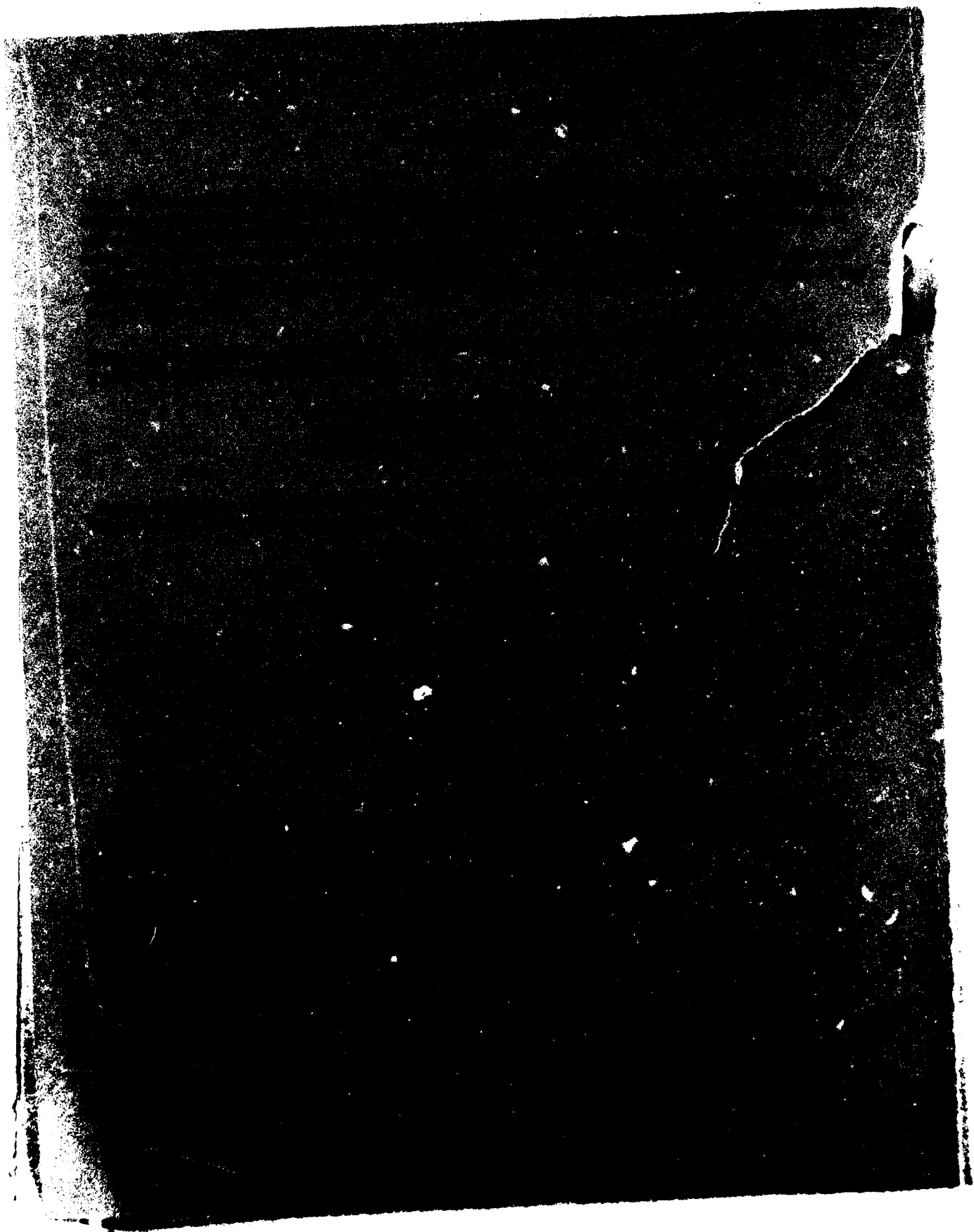


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speech interference level, perceived noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 36 locations are normalized to standard meteorological conditions and extrapolated from 10 - 1600 meters to derive sets of equal-value contours for these same seven acoustic measures as functions of angle and distance from the source. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application," AMRI-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, Air Force Aerospace Medical Research Laboratory, under Project/Task 723107, Technology to Define and Assess Environmental Quality of Noise, from Air Force Operations. The author gratefully acknowledges Mr. John Cole and Mr. Robert Powell for assistance in preparing this report, Mr. Robert Lee for assistance in acquiring the raw data, Mr. Henry Mohlman, Mr. Keith Kettler and Mr. Fred Lampley of the University of Dayton for assistance in the mechanics of data processing and Mrs. Norma Peachey for typing and assistance in preparation of graphics.



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INTRODUCTION

The A/M32A-86 generator set is a diesel engine driven source of electric power used for the starting of aircraft, and for ground maintenance. This unit is manufactured by Hobart.

This volume provides measured and extrapolated data defining 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/M32A-86 generator set.

This volume is one of a series published by the Air Force Aerospace Medical Research Laboratory (AFAMRL) 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. Refer to Volume 1 (reference 1) 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 AFAMRL/BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of each updated index as it is generated.

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

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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.*

NEAR-FIELD NOISE

MEASUREMENTS

A standard A/M32A-86 generator set was operated outdoors on a concrete apron at normal rated conditions and electrically loaded, using an A/M24T-8A load bank with no significant sound-reflective surfaces present except the ground plane. The load bank was physically located so as to not interfere with the A/M32A-86 noise field. Table 1 notes the surface meteorological conditions at the time of measurement.

Figure 1 identifies 72 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. The 36 locations on the two inner circles 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 location/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/M32A-86 unit aircraft 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 10 meters) you can interpolate between the 72 measured data points. All near-field data are for the meteorological conditions at the time of test but are valid for all typical airbase meteorology because of the short distances over which the sound is propagated.

TABLE 1

MEASUREMENT LOCATIONS AND TEST CONDITIONS FOR OPERATOR NOISE MEASUREMENTS

A/M32A-86 Generator Set
Wright-Patterson AFB, 19 March 1980
NSN 6115-01-061-6610, Field # CO3

Measurement Location	
1	Operator Control Panel
Operation	
A	Diesel Engine at 2000 RPM
Meteorology	
Temperature	9 °C
Bar Pressure	.768 m Hg
Rel Humidity	40 %
Wind - Speed	4.1 m/sec (8 Kts)

FAR-FIELD NOISE

MEASUREMENTS

Noise measurements were also made on the same A M32A-86 unit under the same test conditions at the outer circle locations on Figure 1. These 36 locations are in the acoustic far-field of the source where the sound wave fronts spherically diverge and the unit may be regarded as a point noise source. Under these far-field conditions, the measured data can be extrapolated to longer distances.

RESULTS

Table 4 lists the overall and 1/3 octave band SPL measured at the 36 far-field locations under the meteorological conditions at the time of the test. These data were normalized to 10 meters distance and standard meteorological conditions (15 C temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 2 which provides a compact summary of the far-field noise characteristics of the A M32A-86 generator set in a standard format.

These measured data were also used to derive sets of equal noise contours (Figures 3 through 9) describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. Note that Figure 8 contours identify limiting exposure times for personnel. Missing data points on any of the contours are the result of eliminating measured data which contained excessive influence of spurious background noise present at the time of measurement. In some cases contour levels at these missing data points were estimated and indicated with dashed lines.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION												
2 1/3 OCTAVE BAND		OMEGA 3.2												
NOISE SOURCE/SUBJECT:		OPERATION:											TEST AU-101-001	
		DIESEL ENGINE AT 2000 RPM											RUN 03	
A/M32A-85 GENERATOR SET		A/M 24T-0A LOAD BANK											06 APR 82	
GROUND CREW		190AMP, 240VAC, 400HZ												
NEAR FIELD NOISE LEVELS		23KW PER AC PHASE											PAGE F1	
FREQ (HZ)	DISTANCE (M)-->	LOCATION/CONDITION												
	ANGLE (DEG)-->	0	20	40	60	80	100	120	140	160	180	200	220	240
	CONDITION----	A	A	A	A	A	A	A	A	A	A	A	A	A
25		68<	69<	71<	69<	65<	66<	63<	66<	64<	63<	64<	63<	65<
31.5		76	75	72	71	66<	66<	64<	66<	64<	64<	64<	64<	66<
40		71	70	69	67<	66<	65<	64<	68<	65<	65<	65<	63<	63<
50		70	70	69	65<	65<	64<	63<	68	66<	65<	65<	65<	65<
63		79	78	77	76	75	73	70	70	69	63	68	68	71
80		75	74	73	72	71	71	69	70	69	63	69	69	69
100		84	82	80	77	75	75	74	74	74	74	74	76	76
125		105	103	100	99	99	94	86	90	93	92	84	90	89
160		93	92	89	87	87	82	78	82	86	86	86	81	79
200		84	85	81	80	81	81	84	85	81	78	80	81	79
250		99	104	96	95	97	97	92	95	99	89	93	94	84
315		82	84	87	85	84	86	82	84	84	84	86	86	81
400		81	85	84	79	84	80	83	82	85	84	82	83	79
500		84	85	85	81	78	79	73	76	78	77	76	78	82
630		86	83	83	81	78	75	81	79	77	77	77	80	81
800		87	87	86	83	82	80	83	81	84	82	80	80	80
1000		87	88	86	86	81	80	79	81	80	81	81	81	81
1250		89	88	89	83	81	82	80	82	80	81	81	81	83
1600		86	84	84	81	80	79	76	80	78	80	78	81	79
2000		83	84	82	80	75	75	77	77	75	76	76	78	77
2500		82	84	81	78	75	75	75	77	77	77	76	76	76
3150		80	83	80	79	75	73	74	74	75	76	75	74	75
4000		77	77	76	76	70	69	70	70	71	72	70	70	71
5000		79	79	79	77	72	71	73	73	73	75	73	72	73
6300		77	77	78	75	70	69	70	71	70	72	69	68	70
8000		77	77	78	75	69	70	70	70	71	72	69	67	70
10000		77	77	78	76	69	70	71	71	71	72	69	69	70
OVERALL		106	107	102	101	101	99	96	98	97	96	96	97	94

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (D3) 1/3 OCTAVE BAND		IDENTIFICATION:												
2		OMEGA 3.2												
NOISE SOURCE/SUBJECT:		OPERATION:										TEST AU-101-001		
A/M32A-86 GENERATOR SFT		DIESEL ENGINE AT 2000 RPM										RUN 04		
GROUND CREW		A/M 24T-9A LOAD BANK										06 APR 82		
NFAR FIELD NOISE LEVELS		190AMP, 240VAC, 400HZ										PAGE F2		
		LOCATION/CONDITION												
FREQ (HZ)	DISTANCE (M)-->	4	4	4	4	4	2	2	2	2	2	2	2	2
ANGLE (DFG)-->	CONDITION-->	260	280	300	320	340	0	20	40	60	80	100	120	140
25		65<	63<	65<	70<	69<	67	78	70<	65<	72	70<	69<	68<
31.5		67<	71	74	76	77	85	79	75	71	71	70	69	69<
40		63<	65<	68<	71	72	80	74	71	70	69<	68<	69	68<
50		65<	65<	67<	69	70	79	74	71	69	68	68	67	68
63		74	76	79	80	83	85	83	82	81	81	79	76	73
80		70	71	72	73	75	80	78	75	73	72	72	71	71
100		77	80	81	83	84	88	85	81	76	74	76	78	80
125		91	97	102	104	104	113	107	100	94	95	97	93	95
160		82	86	91	92	93	101	95	90	87	86	86	85	87
200		80	78	80	79	80	96	94	88	85	86	86	89	91
250		90	94	94	94	95	105	100	103	100	97	96	98	100
315		78	84	84	85	86	93	97	92	99	86	83	88	89
400		95	85	89	83	86	91	89	89	83	84	86	83	87
500		82	84	83	86	85	94	92	88	84	85	86	82	82
630		77	76	79	83	85	92	91	84	84	82	81	85	83
800		81	81	83	86	85	94	92	86	84	84	82	83	81
1000		79	82	83	88	90	95	92	87	84	83	83	84	84
1250		82	84	86	88	88	96	94	89	85	83	85	84	85
1600		79	80	84	85	85	93	93	86	85	81	82	81	82
2000		78	79	82	84	83	91	96	84	82	80	76	79	79
2500		75	77	82	84	81	90	88	84	90	78	78	79	79
3150		75	77	82	84	79	88	86	83	78	75	77	75	76
4000		71	73	73	80	75	84	83	79	74	72	72	71	72
5000		73	75	81	83	77	86	85	82	76	75	75	74	74
6300		70	72	80	82	75	84	84	80	74	72	71	72	71
8000		69	72	80	81	76	84	83	80	74	72	71	72	70
10000		70	72	80	81	75	85	85	80	74	73	72	72	71
OVERALL		95	100	103	105	105	114	111	106	102	101	101	101	102

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)											IDENTIFICATION:	
2											1/3 OCTAVE BAND	
NOISE SOURCE/SUBJECT:											OPERATION:	
A/M32A-86 GENERATOR SET											A/M 24T-9A LEAD BANK	
GROUND CREW											19DAMP, 24UVAC, 400HZ	
NEAR FIELD NOISE LEVELS											23KM PER AC PHASE	
											OMEGA 3.2	
											TEST AU-101-001	
											RUN 05	
											05 APR 82	
											PAGE F3	
											LOCATION/CONDITION	
FREQ (HZ)	DISTANCE (M)-->	2	2	2	2	2	2	2	2	2	OPERATOR LOCATION	
	ANGLE (DEG)-->	160	180	200	220	240	260	280	300	340	TEST CONDITION	
	CONDITION-->	A	A	A	A	A	A	A	A	A	1/A	
25		65<	78	69<	69<	60<	69<	66<	67<	76	91	73
31.5		70	75	70	71	66<	69	72	76	80	89	73
40		70	72	68<	68<	65<	67<	67<	72	77	84	72
50		69	70	69	69	69	69	68	70	73	80	71
63		72	73	74	76	78	80	82	84	95	60	83
80		72	73	74	73	73	73	74	76	77	81	77
100		80	81	83	84	85	85	85	85	86	89	83
125		97	97	92	87	94	99	103	107	111	114	100
160		90	90	89	83	87	89	91	96	100	103	90
200		90	85	91	93	89	86	93	91	93	96	91
250		94	95	101	97	102	104	105	104	101	101	98
315		91	92	94	87	92	92	94	93	91	91	89
400		87	88	89	89	88	89	85	84	96	91	87
500		84	82	87	85	87	89	87	85	90	94	86
630		82	80	83	84	80	86	82	85	95	92	92
800		84	83	80	82	83	83	84	86	90	93	85
1000		85	85	85	86	84	84	86	80	90	94	88
1250		94	85	87	83	87	87	88	88	92	96	87
1600		84	82	83	83	84	83	84	85	94	94	84
2000		79	81	80	80	81	81	82	84	97	93	81
2500		78	81	80	79	79	79	81	84	97	92	81
3150		77	79	77	76	77	78	81	83	99	91	78
4000		72	73	73	73	73	74	77	81	85	87	73
5000		73	75	75	75	75	77	78	82	96	89	75
6300		70	72	72	73	74	75	77	80	94	87	72
8000		70	73	73	74	74	75	77	80	94	87	72
10000		69	73	74	75	76	76	77	80	94	87	73
OVERALL		101	101	103	101	104	106	106	110	112	119	104

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:													
2 OCTAVE BAND		OMEGA 3.2													
NOISE SOURCE/SUBJECT:		OPERATION:										TEST AU-101-001			
A/M32A-86 GENERATOR SET		DIESEL ENGINE AT 2000 RPM										RUN 03			
GROUND CREW		A/M 24T-8A LOAD BANK										06 APR 82			
NEAR FIELD NOISE LEVELS		190AMP, 240VAC, 400HZ										PAGE J1			
		LOCATION/CONDITION													
FREQ (HZ)	DISTANCE (M)-->	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	
	CONDITION---->	A	A	A	A	A	A	A	A	A	A	A	A	A	
31.5		75	77	75	74	70	70	69	71	59	69	69	68	63	
63		80	80	79	78	77	75	73	74	73	73	72	73	74	
125		105	103	100	99	99	94	87	91	94	93	91	90	99	
250		99	105	96	95	97	97	93	96	91	91	94	94	97	
500		83	69	80	85	81	83	85	84	87	85	84	86	85	
1000		92	92	92	83	85	85	85	86	86	86	85	86	86	
2000		89	89	87	85	82	81	82	83	82	83	82	84	82	
4000		84	85	83	82	77	76	77	78	78	73	76	77	78	
8000		82	82	82	80	74	75	75	75	76	77	74	73	75	
OVERALL		105	107	102	101	101	99	96	96	97	96	96	97	94	

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:												
2 OCTAVE BAND		OMEGA 3.2												
		TEST AU-101-001												
NOISE SOURCE/SUBJECT:		OPERATION:										RUN 04		
		DIESEL ENGINE AT 2000 RPM												
A/M32A-86 GENERATOR SET		A/M 24T-8A LOAD BANK										06 APR 82		
GROUND CREW		190AMP, 240VAC, 400HZ												
NEAR FIELD NOISE LEVELS		23KW PER AC PHASE										PAGE J2		
		LOCATION/CONDITION												
FREQ (HZ)	DISTANCE (M)-->	260	280	300	320	340	0	20	40	50	80	100	120	140
	ANGLE (DEG)-->	A	A	A	A	A	A	A	A	A	A	A	A	A
	CONDITION-->	A	A	A	A	A	A	A	A	A	A	A	A	A
31.5		70	72	75	78	78	89	82	77	74	76	74	74	73
63		76	77	80	81	82	87	84	83	92	81	80	78	76
125		92	97	102	104	104	113	107	100	95	96	97	94	95
250		90	94	95	95	95	105	108	103	100	97	97	99	101
500		87	88	90	89	90	97	96	92	88	83	90	88	89
1000		86	87	89	92	91	100	97	93	89	88	88	88	88
2000		83	84	87	83	88	96	96	91	87	85	85	85	85
4000		78	80	85	88	82	91	90	86	81	79	80	79	79
8000		74	77	85	86	81	89	89	85	79	77	76	77	75
OVERALL		96	100	103	105	105	114	111	106	102	101	101	101	102

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)											IDENTIFICATION:	
2											OMEGA 3.2	
OCTAVE BAND											TEST AU-101-001	
NOISE SOURCE/SUBJECT:	OPERATION:										RUN 05	
A/M32A-86 GENERATOR SET	DIESEL ENGINE AT 2000 RPM										06 APR 82	
GROUND CREW	A/M 24T-8A LOAD BANK										PAGE J3	
NEAR FIELD NOISE LEVELS	190AMP, 240VAC, 400HZ											
	23KW PER AC PHASE											
LOCATION/CONDITION											OPERATOR LOCATION	
FREQ (HZ)	DISTANCE (M)-->	2	2	2	2	2	2	2	2	2	2	TEST CONDITION
	ANGLE (DEG)-->	160	180	200	220	240	260	280	300	220	340	1/A
	CONDITION-->	A	A	A	A	A	A	A	A	A	A	
31.5		73	80	74	74	76	73	74	78	83	93	78
63		75	77	77	78	79	81	83	85	86	88	84
125		98	96	94	90	95	99	103	108	112	115	101
250		97	97	102	99	102	104	106	105	102	103	99
500		89	89	92	91	92	92	89	89	93	97	90
1000		89	89	90	89	90	90	91	92	95	99	92
2000		85	86	86	86	87	86	87	89	93	98	87
4000		79	81	80	80	80	81	84	87	92	94	80
8000		75	77	78	79	79	80	82	85	89	92	77
OVERALL		101	101	103	101	104	106	108	110	112	115	104

TABLE: MEASURES OF HUMAN NOISE EXPOSURE												IDENTIFICATION:					
3												OMEGA 3.2					
NOISE SOURCE/SUBJECT: (OPERATIONS)												TEST AU-101-001					
A/M32A-86 GENERATOR SET (DIESEL ENGINE AT 2000 RPM)												RUN 83					
GROUND CRFM (A/M 24T-8A LOAD BANK)												06 APR 82					
NEAR FIELD NOISE LEVELS (190AMP, 240VAC, 400HZ)												PAGE H1					
LOCATION/CONDITION																	
DISTANCE (M)-->	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	150	180	200	220	240				
CONDITION----->	A	A	A	A	A	A	A	A	A	A	A	A	A				
HAZARD/PROTECTION																	
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	105	107	102	101	101	99	96	96	97	96	96	97	94				
OASLA	97	99	96	94	92	92	91	92	90	91	90	91	90				
T	50	36	60	85	120	120	143	120	170	143	170	143	170				
MINIMUM QPL EAR MUFFS																	
OASLA*	95	85	80	79	79	76	72	75	74	73	73	74	71				
T	404	404	960	960	960	960	960	960	960	960	960	960	960				
AMERICAN OPTICAL 1700 EAR MUFFS																	
OASLA*	80	80	75	74	75	72	67	70	69	69	69	69	66				
T	960	960	960	960	960	960	960	960	960	960	960	960	960				
V-51R EAR PLUGS																	
OASLA*	74	77	72	70	70	70	69	69	67	67	68	68	66				
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*	62	63	59	57	57	55	53	54	53	53	53	53	52				
T	960	960	960	960	960	960	960	960	960	960	960	960	960				
M-133 GROUND COMMUNICATION UNIT																	
OASLA*	74	74	71	69	68	66	64	65	65	65	64	65	63				
T	960	960	960	960	960	960	960	960	960	960	960	960	960				
COMMUNICATION																	
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)																	
PSIL	90	90	89	86	85	83	83	84	85	85	84	85	85				
ANNOYANCE																	
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)																	
TONE CORRECTION (C IN DB)																	
PNLT	114	116	111	110	109	108	106	107	106	106	106	107	104				
C	3	3	3	3	3	2	2	2	2	2	2	2	2				

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

TABLE: MEASURES OF HUMAN NOISE EXPOSURE													IDENTIFICATION:				
3													OMEGA 3.2				
NOISE SOURCE/SUBJECT:													TEST AU-101-001				
OPERATION:													RUN 04				
A/M32A-86 GENERATOR SET (DIESEL ENGINE AT 2000 RPM)													06 APR 82				
GROUND CREW (A/M 24T-8A LOAD BANK)																	
NEAR FIELD NOISE LEVELS (190AMP, 240VAC, 400HZ)													PAGE M2				
LOCATION/CONDITION																	
DISTANCE (M)-->	4	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2
ANGLE (DEG)-->	260	260	300	320	340	0	20	40	60	80	100	120	140				
CONDITION-->	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
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 (AFK 161-35, JULY 73)																	
NO PROTECTION																	
OASLC	96	100	103	105	105	114	111	106	102	101	101	101	102	101	102	101	102
OASLA	90	92	95	97	96	105	104	99	95	94	94	94	94	94	94	94	95
T	170	120	71	50	60	13	15	30	71	60	85	85	71				
MINIMUM SPL EAR MUFFS																	
OASLA*	73	78	81	83	84	92	88	83	79	78	78	78	79	78	79	78	79
T	960	960	907	571	480	120	240	571	960	960	960	960	960	960	960	960	960
AMERICAN OPTICAL 1700 EAR MUFFS																	
OASLA*	66	73	77	78	79	87	84	78	74	73	73	73	73	73	73	73	75
T	960	960	960	960	960	285	480	960	960	960	960	960	960	960	960	960	960
V-51R EAR PLUGS																	
OASLA*	67	69	71	73	73	81	81	77	73	71	71	71	72	73	73	73	73
T	960	960	960	960	960	807	807	960	960	960	960	960	960	960	960	960	960
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS																	
OASLA*	53	56	59	61	61	70	67	62	58	57	57	57	57	58	58	58	58
T	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
M-133 GROUND COMMUNICATION UNIT																	
OASLA*	64	67	71	73	73	81	78	73	59	63	68	68	68	69	69	69	69
T	960	960	960	960	960	807	960	960	960	960	960	960	960	960	960	960	960
COMMUNICATION																	
PREFERRED SPEECH REFERENCE LEVEL (PSIL IN DB)																	
PSIL	85	86	89	90	90	98	96	92	88	87	87	87	87	87	87	87	87
ANNOYANCE																	
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)																	
TONE CORRECTION IN DB																	
PNLT	105	108	112	114	113	122	121	116	112	110	110	110	110	111	111	111	111
C	2	2	3	3	3	3	3	2	2	3	3	3	2	2	2	2	2

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

TABLE: MEASURES OF HUMAN NOISE EXPOSURE											IDENTIFICATION:											
3											OMEGA 3.2											
NOISE SOURCE/SUBJECT: (OPERATION:)											TEST AU-101-001											
A/M32A-85 GENERATOR SET (DIESEL ENGINE AT 2000 RPM)											RUN 05											
GROUND CREW (A/M 24T-8A LOAD BANK)											06 APR 82											
NEAR FIELD NOISE LEVELS (190AMP, 240VAC, 400HZ)											PAGE H3											
DISTANCE (M)-->											2	2	2	2	2	2	2	2	2	2	2	OPERATOR LOCATION
ANGLE (DEG)-->											160	180	200	220	240	260	280	300	220	340		TEST CONDITION
CONDITION-->											A	A	A	A	A	A	A	A	A	A	A	1/A
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	101	101	103	101	104	106	108	109	112	115		104										
OASLA	94	95	97	95	97	98	99	100	102	105		96										
T	85	71	50	71	50	42	36	30	21	13		60										
MINIMUM SPL EAR MUFFS																						
OASLA*	79	79	80	77	80	83	85	88	31	94		81										
T	360	360	360	360	360	571	404	240	143	85		807										
AMERICAN OPTICAL 1700 EAR MUFFS																						
OASLA*	74	74	76	73	76	78	81	83	86	89		77										
T	360	360	360	360	360	807	571	339	202			360										
V-51P EAR PLUGS																						
OASLA*	72	72	75	72	75	77	78	78	78	81		73										
T	360	360	360	360	360	360	360	360	360	807		360										
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51P EAR PLUGS																						
OASLA*	59	57	59	57	60	61	63	65	53	71		60										
T	360	360	360	360	360	360	360	360	360	360		360										
M-133 GROUND COMMUNICATION UNIT																						
OASLA*	69	69	70	66	70	72	74	77	50	83		71										
T	360	360	360	360	360	360	360	360	360	571		360										
COMMUNICATION																						
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)																						
PSIL	88	88	83	89	90	89	89	90	34	36		90										
ANNOYANCE																						
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)																						
TONE CORRECTION (C IN DB)																						
PNLT	109	110	112	110	113	115	116	117	120	124		112										
C	2	2	1	1	2	2	2	3	3	3		2										

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

TABLE 4 MEASURED SOUND PRESSURE LEVEL (DB)																		IDENTIFICATION	
1/3 OCTAVE BAND																		OMEGA 1.4	
DISTANCE = 10 METERS																		TEST AU-101-301	
NOISE SOURCE/SUBJECT:		OPERATIONS:						METEOROLOGICAL:						RUN 01					
A/M32A-85 GENERATOR SET		DIESEL ENGINE AT 2000 RPM						TEMP = 9 C						26 OCT 81					
FAR FIELD NOISE LEVELS		A/M 24T-8A LOAD BANK						BAR PRESS = .763 M HG						REL HUMID = 40 %					
		190 AMP, 240VAC, 400HZ						23KW PER AC PHASE						PAGE ?					
FREQ (HZ)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
20	67<	65<	64<	66<	57<	69<	72	74	72	72	74	75	75	74	76	75	77	76	77
31.5	69	69	69	67<	68<	69<	69	70	58<	68<	68<	70	72	70	71	72	72	72	72
40	64<	64<	63<	63<	64<	64<	64<	65<	65<	66<	67<	66<	69<	67<	68<	69	70	70	70
50	65<	65<	64<	64<	64<	63<	64<	63<	63<	63<	63<	63<	61<	65<	63<	65<	65<	66<	65<
63	74	74	74	74	75	74	73	73	71	69	68	65<	63<	63<	64<	64<	64<	65<	64<
80	72	73	72	72	72	71	73	71	69	69	70	68	67	67	67	68	67	66	65
100	78	78	79	77	77	76	76	75	74	73	72	71	73	69	69	69	69	69	69
125	101	101	102	100	100	98	98	97	97	95	93	91	89	86	87	89	90	90	88
150	89	89	90	88	89	87	86	86	85	84	82	80	78	77	78	79	80	80	79
200	84	85	83	80	79	76	77	78	79	76	72	76	80	80	77	75	71	71	73
250	92	92	86	87	89	86	83	82	84	87	85	82	82	81	81	82	83	82	83
315	80	81	75	74	77	75	76	72	72	77	76	74	75	76	80	82	81	83	82
400	78	75	73	76	73	78	77	78	81	80	76	72	74	77	78	78	74	77	77
500	79	76	76	76	75	75	74	72	74	74	73	73	72	72	69	74	73	72	73
630	75	75	75	74	74	73	72	71	72	69	72	69	70	70	70	72	69	70	72
800	78	79	76	78	77	76	76	75	73	73	73	73	74	76	74	72	72	72	75
1000	81	82	81	81	80	78	78	77	74	74	73	75	72	73	76	77	75	75	78
1250	80	81	80	78	80	78	76	75	74	77	75	74	72	75	75	73	73	75	72
1600	79	77	81	78	77	77	75	72	73	70	71	70	70	73	70	71	70	71	71
2000	75	74	75	76	74	72	72	69	69	67	68	66	67	66	66	67	67	68	68
2500	73	74	75	76	75	73	74	69	68	67	66	65	66	66	66	66	67	68	68
3150	72	72	72	74	73	71	70	68	57	65	65	64	65	64	64	64	65	66	66
4000	68	68	69	70	71	69	68	67	66	62	63	62	64	62	62	62	63	64	64
5000	70	70	70	71	74	73	70	67	68	63	63	63	64	62	63	63	62	64	65
6300	68	67		69	72	69	69	65	66	61	61	60	61	60	61	60	59	62	62
8000	65	66		69	71	68	68	66	65	61	61	60	61	60	59	58	58	61	61
10000	69	69	69	70	73	69	68	67	65	60	62	61	62	61	59	59	59	61	62
OVERALL	102	102	103	100	101	99	99	96	97	97	95	93	91	90	90	92	92	92	91

< LEVEL CORRECTED TO ABOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)														IDENTIFICATION:			
4 1/3 OCTAVE BAND) CMFGA 1.4			
DISTANCE = 10 METERS) TEST AU-101-001			
NOISE SOURCE/SUBJECT:		OPERATION:				METEOROLOGY:)) RUN 02			
A/H32A-86 GENERATOR SET		DIESEL ENGINE AT 2000 RPM				TEMP = 9 C)) 26 OCT 81			
FAR FIELD NOISE LEVELS		A/M 24T-3A LOAD BANK				BAR PRESS = .768 M HG)) PAGE 2			
		190 AMP, 240VAC, 400HZ				REL HUMID = 40 %)							
		23KW PER AC PHASE															
FREQ (HZ)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350
25	77	76	75	77	75	74	73	70<	73	73	73	73	73	71<	71<	71<	69<
31.5	73	73	73	73	71	71	70	68<	67<	70	70	70	70	71	71	72	71
40	71	71	70	70	69	67<	66<	65<	65<	67<	67<	67<	67<	67<	67<	68<	66<
50	66<	66<	65<	66<	67<	65<	63<	61<	63<	62<	63<	64<	64<	65<	67	65<	
63	65<	65<	67	65<	65<	64<	67	67	66	67	66	63	69	71	71	73	73
80	68	69	70	69	66	67	66	66	65	66	66	67	66	69	69	70	70
100	70	70	70	71	75	71	71	72	73	73	75	76	76	77	78	78	79
125	86	85	85	86	85	87	90	92	95	96	97	98	98	100	101	102	102
160	78	77	77	76	75	78	80	81	84	84	86	86	87	88	89	90	90
200	73	76	76	77	74	74	72	75	77	77	76	77	78	79	80	81	83
250	82	83	83	85	82	75	81	82	81	87	88	87	87	82	79	82	87
315	83	81	80	80	78	76	77	75	74	77	79	73	78	77	75	77	78
400	76	77	76	77	77	72	74	71	76	75	75	75	74	74	74	75	77
500	72	74	74	74	69	71	69	63	71	74	74	71	72	72	75	75	76
630	69	70	72	73	71	70	70	66	71	71	72	72	73	74	75	75	74
800	73	74	73	74	71	74	74	73	75	73	79	77	79	78	77	78	78
1000	77	77	76	74	76	75	74	75	76	76	77	73	80	82	79	77	78
1250	73	75	73	74	74	73	74	73	74	74	78	80	79	79	80	80	78
1600	65	69	70	69	68	70	72	70	70	71	73	75	75	76	77	76	76
2000	67	68	68	68	69	70	72	71	71	71	73	75	76	76	75	74	73
2500	67	68	69	70	69	69	70	69	70	71	73	75	77	75	74	72	72
3150	66	66	66	67	67	66	67	67	67	69	71	73	74	72	71	71	70
4000	64	63	65	65	64	65	66	66	66	66	70	72	74	71	70	69	67
5000	65	65	65	65	66	66	67	66	67	70	72	73	75	72	71	68	67
6300	62	63	63	62	62	62	64	64	65	68	71	72	74	70	69	67	66
8000	62	63	63	62	62	63	64	64	65	68	70	72	74	69	69	67	66
10000	62	63	63	63	62	64	65	64	66	69	71	72	73	69	70	69	67
OVERALL	91	90	90	91	89	90	92	93	96	97	98	99	99	101	101	102	102

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

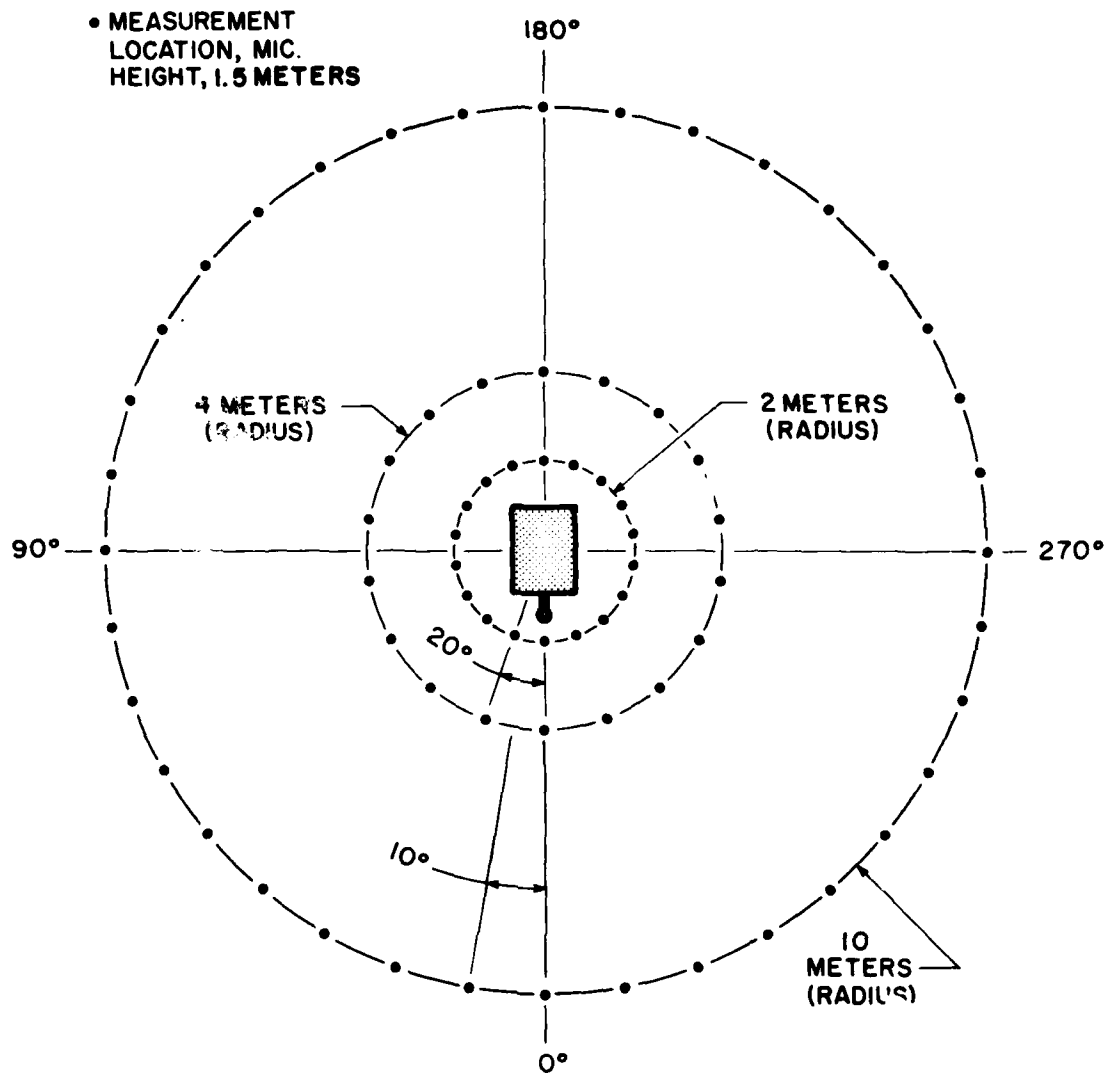
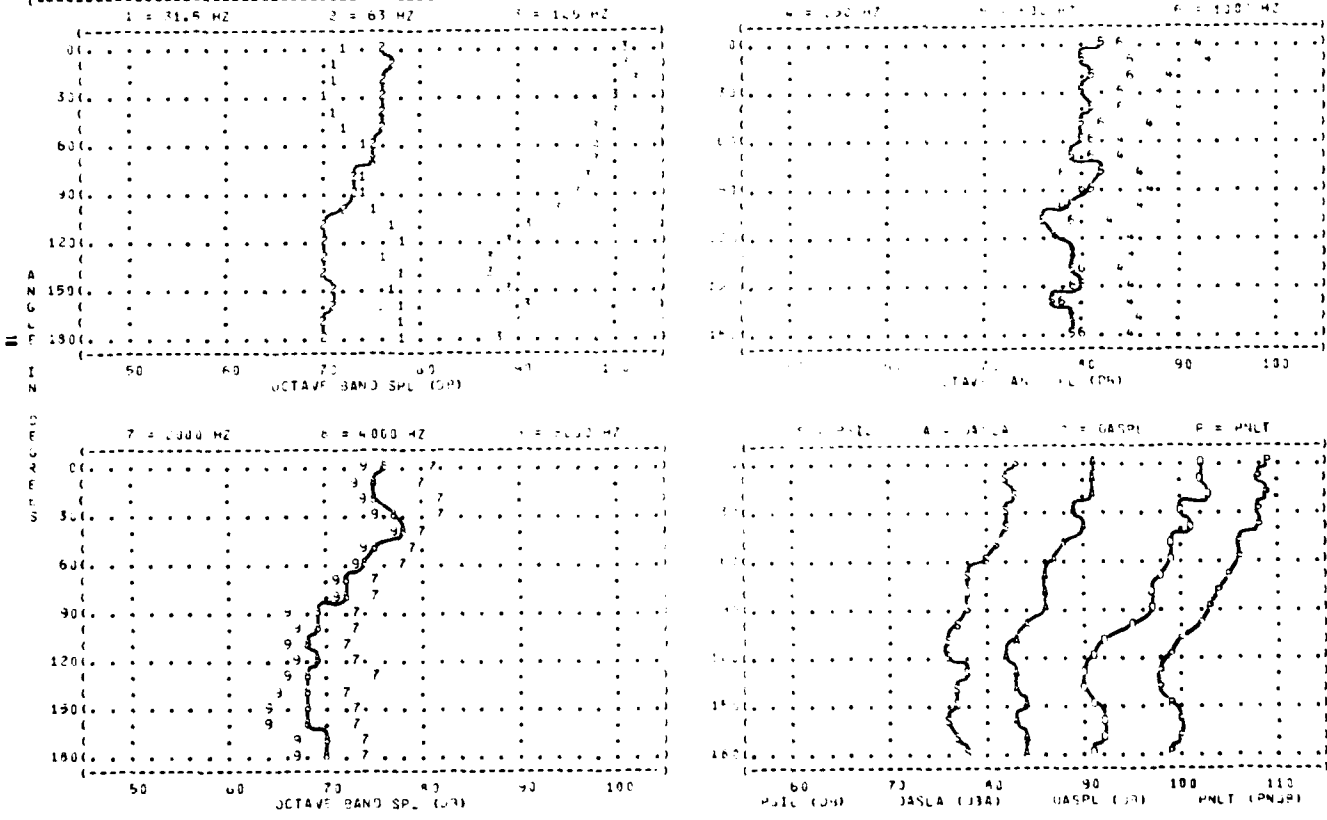


Figure 1. Measurement Locations

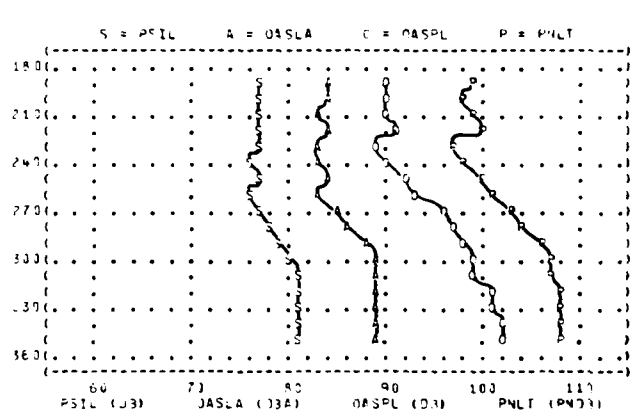
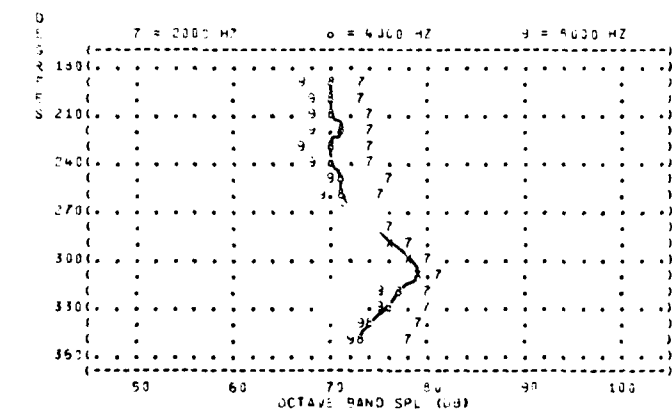
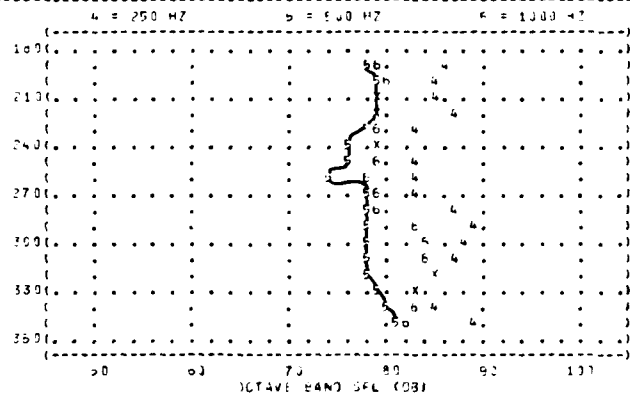
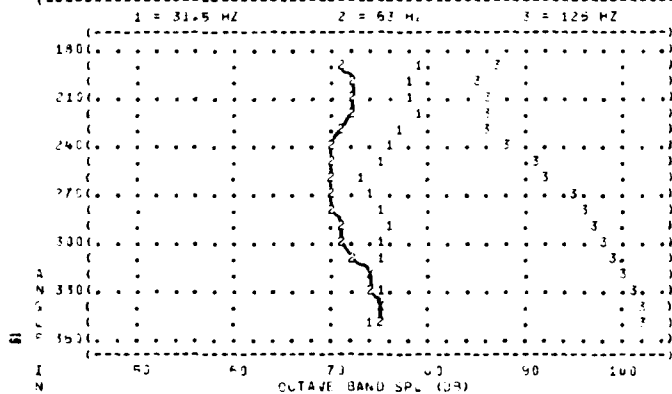
(FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS)
 (2 DISTANCE = 10 METERS)
 (IDENTIFICATION)
 (OMEGA 104)
 (TEST AG-104-001)
 (RUN 11)
 (26 OCT 91)
 (PAGE 4)
 (NOISE SOURCE/SUBJECT) (OPERATION) (MEASUREMENTS)
 (47432A-01 GENERATOR SET (DIESEL ENGINE AT 1710 RPM) (TMRD)
 (FAR FIELD NOISE LEVELS (47432A-01 LOAD BANK (104 PATSS = 17404 HP) (104 PATSS)
 (190 AMP, 240 V, 60 HZ (25KW PER PHASE) (REF. HUMID. = 77%)



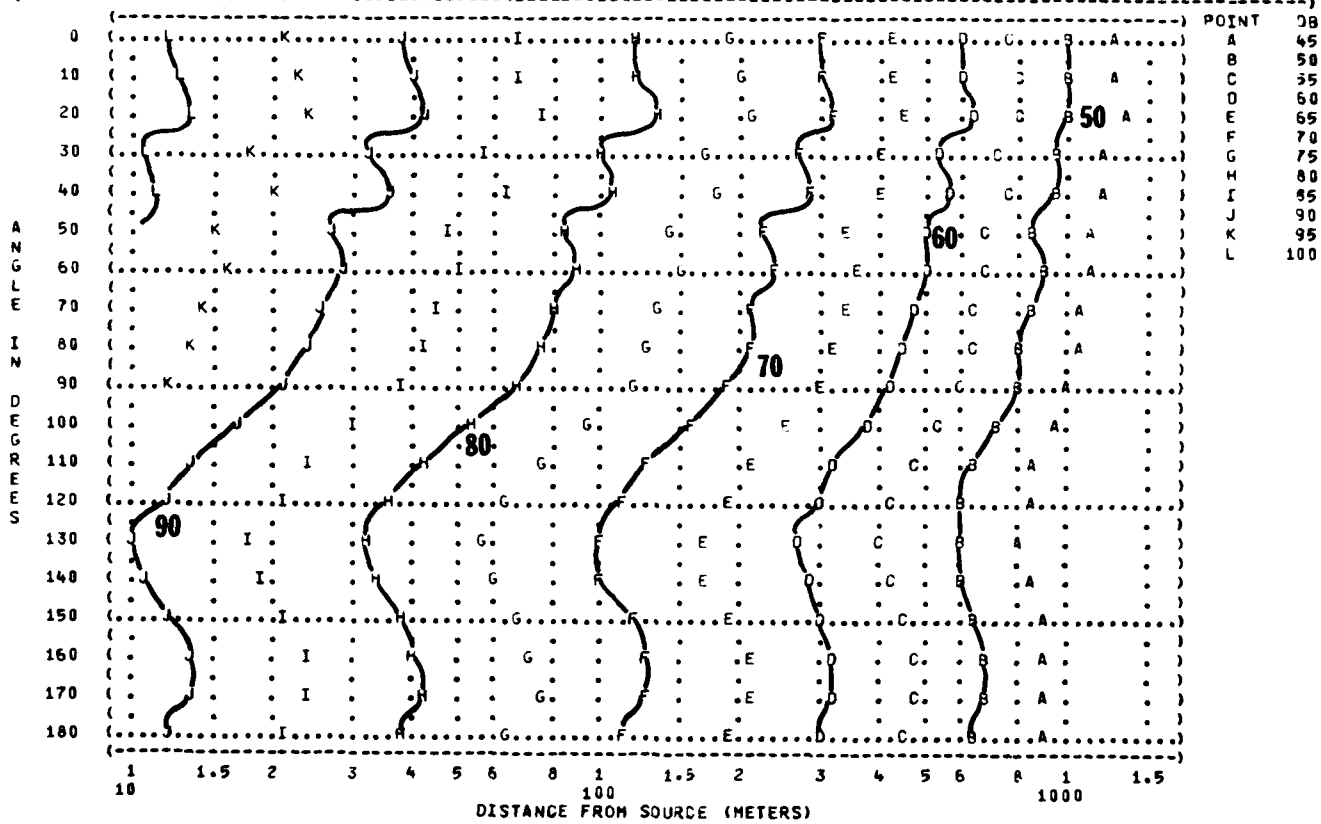

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( FIGURE: NORMALIZED FARFIELD NOISE LEVELS ) IDENTIFICATION:
( 2 ) DISTANCE = 10 METERS ) OMEGA 1.4
( ) ) TEST AM-101-001
( NOISE SOURCE/SUBJECT: ) OPERATION: ) METEOROLOGY: ) RUN 02
( A/M32A-86 GENERATOR SET ) DIESEL ENGINE AT 2000 RPM ) TEMP = 15 C
( FAR FIELD NOISE LEVELS ) 47M 24T-8A LOAD BANK ) BAR PRESS = 1.763 M HG
( ) 140 AMP, 240VAC, 450HZ ) REL HUMID = 73 %
( ) 23KV PER AC PHASE ) ) PAGE 4

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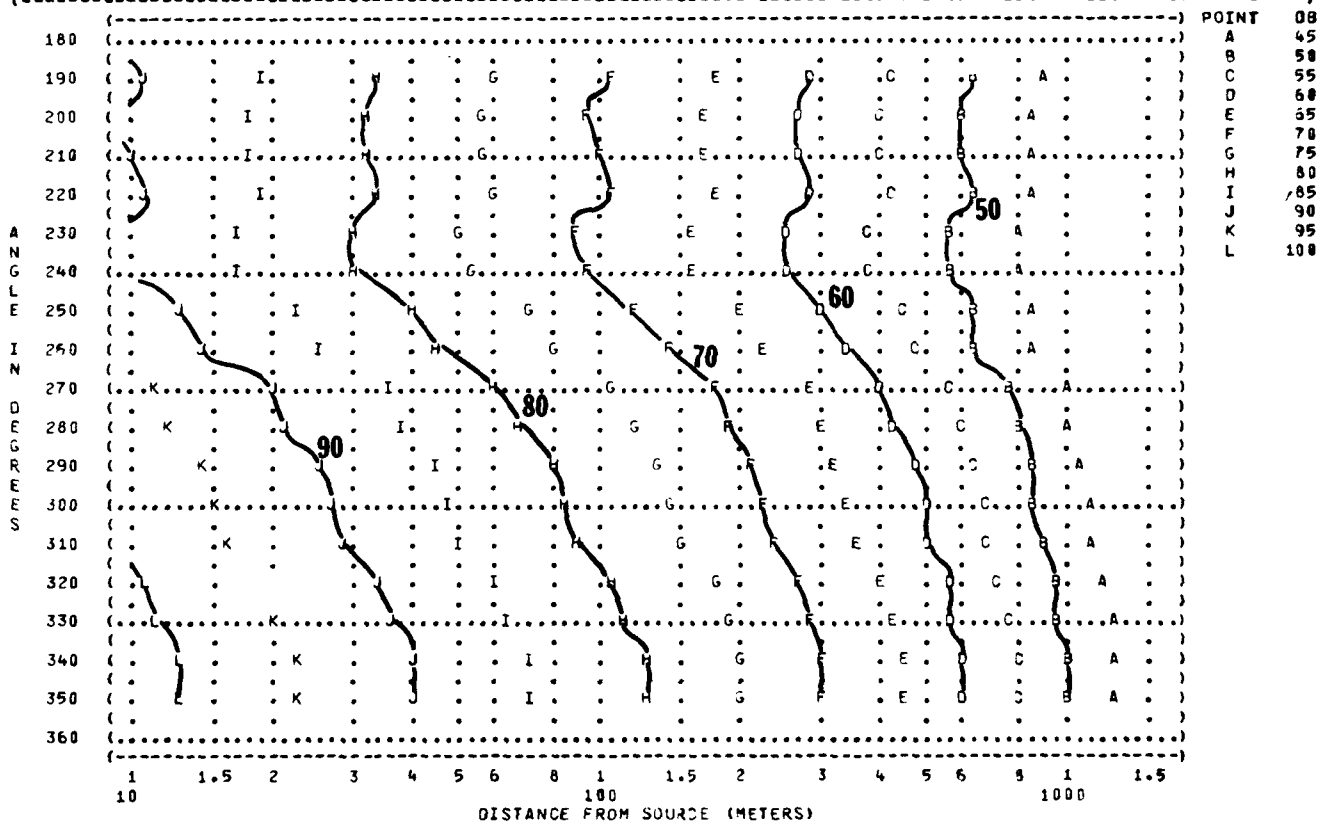


(FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)) IDENTIFICATION:)
 (3 EQUAL LEVEL CONTOURS (DB)))
 () OMEGA 1.4)
 (NOISE SOURCE/SUBJECT: (OPERATION: (DIESEL ENGINE AT 2000 RPM) METEOROLOGY: () TEST AM-101-001)
 (A/M32A-86 GENERATOR SET (A/M 24T-8A LOAD BANK) TEMP = 15 C () RUN 01)
 (FAR FIELD NOISE LEVELS (190 AMP, 240VAC, 400HZ) BAR PRESS = .760 M HG () 26 OCT 81)
 () REL HUMID = 70 % ())
 () 23KW PER AC PHASE () PAGE 11)



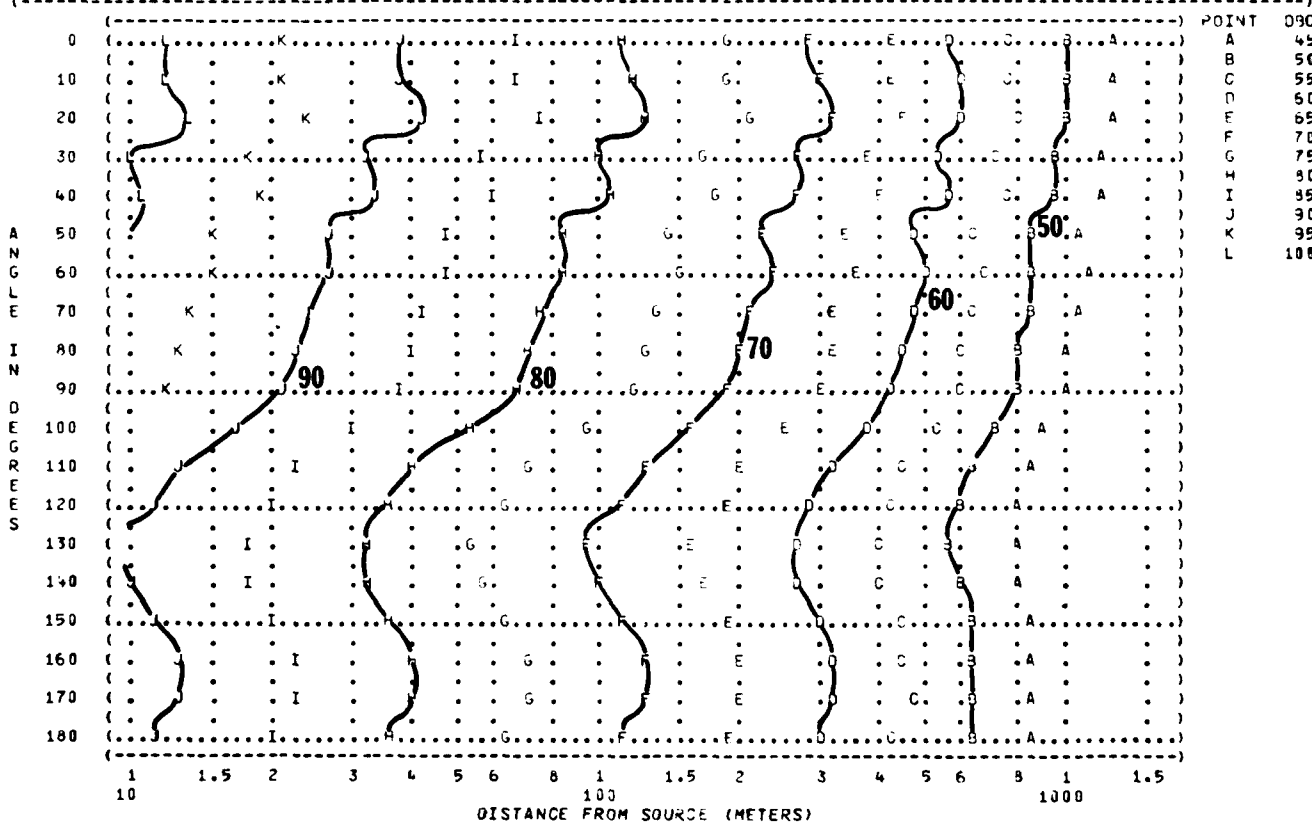
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(FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)) IDENTIFICATION#)
 (3 EQUAL LEVEL CONTOURS (DB)))
 () OMEGA 1.4)
 () TEST AU-101-001)
 () RUN 02)
 (NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY:)
 (A/M32A-86 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS (A/M 247-8A LOAD BANK) BAR PRESS = .760 M HS)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %)
 ((23KW PER AC PHASE)))
 () PAGE 11)



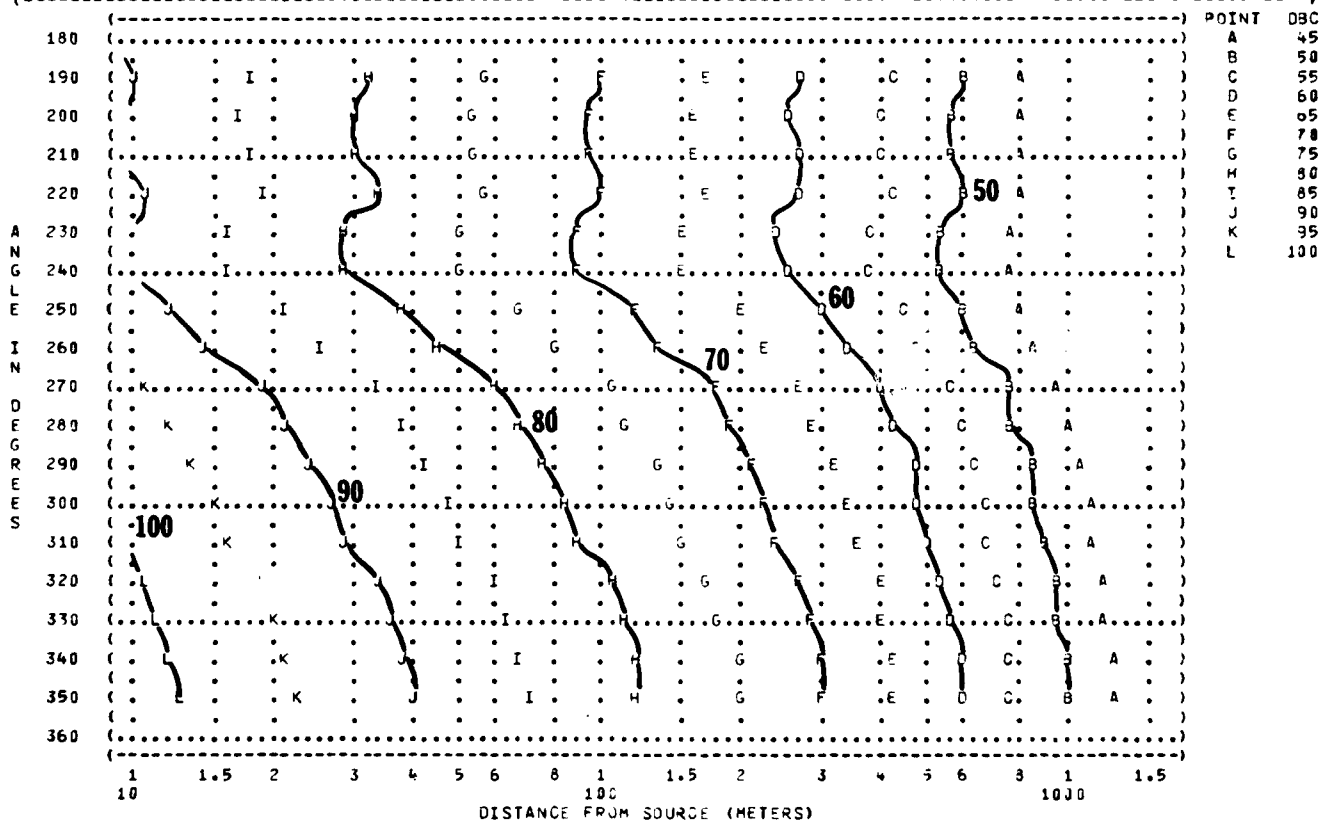
21

(FIGURE 4 C-WEIGHTED OVERALL SOUND LEVEL (OASPL) IDENTIFICATION:)
 (EQUAL LEVEL CONTOURS (dB)))
 () OMEGA 1.4)
 () TEST AU-101-001)
 () RUN 01)
 (NOISE SOURCE/SUBJECT: (OPERATIONS:) METEOROLOGY:)
 (A/M32A-86 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 14 C)
 (FAR FIELD NOISE LEVELS (A/M 24T-8A LOAD BANK) BAR PRESS = .750 MM HG) 26 OCT 81)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 73 %))
 ((23KW PER AC PHASE))) PAGE 12)

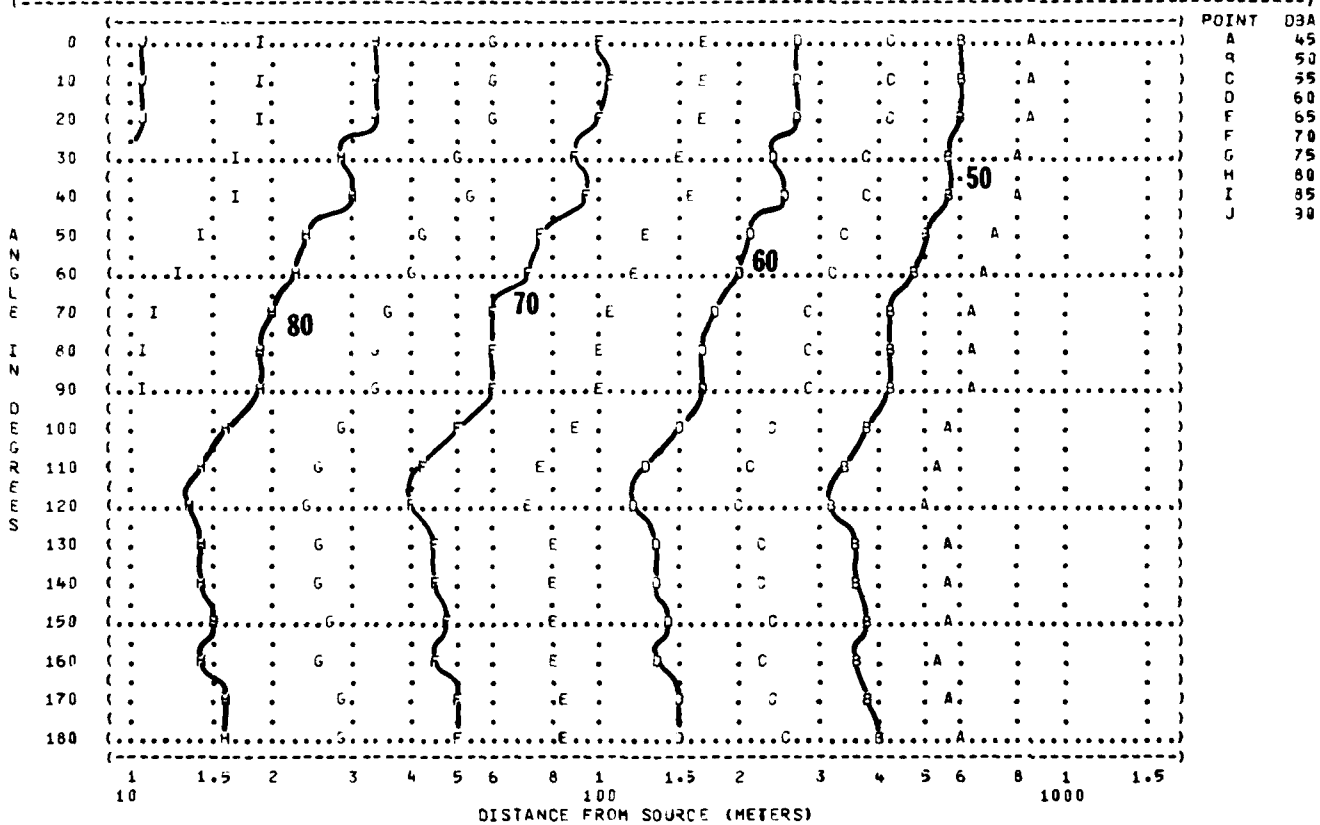


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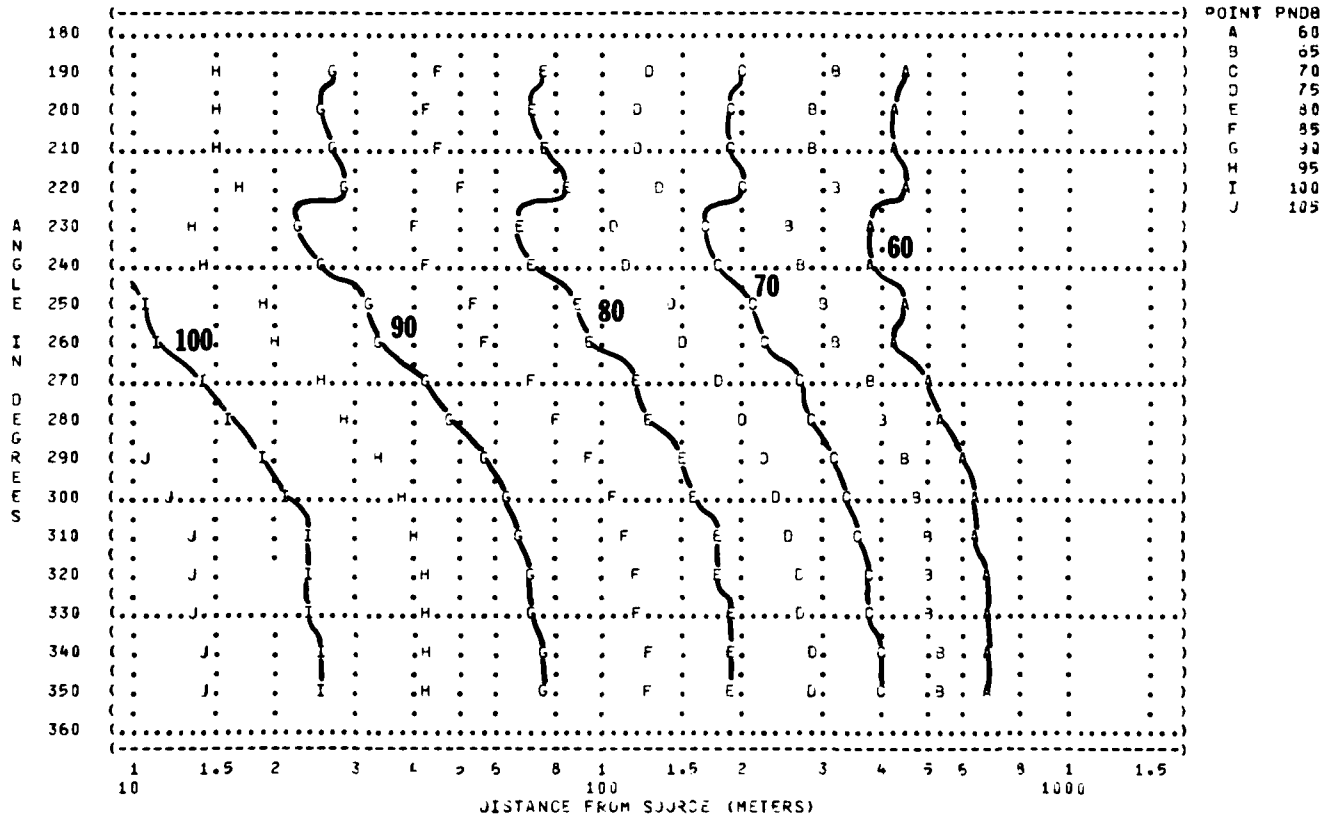
(FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)) IDENTIFICATION:)
 (4 EQUAL LEVEL CONTOURS (D8C)))
 () OMEGA 1.4)
 () TEST AN-101-001)
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) RUN 02)
 (A/M32A-86 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C))
 (FAR FIELD NOISE LEVELS (A/M 24T-3A LOAD BANK) BAR PRESS = .760 M HG) 26 OCT 81)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %))
 ((23KW PER AC PHASE)) PAGE 12)



(FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA)) IDENTIFICATION:)
 (5 EQUAL LEVEL CONTOURS (DBA)))
 () OMEGA 1.4)
 (TEST 47-101-001)
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) RUN 01)
 (A/M32A-85 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C))
 (FAR FIELD NOISE LEVELS (A/M 24T-9A LOAD BANK) BAR PRESS = .760 M HG) 26 OCT 91)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %))
 ((23KW PER AC PHASE)) PAGE 13)



(FIGURE: PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT)) IDENTIFICATION:)
 (6 EQUAL LEVEL CONTOURS (PNDB)))
 () OMEGA 1.4)
 () TEST AU-101-001)
 (NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY: (PUN 02))
 (A/M32A-86 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C))
 (FAR FIELD NOISE LEVELS (A/M 24T-8A LOAD BANK) BAR PRESS = .760 M HG))
 () 190 AMP, 240VAC, 400HZ) REL HUMID = 70 %))
 () 23KW PER AC PHASE)))
 () PAGE 14))

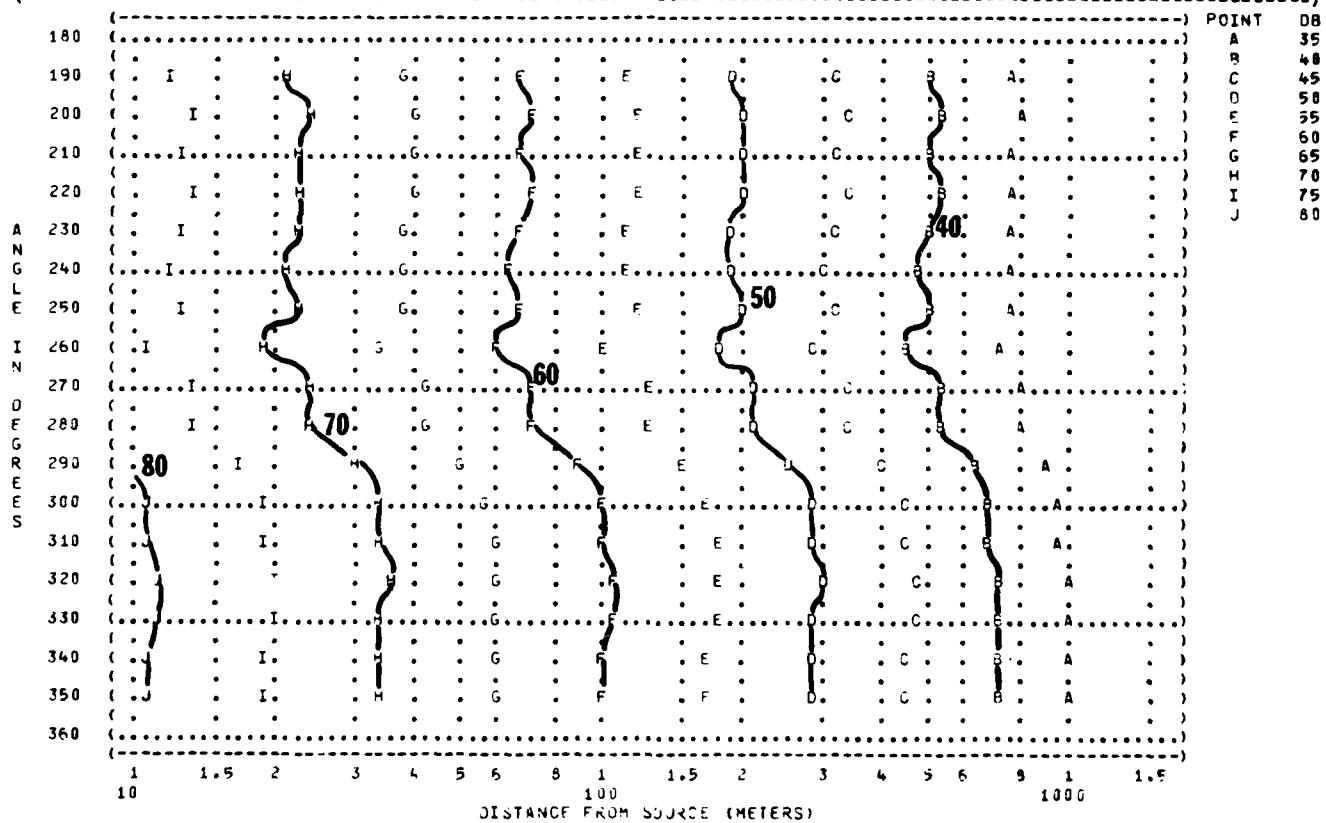


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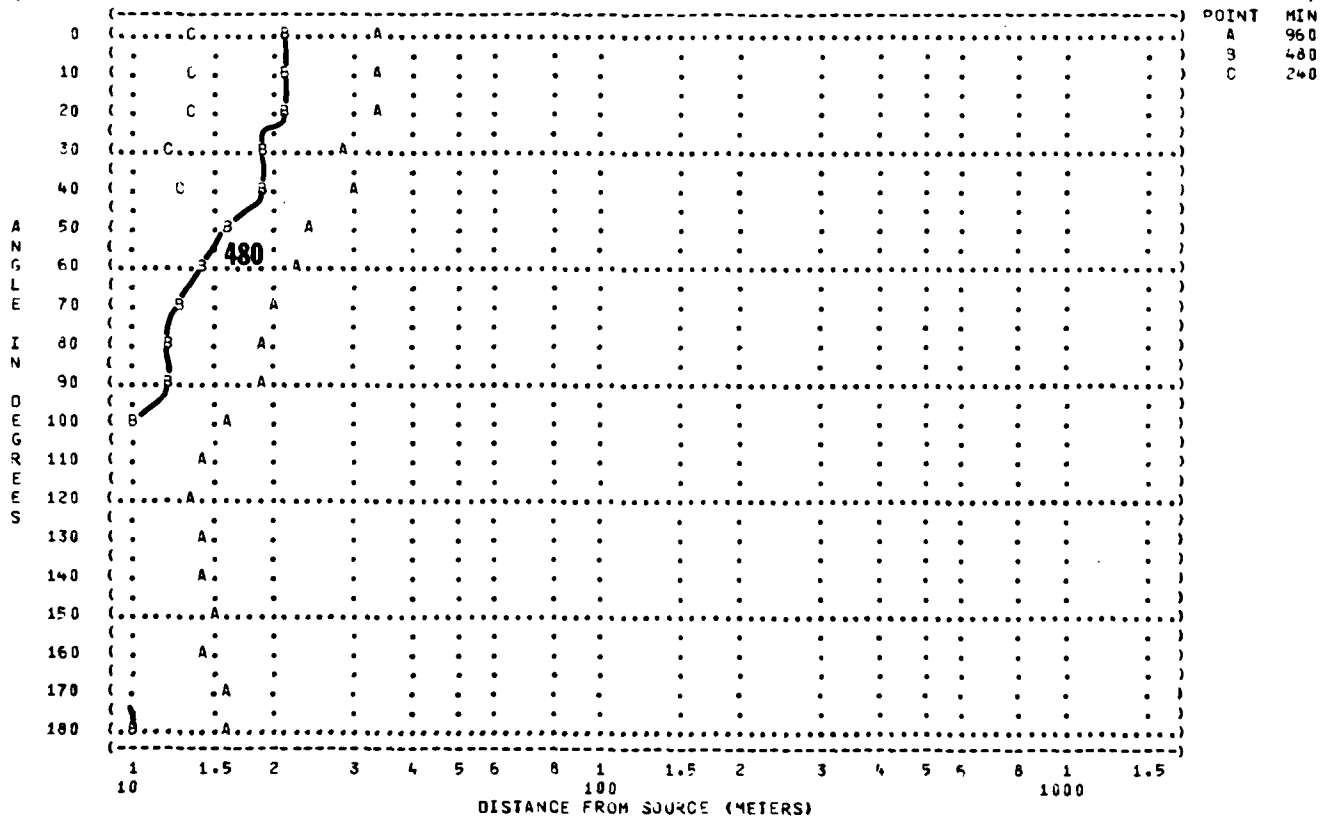

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(-----)
( FIGURE 7  PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) ) IDENTIFICATION:
( EQUAL LEVEL CONTOURS (DB) )
(-----)
( NOISE SOURCE/SUBJECT: ( OPERATION: ( METEOROLOGY: ( IDENTIFICATION:
( A/M32A-86 GENERATOR SET ( DIESEL ENGINE AT 2000 RPM ) TEMP = 15 C ) OMEGA 1.4
( FAR FIELD NOISE LEVELS ( A/M 24T-8A LOAD BANK ) BAR PRESS = .760 M HG ) TEST AU-101-001
( ( 190 AMP, 240VAC, 400HZ ) REL HUMID = 70 % ) RUN 02
( ( 23KW PER AC PHASE ) ) 26 OCT 81
(-----)
( PAGE 15
(-----)

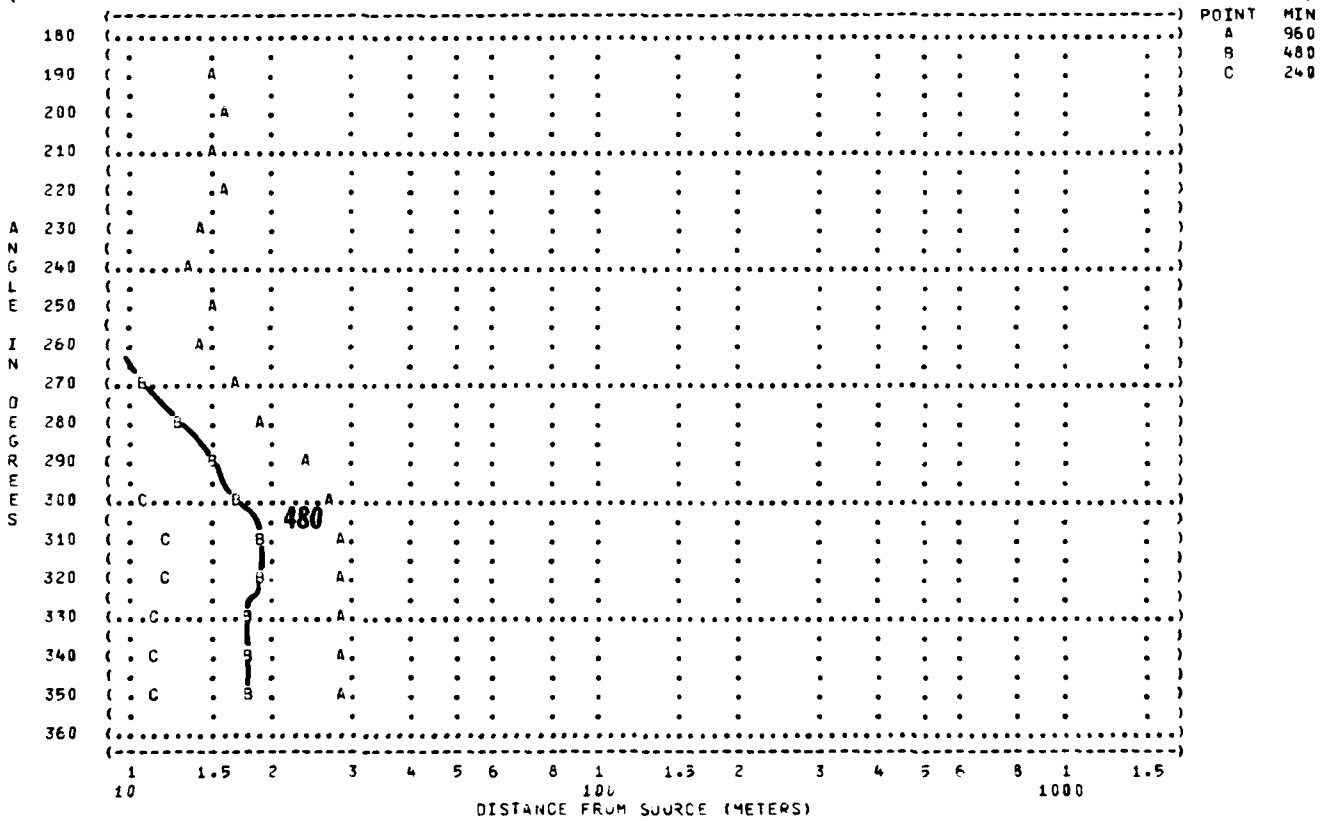
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(FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)) IDENTIFICATION:)
 (8 EQUAL TIME CONTOURS (MINUTES)))
 (NO PROTECTION)) OMEGA 1.4)
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) TEST AU-101-001)
 (A/M32A-66 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C) RUN 01)
 (FAR FIELD NOISE LEVELS (A/M 24T-0A LOAD BANK) BAR PRESS = .760 M HG) 26 OCT 81)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %))
 ((23KW PER AC PHASE)) PAGE 6)



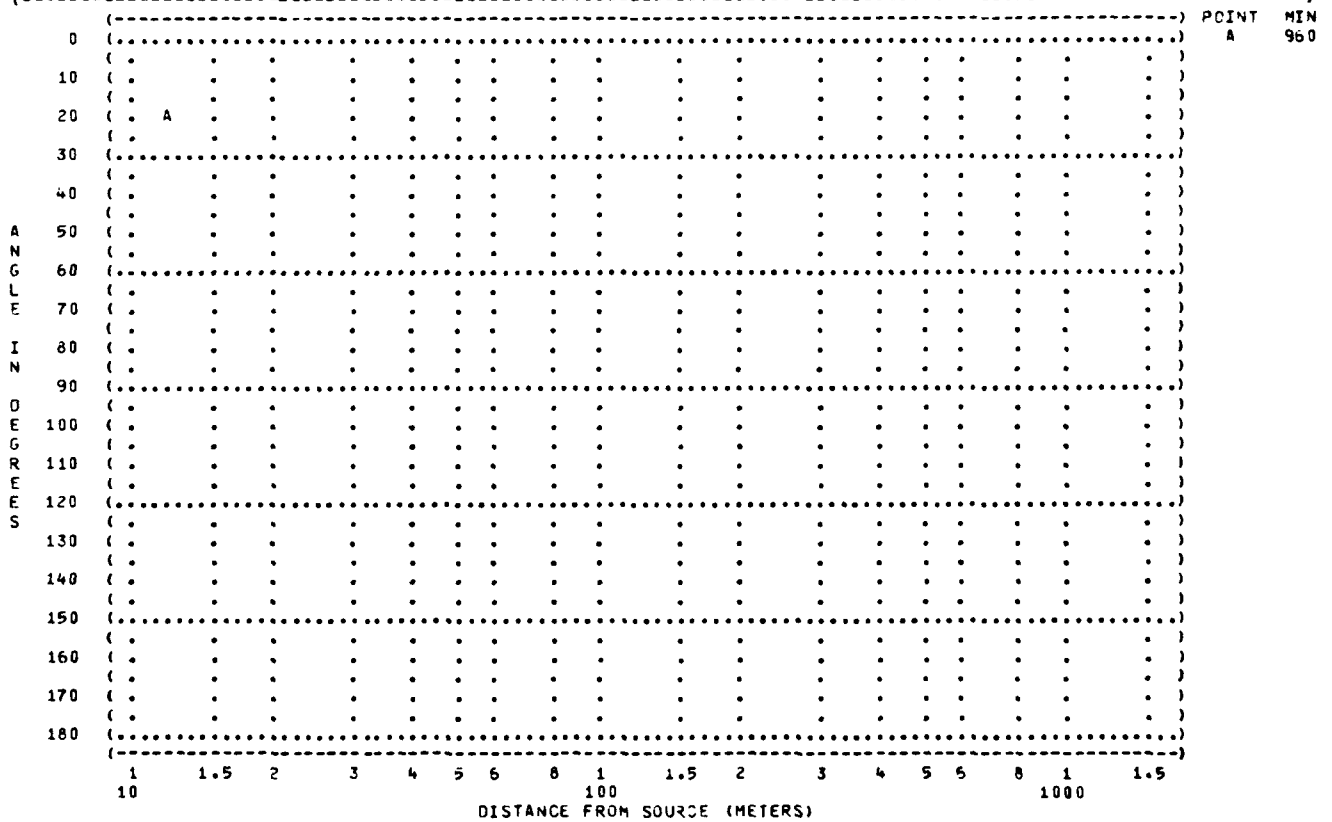
(FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)) IDENTIFICATION:)
 (8 EQUAL TIME CONTOURS (MINUTES))) OMEGA 1.4)
 (NO PROTECTION)) TEST AU-101-001)
 (NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY:) RUN 02))
 (A/M32A-86 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C))
 (FAR FIELD NOISE LEVELS (A/M 24T-8A LOAD BANK) BAR PRESS = .760 M HG) 26 OCT 81)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %))
 ((23KW PER AC PHASE)) PAGE 5)



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(-----)
( FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
( 8 EQUAL TIME CONTOURS (MINUTES) ) )
( MINIMUM OPL EAF MUFFS ) OMEGA 1.4 )
(-----)
( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: ) TEST AU-101-001 )
( A/H32A-60 GENERATOR SET ( DIESEL ENGINE AT 2000 RPM ) TEMP = 15 C ) RUN 01 )
( FAR FIELD NOISE LEVELS ( A/M 24T-8A LOAD BANK ) BAR PRESS = .760 M HG ) 26 OCT 81 )
( ( 190 AMP, 240VAC, 400HZ ) REL HUMID = 70 % ) )
( ( 23KW PER AC PHASE ) ) PAGE 5 )
(-----)

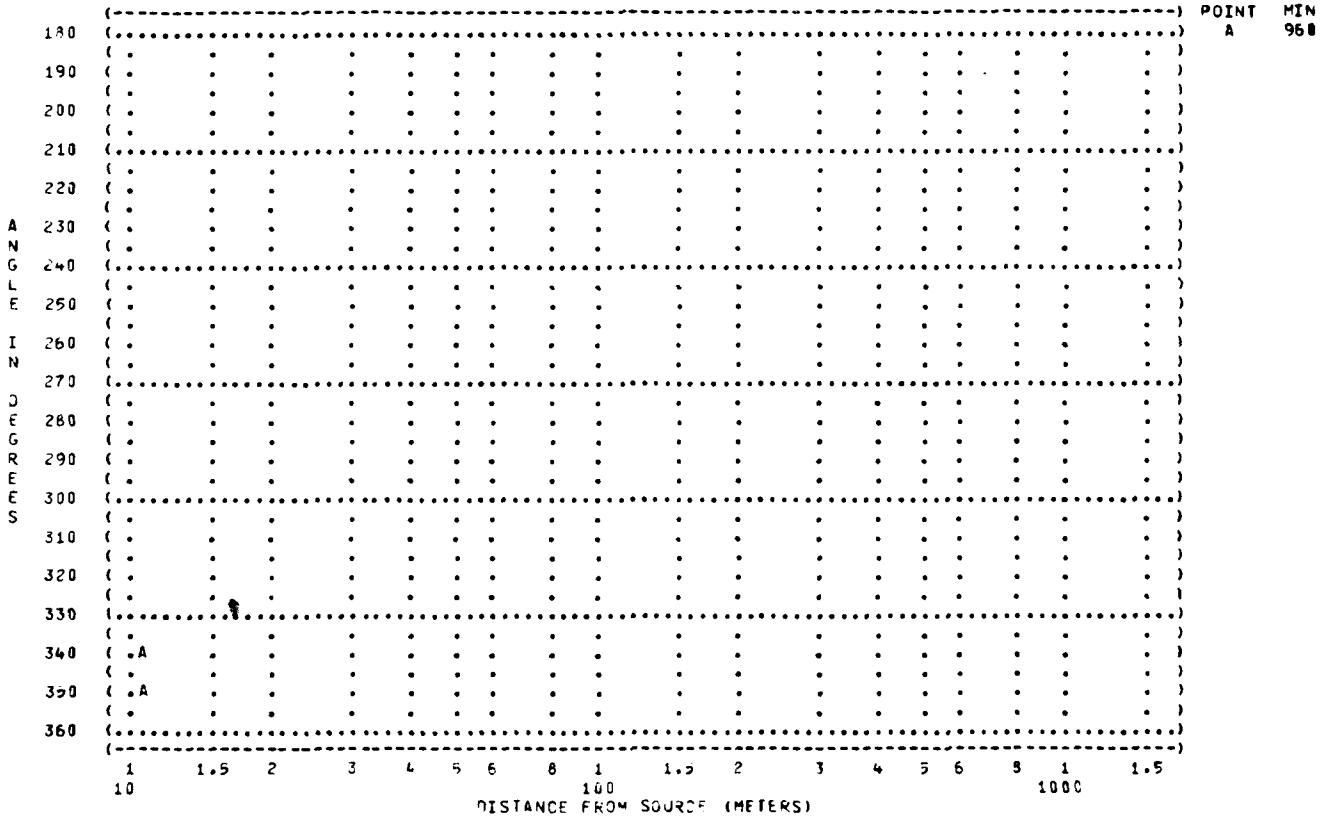
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( FIGURE 8 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
( EQUAL TIME CONTOURS (MINUTES) ) ) OMEGA 1.4 )
( MINIMUM QPL EAR MUFFS ) ) TEST AU-101-001 )
-----
( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: ) RUN 02 )
( A/M32A-86 GENERATOR SET ( DIESEL ENGINE AT 2000 RPM ) TEMP = 15 C ) )
( FAR FIELD NOISE LEVELS ( A/M 24T-9A LOAD BANK ) BAR PRESS = .760 M HG ) 26 OCT 81 )
( ( 190 AMP, 240VAC, 400HZ ) REL HUMID = 70 % ) )
( ( 23KW PER AC PHASE ) ) ) PAGE 6 )
-----

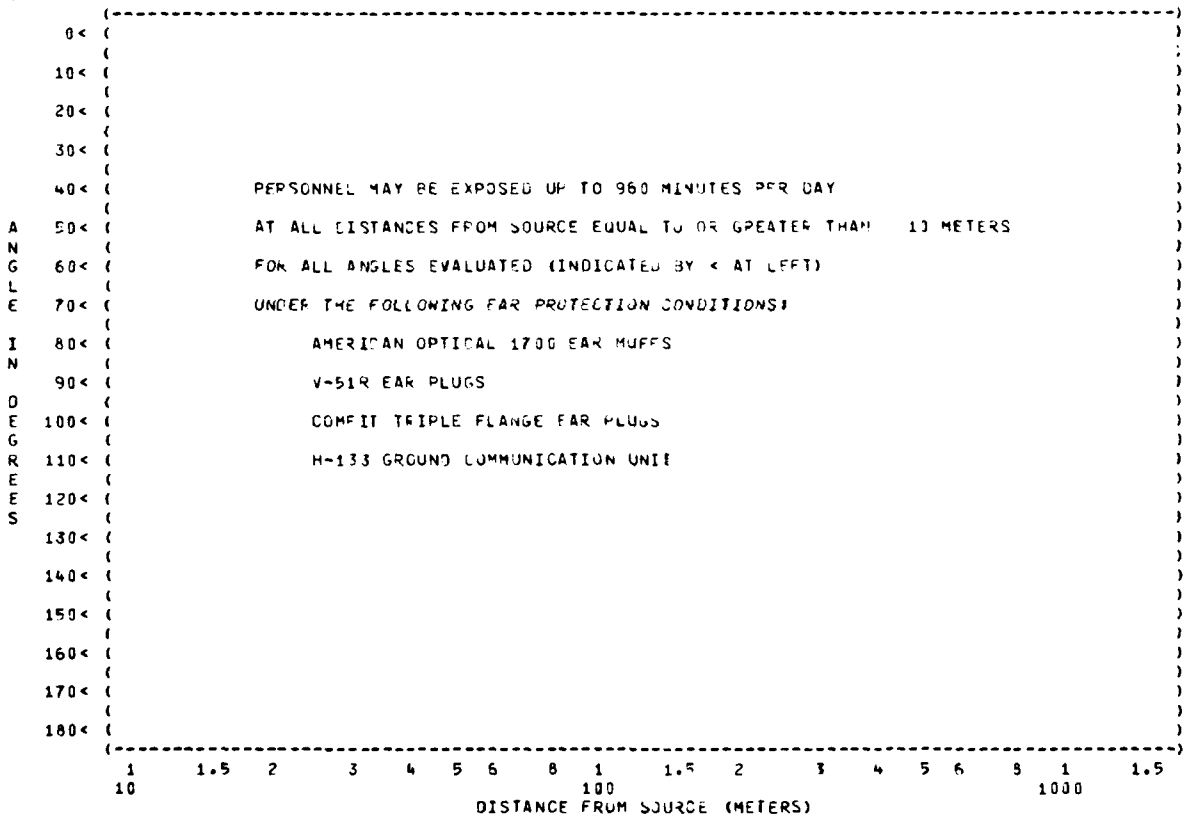
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(-----)
( FIGURE 8 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
( EQUAL TIME CONTOURS (MINUTES) ) )
(-----)
( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEORLOGY: ) )
( A/M32A-66 GENERATOR SET ( DIESEL ENGINE AT 2000 RPM ) TEMP = 15 C ) )
( FAR FIELD NOISE LEVELS ( A/M 24T-0A LOAD BANK ) BAR PRESS = .760 M HG ) 26 OCT 81 )
( ( 190 AMP, 240VAC, 600HZ ) REL HUMID = 70 % ) )
( ( 23KW PER AC PHASE ) ) )
(-----)

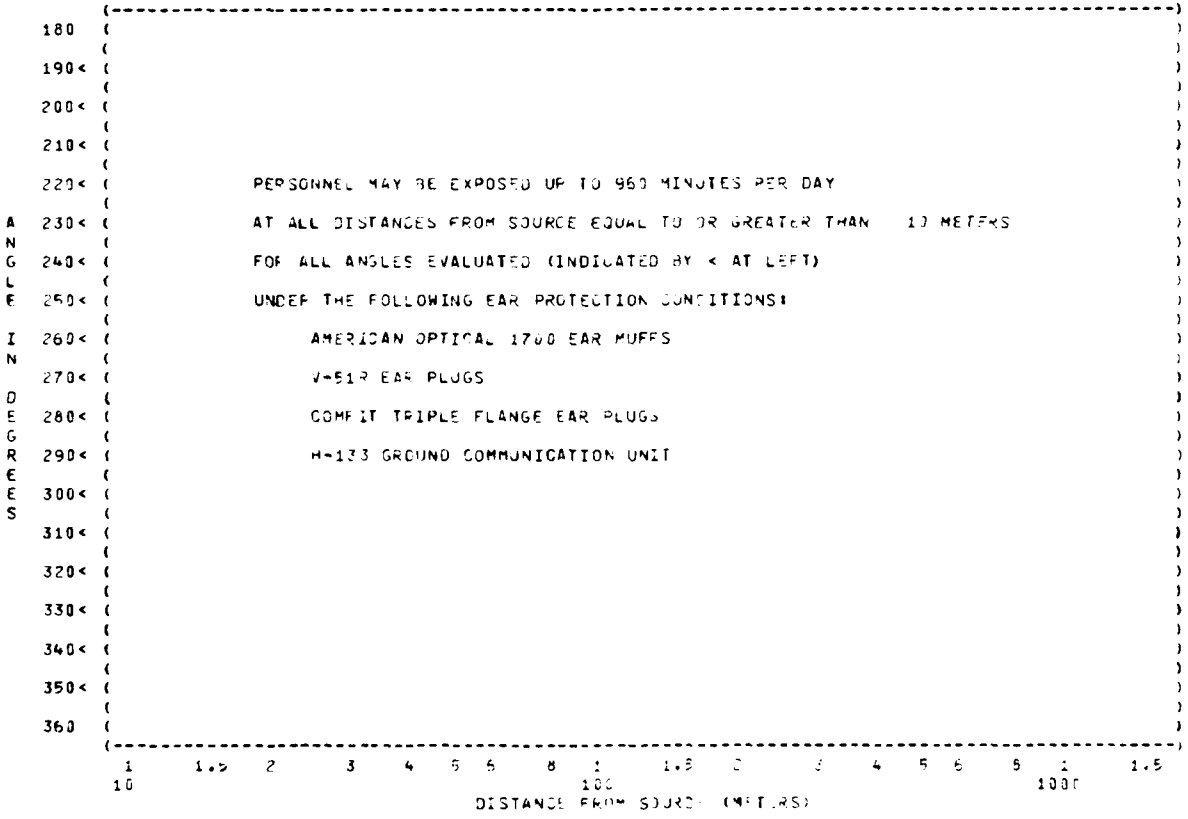
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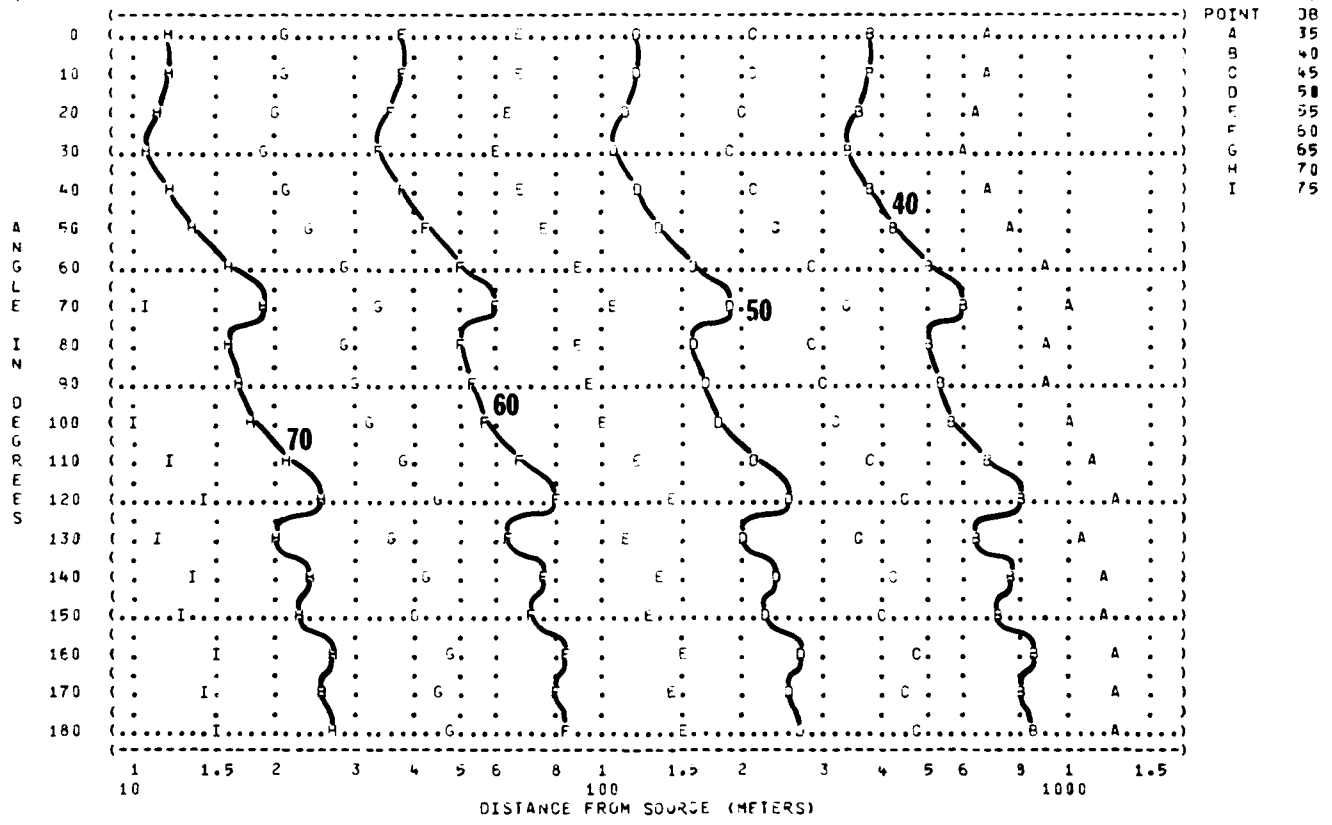

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(-----)
( FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (APR 161-35, JULY 73) ) IDENTIFICATION: )
( 8 EQUAL TIME CONTOURS (MINUTES) ) )
(-----)
( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: ) TEST AU-101-0J1 )
( A/M32A-86 GENERATOR SET ( DIESEL ENGINE AT 2000 RPM ) TEMP = 15 C ) )
( FAR FIELD NOISE LEVELS ( A/M 24T-8A LOAD BANK ) BAR PRESS = .760 M HG ) 26 OCT 81 )
( ( 190 AMP, 240VAC, 400HZ ) REL HUMID = 70 % ) )
( ( 23KW PER AC PHASE ) ) PAGE 7 )
(-----)

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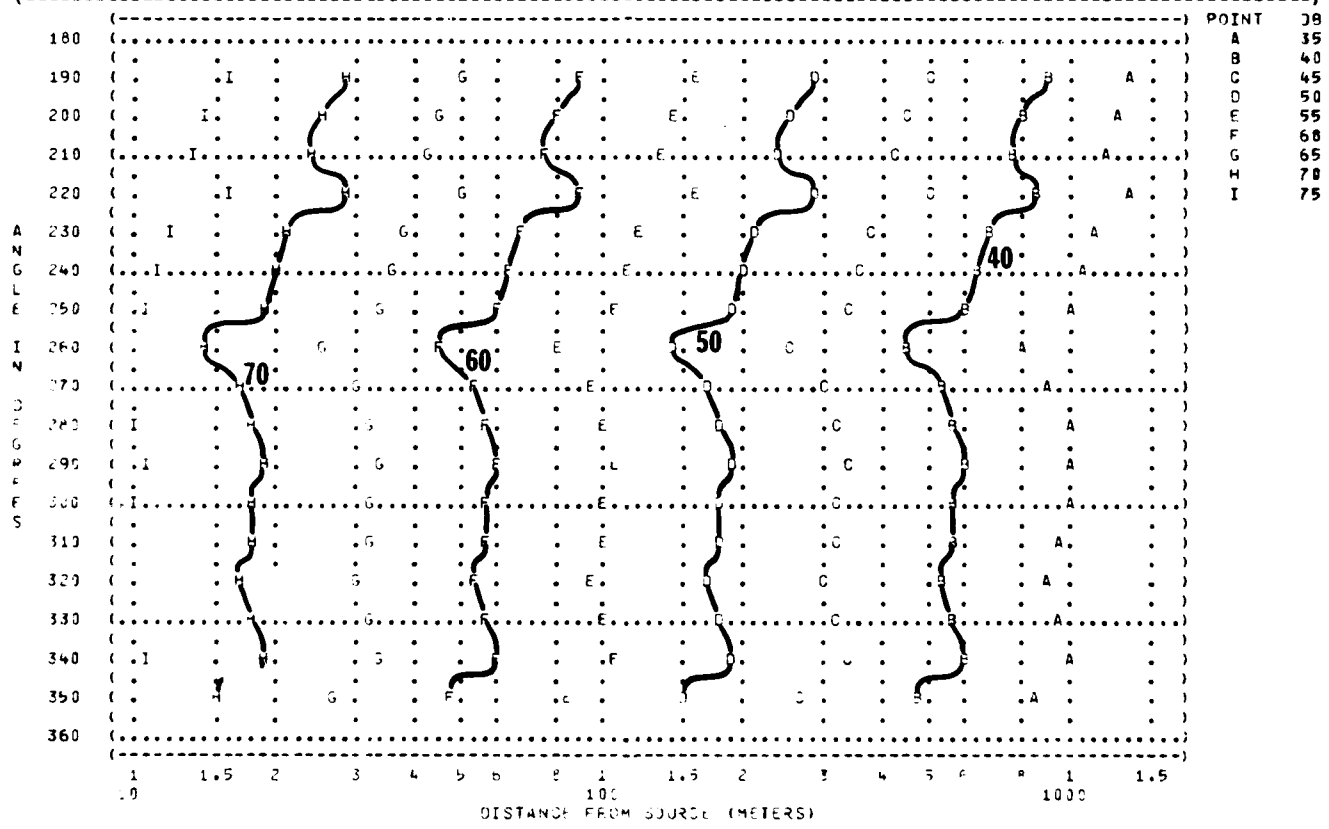
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (dB)))
 (31.5 HZ OCTAVE BAND) OMEGA 1.4)
 () TEST AU-101-001)
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) RUN 01)
 (A/M32A-66 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C))
 (FAR FIELD NOISE LEVELS (A/M 241-8A LOAD BANK) BAR PRESS = .760 Hg) 26 OCT 91)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %))
 ((23KW PER AC PHASE)) PAGE 16)



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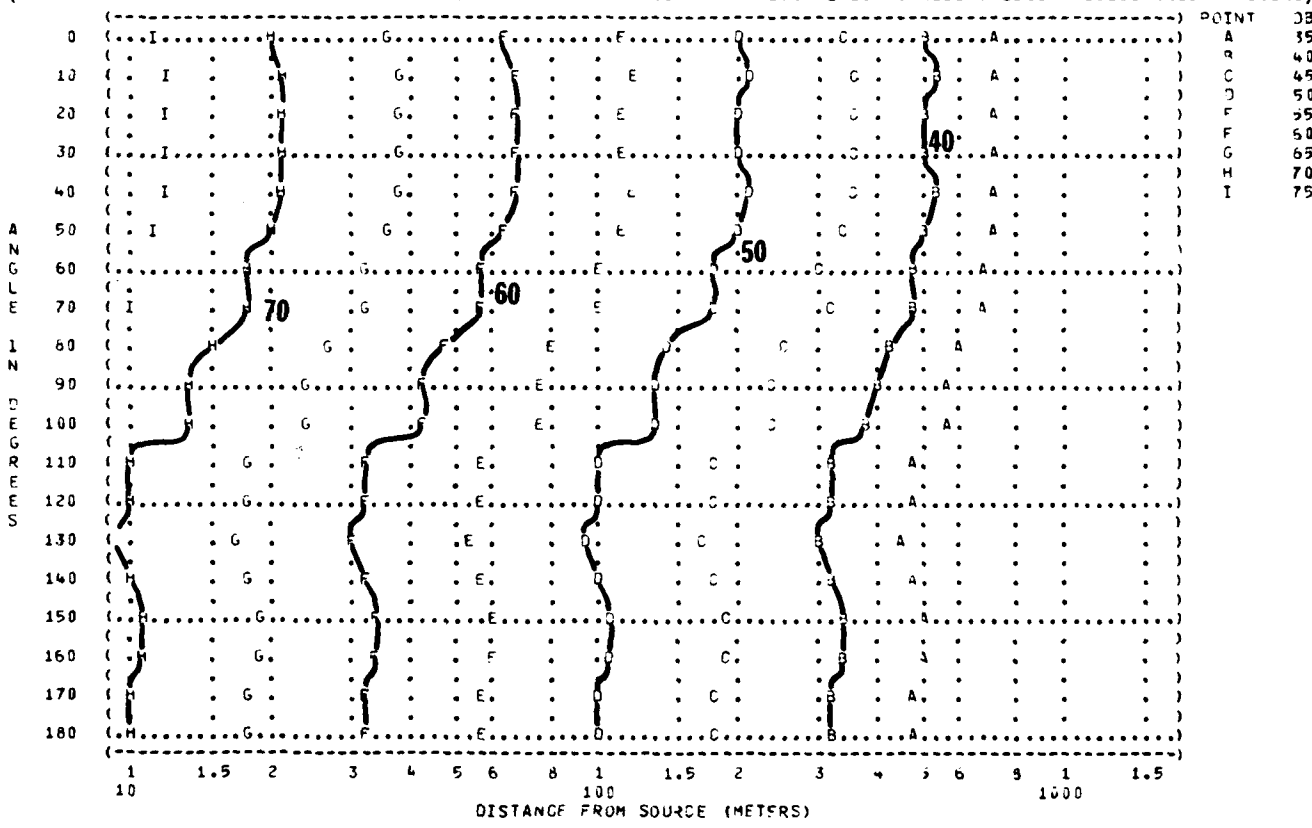
(-----)
( FIGURE: SOUND PRESSURE LEVEL (SPL) ) IDENTIFICATION# )
( 9 EQUAL LEVEL CONTOURS (DB) ) )
( 31.5 HZ OCTAVE BAND ) )
(-----)
( NOISE SOURCE/SUBJECT# ( OPERATIONS# ) METEOROLOGY# )
( A7432A-86 GENERATOR SET ( DIESEL ENGINE AT 2000 RPM ) TEMP = 15 C )
( FAR FIELD NOISE LEVELS ( A/M 24T-8A LOAD BANK ) BAR PRESS = .760 M H3 )
( ( 190 AMP, 240VAC, 400HZ ) KEL HUMID = 70 % )
( ( 23KW PER AC PHASE ) )
(-----)
( PAGE 16 )

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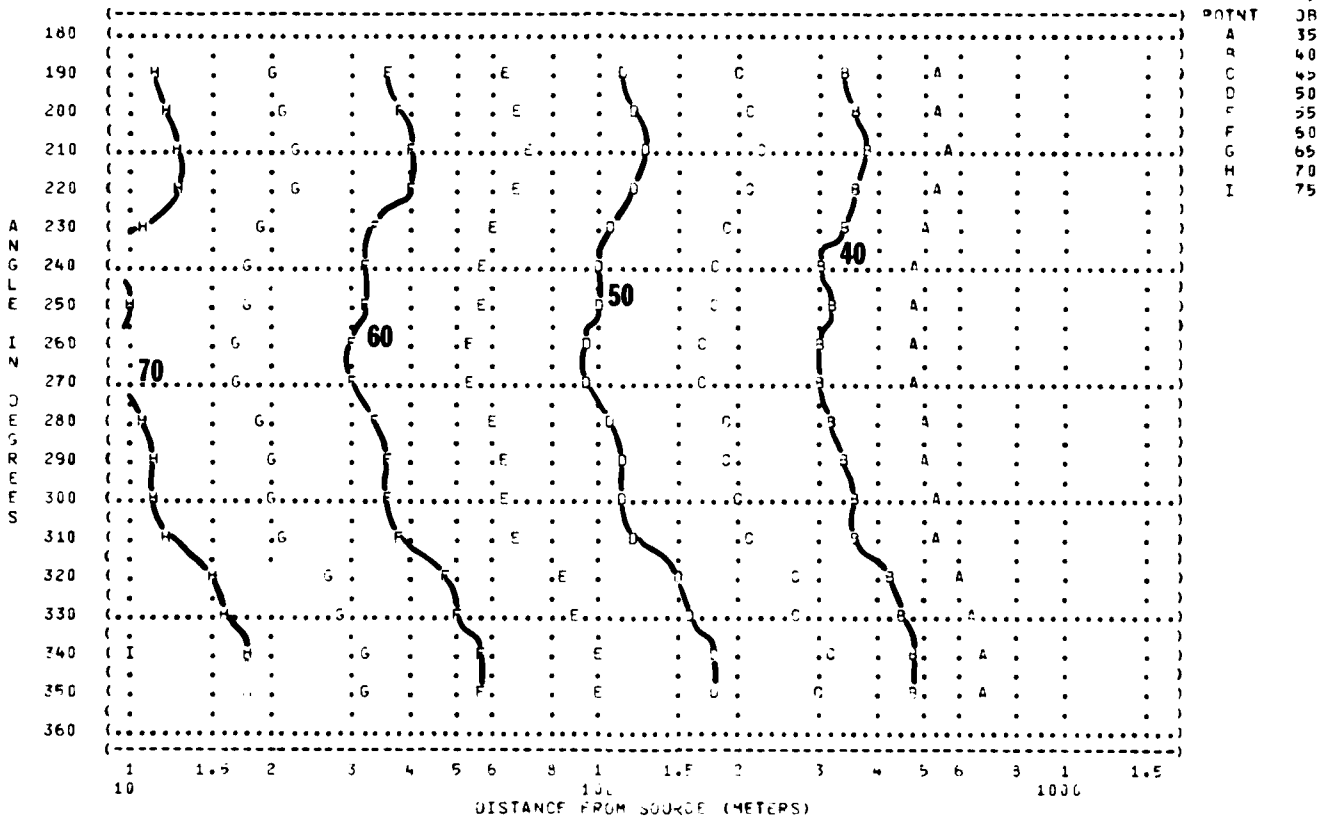
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (DB)))
 (63 HZ OCTAVE BAND))
 (NOISE SOURCE/SUBJECT: (GENERATION:) METEOROLOGY:)
 (A/M32A-80 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS (A/M 24T-3A LOAD BANK) BAR PRESS = .760 M HG)
 (190 AMP, 240VAC, 400HZ) REL HUMID = 70 %)
 (23KW PER AC PHASE)) PAGE 17)



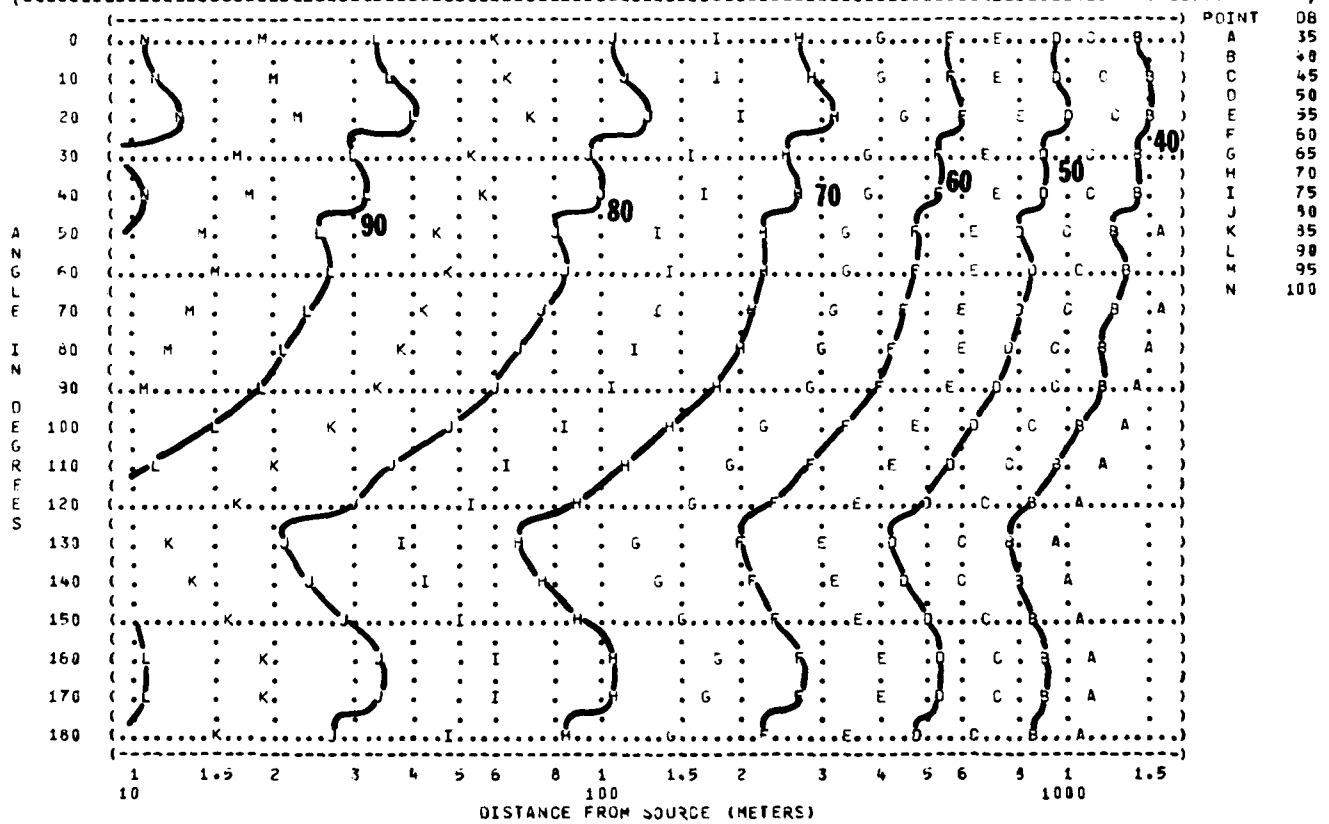
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(-----)
( FIGURE: SOUND PRESSURE LEVEL (SPL) ) IDENTIFICATION: )
( 9 EQUAL LEVEL CONTOURS (DB) ) )
( 63 HZ OCTAVE BAND ) )
(-----)
( NOISE SOURCE/SUBJECT: ( OPERATION: ( METEOROLOGY: ) )
( A/M32A-86 GENERATOR SET ( DIESEL ENGINE AT 2000 RPM ) TEMP = 15 C )
( FAR FIELD NOISE LEVELS ( A/M 24T-8A LOAD BANK ) BAR PRESS = .760 M HG )
( ( 190 AMP, 240VAC, 400HZ ) REL HUMID = 70 % )
( ( 23KW PER AC PHASE ) )
(-----)

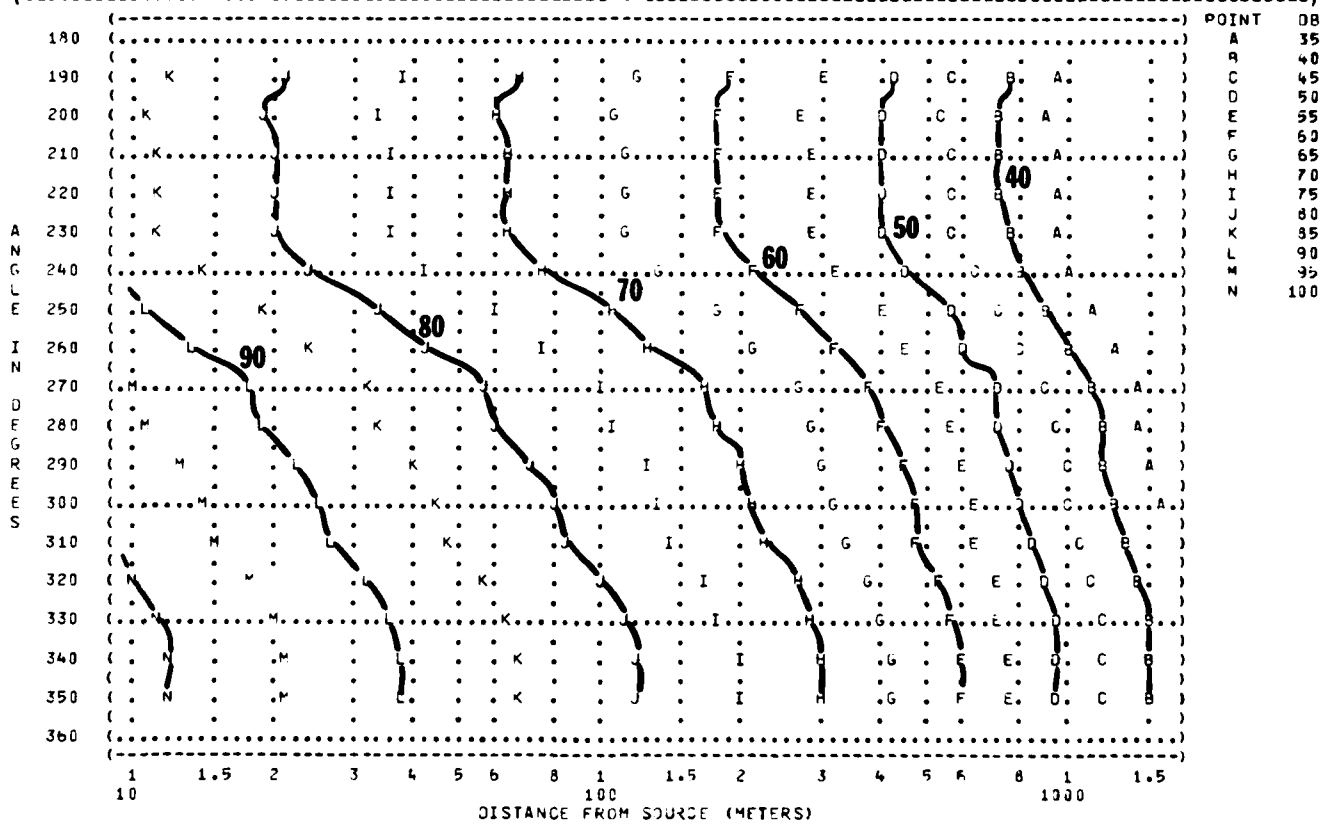
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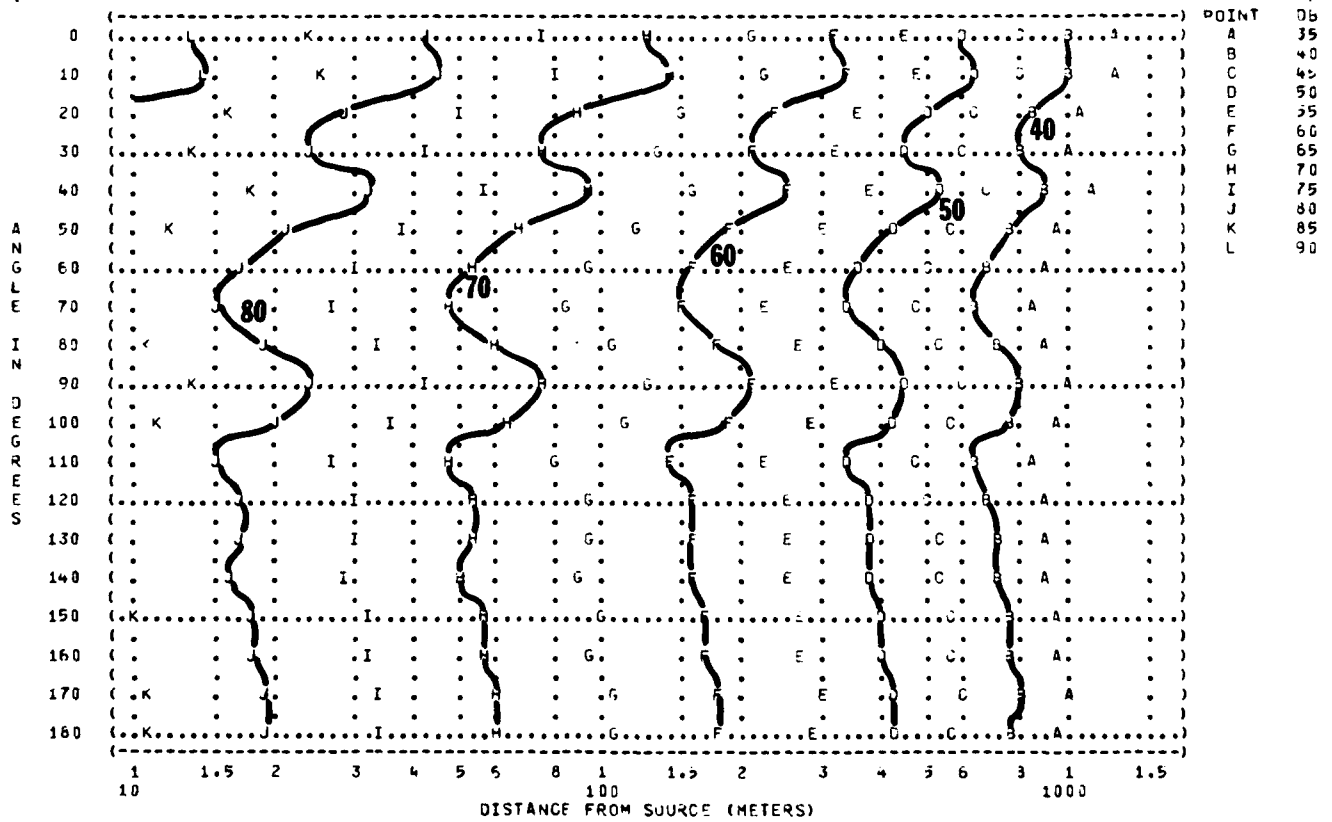
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (dB)))
 (125 HZ OCTAVE BAND) OMEGA 1.4)
 () TEST AU-101-001)
 (NOISE SOURCE/SUBJECT: (OPERATIONS: (METEOROLOGY: (RUN 01))
 (A/M32A-88 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C))
 (FAR FIELD NOISE LEVELS (A/M 24T-8A LOAD BANK) BAR PRESS = .760 M HG) 26 OCT 61)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %))
 ((23KW PER AC PHASE)) PAGE 18)



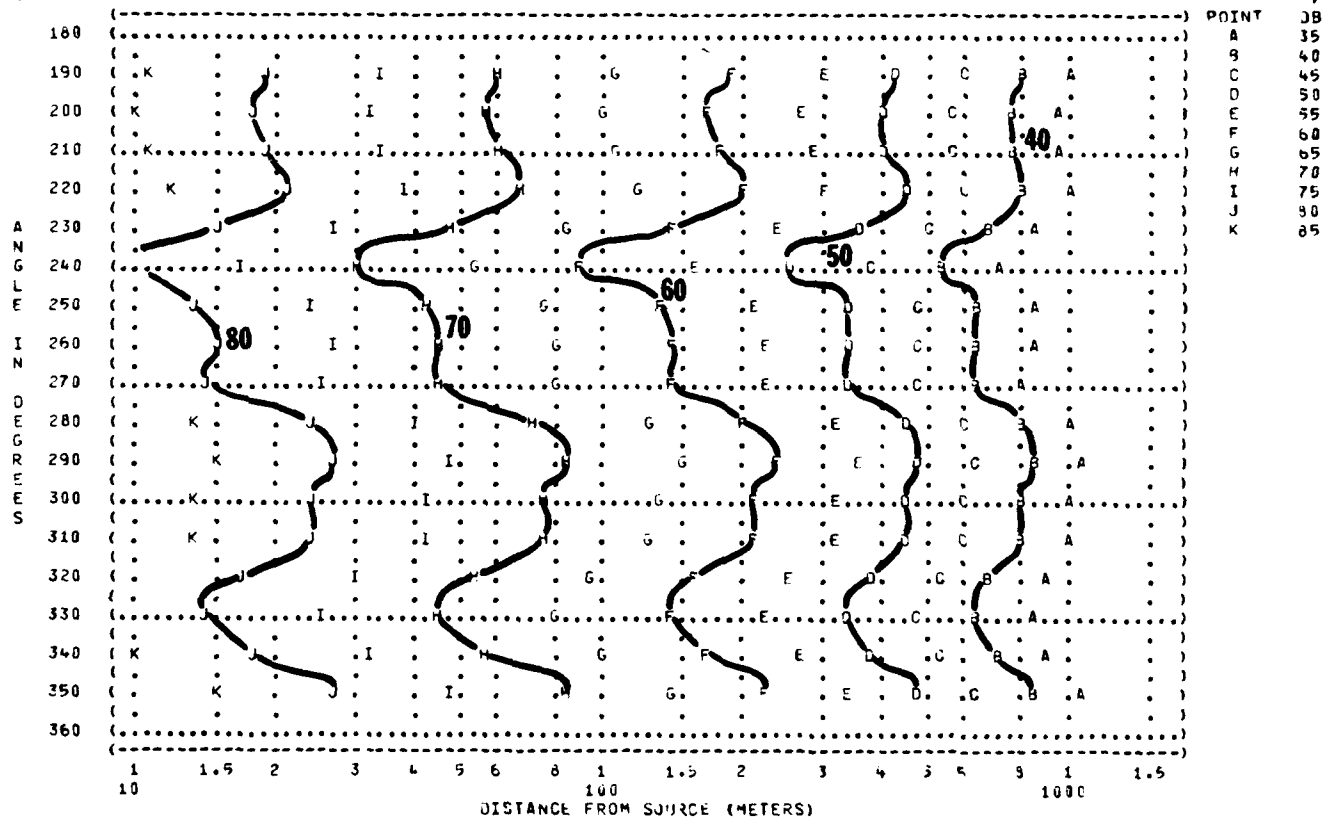
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS ((3)))
 (125 HZ OCTAVE BAND))
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (A/M32A-86 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS (A/M 24T-3A LOAD BANK) BAR PRESS = .760 M HG)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %)
 ((23KW PER AC PHASE)))
 () TEST AU-101-001)
 () RUN 02)
 () 26 OCT 81)
 () PAGE 18)



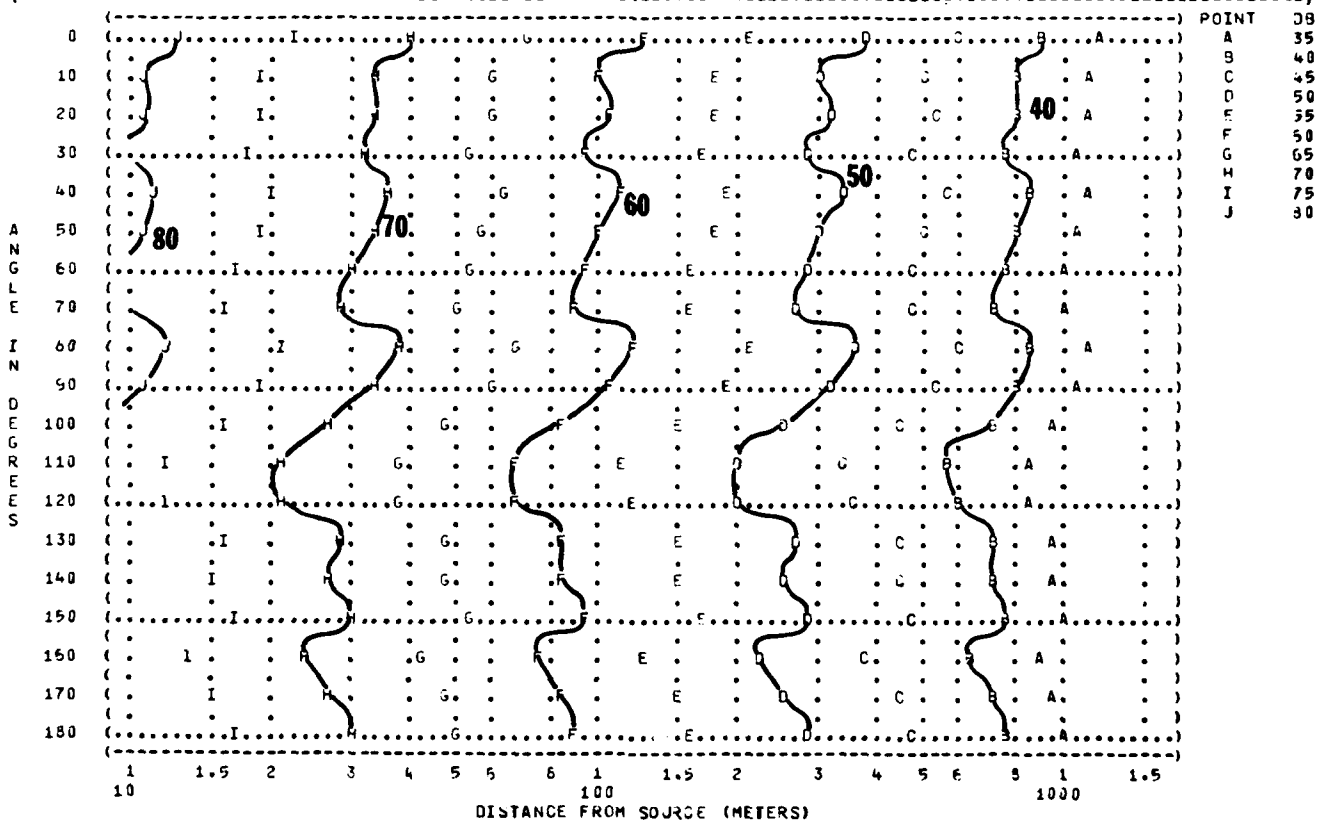
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (dB)))
 (250 HZ OCTAVE BAND)) OMEGA 1.4)
 () TEST AU-101-001)
 (NOISE SOURCE/SUBJECT: (OPERATIONS:) METEOROLOGY:) RUN 01)
 (A/M32A-86 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C))
 (FAR FIELD NOISE LEVELS (A/M 24T-8A LOAD BANK) BAR PRESS = .760 M HG) 26 OCT 81)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %))
 ((23KW PER AC PHASE)) PAGE 19)



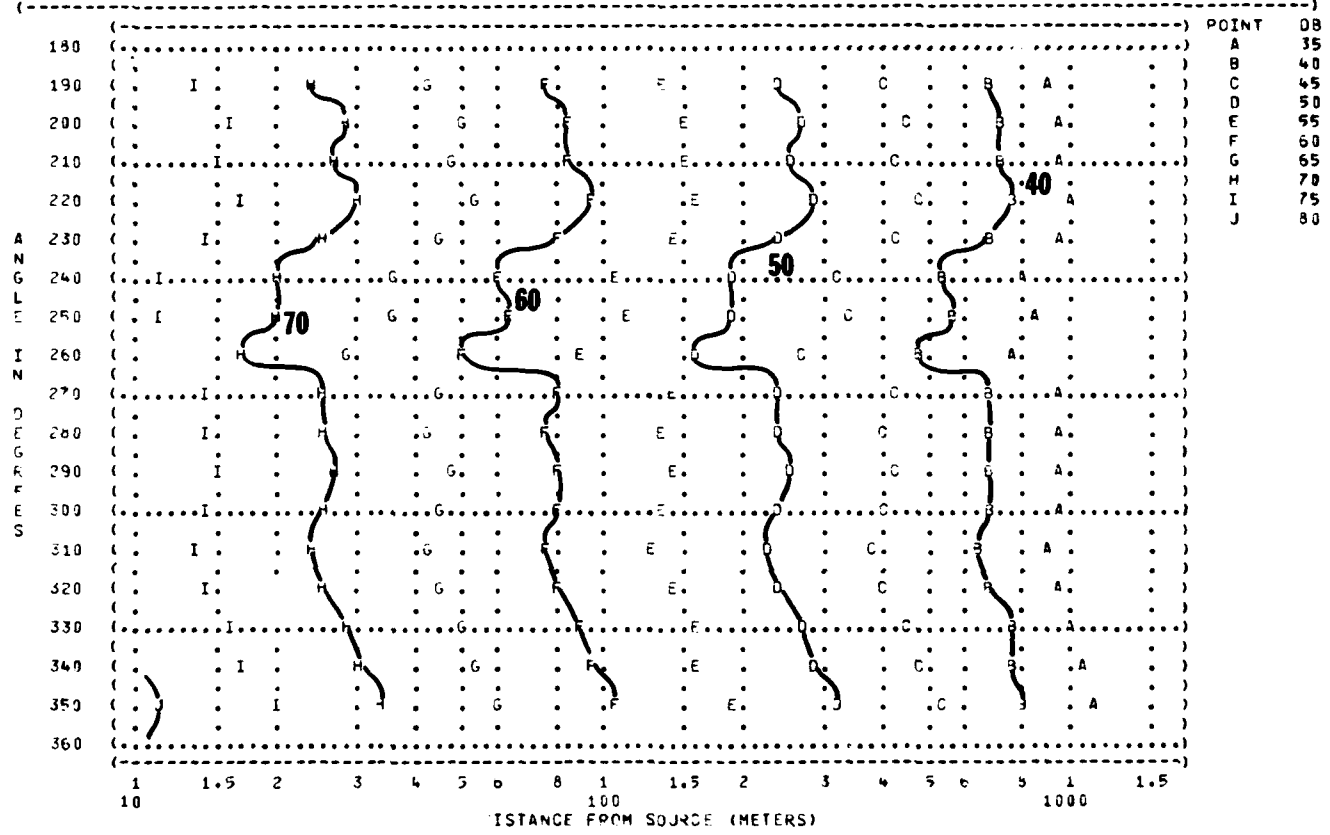
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (DB)))
 (250 HZ OCTAVE BAND))
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (A/M32A-86 GENERATOR SFT (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C) TEST AU-101-001)
 (FAR FIELD NOISE LEVELS (A/M 24T-8A LOAD BANK) BAR PRESS = .760 M.H.G.) RUN 02)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %) 26 OCT 91)
 ((23KW PER AC PHASE))) PAGE 19)



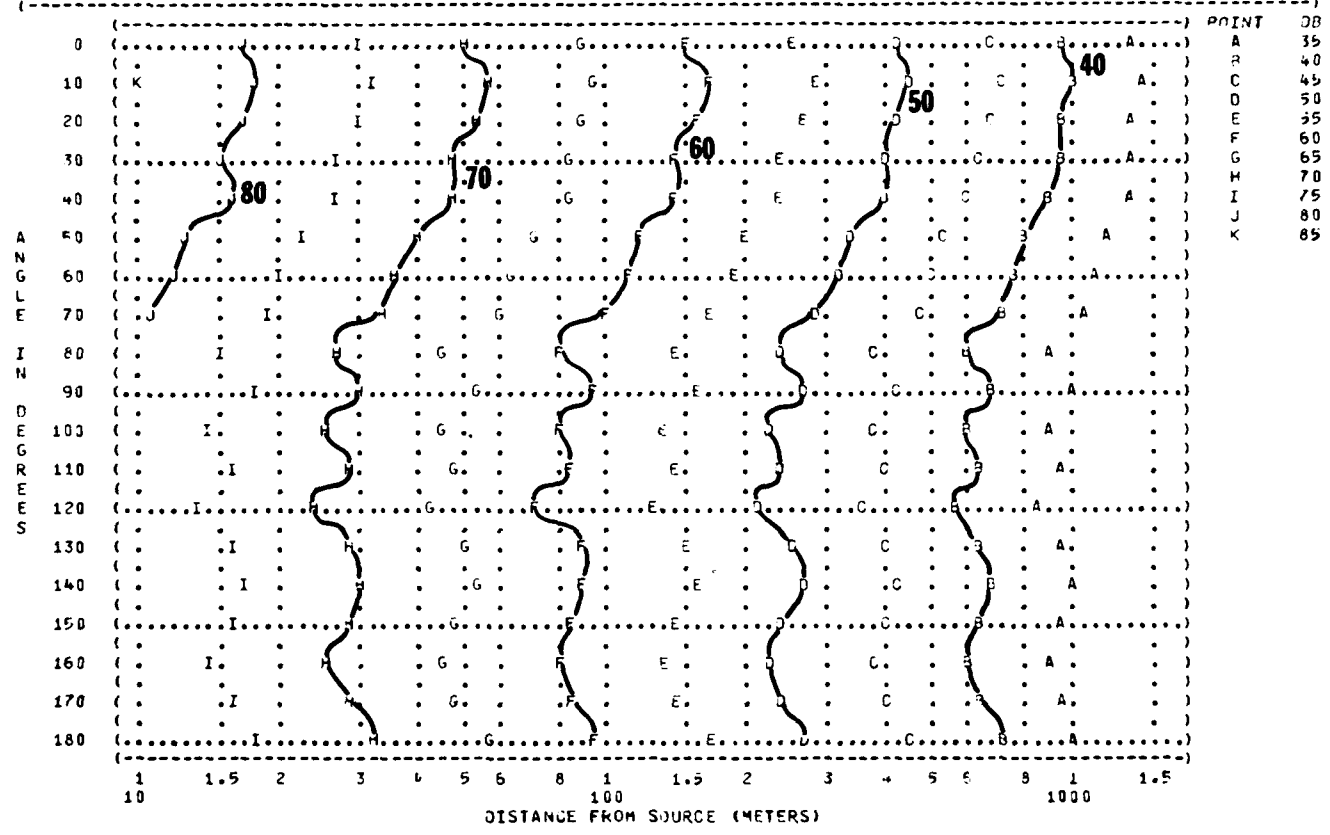
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (L3)))
 (500 HZ OCTAVE BAND))
 (NOISE SOURCE/SUBJECT: (OPERATIONS:) METEOROLOGY:)
 (A/M32A-66 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS (A/M 24T-3A LOAD BANK) BAR PRESS = .760 M.HG)
 ((130 AMP, 240VAC, 400HZ) REL HUMID = 70 %)
 ((23KW PER AC PHASE)))
 () TEST AU-101-C01)
 () RUN 01)
 () 26 OCT 81)
 () PAGE 20)



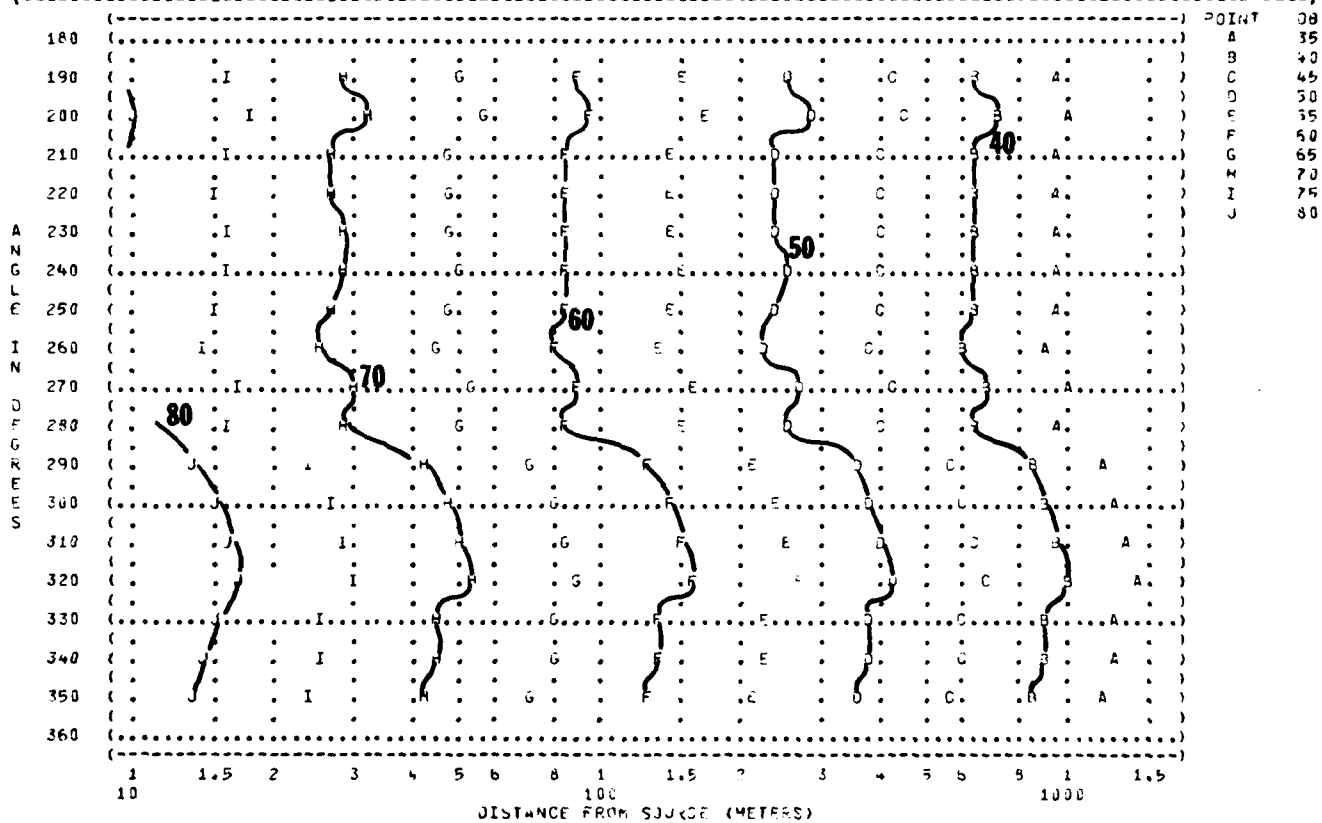
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (dB)))
 (500 HZ OCTAVE BAND))
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (A/M32A-86 GENERATOR SLT (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS (A/M 24T-8A LOAD BANK) BAR PRESS = .760 M HG)
 (190 AMP, 240VAC, 400HZ) REL HUMID = 70 %)
 (23KW PER AC PHASE))
 () TEST AU-101-001)
 () RUN 02)
 () 26 OCT 81)
 () PAGE 20)



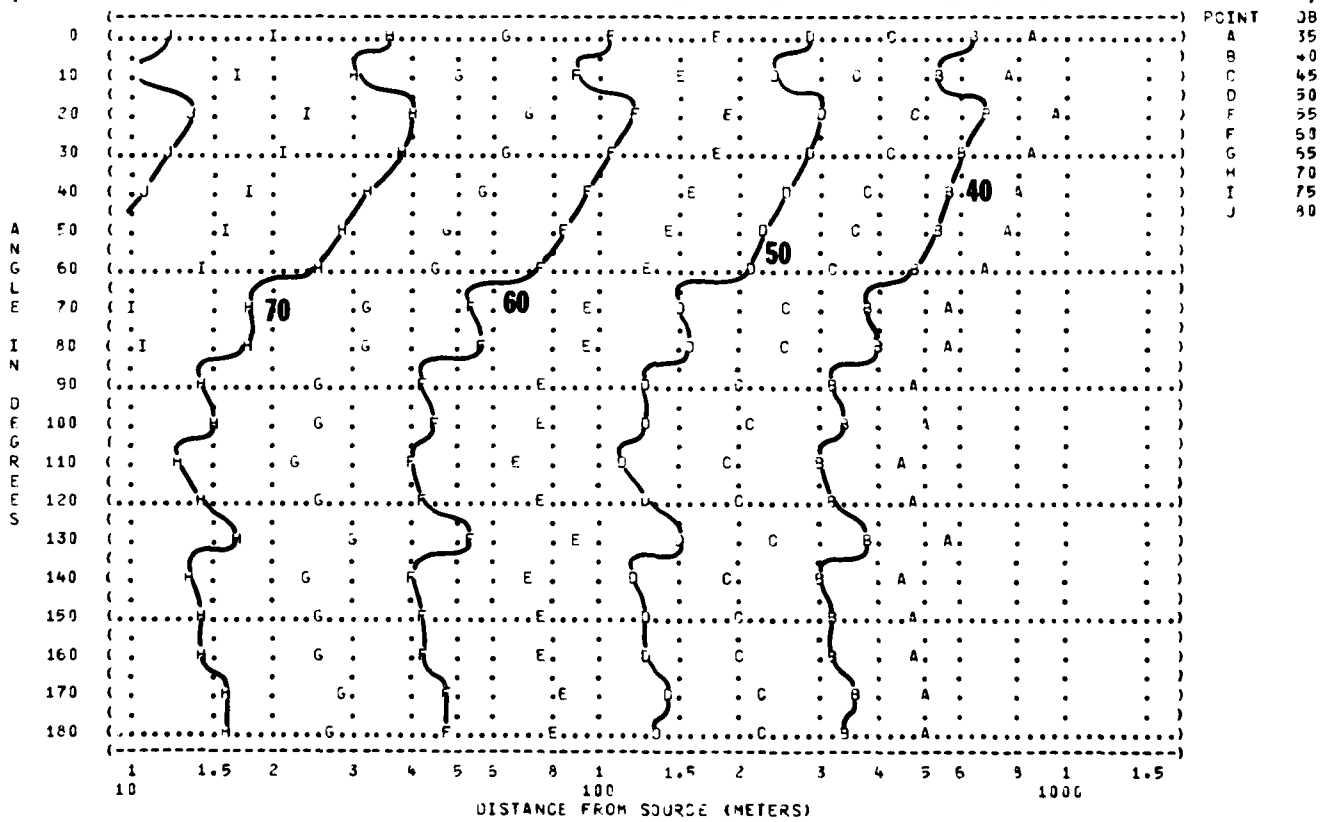
(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (dB)))
 (1000 HZ OCTAVE BAND))
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (A/M32A-80 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS (A/M 24T-8A LOAD BANK) BAR PRESS = .760 M HG) 26 OCT 81)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %))
 ((23KW PER AC PHASE)) PAGE 21)



(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (DB)))
 (1000 HZ OCTAVE BAND) OMEGA 1.4)
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) TEST AU-101-001)
 (A/M32A-86 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C) RUN 02)
 (FAR FIELD NOISE LEVELS (A/M 24T-3A LOAD BANK) BAR PRESS = .760 M HG) 26 OCT 81)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %))
 ((23KW PER AC PHASE)) PAGE 21)



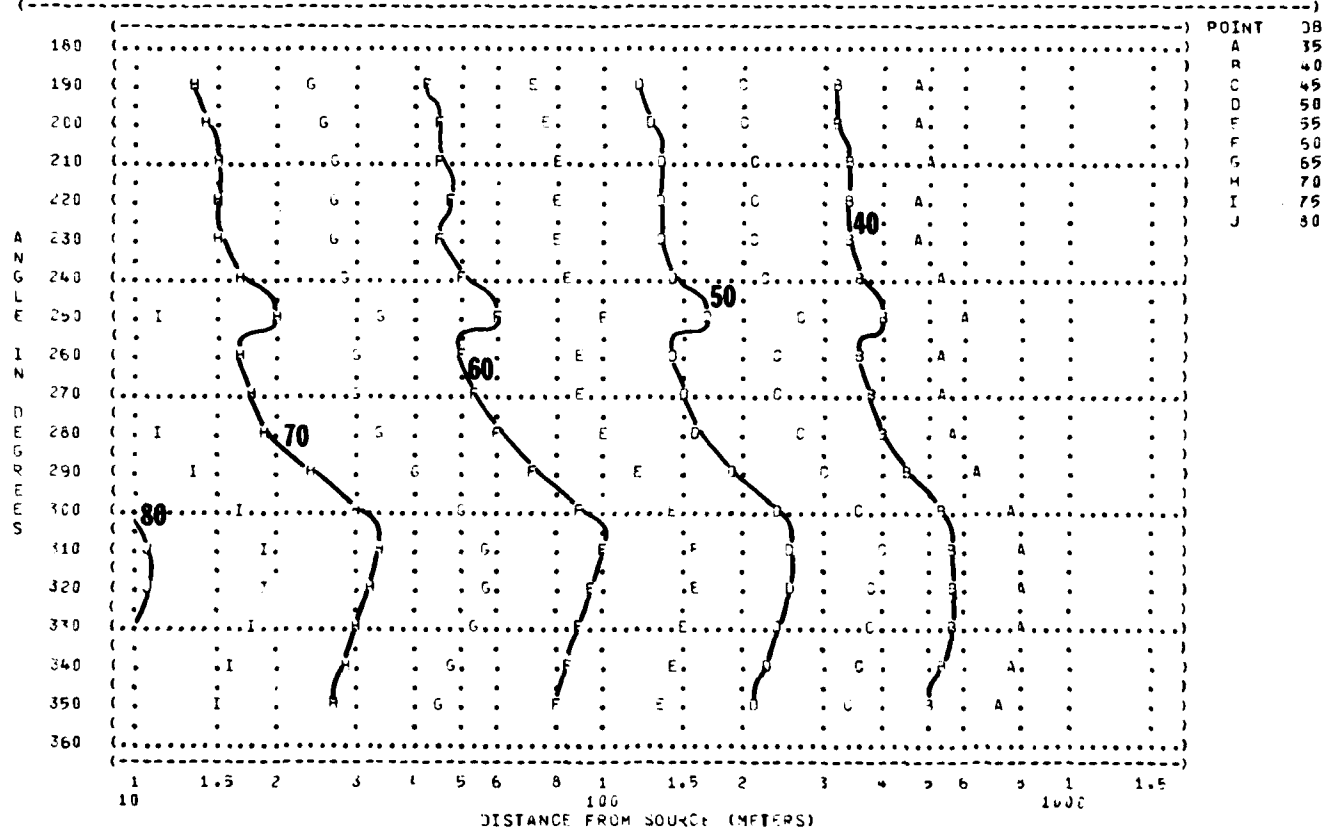
(FIGURE 9 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (dB) 2000 HZ OCTAVE BAND) IDENTIFICATION:)
 () OMEGA 1.4)
 () TEST AU-101-001)
 () FUN 01)
 (NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY: ()
 (A/M32A-66 GENERATOR SET (DIESEL ENGINE AT 2000 RPM (TEMP = 15 C ()
 (FAR FIELD NOISE LEVELS (A/M 24T-8A LOAD BANK (BAR PRESS = .760 M HG ()
 ((190 AMP, 2+OVAC, 400HZ (REL HUMID = 70 % ()
 ((23KW PER AC PHASE ()
 () PAGE 22 ()



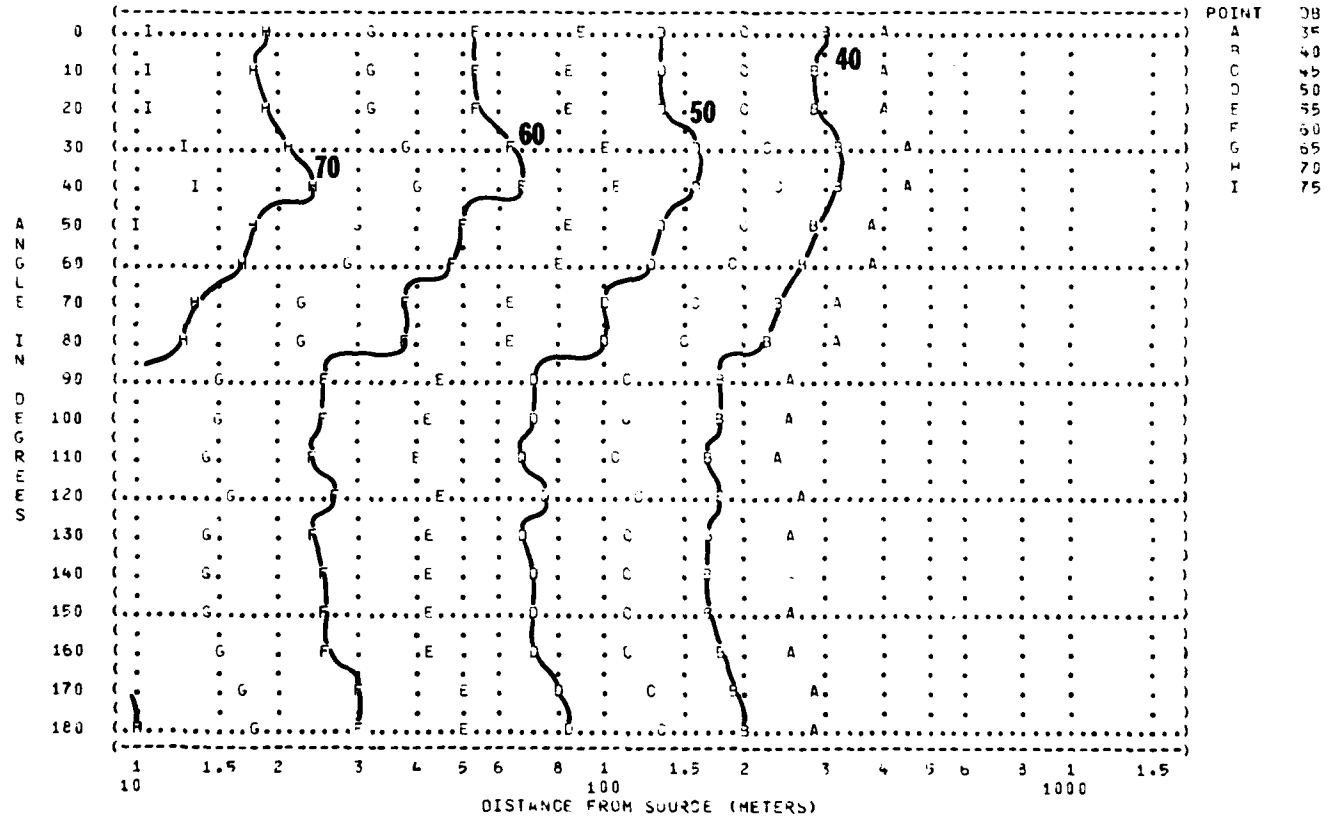
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(-----)
( FIGURE: SOUND PRESSURE LEVEL (SPL) ) IDENTIFICATION: )
( 9 EQUAL LEVEL CONTOURS (DB) ) )
( 2900 HZ OCTAVE BAND ) )
( NOISE SOURCE/SUBJECT: ( OPERATION: ) METEOROLOGY: ) TEST AU-101-001 )
( A/M32A-86 GENERATOR SET ( DIESEL ENGINE AT 2900 RPM ) TEMP = 15 C ) )
( FAR FIELD NOISE LEVELS ( W/M 24T-3A LOAD BANK ) BAR PRESS = .750 M HG ) 26 OCT 81 )
( ( 190 AMP, 240VAC, 400HZ ) REL HUMID = 70 % ) )
( ( 23KW PER AC PHASE ) ) )
(-----)

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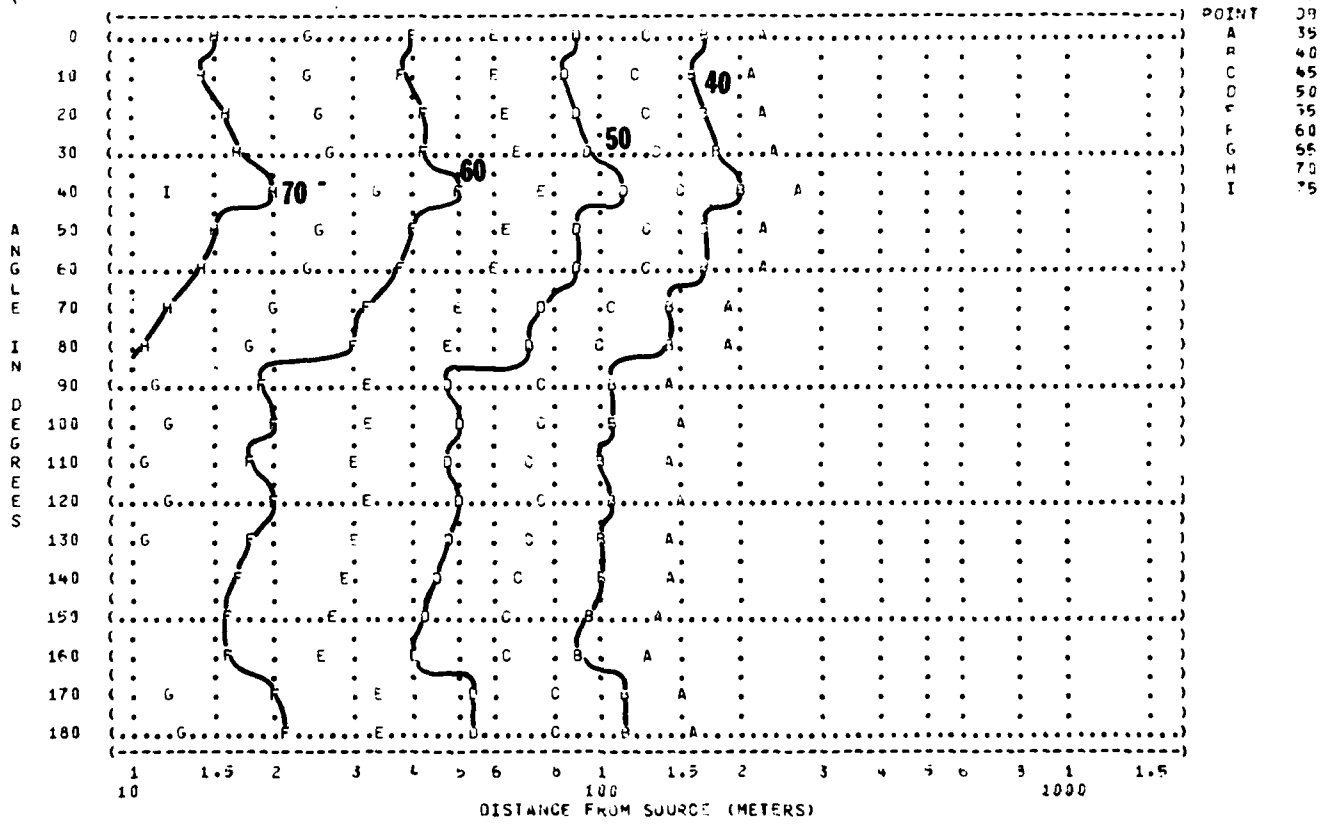


(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (LS)))
 (4000 HZ OCTAVE BAND))
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (A/M32A-86 GENERATOR SET (DIESFL ENGINE AT 2000 RPM) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS (A/M 24T-8A LOAD BANK) BAR PRESS = .760 M HG)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 70 %)
 ((23KW PER AC PHASE)))
 () TEST A1-101-001)
 () RUN 01)
 () 26 OCT 81)
 () PAGE 23)



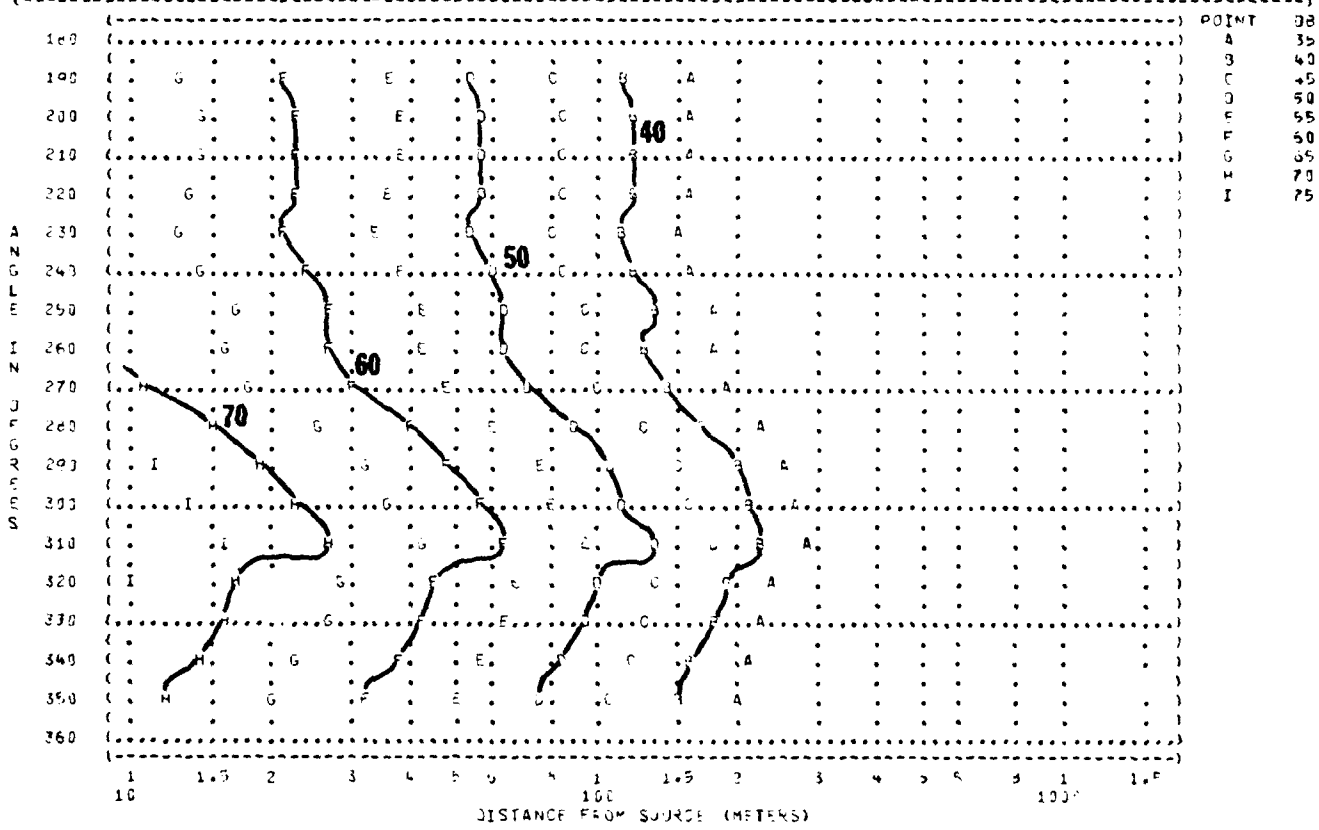
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(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (dB)))
 (8000 HZ OCTAVE BAND))
 (NOISE SOURCE/SUBJECT: (OPERATIONS:) METEOROLOGY:)
 (A/M32A-P6 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS (A/M 24T-9A LOAD BANK) BAR PRESS = 1010 H-45)
 ((190 AMP, 240VAC, 400HZ) REL HUMID = 78 %)
 ((23KW PER AC PHASE)))
 () TEST AU-101-001)
 () RUN 01)
 () 26 OCT 81)
 () PAGE 24)



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(FIGURE: SOUND PRESSURE LEVEL (SPL)) IDENTIFICATION:)
 (9 EQUAL LEVEL CONTOURS (dB)))
 (6000 HZ OCTAVE BAND))
 (NOISE SOURCE/SUBJECT: (OPERATIONS) METEOROLOGY:)
 (M/M32A-66 GENERATOR SET (DIESEL ENGINE AT 2000 RPM) TEMP = 15 C)
 (FAR FIELD NOISE LEVELS (A/N 24T-9A LOAD BANK) BAR PRESS = .763 M HG) 26 OCT 81)
 (190 AMP, 240VAC, 400HZ) REL HUMID = 73 %)
 (23KW PER AC PHASE)) PAGE 24)



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