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TRW DEFENSE AND SPACE SYSTEMS GROUP REDONDO BEACH CA

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EVALUATION OF DCS III TRANSMISSION ALTERNATIVES, PHASE II; TASK--ETC(U)

AUG 81 T M CHU; S H LIN; D SEGEL; C Y YOON

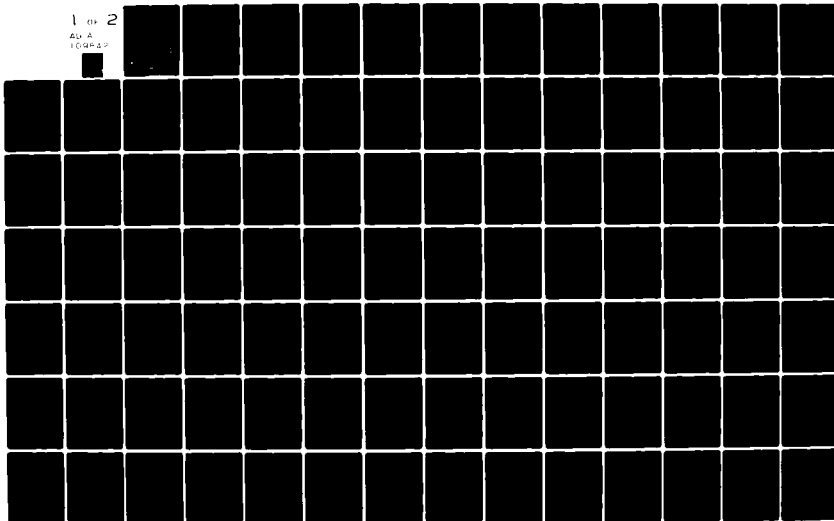
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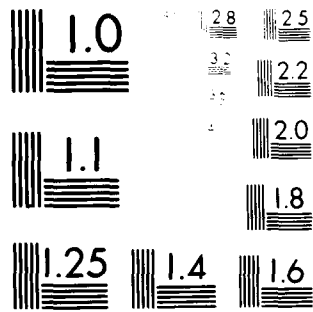
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

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# EVALUATION OF DCS III TRANSMISSION ALTERNATIVES PHASE II TASK 1 FINAL REPORT

## APPENDIX PATH PROFILES

31 AUGUST 1981

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Prepared for  
Defense Communications Agency  
Defense Communications Engineering Center  
Reston, Virginia 22090

Contract No. DCA 100-79-C-0044

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JAN 20 1982  
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DEFENSE AND SPACE SYSTEMS GROUP

ONE SPACE PARK • REDONDO BEACH • CALIFORNIA

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**EVALUATION OF DCS III  
TRANSMISSION ALTERNATIVES  
PHASE II TASK 1 FINAL REPORT**

**APPENDIX  
PATH PROFILES**

31 AUGUST 1981

Prepared by *T. M. Chu*  
Dr. T.M. Chu  
Manager  
DCS III Project

Approved by *D. D. McNelis*  
Dr. D.D. McNelis  
Manager  
Communications Systems Laboratory

Prepared for  
Defense Communications Agency  
Defense Communications Engineering Center  
Reston, Virginia 22090

Contract No. DCA 100-79-C-0044

**TRW**  
DEFENSE AND SPACE SYSTEMS GROUP  
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## FOREWORD AND ACKNOWLEDGEMENT

This Phase II Task 1 Final Report is the first of the reports of the Phase II effort of Evaluation of DCS III Transmission Alternatives Study. Reports of the Phase I effort consist of four volumes. These volumes are:

1. Phase IA Final Report, Evaluation of DCS III Transmission Alternatives, AD 101359
2. Appendix A, Transmission Media, AD 101360
3. Appendix B, Regulatory Barriers, AD 101361
4. Appendix C, Regional Consideration and Characterization, AD 101362.

Project work, as documented in the above noted reports and appendices, has been performed by the Defense and Space Systems Group, TRW Inc., and by TRW's subcontractor, Page Communications Engineers, Inc., Northrop Corporation, for the Defense Communications Engineering Center, Defense Communications Agency, under Contract No. DCA 100-79-C-0044.

This project has been managed by Dr. T. M. Chu and is supported by Messrs. S. H. Lin, and D. Segel, Dr. C. Y. Yoon, and by other TRW personnel on an as-required basis. Subcontracted work has been managed by Mr. R. A. Pickens and is supported by Messrs. T. Loeffler, P. Hill, and other personnel.

Gratefully acknowledged are the many helpful discussions, suggestions, and guidance offered by Mr. J. R. Mensch of the Defense Communications Engineering Center, throughout the course of this study.

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## A.0 PATH PROFILES

This appendix presents all the line-of-sight path profiles for transmission alternatives proposed for Oahu Island, Hawaii and Central Germany.

The path profiles are listed alphabetically according to locations of transmitting and receiving sites. Related information, such as latitude, longitude, elevation and antenna tower height of each terminal are provided for each profile. If the same link path is used for both microwave LOS and millimeter wave LOS system, then one path profile is provided appearing in the microwave path profiles section.

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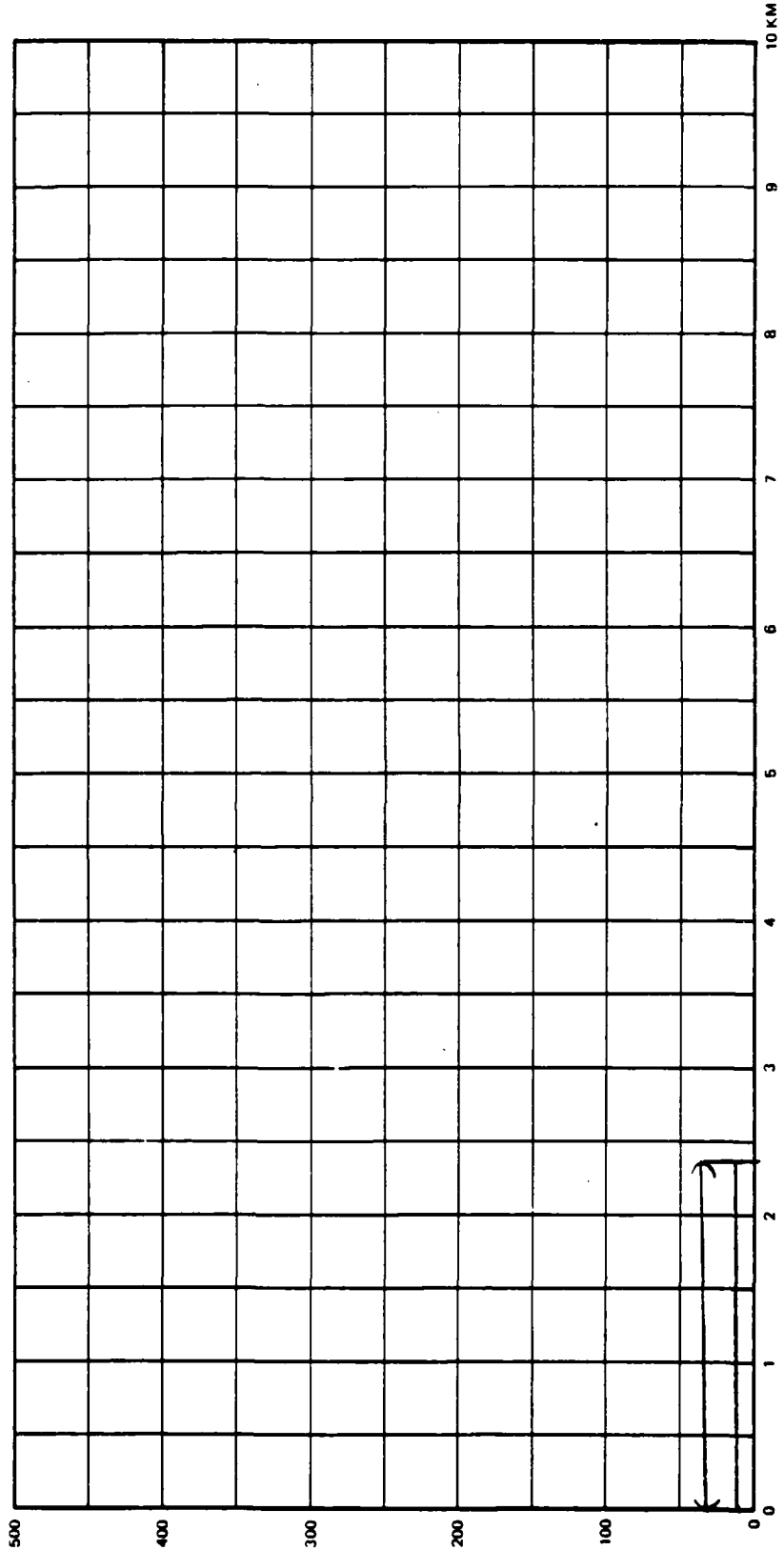
A.0-2

A.1 MICROWAVE PATH PROFILES OF OAHU ISLAND, HAWAII

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1st repeater to  
STATION Ford Island  
LATITUDE D 21 M 20 S 00  
LONGITUDE D 158 M 02 S 15  
ELEVATION 12 M  
TOWER HEIGHT 15 M

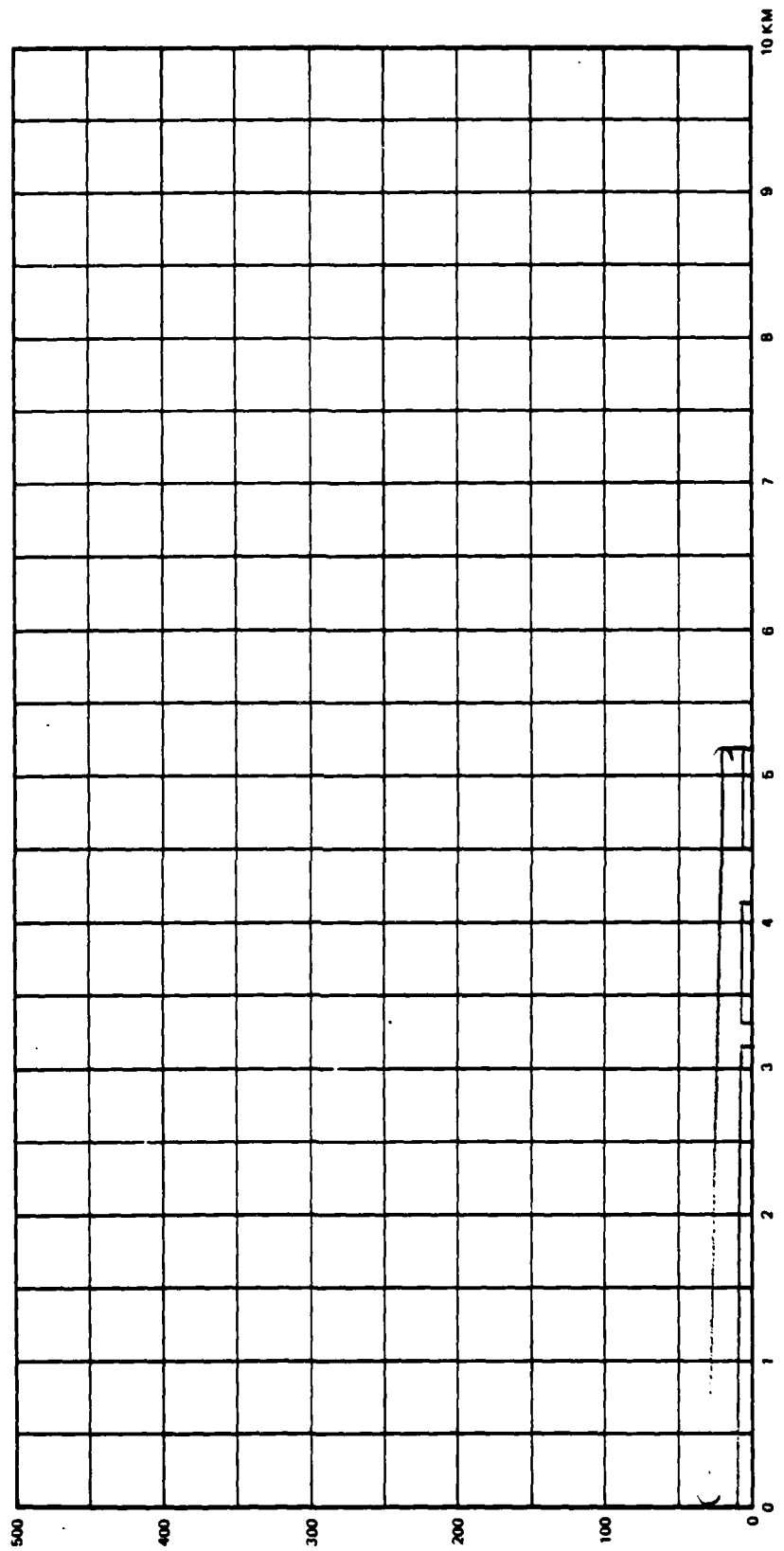
STATION Barbers Point  
LATITUDE D 21 M 19 S 15  
LONGITUDE D 158 M 04 S 45  
ELEVATION 9 M  
TOWER HEIGHT 15 M



1st repeater to  
Barbers Point

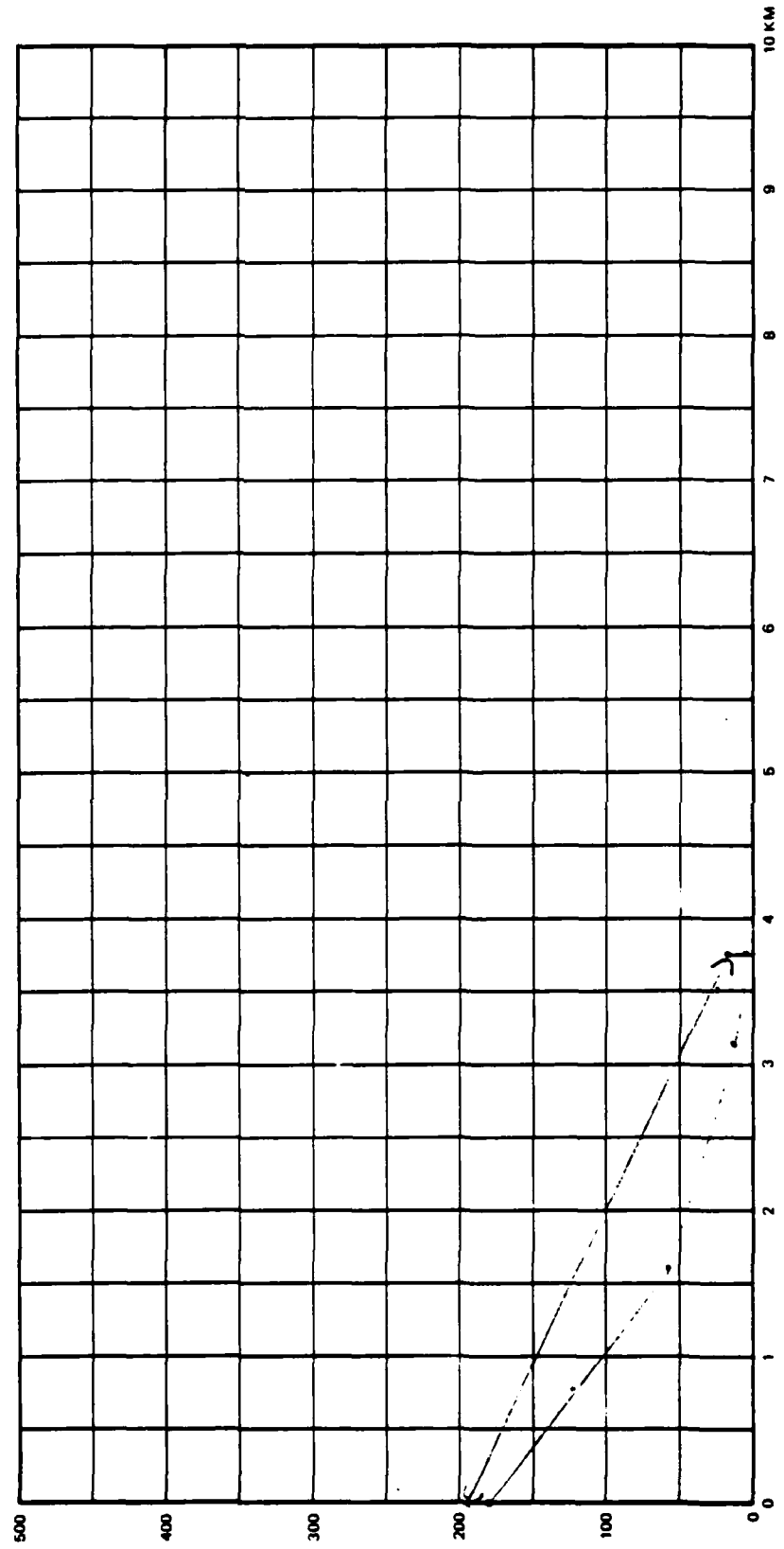
STATION Barbers Point  
LATITUDE D 21 M 20 S 00  
LONGITUDE D 158 M 02 S 15  
ELEVATION 12 M  
TOWER HEIGHT 15 M

STATION Ford Island  
LATITUDE D 21 M 22 S 00  
LONGITUDE D 157 M 58 S 00  
ELEVATION 3 M  
TOWER HEIGHT 15 M



STATION Makalapa  
LATITUDE D 21 M 22 S 00  
LONGITUDE D 157 M 56 S 25  
ELEVATION 3 M  
TOWER HEIGHT 15 M

STATION Camp Smith  
LATITUDE D 21 M 23 S 15  
LONGITUDE D 157 M 54 S 45  
ELEVATION 183 M  
TOWER HEIGHT 15 M





STATION Fort Shafter

LATITUDE D 21 M 21 S 00

LONGITUDE D 157 M 53 S 00

ELEVATION 36 M

TOWER HEIGHT 30 M

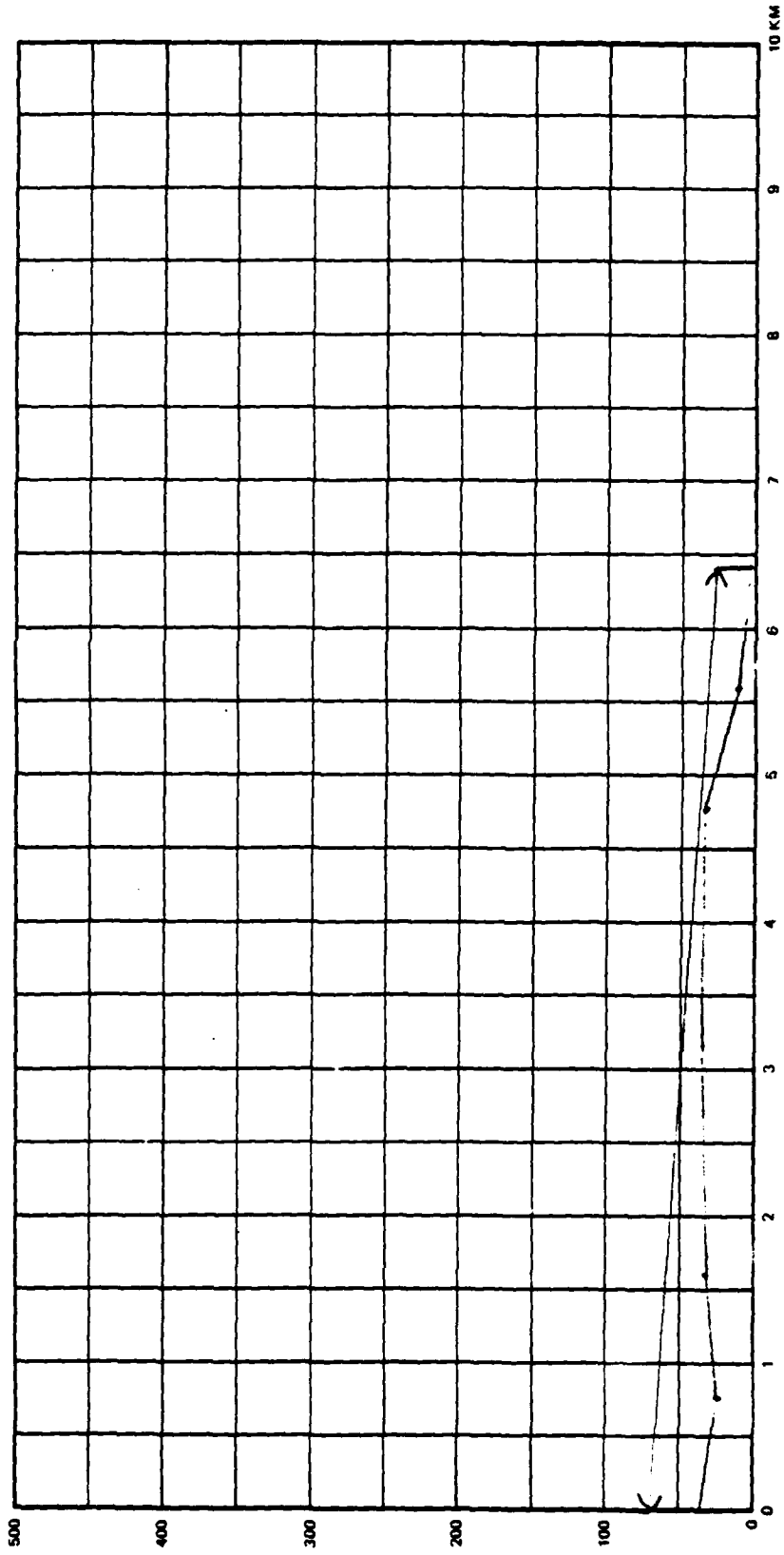
STATION Makalapa

LATITUDE D 21 M 22 S 00

LONGITUDE D 157 M 56 S 25

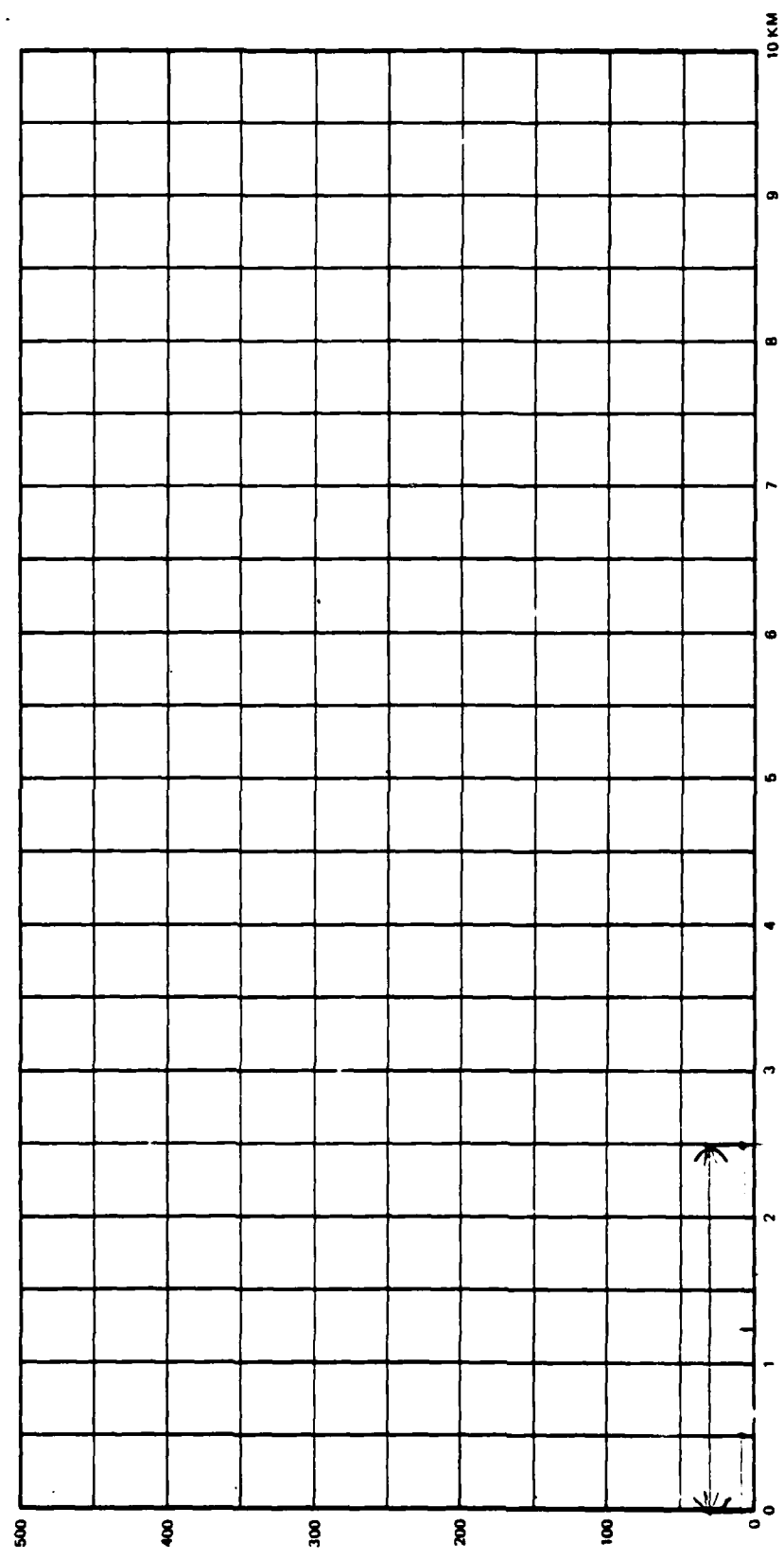
ELEVATION 3 M

TOWER HEIGHT 30 M



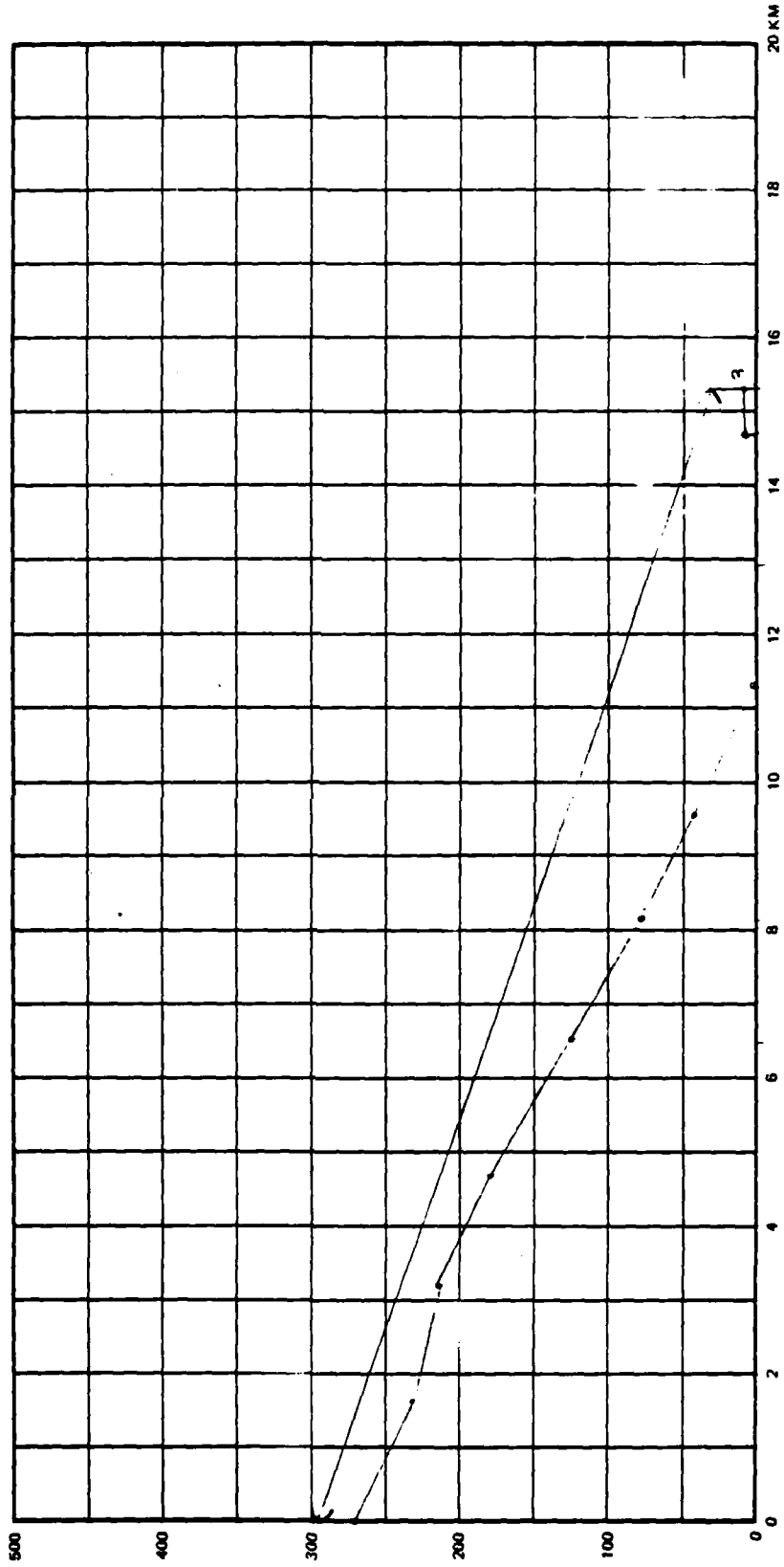
STATION Ford Island  
LATITUDE D 21 M 22 S 00  
LONGITUDE D 157 M 58 S 00  
ELEVATION 3 M  
TOWER HEIGHT 15 M

STATION Pearl Harbor  
LATITUDE D 21 M 21 S 25  
LONGITUDE D 157 M 57 S 30  
ELEVATION 3 M  
TOWER HEIGHT 15 M



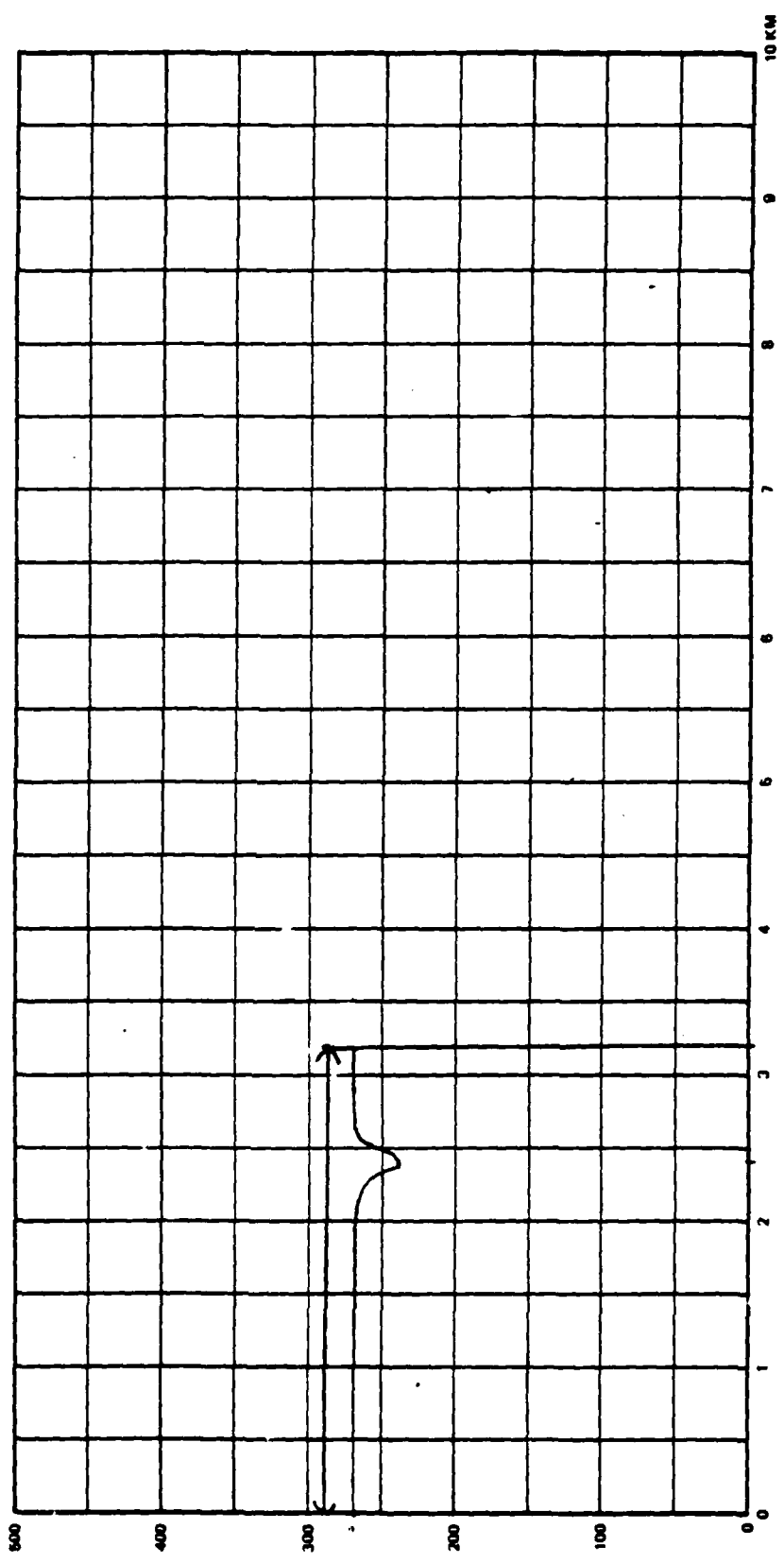
STATION Ford Island  
 LATITUDE D 21 M 22 S 00  
 LONGITUDE D 157 M 58 S 00  
 ELEVATION 3 M  
 TOWER HEIGHT 30 M

STATION Kunia  
 LATITUDE D 21 M 27 S 45  
 LONGITUDE D 158 M 04 S 00  
 ELEVATION 268 M  
 TOWER HEIGHT 30 M



STATION Schofield  
LATITUDE D 21 M 29 S 45  
LONGITUDE D 158 M 03 S 30  
ELEVATION 268 M  
TOWER HEIGHT 20 M

STATION Kunia  
LATITUDE D 21 M 27 S 45  
LONGITUDE D 158 M 04 S 00  
ELEVATION 268 M  
TOWER HEIGHT 20 M



Puukanehoa (repeater)

STATION to Schofield

LATITUDE D 21 M 27 S 27

LONGITUDE D 158 M 05 S 25

ELEVATION 831.5 M

TOWER HEIGHT 30 M

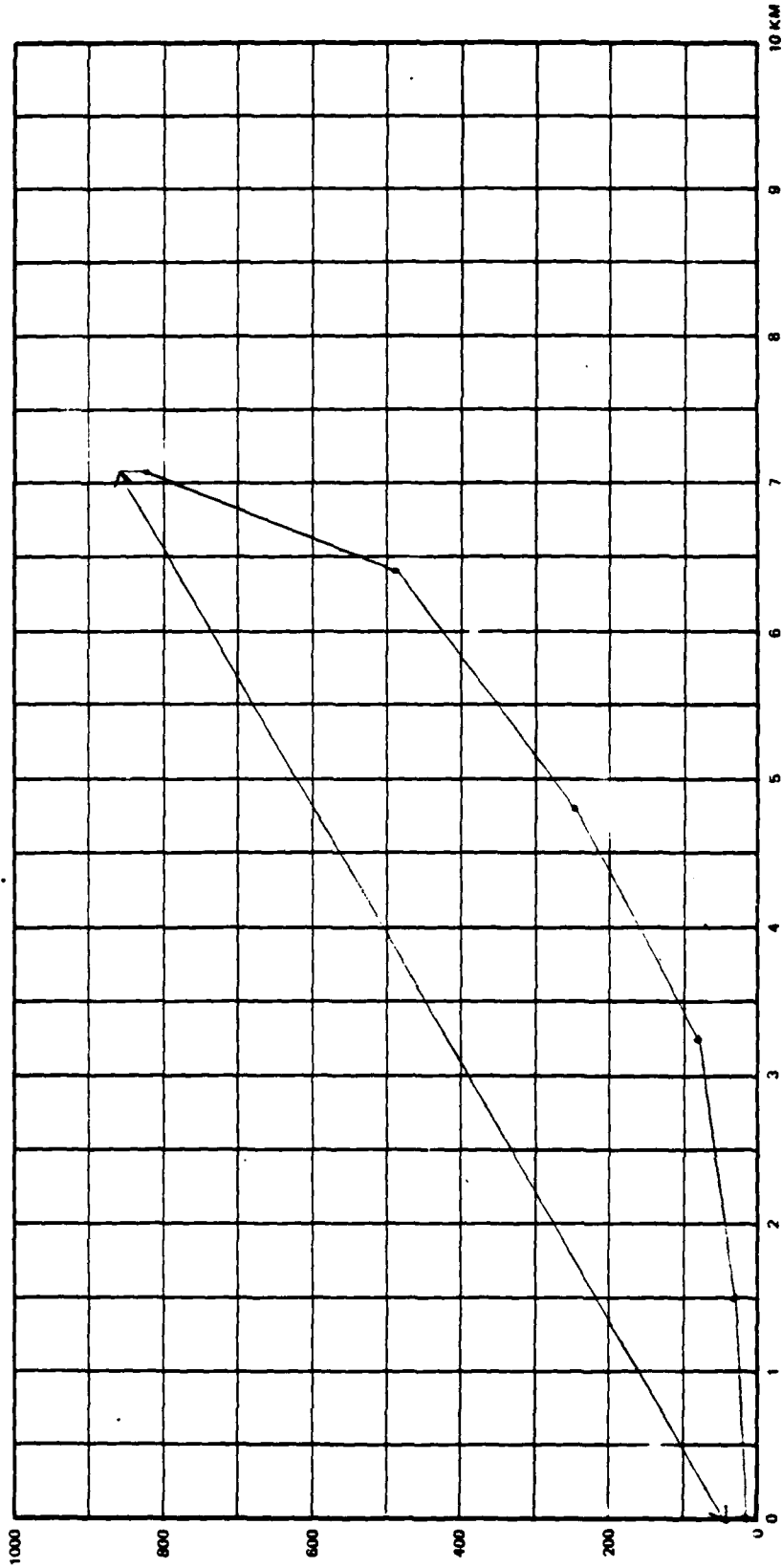
STATION Lualualei

LATITUDE D 21 M 25 S 45

LONGITUDE D 158 M 09 S 45

ELEVATION 12.2 M

TOWER HEIGHT 30 M



Puukanehoa (repeater)

STATION from Lualualei

LATITUDE D 21 M 27 S 27

LONGITUDE D 158 M 05 S 25

ELEVATION 831.5 M

TOWER HEIGHT 30 M

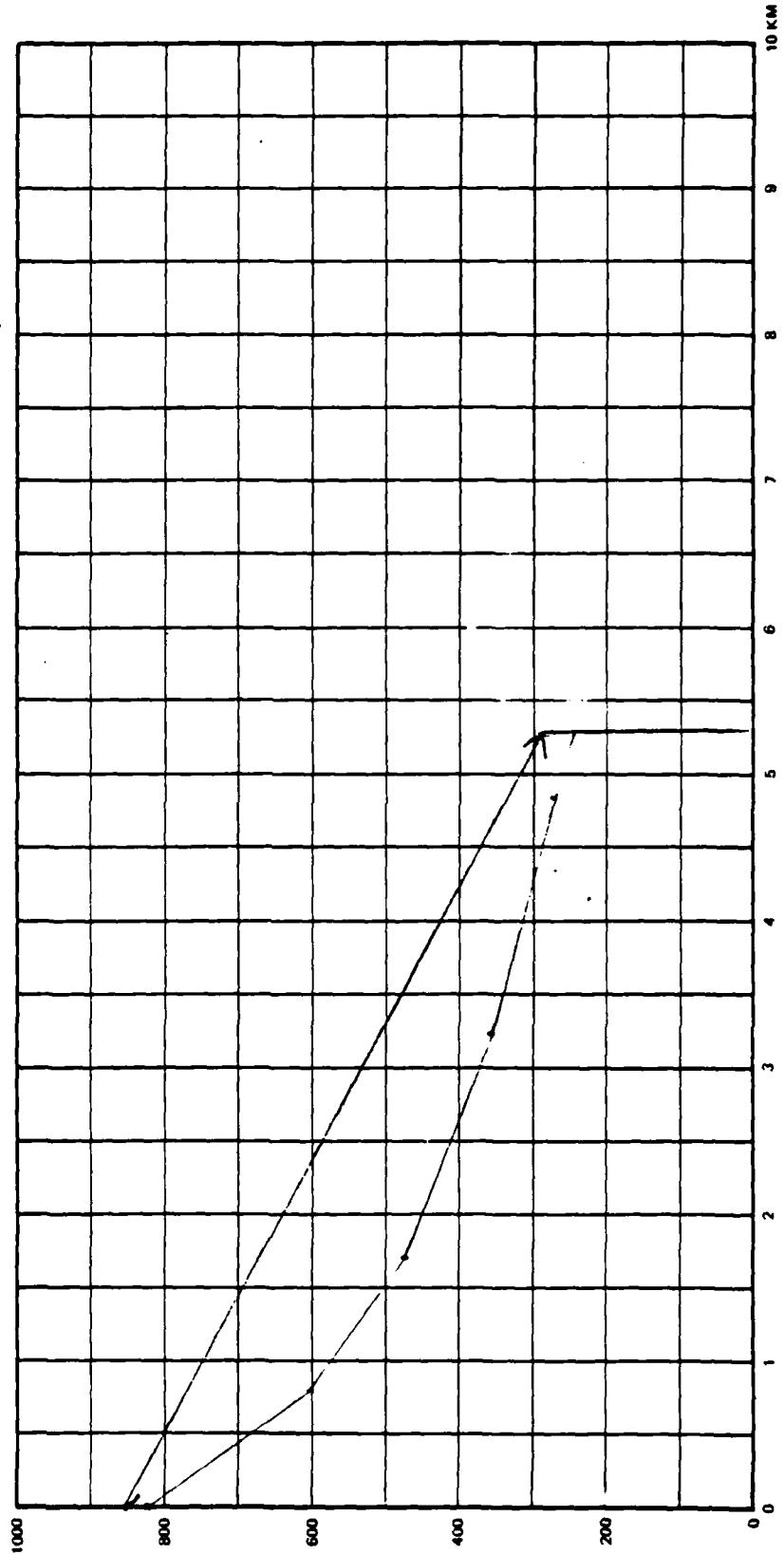
STATION Schofield

LATITUDE D 21 M 29 S 45

LONGITUDE D 158 M 03 S 30

ELEVATION 268.2 M

TOWER HEIGHT 30 M

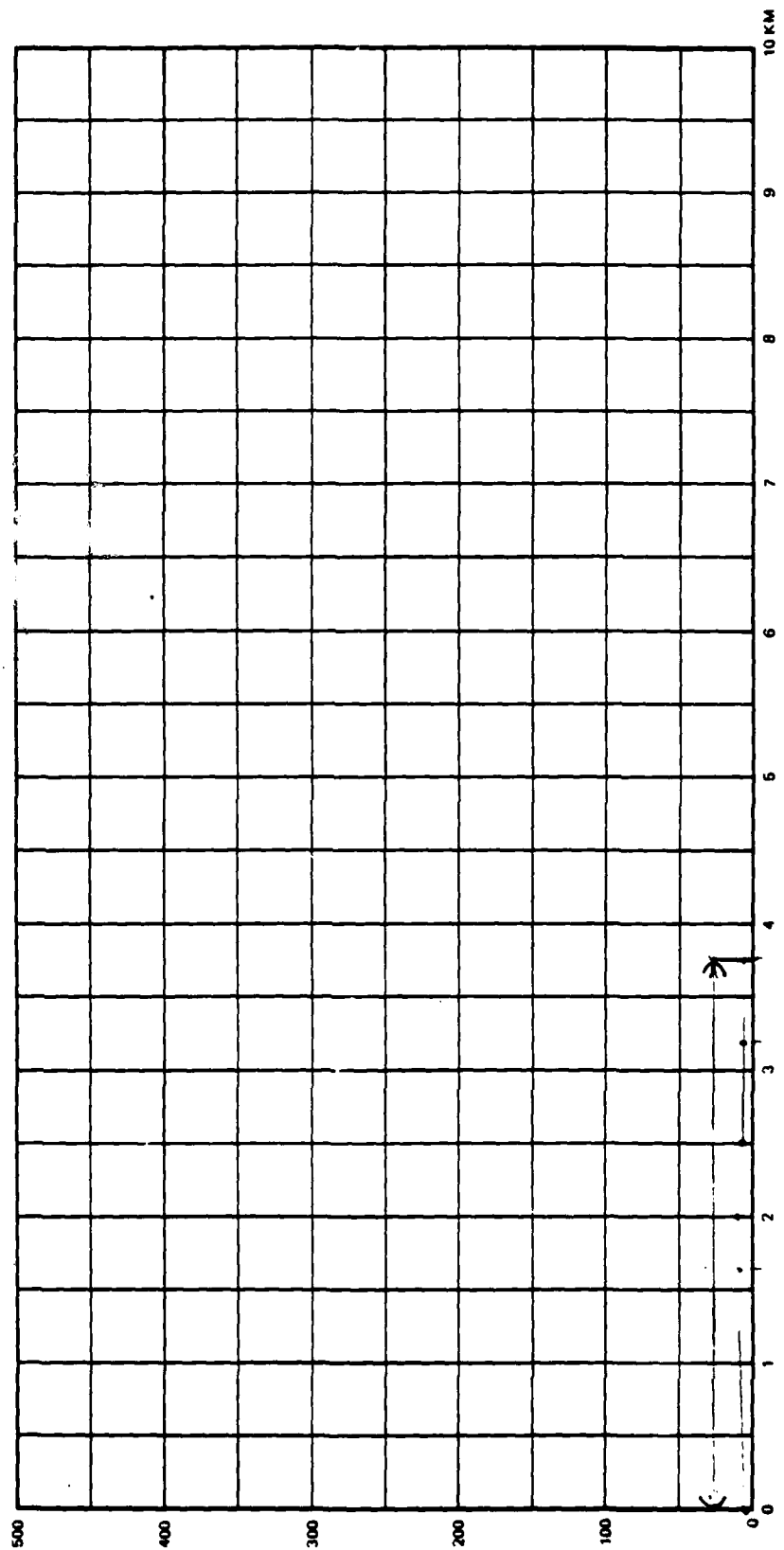


STATION Makalapa

LATITUDE D 21 M 22 S 00  
LONGITUDE D 157 M 56 S 25  
ELEVATION 3 M  
TOWER HEIGHT 15 M

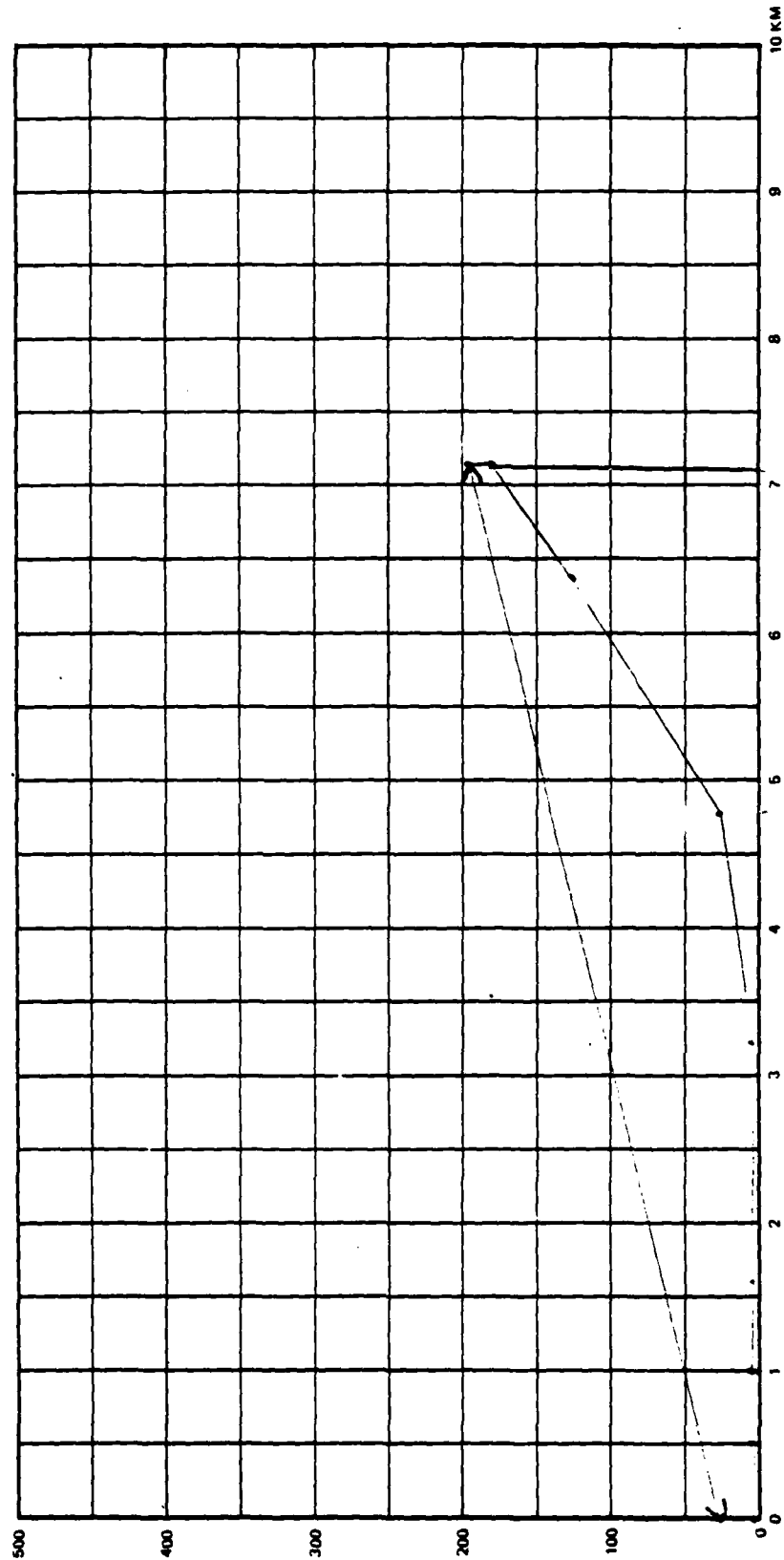
STATION Hickam

LATITUDE D 21 M 20 S 30  
LONGITUDE D 157 M 57 S 45  
ELEVATION 3 M  
TOWER HEIGHT 15 M



STATION Camp Smith  
LATITUDE D 21 M 23 S 15  
LONGITUDE D 157 M 54 S 30  
ELEVATION 183 M  
TOWER HEIGHT 15 M

STATION Pearl Harbor  
LATITUDE D 21 M 21 S 25  
LONGITUDE D 157 M 57 S 30  
ELEVATION 6 M  
TOWER HEIGHT 15 M





STATION Pearl Harbor

LATITUDE D 21 M 21 S 25

LONGITUDE D 157 M 57 S 30

ELEVATION 3 M

TOWER HEIGHT 15 M

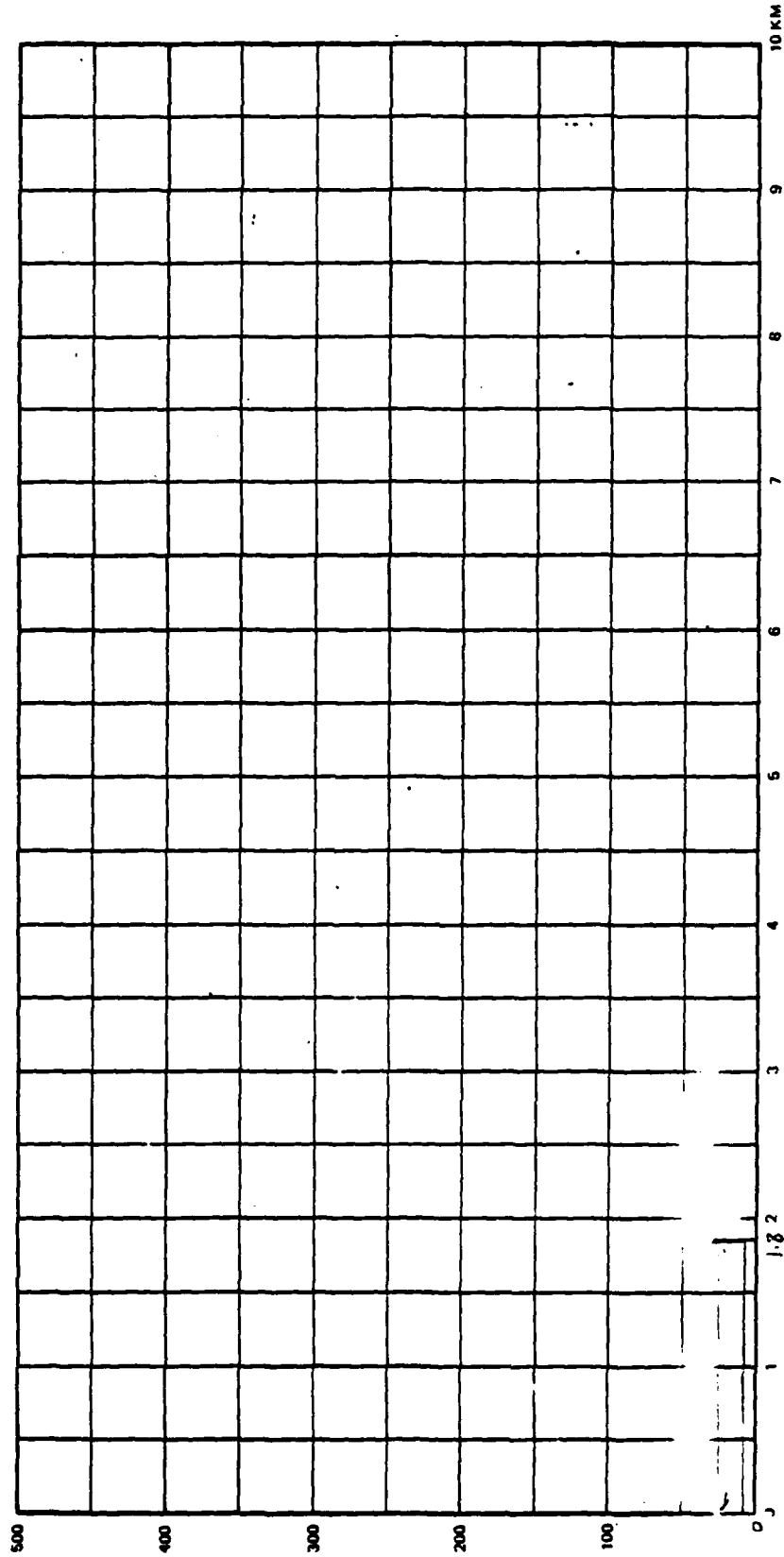
STATION Hickam

LATITUDE D 21 M 20 S 30

LONGITUDE D 157 M 57 S 45

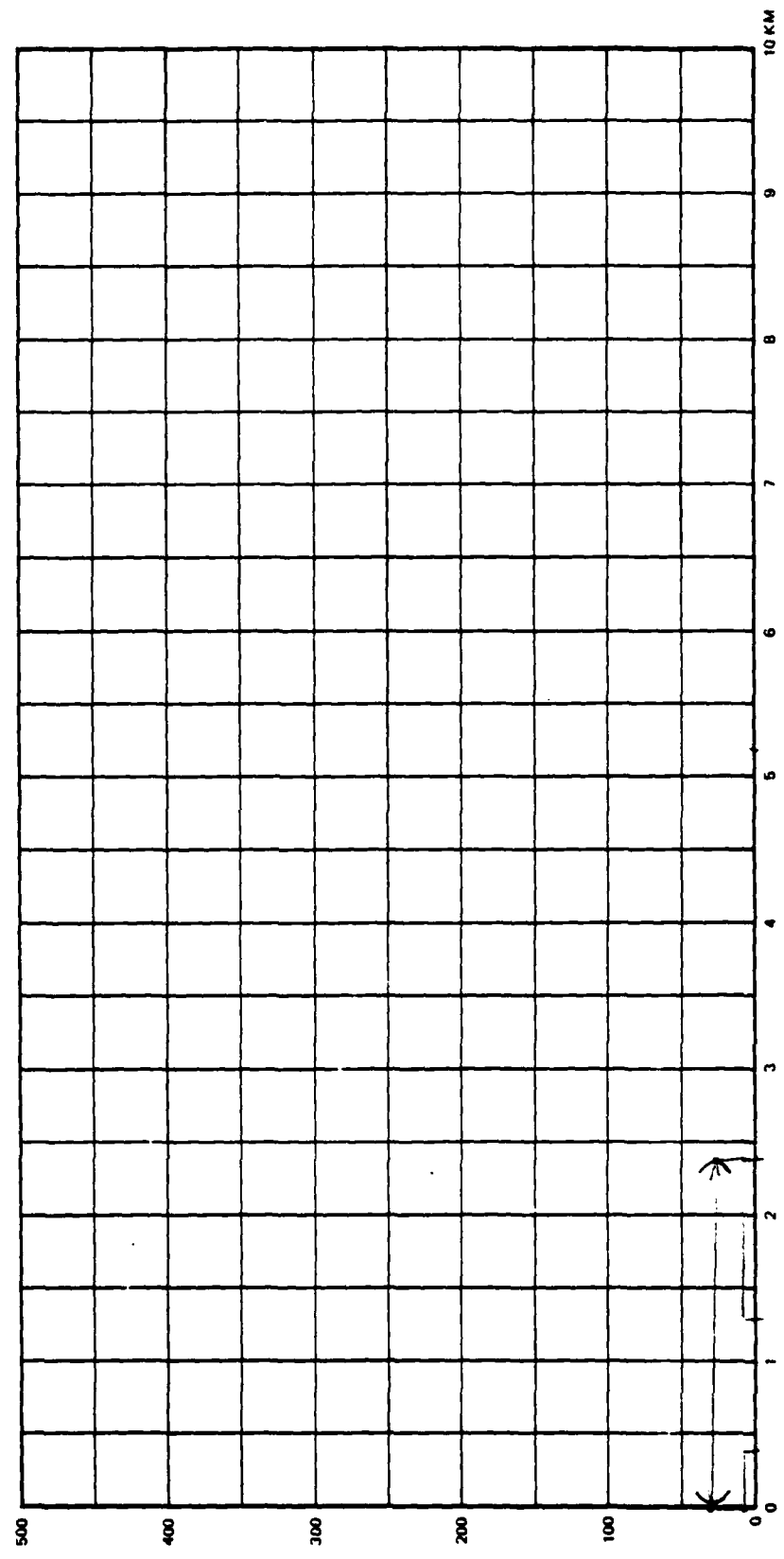
ELEVATION 3 M

TOWER HEIGHT 15 M



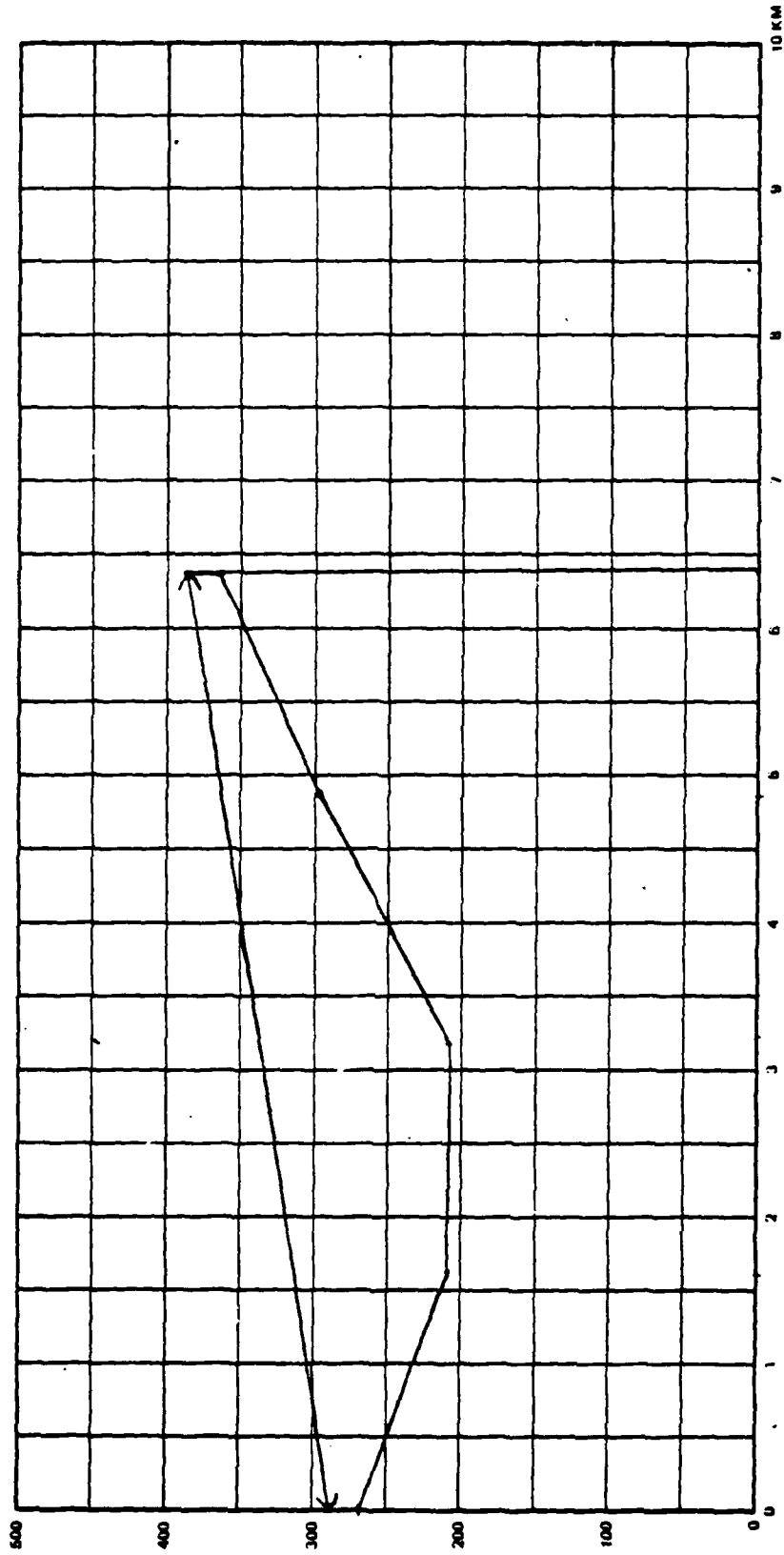
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LATITUDE D 21 M 22 S 00  
LONGITUDE D 157 M 56 S 25  
ELEVATION 3 M  
TOWER HEIGHT 15 M

STATION Pearl Harbor  
LATITUDE D 21 M 21 S 25  
LONGITUDE D 157 M 57 S 30  
ELEVATION 3 M  
TOWER HEIGHT 15 M



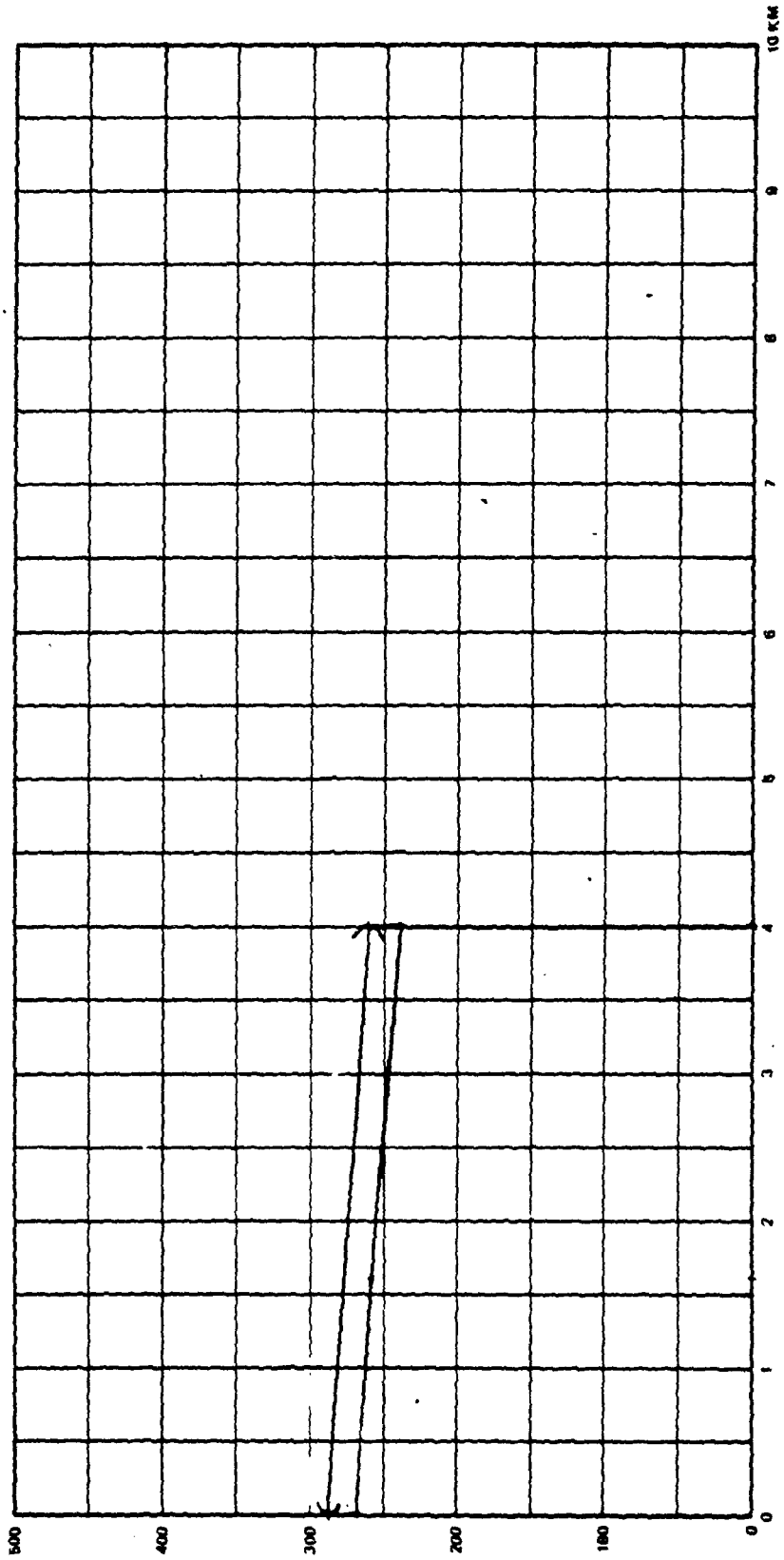
STATION Schofield  
LATITUDE D 21 M 29 S 45  
LONGITUDE D 158 M 03 S 30  
ELEVATION 274 M  
TOWER HEIGHT 20 M

STATION Wahiawa  
LATITUDE D 21 M 31 S 30  
LONGITUDE D 158 M 01 S 00  
ELEVATION 366 M  
TOWER HEIGHT 20 M



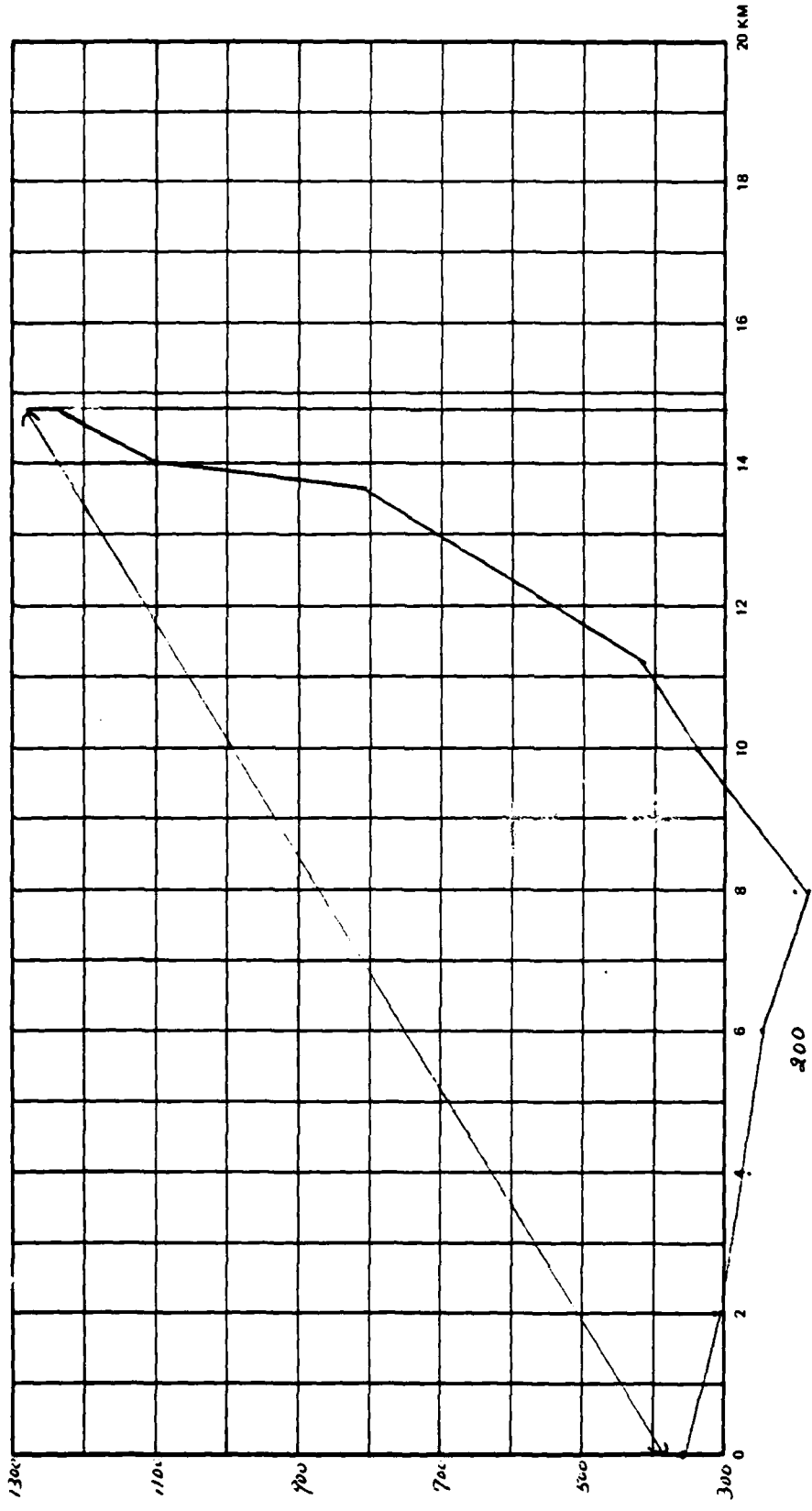
STATION Schofield  
LATITUDE D 21 M 29 S 45  
LONGITUDE D 158 M 03 S 30  
ELEVATION 268 M  
TOWER HEIGHT 20 M

STATION Wheeler  
LATITUDE D 21 M 29 S 15  
LONGITUDE D 158 M 02 S 30  
ELEVATION 244 M  
TOWER HEIGHT 20 M



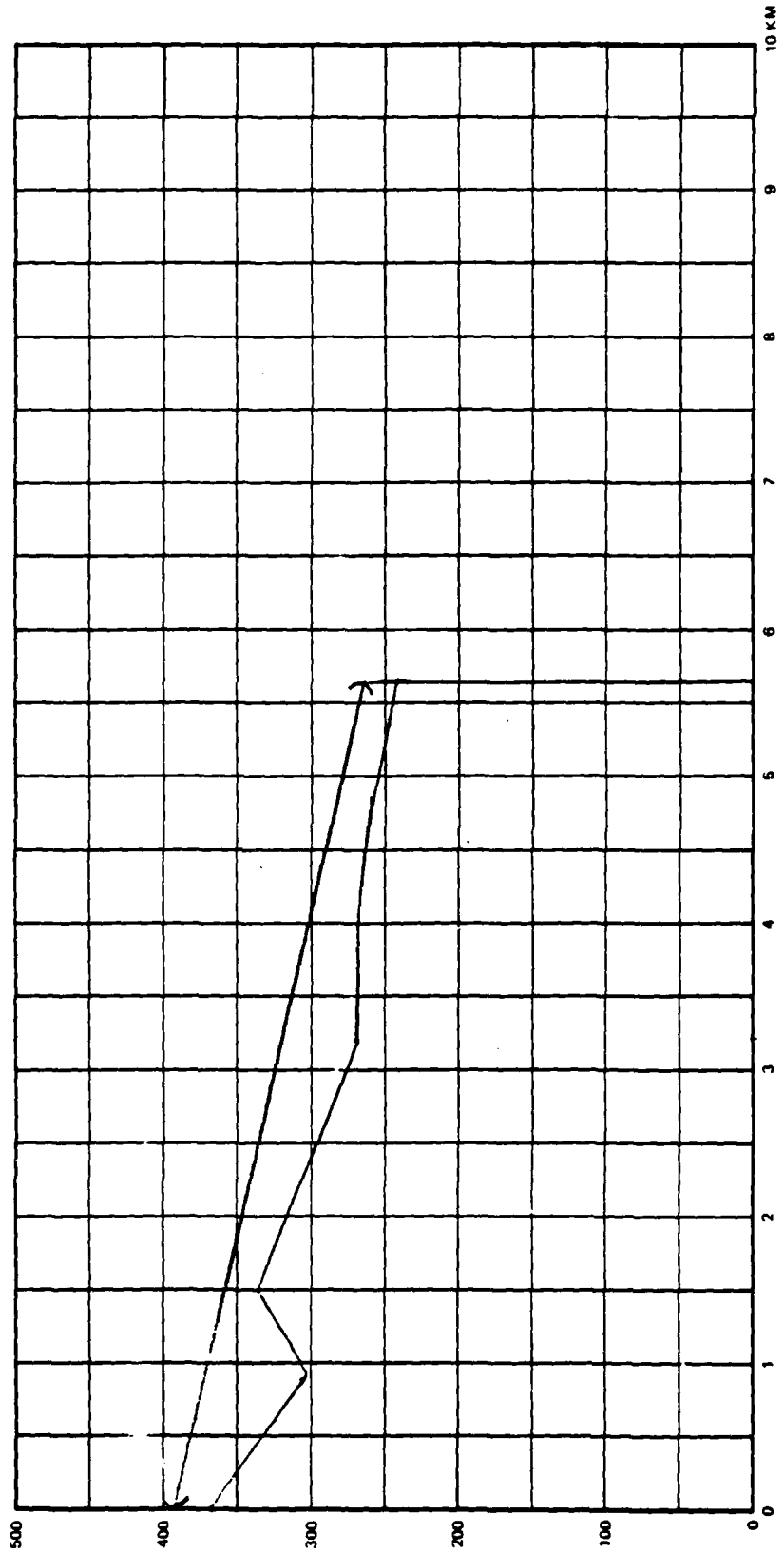
STATION Mt Kaala  
 LATITUDE D 21 M 30 S 40  
 LONGITUDE D 158 M 08 S 40  
 ELEVATION 1226.8 M  
 TOWER HEIGHT 30 M

STATION Mauiawa  
 LATITUDE D 21 M 31 S 00  
 LONGITUDE D 158 M 01 S 00  
 ELEVATION 365.8 M  
 TOWER HEIGHT 30 M



STATION Wheeler  
LATITUDE D 21 M 29 S 15  
LONGITUDE D 158 M 02 S 30  
ELEVATION 244 M  
TOWER HEIGHT 30 M

STATION Mahiawa  
LATITUDE D 21 M 31 S 30  
LONGITUDE D 158 M 01 S 00  
ELEVATION 366 M  
TOWER HEIGHT 30 M



repeater to

STATION Pearl Harbor

LATITUDE D 21 M 27 S 00

LONGITUDE D 157 M 58 S 00

ELEVATION 256 M

TOWER HEIGHT 30 M

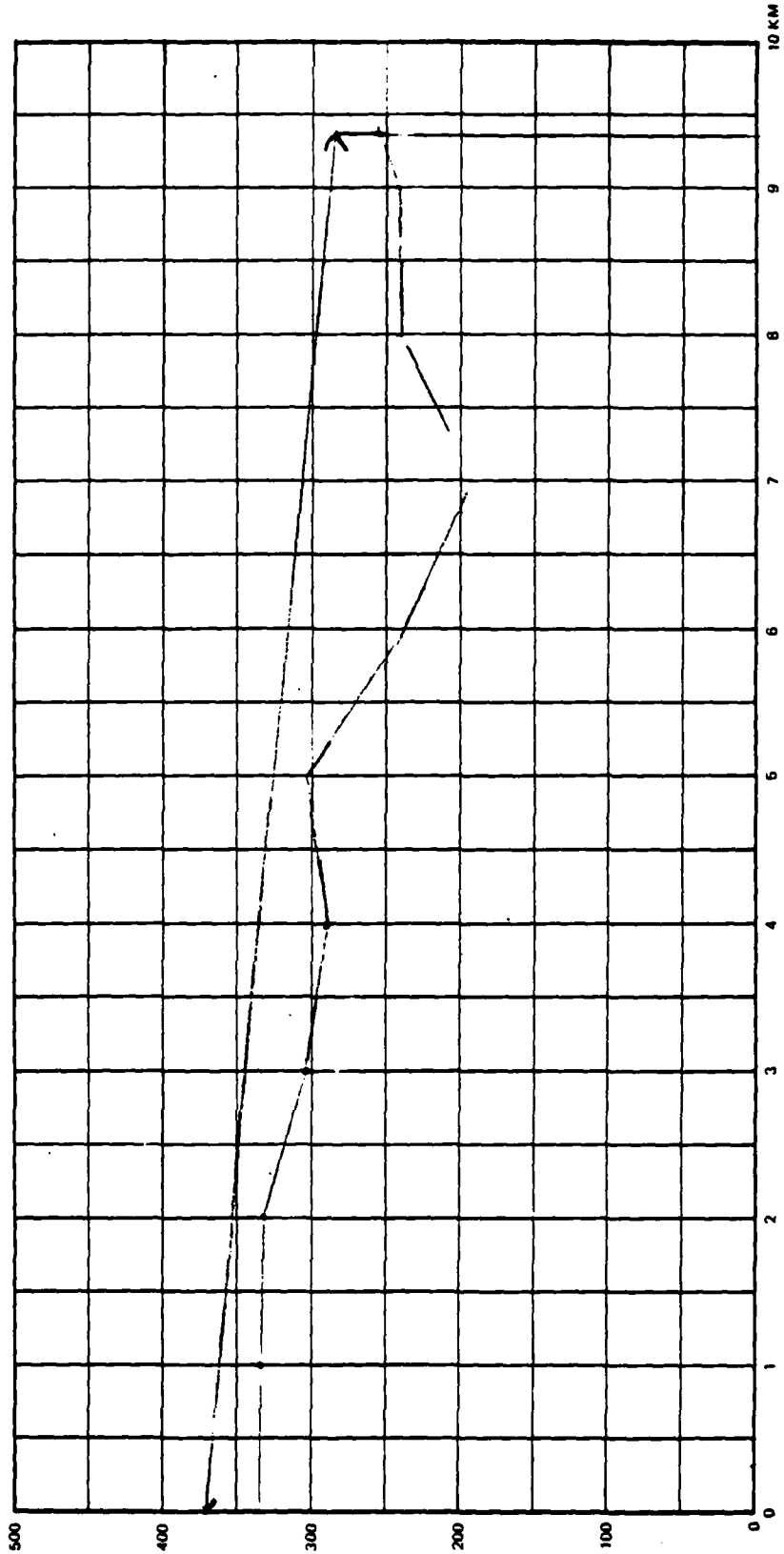
STATION Mahiawa

LATITUDE D 21 M 31 S 30

LONGITUDE D 158 M 01 S 00

ELEVATION 341.3 M

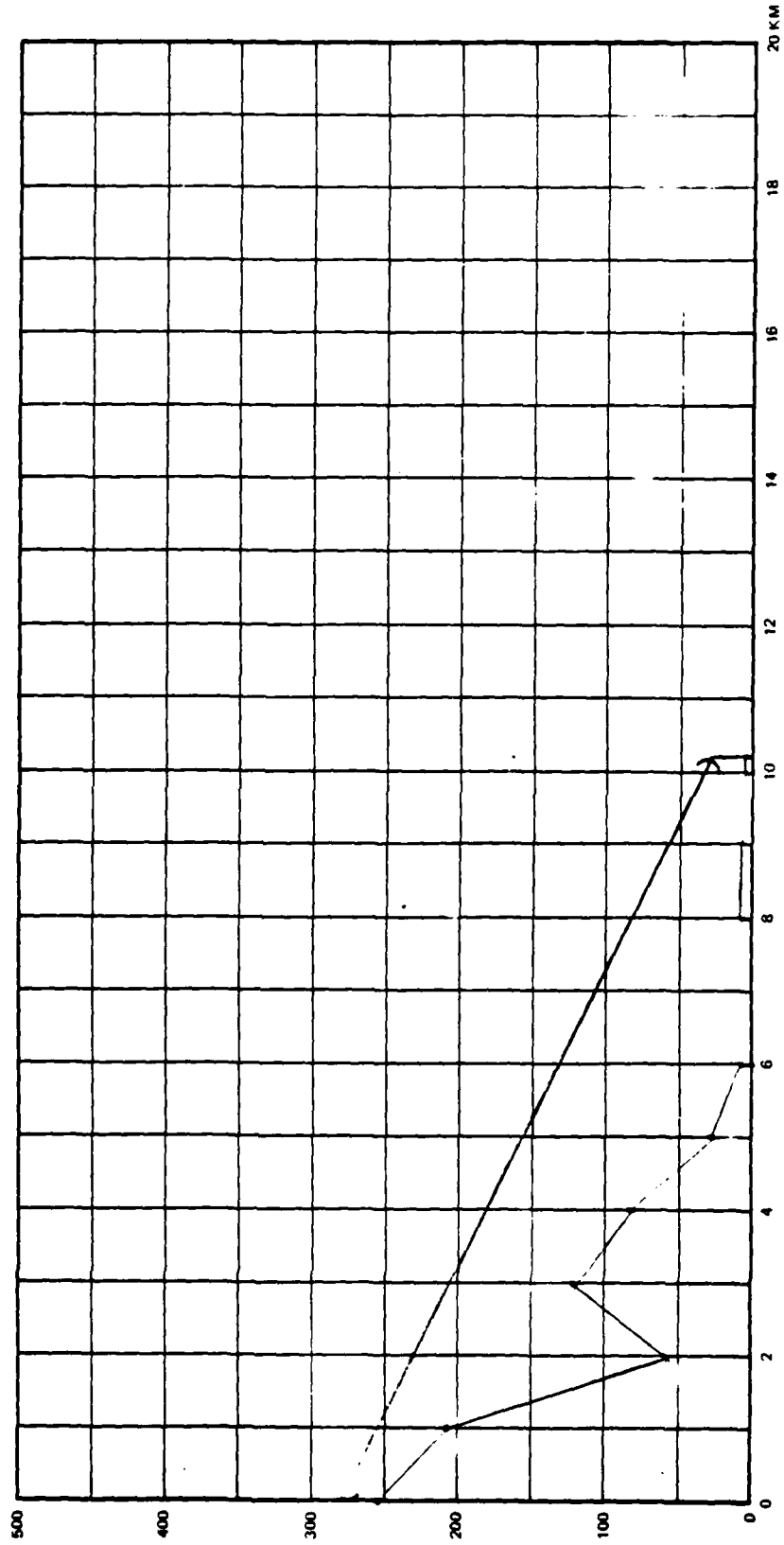
TOWER HEIGHT 30 M



repeater from

STATION Mauiawa  
LATITUDE D 21 M 27 S 00  
LONGITUDE D 157 M 58 S 00  
ELEVATION 256 M  
TOWER HEIGHT 20 M

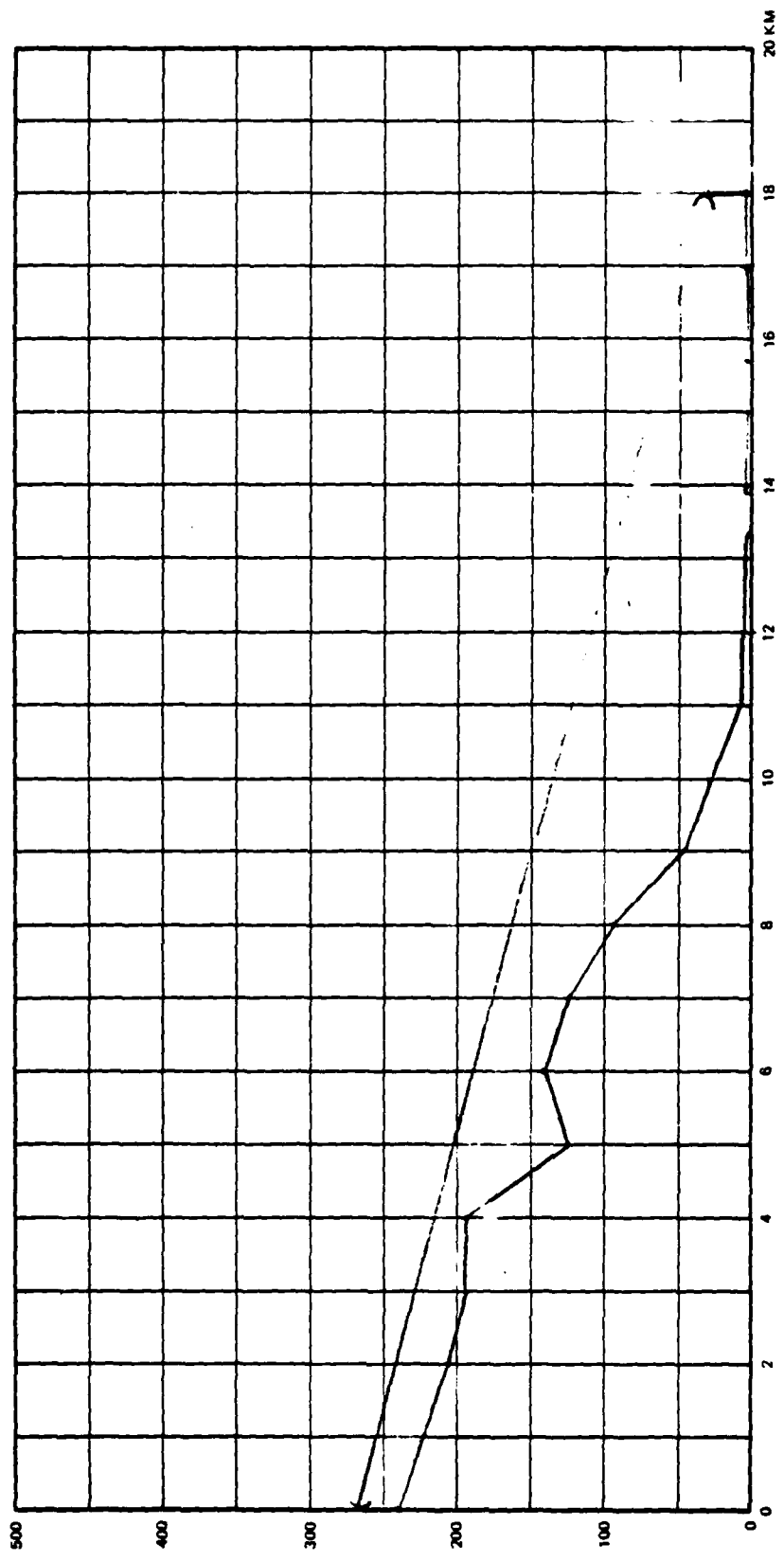
STATION Pearl Harbor  
LATITUDE D 21 M 21 S 25  
LONGITUDE D 157 M 57 S 30  
ELEVATION 3 M  
TOWER HEIGHT 20 M





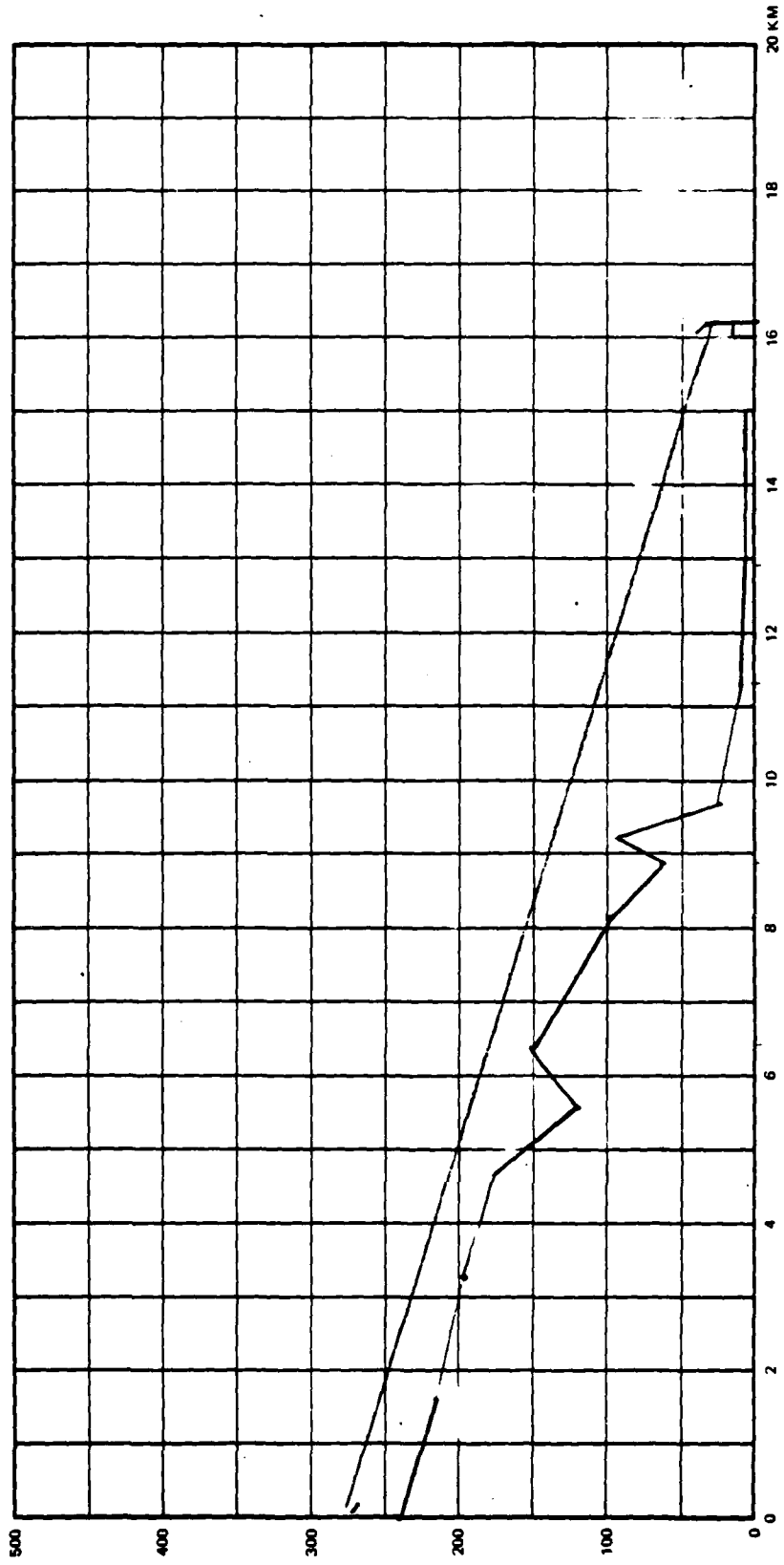
STATION Wheeler  
 LATITUDE D 21 M 29 S 15  
 LONGITUDE D 158 M 02 S 30  
 ELEVATION 243 M  
 TOWER HEIGHT 30 M

STATION Hickam  
 LATITUDE D 21 M 20 S 30  
 LONGITUDE D 157 M 57 S 45  
 ELEVATION 3 M  
 TOWER HEIGHT 30 M



STATION Pearl Harbor  
 LATITUDE D 21 M 21 S 25  
 LONGITUDE D 157 M 57 S 30  
 ELEVATION 6.1 M  
 TOWER HEIGHT 30 M

STATION Wheeler  
 LATITUDE D 21 M 29 S 15  
 LONGITUDE D 158 M 02 S 30  
 ELEVATION 243.8 M  
 TOWER HEIGHT 30 M



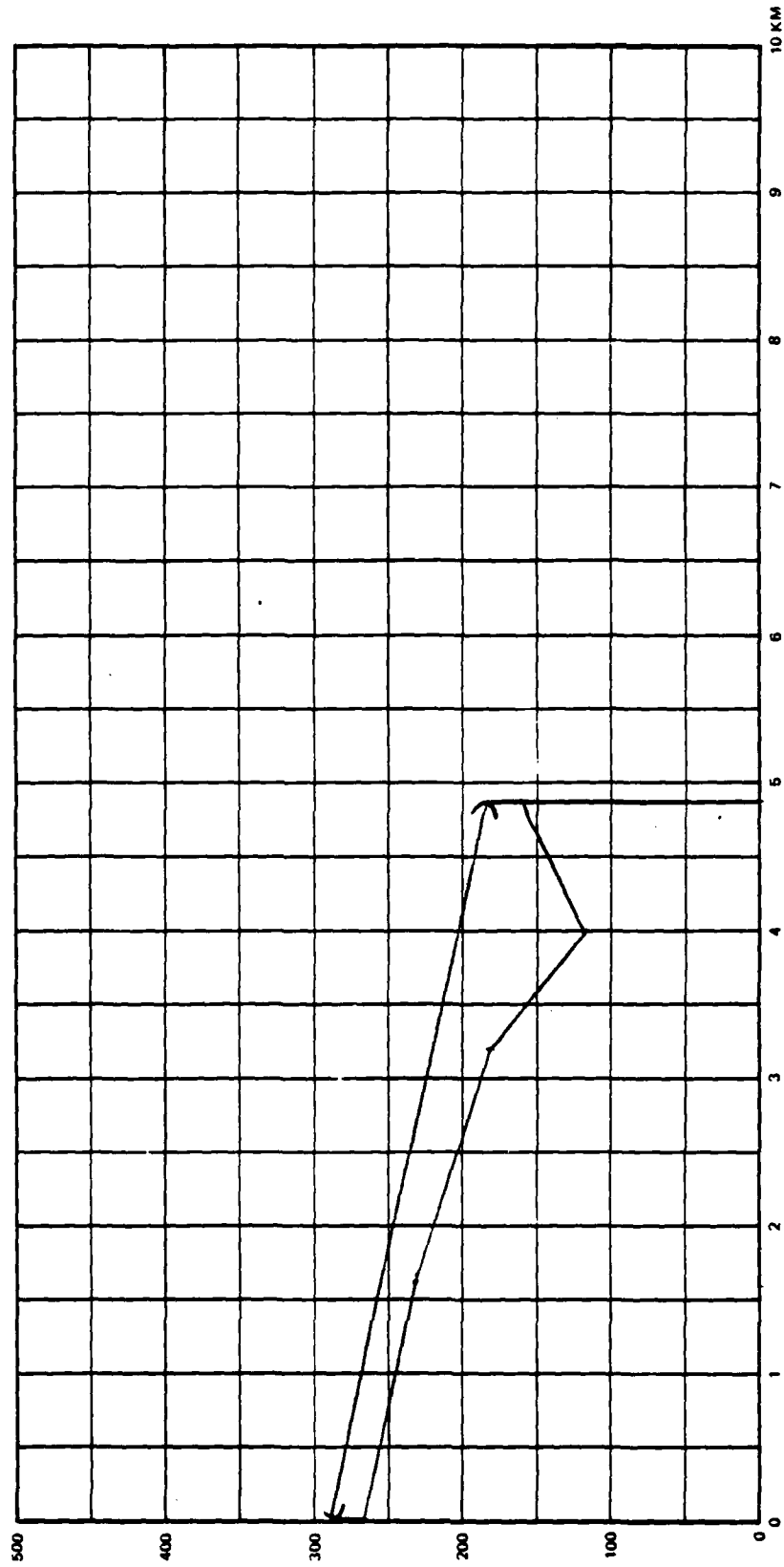
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A.2 MILLIMETER WAVE PATH PROFILES OF OAHU ISLAND, HAWAII

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1st repeater to  
STATION Ford Island  
LATITUDE D 21 M 26 S 35  
LONGITUDE D 158 M 01 S 45  
ELEVATION 160 M  
TOWER HEIGHT 20 M

STATION Kunia  
LATITUDE D 21 M 27 S 45  
LONGITUDE D 158 M 04 S 00  
ELEVATION 268 M  
TOWER HEIGHT 20 M

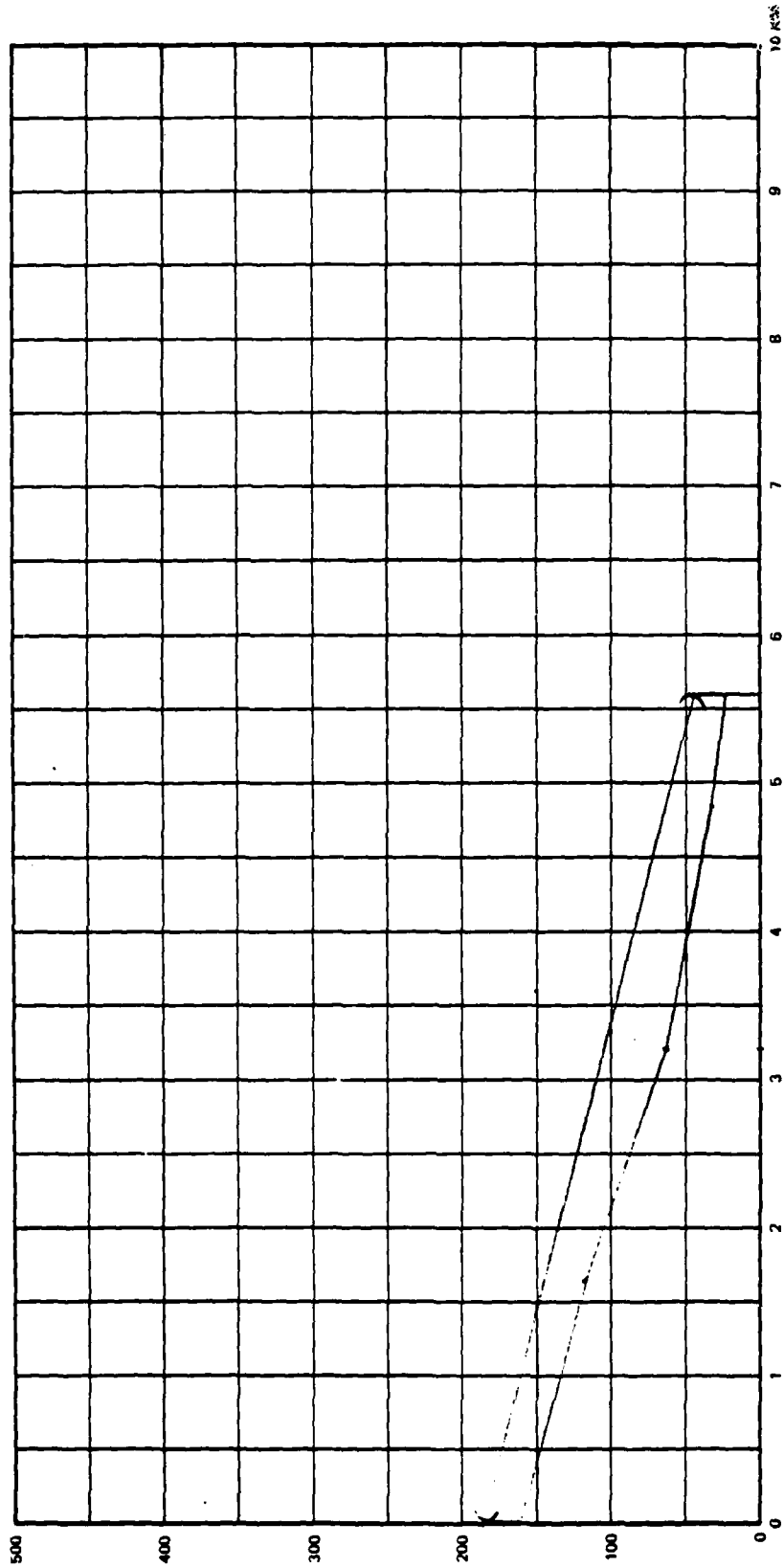


1st repeater from

STATION Kunia  
LATITUDE D 21 M 26 S 35  
LONGITUDE D 158 M 01 S 45  
ELEVATION 161 M  
TOWER HEIGHT 20 M

2nd repeater to

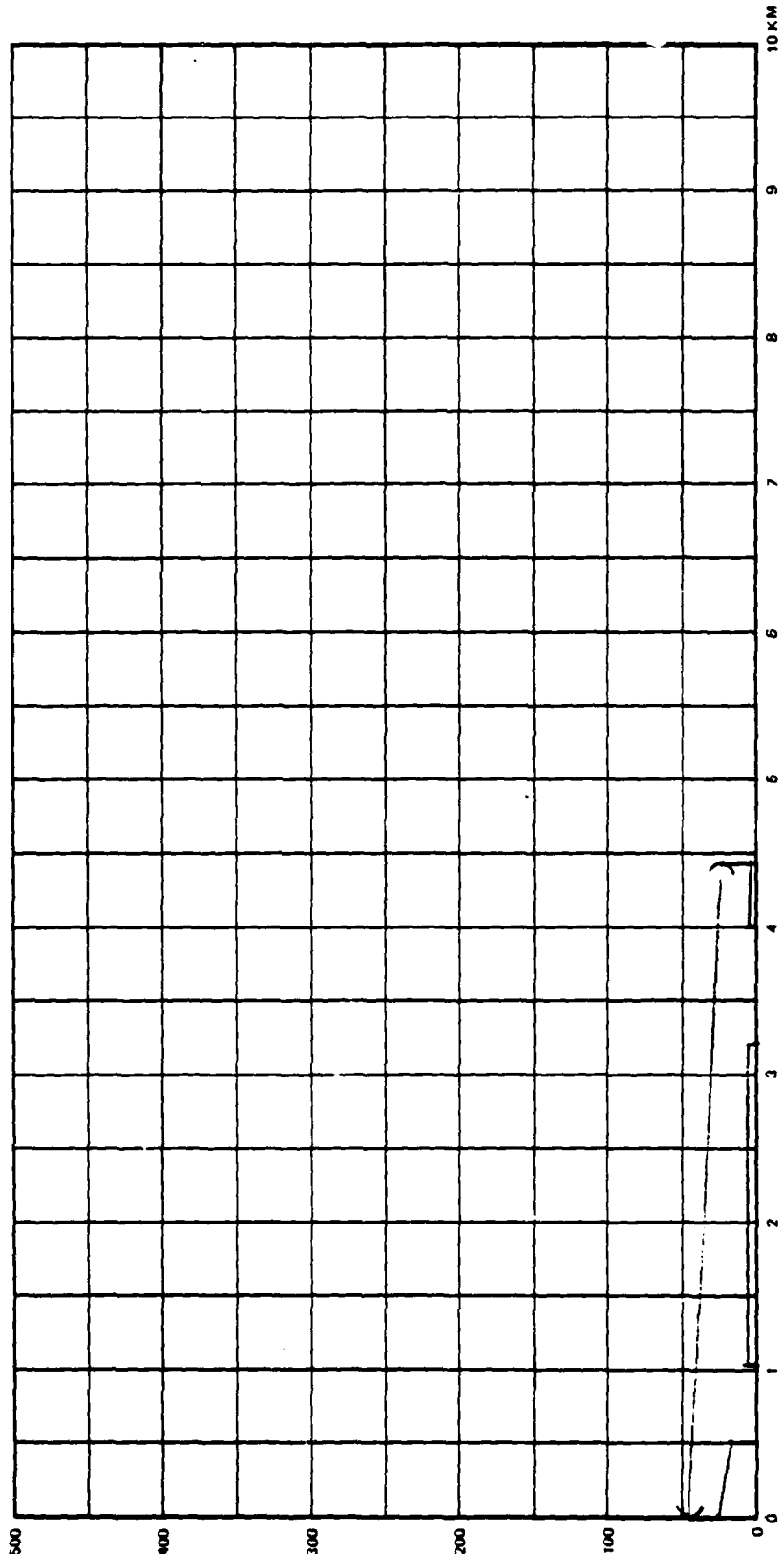
STATION Ford Island  
LATITUDE D 21 M 23 S 45  
LONGITUDE D 157 M 59 S 25  
ELEVATION 24 M  
TOWER HEIGHT 20 M



2nd repeater from

STATION Kunia  
LATITUDE D 21 M 23 S 45  
LONGITUDE D 157 M 59 S 25  
ELEVATION 24 M  
TOWER HEIGHT 20 M

STATION Ford Island  
LATITUDE D 21 M 22 S 00  
LONGITUDE D 157 M 58 S 00  
ELEVATION 3 M  
TOWER HEIGHT 20 M

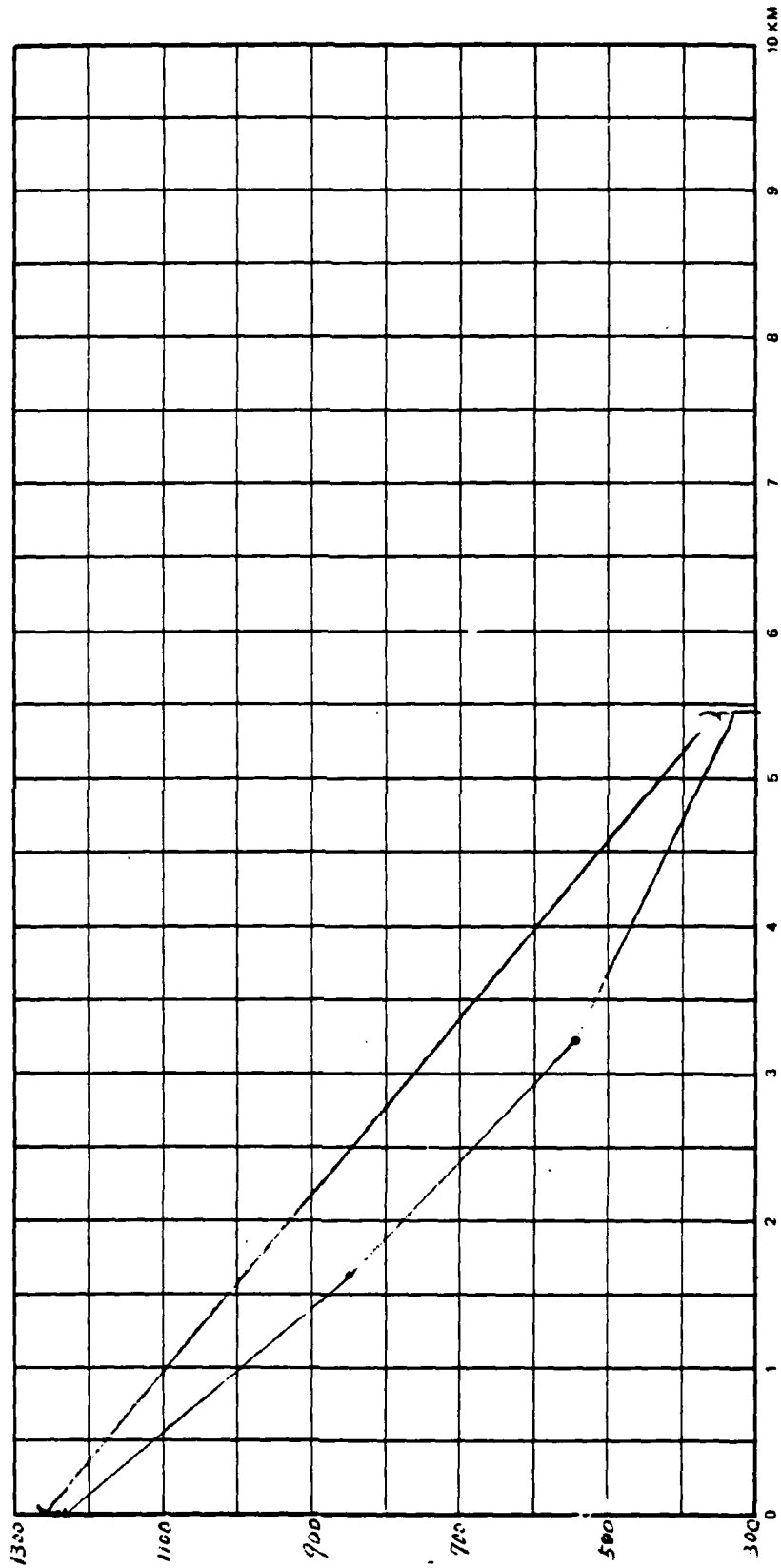




repeater to  
Schofield

STATION Mt Kaala  
LATITUDE D 21 M 29 S 25  
LONGITUDE D 158 M 5 S 40  
ELEVATION 329 M  
TOWER HEIGHT 20 M

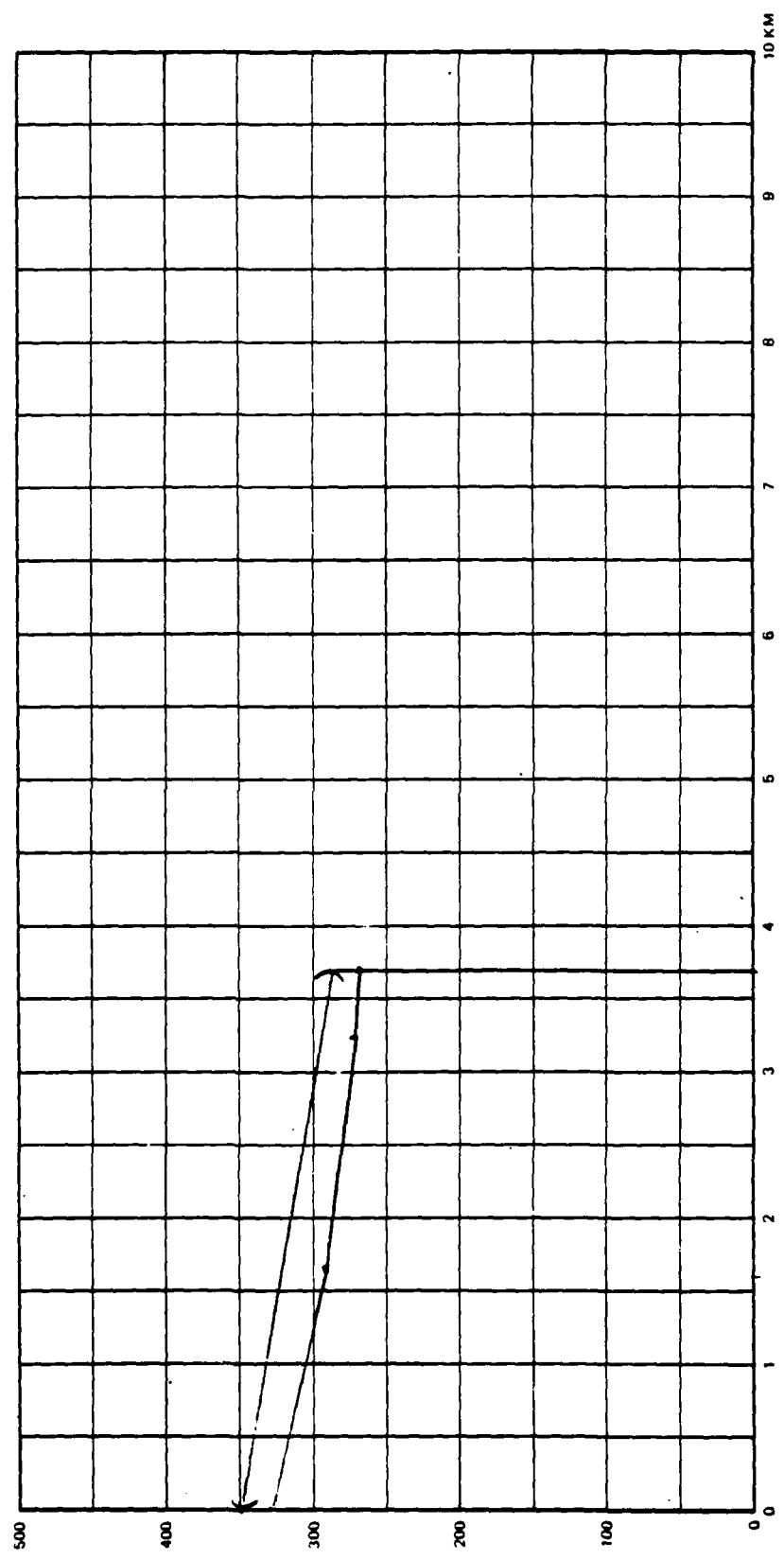
STATION Mt Kaala  
LATITUDE D 21 M 30 S 40  
LONGITUDE D 158 M 08 S 40  
ELEVATION 1227 M  
TOWER HEIGHT 20 M



repeater from

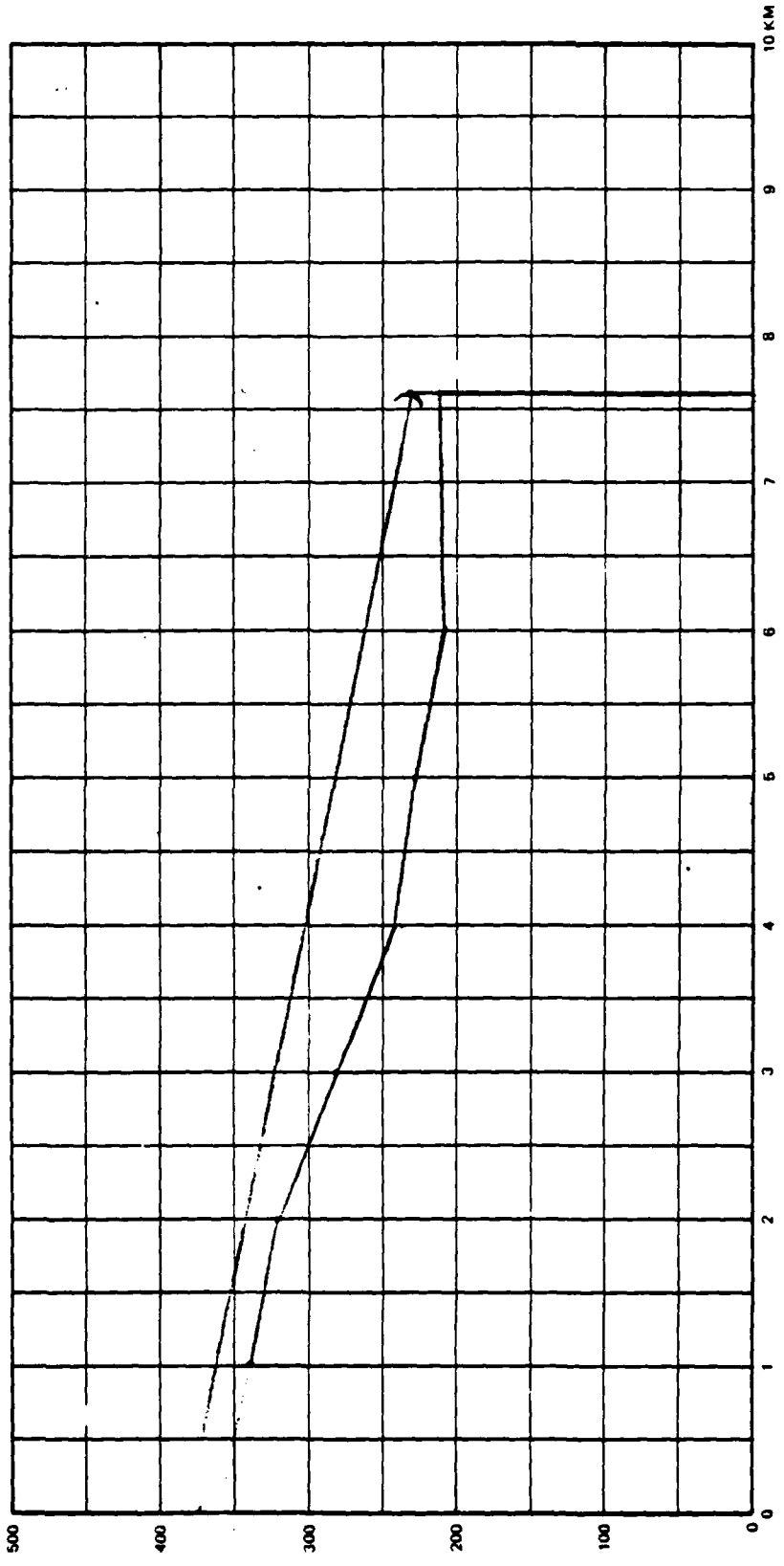
STATION Mt Kaala  
LATITUDE D 21 M 29 S 25  
LONGITUDE D 158 M 5 S 40  
ELEVATION 329 M  
TOWER HEIGHT 20 M

STATION Schofield  
LATITUDE D 21 M 29 S 45  
LONGITUDE D 158 M 03 S 30  
ELEVATION 268 M  
TOWER HEIGHT 20 M



1st repeater to  
STATION Pearl Harbor  
LATITUDE D 21 M 27 S 00  
LONGITUDE D 158 M 00 S 50  
ELEVATION 218 M  
TOWER HEIGHT 30 M

STATION Mahiawa  
LATITUDE D 21 M 31 S 30  
LONGITUDE D 158 M 01 S 00  
ELEVATION 365 M  
TOWER HEIGHT 30 M



1st repeater from

STATION Mahiawa

LATITUDE D 21 M 27 S 00

LONGITUDE D 158 M 00 S 50

ELEVATION 218 M

TOWER HEIGHT 30 M

2nd repeater to

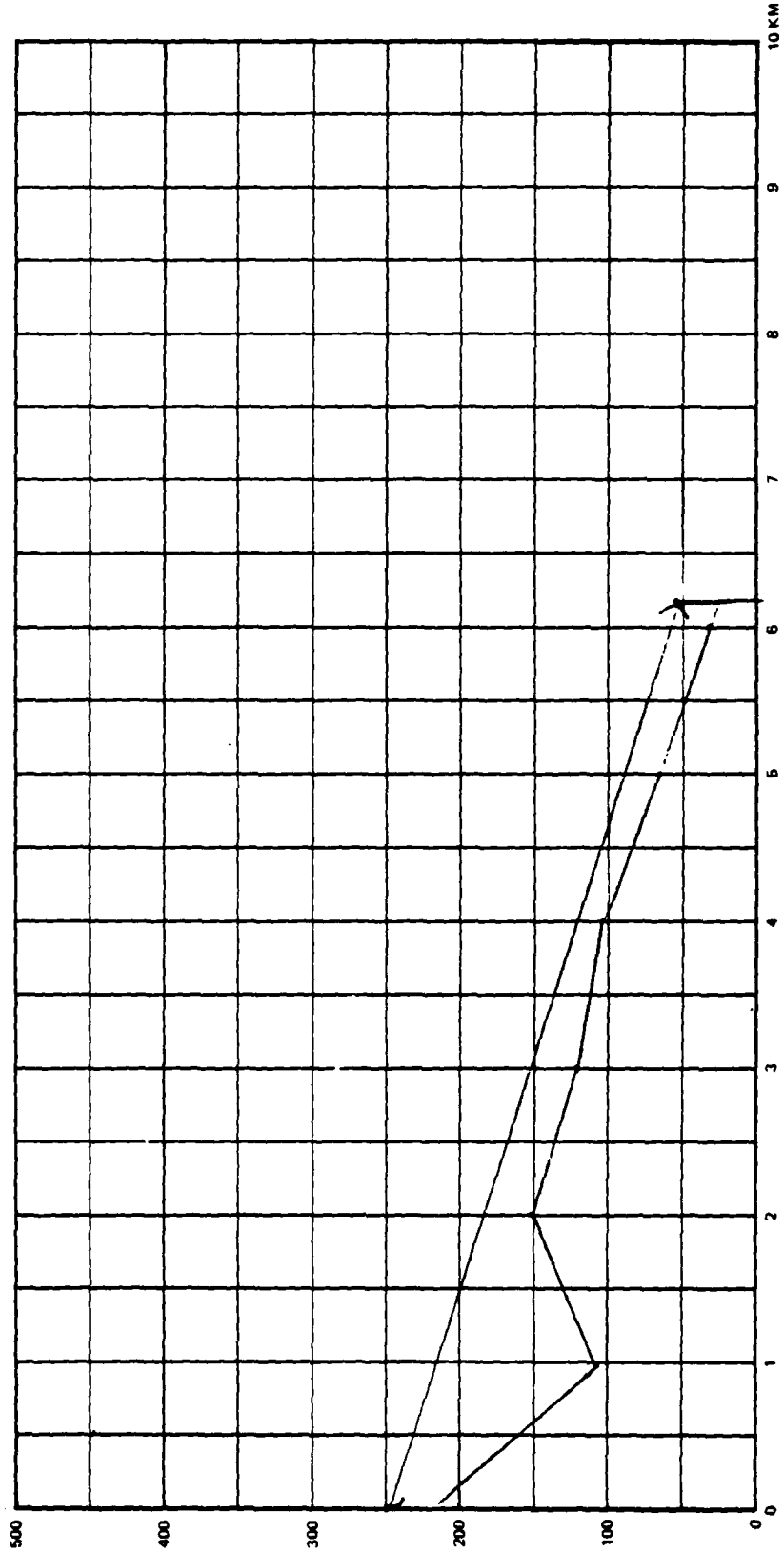
STATION Pearl Harbor

LATITUDE D 21 M 24 S 15

LONGITUDE D 157 M 58 S 50

ELEVATION 24 M

TOWER HEIGHT 30 M



2nd repeater from

STATION Mahtawa

LATITUDE D 21 M 24 S 15

LONGITUDE D 157 M 58 S 50

ELEVATION 24 M

TOWER HEIGHT 20 M

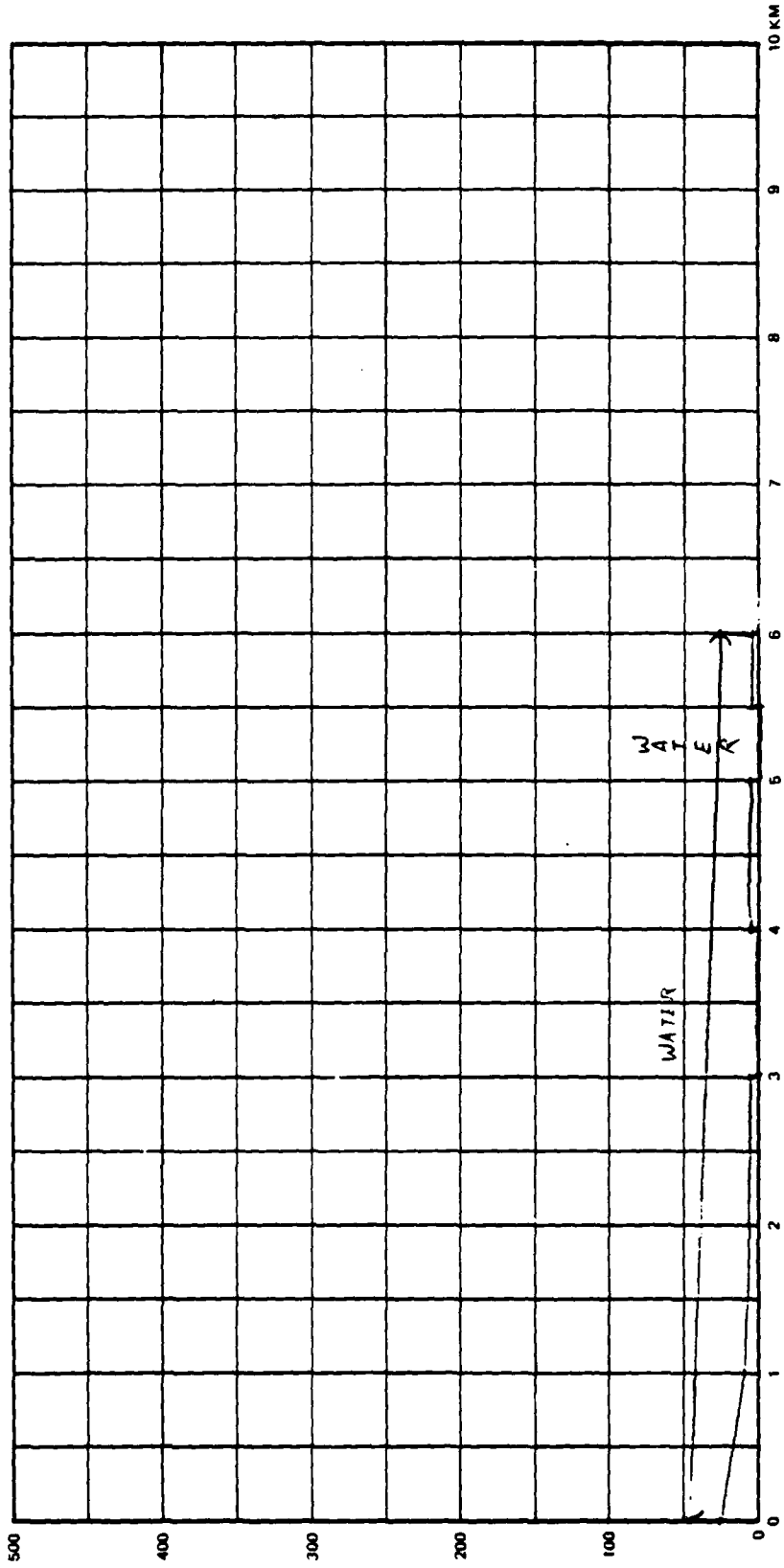
STATION Pearl Harbor

LATITUDE D 21 M 21 S 25

LONGITUDE D 157 M 57 S 30

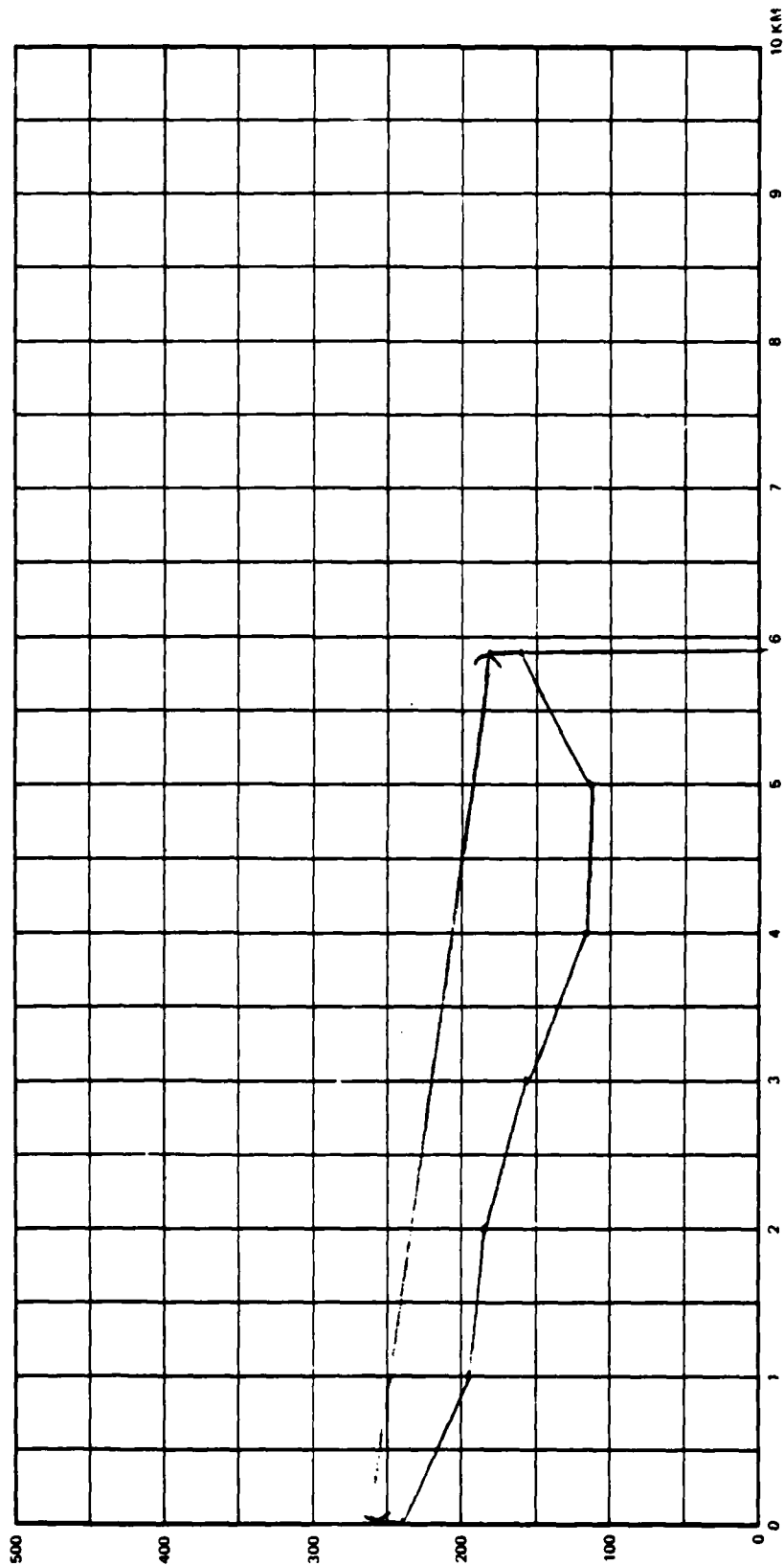
ELEVATION 6 M

TOWER HEIGHT 20 M



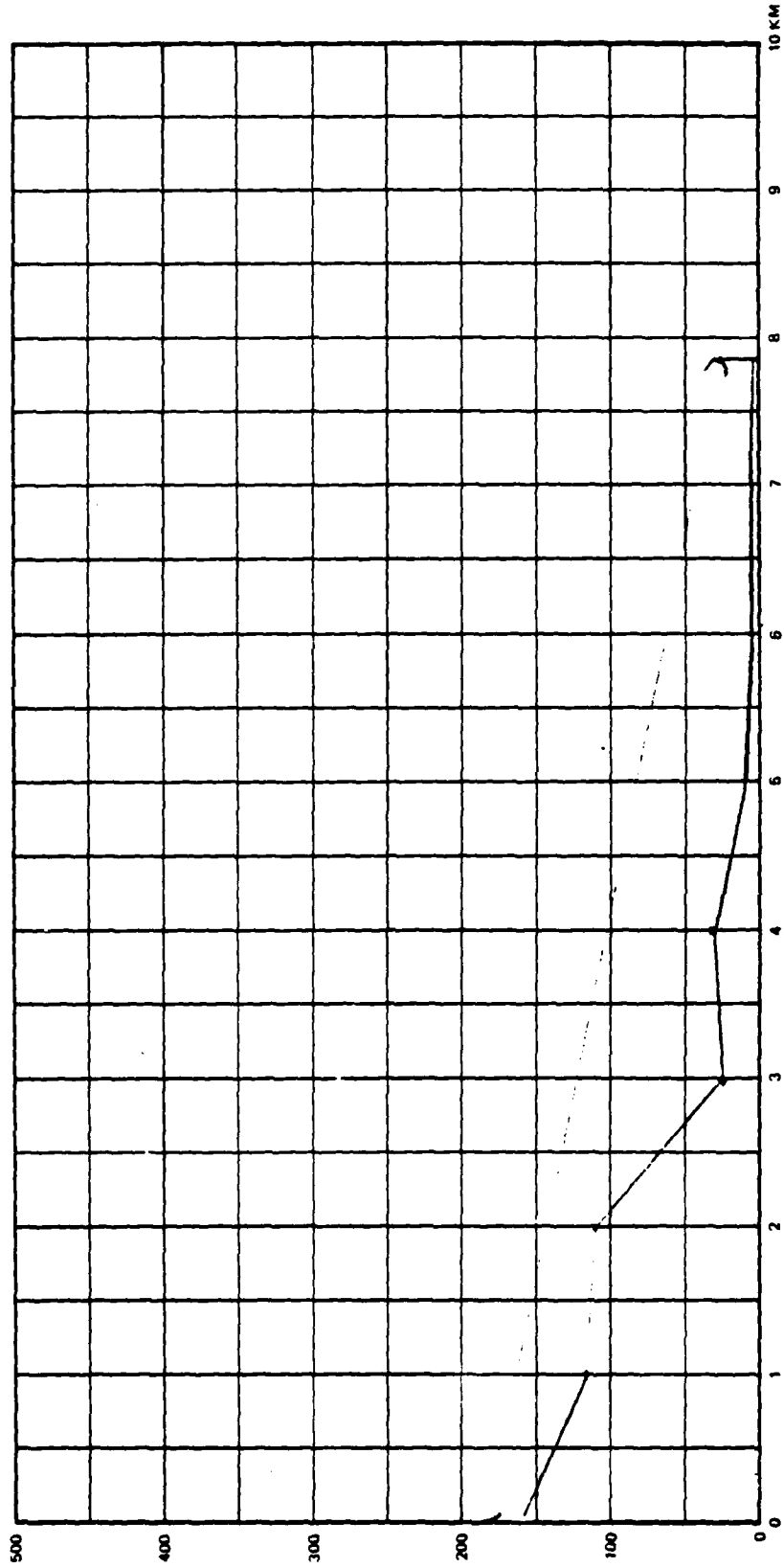
1st repeater to  
STATION Hickam  
LATITUDE D 21 M 26 S 00  
LONGITUDE D 158 M 02 S 00  
ELEVATION 158 M  
TOWER HEIGHT 20 M

STATION Wheeler  
LATITUDE D 21 M 29 S 15  
LONGITUDE D 158 M 02 S 30  
ELEVATION 242 M  
TOWER HEIGHT 20 M



2nd repeater to  
 STATION Hickam  
 LATITUDE D 21 M 22 S 10  
 LONGITUDE D 158 M 59 S 40  
 ELEVATION 6 M  
 TOWER HEIGHT 20 M

1st repeater from  
 STATION Wheeler  
 LATITUDE D 21 M 26 S 00  
 LONGITUDE D 158 M 02 S 00  
 ELEVATION 158 M  
 TOWER HEIGHT 20 M

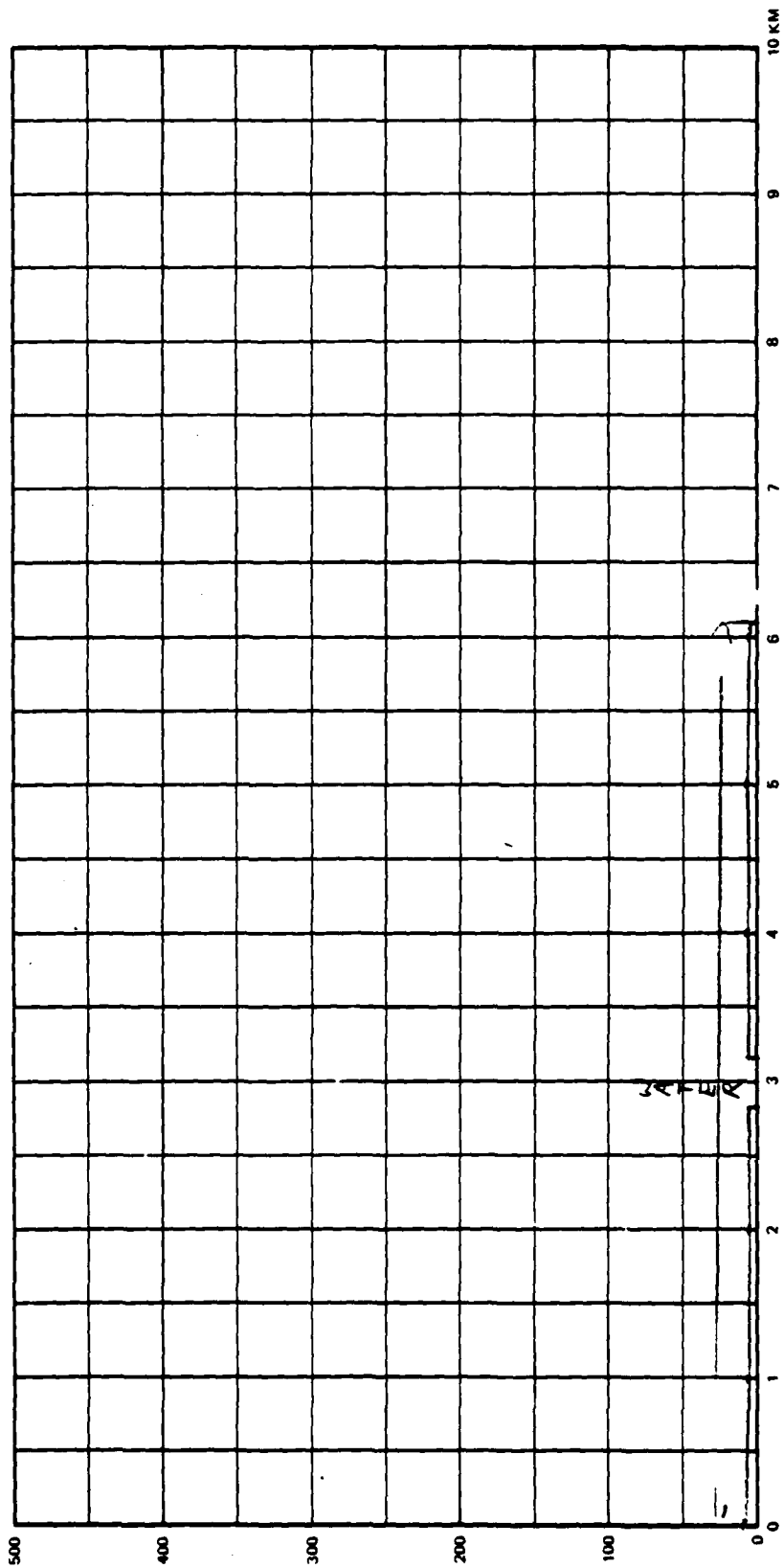


2nd repeater from  
STATION Wheeler

LATITUDE D 21 M 22 S 10  
LONGITUDE D 158 M 59 S 40  
ELEVATION 6 M  
TOWER HEIGHT 20 M

STATION Hickam

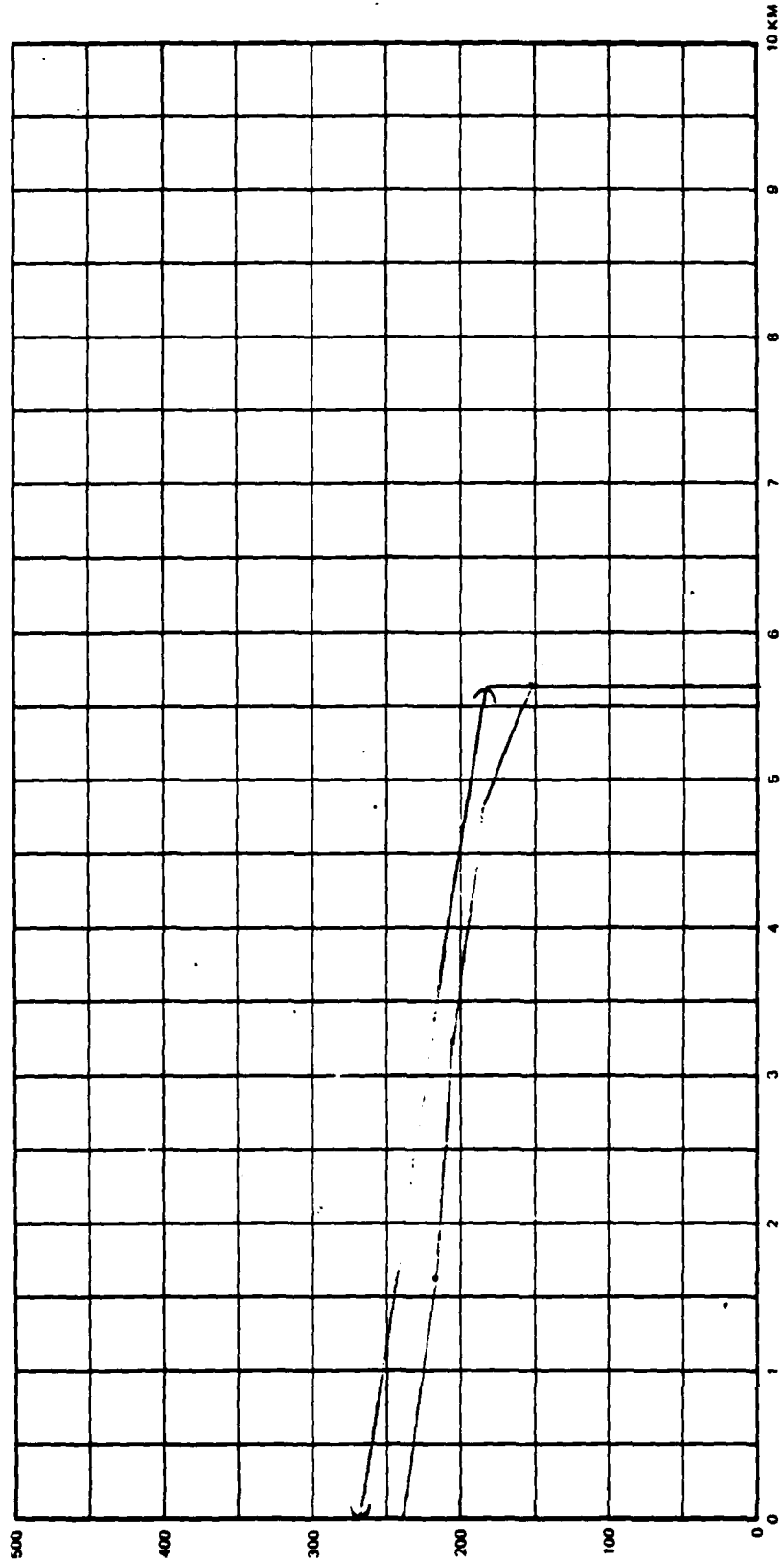
LATITUDE D 21 M 20 S 30  
LONGITUDE D 157 M 57 S 45  
ELEVATION 3 M  
TOWER HEIGHT 20 M





1st repeater to  
STATION Pearl Harbor  
LATITUDE D 21 M 26 S 15  
LONGITUDE D 158 M 00 S 30  
ELEVATION 152 M  
TOWER HEIGHT 30 M

STATION Wheeler  
LATITUDE D 21 M 29 S 15  
LONGITUDE D 158 M 02 S 30  
ELEVATION 244 M  
TOWER HEIGHT 30 M

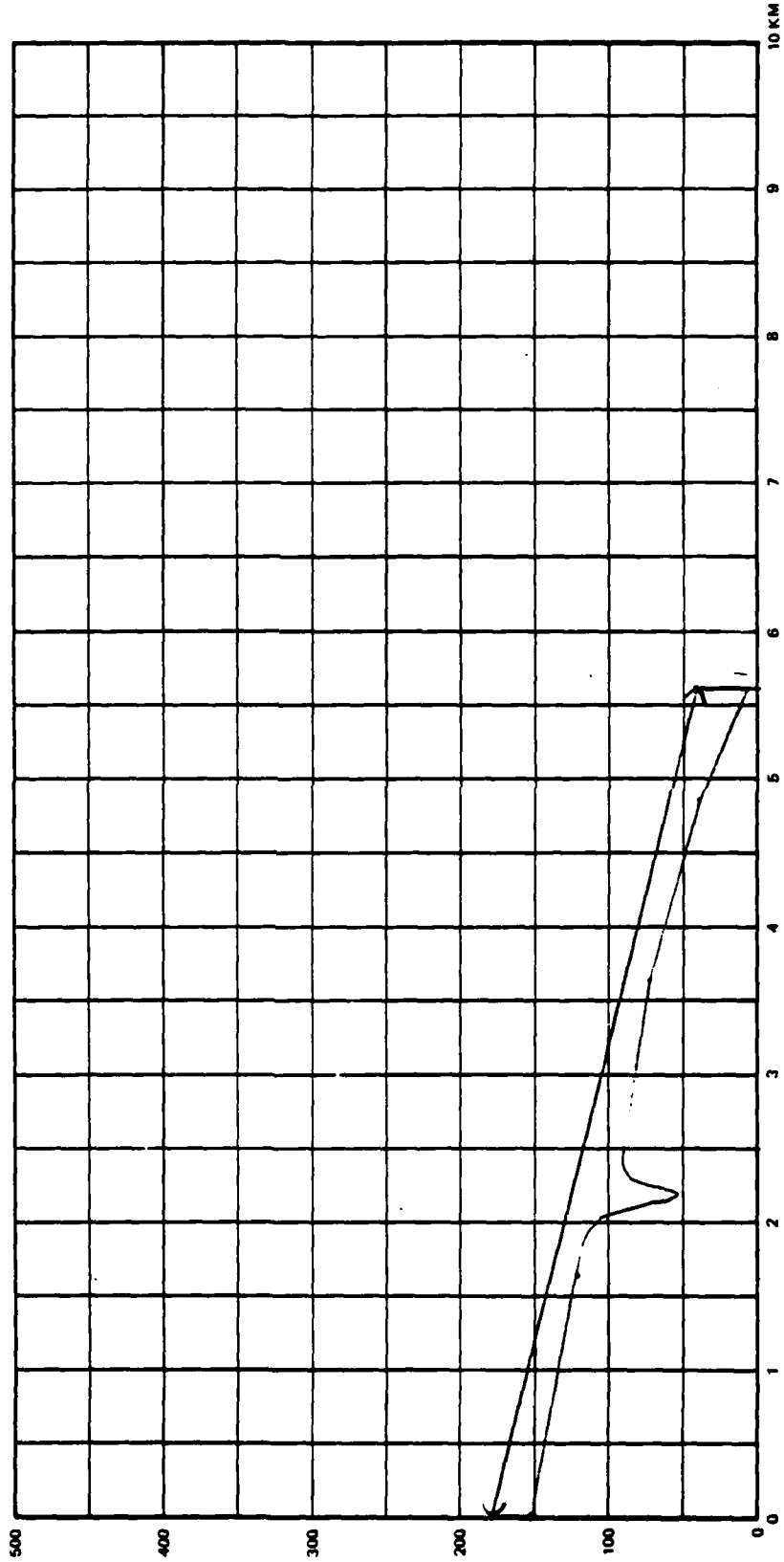


1st repeater from

STATION Wheeler  
LATITUDE D 21 M 26 S 15  
LONGITUDE D 158 M 00 S 30  
ELEVATION 152 M  
TOWER HEIGHT 30 M

2nd repeater to

STATION Pearl Harbor  
LATITUDE D 21 M 23 S 55  
LONGITUDE D 157 M 58 S 40  
ELEVATION 12 M  
TOWER HEIGHT 30 M

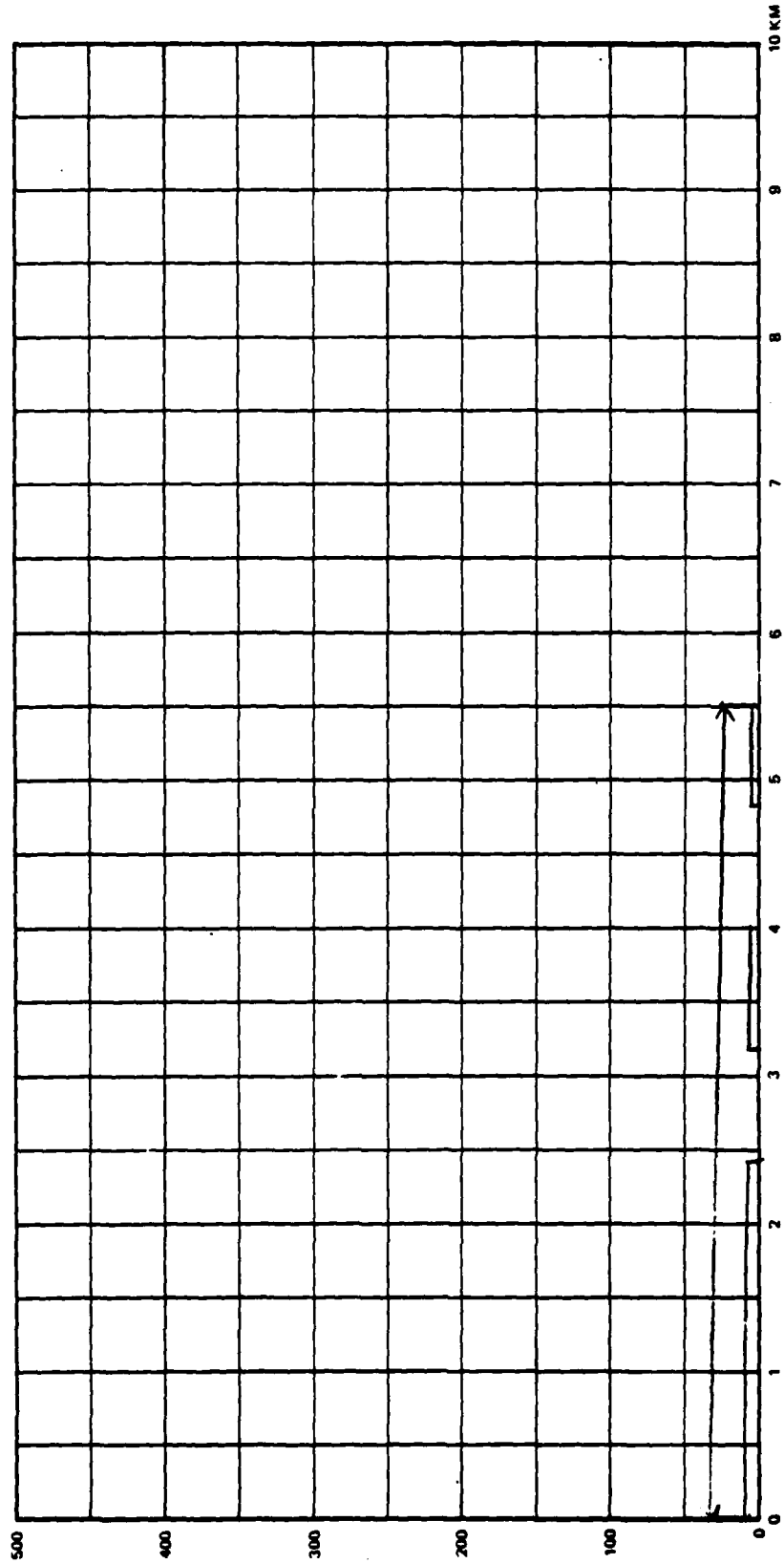


2nd repeater from  
STATION Wheeler

LATITUDE D 21 M 23 S 55  
LONGITUDE D 157 M 58 S 40  
ELEVATION 12 M  
TOWER HEIGHT 20 M

STATION Pearl Harbor

LATITUDE D 21 M 21 S 25  
LONGITUDE D 157 M 57 S 30  
ELEVATION 6 M  
TOWER HEIGHT 20 M



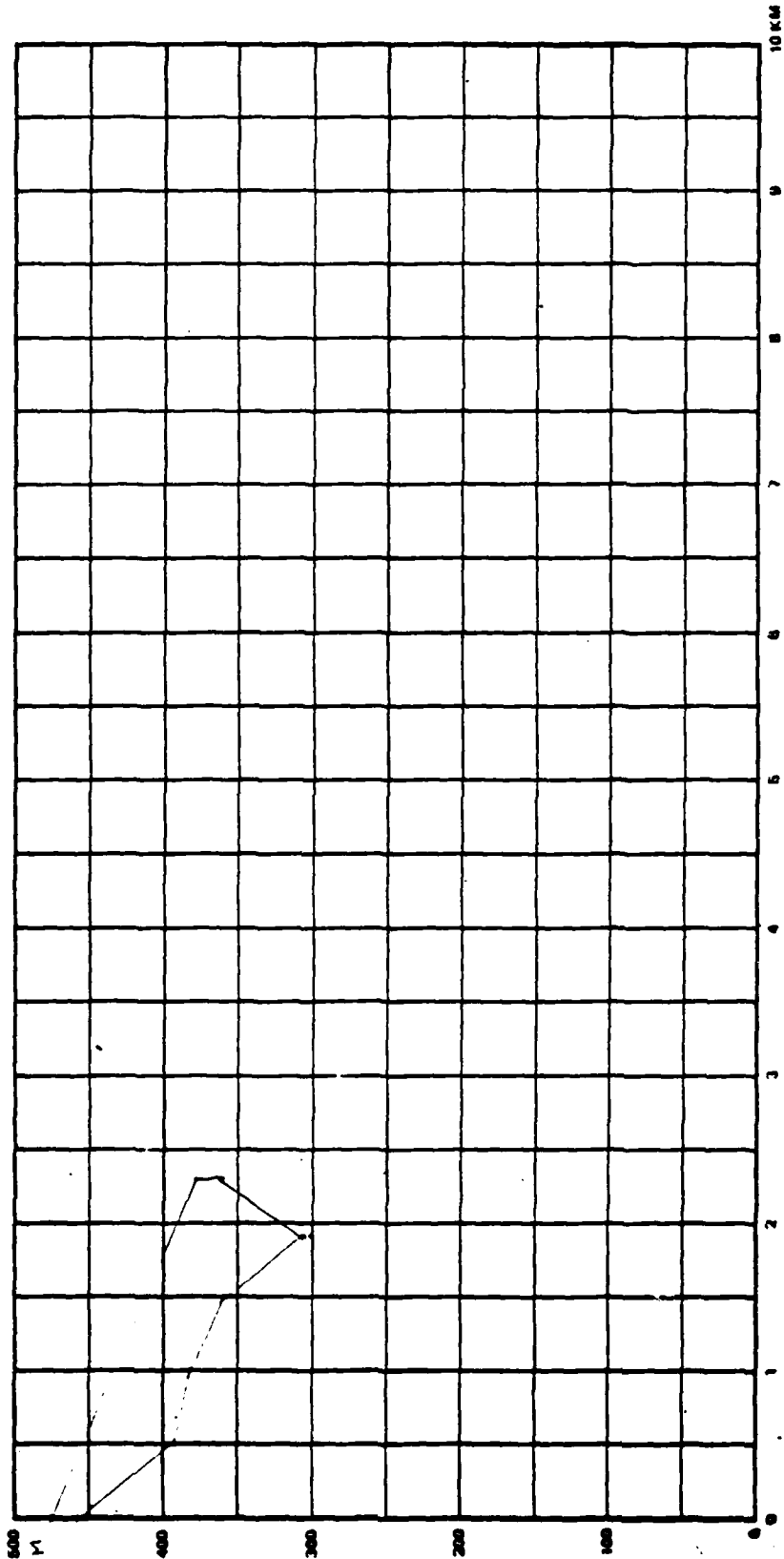
A.3 MICROWAVE PATH PROFILES OF CENTRAL GERMANY

A.3.1

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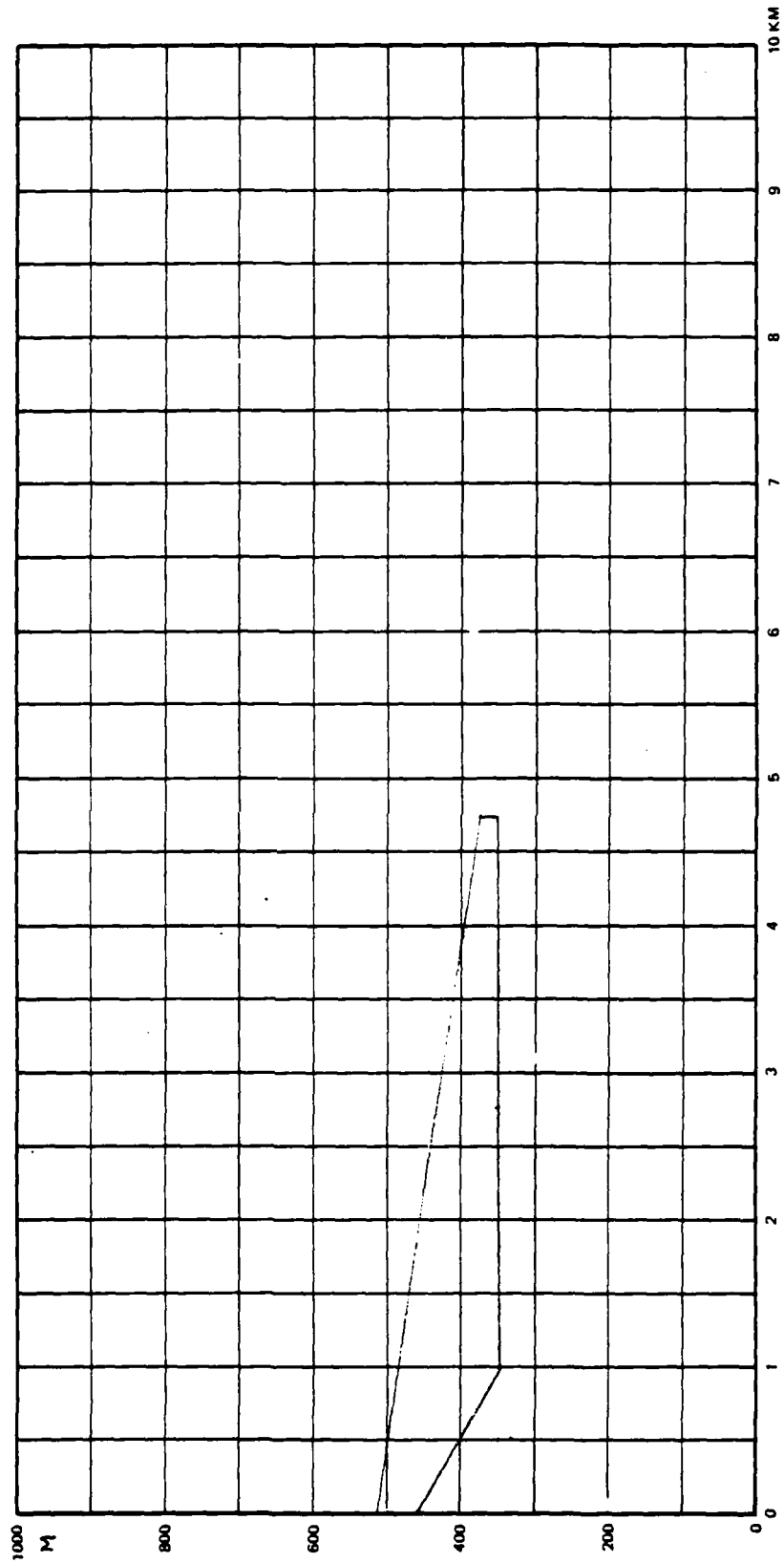
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LONGITUDE D 07 M 36 S 52  
ELEVATION 360 M  
TOWER HEIGHT 20 M

STATION Bann  
LATITUDE D 49 M 23 S 55  
LONGITUDE D 07 M 35 S 48  
ELEVATION 460 M  
TOWER HEIGHT 20 M



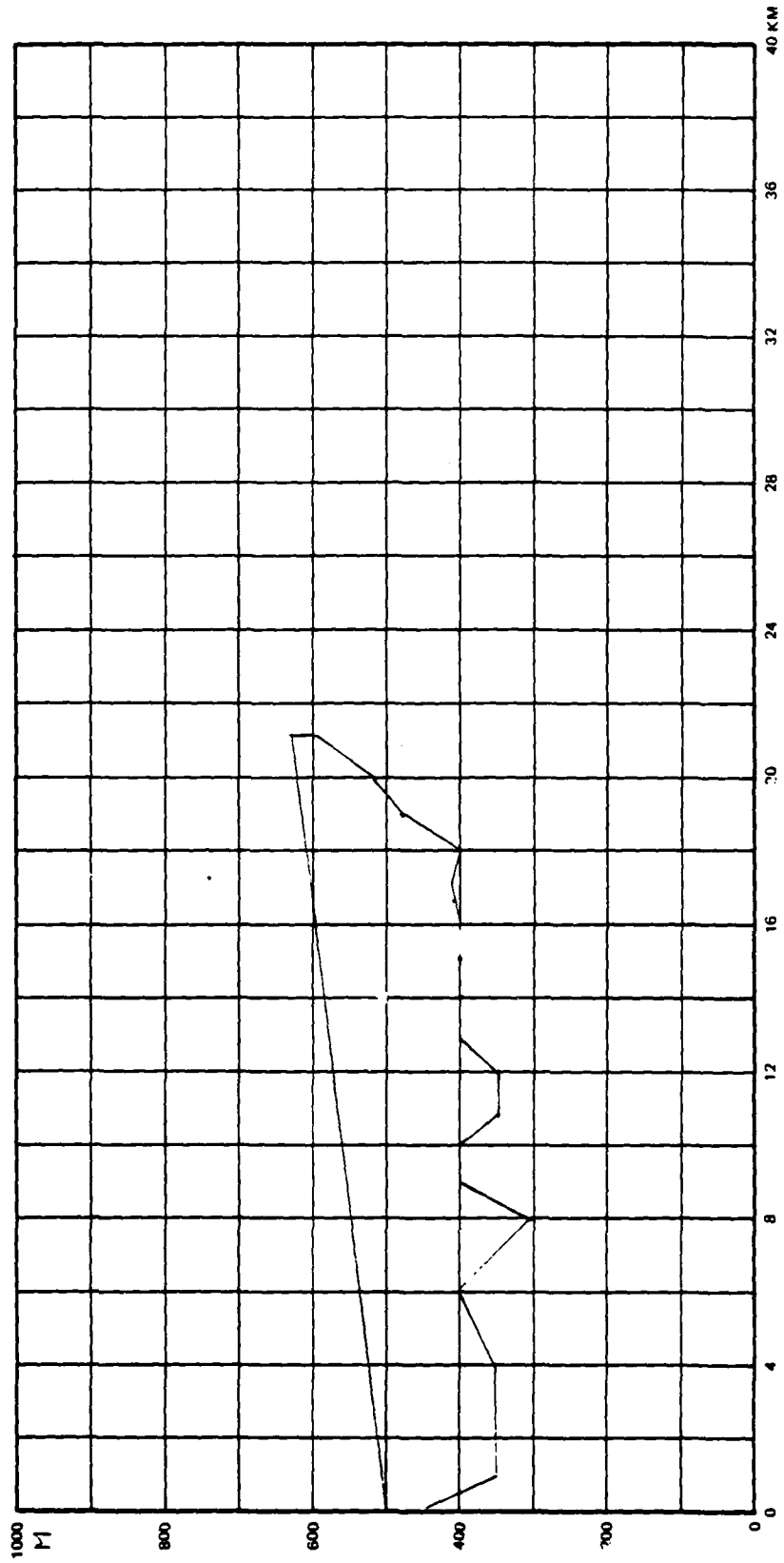
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LATITUDE D 49 M 24 S 00  
LONGITUDE D 07 M 32 S 04  
ELEVATION 341 M  
TOWER HEIGHT 27 M

STATION Bann  
LATITUDE D 49 M 23 S 55  
LONGITUDE D 07 M 35 S 18  
ELEVATION 460 M  
TOWER HEIGHT 53 M



STATION Langerkopf  
LATITUDE D 49 M 18 S 04  
LONGITUDE D 07 M 50 S 39  
ELEVATION 596 M  
TOWER HEIGHT 40 M

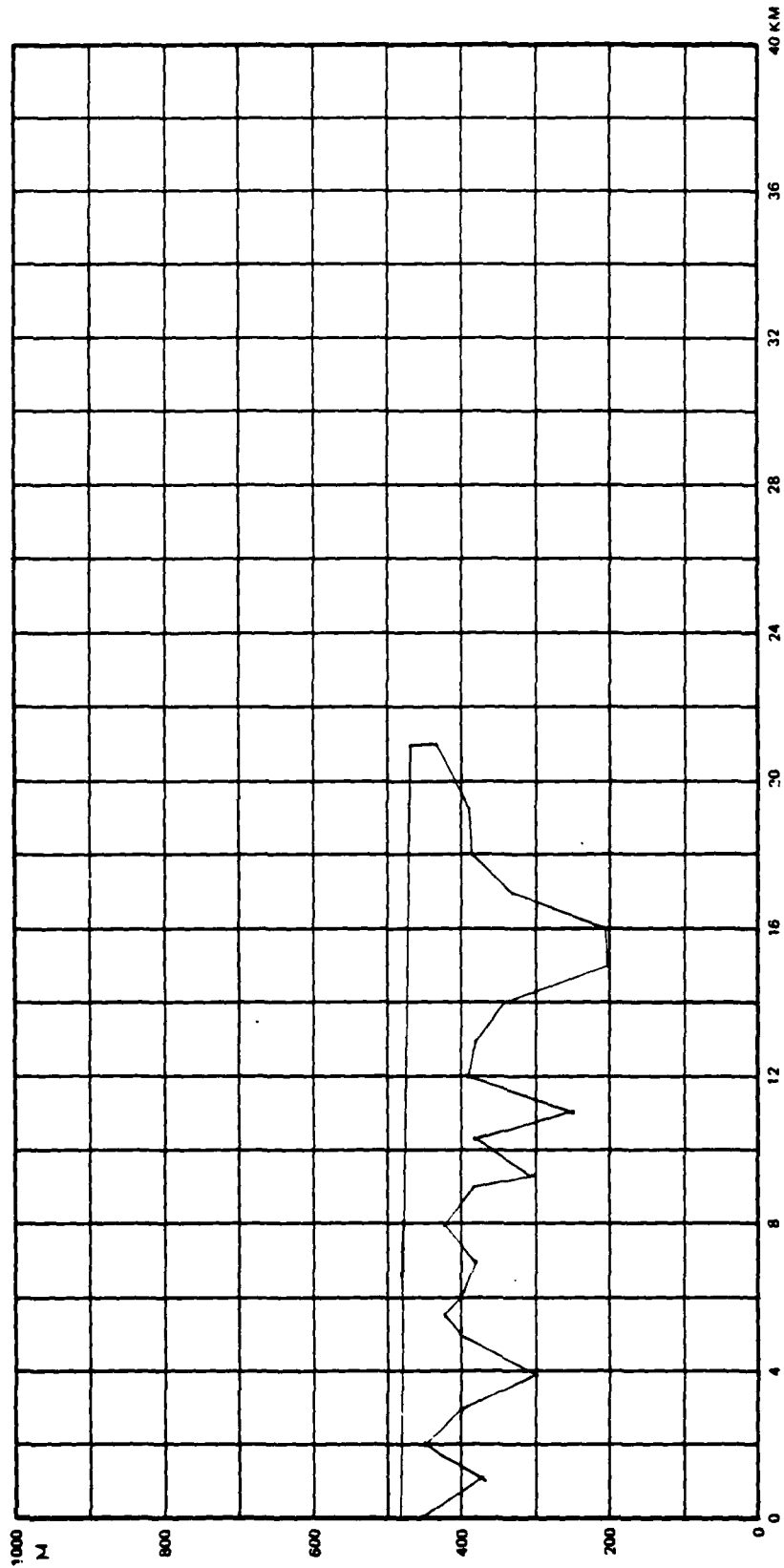
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ELEVATION 460 M  
TOWER HEIGHT 40 M





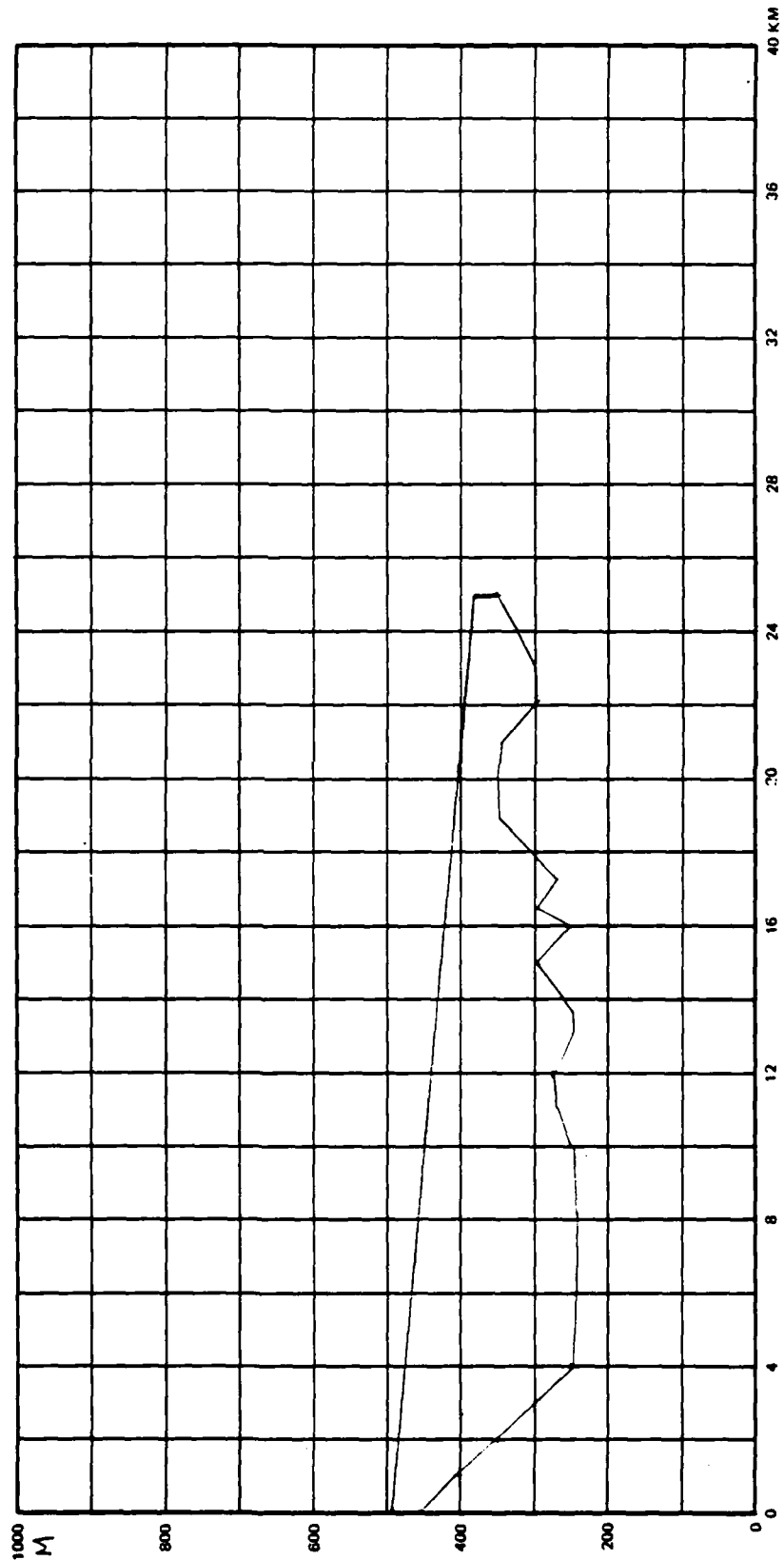
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LONGITUDE D 07 M 35 S 18  
ELEVATION 460 M  
TOWER HEIGHT 20 M

STATION Pirmasens  
LATITUDE D 49 M 13 S 01  
LONGITUDE D 07 M 36 S 35  
ELEVATION 439 M  
TOWER HEIGHT 30 M



STATION Sembach  
LATITUDE D 49 M 31 S 46  
LONGITUDE D 07 M 52 S 07  
ELEVATION 351 M  
TOWER HEIGHT 35 M

STATION Bann  
LATITUDE D 49 M 23 S 55  
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ELEVATION 460 M  
TOWER HEIGHT 35 M

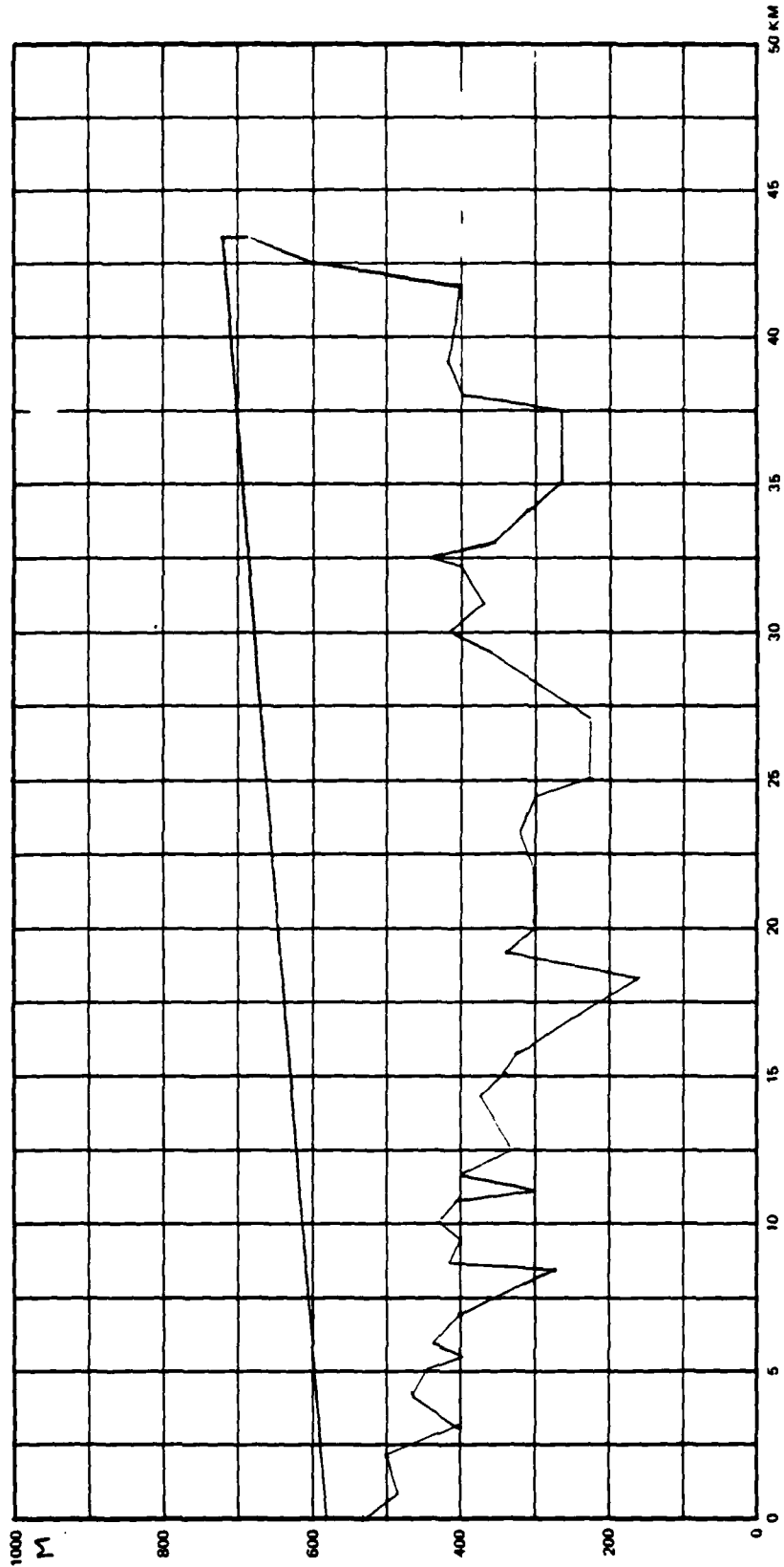


STATION Baumholder

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LONGITUDE D 07 M 19 S 33  
ELEVATION 531 M  
TOWER HEIGHT 39 M

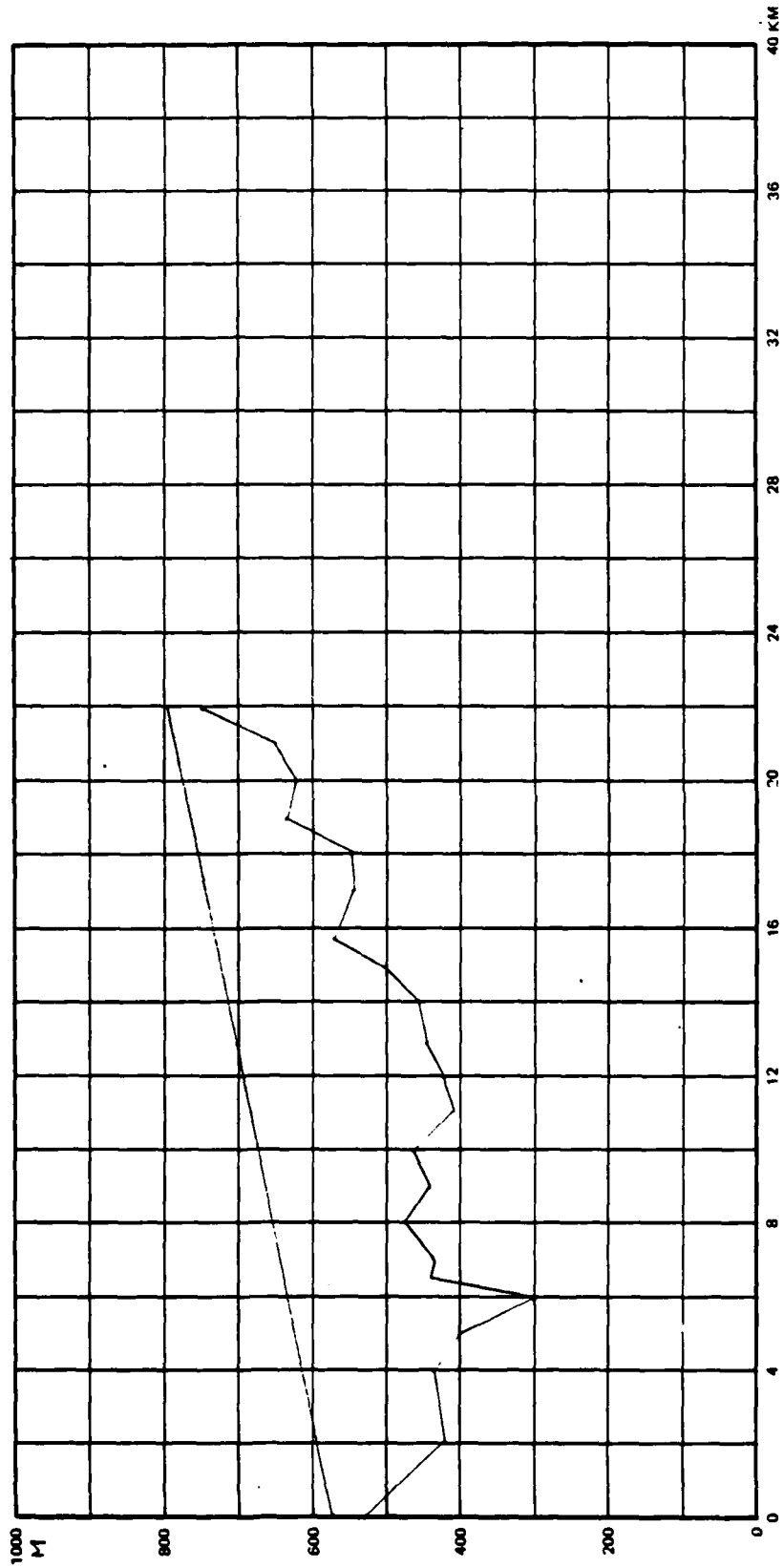
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LONGITUDE D 07 M 55 S 13  
ELEVATION 685 M  
TOWER HEIGHT 40 M



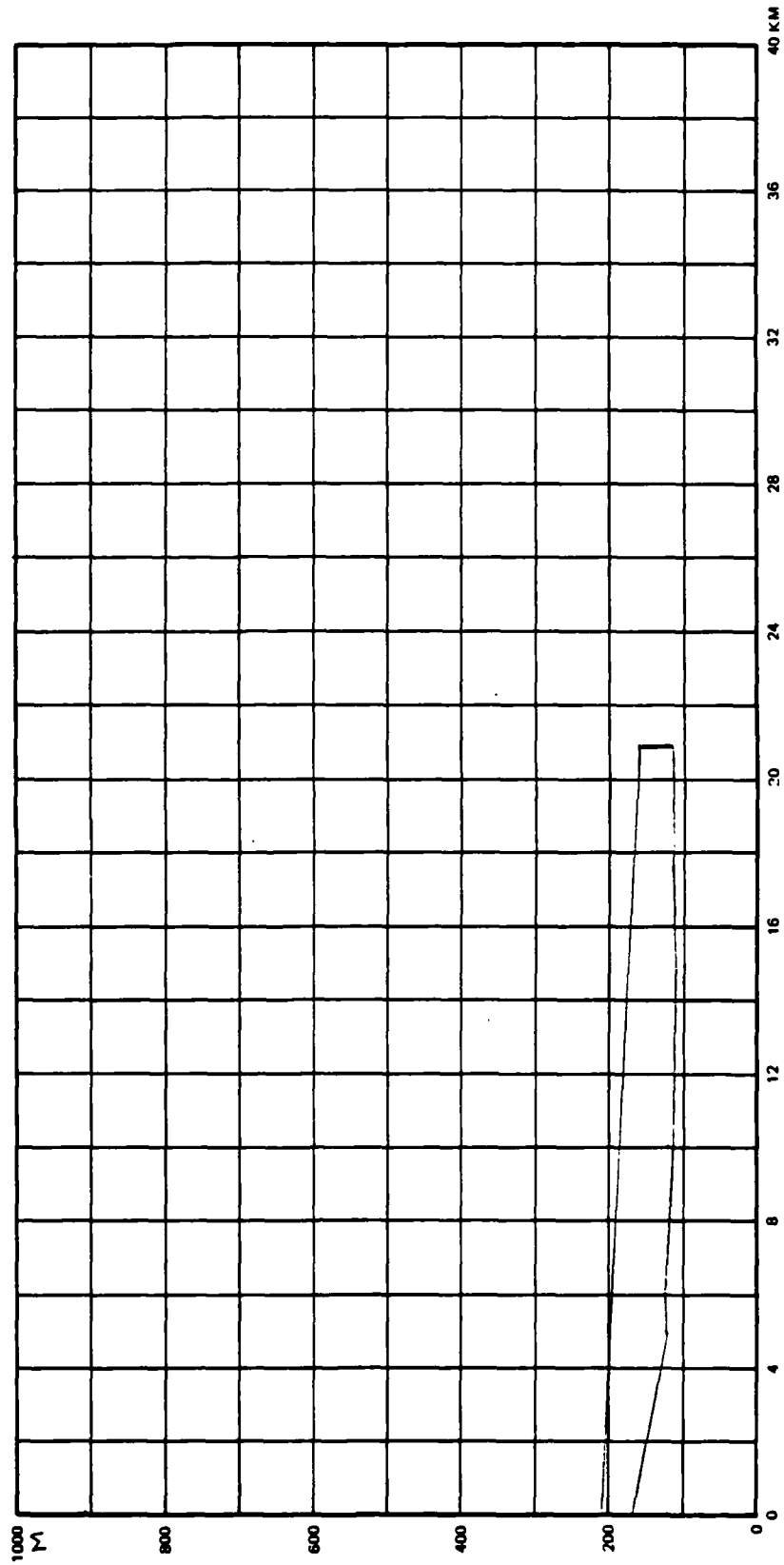
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ELEVATION 756 M  
TOWER HEIGHT 40 M

STATION Baumholder  
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TOWER HEIGHT 39 M



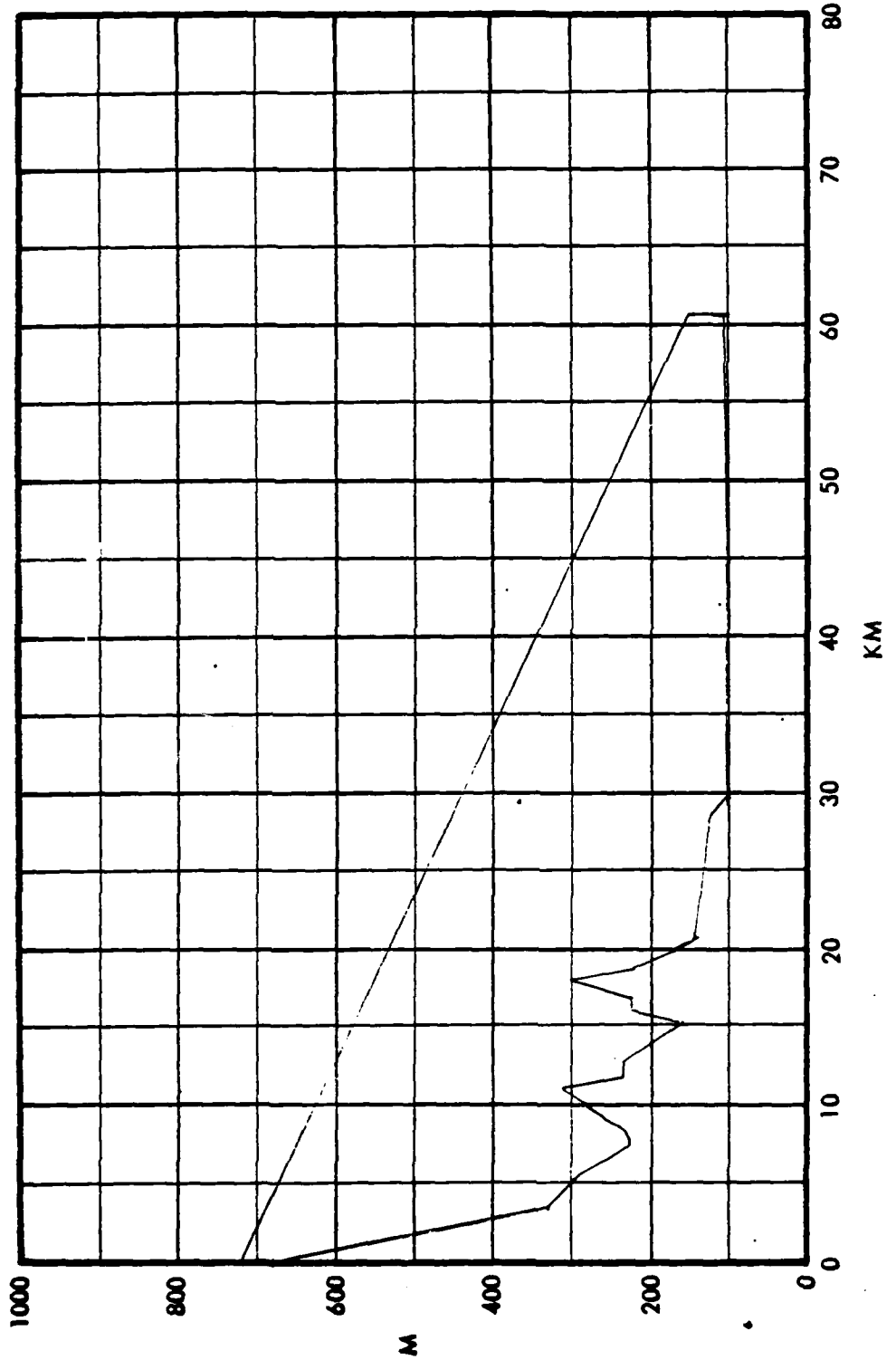
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LONGITUDE D 08 M 39 S 19  
ELEVATION 170 M  
TOWER HEIGHT 40 M

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TOWER HEIGHT 40 M



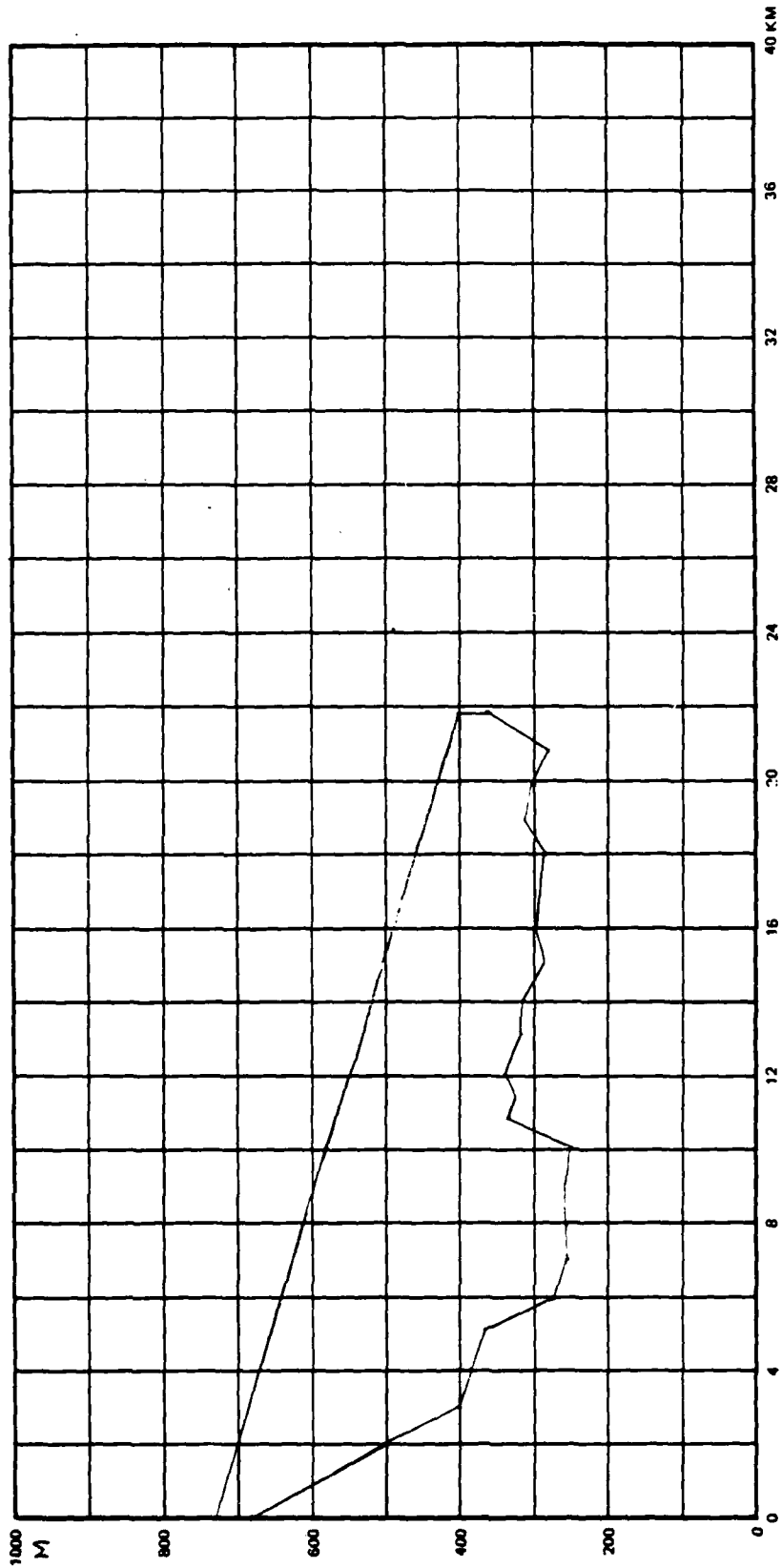
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LONGITUDE D 08 M 41 S 00  
ELEVATION 111 M  
TOWER HEIGHT 40 M

STATION Donnersberg  
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LONGITUDE D 07 M 55 S 13  
ELEVATION 685 M  
TOWER HEIGHT 40 M



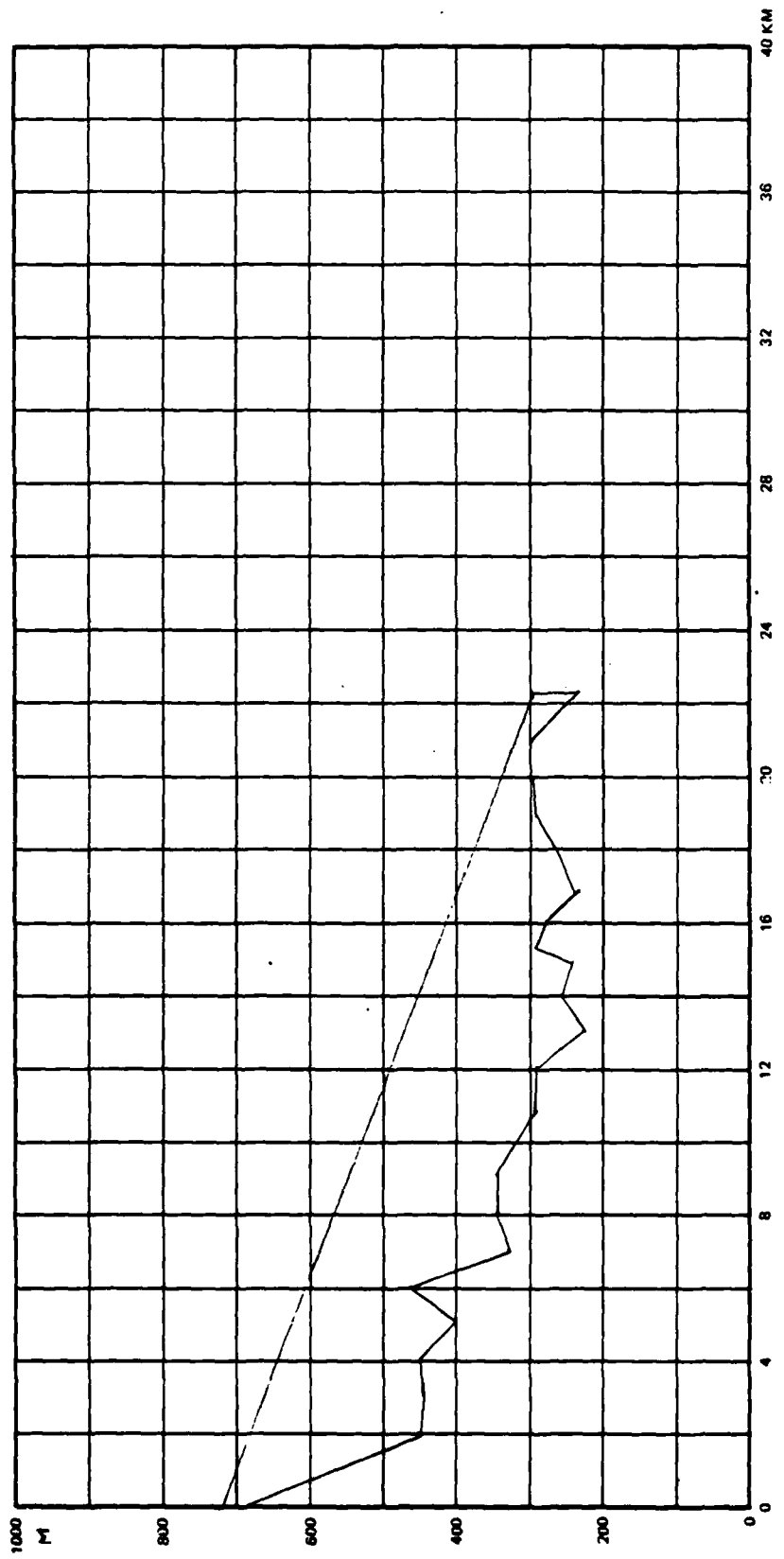
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LONGITUDE D 07 M 50 S 30  
ELEVATION 366 M  
TOWER HEIGHT 30 M

STATION Donnersberg  
LATITUDE D 49 M 37 S 23  
LONGITUDE D 07 M 55 S 13  
ELEVATION 685 M  
TOWER HEIGHT 41 M



STATION B. Krenznach  
LATITUDE D 49 M 49 S 27  
LONGITUDE D 07 M 51 S 53  
ELEVATION 237 M  
TOWER HEIGHT 66 M

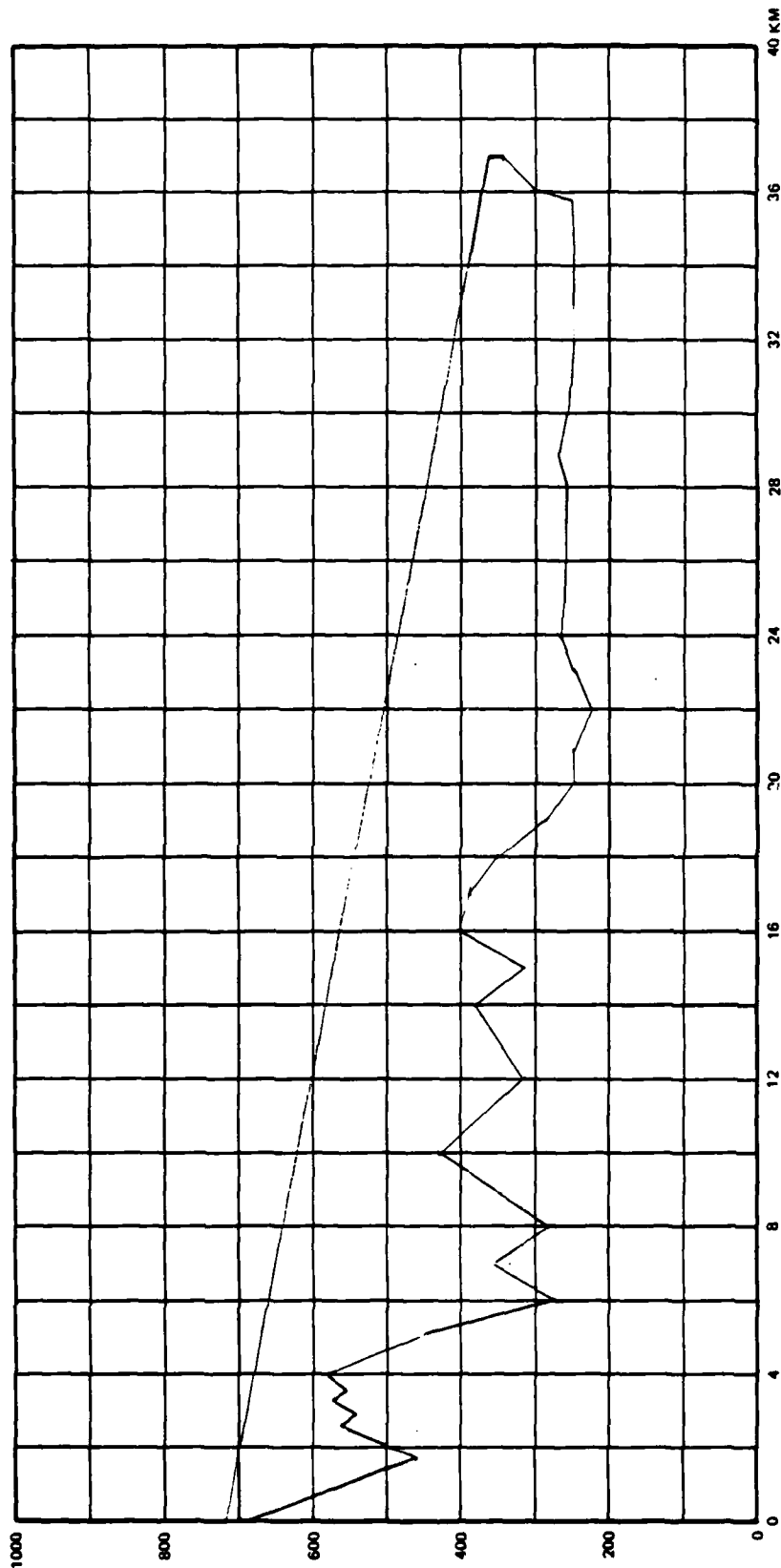
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TOWER HEIGHT 41 M





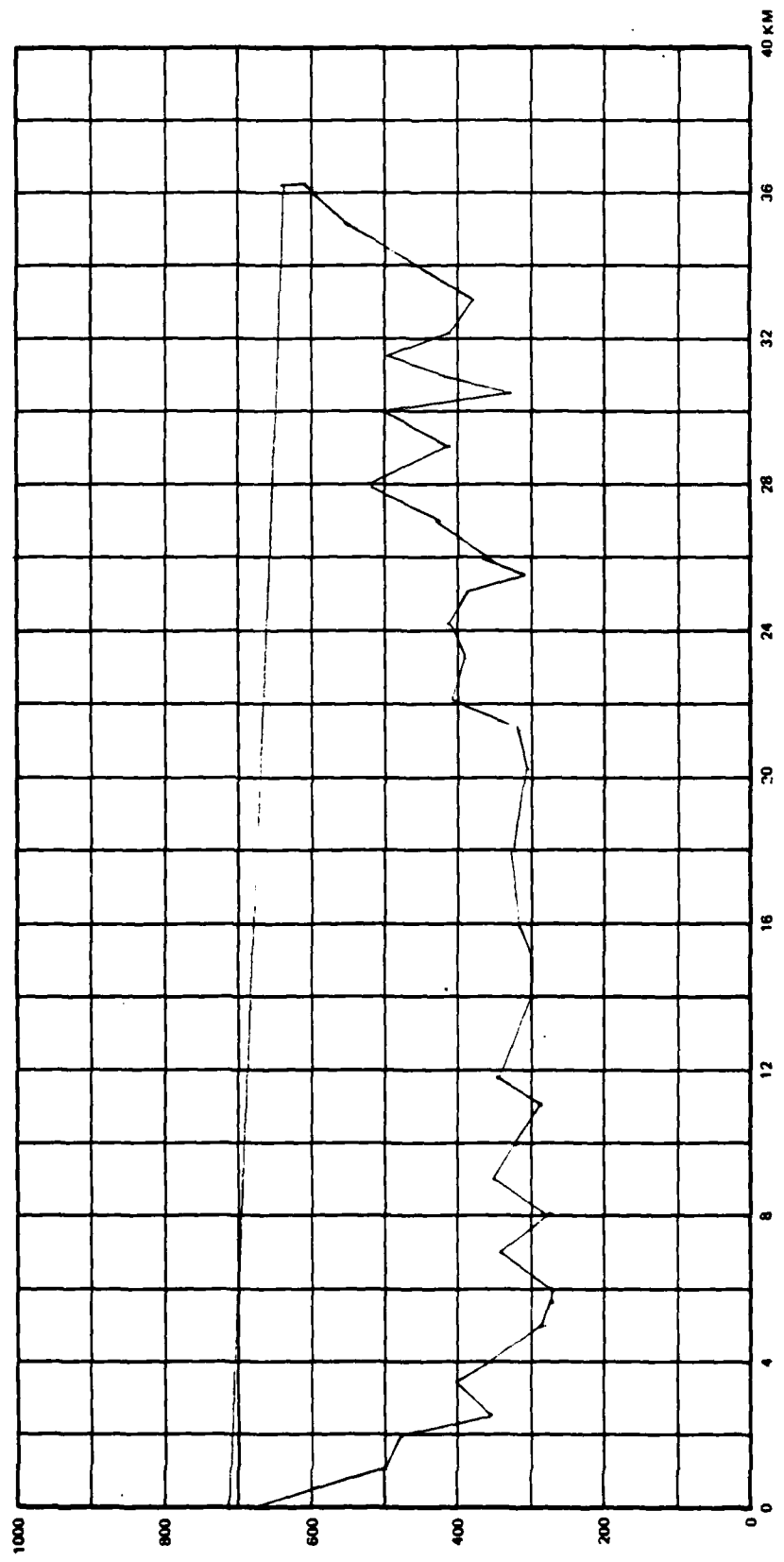
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LONGITUDE D 07 M 32 S 04  
ELEVATION 341 M  
TOWER HEIGHT 30 M

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LATITUDE D 49 M 37 S 23  
LONGITUDE D 07 M 55 S 13  
ELEVATION 685 M  
TOWER HEIGHT 40 M



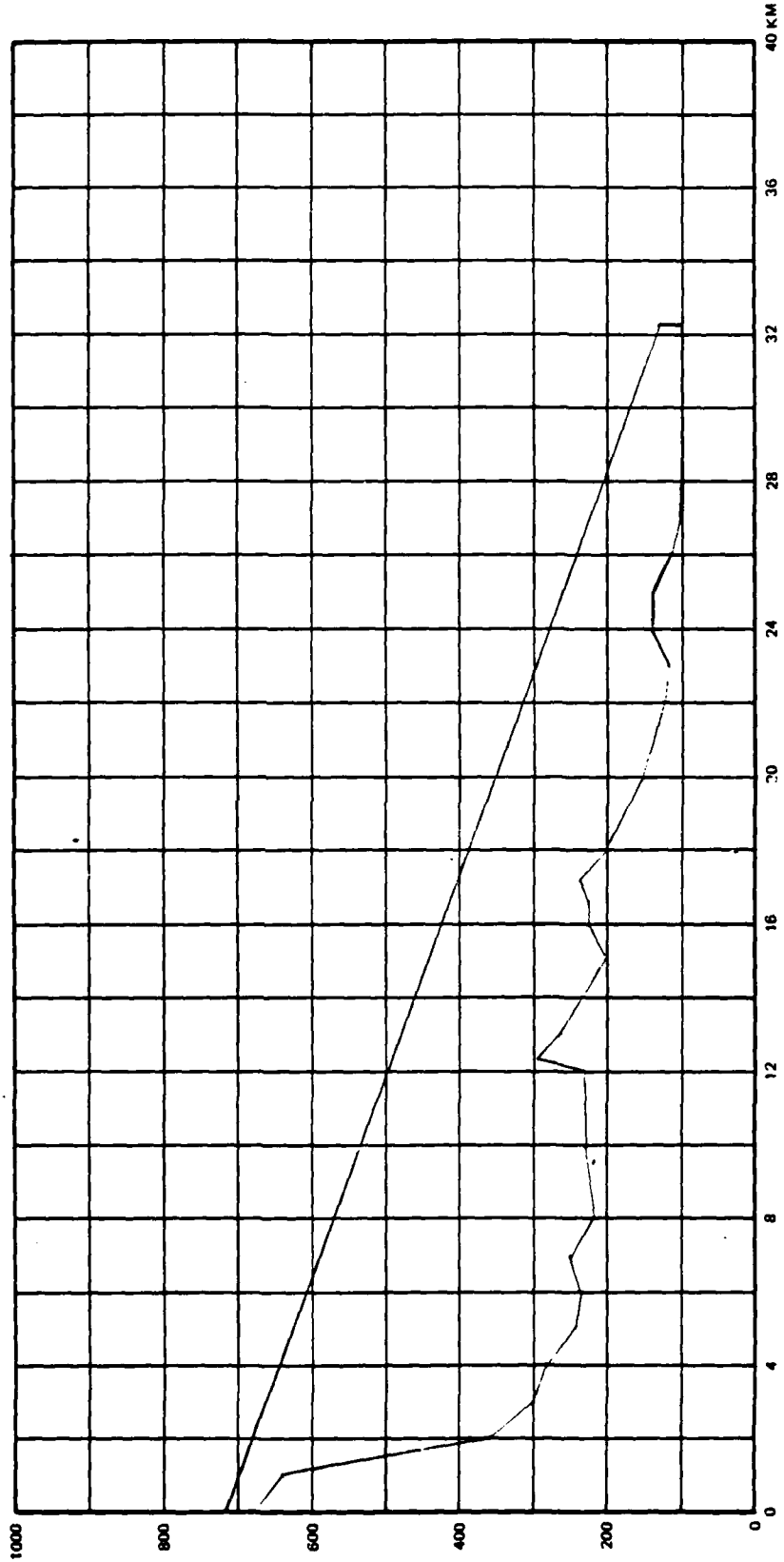
STATION Langerkopf  
 LATITUDE D 49 M 18 S 04  
 LONGITUDE D 07 M 50 S 39  
 ELEVATION 608 M  
 TOWER HEIGHT 30 M

STATION Donnersberg  
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 LONGITUDE D 07 M 55 S 13  
 ELEVATION 685 M  
 TOWER HEIGHT 30 M



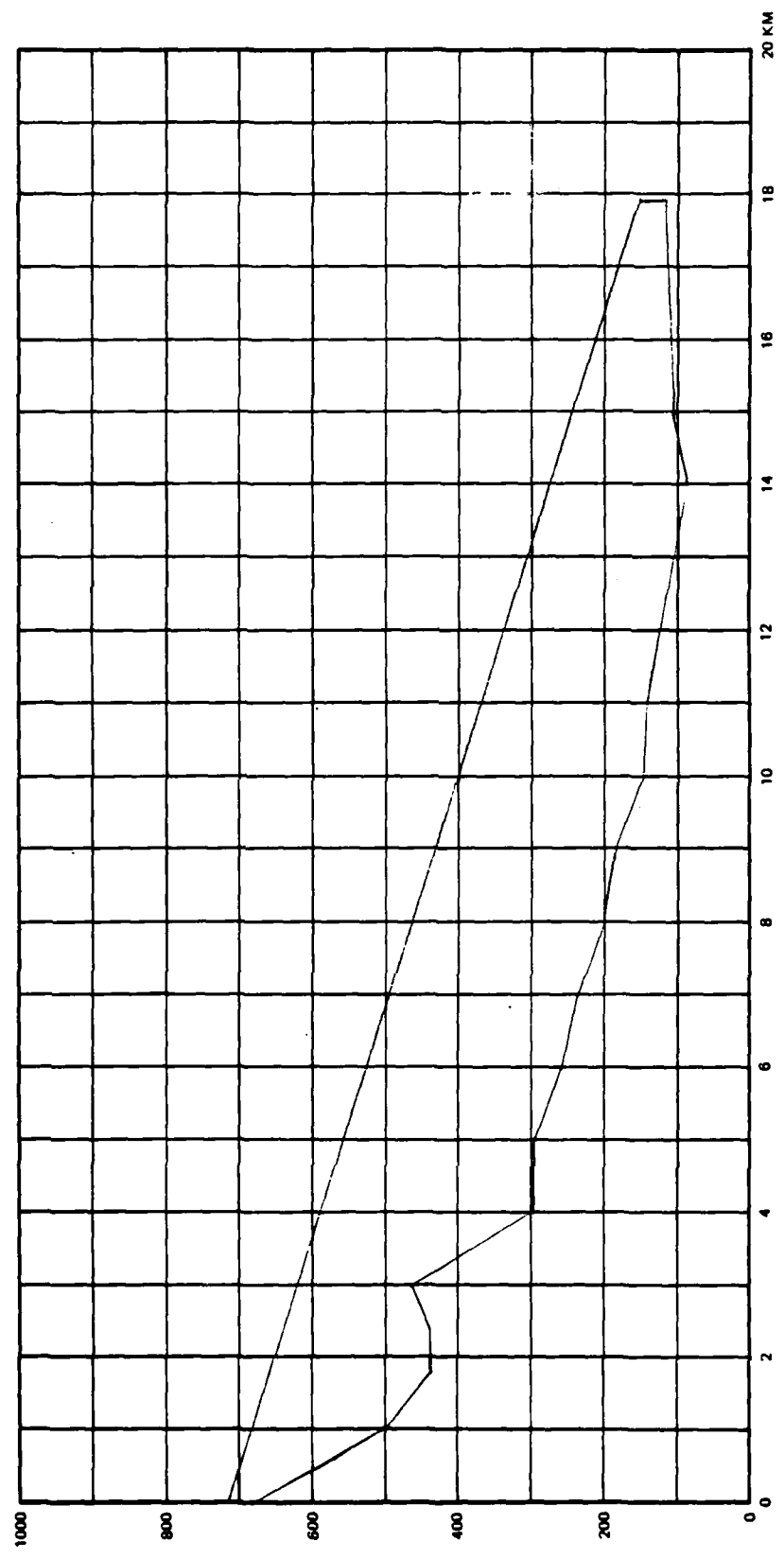
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 LATITUDE D 49 M 37 S 23  
 LONGITUDE D 07 M 55 S 13  
 ELEVATION 685 M  
 TOWER HEIGHT 30 M

STATION Worms  
 LATITUDE D 49 M 38 S 28  
 LONGITUDE D 08 M 21 S 40  
 ELEVATION 101 M  
 TOWER HEIGHT 30 M



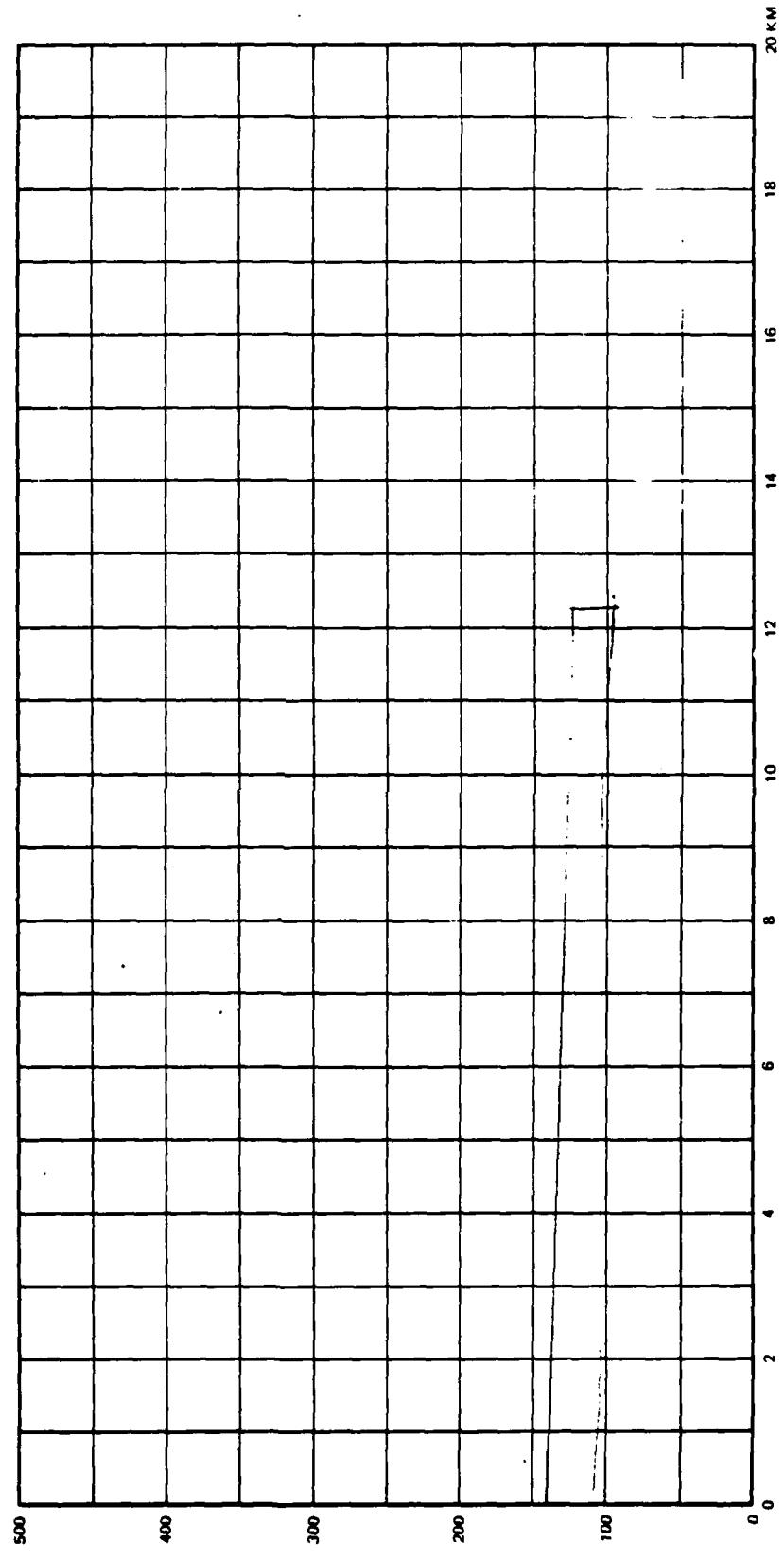
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LONGITUDE D 08 M 40 S 15  
ELEVATION 119 M  
TOWER HEIGHT 40 M

STATION Feldberg  
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ELEVATION 680 M  
TOWER HEIGHT 40 M



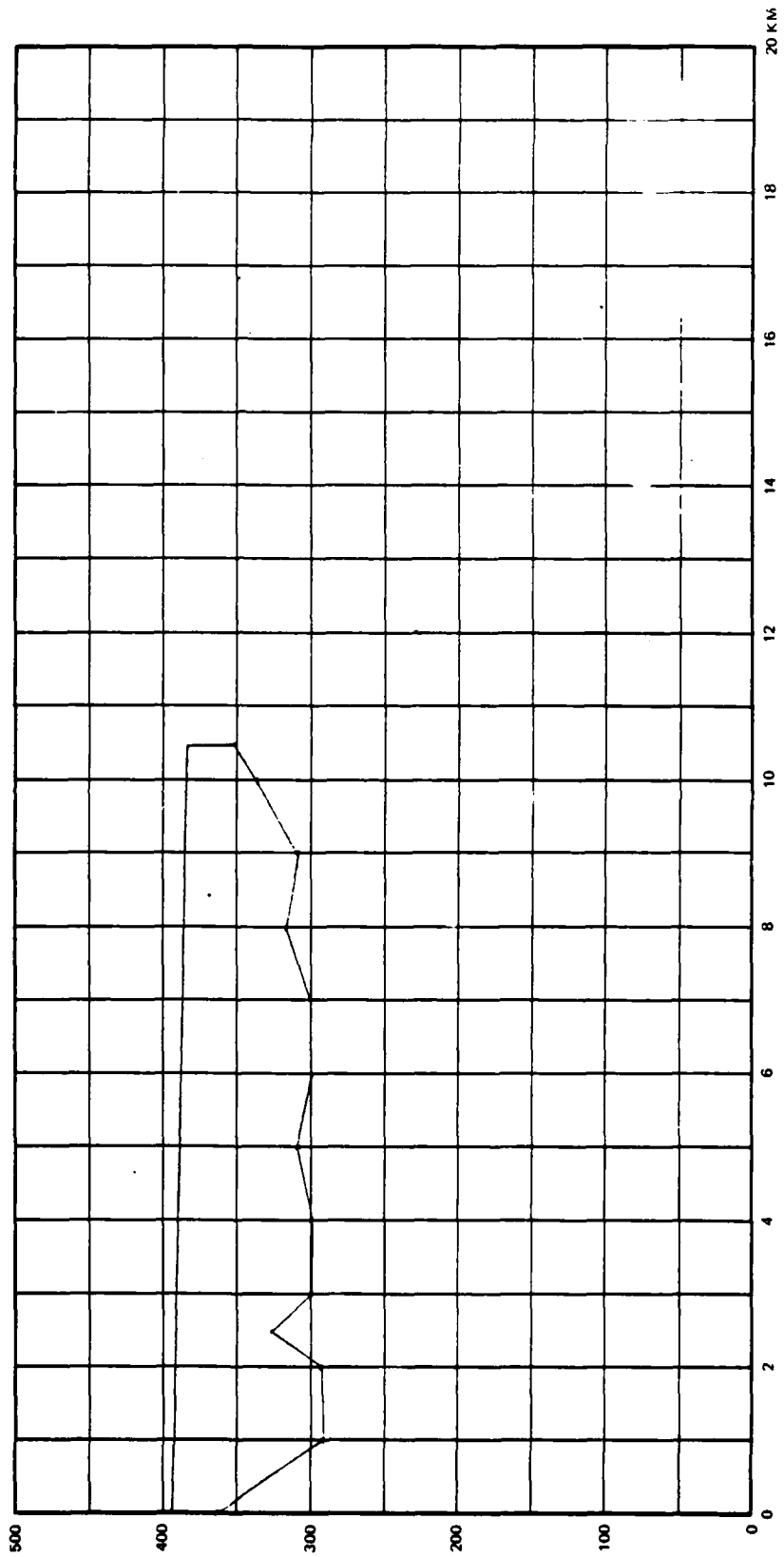
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LATITUDE D 49 M 23 S 12  
LONGITUDE D 08 M 41 S 00  
ELEVATION 111 M  
TOWER HEIGHT 30 M

STATION Seckenheim  
LATITUDE D 49 M 28 S 00  
LONGITUDE D 08 M 34 S 00  
ELEVATION 95 M  
TOWER HEIGHT 30 M



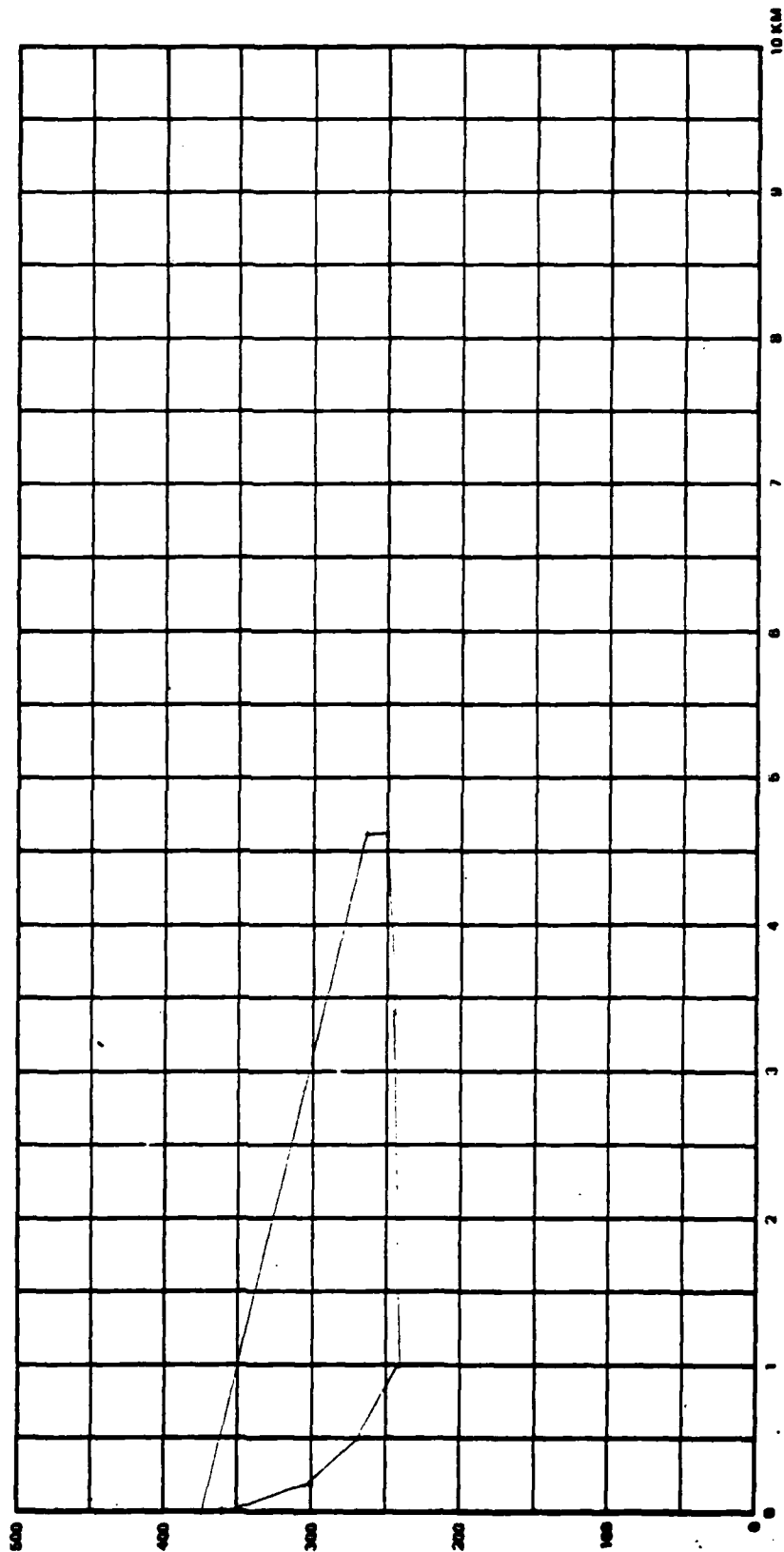
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 LONGITUDE D 07 M 52 S 07  
 ELEVATION 351 M  
 TOWER HEIGHT 34 M

STATION Kaisers Lantern  
 LATITUDE D 49 M 26 S 40  
 LONGITUDE D 07 M 50 S 30  
 ELEVATION 366 M  
 TOWER HEIGHT 30 M



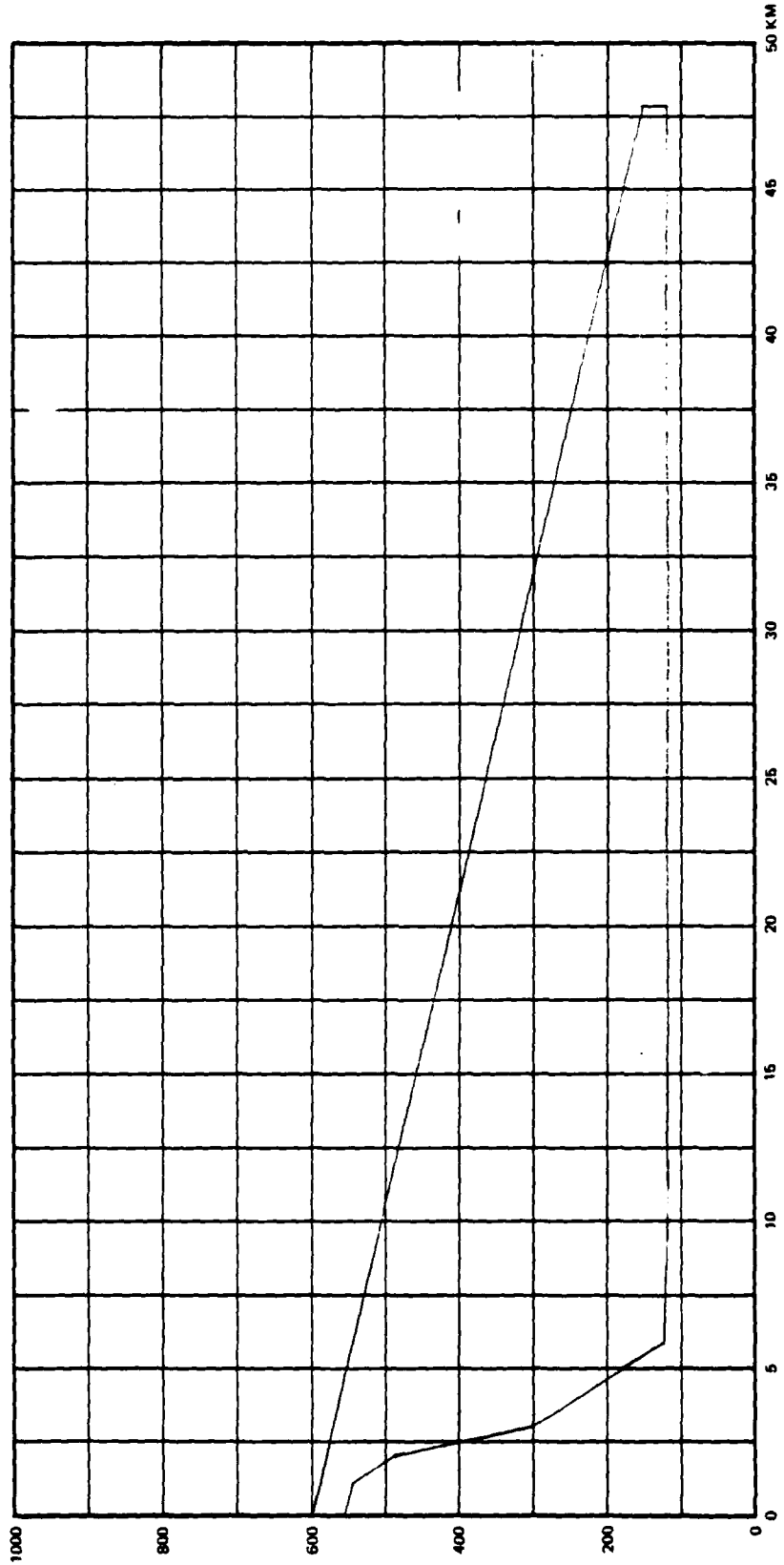
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LONGITUDE D 07 M 35 S 04  
ELEVATION 250 M  
TOWER HEIGHT 20 M

STATION Kindsbach  
LATITUDE D 49 M 24 S 48  
LONGITUDE D 07 M 36 S 52  
ELEVATION 360 M  
TOWER HEIGHT 20 M



STATION Karlsruhe  
LATITUDE D 49 M 01 S 59  
LONGITUDE D 08 M 23 S 39  
ELEVATION 112 M  
TOWER HEIGHT 40 M

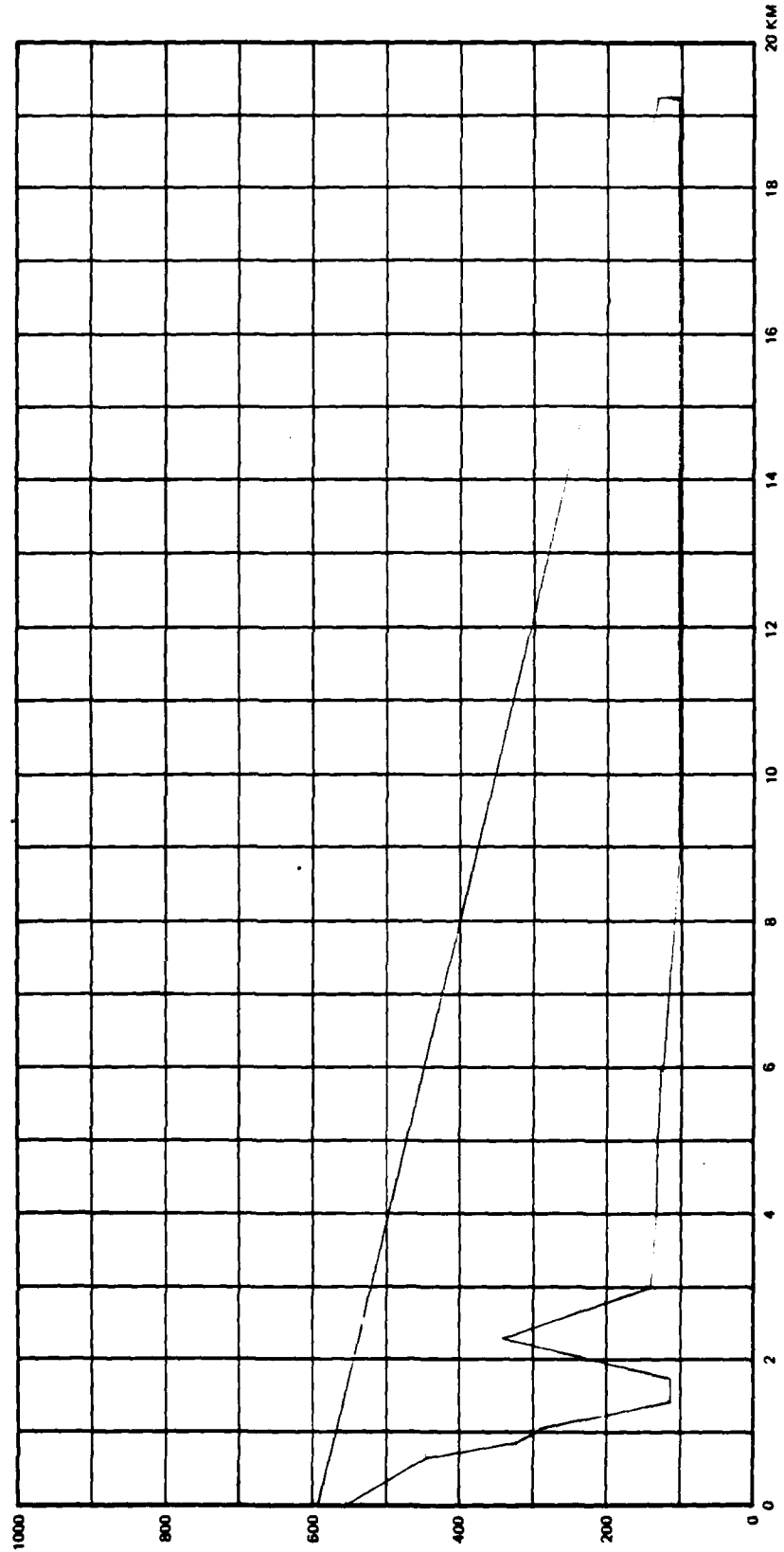
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LATITUDE D 49 M 24 S 11  
LONGITUDE D 08 M 44 S 02  
ELEVATION 560 M  
TOWER HEIGHT 40 M





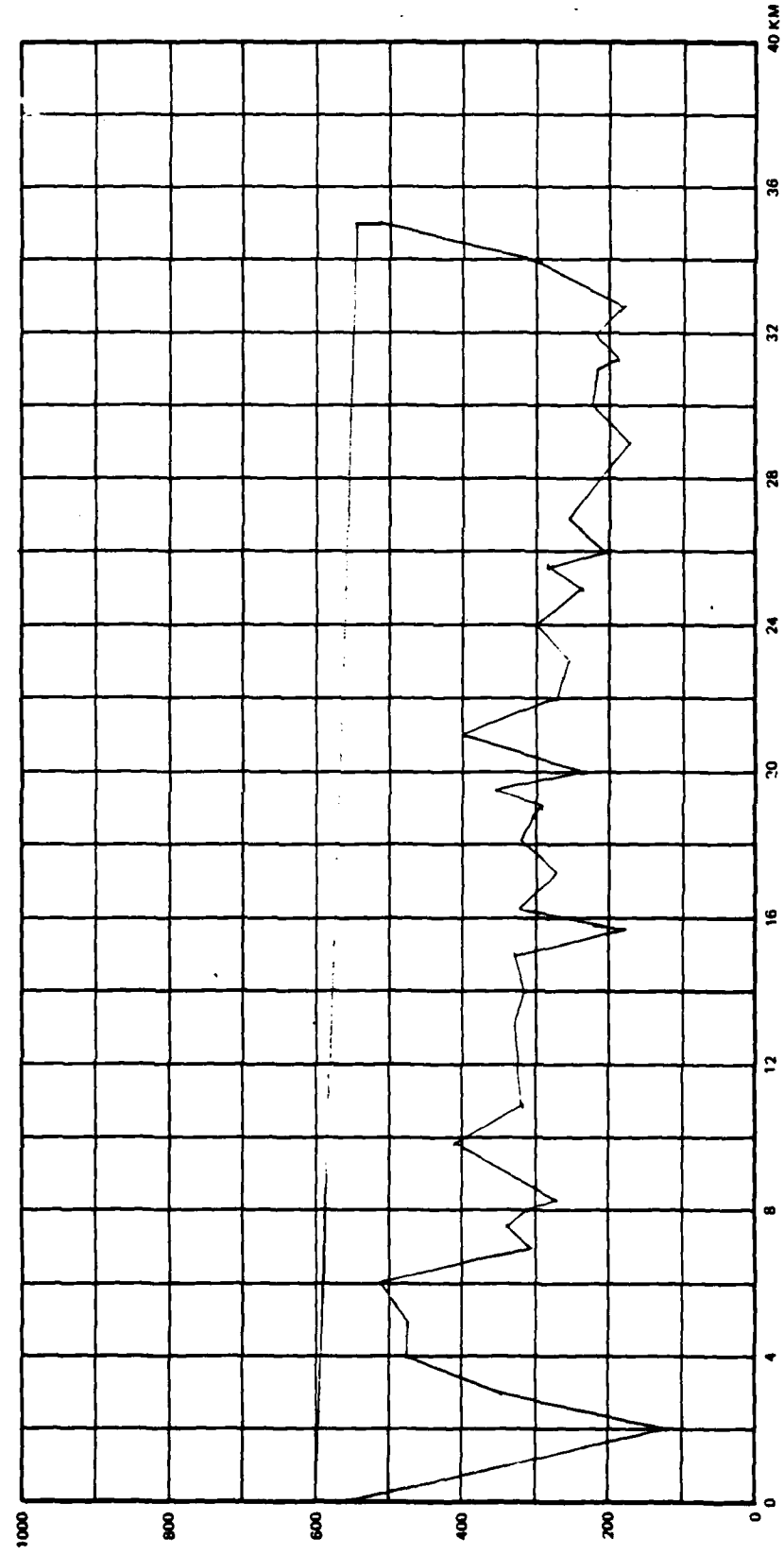
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 LONGITUDE D 08 M 31 S 48  
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 LONGITUDE D 08 M 44 S 02  
 ELEVATION 560 M  
 TOWER HEIGHT 30 M



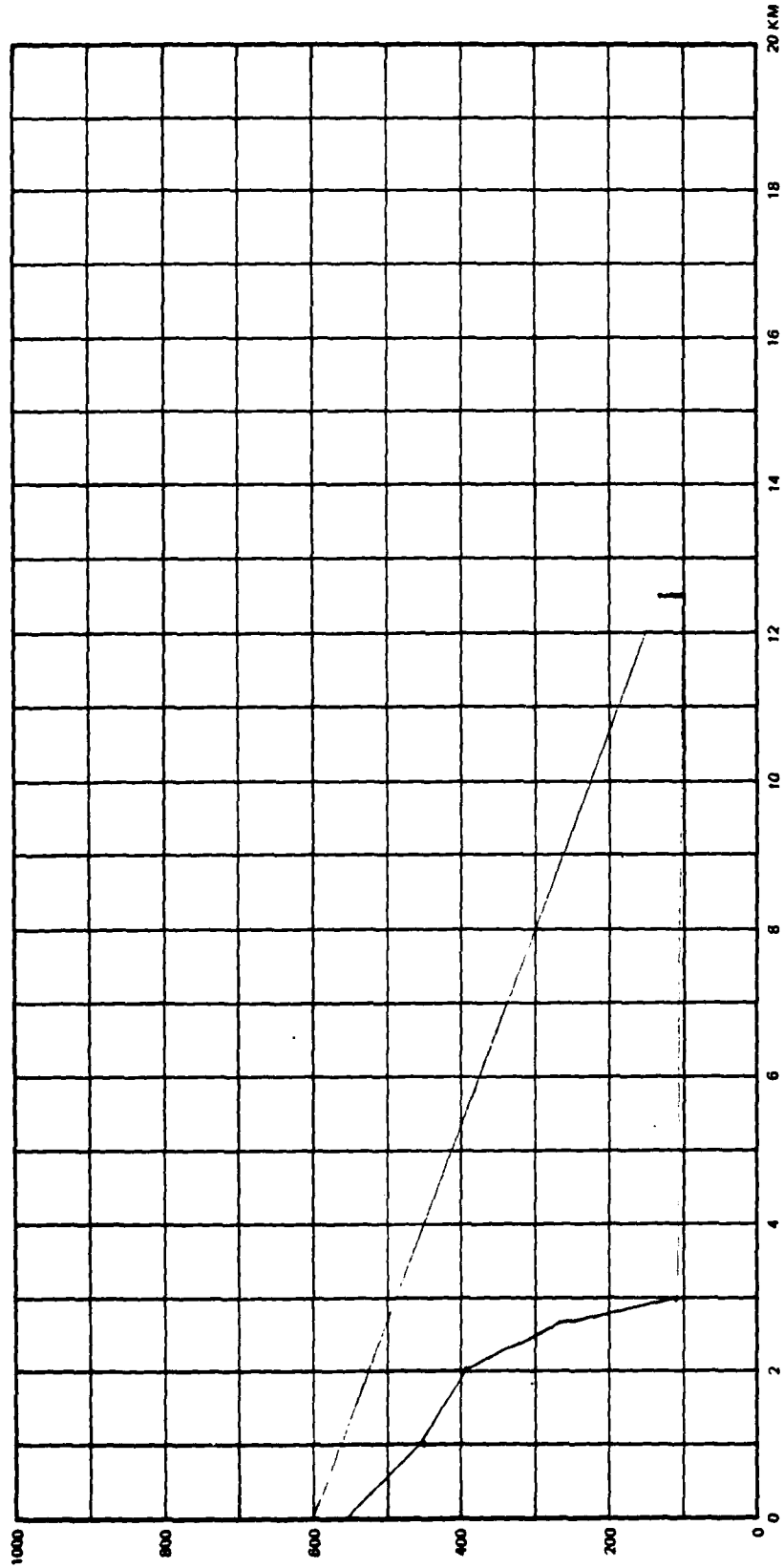
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 LATITUDE D 49 M 24 S 11  
 LONGITUDE D 08 M 44 S 02  
 ELEVATION 560 M  
 TOWER HEIGHT 40 M

STATION Melibocus  
 LATITUDE D 49 M 43 S 32  
 LONGITUDE D 08 M 38 S 17  
 ELEVATION 516 M  
 TOWER HEIGHT 30 M



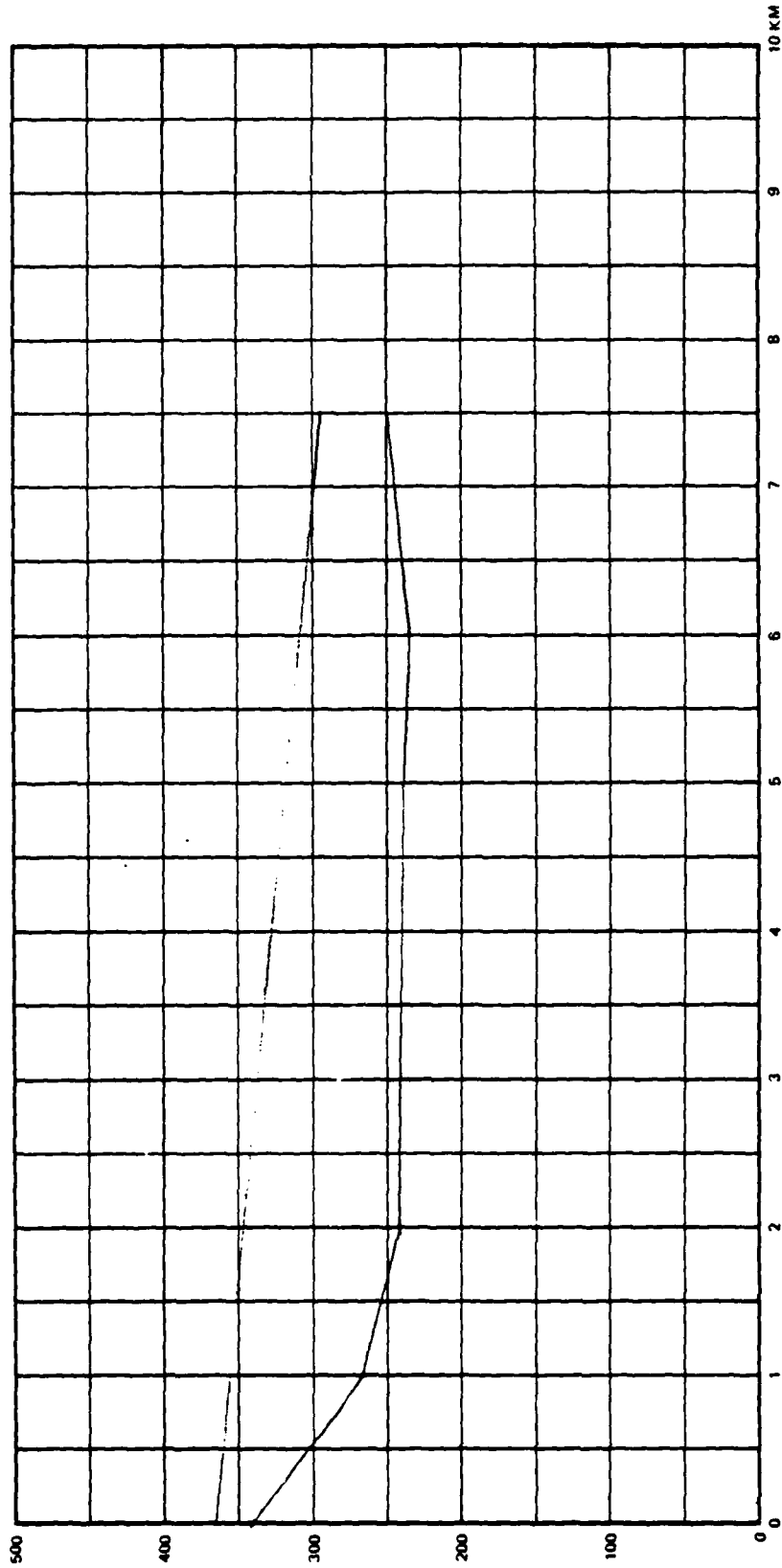
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LATITUDE D 49 M 24 S 11  
LONGITUDE D 08 M 44 S 02  
ELEVATION 560 M  
TOWER HEIGHT 40 M

STATION Schwetzingen  
LATITUDE D 49 M 24 S 31  
LONGITUDE D 08 M 33 S 40  
ELEVATION 100 M  
TOWER HEIGHT 40 M



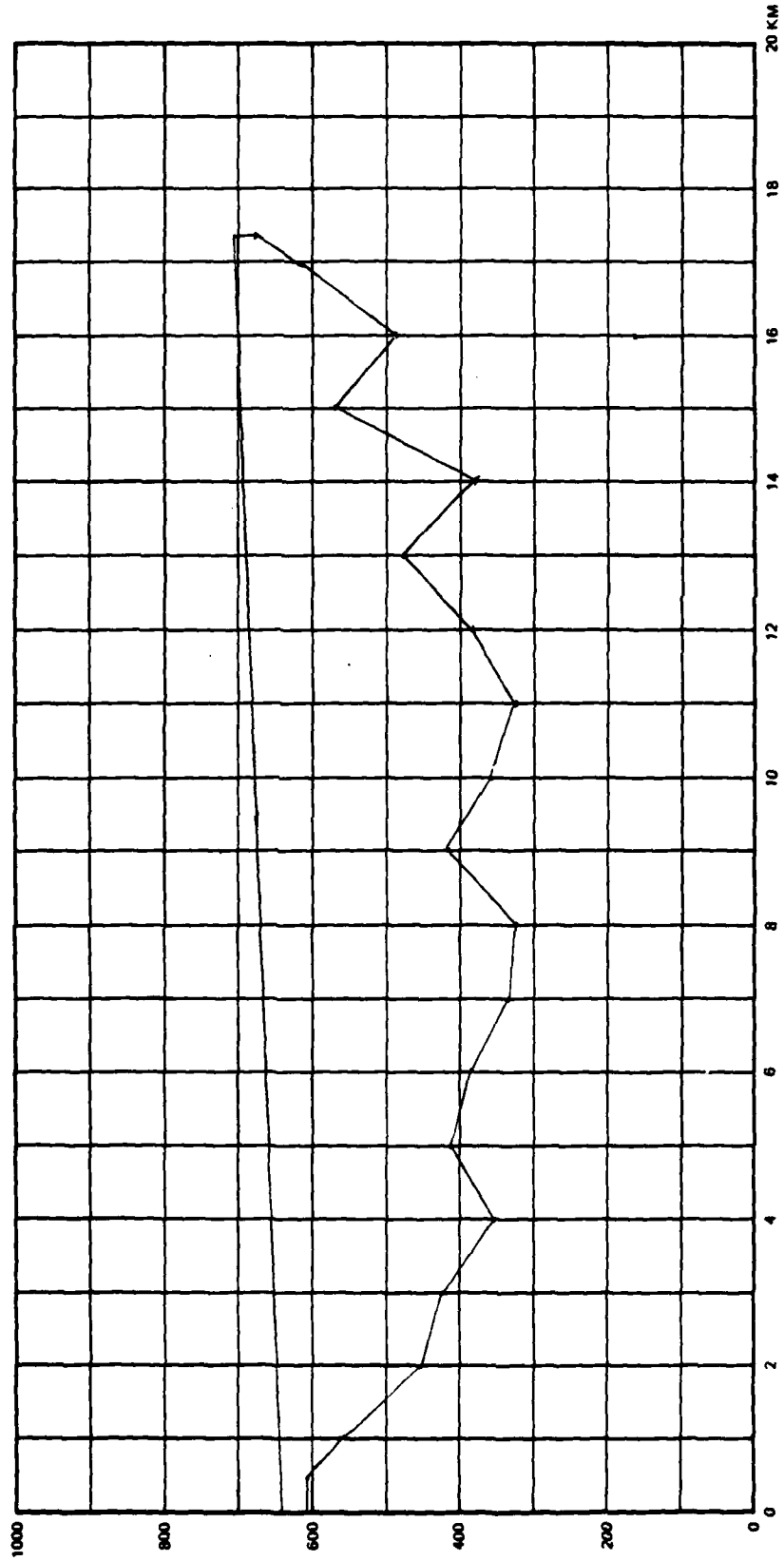
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LATITUDE D 49 M 27 S 04  
LONGITUDE D 07 M 35 S 04  
ELEVATION 250 M  
TOWER HEIGHT 40 M

STATION Landstuhl  
LATITUDE D 49 M 24 S 00  
LONGITUDE D 07 M 32 S 04  
ELEVATION 341 M  
TOWER HEIGHT 27 M



1st repeater to  
 STATION Heidelberg  
 LATITUDE D 49 M 19 S 14  
 LONGITUDE D 08 M 04 S 55  
 ELEVATION 673 M  
 TOWER HEIGHT 30 M

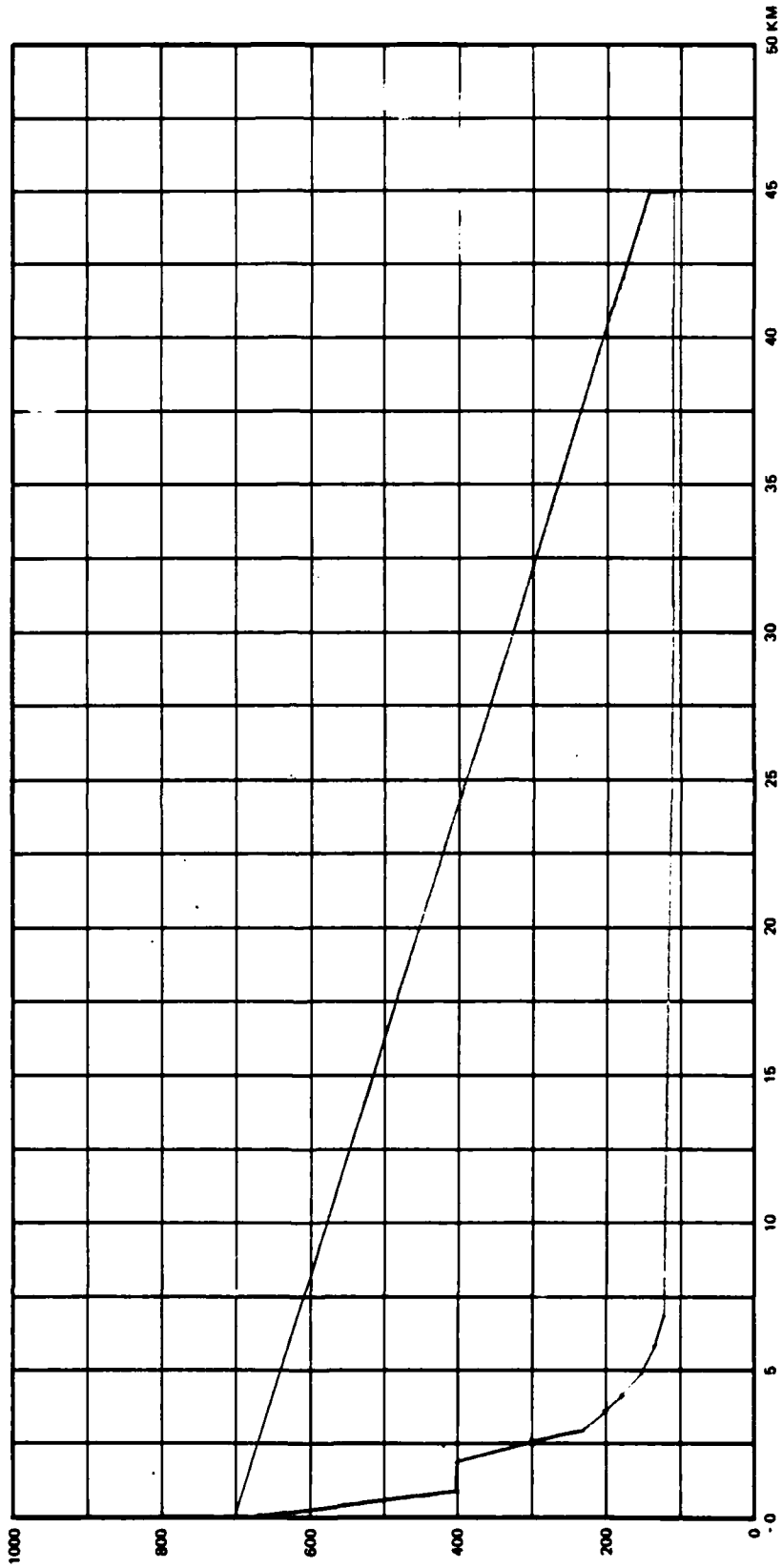
STATION Langerkopf  
 LATITUDE D 49 M 18 S 04  
 LONGITUDE D 07 M 50 S 39  
 ELEVATION 608 M  
 TOWER HEIGHT 30 M



1st repeater from

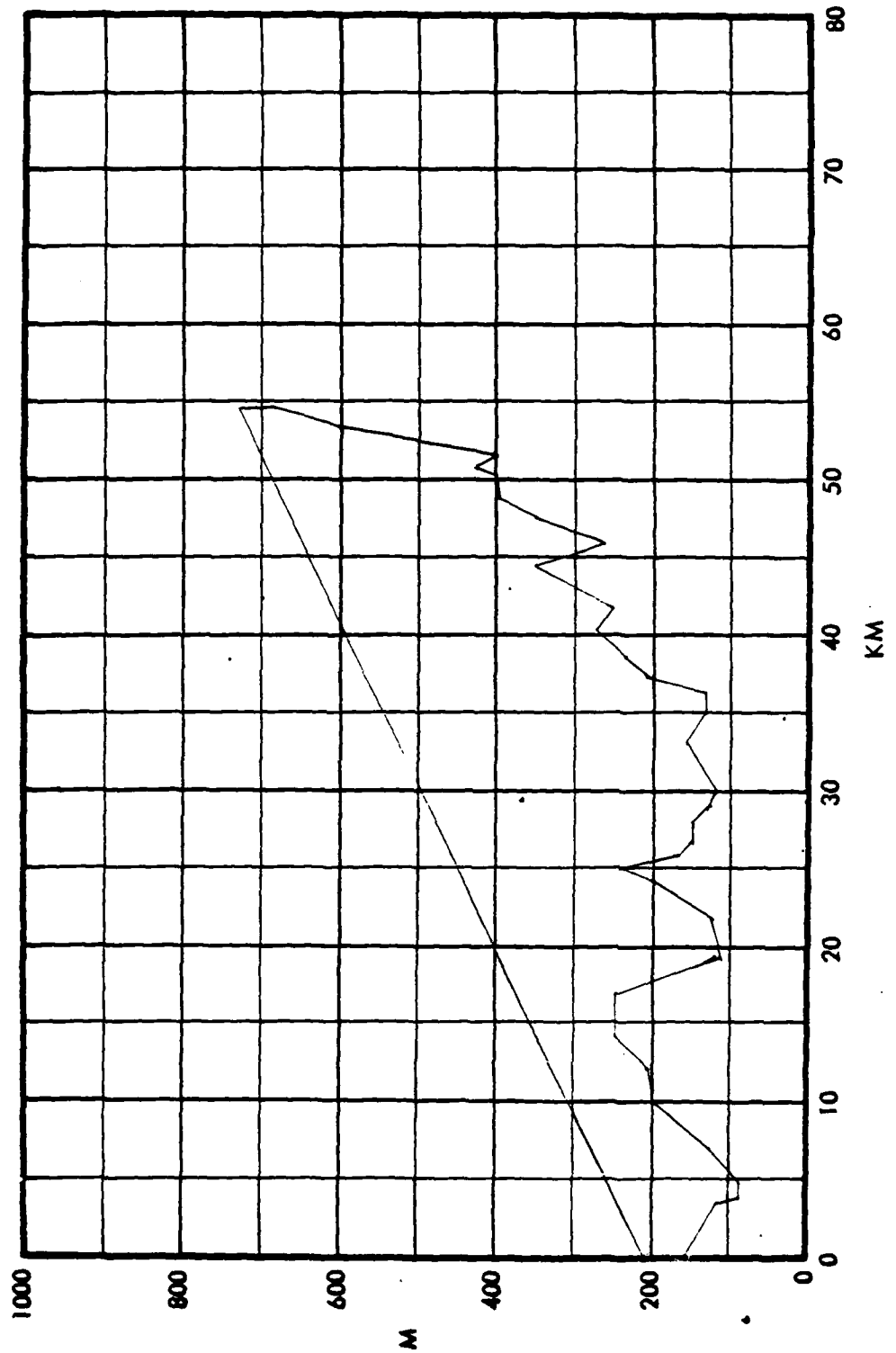
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LONGITUDE D 08 M 04 S 55  
ELEVATION 673 M  
TOWER HEIGHT 30 M

STATION Heidelberg  
LATITUDE D 49 M 23 S 12  
LONGITUDE D 08 M 41 S 00  
ELEVATION 111 M  
TOWER HEIGHT 30 M



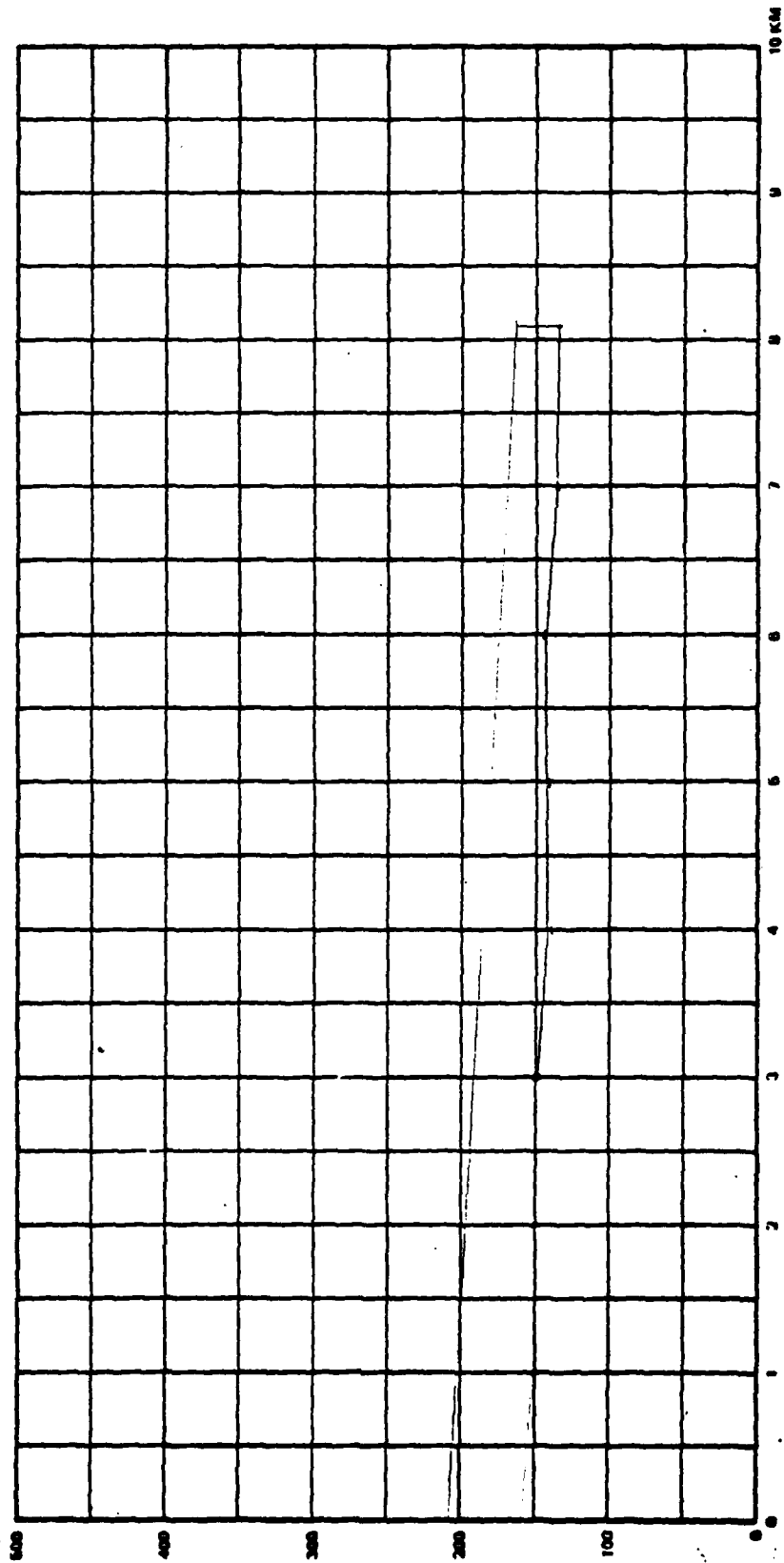
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LATITUDE D 50 M 04 S 17  
LONGITUDE D 08 M 13 S 24  
ELEVATION 160 M  
TOWER HEIGHT 50 M

STATION Donnersberg  
LATITUDE D 49 M 37 S 23  
LONGITUDE D 07 M 55 S 13  
ELEVATION 685 M  
TOWER HEIGHT 40 M



STATION Wiesbaden  
LATITUDE D 50 M 02 S 30  
LONGITUDE D 08 M 19 S 35  
ELEVATION 137 M  
TOWER HEIGHT 30 M

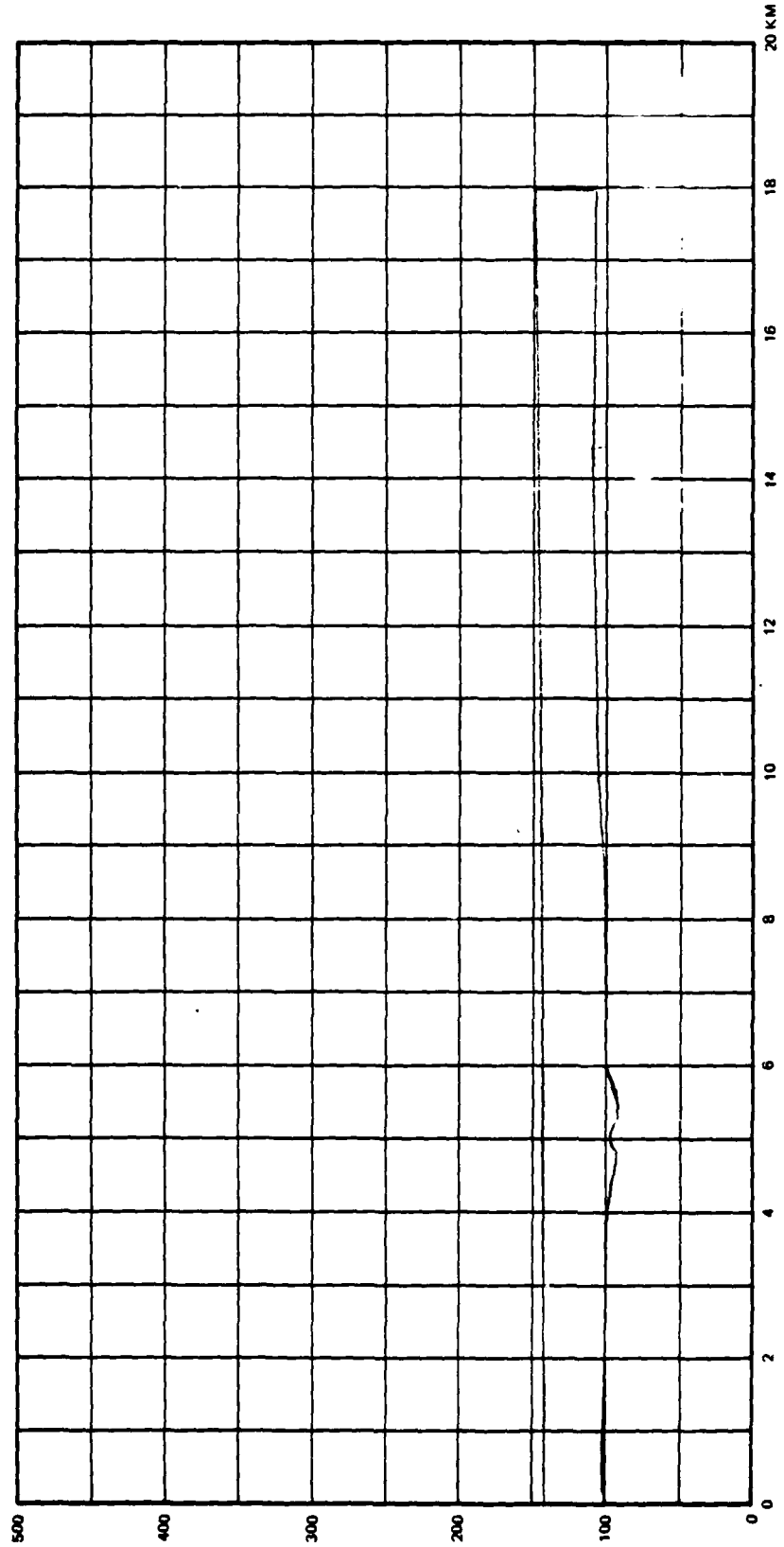
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ELEVATION 160 M  
TOWER HEIGHT 50 M





STATION Heide lberg  
LATITUDE D 49 M 23 S 12  
LONGITUDE D 08 M 41 S 00  
ELEVATION 111 M  
TOWER HEIGHT 40 M

STATION Mannheim  
LATITUDE D 49 M 30 S 59  
LONGITUDE D 08 M 31 S 48  
ELEVATION 100 M  
TOWER HEIGHT 40 M

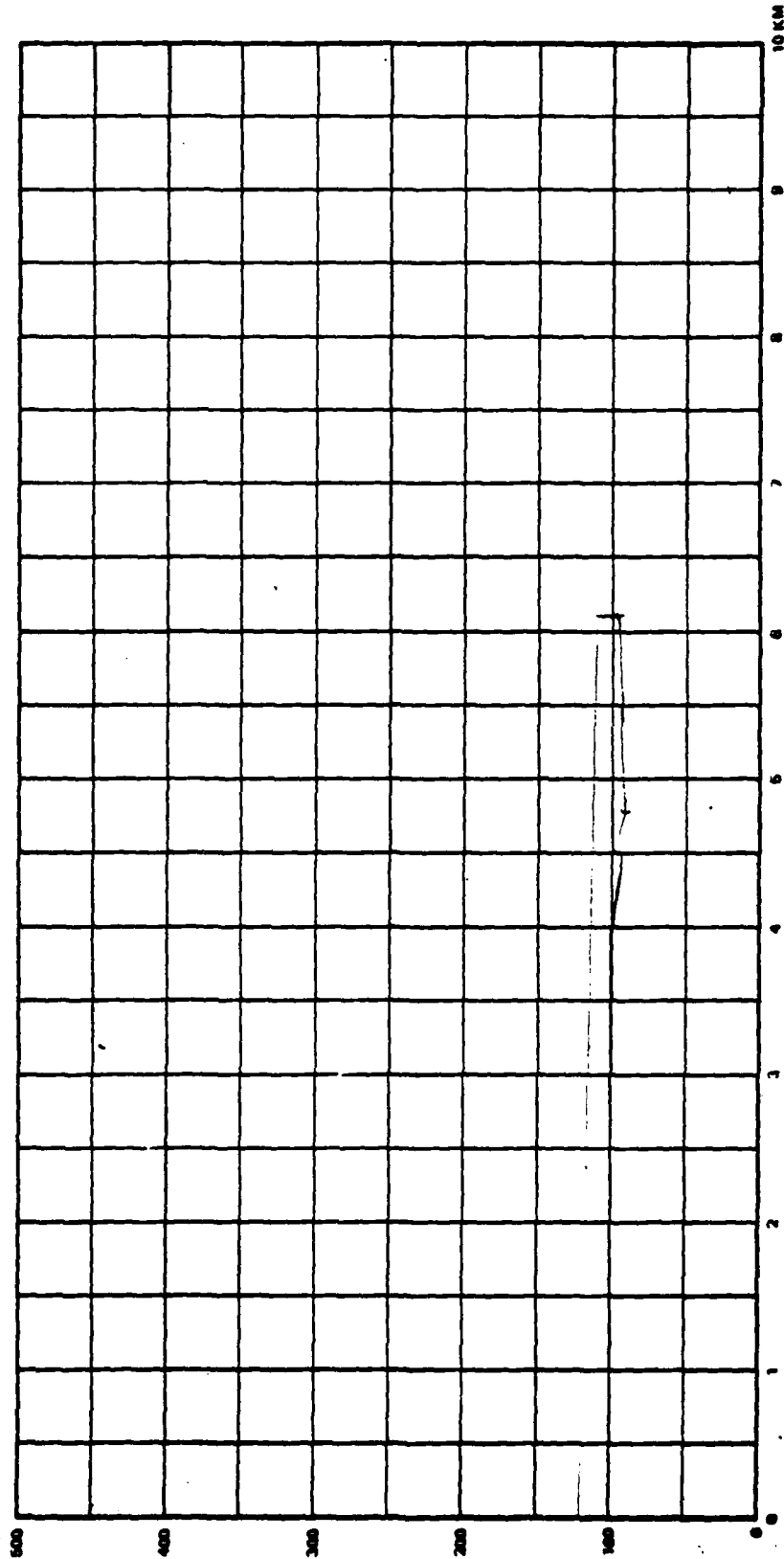


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LONGITUDE D 08 M 31 S 48  
ELEVATION 100 M  
TOWER HEIGHT 20 M

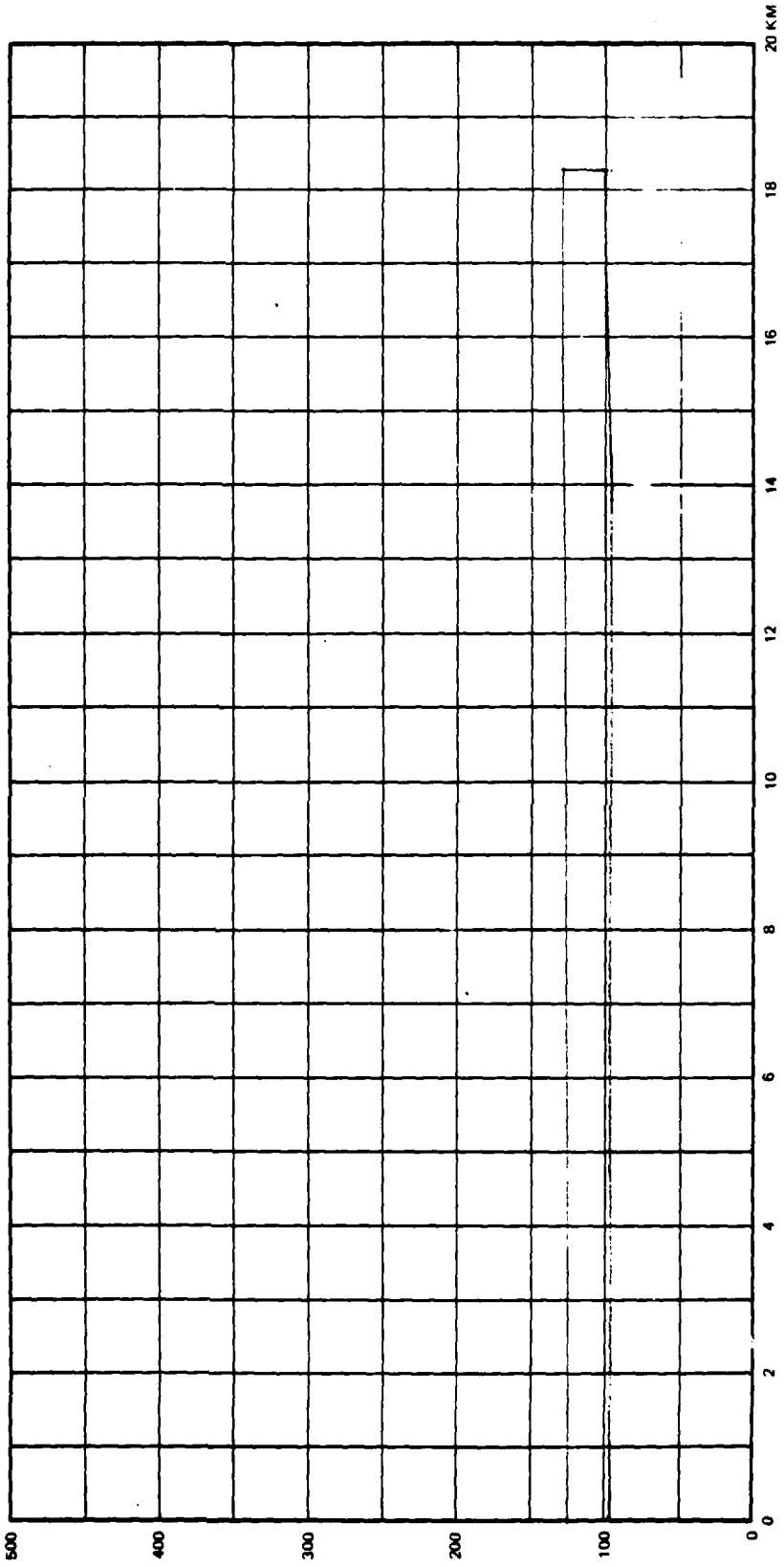
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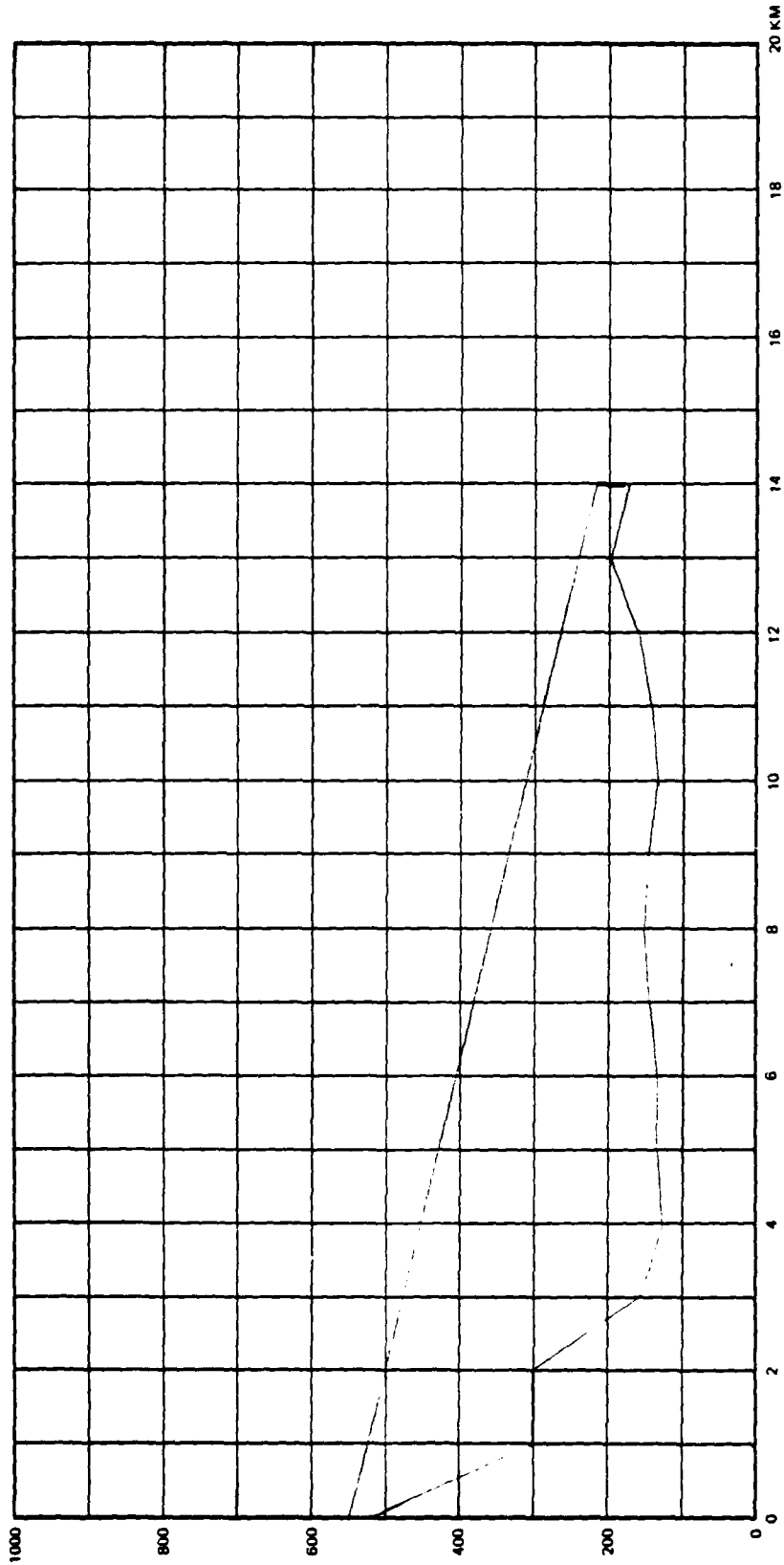
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ELEVATION 101 M  
TOWER HEIGHT 30 M

STATION Mannheim  
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LONGITUDE D 08 M 31 S 48  
ELEVATION 97 M  
TOWER HEIGHT 30 M



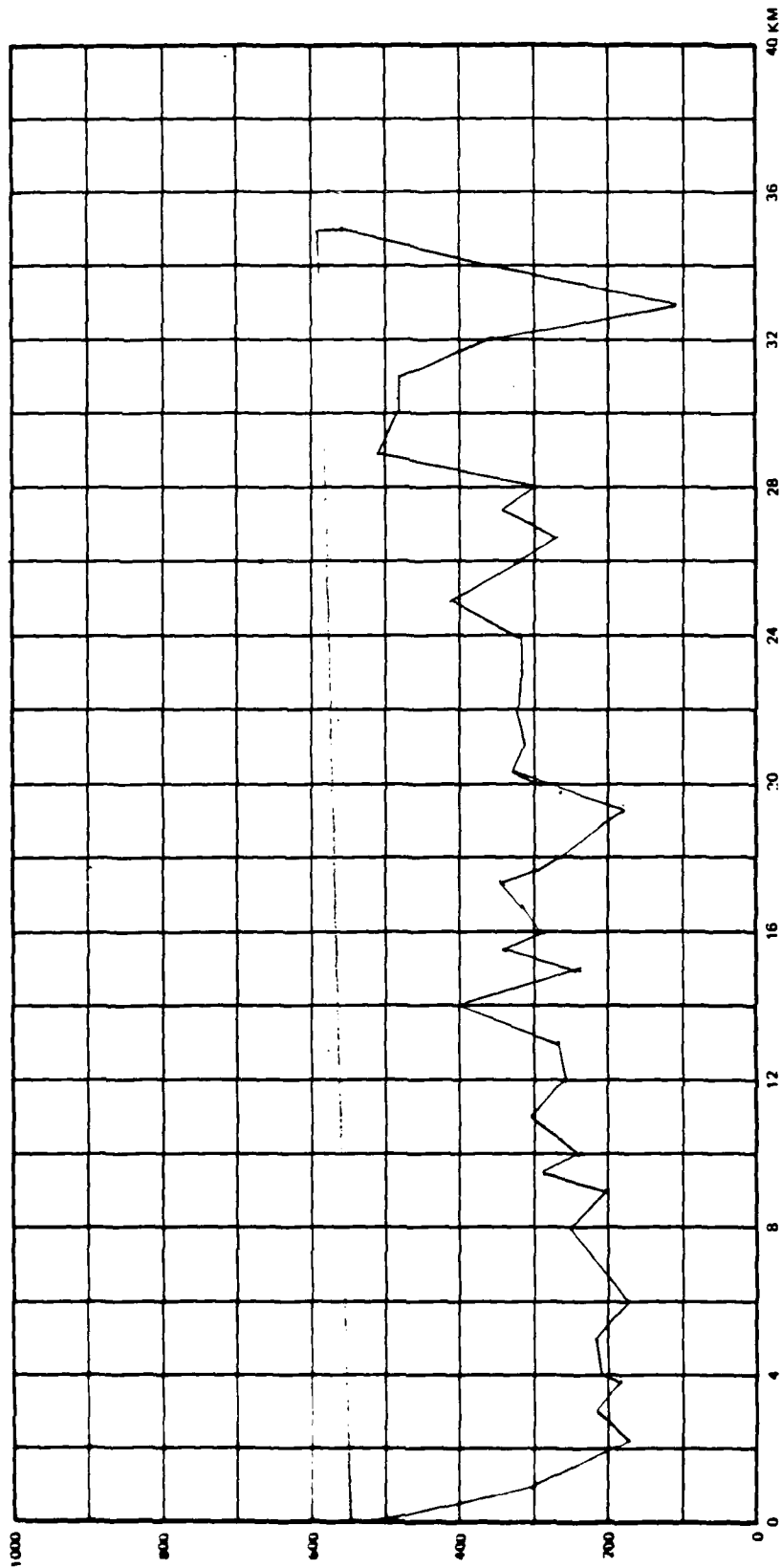
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LONGITUDE D 08 M 39 S 19  
ELEVATION 170 M  
TOWER HEIGHT 50 M

STATION Melibocus  
LATITUDE D 49 M 43 S 32  
LONGITUDE D 08 M 38 S 17  
ELEVATION 516 M  
TOWER HEIGHT 30 M



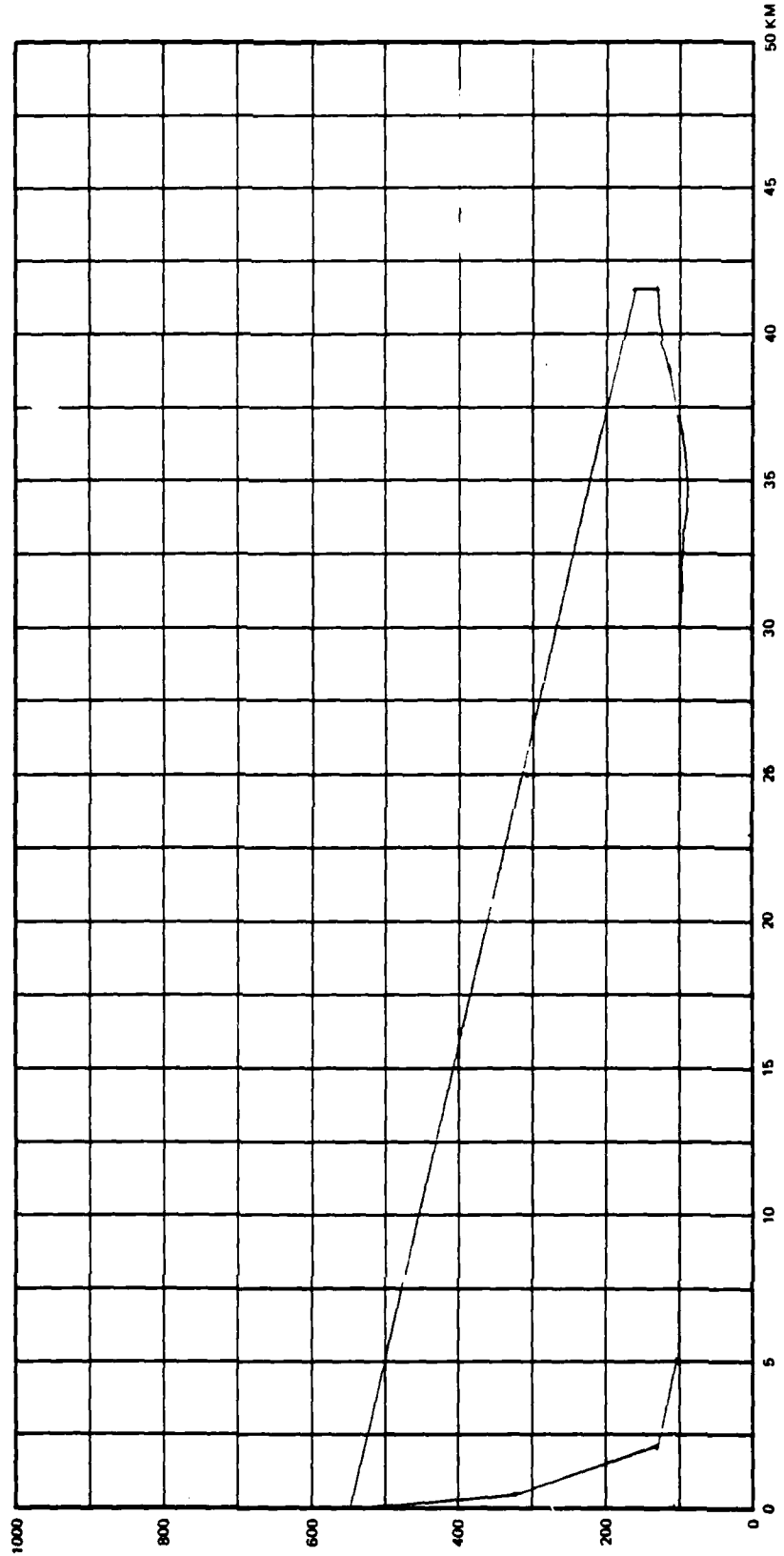
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 LONGITUDE D 08 M 44 S 02  
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 LONGITUDE D 08 M 38 S 17  
 ELEVATION 516 M  
 TOWER HEIGHT 30 M



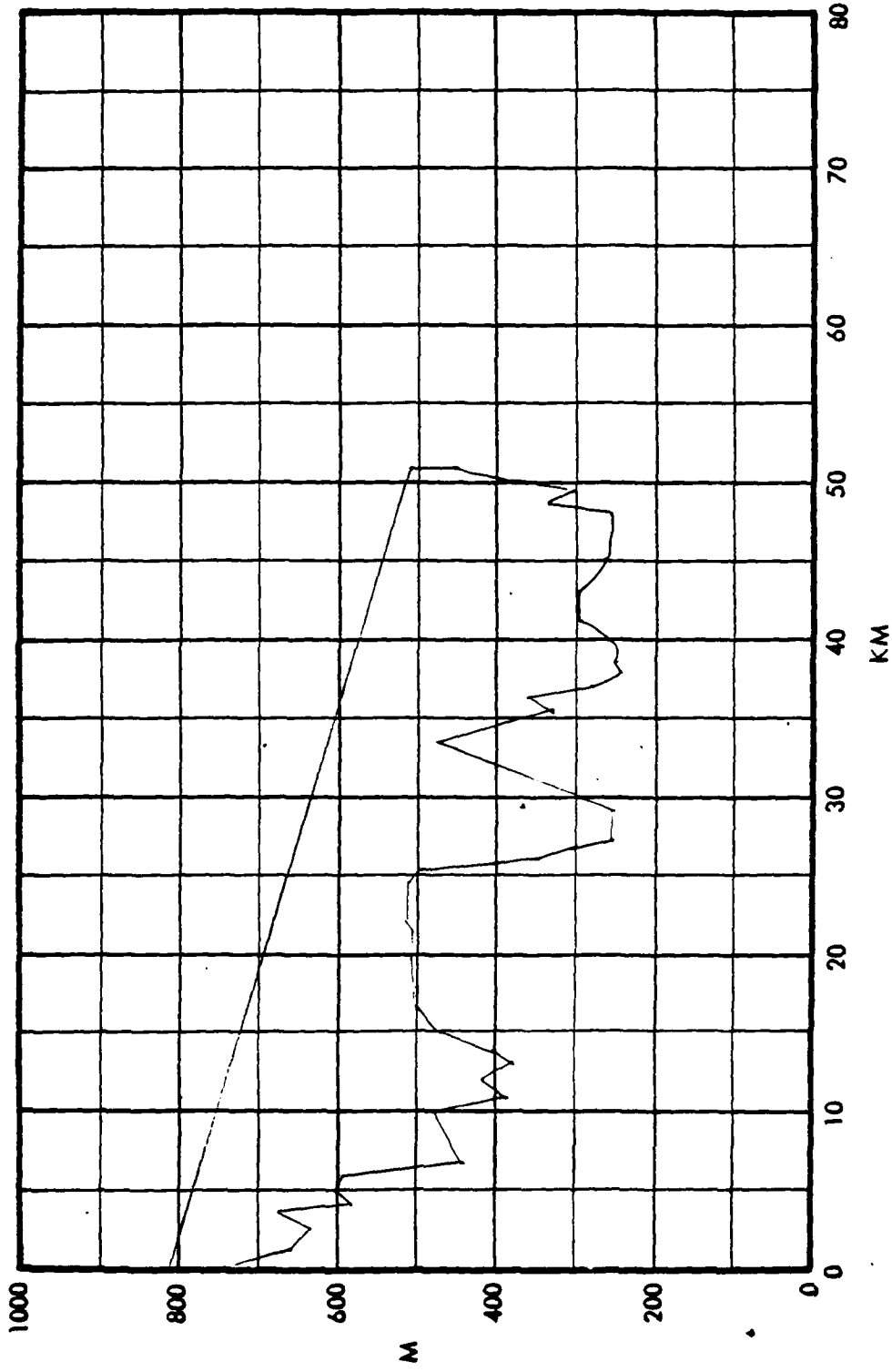
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 LONGITUDE D 08 M 19 S 35  
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 LONGITUDE D 08 M 38 S 17  
 ELEVATION 516 M  
 TOWER HEIGHT 40 M



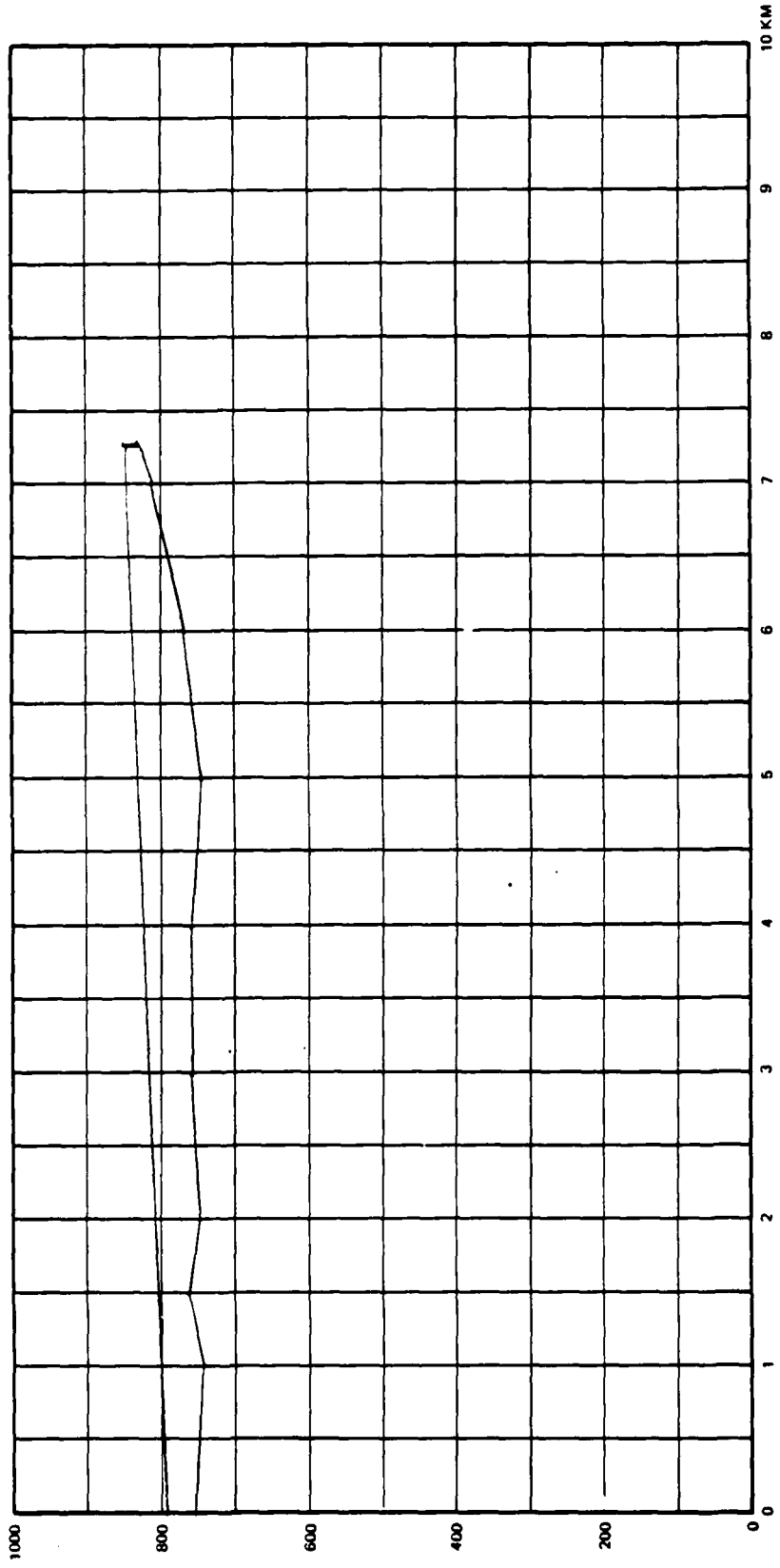
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LONGITUDE D 07 M 01 S 40  
ELEVATION 750 M  
TOWER HEIGHT 50 M

STATION Bann  
LATITUDE D 49 M 23 S 55  
LONGITUDE D 07 M 35 S 18  
ELEVATION 460 M  
TOWER HEIGHT 50 M



STATION Muhl  
LATITUDE D 49 M 40 S 45  
LONGITUDE D 07 M 01 S 40  
ELEVATION 756 M  
TOWER HEIGHT 30 M

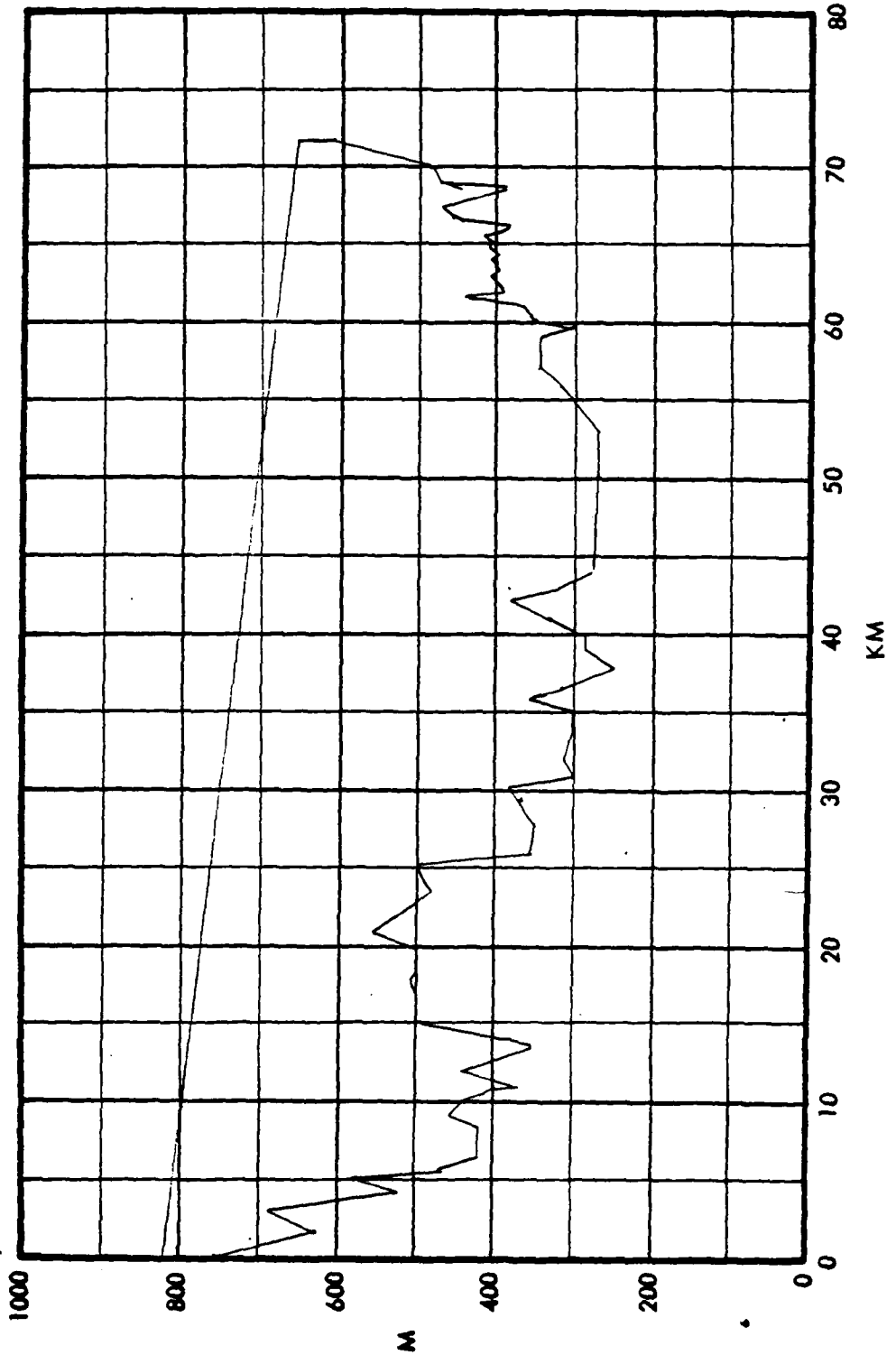
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LONGITUDE D 07 M 05 S 00  
ELEVATION 818 M  
TOWER HEIGHT 25 M





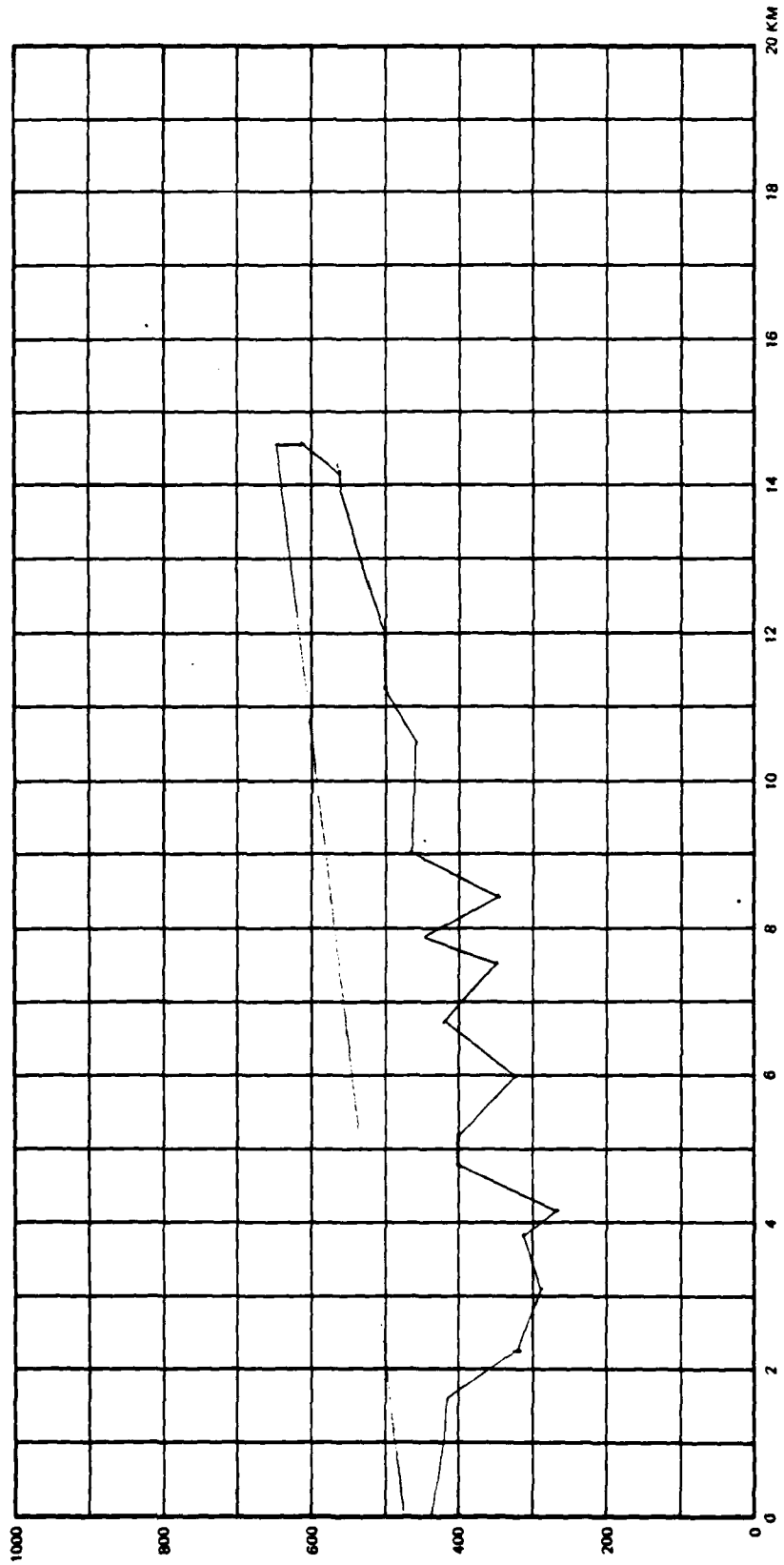
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LONGITUDE D 07 M 50 S 39  
ELEVATION 608 M  
TOWER HEIGHT 60 M

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ELEVATION 756 M  
TOWER HEIGHT 60 M



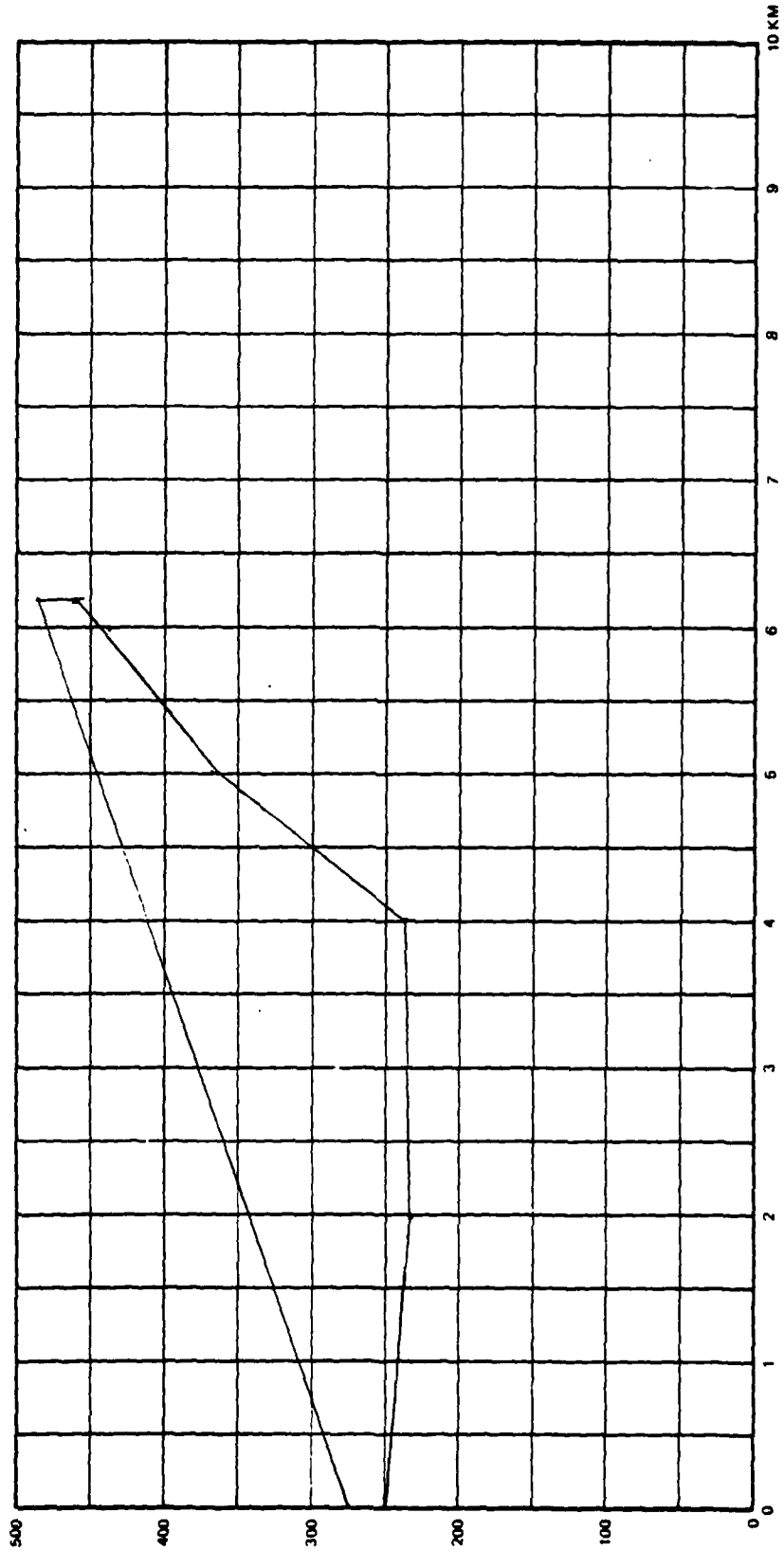
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 LONGITUDE D 07 M 50 S 39  
 ELEVATION 608 M  
 TOWER HEIGHT 30 M

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 LONGITUDE D 07 M 36 S 35  
 ELEVATION 439 M  
 TOWER HEIGHT 30 M



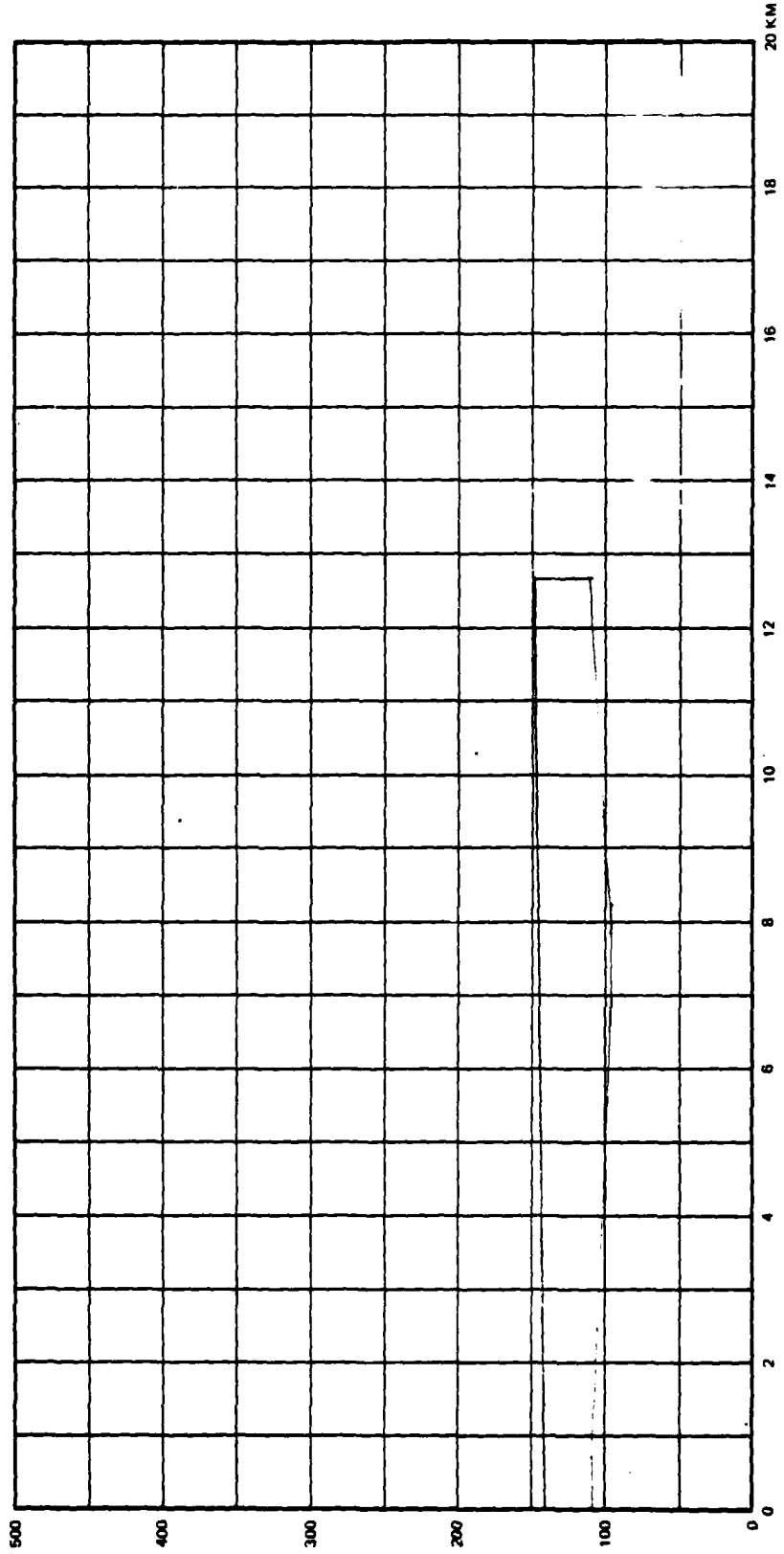
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LONGITUDE D 07 M 35 S 18  
ELEVATION 460 M  
TOWER HEIGHT 25 M



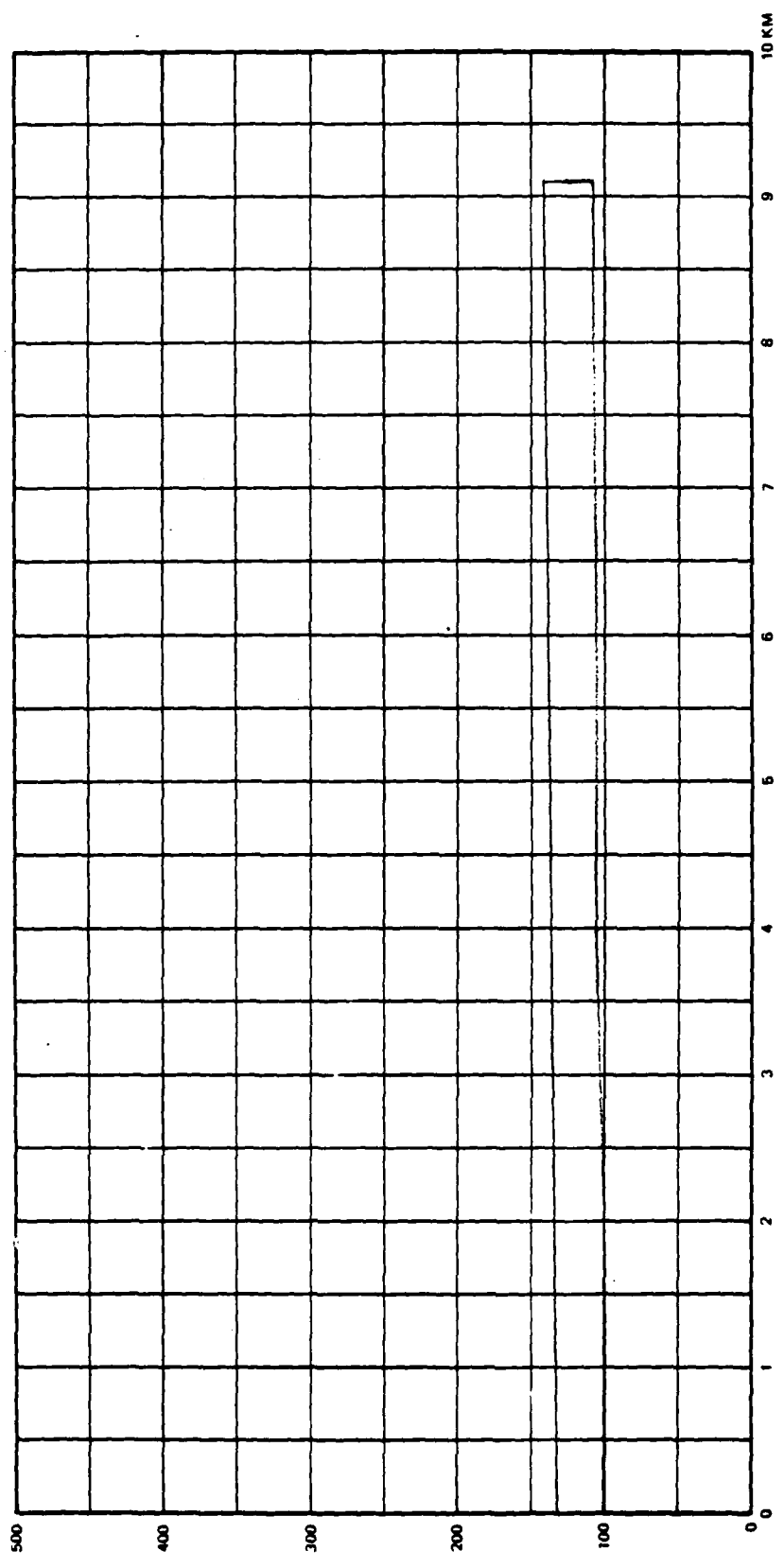
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LONGITUDE D 08 M 34 S 55  
ELEVATION 108 M  
TOWER HEIGHT 30 M

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LONGITUDE D 08 M 40 S 15  
ELEVATION 119 M  
TOWER HEIGHT 30 M



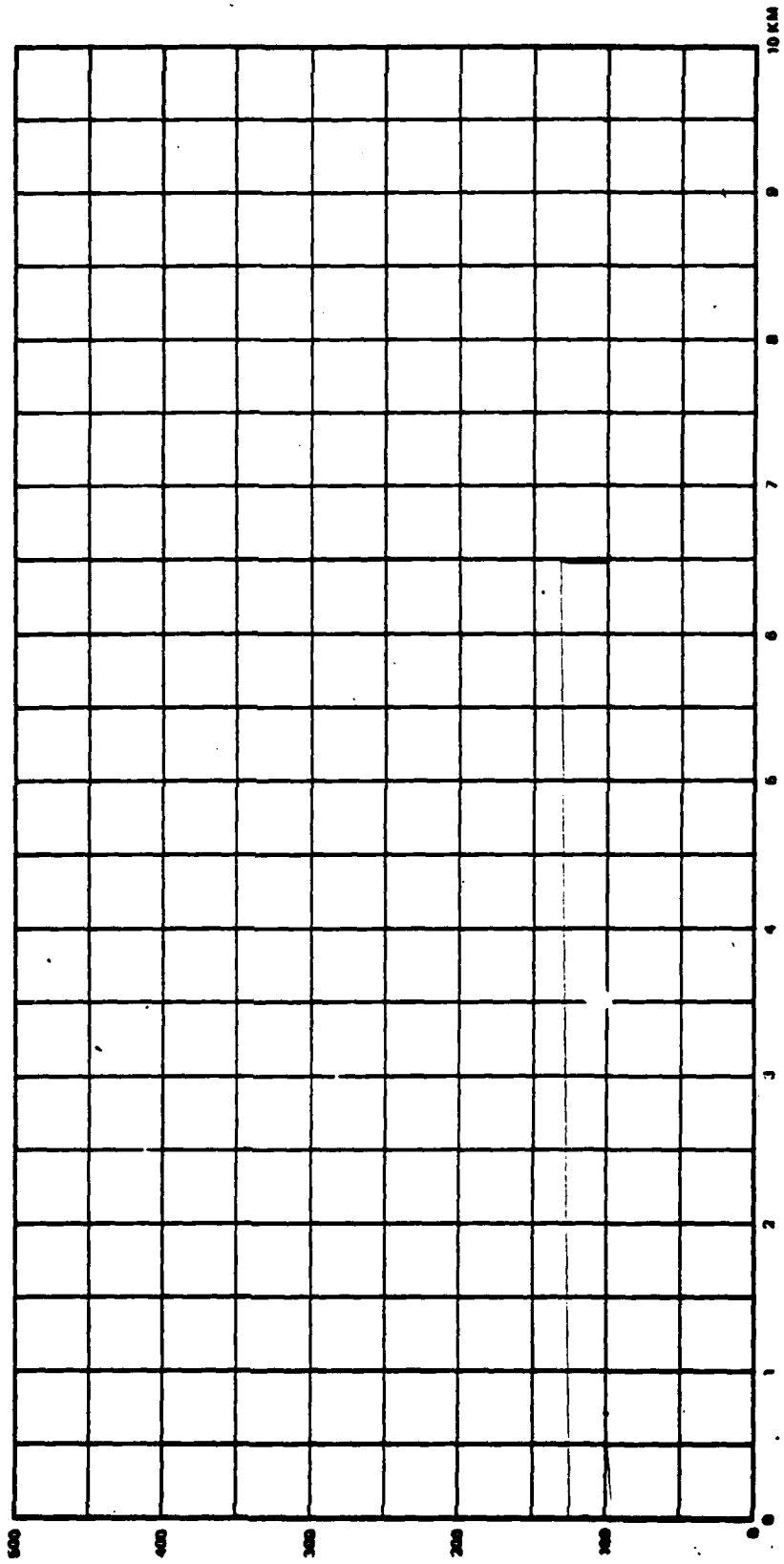
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LONGITUDE D 08 M 33 S 40  
ELEVATION 100 M  
TOWER HEIGHT 30 M

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LONGITUDE D 08 M 41 S 00  
ELEVATION 111 M  
TOWER HEIGHT 30 M



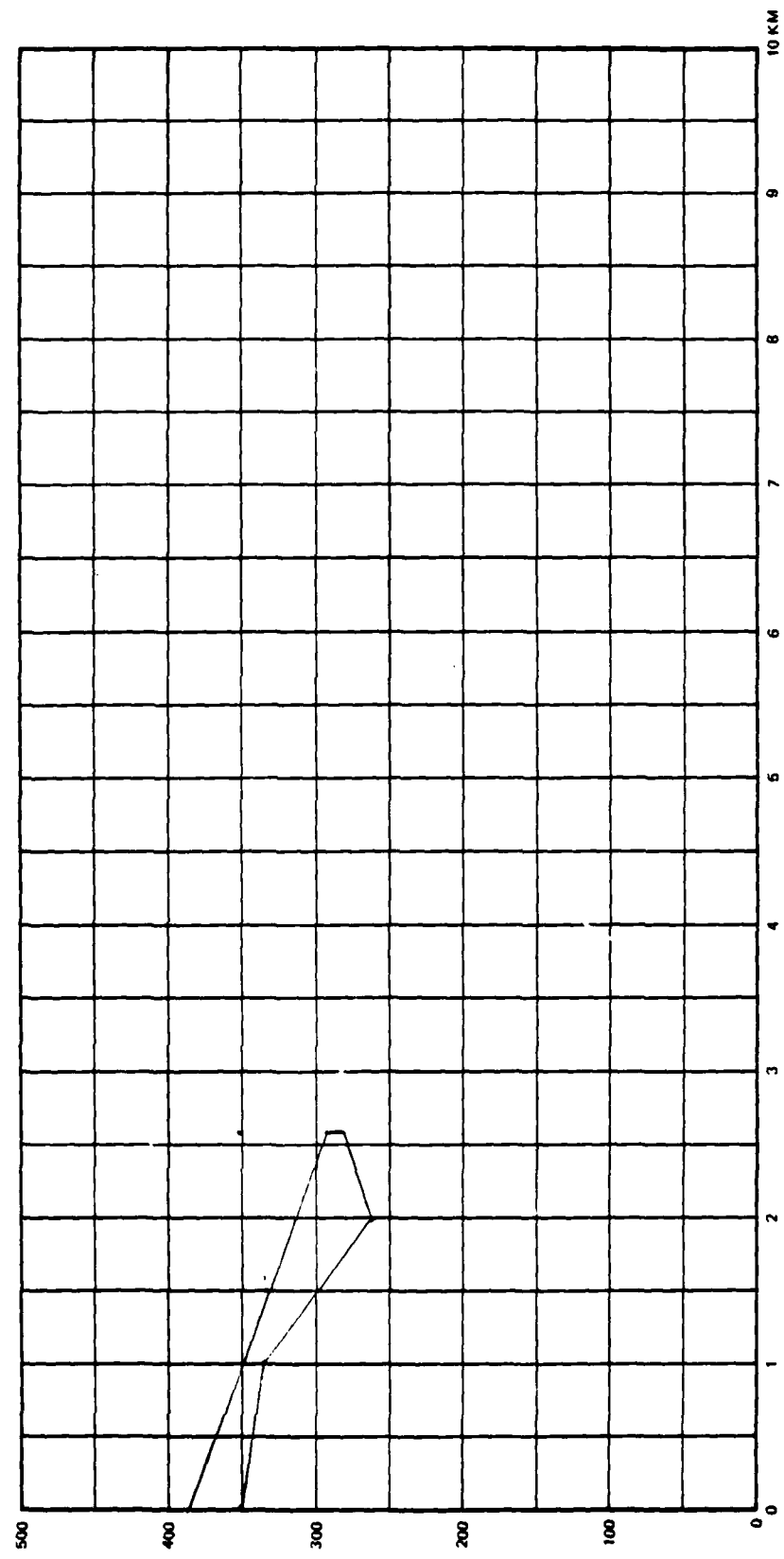
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LONGITUDE D 08 M 34 S 00  
ELEVATION 95 M  
TOWER HEIGHT 30 M



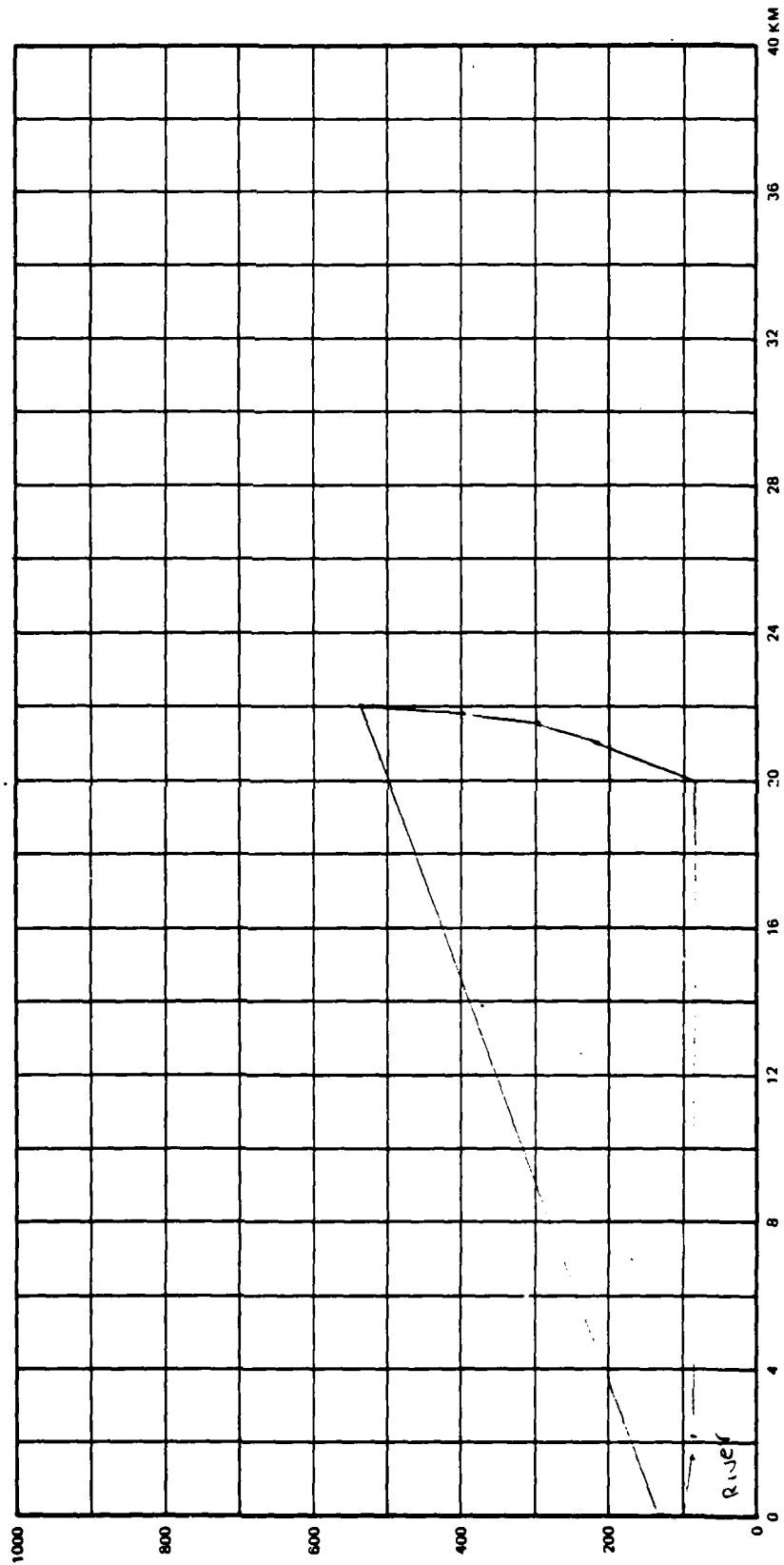
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LATITUDE D 49 M 33 S 00  
LONGITUDE D 07 M 51 S 10  
ELEVATION 271 M  
TOWER HEIGHT 21 M



STATION Melibocus  
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LONGITUDE D 08 M 38 S 17  
ELEVATION 516 M  
TOWER HEIGHT 30 M

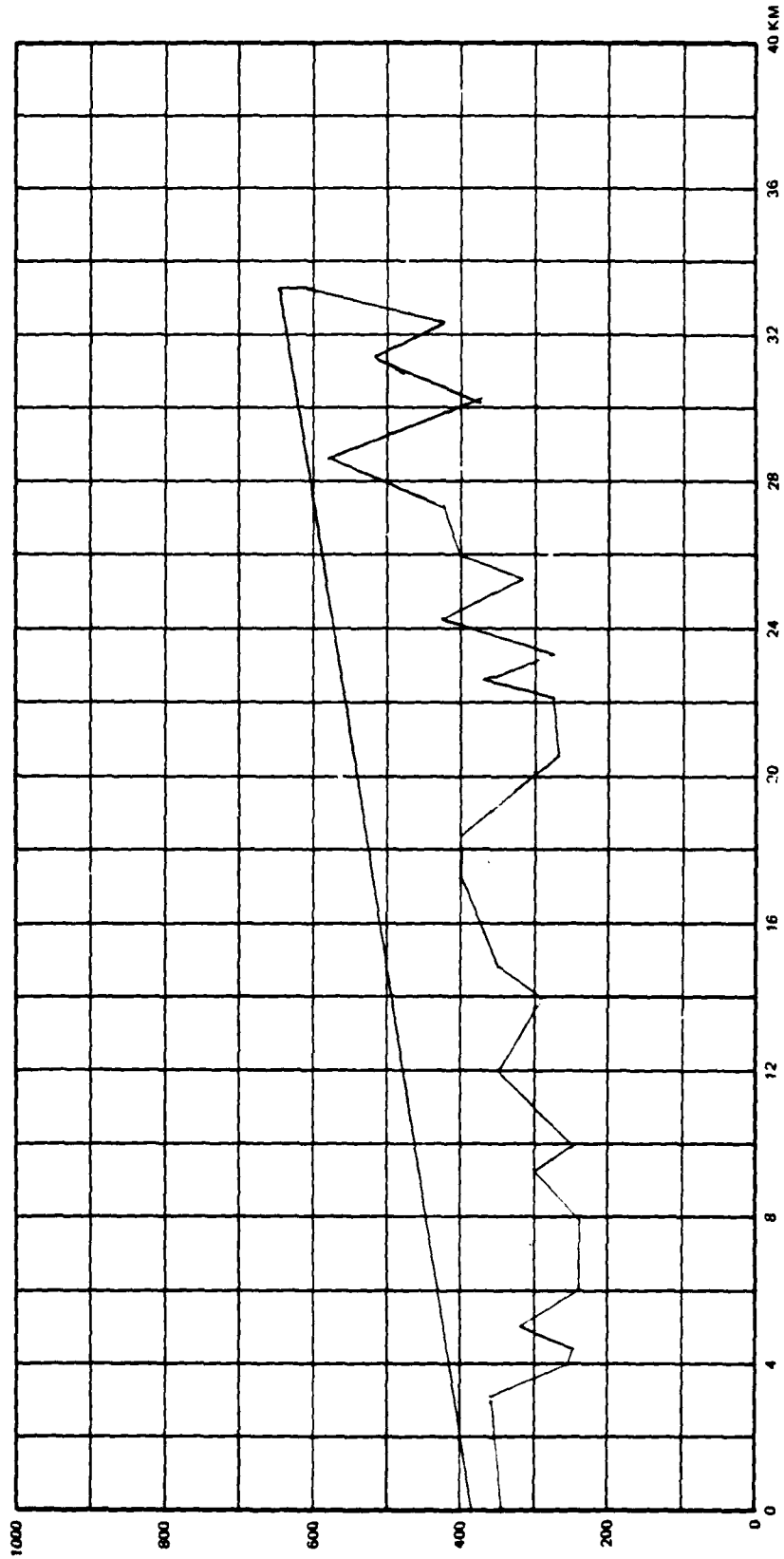
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ELEVATION 101 M  
TOWER HEIGHT 40 M





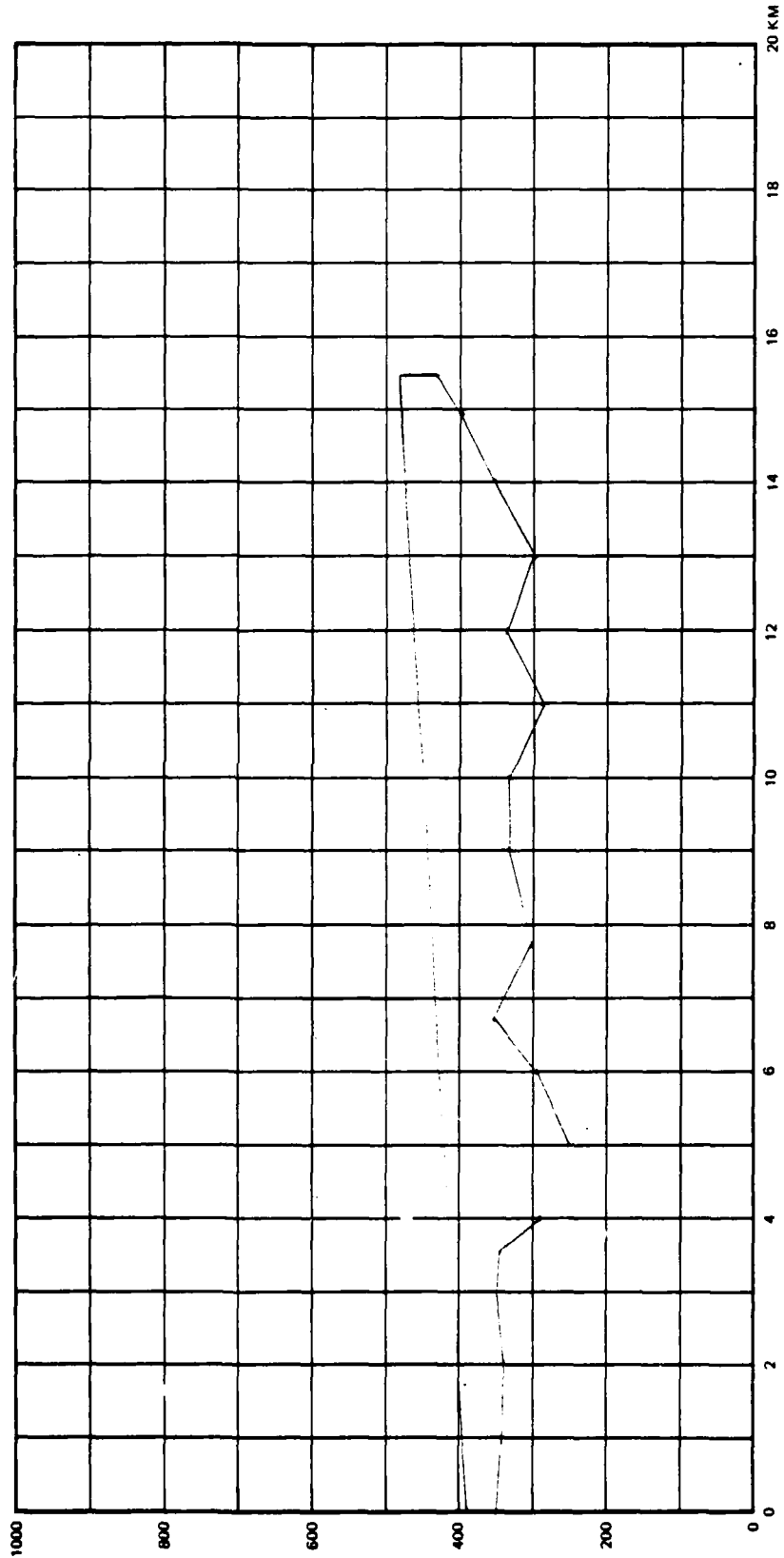
STATION Zweibrucken (AF)  
LATITUDE D 49 M 13 S 48  
LONGITUDE D 07 M 24 S 02  
ELEVATION 345 M  
TOWER HEIGHT 40 M

STATION Langerkopf  
LATITUDE D 49 M 18 S 04  
LONGITUDE D 07 M 50 S 39  
ELEVATION 608 M  
TOWER HEIGHT 40 M



STATION Zweibrucken (AF)  
LATITUDE D 49 M 13 S 48  
LONGITUDE D 07 M 24 S 02  
ELEVATION 345 M  
TOWER HEIGHT 40 M

STATION Pirmasens  
LATITUDE D 49 M 13 S 01  
LONGITUDE D 07 M 36 S 35  
ELEVATION 439 M  
TOWER HEIGHT 40 M



AD-A109 842

TRW DEFENSE AND SPACE SYSTEMS GROUP REDONDO BEACH CA

F/G 17/2

EVALUATION OF DCS III TRANSMISSION ALTERNATIVES, PHASE II: TASK--ETC(U)

AUG 81 T M CHU, S H LIN, D SEGEL, C Y YOON

DCA100-79-C-0044

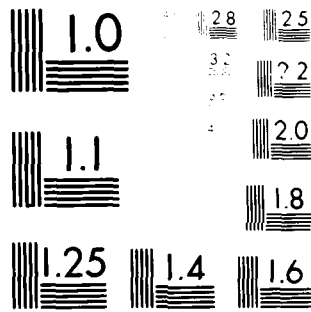
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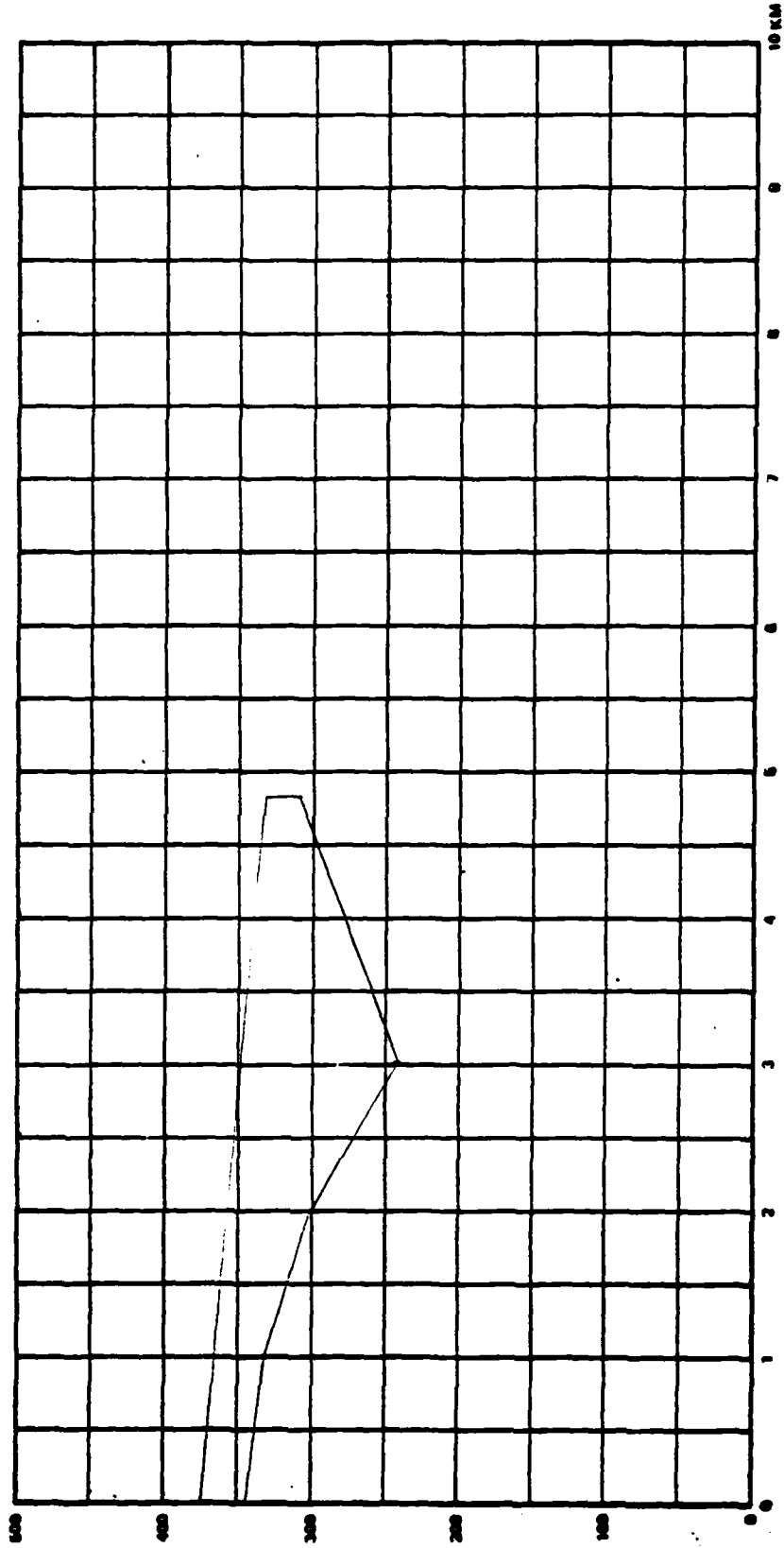
END  
DATE  
FILMED  
02 82  
DTIC



MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

STATION Zweibrucken (A)  
LATITUDE D 49 M 15 S 55  
LONGITUDE D 07 M 21 S 51  
ELEVATION 309 M  
TOWER HEIGHT 30 M

STATION Zweibrucken (AF)  
LATITUDE D 49 M 13 S 48  
LONGITUDE D 07 M 24 S 02  
ELEVATION 345 M  
TOWER HEIGHT 30 M



A.4 MILLIMETER WAVE PATH PROFILES OF CENTRAL GERMANY

A.4-1

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1st repeater to

STATION Langerkopf

LATITUDE D 49 M 20 S 10

LONGITUDE D 07 M 42 S 30

ELEVATION 425 M

TOWER HEIGHT 20 M

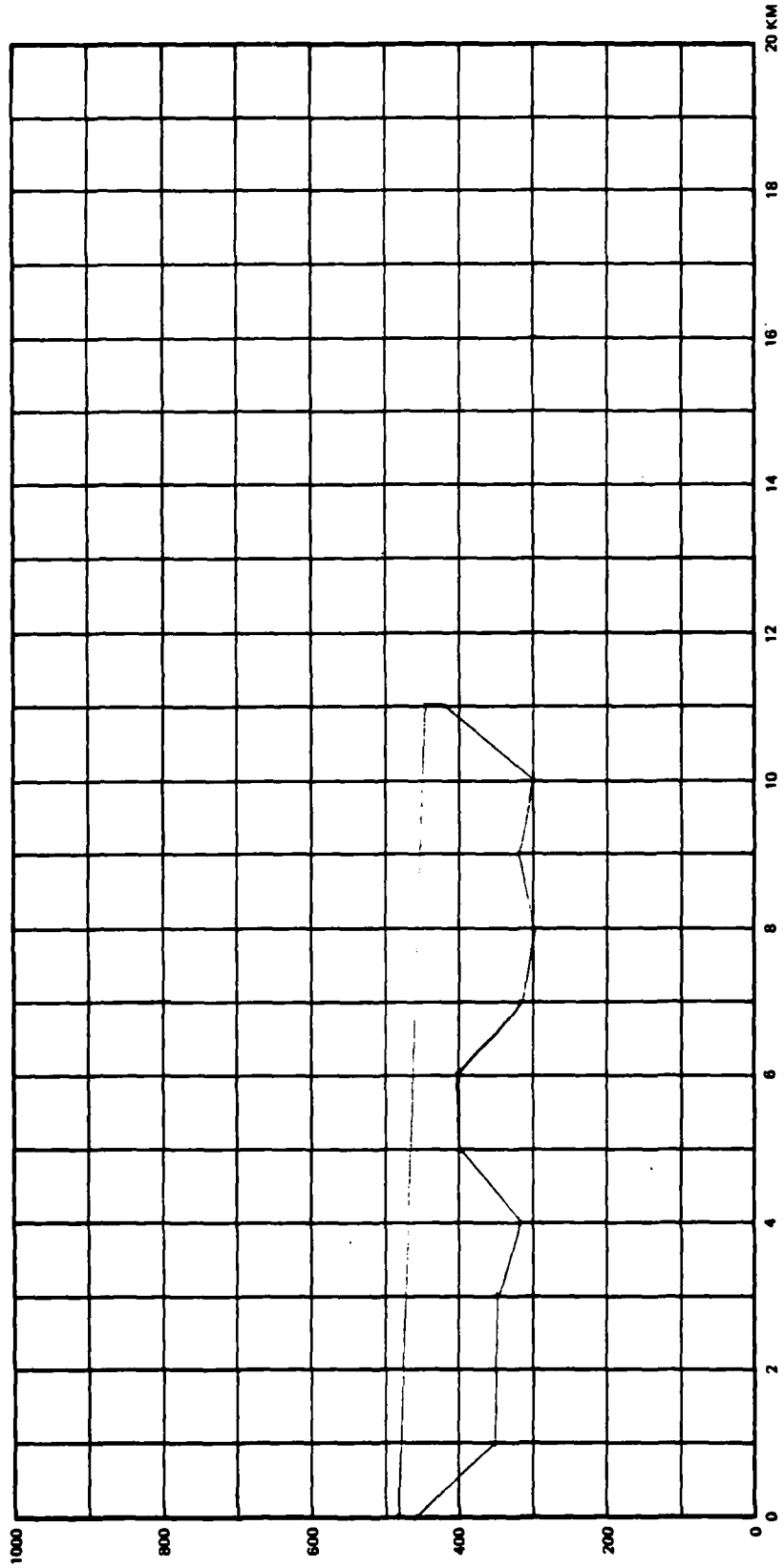
STATION Bann

LATITUDE D 49 M 23 S 55

LONGITUDE D 07 M 35 S 18

ELEVATION 460 M

TOWER HEIGHT 20 M



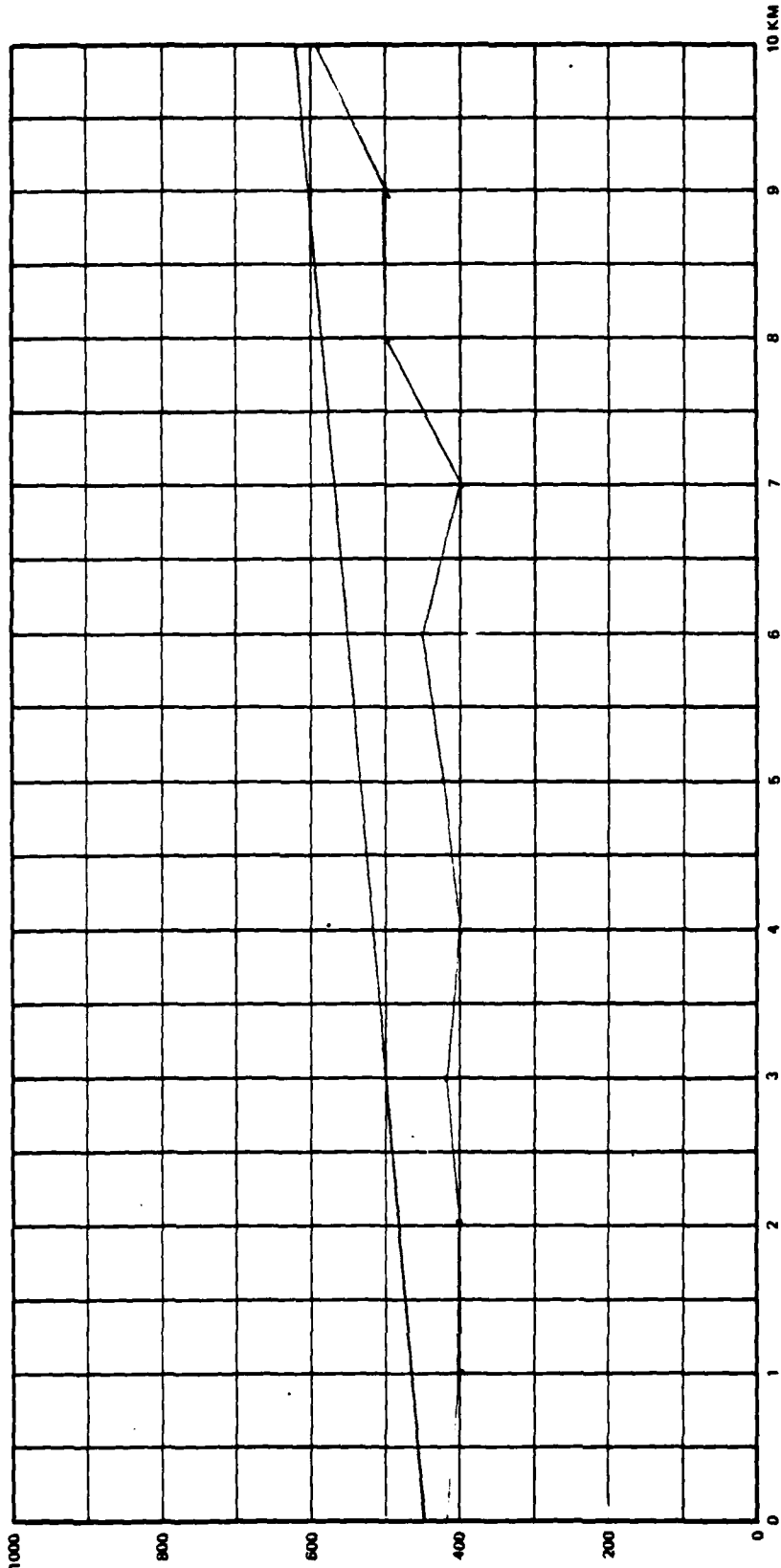


1st repeater from

STATION Bann  
LATITUDE D 49 M 20 S 10  
LONGITUDE D 07 M 42 S 30  
ELEVATION 425 M  
TOWER HEIGHT 20 M

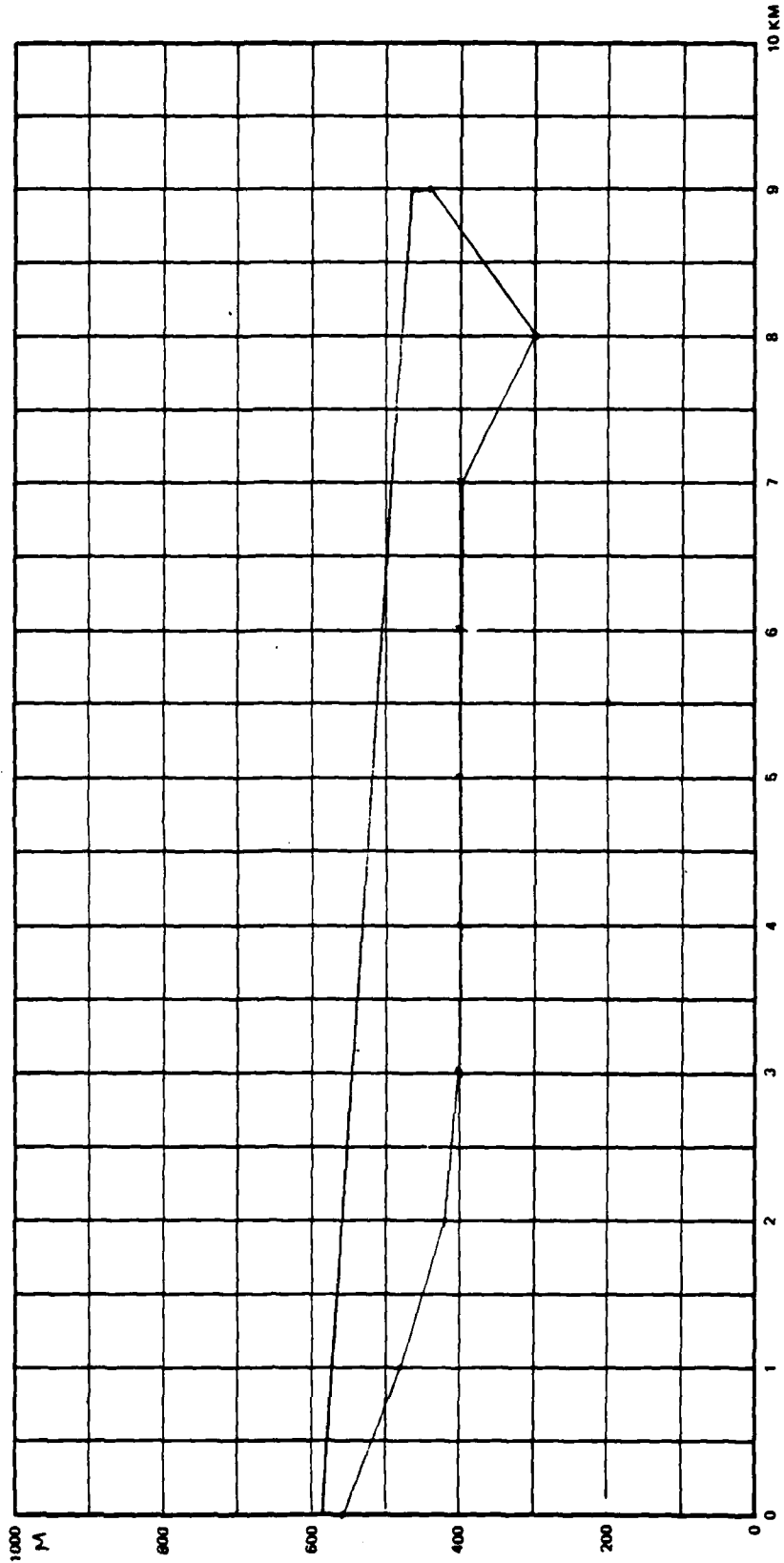
STATION Langerkopf

LATITUDE D 49 M 18 S 04  
LONGITUDE D 07 M 50 S 39  
ELEVATION 596 M  
TOWER HEIGHT 20 M



1st repeater to  
STATION Donnersberg  
LATITUDE D 49 M 36 S 00  
LONGITUDE D 07 M 25 S 30  
ELEVATION 446 M  
TOWER HEIGHT 20 M

STATION Baumholder  
LATITUDE D 49 M 38 S 08  
LONGITUDE D 07 M 19 S 33  
ELEVATION 563 M  
TOWER HEIGHT 20 M

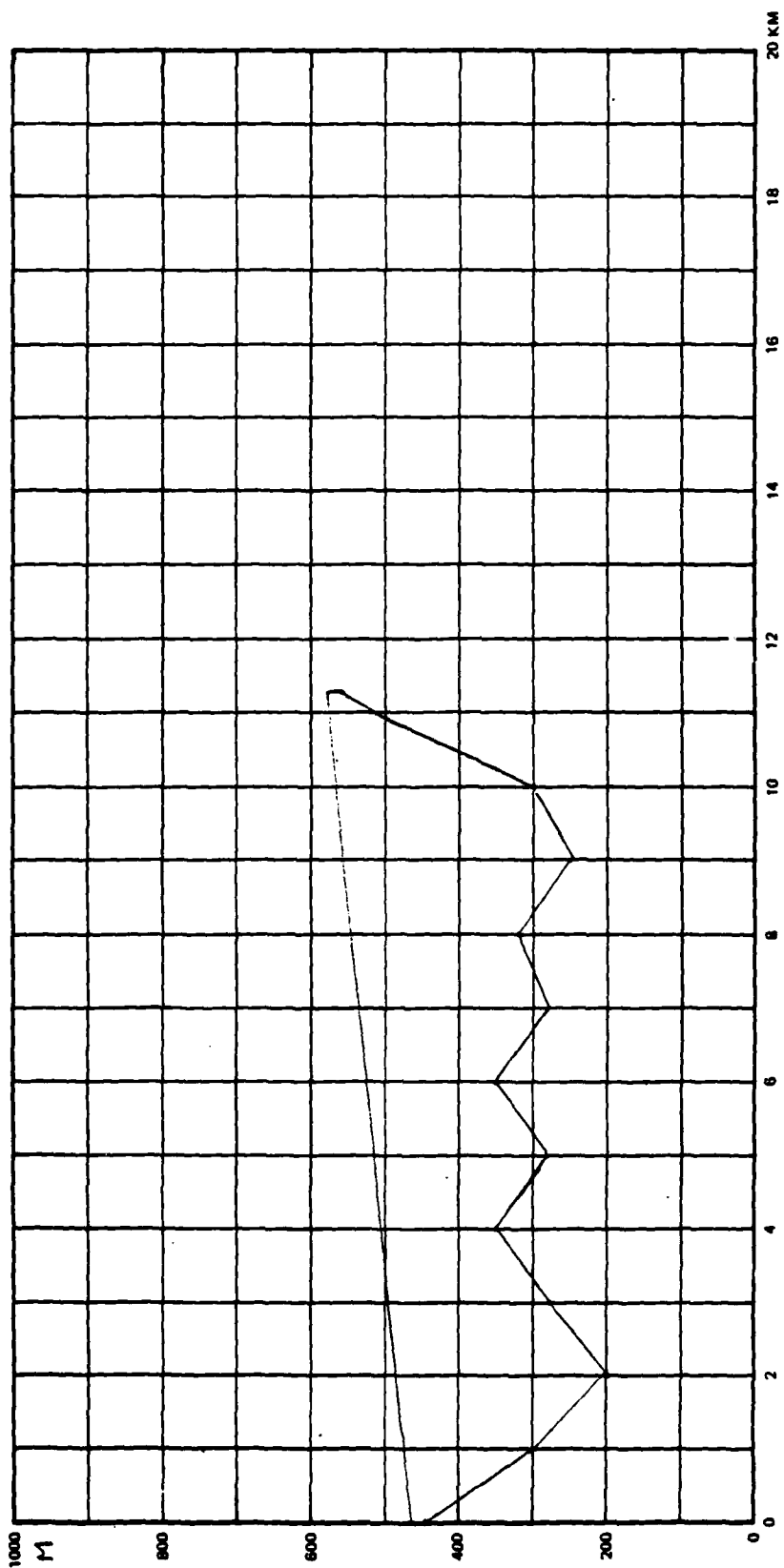


1st repeater from

STATION Baumholder  
LATITUDE D 49 M 36 S 00  
LONGITUDE D 07 M 25 S 30  
ELEVATION 446 M  
TOWER HEIGHT 20 M

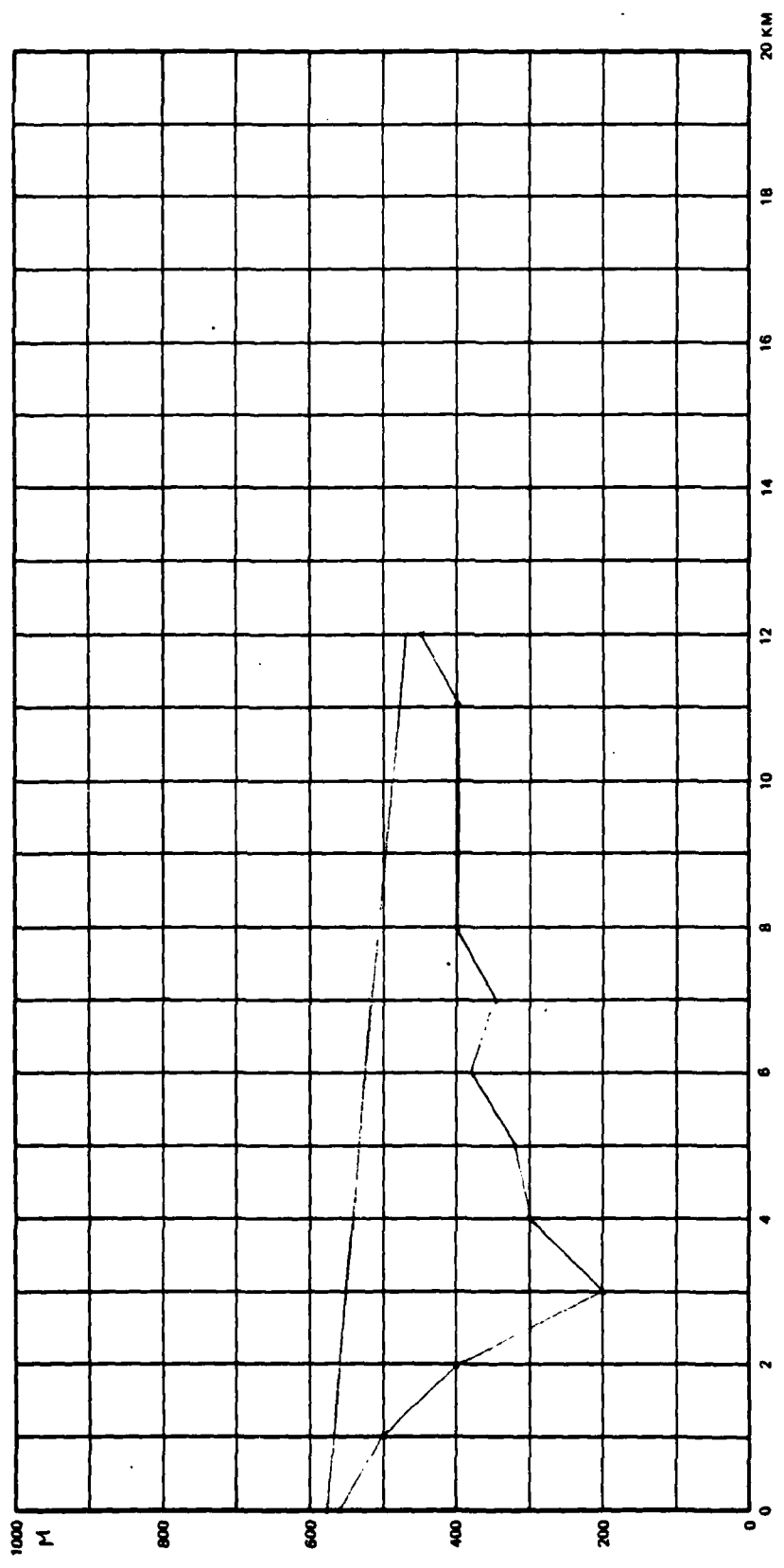
2nd repeater to

STATION Donnersberg  
LATITUDE D 49 M 34 S 30  
LONGITUDE D 07 M 34 S 50  
ELEVATION 561 M  
TOWER HEIGHT 20 M



3rd repeater to  
 STATION Donnersberg  
 LATITUDE D 49 M 34 S 20  
 LONGITUDE D 07 M 44 S 30  
 ELEVATION 450 M  
 TOWER HEIGHT 20 M

2nd repeater from  
 STATION Baumholder  
 LATITUDE D 49 M 34 S 30  
 LONGITUDE D 07 M 34 S 50  
 ELEVATION 561 M  
 TOWER HEIGHT 20 M



3rd repeater from

STATION Baumholder

LATITUDE D 49 M 34 S 20

LONGITUDE D 7 M 44 S 30

ELEVATION 450 M

TOWER HEIGHT 20 M

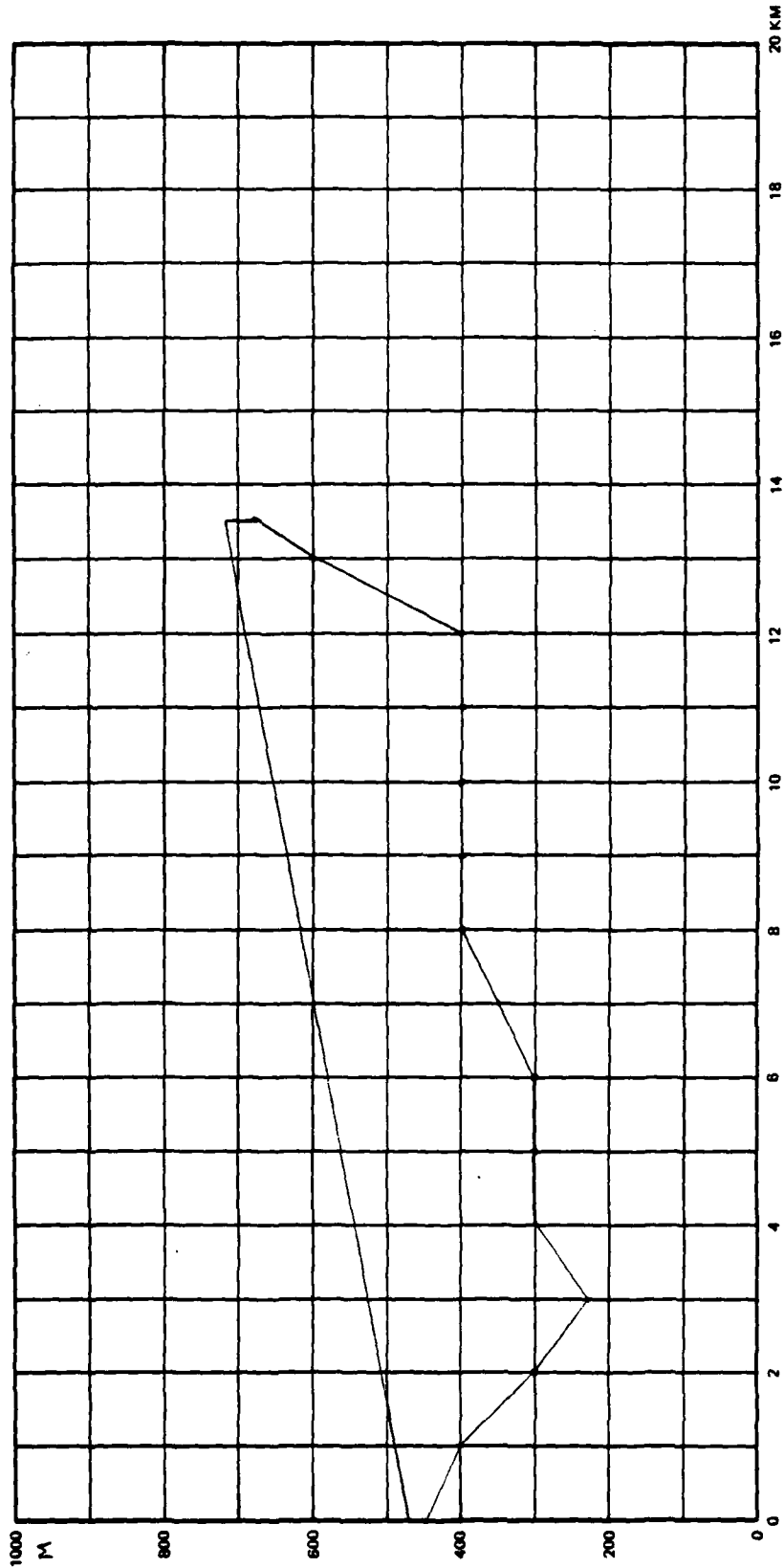
STATION Dommersberg

LATITUDE D 49 M 37 S 23

LONGITUDE D 7 M 55 S 13

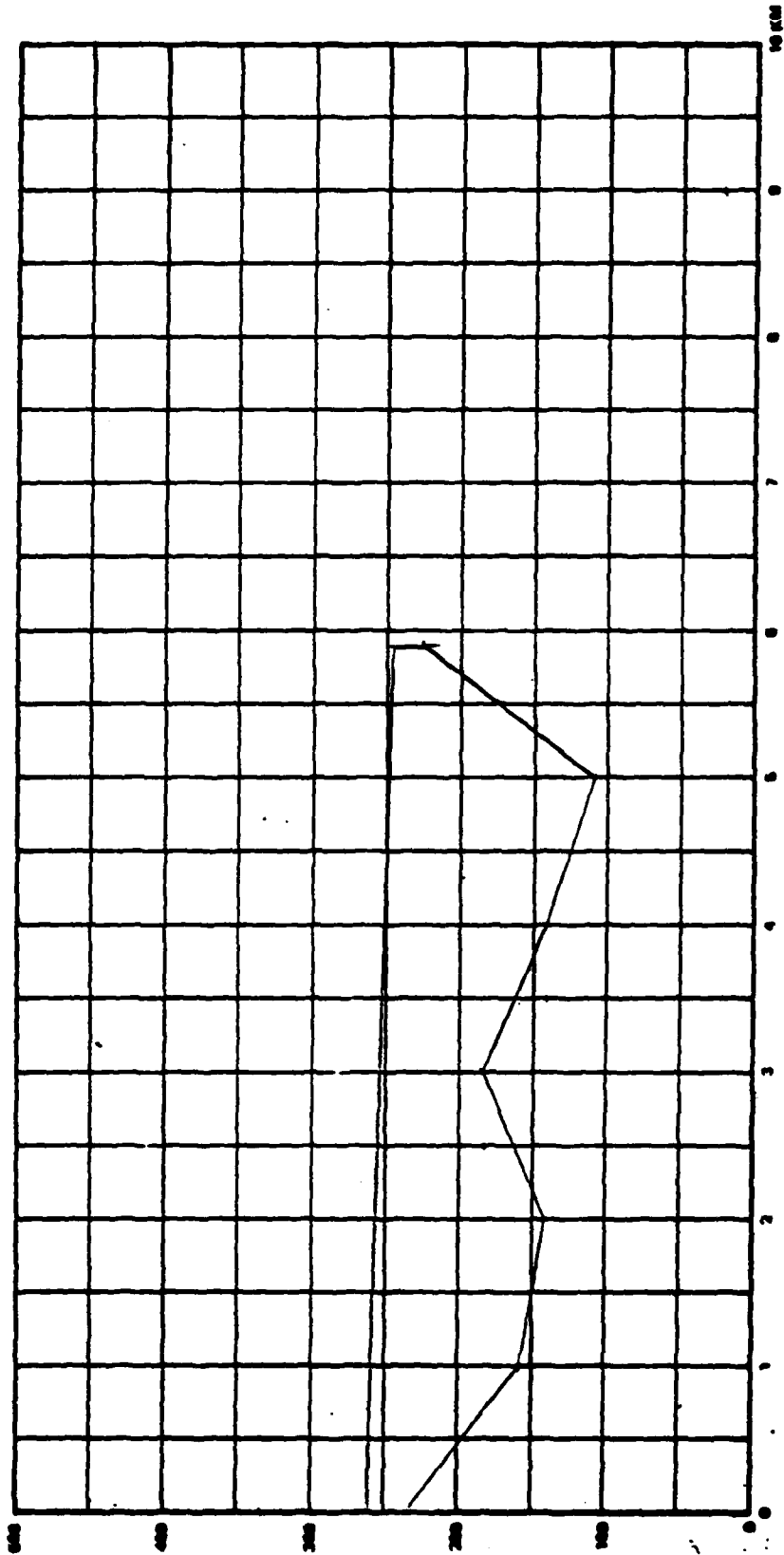
ELEVATION 685 M

TOWER HEIGHT 30 M



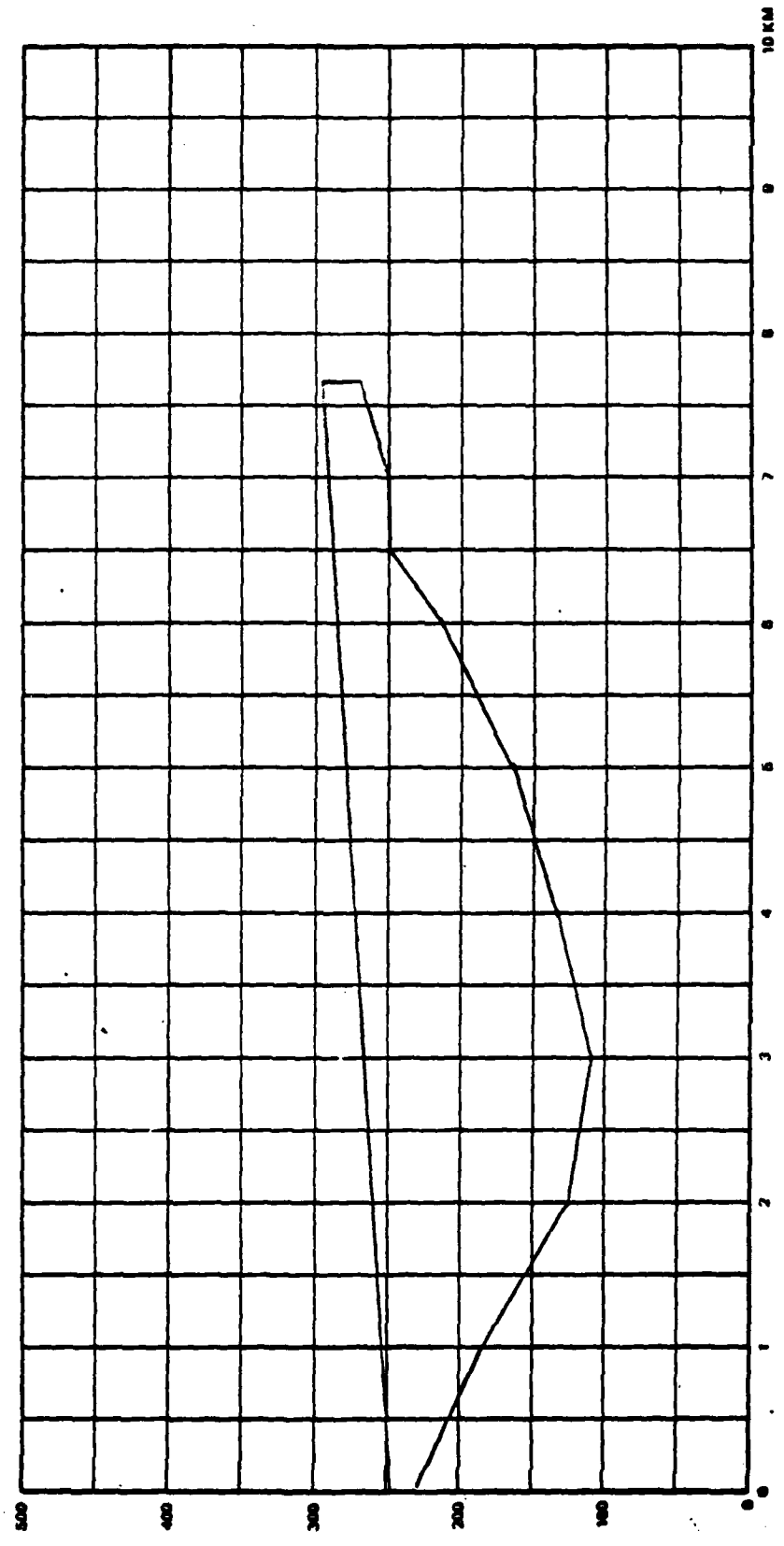
1st repeater to  
STATION Lindsey  
LATITUDE D 49 M 51 S 28  
LONGITUDE D 07 M 55 S 50  
ELEVATION 227 M  
TOWER HEIGHT 20 M

STATION B. Krenznach  
LATITUDE D 49 M 49 S 27  
LONGITUDE D 07 M 51 S 53  
ELEVATION 237 M  
TOWER HEIGHT 20 M



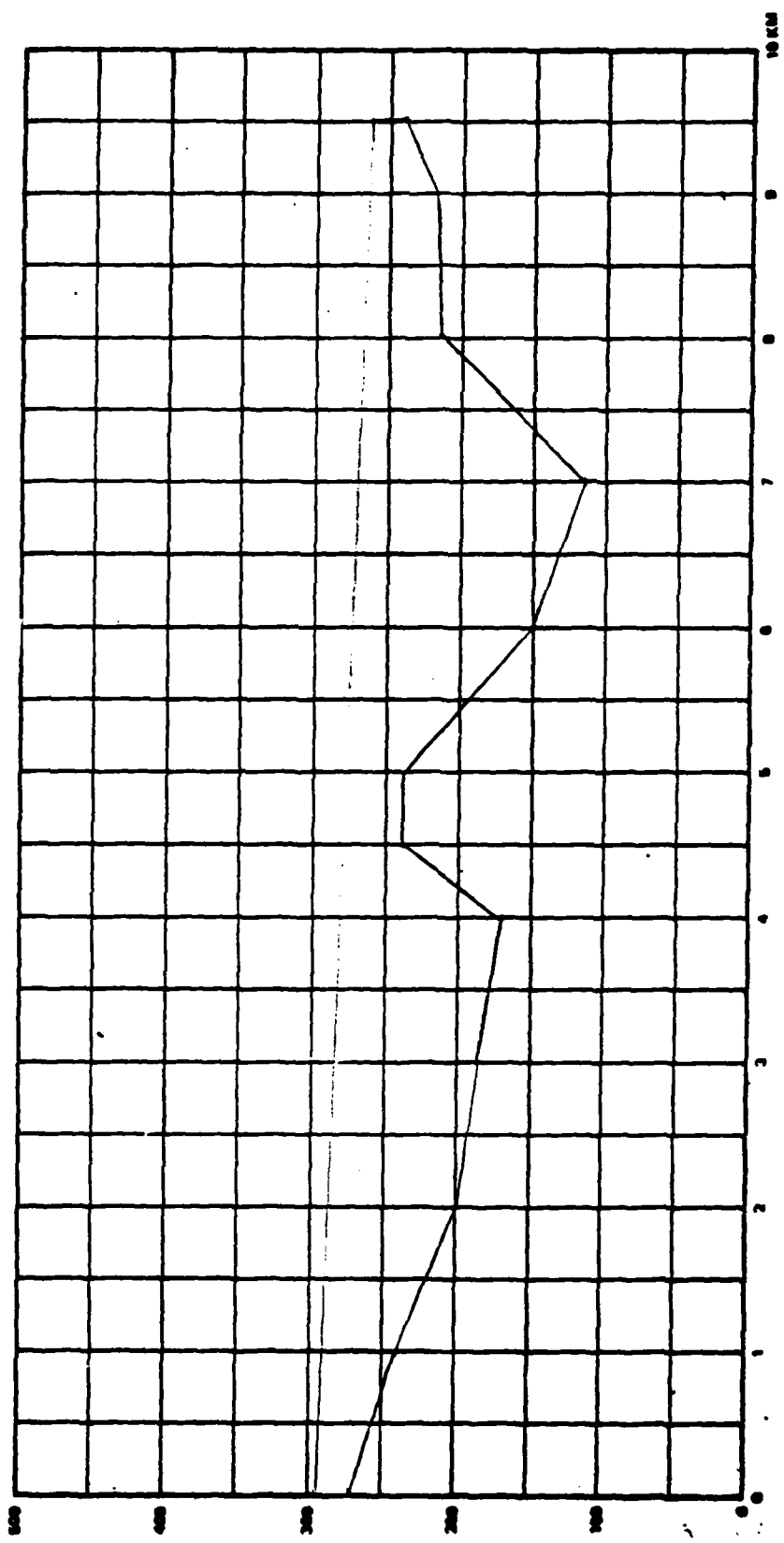
2nd repeater to  
 STATION Lindsey  
 LATITUDE D 49 M 55 S 40  
 LONGITUDE D 07 M 59 S 50  
 ELEVATION 273 M  
 TOWER HEIGHT 20 M

1st repeater from  
 STATION B. Krenznach  
 LATITUDE D 49 M 51 S 28  
 LONGITUDE D 7 M 55 S 50  
 ELEVATION 227 M  
 TOWER HEIGHT 20 M



3rd repeater to  
 STATION Lindsey  
 LATITUDE D 49 M 57 S 48  
 LONGITUDE D 08 M 05 S 10  
 ELEVATION 240 M  
 TOWER HEIGHT 20 M

2nd repeater from  
 STATION B. Krenzach  
 LATITUDE D 49 M 55 S 40  
 LONGITUDE D 07 M 59 S 50  
 ELEVATION 273 M  
 TOWER HEIGHT 20 M



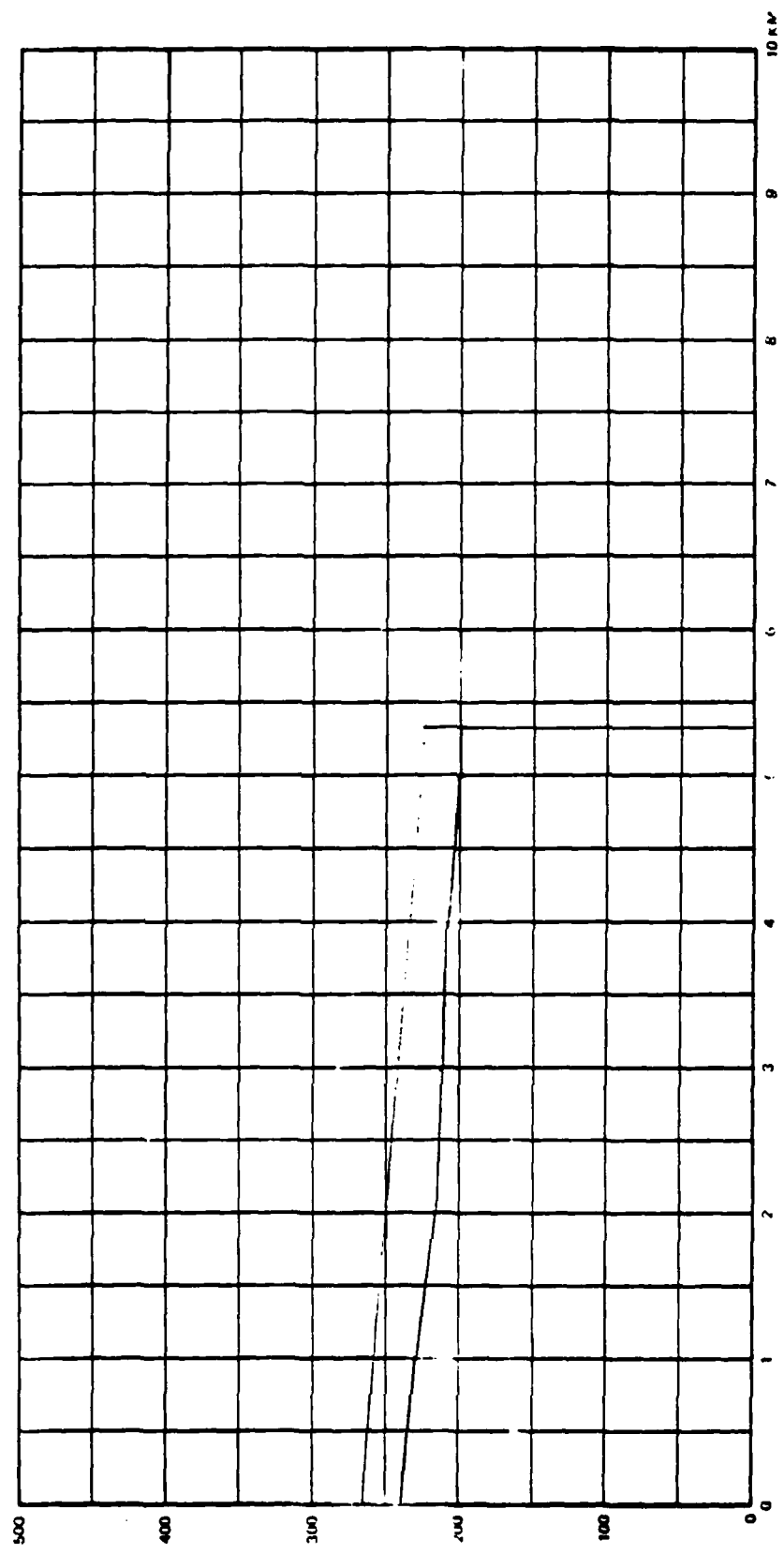


3rd repeater from

STATION B. Krenznach  
LATITUDE D 49 M 57 S 48  
LONGITUDE D 08 M 05 S 10  
ELEVATION 240 M  
TOWER HEIGHT 20 M

4th repeater to

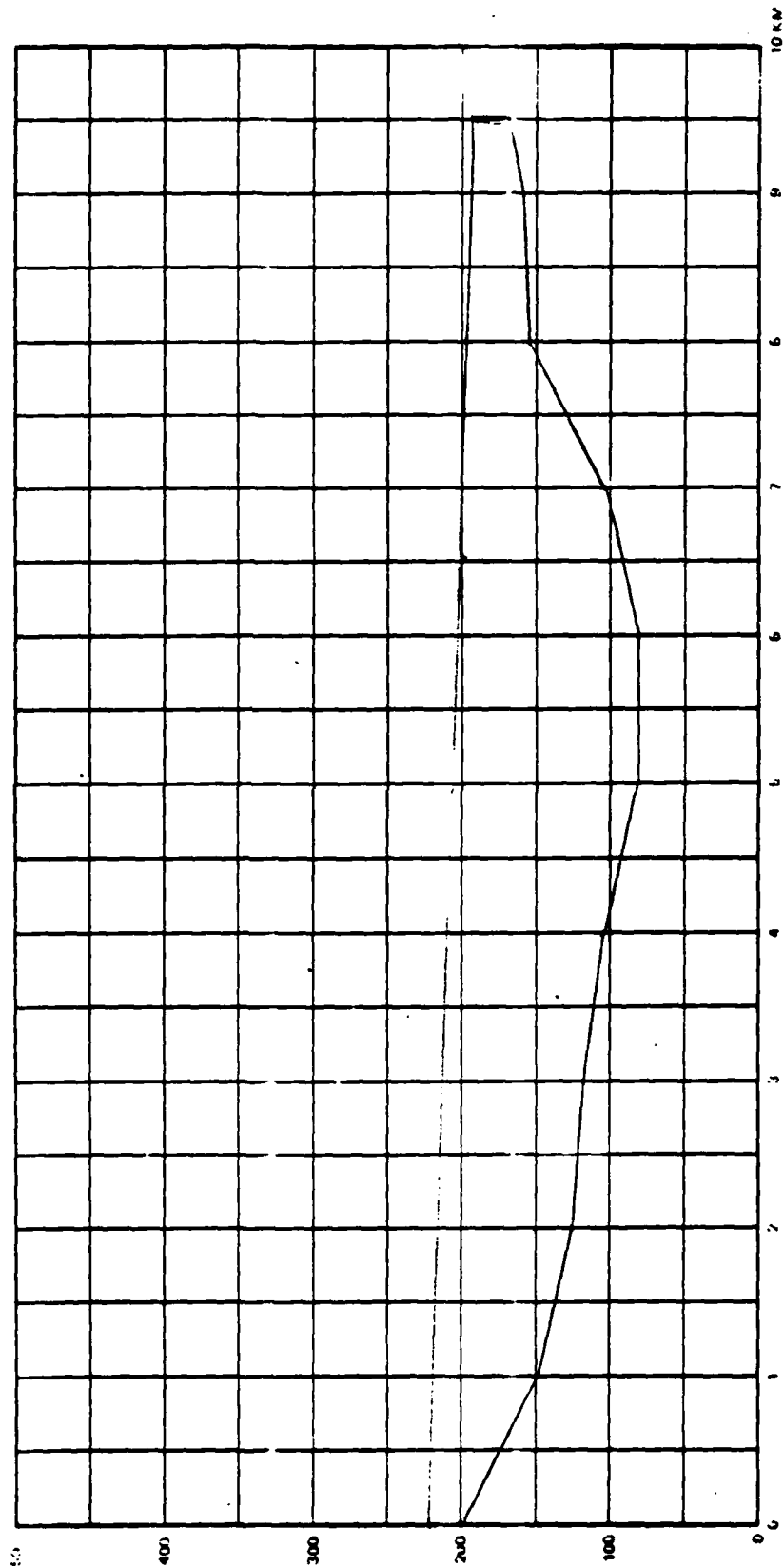
STATION Lindsey  
LATITUDE D 49 M 59 S 46  
LONGITUDE D 08 M 09 S 25  
ELEVATION 200 M  
TOWER HEIGHT 20 M



4th repeater from

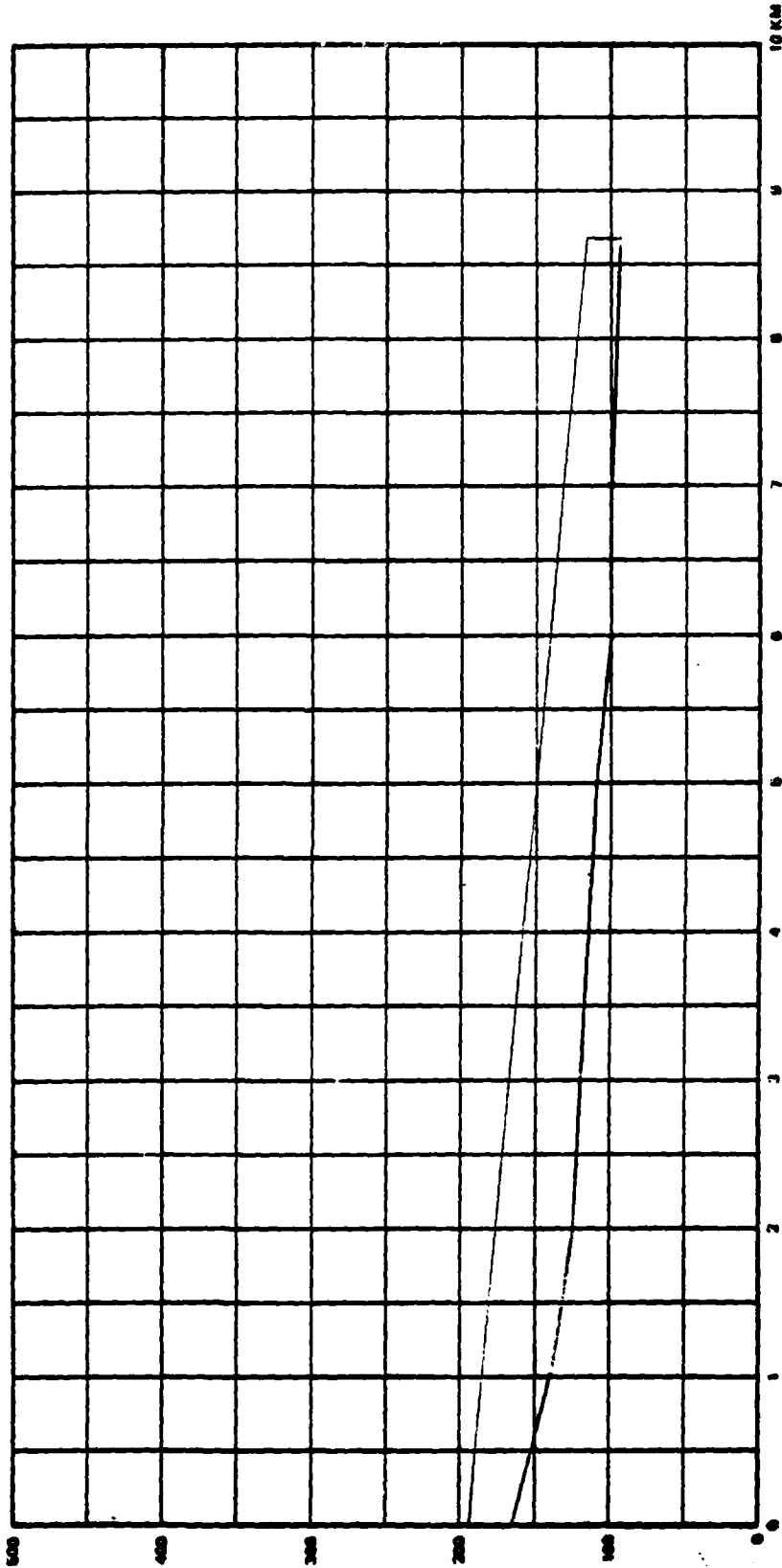
STATION B. Krenzach  
LATITUDE D 49 M 59 S 46  
LONGITUDE D 08 M 09 S 25  
ELEVATION 200 M  
TOWER HEIGHT 20 M

STATION Lindsey  
LATITUDE D 50 M 04 S 17  
LONGITUDE D 08 M 13 S 24  
ELEVATION 170 M  
TOWER HEIGHT 20 M



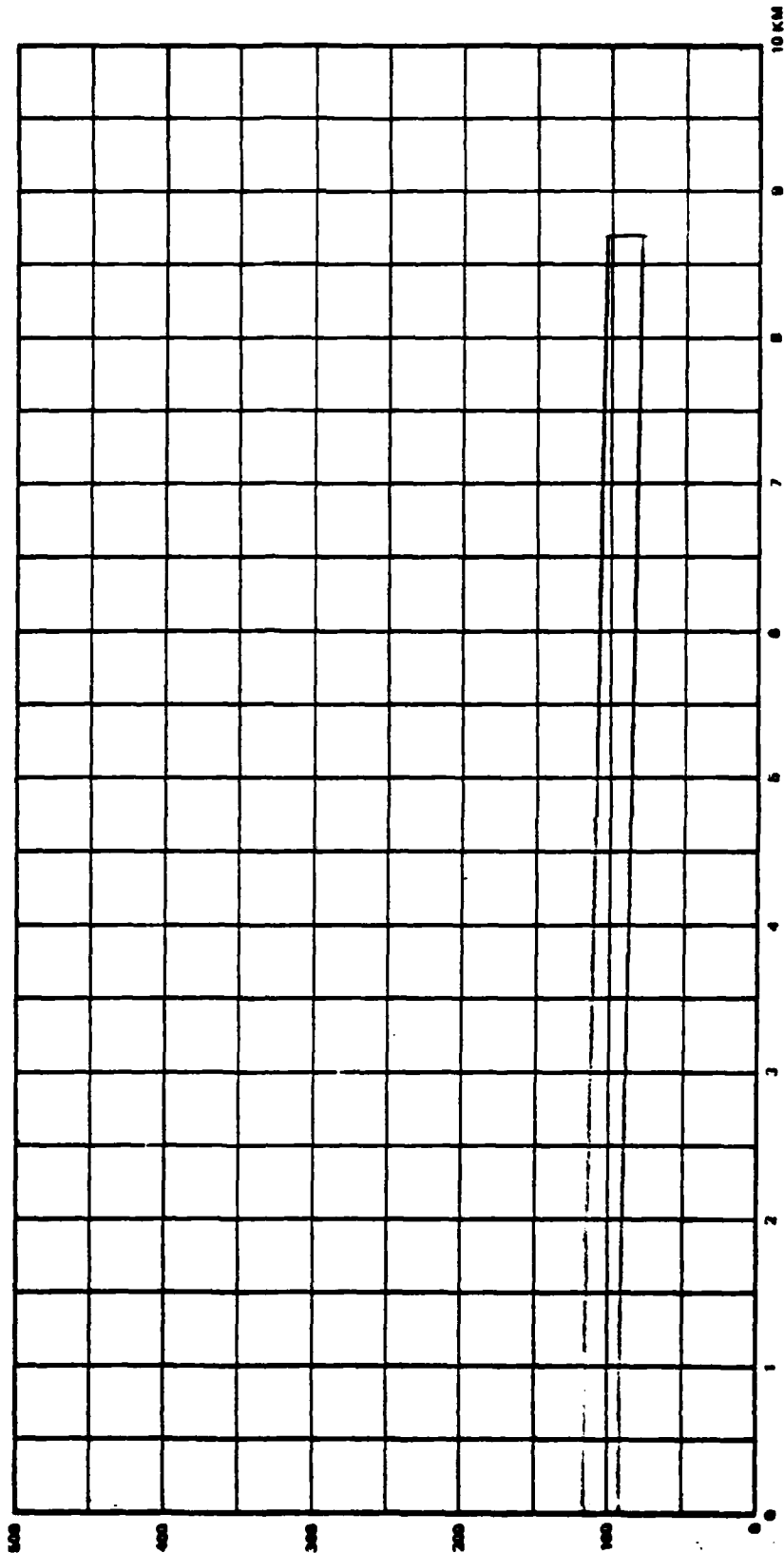
1st repeater to  
 STATION Wiesbaden  
 LATITUDE D 49 M 52 S 20  
 LONGITUDE D 08 M 32 S 27  
 ELEVATION 95 M  
 TOWER HEIGHT 20 M

STATION Darmstadt  
 LATITUDE D 49 M 50 S 55  
 LONGITUDE D 08 M 39 S 19  
 ELEVATION 170 M  
 TOWER HEIGHT 20 M



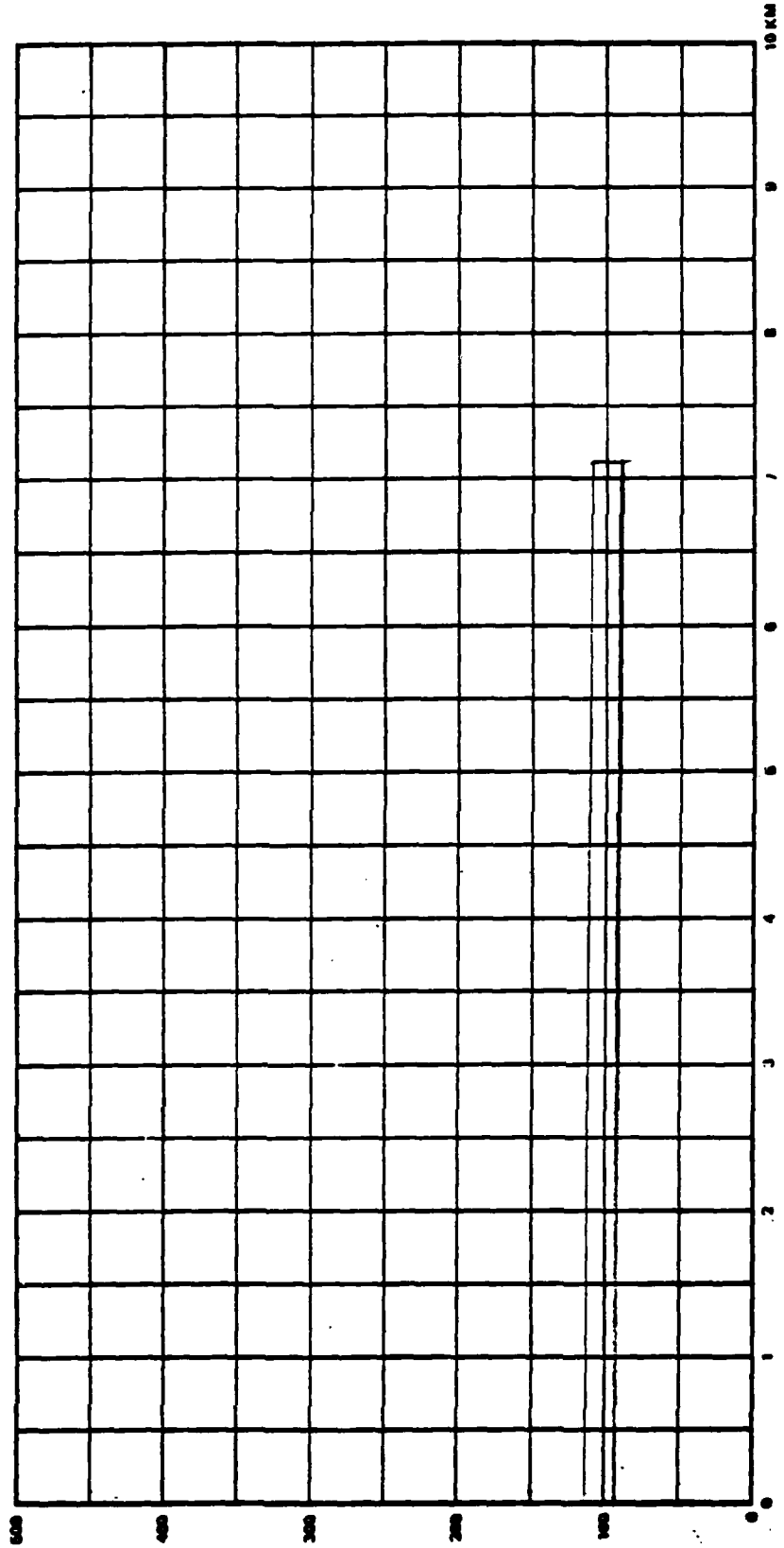
2nd repeater to  
STATION Wiesbaden  
LATITUDE D 49 M 55 S 11  
LONGITUDE D 08 M 26 S 48  
ELEVATION 85 M  
TOWER HEIGHT 20 M

1st repeater from  
STATION Darmstadt  
LATITUDE D 49 M 52 S 20  
LONGITUDE D 08 M 32 S 27  
ELEVATION 95 M  
TOWER HEIGHT 20 M



3rd repeater to  
STATION Miesbaden  
LATITUDE D 49 M 58 S 05  
LONGITUDE D 08 M 22 S 45  
ELEVATION 90 M  
TOWER HEIGHT 20 M

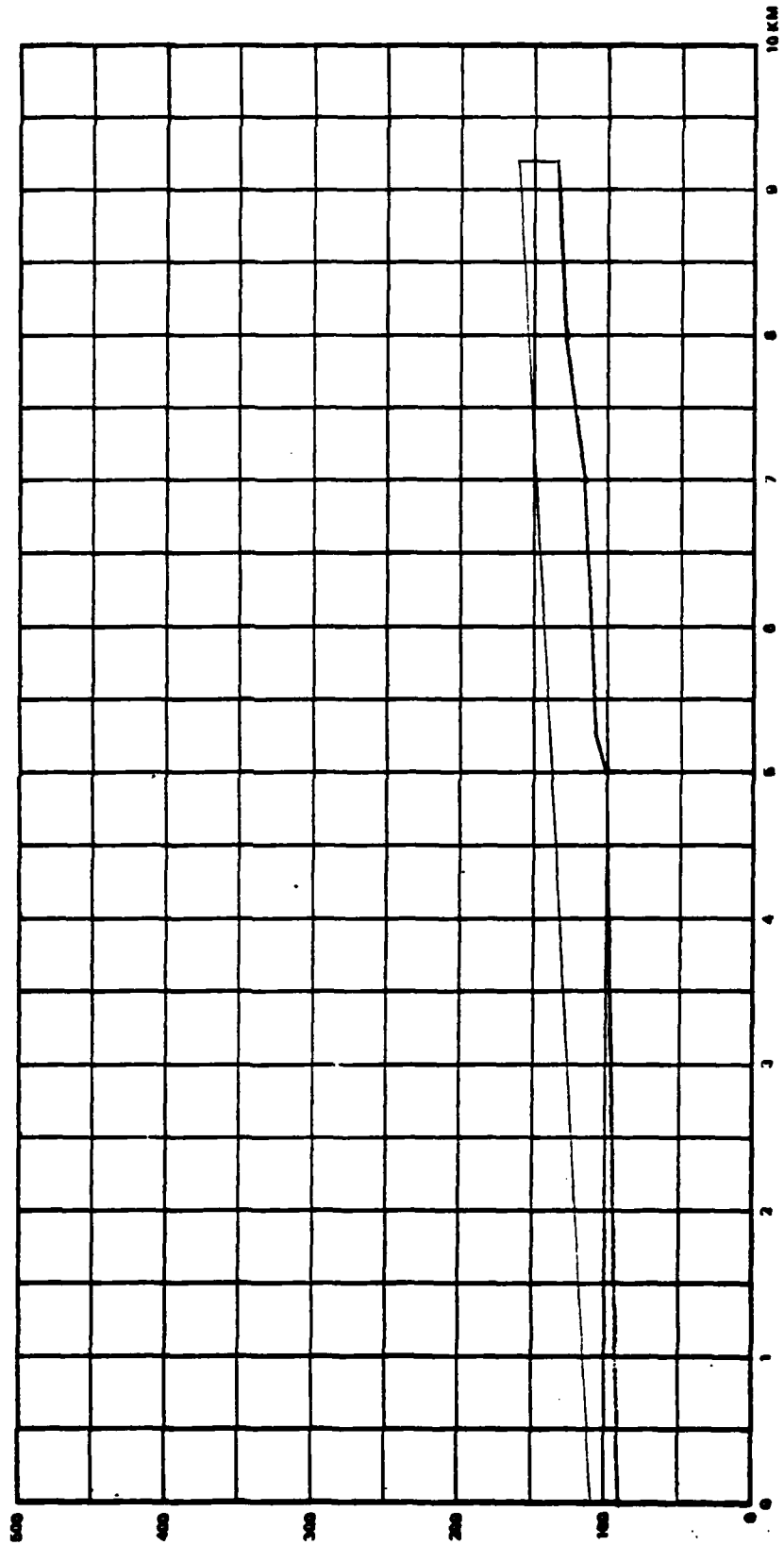
2nd repeater from  
STATION Darmstadt  
LATITUDE D 49 M 55 S 11  
LONGITUDE D 08 M 26 S 48  
ELEVATION 95 M  
TOWER HEIGHT 20 M



3rd repeater from

STATION Darmstadt  
LATITUDE D 49 M 58 S 05  
LONGITUDE D 08 M 22 S 45  
ELEVATION 90 M  
TOWER HEIGHT 20 M

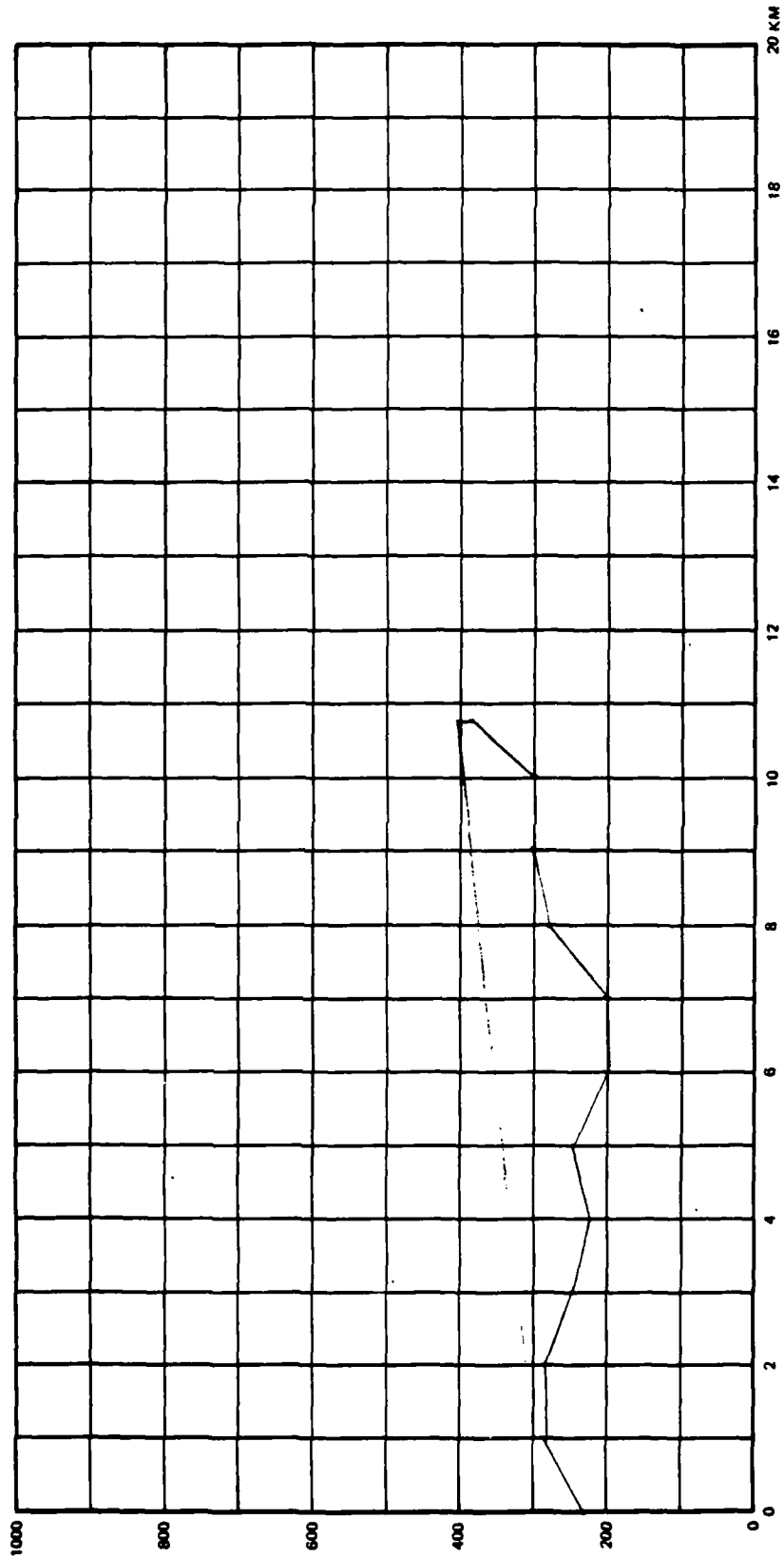
STATION Wiesbaden  
LATITUDE D 50 M 02 S 30  
LONGITUDE D 08 M 19 S 35  
ELEVATION 137 M  
TOWER HEIGHT 30 M



1st repeater to

STATION Donnersberg  
LATITUDE D 49 M 44 S 00  
LONGITUDE D 07 M 55 S 40  
ELEVATION 385 M  
TOWER HEIGHT 20 M

STATION B. Krenznach  
LATITUDE D 49 M 49 S 27  
LONGITUDE D 07 M 51 S 53  
ELEVATION 237 M  
TOWER HEIGHT 66 M



1st repeater from

STATION B. Krenznach

LATITUDE D 49 M 44 S 00

LONGITUDE D 07 M 55 S 40

ELEVATION 385 M

TOWER HEIGHT 20 M

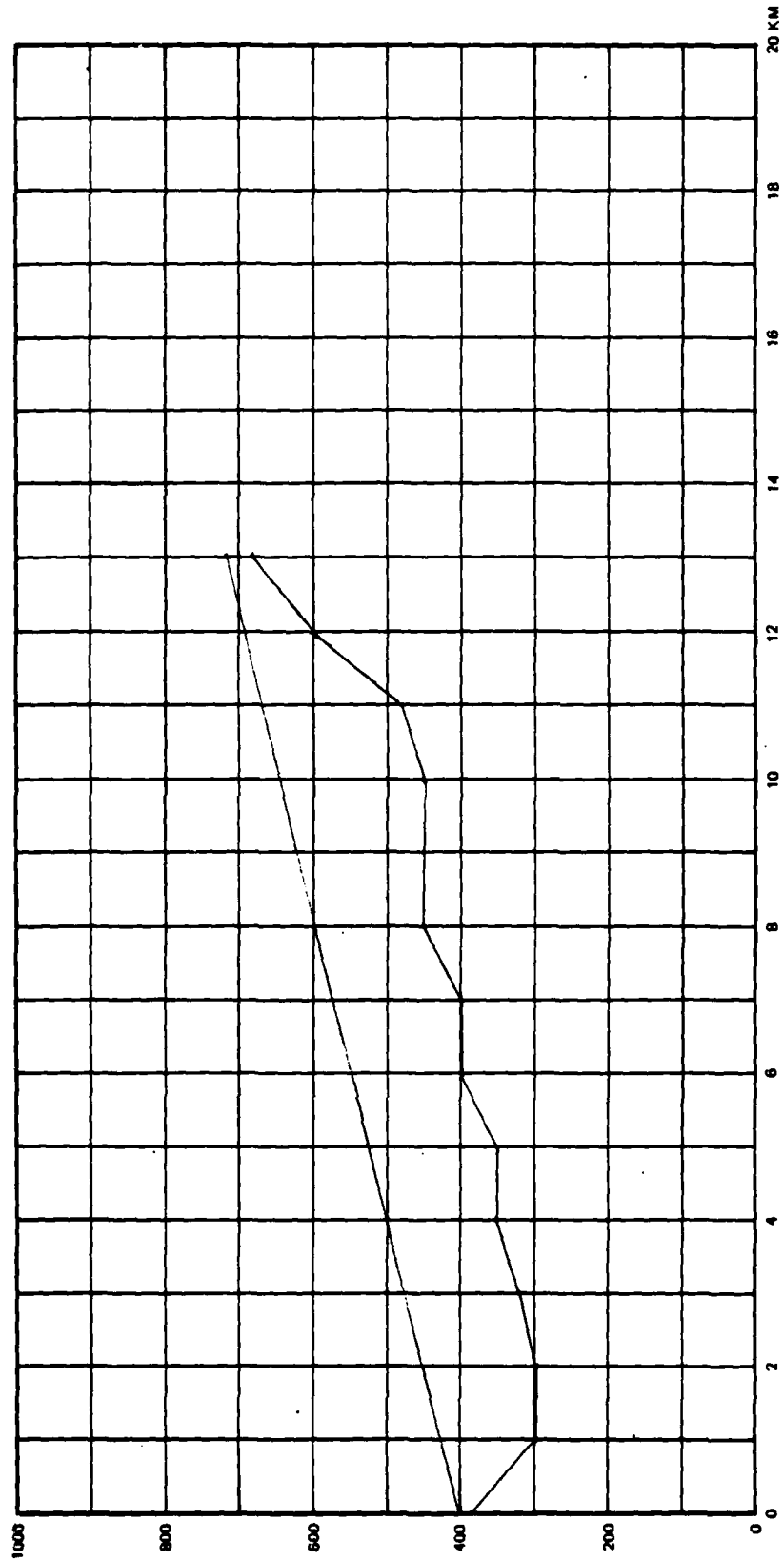
STATION Donnersberg

LATITUDE D 49 M 37 S 23

LONGITUDE D 07 M 55 S 13

ELEVATION 685 M

TOWER HEIGHT 40 M





STATION Donnersberg

LATITUDE D 49 M 37 S 23

LONGITUDE D 07 M 55 S 13

ELEVATION 685 M

TOWER HEIGHT 40 M

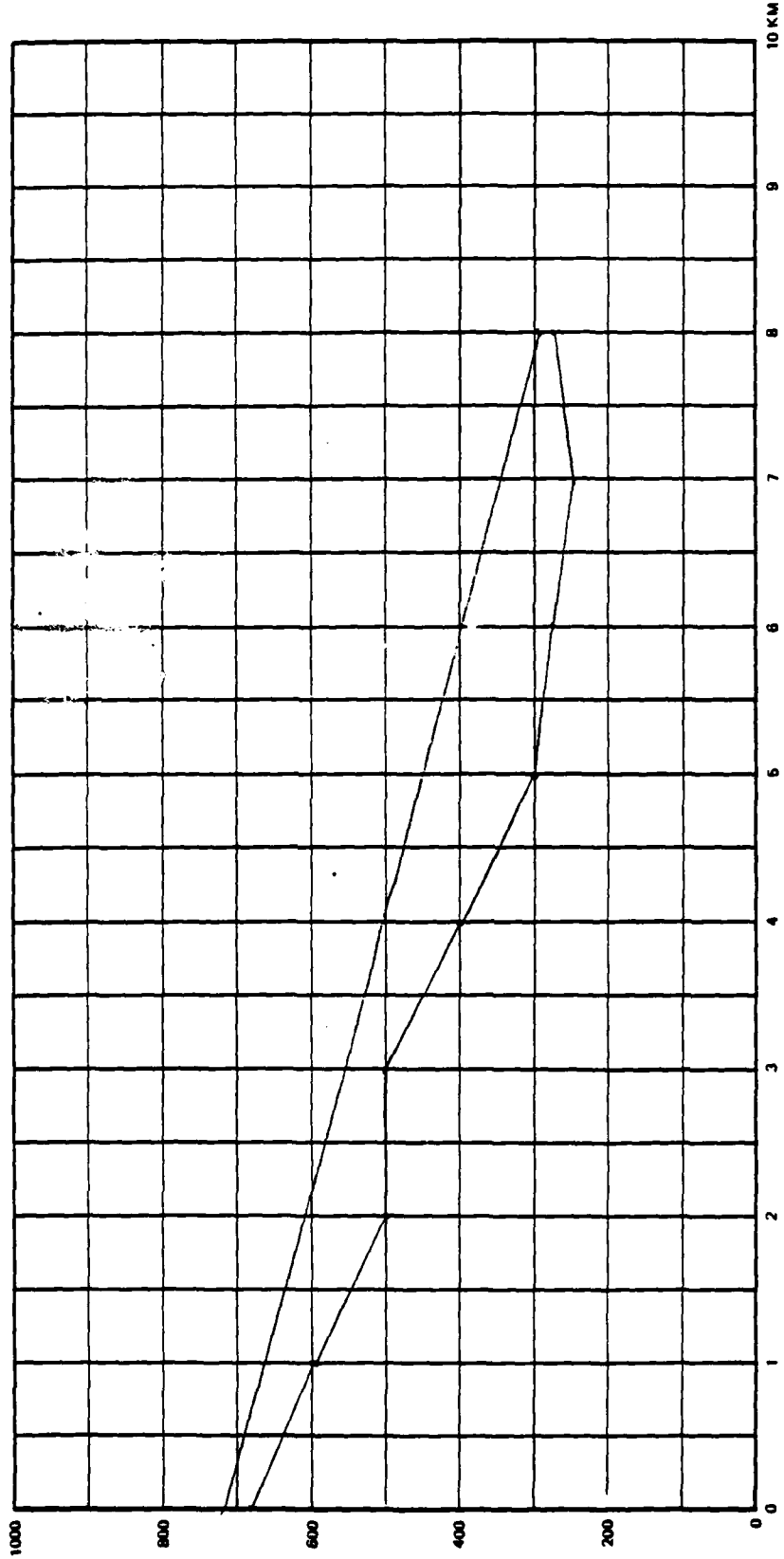
STATION Lohnsfeld

LATITUDE D 49 M 33 S 00

LONGITUDE D 07 M 51 S 10

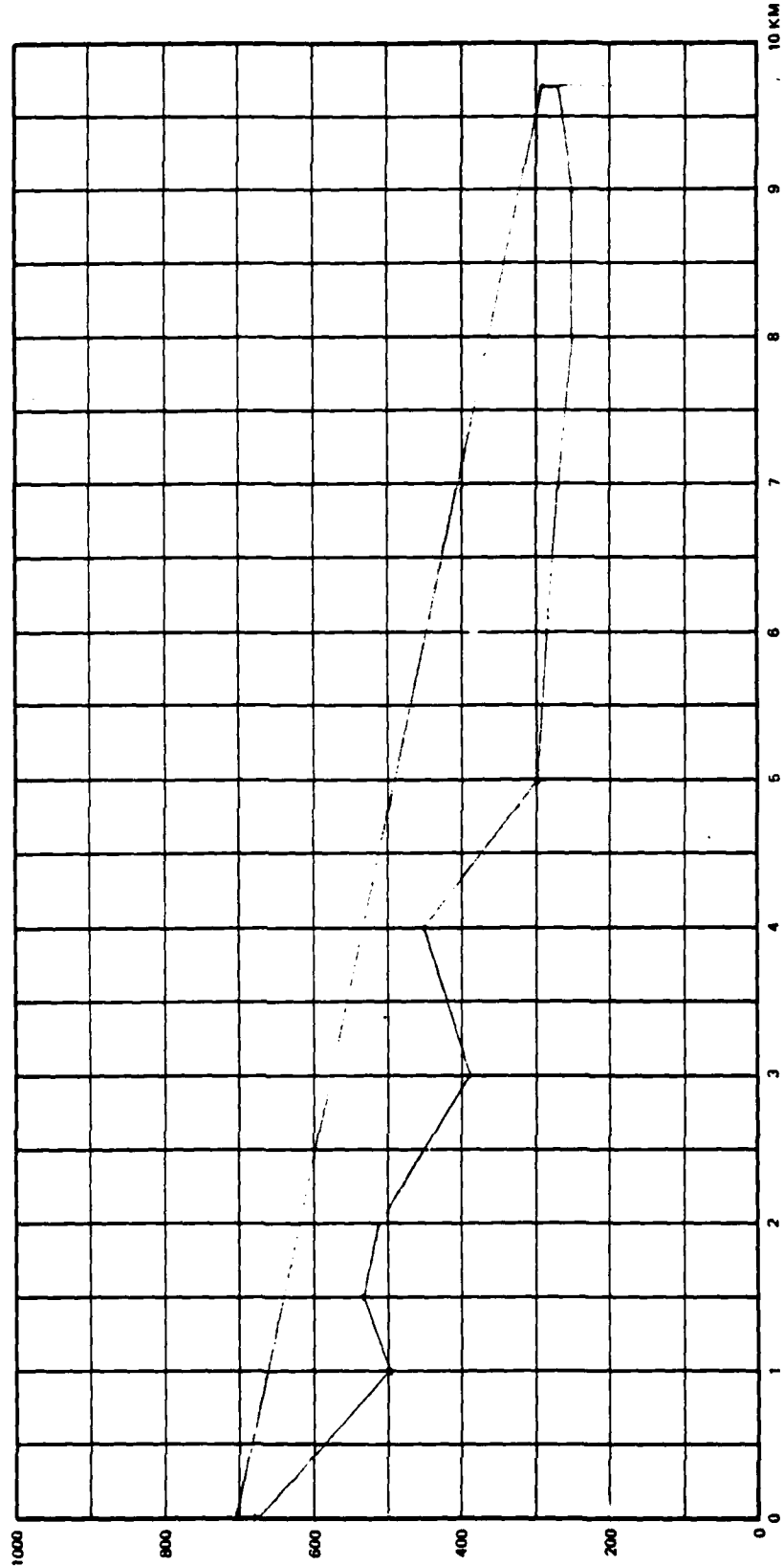
ELEVATION 271 M

TOWER HEIGHT 20 M



STATION Lohnsfeld  
 LATITUDE D 49 M 33 S 00  
 LONGITUDE D 07 M 51 S 10  
 ELEVATION 271 M  
 TOWER HEIGHT 20 M

STATION Donnersberg  
 LATITUDE D 49 M 37 S 23  
 LONGITUDE D 07 M 55 S 13  
 ELEVATION 685 M  
 TOWER HEIGHT 20 M

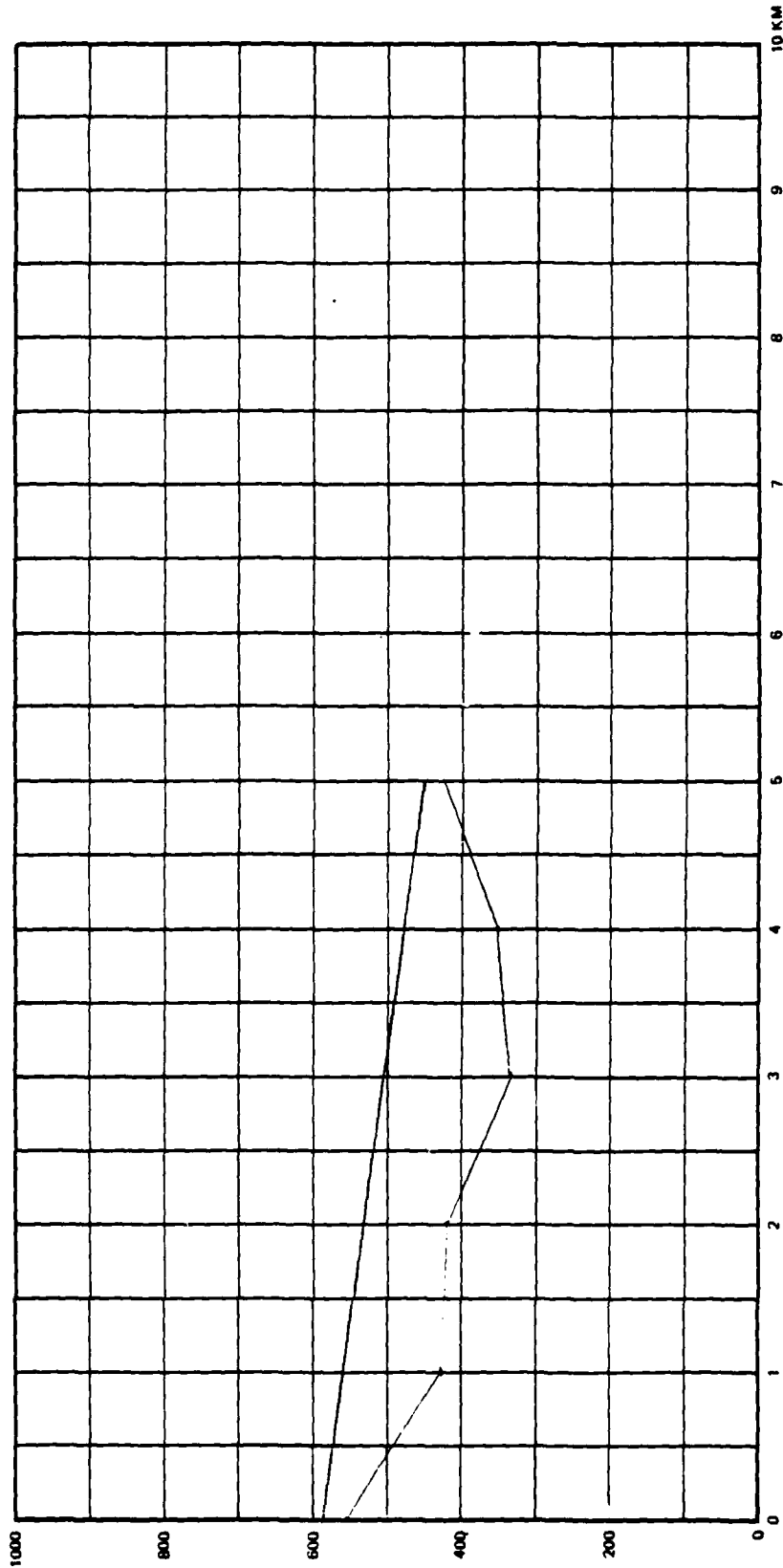


2nd repeater from Baumholder

STATION to Donnersberg  
LATITUDE D 49 M 34 S 38  
LONGITUDE D 07 M 34 S 50  
ELEVATION 568 M  
TOWER HEIGHT 20 M

1st repeater to

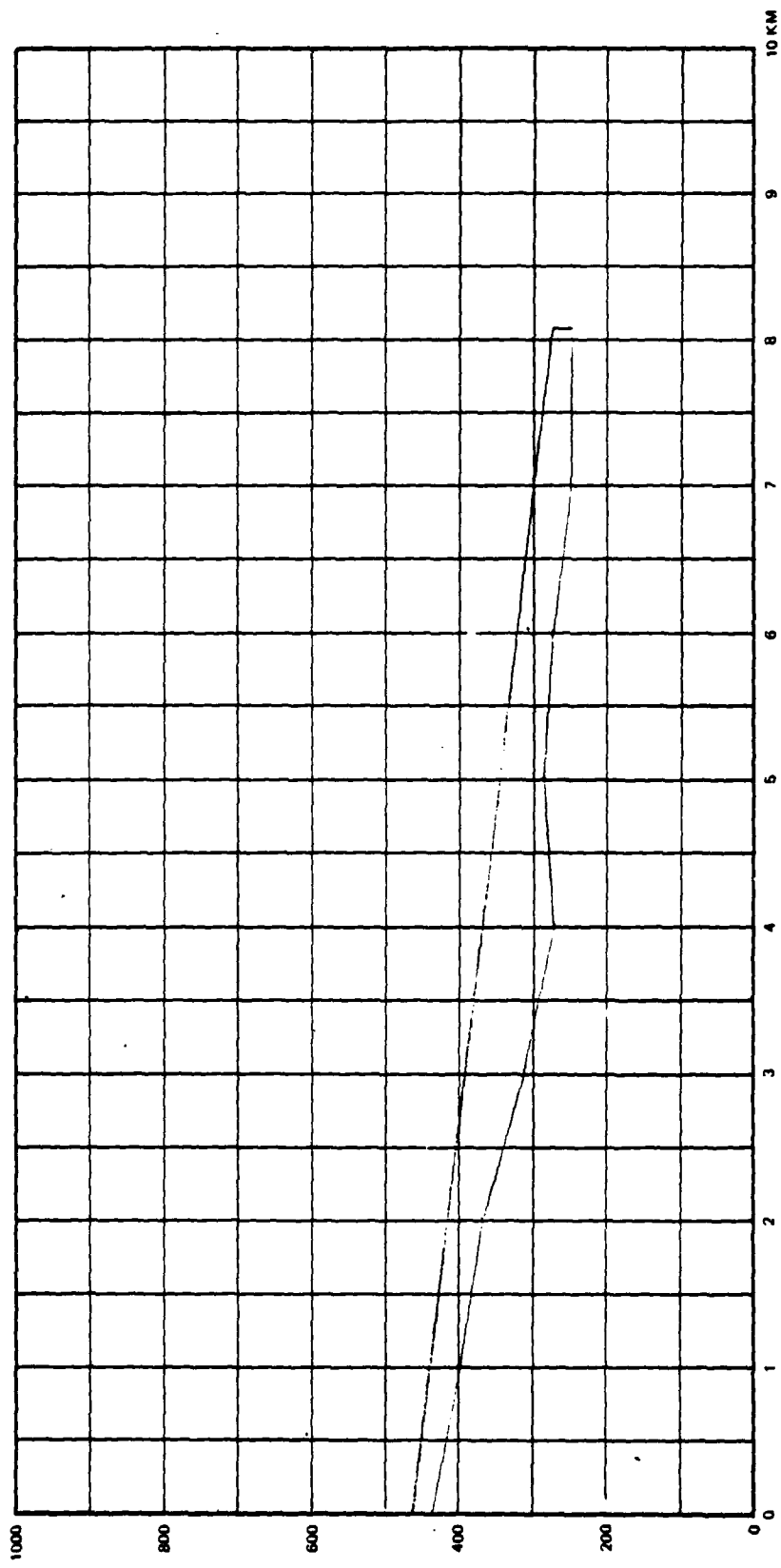
STATION Ramstein  
LATITUDE D 49 M 31 S 55  
LONGITUDE D 07 M 35 S 42  
ELEVATION 434 M  
TOWER HEIGHT 20 M



repeater from 2nd repeater  
from Baumholder to Donnersberg

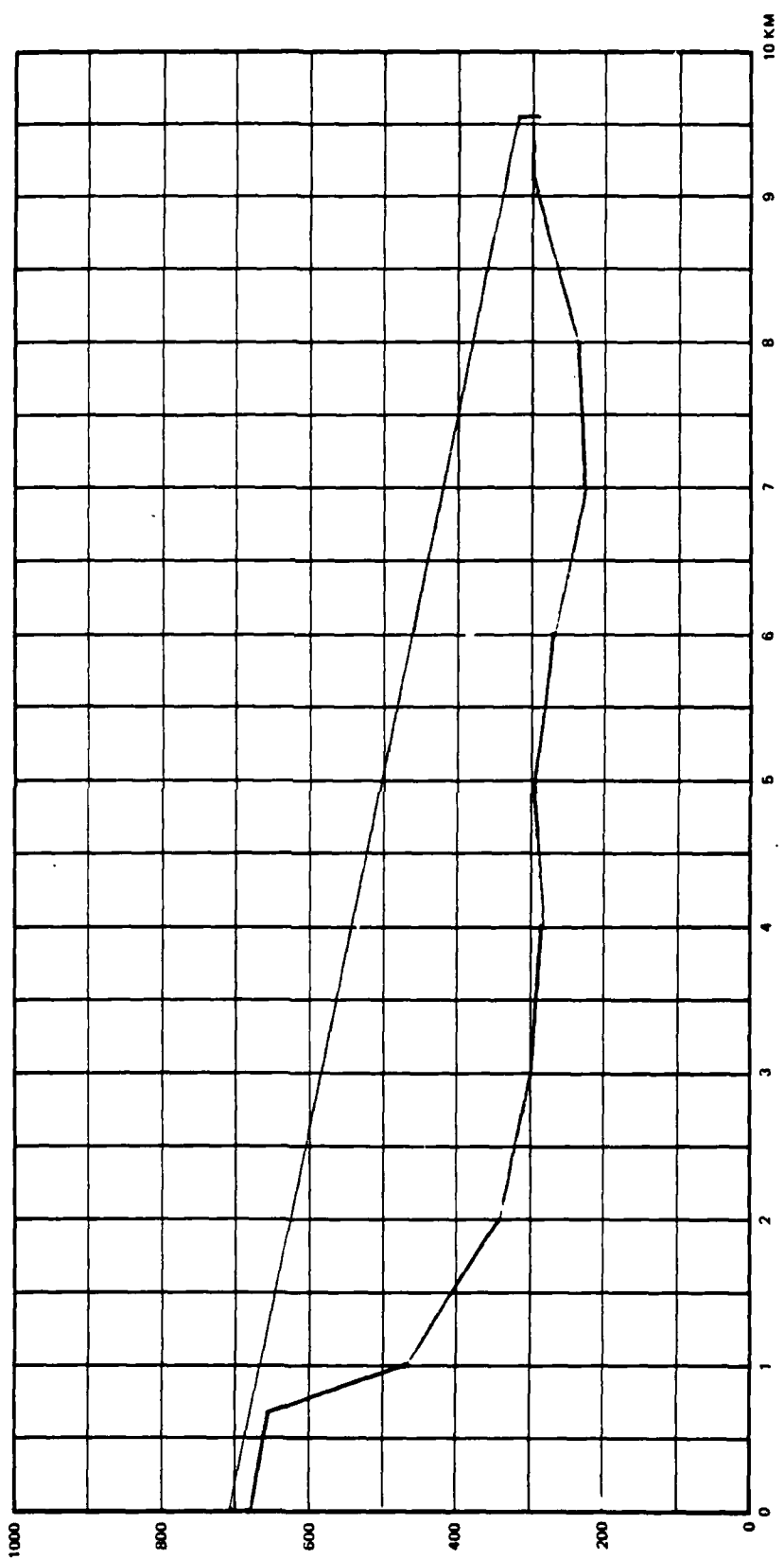
STATION D 49 M 31 S 55  
LATITUDE D 07 M 35 S 42  
LONGITUDE 434 M  
ELEVATION 20 M  
TOWER HEIGHT

STATION Ramstein  
LATITUDE D 49 M 27 S 04  
LONGITUDE D 07 M 35 S 04  
ELEVATION 250 M  
TOWER HEIGHT 20 M



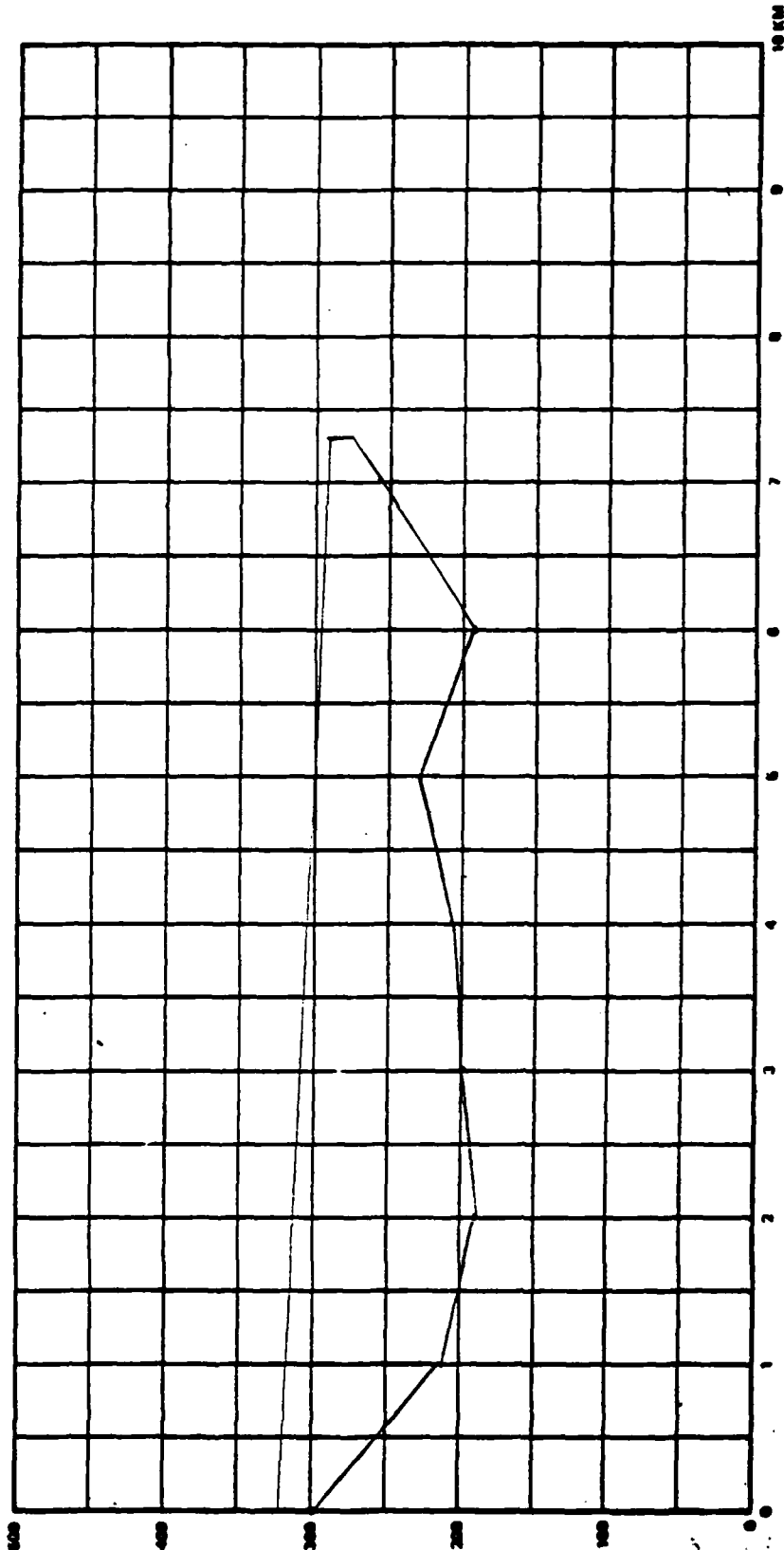
1st repeater to  
 STATION Norms  
 LATITUDE D 49 M 38 S 54  
 LONGITUDE D 08 M 02 S 53  
 ELEVATION 300 M  
 TOWER HEIGHT 20 M

STATION Donnersberg  
 LATITUDE D 49 M 37 S 23  
 LONGITUDE D 07 M 55 S 13  
 ELEVATION 685 M  
 TOWER HEIGHT 20 M



2nd repeater to  
 STATION Worms  
 LATITUDE D 49 M 37 S 56  
 LONGITUDE D 08 M 08 S 46  
 ELEVATION 275 M  
 TOWER HEIGHT 20 M

1st repeater from  
 STATION Donnersberg  
 LATITUDE D 49 M 38 S 54  
 LONGITUDE D 08 M 02 S 53  
 ELEVATION 300 M  
 TOWER HEIGHT 20 M



2nd repeater from

STATION Donnersberg

LATITUDE D 49 M 37 S 56

LONGITUDE D 08 M 08 S 46

ELEVATION 275 M

TOWER HEIGHT 20 M

3rd repeater to

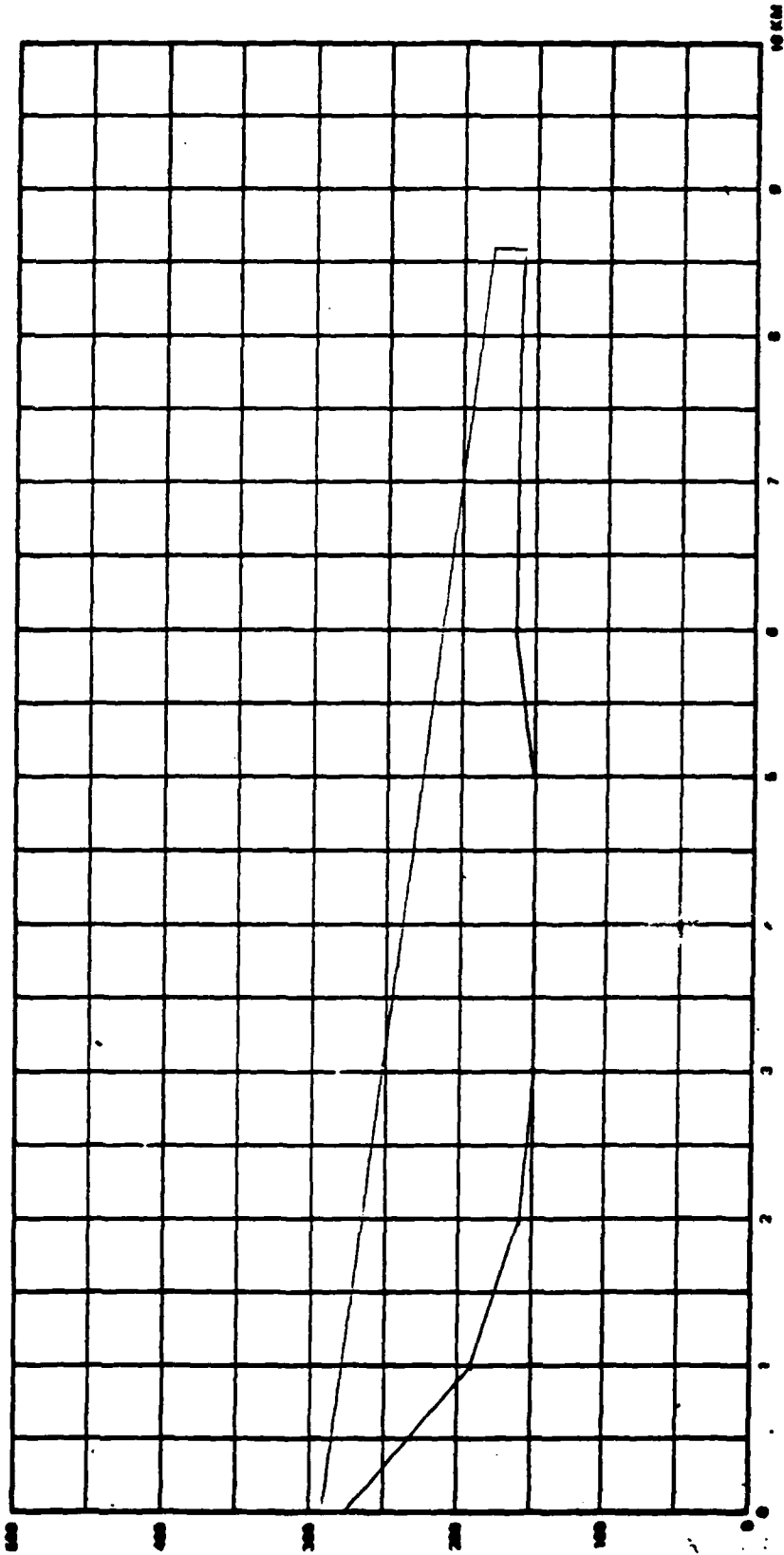
STATION Wormis

LATITUDE D 49 M 38 S 58

LONGITUDE D 08 M 15 S 03

ELEVATION 160 M

TOWER HEIGHT 20 M



3rd repeater from

STATION Donnersberg

LATITUDE D 49 M 38 S 58

LONGITUDE D 08 M 15 S 03

ELEVATION 160 M

TOWER HEIGHT 20 M

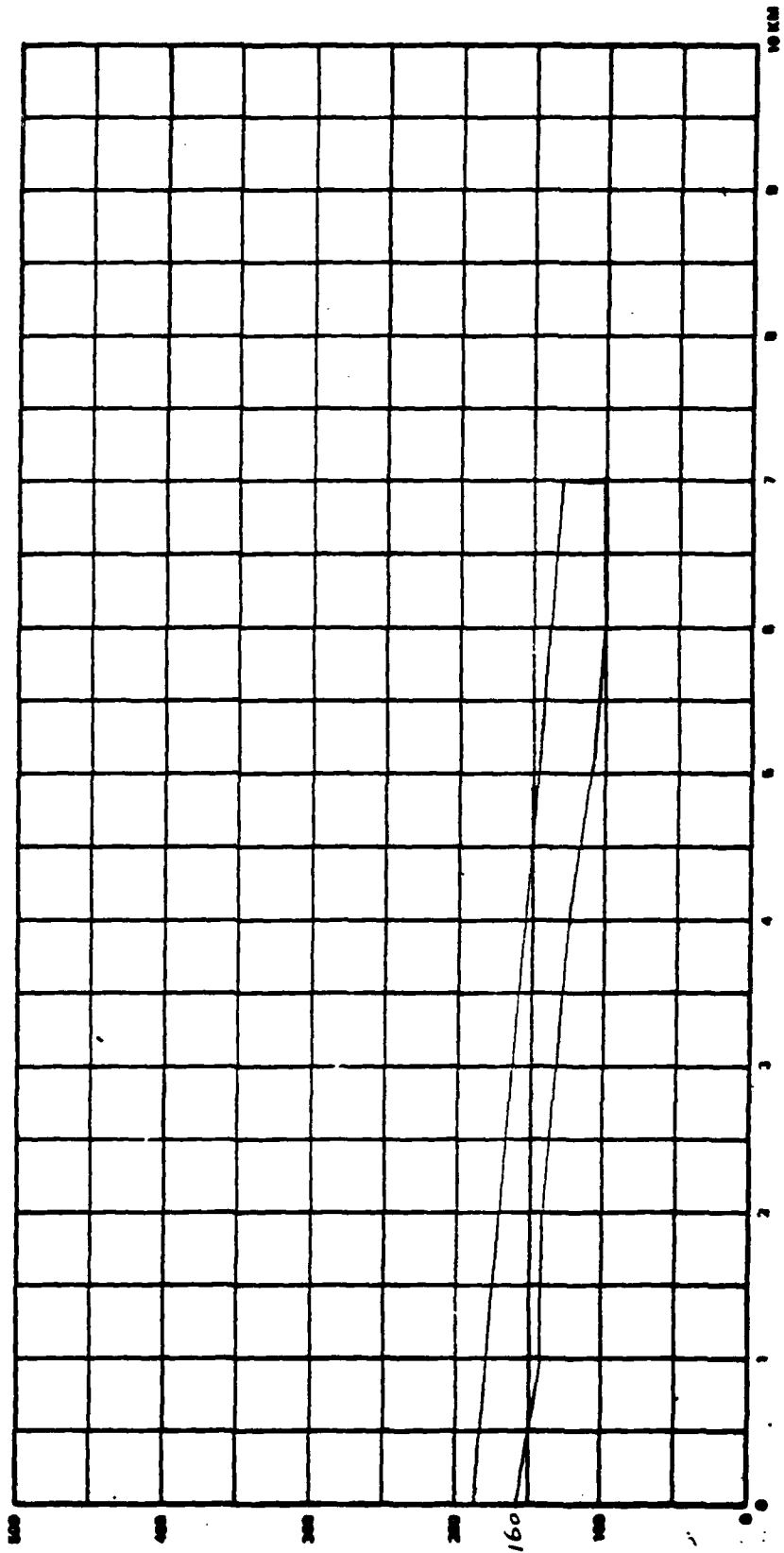
STATION Worms

LATITUDE D 49 M 38 S 28

LONGITUDE D 08 M 21 S 40

ELEVATION 101 M

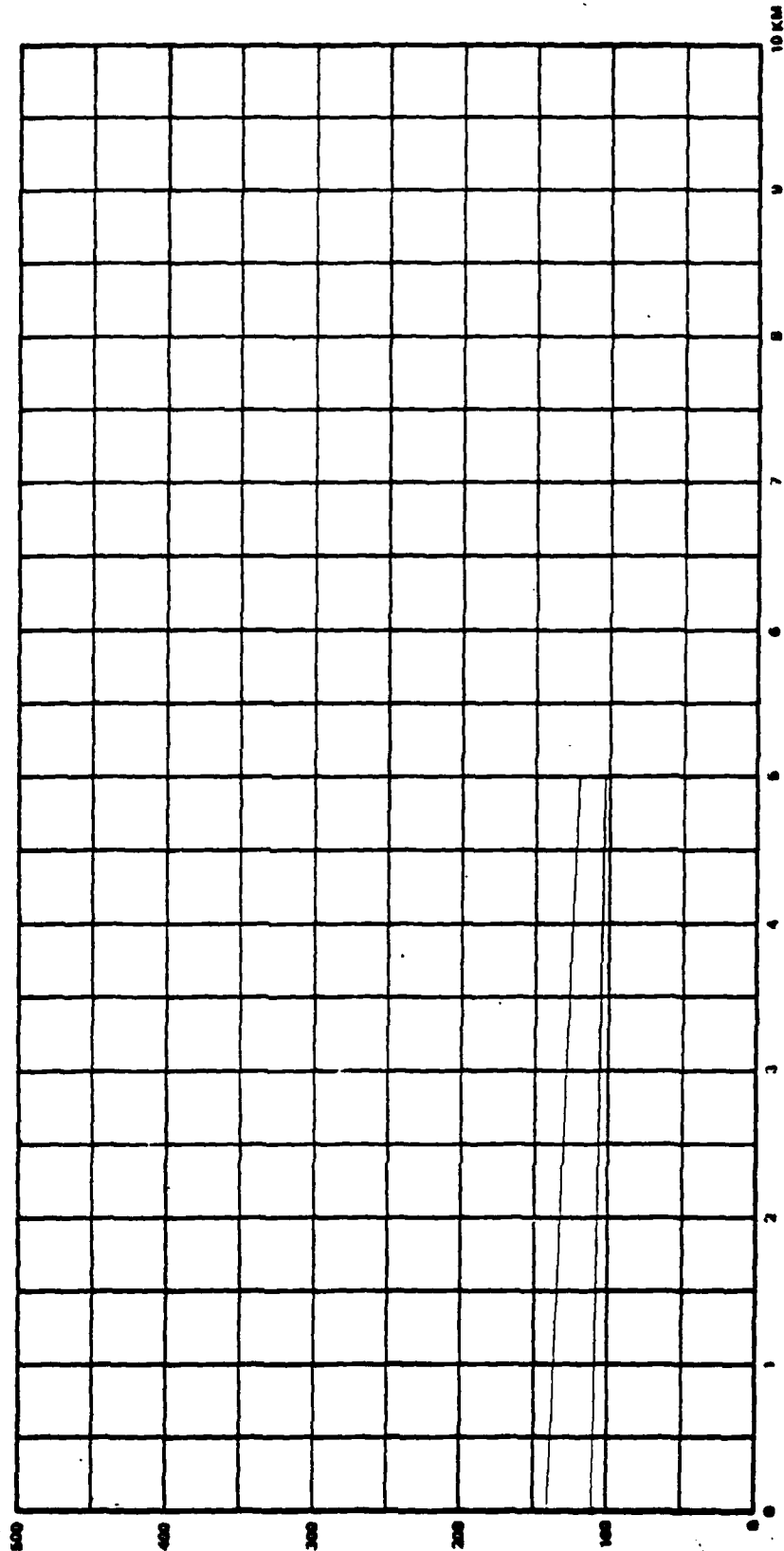
TOWER HEIGHT 30 M





1st repeater from  
STATION Koenigstuhl to Karlsruhe  
LATITUDE D 49 M 38 S 50  
LONGITUDE D 08 M 38 S 50  
ELEVATION 103 M  
TOWER HEIGHT 20 M

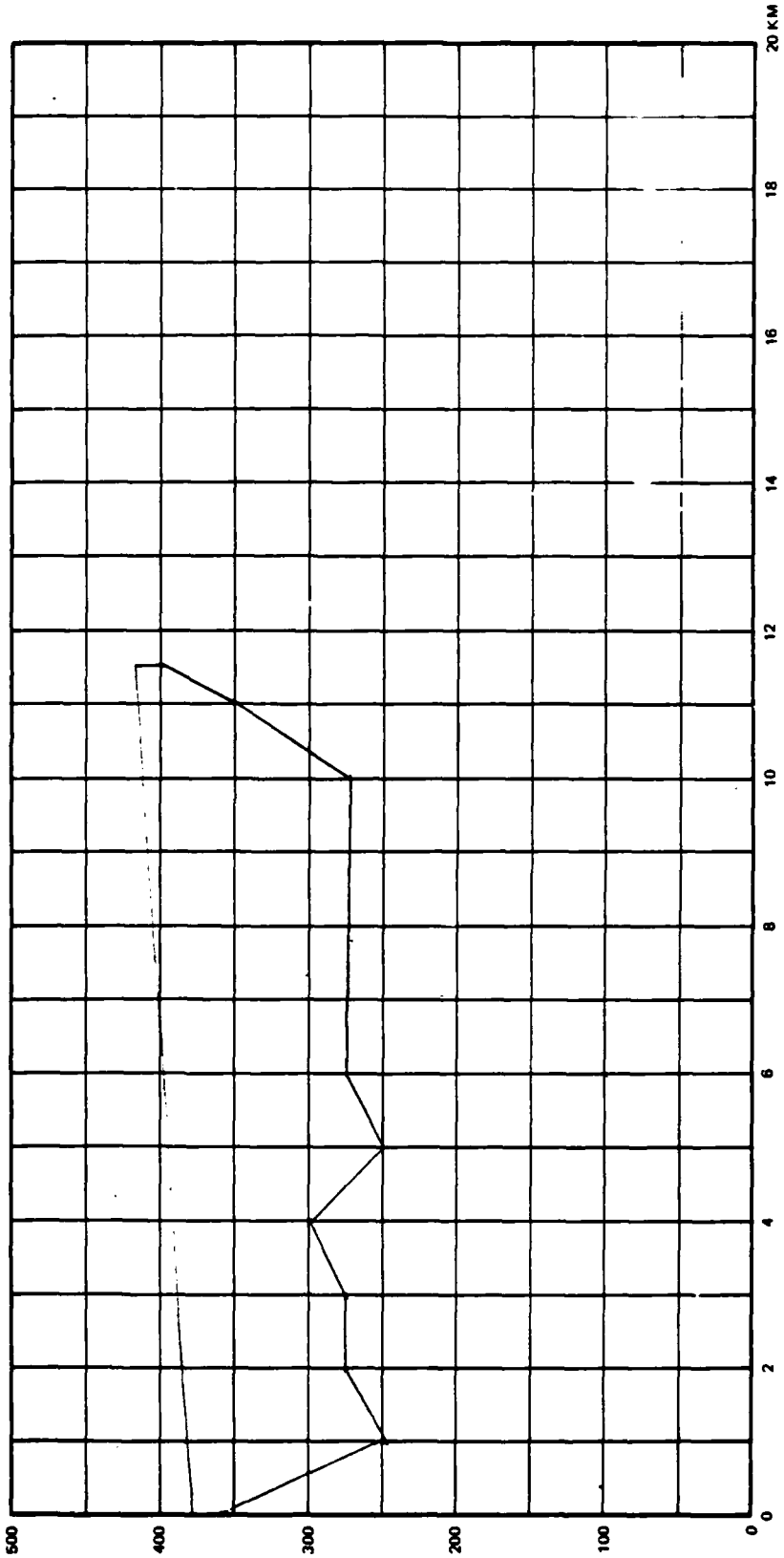
STATION Heidelberg  
LATITUDE D 49 M 23 S 12  
LONGITUDE D 08 M 41 S 00  
ELEVATION 113 M  
TOWER HEIGHT 30 M



Ist repeater to

STATION Bann  
LATITUDE D 49 M 25 S 00  
LONGITUDE D 07 M 40 S 40  
ELEVATION 400 M  
TOWER HEIGHT 20 M

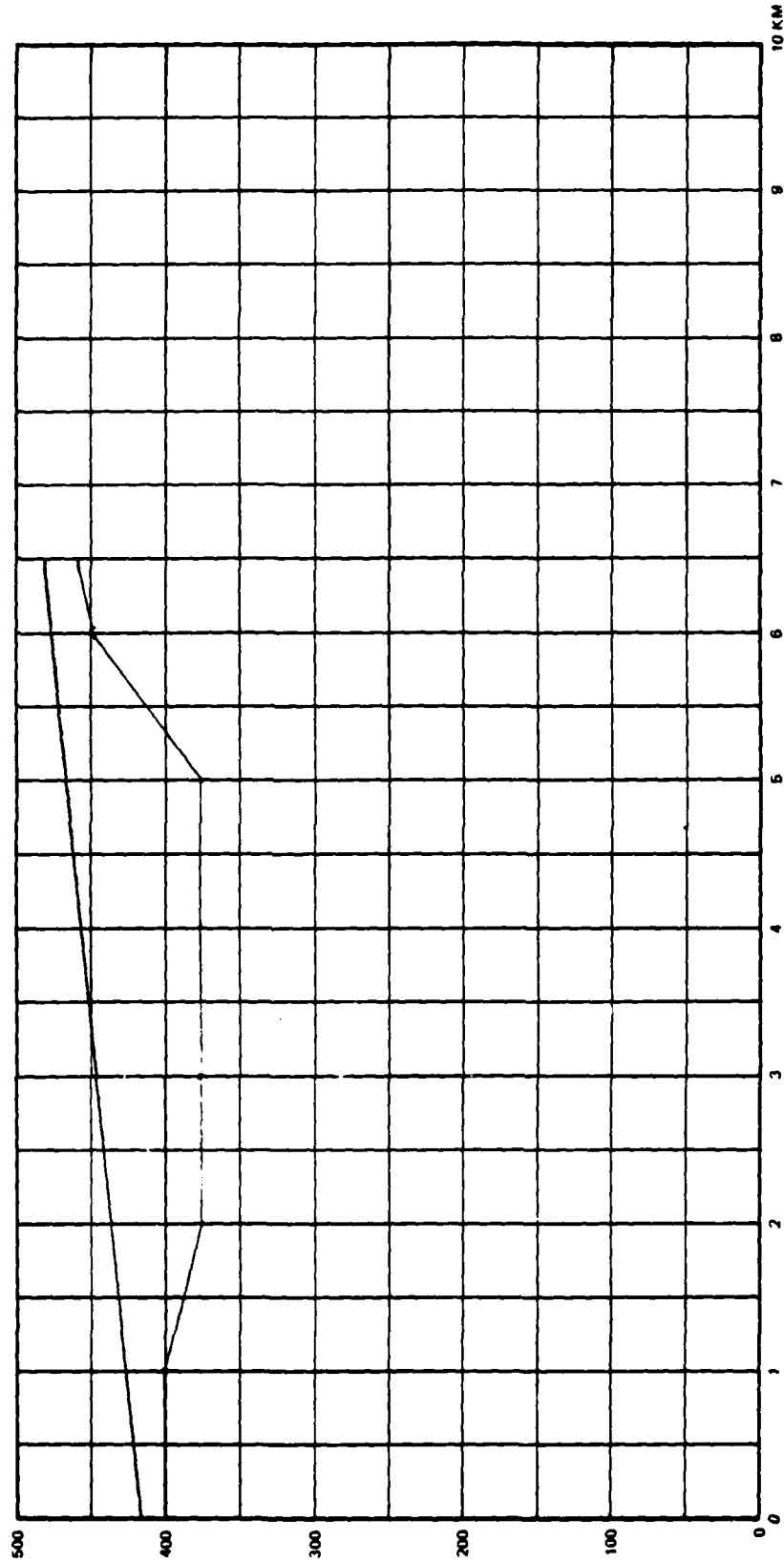
STATION Kaiserlantern  
LATITUDE D 49 M 26 S 40  
LONGITUDE D 07 M 50 S 30  
ELEVATION 360 M  
TOWER HEIGHT 20 M



1st repeater from

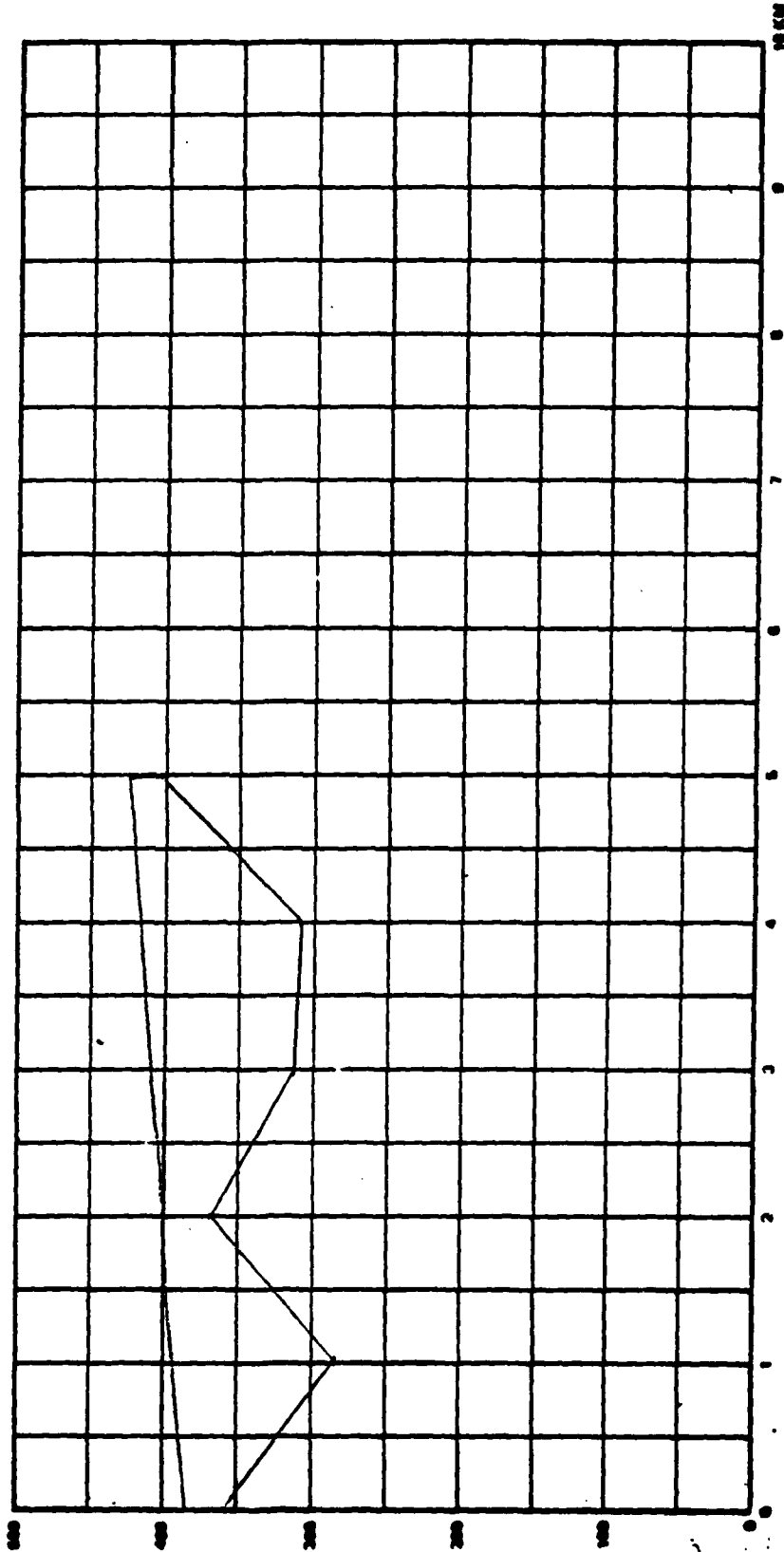
STATION Kaiserlantern  
LATITUDE D 49 M 25 S 00  
LONGITUDE D 07 M 40 S 40  
ELEVATION 400 M  
TOWER HEIGHT 20 M

STATION Bann  
LATITUDE D 49 M 23 S 55  
LONGITUDE D 07 M 35 S 18  
ELEVATION 460 M  
TOWER HEIGHT 20 M



1st repeater  
STATION Kaiserlantern  
LATITUDE D 49 M 25 S 15  
LONGITUDE D 07 M 41 S 04  
ELEVATION 402 M  
TOWER HEIGHT 20 M

STATION Kindsbach  
LATITUDE D 49 M 25 S 00  
LONGITUDE D 07 M 37 S 00  
ELEVATION 362 M  
TOWER HEIGHT 20 M



1st repeater from

STATION Kindsbach

LATITUDE D 49 M 25 S 15

LONGITUDE D 07 M 41 S 04

ELEVATION 402 M

TOWER HEIGHT 20 M

2nd repeater to

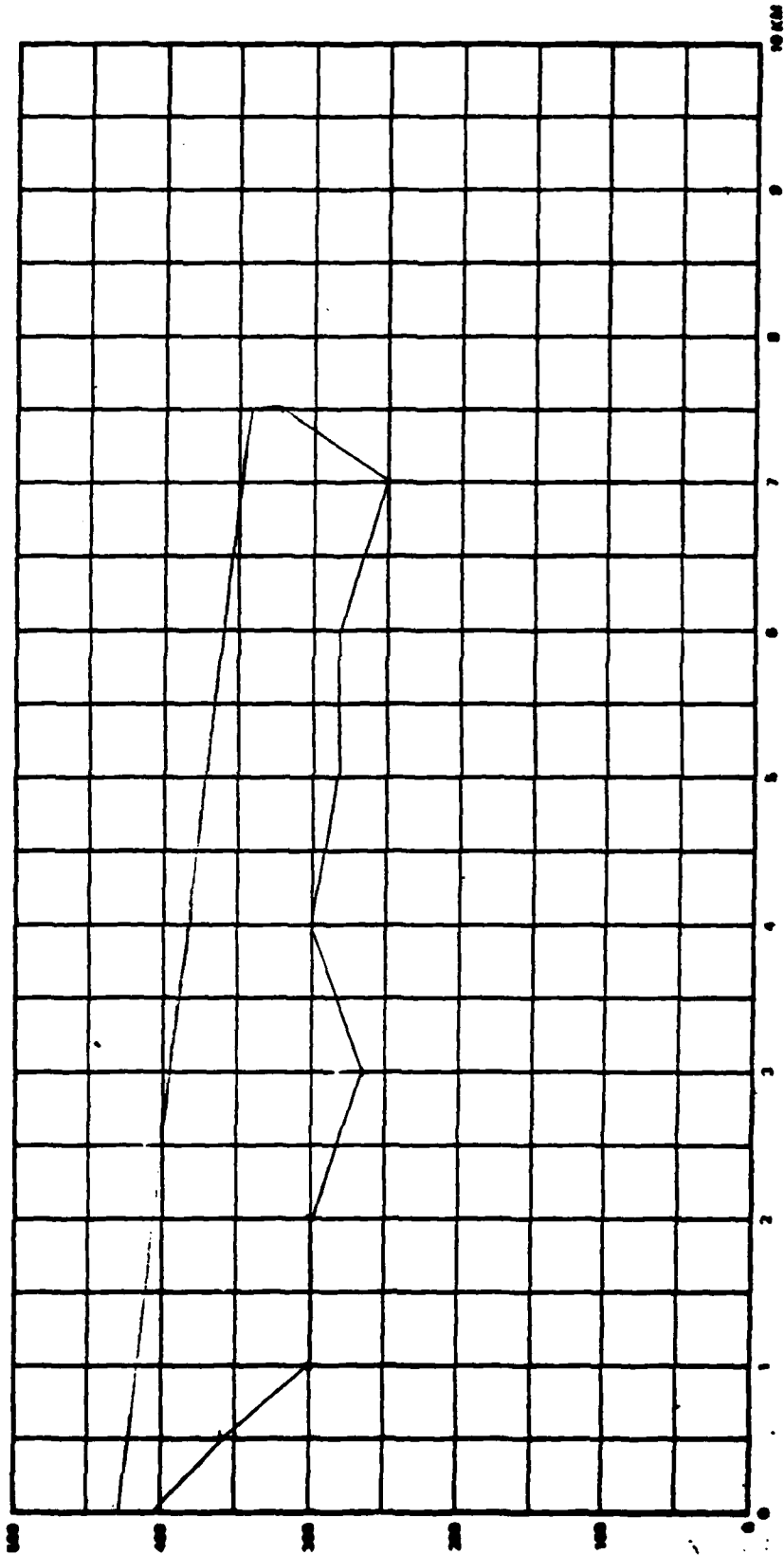
STATION Kaiserslautern

LATITUDE D 49 M 25 S 22

LONGITUDE D 07 M 47 S 10

ELEVATION 323 M

TOWER HEIGHT 20 M



2nd repeater to

STATION Kindsbach

LATITUDE D 49 M 25 S 22

LONGITUDE D 07 M 47 S 10

ELEVATION 323 M

TOWER HEIGHT 20 M

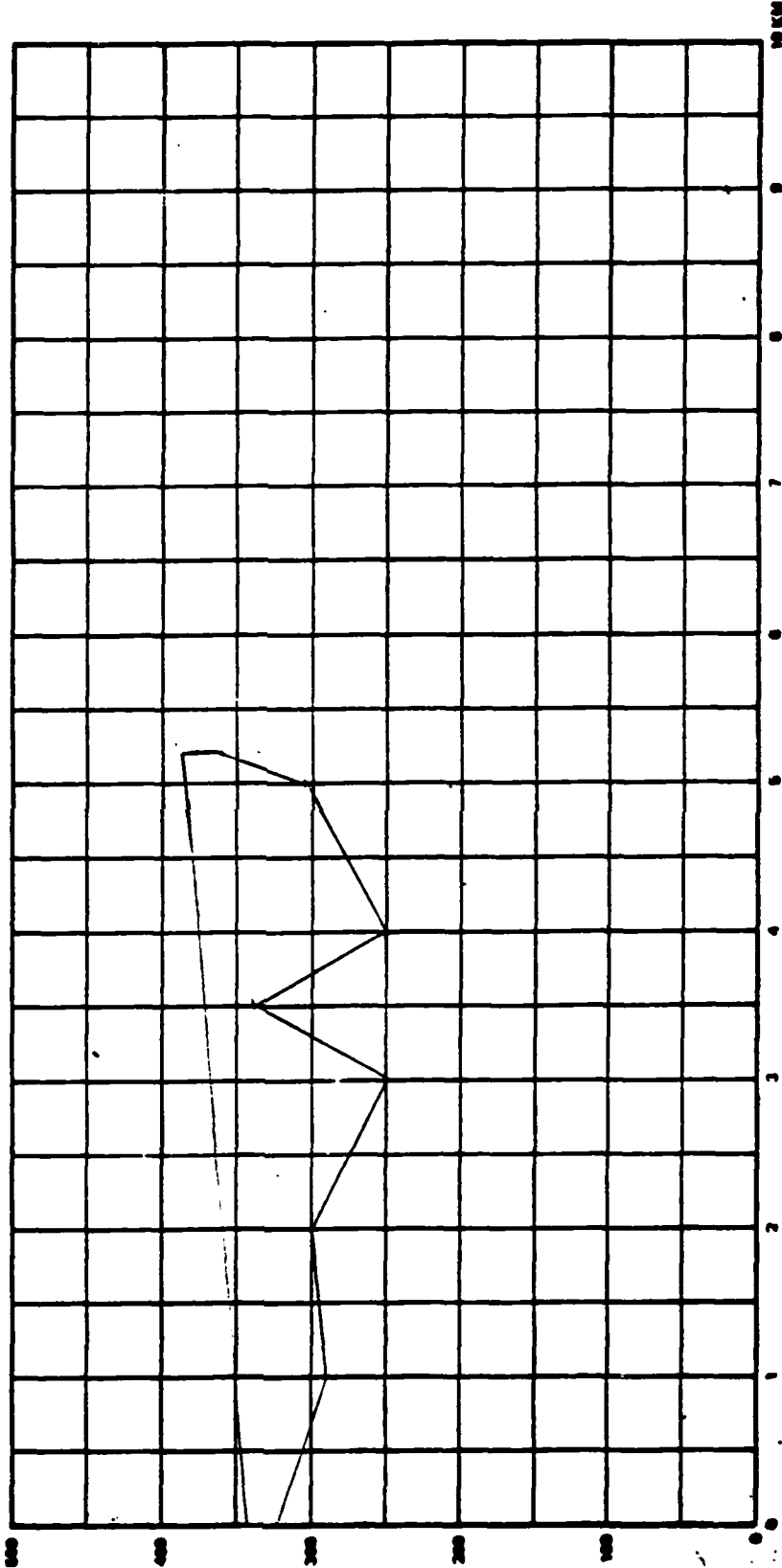
STATION Kaiserslantern

LATITUDE D 49 M 26 S 40

LONGITUDE D 07 M 50 S 50

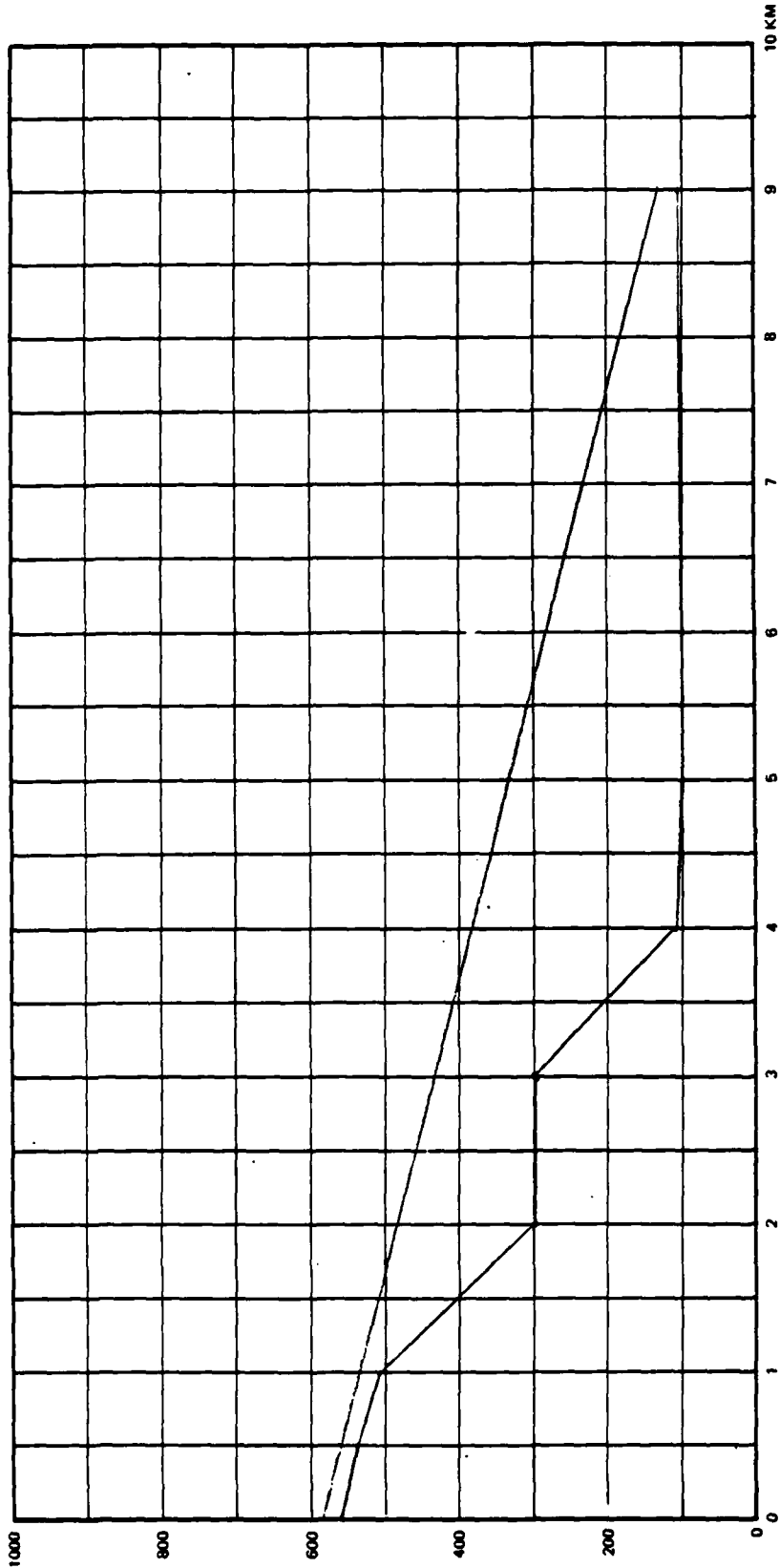
ELEVATION 366 M

TOWER HEIGHT 20 M



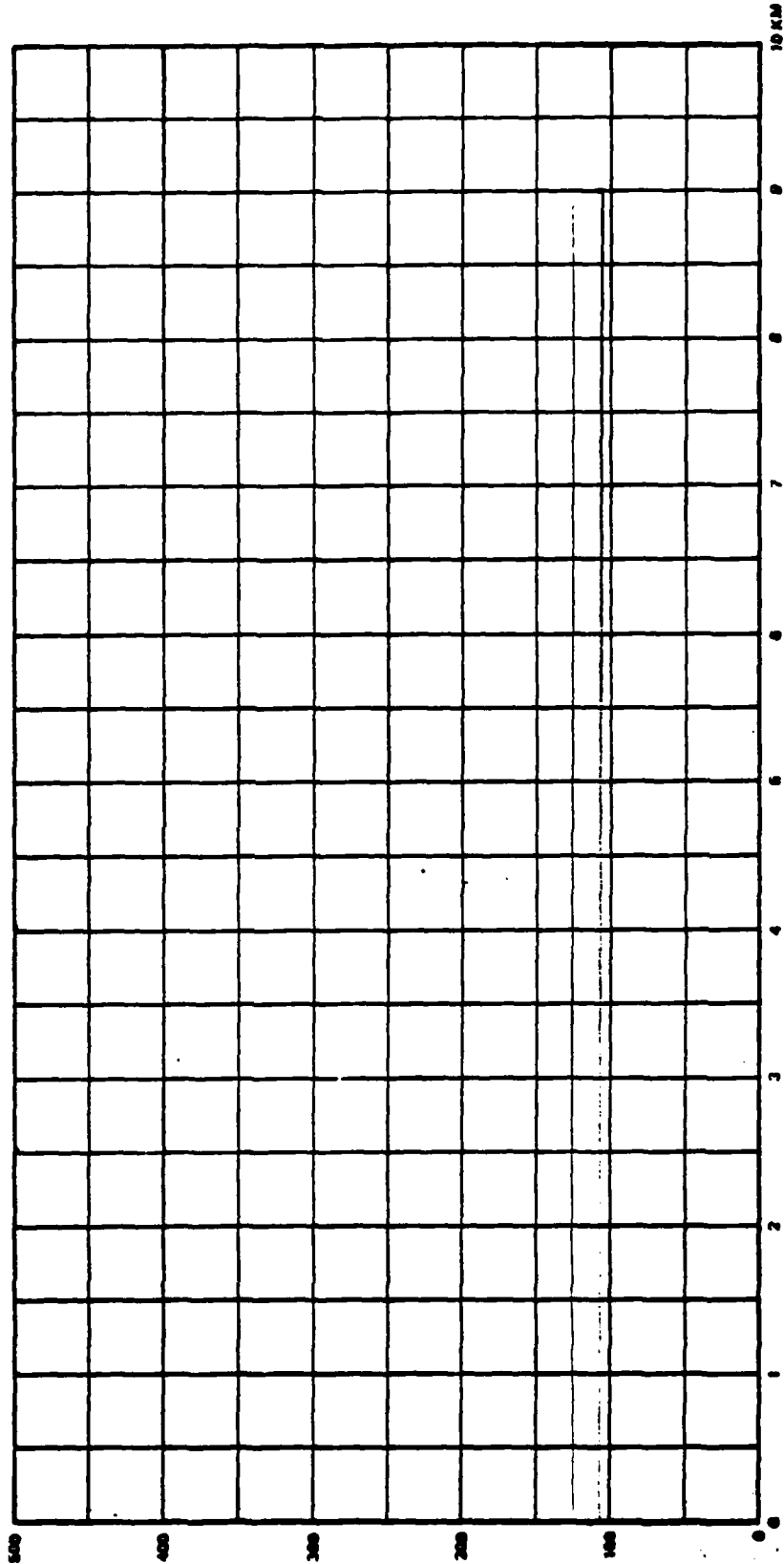
1st repeater to  
 STATION Karlsruhe  
 LATITUDE D 49 M 22 S 08  
 LONGITUDE D 08 M 37 S 18  
 ELEVATION 103 M  
 TOWER HEIGHT 20 M

STATION Koenigstuhl  
 LATITUDE D 49 M 24 S 11  
 LONGITUDE D 08 M 44 S 02  
 ELEVATION 560 M  
 TOWER HEIGHT 20 M



2nd repeater to  
STATION Karlsruhe  
LATITUDE D 49 M 17 S 28  
LONGITUDE D 08 M 35 S 10  
ELEVATION 103 M  
TOWER HEIGHT 20 M

1st repeater from  
STATION Koenigstuhl  
LATITUDE D 49 M 22 S 08  
LONGITUDE D 08 M 37 S 18  
ELEVATION 103 M  
TOWER HEIGHT 20 M





2nd repeater from

STATION Koenigstuhl

LATITUDE D 49 M 17 S 28

LONGITUDE D 08 M 35 S 10

ELEVATION 103 M

TOWER HEIGHT 20 M

3rd repeater to

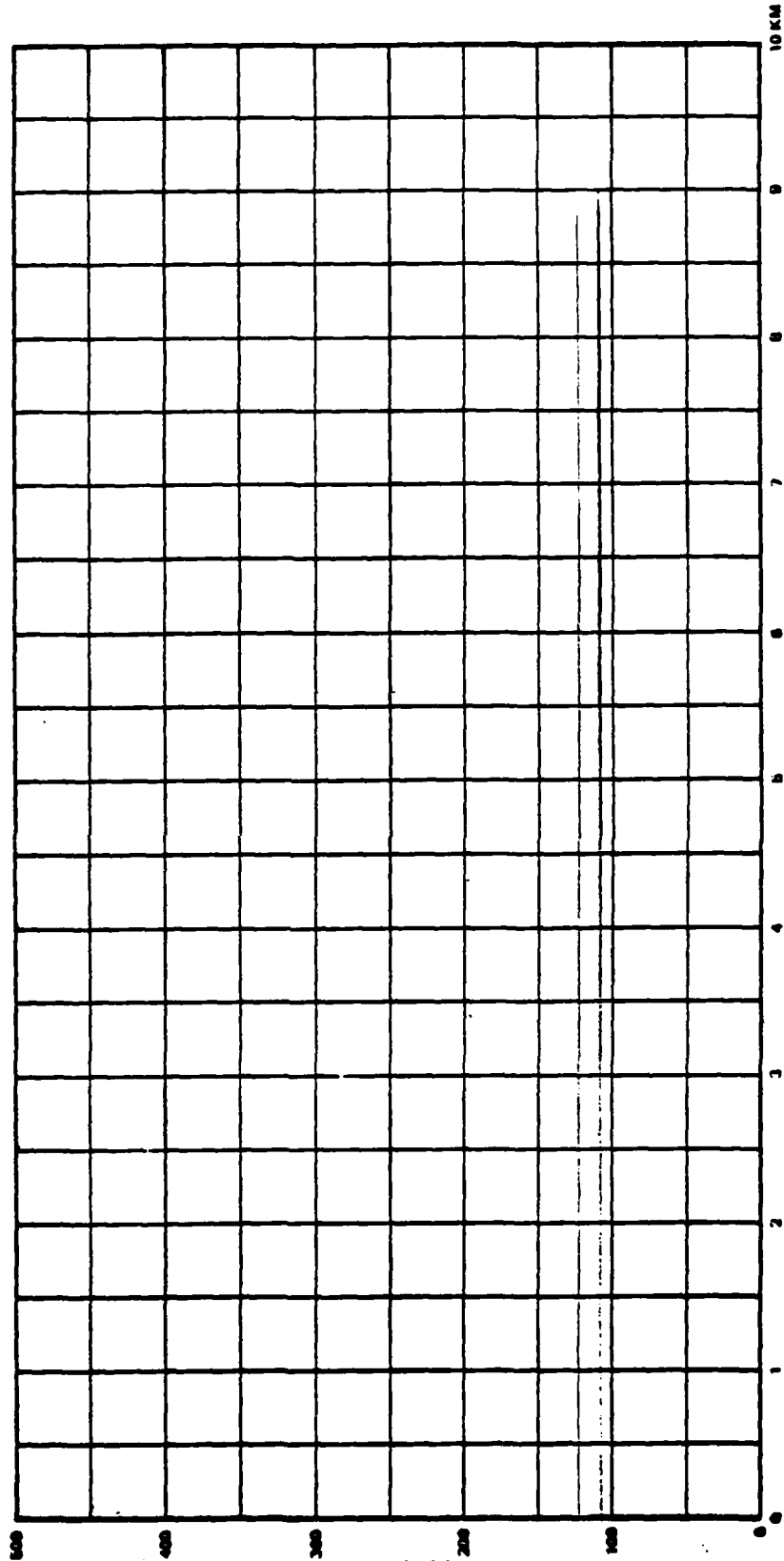
STATION Karlsruhe

LATITUDE D 49 M 12 S 56

LONGITUDE D 08 M 32 S 48

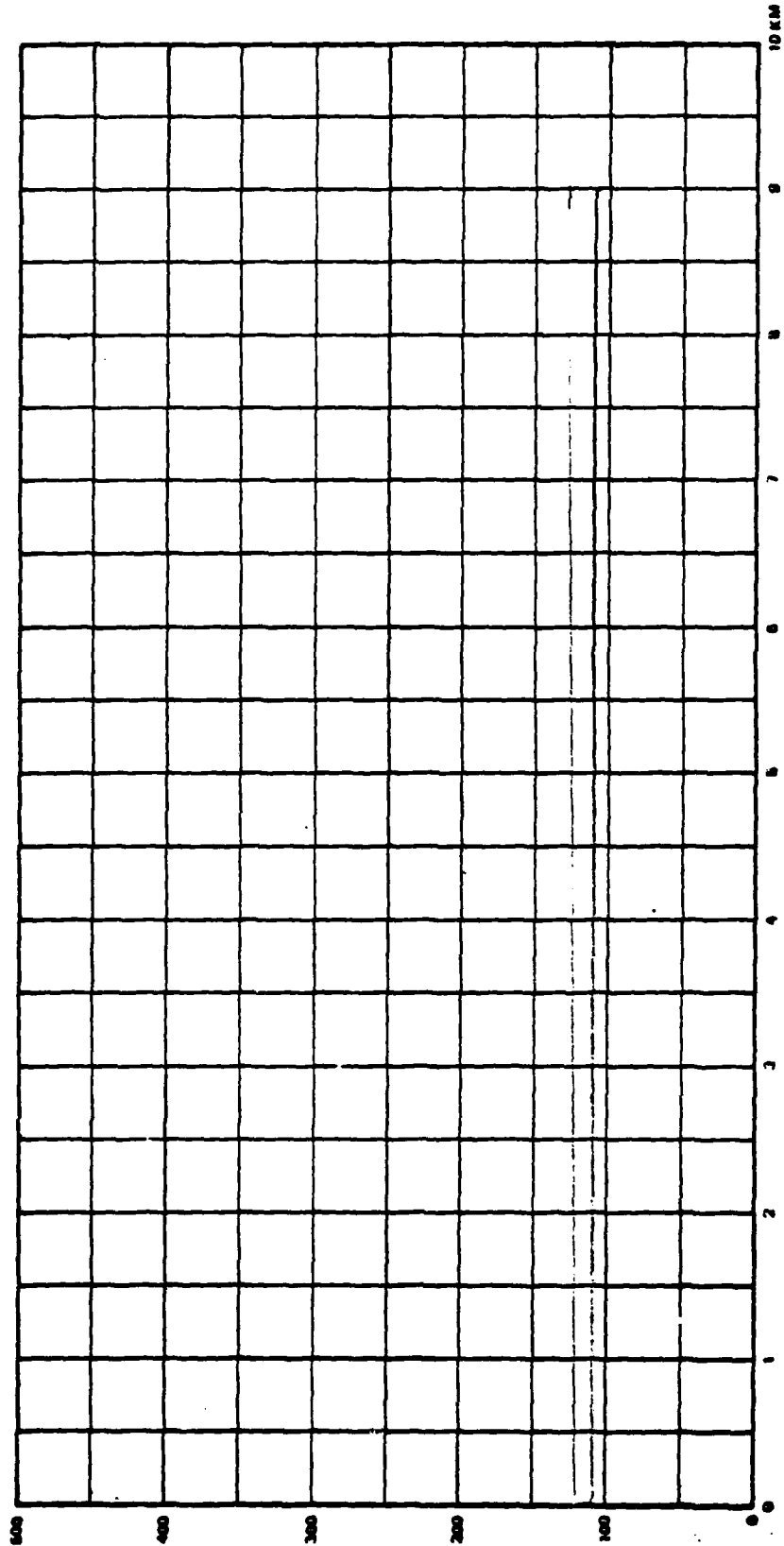
ELEVATION 105 M

TOWER HEIGHT 20 M



3rd repeater from  
STATION Koenigstuhl  
LATITUDE D 49 M 12 S 56  
LONGITUDE D 08 M 32 S 48  
ELEVATION 105 M  
TOWER HEIGHT 20 M

4th repeater to  
STATION Karlruhe  
LATITUDE D 49 M 08 S 34  
LONGITUDE D 08 M 29 S 38  
ELEVATION 108 M  
TOWER HEIGHT 20 M



4th repeater from

STATION Koenigstuhl

LATITUDE D 49 M 08 S 34

LONGITUDE D 08 M 29 S 38

ELEVATION 108 M

TOWER HEIGHT 20 M

5th repeater to

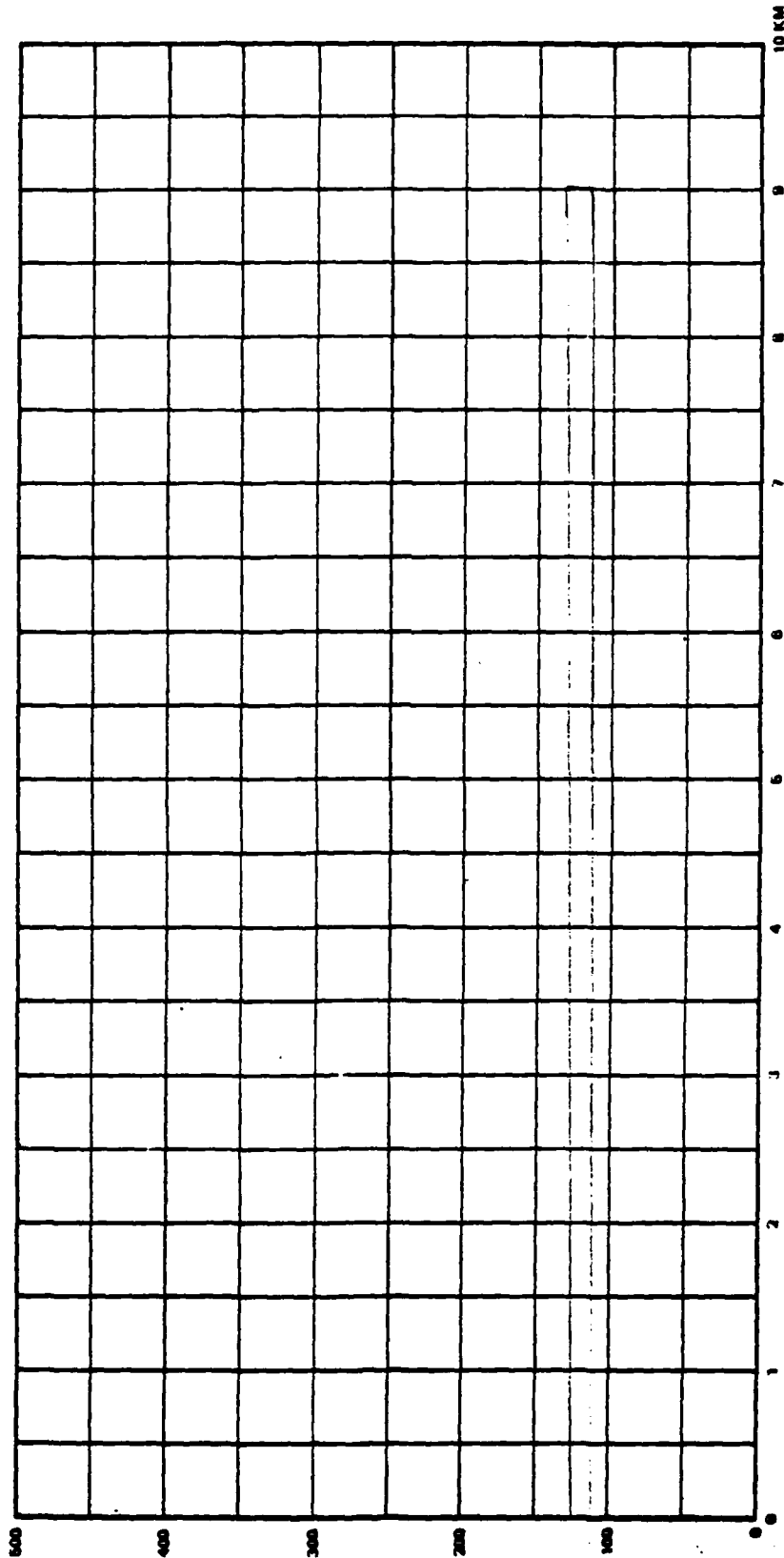
STATION Karlsruhe

LATITUDE D 49 M 04 S 08

LONGITUDE D 08 M 26 S 43

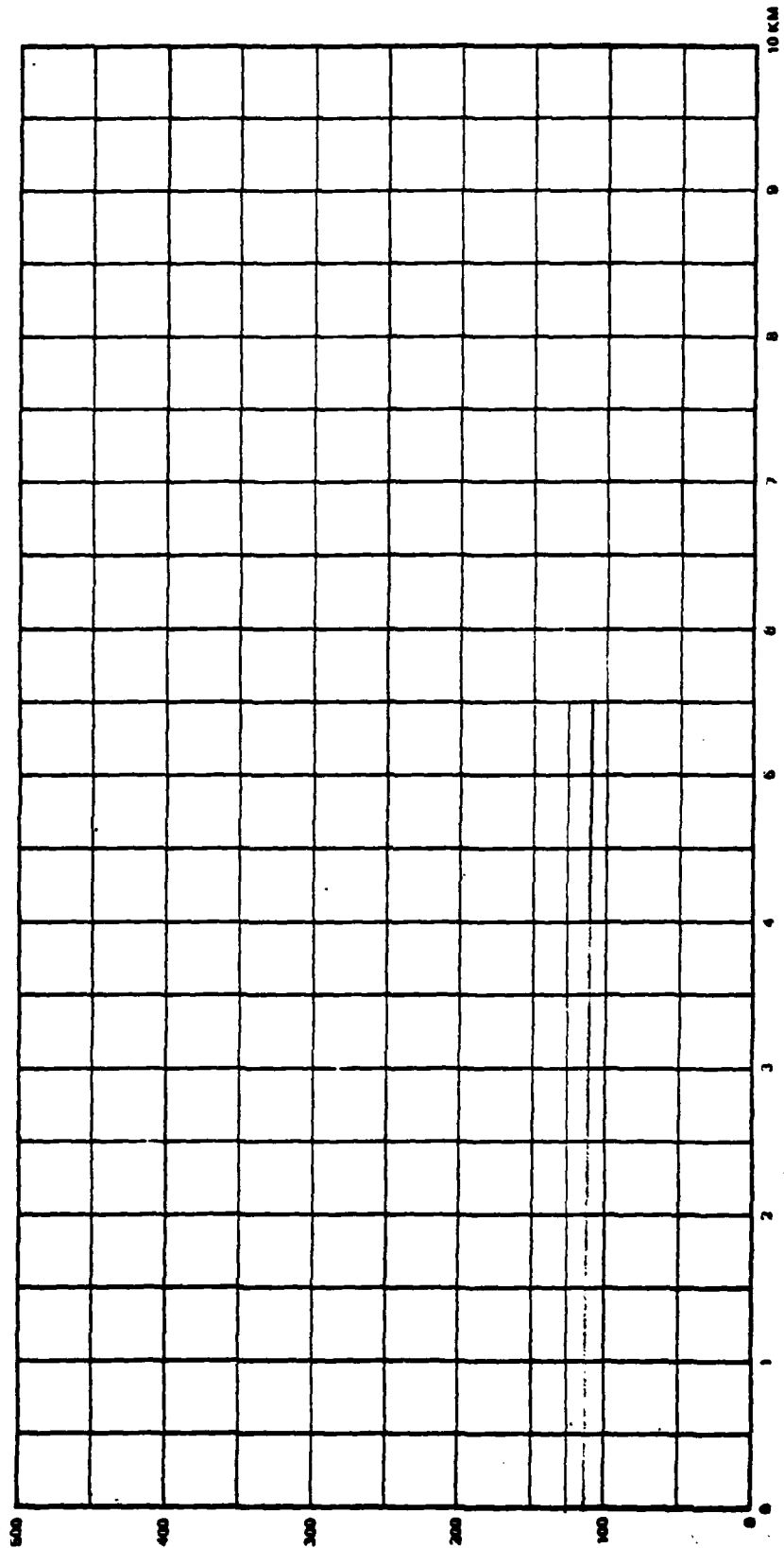
ELEVATION 112 M

TOWER HEIGHT 20 M



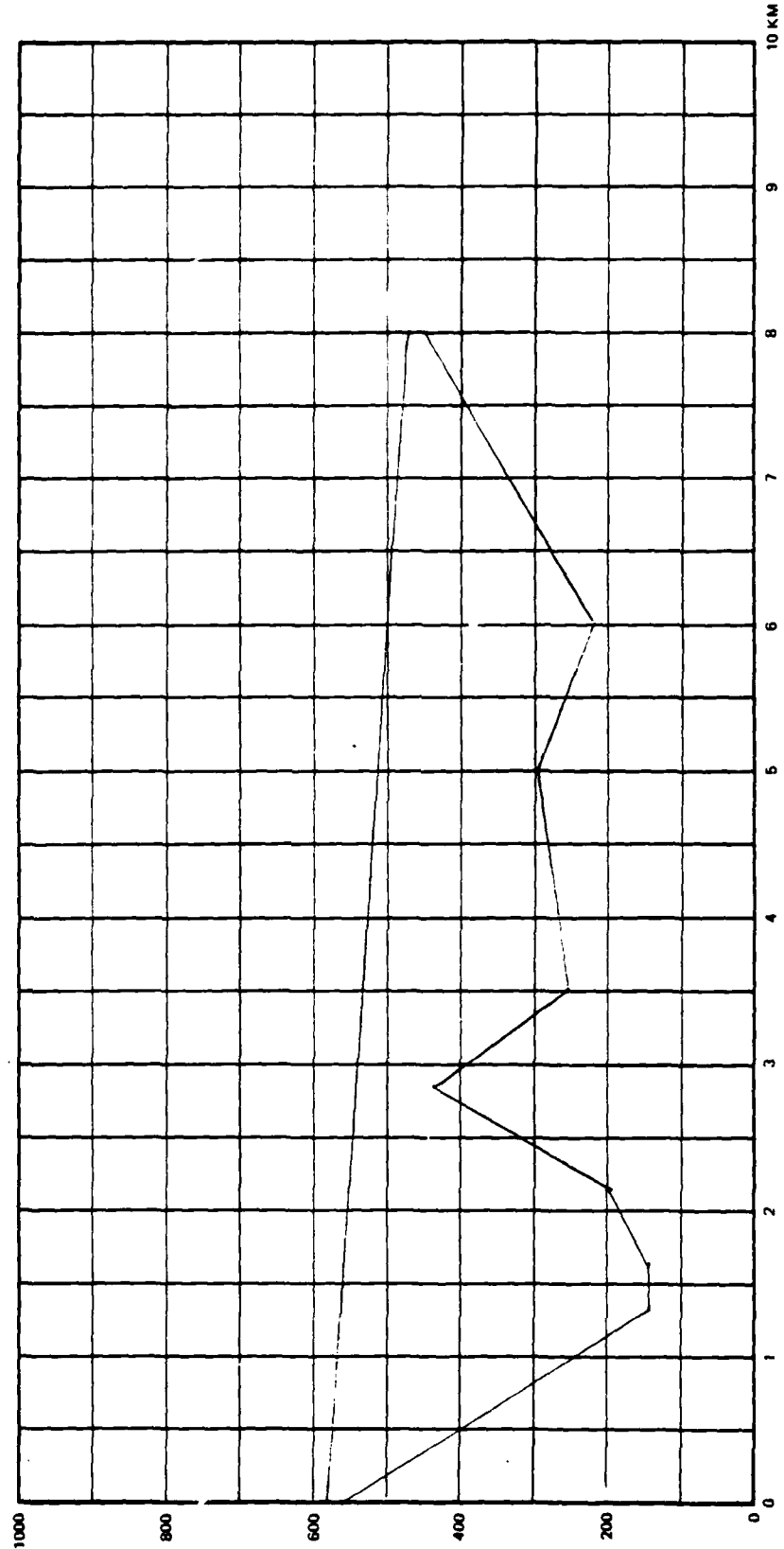
5th repeater from  
STATION Koenigstuhl  
LATITUDE D 49 M 04 S 08  
LONGITUDE D 08 M 26 S 43  
ELEVATION 112 M  
TOWER HEIGHT 20 M

STATION Karlsruhe  
LATITUDE D 49 M 01 S 59  
LONGITUDE D 08 M 23 S 39  
ELEVATION 112 M  
TOWER HEIGHT 20 M



1st repeater to  
 STATION Mannheim  
 LATITUDE D 49 M 28 S 15  
 LONGITUDE D 08 M 40 S 50  
 ELEVATION 449 M  
 TOWER HEIGHT 20 M

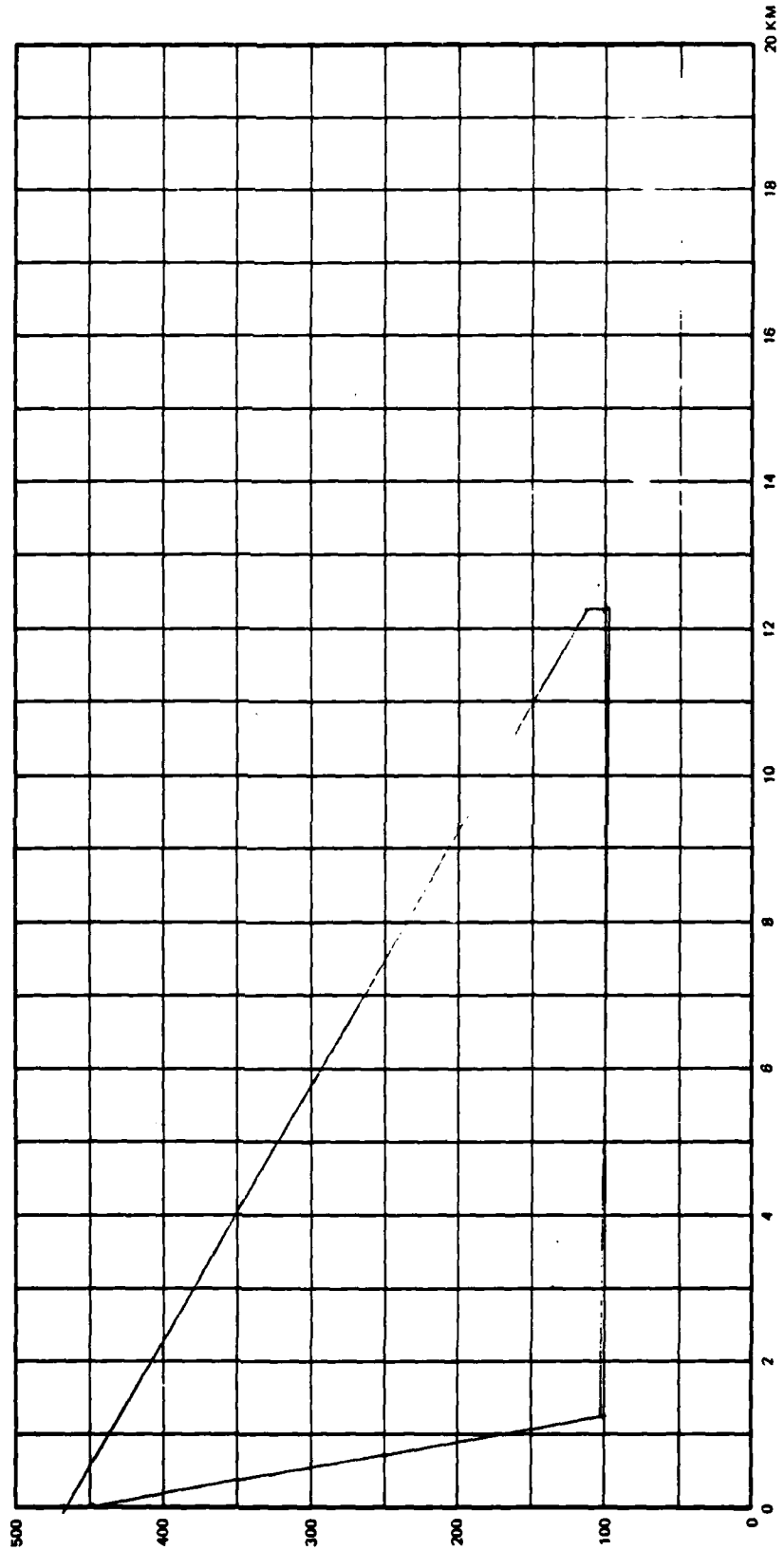
STATION Koenigsstuhl  
 LATITUDE D 49 M 24 S 11  
 LONGITUDE D 08 M 44 S 02  
 ELEVATION 560 M  
 TOWER HEIGHT 20 M



1st repeater from

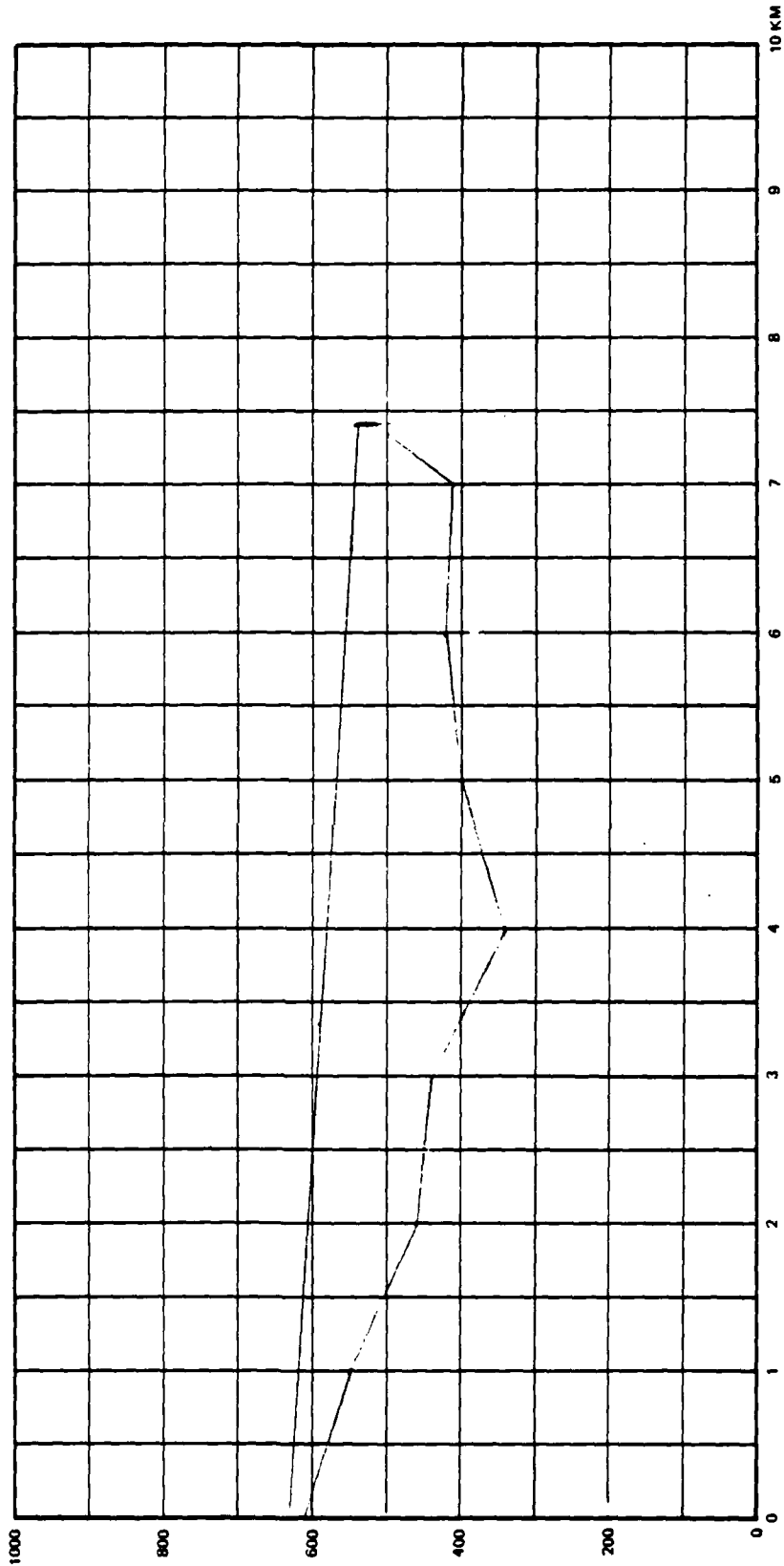
STATION Koenigstuhl  
LATITUDE D 49 M 28 S 15  
LONGITUDE D 08 M 40 S 50  
ELEVATION 449 M  
TOWER HEIGHT 20 M

STATION Mannheim  
LATITUDE D 49 M 30 S 59  
LONGITUDE D 08 M 31 S 48  
ELEVATION 97 M  
TOWER HEIGHT 20 M



1st repeater to  
 STATION Kaiserlantern  
 LATITUDE D 49 M 22 S 00  
 LONGITUDE D 07 M 51 S 55  
 ELEVATION 516 M  
 TOWER HEIGHT 20 M

STATION Langerkopf  
 LATITUDE D 49 M 18 S 04  
 LONGITUDE D 07 M 50 S 39  
 ELEVATION 608 M  
 TOWER HEIGHT 20 M



1st repeater from

STATION Langerkopf

LATITUDE D 49 M 22 S 00

LONGITUDE D 07 M 51 S 55

ELEVATION 516 M

TOWER HEIGHT 20 M

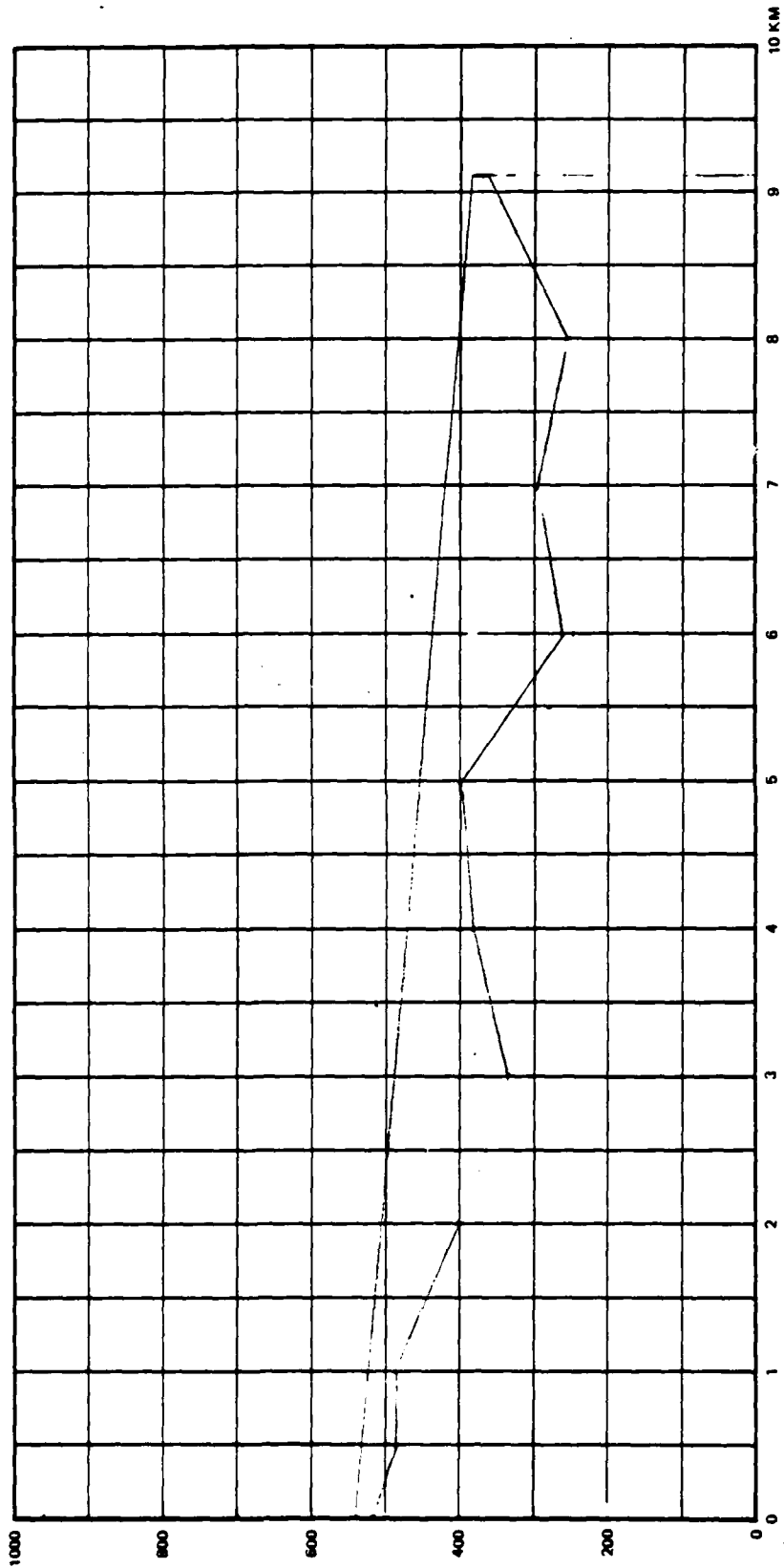
STATION Kaiserslantern

LATITUDE D 49 M 26 S 40

LONGITUDE D 07 M 50 S 50

ELEVATION 366 M

TOWER HEIGHT 20 M

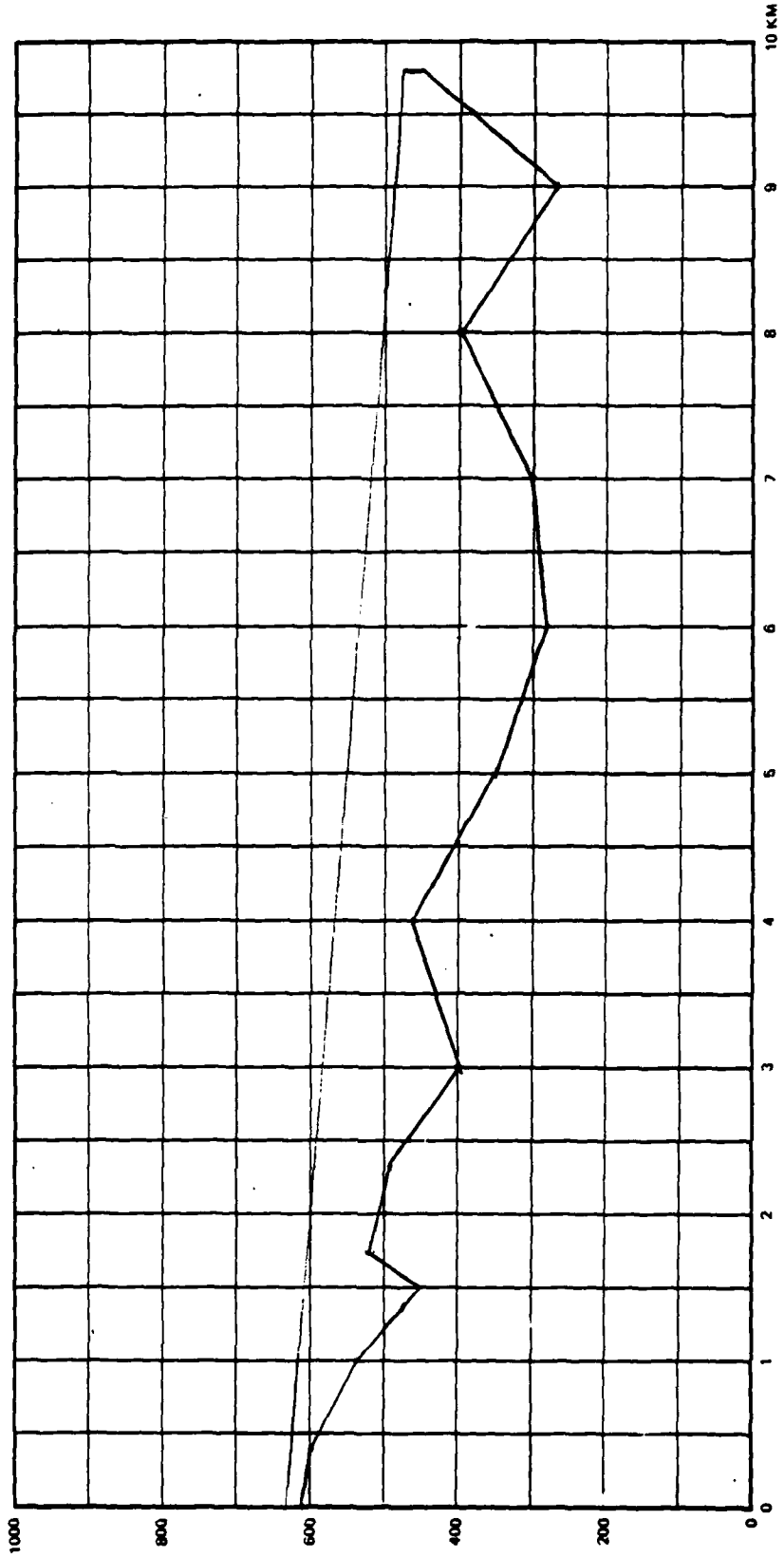




1st repeater to

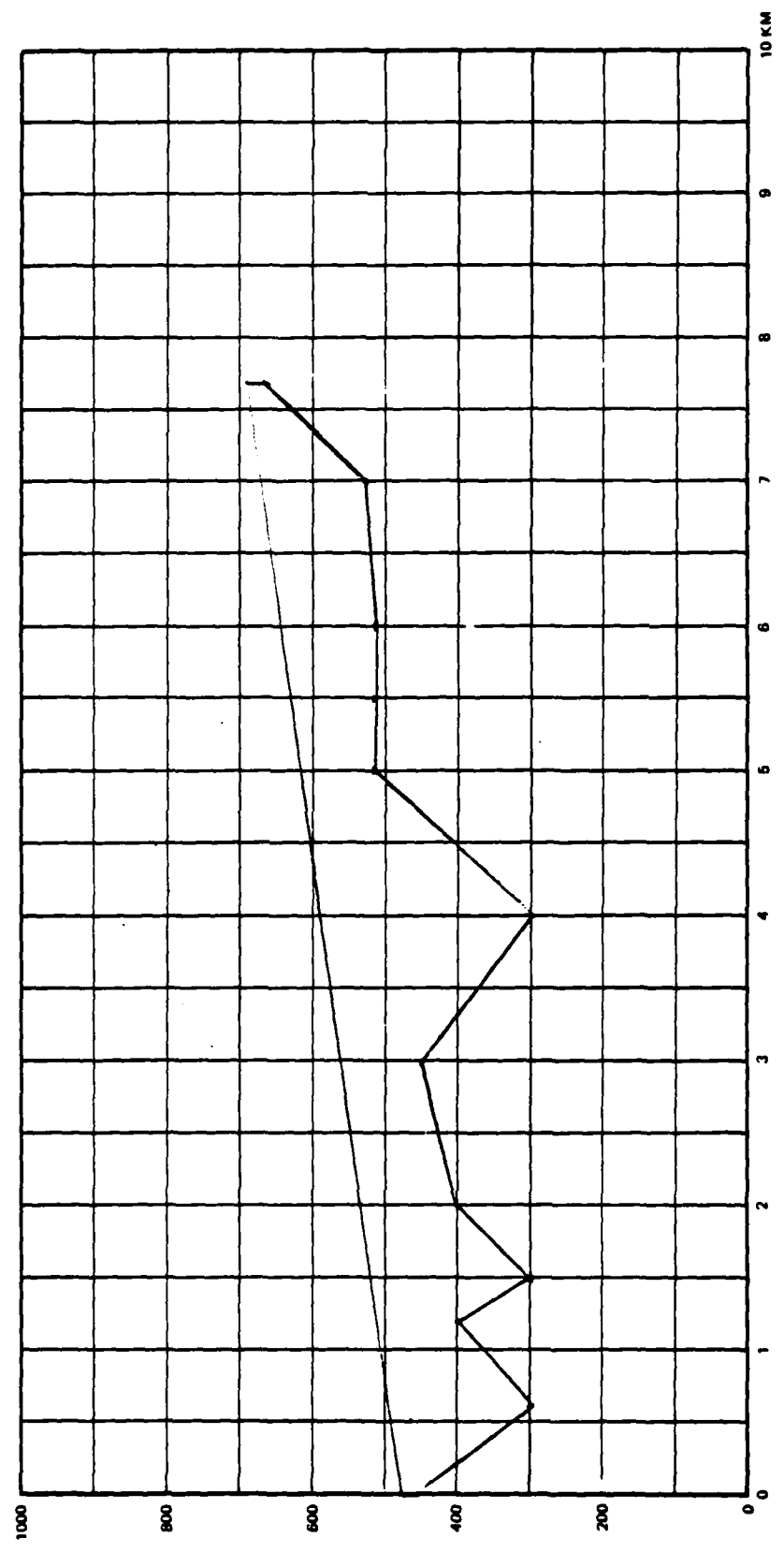
STATION Schwetzingen  
LATITUDE D 49 M 19 S 31  
LONGITUDE D 07 M 58 S 30  
ELEVATION 456 M  
TOWER HEIGHT 20 M

STATION Langerkopf  
LATITUDE D 49 M 18 S 04  
LONGITUDE D 07 M 50 S 39  
ELEVATION 608 M  
TOWER HEIGHT 20 M



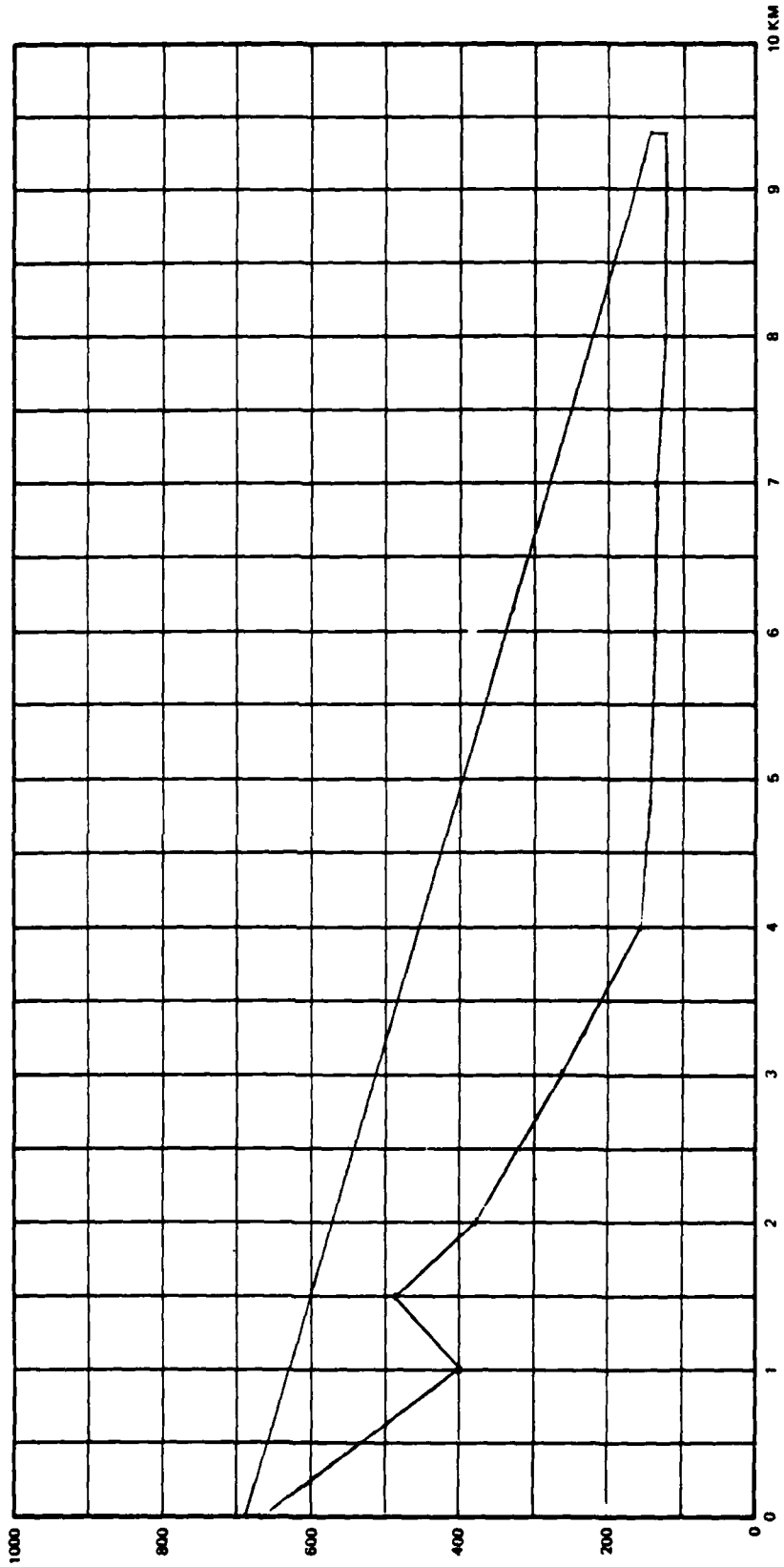
2nd repeater to  
 STATION Schwetzingen  
 LATITUDE D 49 M 19 S 13  
 LONGITUDE D 08 M 04 S 53  
 ELEVATION 673 M  
 TOWER HEIGHT 20 M

1st repeater from  
 Langerkopf  
 STATION  
 LATITUDE D 49 M 19 S 31  
 LONGITUDE D 07 M 58 S 30  
 ELEVATION 456 M  
 TOWER HEIGHT 20 M



3rd repeater to  
 STATION Schwetzingen  
 LATITUDE D 49 M 20 S 52  
 LONGITUDE D 08 M 12 S 20  
 ELEVATION 125 M  
 TOWER HEIGHT 20 M

2nd repeater from  
 STATION Langerkopf  
 LATITUDE D 49 M 19 S 13  
 LONGITUDE D 08 M 04 S 53  
 ELEVATION 673 M  
 TOWER HEIGHT 20 M

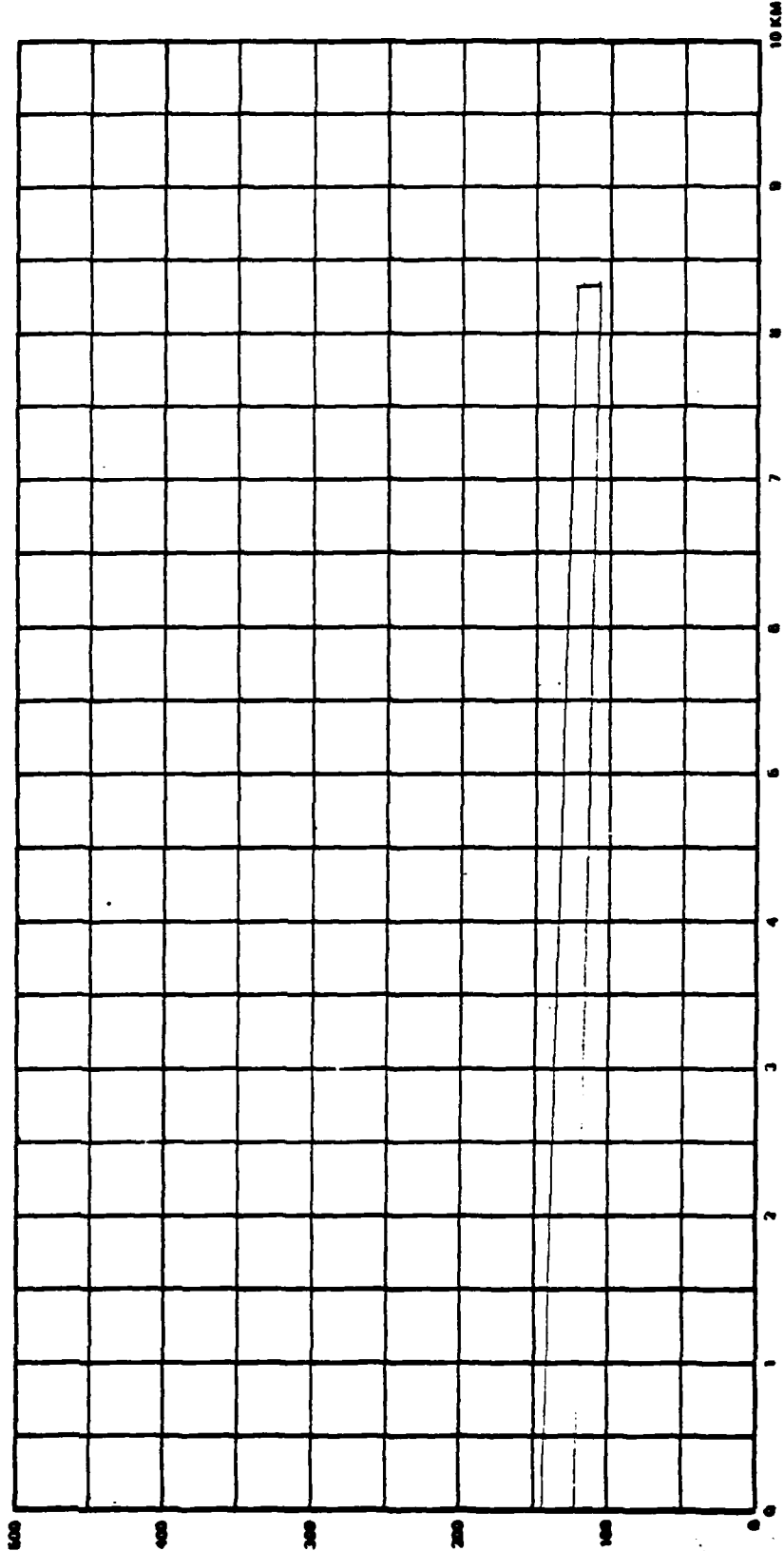


3rd repeater from

STATION Langerkopf  
LATITUDE D 49 M 20 S 52  
LONGITUDE D 08 M 12 S 20  
ELEVATION 125 M  
TOWER HEIGHT 20 M

4th repeater to

STATION Schwetzingen  
LATITUDE D 49 M 19 S 56  
LONGITUDE D 08 M 19 S 08  
ELEVATION 105 M  
TOWER HEIGHT 20 M



4th repeater from

STATION Langerkopf

LATITUDE D 49 M 19 S 56

LONGITUDE D 08 M 19 S 08

ELEVATION 105 M

TOWER HEIGHT 20 M

5th repeater to

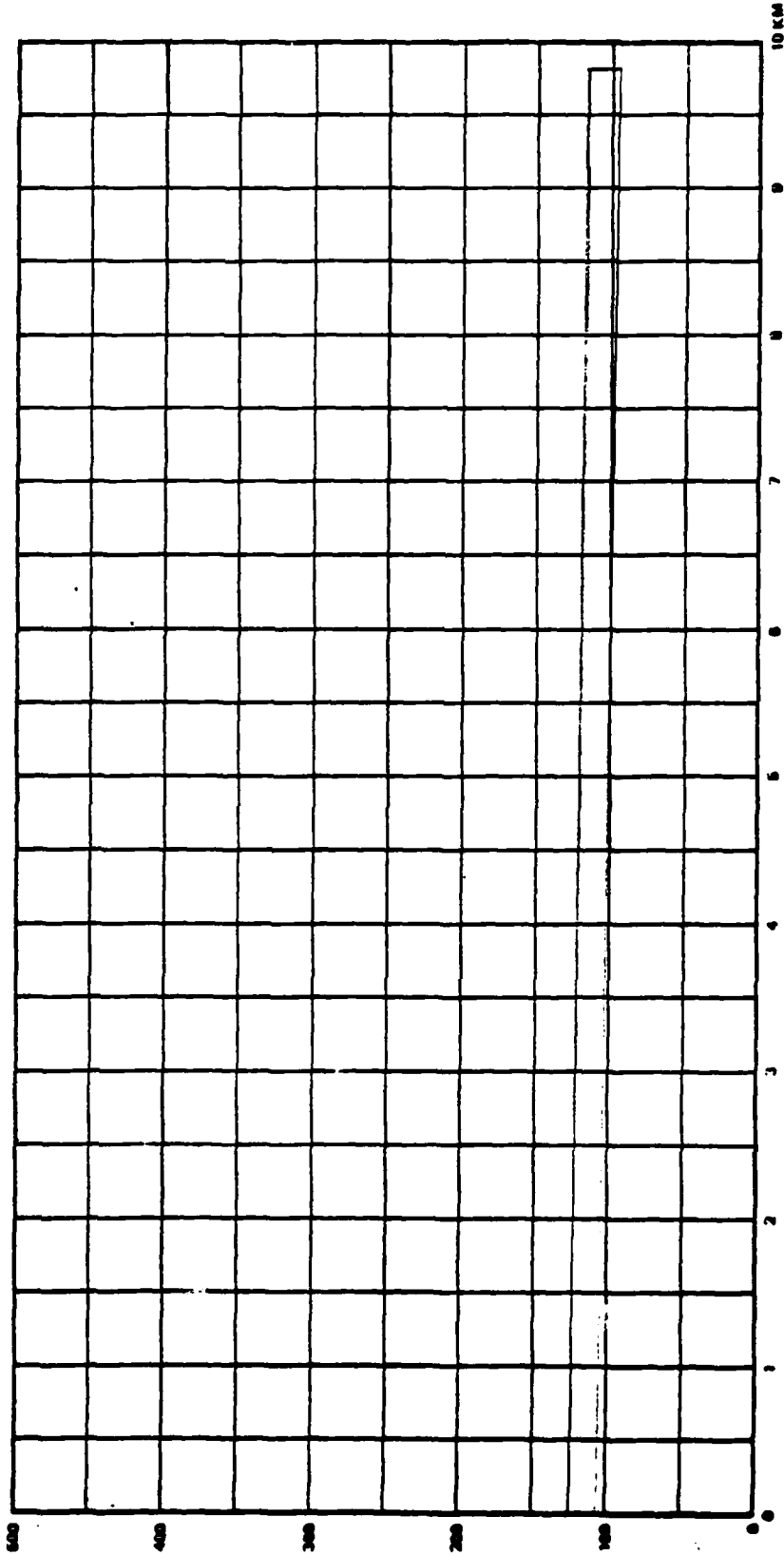
STATION Schwetzingen

LATITUDE D 49 M 22 S 30

LONGITUDE D 08 M 26 S 15

ELEVATION 98 M

TOWER HEIGHT 20 M



5th repeater from

STATION Langerkopf

LATITUDE D 49 M 22 S 30

LONGITUDE D 08 M 26 S 15

ELEVATION 98 M

TOWER HEIGHT 20 M

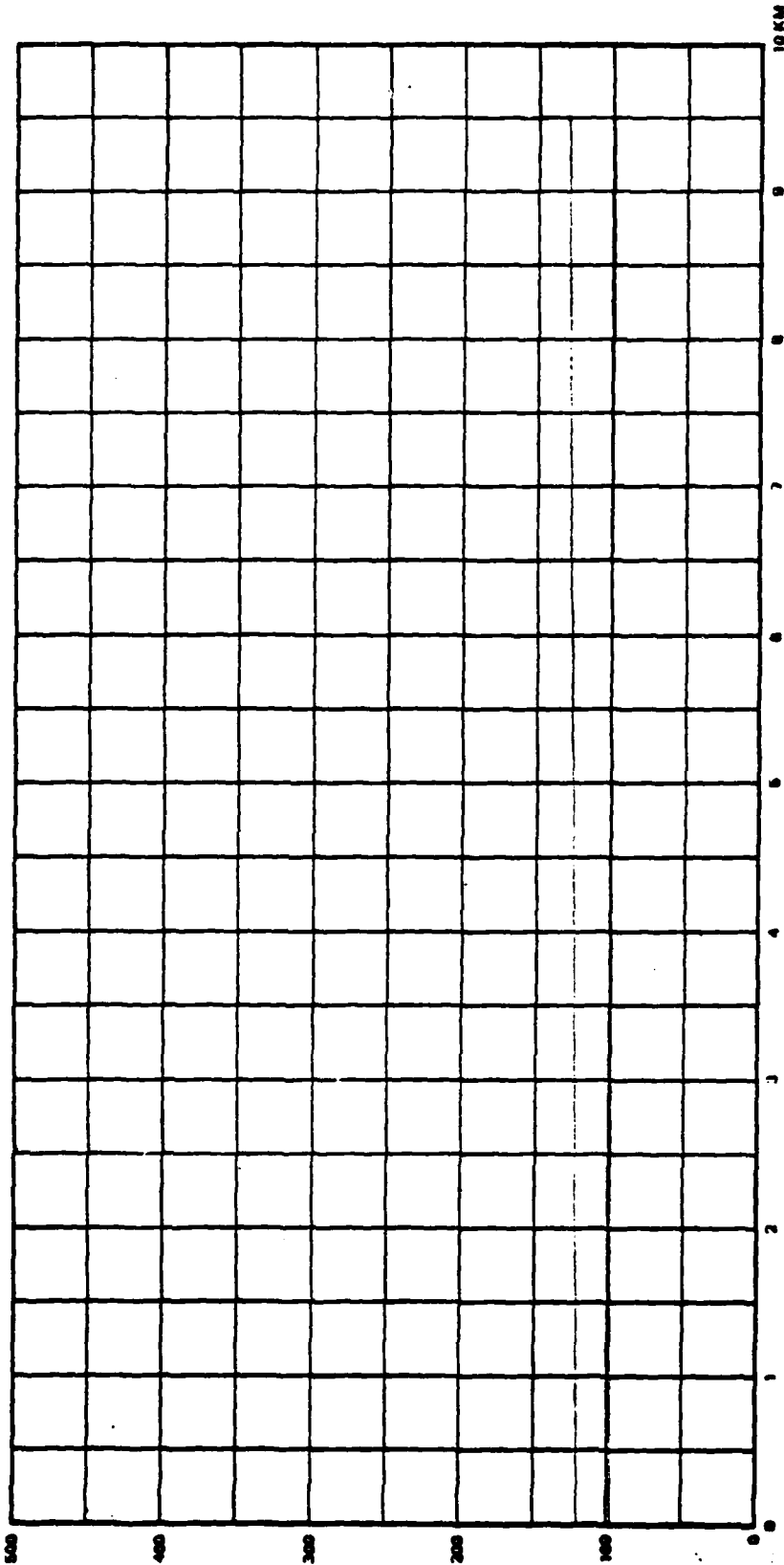
STATION Schwetzingen

LATITUDE D 49 M 24 S 31

LONGITUDE D 08 M 33 S 40

ELEVATION 100 M

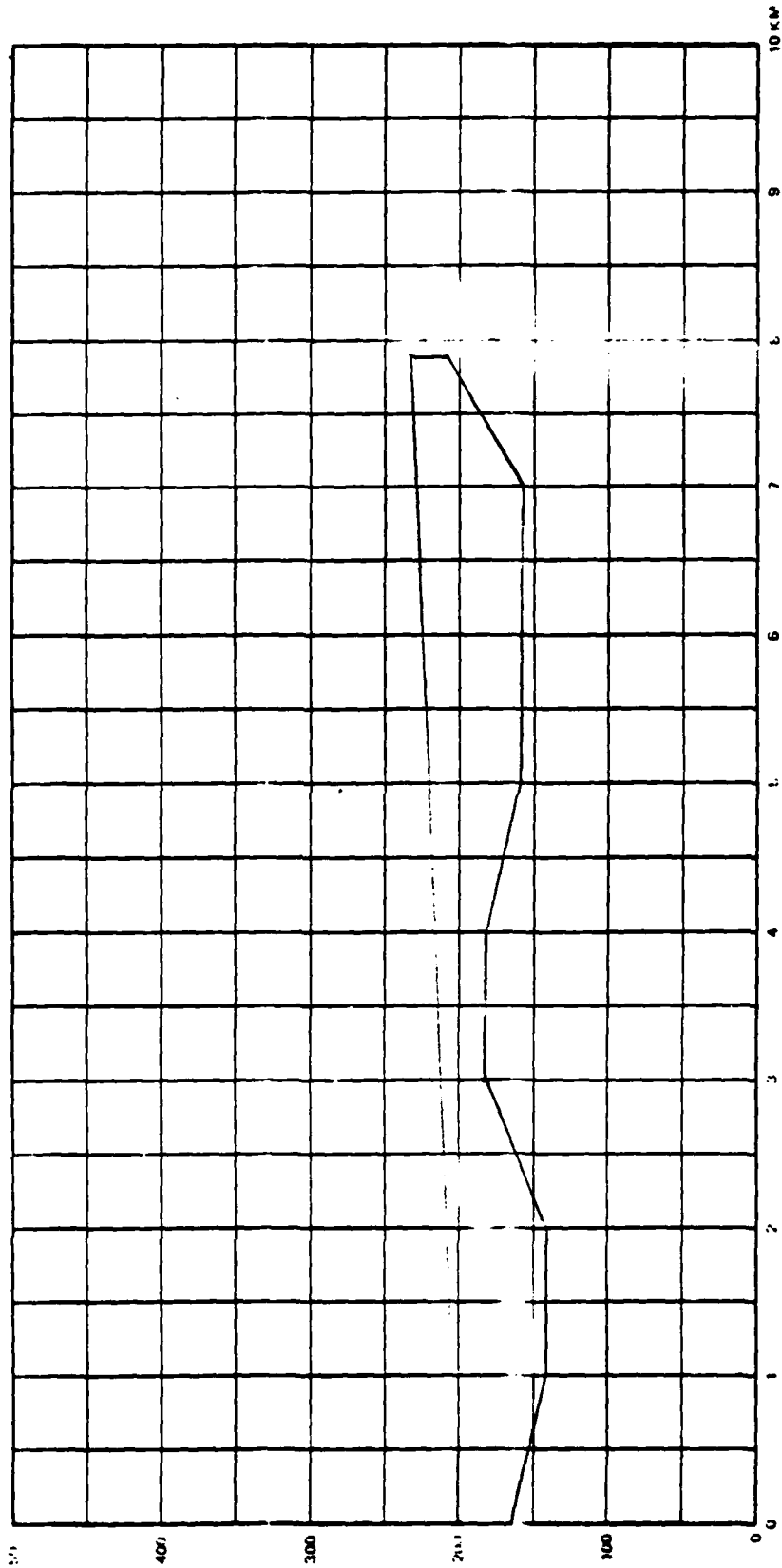
TOWER HEIGHT 30 M



1st repeater to

STATION Frankfurt  
LATITUDE D 50 M 04 S 33  
LONGITUDE D 08 M 20 S 05  
ELEVATION 210 M  
TOWER HEIGHT 20 M

STATION Lindsey  
LATITUDE D 50 M 04 S 17  
LONGITUDE D 08 M 13 S 24  
ELEVATION 170 M  
TOWER HEIGHT 30 M

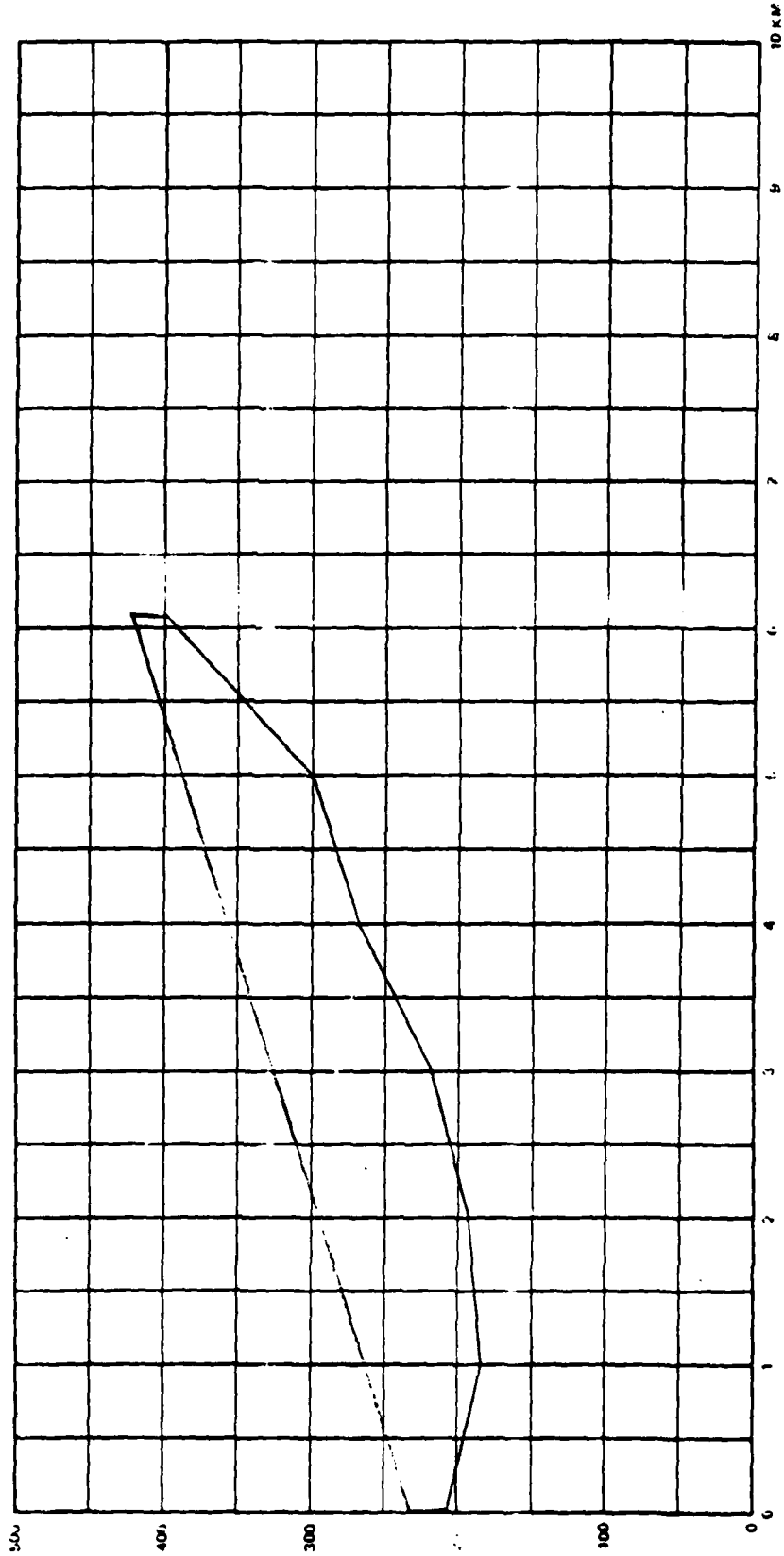


1st repeater from

STATION Lindsey  
LATITUDE D 50 M 04 S 33  
LONGITUDE D 08 M 20 S 05  
ELEVATION 210 M  
TOWER HEIGHT 20 M

2nd repeater to

STATION Frankfurt  
LATITUDE D 50 M 07 S 08  
LONGITUDE D 08 M 23 S 05  
ELEVATION 398 M  
TOWER HEIGHT 20 M



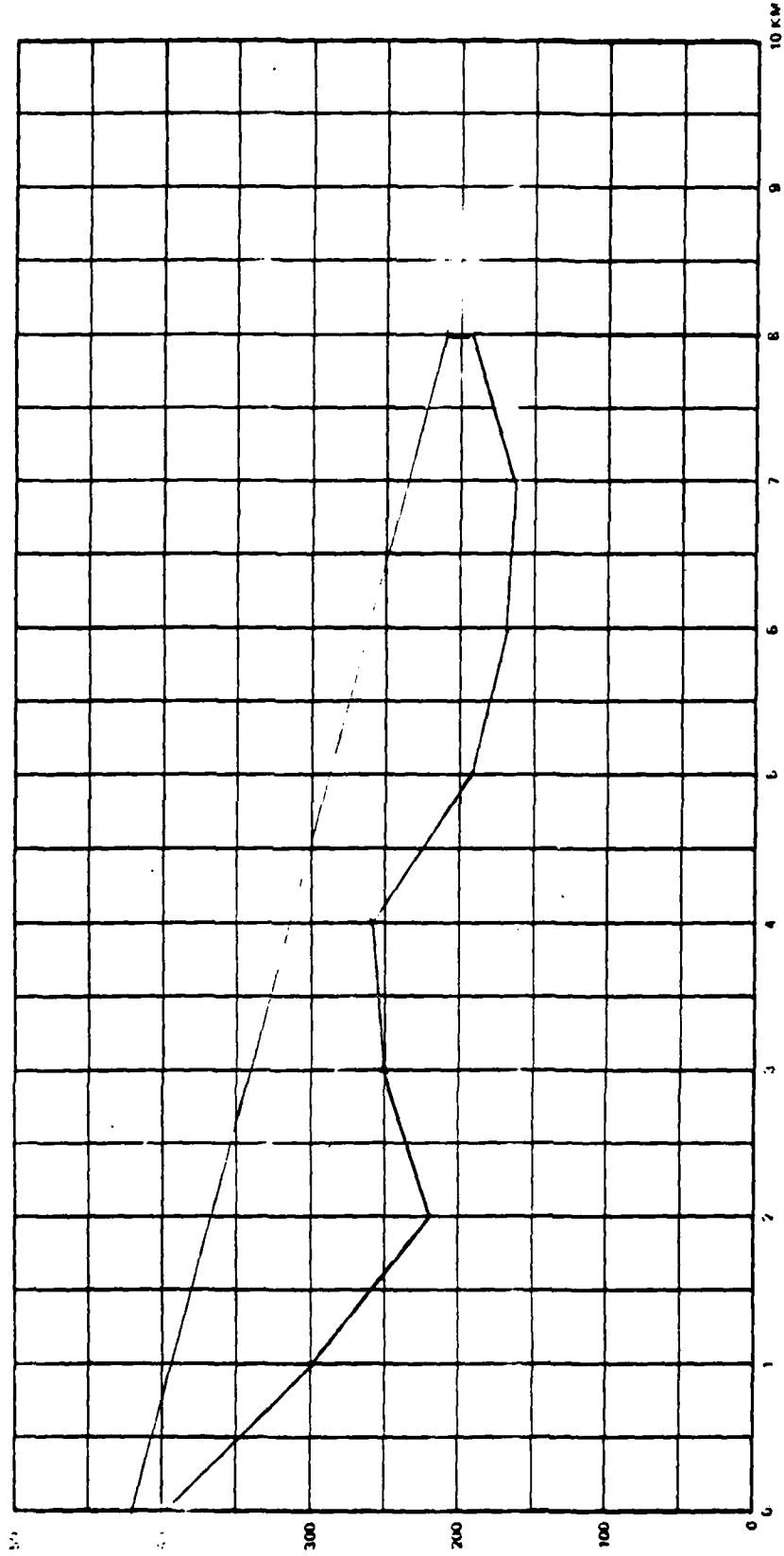


2nd repeater from

STATION Lindsey  
LATITUDE D 50 M 07 S 08  
LONGITUDE D 08 M 23 S 05  
ELEVATION 398 M  
TOWER HEIGHT 20 M

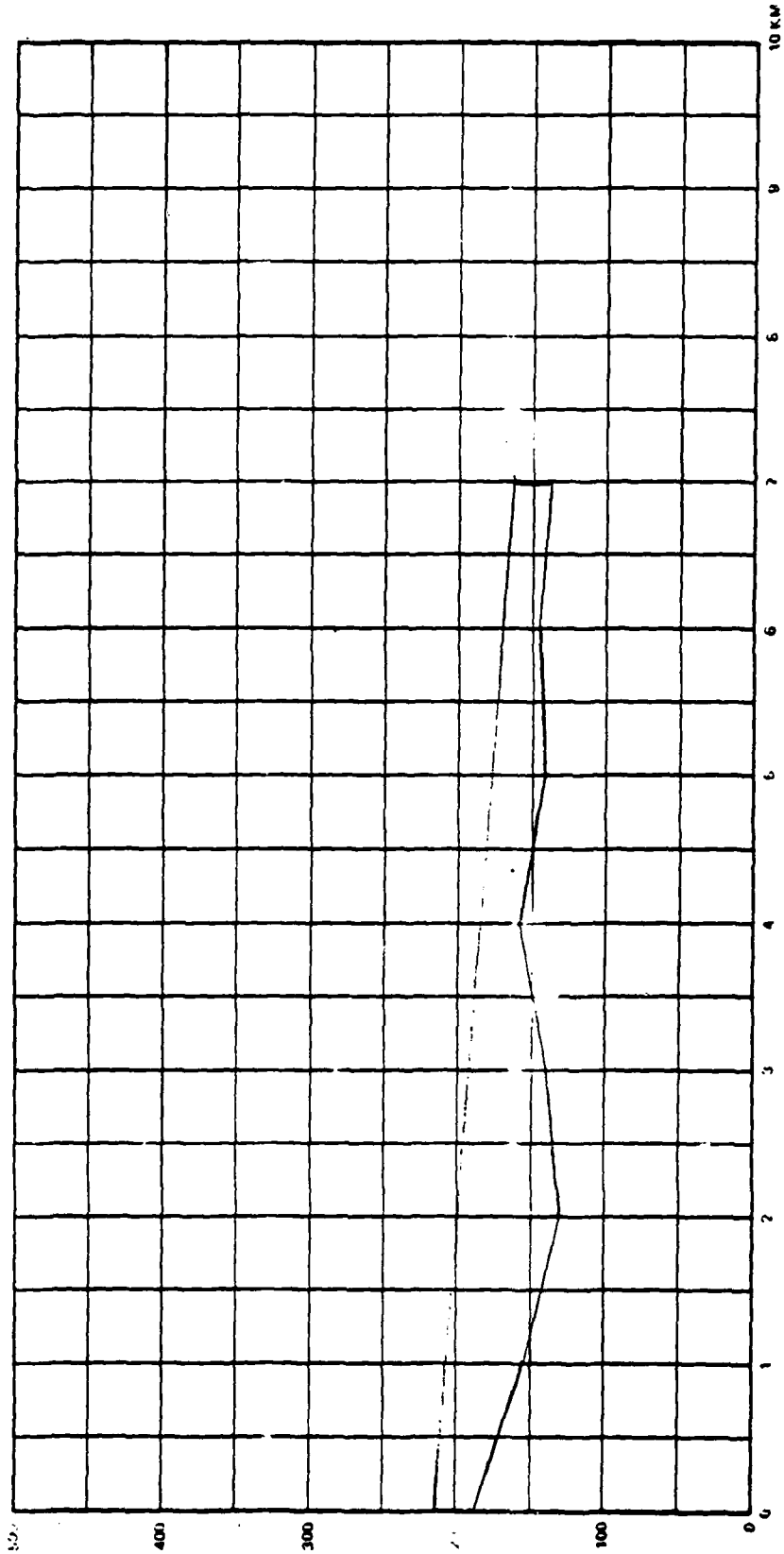
3rd repeater to

STATION Frankfurt  
LATITUDE D 50 M 08 S 00  
LONGITUDE D 08 M 29 S 40  
ELEVATION 190 M  
TOWER HEIGHT 20 M



3rd repeater from  
STATION Lindsey  
LATITUDE D 50 M 08 S 00  
LONGITUDE D 08 M 29 S 40  
ELEVATION 190 M  
TOWER HEIGHT 20 M

4th repeater to  
STATION Frankfurt  
LATITUDE D 50 M 09 S 10  
LONGITUDE D 08 M 35 S 15  
ELEVATION 140 M  
TOWER HEIGHT 20 M

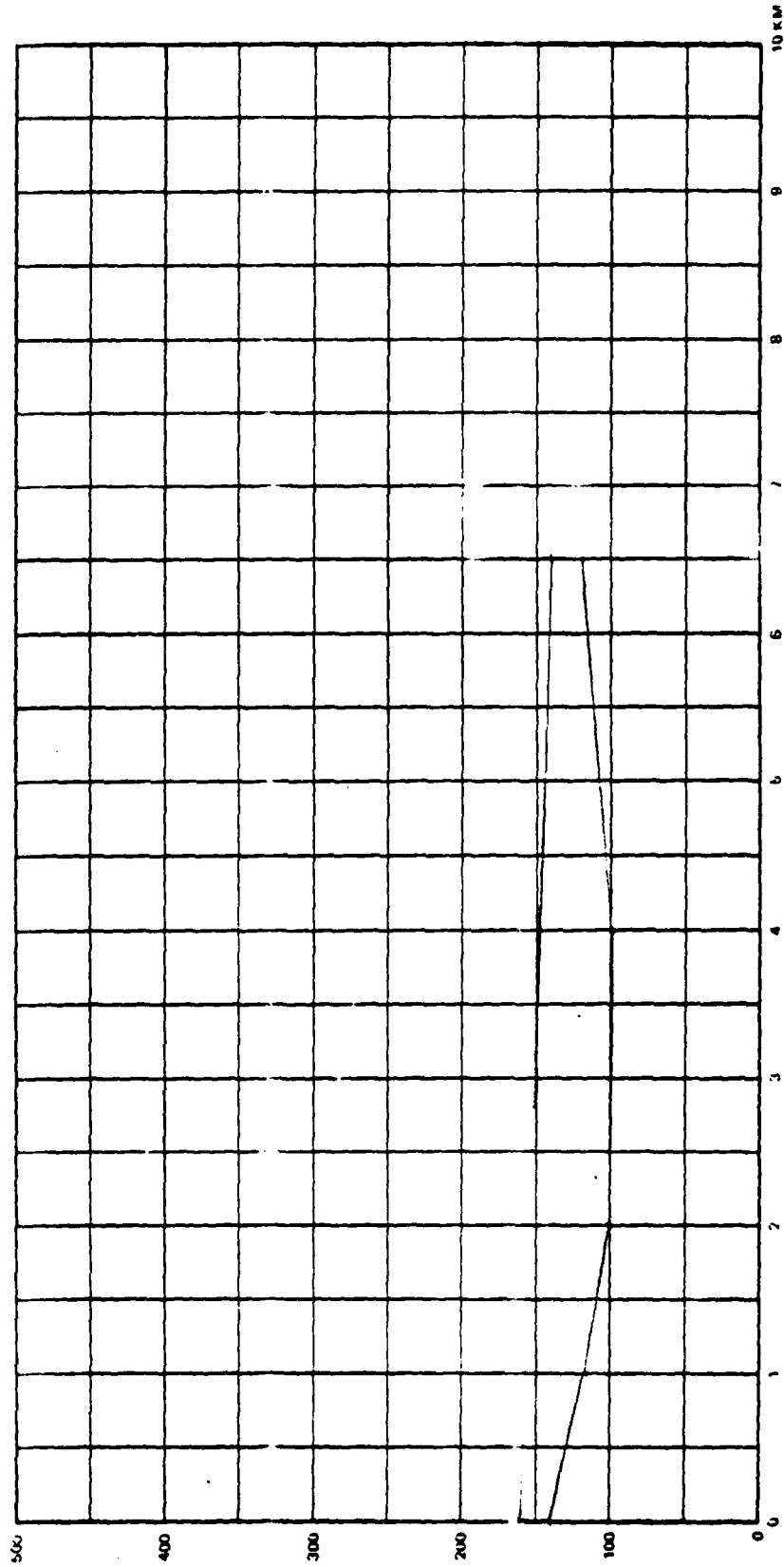


4th repeater from

STATION Lindsey  
LATITUDE D 50 M 09 S 10  
LONGITUDE D 08 M 35 S 15  
ELEVATION 140 M  
TOWER HEIGHT 20 M

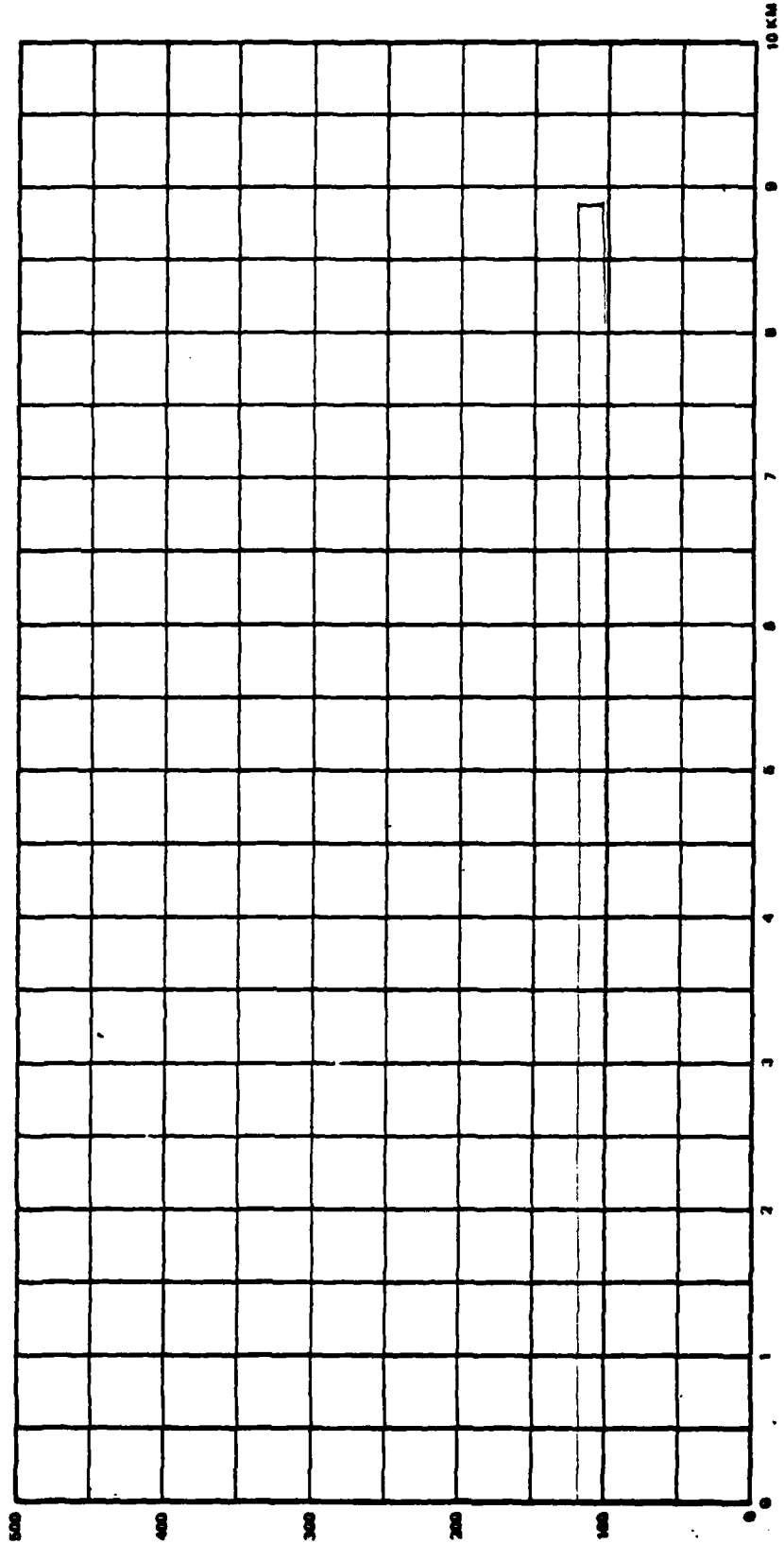
STATION Frankfurt

LATITUDE D 50 M 07 S 41  
LONGITUDE D 08 M 40 S 15  
ELEVATION 119 M  
TOWER HEIGHT 20 M



1st repeater to  
STATION Heidelberg  
LATITUDE D 49 M 28 S 05  
LONGITUDE D 08 M 37 S 43  
ELEVATION 103 M  
TOWER HEIGHT 20 M

STATION Mannheim  
LATITUDE D 49 M 30 S 59  
LONGITUDE D 08 M 31 S 48  
ELEVATION 100 M  
TOWER HEIGHT 20 M



1st repeater from

STATION Mannheim

LATITUDE D 49 W 28 S 05

LONGITUDE D 08 M 37 S 43

ELEVATION 103 M

TOWER HEIGHT 20 M

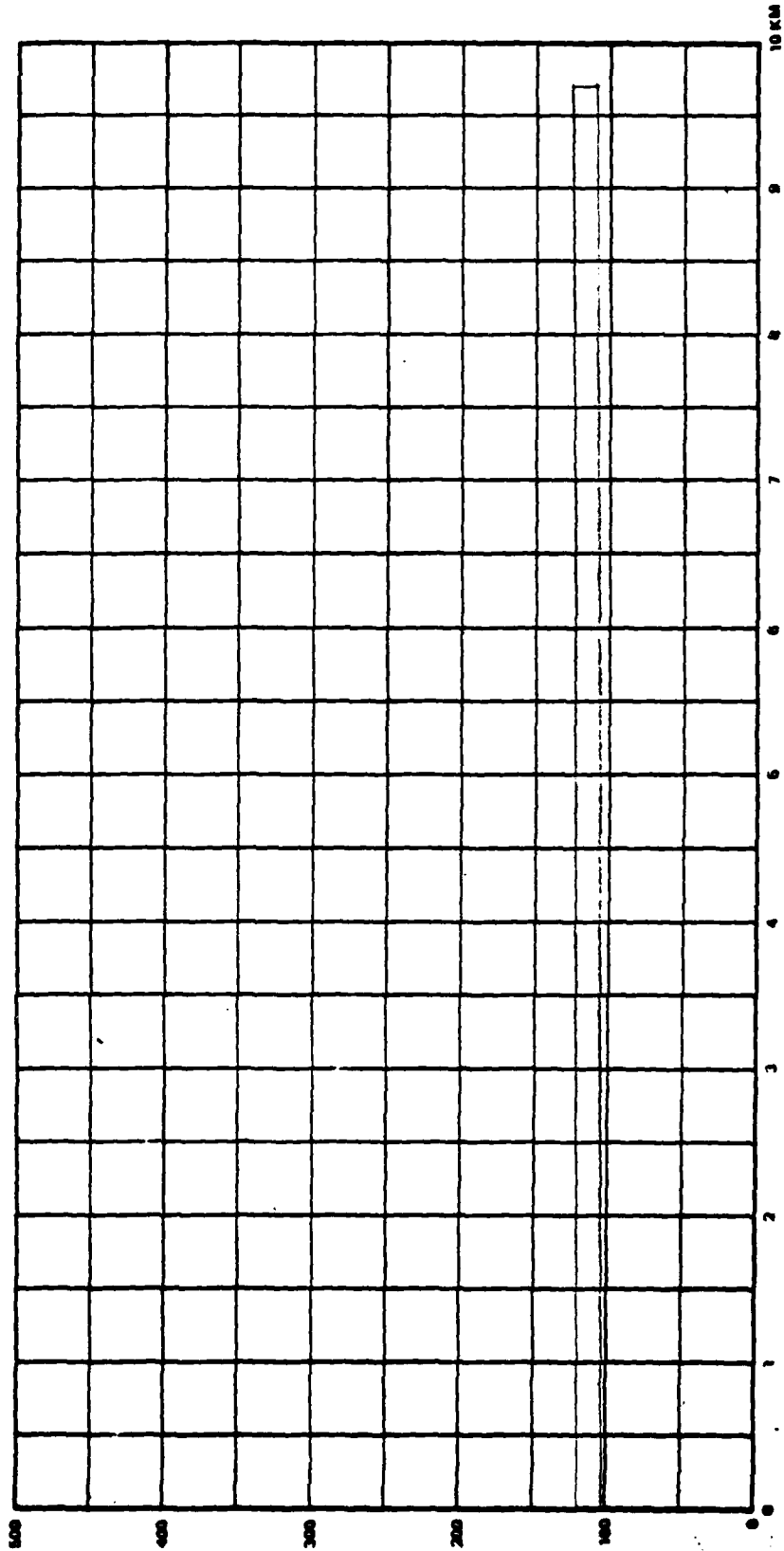
STATION Heidelberg

LATITUDE D 49 M 23 S 12

LONGITUDE D 08 M 41 S 00

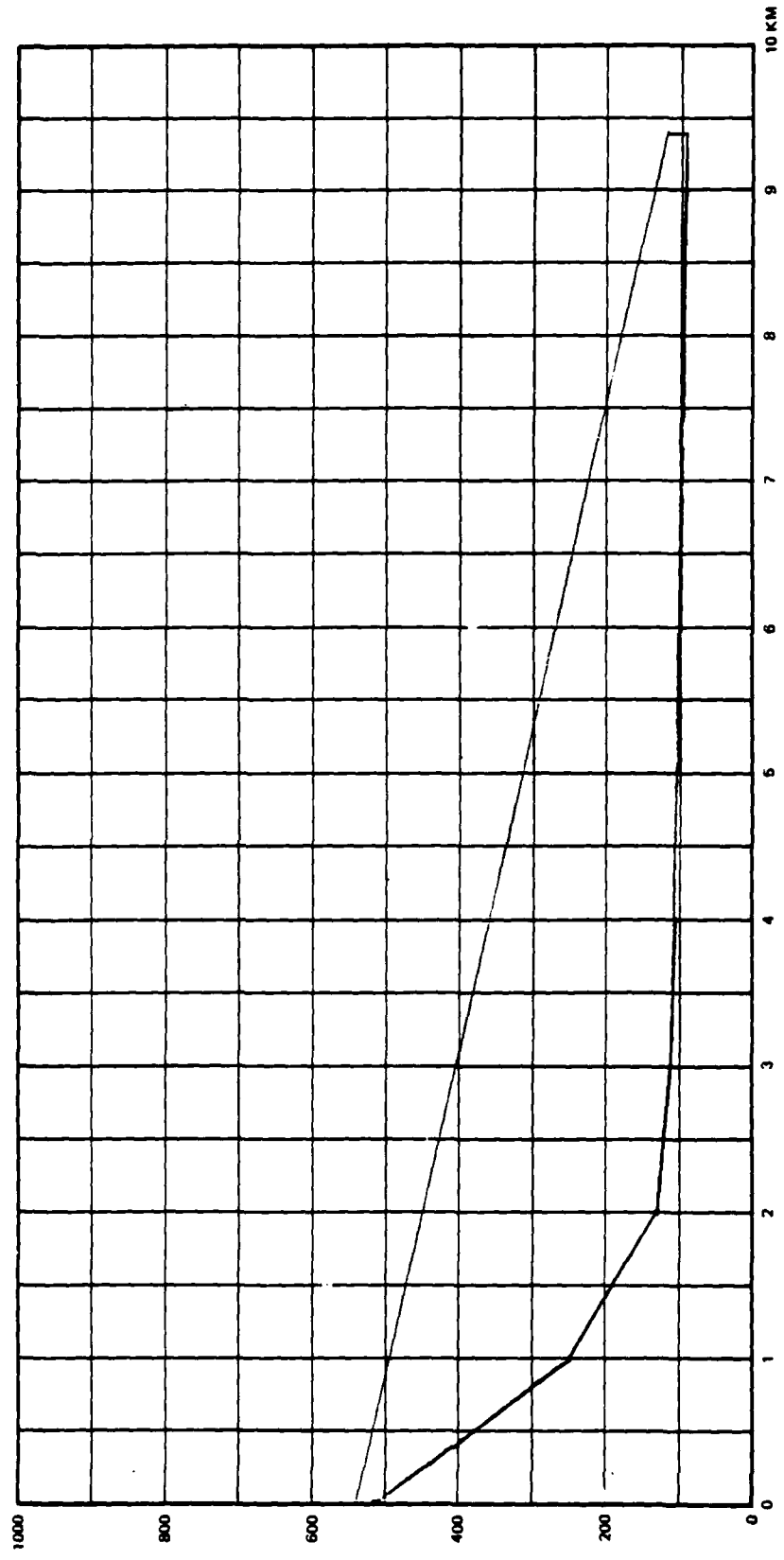
ELEVATION 111 M

TOWER HEIGHT 20 M



1st repeater to  
 STATION Darmstadt  
 LATITUDE D 49 M 47 S 55  
 LONGITUDE D 08 M 34 S 18  
 ELEVATION 96 M  
 TOWER HEIGHT 20 M

STATION Melibocus  
 LATITUDE D 49 M 43 S 32  
 LONGITUDE D 08 M 38 S 17  
 ELEVATION 516 M  
 TOWER HEIGHT 20 M



1st repeater from

STATION Melibocus

LATITUDE D 49 M 47 S 55

LONGITUDE D 08 M 34 S 18

ELEVATION 96 M

TOWER HEIGHT 20 M

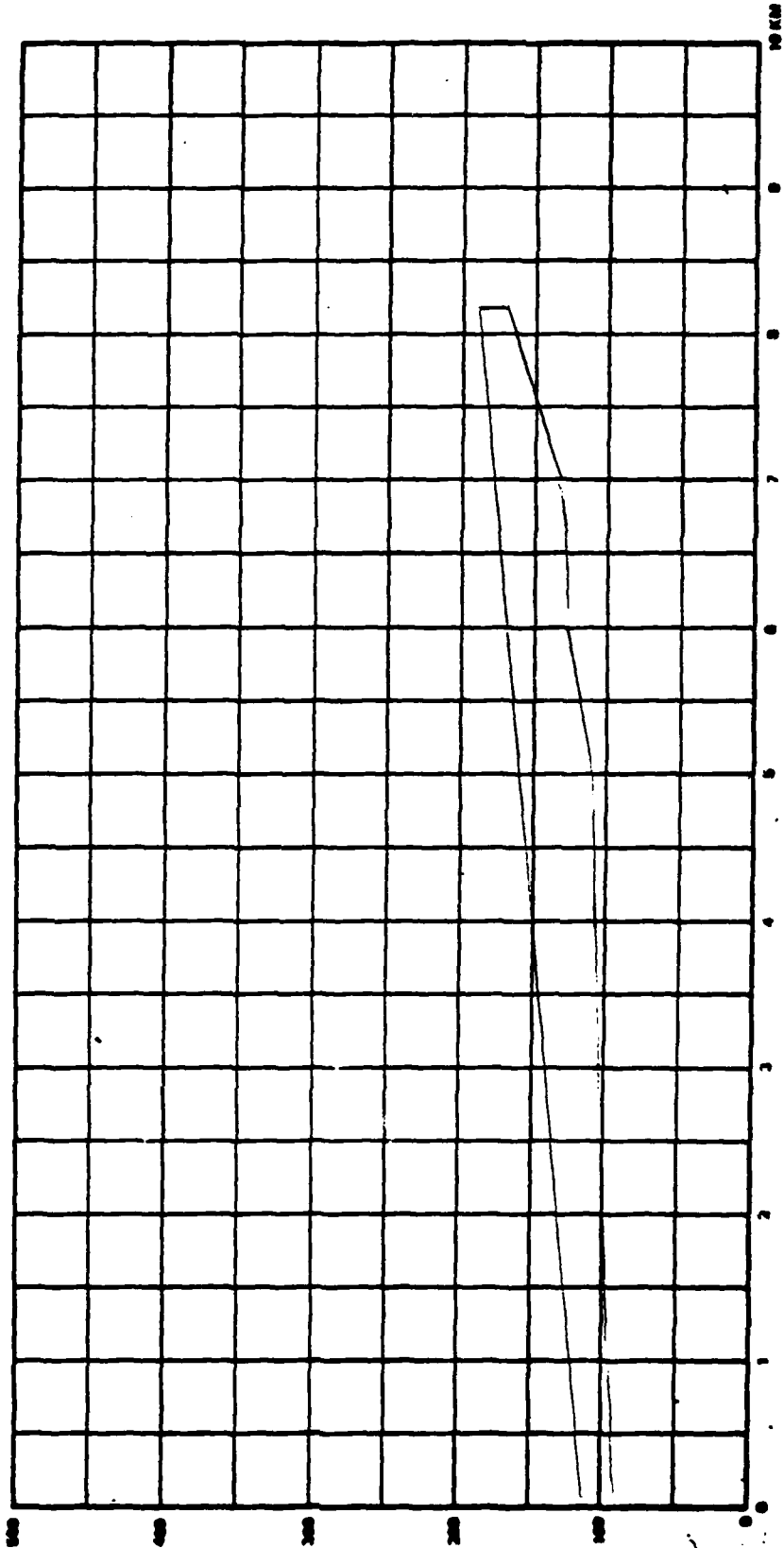
STATION Darmstadt

LATITUDE D 49 M 50 S 55

LONGITUDE D 08 M 39 S 19

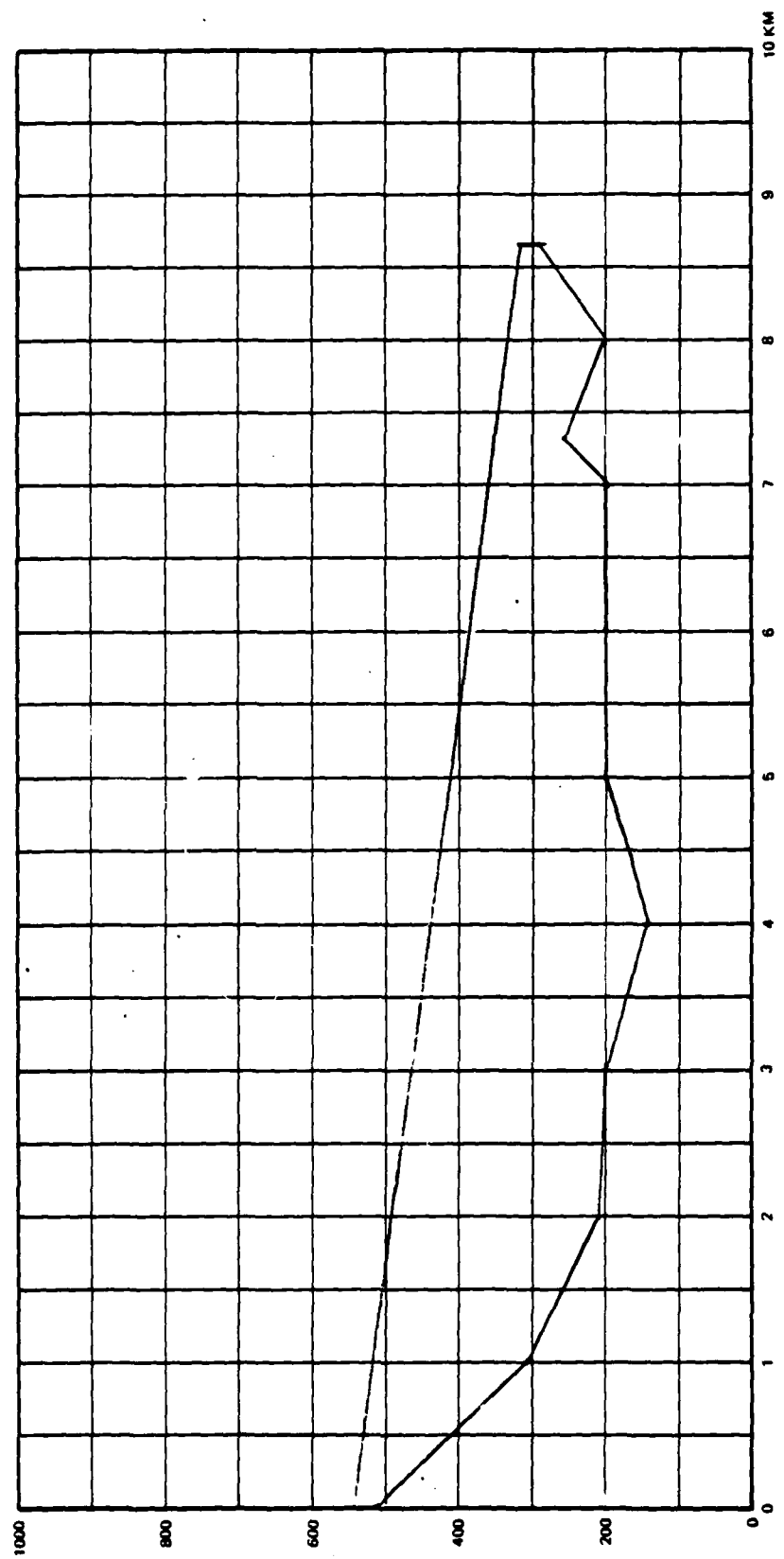
ELEVATION 170 M

TOWER HEIGHT 20 M



1st repeater to  
 STATION Koenigstuhl  
 LATITUDE D 49 M 38 S 50  
 LONGITUDE D 08 M 38 S 50  
 ELEVATION 295 M  
 TOWER HEIGHT 20 M

STATION Melibocus  
 LATITUDE D 49 M 43 S 32  
 LONGITUDE D 08 M 38 S 17  
 ELEVATION 516 M  
 TOWER HEIGHT 20 M





1st repeater from

STATION Melibocus

LATITUDE D 49 M 38 S 50

LONGITUDE D 08 M 38 S 50

ELEVATION 295 M

TOWER HEIGHT 20 M

2nd repeater to

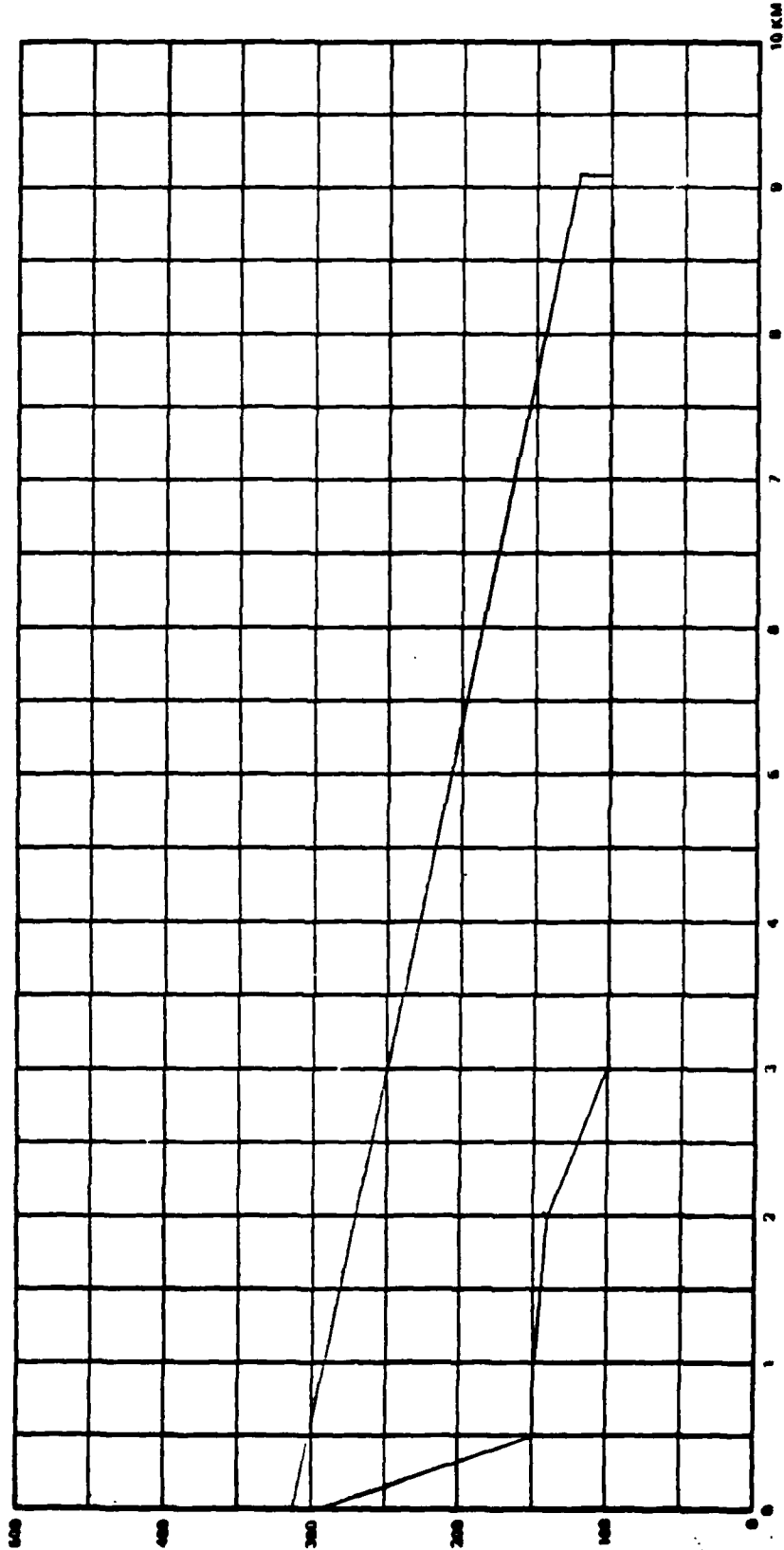
STATION Koenigstuhl

LATITUDE D 49 M 33 S 50

LONGITUDE D 08 M 38 S 23

ELEVATION 100 M

TOWER HEIGHT 20 M



2nd repeater from

STATION Melibocus

LATITUDE D 49 M 33 S 50

LONGITUDE D 08 M 38 S 23

ELEVATION 100 M

TOWER HEIGHT 20 M

3rd repeater to

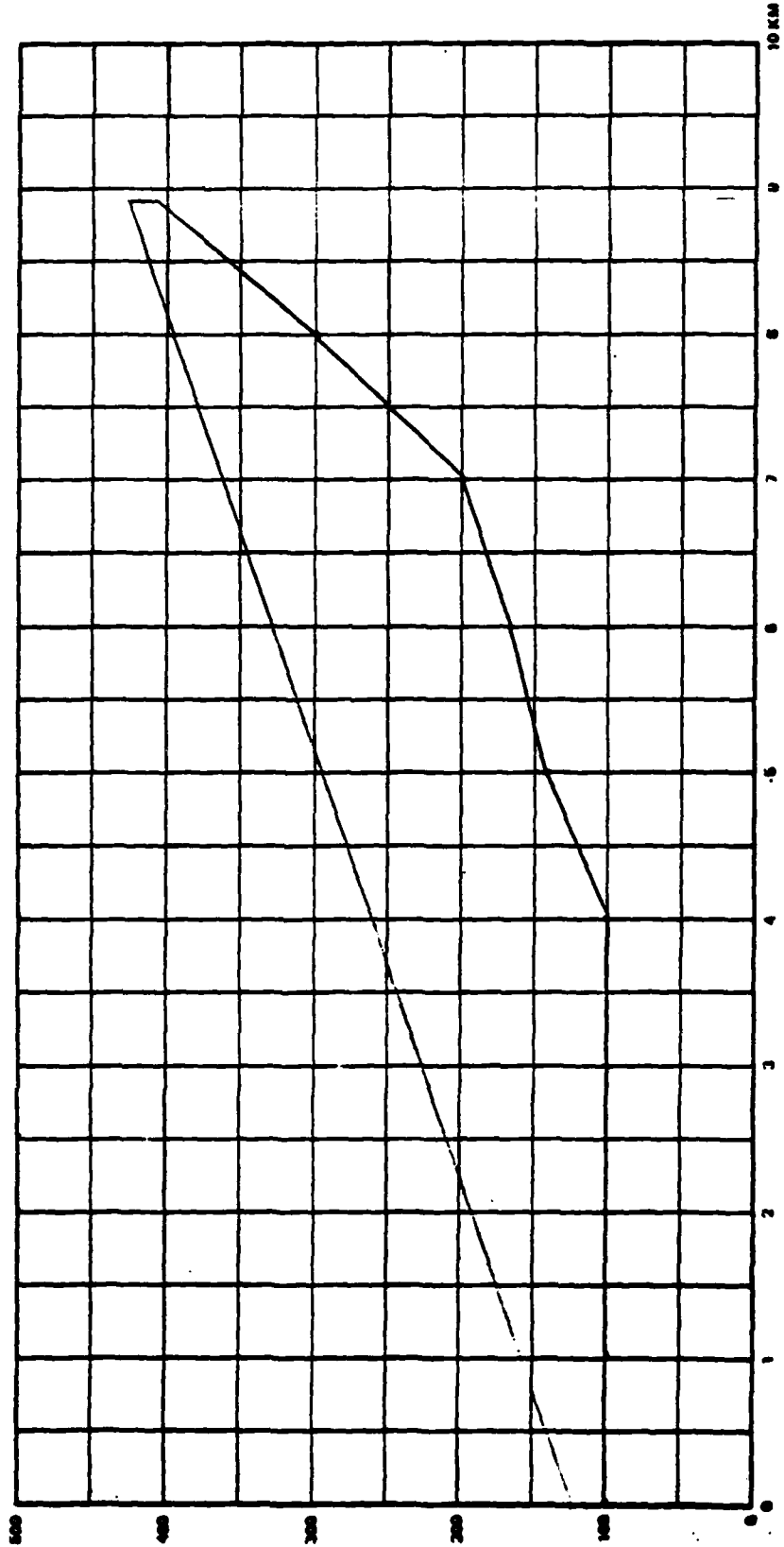
STATION Koenigstuhl

LATITUDE D 49 M 29 S 39

LONGITUDE D 08 M 40 S 58

ELEVATION 406 M

TOWER HEIGHT 20 M

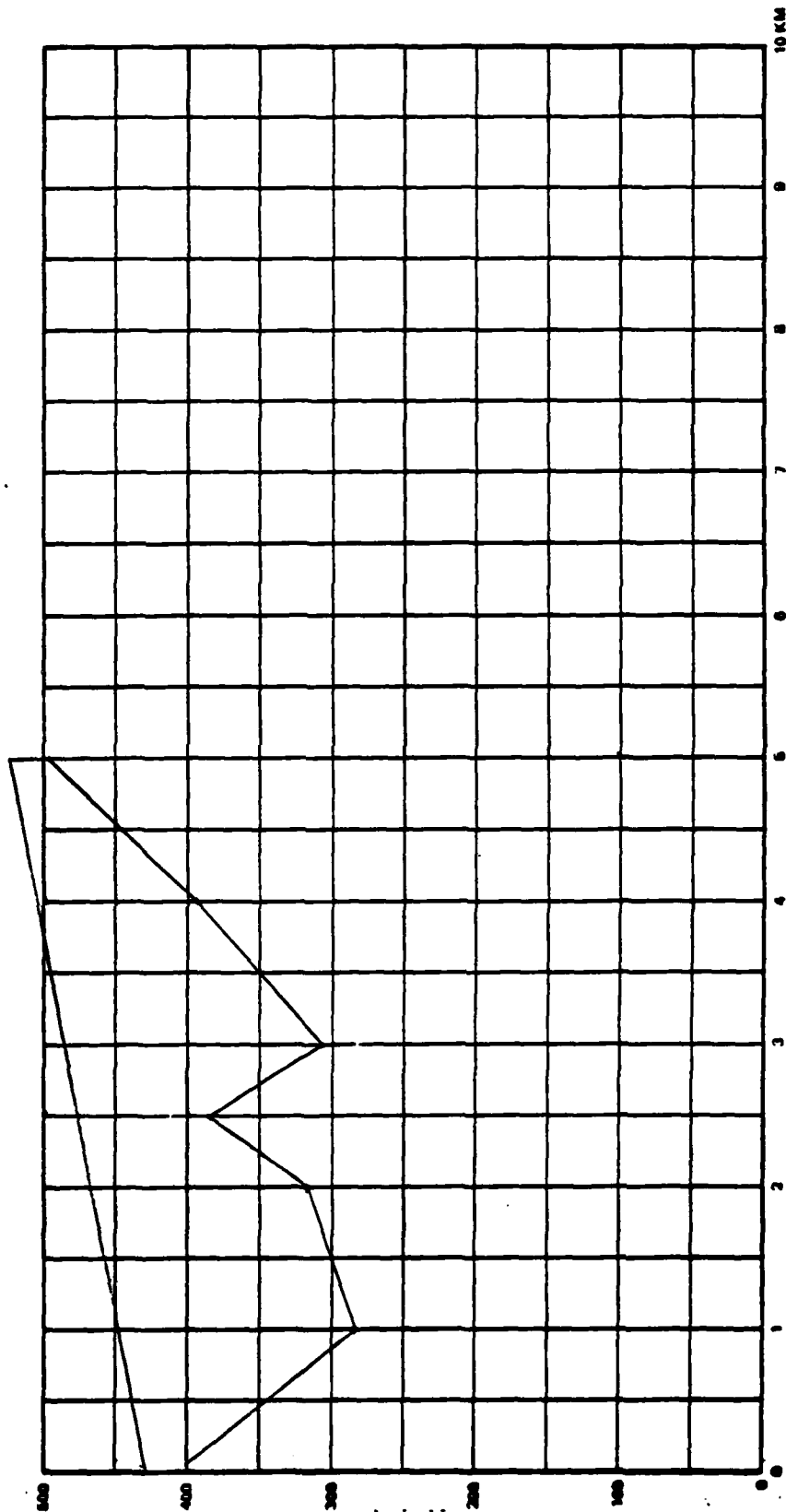


3rd repeater from

STATION Melibocus  
LATITUDE D 49 M 29 S 39  
LONGITUDE D 08 M 40 S 58  
ELEVATION 406 M  
TOWER HEIGHT 20 M

4th repeater to

STATION Koenigstuhl  
LATITUDE D 49 M 26 S 50  
LONGITUDE D 08 M 42 S 25  
ELEVATION 496 M  
TOWER HEIGHT 20 M



4th repeater from

STATION Melibocus

LATITUDE D 49 M 26 S 50

LONGITUDE D 08 M 42 S 25

ELEVATION 496 M

TOWER HEIGHT 20 M

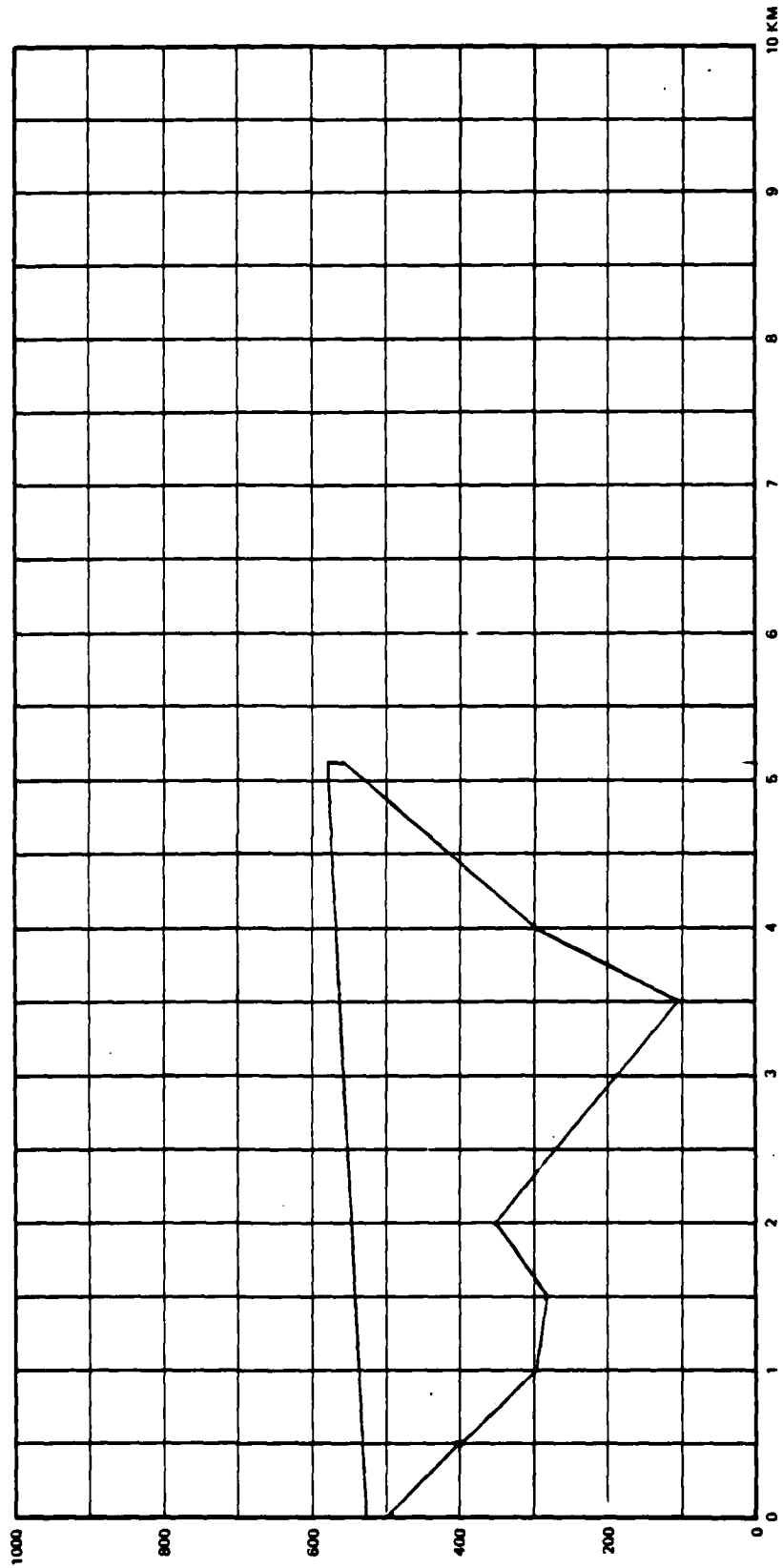
STATION Koenigstuhl

LATITUDE D 49 M 24 S 11

LONGITUDE D 08 M 44 S 02

ELEVATION 560 M

TOWER HEIGHT 20 M



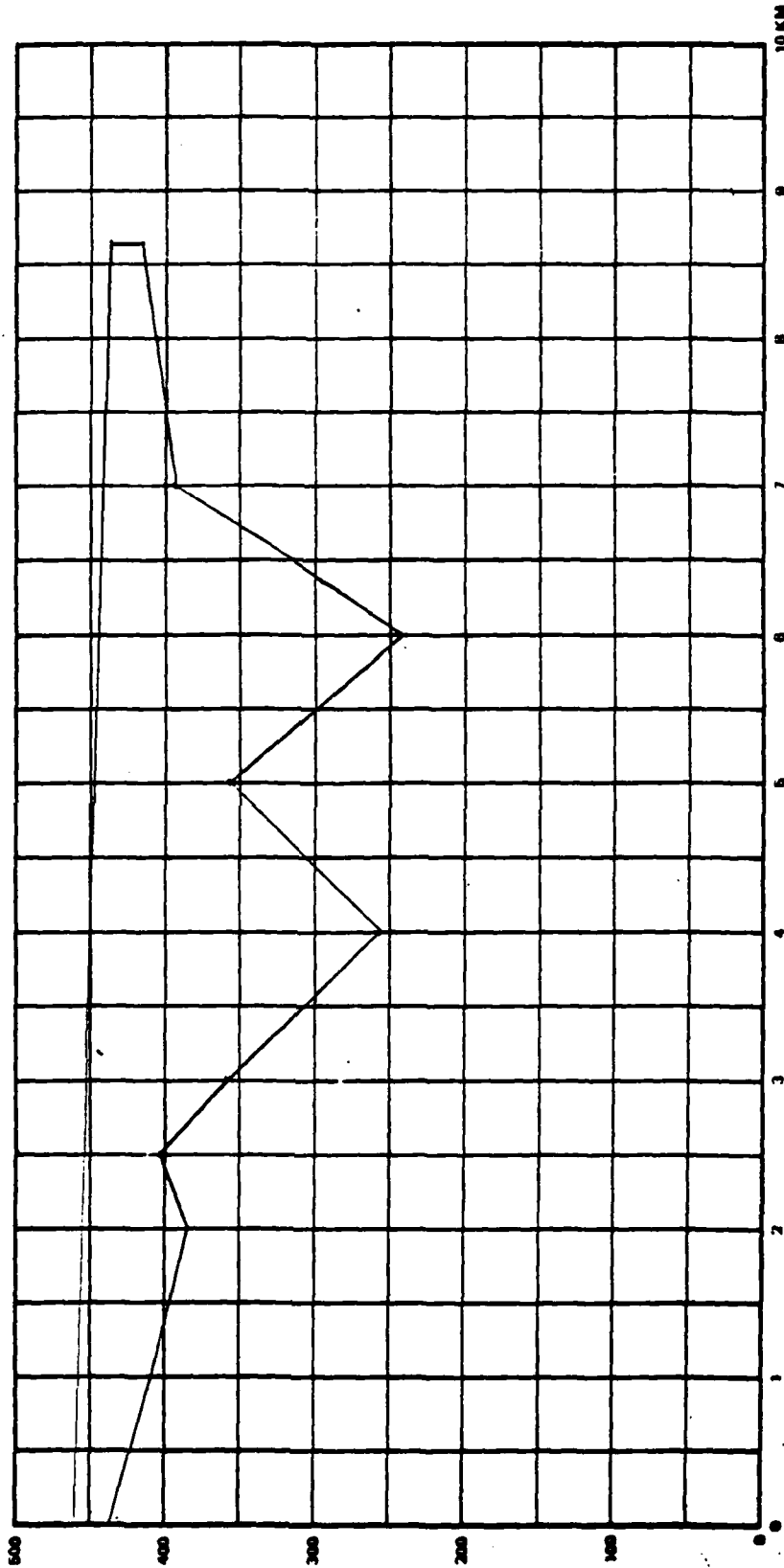
1st repeater to

STATION Bann

LATITUDE D 49 M 17 S 43  
LONGITUDE D 07 M 36 S 57  
ELEVATION 415 M  
TOWER HEIGHT 20 M

STATION Pirmasens

LATITUDE D 49 M 13 S 01  
LONGITUDE D 07 M 36 S 35  
ELEVATION 439 M  
TOWER HEIGHT 20 M



1st repeater from

STATION Pirmasens

LATITUDE D 49 M 17 S 43

LONGITUDE D 07 M 36 S 57

ELEVATION 415 M

TOWER HEIGHT 20 M

2nd repeater to

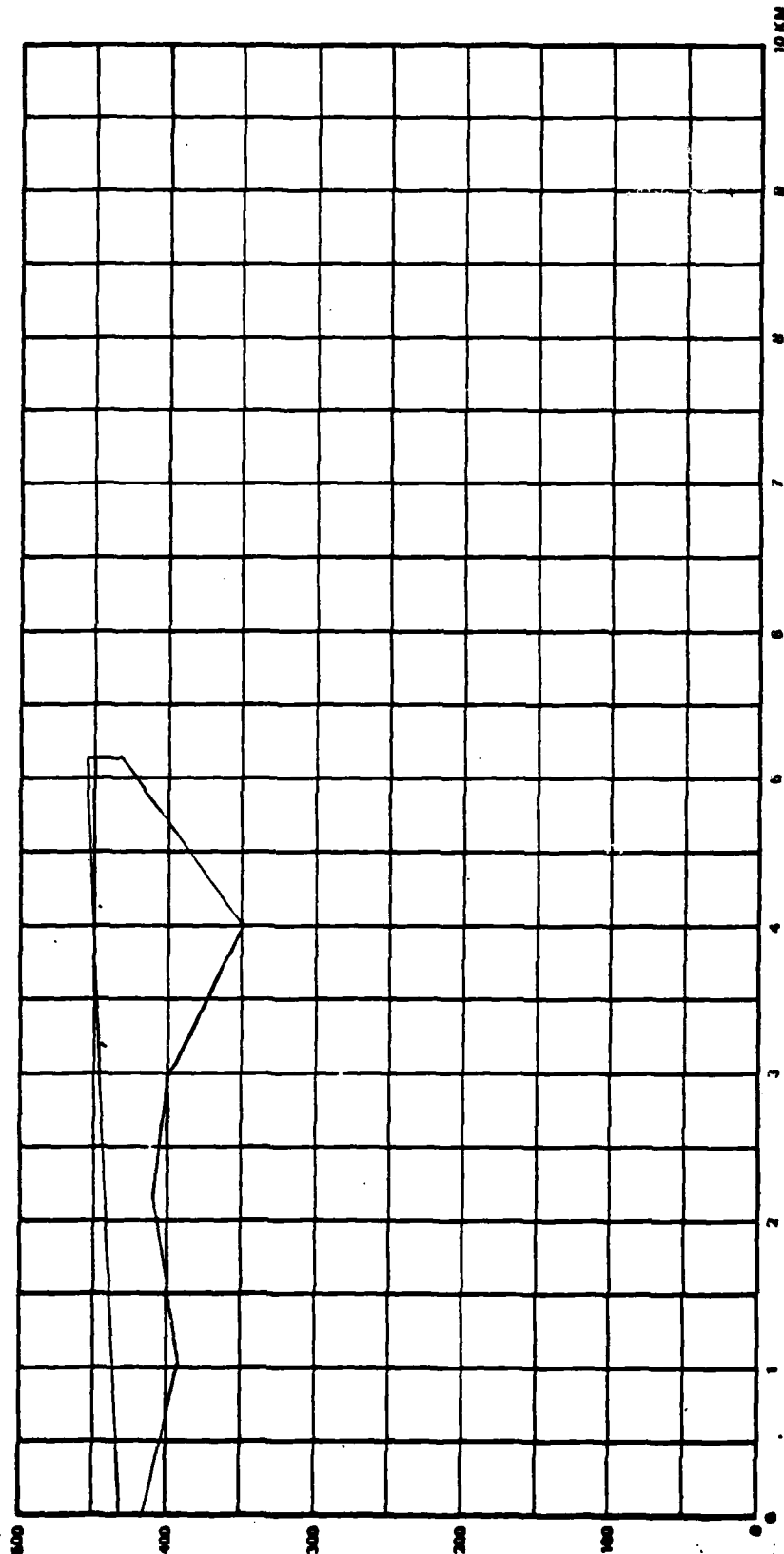
STATION Bann

LATITUDE D 49 M 20 S 44

LONGITUDE D 07 M 36 S 40

ELEVATION 438 M

TOWER HEIGHT 20 M



2nd repeater from

STATION Pirmasens

LATITUDE D 49 M 20 S 44

LONGITUDE D 07 M 36 S 40

ELEVATION 438 M

TOWER HEIGHT 20 M

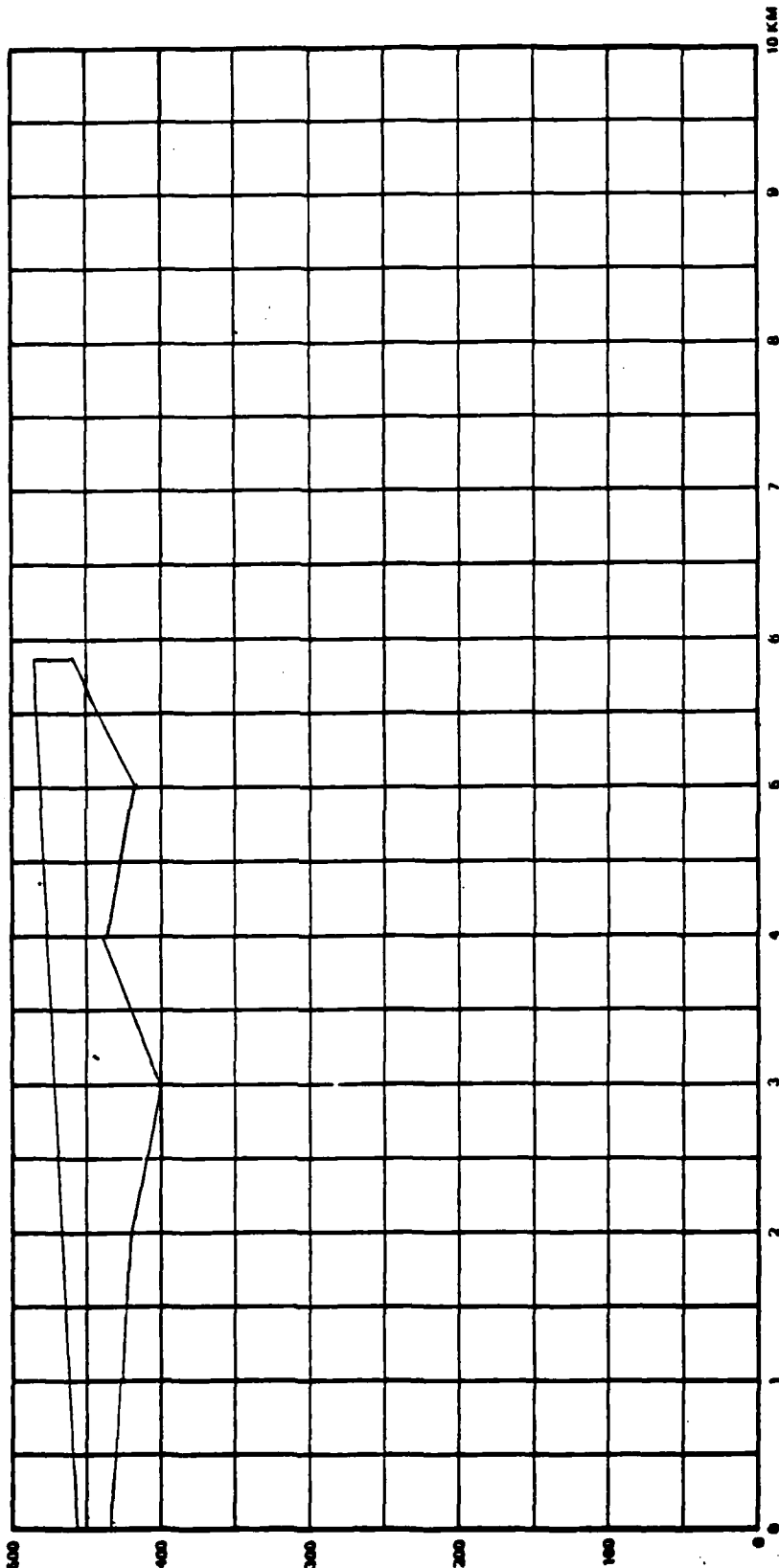
STATION Bann

LATITUDE D 49 M 23 S 55

LONGITUDE D 07 M 35 S 18

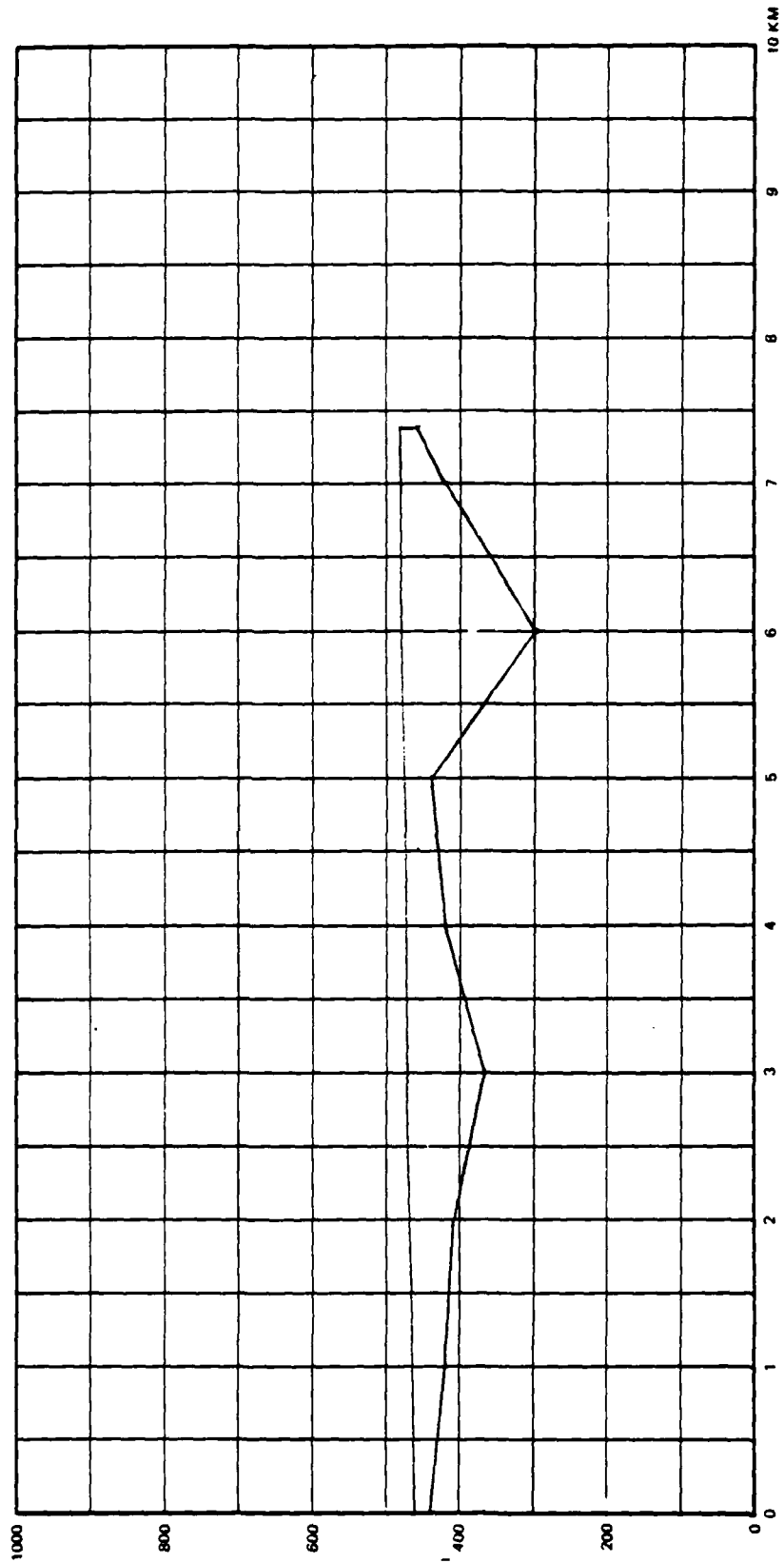
ELEVATION 462 M

TOWER HEIGHT 20 M



1st repeater to  
STATION Langerkopf  
LATITUDE D 49 M 13 S 45  
LONGITUDE D 07 M 42 S 38  
ELEVATION 462 M  
TOWER HEIGHT 20 M

STATION Pirmasens  
LATITUDE D 49 M 13 S 01  
LONGITUDE D 07 M 36 S 35  
ELEVATION 439 M  
TOWER HEIGHT 20 M



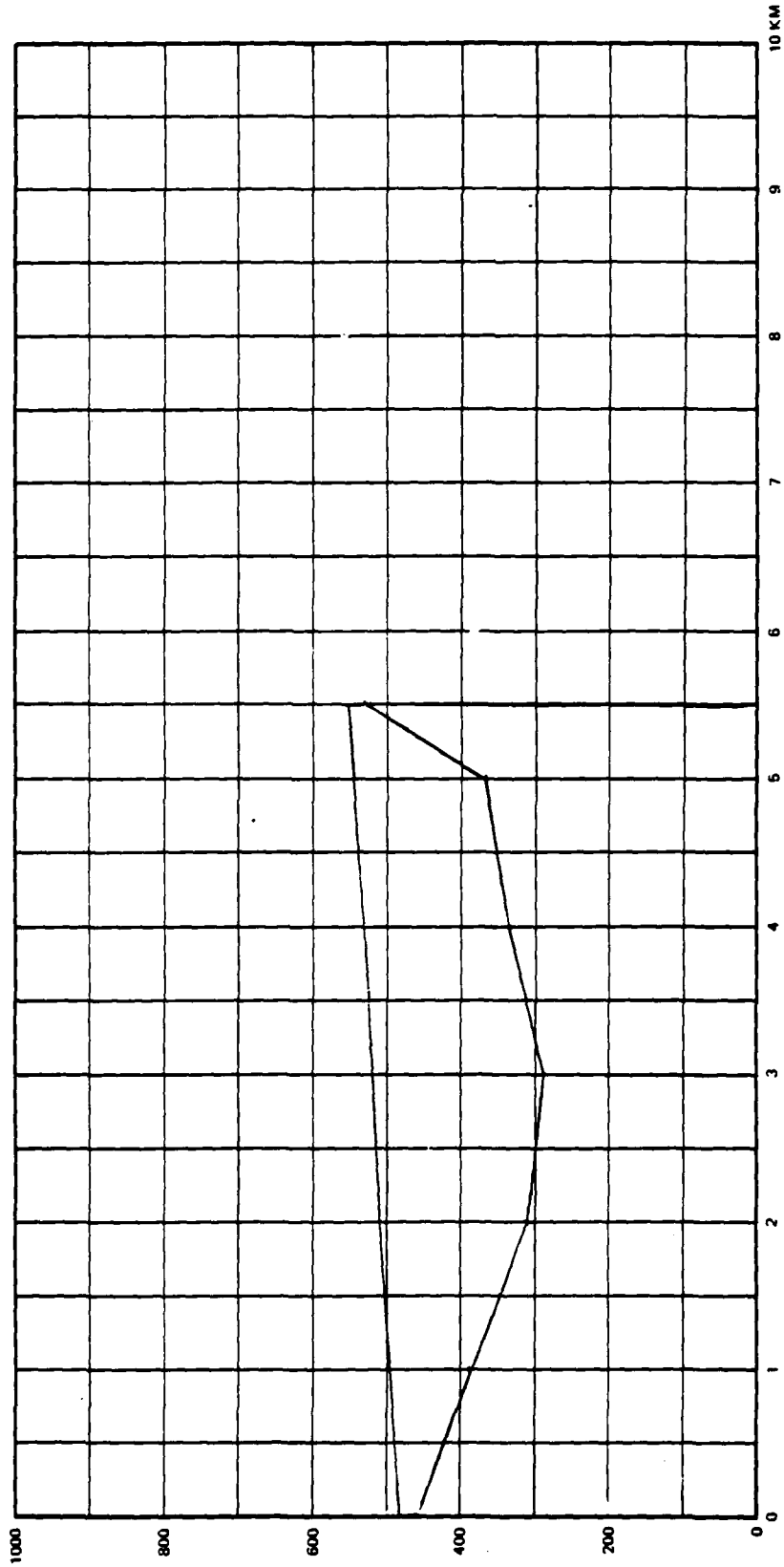


1st repeater from

STATION Pirmasens  
LATITUDE D 49 M 13 S 45  
LONGITUDE D 07 M 42 S 38  
ELEVATION 462 M  
TOWER HEIGHT 20 M

2nd repeater

STATION Langerkopf  
LATITUDE D 49 M 15 S 46  
LONGITUDE D 07 M 45 S 57  
ELEVATION 522 M  
TOWER HEIGHT 20 M



2nd repeater from

STATION Pimasens

LATITUDE D 49 M 15 S 46

LONGITUDE D 07 M 45 S 57

ELEVATION 522 M

TOWER HEIGHT 20 M

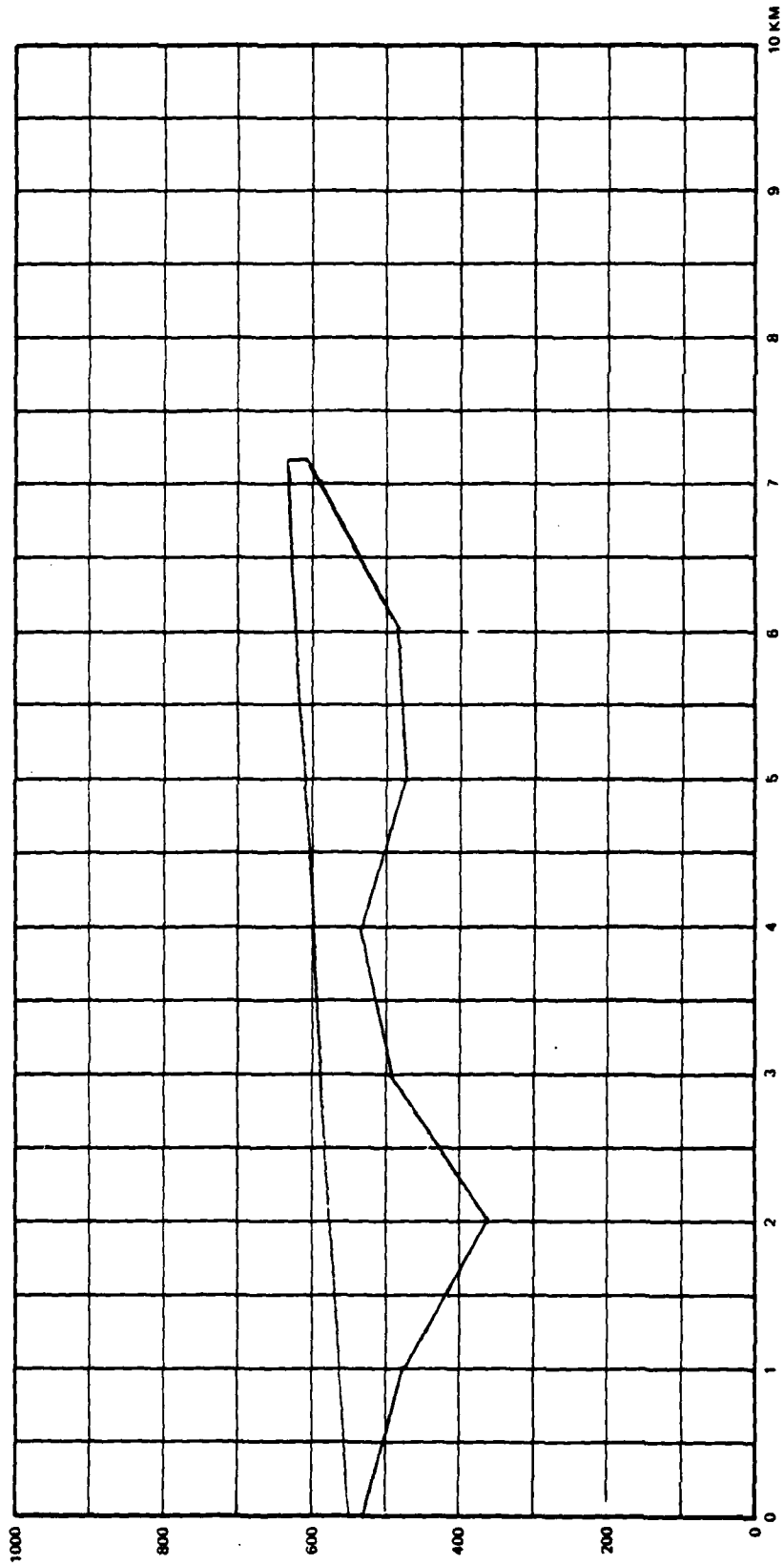
STATION Langerkopf

LATITUDE D 49 M 18 S 04

LONGITUDE D 07 M 50 S 39

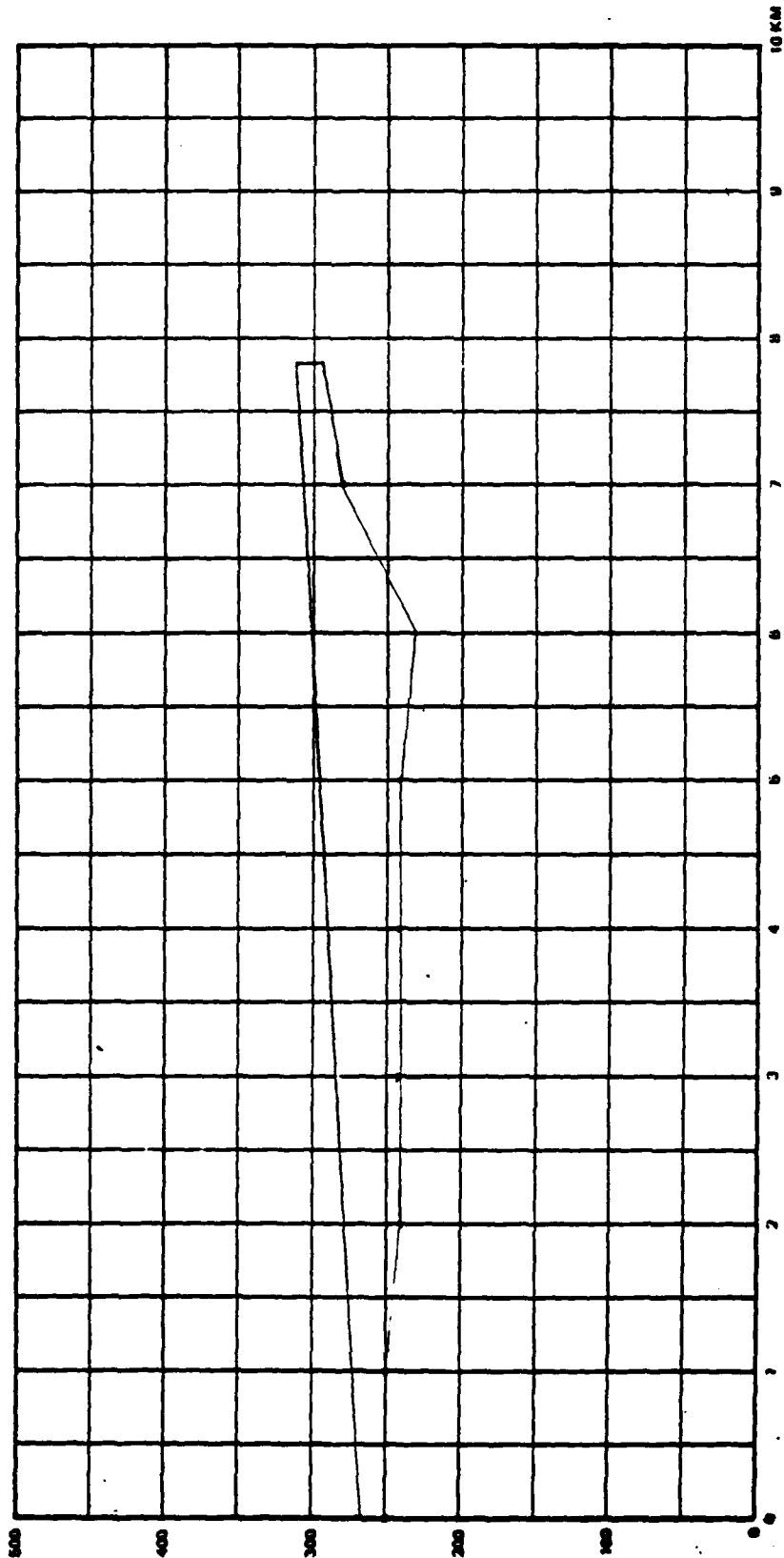
ELEVATION 608 M

TOWER HEIGHT 20 M



1st repeater to  
STATION Lohensfeld  
LATITUDE D 49 M 29 S 24  
LONGITUDE D 07 M 40 S 20  
ELEVATION 297 M  
TOWER HEIGHT 20 M

STATION Ramstein  
LATITUDE D 49 M 27 S 04  
LONGITUDE D 07 M 35 S 04  
ELEVATION 250 M  
TOWER HEIGHT 20 M

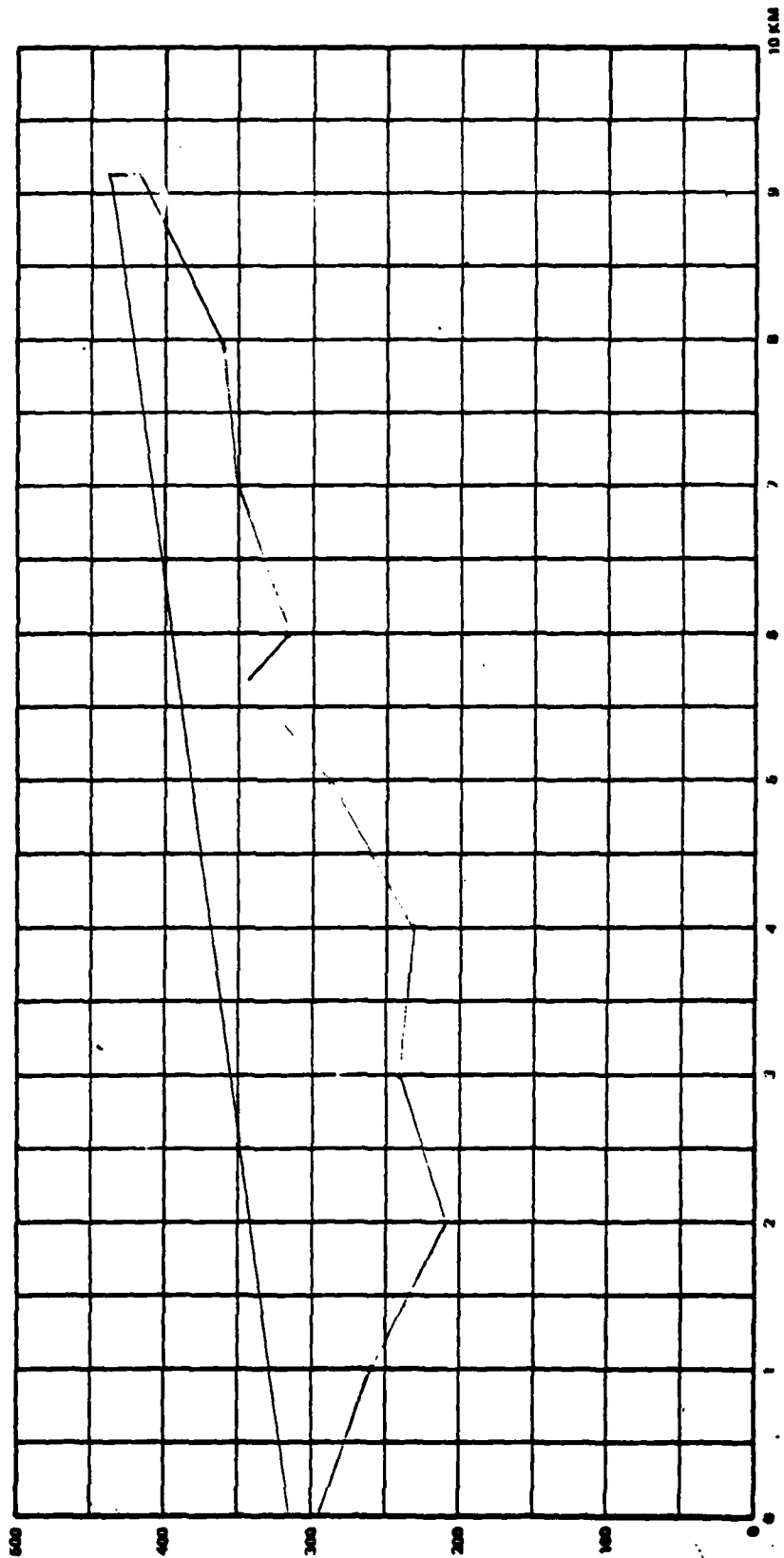


1st repeater from

STATION Ramstein  
LATITUDE D 49 M 29 S 24  
LONGITUDE D 07 M 40 S 20  
ELEVATION 297 M  
TOWER HEIGHT 20 M

2nd repeater to

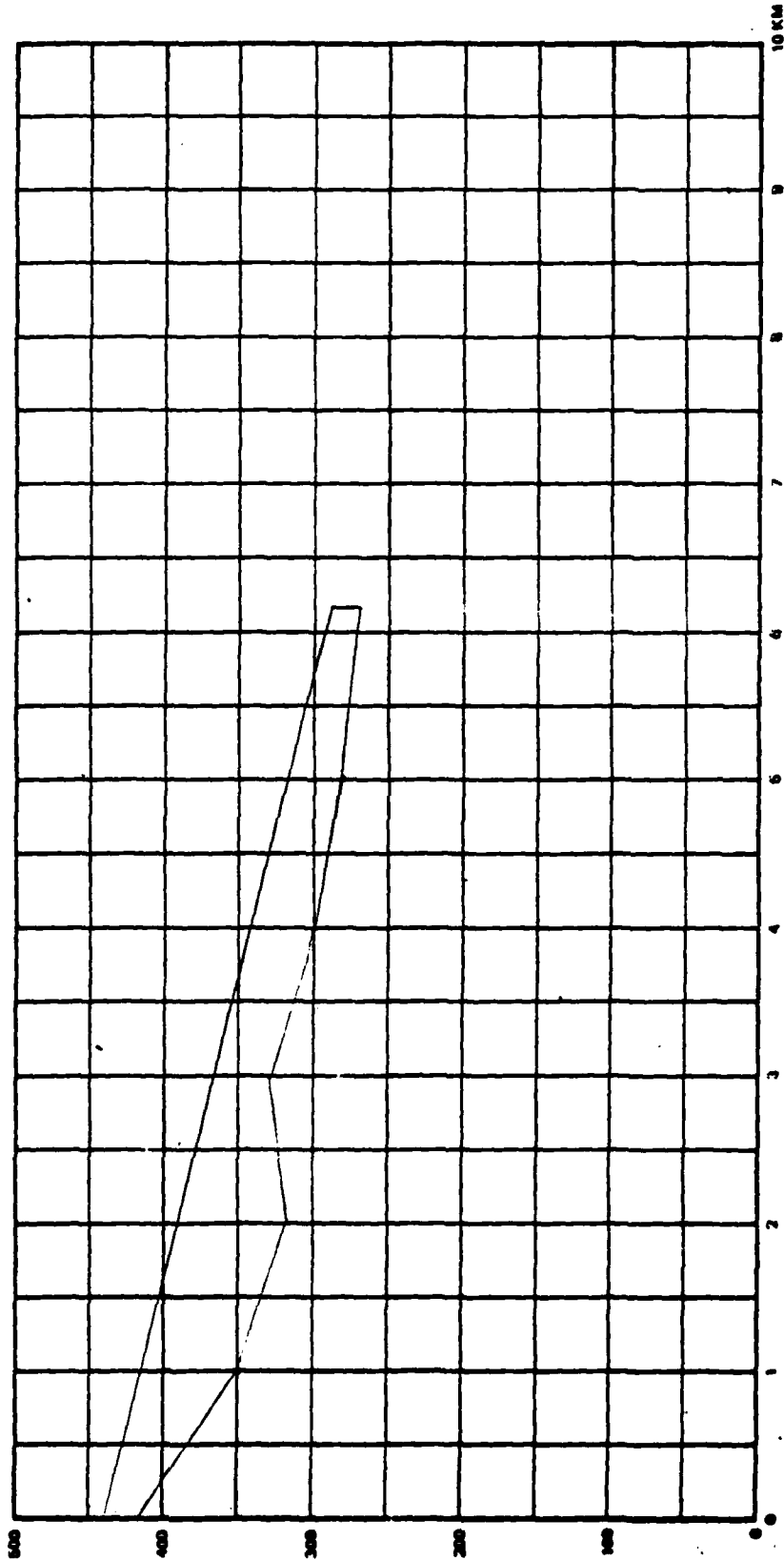
STATION Lohensfeld  
LATITUDE D 49 M 32 S 35  
LONGITUDE D 07 M 43 S 05  
ELEVATION 420 M  
TOWER HEIGHT 20 M



2nd repeater from

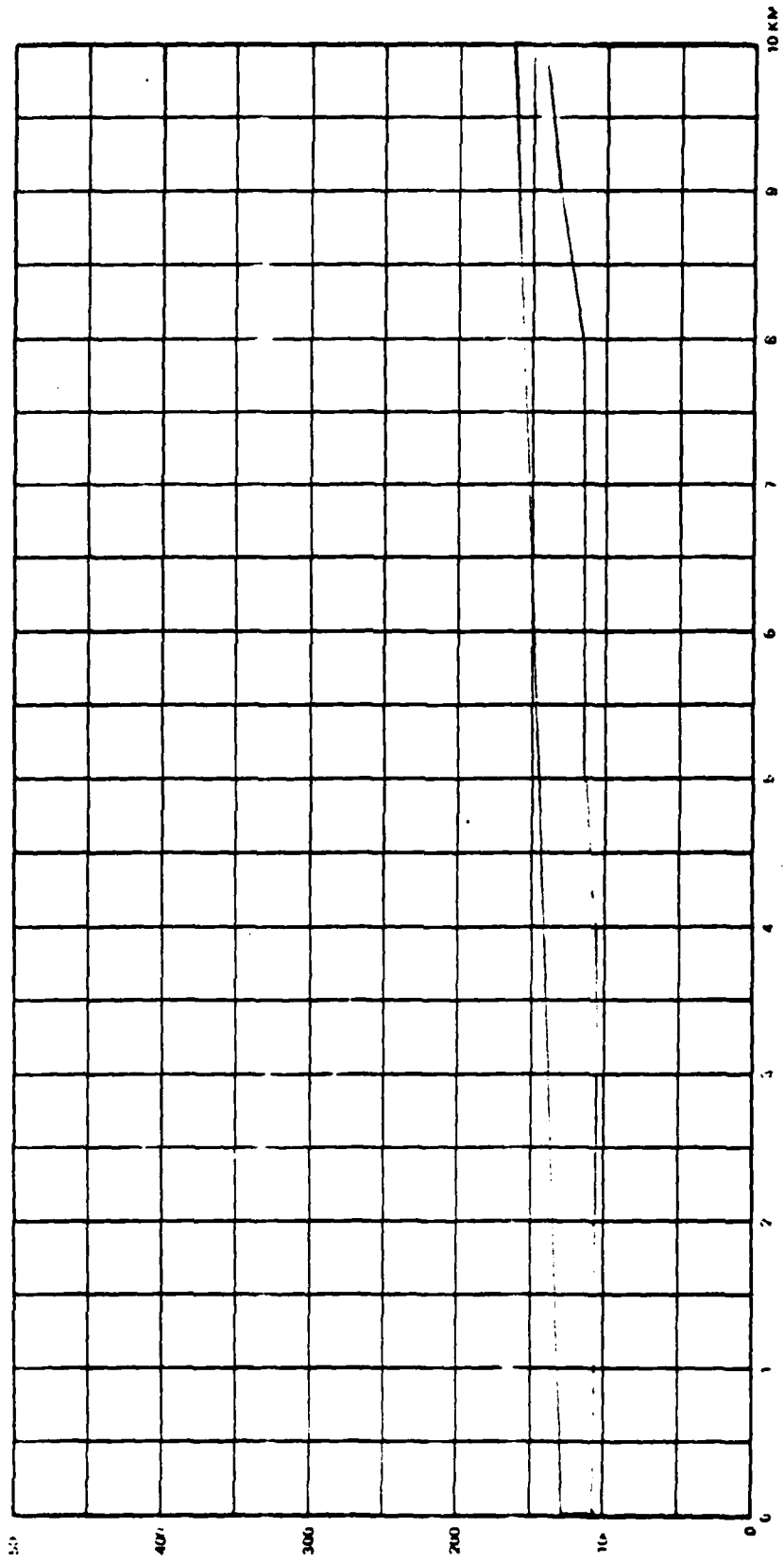
STATION Ramstein  
LATITUDE D 49 M 32 S 35  
LONGITUDE D 07 M 43 S 05  
ELEVATION 420 M  
TOWER HEIGHT 20 M

STATION Lohensfeld  
LATITUDE D 49 M 33 S 00  
LONGITUDE D 07 M 51 S 10  
ELEVATION 271 M  
TOWER HEIGHT 20 M



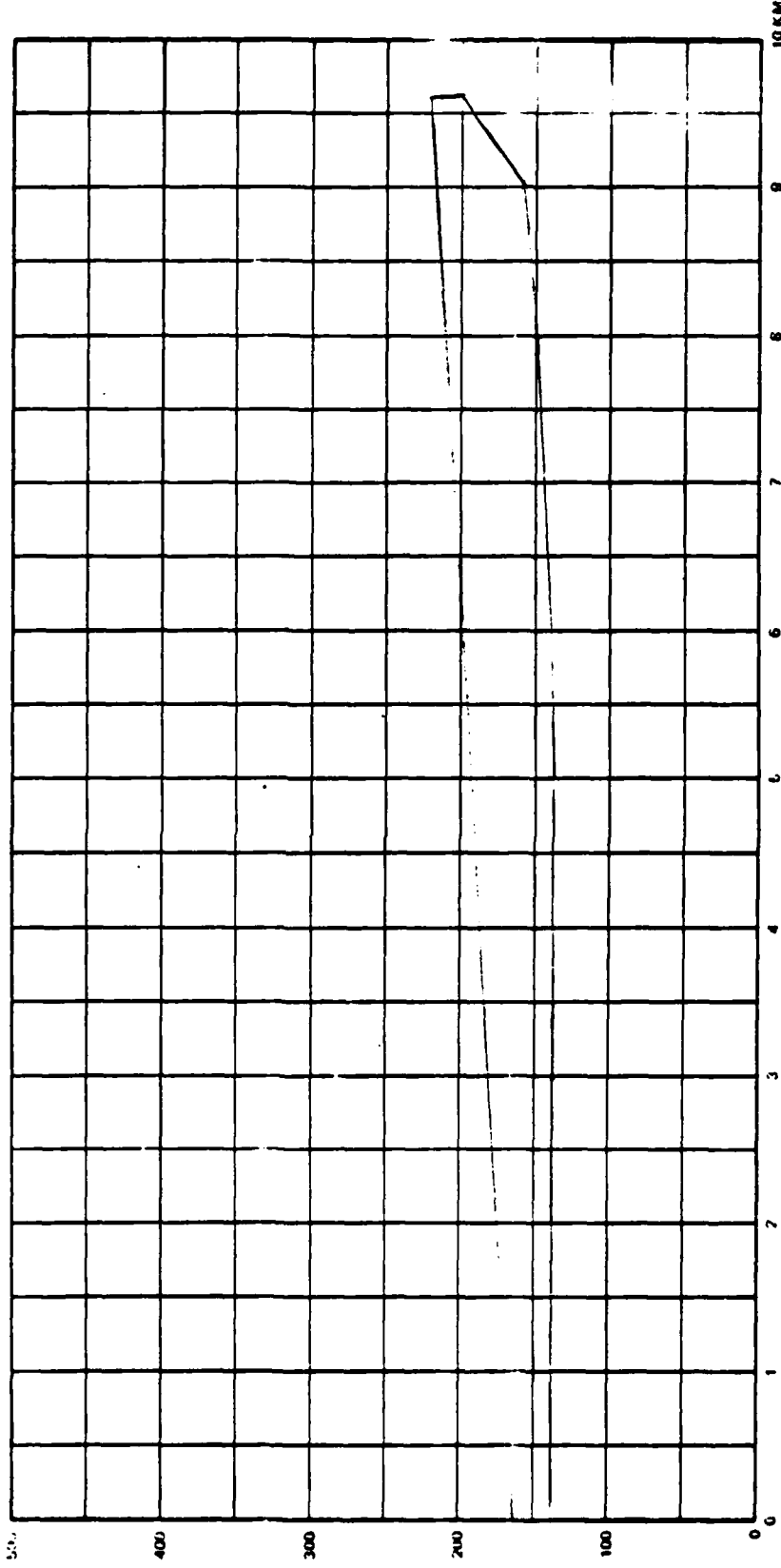
STATION Rheine Main  
LATITUDE D 50 M 01 S 51  
LONGITUDE D 08 M 34 S 55  
ELEVATION 108 M  
TOWER HEIGHT 20 M

1st repeater to  
STATION Darmstadt  
LATITUDE D 49 M 58 S 31  
LONGITUDE D 08 M 41 S 13  
ELEVATION 140 M  
TOWER HEIGHT 20 M



2nd repeater to  
STATION Darmstadt  
LATITUDE D 49 M 53 S 18  
LONGITUDE D 08 M 41 S 14  
ELEVATION 199 M  
TOWER HEIGHT 20 M

1st repeater from  
STATION Rheine Main  
LATITUDE D 49 M 58 S 31  
LONGITUDE D 08 M 41 S 13  
ELEVATION 140 M  
TOWER HEIGHT 20 M



2nd repeater from

STATION Rheine Main

LATITUDE D 49 M 53 S 18

LONGITUDE D 08 M 41 S 14

ELEVATION 199 M

TOWER HEIGHT 20 M

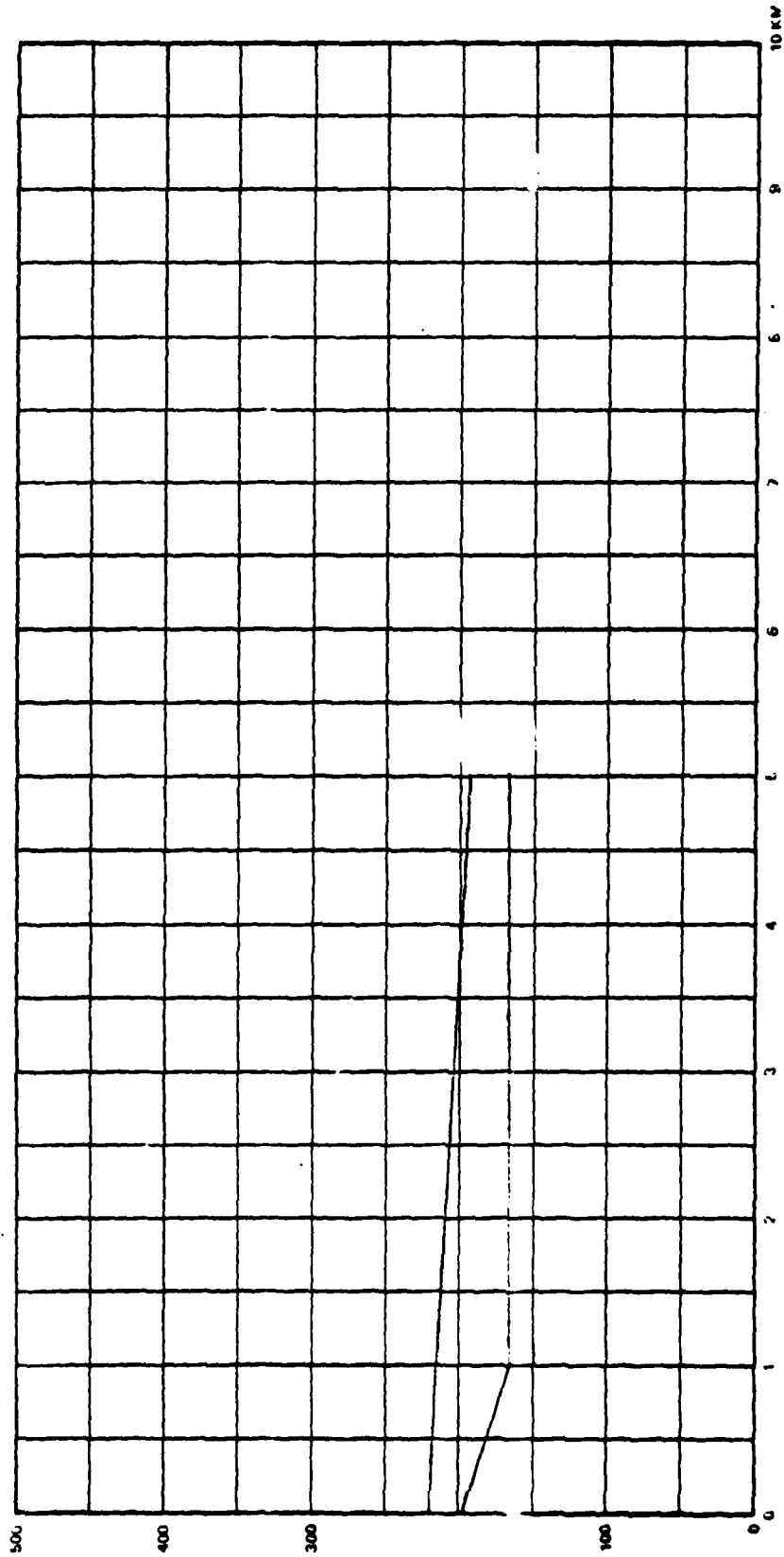
STATION Darmstadt

LATITUDE D 49 M 50 S 55

LONGITUDE D 08 M 39 S 19

ELEVATION 170 M

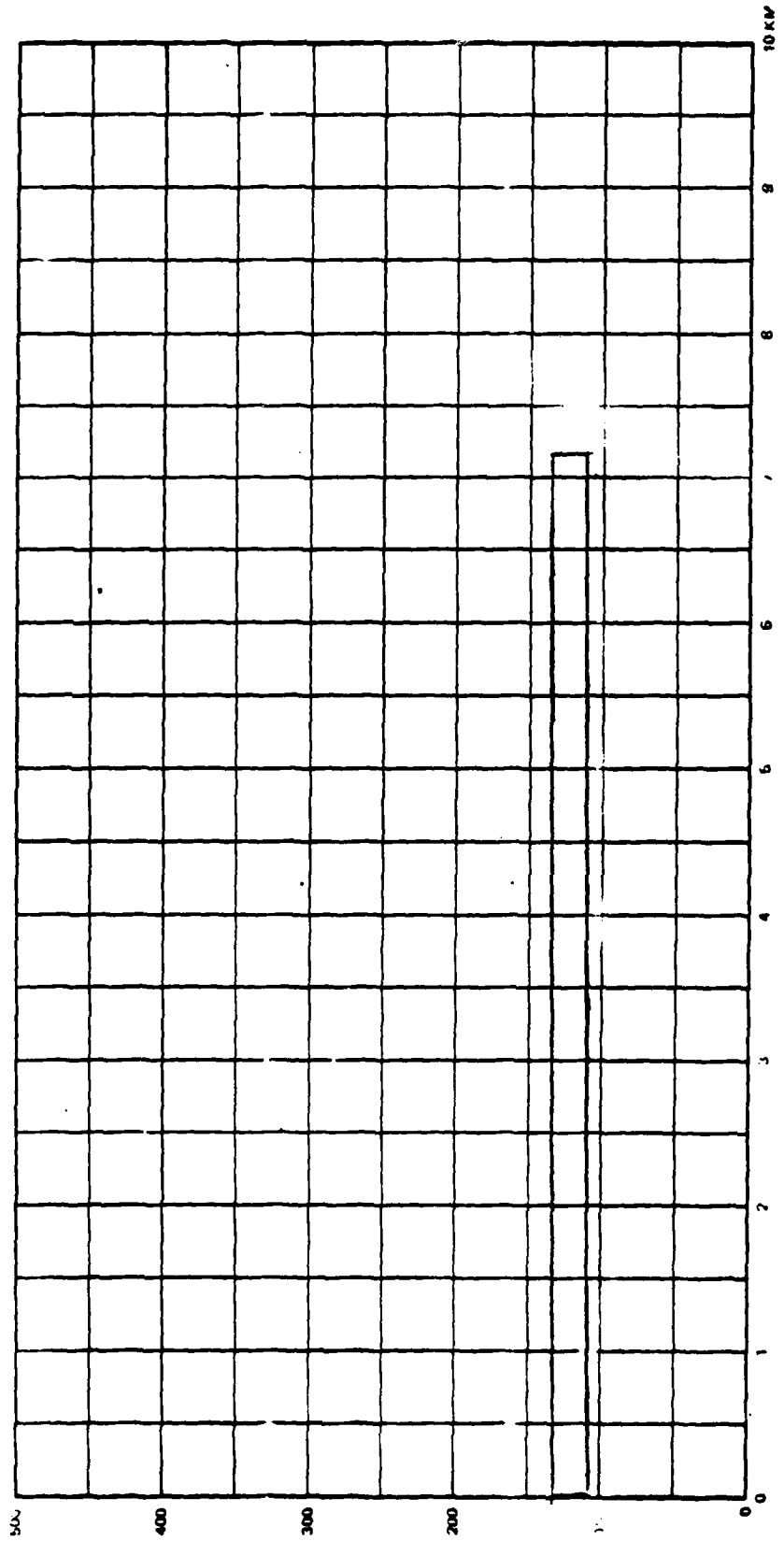
TOWER HEIGHT 20 M





1st repeater to  
STATION Frankfurt  
LATITUDE D 50 M 04 S 33  
LONGITUDE D 08 M 39 S 20  
ELEVATION 113 M  
TOWER HEIGHT 20 M

STATION Rheine Main  
LATITUDE D 50 M 01 S 51  
LONGITUDE D 08 M 34 S 55  
ELEVATION 108 M  
TOWER HEIGHT 20 M



1st repeater from

STATION Rheine Main

LATITUDE D 50 M 04 S 33

LONGITUDE D 08 M 39 S 20

ELEVATION 113 M

TOWER HEIGHT 20 M

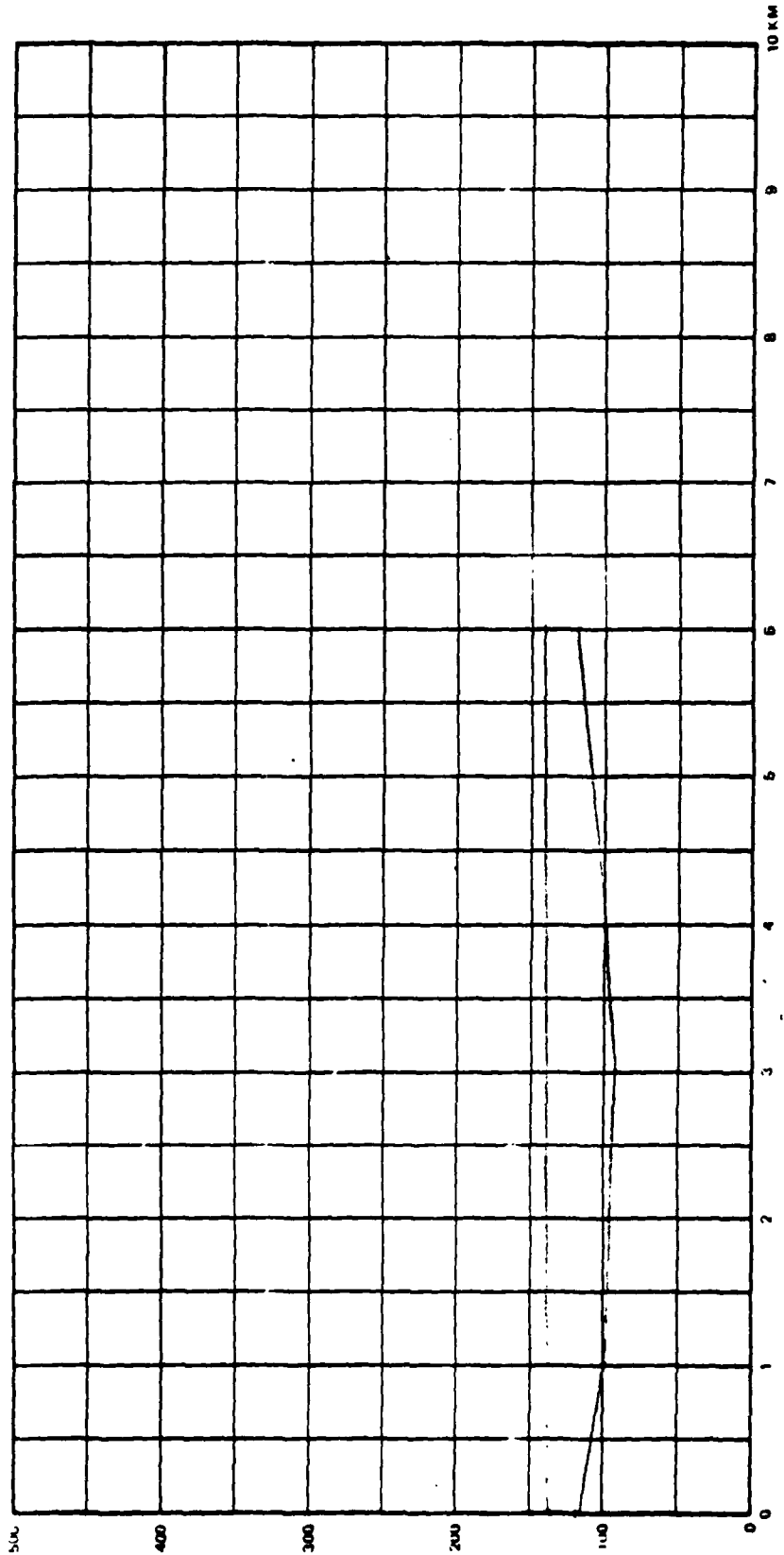
STATION Frankfurt

LATITUDE D 50 M 07 S 41

LONGITUDE D 08 M 40 S 15

ELEVATION 119 M

TOWER HEIGHT 20 M



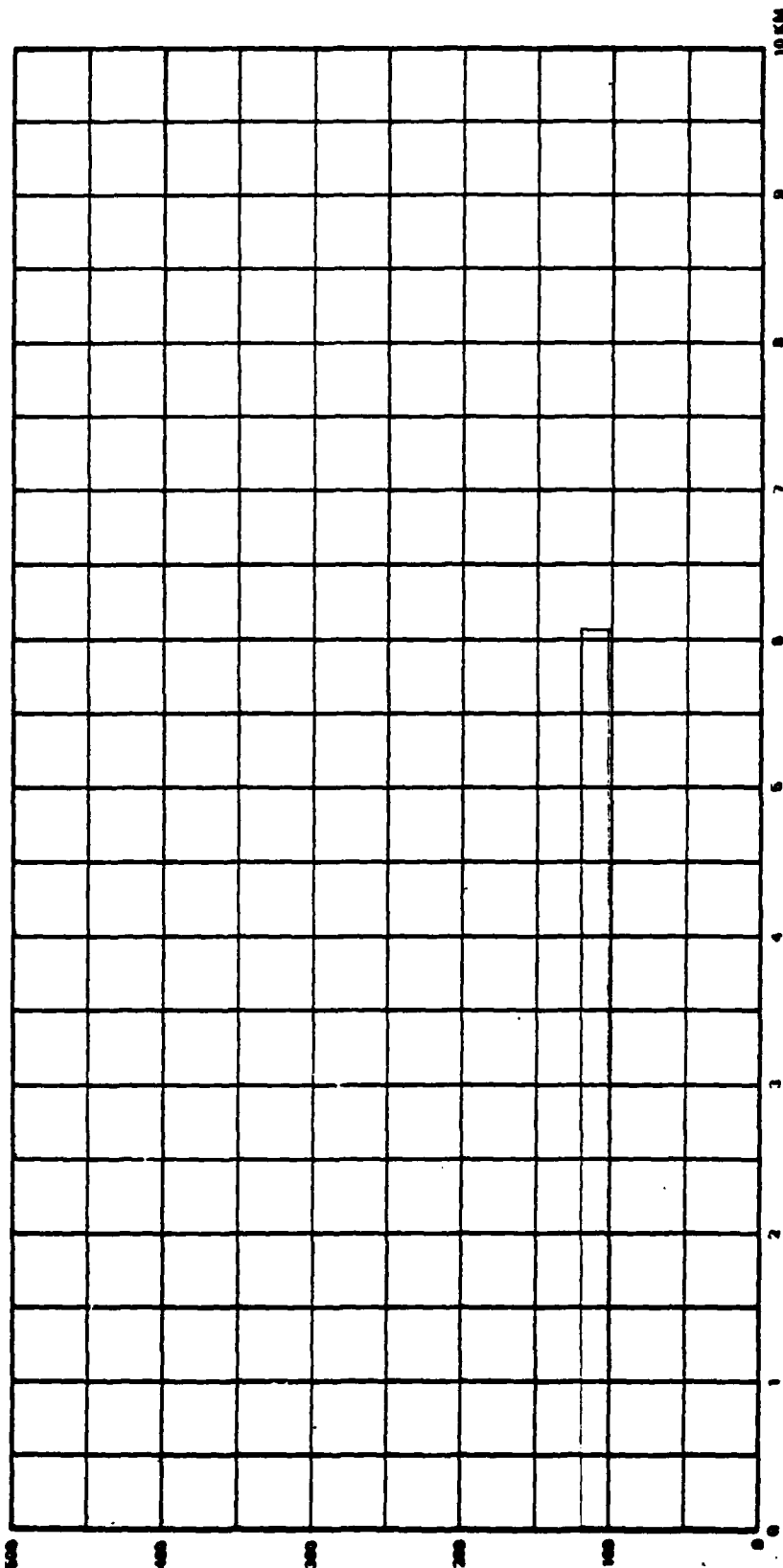
1st repeater from Koenigstuhl

STATION to Karlsruhe

LATITUDE D 49 M 38 S 50  
LONGITUDE D 8 M 38 S 50  
ELEVATION 103 M  
TOWER HEIGHT 20 M

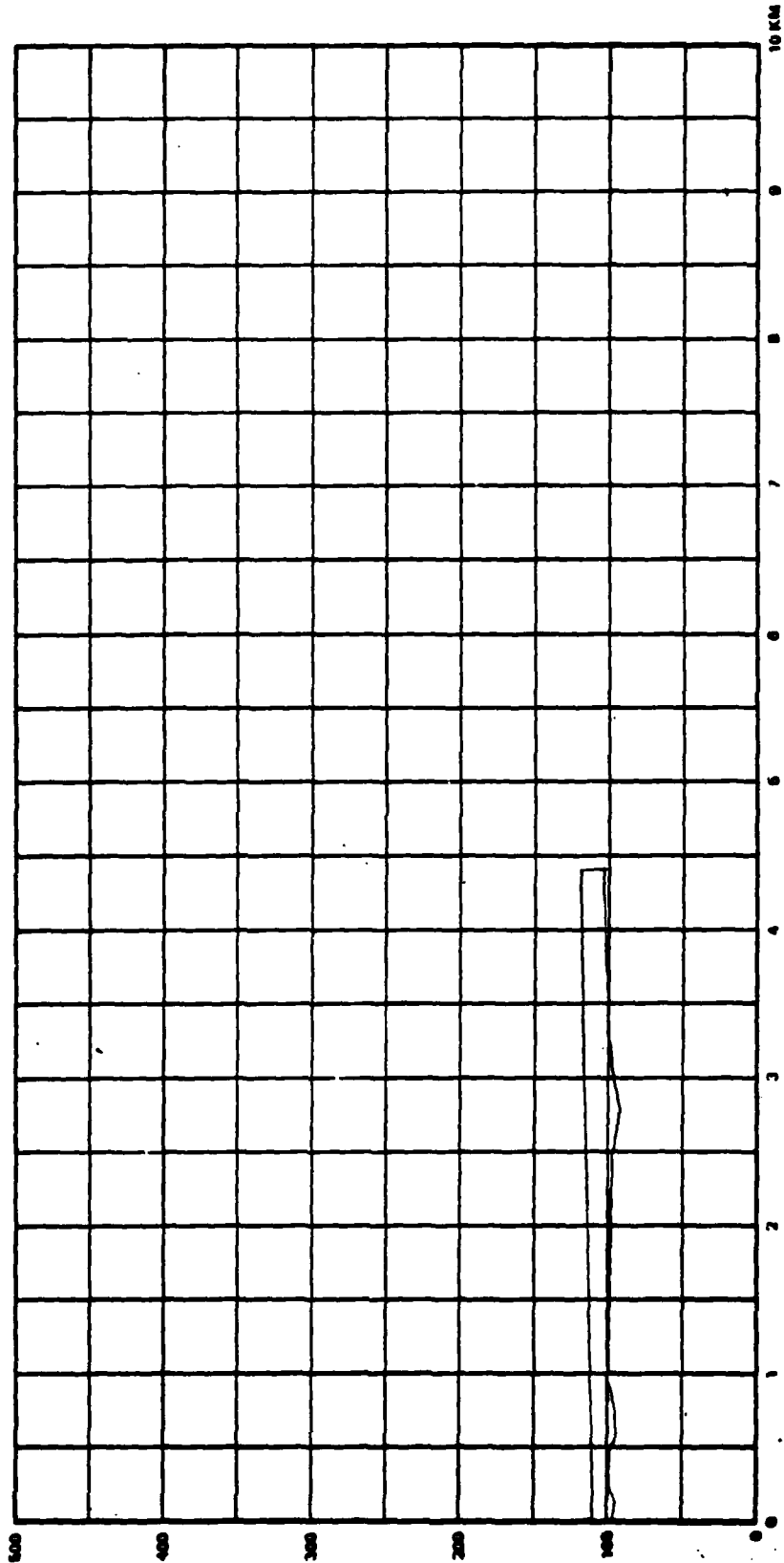
STATION Schwetzingen

LATITUDE D 49 M 24 S 31  
LONGITUDE D 8 M 33 S 40  
ELEVATION 100 M  
TOWER HEIGHT 20 M



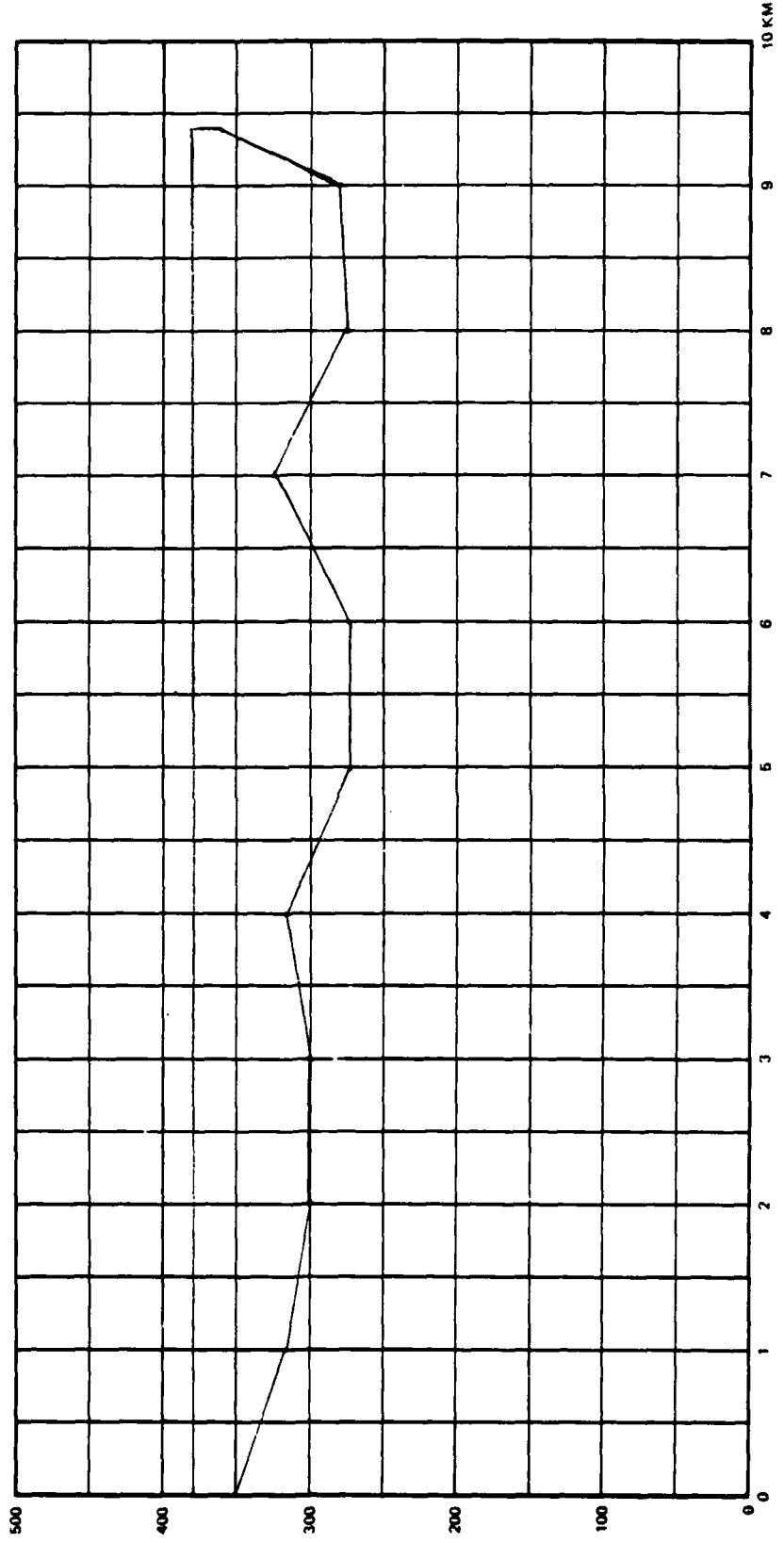
1st repeater to  
STATION Heidelberg  
LATITUDE D 49 M 28 S 05  
LONGITUDE D 8 M 37 S 43  
ELEVATION 103 M  
TOWER HEIGHT 20 M

STATION Seckenheim  
LATITUDE D 49 M 28 S 00  
LONGITUDE D 8 M 34 S 00  
ELEVATION 95 M  
TOWER HEIGHT 20 M



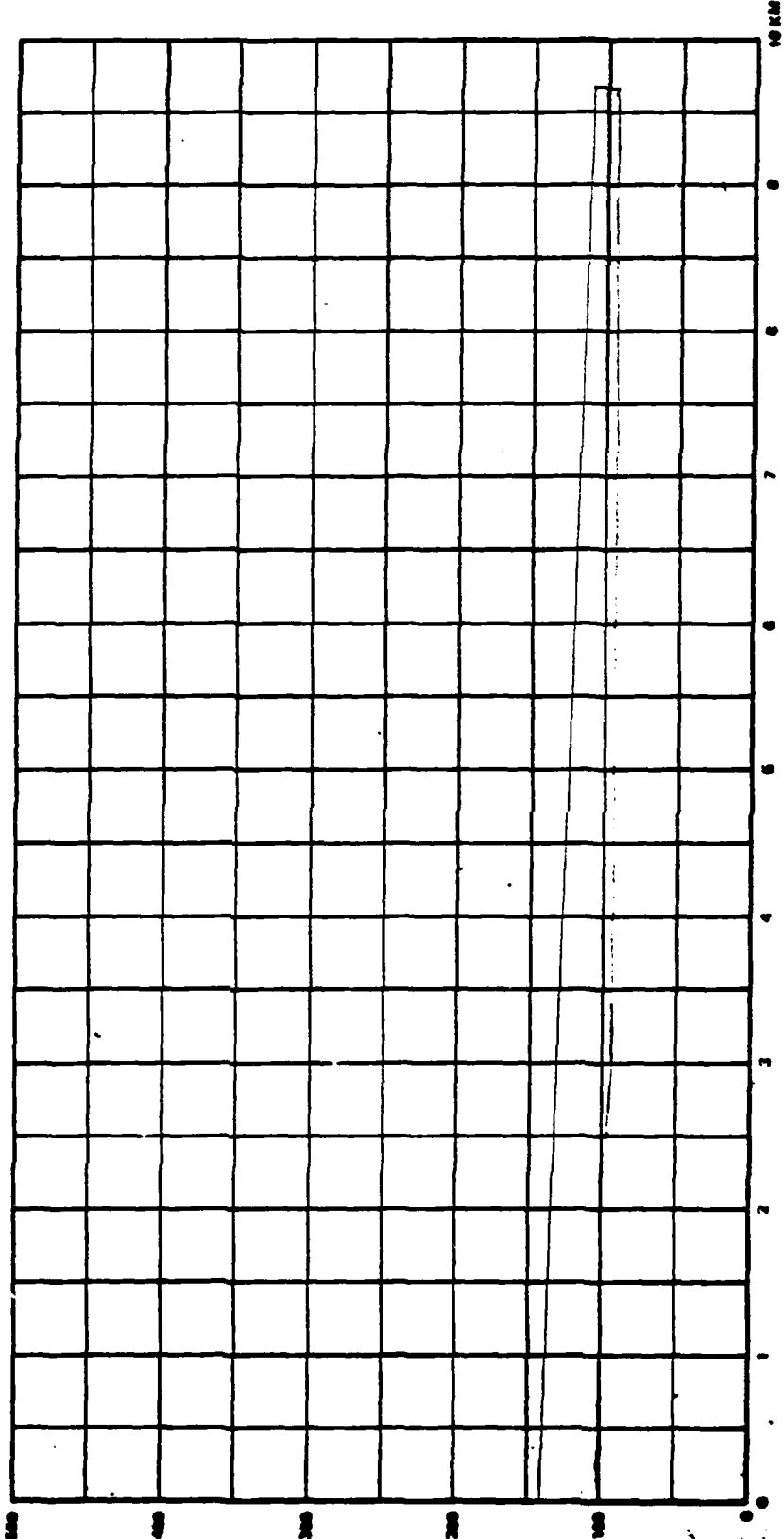
STATION Kaiserslantern  
 LATITUDE D 49 M 26 S 40  
 LONGITUDE D 07 M 50 S 30  
 ELEVATION 360 M  
 TOWER HEIGHT 20 M

STATION Sembach  
 LATITUDE D 49 M 31 S 46  
 LONGITUDE D 07 M 52 S 07  
 ELEVATION 351 M  
 TOWER HEIGHT 26 M



1st repeater to  
STATION Mannheim  
LATITUDE D 49 M 34 S 24  
LONGITUDE D 08 M 26 S 50  
ELEVATION 90 M  
TOWER HEIGHT 20 M

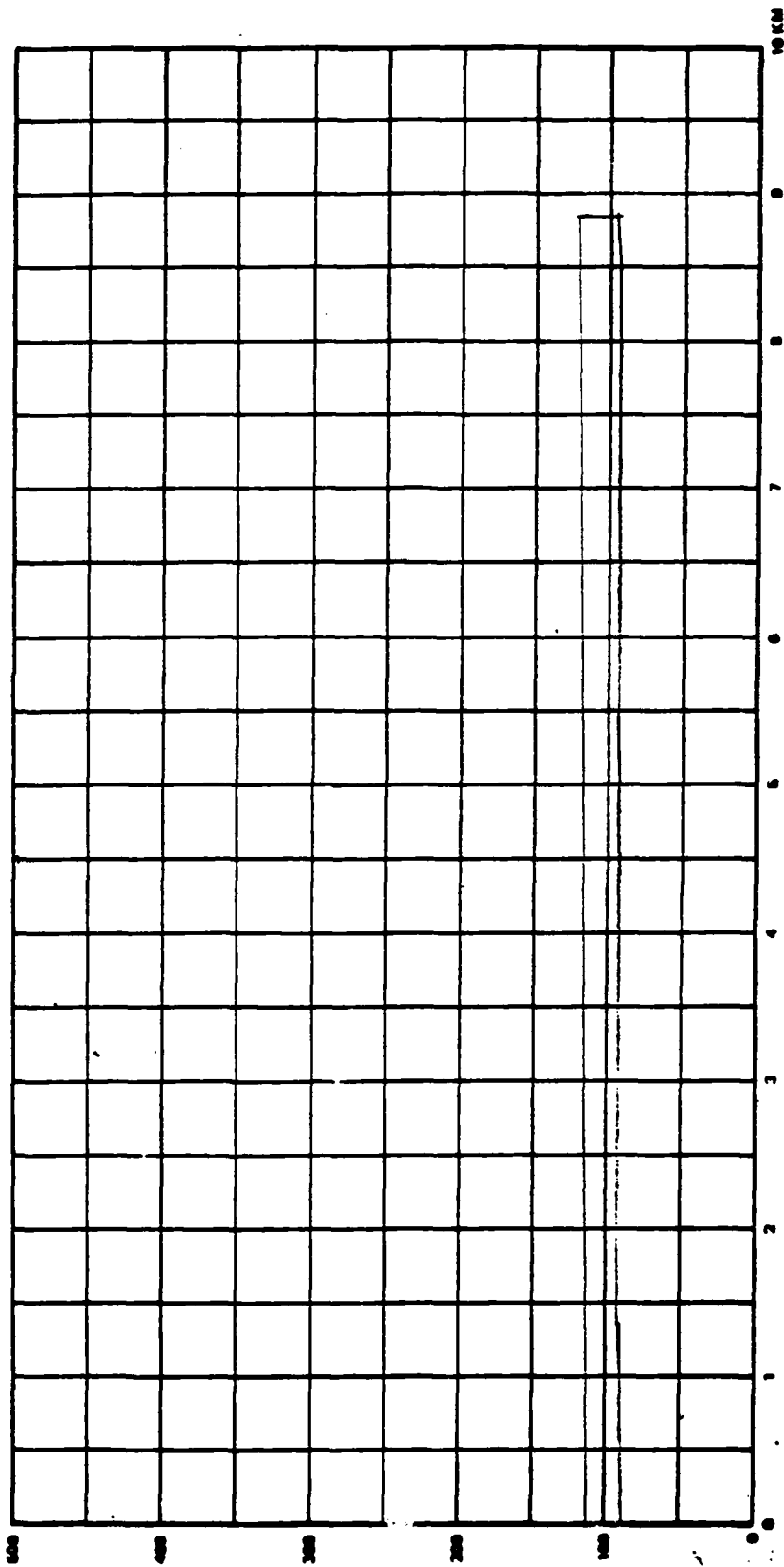
STATION Worms  
LATITUDE D 49 M 38 S 28  
LONGITUDE D 08 M 21 S 40  
ELEVATION 101 M  
TOWER HEIGHT 40 M



1st repeater from

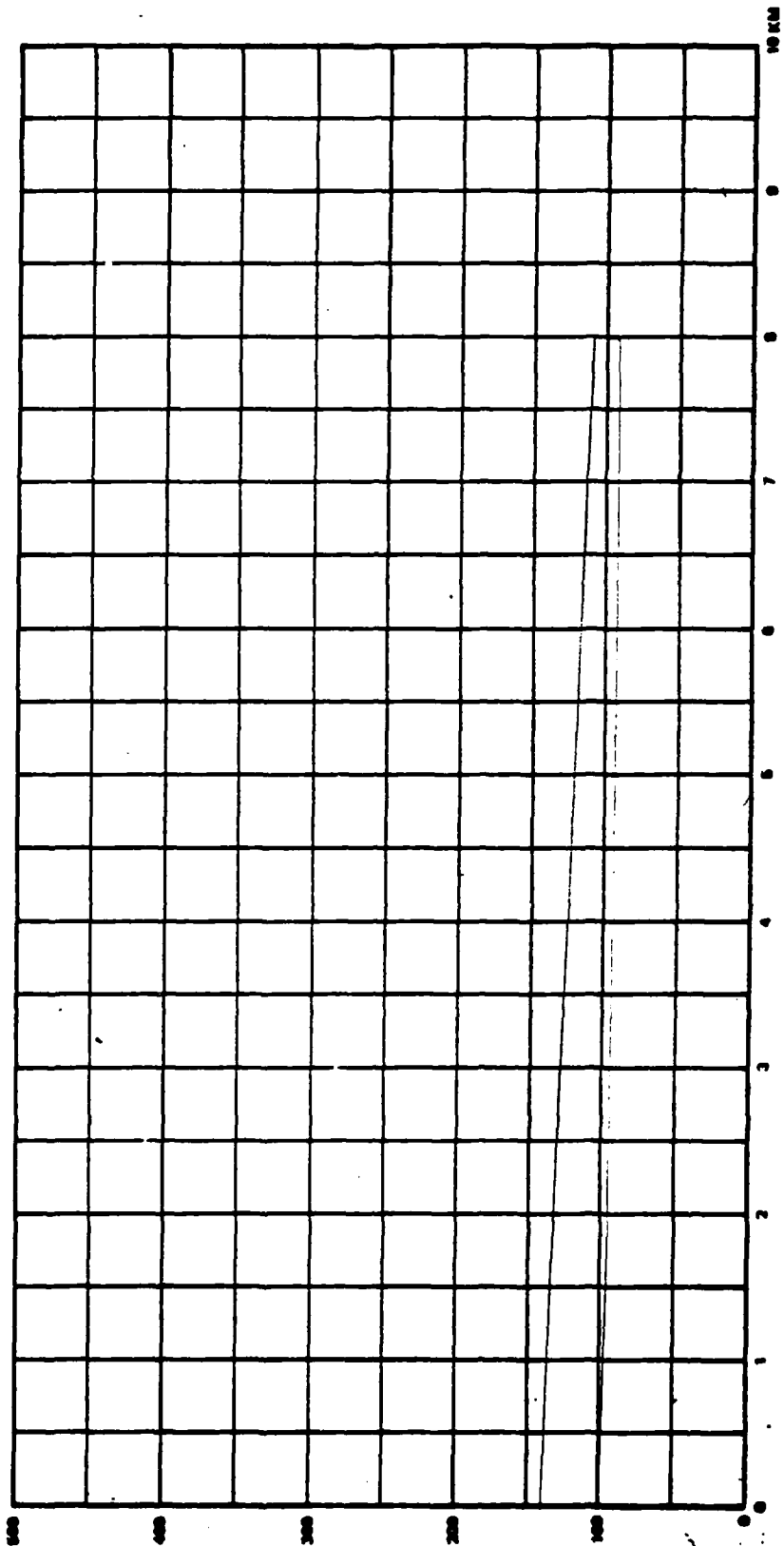
STATION Worms  
LATITUDE D 49 M 34 S 24  
LONGITUDE D 08 M 26 S 50  
ELEVATION 90 M  
TOWER HEIGHT 20 M

STATION Mannheim  
LATITUDE D 49 M 30 S 59  
LONGITUDE D 08 M 31 S 48  
ELEVATION 97 M  
TOWER HEIGHT 20 M



1st repeater to  
STATION Melibocus  
LATITUDE D 49 M 39 S 46  
LONGITUDE D 08 M 28 S 01  
ELEVATION 90 M  
TOWER HEIGHT 20 M

STATION Worms  
LATITUDE D 49 M 38 S 28  
LONGITUDE D 08 M 21 S 40  
ELEVATION 101 M  
TOWER HEIGHT 40 M





1st repeater from

STATION Worms

LATITUDE D 49 M 39 S 46

LONGITUDE D 08 M 28 S 01

ELEVATION 90 M

TOWER HEIGHT 20 M

2nd repeater to

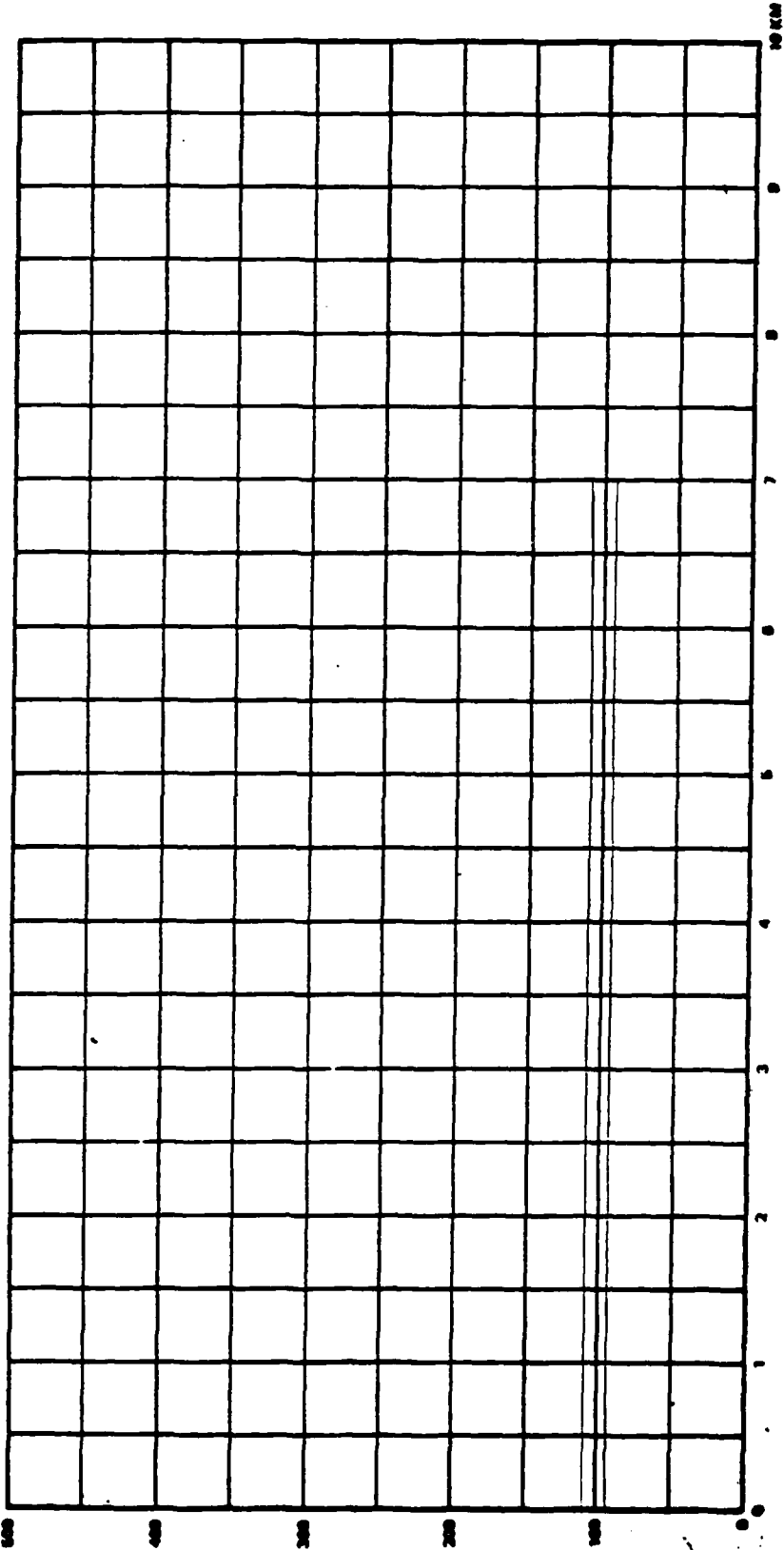
STATION Melibocus

LATITUDE D 49 M 41 S 10

LONGITUDE D 08 M 33 S 20

ELEVATION 90 M

TOWER HEIGHT 20 M

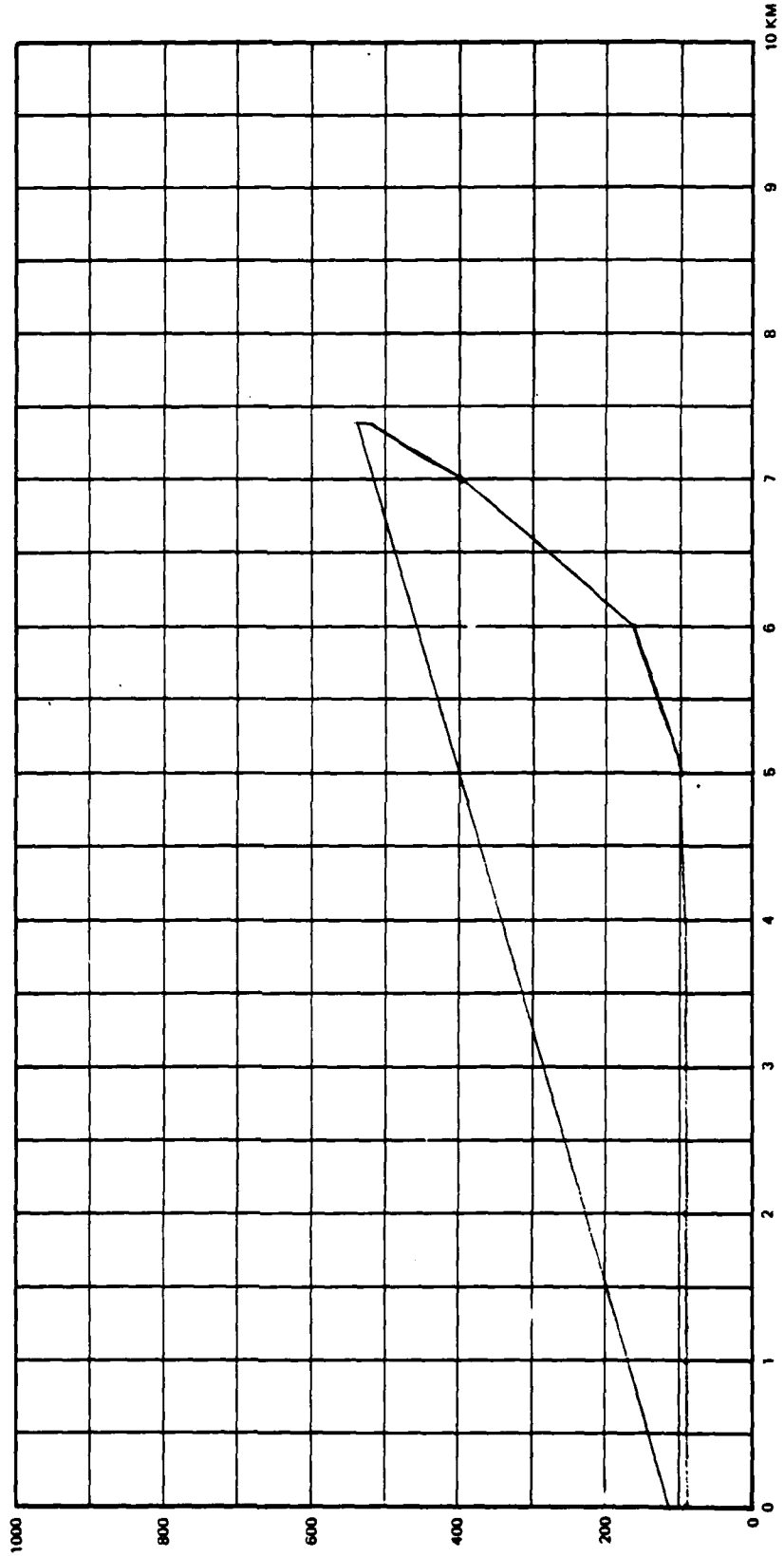


2nd repeater from  
Normis

STATION Normis  
LATITUDE D 49 M 41 S 10  
LONGITUDE D 08 M 33 S 20  
ELEVATION 90 M  
TOWER HEIGHT 20 M

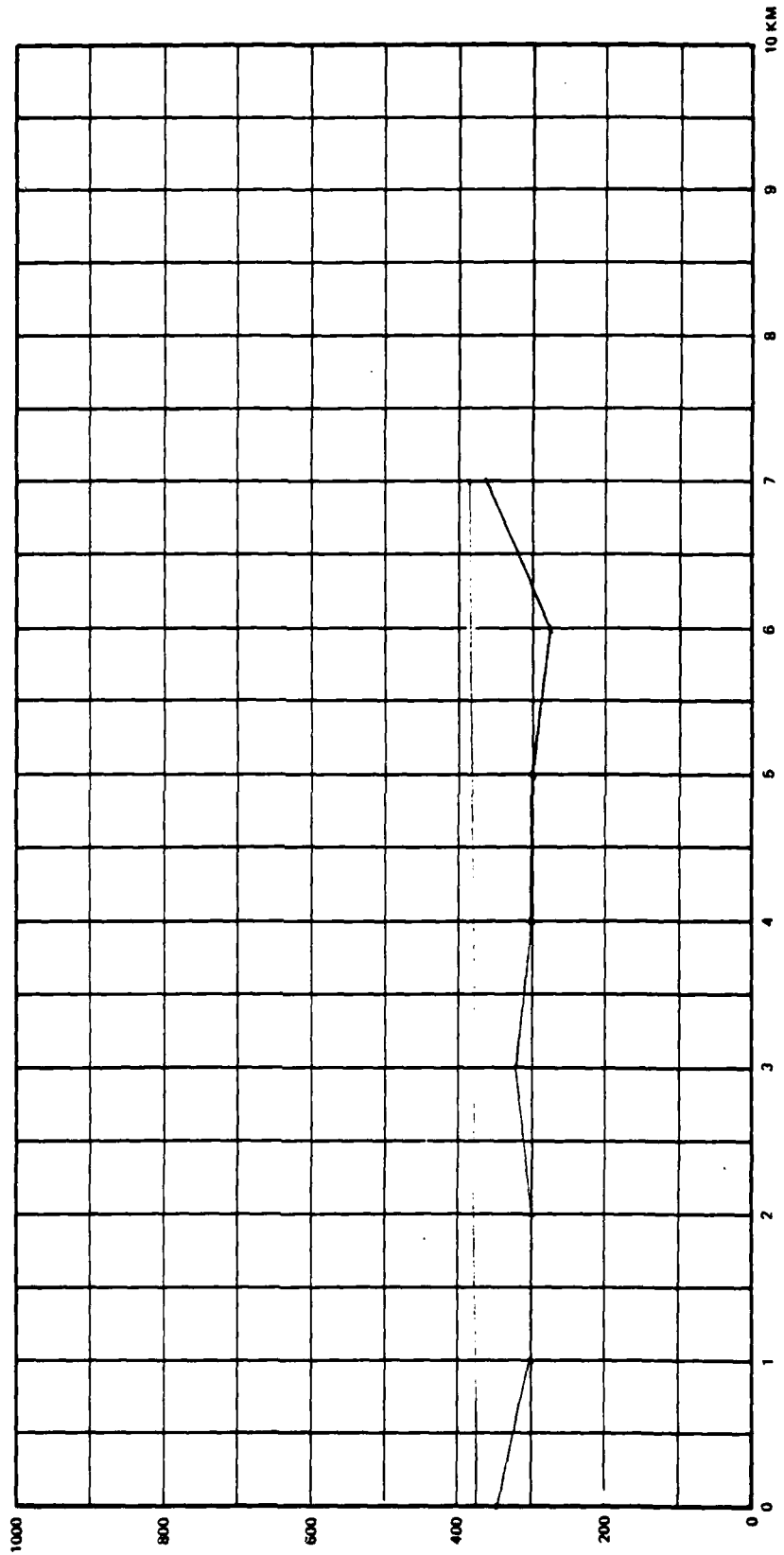
STATION Melibocus

LATITUDE D 49 M 43 S 32  
LONGITUDE D 08 M 38 S 17  
ELEVATION 516 M  
TOWER HEIGHT 20 M



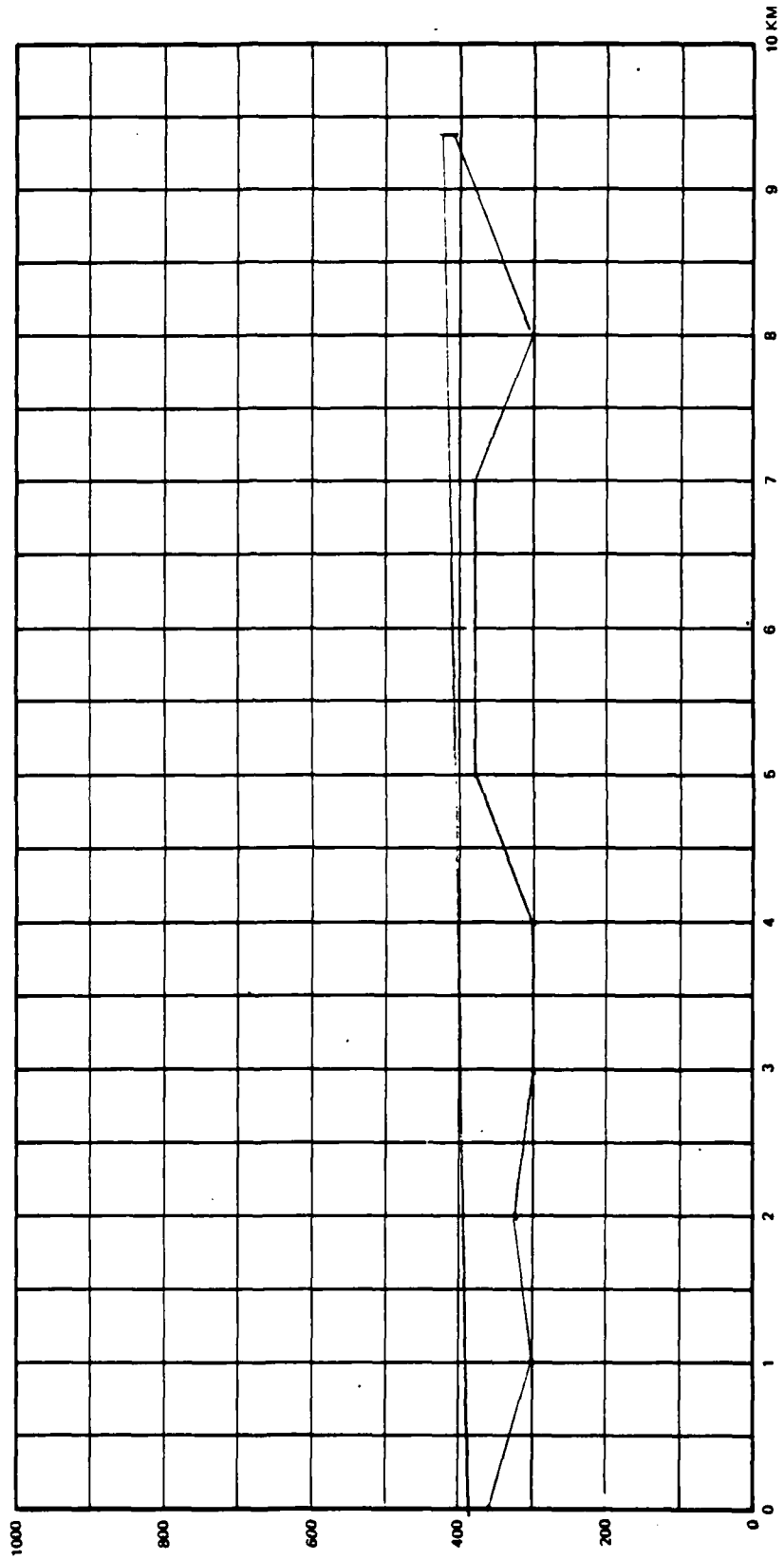
1st repeater to  
 STATION Langerkopf  
 LATITUDE D 49 M 13 S 40  
 LONGITUDE D 07 M 29 S 00  
 ELEVATION 365 M  
 TOWER HEIGHT 20 M

STATION Zweibrucken (AF)  
 LATITUDE D 49 M 13 S 48  
 LONGITUDE D 07 M 24 S 02  
 ELEVATION 345 M  
 TOWER HEIGHT 30 M



2nd repeater to  
 STATION Langerkopf  
 LATITUDE D 49 M 14 S 10  
 LONGITUDE D 07 M 36 S 20  
 ELEVATION 405 M  
 TOWER HEIGHT 20 M

1st repeater from  
 STATION Zweibrucken (AF)  
 LATITUDE D 49 M 13 S 40  
 LONGITUDE D 07 M 29 S 00  
 ELEVATION 365 M  
 TOWER HEIGHT 20 M

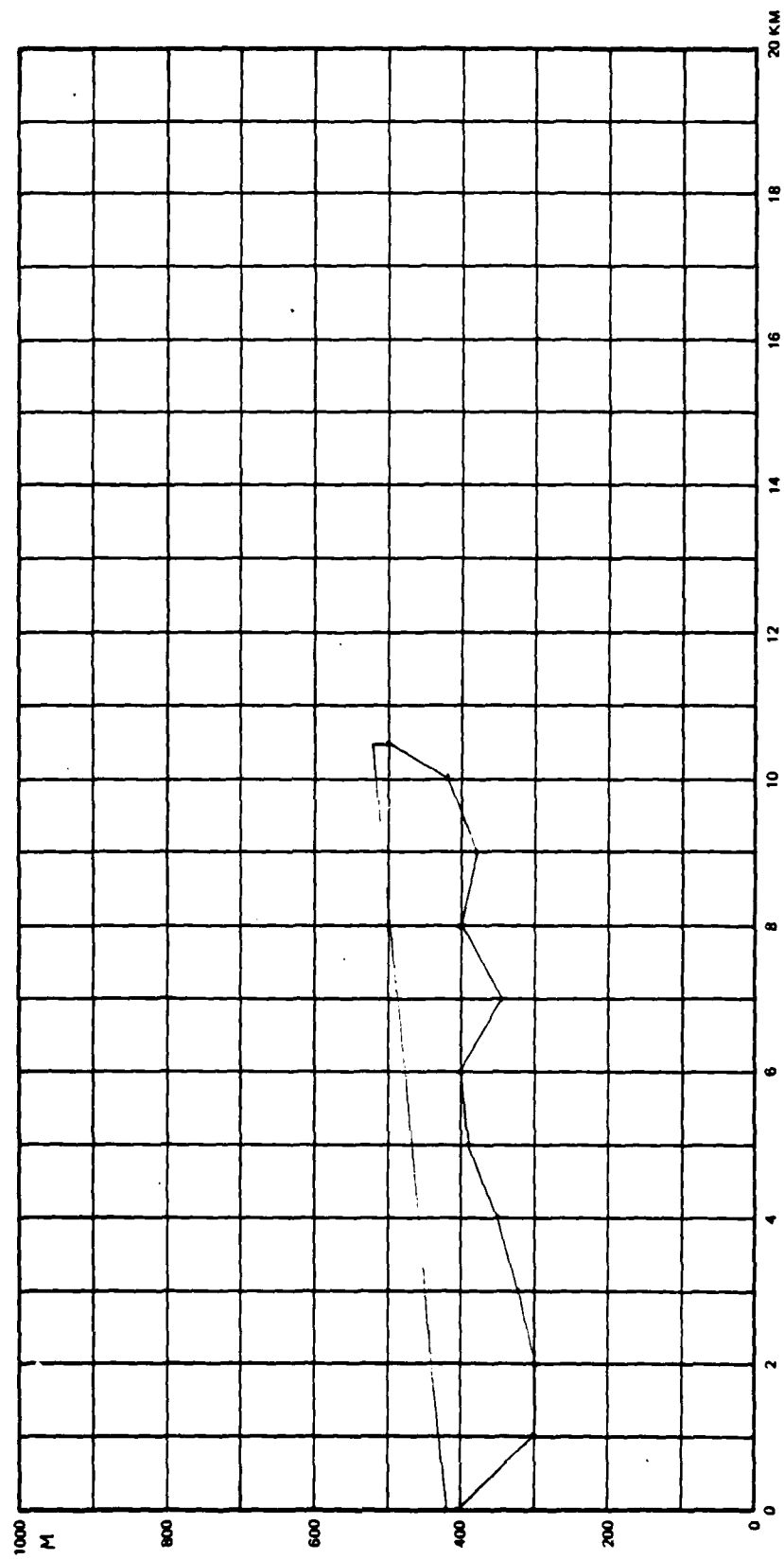


straight to Langerkopf  
from 2nd repeater  
3rd repeater to

STATION Langerkopf  
LATITUDE D 49 M 15 S 30  
LONGITUDE D 07 M 44 S 30  
ELEVATION 501 M  
TOWER HEIGHT 20 M

2nd repeater from

STATION Zweibrucken (AF)  
LATITUDE D 49 M 14 S 10  
LONGITUDE D 07 M 36 S 20  
ELEVATION 405 M  
TOWER HEIGHT 20 M

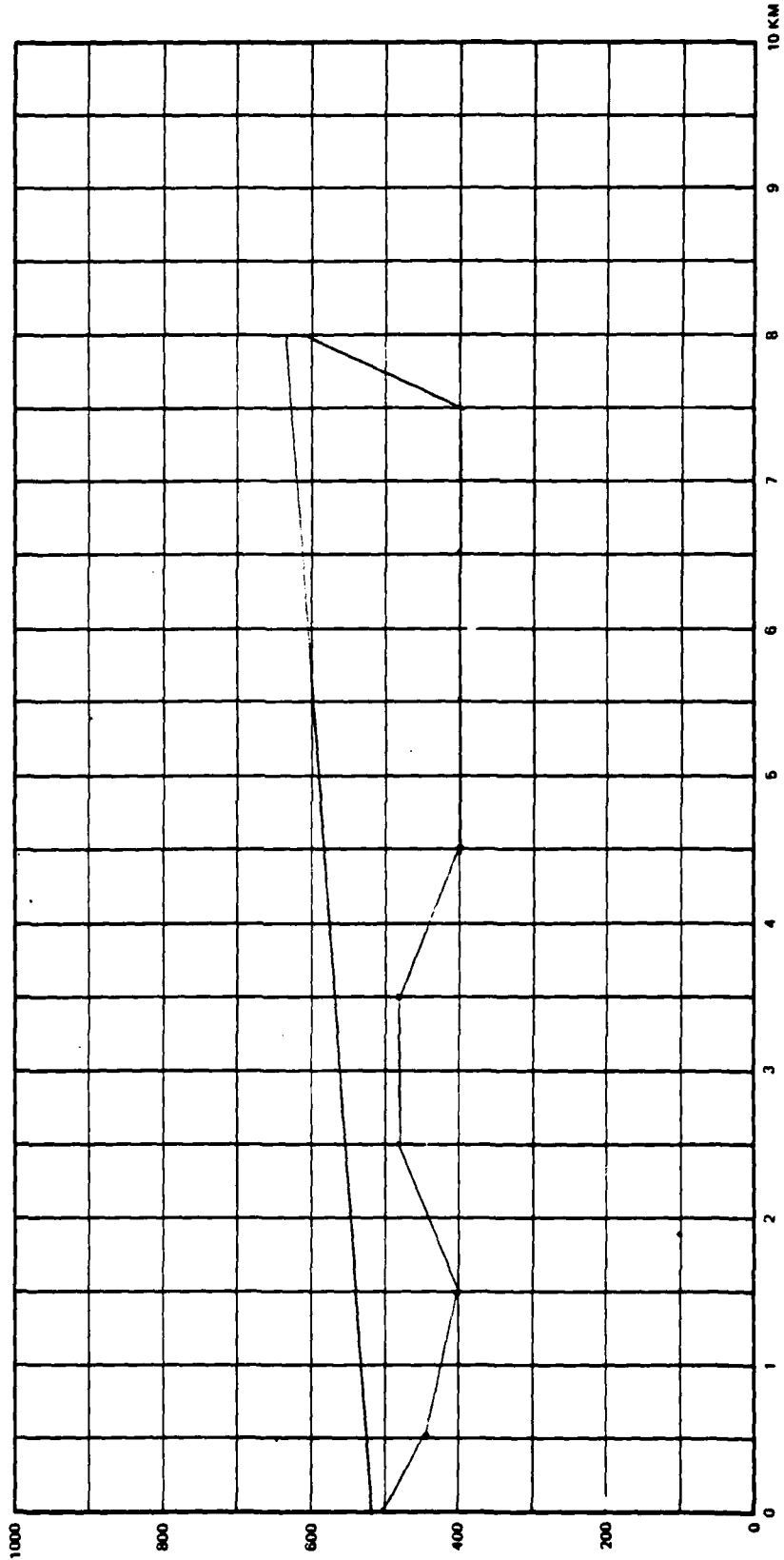


3rd repeater from  
STATION Zweibrücken (AF)

LATITUDE D 49 M 15 S 30  
LONGITUDE D 07 M 44 S 30  
ELEVATION 501 M  
TOWER HEIGHT 20 M

STATION Langerkopf

LATITUDE D 49 M 18 S 04  
LONGITUDE D 07 M 50 S 39  
ELEVATION 608 M  
TOWER HEIGHT 20 M



1st repeater to

STATION Zweibrucken (AF)

LATITUDE D 49 M 13 S 48

LONGITUDE D 07 M 24 S 02

ELEVATION 355 M

TOWER HEIGHT 30 M

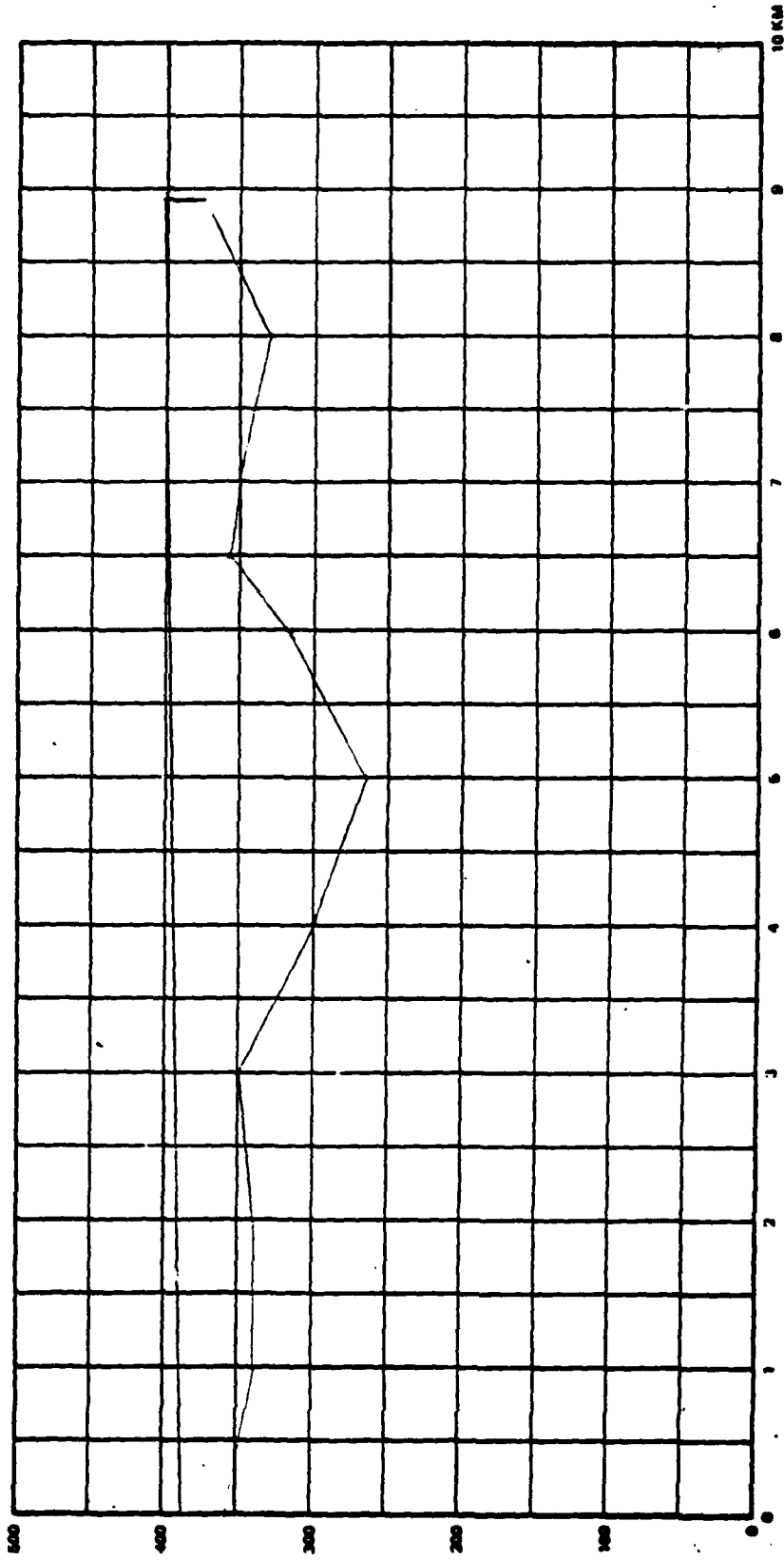
STATION Pirmasens

LATITUDE D 49 M 13 S 18

LONGITUDE D 07 M 30 S 45

ELEVATION 373 M

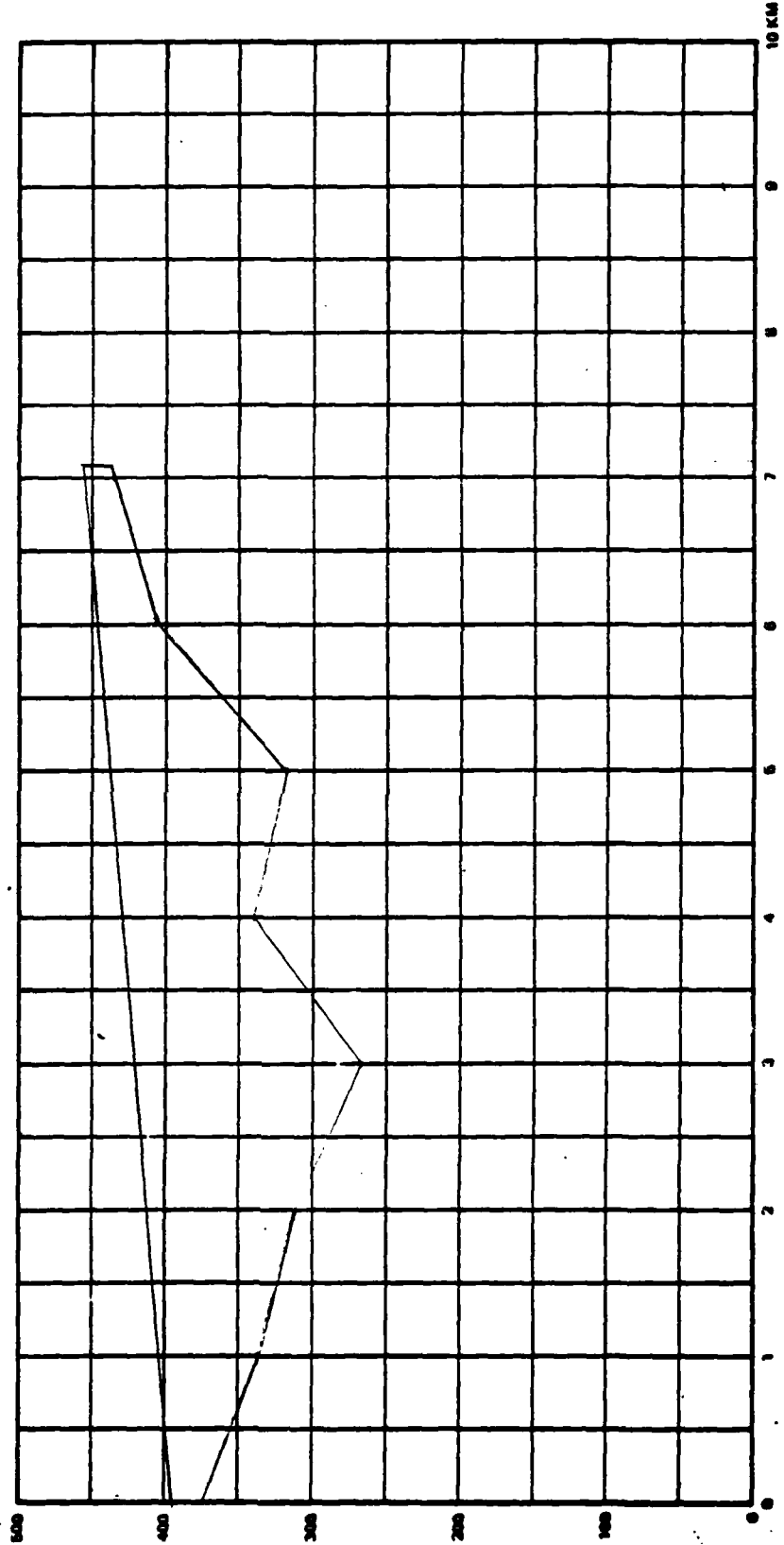
TOWER HEIGHT 30 M



1st repeater from

STATION Zweibrucken (AF)  
LATITUDE D 49 M 13 S 18  
LONGITUDE D 07 M 30 S 45  
ELEVATION 373 M  
TOWER HEIGHT 20 M

STATION Pirmasens  
LATITUDE D 49 M 13 S 01  
LONGITUDE D 07 M 36 S 35  
ELEVATION 439 M  
TOWER HEIGHT 20 M





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