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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 108. A/M32C-4--ETC(U)
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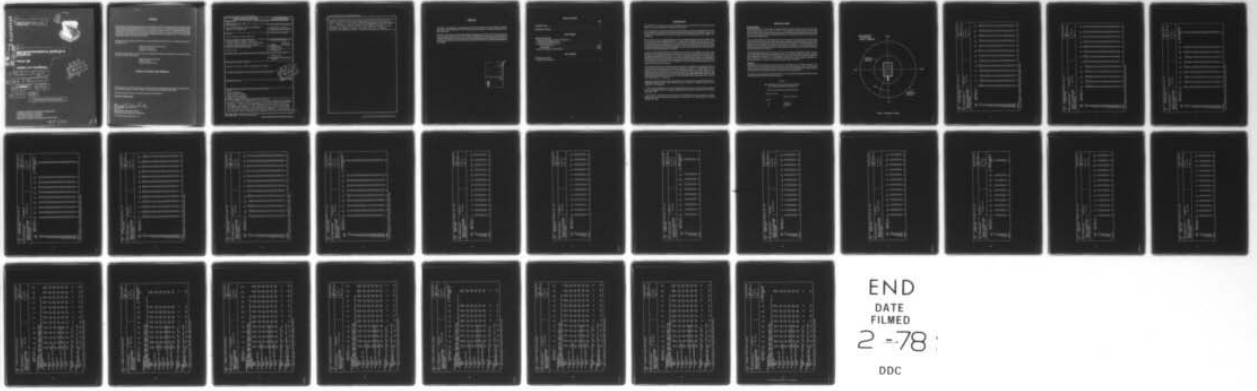
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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK.

Volume 108.

A/M32C-4 Air Conditioner.

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9 Technical rept.,

10 Nik A. Farinacci

11 DEC 1976 12 36p.

16 7231 17 04

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AEROSPACE MEDICAL RESEARCH LABORATORY
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This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER


HENNING E. VON GIERKE
Director
Biodynamics and Bionics Division
Aerospace Medical Research Laboratory

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
1. REPORT NUMBER AMRL-TR-75-50, Vol. 108	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER	
4. TITLE (and Subtitle) USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: A/M32C-4 Air Conditioner		5. TYPE OF REPORT & PERIOD COVERED Volume 108 of a series	
		6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s) Nick A. Farinacci, Capt, USAF, BSC		8. CONTRACT OR GRANT NUMBER(s)	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Aerospace Medical Research Laboratory Aerospace Medical Division, Air Force Systems Command, Wright-Patterson AFB OH 45433		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 7231-04-33 62202F 7231-04-36	
11. CONTROLLING OFFICE NAME AND ADDRESS Same as above		12. REPORT DATE December 1976	
		13. NUMBER OF PAGES 36	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified	
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited			
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)			
18. SUPPLEMENTARY NOTES			
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Noise Noise Environments Bioenvironmental Noise Ground Support Equipment A/M32C-4 Air Conditioner			
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The A/M32C-4 Air Conditioner is an electric motor driven unit providing heating or cooling to aircraft cockpits or electronic equipment during ground maintenance. This report provides measured data defining the bioacoustic environments produced by this unit operating inside a large aircraft hanger at normal rated conditions. Near-field data are reported for 37 locations in a wide variety of physical and psychoacoustic measures: overall and band sound pressure levels, C-weighted and A-weighted sound levels, preferred speech			

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interference level, perceived noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Refer to Volume 1 of this handbook, USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application, AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc.

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PREFACE

This report was prepared by the Biodynamic Environment Branch, Aerospace Medical Research Laboratory, under Project/Task 723104, Measurement and Prediction of Noise Environments of Air Force Operations.

The author acknowledges the efforts of Mr. Robert T. England and Mr. Robert G. Powell who conducted the field measurements, and Mr. John N. Cole who established the data analysis requirements and assisted in the preparation of this report. Mr. Henry Mohlman and Mr. David Eilerman of the University of Dayton assisted in the mechanics of data processing, and Mrs. Norma Peachey typed and prepared the graphics.

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BOOK SECTION	<input type="checkbox"/>
UNANNOUNCED	<input type="checkbox"/>
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NEAR-FIELD NOISE

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INTRODUCTION

The A/M32C-4 Air Conditioner is an electric motor-driven unit providing heating or cooling to aircraft cockpits or electronic equipment during ground maintenance.

This volume provides measured data defining the bioacoustic environments produced by this unit. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with operations of the A/M32C-4 air conditioner.

This volume is one of a series published by the Aerospace Medical Research Laboratory (AMRL) under the same report number (AMRL-TR-75-50) as a multi-volume handbook that quantifies the noise environments produced at flight/ground crew locations and in surrounding communities by operations of Air Force aircraft and ground support equipment. The far-field, community-type, noise data in the handbook describe the noise produced during *ground operations* of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Volume 2 provides a method and data for adjusting the handbook's far-field noise data, which are for standard meteorological conditions (15C temperature, 70% rel humidity, 0.760 meters Hg barometric pressure) to derive comparable data for other meteorological conditions. Refer to *Volumes 1 and 2* (references 1 and 2) for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight/flight crew and passenger noise, near-field/ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published. This index is periodically updated as individual volumes are published, and is available upon request from AMRL/BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of the updated index as it is generated.

Direct any questions concerning the technical data in this report and other handbook volumes to: AMRL/BBE, Wright-Patterson AFB, OH 45433; Autovon 78-53675 or 78-53664; Commercial (513) 255-3675 or (513) 255-3664.

1. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 1: Organization, Content and Application*, AMRL-TR-75-50 (1), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.

2. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 2: Procedure to Evaluate Effects of Non-standard Meteorological Conditions on Far-Field Noise*, AMRL-TR-75-50 (2), AMRL, WPAFB, OH, 1975.

NEAR-FIELD NOISE

MEASUREMENTS

A standard A/M32C-4 Air Conditioner was operated inside, and approximately in the center of a large aircraft hanger (190.5 m long \times 95.1 m wide \times 18.3 m high) on a concrete floor at normal rated conditions. The hanger walls and ceiling were not acoustically treated. No aircraft were in the vicinity of the unit while being measured. No far-field acoustic data were acquired because of the relatively close proximity of the hanger walls.

Figure 1 identifies 36 noise measurement locations at a height of 1.5 meters above the concrete apron (nominal ear level of ground crew). The 0 degree reference direction passes through the tow bar. These locations are in the acoustic near-field of the source where the sound wave fronts generally do not spherically diverge and the source appears to be spatially distributed (i.e., not a point source). Consequently, these near-field data cannot be extrapolated to longer distances but do properly define the levels at locations close to the unit.

Near-field measurements were also made at ear level at the operator control panel. Table 1 lists the numeric/alphabetic designators used on the data pages in this report to identify the operator measurement location and test conditions. The designator 1/A means operator location 1 and test condition A. Such a descriptor is essential in many handbook volumes that involve multiple combinations of locations/conditions. It is used in this report to maintain format consistency.

RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the A/M32C-4 unit at the 37 specified, near-field locations. This table includes the overall, 1/3 octave band, and octave band levels. From these data one can calculate the variety of measures in Table 3 which are widely used to assess the effects of noise on personnel and their performance.

For data at other intermediate near-field locations (i.e., for radial distances less than 4 meters) you can interpolate between the 36 measured data points.

TABLE 1

MEASUREMENT LOCATION AND TEST CONDITION
FOR OPERATOR NOISE MEASUREMENTS

A/M32C-4 Air Conditioner, Edwards AFB, 22 Sep 1972

Measurement Location

1 Operator Control Panel

Operation

A Vent Cycle
B Cooling Cycle
C Heat Cycle

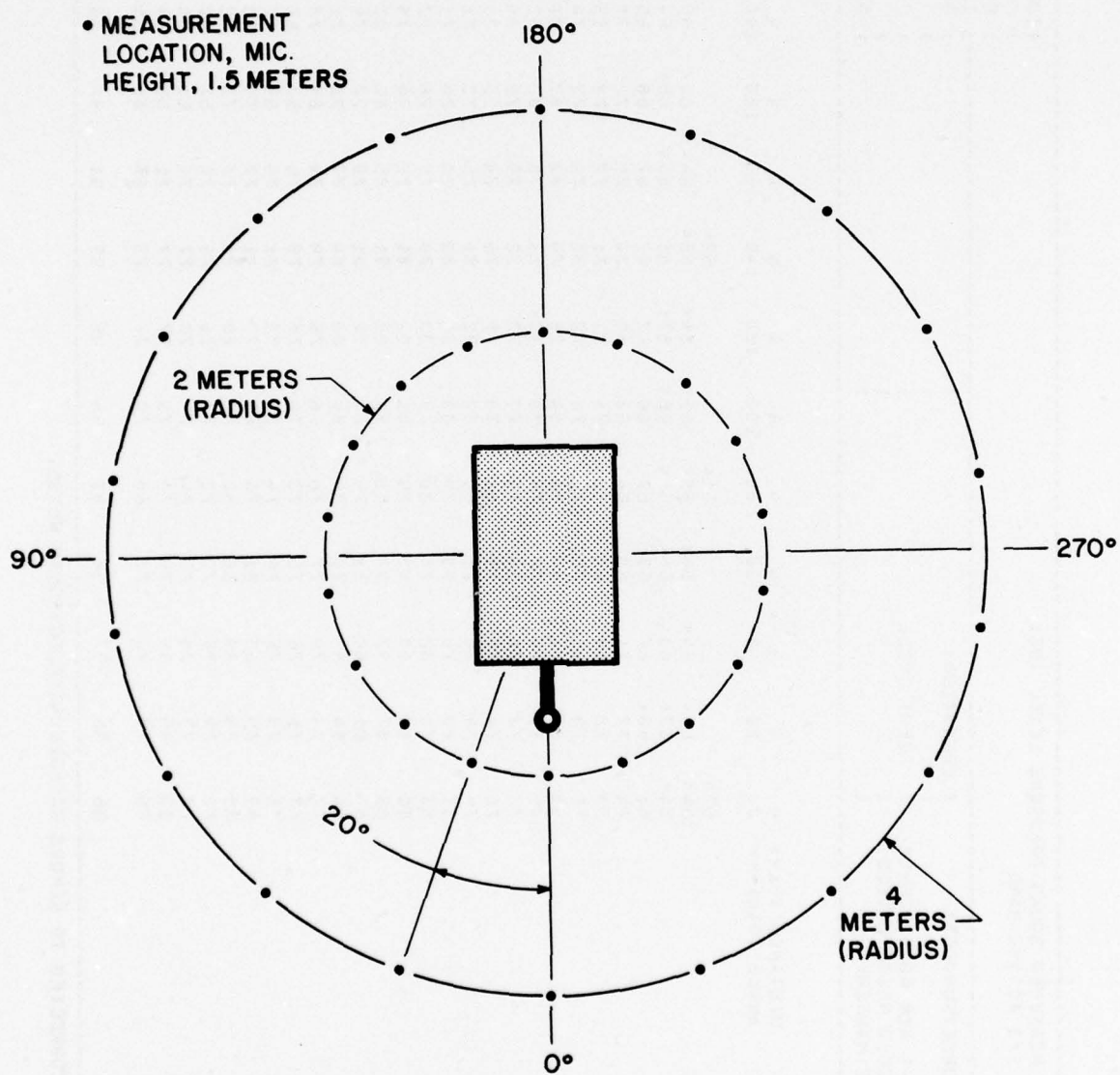


Figure 1. Measurement Locations

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)
 2 1/3 OCTAVE BAND

NOISE SOURCE/SUBJECT: (OPERATION:) IDENTIFICATION:
 (((OMEGA 3.2)))
 (((TEST 71-020-330)))
 (((RUN 01)))
 (((26 AUG 74)))
 (((PAGE F1)))

A/M320-4 AIR CONDITIONER (VENT CYCLE)
 NEAR FIELD NOISE LEVELS ()
 (INSIDE HANGER) ()

FREQ (HZ)	DISTANCE (M) -->	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	ANGLE (DEG) -->	0	20	40	60	80	100	120	140	160	180	200	220	240					
25		62<																	
31.5		64<	64<	64<	64<	61<	65<	65<	64<	64<	64<	65<	65<	63<	62<				
40		64<	62<	63<	64<	66<	66<	67<	68<	65<	65<	64<	64<	64<	64<				
50		68	63<	67	65	67	66	67	67	67	66	65<	65<	64<	63<				
63		74	72	71	68	68	68	69	70	72	72	70	70	69	67				
80		73	72	68	70	70	71	71	71	72	72	72	73	70	69				
100		71	70	69	70	72	72	72	71	70	72	74	72	73	73				
125		93	89	81	84	81	84	76	79	82	87	90	88	81					
160		85	81	75	77	75	78	73<	73	76	80	82	80	74					
200		73	73	71	73	75	77	77	72	75	75	80	78	77					
250		76	74	74	79	81	78	78	76	74	76	81	78	77					
315		74	74	78	78	80	82	82	81	76	72	71	72	75					
400		81	80	78	79	79	83	86	83	78	74	71<	74	75					
500		83	78	82	78	80	77	83	78	75	76	72	75	79					
630		81	84	83	82	79	81	82	81	77	74	75	75	77					
800		85	87	93	93	88	94	93	91	86	81	87	87	88					
1000		80	81	82	81	79	81	82	81	75	72	74	75	76					
1250		80	84	82	80	78	80	80	84	77	71	71	74	75					
1600		77	79	79	77	76	76	79	79	74	69	70	70	74					
2000		73	75	76	75	73	76	78	79	74	67	67	69	70					
2500		71	73	75	74	74	77	79	81	76	69	67	68	71					
3150		80	85	83	81	76	80	79	81	77	70	69	71	73					
4000		85	89	89	86	80	83	80	81	77	73	72	74	76					
5000		72	74	75	72	72	75	76	78	72	61	60	62	64					
6300		77	79	79	73	74	74	77	77	71	61	60	63	65					
8000		83	86	85	79	79	76	77	77	71	65	64	68	70					
10000		70	73	73	70	68	70	72	73	67	56	55	58	58					
OVERALL		96	96	97	95	93	96	96	95	91	90	93	92	91					

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)										IDENTIFICATION:									
1/3 OCTAVE BAND																			
										OMEGA 3.2									
										TEST 71-020-330									
										RUN 02									
										26 AUG 74									
										PAGE F2									
NOISE SOURCE/SUBJECT:																			
(OPERATION:																			
(VENT CYCLE																			
(NEAR FIELD NOISE LEVELS																			
((INSIDE HANGER)																			
FREQ (HZ)	DISTANCE (M)	ANGLE (DEG)	260	280	300	320	340	0	20	40	60	80	100	120	140	2			
25			62<	64<	65<	63<	63<	65<	63<	63<	66<	65<	66<	66<	64<				
31.5			63<	63<	62<	63<	63<	70	69<	71	69<	68<	70	71	70				
40			62<	62<	61<	62<	64<	67<	67<	68	69	68	71	71	71				
50			65<	66<	68	71	72	72	71	72	72	72	73	75	73				
63			66<	67	69	70	72	73	71	69	69	73	76	77	76				
80			70	71	71	71	71	73	73	74	73	74	75	77	76				
100			82	88	86	84	90	89	89	84	80	78	83	85	82				
125			75	80	78	75	82	83	82	79	75	77	82	82	83				
160			77	72	70	73	72	76	78	78	80	82	81	83	80				
200			77	78	74	77	73	82	81	83	87	86	86	87	86				
250			73	75	73	73	72	78	82	83	84	85	89	88	82				
315			73	73	75	75	75	84	83	83	86	87	87	90	85				
400			76	80	77	79	79	89	89	89	84	86	86	85	84				
500			77	77	78	80	78	85	86	90	83	83	84	86	86				
630			86	85	89	88	80	85	85	92	83	85	94	91	98				
800			75	75	77	76	76	86	85	87	86	85	86	85	91				
1000			74	74	76	75	76	86	85	87	86	85	86	85	91				
1250			72	70	72	72	72	79	81	81	82	80	83	87	86				
1600			70	69	70	70	69	77	78	79	78	78	82	83	86				
2000			69	68	68	69	69	77	78	80	78	79	83	85	90				
2500			73	72	75	74	78	91	86	89	83	82	81	86	89				
3150			76	76	80	80	82	94	92	93	89	86	83	87	86				
4000			64	63	65	67	69	80	80	80	76	77	82	84	85				
5000			66	65	68	70	72	85	86	83	79	78	81	85	85				
6300			71	70	73	77	78	91	93	89	84	82	81	84	85				
8000			61	59	61	63	66	77	79	80	73	71	75	81	81				
10000			90	92	92	92	93	100	99	100	96	96	98	99	101				
OVERALL																			

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

MEASURED SOUND PRESSURE LEVEL (DB) 1/3 OCTAVE BAND													IDENTIFICATION:		
													OMEGA 3.2		
													TEST 71-020-330		
													RUN 04		
													26 AUG 74		
													PAGE F4		
NOISE SOURCE/SUBJECT: (OPERATION:)															
A/M320-4 AIR CONDITIONER (COOLING CYCLE)															
NEAR FIELD NOISE LEVELS ()															
(INSIDE HANGER) ()															
FREQ (HZ)	DISTANCE (M) -->	ANGLE (DEG) -->	4	20	40	60	80	100	120	140	160	180	200	220	240
25			69<	66<	64<	63<	66<	66<	65<	64<	71<	65<	64<	61<	63<
31.5			73	72	71	72	70	69<	71	66<	69<	69<	68<	67<	66<
40			67<	67<	68	68	70	70	70	69	71	71	70	69	67<
50			68	70	70	72	71	70	71	70	73	72	73	71	68
63			80	79	76	74	73	73	73	74	78	80	78	77	73
80			79	77	76	74	74	73	73	77	79	82	80	78	73
100			78	77	76	75	74	76	75	75	79	83	83	83	82
125			95	94	91	92	86	89	88	82	84	87	92	89	81
160			84	84	81	82	78	80	79	77	79	82	84	80	75
200			76	77	76	77	79	80	79	78	78	80	83	81	81
250			80	79	78	81	85	86	83	78	78	79	83	82	80
315			77	78	80	80	83	85	85	84	81	77	76	77	79
400			83	82	79	83	83	84	87	84	81	78	76	79	78
500			85	78	84	81	82	83	81	82	77	75	74	77	77
630			87	89	91	87	82	89	87	87	82	81	78	83	81
800			91	90	97	95	92	102	101	95	86	86	85	90	84
1000			82	83	86	84	85	87	86	83	80	78	77	79	79
1250			81	87	84	84	83	82	82	87	82	76	76	79	79
1600			78	80	81	79	78	77	82	80	77	73	72	74	76
2000			75	77	77	78	76	77	79	80	77	71	71	73	73
2500			73	76	77	77	76	79	80	82	80	72	71	72	74
3150			81	85	85	81	78	79	81	82	80	72	73	74	75
4000			85	88	89	87	80	78	81	83	78	74	75	75	75
5000			73	75	76	73	72	76	77	78	75	65	64	65	65
6300			77	81	81	77	77	76	77	78	74	64	64	64	67
8000			81	86	85	82	80	75	76	77	74	67	65	70	72
10000			73	74	74	70	68	70	72	73	69	58	57	60	60
OVERALL			98	99	100	99	96	103	102	98	93	93	95	95	92

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)														
1/3 OCTAVE BAND														
IDENTIFICATION:														
NOISE SOURCE/SUBJECT: (OPERATION:)														
A/M32C-4 AIR CONDITIONER (COOLING CYCLE)														
NEAR FIELD NOISE LEVELS ()														
(INSIDE HANGER) ()														
OMEGA 3.2														
TEST 71-020-330														
RUN 05														
26 AUG 74														
PAGE F5														
FREQ (HZ)	DISTANCE (M)-->	4	280	300	320	340	0	20	40	60	80	100	120	140
25		62<	63<	63<	66<	65<	71<	70<	69<	69<	69<	70<	72<	71<
31.5		66<	68<	69<	71	72	76	78	76	76	73	73	74	73
40		65<	67<	66<	66<	65<	70	70	71	73	74	74	75	74
50		67	67	68	69	69	73	73	74	74	74	75	73	75
63		73	71	72	76	78	80	79	77	77	78	76	78	80
80		71	73	75	75	78	81	80	79	76	77	78	78	78
100		79	79	78	79	80	80	77	80	80	80	79	80	80
125		86	85	88	88	94	91	86	83	83	89	88	90	90
160		78	77	80	78	85	82	80	79	79	83	85	86	85
200		80	77	77	77	77	80	80	79	85	84	83	84	84
250		81	79	80	79	81	88	87	84	88	87	85	88	88
315		79	81	76	76	77	82	84	84	85	87	89	90	86
400		76	79	78	80	80	86	85	85	88	86	88	91	87
500		80	80	79	77	81	88	89	89	88	86	88	86	84
630		86	82	86	85	84	85	95	96	86	88	91	91	89
800		83	88	90	90	87	89	95	94	88	89	99	95	103
1000		79	80	79	80	82	86	87	89	86	86	88	90	91
1250		80	79	80	78	80	87	87	89	90	87	88	88	93
1600		75	74	75	75	76	81	84	85	83	83	83	87	87
2000		74	73	73	73	73	80	81	82	80	80	84	84	87
2500		73	73	72	73	73	78	79	82	82	81	83	86	90
3150		76	79	78	77	82	92	91	95	85	83	85	88	90
4000		79	80	80	81	86	94	98	96	87	85	85	86	87
5000		66	66	66	68	71	79	81	81	77	78	83	84	86
6300		68	70	71	75	77	86	87	89	82	78	81	85	85
8000		71	74	75	80	82	92	92	92	84	80	80	83	84
10000		61	61	62	66	69	80	81	79	74	71	75	80	80
OVERALL		93	93	95	95	97	101	103	103	98	98	102	102	105

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:											
1/3 OCTAVE BAND		OMEGA 3.2											
		TEST 71-020-330											
		RUN 06											
		26 AUG 74											
		PAGE F6											
NOISE SOURCE/SUBJECT:		OPERATION:											
A/M32C-4 AIR CONDITIONER		COOLING CYCLE											
NEAR FIELD NOISE LEVELS													
(INSIDE HANGER)													
FREQ (HZ)	DISTANCE (M) -->	2	180	200	220	240	260	280	300	320	340	360	OPERATOR LOCATION TEST CONDITION
25	74	74	74	71<	67<	69<	68<	68<	68<	73	74	74	74
31.5	73	74	75	75	73	72	71	72	75	78	81	81	81
40	75	75	75	73	73	73	71	70	71	71	72	72	72
50	77	76	77	74	74	74	73	73	73	73	73	73	73
63	82	81	82	80	80	80	80	79	78	78	81	81	81
80	83	85	83	80	79	78	77	76	76	79	82	82	82
100	82	85	88	87	87	87	86	81	81	82	79	79	79
125	91	92	91	90	95	95	95	88	91	90	90	90	90
160	85	87	87	86	87	87	86	82	83	82	83	83	83
200	84	83	87	87	87	87	86	80	81	80	82	82	82
250	83	81	86	88	88	88	86	82	84	83	82	82	82
315	82	82	81	84	88	88	85	84	82	82	84	84	84
400	83	83	83	81	82	82	82	82	80	82	88	88	88
500	83	80	81	86	80	80	82	84	84	87	93	93	93
630	87	79	81	85	84	84	83	87	85	90	92	92	92
800	88	87	94	94	90	90	95	91	90	92	91	91	91
1000	81	79	81	83	85	85	83	82	82	84	90	90	90
1250	82	80	80	82	87	87	83	85	80	84	90	90	90
1600	77	74	74	78	80	80	80	78	77	80	86	86	86
2000	76	73	72	77	82	82	78	76	73	78	82	82	82
2500	79	72	72	76	79	79	77	74	73	75	81	81	81
3150	80	72	72	76	81	81	79	81	80	80	95	95	95
4000	78	73	72	77	82	82	82	84	86	84	98	98	98
5000	73	67	65	68	70	70	70	69	69	72	82	82	82
6300	71	69	65	69	72	72	72	74	74	78	90	90	90
8000	72	71	68	72	75	75	76	76	77	84	94	94	94
10000	66	60	59	62	64	64	65	65	66	69	84	84	84
OVERALL	97	97	99	99	99	99	100	97	97	98	104	104	104

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB) 1/3 OCTAVE BAND		IDENTIFICATION:																		
2		OMEGA 3.2																		
NOISE SOURCE/SUBJECT: (OPERATION:)		TEST 71-020-330																		
A/M32C-4 AIR CONDITIONER (HEAT CYCLE)		RUN 07																		
NEAR FIELD NOISE LEVELS ()		26 AUG 74																		
(INSIDE HANGER) ()		PAGE F7																		
FREQ (HZ)	DISTANCE (M)-->	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	ANGLE (DEG)-->	0	20	40	60	80	100	120	140	160	180	200	220	240						
25		70<	66<	63<	62<	63<	63<	63<	63<	61<	62<	63<	63<	64<						
31.5		68<	66<	67<	67<	68<	67<	68<	68<	68<	67<	67<	69<	66<						
40		65<	63<	66<	67<	69	68	69	68	69	68	70	69	66<						
50		67	66	67	69	68	69	69	69	70	70	69	69	66						
63		75	75	73	70	69	72	71	72	75	75	74	74	73						
80		76	75	70	70	70	73	73	72	74	76	77	77	71						
100		73	72	71	73	75	76	75	73	73	74	77	76	75						
125		95	91	84	89	83	86	79	83	85	91	93	90	78						
160		87	83	78	82	76	79	76	77	77	79	84	86	82						
200		75	75	73	74	78	79	80	75	76	78	83	80	78						
250		79	76	78	81	86	84	83	80	76	82	84	83	80						
315		76	76	80	80	84	85	85	82	78	75	74	74	76						
400		84	81	80	83	82	85	88	87	82	78	75	80	79						
500		82	79	81	81	82	81	84	81	77	77	76	80	79						
630		84	87	87	85	83	84	85	84	81	78	80	80	82						
800		90	90	96	96	91	96	98	90	88	88	88	89	89						
1000		81	82	84	84	84	85	85	82	77	77	77	78	78						
1250		80	86	84	83	81	83	81	86	80	75	73	77	79						
1600		76	81	80	78	78	77	81	81	76	74	73	73	77						
2000		74	77	78	78	75	78	80	80	76	70	70	72	73						
2500		73	75	77	76	76	79	81	82	79	71	69	71	74						
3150		81	85	84	82	80	80	81	83	80	71	71	72	76						
4000		85	90	87	88	84	82	82	83	79	73	72	75	79						
5000		73	76	76	74	74	77	78	80	75	65	63	65	66						
6300		78	81	79	75	75	74	77	78	73	64	63	65	66						
8000		84	88	86	81	78	77	79	79	73	67	68	69	71						
10000		71	73	75	70	69	71	73	74	68	58	56	59	59						
OVERALL		98	98	98	99	96	98	99	96	93	95	96	95	93						

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)										IDENTIFICATION:					
1/3 OCTAVE BAND										OMEGA 3.2					
										TEST 71-020-330					
NOISE SOURCE/SUBJECT:										RUN 08					
(OPERATION:															
(AM32C-4 AIR CONDITIONER (HEAT CYCLE										26 AUG 74					
(NEAR FIELD NOISE LEVELS (
((INSIDE HANGER) (										PAGE F8					
FREQ (HZ)	DISTANCE (M)-->	4	280	300	320	340	0	20	40	60	80	100	120	140	2
25		66<	66<	64<	61<	61<	70<	66<	67<	67<	66<	69<	70<	70<	
31.5		65<	66<	64<	68<	68<	73	74	73	72	72	72	73	71	
40		65	64<	64<	63<	62<	69	68	70	71	74	74	74	73	
50		69	78	70	65	66	70	69	70	71	73	73	73	72	
63		69	72	72	73	76	75	74	74	75	74	75	76	76	
80		74	75	74	74	73	76	77	77	76	75	78	78	77	
100		89	92	90	90	93	92	92	88	84	81	89	89	88	
125		81	84	82	82	85	85	84	82	80	80	85	86	86	
160		78	74	75	76	75	78	79	79	83	84	83	84	82	
200		81	79	79	78	76	91	91	84	89	88	90	91	90	
250		77	77	78	75	75	84	86	84	86	88	86	86	85	
315		77	77	81	79	79	87	87	86	90	88	89	93	86	
400		79	81	78	82	81	93	89	90	89	88	86	85	85	
500		81	80	83	84	82	88	93	95	85	88	89	90	88	
630		90	91	88	91	86	86	89	96	85	88	95	100	97	
800		79	81	79	80	82	85	87	90	85	86	88	90	89	
1000		77	78	80	79	80	87	90	89	88	88	89	89	92	
1250		75	74	76	75	76	83	86	85	84	83	85	85	87	
1600		73	72	73	74	72	80	82	82	80	80	84	86	87	
2000		72	71	71	71	72	78	80	82	81	82	85	86	92	
2500		77	73	76	75	83	89	89	90	84	83	85	88	91	
3150		79	77	80	83	86	93	93	95	89	88	87	87	88	
4000		67	66	66	69	71	80	80	82	78	78	84	85	87	
5000		66	66	69	72	73	86	88	86	81	77	81	86	86	
6300		71	72	74	78	80	92	94	91	87	80	81	85	86	
8000		61	60	62	65	66	77	80	80	73	72	76	80	82	
10000		94	96	94	95	96	101	102	103	98	98	100	103	102	
OVERALL															

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE 1		MEASURED SOUND PRESSURE LEVEL (DB)										IDENTIFICATION:	
2		1/3 OCTAVE BAND											
NOISE SOURCE/SUBJECT:		(OPERATIONS:											
A/M320-4 AIR CONDITIONER		(HEAT CYCLE											
NEAR FIELD NOISE LEVELS		(
(INSIDE HANGER)		(
FREQ (HZ)	DISTANCE (M)-->	2 2 2 2 2 2 2 2 2 2 2										2 2	OPERATOR LOCATION
		ANGLE (DEG)--> 160 180 200 220 240 260 280 300 320 340												TEST CONDITION
25	71<	71<	71<	71<	64<	65<	63<	64<	68<	75	78		78
31.5	72	71	71	67<	69<	70	70	72	75	75	78		78
40	71	72	71	70	71	72	69	69	69	71	73		73
50	74	73	71	70	70	68	68	68	72	72	72		72
63	77	77	76	74	71	70	71	71	75	75	77		77
80	77	79	78	76	75	73	73	74	75	75	78		78
100	77	78	80	80	79	79	77	77	76	76	79		79
125	88	95	94	91	96	96	91	95	93	93	94		94
160	86	89	89	86	90	89	85	88	86	86	86		86
200	81	78	85	86	86	86	80	80	79	81	81		81
250	87	84	86	87	89	88	84	85	81	81	91		91
315	83	83	82	82	85	85	84	84	80	80	86		86
400	83	85	85	85	81	81	84	84	82	82	91		91
500	84	79	81	85	82	84	85	86	88	88	92		92
630	86	83	81	88	83	87	89	83	90	92	92		92
800	92	89	93	96	96	91	87	88	92	92	91		91
1000	82	80	81	84	85	83	82	81	83	83	88		88
1250	81	80	77	82	84	84	84	79	84	84	91		91
1600	79	74	74	82	81	80	77	76	79	79	86		86
2000	77	73	73	79	79	79	79	74	78	78	82		82
2500	80	73	71	79	80	78	75	73	75	75	81		81
3150	79	75	72	80	79	80	78	78	82	82	93		93
4000	78	78	74	77	81	83	82	82	86	86	98		98
5000	74	68	66	68	71	70	70	70	72	72	82		82
6300	73	66	64	66	70	72	74	74	74	74	89		89
8000	72	68	67	69	75	78	80	81	80	80	95		95
10000	67	60	58	60	64	65	65	66	69	69	83		83
OVERALL	97	98	99	99	101	100	97	98	99	99	104		104

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB) OCTAVE BAND		OPERATION:										IDENTIFICATION:								
2												OMEGA 3.2								
												TEST 71-020-330								
NOISE SOURCE/SUBJECT:												RUN 01								
A/M32C-4 AIR CONDITIONER												26 AUG 74								
NEAR FIELD NOISE LEVELS												PAGE J1								
(INSIDE HANGER)																				
FREQ (HZ)	DISTANCE (M)-->	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
ANGLE (DEG)-->	0	20	40	60	80	100	120	140	160	180	200	220	240							
31.5	68	66	67	67	69	69	69	70	68	67	68	67	66							
63	77	75	73	72	73	73	74	74	75	75	75	75	72							
125	93	89	82	85	82	85	78	80	83	88	90	89	82							
250	79	78	80	82	84	84	84	82	80	79	84	82	81							
500	86	86	86	85	84	86	89	86	81	80	78	79	82							
1000	87	89	94	93	89	94	94	92	87	82	87	88	89							
2000	79	81	82	80	79	81	83	84	79	73	73	74	76							
4000	87	90	90	87	81	85	84	85	80	75	74	75	78							
8000	84	87	86	81	80	79	80	80	75	67	66	69	72							
OVERALL	96	96	97	95	93	96	96	95	91	90	93	92	91							

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:																		
OCTAVE BAND		OMEGA 3.2																		
NOISE SOURCE/SUBJECT:		TEST 71-020-330																		
(OPERATION:		RUN 02																		
(VENT CYCLE		26 AUG 74																		
(NEAR FIELD NOISE LEVELS		PAGE J2																		
((INSIDE HANGER)																				
FREQ (HZ)	DISTANCE (M) -->	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
ANGLE (DEG) -->	260	260	280	300	320	340	0	20	40	60	80	100	120	140	2	2	2	2	2	2
31.5	66	66	66	66	66	65	73	72	73	73	72	74	74	74						
63	70	70	72	74	74	75	76	75	75	75	76	76	76	79						
125	83	88	86	84	90	90	91	89	85	81	81	86	86	86						
250	81	81	77	79	77	77	84	85	86	89	89	91	91	88						
500	80	82	82	83	82	82	91	91	93	89	90	90	90	89						
1000	87	86	89	88	82	82	89	89	94	89	89	95	95	99						
2000	75	74	75	75	75	75	82	84	85	84	84	84	87	90						
4000	78	77	81	81	84	84	96	93	95	90	88	88	87	90						
8000	72	72	74	77	79	79	92	94	90	85	84	84	84	88						
OVERALL	90	92	92	92	93	93	100	99	100	96	96	98	99	101						

TABLE:	MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:											
2	OCTAVE BAND		OMEGA 3-2											
			TEST 71-020-330											
			RUN 04											
			26 AUG 74											
			PAGE J4											
	NOISE SOURCE/SUBJECT:	(OPERATION:												
	((
	((
	((
	((
	((
	((
FREQ (HZ)	DISTANCE (M)-->	ANGLE (DEG)-->	20	40	60	80	100	120	140	160	180	200	220	240
31.5	75	74	73	74	74	74	73	74	72	75	74	73	72	70
63	83	81	79	78	78	77	77	77	79	82	84	82	81	77
125	95	94	91	92	92	87	89	88	84	86	89	93	90	85
250	83	83	83	84	84	86	89	88	85	84	84	86	85	84
500	90	90	92	89	87	87	91	90	90	85	83	81	85	84
1000	92	92	98	96	93	93	102	101	95	88	87	86	91	86
2000	80	83	83	83	81	81	82	85	86	83	77	76	78	79
4000	86	90	90	88	82	82	83	85	86	83	76	77	78	78
8000	83	87	87	83	82	82	79	80	81	78	69	68	72	74
OVERALL	98	99	100	99	96	96	103	102	98	93	93	95	95	92

TABLE 1		MEASURED SOUND PRESSURE LEVEL (DB)										IDENTIFICATION:											
OCTAVE BAND												OMEGA 3.2											
2												TEST 71-020-330											
NOISE SOURCE/SUBJECT:		OPERATION:										RUN 05											
A/M320-4 AIR CONDITIONER		COOLING CYCLE										26 AUG 74											
NEAR FIELD NOISE LEVELS																							
(INSIDE HANGER)												PAGE J5											
FREQ (HZ)	DISTANCE (M)-->	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2	2	2	2	2	2	
	ANGLE (DEG)-->	260	280	300	320	340	0	20	40	60	80	100	120	140									
31.5		70	71	72	73	73	78	79	78	78	77	77	77	77									
63		76	76	77	79	81	83	83	82	81	81	81	81	81									
125		87	86	89	89	95	92	87	85	86	90	90	90	91									
250		84	84	83	82	83	90	89	87	91	91	91	91	91									
500		87	85	87	86	87	91	96	97	92	92	92	94	95									
1000		86	89	91	91	89	92	56	96	93	92	99	99	97									
2000		79	78	78	78	79	85	86	88	86	86	88	88	88									
4000		81	83	82	87	87	96	98	99	89	88	89	91	93									
8000		73	75	76	82	83	93	93	94	86	83	84	88	88									
OVERALL		93	93	95	95	97	101	103	103	98	98	102	102	105									

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)											IDENTIFICATION:										
OCTAVE BAND																					
NOISE SOURCE/SUBJECT:											OMEGA 3.2										
OPERATION:											TEST 71-020-330										
A/M32C-4 AIR CONDITIONER (HEAT CYCLE											RUN 07										
NEAR FIELD NOISE LEVELS (											26 AUG 74										
(INSIDE HANGER) (											PAGE J7										
FREQ (HZ)	DISTANCE (M)-->	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
31.5	ANGLE (DEG)-->	0	20	40	60	80	100	120	140	160	180	200	220	240							
63		73	70	71	71	72	71	72	71	72	71	73	71	73	71	71	71	71	71	69	69
125		79	78	75	74	74	76	76	76	78	79	79	79	79	77	77	77	77	74	74	74
250		96	91	85	90	84	87	82	84	86	92	94	94	91	91	91	91	91	80	80	80
500		81	80	83	84	88	88	88	84	82	84	87	87	85	83	83	83	83	83	83	83
1000		88	89	88	88	87	88	91	89	85	82	82	82	84	85	85	85	85	85	85	85
2000		91	92	96	97	92	97	98	92	89	88	88	88	90	90	90	90	90	90	90	90
4000		79	83	83	82	81	83	85	85	82	76	76	76	77	77	77	77	77	77	77	77
8000		87	91	89	89	86	85	85	87	83	75	75	75	77	77	77	77	77	77	77	77
OVERALL		85	89	87	82	80	80	82	82	77	69	69	69	71	72	72	72	72	72	72	72
		98	98	98	99	96	98	99	96	93	95	96	96	95	95	95	95	95	95	93	93

MEASURED SOUND PRESSURE LEVEL (DB)													IDENTIFICATION:
2	OCTAVE BAND												
NOISE SOURCE/SUBJECT:	(	OPERATION:	(	HEAT CYCLE	(								OMEGA 3.2
A/M32C-4 AIR CONDITIONER	(												TEST 71-020-330
NEAR FIELD NOISE LEVELS	(												RUN 08
(INSIDE HANGER)	(												26 AUG 74
	(												PAGE J8
FREQ (HZ)	DISTANCE (M)-->	4	280	300	320	340	0	20	40	60	80	100	2
	ANGLE (DEG)-->	260											2
31.5	69	70	69	70	69	70	76	75	75	75	76	77	77
63	73	75	79	76	79	79	79	78	77	77	79	81	81
125	89	92	90	91	94	93	93	93	89	85	84	90	91
250	84	82	81	81	80	80	92	92	87	91	91	92	94
500	84	84	86	87	86	86	95	95	96	93	93	93	95
1000	91	91	89	91	88	91	94	94	97	91	92	96	100
2000	78	77	78	78	78	78	86	88	88	87	86	89	91
4000	81	78	81	83	87	87	95	94	97	90	90	90	91
8000	72	73	75	79	81	81	93	95	92	88	82	85	89
OVERALL	94	96	94	95	96	96	101	102	103	98	98	100	103
													102

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:											
2		OMEGA 3.2											
NOISE SOURCE/SUBJECT:		TEST 71-020-330											
(OPERATION)		RUN 09											
(HEAT CYCLE		26 AUG 74											
(NEAR FIELD NOISE LEVELS		PAGE J9											
((INSIDE HANGER)													
FREQ (HZ)	DISTANCE (M)-->	OPERATOR LOCATION											
		160	180	200	220	240	260	280	300	320	340	TEST CONDITION	1/C
31.5	76	76	75	72	74	74	74	77	79	79	79	82	
63	81	82	80	79	77	77	75	76	76	79	81	81	
125	90	96	95	92	97	97	97	92	95	94	95	95	
250	89	87	90	90	92	92	91	88	87	84	92	92	
500	89	88	87	91	87	89	91	89	89	92	96	96	
1000	92	90	94	96	96	92	92	89	93	93	95	95	
2000	83	78	77	85	85	84	81	79	83	88	88	88	
4000	82	80	76	82	83	85	83	84	88	88	99	99	
8000	76	70	69	71	76	79	81	81	81	81	96	96	
OVERALL	97	98	99	99	101	100	97	98	99	99	104	104	

TABLE: MEASURES OF HUMAN NOISE EXPOSURE										IDENTIFICATION:									
3										OMEGA 3-2									
NOISE SOURCE/SUBJECT:										TEST 71-020-330									
(OPERATION:										RUN 01									
(VENT CYCLE										26 AUG 74									
(NEAR FIELD NOISE LEVELS										PAGE H1									
((INSIDE HANGER)																			
DISTANCE (M)--> 4										200 220 240									
ANGLE (DEG)--> 0																			
HAZARD/PROTECTION																			
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR																			
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR																			
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (APR 161-35, JULY 73)																			
NO PROTECTION																			
OASLC																			
OASLA																			
T																			
MINIMUM QPL EAR MUFFS																			
OASLA*																			
T																			
AMERICAN OPTICAL 1700 EAR MUFFS																			
OASLA*																			
T																			
V-51R EAR PLUGS																			
OASLA*																			
T																			
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS																			
OASLA*																			
T																			
H-133 GROUND COMMUNICATION UNIT																			
OASLA*																			
T																			
COMMUNICATION																			
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)																			
PSIL																			
84 85 87 86 84 87 89 87 83 78 79 80 82																			
ANNOYANCE																			
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)																			
TONE CORRECTION (C IN DB)																			
PNLT																			
C																			
110 113 113 111 107 110 110 108 105 100 100 103 104 105																			
3 4 4 4 3 4 4 3 3 3 4 4 4																			

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

MEASURES OF HUMAN NOISE EXPOSURE										IDENTIFICATION:									
3										OMEGA 3.2									
NOISE SOURCE/SUBJECT:										TEST 71-020-330									
(OPERATION:										RUN 02									
(VENT CYCLE										26 AUG 74									
(NEAR FIELD NOISE LEVELS										PAGE M2									
((INSIDE HANGER)																			
DISTANCE (M)--> 4 4 4 4 4 4 4 4 4 4										2 2 2 2 2 2 2 2 2 2									
ANGLE (DEG)--> 260 280 300 320 340 360 380 400 420 440										80 100 120 140 160 180 200 220 240 260									
HAZARD/PROTECTION																			
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR																			
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR																			
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)																			
NO PROTECTION																			
MINIMUM OPL EAR MUFFS																			
OASLA*																			
AMERICAN OPTICAL 1700 EAR MUFFS																			
OASLA*																			
V-51R EAR PLUGS																			
OASLA*																			
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS																			
OASLA*																			
H-133 GROUND COMMUNICATION UNIT																			
OASLA*																			
COMMUNICATION																			
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)																			
PSIL																			
ANNoyANCE																			
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)																			
TONE CORRECTION (C IN DB)																			
PNLT																			
C																			

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

MEASURES OF HUMAN NOISE EXPOSURE													IDENTIFICATION:	
NOISE SOURCE/SUBJECT:	(	OPERATION:	(	VENT CYCLE	(	200	220	240	260	280	300	320	340	OPERATOR LOCATION
(	INSIDE HANGER)	(	(	(	(	(	(	(	(	(	(	(	(	TEST CONDITION
OMEGA 3.2	)	)	)	)	)	)	)	)	)	)	)	)	)	1/A
TEST 71-020-330)))))))))))))	
RUN 03)))))))))))))	
26 AUG 74)))))))))))))	
PAGE H3)))))))))))))	
HAZARD/PROTECTION														
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR														
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR														
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)														
NO PROTECTION														
OASLC	93	95	96	97	99	98	98	94	96	96	96	96	96	101
OASLA	89	88	91	94	96	94	94	92	93	93	95	95	95	101
T	202	240	143	85	60	85	120	101	71	71	71	71	71	25
MINIMUM OPL EAR MUFFS														
OASLA*	70	73	74	73	75	74	74	70	73	72	72	72	72	76
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960
AMERICAN OPTICAL 1700 EAR MUFFS														
OASLA*	65	68	69	68	70	69	69	65	68	67	67	67	67	71
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960
V-51R EAR PLUGS														
OASLA*	64	64	68	71	73	70	70	68	69	70	70	70	70	74
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS														
OASLA*	50	51	54	57	59	56	56	54	55	55	55	55	55	59
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960
H-133 GROUND COMMUNICATION UNIT														
OASLA*	62	63	65	67	69	67	67	64	65	66	66	66	66	72
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960
COMMUNICATION														
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)														
PSIL	83	82	83	87	89	86	86	85	85	85	87	87	87	91
ANNNOYANCE														
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)														
TONE CORRECTION (C IN DB)														
PNLT	104	103	107	109	112	109	109	108	110	110	114	114	114	120
C	1	2	4	4	4	4	4	3	4	4	4	4	4	4

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

MEASURES OF HUMAN NOISE EXPOSURE													IDENTIFICATION
3													OMEGA 3.2
													TEST 71-020-330
													RUN 04
													26 AUG 74
													PAGE H4
HAZARD/PROTECTION													
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN OBC) AT EAR													
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN OBA) AT EAR													
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)													
NO PROTECTION													
OASLC	98	98	100	99	96	103	102	98	93	93	95	95	91
OASLA	95	96	99	97	94	102	101	97	91	89	88	91	89
T	71	60	36	50	85	21	25	50	143	202	240	143	202
MINIMUM QPL EAR MUFFS													
OASLA*	75	75	74	74	71	76	75	71	69	70	73	71	67
T	960	960	960	960	960	960	960	960	960	960	960	960	960
AMERICAN OPTICAL 1700 EAR MUFFS													
OASLA*	70	70	69	68	66	70	69	65	64	65	68	66	62
T	960	960	960	960	960	960	960	960	960	960	960	960	960
V-51R EAR PLUGS													
OASLA*	70	71	75	73	70	79	77	73	66	65	64	68	64
T	960	960	960	960	960	960	960	960	960	960	960	960	960
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS													
OASLA*	57	57	61	59	56	65	63	59	53	52	52	54	51
T	960	960	960	960	960	960	960	960	960	960	960	960	960
H-133 GROUND COMMUNICATION UNIT													
OASLA*	67	69	71	69	66	74	73	69	64	62	63	64	62
T	960	960	960	960	960	960	960	960	960	960	960	960	960
COMMUNICATION													
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)													
PSIL	87	88	91	89	87	92	92	90	85	82	81	84	83
ANNOYANCE													
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)													
TONE CORRECTION (C IN DB)													
PNLT	111	113	113	113	109	115	115	111	107	103	104	106	103
C	3	3	3	3	3	4	4	3	2	2	2	3	1

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

MEASURES OF HUMAN NOISE EXPOSURE										IDENTIFICATION:	
3										OMEGA 3.2	
NOISE SOURCE/SUBJECT (OPERATION)										TEST 71-020-330	
A/M32C-4 AIR CONDITIONER (COOLING CYCLE)										RUN 05	
NEAR FIELD NOISE LEVELS ()										26 AUG 74	
(INSIDE HANGER) ()										PAGE H5	
DISTANCE (M)--> 4 4 4 4 4 4 4 4 4 4										2 2 2 2 2 2 2 2 2 2	
ANGLE (DEG)--> 260 280 280 280 300 300 320 340 340 340										80 100 120 140	
HAZARD/PROTECTION											
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR											
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR											
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)											
NO PROTECTION											
OASLC											
OASLA											
T											
MINIMUM OPL EAR MUFFS											
OASLA*											
T											
AMERICAN OPTICAL 1700 EAR MUFFS											
OASLA*											
T											
V-51R EAR PLUGS											
OASLA*											
T											
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS											
OASLA*											
T											
H-133 GROUND COMMUNICATION UNIT											
OASLA*											
T											
COMMUNICATION											
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)											
PSIL											
ANNNOYANCE											
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)											
TONE CORRECTION (C IN DB)											
PNLT											
C											

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

TABLE: MEASURES OF HUMAN NOISE EXPOSURE											IDENTIFICATION:
3											OMEGA 3.2
NOISE SOURCE/SUBJECT: (OPERATION:)											TEST 71-020-330
A/M32C-4 AIR CONDITIONER (COOLING CYCLE)											RUN 06
NEAR FIELD NOISE LEVELS ()											26 AUG 74
(INSIDE HANGER) ()											PAGE H6
DISTANCE (M)--> 2 2 2 2 2 2 2 2 2 2 2											2 OPERATOR LOCATION
ANGLE (DEG)--> 160 180 200 220 240 260 280 300 320 340											TEST CONDITION
HAZARD/PROTECTION											1/8
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN OBC) AT EAR											
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR											
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)											
NO PROTECTION											
OASLC	97	96	98	99	99	100	96	97	98	103	
OASLA	93	90	95	95	95	96	94	94	96	103	
T	101	170	71	71	71	60	85	85	60	18	
MINIMUM QPL EAR MUFFS											
OASLA*	73	74	75	74	76	77	72	73	74	78	
T	960	960	960	960	960	960	960	960	960	960	
AMERICAN OPTICAL 1700 EAR MUFFS											
OASLA*	68	69	70	69	71	72	67	68	68	73	
T	960	960	960	960	960	960	960	960	960	960	
V-51R EAR PLUGS											
OASLA*	69	67	72	72	71	73	70	70	72	76	
T	960	960	960	960	960	960	960	960	960	960	
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS											
OASLA*	55	54	58	58	57	59	56	56	58	62	
T	960	960	960	960	960	960	960	960	960	960	
H-133 GROUND COMMUNICATION UNIT											
OASLA*	66	65	68	68	69	69	67	66	67	75	
T	960	960	960	960	960	960	960	960	960	960	
COMMUNICATION											
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)											
PSIL	87	84	86	89	88	88	87	86	89	93	
ANNOYANCE											
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)											
TONE CORRECTION (C IN DB)											
PNLT	107	105	110	110	110	112	110	112	111	122	
C	1	3	4	3	2	4	3	4	3	4	

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

MEASURES OF HUMAN NOISE EXPOSURE										IDENTIFICATION										
3																				
NOISE SOURCE/SUBJECT: (OPERATION:)										OMEGA 3.2										
A/M32C-4 AIR CONDITIONER (HEAT CYCLE)										TEST 71-020-330										
NEAR FIELD NOISE LEVELS (INSIDE HANGER)										RUN 07										
										26 AUG 74										
										PAGE H7										
HAZARD/PROTECTION																				
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR																				
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR																				
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)																				
NO PROTECTION																				
MINIMUM QPL EAR MUFFS																				
OASLC	98	97	98	99	95	98	99	96	93	94	96	95	95	93	94	200	220	240	4	4
OASLA	94	96	97	98	94	97	98	95	91	89	89	91	91	91	89	200	220	240	4	4
T	85	60	50	42	85	50	42	71	143	202	202	202	143	143	202	202	202	143	4	4
OASLA*	75	73	71	73	70	72	73	70	68	72	73	71	67	67	72	73	71	67	4	4
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	4	4
AMERICAN OPTICAL 1700 EAR MUFFS																				
OASLA*	70	68	66	67	65	67	67	65	63	67	68	66	61	61	67	68	66	61	4	4
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	4	4
V-51R EAR PLUGS																				
OASLA*	69	70	73	74	70	74	75	70	67	66	66	67	67	67	66	66	66	67	4	4
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	4	4
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS																				
OASLA*	56	57	59	59	55	59	61	56	53	53	53	54	53	53	53	53	53	53	4	4
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	4	4
H-133 GROUND COMMUNICATION UNIT																				
OASLA*	67	68	69	69	66	69	70	67	64	63	64	64	63	64	63	64	64	63	4	4
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	4	4
COMMUNICATION																				
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)																				
PSIL	86	88	89	89	87	89	91	89	85	82	82	84	85	85	82	82	84	85	4	4
ANNOYANCE																				
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)																				
TONE CORRECTION (C IN DB)																				
PNLT	111	114	113	113	109	112	113	110	107	105	104	106	106	106	105	104	106	106	4	4
C	3	3	3	4	3	4	4	2	3	3	3	3	3	3	3	3	3	3	4	4

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

MEASURES OF HUMAN NOISE EXPOSURE										IDENTIFICATION:									
										OMEGA 3.2									
										TEST 71-020-330									
										RUN 08									
										26 AUG 74									
										PAGE H8									
NOISE SOURCE/SUBJECT: (OPERATION:)																			
A/M32C-4 AIR CONDITIONER (HEAT CYCLE)																			
NEAR FIELD NOISE LEVELS ()																			
(INSIDE HANGER) ()																			
DISTANCE (M)--> 4 4 4 4 4 4 4 4 4 4																			
ANGLE (DEG)--> 260 280 300 320 340 360 380 400 420 440																			
HAZARD/PROTECTION																			
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR																			
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR																			
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)																			
NO PROTECTION																			
OASLC																			
OASLA																			
T																			
MINIMUM QPL EAR MUFFS																			
OASLA*																			
T																			
AMERICAN OPTICAL 1700 EAR MUFFS																			
OASLA*																			
T																			
V-51R EAR PLUGS																			
OASLA*																			
T																			
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS																			
OASLA*																			
T																			
H-133 GROUND COMMUNICATION UNIT																			
OASLA*																			
T																			
COMMUNICATION																			
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)																			
PSIL																			
ANNOYANCE																			
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)																			
TONE CORRECTION (C IN DB)																			
PNLT																			
C																			

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

MEASURES OF HUMAN NOISE EXPOSURE													IDENTIFICATION#
3													OMEGA 3.2
NOISE SOURCE/SUBJECT: (OPERATION:)													TEST 71-020-330
(AIR CONDITIONER (HEAT CYCLE)													RUN 09
(NEAR FIELD NOISE LEVELS ()													26 AUG 74
((INSIDE HANGER) ()													PAGE H9
DISTANCE (M)--> 2 2 2 2 2 2 2 2 2 2 2 2 2													2 OPERATOR LOCATION
ANGLE (DEG)--> 160 180 200 220 240 260 280 300 320 340													TEST CONDITION
HAZARD/PROTECTION													1/C
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DB) AT EAR													
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DB) AT EAR													
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)													
NO PROTECTION													
OASLC	97	98	99	99	101	99	99	97	98	99			103
OASLA	94	92	94	97	97	95	94	93	93	96			103
T	85	120	85	50	50	71	85	101	60	60			18
MINIMUM QPL EAR MUFFS													
OASLA*	72	75	76	74	77	77	73	75	75	75			79
T	960	960	960	960	960	960	960	960	960	960			960
AMERICAN OPTICAL 1700 EAR MUFFS													
OASLA*	67	70	71	69	72	72	68	70	70	70			74
T	960	960	960	960	960	960	960	960	960	960			960
V-51R EAR PLUGS													
OASLA*	71	69	71	73	73	71	70	69	72	72			76
T	960	960	960	960	960	960	960	960	960	960			960
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS													
OASLA*	56	55	57	59	60	57	56	55	58	58			62
T	960	960	960	960	960	960	960	960	960	960			960
H-133 GROUND COMMUNICATION UNIT													
OASLA*	67	66	67	69	70	68	66	66	68	68			74
T	960	960	960	960	960	960	960	960	960	960			960
COMMUNICATION													
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)													
PSIL	88	85	86	90	89	88	88	86	89	89			93
ANNOYANCE													
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)													
TONE CORRECTION (C IN DB)													
PNLT	109	107	109	111	112	110	109	109	112	112			122
C	3	3	4	3	4	2	3	3	3	3			4

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.