | 4.720   | 2.230   |
| 61. | 6172.628 | 0.220  | 3.470  | 3669.151 | 2.250   | -8.180  | 3379.136 | 5.180   | 2.410   |
| 62. | 6172.944 | 0.120  | 3.260  | 3671.525 | 1.990   | -7.930  | 3384.703 | 5.600   | 2.590   |
| 63. | 6173.087 | 0.030  | 3.060  | 3673.599 | 1.720   | -7.670  | 3390.699 | 5.980   | 2.740   |
| 64. | 6173.074 | -0.040 | 2.860  | 3675.365 | 1.440   | -7.400  | 3397.087 | 6.330   | 2.810   |
| 65. | 6172.923 | -0.110 | 2.670  | 3676.813 | 1.150   | -7.130  | 3403.832 | 6.640   | 2.910   |
| 66. | 6172.653 | -0.170 | 2.480  | 3677.936 | 0.860   | -6.850  | 3410.899 | 6.910   | 2.970   |
| 67. | 6172.279 | -0.220 | 2.290  | 3678.728 | 0.560   | -6.570  | 3418.256 | 7.160   | 3.020   |
| 68. | 6171.817 | -0.270 | 2.110  | 3679.183 | 0.250   | -6.280  | 3425.869 | 7.370   | 3.050   |
| 69. | 6171.282 | -0.300 | 1.940  | 3679.246 | -0.050  | -5.990  | 3433.705 | 7.540   | 3.060   |
| 70. | 6170.688 | -0.330 | 1.770  | 3679.064 | -0.360  | -5.700  | 3441.734 | 7.698   | 3.050   |
| 71. | 6170.046 | -0.350 | 1.610  | 3678.483 | -0.670  | -5.400  | 3449.924 | 7.810   | 3.020   |
| 72. | 6169.375 | -0.360 | 1.450  | 3677.551 | -0.990  | -5.110  | 3458.240 | 7.900   | 2.950   |
| 73. | 6168.680 | -0.370 | 1.300  | 3676.268 | -1.300  | -4.810  | 3466.676 | 7.970   | 2.820   |
| 74. | 6167.975 | -0.360 | 1.160  | 3674.633 | -1.620  | -4.510  | 3475.181 | 8.010   | 2.640   |
| 75. | 6167.260 | -0.370 | 1.020  | 3672.647 | -1.930  | -4.210  | 3483.736 | 8.030   | 2.450   |
| 76. | 6166.570 | -0.370 | 0.890  | 3670.311 | -2.240  | -3.910  | 3492.322 | 8.020   | 2.250   |
| 77. | 6165.886 | -0.360 | 0.770  | 3667.629 | -2.550  | -3.610  | 3500.908 | 7.990   | 2.030   |
| 78. | 6165.229 | -0.340 | 0.660  | 3664.603 | -2.860  | -3.320  | 3509.474 | 7.950   | 1.800   |
| 79. | 6164.601 | -0.330 | 0.560  | 3661.237 | -3.170  | -3.020  | 3517.998 | 7.880   | 1.550   |
| 80. | 6164.009 | -0.300 | 0.460  | 3657.536 | -3.470  | -2.730  | 3526.459 | 7.790   | 1.300   |
| 81. | 6163.450 | -0.260 | 0.380  | 3653.505 | -3.760  | -2.440  | 3534.838 | 7.690   | 1.050   |
| 82. | 6162.954 | -0.260 | 0.300  | 3649.152 | -4.050  | -2.150  | 3543.115 | 7.570   | 0.790   |
| 83. | 6162.500 | -0.230 | 0.230  | 3644.482 | -4.340  | -1.870  | 3551.272 | 7.440   | 0.540   |
| 84. | 6162.101 | -0.200 | 0.170  | 3639.503 | -4.620  | -1.590  | 3559.291 | 7.290   | 0.290   |
| 85. | 6161.757 | -0.170 | 0.120  | 3634.224 | -4.890  | -1.310  | 3567.157 | 7.130   | 0.040   |
| 86. | 6161.474 | -0.140 | 0.070  | 3628.653 | -5.150  | -1.040  | 3574.854 | 6.950   | 0.000   |
| 87. | 6161.251 | -0.100 | 0.040  | 3622.800 | -5.410  | -0.770  | 3582.366 | 6.760   | 0.000   |
| 88. | 6161.091 | -0.070 | 0.020  | 3616.676 | -5.660  | -0.510  | 3589.678 | 6.560   | 0.000   |
| 89. | 6160.994 | -0.030 | 0.000  | 3610.289 | -5.860  | -0.300  | 3596.779 | 6.370   | 0.000   |
| 90. | 6160.962 | 0.000  | 0.000  | 3603.653 | -6.130  | 0.000   | 3603.653 | 6.130   | 0.000   |
| 91. | 6160.994 | 0.030  | 0.000  | 3596.779 | -6.370  | 0.270   | 3610.289 | 5.880   | -0.300  |
| 92. | 6161.091 | 0.070  | 0.020  | 3589.678 | -6.560  | 0.460   | 3616.676 | 5.660   | -0.510  |
| 93. | 6161.251 | 0.100  | 0.040  | 3582.366 | -6.760  | 0.710   | 3622.800 | 5.410   | -0.770  |
| 94. | 6161.474 | 0.140  | 0.070  | 3574.854 | -6.950  | 0.940   | 3628.653 | 5.150   | -1.040  |
| 95. | 6161.757 | 0.170  | 0.120  | 3567.157 | -7.130  | 1.150   | 3634.224 | 4.890   | -1.310  |
| 96. | 6162.101 | 0.200  | 0.170  | 3559.291 | -7.290  | 1.360   | 3639.503 | 4.620   | -1.590  |
| 97. | 6162.500 | 0.230  | 0.230  | 3551.272 | -7.440  | 1.560   | 3644.482 | 4.340   | -1.870  |
| 98. | 6162.954 | 0.260  | 0.300  | 3543.115 | -7.570  | 1.750   | 3649.152 | 4.050   | -2.150  |
| 99. | 6163.450 | 0.280  | 0.380  | 3534.838 | -7.690  | 1.920   | 3653.505 | 3.760   | -2.440  |

Y-PLANE (XZ-PLANE) LITHIUM TANTALATE (SMITH AND WELSH) BULK

|      | LHVEL    | LPHI12 | LPHI13 | FSPVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 6164.005 | .300   | .460   | 3926.459 | -7.790  | 2.090   | 3657.536 | 3.470   | 2.090   |
| 101. | 6164.601 | .330   | .560   | 3517.998 | -7.680  | 2.250   | 3661.237 | 3.170   | 2.250   |
| 102. | 6165.225 | .340   | .660   | 3509.974 | -7.950  | 2.390   | 3664.603 | 2.860   | 2.390   |
| 103. | 6165.868 | .360   | .770   | 3508.906 | -7.990  | 2.530   | 3667.629 | 2.550   | 2.530   |
| 104. | 6166.570 | .370   | .890   | 3492.322 | -8.020  | 2.650   | 3670.511 | 2.240   | 2.650   |
| 105. | 6167.268 | .370   | 1.020  | 3483.736 | -8.030  | 2.750   | 3672.667 | 1.930   | 2.750   |
| 106. | 6167.975 | .380   | 1.160  | 3475.181 | -8.010  | 2.840   | 3674.633 | 1.620   | 2.840   |
| 107. | 6168.600 | .370   | 1.300  | 3466.676 | -7.970  | 2.920   | 3676.268 | 1.300   | 2.920   |
| 108. | 6169.375 | .360   | 1.450  | 3458.246 | -7.900  | 3.020   | 3677.551 | .990    | 3.020   |
| 109. | 6170.046 | .350   | 1.610  | 3449.924 | -7.810  | 3.200   | 3678.483 | .670    | 3.200   |
| 110. | 6170.666 | .330   | 1.770  | 3441.734 | -7.690  | 3.050   | 3679.064 | .360    | 3.050   |
| 111. | 6171.282 | .300   | 1.940  | 3433.705 | -7.540  | 3.060   | 3679.296 | .056    | 3.060   |
| 112. | 6171.817 | .270   | 2.110  | 3425.869 | -7.370  | 3.050   | 3679.183 | -.220   | 3.050   |
| 113. | 6172.279 | .220   | 2.290  | 3418.256 | -7.160  | 3.020   | 3678.728 | -.560   | 3.020   |
| 114. | 6172.653 | .170   | 2.480  | 3410.899 | -6.910  | 2.970   | 3677.936 | -.860   | 2.970   |
| 115. | 6172.923 | .110   | 2.670  | 3403.832 | -6.640  | 2.900   | 3676.613 | -1.150  | 2.900   |
| 116. | 6173.074 | .040   | 2.860  | 3397.087 | -6.330  | 2.810   | 3675.365 | -1.440  | 2.810   |
| 117. | 6173.087 | -.030  | 3.060  | 3390.699 | -5.980  | 2.700   | 3673.596 | -1.720  | 2.700   |
| 118. | 6172.944 | -.120  | 3.260  | 3384.783 | -5.600  | 2.560   | 3671.523 | -1.990  | 2.560   |
| 119. | 6172.628 | -.220  | 3.470  | 3379.136 | -5.160  | 2.410   | 3669.151 | -2.250  | 2.410   |
| 120. | 6172.119 | -.330  | 3.670  | 3374.032 | -4.720  | 2.230   | 3666.468 | -2.510  | 2.230   |
| 121. | 6171.398 | -.440  | 3.880  | 3369.427 | -4.220  | 2.040   | 3663.546 | -2.750  | 2.040   |
| 122. | 6170.445 | -.570  | 4.100  | 3365.357 | -3.690  | 1.820   | 3660.341 | -2.950  | 1.820   |
| 123. | 6169.240 | -.720  | 4.310  | 3361.857 | -3.130  | 1.560   | 3656.883 | -3.210  | 1.560   |
| 124. | 6167.781 | -.860  | 4.520  | 3358.961 | -2.520  | 1.310   | 3653.187 | -3.420  | 1.310   |
| 125. | 6165.909 | -1.020 | 4.740  | 3356.701 | -1.890  | 1.030   | 3649.266 | -3.620  | 1.030   |
| 126. | 6163.903 | -1.200 | 4.960  | 3355.111 | -1.220  | .730    | 3645.144 | -3.800  | .730    |
| 127. | 6161.483 | -1.380 | 5.170  | 3354.219 | -.520   | .410    | 3640.833 | -3.960  | .410    |
| 128. | 6158.708 | -1.560 | 5.390  | 3354.953 | .200    | .070    | 3636.353 | -4.110  | .070    |
| 129. | 6155.537 | -1.760 | 5.600  | 3354.638 | .950    | -.280   | 3631.728 | -4.230  | -.280   |
| 130. | 6152.811 | -2.000 | 5.820  | 3355.994 | 1.710   | -.650   | 3626.980 | -4.340  | -.650   |
| 131. | 6149.851 | -2.238 | 6.030  | 3358.137 | 2.480   | -1.030  | 3622.137 | -4.410  | -1.030  |
| 132. | 6147.658 | -2.468 | 6.240  | 3361.079 | 3.260   | -1.420  | 3617.229 | -4.510  | -1.420  |
| 133. | 6136.814 | -2.710 | 6.450  | 3364.823 | 4.040   | -1.820  | 3612.292 | -4.560  | -1.820  |
| 134. | 6135.582 | -2.970 | 6.650  | 3369.365 | 4.800   | -2.230  | 3607.365 | -4.600  | -2.230  |
| 135. | 6127.705 | -3.240 | 6.850  | 3374.689 | 5.530   | -2.640  | 3602.499 | -4.580  | -2.640  |
| 136. | 6121.487 | -3.510 | 7.050  | 3380.766 | 6.230   | -3.060  | 3597.753 | -4.520  | -3.060  |
| 137. | 6114.995 | -3.790 | 7.250  | 3387.947 | 6.860   | -3.470  | 3593.204 | -4.430  | -3.470  |
| 138. | 6107.256 | -4.060 | 7.440  | 3394.960 | 7.400   | -3.850  | 3588.947 | -4.300  | -3.850  |
| 139. | 6099.377 | -4.360 | 7.630  | 3402.980 | 7.820   | -4.200  | 3585.108 | -4.120  | -4.200  |
| 140. | 6091.949 | -4.680 | 7.810  | 3411.218 | 8.070   | -4.510  | 3581.653 | -3.270  | -4.510  |
| 141. | 6084.964 | -4.990 | 7.990  | 3419.709 | 8.100   | -4.710  | 3579.399 | -2.650  | -4.710  |
| 142. | 6077.413 | -5.308 | 8.168  | 3428.697 | 7.830   | -4.910  | 3576.829 | -1.600  | -4.910  |
| 143. | 6069.293 | -5.628 | 8.338  | 3438.033 | 7.200   | -5.110  | 3574.029 | -.660   | -5.110  |
| 144. | 6061.599 | -5.948 | 8.480  | 3447.111 | 6.180   | -5.310  | 3570.997 | .640    | -5.310  |
| 145. | 6048.332 | -6.250 | 8.640  | 3456.925 | 4.810   | -5.510  | 3568.806 | 2.720   | -5.510  |
| 146. | 6028.492 | -6.570 | 8.780  | 3463.165 | 3.220   | -6.700  | 3564.162 | 4.520   | -6.700  |
| 147. | 6016.003 | -6.858 | 8.920  | 3465.701 | 1.610   | -7.350  | 3560.061 | 7.300   | -7.350  |
| 148. | 6003.112 | -7.210 | 9.048  | 3466.687 | -.130   | -7.650  | 3612.143 | 9.640   | -7.650  |
| 149. | 5989.586 | -7.520 | 9.160  | 3466.100 | -1.070  | -7.840  | 3626.592 | 11.770  | -7.840  |
|      |          |        |        |          |         |         |          | 13.600  |         |

|      | Y-PLANE (XZ-PLANE) LITHIUM TANTALATE (SMITH AND HELSH) |        |          |        |        |          |        |         |  |  | BULK |  |
|------|--|--------|----------|--------|--------|----------|--------|---------|--|--|------|--|
|      | LPM12  | LPM13  | FSRVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12 | SSPM13  |  |  |      |  |
| 150. | 5975.519   | 9.270  | 3654.453 | -2.020 | -7.970 | 3642.664 | 15.124 | -11.000 |  |  |      |  |
| 151. | 5969.526   | 9.370  | 3651.932 | -2.740 | -6.030 | 3660.059 | 18.370 | -11.130 |  |  |      |  |
| 152. | 5965.824   | 9.490  | 3648.763 | -3.260 | -8.030 | 3688.112 | 17.360 | -11.200 |  |  |      |  |
| 153. | 5930.236   | 9.520  | 3645.127 | -3.640 | -7.590 | 3708.796 | 18.200 | -11.250 |  |  |      |  |
| 154. | 5914.189   | 9.580  | 3641.164 | -3.690 | -7.510 | 3722.526 | 18.660 | -11.320 |  |  |      |  |
| 155. | 5897.711   | 9.620  | 3636.983 | -4.060 | -7.790 | 3745.135 | 19.390 | -11.420 |  |  |      |  |
| 156. | 5880.834   | 9.650  | 3632.667 | -4.160 | -7.650 | 3768.480 | 19.790 | -11.470 |  |  |      |  |
| 157. | 5863.809   | 9.650  | 3628.283 | -4.210 | -7.480 | 3792.431 | 20.690 | -11.500 |  |  |      |  |
| 158. | 5846.868   | 9.640  | 3623.883 | -4.210 | -7.290 | 3816.064 | 20.200 | -11.500 |  |  |      |  |
| 159. | 5828.266   | 9.618  | 3619.587 | -4.170 | -7.000 | 3841.660 | 20.400 | -11.400 |  |  |      |  |
| 160. | 5810.256   | 9.550  | 3615.192 | -4.100 | -6.850 | 3866.702 | 20.420 | -11.420 |  |  |      |  |
| 161. | 5792.186   | 9.470  | 3610.965 | -4.010 | -6.600 | 3891.871 | 20.350 | -11.330 |  |  |      |  |
| 162. | 5773.883   | 9.350  | 3606.851 | -3.900 | -6.340 | 3917.047 | 20.190 | -11.170 |  |  |      |  |
| 163. | 5755.660   | 9.210  | 3602.871 | -3.760 | -6.060 | 3942.106 | 19.940 | -11.020 |  |  |      |  |
| 164. | 5737.524   | 9.030  | 3599.043 | -3.610 | -5.770 | 3966.922 | 19.600 | -10.810 |  |  |      |  |
| 165. | 5719.565   | 8.820  | 3595.362 | -3.450 | -5.470 | 3991.361 | 19.180 | -10.540 |  |  |      |  |
| 166. | 5701.883   | 8.570  | 3591.902 | -3.270 | -5.150 | 4015.264 | 18.630 | -10.230 |  |  |      |  |
| 167. | 5684.586   | 8.270  | 3588.616 | -3.060 | -4.830 | 4038.550 | 17.950 | -9.870  |  |  |      |  |
| 168. | 5667.769   | 7.930  | 3585.534 | -2.800 | -4.490 | 4061.008 | 17.250 | -9.470  |  |  |      |  |
| 169. | 5651.616   | 7.540  | 3582.667 | -2.670 | -4.150 | 4082.506 | 16.480 | -9.030  |  |  |      |  |
| 170. | 5636.186   | 7.090  | 3580.021 | -2.460 | -3.800 | 4102.884 | 15.430 | -8.420  |  |  |      |  |
| 171. | 5621.684   | 6.600  | 3577.607 | -2.230 | -3.440 | 4121.961 | 14.350 | -7.620  |  |  |      |  |
| 172. | 5608.158   | 6.050  | 3575.429 | -2.000 | -3.070 | 4139.636 | 13.150 | -7.100  |  |  |      |  |
| 173. | 5595.819   | 5.450  | 3573.493 | -1.760 | -2.700 | 4156.006 | 11.830 | -6.430  |  |  |      |  |
| 174. | 5584.783   | 4.790  | 3571.806 | -1.520 | -2.330 | 4169.979 | 10.400 | -5.620  |  |  |      |  |
| 175. | 5575.162   | 4.080  | 3570.371 | -1.270 | -1.950 | 4182.363 | 8.860  | -4.610  |  |  |      |  |
| 176. | 5567.134   | 3.330  | 3569.192 | -1.020 | -1.560 | 4192.703 | 7.220  | -3.510  |  |  |      |  |
| 177. | 5560.759   | 2.530  | 3568.272 | -0.770 | -1.170 | 4200.679 | 5.500  | -2.300  |  |  |      |  |
| 178. | 5556.135   | 1.710  | 3567.614 | -0.510 | -0.780 | 4206.794 | 3.750  | -2.000  |  |  |      |  |
| 179. | 5553.333   | 0.860  | 3567.216 | -0.260 | -0.390 | 4210.373 | 1.870  | -1.010  |  |  |      |  |
| 180. | 5552.395   | -0.000 | 3567.066 | 0.000  | 0.000  | 4211.571 | -0.000 | 0.000   |  |  |      |  |

Z-PLANE (XY-PLANE) LITHIUM TANTALATE (SMITH AND WELSH) BULK

|     | LMGVEL   | LPHI12 | LPHI13  | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 0.  | 5952.395 | 0.000  | 0.000   | 4211.971 | 0.000   | 0.000   | 3367.006 | 0.000   | 0.000   |
| 1.  | 5952.023 | -0.510 | -0.060  | 4210.774 | -1.240  | 1.010   | 3367.374 | 0.560   | 0.390   |
| 2.  | 5954.103 | 1.000  | -1.710  | 4208.394 | -2.470  | 2.010   | 3360.241 | 1.120   | 0.700   |
| 3.  | 5956.212 | 1.460  | -2.550  | 4204.493 | -3.670  | 3.000   | 3363.662 | 1.660   | 1.100   |
| 4.  | 5959.117 | 1.940  | -3.370  | 4198.995 | -4.840  | 3.960   | 3371.697 | 2.240   | 1.500   |
| 5.  | 5962.772 | 2.370  | -4.160  | 4192.873 | -5.950  | 4.900   | 3374.280 | 2.790   | 1.940   |
| 6.  | 5967.121 | 2.750  | -4.920  | 4183.757 | -7.020  | 5.610   | 3377.427 | 3.330   | 2.310   |
| 7.  | 5972.090 | 3.100  | -5.650  | 4174.129 | -8.010  | 6.670   | 3381.131 | 3.660   | 2.600   |
| 8.  | 5977.631 | 3.400  | -6.340  | 4163.279 | -8.940  | 7.500   | 3385.303 | 4.000   | 3.000   |
| 9.  | 5983.641 | 3.650  | -6.990  | 4151.310 | -9.760  | 8.250   | 3390.171 | 4.080   | 3.390   |
| 10. | 5990.046 | 3.860  | -7.600  | 4138.328 | -10.550 | 9.030   | 3395.603 | 5.370   | 3.710   |
| 11. | 5996.762 | 4.010  | -8.170  | 4124.448 | -11.230 | 9.730   | 3401.302 | 5.660   | 4.080   |
| 12. | 5003.706 | 4.110  | -8.690  | 4109.789 | -11.820 | 10.390  | 3407.609 | 5.310   | 4.310   |
| 13. | 5010.791 | 4.160  | -9.180  | 4094.474 | -12.310 | 11.000  | 3414.379 | 6.690   | 4.670   |
| 14. | 5017.937 | 4.170  | -9.620  | 4078.630 | -12.720 | 11.570  | 3421.503 | 7.670   | 4.950   |
| 15. | 5025.064 | 4.130  | -10.030 | 4062.389 | -13.020 | 12.110  | 3429.167 | 7.420   | 5.220   |
| 16. | 5032.096 | 4.050  | -10.400 | 4045.646 | -13.220 | 12.610  | 3437.147 | 7.710   | 5.460   |
| 17. | 5038.960 | 3.930  | -10.740 | 4029.261 | -13.310 | 13.070  | 3445.412 | 7.990   | 5.600   |
| 18. | 5045.569 | 3.770  | -11.040 | 4012.859 | -13.290 | 13.510  | 3453.920 | 8.130   | 5.680   |
| 19. | 5051.928 | 3.570  | -11.320 | 3996.236 | -13.140 | 13.910  | 3462.597 | 8.220   | 5.700   |
| 20. | 5057.894 | 3.350  | -11.560 | 3980.153 | -12.860 | 14.290  | 3471.354 | 8.130   | 5.700   |
| 21. | 5063.456 | 3.090  | -11.770 | 3964.506 | -12.430 | 14.650  | 3480.163 | 8.130   | 5.700   |
| 22. | 5068.564 | 2.810  | -11.960 | 3949.724 | -11.830 | 14.980  | 3488.956 | 7.530   | 5.440   |
| 23. | 5073.170 | 2.510  | -12.120 | 3935.773 | -11.060 | 15.290  | 3496.929 | 7.530   | 5.440   |
| 24. | 5077.237 | 2.190  | -12.260 | 3922.953 | -10.060 | 15.570  | 3504.724 | 6.590   | 5.470   |
| 25. | 5080.734 | 1.850  | -12.380 | 3911.982 | -8.950  | 15.830  | 3511.650 | 6.260   | 5.400   |
| 26. | 5083.632 | 1.500  | -12.470 | 3901.665 | -7.740  | 16.060  | 3518.096 | 5.340   | 5.400   |
| 27. | 5085.985 | 1.130  | -12.540 | 3893.688 | -6.460  | 16.240  | 3523.253 | 4.220   | 6.410   |
| 28. | 5087.544 | 0.760  | -12.590 | 3887.797 | -5.030  | 16.350  | 3527.111 | 2.930   | 6.410   |
| 29. | 5088.536 | 0.360  | -12.620 | 3884.175 | -3.460  | 16.440  | 3529.502 | 1.500   | 6.300   |
| 30. | 5088.867 | -0.000 | -12.630 | 3882.959 | 0.000   | 16.510  | 3530.313 | -0.000  | 6.300   |
| 31. | 5088.536 | -0.360 | -12.620 | 3884.179 | 2.060   | 16.480  | 3529.502 | -1.500  | 6.390   |
| 32. | 5087.548 | -0.760 | -12.590 | 3887.797 | 4.030   | 16.390  | 3527.111 | -2.530  | 6.410   |
| 33. | 5085.909 | -1.130 | -12.540 | 3893.686 | 5.660   | 16.240  | 3523.253 | -3.460  | 6.400   |
| 34. | 5083.632 | -1.500 | -12.470 | 3901.665 | 7.400   | 16.060  | 3518.096 | -4.220  | 6.400   |
| 35. | 5080.734 | -1.850 | -12.380 | 3911.982 | 8.900   | 15.830  | 3511.650 | -4.980  | 6.480   |
| 36. | 5077.237 | -2.190 | -12.260 | 3922.953 | 10.000  | 15.570  | 3504.724 | -5.590  | 6.470   |
| 37. | 5073.170 | -2.510 | -12.120 | 3935.773 | 11.060  | 15.290  | 3496.929 | -6.260  | 6.440   |
| 38. | 5068.564 | -2.810 | -11.960 | 3949.724 | 11.830  | 14.980  | 3488.956 | -6.990  | 6.400   |
| 39. | 5063.456 | -3.090 | -11.770 | 3964.506 | 12.430  | 14.650  | 3480.163 | -7.530  | 6.300   |
| 40. | 5057.894 | -3.350 | -11.560 | 3980.153 | 12.860  | 14.290  | 3471.354 | -8.130  | 6.190   |
| 41. | 5051.928 | -3.570 | -11.320 | 3996.236 | 13.140  | 13.910  | 3462.597 | -8.220  | 6.080   |
| 42. | 5045.569 | -3.770 | -11.040 | 4012.859 | 13.290  | 13.510  | 3453.920 | -8.130  | 5.900   |
| 43. | 5038.960 | -3.930 | -10.740 | 4029.261 | 13.310  | 13.070  | 3445.412 | -7.990  | 5.600   |
| 44. | 5032.096 | -4.050 | -10.400 | 4045.646 | 13.220  | 12.610  | 3437.147 | -7.710  | 5.460   |
| 45. | 5025.064 | -4.130 | -10.030 | 4062.389 | 13.020  | 12.110  | 3429.167 | -7.420  | 5.220   |
| 46. | 5017.937 | -4.170 | -9.620  | 4078.630 | 12.720  | 11.570  | 3421.503 | -7.070  | 4.950   |
| 47. | 5010.791 | -4.160 | -9.180  | 4094.474 | 12.310  | 11.000  | 3414.379 | -6.690  | 4.670   |
| 48. | 5003.706 | -4.110 | -8.690  | 4109.789 | 11.820  | 10.390  | 3407.609 | -6.260  | 4.370   |
| 49. | 5006.762 | -4.010 | -8.170  | 4124.448 | 11.230  | 9.730   | 3401.302 | -5.660  | 4.080   |

Z-PLANE (XY-PLANE) LITHIUM TANTALATE (SMITH AND WELSH) BULK

|     | LNQVEL   | LPN12  | LPN13  | FSRWEL   | FSPN12  | FSPN13  | SSRWEL   | SSPN12 | SSPN13 |
|-----|----------|--------|--------|----------|---------|---------|----------|--------|--------|
| 50. | 5590.846 | -3.860 | -7.680 | 4138.328 | 10.550  | 9.030   | 3395.483 | -5.370 | 3.730  |
| 51. | 5593.641 | -3.650 | -6.990 | 4151.310 | 9.760   | 6.250   | 3390.171 | -4.660 | 3.350  |
| 52. | 5577.631 | -3.400 | -6.340 | 4163.279 | 6.940   | 7.500   | 3385.333 | -4.300 | 3.070  |
| 53. | 5572.890 | -3.100 | -5.650 | 4174.129 | 6.010   | 6.670   | 3381.131 | -3.860 | 2.860  |
| 54. | 5567.121 | -2.750 | -4.920 | 4183.757 | 7.020   | 5.610   | 3377.427 | -3.350 | 2.510  |
| 55. | 5562.772 | -2.370 | -4.160 | 4192.073 | 5.950   | 4.900   | 3374.268 | -2.790 | 1.940  |
| 56. | 5559.117 | -1.940 | -3.370 | 4198.995 | 4.840   | 3.960   | 3371.697 | -2.240 | 1.260  |
| 57. | 5556.212 | -1.480 | -2.550 | 4204.453 | 3.670   | 3.000   | 3369.682 | -1.660 | 1.170  |
| 58. | 5554.103 | -1.000 | -1.710 | 4208.394 | 2.470   | 2.120   | 3368.241 | -1.120 | .700   |
| 59. | 5552.823 | -.510  | -.860  | 4210.774 | 1.240   | 1.010   | 3367.374 | -.560  | .350   |
| 60. | 5552.395 | 0.000  | 0.000  | 4211.571 | 0.000   | -0.000  | 3367.086 | 0.000  | -.000  |
| 61. | 5552.823 | .510   | .860   | 4210.774 | -1.240  | -1.010  | 3367.374 | .560   | -.350  |
| 62. | 5554.103 | 1.000  | 1.710  | 4208.394 | -2.470  | -2.010  | 3368.241 | 1.120  | -.700  |
| 63. | 5556.212 | 1.480  | 2.550  | 4204.453 | -3.670  | -3.000  | 3369.682 | 1.660  | -1.170 |
| 64. | 5559.117 | 1.940  | 3.370  | 4198.995 | -4.840  | -3.560  | 3371.697 | 2.240  | -1.560 |
| 65. | 5562.772 | 2.370  | 4.160  | 4192.073 | -6.010  | -4.550  | 3374.268 | 2.790  | -1.940 |
| 66. | 5567.121 | 2.750  | 4.920  | 4183.757 | -7.020  | -5.610  | 3377.427 | 3.350  | -2.310 |
| 67. | 5572.890 | 3.100  | 5.650  | 4174.129 | -8.010  | -6.670  | 3381.131 | 3.860  | -2.800 |
| 68. | 5577.631 | 3.400  | 6.340  | 4163.279 | -8.940  | -7.500  | 3385.333 | 4.300  | -3.300 |
| 69. | 5583.641 | 3.650  | 6.990  | 4151.310 | -9.760  | -8.250  | 3390.171 | 4.660  | -3.350 |
| 70. | 5590.846 | 3.860  | 7.680  | 4138.328 | -10.550 | -9.030  | 3395.483 | 5.370  | -3.730 |
| 71. | 5596.762 | 4.010  | 8.170  | 4124.446 | -11.230 | -9.730  | 3401.302 | 6.040  | -4.060 |
| 72. | 5603.706 | 4.110  | 8.690  | 4109.789 | -11.820 | -10.350 | 3407.604 | 6.260  | -4.370 |
| 73. | 5610.751 | 4.160  | 9.180  | 4094.474 | -12.310 | -11.000 | 3414.379 | 6.400  | -4.610 |
| 74. | 5617.937 | 4.170  | 9.620  | 4078.630 | -12.720 | -11.570 | 3421.203 | 6.500  | -4.760 |
| 75. | 5625.064 | 4.130  | 10.030 | 4062.389 | -13.020 | -12.110 | 3428.107 | 6.520  | -4.820 |
| 76. | 5632.096 | 4.050  | 10.400 | 4045.886 | -13.220 | -12.610 | 3435.147 | 6.460  | -4.800 |
| 77. | 5638.960 | 3.930  | 10.740 | 4029.261 | -13.310 | -13.070 | 3442.320 | 6.300  | -4.650 |
| 78. | 5645.569 | 3.770  | 11.040 | 4012.659 | -13.290 | -13.510 | 3449.620 | 6.130  | -4.500 |
| 79. | 5651.920 | 3.570  | 11.320 | 3996.236 | -13.160 | -13.910 | 3457.057 | 5.820  | -4.300 |
| 80. | 5657.894 | 3.350  | 11.560 | 3980.153 | -12.850 | -14.290 | 3464.534 | 5.420  | -4.100 |
| 81. | 5663.456 | 3.090  | 11.770 | 3964.586 | -12.430 | -14.650 | 3472.053 | 4.900  | -3.800 |
| 82. | 5668.564 | 2.810  | 11.960 | 3949.724 | -11.830 | -14.950 | 3479.625 | 4.300  | -3.500 |
| 83. | 5673.170 | 2.510  | 12.120 | 3935.773 | -11.060 | -15.250 | 3486.325 | 3.600  | -3.200 |
| 84. | 5677.237 | 2.190  | 12.260 | 3922.953 | -10.000 | -15.570 | 3493.147 | 2.800  | -2.900 |
| 85. | 5680.734 | 1.850  | 12.380 | 3911.502 | -8.900  | -15.830 | 3500.057 | 2.000  | -2.600 |
| 86. | 5683.632 | 1.500  | 12.470 | 3901.665 | -7.400  | -16.060 | 3507.024 | 1.200  | -2.300 |
| 87. | 5685.909 | 1.130  | 12.540 | 3893.685 | -5.860  | -16.240 | 3514.024 | 0.400  | -2.000 |
| 88. | 5687.548 | -.760  | 12.590 | 3887.797 | -4.030  | -16.390 | 3521.111 | -0.400 | -1.700 |
| 89. | 5688.536 | -.380  | 12.620 | 3884.179 | -2.060  | -16.460 | 3528.253 | -1.000 | -1.400 |
| 90. | 5688.867 | 0.000  | 12.630 | 3882.959 | 0.000   | -16.510 | 3535.402 | -1.500 | -1.100 |
| 91. | 5688.536 | -.380  | 12.620 | 3884.179 | 2.060   | -16.460 | 3542.584 | -2.000 | -0.800 |
| 92. | 5687.548 | -.760  | 12.590 | 3887.797 | 4.030   | -16.390 | 3549.766 | -2.500 | -0.500 |
| 93. | 5685.909 | -1.130 | 12.540 | 3893.685 | 5.860   | -16.240 | 3557.024 | -3.000 | -0.200 |
| 94. | 5683.632 | -1.500 | 12.470 | 3901.665 | 7.400   | -16.060 | 3564.325 | -3.500 | 0.100  |
| 95. | 5680.734 | -1.850 | 12.380 | 3911.502 | 8.900   | -15.830 | 3571.620 | -4.000 | 0.400  |
| 96. | 5677.237 | -2.190 | 12.260 | 3922.953 | 10.000  | -15.570 | 3578.924 | -4.500 | 0.700  |
| 97. | 5673.170 | -2.510 | 12.120 | 3935.773 | 11.060  | -15.250 | 3586.225 | -5.000 | 1.000  |
| 98. | 5668.564 | -2.810 | 11.960 | 3949.724 | 11.830  | -14.950 | 3593.524 | -5.500 | 1.300  |
| 99. | 5663.456 | -3.090 | 11.770 | 3964.586 | 11.430  | -14.650 | 3600.823 | -6.000 | 1.600  |

Z-PLANE (XY-PLANE) LITHIUM TANTALATE (SMITH AND WELSH)

BULK

|      | LNGVEL   | LPM12  | LPM13   | FSRVEL   | FSPM12  | FSPM13  | SRVEL    | SSPM12 | SSPM13 |
|------|----------|--------|---------|----------|---------|---------|----------|--------|--------|
| 100. | 5657.694 | -3.350 | 11.560  | 3980.153 | 12.866  | -14.290 | 3471.354 | -6.230 | -6.130 |
| 101. | 5651.920 | -3.570 | 11.320  | 3996.236 | 13.140  | -13.910 | 3462.597 | -8.220 | -8.050 |
| 102. | 5648.589 | -3.770 | 11.040  | 4012.659 | 13.290  | -13.510 | 3453.920 | -8.130 | -7.960 |
| 103. | 5638.960 | -3.650 | 10.760  | 4029.241 | 13.310  | -13.070 | 3445.412 | -7.540 | -7.370 |
| 104. | 5632.896 | -4.050 | 10.480  | 4045.866 | 13.220  | -12.610 | 3437.147 | -7.710 | -7.540 |
| 105. | 5625.864 | -4.178 | 10.030  | 4062.389 | 13.020  | -12.110 | 3429.167 | -7.420 | -7.250 |
| 106. | 5617.937 | -4.168 | 9.620   | 4076.630 | 12.726  | -11.578 | 3421.593 | -7.070 | -6.900 |
| 107. | 5610.791 | -4.110 | 9.180   | 4094.474 | 12.310  | -11.007 | 3414.374 | -6.650 | -6.480 |
| 108. | 5603.786 | -4.010 | 8.690   | 4109.709 | 11.820  | -10.390 | 3407.609 | -6.260 | -6.090 |
| 109. | 5596.762 | -3.860 | 8.170   | 4124.444 | 11.256  | -9.730  | 3401.362 | -5.840 | -5.670 |
| 110. | 5590.846 | -3.650 | 7.600   | 4138.328 | 10.556  | -9.030  | 3395.443 | -5.370 | -5.200 |
| 111. | 5585.641 | -3.650 | 6.990   | 4151.310 | 9.786   | -8.290  | 3390.171 | -4.860 | -4.690 |
| 112. | 5577.631 | -3.400 | 6.340   | 4163.279 | 8.940   | -7.500  | 3385.363 | -4.360 | -4.190 |
| 113. | 5572.890 | -3.100 | 5.650   | 4174.129 | 8.016   | -6.670  | 3381.131 | -3.860 | -3.690 |
| 114. | 5567.121 | -2.750 | 4.920   | 4183.757 | 7.020   | -5.810  | 3377.427 | -3.330 | -3.160 |
| 115. | 5562.772 | -2.370 | 4.160   | 4192.403 | 5.950   | -4.960  | 3374.260 | -2.790 | -2.620 |
| 116. | 5559.117 | -1.940 | 3.370   | 4198.945 | 4.840   | -4.160  | 3371.657 | -2.240 | -2.070 |
| 117. | 5556.212 | -1.460 | 2.550   | 4204.453 | 3.670   | -3.400  | 3369.662 | -1.690 | -1.520 |
| 118. | 5554.103 | -1.000 | 1.710   | 4208.394 | 2.476   | -2.610  | 3368.241 | -1.128 | -1.000 |
| 119. | 5552.823 | -0.510 | 0.860   | 4210.774 | 1.240   | -1.810  | 3367.374 | -0.560 | -0.430 |
| 120. | 5552.395 | 0.000  | 0.000   | 4211.571 | -0.000  | -1.010  | 3367.066 | -0.000 | -0.000 |
| 121. | 5552.023 | 0.510  | -0.460  | 4211.774 | -1.240  | -0.210  | 3367.374 | 0.340  | 0.210  |
| 122. | 5551.103 | 1.000  | -1.710  | 4208.394 | -2.470  | 0.810   | 3366.241 | 1.128  | 1.000  |
| 123. | 5550.212 | 1.460  | -2.550  | 4204.453 | -3.670  | 1.960   | 3365.662 | 1.960  | 1.830  |
| 124. | 5549.117 | 1.940  | -3.370  | 4198.945 | -4.840  | 3.160   | 3371.697 | 2.790  | 2.620  |
| 125. | 5548.772 | 2.370  | -4.160  | 4192.073 | -5.950  | 4.500   | 3374.260 | 3.330  | 3.160  |
| 126. | 5547.121 | 2.750  | -4.920  | 4183.757 | -7.020  | 5.810   | 3377.427 | 3.860  | 3.690  |
| 127. | 5542.094 | 3.100  | -5.650  | 4174.129 | -8.016  | 7.160   | 3381.131 | 4.360  | 4.190  |
| 128. | 5537.631 | 3.400  | -6.340  | 4163.279 | -8.940  | 8.440   | 3385.363 | 4.860  | 4.690  |
| 129. | 5535.641 | 3.650  | -6.990  | 4151.310 | -9.780  | 9.730   | 3390.171 | 5.370  | 5.200  |
| 130. | 5530.846 | 3.650  | -7.600  | 4138.326 | -10.550 | 10.960  | 3395.443 | 5.840  | 5.670  |
| 131. | 5526.762 | 4.010  | -8.170  | 4124.446 | -11.230 | 12.160  | 3401.302 | 6.260  | 6.090  |
| 132. | 5603.786 | 4.110  | -8.690  | 4109.709 | -11.820 | 13.310  | 3407.609 | 6.650  | 6.480  |
| 133. | 5618.791 | 4.160  | -9.160  | 4094.474 | -12.310 | 14.440  | 3414.374 | 7.070  | 6.900  |
| 134. | 5617.937 | 4.170  | -9.620  | 4078.630 | -12.720 | 15.570  | 3421.543 | 7.420  | 7.250  |
| 135. | 5625.864 | 4.150  | -10.030 | 4062.389 | -13.020 | 16.610  | 3429.167 | 7.710  | 7.540  |
| 136. | 5632.896 | 4.050  | -10.400 | 4045.866 | -13.220 | 17.660  | 3437.147 | 7.960  | 7.790  |
| 137. | 5638.960 | 3.930  | -10.740 | 4029.261 | -13.310 | 18.710  | 3445.412 | 8.130  | 7.960  |
| 138. | 5645.589 | 3.770  | -11.040 | 4012.659 | -13.290 | 19.760  | 3453.920 | 8.220  | 8.050  |
| 139. | 5651.920 | 3.570  | -11.320 | 3996.236 | -13.140 | 20.810  | 3462.597 | 8.220  | 8.050  |
| 140. | 5657.694 | 3.350  | -11.560 | 3980.153 | -12.866 | 21.860  | 3471.354 | 8.220  | 8.050  |
| 141. | 5663.456 | 3.090  | -11.770 | 3964.586 | -12.430 | 22.910  | 3480.093 | 8.130  | 7.960  |
| 142. | 5668.564 | 2.810  | -11.960 | 3949.724 | -11.830 | 23.960  | 3488.656 | 7.960  | 7.790  |
| 143. | 5673.170 | 2.510  | -12.120 | 3935.773 | -11.060 | 24.960  | 3496.929 | 7.530  | 7.360  |
| 144. | 5677.237 | 2.190  | -12.260 | 3922.933 | -10.060 | 25.960  | 3504.724 | 6.990  | 6.820  |
| 145. | 5680.734 | 1.850  | -12.390 | 3911.502 | -8.900  | 26.960  | 3511.850 | 6.260  | 6.090  |
| 146. | 5683.632 | 1.500  | -12.470 | 3901.665 | -7.440  | 27.960  | 3518.094 | 5.340  | 5.170  |
| 147. | 5685.989 | 1.130  | -12.540 | 3893.666 | -5.860  | 28.960  | 3523.233 | 4.220  | 4.050  |
| 148. | 5687.546 | 0.760  | -12.590 | 3887.797 | -4.030  | 29.960  | 3527.111 | 2.930  | 2.760  |
| 149. | 5688.536 | 0.380  | -12.620 | 3884.179 | -2.060  | 30.960  | 3529.502 | 1.500  | 1.330  |

|      | Z-PLANE (XY-PLANE) LITHIUM TANTALATE (SMITH AND WELSH) |        |         |          |        |        |          |        |        |  | BULK |  |
|------|--|--------|---------|----------|--------|--------|----------|--------|--------|--|------|--|
|      | LNQVEL   | LPN12  | LPN13   | FSRWEL   | FSPN12 | FSPN13 | SSRWEL   | SSPN12 | SSPN13 |  |      |  |
| 150. | 5686.867   | 0.000  | -12.630 | 3682.959 | 0.000  | 16.510 | 3530.313 | -0.000 | 0.330  |  |      |  |
| 151. | 5686.536   | -0.310 | -12.620 | 3684.179 | 2.060  | 16.460 | 3529.502 | -1.500 | 0.330  |  |      |  |
| 152. | 5687.548   | -0.760 | -12.590 | 3687.797 | 4.030  | 16.390 | 3527.111 | -2.930 | 0.410  |  |      |  |
| 153. | 5685.909   | -1.130 | -12.540 | 3693.606 | 5.860  | 16.240 | 3523.253 | -4.220 | 0.440  |  |      |  |
| 154. | 5683.632   | -1.500 | -12.470 | 3701.665 | 7.480  | 16.060 | 3518.096 | -5.340 | 0.460  |  |      |  |
| 155. | 5680.734   | -1.850 | -12.380 | 3811.502 | 8.900  | 15.830 | 3511.650 | -6.260 | 0.440  |  |      |  |
| 156. | 5677.237   | -2.150 | -12.260 | 3922.953 | 10.020 | 15.570 | 3504.724 | -6.936 | 0.410  |  |      |  |
| 157. | 5673.170   | -2.410 | -12.120 | 3935.773 | 11.060 | 15.290 | 3496.929 | -7.530 | 0.440  |  |      |  |
| 158. | 5668.564   | -2.610 | -11.960 | 3949.724 | 11.830 | 14.980 | 3488.658 | -7.980 | 0.390  |  |      |  |
| 159. | 5663.458   | -3.090 | -11.770 | 3964.586 | 12.430 | 14.650 | 3480.003 | -8.130 | 0.340  |  |      |  |
| 160. | 5657.894   | -3.350 | -11.560 | 3980.153 | 12.660 | 14.290 | 3471.354 | -8.230 | 0.170  |  |      |  |
| 161. | 5651.920   | -3.570 | -11.320 | 3996.236 | 13.146 | 13.910 | 3462.537 | -8.220 | 0.040  |  |      |  |
| 162. | 5645.585   | -3.770 | -11.040 | 4012.659 | 13.290 | 13.510 | 3453.320 | -8.130 | 0.880  |  |      |  |
| 163. | 5638.960   | -3.930 | -10.740 | 4029.261 | 13.310 | 13.070 | 3445.412 | -7.950 | 0.660  |  |      |  |
| 164. | 5632.096   | -4.050 | -10.400 | 4045.866 | 13.220 | 12.610 | 3437.147 | -7.710 | 0.460  |  |      |  |
| 165. | 5625.864   | -4.130 | -10.030 | 4062.369 | 13.020 | 12.110 | 3429.187 | -7.420 | 0.220  |  |      |  |
| 166. | 5617.937   | -4.170 | -9.620  | 4078.630 | 12.720 | 11.570 | 3421.583 | -7.070 | 0.340  |  |      |  |
| 167. | 5610.791   | -4.160 | -9.180  | 4094.474 | 12.310 | 11.000 | 3414.379 | -6.690 | 0.370  |  |      |  |
| 168. | 5603.786   | -4.110 | -8.690  | 4099.769 | 11.620 | 10.350 | 3407.604 | -6.260 | 0.860  |  |      |  |
| 169. | 5596.762   | -4.010 | -8.170  | 4124.448 | 11.230 | 9.730  | 3401.382 | -5.840 | 0.880  |  |      |  |
| 170. | 5590.046   | -3.860 | -7.600  | 4138.326 | 10.550 | 9.030  | 3395.483 | -5.370 | 0.330  |  |      |  |
| 171. | 5583.641   | -3.650 | -6.990  | 4151.310 | 9.760  | 8.290  | 3390.171 | -4.880 | 0.390  |  |      |  |
| 172. | 5577.631   | -3.400 | -6.340  | 4163.275 | 8.940  | 7.500  | 3385.363 | -4.360 | 0.400  |  |      |  |
| 173. | 5572.096   | -3.100 | -5.650  | 4174.129 | 8.010  | 6.670  | 3381.131 | -3.860 | 0.400  |  |      |  |
| 174. | 5567.121   | -2.750 | -4.920  | 4183.757 | 7.020  | 5.610  | 3377.427 | -3.330 | 2.310  |  |      |  |
| 175. | 5562.772   | -2.370 | -4.160  | 4192.073 | 5.950  | 4.900  | 3374.260 | -2.790 | 1.940  |  |      |  |
| 176. | 5559.117   | -1.940 | -3.370  | 4198.995 | 4.840  | 3.960  | 3371.697 | -2.240 | 1.560  |  |      |  |
| 177. | 5556.212   | -1.460 | -2.550  | 4204.453 | 3.670  | 3.000  | 3369.682 | -1.660 | 1.170  |  |      |  |
| 178. | 5554.103   | -1.000 | -1.710  | 4208.394 | 2.470  | 2.010  | 3368.241 | -1.120 | 0.700  |  |      |  |
| 179. | 5552.823   | -0.510 | -0.860  | 4210.774 | 1.240  | 1.010  | 3367.374 | -0.560 | 0.330  |  |      |  |
| 180. | 5552.395   | 0.000  | 0.000   | 4211.571 | -0.000 | -0.000 | 3367.066 | 0.000  | -0.000 |  |      |  |

|     | X-PLANE (YZ-PLANE) LITHIUM TANTALATE (WARNER ET AL) |        |          |         |         |          |         |         |          |         | BULK    |  |
|-----|---|--------|----------|---------|---------|----------|---------|---------|----------|---------|---------|--|
|     | LPMI12  | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SRREL    | SSPMI12 | SSPMI13 | SRREL    | SSPMI12 | SSPMI13 |  |
| 0.  | 5721.678  | 0.000  | 3821.167 | -16.090 | -0.000  | 3533.160 | -6.750  | -0.000  | 3533.160 | 0.000   | 0.000   |  |
| 1.  | 5743.961  | 0.000  | 3801.610 | -16.660 | -0.000  | 3525.866 | -6.760  | -0.000  | 3525.866 | 0.000   | 0.000   |  |
| 2.  | 5766.720  | 0.000  | 3781.505 | -17.130 | -0.000  | 3518.578 | -6.760  | -0.000  | 3518.578 | 0.000   | 0.000   |  |
| 3.  | 5789.740  | 0.000  | 3760.940 | -17.500 | -0.000  | 3511.303 | -6.760  | -0.000  | 3511.303 | 0.000   | 0.000   |  |
| 4.  | 5813.053  | 0.000  | 3740.158 | -17.790 | -0.000  | 3504.053 | -6.750  | -0.000  | 3504.053 | 0.000   | 0.000   |  |
| 5.  | 5836.438  | 0.000  | 3719.156 | -17.970 | -0.000  | 3496.834 | -6.730  | -0.000  | 3496.834 | 0.000   | 0.000   |  |
| 6.  | 5859.838  | 0.000  | 3698.087 | -18.060 | -0.000  | 3489.657 | -6.700  | -0.000  | 3489.657 | 0.000   | 0.000   |  |
| 7.  | 5883.166  | 0.000  | 3677.055 | -18.100 | -0.000  | 3482.530 | -6.660  | -0.000  | 3482.530 | 0.000   | 0.000   |  |
| 8.  | 5906.339  | 0.000  | 3656.161 | -18.050 | -0.000  | 3475.462 | -6.620  | -0.000  | 3475.462 | 0.000   | 0.000   |  |
| 9.  | 5929.281  | 0.000  | 3635.499 | -17.920 | -0.000  | 3468.464 | -6.580  | -0.000  | 3468.464 | 0.000   | 0.000   |  |
| 10. | 5951.921  | 0.000  | 3615.159 | -17.710 | -0.000  | 3461.542 | -6.530  | -0.000  | 3461.542 | 0.000   | 0.000   |  |
| 11. | 5974.195  | 0.000  | 3595.223 | -17.440 | -0.000  | 3454.707 | -6.470  | -0.000  | 3454.707 | 0.000   | 0.000   |  |
| 12. | 5996.044  | 0.000  | 3575.770 | -17.090 | -0.000  | 3447.957 | -6.340  | -0.000  | 3447.957 | 0.000   | 0.000   |  |
| 13. | 6017.414  | 0.000  | 3556.871 | -16.680 | -0.000  | 3441.330 | -6.250  | -0.000  | 3441.330 | 0.000   | 0.000   |  |
| 14. | 6038.255  | 0.000  | 3538.594 | -16.200 | -0.000  | 3434.807 | -6.150  | -0.000  | 3434.807 | 0.000   | 0.000   |  |
| 15. | 6058.522  | 0.000  | 3521.000 | -15.660 | -0.000  | 3428.405 | -6.050  | -0.000  | 3428.405 | 0.000   | 0.000   |  |
| 16. | 6078.176  | 0.000  | 3504.146 | -15.070 | -0.000  | 3422.132 | -5.930  | -0.000  | 3422.132 | 0.000   | 0.000   |  |
| 17. | 6097.180  | 0.000  | 3488.084 | -14.420 | -0.000  | 3416.000 | -5.810  | -0.000  | 3416.000 | 0.000   | 0.000   |  |
| 18. | 6115.503  | 0.000  | 3472.859 | -13.710 | -0.000  | 3410.010 | -5.670  | -0.000  | 3410.010 | 0.000   | 0.000   |  |
| 19. | 6133.115  | 0.000  | 3458.513 | -12.960 | -0.000  | 3404.177 | -5.530  | -0.000  | 3404.177 | 0.000   | 0.000   |  |
| 20. | 6149.993  | 0.000  | 3445.080 | -12.170 | -0.000  | 3398.506 | -5.390  | -0.000  | 3398.506 | 0.000   | 0.000   |  |
| 21. | 6166.116  | 0.000  | 3432.593 | -11.330 | -0.000  | 3393.005 | -5.240  | -0.000  | 3393.005 | 0.000   | 0.000   |  |
| 22. | 6181.464  | 0.000  | 3421.077 | -10.460 | -0.000  | 3387.682 | -5.080  | -0.000  | 3387.682 | 0.000   | 0.000   |  |
| 23. | 6196.025  | 0.000  | 3410.552 | -9.560  | -0.000  | 3382.544 | -4.910  | -0.000  | 3382.544 | 0.000   | 0.000   |  |
| 24. | 6209.765  | 0.000  | 3401.035 | -8.630  | -0.000  | 3377.596 | -4.740  | -0.000  | 3377.596 | 0.000   | 0.000   |  |
| 25. | 6222.737  | 0.000  | 3392.535 | -7.680  | -0.000  | 3372.851 | -4.570  | -0.000  | 3372.851 | 0.000   | 0.000   |  |
| 26. | 6234.874  | 0.000  | 3385.050 | -6.720  | -0.000  | 3368.310 | -4.390  | -0.000  | 3368.310 | 0.000   | 0.000   |  |
| 27. | 6246.194  | 0.000  | 3378.609 | -5.750  | -0.000  | 3363.941 | -4.210  | -0.000  | 3363.941 | 0.000   | 0.000   |  |
| 28. | 6256.695  | 0.000  | 3373.180 | -4.780  | -0.000  | 3359.680 | -4.030  | -0.000  | 3359.680 | 0.000   | 0.000   |  |
| 29. | 6266.380  | 0.000  | 3368.765 | -3.810  | -0.000  | 3355.583 | -3.850  | -0.000  | 3355.583 | 0.000   | 0.000   |  |
| 30. | 6275.253  | 0.000  | 3365.351 | -2.840  | -0.000  | 3351.625 | -3.680  | -0.000  | 3351.625 | 0.000   | 0.000   |  |
| 31. | 6283.321  | 0.000  | 3362.922 | -1.970  | -0.000  | 3347.779 | -3.500  | -0.000  | 3347.779 | 0.000   | 0.000   |  |
| 32. | 6290.592  | 0.000  | 3361.456 | -1.100  | -0.000  | 3344.092 | -3.320  | -0.000  | 3344.092 | 0.000   | 0.000   |  |
| 33. | 6297.074  | 0.000  | 3360.929 | -0.260  | -0.000  | 3340.600 | -3.140  | -0.000  | 3340.600 | 0.000   | 0.000   |  |
| 34. | 6302.793  | 0.000  | 3361.314 | 0.610   | -0.000  | 3337.251 | -2.960  | -0.000  | 3337.251 | 0.000   | 0.000   |  |
| 35. | 6307.750  | 0.000  | 3362.578 | 1.650   | -0.000  | 3334.000 | -2.780  | -0.000  | 3334.000 | 0.000   | 0.000   |  |
| 36. | 6311.968  | 0.000  | 3364.687 | 2.460   | -0.000  | 3330.864 | -2.600  | -0.000  | 3330.864 | 0.000   | 0.000   |  |
| 37. | 6315.465  | 0.000  | 3367.602 | 3.220   | -0.000  | 3327.854 | -2.420  | -0.000  | 3327.854 | 0.000   | 0.000   |  |
| 38. | 6318.261  | 0.000  | 3371.283 | 3.940   | -0.000  | 3324.960 | -2.240  | -0.000  | 3324.960 | 0.000   | 0.000   |  |
| 39. | 6320.379  | 0.000  | 3375.688 | 4.610   | -0.000  | 3322.176 | -2.060  | -0.000  | 3322.176 | 0.000   | 0.000   |  |
| 40. | 6321.644  | 0.000  | 3380.771 | 5.240   | -0.000  | 3319.505 | -1.880  | -0.000  | 3319.505 | 0.000   | 0.000   |  |
| 41. | 6322.679  | 0.000  | 3386.485 | 5.810   | -0.000  | 3316.941 | -1.700  | -0.000  | 3316.941 | 0.000   | 0.000   |  |
| 42. | 6322.912  | 0.000  | 3392.782 | 6.330   | -0.000  | 3314.485 | -1.520  | -0.000  | 3314.485 | 0.000   | 0.000   |  |
| 43. | 6322.871  | 0.000  | 3399.611 | 6.800   | -0.000  | 3312.136 | -1.340  | -0.000  | 3312.136 | 0.000   | 0.000   |  |
| 44. | 6321.684  | 0.000  | 3406.920 | 7.220   | -0.000  | 3309.892 | -1.160  | -0.000  | 3309.892 | 0.000   | 0.000   |  |
| 45. | 6320.283  | 0.000  | 3414.659 | 7.580   | -0.000  | 3307.736 | -0.980  | -0.000  | 3307.736 | 0.000   | 0.000   |  |
| 46. | 6318.397  | 0.000  | 3422.773 | 7.880   | -0.000  | 3305.660 | -0.800  | -0.000  | 3305.660 | 0.000   | 0.000   |  |
| 47. | 6316.059  | 0.000  | 3431.211 | 8.150   | -0.000  | 3303.660 | -0.620  | -0.000  | 3303.660 | 0.000   | 0.000   |  |
| 48. | 6313.302  | 0.000  | 3439.918 | 8.360   | -0.000  | 3301.736 | -0.440  | -0.000  | 3301.736 | 0.000   | 0.000   |  |
| 49. | 6310.159  | -0.000 | 3448.841 | 8.520   | -0.000  | 3299.884 | -0.260  | -0.000  | 3299.884 | 0.000   | 0.000   |  |



|     | X-PLANE (YZ-PLANE) LITHIUM TANTALATE (MARNER ET AL) |        |          |        |        |          |        | BULK   |
|-----|---|--------|----------|--------|--------|----------|--------|--------|
|     | LPH12   | LPH13  | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 |        |
| 50. | 6305.663  | -0.000 | 3457.926 | 8.620  | -0.000 | 3332.653 | 1.660  | -0.000 |
| 51. | 6302.849  | -0.000 | 3457.126 | 8.660  | -0.000 | 3334.673 | 1.920  | -0.000 |
| 52. | 6298.750  | -0.000 | 3476.383 | 8.650  | -0.000 | 3336.753 | 2.170  | -0.000 |
| 53. | 6294.402  | -0.000 | 3485.649 | 8.650  | -0.000 | 3339.090 | 2.420  | -0.000 |
| 54. | 6289.837  | -0.000 | 3494.874 | 8.570  | -0.000 | 3341.681 | 2.670  | -0.000 |
| 55. | 6285.091  | -0.000 | 3504.010 | 8.440  | -0.000 | 3344.522 | 2.910  | -0.000 |
| 56. | 6280.197  | -0.000 | 3513.009 | 8.270  | -0.000 | 3347.606 | 3.140  | -0.000 |
| 57. | 6275.118  | -0.000 | 3521.827 | 8.070  | -0.000 | 3350.936 | 3.370  | -0.000 |
| 58. | 6270.897  | -0.000 | 3530.421 | 7.820  | -0.000 | 3354.501 | 3.600  | -0.000 |
| 59. | 6266.954  | -0.000 | 3538.748 | 7.540  | -0.000 | 3358.290 | 3.820  | -0.000 |
| 60. | 6259.791  | -0.000 | 3546.769 | 7.230  | -0.000 | 3362.320 | 4.030  | -0.000 |
| 61. | 6254.637  | -0.000 | 3554.447 | 6.890  | -0.000 | 3366.563 | 4.240  | -0.000 |
| 62. | 6249.521  | -0.000 | 3561.747 | 6.520  | -0.000 | 3371.021 | 4.430  | -0.000 |
| 63. | 6244.466  | -0.000 | 3568.637 | 6.120  | -0.000 | 3375.687 | 4.630  | -0.000 |
| 64. | 6239.586  | -0.000 | 3575.086 | 5.690  | -0.000 | 3380.525 | 4.810  | -0.000 |
| 65. | 6234.856  | -0.000 | 3581.067 | 5.230  | -0.000 | 3385.517 | 4.990  | -0.000 |
| 66. | 6229.942  | -0.000 | 3586.555 | 4.780  | -0.000 | 3390.668 | 5.160  | -0.000 |
| 67. | 6225.383  | -0.000 | 3591.528 | 4.300  | -0.000 | 3396.039 | 5.320  | -0.000 |
| 68. | 6220.996  | -0.000 | 3595.966 | 3.800  | -0.000 | 3401.683 | 5.470  | -0.000 |
| 69. | 6216.603  | -0.000 | 3599.853 | 3.290  | -0.000 | 3407.673 | 5.620  | -0.000 |
| 70. | 6212.312  | -0.000 | 3603.175 | 2.760  | -0.000 | 3413.980 | 5.750  | -0.000 |
| 71. | 6208.036  | -0.000 | 3605.921 | 2.230  | -0.000 | 3420.677 | 5.880  | -0.000 |
| 72. | 6203.466  | -0.000 | 3608.083 | 1.700  | -0.000 | 3427.846 | 6.000  | -0.000 |
| 73. | 6202.170  | -0.000 | 3609.653 | 1.160  | -0.000 | 3435.579 | 6.110  | -0.000 |
| 74. | 6199.093  | -0.000 | 3610.631 | .620   | -0.000 | 3443.824 | 6.210  | -0.000 |
| 75. | 6196.259  | -0.000 | 3611.014 | .080   | -0.000 | 3452.616 | 6.310  | -0.000 |
| 76. | 6193.688  | -0.000 | 3610.805 | -.460  | -0.000 | 3462.015 | 6.400  | -0.000 |
| 77. | 6191.321  | -0.000 | 3610.009 | -1.510 | -0.000 | 3472.073 | 6.490  | -0.000 |
| 78. | 6189.214  | -0.000 | 3608.633 | -2.030 | -0.000 | 3479.713 | 6.540  | -0.000 |
| 79. | 6187.383  | -0.000 | 3606.605 | -2.530 | -0.000 | 3486.916 | 6.600  | -0.000 |
| 80. | 6185.702  | -0.000 | 3604.177 | -3.030 | -0.000 | 3493.766 | 6.640  | -0.000 |
| 81. | 6184.282  | -0.000 | 3601.122 | -3.510 | -0.000 | 3499.216 | 6.720  | -0.000 |
| 82. | 6183.073  | -0.000 | 3597.536 | -3.970 | -0.000 | 3504.179 | 6.740  | -0.000 |
| 83. | 6182.064  | -0.000 | 3593.435 | -4.420 | -0.000 | 3508.616 | 6.760  | -0.000 |
| 84. | 6181.242  | -0.000 | 3588.829 | -4.840 | -0.000 | 3512.584 | 6.780  | -0.000 |
| 85. | 6180.594  | -0.000 | 3583.767 | -5.250 | -0.000 | 3516.068 | 6.790  | -0.000 |
| 86. | 6179.752  | -0.000 | 3578.243 | -5.640 | -0.000 | 3519.261 | 6.790  | -0.000 |
| 87. | 6179.525  | -0.000 | 3572.209 | -6.010 | -0.000 | 3522.264 | 6.790  | -0.000 |
| 88. | 6179.403  | -0.000 | 3565.931 | -6.340 | -0.000 | 3525.093 | 6.790  | -0.000 |
| 89. | 6179.367  | -0.000 | 3559.105 | -6.670 | -0.000 | 3527.668 | 6.790  | -0.000 |
| 90. | 6179.356  | -0.000 | 3552.105 | -6.980 | -0.000 | 3529.945 | 6.790  | -0.000 |
| 91. | 6179.471  | -0.000 | 3544.633 | -7.270 | -0.000 | 3531.968 | 6.790  | -0.000 |
| 92. | 6179.570  | -0.000 | 3536.968 | -7.540 | -0.000 | 3533.712 | 6.790  | -0.000 |
| 93. | 6179.672  | -0.000 | 3529.020 | -7.780 | -0.000 | 3535.209 | 6.790  | -0.000 |
| 94. | 6179.756  | -0.000 | 3520.820 | -7.990 | -0.000 | 3536.482 | 6.790  | -0.000 |
| 95. | 6179.796  | -0.000 | 3512.421 | -8.160 | -0.000 | 3537.554 | 6.790  | -0.000 |
| 96. | 6179.796  | -0.000 | 3503.856 | -8.300 | -0.000 | 3538.421 | 6.790  | -0.000 |
| 97. | 6179.775  | -0.000 | 3495.159 | -8.410 | -0.000 | 3539.087 | 6.790  | -0.000 |
| 98. | 6179.660  | -0.000 | 3486.364 | -8.500 | -0.000 | 3539.577 | 6.790  | -0.000 |
| 99. | 6179.453  | -0.000 | 3477.506 | -8.520 | -0.000 | 3539.895 | 6.790  | -0.000 |

X-PLANE (YZ-PLANE) LITHIUM TANTALATE (HARNER ET AL) BULK

|      | LMVEL    | LPHI12  | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 6179.107 | -1.220  | 0.000  | 3468.626 | -8.350  | -0.000  | 3621.933 | 5.940   | -0.000  |
| 101. | 6178.689 | -1.310  | 0.000  | 3459.756 | -8.340  | -0.000  | 3620.453 | 5.630   | -0.000  |
| 102. | 6177.937 | -1.410  | 0.000  | 3450.936 | -8.300  | -0.000  | 3634.059 | 5.710   | -0.000  |
| 103. | 6177.067 | -1.520  | 0.000  | 3442.205 | -8.220  | -0.000  | 3641.142 | 5.590   | -0.000  |
| 104. | 6175.979 | -1.640  | 0.000  | 3433.600 | -8.100  | -0.000  | 3647.297 | 5.460   | -0.000  |
| 105. | 6174.651 | -1.770  | 0.000  | 3425.163 | -7.940  | -0.000  | 3653.315 | 5.330   | -0.000  |
| 106. | 6173.061 | -1.920  | 0.000  | 3416.933 | -7.750  | -0.000  | 3659.192 | 5.190   | -0.000  |
| 107. | 6171.190 | -1.070  | 0.000  | 3408.950 | -7.510  | -0.000  | 3664.919 | 5.050   | -0.000  |
| 108. | 6169.016 | -1.240  | 0.000  | 3401.257 | -7.230  | -0.000  | 3670.491 | 4.910   | -0.000  |
| 109. | 6166.521 | -1.420  | 0.000  | 3393.894 | -6.880  | -0.000  | 3675.902 | 4.750   | -0.000  |
| 110. | 6163.684 | -1.600  | 0.000  | 3386.904 | -6.550  | -0.000  | 3681.145 | 4.590   | -0.000  |
| 111. | 6160.486 | -1.800  | 0.000  | 3380.327 | -6.170  | -0.000  | 3686.216 | 4.420   | -0.000  |
| 112. | 6156.911 | -2.010  | 0.000  | 3374.205 | -5.700  | -0.000  | 3691.109 | 4.260   | -0.000  |
| 113. | 6152.939 | -2.230  | 0.000  | 3368.581 | -5.210  | -0.000  | 3695.818 | 4.090   | -0.000  |
| 114. | 6148.555 | -2.450  | 0.000  | 3363.494 | -4.660  | -0.000  | 3700.336 | 3.920   | -0.000  |
| 115. | 6143.743 | -2.650  | 0.000  | 3358.947 | -4.100  | -0.000  | 3704.666 | 3.740   | -0.000  |
| 116. | 6138.487 | -2.930  | 0.000  | 3355.100 | -3.440  | -0.000  | 3708.795 | 3.560   | -0.000  |
| 117. | 6132.773 | -3.160  | 0.000  | 3351.870 | -2.630  | -0.000  | 3712.722 | 3.380   | -0.000  |
| 118. | 6126.589 | -3.440  | 0.000  | 3349.338 | -2.130  | -0.000  | 3716.443 | 3.190   | -0.000  |
| 119. | 6119.921 | -3.700  | 0.000  | 3347.540 | -1.390  | -0.000  | 3719.953 | 3.000   | -0.000  |
| 120. | 6112.756 | -3.970  | 0.000  | 3346.512 | -0.620  | -0.000  | 3723.250 | 2.810   | -0.000  |
| 121. | 6105.092 | -4.250  | 0.000  | 3346.267 | 1.180   | -0.000  | 3726.329 | 2.610   | -0.000  |
| 122. | 6096.912 | -4.530  | 0.000  | 3346.098 | 1.020   | -0.000  | 3729.187 | 2.420   | -0.000  |
| 123. | 6088.212 | -4.820  | 0.000  | 3346.375 | 1.680   | -0.000  | 3731.822 | 2.220   | -0.000  |
| 124. | 6078.985 | -5.110  | 0.000  | 3350.745 | 2.770   | -0.000  | 3734.230 | 2.020   | -0.000  |
| 125. | 6069.227 | -5.410  | 0.000  | 3354.032 | 3.670   | -0.000  | 3736.409 | 1.810   | -0.000  |
| 126. | 6058.935 | -5.700  | 0.000  | 3358.259 | 4.590   | -0.000  | 3738.358 | 1.610   | -0.000  |
| 127. | 6048.107 | -6.000  | 0.000  | 3363.444 | 5.526   | -0.000  | 3740.073 | 1.400   | -0.000  |
| 128. | 6036.745 | -6.300  | 0.000  | 3369.602 | 6.450   | -0.000  | 3741.554 | 1.200   | -0.000  |
| 129. | 6024.849 | -6.600  | 0.000  | 3376.745 | 7.360   | -0.000  | 3742.798 | 0.990   | -0.000  |
| 130. | 6012.425 | -6.950  | 0.000  | 3384.880 | 8.310   | -0.000  | 3743.804 | 0.780   | -0.000  |
| 131. | 5999.479 | -7.190  | 0.000  | 3394.011 | 9.236   | -0.000  | 3744.572 | 0.570   | -0.000  |
| 132. | 5986.019 | -7.460  | 0.000  | 3404.137 | 10.140  | -0.000  | 3745.100 | 0.360   | -0.000  |
| 133. | 5972.056 | -7.760  | 0.000  | 3415.252 | 11.020  | -0.010  | 3745.386 | 0.150   | -0.000  |
| 134. | 5957.604 | -8.040  | 0.000  | 3427.345 | 11.870  | -0.000  | 3745.436 | -0.060  | -0.000  |
| 135. | 5942.679 | -8.310  | 0.000  | 3440.402 | 12.700  | -0.000  | 3745.243 | -0.270  | -0.000  |
| 136. | 5927.300 | -8.570  | 0.000  | 3454.402 | 13.490  | -0.000  | 3744.810 | -0.480  | -0.000  |
| 137. | 5911.490 | -8.830  | 0.000  | 3469.318 | 14.240  | -0.010  | 3744.136 | -0.690  | -0.000  |
| 138. | 5895.272 | -9.060  | 0.000  | 3485.120 | 14.940  | -0.000  | 3743.226 | -0.900  | -0.000  |
| 139. | 5878.678 | -9.260  | 0.000  | 3501.770 | 15.600  | -0.000  | 3742.076 | -1.110  | -0.000  |
| 140. | 5861.738 | -9.490  | 0.000  | 3519.224 | 16.200  | -0.000  | 3740.690 | -1.320  | -0.000  |
| 141. | 5844.489 | -9.670  | 0.000  | 3537.435 | 16.740  | -0.000  | 3739.066 | -1.530  | -0.000  |
| 142. | 5826.974 | -9.840  | 0.000  | 3556.346 | 17.220  | -0.000  | 3737.212 | -1.730  | -0.000  |
| 143. | 5809.235 | -9.960  | 0.000  | 3575.895 | 17.640  | -0.000  | 3735.124 | -1.940  | -0.000  |
| 144. | 5791.325 | -10.190 | 0.000  | 3596.014 | 17.990  | -0.000  | 3732.806 | -2.140  | -0.000  |
| 145. | 5773.298 | -10.160 | 0.000  | 3616.628 | 18.270  | -0.010  | 3730.261 | -2.340  | -0.000  |
| 146. | 5755.215 | -10.210 | 0.000  | 3637.655 | 18.476  | -0.000  | 3727.491 | -2.540  | -0.000  |
| 147. | 5737.143 | -10.210 | 0.000  | 3659.006 | 18.590  | -0.000  | 3724.500 | -2.730  | -0.000  |
| 148. | 5718.134 | -10.160 | 0.000  | 3680.585 | 18.630  | -0.000  | 3721.269 | -2.930  | -0.000  |
| 149. | 5701.328 | -10.100 | 0.000  | 3702.287 | 18.590  | -0.000  | 3717.863 | -3.120  | -0.000  |

|      | X-PLANE (YZ-PLANE) LITHIUM TANTALATE (WARNER ET AL) |        |          |         |         |          |         |         |  |  | BULK |  |
|------|---|--------|----------|---------|---------|----------|---------|---------|--|--|------|--|
|      | LPHI12  | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |  |  |      |  |
| 150. | 5603.749  | 0.000  | 3724.003 | 18.450  | -0.000  | 3714.226 | -3.300  | 0.000   |  |  |      |  |
| 151. | 5668.511  | 0.000  | 3745.614 | 18.220  | 0.000   | 3710.380 | -3.443  | -0.000  |  |  |      |  |
| 152. | 5649.712  | 0.000  | 3766.936 | 17.890  | 0.000   | 3700.331 | -3.670  | -0.000  |  |  |      |  |
| 153. | 5633.458  | 0.000  | 3788.016 | 17.460  | 0.000   | 3702.882 | -3.650  | -0.000  |  |  |      |  |
| 154. | 5617.861  | 0.000  | 3808.536 | 16.920  | 0.000   | 3697.637 | -3.650  | -0.000  |  |  |      |  |
| 155. | 5603.036  | 0.000  | 3828.412 | 16.270  | 0.000   | 3693.003 | -4.260  | -0.000  |  |  |      |  |
| 156. | 5589.112  | 0.000  | 3847.437 | 15.510  | 0.000   | 3688.182 | -4.360  | -0.000  |  |  |      |  |
| 157. | 5576.288  | 0.000  | 3865.638 | 14.640  | 0.000   | 3683.182 | -4.530  | -0.000  |  |  |      |  |
| 158. | 5564.455  | 0.000  | 3882.884 | 13.640  | 0.000   | 3678.006 | -4.650  | -0.000  |  |  |      |  |
| 159. | 5553.979  | 0.000  | 3898.483 | 12.530  | 0.000   | 3672.661 | -4.840  | -0.000  |  |  |      |  |
| 160. | 5544.907  | 0.000  | 3912.607 | 11.310  | 0.000   | 3667.152 | -4.990  | -0.000  |  |  |      |  |
| 161. | 5537.358  | 0.000  | 3925.754 | 9.960   | 0.000   | 3661.486 | -5.140  | -0.000  |  |  |      |  |
| 162. | 5531.441  | 0.000  | 3936.952 | 8.540   | 0.000   | 3655.668 | -5.280  | -0.000  |  |  |      |  |
| 163. | 5527.256  | 0.000  | 3946.365 | 7.020   | 0.000   | 3649.705 | -5.410  | -0.000  |  |  |      |  |
| 164. | 5524.886  | 0.000  | 3953.890 | 5.420   | 0.000   | 3643.604 | -5.540  | -0.000  |  |  |      |  |
| 165. | 5524.394  | 0.000  | 3959.447 | 3.770   | 0.000   | 3637.371 | -5.660  | -0.000  |  |  |      |  |
| 166. | 5525.625  | 0.000  | 3962.977 | 2.070   | 0.000   | 3631.013 | -5.780  | -0.000  |  |  |      |  |
| 167. | 5529.199  | 0.000  | 3964.445 | .360    | 0.000   | 3624.538 | -5.900  | -0.000  |  |  |      |  |
| 168. | 5534.513  | 0.000  | 3963.844 | -1.350  | 0.000   | 3617.952 | -6.000  | -0.000  |  |  |      |  |
| 169. | 5541.738  | 0.000  | 3961.191 | -3.040  | 0.000   | 3611.263 | -6.100  | -0.000  |  |  |      |  |
| 170. | 5550.625  | 0.000  | 3956.527 | -4.680  | 0.000   | 3604.478 | -6.200  | -0.000  |  |  |      |  |
| 171. | 5561.702  | 0.000  | 3949.916 | -6.250  | 0.000   | 3597.607 | -6.260  | -0.000  |  |  |      |  |
| 172. | 5574.280  | 0.000  | 3941.446 | -7.750  | 0.000   | 3590.655 | -6.360  | -0.000  |  |  |      |  |
| 173. | 5588.452  | 0.000  | 3931.221 | -9.160  | 0.000   | 3583.632 | -6.440  | -0.000  |  |  |      |  |
| 174. | 5604.101  | 0.000  | 3919.352 | -10.460 | 0.000   | 3576.545 | -6.500  | -0.000  |  |  |      |  |
| 175. | 5621.101  | 0.000  | 3905.969 | -11.680 | 0.000   | 3569.403 | -6.560  | -0.000  |  |  |      |  |
| 176. | 5639.319  | 0.000  | 3891.206 | -12.760 | 0.000   | 3562.214 | -6.610  | -0.000  |  |  |      |  |
| 177. | 5658.620  | 0.000  | 3875.203 | -13.770 | 0.000   | 3554.986 | -6.660  | -0.000  |  |  |      |  |
| 178. | 5678.670  | 0.000  | 3856.102 | -14.650 | 0.000   | 3547.729 | -6.700  | -0.000  |  |  |      |  |
| 179. | 5699.932  | 0.000  | 3840.043 | -15.420 | 0.000   | 3540.451 | -6.720  | -0.000  |  |  |      |  |
| 180. | 5721.676  | 0.000  | 3821.167 | -16.090 | 0.000   | 3533.160 | -6.750  | -0.000  |  |  |      |  |

| Y-PLANE (XZ-PLANE) LITHIUM TANTALATE (WARMER ET AL) |        |        |          |         |         |          |         |         |  |  |  |         |
|---|--------|--------|----------|---------|---------|----------|---------|---------|--|--|--|---------|
|   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |  |  |  |         |
| 0.  | 0.000  | 0.000  | 4171.619 | 0.000   | 0.000   | 3330.096 | 0.000   | 0.000   |  |  |  | SSPHI13 |
| 1.  | .960   | .830   | 4170.771 | -1.650  | -1.950  | 3338.251 | .300    | -0.420  |  |  |  | 0.000   |
| 2.  | 1.910  | 1.650  | 4167.639 | -3.260  | -3.900  | 3338.710 | .600    | -0.820  |  |  |  | -0.420  |
| 3.  | 2.860  | 2.450  | 4162.457 | -4.870  | -5.450  | 3339.474 | .900    | -1.270  |  |  |  | -1.270  |
| 4.  | 3.720  | 3.220  | 4156.241 | -6.470  | -7.000  | 3340.541 | 1.200   | -1.690  |  |  |  | -1.690  |
| 5.  | 4.560  | 3.960  | 4146.166 | -7.890  | -8.370  | 3341.094 | 1.490   | -2.100  |  |  |  | -2.100  |
| 6.  | 5.340  | 4.670  | 4132.266 | -9.280  | -9.760  | 3343.574 | 1.760   | -2.510  |  |  |  | -2.510  |
| 7.  | 6.050  | 5.330  | 4122.625 | -10.600 | -11.050 | 3345.533 | 2.060   | -2.920  |  |  |  | -2.920  |
| 8.  | 6.690  | 5.940  | 4108.361 | -11.820 | -12.240 | 3347.781 | 2.340   | -3.320  |  |  |  | -3.320  |
| 9.  | 7.270  | 6.500  | 4092.660 | -12.940 | -13.500 | 3350.314 | 2.620   | -3.710  |  |  |  | -3.710  |
| 10.   | 7.770  | 7.020  | 4075.590 | -13.970 | -14.700 | 3353.125 | 2.880   | -4.090  |  |  |  | -4.090  |
| 11.   | 8.210  | 7.480  | 4057.366 | -14.900 | -15.800 | 3356.206 | 3.140   | -4.470  |  |  |  | -4.470  |
| 12.   | 8.560  | 7.900  | 4037.940 | -15.740 | -16.800 | 3359.552 | 3.390   | -4.850  |  |  |  | -4.850  |
| 13.   | 8.860  | 8.280  | 4017.624 | -16.480 | -17.700 | 3363.154 | 3.630   | -5.190  |  |  |  | -5.190  |
| 14.   | 9.120  | 8.610  | 3996.469 | -17.130 | -18.500 | 3367.002 | 3.860   | -5.530  |  |  |  | -5.530  |
| 15.   | 9.300  | 8.890  | 3974.661 | -17.700 | -19.200 | 3371.088 | 4.080   | -5.880  |  |  |  | -5.880  |
| 16.   | 9.430  | 9.140  | 3952.262 | -18.170 | -19.800 | 3375.398 | 4.290   | -6.190  |  |  |  | -6.190  |
| 17.   | 9.510  | 9.360  | 3929.442 | -18.570 | -20.300 | 3379.823 | 4.490   | -6.490  |  |  |  | -6.490  |
| 18.   | 9.530  | 9.530  | 3906.222 | -18.860 | -20.700 | 3384.459 | 4.670   | -6.770  |  |  |  | -6.770  |
| 19.   | 9.530  | 9.680  | 3882.803 | -19.120 | -21.100 | 3389.501 | 4.830   | -7.040  |  |  |  | -7.040  |
| 20.   | 9.440  | 9.800  | 3859.260 | -19.290 | -21.500 | 3394.644 | 4.980   | -7.300  |  |  |  | -7.300  |
| 21.   | 9.400  | 9.890  | 3835.642 | -19.360 | -21.850 | 3399.690 | 5.110   | -7.540  |  |  |  | -7.540  |
| 22.   | 9.290  | 9.950  | 3812.148 | -19.400 | -22.150 | 3405.244 | 5.220   | -7.780  |  |  |  | -7.780  |
| 23.   | 9.150  | 9.990  | 3788.873 | -19.340 | -22.400 | 3410.728 | 5.300   | -7.980  |  |  |  | -7.980  |
| 24.   | 8.960  | 10.010 | 3765.805 | -19.210 | -22.590 | 3416.231 | 5.360   | -8.130  |  |  |  | -8.130  |
| 25.   | 8.800  | 10.010 | 3743.095 | -19.010 | -22.700 | 3421.986 | 5.360   | -8.230  |  |  |  | -8.230  |
| 26.   | 8.590  | 9.990  | 3720.838 | -18.720 | -22.750 | 3427.935 | 5.370   | -8.290  |  |  |  | -8.290  |
| 27.   | 8.370  | 9.950  | 3699.125 | -18.340 | -22.700 | 3433.131 | 5.300   | -8.310  |  |  |  | -8.310  |
| 28.   | 8.130  | 9.900  | 3678.068 | -17.860 | -22.550 | 3438.632 | 5.170   | -8.290  |  |  |  | -8.290  |
| 29.   | 7.880  | 9.840  | 3657.749 | -17.270 | -22.300 | 3443.958 | 4.950   | -8.250  |  |  |  | -8.250  |
| 30.   | 7.620  | 9.760  | 3636.437 | -16.520 | -21.900 | 3448.996 | 4.600   | -8.150  |  |  |  | -8.150  |
| 31.   | 7.350  | 9.660  | 3620.202 | -15.570 | -21.300 | 3453.993 | 4.090   | -8.030  |  |  |  | -8.030  |
| 32.   | 7.070  | 9.560  | 3603.334 | -14.340 | -20.500 | 3457.524 | 3.320   | -7.820  |  |  |  | -7.820  |
| 33.   | 6.790  | 9.440  | 3588.173 | -12.750 | -19.400 | 3460.477 | 2.210   | -7.500  |  |  |  | -7.500  |
| 34.   | 6.500  | 9.320  | 3574.165 | -10.660 | -18.000 | 3462.025 | .650    | -7.100  |  |  |  | -7.100  |
| 35.   | 6.210  | 9.180  | 3564.820 | -8.190  | -16.300 | 3461.675 | -1.300  | -6.610  |  |  |  | -6.610  |
| 36.   | 5.920  | 9.030  | 3557.562 | -5.200  | -14.300 | 3459.017 | -3.680  | -6.050  |  |  |  | -6.050  |
| 37.   | 5.630  | 8.880  | 3553.480 | -2.300  | -12.000 | 3453.966 | -5.630  | -5.400  |  |  |  | -5.400  |
| 38.   | 5.330  | 8.720  | 3552.223 | -.040   | -9.500  | 3446.866 | -7.460  | -4.500  |  |  |  | -4.500  |
| 39.   | 5.040  | 8.550  | 3553.165 | 1.680   | -7.000  | 3438.403 | -8.900  | -3.360  |  |  |  | -3.360  |
| 40.   | 4.760  | 8.380  | 3555.668 | 2.860   | -4.500  | 3429.150 | -9.900  | -2.000  |  |  |  | -2.000  |
| 41.   | 4.470  | 8.200  | 3559.244 | 3.640   | -2.000  | 3419.631 | -10.600 | -0.500  |  |  |  | -0.500  |
| 42.   | 4.190  | 8.010  | 3563.470 | 4.140   | 0.500   | 3410.201 | -10.800 | 0.800   |  |  |  | 0.800   |
| 43.   | 3.920  | 7.810  | 3568.157 | 4.450   | 1.500   | 3401.099 | -10.500 | 1.700   |  |  |  | 1.700   |
| 44.   | 3.650  | 7.620  | 3573.112 | 4.630   | 2.500   | 3392.482 | -9.800  | 2.600   |  |  |  | 2.600   |
| 45.   | 3.390  | 7.410  | 3578.215 | 4.710   | 3.500   | 3384.454 | -8.400  | 3.400   |  |  |  | 3.400   |
| 46.   | 3.130  | 7.210  | 3583.376 | 4.720   | 4.500   | 3377.083 | -6.800  | 4.100   |  |  |  | 4.100   |
| 47.   | 2.890  | 7.000  | 3588.531 | 4.690   | 5.500   | 3370.412 | -5.120  | 4.700   |  |  |  | 4.700   |
| 48.   | 2.650  | 6.780  | 3593.627 | 4.610   | 6.500   | 3364.470 | -3.420  | 5.200   |  |  |  | 5.200   |
| 49.   | 2.420  | 6.560  | 3598.623 | 4.490   | 7.500   | 3359.269 | -1.710  | 5.600   |  |  |  | 5.600   |

Y-PLANE (XZ-PLANE) LITHIUM TANTALATE (WARNER ET AL)

BULK

|     | LPMI12   | LPMI13 | FSPVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 6183.688 | 6.3740 | 3603.486 | 4.350   | -10.360 | 3354.817 | -3.960  | -2.170  |
| 51. | 6187.886 | 1.980  | 3608.184 | 4.190   | -10.150 | 3351.110 | -3.260  | -1.040  |
| 52. | 6171.136 | 5.090  | 3612.695 | 4.000   | -9.950  | 3348.143 | -2.560  | -1.210  |
| 53. | 6176.294 | 1.580  | 3616.995 | 3.800   | -9.760  | 3345.304 | -1.860  | -1.220  |
| 54. | 6177.894 | 1.480  | 3621.065 | 3.580   | -9.560  | 3344.376 | -1.150  | -0.990  |
| 55. | 6179.557 | 1.220  | 3624.887 | 3.340   | -9.340  | 3343.548 | -0.460  | -0.610  |
| 56. | 6181.701 | 1.060  | 3628.445 | 3.090   | -9.110  | 3343.393 | .170    | -0.330  |
| 57. | 6183.543 | .980   | 3631.724 | 2.830   | -8.870  | 3343.691 | .800    | -0.070  |
| 58. | 6185.104 | .760   | 3634.710 | 2.560   | -8.620  | 3345.019 | 1.410   | .180    |
| 59. | 6186.460 | .620   | 3637.393 | 2.260   | -8.370  | 3346.752 | 1.910   | .420    |
| 60. | 6187.652 | .500   | 3639.761 | 1.990   | -8.110  | 3349.084 | 2.340   | .680    |
| 61. | 6188.677 | .360   | 3641.803 | 1.690   | -7.850  | 3351.927 | 2.660   | .960    |
| 62. | 6188.693 | .270   | 3643.512 | 1.390   | -7.560  | 3355.314 | 2.860   | 1.230   |
| 63. | 6189.319 | .180   | 3644.880 | 1.060   | -7.300  | 3359.197 | 2.930   | 1.470   |
| 64. | 6189.573 | .090   | 3645.900 | .760    | -7.030  | 3363.546 | 2.860   | 1.670   |
| 65. | 6189.670 | .010   | 3646.566 | .440    | -6.740  | 3368.337 | 2.650   | 1.820   |
| 66. | 6189.629 | -.060  | 3646.874 | .110    | -6.460  | 3373.536 | 2.300   | 1.930   |
| 67. | 6189.465 | -.120  | 3646.820 | -.210   | -6.170  | 3379.116 | 1.810   | 2.000   |
| 68. | 6189.193 | -.170  | 3646.401 | -.540   | -5.860  | 3385.049 | 1.160   | 2.030   |
| 69. | 6188.830 | -.210  | 3645.617 | -.870   | -5.520  | 3391.306 | 0.410   | 2.020   |
| 70. | 6188.390 | -.250  | 3644.467 | -1.200  | -5.250  | 3397.855 | -0.340  | 1.950   |
| 71. | 6187.886 | -.260  | 3642.951 | -1.530  | -5.000  | 3404.680 | -1.090  | 1.830   |
| 72. | 6187.331 | -.310  | 3641.071 | -1.860  | -4.760  | 3411.743 | -1.810  | 1.650   |
| 73. | 6186.736 | -.320  | 3638.829 | -2.180  | -4.410  | 3419.020 | -2.500  | 1.390   |
| 74. | 6186.118 | -.330  | 3636.229 | -2.510  | -4.120  | 3426.485 | -3.160  | 1.090   |
| 75. | 6185.483 | -.340  | 3633.274 | -2.830  | -3.830  | 3434.112 | -3.790  | 0.760   |
| 76. | 6184.842 | -.340  | 3629.972 | -3.140  | -3.540  | 3441.875 | -4.390  | 0.400   |
| 77. | 6184.206 | -.340  | 3626.327 | -3.450  | -3.250  | 3449.751 | -4.950  | 0.000   |
| 78. | 6183.583 | -.330  | 3622.346 | -3.750  | -2.970  | 3457.714 | -5.470  | -0.410  |
| 79. | 6182.981 | -.310  | 3618.036 | -4.050  | -2.650  | 3465.742 | -5.950  | -0.800  |
| 80. | 6182.407 | -.300  | 3613.412 | -4.340  | -2.420  | 3473.811 | -6.380  | -1.160  |
| 81. | 6181.869 | -.260  | 3608.477 | -4.620  | -2.150  | 3481.948 | -6.670  | -1.460  |
| 82. | 6181.371 | -.250  | 3603.244 | -4.890  | -1.850  | 3489.982 | -6.820  | -1.700  |
| 83. | 6180.920 | -.230  | 3597.723 | -5.150  | -1.630  | 3498.042 | -6.840  | -1.890  |
| 84. | 6180.520 | -.200  | 3591.926 | -5.400  | -1.370  | 3506.057 | -6.720  | -2.030  |
| 85. | 6180.174 | -.170  | 3585.866 | -5.650  | -1.130  | 3514.016 | -6.470  | -2.130  |
| 86. | 6179.887 | -.140  | 3579.557 | -5.860  | -.890   | 3521.870 | -6.100  | -2.190  |
| 87. | 6179.661 | -.100  | 3573.011 | -6.100  | -.650   | 3529.631 | -5.620  | -2.210  |
| 88. | 6179.498 | -.070  | 3566.244 | -6.300  | -.430   | 3537.286 | -5.050  | -2.160  |
| 89. | 6179.408 | -.030  | 3559.270 | -6.490  | -.230   | 3544.766 | -4.380  | -2.080  |
| 90. | 6179.367 | 0.000  | 3552.105 | -6.670  | 0.000   | 3552.105 | -3.620  | -1.970  |
| 91. | 6179.400 | .030   | 3544.766 | -6.850  | .210    | 3559.270 | -2.770  | -1.830  |
| 92. | 6179.496 | .070   | 3537.268 | -7.000  | .410    | 3566.244 | -1.810  | -1.660  |
| 93. | 6179.661 | .100   | 3529.631 | -7.130  | .580    | 3573.011 | -.840   | -1.460  |
| 94. | 6179.887 | .140   | 3521.870 | -7.250  | .750    | 3579.557 | .130    | -1.230  |
| 95. | 6180.174 | .170   | 3514.016 | -7.350  | .910    | 3585.866 | .860    | 0.000   |
| 96. | 6180.520 | .200   | 3506.057 | -7.430  | 1.070   | 3591.926 | 1.510   | .680    |
| 97. | 6180.920 | .230   | 3498.042 | -7.500  | 1.210   | 3597.723 | 2.030   | 1.310   |
| 98. | 6181.371 | .250   | 3489.982 | -7.550  | 1.340   | 3603.546 | 2.440   | 1.890   |
| 99. | 6181.869 | .280   | 3481.898 | -7.580  | 1.460   | 3608.477 | 2.760   | 2.410   |

Y-PLANE (XZ-PLANE) LITHIUM TANTALATE (WARNER ET AL)

BULK

|      | LMVEL    | LPM12  | LPM13 | FSPVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12 | SSPM13  |
|------|----------|--------|-------|----------|--------|--------|----------|--------|---------|
| 100. | 6102.407 | .300   | .530  | 3473.011 | -7.590 | 1.570  | 3613.412 | 4.340  | -2.420  |
| 101. | 6102.901 | .310   | .640  | 3465.742 | -7.580 | 1.660  | 3618.036 | 4.050  | -2.870  |
| 102. | 6103.503 | .330   | .750  | 3457.714 | -7.550 | 1.750  | 3622.346 | 3.750  | -2.470  |
| 103. | 6104.206 | .340   | .880  | 3449.751 | -7.500 | 1.820  | 3626.327 | 3.450  | -3.220  |
| 104. | 6104.842 | .340   | 1.020 | 3441.875 | -7.420 | 1.870  | 3629.972 | 3.150  | -3.940  |
| 105. | 6105.483 | .340   | 1.160 | 3434.112 | -7.320 | 1.910  | 3633.274 | 2.830  | -4.630  |
| 106. | 6106.116 | .330   | 1.310 | 3426.485 | -7.200 | 1.940  | 3636.229 | 2.510  | -4.120  |
| 107. | 6106.738 | .320   | 1.470 | 3419.020 | -7.050 | 1.950  | 3638.829 | 2.180  | -4.410  |
| 108. | 6107.331 | .310   | 1.640 | 3411.743 | -6.870 | 1.950  | 3641.071 | 1.850  | -4.700  |
| 109. | 6107.886 | .260   | 1.810 | 3404.680 | -6.670 | 1.930  | 3642.991 | 1.530  | -5.000  |
| 110. | 6108.390 | .250   | 1.990 | 3397.859 | -6.440 | 1.900  | 3644.467 | 1.200  | -5.290  |
| 111. | 6108.830 | .210   | 2.180 | 3391.306 | -6.170 | 1.850  | 3645.617 | .870   | -5.560  |
| 112. | 6109.193 | .170   | 2.370 | 3385.045 | -5.900 | 1.780  | 3646.401 | .540   | -5.800  |
| 113. | 6109.465 | .120   | 2.570 | 3379.116 | -5.610 | 1.710  | 3646.828 | .210   | -6.170  |
| 114. | 6109.629 | .060   | 2.780 | 3373.536 | -5.230 | 1.600  | 3646.874 | -.110  | -6.460  |
| 115. | 6109.670 | -.010  | 2.980 | 3368.337 | -4.860 | 1.480  | 3646.966 | -.440  | -6.740  |
| 116. | 6109.573 | -.090  | 3.200 | 3363.546 | -4.460 | 1.350  | 3646.900 | -.760  | -7.030  |
| 117. | 6109.315 | -.160  | 3.410 | 3359.197 | -4.020 | 1.190  | 3646.680 | -1.080 | -7.300  |
| 118. | 6108.893 | -.270  | 3.630 | 3355.314 | -3.560 | 1.030  | 3643.512 | -1.390 | -7.550  |
| 119. | 6108.277 | -.380  | 3.850 | 3351.927 | -3.060 | .840   | 3641.803 | -1.690 | -7.850  |
| 120. | 6107.452 | -.500  | 4.070 | 3349.064 | -2.540 | .640   | 3639.761 | -1.940 | -8.110  |
| 121. | 6106.400 | -.620  | 4.300 | 3346.752 | -1.990 | .420   | 3637.393 | -2.200 | -8.370  |
| 122. | 6105.104 | -.760  | 4.530 | 3345.019 | -1.410 | .180   | 3634.710 | -2.560 | -8.620  |
| 123. | 6103.543 | -.900  | 4.760 | 3343.891 | -.800  | -.070  | 3631.724 | -2.830 | -8.870  |
| 124. | 6101.781 | -1.060 | 4.980 | 3343.393 | -.170  | -.330  | 3628.445 | -3.030 | -9.110  |
| 125. | 6179.557 | -1.220 | 5.210 | 3343.548 | .460   | -.610  | 3624.867 | -3.340 | -9.340  |
| 126. | 6177.094 | -1.400 | 5.440 | 3344.376 | 1.150  | -.900  | 3621.055 | -3.540 | -9.560  |
| 127. | 6174.294 | -1.580 | 5.670 | 3345.904 | 1.840  | -1.200 | 3616.992 | -3.600 | -9.660  |
| 128. | 6171.136 | -1.780 | 5.890 | 3348.143 | 2.550  | -1.510 | 3612.695 | -3.400 | -9.990  |
| 129. | 6167.688 | -1.960 | 6.120 | 3351.110 | 3.260  | -1.840 | 3608.184 | -3.150 | -10.190 |
| 130. | 6163.688 | -2.150 | 6.340 | 3354.017 | 3.960  | -2.170 | 3603.466 | -2.850 | -10.310 |
| 131. | 6159.361 | -2.420 | 6.560 | 3359.269 | 4.710  | -2.500 | 3598.623 | -2.490 | -10.560 |
| 132. | 6154.610 | -2.650 | 6.780 | 3364.470 | 5.420  | -2.840 | 3593.627 | -2.140 | -10.730 |
| 133. | 6149.422 | -2.890 | 7.000 | 3370.412 | 6.120  | -3.170 | 3588.581 | -1.800 | -10.900 |
| 134. | 6143.780 | -3.130 | 7.210 | 3377.083 | 6.800  | -3.510 | 3583.376 | -1.470 | -11.060 |
| 135. | 6137.672 | -3.350 | 7.410 | 3384.454 | 7.440  | -3.840 | 3578.215 | -1.150 | -11.220 |
| 136. | 6131.086 | -3.650 | 7.620 | 3392.482 | 8.010  | -4.170 | 3573.112 | -.830  | -11.370 |
| 137. | 6124.010 | -3.920 | 7.810 | 3401.099 | 8.510  | -4.480 | 3568.157 | -.510  | -11.520 |
| 138. | 6116.434 | -4.190 | 8.010 | 3410.201 | 8.600  | -4.780 | 3563.470 | -.190  | -11.660 |
| 139. | 6108.350 | -4.470 | 8.200 | 3418.631 | 9.060  | -5.080 | 3558.224 | .130   | -11.800 |
| 140. | 6099.750 | -4.760 | 8.380 | 3426.150 | 9.500  | -5.360 | 3553.668 | .450   | -11.930 |
| 141. | 6090.630 | -5.040 | 8.550 | 3433.403 | 9.900  | -5.640 | 3548.165 | .770   | -12.030 |
| 142. | 6080.984 | -5.330 | 8.720 | 3440.886 | 10.280 | -5.940 | 3542.423 | 1.090  | -12.100 |
| 143. | 6070.812 | -5.630 | 8.880 | 3449.966 | 10.630 | -6.250 | 3536.400 | 1.410  | -12.160 |
| 144. | 6060.113 | -5.920 | 9.030 | 3459.017 | 10.960 | -6.570 | 3530.150 | 1.730  | -12.200 |
| 145. | 6048.689 | -6.210 | 9.140 | 3468.675 | 11.300 | -6.910 | 3523.620 | 2.050  | -12.240 |
| 146. | 6037.144 | -6.500 | 9.320 | 3468.025 | 11.650 | -7.210 | 3516.820 | 2.370  | -12.270 |
| 147. | 6024.885 | -6.790 | 9.440 | 3460.477 | 12.000 | -7.560 | 3509.810 | 2.690  | -12.300 |
| 148. | 6012.122 | -7.070 | 9.568 | 3457.524 | 12.320 | -7.850 | 3502.536 | 3.010  | -12.320 |
| 149. | 5998.865 | -7.350 | 9.660 | 3453.593 | 12.650 | -8.140 | 3495.040 | 3.330  | -12.340 |

|      | Y-PLANE (XZ-PLANE) LITHIUM TANTALATE (HARNER ET AL) |        |        |          |        |        |          |        |         |         |        |  |         |  |         |  |
|------|---|--------|--------|----------|--------|--------|----------|--------|---------|---------|--------|--|---------|--|---------|--|
|      | LPHI12  |        | LPHI13 |          | FSRWEL |        | FSPHI12  |        | FSPHI13 |         | SSRWEL |  | SSPHI12 |  | SSPHI13 |  |
| 150. | 5985.130  | -7.620 | 9.760  | 3448.996 | -4.600 | -8.530 | 3038.437 | -8.530 | 18.520  | -11.390 |        |  |         |  |         |  |
| 151. | 5970.933  | -7.800 | 9.840  | 3443.956 | -4.950 | -8.570 | 3657.789 | -8.570 | 17.270  | -11.420 |        |  |         |  |         |  |
| 152. | 5956.297  | -8.130 | 9.900  | 3438.632 | -5.170 | -8.560 | 3670.068 | -8.560 | 17.660  | -11.460 |        |  |         |  |         |  |
| 153. | 5941.245  | -8.370 | 9.950  | 3433.131 | -5.300 | -8.500 | 3694.125 | -8.500 | 18.340  | -11.510 |        |  |         |  |         |  |
| 154. | 5925.806  | -8.540 | 9.990  | 3427.535 | -5.376 | -8.410 | 3720.036 | -8.410 | 18.720  | -11.550 |        |  |         |  |         |  |
| 155. | 5910.010  | -8.800 | 10.010 | 3421.906 | -5.380 | -8.250 | 3743.049 | -8.250 | 19.010  | -11.590 |        |  |         |  |         |  |
| 156. | 5893.895  | -8.960 | 10.010 | 3416.291 | -5.360 | -8.130 | 3766.604 | -8.130 | 19.210  | -11.5.0 |        |  |         |  |         |  |
| 157. | 5877.580  | -9.150 | 9.990  | 3410.726 | -5.300 | -7.960 | 3780.873 | -7.960 | 19.340  | -11.500 |        |  |         |  |         |  |
| 158. | 5860.871  | -9.290 | 9.950  | 3405.245 | -5.220 | -7.760 | 3812.196 | -7.760 | 19.400  | -11.500 |        |  |         |  |         |  |
| 159. | 5844.056  | -9.400 | 9.890  | 3399.800 | -5.110 | -7.540 | 3835.692 | -7.540 | 19.380  | -11.490 |        |  |         |  |         |  |
| 160. | 5827.115  | -9.460 | 9.800  | 3394.644 | -4.960 | -7.300 | 3859.260 | -7.300 | 19.290  | -11.390 |        |  |         |  |         |  |
| 161. | 5810.104  | -9.530 | 9.680  | 3389.561 | -4.830 | -7.040 | 3882.003 | -7.040 | 19.120  | -11.260 |        |  |         |  |         |  |
| 162. | 5793.090  | -9.540 | 9.530  | 3384.649 | -4.670 | -6.770 | 3900.222 | -6.770 | 18.980  | -11.100 |        |  |         |  |         |  |
| 163. | 5776.148  | -9.510 | 9.360  | 3379.923 | -4.490 | -6.480 | 3929.412 | -6.480 | 18.570  | -10.890 |        |  |         |  |         |  |
| 164. | 5759.354  | -9.430 | 9.140  | 3375.396 | -4.250 | -6.160 | 3952.262 | -6.160 | 18.170  | -10.640 |        |  |         |  |         |  |
| 165. | 5742.795  | -9.300 | 8.890  | 3371.086 | -4.060 | -5.860 | 3974.661 | -5.860 | 17.700  | -10.350 |        |  |         |  |         |  |
| 166. | 5726.560  | -9.120 | 8.610  | 3367.002 | -3.860 | -5.530 | 3996.489 | -5.530 | 17.130  | -10.010 |        |  |         |  |         |  |
| 167. | 5710.748  | -8.860 | 8.280  | 3363.154 | -3.630 | -5.150 | 4017.624 | -5.150 | 16.480  | -9.620  |        |  |         |  |         |  |
| 168. | 5695.459  | -8.580 | 7.900  | 3359.552 | -3.390 | -4.830 | 4037.940 | -4.830 | 15.740  | -9.110  |        |  |         |  |         |  |
| 169. | 5680.803  | -8.210 | 7.480  | 3356.206 | -3.140 | -4.470 | 4057.306 | -4.470 | 14.900  | -8.600  |        |  |         |  |         |  |
| 170. | 5666.890  | -7.770 | 7.020  | 3353.125 | -2.860 | -4.050 | 4075.590 | -4.050 | 13.970  | -8.130  |        |  |         |  |         |  |
| 171. | 5653.834  | -7.270 | 6.500  | 3350.314 | -2.620 | -3.710 | 4092.660 | -3.710 | 12.940  | -7.720  |        |  |         |  |         |  |
| 172. | 5641.752  | -6.640 | 5.940  | 3347.781 | -2.340 | -3.320 | 4108.381 | -3.320 | 11.820  | -6.660  |        |  |         |  |         |  |
| 173. | 5630.757  | -6.050 | 5.330  | 3345.533 | -2.060 | -2.920 | 4122.625 | -2.920 | 10.600  | -6.130  |        |  |         |  |         |  |
| 174. | 5620.960  | -5.340 | 4.670  | 3343.574 | -1.780 | -2.510 | 4135.266 | -2.510 | 9.280   | -5.300  |        |  |         |  |         |  |
| 175. | 5612.466  | -4.560 | 3.960  | 3341.909 | -1.490 | -2.100 | 4146.166 | -2.100 | 7.890   | -4.570  |        |  |         |  |         |  |
| 176. | 5605.372  | -3.720 | 3.220  | 3340.541 | -1.200 | -1.690 | 4155.281 | -1.690 | 6.410   | -3.710  |        |  |         |  |         |  |
| 177. | 5599.760  | -2.840 | 2.450  | 3339.474 | -900   | -1.270 | 4162.457 | -1.270 | 4.870   | -2.820  |        |  |         |  |         |  |
| 178. | 5595.700  | -1.910 | 1.650  | 3338.710 | -600   | -0.850 | 4167.634 | -0.850 | 3.200   | -1.900  |        |  |         |  |         |  |
| 179. | 5593.243  | -0.560 | 0.830  | 3338.251 | -300   | -0.420 | 4174.771 | -0.420 | 1.620   | -0.920  |        |  |         |  |         |  |
| 180. | 5592.421  | 0.000  | -0.000 | 3338.096 | 0.000  | 0.000  | 4171.615 | 0.000  | -0.000  | 0.000   |        |  |         |  |         |  |

Z-PLANE (XY-PLANE) LITHIUM TANTALATE (WARNER ET AL)

BULK

|     | LNGVEL   | LPM12  | LPM13   | FSRVEL   | FSPM12  | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |
|-----|----------|--------|---------|----------|---------|--------|----------|--------|--------|
| 0.  | 5592.421 | 0.000  | 0.000   | 4171.019 | 0.000   | 0.000  | 3336.096 | 0.000  | 0.000  |
| 1.  | 5592.622 | .470   | -0.300  | 4171.020 | -1.260  | .950   | 3336.424 | .840   | 1.270  |
| 2.  | 5594.021 | .930   | -1.650  | 4168.629 | -2.500  | 1.960  | 3334.402 | 1.260  | 1.690  |
| 3.  | 5595.996 | 1.360  | -2.960  | 4184.669 | -3.730  | 2.930  | 3341.030 | 1.920  | 2.550  |
| 4.  | 5597.722 | 1.810  | -3.290  | 4199.178 | -4.910  | 3.750  | 3343.305 | 2.950  | 3.600  |
| 5.  | 5602.152 | 2.210  | -4.020  | 4152.286 | -6.060  | 4.640  | 3346.225 | 3.160  | 4.400  |
| 6.  | 5606.235 | 2.570  | -4.760  | 4143.816 | -7.150  | 5.490  | 3349.777 | 3.790  | 5.200  |
| 7.  | 5610.913 | 2.900  | -5.470  | 4134.082 | -8.190  | 6.320  | 3353.977 | 4.400  | 6.000  |
| 8.  | 5616.117 | 3.100  | -6.140  | 4123.088 | -9.150  | 7.110  | 3358.796 | 5.000  | 6.800  |
| 9.  | 5621.776 | 3.420  | -6.780  | 4110.926 | -10.050 | 7.860  | 3364.230 | 5.560  | 7.600  |
| 10. | 5627.614 | 3.610  | -7.360  | 4097.699 | -10.870 | 8.570  | 3370.269 | 6.130  | 8.400  |
| 11. | 5634.152 | 3.760  | -7.940  | 4083.507 | -11.610 | 9.240  | 3376.946 | 6.690  | 9.200  |
| 12. | 5640.711 | 3.860  | -8.460  | 4068.464 | -12.260 | 9.870  | 3384.098 | 7.220  | 10.000 |
| 13. | 5647.412 | 3.920  | -8.950  | 4052.681 | -12.830 | 10.460 | 3391.650 | 7.710  | 10.800 |
| 14. | 5654.178 | 3.930  | -9.390  | 4036.279 | -13.310 | 11.010 | 3400.127 | 8.160  | 11.600 |
| 15. | 5660.932 | 3.890  | -9.800  | 4019.380 | -13.700 | 11.530 | 3408.096 | 8.610  | 12.400 |
| 16. | 5667.683 | 3.820  | -10.170 | 4002.106 | -14.000 | 12.010 | 3416.121 | 9.000  | 13.200 |
| 17. | 5674.121 | 3.710  | -10.510 | 3984.596 | -14.190 | 12.460 | 3424.752 | 9.320  | 14.000 |
| 18. | 5680.421 | 3.560  | -10.820 | 3966.983 | -14.260 | 12.860 | 3433.732 | 9.590  | 14.800 |
| 19. | 5686.443 | 3.380  | -11.100 | 3949.414 | -14.240 | 13.260 | 3443.930 | 9.760  | 15.600 |
| 20. | 5692.138 | 3.170  | -11.350 | 3932.051 | -14.070 | 13.650 | 3455.436 | 9.870  | 16.400 |
| 21. | 5697.430 | 2.930  | -11.560 | 3915.066 | -13.760 | 14.010 | 3468.260 | 9.900  | 17.200 |
| 22. | 5702.298 | 2.670  | -11.760 | 3898.657 | -13.270 | 14.340 | 3482.427 | 9.770  | 18.000 |
| 23. | 5706.698 | 2.360  | -11.920 | 3883.047 | -12.560 | 14.670 | 3497.966 | 9.500  | 18.800 |
| 24. | 5710.572 | 2.080  | -12.070 | 3868.489 | -11.660 | 14.970 | 3514.972 | 9.090  | 19.600 |
| 25. | 5713.910 | 1.760  | -12.180 | 3855.276 | -10.470 | 15.260 | 3533.466 | 8.570  | 20.400 |
| 26. | 5716.677 | 1.420  | -12.260 | 3843.736 | -8.970  | 15.520 | 3553.476 | 7.950  | 21.200 |
| 27. | 5718.852 | 1.050  | -12.350 | 3834.233 | -7.140  | 15.760 | 3574.976 | 7.240  | 22.000 |
| 28. | 5720.416 | .720   | -12.410 | 3827.095 | -4.960  | 15.930 | 3598.061 | 6.460  | 22.800 |
| 29. | 5721.363 | .360   | -12.440 | 3822.669 | -2.570  | 16.050 | 3622.737 | 5.640  | 23.600 |
| 30. | 5721.678 | -0.000 | -12.450 | 3821.167 | 0.000   | 16.090 | 3648.046 | 4.800  | 24.400 |
| 31. | 5721.363 | -0.360 | -12.440 | 3822.669 | 2.570   | 16.050 | 3673.972 | 4.000  | 25.200 |
| 32. | 5720.416 | -0.720 | -12.410 | 3827.095 | 4.960   | 15.930 | 3700.576 | 3.240  | 26.000 |
| 33. | 5718.852 | -1.050 | -12.350 | 3834.233 | 7.140   | 15.760 | 3727.876 | 2.540  | 26.800 |
| 34. | 5716.677 | -1.420 | -12.260 | 3843.736 | 9.140   | 15.520 | 3755.876 | 1.900  | 27.600 |
| 35. | 5713.910 | -1.760 | -12.180 | 3855.276 | 10.870  | 15.260 | 3784.576 | 1.320  | 28.400 |
| 36. | 5710.572 | -2.080 | -12.070 | 3868.489 | 11.660  | 14.970 | 3813.972 | 0.800  | 29.200 |
| 37. | 5706.698 | -2.360 | -11.920 | 3883.047 | 12.560  | 14.670 | 3844.072 | 0.300  | 30.000 |
| 38. | 5702.298 | -2.670 | -11.760 | 3898.657 | 13.270  | 14.340 | 3874.872 | 0.000  | 30.800 |
| 39. | 5697.430 | -2.930 | -11.560 | 3915.066 | 13.760  | 14.010 | 3906.376 | 0.000  | 31.600 |
| 40. | 5692.138 | -3.170 | -11.350 | 3932.051 | 14.070  | 13.650 | 3938.576 | 0.000  | 32.400 |
| 41. | 5686.443 | -3.360 | -11.100 | 3949.414 | 14.240  | 13.260 | 3971.476 | 0.000  | 33.200 |
| 42. | 5680.421 | -3.560 | -10.820 | 3966.983 | 14.260  | 12.860 | 4005.076 | 0.000  | 34.000 |
| 43. | 5674.121 | -3.710 | -10.510 | 3984.596 | 14.190  | 12.460 | 4039.376 | 0.000  | 34.800 |
| 44. | 5667.683 | -3.820 | -10.170 | 4002.106 | 14.000  | 12.010 | 4074.376 | 0.000  | 35.600 |
| 45. | 5660.932 | -3.890 | -9.800  | 4019.380 | 13.700  | 11.530 | 4109.976 | 0.000  | 36.400 |
| 46. | 5654.178 | -3.930 | -9.400  | 4036.279 | 13.310  | 11.010 | 4146.276 | 0.000  | 37.200 |
| 47. | 5647.412 | -3.920 | -8.950  | 4052.681 | 12.830  | 10.460 | 4183.276 | 0.000  | 38.000 |
| 48. | 5640.711 | -3.860 | -8.460  | 4068.464 | 12.260  | 9.870  | 4220.976 | 0.000  | 38.800 |
| 49. | 5634.152 | -3.760 | -7.940  | 4083.507 | 11.610  | 9.240  | 4259.376 | 0.000  | 39.600 |



Z-PLANE (XY-PLANE) LITHIUM TANTALATE (WARNER ET AL)

BULK

|     | LMGVEL   | LPHI12 | LPHI13 | FSRWEL   | FSPHI12 | FSPHI13 | SSRWEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 5627.814 | -3.610 | -7.380 | 4097.699 | 10.870  | 8.570   | 3370.269 | -6.150  | 4.000   |
| 51. | 5621.776 | -3.420 | -6.780 | 4110.926 | 10.050  | 7.860   | 3364.230 | -5.580  | 3.680   |
| 52. | 5616.117 | -3.180 | -6.140 | 4123.088 | 9.150   | 7.110   | 3358.796 | -5.000  | 3.290   |
| 53. | 5610.913 | -2.900 | -5.470 | 4134.062 | 8.190   | 6.320   | 3353.977 | -4.400  | 2.900   |
| 54. | 5606.235 | -2.570 | -4.760 | 4143.816 | 7.150   | 5.450   | 3349.765 | -3.750  | 2.500   |
| 55. | 5602.192 | -2.210 | -4.020 | 4152.206 | 6.060   | 4.640   | 3346.225 | -3.180  | 2.100   |
| 56. | 5598.722 | -1.810 | -3.250 | 4159.178 | 4.910   | 3.750   | 3343.305 | -2.550  | 1.690   |
| 57. | 5595.996 | -1.370 | -2.460 | 4164.669 | 3.730   | 2.630   | 3341.030 | -1.920  | 1.270   |
| 58. | 5594.021 | -0.930 | -1.650 | 4168.629 | 2.500   | 1.900   | 3339.402 | -1.260  | 0.850   |
| 59. | 5592.822 | -0.470 | -0.830 | 4171.819 | 1.266   | 0.500   | 3338.424 | -0.640  | 0.420   |
| 60. | 5592.421 | 0.000  | 0.000  | 4171.819 | 0.000   | 0.000   | 3338.098 | 0.000   | 0.000   |
| 61. | 5592.822 | -0.470 | -0.830 | 4171.820 | -1.260  | -0.550  | 3338.424 | -0.640  | -0.420  |
| 62. | 5594.021 | 0.930  | 1.650  | 4168.629 | -2.500  | -1.500  | 3339.402 | 1.260   | 0.850   |
| 63. | 5595.996 | 1.360  | 2.460  | 4164.665 | -3.730  | -2.630  | 3341.030 | 1.920   | 1.270   |
| 64. | 5598.722 | 1.810  | 3.250  | 4159.178 | -4.910  | -3.750  | 3343.305 | 2.550   | 1.690   |
| 65. | 5602.152 | 2.210  | 4.020  | 4152.206 | -6.060  | -4.640  | 3346.225 | 3.180   | 2.100   |
| 66. | 5606.235 | 2.570  | 4.760  | 4143.816 | -7.150  | -5.450  | 3349.765 | 3.750   | 2.500   |
| 67. | 5610.913 | 2.900  | 5.470  | 4134.082 | -8.190  | -6.320  | 3353.977 | 4.400   | 2.900   |
| 68. | 5616.117 | 3.180  | 6.140  | 4123.088 | -9.150  | -7.110  | 3358.796 | 5.000   | 3.290   |
| 69. | 5621.776 | 3.420  | 6.780  | 4110.928 | -10.050 | -7.860  | 3364.230 | 5.580   | 3.680   |
| 70. | 5627.814 | 3.610  | 7.380  | 4097.699 | -10.870 | -8.570  | 3370.269 | 6.150   | 4.040   |
| 71. | 5634.152 | 3.760  | 7.940  | 4083.507 | -11.610 | -9.240  | 3376.890 | 6.650   | 4.400   |
| 72. | 5640.711 | 3.860  | 8.460  | 4068.464 | -12.280 | -9.870  | 3384.098 | 7.220   | 4.700   |
| 73. | 5647.412 | 3.920  | 8.950  | 4052.681 | -12.830 | -10.460 | 3391.850 | 7.710   | 5.000   |
| 74. | 5654.176 | 3.930  | 9.390  | 4036.279 | -13.310 | -11.010 | 3400.127 | 8.160   | 5.300   |
| 75. | 5660.932 | 3.850  | 9.800  | 4019.380 | -13.700 | -11.530 | 3408.896 | 8.610   | 5.600   |
| 76. | 5667.603 | 3.820  | 10.170 | 4002.108 | -14.000 | -12.010 | 3418.121 | 9.050   | 5.900   |
| 77. | 5674.121 | 3.710  | 10.510 | 3984.596 | -14.190 | -12.460 | 3427.752 | 9.320   | 6.180   |
| 78. | 5680.421 | 3.560  | 10.820 | 3966.983 | -14.280 | -12.880 | 3437.732 | 9.590   | 6.430   |
| 79. | 5686.443 | 3.360  | 11.100 | 3949.414 | -14.240 | -13.280 | 3447.990 | 9.760   | 6.650   |
| 80. | 5692.130 | 3.170  | 11.350 | 3932.051 | -14.070 | -13.650 | 3458.436 | 9.870   | 6.800   |
| 81. | 5697.430 | 2.930  | 11.560 | 3915.066 | -13.760 | -14.010 | 3469.060 | 9.860   | 6.800   |
| 82. | 5702.298 | 2.670  | 11.760 | 3898.657 | -13.270 | -14.340 | 3479.827 | 9.700   | 6.500   |
| 83. | 5706.690 | 2.380  | 11.920 | 3883.047 | -12.560 | -14.670 | 3489.666 | 9.300   | 6.000   |
| 84. | 5710.572 | 2.060  | 12.070 | 3868.489 | -11.660 | -15.000 | 3499.472 | 8.600   | 5.500   |
| 85. | 5713.910 | 1.760  | 12.180 | 3855.276 | -10.470 | -15.260 | 3508.993 | 7.600   | 4.900   |
| 86. | 5716.677 | 1.420  | 12.280 | 3843.736 | -8.970  | -15.520 | 3518.737 | 6.400   | 4.200   |
| 87. | 5718.852 | 1.080  | 12.350 | 3834.223 | -7.140  | -15.750 | 3523.578 | 5.000   | 3.400   |
| 88. | 5720.418 | 0.720  | 12.410 | 3827.095 | -4.960  | -15.930 | 3528.701 | 3.500   | 2.600   |
| 89. | 5721.363 | -0.360 | 12.440 | 3822.669 | -2.570  | -16.050 | 3532.046 | 2.000   | 1.800   |
| 90. | 5721.678 | -0.000 | 12.450 | 3821.167 | 0.000   | -16.050 | 3533.160 | -0.000  | 1.800   |
| 91. | 5721.363 | -0.360 | 12.440 | 3822.669 | 2.570   | -16.050 | 3532.046 | -2.000  | 1.800   |
| 92. | 5720.418 | -0.720 | 12.410 | 3827.095 | 4.960   | -16.050 | 3528.701 | -3.500  | 1.800   |
| 93. | 5718.852 | -1.080 | 12.350 | 3834.223 | 7.140   | -15.750 | 3523.578 | -5.000  | 1.800   |
| 94. | 5716.677 | -1.420 | 12.280 | 3843.736 | 9.970   | -15.520 | 3518.737 | -7.000  | 1.800   |
| 95. | 5713.910 | -1.760 | 12.180 | 3855.276 | 10.470  | -15.260 | 3513.578 | -8.000  | 1.800   |
| 96. | 5710.572 | -2.060 | 12.070 | 3868.489 | 11.660  | -14.670 | 3508.993 | -8.600  | 1.800   |
| 97. | 5706.690 | -2.360 | 11.920 | 3883.047 | 12.560  | -14.670 | 3499.472 | -9.300  | 1.800   |
| 98. | 5702.298 | -2.670 | 11.760 | 3898.657 | 13.270  | -14.340 | 3489.666 | -9.700  | 1.800   |
| 99. | 5697.430 | -2.930 | 11.560 | 3915.066 | 13.760  | -14.010 | 3479.827 | -9.860  | 1.800   |

Z-PLANE (XY-PLANE) LITHIUM TANTALATE (WARNER ET AL)

BULK

|      | LNGLVEL  | LPW12  | LPW13  | FSRWEL   | FSPW12  | FSPW13  | SSRWEL   | SSPW12 | SSPW13 |
|------|----------|--------|--------|----------|---------|---------|----------|--------|--------|
| 100. | 5692.130 | -3.170 | 11.350 | 3932.051 | 14.070  | -13.650 | 3450.436 | -9.670 | -6.740 |
| 101. | 5686.443 | -3.360 | 11.100 | 3949.414 | 14.240  | -13.260 | 3447.990 | -9.700 | -6.500 |
| 102. | 5680.621 | -3.560 | 10.820 | 3966.903 | 14.260  | -12.660 | 3437.732 | -9.550 | -6.330 |
| 103. | 5674.121 | -3.710 | 10.510 | 3984.596 | 14.190  | -12.460 | 3427.752 | -9.320 | -6.180 |
| 104. | 5667.883 | -3.820 | 10.170 | 4002.108 | 14.080  | -12.110 | 3416.121 | -8.990 | -5.940 |
| 105. | 5660.932 | -3.850 | 9.800  | 4019.380 | 13.700  | -11.530 | 3406.096 | -8.500 | -5.670 |
| 106. | 5654.176 | -3.920 | 9.390  | 4036.279 | 13.310  | -11.010 | 3400.127 | -8.100 | -5.300 |
| 107. | 5647.412 | -3.920 | 8.950  | 4052.681 | 12.830  | -10.460 | 3391.650 | -7.710 | -4.940 |
| 108. | 5640.711 | -3.860 | 8.460  | 4068.664 | 12.260  | -9.870  | 3384.098 | -7.220 | -4.740 |
| 109. | 5634.152 | -3.760 | 7.940  | 4083.587 | 11.610  | -9.240  | 3376.696 | -6.690 | -4.400 |
| 110. | 5627.814 | -3.610 | 7.380  | 4097.699 | 10.870  | -8.570  | 3370.269 | -6.150 | -4.070 |
| 111. | 5621.776 | -3.420 | 6.780  | 4110.928 | 10.050  | -7.860  | 3364.230 | -5.500 | -3.600 |
| 112. | 5616.117 | -3.160 | 6.140  | 4123.086 | 9.150   | -7.110  | 3358.796 | -5.000 | -3.290 |
| 113. | 5610.913 | -2.900 | 5.470  | 4134.082 | 8.190   | -6.320  | 3353.977 | -4.400 | -2.900 |
| 114. | 5606.235 | -2.570 | 4.760  | 4143.816 | 7.150   | -5.490  | 3349.765 | -3.790 | -2.500 |
| 115. | 5602.152 | -2.210 | 4.020  | 4152.206 | 6.060   | -4.640  | 3346.225 | -3.180 | -2.100 |
| 116. | 5598.722 | -1.810 | 3.250  | 4159.178 | 4.910   | -3.750  | 3343.305 | -2.550 | -1.690 |
| 117. | 5595.998 | -1.380 | 2.460  | 4164.669 | 3.730   | -2.830  | 3341.030 | -1.920 | -1.270 |
| 118. | 5594.021 | -0.930 | 1.650  | 4168.629 | 2.500   | -1.900  | 3339.402 | -1.260 | -0.850 |
| 119. | 5592.621 | -0.470 | 0.830  | 4171.020 | 1.260   | -1.000  | 3338.094 | -0.640 | -0.420 |
| 120. | 5592.421 | 0.000  | 0.000  | 4171.020 | 0.000   | 0.000   | 3338.094 | 0.000  | 0.000  |
| 121. | 5592.022 | .470   | .830   | 4171.020 | -1.260  | .950    | 3338.094 | .640   | .420   |
| 122. | 5594.021 | 1.380  | 2.460  | 4168.629 | -3.730  | 2.830   | 3339.402 | -1.920 | -1.270 |
| 123. | 5595.998 | 2.210  | 3.250  | 4164.669 | -4.910  | 4.640   | 3343.305 | -3.180 | -2.100 |
| 124. | 5598.722 | 2.900  | 4.020  | 4159.178 | -6.060  | 5.490   | 3346.225 | -3.790 | -2.500 |
| 125. | 5602.152 | 3.160  | 4.760  | 4152.206 | -7.150  | 6.320   | 3349.765 | -4.400 | -2.900 |
| 126. | 5606.235 | 3.200  | 5.470  | 4143.816 | -8.190  | 7.110   | 3353.977 | -5.000 | -3.290 |
| 127. | 5610.913 | 3.160  | 6.140  | 4134.082 | -9.150  | 7.860   | 3358.796 | -5.500 | -3.600 |
| 128. | 5616.117 | 3.420  | 6.780  | 4123.086 | -10.050 | 8.570   | 3364.230 | -6.150 | -4.000 |
| 129. | 5621.776 | 3.420  | 7.380  | 4110.928 | -10.870 | 9.240   | 3370.269 | -6.690 | -4.400 |
| 130. | 5627.814 | 3.610  | 7.940  | 4097.699 | -11.610 | 9.870   | 3376.696 | -7.220 | -4.740 |
| 131. | 5634.152 | 3.760  | 8.460  | 4083.587 | -12.260 | 10.460  | 3384.098 | -7.710 | -5.070 |
| 132. | 5640.711 | 3.860  | 8.950  | 4068.664 | -12.660 | 11.010  | 3391.650 | -8.100 | -5.300 |
| 133. | 5647.412 | 3.920  | 9.390  | 4052.681 | -13.260 | 11.530  | 3400.127 | -8.500 | -5.670 |
| 134. | 5654.152 | 3.920  | 9.800  | 4036.279 | -13.700 | 12.010  | 3406.096 | -8.990 | -6.000 |
| 135. | 5660.932 | 3.850  | 10.170 | 4019.380 | -14.000 | 12.460  | 3416.121 | -9.320 | -6.330 |
| 136. | 5667.883 | 3.620  | 10.510 | 4002.108 | -14.190 | 12.660  | 3427.752 | -9.550 | -6.500 |
| 137. | 5674.121 | 3.560  | 10.820 | 3984.596 | -14.260 | 12.860  | 3437.732 | -9.700 | -6.690 |
| 138. | 5680.621 | 3.560  | 11.100 | 3966.903 | -14.240 | 13.260  | 3447.990 | -9.740 | -6.850 |
| 139. | 5686.443 | 3.560  | 11.350 | 3949.414 | -14.070 | 13.650  | 3458.436 | -9.670 | -7.010 |
| 140. | 5692.130 | 3.560  | 11.560 | 3932.051 | -13.760 | 14.010  | 3469.990 | -9.500 | -7.180 |
| 141. | 5702.298 | 2.930  | 11.760 | 3915.066 | -13.270 | 14.340  | 3480.127 | -9.200 | -7.300 |
| 142. | 5706.690 | 2.670  | 11.920 | 3898.067 | -13.270 | 14.670  | 3490.472 | -8.850 | -7.400 |
| 143. | 5710.572 | 2.360  | 12.070 | 3883.047 | -12.580 | 14.970  | 3499.472 | -8.500 | -7.500 |
| 144. | 5713.910 | 2.080  | 12.180 | 3868.409 | -11.660 | 15.260  | 3508.593 | -8.070 | -7.500 |
| 145. | 5716.677 | 1.760  | 12.180 | 3855.276 | -10.470 | 15.520  | 3516.737 | -7.610 | -7.500 |
| 146. | 5718.852 | 1.420  | 12.280 | 3843.736 | -9.570  | 15.750  | 3523.578 | -7.140 | -7.500 |
| 147. | 5720.418 | 1.080  | 12.350 | 3834.223 | -8.570  | 15.930  | 3528.761 | -6.610 | -7.500 |
| 148. | 5721.363 | .720   | 12.410 | 3827.095 | -7.570  | 16.050  | 3532.046 | -6.150 | -7.500 |
| 149. |          | .360   | 12.440 | 3822.669 | -2.570  |         |          |        |        |

Z-PLANE (XY-PLANE) LITHIUM TANTALATE (WARNER ET AL)

BULK

|      | LNGVEL   | LPHI12 | LPHI13  | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 150. | 5721.676 | 0.000  | -12.450 | 3821.167 | 0.000   | 16.090  | 3533.160 | -0.000  | 0.720   |
| 151. | 5721.363 | -0.360 | -12.440 | 3822.669 | 2.570   | 16.050  | 3532.046 | -2.000  | 6.160   |
| 152. | 5720.418 | -7.720 | -12.410 | 3827.095 | 4.980   | 15.930  | 3528.781 | -3.970  | 6.010   |
| 153. | 5716.052 | -1.060 | -12.350 | 3834.223 | 7.140   | 15.750  | 3523.578 | -5.640  | 6.000   |
| 154. | 5716.677 | -1.420 | -12.280 | 3843.736 | 6.970   | 15.520  | 3516.737 | -7.010  | 6.990   |
| 155. | 5710.910 | -1.760 | -12.180 | 3855.276 | 10.470  | 15.260  | 3506.593 | -8.070  | 6.990   |
| 156. | 5710.572 | -2.000 | -12.070 | 3868.469 | 11.660  | 14.970  | 3499.472 | -8.650  | 7.000   |
| 157. | 5708.690 | -2.300 | -11.920 | 3883.047 | 12.980  | 14.670  | 3489.666 | -9.360  | 6.990   |
| 158. | 5702.298 | -2.670 | -11.760 | 3898.657 | 13.270  | 14.340  | 3479.427 | -9.700  | 6.990   |
| 159. | 5697.430 | -2.930 | -11.560 | 3915.066 | 13.760  | 14.010  | 3468.960 | -9.860  | 6.960   |
| 160. | 5692.130 | -3.170 | -11.350 | 3932.051 | 14.070  | 13.650  | 3458.436 | -9.670  | 6.740   |
| 161. | 5686.443 | -3.380 | -11.100 | 3949.414 | 14.240  | 13.280  | 3447.990 | -9.700  | 6.500   |
| 162. | 5680.421 | -3.560 | -10.820 | 3966.983 | 14.280  | 12.660  | 3437.732 | -9.590  | 6.350   |
| 163. | 5674.121 | -3.710 | -10.510 | 3984.596 | 14.190  | 12.460  | 3427.752 | -9.320  | 6.160   |
| 164. | 5667.603 | -3.820 | -10.170 | 4002.106 | 14.000  | 12.010  | 3416.121 | -8.990  | 5.990   |
| 165. | 5660.932 | -3.890 | -9.800  | 4019.360 | 13.700  | 11.530  | 3403.996 | -8.610  | 5.670   |
| 166. | 5654.176 | -3.930 | -9.390  | 4036.279 | 13.310  | 11.010  | 3400.127 | -8.180  | 5.360   |
| 167. | 5647.412 | -3.920 | -8.950  | 4052.661 | 12.830  | 10.460  | 3391.650 | -7.710  | 5.070   |
| 168. | 5640.711 | -3.860 | -8.460  | 4068.464 | 12.260  | 9.870   | 3384.096 | -7.220  | 4.740   |
| 169. | 5634.152 | -3.760 | -7.940  | 4083.507 | 11.610  | 9.240   | 3376.898 | -6.690  | 4.400   |
| 170. | 5627.614 | -3.610 | -7.380  | 4097.699 | 10.670  | 8.570   | 3370.269 | -6.150  | 4.040   |
| 171. | 5621.776 | -3.420 | -6.780  | 4110.928 | 10.050  | 7.860   | 3364.230 | -5.560  | 3.600   |
| 172. | 5616.117 | -3.180 | -6.140  | 4123.068 | 9.150   | 7.110   | 3358.796 | -5.000  | 3.290   |
| 173. | 5610.913 | -2.900 | -5.470  | 4134.082 | 6.190   | 6.320   | 3353.977 | -4.400  | 2.990   |
| 174. | 5606.235 | -2.570 | -4.760  | 4143.816 | 7.150   | 5.490   | 3349.785 | -3.790  | 2.500   |
| 175. | 5602.152 | -2.210 | -4.020  | 4152.216 | 6.060   | 4.640   | 3346.225 | -3.180  | 2.100   |
| 176. | 5598.722 | -1.810 | -3.250  | 4159.178 | 4.910   | 3.750   | 3343.305 | -2.520  | 1.690   |
| 177. | 5595.998 | -1.360 | -2.460  | 4164.669 | 3.730   | 2.830   | 3341.030 | -1.920  | 1.270   |
| 178. | 5594.021 | -0.930 | -1.650  | 4168.659 | 2.500   | 1.900   | 3339.482 | -1.280  | 0.850   |
| 179. | 5592.822 | -0.470 | -0.830  | 4171.020 | 1.266   | 0.950   | 3338.424 | -0.640  | 0.420   |
| 180. | 5592.421 | 0.000  | 0.000   | 4171.619 | -0.000  | -0.000  | 3338.096 | 0.000   | -0.000  |

|     | 2-PLANE (XY-PLANE) MAGNESIUM OXIDE |        |        |          |         |         |          |         |         |       | BULK  |       |  |
|-----|------------------------------------|--------|--------|----------|---------|---------|----------|---------|---------|-------|-------|-------|--|
|     | LMSVEL                             | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |       |       |       |  |
| 0.  | 9095.272                           | 0.000  | 0.000  | 6596.404 | 0.000   | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 1.  | 9096.711                           | 1.040  | 0.000  | 6596.415 | -1.970  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 2.  | 9101.010                           | 2.060  | 0.000  | 6590.488 | -3.920  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 3.  | 9100.100                           | 3.050  | 0.000  | 6590.674 | -5.830  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 4.  | 9117.912                           | 4.000  | 0.000  | 6567.083 | -7.670  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 5.  | 9130.294                           | 4.950  | 0.000  | 6545.858 | -9.430  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 6.  | 9145.099                           | 5.710  | 0.000  | 6529.170 | -11.100 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 7.  | 9162.151                           | 6.460  | 0.000  | 6505.221 | -12.660 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 8.  | 9181.254                           | 7.140  | 0.000  | 6478.231 | -14.120 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 9.  | 9202.206                           | 7.730  | 0.000  | 6448.435 | -15.460 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 10. | 9224.795                           | 8.250  | 0.000  | 6416.079 | -16.680 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 11. | 9248.809                           | 8.680  | 0.000  | 6381.414 | -17.790 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 12. | 9274.038                           | 9.050  | 0.000  | 6344.692 | -18.790 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 13. | 9300.278                           | 9.330  | 0.000  | 6306.166 | -19.670 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 14. | 9327.331                           | 9.550  | 0.000  | 6266.083 | -20.450 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 15. | 9355.000                           | 9.710  | 0.000  | 6224.688 | -21.120 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 16. | 9383.129                           | 9.800  | 0.000  | 6182.216 | -21.700 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 17. | 9411.526                           | 9.840  | 0.000  | 6138.999 | -22.170 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 18. | 9440.042                           | 9.820  | 0.000  | 6094.959 | -22.550 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 19. | 9468.527                           | 9.760  | 0.000  | 6050.011 | -22.840 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 20. | 9496.846                           | 9.650  | 0.000  | 6006.065 | -23.040 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 21. | 9524.872                           | 9.510  | 0.000  | 5961.520 | -23.150 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 22. | 9552.466                           | 9.320  | 0.000  | 5917.172 | -23.160 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 23. | 9579.580                           | 9.110  | 0.000  | 5873.207 | -23.100 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 24. | 9606.054                           | 8.860  | 0.000  | 5829.806 | -22.940 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 25. | 9631.815                           | 8.580  | 0.000  | 5787.145 | -22.690 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 26. | 9656.779                           | 8.260  | 0.000  | 5745.392 | -22.360 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 27. | 9680.866                           | 7.960  | 0.000  | 5704.706 | -21.930 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 28. | 9704.011                           | 7.620  | 0.000  | 5665.252 | -21.420 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 29. | 9726.142                           | 7.250  | 0.000  | 5627.173 | -20.820 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 30. | 9747.281                           | 6.870  | 0.000  | 5590.616 | -20.120 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 31. | 9767.133                           | 6.480  | 0.000  | 5555.719 | -19.330 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 32. | 9785.890                           | 6.070  | 0.000  | 5522.614 | -18.460 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 33. | 9803.428                           | 5.640  | 0.000  | 5491.425 | -17.460 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 34. | 9819.699                           | 5.210  | 0.000  | 5462.272 | -16.420 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 35. | 9834.674                           | 4.770  | 0.000  | 5435.263 | -15.270 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 36. | 9848.316                           | 4.310  | 0.000  | 5410.503 | -14.030 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 37. | 9860.601                           | 3.850  | 0.000  | 5386.885 | -12.710 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 38. | 9871.497                           | 3.390  | 0.000  | 5366.095 | -11.320 | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 39. | 9880.985                           | 2.910  | 0.000  | 5350.611 | -9.650  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 40. | 9889.045                           | 2.440  | 0.000  | 5335.700 | -8.310  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 41. | 9895.661                           | 1.950  | 0.000  | 5323.420 | -6.720  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 42. | 9898.829                           | 1.470  | 0.000  | 5313.819 | -5.080  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 43. | 9898.512                           | .948   | 0.000  | 5306.934 | -3.410  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 44. | 9896.730                           | .450   | 0.000  | 5302.792 | -1.710  | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 45. | 9897.470                           | 0.000  | 0.000  | 5301.409 | 0.000   | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 46. | 9896.730                           | -0.450 | 0.000  | 5302.792 | 1.710   | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 47. | 9894.512                           | -0.900 | 0.000  | 5306.934 | 3.410   | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 48. | 9890.820                           | -1.470 | 0.000  | 5313.819 | 5.080   | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |
| 49. | 9885.661                           | -1.950 | 0.000  | 5323.420 | 6.720   | 0.000   | 6596.404 | 0.000   | 0.000   | 0.000 | 0.000 | 0.000 |  |

Z-PLANE (XY-PLANE) MAGNESIUM OXIDE

BULK

|     | LNGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 9009.045 | -2.440 | 0.000  | 5335.700 | 0.310   | 0.000   | 6590.404 | -0.000  | 0.000   |
| 51. | 9000.985 | -2.910 | 0.000  | 5350.611 | 9.850   | 0.000   | 6596.404 | -0.000  | 0.000   |
| 52. | 9071.697 | -3.150 | 0.000  | 5360.095 | 11.320  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 53. | 9068.601 | -3.050 | 0.000  | 5308.085 | 12.710  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 54. | 9068.316 | -4.310 | 0.000  | 5410.505 | 14.030  | 0.000   | 6590.404 | -0.000  | 0.000   |
| 55. | 9034.674 | -4.770 | 0.000  | 5435.263 | 15.270  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 56. | 9019.699 | -5.210 | 0.000  | 5462.272 | 16.420  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 57. | 9003.426 | -5.640 | 0.000  | 5491.425 | 17.460  | 0.000   | 6590.404 | -0.000  | 0.000   |
| 58. | 9765.890 | -6.070 | 0.000  | 5522.614 | 18.460  | 0.000   | 6590.404 | -0.000  | 0.000   |
| 59. | 9767.133 | -6.460 | 0.000  | 5555.719 | 19.330  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 60. | 9787.201 | -6.870 | 0.000  | 5590.616 | 20.120  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 61. | 9726.142 | -7.250 | 0.000  | 5627.173 | 20.820  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 62. | 9704.011 | -7.620 | 0.000  | 5665.252 | 21.420  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 63. | 9680.866 | -7.960 | 0.000  | 5704.706 | 21.930  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 64. | 9656.774 | -8.280 | 0.000  | 5745.392 | 22.360  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 65. | 9631.815 | -8.580 | 0.000  | 5787.145 | 22.690  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 66. | 9606.054 | -8.860 | 0.000  | 5829.806 | 22.940  | 0.000   | 6590.404 | -0.000  | 0.000   |
| 67. | 9579.580 | -9.110 | 0.000  | 5873.207 | 23.100  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 68. | 9552.486 | -9.320 | 0.000  | 5917.172 | 23.160  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 69. | 9524.872 | -9.510 | 0.000  | 5961.520 | 23.150  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 70. | 9496.546 | -9.650 | 0.000  | 6006.065 | 23.040  | 0.000   | 6590.404 | -0.000  | 0.000   |
| 71. | 9468.527 | -9.760 | 0.000  | 6050.611 | 22.846  | 0.000   | 6590.404 | -0.000  | 0.000   |
| 72. | 9440.042 | -9.820 | 0.000  | 6094.959 | 22.550  | 0.000   | 6590.404 | -0.000  | 0.000   |
| 73. | 9411.526 | -9.840 | 0.000  | 6138.899 | 22.170  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 74. | 9383.125 | -9.800 | 0.000  | 6182.216 | 21.700  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 75. | 9355.008 | -9.710 | 0.000  | 6224.606 | 21.120  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 76. | 9327.331 | -9.550 | 0.000  | 6266.083 | 20.450  | 0.000   | 6590.404 | -0.000  | 0.000   |
| 77. | 9300.278 | -9.330 | 0.000  | 6306.166 | 19.670  | 0.000   | 6590.404 | -0.000  | 0.000   |
| 78. | 9274.038 | -9.050 | 0.000  | 6344.692 | 18.790  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 79. | 9248.805 | -8.660 | 0.000  | 6381.414 | 17.790  | 0.000   | 6590.404 | -0.000  | 0.000   |
| 80. | 9224.795 | -8.250 | 0.000  | 6416.079 | 16.660  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 81. | 9202.206 | -7.730 | 0.000  | 6448.435 | 15.460  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 82. | 9181.254 | -7.140 | 0.000  | 6478.231 | 14.120  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 83. | 9162.151 | -6.460 | 0.000  | 6505.221 | 12.660  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 84. | 9145.095 | -5.710 | 0.000  | 6529.170 | 11.100  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 85. | 9130.294 | -4.650 | 0.000  | 6549.856 | 9.430   | 0.000   | 6590.404 | -0.000  | 0.000   |
| 86. | 9117.912 | -4.000 | 0.000  | 6567.083 | 7.670   | 0.000   | 6590.404 | 0.000   | 0.000   |
| 87. | 9108.108 | -3.050 | 0.000  | 6580.674 | 5.830   | 0.000   | 6590.404 | 0.000   | 0.000   |
| 88. | 9101.010 | -2.060 | 0.000  | 6590.488 | 3.920   | 0.000   | 6590.404 | 0.000   | 0.000   |
| 89. | 9086.711 | -1.840 | 0.000  | 6596.415 | 1.970   | 0.000   | 6590.404 | -0.000  | 0.000   |
| 90. | 9085.272 | 0.000  | 0.000  | 6598.404 | -0.000  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 91. | 9096.711 | 1.840  | 0.000  | 6596.419 | -1.970  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 92. | 9101.010 | 2.060  | 0.000  | 6590.486 | -3.920  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 93. | 9108.108 | 3.050  | 0.000  | 6580.674 | -5.830  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 94. | 9117.912 | 4.000  | 0.000  | 6567.083 | -7.670  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 95. | 9130.294 | 4.890  | 0.000  | 6549.856 | -9.430  | 0.000   | 6590.404 | 0.000   | 0.000   |
| 96. | 9145.095 | 5.710  | 0.000  | 6529.170 | -11.100 | 0.000   | 6590.404 | 0.000   | 0.000   |
| 97. | 9162.151 | 6.460  | 0.000  | 6505.221 | -12.660 | 0.000   | 6590.404 | -0.000  | 0.000   |
| 98. | 9181.254 | 7.140  | 0.000  | 6478.231 | -14.120 | 0.000   | 6590.404 | 0.000   | 0.000   |
| 99. | 9202.206 | 7.730  | 0.000  | 6448.435 | -15.460 | 0.000   | 6590.404 | 0.000   | 0.000   |

Z-PLANE (XY-PLANE) MAGNESIUM OXIDE

|      | LMGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 109. | 9224.795 | 8.250  | 0.000  | 6416.074 | -16.660 | 0.000   | 6598.404 | 0.000   | 0.000   |
| 109. | 9248.889 | 8.600  | 0.000  | 6381.414 | -17.790 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 109. | 9274.038 | 9.050  | 0.000  | 6344.692 | -18.750 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 109. | 9300.278 | 9.330  | 0.000  | 6306.166 | -19.670 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 109. | 9327.731 | 9.550  | 0.000  | 6266.003 | -20.450 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 109. | 9355.088 | 9.710  | 0.000  | 6224.686 | -21.120 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 109. | 9383.129 | 9.800  | 0.000  | 6182.216 | -21.700 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 107. | 9411.526 | 9.840  | 0.000  | 6138.699 | -22.170 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 109. | 9440.842 | 9.820  | 0.000  | 6094.959 | -22.550 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 109. | 9468.527 | 9.760  | 0.000  | 6050.611 | -22.840 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 110. | 9496.846 | 9.650  | 0.000  | 6006.065 | -23.040 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 111. | 9524.872 | 9.510  | 0.000  | 5961.520 | -23.150 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 112. | 9552.486 | 9.320  | 0.000  | 5917.172 | -23.160 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 113. | 9579.580 | 9.110  | 0.000  | 5873.207 | -23.100 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 114. | 9606.854 | 8.860  | 0.000  | 5829.806 | -22.940 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 115. | 9631.815 | 8.590  | 0.000  | 5787.145 | -22.690 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 116. | 9656.779 | 8.260  | 0.000  | 5745.392 | -22.360 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 117. | 9680.860 | 7.960  | 0.000  | 5704.706 | -21.930 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 118. | 9704.011 | 7.620  | 0.000  | 5665.252 | -21.420 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 119. | 9726.142 | 7.250  | 0.000  | 5627.173 | -20.820 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 120. | 9747.201 | 6.870  | 0.000  | 5590.616 | -20.120 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 121. | 9767.133 | 6.480  | 0.000  | 5555.719 | -19.330 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 122. | 9785.890 | 6.070  | 0.000  | 5522.614 | -18.460 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 123. | 9803.426 | 5.640  | 0.000  | 5491.425 | -17.460 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 124. | 9819.695 | 5.210  | 0.000  | 5462.272 | -16.420 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 125. | 9834.674 | 4.770  | 0.000  | 5435.263 | -15.270 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 126. | 9848.316 | 4.310  | 0.000  | 5410.503 | -14.030 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 127. | 9860.601 | 3.850  | 0.000  | 5386.885 | -12.710 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 128. | 9871.497 | 3.390  | 0.000  | 5366.095 | -11.320 | 0.000   | 6598.404 | -0.000  | 0.000   |
| 129. | 9880.985 | 2.910  | 0.000  | 5350.611 | -9.850  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 130. | 9889.045 | 2.440  | 0.000  | 5335.700 | -8.310  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 131. | 9895.661 | 1.950  | 0.000  | 5323.420 | -6.720  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 132. | 9900.820 | 1.470  | 0.000  | 5313.819 | -5.060  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 133. | 9904.512 | .960   | 0.000  | 5306.934 | -3.410  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 134. | 9906.730 | -0.490 | 0.000  | 5302.792 | -1.710  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 135. | 9907.470 | -0.990 | 0.000  | 5301.409 | 0.000   | 0.000   | 6598.404 | -0.000  | 0.000   |
| 136. | 9906.730 | -1.490 | 0.000  | 5302.792 | 1.710   | 0.000   | 6598.404 | -0.000  | 0.000   |
| 137. | 9904.512 | -1.990 | 0.000  | 5306.934 | 3.410   | 0.000   | 6598.404 | -0.000  | 0.000   |
| 138. | 9900.820 | -2.470 | 0.000  | 5313.819 | 5.060   | 0.000   | 6598.404 | -0.000  | 0.000   |
| 139. | 9895.661 | -2.910 | 0.000  | 5323.420 | 6.720   | 0.000   | 6598.404 | -0.000  | 0.000   |
| 140. | 9889.045 | -3.390 | 0.000  | 5335.700 | 8.310   | 0.000   | 6598.404 | -0.000  | 0.000   |
| 141. | 9880.985 | -3.850 | 0.000  | 5350.611 | 9.850   | 0.000   | 6598.404 | -0.000  | 0.000   |
| 142. | 9871.497 | -4.310 | 0.000  | 5366.095 | 11.320  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 143. | 9860.601 | -4.770 | 0.000  | 5386.885 | 12.710  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 144. | 9848.316 | -5.210 | 0.000  | 5410.503 | 14.030  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 145. | 9834.674 | -5.640 | 0.000  | 5435.263 | 15.270  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 146. | 9819.695 | -6.070 | 0.000  | 5462.272 | 16.420  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 147. | 9803.426 | -6.480 | 0.000  | 5491.425 | 17.460  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 148. | 9785.890 | -6.870 | 0.000  | 5522.614 | 18.460  | 0.000   | 6598.404 | -0.000  | 0.000   |
| 149. | 9767.133 | -7.250 | 0.000  | 5555.719 | 19.330  | 0.000   | 6598.404 | -0.000  | 0.000   |

Z-PLANE (XY-PLANE) MAGNESIUM OXIDE

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 9747.201 | -6.870 | 0.000  | 5590.616 | 20.120  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 151. | 9726.142 | -7.250 | 0.000  | 5627.473 | 20.820  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 152. | 9704.011 | -7.620 | 0.000  | 5665.252 | 21.420  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 153. | 9680.866 | -7.960 | 0.000  | 5704.706 | 21.930  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 154. | 9656.779 | -8.280 | 0.000  | 5745.392 | 22.360  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 155. | 9631.815 | -8.580 | 0.000  | 5787.145 | 22.690  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 156. | 9606.054 | -8.860 | 0.000  | 5829.806 | 22.940  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 157. | 9579.580 | -9.110 | 0.000  | 5873.207 | 23.100  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 158. | 9552.486 | -9.320 | 0.000  | 5917.172 | 23.160  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 159. | 9524.872 | -9.510 | 0.000  | 5961.520 | 23.150  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 160. | 9496.846 | -9.650 | 0.000  | 6006.065 | 23.040  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 161. | 9468.527 | -9.760 | 0.000  | 6050.611 | 22.840  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 162. | 9440.042 | -9.820 | 0.000  | 6094.959 | 22.550  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 163. | 9411.526 | -9.840 | 0.000  | 6138.899 | 22.170  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 164. | 9383.129 | -9.800 | 0.000  | 6182.216 | 21.700  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 165. | 9355.008 | -9.710 | 0.000  | 6224.666 | 21.120  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 166. | 9327.331 | -9.550 | 0.000  | 6266.883 | 20.450  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 167. | 9300.276 | -9.330 | 0.000  | 6308.166 | 19.670  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 168. | 9274.038 | -9.050 | 0.000  | 6344.692 | 18.790  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 169. | 9248.809 | -8.680 | 0.000  | 6381.414 | 17.790  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 170. | 9224.795 | -8.250 | 0.000  | 6418.079 | 16.660  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 171. | 9202.206 | -7.730 | 0.000  | 6448.835 | 15.460  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 172. | 9181.254 | -7.140 | 0.000  | 6478.231 | 14.120  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 173. | 9162.151 | -6.460 | 0.000  | 6505.221 | 12.660  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 174. | 9145.099 | -5.710 | 0.000  | 6529.170 | 11.100  | 0.000   | 6598.404 | 0.000   | 0.000   |
| 175. | 9130.294 | -4.850 | 0.000  | 6549.856 | 9.430   | 0.000   | 6598.404 | 0.000   | 0.000   |
| 176. | 9117.912 | -4.000 | 0.000  | 6567.083 | 7.670   | 0.000   | 6598.404 | 0.000   | 0.000   |
| 177. | 9108.108 | -3.050 | 0.000  | 6580.674 | 5.830   | 0.000   | 6598.404 | 0.000   | 0.000   |
| 178. | 9101.010 | -2.060 | 0.000  | 6590.480 | 3.920   | 0.000   | 6598.404 | 0.000   | 0.000   |
| 179. | 9096.711 | -1.040 | 0.000  | 6596.419 | 1.970   | 0.000   | 6598.404 | 0.000   | 0.000   |
| 180. | 9095.272 | 0.000  | 0.000  | 6598.404 | -0.000  | 0.000   | 6598.404 | 0.000   | 0.000   |

BULK

111-PLANE MAGNESIUM OXIDE

|     | LNQVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13  | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|---------|---------|----------|--------|--------|
| 0.  | 9907.470 | -0.000 | 0.000  | 6598.404 | -0.000  | 0.000   | 5301.409 | 0.000  | 0.000  |
| 1.  | 9907.505 | .060   | .400   | 6597.625 | -0.760  | -0.550  | 5302.166 | .940   | -0.250 |
| 2.  | 9907.926 | .150   | .800   | 6595.290 | -1.550  | -1.690  | 5304.431 | 1.670  | -1.630 |
| 3.  | 9908.491 | .220   | 1.190  | 6591.411 | -2.310  | -2.640  | 5306.137 | 2.790  | -2.170 |
| 4.  | 9909.272 | .290   | 1.590  | 6586.005 | -3.070  | -3.800  | 5333.446 | 3.690  | -2.870 |
| 5.  | 9910.260 | .360   | 1.970  | 6579.097 | -3.810  | -4.540  | 5350.157 | 4.580  | -3.210 |
| 6.  | 9911.444 | .420   | 2.350  | 6570.716 | -4.540  | -5.240  | 5376.301 | 5.440  | -3.720 |
| 7.  | 9912.809 | .480   | 2.720  | 6560.907 | -5.240  | -5.930  | 5397.641 | 6.260  | -4.210 |
| 8.  | 9914.341 | .530   | 3.080  | 6549.712 | -5.930  | -6.590  | 5418.736 | 7.060  | -4.660 |
| 9.  | 9916.020 | .580   | 3.430  | 6537.184 | -6.590  | -7.210  | 5436.935 | 7.810  | -5.140 |
| 10. | 9917.827 | .620   | 3.770  | 6523.365 | -7.210  | -7.810  | 5452.863 | 8.520  | -5.550 |
| 11. | 9919.743 | .650   | 4.100  | 6508.304 | -7.810  | -8.380  | 5469.015 | 9.180  | -5.890 |
| 12. | 9921.744 | .670   | 4.410  | 6492.260 | -8.380  | -8.930  | 5484.757 | 9.790  | -6.160 |
| 13. | 9923.809 | .690   | 4.710  | 6475.097 | -8.930  | -9.460  | 5499.520 | 10.340 | -6.350 |
| 14. | 9925.915 | .700   | 4.990  | 6456.993 | -9.340  | -9.970  | 5499.236 | 10.820 | -6.470 |
| 15. | 9928.076 | .700   | 5.260  | 6438.056 | -9.750  | -10.460 | 5487.776 | 11.230 | -6.510 |
| 16. | 9930.154 | .700   | 5.520  | 6418.407 | -10.100 | -10.930 | 5477.036 | 11.570 | -6.460 |
| 17. | 9932.242 | .680   | 5.750  | 6398.101 | -10.300 | -11.380 | 5467.936 | 11.830 | -6.330 |
| 18. | 9934.278 | .660   | 5.970  | 6377.534 | -10.550 | -11.800 | 5459.156 | 12.040 | -6.160 |
| 19. | 9936.240 | .630   | 6.180  | 6356.640 | -10.700 | -12.190 | 5450.304 | 12.200 | -5.960 |
| 20. | 9938.107 | .600   | 6.360  | 6335.702 | -10.850 | -12.560 | 5441.742 | 12.330 | -5.730 |
| 21. | 9939.861 | .560   | 6.530  | 6314.954 | -10.970 | -12.910 | 5433.742 | 12.430 | -5.480 |
| 22. | 9941.482 | .510   | 6.680  | 6294.669 | -11.050 | -13.240 | 5426.393 | 12.500 | -5.220 |
| 23. | 9942.994 | .460   | 6.820  | 6275.164 | -11.100 | -13.560 | 5419.690 | 12.540 | -4.950 |
| 24. | 9944.282 | .400   | 6.930  | 6256.805 | -11.130 | -13.870 | 5413.590 | 12.560 | -4.680 |
| 25. | 9945.392 | .340   | 7.030  | 6240.027 | -11.140 | -14.170 | 5408.040 | 12.560 | -4.410 |
| 26. | 9946.332 | .280   | 7.110  | 6225.288 | -11.130 | -14.460 | 5403.000 | 12.540 | -4.140 |
| 27. | 9947.074 | .210   | 7.170  | 6213.094 | -11.100 | -14.740 | 5398.510 | 12.500 | -3.870 |
| 28. | 9947.605 | .140   | 7.220  | 6203.937 | -11.050 | -15.010 | 5394.510 | 12.440 | -3.600 |
| 29. | 9947.932 | .070   | 7.250  | 6203.937 | -11.000 | -15.270 | 5391.040 | 12.370 | -3.330 |
| 30. | 9948.040 | -0.000 | 7.260  | 6196.311 | -10.940 | -15.520 | 5388.040 | 12.290 | -3.060 |
| 31. | 9947.932 | -0.070 | 7.250  | 6190.244 | -10.870 | -15.760 | 5385.460 | 12.200 | -2.790 |
| 32. | 9947.605 | -0.140 | 7.220  | 6203.937 | -10.790 | -16.000 | 5383.240 | 12.100 | -2.520 |
| 33. | 9947.074 | -0.210 | 7.170  | 6213.094 | -10.700 | -16.230 | 5381.310 | 12.000 | -2.250 |
| 34. | 9946.332 | -0.280 | 7.110  | 6225.288 | -10.600 | -16.460 | 5379.610 | 11.890 | -1.980 |
| 35. | 9945.392 | -0.340 | 7.030  | 6235.288 | -10.500 | -16.690 | 5378.090 | 11.770 | -1.710 |
| 36. | 9944.282 | -0.400 | 6.930  | 6240.027 | -10.400 | -16.920 | 5376.690 | 11.650 | -1.440 |
| 37. | 9942.994 | -0.460 | 6.820  | 6256.805 | -10.300 | -17.150 | 5375.360 | 11.530 | -1.170 |
| 38. | 9941.482 | -0.510 | 6.680  | 6275.164 | -10.200 | -17.380 | 5374.040 | 11.410 | -0.900 |
| 39. | 9939.861 | -0.560 | 6.530  | 6314.954 | -10.090 | -17.610 | 5372.740 | 11.290 | -0.630 |
| 40. | 9938.107 | -0.600 | 6.360  | 6335.702 | -9.970  | -17.840 | 5371.460 | 11.170 | -0.360 |
| 41. | 9936.240 | -0.630 | 6.180  | 6356.640 | -9.850  | -18.070 | 5370.210 | 11.050 | -0.090 |
| 42. | 9934.278 | -0.650 | 5.970  | 6377.534 | -9.720  | -18.300 | 5369.000 | 10.930 | 0.180  |
| 43. | 9932.242 | -0.660 | 5.750  | 6398.101 | -9.590  | -18.530 | 5367.820 | 10.810 | 0.450  |
| 44. | 9930.154 | -0.660 | 5.520  | 6418.407 | -9.460  | -18.760 | 5366.680 | 10.690 | 0.720  |
| 45. | 9928.076 | -0.700 | 5.260  | 6438.056 | -9.340  | -18.990 | 5365.580 | 10.570 | 0.990  |
| 46. | 9925.915 | -0.700 | 4.990  | 6456.993 | -9.210  | -19.220 | 5364.510 | 10.450 | 1.260  |
| 47. | 9923.809 | -0.690 | 4.710  | 6475.097 | -9.080  | -19.450 | 5363.470 | 10.330 | 1.530  |
| 48. | 9921.744 | -0.670 | 4.410  | 6492.260 | -8.950  | -19.680 | 5362.460 | 10.210 | 1.800  |
| 49. | 9919.743 | -0.650 | 4.100  | 6508.304 | -8.820  | -19.910 | 5361.480 | 10.090 | 2.070  |
| 50. |          |        |        |          |         |         |          |        |        |



111-PLANE MAGNESIUM OXIDE

|     | LPHI12 | LPHI13 | FSRWEL   | FSPHI12 | FSPHI13 | SSRWEL   | SSPHI12 | SSPHI13 |
|-----|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | -4620  | 3.770  | 6523.385 | 7.210   | -5.220  | 5374.383 | -8.520  | -5.150  |
| 51. | -560   | 3.430  | 6537.184 | 6.590   | -4.740  | 5360.935 | -7.610  | -4.600  |
| 52. | -530   | 3.080  | 6549.712 | 5.930   | -4.250  | 5348.736 | -7.060  | -4.210  |
| 53. | -460   | 2.720  | 6560.906 | 5.240   | -3.750  | 5337.041 | -6.260  | -3.720  |
| 54. | -420   | 2.350  | 6570.716 | 4.540   | -3.230  | 5326.301 | -5.440  | -3.210  |
| 55. | -360   | 1.970  | 6579.097 | 3.810   | -2.710  | 5320.157 | -4.580  | -2.710  |
| 56. | -290   | 1.590  | 6586.005 | 3.070   | -2.180  | 5313.446 | -3.690  | -2.170  |
| 57. | -220   | 1.190  | 6591.411 | 2.310   | -1.640  | 5306.197 | -2.790  | -1.640  |
| 58. | -150   | .800   | 6595.290 | 1.550   | -1.090  | 5304.431 | -1.870  | -1.090  |
| 59. | 0.000  | .400   | 6597.625 | .780    | -.550   | 5302.166 | -.940   | -.720   |
| 60. | 0.000  | 0.000  | 6596.404 | -0.000  | 0.000   | 5301.409 | -0.000  | -0.000  |
| 61. | 0.000  | -.400  | 6597.625 | -.780   | .550    | 5302.166 | .940    | .720    |
| 62. | 150    | -.800  | 6595.290 | -1.550  | 1.050   | 5304.431 | 1.670   | 1.050   |
| 63. | 220    | -1.190 | 6591.411 | -2.310  | 1.640   | 5306.197 | 2.790   | 1.640   |
| 64. | 290    | -1.590 | 6586.005 | -3.070  | 2.180   | 5313.446 | 3.690   | 2.180   |
| 65. | 360    | -1.970 | 6579.097 | -3.810  | 2.710   | 5320.157 | 4.580   | 2.710   |
| 66. | 420    | -2.350 | 6570.716 | -4.540  | 3.230   | 5326.301 | 5.440   | 3.210   |
| 67. | 460    | -2.720 | 6560.907 | -5.240  | 3.750   | 5337.041 | 6.260   | 3.720   |
| 68. | 530    | -3.080 | 6549.711 | -5.930  | 4.250   | 5348.736 | 7.060   | 4.210   |
| 69. | 560    | -3.430 | 6537.184 | -6.590  | 4.740   | 5360.935 | 7.810   | 4.680   |
| 70. | 620    | -3.770 | 6523.385 | -7.210  | 5.220   | 5374.383 | 8.520   | 5.140   |
| 71. | 650    | -4.100 | 6508.384 | -7.610  | 5.660   | 5389.015 | 9.160   | 5.500   |
| 72. | 670    | -4.410 | 6492.254 | -8.360  | 6.130   | 5404.757 | 9.790   | 6.000   |
| 73. | 690    | -4.710 | 6475.097 | -8.860  | 6.560   | 5421.228 | 10.340  | 6.390   |
| 74. | 700    | -4.990 | 6456.993 | -9.340  | 6.970   | 5439.236 | 10.820  | 6.770   |
| 75. | 700    | -5.260 | 6438.056 | -9.750  | 7.370   | 5457.776 | 11.230  | 7.120   |
| 76. | 700    | -5.520 | 6418.407 | -10.100 | 7.750   | 5477.036 | 11.570  | 7.440   |
| 77. | 660    | -5.750 | 6398.181 | -10.360 | 8.110   | 5496.060 | 11.830  | 7.740   |
| 78. | 660    | -5.970 | 6377.533 | -10.590 | 8.450   | 5517.158 | 12.040  | 8.020   |
| 79. | 630    | -6.180 | 6356.639 | -10.690 | 8.770   | 5537.639 | 12.040  | 8.260   |
| 80. | 600    | -6.360 | 6335.701 | -10.700 | 9.070   | 5555.304 | 11.570  | 8.400   |
| 81. | 560    | -6.530 | 6314.954 | -10.570 | 9.350   | 5576.772 | 11.760  | 8.670   |
| 82. | 510    | -6.680 | 6294.666 | -10.290 | 9.610   | 5596.742 | 11.390  | 8.850   |
| 83. | 460    | -6.820 | 6275.164 | -9.840  | 9.850   | 5617.940 | 10.830  | 9.070   |
| 84. | 400    | -6.930 | 6256.805 | -9.100  | 10.060  | 5636.116 | 10.050  | 9.000   |
| 85. | 340    | -7.030 | 6240.027 | -8.280  | 10.250  | 5652.706 | 9.020   | 8.100   |
| 86. | 260    | -7.110 | 6225.286 | -7.110  | 10.420  | 5667.283 | 7.720   | 7.230   |
| 87. | 210    | -7.170 | 6213.094 | -5.660  | 10.550  | 5679.351 | 6.130   | 6.270   |
| 88. | 140    | -7.220 | 6203.936 | -3.960  | 10.650  | 5688.417 | 4.270   | 4.300   |
| 89. | 0.000  | -7.250 | 6196.244 | -2.000  | 10.710  | 5694.055 | 2.200   | 3.310   |
| 90. | -80    | -7.260 | 6196.311 | 0.000   | 10.730  | 5695.969 | -0.000  | 3.320   |
| 91. | -140   | -7.250 | 6198.244 | 2.040   | 10.710  | 5694.055 | -2.200  | 3.310   |
| 92. | -210   | -7.220 | 6203.936 | 3.960   | 10.650  | 5688.417 | -4.270  | 3.300   |
| 93. | -260   | -7.170 | 6213.094 | 5.660   | 10.550  | 5679.351 | -6.130  | 3.270   |
| 94. | -340   | -7.110 | 6225.286 | 7.110   | 10.420  | 5667.283 | -7.720  | 3.230   |
| 95. | -400   | -7.030 | 6240.027 | 8.280   | 10.250  | 5652.706 | -9.020  | 3.100   |
| 96. | -460   | -6.930 | 6256.809 | 9.100   | 10.060  | 5636.116 | -10.050 | 3.000   |
| 97. | -510   | -6.820 | 6275.164 | 9.840   | 9.850   | 5617.990 | -10.630 | 3.070   |
| 98. | -540   | -6.680 | 6294.666 | 10.290  | 9.610   | 5596.742 | -11.390 | 3.000   |
| 99. | -560   | -6.530 | 6314.954 | 10.570  | 9.350   | 5576.742 | -11.760 | 3.000   |

BULK

111-PLANE MAGNESIUM OXIDE

BULK

|      | LNQVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 9930.106 | -6.360 | -6.360 | 6335.701 | 10.700  | 9.070   | 5550.304 | -11.970 | 8.460   |
| 101. | 9936.240 | -6.630 | -6.180 | 6356.639 | 10.650  | 8.770   | 537.699  | -12.040 | 8.260   |
| 102. | 9934.276 | -6.660 | -5.970 | 6377.533 | 10.590  | 8.450   | 551.158  | -11.500 | 8.020   |
| 103. | 9932.262 | -6.600 | -5.750 | 6396.181 | 10.360  | 8.110   | 549.602  | -11.630 | 7.740   |
| 104. | 9938.155 | -7.000 | -5.520 | 6416.407 | 10.100  | 7.750   | 547.036  | -11.570 | 7.490   |
| 105. | 9928.036 | -7.000 | -5.260 | 6438.056 | 9.750   | 7.370   | 5457.778 | -11.230 | 7.120   |
| 106. | 9925.915 | -7.000 | -4.990 | 6456.993 | 9.340   | 6.970   | 5439.236 | -10.820 | 6.770   |
| 107. | 9923.810 | -6.900 | -4.710 | 6475.097 | 8.600   | 6.560   | 5421.526 | -10.340 | 6.350   |
| 108. | 9921.744 | -6.700 | -4.410 | 6492.259 | 8.360   | 6.130   | 5404.757 | -9.770  | 6.000   |
| 109. | 9919.743 | -6.600 | -4.100 | 6508.364 | 7.810   | 5.680   | 5389.015 | -9.180  | 5.680   |
| 110. | 9917.827 | -6.620 | -3.770 | 6523.385 | 7.210   | 5.220   | 5374.353 | -8.520  | 5.440   |
| 111. | 9916.020 | -6.560 | -3.430 | 6537.184 | 6.590   | 4.740   | 5360.935 | -7.810  | 5.140   |
| 112. | 9914.341 | -6.530 | -3.060 | 6549.711 | 5.930   | 4.250   | 5348.730 | -7.060  | 4.820   |
| 113. | 9912.805 | -6.460 | -2.720 | 6560.907 | 5.240   | 3.750   | 5337.641 | -6.280  | 4.470   |
| 114. | 9911.444 | -6.420 | -2.350 | 6570.716 | 4.540   | 3.230   | 5328.301 | -5.440  | 4.120   |
| 115. | 9910.260 | -6.360 | -1.970 | 6578.097 | 3.810   | 2.710   | 5320.157 | -4.500  | 3.770   |
| 116. | 9909.272 | -6.290 | -1.590 | 6586.005 | 3.070   | 2.180   | 5313.446 | -3.630  | 3.430   |
| 117. | 9908.491 | -6.220 | -1.190 | 6591.411 | 2.310   | 1.640   | 5306.197 | -2.730  | 3.090   |
| 118. | 9907.926 | -6.150 | -0.800 | 6595.290 | 1.550   | 1.090   | 5300.431 | -1.870  | 2.750   |
| 119. | 9907.585 | -6.080 | -0.400 | 6597.625 | 0.760   | 0.550   | 5302.166 | -1.040  | 2.400   |
| 120. | 9907.470 | -6.000 | 0.000  | 6598.404 | 0.000   | 0.000   | 5301.409 | 0.000   | 2.050   |
| 121. | 9907.565 | -6.080 | 0.400  | 6597.625 | -0.760  | -0.550  | 5302.166 | 0.000   | 1.700   |
| 122. | 9907.926 | -6.150 | 0.800  | 6595.290 | -1.550  | -1.090  | 5300.431 | 0.000   | 1.350   |
| 123. | 9908.491 | -6.220 | 1.190  | 6591.411 | -2.310  | -1.640  | 5300.431 | 0.000   | 1.000   |
| 124. | 9909.272 | -6.290 | 1.590  | 6586.005 | -3.070  | -2.180  | 5300.431 | 0.000   | 0.650   |
| 125. | 9910.260 | -6.360 | 1.970  | 6579.097 | -3.810  | -2.710  | 5320.157 | 0.000   | 0.300   |
| 126. | 9911.444 | -6.420 | 2.350  | 6570.716 | -4.540  | -3.230  | 5328.301 | 0.000   | 0.000   |
| 127. | 9912.805 | -6.460 | 2.720  | 6560.907 | -5.240  | -3.750  | 5337.641 | 0.000   | 0.000   |
| 128. | 9914.340 | -6.530 | 3.060  | 6549.711 | -5.930  | -4.250  | 5348.730 | 0.000   | 0.000   |
| 129. | 9916.020 | -6.560 | 3.430  | 6537.184 | -6.590  | -4.740  | 5360.935 | 0.000   | 0.000   |
| 130. | 9917.827 | -6.620 | 3.770  | 6523.385 | -7.210  | -5.220  | 5374.353 | 0.000   | 0.000   |
| 131. | 9919.743 | -6.650 | 4.100  | 6508.364 | -7.810  | -5.680  | 5389.015 | 0.000   | 0.000   |
| 132. | 9921.744 | -6.670 | 4.410  | 6492.260 | -8.360  | -6.130  | 5404.757 | 0.000   | 0.000   |
| 133. | 9923.805 | -6.650 | 4.710  | 6475.097 | -8.860  | -6.580  | 5421.526 | 0.000   | 0.000   |
| 134. | 9925.915 | -6.700 | 4.990  | 6456.993 | -9.340  | -7.000  | 5439.236 | 0.000   | 0.000   |
| 135. | 9928.036 | -7.000 | 5.260  | 6438.056 | -9.750  | -7.370  | 5457.778 | 0.000   | 0.000   |
| 136. | 9930.154 | -7.000 | 5.520  | 6418.407 | -10.100 | -7.750  | 5477.036 | 0.000   | 0.000   |
| 137. | 9932.242 | -6.660 | 5.750  | 6398.181 | -10.360 | -8.110  | 5496.680 | 0.000   | 0.000   |
| 138. | 9934.277 | -6.660 | 5.970  | 6377.534 | -10.590 | -8.450  | 5517.159 | 0.000   | 0.000   |
| 139. | 9936.240 | -6.600 | 6.180  | 6356.640 | -10.640 | -8.770  | 5537.700 | 0.000   | 0.000   |
| 140. | 9938.107 | -6.600 | 6.360  | 6335.782 | -10.700 | -9.070  | 5558.385 | 0.000   | 0.000   |
| 141. | 9939.861 | -6.530 | 6.530  | 6314.954 | -10.570 | -8.350  | 5578.782 | 0.000   | 0.000   |
| 142. | 9941.482 | -6.510 | 6.660  | 6294.669 | -10.290 | -8.610  | 5598.743 | 0.000   | 0.000   |
| 143. | 9942.954 | -6.460 | 6.820  | 6275.164 | -9.840  | -8.650  | 5617.990 | 0.000   | 0.000   |
| 144. | 9944.262 | -6.400 | 6.930  | 6256.805 | -9.180  | -8.050  | 5636.118 | 0.000   | 0.000   |
| 145. | 9945.392 | -6.340 | 7.030  | 6240.027 | -8.280  | -7.250  | 5652.706 | 0.000   | 0.000   |
| 146. | 9946.332 | -6.260 | 7.110  | 6225.286 | -7.110  | -6.440  | 5667.233 | 0.000   | 0.000   |
| 147. | 9947.874 | -6.210 | 7.170  | 6213.094 | -5.660  | -5.550  | 5679.351 | 0.000   | 0.000   |
| 148. | 9947.609 | -6.140 | 7.220  | 6203.937 | -4.960  | -4.850  | 5688.447 | 0.000   | 0.000   |
| 149. | 9947.932 | -6.070 | 7.250  | 6198.244 | -4.240  | -4.100  | 5694.055 | 0.000   | 0.000   |

111-PLANE MAGNESIUM OXIDE

BULK

|      | LNGVEL   | LPHI12  | LPHI13 | FSRVEL   | FSPH12 | FSPH13  | SSRVEL   | SSPH12  | SSPH13  |
|------|----------|---------|--------|----------|--------|---------|----------|---------|---------|
| 150. | 9948.040 | 0.000   | 7.260  | 6196.311 | -0.000 | -10.730 | 5695.969 | -0.000  | -3.320  |
| 151. | 9947.932 | -0.070  | 7.250  | 6198.244 | 2.040  | -10.710 | 5694.055 | -2.204  | -3.310  |
| 152. | 9947.609 | -1.140  | 7.220  | 6203.937 | 3.960  | -10.650 | 5686.417 | -4.270  | -3.300  |
| 153. | 9947.074 | -2.210  | 7.170  | 6213.094 | 5.660  | -10.550 | 5679.351 | -6.130  | -3.290  |
| 154. | 9946.332 | -3.340  | 7.110  | 6225.286 | 7.110  | -10.420 | 5667.283 | -7.720  | -3.280  |
| 155. | 9945.392 | -4.340  | 7.030  | 6240.027 | 8.260  | -10.260 | 5652.706 | -9.020  | -3.170  |
| 156. | 9944.262 | -5.400  | 6.930  | 6256.809 | 9.160  | -10.060 | 5636.116 | -10.020 | -3.000  |
| 157. | 9942.954 | -6.460  | 6.620  | 6275.164 | 9.840  | -9.850  | 5617.990 | -10.830 | -2.890  |
| 158. | 9941.482 | -7.510  | 6.280  | 6294.669 | 10.290 | -9.610  | 5596.743 | -11.390 | -2.800  |
| 159. | 9939.861 | -8.560  | 5.930  | 6314.954 | 10.570 | -9.350  | 5576.742 | -11.760 | -2.670  |
| 160. | 9938.107 | -9.600  | 5.570  | 6335.702 | 10.700 | -9.070  | 5556.304 | -11.970 | -2.400  |
| 161. | 9936.240 | -10.630 | 5.180  | 6356.640 | 10.690 | -8.770  | 5537.700 | -12.040 | -2.000  |
| 162. | 9934.274 | -11.660 | 4.790  | 6377.534 | 10.590 | -8.450  | 5517.158 | -11.940 | -1.400  |
| 163. | 9932.242 | -12.680 | 4.410  | 6398.181 | 10.360 | -8.110  | 5496.880 | -11.630 | -0.700  |
| 164. | 9930.154 | -13.700 | 4.040  | 6418.407 | 10.100 | -7.750  | 5477.936 | -11.270 | -0.000  |
| 165. | 9928.038 | -14.700 | 3.680  | 6438.056 | 9.750  | -7.370  | 5457.776 | -11.230 | -1.120  |
| 166. | 9925.915 | -15.650 | 3.340  | 6456.993 | 9.340  | -6.970  | 5439.236 | -10.820 | -2.270  |
| 167. | 9923.809 | -16.550 | 3.020  | 6475.097 | 8.860  | -6.560  | 5421.526 | -10.340 | -3.500  |
| 168. | 9921.744 | -17.400 | 2.720  | 6492.260 | 8.360  | -6.130  | 5404.757 | -9.790  | -4.800  |
| 169. | 9919.743 | -18.200 | 2.440  | 6508.384 | 7.810  | -5.680  | 5388.015 | -9.180  | -6.100  |
| 170. | 9917.827 | -18.950 | 2.180  | 6523.385 | 7.210  | -5.220  | 5371.333 | -8.520  | -7.400  |
| 171. | 9916.020 | -19.650 | 1.940  | 6537.184 | 6.590  | -4.740  | 5354.735 | -7.810  | -8.600  |
| 172. | 9914.341 | -20.300 | 1.720  | 6549.712 | 5.930  | -4.250  | 5338.216 | -7.060  | -9.800  |
| 173. | 9912.805 | -20.900 | 1.520  | 6560.907 | 5.240  | -3.750  | 5337.841 | -6.260  | -11.000 |
| 174. | 9911.444 | -21.450 | 1.340  | 6570.718 | 4.540  | -3.230  | 5320.301 | -5.440  | -12.200 |
| 175. | 9910.260 | -21.950 | 1.180  | 6579.097 | 3.810  | -2.710  | 5320.157 | -4.580  | -13.400 |
| 176. | 9909.272 | -22.400 | 1.040  | 6586.005 | 3.070  | -2.180  | 5313.446 | -3.690  | -14.600 |
| 177. | 9908.491 | -22.800 | 0.920  | 6591.411 | 2.310  | -1.640  | 5306.137 | -2.740  | -15.800 |
| 178. | 9907.926 | -23.150 | 0.800  | 6595.290 | 1.550  | -1.090  | 5306.431 | -1.870  | -17.000 |
| 179. | 9907.585 | -23.450 | 0.700  | 6597.625 | 0.760  | -0.550  | 5302.166 | -0.940  | -18.200 |
| 180. | 9907.470 | -23.700 | 0.600  | 6598.404 | -0.000 | 0.000   | 5301.409 | 0.000   | -19.400 |

110-PLANE MAGNESIUM OXIDE

BULK

|     | LNGVEL    | LPMI12   | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|-----------|----------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 10163.790 | 0.000    | -0.000 | 5766.256 | 12.340  | 0.000   | 5766.230 | -12.340 | 0.000   |
| 1.  | 10163.260 | -3.340   | -0.000 | 5766.349 | 12.350  | -0.000  | 5764.998 | -11.540 | -0.000  |
| 2.  | 10161.652 | -7.700   | 0.000  | 5830.619 | 12.420  | 0.000   | 5725.328 | -10.660 | -0.000  |
| 3.  | 10158.942 | -11.060  | -0.000 | 5833.819 | 12.440  | -0.000  | 5707.331 | -9.760  | 0.000   |
| 4.  | 10155.112 | -14.420  | -0.000 | 5855.520 | 12.440  | -0.000  | 5631.063 | -8.760  | 0.000   |
| 5.  | 10150.144 | -17.780  | -0.000 | 5876.094 | 12.420  | -0.000  | 5676.658 | -7.760  | 0.000   |
| 6.  | 10144.023 | -21.140  | -0.000 | 5908.712 | 12.390  | -0.000  | 5664.118 | -6.680  | 0.000   |
| 7.  | 10138.739 | -24.500  | -0.000 | 5923.346 | 12.350  | -0.000  | 5653.523 | -5.500  | 0.000   |
| 8.  | 10128.282 | -27.860  | -0.000 | 5945.973 | 12.290  | -0.000  | 5644.722 | -4.400  | 0.000   |
| 9.  | 10120.846 | -31.220  | -0.000 | 5968.559 | 12.220  | -0.000  | 5636.360 | -3.220  | 0.000   |
| 10. | 10107.834 | -34.580  | -0.000 | 5991.061 | 12.130  | 0.000   | 5633.069 | -2.010  | 0.000   |
| 11. | 10095.839 | -37.940  | -0.000 | 6013.511 | 12.030  | 0.000   | 5631.479 | -0.780  | -0.000  |
| 12. | 10082.667 | -41.300  | -0.000 | 6035.823 | 11.920  | 0.000   | 5631.206 | 0.460   | -0.000  |
| 13. | 10068.323 | -44.660  | -0.000 | 6057.992 | 11.800  | 0.000   | 5633.067 | 1.700   | -0.000  |
| 14. | 10052.616 | -48.020  | -0.000 | 6079.993 | 11.660  | -0.000  | 5637.056 | 2.940   | -0.000  |
| 15. | 10036.137 | -51.380  | 0.000  | 6101.799 | 11.520  | 0.000   | 5653.176 | 4.170   | -0.000  |
| 16. | 10018.362 | -54.740  | -0.000 | 6123.368 | 11.360  | -0.000  | 5651.405 | 5.370   | -0.000  |
| 17. | 9999.446  | -58.100  | -0.000 | 6144.735 | 11.190  | -0.000  | 5681.724 | 6.550   | -0.000  |
| 18. | 9979.436  | -61.460  | -0.000 | 6165.817 | 11.010  | 0.000   | 5674.180 | 7.700   | -0.000  |
| 19. | 9958.358  | -64.820  | -0.000 | 6186.611 | 10.820  | 0.000   | 5680.994 | 8.810   | -0.000  |
| 20. | 9936.218  | -68.180  | -0.000 | 6207.094 | 10.620  | 0.000   | 5704.058 | 9.870   | -0.000  |
| 21. | 9913.071  | -71.540  | -0.000 | 6227.246 | 10.420  | -0.000  | 5723.136 | 10.890  | 0.000   |
| 22. | 9888.944  | -74.900  | -0.000 | 6247.044 | 10.200  | 0.000   | 5743.263 | 11.850  | -0.000  |
| 23. | 9863.876  | -78.260  | -0.000 | 6266.468 | 9.970   | 0.000   | 5765.169 | 12.750  | -0.000  |
| 24. | 9837.910  | -81.620  | -0.000 | 6285.498 | 9.740   | 0.000   | 5788.772 | 13.590  | -0.000  |
| 25. | 9811.094  | -84.980  | -0.000 | 6304.114 | 9.500   | 0.000   | 5813.385 | 14.360  | -0.000  |
| 26. | 9783.479  | -88.340  | 0.000  | 6322.290 | 9.250   | -0.000  | 5840.713 | 15.070  | -0.000  |
| 27. | 9755.121  | -91.700  | 0.000  | 6340.032 | 9.000   | 0.000   | 5868.055 | 15.710  | -0.000  |
| 28. | 9726.083  | -95.060  | 0.000  | 6357.296 | 8.720   | -0.000  | 5898.299 | 16.280  | -0.000  |
| 29. | 9696.433  | -98.420  | 0.000  | 6374.075 | 8.450   | 0.000   | 5928.330 | 16.770  | -0.000  |
| 30. | 9666.242  | -101.780 | -0.000 | 6390.352 | 8.170   | 0.000   | 5958.022 | 17.190  | -0.000  |
| 31. | 9635.591  | -105.140 | 0.000  | 6406.110 | 7.890   | 0.000   | 5983.244 | 17.530  | -0.000  |
| 32. | 9604.566  | -108.500 | -0.000 | 6421.335 | 7.600   | 0.000   | 6006.658 | 17.800  | 0.000   |
| 33. | 9573.260  | -111.860 | 0.000  | 6436.031 | 7.300   | 0.000   | 6030.717 | 17.900  | -0.000  |
| 34. | 9541.773  | -115.220 | 0.000  | 6450.126 | 7.000   | 0.000   | 6055.267 | 18.090  | -0.000  |
| 35. | 9510.213  | -118.580 | -0.000 | 6463.665 | 6.700   | 0.000   | 6130.149 | 18.110  | 0.000   |
| 36. | 9478.696  | -121.940 | 0.000  | 6476.615 | 6.390   | 0.000   | 6165.132 | 18.050  | -0.000  |
| 37. | 9447.351  | -125.300 | -0.000 | 6488.964 | 6.070   | -0.000  | 6200.222 | 17.900  | -0.000  |
| 38. | 9416.307  | -128.660 | 0.000  | 6500.701 | 5.750   | -0.000  | 6235.054 | 17.670  | -0.000  |
| 39. | 9385.709  | -132.020 | -0.000 | 6511.815 | 5.430   | 0.000   | 6269.497 | 17.350  | -0.000  |
| 40. | 9355.708  | -135.380 | 0.000  | 6522.294 | 5.100   | 0.000   | 6303.352 | 16.930  | -0.000  |
| 41. | 9326.465  | -138.740 | 0.000  | 6532.131 | 4.770   | 0.000   | 6336.415 | 16.420  | -0.000  |
| 42. | 9298.148  | -142.100 | 0.000  | 6541.335 | 4.440   | 0.000   | 6368.475 | 15.820  | -0.000  |
| 43. | 9270.935  | -145.460 | -0.000 | 6549.839 | 4.100   | 0.000   | 6399.313 | 15.110  | -0.000  |
| 44. | 9245.006  | -148.820 | 0.000  | 6557.634 | 3.760   | 0.000   | 6428.711 | 14.300  | -0.000  |
| 45. | 9220.553  | -152.180 | -0.000 | 6564.873 | 3.420   | 0.000   | 6456.446 | 13.390  | -0.000  |
| 46. | 9197.760  | -155.540 | 0.000  | 6571.370 | 3.070   | -0.000  | 6482.295 | 12.380  | -0.000  |
| 47. | 9176.618  | -158.900 | 0.000  | 6577.179 | 2.720   | -0.000  | 6506.041 | 11.270  | -0.000  |
| 48. | 9157.912  | -162.260 | 0.000  | 6582.294 | 2.360   | 0.000   | 6521.473 | 10.060  | -0.000  |
| 49. | 9141.219  | -165.620 | 0.000  | 6586.711 | 2.000   | 0.000   | 6546.308 | 8.750   | -0.000  |

110-PLANE MAGNESIUM OXIDE

|     | LPHI12    | LPHI13 | FSPH12   | FSPH13 | SSPH12   | SSPH13 |
|-----|-----------|--------|----------|--------|----------|--------|
| 50. | 9126.904  | 0.000  | 6590.426 | 0.000  | 6562.602 | 0.000  |
| 51. | 9115.115  | 0.000  | 6593.437 | 0.000  | 6575.949 | 0.000  |
| 52. | 9105.961  | 0.000  | 6595.739 | -0.000 | 6586.266 | 0.000  |
| 53. | 9099.602  | 0.000  | 6597.310 | 0.000  | 6593.505 | 0.000  |
| 54. | 9096.052  | 0.000  | 6598.211 | 0.000  | 6597.521 | 0.000  |
| 55. | 9095.373  | 0.000  | 6598.379 | -0.000 | 6598.290 | 0.000  |
| 56. | 9097.571  | 0.000  | 6597.835 | -0.000 | 6595.804 | 0.000  |
| 57. | 9102.621  | 0.000  | 6596.579 | 0.000  | 6593.089 | 0.000  |
| 58. | 9110.466  | 0.000  | 6594.611 | -0.000 | 6591.212 | 0.000  |
| 59. | 9121.017  | 0.000  | 6591.935 | -0.000 | 6589.265 | 0.000  |
| 60. | 9134.156  | 0.000  | 6588.552 | 0.000  | 6584.386 | 0.000  |
| 61. | 9145.747  | 0.000  | 6584.466 | -0.000 | 6578.726 | 0.000  |
| 62. | 9167.636  | 0.000  | 6579.666 | -0.000 | 6576.456 | 0.000  |
| 63. | 9187.633  | 0.000  | 6574.138 | -0.000 | 6493.779 | 0.000  |
| 64. | 9209.576  | 0.000  | 6568.025 | -0.000 | 6488.695 | 0.000  |
| 65. | 9233.270  | 0.000  | 6561.167 | -0.000 | 6442.023 | 0.000  |
| 66. | 9258.526  | 0.000  | 6553.630 | -0.000 | 6413.382 | 0.000  |
| 67. | 9285.155  | 0.000  | 6545.421 | -0.000 | 6383.196 | 0.000  |
| 68. | 9312.973  | 0.000  | 6536.566 | -0.000 | 6351.686 | 0.000  |
| 69. | 9341.800  | 0.000  | 6527.016 | -0.000 | 6339.070 | 0.000  |
| 70. | 9371.464  | 0.000  | 6516.841 | -0.000 | 6289.562 | 0.000  |
| 71. | 9401.806  | 0.000  | 6506.025 | -0.000 | 6251.371 | 0.000  |
| 72. | 9432.652  | 0.000  | 6494.591 | -0.000 | 6218.698 | 0.000  |
| 73. | 9463.873  | 0.000  | 6482.519 | -0.000 | 6191.739 | 0.000  |
| 74. | 9495.325  | 0.000  | 6469.851 | 0.000  | 6168.660 | 0.000  |
| 75. | 9526.879  | 0.000  | 6456.595 | -0.000 | 6111.700 | 0.000  |
| 76. | 9558.414  | 0.000  | 6442.744 | -0.000 | 6076.973 | 0.000  |
| 77. | 9589.815  | 0.000  | 6428.331 | -0.000 | 6042.662 | 0.000  |
| 78. | 9620.989  | 0.000  | 6413.363 | -0.000 | 6008.726 | 0.000  |
| 79. | 9651.827  | 0.000  | 6397.855 | -0.000 | 5975.312 | 0.000  |
| 80. | 9682.245  | 0.000  | 6381.821 | 0.000  | 5943.764 | 0.000  |
| 81. | 9712.160  | 0.000  | 6365.277 | 0.000  | 5912.816 | 0.000  |
| 82. | 9741.496  | 0.000  | 6348.240 | -0.000 | 5882.597 | 0.000  |
| 83. | 9770.183  | 0.000  | 6330.726 | -0.000 | 5853.027 | 0.000  |
| 84. | 9798.156  | 0.000  | 6312.752 | -0.000 | 5824.118 | 0.000  |
| 85. | 9825.356  | 0.000  | 6294.338 | -0.000 | 5800.477 | 0.000  |
| 86. | 9851.730  | 0.000  | 6275.500 | 0.000  | 5779.103 | 0.000  |
| 87. | 9877.227  | 0.000  | 6256.260 | -0.000 | 5759.366 | 0.000  |
| 88. | 9901.803  | 0.000  | 6236.636 | -0.000 | 5732.410 | 0.000  |
| 89. | 9925.417  | 0.000  | 6216.648 | -0.000 | 5708.250 | 0.000  |
| 90. | 9948.032  | 0.000  | 6196.319 | -0.000 | 5695.973 | 0.000  |
| 91. | 9969.615  | 0.000  | 6175.665 | 0.000  | 5680.645 | 0.000  |
| 92. | 9990.137  | 0.000  | 6154.720 | 0.000  | 5667.311 | 0.000  |
| 93. | 10009.573 | 0.000  | 6133.495 | 0.000  | 5656.017 | 0.000  |
| 94. | 10027.898 | 0.000  | 6112.018 | 0.000  | 5646.798 | 0.000  |
| 95. | 10045.096 | 0.000  | 6090.311 | 0.000  | 5639.682 | 0.000  |
| 96. | 10061.146 | 0.000  | 6068.399 | -0.000 | 5634.686 | 0.000  |
| 97. | 10076.042 | 0.000  | 6046.317 | 0.000  | 5631.820 | 0.000  |
| 98. | 10089.764 | 0.000  | 6024.059 | 0.000  | 5631.046 | 0.000  |
| 99. | 10102.319 | 0.000  | 6001.661 | 0.000  | 5632.478 | 0.000  |

110-PLANE MAGNESIUM OXIDE

|      | LNGVEL    | LPHI12 | LPHI13 | FSPVEL   | FSPH12  | FSPH13 | SSPVEL   | SSPH12 | SSPH13 |
|------|-----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 100. | 10113.691 | 3.560  | 0.000  | 5979.199 | -12.160 | 0.000  | 5635.960 | 2.650  | 0.000  |
| 101. | 10123.862 | 3.110  | -0.000 | 5956.640 | -12.260 | 0.000  | 5641.569 | 3.650  | -0.000 |
| 102. | 10132.894 | 2.730  | 0.000  | 5934.030 | -12.320 | 0.000  | 5649.212 | 5.020  | -0.000 |
| 103. | 10140.730 | 2.950  | 0.000  | 5911.396 | -12.370 | 0.000  | 5650.672 | 6.160  | -0.000 |
| 104. | 10147.399 | 1.970  | 0.000  | 5889.766 | -12.410 | 0.000  | 5670.500 | 7.250  | -0.000 |
| 105. | 10152.910 | 1.600  | 0.000  | 5866.167 | -12.430 | 0.000  | 5684.343 | 8.300  | -0.000 |
| 106. | 10157.275 | 1.230  | -0.000 | 5843.626 | -12.440 | 0.000  | 5699.439 | 9.310  | -0.000 |
| 107. | 10160.511 | .860   | -0.000 | 5821.177 | -12.430 | 0.000  | 5716.620 | 10.250 | -0.000 |
| 108. | 10162.637 | .510   | 0.000  | 5798.843 | -12.410 | 0.000  | 5735.510 | 11.140 | -0.000 |
| 109. | 10163.673 | .160   | 0.000  | 5776.653 | -12.370 | 0.000  | 5756.030 | 11.970 | 0.000  |
| 110. | 10163.644 | -.160  | 0.000  | 5754.636 | -12.310 | -0.000 | 5778.090 | 12.740 | 0.000  |
| 111. | 10162.578 | -.510  | 0.000  | 5732.825 | -12.240 | 0.000  | 5801.600 | 13.440 | 0.000  |
| 112. | 10160.506 | -.860  | 0.000  | 5711.245 | -12.150 | -0.000 | 5826.460 | 14.060 | 0.000  |
| 113. | 10157.461 | -1.140 | 0.000  | 5689.926 | -12.040 | 0.000  | 5852.569 | 14.650 | 0.000  |
| 114. | 10153.461 | -1.430 | -0.000 | 5668.697 | -11.910 | -0.000 | 5879.619 | 15.150 | 0.000  |
| 115. | 10148.606 | -1.720 | 0.000  | 5648.187 | -11.770 | 0.000  | 5908.090 | 15.560 | 0.000  |
| 116. | 10142.879 | -1.990 | 0.000  | 5627.925 | -11.610 | 0.000  | 5937.291 | 15.950 | 0.000  |
| 117. | 10136.349 | -2.240 | 0.000  | 5607.640 | -11.430 | 0.000  | 5967.276 | 16.240 | 0.000  |
| 118. | 10129.064 | -2.460 | 0.000  | 5588.261 | -11.230 | 0.000  | 5997.936 | 16.470 | 0.000  |
| 119. | 10121.080 | -2.650 | 0.000  | 5569.115 | -11.010 | 0.000  | 6029.140 | 16.630 | 0.000  |
| 120. | 10112.454 | -2.900 | 0.000  | 5550.431 | -10.760 | 0.000  | 6060.761 | 16.730 | 0.000  |
| 121. | 10103.247 | -3.080 | -0.000 | 5532.235 | -10.530 | 0.000  | 6092.660 | 16.750 | 0.000  |
| 122. | 10093.523 | -3.240 | 0.000  | 5514.556 | -10.250 | 0.000  | 6124.728 | 16.710 | 0.000  |
| 123. | 10083.351 | -3.370 | 0.000  | 5497.420 | -9.960  | 0.000  | 6156.805 | 16.600 | 0.000  |
| 124. | 10072.801 | -3.498 | -0.000 | 5480.853 | -9.660  | 0.000  | 6188.761 | 16.430 | 0.000  |
| 125. | 10061.949 | -3.560 | 0.000  | 5464.880 | -9.330  | 0.000  | 6220.459 | 16.190 | 0.000  |
| 126. | 10050.871 | -3.640 | 0.000  | 5449.526 | -8.960  | 0.000  | 6251.759 | 15.890 | 0.000  |
| 127. | 10039.646 | -3.660 | 0.000  | 5434.816 | -8.620  | -0.000 | 6282.522 | 15.520 | -0.000 |
| 128. | 10028.363 | -3.650 | 0.000  | 5420.771 | -8.240  | 0.000  | 6312.687 | 15.090 | 0.000  |
| 129. | 10017.101 | -3.670 | 0.000  | 5407.416 | -7.850  | 0.000  | 6341.875 | 14.590 | 0.000  |
| 130. | 10005.865 | -3.630 | 0.000  | 5394.770 | -7.430  | 0.000  | 6378.187 | 14.030 | 0.000  |
| 131. | 9994.994  | -3.550 | 0.000  | 5382.856 | -7.000  | 0.000  | 6397.406 | 13.410 | 0.000  |
| 132. | 9984.324  | -3.450 | 0.000  | 5371.691 | -6.560  | -0.000 | 6423.396 | 12.730 | -0.000 |
| 133. | 9974.028  | -3.310 | 0.000  | 5361.295 | -6.100  | 0.000  | 6446.032 | 12.000 | 0.000  |
| 134. | 9964.194  | -3.150 | -0.000 | 5351.684 | -5.630  | 0.000  | 6471.179 | 11.200 | 0.000  |
| 135. | 9954.906  | -2.960 | 0.000  | 5342.875 | -5.150  | 0.000  | 6492.717 | 10.350 | 0.000  |
| 136. | 9946.246  | -2.740 | 0.000  | 5334.883 | -4.650  | 0.000  | 6512.531 | 9.450  | 0.000  |
| 137. | 9938.294  | -2.500 | -0.000 | 5327.720 | -4.150  | -0.000 | 6530.510 | 8.500  | 0.000  |
| 138. | 9931.123  | -2.230 | -0.000 | 5321.398 | -3.630  | 0.000  | 6546.553 | 7.500  | 0.000  |
| 139. | 9924.801  | -1.940 | -0.000 | 5315.930 | -3.110  | -0.000 | 6560.566 | 6.460  | 0.000  |
| 140. | 9919.390  | -1.630 | -0.000 | 5311.323 | -2.580  | 0.000  | 6572.473 | 5.390  | 0.000  |
| 141. | 9914.941  | -1.310 | 0.000  | 5307.586 | -2.040  | 0.000  | 6582.197 | 4.290  | 0.000  |
| 142. | 9911.499  | -.970  | 0.000  | 5304.745 | -1.500  | 0.000  | 6589.683 | 3.160  | 0.000  |
| 143. | 9908.080  | -.620  | 0.000  | 5302.745 | -.950   | 0.000  | 6594.885 | 2.010  | 0.000  |
| 144. | 9904.704  | -.260  | 0.000  | 5301.649 | -.400   | 0.000  | 6597.771 | .860   | 0.000  |
| 145. | 9901.506  | .090   | 0.000  | 5301.440 | .140    | 0.000  | 6598.322 | -.310  | -0.000 |
| 146. | 9908.334  | .450   | 0.000  | 5302.118 | .690    | 0.000  | 6596.537 | -1.470 | -0.000 |
| 147. | 9918.234  | .810   | 0.000  | 5303.680 | 1.240   | 0.000  | 6592.425 | -2.620 | 0.000  |
| 148. | 9913.166  | 1.150  | 0.000  | 5306.126 | 1.760   | 0.000  | 6586.813 | -3.760 | 0.000  |
| 149. | 9917.167  | 1.480  | 0.000  | 5309.450 | 2.320   | 0.000  | 6577.336 | -4.870 | -0.000 |

118-PLANE MAGNESIUM OXIDE

BULK

|      | LMGVEL    | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|-----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 9922.130  | 1.600  | 0.000  | 5313.648 | 2.860   | 0.000   | 6566.454 | -5.960  | 0.000   |
| 151. | 9928.030  | 2.100  | 0.000  | 5318.710 | 3.390   | 0.000   | 6553.426 | -7.020  | 0.000   |
| 152. | 9934.806  | 2.360  | 0.000  | 5324.630 | 3.910   | -0.000  | 6540.329 | -8.030  | 0.000   |
| 153. | 9942.400  | 2.630  | 0.000  | 5331.398 | 4.420   | 0.000   | 6527.252 | -9.060  | -0.000  |
| 154. | 9950.735  | 2.960  | 0.000  | 5339.000 | 4.920   | 0.000   | 6512.291 | -9.930  | -0.000  |
| 155. | 9959.737  | 3.070  | 0.000  | 5347.426 | 5.410   | 0.000   | 6491.553 | -10.610 | -0.000  |
| 156. | 9969.324  | 3.240  | 0.000  | 5356.660 | 5.880   | 0.000   | 6473.150 | -11.630 | 0.000   |
| 157. | 9979.413  | 3.390  | 0.000  | 5366.667 | 6.350   | 0.000   | 6455.203 | -12.390 | -0.000  |
| 158. | 9989.917  | 3.510  | 0.000  | 5377.491 | 6.800   | 0.000   | 6439.836 | -13.100 | 0.000   |
| 159. | 10000.746 | 3.620  | 0.000  | 5389.054 | 7.230   | -0.000  | 6423.179 | -13.750 | 0.000   |
| 160. | 10011.818 | 3.650  | 0.000  | 5401.377 | 7.650   | 0.000   | 6405.366 | -14.340 | 0.000   |
| 161. | 10023.040 | 3.650  | 0.000  | 5414.360 | 8.060   | 0.000   | 6386.532 | -14.860 | 0.000   |
| 162. | 10034.324 | 3.650  | 0.000  | 5428.102 | 8.440   | 0.000   | 6366.815 | -15.320 | 0.000   |
| 163. | 10045.587 | 3.660  | -0.000 | 5442.501 | 8.810   | 0.000   | 6266.355 | -15.720 | 0.000   |
| 164. | 10056.743 | 3.610  | 0.000  | 5457.554 | 9.170   | 0.000   | 6235.231 | -16.060 | 0.000   |
| 165. | 10067.712 | 3.530  | 0.000  | 5473.236 | 9.500   | -0.000  | 6203.763 | -16.320 | 0.000   |
| 166. | 10078.414 | 3.430  | 0.000  | 5489.526 | 9.820   | 0.000   | 6171.911 | -16.530 | 0.000   |
| 167. | 10088.774 | 3.300  | 0.000  | 5506.399 | 10.120  | 0.000   | 6139.674 | -16.670 | 0.000   |
| 168. | 10098.718 | 3.150  | 0.000  | 5523.825 | 10.400  | 0.000   | 6107.790 | -16.740 | 0.000   |
| 169. | 10108.177 | 2.920  | 0.000  | 5541.780 | 10.660  | 0.000   | 6075.754 | -16.750 | 0.000   |
| 170. | 10117.865 | 2.750  | 0.000  | 5560.237 | 10.910  | 0.000   | 6044.021 | -16.800 | 0.000   |
| 171. | 10125.360 | 2.560  | 0.000  | 5579.158 | 11.130  | 0.000   | 6012.504 | -16.860 | 0.000   |
| 172. | 10133.001 | 2.350  | 0.000  | 5598.547 | 11.340  | 0.000   | 5981.672 | -16.960 | 0.000   |
| 173. | 10139.894 | 2.110  | 0.000  | 5618.344 | 11.530  | 0.000   | 5951.353 | -17.100 | 0.000   |
| 174. | 10146.006 | 1.650  | 0.000  | 5638.591 | 11.700  | 0.000   | 5921.770 | -17.260 | 0.000   |
| 175. | 10151.269 | 1.570  | 0.000  | 5659.080 | 11.850  | -0.000  | 5893.046 | -17.360 | 0.000   |
| 176. | 10155.697 | 1.260  | 0.000  | 5679.962 | 11.980  | -0.000  | 5865.296 | -17.490 | 0.000   |
| 177. | 10159.188 | .980   | 0.000  | 5701.146 | 12.100  | -0.000  | 5838.635 | -17.630 | 0.000   |
| 178. | 10161.724 | .660   | 0.000  | 5722.609 | 12.200  | 0.000   | 5813.172 | -17.750 | 0.000   |
| 179. | 10163.266 | .340   | 0.000  | 5744.315 | 12.280  | 0.000   | 5788.012 | -17.860 | 0.000   |
| 180. | 10163.790 | 0.800  | 0.000  | 5766.236 | 12.340  | -0.000  | 5766.236 | -17.940 | -0.000  |

X-PLANE (YZ-PLANE) QUARTZ

BULK

|     | LMGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 5996.013 | 23.870 | 0.000  | 4314.379 | -25.810 | -0.000  | 3913.876 | -24.000 | 0.000   |
| 1.  | 6061.602 | 23.250 | 0.000  | 4278.216 | -25.670 | -0.000  | 3683.692 | -23.960 | 0.000   |
| 2.  | 6066.602 | 22.610 | 0.000  | 4262.621 | -25.460 | -0.000  | 3593.699 | -23.520 | 0.000   |
| 3.  | 6130.948 | 22.350 | 0.000  | 4207.676 | -25.220 | -0.000  | 3524.045 | -23.620 | 0.000   |
| 4.  | 6174.865 | 21.670 | 0.000  | 4173.675 | -24.900 | -0.000  | 3794.775 | -23.690 | 0.000   |
| 5.  | 6217.661 | 21.380 | 0.000  | 4160.091 | -24.510 | -0.000  | 3765.935 | -23.520 | 0.000   |
| 6.  | 6259.530 | 20.970 | 0.000  | 4107.604 | -24.060 | -0.000  | 3737.971 | -23.310 | 0.000   |
| 7.  | 6300.766 | 20.350 | 0.000  | 4076.885 | -23.550 | -0.000  | 3709.731 | -23.060 | 0.000   |
| 8.  | 6341.076 | 19.810 | 0.000  | 4045.616 | -22.970 | -0.000  | 3682.460 | -22.760 | 0.000   |
| 9.  | 6380.477 | 19.270 | 0.000  | 4016.260 | -22.320 | -0.000  | 3655.686 | -22.420 | 0.000   |
| 10. | 6418.516 | 18.710 | 0.000  | 3988.081 | -21.610 | -0.000  | 3629.821 | -22.030 | 0.000   |
| 11. | 6456.362 | 18.150 | 0.000  | 3961.147 | -20.920 | -0.000  | 3604.247 | -21.590 | 0.000   |
| 12. | 6492.785 | 17.560 | 0.000  | 3935.519 | -19.970 | -0.000  | 3580.034 | -21.110 | 0.000   |
| 13. | 6528.157 | 17.000 | 0.000  | 3911.255 | -19.640 | -0.000  | 3556.329 | -20.560 | 0.000   |
| 14. | 6562.451 | 16.420 | 0.000  | 3888.813 | -18.050 | -0.000  | 3533.875 | -19.570 | 0.000   |
| 15. | 6595.644 | 15.830 | 0.000  | 3867.043 | -16.990 | -0.000  | 3511.530 | -19.320 | 0.000   |
| 16. | 6627.712 | 15.230 | 0.000  | 3847.197 | -15.650 | -0.000  | 3490.527 | -18.010 | 0.000   |
| 17. | 6658.635 | 14.630 | 0.000  | 3828.920 | -14.660 | -0.000  | 3470.516 | -17.650 | 0.000   |
| 18. | 6688.391 | 14.030 | 0.000  | 3812.254 | -13.400 | -0.000  | 3451.530 | -17.030 | 0.000   |
| 19. | 6716.964 | 13.420 | 0.000  | 3797.337 | -12.060 | -0.000  | 3433.636 | -16.190 | 0.000   |
| 20. | 6744.335 | 12.810 | 0.000  | 3783.903 | -10.700 | -0.000  | 3416.851 | -15.210 | 0.000   |
| 21. | 6770.469 | 12.200 | 0.000  | 3772.261 | -9.260  | -0.000  | 3401.221 | -14.220 | 0.000   |
| 22. | 6795.411 | 11.560 | 0.000  | 3762.396 | -7.610  | -0.000  | 3386.702 | -13.170 | 0.000   |
| 23. | 6819.085 | 10.960 | 0.000  | 3754.267 | -6.310  | -0.000  | 3373.569 | -12.070 | 0.000   |
| 24. | 6841.505 | 10.340 | 0.000  | 3747.905 | -4.760  | -0.000  | 3361.614 | -10.520 | 0.000   |
| 25. | 6862.661 | 9.720  | 0.000  | 3743.332 | -3.230  | -0.000  | 3350.946 | -9.720  | 0.000   |
| 26. | 6882.535 | 9.100  | 0.000  | 3740.539 | -1.670  | -0.000  | 3341.591 | -8.470  | 0.000   |
| 27. | 6901.123 | 8.470  | 0.000  | 3739.530 | -1.100  | -0.000  | 3333.574 | -7.190  | 0.000   |
| 28. | 6918.417 | 7.850  | 0.000  | 3740.299 | 1.450   | -0.000  | 3326.315 | -5.870  | 0.000   |
| 29. | 6934.411 | 7.220  | 0.000  | 3742.833 | 2.990   | -0.000  | 3321.631 | -4.530  | 0.000   |
| 30. | 6949.101 | 6.560  | 0.000  | 3747.116 | 4.500   | -0.000  | 3317.736 | -3.160  | 0.000   |
| 31. | 6962.463 | 5.980  | 0.000  | 3753.126 | 5.960   | -0.000  | 3315.241 | -1.770  | 0.000   |
| 32. | 6974.594 | 5.360  | 0.000  | 3760.836 | 7.420   | -0.000  | 3314.152 | -0.360  | 0.000   |
| 33. | 6985.312 | 4.740  | 0.000  | 3770.213 | 8.810   | -0.000  | 3314.674 | 1.020   | 0.000   |
| 34. | 6994.756 | 4.120  | 0.000  | 3781.222 | 10.150  | -0.000  | 3316.205 | 2.410   | 0.000   |
| 35. | 7002.893 | 3.500  | 0.000  | 3793.620 | 11.420  | -0.000  | 3319.341 | 3.790   | 0.000   |
| 36. | 7009.719 | 2.890  | 0.000  | 3807.964 | 12.640  | -0.000  | 3323.676 | 5.150   | 0.000   |
| 37. | 7015.241 | 2.260  | 0.000  | 3823.682 | 13.760  | -0.000  | 3329.738 | 6.490   | 0.000   |
| 38. | 7019.662 | 1.670  | 0.000  | 3840.683 | 14.660  | -0.000  | 3337.094 | 7.600   | 0.000   |
| 39. | 7022.991 | 1.070  | 0.000  | 3859.148 | 15.860  | -0.000  | 3345.744 | 9.070   | 0.000   |
| 40. | 7024.834 | .470   | 0.000  | 3878.939 | 16.790  | -0.000  | 3355.728 | 10.300  | 0.000   |
| 41. | 7024.401 | -.120  | 0.000  | 3899.992 | 17.650  | -0.000  | 3367.023 | 11.490  | 0.000   |
| 42. | 7023.503 | -0.710 | 0.000  | 3922.242 | 18.440  | -0.000  | 3379.600 | 12.620  | 0.000   |
| 43. | 7021.353 | -1.300 | 0.000  | 3945.620 | 19.150  | -0.000  | 3393.430 | 13.710  | 0.000   |
| 44. | 7017.964 | -1.870 | 0.000  | 3970.055 | 19.600  | -0.000  | 3408.460 | 14.740  | 0.000   |
| 45. | 7013.353 | -2.440 | 0.000  | 3995.475 | 20.370  | -0.000  | 3424.717 | 15.710  | 0.000   |
| 46. | 7007.538 | -3.000 | 0.000  | 4021.685 | 20.670  | -0.000  | 3442.101 | 16.630  | 0.000   |
| 47. | 7000.538 | -3.550 | 0.000  | 4048.966 | 21.300  | -0.000  | 3460.596 | 17.490  | 0.000   |
| 48. | 6992.374 | -4.100 | 0.000  | 4076.887 | 21.670  | -0.000  | 3480.159 | 18.300  | 0.000   |
| 49. | 6983.071 | -4.630 | 0.000  | 4105.462 | 21.970  | -0.000  | 3500.749 | 19.040  | 0.000   |



X-PLANE (YZ-PLANE) QUARTZ

|     | LNLEVEL  | LPHI12  | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|---------|--------|----------|---------|--------|----------|--------|--------|
| 50. | 6972.654 | -5.150  | 0.000  | 4134.673 | 22.210  | -0.000 | 3522.321 | 19.730 | -0.000 |
| 51. | 6961.153 | -5.660  | 0.000  | 4164.376 | 22.381  | -0.000 | 3544.631 | 20.360 | -0.000 |
| 52. | 6948.597 | -6.150  | 0.000  | 4194.508 | 22.500  | -0.000 | 3568.232 | 20.940 | -0.000 |
| 53. | 6935.021 | -6.630  | 0.000  | 4224.985 | 22.550  | -0.000 | 3592.479 | 21.460 | -0.000 |
| 54. | 6920.462 | -7.100  | 0.000  | 4255.719 | 22.540  | -0.000 | 3617.522 | 21.940 | -0.000 |
| 55. | 6904.956 | -7.540  | 0.000  | 4286.624 | 22.480  | -0.000 | 3643.316 | 22.360 | -0.000 |
| 56. | 6888.553 | -7.970  | 0.000  | 4317.608 | 22.360  | -0.000 | 3669.612 | 22.730 | -0.000 |
| 57. | 6871.293 | -8.380  | 0.000  | 4348.583 | 22.180  | -0.000 | 3696.961 | 23.050 | -0.000 |
| 58. | 6853.230 | -8.770  | -0.000 | 4379.454 | 21.940  | -0.000 | 3724.715 | 23.330 | -0.000 |
| 59. | 6834.416 | -9.130  | -0.000 | 4410.126 | 21.640  | 0.000  | 3753.026 | 23.570 | -0.000 |
| 60. | 6814.911 | -9.470  | -0.000 | 4440.593 | 21.290  | 0.000  | 3781.647 | 23.760 | -0.000 |
| 61. | 6794.777 | -9.770  | -0.000 | 4470.866 | 20.870  | 0.000  | 3811.129 | 23.920 | -0.000 |
| 62. | 6774.064 | -10.050 | -0.000 | 4499.971 | 20.400  | 0.000  | 3840.826 | 24.030 | -0.000 |
| 63. | 6752.905 | -10.250 | -0.000 | 4528.033 | 19.860  | 0.000  | 3870.692 | 24.110 | -0.000 |
| 64. | 6731.316 | -10.450 | -0.000 | 4557.025 | 19.250  | 0.000  | 3901.279 | 24.150 | -0.000 |
| 65. | 6709.406 | -10.660 | -0.000 | 4586.374 | 18.540  | 0.000  | 3931.944 | 24.160 | -0.000 |
| 66. | 6687.265 | -10.780 | -0.000 | 4616.766 | 17.840  | 0.000  | 3962.841 | 24.140 | -0.000 |
| 67. | 6664.985 | -10.860 | -0.000 | 4636.142 | 17.030  | 0.000  | 3993.527 | 24.090 | -0.000 |
| 68. | 6642.671 | -10.890 | -0.000 | 4660.319 | 16.150  | 0.000  | 4022.160 | 24.010 | -0.000 |
| 69. | 6620.431 | -10.860 | -0.000 | 4683.193 | 15.190  | 0.000  | 4050.496 | 23.900 | -0.000 |
| 70. | 6598.378 | -10.780 | -0.000 | 4704.634 | 14.140  | 0.000  | 4078.695 | 23.770 | -0.000 |
| 71. | 6576.630 | -10.640 | -0.000 | 4724.512 | 13.010  | 0.000  | 4114.316 | 23.610 | -0.000 |
| 72. | 6555.309 | -10.430 | -0.000 | 4742.696 | 11.800  | 0.000  | 4150.722 | 23.430 | -0.000 |
| 73. | 6534.540 | -10.170 | -0.000 | 4759.051 | 10.500  | 0.000  | 4182.072 | 23.220 | -0.000 |
| 74. | 6514.450 | -9.830  | -0.000 | 4773.449 | 9.120   | 0.000  | 4213.330 | 22.990 | -0.000 |
| 75. | 6495.162 | -9.440  | -0.000 | 4785.760 | 7.660   | 0.000  | 4244.460 | 22.740 | -0.000 |
| 76. | 6476.796 | -8.980  | -0.000 | 4795.864 | 6.110   | 0.000  | 4275.426 | 22.480 | -0.000 |
| 77. | 6459.475 | -8.460  | -0.000 | 4803.646 | 4.490   | 0.000  | 4302.194 | 22.190 | -0.000 |
| 78. | 6443.298 | -7.860  | -0.000 | 4809.010 | 2.810   | 0.000  | 4326.731 | 21.890 | -0.000 |
| 79. | 6428.362 | -7.260  | -0.000 | 4811.865 | 1.070   | 0.000  | 4357.004 | 21.570 | -0.000 |
| 80. | 6414.746 | -6.590  | 0.000  | 4812.142 | -7.000  | 0.000  | 4396.982 | 21.230 | -0.000 |
| 81. | 6402.512 | -5.850  | 0.000  | 4809.794 | -2.500  | 0.000  | 4425.634 | 20.660 | -0.000 |
| 82. | 6391.700 | -5.170  | 0.000  | 4804.795 | -4.310  | 0.000  | 4453.931 | 20.520 | -0.000 |
| 83. | 6382.332 | -4.440  | 0.000  | 4797.145 | -6.120  | 0.000  | 4481.865 | 20.140 | -0.000 |
| 84. | 6374.403 | -3.710  | 0.000  | 4786.866 | -7.890  | 0.000  | 4513.347 | 19.790 | -0.000 |
| 85. | 6367.869 | -3.000  | 0.000  | 4774.809 | -9.620  | 0.000  | 4544.411 | 19.350 | -0.000 |
| 86. | 6362.744 | -2.310  | 0.000  | 4758.645 | -11.250 | 0.000  | 4585.012 | 18.940 | -0.000 |
| 87. | 6358.903 | -1.660  | 0.000  | 4740.070 | -12.900 | 0.000  | 4595.125 | 18.510 | -0.000 |
| 88. | 6356.284 | -1.050  | 0.000  | 4720.798 | -14.420 | 0.000  | 4622.725 | 18.060 | -0.000 |
| 89. | 6354.791 | -0.500  | 0.000  | 4698.559 | -15.650 | 0.000  | 4646.790 | 17.630 | -0.000 |
| 90. | 6354.316 | 0.000   | 0.000  | 4674.297 | -17.100 | 0.000  | 4674.237 | 17.140 | -0.000 |
| 91. | 6354.752 | .440    | 0.000  | 4648.169 | -18.410 | -0.000 | 4699.226 | 16.720 | 0.000  |
| 92. | 6355.974 | .810    | 0.000  | 4620.335 | -19.550 | -0.000 | 4723.555 | 16.260 | 0.000  |
| 93. | 6357.063 | 1.130   | 0.000  | 4590.963 | -20.500 | -0.000 | 4747.265 | 15.760 | 0.000  |
| 94. | 6360.301 | 1.360   | 0.000  | 4560.223 | -21.510 | -0.000 | 4770.337 | 15.260 | 0.000  |
| 95. | 6363.169 | 1.570   | 0.000  | 4528.285 | -22.300 | -0.000 | 4792.722 | 14.790 | 0.000  |
| 96. | 6366.352 | 1.700   | 0.000  | 4495.319 | -23.070 | -0.000 | 4814.495 | 14.290 | -0.000 |
| 97. | 6369.742 | 1.780   | 0.000  | 4461.492 | -23.710 | -0.000 | 4835.547 | 13.760 | -0.000 |
| 98. | 6373.234 | 1.810   | 0.000  | 4426.971 | -24.260 | -0.000 | 4855.694 | 13.270 | -0.000 |
| 99. | 6376.731 | 1.780   | 0.000  | 4391.917 | -24.710 | -0.000 | 4875.521 | 12.750 | -0.000 |

BULK

X-PLANE (YZ-PLANE) QUARTZ

|      | LMGVEL   | LPMI12  | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 6300.140 | 1.720   | 0.000  | 4356.489 | -25.070 | -0.000  | 4094.412 | 12.230  | -0.000  |
| 101. | 6303.375 | 1.610   | 0.000  | 4320.842 | -25.340 | -0.000  | 4312.555 | 11.710  | -0.000  |
| 102. | 6306.356 | 1.450   | 0.000  | 4285.126 | -25.520 | -0.000  | 4255.936 | 11.170  | -0.000  |
| 103. | 6309.014 | 1.270   | 0.000  | 4249.495 | -25.610 | -0.000  | 4219.544 | 10.640  | -0.000  |
| 104. | 6311.276 | 1.050   | 0.000  | 4214.087 | -25.610 | -0.000  | 4183.387 | 10.100  | -0.000  |
| 105. | 6313.081 | .800    | 0.000  | 4179.046 | -25.510 | -0.000  | 4147.394 | 9.560   | -0.000  |
| 106. | 6314.372 | .520    | 0.000  | 4144.510 | -25.330 | -0.000  | 4111.615 | 9.010   | -0.000  |
| 107. | 6315.097 | .220    | 0.000  | 4110.612 | -25.050 | -0.000  | 4076.021 | 8.460   | -0.000  |
| 108. | 6315.209 | -.110   | 0.000  | 4077.485 | -24.660 | -0.000  | 4040.552 | 7.910   | -0.000  |
| 109. | 6314.664 | -.660   | 0.000  | 4045.257 | -24.200 | -0.000  | 4005.262 | 7.360   | -0.000  |
| 110. | 6313.423 | -.820   | 0.000  | 4014.052 | -23.630 | -0.000  | 3970.062 | 6.810   | -0.000  |
| 111. | 6311.450 | -1.210  | 0.000  | 3983.992 | -22.950 | -0.000  | 3935.862 | 6.260   | -0.000  |
| 112. | 6308.712 | -1.610  | 0.000  | 3955.195 | -22.170 | -0.000  | 3891.662 | 5.710   | -0.000  |
| 113. | 6305.182 | -2.020  | 0.000  | 3927.775 | -21.280 | -0.000  | 3847.462 | 5.160   | -0.000  |
| 114. | 6300.832 | -2.450  | 0.000  | 3901.842 | -20.270 | -0.000  | 3803.262 | 4.610   | -0.000  |
| 115. | 6295.641 | -2.890  | 0.000  | 3877.501 | -19.160 | -0.000  | 3759.062 | 4.060   | -0.000  |
| 116. | 6289.586 | -3.340  | 0.000  | 3854.855 | -17.930 | -0.000  | 3714.862 | 3.510   | -0.000  |
| 117. | 6282.652 | -3.800  | 0.000  | 3833.996 | -16.590 | -0.000  | 3670.662 | 2.960   | -0.000  |
| 118. | 6274.821 | -4.270  | 0.000  | 3815.021 | -15.130 | -0.000  | 3626.462 | 2.410   | -0.000  |
| 119. | 6266.080 | -4.750  | 0.000  | 3798.006 | -13.570 | -0.000  | 3582.262 | 1.860   | -0.000  |
| 120. | 6256.416 | -5.230  | 0.000  | 3783.037 | -11.910 | -0.000  | 3538.062 | 1.310   | -0.000  |
| 121. | 6245.826 | -5.720  | 0.000  | 3770.180 | -10.150 | -0.000  | 3493.862 | .760    | -0.000  |
| 122. | 6234.296 | -6.210  | 0.000  | 3759.499 | -8.300  | -0.000  | 3449.662 | .210    | -0.000  |
| 123. | 6231.823 | -6.710  | 0.000  | 3751.052 | -6.370  | -0.000  | 3405.462 | -.340   | -0.000  |
| 124. | 6228.403 | -7.220  | 0.000  | 3744.885 | -4.360  | -0.000  | 3361.262 | -.890   | -0.000  |
| 125. | 6224.033 | -7.720  | 0.000  | 3741.040 | -2.350  | -0.000  | 3317.062 | -1.440  | -0.000  |
| 126. | 6258.714 | -8.230  | 0.000  | 3739.546 | -.270   | -0.000  | 3272.862 | -1.990  | -0.000  |
| 127. | 6242.445 | -8.740  | 0.000  | 3740.427 | 1.820   | -0.000  | 3228.662 | -2.540  | -0.000  |
| 128. | 6225.231 | -9.250  | 0.000  | 3743.896 | 3.910   | -0.000  | 3184.462 | -3.090  | -0.000  |
| 129. | 6207.875 | -9.750  | 0.000  | 3749.357 | 5.960   | -0.000  | 3140.262 | -3.640  | -0.000  |
| 130. | 6187.983 | -10.260 | 0.000  | 3757.405 | 8.020   | -0.000  | 3096.062 | -4.190  | -0.000  |
| 131. | 6167.963 | -10.770 | 0.000  | 3767.828 | 10.010  | -0.000  | 3051.862 | -4.740  | -0.000  |
| 132. | 6147.824 | -11.260 | 0.000  | 3780.604 | 11.930  | -0.000  | 3007.662 | -5.290  | -0.000  |
| 133. | 6125.477 | -11.760 | 0.000  | 3795.702 | 13.780  | -0.000  | 2963.462 | -5.840  | -0.000  |
| 134. | 6102.433 | -12.260 | 0.000  | 3813.084 | 15.540  | -0.000  | 2919.262 | -6.390  | -0.000  |
| 135. | 6078.807 | -12.760 | 0.000  | 3832.704 | 17.210  | -0.000  | 2875.062 | -6.940  | -0.000  |
| 136. | 6054.315 | -13.270 | 0.000  | 3854.507 | 18.760  | -0.000  | 2830.862 | -7.490  | -0.000  |
| 137. | 6028.974 | -13.750 | 0.000  | 3878.434 | 20.250  | -0.000  | 2786.662 | -8.040  | -0.000  |
| 138. | 6002.806 | -14.230 | 0.000  | 3904.417 | 21.600  | -0.000  | 2742.462 | -8.590  | -0.000  |
| 139. | 5975.431 | -14.700 | 0.000  | 3932.382 | 22.860  | -0.000  | 2698.262 | -9.140  | -0.000  |
| 140. | 5948.076 | -15.170 | 0.000  | 3962.249 | 24.000  | -0.000  | 2654.062 | -9.690  | -0.000  |
| 141. | 5919.566 | -15.620 | 0.000  | 3993.934 | 25.040  | -0.000  | 2609.862 | -10.240 | -0.000  |
| 142. | 5890.334 | -16.050 | 0.000  | 4027.346 | 25.970  | -0.000  | 2565.662 | -10.790 | -0.000  |
| 143. | 5860.412 | -16.460 | 0.000  | 4062.386 | 26.810  | -0.000  | 2521.462 | -11.340 | -0.000  |
| 144. | 5829.841 | -16.860 | 0.000  | 4099.960 | 27.540  | -0.000  | 2477.262 | -11.890 | -0.000  |
| 145. | 5798.663 | -17.270 | 0.000  | 4136.952 | 28.170  | -0.000  | 2433.062 | -12.440 | -0.000  |
| 146. | 5766.926 | -17.630 | 0.000  | 4176.253 | 28.710  | -0.000  | 2388.862 | -12.990 | -0.000  |
| 147. | 5734.653 | -17.970 | 0.000  | 4216.741 | 29.140  | -0.000  | 2344.662 | -13.540 | -0.000  |
| 148. | 5702.025 | -18.270 | 0.000  | 4258.266 | 29.690  | -0.000  | 2300.462 | -14.090 | -0.000  |
| 149. | 5669.001 | -18.530 | 0.000  | 4300.746 | 29.730  | -0.000  | 2256.262 | -14.640 | -0.000  |

| X-PLANE (YZ-PLANE) QUARTZ |          |        |          |         |        |          |         |        |  |
|---------------------------|----------|--------|----------|---------|--------|----------|---------|--------|--|
|                           | LPHI12   | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |  |
| 150.                      | 5635.715 | 0.000  | 4343.972 | 24.870  | -0.000 | 4774.172 | -15.890 | -0.000 |  |
| 151.                      | 5602.275 | 0.000  | 4387.787 | 25.710  | -0.000 | 4751.366 | -15.570 | -0.000 |  |
| 152.                      | 5568.833 | 0.000  | 4431.997 | 26.820  | -0.000 | 4727.972 | -16.040 | -0.000 |  |
| 153.                      | 5535.551 | 0.000  | 4476.370 | 29.590  | -0.000 | 4703.948 | -16.500 | -0.000 |  |
| 154.                      | 5502.656 | 0.000  | 4520.632 | 29.200  | -0.000 | 4679.333 | -16.960 | -0.000 |  |
| 155.                      | 5470.436 | 0.000  | 4564.441 | 28.610  | -0.000 | 4654.847 | -17.410 | -0.000 |  |
| 156.                      | 5439.276 | 0.000  | 4607.369 | 27.750  | 0.000  | 4629.411 | -17.840 | -0.000 |  |
| 157.                      | 5409.690 | 0.000  | 4646.857 | 26.550  | 0.000  | 4602.146 | -18.270 | -0.000 |  |
| 158.                      | 5382.363 | 0.000  | 4686.173 | 24.870  | 0.000  | 4575.374 | -18.690 | -0.000 |  |
| 159.                      | 5358.215 | 0.000  | 4724.357 | 22.550  | 0.000  | 4548.118 | -19.100 | -0.000 |  |
| 160.                      | 5338.445 | 0.000  | 4756.180 | 19.360  | 0.000  | 4520.432 | -19.500 | -0.000 |  |
| 161.                      | 5324.494 | 0.000  | 4782.169 | 15.120  | 0.000  | 4492.250 | -19.890 | -0.000 |  |
| 162.                      | 5317.872 | 0.000  | 4800.770 | 9.790   | 0.000  | 4463.668 | -20.260 | -0.000 |  |
| 163.                      | 5319.805 | 0.000  | 4810.752 | 3.640   | 0.000  | 4434.743 | -20.620 | -0.000 |  |
| 164.                      | 5330.779 | 0.000  | 4811.589 | -2.900  | 0.000  | 4405.441 | -20.970 | -0.000 |  |
| 165.                      | 5350.331 | 0.000  | 4803.726 | -8.050  | 0.000  | 4375.811 | -21.310 | -0.000 |  |
| 166.                      | 5377.266 | 0.000  | 4788.344 | -12.980 | 0.000  | 4345.882 | -21.620 | -0.000 |  |
| 167.                      | 5410.090 | 0.000  | 4766.920 | -16.060 | 0.000  | 4315.664 | -21.930 | -0.000 |  |
| 168.                      | 5447.363 | 0.000  | 4740.866 | -18.670 | 0.000  | 4285.247 | -22.220 | -0.000 |  |
| 169.                      | 5487.861 | 0.000  | 4711.355 | -20.600 | 0.000  | 4254.834 | -22.490 | -0.000 |  |
| 170.                      | 5530.906 | 0.000  | 4679.300 | -22.050 | 0.000  | 4223.787 | -22.740 | -0.000 |  |
| 171.                      | 5575.526 | 0.000  | 4645.394 | -23.140 | 0.000  | 4192.630 | -22.970 | -0.000 |  |
| 172.                      | 5621.301 | 0.000  | 4610.156 | -23.960 | 0.000  | 4161.760 | -23.180 | -0.000 |  |
| 173.                      | 5667.836 | 0.000  | 4573.964 | -24.550 | 0.000  | 4130.637 | -23.370 | -0.000 |  |
| 174.                      | 5714.833 | 0.000  | 4537.184 | -24.960 | 0.000  | 4099.473 | -23.540 | -0.000 |  |
| 175.                      | 5762.953 | -0.000 | 4500.003 | -25.410 | 0.000  | 4068.315 | -23.680 | -0.000 |  |
| 176.                      | 5809.311 | -0.000 | 4462.639 | -25.650 | 0.000  | 4037.159 | -23.800 | -0.000 |  |
| 177.                      | 5856.453 | -0.000 | 4425.260 | -25.600 | 0.000  | 4006.167 | -23.890 | -0.000 |  |
| 178.                      | 5903.352 | -0.000 | 4388.006 | -25.670 | 0.000  | 3975.256 | -23.960 | -0.000 |  |
| 179.                      | 5949.903 | -0.000 | 4351.011 | -25.870 | 0.000  | 3944.515 | -24.000 | -0.000 |  |
| 180.                      | 5996.013 | -0.000 | 4314.379 | -25.810 | 0.000  | 3913.978 | -24.000 | -0.000 |  |

V-PLANE (X7-PLANE) QUARTZ

|     | LMGVEL   | LMW12  | LMW13  | FSPVEL   | FSP12   | FSP13   | SSPVEL   | SSP12   | SSP13   |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 5788.629 | 0.000  | 0.000  | 5099.814 | 0.000   | 0.000   | 3294.285 | 0.000   | 0.000   |
| 1.  | 5767.626 | 3.408  | 7.770  | 5096.378 | -4.408  | -2.920  | 3299.014 | 1.459   | -1.459  |
| 2.  | 5756.222 | 6.550  | 5.374  | 5086.264 | -12.167 | -5.650  | 3191.211 | 2.900   | -2.900  |
| 3.  | 5770.202 | 9.294  | 7.658  | 5070.023 | -15.267 | -8.090  | 3104.854 | 4.330   | -4.330  |
| 4.  | 5793.660 | 11.500 | 9.534  | 5044.397 | -17.920 | -10.150 | 3109.943 | 5.730   | -5.730  |
| 5.  | 5811.119 | 13.240 | 11.170 | 5022.217 | -19.920 | -11.950 | 3116.667 | 7.120   | -7.120  |
| 6.  | 5836.337 | 14.560 | 12.638 | 4992.241 | -21.620 | -14.330 | 3124.895 | 8.460   | -8.460  |
| 7.  | 5853.762 | 15.480 | 13.810 | 4959.297 | -23.000 | -16.330 | 3133.704 | 9.750   | -9.750  |
| 8.  | 5923.871 | 16.120 | 14.210 | 4933.471 | -24.130 | -18.190 | 3144.374 | 10.900  | -11.260 |
| 9.  | 5923.064 | 16.530 | 14.910 | 4886.502 | -25.950 | -15.910 | 3156.374 | 12.180  | -12.530 |
| 10. | 5954.082 | 16.760 | 15.290 | 4847.606 | -25.950 | -16.460 | 3169.664 | 13.320  | -13.750 |
| 11. | 5985.569 | 16.850 | 15.550 | 4807.523 | -25.810 | -15.900 | 3184.203 | 14.390  | -14.930 |
| 12. | 6017.277 | 16.820 | 15.940 | 4766.519 | -26.430 | -17.250 | 3199.957 | 15.390  | -16.070 |
| 13. | 6049.003 | 16.700 | 16.150 | 4724.995 | -26.940 | -17.510 | 3216.857 | 16.330  | -17.150 |
| 14. | 6080.581 | 16.510 | 16.330 | 4682.801 | -27.340 | -17.700 | 3234.877 | 17.200  | -18.190 |
| 15. | 6111.877 | 16.260 | 16.450 | 4640.443 | -27.650 | -17.840 | 3253.943 | 17.900  | -19.180 |
| 16. | 6142.775 | 16.060 | 16.550 | 4597.947 | -27.880 | -17.930 | 3274.085 | 18.710  | -20.120 |
| 17. | 6173.182 | 15.860 | 16.610 | 4555.584 | -28.020 | -17.960 | 3294.994 | 19.360  | -21.020 |
| 18. | 6203.017 | 15.750 | 16.650 | 4513.395 | -28.090 | -17.950 | 3316.946 | 19.930  | -21.890 |
| 19. | 6232.211 | 14.660 | 16.690 | 4471.552 | -28.070 | -17.890 | 3339.471 | 20.410  | -22.590 |
| 20. | 6260.785 | 14.630 | 16.690 | 4430.205 | -27.960 | -17.780 | 3362.746 | 20.810  | -23.670 |
| 21. | 6288.448 | 13.990 | 16.590 | 4389.596 | -27.760 | -17.530 | 3386.890 | 21.190  | -24.210 |
| 22. | 6315.395 | 13.540 | 16.460 | 4349.519 | -27.460 | -17.430 | 3411.864 | 21.290  | -24.920 |
| 23. | 6341.508 | 13.060 | 16.530 | 4310.723 | -26.990 | -17.180 | 3437.764 | 21.350  | -25.580 |
| 24. | 6366.752 | 12.580 | 16.600 | 4273.047 | -26.380 | -16.960 | 3464.626 | 21.370  | -26.260 |
| 25. | 6391.097 | 12.090 | 16.560 | 4236.437 | -25.560 | -16.520 | 3492.514 | 20.990  | -26.590 |
| 26. | 6414.517 | 11.580 | 16.510 | 4202.434 | -24.460 | -15.110 | 3520.430 | 20.420  | -27.500 |
| 27. | 6436.988 | 11.070 | 16.450 | 4170.203 | -22.960 | -15.660 | 3548.362 | 19.890  | -28.080 |
| 28. | 6458.490 | 10.560 | 16.400 | 4141.002 | -20.890 | -15.190 | 3575.725 | 19.030  | -28.590 |
| 29. | 6479.004 | 10.040 | 16.310 | 4115.448 | -17.990 | -14.780 | 3775.749 | 15.770  | -28.710 |
| 30. | 6498.515 | 9.510  | 16.260 | 4094.787 | -13.950 | -14.550 | 3922.519 | 12.450  | -29.210 |
| 31. | 6517.010 | 8.980  | 16.190 | 4080.434 | -8.560  | -14.560 | 3904.525 | 7.870   | -29.060 |
| 32. | 6534.477 | 8.450  | 16.110 | 4073.719 | -2.100  | -15.340 | 3910.505 | 2.810   | -28.420 |
| 33. | 6550.907 | 7.920  | 16.010 | 4075.234 | 4.450   | -16.510 | 3909.492 | -3.270  | -27.290 |
| 34. | 6566.292 | 7.190  | 15.950 | 4084.395 | 9.970   | -17.950 | 3903.243 | -7.840  | -25.810 |
| 35. | 6580.626 | 6.860  | 15.860 | 4099.740 | 14.030  | -19.350 | 3922.177 | -10.940 | -24.250 |
| 36. | 6593.986 | 5.320  | 15.770 | 4119.625 | 16.770  | -20.570 | 3778.221 | -12.720 | -22.760 |
| 37. | 6596.127 | 5.790  | 15.690 | 4142.672 | 18.550  | -21.550 | 3752.417 | -13.590 | -21.180 |
| 38. | 6617.291 | 5.260  | 15.590 | 4167.877 | 19.690  | -22.330 | 3746.962 | -13.590 | -20.130 |
| 39. | 6627.397 | 4.730  | 15.470 | 4194.540 | 20.390  | -22.940 | 3731.384 | -13.190 | -18.970 |
| 40. | 6636.447 | 4.210  | 15.370 | 4222.175 | 20.800  | -23.420 | 3716.563 | -12.450 | -17.880 |
| 41. | 6644.446 | 3.690  | 15.250 | 4250.441 | 21.010  | -23.780 | 3702.842 | -11.640 | -16.850 |
| 42. | 6651.400 | 3.170  | 15.140 | 4279.088 | 21.070  | -24.050 | 3690.465 | -10.250 | -15.850 |
| 43. | 6657.314 | 2.660  | 15.010 | 4307.927 | 21.010  | -24.250 | 3679.504 | -8.890  | -14.980 |
| 44. | 6662.200 | 2.150  | 14.990 | 4335.912 | 20.470  | -24.480 | 3674.604 | -7.420  | -13.920 |
| 45. | 6666.066 | 1.650  | 14.750 | 4365.623 | 20.570  | -24.490 | 3652.940 | -5.850  | -12.970 |
| 46. | 6668.925 | 1.160  | 14.610 | 4394.268 | 20.400  | -24.530 | 3657.315 | -4.220  | -12.030 |
| 47. | 6670.793 | .680   | 14.470 | 4422.639 | 20.090  | -24.540 | 3653.553 | -2.530  | -11.090 |
| 48. | 6671.643 | .200   | 14.310 | 4450.642 | 19.730  | -24.510 | 3651.599 | -0.800  | -10.160 |
| 49. | 6671.616 | -.270  | 14.150 | 4478.322 | 19.330  | -24.440 | 3651.773 | .900    | -9.240  |

Y-PLANE (XZ-PLANE) QUARTZ

|     | LNGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 5677.609 | -0.729 | 13.990 | 4505.495 | 18.980  | -24.350 | 3653.745 | 2.699   | -8.320  |
| 51. | 5668.696 | -1.170 | 13.890 | 4532.142 | 18.430  | -24.220 | 3657.733 | 4.490   | -7.420  |
| 52. | 5665.879 | -1.609 | 13.610 | 4558.207 | 17.940  | -24.070 | 3663.605 | 6.190   | -6.539  |
| 53. | 5662.188 | -2.029 | 13.410 | 4583.674 | 17.420  | -23.890 | 3671.481 | 7.750   | -5.550  |
| 54. | 5657.668 | -2.430 | 13.230 | 4608.381 | 16.950  | -23.590 | 3681.033 | 9.150   | -4.500  |
| 55. | 5652.341 | -2.829 | 12.990 | 4632.387 | 16.290  | -23.150 | 3692.574 | 10.890  | -3.969  |
| 56. | 5646.240 | -3.209 | 12.750 | 4655.605 | 15.699  | -22.910 | 3705.812 | 12.359  | -3.159  |
| 57. | 5639.400 | -3.550 | 12.510 | 4677.949 | 15.059  | -22.500 | 3720.465 | 13.750  | -2.370  |
| 58. | 5631.861 | -3.907 | 12.240 | 4699.487 | 14.390  | -22.000 | 3737.571 | 15.050  | -1.620  |
| 59. | 5623.663 | -4.210 | 11.950 | 4720.053 | 13.700  | -22.269 | 3755.927 | 16.280  | -0.900  |
| 60. | 5614.850 | -4.510 | 11.570 | 4739.678 | 12.990  | -21.890 | 3775.849 | 17.420  | -0.210  |
| 61. | 5605.467 | -4.790 | 11.350 | 4758.394 | 12.250  | -21.500 | 3797.263 | 18.470  | 0.430   |
| 62. | 5595.565 | -5.040 | 11.090 | 4775.674 | 11.490  | -21.070 | 3820.098 | 19.439  | 1.040   |
| 63. | 5585.195 | -5.260 | 10.810 | 4792.028 | 10.680  | -20.620 | 3844.277 | 20.300  | 1.510   |
| 64. | 5574.412 | -5.460 | 10.530 | 4807.209 | 9.859   | -20.130 | 3869.717 | 21.099  | 2.160   |
| 65. | 5563.272 | -5.630 | 10.330 | 4821.158 | 9.091   | -19.620 | 3896.335 | 21.790  | 2.539   |
| 66. | 5551.836 | -5.770 | 9.950  | 4833.858 | 8.320   | -19.070 | 3924.065 | 22.400  | 3.070   |
| 67. | 5540.105 | -5.890 | 9.130  | 4845.231 | 7.219   | -18.490 | 3952.761 | 22.930  | 3.470   |
| 68. | 5528.126 | -5.960 | 8.710  | 4855.240 | 6.279   | -17.980 | 3982.399 | 23.389  | 3.820   |
| 69. | 5516.397 | -6.010 | 8.260  | 4863.840 | 5.309   | -17.230 | 4012.042 | 23.750  | 4.130   |
| 70. | 5504.403 | -6.029 | 7.780  | 4870.985 | 4.310   | -16.550 | 4044.625 | 24.050  | 4.390   |
| 71. | 5492.456 | -6.000 | 7.290  | 4876.572 | 3.290   | -15.849 | 4075.844 | 24.290  | 4.519   |
| 72. | 5480.512 | -5.940 | 6.790  | 4880.742 | 2.260   | -15.100 | 4104.205 | 24.550  | 4.790   |
| 73. | 5468.941 | -5.850 | 6.270  | 4883.375 | 1.179   | -14.320 | 4131.015 | 24.550  | 4.910   |
| 74. | 5457.512 | -5.729 | 5.750  | 4884.199 | 0.079   | -13.520 | 4147.176 | 24.570  | 5.000   |
| 75. | 5446.393 | -5.559 | 5.220  | 4883.442 | -1.040  | -12.690 | 4207.592 | 24.539  | 5.039   |
| 76. | 5435.653 | -5.350 | 4.700  | 4881.100 | -2.170  | -11.840 | 4261.167 | 24.439  | 5.030   |
| 77. | 5425.355 | -5.129 | 4.170  | 4877.032 | -3.319  | -10.970 | 4274.805 | 24.270  | 4.979   |
| 78. | 5415.561 | -4.860 | 3.650  | 4871.264 | -4.450  | -10.090 | 4304.819 | 24.050  | 4.970   |
| 79. | 5406.331 | -4.570 | 3.150  | 4863.789 | -5.600  | -9.190  | 4341.884 | 23.779  | 4.720   |
| 80. | 5397.720 | -4.249 | 2.679  | 4854.607 | -6.759  | -8.299  | 4375.100 | 23.440  | 4.539   |
| 81. | 5389.776 | -3.899 | 2.210  | 4843.725 | -7.900  | -7.380  | 4409.054 | 23.050  | 4.280   |
| 82. | 5382.548 | -3.520 | 1.790  | 4831.158 | -9.030  | -6.460  | 4440.559 | 22.509  | 4.000   |
| 83. | 5376.074 | -3.130 | 1.370  | 4816.929 | -10.150 | -5.590  | 4472.540 | 22.180  | 3.560   |
| 84. | 5370.393 | -2.720 | 1.060  | 4801.068 | -11.250 | -4.710  | 4503.939 | 21.559  | 3.240   |
| 85. | 5365.534 | -2.290 | 0.778  | 4783.515 | -12.320 | -3.859  | 4534.604 | 20.959  | 2.869   |
| 86. | 5361.524 | -1.850 | 0.478  | 4764.615 | -13.360 | -3.010  | 4564.692 | 20.299  | 2.370   |
| 87. | 5358.383 | -1.390 | 0.200  | 4744.121 | -14.370 | -2.210  | 4593.699 | 19.590  | 1.940   |
| 88. | 5356.129 | -0.930 | 0.020  | 4722.192 | -15.350 | -1.440  | 4621.514 | 18.839  | 1.270   |
| 89. | 5354.771 | -0.470 | 0.000  | 4698.894 | -16.290 | -0.700  | 4658.297 | 18.039  | 0.669   |
| 90. | 5354.310 | 0.000  | 0.000  | 4674.207 | -17.180 | -0.000  | 4694.096 | 17.189  | -0.000  |
| 91. | 5354.771 | 0.470  | 0.000  | 4648.877 | -18.030 | 0.660   | 4728.192 | 16.290  | -0.700  |
| 92. | 5356.129 | 0.930  | 0.120  | 4621.114 | -18.839 | 1.270   | 4752.592 | 15.350  | -1.440  |
| 93. | 5358.383 | 1.390  | 0.270  | 4593.690 | -19.590 | 1.840   | 4764.121 | 14.370  | -2.210  |
| 94. | 5361.524 | 1.850  | 0.470  | 4566.692 | -20.290 | 2.370   | 4764.615 | 13.360  | -3.010  |
| 95. | 5365.534 | 2.290  | 0.730  | 4539.608 | -20.960 | 2.860   | 4783.515 | 12.320  | -3.850  |
| 96. | 5370.393 | 2.720  | 1.040  | 4503.930 | -21.550 | 3.240   | 4801.068 | 11.250  | -4.710  |
| 97. | 5376.074 | 3.130  | 1.390  | 4472.549 | -22.180 | 3.660   | 4816.929 | 10.150  | -5.590  |
| 98. | 5382.548 | 3.520  | 1.790  | 4440.559 | -22.600 | 4.030   | 4831.158 | 9.030   | -6.590  |
| 99. | 5389.776 | 3.890  | 2.210  | 4408.054 | -23.050 | 4.280   | 4843.375 | 7.900   | -7.420  |

Y-PLANE (X7-PLANE) QUARTZ

|      | LPM12    | LPM13  | FSPVEL   | FSPM12  | FSPM13  | SSPVEL   | SSPM12  | SSPM13  |
|------|----------|--------|----------|---------|---------|----------|---------|---------|
| 107. | 5197.720 | 2.570  | 4375.130 | -23.640 | 4.530   | 4854.807 | 6.750   | -8.290  |
| 108. | 5486.331 | 3.150  | 4341.884 | -23.770 | 4.720   | 4855.783 | 5.600   | -9.190  |
| 109. | 5815.561 | 4.860  | 4308.410 | -24.050 | 4.870   | 4871.264 | 4.450   | -10.080 |
| 110. | 5825.355 | 5.120  | 4274.805 | -24.270 | 4.970   | 4877.033 | 3.310   | -10.970 |
| 111. | 5835.553 | 5.350  | 4241.167 | -24.430 | 5.030   | 4881.100 | 2.170   | -11.860 |
| 112. | 5846.393 | 5.550  | 4207.592 | -24.530 | 5.000   | 4883.489 | 1.040   | -12.590 |
| 113. | 5857.512 | 5.720  | 4174.176 | -24.570 | 5.000   | 4884.199 | -0.070  | -13.520 |
| 114. | 5869.941 | 5.850  | 4141.015 | -24.550 | 4.910   | 4883.275 | -1.170  | -14.320 |
| 115. | 5880.512 | 5.940  | 4108.206 | -24.450 | 4.790   | 4880.787 | -2.240  | -15.100 |
| 116. | 5892.456 | 6.000  | 4075.844 | -24.290 | 4.610   | 4876.637 | -3.280  | -15.860 |
| 117. | 5904.903 | 6.020  | 4044.025 | -24.060 | 4.390   | 4870.985 | -4.310  | -16.550 |
| 118. | 5915.382 | 6.010  | 4012.842 | -23.760 | 4.130   | 4863.843 | -5.300  | -17.230 |
| 119. | 5928.326 | 5.960  | 3982.190 | -23.390 | 3.820   | 4855.243 | -6.270  | -17.980 |
| 120. | 5940.166 | 5.890  | 3952.761 | -22.930 | 3.470   | 4845.231 | -7.210  | -18.690 |
| 121. | 5951.836 | 5.770  | 3924.046 | -22.400 | 3.070   | 4833.854 | -8.120  | -19.360 |
| 122. | 5963.272 | 5.630  | 3896.335 | -21.790 | 2.630   | 4821.164 | -9.000  | -20.000 |
| 123. | 5974.412 | 5.460  | 3869.717 | -21.090 | 2.140   | 4807.203 | -9.850  | -20.130 |
| 124. | 5985.195 | 5.260  | 3844.277 | -20.300 | 1.610   | 4792.874 | -10.680 | -20.520 |
| 125. | 5995.565 | 5.040  | 3820.098 | -19.430 | 1.040   | 4775.674 | -11.480 | -21.170 |
| 126. | 5985.467 | 4.790  | 3797.263 | -18.470 | 0.430   | 4759.194 | -12.250 | -21.500 |
| 127. | 5914.950 | 4.510  | 3775.844 | -17.420 | -0.210  | 4739.634 | -12.990 | -21.890 |
| 128. | 5823.563 | 4.210  | 3755.927 | -16.280 | -0.900  | 4720.053 | -13.700 | -22.260 |
| 129. | 5711.961 | 3.990  | 3737.571 | -15.060 | -1.520  | 4699.487 | -14.390 | -22.580 |
| 130. | 5639.400 | 3.550  | 3720.846 | -13.750 | -2.370  | 4677.983 | -15.050 | -22.910 |
| 131. | 5665.240 | 3.200  | 3705.812 | -12.360 | -3.150  | 4655.605 | -15.690 | -23.190 |
| 132. | 5652.341 | 2.820  | 3692.524 | -10.890 | -3.960  | 4632.387 | -16.290 | -23.450 |
| 133. | 5657.554 | 2.430  | 3681.033 | -9.350  | -4.800  | 4609.381 | -16.850 | -23.690 |
| 134. | 5662.188 | 2.020  | 3671.381 | -7.750  | -5.650  | 4587.579 | -17.420 | -23.900 |
| 135. | 5655.370 | 1.500  | 3663.605 | -6.100  | -6.580  | 4568.207 | -17.940 | -24.070 |
| 136. | 5659.886 | 1.170  | 3657.733 | -4.400  | -7.420  | 4552.142 | -18.430 | -24.220 |
| 137. | 5679.509 | 0.720  | 3653.795 | -2.680  | -8.320  | 4538.617 | -18.900 | -24.350 |
| 138. | 6671.516 | 0.270  | 3651.778 | -0.940  | -9.240  | 4478.327 | -19.330 | -24.460 |
| 139. | 6671.583 | -0.200 | 3651.699 | 0.800   | -10.150 | 4450.582 | -19.730 | -24.510 |
| 140. | 6679.793 | -0.680 | 3653.553 | 2.530   | -11.090 | 4422.680 | -20.090 | -24.580 |
| 141. | 6684.925 | -1.160 | 3657.315 | 4.220   | -12.030 | 4396.260 | -20.400 | -24.570 |
| 142. | 6666.056 | -1.650 | 3662.949 | 5.850   | -12.970 | 4365.623 | -20.570 | -24.490 |
| 143. | 6662.280 | -2.150 | 3670.404 | 7.420   | -13.920 | 4336.912 | -20.970 | -24.400 |
| 144. | 6667.314 | -2.660 | 3679.609 | 8.990   | -14.880 | 4307.927 | -21.010 | -24.250 |
| 145. | 6651.400 | -3.170 | 3690.455 | 10.250  | -15.850 | 4279.089 | -21.070 | -24.050 |
| 146. | 6644.446 | -3.690 | 3702.842 | 11.440  | -16.850 | 4250.644 | -21.010 | -23.780 |
| 147. | 6636.447 | -4.210 | 3716.563 | 12.650  | -17.880 | 4222.475 | -20.800 | -23.420 |
| 148. | 6627.397 | -4.730 | 3731.384 | 13.890  | -18.970 | 4194.540 | -20.390 | -22.890 |
| 149. | 6617.791 | -5.260 | 3746.962 | 15.190  | -20.130 | 4167.877 | -19.590 | -22.330 |
| 150. | 6606.127 | -5.790 | 3762.610 | 16.500  | -21.380 | 4142.672 | -18.550 | -21.550 |
| 151. | 6593.906 | -6.320 | 3778.221 | 17.720  | -22.770 | 4118.625 | -16.770 | -20.570 |
| 152. | 6580.626 | -6.860 | 3792.177 | 18.940  | -24.250 | 4094.760 | -14.930 | -19.350 |
| 153. | 6566.292 | -7.390 | 3803.249 | 20.160  | -25.810 | 4084.305 | -9.970  | -17.950 |
| 154. | 6550.907 | -7.920 | 3809.692 | 31.270  | -27.280 | 4075.234 | -4.450  | -16.510 |
| 155. | 6534.677 | -8.450 | 3810.506 | -2.310  | -28.420 | 4073.713 | 2.180   | -15.380 |
| 156. | 6517.010 | -8.980 | 3804.525 | -7.870  | -29.060 | 4080.636 | 4.560   | -14.580 |

V-PLANE (XZ-PLANE) QUADPT

|      | LMPVEL   | LPHI12  | LPHI13 | FSRWEL   | FSPHI12 | FSPHI13 | SSPVEL   | SSPHI12 | SSPHI13 |
|------|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 5498.545 | -9.510  | 15.250 | 3792.519 | -12.650 | -29.210 | 4094.787 | 13.959  | -14.950 |
| 151. | 5478.084 | -10.069 | 15.310 | 3775.749 | -15.774 | -29.010 | 4115.443 | 17.990  | -14.780 |
| 152. | 5458.490 | -10.569 | 16.490 | 3758.775 | -18.074 | -28.590 | 4151.803 | 29.890  | -15.190 |
| 153. | 5438.989 | -11.078 | 16.450 | 3743.652 | -19.690 | -28.080 | 4170.283 | 22.850  | -15.560 |
| 154. | 5419.517 | -11.580 | 16.510 | 3709.830 | -20.420 | -27.500 | 4207.434 | 24.460  | -15.110 |
| 155. | 5399.097 | -12.090 | 16.550 | 3685.414 | -20.980 | -26.990 | 4236.877 | 25.560  | -16.520 |
| 156. | 5378.752 | -12.589 | 16.600 | 3660.574 | -21.270 | -26.260 | 4273.047 | 26.380  | -15.880 |
| 157. | 5358.508 | -13.069 | 16.630 | 3635.758 | -21.360 | -25.500 | 4310.774 | 26.990  | -17.180 |
| 158. | 5338.395 | -13.560 | 16.650 | 3611.064 | -21.790 | -24.820 | 4269.513 | 27.840  | -17.830 |
| 159. | 5289.444 | -13.992 | 16.640 | 3586.690 | -21.100 | -24.210 | 4369.586 | 27.750  | -17.630 |
| 160. | 5260.705 | -14.430 | 16.640 | 3562.745 | -20.810 | -23.474 | 4330.205 | 27.960  | -17.740 |
| 161. | 5232.211 | -14.860 | 16.640 | 3539.471 | -20.410 | -22.590 | 4271.557 | 28.070  | -17.800 |
| 162. | 5203.017 | -15.250 | 16.650 | 3516.846 | -19.970 | -21.840 | 4513.305 | 28.090  | -17.950 |
| 163. | 5173.182 | -15.630 | 16.610 | 3494.908 | -19.360 | -21.020 | 4555.584 | 28.820  | -17.960 |
| 164. | 5142.775 | -15.960 | 16.550 | 3474.006 | -18.710 | -20.120 | 4597.987 | 27.880  | -17.930 |
| 165. | 5111.977 | -16.260 | 16.650 | 3453.043 | -17.800 | -19.180 | 4640.443 | 27.650  | -17.840 |
| 166. | 5080.591 | -16.510 | 16.310 | 3434.873 | -17.200 | -18.190 | 4682.801 | 27.340  | -17.700 |
| 167. | 5049.003 | -16.700 | 16.450 | 3416.857 | -16.770 | -17.150 | 4724.895 | 26.940  | -17.510 |
| 168. | 5017.277 | -16.820 | 15.940 | 3399.950 | -15.390 | -16.070 | 4766.534 | 26.430  | -17.250 |
| 169. | 5985.569 | -16.850 | 15.660 | 3384.203 | -14.390 | -14.930 | 4807.527 | 25.810  | -16.900 |
| 170. | 5954.082 | -16.760 | 15.230 | 3369.664 | -13.820 | -13.750 | 4847.684 | 25.050  | -16.860 |
| 171. | 5923.066 | -16.530 | 14.810 | 3356.176 | -12.180 | -12.530 | 4886.507 | 24.130  | -15.910 |
| 172. | 5892.831 | -16.120 | 14.210 | 3344.379 | -10.990 | -11.260 | 4923.871 | 23.900  | -15.210 |
| 173. | 5863.762 | -15.480 | 13.830 | 3333.704 | -9.757  | -9.950  | 4959.207 | 21.520  | -14.330 |
| 174. | 5836.337 | -14.560 | 12.830 | 3324.395 | -8.860  | -8.500  | 4992.281 | 19.920  | -13.230 |
| 175. | 5811.139 | -13.280 | 11.170 | 3316.467 | -7.120  | -7.220  | 5022.217 | 17.820  | -11.950 |
| 176. | 5788.950 | -11.500 | 9.590  | 3309.944 | -5.730  | -5.750  | 5044.397 | 15.260  | -10.150 |
| 177. | 5770.282 | -9.280  | 7.640  | 3304.859 | -4.330  | -4.330  | 5070.023 | 12.150  | -8.190  |
| 178. | 5755.222 | -6.550  | 5.370  | 3301.211 | -2.900  | -2.900  | 5086.264 | 8.510   | -6.550  |
| 179. | 5747.425 | -3.800  | 2.770  | 3299.014 | -1.450  | -1.450  | 5096.374 | 4.400   | -2.470  |
| 180. | 5744.429 | 3.000   | -0.000 | 3298.286 | 0.000   | 0.000   | 5099.414 | -0.000  | 0.000   |

Z-PLANE (XY-PLANE) QUARTZ

BULK

|     | LNQVEL   | LPMI12 | LPMI13  | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 0.  | 5744.429 | 0.000  | 0.000   | 5099.014 | 0.000   | 0.000   | 3290.206 | 0.000   | 0.000   |
| 1.  | 5745.504 | 1.310  | -2.790  | 5097.020 | -2.560  | 2.930   | 3299.356 | 2.130   | 1.470   |
| 2.  | 5749.001 | 2.570  | -5.480  | 5091.091 | -5.050  | 5.770   | 3302.559 | 4.230   | 2.930   |
| 3.  | 5754.536 | 3.720  | -7.990  | 5082.171 | -7.420  | 8.420   | 3307.084 | 6.310   | 4.370   |
| 4.  | 5761.903 | 4.730  | -10.270 | 5068.080 | -9.620  | 10.040  | 3313.309 | 8.320   | 5.750   |
| 5.  | 5771.075 | 5.570  | -12.300 | 5052.289 | -11.630 | 12.990  | 3324.004 | 10.280  | 7.110   |
| 6.  | 5781.532 | 6.240  | -14.060 | 5032.696 | -13.440 | 14.670  | 3336.334 | 12.150  | 8.520   |
| 7.  | 5793.066 | 6.760  | -15.500 | 5010.404 | -15.070 | 16.500  | 3349.051 | 13.920  | 9.930   |
| 8.  | 5805.406 | 7.120  | -16.670 | 4985.705 | -16.520 | 17.500  | 3365.303 | 15.600  | 11.000  |
| 9.  | 5818.303 | 7.350  | -17.500 | 4958.873 | -17.010 | 17.900  | 3382.629 | 17.170  | 12.280  |
| 10. | 5831.534 | 7.460  | -18.090 | 4930.161 | -17.370 | 18.120  | 3401.762 | 18.630  | 13.420  |
| 11. | 5844.903 | 7.470  | -19.660 | 4899.757 | -20.000 | 21.000  | 3422.625 | 19.570  | 14.500  |
| 12. | 5856.240 | 7.400  | -20.320 | 4867.990 | -20.910 | 21.140  | 3445.136 | 21.190  | 15.520  |
| 13. | 5871.400 | 7.250  | -20.070 | 4834.930 | -21.730 | 22.600  | 3469.204 | 22.290  | 16.480  |
| 14. | 5884.260 | 7.030  | -21.340 | 4800.792 | -22.450 | 22.930  | 3494.731 | 23.260  | 17.360  |
| 15. | 5896.712 | 6.770  | -21.740 | 4765.744 | -23.060 | 23.410  | 3521.609 | 24.120  | 18.210  |
| 16. | 5908.668 | 6.460  | -22.070 | 4729.947 | -23.630 | 23.610  | 3549.720 | 24.840  | 18.960  |
| 17. | 5920.069 | 6.120  | -22.360 | 4693.562 | -24.050 | 24.160  | 3578.032 | 25.440  | 19.590  |
| 18. | 5930.791 | 5.740  | -22.600 | 4656.755 | -24.450 | 24.460  | 3609.101 | 25.900  | 20.130  |
| 19. | 5940.838 | 5.340  | -22.810 | 4619.706 | -24.710 | 24.720  | 3640.056 | 26.220  | 20.590  |
| 20. | 5950.142 | 4.910  | -22.980 | 4582.614 | -24.850 | 24.940  | 3671.610 | 26.370  | 21.000  |
| 21. | 5958.664 | 4.460  | -23.130 | 4545.713 | -24.830 | 25.130  | 3703.222 | 26.340  | 21.370  |
| 22. | 5966.369 | 4.000  | -23.260 | 4509.285 | -24.620 | 25.290  | 3735.507 | 26.080  | 22.000  |
| 23. | 5973.229 | 3.530  | -23.360 | 4473.702 | -24.160 | 25.420  | 3767.200 | 25.530  | 22.000  |
| 24. | 5979.216 | 3.040  | -23.450 | 4439.425 | -23.340 | 25.530  | 3796.121 | 24.590  | 23.110  |
| 25. | 5984.316 | 2.550  | -23.520 | 4407.093 | -22.010 | 25.620  | 3827.626 | 23.130  | 23.330  |
| 26. | 5988.511 | 2.050  | -23.570 | 4377.571 | -19.970 | 25.660  | 3859.020 | 20.520  | 23.610  |
| 27. | 5991.766 | 1.540  | -23.610 | 4352.020 | -16.910 | 25.740  | 3876.618 | 17.670  | 23.700  |
| 28. | 5994.132 | 1.030  | -23.640 | 4331.917 | -12.550 | 25.770  | 3897.453 | 13.090  | 23.700  |
| 29. | 5995.542 | .520   | -23.660 | 4316.905 | -6.770  | 25.600  | 3909.706 | 7.050   | 23.900  |
| 30. | 5996.013 | 0.000  | -23.670 | 4314.379 | 0.000   | 25.610  | 3913.778 | -0.000  | 24.000  |
| 31. | 5995.542 | -.520  | -23.660 | 4318.905 | 6.770   | 25.800  | 3909.706 | -7.050  | 23.980  |
| 32. | 5994.132 | -1.030 | -23.640 | 4331.917 | 12.550  | 25.770  | 3897.453 | -13.090 | 23.910  |
| 33. | 5991.766 | -1.540 | -23.610 | 4352.020 | 16.910  | 25.740  | 3876.618 | -17.670 | 23.700  |
| 34. | 5988.511 | -2.050 | -23.570 | 4377.571 | 19.970  | 25.660  | 3859.020 | -20.520 | 23.610  |
| 35. | 5984.316 | -2.550 | -23.520 | 4407.093 | 22.010  | 25.620  | 3827.626 | -23.130 | 23.330  |
| 36. | 5979.216 | -3.040 | -23.450 | 4439.425 | 23.340  | 25.530  | 3796.121 | -24.590 | 23.110  |
| 37. | 5973.229 | -3.530 | -23.360 | 4473.702 | 24.160  | 25.420  | 3767.200 | -25.530 | 22.700  |
| 38. | 5966.369 | -4.000 | -23.260 | 4509.289 | 24.620  | 25.290  | 3735.507 | -26.080 | 22.400  |
| 39. | 5958.664 | -4.460 | -23.130 | 4545.713 | 24.830  | 25.130  | 3703.222 | -26.340 | 21.970  |
| 40. | 5950.142 | -4.910 | -22.980 | 4582.614 | 24.850  | 24.940  | 3671.610 | -26.370 | 21.900  |
| 41. | 5940.838 | -5.340 | -22.810 | 4619.706 | 24.710  | 24.720  | 3640.056 | -26.220 | 20.940  |
| 42. | 5930.791 | -5.740 | -22.600 | 4656.755 | 24.450  | 24.460  | 3609.101 | -25.900 | 20.350  |
| 43. | 5920.069 | -6.120 | -22.360 | 4693.562 | 24.050  | 24.160  | 3578.032 | -25.500 | 19.700  |
| 44. | 5908.668 | -6.460 | -22.070 | 4729.947 | 23.630  | 23.610  | 3549.720 | -24.840 | 18.980  |
| 45. | 5896.712 | -6.770 | -21.740 | 4765.744 | 23.060  | 23.410  | 3521.609 | -24.120 | 18.210  |
| 46. | 5884.260 | -7.030 | -21.340 | 4800.792 | 22.450  | 22.930  | 3494.731 | -23.260 | 17.360  |
| 47. | 5871.400 | -7.250 | -20.870 | 4834.930 | 21.730  | 22.600  | 3469.204 | -22.290 | 16.480  |
| 48. | 5856.240 | -7.400 | -20.320 | 4867.990 | 20.910  | 21.740  | 3445.136 | -21.190 | 15.520  |
| 49. | 5844.903 | -7.470 | -19.660 | 4899.757 | 20.000  | 21.000  | 3422.625 | -19.570 | 14.500  |



Z-PLANE (XY-PLANE) QUARTZ

|     | LMGVEL   | LPM12  | LPM13   | FSPM12  | FSPM13  | SSRVEL   | SSPM12  | SSPM13  |
|-----|----------|--------|---------|---------|---------|----------|---------|---------|
| 50. | 5831.534 | -7.460 | -10.890 | 10.970  | 20.120  | 3491.762 | -16.630 | 13.420  |
| 51. | 5818.303 | -7.350 | -17.360 | 17.610  | 19.100  | 3302.629 | -17.170 | 12.220  |
| 52. | 5805.406 | -7.120 | -16.070 | 16.520  | 17.900  | 3365.303 | -15.600 | 11.000  |
| 53. | 5793.066 | -6.760 | -15.500 | 15.070  | 16.500  | 3349.851 | -13.920 | 9.830   |
| 54. | 5781.532 | -6.240 | -14.060 | 13.440  | 14.870  | 3336.334 | -12.150 | 8.520   |
| 55. | 5771.075 | -5.570 | -12.300 | 11.630  | 12.950  | 3324.804 | -10.280 | 7.150   |
| 56. | 5761.983 | -4.730 | -10.270 | 9.620   | 10.840  | 3315.309 | -8.320  | 5.670   |
| 57. | 5754.536 | -3.720 | -7.990  | 7.420   | 8.420   | 3307.884 | -6.310  | 4.070   |
| 58. | 5749.001 | -2.570 | -5.480  | 5.050   | 5.770   | 3302.359 | -4.230  | 2.530   |
| 59. | 5745.504 | -1.310 | -2.790  | 2.560   | 2.930   | 3299.356 | -2.130  | 1.470   |
| 60. | 5744.429 | 0.000  | 0.000   | 0.000   | 0.000   | 3298.286 | 0.000   | 0.000   |
| 61. | 5745.584 | 1.310  | 2.750   | -2.560  | -2.530  | 3298.286 | 2.130   | -1.470  |
| 62. | 5749.001 | 2.570  | 5.480   | -5.050  | -5.770  | 3302.359 | 4.230   | -2.530  |
| 63. | 5754.536 | 3.720  | 7.990   | -7.420  | -8.420  | 3307.884 | 6.310   | -4.070  |
| 64. | 5761.983 | 4.730  | 10.270  | -9.620  | -10.840 | 3315.309 | 8.320   | -5.670  |
| 65. | 5771.075 | 5.570  | 12.300  | -11.630 | -12.950 | 3324.804 | 10.280  | -7.150  |
| 66. | 5781.532 | 6.240  | 14.060  | -13.440 | -14.870 | 3336.334 | 12.150  | -8.520  |
| 67. | 5793.066 | 6.760  | 15.580  | -15.070 | -16.500 | 3349.851 | 13.920  | -9.830  |
| 68. | 5805.406 | 7.120  | 16.870  | -16.240 | -17.950 | 3365.303 | 15.600  | -11.000 |
| 69. | 5818.303 | 7.350  | 18.360  | -17.610 | -19.100 | 3382.629 | 17.170  | -12.220 |
| 70. | 5831.534 | 7.460  | 18.890  | -18.970 | -20.120 | 3491.762 | 18.630  | -13.420 |
| 71. | 5844.903 | 7.470  | 19.660  | -20.000 | -21.000 | 3482.625 | 19.570  | -14.500 |
| 72. | 5858.240 | 7.400  | 20.320  | -20.910 | -21.740 | 3445.136 | 21.150  | -16.220 |
| 73. | 5871.400 | 7.250  | 20.070  | -21.730 | -22.300 | 3459.204 | 22.290  | -16.770 |
| 74. | 5884.260 | 7.030  | 21.340  | -22.480 | -23.830 | 3444.731 | 23.260  | -17.300 |
| 75. | 5896.712 | 6.770  | 22.740  | -23.080 | -25.410 | 3421.809 | 24.120  | -17.810 |
| 76. | 5908.666 | 6.460  | 24.070  | -23.630 | -27.040 | 3549.720 | 24.840  | -18.300 |
| 77. | 5920.049 | 6.120  | 25.360  | -24.090 | -28.710 | 3576.932 | 25.440  | -18.770 |
| 78. | 5930.791 | 5.740  | 26.600  | -24.450 | -30.420 | 3609.101 | 25.900  | -19.200 |
| 79. | 5940.838 | 5.340  | 27.810  | -24.710 | -32.160 | 3640.058 | 26.220  | -19.590 |
| 80. | 5950.142 | 4.910  | 28.940  | -24.850 | -33.930 | 3671.610 | 26.370  | -19.840 |
| 81. | 5958.664 | 4.460  | 30.130  | -24.850 | -35.720 | 3703.822 | 26.340  | -19.970 |
| 82. | 5966.369 | 4.000  | 31.360  | -24.620 | -37.530 | 3735.507 | 26.060  | -20.000 |
| 83. | 5973.229 | 3.530  | 32.360  | -24.160 | -39.360 | 3767.200 | 25.530  | -20.000 |
| 84. | 5979.218 | 3.040  | 33.450  | -23.340 | -41.210 | 3798.121 | 24.590  | -19.810 |
| 85. | 5984.316 | 2.550  | 34.520  | -22.010 | -43.080 | 3828.626 | 23.130  | -19.330 |
| 86. | 5988.511 | 2.050  | 35.570  | -19.970 | -44.970 | 3858.950 | 20.920  | -18.610 |
| 87. | 5991.766 | 1.540  | 36.610  | -16.910 | -46.880 | 3878.618 | 17.670  | -17.770 |
| 88. | 5994.132 | 1.030  | 37.640  | -12.550 | -48.810 | 3897.653 | 13.890  | -16.840 |
| 89. | 5995.542 | .520   | 38.660  | -6.770  | -50.600 | 3919.706 | 7.050   | -15.810 |
| 90. | 5996.013 | -0.000 | 39.670  | 0.000   | -52.340 | 3943.978 | -0.000  | -14.690 |
| 91. | 5995.542 | -0.520 | 40.660  | 6.770   | -54.030 | 3969.706 | -7.050  | -13.500 |
| 92. | 5994.132 | -1.030 | 41.610  | 12.550  | -55.670 | 3997.453 | -13.690 | -12.170 |
| 93. | 5991.766 | -1.540 | 42.520  | 18.910  | -57.260 | 4027.618 | -17.670 | -10.740 |
| 94. | 5988.511 | -2.050 | 43.370  | 25.340  | -58.810 | 4059.950 | -20.520 | -9.200  |
| 95. | 5984.316 | -2.550 | 44.070  | 31.850  | -60.320 | 4093.822 | -23.130 | -7.550  |
| 96. | 5979.218 | -3.040 | 44.520  | 38.360  | -61.790 | 4129.121 | -25.530 | -5.810  |
| 97. | 5973.229 | -3.530 | 44.810  | 44.810  | -63.220 | 4165.507 | -27.150 | -4.000  |
| 98. | 5966.369 | -4.000 | 45.040  | 51.240  | -64.620 | 4202.900 | -28.000 | -2.150  |
| 99. | 5958.664 | -4.460 | 45.210  | 57.630  | -65.990 | 4241.300 | -28.340 | -0.200  |

Z-PLANE (XY-PLANE) QUARTZ

|      | LMQVEL   | LPMI12 | LPMI13  | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 100. | 5950.142 | -4.910 | 22.980  | 4582.614 | 24.650  | -24.940 | 3671.610 | -26.374 | -21.855 |
| 101. | 5940.836 | -5.340 | 22.410  | 4619.706 | 24.710  | -24.720 | 3640.058 | -26.220 | -20.950 |
| 102. | 5930.791 | -5.740 | 22.600  | 4656.755 | 24.450  | -24.460 | 3605.101 | -25.500 | -20.350 |
| 103. | 5920.045 | -6.120 | 22.360  | 4693.562 | 24.050  | -24.160 | 3576.932 | -25.440 | -19.700 |
| 104. | 5908.666 | -6.460 | 22.070  | 4729.947 | 23.630  | -23.610 | 3549.720 | -24.640 | -19.050 |
| 105. | 5896.712 | -6.770 | 21.740  | 4765.744 | 23.060  | -23.410 | 3521.604 | -24.120 | -18.210 |
| 106. | 5884.260 | -7.030 | 21.340  | 4800.792 | 22.450  | -22.930 | 3494.731 | -23.260 | -17.350 |
| 107. | 5871.400 | -7.250 | 20.870  | 4834.930 | 22.450  | -22.310 | 3469.204 | -22.290 | -16.450 |
| 108. | 5858.240 | -7.400 | 20.320  | 4867.990 | 20.510  | -21.740 | 3445.136 | -21.190 | -15.520 |
| 109. | 5844.903 | -7.470 | 19.660  | 4899.797 | 20.000  | -21.000 | 3422.625 | -19.570 | -14.590 |
| 110. | 5831.534 | -7.460 | 18.890  | 4930.161 | 18.970  | -20.120 | 3401.762 | -18.630 | -13.620 |
| 111. | 5818.303 | -7.350 | 17.960  | 4958.673 | 17.610  | -19.100 | 3382.629 | -17.170 | -12.250 |
| 112. | 5805.406 | -7.120 | 16.070  | 4985.705 | 16.520  | -17.500 | 3365.303 | -15.600 | -11.050 |
| 113. | 5793.066 | -6.760 | 15.080  | 5010.404 | 15.070  | -16.500 | 3349.851 | -13.920 | -9.820  |
| 114. | 5781.532 | -6.240 | 14.460  | 5032.646 | 13.440  | -14.470 | 3336.334 | -12.150 | -8.250  |
| 115. | 5771.075 | -5.570 | 12.300  | 5052.289 | 11.630  | -12.950 | 3324.804 | -10.280 | -7.160  |
| 116. | 5761.983 | -4.730 | 10.270  | 5068.660 | 9.620   | -10.640 | 3315.304 | -8.320  | -5.750  |
| 117. | 5754.538 | -3.720 | 7.990   | 5082.171 | 7.420   | -8.420  | 3317.664 | -6.310  | -4.310  |
| 118. | 5749.001 | -2.570 | 5.480   | 5091.691 | 5.050   | -5.770  | 3302.559 | -4.230  | -2.930  |
| 119. | 5745.584 | -1.310 | 2.790   | 5097.820 | 2.560   | -2.930  | 3299.356 | -2.130  | -1.440  |
| 120. | 5744.425 | 0.000  | -0.000  | 5099.614 | -0.000  | 0.000   | 3298.206 | 0.000   | 0.000   |
| 121. | 5745.584 | 1.310  | -2.790  | 5097.820 | -2.560  | 2.930   | 3298.356 | 2.130   | 1.440   |
| 122. | 5745.001 | 2.570  | -5.480  | 5091.691 | -5.050  | 5.770   | 3302.555 | 4.230   | 2.930   |
| 123. | 5754.538 | 3.720  | -7.990  | 5082.171 | -7.420  | 8.420   | 3315.304 | 6.310   | 4.310   |
| 124. | 5761.983 | 4.730  | -10.270 | 5068.660 | -9.620  | 10.640  | 3317.664 | 8.320   | 5.750   |
| 125. | 5771.075 | 5.570  | -12.300 | 5052.289 | -11.630 | 12.950  | 3324.804 | 10.280  | 7.160   |
| 126. | 5781.532 | 6.240  | -14.460 | 5032.646 | -13.440 | 14.470  | 3336.334 | 12.150  | 5.250   |
| 127. | 5793.066 | 6.760  | -15.580 | 5010.404 | -15.070 | 16.500  | 3349.851 | 13.920  | 3.820   |
| 128. | 5805.406 | 7.120  | -16.870 | 4985.705 | -16.520 | 17.500  | 3365.303 | 15.600  | 2.450   |
| 129. | 5818.303 | 7.350  | -17.960 | 4958.673 | -17.610 | 18.100  | 3382.629 | 17.170  | 1.220   |
| 130. | 5831.534 | 7.460  | -18.690 | 4930.161 | -18.970 | 19.100  | 3401.762 | 18.630  | 0.250   |
| 131. | 5844.903 | 7.470  | -19.660 | 4899.797 | -20.000 | 20.120  | 3422.625 | 19.570  | 0.520   |
| 132. | 5858.240 | 7.400  | -20.320 | 4867.990 | -20.910 | 21.740  | 3445.136 | 21.190  | 1.520   |
| 133. | 5871.400 | 7.250  | -20.870 | 4834.930 | -21.730 | 22.310  | 3469.204 | 22.290  | 2.450   |
| 134. | 5884.260 | 7.030  | -21.340 | 4800.792 | -22.450 | 23.260  | 3494.731 | 23.260  | 3.250   |
| 135. | 5896.712 | 6.770  | -21.740 | 4765.744 | -23.060 | 23.410  | 3521.604 | 24.120  | 3.950   |
| 136. | 5908.666 | 6.460  | -22.070 | 4729.947 | -23.630 | 23.610  | 3549.720 | 24.640  | 4.500   |
| 137. | 5920.045 | 6.120  | -22.360 | 4693.562 | -24.090 | 24.160  | 3576.932 | 25.440  | 4.900   |
| 138. | 5930.791 | 5.740  | -22.600 | 4656.755 | -24.450 | 24.460  | 3605.101 | 25.900  | 5.150   |
| 139. | 5940.836 | 5.340  | -22.410 | 4619.706 | -24.710 | 24.720  | 3640.058 | 26.220  | 5.250   |
| 140. | 5950.142 | 4.910  | -22.980 | 4582.614 | -24.650 | 24.540  | 3671.610 | 26.374  | 5.150   |
| 141. | 5958.664 | 4.460  | -23.130 | 4545.713 | -24.830 | 25.130  | 3703.522 | 26.340  | 4.950   |
| 142. | 5968.369 | 4.000  | -23.260 | 4509.289 | -24.620 | 25.290  | 3735.507 | 26.000  | 4.600   |
| 143. | 5973.229 | 3.530  | -23.360 | 4473.702 | -24.160 | 25.420  | 3767.200 | 25.590  | 4.150   |
| 144. | 5979.216 | 3.040  | -23.450 | 4439.425 | -23.340 | 25.530  | 3799.121 | 24.590  | 3.350   |
| 145. | 5984.310 | 2.550  | -23.520 | 4407.093 | -22.010 | 25.620  | 3827.628 | 23.130  | 2.350   |
| 146. | 5988.511 | 2.050  | -23.570 | 4377.571 | -19.970 | 25.660  | 3854.050 | 20.920  | 1.350   |
| 147. | 5991.766 | 1.540  | -23.610 | 4352.020 | -16.910 | 25.740  | 3878.618 | 17.670  | 0.350   |
| 148. | 5994.132 | 1.030  | -23.640 | 4331.917 | -12.550 | 25.770  | 3897.453 | 13.690  | -0.650  |
| 149. | 5995.542 | 0.520  | -23.660 | 4318.905 | -8.770  | 25.800  | 3909.700 | 7.050   | -1.650  |

Z-PLANE (XY-PLANE) QUARTZ

BULK

|      | LMGVEL   | LPM112 | LPM113  | FSRWEL   | FSPM112 | FSPM113 | SSRWEL   | SSPM112 | SSPM113 |
|------|----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 154. | 5996.013 | -0.000 | -23.670 | 4314.379 | 0.000   | 25.010  | 3913.976 | -0.000  | 24.000  |
| 155. | 5995.542 | -0.520 | -23.600 | 4310.905 | 6.770   | 25.000  | 3909.706 | -7.050  | 23.900  |
| 156. | 5994.332 | -1.030 | -23.640 | 4331.917 | 12.550  | 25.770  | 3897.453 | -13.490 | 23.910  |
| 157. | 5991.786 | -1.540 | -23.610 | 4352.020 | 18.910  | 25.740  | 3876.616 | -17.270 | 23.700  |
| 158. | 5988.511 | -2.050 | -23.570 | 4377.571 | 24.970  | 25.680  | 3854.850 | -20.920 | 23.610  |
| 159. | 5984.318 | -2.550 | -23.520 | 4407.093 | 22.010  | 25.620  | 3827.620 | -23.130 | 23.390  |
| 156. | 5979.216 | -3.040 | -23.450 | 4439.425 | 23.340  | 25.530  | 3796.121 | -24.590 | 23.110  |
| 157. | 5973.229 | -3.530 | -23.360 | 4473.702 | 24.160  | 25.420  | 3767.200 | -25.530 | 22.160  |
| 158. | 5966.365 | -4.000 | -23.260 | 4509.269 | 24.620  | 25.290  | 3735.507 | -26.080 | 22.400  |
| 159. | 5958.664 | -4.460 | -23.130 | 4545.713 | 24.830  | 25.130  | 3703.522 | -26.340 | 21.910  |
| 160. | 5950.142 | -4.910 | -22.980 | 4582.614 | 24.650  | 24.940  | 3671.610 | -26.370 | 21.440  |
| 161. | 5940.836 | -5.340 | -22.810 | 4619.706 | 24.710  | 24.720  | 3644.050 | -26.220 | 20.990  |
| 162. | 5930.791 | -5.740 | -22.600 | 4656.755 | 24.450  | 24.460  | 3609.101 | -25.900 | 20.390  |
| 163. | 5920.049 | -6.120 | -22.360 | 4693.562 | 24.090  | 24.160  | 3576.932 | -25.440 | 19.700  |
| 164. | 5908.666 | -6.480 | -22.070 | 4729.947 | 23.630  | 23.610  | 3549.720 | -24.640 | 18.900  |
| 165. | 5896.712 | -6.770 | -21.740 | 4765.744 | 23.060  | 23.410  | 3521.619 | -24.120 | 18.210  |
| 166. | 5884.260 | -7.030 | -21.340 | 4800.792 | 22.450  | 22.530  | 3494.731 | -23.260 | 17.300  |
| 167. | 5871.400 | -7.250 | -20.870 | 4834.930 | 21.730  | 22.380  | 3469.204 | -22.290 | 16.480  |
| 168. | 5858.240 | -7.400 | -20.320 | 4867.990 | 20.910  | 21.740  | 3445.136 | -21.190 | 15.920  |
| 169. | 5844.903 | -7.470 | -19.660 | 4899.797 | 20.000  | 21.000  | 3422.625 | -19.970 | 14.900  |
| 170. | 5831.534 | -7.480 | -18.990 | 4930.161 | 18.970  | 20.120  | 3401.762 | -18.630 | 13.920  |
| 171. | 5818.303 | -7.350 | -17.960 | 4958.673 | 17.610  | 19.100  | 3382.629 | -17.170 | 12.920  |
| 172. | 5805.406 | -7.120 | -16.870 | 4985.705 | 16.520  | 17.900  | 3365.303 | -15.600 | 11.900  |
| 173. | 5793.066 | -6.760 | -15.580 | 5010.404 | 15.070  | 16.500  | 3349.951 | -13.920 | 10.930  |
| 174. | 5781.532 | -6.240 | -14.060 | 5032.696 | 13.440  | 14.070  | 3336.334 | -12.190 | 9.920   |
| 175. | 5771.075 | -5.570 | -12.300 | 5052.289 | 11.630  | 12.550  | 3324.004 | -10.260 | 8.910   |
| 176. | 5761.983 | -4.730 | -10.270 | 5068.680 | 9.620   | 10.840  | 3315.309 | -8.320  | 7.960   |
| 177. | 5754.538 | -3.720 | -7.990  | 5082.171 | 7.420   | 8.420   | 3307.084 | -6.310  | 6.970   |
| 178. | 5748.011 | -2.570 | -5.480  | 5091.691 | 5.000   | 5.770   | 3302.556 | -4.230  | 5.930   |
| 179. | 5742.584 | -1.310 | -2.790  | 5097.626 | 2.500   | 2.930   | 3299.356 | -2.130  | 4.840   |
| 180. | 5744.429 | 0.000  | 0.000   | 5099.614 | -0.000  | -0.000  | 3298.286 | 0.000   | -0.000  |

X-PLANE (YZ-PLANE) ROUTE

|     | LNQVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 7863.497 | -0.000 | -0.000 | 6645.215 | 0.000   | 0.000   | 5302.561 | -0.000  | -0.000  |
| 1.  | 7885.005 | 1.250  | -0.000 | 6644.867 | -0.340  | 0.000   | 5381.702 | 1.450   | 0.000   |
| 2.  | 7889.515 | 2.500  | -0.000 | 6643.823 | -0.690  | 0.000   | 5374.130 | -2.000  | 0.000   |
| 3.  | 7896.997 | 3.720  | -0.000 | 6642.084 | -1.030  | 0.000   | 5374.894 | -3.090  | 0.000   |
| 4.  | 7907.396 | 4.900  | -0.000 | 6639.652 | -1.370  | 0.000   | 5369.029 | -4.060  | 0.000   |
| 5.  | 7920.649 | 6.050  | -0.000 | 6636.529 | -1.710  | 0.000   | 5361.611 | -4.990  | 0.000   |
| 6.  | 7936.661 | 7.140  | -0.000 | 6632.718 | -2.060  | 0.000   | 5342.480 | -5.880  | 0.000   |
| 7.  | 7955.332 | 8.100  | -0.000 | 6628.222 | -2.390  | 0.000   | 5330.982 | -6.660  | 0.000   |
| 8.  | 7976.548 | 9.160  | -0.000 | 6623.045 | -2.730  | 0.000   | 5316.357 | -7.400  | 0.000   |
| 9.  | 8000.187 | 10.070 | -0.000 | 6617.152 | -3.070  | 0.000   | 5304.733 | -8.060  | 0.000   |
| 10. | 8026.116 | 10.920 | -0.000 | 6610.668 | -3.400  | 0.000   | 5294.733 | -8.650  | 0.000   |
| 11. | 8054.200 | 11.700 | -0.000 | 6603.480 | -3.730  | 0.000   | 5285.026 | -9.150  | 0.000   |
| 12. | 8084.300 | 12.420 | -0.000 | 6595.634 | -4.060  | 0.000   | 5275.031 | -9.580  | 0.000   |
| 13. | 8116.276 | 13.060 | -0.000 | 6587.137 | -4.390  | 0.000   | 5254.224 | -9.950  | 0.000   |
| 14. | 8149.995 | 13.650 | -0.000 | 6577.997 | -4.710  | 0.000   | 5242.962 | -10.190 | 0.000   |
| 15. | 8185.314 | 14.170 | -0.000 | 6568.223 | -5.030  | 0.000   | 5226.374 | -10.360 | 0.000   |
| 16. | 8222.101 | 14.640 | -0.000 | 6557.823 | -5.350  | 0.000   | 5209.591 | -10.490 | 0.000   |
| 17. | 8260.227 | 15.050 | -0.000 | 6546.807 | -5.660  | 0.000   | 5192.733 | -10.530 | 0.000   |
| 18. | 8299.567 | 15.400 | -0.000 | 6535.166 | -5.970  | 0.000   | 5175.920 | -10.510 | 0.000   |
| 19. | 8340.000 | 15.710 | -0.000 | 6522.971 | -6.270  | 0.000   | 5159.261 | -10.410 | 0.000   |
| 20. | 8381.412 | 15.970 | -0.000 | 6510.173 | -6.570  | 0.000   | 5142.800 | -10.250 | 0.000   |
| 21. | 8423.691 | 16.190 | -0.000 | 6496.804 | -6.860  | 0.000   | 5126.616 | -10.040 | 0.000   |
| 22. | 8466.733 | 16.360 | -0.000 | 6482.877 | -7.150  | 0.000   | 5111.219 | -9.780  | 0.000   |
| 23. | 8510.439 | 16.500 | -0.000 | 6468.406 | -7.440  | 0.000   | 5096.152 | -9.430  | 0.000   |
| 24. | 8554.713 | 16.610 | -0.000 | 6453.405 | -7.720  | 0.000   | 5081.691 | -9.020  | 0.000   |
| 25. | 8599.467 | 16.680 | -0.000 | 6437.888 | -7.990  | 0.000   | 5067.905 | -8.630  | 0.000   |
| 26. | 8644.616 | 16.720 | -0.000 | 6421.870 | -8.260  | 0.000   | 5054.057 | -8.170  | 0.000   |
| 27. | 8690.079 | 16.730 | -0.000 | 6405.368 | -8.520  | 0.000   | 5042.602 | -7.660  | 0.000   |
| 28. | 8735.780 | 16.720 | -0.000 | 6388.396 | -8.770  | 0.000   | 5031.106 | -7.130  | 0.000   |
| 29. | 8781.646 | 16.680 | -0.000 | 6370.976 | -9.020  | 0.000   | 5020.059 | -6.560  | 0.000   |
| 30. | 8827.614 | 16.620 | -0.000 | 6353.121 | -9.250  | 0.000   | 5011.050 | -5.970  | 0.000   |
| 31. | 8873.614 | 16.540 | -0.000 | 6334.851 | -9.400  | 0.000   | 5002.391 | -5.350  | 0.000   |
| 32. | 8919.567 | 16.440 | -0.000 | 6316.183 | -9.710  | 0.000   | 4994.705 | -4.720  | 0.000   |
| 33. | 8965.476 | 16.320 | -0.000 | 6297.139 | -9.920  | 0.000   | 4988.012 | -4.070  | 0.000   |
| 34. | 9011.225 | 16.190 | -0.000 | 6277.737 | -10.130 | 0.000   | 4982.324 | -3.410  | 0.000   |
| 35. | 9056.785 | 16.040 | -0.000 | 6257.996 | -10.330 | 0.000   | 4977.647 | -2.750  | 0.000   |
| 36. | 9102.105 | 15.880 | -0.000 | 6237.943 | -10.510 | 0.000   | 4973.966 | -2.060  | 0.000   |
| 37. | 9147.135 | 15.710 | -0.000 | 6217.593 | -10.690 | 0.000   | 4971.337 | -1.420  | 0.000   |
| 38. | 9191.844 | 15.510 | -0.000 | 6196.971 | -10.860 | 0.000   | 4969.693 | -0.760  | 0.000   |
| 39. | 9236.176 | 15.310 | -0.000 | 6176.096 | -11.020 | 0.000   | 4968.042 | -0.000  | 0.000   |
| 40. | 9280.102 | 15.100 | -0.000 | 6155.999 | -11.170 | 0.000   | 4968.370 | 0.540   | 0.000   |
| 41. | 9323.577 | 14.860 | -0.000 | 6133.696 | -11.300 | 0.000   | 4970.657 | 1.160   | 0.000   |
| 42. | 9366.570 | 14.650 | -0.000 | 6112.213 | -11.430 | 0.000   | 4972.880 | 1.770   | 0.000   |
| 43. | 9409.046 | 14.410 | -0.000 | 6090.576 | -11.540 | 0.000   | 4976.012 | 2.360   | 0.000   |
| 44. | 9450.974 | 14.170 | -0.000 | 6068.808 | -11.640 | 0.000   | 4980.025 | 2.930   | 0.000   |
| 45. | 9492.323 | 13.920 | -0.000 | 6046.915 | -11.730 | 0.000   | 4984.884 | 3.470   | 0.000   |
| 46. | 9533.065 | 13.660 | -0.000 | 6024.982 | -11.810 | 0.000   | 4990.556 | 3.980   | 0.000   |
| 47. | 9573.174 | 13.390 | -0.000 | 6002.977 | -11.870 | 0.000   | 4997.083 | 4.470   | 0.000   |
| 48. | 9612.622 | 13.120 | -0.000 | 5980.944 | -11.920 | 0.000   | 5004.185 | 4.930   | 0.000   |
| 49. | 9651.386 | 12.850 | -0.000 | 5958.911 | -11.960 | 0.000   | 5012.061 | 5.360   | 0.000   |

BULK

X-PLANE (YZ-PLANE) RUTILE

|     | LPHI12    | LPHI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|-----------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 9689.443  | -0.000 | 5936.904 | -11.980 | 0.000   | 5020.588 | 6.120   | 0.000   |
| 51. | 9726.772  | -0.000 | 5914.952 | -11.990 | 0.000   | 5029.720 | 6.120   | 0.000   |
| 52. | 9763.351  | -0.000 | 5893.040 | -11.980 | 0.000   | 5034.412 | 6.460   | 0.000   |
| 53. | 9799.162  | -0.000 | 5871.316 | -11.960 | 0.000   | 5043.617 | 6.760   | 0.000   |
| 54. | 9834.185  | -0.000 | 5849.693 | -11.920 | 0.000   | 5060.287 | 7.630   | 0.000   |
| 55. | 9868.604  | -0.000 | 5828.233 | -11.860 | 0.000   | 5071.373 | 7.260   | 0.000   |
| 56. | 9901.802  | -0.000 | 5806.967 | -11.790 | 0.000   | 5082.827 | 7.460   | 0.000   |
| 57. | 9934.364  | -0.000 | 5785.921 | -11.710 | 0.000   | 5094.600 | 7.630   | 0.000   |
| 58. | 9966.875  | -0.000 | 5765.125 | -11.600 | 0.000   | 5106.842 | 7.770   | 0.000   |
| 59. | 9998.921  | -0.000 | 5744.607 | -11.480 | 0.000   | 5119.904 | 7.870   | 0.000   |
| 60. | 10026.890 | -0.000 | 5724.394 | -11.350 | 0.000   | 5133.338 | 7.850   | 0.000   |
| 61. | 10055.970 | -0.000 | 5704.516 | -11.190 | 0.000   | 5143.895 | 7.590   | 0.000   |
| 62. | 10084.145 | -0.000 | 5684.995 | -11.020 | 0.000   | 5156.526 | 8.000   | 0.000   |
| 63. | 10111.417 | -0.000 | 5665.871 | -10.830 | 0.000   | 5169.106 | 7.590   | 0.000   |
| 64. | 10137.764 | -0.000 | 5647.160 | -10.630 | 0.000   | 5181.826 | 7.940   | 0.000   |
| 65. | 10163.180 | -0.000 | 5628.893 | -10.400 | 0.000   | 5194.403 | 7.670   | 0.000   |
| 66. | 10187.657 | -0.000 | 5611.097 | -10.160 | 0.000   | 5206.870 | 7.770   | 0.000   |
| 67. | 10211.186 | -0.000 | 5593.797 | -9.900  | 0.000   | 5219.185 | 7.640   | 0.000   |
| 68. | 10233.761 | -0.000 | 5577.019 | -9.630  | 0.000   | 5231.305 | 7.490   | 0.000   |
| 69. | 10255.374 | -0.000 | 5560.790 | -9.330  | 0.000   | 5243.109 | 7.320   | 0.000   |
| 70. | 10276.015 | -0.000 | 5545.132 | -9.020  | 0.000   | 5254.796 | 7.120   | 0.000   |
| 71. | 10295.690 | -0.000 | 5530.072 | -8.690  | 0.000   | 5266.493 | 6.950   | 0.000   |
| 72. | 10314.381 | -0.000 | 5515.631 | -8.350  | 0.000   | 5277.030 | 6.660   | 0.000   |
| 73. | 10332.087 | -0.000 | 5501.832 | -7.990  | 0.000   | 5287.598 | 6.400   | 0.000   |
| 74. | 10348.804 | -0.000 | 5488.696 | -7.610  | 0.000   | 5297.730 | 6.120   | 0.000   |
| 75. | 10364.526 | -0.000 | 5476.248 | -7.220  | 0.000   | 5307.427 | 5.830   | 0.000   |
| 76. | 10379.252 | -0.000 | 5464.503 | -6.810  | 0.000   | 5316.636 | 5.510   | 0.000   |
| 77. | 10392.975 | -0.000 | 5453.482 | -6.390  | 0.000   | 5325.335 | 5.190   | 0.000   |
| 78. | 10405.695 | -0.000 | 5443.202 | -5.950  | 0.000   | 5333.498 | 4.840   | 0.000   |
| 79. | 10417.406 | -0.000 | 5433.681 | -5.500  | 0.000   | 5341.100 | 4.480   | 0.000   |
| 80. | 10428.108 | -0.000 | 5424.934 | -5.040  | 0.000   | 5348.119 | 4.120   | 0.000   |
| 81. | 10437.797 | -0.000 | 5416.975 | -4.570  | 0.000   | 5354.533 | 3.740   | 0.000   |
| 82. | 10446.472 | -0.000 | 5409.817 | -4.090  | 0.000   | 5360.323 | 3.350   | 0.000   |
| 83. | 10454.130 | -0.000 | 5403.473 | -3.600  | 0.000   | 5365.473 | 2.950   | 0.000   |
| 84. | 10460.771 | -0.000 | 5397.953 | -3.100  | 0.000   | 5369.967 | 2.540   | 0.000   |
| 85. | 10466.391 | -0.000 | 5393.267 | -2.600  | 0.000   | 5373.792 | 2.130   | 0.000   |
| 86. | 10470.992 | -0.000 | 5389.421 | -2.080  | 0.000   | 5376.937 | 1.710   | 0.000   |
| 87. | 10474.571 | -0.000 | 5386.424 | -1.570  | 0.000   | 5379.392 | 1.290   | 0.000   |
| 88. | 10477.126 | -0.000 | 5384.275 | -1.050  | 0.000   | 5381.151 | .860    | 0.000   |
| 89. | 10478.662 | -0.000 | 5382.991 | -.520   | 0.000   | 5382.200 | .430    | 0.000   |
| 90. | 10479.174 | -0.000 | 5382.561 | 0.000   | 0.000   | 5382.561 | 0.000   | 0.000   |
| 91. | 10478.562 | -0.000 | 5382.991 | .520    | 0.000   | 5382.200 | -.430   | 0.000   |
| 92. | 10477.126 | -0.000 | 5384.275 | 1.050   | 0.000   | 5381.151 | -1.290  | 0.000   |
| 93. | 10466.391 | -0.000 | 5389.421 | 1.570   | 0.000   | 5379.392 | -1.710  | 0.000   |
| 94. | 10454.130 | -0.000 | 5393.267 | 2.080   | 0.000   | 5376.937 | -2.130  | 0.000   |
| 95. | 10446.472 | -0.000 | 5397.953 | 2.600   | 0.000   | 5373.792 | -2.540  | 0.000   |
| 96. | 10437.797 | -0.000 | 5403.473 | 3.100   | 0.000   | 5369.967 | -2.950  | 0.000   |
| 97. | 10428.108 | -0.000 | 5409.817 | 3.600   | 0.000   | 5365.473 | -3.350  | 0.000   |
| 98. | 10417.406 | -0.000 | 5416.975 | 4.090   | 0.000   | 5360.323 | -3.740  | 0.000   |
| 99. | 10405.695 | -0.000 | 5424.934 | 4.570   | 0.000   | 5354.533 | -4.120  | 0.000   |

X-PLANE (YZ-PLANE) RUTILE

|      | LMGVEL    | LPHI12  | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|-----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 10428.100 | -3.210  | -0.000 | 5424.934 | 5.040   | 0.000   | 5340.119 | -4.120  | -3.000  |
| 101. | 10417.406 | -3.530  | -0.000 | 5433.681 | 5.500   | 0.000   | 5341.100 | -4.490  | -0.000  |
| 102. | 10405.695 | -3.650  | -0.000 | 5443.202 | 5.950   | 0.000   | 5333.444 | -4.640  | -0.000  |
| 103. | 10392.975 | -4.170  | -0.000 | 5453.482 | 6.390   | 0.000   | 5325.339 | -5.190  | -0.000  |
| 104. | 10379.252 | -4.490  | -0.000 | 5464.583 | 6.810   | 0.000   | 5316.636 | -5.510  | -0.000  |
| 105. | 10364.526 | -4.810  | -0.000 | 5476.248 | 7.220   | 0.000   | 5307.427 | -5.830  | -0.000  |
| 106. | 10348.804 | -5.130  | -0.000 | 5488.656 | 7.610   | 0.000   | 5297.738 | -6.120  | -0.000  |
| 107. | 10332.087 | -5.450  | -0.000 | 5501.832 | 7.950   | 0.000   | 5287.596 | -6.400  | -0.000  |
| 108. | 10314.381 | -5.770  | -0.000 | 5515.631 | 8.350   | 0.000   | 5277.030 | -6.680  | -0.000  |
| 109. | 10295.690 | -6.090  | -0.000 | 5530.072 | 8.690   | 0.000   | 5266.093 | -6.950  | -0.000  |
| 110. | 10276.019 | -6.410  | -0.000 | 5545.132 | 9.020   | 0.000   | 5254.798 | -7.120  | -0.000  |
| 111. | 10255.374 | -6.730  | -0.000 | 5560.790 | 9.330   | 0.000   | 5243.165 | -7.320  | -0.000  |
| 112. | 10233.761 | -7.050  | -0.000 | 5577.019 | 9.630   | 0.000   | 5231.305 | -7.490  | -0.000  |
| 113. | 10211.186 | -7.370  | -0.000 | 5593.797 | 9.900   | 0.000   | 5219.165 | -7.640  | -0.000  |
| 114. | 10187.657 | -7.690  | -0.000 | 5611.097 | 10.160  | 0.000   | 5206.070 | -7.770  | -0.000  |
| 115. | 10163.180 | -8.010  | -0.000 | 5628.893 | 10.400  | 0.000   | 5194.403 | -7.870  | -0.000  |
| 116. | 10137.764 | -8.320  | -0.000 | 5647.160 | 10.630  | 0.000   | 5181.826 | -7.940  | -0.000  |
| 117. | 10111.417 | -8.640  | -0.000 | 5665.871 | 10.830  | 0.000   | 5169.106 | -7.990  | -0.000  |
| 118. | 10084.149 | -8.950  | -0.000 | 5684.995 | 11.020  | 0.000   | 5156.526 | -8.000  | -0.000  |
| 119. | 10055.970 | -9.270  | -0.000 | 5704.516 | 11.190  | 0.000   | 5143.895 | -7.990  | -0.000  |
| 120. | 10026.950 | -9.580  | -0.000 | 5724.594 | 11.350  | 0.000   | 5131.330 | -7.950  | -0.000  |
| 121. | 9996.921  | -9.890  | -0.000 | 5744.607 | 11.480  | 0.000   | 5118.904 | -7.870  | -0.000  |
| 122. | 9966.075  | -10.190 | -0.000 | 5765.125 | 11.600  | 0.000   | 5106.672 | -7.770  | -0.000  |
| 123. | 9934.364  | -10.500 | -0.000 | 5785.921 | 11.710  | 0.000   | 5094.600 | -7.630  | -0.000  |
| 124. | 9901.802  | -10.800 | -0.000 | 5806.967 | 11.790  | 0.000   | 5082.027 | -7.460  | -0.000  |
| 125. | 9868.404  | -11.110 | -0.000 | 5828.233 | 11.860  | 0.000   | 5071.373 | -7.260  | -0.000  |
| 126. | 9834.185  | -11.460 | -0.000 | 5849.693 | 11.920  | 0.000   | 5060.207 | -7.030  | -0.000  |
| 127. | 9799.162  | -11.700 | -0.000 | 5871.518 | 11.960  | 0.000   | 5049.617 | -6.760  | -0.000  |
| 128. | 9763.351  | -11.990 | -0.000 | 5893.060 | 11.980  | 0.000   | 5039.412 | -6.460  | -0.000  |
| 129. | 9726.772  | -12.280 | -0.000 | 5914.952 | 11.990  | 0.000   | 5029.720 | -6.120  | -0.000  |
| 130. | 9689.443  | -12.570 | -0.000 | 5936.904 | 11.980  | 0.000   | 5020.586 | -5.760  | -0.000  |
| 131. | 9651.366  | -12.850 | -0.000 | 5958.911 | 11.960  | 0.000   | 5012.001 | -5.360  | -0.000  |
| 132. | 9612.622  | -13.120 | -0.000 | 5980.944 | 11.920  | -0.000  | 5004.105 | -4.930  | -0.000  |
| 133. | 9573.174  | -13.390 | -0.000 | 6002.977 | 11.870  | -0.000  | 4997.033 | -4.470  | -0.000  |
| 134. | 9533.065  | -13.660 | -0.000 | 6024.982 | 11.810  | -0.000  | 4990.556 | -3.980  | -0.000  |
| 135. | 9492.323  | -13.920 | -0.000 | 6046.935 | 11.730  | -0.000  | 4984.884 | -3.470  | -0.000  |
| 136. | 9450.974  | -14.170 | -0.000 | 6068.806 | 11.640  | -0.000  | 4980.025 | -2.930  | -0.000  |
| 137. | 9409.046  | -14.410 | -0.000 | 6090.576 | 11.540  | -0.000  | 4976.012 | -2.360  | -0.000  |
| 138. | 9366.570  | -14.650 | -0.000 | 6112.213 | 11.430  | -0.000  | 4972.840 | -1.770  | -0.000  |
| 139. | 9323.577  | -14.880 | -0.000 | 6133.696 | 11.300  | -0.000  | 4970.657 | -1.160  | -0.000  |
| 140. | 9280.102  | -15.100 | -0.000 | 6154.999 | 11.170  | -0.000  | 4969.370 | -0.540  | -0.000  |
| 141. | 9236.178  | -15.310 | -0.000 | 6176.096 | 11.020  | -0.000  | 4969.042 | .700    | -0.000  |
| 142. | 9191.844  | -15.510 | -0.000 | 6196.971 | 10.860  | -0.000  | 4969.693 | 1.700   | -0.000  |
| 143. | 9147.135  | -15.700 | -0.000 | 6217.593 | 10.690  | -0.000  | 4971.337 | 1.420   | -0.000  |
| 144. | 9102.105  | -15.860 | -0.000 | 6237.943 | 10.510  | -0.000  | 4973.946 | 2.060   | -0.000  |
| 145. | 9056.785  | -16.040 | -0.000 | 6257.996 | 10.330  | -0.000  | 4977.647 | 2.750   | -0.000  |
| 146. | 9011.225  | -16.190 | -0.000 | 6277.737 | 10.130  | -0.000  | 4982.324 | 3.410   | -0.000  |
| 147. | 8965.476  | -16.320 | -0.000 | 6297.139 | 9.920   | -0.000  | 4988.012 | 4.070   | -0.000  |
| 148. | 8919.587  | -16.440 | -0.000 | 6316.183 | 9.710   | -0.000  | 4994.705 | 4.720   | -0.000  |
| 149. | 8873.614  | -16.540 | -0.000 | 6334.851 | 9.460   | -0.000  | 5002.391 | 5.350   | -0.000  |

BULK

| X-PLANE (YZ-PLANE) RUTILE |          |        |          |         |         |          |         |         |  |
|---------------------------|----------|--------|----------|---------|---------|----------|---------|---------|--|
|                           | LPMI12   | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |  |
| 150.                      | 8827.614 | 0.000  | 6353.121 | 9.250   | -0.000  | 5011.050 | 0.570   | -0.000  |  |
| 151.                      | 8781.646 | 0.000  | 6370.976 | 9.020   | -0.000  | 5020.659 | 0.560   | -0.000  |  |
| 152.                      | 8735.760 | 0.000  | 6388.398 | 8.770   | -0.000  | 5031.188 | 7.130   | -0.000  |  |
| 153.                      | 8690.079 | 0.000  | 6405.366 | 8.520   | -0.000  | 5042.602 | 7.660   | -0.000  |  |
| 154.                      | 8644.616 | 0.000  | 6421.870 | 8.260   | -0.000  | 5054.057 | 8.170   | -0.000  |  |
| 155.                      | 8599.467 | 0.000  | 6437.888 | 7.990   | -0.000  | 5067.909 | 8.630   | -0.000  |  |
| 156.                      | 8554.713 | 0.000  | 6453.405 | 7.720   | -0.000  | 5081.691 | 9.050   | -0.000  |  |
| 157.                      | 8510.439 | 0.000  | 6468.406 | 7.440   | -0.000  | 5096.152 | 9.430   | -0.000  |  |
| 158.                      | 8466.733 | 0.000  | 6482.877 | 7.150   | -0.000  | 5111.219 | 9.760   | -0.000  |  |
| 159.                      | 8423.691 | 0.000  | 6496.804 | 6.860   | -0.000  | 5126.016 | 10.040  | -0.000  |  |
| 160.                      | 8381.412 | 0.000  | 6510.173 | 6.570   | -0.000  | 5142.060 | 10.250  | -0.000  |  |
| 161.                      | 8340.000 | 0.000  | 6522.971 | 6.270   | -0.000  | 5159.261 | 10.410  | -0.000  |  |
| 162.                      | 8299.567 | 0.000  | 6535.166 | 5.970   | -0.000  | 5175.920 | 10.510  | -0.000  |  |
| 163.                      | 8260.227 | 0.000  | 6546.807 | 5.660   | -0.000  | 5192.733 | 10.530  | -0.000  |  |
| 164.                      | 8222.101 | 0.000  | 6557.823 | 5.350   | -0.000  | 5209.291 | 10.490  | -0.000  |  |
| 165.                      | 8185.314 | 0.000  | 6568.223 | 5.030   | -0.000  | 5226.374 | 10.380  | -0.000  |  |
| 166.                      | 8149.995 | 0.000  | 6577.957 | 4.710   | -0.000  | 5242.962 | 10.190  | -0.000  |  |
| 167.                      | 8116.276 | 0.000  | 6587.137 | 4.390   | -0.000  | 5259.224 | 9.920   | -0.000  |  |
| 168.                      | 8084.300 | 0.000  | 6595.634 | 4.060   | -0.000  | 5275.031 | 9.560   | -0.000  |  |
| 169.                      | 8054.200 | 0.000  | 6603.400 | 3.730   | -0.000  | 5290.246 | 9.150   | -0.000  |  |
| 170.                      | 8026.116 | 0.000  | 6610.668 | 3.400   | -0.000  | 5304.733 | 8.650   | -0.000  |  |
| 171.                      | 8000.167 | 0.000  | 6617.192 | 3.070   | -0.000  | 5318.357 | 8.060   | -0.000  |  |
| 172.                      | 7976.540 | 0.000  | 6623.045 | 2.730   | -0.000  | 5330.962 | 7.400   | -0.000  |  |
| 173.                      | 7955.332 | 0.000  | 6628.222 | 2.390   | -0.000  | 5342.480 | 6.660   | -0.000  |  |
| 174.                      | 7936.661 | 0.000  | 6632.718 | 2.060   | -0.000  | 5352.728 | 5.860   | -0.000  |  |
| 175.                      | 7920.649 | 0.000  | 6636.529 | 1.710   | -0.000  | 5361.611 | 4.990   | -0.000  |  |
| 176.                      | 7907.396 | 0.000  | 6639.652 | 1.370   | -0.000  | 5369.029 | 4.060   | -0.000  |  |
| 177.                      | 7896.397 | 0.000  | 6642.084 | 1.030   | -0.000  | 5374.094 | 3.090   | -0.000  |  |
| 178.                      | 7889.515 | 0.000  | 6643.823 | 0.690   | -0.000  | 5379.136 | 2.080   | -0.000  |  |
| 179.                      | 7885.005 | 0.000  | 6644.867 | 0.340   | -0.000  | 5381.702 | 1.050   | -0.000  |  |
| 180.                      | 7883.497 | 0.000  | 6645.215 | -0.000  | -0.000  | 5382.561 | -0.000  | -0.000  |  |

Z-PLANE (XY-PLANE) RESULTS

|     | LNGVEL    | LPHI12 | LPHI13 | FSPVEL   | FSPHI12 | FSPHI13 | SARVEL   | SSPHI12 | SSPHI13 |
|-----|-----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 7887.697  | 0.000  | 0.000  | 6645.215 | 0.000   | 0.000   | 5382.561 | 0.000   | 0.000   |
| 1.  | 7898.779  | 5.990  | 0.000  | 6636.566 | -8.440  | 0.000   | 5382.561 | 0.000   | 0.000   |
| 2.  | 7912.021  | 11.360 | 0.000  | 6611.228 | -16.060 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 3.  | 7945.515  | 15.760 | 0.000  | 6578.615 | -22.390 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 4.  | 7989.416  | 19.050 | 0.000  | 6517.488 | -27.420 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 5.  | 8041.199  | 21.430 | 0.000  | 6457.490 | -31.350 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 6.  | 8098.958  | 23.050 | 0.000  | 6380.853 | -34.440 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 7.  | 8161.020  | 24.110 | 0.000  | 6301.283 | -36.890 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 8.  | 8226.086  | 24.730 | 0.000  | 6216.155 | -38.890 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 9.  | 8292.990  | 25.040 | 0.000  | 6126.559 | -40.560 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 10. | 8361.040  | 25.110 | 0.000  | 6033.399 | -41.980 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 11. | 8429.565  | 24.950 | 0.000  | 5937.243 | -43.220 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 12. | 8498.064  | 24.740 | 0.000  | 5838.771 | -44.310 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 13. | 8566.159  | 24.390 | 0.000  | 5738.409 | -45.290 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 14. | 8633.525  | 23.940 | 0.000  | 5636.547 | -46.170 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 15. | 8699.911  | 23.440 | 0.000  | 5533.531 | -46.940 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 16. | 8765.109  | 22.880 | 0.000  | 5429.665 | -47.710 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 17. | 8829.947  | 22.270 | 0.000  | 5325.742 | -48.390 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 18. | 8894.280  | 21.630 | 0.000  | 5220.493 | -49.000 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 19. | 8958.985  | 20.960 | 0.000  | 5115.699 | -49.550 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 20. | 9023.955  | 20.270 | 0.000  | 5011.098 | -50.050 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 21. | 9089.099  | 19.560 | 0.000  | 4906.932 | -50.490 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 22. | 9154.339  | 18.820 | 0.000  | 4803.467 | -50.870 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 23. | 9219.582  | 18.070 | 0.000  | 4700.892 | -51.190 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 24. | 9284.927  | 17.310 | 0.000  | 4599.524 | -51.440 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 25. | 9350.374  | 16.540 | 0.000  | 4499.605 | -51.610 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 26. | 9415.924  | 15.750 | 0.000  | 4401.410 | -51.690 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 27. | 9481.579  | 14.960 | 0.000  | 4305.225 | -51.680 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 28. | 9547.342  | 14.160 | 0.000  | 4211.345 | -51.570 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 29. | 9613.215  | 13.360 | 0.000  | 4120.074 | -51.370 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 30. | 9679.198  | 12.540 | 0.000  | 4031.751 | -51.090 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 31. | 9745.291  | 11.710 | 0.000  | 3946.714 | -50.740 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 32. | 9811.494  | 10.910 | 0.000  | 3865.249 | -49.440 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 33. | 9877.807  | 10.140 | 0.000  | 3787.944 | -48.730 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 34. | 9944.230  | 9.420  | 0.000  | 3714.765 | -47.520 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 35. | 10010.773 | 8.750  | 0.000  | 3646.362 | -46.000 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 36. | 10077.436 | 8.130  | 0.000  | 3583.054 | -44.110 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 37. | 10144.219 | 7.560  | 0.000  | 3525.220 | -41.790 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 38. | 10211.122 | 7.040  | 0.000  | 3473.184 | -38.960 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 39. | 10278.145 | 6.570  | 0.000  | 3427.296 | -35.520 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 40. | 10345.288 | 6.150  | 0.000  | 3387.872 | -31.400 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 41. | 10412.551 | 5.780  | 0.000  | 3355.195 | -26.520 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 42. | 10479.934 | 5.460  | 0.000  | 3329.511 | -20.890 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 43. | 10547.437 | 5.190  | 0.000  | 3311.017 | -14.410 | 0.000   | 5382.561 | 0.000   | 0.000   |
| 44. | 10615.060 | 4.970  | 0.000  | 3299.851 | -7.370  | 0.000   | 5382.561 | 0.000   | 0.000   |
| 45. | 10682.813 | 4.800  | 0.000  | 3295.112 | 0.000   | 0.000   | 5382.561 | 0.000   | 0.000   |
| 46. | 10750.696 | 4.670  | 0.000  | 3299.861 | 7.370   | 0.000   | 5382.561 | 0.000   | 0.000   |
| 47. | 10818.709 | 4.590  | 0.000  | 3311.017 | 14.410  | 0.000   | 5382.561 | 0.000   | 0.000   |
| 48. | 10886.852 | 4.540  | 0.000  | 3329.511 | 20.890  | 0.000   | 5382.561 | 0.000   | 0.000   |
| 49. | 10955.125 | 4.520  | 0.000  | 3355.195 | 26.520  | 0.000   | 5382.561 | 0.000   | 0.000   |



Z-PLANE (XV-PLANE) RUTILE

|     | LWSVEL   | LPM12   | FSRVEL   | FSPM12  | FSPM13 | SSRWEL   | SSPM12 | SSPM13 |
|-----|----------|---------|----------|---------|--------|----------|--------|--------|
| 50. | 3728.107 | -4.239  | 3307.972 | 31.600  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 51. | 3728.302 | -5.079  | 3427.206 | 35.520  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 52. | 3708.007 | -5.917  | 3473.194 | 38.960  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 53. | 3689.233 | -6.750  | 3525.220 | 41.790  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 54. | 3667.992 | -7.598  | 3583.064 | 44.110  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 55. | 3644.297 | -8.429  | 3646.362 | 46.009  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 56. | 3618.164 | -9.250  | 3714.745 | 47.520  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 57. | 3590.511 | -10.080 | 3787.844 | 48.739  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 58. | 3561.559 | -10.910 | 3865.289 | 49.680  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 59. | 3525.327 | -11.730 | 3946.716 | 50.410  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 60. | 3489.543 | -12.540 | 4031.761 | 50.959  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 61. | 3451.631 | -13.350 | 4120.884 | 51.339  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 62. | 3411.322 | -14.160 | 4213.346 | 51.579  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 63. | 3368.749 | -14.960 | 4309.225 | 51.699  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 64. | 3323.948 | -15.750 | 4408.410 | 51.699  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 65. | 3276.959 | -16.530 | 4499.605 | 51.619  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 66. | 3227.927 | -17.310 | 4599.524 | 51.443  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 67. | 3176.502 | -18.070 | 4700.897 | 51.199  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 68. | 3123.339 | -18.820 | 4803.447 | 50.870  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 69. | 3069.099 | -19.550 | 4906.932 | 50.490  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 70. | 3018.955 | -20.270 | 5011.095 | 50.050  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 71. | 2961.995 | -20.960 | 5115.699 | 49.560  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 72. | 2909.280 | -21.630 | 5220.493 | 49.000  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 73. | 2859.947 | -22.270 | 5325.232 | 48.399  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 74. | 2815.109 | -22.980 | 5429.665 | 47.719  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 75. | 2775.911 | -23.640 | 5533.531 | 46.999  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 76. | 2733.525 | -24.340 | 5636.547 | 46.170  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 77. | 2686.159 | -24.990 | 5738.404 | 45.290  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 78. | 2643.068 | -25.740 | 5838.771 | 44.310  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 79. | 2609.565 | -26.490 | 5937.243 | 43.220  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 80. | 2581.060 | -27.110 | 6033.359 | 41.980  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 81. | 2557.990 | -27.840 | 6126.559 | 40.569  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 82. | 2526.066 | -28.730 | 6216.155 | 38.899  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 83. | 2481.020 | -29.110 | 6301.283 | 37.899  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 84. | 2433.950 | -29.050 | 6380.853 | 36.449  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 85. | 2401.199 | -29.430 | 6453.490 | 31.359  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 86. | 2369.415 | -29.051 | 6517.488 | 27.420  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 87. | 2345.615 | -19.051 | 6570.915 | 22.399  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 88. | 2312.021 | -11.360 | 6611.228 | 16.069  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 89. | 2280.779 | -5.990  | 6636.566 | 8.449   | 0.000  | 5382.561 | 0.000  | 0.000  |
| 90. | 2283.497 | 0.000   | 6645.215 | -0.000  | 0.000  | 5382.561 | -0.000 | 0.000  |
| 91. | 2290.779 | 5.990   | 6636.566 | -8.440  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 92. | 2312.021 | 11.360  | 6611.228 | -16.060 | 0.000  | 5382.561 | -0.000 | 0.000  |
| 93. | 2345.615 | 19.050  | 6570.915 | -22.390 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 94. | 2389.415 | 29.050  | 6517.488 | -27.420 | 0.000  | 5382.561 | -0.000 | 0.000  |
| 95. | 2433.950 | 41.430  | 6453.490 | -31.350 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 96. | 2481.020 | 50.000  | 6380.853 | -34.440 | 0.000  | 5382.561 | -0.000 | 0.000  |
| 97. | 2526.066 | 62.110  | 6301.283 | -36.890 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 98. | 2569.066 | 74.730  | 6216.155 | -38.890 | 0.000  | 5382.561 | -0.000 | 0.000  |
| 99. | 2592.990 | 85.860  | 6126.559 | -40.560 | 0.000  | 5382.561 | 0.000  | 0.000  |

7-PLANE (XY-PLANE) PUTILE

|      | LMGDEL   | LMWII2  | LMWIII | FSPWEL   | FSPWII2 | FSPWII3 | SSPWEL   | SSPWII2 | SSPWII3 |
|------|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 9361.040 | 25.117  | 0.000  | 6033.359 | -41.988 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 101. | 9429.555 | 24.990  | 0.010  | 5917.243 | -43.220 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 102. | 9498.068 | 24.740  | 0.000  | 5878.771 | -44.310 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 103. | 9566.150 | 24.300  | 0.030  | 5738.408 | -45.200 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 104. | 9633.525 | 23.840  | 0.000  | 5676.547 | -46.170 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 105. | 9699.911 | 23.440  | 0.000  | 5633.571 | -46.980 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 106. | 9765.109 | 22.880  | 0.030  | 5629.666 | -47.710 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 107. | 9828.647 | 22.270  | 0.000  | 5625.212 | -49.190 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 108. | 9891.240 | 21.570  | 0.000  | 5620.493 | -49.000 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 109. | 9951.395 | 21.950  | 0.000  | 5615.599 | -49.550 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 110. | 9910.955 | 20.270  | 0.000  | 5611.098 | -50.050 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 111. | 9868.099 | 19.550  | 0.000  | 4806.932 | -50.490 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 112. | 9823.339 | 19.820  | 0.000  | 4803.447 | -50.870 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 113. | 9776.602 | 19.070  | 0.000  | 4700.892 | -51.190 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 114. | 9727.827 | 17.310  | 0.000  | 4599.524 | -51.440 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 115. | 9276.959 | 16.530  | 0.000  | 4499.505 | -51.610 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 116. | 3327.948 | 15.750  | 0.000  | 4401.410 | -51.690 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 117. | 3368.760 | 16.260  | 0.000  | 4305.225 | -51.690 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 118. | 3431.322 | 19.160  | 0.000  | 4211.365 | -51.570 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 119. | 9451.531 | 13.360  | 0.000  | 4120.044 | -51.370 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 120. | 9489.663 | 12.540  | 0.000  | 4031.761 | -50.950 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 121. | 9525.327 | 11.770  | 0.000  | 3966.714 | -50.410 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 122. | 9558.559 | 10.910  | 0.000  | 3955.299 | -49.580 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 123. | 9589.511 | 10.080  | 0.000  | 3787.944 | -48.730 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 124. | 9618.154 | 9.250   | 0.000  | 3716.745 | -47.520 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 125. | 9644.287 | 8.420   | 0.000  | 3646.362 | -45.000 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 126. | 9667.992 | 7.590   | 0.000  | 3583.064 | -44.110 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 127. | 9689.233 | 6.750   | 0.000  | 3525.220 | -41.790 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 128. | 9708.007 | 5.910   | 0.000  | 3473.184 | -39.960 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 129. | 9724.302 | 5.070   | 0.000  | 3427.296 | -35.520 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 130. | 9738.107 | 4.230   | 0.000  | 3387.972 | -31.400 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 131. | 9749.614 | 3.380   | 0.000  | 3355.196 | -25.520 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 132. | 9758.215 | 2.540   | 0.000  | 3329.511 | -20.840 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 133. | 9764.506 | 1.590   | 0.000  | 3311.017 | -14.410 | 0.000   | 5882.561 | 0.000   | 0.000   |
| 134. | 9768.282 | 0.650   | 0.000  | 3299.861 | -7.370  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 135. | 9769.541 | -0.300  | 0.000  | 3296.132 | 0.000   | 0.000   | 5882.561 | 0.000   | 0.000   |
| 136. | 9768.282 | -0.850  | 0.000  | 3299.861 | 7.370   | 0.000   | 5882.561 | 0.000   | 0.000   |
| 137. | 9754.505 | -1.590  | 0.000  | 3311.017 | 14.410  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 138. | 9758.215 | -2.540  | 0.000  | 3329.511 | 20.840  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 139. | 9749.614 | -3.380  | 0.000  | 3355.196 | 26.520  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 140. | 9738.107 | -4.230  | 0.000  | 3387.972 | 31.400  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 141. | 9724.302 | -5.070  | 0.000  | 3427.296 | 35.520  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 142. | 9708.007 | -5.910  | 0.000  | 3473.184 | 38.960  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 143. | 9689.233 | -6.750  | 0.000  | 3525.220 | 41.790  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 144. | 9667.992 | -7.590  | 0.000  | 3583.064 | 44.110  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 145. | 9644.287 | -8.420  | 0.000  | 3646.362 | 45.000  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 146. | 9618.154 | -9.250  | 0.000  | 3716.745 | 47.520  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 147. | 9589.511 | -10.080 | 0.000  | 3787.944 | 48.730  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 148. | 9558.559 | -10.910 | 0.000  | 3865.299 | 49.580  | 0.000   | 5882.561 | 0.000   | 0.000   |
| 149. | 9525.327 | -11.730 | 0.000  | 3946.714 | 50.410  | 0.000   | 5882.561 | 0.000   | 0.000   |

7-PLANE (XY-PLANE) RUTBLE

|      | LNQUEL   | LPMT12  | LDPM13 | FSPVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM17 | SSPM13 |
|------|----------|---------|--------|----------|--------|--------|----------|--------|--------|
| 150. | 3494.543 | -12.569 | 0.000  | 4031.761 | 50.950 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 151. | 3451.531 | -13.350 | 0.000  | 4120.084 | 51.770 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 152. | 3411.322 | -14.150 | 0.000  | 4211.345 | 51.570 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 153. | 3369.749 | -14.960 | 0.000  | 4305.225 | 51.680 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 154. | 3327.968 | -15.750 | 0.000  | 4401.410 | 51.690 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 155. | 3276.959 | -16.530 | 0.000  | 4499.605 | 51.610 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 156. | 3227.827 | -17.310 | 0.000  | 4598.524 | 51.440 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 157. | 3176.602 | -18.070 | 0.000  | 4700.982 | 51.190 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 158. | 3123.339 | -18.820 | 0.000  | 4803.447 | 50.870 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 159. | 3069.099 | -19.550 | 0.000  | 4906.932 | 50.480 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 160. | 3010.955 | -20.270 | 0.000  | 5011.098 | 50.050 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 161. | 2951.985 | -20.960 | 0.000  | 5115.699 | 49.550 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 162. | 2891.280 | -21.530 | 0.000  | 5220.493 | 49.000 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 163. | 2829.947 | -22.070 | 0.000  | 5325.232 | 48.390 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 164. | 2765.109 | -22.580 | 0.000  | 5429.666 | 47.710 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 165. | 2699.911 | -23.040 | 0.000  | 5533.531 | 46.980 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 166. | 2633.525 | -23.440 | 0.000  | 5636.547 | 46.170 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 167. | 2566.159 | -23.790 | 0.000  | 5738.408 | 45.290 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 168. | 2499.064 | -24.090 | 0.000  | 5838.771 | 44.310 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 169. | 2429.565 | -24.340 | 0.000  | 5937.243 | 43.220 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 170. | 2359.860 | -24.540 | 0.000  | 6033.359 | 41.980 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 171. | 2292.990 | -24.690 | 0.000  | 6126.559 | 40.560 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 172. | 2226.045 | -24.790 | 0.000  | 6216.155 | 38.890 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 173. | 2161.020 | -24.840 | 0.000  | 6301.283 | 36.890 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 174. | 2098.958 | -24.850 | 0.000  | 6380.853 | 34.640 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 175. | 2041.199 | -24.830 | 0.000  | 6453.400 | 31.750 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 176. | 1989.416 | -24.780 | 0.000  | 6517.444 | 27.420 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 177. | 1945.515 | -24.610 | 0.000  | 6570.615 | 22.390 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 178. | 1912.021 | -24.320 | 0.000  | 6611.228 | 16.060 | 0.000  | 5382.561 | 0.000  | 0.000  |
| 179. | 1890.779 | -24.000 | 0.000  | 6636.566 | 8.440  | 0.000  | 5382.561 | 0.000  | 0.000  |
| 180. | 1883.497 | 0.000   | 0.000  | 6645.215 | -0.000 | 0.000  | 5382.561 | 0.000  | 0.000  |

| X-PLANE (YZ-PLANE) SAPPHIRE |           |        |        |          |         |         |          |         |         |
|-----------------------------|-----------|--------|--------|----------|---------|---------|----------|---------|---------|
|                             | LNGVEL    | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
| 0.                          | 11192.366 | 4.650  | -0.000 | 6467.934 | -8.030  | -0.000  | 6044.632 | -8.650  | 0.000   |
| 1.                          | 11207.665 | 4.300  | -0.000 | 6451.889 | -8.160  | -0.000  | 6033.526 | -8.550  | 0.000   |
| 2.                          | 11221.762 | 3.940  | -0.000 | 6435.552 | -8.330  | -0.000  | 6024.391 | -8.370  | 0.000   |
| 3.                          | 11234.639 | 3.580  | -0.000 | 6419.000 | -8.460  | -0.000  | 6017.460 | -8.170  | 0.000   |
| 4.                          | 11246.280 | 3.210  | 0.000  | 6402.232 | -8.590  | -0.000  | 6012.753 | -7.960  | 0.000   |
| 5.                          | 11256.675 | 2.850  | 0.000  | 6385.266 | -8.700  | -0.000  | 6013.266 | -7.740  | 0.000   |
| 6.                          | 11265.815 | 2.480  | 0.000  | 6368.125 | -8.810  | -0.000  | 6010.081 | -7.510  | 0.000   |
| 7.                          | 11273.694 | 2.110  | 0.000  | 6350.824 | -8.910  | -0.000  | 6012.074 | -7.270  | 0.000   |
| 8.                          | 11280.312 | 1.740  | 0.000  | 6333.305 | -9.000  | -0.000  | 6016.309 | -7.020  | 0.000   |
| 9.                          | 11285.670 | 1.360  | 0.000  | 6315.827 | -9.060  | -0.000  | 6022.744 | -6.760  | 0.000   |
| 10.                         | 11289.772 | 1.010  | 0.000  | 6298.172 | -9.150  | -0.000  | 6031.347 | -6.490  | 0.000   |
| 11.                         | 11292.626 | .650   | 0.000  | 6280.439 | -9.210  | -0.000  | 6042.075 | -6.370  | 0.000   |
| 12.                         | 11294.243 | .290   | 0.000  | 6262.651 | -9.250  | -0.000  | 6054.600 | -7.450  | 0.000   |
| 13.                         | 11294.637 | -.060  | 0.000  | 6244.827 | -9.290  | -0.000  | 6065.704 | -6.490  | 0.000   |
| 14.                         | 11293.826 | -.410  | 0.000  | 6226.991 | -9.320  | -0.000  | 6086.402 | -9.400  | 0.000   |
| 15.                         | 11291.630 | -.750  | 0.000  | 6209.163 | -9.340  | -0.000  | 6105.136 | -10.410 | 0.000   |
| 16.                         | 11288.674 | -1.080 | 0.000  | 6191.365 | -9.360  | -0.000  | 6125.594 | -11.200 | 0.000   |
| 17.                         | 11284.364 | -1.410 | 0.000  | 6173.620 | -9.330  | -0.000  | 6147.761 | -12.050 | 0.000   |
| 18.                         | 11278.992 | -1.730 | 0.000  | 6155.930 | -9.320  | 0.000   | 6171.545 | -12.640 | -0.000  |
| 19.                         | 11272.532 | -2.030 | 0.000  | 6138.376 | -9.290  | 0.000   | 6196.059 | -13.530 | -0.000  |
| 20.                         | 11265.041 | -2.330 | 0.000  | 6120.922 | -9.240  | 0.000   | 6223.525 | -14.150 | -0.000  |
| 21.                         | 11256.561 | -2.610 | 0.000  | 6103.605 | -9.190  | 0.000   | 6251.563 | -14.700 | -0.000  |
| 22.                         | 11247.137 | -2.860 | 0.000  | 6086.460 | -9.120  | 0.000   | 6280.731 | -15.100 | -0.000  |
| 23.                         | 11236.816 | -3.140 | 0.000  | 6069.498 | -9.040  | 0.000   | 6314.597 | -15.570 | -0.000  |
| 24.                         | 11225.655 | -3.360 | 0.000  | 6052.744 | -8.950  | 0.000   | 6342.175 | -15.930 | -0.000  |
| 25.                         | 11213.706 | -3.600 | 0.000  | 6036.221 | -8.850  | 0.000   | 6374.155 | -16.210 | -0.000  |
| 26.                         | 11201.025 | -3.810 | 0.000  | 6019.951 | -8.730  | 0.000   | 6406.001 | -16.410 | -0.000  |
| 27.                         | 11187.650 | -4.000 | 0.000  | 6003.956 | -8.600  | 0.000   | 6437.976 | -16.550 | -0.000  |
| 28.                         | 11173.755 | -4.170 | 0.000  | 5988.250 | -8.460  | -0.000  | 6473.536 | -16.610 | -0.000  |
| 29.                         | 11159.296 | -4.310 | 0.000  | 5972.878 | -8.300  | -0.000  | 6517.344 | -16.610 | -0.000  |
| 30.                         | 11144.365 | -4.440 | 0.000  | 5957.838 | -8.130  | -0.000  | 6564.247 | -16.540 | -0.000  |
| 31.                         | 11129.112 | -4.540 | 0.000  | 5943.156 | -7.950  | -0.000  | 6575.180 | -16.400 | -0.000  |
| 32.                         | 11113.545 | -4.620 | 0.000  | 5928.859 | -7.760  | -0.000  | 6606.750 | -16.200 | -0.000  |
| 33.                         | 11097.784 | -4.670 | 0.000  | 5914.962 | -7.550  | -0.000  | 6642.049 | -15.920 | -0.000  |
| 34.                         | 11081.907 | -4.700 | 0.000  | 5901.486 | -7.340  | -0.000  | 6674.842 | -15.560 | -0.000  |
| 35.                         | 11066.010 | -4.700 | 0.000  | 5888.450 | -7.100  | -0.000  | 6706.978 | -15.100 | -0.000  |
| 36.                         | 11050.161 | -4.670 | 0.000  | 5875.875 | -6.860  | -0.000  | 6736.304 | -14.710 | -0.000  |
| 37.                         | 11034.535 | -4.610 | 0.000  | 5863.776 | -6.610  | -0.000  | 6768.659 | -14.170 | -0.000  |
| 38.                         | 11019.150 | -4.520 | 0.000  | 5852.174 | -6.340  | -0.000  | 6793.983 | -13.570 | -0.000  |
| 39.                         | 11004.131 | -4.410 | 0.000  | 5841.084 | -6.060  | -0.000  | 6825.917 | -12.910 | -0.000  |
| 40.                         | 10989.577 | -4.260 | 0.000  | 5830.523 | -5.770  | 0.000   | 6852.509 | -12.190 | -0.000  |
| 41.                         | 10975.585 | -4.090 | 0.000  | 5820.507 | -5.480  | 0.000   | 6877.556 | -11.410 | -0.000  |
| 42.                         | 10962.252 | -3.880 | 0.000  | 5811.051 | -5.170  | 0.000   | 6900.925 | -10.570 | -0.000  |
| 43.                         | 10949.665 | -3.650 | 0.000  | 5802.169 | -4.850  | 0.000   | 6922.445 | -9.660  | -0.000  |
| 44.                         | 10937.926 | -3.390 | 0.000  | 5793.875 | -4.520  | 0.000   | 6942.114 | -8.740  | -0.000  |
| 45.                         | 10927.111 | -3.100 | 0.000  | 5786.162 | -4.180  | 0.000   | 6959.701 | -7.750  | -0.000  |
| 46.                         | 10917.295 | -2.790 | 0.000  | 5779.100 | -3.840  | 0.000   | 6975.139 | -6.710  | -0.000  |
| 47.                         | 10908.562 | -2.460 | 0.000  | 5772.642 | -3.490  | 0.000   | 6986.337 | -5.640  | -0.000  |
| 48.                         | 10900.964 | -2.110 | 0.000  | 5766.817 | -3.130  | 0.000   | 6994.212 | -4.540  | -0.000  |
| 49.                         | 10894.550 | -1.750 | 0.000  | 5761.634 | -2.770  | 0.000   | 7007.638 | -3.400  | -0.000  |

X-PLANE (YZ-PLANE) SAPPHIRE

BULK

|     | LPMI12     | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|------------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 10009.309  | -1.370 | 5757.101 | -2.400  | 0.000   | 7013.738 | 2.250   | 0.000   |
| 51. | 10085.490  | -0.980 | 5753.225 | -2.020  | 0.000   | 7017.293 | 1.000   | 0.000   |
| 52. | 10062.882  | -0.590 | 5750.012 | -1.640  | 0.000   | 7018.336 | -1.000  | 0.000   |
| 53. | 10061.576  | -0.200 | 5747.466 | -1.260  | 0.000   | 7016.865 | -2.280  | 0.000   |
| 54. | 10061.570  | 0.150  | 5745.596 | -0.880  | 0.000   | 7012.878 | -2.450  | 0.000   |
| 55. | 10062.850  | 0.560  | 5744.399 | -0.500  | 0.000   | 7006.402 | -3.610  | 0.000   |
| 56. | 10065.389  | 0.950  | 5743.880 | -0.120  | 0.000   | 6997.472 | -4.750  | 0.000   |
| 57. | 10069.353  | 1.310  | 5744.036 | 0.260   | 0.000   | 6986.141 | -5.860  | 0.000   |
| 58. | 10084.093  | 1.660  | 5744.874 | 0.670   | 0.000   | 6972.477 | -6.940  | 0.000   |
| 59. | 10080.152  | 1.990  | 5746.366 | 1.060   | 0.000   | 6956.559 | -7.980  | 0.000   |
| 60. | 10090.266  | 2.290  | 5748.572 | 1.440   | 0.000   | 6930.480 | -8.970  | 0.000   |
| 61. | 100915.360 | 2.570  | 5751.429 | 1.820   | 0.000   | 6910.343 | -9.920  | 0.000   |
| 62. | 100924.355 | 2.830  | 5754.952 | 2.200   | 0.000   | 6890.204 | -10.820 | 0.000   |
| 63. | 10094.165  | 3.060  | 5758.135 | 2.570   | 0.000   | 6872.365 | -11.670 | 0.000   |
| 64. | 10094.701  | 3.260  | 5763.972 | 2.940   | 0.000   | 6846.777 | -12.450 | 0.000   |
| 65. | 10095.869  | 3.430  | 5769.456 | 3.300   | 0.000   | 6819.639 | -13.180 | 0.000   |
| 66. | 10097.575  | 3.570  | 5775.576 | 3.650   | 0.000   | 6791.094 | -13.840 | 0.000   |
| 67. | 10099.721  | 3.660  | 5782.329 | 4.000   | 0.000   | 6761.269 | -14.440 | 0.000   |
| 68. | 10099.211  | 3.720  | 5789.697 | 4.340   | 0.000   | 6730.377 | -14.970 | 0.000   |
| 69. | 11004.947  | 3.820  | 5797.673 | 4.670   | 0.000   | 6690.512 | -15.440 | 0.000   |
| 70. | 11017.836  | 3.850  | 5806.242 | 5.000   | 0.000   | 6665.050 | -15.840 | 0.000   |
| 71. | 11030.782  | 3.850  | 5815.394 | 5.310   | 0.000   | 6632.049 | -16.170 | 0.000   |
| 72. | 11043.695  | 3.820  | 5825.113 | 5.620   | 0.000   | 6598.765 | -16.430 | 0.000   |
| 73. | 11056.485  | 3.770  | 5835.385 | 5.910   | 0.000   | 6564.658 | -16.630 | 0.000   |
| 74. | 11069.066  | 3.690  | 5846.195 | 6.190   | 0.000   | 6530.303 | -16.750 | 0.000   |
| 75. | 11081.356  | 3.550  | 5857.526 | 6.470   | 0.000   | 6496.047 | -16.800 | 0.000   |
| 76. | 11093.276  | 3.460  | 5869.363 | 6.730   | 0.000   | 6461.922 | -16.790 | 0.000   |
| 77. | 11104.750  | 3.320  | 5881.686 | 6.980   | 0.000   | 6428.101 | -16.700 | 0.000   |
| 78. | 11115.707  | 3.150  | 5894.475 | 7.210   | 0.000   | 6394.692 | -16.540 | 0.000   |
| 79. | 11126.070  | 2.960  | 5907.722 | 7.440   | 0.000   | 6361.673 | -16.300 | 0.000   |
| 80. | 11135.799  | 2.760  | 5921.397 | 7.650   | 0.000   | 6329.705 | -16.000 | 0.000   |
| 81. | 11144.811  | 2.540  | 5935.484 | 7.850   | 0.000   | 6298.567 | -15.620 | 0.000   |
| 82. | 11153.056  | 2.310  | 5949.963 | 8.040   | 0.000   | 6268.355 | -15.170 | 0.000   |
| 83. | 11160.484  | 2.060  | 5964.814 | 8.210   | 0.000   | 6239.279 | -14.650 | 0.000   |
| 84. | 11167.045  | 1.800  | 5980.016 | 8.360   | 0.000   | 6211.404 | -14.060 | 0.000   |
| 85. | 11172.694  | 1.520  | 5995.547 | 8.530   | 0.000   | 6185.932 | -13.390 | 0.000   |
| 86. | 11177.390  | 1.240  | 6011.386 | 8.660   | 0.000   | 6160.946 | -12.660 | 0.000   |
| 87. | 11181.097  | 0.940  | 6027.512 | 8.790   | 0.000   | 6136.765 | -11.880 | 0.000   |
| 88. | 11183.780  | 0.630  | 6043.603 | 8.900   | 0.000   | 6115.141 | -11.000 | 0.000   |
| 89. | 11185.488  | 0.320  | 6060.536 | 9.000   | 0.000   | 6095.320 | -10.070 | 0.000   |
| 90. | 11185.957  | -0.000 | 6077.390 | 9.080   | 0.000   | 6077.390 | -9.080  | 0.000   |
| 91. | 11185.401  | -0.330 | 6094.443 | 9.160   | 0.000   | 6061.432 | -8.040  | 0.000   |
| 92. | 11183.722  | -0.660 | 6111.671 | 9.220   | 0.000   | 6047.516 | -6.950  | 0.000   |
| 93. | 11180.903  | -1.000 | 6129.052 | 9.270   | 0.000   | 6035.702 | -5.820  | 0.000   |
| 94. | 11176.931  | -1.340 | 6146.565 | 9.300   | 0.000   | 6026.071 | -4.640  | 0.000   |
| 95. | 11171.797  | -1.680 | 6164.187 | 9.330   | 0.000   | 6016.641 | -3.440  | 0.000   |
| 96. | 11165.494  | -2.020 | 6181.899 | 9.340   | 0.000   | 6010.459 | -2.210  | 0.000   |
| 97. | 11158.016  | -2.370 | 6199.667 | 9.340   | 0.000   | 6010.459 | -1.960  | 0.000   |
| 98. | 11149.371  | -2.720 | 6217.482 | 9.330   | 0.000   | 6009.946 | -0.800  | 0.000   |
| 99. | 11139.556  | -3.060 | 6235.316 | 9.310   | 0.000   | 6011.642 | 1.500   | 0.000   |

|      | X-PLANE (YZ-PLANE) SAPPHIRE |        |          |         | BULK    |          |         |         |
|------|-----------------------------|--------|----------|---------|---------|----------|---------|---------|
|      | LPHI12                      | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
| 100. | 1112.580                    | -3.400 | 6253.149 | 9.250   | 0.000   | 6013.643 | 2.610   | -0.000  |
| 101. | 1116.484                    | -3.740 | 6270.959 | 9.230   | 0.000   | 6013.937 | 4.650   | -0.000  |
| 102. | 1110.192                    | -4.060 | 6288.724 | 9.160   | 0.000   | 6030.205 | 5.260   | -0.000  |
| 103. | 1108.810                    | -4.410 | 6306.423 | 9.110   | 0.000   | 6041.316 | 6.450   | -0.000  |
| 104. | 1107.331                    | -4.740 | 6324.036 | 9.040   | 0.000   | 6054.331 | 7.820   | -0.000  |
| 105. | 1105.779                    | -5.060 | 6341.541 | 8.960   | 0.000   | 6067.001 | 9.210   | -0.000  |
| 106. | 1103.183                    | -5.370 | 6358.918 | 8.860   | 0.000   | 6086.767 | 9.770   | -0.000  |
| 107. | 1100.575                    | -5.670 | 6376.147 | 8.760   | 0.000   | 6106.062 | 10.780  | -0.000  |
| 108. | 1100.991                    | -5.960 | 6393.209 | 8.650   | 0.000   | 6127.308 | 11.720  | -0.000  |
| 109. | 1098.474                    | -6.240 | 6410.084 | 8.530   | 0.000   | 6150.421 | 12.610  | -0.000  |
| 110. | 1095.067                    | -6.510 | 6426.753 | 8.400   | 0.000   | 6173.307 | 13.430  | -0.000  |
| 111. | 1093.620                    | -6.770 | 6443.136 | 8.260   | 0.000   | 6201.062 | 14.180  | -0.000  |
| 112. | 1091.769                    | -7.000 | 6459.400 | 8.110   | 0.000   | 6223.374 | 14.860  | -0.000  |
| 113. | 1089.031                    | -7.230 | 6475.341 | 7.960   | 0.000   | 6259.536 | 15.470  | -0.000  |
| 114. | 1086.611                    | -7.430 | 6491.004 | 7.800   | 0.000   | 6290.414 | 16.010  | -0.000  |
| 115. | 1084.599                    | -7.610 | 6506.372 | 7.630   | 0.000   | 6322.476 | 16.480  | -0.000  |
| 116. | 1081.071                    | -7.770 | 6521.429 | 7.460   | 0.000   | 6355.583 | 16.840  | -0.000  |
| 117. | 10769.105                   | -7.910 | 6536.156 | 7.270   | 0.000   | 6389.580 | 17.150  | -0.000  |
| 118. | 10762.790                   | -8.020 | 6550.583 | 7.060   | 0.000   | 6424.345 | 17.370  | -0.000  |
| 119. | 10736.218                   | -8.100 | 6564.569 | 6.850   | 0.000   | 6459.687 | 17.520  | -0.000  |
| 120. | 10709.467                   | -8.150 | 6578.223 | 6.650   | 0.000   | 6495.453 | 17.580  | -0.000  |
| 121. | 10682.704                   | -8.170 | 6591.468 | 6.460   | 0.000   | 6531.471 | 17.570  | -0.000  |
| 122. | 10655.979                   | -8.160 | 6604.353 | 6.270   | 0.000   | 6567.365 | 17.470  | -0.000  |
| 123. | 10629.430                   | -8.100 | 6616.802 | 6.050   | 0.000   | 6603.555 | 17.250  | -0.000  |
| 124. | 10603.182                   | -8.010 | 6628.824 | 5.830   | -0.000  | 6639.254 | 17.030  | -0.000  |
| 125. | 10577.365                   | -7.880 | 6640.406 | 5.610   | -0.000  | 6674.471 | 16.800  | -0.000  |
| 126. | 10552.114                   | -7.710 | 6651.537 | 5.360   | -0.000  | 6709.013 | 16.250  | -0.000  |
| 127. | 10527.570                   | -7.450 | 6662.205 | 5.130   | -0.000  | 6742.684 | 15.740  | -0.000  |
| 128. | 10503.076                   | -7.220 | 6672.399 | 4.850   | -0.000  | 6773.264 | 15.140  | -0.000  |
| 129. | 10481.187                   | -6.900 | 6682.119 | 4.640   | -0.000  | 6806.616 | 14.480  | -0.000  |
| 130. | 10459.647                   | -6.540 | 6691.326 | 4.350   | -0.000  | 6836.479 | 13.650  | -0.000  |
| 131. | 10439.410                   | -6.120 | 6700.041 | 4.140   | -0.000  | 6864.679 | 12.640  | -0.000  |
| 132. | 10420.625                   | -5.650 | 6708.243 | 3.660   | -0.000  | 6891.023 | 11.500  | -0.000  |
| 133. | 10403.440                   | -5.140 | 6715.927 | 3.620   | -0.000  | 6913.325 | 10.850  | -0.000  |
| 134. | 10387.997                   | -4.580 | 6723.084 | 3.360   | -0.000  | 6937.410 | 9.840   | -0.000  |
| 135. | 10374.426                   | -3.940 | 6729.706 | 3.100   | -0.000  | 6957.111 | 9.040   | -0.000  |
| 136. | 10362.859                   | -3.330 | 6735.786 | 2.630   | -0.000  | 6974.276 | 7.420   | -0.000  |
| 137. | 10353.398                   | -2.650 | 6741.324 | 2.560   | -0.000  | 6986.770 | 6.140   | -0.000  |
| 138. | 10346.183                   | -1.940 | 6746.308 | 2.290   | -0.000  | 7000.477 | 4.610   | -0.000  |
| 139. | 10341.171                   | -1.210 | 6750.735 | 2.020   | -0.000  | 7009.302 | 3.440   | -0.000  |
| 140. | 10336.535                   | -0.480 | 6754.601 | 1.740   | -0.000  | 7015.173 | 2.450   | -0.000  |
| 141. | 10336.285                   | 0.300  | 6757.903 | 1.470   | -0.000  | 7019.042 | 1.640   | -0.000  |
| 142. | 10340.424                   | 1.060  | 6760.636 | 1.190   | -0.000  | 7017.889 | -0.780  | -0.000  |
| 143. | 10344.948                   | 1.810  | 6762.799 | 0.910   | -0.000  | 7014.720 | -2.160  | -0.000  |
| 144. | 10351.627                   | 2.550  | 6764.390 | 0.630   | -0.000  | 7006.565 | -3.570  | -0.000  |
| 145. | 10361.010                   | 3.260  | 6765.406 | 0.350   | -0.000  | 6999.462 | -4.520  | -0.000  |
| 146. | 10372.424                   | 3.950  | 6765.847 | 0.070   | -0.000  | 6987.551 | -6.230  | -0.000  |
| 147. | 10385.979                   | 4.600  | 6765.713 | -0.200  | -0.000  | 6972.874 | -7.450  | -0.000  |
| 148. | 10401.566                   | 5.210  | 6765.003 | -0.480  | -0.000  | 6955.576 | -8.650  | -0.000  |
| 149. | 10419.072                   | 5.760  | 6763.719 | -0.760  | -0.000  | 6935.794 | -9.630  | -0.000  |

X-PLANE (YZ-PLANE) SAPPHIRE

|      | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 6.310  | 0.000  | 6761.861 | -1.041  | -0.000  | 6713.686 | -14.690 | -0.000  |
| 151. | 6.760  | 0.000  | 6759.431 | -1.320  | -0.000  | 6889.417 | -11.880 | 0.000   |
| 152. | 7.200  | 0.000  | 6756.432 | -1.590  | -0.000  | 6663.165 | -12.790 | 0.000   |
| 153. | 7.500  | 0.000  | 6752.867 | -1.870  | -0.000  | 6035.113 | -13.610 | 0.000   |
| 154. | 7.900  | 0.000  | 6748.738 | -2.140  | -0.000  | 6005.451 | -14.360 | 0.000   |
| 155. | 8.100  | 0.000  | 6744.050 | -2.420  | -0.000  | 6774.371 | -15.020 | 0.000   |
| 156. | 8.400  | 0.000  | 6738.808 | -2.690  | -0.000  | 6742.067 | -15.600 | 0.000   |
| 157. | 8.590  | 0.000  | 6733.017 | -2.950  | -0.000  | 6700.731 | -16.100 | -0.000  |
| 158. | 8.720  | 0.000  | 6726.682 | -3.220  | 0.000   | 6674.526 | -16.510 | -0.000  |
| 159. | 8.820  | 0.000  | 6719.809 | -3.460  | 0.000   | 6639.732 | -16.640 | -0.000  |
| 160. | 8.870  | 0.000  | 6712.406 | -3.740  | 0.000   | 6604.451 | -17.100 | -0.000  |
| 161. | 8.900  | 0.000  | 6704.479 | -4.000  | 0.000   | 6569.069 | -17.270 | -0.000  |
| 162. | 8.970  | 0.000  | 6696.036 | -4.260  | 0.000   | 6533.227 | -17.360 | -0.000  |
| 163. | 8.820  | 0.000  | 6687.086 | -4.510  | 0.000   | 6497.039 | -17.360 | -0.000  |
| 164. | 8.730  | 0.000  | 6677.638 | -4.760  | 0.000   | 6462.296 | -17.320 | -0.000  |
| 165. | 8.620  | 0.000  | 6667.730 | -5.000  | 0.000   | 6427.359 | -17.100 | -0.000  |
| 166. | 8.480  | 0.000  | 6657.284 | -5.240  | 0.000   | 6392.509 | -16.960 | -0.000  |
| 167. | 8.320  | 0.000  | 6646.395 | -5.470  | 0.000   | 6357.337 | -16.670 | -0.000  |
| 168. | 8.130  | 0.000  | 6635.056 | -5.700  | 0.000   | 6320.549 | -16.310 | -0.000  |
| 169. | 7.920  | 0.000  | 6623.267 | -5.930  | 0.000   | 6284.766 | -15.870 | -0.000  |
| 170. | 7.690  | 0.000  | 6611.044 | -6.150  | 0.000   | 6264.123 | -15.360 | -0.000  |
| 171. | 7.450  | 0.000  | 6598.395 | -6.370  | 0.000   | 6234.745 | -14.700 | -0.000  |
| 172. | 7.100  | 0.000  | 6585.346 | -6.580  | 0.000   | 6206.725 | -14.120 | -0.000  |
| 173. | 6.910  | 0.000  | 6571.897 | -6.780  | 0.000   | 6184.265 | -13.460 | -0.000  |
| 174. | 6.620  | 0.000  | 6558.066 | -6.980  | 0.000   | 6157.303 | -12.620 | -0.000  |
| 175. | 6.310  | 0.000  | 6543.872 | -7.170  | 0.000   | 6132.207 | -11.770 | -0.000  |
| 176. | 6.000  | 0.000  | 6529.325 | -7.360  | 0.000   | 6110.020 | -10.860 | -0.000  |
| 177. | 5.670  | 0.000  | 6514.441 | -7.540  | 0.000   | 6091.330 | -9.890  | -0.000  |
| 178. | 5.340  | 0.000  | 6499.237 | -7.710  | 0.000   | 6073.786 | -8.870  | -0.000  |
| 179. | 5.000  | 0.000  | 6483.725 | -7.880  | 0.000   | 6050.270 | -7.800  | -0.000  |
| 180. | 4.650  | 0.000  | 6467.934 | -8.030  | 0.000   | 6044.632 | -6.650  | -0.000  |

BULK

Y-PLANE (XZ-PLANE) SAPPHIRE

BULK

|     | LNGVEL    | LPHI12 | LPHI13 | FSPH12   | FSPH13  | SSRVEL   | SSPH12 | SSPH13 |
|-----|-----------|--------|--------|----------|---------|----------|--------|--------|
| 0.  | 11174.720 | 0.000  | 0.000  | 0.000    | 0.000   | 5743.655 | 0.000  | 0.000  |
| 1.  | 11174.216 | -0.360 | 0.250  | 6765.664 | -1.180  | 5744.930 | 1.230  | -4.000 |
| 2.  | 11172.705 | -0.550 | 0.500  | 6765.132 | -3.360  | 5746.147 | 2.440  | -1.150 |
| 3.  | 11170.192 | -0.590 | 0.740  | 6764.216 | -5.300  | 5753.491 | 3.620  | -1.150 |
| 4.  | 11166.683 | -1.160 | 0.990  | 6762.947 | -7.700  | 5760.931 | 4.820  | -1.250 |
| 5.  | 11162.189 | -1.470 | 1.240  | 6761.336 | -8.670  | 5770.430 | 5.960  | -1.260 |
| 6.  | 11156.722 | -1.750 | 1.460  | 6759.376 | -10.030 | 5781.935 | 7.050  | -2.340 |
| 7.  | 11150.295 | -2.030 | 1.730  | 6757.109 | -11.160 | 5795.365 | 8.100  | -2.710 |
| 8.  | 11142.939 | -2.300 | 1.970  | 6754.541 | -11.320 | 5810.704 | 9.090  | -3.060 |
| 9.  | 11134.662 | -2.570 | 2.220  | 6751.699 | -11.440 | 5827.806 | 10.020 | -3.420 |
| 10. | 11125.494 | -2.830 | 2.460  | 6748.612 | -11.560 | 5846.595 | 10.870 | -3.400 |
| 11. | 11115.464 | -3.080 | 2.690  | 6745.313 | -11.650 | 5866.950 | 11.650 | -3.400 |
| 12. | 11104.601 | -3.330 | 2.930  | 6741.844 | -11.720 | 5888.774 | 12.350 | -3.400 |
| 13. | 11092.941 | -3.560 | 3.170  | 6738.252 | -11.770 | 5911.905 | 12.960 | -3.400 |
| 14. | 11080.522 | -3.760 | 3.400  | 6734.594 | -11.790 | 5936.199 | 13.470 | -3.400 |
| 15. | 11067.363 | -3.950 | 3.630  | 6730.937 | -11.770 | 5961.490 | 13.890 | -3.400 |
| 16. | 11053.570 | -4.150 | 3.850  | 6727.360 | -11.710 | 5987.593 | 14.240 | -3.400 |
| 17. | 11039.130 | -4.370 | 4.070  | 6723.956 | -11.600 | 6014.302 | 14.400 | -3.400 |
| 18. | 11024.116 | -4.640 | 4.290  | 6720.842 | -11.430 | 6041.400 | 14.470 | -3.400 |
| 19. | 11008.580 | -4.650 | 4.500  | 6718.141 | -11.150 | 6068.630 | 14.410 | -3.400 |
| 20. | 10992.584 | -4.630 | 4.710  | 6716.008 | -10.860 | 6095.721 | 14.260 | -3.400 |
| 21. | 10976.187 | -4.940 | 4.910  | 6714.619 | -10.470 | 6122.374 | 13.940 | -3.400 |
| 22. | 10959.457 | -5.040 | 5.110  | 6714.174 | -10.000 | 6148.260 | 13.310 | -3.400 |
| 23. | 10942.462 | -5.120 | 5.290  | 6714.893 | -9.670  | 6173.030 | 12.600 | -3.400 |
| 24. | 10925.276 | -5.170 | 5.470  | 6717.011 | -9.410  | 6196.317 | 11.710 | -3.400 |
| 25. | 10907.975 | -5.200 | 5.620  | 6720.760 | -9.260  | 6217.755 | 10.690 | -3.400 |
| 26. | 10890.639 | -5.210 | 5.810  | 6726.352 | -9.210  | 6236.997 | 9.440  | -3.400 |
| 27. | 10873.352 | -5.150 | 5.960  | 6733.951 | -9.200  | 6253.743 | 8.040  | -3.400 |
| 28. | 10856.196 | -5.140 | 6.100  | 6743.645 | -9.220  | 6267.770 | 6.560  | -3.400 |
| 29. | 10839.266 | -5.070 | 6.240  | 6755.421 | -9.190  | 6278.953 | 5.160  | -3.400 |
| 30. | 10822.651 | -4.970 | 6.350  | 6769.159 | -9.070  | 6287.278 | 3.810  | -3.400 |
| 31. | 10806.442 | -4.840 | 6.460  | 6784.635 | -8.910  | 6292.832 | 2.500  | -3.400 |
| 32. | 10790.735 | -4.680 | 6.550  | 6801.546 | -8.750  | 6295.787 | 1.300  | -3.400 |
| 33. | 10775.624 | -4.450 | 6.630  | 6819.934 | -8.750  | 6296.371 | -0.270 | -3.400 |
| 34. | 10761.204 | -4.260 | 6.690  | 6838.821 | -8.800  | 6294.639 | -1.310 | -3.400 |
| 35. | 10747.571 | -4.030 | 6.730  | 6857.212 | -8.900  | 6291.450 | -2.210 | -3.400 |
| 36. | 10734.817 | -3.750 | 6.760  | 6876.155 | -9.000  | 6286.452 | -2.950 | -3.400 |
| 37. | 10722.032 | -3.450 | 6.770  | 6894.707 | -9.200  | 6280.072 | -3.650 | -3.400 |
| 38. | 10710.302 | -3.120 | 6.760  | 6912.562 | -9.410  | 6272.514 | -4.280 | -3.400 |
| 39. | 10702.708 | -2.760 | 6.740  | 6929.445 | -9.620  | 6263.956 | -4.710 | -3.400 |
| 40. | 10694.326 | -2.360 | 6.690  | 6945.116 | -9.850  | 6254.554 | -5.020 | -3.400 |
| 41. | 10687.223 | -1.960 | 6.630  | 6959.363 | -10.100 | 6244.444 | -5.240 | -3.400 |
| 42. | 10681.461 | -1.560 | 6.550  | 6972.005 | -10.330 | 6233.744 | -5.370 | -3.400 |
| 43. | 10677.090 | -1.130 | 6.450  | 6982.890 | -10.590 | 6222.557 | -5.440 | -3.400 |
| 44. | 10674.150 | -0.680 | 6.330  | 6991.888 | -10.860 | 6210.976 | -5.470 | -3.400 |
| 45. | 10672.671 | -0.230 | 6.200  | 6996.893 | -11.120 | 6198.002 | -5.400 | -3.400 |
| 46. | 10672.670 | 0.230  | 6.050  | 7003.840 | -11.370 | 6186.946 | -5.250 | -3.400 |
| 47. | 10674.154 | 0.740  | 5.890  | 7006.856 | -11.610 | 6177.639 | -5.050 | -3.400 |
| 48. | 10677.117 | 1.140  | 5.740  | 7007.311 | -11.820 | 6162.219 | -4.810 | -3.400 |
| 49. | 10681.539 | 1.560  | 5.520  | 7005.787 | -12.000 | 6149.741 | -4.540 | -3.400 |



Y-PLANE (XZ-PLANE) SAPPHIRE

BULK

|     | LMGVEL    | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|-----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 10667.390 | 2.010  | 5.330  | 7002.086 | -2.240  | 1.420   | 6137.261 | -6.640  | -17.440 |
| 51. | 10694.630 | 2.430  | 5.120  | 6996.234 | -3.240  | 1.860   | 6124.626 | -6.610  | -17.550 |
| 52. | 10703.204 | 2.830  | 4.910  | 6988.261 | -4.230  | 2.350   | 6112.485 | -6.570  | -17.660 |
| 53. | 10713.051 | 3.200  | 4.690  | 6978.221 | -5.190  | 2.810   | 6100.283 | -6.490  | -17.760 |
| 54. | 10724.099 | 3.550  | 4.470  | 6966.174 | -6.110  | 3.270   | 6088.263 | -6.400  | -17.850 |
| 55. | 10736.269 | 3.880  | 4.240  | 6952.213 | -7.000  | 3.710   | 6076.407 | -6.280  | -17.930 |
| 56. | 10749.476 | 4.170  | 4.020  | 6936.405 | -7.850  | 4.150   | 6064.937 | -6.140  | -18.000 |
| 57. | 10763.626 | 4.440  | 3.790  | 6918.863 | -8.660  | 4.570   | 6053.713 | -5.960  | -18.060 |
| 58. | 10778.629 | 4.660  | 3.570  | 6899.660 | -9.410  | 4.970   | 6042.833 | -5.790  | -18.110 |
| 59. | 10794.381 | 4.860  | 3.350  | 6878.970 | -10.120 | 5.350   | 6032.337 | -5.580  | -18.150 |
| 60. | 10810.784 | 5.060  | 3.140  | 6856.847 | -10.760 | 5.710   | 6022.262 | -5.350  | -18.180 |
| 61. | 10827.734 | 5.200  | 2.930  | 6833.430 | -11.390 | 6.050   | 6012.606 | -5.100  | -18.200 |
| 62. | 10845.130 | 5.310  | 2.720  | 6808.836 | -11.940 | 6.360   | 6003.327 | -4.830  | -18.210 |
| 63. | 10862.872 | 5.390  | 2.530  | 6783.195 | -12.450 | 6.640   | 5994.539 | -4.540  | -18.210 |
| 64. | 10880.956 | 5.440  | 2.330  | 6756.622 | -12.890 | 6.890   | 5986.250 | -4.230  | -18.190 |
| 65. | 10899.492 | 5.480  | 2.150  | 6729.241 | -13.290 | 7.110   | 5978.505 | -3.890  | -18.150 |
| 66. | 10917.476 | 5.450  | 1.970  | 6701.173 | -13.640 | 7.300   | 5972.279 | -3.540  | -18.100 |
| 67. | 10935.321 | 5.420  | 1.800  | 6672.537 | -13.930 | 7.450   | 5966.627 | -3.180  | -18.040 |
| 68. | 10953.335 | 5.360  | 1.640  | 6643.450 | -14.170 | 7.550   | 5961.233 | -2.770  | -17.970 |
| 69. | 10971.133 | 5.270  | 1.490  | 6614.026 | -14.360 | 7.600   | 5956.279 | -2.330  | -17.890 |
| 70. | 10988.634 | 5.160  | 1.340  | 6584.375 | -14.500 | 7.680   | 5952.740 | -1.920  | -17.800 |
| 71. | 11005.760 | 5.030  | 1.210  | 6554.606 | -14.600 | 7.680   | 5949.626 | -1.470  | -17.700 |
| 72. | 11022.437 | 4.880  | 1.080  | 6524.820 | -14.650 | 7.640   | 5947.330 | -1.060  | -17.600 |
| 73. | 11038.555 | 4.710  | .960   | 6495.116 | -14.650 | 7.550   | 5946.021 | -0.510  | -17.500 |
| 74. | 11054.169 | 4.520  | .840   | 6465.596 | -14.600 | 7.430   | 5945.548 | -0.010  | -17.390 |
| 75. | 11069.098 | 4.320  | .740   | 6436.343 | -14.520 | 7.260   | 5945.999 | .510    | -17.270 |
| 76. | 11083.323 | 4.100  | .640   | 6407.447 | -14.390 | 7.050   | 5947.402 | 1.040   | -17.140 |
| 77. | 11096.793 | 3.860  | .550   | 6378.989 | -14.220 | 6.800   | 5949.700 | 1.540   | -17.000 |
| 78. | 11109.457 | 3.610  | .470   | 6351.046 | -14.010 | 6.500   | 5953.156 | 2.010   | -16.850 |
| 79. | 11121.270 | 3.350  | .390   | 6323.690 | -13.770 | 6.160   | 5957.558 | 2.710   | -16.690 |
| 80. | 11132.192 | 3.060  | .320   | 6296.969 | -13.460 | 5.760   | 5963.000 | 3.260   | -16.520 |
| 81. | 11142.185 | 2.800  | .260   | 6271.005 | -13.170 | 5.360   | 5969.501 | 3.660   | -16.340 |
| 82. | 11151.214 | 2.510  | .200   | 6245.796 | -12.820 | 4.900   | 5977.078 | 4.040   | -16.150 |
| 83. | 11159.251 | 2.210  | .160   | 6221.415 | -12.440 | 4.400   | 5985.743 | 4.400   | -15.950 |
| 84. | 11166.269 | 1.910  | .110   | 6197.910 | -12.030 | 3.870   | 5995.507 | 4.630   | -15.740 |
| 85. | 11172.245 | 1.600  | .080   | 6175.325 | -11.590 | 3.300   | 6006.376 | 4.820   | -15.520 |
| 86. | 11177.161 | 1.290  | .050   | 6153.695 | -11.130 | 2.810   | 6018.360 | 4.970   | -15.290 |
| 87. | 11181.000 | .970   | .030   | 6133.064 | -10.650 | 2.060   | 6031.456 | 5.090   | -15.040 |
| 88. | 11183.751 | .650   | .010   | 6113.452 | -10.140 | 1.480   | 6045.664 | 5.180   | -14.780 |
| 89. | 11185.405 | .320   | 0.000  | 6094.887 | -9.620  | .710    | 6060.978 | 5.230   | -14.500 |
| 90. | 11185.957 | -0.000 | -0.000 | 6077.390 | -9.060  | 0.000   | 6077.390 | 5.260   | -14.200 |
| 91. | 11185.405 | -.320  | 0.000  | 6060.976 | -8.530  | -0.530  | 6094.887 | 5.260   | -13.890 |
| 92. | 11183.751 | -.650  | .010   | 6045.664 | -7.960  | -1.470  | 6113.452 | 5.210   | -13.570 |
| 93. | 11181.000 | -.970  | .030   | 6031.456 | -7.390  | -2.220  | 6133.064 | 5.130   | -13.240 |
| 94. | 11177.161 | -1.290 | .050   | 6018.360 | -6.810  | -2.950  | 6153.695 | 5.000   | -12.900 |
| 95. | 11172.245 | -1.600 | .080   | 6006.378 | -6.220  | -3.760  | 6175.325 | 4.820   | -12.540 |
| 96. | 11166.269 | -1.910 | .110   | 5995.507 | -5.630  | -4.620  | 6197.910 | 4.630   | -12.170 |
| 97. | 11159.251 | -2.210 | .160   | 5985.743 | -5.040  | -5.540  | 6221.415 | 4.400   | -11.790 |
| 98. | 11151.214 | -2.510 | .200   | 5977.078 | -4.450  | -6.450  | 6245.796 | 4.260   | -11.400 |
| 99. | 11142.185 | -2.800 | .260   | 5969.501 | -3.860  | -7.390  | 6271.005 | 4.110   | -11.000 |

Y-PLANE (XZ-PLANE) SAPPHIRE

|      | LNGVEL    | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SRVEL    | SSPHI12 | SSPHI13 |
|------|-----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 11132.192 | -3.060 | .320   | 5963.000 | -3.260  | -7.540  | 6230.989 | 13.480  | 5.780   |
| 101. | 11121.270 | -3.350 | .390   | 5957.558 | -2.710  | -8.270  | 6323.690 | 13.770  | 6.160   |
| 102. | 11109.457 | -3.610 | .470   | 5953.156 | -2.140  | -8.980  | 6351.046 | 14.010  | 6.500   |
| 103. | 11096.793 | -3.860 | .550   | 5949.780 | -1.540  | -9.680  | 6378.969 | 14.220  | 6.800   |
| 104. | 11083.323 | -4.100 | .640   | 5947.402 | -1.040  | -10.330 | 6407.447 | 14.330  | 7.080   |
| 105. | 11069.958 | -4.320 | .740   | 5945.999 | -.510   | -10.970 | 6436.333 | 14.520  | 7.420   |
| 106. | 11054.169 | -4.520 | .840   | 5945.456 | .010    | -11.590 | 6465.596 | 14.600  | 7.830   |
| 107. | 11038.555 | -4.710 | .960   | 5946.021 | .510    | -12.170 | 6495.118 | 14.650  | 8.290   |
| 108. | 11022.937 | -4.880 | 1.080  | 5947.390 | 1.000   | -12.730 | 6524.860 | 14.690  | 8.800   |
| 109. | 11005.760 | -5.030 | 1.210  | 5949.626 | 1.470   | -13.260 | 6554.606 | 14.600  | 9.360   |
| 110. | 10988.634 | -5.160 | 1.340  | 5952.700 | 1.920   | -13.760 | 6584.375 | 14.500  | 9.970   |
| 111. | 10971.433 | -5.270 | 1.440  | 5956.574 | 2.350   | -14.230 | 6614.176 | 14.360  | 10.630  |
| 112. | 10953.335 | -5.360 | 1.640  | 5961.233 | 2.770   | -14.680 | 6643.950 | 14.170  | 11.340  |
| 113. | 10935.321 | -5.420 | 1.800  | 5966.627 | 3.160   | -15.070 | 6672.537 | 13.930  | 12.100  |
| 114. | 10917.176 | -5.450 | 1.970  | 5972.729 | 3.540   | -15.440 | 6701.173 | 13.640  | 12.910  |
| 115. | 10898.992 | -5.460 | 2.150  | 5979.505 | 3.890   | -15.780 | 6729.241 | 13.290  | 13.770  |
| 116. | 10880.856 | -5.440 | 2.330  | 5986.920 | 4.230   | -16.100 | 6756.622 | 12.890  | 14.680  |
| 117. | 10862.872 | -5.390 | 2.530  | 5994.934 | 4.540   | -16.370 | 6783.195 | 12.450  | 15.640  |
| 118. | 10845.130 | -5.310 | 2.720  | 6003.527 | 4.830   | -16.620 | 6808.838 | 11.980  | 16.650  |
| 119. | 10827.734 | -5.200 | 2.930  | 6012.646 | 5.100   | -16.860 | 6833.430 | 11.500  | 17.710  |
| 120. | 10810.784 | -5.060 | 3.140  | 6022.262 | 5.350   | -17.080 | 6856.967 | 10.760  | 18.820  |
| 121. | 10794.361 | -4.900 | 3.350  | 6032.337 | 5.560   | -17.290 | 6878.970 | 10.120  | 19.980  |
| 122. | 10778.629 | -4.660 | 3.570  | 6042.833 | 5.750   | -17.330 | 6899.680 | 9.410   | 21.290  |
| 123. | 10763.628 | -4.440 | 3.790  | 6053.713 | 5.900   | -17.430 | 6918.063 | 8.660   | 22.740  |
| 124. | 10749.476 | -4.170 | 4.020  | 6064.937 | 6.140   | -17.510 | 6934.409 | 7.890   | 24.340  |
| 125. | 10736.264 | -3.960 | 4.240  | 6076.467 | 6.260   | -17.570 | 6948.213 | 7.030   | 26.080  |
| 126. | 10724.099 | -3.750 | 4.470  | 6088.263 | 6.400   | -17.600 | 6960.174 | 6.110   | 27.960  |
| 127. | 10713.051 | -3.500 | 4.690  | 6100.283 | 6.490   | -17.600 | 6970.221 | 5.190   | 29.980  |
| 128. | 10703.204 | -2.830 | 4.910  | 6112.465 | 6.570   | -17.560 | 6978.261 | 4.230   | 32.140  |
| 129. | 10694.630 | -2.630 | 5.120  | 6124.826 | 6.610   | -17.540 | 6984.234 | 3.240   | 34.440  |
| 130. | 10687.390 | -2.010 | 5.330  | 6137.261 | 6.640   | -17.440 | 6988.980 | 2.240   | 36.880  |
| 131. | 10681.535 | -1.580 | 5.520  | 6149.741 | 6.640   | -17.390 | 6992.787 | 1.220   | 39.460  |
| 132. | 10677.117 | -1.140 | 5.710  | 6162.219 | 6.610   | -17.290 | 7005.787 | .200    | 42.180  |
| 133. | 10674.154 | -.660  | 5.890  | 6174.634 | 6.550   | -17.160 | 7008.656 | -.610   | 45.040  |
| 134. | 10672.670 | -.230  | 6.050  | 6186.946 | 6.460   | -17.020 | 7008.656 | -1.820  | 48.040  |
| 135. | 10672.671 | .680   | 6.200  | 6199.062 | 6.340   | -16.850 | 6998.898 | -2.810  | 51.170  |
| 136. | 10674.150 | 1.130  | 6.330  | 6210.976 | 6.190   | -16.670 | 6991.888 | -3.760  | 54.440  |
| 137. | 10677.090 | 1.560  | 6.450  | 6222.557 | 5.990   | -16.470 | 6982.880 | -4.670  | 57.860  |
| 138. | 10681.461 | 1.960  | 6.550  | 6233.744 | 5.750   | -16.250 | 6972.005 | -5.530  | 61.440  |
| 139. | 10687.223 | 2.380  | 6.630  | 6244.444 | 5.460   | -16.010 | 6959.363 | -6.330  | 65.180  |
| 140. | 10694.326 | 2.760  | 6.690  | 6254.554 | 5.120   | -15.750 | 6945.116 | -7.060  | 69.080  |
| 141. | 10702.708 | 3.120  | 6.740  | 6263.956 | 4.710   | -15.470 | 6928.445 | -7.660  | 73.140  |
| 142. | 10712.502 | 3.450  | 6.760  | 6272.514 | 4.220   | -15.170 | 6912.562 | -8.210  | 77.460  |
| 143. | 10723.032 | 3.750  | 6.770  | 6280.072 | 3.650   | -14.860 | 6898.407 | -8.620  | 81.940  |
| 144. | 10734.817 | 4.030  | 6.760  | 6286.452 | 2.990   | -14.500 | 6886.155 | -8.900  | 86.580  |
| 145. | 10747.571 | 4.280  | 6.730  | 6291.450 | 2.210   | -14.120 | 6876.212 | -9.030  | 91.380  |
| 146. | 10761.204 | 4.490  | 6.690  | 6294.839 | 1.310   | -13.720 | 6868.217 | -9.030  | 96.340  |
| 147. | 10775.624 | 4.660  | 6.630  | 6296.371 | .270    | -13.290 | 6861.544 | -8.790  | 101.460 |
| 148. | 10790.735 | 4.660  | 6.550  | 6295.787 | -.460   | -12.830 | 6851.546 | -8.390  | 106.740 |
| 149. | 10806.442 | 4.840  | 6.460  | 6292.832 | -2.200  | -12.340 | 6844.635 | -7.810  | 112.180 |

Y-PLANE (XZ-PLANE) SAPPHIRE

|      | LPHI12 | LPHI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 4.970  | 6.350  | 6287.276 | -3.610  | -11.630 | 6763.154 | -7.070  | -5.530  |
| 151. | 5.070  | 6.240  | 6278.953 | -3.060  | -11.360 | 6755.421 | -6.190  | -6.630  |
| 152. | 5.140  | 6.100  | 6267.770 | -6.560  | -10.710 | 6743.645 | -5.820  | -6.440  |
| 153. | 5.190  | 5.960  | 6253.743 | -8.040  | -10.240 | 6733.951 | -4.800  | -6.040  |
| 154. | 5.210  | 5.810  | 6236.997 | -9.410  | -9.730  | 6726.352 | -3.210  | -6.800  |
| 155. | 5.200  | 5.650  | 6217.755 | -10.640 | -9.240  | 6720.760 | -2.260  | -6.910  |
| 156. | 5.170  | 5.470  | 6196.317 | -11.710 | -8.710  | 6717.031 | -1.810  | -6.370  |
| 157. | 5.120  | 5.290  | 6173.830 | -12.600 | -8.340  | 6714.893 | -1.670  | -6.970  |
| 158. | 5.040  | 5.110  | 6148.266 | -13.310 | -7.950  | 6714.174 | -1.650  | -6.970  |
| 159. | 4.940  | 4.910  | 6122.374 | -13.640 | -7.540  | 6714.619 | .470    | -6.010  |
| 160. | 4.830  | 4.710  | 6095.721 | -14.200 | -7.160  | 6716.010 | .680    | -6.010  |
| 161. | 4.690  | 4.500  | 6068.630 | -14.416 | -6.830  | 6718.141 | 1.190   | -6.490  |
| 162. | 4.540  | 4.290  | 6041.400 | -14.470 | -6.490  | 6720.642 | 1.430   | -6.270  |
| 163. | 4.370  | 4.070  | 6014.305 | -14.400 | -6.160  | 6723.956 | 1.600   | -6.030  |
| 164. | 4.190  | 3.850  | 5987.593 | -14.200 | -5.830  | 6727.360 | 1.710   | -5.760  |
| 165. | 4.000  | 3.630  | 5961.490 | -13.690 | -5.500  | 6730.937 | 1.770   | -5.490  |
| 166. | 3.760  | 3.400  | 5936.199 | -13.470 | -5.170  | 6734.934 | 1.790   | -5.210  |
| 167. | 3.560  | 3.170  | 5911.905 | -12.960 | -4.840  | 6738.252 | 1.770   | -4.930  |
| 168. | 3.330  | 2.930  | 5886.774 | -12.350 | -4.500  | 6741.544 | 1.720   | -4.650  |
| 169. | 3.060  | 2.690  | 5860.958 | -11.650 | -4.150  | 6746.313 | 1.650   | -4.370  |
| 170. | 2.830  | 2.460  | 5846.595 | -10.870 | -3.800  | 6748.632 | 1.560   | -4.090  |
| 171. | 2.570  | 2.220  | 5827.886 | -10.020 | -3.450  | 6751.699 | 1.440   | -3.810  |
| 172. | 2.300  | 1.970  | 5810.704 | -9.090  | -3.060  | 6754.541 | 1.320   | -3.530  |
| 173. | 2.030  | 1.730  | 5795.385 | -8.100  | -2.710  | 6757.109 | 1.160   | -3.250  |
| 174. | 1.750  | 1.480  | 5781.935 | -7.050  | -2.340  | 6759.370 | 1.030   | -2.970  |
| 175. | 1.470  | 1.240  | 5770.430 | -5.960  | -1.960  | 6761.333 | .870    | -2.690  |
| 176. | 1.180  | .990   | 5760.931 | -4.820  | -1.570  | 6762.947 | .700    | -2.410  |
| 177. | .850   | .740   | 5753.491 | -3.650  | -1.160  | 6764.218 | .530    | -2.130  |
| 178. | .590   | .500   | 5748.147 | -2.450  | -0.750  | 6765.132 | .360    | -1.850  |
| 179. | .300   | .250   | 5744.930 | -1.230  | -0.400  | 6765.684 | .180    | -1.570  |
| 180. | -0.000 | -0.000 | 5743.655 | 0.000   | 0.000   | 6765.868 | -0.000  | 0.000   |

BULK

Z-PLANE (XY-PLANE) SAPPHIRE

|     | LMQVEL    | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSKVEL   | SSPH12 | SSPH13 |
|-----|-----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 0.  | 11174.720 | 0.000  | 0.000  | 6765.866 | 0.000  | 0.000  | 5743.955 | 0.000  | 0.000  |
| 1.  | 11174.769 | 0.030  | -0.250 | 6765.266 | -0.560 | 0.350  | 5744.443 | 0.670  | 0.750  |
| 2.  | 11174.915 | 0.040  | -0.500 | 6763.551 | -1.120 | 0.760  | 5740.205 | 1.340  | 1.540  |
| 3.  | 11175.156 | 0.060  | -0.740 | 6760.665 | -1.680 | 1.170  | 5743.131 | 2.000  | 2.250  |
| 4.  | 11175.490 | 0.110  | -0.990 | 6756.641 | -2.230 | 1.560  | 5753.211 | 2.650  | 2.950  |
| 5.  | 11175.913 | 0.140  | -1.230 | 6751.497 | -2.770 | 1.940  | 5756.425 | 3.290  | 3.640  |
| 6.  | 11176.421 | 0.160  | -1.460 | 6745.257 | -3.300 | 2.320  | 5769.751 | 3.910  | 4.310  |
| 7.  | 11177.086 | 0.160  | -1.700 | 6737.947 | -3.810 | 2.650  | 5772.159 | 4.510  | 4.970  |
| 8.  | 11177.664 | 0.200  | -1.920 | 6729.602 | -4.310 | 3.060  | 5780.615 | 5.080  | 5.540  |
| 9.  | 11178.386 | 0.220  | -2.140 | 6720.254 | -4.790 | 3.420  | 5790.079 | 5.630  | 6.090  |
| 10. | 11179.165 | 0.240  | -2.360 | 6709.965 | -5.250 | 3.770  | 5800.505 | 6.140  | 6.520  |
| 11. | 11179.991 | 0.250  | -2.570 | 6698.770 | -5.680 | 4.110  | 5811.000 | 6.620  | 7.000  |
| 12. | 11180.857 | 0.260  | -2.770 | 6686.732 | -6.080 | 4.440  | 5828.026 | 7.060  | 7.430  |
| 13. | 11181.751 | 0.270  | -2.960 | 6673.916 | -6.460 | 4.760  | 5836.994 | 7.460  | 7.810  |
| 14. | 11182.664 | 0.270  | -3.150 | 6660.357 | -6.790 | 5.080  | 5850.671 | 7.810  | 8.150  |
| 15. | 11183.587 | 0.270  | -3.320 | 6646.256 | -7.090 | 5.360  | 5864.970 | 8.110  | 8.450  |
| 16. | 11184.509 | 0.270  | -3.490 | 6631.586 | -7.330 | 5.670  | 5879.797 | 8.350  | 8.700  |
| 17. | 11185.419 | 0.260  | -3.640 | 6616.495 | -7.530 | 5.940  | 5895.054 | 8.520  | 8.880  |
| 18. | 11186.309 | 0.260  | -3.790 | 6601.100 | -7.680 | 6.210  | 5910.251 | 8.630  | 9.020  |
| 19. | 11187.166 | 0.250  | -3.920 | 6585.553 | -7.780 | 6.460  | 5926.295 | 8.690  | 9.070  |
| 20. | 11187.987 | 0.230  | -4.050 | 6569.953 | -7.700 | 6.650  | 5941.939 | 8.500  | 8.850  |
| 21. | 11188.756 | 0.220  | -4.160 | 6554.604 | -7.550 | 6.920  | 5957.510 | 8.000  | 8.300  |
| 22. | 11189.471 | 0.200  | -4.260 | 6539.611 | -7.350 | 7.120  | 5972.642 | 7.300  | 7.550  |
| 23. | 11190.115 | 0.160  | -4.350 | 6525.240 | -6.990 | 7.320  | 5987.127 | 6.400  | 6.650  |
| 24. | 11190.696 | 0.160  | -4.430 | 6511.772 | -6.480 | 7.450  | 6000.056 | 5.200  | 5.450  |
| 25. | 11191.195 | 0.130  | -4.500 | 6499.515 | -5.810 | 7.640  | 6013.043 | 3.800  | 4.050  |
| 26. | 11191.610 | 0.110  | -4.550 | 6488.805 | -4.960 | 7.780  | 6023.527 | 2.300  | 2.550  |
| 27. | 11191.936 | 0.060  | -4.600 | 6479.969 | -3.920 | 7.850  | 6032.701 | 0.700  | 0.950  |
| 28. | 11192.175 | 0.030  | -4.630 | 6473.399 | -2.720 | 7.970  | 6039.333 | 0.000  | 0.250  |
| 29. | 11192.316 | 0.030  | -4.650 | 6469.317 | -1.400 | 8.020  | 6043.441 | 0.000  | 0.250  |
| 30. | 11192.366 | -0.000 | -4.650 | 6467.934 | 0.000  | 8.030  | 6046.632 | -0.000 | 0.250  |
| 31. | 11192.316 | -0.030 | -4.650 | 6469.317 | 1.400  | 8.020  | 6043.441 | -0.000 | 0.250  |
| 32. | 11192.175 | -0.060 | -4.630 | 6473.399 | 2.720  | 7.970  | 6039.333 | -0.000 | 0.250  |
| 33. | 11191.936 | -0.060 | -4.600 | 6479.989 | 3.920  | 7.850  | 6032.701 | -0.000 | 0.250  |
| 34. | 11191.610 | -0.110 | -4.550 | 6488.805 | 4.960  | 7.720  | 6023.527 | -0.000 | 0.250  |
| 35. | 11191.195 | -0.130 | -4.500 | 6499.515 | 5.810  | 7.640  | 6013.043 | -0.000 | 0.250  |
| 36. | 11190.696 | -0.160 | -4.430 | 6511.772 | 6.480  | 7.450  | 6000.056 | -0.000 | 0.250  |
| 37. | 11190.115 | -0.180 | -4.350 | 6525.240 | 6.990  | 7.320  | 5987.127 | -0.000 | 0.250  |
| 38. | 11189.471 | -0.200 | -4.260 | 6539.611 | 7.350  | 7.120  | 5972.642 | -0.000 | 0.250  |
| 39. | 11188.756 | -0.220 | -4.160 | 6554.604 | 7.550  | 6.920  | 5957.510 | -0.000 | 0.250  |
| 40. | 11187.987 | -0.230 | -4.050 | 6569.953 | 7.700  | 6.650  | 5941.939 | -0.000 | 0.250  |
| 41. | 11187.166 | -0.250 | -3.920 | 6585.553 | 7.780  | 6.460  | 5926.295 | -0.000 | 0.250  |
| 42. | 11186.309 | -0.260 | -3.790 | 6601.106 | 7.680  | 6.210  | 5910.251 | -0.000 | 0.250  |
| 43. | 11185.415 | -0.260 | -3.640 | 6616.499 | 7.600  | 5.940  | 5895.054 | -0.000 | 0.250  |
| 44. | 11184.509 | -0.270 | -3.490 | 6631.586 | 7.330  | 5.670  | 5879.797 | -0.000 | 0.250  |
| 45. | 11183.587 | -0.270 | -3.320 | 6646.256 | 7.090  | 5.360  | 5864.970 | -0.000 | 0.250  |
| 46. | 11182.664 | -0.270 | -3.150 | 6660.357 | 6.790  | 5.080  | 5850.671 | -0.000 | 0.250  |
| 47. | 11181.751 | -0.270 | -2.960 | 6673.916 | 6.460  | 4.760  | 5836.994 | -0.000 | 0.250  |
| 48. | 11180.857 | -0.260 | -2.770 | 6686.732 | 6.080  | 4.440  | 5828.026 | -0.000 | 0.250  |
| 49. | 11179.991 | -0.250 | -2.570 | 6698.770 | 5.680  | 4.110  | 5811.000 | -0.000 | 0.250  |

Z-PLANE (XY-PLANE) SAPPHIRE

BULK

|     | LPMI12    | LPMI13 | FSRWEL   | FSPHI12 | FSPHI13 | SSRWEL   | SSPHI12 | SSPHI13 |
|-----|-----------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 11179.165 | -2.360 | 6709.965 | 5.250   | 3.770   | 5000.505 | -0.140  | 3.720   |
| 51. | 11178.366 | -2.140 | 6720.255 | 4.790   | 3.420   | 5790.079 | -5.630  | 3.330   |
| 52. | 11177.664 | -1.920 | 6729.602 | 4.310   | 3.060   | 5780.615 | -5.060  | 3.000   |
| 53. | 11177.006 | -1.700 | 6737.947 | 3.610   | 2.650   | 5772.159 | -4.510  | 2.690   |
| 54. | 11176.421 | -1.460 | 6745.257 | 3.300   | 2.320   | 5764.751 | -3.950  | 2.320   |
| 55. | 11175.913 | -1.230 | 6751.497 | 2.770   | 1.940   | 5758.425 | -3.290  | 1.920   |
| 56. | 11175.490 | -1.100 | 6756.641 | 2.230   | 1.560   | 5753.211 | -2.650  | 1.510   |
| 57. | 11175.156 | -0.980 | 6760.665 | 1.660   | 1.170   | 5748.131 | -2.000  | 1.120   |
| 58. | 11174.915 | -0.860 | 6763.551 | 1.120   | 0.780   | 5743.205 | -1.340  | 0.730   |
| 59. | 11174.769 | -0.750 | 6765.286 | 0.560   | 0.350   | 5744.443 | -0.670  | 0.400   |
| 60. | 11174.720 | 0.000  | 6765.866 | 0.000   | -0.000  | 5743.055 | 0.000   | -0.000  |
| 61. | 11174.765 | 0.030  | 6765.266 | -0.250  | -0.350  | 5744.443 | 0.000   | -0.400  |
| 62. | 11174.915 | 0.060  | 6763.551 | -1.120  | -1.780  | 5746.205 | 0.000   | -0.790  |
| 63. | 11175.156 | 0.080  | 6760.665 | -2.230  | -3.420  | 5748.131 | 1.340   | -1.100  |
| 64. | 11175.490 | 0.110  | 6756.641 | -3.770  | -5.250  | 5753.211 | 2.000   | -1.570  |
| 65. | 11175.913 | 0.140  | 6751.497 | -5.080  | -7.770  | 5758.425 | 3.290   | -2.150  |
| 66. | 11176.421 | 0.160  | 6745.257 | -6.000  | -9.540  | 5764.751 | 3.910   | -2.820  |
| 67. | 11177.006 | 0.180  | 6737.947 | -6.460  | -10.810 | 5772.159 | 4.510   | -3.500  |
| 68. | 11177.664 | 0.200  | 6729.602 | -6.740  | -12.060 | 5780.615 | 5.000   | -4.180  |
| 69. | 11178.366 | 0.220  | 6720.255 | -6.830  | -13.200 | 5790.079 | 5.430   | -4.830  |
| 70. | 11179.165 | 0.240  | 6709.965 | -6.750  | -14.250 | 5800.505 | 5.810   | -5.450  |
| 71. | 11179.991 | 0.250  | 6698.770 | -6.500  | -15.110 | 5811.940 | 6.150   | -6.020  |
| 72. | 11180.857 | 0.260  | 6686.732 | -6.000  | -15.740 | 5824.026 | 6.340   | -6.530  |
| 73. | 11181.751 | 0.270  | 6673.916 | -5.260  | -16.160 | 5836.934 | 6.460   | -6.980  |
| 74. | 11182.664 | 0.270  | 6660.397 | -4.300  | -16.210 | 5850.671 | 6.410   | -7.360  |
| 75. | 11183.567 | 0.270  | 6646.256 | -3.100  | -15.870 | 5864.970 | 6.110   | -7.600  |
| 76. | 11184.509 | 0.270  | 6631.566 | -1.700  | -15.140 | 5879.797 | 5.550   | -7.700  |
| 77. | 11185.419 | 0.260  | 6616.499 | -0.100  | -13.940 | 5895.045 | 4.650   | -7.600  |
| 78. | 11186.309 | 0.250  | 6601.106 | 0.500   | -12.210 | 5910.731 | 3.300   | -7.200  |
| 79. | 11187.168 | 0.250  | 6585.553 | 1.700   | -9.960  | 5926.825 | 1.500   | -6.500  |
| 80. | 11187.987 | 0.230  | 6569.993 | 2.500   | -7.200  | 5943.333 | 0.100   | -5.400  |
| 81. | 11188.756 | 0.220  | 6554.604 | 2.800   | -5.420  | 5960.333 | 0.000   | -4.000  |
| 82. | 11189.471 | 0.200  | 6539.611 | 2.500   | -3.600  | 5977.842 | 0.110   | -2.300  |
| 83. | 11190.119 | 0.160  | 6525.240 | 1.700   | -1.820  | 5995.827 | 0.000   | -0.500  |
| 84. | 11190.696 | 0.160  | 6511.772 | 0.400   | -0.400  | 6000.698 | 0.000   | 0.000   |
| 85. | 11191.195 | 0.130  | 6499.515 | -0.810  | 0.640   | 6013.043 | 0.000   | 0.000   |
| 86. | 11191.610 | 0.110  | 6488.805 | -1.960  | 1.700   | 6023.827 | 0.000   | 0.000   |
| 87. | 11191.936 | 0.080  | 6479.985 | -3.420  | 2.920   | 6032.701 | 0.000   | 0.000   |
| 88. | 11192.175 | 0.060  | 6473.395 | -4.720  | 4.240   | 6039.333 | 0.000   | 0.000   |
| 89. | 11192.518 | 0.030  | 6469.317 | -5.800  | 5.550   | 6043.441 | 0.000   | 0.000   |
| 90. | 11192.966 | -0.000 | 6467.934 | -6.650  | 6.830   | 6044.032 | 0.000   | 0.000   |
| 91. | 11192.318 | -0.030 | 6469.317 | -7.200  | 8.000   | 6043.441 | 0.000   | 0.000   |
| 92. | 11192.175 | -0.060 | 6473.395 | -7.570  | 9.000   | 6039.333 | 0.000   | 0.000   |
| 93. | 11191.938 | -0.080 | 6479.985 | -7.650  | 9.920   | 6032.701 | 0.000   | 0.000   |
| 94. | 11191.610 | -0.110 | 6488.805 | -7.400  | 10.600  | 6023.827 | 0.000   | 0.000   |
| 95. | 11191.195 | -0.130 | 6499.515 | -6.800  | 11.000  | 6013.043 | 0.000   | 0.000   |
| 96. | 11190.696 | -0.160 | 6511.772 | -5.800  | 11.100  | 6000.698 | 0.000   | 0.000   |
| 97. | 11190.119 | -0.160 | 6525.240 | -4.300  | 10.000  | 5988.127 | 0.000   | 0.000   |
| 98. | 11189.471 | -0.200 | 6539.611 | -2.500  | 7.350   | 5972.642 | 0.000   | 0.000   |
| 99. | 11188.756 | -0.220 | 6554.609 | 0.000   | 5.500   | 5957.518 | 0.000   | 0.000   |

Z-PLANE (XY-PLANE) SAPPHIRE

BULK

|      | LMGVEL    | LPM112 | LPM113 | FSPVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |
|------|-----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 100. | 11167.507 | -0.230 | 4.050  | 6569.993 | 7.700  | -6.650 | 5941.994 | -8.150 | -6.130 |
| 101. | 11187.166 | -0.250 | 3.920  | 6545.553 | 7.720  | -6.460 | 5926.295 | -8.650 | -5.970 |
| 102. | 11186.309 | -0.260 | 3.790  | 6601.106 | 7.660  | -6.210 | 5910.591 | -8.630 | -5.800 |
| 103. | 11185.419 | -0.260 | 3.640  | 6616.495 | 7.530  | -5.540 | 5895.045 | -8.520 | -5.300 |
| 104. | 11184.505 | -0.270 | 3.490  | 6631.568 | 7.330  | -5.670 | 5879.797 | -8.110 | -5.130 |
| 105. | 11183.587 | -0.270 | 3.320  | 6646.256 | 7.090  | -5.360 | 5864.971 | -7.610 | -4.800 |
| 106. | 11182.664 | -0.270 | 3.150  | 6660.397 | 6.790  | -4.760 | 5850.944 | -7.460 | -4.620 |
| 107. | 11181.751 | -0.270 | 2.960  | 6673.916 | 6.460  | -4.440 | 5836.944 | -7.063 | -4.330 |
| 108. | 11180.857 | -0.260 | 2.770  | 6686.732 | 6.080  | -4.110 | 5824.026 | -6.623 | -4.030 |
| 109. | 11179.991 | -0.250 | 2.570  | 6698.770 | 5.660  | -3.770 | 5811.040 | -6.140 | -3.720 |
| 110. | 11179.165 | -0.240 | 2.360  | 6709.965 | 5.250  | -3.420 | 5800.505 | -5.630 | -3.300 |
| 111. | 11178.366 | -0.220 | 2.140  | 6720.255 | 4.790  | -3.060 | 5790.079 | -5.000 | -2.800 |
| 112. | 11177.664 | -0.200 | 1.920  | 6729.641 | 4.310  | -2.650 | 5780.615 | -4.300 | -2.300 |
| 113. | 11177.006 | -0.180 | 1.700  | 6737.947 | 3.810  | -2.190 | 5772.159 | -3.510 | -1.700 |
| 114. | 11176.421 | -0.160 | 1.460  | 6745.257 | 3.300  | -1.540 | 5764.751 | -2.650 | -0.910 |
| 115. | 11175.913 | -0.140 | 1.230  | 6751.497 | 2.770  | -0.860 | 5758.425 | -1.700 | -0.150 |
| 116. | 11175.450 | -0.110 | 0.990  | 6756.661 | 2.230  | -0.150 | 5753.211 | -0.700 | 0.000  |
| 117. | 11175.156 | -0.080 | 0.740  | 6760.665 | 1.680  | 0.350  | 5749.131 | 0.000  | 0.000  |
| 118. | 11174.915 | -0.060 | 0.500  | 6763.551 | 1.120  | 0.850  | 5746.225 | 0.670  | 0.700  |
| 119. | 11174.765 | -0.030 | 0.250  | 6765.208 | 0.560  | 1.340  | 5744.443 | 1.340  | 1.160  |
| 120. | 11174.720 | 0.000  | -0.000 | 6765.666 | 0.000  | 1.820  | 5743.055 | 2.000  | 1.970  |
| 121. | 11174.769 | 0.030  | -0.250 | 6765.288 | -0.560 | 2.290  | 5742.235 | 2.650  | 2.620  |
| 122. | 11174.915 | 0.060  | -0.500 | 6763.551 | -1.120 | 2.770  | 5742.159 | 3.240  | 3.210  |
| 123. | 11175.156 | 0.110  | -0.740 | 6760.665 | -1.680 | 3.240  | 5742.159 | 3.810  | 3.780  |
| 124. | 11175.450 | 0.140  | -0.990 | 6756.641 | -2.230 | 3.720  | 5742.159 | 4.310  | 4.280  |
| 125. | 11175.913 | 0.160  | -1.230 | 6751.497 | -2.770 | 4.200  | 5742.159 | 4.790  | 4.760  |
| 126. | 11176.421 | 0.180  | -1.460 | 6745.257 | -3.300 | 4.680  | 5742.159 | 5.250  | 5.220  |
| 127. | 11177.006 | 0.160  | -1.700 | 6737.947 | -3.810 | 5.160  | 5742.159 | 5.630  | 5.600  |
| 128. | 11177.664 | 0.200  | -1.920 | 6729.641 | -4.310 | 5.640  | 5742.159 | 6.000  | 5.970  |
| 129. | 11178.366 | 0.220  | -2.140 | 6720.255 | -4.790 | 6.120  | 5742.159 | 6.320  | 6.290  |
| 130. | 11179.165 | 0.240  | -2.360 | 6709.965 | -5.250 | 6.600  | 5742.159 | 6.590  | 6.560  |
| 131. | 11179.991 | 0.260  | -2.570 | 6698.770 | -5.660 | 7.080  | 5742.159 | 6.820  | 6.790  |
| 132. | 11180.857 | 0.260  | -2.770 | 6686.732 | -6.080 | 7.560  | 5742.159 | 7.060  | 7.030  |
| 133. | 11181.751 | 0.270  | -2.960 | 6673.916 | -6.460 | 8.040  | 5742.159 | 7.260  | 7.230  |
| 134. | 11182.664 | 0.270  | -3.150 | 6660.397 | -6.790 | 8.520  | 5742.159 | 7.460  | 7.430  |
| 135. | 11183.587 | 0.270  | -3.320 | 6646.256 | -7.090 | 8.990  | 5742.159 | 7.610  | 7.580  |
| 136. | 11184.509 | 0.270  | -3.490 | 6631.568 | -7.330 | 9.470  | 5742.159 | 7.700  | 7.670  |
| 137. | 11185.419 | 0.260  | -3.640 | 6616.495 | -7.530 | 9.940  | 5742.159 | 7.760  | 7.730  |
| 138. | 11186.309 | 0.260  | -3.790 | 6601.106 | -7.660 | 10.420 | 5742.159 | 7.790  | 7.760  |
| 139. | 11187.166 | 0.250  | -3.920 | 6585.553 | -7.720 | 10.900 | 5742.159 | 7.800  | 7.770  |
| 140. | 11187.991 | 0.230  | -4.050 | 6569.993 | -7.700 | 11.380 | 5742.159 | 7.800  | 7.770  |
| 141. | 11188.758 | 0.200  | -4.160 | 6554.609 | -7.580 | 11.860 | 5742.159 | 7.790  | 7.760  |
| 142. | 11189.471 | 0.180  | -4.260 | 6539.611 | -7.350 | 12.340 | 5742.159 | 7.760  | 7.730  |
| 143. | 11190.119 | 0.160  | -4.350 | 6525.240 | -7.090 | 12.820 | 5742.159 | 7.700  | 7.670  |
| 144. | 11190.696 | 0.140  | -4.430 | 6511.772 | -6.790 | 13.300 | 5742.159 | 7.600  | 7.570  |
| 145. | 11191.195 | 0.130  | -4.500 | 6499.515 | -6.460 | 13.780 | 5742.159 | 7.460  | 7.430  |
| 146. | 11191.610 | 0.110  | -4.550 | 6488.605 | -6.080 | 14.260 | 5742.159 | 7.320  | 7.290  |
| 147. | 11191.936 | 0.080  | -4.600 | 6479.969 | -5.660 | 14.740 | 5742.159 | 7.160  | 7.130  |
| 148. | 11192.175 | 0.060  | -4.630 | 6473.399 | -5.250 | 15.220 | 5742.159 | 7.000  | 6.970  |
| 149. | 11192.316 | 0.030  | -4.650 | 6469.317 | -4.820 | 15.700 | 5742.159 | 6.820  | 6.790  |

Z-PLANE (XY-PLANE) SAPPHIRE

|      | LNGVEL    | LPM12  | LPM13  | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|-----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 150. | 11192.366 | -0.000 | -4.650 | 6467.934 | 0.000  | 6.030  | 6044.632 | -0.000 | 0.000  |
| 151. | 11192.316 | -0.030 | -4.650 | 6469.317 | 1.400  | 6.020  | 6043.441 | -1.510 | 0.000  |
| 152. | 11192.175 | -0.060 | -4.630 | 6473.339 | 2.720  | 7.570  | 6032.333 | -2.540 | 0.000  |
| 153. | 11191.938 | -0.080 | -4.600 | 6479.965 | 3.920  | 7.650  | 6032.701 | -4.240 | 0.000  |
| 154. | 11191.610 | -0.110 | -4.550 | 6488.805 | 4.960  | 7.740  | 6023.827 | -5.370 | 0.000  |
| 155. | 11191.195 | -0.130 | -4.500 | 6499.515 | 5.810  | 7.640  | 6013.043 | -6.320 | 0.000  |
| 157. | 11190.119 | -0.160 | -4.350 | 6525.240 | 6.990  | 7.320  | 5987.127 | -7.670 | 0.000  |
| 158. | 11190.696 | -0.160 | -4.430 | 6511.772 | 6.460  | 7.450  | 6000.098 | -7.600 | 0.000  |
| 159. | 11189.471 | -0.200 | -4.260 | 6539.611 | 7.350  | 7.120  | 5972.042 | -8.110 | 0.000  |
| 160. | 11188.758 | -0.220 | -4.160 | 6554.609 | 7.560  | 6.520  | 5957.516 | -8.400 | 0.000  |
| 161. | 11187.967 | -0.230 | -4.050 | 6569.993 | 7.700  | 6.450  | 5941.395 | -8.280 | 0.130  |
| 162. | 11187.168 | -0.250 | -3.920 | 6585.553 | 7.720  | 6.460  | 5920.295 | -8.250 | 0.370  |
| 163. | 11186.309 | -0.260 | -3.790 | 6601.110 | 7.660  | 6.210  | 5910.591 | -8.630 | 0.800  |
| 164. | 11185.419 | -0.260 | -3.640 | 6616.499 | 7.530  | 5.940  | 5929.345 | -8.520 | 1.600  |
| 165. | 11184.509 | -0.270 | -3.490 | 6631.586 | 7.330  | 5.670  | 5679.797 | -8.350 | 2.800  |
| 166. | 11183.587 | -0.270 | -3.320 | 6646.256 | 7.090  | 5.360  | 5664.370 | -8.110 | 4.100  |
| 167. | 11182.664 | -0.270 | -3.150 | 6660.397 | 6.730  | 5.020  | 5650.671 | -7.810 | 5.600  |
| 168. | 11181.751 | -0.270 | -2.960 | 6673.916 | 6.460  | 4.760  | 5638.934 | -7.460 | 7.400  |
| 169. | 11180.857 | -0.260 | -2.770 | 6686.732 | 6.000  | 4.440  | 5624.026 | -7.060 | 9.300  |
| 170. | 11179.991 | -0.250 | -2.570 | 6698.770 | 5.600  | 4.110  | 5611.040 | -6.620 | 11.300 |
| 171. | 11179.165 | -0.240 | -2.360 | 6709.965 | 5.250  | 3.770  | 5600.505 | -6.140 | 13.720 |
| 172. | 11178.366 | -0.220 | -2.140 | 6720.259 | 4.790  | 3.420  | 5730.079 | -5.630 | 16.300 |
| 173. | 11177.664 | -0.200 | -1.920 | 6729.602 | 4.310  | 3.060  | 5780.615 | -5.080 | 19.000 |
| 174. | 11177.006 | -0.160 | -1.700 | 6737.947 | 3.810  | 2.690  | 5772.159 | -4.510 | 2.600  |
| 175. | 11176.421 | -0.160 | -1.460 | 6745.257 | 3.300  | 2.320  | 5764.751 | -3.910 | 2.320  |
| 176. | 11175.913 | -0.140 | -1.230 | 6751.497 | 2.770  | 1.940  | 5758.425 | -3.290 | 1.950  |
| 177. | 11175.490 | -0.110 | -0.990 | 6756.641 | 2.230  | 1.560  | 5753.211 | -2.650 | 1.570  |
| 178. | 11175.156 | -0.060 | -0.740 | 6760.685 | 1.660  | 1.170  | 5749.131 | -2.000 | 1.160  |
| 179. | 11174.915 | -0.060 | -0.500 | 6763.551 | 1.120  | .780   | 5746.205 | -1.340 | .750   |
| 179. | 11174.769 | -0.030 | -0.250 | 6765.288 | .560   | .390   | 5744.443 | -0.670 | .400   |
| 180. | 11174.720 | 0.000  | 0.000  | 6765.868 | -0.000 | -0.000 | 5743.855 | 0.000  | -0.000 |

Z-PLANE (XY-PLANE) SILICON

|     | LWVEL    | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 | BULK    |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|---------|
| 0.  | 8440.654 | 0.000  | 0.000  | 5844.920 | 0.000   | 0.000   | 5844.920 | 0.000   | 0.000   | SSPMI13 |
| 1.  | 8441.825 | .910   | 0.000  | 5843.222 | -1.910  | 0.000   | 5844.920 | 0.600   | 0.000   | 0.000   |
| 2.  | 8445.341 | 1.610  | 0.000  | 5838.145 | -3.790  | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 3.  | 8451.148 | 2.690  | 0.000  | 5829.736 | -5.640  | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 4.  | 8459.181 | 3.530  | 0.000  | 5818.073 | -7.440  | 0.000   | 5844.920 | -0.000  | 0.000   | 0.000   |
| 5.  | 8469.346 | 4.330  | 0.000  | 5803.264 | -9.160  | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 6.  | 8481.534 | 5.040  | 0.000  | 5785.436 | -10.810 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 7.  | 8495.609 | 5.770  | 0.000  | 5764.750 | -12.370 | 0.000   | 5844.920 | 0.600   | 0.000   | 0.000   |
| 8.  | 8511.427 | 6.390  | 0.000  | 5741.370 | -13.630 | 0.000   | 5844.920 | -0.000  | 0.000   | 0.000   |
| 9.  | 8528.832 | 6.950  | 0.000  | 5715.464 | -15.190 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 10. | 8547.861 | 7.440  | 0.000  | 5687.286 | -16.440 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 11. | 8567.748 | 7.870  | 0.000  | 5656.980 | -17.580 | 0.000   | 5844.920 | 0.600   | 0.000   | 0.000   |
| 12. | 8588.926 | 8.220  | 0.000  | 5624.774 | -18.620 | 0.000   | 5844.920 | -0.000  | 0.000   | 0.000   |
| 13. | 8611.028 | 8.520  | 0.000  | 5590.876 | -19.560 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 14. | 8633.893 | 8.750  | 0.000  | 5555.503 | -20.390 | 0.000   | 5844.920 | -0.600  | 0.000   | 0.000   |
| 15. | 8657.363 | 8.920  | 0.000  | 5518.858 | -21.120 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 16. | 8681.287 | 9.040  | 0.000  | 5481.146 | -21.750 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 17. | 8705.520 | 9.100  | 0.000  | 5442.576 | -22.290 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 18. | 8729.925 | 9.120  | 0.000  | 5403.345 | -22.730 | 0.000   | 5844.920 | -0.600  | 0.000   | 0.000   |
| 19. | 8754.373 | 9.080  | 0.000  | 5363.644 | -23.070 | 0.000   | 5844.920 | 0.600   | 0.000   | 0.000   |
| 20. | 8778.742 | 9.010  | 0.000  | 5323.665 | -23.320 | 0.000   | 5844.920 | -0.000  | 0.000   | 0.000   |
| 21. | 8802.919 | 8.890  | 0.000  | 5283.592 | -23.480 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 22. | 8826.756 | 8.740  | 0.000  | 5243.606 | -23.550 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 23. | 8850.275 | 8.560  | 0.000  | 5203.880 | -23.520 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 24. | 8873.263 | 8.340  | 0.000  | 5164.584 | -23.410 | 0.000   | 5844.920 | 0.600   | 0.000   | 0.000   |
| 25. | 8895.675 | 8.100  | 0.000  | 5125.884 | -23.200 | 0.000   | 5844.920 | -0.600  | 0.000   | 0.000   |
| 26. | 8917.432 | 7.830  | 0.000  | 5087.940 | -22.900 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 27. | 8938.461 | 7.540  | 0.000  | 5050.905 | -22.510 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 28. | 8958.694 | 7.220  | 0.000  | 5014.930 | -22.020 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 29. | 8978.070 | 6.890  | 0.000  | 4980.159 | -21.430 | 0.000   | 5844.920 | 0.600   | 0.000   | 0.000   |
| 30. | 8996.531 | 6.530  | 0.000  | 4946.731 | -20.750 | 0.000   | 5844.920 | -0.000  | 0.000   | 0.000   |
| 31. | 9014.026 | 6.170  | 0.000  | 4914.780 | -19.970 | 0.000   | 5844.920 | 0.600   | 0.000   | 0.000   |
| 32. | 9030.506 | 5.780  | 0.000  | 4884.433 | -19.050 | 0.000   | 5844.920 | -0.000  | 0.000   | 0.000   |
| 33. | 9045.928 | 5.360  | 0.000  | 4855.612 | -18.110 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 34. | 9060.254 | 4.970  | 0.000  | 4829.030 | -17.040 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 35. | 9073.446 | 4.550  | 0.000  | 4804.196 | -15.860 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 36. | 9085.475 | 4.130  | 0.000  | 4781.409 | -14.600 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 37. | 9096.311 | 3.690  | 0.000  | 4760.762 | -13.240 | 0.000   | 5844.920 | -0.000  | 0.000   | 0.000   |
| 38. | 9105.929 | 3.240  | 0.000  | 4742.340 | -11.800 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 39. | 9114.307 | 2.750  | 0.000  | 4726.217 | -10.270 | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 40. | 9121.428 | 2.330  | 0.000  | 4712.460 | -8.660  | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 41. | 9127.275 | 1.870  | 0.000  | 4701.125 | -7.020  | 0.000   | 5844.920 | 0.600   | 0.000   | 0.000   |
| 42. | 9131.836 | 1.410  | 0.000  | 4692.260 | -5.310  | 0.000   | 5844.920 | -0.000  | 0.000   | 0.000   |
| 43. | 9135.180 | .940   | 0.000  | 4685.901 | -3.570  | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 44. | 9137.062 | .470   | 0.000  | 4682.075 | -1.790  | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 45. | 9137.716 | 0.000  | 0.000  | 4680.798 | 0.000   | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 46. | 9137.062 | -.470  | 0.000  | 4682.075 | 1.790   | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 47. | 9135.180 | -.940  | 0.000  | 4685.901 | 3.570   | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 48. | 9131.836 | -1.410 | 0.000  | 4692.260 | 5.310   | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |
| 49. | 9127.275 | -1.870 | 0.000  | 4701.125 | 7.020   | 0.000   | 5844.920 | 0.000   | 0.000   | 0.000   |



Z-PLANE (XY-PLANE) SILICON

BULK

|     | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 50. | 9121.428 | -2.330 | 0.000  | 4712.460 | 8.660   | 0.000  | 5044.920 | -0.000 | 0.000  |
| 51. | 9114.387 | -2.790 | 0.000  | 4726.217 | 10.270  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 52. | 9105.925 | -3.240 | 0.000  | 4742.340 | 11.600  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 53. | 9096.311 | -3.690 | 0.000  | 4760.762 | 13.240  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 54. | 9085.475 | -4.130 | 0.000  | 4781.409 | 14.600  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 55. | 9073.446 | -4.550 | 0.000  | 4804.146 | 15.860  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 56. | 9060.254 | -4.970 | 0.000  | 4829.030 | 17.040  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 57. | 9045.928 | -5.360 | 0.000  | 4855.812 | 18.110  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 58. | 9030.506 | -5.760 | 0.000  | 4884.433 | 19.050  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 59. | 9014.026 | -6.170 | 0.000  | 4914.780 | 19.970  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 60. | 8996.531 | -6.530 | 0.000  | 4946.731 | 20.750  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 61. | 8976.070 | -6.850 | 0.000  | 4980.154 | 21.430  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 62. | 8954.694 | -7.220 | 0.000  | 5014.930 | 22.020  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 63. | 8938.461 | -7.540 | 0.000  | 5050.905 | 22.510  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 64. | 8917.432 | -7.830 | 0.000  | 5087.940 | 22.900  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 65. | 8895.675 | -8.100 | 0.000  | 5125.864 | 23.200  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 66. | 8873.263 | -8.340 | 0.000  | 5164.584 | 23.410  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 67. | 8850.275 | -8.560 | 0.000  | 5203.080 | 23.520  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 68. | 8826.796 | -8.740 | 0.000  | 5243.606 | 23.550  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 69. | 8802.919 | -8.890 | 0.000  | 5284.592 | 23.480  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 70. | 8778.742 | -9.010 | 0.000  | 5323.665 | 23.320  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 71. | 8754.373 | -9.060 | 0.000  | 5363.644 | 23.070  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 72. | 8729.925 | -9.120 | 0.000  | 5403.345 | 22.730  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 73. | 8705.520 | -9.160 | 0.000  | 5442.578 | 22.290  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 74. | 8681.267 | -9.140 | 0.000  | 5481.146 | 21.750  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 75. | 8657.363 | -8.920 | 0.000  | 5518.856 | 21.120  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 76. | 8633.893 | -8.750 | 0.000  | 5555.503 | 20.390  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 77. | 8611.028 | -8.520 | 0.000  | 5590.878 | 19.560  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 78. | 8588.926 | -8.220 | 0.000  | 5624.774 | 18.620  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 79. | 8567.748 | -7.870 | 0.000  | 5656.960 | 17.500  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 80. | 8547.661 | -7.440 | 0.000  | 5687.286 | 16.440  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 81. | 8526.632 | -6.950 | 0.000  | 5715.484 | 15.190  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 82. | 8511.627 | -6.350 | 0.000  | 5741.370 | 13.650  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 83. | 8495.609 | -5.770 | 0.000  | 5764.750 | 12.370  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 84. | 8481.534 | -5.060 | 0.000  | 5785.436 | 10.610  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 85. | 8469.346 | -4.330 | 0.000  | 5803.264 | 9.160   | 0.000  | 5044.920 | -0.000 | 0.000  |
| 86. | 8459.181 | -3.530 | 0.000  | 5818.073 | 7.440   | 0.000  | 5044.920 | -0.000 | 0.000  |
| 87. | 8451.146 | -2.690 | 0.000  | 5829.736 | 5.640   | 0.000  | 5044.920 | -0.000 | 0.000  |
| 88. | 8445.341 | -1.810 | 0.000  | 5838.165 | 3.790   | 0.000  | 5044.920 | -0.000 | 0.000  |
| 89. | 8441.829 | -0.910 | 0.000  | 5843.222 | 1.910   | 0.000  | 5044.920 | -0.000 | 0.000  |
| 90. | 8440.654 | 0.000  | 0.000  | 5844.920 | -0.000  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 91. | 8441.629 | .910   | 0.000  | 5843.222 | -1.910  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 92. | 8445.341 | 1.610  | 0.000  | 5838.165 | -3.790  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 93. | 8451.146 | 2.690  | 0.000  | 5829.736 | -5.640  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 94. | 8459.181 | 3.530  | 0.000  | 5818.073 | -7.440  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 95. | 8469.346 | 4.330  | 0.000  | 5803.264 | -9.160  | 0.000  | 5044.920 | -0.000 | 0.000  |
| 96. | 8481.534 | 5.060  | 0.000  | 5785.436 | -10.610 | 0.000  | 5044.920 | -0.000 | 0.000  |
| 97. | 8495.609 | 5.770  | 0.000  | 5764.750 | -12.370 | 0.000  | 5044.920 | -0.000 | 0.000  |
| 98. | 8511.627 | 6.350  | 0.000  | 5741.370 | -13.650 | 0.000  | 5044.920 | -0.000 | 0.000  |
| 99. | 8526.632 | 6.950  | 0.000  | 5715.484 | -15.190 | 0.000  | 5044.920 | -0.000 | 0.000  |

Z-PLANE (XY-PLANE) SILICON

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 8547.661 | 7.440  | 0.000  | 5607.266 | -16.440 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 101. | 8567.740 | 7.870  | 0.000  | 5656.980 | -17.560 | 0.000   | 5044.920 | -0.000  | 0.000   |
| 102. | 8566.920 | 8.220  | 0.000  | 5624.774 | -18.620 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 103. | 8611.028 | 8.520  | 0.000  | 5590.878 | -19.560 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 104. | 8633.893 | 8.750  | 0.000  | 5555.503 | -20.350 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 105. | 8657.363 | 8.920  | 0.000  | 5518.856 | -21.120 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 106. | 8661.287 | 9.040  | 0.000  | 5481.146 | -21.750 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 107. | 8705.920 | 9.100  | 0.000  | 5442.578 | -22.290 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 108. | 8729.925 | 9.120  | 0.000  | 5403.345 | -22.730 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 109. | 8754.373 | 9.060  | 0.000  | 5363.644 | -23.070 | 0.000   | 5044.920 | -0.000  | 0.000   |
| 110. | 8776.742 | 9.010  | 0.000  | 5323.665 | -23.320 | 0.000   | 5044.920 | 0.660   | 0.660   |
| 111. | 8802.919 | 8.950  | 0.000  | 5283.592 | -23.460 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 112. | 8826.796 | 8.740  | 0.000  | 5243.516 | -23.560 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 113. | 8850.275 | 8.560  | 0.000  | 5203.880 | -23.520 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 114. | 8873.263 | 8.340  | 0.000  | 5164.564 | -23.410 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 115. | 8895.675 | 8.160  | 0.000  | 5125.884 | -23.200 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 116. | 8917.432 | 7.830  | 0.000  | 5087.940 | -22.960 | 0.000   | 5044.920 | -0.000  | 0.000   |
| 117. | 8938.461 | 7.540  | 0.000  | 5050.905 | -22.510 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 118. | 8958.694 | 7.220  | 0.000  | 5014.930 | -22.020 | 0.000   | 5044.920 | 0.660   | 0.660   |
| 119. | 8978.070 | 6.950  | 0.000  | 4980.159 | -21.430 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 120. | 8996.551 | 6.530  | 0.000  | 4946.731 | -20.750 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 121. | 9014.026 | 6.170  | 0.000  | 4914.780 | -19.970 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 122. | 9030.506 | 5.760  | 0.000  | 4884.433 | -19.090 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 123. | 9047.920 | 5.300  | 0.000  | 4855.812 | -18.110 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 124. | 9060.254 | 4.970  | 0.000  | 4829.030 | -17.040 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 125. | 9073.446 | 4.550  | 0.000  | 4804.196 | -15.860 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 126. | 9085.475 | 4.130  | 0.000  | 4781.409 | -14.600 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 127. | 9096.311 | 3.690  | 0.000  | 4760.762 | -13.240 | 0.000   | 5044.920 | 0.000   | 0.000   |
| 128. | 9105.929 | 3.240  | 0.000  | 4742.340 | -11.600 | 0.000   | 5044.920 | -0.000  | 0.000   |
| 129. | 9114.307 | 2.790  | 0.000  | 4726.217 | -10.270 | 0.000   | 5044.920 | -0.000  | 0.000   |
| 130. | 9121.426 | 2.330  | 0.000  | 4712.460 | -8.660  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 131. | 9127.273 | 1.670  | 0.000  | 4701.125 | -7.020  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 132. | 9131.836 | 1.410  | 0.000  | 4692.260 | -5.310  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 133. | 9135.100 | .940   | 0.000  | 4685.901 | -3.570  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 134. | 9137.062 | .470   | 0.000  | 4680.756 | -1.790  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 135. | 9137.716 | -0.000 | 0.000  | 4680.756 | 0.000   | 0.000   | 5044.920 | -0.000  | 0.000   |
| 136. | 9137.062 | -0.470 | 0.000  | 4682.075 | 1.790   | 0.000   | 5044.920 | 0.000   | 0.000   |
| 137. | 9135.100 | -0.940 | 0.000  | 4685.901 | 3.570   | 0.000   | 5044.920 | -0.000  | 0.000   |
| 138. | 9131.836 | -1.410 | 0.000  | 4692.260 | 5.310   | 0.000   | 5044.920 | 0.000   | 0.000   |
| 139. | 9127.273 | -1.670 | 0.000  | 4701.125 | 7.020   | 0.000   | 5044.920 | 0.000   | 0.000   |
| 140. | 9121.426 | -2.330 | 0.000  | 4712.460 | 8.660   | 0.000   | 5044.920 | 0.000   | 0.000   |
| 141. | 9114.307 | -2.790 | 0.000  | 4726.217 | 10.270  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 142. | 9105.929 | -3.240 | 0.000  | 4742.340 | 11.600  | 0.000   | 5044.920 | -0.000  | 0.000   |
| 143. | 9096.311 | -3.690 | 0.000  | 4760.762 | 13.240  | 0.000   | 5044.920 | -0.000  | 0.000   |
| 144. | 9085.475 | -4.130 | 0.000  | 4781.409 | 14.600  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 145. | 9073.446 | -4.550 | 0.000  | 4804.196 | 15.860  | 0.000   | 5044.920 | 0.660   | 0.660   |
| 146. | 9060.254 | -4.970 | 0.000  | 4829.030 | 17.040  | 0.000   | 5044.920 | -0.000  | 0.000   |
| 147. | 9045.920 | -5.380 | 0.000  | 4855.812 | 18.110  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 148. | 9030.506 | -5.750 | 0.000  | 4884.433 | 19.090  | 0.000   | 5044.920 | -0.000  | 0.000   |
| 149. | 9014.026 | -6.170 | 0.000  | 4914.780 | 19.970  | 0.000   | 5044.920 | -0.000  | 0.000   |

Z-PLANE (XY-PLANE) SILICON

BULK

|      | LNQVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 8996.531 | -6.530 | 0.000  | 4946.731 | 20.790  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 151. | 8978.070 | -6.890 | 0.000  | 4980.159 | 21.430  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 152. | 8956.694 | -7.220 | 0.000  | 5014.930 | 22.020  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 153. | 8936.461 | -7.540 | 0.000  | 5050.905 | 22.210  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 154. | 8917.432 | -7.830 | 0.000  | 5087.940 | 22.900  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 155. | 8895.675 | -8.110 | 0.000  | 5125.884 | 23.200  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 156. | 8873.263 | -8.340 | 0.000  | 5164.584 | 23.410  | 0.000   | 5044.920 | -0.000  | 0.000   |
| 157. | 8850.275 | -8.560 | 0.000  | 5203.880 | 23.520  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 158. | 8826.796 | -8.740 | 0.000  | 5243.606 | 23.550  | 0.000   | 5044.920 | 0.100   | 0.000   |
| 159. | 8802.915 | -8.890 | 0.000  | 5283.592 | 23.480  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 160. | 8778.742 | -9.010 | 0.000  | 5323.605 | 23.320  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 161. | 8754.373 | -9.080 | 0.000  | 5363.644 | 23.070  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 162. | 8729.925 | -9.120 | 0.000  | 5403.345 | 22.730  | 0.000   | 5044.920 | 0.664   | 0.000   |
| 163. | 8705.520 | -9.100 | 0.000  | 5442.576 | 22.290  | 0.000   | 5044.920 | -0.000  | 0.000   |
| 164. | 8681.287 | -9.040 | 0.000  | 5481.148 | 21.790  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 165. | 8657.363 | -8.920 | 0.000  | 5518.850 | 21.120  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 166. | 8633.893 | -8.750 | 0.000  | 5555.503 | 20.390  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 167. | 8611.028 | -8.520 | 0.000  | 5590.876 | 19.560  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 168. | 8588.926 | -8.220 | 0.000  | 5624.774 | 18.620  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 169. | 8567.746 | -7.870 | 0.000  | 5658.980 | 17.560  | 0.000   | 5044.920 | -0.000  | 0.000   |
| 170. | 8547.661 | -7.440 | 0.000  | 5687.261 | 16.440  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 171. | 8528.632 | -6.950 | 0.000  | 5715.484 | 15.190  | 0.000   | 5044.920 | -0.000  | 0.000   |
| 172. | 8511.427 | -6.350 | 0.000  | 5741.370 | 13.830  | 0.000   | 5044.920 | -0.000  | 0.000   |
| 173. | 8495.609 | -5.770 | 0.000  | 5764.750 | 12.370  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 174. | 8481.534 | -5.060 | 0.000  | 5785.436 | 10.610  | 0.000   | 5044.920 | 0.000   | 0.000   |
| 175. | 8469.346 | -4.330 | 0.000  | 5803.264 | 9.160   | 0.000   | 5044.920 | 0.000   | 0.000   |
| 176. | 8459.181 | -3.530 | 0.000  | 5818.073 | 7.440   | 0.000   | 5044.920 | 0.000   | 0.000   |
| 177. | 8451.146 | -2.690 | 0.000  | 5829.736 | 5.640   | 0.000   | 5044.920 | 0.000   | 0.000   |
| 178. | 8445.341 | -1.810 | 0.000  | 5838.145 | 3.790   | 0.000   | 5044.920 | 0.000   | 0.000   |
| 179. | 8441.825 | -0.910 | 0.000  | 5843.222 | 1.910   | 0.000   | 5044.920 | 0.000   | 0.000   |
| 180. | 8440.854 | 0.000  | 0.000  | 5844.920 | -0.000  | 0.000   | 5044.920 | 0.000   | 0.000   |

111-PLANE SILICON

|     | LNQVEL   | LPNH12 | LPNH13 | FSRVEL   | FSPH12  | FSPH13  | SSRVEL   | SSPH12 | SSPH13  |
|-----|----------|--------|--------|----------|---------|---------|----------|--------|---------|
| 0.  | 9137.716 | -0.000 | 0.000  | 5844.920 | -0.000  | 0.000   | 4680.796 | 0.000  | -0.000  |
| 1.  | 9137.804 | .060   | .380   | 5844.225 | -0.760  | -0.550  | 4681.450 | 1.530  | -0.550  |
| 2.  | 9138.067 | .130   | .770   | 5842.158 | -1.250  | -1.100  | 4683.561 | 2.890  | -1.100  |
| 3.  | 9138.501 | .190   | 1.130  | 5838.717 | -2.320  | -1.640  | 4687.003 | 3.420  | -1.730  |
| 4.  | 9139.102 | .250   | 1.498  | 5833.920 | -3.070  | -2.180  | 4691.002 | 4.740  | -2.300  |
| 5.  | 9139.663 | .300   | 1.860  | 5827.769 | -3.820  | -2.710  | 4697.436 | 5.620  | -2.800  |
| 6.  | 9140.774 | .350   | 2.220  | 5820.349 | -4.550  | -3.240  | 4705.379 | 6.480  | -3.400  |
| 7.  | 9141.826 | .400   | 2.570  | 5811.636 | -5.260  | -3.760  | 4714.099 | 7.300  | -4.050  |
| 8.  | 9143.006 | .450   | 2.910  | 5801.686 | -5.950  | -4.260  | 4724.355 | 8.080  | -4.750  |
| 9.  | 9144.300 | .480   | 3.240  | 5790.547 | -6.610  | -4.760  | 4735.203 | 8.810  | -5.500  |
| 10. | 9145.694 | .520   | 3.560  | 5778.271 | -7.250  | -5.240  | 4747.431 | 9.490  | -6.250  |
| 11. | 9147.172 | .540   | 3.870  | 5764.917 | -7.850  | -5.710  | 4760.060 | 10.110 | -7.000  |
| 12. | 9148.716 | .560   | 4.170  | 5750.551 | -8.410  | -6.160  | 4775.293 | 10.680 | -7.750  |
| 13. | 9150.313 | .580   | 4.460  | 5735.245 | -8.940  | -6.600  | 4790.565 | 11.200 | -8.500  |
| 14. | 9151.940 | .550   | 4.730  | 5719.094 | -9.410  | -7.020  | 4806.742 | 11.600 | -9.250  |
| 15. | 9153.582 | .550   | 4.980  | 5702.180 | -9.840  | -7.430  | 4823.681 | 11.950 | -10.000 |
| 16. | 9155.220 | .560   | 5.230  | 5684.612 | -10.200 | -7.810  | 4841.275 | 12.210 | -10.750 |
| 17. | 9156.836 | .570   | 5.450  | 5666.511 | -10.500 | -8.150  | 4859.405 | 12.480 | -11.500 |
| 18. | 9158.413 | .560   | 5.660  | 5648.011 | -10.710 | -8.530  | 4877.936 | 12.660 | -12.250 |
| 19. | 9159.934 | .530   | 5.860  | 5629.266 | -10.840 | -8.860  | 4896.710 | 12.750 | -13.000 |
| 20. | 9161.382 | .500   | 6.040  | 5610.461 | -10.880 | -9.170  | 4915.549 | 12.760 | -13.750 |
| 21. | 9162.743 | .470   | 6.200  | 5591.798 | -10.740 | -9.440  | 4934.243 | 12.690 | -14.500 |
| 22. | 9164.001 | .430   | 6.350  | 5573.525 | -10.460 | -9.720  | 4952.547 | 11.770 | -15.250 |
| 23. | 9165.144 | .350   | 6.480  | 5555.926 | -10.030 | -9.960  | 4970.175 | 11.210 | -16.000 |
| 24. | 9166.160 | .340   | 6.590  | 5539.336 | -9.370  | -10.150 | 4986.731 | 10.610 | -16.750 |
| 25. | 9167.036 | .250   | 6.680  | 5524.139 | -8.470  | -10.380 | 5002.011 | 9.950  | -17.500 |
| 26. | 9167.765 | .230   | 6.760  | 5510.765 | -7.290  | -10.550 | 5015.491 | 9.250  | -18.250 |
| 27. | 9168.345 | .180   | 6.820  | 5499.686 | -5.820  | -10.660 | 5028.499 | 8.510  | -19.000 |
| 28. | 9168.761 | .120   | 6.870  | 5491.353 | -4.070  | -10.750 | 5034.846 | 7.730  | -19.750 |
| 29. | 9169.013 | .060   | 6.900  | 5484.404 | -2.100  | -10.810 | 5040.840 | 6.920  | -20.500 |
| 30. | 9169.097 | -0.000 | 6.900  | 5484.404 | 0.000   | -10.850 | 5041.805 | 6.020  | -21.250 |
| 31. | 9169.013 | -0.060 | 6.890  | 5480.166 | 2.100   | -10.850 | 5040.840 | 5.080  | -22.000 |
| 32. | 9168.761 | -0.120 | 6.870  | 5491.353 | 4.070   | -10.750 | 5034.846 | 4.140  | -22.750 |
| 33. | 9168.345 | -0.180 | 6.820  | 5499.686 | 5.820   | -10.660 | 5028.499 | 3.170  | -23.500 |
| 34. | 9167.765 | -0.230 | 6.760  | 5510.765 | 7.290   | -10.550 | 5015.491 | 2.190  | -24.250 |
| 35. | 9167.036 | -0.290 | 6.680  | 5524.140 | 8.470   | -10.380 | 5002.011 | 1.250  | -25.000 |
| 36. | 9166.160 | -0.340 | 6.590  | 5539.336 | 9.370   | -10.150 | 4986.731 | 0.310  | -25.750 |
| 37. | 9165.144 | -0.390 | 6.480  | 5555.926 | 10.030  | -9.960  | 4970.175 | -0.640 | -26.500 |
| 38. | 9164.001 | -0.430 | 6.350  | 5573.525 | 10.460  | -9.720  | 4952.547 | -1.500 | -27.250 |
| 39. | 9162.743 | -0.470 | 6.200  | 5591.796 | 10.740  | -9.440  | 4934.243 | -2.310 | -28.000 |
| 40. | 9161.382 | -0.500 | 6.040  | 5610.461 | 10.880  | -9.170  | 4915.549 | -3.060 | -28.750 |
| 41. | 9159.934 | -0.530 | 5.860  | 5629.266 | 10.840  | -8.860  | 4896.710 | -3.750 | -29.500 |
| 42. | 9158.413 | -0.560 | 5.660  | 5648.011 | 10.710  | -8.530  | 4877.936 | -4.380 | -30.250 |
| 43. | 9156.836 | -0.570 | 5.450  | 5666.511 | 10.500  | -8.150  | 4859.405 | -4.950 | -31.000 |
| 44. | 9155.220 | -0.580 | 5.230  | 5684.612 | 10.200  | -7.810  | 4841.275 | -5.460 | -31.750 |
| 45. | 9153.582 | -0.590 | 4.980  | 5702.180 | 9.840   | -7.430  | 4823.681 | -5.910 | -32.500 |
| 46. | 9151.940 | -0.590 | 4.730  | 5719.094 | 9.410   | -7.020  | 4806.742 | -6.300 | -33.250 |
| 47. | 9150.313 | -0.560 | 4.460  | 5735.245 | 8.940   | -6.600  | 4790.565 | -6.630 | -34.000 |
| 48. | 9148.716 | -0.560 | 4.170  | 5750.551 | 8.410   | -6.160  | 4775.293 | -6.910 | -34.750 |
| 49. | 9147.172 | -0.540 | 3.870  | 5764.917 | 7.850   | -5.710  | 4760.060 | -7.140 | -35.500 |

111-PLANE SILICON

BULK

|     | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |
|-----|----------|--------|--------|----------|---------|--------|----------|---------|--------|
| 50. | 9145.694 | -0.520 | 3.560  | 5778.271 | 7.250   | -5.240 | 4747.491 | -0.616  | 5.440  |
| 51. | 9144.380 | -0.460 | 3.240  | 5790.547 | 6.610   | -4.760 | 4735.203 | -8.080  | -1.950 |
| 52. | 9143.006 | -0.450 | 2.910  | 5801.686 | 5.950   | -4.260 | 4724.055 | -7.300  | -4.450 |
| 53. | 9141.626 | -0.400 | 2.570  | 5811.636 | 5.260   | -3.760 | 4714.099 | -6.460  | -3.500 |
| 54. | 9140.774 | -0.350 | 2.220  | 5820.349 | 4.550   | -3.240 | 4705.379 | -5.620  | -3.450 |
| 55. | 9139.063 | -0.300 | 1.860  | 5827.789 | 3.820   | -2.710 | 4697.536 | -4.740  | -2.800 |
| 56. | 9138.182 | -0.250 | 1.490  | 5833.920 | 3.070   | -2.160 | 4691.602 | -3.820  | -2.350 |
| 57. | 9136.501 | -0.190 | 1.130  | 5838.717 | 2.320   | -1.640 | 4687.003 | -2.690  | -1.750 |
| 58. | 9135.067 | -0.130 | 0.750  | 5842.156 | 1.550   | -1.100 | 4683.561 | -1.950  | -1.100 |
| 59. | 9137.804 | 0.000  | 0.380  | 5844.225 | 0.760   | -0.550 | 4681.490 | -0.570  | -0.500 |
| 60. | 9137.716 | 0.000  | 0.000  | 5844.920 | -0.000  | 0.000  | 4681.490 | 0.570   | 0.500  |
| 61. | 9137.804 | 0.060  | -0.380 | 5844.229 | -0.760  | 0.550  | 4683.561 | 1.930   | 1.100  |
| 62. | 9138.067 | 0.130  | -0.750 | 5842.156 | -1.550  | 1.100  | 4683.561 | 2.620   | 1.730  |
| 63. | 9138.581 | 0.250  | -1.130 | 5836.717 | -2.320  | 1.640  | 4687.003 | 3.820   | 2.350  |
| 64. | 9138.182 | 0.250  | -1.490 | 5833.920 | -3.070  | 2.160  | 4691.602 | 4.740   | 3.400  |
| 65. | 9139.063 | 0.300  | -1.860 | 5827.789 | -3.820  | 2.710  | 4697.536 | 5.620   | 3.400  |
| 66. | 9140.774 | 0.350  | -2.220 | 5820.349 | -4.550  | 3.240  | 4705.379 | 6.460   | 3.400  |
| 67. | 9141.626 | 0.400  | -2.570 | 5811.635 | -5.260  | 3.760  | 4714.099 | 7.300   | 3.400  |
| 68. | 9143.006 | 0.450  | -2.910 | 5801.686 | -5.950  | 4.260  | 4724.055 | 8.080   | 3.400  |
| 69. | 9144.380 | 0.460  | -3.240 | 5790.547 | -6.610  | 4.760  | 4735.203 | 8.600   | 3.400  |
| 70. | 9145.694 | 0.520  | -3.560 | 5778.271 | -7.250  | 5.240  | 4747.491 | 8.610   | 3.400  |
| 71. | 9147.172 | 0.540  | -3.870 | 5764.917 | -7.850  | 5.710  | 4760.060 | 9.490   | 3.400  |
| 72. | 9148.718 | 0.560  | -4.170 | 5750.551 | -8.410  | 6.160  | 4775.243 | 10.110  | 3.400  |
| 73. | 9150.313 | 0.580  | -4.460 | 5735.249 | -8.940  | 6.600  | 4790.504 | 10.680  | 3.400  |
| 74. | 9151.941 | 0.590  | -4.730 | 5719.094 | -9.410  | 7.020  | 4806.742 | 11.160  | 3.400  |
| 75. | 9153.582 | 0.590  | -4.980 | 5702.160 | -9.840  | 7.430  | 4823.601 | 11.600  | 3.400  |
| 76. | 9155.220 | 0.60   | -5.230 | 5684.612 | -10.200 | 7.810  | 4841.275 | 12.000  | 3.400  |
| 77. | 9156.856 | 0.570  | -5.450 | 5666.511 | -10.500 | 8.160  | 4859.405 | 12.210  | 3.400  |
| 78. | 9158.413 | 0.560  | -5.660 | 5648.011 | -10.770 | 8.530  | 4877.936 | 12.360  | 3.400  |
| 79. | 9159.934 | 0.530  | -5.860 | 5629.266 | -10.940 | 8.860  | 4896.710 | 12.430  | 3.400  |
| 80. | 9161.382 | 0.500  | -6.040 | 5610.460 | -11.080 | 9.170  | 4915.549 | 12.360  | 3.400  |
| 81. | 9162.743 | 0.470  | -6.200 | 5591.798 | -11.190 | 9.450  | 4934.243 | 12.150  | 3.400  |
| 82. | 9164.001 | 0.430  | -6.350 | 5573.524 | -11.240 | 9.720  | 4952.547 | 11.770  | 3.400  |
| 83. | 9165.144 | 0.390  | -6.460 | 5555.925 | -11.030 | 9.960  | 4970.175 | 11.200  | 3.400  |
| 84. | 9166.160 | 0.340  | -6.590 | 5539.335 | -9.370  | 10.150 | 4986.791 | 10.410  | 3.400  |
| 85. | 9167.038 | 0.290  | -6.660 | 5524.139 | -8.470  | 10.360 | 4999.791 | 9.560   | 3.400  |
| 86. | 9167.769 | 0.230  | -6.760 | 5510.769 | -7.290  | 10.560 | 5012.401 | 8.610   | 3.400  |
| 87. | 9168.346 | 0.160  | -6.820 | 5499.686 | -5.820  | 10.660 | 5026.499 | 7.670   | 3.400  |
| 88. | 9168.762 | 0.120  | -6.870 | 5491.353 | -4.070  | 10.750 | 5034.045 | 6.440   | 3.400  |
| 89. | 9169.013 | 0.060  | -6.890 | 5486.166 | -2.100  | 10.850 | 5040.040 | 2.290   | 3.400  |
| 90. | 9169.097 | 0.000  | -6.900 | 5484.404 | 0.000   | 10.870 | 5041.605 | -0.000  | 3.400  |
| 91. | 9169.013 | -0.060 | -6.890 | 5486.166 | 2.100   | 10.850 | 5040.040 | -2.290  | 3.400  |
| 92. | 9168.762 | -0.120 | -6.870 | 5484.404 | 4.070   | 10.750 | 5034.045 | -6.440  | 3.400  |
| 93. | 9168.346 | -0.160 | -6.820 | 5499.686 | 5.820   | 10.660 | 5026.499 | -8.370  | 3.400  |
| 94. | 9167.769 | -0.230 | -6.760 | 5510.769 | 7.290   | 10.560 | 5012.401 | -10.410 | 3.400  |
| 95. | 9167.038 | -0.290 | -6.660 | 5524.139 | 8.470   | 10.360 | 5002.011 | -11.200 | 3.400  |
| 96. | 9166.160 | -0.340 | -6.590 | 5539.335 | 9.370   | 10.150 | 4986.791 | -10.410 | 3.400  |
| 97. | 9165.144 | -0.390 | -6.460 | 5555.925 | 10.030  | 9.960  | 4970.175 | -11.200 | 3.400  |
| 98. | 9164.001 | -0.430 | -6.350 | 5573.524 | 10.460  | 9.720  | 4952.547 | -11.770 | 3.400  |
| 99. | 9162.743 | -0.470 | -6.200 | 5591.798 | 10.740  | 9.450  | 4934.243 | -12.150 | 3.400  |

111-PLANE SILICON

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12  | SSPH13 |
|------|----------|--------|--------|----------|---------|--------|----------|---------|--------|
| 100. | 9161.382 | -500   | -6.040 | 5610.460 | 10.650  | 9.170  | 4915.549 | -12.360 | 0.340  |
| 101. | 9159.934 | -530   | -5.860 | 5629.266 | 10.640  | 8.060  | 4096.710 | -12.430 | 0.710  |
| 102. | 9156.413 | -560   | -5.680 | 5648.011 | 10.710  | 6.530  | 4077.936 | -12.360 | 0.550  |
| 103. | 9156.836 | -570   | -5.650 | 5666.511 | 10.500  | 6.160  | 4059.405 | -12.210 | 0.170  |
| 104. | 9155.220 | -580   | -5.230 | 5684.612 | 10.200  | 7.610  | 4041.275 | -11.950 | 7.050  |
| 105. | 9153.582 | -550   | -4.980 | 5702.160 | 9.640   | 7.830  | 4023.661 | -11.600 | 7.510  |
| 106. | 9151.941 | -550   | -4.730 | 5719.054 | 9.410   | 7.020  | 4006.742 | -11.160 | 7.150  |
| 107. | 9150.313 | -580   | -4.460 | 5735.259 | 8.940   | 6.800  | 4794.504 | -10.650 | 0.150  |
| 108. | 9148.716 | -560   | -4.170 | 5750.551 | 8.410   | 6.160  | 4775.243 | -10.110 | 6.340  |
| 109. | 9147.172 | -590   | -3.870 | 5764.917 | 7.850   | 5.710  | 4760.660 | -9.450  | 5.500  |
| 110. | 9145.684 | -520   | -3.560 | 5778.271 | 7.250   | 5.240  | 4747.491 | -8.610  | 5.840  |
| 111. | 9144.300 | -460   | -3.260 | 5790.547 | 6.610   | 4.760  | 4735.203 | -8.060  | 4.350  |
| 112. | 9143.006 | -440   | -2.910 | 5801.686 | 5.950   | 4.260  | 4724.055 | -7.300  | 4.450  |
| 113. | 9141.826 | -400   | -2.570 | 5811.635 | 5.260   | 3.760  | 4714.050 | -6.460  | 3.940  |
| 114. | 9140.774 | -350   | -2.220 | 5820.344 | 4.560   | 3.240  | 4705.374 | -5.620  | 3.400  |
| 115. | 9138.863 | -300   | -1.860 | 5827.769 | 3.860   | 2.710  | 4697.536 | -4.790  | 2.860  |
| 116. | 9136.182 | -250   | -1.490 | 5833.920 | 3.070   | 2.160  | 4691.002 | -3.620  | 2.300  |
| 117. | 9133.501 | -190   | -1.130 | 5838.717 | 2.320   | 1.640  | 4687.003 | -2.650  | 1.730  |
| 118. | 9130.867 | -130   | -0.750 | 5842.158 | 1.550   | 1.100  | 4683.561 | -1.530  | 1.100  |
| 119. | 9137.804 | -060   | -0.380 | 5844.229 | 0.780   | 0.550  | 4681.748 | -0.570  | 0.550  |
| 120. | 9137.716 | -000   | 0.000  | 5844.920 | 0.000   | 0.000  | 4680.748 | 0.000   | 0.000  |
| 121. | 9137.604 | 000    | 0.380  | 5844.229 | -0.780  | -0.550 | 4681.490 | 0.970   | -0.280 |
| 122. | 9135.067 | 110    | 0.750  | 5842.156 | -1.550  | -1.100 | 4683.561 | 1.930   | -1.160 |
| 123. | 9132.501 | 150    | 1.130  | 5838.717 | -2.320  | -1.640 | 4687.003 | 2.650   | -1.730 |
| 124. | 9130.102 | 200    | 1.490  | 5833.920 | -3.070  | -2.160 | 4691.002 | 3.620   | -2.300 |
| 125. | 9135.863 | 300    | 1.860  | 5827.769 | -3.860  | -2.710 | 4697.536 | 4.790   | -2.860 |
| 126. | 9140.774 | 350    | 2.220  | 5820.344 | -4.560  | -3.240 | 4705.374 | 5.620   | -3.400 |
| 127. | 9141.826 | 400    | 2.570  | 5811.636 | -5.260  | -3.760 | 4714.050 | 6.460   | -3.940 |
| 128. | 9143.006 | 450    | 2.910  | 5801.686 | -5.950  | -4.260 | 4724.055 | 7.300   | -4.450 |
| 129. | 9144.300 | 480    | 3.260  | 5790.547 | -6.610  | -4.760 | 4735.203 | 8.060   | -4.950 |
| 130. | 9145.684 | 520    | 3.560  | 5778.271 | -7.250  | -5.240 | 4747.491 | 8.810   | -5.440 |
| 131. | 9147.172 | 540    | 3.870  | 5764.917 | -7.850  | -5.710 | 4760.660 | 9.450   | -5.930 |
| 132. | 9148.716 | 560    | 4.170  | 5750.551 | -8.410  | -6.160 | 4775.243 | 10.110  | -6.340 |
| 133. | 9150.313 | 500    | 4.460  | 5735.259 | -8.940  | -6.600 | 4794.504 | 10.650  | -6.710 |
| 134. | 9151.940 | 550    | 4.730  | 5719.054 | -9.410  | -7.020 | 4806.742 | 11.160  | -7.150 |
| 135. | 9153.582 | 590    | 4.980  | 5702.160 | -9.640  | -7.830 | 4823.661 | 11.600  | -7.510 |
| 136. | 9155.220 | 560    | 5.230  | 5684.612 | -10.200 | -8.610 | 4841.275 | 12.210  | -8.060 |
| 137. | 9156.836 | 570    | 5.450  | 5666.511 | -10.500 | -8.160 | 4859.406 | 12.360  | -8.170 |
| 138. | 9158.413 | 560    | 5.680  | 5648.011 | -10.710 | -8.300 | 4877.936 | 12.430  | -8.450 |
| 139. | 9159.934 | 530    | 5.860  | 5629.266 | -10.840 | -8.060 | 4896.710 | 12.500  | -8.710 |
| 140. | 9161.382 | 500    | 6.040  | 5610.460 | -10.650 | -7.830 | 4915.549 | 12.560  | -8.940 |
| 141. | 9162.783 | 470    | 6.200  | 5591.796 | -10.740 | -7.610 | 4934.543 | 12.150  | -9.150 |
| 142. | 9164.001 | 430    | 6.350  | 5573.525 | -10.460 | -7.250 | 4952.547 | 11.710  | -9.310 |
| 143. | 9165.144 | 390    | 6.480  | 5555.926 | -10.030 | -6.800 | 4970.175 | 11.200  | -9.450 |
| 144. | 9166.160 | 340    | 6.590  | 5539.336 | -9.370  | -6.160 | 4986.791 | 10.410  | -9.550 |
| 145. | 9167.036 | 290    | 6.660  | 5524.140 | -8.470  | -5.500 | 4986.791 | 9.350   | -9.660 |
| 146. | 9167.769 | 230    | 6.700  | 5509.769 | -7.250  | -4.700 | 5022.011 | 8.610   | -9.730 |
| 147. | 9168.345 | 180    | 6.820  | 5499.666 | -5.620  | -3.800 | 5035.402 | 8.110   | -9.770 |
| 148. | 9168.761 | 120    | 6.870  | 5491.353 | -4.070  | -2.800 | 5035.402 | 6.370   | -9.800 |
| 149. | 9169.013 | 060    | 6.890  | 5486.166 | -2.100  | -1.050 | 5040.040 | 4.440   | -9.820 |

|      | 111-PLANE SILICON |        |        |          | BULK    |         |          |         |         |
|------|-------------------|--------|--------|----------|---------|---------|----------|---------|---------|
|      | LMGVEL            | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSKVEL   | SSPHI12 | SSPHI13 |
| 150. | 9159.097          | 0.000  | 6.900  | 5844.404 | -0.000  | -10.870 | 5041.805 | -0.000  | -9.020  |
| 151. | 9169.013          | -0.060 | 6.490  | 5866.166 | 2.100   | -10.050 | 2040.040 | -2.250  | -8.020  |
| 152. | 9168.761          | -0.120 | 6.870  | 5891.353 | 4.070   | -10.790 | 5034.846 | -4.440  | -8.000  |
| 153. | 9168.345          | -0.160 | 6.820  | 5899.606 | 5.620   | -10.660 | 5026.499 | -6.370  | -9.770  |
| 154. | 9167.769          | -0.230 | 6.760  | 5910.769 | 7.290   | -10.550 | 5015.401 | -8.010  | -9.730  |
| 155. | 9167.038          | -0.290 | 6.680  | 5924.139 | 8.470   | -10.360 | 5002.011 | -9.350  | -9.680  |
| 156. | 9166.160          | -0.340 | 6.590  | 5939.336 | 9.370   | -10.190 | 4986.791 | -10.410 | -9.570  |
| 157. | 9165.144          | -0.390 | 6.460  | 5955.926 | 10.030  | -9.960  | 4970.175 | -11.200 | -9.450  |
| 158. | 9164.001          | -0.430 | 6.350  | 5973.525 | 10.460  | -9.720  | 4952.547 | -11.770 | -9.310  |
| 159. | 9162.743          | -0.470 | 6.200  | 5991.798 | 10.740  | -9.450  | 4934.243 | -12.190 | -9.150  |
| 160. | 9161.382          | -0.500 | 6.040  | 5610.461 | 10.850  | -9.170  | 4915.549 | -12.360 | -8.940  |
| 161. | 9159.934          | -0.530 | 5.860  | 5629.268 | 10.640  | -8.660  | 4896.710 | -12.430 | -8.710  |
| 162. | 9158.413          | -0.560 | 5.660  | 5648.011 | 10.710  | -8.130  | 4877.936 | -12.300 | -8.450  |
| 163. | 9156.836          | -0.570 | 5.450  | 5666.511 | 10.500  | -8.160  | 4859.405 | -12.210 | -8.150  |
| 164. | 9155.220          | -0.560 | 5.230  | 5684.612 | 10.200  | -7.610  | 4841.275 | -11.950 | -7.820  |
| 165. | 9153.562          | -0.590 | 4.980  | 5702.180 | 9.840   | -7.430  | 4823.681 | -11.600 | -7.510  |
| 166. | 9151.940          | -0.590 | 4.730  | 5719.094 | 9.410   | -7.020  | 4806.742 | -11.100 | -7.150  |
| 167. | 9150.313          | -0.560 | 4.460  | 5735.245 | 8.940   | -6.600  | 4790.565 | -10.600 | -6.720  |
| 168. | 9148.716          | -0.560 | 4.170  | 5750.551 | 8.410   | -6.160  | 4775.243 | -10.110 | -6.350  |
| 169. | 9147.172          | -0.540 | 3.870  | 5764.917 | 7.850   | -5.710  | 4760.860 | -9.490  | -5.950  |
| 170. | 9145.694          | -0.520 | 3.560  | 5778.271 | 7.250   | -5.240  | 4747.491 | -8.610  | -5.440  |
| 171. | 9144.300          | -0.480 | 3.240  | 5790.547 | 6.610   | -4.760  | 4735.203 | -8.000  | -5.050  |
| 172. | 9143.006          | -0.450 | 2.910  | 5801.686 | 5.950   | -4.260  | 4724.055 | -7.300  | -4.620  |
| 173. | 9141.826          | -0.400 | 2.570  | 5811.636 | 5.260   | -3.760  | 4714.099 | -6.480  | -4.190  |
| 174. | 9140.774          | -0.350 | 2.220  | 5820.345 | 4.550   | -3.240  | 4705.379 | -5.620  | -3.740  |
| 175. | 9139.863          | -0.300 | 1.860  | 5827.709 | 3.820   | -2.710  | 4697.936 | -4.740  | -3.280  |
| 176. | 9139.102          | -0.250 | 1.490  | 5833.920 | 3.070   | -2.160  | 4691.632 | -3.820  | -2.830  |
| 177. | 9138.501          | -0.190 | 1.130  | 5838.717 | 2.320   | -1.640  | 4687.003 | -2.890  | -2.380  |
| 178. | 9138.067          | -0.130 | .750   | 5842.156 | 1.550   | -1.100  | 4683.561 | -1.930  | -1.930  |
| 179. | 9137.804          | -0.060 | .380   | 5844.229 | .760    | -0.550  | 4681.490 | -0.970  | -1.500  |
| 180. | 9137.716          | 0.000  | -0.000 | 5844.920 | -0.000  | 0.000   | 4680.798 | 0.000   | 0.000   |

110-PLANE SILICON

|     | LNGVEL   | LPMI12  | LPMI13 | FSPVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 9358.539 | 0.000   | -0.000 | 5098.466 | 12.530  | 0.000   | 9096.451 | -12.530 | 0.000   |
| 1.  | 9358.074 | -3.350  | -0.000 | 5118.303 | 12.560  | 0.000   | 5079.392 | -11.700 | -0.000  |
| 2.  | 9356.664 | -6.660  | -0.000 | 5138.297 | 12.610  | 0.000   | 5061.775 | -10.610 | -0.000  |
| 3.  | 9354.286 | -1.010  | -0.000 | 5158.407 | 12.620  | 0.000   | 5045.690 | -9.620  | -0.000  |
| 4.  | 9350.923 | -1.360  | -0.000 | 5178.607 | 12.620  | 0.000   | 5031.212 | -8.640  | -0.000  |
| 5.  | 9346.559 | -1.710  | -0.000 | 5198.870 | 12.600  | 0.000   | 5016.405 | -7.770  | -0.000  |
| 6.  | 9341.183 | -2.070  | -0.000 | 5219.173 | 12.570  | 0.000   | 5007.330 | -6.650  | -0.000  |
| 7.  | 9334.782 | -2.430  | -0.000 | 5239.490 | 12.530  | 0.000   | 4996.040 | -5.490  | -0.000  |
| 8.  | 9327.351 | -2.800  | -0.000 | 5259.795 | 12.460  | 0.000   | 4990.580 | -4.290  | -0.000  |
| 9.  | 9318.084 | -3.160  | -0.000 | 5280.066 | 12.390  | 0.000   | 4984.989 | -3.060  | -0.000  |
| 10. | 9309.379 | -3.530  | -0.000 | 5300.277 | 12.300  | 0.000   | 4981.296 | -1.800  | -0.000  |
| 11. | 9298.837 | -3.900  | -0.000 | 5320.405 | 12.200  | 0.000   | 4979.531 | -0.530  | -0.000  |
| 12. | 9287.261 | -4.270  | -0.000 | 5340.426 | 12.090  | -0.000  | 4979.703 | -0.720  | -0.000  |
| 13. | 9274.657 | -4.630  | -0.000 | 5360.318 | 11.960  | 0.000   | 4981.821 | 2.040   | -0.000  |
| 14. | 9261.034 | -5.000  | -0.000 | 5380.057 | 11.820  | 0.000   | 4985.886 | 3.310   | -0.000  |
| 15. | 9246.402 | -5.360  | -0.000 | 5399.621 | 11.670  | 0.000   | 4991.000 | 4.570   | -0.000  |
| 16. | 9230.776 | -5.710  | -0.000 | 5418.969 | 11.510  | 0.000   | 4994.011 | 5.810   | -0.000  |
| 17. | 9214.177 | -6.060  | -0.000 | 5438.139 | 11.340  | -0.000  | 5009.631 | 7.010   | -0.000  |
| 18. | 9196.621 | -6.410  | 0.000  | 5457.051 | 11.160  | 0.000   | 5021.313 | 8.160   | -0.000  |
| 19. | 9178.132 | -6.750  | -0.000 | 5475.703 | 10.960  | 0.000   | 5034.617 | 9.310   | -0.000  |
| 20. | 9158.736 | -7.070  | -0.000 | 5494.076 | 10.760  | 0.000   | 5050.095 | 10.360  | -0.000  |
| 21. | 9138.469 | -7.390  | -0.000 | 5512.150 | 10.550  | 0.000   | 5067.090 | 11.400  | 0.000   |
| 22. | 9117.357 | -7.700  | -0.000 | 5529.907 | 10.330  | 0.000   | 5085.739 | 12.360  | -0.000  |
| 23. | 9095.442 | -8.000  | -0.000 | 5547.327 | 10.100  | 0.000   | 5105.965 | 13.260  | -0.000  |
| 24. | 9072.762 | -8.260  | -0.000 | 5564.394 | 9.860   | 0.000   | 5127.702 | 14.090  | -0.000  |
| 25. | 9049.363 | -8.500  | -0.000 | 5581.089 | 9.620   | 0.000   | 5150.053 | 14.650  | -0.000  |
| 26. | 9025.295 | -8.600  | -0.000 | 5597.395 | 9.360   | 0.000   | 5175.329 | 15.030  | -0.000  |
| 27. | 9000.611 | -9.030  | -0.000 | 5613.296 | 9.100   | 0.000   | 5201.031 | 16.150  | -0.000  |
| 28. | 8975.360 | -9.250  | -0.000 | 5628.777 | 8.830   | 0.000   | 5227.053 | 16.600  | -0.000  |
| 29. | 8949.630 | -9.440  | 0.000  | 5643.822 | 8.560   | 0.000   | 5252.683 | 17.140  | -0.000  |
| 30. | 8923.466 | -9.600  | -0.000 | 5658.416 | 8.260   | 0.000   | 5284.432 | 17.520  | -0.000  |
| 31. | 8896.947 | -9.750  | -0.000 | 5672.545 | 7.990   | 0.000   | 5313.886 | 17.830  | -0.000  |
| 32. | 8870.154 | -9.860  | -0.000 | 5686.195 | 7.650   | 0.000   | 5344.003 | 18.050  | -0.000  |
| 33. | 8843.171 | -9.940  | -0.000 | 5699.353 | 7.350   | 0.000   | 5374.616 | 18.190  | -0.000  |
| 34. | 8816.089 | -9.990  | -0.000 | 5712.007 | 7.090   | 0.000   | 5405.566 | 18.240  | -0.000  |
| 35. | 8789.006 | -10.000 | 0.000  | 5724.144 | 6.780   | 0.000   | 5436.761 | 18.220  | -0.000  |
| 36. | 8762.024 | -9.970  | 0.000  | 5735.754 | 6.460   | 0.000   | 5467.967 | 18.110  | -0.000  |
| 37. | 8735.254 | -9.910  | -0.000 | 5746.824 | 6.140   | 0.000   | 5499.105 | 17.910  | -0.000  |
| 38. | 8708.614 | -9.790  | 0.000  | 5757.345 | 5.820   | 0.000   | 5529.351 | 17.620  | -0.000  |
| 39. | 8682.625 | -9.630  | 0.000  | 5767.306 | 5.490   | -0.000  | 5560.353 | 17.240  | -0.000  |
| 40. | 8657.417 | -9.420  | 0.000  | 5776.702 | 5.160   | 0.000   | 5590.139 | 16.790  | -0.000  |
| 41. | 8632.726 | -9.160  | 0.000  | 5785.519 | 4.830   | -0.000  | 5619.130 | 16.220  | -0.000  |
| 42. | 8608.692 | -8.840  | 0.000  | 5793.752 | 4.490   | -0.000  | 5647.144 | 15.570  | -0.000  |
| 43. | 8586.058 | -8.460  | 0.000  | 5801.391 | 4.150   | 0.000   | 5674.000 | 14.830  | -0.000  |
| 44. | 8564.373 | -8.020  | 0.000  | 5808.432 | 3.800   | 0.000   | 5699.513 | 13.990  | -0.000  |
| 45. | 8543.984 | -7.520  | 0.000  | 5814.867 | 3.460   | 0.000   | 5723.502 | 13.060  | -0.000  |
| 46. | 8525.042 | -6.960  | 0.000  | 5820.690 | 3.110   | -0.000  | 5749.786 | 12.030  | -0.000  |
| 47. | 8507.690 | -6.340  | 0.000  | 5825.896 | 2.760   | 0.000   | 5766.191 | 10.920  | -0.000  |
| 48. | 8492.071 | -5.670  | 0.000  | 5830.481 | 2.400   | 0.000   | 5784.551 | 9.720   | -0.000  |
| 49. | 8478.316 | -4.940  | 0.000  | 5834.440 | 2.050   | 0.000   | 5800.711 | 8.430   | -0.000  |

BULK



110-PLANE SILICON

|     | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 8466.553 | -4.150 | 0.000  | 5837.770 | 1.690   | 0.000   | 5014.529 | 7.000   | -0.000  |
| 51. | 8456.885 | -3.330 | 0.000  | 5840.466 | 1.340   | -0.000  | 5825.678 | 5.660   | -0.000  |
| 52. | 8449.406 | -2.470 | 0.000  | 5842.531 | 0.980   | -0.000  | 5834.654 | 4.190   | -0.000  |
| 53. | 8444.191 | -1.580 | 0.000  | 5843.956 | 0.620   | 0.000   | 5840.772 | 2.660   | -0.000  |
| 54. | 8441.291 | -0.670 | 0.000  | 5844.747 | 0.260   | -0.000  | 5844.173 | 1.140   | -0.000  |
| 55. | 8440.736 | 0.240  | 0.000  | 5844.698 | -0.090  | -0.000  | 5844.024 | -0.410  | -0.000  |
| 56. | 8442.531 | 1.150  | 0.000  | 5844.410 | -0.450  | 0.000   | 5842.718 | -1.950  | -0.000  |
| 57. | 8446.659 | 2.050  | 0.000  | 5843.284 | -0.810  | 0.000   | 5837.877 | -3.480  | -0.000  |
| 58. | 8453.077 | 2.930  | 0.000  | 5841.521 | -1.170  | 0.000   | 5830.346 | -4.970  | -0.000  |
| 59. | 8461.722 | 3.770  | 0.000  | 5839.122 | -1.530  | 0.000   | 5820.200 | -6.420  | -0.000  |
| 60. | 8472.510 | 4.570  | 0.000  | 5836.091 | -1.860  | -0.000  | 5807.533 | -7.800  | -0.000  |
| 61. | 8485.335 | 5.330  | 0.000  | 5832.428 | -2.240  | -0.000  | 5792.462 | -9.120  | -0.000  |
| 62. | 8500.094 | 6.030  | 0.000  | 5826.136 | -2.590  | -0.000  | 5775.122 | -10.360 | -0.000  |
| 63. | 8516.645 | 6.660  | 0.000  | 5823.225 | -2.940  | 0.000   | 5755.661 | -11.520 | -0.000  |
| 64. | 8534.654 | 7.270  | 0.000  | 5817.692 | -3.290  | -0.000  | 5734.243 | -12.560 | -0.000  |
| 65. | 8554.575 | 7.790  | 0.000  | 5811.545 | -3.640  | -0.000  | 5711.037 | -13.560 | -0.000  |
| 66. | 8575.670 | 8.260  | 0.000  | 5804.790 | -3.960  | -0.000  | 5686.221 | -14.440 | -0.000  |
| 67. | 8597.961 | 8.670  | 0.000  | 5797.432 | -4.330  | -0.000  | 5653.376 | -15.230 | -0.000  |
| 68. | 8621.361 | 9.010  | 0.000  | 5789.476 | -4.670  | -0.000  | 5632.465 | -15.930 | -0.000  |
| 69. | 8645.666 | 9.300  | 0.000  | 5780.936 | -5.000  | 0.000   | 5603.333 | -16.530 | -0.000  |
| 70. | 8670.752 | 9.540  | 0.000  | 5771.813 | -5.340  | -0.000  | 5574.500 | -17.040 | -0.000  |
| 71. | 8696.463 | 9.720  | 0.000  | 5762.116 | -5.670  | -0.000  | 5544.367 | -17.450 | -0.000  |
| 72. | 8722.726 | 9.860  | 0.000  | 5751.854 | -5.990  | -0.000  | 5513.709 | -17.760 | -0.000  |
| 73. | 8749.355 | 9.950  | 0.000  | 5741.047 | -6.310  | -0.000  | 5482.696 | -18.020 | -0.000  |
| 74. | 8776.251 | 9.990  | 0.000  | 5729.690 | -6.630  | -0.000  | 5451.503 | -18.170 | -0.000  |
| 75. | 8803.300 | 10.000 | 0.000  | 5717.801 | -6.940  | 0.000   | 5420.284 | -18.240 | -0.000  |
| 76. | 8830.395 | 9.970  | 0.000  | 5705.369 | -7.250  | 0.000   | 5389.200 | -18.220 | -0.000  |
| 77. | 8857.436 | 9.900  | 0.000  | 5692.466 | -7.550  | -0.000  | 5358.400 | -18.120 | -0.000  |
| 78. | 8884.330 | 9.600  | 0.000  | 5679.046 | -7.850  | -0.000  | 5328.030 | -17.940 | -0.000  |
| 79. | 8910.988 | 9.670  | -0.000 | 5665.144 | -8.140  | 0.000   | 5298.231 | -17.660 | -0.000  |
| 80. | 8937.330 | 9.520  | 0.000  | 5650.767 | -8.420  | 0.000   | 5269.135 | -17.330 | -0.000  |
| 81. | 8963.276 | 9.340  | 0.000  | 5635.934 | -8.700  | -0.000  | 5240.670 | -16.910 | -0.000  |
| 82. | 8988.762 | 9.140  | -0.000 | 5620.627 | -8.970  | -0.000  | 5213.558 | -16.410 | -0.000  |
| 83. | 9013.717 | 8.910  | 0.000  | 5604.952 | -9.240  | -0.000  | 5187.314 | -15.830 | -0.000  |
| 84. | 9038.063 | 8.670  | 0.000  | 5588.635 | -9.500  | 0.000   | 5162.247 | -15.160 | -0.000  |
| 85. | 9061.804 | 8.410  | 0.000  | 5572.321 | -9.750  | -0.000  | 5136.456 | -14.450 | -0.000  |
| 86. | 9084.829 | 8.130  | 0.000  | 5555.426 | -9.990  | 0.000   | 5116.045 | -13.660 | -0.000  |
| 87. | 9107.111 | 7.640  | 0.000  | 5538.172 | -10.220 | 0.000   | 5092.095 | -12.790 | -0.000  |
| 88. | 9128.607 | 7.540  | -0.000 | 5520.572 | -10.450 | -0.000  | 5075.691 | -11.600 | -0.000  |
| 89. | 9149.276 | 7.230  | 0.000  | 5502.645 | -10.660 | 0.000   | 5057.507 | -10.270 | -0.000  |
| 90. | 9169.069 | 6.900  | 0.000  | 5484.411 | -10.870 | -0.000  | 5041.611 | -9.620  | -0.000  |
| 91. | 9188.009 | 6.570  | -0.000 | 5465.886 | -11.070 | 0.000   | 5027.463 | -8.720  | -0.000  |
| 92. | 9206.008 | 6.230  | 0.000  | 5447.097 | -11.250 | 0.000   | 5014.915 | -7.570  | -0.000  |
| 93. | 9223.063 | 5.860  | 0.000  | 5428.057 | -11.430 | -0.000  | 5004.212 | -6.360  | -0.000  |
| 94. | 9239.150 | 5.520  | -0.000 | 5408.789 | -11.600 | 0.000   | 4995.390 | -5.160  | -0.000  |
| 95. | 9254.252 | 5.170  | 0.000  | 5389.314 | -11.750 | 0.000   | 4980.479 | -3.910  | -0.000  |
| 96. | 9268.353 | 4.800  | -0.000 | 5369.655 | -11.900 | 0.000   | 4968.498 | -2.640  | -0.000  |
| 97. | 9281.440 | 4.440  | 0.000  | 5349.833 | -12.030 | 0.000   | 4960.460 | -1.360  | -0.000  |
| 98. | 9293.502 | 4.070  | 0.000  | 5329.870 | -12.150 | -0.000  | 4957.370 | -0.000  | -0.000  |
| 99. | 9304.533 | 3.700  | -0.000 | 5309.769 | -12.260 | -0.000  | 4980.223 | 1.260   | -0.000  |

BULK

BULK

110-PLANE SILICON

|      | LNQVEL   | LPHI12 | LPHI13 | FSPVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 100. | 9314.527 | 3.340  | -0.000 | 5289.619 | -12.356 | -0.000 | 4983.009 | 2.470  | -0.000 |
| 101. | 9323.484 | 2.970  | 0.000  | 5269.369 | -12.430 | 0.000  | 4987.736 | 3.710  | -0.000 |
| 102. | 9331.404 | 2.600  | -0.000 | 5249.077 | -12.500 | 0.000  | 4994.286 | 4.930  | -0.000 |
| 103. | 9338.290 | 2.240  | 0.000  | 5228.762 | -12.550 | 0.000  | 5002.720 | 6.110  | -0.000 |
| 104. | 9344.144 | 1.860  | 0.000  | 5208.450 | -12.590 | 0.000  | 5012.959 | 7.250  | -0.000 |
| 105. | 9348.965 | 1.520  | 0.000  | 5188.165 | -12.610 | 0.000  | 5024.955 | 8.340  | -0.000 |
| 106. | 9352.822 | 1.170  | 0.000  | 5167.932 | -12.620 | 0.000  | 5036.652 | 9.360  | -0.000 |
| 107. | 9355.663 | .820   | 0.000  | 5147.776 | -12.620 | 0.000  | 5053.987 | 10.360 | -0.000 |
| 108. | 9357.526 | .450   | -0.000 | 5127.725 | -12.590 | -0.000 | 5070.691 | 11.290 | -0.000 |
| 109. | 9358.411 | .150   | 0.000  | 5107.602 | -12.550 | -0.000 | 5089.287 | 12.150 | 0.000  |
| 110. | 9358.411 | -.170  | -0.000 | 5088.034 | -12.500 | -0.000 | 5109.096 | 12.940 | 0.000  |
| 111. | 9357.476 | -.660  | 0.000  | 5068.446 | -12.420 | 0.000  | 5130.231 | 13.660 | 0.000  |
| 112. | 9355.663 | -.790  | 0.000  | 5049.069 | -12.330 | -0.000 | 5152.600 | 14.320 | 0.000  |
| 113. | 9352.999 | -1.060 | 0.000  | 5029.923 | -12.250 | -0.000 | 5176.109 | 14.990 | 0.000  |
| 114. | 9349.519 | -1.360 | 0.000  | 5011.036 | -12.100 | 0.000  | 5200.656 | 15.420 | 0.000  |
| 115. | 9345.259 | -1.630 | 0.000  | 4992.435 | -11.950 | -0.000 | 5226.139 | 15.660 | 0.000  |
| 116. | 9340.260 | -1.860 | -0.000 | 4974.146 | -11.790 | 0.000  | 5252.449 | 16.230 | 0.000  |
| 117. | 9334.564 | -2.120 | 0.000  | 4956.154 | -11.610 | 0.000  | 5279.476 | 16.830 | 0.000  |
| 118. | 9328.216 | -2.340 | 0.000  | 4938.606 | -11.410 | 0.000  | 5307.106 | 16.760 | 0.000  |
| 119. | 9321.265 | -2.550 | 0.000  | 4921.436 | -11.190 | 0.000  | 5335.222 | 16.520 | 0.000  |
| 120. | 9313.763 | -2.730 | 0.000  | 4904.619 | -10.960 | -0.000 | 5363.706 | 17.000 | 0.000  |
| 121. | 9305.764 | -2.900 | 0.000  | 4888.271 | -10.700 | 0.000  | 5392.437 | 17.620 | -0.660 |
| 122. | 9297.326 | -3.050 | -0.000 | 4872.366 | -10.420 | 0.000  | 5421.291 | 16.970 | 0.000  |
| 123. | 9288.508 | -3.170 | 0.000  | 4856.988 | -10.130 | 0.000  | 5450.146 | 16.650 | -0.000 |
| 124. | 9279.374 | -3.260 | 0.000  | 4842.101 | -9.850  | 0.000  | 5478.976 | 16.670 | 0.000  |
| 125. | 9269.990 | -3.360 | 0.000  | 4827.746 | -9.490  | 0.000  | 5507.356 | 16.410 | 0.000  |
| 126. | 9260.423 | -3.410 | 0.000  | 4813.946 | -9.140  | 0.000  | 5535.456 | 16.090 | 0.000  |
| 127. | 9250.743 | -3.440 | 0.000  | 4800.726 | -8.770  | 0.000  | 5563.057 | 15.710 | 0.000  |
| 128. | 9241.022 | -3.450 | 0.000  | 4788.104 | -8.360  | 0.000  | 5590.027 | 15.260 | 0.000  |
| 129. | 9231.333 | -3.430 | 0.000  | 4776.099 | -7.960  | 0.000  | 5618.242 | 14.740 | 0.000  |
| 130. | 9221.752 | -3.360 | -0.000 | 4764.733 | -7.560  | 0.000  | 5641.261 | 14.170 | 0.000  |
| 131. | 9212.352 | -3.300 | 0.000  | 4754.022 | -7.130  | 0.000  | 5665.921 | 13.530 | 0.000  |
| 132. | 9203.209 | -3.200 | 0.000  | 4743.966 | -6.660  | 0.000  | 5689.143 | 12.840 | 0.000  |
| 133. | 9194.399 | -3.070 | 0.000  | 4734.640 | -6.210  | 0.000  | 5711.132 | 12.060 | 0.000  |
| 134. | 9185.993 | -2.920 | 0.000  | 4726.000 | -5.730  | 0.000  | 5731.776 | 11.270 | 0.000  |
| 135. | 9178.063 | -2.740 | 0.000  | 4718.081 | -5.240  | 0.000  | 5750.973 | 10.410 | 0.000  |
| 136. | 9170.679 | -2.540 | 0.000  | 4710.895 | -4.760  | 0.000  | 5768.616 | 9.490  | 0.000  |
| 137. | 9163.905 | -2.310 | 0.000  | 4704.455 | -4.220  | 0.000  | 5784.614 | 8.530  | 0.000  |
| 138. | 9157.603 | -2.060 | 0.000  | 4698.771 | -3.700  | 0.000  | 5799.600 | 7.530  | 0.000  |
| 139. | 9152.426 | -1.790 | 0.000  | 4693.894 | -3.170  | 0.000  | 5811.334 | 6.460  | 0.000  |
| 140. | 9147.630 | -1.560 | 0.000  | 4689.712 | -2.620  | 0.000  | 5821.908 | 5.400  | 0.000  |
| 141. | 9144.053 | -1.200 | 0.000  | 4686.352 | -2.060  | 0.000  | 5830.541 | 4.300  | 0.000  |
| 142. | 9141.133 | -.890  | 0.000  | 4683.780 | -1.530  | 0.000  | 5837.184 | 3.170  | 0.000  |
| 143. | 9139.097 | -.570  | 0.000  | 4681.999 | -.970   | 0.000  | 5841.799 | 2.020  | 0.000  |
| 144. | 9137.965 | -.240  | -0.000 | 4681.014 | -.410   | -0.000 | 5844.358 | .860   | 0.000  |
| 145. | 9137.746 | .090   | 0.000  | 4680.826 | .150    | 0.000  | 5844.646 | -.310  | -0.000 |
| 146. | 9136.449 | .420   | 0.000  | 4680.435 | .710    | 0.000  | 5843.617 | -1.470 | -0.000 |
| 147. | 9140.060 | .740   | 0.000  | 4682.840 | 1.260   | 0.000  | 5839.617 | -2.630 | -0.000 |
| 148. | 9142.566 | 1.060  | 0.000  | 4685.039 | 1.820   | 0.000  | 5833.927 | -3.770 | -0.000 |
| 149. | 9145.943 | 1.360  | 0.000  | 4688.026 | 2.370   | 0.000  | 5826.226 | -4.600 | -0.000 |

|      | 110-PLANE SILICON |        |        |          |         |         | GULK     |         |         |  |  |  |
|------|-------------------|--------|--------|----------|---------|---------|----------|---------|---------|--|--|--|
|      | LMGVEL            | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |  |  |  |
| 150. | 9150.154          | 1.660  | 0.000  | 4691.802 | 2.910   | 0.000   | 5016.563 | 0.000   | 0.000   |  |  |  |
| 151. | 9155.172          | 1.930  | 0.000  | 4696.354 | 3.456   | 0.000   | 5004.980 | 0.000   | 0.000   |  |  |  |
| 152. | 9160.936          | 2.190  | 0.000  | 4701.677 | 3.980   | 0.000   | 5001.568 | 0.000   | 0.000   |  |  |  |
| 153. | 9167.402          | 2.430  | 0.000  | 4707.761 | 4.500   | 0.000   | 5000.376 | 0.000   | 0.000   |  |  |  |
| 154. | 9174.506          | 2.650  | 0.000  | 4714.597 | 5.010   | 0.000   | 5000.500 | 0.000   | 0.000   |  |  |  |
| 155. | 9182.186          | 2.840  | 0.000  | 4722.172 | 5.500   | 0.000   | 5000.025 | 0.000   | 0.000   |  |  |  |
| 156. | 9190.376          | 3.010  | 0.000  | 4730.473 | 5.990   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 157. | 9199.085          | 3.150  | 0.000  | 4739.488 | 6.460   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 158. | 9208.000          | 3.260  | 0.000  | 4749.200 | 6.920   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 159. | 9217.288          | 3.350  | 0.000  | 4759.595 | 7.360   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 160. | 9226.793          | 3.410  | 0.000  | 4770.654 | 7.790   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 161. | 9236.440          | 3.440  | 0.000  | 4782.359 | 8.200   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 162. | 9246.155          | 3.450  | 0.000  | 4794.693 | 8.590   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 163. | 9255.863          | 3.430  | 0.000  | 4807.634 | 8.970   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 164. | 9265.693          | 3.350  | 0.000  | 4821.163 | 9.320   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 165. | 9274.972          | 3.220  | 0.000  | 4835.258 | 9.660   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 166. | 9284.233          | 3.050  | 0.000  | 4849.896 | 9.990   | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 167. | 9293.207          | 2.810  | 0.000  | 4865.056 | 10.250  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 168. | 9301.632          | 2.570  | 0.000  | 4880.714 | 10.570  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 169. | 9310.046          | 2.610  | 0.000  | 4896.847 | 10.840  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 170. | 9317.790          | 2.640  | 0.000  | 4913.429 | 11.080  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 171. | 9325.007          | 2.440  | 0.000  | 4930.437 | 11.310  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 172. | 9331.646          | 2.230  | 0.000  | 4947.846 | 11.520  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 173. | 9337.656          | 2.000  | 0.000  | 4965.629 | 11.710  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 174. | 9342.989          | 1.750  | 0.000  | 4983.763 | 11.860  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 175. | 9347.603          | 1.450  | 0.000  | 5002.220 | 12.030  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 176. | 9351.456          | 1.210  | 0.000  | 5020.974 | 12.170  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 177. | 9354.510          | .930   | 0.000  | 5040.001 | 12.260  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 178. | 9356.729          | .630   | 0.000  | 5059.273 | 12.300  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 179. | 9358.062          | .320   | 0.000  | 5076.765 | 12.460  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |
| 180. | 9358.539          | 0.000  | 0.000  | 5096.451 | 12.530  | 0.000   | 5000.000 | 0.000   | 0.000   |  |  |  |

Z-PLANE (XY-PLANE) SPINEL

BULK

|     | LNGVEL    | LPMI12 | LPMI13 | FSPVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|-----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 6826.732  | 0.000  | 0.000  | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000   | 0.000   |
| 1.  | 8829.700  | 2.200  | 0.000  | 6532.465 | -4.020  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 2.  | 8838.530  | 4.340  | 0.000  | 6520.512 | -7.930  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 3.  | 8855.012  | 6.350  | 0.000  | 6500.837 | -11.670 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 4.  | 8872.813  | 8.200  | 0.000  | 6473.785 | -15.150 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 5.  | 8897.507  | 9.860  | 0.000  | 6439.803 | -18.350 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 6.  | 8926.605  | 11.300 | 0.000  | 6399.806 | -21.240 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 7.  | 8959.581  | 12.520 | 0.000  | 6353.157 | -23.840 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 8.  | 8995.901  | 13.540 | 0.000  | 6301.624 | -26.140 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 9.  | 9035.040  | 14.360 | 0.000  | 6245.378 | -28.190 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 10. | 9076.499  | 15.000 | 0.000  | 6184.970 | -30.000 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 11. | 9119.813  | 15.460 | 0.000  | 6120.924 | -31.590 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 12. | 9164.552  | 15.620 | 0.000  | 6053.732 | -33.000 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 13. | 9210.329  | 16.030 | 0.000  | 5983.856 | -34.240 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 14. | 9256.794  | 16.120 | 0.000  | 5911.722 | -35.330 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 15. | 9303.634  | 16.120 | 0.000  | 5837.730 | -36.200 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 16. | 9350.569  | 16.030 | 0.000  | 5762.453 | -37.110 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 17. | 9397.351  | 15.870 | 0.000  | 5685.639 | -37.840 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 18. | 9443.759  | 15.640 | 0.000  | 5608.218 | -38.450 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 19. | 9489.596  | 15.360 | 0.000  | 5530.303 | -38.960 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 20. | 9534.688  | 15.020 | 0.000  | 5452.193 | -39.380 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 21. | 9578.879  | 14.650 | 0.000  | 5374.177 | -39.780 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 22. | 9622.026  | 14.230 | 0.000  | 5296.534 | -39.930 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 23. | 9664.012  | 13.760 | 0.000  | 5219.537 | -40.050 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 24. | 9704.720  | 13.300 | 0.000  | 5143.453 | -40.080 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 25. | 9744.050  | 12.790 | 0.000  | 5068.548 | -40.000 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 26. | 9781.914  | 12.260 | 0.000  | 4995.082 | -39.810 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 27. | 9818.231  | 11.710 | 0.000  | 4923.315 | -39.500 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 28. | 9852.928  | 11.140 | 0.000  | 4853.805 | -39.060 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 29. | 9885.938  | 10.550 | 0.000  | 4785.988 | -38.500 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 30. | 9917.204  | 9.950  | 0.000  | 4720.779 | -37.780 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 31. | 9946.672  | 9.340  | 0.000  | 4658.370 | -36.860 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 32. | 9974.294  | 8.710  | 0.000  | 4598.930 | -35.750 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 33. | 10000.027 | 8.080  | 0.000  | 4542.704 | -34.520 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 34. | 10023.831 | 7.430  | 0.000  | 4489.933 | -33.160 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 35. | 10045.674 | 6.760  | 0.000  | 4440.847 | -31.520 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 36. | 10065.524 | 6.120  | 0.000  | 4395.671 | -29.560 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 37. | 10083.353 | 5.460  | 0.000  | 4354.615 | -27.120 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 38. | 10099.139 | 4.790  | 0.000  | 4317.879 | -24.610 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 39. | 10112.861 | 4.110  | 0.000  | 4285.644 | -21.810 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 40. | 10124.500 | 3.430  | 0.000  | 4258.874 | -18.720 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 41. | 10134.043 | 2.750  | 0.000  | 4235.312 | -15.370 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 42. | 10141.477 | 2.080  | 0.000  | 4217.679 | -11.770 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 43. | 10146.794 | 1.360  | 0.000  | 4204.872 | -7.970  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 44. | 10149.987 | .690   | 0.000  | 4196.959 | -4.020  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 45. | 10151.051 | 0.000  | 0.000  | 4194.383 | 0.000   | 0.000   | 6536.474 | 0.000   | 0.000   |
| 46. | 10149.987 | -.690  | 0.000  | 4196.959 | 4.020   | 0.000   | 6536.474 | 0.000   | 0.000   |
| 47. | 10146.794 | -1.360 | 0.000  | 4204.872 | 7.970   | 0.000   | 6536.474 | 0.000   | 0.000   |
| 48. | 10141.477 | -2.080 | 0.000  | 4217.679 | 11.770  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 49. | 10134.043 | -2.750 | 0.000  | 4235.312 | 15.370  | 0.000   | 6536.474 | 0.000   | 0.000   |

|     | Z-PLANE (XY-PLANE) SPINEL |         |          |         | BULK    |          |         |         |
|-----|---------------------------|---------|----------|---------|---------|----------|---------|---------|
|     | LPMI12                    | LPMI13  | FSPVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
| 50. | 1024.500                  | -3.430  | 4256.074 | 18.720  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 51. | 10112.861                 | -4.110  | 4285.644 | 21.810  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 52. | 10099.139                 | -4.750  | 4317.879 | 24.610  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 53. | 10083.353                 | -5.460  | 4354.615 | 27.120  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 54. | 10065.524                 | -6.120  | 4395.671 | 29.360  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 55. | 10045.674                 | -6.760  | 4440.847 | 31.320  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 56. | 10023.831                 | -7.430  | 4489.933 | 33.040  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 57. | 10000.027                 | -8.060  | 4542.704 | 34.520  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 58. | 9974.294                  | -8.710  | 4598.930 | 35.750  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 59. | 9946.672                  | -9.340  | 4658.370 | 36.860  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 60. | 9917.284                  | -9.950  | 4720.779 | 37.760  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 61. | 9885.936                  | -10.550 | 4785.900 | 38.480  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 62. | 9852.928                  | -11.140 | 4853.505 | 39.060  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 63. | 9818.231                  | -11.710 | 4923.315 | 39.500  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 64. | 9781.914                  | -12.260 | 4995.082 | 39.810  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 65. | 9744.050                  | -12.790 | 5068.546 | 40.000  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 66. | 9704.720                  | -13.300 | 5143.453 | 40.080  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 67. | 9664.012                  | -13.780 | 5219.537 | 40.050  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 68. | 9622.028                  | -14.230 | 5296.534 | 39.930  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 69. | 9578.875                  | -14.650 | 5374.177 | 39.700  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 70. | 9534.688                  | -15.020 | 5452.193 | 39.380  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 71. | 9489.596                  | -15.360 | 5530.303 | 38.960  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 72. | 9443.759                  | -15.640 | 5608.216 | 38.450  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 73. | 9397.351                  | -15.870 | 5685.635 | 37.840  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 74. | 9350.569                  | -16.030 | 5762.253 | 37.110  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 75. | 9303.634                  | -16.120 | 5837.730 | 36.260  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 76. | 9256.794                  | -16.120 | 5911.722 | 35.330  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 77. | 9210.329                  | -16.030 | 5983.856 | 34.240  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 78. | 9164.552                  | -15.820 | 6053.732 | 33.000  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 79. | 9119.813                  | -15.480 | 6120.924 | 31.590  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 80. | 9076.499                  | -15.000 | 6184.970 | 30.000  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 81. | 9035.040                  | -14.360 | 6245.376 | 28.190  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 82. | 8995.901                  | -13.540 | 6301.624 | 26.140  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 83. | 8959.581                  | -12.520 | 6353.157 | 23.840  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 84. | 8926.605                  | -11.360 | 6399.406 | 21.240  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 85. | 8897.507                  | -9.860  | 6439.803 | 18.350  | 0.000   | 6536.474 | -0.000  | 0.000   |
| 86. | 8872.813                  | -8.200  | 6473.785 | 15.150  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 87. | 8853.012                  | -6.350  | 6500.837 | 11.670  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 88. | 8838.530                  | -4.340  | 6520.512 | 7.530   | 0.000   | 6536.474 | 0.000   | 0.000   |
| 89. | 8829.700                  | -2.200  | 6532.465 | 4.020   | 0.000   | 6536.474 | -0.000  | 0.000   |
| 90. | 8826.732                  | 0.000   | 6536.474 | -0.000  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 91. | 8829.700                  | 2.200   | 6532.465 | -4.020  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 92. | 8836.530                  | 4.340   | 6520.512 | -7.530  | 0.000   | 6536.474 | 0.000   | 0.000   |
| 93. | 8853.012                  | 6.350   | 6500.837 | -11.670 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 94. | 8872.813                  | 8.200   | 6473.785 | -15.150 | 0.000   | 6536.474 | -0.000  | 0.000   |
| 95. | 8897.507                  | 9.860   | 6439.803 | -18.350 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 96. | 8926.605                  | 11.300  | 6399.408 | -21.240 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 97. | 8959.581                  | 12.520  | 6353.157 | -23.840 | 0.000   | 6536.474 | 0.000   | 0.000   |
| 98. | 8995.901                  | 13.540  | 6301.624 | -26.140 | 0.000   | 6536.474 | -0.000  | 0.000   |
| 99. | 9035.040                  | 14.360  | 6245.376 | -28.190 | 0.000   | 6536.474 | 0.000   | 0.000   |

Z-PLANE (XY-PLANE) SPINEL

|      | LMVEL     | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SRVEL    | SSPH12 | SSPH13 |
|------|-----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 100. | 9876.499  | 15.000 | 0.000  | 6184.970 | -30.000 | 0.000  | 6536.474 | -0.000 | 0.000  |
| 101. | 9119.813  | 15.460 | 0.000  | 6120.924 | -31.590 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 102. | 9164.552  | 15.820 | 0.000  | 6051.732 | -33.000 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 103. | 9210.329  | 16.030 | 0.000  | 5983.656 | -34.246 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 104. | 9256.794  | 16.120 | 0.000  | 5911.722 | -35.330 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 105. | 9303.634  | 16.120 | 0.000  | 5837.730 | -36.266 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 106. | 9350.569  | 16.030 | 0.000  | 5762.253 | -37.110 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 107. | 9397.351  | 15.870 | 0.000  | 5685.639 | -37.840 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 108. | 9443.759  | 15.640 | 0.000  | 5608.216 | -38.450 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 109. | 9489.596  | 15.360 | 0.000  | 5530.303 | -38.960 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 110. | 9534.688  | 15.020 | 0.000  | 5452.193 | -39.360 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 111. | 9578.879  | 14.650 | 0.000  | 5374.177 | -39.700 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 112. | 9622.028  | 14.230 | 0.000  | 5296.534 | -39.930 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 113. | 9664.812  | 13.760 | 0.000  | 5219.537 | -40.050 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 114. | 9704.720  | 13.300 | 0.000  | 5143.453 | -40.060 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 115. | 9744.050  | 12.790 | 0.000  | 5068.546 | -40.000 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 116. | 9781.914  | 12.260 | 0.000  | 4995.082 | -39.810 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 117. | 9818.231  | 11.710 | 0.000  | 4923.315 | -39.500 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 118. | 9852.928  | 11.140 | 0.000  | 4853.505 | -39.066 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 119. | 9885.936  | 10.550 | 0.000  | 4785.906 | -38.440 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 120. | 9917.204  | 9.950  | 0.000  | 4720.779 | -37.760 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 121. | 9946.672  | 9.340  | 0.000  | 4658.370 | -36.860 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 122. | 9974.294  | 8.710  | 0.000  | 4598.930 | -35.790 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 123. | 10000.027 | 8.060  | 0.000  | 4542.704 | -34.520 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 124. | 10023.831 | 7.430  | 0.000  | 4489.933 | -33.040 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 125. | 10045.674 | 6.780  | 0.000  | 4440.847 | -31.320 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 126. | 10065.524 | 6.120  | 0.000  | 4395.671 | -29.360 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 127. | 10083.353 | 5.460  | 0.000  | 4354.615 | -27.120 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 128. | 10099.134 | 4.790  | 0.000  | 4317.875 | -24.610 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 129. | 10112.861 | 4.110  | 0.000  | 4285.644 | -21.810 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 130. | 10124.500 | 3.430  | 0.000  | 4258.074 | -18.720 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 131. | 10134.043 | 2.750  | 0.000  | 4235.312 | -15.370 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 132. | 10141.477 | 2.060  | 0.000  | 4217.475 | -11.770 | 0.000  | 6536.474 | 0.000  | 0.000  |
| 133. | 10146.794 | 1.360  | 0.000  | 4204.672 | -7.970  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 134. | 10149.987 | 0.690  | 0.000  | 4196.959 | -4.020  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 135. | 10151.051 | -0.000 | 0.000  | 4193.363 | 0.000   | 0.000  | 6536.474 | 0.000  | 0.000  |
| 136. | 10149.987 | -0.690 | 0.000  | 4196.959 | 4.020   | 0.000  | 6536.474 | 0.000  | 0.000  |
| 137. | 10146.794 | -1.360 | 0.000  | 4204.672 | 7.970   | 0.000  | 6536.474 | 0.000  | 0.000  |
| 138. | 10141.477 | -2.060 | 0.000  | 4217.479 | 11.770  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 139. | 10134.043 | -2.750 | 0.000  | 4235.312 | 15.370  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 140. | 10124.500 | -3.430 | 0.000  | 4258.074 | 18.720  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 141. | 10112.861 | -4.110 | 0.000  | 4285.644 | 21.810  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 142. | 10099.134 | -4.790 | 0.000  | 4317.879 | 24.610  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 143. | 10083.353 | -5.460 | 0.000  | 4354.615 | 27.120  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 144. | 10065.524 | -6.120 | 0.000  | 4395.671 | 29.360  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 145. | 10045.674 | -6.780 | 0.000  | 4440.847 | 31.320  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 146. | 10023.831 | -7.430 | 0.000  | 4489.933 | 33.040  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 147. | 10000.027 | -8.060 | 0.000  | 4542.704 | 34.520  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 148. | 9974.294  | -8.710 | 0.000  | 4598.930 | 35.790  | 0.000  | 6536.474 | 0.000  | 0.000  |
| 149. | 9946.672  | -9.340 | 0.000  | 4658.370 | 36.860  | 0.000  | 6536.474 | 0.000  | 0.000  |

BULK

|      | Z--PLANE (XY-PLANE) SPINEL |         |        |          |         |          |         |         |          |       | BULK  |       |       |
|------|----------------------------|---------|--------|----------|---------|----------|---------|---------|----------|-------|-------|-------|-------|
|      | LPMI12                     | LPHI13  | FSPVEL | FSPHI12  | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |          |       |       |       |       |
| 150. | 9917.204                   | -9.950  | 0.000  | 4720.779 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 151. | 9885.936                   | -10.550 | 0.000  | 4785.908 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 152. | 9852.926                   | -11.140 | 0.000  | 4853.505 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 153. | 9818.231                   | -11.720 | 0.000  | 4923.315 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 154. | 9781.914                   | -12.260 | 0.000  | 4995.082 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 155. | 9744.050                   | -12.750 | 0.000  | 5068.548 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 156. | 9704.720                   | -13.300 | 0.000  | 5143.453 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 157. | 9664.012                   | -13.780 | 0.000  | 5219.537 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 158. | 9622.026                   | -14.230 | 0.000  | 5296.534 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 159. | 9578.879                   | -14.650 | 0.000  | 5374.177 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 160. | 9534.688                   | -15.020 | 0.000  | 5452.193 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 161. | 9489.596                   | -15.360 | 0.000  | 5530.303 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 162. | 9443.759                   | -15.640 | 0.000  | 5608.218 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 163. | 9397.351                   | -15.870 | 0.000  | 5685.635 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 164. | 9350.569                   | -16.030 | 0.000  | 5762.253 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 165. | 9303.634                   | -16.120 | 0.000  | 5837.730 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 166. | 9256.794                   | -16.120 | 0.000  | 5911.722 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 167. | 9210.329                   | -16.030 | 0.000  | 5983.856 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 168. | 9164.552                   | -15.620 | 0.000  | 6053.732 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 169. | 9119.813                   | -15.460 | 0.000  | 6120.924 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 170. | 9076.499                   | -15.000 | 0.000  | 6184.970 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 171. | 9035.040                   | -14.360 | 0.000  | 6245.376 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 172. | 8995.901                   | -13.540 | 0.000  | 6301.624 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 173. | 8959.581                   | -12.520 | 0.000  | 6353.157 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 174. | 8926.605                   | -11.300 | 0.000  | 6399.406 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 175. | 8897.507                   | -9.860  | 0.000  | 6439.803 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 176. | 8872.813                   | -8.200  | 0.000  | 6473.785 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 177. | 8853.012                   | -6.350  | 0.000  | 6500.837 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 178. | 8838.530                   | -4.340  | 0.000  | 6520.512 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 179. | 8829.700                   | -2.200  | 0.000  | 6532.465 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |
| 180. | 8826.732                   | 0.000   | 0.000  | 6536.474 | 0.000   | 6536.474 | 0.000   | 0.000   | 6536.474 | 0.000 | 0.000 | 0.000 | 0.000 |

111-PLANE SPINEL

|     | LNQVEL    | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|-----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 10151.051 | 0.000  | 0.000  | 6536.474 | 0.000   | 0.000   | 4194.383 | 0.000   | -0.000  |
| 1.  | 10151.304 | .160   | .600   | 6535.141 | -1.340  | -.950   | 4195.850 | 2.290   | -1.230  |
| 2.  | 10152.057 | .320   | 1.200  | 6531.147 | -2.670  | -1.890  | 4200.242 | 4.560   | -2.440  |
| 3.  | 10153.303 | .480   | 1.800  | 6524.513 | -3.990  | -2.830  | 4207.536 | 6.740   | -3.650  |
| 4.  | 10155.025 | .630   | 2.380  | 6515.270 | -5.290  | -3.760  | 4217.691 | 8.930   | -4.820  |
| 5.  | 10157.200 | .770   | 2.960  | 6503.465 | -6.570  | -4.670  | 4230.652 | 10.990  | -5.960  |
| 6.  | 10159.803 | .910   | 3.540  | 6489.195 | -7.810  | -5.560  | 4246.348 | 12.950  | -7.070  |
| 7.  | 10162.799 | 1.030  | 4.070  | 6472.411 | -9.020  | -6.460  | 4264.692 | 14.760  | -8.130  |
| 8.  | 10166.153 | 1.140  | 4.600  | 6453.317 | -10.190 | -7.330  | 4285.593 | 16.440  | -9.130  |
| 9.  | 10169.823 | 1.230  | 5.110  | 6431.969 | -11.300 | -8.170  | 4308.904 | 18.040  | -10.000 |
| 10. | 10173.765 | 1.310  | 5.600  | 6408.478 | -12.370 | -8.990  | 4334.524 | 19.450  | -10.840 |
| 11. | 10177.932 | 1.370  | 6.070  | 6382.987 | -13.370 | -9.790  | 4362.235 | 20.720  | -11.610 |
| 12. | 10182.276 | 1.420  | 6.510  | 6355.573 | -14.310 | -10.570 | 4392.055 | 21.820  | -12.350 |
| 13. | 10186.746 | 1.460  | 6.940  | 6326.450 | -15.170 | -11.320 | 4423.023 | 22.770  | -13.020 |
| 14. | 10191.291 | 1.470  | 7.340  | 6295.767 | -15.950 | -12.040 | 4456.803 | 23.560  | -13.620 |
| 15. | 10195.861 | 1.470  | 7.710  | 6263.715 | -16.640 | -12.730 | 4491.377 | 24.180  | -14.150 |
| 16. | 10200.406 | 1.450  | 8.060  | 6230.596 | -17.220 | -13.400 | 4527.107 | 24.630  | -14.610 |
| 17. | 10204.877 | 1.420  | 8.390  | 6196.376 | -17.690 | -14.040 | 4563.726 | 24.900  | -15.020 |
| 18. | 10209.226 | 1.370  | 8.690  | 6161.055 | -18.030 | -14.650 | 4600.939 | 24.900  | -15.420 |
| 19. | 10213.408 | 1.310  | 8.960  | 6125.466 | -18.220 | -15.230 | 4638.915 | 24.650  | -15.840 |
| 20. | 10217.380 | 1.240  | 9.210  | 6091.391 | -18.220 | -15.760 | 4675.779 | 24.490  | -16.160 |
| 21. | 10221.101 | 1.150  | 9.440  | 6056.621 | -18.010 | -16.310 | 4712.603 | 24.490  | -16.430 |
| 22. | 10224.534 | 1.050  | 9.640  | 6022.773 | -17.550 | -16.860 | 4748.400 | 23.870  | -16.640 |
| 23. | 10227.646 | .940   | 9.820  | 5990.332 | -16.790 | -17.260 | 4782.611 | 22.560  | -16.800 |
| 24. | 10230.406 | .830   | 9.970  | 5959.915 | -15.470 | -18.680 | 4814.603 | 20.040  | -16.970 |
| 25. | 10232.787 | .700   | 10.100 | 5932.215 | -14.140 | -19.060 | 4843.665 | 17.520  | -17.040 |
| 26. | 10234.766 | .570   | 10.260 | 5907.992 | -12.160 | -18.390 | 4869.023 | 15.290  | -17.040 |
| 27. | 10236.326 | .430   | 10.260 | 5886.034 | -9.700  | -18.660 | 4893.676 | 12.130  | -16.970 |
| 28. | 10237.450 | .250   | 10.340 | 5873.104 | -6.760  | -18.660 | 4909.452 | 8.440   | -16.970 |
| 29. | 10238.129 | .150   | 10.380 | 5863.849 | -3.490  | -18.550 | 4915.037 | 4.340   | -16.970 |
| 30. | 10238.356 | -0.000 | 10.390 | 5860.712 | 0.000   | -19.030 | 4918.364 | 0.500   | -16.970 |
| 31. | 10238.125 | -.150  | 10.360 | 5863.849 | 3.490   | -18.950 | 4915.097 | -4.340  | -16.970 |
| 32. | 10237.450 | -.290  | 10.340 | 5873.104 | 6.760   | -18.660 | 4905.452 | -8.440  | -16.970 |
| 33. | 10236.326 | -.430  | 10.260 | 5886.034 | 9.700   | -18.660 | 4893.676 | -12.130 | -16.970 |
| 34. | 10234.766 | -.570  | 10.260 | 5907.992 | 12.160  | -18.390 | 4869.023 | -15.290 | -16.970 |
| 35. | 10232.787 | -.700  | 10.100 | 5932.215 | 14.140  | -18.060 | 4843.665 | -17.520 | -17.000 |
| 36. | 10230.406 | -.830  | 9.970  | 5959.915 | 15.670  | -17.680 | 4814.603 | -20.040 | -16.970 |
| 37. | 10227.646 | -.940  | 9.820  | 5990.332 | 16.790  | -17.260 | 4782.612 | -21.700 | -16.970 |
| 38. | 10224.534 | -1.050 | 9.640  | 6022.773 | 17.550  | -16.860 | 4748.400 | -22.960 | -16.800 |
| 39. | 10221.101 | -1.150 | 9.440  | 6056.621 | 18.010  | -16.310 | 4712.603 | -23.670 | -16.640 |
| 40. | 10217.379 | -1.240 | 9.210  | 6091.391 | 18.220  | -15.760 | 4675.774 | -24.490 | -16.430 |
| 41. | 10213.408 | -1.310 | 8.960  | 6125.466 | 18.220  | -15.230 | 4638.916 | -24.650 | -16.160 |
| 42. | 10209.226 | -1.370 | 8.690  | 6161.055 | 18.030  | -14.650 | 4600.940 | -24.900 | -16.100 |
| 43. | 10204.877 | -1.420 | 8.390  | 6196.376 | 17.690  | -14.040 | 4563.726 | -24.900 | -15.840 |
| 44. | 10200.406 | -1.460 | 8.060  | 6230.596 | 17.220  | -13.400 | 4527.107 | -24.900 | -15.420 |
| 45. | 10195.861 | -1.470 | 7.710  | 6263.715 | 16.640  | -12.730 | 4491.377 | -24.630 | -15.010 |
| 46. | 10191.291 | -1.470 | 7.340  | 6295.766 | 15.950  | -12.040 | 4456.803 | -24.180 | -14.550 |
| 47. | 10186.745 | -1.460 | 6.940  | 6326.450 | 15.170  | -11.320 | 4423.023 | -23.560 | -14.150 |
| 48. | 10182.276 | -1.420 | 6.510  | 6355.573 | 14.310  | -10.570 | 4392.055 | -22.770 | -13.620 |
| 49. | 10177.932 | -1.370 | 6.070  | 6382.967 | 13.370  | -9.790  | 4362.295 | -22.020 | -13.020 |



111-PLANE SPINEL

BULK

|     | LMGVEL    | LPHI12 | LPHI13  | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|-----------|--------|---------|----------|---------|---------|----------|---------|---------|
| 50. | 10173.765 | -1.310 | 5.600   | 6408.478 | 12.370  | -6.990  | 4334.524 | -19.450 | -10.950 |
| 51. | 10169.823 | -1.230 | 5.110   | 6431.969 | 11.300  | -8.170  | 4308.905 | -18.040 | -10.080 |
| 52. | 10166.153 | -1.140 | 4.600   | 6453.317 | 10.190  | -7.330  | 4285.583 | -16.460 | -9.130  |
| 53. | 10162.798 | -1.030 | 4.070   | 6472.411 | 9.020   | -6.460  | 4264.692 | -14.780 | -8.130  |
| 54. | 10159.603 | -0.910 | 3.520   | 6488.155 | 7.810   | -5.580  | 4246.346 | -12.990 | -7.070  |
| 55. | 10157.200 | -0.770 | 2.960   | 6503.465 | 6.570   | -4.670  | 4230.652 | -10.990 | -5.960  |
| 56. | 10155.025 | -0.630 | 2.380   | 6515.270 | 5.290   | -3.760  | 4217.691 | -8.530  | -4.820  |
| 57. | 10153.303 | -0.480 | 1.800   | 6524.513 | 3.990   | -2.830  | 4207.536 | -6.780  | -3.620  |
| 58. | 10152.057 | -0.320 | 1.200   | 6531.547 | 2.670   | -1.890  | 4200.242 | -4.840  | -2.440  |
| 59. | 10151.304 | -0.160 | 0.600   | 6535.541 | 1.340   | -0.950  | 4195.050 | -2.820  | -1.230  |
| 60. | 10151.051 | 0.000  | 0.000   | 6536.474 | -0.000  | 0.000   | 4194.383 | -0.800  | -0.000  |
| 61. | 10151.304 | 0.160  | -0.600  | 6535.541 | -1.340  | 0.950   | 4195.050 | 2.820   | 1.230   |
| 62. | 10152.056 | 0.320  | -1.200  | 6531.547 | -2.670  | 1.890   | 4200.242 | 4.840   | 2.440   |
| 63. | 10153.303 | 0.480  | -1.800  | 6524.513 | -3.990  | 2.830   | 4207.536 | 6.780   | 3.620   |
| 64. | 10155.025 | 0.630  | -2.380  | 6515.270 | -5.290  | 3.760   | 4217.691 | 8.530   | 4.820   |
| 65. | 10157.201 | 0.770  | -2.960  | 6503.465 | -6.570  | 4.670   | 4230.652 | 10.990  | 5.960   |
| 66. | 10159.603 | 0.910  | -3.520  | 6489.155 | -7.810  | 5.580   | 4246.346 | 12.990  | 7.070   |
| 67. | 10162.800 | 1.030  | -4.070  | 6472.411 | -9.020  | 6.460   | 4264.692 | 14.780  | 8.130   |
| 68. | 10166.153 | 1.140  | -4.600  | 6453.317 | -10.190 | 7.330   | 4285.583 | 16.460  | 9.130   |
| 69. | 10169.823 | 1.230  | -5.110  | 6431.969 | -11.300 | 8.170   | 4308.905 | 18.040  | 10.080  |
| 70. | 10173.765 | 1.310  | -5.600  | 6408.478 | -12.370 | 8.990   | 4334.524 | 19.450  | 10.950  |
| 71. | 10177.932 | 1.370  | -6.070  | 6382.967 | -13.370 | 9.750   | 4362.295 | 20.720  | 11.610  |
| 72. | 10182.276 | 1.420  | -6.510  | 6355.573 | -14.310 | 10.570  | 4392.054 | 21.820  | 12.580  |
| 73. | 10186.746 | 1.460  | -6.940  | 6326.449 | -15.170 | 11.320  | 4423.623 | 22.770  | 13.200  |
| 74. | 10191.291 | 1.470  | -7.340  | 6295.767 | -15.950 | 12.040  | 4456.803 | 23.560  | 13.520  |
| 75. | 10195.862 | 1.470  | -7.710  | 6263.715 | -16.640 | 12.730  | 4491.377 | 24.180  | 13.950  |
| 76. | 10200.407 | 1.450  | -8.060  | 6230.506 | -17.220 | 13.400  | 4527.106 | 24.630  | 14.420  |
| 77. | 10204.877 | 1.420  | -8.390  | 6196.376 | -17.690 | 14.040  | 4563.726 | 24.900  | 14.920  |
| 78. | 10209.226 | 1.370  | -8.690  | 6161.594 | -18.030 | 14.650  | 4600.934 | 24.980  | 15.440  |
| 79. | 10213.406 | 1.310  | -8.960  | 6126.466 | -18.220 | 15.230  | 4638.415 | 24.850  | 15.980  |
| 80. | 10217.360 | 1.240  | -9.210  | 6091.341 | -18.220 | 15.760  | 4675.779 | 24.490  | 16.530  |
| 81. | 10221.101 | 1.150  | -9.440  | 6056.621 | -18.010 | 16.310  | 4712.603 | 23.870  | 16.840  |
| 82. | 10224.534 | 1.050  | -9.640  | 6022.772 | -17.550 | 16.800  | 4749.400 | 22.980  | 16.000  |
| 83. | 10227.646 | 0.940  | -9.820  | 5990.332 | -16.790 | 17.260  | 4782.611 | 22.560  | 15.910  |
| 84. | 10230.406 | 0.830  | -9.970  | 5959.915 | -16.570 | 17.660  | 4814.603 | 21.640  | 15.310  |
| 85. | 10232.767 | 0.700  | -10.100 | 5932.215 | -14.140 | 18.080  | 4843.864 | 17.920  | 14.000  |
| 86. | 10234.767 | 0.570  | -10.200 | 5907.991 | -12.160 | 18.390  | 4869.023 | 15.290  | 12.010  |
| 87. | 10236.326 | 0.430  | -10.260 | 5886.033 | -9.700  | 18.660  | 4895.075 | 12.130  | 10.050  |
| 88. | 10237.451 | 0.290  | -10.340 | 5873.103 | -6.760  | 18.860  | 4915.452 | 8.440   | 8.000   |
| 89. | 10238.129 | 0.150  | -10.360 | 5863.849 | -3.450  | 19.000  | 4915.096 | 4.340   | 6.000   |
| 90. | 10238.356 | 0.000  | -10.390 | 5860.712 | 0.000   | 19.030  | 4916.364 | -0.000  | 4.000   |
| 91. | 10238.129 | -0.150 | -10.360 | 5863.849 | 3.440   | 19.000  | 4916.096 | -4.340  | 6.000   |
| 92. | 10237.451 | -0.290 | -10.340 | 5873.103 | 6.760   | 18.860  | 4905.452 | -8.440  | 10.050  |
| 93. | 10236.326 | -0.430 | -10.260 | 5886.033 | 9.700   | 18.660  | 4895.075 | -12.130 | 12.010  |
| 94. | 10234.767 | -0.570 | -10.200 | 5907.991 | 12.160  | 18.390  | 4869.023 | -15.290 | 14.000  |
| 95. | 10232.767 | -0.700 | -10.100 | 5932.215 | 14.140  | 18.080  | 4843.864 | -17.920 | 16.000  |
| 96. | 10230.406 | -0.830 | -9.970  | 5959.915 | 15.670  | 17.660  | 4814.603 | -20.040 | 18.000  |
| 97. | 10227.646 | -0.940 | -9.820  | 5990.332 | 16.790  | 17.260  | 4782.611 | -21.700 | 19.510  |
| 98. | 10224.534 | -1.050 | -9.640  | 6022.772 | 17.550  | 16.800  | 4749.400 | -22.980 | 20.800  |
| 99. | 10221.101 | -1.150 | -9.440  | 6056.621 | 18.010  | 16.310  | 4712.603 | -23.670 | 21.640  |

111-PLANE SPINEL

BULK

|      | LNQVEL    | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|-----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 10217.380 | -1.240 | -9.210 | 6091.341 | 18.220  | 15.780  | 4675.779 | -24.450 | 16.430  |
| 101. | 10213.406 | -1.310 | -8.960 | 6126.466 | 18.220  | 15.230  | 4630.415 | -24.650 | 16.160  |
| 102. | 10209.226 | -1.370 | -8.690 | 6161.594 | 18.030  | 14.650  | 4600.939 | -24.900 | 15.840  |
| 103. | 10204.877 | -1.420 | -8.390 | 6196.376 | 17.690  | 14.040  | 4563.726 | -24.900 | 15.450  |
| 104. | 10200.407 | -1.450 | -8.060 | 6230.506 | 17.220  | 13.400  | 4521.106 | -24.630 | 15.010  |
| 105. | 10195.662 | -1.470 | -7.710 | 6263.715 | 16.640  | 12.730  | 4481.377 | -24.150 | 14.500  |
| 106. | 10191.291 | -1.470 | -7.340 | 6295.767 | 15.950  | 12.040  | 4456.003 | -23.590 | 13.920  |
| 107. | 10186.746 | -1.460 | -6.940 | 6326.449 | 15.170  | 11.320  | 4423.623 | -22.770 | 13.280  |
| 108. | 10182.276 | -1.420 | -6.510 | 6355.573 | 14.310  | 10.570  | 4392.054 | -21.620 | 12.500  |
| 109. | 10177.932 | -1.370 | -6.070 | 6382.967 | 13.370  | 9.750   | 4362.245 | -20.720 | 11.610  |
| 110. | 10173.765 | -1.310 | -5.600 | 6408.478 | 12.370  | 8.850   | 4334.524 | -19.450 | 10.640  |
| 111. | 10169.823 | -1.230 | -5.110 | 6431.969 | 11.300  | 8.170   | 4308.904 | -18.040 | 9.600   |
| 112. | 10166.153 | -1.140 | -4.600 | 6453.317 | 10.190  | 7.330   | 4285.533 | -16.460 | 8.430   |
| 113. | 10162.800 | -1.030 | -4.070 | 6472.411 | 9.020   | 6.460   | 4264.692 | -14.760 | 7.130   |
| 114. | 10159.603 | -0.910 | -3.520 | 6489.155 | 7.610   | 5.560   | 4246.348 | -12.950 | 5.800   |
| 115. | 10157.201 | -0.770 | -2.960 | 6503.465 | 6.070   | 4.670   | 4230.692 | -10.990 | 4.900   |
| 116. | 10155.025 | -0.630 | -2.380 | 6515.270 | 5.290   | 3.760   | 4217.691 | -8.930  | 3.620   |
| 117. | 10153.303 | -0.480 | -1.800 | 6524.513 | 3.950   | 2.830   | 4207.536 | -6.780  | 2.440   |
| 118. | 10152.058 | -0.320 | -1.200 | 6531.147 | 2.670   | 1.890   | 4200.242 | -4.560  | 1.250   |
| 119. | 10151.304 | -0.160 | -0.600 | 6535.141 | 1.340   | 0.950   | 4195.050 | -2.250  | 0.000   |
| 120. | 10151.051 | -0.000 | 0.000  | 6536.474 | 0.000   | 0.000   | 4194.383 | 0.000   | 0.000   |
| 121. | 10151.304 | 0.160  | 0.600  | 6535.141 | -1.340  | -0.950  | 4195.050 | 2.250   | 1.230   |
| 122. | 10152.057 | 0.320  | 1.200  | 6531.147 | -2.670  | -1.890  | 4200.242 | 4.560   | 2.440   |
| 123. | 10153.303 | 0.480  | 1.800  | 6524.513 | -3.950  | -2.830  | 4207.536 | 6.780   | 3.620   |
| 124. | 10155.025 | 0.630  | 2.380  | 6515.270 | -5.290  | -3.760  | 4217.691 | 8.930   | 4.900   |
| 125. | 10157.200 | 0.770  | 2.960  | 6503.465 | -6.570  | -4.670  | 4230.692 | 10.990  | 6.780   |
| 126. | 10159.603 | 0.910  | 3.520  | 6489.155 | -7.610  | -5.560  | 4246.348 | 12.950  | 8.430   |
| 127. | 10162.795 | 1.030  | 4.070  | 6472.411 | -8.460  | -6.460  | 4264.692 | 14.760  | 9.600   |
| 128. | 10166.153 | 1.140  | 4.600  | 6453.317 | -10.190 | -7.330  | 4285.533 | 16.460  | 10.640  |
| 129. | 10169.823 | 1.230  | 5.110  | 6431.969 | -11.300 | -8.170  | 4308.904 | 18.040  | 11.610  |
| 130. | 10173.765 | 1.310  | 5.600  | 6408.478 | -12.370 | -8.850  | 4334.524 | 19.450  | 12.500  |
| 131. | 10177.932 | 1.370  | 6.070  | 6382.967 | -13.370 | -9.750  | 4362.245 | 20.720  | 13.280  |
| 132. | 10182.276 | 1.420  | 6.510  | 6355.573 | -14.310 | -10.570 | 4392.054 | 22.770  | 13.920  |
| 133. | 10186.745 | 1.470  | 6.940  | 6326.450 | -15.170 | -11.320 | 4423.623 | 24.900  | 14.500  |
| 134. | 10191.291 | 1.470  | 7.340  | 6295.766 | -15.950 | -12.040 | 4456.003 | 27.770  | 15.010  |
| 135. | 10195.661 | 1.420  | 7.710  | 6263.716 | -16.640 | -12.730 | 4491.377 | 29.150  | 15.450  |
| 136. | 10200.406 | 1.450  | 8.060  | 6230.506 | -17.220 | -13.400 | 4521.106 | 30.410  | 15.840  |
| 137. | 10204.877 | 1.420  | 8.390  | 6196.376 | -17.690 | -14.040 | 4563.726 | 31.500  | 16.160  |
| 138. | 10209.226 | 1.370  | 8.690  | 6161.594 | -18.030 | -14.650 | 4600.939 | 32.450  | 16.430  |
| 139. | 10213.406 | 1.310  | 8.960  | 6126.466 | -18.220 | -15.230 | 4630.415 | 33.200  | 16.650  |
| 140. | 10217.379 | 1.240  | 9.210  | 6091.341 | -18.220 | -15.760 | 4675.779 | 33.800  | 16.840  |
| 141. | 10221.101 | 1.150  | 9.440  | 6056.621 | -18.010 | -16.310 | 4712.603 | 34.200  | 16.900  |
| 142. | 10224.534 | 1.050  | 9.620  | 6022.773 | -17.550 | -16.800 | 4748.400 | 34.400  | 16.800  |
| 143. | 10227.646 | 0.940  | 9.820  | 5990.332 | -16.790 | -17.260 | 4782.612 | 34.400  | 16.840  |
| 144. | 10230.405 | 0.830  | 9.970  | 5959.915 | -15.670 | -17.680 | 4814.603 | 34.000  | 16.910  |
| 145. | 10232.787 | 0.700  | 10.100 | 5932.215 | -14.140 | -18.160 | 4843.665 | 33.000  | 17.000  |
| 146. | 10234.766 | 0.570  | 10.200 | 5907.992 | -12.160 | -18.390 | 4869.023 | 31.200  | 17.010  |
| 147. | 10236.326 | 0.430  | 10.240 | 5880.934 | -9.700  | -18.660 | 4893.876 | 28.600  | 16.990  |
| 148. | 10237.450 | 0.290  | 10.340 | 5873.104 | -6.780  | -18.160 | 4905.452 | 25.700  | 16.970  |
| 149. | 10238.125 | 0.150  | 10.380 | 5863.649 | -3.490  | -18.950 | 4915.097 | 22.400  | 16.940  |

| 111-PLANE SPINEL |           |        |        |        |         |          |          |         |      |         |
|------------------|-----------|--------|--------|--------|---------|----------|----------|---------|------|---------|
|                  | LNGVEL    | LPHI12 | LPHI13 | FSPH12 | FSPH13  | SSRVEL   | SSPH12   | SSPH13  | BULK |         |
| 150.             | 10236.356 | 0.000  | 10.390 | -0.000 | -19.630 | 4310.364 | -0.000   | -10.940 |      | SSPH13  |
| 151.             | 10238.129 | -0.150 | 10.380 | 3.490  | -18.550 | 4315.097 | -4.340   | -16.920 |      | -16.920 |
| 152.             | 10237.450 | -0.290 | 10.340 | 6.760  | -16.660 | 4305.452 | -0.440   | -16.970 |      | -16.970 |
| 153.             | 10236.326 | -0.430 | 10.260 | 9.700  | -18.660 | 4289.076 | -12.130  | -16.920 |      | -16.920 |
| 154.             | 10234.766 | -0.570 | 10.200 | 12.160 | -18.350 | 4283.023 | -15.250  | -17.000 |      | -17.000 |
| 155.             | 10232.787 | -0.700 | 10.100 | 14.140 | -18.060 | 4243.665 | -17.920  | -17.000 |      | -17.000 |
| 156.             | 10230.486 | -0.830 | 9.970  | 15.676 | -17.660 | 4214.603 | -21.700  | -16.970 |      | -16.970 |
| 157.             | 10227.646 | -0.940 | 9.820  | 16.750 | -17.260 | 4185.400 | -25.500  | -16.920 |      | -16.920 |
| 158.             | 10224.534 | -1.050 | 9.640  | 17.550 | -16.800 | 4156.200 | -29.300  | -16.870 |      | -16.870 |
| 159.             | 10221.101 | -1.150 | 9.440  | 18.010 | -16.310 | 4127.000 | -33.100  | -16.820 |      | -16.820 |
| 160.             | 10217.388 | -1.240 | 9.210  | 18.220 | -15.720 | 4097.800 | -36.900  | -16.770 |      | -16.770 |
| 161.             | 10213.408 | -1.310 | 8.960  | 18.220 | -15.230 | 4068.600 | -40.700  | -16.720 |      | -16.720 |
| 162.             | 10209.226 | -1.370 | 8.690  | 18.036 | -14.640 | 4039.400 | -44.500  | -16.670 |      | -16.670 |
| 163.             | 10204.877 | -1.420 | 8.390  | 17.650 | -14.040 | 4010.200 | -48.300  | -16.620 |      | -16.620 |
| 164.             | 10200.406 | -1.450 | 8.060  | 17.220 | -13.400 | 3981.000 | -52.100  | -16.570 |      | -16.570 |
| 165.             | 10195.861 | -1.470 | 7.710  | 16.640 | -12.730 | 3951.800 | -55.900  | -16.520 |      | -16.520 |
| 166.             | 10191.291 | -1.470 | 7.340  | 15.950 | -12.040 | 3922.600 | -59.700  | -16.470 |      | -16.470 |
| 167.             | 10186.746 | -1.460 | 6.940  | 15.176 | -11.320 | 3893.400 | -63.500  | -16.420 |      | -16.420 |
| 168.             | 10182.276 | -1.420 | 6.510  | 14.310 | -10.570 | 3864.200 | -67.300  | -16.370 |      | -16.370 |
| 169.             | 10177.932 | -1.370 | 6.070  | 13.370 | -9.790  | 3835.000 | -71.100  | -16.320 |      | -16.320 |
| 170.             | 10173.765 | -1.310 | 5.600  | 12.370 | -8.990  | 3805.800 | -74.900  | -16.270 |      | -16.270 |
| 171.             | 10169.823 | -1.230 | 5.110  | 11.300 | -8.170  | 3776.600 | -78.700  | -16.220 |      | -16.220 |
| 172.             | 10166.153 | -1.140 | 4.600  | 10.190 | -7.330  | 3747.400 | -82.500  | -16.170 |      | -16.170 |
| 173.             | 10162.799 | -1.030 | 4.070  | 9.020  | -6.460  | 3718.200 | -86.300  | -16.120 |      | -16.120 |
| 174.             | 10159.803 | -0.910 | 3.520  | 7.810  | -5.560  | 3689.000 | -90.100  | -16.070 |      | -16.070 |
| 175.             | 10157.200 | -0.770 | 2.960  | 6.570  | -4.670  | 3659.800 | -93.900  | -16.020 |      | -16.020 |
| 176.             | 10155.025 | -0.620 | 2.380  | 5.290  | -3.760  | 3630.600 | -97.700  | -15.970 |      | -15.970 |
| 177.             | 10153.303 | -0.460 | 1.800  | 3.990  | -2.830  | 3601.400 | -101.500 | -15.920 |      | -15.920 |
| 178.             | 10152.057 | -0.320 | 1.200  | 2.670  | -1.890  | 3572.200 | -105.300 | -15.870 |      | -15.870 |
| 179.             | 10151.304 | -0.160 | 0.600  | 1.340  | -0.950  | 3543.000 | -109.100 | -15.820 |      | -15.820 |
| 180.             | 10151.051 | 0.000  | -0.000 | -0.000 | 0.000   | 3513.800 | -112.900 | -15.770 |      | -15.770 |

110-PLANE SPINEL

|     | LMGVEL    | LPHI12  | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|-----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 10555.633 | 0.000   | 0.000  | 5096.132 | -24.526 | 0.000   | 5096.100 | 24.520  | 0.000   |
| 1.  | 10554.851 | -4.450  | -0.000 | 5056.783 | -23.340 | 0.000   | 5136.756 | 24.430  | 0.000   |
| 2.  | 10552.481 | -7.950  | -0.000 | 5020.006 | -22.020 | -0.000  | 5177.537 | 24.310  | 0.000   |
| 3.  | 10548.493 | -11.490 | -0.000 | 4985.969 | -20.540 | 0.000   | 5216.390 | 24.170  | 0.000   |
| 4.  | 10542.863 | -2.010  | -0.000 | 4954.632 | -18.920 | 0.000   | 5259.265 | 24.000  | 0.000   |
| 5.  | 10535.588 | -2.530  | -0.000 | 4926.745 | -17.140 | -0.000  | 5300.112 | 23.800  | -0.000  |
| 6.  | 10526.588 | -3.060  | -0.000 | 4901.847 | -15.210 | 0.000   | 5340.883 | 23.600  | 0.000   |
| 7.  | 10515.908 | -3.600  | 0.000  | 4880.266 | -13.140 | -0.000  | 5381.524 | 23.300  | 0.000   |
| 8.  | 10503.515 | -4.130  | -0.000 | 4862.121 | -10.940 | -0.000  | 5422.006 | 23.110  | 0.000   |
| 9.  | 10489.400 | -4.660  | -0.000 | 4847.506 | -8.610  | -0.000  | 5462.267 | 22.830  | 0.000   |
| 10. | 10473.556 | -5.220  | 0.000  | 4836.512 | -6.140  | -0.000  | 5502.270 | 22.540  | 0.000   |
| 11. | 10455.980 | -5.770  | 0.000  | 4829.206 | -3.690  | -0.000  | 5541.971 | 22.230  | 0.000   |
| 12. | 10436.671 | -6.320  | -0.000 | 4825.644 | -1.140  | 0.000   | 5581.329 | 21.910  | 0.000   |
| 13. | 10415.633 | -6.870  | -0.000 | 4825.863 | 1.440   | 0.000   | 5620.305 | 21.570  | -0.000  |
| 14. | 10392.871 | -7.420  | -0.000 | 4829.881 | 4.020   | 0.000   | 5658.657 | 21.210  | 0.000   |
| 15. | 10368.394 | -7.970  | -0.000 | 4837.700 | 6.560   | -0.000  | 5696.950 | 20.840  | 0.000   |
| 16. | 10342.215 | -8.520  | -0.000 | 4849.306 | 9.060   | -0.000  | 5734.546 | 20.460  | 0.000   |
| 17. | 10314.347 | -9.060  | 0.000  | 4864.664 | 11.460  | -0.000  | 5771.609 | 20.060  | 0.000   |
| 18. | 10284.811 | -9.600  | 0.000  | 4883.725 | 13.770  | -0.000  | 5808.106 | 19.650  | 0.000   |
| 19. | 10253.627 | -10.140 | -0.000 | 4906.422 | 15.960  | -0.000  | 5844.001 | 19.230  | 0.000   |
| 20. | 10220.822 | -10.670 | -0.000 | 4932.671 | 18.010  | -0.000  | 5879.204 | 18.800  | 0.000   |
| 21. | 10186.425 | -11.150 | 0.000  | 4962.375 | 19.930  | -0.000  | 5913.863 | 18.360  | -0.000  |
| 22. | 10150.469 | -11.710 | -0.000 | 4995.422 | 21.690  | 0.000   | 5947.767 | 17.910  | 0.000   |
| 23. | 10112.992 | -12.220 | -0.000 | 5031.684 | 23.300  | -0.000  | 5980.346 | 17.450  | 0.000   |
| 24. | 10074.036 | -12.720 | -0.000 | 5071.024 | 24.760  | -0.000  | 6013.377 | 16.980  | 0.000   |
| 25. | 10033.646 | -13.200 | -0.000 | 5113.291 | 26.080  | -0.000  | 6045.027 | 16.500  | 0.000   |
| 26. | 9991.880  | -13.660 | -0.000 | 5158.323 | 27.250  | 0.000   | 6075.273 | 16.010  | 0.000   |
| 27. | 9948.789  | -14.140 | -0.000 | 5205.949 | 28.270  | -0.000  | 6105.889 | 15.520  | 0.000   |
| 28. | 9904.441  | -14.560 | 0.000  | 5255.987 | 29.160  | -0.000  | 6135.050 | 15.020  | 0.000   |
| 29. | 9858.905  | -15.000 | -0.000 | 5308.246 | 29.910  | -0.000  | 6163.335 | 14.510  | 0.000   |
| 30. | 9812.261  | -15.400 | -0.000 | 5362.526 | 30.540  | 0.000   | 6190.720 | 13.990  | 0.000   |
| 31. | 9764.595  | -15.780 | 0.000  | 5418.624 | 31.050  | -0.000  | 6217.185 | 13.470  | 0.000   |
| 32. | 9716.005  | -16.120 | -0.000 | 5476.316 | 31.430  | -0.000  | 6242.706 | 12.950  | 0.000   |
| 33. | 9666.595  | -16.440 | -0.000 | 5535.381 | 31.700  | -0.000  | 6267.271 | 12.410  | 0.000   |
| 34. | 9616.486  | -16.720 | 0.000  | 5595.581 | 31.860  | -0.000  | 6290.825 | 11.860  | 0.000   |
| 35. | 9565.809  | -16.960 | -0.000 | 5656.671 | 31.900  | -0.000  | 6313.443 | 11.330  | -0.000  |
| 36. | 9514.711  | -17.150 | 0.000  | 5718.394 | 31.830  | -0.000  | 6335.017 | 10.790  | 0.000   |
| 37. | 9463.355  | -17.290 | 0.000  | 5780.479 | 31.660  | -0.000  | 6355.563 | 10.230  | 0.000   |
| 38. | 9411.923  | -17.380 | 0.000  | 5842.641 | 31.340  | -0.000  | 6375.064 | 9.660   | 0.000   |
| 39. | 9360.620  | -17.390 | 0.000  | 5904.579 | 30.920  | 0.000   | 6393.507 | 9.120   | 0.000   |
| 40. | 9309.673  | -17.330 | 0.000  | 5965.972 | 30.370  | -0.000  | 6410.879 | 8.550   | -0.000  |
| 41. | 9259.334  | -17.170 | 0.000  | 6026.476 | 29.660  | -0.000  | 6427.167 | 7.990   | 0.000   |
| 42. | 9209.888  | -16.920 | 0.000  | 6085.734 | 28.840  | -0.000  | 6442.359 | 7.420   | 0.000   |
| 43. | 9161.848  | -16.550 | 0.000  | 6143.346 | 27.850  | 0.000   | 6456.446 | 6.850   | 0.000   |
| 44. | 9114.961  | -16.060 | 0.000  | 6198.898 | 26.680  | 0.000   | 6469.416 | 6.270   | 0.000   |
| 45. | 9070.287  | -15.420 | 0.000  | 6251.941 | 25.320  | -0.000  | 6481.262 | 5.690   | -0.000  |
| 46. | 9027.804  | -14.610 | 0.000  | 6302.001 | 23.750  | -0.000  | 6491.975 | 5.120   | 0.000   |
| 47. | 8988.194  | -13.640 | 0.000  | 6348.579 | 21.950  | -0.000  | 6501.246 | 4.530   | -0.000  |
| 48. | 8951.849  | -12.470 | 0.000  | 6391.155 | 19.910  | -0.000  | 6509.871 | 3.950   | 0.000   |
| 49. | 8919.254  | -11.110 | 0.000  | 6429.203 | 17.610  | -0.000  | 6517.242 | 3.370   | -0.000  |

| 110-PLANE SPINEL |           |        |        |          |         |         |          |         |         | BULK |  |  |
|------------------|-----------|--------|--------|----------|---------|---------|----------|---------|---------|------|--|--|
|                  | LANGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |      |  |  |
| 50.              | 8998.893  | -9.540 | 0.000  | 6462.201 | 15.040  | -0.000  | 6523.356 | 2.780   | 0.000   |      |  |  |
| 51.              | 8967.233  | -7.790 | 0.000  | 6469.651 | 12.220  | 0.000   | 6528.317 | 2.200   | 0.000   |      |  |  |
| 52.              | 8848.698  | -5.660 | 0.000  | 6511.106 | 9.160   | -0.000  | 6532.042 | 1.610   | 0.000   |      |  |  |
| 53.              | 8835.846  | -3.790 | 0.000  | 6526.188 | 5.910   | -0.000  | 6534.710 | 1.020   | 0.000   |      |  |  |
| 54.              | 8828.341  | -1.620 | 0.000  | 6534.618 | 2.530   | -0.000  | 6536.157 | .430    | -0.000  |      |  |  |
| 55.              | 8826.935  | .560   | 0.000  | 6536.433 | -.160   | 0.000   | 6536.235 | -.510   | 0.000   |      |  |  |
| 56.              | 8831.470  | 2.760  | 0.000  | 6531.008 | -4.330  | -0.000  | 6535.539 | -1.740  | 0.000   |      |  |  |
| 57.              | 8841.836  | 4.900  | 0.000  | 6519.036 | -7.650  | -0.000  | 6533.473 | -1.330  | 0.000   |      |  |  |
| 58.              | 8857.822  | 6.900  | 0.000  | 6500.550 | -10.600 | -0.000  | 6530.239 | -1.420  | 0.000   |      |  |  |
| 59.              | 8879.113  | 8.740  | 0.000  | 6475.878 | -13.740 | -0.000  | 6525.036 | -2.510  | 0.000   |      |  |  |
| 60.              | 8905.311  | 10.390 | 0.000  | 6445.438 | -16.430 | -0.000  | 6520.272 | -3.090  | 0.000   |      |  |  |
| 61.              | 8935.967  | 11.850 | 0.000  | 6409.710 | -18.660 | 0.000   | 6513.547 | -3.660  | 0.000   |      |  |  |
| 62.              | 8970.603  | 13.110 | 0.000  | 6369.206 | -21.020 | -0.000  | 6505.666 | -4.260  | 0.000   |      |  |  |
| 63.              | 9006.731  | 14.180 | 0.000  | 6324.451 | -22.930 | -0.000  | 6496.635 | -4.840  | 0.000   |      |  |  |
| 64.              | 9049.874  | 15.060 | 0.000  | 6275.971 | -24.610 | 0.000   | 6488.460 | -5.420  | 0.000   |      |  |  |
| 65.              | 9093.871  | 15.770 | 0.000  | 6224.275 | -26.070 | -0.000  | 6475.148 | -6.000  | 0.000   |      |  |  |
| 66.              | 9135.355  | 16.340 | 0.000  | 6169.850 | -27.320 | -0.000  | 6462.709 | -6.580  | 0.000   |      |  |  |
| 67.              | 9186.948  | 16.760 | 0.000  | 6113.156 | -28.400 | -0.000  | 6449.147 | -7.150  | 0.000   |      |  |  |
| 68.              | 9235.866  | 17.070 | 0.000  | 6054.626 | -29.300 | -0.000  | 6434.475 | -7.720  | 0.000   |      |  |  |
| 69.              | 9285.621  | 17.270 | 0.000  | 5994.663 | -30.060 | -0.000  | 6418.702 | -8.290  | 0.000   |      |  |  |
| 70.              | 9336.514  | 17.370 | 0.000  | 5933.644 | -30.670 | -0.000  | 6401.841 | -8.850  | 0.000   |      |  |  |
| 71.              | 9387.879  | 17.390 | 0.000  | 5871.922 | -31.160 | 0.000   | 6383.942 | -9.410  | 0.000   |      |  |  |
| 72.              | 9439.876  | 17.340 | 0.000  | 5809.628 | -31.520 | -0.000  | 6364.850 | -9.970  | 0.000   |      |  |  |
| 73.              | 9490.892  | 17.230 | 0.000  | 5747.670 | -31.760 | -0.000  | 6344.844 | -10.530 | 0.000   |      |  |  |
| 74.              | 9541.734  | 17.060 | -0.000 | 5685.741 | -31.860 | -0.000  | 6323.723 | -11.070 | 0.000   |      |  |  |
| 75.              | 9592.629  | 16.840 | 0.000  | 5624.320 | -31.890 | -0.000  | 6301.642 | -11.620 | 0.000   |      |  |  |
| 76.              | 9643.823  | 16.560 | 0.000  | 5563.666 | -31.790 | -0.000  | 6278.528 | -12.160 | 0.000   |      |  |  |
| 77.              | 9692.776  | 16.260 | 0.000  | 5504.038 | -31.570 | -0.000  | 6254.423 | -12.700 | 0.000   |      |  |  |
| 78.              | 9741.770  | 15.940 | 0.000  | 5445.665 | -31.240 | -0.000  | 6229.356 | -13.230 | 0.000   |      |  |  |
| 79.              | 9785.865  | 15.560 | 0.000  | 5388.792 | -30.800 | -0.000  | 6203.327 | -13.750 | 0.000   |      |  |  |
| 80.              | 9837.022  | 15.190 | 0.000  | 5333.626 | -30.230 | -0.000  | 6176.374 | -14.270 | 0.000   |      |  |  |
| 81.              | 9883.091  | 14.780 | 0.000  | 5280.389 | -29.530 | -0.000  | 6148.511 | -14.760 | 0.000   |      |  |  |
| 82.              | 9928.009  | 14.350 | -0.000 | 5229.276 | -28.710 | -0.000  | 6119.761 | -15.260 | 0.000   |      |  |  |
| 83.              | 9971.702  | 13.960 | 0.000  | 5180.490 | -27.750 | -0.000  | 6090.145 | -15.780 | 0.000   |      |  |  |
| 84.              | 10014.102 | 13.430 | -0.000 | 5134.212 | -26.650 | -0.000  | 6059.684 | -16.270 | 0.000   |      |  |  |
| 85.              | 10055.146 | 12.950 | 0.000  | 5090.615 | -25.400 | -0.000  | 6028.414 | -16.750 | 0.000   |      |  |  |
| 86.              | 10094.786 | 12.460 | -0.000 | 5049.878 | -24.020 | 0.000   | 5998.350 | -17.230 | 0.000   |      |  |  |
| 87.              | 10132.967 | 11.950 | 0.000  | 5012.145 | -22.470 | -0.000  | 5968.520 | -17.690 | 0.000   |      |  |  |
| 88.              | 10169.646 | 11.440 | 0.000  | 4977.564 | -20.780 | -0.000  | 5929.954 | -18.150 | 0.000   |      |  |  |
| 89.              | 10204.783 | 10.920 | 0.000  | 4946.266 | -18.930 | -0.000  | 5895.679 | -18.590 | 0.000   |      |  |  |
| 90.              | 10238.343 | 10.350 | -0.000 | 4918.374 | -16.950 | -0.000  | 5867.726 | -19.020 | 0.000   |      |  |  |
| 91.              | 10270.296 | 9.850  | 0.000  | 4893.990 | -14.820 | -0.000  | 5845.125 | -19.460 | 0.000   |      |  |  |
| 92.              | 10300.613 | 9.320  | 0.000  | 4873.203 | -12.570 | 0.000   | 5788.908 | -19.870 | 0.000   |      |  |  |
| 93.              | 10329.270 | 8.770  | 0.000  | 4856.890 | -10.200 | -0.000  | 5714.108 | -20.270 | 0.000   |      |  |  |
| 94.              | 10356.249 | 8.230  | 0.000  | 4842.708 | -7.750  | -0.000  | 5714.760 | -20.660 | 0.000   |      |  |  |
| 95.              | 10381.531 | 7.660  | -0.000 | 4833.096 | -5.230  | 0.000   | 5676.697 | -21.040 | 0.000   |      |  |  |
| 96.              | 10405.184 | 7.130  | 0.000  | 4827.285 | -2.660  | -0.000  | 5638.956 | -21.400 | 0.000   |      |  |  |
| 97.              | 10426.957 | 6.580  | 0.000  | 4825.275 | -.080   | -0.000  | 5599.778 | -21.750 | 0.000   |      |  |  |
| 98.              | 10447.862 | 6.030  | 0.000  | 4827.056 | 2.490   | -0.000  | 5560.543 | -22.080 | 0.000   |      |  |  |
| 99.              | 10465.476 | 5.460  | -0.000 | 4832.600 | 5.020   | -0.000  | 5521.049 | -22.460 | 0.000   |      |  |  |

110-PLANE SPINEL

BULK

|      | LNGLVL    | LPH112 | LPH113 | FSRVEL   | FSPH112 | FSPH113 | SSRVEL   | SSPH112 | SSPH113 |
|------|-----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 10402.137 | 4.430  | 0.000  | 4441.061 | 7.480   | -0.000  | 5481.183 | -22.700 | 0.000   |
| 101. | 10497.066 | 4.350  | 0.000  | 4654.777 | 9.850   | -0.000  | 5441.039 | -22.980 | 0.000   |
| 102. | 10510.272 | 3.950  | -0.000 | 4871.266 | 12.110  | -0.000  | 5400.656 | -23.240 | 0.000   |
| 103. | 10521.760 | 3.310  | 0.000  | 4891.241 | 14.250  | -0.000  | 5360.066 | -23.490 | 0.000   |
| 104. | 10531.540 | 2.760  | -0.000 | 4914.566 | 16.250  | -0.000  | 5319.366 | -23.710 | 0.000   |
| 105. | 10539.626 | 2.260  | -0.000 | 4941.186 | 18.100  | -0.000  | 5276.551 | -23.910 | 0.000   |
| 106. | 10546.042 | 1.740  | 0.000  | 4970.901 | 19.800  | -0.000  | 5237.603 | -24.090 | 0.000   |
| 107. | 10550.602 | 1.230  | 0.000  | 5003.589 | 21.340  | -0.000  | 5196.814 | -24.250 | 0.000   |
| 108. | 10553.932 | .720   | 0.000  | 5039.093 | 22.740  | -0.000  | 5155.942 | -24.360 | 0.000   |
| 109. | 10555.460 | .230   | 0.000  | 5077.250 | 23.960  | -0.000  | 5115.271 | -24.460 | 0.000   |
| 110. | 10555.417 | -0.250 | 0.000  | 5117.866 | 25.050  | -0.000  | 5074.702 | -24.560 | -0.000  |
| 111. | 10553.835 | -0.730 | -0.000 | 5160.824 | 26.050  | 0.000   | 5034.340 | -24.610 | -0.000  |
| 112. | 10550.764 | -1.180 | 0.000  | 5205.876 | 26.860  | 0.000   | 4994.236 | -24.620 | -0.000  |
| 113. | 10546.236 | -1.630 | 0.000  | 5252.654 | 27.570  | 0.000   | 4954.454 | -24.610 | -0.000  |
| 114. | 10540.302 | -2.060 | 0.000  | 5301.563 | 28.150  | 0.000   | 4915.043 | -24.560 | -0.000  |
| 115. | 10533.014 | -2.460 | 0.000  | 5351.605 | 28.610  | 0.000   | 4876.063 | -24.480 | -0.000  |
| 116. | 10524.428 | -2.870 | -0.000 | 5403.377 | 28.950  | 0.000   | 4837.573 | -24.360 | -0.000  |
| 117. | 10514.806 | -3.250 | 0.000  | 5456.076 | 29.150  | 0.000   | 4799.632 | -24.200 | -0.000  |
| 118. | 10503.613 | -3.610 | -0.000 | 5509.700 | 29.320  | 0.000   | 4762.300 | -24.000 | -0.000  |
| 119. | 10491.523 | -3.940 | 0.000  | 5564.036 | 29.360  | 0.000   | 4725.637 | -23.760 | -0.000  |
| 120. | 10478.411 | -4.250 | 0.000  | 5618.876 | 29.300  | 0.000   | 4689.705 | -23.470 | -0.000  |
| 121. | 10464.360 | -4.540 | 0.000  | 5674.010 | 29.140  | 0.000   | 4654.564 | -23.140 | 0.000   |
| 122. | 10449.460 | -4.790 | 0.000  | 5729.226 | 28.850  | 0.000   | 4620.275 | -22.770 | 0.000   |
| 123. | 10433.605 | -5.020 | 0.000  | 5784.310 | 28.560  | 0.000   | 4586.901 | -22.340 | 0.000   |
| 124. | 10417.496 | -5.220 | 0.000  | 5839.040 | 28.130  | 0.000   | 4554.502 | -21.860 | 0.000   |
| 125. | 10400.640 | -5.380 | 0.000  | 5893.223 | 27.620  | 0.000   | 4523.139 | -21.330 | 0.000   |
| 126. | 10383.352 | -5.500 | -0.000 | 5946.620 | 27.020  | 0.000   | 4492.072 | -20.740 | 0.000   |
| 127. | 10365.750 | -5.560 | 0.000  | 5999.021 | 26.340  | 0.000   | 4463.762 | -20.100 | 0.000   |
| 128. | 10347.960 | -5.640 | 0.000  | 6050.206 | 25.560  | 0.000   | 4435.666 | -19.400 | 0.000   |
| 129. | 10330.115 | -5.650 | -0.000 | 6099.959 | 24.700  | 0.000   | 4409.242 | -18.650 | 0.000   |
| 130. | 10312.350 | -5.610 | 0.000  | 6146.060 | 23.740  | 0.000   | 4383.946 | -17.830 | 0.000   |
| 131. | 10294.806 | -5.530 | -0.000 | 6194.291 | 22.700  | 0.000   | 4360.032 | -16.960 | 0.000   |
| 132. | 10277.833 | -5.460 | -0.000 | 6238.437 | 21.560  | 0.000   | 4337.552 | -16.030 | 0.000   |
| 133. | 10260.973 | -5.220 | 0.000  | 6280.284 | 20.340  | 0.000   | 4316.556 | -15.140 | 0.000   |
| 134. | 10244.978 | -4.950 | 0.000  | 6319.621 | 19.020  | 0.000   | 4297.092 | -13.540 | 0.000   |
| 135. | 10229.297 | -4.710 | 0.000  | 6356.246 | 17.600  | 0.000   | 4279.204 | -12.690 | 0.000   |
| 136. | 10215.575 | -4.390 | -0.000 | 6389.961 | 16.100  | 0.000   | 4262.935 | -11.730 | 0.000   |
| 137. | 10202.457 | -4.020 | -0.000 | 6420.577 | 14.510  | 0.000   | 4246.322 | -10.520 | 0.000   |
| 138. | 10190.578 | -3.610 | -0.000 | 6447.920 | 12.840  | 0.000   | 4235.402 | -9.270  | 0.000   |
| 139. | 10180.066 | -3.150 | 0.000  | 6471.826 | 11.090  | 0.000   | 4224.204 | -7.570  | 0.000   |
| 140. | 10171.038 | -2.660 | -0.000 | 6492.150 | 9.270   | 0.000   | 4214.757 | -6.640  | 0.000   |
| 141. | 10163.594 | -2.140 | 0.000  | 6508.763 | 7.380   | 0.000   | 4207.084 | -5.270  | 0.000   |
| 142. | 10157.822 | -1.590 | -0.000 | 6521.559 | 5.450   | 0.000   | 4201.204 | -3.660  | 0.000   |
| 143. | 10153.769 | -1.020 | 0.000  | 6530.454 | 3.460   | 0.000   | 4194.870 | -2.470  | 0.000   |
| 144. | 10151.545 | -0.430 | -0.000 | 6535.391 | 1.460   | 0.000   | 4194.447 | -1.650  | 0.000   |
| 145. | 10151.115 | .160   | 0.000  | 6536.335 | .530    | -0.000  | 4194.447 | .360    | 0.000   |
| 146. | 10152.505 | .740   | 0.000  | 6533.280 | -2.540  | -0.000  | 4194.056 | 1.600   | 0.000   |
| 147. | 10155.690 | 1.320  | 0.000  | 6526.240 | -4.520  | -0.000  | 4194.056 | 3.220   | 0.000   |
| 148. | 10160.657 | 1.860  | 0.000  | 6515.284 | -6.460  | -0.000  | 4204.044 | 4.620   | 0.000   |
| 149. | 10167.321 | 2.420  | 0.000  | 6500.460 | -8.360  | -0.000  | 4210.513 | 6.000   | 0.000   |

| 110-PLANE SPINEL |           | BULK   |        |         |        |          |        |
|------------------|-----------|--------|--------|---------|--------|----------|--------|
|                  | LNGVEL    | LPHI12 | LPHI13 | FSPH12  | FSPH13 | SSPH12   | SSPH13 |
| 150.             | 10175.613 | 2.930  | 0.000  | -10.240 | 0.000  | 4234.526 | 7.350  |
| 151.             | 10185.439 | 3.400  | 0.000  | -12.020 | -0.000 | 4229.900 | 6.660  |
| 152.             | 10196.686 | 3.630  | 0.000  | -13.730 | 0.000  | 4242.011 | 5.940  |
| 153.             | 10209.238 | 4.220  | 0.000  | -15.360 | -0.000 | 4255.629 | 11.170 |
| 154.             | 10222.956 | 4.570  | 0.000  | -16.910 | 0.000  | 4271.321 | 12.350 |
| 155.             | 10237.702 | 4.670  | 0.000  | -18.360 | -0.000 | 4288.450 | 13.470 |
| 156.             | 10253.332 | 5.120  | 0.000  | -19.730 | 0.000  | 4307.175 | 14.550 |
| 157.             | 10269.696 | 5.350  | 0.000  | -21.000 | -0.000 | 4327.454 | 15.570 |
| 158.             | 10286.667 | 5.470  | 0.000  | -22.160 | 0.000  | 4349.239 | 16.530 |
| 159.             | 10304.034 | 5.760  | 0.000  | -23.260 | -0.000 | 4372.483 | 17.430 |
| 160.             | 10321.711 | 5.630  | 0.000  | -24.260 | 0.000  | 4397.133 | 18.270 |
| 161.             | 10339.536 | 5.650  | 0.000  | -25.160 | -0.000 | 4423.136 | 19.050 |
| 162.             | 10357.359 | 5.620  | 0.000  | -25.980 | 0.000  | 4450.440 | 19.760 |
| 163.             | 10375.075 | 5.550  | 0.000  | -26.710 | -0.000 | 4478.205 | 20.450 |
| 164.             | 10392.527 | 5.440  | 0.000  | -27.350 | 0.000  | 4506.713 | 21.060 |
| 165.             | 10409.601 | 5.300  | 0.000  | -27.900 | -0.000 | 4535.966 | 21.620 |
| 166.             | 10426.162 | 5.120  | 0.000  | -28.370 | 0.000  | 4571.403 | 22.120 |
| 167.             | 10442.159 | 4.900  | 0.000  | -28.750 | -0.000 | 4604.405 | 22.570 |
| 168.             | 10457.427 | 4.650  | 0.000  | -29.040 | 0.000  | 4638.269 | 22.970 |
| 169.             | 10471.890 | 4.390  | 0.000  | -29.230 | -0.000 | 4673.016 | 23.320 |
| 170.             | 10485.456 | 4.090  | 0.000  | -29.340 | 0.000  | 4708.562 | 23.630 |
| 171.             | 10498.039 | 3.770  | 0.000  | -29.350 | -0.000 | 4744.908 | 23.690 |
| 172.             | 10509.555 | 3.420  | 0.000  | -29.260 | 0.000  | 4781.932 | 24.110 |
| 173.             | 10519.942 | 3.050  | 0.000  | -29.080 | -0.000 | 4819.593 | 24.290 |
| 174.             | 10529.120 | 2.660  | 0.000  | -28.760 | 0.000  | 4857.631 | 24.430 |
| 175.             | 10537.026 | 2.260  | 0.000  | -28.360 | -0.000 | 4896.567 | 24.530 |
| 176.             | 10543.607 | 1.840  | -0.300 | -27.890 | 0.000  | 4935.002 | 24.590 |
| 177.             | 10548.805 | 1.400  | -0.000 | -27.420 | -0.000 | 4975.417 | 24.620 |
| 178.             | 10552.571 | .940   | 0.000  | -26.660 | 0.000  | 5015.376 | 24.620 |
| 179.             | 10554.461 | .400   | -0.000 | -25.560 | -0.000 | 5055.022 | 24.590 |
| 180.             | 10555.633 | 0.010  | -0.000 | -24.520 | -0.000 | 5096.100 | 24.520 |

X-PLANE (YZ-PLANE) TELLURIUM DIOXIDE

BULK

|     | LMGVEL   | LPMI12  | LPMI13 | FSPVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 3316.876 | -8.000  | -0.000 | 3049.599 | 0.000   | 0.000   | 2103.340 | 0.000   | -0.000  |
| 1.  | 3316.576 | -6.000  | -0.000 | 3049.621 | .910    | 0.000   | 2103.333 | 0.000   | 0.000   |
| 2.  | 3315.676 | -1.200  | -0.000 | 3051.088 | 1.620   | 0.000   | 2103.312 | -0.400  | 0.000   |
| 3.  | 3314.175 | 1.700   | -0.000 | 3053.197 | 2.720   | 0.000   | 2103.276 | -0.670  | 0.000   |
| 4.  | 3312.876 | -2.300  | -0.000 | 3056.142 | 3.610   | 0.000   | 2103.227 | -0.990  | 0.000   |
| 5.  | 3309.880 | -2.370  | -0.000 | 3059.519 | 4.690   | 0.000   | 2103.165 | -1.10   | 0.000   |
| 6.  | 3306.888 | -3.560  | -0.000 | 3064.518 | 5.350   | 0.000   | 2103.090 | -1.150  | 0.000   |
| 7.  | 3302.203 | -4.150  | -0.000 | 3069.929 | 6.190   | 0.000   | 2103.004 | -1.140  | 0.000   |
| 8.  | 3297.727 | -4.740  | -0.000 | 3076.143 | 7.020   | 0.000   | 2102.907 | -1.160  | 0.000   |
| 9.  | 3292.863 | -5.330  | -0.000 | 3083.145 | 7.620   | 0.000   | 2102.801 | -1.170  | 0.000   |
| 10. | 3287.814 | -5.910  | -0.000 | 3090.920 | 8.600   | 0.000   | 2102.666 | -1.190  | 0.000   |
| 11. | 3280.784 | -6.450  | -0.000 | 3099.454 | 9.356   | 0.000   | 2102.583 | -1.200  | 0.000   |
| 12. | 3273.976 | -7.060  | -0.000 | 3108.729 | 10.070  | 0.000   | 2102.434 | -1.210  | 0.000   |
| 13. | 3266.600 | -7.650  | -0.000 | 3118.725 | 10.770  | 0.000   | 2102.300 | -1.210  | 0.000   |
| 14. | 3258.855 | -8.230  | -0.000 | 3129.424 | 11.430  | 0.000   | 2102.162 | -1.220  | 0.000   |
| 15. | 3250.146 | -8.800  | -0.000 | 3140.805 | 12.060  | 0.000   | 2102.021 | -1.220  | 0.000   |
| 16. | 3241.065 | -9.370  | -0.000 | 3152.846 | 12.660  | 0.000   | 2101.879 | -1.220  | 0.000   |
| 17. | 3231.472 | -9.940  | -0.000 | 3165.523 | 13.230  | 0.000   | 2101.736 | -1.220  | 0.000   |
| 18. | 3221.317 | -10.500 | -0.000 | 3178.814 | 13.760  | 0.000   | 2101.594 | -1.220  | 0.000   |
| 19. | 3210.625 | -11.060 | -0.000 | 3192.694 | 14.260  | 0.000   | 2101.454 | -1.220  | 0.000   |
| 20. | 3199.405 | -11.620 | -0.000 | 3207.139 | 14.730  | 0.000   | 2101.316 | -1.210  | 0.000   |
| 21. | 3187.665 | -12.170 | -0.000 | 3222.121 | 15.170  | 0.000   | 2101.182 | -1.210  | 0.000   |
| 22. | 3175.413 | -12.720 | -0.000 | 3237.617 | 15.570  | 0.000   | 2101.053 | -1.200  | 0.000   |
| 23. | 3162.658 | -13.260 | -0.000 | 3253.596 | 15.940  | 0.000   | 2100.926 | -1.190  | 0.000   |
| 24. | 3149.408 | -13.790 | -0.000 | 3270.039 | 16.270  | 0.000   | 2100.810 | -1.190  | 0.000   |
| 25. | 3135.675 | -14.320 | -0.000 | 3286.912 | 16.580  | 0.000   | 2100.698 | -1.170  | 0.000   |
| 26. | 3121.468 | -14.850 | -0.000 | 3304.190 | 16.850  | 0.000   | 2100.594 | -1.160  | 0.000   |
| 27. | 3106.799 | -15.360 | -0.000 | 3321.845 | 17.100  | 0.000   | 2100.496 | -1.150  | 0.000   |
| 28. | 3091.677 | -15.870 | -0.000 | 3339.851 | 17.310  | 0.000   | 2100.407 | -1.130  | 0.000   |
| 29. | 3076.115 | -16.360 | -0.000 | 3358.179 | 17.500  | 0.000   | 2100.326 | -1.120  | 0.000   |
| 30. | 3060.126 | -16.870 | -0.000 | 3376.802 | 17.660  | 0.000   | 2100.253 | -1.110  | 0.000   |
| 31. | 3043.721 | -17.360 | -0.000 | 3395.693 | 17.790  | 0.000   | 2100.189 | -1.090  | 0.000   |
| 32. | 3026.914 | -17.840 | -0.000 | 3414.824 | 17.970  | 0.000   | 2100.134 | -1.080  | 0.000   |
| 33. | 3009.720 | -18.310 | -0.000 | 3434.169 | 18.130  | 0.000   | 2100.087 | -1.070  | 0.000   |
| 34. | 2992.151 | -18.770 | -0.000 | 3453.780 | 18.280  | 0.000   | 2100.049 | -1.050  | 0.000   |
| 35. | 2974.223 | -19.220 | -0.000 | 3473.590 | 18.450  | 0.000   | 2100.020 | -1.040  | 0.000   |
| 36. | 2955.952 | -19.670 | -0.000 | 3493.514 | 18.600  | 0.000   | 2100.000 | -1.030  | 0.000   |
| 37. | 2937.353 | -20.100 | -0.000 | 3513.445 | 18.840  | 0.000   | 2099.986 | -1.010  | 0.000   |
| 38. | 2918.443 | -20.520 | -0.000 | 3533.357 | 19.010  | 0.000   | 2099.984 | 0.000   | 0.000   |
| 39. | 2899.239 | -20.920 | -0.000 | 3553.225 | 17.950  | 0.000   | 2099.989 | 0.010   | 0.000   |
| 40. | 2879.759 | -21.320 | -0.000 | 3573.024 | 17.670  | 0.000   | 2100.001 | 0.030   | 0.000   |
| 41. | 2860.026 | -21.700 | -0.000 | 3592.829 | 17.770  | 0.000   | 2100.022 | 0.040   | 0.000   |
| 42. | 2840.043 | -22.060 | -0.000 | 3612.616 | 17.650  | 0.000   | 2100.049 | 0.050   | 0.000   |
| 43. | 2819.865 | -22.420 | -0.000 | 3632.562 | 17.520  | 0.000   | 2100.084 | 0.060   | 0.000   |
| 44. | 2799.468 | -22.750 | -0.000 | 3652.542 | 17.360  | 0.000   | 2100.125 | 0.070   | 0.000   |
| 45. | 2778.872 | -23.070 | -0.000 | 3672.534 | 17.200  | 0.000   | 2100.173 | 0.080   | 0.000   |
| 46. | 2758.138 | -23.370 | -0.000 | 3692.515 | 17.010  | 0.000   | 2100.227 | 0.090   | 0.000   |
| 47. | 2737.268 | -23.660 | -0.000 | 3712.464 | 16.810  | 0.000   | 2100.287 | 0.100   | 0.000   |
| 48. | 2716.266 | -23.920 | -0.000 | 3732.356 | 16.590  | 0.000   | 2100.352 | 0.110   | 0.000   |
| 49. | 2695.214 | -24.170 | -0.000 | 3752.178 | 16.360  | 0.000   | 2100.422 | 0.110   | 0.000   |



X-PLANE (YZ-PLANE) TELLURIUM DIOXIDE

|     | LNGVEL   | LPXI12  | LPXI13 | FSRWEL   | FSPXI12 | FSPXI13 | SRRWEL   | SSPXI12 | SSPXI13 |
|-----|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 2679.876 | -24.390 | 0.000  | 3770.802 | 16.120  | 0.000   | 2104.496 | .120    | -0.000  |
| 51. | 2652.696 | -24.590 | 0.000  | 3769.711 | 15.860  | 0.000   | 2100.575 | .130    | -0.000  |
| 52. | 2631.703 | -24.770 | 0.000  | 3808.384 | 15.590  | 0.000   | 2100.657 | .130    | -0.000  |
| 53. | 2618.518 | -24.920 | 0.000  | 3826.804 | 15.310  | 0.000   | 2100.733 | .140    | -0.000  |
| 54. | 2593.369 | -25.050 | 0.000  | 3844.950 | 15.020  | 0.000   | 2100.833 | .140    | -0.000  |
| 55. | 2568.284 | -25.150 | 0.000  | 3862.807 | 14.710  | 0.000   | 2100.924 | .150    | -0.000  |
| 56. | 2547.290 | -25.220 | 0.000  | 3880.355 | 14.400  | 0.000   | 2101.018 | .150    | -0.000  |
| 57. | 2526.416 | -25.260 | 0.000  | 3897.579 | 14.060  | 0.000   | 2101.114 | .150    | -0.000  |
| 58. | 2505.691 | -25.270 | 0.000  | 3914.461 | 13.740  | 0.000   | 2101.212 | .150    | -0.000  |
| 59. | 2485.143 | -25.240 | 0.000  | 3930.986 | 13.400  | 0.000   | 2101.310 | .150    | -0.000  |
| 60. | 2464.803 | -25.180 | 0.000  | 3947.139 | 13.040  | 0.000   | 2101.410 | .160    | -0.000  |
| 61. | 2444.702 | -25.080 | 0.000  | 3962.904 | 12.660  | 0.000   | 2101.509 | .160    | -0.000  |
| 62. | 2424.870 | -24.950 | 0.000  | 3978.267 | 12.310  | 0.000   | 2101.609 | .160    | -0.000  |
| 63. | 2405.339 | -24.770 | 0.000  | 3993.214 | 11.940  | 0.000   | 2101.709 | .160    | -0.000  |
| 64. | 2386.141 | -24.550 | 0.000  | 4007.733 | 11.550  | 0.000   | 2101.808 | .150    | -0.000  |
| 65. | 2367.307 | -24.260 | 0.000  | 4021.809 | 11.160  | 0.000   | 2101.906 | .150    | -0.000  |
| 66. | 2348.869 | -23.970 | 0.000  | 4035.432 | 10.770  | 0.000   | 2102.003 | .150    | -0.000  |
| 67. | 2330.861 | -23.610 | 0.000  | 4048.588 | 10.360  | 0.000   | 2102.099 | .150    | -0.000  |
| 68. | 2313.314 | -23.200 | 0.000  | 4061.267 | 9.950   | 0.000   | 2102.192 | .140    | -0.000  |
| 69. | 2296.261 | -22.740 | 0.000  | 4073.457 | 9.540   | 0.000   | 2102.284 | .140    | -0.000  |
| 70. | 2279.734 | -22.220 | 0.000  | 4085.149 | 9.110   | 0.000   | 2102.373 | .140    | -0.000  |
| 71. | 2263.765 | -21.640 | 0.000  | 4096.333 | 8.690   | 0.000   | 2102.459 | .130    | -0.000  |
| 72. | 2248.367 | -21.010 | 0.000  | 4106.999 | 8.260   | 0.000   | 2102.543 | .130    | -0.000  |
| 73. | 2233.630 | -20.320 | 0.000  | 4117.138 | 7.820   | 0.000   | 2102.624 | .120    | -0.000  |
| 74. | 2219.526 | -19.570 | 0.000  | 4126.742 | 7.380   | 0.000   | 2102.701 | .120    | -0.000  |
| 75. | 2206.104 | -18.750 | 0.000  | 4135.804 | 6.940   | 0.000   | 2102.774 | .110    | -0.000  |
| 76. | 2193.393 | -17.870 | 0.000  | 4144.315 | 6.490   | 0.000   | 2102.844 | .110    | -0.000  |
| 77. | 2181.422 | -16.930 | 0.000  | 4152.269 | 6.040   | 0.000   | 2102.910 | .100    | -0.000  |
| 78. | 2170.219 | -15.930 | 0.000  | 4159.660 | 5.590   | 0.000   | 2102.971 | .090    | -0.000  |
| 79. | 2159.806 | -14.870 | 0.000  | 4166.481 | 5.130   | 0.000   | 2103.029 | .090    | -0.000  |
| 80. | 2150.215 | -13.740 | 0.000  | 4172.726 | 4.680   | 0.000   | 2103.082 | .080    | -0.000  |
| 81. | 2141.461 | -12.560 | 0.000  | 4178.394 | 4.220   | 0.000   | 2103.130 | .070    | -0.000  |
| 82. | 2133.570 | -11.320 | 0.000  | 4183.476 | 3.750   | 0.000   | 2103.173 | .060    | -0.000  |
| 83. | 2126.559 | -10.030 | 0.000  | 4187.969 | 3.250   | 0.000   | 2103.212 | .060    | -0.000  |
| 84. | 2120.446 | -8.690  | 0.000  | 4191.871 | 2.820   | 0.000   | 2103.246 | .050    | -0.000  |
| 85. | 2115.248 | -7.310  | 0.000  | 4195.177 | 2.350   | 0.000   | 2103.275 | .040    | -0.000  |
| 86. | 2110.976 | -5.900  | 0.000  | 4197.886 | 1.860   | 0.000   | 2103.298 | .030    | -0.000  |
| 87. | 2107.642 | -4.430  | 0.000  | 4199.995 | 1.410   | 0.000   | 2103.316 | .020    | -0.000  |
| 88. | 2105.254 | -2.960  | 0.000  | 4201.503 | .940    | 0.000   | 2103.330 | .020    | -0.000  |
| 89. | 2103.819 | -1.450  | 0.000  | 4202.408 | .470    | 0.000   | 2103.338 | .010    | -0.000  |
| 90. | 2103.340 | -0.000  | 0.000  | 4202.710 | -0.000  | 0.000   | 2103.340 | 0.000   | -0.000  |
| 91. | 2103.819 | 1.490   | 0.000  | 4202.408 | -0.470  | 0.000   | 2103.338 | -0.010  | 0.000   |
| 92. | 2105.254 | 2.960   | 0.000  | 4201.503 | -0.940  | 0.000   | 2103.330 | -0.020  | 0.000   |
| 93. | 2107.642 | 4.430   | 0.000  | 4199.995 | -1.410  | 0.000   | 2103.316 | -0.020  | 0.000   |
| 94. | 2110.976 | 5.900   | 0.000  | 4197.886 | -1.860  | 0.000   | 2103.298 | -0.030  | 0.000   |
| 95. | 2115.248 | 7.310   | 0.000  | 4195.177 | -2.350  | 0.000   | 2103.275 | -0.040  | 0.000   |
| 96. | 2120.446 | 8.690   | 0.000  | 4191.871 | -2.820  | 0.000   | 2103.246 | -0.050  | 0.000   |
| 97. | 2126.559 | 10.030  | 0.000  | 4187.969 | -3.250  | 0.000   | 2103.212 | -0.060  | 0.000   |
| 98. | 2133.570 | 11.320  | 0.000  | 4183.476 | -3.750  | 0.000   | 2103.173 | -0.060  | 0.000   |
| 99. | 2141.461 | 12.560  | 0.000  | 4178.394 | -4.220  | 0.000   | 2103.130 | -0.070  | 0.000   |

BULK

X-PLANE (YZ-PLANE) TELLURIUM DIOXIDE

|      | LNGVEL   | LPM12  | LPM13  | FSRVEL   | FSPM12  | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |
|------|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 100. | 2150.215 | 13.740 | -0.000 | 4172.728 | -4.660  | -0.000 | 2103.082 | -0.060 | 0.000  |
| 101. | 2159.806 | 14.670 | -0.000 | 4186.681 | -5.130  | -0.000 | 2103.029 | -0.090 | 0.000  |
| 102. | 2170.219 | 15.930 | -0.000 | 4159.660 | -5.590  | -0.000 | 2102.971 | -0.090 | 0.000  |
| 103. | 2181.422 | 16.930 | -0.000 | 4152.269 | -6.040  | -0.060 | 2102.910 | -0.160 | 0.000  |
| 104. | 2193.393 | 17.870 | -0.000 | 4144.315 | -6.690  | -0.000 | 2102.844 | -0.110 | 0.000  |
| 105. | 2205.104 | 18.750 | -0.000 | 4135.804 | -6.940  | -0.000 | 2102.774 | -0.110 | 0.000  |
| 106. | 2219.526 | 19.570 | -0.000 | 4126.742 | -7.360  | -0.000 | 2102.701 | -0.120 | 0.000  |
| 107. | 2233.630 | 20.320 | -0.000 | 4117.136 | -7.620  | -0.000 | 2102.624 | -0.120 | 0.000  |
| 108. | 2248.367 | 21.010 | -0.000 | 4106.999 | -8.260  | -0.000 | 2102.543 | -0.130 | 0.000  |
| 109. | 2263.765 | 21.640 | -0.000 | 4096.333 | -8.690  | -0.000 | 2102.459 | -0.130 | 0.000  |
| 110. | 2279.734 | 22.220 | -0.000 | 4085.149 | -9.110  | -0.000 | 2102.373 | -0.140 | 0.000  |
| 111. | 2295.261 | 22.740 | -0.000 | 4073.457 | -9.540  | -0.000 | 2102.284 | -0.140 | 0.000  |
| 112. | 2313.314 | 23.200 | -0.000 | 4061.267 | -9.950  | -0.000 | 2102.192 | -0.140 | 0.000  |
| 113. | 2330.861 | 23.610 | -0.000 | 4048.566 | -10.360 | -0.000 | 2102.099 | -0.150 | 0.000  |
| 114. | 2346.865 | 23.970 | -0.000 | 4035.432 | -10.770 | -0.000 | 2102.003 | -0.150 | 0.000  |
| 115. | 2367.307 | 24.280 | -0.000 | 4021.809 | -11.160 | -0.000 | 2101.906 | -0.150 | 0.000  |
| 116. | 2386.141 | 24.550 | -0.000 | 4007.733 | -11.550 | -0.060 | 2101.808 | -0.150 | 0.000  |
| 117. | 2405.359 | 24.770 | -0.000 | 3993.214 | -11.940 | -0.000 | 2101.709 | -0.160 | 0.000  |
| 118. | 2424.870 | 24.950 | -0.000 | 3978.267 | -12.310 | -0.000 | 2101.609 | -0.160 | 0.000  |
| 119. | 2444.702 | 25.060 | -0.000 | 3962.904 | -12.660 | -0.000 | 2101.509 | -0.160 | 0.000  |
| 120. | 2464.803 | 25.160 | -0.000 | 3947.139 | -13.040 | -0.000 | 2101.410 | -0.160 | 0.000  |
| 121. | 2485.143 | 25.240 | -0.000 | 3930.986 | -13.400 | -0.000 | 2101.310 | -0.150 | 0.000  |
| 122. | 2505.691 | 25.270 | -0.000 | 3914.461 | -13.740 | -0.000 | 2101.212 | -0.150 | 0.000  |
| 123. | 2526.416 | 25.260 | -0.000 | 3897.579 | -14.060 | -0.000 | 2101.114 | -0.150 | 0.000  |
| 124. | 2547.290 | 25.220 | -0.000 | 3880.355 | -14.400 | 0.000  | 2101.016 | -0.150 | 0.000  |
| 125. | 2568.264 | 25.150 | -0.000 | 3862.807 | -14.710 | 0.000  | 2100.924 | -0.150 | 0.000  |
| 126. | 2589.369 | 25.050 | -0.000 | 3844.950 | -15.020 | 0.000  | 2100.833 | -0.140 | 0.000  |
| 127. | 2610.516 | 24.920 | -0.000 | 3826.804 | -15.310 | 0.000  | 2100.743 | -0.140 | 0.000  |
| 128. | 2631.703 | 24.770 | -0.000 | 3808.384 | -15.590 | 0.000  | 2100.657 | -0.130 | 0.000  |
| 129. | 2652.928 | 24.590 | -0.000 | 3789.711 | -15.860 | 0.000  | 2100.575 | -0.130 | 0.000  |
| 130. | 2674.076 | 24.390 | -0.000 | 3770.802 | -16.120 | 0.000  | 2100.496 | -0.120 | 0.000  |
| 131. | 2695.214 | 24.170 | -0.000 | 3751.676 | -16.360 | 0.000  | 2100.422 | -0.110 | 0.000  |
| 132. | 2716.266 | 23.920 | -0.000 | 3732.356 | -16.590 | 0.000  | 2100.352 | -0.110 | 0.000  |
| 133. | 2737.266 | 23.660 | -0.000 | 3712.864 | -16.810 | 0.000  | 2100.287 | -0.100 | 0.000  |
| 134. | 2758.136 | 23.370 | -0.000 | 3693.215 | -17.010 | 0.000  | 2100.227 | -0.090 | 0.000  |
| 135. | 2778.872 | 23.070 | -0.000 | 3673.434 | -17.200 | 0.000  | 2100.173 | -0.080 | 0.000  |
| 136. | 2799.448 | 22.750 | -0.000 | 3653.542 | -17.360 | 0.000  | 2100.125 | -0.070 | 0.000  |
| 137. | 2819.845 | 22.420 | -0.000 | 3633.562 | -17.520 | 0.000  | 2100.084 | -0.060 | 0.000  |
| 138. | 2840.043 | 22.060 | -0.000 | 3613.516 | -17.650 | 0.000  | 2100.049 | -0.050 | 0.000  |
| 139. | 2860.020 | 21.700 | -0.000 | 3593.429 | -17.770 | 0.000  | 2100.022 | -0.040 | 0.000  |
| 140. | 2879.759 | 21.320 | -0.000 | 3573.324 | -17.870 | 0.000  | 2100.001 | -0.030 | 0.000  |
| 141. | 2899.239 | 20.920 | -0.000 | 3553.225 | -17.950 | 0.000  | 2099.984 | -0.020 | 0.000  |
| 142. | 2918.443 | 20.520 | -0.000 | 3533.157 | -18.010 | 0.000  | 2099.964 | -0.010 | 0.000  |
| 143. | 2937.393 | 20.100 | -0.000 | 3513.145 | -18.040 | 0.000  | 2099.960 | -0.000 | 0.000  |
| 144. | 2955.952 | 19.670 | -0.000 | 3493.214 | -18.060 | 0.000  | 2099.960 | -0.000 | 0.000  |
| 145. | 2974.223 | 19.220 | -0.000 | 3473.390 | -18.050 | 0.000  | 2100.020 | -0.000 | 0.000  |
| 146. | 2992.151 | 18.770 | -0.000 | 3453.700 | -18.030 | 0.000  | 2100.049 | -0.000 | 0.000  |
| 147. | 3009.720 | 18.310 | -0.000 | 3434.169 | -17.970 | 0.000  | 2100.087 | -0.000 | 0.000  |
| 148. | 3026.914 | 17.840 | -0.000 | 3414.824 | -17.890 | 0.000  | 2100.134 | -0.000 | 0.000  |
| 149. | 3043.721 | 17.360 | -0.000 | 3395.693 | -17.790 | 0.000  | 2100.169 | -0.000 | 0.000  |

| X-PLANE (YZ-PLANE) TELLURIUM DIOXIDE |          |        |        |          |         |         |          |         |         |
|--------------------------------------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
|                                      | LNGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
| 150.                                 | 3060.126 | 16.870 | -0.000 | 3376.802 | -17.660 | 0.000   | 2106.253 | .113    | -0.000  |
| 151.                                 | 3076.115 | 16.350 | -0.000 | 3358.175 | -17.506 | 0.000   | 2100.326 | .120    | -0.000  |
| 152.                                 | 3091.677 | 15.870 | -0.000 | 3339.851 | -17.310 | 0.660   | 2100.407 | .130    | -0.000  |
| 153.                                 | 3106.794 | 15.360 | -0.000 | 3321.845 | -17.100 | 0.000   | 2100.496 | .150    | -0.000  |
| 154.                                 | 3121.466 | 14.850 | -0.000 | 3304.190 | -16.850 | 0.000   | 2100.594 | .150    | -0.000  |
| 155.                                 | 3135.675 | 14.320 | -0.000 | 3286.912 | -16.580 | 0.000   | 2100.690 | .170    | -0.000  |
| 156.                                 | 3149.408 | 13.790 | -0.000 | 3270.039 | -16.270 | 0.660   | 2100.610 | .190    | -0.000  |
| 157.                                 | 3162.656 | 13.260 | -0.000 | 3253.596 | -15.940 | 0.000   | 2100.920 | .170    | -0.000  |
| 158.                                 | 3175.413 | 12.720 | -0.000 | 3237.617 | -15.570 | 0.000   | 2101.053 | .200    | -0.000  |
| 159.                                 | 3187.665 | 12.170 | -0.000 | 3222.121 | -15.170 | 0.660   | 2101.162 | .210    | -0.000  |
| 160.                                 | 3199.405 | 11.620 | -0.000 | 3207.139 | -14.730 | 0.000   | 2101.316 | .210    | -0.000  |
| 161.                                 | 3210.625 | 11.060 | 0.000  | 3192.694 | -14.260 | -0.000  | 2101.454 | .220    | -0.000  |
| 162.                                 | 3221.317 | 10.500 | 0.000  | 3178.814 | -13.760 | -0.000  | 2101.594 | .220    | -0.000  |
| 163.                                 | 3231.472 | 9.940  | 0.000  | 3165.523 | -13.230 | 0.000   | 2101.736 | .220    | -0.000  |
| 164.                                 | 3241.085 | 9.370  | 0.000  | 3152.846 | -12.660 | -0.000  | 2101.879 | .220    | -0.000  |
| 165.                                 | 3250.148 | 8.800  | 0.000  | 3140.805 | -12.060 | -0.000  | 2102.021 | .220    | -0.000  |
| 166.                                 | 3258.655 | 8.230  | 0.000  | 3129.424 | -11.430 | -0.000  | 2102.162 | .220    | -0.000  |
| 167.                                 | 3266.600 | 7.650  | 0.000  | 3118.725 | -10.770 | -0.000  | 2102.300 | .210    | -0.000  |
| 168.                                 | 3273.978 | 7.060  | 0.000  | 3108.725 | -10.070 | -0.000  | 2102.434 | .210    | -0.000  |
| 169.                                 | 3280.784 | 6.490  | 0.000  | 3099.454 | -9.350  | -0.000  | 2102.563 | .210    | -0.000  |
| 170.                                 | 3287.014 | 5.910  | 0.000  | 3090.920 | -8.600  | -0.000  | 2102.686 | .190    | -0.000  |
| 171.                                 | 3292.663 | 5.330  | 0.000  | 3083.145 | -7.820  | -0.000  | 2102.801 | .170    | -0.000  |
| 172.                                 | 3297.727 | 4.740  | 0.000  | 3076.143 | -7.020  | -0.000  | 2102.907 | .160    | -0.000  |
| 173.                                 | 3302.203 | 4.150  | 0.000  | 3069.925 | -6.190  | -0.000  | 2103.004 | .140    | -0.000  |
| 174.                                 | 3306.080 | 3.560  | 0.000  | 3064.516 | -5.350  | -0.000  | 2103.090 | .130    | -0.000  |
| 175.                                 | 3309.360 | 2.970  | 0.000  | 3059.917 | -4.490  | -0.000  | 2103.165 | .110    | -0.000  |
| 176.                                 | 3312.076 | 2.380  | 0.000  | 3056.142 | -3.610  | -0.000  | 2103.227 | .090    | -0.000  |
| 177.                                 | 3314.175 | 1.780  | 0.000  | 3053.197 | -2.720  | -0.000  | 2103.276 | .070    | -0.000  |
| 178.                                 | 3315.676 | 1.200  | 0.000  | 3051.084 | -1.820  | -0.660  | 2103.312 | .040    | -0.000  |
| 179.                                 | 3316.576 | .600   | 0.000  | 3049.821 | -0.910  | -0.000  | 2103.333 | .020    | -0.000  |
| 180.                                 | 3316.876 | -0.000 | 0.000  | 3049.399 | 0.000   | 0.000   | 2103.340 | -0.000  | -0.000  |

Z-PLANE (XY-PLANE) TELLURIUM DIOXIDE

BULK

|     | LNGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSRMI12 | FSPMI13 | SSRVEL   | SSRMI12 | SSRMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 3316.876 | 0.000  | 0.000  | 3049.399 | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 1.  | 3328.788 | 18.058 | 0.000  | 3038.870 | -21.340 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 2.  | 3352.525 | 28.320 | 0.000  | 3010.162 | -33.770 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 3.  | 3387.809 | 32.910 | 0.000  | 2978.396 | -40.090 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 4.  | 3427.931 | 36.750 | 0.000  | 2924.003 | -43.680 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 5.  | 3470.361 | 35.420 | 0.000  | 2873.516 | -46.050 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 6.  | 3513.763 | 35.420 | 0.000  | 2820.376 | -47.830 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 7.  | 3557.401 | 35.070 | 0.000  | 2765.832 | -49.290 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 8.  | 3600.843 | 34.530 | 0.000  | 2708.216 | -50.590 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 9.  | 3643.821 | 33.870 | 0.000  | 2650.107 | -51.760 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 10. | 3686.160 | 33.120 | 0.000  | 2590.693 | -52.870 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 11. | 3727.736 | 32.320 | 0.000  | 2530.706 | -53.930 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 12. | 3768.464 | 31.660 | 0.000  | 2469.652 | -54.960 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 13. | 3808.275 | 30.628 | 0.000  | 2407.808 | -55.960 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 14. | 3847.119 | 29.730 | 0.000  | 2345.245 | -56.950 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 15. | 3884.955 | 28.830 | 0.000  | 2282.023 | -57.920 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 16. | 3921.746 | 27.910 | 0.000  | 2218.199 | -58.870 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 17. | 3957.466 | 26.950 | 0.000  | 2153.825 | -59.820 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 18. | 3992.089 | 26.040 | 0.000  | 2088.954 | -60.750 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 19. | 4025.593 | 25.120 | 0.000  | 2023.637 | -61.670 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 20. | 4057.956 | 24.170 | 0.000  | 1957.926 | -62.590 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 21. | 4089.167 | 23.220 | 0.000  | 1891.882 | -63.450 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 22. | 4119.204 | 22.270 | 0.000  | 1825.557 | -64.360 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 23. | 4148.055 | 21.320 | 0.000  | 1759.016 | -65.260 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 24. | 4175.706 | 20.360 | 0.000  | 1692.330 | -66.130 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 25. | 4202.145 | 19.400 | 0.000  | 1625.571 | -66.980 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 26. | 4227.368 | 18.440 | 0.000  | 1558.822 | -67.810 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 27. | 4251.342 | 17.480 | 0.000  | 1492.177 | -68.630 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 28. | 4274.080 | 16.510 | 0.000  | 1425.744 | -69.420 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 29. | 4295.564 | 15.550 | 0.000  | 1359.643 | -70.190 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 30. | 4315.787 | 14.560 | 0.000  | 1293.817 | -70.930 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 31. | 4334.741 | 13.610 | 0.000  | 1228.331 | -71.630 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 32. | 4352.419 | 12.640 | 0.000  | 1164.883 | -72.290 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 33. | 4368.813 | 11.670 | 0.000  | 1101.805 | -72.950 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 34. | 4383.918 | 10.700 | 0.000  | 1040.080 | -73.410 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 35. | 4397.728 | 9.730  | 0.000  | 980.047  | -73.850 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 36. | 4410.237 | 8.760  | 0.000  | 922.121  | -74.160 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 37. | 4421.442 | 7.790  | 0.000  | 866.883  | -74.500 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 38. | 4431.339 | 6.810  | 0.000  | 814.701  | -74.500 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 39. | 4439.923 | 5.840  | 0.000  | 766.542  | -73.750 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 40. | 4447.191 | 4.870  | 0.000  | 723.180  | -72.750 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 41. | 4453.142 | 3.850  | 0.000  | 685.585  | -70.800 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 42. | 4457.773 | 2.920  | 0.000  | 654.802  | -67.800 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 43. | 4461.081 | 1.950  | 0.000  | 631.867  | -59.460 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 44. | 4463.067 | .970   | 0.000  | 617.665  | -41.560 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 45. | 4463.729 | 0.000  | 0.000  | 612.893  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 46. | 4463.067 | -.970  | 0.000  | 617.685  | 41.560  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 47. | 4461.061 | -1.950 | 0.000  | 631.867  | 59.460  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 48. | 4457.773 | -2.920 | 0.000  | 654.802  | 67.800  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 49. | 4453.142 | -3.850 | 0.000  | 685.585  | 70.800  | 0.000   | 2103.340 | 0.000   | 0.000   |

Z-PLANE (XY-PLANE) TELLURIUM DIOXIDE

BULK

|     | LMGVEL   | LPHI12  | LPHI13 | F2R180   | F2R180  | FSPR112 | FSPR113 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|---------|--------|----------|---------|---------|---------|----------|---------|---------|
| 50. | 4447.191 | -4.870  | 0.000  | 723.180  | 72.750  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 51. | 4439.923 | -5.640  | 0.000  | 766.542  | 73.750  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 52. | 4431.339 | -6.610  | 0.000  | 814.701  | 74.200  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 53. | 4421.442 | -7.750  | 0.000  | 866.803  | 74.300  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 54. | 4410.237 | -8.760  | 0.000  | 922.121  | 74.160  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 55. | 4397.728 | -9.730  | 0.000  | 980.047  | 73.850  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 56. | 4383.918 | -10.700 | 0.000  | 1040.040 | 73.410  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 57. | 4368.613 | -11.670 | 0.000  | 1101.805 | 72.890  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 58. | 4352.419 | -12.640 | 0.000  | 1164.883 | 72.250  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 59. | 4334.741 | -13.610 | 0.000  | 1229.031 | 71.630  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 60. | 4315.787 | -14.580 | 0.000  | 1294.017 | 70.930  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 61. | 4295.564 | -15.550 | 0.000  | 1359.643 | 70.190  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 62. | 4274.080 | -16.510 | 0.000  | 1425.744 | 69.420  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 63. | 4251.342 | -17.480 | 0.000  | 1492.177 | 68.630  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 64. | 4227.360 | -18.440 | 0.000  | 1558.822 | 67.810  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 65. | 4202.145 | -19.400 | 0.000  | 1625.571 | 66.960  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 66. | 4175.706 | -20.360 | 0.000  | 1692.330 | 66.130  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 67. | 4148.055 | -21.320 | 0.000  | 1759.016 | 65.260  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 68. | 4119.204 | -22.270 | 0.000  | 1825.557 | 64.380  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 69. | 4089.167 | -23.220 | 0.000  | 1891.862 | 63.490  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 70. | 4057.956 | -24.170 | 0.000  | 1957.926 | 62.590  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 71. | 4025.593 | -25.120 | 0.000  | 2023.637 | 61.670  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 72. | 3992.089 | -26.060 | 0.000  | 2088.954 | 60.750  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 73. | 3957.466 | -26.990 | 0.000  | 2153.825 | 59.820  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 74. | 3921.746 | -27.910 | 0.000  | 2218.199 | 58.870  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 75. | 3884.955 | -28.830 | 0.000  | 2282.023 | 57.920  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 76. | 3847.114 | -29.730 | 0.000  | 2345.245 | 56.950  | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 77. | 3808.275 | -30.620 | 0.000  | 2407.806 | 55.960  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 78. | 3768.464 | -31.480 | 0.000  | 2469.652 | 54.960  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 79. | 3727.736 | -32.320 | 0.000  | 2530.708 | 53.930  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 80. | 3686.160 | -33.120 | 0.000  | 2590.893 | 52.870  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 81. | 3643.621 | -33.870 | 0.000  | 2650.107 | 51.760  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 82. | 3600.843 | -34.530 | 0.000  | 2708.216 | 50.560  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 83. | 3557.401 | -35.170 | 0.000  | 2765.032 | 49.290  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 84. | 3513.763 | -35.820 | 0.000  | 2820.276 | 47.830  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 85. | 3470.361 | -36.420 | 0.000  | 2873.516 | 46.050  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 86. | 3427.931 | -36.990 | 0.000  | 2924.803 | 43.660  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 87. | 3387.809 | -37.510 | 0.000  | 2970.396 | 40.050  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 88. | 3352.525 | -38.020 | 0.000  | 3010.162 | 33.770  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 89. | 3326.708 | -38.500 | 0.000  | 3038.670 | 21.340  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 90. | 3316.676 | 0.000   | 0.000  | 3049.395 | -0.000  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 91. | 3226.706 | 18.050  | 0.000  | 3038.670 | -21.340 | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 92. | 3352.525 | 28.320  | 0.000  | 3010.162 | -33.770 | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 93. | 3367.809 | 32.910  | 0.000  | 2970.396 | -40.090 | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 94. | 3427.931 | 34.750  | 0.000  | 2924.803 | -43.680 | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 95. | 3470.361 | 35.420  | 0.000  | 2873.516 | -46.050 | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 96. | 3513.763 | 35.420  | 0.000  | 2820.276 | -47.830 | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 97. | 3557.401 | 35.070  | 0.000  | 2765.032 | -49.290 | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 98. | 3600.843 | 34.530  | 0.000  | 2708.216 | -50.560 | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |
| 99. | 3643.621 | 33.670  | 0.000  | 2650.107 | -51.760 | 0.000   | 0.000   | 2103.340 | -0.000  | 0.000   |

Z-PLANE (XY-PLANE) TELLURIUM DIOXIDE

BULK

|      | LMGVEL   | LPHI12  | LPHI13 | FSPVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 3686.160 | 33.120  | 0.000  | 2590.893 | -52.876 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 101. | 3727.736 | 32.320  | 0.000  | 2530.708 | -53.930 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 102. | 3768.464 | 31.480  | 0.000  | 2469.652 | -54.960 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 103. | 3808.275 | 30.620  | 0.000  | 2407.806 | -55.960 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 104. | 3847.119 | 29.730  | 0.000  | 2345.245 | -56.950 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 105. | 3884.955 | 28.830  | 0.000  | 2282.823 | -57.920 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 106. | 3921.746 | 27.910  | 0.000  | 2219.199 | -58.870 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 107. | 3957.466 | 26.950  | 0.000  | 2153.825 | -59.820 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 108. | 3992.089 | 26.060  | 0.000  | 2088.954 | -60.750 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 109. | 4025.593 | 25.120  | 0.000  | 2023.637 | -61.670 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 110. | 4057.956 | 24.170  | 0.000  | 1957.928 | -62.590 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 111. | 4089.167 | 23.220  | 0.000  | 1891.862 | -63.490 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 112. | 4119.204 | 22.270  | 0.000  | 1825.557 | -64.360 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 113. | 4148.055 | 21.320  | 0.000  | 1759.016 | -65.260 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 114. | 4175.706 | 20.360  | 0.000  | 1692.330 | -66.130 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 115. | 4202.145 | 19.400  | 0.000  | 1625.571 | -66.960 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 116. | 4227.360 | 18.440  | 0.000  | 1558.822 | -67.810 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 117. | 4251.342 | 17.480  | 0.000  | 1492.177 | -68.630 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 118. | 4274.080 | 16.510  | 0.000  | 1425.744 | -69.420 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 119. | 4295.564 | 15.550  | 0.000  | 1359.643 | -70.190 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 120. | 4315.787 | 14.580  | 0.000  | 1294.017 | -70.930 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 121. | 4334.741 | 13.610  | 0.000  | 1229.031 | -71.630 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 122. | 4352.419 | 12.640  | 0.000  | 1164.863 | -72.290 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 123. | 4368.813 | 11.670  | 0.000  | 1101.805 | -72.890 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 124. | 4383.916 | 10.700  | 0.000  | 1040.080 | -73.410 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 125. | 4397.726 | 9.730   | 0.000  | 980.047  | -73.850 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 126. | 4410.237 | 8.760   | 0.000  | 922.121  | -74.160 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 127. | 4421.442 | 7.790   | 0.000  | 866.803  | -74.300 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 128. | 4431.339 | 6.810   | 0.000  | 814.701  | -74.200 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 129. | 4439.923 | 5.840   | 0.000  | 766.542  | -73.750 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 130. | 4447.191 | 4.870   | 0.000  | 723.180  | -72.750 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 131. | 4453.142 | 3.890   | 0.000  | 685.585  | -70.800 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 132. | 4457.773 | 2.920   | 0.000  | 654.802  | -67.080 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 133. | 4461.081 | 1.950   | 0.000  | 631.867  | -54.460 | 0.000   | 2103.340 | 0.000   | 0.000   |
| 134. | 4463.067 | .970    | 0.000  | 617.685  | -41.500 | 0.000   | 2103.340 | -0.000  | 0.000   |
| 135. | 4463.725 | -0.000  | 0.000  | 612.683  | 0.000   | 0.000   | 2103.340 | 0.000   | 0.000   |
| 136. | 4463.067 | -.970   | 0.000  | 617.685  | 41.500  | 0.000   | 2103.340 | -0.000  | 0.000   |
| 137. | 4461.081 | -1.950  | 0.000  | 631.867  | 54.460  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 138. | 4457.773 | -2.920  | 0.000  | 654.802  | 67.080  | 0.000   | 2103.340 | -0.000  | 0.000   |
| 139. | 4453.142 | -3.890  | 0.000  | 685.585  | 70.800  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 140. | 4447.191 | -4.870  | 0.000  | 723.180  | 72.750  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 141. | 4439.923 | -5.840  | 0.000  | 766.542  | 73.750  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 142. | 4431.335 | -6.810  | 0.000  | 814.701  | 74.200  | 0.000   | 2103.340 | -0.000  | 0.000   |
| 143. | 4421.442 | -7.750  | 0.000  | 866.803  | 74.300  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 144. | 4410.237 | -8.760  | 0.000  | 922.121  | 74.160  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 145. | 4397.726 | -9.730  | 0.000  | 980.047  | 73.850  | 0.000   | 2103.340 | -0.000  | 0.000   |
| 146. | 4383.916 | -10.700 | 0.000  | 1040.080 | 73.410  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 147. | 4368.813 | -11.670 | 0.000  | 1101.805 | 72.890  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 148. | 4352.419 | -12.640 | 0.000  | 1164.863 | 72.290  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 149. | 4334.741 | -13.610 | 0.000  | 1229.031 | 71.630  | 0.000   | 2103.340 | 0.000   | 0.000   |

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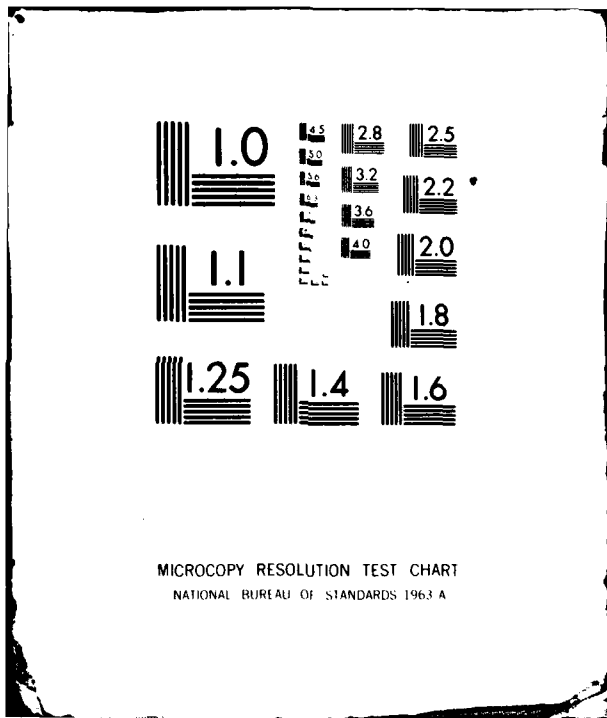
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS 1963 A



| Z-PLANE (XY-PLANE) TELLURIUM DIOXIDE |          |         |        |          |         |         |          |         |         |
|--------------------------------------|----------|---------|--------|----------|---------|---------|----------|---------|---------|
|                                      | LINGVEL  | LPHI12  | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
| 150.                                 | 4315.787 | -14.580 | 0.000  | 1294.017 | 70.930  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 151.                                 | 4295.564 | -15.550 | 0.000  | 1359.643 | 70.190  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 152.                                 | 4274.880 | -16.510 | 0.000  | 1425.744 | 69.420  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 153.                                 | 4251.342 | -17.460 | 0.000  | 1492.177 | 68.630  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 154.                                 | 4227.360 | -18.440 | 0.000  | 1558.822 | 67.810  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 155.                                 | 4202.145 | -19.400 | 0.000  | 1625.571 | 66.980  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 156.                                 | 4175.706 | -20.360 | 0.000  | 1692.330 | 66.130  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 157.                                 | 4148.055 | -21.320 | 0.000  | 1759.018 | 65.260  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 158.                                 | 4119.204 | -22.270 | 0.000  | 1825.557 | 64.380  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 159.                                 | 4089.167 | -23.220 | 0.000  | 1891.882 | 63.490  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 160.                                 | 4057.958 | -24.170 | 0.000  | 1957.926 | 62.590  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 161.                                 | 4025.593 | -25.120 | 0.000  | 2023.637 | 61.674  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 162.                                 | 3992.089 | -26.060 | 0.000  | 2088.954 | 60.750  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 163.                                 | 3957.466 | -26.990 | 0.000  | 2153.825 | 59.820  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 164.                                 | 3921.746 | -27.910 | 0.000  | 2218.199 | 58.870  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 165.                                 | 3884.955 | -28.830 | 0.000  | 2282.023 | 57.920  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 166.                                 | 3847.119 | -29.730 | 0.000  | 2345.245 | 56.950  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 167.                                 | 3808.275 | -30.620 | 0.000  | 2407.888 | 55.960  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 168.                                 | 3768.464 | -31.460 | 0.000  | 2469.952 | 54.960  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 169.                                 | 3727.736 | -32.320 | 0.000  | 2530.788 | 53.930  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 170.                                 | 3686.160 | -33.120 | 0.000  | 2590.693 | 52.870  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 171.                                 | 3643.621 | -33.870 | 0.000  | 2650.107 | 51.760  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 172.                                 | 3600.843 | -34.530 | 0.000  | 2708.216 | 50.580  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 173.                                 | 3557.401 | -35.070 | 0.000  | 2765.032 | 49.290  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 174.                                 | 3513.763 | -35.420 | 0.000  | 2820.278 | 47.830  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 175.                                 | 3470.361 | -35.420 | 0.000  | 2873.516 | 46.050  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 176.                                 | 3427.931 | -34.790 | 0.000  | 2924.803 | 43.660  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 177.                                 | 3387.809 | -32.910 | 0.000  | 2970.396 | 40.090  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 178.                                 | 3352.525 | -28.320 | 0.000  | 3010.162 | 33.770  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 179.                                 | 3326.786 | -18.050 | 0.000  | 3038.670 | 21.340  | 0.000   | 2103.340 | 0.000   | 0.000   |
| 180.                                 | 3316.676 | 0.000   | 0.000  | 3049.399 | -0.000  | 0.000   | 2103.340 | 0.000   | 0.000   |

BULK

110-PLANE TELLURIUM DIOXIDE

|     | LNGVEL   | LMI12   | LMI13  | FSRJEL   | FSPMI12 | FSPMI13 | SSRJEL   | SSPMI12 | SSPMI13 |
|-----|----------|---------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 4874.211 | -12.348 | -0.000 | 2641.855 | 20.219  | -0.000  | 1316.599 | 47.439  | -0.000  |
| 1.  | 4868.974 | -12.920 | -0.010 | 2658.337 | 19.000  | -0.000  | 1741.874 | 47.874  | -0.000  |
| 2.  | 4846.058 | -11.620 | -0.000 | 2673.762 | 17.660  | -0.000  | 1764.951 | 46.360  | -0.000  |
| 3.  | 4831.864 | -11.149 | 0.000  | 2688.018 | 16.220  | -0.000  | 1791.801 | 45.529  | -0.000  |
| 4.  | 4818.198 | -10.569 | -0.010 | 2700.933 | 14.620  | -0.000  | 1416.417 | 44.720  | -0.000  |
| 5.  | 4805.737 | -9.910  | -0.000 | 2712.575 | 12.910  | -0.000  | 1448.765 | 43.920  | -0.000  |
| 6.  | 4794.404 | -9.149  | -0.010 | 2722.660 | 11.070  | -0.000  | 1464.844 | 43.120  | -0.000  |
| 7.  | 4783.286 | -8.330  | 0.000  | 2731.145 | 9.120   | -0.000  | 1488.634 | 42.388  | -0.000  |
| 8.  | 4773.668 | -7.430  | -0.000 | 2737.941 | 7.070   | -0.000  | 1512.124 | 41.688  | -0.000  |
| 9.  | 4765.231 | -6.450  | 0.000  | 2742.966 | 4.920   | -0.000  | 1535.289 | 40.950  | -0.000  |
| 10. | 4758.039 | -5.420  | 0.000  | 2746.155 | 2.690   | 0.000   | 1558.125 | 39.810  | -0.000  |
| 11. | 4752.145 | -4.341  | -0.010 | 2747.454 | .420    | -0.000  | 1580.614 | 38.970  | -0.000  |
| 12. | 4747.504 | -3.239  | -0.010 | 2746.947 | -1.490  | -0.000  | 1602.754 | 38.130  | -0.000  |
| 13. | 4744.375 | -2.119  | -0.010 | 2744.300 | -4.190  | -0.000  | 1624.522 | 37.270  | -0.000  |
| 14. | 4742.516 | -9.999  | -0.010 | 2739.437 | -6.464  | 0.000   | 1645.911 | 36.420  | -0.000  |
| 15. | 4741.988 | .110    | -0.000 | 2733.483 | -8.680  | 0.000   | 1666.908 | 35.560  | -0.000  |
| 16. | 4742.755 | 1.164   | 0.000  | 2725.299 | -10.820 | -0.000  | 1687.588 | 34.700  | -0.000  |
| 17. | 4744.754 | 2.174   | 0.000  | 2715.321 | -12.870 | 0.000   | 1707.601 | 33.839  | -0.000  |
| 18. | 4747.948 | 3.119   | -0.010 | 2703.654 | -14.900 | 0.000   | 1727.457 | 32.950  | 0.000   |
| 19. | 4752.229 | 4.004   | -0.000 | 2690.415 | -16.910 | 0.000   | 1746.793 | 32.090  | 0.000   |
| 20. | 4757.521 | 4.774   | -0.000 | 2675.682 | -18.790 | 0.000   | 1765.491 | 31.220  | -0.000  |
| 21. | 4763.729 | 5.480   | -0.010 | 2659.581 | -19.460 | 0.000   | 1784.147 | 30.349  | -0.000  |
| 22. | 4770.757 | 6.100   | -0.010 | 2642.236 | -21.240 | 0.000   | 1802.137 | 29.460  | 0.000   |
| 23. | 4778.507 | 6.540   | -0.010 | 2623.772 | -22.510 | 0.000   | 1819.670 | 28.540  | 0.000   |
| 24. | 4786.981 | 6.909   | -0.010 | 2604.317 | -23.654 | 0.000   | 1836.729 | 27.590  | 0.000   |
| 25. | 4795.782 | 7.169   | -0.000 | 2584.081 | -24.650 | 0.000   | 1853.115 | 26.610  | -0.000  |
| 26. | 4805.119 | 7.364   | -0.010 | 2562.950 | -25.540 | 0.000   | 1868.415 | 25.620  | 0.000   |
| 27. | 4814.900 | 7.494   | -0.010 | 2541.290 | -26.300 | 0.000   | 1882.024 | 24.640  | 0.000   |
| 28. | 4824.743 | 7.510   | -0.010 | 2519.145 | -26.940 | -0.000  | 1900.134 | 24.140  | 0.000   |
| 29. | 4834.867 | 7.420   | -0.010 | 2496.634 | -27.470 | 0.000   | 1914.741 | 23.740  | 0.000   |
| 30. | 4845.098 | 7.274   | -0.010 | 2473.877 | -27.890 | 0.000   | 1928.474 | 22.350  | -0.000  |
| 31. | 4855.366 | 7.080   | -0.010 | 2450.987 | -28.190 | 0.000   | 1942.410 | 21.650  | 0.000   |
| 32. | 4865.607 | 6.840   | -0.010 | 2428.075 | -28.370 | 0.000   | 1955.479 | 20.560  | 0.000   |
| 33. | 4875.761 | 6.570   | -0.010 | 2405.249 | -28.450 | 0.000   | 1968.014 | 19.550  | 0.000   |
| 34. | 4885.772 | 6.280   | -0.010 | 2382.615 | -28.420 | 0.000   | 1980.014 | 18.740  | 0.000   |
| 35. | 4895.591 | 5.990   | -0.010 | 2360.275 | -28.280 | -0.000  | 1991.496 | 17.950  | 0.000   |
| 36. | 4905.171 | 5.710   | -0.010 | 2338.327 | -28.020 | 0.000   | 2002.415 | 16.960  | 0.000   |
| 37. | 4914.469 | 5.440   | -0.010 | 2316.869 | -27.650 | 0.000   | 2012.800 | 16.060  | 0.000   |
| 38. | 4923.446 | 5.190   | -0.010 | 2295.994 | -27.150 | 0.000   | 2022.637 | 15.150  | 0.000   |
| 39. | 4932.066 | 4.950   | -0.010 | 2275.701 | -26.540 | 0.000   | 2031.927 | 14.250  | 0.000   |
| 40. | 4940.297 | 4.730   | -0.010 | 2256.039 | -25.800 | 0.000   | 2040.658 | 13.350  | 0.000   |
| 41. | 4948.111 | 4.530   | -0.010 | 2237.071 | -24.920 | 0.000   | 2048.825 | 12.450  | 0.000   |
| 42. | 4955.479 | 4.340   | -0.010 | 2220.079 | -23.920 | 0.000   | 2056.436 | 11.540  | 0.000   |
| 43. | 4962.377 | 4.160   | -0.010 | 2203.410 | -22.770 | 0.000   | 2063.483 | 10.640  | 0.000   |
| 44. | 4968.785 | 4.000   | -0.010 | 2187.016 | -21.490 | 0.000   | 2069.963 | 9.730   | 0.000   |
| 45. | 4974.687 | 3.840   | -0.010 | 2171.034 | -20.060 | 0.000   | 2075.874 | 8.810   | 0.000   |
| 46. | 4980.052 | 3.680   | -0.000 | 2160.138 | -18.500 | 0.000   | 2081.215 | 7.920   | 0.000   |
| 47. | 4984.874 | 3.560   | -0.000 | 2148.151 | -16.790 | 0.000   | 2085.981 | 7.010   | 0.000   |
| 48. | 4989.148 | 3.420   | -0.000 | 2137.516 | -14.960 | 0.000   | 2090.173 | 6.110   | 0.000   |
| 49. | 4992.849 | 2.670   | -0.000 | 2128.244 | -12.990 | 0.000   | 2093.789 | 5.200   | 0.000   |

119-PLANE TELLURIUM DIOXIDE

|     | LNGVEL   | LPMI12 | LPMI13 | FSPVEL   | FSPMI12 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|----------|---------|---------|
| 50. | 4195.973 | 2.210  | -0.000 | 2120.368 | -10.919 | 2096.827 | 4.380   | 0.000   |
| 51. | 4198.510 | 1.750  | -0.070 | 2113.984 | -8.730  | 2099.265 | 3.398   | 0.000   |
| 52. | 4200.654 | 1.290  | -0.110 | 2109.063 | -6.460  | 2101.165 | 2.440   | 0.000   |
| 53. | 4201.881 | 0.820  | -0.080 | 2105.668 | -4.130  | 2102.865 | 1.598   | 0.000   |
| 54. | 4202.587 | 0.359  | -0.000 | 2103.746 | -1.760  | 2103.183 | 0.678   | 0.000   |
| 55. | 4202.589 | -0.120 | -0.000 | 2103.394 | 0.630   | 2103.820 | -0.248  | -0.000  |
| 56. | 4202.229 | -0.600 | -0.000 | 2104.565 | 3.029   | 2102.874 | -1.169  | -0.000  |
| 57. | 4201.165 | -1.079 | -0.010 | 2107.253 | 5.370   | 2101.951 | -2.079  | 0.000   |
| 58. | 4199.502 | -1.570 | -0.000 | 2111.475 | 7.670   | 2100.245 | -2.960  | 0.000   |
| 59. | 4197.244 | -2.080 | -0.000 | 2117.182 | 9.909   | 2098.660 | -3.870  | 0.000   |
| 60. | 4194.396 | -2.600 | -0.010 | 2124.457 | 12.029  | 2095.295 | -4.770  | 0.000   |
| 61. | 4191.866 | -3.119 | -0.030 | 2132.965 | 14.040  | 2091.957 | -5.688  | 0.000   |
| 62. | 4186.964 | -3.160 | -0.090 | 2142.968 | 15.940  | 2088.837 | -6.590  | 0.000   |
| 63. | 4182.398 | -3.100 | -0.000 | 2154.319 | 17.710  | 2083.534 | -7.499  | 0.000   |
| 64. | 4177.264 | -4.220 | -0.030 | 2166.965 | 19.349  | 2078.465 | -8.400  | 0.000   |
| 65. | 4171.633 | -4.649 | -0.000 | 2180.850 | 20.830  | 2072.824 | -9.309  | 0.000   |
| 66. | 4165.464 | -5.059 | -0.030 | 2195.911 | 22.180  | 2066.512 | -10.219 | 0.000   |
| 67. | 4159.785 | -5.449 | -0.030 | 2212.082 | 23.399  | 2059.933 | -11.115 | 0.000   |
| 68. | 4151.645 | -5.820 | -0.000 | 2229.290 | 24.460  | 2052.464 | -12.020 | 0.000   |
| 69. | 4144.039 | -5.189 | -0.000 | 2247.461 | 25.400  | 2044.589 | -12.929 | 0.000   |
| 70. | 4136.002 | -5.520 | -0.000 | 2266.514 | 26.200  | 2036.112 | -13.839 | 0.000   |
| 71. | 4127.561 | -5.730 | -0.000 | 2286.369 | 26.880  | 2027.089 | -14.730 | 0.000   |
| 72. | 4119.748 | -7.130 | -0.010 | 2306.938 | 27.430  | 2017.511 | -15.630 | 0.000   |
| 73. | 4109.597 | -7.300 | -0.000 | 2328.132 | 27.860  | 2007.385 | -16.519 | 0.000   |
| 74. | 4100.145 | -7.639 | -0.000 | 2349.861 | 28.170  | 1996.712 | -17.430 | 0.000   |
| 75. | 4090.334 | -7.940 | -0.010 | 2372.929 | 28.370  | 1985.494 | -18.330 | 0.000   |
| 76. | 4080.507 | -8.010 | -0.010 | 2396.436 | 28.450  | 1973.744 | -19.230 | 0.000   |
| 77. | 4070.414 | -8.140 | -0.000 | 2417.284 | 28.420  | 1961.461 | -20.130 | 0.000   |
| 78. | 4060.207 | -8.239 | -0.000 | 2436.168 | 28.290  | 1948.642 | -21.030 | 0.000   |
| 79. | 4049.944 | -8.270 | -0.000 | 2453.082 | 28.040  | 1935.312 | -21.939 | 0.000   |
| 80. | 4039.617 | -8.260 | -0.000 | 2468.917 | 27.680  | 1921.454 | -22.820 | 0.000   |
| 81. | 4029.503 | -8.190 | -0.000 | 2485.917 | 27.210  | 1907.097 | -23.710 | 0.000   |
| 82. | 4019.665 | -8.060 | -0.000 | 2508.458 | 26.620  | 1892.219 | -24.610 | 0.000   |
| 83. | 4009.050 | -8.000 | -0.000 | 2530.890 | 25.920  | 1876.865 | -25.500 | 0.000   |
| 84. | 4000.140 | -7.870 | -0.000 | 2552.794 | 25.090  | 1860.975 | -26.390 | 0.000   |
| 85. | 3991.022 | -7.510 | -0.010 | 2574.148 | 24.149  | 1844.629 | -27.270 | 0.000   |
| 86. | 3982.368 | -7.270 | -0.000 | 2594.827 | 23.079  | 1827.787 | -28.169 | 0.000   |
| 87. | 3974.331 | -6.860 | -0.030 | 2614.785 | 21.669  | 1810.471 | -29.040 | 0.000   |
| 88. | 3966.950 | -6.360 | -0.000 | 2633.652 | 20.520  | 1792.691 | -29.929 | 0.000   |
| 89. | 3960.342 | -5.129 | -0.000 | 2651.542 | 19.060  | 1774.355 | -30.809 | 0.000   |
| 90. | 3954.607 | -4.360 | -0.000 | 2668.245 | 17.420  | 1755.564 | -31.689 | 0.000   |
| 91. | 3949.837 | -3.230 | -0.000 | 2683.695 | 15.670  | 1736.634 | -32.559 | 0.000   |
| 92. | 3946.125 | -2.620 | -0.000 | 2697.693 | 13.800  | 1717.073 | -33.420 | 0.000   |
| 93. | 3943.553 | -1.650 | -0.010 | 2710.024 | 11.800  | 1697.084 | -34.299 | 0.000   |
| 94. | 3942.192 | -0.510 | -0.000 | 2720.800 | 9.700   | 1676.580 | -35.150 | 0.000   |
| 95. | 3942.103 | 0.770  | -0.000 | 2729.881 | 7.520   | 1655.879 | -36.020 | 0.000   |
| 96. | 3943.330 | 1.590  | -0.000 | 2737.071 | 5.270   | 1634.665 | -36.879 | 0.000   |
| 97. | 3945.901 | 2.709  | -0.000 | 2742.431 | 2.979   | 1613.075 | -37.729 | 0.000   |
| 98. | 3949.025 | 3.020  | -0.000 | 2747.408 | 0.679   | 1591.111 | -38.579 | 0.000   |
| 99. | 3955.093 | 4.910  | -0.030 | 2747.004 | -1.620  | 1568.784 | -39.420 | 0.000   |

110-PLANE TELLURIUM DIOXIDE

|      | LMSVEL   | LPMI12 | LPMI13 | FSMVEL   | FSMI12  | FSMI13 | SSRWEL   | SSPMI2  | SSPMI3 |
|------|----------|--------|--------|----------|---------|--------|----------|---------|--------|
| 101. | 3961.677 | 5.979  | -0.010 | 2744.704 | -3.879  | 0.000  | 1546.119 | -40.259 | 0.000  |
| 101. | 3969.534 | 6.979  | -0.008 | 2740.574 | -6.050  | 7.000  | 1523.095 | -41.090 | 0.000  |
| 102. | 3978.504 | 7.910  | -0.030 | 2734.569 | -8.160  | 0.000  | 1499.764 | -41.810 | 0.000  |
| 103. | 3988.813 | 8.789  | -0.030 | 2726.474 | -10.170 | 0.000  | 1476.119 | -42.749 | 0.000  |
| 104. | 4000.079 | 9.660  | -0.000 | 2717.528 | -12.060 | 0.000  | 1452.165 | -43.560 | 0.000  |
| 105. | 4012.309 | 10.269 | 0.090  | 2706.640 | -13.830 | -0.000 | 1427.949 | -44.350 | 0.000  |
| 106. | 4025.400 | 10.801 | -0.010 | 2694.309 | -15.679 | -0.000 | 1403.449 | -45.140 | 0.000  |
| 107. | 4039.275 | 11.400 | 0.000  | 2680.543 | -16.999 | -0.000 | 1379.703 | -45.930 | 0.000  |
| 108. | 4053.810 | 11.847 | 0.000  | 2665.756 | -18.590 | -0.000 | 1353.734 | -46.710 | 0.000  |
| 109. | 4069.913 | 12.200 | -0.000 | 2649.759 | -19.850 | 0.000  | 1328.854 | -47.489 | 0.000  |
| 110. | 4086.486 | 12.600 | -0.000 | 2632.765 | -20.809 | -0.000 | 1298.177 | -48.230 | 0.000  |
| 111. | 4104.436 | 12.600 | -0.019 | 2614.847 | -21.839 | -0.000 | 1277.524 | -48.979 | 0.000  |
| 112. | 4115.671 | 12.827 | 0.000  | 2594.232 | -22.769 | 0.000  | 1251.927 | -49.780 | 0.000  |
| 113. | 4133.107 | 12.991 | -0.010 | 2576.904 | -23.574 | 0.000  | 1226.093 | -50.629 | 0.000  |
| 114. | 4149.552 | 12.900 | -0.030 | 2557.019 | -24.299 | 0.000  | 1200.164 | -51.129 | 0.000  |
| 115. | 4166.260 | 12.860 | -0.000 | 2536.666 | -24.900 | 0.000  | 1174.180 | -51.809 | 0.000  |
| 116. | 4182.828 | 12.760 | -0.000 | 2515.985 | -25.420 | -0.000 | 1148.103 | -52.489 | 0.000  |
| 117. | 4199.305 | 12.620 | -0.000 | 2494.932 | -25.959 | 0.000  | 1122.027 | -53.090 | 0.000  |
| 118. | 4215.626 | 12.430 | -0.019 | 2473.779 | -26.199 | -0.000 | 1095.944 | -53.710 | 0.000  |
| 119. | 4231.773 | 12.219 | -0.000 | 2452.514 | -26.449 | -0.000 | 1069.969 | -54.290 | 0.000  |
| 120. | 4247.575 | 11.950 | 0.010  | 2431.244 | -26.600 | 0.000  | 1044.914 | -54.859 | 0.000  |
| 121. | 4263.103 | 11.660 | -0.000 | 2410.052 | -26.679 | -0.000 | 1019.212 | -55.370 | 0.000  |
| 122. | 4278.271 | 11.300 | 0.010  | 2389.021 | -26.559 | 0.000  | 992.373  | -55.859 | 0.000  |
| 123. | 4293.073 | 10.900 | -0.000 | 2368.224 | -26.349 | -0.000 | 967.144  | -56.299 | 0.000  |
| 124. | 4307.365 | 10.520 | -0.010 | 2347.753 | -26.159 | 0.000  | 941.985  | -56.690 | 0.000  |
| 125. | 4321.217 | 10.220 | -0.010 | 2327.670 | -25.060 | 0.000  | 917.163  | -57.029 | 0.000  |
| 126. | 4334.561 | 9.810  | -0.000 | 2308.052 | -25.670 | 0.000  | 892.677  | -57.290 | 0.000  |
| 127. | 4347.364 | 9.369  | -0.000 | 2289.974 | -25.190 | 0.000  | 869.657  | -57.680 | 0.000  |
| 128. | 4359.609 | 8.930  | -0.000 | 2270.495 | -24.610 | 0.000  | 845.135  | -57.990 | 0.000  |
| 129. | 4371.260 | 8.460  | -0.000 | 2252.692 | -23.739 | 0.000  | 822.204  | -57.609 | 0.000  |
| 130. | 4382.247 | 7.900  | -0.000 | 2235.627 | -23.140 | 0.000  | 799.935  | -57.690 | 0.000  |
| 131. | 4392.699 | 7.490  | -0.000 | 2219.153 | -22.250 | -0.001 | 778.414  | -57.249 | 0.000  |
| 132. | 4402.447 | 5.990  | -0.010 | 2203.459 | -21.280 | 0.000  | 757.741  | -56.829 | 0.000  |
| 133. | 4411.523 | 5.470  | 0.000  | 2189.473 | -20.130 | 0.000  | 738.004  | -56.199 | 0.000  |
| 134. | 4419.911 | 5.950  | -0.000 | 2175.960 | -18.919 | 0.000  | 719.319  | -55.310 | 0.000  |
| 135. | 4427.598 | 5.420  | -0.000 | 2163.670 | -17.580 | -0.000 | 701.765  | -54.120 | 0.000  |
| 136. | 4434.569 | 4.890  | -0.000 | 2152.052 | -16.140 | -0.000 | 685.487  | -52.469 | 0.000  |
| 137. | 4440.914 | 4.360  | -0.000 | 2141.750 | -14.590 | 0.000  | 670.574  | -50.879 | 0.000  |
| 138. | 4446.324 | 3.790  | -0.000 | 2132.644 | -12.950 | 0.000  | 655.324  | -47.780 | 0.000  |
| 139. | 4451.080 | 3.230  | -0.010 | 2124.649 | -11.210 | 0.000  | 640.529  | -44.700 | 0.000  |
| 140. | 4455.100 | 2.590  | 0.010  | 2117.919 | -9.390  | -0.000 | 625.205  | -39.010 | 0.000  |
| 141. | 4458.353 | 2.110  | -0.010 | 2112.430 | -7.990  | -0.000 | 610.480  | -36.070 | 0.000  |
| 142. | 4460.844 | 1.560  | 0.000  | 2108.230 | -5.730  | -0.000 | 600.834  | -26.950 | 0.000  |
| 143. | 4462.567 | .980   | -0.000 | 2105.312 | -3.570  | -0.000 | 615.936  | -17.910 | 0.000  |
| 144. | 4463.529 | .420   | -0.010 | 2103.695 | -1.509  | -0.000 | 612.033  | -7.979  | -0.000 |
| 145. | 4463.702 | -.150  | 0.000  | 2103.386 | .540    | 0.000  | 612.054  | 2.040   | -0.000 |
| 146. | 4463.113 | -.720  | 0.000  | 2104.766 | 2.080   | 0.000  | 614.504  | 13.309  | 0.000  |
| 147. | 4461.793 | -1.280 | 0.000  | 2106.691 | 4.600   | 0.000  | 618.065  | 22.980  | 0.000  |
| 148. | 4459.624 | -1.850 | 0.000  | 2108.292 | 6.870   | 0.000  | 623.589  | 30.659  | 0.000  |
| 149. | 4456.738 | -2.410 | 0.000  | 2115.174 | 8.480   | 0.000  | 631.044  | 37.270  | 0.000  |

110-PLANE TELLURIUM DIOXIDE

|      | LMVEL    | LPHI12  | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|---------|--------|----------|--------|--------|----------|--------|--------|
| 150. | 4453.076 | -2.970  | 0.000  | 2121.314 | 10.167 | 0.000  | 640.332  | 42.379 | 0.000  |
| 151. | 4448.666 | -7.530  | 0.000  | 2128.699 | 12.140 | 0.000  | 551.365  | 46.253 | 0.000  |
| 152. | 4443.507 | -4.000  | 0.000  | 2137.237 | 13.830 | 0.000  | 664.047  | 49.290 | 0.000  |
| 153. | 4437.608 | -4.630  | -0.000 | 2147.048 | 15.629 | 0.000  | 678.264  | 51.630 | 0.000  |
| 154. | 4430.979 | -5.179  | 0.000  | 2157.945 | 16.914 | 0.000  | 593.914  | 53.438 | 0.000  |
| 155. | 4423.627 | -5.700  | 0.000  | 2169.014 | 18.293 | 0.000  | 716.879  | 54.799 | 0.000  |
| 156. | 4415.569 | -6.230  | 0.000  | 2182.071 | 19.579 | 0.000  | 729.044  | 55.810 | 0.000  |
| 157. | 4406.915 | -6.760  | 0.000  | 2197.004 | 20.730 | 0.000  | 746.307  | 56.950 | 0.000  |
| 158. | 4397.782 | -7.250  | 0.000  | 2214.041 | 21.790 | 0.000  | 768.548  | 57.060 | 0.000  |
| 159. | 4387.287 | -7.750  | 0.000  | 2237.847 | 22.730 | 0.000  | 784.680  | 57.390 | 0.000  |
| 160. | 4376.567 | -8.243  | 0.000  | 2264.541 | 23.570 | 0.000  | 411.604  | 57.670 | 0.000  |
| 161. | 4365.193 | -8.719  | 0.000  | 2292.096 | 24.309 | 0.000  | 834.235  | 57.610 | 0.000  |
| 162. | 4353.219 | -9.179  | 0.000  | 2320.170 | 24.939 | 0.000  | 857.494  | 57.550 | 0.000  |
| 163. | 4340.675 | -9.610  | 0.000  | 2348.974 | 25.460 | 0.000  | 881.274  | 57.390 | 0.000  |
| 164. | 4327.508 | -10.030 | 0.000  | 2388.348 | 25.990 | 0.000  | 905.544  | 57.150 | 0.000  |
| 165. | 4313.684 | -10.447 | 0.000  | 2388.221 | 26.220 | 0.000  | 930.217  | 56.850 | 0.000  |
| 166. | 4299.057 | -10.820 | -0.000 | 2358.529 | 26.467 | 0.000  | 955.234  | 56.440 | 0.000  |
| 167. | 4284.297 | -11.180 | 0.000  | 2374.172 | 26.619 | 0.000  | 980.543  | 56.050 | 0.000  |
| 168. | 4270.310 | -11.519 | -0.000 | 2400.101 | 26.570 | 0.000  | 1005.007 | 55.600 | 0.000  |
| 169. | 4256.066 | -11.829 | 0.000  | 2421.227 | 26.549 | 0.000  | 1031.429 | 55.100 | 0.000  |
| 170. | 4239.207 | -12.090 | 0.000  | 2442.679 | 26.520 | 0.000  | 1057.697 | 54.550 | 0.000  |
| 171. | 4223.295 | -12.330 | 0.000  | 2463.748 | 26.329 | 0.000  | 1083.677 | 53.990 | 0.000  |
| 172. | 4207.932 | -12.549 | 0.000  | 2484.974 | 26.029 | 0.000  | 1109.177 | 53.300 | 0.000  |
| 173. | 4190.622 | -12.700 | -0.000 | 2506.065 | 25.549 | 0.000  | 1135.794 | 52.750 | 0.000  |
| 174. | 4174.008 | -12.829 | -0.000 | 2526.926 | 25.160 | 0.000  | 1161.065 | 52.110 | 0.000  |
| 175. | 4157.495 | -12.930 | 0.000  | 2547.464 | 24.599 | 0.000  | 1187.907 | 51.449 | 0.000  |
| 176. | 4140.911 | -12.900 | 0.000  | 2567.505 | 24.920 | 0.000  | 1213.871 | 50.750 | 0.000  |
| 177. | 4124.409 | -12.860 | 0.000  | 2587.108 | 24.150 | 0.000  | 1239.751 | 50.060 | 0.000  |
| 178. | 4108.050 | -12.760 | 0.000  | 2606.172 | 22.240 | 0.000  | 1265.514 | 49.329 | 0.000  |
| 179. | 4091.973 | -12.590 | 0.000  | 2624.430 | 21.380 | 0.000  | 1291.144 | 48.599 | 0.000  |
| 180. | 4075.211 | -12.349 | 0.000  | 2641.855 | 20.219 | 0.000  | 1316.599 | 47.830 | 0.000  |

Z-PLANE (XY-PLANE) YAG

|     | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 4567.765 | 0.000  | 0.000  | 5027.397 | 0.000   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 1.  | 4567.820 | 0.040  | 0.000  | 5027.303 | -0.120  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 2.  | 4567.987 | 0.060  | 0.000  | 5027.019 | -0.250  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 3.  | 4568.263 | 0.130  | 0.000  | 5026.546 | -0.370  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 4.  | 4568.640 | 0.170  | 0.000  | 5025.892 | -0.490  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 5.  | 4569.139 | 0.210  | 0.000  | 5025.054 | -0.610  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 6.  | 4569.735 | 0.250  | 0.000  | 5024.039 | -0.720  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 7.  | 4570.431 | 0.290  | 0.000  | 5022.851 | -0.830  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 8.  | 4571.225 | 0.320  | 0.000  | 5021.496 | -0.940  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 9.  | 4572.112 | 0.360  | 0.000  | 5019.981 | -1.040  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 10. | 4573.086 | 0.350  | 0.000  | 5018.314 | -1.140  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 11. | 4574.146 | 0.420  | 0.000  | 5016.503 | -1.230  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 12. | 4575.287 | 0.450  | 0.000  | 5014.557 | -1.320  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 13. | 4576.496 | 0.460  | 0.000  | 5012.485 | -1.400  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 14. | 4577.775 | 0.500  | 0.000  | 5010.296 | -1.470  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 15. | 4579.113 | 0.520  | 0.000  | 5008.007 | -1.530  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 16. | 4580.505 | 0.540  | 0.000  | 5005.622 | -1.590  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 17. | 4581.943 | 0.560  | 0.000  | 5003.156 | -1.640  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 18. | 4583.420 | 0.570  | 0.000  | 5000.621 | -1.680  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 19. | 4584.930 | 0.500  | 0.000  | 4998.029 | -1.720  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 20. | 4586.464 | 0.500  | 0.000  | 4995.393 | -1.740  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 21. | 4588.015 | 0.600  | 0.000  | 4992.726 | -1.760  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 22. | 4589.576 | 0.600  | 0.000  | 4990.041 | -1.770  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 23. | 4591.130 | 0.600  | 0.000  | 4987.351 | -1.770  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 24. | 4592.695 | 0.500  | 0.000  | 4984.660 | -1.760  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 25. | 4594.230 | 0.500  | 0.000  | 4982.007 | -1.740  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 26. | 4595.760 | 0.500  | 0.000  | 4979.380 | -1.720  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 27. | 4597.254 | 0.560  | 0.000  | 4976.800 | -1.680  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 28. | 4598.713 | 0.550  | 0.000  | 4974.276 | -1.640  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 29. | 4500.130 | 0.530  | 0.000  | 4971.829 | -1.590  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 30. | 4601.490 | 0.510  | 0.000  | 4969.462 | -1.530  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 31. | 4602.810 | 0.490  | 0.000  | 4967.190 | -1.470  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 32. | 4604.061 | 0.460  | 0.000  | 4965.023 | -1.390  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 33. | 4605.244 | 0.440  | 0.000  | 4962.973 | -1.320  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 34. | 4606.354 | 0.410  | 0.000  | 4961.048 | -1.230  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 35. | 4607.385 | 0.380  | 0.000  | 4959.250 | -1.140  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 36. | 4608.333 | 0.350  | 0.000  | 4957.612 | -1.040  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 37. | 4609.194 | 0.310  | 0.000  | 4956.117 | -0.940  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 38. | 4609.963 | 0.260  | 0.000  | 4954.761 | -0.830  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 39. | 4610.637 | 0.240  | 0.000  | 4953.610 | -0.720  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 40. | 4611.212 | 0.200  | 0.000  | 4952.610 | -0.610  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 41. | 4611.687 | 0.160  | 0.000  | 4951.784 | -0.490  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 42. | 4612.054 | 0.120  | 0.000  | 4951.136 | -0.370  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 43. | 4612.325 | 0.080  | 0.000  | 4950.675 | -0.250  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 44. | 4612.485 | 0.040  | 0.000  | 4950.396 | -0.120  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 45. | 4612.539 | 0.000  | 0.000  | 4950.302 | 0.000   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 46. | 4612.485 | -0.040 | 0.000  | 4950.396 | 0.120   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 47. | 4612.325 | -0.080 | 0.000  | 4950.675 | 0.250   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 48. | 4612.054 | -0.120 | 0.000  | 4951.136 | 0.370   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 49. | 4611.687 | -0.160 | 0.000  | 4951.784 | 0.490   | 0.000   | 5027.397 | 0.000   | 0.000   |

Z-PLANE (XY-PLANE) YAG

|     | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | -1.280 | 0.000  | 4952.610 | .610    | 0.000   | 5027.397 | -0.000  | 0.000   |
| 51. | -1.240 | 0.000  | 4953.610 | .720    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 52. | -1.260 | 0.000  | 4954.761 | .830    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 53. | -1.310 | 0.000  | 4956.117 | .940    | 0.000   | 5027.397 | -0.000  | 0.000   |
| 54. | -1.358 | 0.000  | 4957.612 | 1.040   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 55. | -1.388 | 0.000  | 4959.258 | 1.140   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 56. | -1.410 | 0.000  | 4961.046 | 1.230   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 57. | -1.440 | 0.000  | 4962.973 | 1.320   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 58. | -1.460 | 0.000  | 4965.023 | 1.390   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 59. | -1.490 | 0.000  | 4967.190 | 1.470   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 60. | -1.510 | 0.000  | 4969.462 | 1.530   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 61. | -1.530 | 0.000  | 4971.829 | 1.590   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 62. | -1.550 | 0.000  | 4974.278 | 1.640   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 63. | -1.560 | 0.000  | 4976.800 | 1.660   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 64. | -1.580 | 0.000  | 4979.380 | 1.720   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 65. | -1.590 | 0.000  | 4982.007 | 1.740   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 66. | -1.590 | 0.000  | 4984.666 | 1.760   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 67. | -1.600 | 0.000  | 4987.351 | 1.770   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 68. | -1.600 | 0.000  | 4990.041 | 1.770   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 69. | -1.600 | 0.000  | 4992.726 | 1.760   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 70. | -1.590 | 0.000  | 4995.393 | 1.740   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 71. | -1.580 | 0.000  | 4998.029 | 1.720   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 72. | -1.570 | 0.000  | 5000.621 | 1.660   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 73. | -1.560 | 0.000  | 5003.156 | 1.640   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 74. | -1.540 | 0.000  | 5005.622 | 1.590   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 75. | -1.520 | 0.000  | 5008.007 | 1.530   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 76. | -1.500 | 0.000  | 5010.296 | 1.470   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 77. | -1.480 | 0.000  | 5012.485 | 1.400   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 78. | -1.450 | 0.000  | 5014.557 | 1.320   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 79. | -1.428 | 0.000  | 5016.503 | 1.230   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 80. | -1.390 | 0.000  | 5018.314 | 1.140   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 81. | -1.360 | 0.000  | 5019.981 | 1.040   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 82. | -1.320 | 0.000  | 5021.496 | .940    | 0.000   | 5027.397 | -0.000  | 0.000   |
| 83. | -1.290 | 0.000  | 5022.851 | .830    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 84. | -1.250 | 0.000  | 5024.035 | .720    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 85. | -1.210 | 0.000  | 5025.054 | .610    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 86. | -1.170 | 0.000  | 5025.892 | .490    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 87. | -1.130 | 0.000  | 5026.546 | .370    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 88. | -1.080 | 0.000  | 5027.019 | .250    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 89. | -1.040 | 0.000  | 5027.397 | .120    | 0.000   | 5027.397 | -0.000  | 0.000   |
| 90. | 0.000  | 0.000  | 5027.397 | -0.000  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 91. | 0.040  | 0.000  | 5027.397 | -0.120  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 92. | 0.080  | 0.000  | 5027.819 | -0.250  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 93. | 0.130  | 0.000  | 5026.546 | -0.370  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 94. | 0.170  | 0.000  | 5025.692 | -0.490  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 95. | 0.210  | 0.000  | 5025.054 | -0.610  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 96. | 0.250  | 0.000  | 5024.035 | -0.720  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 97. | 0.290  | 0.000  | 5022.851 | -0.830  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 98. | 0.320  | 0.000  | 5021.496 | -0.940  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 99. | 0.360  | 0.000  | 5019.981 | -1.040  | 0.000   | 5027.397 | 0.000   | 0.000   |

Z-PLANE (XY-PLANE) YAG

|      | LNGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 188. | 8523.884 | .390   | 0.000  | 5018.314 | -1.140  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 189. | 8574.146 | .420   | 0.000  | 5016.503 | -1.230  | 0.000   | 5027.397 | -0.000  | 0.000   |
| 190. | 8575.287 | .450   | 0.000  | 5014.557 | -1.320  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 191. | 8576.498 | .480   | 0.000  | 5012.485 | -1.400  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 194. | 8577.775 | .500   | 0.000  | 5010.298 | -1.470  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 195. | 8579.113 | .520   | 0.000  | 5008.007 | -1.530  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 196. | 8580.505 | .540   | 0.000  | 5005.622 | -1.590  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 197. | 8581.943 | .560   | 0.000  | 5003.136 | -1.640  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 198. | 8583.420 | .570   | 0.000  | 5000.621 | -1.660  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 199. | 8584.930 | .580   | 0.000  | 4998.029 | -1.720  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 110. | 8586.464 | .590   | 0.000  | 4995.393 | -1.740  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 111. | 8588.015 | .600   | 0.000  | 4992.726 | -1.760  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 112. | 8589.576 | .610   | 0.000  | 4990.041 | -1.770  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 113. | 8591.136 | .620   | 0.000  | 4987.351 | -1.770  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 114. | 8592.695 | .630   | 0.000  | 4984.668 | -1.760  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 115. | 8594.238 | .640   | 0.000  | 4982.007 | -1.740  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 116. | 8595.760 | .650   | 0.000  | 4979.380 | -1.720  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 117. | 8597.254 | .660   | 0.000  | 4976.800 | -1.680  | 0.000   | 5027.397 | -0.000  | 0.000   |
| 118. | 8598.713 | .670   | 0.000  | 4974.276 | -1.640  | 0.000   | 5027.397 | -0.000  | 0.000   |
| 119. | 8600.130 | .680   | 0.000  | 4971.829 | -1.590  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 120. | 8601.496 | .690   | 0.000  | 4969.462 | -1.530  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 121. | 8602.810 | .700   | 0.000  | 4967.190 | -1.470  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 122. | 8604.061 | .710   | 0.000  | 4965.023 | -1.390  | 0.000   | 5027.397 | -0.000  | 0.000   |
| 123. | 8605.244 | .720   | 0.000  | 4962.973 | -1.320  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 124. | 8606.354 | .730   | 0.000  | 4961.046 | -1.230  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 125. | 8607.385 | .740   | 0.000  | 4959.256 | -1.140  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 126. | 8608.333 | .750   | 0.000  | 4957.612 | -1.040  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 127. | 8609.194 | .760   | 0.000  | 4956.117 | -0.940  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 128. | 8609.963 | .770   | 0.000  | 4954.781 | -0.830  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 129. | 8610.637 | .780   | 0.000  | 4953.610 | -0.720  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 130. | 8611.212 | .790   | 0.000  | 4952.610 | -0.610  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 131. | 8611.667 | .800   | 0.000  | 4951.784 | -0.500  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 132. | 8612.056 | .810   | 0.000  | 4951.136 | -0.370  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 133. | 8612.325 | .820   | 0.000  | 4950.675 | -0.250  | 0.000   | 5027.397 | -0.000  | 0.000   |
| 134. | 8612.485 | .830   | 0.000  | 4950.396 | -0.120  | 0.000   | 5027.397 | 0.000   | 0.000   |
| 135. | 8612.539 | .840   | 0.000  | 4950.302 | 0.000   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 136. | 8612.485 | .850   | 0.000  | 4950.396 | .120    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 137. | 8612.325 | .860   | 0.000  | 4950.675 | .250    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 138. | 8612.056 | .870   | 0.000  | 4951.136 | .370    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 139. | 8611.667 | .880   | 0.000  | 4951.784 | .490    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 140. | 8611.212 | .890   | 0.000  | 4952.610 | .610    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 141. | 8610.637 | .900   | 0.000  | 4953.610 | .720    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 142. | 8609.963 | .910   | 0.000  | 4954.781 | .830    | 0.000   | 5027.397 | -0.000  | 0.000   |
| 143. | 8609.194 | .920   | 0.000  | 4956.117 | .940    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 144. | 8608.333 | .930   | 0.000  | 4957.612 | 1.040   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 145. | 8607.385 | .940   | 0.000  | 4959.256 | 1.140   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 146. | 8606.354 | .950   | 0.000  | 4961.046 | 1.230   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 147. | 8605.244 | .960   | 0.000  | 4962.973 | 1.320   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 148. | 8604.061 | .970   | 0.000  | 4965.023 | 1.390   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 149. | 8602.810 | .980   | 0.000  | 4967.190 | 1.470   | 0.000   | 5027.397 | 0.000   | 0.000   |



Z-PLANE (XY-PLANE) YAG

|      | LANGVEL  | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 8601.496 | -510   | 0.000  | 4969.462 | 1.530   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 151. | 8600.130 | -530   | 0.000  | 4971.829 | 1.290   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 152. | 8598.713 | -550   | 0.000  | 4974.278 | 1.640   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 153. | 8597.254 | -560   | 0.000  | 4976.800 | 1.680   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 154. | 8595.760 | -580   | 0.000  | 4979.380 | 1.720   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 155. | 8594.238 | -590   | 0.000  | 4982.007 | 1.740   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 156. | 8592.695 | -590   | 0.000  | 4984.660 | 1.760   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 157. | 8591.138 | -600   | 0.000  | 4987.351 | 1.770   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 158. | 8589.576 | -600   | 0.000  | 4990.041 | 1.770   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 159. | 8588.015 | -600   | 0.000  | 4992.726 | 1.760   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 160. | 8586.464 | -590   | 0.000  | 4995.393 | 1.740   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 161. | 8584.930 | -580   | 0.000  | 4998.029 | 1.720   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 162. | 8583.420 | -570   | 0.000  | 5000.621 | 1.660   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 163. | 8581.943 | -560   | 0.000  | 5003.156 | 1.640   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 164. | 8580.505 | -540   | 0.000  | 5005.622 | 1.590   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 165. | 8579.113 | -520   | 0.000  | 5008.007 | 1.530   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 166. | 8577.775 | -500   | 0.000  | 5010.296 | 1.470   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 167. | 8576.498 | -460   | 0.000  | 5012.465 | 1.400   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 168. | 8575.287 | -450   | 0.000  | 5014.557 | 1.320   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 169. | 8574.146 | -420   | 0.000  | 5016.503 | 1.230   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 170. | 8573.088 | -390   | 0.000  | 5018.314 | 1.140   | 0.000   | 5027.397 | 0.000   | 0.000   |
| 171. | 8572.112 | -360   | 0.000  | 5019.961 | 1.040   | 0.000   | 5027.397 | -0.000  | 0.000   |
| 172. | 8571.225 | -320   | 0.000  | 5021.496 | .940    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 173. | 8570.431 | -290   | 0.000  | 5022.851 | .830    | 0.000   | 5027.397 | -0.000  | 0.000   |
| 174. | 8569.735 | -250   | 0.000  | 5024.039 | .720    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 175. | 8569.139 | -210   | 0.000  | 5025.054 | .610    | 0.000   | 5027.397 | -0.000  | 0.000   |
| 176. | 8568.646 | -170   | 0.000  | 5025.892 | .496    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 177. | 8568.263 | -130   | 0.000  | 5026.546 | .376    | 0.000   | 5027.397 | -0.000  | 0.000   |
| 178. | 8567.987 | -90    | 0.000  | 5027.019 | .250    | 0.000   | 5027.397 | 0.000   | 0.000   |
| 179. | 8567.720 | -040   | 0.000  | 5027.303 | .120    | 0.000   | 5027.397 | -0.000  | 0.000   |
| 180. | 8567.465 | 0.000  | 0.000  | 5027.397 | -0.000  | 0.000   | 5027.397 | 0.000   | 0.000   |

111-PLANE YAG

BULK

|     | LNQVEL | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|--------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 0.000  | 0.000  | 0.000  | 5027.397 | 0.000   | 0.000   | 4950.302 | 0.000   | 0.000   |
| 1.  | 0.000  | 0.000  | 0.000  | 5027.351 | -0.060  | -0.060  | 4950.349 | 0.060   | 0.060   |
| 2.  | 0.000  | 0.000  | 0.060  | 5027.210 | -0.120  | -0.120  | 4950.430 | 0.120   | 0.120   |
| 3.  | 0.000  | 0.000  | 0.090  | 5026.977 | -0.180  | -0.180  | 4950.723 | 0.180   | 0.180   |
| 4.  | 0.000  | 0.000  | 0.120  | 5026.651 | -0.240  | -0.240  | 4951.046 | 0.240   | 0.240   |
| 5.  | 0.000  | 0.000  | 0.140  | 5026.235 | -0.300  | -0.300  | 4951.465 | 0.300   | 0.300   |
| 6.  | 0.000  | 0.000  | 0.170  | 5025.729 | -0.360  | -0.360  | 4951.970 | 0.360   | 0.360   |
| 7.  | 0.000  | 0.000  | 0.200  | 5025.136 | -0.420  | -0.420  | 4952.563 | 0.420   | 0.420   |
| 8.  | 0.000  | 0.000  | 0.230  | 5024.458 | -0.470  | -0.470  | 4953.241 | 0.470   | 0.470   |
| 9.  | 0.000  | 0.000  | 0.250  | 5023.698 | -0.520  | -0.520  | 4954.002 | 0.520   | 0.520   |
| 10. | 0.000  | 0.000  | 0.280  | 5022.856 | -0.570  | -0.570  | 4954.842 | 0.570   | 0.570   |
| 11. | 0.000  | 0.000  | 0.300  | 5021.942 | -0.620  | -0.620  | 4955.757 | 0.620   | 0.620   |
| 12. | 0.000  | 0.000  | 0.330  | 5020.955 | -0.670  | -0.670  | 4956.744 | 0.670   | 0.670   |
| 13. | 0.000  | 0.000  | 0.350  | 5019.900 | -0.710  | -0.710  | 4957.799 | 0.710   | 0.710   |
| 14. | 0.000  | 0.000  | 0.370  | 5018.784 | -0.750  | -0.750  | 4958.915 | 0.750   | 0.750   |
| 15. | 0.000  | 0.000  | 0.390  | 5017.610 | -0.790  | -0.790  | 4960.086 | 0.790   | 0.790   |
| 16. | 0.000  | 0.000  | 0.410  | 5016.387 | -0.820  | -0.820  | 4961.311 | 0.820   | 0.820   |
| 17. | 0.000  | 0.000  | 0.430  | 5015.122 | -0.850  | -0.850  | 4962.596 | 0.850   | 0.850   |
| 18. | 0.000  | 0.000  | 0.450  | 5013.822 | -0.880  | -0.880  | 4963.941 | 0.880   | 0.880   |
| 19. | 0.000  | 0.000  | 0.470  | 5012.499 | -0.900  | -0.900  | 4965.346 | 0.900   | 0.900   |
| 20. | 0.000  | 0.000  | 0.480  | 5011.162 | -0.920  | -0.920  | 4966.811 | 0.920   | 0.920   |
| 21. | 0.000  | 0.000  | 0.500  | 5009.826 | -0.940  | -0.940  | 4968.336 | 0.940   | 0.940   |
| 22. | 0.000  | 0.000  | 0.510  | 5008.500 | -0.950  | -0.950  | 4969.921 | 0.950   | 0.950   |
| 23. | 0.000  | 0.000  | 0.520  | 5007.226 | -0.960  | -0.960  | 4971.566 | 0.960   | 0.960   |
| 24. | 0.000  | 0.000  | 0.530  | 5006.005 | -0.970  | -0.970  | 4973.271 | 0.970   | 0.970   |
| 25. | 0.000  | 0.000  | 0.540  | 5004.873 | -0.980  | -0.980  | 4975.036 | 0.980   | 0.980   |
| 26. | 0.000  | 0.000  | 0.540  | 5003.865 | -0.990  | -0.990  | 4976.861 | 0.990   | 0.990   |
| 27. | 0.000  | 0.000  | 0.550  | 5003.018 | -1.000  | -1.000  | 4978.746 | 1.000   | 1.000   |
| 28. | 0.000  | 0.000  | 0.550  | 5002.374 | -1.010  | -1.010  | 4980.691 | 1.010   | 1.010   |
| 29. | 0.000  | 0.000  | 0.550  | 5001.965 | -1.020  | -1.020  | 4982.696 | 1.020   | 1.020   |
| 30. | 0.000  | 0.000  | 0.560  | 5001.831 | -1.030  | -1.030  | 4984.761 | 1.030   | 1.030   |
| 31. | 0.000  | 0.000  | 0.550  | 5001.969 | -1.040  | -1.040  | 4986.886 | 1.040   | 1.040   |
| 32. | 0.000  | 0.000  | 0.550  | 5002.374 | -1.050  | -1.050  | 4989.071 | 1.050   | 1.050   |
| 33. | 0.000  | 0.000  | 0.550  | 5003.018 | -1.060  | -1.060  | 4991.316 | 1.060   | 1.060   |
| 34. | 0.000  | 0.000  | 0.540  | 5003.865 | -1.070  | -1.070  | 4993.621 | 1.070   | 1.070   |
| 35. | 0.000  | 0.000  | 0.540  | 5004.873 | -1.080  | -1.080  | 4996.086 | 1.080   | 1.080   |
| 36. | 0.000  | 0.000  | 0.530  | 5006.005 | -1.090  | -1.090  | 4998.711 | 1.090   | 1.090   |
| 37. | 0.000  | 0.000  | 0.520  | 5007.226 | -1.100  | -1.100  | 5001.496 | 1.100   | 1.100   |
| 38. | 0.000  | 0.000  | 0.510  | 5008.500 | -1.110  | -1.110  | 5004.441 | 1.110   | 1.110   |
| 39. | 0.000  | 0.000  | 0.500  | 5009.826 | -1.120  | -1.120  | 5007.546 | 1.120   | 1.120   |
| 40. | 0.000  | 0.000  | 0.480  | 5011.162 | -1.130  | -1.130  | 5010.811 | 1.130   | 1.130   |
| 41. | 0.000  | 0.000  | 0.470  | 5012.499 | -1.140  | -1.140  | 5014.236 | 1.140   | 1.140   |
| 42. | 0.000  | 0.000  | 0.450  | 5013.822 | -1.150  | -1.150  | 5017.821 | 1.150   | 1.150   |
| 43. | 0.000  | 0.000  | 0.430  | 5015.122 | -1.160  | -1.160  | 5021.566 | 1.160   | 1.160   |
| 44. | 0.000  | 0.000  | 0.410  | 5016.387 | -1.170  | -1.170  | 5025.471 | 1.170   | 1.170   |
| 45. | 0.000  | 0.000  | 0.390  | 5017.610 | -1.180  | -1.180  | 5029.536 | 1.180   | 1.180   |
| 46. | 0.000  | 0.000  | 0.370  | 5018.784 | -1.190  | -1.190  | 5033.761 | 1.190   | 1.190   |
| 47. | 0.000  | 0.000  | 0.350  | 5019.900 | -1.200  | -1.200  | 5038.146 | 1.200   | 1.200   |
| 48. | 0.000  | 0.000  | 0.330  | 5020.955 | -1.210  | -1.210  | 5042.691 | 1.210   | 1.210   |
| 49. | 0.000  | 0.000  | 0.300  | 5021.942 | -1.220  | -1.220  | 5047.406 | 1.220   | 1.220   |

111-PLANE YAG

|     | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSFH13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|--------|
| 58. | 8612.577 | -0.000 | .280   | 5022.858 | .570    | -410    | 4954.042 | -150    | -410   |
| 59. | 8612.571 | -0.000 | .250   | 5023.836 | .520    | -360    | 4954.002 | -150    | -360   |
| 59. | 8612.564 | -0.000 | .230   | 5024.858 | .470    | -340    | 4953.241 | -400    | -340   |
| 59. | 8612.559 | -0.000 | .200   | 5025.136 | .420    | -300    | 4952.563 | -420    | -300   |
| 54. | 8612.554 | -0.000 | .170   | 5025.729 | .360    | -260    | 4951.970 | -360    | -260   |
| 55. | 8612.549 | -0.000 | .140   | 5026.235 | .300    | -210    | 4951.465 | -310    | -210   |
| 56. | 8612.545 | -0.000 | .120   | 5026.651 | .240    | -170    | 4951.046 | -250    | -170   |
| 57. | 8612.543 | -0.000 | .090   | 5026.977 | .180    | -130    | 4950.723 | -190    | -130   |
| 58. | 8612.540 | -0.000 | .060   | 5027.210 | .120    | -90     | 4950.490 | -120    | -90    |
| 59. | 8612.539 | -0.000 | .030   | 5027.351 | .060    | -40     | 4950.345 | -60     | -40    |
| 60. | 8612.539 | 0.000  | 0.000  | 5027.397 | -0.000  | 0.000   | 4950.302 | -0.000  | 0.000  |
| 61. | 8612.539 | 0.000  | -0.030 | 5027.351 | -0.060  | .640    | 4950.345 | .060    | .640   |
| 62. | 8612.540 | 0.000  | -0.060 | 5027.210 | -0.120  | .090    | 4950.490 | .120    | .090   |
| 63. | 8612.543 | 0.000  | -0.090 | 5026.977 | -0.180  | .130    | 4950.723 | .180    | .130   |
| 64. | 8612.545 | 0.000  | -0.120 | 5026.651 | -0.240  | .170    | 4951.046 | .250    | .170   |
| 65. | 8612.545 | 0.000  | -0.140 | 5026.235 | -0.300  | .210    | 4951.465 | .310    | .210   |
| 66. | 8612.549 | 0.000  | -0.170 | 5025.729 | -0.360  | .260    | 4951.970 | .360    | .260   |
| 67. | 8612.554 | 0.000  | -0.200 | 5025.136 | -0.420  | .300    | 4952.563 | .420    | .300   |
| 68. | 8612.554 | 0.000  | -0.230 | 5024.858 | -0.470  | .340    | 4953.241 | .460    | .340   |
| 69. | 8612.571 | 0.000  | -0.250 | 5023.836 | -0.520  | .380    | 4954.002 | .530    | .380   |
| 70. | 8612.577 | 0.000  | -0.280 | 5022.858 | -0.570  | .410    | 4954.042 | .580    | .410   |
| 71. | 8612.585 | 0.000  | -0.300 | 5021.942 | -0.620  | .450    | 4955.757 | .630    | .450   |
| 72. | 8612.592 | 0.000  | -0.330 | 5020.955 | -0.670  | .490    | 4956.744 | .680    | .490   |
| 73. | 8612.600 | 0.000  | -0.350 | 5019.900 | -0.710  | .520    | 4957.739 | .720    | .520   |
| 74. | 8612.608 | 0.000  | -0.370 | 5018.784 | -0.750  | .550    | 4958.715 | .760    | .550   |
| 75. | 8612.616 | 0.000  | -0.390 | 5017.610 | -0.780  | .590    | 4960.088 | .790    | .590   |
| 76. | 8612.624 | 0.000  | -0.410 | 5016.387 | -0.820  | .620    | 4961.511 | .820    | .620   |
| 77. | 8612.632 | 0.000  | -0.430 | 5015.122 | -0.840  | .640    | 4962.576 | .850    | .640   |
| 78. | 8612.640 | 0.000  | -0.450 | 5013.822 | -0.860  | .670    | 4963.076 | .870    | .670   |
| 79. | 8612.647 | 0.000  | -0.470 | 5012.599 | -0.870  | .690    | 4965.200 | .880    | .690   |
| 80. | 8612.655 | 0.000  | -0.480 | 5011.162 | -0.880  | .720    | 4966.536 | .890    | .720   |
| 81. | 8612.661 | 0.000  | -0.500 | 5009.826 | -0.890  | .740    | 4967.672 | .890    | .740   |
| 82. | 8612.666 | 0.000  | -0.510 | 5008.506 | -0.900  | .760    | 4969.190 | .890    | .760   |
| 83. | 8612.673 | 0.000  | -0.520 | 5007.226 | -0.920  | .770    | 4970.472 | .900    | .770   |
| 84. | 8612.679 | 0.000  | -0.530 | 5006.005 | -0.930  | .790    | 4971.693 | .900    | .790   |
| 85. | 8612.683 | 0.000  | -0.540 | 5004.873 | -0.940  | .800    | 4972.824 | .910    | .800   |
| 86. | 8612.687 | 0.000  | -0.540 | 5003.865 | -0.950  | .810    | 4973.832 | .910    | .810   |
| 87. | 8612.689 | 0.000  | -0.550 | 5003.018 | -0.960  | .820    | 4974.679 | .910    | .820   |
| 88. | 8612.692 | 0.000  | -0.550 | 5002.374 | -0.970  | .830    | 4975.323 | .910    | .830   |
| 89. | 8612.693 | 0.000  | -0.550 | 5001.969 | -0.980  | .840    | 4975.728 | .910    | .840   |
| 90. | 8612.693 | -0.000 | -0.560 | 5001.831 | 0.000   | .830    | 4975.866 | .910    | .830   |
| 91. | 8612.693 | -0.000 | -0.550 | 5001.969 | .160    | .830    | 4975.728 | .910    | .830   |
| 92. | 8612.692 | -0.000 | -0.550 | 5002.374 | .350    | .820    | 4975.323 | .910    | .820   |
| 93. | 8612.689 | -0.000 | -0.550 | 5003.018 | .490    | .810    | 4974.679 | .910    | .810   |
| 94. | 8612.687 | -0.000 | -0.540 | 5003.865 | .610    | .800    | 4973.832 | .910    | .800   |
| 95. | 8612.683 | -0.000 | -0.540 | 5004.873 | .710    | .790    | 4972.824 | .910    | .790   |
| 96. | 8612.679 | -0.000 | -0.530 | 5006.005 | .770    | .780    | 4971.693 | .910    | .780   |
| 97. | 8612.673 | -0.000 | -0.520 | 5007.226 | .820    | .760    | 4970.472 | .910    | .760   |
| 98. | 8612.668 | -0.000 | -0.510 | 5008.506 | .850    | .750    | 4969.190 | .910    | .750   |
| 99. | 8612.661 | -0.000 | -0.500 | 5009.826 | .870    | .740    | 4967.672 | .910    | .740   |

111-PLANE YAG

|      | LSPH12 | LSPH13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|--------|--------|----------|--------|--------|----------|--------|--------|
| 100. | 0.000  | -0.480 | 5011.162 | 0.660  | .720   | 4966.536 | -0.660 | .720   |
| 101. | -0.000 | -0.470 | 5012.499 | 0.670  | .650   | 4965.200 | -0.680 | .690   |
| 102. | -0.000 | -0.450 | 5013.822 | 0.660  | .670   | 4963.676 | -0.670 | .670   |
| 103. | -0.000 | -0.430 | 5015.122 | 0.640  | .640   | 4962.376 | -0.650 | .640   |
| 104. | -0.000 | -0.410 | 5016.387 | 0.620  | .620   | 4961.311 | -0.620 | .620   |
| 105. | -0.000 | -0.390 | 5017.610 | 0.760  | .550   | 4960.088 | -0.750 | .520   |
| 106. | -0.000 | -0.370 | 5018.784 | 0.750  | .550   | 4958.915 | -0.760 | .520   |
| 107. | -0.000 | -0.350 | 5019.900 | 0.710  | .520   | 4957.739 | -0.720 | .520   |
| 108. | -0.000 | -0.330 | 5020.955 | 0.670  | .450   | 4956.744 | -0.680 | .450   |
| 109. | -0.000 | -0.300 | 5021.942 | 0.620  | .450   | 4955.757 | -0.630 | .450   |
| 110. | -0.000 | -0.280 | 5022.856 | 0.570  | .410   | 4954.842 | -0.580 | .410   |
| 111. | -0.000 | -0.250 | 5023.696 | 0.520  | .360   | 4954.002 | -0.530 | .360   |
| 112. | -0.000 | -0.230 | 5024.456 | 0.470  | .340   | 4953.241 | -0.480 | .340   |
| 113. | -0.000 | -0.200 | 5025.136 | 0.420  | .300   | 4952.563 | -0.430 | .300   |
| 114. | -0.000 | -0.170 | 5025.729 | 0.360  | .260   | 4951.970 | -0.380 | .260   |
| 115. | -0.000 | -0.140 | 5026.235 | 0.300  | .210   | 4951.465 | -0.310 | .210   |
| 116. | -0.000 | -0.120 | 5026.651 | 0.240  | .170   | 4951.046 | -0.250 | .170   |
| 117. | -0.000 | -0.090 | 5026.977 | 0.180  | .130   | 4950.723 | -0.190 | .130   |
| 118. | -0.000 | -0.060 | 5027.210 | 0.120  | .090   | 4950.490 | -0.130 | .090   |
| 119. | -0.000 | -0.030 | 5027.351 | 0.060  | .060   | 4950.349 | -0.120 | .060   |
| 120. | -0.000 | 0.000  | 5027.397 | 0.000  | 0.000  | 4950.302 | -0.000 | 0.000  |
| 121. | 0.000  | 0.030  | 5027.351 | -0.060 | -0.040 | 4950.349 | 0.060  | -0.040 |
| 122. | 0.000  | 0.060  | 5027.210 | -0.120 | -0.090 | 4950.490 | 0.120  | -0.090 |
| 123. | 0.000  | 0.090  | 5026.977 | -0.180 | -0.130 | 4950.723 | 0.190  | -0.130 |
| 124. | 0.000  | 0.120  | 5026.651 | -0.240 | -0.170 | 4951.046 | 0.200  | -0.170 |
| 125. | 0.000  | 0.140  | 5026.235 | -0.300 | -0.210 | 4951.465 | 0.210  | -0.210 |
| 126. | 0.000  | 0.170  | 5025.729 | -0.360 | -0.260 | 4951.970 | 0.220  | -0.260 |
| 127. | 0.000  | 0.200  | 5025.136 | -0.420 | -0.300 | 4952.563 | 0.230  | -0.300 |
| 128. | 0.000  | 0.230  | 5024.456 | -0.470 | -0.340 | 4953.241 | 0.240  | -0.340 |
| 129. | 0.000  | 0.250  | 5023.696 | -0.520 | -0.380 | 4954.002 | 0.250  | -0.380 |
| 130. | 0.000  | 0.260  | 5022.856 | -0.570 | -0.410 | 4954.842 | 0.260  | -0.410 |
| 131. | 0.000  | 0.280  | 5021.942 | -0.620 | -0.450 | 4955.757 | 0.270  | -0.450 |
| 132. | 0.000  | 0.300  | 5020.955 | -0.670 | -0.490 | 4956.744 | 0.280  | -0.490 |
| 133. | 0.000  | 0.350  | 5019.900 | -0.710 | -0.520 | 4957.739 | 0.290  | -0.520 |
| 134. | 0.000  | 0.370  | 5018.784 | -0.750 | -0.550 | 4958.915 | 0.300  | -0.550 |
| 135. | 0.000  | 0.390  | 5017.610 | -0.760 | -0.550 | 4960.088 | 0.310  | -0.550 |
| 136. | 0.000  | 0.410  | 5016.387 | -0.820 | -0.610 | 4961.311 | 0.320  | -0.610 |
| 137. | 0.000  | 0.430  | 5015.122 | -0.840 | -0.640 | 4962.576 | 0.330  | -0.640 |
| 138. | 0.000  | 0.450  | 5013.822 | -0.860 | -0.670 | 4963.876 | 0.340  | -0.670 |
| 139. | 0.000  | 0.470  | 5012.499 | -0.870 | -0.690 | 4965.200 | 0.350  | -0.690 |
| 140. | 0.000  | 0.480  | 5011.162 | -0.880 | -0.720 | 4966.536 | 0.360  | -0.720 |
| 141. | 0.000  | 0.500  | 5009.826 | -0.890 | -0.740 | 4967.872 | 0.370  | -0.740 |
| 142. | 0.000  | 0.510  | 5008.506 | -0.900 | -0.760 | 4969.190 | 0.380  | -0.760 |
| 143. | 0.000  | 0.520  | 5007.226 | -0.920 | -0.770 | 4970.472 | 0.390  | -0.770 |
| 144. | 0.000  | 0.530  | 5006.005 | -0.930 | -0.790 | 4971.693 | 0.400  | -0.790 |
| 145. | 0.000  | 0.540  | 5004.873 | -0.940 | -0.800 | 4972.824 | 0.410  | -0.800 |
| 146. | 0.000  | 0.540  | 5003.665 | -0.950 | -0.810 | 4973.832 | 0.420  | -0.810 |
| 147. | 0.000  | 0.550  | 5002.374 | -0.960 | -0.820 | 4974.679 | 0.430  | -0.820 |
| 148. | 0.000  | 0.550  | 5001.069 | -0.970 | -0.830 | 4975.323 | 0.440  | -0.830 |
| 149. | 0.000  | 0.550  | 5001.069 | -0.970 | -0.830 | 4975.323 | 0.440  | -0.830 |

|      | 111-PLANE YAG |        |          |         | BULK    |          |         |         |
|------|---------------|--------|----------|---------|---------|----------|---------|---------|
|      | LPHI12        | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
| 150. | 0.000         | .560   | 5001.831 | -0.000  | -.630   | 4375.866 | -0.000  | -.630   |
| 151. | -0.000        | .550   | 5001.969 | .160    | -.830   | 4375.728 | -.160   | -.820   |
| 152. | -0.000        | .550   | 5002.374 | .350    | -.830   | 4375.323 | -.350   | -.820   |
| 153. | -0.000        | .550   | 5003.018 | .490    | -.820   | 4374.879 | -.490   | -.820   |
| 154. | -0.000        | .540   | 5003.865 | .610    | -.820   | 4373.824 | -.610   | -.820   |
| 155. | -0.000        | .540   | 5004.873 | .710    | -.800   | 4372.824 | -.710   | -.800   |
| 156. | -0.000        | .530   | 5006.005 | .770    | -.790   | 4371.813 | -.770   | -.790   |
| 157. | -0.000        | .520   | 5007.226 | .820    | -.770   | 4370.472 | -.820   | -.770   |
| 158. | -0.000        | .510   | 5008.508 | .850    | -.760   | 4369.190 | -.850   | -.760   |
| 159. | -0.000        | .500   | 5009.826 | .870    | -.760   | 4367.872 | -.870   | -.760   |
| 160. | -0.000        | .490   | 5011.182 | .880    | -.720   | 4366.236 | -.880   | -.720   |
| 161. | -0.000        | .470   | 5012.699 | .870    | -.690   | 4365.200 | -.880   | -.690   |
| 162. | -0.000        | .450   | 5013.822 | .860    | -.670   | 4363.876 | -.870   | -.670   |
| 163. | -0.000        | .430   | 5015.122 | .840    | -.640   | 4362.576 | -.850   | -.640   |
| 164. | -0.000        | .410   | 5016.387 | .820    | -.620   | 4361.311 | -.820   | -.620   |
| 165. | -0.000        | .390   | 5017.610 | .790    | -.590   | 4360.086 | -.790   | -.590   |
| 166. | -0.000        | .370   | 5018.784 | .750    | -.550   | 4358.915 | -.760   | -.550   |
| 167. | -0.000        | .350   | 5019.900 | .710    | -.520   | 4357.799 | -.720   | -.520   |
| 168. | -0.000        | .330   | 5020.955 | .670    | -.490   | 4356.744 | -.680   | -.490   |
| 169. | -0.000        | .300   | 5021.942 | .620    | -.450   | 4355.757 | -.630   | -.450   |
| 170. | -0.000        | .280   | 5022.858 | .570    | -.410   | 4354.842 | -.580   | -.410   |
| 171. | -0.000        | .250   | 5023.696 | .520    | -.380   | 4354.002 | -.530   | -.380   |
| 172. | -0.000        | .230   | 5024.456 | .470    | -.340   | 4353.241 | -.480   | -.340   |
| 173. | -0.000        | .200   | 5025.136 | .420    | -.300   | 4352.563 | -.420   | -.300   |
| 174. | -0.000        | .170   | 5025.729 | .360    | -.260   | 4351.970 | -.360   | -.260   |
| 175. | -0.000        | .140   | 5026.235 | .300    | -.210   | 4351.465 | -.310   | -.210   |
| 176. | -0.000        | .120   | 5026.651 | .240    | -.170   | 4351.046 | -.260   | -.170   |
| 177. | -0.000        | .090   | 5026.977 | .180    | -.130   | 4350.723 | -.210   | -.130   |
| 178. | -0.000        | .060   | 5027.210 | .120    | -.090   | 4350.490 | -.120   | -.090   |
| 179. | -0.000        | .030   | 5027.351 | .060    | -.040   | 4350.349 | -.060   | -.040   |
| 180. | 0.000         | -0.000 | 5027.397 | -0.000  | -0.000  | 4350.302 | 0.000   | -0.000  |

110-FLAME YAG

|     | LAGVEL  | LPII12 | LPII13 | FSEVEL   | FSP112 | FSP113 | SSRWEL   | SSP112 | SSP113 |
|-----|---------|--------|--------|----------|--------|--------|----------|--------|--------|
| 0.  | 827.432 | 0.000  | -0.000 | 4976.324 | -0.840 | 0.000  | 4976.133 | .640   | -0.000 |
| 1.  | 827.378 | -0.000 | -0.000 | 4974.917 | -0.777 | -0.600 | 4977.412 | .650   | 0.000  |
| 2.  | 827.265 | -0.000 | 0.000  | 4973.815 | -0.690 | 0.000  | 4978.705 | .060   | 0.000  |
| 3.  | 827.076 | -0.000 | -0.000 | 4972.821 | -0.610 | -0.000 | 4980.011 | .060   | -0.000 |
| 4.  | 826.814 | -0.100 | 0.000  | 4971.972 | -0.530 | 0.000  | 4981.327 | .070   | -0.000 |
| 5.  | 826.470 | -0.150 | -0.000 | 4971.241 | -0.440 | -0.000 | 4982.651 | .080   | -0.000 |
| 6.  | 826.046 | -0.180 | -0.000 | 4970.662 | -0.350 | -0.000 | 4983.984 | .080   | 0.000  |
| 7.  | 825.540 | -0.210 | -0.000 | 4970.179 | -0.260 | -0.000 | 4985.322 | .080   | 0.000  |
| 8.  | 824.982 | -0.240 | -0.000 | 4969.851 | -0.170 | -0.000 | 4986.664 | .080   | -0.000 |
| 9.  | 824.287 | -0.270 | -0.000 | 4969.667 | -0.080 | -0.000 | 4988.009 | .080   | -0.000 |
| 10. | 823.533 | -0.300 | 0.000  | 4969.614 | .010   | -0.000 | 4989.354 | .080   | -0.000 |
| 11. | 822.702 | -0.330 | 0.000  | 4969.705 | .100   | -0.000 | 4990.699 | .080   | -0.000 |
| 12. | 821.792 | -0.360 | -0.000 | 4969.936 | .180   | -0.000 | 4992.041 | .080   | 0.000  |
| 13. | 820.805 | -0.390 | -0.000 | 4970.305 | .250   | -0.000 | 4993.376 | .080   | 0.000  |
| 14. | 819.741 | -0.420 | -0.000 | 4970.811 | .320   | -0.000 | 4994.712 | .070   | 0.000  |
| 15. | 818.607 | -0.450 | -0.000 | 4971.452 | .470   | -0.000 | 4996.037 | .070   | 0.000  |
| 16. | 817.395 | -0.470 | 0.000  | 4972.224 | .550   | 0.000  | 4997.352 | .060   | -0.000 |
| 17. | 816.117 | -0.500 | -0.000 | 4973.123 | .640   | -0.000 | 4998.655 | .060   | 0.000  |
| 18. | 814.777 | -0.520 | 0.000  | 4974.146 | .710   | -0.000 | 4999.953 | .050   | -0.000 |
| 19. | 813.375 | -0.550 | -0.000 | 4975.289 | .790   | -0.000 | 5001.232 | .040   | 0.000  |
| 20. | 811.915 | -0.570 | -0.000 | 4976.547 | .860   | -0.000 | 5002.497 | .030   | 0.000  |
| 21. | 810.402 | -0.590 | -0.000 | 4977.905 | .930   | -0.000 | 5003.746 | .020   | 0.000  |
| 22. | 808.842 | -0.600 | 0.000  | 4979.357 | 1.000  | -0.000 | 5004.975 | .010   | -0.000 |
| 23. | 807.237 | -0.620 | -0.000 | 4980.893 | 1.050  | -0.000 | 5006.187 | .000   | 0.000  |
| 24. | 805.586 | -0.630 | -0.000 | 4982.506 | 1.100  | -0.000 | 5007.374 | .000   | 0.000  |
| 25. | 803.921 | -0.640 | 0.000  | 4984.286 | 1.150  | -0.000 | 5008.541 | .000   | 0.000  |
| 26. | 802.210 | -0.650 | -0.000 | 4986.076 | 1.200  | -0.000 | 5009.683 | .000   | 0.000  |
| 27. | 800.495 | -0.660 | 0.000  | 4987.929 | 1.240  | -0.000 | 5010.800 | .000   | 0.000  |
| 28. | 800.755 | -0.670 | -0.000 | 4989.811 | 1.270  | -0.000 | 5011.890 | .000   | 0.000  |
| 29. | 800.002 | -0.670 | -0.000 | 4991.774 | 1.290  | -0.000 | 5012.952 | .000   | -0.000 |
| 30. | 800.256 | -0.670 | -0.000 | 4993.759 | 1.310  | -0.000 | 5014.004 | .000   | 0.000  |
| 31. | 800.504 | -0.670 | -0.000 | 4995.742 | 1.320  | -0.000 | 5014.987 | .000   | -0.000 |
| 32. | 800.744 | -0.660 | 0.000  | 4997.740 | 1.330  | -0.000 | 5015.957 | .000   | 0.000  |
| 33. | 800.940 | -0.660 | -0.000 | 4999.782 | 1.330  | 0.000  | 5016.894 | .000   | 0.000  |
| 34. | 801.120 | -0.650 | 0.000  | 5001.818 | 1.320  | 0.000  | 5017.798 | .000   | 0.000  |
| 35. | 801.266 | -0.650 | 0.000  | 5003.815 | 1.310  | -0.000 | 5018.666 | .000   | -0.000 |
| 36. | 801.382 | -0.640 | 0.000  | 5005.775 | 1.280  | -0.000 | 5019.498 | .000   | 0.000  |
| 37. | 801.432 | -0.640 | -0.000 | 5007.735 | 1.250  | -0.000 | 5020.292 | .000   | 0.000  |
| 38. | 801.482 | -0.640 | -0.000 | 5009.650 | 1.230  | -0.000 | 5021.050 | .000   | 0.000  |
| 39. | 801.532 | -0.640 | -0.000 | 5011.471 | 1.190  | -0.000 | 5021.767 | .000   | 0.000  |
| 40. | 801.582 | -0.640 | 0.000  | 5013.266 | 1.160  | -0.000 | 5022.445 | .000   | 0.000  |
| 41. | 801.632 | -0.640 | -0.000 | 5015.035 | 1.130  | -0.000 | 5023.082 | .000   | 0.000  |
| 42. | 801.682 | -0.640 | -0.000 | 5016.780 | 1.090  | -0.000 | 5023.678 | .000   | 0.000  |
| 43. | 801.732 | -0.640 | -0.000 | 5018.500 | 1.040  | -0.000 | 5024.231 | .000   | -0.000 |
| 44. | 801.782 | -0.640 | -0.000 | 5020.195 | .970   | -0.000 | 5024.742 | .000   | 0.000  |
| 45. | 801.832 | -0.640 | 0.000  | 5021.867 | .890   | -0.000 | 5025.209 | .000   | 0.000  |
| 46. | 801.882 | -0.640 | -0.000 | 5023.510 | .790   | -0.000 | 5025.632 | .000   | 0.000  |
| 47. | 801.932 | -0.640 | 0.000  | 5025.225 | .660   | -0.000 | 5026.011 | .000   | 0.000  |
| 48. | 801.982 | -0.640 | -0.000 | 5026.925 | .500   | -0.000 | 5026.345 | .000   | 0.000  |
| 49. | 802.032 | -0.640 | 0.000  | 5028.600 | .320   | -0.000 | 5026.633 | .000   | 0.000  |



110-PLANE YAG

| LAGVEL | LP+I12 | LP+I12 | FSPV12  | FSP+I12 | FSP+I12 | SSRVEL  | SSP+I12 | SSP+I12 |
|--------|--------|--------|---------|---------|---------|---------|---------|---------|
| 100.   | 0.000  | 0.000  | 496.622 | 0.000   | 0.000   | 498.644 | 0.000   | 0.000   |
| 101.   | 0.000  | 0.000  | 496.746 | 0.000   | 0.000   | 498.768 | 0.000   | 0.000   |
| 102.   | 0.000  | 0.000  | 496.870 | 0.000   | 0.000   | 498.892 | 0.000   | 0.000   |
| 103.   | 0.000  | 0.000  | 497.000 | 0.000   | 0.000   | 499.020 | 0.000   | 0.000   |
| 104.   | 0.000  | 0.000  | 497.130 | 0.000   | 0.000   | 499.148 | 0.000   | 0.000   |
| 105.   | 0.000  | 0.000  | 497.260 | 0.000   | 0.000   | 499.276 | 0.000   | 0.000   |
| 106.   | 0.000  | 0.000  | 497.390 | 0.000   | 0.000   | 499.404 | 0.000   | 0.000   |
| 107.   | 0.000  | 0.000  | 497.520 | 0.000   | 0.000   | 499.532 | 0.000   | 0.000   |
| 108.   | 0.000  | 0.000  | 497.650 | 0.000   | 0.000   | 499.660 | 0.000   | 0.000   |
| 109.   | 0.000  | 0.000  | 497.780 | 0.000   | 0.000   | 499.788 | 0.000   | 0.000   |
| 110.   | 0.000  | 0.000  | 497.910 | 0.000   | 0.000   | 499.916 | 0.000   | 0.000   |
| 111.   | 0.000  | 0.000  | 498.040 | 0.000   | 0.000   | 500.044 | 0.000   | 0.000   |
| 112.   | 0.000  | 0.000  | 498.170 | 0.000   | 0.000   | 500.172 | 0.000   | 0.000   |
| 113.   | 0.000  | 0.000  | 498.300 | 0.000   | 0.000   | 500.300 | 0.000   | 0.000   |
| 114.   | 0.000  | 0.000  | 498.430 | 0.000   | 0.000   | 500.428 | 0.000   | 0.000   |
| 115.   | 0.000  | 0.000  | 498.560 | 0.000   | 0.000   | 500.556 | 0.000   | 0.000   |
| 116.   | 0.000  | 0.000  | 498.690 | 0.000   | 0.000   | 500.684 | 0.000   | 0.000   |
| 117.   | 0.000  | 0.000  | 498.820 | 0.000   | 0.000   | 500.812 | 0.000   | 0.000   |
| 118.   | 0.000  | 0.000  | 498.950 | 0.000   | 0.000   | 500.940 | 0.000   | 0.000   |
| 119.   | 0.000  | 0.000  | 499.080 | 0.000   | 0.000   | 501.068 | 0.000   | 0.000   |
| 120.   | 0.000  | 0.000  | 499.210 | 0.000   | 0.000   | 501.196 | 0.000   | 0.000   |
| 121.   | 0.000  | 0.000  | 499.340 | 0.000   | 0.000   | 501.324 | 0.000   | 0.000   |
| 122.   | 0.000  | 0.000  | 499.470 | 0.000   | 0.000   | 501.452 | 0.000   | 0.000   |
| 123.   | 0.000  | 0.000  | 499.600 | 0.000   | 0.000   | 501.580 | 0.000   | 0.000   |
| 124.   | 0.000  | 0.000  | 499.730 | 0.000   | 0.000   | 501.708 | 0.000   | 0.000   |
| 125.   | 0.000  | 0.000  | 499.860 | 0.000   | 0.000   | 501.836 | 0.000   | 0.000   |
| 126.   | 0.000  | 0.000  | 499.990 | 0.000   | 0.000   | 501.964 | 0.000   | 0.000   |
| 127.   | 0.000  | 0.000  | 500.120 | 0.000   | 0.000   | 502.092 | 0.000   | 0.000   |
| 128.   | 0.000  | 0.000  | 500.250 | 0.000   | 0.000   | 502.220 | 0.000   | 0.000   |
| 129.   | 0.000  | 0.000  | 500.380 | 0.000   | 0.000   | 502.348 | 0.000   | 0.000   |
| 130.   | 0.000  | 0.000  | 500.510 | 0.000   | 0.000   | 502.476 | 0.000   | 0.000   |
| 131.   | 0.000  | 0.000  | 500.640 | 0.000   | 0.000   | 502.604 | 0.000   | 0.000   |
| 132.   | 0.000  | 0.000  | 500.770 | 0.000   | 0.000   | 502.732 | 0.000   | 0.000   |
| 133.   | 0.000  | 0.000  | 500.900 | 0.000   | 0.000   | 502.860 | 0.000   | 0.000   |
| 134.   | 0.000  | 0.000  | 501.030 | 0.000   | 0.000   | 502.988 | 0.000   | 0.000   |
| 135.   | 0.000  | 0.000  | 501.160 | 0.000   | 0.000   | 503.116 | 0.000   | 0.000   |
| 136.   | 0.000  | 0.000  | 501.290 | 0.000   | 0.000   | 503.244 | 0.000   | 0.000   |
| 137.   | 0.000  | 0.000  | 501.420 | 0.000   | 0.000   | 503.372 | 0.000   | 0.000   |
| 138.   | 0.000  | 0.000  | 501.550 | 0.000   | 0.000   | 503.500 | 0.000   | 0.000   |
| 139.   | 0.000  | 0.000  | 501.680 | 0.000   | 0.000   | 503.628 | 0.000   | 0.000   |
| 140.   | 0.000  | 0.000  | 501.810 | 0.000   | 0.000   | 503.756 | 0.000   | 0.000   |
| 141.   | 0.000  | 0.000  | 501.940 | 0.000   | 0.000   | 503.884 | 0.000   | 0.000   |
| 142.   | 0.000  | 0.000  | 502.070 | 0.000   | 0.000   | 504.012 | 0.000   | 0.000   |
| 143.   | 0.000  | 0.000  | 502.200 | 0.000   | 0.000   | 504.140 | 0.000   | 0.000   |
| 144.   | 0.000  | 0.000  | 502.330 | 0.000   | 0.000   | 504.268 | 0.000   | 0.000   |
| 145.   | 0.000  | 0.000  | 502.460 | 0.000   | 0.000   | 504.396 | 0.000   | 0.000   |
| 146.   | 0.000  | 0.000  | 502.590 | 0.000   | 0.000   | 504.524 | 0.000   | 0.000   |
| 147.   | 0.000  | 0.000  | 502.720 | 0.000   | 0.000   | 504.652 | 0.000   | 0.000   |
| 148.   | 0.000  | 0.000  | 502.850 | 0.000   | 0.000   | 504.780 | 0.000   | 0.000   |
| 149.   | 0.000  | 0.000  | 502.980 | 0.000   | 0.000   | 504.908 | 0.000   | 0.000   |



110-PLANF YAG

|      | LAGUEL  | LF+112 | LF+113 | FSEVEL  | FSP+112 | FSP+113 | SSRVEL   | SSP+112 | SSP+113 |
|------|---------|--------|--------|---------|---------|---------|----------|---------|---------|
| 180. | 8532287 | .110   | 0.000  | 525.472 | -470    | 0.000   | 4950.956 | .160    | 0.000   |
| 181. | 8532551 | .110   | 0.000  | 524.664 | -560    | 0.000   | 4951.227 | .160    | 0.000   |
| 182. | 8532592 | .140   | 0.000  | 523.762 | -640    | 0.000   | 4951.544 | .220    | 0.000   |
| 183. | 8534325 | .160   | 0.000  | 522.730 | -720    | 0.000   | 4951.907 | .260    | 0.000   |
| 184. | 8534778 | .160   | 0.000  | 521.574 | -750    | 0.000   | 4952.316 | .250    | 0.000   |
| 185. | 8535257 | .160   | 0.000  | 520.307 | -860    | 0.000   | 4952.766 | .320    | 0.000   |
| 186. | 8535771 | .200   | 0.000  | 519.573 | -930    | 0.000   | 4953.266 | .340    | 0.000   |
| 187. | 8536318 | .210   | 0.000  | 517.461 | -950    | 0.000   | 4953.607 | .370    | 0.000   |
| 188. | 8536897 | .220   | 0.000  | 515.456 | -1050   | 0.000   | 4954.791 | .400    | 0.000   |
| 189. | 8537452 | .220   | 0.000  | 514.247 | -1110   | 0.000   | 4955.017 | .420    | 0.000   |
| 190. | 8538112 | .240   | 0.000  | 512.522 | -1150   | 0.000   | 4955.406 | .460    | 0.000   |
| 191. | 8538747 | .240   | 0.000  | 510.729 | -1190   | 0.000   | 4956.392 | .420    | 0.000   |
| 192. | 8539354 | .250   | 0.000  | 508.677 | -1230   | 0.000   | 4957.141 | .510    | 0.000   |
| 193. | 8539846 | .250   | 0.000  | 506.575 | -1260   | 0.000   | 4957.922 | .520    | 0.000   |
| 194. | 8540761 | .250   | 0.000  | 505.032 | -1250   | 0.000   | 4958.752 | .560    | 0.000   |
| 195. | 8541351 | .250   | 0.000  | 503.068 | -1300   | 0.000   | 4959.614 | .580    | 0.000   |
| 196. | 8541952 | .240   | 0.000  | 501.062 | -1320   | 0.000   | 4960.511 | .610    | 0.000   |
| 197. | 8542621 | .240   | 0.000  | 499.054 | -1320   | 0.000   | 4961.447 | .630    | 0.000   |
| 198. | 8543211 | .230   | 0.000  | 497.043 | -1310   | 0.000   | 4962.406 | .650    | 0.000   |
| 199. | 8543817 | .220   | 0.000  | 495.040 | -1310   | 0.000   | 4963.406 | .670    | 0.000   |
| 200. | 8544374 | .210   | 0.000  | 493.053 | -1300   | 0.000   | 4964.434 | .650    | 0.000   |
| 171. | 8545001 | .150   | 0.000  | 491.062 | -1260   | 0.000   | 4965.497 | .710    | 0.000   |
| 172. | 8545384 | .160   | 0.000  | 489.160 | -1250   | 0.000   | 4966.580 | .730    | 0.000   |
| 173. | 8545733 | .160   | 0.000  | 487.251 | -1220   | 0.000   | 4967.694 | .740    | 0.000   |
| 174. | 8546033 | .140   | 0.000  | 485.467 | -1180   | 0.000   | 4968.834 | .760    | 0.000   |
| 175. | 8546377 | .120   | 0.000  | 483.786 | -1140   | 0.000   | 4969.990 | .780    | 0.000   |
| 176. | 8546860 | .110   | 0.000  | 482.017 | -1090   | 0.000   | 4971.165 | .750    | 0.000   |
| 177. | 8547302 | .090   | 0.000  | 480.467 | -1070   | 0.000   | 4972.394 | .800    | 0.000   |
| 178. | 8547722 | .090   | 0.000  | 478.866 | -970    | 0.000   | 4973.622 | .820    | 0.000   |
| 179. | 8548178 | .070   | 0.000  | 477.455 | -950    | 0.000   | 4974.866 | .820    | 0.000   |
| 180. | 8548642 | 0.000  | 0.000  | 476.134 | -840    | 0.000   | 4976.133 | .840    | 0.000   |

| Z-PLANE (XY-PLANE) YTTRIUM GALLIUM GARNET |          |        |          |         |         |          |         |         |       |
|---|----------|--------|----------|---------|---------|----------|---------|---------|-------|
|   | LPHI12   | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 | BULK  |
| 0.  | 0.000    | 0.000  | 4061.275 | 0.000   | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 1.  | 0.130    | 0.000  | 4061.031 | -0.390  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 2.  | 7001.390 | 0.260  | 4060.301 | -7.790  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 3.  | 7002.085 | 0.390  | 4059.068 | -1.170  | 0.000   | 4061.275 | -0.000  | 0.000   | 0.000 |
| 4.  | 7003.053 | 0.510  | 4057.399 | -1.560  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 5.  | 7004.208 | 0.630  | 4055.242 | -1.930  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 6.  | 7005.763 | 0.750  | 4052.629 | -2.300  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 7.  | 7007.530 | 0.870  | 4049.574 | -2.650  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 8.  | 7009.516 | 0.960  | 4046.091 | -2.990  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 9.  | 7091.730 | 1.000  | 4042.199 | -3.320  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 10.                                       | 7094.176 | 1.100  | 4037.919 | -3.630  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 11.                                       | 7096.820 | 1.270  | 4033.271 | -3.920  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 12.                                       | 7099.654 | 1.350  | 4028.260 | -4.190  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 13.                                       | 7102.663 | 1.430  | 4022.971 | -4.450  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 14.                                       | 7105.832 | 1.500  | 4017.371 | -4.660  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 15.                                       | 7109.144 | 1.560  | 4011.506 | -4.890  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 16.                                       | 7112.560 | 1.610  | 4005.412 | -5.070  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 17.                                       | 7116.124 | 1.660  | 3999.113 | -5.230  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 18.                                       | 7119.756 | 1.690  | 3992.642 | -5.370  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 19.                                       | 7123.454 | 1.720  | 3986.032 | -5.480  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 20.                                       | 7127.214 | 1.740  | 3979.315 | -5.560  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 21.                                       | 7131.001 | 1.750  | 3972.524 | -5.620  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 22.                                       | 7134.802 | 1.750  | 3965.693 | -5.640  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 23.                                       | 7138.599 | 1.740  | 3958.854 | -5.650  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 24.                                       | 7142.373 | 1.730  | 3952.041 | -5.620  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 25.                                       | 7146.107 | 1.700  | 3945.266 | -5.570  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 26.                                       | 7149.781 | 1.670  | 3938.623 | -5.490  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 27.                                       | 7153.360 | 1.630  | 3932.083 | -5.360  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 28.                                       | 7156.866 | 1.580  | 3925.656 | -5.250  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 29.                                       | 7160.284 | 1.530  | 3919.497 | -5.090  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 30.                                       | 7163.558 | 1.470  | 3913.510 | -4.910  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 31.                                       | 7166.693 | 1.400  | 3907.767 | -4.700  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 32.                                       | 7169.675 | 1.330  | 3902.293 | -4.460  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 33.                                       | 7172.491 | 1.250  | 3897.114 | -4.220  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 34.                                       | 7175.156 | 1.160  | 3892.256 | -3.950  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 35.                                       | 7177.576 | 1.070  | 3887.740 | -3.660  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 36.                                       | 7179.823 | 0.960  | 3883.569 | -3.350  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 37.                                       | 7181.861 | 0.860  | 3879.620 | -3.020  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 38.                                       | 7183.679 | 0.760  | 3876.453 | -2.680  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 39.                                       | 7185.270 | 0.670  | 3873.502 | -2.320  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 40.                                       | 7186.625 | 0.570  | 3870.801 | -1.950  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 41.                                       | 7187.746 | 0.460  | 3868.903 | -1.570  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 42.                                       | 7188.623 | 0.340  | 3867.276 | -1.190  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 43.                                       | 7189.251 | 0.230  | 3866.109 | -0.790  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 44.                                       | 7189.629 | 0.120  | 3865.406 | -0.400  | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 45.                                       | 7189.755 | 0.000  | 3865.172 | 0.000   | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 46.                                       | 7189.629 | -0.120 | 3865.406 | 0.400   | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 47.                                       | 7189.251 | -0.230 | 3866.109 | 0.790   | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 48.                                       | 7188.623 | -0.340 | 3867.276 | 1.190   | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |
| 49.                                       | 7187.746 | -0.460 | 3868.903 | 1.570   | 0.000   | 4061.275 | 0.000   | 0.000   | 0.000 |

Z-PLANE (XY-PLANE) YTTRIUM GALLIUM GARNET

BULK

|     | LMGVEL   | LPHI12 | LPHI13 | FSPVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 58. | 7106.629 | -1.570 | 0.000  | 3870.981 | 1.950  | 0.000  | 4061.275 | -0.000 | 0.000  |
| 51. | 7105.270 | -0.670 | 0.000  | 3873.502 | 2.320  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 52. | 7103.879 | -0.780 | 0.000  | 3876.953 | 2.660  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 53. | 7101.861 | -0.860 | 0.000  | 3879.820 | 3.020  | 0.000  | 4061.275 | -0.000 | 0.000  |
| 54. | 7175.623 | -0.900 | 0.000  | 3883.589 | 3.350  | 0.000  | 4061.275 | -0.000 | 0.000  |
| 55. | 7177.576 | -1.070 | 0.000  | 3887.740 | 3.660  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 56. | 7175.128 | -1.168 | 0.000  | 3892.256 | 3.950  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 57. | 7172.491 | -1.250 | 0.000  | 3897.114 | 4.220  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 58. | 7169.875 | -1.330 | 0.000  | 3902.293 | 4.480  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 59. | 7166.693 | -1.400 | 0.000  | 3907.767 | 4.780  | 0.000  | 4061.275 | -0.000 | 0.000  |
| 60. | 7163.550 | -1.470 | 0.000  | 3913.510 | 4.910  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 61. | 7160.284 | -1.530 | 0.000  | 3919.497 | 5.090  | 0.000  | 4061.275 | -0.000 | 0.000  |
| 62. | 7156.866 | -1.560 | 0.000  | 3925.646 | 5.250  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 63. | 7153.380 | -1.630 | 0.000  | 3932.883 | 5.360  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 64. | 7149.781 | -1.678 | 0.000  | 3938.823 | 5.490  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 65. | 7146.107 | -1.700 | 0.000  | 3945.286 | 5.570  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 66. | 7142.373 | -1.738 | 0.000  | 3952.041 | 5.620  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 67. | 7138.595 | -1.740 | 0.000  | 3958.854 | 5.650  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 68. | 7134.802 | -1.750 | 0.000  | 3965.693 | 5.640  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 69. | 7131.001 | -1.750 | 0.000  | 3972.524 | 5.620  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 70. | 7127.214 | -1.740 | 0.000  | 3979.315 | 5.560  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 71. | 7123.455 | -1.720 | 0.000  | 3986.032 | 5.460  | 0.000  | 4061.275 | -0.000 | 0.000  |
| 72. | 7119.756 | -1.690 | 0.000  | 3992.642 | 5.370  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 73. | 7116.124 | -1.660 | 0.000  | 3999.113 | 5.230  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 74. | 7112.580 | -1.610 | 0.000  | 4005.412 | 5.070  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 75. | 7109.144 | -1.560 | 0.000  | 4011.506 | 4.890  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 76. | 7105.832 | -1.500 | 0.000  | 4017.371 | 4.680  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 77. | 7102.663 | -1.430 | 0.000  | 4022.971 | 4.450  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 78. | 7099.654 | -1.350 | 0.000  | 4028.280 | 4.190  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 79. | 7096.820 | -1.278 | 0.000  | 4033.271 | 3.920  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 80. | 7094.176 | -1.188 | 0.000  | 4037.919 | 3.630  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 81. | 7091.736 | -1.088 | 0.000  | 4042.199 | 3.320  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 82. | 7089.518 | -0.968 | 0.000  | 4046.091 | 2.990  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 83. | 7087.538 | -0.870 | 0.000  | 4049.574 | 2.650  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 84. | 7085.783 | -0.750 | 0.000  | 4052.629 | 2.300  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 85. | 7084.248 | -0.630 | 0.000  | 4055.242 | 1.930  | 0.000  | 4061.275 | -0.000 | 0.000  |
| 86. | 7083.053 | -0.510 | 0.000  | 4057.399 | 1.560  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 87. | 7082.085 | -0.390 | 0.000  | 4059.086 | 1.170  | 0.000  | 4061.275 | 0.000  | 0.000  |
| 88. | 7081.350 | -0.260 | 0.000  | 4060.301 | .790   | 0.000  | 4061.275 | -0.000 | 0.000  |
| 89. | 7080.971 | -0.130 | 0.000  | 4061.031 | .390   | 0.000  | 4061.275 | 0.000  | 0.000  |
| 90. | 7080.831 | 0.000  | 0.000  | 4061.275 | -0.000 | 0.000  | 4061.275 | 0.000  | 0.000  |
| 91. | 7080.971 | .268   | 0.000  | 4061.031 | -0.390 | 0.000  | 4061.275 | 0.000  | 0.000  |
| 92. | 7081.350 | .510   | 0.000  | 4059.086 | -0.790 | 0.000  | 4061.275 | 0.000  | 0.000  |
| 93. | 7082.085 | .750   | 0.000  | 4057.399 | -1.170 | 0.000  | 4061.275 | -0.000 | 0.000  |
| 94. | 7083.053 | .968   | 0.000  | 4055.242 | -1.560 | 0.000  | 4061.275 | 0.000  | 0.000  |
| 95. | 7084.248 | 1.188  | 0.000  | 4052.629 | -1.930 | 0.000  | 4061.275 | 0.000  | 0.000  |
| 96. | 7085.783 | 1.430  | 0.000  | 4049.574 | -2.300 | 0.000  | 4061.275 | 0.000  | 0.000  |
| 97. | 7087.538 | 1.690  | 0.000  | 4046.091 | -2.650 | 0.000  | 4061.275 | 0.000  | 0.000  |
| 98. | 7089.518 | 1.968  | 0.000  | 4042.199 | -2.990 | 0.000  | 4061.275 | 0.000  | 0.000  |
| 99. | 7091.736 | 2.268  | 0.000  | 4037.919 | -3.320 | 0.000  | 4061.275 | 0.000  | 0.000  |

Z-PLANE (XY-PLANE) YTTRIUM GALLIUM GARNET

BULK

|      | LRCVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 7894.176 | 1.160  | 0.000  | 4037.919 | -3.630  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 101. | 7896.820 | 1.270  | 0.000  | 4033.271 | -3.920  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 102. | 7899.654 | 1.350  | 0.000  | 4028.280 | -4.190  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 103. | 7102.663 | 1.430  | 0.000  | 4022.971 | -4.450  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 104. | 7105.432 | 1.500  | 0.000  | 4017.371 | -4.680  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 105. | 7109.144 | 1.560  | 0.000  | 4011.504 | -4.890  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 106. | 7112.980 | 1.610  | 0.000  | 4005.412 | -5.070  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 107. | 7116.124 | 1.660  | 0.000  | 3999.113 | -5.230  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 108. | 7119.756 | 1.690  | 0.000  | 3992.642 | -5.370  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 109. | 7123.459 | 1.720  | 0.000  | 3986.032 | -5.480  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 110. | 7127.214 | 1.740  | 0.000  | 3979.315 | -5.560  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 111. | 7131.081 | 1.750  | 0.000  | 3972.524 | -5.620  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 112. | 7134.802 | 1.750  | 0.000  | 3965.693 | -5.640  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 113. | 7138.599 | 1.740  | 0.000  | 3958.854 | -5.650  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 114. | 7142.373 | 1.730  | 0.000  | 3952.041 | -5.620  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 115. | 7146.107 | 1.700  | 0.000  | 3945.286 | -5.570  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 116. | 7149.781 | 1.670  | 0.000  | 3938.623 | -5.490  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 117. | 7153.380 | 1.630  | 0.000  | 3932.083 | -5.380  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 118. | 7156.886 | 1.568  | 0.000  | 3925.696 | -5.250  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 119. | 7160.284 | 1.530  | 0.000  | 3919.497 | -5.090  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 120. | 7163.556 | 1.470  | 0.000  | 3913.510 | -4.910  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 121. | 7166.693 | 1.400  | 0.000  | 3907.767 | -4.730  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 122. | 7169.675 | 1.330  | 0.000  | 3902.293 | -4.480  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 123. | 7172.491 | 1.250  | 0.000  | 3897.114 | -4.220  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 124. | 7175.126 | 1.160  | 0.000  | 3892.256 | -3.950  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 125. | 7177.576 | 1.070  | 0.000  | 3887.740 | -3.660  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 126. | 7179.823 | .980   | 0.000  | 3883.589 | -3.350  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 127. | 7181.861 | .880   | 0.000  | 3879.820 | -3.020  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 128. | 7183.679 | .760   | 0.000  | 3876.453 | -2.680  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 129. | 7185.270 | .670   | 0.000  | 3873.502 | -2.320  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 130. | 7186.629 | .570   | 0.000  | 3870.981 | -1.950  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 131. | 7187.746 | .468   | 0.000  | 3868.903 | -1.570  | 0.000   | 4061.275 | -0.000  | 0.000   |
| 132. | 7188.623 | .340   | 0.000  | 3867.276 | -1.190  | 0.000   | 4061.275 | 0.000   | 0.000   |
| 133. | 7189.251 | .230   | 0.000  | 3866.109 | -.790   | 0.000   | 4061.275 | -0.000  | 0.000   |
| 134. | 7189.629 | .120   | 0.000  | 3865.406 | 0.000   | 0.000   | 4061.275 | 0.000   | 0.000   |
| 135. | 7189.755 | -.100  | 0.000  | 3865.172 | .400    | 0.000   | 4061.275 | -0.000  | 0.000   |
| 136. | 7189.629 | -.230  | 0.000  | 3865.006 | .790    | 0.000   | 4061.275 | 0.000   | 0.000   |
| 137. | 7189.251 | -.340  | 0.000  | 3865.109 | 1.190   | 0.000   | 4061.275 | -0.000  | 0.000   |
| 138. | 7188.623 | -.468  | 0.000  | 3865.406 | 1.570   | 0.000   | 4061.275 | 0.000   | 0.000   |
| 139. | 7187.746 | -.570  | 0.000  | 3865.903 | 1.950   | 0.000   | 4061.275 | -0.000  | 0.000   |
| 140. | 7186.629 | -.670  | 0.000  | 3870.981 | 2.320   | 0.000   | 4061.275 | 0.000   | 0.000   |
| 141. | 7185.270 | -.760  | 0.000  | 3873.502 | 2.680   | 0.000   | 4061.275 | -0.000  | 0.000   |
| 142. | 7183.679 | -.880  | 0.000  | 3876.453 | 3.020   | 0.000   | 4061.275 | 0.000   | 0.000   |
| 143. | 7181.861 | -.980  | 0.000  | 3879.820 | 3.350   | 0.000   | 4061.275 | -0.000  | 0.000   |
| 144. | 7179.823 | -1.070 | 0.000  | 3883.589 | 3.660   | 0.000   | 4061.275 | 0.000   | 0.000   |
| 145. | 7177.576 | -1.160 | 0.000  | 3887.740 | 3.950   | 0.000   | 4061.275 | -0.000  | 0.000   |
| 146. | 7175.126 | -1.250 | 0.000  | 3892.256 | 4.220   | 0.000   | 4061.275 | 0.000   | 0.000   |
| 147. | 7172.491 | -1.330 | 0.000  | 3897.114 | 4.480   | 0.000   | 4061.275 | -0.000  | 0.000   |
| 148. | 7169.675 | -1.400 | 0.000  | 3902.293 | 4.700   | 0.000   | 4061.275 | 0.000   | 0.000   |
| 149. | 7166.693 | -1.460 | 0.000  | 3907.767 |         | 0.000   | 4061.275 | -0.000  | 0.000   |

| Z-PLANE (XY-PLANE) YTTRIUM GALLIUM GARNET |        |       |          |        |        |          |        |        |        |
|---|--------|-------|----------|--------|--------|----------|--------|--------|--------|
|   | LPH12  | LPH13 | FSPVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 | BULK   |
| 150.                                      | -1.470 | 0.000 | 393.510  | 4.910  | 0.000  | 4061.275 | 0.000  | 0.000  | SSPH13 |
| 151.                                      | -1.530 | 0.000 | 3919.497 | 5.090  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 152.                                      | -1.560 | 0.000 | 3925.696 | 5.250  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 153.                                      | -1.630 | 0.000 | 3932.083 | 5.380  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 154.                                      | -1.670 | 0.000 | 3938.623 | 5.490  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 155.                                      | -1.700 | 0.000 | 3945.246 | 5.570  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 156.                                      | -1.730 | 0.000 | 3952.041 | 5.620  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 157.                                      | -1.740 | 0.000 | 3958.894 | 5.650  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 158.                                      | -1.750 | 0.000 | 3965.693 | 5.640  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 159.                                      | -1.750 | 0.000 | 3972.524 | 5.620  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 160.                                      | -1.740 | 0.000 | 3979.315 | 5.560  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 161.                                      | -1.720 | 0.000 | 3986.032 | 5.480  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 162.                                      | -1.690 | 0.000 | 3992.642 | 5.370  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 163.                                      | -1.660 | 0.000 | 3999.113 | 5.230  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 164.                                      | -1.610 | 0.000 | 4005.412 | 5.070  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 165.                                      | -1.560 | 0.000 | 4011.504 | 4.890  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 166.                                      | -1.500 | 0.000 | 4017.371 | 4.660  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 167.                                      | -1.430 | 0.000 | 4022.971 | 4.450  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 168.                                      | -1.350 | 0.000 | 4028.250 | 4.190  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 169.                                      | -1.270 | 0.000 | 4033.271 | 3.920  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 170.                                      | -1.190 | 0.000 | 4037.919 | 3.630  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 171.                                      | -1.100 | 0.000 | 4042.199 | 3.320  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 172.                                      | -0.900 | 0.000 | 4046.091 | 2.990  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 173.                                      | -0.870 | 0.000 | 4049.574 | 2.650  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 174.                                      | -0.750 | 0.000 | 4052.629 | 2.300  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 175.                                      | -0.630 | 0.000 | 4055.242 | 1.930  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 176.                                      | -0.510 | 0.000 | 4057.399 | 1.560  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 177.                                      | -0.390 | 0.000 | 4059.066 | 1.170  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 178.                                      | -0.260 | 0.000 | 4060.301 | 0.790  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 179.                                      | -0.130 | 0.000 | 4061.031 | 0.390  | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |
| 180.                                      | 0.000  | 0.000 | 4061.275 | -0.000 | 0.000  | 4061.275 | 0.000  | 0.000  | 0.000  |

111-PLANE YTTRIUM GALLIUM GARNET

BULK

|     | LNGLVEL  | LPM112 | LPM113 | FSRVEL   | FSPM112 | FSPM113 | SSRVEL   | SSPM112 | SSPM113 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  |          |        |        |          |         |         |          |         |         |
| 1.  | 7189.755 | -0.000 | 0.000  | 4061.275 | -0.000  | 0.000   | 3682.172 | 0.000   | 0.000   |
| 2.  | 7189.750 | 0.000  | 0.000  | 4061.157 | -0.190  | -0.140  | 3685.291 | 0.000   | -1.100  |
| 3.  | 7189.766 | 0.010  | 0.170  | 4060.002 | -0.360  | -0.270  | 3685.647 | 4.000   | -1.200  |
| 4.  | 7189.780 | 0.010  | 0.250  | 4060.213 | -0.570  | -0.400  | 3686.240 | 6.000   | -1.410  |
| 5.  | 7189.799 | 0.010  | 0.330  | 4059.592 | -0.760  | -0.540  | 3687.067 | 8.000   | -1.520  |
| 6.  | 7189.824 | 0.010  | 0.410  | 4058.340 | -0.940  | -0.670  | 3688.124 | 9.990   | -1.650  |
| 7.  | 7189.853 | 0.010  | 0.490  | 4057.064 | -1.120  | -0.800  | 3689.439 | 11.000  | -1.820  |
| 8.  | 7189.887 | 0.020  | 0.570  | 4055.566 | -1.300  | -0.930  | 3673.915 | 1.370   | -1.900  |
| 9.  | 7189.925 | 0.020  | 0.650  | 4053.854 | -1.470  | -1.050  | 3672.637 | 1.200   | -1.900  |
| 10. | 7189.967 | 0.020  | 0.720  | 4051.935 | -1.640  | -1.110  | 3674.368 | 1.720   | -1.200  |
| 11. | 7190.012 | 0.020  | 0.790  | 4049.815 | -1.800  | -1.250  | 3676.700 | 1.690   | -1.320  |
| 12. | 7190.060 | 0.020  | 0.870  | 4047.504 | -1.950  | -1.410  | 3679.023 | 2.040   | -1.440  |
| 13. | 7190.111 | 0.020  | 0.930  | 4045.013 | -2.090  | -1.520  | 3681.220 | 2.190   | -1.500  |
| 14. | 7190.163 | 0.020  | 1.000  | 4042.352 | -2.220  | -1.630  | 3684.202 | 2.330   | -1.600  |
| 15. | 7190.216 | 0.020  | 1.060  | 4039.536 | -2.350  | -1.740  | 3687.332 | 2.450   | -1.680  |
| 16. | 7190.270 | 0.020  | 1.120  | 4036.576 | -2.460  | -1.830  | 3690.005 | 2.560   | -1.760  |
| 17. | 7190.324 | 0.020  | 1.180  | 4033.494 | -2.550  | -1.900  | 3693.102 | 2.660   | -1.800  |
| 18. | 7190.377 | 0.020  | 1.230  | 4030.305 | -2.630  | -2.020  | 3696.306 | 2.740   | -2.040  |
| 19. | 7190.429 | 0.020  | 1.290  | 4027.032 | -2.690  | -2.100  | 3699.593 | 2.790   | -2.130  |
| 20. | 7190.479 | 0.020  | 1.330  | 4023.699 | -2.730  | -2.160  | 3702.335 | 2.830   | -2.200  |
| 21. | 7190.527 | 0.020  | 1.380  | 4020.336 | -2.750  | -2.260  | 3706.315 | 2.840   | -2.270  |
| 22. | 7190.573 | 0.020  | 1.420  | 4016.976 | -2.730  | -2.320  | 3709.082 | 2.610   | -2.330  |
| 23. | 7190.614 | 0.020  | 1.450  | 4013.666 | -2.660  | -2.360  | 3713.000 | 2.650   | -2.390  |
| 24. | 7190.653 | 0.010  | 1.480  | 4010.450 | -2.560  | -2.440  | 3716.234 | 2.650   | -2.440  |
| 25. | 7190.686 | 0.010  | 1.510  | 4007.390 | -2.420  | -2.450  | 3719.303 | 2.480   | -2.480  |
| 26. | 7190.716 | 0.010  | 1.530  | 4004.558 | -2.200  | -2.530  | 3722.142 | 2.480   | -2.520  |
| 27. | 7190.740 | 0.010  | 1.550  | 4002.040 | -1.910  | -2.560  | 3724.667 | 1.900   | -2.500  |
| 28. | 7190.760 | 0.010  | 1.570  | 3999.924 | -1.540  | -2.540  | 3726.783 | 1.570   | -2.510  |
| 29. | 7190.773 | 0.010  | 1.580  | 3998.328 | -1.060  | -2.510  | 3728.390 | 1.100   | -2.510  |
| 30. | 7190.782 | 0.000  | 1.590  | 3997.320 | -0.560  | -2.620  | 3729.396 | 0.570   | -2.500  |
| 31. | 7190.785 | -0.000 | 1.590  | 3996.976 | 0.000   | -2.630  | 3729.742 | 0.000   | -2.600  |
| 32. | 7190.773 | -0.010 | 1.590  | 3997.320 | 0.560   | -2.620  | 3729.396 | -0.570  | -2.500  |
| 33. | 7190.740 | -0.010 | 1.570  | 3999.929 | 1.060   | -2.610  | 3728.390 | -1.100  | -2.500  |
| 34. | 7190.740 | -0.010 | 1.550  | 3999.929 | 1.540   | -2.560  | 3726.783 | -1.570  | -2.500  |
| 35. | 7190.716 | -0.010 | 1.530  | 4004.556 | 1.910   | -2.560  | 3724.667 | -1.900  | -2.500  |
| 36. | 7190.686 | -0.010 | 1.510  | 4007.390 | 2.200   | -2.530  | 3722.142 | -2.480  | -2.500  |
| 37. | 7190.653 | -0.020 | 1.480  | 4010.450 | 2.420   | -2.450  | 3719.303 | -2.480  | -2.400  |
| 38. | 7190.614 | -0.020 | 1.450  | 4013.666 | 2.600   | -2.320  | 3716.234 | -2.400  | -2.330  |
| 39. | 7190.573 | -0.020 | 1.420  | 4016.976 | 2.730   | -2.320  | 3713.000 | -2.410  | -2.330  |
| 40. | 7190.527 | -0.020 | 1.380  | 4020.336 | 2.750   | -2.260  | 3709.082 | -2.640  | -2.610  |
| 41. | 7190.479 | -0.020 | 1.330  | 4023.699 | 2.730   | -2.160  | 3706.315 | -2.650  | -2.600  |
| 42. | 7190.429 | -0.020 | 1.290  | 4027.032 | 2.690   | -2.100  | 3702.335 | -2.630  | -2.600  |
| 43. | 7190.377 | -0.020 | 1.230  | 4030.305 | 2.630   | -2.020  | 3699.593 | -2.740  | -2.040  |
| 44. | 7190.324 | -0.020 | 1.180  | 4033.494 | 2.550   | -1.900  | 3696.306 | -2.740  | -2.600  |
| 45. | 7190.270 | -0.020 | 1.120  | 4036.576 | 2.460   | -1.830  | 3693.102 | -2.600  | -1.760  |
| 46. | 7190.216 | -0.020 | 1.060  | 4039.536 | 2.350   | -1.740  | 3690.005 | -2.450  | -1.680  |
| 47. | 7190.163 | -0.020 | 1.000  | 4042.352 | 2.220   | -1.630  | 3687.332 | -2.330  | -1.600  |
| 48. | 7190.111 | -0.020 | 0.930  | 4045.013 | 2.090   | -1.520  | 3684.202 | -2.190  | -1.500  |
| 49. | 7190.060 | -0.020 | 0.870  | 4047.504 | 1.950   | -1.410  | 3681.220 | -2.040  | -1.440  |

111-PLANE YTTRIUM GALLIUM GARNET

|     | LPM112   | LPM113 | FSRVEL   | FSPM112 | FSPM113 | SSRVEL   | SSPM112 | SSPM113 |
|-----|----------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 7190.012 | -0.020 | 4049.815 | 1.800   | -1.290  | 3876.700 | -1.890  | -1.326  |
| 51. | 7189.967 | -0.020 | 4051.935 | 1.040   | -1.170  | 3074.568 | -1.720  | -1.200  |
| 52. | 7189.925 | -0.020 | 4053.054 | 1.470   | -1.050  | 3072.637 | -1.550  | -1.000  |
| 53. | 7189.887 | -0.020 | 4055.566 | 1.330   | -0.930  | 3074.915 | -1.374  | -0.820  |
| 54. | 7189.853 | -0.010 | 4057.084 | 1.120   | -0.800  | 3069.449 | -1.180  | -0.690  |
| 55. | 7189.824 | -0.010 | 4058.340 | 0.940   | -0.670  | 3060.124 | -0.990  | -0.550  |
| 56. | 7189.795 | -0.010 | 4059.392 | 0.760   | -0.540  | 3067.067 | -0.800  | -0.420  |
| 57. | 7189.780 | -0.010 | 4060.213 | 0.570   | -0.400  | 3066.240 | -0.600  | -0.280  |
| 58. | 7189.766 | -0.010 | 4060.602 | 0.360   | -0.270  | 3065.647 | -0.400  | -0.140  |
| 59. | 7189.750 | -0.000 | 4061.157 | 0.190   | -0.140  | 3065.291 | -0.200  | -0.000  |
| 60. | 7189.755 | 0.000  | 4061.275 | -0.000  | 0.000   | 3065.172 | -0.000  | 0.000   |
| 61. | 7189.758 | 0.000  | 4061.157 | -0.190  | 0.140   | 3065.291 | 0.200   | 0.000   |
| 62. | 7189.766 | 0.010  | 4060.802 | -0.380  | 0.270   | 3065.647 | 0.400   | 0.000   |
| 63. | 7189.780 | 0.010  | 4060.213 | -0.570  | 0.400   | 3066.240 | 0.600   | 0.000   |
| 64. | 7189.799 | 0.010  | 4059.392 | -0.760  | 0.540   | 3067.067 | 0.800   | 0.000   |
| 65. | 7189.824 | 0.010  | 4058.340 | -0.940  | 0.670   | 3068.124 | 0.990   | 0.000   |
| 66. | 7189.853 | 0.010  | 4057.084 | -1.120  | 0.800   | 3069.449 | 1.180   | 0.000   |
| 67. | 7189.887 | 0.020  | 4055.566 | -1.330  | 0.930   | 3072.637 | 1.370   | 0.000   |
| 68. | 7189.925 | 0.020  | 4053.054 | -1.470  | 1.050   | 3074.568 | 1.550   | 0.000   |
| 69. | 7189.967 | 0.020  | 4051.935 | -1.640  | 1.170   | 3074.915 | 1.720   | 0.000   |
| 70. | 7190.012 | 0.020  | 4049.815 | -1.800  | 1.290   | 3.76.700 | 1.890   | 0.000   |
| 71. | 7190.060 | 0.020  | 4047.504 | -1.950  | 1.410   | 3074.023 | 2.040   | 0.000   |
| 72. | 7190.111 | 0.020  | 4045.013 | -2.090  | 1.520   | 3081.528 | 2.190   | 0.000   |
| 73. | 7190.163 | 0.020  | 4042.352 | -2.220  | 1.630   | 3084.202 | 2.330   | 0.000   |
| 74. | 7190.216 | 0.020  | 4039.536 | -2.350  | 1.740   | 3087.032 | 2.450   | 0.000   |
| 75. | 7190.270 | 0.020  | 4036.576 | -2.460  | 1.830   | 3090.005 | 2.560   | 0.000   |
| 76. | 7190.324 | 0.020  | 4033.494 | -2.550  | 1.900   | 3093.102 | 2.650   | 0.000   |
| 77. | 7190.377 | 0.020  | 4030.305 | -2.630  | 2.020   | 3096.306 | 2.740   | 0.000   |
| 78. | 7190.429 | 0.020  | 4027.032 | -2.690  | 2.100   | 3099.593 | 2.810   | 0.000   |
| 79. | 7190.479 | 0.020  | 4023.695 | -2.730  | 2.180   | 3092.939 | 2.860   | 0.000   |
| 80. | 7190.527 | 0.020  | 4020.336 | -2.750  | 2.260   | 3096.315 | 2.890   | 0.000   |
| 81. | 7190.573 | 0.020  | 4016.977 | -2.730  | 2.320   | 3099.085 | 2.910   | 0.000   |
| 82. | 7190.619 | 0.020  | 4013.665 | -2.660  | 2.380   | 3093.008 | 2.850   | 0.000   |
| 83. | 7190.653 | 0.020  | 4010.450 | -2.630  | 2.440   | 3086.306 | 2.790   | 0.000   |
| 84. | 7190.687 | 0.010  | 4007.390 | -2.690  | 2.490   | 3099.593 | 2.830   | 0.000   |
| 85. | 7190.716 | 0.010  | 4004.556 | -2.720  | 2.530   | 3092.939 | 2.860   | 0.000   |
| 86. | 7190.740 | 0.010  | 4002.040 | -2.730  | 2.560   | 3096.315 | 2.890   | 0.000   |
| 87. | 7190.760 | 0.010  | 3999.929 | -2.730  | 2.590   | 3099.085 | 2.910   | 0.000   |
| 88. | 7190.774 | 0.010  | 3998.326 | -2.660  | 2.610   | 3096.390 | 2.890   | 0.000   |
| 89. | 7190.782 | 0.000  | 3997.320 | -2.560  | 2.620   | 3099.396 | 2.910   | 0.000   |
| 90. | 7190.785 | -0.000 | 3996.976 | -2.420  | 2.630   | 3099.742 | 2.920   | 0.000   |
| 91. | 7190.782 | -0.000 | 3997.320 | -2.260  | 2.620   | 3099.396 | 2.910   | 0.000   |
| 92. | 7190.774 | -0.010 | 3998.326 | -2.100  | 2.610   | 3099.742 | 2.920   | 0.000   |
| 93. | 7190.760 | -0.010 | 3999.929 | -1.950  | 2.590   | 3099.085 | 2.890   | 0.000   |
| 94. | 7190.740 | -0.010 | 4002.040 | -1.800  | 2.560   | 3096.306 | 2.860   | 0.000   |
| 95. | 7190.716 | -0.010 | 4004.556 | -1.640  | 2.530   | 3099.593 | 2.830   | 0.000   |
| 96. | 7190.687 | -0.010 | 4007.390 | -1.540  | 2.490   | 3092.939 | 2.800   | 0.000   |
| 97. | 7190.653 | -0.020 | 4010.450 | -1.460  | 2.440   | 3096.315 | 2.770   | 0.000   |
| 98. | 7190.615 | -0.020 | 4013.665 | -1.450  | 2.440   | 3093.102 | 2.770   | 0.000   |
| 99. | 7190.573 | -0.020 | 4016.977 | -1.420  | 2.420   | 3090.005 | 2.750   | 0.000   |

111-PLANE YTTRIUM GALLIUM GARNET

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 100. | 7190.527 | -0.20  | -1.380 | 4030.336 | 2.750  | 2.360  | 3906.315 | -2.640 | 2.210  |
| 101. | 7190.475 | -0.20  | -1.330 | 4323.639 | 2.730  | 2.180  | 3922.539 | -2.630 | 2.200  |
| 102. | 7190.429 | -0.20  | -1.290 | 4027.032 | 2.690  | 2.100  | 3899.593 | -2.620 | 2.130  |
| 103. | 7190.377 | -0.20  | -1.230 | 4030.305 | 2.630  | 2.020  | 3896.306 | -2.740 | 2.040  |
| 104. | 7190.324 | -0.20  | -1.180 | 4033.494 | 2.550  | 1.930  | 3893.102 | -2.660 | 1.900  |
| 105. | 7190.270 | -0.20  | -1.120 | 4036.576 | 2.460  | 1.830  | 3890.005 | -2.560 | 1.860  |
| 106. | 7190.216 | -0.20  | -1.060 | 4039.536 | 2.350  | 1.740  | 3887.032 | -2.450 | 1.760  |
| 107. | 7190.163 | -0.20  | -1.000 | 4042.352 | 2.220  | 1.630  | 3884.202 | -2.330 | 1.660  |
| 108. | 7190.111 | -0.20  | -0.936 | 4045.013 | 2.090  | 1.520  | 3881.526 | -2.190 | 1.520  |
| 109. | 7190.060 | -0.20  | -0.870 | 4047.504 | 1.950  | 1.410  | 3879.023 | -2.040 | 1.440  |
| 110. | 7190.012 | -0.20  | -0.790 | 4049.815 | 1.800  | 1.290  | 3876.700 | -1.890 | 1.320  |
| 111. | 7189.967 | -0.20  | -0.720 | 4051.935 | 1.640  | 1.170  | 3874.568 | -1.720 | 1.240  |
| 112. | 7189.925 | -0.20  | -0.650 | 4053.854 | 1.470  | 1.050  | 3872.637 | -1.550 | 1.160  |
| 113. | 7189.887 | -0.20  | -0.570 | 4055.566 | 1.300  | 0.930  | 3870.915 | -1.370 | 1.070  |
| 114. | 7189.853 | -0.10  | -0.490 | 4057.064 | 1.120  | 0.800  | 3869.399 | -1.180 | 0.920  |
| 115. | 7189.824 | -0.10  | -0.410 | 4058.346 | 0.940  | 0.670  | 3868.124 | -0.990 | 0.800  |
| 116. | 7189.799 | -0.10  | -0.330 | 4059.392 | 0.760  | 0.540  | 3867.067 | -0.800 | 0.690  |
| 117. | 7189.770 | -0.10  | -0.250 | 4060.213 | 0.570  | 0.400  | 3866.240 | -0.600 | 0.510  |
| 118. | 7189.746 | -0.10  | -0.170 | 4060.802 | 0.380  | 0.270  | 3865.647 | -0.400 | 0.330  |
| 119. | 7189.728 | -0.00  | -0.080 | 4061.157 | 0.190  | 0.140  | 3865.241 | -0.200 | 0.190  |
| 120. | 7189.715 | -0.00  | 0.000  | 4061.275 | 0.000  | 0.000  | 3865.172 | 0.000  | 0.000  |
| 121. | 7189.708 | 0.000  | 0.000  | 4061.157 | -0.190 | -0.140 | 3865.241 | 0.200  | 0.190  |
| 122. | 7189.706 | 0.10   | 0.170  | 4060.802 | -0.380 | -0.270 | 3865.647 | 0.400  | 0.330  |
| 123. | 7189.700 | 0.10   | 0.250  | 4060.213 | -0.570 | -0.400 | 3866.240 | 0.600  | 0.510  |
| 124. | 7189.700 | 0.10   | 0.330  | 4059.392 | -0.760 | -0.540 | 3867.067 | 0.800  | 0.690  |
| 125. | 7189.824 | 0.10   | 0.410  | 4058.340 | -0.940 | -0.670 | 3868.124 | 1.000  | 0.800  |
| 126. | 7189.853 | 0.10   | 0.490  | 4057.064 | -1.120 | -0.800 | 3869.399 | 1.200  | 1.000  |
| 127. | 7189.887 | 0.20   | 0.570  | 4055.566 | -1.300 | -0.930 | 3870.915 | 1.370  | 1.100  |
| 128. | 7189.925 | 0.20   | 0.650  | 4053.854 | -1.470 | -1.050 | 3872.637 | 1.550  | 1.200  |
| 129. | 7189.967 | 0.20   | 0.720  | 4051.935 | -1.640 | -1.170 | 3874.568 | 1.720  | 1.300  |
| 130. | 7190.012 | 0.20   | 0.790  | 4049.815 | -1.800 | -1.290 | 3876.700 | 1.890  | 1.400  |
| 131. | 7190.060 | 0.20   | 0.870  | 4047.504 | -1.950 | -1.410 | 3879.023 | 2.040  | 1.500  |
| 132. | 7190.111 | 0.20   | 0.930  | 4045.013 | -2.090 | -1.520 | 3881.526 | 2.190  | 1.600  |
| 133. | 7190.163 | 0.20   | 1.000  | 4042.352 | -2.220 | -1.630 | 3884.202 | 2.330  | 1.700  |
| 134. | 7190.216 | 0.20   | 1.060  | 4039.536 | -2.350 | -1.740 | 3887.032 | 2.450  | 1.800  |
| 135. | 7190.270 | 0.20   | 1.120  | 4036.576 | -2.460 | -1.830 | 3890.005 | 2.560  | 1.900  |
| 136. | 7190.324 | 0.20   | 1.180  | 4033.494 | -2.550 | -1.930 | 3893.102 | 2.660  | 2.000  |
| 137. | 7190.377 | 0.20   | 1.230  | 4030.305 | -2.630 | -2.020 | 3896.306 | 2.740  | 2.100  |
| 138. | 7190.429 | 0.20   | 1.290  | 4027.032 | -2.690 | -2.100 | 3899.593 | 2.790  | 2.130  |
| 139. | 7190.475 | 0.20   | 1.330  | 4023.699 | -2.730 | -2.180 | 3902.539 | 2.800  | 2.140  |
| 140. | 7190.527 | 0.20   | 1.380  | 4020.336 | -2.750 | -2.200 | 3906.315 | 2.800  | 2.140  |
| 141. | 7190.573 | 0.20   | 1.420  | 4016.976 | -2.730 | -2.200 | 3909.665 | 2.800  | 2.140  |
| 142. | 7190.614 | 0.20   | 1.450  | 4013.666 | -2.680 | -2.180 | 3913.008 | 2.750  | 2.130  |
| 143. | 7190.653 | 0.20   | 1.480  | 4010.450 | -2.620 | -2.160 | 3916.234 | 2.650  | 2.040  |
| 144. | 7190.666 | 0.10   | 1.510  | 4007.390 | -2.560 | -2.140 | 3919.303 | 2.500  | 2.000  |
| 145. | 7190.716 | 0.10   | 1.530  | 4004.550 | -2.500 | -2.120 | 3922.142 | 2.350  | 1.920  |
| 146. | 7190.740 | 0.10   | 1.550  | 4002.040 | -2.410 | -2.090 | 3924.667 | 2.200  | 1.860  |
| 147. | 7190.760 | 0.10   | 1.570  | 3999.929 | -2.320 | -2.060 | 3926.763 | 2.050  | 1.800  |
| 148. | 7190.773 | 0.10   | 1.580  | 3998.326 | -2.230 | -2.030 | 3928.390 | 1.900  | 1.740  |
| 149. | 7190.782 | 0.000  | 1.590  | 3997.320 | -2.140 | -2.000 | 3929.398 | 1.750  | 1.680  |



111-PLANE YTTRIUM GALLIUM GARNET

BULK

|      | LNGVEL   | LPMI12 | LPMI13 | FSRWEL   | FSPMI2 | FSPMI3 | SRWEL    | SMPMI2 | SSPMI3 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 150. | 7190.785 | 0.000  | 1.590  | 3996.976 | -0.000 | -2.630 | 3929.782 | -0.000 | -2.600 |
| 151. | 7190.782 | -0.000 | 1.590  | 3997.320 | .560   | -2.620 | 3929.398 | -1.170 | -2.530 |
| 152. | 7190.773 | -0.010 | 1.590  | 3998.326 | 1.080  | -2.610 | 3929.390 | -1.100 | -2.500 |
| 153. | 7190.760 | -0.010 | 1.570  | 3999.929 | 1.540  | -2.550 | 3929.703 | -1.570 | -2.510 |
| 154. | 7190.740 | -0.010 | 1.550  | 4002.040 | 1.910  | -2.550 | 3929.667 | -1.550 | -2.510 |
| 155. | 7189.716 | -0.010 | 1.530  | 4004.556 | 2.260  | -2.530 | 3922.182 | -2.260 | -2.500 |
| 156. | 7190.686 | -0.010 | 1.510  | 4007.390 | 2.420  | -2.490 | 3913.303 | -2.420 | -2.400 |
| 157. | 7190.653 | -0.020 | 1.480  | 4010.450 | 2.660  | -2.440 | 3910.234 | -2.660 | -2.440 |
| 158. | 7190.614 | -0.020 | 1.450  | 4013.666 | 2.860  | -2.360 | 3913.008 | -2.860 | -2.330 |
| 159. | 7190.573 | -0.020 | 1.420  | 4016.976 | 2.730  | -2.320 | 3907.005 | -2.730 | -2.330 |
| 160. | 7190.527 | -0.020 | 1.380  | 4020.336 | 2.750  | -2.260 | 3905.315 | -2.630 | -2.210 |
| 161. | 7190.479 | -0.020 | 1.330  | 4023.695 | 2.730  | -2.120 | 3902.939 | -2.630 | -2.200 |
| 162. | 7189.424 | -0.020 | 1.290  | 4027.032 | 2.690  | -2.100 | 3099.593 | -2.490 | -2.130 |
| 163. | 7190.377 | -0.020 | 1.230  | 4030.305 | 2.630  | -2.120 | 3099.306 | -2.490 | -2.090 |
| 164. | 7190.324 | -0.020 | 1.180  | 4033.494 | 2.550  | -1.930 | 3893.102 | -2.490 | -1.960 |
| 165. | 7190.270 | -0.020 | 1.120  | 4036.576 | 2.460  | -1.630 | 3890.005 | -2.560 | -1.860 |
| 166. | 7190.216 | -0.020 | 1.060  | 4039.536 | 2.350  | -1.740 | 3807.032 | -2.420 | -1.700 |
| 167. | 7190.163 | -0.020 | 1.000  | 4042.352 | 2.220  | -1.450 | 3884.202 | -2.330 | -1.600 |
| 168. | 7190.111 | -0.020 | .930   | 4045.013 | 2.090  | -1.520 | 3881.228 | -2.190 | -1.510 |
| 169. | 7190.060 | -0.020 | .870   | 4047.504 | 1.950  | -1.410 | 3876.123 | -2.040 | -1.440 |
| 170. | 7190.012 | -0.020 | .790   | 4049.815 | 1.800  | -1.250 | 3876.700 | -1.750 | -1.320 |
| 171. | 7189.967 | -0.020 | .720   | 4051.935 | 1.640  | -1.170 | 3874.568 | -1.720 | -1.230 |
| 172. | 7189.925 | -0.020 | .650   | 4053.854 | 1.470  | -1.150 | 3872.637 | -1.550 | -1.060 |
| 173. | 7189.887 | -0.020 | .570   | 4055.566 | 1.300  | -0.930 | 3871.915 | -1.370 | -0.930 |
| 174. | 7189.853 | -0.010 | .490   | 4057.064 | 1.120  | -0.600 | 3869.409 | -1.160 | -0.620 |
| 175. | 7189.824 | -0.010 | .410   | 4058.340 | .940   | -0.670 | 3869.124 | -0.940 | -0.510 |
| 176. | 7189.799 | -0.010 | .330   | 4059.392 | .760   | -0.540 | 3867.987 | -0.760 | -0.390 |
| 177. | 7189.769 | -0.010 | .250   | 4060.213 | .570   | -0.400 | 3866.240 | -0.600 | -0.310 |
| 178. | 7189.766 | -0.010 | .170   | 4060.802 | .380   | -0.270 | 3865.647 | -0.400 | -0.260 |
| 179. | 7189.758 | -0.000 | .090   | 4061.157 | .190   | -0.140 | 3865.291 | -0.200 | -0.140 |
| 180. | 7189.755 | 0.000  | -0.000 | 4061.275 | -0.000 | -0.000 | 3865.172 | 0.000  | 0.000  |

110-PLANE YTTRIUM GALLIUM GARNET

|     | LPM112   | LPM113 | FSRVEL   | FSPM112 | FSPM113 | SSRVEL   | SSPM112 | SSPM113 |
|-----|----------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 7225.698 | 0.000  | 3931.626 | 2.710   | -0.000  | 3931.625 | -2.710  | -0.000  |
| 1.  | 7225.612 | -0.000 | 3934.896 | 2.740   | 0.000   | 3928.512 | -2.490  | -0.000  |
| 2.  | 7225.351 | -0.000 | 3938.200 | 2.761   | 0.000   | 3925.680 | -2.244  | 0.000   |
| 3.  | 7224.909 | -0.000 | 3941.534 | 2.790   | 0.000   | 3923.146 | -1.999  | -0.000  |
| 4.  | 7224.284 | -0.000 | 3944.892 | 2.800   | 0.000   | 3920.922 | -1.730  | -0.000  |
| 5.  | 7223.470 | -0.000 | 3948.272 | 2.820   | 0.000   | 3919.018 | -1.460  | -0.000  |
| 6.  | 7222.467 | -0.000 | 3951.665 | 2.830   | -0.000  | 3917.444 | -1.160  | -0.000  |
| 7.  | 7221.271 | -0.000 | 3955.076 | 2.830   | 0.000   | 3916.207 | -0.890  | -0.000  |
| 8.  | 7219.883 | -0.000 | 3958.495 | 2.830   | 0.000   | 3915.315 | -0.600  | -0.000  |
| 9.  | 7218.301 | -0.000 | 3961.917 | 2.830   | 0.000   | 3914.770 | -0.310  | -0.000  |
| 10. | 7216.526 | -0.000 | 3965.335 | 2.830   | 0.000   | 3914.577 | -0.010  | -0.000  |
| 11. | 7214.561 | -0.000 | 3968.757 | 2.820   | 0.000   | 3914.736 | 0.260   | -0.000  |
| 12. | 7212.407 | -0.000 | 3972.167 | 2.810   | 0.000   | 3915.247 | 0.580   | -0.000  |
| 13. | 7210.067 | -0.000 | 3975.564 | 2.800   | 0.000   | 3916.106 | 0.870   | -0.000  |
| 14. | 7207.545 | -0.000 | 3978.945 | 2.780   | -0.000  | 3917.316 | 1.160   | -0.000  |
| 15. | 7204.847 | -0.000 | 3982.306 | 2.760   | -0.000  | 3918.804 | 1.440   | -0.000  |
| 16. | 7201.977 | -0.000 | 3985.642 | 2.730   | 0.000   | 3920.747 | 1.710   | -0.000  |
| 17. | 7198.943 | -0.000 | 3988.949 | 2.710   | 0.000   | 3922.956 | 1.960   | -0.000  |
| 18. | 7195.751 | -0.000 | 3992.224 | 2.680   | 0.000   | 3925.474 | 2.240   | -0.000  |
| 19. | 7192.410 | -0.000 | 3995.463 | 2.640   | 0.000   | 3928.307 | 2.480   | -0.000  |
| 20. | 7188.928 | -0.000 | 3998.661 | 2.610   | -0.000  | 3931.425 | 2.720   | -0.000  |
| 21. | 7185.315 | -0.000 | 4001.815 | 2.570   | 0.000   | 3934.820 | 2.940   | -0.000  |
| 22. | 7181.580 | -0.000 | 4004.922 | 2.520   | -0.000  | 3938.475 | 3.150   | -0.000  |
| 23. | 7177.736 | -0.000 | 4007.977 | 2.460   | 0.000   | 3942.373 | 3.340   | -0.000  |
| 24. | 7173.794 | -0.000 | 4010.977 | 2.430   | 0.000   | 3946.496 | 3.510   | -0.000  |
| 25. | 7169.765 | -0.000 | 4013.910 | 2.380   | -0.000  | 3950.823 | 3.670   | -0.000  |
| 26. | 7165.664 | -0.000 | 4016.798 | 2.330   | 0.000   | 3955.336 | 3.810   | -0.000  |
| 27. | 7161.502 | -0.000 | 4019.612 | 2.270   | 0.000   | 3960.011 | 3.930   | -0.000  |
| 28. | 7157.295 | -0.000 | 4022.357 | 2.210   | 0.000   | 3964.827 | 4.030   | -0.000  |
| 29. | 7153.057 | -0.000 | 4025.030 | 2.150   | 0.000   | 3969.760 | 4.110   | -0.000  |
| 30. | 7148.802 | -0.000 | 4027.624 | 2.090   | 0.000   | 3974.786 | 4.180   | -0.000  |
| 31. | 7144.545 | -0.000 | 4030.145 | 2.020   | -0.000  | 3979.880 | 4.220   | -0.000  |
| 32. | 7140.303 | -0.000 | 4032.589 | 1.950   | 0.000   | 3985.019 | 4.240   | -0.000  |
| 33. | 7136.091 | -0.000 | 4034.944 | 1.880   | 0.000   | 3990.176 | 4.240   | -0.000  |
| 34. | 7131.925 | -0.000 | 4037.214 | 1.810   | 0.000   | 3995.326 | 4.210   | -0.000  |
| 35. | 7127.821 | -0.000 | 4039.394 | 1.730   | 0.000   | 4000.443 | 4.170   | -0.000  |
| 36. | 7123.795 | -0.000 | 4041.482 | 1.660   | -0.000  | 4005.503 | 4.110   | -0.000  |
| 37. | 7119.862 | -0.000 | 4043.477 | 1.580   | 0.000   | 4010.578 | 4.030   | -0.000  |
| 38. | 7116.039 | -0.000 | 4045.375 | 1.500   | -0.000  | 4015.646 | 3.920   | -0.000  |
| 39. | 7112.342 | -0.000 | 4047.175 | 1.420   | 0.000   | 4020.680 | 3.800   | -0.000  |
| 40. | 7108.786 | -0.000 | 4048.874 | 1.340   | 0.000   | 4025.657 | 3.660   | -0.000  |
| 41. | 7105.365 | -0.000 | 4050.471 | 1.250   | 0.000   | 4029.054 | 3.500   | -0.000  |
| 42. | 7102.154 | -0.000 | 4051.963 | 1.170   | 0.000   | 4033.247 | 3.320   | -0.000  |
| 43. | 7099.107 | -0.000 | 4053.350 | 1.080   | 0.000   | 4037.216 | 3.130   | -0.000  |
| 44. | 7096.257 | -0.000 | 4054.629 | .990    | -0.000  | 4040.940 | 2.920   | -0.000  |
| 45. | 7093.617 | -0.000 | 4055.799 | .900    | 0.000   | 4044.400 | 2.690   | -0.000  |
| 46. | 7091.199 | -0.000 | 4056.858 | .810    | 0.000   | 4047.577 | 2.440   | -0.000  |
| 47. | 7088.913 | -0.000 | 4057.806 | .720    | 0.000   | 4050.455 | 2.210   | -0.000  |
| 48. | 7087.065 | -0.000 | 4058.641 | .630    | 0.000   | 4053.014 | 1.940   | -0.000  |
| 49. | 7085.376 | -0.000 | 4059.363 | .540    | -0.000  | 4055.225 | 1.670   | -0.000  |

BULK

| 110-PLANE YTTRIUM GALLIUM GARNET |        |        |          |        |        |          |        |        |      |  |
|----------------------------------|--------|--------|----------|--------|--------|----------|--------|--------|------|--|
|                                  | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SRVEL    | SSPH12 | SSPH13 | BULK |  |
| 50.                              | -0.600 | 0.000  | 4059.970 | .440   | 0.000  | 4057.452 | 1.390  | 0.000  |      |  |
| 51.                              | -0.400 | 0.000  | 4060.462 | .350   | 0.000  | 4056.700 | 1.110  | 0.000  |      |  |
| 52.                              | -0.350 | 0.000  | 4060.835 | .260   | 0.000  | 4053.690 | .620   | 0.000  |      |  |
| 53.                              | -0.220 | 0.000  | 4061.095 | .160   | -0.000 | 4060.710 | .520   | 0.000  |      |  |
| 54.                              | -0.100 | 0.000  | 4061.243 | .070   | -0.000 | 4061.175 | .670   | 0.000  |      |  |
| 55.                              | .030   | 0.000  | 4061.262 | -.020  | -0.000 | 4061.271 | -.520  | 0.000  |      |  |
| 56.                              | .160   | 0.000  | 4061.132 | -.120  | -0.000 | 4060.375 | -.360  | 0.000  |      |  |
| 57.                              | .290   | 0.000  | 4060.976 | -.210  | 0.000  | 4060.326 | -.660  | 0.000  |      |  |
| 58.                              | .420   | 0.000  | 4060.695 | -.310  | 0.000  | 4059.306 | -.570  | 0.000  |      |  |
| 59.                              | .550   | 0.000  | 4060.217 | -.400  | 0.000  | 4057.927 | -1.260 | 0.000  |      |  |
| 60.                              | .670   | 0.000  | 4059.664 | -.450  | 0.000  | 4056.193 | -1.540 | 0.000  |      |  |
| 61.                              | .750   | 0.000  | 4058.996 | -.500  | 0.000  | 4054.116 | -1.820 | 0.000  |      |  |
| 62.                              | .900   | -0.000 | 4058.214 | -.600  | 0.000  | 4051.705 | -2.500 | 0.000  |      |  |
| 63.                              | 1.020  | 0.000  | 4057.320 | -.770  | -0.000 | 4048.373 | -2.340 | 0.000  |      |  |
| 64.                              | 1.120  | -0.000 | 4056.333 | -.860  | -0.000 | 4045.935 | -2.560 | 0.000  |      |  |
| 65.                              | 1.220  | 0.000  | 4055.195 | -.950  | -0.000 | 4042.607 | -2.420 | 0.000  |      |  |
| 66.                              | 1.320  | 0.000  | 4053.967 | -1.040 | 0.000  | 4039.006 | -3.030 | 0.000  |      |  |
| 67.                              | 1.410  | 0.000  | 4052.631 | -1.130 | 0.000  | 4035.150 | -3.230 | 0.000  |      |  |
| 68.                              | 1.500  | -0.000 | 4051.189 | -1.210 | 0.000  | 4031.060 | -3.420 | 0.000  |      |  |
| 69.                              | 1.570  | 0.000  | 4049.641 | -1.300 | 0.000  | 4026.756 | -3.560 | 0.000  |      |  |
| 70.                              | 1.640  | 0.000  | 4047.990 | -1.380 | -0.000 | 4022.261 | -3.740 | 0.000  |      |  |
| 71.                              | 1.710  | 0.000  | 4046.237 | -1.460 | 0.000  | 4017.596 | -3.670 | 0.000  |      |  |
| 72.                              | 1.760  | 0.000  | 4044.385 | -1.540 | -0.000 | 4012.791 | -3.560 | 0.000  |      |  |
| 73.                              | 1.810  | 0.000  | 4042.436 | -1.620 | -0.000 | 4007.663 | -4.070 | 0.000  |      |  |
| 74.                              | 1.860  | 0.000  | 4040.391 | -1.700 | 0.000  | 4002.940 | -4.140 | 0.000  |      |  |
| 75.                              | 1.890  | 0.000  | 4038.254 | -1.770 | -0.000 | 3997.747 | -4.200 | 0.000  |      |  |
| 76.                              | 1.920  | 0.000  | 4036.026 | -1.850 | 0.000  | 3992.809 | -4.230 | 0.000  |      |  |
| 77.                              | 1.940  | 0.000  | 4033.711 | -1.920 | 0.000  | 3987.452 | -4.240 | 0.000  |      |  |
| 78.                              | 1.950  | -0.000 | 4031.311 | -1.990 | -0.000 | 3982.302 | -4.230 | 0.000  |      |  |
| 79.                              | 1.950  | 0.000  | 4028.826 | -2.050 | 0.000  | 3977.163 | -4.200 | 0.000  |      |  |
| 80.                              | 1.950  | 0.000  | 4026.266 | -2.120 | -0.000 | 3972.122 | -4.150 | 0.000  |      |  |
| 81.                              | 1.940  | 0.000  | 4023.628 | -2.190 | 0.000  | 3967.142 | -4.070 | 0.000  |      |  |
| 82.                              | 1.930  | 0.000  | 4020.916 | -2.260 | -0.000 | 3962.260 | -3.960 | 0.000  |      |  |
| 83.                              | 1.910  | 0.000  | 4018.134 | -2.300 | -0.000 | 3957.524 | -3.870 | 0.000  |      |  |
| 84.                              | 1.880  | 0.000  | 4015.289 | -2.350 | 0.000  | 3952.932 | -3.740 | 0.000  |      |  |
| 85.                              | 1.840  | -0.000 | 4012.373 | -2.410 | -0.000 | 3948.514 | -3.590 | 0.000  |      |  |
| 86.                              | 1.800  | 0.000  | 4009.400 | -2.460 | 0.000  | 3944.292 | -3.420 | 0.000  |      |  |
| 87.                              | 1.760  | 0.000  | 4006.370 | -2.500 | 0.000  | 3940.205 | -3.440 | 0.000  |      |  |
| 88.                              | 1.720  | 0.000  | 4003.288 | -2.550 | -0.000 | 3936.054 | -3.400 | 0.000  |      |  |
| 89.                              | 1.650  | 0.000  | 4000.156 | -2.590 | 0.000  | 3932.994 | -2.830 | 0.000  |      |  |
| 90.                              | 1.590  | 0.000  | 3996.976 | -2.630 | -0.000 | 3929.743 | -2.600 | 0.000  |      |  |
| 91.                              | 1.520  | 0.000  | 3993.756 | -2.660 | 0.000  | 3926.777 | -2.360 | 0.000  |      |  |
| 92.                              | 1.450  | 0.000  | 3990.499 | -2.690 | 0.000  | 3924.106 | -2.100 | 0.000  |      |  |
| 93.                              | 1.380  | 0.000  | 3987.207 | -2.720 | -0.000 | 3921.750 | -1.640 | 0.000  |      |  |
| 94.                              | 1.310  | 0.000  | 3983.864 | -2.750 | 0.000  | 3919.712 | -1.170 | 0.000  |      |  |
| 95.                              | 1.230  | -0.000 | 3980.534 | -2.770 | -0.000 | 3918.005 | -1.290 | 0.000  |      |  |
| 96.                              | 1.150  | 0.000  | 3977.163 | -2.790 | 0.000  | 3916.695 | -1.680 | 0.000  |      |  |
| 97.                              | 1.060  | 0.000  | 3973.712 | -2.800 | 0.000  | 3915.610 | -1.710 | 0.000  |      |  |
| 98.                              | .980   | 0.000  | 3970.368 | -2.820 | 0.000  | 3914.933 | -1.420 | 0.000  |      |  |
| 99.                              | .890   | -0.000 | 3966.993 | -2.830 | -0.000 | 3914.606 | -1.130 | 0.000  |      |  |

110-PLANE YTTRIUM GALLIUM GARNET

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSPH12   | FSPH13 | SSPH12   | SSPH13 |
|------|----------|--------|--------|----------|--------|----------|--------|
| 100. | 7217.467 | .600   | -0.000 | 3933.533 | 0.000  | 3214.635 | -0.000 |
| 101. | 7219.160 | .720   | 0.000  | 3960.110 | 0.000  | 3915.014 | -0.000 |
| 102. | 7220.640 | .630   | 0.000  | 3956.690 | 0.000  | 3915.743 | -0.000 |
| 103. | 7221.927 | .540   | 0.000  | 3953.276 | 0.000  | 3916.018 | -0.000 |
| 104. | 7223.021 | .450   | 0.000  | 3949.873 | 0.000  | 3916.233 | -0.000 |
| 105. | 7223.923 | .370   | 0.000  | 3946.465 | 0.000  | 3914.963 | -0.000 |
| 106. | 7224.637 | .260   | 0.000  | 3943.116 | 0.000  | 3922.057 | -0.000 |
| 107. | 7225.165 | .200   | 0.000  | 3939.770 | 0.000  | 3924.446 | -0.000 |
| 108. | 7225.511 | .120   | 0.000  | 3936.452 | -0.000 | 3927.139 | -0.000 |
| 109. | 7225.675 | .040   | 0.000  | 3933.165 | -0.000 | 3930.122 | -0.000 |
| 110. | 7225.674 | -.040  | 0.000  | 3929.913 | -0.000 | 3933.362 | -0.000 |
| 111. | 7225.503 | -.110  | 0.000  | 3926.701 | 0.000  | 3936.903 | -0.000 |
| 112. | 7225.172 | -.190  | -0.000 | 3923.532 | 0.000  | 3940.066 | 0.000  |
| 113. | 7224.668 | -.250  | -0.000 | 3920.412 | 0.000  | 3944.656 | 0.000  |
| 114. | 7224.060 | -.320  | 0.000  | 3917.342 | -0.000 | 3946.856 | 0.000  |
| 115. | 7223.296 | -.360  | 0.000  | 3914.326 | 0.000  | 3953.241 | 0.000  |
| 116. | 7222.404 | -.430  | 0.000  | 3911.373 | 0.000  | 3957.792 | 0.000  |
| 117. | 7221.355 | -.460  | 0.000  | 3908.462 | 0.000  | 3962.468 | 0.000  |
| 118. | 7220.276 | -.530  | 0.000  | 3905.656 | 0.000  | 3967.306 | 0.000  |
| 119. | 7219.064 | -.576  | 0.000  | 3902.901 | 0.000  | 3972.524 | 0.000  |
| 120. | 7217.763 | -.610  | -0.000 | 3900.219 | 0.000  | 3977.218 | 0.000  |
| 121. | 7216.368 | -.640  | 0.000  | 3897.615 | 0.000  | 3982.264 | 0.000  |
| 122. | 7214.946 | -.670  | 0.000  | 3895.051 | 0.000  | 3987.330 | 0.000  |
| 123. | 7213.457 | -.680  | -0.000 | 3892.651 | 0.000  | 3992.416 | -0.000 |
| 124. | 7211.926 | -.760  | 0.000  | 3890.297 | -0.000 | 3997.474 | -0.000 |
| 125. | 7210.366 | -.710  | -0.000 | 3888.033 | 0.000  | 4002.466 | -0.000 |
| 126. | 7208.790 | -.720  | 0.000  | 3885.862 | 0.000  | 4007.431 | -0.000 |
| 127. | 7207.205 | -.720  | 0.000  | 3883.787 | 0.000  | 4012.283 | -0.000 |
| 128. | 7205.636 | -.710  | 0.000  | 3881.810 | 0.000  | 4017.117 | -0.000 |
| 129. | 7204.083 | -.700  | 0.000  | 3879.933 | 0.000  | 4021.816 | -0.000 |
| 130. | 7202.559 | -.690  | -0.000 | 3878.160 | 0.000  | 4026.452 | -0.000 |
| 131. | 7201.076 | -.660  | -0.000 | 3876.492 | -0.000 | 4030.306 | -0.000 |
| 132. | 7199.645 | -.640  | -0.000 | 3874.932 | 0.000  | 4034.357 | -0.000 |
| 133. | 7198.283 | -.610  | 0.000  | 3873.462 | 0.000  | 4038.185 | -0.000 |
| 134. | 7196.990 | -.570  | 0.000  | 3872.143 | 0.000  | 4041.772 | -0.000 |
| 135. | 7195.760 | -.530  | 0.000  | 3870.916 | -0.000 | 4045.099 | 0.000  |
| 136. | 7194.661 | -.490  | 0.000  | 3869.807 | 0.000  | 4048.152 | -0.000 |
| 137. | 7193.640 | -.440  | -0.000 | 3868.813 | 0.000  | 4050.914 | -0.000 |
| 138. | 7192.727 | -.390  | -0.000 | 3867.937 | 0.000  | 4053.372 | -0.000 |
| 139. | 7191.926 | -.340  | 0.000  | 3867.180 | 0.000  | 4055.515 | 0.000  |
| 140. | 7191.244 | -.260  | 0.000  | 3866.542 | 0.000  | 4057.331 | 0.000  |
| 141. | 7190.686 | -.230  | -0.000 | 3866.025 | -0.000 | 4058.812 | -0.000 |
| 142. | 7190.256 | -.170  | 0.000  | 3865.630 | 0.000  | 4059.951 | -0.000 |
| 143. | 7189.957 | -.110  | 0.000  | 3865.356 | 0.000  | 4060.741 | -0.000 |
| 144. | 7189.791 | -.050  | 0.000  | 3865.205 | 0.000  | 4061.179 | -0.000 |
| 145. | 7189.759 | .020   | 0.000  | 3865.176 | 0.000  | 4061.263 | -0.000 |
| 146. | 7189.862 | .080   | 0.000  | 3865.269 | 0.000  | 4061.992 | -0.000 |
| 147. | 7190.099 | .140   | 0.000  | 3865.485 | 0.000  | 4062.367 | -0.000 |
| 148. | 7190.467 | .200   | 0.000  | 3865.823 | 0.000  | 4062.593 | -0.000 |
| 149. | 7190.965 | .260   | 0.000  | 3866.283 | 0.000  | 4062.673 | -0.000 |

110-PLANE YTTRIUM GALLIUM GARNET

BULK

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPMI12 | FSFMI13 | SSRVEL   | SSPHI12 | SSFMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 150. | 7191.569 | .310   | 0.000  | 3866.664 | .544    | 0.000   | 4026.414 | -1.480  | 0.000   |
| 151. | 7192.334 | .370   | 0.000  | 3867.565 | .650    | 0.000   | 4056.424 | -1.740  | 0.000   |
| 152. | 7193.195 | .420   | 0.000  | 3868.385 | .750    | 0.000   | 4052.113 | -2.000  | 0.000   |
| 153. | 7194.166 | .470   | 0.000  | 3869.323 | .850    | 0.000   | 4043.492 | -2.250  | 0.000   |
| 154. | 7195.240 | .510   | 0.000  | 3870.375 | .940    | 0.000   | 4040.575 | -2.400  | 0.000   |
| 155. | 7196.406 | .550   | 0.000  | 3871.550 | 1.040   | 0.000   | 4043.375 | -2.710  | 0.000   |
| 156. | 7197.663 | .590   | 0.000  | 3872.836 | 1.140   | 0.000   | 4035.504 | -2.520  | 0.000   |
| 157. | 7198.996 | .620   | 0.000  | 3874.234 | 1.230   | 0.000   | 4036.193 | -3.120  | 0.000   |
| 158. | 7200.396 | .650   | 0.000  | 3875.742 | 1.320   | 0.000   | 4032.245 | -3.300  | 0.000   |
| 159. | 7201.854 | .680   | 0.000  | 3877.355 | 1.410   | -0.000  | 4028.084 | -3.470  | 0.000   |
| 160. | 7203.359 | .690   | 0.000  | 3879.083 | 1.500   | 0.000   | 4023.731 | -3.620  | 0.000   |
| 161. | 7204.900 | .710   | 0.000  | 3880.911 | 1.590   | 0.000   | 4019.207 | -3.750  | 0.000   |
| 162. | 7206.465 | .720   | 0.000  | 3882.841 | 1.670   | -0.000  | 4014.534 | -3.870  | 0.000   |
| 163. | 7208.044 | .720   | 0.000  | 3884.871 | 1.760   | 0.000   | 4005.734 | -3.970  | 0.000   |
| 164. | 7209.623 | .720   | 0.000  | 3886.997 | 1.840   | 0.000   | 4004.630 | -4.050  | 0.000   |
| 165. | 7211.152 | .710   | 0.000  | 3889.217 | 1.910   | 0.000   | 3999.047 | -4.110  | 0.000   |
| 166. | 7212.739 | .700   | 0.000  | 3891.529 | 1.990   | 0.000   | 3994.807 | -4.150  | 0.000   |
| 167. | 7214.250 | .680   | 0.000  | 3893.929 | 2.060   | 0.000   | 3989.736 | -4.170  | 0.000   |
| 168. | 7215.716 | .650   | 0.000  | 3896.413 | 2.130   | 0.000   | 3984.657 | -4.170  | 0.000   |
| 169. | 7217.123 | .620   | 0.000  | 3898.980 | 2.190   | 0.000   | 3979.575 | -4.150  | 0.000   |
| 170. | 7218.460 | .590   | 0.000  | 3901.626 | 2.260   | 0.000   | 3974.573 | -4.120  | 0.000   |
| 171. | 7219.716 | .550   | 0.000  | 3904.347 | 2.320   | -0.000  | 3969.617 | -4.060  | 0.000   |
| 172. | 7220.860 | .510   | 0.000  | 3907.139 | 2.370   | 0.000   | 3964.749 | -3.950  | 0.000   |
| 173. | 7221.942 | .460   | -0.000 | 3910.000 | 2.430   | -0.000  | 3959.992 | -3.800  | 0.000   |
| 174. | 7222.890 | .400   | 0.000  | 3912.926 | 2.480   | 0.000   | 3955.370 | -3.770  | 0.000   |
| 175. | 7223.716 | .350   | -0.000 | 3915.913 | 2.530   | 0.000   | 3950.904 | -3.640  | 0.000   |
| 176. | 7224.409 | .280   | -0.000 | 3918.956 | 2.570   | 0.000   | 3946.615 | -3.400  | 0.000   |
| 177. | 7224.962 | .220   | 0.000  | 3922.053 | 2.610   | 0.000   | 3942.524 | -3.310  | 0.000   |
| 178. | 7225.366 | .150   | 0.000  | 3925.200 | 2.650   | 0.000   | 3938.650 | -3.130  | 0.000   |
| 179. | 7225.614 | .080   | 0.000  | 3928.392 | 2.680   | -0.000  | 3935.013 | -2.930  | 0.000   |
| 180. | 7225.698 | 0.000  | 0.000  | 3931.625 | 2.710   | 0.000   | 3931.626 | -2.710  | 0.000   |

|     | Z-PLANE (XY-PLANE) YIG |        |          |         | BULK    |          |         |         |
|-----|------------------------|--------|----------|---------|---------|----------|---------|---------|
|     | LMPH12                 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
| 0.  | 7213.246               | 0.000  | 3844.160 | 0.000   | 0.000   | 3844.160 | 0.000   | 0.000   |
| 1.  | 7213.183               | -0.60  | 3844.160 | 0.000   | 0.000   | 3844.283 | .210    | 0.000   |
| 2.  | 7212.986               | -1.20  | 3844.160 | 0.000   | 0.000   | 3844.651 | .420    | 0.000   |
| 3.  | 7212.680               | -1.80  | 3844.160 | 0.000   | 0.000   | 3845.263 | .630    | 0.000   |
| 4.  | 7212.206               | -2.40  | 3844.160 | 0.000   | 0.000   | 3846.115 | 1.030   | 0.000   |
| 5.  | 7211.625               | -3.00  | 3844.160 | 0.000   | 0.000   | 3847.204 | 1.220   | 0.000   |
| 6.  | 7210.920               | -3.50  | 3844.160 | 0.000   | 0.000   | 3848.525 | 1.410   | 0.000   |
| 7.  | 7210.095               | -4.00  | 3844.160 | 0.000   | 0.000   | 3850.071 | 1.590   | 0.000   |
| 8.  | 7209.153               | -4.50  | 3844.160 | 0.000   | 0.000   | 3851.834 | 1.770   | 0.000   |
| 9.  | 7208.096               | -5.10  | 3844.160 | 0.000   | 0.000   | 3853.807 | 1.930   | 0.000   |
| 10. | 7206.936               | -5.50  | 3844.160 | 0.000   | 0.000   | 3855.990 | 2.090   | 0.000   |
| 11. | 7205.672               | -6.00  | 3844.160 | 0.000   | 0.000   | 3858.342 | 2.250   | 0.000   |
| 12. | 7204.311               | -6.40  | 3844.160 | 0.000   | 0.000   | 3860.862 | 2.410   | 0.000   |
| 13. | 7202.860               | -6.80  | 3844.160 | 0.000   | 0.000   | 3863.549 | 2.570   | 0.000   |
| 14. | 7201.325               | -7.20  | 3844.160 | 0.000   | 0.000   | 3866.449 | 2.730   | 0.000   |
| 15. | 7199.714               | -7.50  | 3844.160 | 0.000   | 0.000   | 3869.447 | 2.890   | 0.000   |
| 16. | 7198.035               | -7.80  | 3844.160 | 0.000   | 0.000   | 3872.571 | 3.050   | 0.000   |
| 17. | 7196.294               | -8.10  | 3844.160 | 0.000   | 0.000   | 3875.805 | 3.210   | 0.000   |
| 18. | 7194.500               | -8.30  | 3844.160 | 0.000   | 0.000   | 3879.133 | 3.370   | 0.000   |
| 19. | 7192.663               | -8.50  | 3844.160 | 0.000   | 0.000   | 3882.540 | 3.530   | 0.000   |
| 20. | 7190.789               | -8.80  | 3844.160 | 0.000   | 0.000   | 3886.006 | 3.690   | 0.000   |
| 21. | 7188.885               | -9.00  | 3844.160 | 0.000   | 0.000   | 3889.522 | 3.850   | 0.000   |
| 22. | 7186.972               | -9.20  | 3844.160 | 0.000   | 0.000   | 3893.083 | 4.010   | 0.000   |
| 23. | 7185.047               | -9.40  | 3844.160 | 0.000   | 0.000   | 3896.615 | 4.170   | 0.000   |
| 24. | 7183.123               | -9.60  | 3844.160 | 0.000   | 0.000   | 3900.151 | 4.330   | 0.000   |
| 25. | 7181.210               | -9.70  | 3844.160 | 0.000   | 0.000   | 3903.683 | 4.490   | 0.000   |
| 26. | 7179.316               | -9.80  | 3844.160 | 0.000   | 0.000   | 3907.184 | 4.650   | 0.000   |
| 27. | 7177.453               | -9.90  | 3844.160 | 0.000   | 0.000   | 3910.586 | 4.810   | 0.000   |
| 28. | 7175.627               | -9.90  | 3844.160 | 0.000   | 0.000   | 3913.934 | 4.970   | 0.000   |
| 29. | 7173.850               | -9.90  | 3844.160 | 0.000   | 0.000   | 3917.191 | 5.130   | 0.000   |
| 30. | 7172.129               | -9.90  | 3844.160 | 0.000   | 0.000   | 3920.341 | 5.290   | 0.000   |
| 31. | 7170.474               | -9.90  | 3844.160 | 0.000   | 0.000   | 3923.387 | 5.450   | 0.000   |
| 32. | 7168.893               | -9.90  | 3844.160 | 0.000   | 0.000   | 3926.336 | 5.610   | 0.000   |
| 33. | 7167.393               | -9.90  | 3844.160 | 0.000   | 0.000   | 3929.184 | 5.770   | 0.000   |
| 34. | 7165.983               | -9.90  | 3844.160 | 0.000   | 0.000   | 3931.964 | 5.930   | 0.000   |
| 35. | 7164.670               | -9.90  | 3844.160 | 0.000   | 0.000   | 3934.687 | 6.090   | 0.000   |
| 36. | 7163.460               | -9.90  | 3844.160 | 0.000   | 0.000   | 3937.357 | 6.250   | 0.000   |
| 37. | 7162.360               | -9.90  | 3844.160 | 0.000   | 0.000   | 3940.000 | 6.410   | 0.000   |
| 38. | 7161.375               | -9.90  | 3844.160 | 0.000   | 0.000   | 3942.611 | 6.570   | 0.000   |
| 39. | 7160.511               | -9.90  | 3844.160 | 0.000   | 0.000   | 3945.191 | 6.730   | 0.000   |
| 40. | 7159.772               | -9.90  | 3844.160 | 0.000   | 0.000   | 3947.752 | 6.890   | 0.000   |
| 41. | 7159.162               | -9.90  | 3844.160 | 0.000   | 0.000   | 3950.307 | 7.050   | 0.000   |
| 42. | 7158.685               | -9.90  | 3844.160 | 0.000   | 0.000   | 3952.857 | 7.210   | 0.000   |
| 43. | 7158.342               | -9.90  | 3844.160 | 0.000   | 0.000   | 3955.400 | 7.370   | 0.000   |
| 44. | 7158.135               | -9.90  | 3844.160 | 0.000   | 0.000   | 3957.935 | 7.530   | 0.000   |
| 45. | 7158.066               | 0.000  | 3844.160 | 0.000   | 0.000   | 3960.460 | 7.690   | 0.000   |
| 46. | 7158.135               | 0.060  | 3844.160 | 0.000   | 0.000   | 3962.971 | 7.850   | 0.000   |
| 47. | 7158.362               | .130   | 3844.160 | 0.000   | 0.000   | 3965.460 | 8.010   | 0.000   |
| 48. | 7158.685               | .190   | 3844.160 | 0.000   | 0.000   | 3967.935 | 8.170   | 0.000   |
| 49. | 7159.162               | .250   | 3844.160 | 0.000   | 0.000   | 3970.400 | 8.330   | 0.000   |

Z-PLANE (XY-PLANE) YIG

|     | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 50. | 7159.772 | .310   | 0.000  | 3844.160 | -0.000 | 0.000  | 3942.063 | -1.020 | 0.000  |
| 51. | 7160.511 | .370   | 0.000  | 3844.160 | 0.000  | 0.000  | 3941.221 | -1.210 | 0.000  |
| 52. | 7161.375 | .420   | 0.000  | 3844.160 | 0.000  | 0.000  | 3933.951 | -1.500 | 0.000  |
| 53. | 7162.360 | .480   | 0.000  | 3844.160 | 0.000  | 0.000  | 3938.181 | -1.580 | 0.000  |
| 54. | 7163.460 | .530   | 0.000  | 3844.160 | 0.000  | 0.000  | 3936.160 | -1.750 | 0.000  |
| 55. | 7164.670 | .580   | 0.000  | 3844.160 | 0.000  | 0.000  | 3933.957 | -1.520 | 0.000  |
| 56. | 7165.983 | .620   | 0.000  | 3844.160 | 0.000  | 0.000  | 3931.564 | -2.170 | 0.000  |
| 57. | 7167.393 | .670   | 0.000  | 3844.160 | 0.000  | 0.000  | 3928.993 | -2.820 | 0.000  |
| 58. | 7168.893 | .710   | 0.000  | 3844.160 | -0.000 | 0.000  | 3926.256 | -2.350 | 0.000  |
| 59. | 7170.474 | .740   | 0.000  | 3844.160 | 0.000  | 0.000  | 3923.367 | -2.460 | 0.000  |
| 60. | 7172.129 | .770   | 0.000  | 3844.160 | 0.000  | 0.000  | 3920.341 | -2.590 | 0.000  |
| 61. | 7173.850 | .800   | 0.000  | 3844.160 | 0.000  | 0.000  | 3917.191 | -2.680 | 0.000  |
| 62. | 7175.627 | .820   | 0.000  | 3844.160 | -0.000 | 0.000  | 3913.934 | -2.770 | 0.000  |
| 63. | 7177.453 | .840   | 0.000  | 3844.160 | 0.000  | 0.000  | 3910.566 | -2.840 | 0.000  |
| 64. | 7179.316 | .860   | 0.000  | 3844.160 | 0.000  | 0.000  | 3907.164 | -2.500 | 0.000  |
| 65. | 7181.210 | .870   | 0.000  | 3844.160 | 0.000  | 0.000  | 3903.683 | -2.640 | 0.000  |
| 66. | 7183.123 | .880   | 0.000  | 3844.160 | 0.000  | 0.000  | 3900.181 | -2.970 | 0.000  |
| 67. | 7185.047 | .890   | 0.000  | 3844.160 | 0.000  | 0.000  | 3896.615 | -2.990 | 0.000  |
| 68. | 7186.972 | .900   | 0.000  | 3844.160 | 0.000  | 0.000  | 3893.063 | -2.590 | 0.000  |
| 69. | 7188.885 | .910   | 0.000  | 3844.160 | -0.000 | 0.000  | 3889.522 | -2.560 | 0.000  |
| 70. | 7190.789 | .920   | 0.000  | 3844.160 | 0.000  | 0.000  | 3886.008 | -2.900 | 0.000  |
| 71. | 7192.663 | .930   | 0.000  | 3844.160 | -0.000 | 0.000  | 3882.540 | -2.910 | 0.000  |
| 72. | 7194.500 | .930   | 0.000  | 3844.160 | 0.000  | 0.000  | 3879.133 | -2.650 | 0.000  |
| 73. | 7196.294 | .940   | 0.000  | 3844.160 | 0.000  | 0.000  | 3875.695 | -2.780 | 0.000  |
| 74. | 7198.035 | .950   | 0.000  | 3844.160 | 0.000  | 0.000  | 3872.271 | -2.690 | 0.000  |
| 75. | 7199.714 | .950   | 0.000  | 3844.160 | -0.000 | 0.000  | 3868.847 | -2.600 | 0.000  |
| 76. | 7201.325 | .970   | 0.000  | 3844.160 | 0.000  | 0.000  | 3865.446 | -2.490 | 0.000  |
| 77. | 7202.860 | .980   | 0.000  | 3844.160 | 0.000  | 0.000  | 3862.069 | -2.370 | 0.000  |
| 78. | 7204.311 | .980   | 0.000  | 3844.160 | -0.000 | 0.000  | 3858.682 | -2.250 | 0.000  |
| 79. | 7205.672 | .980   | 0.000  | 3844.160 | 0.000  | 0.000  | 3855.342 | -2.090 | 0.000  |
| 80. | 7206.936 | .950   | 0.000  | 3844.160 | 0.000  | 0.000  | 3852.060 | -1.930 | 0.000  |
| 81. | 7208.096 | .910   | 0.000  | 3844.160 | 0.000  | 0.000  | 3848.807 | -1.770 | 0.000  |
| 82. | 7209.153 | .850   | 0.000  | 3844.160 | 0.000  | 0.000  | 3845.584 | -1.590 | 0.000  |
| 83. | 7210.095 | .800   | 0.000  | 3844.160 | 0.000  | 0.000  | 3842.401 | -1.410 | 0.000  |
| 84. | 7210.920 | .750   | 0.000  | 3844.160 | -0.000 | 0.000  | 3839.255 | -1.220 | 0.000  |
| 85. | 7211.629 | .720   | 0.000  | 3844.160 | 0.000  | 0.000  | 3836.120 | -1.030 | 0.000  |
| 86. | 7212.206 | .690   | 0.000  | 3844.160 | -0.000 | 0.000  | 3833.004 | -0.830 | 0.000  |
| 87. | 7212.660 | .660   | 0.000  | 3844.160 | 0.000  | 0.000  | 3830.015 | -0.630 | 0.000  |
| 88. | 7212.986 | .630   | 0.000  | 3844.160 | -0.000 | 0.000  | 3827.163 | -0.420 | 0.000  |
| 89. | 7213.183 | .600   | 0.000  | 3844.160 | 0.000  | 0.000  | 3824.451 | -0.210 | 0.000  |
| 90. | 7213.246 | .570   | 0.000  | 3844.160 | 0.000  | 0.000  | 3821.884 | 0.000  | 0.000  |
| 91. | 7213.183 | .540   | 0.000  | 3844.160 | 0.000  | 0.000  | 3819.467 | .210   | 0.000  |
| 92. | 7212.986 | .510   | 0.000  | 3844.160 | -0.000 | 0.000  | 3817.204 | .420   | 0.000  |
| 93. | 7212.660 | .480   | 0.000  | 3844.160 | 0.000  | 0.000  | 3815.091 | .630   | 0.000  |
| 94. | 7212.206 | .450   | 0.000  | 3844.160 | 0.000  | 0.000  | 3813.115 | .830   | 0.000  |
| 95. | 7211.625 | .420   | 0.000  | 3844.160 | 0.000  | 0.000  | 3811.284 | 1.030  | 0.000  |
| 96. | 7210.920 | .390   | 0.000  | 3844.160 | 0.000  | 0.000  | 3809.525 | 1.220  | 0.000  |
| 97. | 7210.095 | .360   | 0.000  | 3844.160 | -0.000 | 0.000  | 3807.911 | 1.410  | 0.000  |
| 98. | 7209.153 | .330   | 0.000  | 3844.160 | 0.000  | 0.000  | 3806.434 | 1.590  | 0.000  |
| 99. | 7208.096 | .300   | 0.000  | 3844.160 | -0.000 | 0.000  | 3805.067 | 1.770  | 0.000  |

Z-PLANE (XY-PLANE) YIG

BULK

|      | LNGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 7206.936 | -0.550 | 0.000  | 3844.160 | 0.000   | 0.000   | 3855.900 | 1.730   | 0.000   |
| 101. | 7205.672 | -0.600 | 0.000  | 3844.160 | -0.000  | 0.000   | 3856.342 | 2.090   | 0.000   |
| 102. | 7204.311 | -0.640 | 0.000  | 3844.160 | 0.000   | 0.000   | 3860.682 | 2.230   | 0.000   |
| 103. | 7202.060 | -0.680 | 0.000  | 3844.160 | 0.000   | 0.000   | 3863.569 | 2.370   | 0.000   |
| 104. | 7201.325 | -0.720 | 0.000  | 3844.160 | -0.000  | 0.000   | 3866.448 | 2.510   | 0.000   |
| 105. | 7199.714 | -0.750 | 0.000  | 3844.160 | 0.000   | 0.000   | 3869.447 | 2.600   | 0.000   |
| 106. | 7198.035 | -0.780 | 0.000  | 3844.160 | 0.000   | 0.000   | 3872.571 | 2.690   | 0.000   |
| 107. | 7196.294 | -0.810 | 0.000  | 3844.160 | -0.000  | 0.000   | 3875.895 | 2.780   | 0.000   |
| 108. | 7194.500 | -0.830 | 0.000  | 3844.160 | 0.000   | 0.000   | 3879.133 | 2.850   | 0.000   |
| 109. | 7192.663 | -0.850 | 0.000  | 3844.160 | 0.000   | 0.000   | 3882.540 | 2.910   | 0.000   |
| 110. | 7190.785 | -0.860 | 0.000  | 3844.160 | 0.000   | 0.000   | 3886.080 | 2.950   | 0.000   |
| 111. | 7188.869 | -0.870 | 0.000  | 3844.160 | 0.000   | 0.000   | 3889.522 | 2.980   | 0.000   |
| 112. | 7186.972 | -0.880 | 0.000  | 3844.160 | 0.000   | 0.000   | 3893.063 | 2.990   | 0.000   |
| 113. | 7185.047 | -0.880 | 0.000  | 3844.160 | 0.000   | 0.000   | 3896.615 | 2.990   | 0.000   |
| 114. | 7183.123 | -0.880 | 0.000  | 3844.160 | -0.000  | 0.000   | 3900.161 | 2.970   | 0.000   |
| 115. | 7181.210 | -0.870 | 0.000  | 3844.160 | -0.000  | 0.000   | 3903.683 | 2.940   | 0.000   |
| 116. | 7179.316 | -0.860 | 0.000  | 3844.160 | 0.000   | 0.000   | 3907.164 | 2.900   | 0.000   |
| 117. | 7177.453 | -0.840 | 0.000  | 3844.160 | 0.000   | 0.000   | 3910.506 | 2.840   | 0.000   |
| 118. | 7175.627 | -0.820 | 0.000  | 3844.160 | -0.000  | 0.000   | 3913.734 | 2.770   | 0.000   |
| 119. | 7173.850 | -0.800 | 0.000  | 3844.160 | 0.000   | 0.000   | 3917.191 | 2.680   | 0.000   |
| 120. | 7172.129 | -0.770 | 0.000  | 3844.160 | 0.000   | 0.000   | 3920.341 | 2.590   | 0.000   |
| 121. | 7170.474 | -0.740 | 0.000  | 3844.160 | 0.000   | 0.000   | 3923.367 | 2.490   | 0.000   |
| 122. | 7168.893 | -0.710 | 0.000  | 3844.160 | 0.000   | 0.000   | 3926.256 | 2.390   | 0.000   |
| 123. | 7167.393 | -0.670 | 0.000  | 3844.160 | 0.000   | 0.000   | 3928.993 | 2.220   | 0.000   |
| 124. | 7165.983 | -0.620 | 0.000  | 3844.160 | -0.000  | 0.000   | 3931.564 | 2.070   | 0.000   |
| 125. | 7164.670 | -0.560 | 0.000  | 3844.160 | 0.000   | 0.000   | 3933.957 | 1.920   | 0.000   |
| 126. | 7163.460 | -0.530 | 0.000  | 3844.160 | 0.000   | 0.000   | 3936.160 | 1.790   | 0.000   |
| 127. | 7162.360 | -0.490 | 0.000  | 3844.160 | 0.000   | 0.000   | 3938.161 | 1.680   | 0.000   |
| 128. | 7161.375 | -0.420 | 0.000  | 3844.160 | -0.000  | 0.000   | 3939.951 | 1.580   | 0.000   |
| 129. | 7160.511 | -0.370 | 0.000  | 3844.160 | 0.000   | 0.000   | 3941.521 | 1.430   | 0.000   |
| 130. | 7159.772 | -0.310 | 0.000  | 3844.160 | 0.000   | 0.000   | 3942.863 | 1.210   | 0.000   |
| 131. | 7159.162 | -0.250 | 0.000  | 3844.160 | 0.000   | 0.000   | 3943.971 | 1.020   | 0.000   |
| 132. | 7158.685 | -0.190 | 0.000  | 3844.160 | 0.000   | 0.000   | 3944.836 | 0.820   | 0.000   |
| 133. | 7158.342 | -0.130 | 0.000  | 3844.160 | -0.000  | 0.000   | 3945.460 | 0.620   | 0.000   |
| 134. | 7158.135 | -0.060 | 0.000  | 3844.160 | 0.000   | 0.000   | 3945.835 | 0.420   | 0.000   |
| 135. | 7158.066 | -0.040 | 0.000  | 3844.160 | 0.000   | 0.000   | 3945.960 | 0.210   | 0.000   |
| 136. | 7158.135 | 0.000  | 0.000  | 3844.160 | -0.000  | 0.000   | 3945.835 | 0.000   | 0.000   |
| 137. | 7158.342 | 0.130  | 0.000  | 3844.160 | 0.000   | 0.000   | 3945.460 | -0.210  | 0.000   |
| 138. | 7158.685 | 0.190  | 0.000  | 3844.160 | 0.000   | 0.000   | 3944.836 | -0.420  | 0.000   |
| 139. | 7159.162 | 0.250  | 0.000  | 3844.160 | -0.000  | 0.000   | 3944.038 | -0.620  | 0.000   |
| 140. | 7159.772 | 0.310  | 0.000  | 3844.160 | 0.000   | 0.000   | 3943.971 | -0.820  | 0.000   |
| 141. | 7160.511 | 0.370  | 0.000  | 3844.160 | 0.000   | 0.000   | 3942.863 | -1.020  | 0.000   |
| 142. | 7161.375 | 0.420  | 0.000  | 3844.160 | 0.000   | 0.000   | 3941.521 | -1.210  | 0.000   |
| 143. | 7162.360 | 0.460  | 0.000  | 3844.160 | -0.000  | 0.000   | 3939.951 | -1.480  | 0.000   |
| 144. | 7163.460 | 0.530  | 0.000  | 3844.160 | 0.000   | 0.000   | 3938.161 | -1.750  | 0.000   |
| 145. | 7164.670 | 0.590  | 0.000  | 3844.160 | 0.000   | 0.000   | 3936.160 | -1.750  | 0.000   |
| 146. | 7165.983 | 0.620  | 0.000  | 3844.160 | 0.000   | 0.000   | 3933.957 | -1.520  | 0.000   |
| 147. | 7167.393 | 0.670  | 0.000  | 3844.160 | 0.000   | 0.000   | 3931.564 | -2.070  | 0.000   |
| 148. | 7168.893 | 0.710  | 0.000  | 3844.160 | 0.000   | 0.000   | 3928.993 | -2.220  | 0.000   |
| 149. | 7170.474 | 0.740  | 0.000  | 3844.160 | -0.000  | 0.000   | 3926.256 | -2.350  | 0.000   |
|      |          |        |        |          |         |         | 3923.367 | -2.460  | 0.000   |



Z-PLANE (XY-PLANE) YIG

BULK

|      | LANGVEL  | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 158. | 7172.129 | .770   | 0.000  | 3844.160 | -0.000  | 0.000   | 3923.341 | -2.554  | 0.000   |
| 151. | 7173.850 | .600   | 0.000  | 3844.160 | 0.000   | 0.000   | 3917.141 | -2.668  | 0.000   |
| 152. | 7175.627 | .820   | 0.000  | 3844.160 | 0.000   | 0.000   | 3913.934 | -2.770  | 0.000   |
| 153. | 7177.453 | .640   | 0.000  | 3844.160 | 0.000   | 0.000   | 3910.586 | -2.840  | 0.000   |
| 154. | 7179.316 | .860   | 0.000  | 3844.160 | 0.000   | 0.000   | 3907.104 | -2.900  | 0.000   |
| 155. | 7181.210 | .670   | 0.000  | 3844.160 | 0.000   | 0.000   | 3903.683 | -2.943  | 0.000   |
| 156. | 7183.123 | .890   | 0.000  | 3844.160 | -0.000  | 0.000   | 3900.161 | -2.970  | 0.000   |
| 157. | 7185.047 | .880   | 0.000  | 3844.160 | 0.000   | 0.000   | 3896.615 | -2.990  | 0.000   |
| 158. | 7186.972 | .690   | 0.000  | 3844.160 | -0.000  | 0.000   | 3893.063 | -2.990  | 0.000   |
| 159. | 7188.899 | .870   | 0.000  | 3844.160 | 0.000   | 0.000   | 3889.522 | -2.990  | 0.000   |
| 160. | 7190.789 | .660   | 0.000  | 3844.160 | -0.000  | 0.000   | 3886.006 | -2.990  | 0.000   |
| 161. | 7192.663 | .850   | 0.000  | 3844.160 | 0.000   | 0.000   | 3882.540 | -2.990  | 0.000   |
| 162. | 7194.500 | .630   | 0.000  | 3844.160 | -0.000  | 0.000   | 3879.133 | -2.990  | 0.000   |
| 163. | 7196.294 | .810   | 0.000  | 3844.160 | 0.000   | 0.000   | 3875.805 | -2.990  | 0.000   |
| 164. | 7198.035 | .790   | 0.000  | 3844.160 | 0.000   | 0.000   | 3872.571 | -2.990  | 0.000   |
| 165. | 7199.714 | .750   | 0.000  | 3844.160 | 0.000   | 0.000   | 3869.447 | -2.990  | 0.000   |
| 166. | 7201.325 | .720   | 0.000  | 3844.160 | 0.000   | 0.000   | 3866.446 | -2.990  | 0.000   |
| 167. | 7202.860 | .680   | 0.000  | 3844.160 | 0.000   | 0.000   | 3863.559 | -2.990  | 0.000   |
| 168. | 7204.311 | .640   | 0.000  | 3844.160 | 0.000   | 0.000   | 3860.882 | -2.990  | 0.000   |
| 169. | 7205.672 | .600   | 0.000  | 3844.160 | -0.000  | 0.000   | 3858.342 | -2.990  | 0.000   |
| 170. | 7206.936 | .550   | 0.000  | 3844.160 | 0.000   | 0.000   | 3855.980 | -2.990  | 0.000   |
| 171. | 7208.096 | .510   | 0.000  | 3844.160 | -0.000  | 0.000   | 3853.807 | -2.990  | 0.000   |
| 172. | 7209.153 | .450   | 0.000  | 3844.160 | 0.000   | 0.000   | 3851.834 | -2.990  | 0.000   |
| 173. | 7210.095 | .400   | 0.000  | 3844.160 | -0.000  | 0.000   | 3850.071 | -2.990  | 0.000   |
| 174. | 7210.920 | .350   | 0.000  | 3844.160 | 0.000   | 0.000   | 3848.525 | -2.990  | 0.000   |
| 175. | 7211.625 | .290   | 0.000  | 3844.160 | -0.000  | 0.000   | 3847.204 | -2.990  | 0.000   |
| 176. | 7212.206 | .240   | 0.000  | 3844.160 | 0.000   | 0.000   | 3846.115 | -2.990  | 0.000   |
| 177. | 7212.660 | .180   | 0.000  | 3844.160 | -0.000  | 0.000   | 3845.263 | -2.990  | 0.000   |
| 178. | 7212.986 | .120   | 0.000  | 3844.160 | 0.000   | 0.000   | 3844.641 | -2.990  | 0.000   |
| 179. | 7213.183 | .060   | 0.000  | 3844.160 | 0.000   | 0.000   | 3844.253 | -2.990  | 0.000   |
| 180. | 7213.248 | -0.000 | 0.000  | 3844.160 | 0.000   | 0.000   | 3844.160 | 0.000   | 0.000   |

111-PLANE YIG

|     | LNGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 7158.066 | -0.000 | 0.000  | 3945.960 | 0.000   | 0.000   | 3844.160 | -0.000  | 0.000   |
| 1.  | 7158.067 | 0.000  | -0.00  | 3945.898 | -0.00   | 0.070   | 3844.222 | 0.110   | 0.000   |
| 2.  | 7158.069 | 0.000  | -0.00  | 3945.712 | -0.00   | 0.150   | 3844.405 | 0.210   | 0.150   |
| 3.  | 7158.073 | 0.000  | -0.00  | 3945.402 | -0.00   | 0.220   | 3844.720 | 0.320   | 0.230   |
| 4.  | 7158.078 | 0.000  | -0.00  | 3944.971 | -0.00   | 0.290   | 3845.153 | 0.420   | 0.300   |
| 5.  | 7158.084 | 0.000  | -0.00  | 3944.418 | -0.00   | 0.370   | 3845.707 | 0.520   | 0.370   |
| 6.  | 7158.092 | 0.000  | -0.00  | 3943.748 | -0.00   | 0.440   | 3846.361 | 0.620   | 0.440   |
| 7.  | 7158.101 | 0.000  | -0.00  | 3942.961 | -0.00   | 0.510   | 3847.171 | 0.720   | 0.520   |
| 8.  | 7158.111 | 0.000  | -0.00  | 3942.061 | -0.00   | 0.560   | 3848.074 | 0.820   | 0.560   |
| 9.  | 7158.122 | 0.010  | -0.00  | 3941.052 | -0.00   | 0.600   | 3849.087 | 0.910   | 0.600   |
| 10. | 7158.134 | 0.010  | -0.00  | 3939.937 | -0.00   | 0.710   | 3850.206 | 1.000   | 0.600   |
| 11. | 7158.147 | 0.010  | -0.00  | 3938.721 | -0.00   | 0.770   | 3851.426 | 1.080   | 0.700   |
| 12. | 7158.160 | 0.010  | -0.00  | 3937.410 | -0.00   | 0.830   | 3852.742 | 1.160   | 0.800   |
| 13. | 7158.174 | 0.010  | -0.00  | 3936.009 | -0.00   | 0.890   | 3854.148 | 1.230   | 0.900   |
| 14. | 7158.188 | 0.010  | -0.00  | 3934.525 | -0.00   | 0.950   | 3855.637 | 1.300   | 0.900   |
| 15. | 7158.202 | 0.010  | -0.00  | 3932.965 | -0.00   | 1.000   | 3857.201 | 1.360   | 1.010   |
| 16. | 7158.216 | 0.010  | -0.00  | 3931.336 | -0.00   | 1.050   | 3858.833 | 1.410   | 1.010   |
| 17. | 7158.230 | 0.010  | -0.00  | 3929.654 | -0.00   | 1.100   | 3860.523 | 1.460   | 1.100   |
| 18. | 7158.244 | 0.010  | -0.00  | 3927.922 | -0.00   | 1.150   | 3862.259 | 1.500   | 1.100   |
| 19. | 7158.257 | 0.010  | -0.00  | 3926.157 | -0.00   | 1.190   | 3864.026 | 1.540   | 1.200   |
| 20. | 7158.270 | 0.010  | -0.00  | 3924.374 | -0.00   | 1.230   | 3865.817 | 1.570   | 1.200   |
| 21. | 7158.282 | 0.000  | -0.00  | 3922.565 | -0.00   | 1.270   | 3867.606 | 1.600   | 1.200   |
| 22. | 7158.293 | 0.000  | -0.00  | 3920.824 | -0.00   | 1.300   | 3869.374 | 1.630   | 1.200   |
| 23. | 7158.303 | 0.000  | -0.00  | 3919.106 | -0.00   | 1.330   | 3871.095 | 1.650   | 1.300   |
| 24. | 7158.312 | 0.000  | -0.00  | 3917.466 | -0.00   | 1.360   | 3872.739 | 1.670   | 1.300   |
| 25. | 7158.320 | 0.000  | -0.00  | 3915.893 | -0.00   | 1.380   | 3874.265 | 1.690   | 1.300   |
| 26. | 7158.326 | 0.000  | -0.00  | 3914.382 | -0.00   | 1.400   | 3875.669 | 1.700   | 1.300   |
| 27. | 7158.331 | 0.000  | -0.00  | 3912.936 | -0.00   | 1.410   | 3876.975 | 1.710   | 1.300   |
| 28. | 7158.335 | 0.000  | -0.00  | 3912.562 | -0.00   | 1.420   | 3878.202 | 1.720   | 1.400   |
| 29. | 7158.337 | 0.000  | -0.00  | 3912.252 | -0.00   | 1.430   | 3879.390 | 1.730   | 1.400   |
| 30. | 7158.338 | 0.000  | -0.00  | 3911.984 | -0.00   | 1.430   | 3880.502 | 1.730   | 1.400   |
| 31. | 7158.337 | 0.000  | -0.00  | 3912.752 | -0.00   | 1.420   | 3881.574 | 1.720   | 1.400   |
| 32. | 7158.335 | 0.000  | -0.00  | 3913.582 | -0.00   | 1.410   | 3882.599 | 1.710   | 1.400   |
| 33. | 7158.331 | 0.000  | -0.00  | 3914.436 | -0.00   | 1.400   | 3883.574 | 1.700   | 1.400   |
| 34. | 7158.326 | 0.000  | -0.00  | 3915.302 | -0.00   | 1.400   | 3884.499 | 1.690   | 1.400   |
| 35. | 7158.320 | 0.000  | -0.00  | 3916.166 | -0.00   | 1.380   | 3885.374 | 1.680   | 1.400   |
| 36. | 7158.312 | 0.000  | -0.00  | 3917.026 | -0.00   | 1.360   | 3886.202 | 1.670   | 1.400   |
| 37. | 7158.303 | 0.000  | -0.00  | 3917.876 | -0.00   | 1.330   | 3887.000 | 1.660   | 1.400   |
| 38. | 7158.293 | 0.000  | -0.00  | 3918.712 | -0.00   | 1.300   | 3887.765 | 1.650   | 1.400   |
| 39. | 7158.282 | 0.010  | -0.00  | 3919.526 | -0.00   | 1.270   | 3888.499 | 1.640   | 1.400   |
| 40. | 7158.270 | 0.010  | -0.00  | 3920.314 | -0.00   | 1.230   | 3889.202 | 1.630   | 1.400   |
| 41. | 7158.257 | 0.010  | -0.00  | 3921.076 | -0.00   | 1.190   | 3889.874 | 1.620   | 1.400   |
| 42. | 7158.244 | 0.010  | -0.00  | 3921.812 | -0.00   | 1.150   | 3890.500 | 1.610   | 1.400   |
| 43. | 7158.230 | 0.010  | -0.00  | 3922.520 | -0.00   | 1.100   | 3891.095 | 1.600   | 1.400   |
| 44. | 7158.216 | 0.010  | -0.00  | 3923.196 | -0.00   | 1.050   | 3891.659 | 1.590   | 1.400   |
| 45. | 7158.202 | 0.010  | -0.00  | 3923.836 | -0.00   | 1.000   | 3892.190 | 1.580   | 1.400   |
| 46. | 7158.188 | 0.010  | -0.00  | 3924.436 | -0.00   | 0.950   | 3892.687 | 1.570   | 1.400   |
| 47. | 7158.174 | 0.010  | -0.00  | 3924.996 | -0.00   | 0.900   | 3893.148 | 1.560   | 1.400   |
| 48. | 7158.160 | 0.010  | -0.00  | 3925.516 | -0.00   | 0.830   | 3893.574 | 1.550   | 1.400   |
| 49. | 7158.147 | 0.010  | -0.00  | 3925.992 | -0.00   | 0.770   | 3893.959 | 1.540   | 1.400   |

111-PLANE YIG

BULK

|     | LNGWEL   | LPM12  | LPM13  | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 7156.134 | -0.010 | -0.420 | 3939.937 | 0.970   | 0.710   | 3950.206 | -1.000  | 0.720   |
| 51. | 7156.122 | -0.010 | -0.380 | 3941.052 | 0.990   | 0.640   | 3963.087 | -0.910  | 0.500   |
| 52. | 7156.111 | -0.000 | -0.340 | 3942.061 | 0.800   | 0.560   | 3966.074 | -0.620  | 0.520   |
| 53. | 7156.101 | -0.000 | -0.300 | 3942.961 | 0.700   | 0.510   | 3947.171 | -0.720  | 0.440   |
| 54. | 7156.092 | -0.000 | -0.260 | 3943.746 | 0.610   | 0.440   | 3946.381 | -0.620  | 0.440   |
| 55. | 7156.084 | -0.000 | -0.220 | 3944.416 | 0.510   | 0.370   | 3945.707 | -0.520  | 0.370   |
| 56. | 7156.076 | -0.000 | -0.180 | 3944.971 | 0.410   | 0.290   | 3945.153 | -0.420  | 0.300   |
| 57. | 7156.073 | -0.000 | -0.130 | 3945.602 | 0.310   | 0.220   | 3944.720 | -0.320  | 0.230   |
| 58. | 7156.069 | -0.000 | -0.090 | 3945.742 | 0.210   | 0.150   | 3944.409 | -0.210  | 0.150   |
| 59. | 7156.067 | -0.000 | -0.040 | 3945.896 | 0.100   | 0.070   | 3944.222 | -0.110  | 0.080   |
| 60. | 7156.066 | -0.000 | -0.000 | 3945.960 | 0.000   | 0.000   | 3944.160 | 0.000   | -0.000  |
| 61. | 7156.067 | 0.000  | 0.040  | 3945.996 | -0.100  | -0.070  | 3944.222 | 0.110   | -0.080  |
| 62. | 7156.069 | 0.000  | 0.090  | 3945.712 | -0.210  | -0.150  | 3944.409 | 0.210   | -0.150  |
| 63. | 7156.073 | 0.000  | 0.130  | 3945.402 | -0.310  | -0.220  | 3944.720 | 0.320   | -0.230  |
| 64. | 7156.076 | 0.000  | 0.180  | 3944.971 | -0.410  | -0.290  | 3945.153 | 0.420   | -0.300  |
| 65. | 7156.084 | 0.000  | 0.220  | 3944.416 | -0.510  | -0.370  | 3945.707 | 0.520   | -0.370  |
| 66. | 7156.092 | 0.000  | 0.260  | 3943.746 | -0.610  | -0.440  | 3946.381 | 0.620   | -0.440  |
| 67. | 7156.101 | 0.000  | 0.300  | 3942.961 | -0.700  | -0.510  | 3947.171 | 0.720   | -0.500  |
| 68. | 7156.111 | 0.000  | 0.340  | 3942.061 | -0.800  | -0.560  | 3946.074 | 0.820   | -0.520  |
| 69. | 7156.122 | 0.010  | 0.380  | 3941.052 | -0.900  | -0.640  | 3943.087 | 0.910   | -0.600  |
| 70. | 7156.134 | 0.010  | 0.420  | 3939.937 | -0.970  | -0.710  | 3950.206 | 1.000   | -0.720  |
| 71. | 7156.147 | 0.010  | 0.460  | 3938.721 | -1.050  | -0.770  | 3951.426 | 1.060   | -0.760  |
| 72. | 7156.160 | 0.010  | 0.500  | 3937.410 | -1.130  | -0.830  | 3952.742 | 1.160   | -0.840  |
| 73. | 7156.174 | 0.010  | 0.530  | 3936.005 | -1.200  | -0.890  | 3954.146 | 1.230   | -0.900  |
| 74. | 7156.186 | 0.010  | 0.570  | 3934.525 | -1.270  | -0.950  | 3955.637 | 1.300   | -0.960  |
| 75. | 7156.202 | 0.010  | 0.600  | 3932.965 | -1.330  | -1.000  | 3957.201 | 1.360   | -1.010  |
| 76. | 7156.216 | 0.010  | 0.630  | 3931.336 | -1.360  | -1.060  | 3958.933 | 1.410   | -1.070  |
| 77. | 7156.230 | 0.010  | 0.660  | 3929.684 | -1.430  | -1.100  | 3960.253 | 1.460   | -1.110  |
| 78. | 7156.244 | 0.010  | 0.680  | 3927.922 | -1.460  | -1.130  | 3962.259 | 1.490   | -1.130  |
| 79. | 7156.257 | 0.010  | 0.710  | 3926.457 | -1.490  | -1.150  | 3964.028 | 1.510   | -1.150  |
| 80. | 7156.270 | 0.010  | 0.730  | 3924.374 | -1.500  | -1.230  | 3965.617 | 1.520   | -1.240  |
| 81. | 7156.282 | 0.010  | 0.750  | 3922.589 | -1.490  | -1.270  | 3967.066 | 1.510   | -1.270  |
| 82. | 7156.293 | 0.000  | 0.770  | 3920.824 | -1.460  | -1.300  | 3969.374 | 1.480   | -1.310  |
| 83. | 7156.303 | 0.000  | 0.790  | 3919.106 | -1.410  | -1.330  | 3971.045 | 1.430   | -1.330  |
| 84. | 7156.312 | 0.000  | 0.800  | 3917.466 | -1.330  | -1.360  | 3972.739 | 1.350   | -1.360  |
| 85. | 7156.320 | 0.000  | 0.820  | 3915.943 | -1.220  | -1.360  | 3974.265 | 1.230   | -1.360  |
| 86. | 7156.326 | 0.000  | 0.830  | 3914.582 | -1.060  | -1.400  | 3975.628 | 1.070   | -1.350  |
| 87. | 7156.331 | 0.000  | 0.830  | 3913.436 | -0.850  | -1.410  | 3976.775 | 0.610   | -1.440  |
| 88. | 7156.335 | 0.000  | 0.840  | 3912.562 | -0.600  | -1.420  | 3977.951 | 0.320   | -1.420  |
| 89. | 7156.337 | 0.000  | 0.840  | 3912.032 | -0.310  | -1.430  | 3978.202 | 0.000   | -1.420  |
| 90. | 7156.336 | 0.000  | 0.850  | 3911.824 | 0.000   | -1.430  | 3978.590 | 0.000   | -1.420  |
| 91. | 7156.337 | 0.000  | 0.860  | 3912.012 | 0.310   | -1.430  | 3978.202 | -0.320  | -1.420  |
| 92. | 7156.335 | 0.000  | 0.860  | 3912.562 | 0.600   | -1.420  | 3977.951 | -0.610  | -1.420  |
| 93. | 7156.331 | 0.000  | 0.830  | 3913.436 | 0.850   | -1.410  | 3976.775 | -0.660  | -1.410  |
| 94. | 7156.326 | 0.000  | 0.830  | 3914.582 | 1.060   | -1.400  | 3975.628 | -1.070  | -1.300  |
| 95. | 7156.320 | 0.000  | 0.820  | 3915.943 | 1.220   | -1.360  | 3974.265 | -1.230  | -1.360  |
| 96. | 7156.312 | 0.000  | 0.800  | 3917.466 | 1.330   | -1.360  | 3972.739 | -1.350  | -1.330  |
| 97. | 7156.303 | 0.000  | 0.790  | 3919.106 | 1.410   | -1.330  | 3971.045 | -1.430  | -1.330  |
| 98. | 7156.293 | 0.000  | 0.770  | 3920.824 | 1.460   | -1.300  | 3969.374 | -1.480  | -1.310  |
| 99. | 7156.282 | 0.010  | 0.750  | 3922.589 | 1.490   | -1.270  | 3967.066 | -1.510  | -1.270  |

111-PLANE YIG

|      | LNGVEL   | LPHI10 | LPHI11 | FSRVEL   | FSPM12 | FSPM13 | SSRVEL   | SSPM12 | SSPM13 |
|------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 188. | 7156.270 | -0.010 | 0.730  | 3924.374 | 1.500  | -1.230 | 3862.817 | -1.520 | -1.240 |
| 189. | 7156.287 | -0.010 | 0.710  | 3926.157 | 1.490  | -1.190 | 3864.028 | -1.510 | -1.200 |
| 190. | 7156.244 | -0.010 | 0.680  | 3927.922 | 1.460  | -1.150 | 3862.259 | -1.490 | -1.160 |
| 191. | 7156.230 | -0.010 | 0.660  | 3929.654 | 1.430  | -1.100 | 3860.523 | -1.460 | -1.110 |
| 192. | 7156.216 | -0.010 | 0.630  | 3931.338 | 1.380  | -1.060 | 3858.833 | -1.410 | -1.070 |
| 193. | 7156.202 | -0.010 | 0.600  | 3932.965 | 1.330  | -1.000 | 3857.201 | -1.360 | -1.010 |
| 194. | 7156.188 | -0.010 | 0.570  | 3934.525 | 1.270  | -0.950 | 3855.637 | -1.300 | -0.960 |
| 195. | 7156.174 | -0.010 | 0.530  | 3936.009 | 1.200  | -0.890 | 3854.148 | -1.230 | -0.900 |
| 196. | 7156.160 | -0.010 | 0.500  | 3937.410 | 1.130  | -0.830 | 3852.742 | -1.160 | -0.840 |
| 197. | 7156.147 | -0.010 | 0.460  | 3938.721 | 1.050  | -0.770 | 3851.426 | -1.090 | -0.780 |
| 198. | 7156.134 | -0.010 | 0.420  | 3939.937 | 0.970  | -0.710 | 3850.206 | -1.000 | -0.720 |
| 199. | 7156.122 | -0.010 | 0.380  | 3941.052 | 0.890  | -0.640 | 3849.074 | -0.950 | -0.650 |
| 200. | 7156.111 | -0.000 | 0.340  | 3942.061 | 0.800  | -0.560 | 3848.074 | -0.820 | -0.570 |
| 201. | 7156.101 | -0.000 | 0.300  | 3942.961 | 0.700  | -0.510 | 3847.171 | -0.720 | -0.520 |
| 202. | 7156.092 | -0.000 | 0.260  | 3943.746 | 0.610  | -0.440 | 3846.381 | -0.620 | -0.440 |
| 203. | 7156.084 | -0.000 | 0.220  | 3944.416 | 0.510  | -0.370 | 3845.707 | -0.520 | -0.370 |
| 204. | 7156.078 | -0.000 | 0.180  | 3944.971 | 0.410  | -0.300 | 3845.153 | -0.420 | -0.300 |
| 205. | 7156.073 | -0.000 | 0.130  | 3945.402 | 0.310  | -0.220 | 3844.720 | -0.320 | -0.230 |
| 206. | 7156.069 | -0.000 | 0.090  | 3945.712 | 0.210  | -0.150 | 3844.409 | -0.210 | -0.160 |
| 207. | 7156.067 | -0.000 | 0.040  | 3945.696 | 0.100  | -0.070 | 3844.222 | -0.110 | -0.080 |
| 208. | 7156.066 | 0.000  | -0.000 | 3945.960 | -0.000 | 0.000  | 3844.160 | -0.000 | -0.000 |
| 209. | 7156.067 | 0.000  | -0.040 | 3945.996 | -0.100 | 0.070  | 3844.222 | 0.110  | 0.090  |
| 210. | 7156.069 | 0.000  | -0.090 | 3945.712 | -0.210 | 0.150  | 3844.409 | 0.210  | 0.160  |
| 211. | 7156.073 | 0.000  | -0.130 | 3945.402 | -0.310 | 0.220  | 3844.720 | 0.320  | 0.230  |
| 212. | 7156.078 | 0.000  | -0.180 | 3944.971 | -0.410 | 0.250  | 3845.153 | 0.420  | 0.300  |
| 213. | 7156.084 | 0.000  | -0.220 | 3944.416 | -0.510 | 0.270  | 3845.707 | 0.520  | 0.370  |
| 214. | 7156.092 | 0.000  | -0.260 | 3943.746 | -0.610 | 0.240  | 3846.381 | 0.620  | 0.440  |
| 215. | 7156.101 | 0.000  | -0.300 | 3942.961 | -0.700 | 0.210  | 3847.171 | 0.720  | 0.520  |
| 216. | 7156.111 | 0.000  | -0.340 | 3942.061 | -0.800 | 0.160  | 3848.074 | 0.820  | 0.500  |
| 217. | 7156.122 | 0.010  | -0.380 | 3941.052 | -0.890 | 0.100  | 3849.074 | 0.910  | 0.450  |
| 218. | 7156.134 | 0.010  | -0.420 | 3939.937 | -0.970 | 0.030  | 3850.206 | 1.000  | 0.370  |
| 219. | 7156.147 | 0.010  | -0.460 | 3938.721 | -1.050 | 0.000  | 3851.426 | 1.090  | 0.290  |
| 220. | 7156.160 | 0.010  | -0.500 | 3937.410 | -1.130 | 0.030  | 3852.742 | 1.160  | 0.210  |
| 221. | 7156.174 | 0.010  | -0.530 | 3936.009 | -1.200 | 0.090  | 3854.148 | 1.230  | 0.130  |
| 222. | 7156.188 | 0.010  | -0.570 | 3934.525 | -1.270 | 0.160  | 3855.637 | 1.300  | 0.050  |
| 223. | 7156.202 | 0.010  | -0.600 | 3932.965 | -1.330 | 0.210  | 3857.201 | 1.360  | 0.000  |
| 224. | 7156.216 | 0.010  | -0.630 | 3931.336 | -1.380 | 0.250  | 3858.833 | 1.410  | 0.000  |
| 225. | 7156.230 | 0.010  | -0.660 | 3929.654 | -1.430 | 0.270  | 3860.523 | 1.460  | 0.000  |
| 226. | 7156.244 | 0.010  | -0.680 | 3927.922 | -1.460 | 0.250  | 3862.259 | 1.490  | 0.000  |
| 227. | 7156.257 | 0.010  | -0.710 | 3926.157 | -1.490 | 0.210  | 3864.028 | 1.510  | 0.000  |
| 228. | 7156.270 | 0.010  | -0.730 | 3924.374 | -1.500 | 0.160  | 3865.837 | 1.520  | 0.000  |
| 229. | 7156.282 | 0.010  | -0.750 | 3922.589 | -1.490 | 0.100  | 3867.806 | 1.510  | 0.000  |
| 230. | 7156.293 | 0.000  | -0.770 | 3920.824 | -1.460 | 0.030  | 3869.937 | 1.490  | 0.000  |
| 231. | 7156.303 | 0.000  | -0.790 | 3919.106 | -1.410 | 0.000  | 3871.095 | 1.430  | 0.000  |
| 232. | 7156.312 | 0.000  | -0.800 | 3917.466 | -1.330 | 0.030  | 3872.739 | 1.360  | 0.000  |
| 233. | 7156.320 | 0.000  | -0.820 | 3915.943 | -1.220 | 0.090  | 3874.265 | 1.230  | 0.000  |
| 234. | 7156.326 | 0.000  | -0.830 | 3914.582 | -1.060 | 0.160  | 3875.828 | 1.070  | 0.000  |
| 235. | 7156.331 | 0.000  | -0.830 | 3913.436 | -0.850 | 0.210  | 3876.775 | 0.860  | 0.000  |
| 236. | 7156.335 | 0.000  | -0.840 | 3912.562 | -0.600 | 0.250  | 3877.850 | 0.610  | 0.000  |
| 237. | 7156.337 | 0.000  | -0.840 | 3912.012 | -0.310 | 0.270  | 3878.202 | 0.320  | 0.000  |

|      | 111-PLANE YIG |        |          |         | BULK    |          |         |         |
|------|---------------|--------|----------|---------|---------|----------|---------|---------|
|      | LPMI12        | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
| 150. | -0.000        | --.850 | 3911.824 | 0.800   | 1.430   | 3676.390 | 4.000   | 1.420   |
| 151. | -0.000        | --.840 | 3912.012 | .310    | 1.430   | 3676.202 | -.320   | 1.420   |
| 152. | -0.000        | --.840 | 3912.562 | .800    | 1.420   | 3677.650 | -.610   | 1.420   |
| 153. | -0.000        | --.830 | 3913.436 | .850    | 1.440   | 3676.775 | -.660   | 1.410   |
| 154. | -0.000        | --.830 | 3914.582 | 1.060   | 1.400   | 3675.628 | -1.070  | 1.390   |
| 155. | -0.000        | --.820 | 3915.943 | 1.220   | 1.360   | 3674.265 | -1.230  | 1.300   |
| 156. | -0.000        | --.800 | 3917.466 | 1.330   | 1.360   | 3672.739 | -1.350  | 1.350   |
| 157. | -0.000        | --.790 | 3919.106 | 1.410   | 1.330   | 3671.095 | -1.430  | 1.330   |
| 158. | -0.000        | --.770 | 3920.824 | 1.460   | 1.300   | 3669.374 | -1.480  | 1.310   |
| 159. | -0.010        | --.750 | 3922.569 | 1.490   | 1.270   | 3667.606 | -1.510  | 1.270   |
| 160. | -0.010        | --.730 | 3924.374 | 1.500   | 1.230   | 3665.817 | -1.520  | 1.240   |
| 161. | -0.010        | --.710 | 3926.157 | 1.490   | 1.190   | 3664.028 | -1.510  | 1.200   |
| 162. | -0.010        | --.660 | 3927.922 | 1.460   | 1.150   | 3662.259 | -1.490  | 1.190   |
| 163. | -0.010        | --.660 | 3929.654 | 1.430   | 1.100   | 3660.523 | -1.460  | 1.110   |
| 164. | -0.010        | --.630 | 3931.336 | 1.360   | 1.060   | 3658.833 | -1.410  | 1.070   |
| 165. | -0.010        | --.600 | 3932.965 | 1.350   | 1.000   | 3657.201 | -1.360  | 1.010   |
| 166. | -0.010        | --.570 | 3934.525 | 1.270   | .950    | 3655.637 | -1.300  | .960    |
| 167. | -0.010        | --.530 | 3936.009 | 1.200   | .850    | 3654.148 | -1.230  | .900    |
| 168. | -0.010        | --.500 | 3937.410 | 1.130   | .830    | 3652.742 | -1.160  | .940    |
| 169. | -0.010        | --.460 | 3938.721 | 1.050   | .770    | 3651.426 | -1.100  | .970    |
| 170. | -0.010        | --.420 | 3939.937 | .970    | .710    | 3650.206 | -1.000  | .920    |
| 171. | -0.010        | --.380 | 3941.052 | .890    | .640    | 3649.087 | -.910   | .850    |
| 172. | -0.000        | --.340 | 3942.061 | .800    | .560    | 3648.074 | -.820   | .800    |
| 173. | -0.000        | --.300 | 3942.961 | .700    | .510    | 3647.171 | -.720   | .750    |
| 174. | -0.000        | --.260 | 3943.748 | .610    | .440    | 3646.361 | -.620   | .700    |
| 175. | -0.000        | --.220 | 3944.416 | .510    | .370    | 3645.707 | -.520   | .650    |
| 176. | -0.000        | --.180 | 3944.971 | .410    | .250    | 3645.153 | -.420   | .600    |
| 177. | -0.000        | --.130 | 3945.402 | .310    | .220    | 3644.720 | -.320   | .550    |
| 178. | -0.000        | --.090 | 3945.712 | .210    | .150    | 3644.409 | -.210   | .500    |
| 179. | -0.000        | --.040 | 3945.898 | .100    | .070    | 3644.222 | -.110   | .450    |
| 180. | 0.000         | -0.000 | 3945.960 | 0.000   | 0.000   | 3644.160 | 0.000   | -0.000  |

110-PLANE YIG

BULK

|     | LNQVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 0.  | 7139.577 | -0.000 | -0.000 | 3912.321 | 1.400   | 0.000   | 3912.320 | -1.400  | -0.000  |
| 1.  | 7139.624 | .040   | -0.000 | 3913.913 | 1.270   | -0.000  | 3910.043 | -1.420  | -0.000  |
| 2.  | 7139.765 | .050   | -0.000 | 3915.351 | 1.140   | 0.000   | 3908.946 | -1.430  | -0.000  |
| 3.  | 7140.004 | .130   | -0.000 | 3916.627 | 1.000   | 0.000   | 3907.232 | -1.450  | -0.000  |
| 4.  | 7140.342 | .160   | -0.000 | 3917.734 | .860    | -0.000  | 3905.502 | -1.460  | -0.000  |
| 5.  | 7140.783 | .230   | -0.000 | 3918.666 | .710    | 0.000   | 3903.759 | -1.470  | -0.000  |
| 6.  | 7141.327 | .270   | -0.000 | 3919.423 | .560    | 0.000   | 3902.005 | -1.480  | -0.000  |
| 7.  | 7141.975 | .320   | -0.000 | 3919.997 | .400    | -0.000  | 3900.243 | -1.490  | -0.000  |
| 8.  | 7142.727 | .370   | -0.000 | 3920.386 | .250    | 0.000   | 3898.473 | -1.450  | 0.000   |
| 9.  | 7143.584 | .420   | -0.000 | 3920.508 | .090    | 0.000   | 3896.700 | -1.500  | -0.000  |
| 10. | 7144.545 | .460   | -0.000 | 3920.603 | -.070   | -0.000  | 3894.923 | -1.500  | -0.000  |
| 11. | 7145.606 | .510   | -0.000 | 3920.630 | -.220   | -0.000  | 3893.147 | -1.500  | -0.000  |
| 12. | 7146.771 | .560   | 0.000  | 3920.071 | -.360   | 0.000   | 3891.372 | -1.500  | -0.000  |
| 13. | 7148.033 | .600   | 0.000  | 3919.528 | -.530   | 0.000   | 3889.602 | -1.490  | -0.000  |
| 14. | 7149.390 | .640   | -0.000 | 3918.803 | -.680   | 0.000   | 3887.836 | -1.490  | -0.000  |
| 15. | 7150.835 | .650   | -0.000 | 3917.900 | -.830   | 0.000   | 3886.082 | -1.480  | -0.000  |
| 16. | 7152.377 | .730   | -0.000 | 3916.823 | -.970   | -0.000  | 3884.336 | -1.470  | -0.000  |
| 17. | 7153.999 | .760   | 0.000  | 3915.579 | -1.110  | 0.000   | 3882.604 | -1.460  | -0.000  |
| 18. | 7155.781 | .800   | -0.000 | 3914.172 | -1.250  | 0.000   | 3880.886 | -1.450  | -0.000  |
| 19. | 7157.476 | .830   | -0.000 | 3912.611 | -1.370  | -0.000  | 3879.186 | -1.430  | -0.000  |
| 20. | 7159.321 | .860   | -0.000 | 3910.903 | -1.490  | 0.000   | 3877.504 | -1.410  | -0.000  |
| 21. | 7161.226 | .850   | -0.000 | 3909.057 | -1.610  | -0.000  | 3875.843 | -1.400  | -0.000  |
| 22. | 7163.192 | .910   | -0.000 | 3907.081 | -1.710  | 0.000   | 3874.206 | -1.380  | -0.000  |
| 23. | 7165.206 | .930   | -0.000 | 3904.986 | -1.810  | -0.000  | 3872.594 | -1.360  | -0.000  |
| 24. | 7167.263 | .950   | -0.000 | 3902.782 | -1.900  | 0.000   | 3871.009 | -1.330  | -0.000  |
| 25. | 7169.358 | .970   | -0.000 | 3900.479 | -1.980  | -0.000  | 3869.452 | -1.310  | -0.000  |
| 26. | 7171.476 | .980   | -0.000 | 3898.090 | -2.040  | 0.000   | 3867.928 | -1.280  | -0.000  |
| 27. | 7173.622 | .980   | -0.000 | 3895.625 | -2.100  | -0.000  | 3866.436 | -1.250  | -0.000  |
| 28. | 7175.779 | .950   | 0.000  | 3893.097 | -2.150  | 0.000   | 3864.980 | -1.220  | -0.000  |
| 29. | 7177.942 | .990   | 0.000  | 3890.517 | -2.190  | -0.000  | 3863.559 | -1.190  | 0.000   |
| 30. | 7180.104 | .940   | -0.000 | 3887.900 | -2.220  | 0.000   | 3862.178 | -1.160  | -0.000  |
| 31. | 7182.256 | .980   | -0.000 | 3885.256 | -2.240  | -0.000  | 3860.836 | -1.120  | -0.000  |
| 32. | 7184.391 | .970   | -0.000 | 3882.600 | -2.250  | 0.000   | 3859.536 | -1.090  | -0.000  |
| 33. | 7186.500 | .960   | -0.000 | 3879.944 | -2.240  | -0.000  | 3858.280 | -1.050  | -0.000  |
| 34. | 7188.577 | .940   | -0.000 | 3877.300 | -2.230  | 0.000   | 3857.069 | -1.010  | -0.000  |
| 35. | 7190.613 | .920   | 0.000  | 3874.662 | -2.200  | -0.000  | 3855.904 | -.970   | -0.000  |
| 36. | 7192.601 | .900   | 0.000  | 3872.102 | -2.170  | 0.000   | 3854.787 | -.930   | -0.000  |
| 37. | 7194.534 | .870   | -0.000 | 3869.572 | -2.120  | -0.000  | 3853.720 | -.890   | -0.000  |
| 38. | 7196.485 | .840   | -0.000 | 3867.105 | -2.060  | 0.000   | 3852.703 | -.860   | -0.000  |
| 39. | 7198.207 | .800   | -0.000 | 3864.712 | -2.000  | -0.000  | 3851.739 | -.800   | -0.000  |
| 40. | 7199.932 | .770   | -0.000 | 3862.405 | -1.920  | 0.000   | 3850.829 | -.720   | -0.000  |
| 41. | 7201.576 | .730   | 0.000  | 3860.195 | -1.840  | -0.000  | 3849.971 | -.710   | -0.000  |
| 42. | 7203.131 | .690   | -0.000 | 3858.092 | -1.740  | 0.000   | 3849.170 | -.660   | 0.000   |
| 43. | 7204.592 | .640   | -0.000 | 3856.106 | -1.640  | -0.000  | 3848.425 | -.610   | -0.000  |
| 44. | 7205.954 | .600   | -0.000 | 3854.246 | -1.530  | 0.000   | 3847.737 | -.560   | 0.000   |
| 45. | 7207.212 | .550   | -0.000 | 3852.522 | -1.410  | -0.000  | 3847.106 | -.510   | -0.000  |
| 46. | 7208.361 | .500   | -0.000 | 3850.942 | -1.280  | 0.000   | 3846.536 | -.460   | -0.000  |
| 47. | 7209.396 | .450   | -0.000 | 3849.513 | -1.150  | -0.000  | 3846.029 | -.410   | -0.000  |
| 48. | 7210.315 | .350   | -0.000 | 3848.242 | -1.020  | 0.000   | 3845.578 | -.360   | -0.000  |
| 49. | 7211.113 | .340   | -0.000 | 3847.134 | -.870   | 0.000   | 3845.190 | -.310   | -0.000  |

| 110-PLANE YIG |          |        |        |          |         |         |          |         |         |        |
|---------------|----------|--------|--------|----------|---------|---------|----------|---------|---------|--------|
|               | LNQWEL   | LPM112 | LPM113 | FSRVEL   | FSPM112 | FSPM113 | SSRVEL   | SSPM112 | SSPM113 | BULK   |
| 50.           | 7211.708 | .260   | -0.000 | 3846.136 | -7.730  | -0.000  | 3844.863 | -2.250  | -0.000  | -0.000 |
| 51.           | 7212.337 | .220   | -0.000 | 3845.431 | -5.580  | 0.000   | 3844.597 | -2.200  | -0.000  | -0.000 |
| 52.           | 7212.758 | .160   | -0.000 | 3844.843 | -4.300  | 0.000   | 3844.395 | -1.150  | -0.000  | -0.000 |
| 53.           | 7213.051 | .100   | -0.000 | 3844.435 | -2.770  | 0.000   | 3844.234 | -0.890  | -0.000  | -0.000 |
| 54.           | 7213.213 | .040   | -0.000 | 3844.209 | -0.940  | 0.000   | 3844.177 | -0.840  | -0.000  | -0.000 |
| 55.           | 7213.244 | -.020  | -0.000 | 3844.166 | .010    | 0.000   | 3844.162 | .010    | -0.000  | -0.000 |
| 56.           | 7213.143 | -.060  | -0.000 | 3844.306 | .070    | 0.000   | 3844.210 | .070    | -0.000  | -0.000 |
| 57.           | 7212.913 | -.130  | -0.000 | 3844.628 | .350    | 0.000   | 3844.321 | .120    | -0.000  | -0.000 |
| 58.           | 7212.552 | -.150  | -0.000 | 3845.131 | .510    | 0.000   | 3844.894 | .170    | -0.000  | -0.000 |
| 59.           | 7212.063 | -.250  | -0.000 | 3845.813 | .660    | 0.000   | 3844.730 | .230    | -0.000  | -0.000 |
| 60.           | 7211.447 | -.310  | -0.000 | 3846.670 | .810    | 0.000   | 3845.028 | .260    | -0.000  | -0.000 |
| 61.           | 7210.707 | -.370  | -0.000 | 3847.696 | .950    | 0.000   | 3845.387 | .330    | -0.000  | -0.000 |
| 62.           | 7209.844 | -.420  | -0.000 | 3848.893 | 1.090   | 0.000   | 3845.808 | .350    | -0.000  | -0.000 |
| 63.           | 7208.864 | -.470  | -0.000 | 3850.248 | 1.220   | 0.000   | 3846.290 | .440    | -0.000  | -0.000 |
| 64.           | 7207.768 | -.520  | -0.000 | 3851.758 | 1.350   | 0.000   | 3846.832 | .490    | -0.000  | -0.000 |
| 65.           | 7206.561 | -.570  | -0.000 | 3853.415 | 1.470   | 0.000   | 3847.433 | .540    | -0.000  | -0.000 |
| 66.           | 7205.244 | -.620  | -0.000 | 3855.212 | 1.590   | 0.000   | 3848.093 | .590    | -0.000  | -0.000 |
| 67.           | 7203.833 | -.670  | -0.000 | 3857.139 | 1.690   | 0.000   | 3848.811 | .640    | -0.000  | -0.000 |
| 68.           | 7202.321 | -.710  | -0.000 | 3859.188 | 1.790   | 0.000   | 3849.586 | .680    | -0.000  | -0.000 |
| 69.           | 7200.719 | -.750  | -0.000 | 3861.349 | 1.880   | 0.000   | 3850.416 | .730    | -0.000  | -0.000 |
| 70.           | 7199.031 | -.790  | -0.000 | 3863.612 | 1.960   | 0.000   | 3851.302 | .780    | -0.000  | -0.000 |
| 71.           | 7197.265 | -.820  | -0.000 | 3865.966 | 2.030   | 0.000   | 3852.242 | .820    | -0.000  | -0.000 |
| 72.           | 7195.426 | -.850  | -0.000 | 3868.399 | 2.090   | 0.000   | 3853.234 | .870    | -0.000  | -0.000 |
| 73.           | 7193.521 | -.880  | -0.000 | 3870.901 | 2.150   | 0.000   | 3854.277 | .910    | -0.000  | -0.000 |
| 74.           | 7191.556 | -.910  | -0.000 | 3873.459 | 2.190   | 0.000   | 3855.371 | .950    | -0.000  | -0.000 |
| 75.           | 7189.544 | -.930  | -0.000 | 3876.061 | 2.220   | 0.000   | 3856.513 | .990    | -0.000  | -0.000 |
| 76.           | 7187.465 | -.950  | -0.000 | 3878.694 | 2.240   | 0.000   | 3857.702 | 1.030   | -0.000  | -0.000 |
| 77.           | 7185.390 | -.960  | -0.000 | 3881.346 | 2.250   | 0.000   | 3858.938 | 1.070   | -0.000  | -0.000 |
| 78.           | 7183.266 | -.960  | -0.000 | 3884.003 | 2.240   | 0.000   | 3860.217 | 1.110   | -0.000  | -0.000 |
| 79.           | 7181.121 | -.960  | -0.000 | 3886.654 | 2.230   | 0.000   | 3861.539 | 1.140   | -0.000  | -0.000 |
| 80.           | 7178.963 | -.990  | -0.000 | 3889.286 | 2.210   | -0.000  | 3862.902 | 1.160   | -0.000  | -0.000 |
| 81.           | 7176.800 | -.990  | -0.000 | 3891.885 | 2.170   | 0.000   | 3864.305 | 1.210   | -0.000  | -0.000 |
| 82.           | 7174.639 | -.990  | -0.000 | 3894.439 | 2.130   | 0.000   | 3865.744 | 1.240   | -0.000  | -0.000 |
| 83.           | 7172.488 | -.960  | -0.000 | 3896.935 | 2.070   | 0.000   | 3867.220 | 1.270   | -0.000  | -0.000 |
| 84.           | 7170.354 | -.970  | -0.000 | 3899.362 | 2.010   | 0.000   | 3868.729 | 1.290   | -0.000  | -0.000 |
| 85.           | 7168.247 | -.960  | -0.000 | 3901.717 | 1.930   | 0.000   | 3870.271 | 1.320   | -0.000  | -0.000 |
| 86.           | 7166.172 | -.940  | -0.000 | 3903.959 | 1.850   | 0.000   | 3871.842 | 1.340   | -0.000  | -0.000 |
| 87.           | 7164.137 | -.920  | -0.000 | 3906.107 | 1.760   | 0.000   | 3873.442 | 1.370   | -0.000  | -0.000 |
| 88.           | 7162.146 | -.900  | -0.000 | 3908.140 | 1.660   | 0.000   | 3875.067 | 1.390   | -0.000  | -0.000 |
| 89.           | 7160.213 | -.870  | -0.000 | 3910.045 | 1.550   | 0.000   | 3876.717 | 1.410   | -0.000  | -0.000 |
| 90.           | 7158.339 | -.850  | -0.000 | 3911.823 | 1.430   | 0.000   | 3878.389 | 1.420   | -0.000  | -0.000 |
| 91.           | 7156.520 | -.810  | -0.000 | 3913.454 | 1.310   | 0.000   | 3880.081 | 1.440   | -0.000  | -0.000 |
| 92.           | 7154.793 | -.780  | -0.000 | 3914.935 | 1.180   | 0.000   | 3881.791 | 1.450   | -0.000  | -0.000 |
| 93.           | 7153.133 | -.740  | -0.000 | 3916.256 | 1.040   | 0.000   | 3883.517 | 1.460   | -0.000  | -0.000 |
| 94.           | 7151.554 | -.700  | -0.000 | 3917.413 | .906    | 0.000   | 3885.257 | 1.470   | -0.000  | -0.000 |
| 95.           | 7150.063 | -.660  | -0.000 | 3918.399 | .750    | 0.000   | 3887.006 | 1.460   | -0.000  | -0.000 |
| 96.           | 7148.662 | -.620  | -0.000 | 3919.208 | .600    | 0.000   | 3888.768 | 1.490   | -0.000  | -0.000 |
| 97.           | 7147.354 | -.580  | -0.000 | 3919.838 | .450    | 0.000   | 3890.536 | 1.490   | -0.000  | -0.000 |
| 98.           | 7146.144 | -.530  | -0.000 | 3920.244 | .300    | -0.000  | 3892.309 | 1.500   | -0.000  | -0.000 |
| 99.           | 7145.034 | -.490  | -0.000 | 3920.545 | .140    | 0.000   | 3894.085 | 1.500   | -0.000  | -0.000 |

110-PLANE YIG

BULK

|      | LMGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 7144.025 | -0.440 | 0.000  | 3920.616 | -0.020  | 0.000   | 3095.861 | 1.500   | 0.000   |
| 101. | 7143.119 | -0.390 | 0.000  | 3920.504 | -0.170  | 0.000   | 3697.637 | 1.490   | 0.000   |
| 102. | 7142.317 | -0.340 | 0.000  | 3920.203 | -0.330  | 0.000   | 3699.408 | 1.480   | 0.000   |
| 103. | 7141.620 | -0.300 | 0.000  | 3919.717 | -0.480  | 0.000   | 3901.174 | 1.460   | 0.000   |
| 104. | 7141.027 | -0.250 | 0.000  | 3919.047 | -0.640  | 0.000   | 3902.932 | 1.470   | 0.000   |
| 105. | 7140.536 | -0.200 | 0.000  | 3918.197 | -0.790  | 0.000   | 3904.681 | 1.450   | 0.000   |
| 106. | 7140.151 | -0.150 | 0.000  | 3917.171 | -0.930  | 0.000   | 3906.417 | 1.450   | 0.000   |
| 107. | 7139.865 | -0.110 | 0.000  | 3915.974 | -1.076  | 0.000   | 3908.139 | 1.440   | 0.000   |
| 108. | 7139.678 | -0.060 | 0.000  | 3914.611 | -1.210  | 0.000   | 3909.845 | 1.420   | 0.000   |
| 109. | 7139.586 | -0.020 | 0.000  | 3913.091 | -1.340  | 0.000   | 3911.532 | 1.410   | 0.000   |
| 110. | 7139.590 | 0.020  | 0.000  | 3911.419 | -1.460  | 0.000   | 3913.199 | 1.390   | 0.000   |
| 111. | 7139.682 | 0.060  | 0.000  | 3909.605 | -1.580  | 0.000   | 3914.844 | 1.370   | 0.000   |
| 112. | 7139.860 | 0.100  | 0.000  | 3907.657 | -1.690  | 0.000   | 3916.464 | 1.350   | 0.000   |
| 113. | 7140.119 | 0.140  | 0.000  | 3905.585 | -1.790  | 0.000   | 3918.056 | 1.320   | 0.000   |
| 114. | 7140.455 | 0.170  | 0.000  | 3903.398 | -1.880  | 0.000   | 3919.624 | 1.300   | 0.000   |
| 115. | 7140.863 | 0.200  | 0.000  | 3901.109 | -1.970  | 0.000   | 3921.160 | 1.270   | 0.000   |
| 116. | 7141.338 | 0.230  | 0.000  | 3898.728 | -2.040  | 0.000   | 3922.664 | 1.240   | 0.000   |
| 117. | 7141.873 | 0.260  | 0.000  | 3896.266 | -2.100  | 0.000   | 3924.134 | 1.220   | 0.000   |
| 118. | 7142.464 | 0.280  | 0.000  | 3893.737 | -2.150  | 0.000   | 3925.569 | 1.190   | 0.000   |
| 119. | 7143.104 | 0.300  | 0.000  | 3891.152 | -2.200  | 0.000   | 3926.987 | 1.150   | 0.000   |
| 120. | 7143.780 | 0.320  | 0.000  | 3888.524 | -2.230  | 0.000   | 3928.326 | 1.120   | 0.000   |
| 121. | 7144.509 | 0.340  | 0.000  | 3885.866 | -2.250  | 0.000   | 3929.645 | 1.080   | 0.000   |
| 122. | 7145.261 | 0.350  | 0.000  | 3883.191 | -2.260  | 0.000   | 3930.921 | 1.050   | 0.000   |
| 123. | 7146.038 | 0.360  | 0.000  | 3880.513 | -2.260  | 0.000   | 3932.154 | 1.010   | 0.000   |
| 124. | 7146.832 | 0.370  | 0.000  | 3877.844 | -2.250  | 0.000   | 3933.343 | 0.970   | 0.000   |
| 125. | 7147.639 | 0.370  | 0.000  | 3875.196 | -2.230  | 0.000   | 3934.494 | 0.930   | 0.000   |
| 126. | 7148.452 | 0.370  | 0.000  | 3872.587 | -2.140  | 0.000   | 3935.574 | 0.890   | 0.000   |
| 127. | 7149.264 | 0.370  | 0.000  | 3870.025 | -2.150  | 0.000   | 3936.624 | 0.850   | 0.000   |
| 128. | 7150.070 | 0.370  | 0.000  | 3867.524 | -2.090  | 0.000   | 3937.616 | 0.810   | 0.000   |
| 129. | 7150.863 | 0.360  | 0.000  | 3865.095 | -2.030  | 0.000   | 3938.562 | 0.760   | 0.000   |
| 130. | 7151.636 | 0.350  | 0.000  | 3862.752 | -1.950  | 0.000   | 3939.453 | 0.720   | 0.000   |
| 131. | 7152.390 | 0.340  | 0.000  | 3860.505 | -1.870  | 0.000   | 3940.290 | 0.680   | 0.000   |
| 132. | 7153.113 | 0.320  | 0.000  | 3858.369 | -1.770  | 0.000   | 3941.073 | 0.630   | 0.000   |
| 133. | 7153.803 | 0.310  | 0.000  | 3856.345 | -1.670  | 0.000   | 3941.800 | 0.580   | 0.000   |
| 134. | 7154.453 | 0.290  | 0.000  | 3854.451 | -1.560  | 0.000   | 3942.471 | 0.540   | 0.000   |
| 135. | 7155.061 | 0.270  | 0.000  | 3852.694 | -1.440  | 0.000   | 3943.085 | 0.490   | 0.000   |
| 136. | 7155.622 | 0.250  | 0.000  | 3851.083 | -1.310  | 0.000   | 3943.641 | 0.440   | 0.000   |
| 137. | 7156.132 | 0.220  | 0.000  | 3849.625 | -1.180  | 0.000   | 3944.139 | 0.390   | 0.000   |
| 138. | 7156.588 | 0.200  | 0.000  | 3848.328 | -1.040  | 0.000   | 3944.577 | 0.340   | 0.000   |
| 139. | 7156.987 | 0.170  | 0.000  | 3847.198 | -0.890  | 0.000   | 3944.956 | 0.290   | 0.000   |
| 140. | 7157.326 | 0.140  | 0.000  | 3846.240 | -0.740  | 0.000   | 3945.275 | 0.240   | 0.000   |
| 141. | 7157.604 | 0.110  | 0.000  | 3845.456 | -0.590  | 0.000   | 3945.533 | 0.190   | 0.000   |
| 142. | 7157.817 | 0.080  | 0.000  | 3844.856 | -0.430  | 0.000   | 3945.731 | 0.140   | 0.000   |
| 143. | 7157.966 | 0.050  | 0.000  | 3844.441 | -0.280  | 0.000   | 3945.868 | 0.090   | 0.000   |
| 144. | 7158.046 | 0.020  | 0.000  | 3844.210 | -0.120  | 0.000   | 3945.943 | 0.040   | 0.000   |
| 145. | 7158.064 | -0.010 | 0.000  | 3844.166 | 0.040   | 0.000   | 3945.956 | -0.010  | 0.000   |
| 146. | 7158.013 | -0.040 | 0.000  | 3844.309 | 0.200   | 0.000   | 3945.911 | -0.060  | 0.000   |
| 147. | 7157.895 | -0.070 | 0.000  | 3844.636 | 0.360   | 0.000   | 3945.803 | -0.120  | 0.000   |
| 148. | 7157.713 | -0.100 | 0.000  | 3845.152 | 0.520   | 0.000   | 3945.634 | -0.170  | 0.000   |
| 149. | 7157.465 | -0.130 | 0.000  | 3845.849 | 0.670   | 0.000   | 3945.404 | -0.220  | 0.000   |



|      | 110-PLANE YIG |        |          |        | BULK   |          |        |        |
|------|---------------|--------|----------|--------|--------|----------|--------|--------|
|      | LPHI12        | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
| 150. | -160          | 0.000  | 3846.724 | .820   | 0.000  | 3942.114 | -.270  | 0.000  |
| 151. | -160          | 0.000  | 3847.773 | .970   | 0.000  | 3944.763 | -.320  | 0.000  |
| 152. | -210          | 0.000  | 3848.933 | 1.110  | 0.000  | 3944.353 | -.370  | -0.000 |
| 153. | -230          | 0.000  | 3850.375 | 1.250  | 0.000  | 3943.683 | -.420  | 0.000  |
| 154. | -260          | 0.000  | 3851.915 | 1.380  | 0.000  | 3943.352 | -.460  | 0.000  |
| 155. | -260          | 0.000  | 3853.604 | 1.500  | 0.000  | 3942.766 | -.510  | 0.000  |
| 156. | -300          | 0.000  | 3855.434 | 1.620  | 0.000  | 3942.124 | -.560  | 0.000  |
| 157. | -320          | 0.000  | 3857.397 | 1.720  | 0.000  | 3941.423 | -.610  | 0.000  |
| 158. | -330          | 0.000  | 3859.482 | 1.820  | 0.000  | 3940.667 | -.650  | 0.000  |
| 159. | -350          | 0.000  | 3861.679 | 1.910  | 0.000  | 3939.852 | -.700  | 0.000  |
| 160. | -360          | 0.000  | 3863.976 | 1.990  | 0.000  | 3938.989 | -.740  | 0.000  |
| 161. | -360          | 0.000  | 3866.366 | 2.060  | 0.000  | 3938.070 | -.780  | 0.000  |
| 162. | -370          | 0.000  | 3868.836 | 2.120  | 0.000  | 3937.100 | -.830  | 0.000  |
| 163. | -370          | 0.000  | 3871.371 | 2.170  | 0.000  | 3936.076 | -.870  | 0.000  |
| 164. | -370          | 0.000  | 3873.961 | 2.210  | 0.000  | 3935.007 | -.910  | 0.000  |
| 165. | -370          | 0.000  | 3876.592 | 2.240  | 0.000  | 3933.887 | -.950  | 0.000  |
| 166. | -370          | 0.000  | 3879.251 | 2.260  | 0.000  | 3932.721 | -.990  | 0.000  |
| 167. | -360          | 0.000  | 3881.927 | 2.260  | 0.000  | 3931.509 | -1.030 | 0.000  |
| 168. | -350          | 0.000  | 3884.605 | 2.260  | 0.000  | 3930.253 | -1.070 | 0.000  |
| 169. | -330          | 0.000  | 3887.272 | 2.240  | 0.000  | 3928.954 | -1.100 | 0.000  |
| 170. | -310          | 0.000  | 3889.916 | 2.220  | 0.000  | 3927.614 | -1.140 | 0.000  |
| 171. | -290          | 0.000  | 3892.523 | 2.180  | 0.000  | 3926.234 | -1.170 | 0.000  |
| 172. | -270          | -0.000 | 3895.080 | 2.130  | 0.000  | 3924.816 | -1.200 | 0.000  |
| 173. | -250          | 0.000  | 3897.575 | 2.070  | 0.000  | 3923.352 | -1.230 | 0.000  |
| 174. | -220          | -0.000 | 3899.996 | 2.000  | 0.000  | 3921.844 | -1.260 | 0.000  |
| 175. | -190          | 0.000  | 3902.330 | 1.920  | 0.000  | 3920.293 | -1.290 | 0.000  |
| 176. | -150          | -0.000 | 3904.566 | 1.840  | 0.000  | 3918.601 | -1.310 | 0.000  |
| 177. | -120          | 0.000  | 3906.694 | 1.740  | 0.000  | 3917.220 | -1.340 | 0.000  |
| 178. | -80           | -0.000 | 3908.702 | 1.630  | 0.000  | 3915.612 | -1.360 | 0.000  |
| 179. | -60           | -0.000 | 3910.540 | 1.520  | 0.000  | 3913.878 | -1.380 | 0.000  |
| 180. | -0.000        | 0.000  | 3912.320 | 1.400  | 0.000  | 3912.321 | -1.400 | 0.000  |

X-PLANE (YZ-PLANE) ZINC OXIDE (SMITH)

|     | LNGLVL   | LPM12  | LPM13  | LPM14  | FSRDEL   | FSM12  | FSM13  | FSM14  | SSRDEL   | SSM12  | SSM13 |
|-----|----------|--------|--------|--------|----------|--------|--------|--------|----------|--------|-------|
| 0.  | 5882.690 | 0.000  | 0.000  | 0.000  | 2829.153 | 0.000  | 0.000  | 0.000  | 2804.296 | 0.000  | 0.000 |
| 1.  | 5882.650 | -0.040 | 0.000  | 0.000  | 2829.176 | 0.030  | -0.000 | -0.000 | 2804.275 | 0.000  | 0.000 |
| 2.  | 5882.528 | -0.090 | 0.000  | 0.000  | 2829.217 | 0.070  | -0.000 | -0.000 | 2804.210 | -0.050 | 0.000 |
| 3.  | 5882.322 | -0.140 | 0.000  | 0.000  | 2829.297 | 0.120  | -0.000 | -0.000 | 2804.192 | -0.100 | 0.000 |
| 4.  | 5882.024 | -0.190 | 0.000  | 0.000  | 2829.435 | 0.200  | -0.000 | -0.000 | 2803.952 | -0.150 | 0.000 |
| 5.  | 5881.629 | -0.240 | 0.000  | 0.000  | 2829.655 | 0.310  | -0.000 | -0.000 | 2803.754 | -0.200 | 0.000 |
| 6.  | 5881.124 | -0.300 | 0.000  | 0.000  | 2829.988 | 0.470  | -0.000 | -0.000 | 2803.522 | -0.250 | 0.000 |
| 7.  | 5880.580 | -0.370 | 0.000  | 0.000  | 2830.471 | 0.660  | -0.000 | -0.000 | 2803.264 | -0.300 | 0.000 |
| 8.  | 5879.743 | -0.450 | 0.000  | 0.000  | 2831.145 | 0.910  | -0.000 | -0.000 | 2802.974 | -0.350 | 0.000 |
| 9.  | 5878.638 | -0.530 | 0.000  | 0.000  | 2832.057 | 1.210  | -0.000 | -0.000 | 2802.563 | -0.400 | 0.000 |
| 10. | 5877.771 | -0.620 | 0.000  | 0.000  | 2833.257 | 1.590  | -0.000 | -0.000 | 2802.167 | -0.450 | 0.000 |
| 11. | 5876.525 | -0.720 | 0.000  | 0.000  | 2834.797 | 2.000  | -0.000 | -0.000 | 2801.717 | -0.500 | 0.000 |
| 12. | 5875.085 | -0.830 | 0.000  | 0.000  | 2836.731 | 2.490  | -0.000 | -0.000 | 2801.233 | -0.550 | 0.000 |
| 13. | 5873.434 | -0.950 | 0.000  | 0.000  | 2839.115 | 3.030  | -0.000 | -0.000 | 2800.711 | -0.600 | 0.000 |
| 14. | 5871.557 | -1.080 | 0.000  | 0.000  | 2842.002 | 3.640  | -0.000 | -0.000 | 2800.144 | -0.650 | 0.000 |
| 15. | 5869.440 | -1.210 | 0.000  | 0.000  | 2845.447 | 4.310  | -0.000 | -0.000 | 2799.543 | -0.700 | 0.000 |
| 16. | 5867.069 | -1.350 | 0.000  | 0.000  | 2849.500 | 5.020  | -0.000 | -0.000 | 2798.911 | -0.750 | 0.000 |
| 17. | 5864.432 | -1.500 | 0.000  | 0.000  | 2854.207 | 5.790  | -0.000 | -0.000 | 2798.236 | -0.800 | 0.000 |
| 18. | 5861.519 | -1.650 | 0.000  | 0.000  | 2859.613 | 6.590  | -0.000 | -0.000 | 2797.524 | -0.850 | 0.000 |
| 19. | 5858.323 | -1.810 | 0.000  | 0.000  | 2865.754 | 7.430  | -0.000 | -0.000 | 2796.780 | -0.900 | 0.000 |
| 20. | 5854.839 | -1.970 | 0.000  | 0.000  | 2872.652 | 8.280  | -0.000 | -0.000 | 2796.000 | -0.950 | 0.000 |
| 21. | 5851.065 | -2.130 | 0.000  | 0.000  | 2880.359 | 9.150  | -0.000 | -0.000 | 2795.187 | -1.000 | 0.000 |
| 22. | 5847.002 | -2.280 | 0.000  | 0.000  | 2888.867 | 10.020 | -0.000 | -0.000 | 2794.341 | -1.050 | 0.000 |
| 23. | 5842.655 | -2.440 | 0.000  | 0.000  | 2898.178 | 10.890 | -0.000 | -0.000 | 2793.464 | -1.100 | 0.000 |
| 24. | 5838.032 | -2.580 | 0.000  | 0.000  | 2908.304 | 11.720 | -0.000 | -0.000 | 2792.565 | -1.150 | 0.000 |
| 25. | 5833.146 | -2.770 | 0.000  | 0.000  | 2919.224 | 12.520 | -0.000 | -0.000 | 2791.629 | -1.200 | 0.000 |
| 26. | 5828.014 | -2.960 | 0.000  | 0.000  | 2930.929 | 13.290 | -0.000 | -0.000 | 2790.655 | -1.250 | 0.000 |
| 27. | 5822.657 | -3.170 | 0.000  | 0.000  | 2943.375 | 14.000 | -0.000 | -0.000 | 2789.662 | -1.300 | 0.000 |
| 28. | 5817.100 | -3.380 | 0.000  | 0.000  | 2956.522 | 14.640 | -0.000 | -0.000 | 2788.645 | -1.350 | 0.000 |
| 29. | 5811.373 | -3.600 | 0.000  | 0.000  | 2970.319 | 15.220 | -0.000 | -0.000 | 2787.507 | -1.400 | 0.000 |
| 30. | 5805.511 | -3.830 | 0.000  | 0.000  | 2984.703 | 15.740 | -0.000 | -0.000 | 2786.336 | -1.450 | 0.000 |
| 31. | 5899.554 | -3.270 | 0.000  | 0.000  | 2994.501 | 16.120 | -0.000 | -0.000 | 2785.144 | -1.500 | 0.000 |
| 32. | 5893.546 | -3.220 | 0.000  | 0.000  | 3004.932 | 16.430 | -0.000 | -0.000 | 2784.833 | -1.520 | 0.000 |
| 33. | 5887.535 | -3.280 | 0.000  | 0.000  | 3016.604 | 16.640 | -0.000 | -0.000 | 2784.511 | -1.540 | 0.000 |
| 34. | 5881.574 | -3.240 | 0.000  | 0.000  | 3028.519 | 16.750 | -0.000 | -0.000 | 2784.264 | -1.560 | 0.000 |
| 35. | 5875.721 | -3.170 | 0.000  | 0.000  | 3040.571 | 16.750 | -0.000 | -0.000 | 2784.001 | -1.580 | 0.000 |
| 36. | 5870.034 | -3.070 | 0.000  | 0.000  | 3052.647 | 16.630 | -0.000 | -0.000 | 2783.722 | -1.590 | 0.000 |
| 37. | 5864.580 | -2.920 | 0.000  | 0.000  | 3064.628 | 16.400 | -0.000 | -0.000 | 2783.431 | -1.620 | 0.000 |
| 38. | 5859.425 | -2.740 | 0.000  | 0.000  | 3076.391 | 16.040 | -0.000 | -0.000 | 2783.125 | -1.630 | 0.000 |
| 39. | 5854.617 | -2.520 | 0.000  | 0.000  | 3087.809 | 15.570 | -0.000 | -0.000 | 2782.804 | -1.640 | 0.000 |
| 40. | 5850.280 | -2.260 | 0.000  | 0.000  | 3100.755 | 14.990 | -0.000 | -0.000 | 2782.464 | -1.650 | 0.000 |
| 41. | 5846.444 | -1.970 | 0.000  | 0.000  | 3115.009 | 14.260 | -0.000 | -0.000 | 2782.109 | -1.650 | 0.000 |
| 42. | 5843.189 | -1.630 | 0.000  | 0.000  | 3130.709 | 13.430 | -0.000 | -0.000 | 2781.649 | -1.650 | 0.000 |
| 43. | 5840.580 | -1.250 | 0.000  | 0.000  | 3147.453 | 12.470 | -0.000 | -0.000 | 2781.167 | -1.640 | 0.000 |
| 44. | 5838.648 | -0.960 | 0.000  | 0.000  | 3164.837 | 11.410 | -0.000 | -0.000 | 2780.633 | -1.630 | 0.000 |
| 45. | 5837.577 | -0.790 | 0.000  | 0.000  | 3183.914 | 10.230 | -0.000 | -0.000 | 2780.052 | -1.600 | 0.000 |
| 46. | 5837.386 | -0.900 | -0.000 | -0.000 | 3213.342 | 8.950  | -0.000 | -0.000 | 2769.310 | -1.600 | 0.000 |
| 47. | 5837.929 | -0.800 | -0.000 | -0.000 | 3221.539 | 7.570  | -0.000 | -0.000 | 2768.459 | -1.600 | 0.000 |
| 48. | 5839.498 | 1.130  | -0.000 | -0.000 | 3230.295 | 6.110  | -0.000 | -0.000 | 2767.611 | -1.600 | 0.000 |
| 49. | 5842.029 | 1.680  | -0.000 | -0.000 | 3233.567 | 4.570  | -0.000 | -0.000 | 2763.664 | -1.670 | 0.000 |

X-PLANE (17-PLANE) ZINC OXIDE (SMIT4)

|     | LMVEL    | LMH12  | LMH13  | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 50. | 5945.574 | 7.259  | -0.078 | 3217.299 | 2.969   | -0.000 | 2752.627 | -1.479 | 0.000  |
| 51. | 5950.143 | 7.809  | -0.000 | 3239.403 | 1.310   | -0.000 | 2761.196 | -1.467 | 0.000  |
| 52. | 5955.748 | 7.377  | -0.078 | 3239.872 | -0.379  | 0.000  | 2759.972 | -1.450 | 0.000  |
| 53. | 5962.385 | 7.930  | -0.000 | 3238.668 | -2.079  | 0.000  | 2758.752 | -1.440 | 0.000  |
| 54. | 5970.061 | 6.680  | -0.078 | 3235.792 | -3.740  | 0.000  | 2757.557 | -1.420 | 0.000  |
| 55. | 5978.944 | 5.013  | -0.000 | 3231.219 | -5.470  | 0.000  | 2756.767 | -1.410 | 0.000  |
| 56. | 5988.309 | 5.510  | -0.000 | 3224.999 | -7.130  | 0.000  | 2755.195 | -1.399 | 0.000  |
| 57. | 5998.443 | 5.999  | -0.000 | 3217.157 | -8.759  | 0.000  | 2754.034 | -1.379 | 0.000  |
| 58. | 6010.242 | 6.420  | -0.000 | 3207.741 | -10.319 | 0.000  | 2752.896 | -1.350 | 0.000  |
| 59. | 6022.444 | 6.833  | -0.000 | 3196.614 | -11.800 | 0.000  | 2751.774 | -1.333 | 0.000  |
| 60. | 6035.382 | 7.191  | -0.078 | 3184.450 | -13.229 | 0.000  | 2750.677 | -1.309 | 0.000  |
| 61. | 6048.979 | 7.500  | -0.000 | 3170.746 | -14.557 | 0.000  | 2749.599 | -1.299 | 0.000  |
| 62. | 6063.155 | 7.777  | -0.000 | 3155.746 | -15.789 | 0.000  | 2748.534 | -1.259 | 0.000  |
| 63. | 6077.827 | 7.990  | -0.000 | 3139.646 | -16.919 | 0.000  | 2747.501 | -1.220 | 0.000  |
| 64. | 6092.906 | 8.160  | -0.000 | 3122.489 | -17.930 | 0.000  | 2746.504 | -1.199 | 0.000  |
| 65. | 6109.303 | 8.293  | -0.000 | 3104.417 | -18.850 | 0.000  | 2745.517 | -1.169 | 0.000  |
| 66. | 6127.027 | 8.363  | -0.000 | 3085.544 | -19.684 | 0.000  | 2744.560 | -1.129 | 0.000  |
| 67. | 6146.089 | 8.390  | -0.000 | 3066.017 | -20.432 | 0.000  | 2743.634 | -1.099 | 0.000  |
| 68. | 6166.498 | 8.370  | -0.000 | 3045.952 | -21.089 | 0.000  | 2742.747 | -1.059 | 0.000  |
| 69. | 6188.265 | 8.308  | -0.000 | 3025.407 | -21.630 | 0.000  | 2741.891 | -1.010 | 0.000  |
| 70. | 6211.404 | 8.199  | -0.000 | 3004.797 | -22.059 | 0.000  | 2741.051 | -0.979 | 0.000  |
| 71. | 6235.932 | 8.040  | -0.000 | 2983.960 | -22.384 | 0.000  | 2740.256 | -0.939 | 0.000  |
| 72. | 6261.867 | 7.853  | -0.000 | 2963.155 | -22.600 | 0.000  | 2739.504 | -0.900 | 0.000  |
| 73. | 6289.232 | 7.620  | -0.000 | 2942.511 | -22.719 | 0.000  | 2738.799 | -0.860 | 0.000  |
| 74. | 6318.052 | 7.350  | -0.000 | 2922.166 | -22.749 | 0.000  | 2738.141 | -0.820 | 0.000  |
| 75. | 6348.354 | 7.044  | -0.000 | 2902.254 | -22.689 | 0.000  | 2737.527 | -0.780 | 0.000  |
| 76. | 6379.143 | 6.739  | -0.000 | 2882.909 | -22.539 | 0.000  | 2736.957 | -0.740 | 0.000  |
| 77. | 6411.444 | 6.379  | -0.000 | 2864.257 | -22.300 | 0.000  | 2736.434 | -0.700 | 0.000  |
| 78. | 6445.165 | 5.989  | -0.000 | 2846.425 | -21.980 | 0.000  | 2735.957 | -0.660 | 0.000  |
| 79. | 6480.321 | 5.570  | -0.000 | 2829.531 | -21.580 | 0.000  | 2735.529 | -0.620 | 0.000  |
| 80. | 6516.949 | 5.130  | -0.000 | 2813.691 | -21.120 | 0.000  | 2735.154 | -0.580 | 0.000  |
| 81. | 6555.088 | 4.680  | -0.000 | 2799.010 | -20.610 | 0.000  | 2734.834 | -0.540 | 0.000  |
| 82. | 6594.753 | 4.200  | -0.000 | 2785.509 | -20.060 | 0.000  | 2734.571 | -0.500 | 0.000  |
| 83. | 6635.963 | 3.710  | -0.000 | 2773.514 | -19.480 | 0.000  | 2734.362 | -0.460 | 0.000  |
| 84. | 6678.723 | 3.210  | -0.000 | 2762.882 | -18.880 | 0.000  | 2734.215 | -0.420 | 0.000  |
| 85. | 6723.033 | 2.699  | -0.000 | 2753.754 | -18.260 | 0.000  | 2734.135 | -0.380 | 0.000  |
| 86. | 6768.894 | 2.170  | -0.000 | 2746.197 | -17.630 | 0.000  | 2734.115 | -0.340 | 0.000  |
| 87. | 6816.326 | 1.630  | -0.000 | 2740.264 | -16.990 | 0.000  | 2734.165 | -0.300 | 0.000  |
| 88. | 6865.348 | 1.090  | -0.000 | 2735.996 | -16.350 | 0.000  | 2734.295 | -0.260 | 0.000  |
| 89. | 6915.973 | 0.550  | -0.000 | 2733.423 | -15.710 | 0.000  | 2734.505 | -0.220 | 0.000  |
| 90. | 6968.207 | -0.000 | -0.000 | 2732.563 | -15.080 | 0.000  | 2734.785 | -0.180 | 0.000  |
| 91. | 6980.256 | -0.550 | -0.000 | 2733.423 | -14.460 | 0.000  | 2735.135 | -0.140 | 0.000  |
| 92. | 6988.669 | -1.090 | -0.000 | 2735.996 | -13.850 | 0.000  | 2735.555 | -0.100 | 0.000  |
| 93. | 6988.026 | -1.630 | -0.000 | 2740.264 | -13.260 | 0.000  | 2736.045 | -0.060 | 0.000  |
| 94. | 6982.143 | -2.170 | -0.000 | 2746.197 | -12.690 | 0.000  | 2736.605 | 0.000  | 0.000  |
| 95. | 6972.633 | -2.699 | -0.000 | 2753.754 | -12.150 | 0.000  | 2737.235 | 0.000  | 0.000  |
| 96. | 6959.915 | -3.210 | -0.000 | 2762.882 | -11.640 | 0.000  | 2737.935 | 0.000  | 0.000  |
| 97. | 6944.213 | -3.710 | -0.000 | 2773.514 | -11.160 | 0.000  | 2738.705 | 0.000  | 0.000  |
| 98. | 6925.553 | -4.200 | -0.000 | 2785.509 | -10.710 | 0.000  | 2739.545 | 0.000  | 0.000  |
| 99. | 6904.068 | -4.680 | -0.000 | 2799.010 | -10.280 | 0.000  | 2740.455 | 0.000  | 0.000  |

X-PLANE (YZ-PLANE) ZINC OXIDE (SMITH)

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSPWEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 104. | 6319.494 | -5.130 | -0.00E | 2913.691 | 17.260  | 0.000  | 2734.754 | .520   | 0.000  |
| 105. | 6399.171 | -5.570 | -0.00E | 2829.571 | 18.360  | 0.000  | 2735.204 | .570   | 0.000  |
| 106. | 6286.645 | -5.360 | -0.00E | 2866.625 | 19.260  | 0.000  | 2735.703 | .620   | 0.000  |
| 107. | 6286.164 | -6.370 | -0.00E | 2864.257 | 20.070  | 0.000  | 2736.234 | .670   | 0.000  |
| 108. | 6271.583 | -7.060 | -0.00E | 2942.908 | 20.710  | 0.000  | 2736.813 | .710   | 0.000  |
| 109. | 6268.358 | -7.660 | -0.00E | 2902.254 | 21.200  | 0.000  | 2737.427 | .760   | 0.000  |
| 109. | 6266.552 | -7.620 | -0.00E | 2922.166 | 21.560  | 0.000  | 2738.079 | .800   | 0.000  |
| 107. | 6232.232 | -7.620 | -0.00E | 2942.511 | 21.780  | 0.000  | 2738.769 | .850   | 0.000  |
| 108. | 6217.667 | -7.850 | -0.00E | 2953.155 | 21.860  | 0.000  | 2739.494 | .890   | 0.000  |
| 109. | 6202.332 | -9.040 | -0.00E | 2983.960 | 21.810  | 0.000  | 2740.255 | .940   | 0.000  |
| 110. | 6186.986 | -9.190 | -0.00E | 3004.747 | 21.630  | 0.000  | 2741.051 | .970   | 0.000  |
| 111. | 6171.255 | -8.300 | -0.00E | 3025.497 | 21.320  | 0.000  | 2741.881 | 1.010  | 0.000  |
| 112. | 6155.494 | -9.370 | -0.00E | 3045.952 | 20.840  | 0.000  | 2742.743 | 1.050  | 0.000  |
| 113. | 6139.689 | -8.190 | -0.00E | 3066.013 | 20.320  | 0.000  | 2743.636 | 1.090  | 0.000  |
| 114. | 6123.927 | -9.360 | -0.00E | 3085.544 | 19.840  | 0.000  | 2744.560 | 1.120  | 0.000  |
| 115. | 6108.303 | -8.290 | -0.00E | 3104.413 | 19.490  | 0.000  | 2745.517 | 1.160  | 0.000  |
| 116. | 6092.906 | -9.140 | -0.00E | 3122.884 | 17.890  | 0.000  | 2746.494 | 1.200  | 0.000  |
| 117. | 6077.427 | -7.990 | -0.00E | 3139.646 | 15.910  | 0.000  | 2747.491 | 1.240  | 0.000  |
| 118. | 6063.155 | -7.770 | -0.00E | 3155.766 | 15.780  | 0.000  | 2748.514 | 1.280  | 0.000  |
| 119. | 6048.979 | -7.580 | -0.00E | 3170.736 | 14.550  | 0.000  | 2749.592 | 1.320  | 0.000  |
| 120. | 6035.382 | -7.190 | -0.00E | 3184.650 | 13.270  | 0.000  | 2750.722 | 1.360  | 0.000  |
| 121. | 6022.444 | -6.830 | -0.00E | 3196.614 | 11.800  | 0.000  | 2751.914 | 1.390  | 0.000  |
| 122. | 6010.242 | -6.620 | -0.00E | 3207.741 | 10.310  | 0.000  | 2753.174 | 1.430  | 0.000  |
| 123. | 6000.843 | -5.200 | -0.00E | 3217.157 | 8.750   | 0.000  | 2754.496 | 1.450  | 0.000  |
| 124. | 6000.389 | -5.510 | -0.00E | 3224.999 | 7.130   | 0.000  | 2755.895 | 1.470  | 0.000  |
| 125. | 6078.694 | -5.010 | -0.00E | 3231.219 | 5.670   | 0.000  | 2756.363 | 1.410  | 0.000  |
| 126. | 6078.841 | -4.480 | -0.00E | 3234.782 | 3.780   | 0.000  | 2757.557 | 1.420  | 0.000  |
| 127. | 6062.395 | -3.930 | -0.00E | 3236.668 | 2.070   | 0.000  | 2758.759 | 1.440  | 0.000  |
| 128. | 6055.744 | -3.170 | -0.00E | 3239.872 | .370    | 0.000  | 2759.972 | 1.460  | 0.000  |
| 129. | 6050.143 | -2.800 | -0.00E | 3239.483 | -1.310  | 0.000  | 2761.194 | 1.450  | 0.000  |
| 130. | 6045.573 | -2.240 | -0.00E | 3237.288 | -2.960  | 0.000  | 2762.427 | 1.470  | 0.000  |
| 131. | 6042.029 | -1.680 | -0.00E | 3233.567 | -4.670  | 0.000  | 2763.665 | 1.470  | 0.000  |
| 132. | 6039.690 | -1.130 | -0.00E | 3228.245 | -6.110  | 0.000  | 2764.911 | 1.440  | 0.000  |
| 133. | 6037.629 | -0.600 | -0.00E | 3221.518 | -7.570  | 0.000  | 2766.159 | 1.440  | 0.000  |
| 134. | 6037.386 | -0.090 | -0.00E | 3213.382 | -8.950  | 0.000  | 2767.419 | 1.480  | 0.000  |
| 135. | 6037.577 | .390   | 0.00E  | 3203.914 | -10.230 | 0.000  | 2768.667 | 1.480  | 0.000  |
| 136. | 6039.688 | .640   | 0.00E  | 3193.217 | -11.610 | 0.000  | 2769.917 | 1.480  | 0.000  |
| 137. | 6040.580 | 1.250  | 0.00E  | 3181.653 | -12.670 | 0.000  | 2771.163 | 1.440  | 0.000  |
| 138. | 6043.189 | 1.630  | 0.00E  | 3168.709 | -13.870 | 0.000  | 2772.408 | 1.470  | 0.000  |
| 139. | 6046.448 | 1.970  | 0.00E  | 3155.097 | -14.260 | 0.000  | 2773.649 | 1.460  | 0.000  |
| 140. | 6048.291 | 2.260  | 0.00E  | 3140.755 | -14.980 | 0.000  | 2774.887 | 1.460  | 0.000  |
| 141. | 6046.637 | 2.620  | 0.00E  | 3125.809 | -15.570 | 0.000  | 2776.109 | 1.450  | 0.000  |
| 142. | 6049.425 | 2.920  | 0.00E  | 3110.191 | -16.040 | 0.000  | 2777.225 | 1.430  | 0.000  |
| 143. | 6054.590 | 2.920  | 0.00E  | 3094.628 | -16.000 | 0.000  | 2778.330 | 1.420  | 0.000  |
| 144. | 6070.834 | 3.070  | 0.00E  | 3078.647 | -16.530 | 0.000  | 2779.422 | 1.410  | 0.000  |
| 145. | 6075.721 | 3.170  | 0.00E  | 3062.571 | -16.750 | 0.000  | 2780.481 | 1.380  | 0.000  |
| 146. | 6081.574 | 3.240  | 0.00E  | 3046.519 | -16.750 | 0.000  | 2781.604 | 1.360  | 0.000  |
| 147. | 6087.535 | 3.290  | 0.00E  | 3030.604 | -16.640 | 0.000  | 2782.711 | 1.340  | 0.000  |
| 148. | 6093.546 | 3.290  | 0.00E  | 3014.972 | -16.430 | 0.000  | 2783.839 | 1.320  | 0.000  |
| 149. | 6099.554 | 3.270  | 0.00E  | 2999.601 | -16.120 | 0.000  | 2785.044 | 1.290  | 0.000  |

X-PLANE (Y-Z PLANE) ZINC OXIDE (SMITH)

|      | LMGVEL   | LPHI12 | LPHI11 | FSRWEL   | FSPWI2  | FSPWI3 | SSRWEL   | SSPWI2 | SSPWI3 |
|------|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 150. | 5005.911 | 3.239  | 0.000  | 2884.783 | -15.710 | -0.000 | 2786.536 | 1.270  | 0.000  |
| 151. | 5011.173 | 3.160  | 0.000  | 2970.719 | -15.224 | -0.000 | 2787.609 | 1.249  | 0.000  |
| 152. | 5017.100 | 3.080  | 0.000  | 2856.522 | -14.640 | -0.000 | 2788.645 | 1.210  | 0.000  |
| 153. | 5022.657 | 2.973  | 0.000  | 2943.375 | -14.000 | -0.000 | 2789.852 | 1.190  | 0.000  |
| 154. | 5028.014 | 2.960  | 0.000  | 2930.929 | -13.290 | -0.000 | 2790.855 | 1.159  | 0.000  |
| 155. | 5033.185 | 2.730  | 0.000  | 2919.224 | -12.520 | -0.000 | 2791.621 | 1.120  | 0.000  |
| 156. | 5039.032 | 2.540  | 0.000  | 2908.304 | -11.720 | -0.000 | 2792.555 | 1.080  | 0.000  |
| 157. | 5042.655 | 2.440  | 0.000  | 2898.174 | -10.880 | -0.000 | 2793.464 | 1.050  | 0.000  |
| 158. | 5047.062 | 2.280  | 0.000  | 2888.862 | -10.020 | -0.000 | 2794.341 | 1.010  | 0.000  |
| 159. | 5051.065 | 2.170  | 0.000  | 2880.359 | -9.150  | -0.000 | 2795.187 | 0.970  | 0.000  |
| 160. | 5054.839 | 1.970  | 0.000  | 2872.662 | -8.280  | -0.000 | 2795.800 | 0.940  | 0.000  |
| 161. | 5058.323 | 1.810  | 0.000  | 2865.764 | -7.430  | -0.000 | 2796.780 | 0.900  | 0.000  |
| 162. | 5061.519 | 1.650  | 0.000  | 2859.617 | -6.590  | -0.000 | 2797.524 | 0.850  | 0.000  |
| 163. | 5064.432 | 1.500  | 0.000  | 2854.207 | -5.790  | -0.000 | 2798.234 | 0.810  | 0.000  |
| 164. | 5067.069 | 1.351  | 0.000  | 2849.500 | -5.024  | -0.000 | 2798.911 | 0.770  | 0.000  |
| 165. | 5069.460 | 1.210  | 0.000  | 2845.447 | -4.310  | -0.000 | 2799.549 | 0.730  | 0.000  |
| 166. | 5071.557 | 1.099  | 0.000  | 2842.002 | -3.640  | -0.000 | 2800.149 | 0.690  | 0.000  |
| 167. | 5073.434 | 0.950  | 0.000  | 2839.115 | -3.030  | -0.000 | 2800.711 | 0.650  | 0.000  |
| 168. | 5075.085 | 0.835  | 0.000  | 2836.731 | -2.480  | -0.000 | 2801.233 | 0.610  | 0.000  |
| 169. | 5076.525 | 0.720  | 0.000  | 2834.797 | -2.000  | -0.000 | 2801.717 | 0.580  | 0.000  |
| 170. | 5077.771 | 0.620  | 0.000  | 2833.257 | -1.580  | -0.000 | 2802.169 | 0.500  | 0.000  |
| 171. | 5078.819 | 0.533  | 0.000  | 2832.057 | -1.210  | -0.000 | 2802.563 | 0.500  | 0.000  |
| 172. | 5079.748 | 0.450  | 0.000  | 2831.145 | -0.910  | -0.000 | 2802.924 | 0.400  | 0.000  |
| 173. | 5080.580 | 0.370  | 0.000  | 2830.671 | -0.660  | -0.000 | 2803.244 | 0.350  | 0.000  |
| 174. | 5081.324 | 0.301  | 0.000  | 2829.884 | -0.470  | -0.000 | 2803.522 | 0.300  | 0.000  |
| 175. | 5081.629 | 0.240  | 0.000  | 2829.656 | -0.314  | -0.000 | 2803.764 | 0.250  | 0.000  |
| 176. | 5082.024 | 0.190  | 0.000  | 2829.835 | -0.209  | -0.000 | 2803.952 | 0.200  | 0.000  |
| 177. | 5082.322 | 0.140  | 0.000  | 2829.297 | -0.129  | -0.000 | 2804.102 | 0.150  | 0.000  |
| 178. | 5082.528 | 0.090  | 0.000  | 2829.217 | -0.070  | -0.000 | 2804.210 | 0.100  | 0.000  |
| 179. | 5082.550 | 0.040  | 0.000  | 2829.176 | -0.030  | -0.000 | 2804.275 | 0.050  | 0.000  |
| 180. | 5082.500 | -0.000 | -0.000 | 2829.153 | 0.000   | -0.000 | 2804.295 | -0.000 | -0.000 |

X-PLANE (YZ-PLANE) ZINC OXIDE (JAFFE AND BERLINCOURT, BATEMAN)

|     | LMGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12 | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|-----|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| 0.  | 6880.447 | 0.000  | 0.000  | 2883.391 | 0.000  | -0.000 | 2799.009 | 0.000  | 0.000  |
| 1.  | 6880.463 | .020   | -0.000 | 2883.286 | -0.230 | 0.000  | 2799.000 | -0.643 | 0.000  |
| 2.  | 6880.505 | .030   | -0.000 | 2882.983 | -0.466 | 0.000  | 2796.942 | -0.633 | 0.000  |
| 3.  | 6880.501 | .040   | -0.000 | 2882.489 | -0.666 | 0.000  | 2796.047 | -1.130 | 0.000  |
| 4.  | 6880.671 | .050   | -0.000 | 2881.826 | -0.940 | 0.000  | 2798.713 | -1.160 | 0.000  |
| 5.  | 6880.767 | .050   | -0.000 | 2881.824 | -0.980 | 0.000  | 2796.541 | -1.220 | 0.000  |
| 6.  | 6880.856 | .048   | -0.000 | 2880.119 | -1.070 | 0.000  | 2796.332 | -1.270 | 0.000  |
| 7.  | 6880.922 | .030   | -0.000 | 2879.154 | -1.120 | 0.000  | 2798.085 | -1.310 | 0.000  |
| 8.  | 6880.945 | -0.060 | 0.000  | 2878.176 | -1.100 | 0.000  | 2797.000 | -0.860 | 0.000  |
| 9.  | 6880.905 | -0.040 | 0.000  | 2877.246 | -1.010 | 0.000  | 2797.479 | -0.403 | 0.000  |
| 10. | 6880.779 | -0.090 | 0.000  | 2876.422 | -0.860 | 0.000  | 2797.122 | -0.440 | 0.000  |
| 11. | 6880.545 | -0.160 | 0.000  | 2875.766 | -0.636 | 0.000  | 2796.728 | -0.480 | 0.000  |
| 12. | 6880.178 | -0.240 | 0.000  | 2875.345 | -0.320 | 0.000  | 2796.299 | -0.520 | 0.000  |
| 13. | 6879.653 | -0.330 | 0.000  | 2875.228 | .070   | 0.000  | 2795.634 | -0.570 | 0.000  |
| 14. | 6878.946 | -0.440 | 0.000  | 2875.485 | .530   | 0.000  | 2795.335 | -0.610 | 0.000  |
| 15. | 6878.032 | -0.550 | 0.000  | 2876.185 | 1.080  | 0.000  | 2794.802 | -0.650 | 0.000  |
| 16. | 6876.819 | -0.660 | 0.000  | 2877.395 | 1.700  | 0.000  | 2794.236 | -0.680 | 0.000  |
| 17. | 6875.493 | -0.830 | 0.000  | 2879.162 | 2.390  | 0.000  | 2793.637 | -0.720 | 0.000  |
| 18. | 6873.828 | -0.960 | 0.000  | 2881.605 | 3.140  | 0.000  | 2793.006 | -0.760 | 0.000  |
| 19. | 6871.868 | -1.140 | 0.000  | 2884.723 | 3.966  | 0.000  | 2792.344 | -0.800 | 0.000  |
| 20. | 6869.603 | -1.310 | 0.000  | 2888.586 | 4.820  | 0.000  | 2791.651 | -0.830 | 0.000  |
| 21. | 6867.020 | -1.450 | 0.000  | 2893.236 | 5.720  | 0.000  | 2790.929 | -0.870 | 0.000  |
| 22. | 6864.107 | -1.670 | 0.000  | 2898.717 | 6.650  | 0.000  | 2790.178 | -0.900 | 0.000  |
| 23. | 6860.859 | -1.850 | 0.000  | 2905.050 | 7.600  | 0.000  | 2789.400 | -0.930 | 0.000  |
| 24. | 6857.273 | -2.030 | 0.000  | 2912.257 | 8.560  | 0.000  | 2788.594 | -0.960 | 0.000  |
| 25. | 6853.351 | -2.220 | 0.000  | 2920.347 | 9.500  | 0.000  | 2787.762 | -0.990 | 0.000  |
| 26. | 6849.096 | -2.350 | 0.000  | 2929.316 | 10.430 | 0.000  | 2786.905 | -1.020 | 0.000  |
| 27. | 6844.524 | -2.570 | 0.000  | 2939.159 | 11.440 | 0.000  | 2786.025 | -1.050 | 0.000  |
| 28. | 6839.645 | -2.730 | 0.000  | 2949.847 | 12.460 | 0.000  | 2785.121 | -1.080 | 0.000  |
| 29. | 6834.480 | -2.880 | 0.000  | 2961.348 | 12.960 | 0.000  | 2784.196 | -1.100 | 0.000  |
| 30. | 6829.055 | -3.020 | 0.000  | 2973.616 | 13.680 | 0.000  | 2783.250 | -1.130 | 0.000  |
| 31. | 6823.396 | -3.140 | 0.000  | 2986.595 | 14.330 | 0.000  | 2782.264 | -1.150 | 0.000  |
| 32. | 6817.546 | -3.240 | 0.000  | 3000.218 | 14.890 | 0.000  | 2781.300 | -1.170 | 0.000  |
| 33. | 6811.536 | -3.310 | 0.000  | 3014.407 | 15.350 | 0.000  | 2780.298 | -1.190 | 0.000  |
| 34. | 6805.419 | -3.360 | 0.000  | 3029.075 | 15.720 | 0.000  | 2779.281 | -1.210 | 0.000  |
| 35. | 5995.241 | -3.360 | 0.000  | 3044.124 | 15.370 | 0.000  | 2778.249 | -1.230 | 0.000  |
| 36. | 5993.474 | -3.370 | 0.000  | 3059.449 | 16.110 | 0.000  | 2777.233 | -1.240 | 0.000  |
| 37. | 5988.931 | -3.330 | 0.000  | 3074.935 | 16.140 | 0.000  | 2776.145 | -1.260 | 0.000  |
| 38. | 5986.922 | -3.250 | 0.000  | 3090.462 | 16.040 | 0.000  | 2775.075 | -1.270 | 0.000  |
| 39. | 5975.100 | -3.130 | 0.000  | 3105.903 | 15.910 | 0.000  | 2773.936 | -1.280 | 0.000  |
| 40. | 5965.535 | -2.970 | 0.000  | 3121.126 | 15.660 | 0.000  | 2772.709 | -1.240 | 0.000  |
| 41. | 5964.311 | -2.770 | 0.000  | 3135.996 | 14.960 | 0.000  | 2771.614 | -1.300 | 0.000  |
| 42. | 5959.474 | -2.530 | 0.000  | 3150.380 | 14.370 | 0.000  | 2770.714 | -1.310 | 0.000  |
| 43. | 5955.129 | -2.250 | 0.000  | 3164.135 | 13.630 | 0.000  | 2769.609 | -1.310 | 0.000  |
| 44. | 5951.362 | -1.920 | 0.000  | 3177.126 | 12.770 | 0.000  | 2768.500 | -1.320 | 0.000  |
| 45. | 5948.166 | -1.550 | 0.000  | 3189.219 | 11.770 | 0.000  | 2767.391 | -1.320 | 0.000  |
| 46. | 5945.739 | -1.140 | 0.000  | 3200.244 | 10.660 | 0.000  | 2766.280 | -1.320 | 0.000  |
| 47. | 5944.064 | -0.708 | 0.000  | 3210.196 | 9.420  | 0.000  | 2765.171 | -1.320 | 0.000  |
| 48. | 5943.226 | -0.220 | 0.000  | 3220.840 | 8.060  | 0.000  | 2764.064 | -1.310 | 0.000  |
| 49. | 5943.281 | .250   | -0.000 | 3226.109 | 6.630  | 0.000  | 2762.960 | -1.310 | 0.000  |

X-PLANE (YZ-PLANE) ZINC OXIDE (JAFFE AND BERLINCOURT, BATEMAN)

|     | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPHI12 | FSPHI13 | SSRVEL   | SSPHI12 | SSPHI13 |
|-----|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 50. | 594.281  | 0.420  | -0.000 | 3231.906 | 5.180   | -0.000  | 2/61.861 | -1.300  | 0.000   |
| 51. | 594.285  | 1.440  | -0.000 | 3236.149 | 3.490   | -0.000  | 2760.769 | -1.290  | 0.000   |
| 52. | 594.284  | 1.940  | -0.000 | 3236.766 | 1.610   | -0.000  | 2753.605 | -1.270  | 0.000   |
| 53. | 595.295  | 2.510  | -0.000 | 3239.707 | 0.90    | -0.000  | 2756.605 | -1.270  | 0.000   |
| 54. | 595.379  | 3.000  | -0.000 | 3238.930 | -1.670  | 0.000   | 2757.544 | -1.260  | 0.000   |
| 55. | 596.502  | 3.650  | -0.000 | 3236.413 | -3.430  | 0.000   | 2756.490 | -1.250  | 0.000   |
| 56. | 597.163  | 4.200  | -0.000 | 3232.151 | -5.200  | 0.000   | 2755.449 | -1.230  | 0.000   |
| 57. | 597.806  | 4.750  | -0.000 | 3226.195 | -6.940  | 0.000   | 2754.422 | -1.210  | 0.000   |
| 58. | 598.924  | 5.240  | -0.000 | 3218.454 | -8.640  | 0.000   | 2753.411 | -1.200  | 0.000   |
| 59. | 599.960  | 5.710  | -0.000 | 3209.092 | -10.300 | 0.000   | 2752.417 | -1.180  | 0.000   |
| 60. | 600.856  | 6.150  | -0.000 | 3198.126 | -11.660 | 0.000   | 2751.440 | -1.150  | 0.000   |
| 61. | 601.544  | 6.550  | -0.000 | 3185.637 | -13.360 | 0.000   | 2750.483 | -1.130  | 0.000   |
| 62. | 603.952  | 6.900  | -0.000 | 3171.705 | -14.790 | 0.000   | 2749.546 | -1.110  | 0.000   |
| 63. | 606.997  | 7.200  | -0.000 | 3156.432 | -16.110 | 0.000   | 2748.630 | -1.080  | 0.000   |
| 64. | 609.595  | 7.460  | -0.000 | 3139.926 | -17.310 | 0.000   | 2747.737 | -1.050  | 0.000   |
| 65. | 607.655  | 7.660  | -0.000 | 3122.315 | -18.400 | 0.000   | 2746.868 | -1.020  | 0.000   |
| 66. | 609.003  | 7.810  | -0.000 | 3103.720 | -19.370 | 0.000   | 2746.024 | -0.990  | 0.000   |
| 67. | 610.706  | 7.910  | -0.000 | 3084.274 | -20.210 | 0.000   | 2745.205 | -0.960  | 0.000   |
| 68. | 611.667  | 7.960  | -0.000 | 3064.134 | -20.920 | 0.000   | 2744.414 | -0.930  | 0.000   |
| 69. | 613.631  | 7.960  | -0.000 | 3043.432 | -21.510 | 0.000   | 2743.650 | -0.900  | 0.000   |
| 70. | 614.585  | 7.910  | -0.000 | 3022.322 | -21.950 | 0.000   | 2742.915 | -0.860  | 0.000   |
| 71. | 616.344  | 7.820  | -0.000 | 3000.957 | -22.260 | 0.000   | 2742.210 | -0.830  | 0.000   |
| 72. | 617.891  | 7.670  | -0.000 | 2979.491 | -22.430 | 0.000   | 2741.536 | -0.790  | 0.000   |
| 73. | 6192.467 | 7.450  | -0.000 | 2958.074 | -22.480 | 0.000   | 2740.893 | -0.750  | 0.000   |
| 74. | 6206.460 | 7.260  | -0.000 | 2936.675 | -22.320 | 0.000   | 2740.282 | -0.710  | 0.000   |
| 75. | 6220.050 | 7.000  | -0.000 | 2916.033 | -22.050 | 0.000   | 2739.705 | -0.670  | 0.000   |
| 76. | 6233.102 | 6.690  | -0.000 | 2895.702 | -21.620 | 0.000   | 2739.161 | -0.630  | 0.000   |
| 77. | 6245.564 | 6.360  | -0.000 | 2876.030 | -21.030 | 0.000   | 2738.652 | -0.590  | 0.000   |
| 78. | 6257.370 | 5.990  | -0.000 | 2857.160 | -20.260 | 0.000   | 2738.177 | -0.550  | 0.000   |
| 79. | 6268.460 | 5.590  | -0.000 | 2839.230 | -19.360 | 0.000   | 2737.739 | -0.500  | 0.000   |
| 80. | 6278.775 | 5.170  | -0.000 | 2822.372 | -18.290 | 0.000   | 2737.337 | -0.460  | 0.000   |
| 81. | 6288.284 | 4.720  | -0.000 | 2806.710 | -17.050 | 0.000   | 2736.971 | -0.420  | 0.000   |
| 82. | 6296.881 | 4.250  | -0.000 | 2792.361 | -15.650 | 0.000   | 2736.643 | -0.370  | 0.000   |
| 83. | 6304.582 | 3.760  | -0.000 | 2779.432 | -14.100 | 0.000   | 2736.352 | -0.330  | 0.000   |
| 84. | 6311.331 | 3.250  | -0.000 | 2766.021 | -12.460 | 0.000   | 2736.100 | -0.290  | 0.000   |
| 85. | 6317.096 | 2.730  | -0.000 | 2752.233 | -10.570 | 0.000   | 2735.885 | -0.250  | 0.000   |
| 86. | 6321.850 | 2.200  | -0.000 | 2738.084 | -8.610  | 0.000   | 2735.710 | -0.210  | 0.000   |
| 87. | 6325.571 | 1.660  | -0.000 | 2723.656 | -6.550  | 0.000   | 2735.573 | -0.160  | 0.000   |
| 88. | 6328.240 | 1.110  | -0.000 | 2709.097 | -4.410  | 0.000   | 2735.475 | -0.110  | 0.000   |
| 89. | 6329.847 | 0.560  | -0.000 | 2704.323 | -2.220  | 0.000   | 2735.416 | -0.060  | 0.000   |
| 90. | 6330.303 | -0.000 | -0.000 | 2709.337 | 0.000   | 0.000   | 2735.397 | 0.000   | 0.000   |
| 91. | 6329.647 | -0.560 | -0.000 | 2714.323 | 2.220   | 0.000   | 2735.416 | 0.000   | 0.000   |
| 92. | 6328.240 | -1.110 | -0.000 | 2719.097 | 4.410   | 0.000   | 2735.475 | 0.000   | 0.000   |
| 93. | 6325.571 | -1.660 | -0.000 | 2723.656 | 6.550   | 0.000   | 2735.573 | 0.000   | 0.000   |
| 94. | 6321.850 | -2.200 | -0.000 | 2728.084 | 8.610   | 0.000   | 2735.710 | 0.000   | 0.000   |
| 95. | 6317.096 | -2.730 | -0.000 | 2732.233 | 10.570  | 0.000   | 2735.885 | 0.000   | 0.000   |
| 96. | 6311.331 | -3.250 | -0.000 | 2736.021 | 12.460  | 0.000   | 2736.100 | 0.000   | 0.000   |
| 97. | 6304.562 | -3.760 | -0.000 | 2739.432 | 14.100  | 0.000   | 2736.352 | 0.000   | 0.000   |
| 98. | 6296.881 | -4.250 | -0.000 | 2742.372 | 15.650  | 0.000   | 2736.643 | 0.000   | 0.000   |
| 99. | 6288.284 | -4.720 | -0.000 | 2806.710 | 17.050  | 0.000   | 2736.971 | 0.000   | 0.000   |

X-PLANE (YZ-PLANE) ZINC OXIDE (JAFFE AND BERLINCOURT, BATEMAN)

|      | LMGVEL   | LPMI12 | LPMI13 | FSRVEL   | FSPMI12 | FSPMI13 | SSRVEL   | SSPMI12 | SSPMI13 |
|------|----------|--------|--------|----------|---------|---------|----------|---------|---------|
| 100. | 6276.775 | -5.170 | -0.000 | 2622.372 | 16.250  | 0.000   | 2737.337 | .460    | 0.000   |
| 101. | 6266.460 | -5.550 | -0.000 | 2839.230 | 19.361  | 0.000   | 2737.735 | .500    | 0.000   |
| 102. | 6257.370 | -5.950 | -0.000 | 2857.160 | 20.200  | 0.000   | 2736.177 | .520    | 0.000   |
| 103. | 6245.564 | -6.360 | -0.000 | 2876.030 | 21.030  | 0.000   | 2736.652 | .540    | 0.000   |
| 104. | 6233.102 | -6.650 | -0.000 | 2895.702 | 21.620  | 0.000   | 2735.161 | .630    | 0.000   |
| 105. | 6220.050 | -7.000 | -0.000 | 2916.033 | 22.050  | 0.000   | 2735.705 | .670    | 0.000   |
| 106. | 6206.460 | -7.260 | -0.000 | 2936.075 | 22.320  | 0.000   | 2740.202 | .710    | 0.000   |
| 107. | 6192.467 | -7.450 | -0.000 | 2956.079 | 22.450  | 0.000   | 2740.893 | .750    | 0.000   |
| 108. | 6178.091 | -7.670 | -0.000 | 2979.691 | 22.430  | 0.000   | 2741.536 | .790    | 0.000   |
| 109. | 6163.634 | -7.820 | -0.000 | 3000.957 | 22.260  | 0.000   | 2742.210 | .830    | 0.000   |
| 110. | 6146.565 | -7.910 | -0.000 | 3022.322 | 21.950  | 0.000   | 2742.915 | .860    | 0.000   |
| 111. | 6133.631 | -7.960 | -0.000 | 3043.432 | 21.510  | 0.000   | 2743.650 | .900    | 0.000   |
| 112. | 6118.667 | -7.960 | -0.000 | 3064.134 | 20.920  | 0.000   | 2744.414 | .930    | 0.000   |
| 113. | 6103.766 | -7.910 | -0.000 | 3084.274 | 20.210  | 0.000   | 2745.205 | .960    | 0.000   |
| 114. | 6089.083 | -7.610 | -0.000 | 3103.720 | 19.370  | 0.000   | 2746.024 | .990    | 0.000   |
| 115. | 6074.655 | -7.660 | -0.000 | 3122.315 | 16.400  | 0.000   | 2746.966 | 1.020   | 0.000   |
| 116. | 6060.595 | -7.460 | -0.000 | 3139.928 | 17.310  | 0.000   | 2747.737 | 1.050   | 0.000   |
| 117. | 6046.997 | -7.200 | -0.000 | 3156.432 | 16.110  | 0.000   | 2748.630 | 1.080   | 0.000   |
| 118. | 6033.952 | -6.900 | -0.000 | 3171.705 | 14.750  | 0.000   | 2749.546 | 1.110   | 0.000   |
| 119. | 6021.544 | -6.510 | -0.000 | 3185.637 | 13.360  | 0.000   | 2750.483 | 1.130   | 0.000   |
| 120. | 6009.656 | -6.150 | -0.000 | 3198.126 | 11.080  | 0.000   | 2751.440 | 1.150   | 0.000   |
| 121. | 5998.960 | -5.710 | -0.000 | 3209.092 | 10.300  | 0.000   | 2752.417 | 1.160   | 0.000   |
| 122. | 5988.924 | -5.240 | -0.000 | 3218.454 | 6.640   | 0.000   | 2753.411 | 1.200   | 0.000   |
| 123. | 5979.686 | -4.730 | -0.000 | 3226.155 | 6.941   | 0.000   | 2754.422 | 1.210   | 0.000   |
| 124. | 5971.653 | -4.200 | -0.000 | 3232.151 | 5.200   | 0.000   | 2755.449 | 1.230   | 0.000   |
| 125. | 5964.502 | -3.650 | -0.000 | 3236.413 | 3.430   | 0.000   | 2756.496 | 1.250   | 0.000   |
| 126. | 5958.374 | -3.080 | -0.000 | 3238.930 | 1.670   | 0.000   | 2757.544 | 1.260   | 0.000   |
| 127. | 5953.299 | -2.510 | -0.000 | 3239.707 | -0.090  | -0.000  | 2758.609 | 1.270   | 0.000   |
| 128. | 5949.264 | -1.940 | -0.000 | 3238.766 | -1.610  | -0.000  | 2759.660 | 1.260   | 0.000   |
| 129. | 5946.265 | -1.410 | -0.000 | 3236.149 | -3.490  | -0.000  | 2760.769 | 1.290   | 0.000   |
| 130. | 5944.261 | -0.820 | -0.000 | 3231.906 | -5.100  | -0.000  | 2761.961 | 1.300   | 0.000   |
| 131. | 5943.261 | -0.250 | -0.000 | 3226.105 | -6.630  | -0.000  | 2762.960 | 1.310   | 0.000   |
| 132. | 5943.226 | .220   | 0.000  | 3218.640 | -8.080  | -0.000  | 2764.064 | 1.310   | 0.000   |
| 133. | 5944.064 | .700   | 0.000  | 3210.196 | -9.420  | -0.000  | 2765.171 | 1.320   | 0.000   |
| 134. | 5945.735 | 1.140  | 0.000  | 3200.264 | -10.660 | -0.000  | 2766.260 | 1.320   | 0.000   |
| 135. | 5948.188 | 1.550  | 0.000  | 3189.215 | -11.770 | -0.000  | 2767.391 | 1.320   | 0.000   |
| 136. | 5951.342 | 1.920  | 0.000  | 3177.126 | -12.770 | -0.000  | 2768.200 | 1.320   | 0.000   |
| 137. | 5955.129 | 2.250  | 0.000  | 3164.135 | -13.630 | -0.000  | 2769.609 | 1.310   | 0.000   |
| 138. | 5959.474 | 2.530  | 0.000  | 3150.340 | -14.370 | -0.000  | 2770.714 | 1.310   | 0.000   |
| 139. | 5964.301 | 2.770  | 0.000  | 3135.996 | -14.960 | -0.000  | 2771.614 | 1.300   | 0.000   |
| 140. | 5969.535 | 2.970  | 0.000  | 3121.126 | -15.460 | -0.000  | 2772.909 | 1.290   | 0.000   |
| 141. | 5975.100 | 3.130  | 0.000  | 3105.903 | -15.810 | -0.000  | 2773.996 | 1.280   | 0.000   |
| 142. | 5980.922 | 3.250  | 0.000  | 3090.462 | -16.040 | -0.000  | 2775.075 | 1.270   | 0.000   |
| 143. | 5986.931 | 3.330  | 0.000  | 3074.935 | -16.140 | -0.000  | 2776.145 | 1.260   | 0.000   |
| 144. | 5993.054 | 3.370  | 0.000  | 3059.444 | -16.110 | -0.000  | 2777.203 | 1.260   | 0.000   |
| 145. | 5999.241 | 3.360  | 0.000  | 3044.124 | -15.970 | -0.000  | 2778.249 | 1.230   | 0.000   |
| 146. | 6005.419 | 3.360  | 0.000  | 3029.075 | -15.720 | -0.000  | 2779.261 | 1.210   | 0.000   |
| 147. | 6011.536 | 3.310  | 0.000  | 3014.407 | -15.350 | -0.000  | 2780.296 | 1.190   | 0.000   |
| 148. | 6017.546 | 3.240  | 0.000  | 3000.216 | -14.690 | -0.000  | 2781.300 | 1.170   | 0.000   |
| 149. | 6023.398 | 3.140  | 0.000  | 2986.595 | -14.330 | -0.000  | 2782.264 | 1.150   | 0.000   |



X-PLANE (YZ-PLANE) ZINC OXIDE (JAFFE AND BERLINCOURT, BATEMAN)

|      | LNGVEL   | LPHI12 | LPHI13 | FSRVEL   | FSPH12  | FSPH13 | SSRVEL   | SSPH12 | SSPH13 |
|------|----------|--------|--------|----------|---------|--------|----------|--------|--------|
| 150. | 6029.055 | 3.020  | 0.000  | 2973.616 | -13.660 | -0.000 | 2783.250 | 1.130  | 0.000  |
| 151. | 6034.480 | 2.880  | 0.000  | 2961.346 | -12.960 | -0.000 | 2784.196 | 1.100  | 0.000  |
| 152. | 6039.645 | 2.730  | 0.000  | 2949.847 | -12.170 | -0.000 | 2785.121 | 1.080  | 0.000  |
| 153. | 6044.524 | 2.570  | 0.000  | 2939.159 | -11.440 | -0.000 | 2786.025 | 1.050  | 0.000  |
| 154. | 6049.090 | 2.350  | 0.000  | 2929.316 | -10.830 | -0.000 | 2786.905 | 1.020  | 0.000  |
| 155. | 6053.351 | 2.220  | 0.000  | 2920.347 | -9.560  | -0.000 | 2787.762 | .990   | 0.000  |
| 156. | 6057.273 | 2.030  | 0.000  | 2912.257 | -9.560  | -0.000 | 2788.594 | .960   | 0.000  |
| 157. | 6060.859 | 1.850  | 0.000  | 2905.050 | -7.600  | -0.000 | 2789.400 | .930   | 0.000  |
| 158. | 6064.107 | 1.670  | 0.000  | 2898.717 | -6.650  | -0.000 | 2790.176 | .900   | 0.000  |
| 159. | 6067.020 | 1.450  | 0.000  | 2893.238 | -5.720  | -0.000 | 2790.929 | .870   | 0.000  |
| 160. | 6069.603 | 1.310  | 0.000  | 2888.586 | -4.820  | -0.000 | 2791.651 | .830   | 0.000  |
| 161. | 6071.866 | 1.140  | 0.000  | 2884.723 | -3.960  | -0.000 | 2792.344 | .800   | 0.000  |
| 162. | 6073.826 | .960   | 0.000  | 2881.605 | -3.140  | -0.000 | 2793.006 | .760   | 0.000  |
| 163. | 6075.493 | .830   | 0.000  | 2879.182 | -2.390  | -0.000 | 2793.637 | .720   | 0.000  |
| 164. | 6076.889 | .680   | 0.000  | 2877.395 | -1.700  | -0.000 | 2794.236 | .680   | 0.000  |
| 165. | 6078.032 | .550   | 0.000  | 2876.185 | -1.050  | -0.000 | 2794.802 | .650   | 0.000  |
| 166. | 6078.966 | .440   | 0.000  | 2875.485 | -.530   | -0.000 | 2795.335 | .610   | 0.000  |
| 167. | 6079.653 | .330   | 0.000  | 2875.226 | -.070   | -0.000 | 2795.834 | .570   | 0.000  |
| 168. | 6080.178 | .240   | 0.000  | 2875.345 | .350    | 0.000  | 2796.299 | .520   | 0.000  |
| 169. | 6080.545 | .160   | 0.000  | 2875.766 | .630    | 0.000  | 2796.720 | .480   | 0.000  |
| 170. | 6080.779 | .050   | 0.000  | 2876.422 | .660    | 0.000  | 2797.122 | .440   | 0.000  |
| 171. | 6080.905 | .040   | 0.000  | 2877.246 | 1.010   | 0.000  | 2797.479 | .400   | 0.000  |
| 172. | 6080.945 | .000   | 0.000  | 2878.178 | 1.120   | 0.000  | 2798.085 | .360   | 0.000  |
| 173. | 6080.922 | -.030  | -0.000 | 2879.154 | 1.070   | 0.000  | 2798.332 | .310   | 0.000  |
| 174. | 6080.856 | -.040  | -0.000 | 2880.119 | 1.070   | 0.000  | 2798.541 | .270   | 0.000  |
| 175. | 6080.767 | -.050  | -0.000 | 2881.024 | .960    | 0.000  | 2798.713 | .220   | 0.000  |
| 176. | 6080.671 | -.050  | -0.000 | 2881.826 | .840    | 0.000  | 2798.847 | .180   | 0.000  |
| 177. | 6080.581 | -.040  | -0.000 | 2882.489 | .660    | 0.000  | 2798.942 | .130   | 0.000  |
| 178. | 6080.509 | -.030  | -0.000 | 2882.983 | .460    | 0.000  | 2799.000 | .090   | 0.000  |
| 179. | 6080.463 | -.020  | -0.000 | 2883.266 | .230    | 0.000  | 2799.000 | .040   | 0.000  |
| 180. | 6080.447 | -0.000 | -0.000 | 2883.391 | -0.000  | 0.000  | 2799.015 | -0.000 | 0.000  |

