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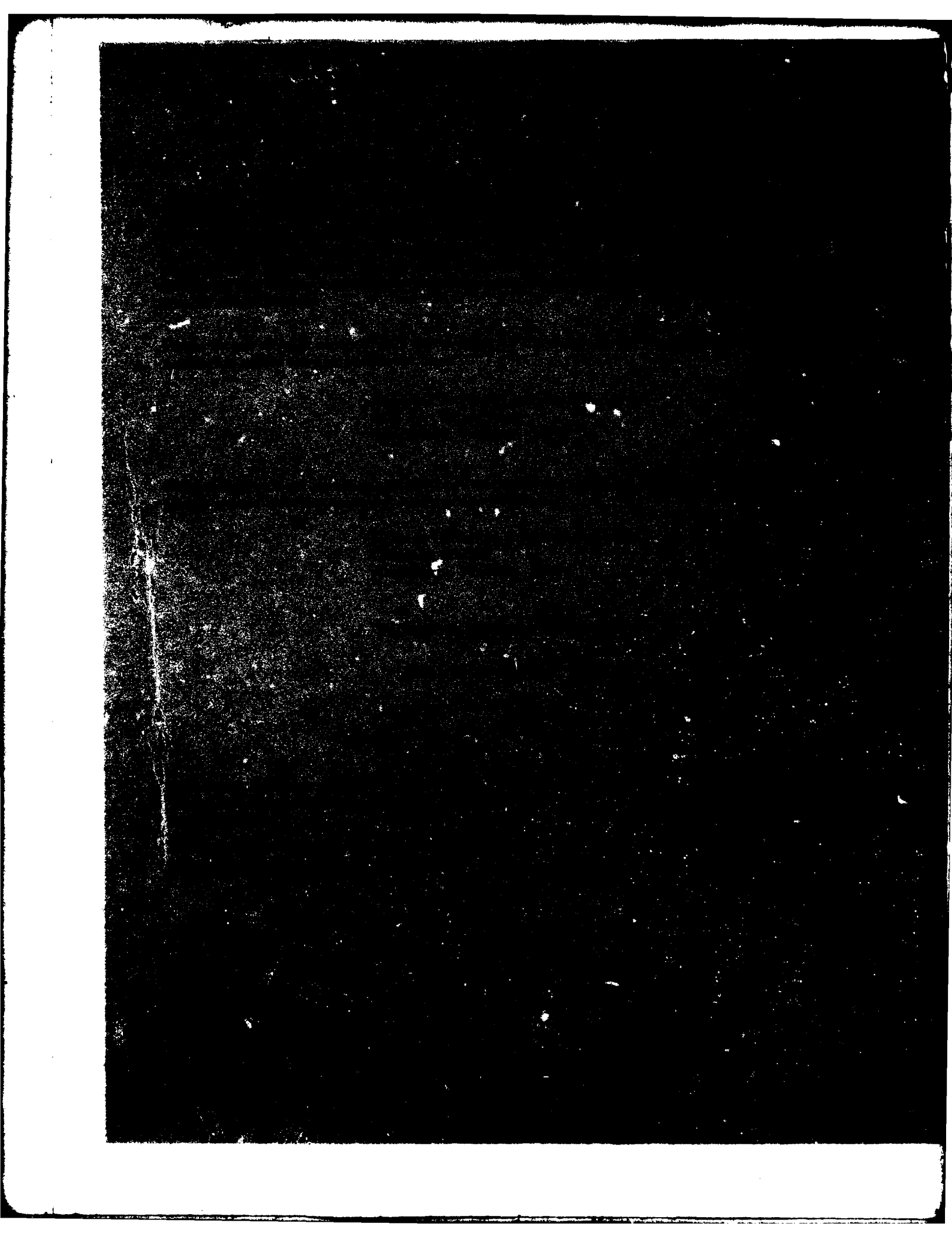
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without standard Air Force ear protectors. Far-field data measured at 19 locations are normalized to standard meteorological conditions and extrapolated from 75 - 8000 meters to derive sets of equal-value contours for these same seven acoustic measures 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," 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.

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 N. Cole and Mr. Robert Powell for assistance in preparing this report, SSgt Jorge Noverola, Mr. Robert Lee and Ms Anne Murney 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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Table of Contents

	<i>Page</i>
INTRODUCTION .. .	3
NEAR-FIELD NOISE .. .	4
FAR-FIELD NOISE .. .	7

List of Tables

NEAR-FIELD NOISE	
1. Measurement Locations and Test Conditions .. .	5
2. Measured Sound Pressure Level .. .	
1/3 Octave Band .. .	10-11
Octave Band .. .	12-13
3. Measures of Human Noise Exposure .. .	14-15
FAR-FIELD NOISE	
4. Test Conditions .. .	16
5. Measured Sound Pressure Level .. .	17-21
6. Directivity Index .. .	32-36

List of Figures

NEAR-FIELD NOISE	
1. Measurement Locations .. .	6
FAR-FIELD NOISE	
2. Measurement Locations .. .	8
3. Normalized Far-Field Noise Levels .. .	22-26
4. Acoustic Power Level .. .	27-31
5. Overall Sound Pressure Level — Contours .. .	37-41
6. C-Weighted Sound Level — Contours .. .	42-46
7. A-Weighted Sound Level — Contours .. .	47-51
8. Perceived Noise Level — Contours .. .	52-56
9. Speech Interference Level — Contours .. .	57-61
10. Permissible Exposure Time — Contours .. .	62-84
11. Octave Band Sound Pressure Level — Contours .. .	85-129

INTRODUCTION

The USAF F-106A is a single-seat, all-weather fighter/interceptor aircraft powered by a J75-P-17 turbojet engine. The aircraft was manufactured by General Dynamics, Convair Division and the engine by United Aircraft, Pratt and Whitney Division.

This volume provides measured and extrapolated data defining bioacoustic environments produced by this aircraft during ground runup operations. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with ground runups of the F-106A aircraft.

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, 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.

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.

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

MEASUREMENT

AFAMRL acquired near-field noise data on the F-106A aircraft during ground runup operations of its turbojet engine. For these tests, the aircraft was located on a concrete apron at Kelly AFB TX. Table 1 gives the surface meteorological conditions and the engine power conditions. The ground-crew chief selected power conditions and near-field locations generally used during routine maintenance or engine runup for preflight checks.

At each near-field location a test engineer randomly moved a hand-held microphone in and around each location, probing all areas where a crew member's head would normally be located. He recorded all of the noise sample on magnetic tape. During analysis of each sample, he determined the root-mean-square sound pressure using a 4- or 8-second integration time to derive a power-averaged level for each location.

Figure 1 shows the five numbered near-field locations where ground crews are usually located for maintenance and/or preflight checkout operations. Estimates of noise levels at other locations in the near-field are difficult since the noise source is spatially distributed, i.e., not a point source. The noise levels at near-field locations can vary widely depending upon relative distances from each noise source (intake noise, exhaust noise, panel resonances, internal engine noise through the engine wall, etc.).

Table 1 lists the numeric/alphabetic designators used on the data pages in this report to identify the measurement locations and test conditions. For example, the designator 1/A means ground crew location 1 and test condition A.

RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the F-106A aircraft at the five ground crew 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.

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 sound propagation distances involved.

TABLE 1
MEASUREMENT LOCATIONS AND TEST CONDITIONS
FOR NEAR-FIELD NOISE MEASUREMENTS

F-106A Aircraft, Ground Runups, Kelly AFB TX
 9 June 1981
 Tail # 90061

Ground Crew Location

1	Marshall
2	Telephone Talker
3	Wheel Chocks
4	Trim Adjustment
5	Hydraulic Check

Aircraft Engine Operation

A	Idle (59% RPM)
B	95% RPM
C	Military Power (102% RPM)
D	Afterburner Power (102% RPM)

Meteorology

Temperature	33	C
Bar Pressure	.760	m Hg
Rel Humidity	55	%
Wind - Speed	3.1	m/sec (6 Kts)
Wind - Direction	190	Deg

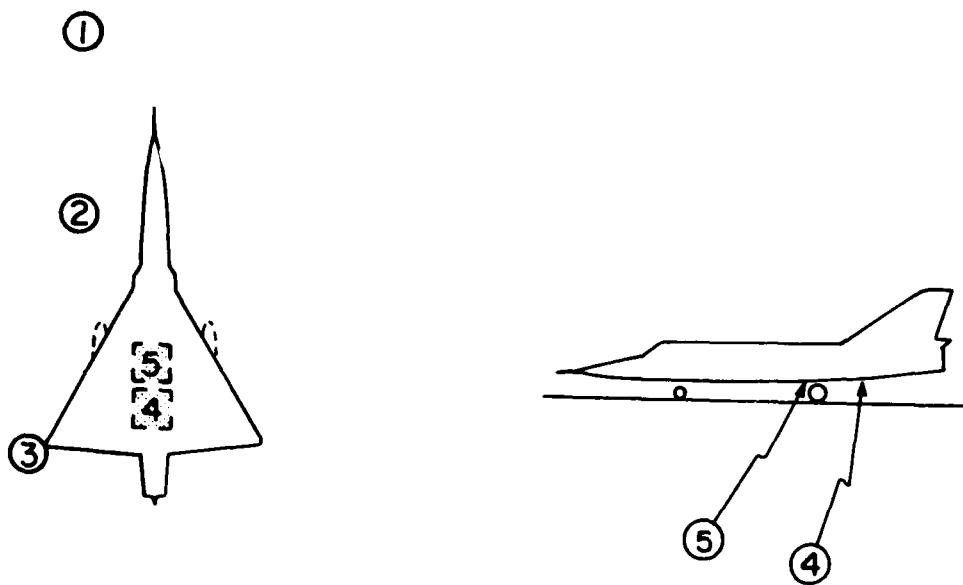


**Figure 1. Near-Field Measurement Locations
On A Concrete Apron At Kelly AFB TX**

FAR-FIELD NOISE

MEASUREMENTS

AFAMRL acquired far-field data during a one hour test period, thus keeping similar meteorological conditions throughout the test. Figure 2 shows the ground runup pad, aircraft orientation and the 19 microphone measurement sites on a semicircle. The center of the 76 meter radius semicircle used in surveying the J75-P-17 engine was on the ground directly below the intersection of the aircraft's centerline and the plane passing through the engine's exhaust-nozzle exit. The ground runup area did not have a blast deflector; therefore, the engine's exhaust was in a "free-flow" condition.

Table 4 provides cockpit readouts of some engine characteristics (Engine Pressure Ratio, fuel flow, etc.) for each power setting used in the far-field tests. Also listed in this table are the surface meteorological conditions during data acquisition.

All microphone measurement sites are in the acoustic far-field of the source where the sound wavefronts spherically diverge and the noise source may be regarded as a point source.

A portable microphone/tape-recorder system was used to sequentially record the noise at each far-field location. The microphone was attached to a hand-held pole, pointed at the source (0° angle of incidence) and vertically scanned from 0.5 to 3 meters for a period of 5-10 seconds during data acquisition at each microphone location. These samples were then time-integrated to derive a root-mean-square sound pressure level. Vertical scanning and time-integrating together reduce anomalies frequently present in data acquired by a fixed height microphone.

RESULTS

Table 5 lists the overall and $1/3$ octave band SPL measured at the far-field locations under meteorological conditions at the time of the test. Data in all other figures and tables are based on these levels. These data were normalized to 100 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 3 which provides a compact summary of the far-field noise characteristics of the F-106A aircraft in a standard format.

Figure 4 and Table 6 present two basic acoustic measures, the acoustic power level and the directivity index, respectively. The acoustic power level describes the power radiated by the source as a function of frequency. The directivity index is a standard acoustical engineering measure which describes the geometric way in which the source radiates this power as a function of both frequency and angle from source. These basic source measures are primarily of interest for acoustical engineers and noise generation/control specialists.

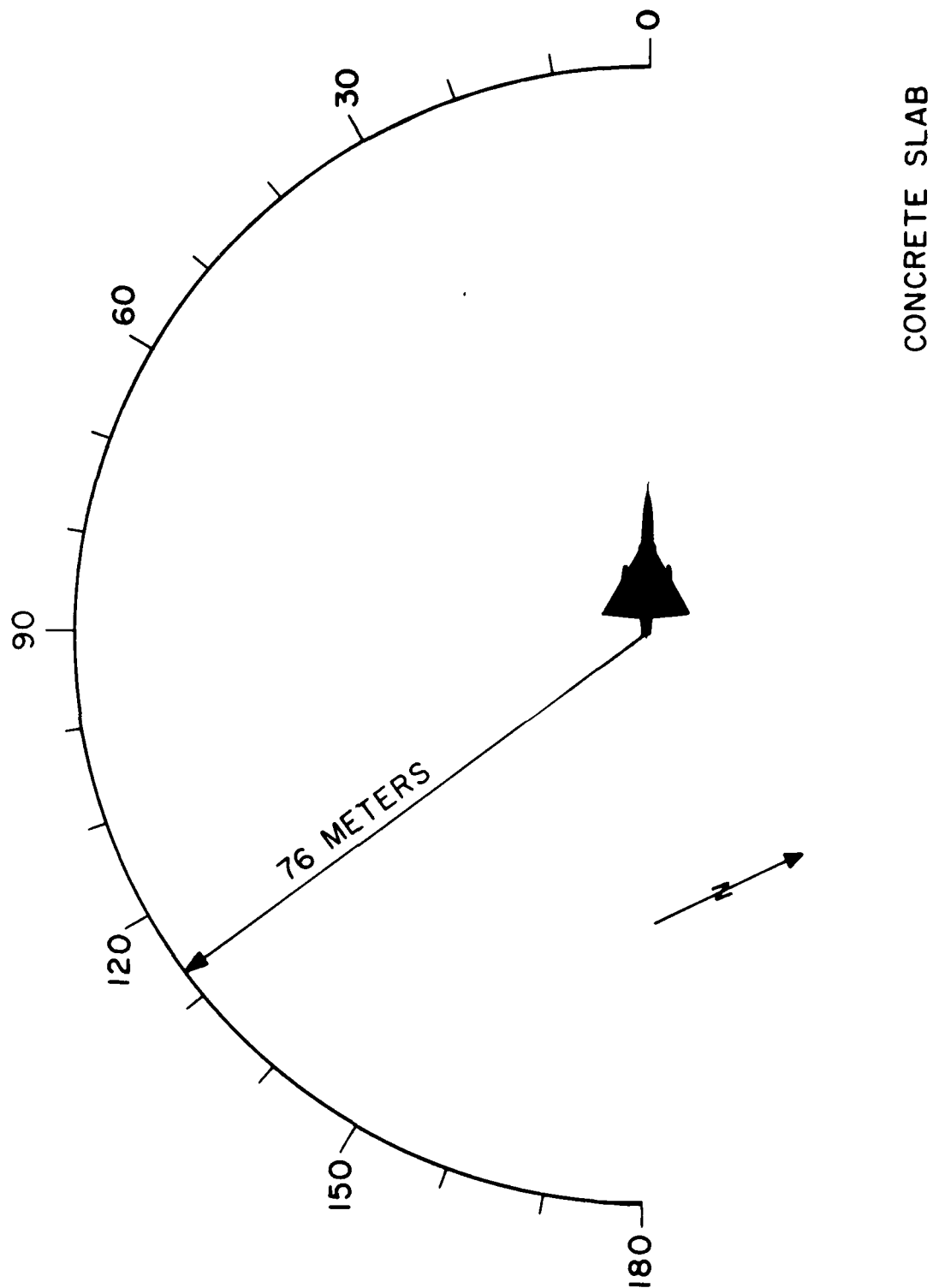


**Figure 2. Far-Field Measurement Locations
On Concrete Apron at Kelly AFB TX**

Estimates of noise characteristics for intermediate power settings (e.g., 88% engine) can be determined as explained in Volume 1 of this handbook.

Figures 5 through 11 are sets of equal noise contours describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. They are respectively, overall sound pressure level, C-weighted sound level, A-weighted sound level, perceived noise level, speech interference level, permissible exposure times for personnel and octave band sound pressure levels.

Test personnel performed noise surveys during quiet periods when the background noise was minimal, e.g., early in the morning when no other aircraft or engine test stands were operating. Data eliminated because they were near the background/electronic noise were generally not significant because the levels were so low (e.g., Table 5 at idle power).

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)											
1/3 OCTAVE BAND											
IDENTIFICATION:											
OMEGA 3-2											
TEST BN-078-001											
RUN 01											
25 JAN 82											
PAGE F1											
NOISE SOURCE/SUBJECT:											
F-106A AIRCRAFT											
GROUND CREW											
NEARFIELD NOISE LEVELS											
LOCATION/CONDITION											
1/A 1/B 1/C 1/D 2/A 2/B 2/C 2/D 3/A 3/B 3/C 3/D											
FREQ (HZ)											
25	70	81	85	99	72	85	88	98	83	93	109
31.5	69	83	88	99	73	87	90	102	82	96	109
40	71	87	90	102	77	89	92	104	83	97	110
50	73	88	93	103	76	90	94	106	83	98	111
63	77	89	95	105	82	92	97	108	82	100	115
80	78	92	94	105	82	95	100	110	87	101	116
100	80	92	96	107	85	95	100	110	86	103	116
125	81	93	98	108	84	96	99	109	83	101	114
160	77	93	97	107	78	96	100	111	81	101	113
200	74	93	96	106	75	95	99	109	80	100	104
250	76	93	97	105	77	95	100	107	83	105	109
315	78	93	99	104	81	102	100	107	85	109	114
400	77	92	97	102	86	98	101	106	85	110	114
500	83	92	96	99	82	96	100	106	80	106	110
630	87	97	100	103	80	99	103	109	82	107	113
800	88	94	99	102	86	100	104	109	83	108	113
1000	89	95	99	102	88	101	106	109	86	107	113
1250	92	94	98	100	87	100	105	108	81	107	112
1600	89	95	98	100	87	99	102	107	82	106	112
2000	88	97	96	98	87	100	101	105	80	105	112
2500	86	96	94	96	83	99	99	103	75	104	110
3150	87	95	92	95	85	97	98	102	75	104	109
4000	85	94	90	93	83	96	97	100	74	102	108
5000	84	93	91	93	82	97	96	99	75	102	109
6300	82	90	88	90	81	94	95	98	80	100	107
8000	81	90	88	90	78	94	94	97	73	100	107
10000	79	89	88	90	77	94	95	97	71	100	107
OVERALL	99	107	110	117	97	111	114	121	96	119	124
											132

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:									
2	1/3 OCTAVE BAND										
NOISE SOURCE/SUBJECT:		OMEGA 3.2									
F-106A AIRCRAFT		TEST 8N-878-001									
GROUND CREW		RUN 02									
NEARFIELD NOISE LEVELS		25 JAN 82									
		PAGE F2									
		LOCATION/CONDITION									
FREQ (HZ)		4/A	4/B	4/C	4/D	5/A	5/B	5/C	5/D		
25	86	95	97	110	89	100	102	107	107		
31.5	85	96	97	109	86	98	102	105	105		
40	87	97	99	113	86	99	103	106	106		
50	86	98	102	113	86	98	103	110	110		
63	87	102	105	114	89	99	104	113	113		
80	95	105	108	119	104	105	107	115	115		
100	94	107	110	119	98	103	113	117	117		
125	95	102	104	112	98	107	107	114	114		
160	87	100	106	113	95	104	107	116	116		
200	83	180	106	114	95	105	108	116	116		
250	87	101	105	114	95	103	105	112	112		
315	97	104	108	114	104	105	108	115	115		
400	92	103	107	114	96	106	111	119	119		
500	96	105	109	117	93	113	111	117	117		
630	96	106	110	119	101	108	112	117	117		
800	98	106	111	123	98	107	112	116	116		
1000	107	106	112	119	104	109	114	118	118		
1250	101	106	112	119	100	107	111	116	116		
1600	98	107	110	121	104	108	111	115	115		
2000	94	105	108	117	102	109	110	114	114		
2500	87	108	107	113	99	111	112	114	114		
3150	86	101	105	115	97	109	111	114	114		
4000	84	99	102	112	99	110	113	113	113		
5000	83	101	102	110	101	108	112	114	114		
6300	86	98	100	108	108	107	110	112	112		
8000	79	99	100	104	100	109	111	113	113		
10000	79	100	100	104	95	111	112	114	114		
OVERALL	110	118	121	130	115	122	125	129	129		

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)												
2 OCTAVE BAND												
IDENTIFICATION:												
OMEGA 3.2												
TEST BN-078-001												
RUN 01												
25 JAN 82												
PAGE J1												
NOISE SOURCE/SUBJECT: OPERATION:												
F-106A AIRCRAFT												
GROUND CREW												
NEARFIELD NOISE LEVELS												
LOCATION/CONDITION												
FREQ (HZ)	1/A	1/B	1/C	1/D	2/A	2/B	2/C	2/D	3/A	3/B	3/C	3/D
31.5	75	89	92	105	79	92	95	107	87	100	104	114
63	81	95	99	109	85	98	102	113	89	105	108	119
125	84	97	102	112	88	100	104	115	88	106	110	119
250	81	98	102	109	83	104	104	113	88	111	115	122
500	89	99	103	106	88	103	106	112	87	112	117	125
1000	95	99	103	106	92	105	110	114	88	112	117	125
2000	93	101	101	103	90	104	106	110	85	110	116	124
4000	90	99	96	98	88	101	102	105	79	107	113	120
8000	86	94	93	95	84	99	100	102	81	105	112	118
OVERALL	99	107	110	117	97	111	114	121	96	119	124	132

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)									
2									
OCTAVE BAND									
IDENTIFICATION:									
NOISE SOURCE/SUBJECT: (OPERATION:)									
F-106A AIRCRAFT ()									
GROUND CREW ()									
NEARFIELD NOISE LEVELS ()									
PAGE J2									
LOCATION/CONDITION									
FREQ (HZ)									
4/A 4/B 4/C 4/D 5/A 5/B 5/C 5/D									
31.5	91	101	103	116	92	104	107	110	
63	96	107	111	121	104	106	109	118	
125	97	109	112	120	102	110	115	121	
250	98	107	111	119	105	109	112	120	
500	100	110	114	122	102	115	116	123	
1000	108	111	116	125	106	112	117	121	
2000	100	112	113	123	107	114	116	119	
4000	89	105	108	117	104	114	117	118	
8000	87	104	105	111	109	114	116	118	
OVERALL	110	118	121	130	115	122	125	129	

TABLE: MEASURES OF HUMAN NOISE EXPOSURE										IDENTIFICATION:
3										
NOISE SOURCE/SUBJECT: (OPERATION:)										OMEGA 3-2
F-106A AIRCRAFT ()										TEST BN-078-001
GROUND CREW ()										RUN 02
NEARFIELD NOISE LEVELS ()										25 JAN 82
()										PAGE H2
4/A 4/B 4/C 4/D 5/A 5/B 5/C 5/D										
HAZARD/PROTECTION										
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DB) AT EAR										
1-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	110	118	121	130	114	121	124	129		
OASLA	109	116	120	129	114	121	123	127		
T	6	P	P	P	2.7	P	P	P		
MINIMUM OPL EAR MUFFS										
OASLA*	83	93	96	105	89	95	99	105		
T	571	101	60	13	202	60	36	13		
AMERICAN OPTICAL 1700 EAF MUFFS										
OASLA*	78	88	91	100	83	91	94	100		
T	960	240	143	30	571	143	85	30		
V-51R EAR PLUGS										
OASLA*	85	90	94	103	86	94	97	101		
T	404	170	85	18	339	85	50	25		
AMERICAN OPTICAL 1700 EAF MUFFS PLUS V-51R EAR PLUGS										
OASLA*	72	77	81	90	74	80	83	88		
T	960	960	807	170	960	960	571	240		
H-133 GROUND COMMUNICATION UNIT										
OASLA*	83	89	93	101	85	93	96	99		
T	571	202	101	25	404	101	60	36		
COMMUNICATION										
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)										
PSIL	103	111	114	123	105	114	116	121		
ANNOYANCE										
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)										
TONE CORRECTION (C IN DB)										
PNLT	122	132	133	142	130	137	139	140		
C	3	1	1	1	2	2	1	0		

**TABLE 4
TEST CONDITIONS
FOR FAR-FIELD NOISE MEASUREMENTS**

F-106A Aircraft, Ground Runups, Kelly AFB TX
9 June 1981
Tail # 90061

Aircraft Engine Operation

Idle	59	% RPM Core Speed
	1.20	Engine Pressure Ratio
	220	C, Exhaust Gas Temperature
	1500	LBS/HR, Fuel Flow
85% RPM	85	% RPM
	1.31	EPR
	375	C, EGT
	3100	LBS/HR, FF
95% RPM	95	% RPM
	1.65	EPR
	483	C, EGT
	6000	LBS/HR, FF
Military Power	102	% RPM
	1.99	EPR
	610	C, EGT
	9000	LBS/HR, FF
Afterburner Power	102	% RPM
	1.99	EPR
	608	C, EGT
	9000	LBS/HR, FF(Plus Afterburner)

Meteorology

Temperature	33	C
Bar Pressure	.760	M Hg
Rel Humidity	55	%
Wind - Speed	3.1	M/Sec (6 Kts)
- Direction	190	Deg

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																	IDENTIFICATIONS	
5 1/3 OCTAVE BAND																	OMEGA 1.4	
DISTANCE = 76 METERS																	TEST 8N-078-001	
NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)																	RUN 01	
(F-106A AIRCRAFT (IDLE POWER))																	25 JAN 82	
(J75-P-17 ENGINE (59% RPM))																	PAGE 2	
(FAR FIELD NOISE (FREE FLOW))																		
FREQ (HZ) 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																		
25																	71<	71<
31.5																	70<	70<
40																	70<	70<
50																	70<	70<
63																	70<	70<
80																	70<	70<
100																	70<	70<
125																	70<	70<
160																	70<	70<
200																	70<	70<
250																	70<	70<
315																	70<	70<
400																	70<	70<
500																	70<	70<
630																	70<	70<
800																	70<	70<
1000																	70<	70<
1250																	70<	70<
1600																	70<	70<
2000																	70<	70<
3150																	70<	70<
4000																	70<	70<
5000																	70<	70<
6300																	70<	70<
8000																	70<	70<
10000																	70<	70<
OVERALL																	70<	70<

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)															IDENTIFICATION:				
1/3 OCTAVE BAND																			
5															OMEGA 1.4				
DISTANCE = 76 METERS															TEST BN-078-001				
															RUN 02				
NOISF SOURCE/SUBJECT:																			
F-106A AIRCRAFT																			
(J75-P-17 ENGINE)															TEMP = 33 C				
FAR FIELD NOISE															BAR PRESS = .760 M HG				
															REL HUMID = 55 %				
															PAGE 2				
FREQ (HZ)															ANGLE (DEGREES)				
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25																			
31.5																			
40																			
50																			
63																			
80																			
100																			
125																			
160																			
200																			
250																			
315																			
400																			
500																			
630																			
800																			
1000																			
1250																			
1600																			
2000																			
2500																			
3150																			
4000																			
5000																			
6300																			
8000																			
10000																			
OVERALL	94	93	94	93	93	93	93	93	91	93	94	97	97	99	101	102	103	104	99

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

[illegible]

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																			IDENTIFICATION:	
1/3 OCTAVE BAND																				
DISTANCE = 76 METERS																			OMEGA 1-4	
																			TEST BN-078-001	
NOISE SOURCE/SUBJECT: (OPERATION:)																			RUN 05	
F-106A AIRCRAFT (AFTERBURNER PMR)																				
(J75-P-17 ENGINE) (102% RPM)																			25 JAN 62	
FAR FIELD NOISE (FREE FLOW)																				
																			PAGE 2	
METEOROLOGY:)																				
TEMP = 33 C																				
BAR PRESS = .760 M Hg																				
REL HUMID = 55 %																				
ANGLE (DEGREES)																				
FREQ	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	
(HZ)																				
25	94	92	93	91	92	92	92	92	93	92	93	94	98	103	107	110	111	111	106	
31.5	97	93	96	94	94	94	93	94	94	95	95	95	103	105	110	111	112	112	103	
40	101	98	99	99	98	97	96	95	96	97	98	100	106	111	115	115	115	111	103	
50	103	100	101	103	100	97	96	97	98	98	98	102	107	113	118	117	114	108	105	
63	106	102	104	104	102	98	98	100	100	100	100	100	105	110	116	119	120	116	107	
80	107	99	104	103	102	99	99	101	101	102	103	107	112	117	121	120	116	107	104	
100	103	99	101	101	102	101	100	102	102	102	105	109	115	120	119	120	117	109	102	
125	101	100	101	100	101	102	101	102	103	104	107	112	118	122	118	119	117	110	102	
160	101	100	100	101	101	100	101	103	103	106	109	112	118	124	121	119	118	110	101	
200	102	101	102	102	102	102	102	103	104	108	109	114	119	121	123	120	117	108	99	
250	102	100	100	100	102	102	102	104	106	107	111	114	119	122	121	119	116	105	97	
315	96	98	98	100	102	103	102	104	106	109	111	115	119	122	119	119	115	103	94	
400	94	98	98	99	101	102	102	103	106	108	110	113	116	119	116	115	113	101	91	
500	94	95	97	98	100	101	101	103	106	108	111	113	116	118	114	115	112	97	98	
630	93	94	96	99	100	101	101	103	106	108	111	113	116	117	112	112	112	96	86	
800	92	93	95	99	100	102	101	103	106	108	110	113	115	116	111	111	110	93	87	
1000	90	90	93	97	99	101	100	103	106	109	110	112	114	115	108	108	108	91	86	
1250	89	88	92	96	98	100	99	101	105	107	110	110	111	113	106	105	106	89	83	
1600	88	88	91	95	97	99	99	100	105	107	109	109	110	112	103	104	104	87	82	
2000	85	86	89	93	96	98	98	100	104	106	108	108	109	110	100	102	102	85	80	
2500	83	84	87	92	94	95	96	97	101	104	105	105	106	107	96	99	99	82	79	
3150	81	83	87	91	93	94	95	96	101	104	105	105	105	105	95	98	98	82	78	
4000	78	81	84	88	90	91	92	95	98	101	102	102	102	104	92	95	96	80	76	
5000	76	80	83	86	89	91	91	94	97	100	101	102	100	104	91	93	95	78	74	
6300	75	77	81	84	86	89	89	91	95	98	99	100	98	101	90	91	93	76	72	
8000	73	76	80	83	85	87	87	90	93	97	98	100	97	100	89	90	91	76	70	
10000	70	73	77	80	82	83	84	87	91	95	97	99	97	102	89	89	89	74	69	
OVERALL	114	111	112	113	113	113	113	115	117	119	122	124	128	132	130	130	127	120	114	

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
F-106A AIRCRAFT
(J75-P-17 ENGINE)
FAR FIELD NOISE

(OPERATION:
(85% RPM
(FREE FLOW
(

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST BN-070-001
RUN 02
25 JAN 62
PAGE 6

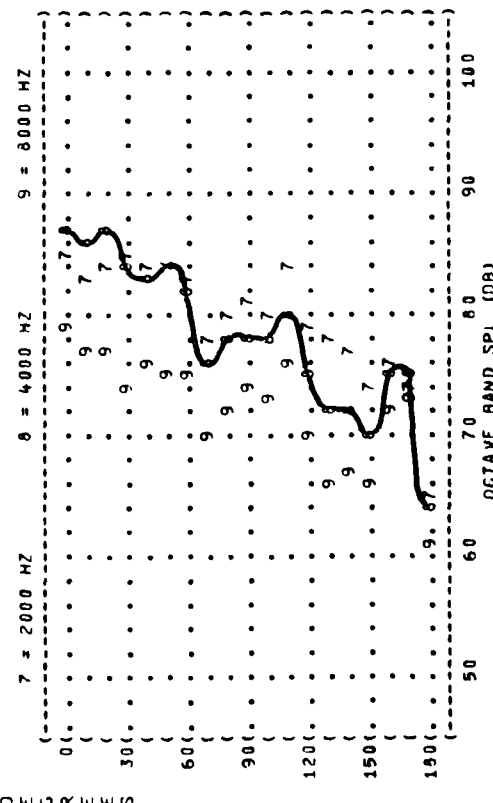
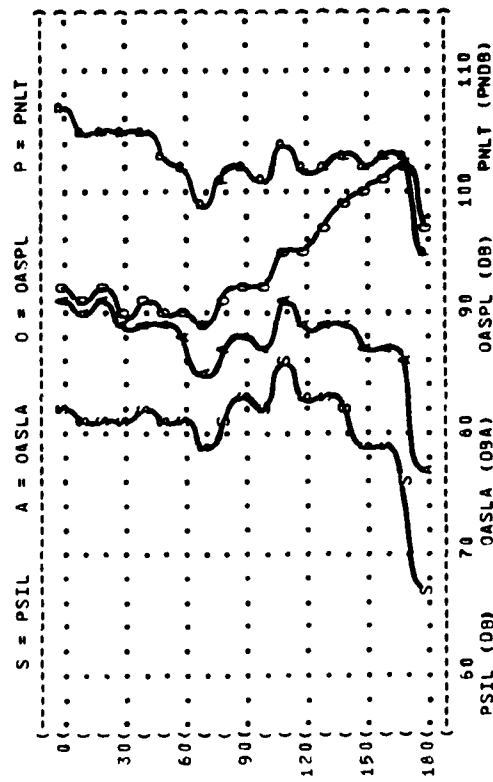
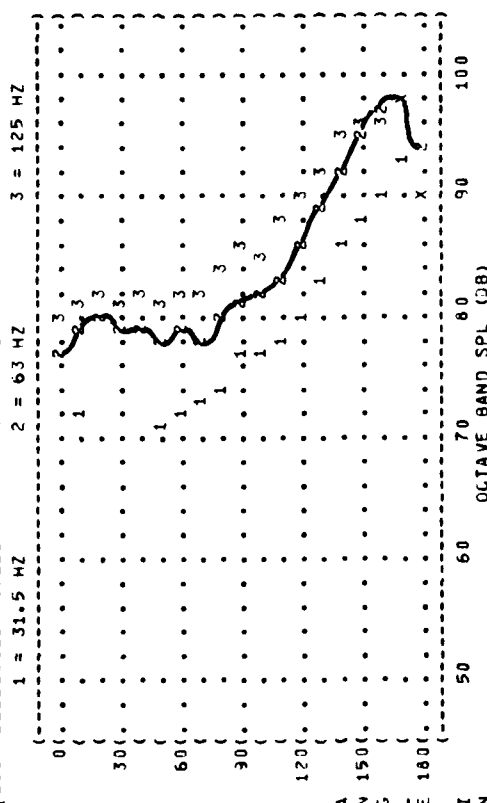
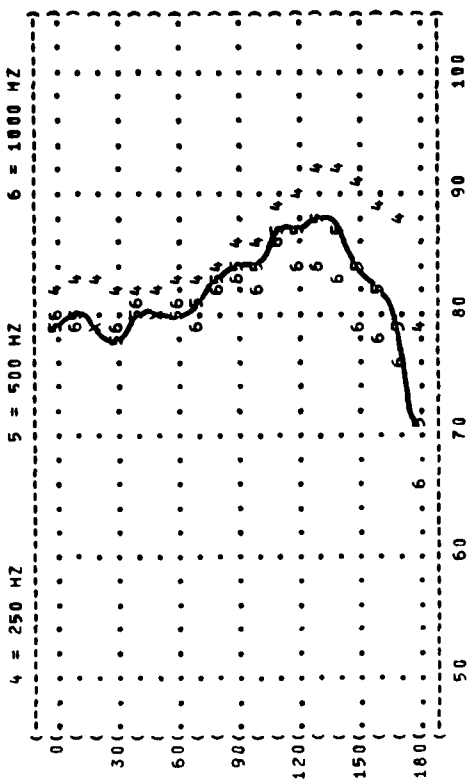


FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT: (OPERATION:)
 F-106A AIRCRAFT (95% RPM)
 (J75-P-17 ENGINE) (FREE FLOW)
 FAR FIELD NOISE ()

METEOROLOGY: ()
 TEMP = 15 C ()
 BAR PRESS = .760 M HG ()
 REL HUMID = 70 % ()

IDENTIFICATION: ()
 OMEGA 1.4 ()
 TEST 8N-078-001 ()
 RUN 03 ()
 25 JAN 62 ()
 PAGE 6 ()

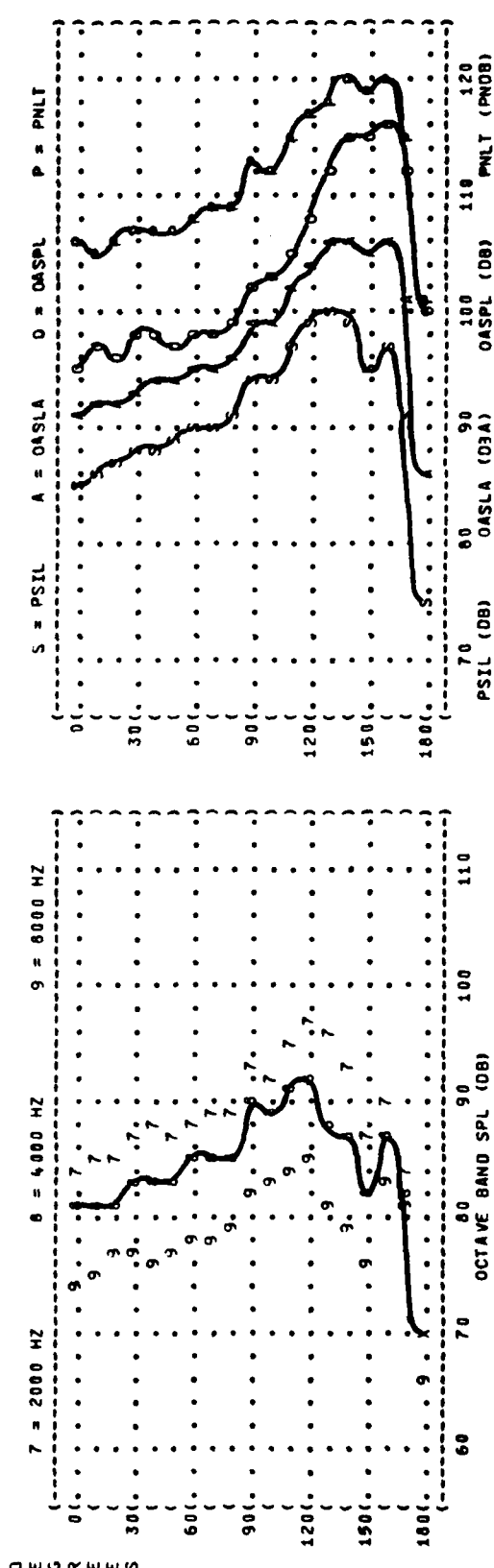
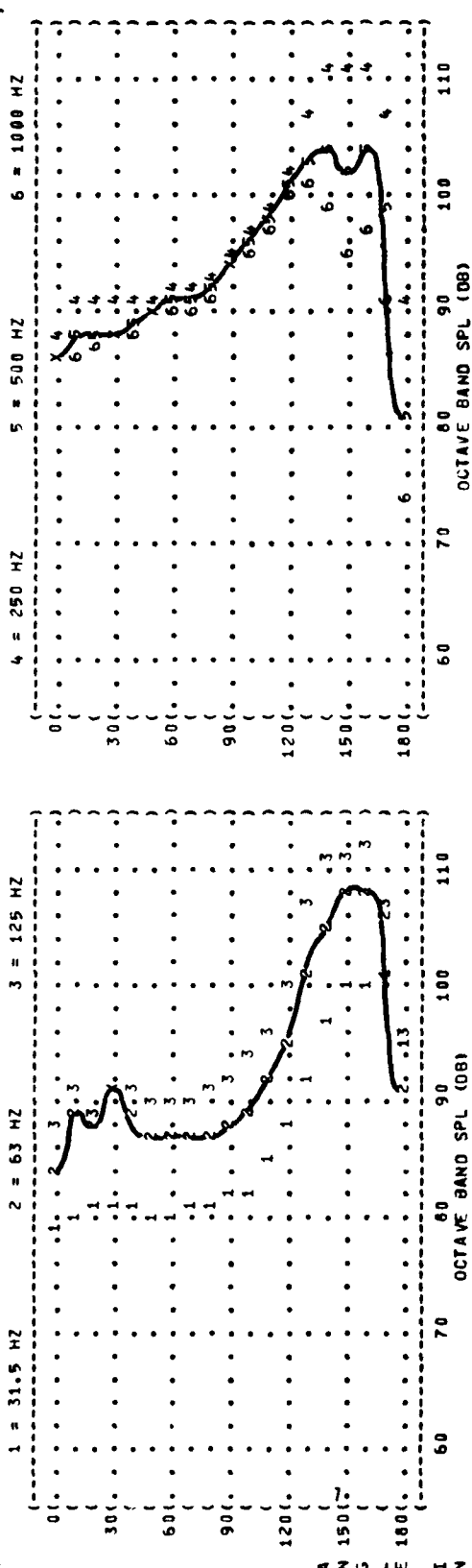


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT: F-106A AIRCRAFT (J75-P-17 ENGINE) FAR FIELD NOISE

OPERATION: MILITARY PMR 102% RPM FREE FLOW

METEOROLOGICAL: TEMP = 15 C BAR PRESS = .7604 HG REL HUMID = 70 %

IDENTIFICATION: OMEGA 1.4 TEST 8N-078-001 RUN 04 25 JAN 82 PAGE 6

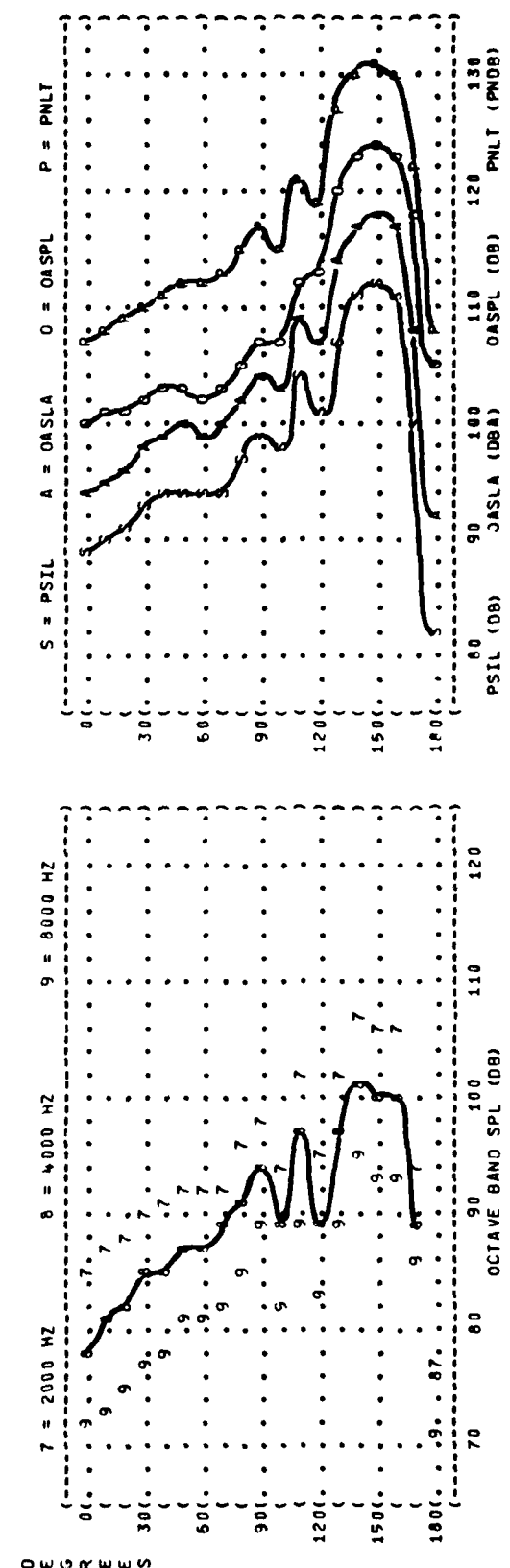
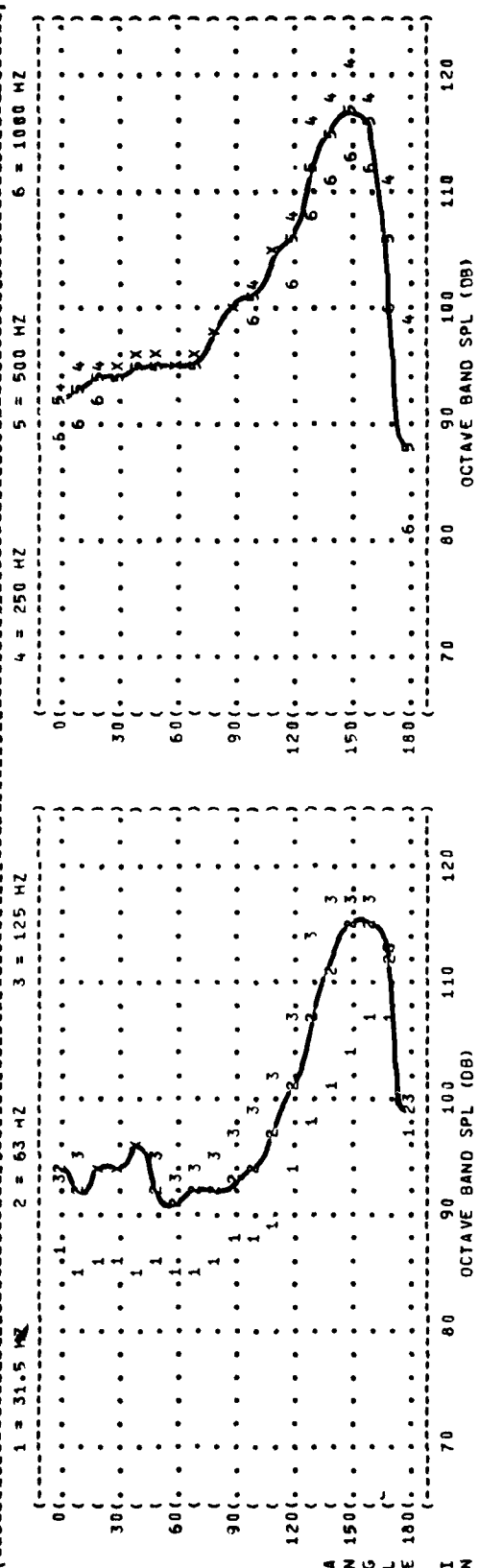
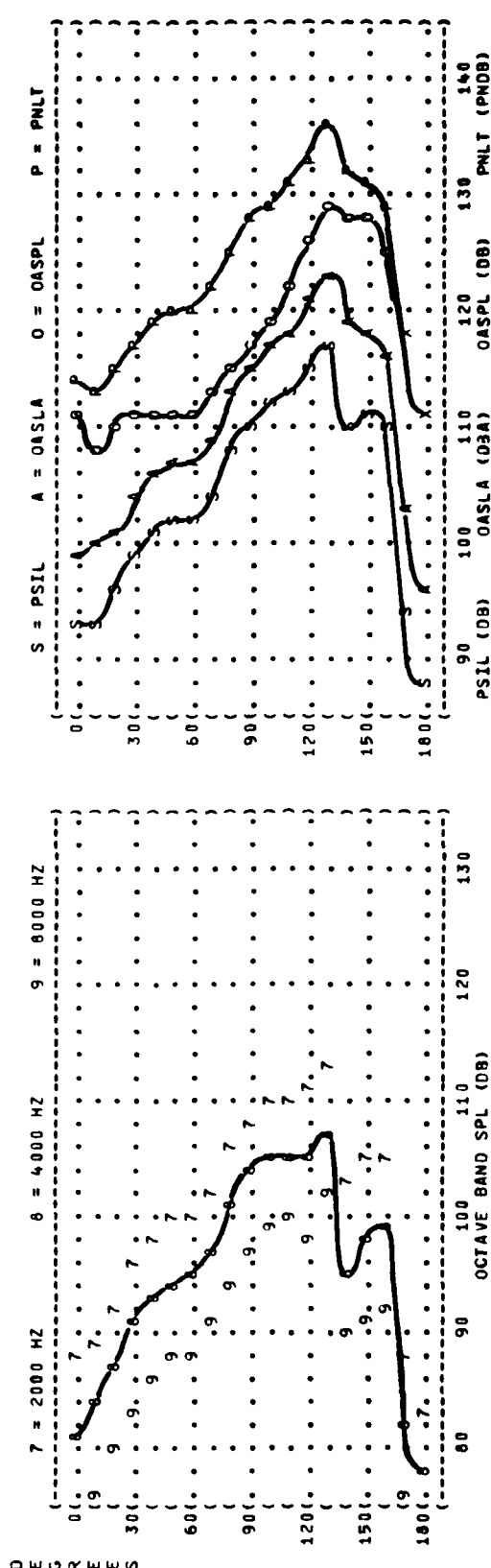
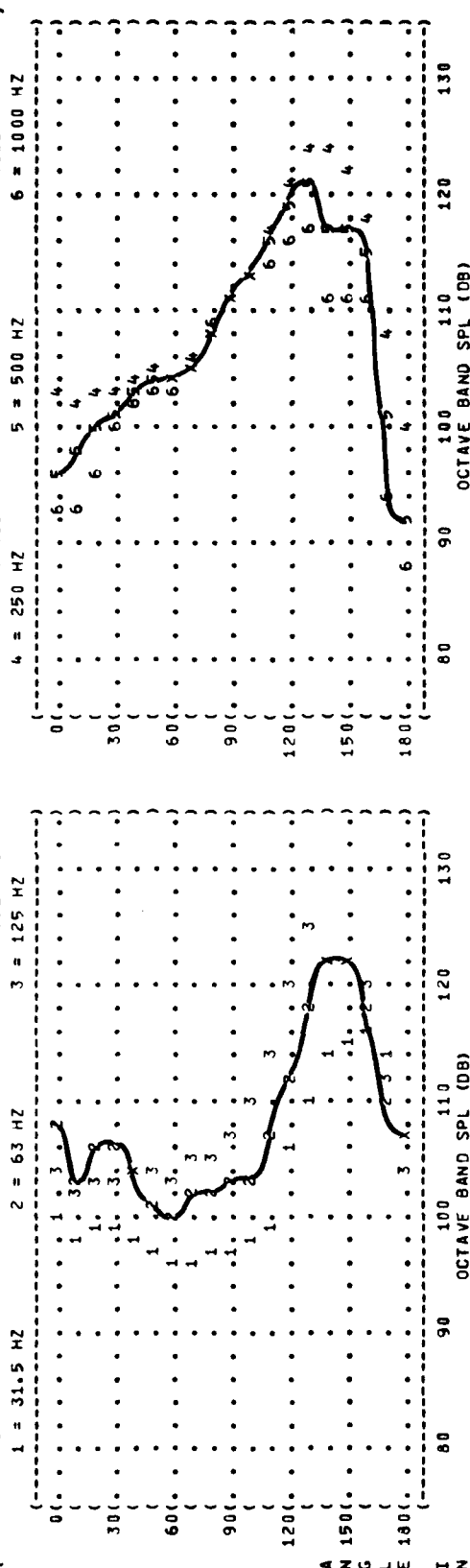


FIGURE: NORMALIZED FARFIELD NOISE LEVELS		IDENTIFICATION:
3	DISTANCE = 100 METERS	OMEGA 1-4
		TEST 88-078-001
NOISE SOURCE/SUBJECT:		RUN 05
F-106A AIRCRAFT	OPERATION:	
(J75-P-17 ENGINE)	AFTERBURNER PMR	
FAR FIELD NOISE	102% RPM	TEMP = 15 C
	FREE FLOW	BAR PRESS = .760 M HG
		REL HUMID = 70 %
		PAGE 6



4



```
( ( FIGURE: ACOUSTIC POWER LEVEL {PWL} ) )
( 4 ) )
( ) )
( ) )
( ( NOISE SOURCE/SUBJECT: ) METEOROLOGY: ) OMEGA 1.4 )
( F-106A AIRCRAFT ) TEMP = 33 C ) TEST RN-078-001 )
( (J75-P-17 ENGINE) ) BAP PRESS = .760 M Hg ) RUN 03 )
( FAR FIELD NOISE ) REL HUMID = 55 % ) 25 JAN 82 )
( ) ) ) PAGE 3 )
( ) ) ) )
```



FIGURE: ACOUSTIC POWER LEVEL (PWL)

4

IDENTIFICATIONS:

OMEGA 1.4

TEST BN-078-001

RUN 04

25 JAN 82

PAGE 3

NOISE SOURCE/SUBJECT:

OPERATIONS:

MILITARY PMR

102% RPM

FREE FLOW

METEOROLOGY:

TEMP = 33 C

BAR PRESS = .760 M HG

REL HUMID = 55 %

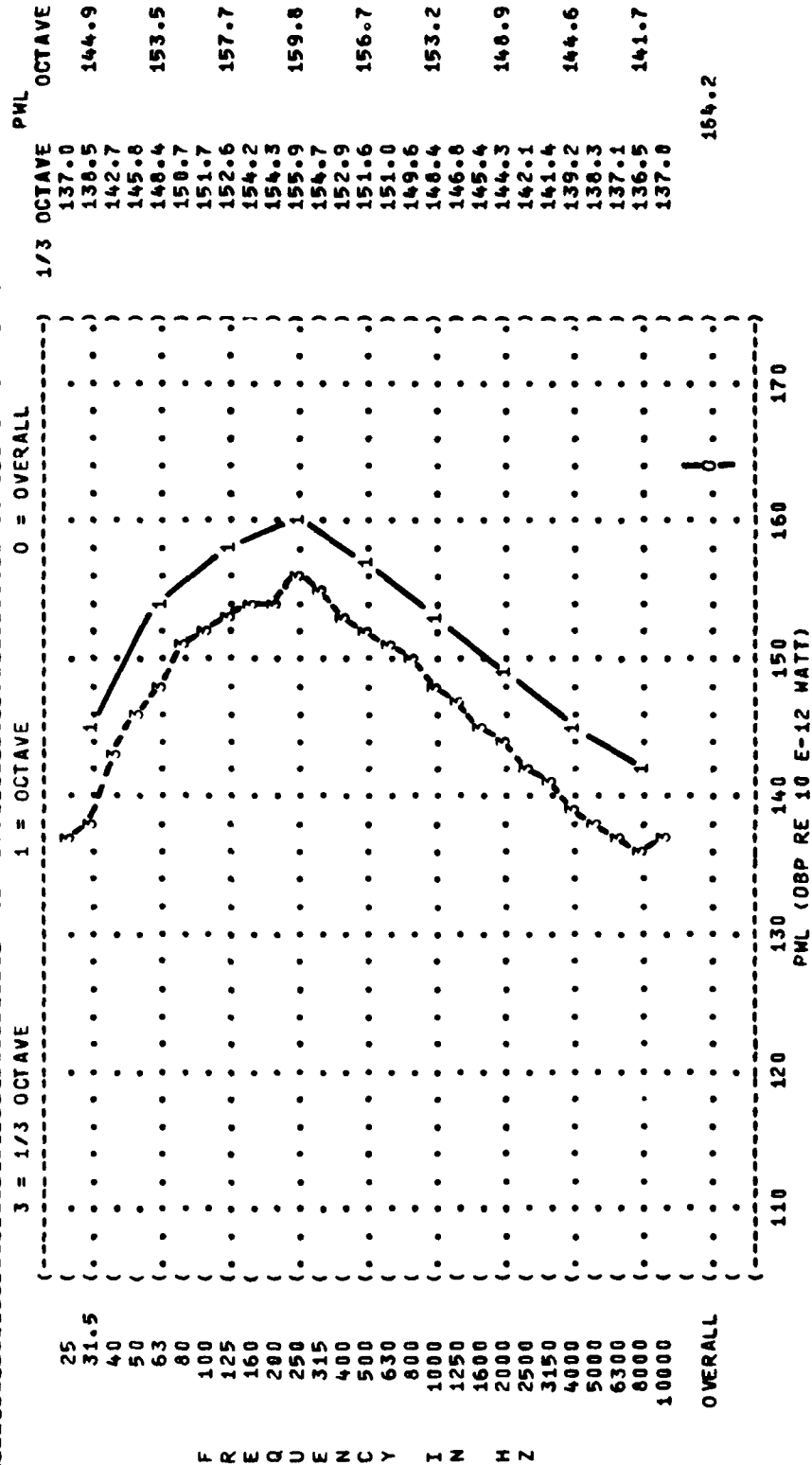


TABLE: DIRECTIVITY INDEX (DB)																	IDENTIFICATION:		
6																	OMEGA 1.4		
NOISE SOURCE/SUBJECT:																	TEST BN-078-001		
(F-106A AIRCRAFT																	RUN 01		
((IDLE POWER																			
((59% RPM																	25 JAN 62		
((FREE FLOW																			
((																	PAGE 4		
METEOROLOGY:																			
TEMP = 33 C																			
BAR PRESS = .760 M HG																			
REL HUMID = 55 %																			
ANGLE (DEGREES)																			
FREQ	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
(HZ)																			
1/3 OCTAVE							6				6								
25							6				5								
31.5							6												
40							6												
50																			
63																			
80																			
100																			
125																			
160																			
200																			
250																			
315																			
400																			
500																			
630																			
800																			
1000																			
1250																			
1600																			
2000																			
2500																			
3150																			
4000																			
5000																			
6300																			
8000																			
10000																			
OCTAVE																			
31.5																			
63																			
125																			
250																			
500																			
1000																			
2000																			
4000																			
8000																			
OVERALL																			

TABLE: DIRECTIVITY INDEX (DB)										IDENTIFICATION:									
6										OMEGA 1.4									
NOISE SOURCE/SUBJECT:										TEST BN-078-001									
F-106A AIRCRAFT										RUN 02									
(J75-P-17 ENGINE)										25 JAN 82									
FAR FIELD NOISE										PAGE 4									
FREQ										METEOROLOGY:									
(HZ)										TEMP = 33 C									
1/3 OCTAVE										BAR PRESS = .760 H MG									
25										REL HUMID = 55 %									
31.5										ANGLE (DEGREES)									
40																			
50																			
63																			
100																			
125																			
160																			
200																			
250																			
315																			
400																			
500																			
630																			
800																			
1000																			
1250																			
1600																			
2000																			
2500																			
3150																			
4000																			
5000																			
6300																			
8000																			
10000																			
OCTAVE																			
31.5																			
63																			
125																			
250																			
500																			
1000																			
2000																			
4000																			
8000																			
OVERALL																			

TABLE: DIRECTIVITY INDEX (DB)													IDENTIFICATIONS	
6													OMEGA 1.4	
NOISE SOURCE/SUBJECT:													TEST BN-076-001	
F-106A AIRCRAFT													RUN 03	
(J75-P-17 ENGINE)													25 JAN 82	
FAR FIELD NOISE													PAGE 4	
FREQ														
(HZ)														
1/3 OCTAVE														
25														
31.5														
40														
50														
63														
80														
100														
125														
160														
200														
250														
315														
400														
500														
630														
800														
1000														
1250														
1600														
2000														
3150														
4000														
5000														
6300														
8000														
10000														
OCTAVE														
31.5														
63														
125														
250														
500														
1000														
2000														
4000														
8000														
OVERALL														

TABLE: DIRECTIVITY INDEX (DB)										IDENTIFICATION:									
6										OMEGA 1.4									
NOISE SOURCE/SUBJECT:										TEST BN-078-001									
(F-106A AIRCRAFT										) RUN 04									
(J75-P-17 ENGINE										) 25 JAN 82									
(FAR FIELD NOISE										) REL HUMID = 55 %									
										) PAGE 4									
FREQ										ANGLE (DEGREES)									
((HZ)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
(25	-10	-12	-12	-11	-13	-12	-11	-11	-11	-12	-8	-6	-2	1	4	7	10	9	2
(31.5	-10	-12	-10	-11	-12	-11	-12	-10	-10	-8	-7	-7	-3	0	4	8	9	10	2
(40	-11	-12	-11	-12	-12	-12	-14	-13	-12	-9	-11	-9	-4	2	4	7	11	10	-2
(50	-10	-11	-12	-11	-10	-13	-15	-13	-13	-11	-10	-9	-5	1	6	8	9	9	-3
(63	-11	-12	-11	-11	-10	-14	-14	-14	-13	-13	-12	-8	-5	0	6	8	10	7	-6
(80	-13	-15	-13	-12	-10	-14	-15	-14	-14	-14	-12	-9	-4	1	6	9	8	6	-8
(100	-15	-15	-15	-14	-11	-15	-16	-16	-14	-12	-11	-7	-3	3	6	9	8	6	-9
(125	-17	-15	-15	-16	-14	-15	-17	-15	-14	-13	-11	-8	-2	5	7	8	7	3	-8
(160	-17	-15	-16	-17	-16	-15	-17	-16	-16	-13	-11	-7	-3	5	8	6	6	2	-11
(200	-17	-16	-16	-15	-16	-14	-16	-15	-15	-12	-11	-6	-3	5	7	9	6	0	-10
(250	-21	-19	-18	-19	-18	-17	-18	-17	-15	-13	-10	-7	-4	5	6	10	6	6	-1
(315	-19	-16	-16	-16	-15	-15	-16	-15	-13	-11	-8	-6	-3	4	7	8	8	0	-17
(400	-17	-15	-15	-16	-15	-15	-15	-14	-12	-10	-8	-4	-3	4	6	8	7	2	-20
(500	-17	-16	-14	-14	-13	-13	-14	-13	-12	-9	-7	-4	-3	3	7	8	7	-3	-21
(630	-16	-15	-15	-14	-13	-12	-13	-12	-11	-9	-7	-2	-3	3	6	8	7	-4	-24
(800	-16	-15	-13	-12	-11	-11	-11	-10	-8	-6	-7	-1	-3	3	6	8	7	-4	-24
(1000	-16	-15	-12	-9	-8	-8	-9	-9	-7	-5	-7	0	-3	2	7	8	6	-5	-23
(1250	-16	-15	-12	-9	-7	-7	-8	-8	-6	-6	-6	1	-4	2	7	7	6	-6	-23
(1600	-13	-13	-12	-10	-9	-8	-9	-8	-4	-3	-4	1	-4	2	7	6	6	-6	-23
(2000	-17	-14	-12	-11	-9	-9	-8	-8	-4	-2	-6	2	-5	2	7	6	6	-7	-23
(2500	-16	-13	-12	-10	-9	-8	-8	-7	-3	-2	-6	2	-5	3	7	6	6	-6	-23
(3150	-16	-14	-13	-9	-9	-8	-8	-6	-3	-1	-5	2	-5	2	7	5	5	-5	-20
(4000	-16	-14	-13	-10	-10	-8	-8	-6	-3	0	-5	2	-5	3	7	6	5	-5	-19
(5000	-16	-14	-12	-11	-10	-7	-7	-5	-3	1	-5	2	-5	3	7	5	5	-3	-18
(6300	-16	-14	-13	-11	-10	-7	-6	-6	-3	1	-6	1	-6	1	8	5	6	-2	-17
(8000	-15	-14	-12	-10	-9	-7	-6	-5	-2	1	-6	1	-5	1	7	5	5	-2	-17
(10000	-17	-17	-15	-13	-11	-9	-9	-8	-5	0	-7	0	-5	0	8	6	6	-2	-17
OCTAVE																			
(31.5	-11	-12	-11	-11	-12	-12	-13	-12	-11	-9	-9	-8	-3	1	4	7	10	10	0
(63	-12	-13	-12	-12	-14	-14	-15	-14	-14	-13	-11	-9	-5	1	6	9	9	7	-6
(125	-16	-15	-15	-16	-14	-15	-17	-16	-14	-13	-11	-7	-3	4	8	7	7	3	-10
(250	-19	-17	-17	-16	-16	-15	-17	-16	-14	-12	-10	-7	-3	5	7	9	6	-1	-13
(500	-17	-15	-15	-15	-14	-14	-14	-13	-10	-9	-7	-3	-3	4	7	8	7	-2	-21
(1000	-16	-15	-13	-10	-9	-9	-10	-9	-7	-5	-6	0	-3	3	7	8	7	-5	-24
(2000	-15	-13	-12	-11	-9	-8	-8	-8	-4	-2	-6	1	-5	2	7	6	6	-6	-23
(4000	-16	-14	-13	-10	-9	-8	-7	-6	-3	1	-5	2	-5	3	7	5	5	-5	-19
(8000	-16	-14	-13	-11	-10	-7	-6	-5	-2	1	-6	1	-5	1	7	5	5	-2	-17
(10000	-17	-17	-15	-13	-11	-9	-7	-6	-3	1	-6	0	-5	0	8	6	6	-2	-17
OVERALL																			
(-16	-15	-15	-15	-14	-13	-13	-14	-14	-11	-9	-9	-5	-3	4	7	8	7	2	-11

TABLE: DIRECTIVITY INDEX (DB)																	IDENTIFICATION:	
6																	OMEGA 1.4	
																	TEST BN-078-001	
																	PUN 05	
																	25 JAN 82	
																	PAGE 4	

FIGURE 8: OVERALL SOUND PRESSURE LEVEL {OASPL} EQUAL LEVEL CONTOURS (dB)

IDENTIFICATION:

OMEGA 1.4

TEST BN-078-001

RUN 01

25 JAN 82

PAGE 13

NOISE SOURCE/SUBJECT:

OPERATION:

NOISE SOURCE/SUBJECT:
F-106A AIRCRAFT

(J75-P-17 ENGINE)

FAR FIELD NOISE (FREE FLOW

TEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M H5

REL HUMID = 70 %

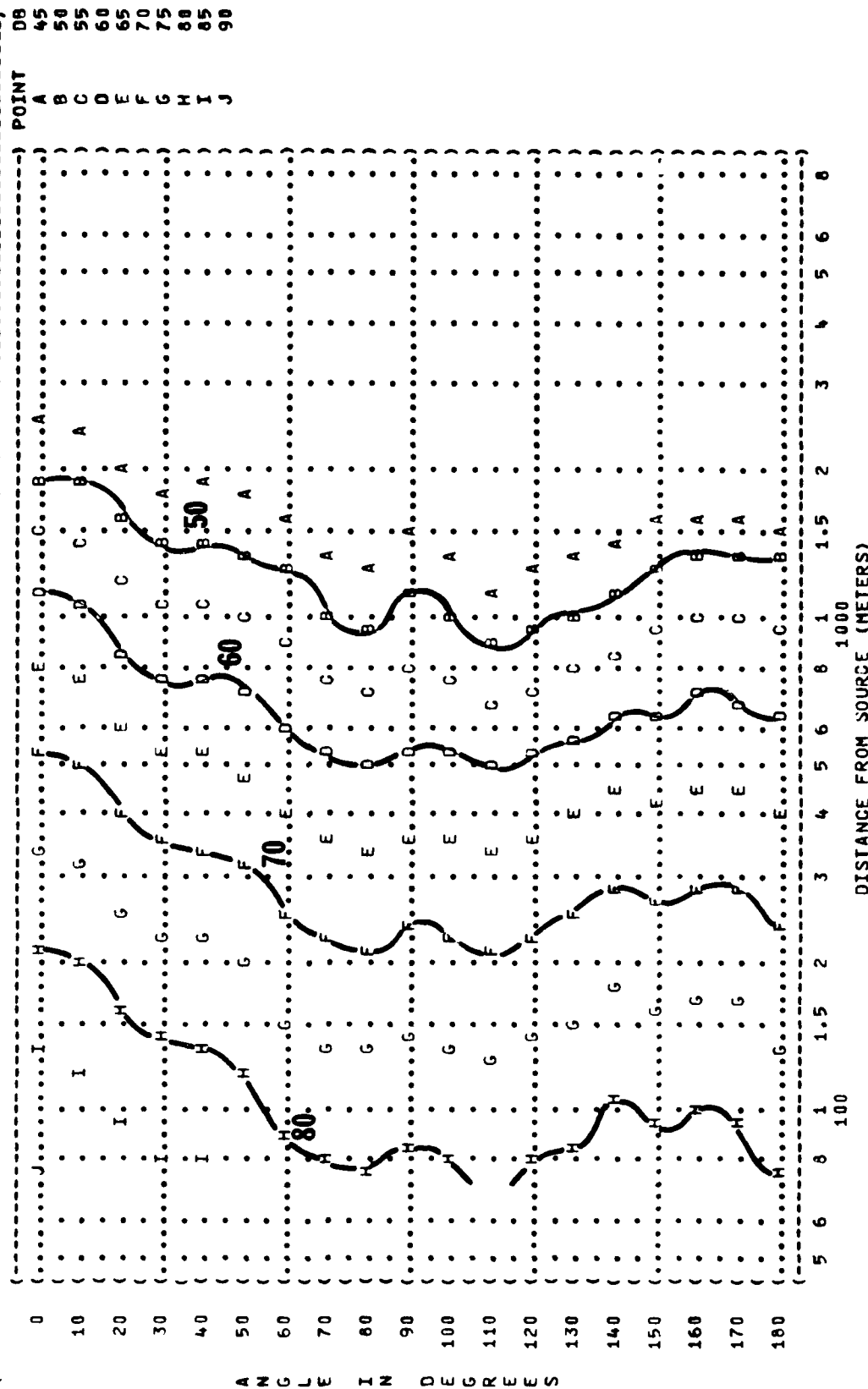


FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)
EQUAL LEVEL CONTOURS (DB)

5

NOISE SOURCE/SUBJECT:
F-106A AIRCRAFT
(J75-P-17 ENGINE)
FAR FIELD NOISE

OPERATION:
MILITARY PHR
102% RPM
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M Hg
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST BN-078-001

RUN 04

25 JAN 82

PAGE 13

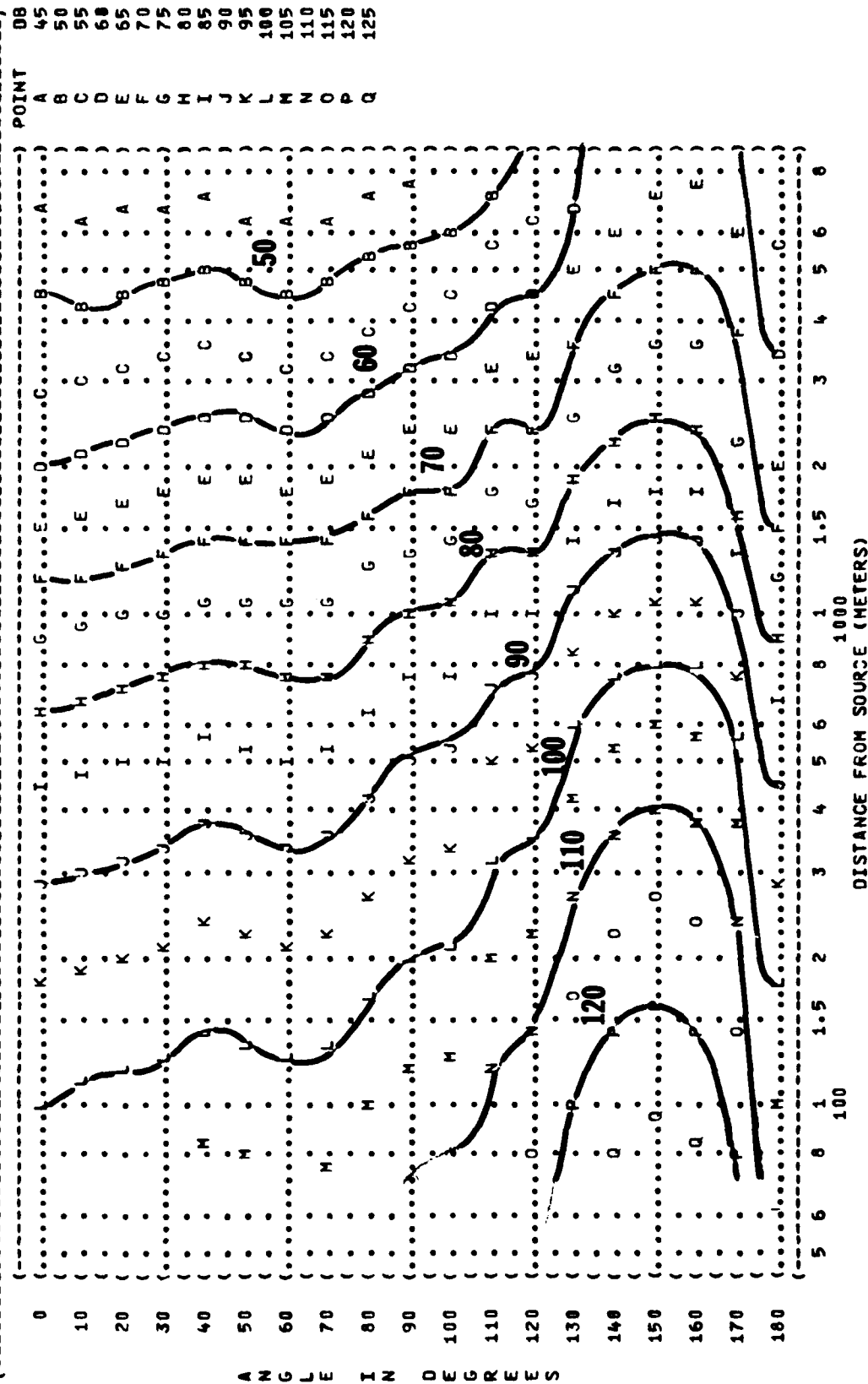


FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)
EQUAL LEVEL CONTOURS (DB)

5

IDENTIFICATIONS:
OMEGA 1.4
TEST BN-070-001
RUN 05
METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M Hg
REL HUMID = 70 %
OPERATION:
AFTERBURNER PWR
102% RPM
FREE FLOW
NOISE SOURCE/SUBJECT:
F-106A AIRCRAFT
(J75-P-17 ENGINE)
FAR FIELD NOISE

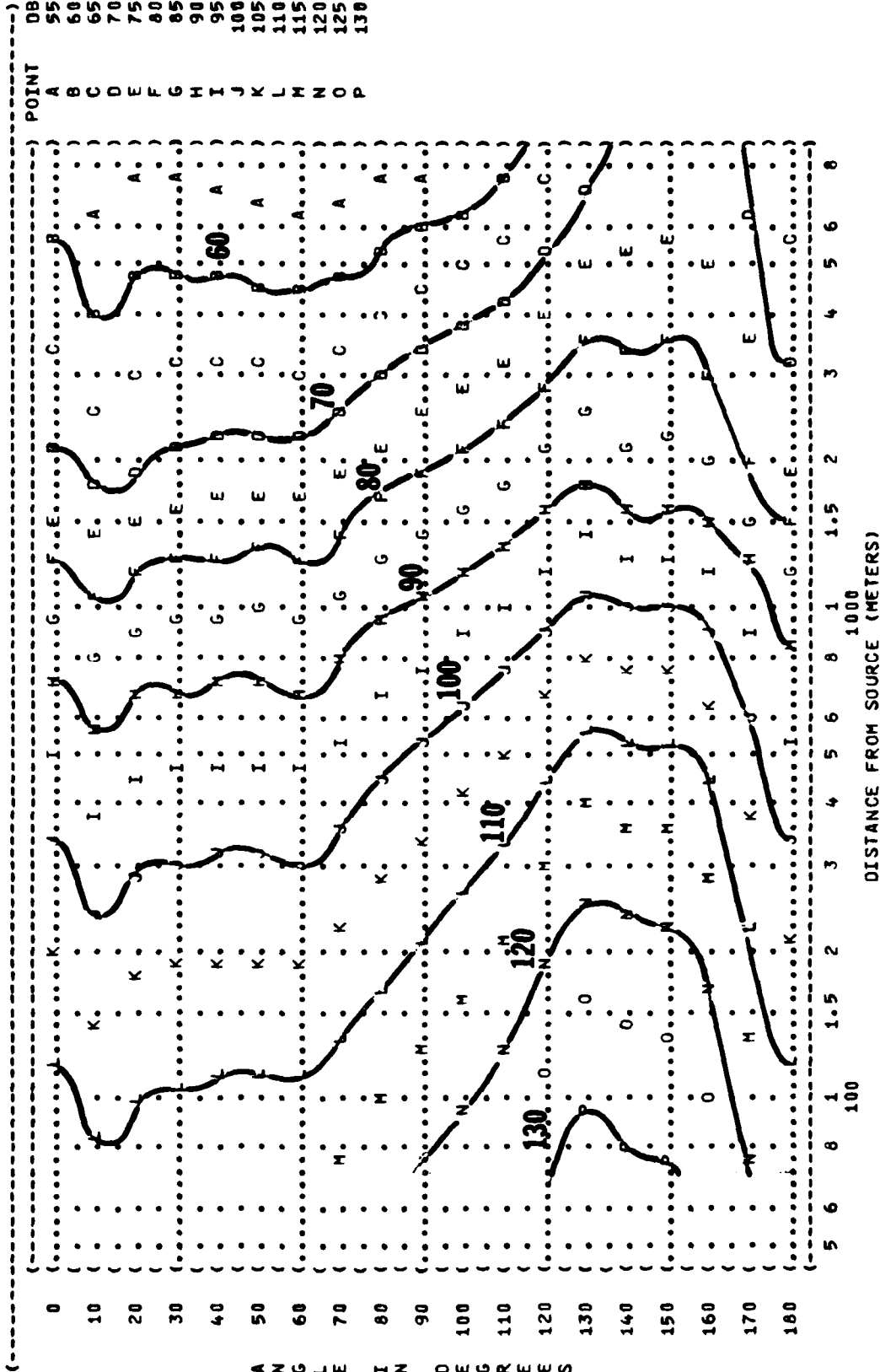


FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
EQUAL LEVEL CONTOURS (DBC)

6

IDENTIFICATION: OMEGA 1.4
TEST BN-078-081
RUN 02
METEOROLOGY: TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %
OPERATION: 85% RPM
FREE FLOW
NOISE SOURCE/SUBJECT: F-106A AIRCRAFT
(J75-P-17 ENGINE)
FAR FIELD NOISE

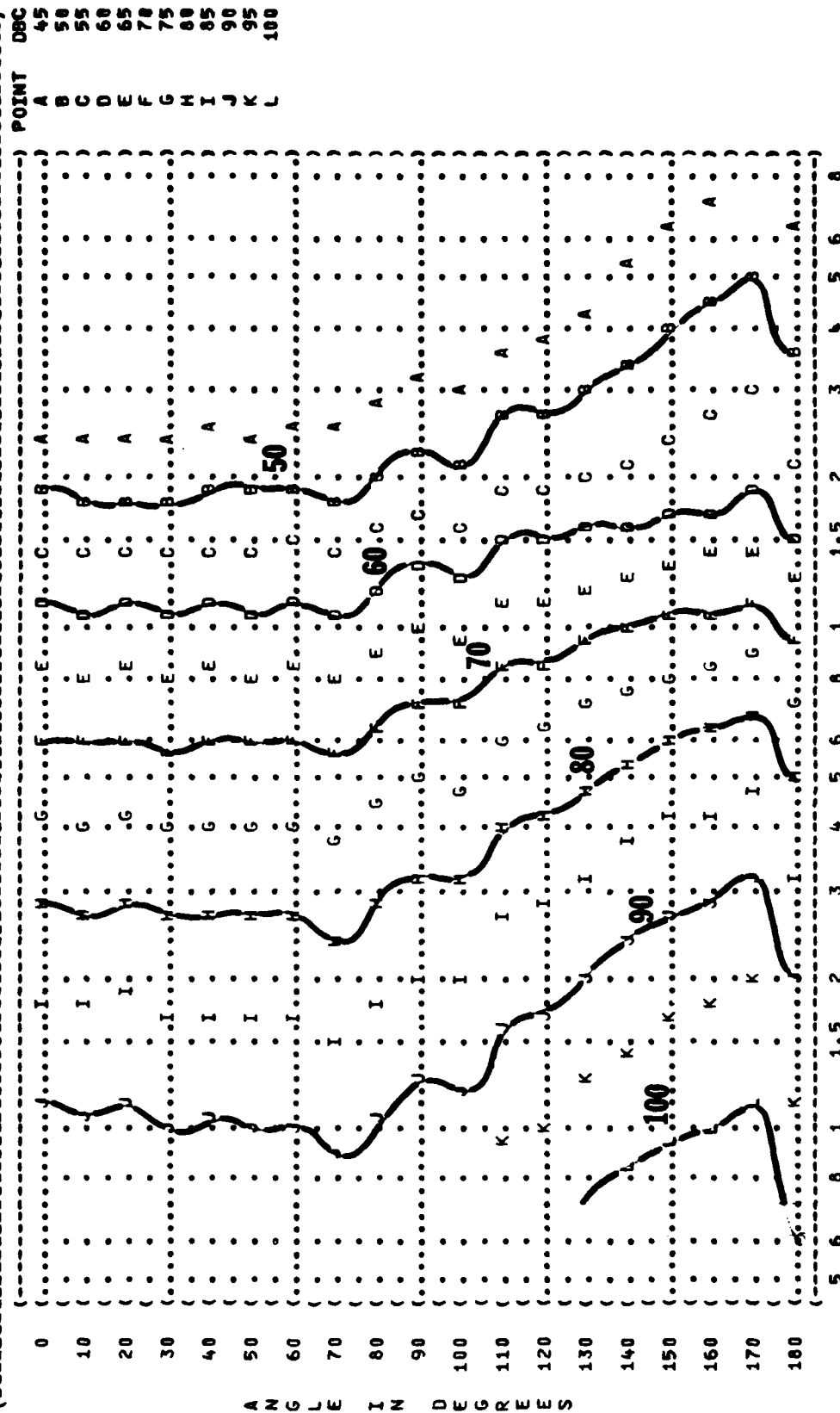


FIGURE 1 C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
EQUAL LEVEL CONTOURS (DBC)

6

IDENTIFICATIONS:
OMEGA 1.4
TEST BN-078-001
RUN 03
METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M Hg
REL HUMID = 70 %
25 JAN 62
PAGE 14

NOISE SOURCE/SUBJECT:
OPERATION:
F-106A AIRCRAFT
95% RPM
FREE FLOW
J75-P-17 ENGINE
FAR FIELD NOISE

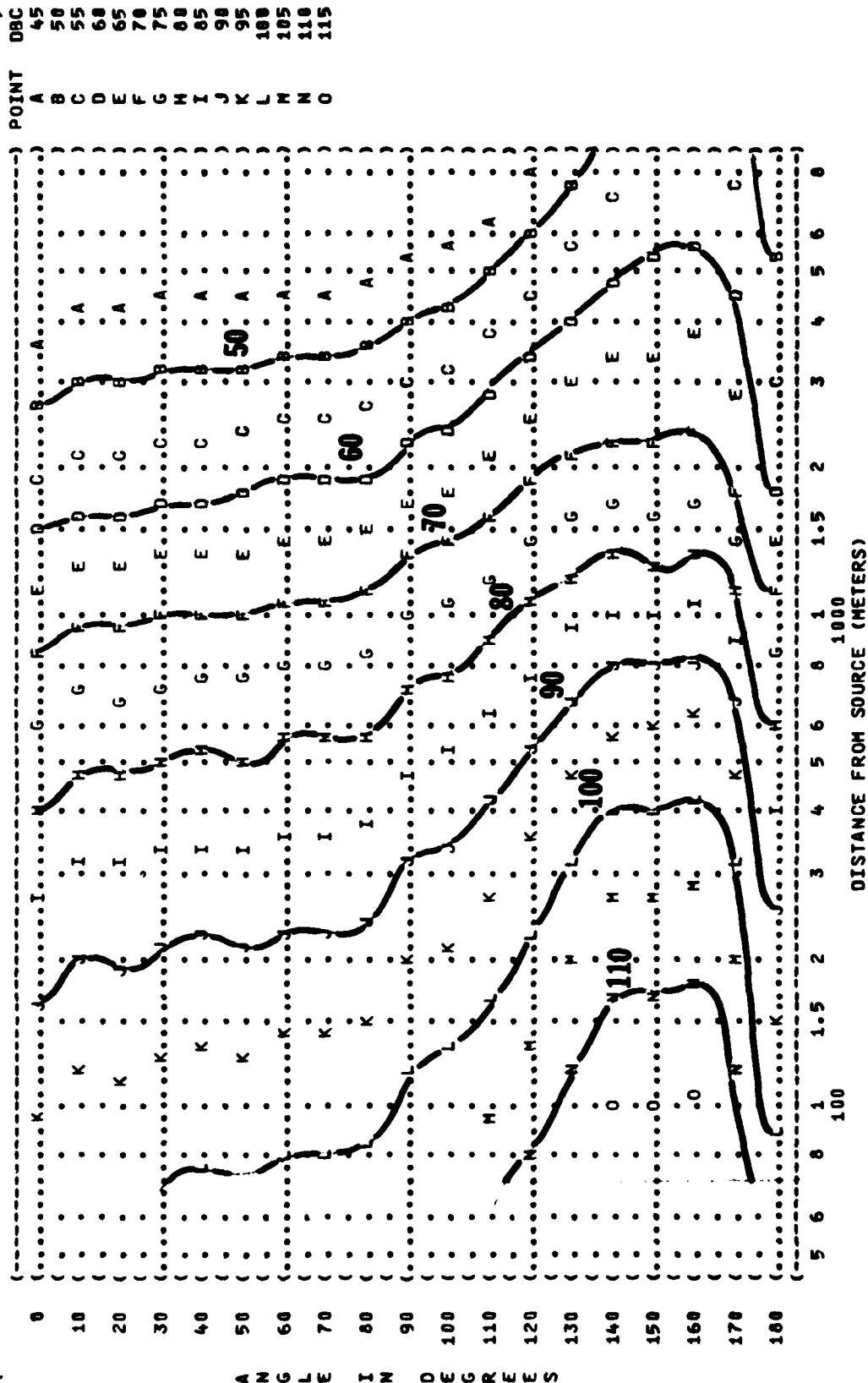


FIGURE 3: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)

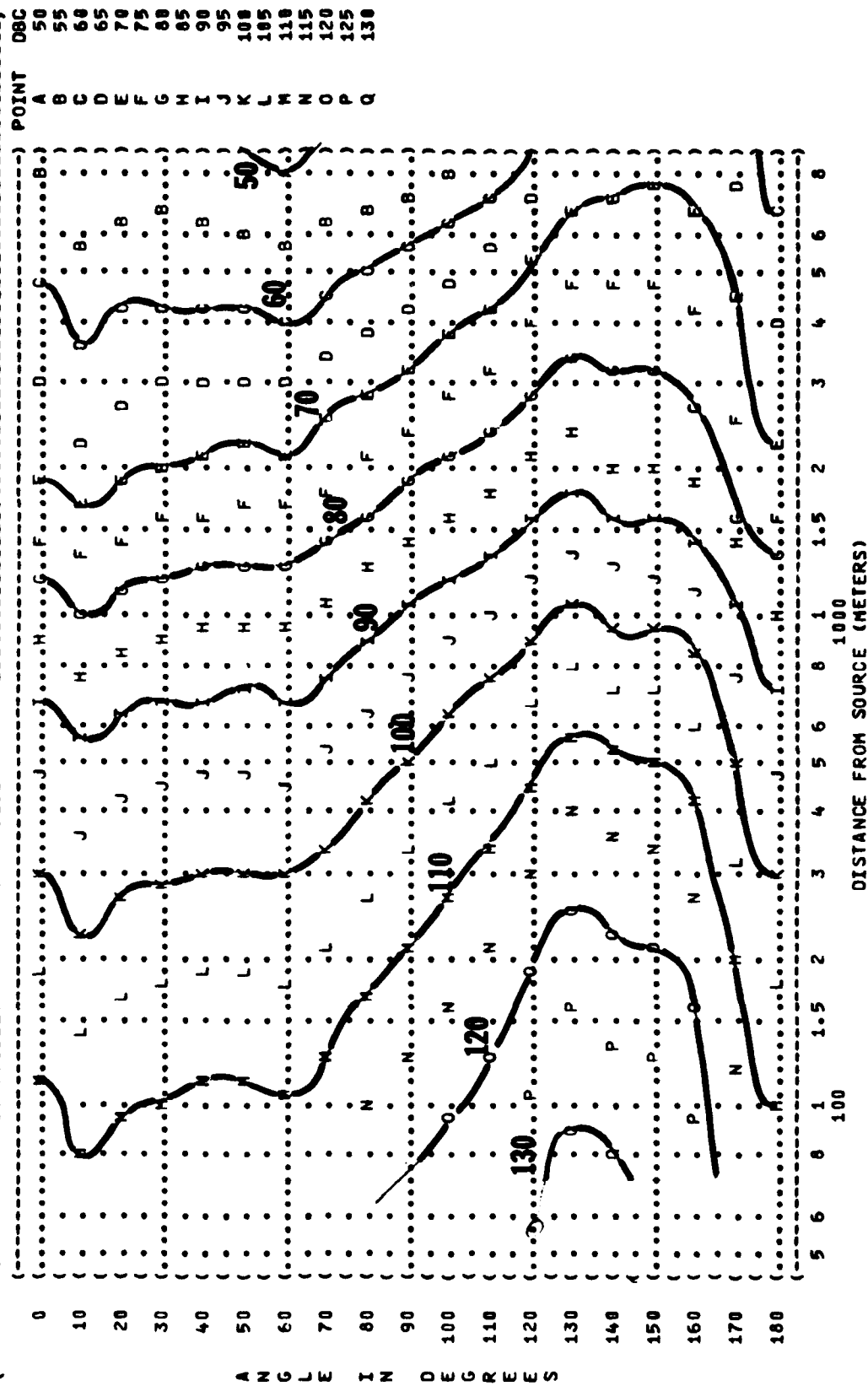
PAGE 14

FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
EQUAL LEVEL CONTOURS (DBC)

6

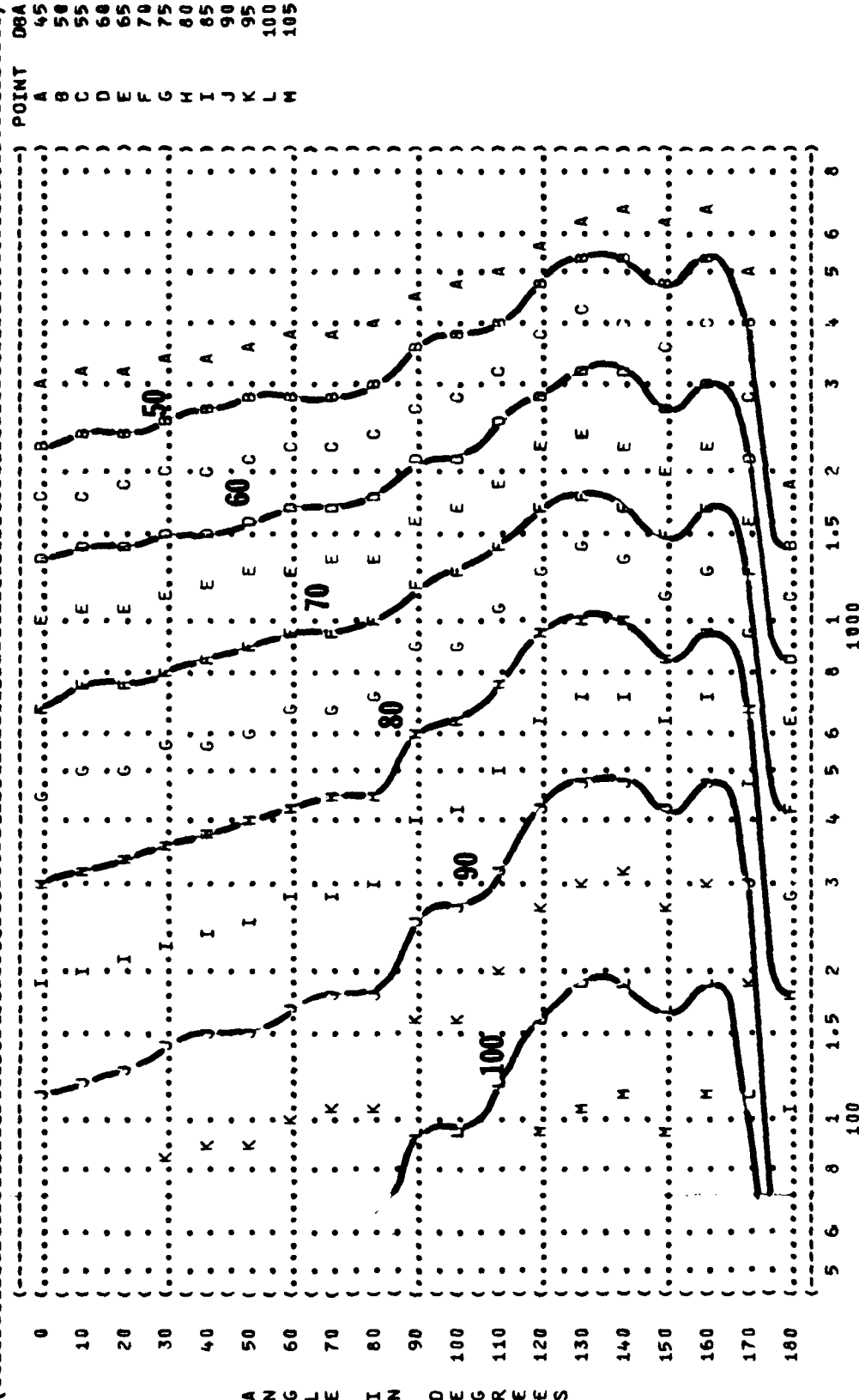
IDENTIFICATION:)
OMEGA 1.4)
TEST BN-070-001)
RUN 05)
METEOROLOGY:)
TEMP = 15 C)
BAR PRESS = .760 M HG)
REL HUMID = 70 %)
PAGE 14)

NOISE SOURCE/SUBJECT:)
OPERATION:)
AFTERBURNER PWR)
102% RPM)
FREE FLOW)
F-106A AIRCRAFT)
(J75-P-17 ENGINE))
FAR FIELD NOISE)



ANGLE IN DEGREES

(FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA))
 (7 EQUAL LEVEL CONTOURS (DBA))
 () IDENTIFICATION:)
 () OMEGA 1.4)
 () TEST BN-078-001)
 () RUN 03)
 () METEOROLOGY:)
 () TEMP = 15 C)
 () BAR PRESS = .760 M Hg)
 () REL HUMID = 70 %)
 () 25 JAN 82)
 () PAGE 15)



A N G L E I N D E G R E E S

```

IDENTIFICATION:
OMEGA 1.4
TEST BN-078-001
RUN 04
25 JAN 62
PAGE 15

```

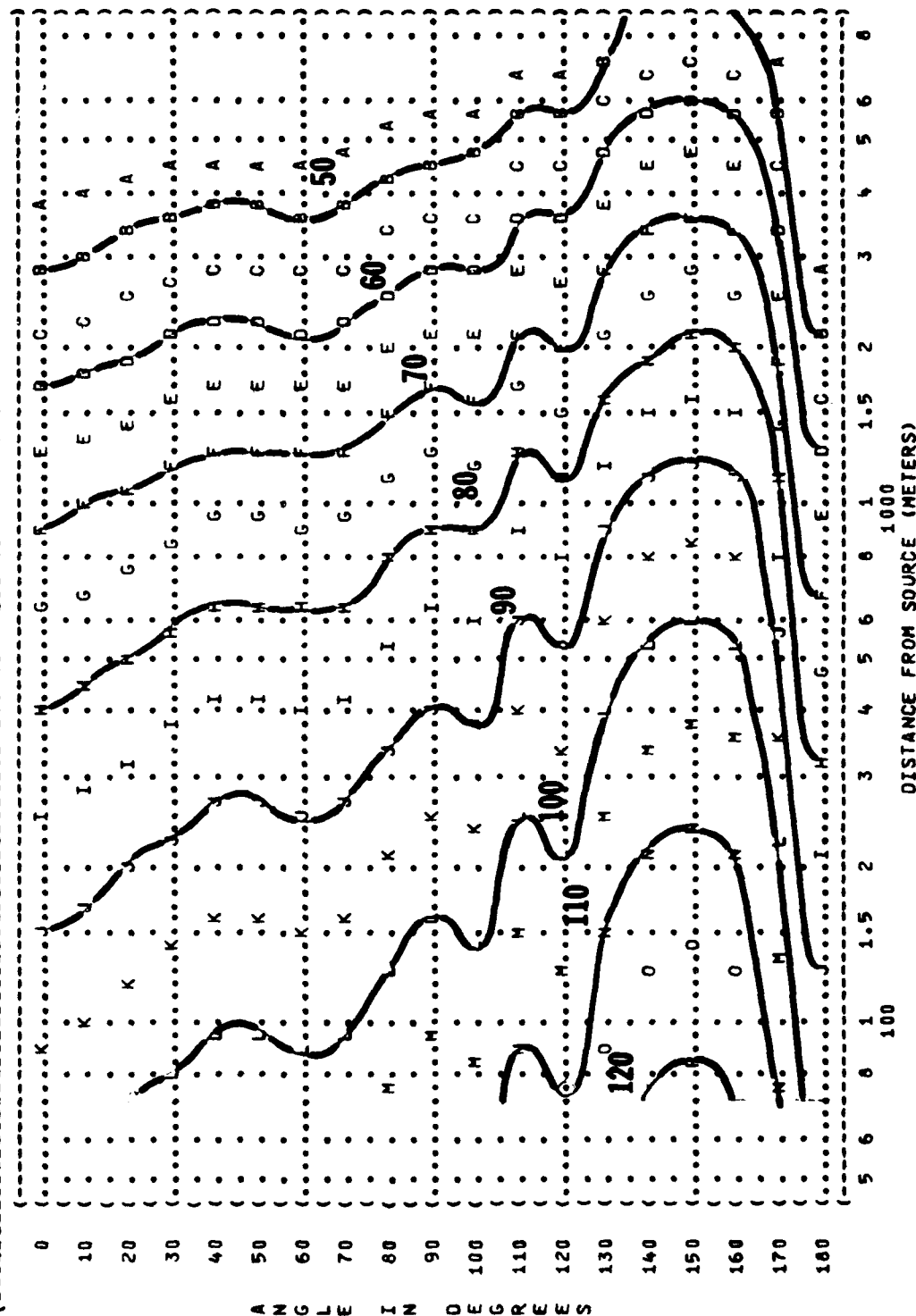
) RUN 04)
)))
) 25 JAN 82)
)))
) PAGE 15)

TEOROLOGY: = 15 C H3
TEMP = .760 M H3
BAR PRESS = 70 %
REL HUMID =

(OPERATION: PWR
(MILITARY RPM
(102% RPM
(FREE FLOW
(

NOISE SOURCE/SUBJECT:
F-106A AIRCRAFT
(J75-P-17 ENGINE)
FAR FIELD NOISE

INT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115
P	120



(FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
 (7 EQUAL LEVEL CONTOURS (DBA)
 () IDENTIFICATIONS:
 () OMEGA 1.4
 () TEST BN-079-001
 () RUN 05
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M Hg
 () 25 JAN 82
 () REL HUMID = 70 %
 () PAGE 15

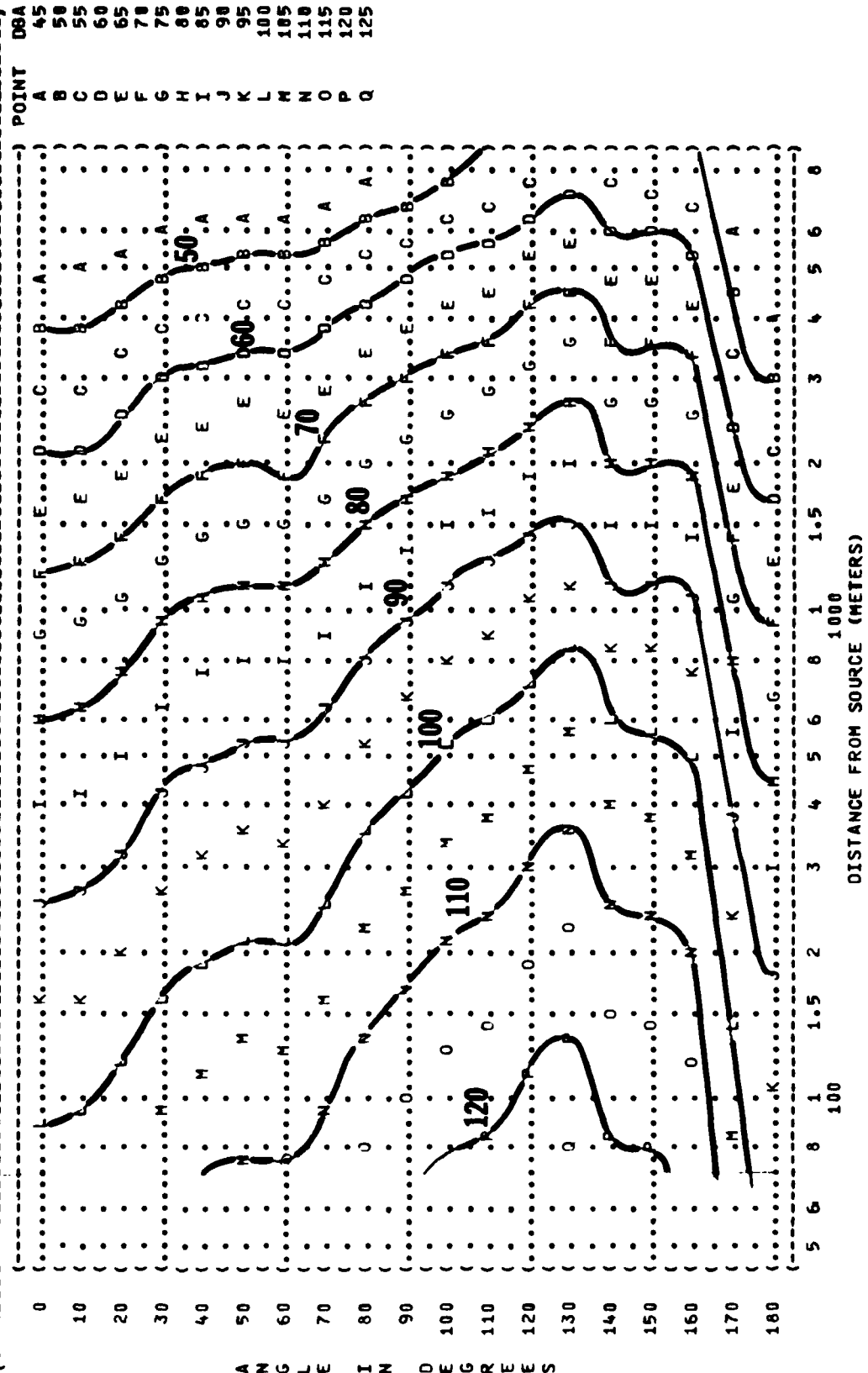
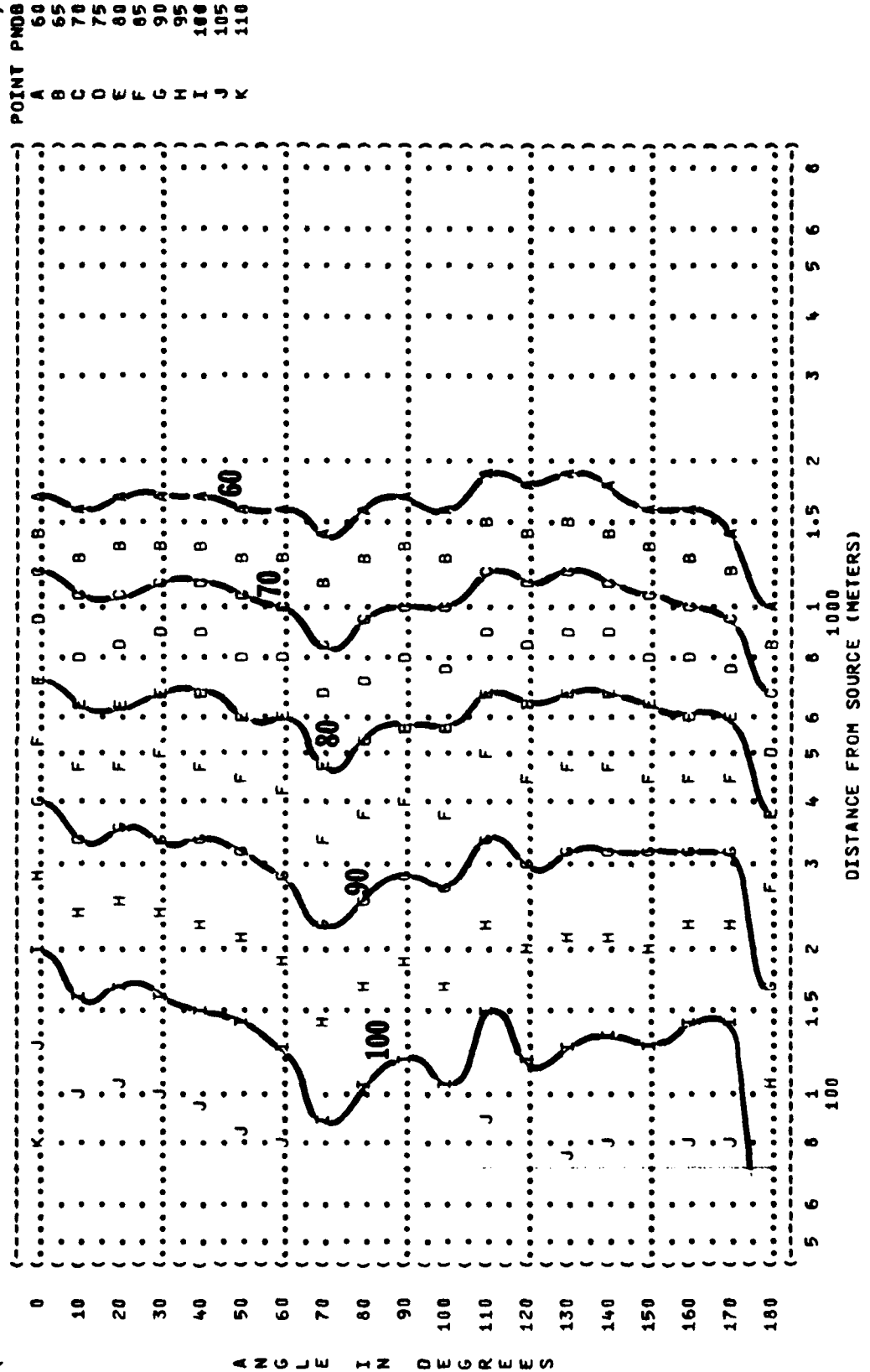


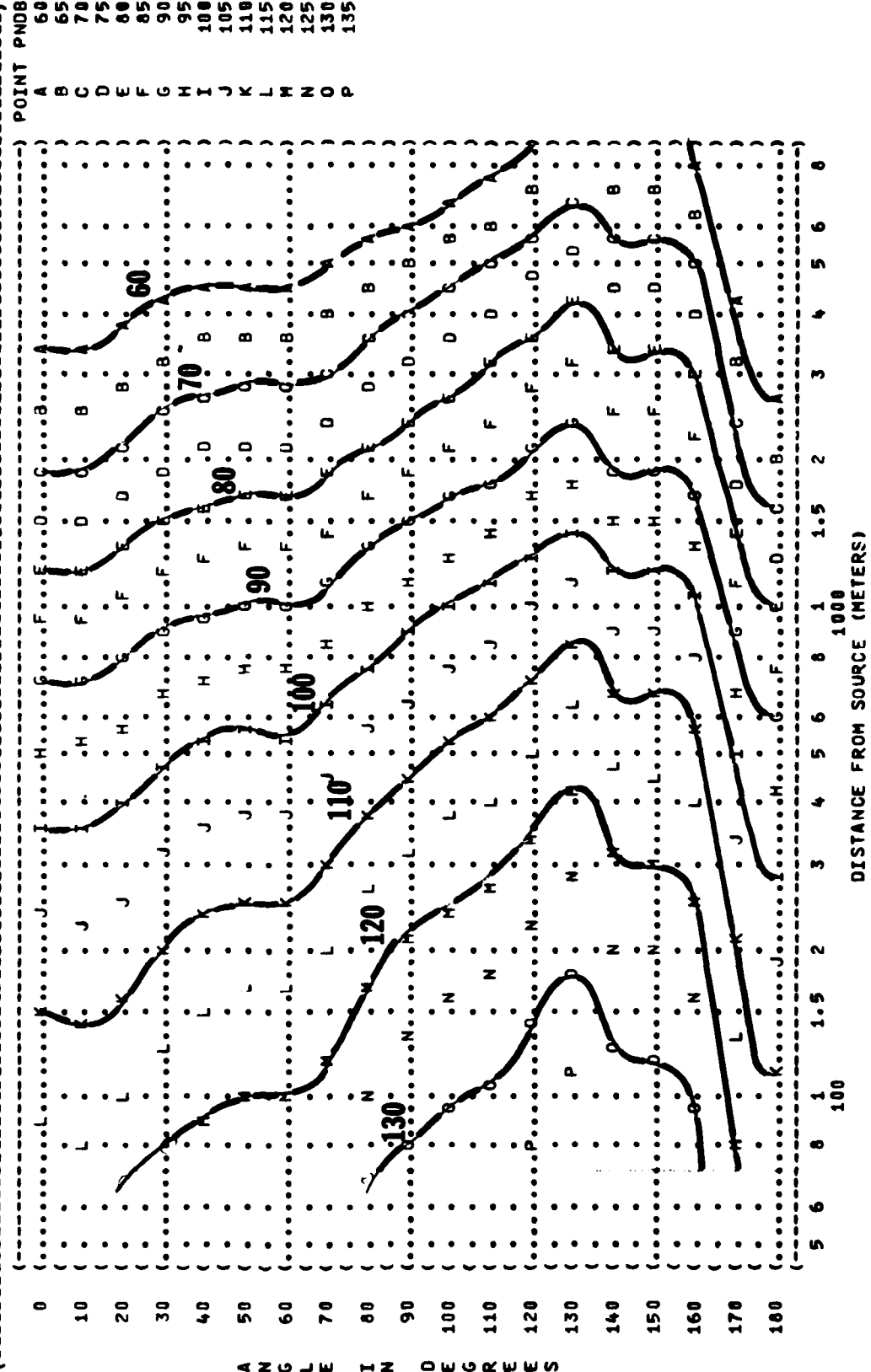
Figure 1 is a line graph showing the dependence of the concentration of the polymer solution (x-axis, 0 to 40) on the point of precipitation (PNDB) (y-axis, 0 to 100). The graph contains five curves labeled A, B, C, D, and E. Curve A is the uppermost, followed by B, C, D, and E. Curve E shows a sharp decrease in concentration as PNDB increases beyond 60. The curves represent different polymers: A (PMMA), B (PMMA), C (PMMA), D (PMMA), and E (PMMA).



```
(-----)
(( FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT) ) IDENTIFICATION: )
((      8      EQUAL LEVEL CONTOURS (PNDB) ) )
(( ) ) OMEGA 1.4 )
(( ) ) TEST BN-076-001 )
(( ) ) RUN 02 )
(( ) ) )
(( NOISE SOURCE/SUBJECT: ) METEOROLOGY: )
(( F-186A AIRCRAFT ) TEMP = 15 C )
(( (J75-P-17 ENGINE) ) BAR PRESS = .760 M H2O )
(( FAR FIELD NOISE ) REL HUMID = 70 % )
(( ) ) PAGE 16 )
(-----)
```



() FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
 () 8 EQUAL LEVEL CONTOURS (PNDB)
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST BN-078-001
 () RUN 05
 () NOISE SOURCE/SUBJECT:
 () F-106A AIRCRAFT
 () (J75-P-17 ENGINE)
 () FAR FIELD NOISE
 () OPERATION:
 () AFTERBURNER PMR
 () 102% RPM
 () FREE FLOW
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M Hg
 () REL HUMID = 70 %
 () PAGE 16



A N G L E I N D E C R E E S

FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
 EQUAL LEVEL CONTOURS (CB)

IDENTIFICATION:
 OMEGA 1.4
 TEST BN-878-081
 RUN 81

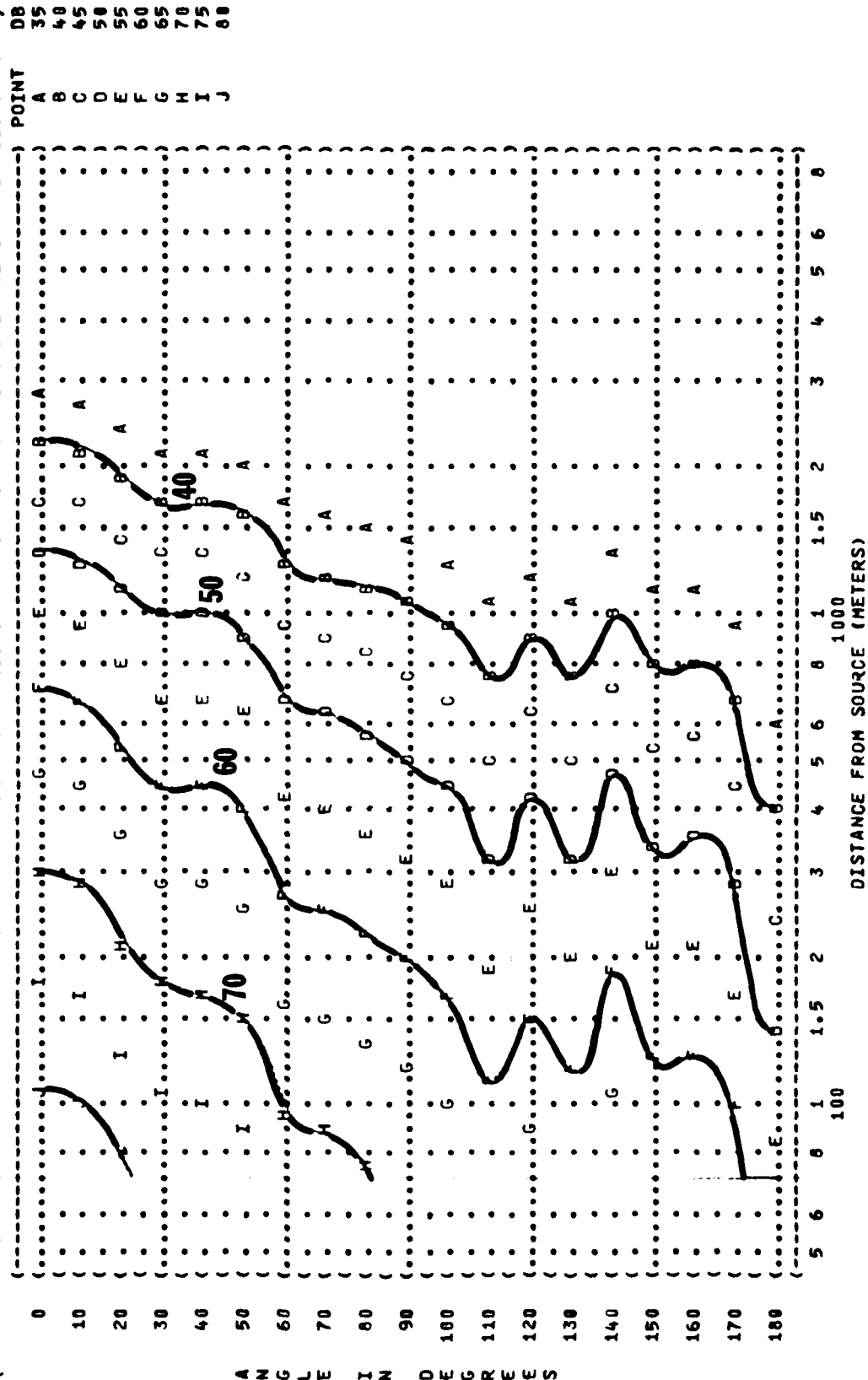
NOISE SOURCE/SUBJECT:
 F-106A AIRCRAFT
 (J75-P-17 ENGINE)
 FAR FIELD NOISE

OPERATION:
 IDLE POWER
 59% RPM
 FREE FLOW

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

25 JAN 82

PAGE 17



OMEGA 1.4
TEST BN-078-001
RUN 04

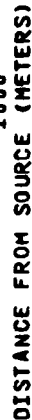


FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
EQUAL LEVEL CONTOURS (DB)

9

IDENTIFICATION:

OMEGA 1.4
TEST BN-076-001

RUN 05

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

OPERATION:

AFTERBURNER PWR

102% RPM

FREE FLOW

NOISE SOURCE/SUBJECT:

F-106A AIRCRAFT

(J75-P-17 ENGINE)

FAR FIELD NOISE

PAGE 17

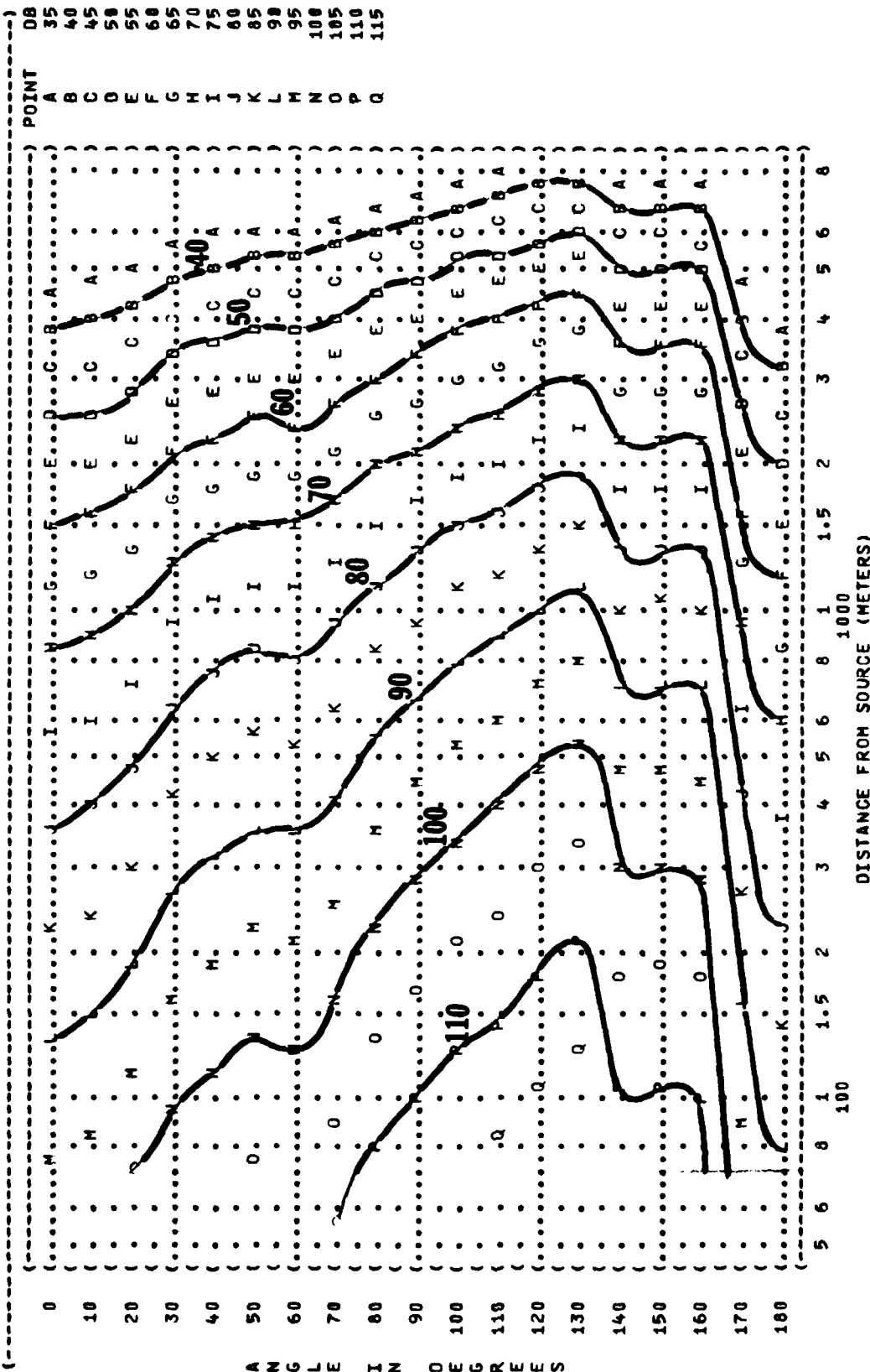


FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

10

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) IDENTIFICATION:)
F-106A AIRCRAFT (IDLE POWER) TEMP = 15 C) OMEGA 1.4
(J75-P-17 ENGINE) (59% RPM) BAR PRESS = .760 M HG) TEST BN-078-001)
FAR FIELD NOISE (FREE FLOW) REL HUMID = 70 %) RUN 01)
()) 25 JAN 82)
()) PAGE 8)

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY
AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS
FOR ALL ANGLES EVALUATED (INDICATED BY $\angle$ AT LEFT)
UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:

MINIMUM QPL EAR MUFFS
AMERICAN OPTICAL 1700 EAR MUFFS
V-51R EAR PLUGS
COMFIT TRIPLE FLANGE EAR PLUGS
H-133 GROUND COMMUNICATION UNIT

(-----)

100										1000									
5	6	8	1	1.5	2	3	4	5	6	8	1	1.5	2	3	4	5	6	8	
DISTANCE FROM SOURCE (METERS)																			

FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)

IDENTIFICATION:

10

EQUAL TIME CONTOURS (MINUTES)

NO PROTECTION

NOISE SOURCE/SUBJECT:

OPERATION:

F-106A AIRCRAFT

(J75-P-17 ENGINE)

FAR FIELD NOISE

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M Hg

REL HUMID = 70 %

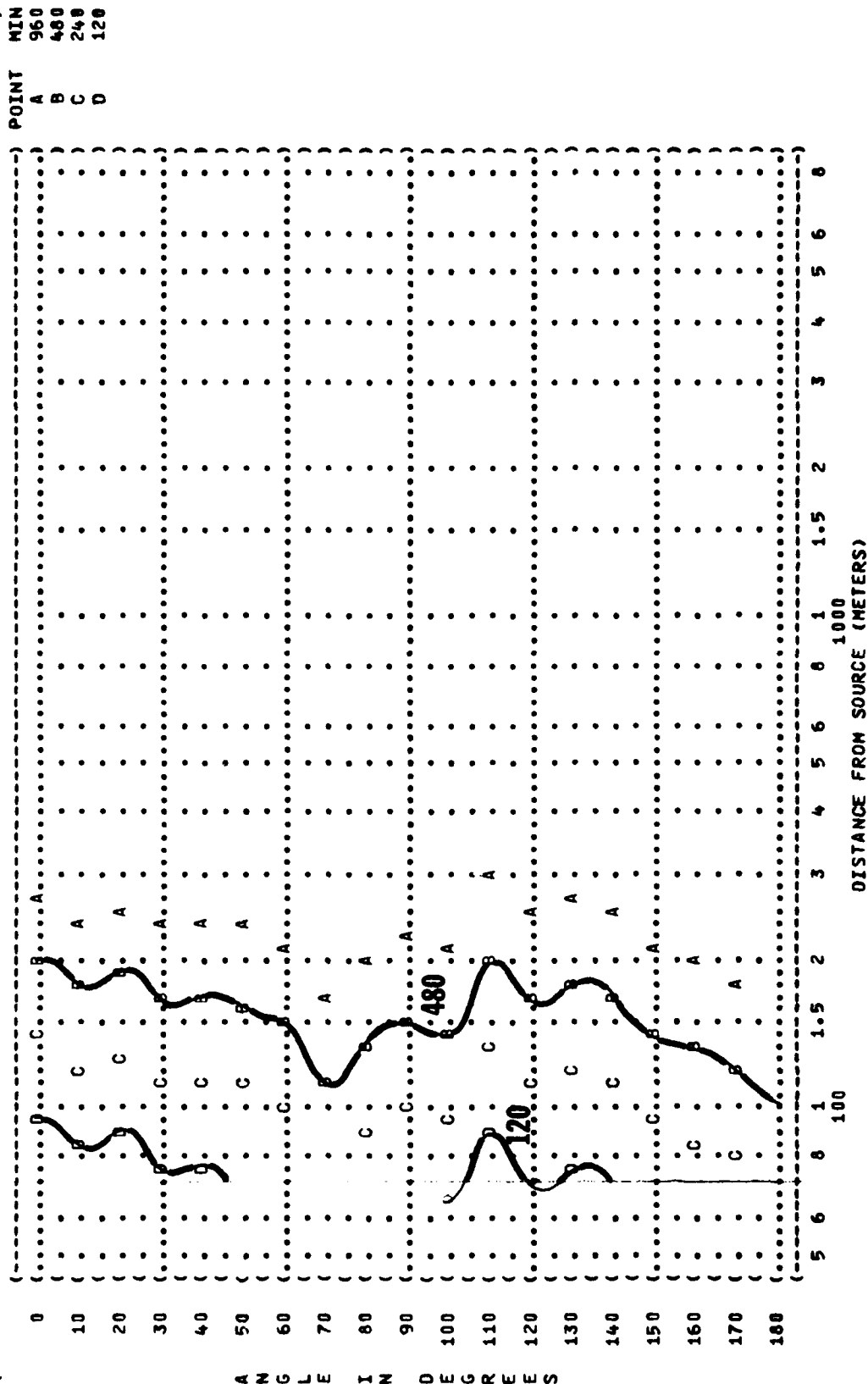
PAGE 7

OMEGA 1.4

TEST BN-078-081

RUN 02

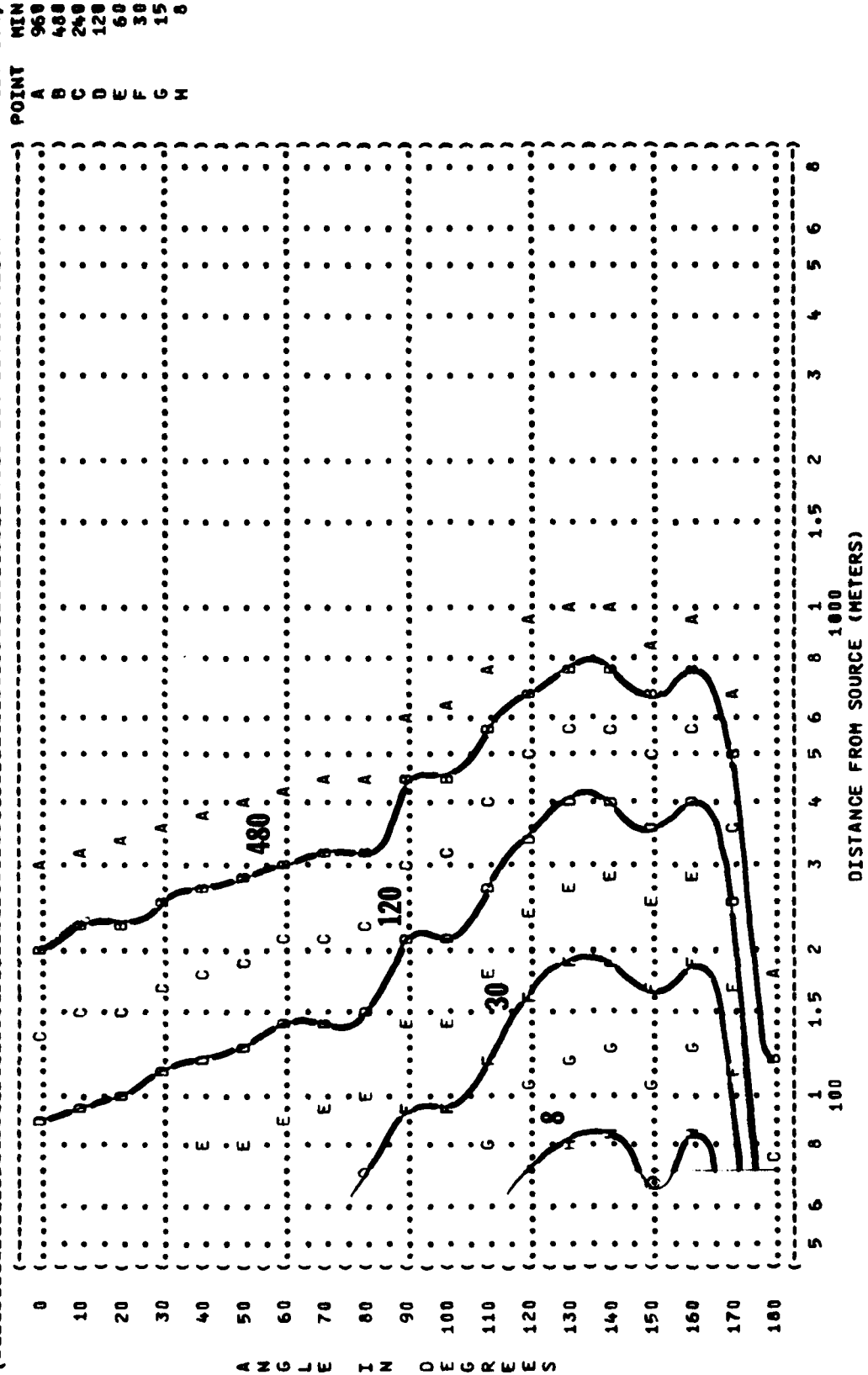
25 JAN 82



[illegible]

DISTANCE FROM SOURCE (METERS)

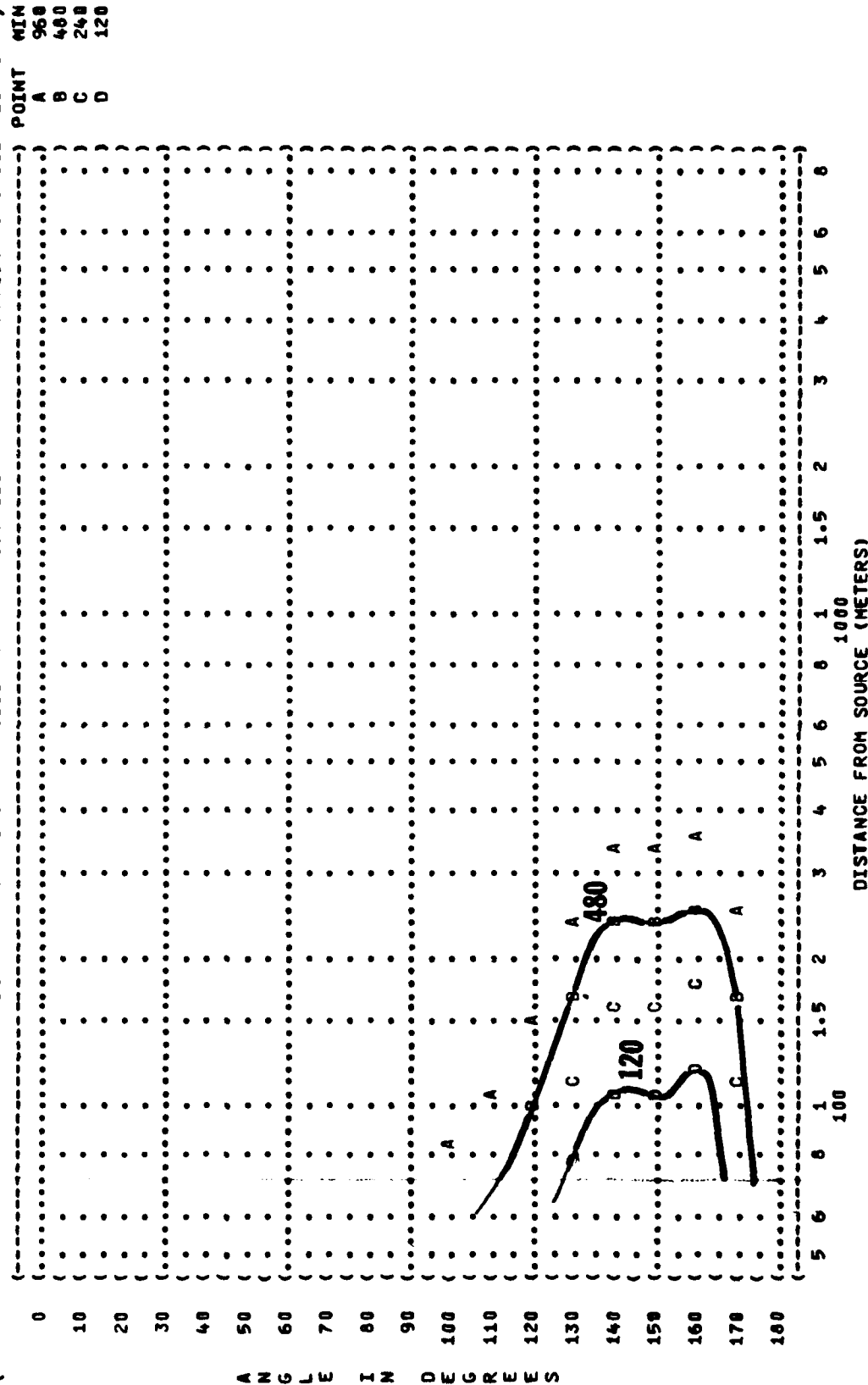
FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) IDENTIFICATIONS:
 10 EQUAL TIME CONTOURS (MINUTES)
 NO PROTECTION
 NOISE SOURCE/SUBJECT: OPERATION: METEOROLOGY: TEMPERATURE = 15 C
 F-106A AIRCRAFT 95% RPM
 (J75-P-17 ENGINE) FREE FLOW BAR PRESS = .760 M HG
 FAR FIELD NOISE REL HUMID = 70 %
 TEST BN-070-001
 RUN 03
 25 JAN 82
 PAGE 7



```

(-----)
( ( FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
( ( EQUAL TIME CONTOURS (MINUTES) ) )
( ( 10 MINIMUM QPL EAR MUFFS ) )
(-----)
( ( NOISE SOURCE/SUBJECT: ) METEOROLOGY: )
( ( F-106A AIRCRAFT ) TEMP = 15 C )
( ( (J75-P-17 ENGINE) ) BAR PRESS = .760 M HG )
( ( FAR FIELD NOISE ) REL HUMID = 70 % )
( ( ) )
(-----)
( ( ) ) PAGE 8 )
(-----)

```



	(-----)	POINT	HIN
0	(.....)	A	968
	(.....)	B	480
10	(.....)	C	248



FIGURES: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)

10 EQUAL TIME CONTOURS (MINUTES)

COMFIT TRIPLE FLANGE EAR PLUGS

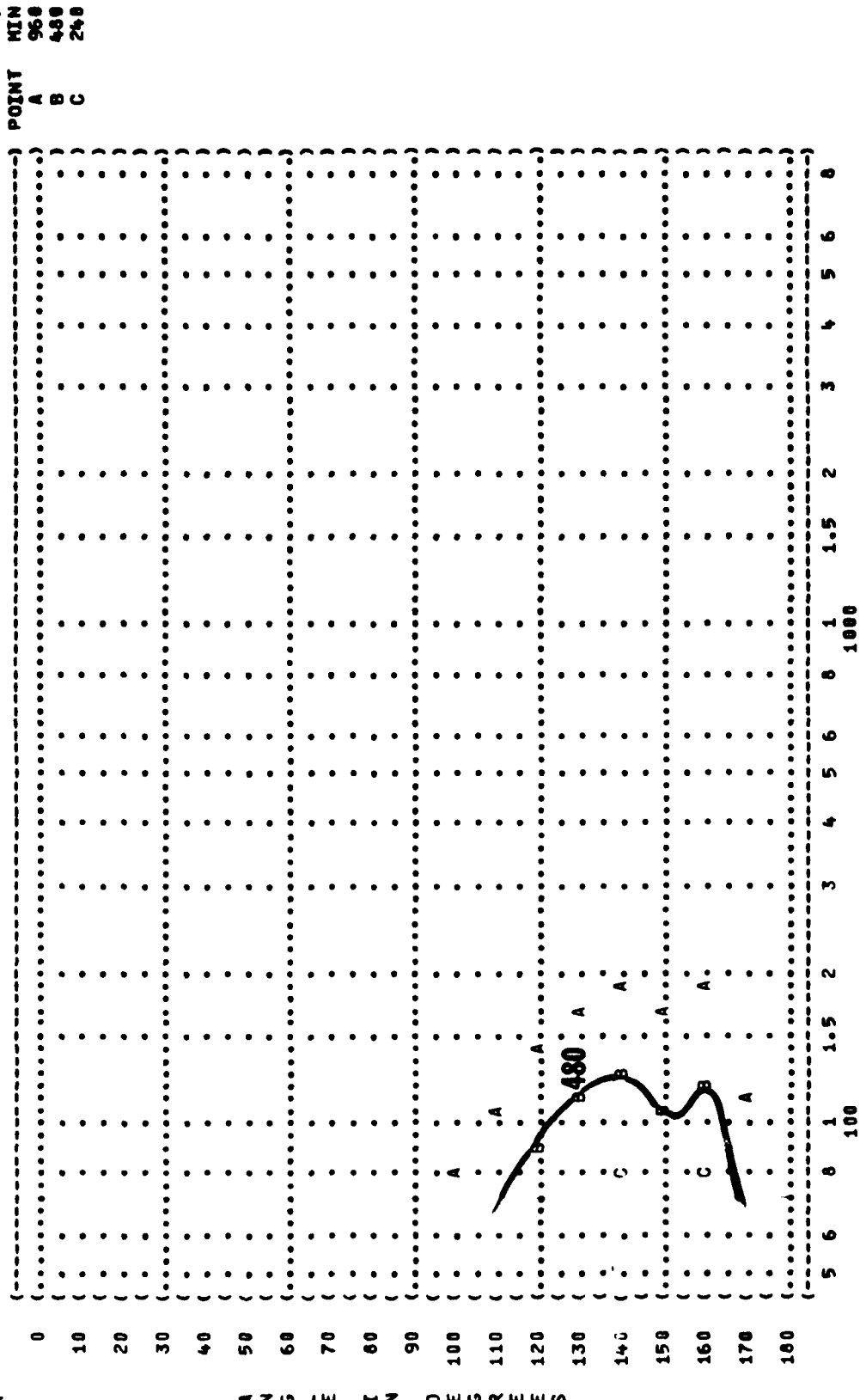
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F-106A AIRCRAFT (95% RPM)

(J75-P-17 ENGINE) (FREE FLOW)

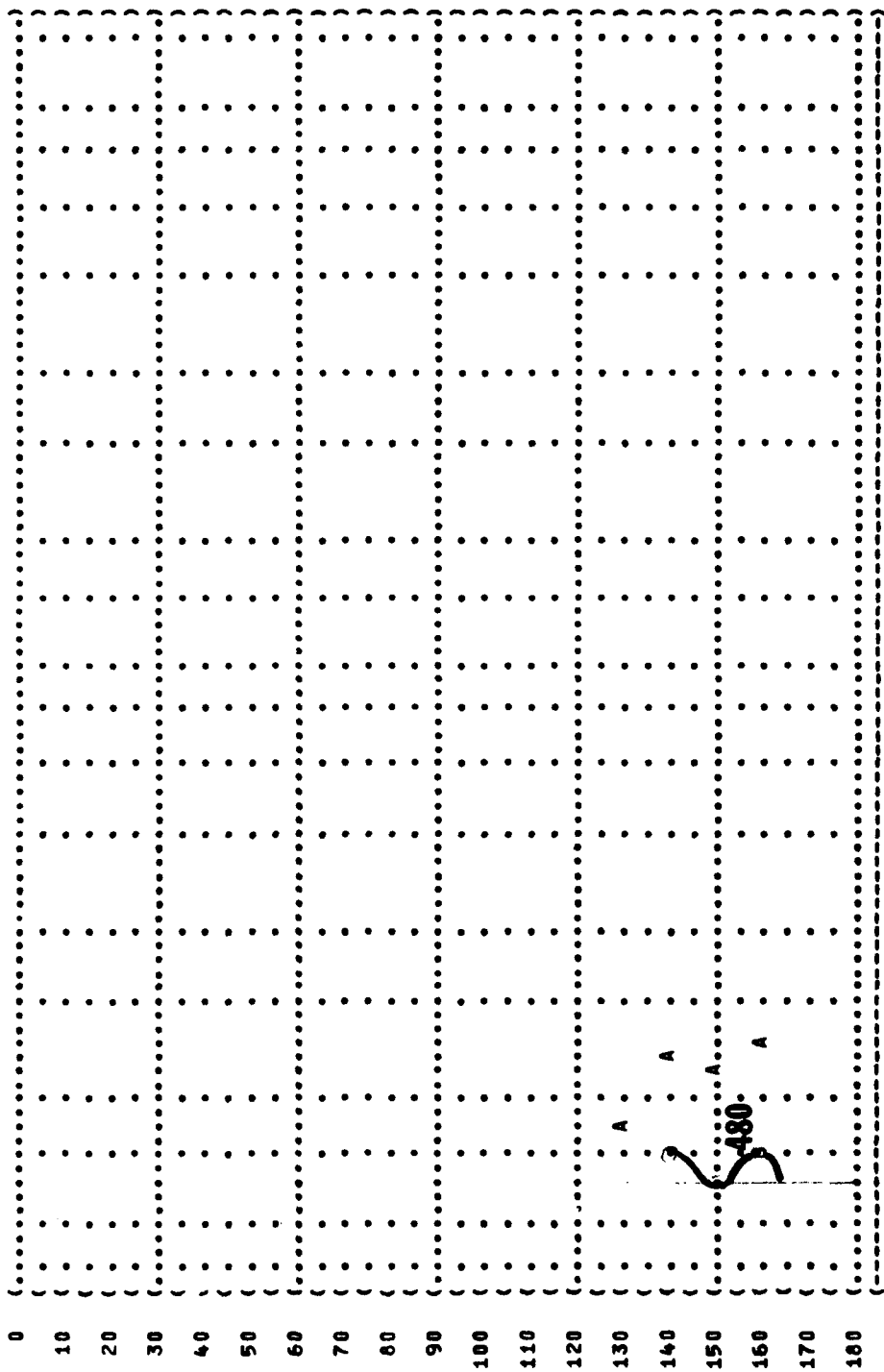
FAR FIELD NOISE ()

IDENTIFICATIONS: () OMEGA 1-4 () TEST BN-079-001 () RUN 03 () 25 JAN 82 () PAGE 11



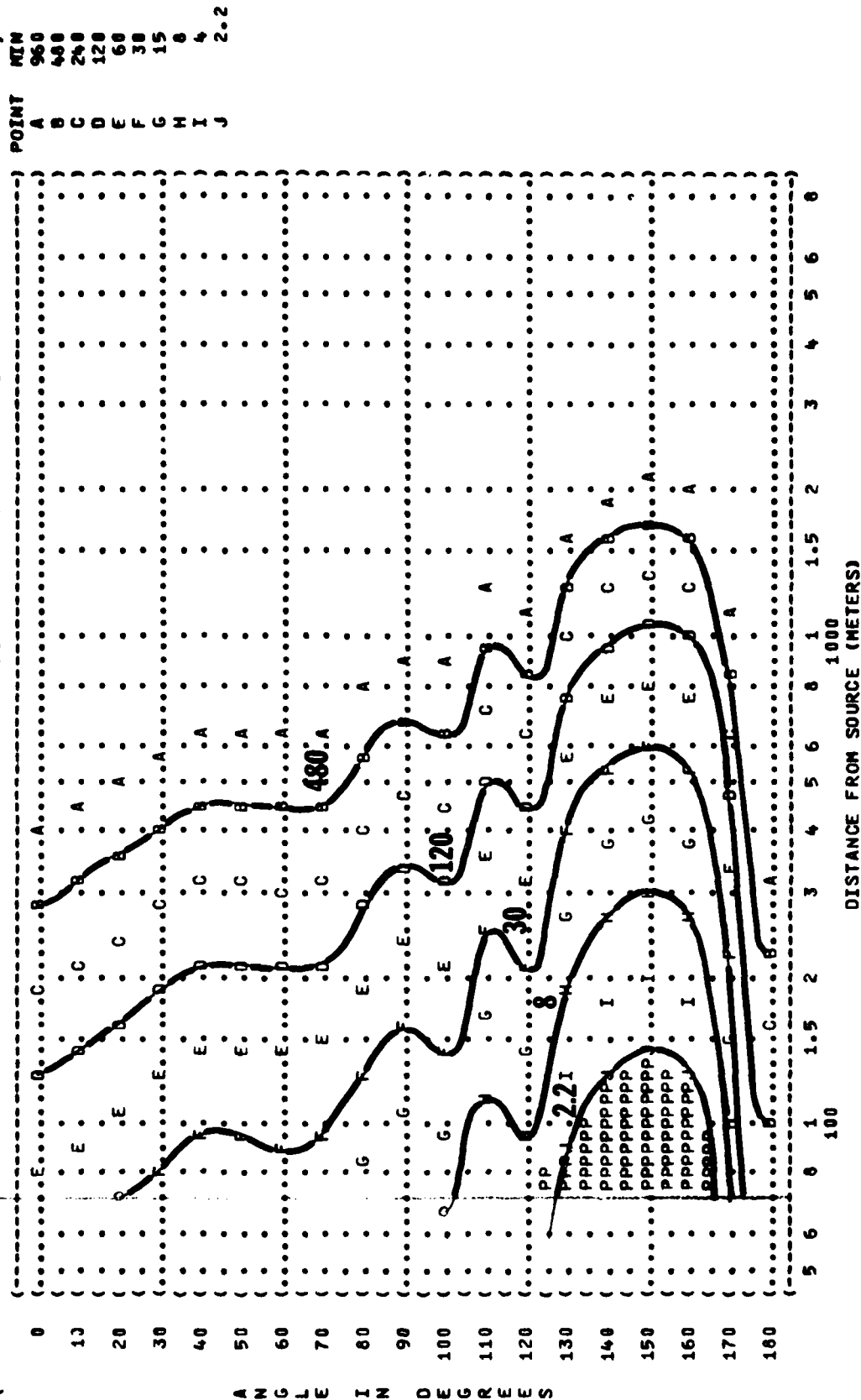
(FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)) IDENTIFICATION:)
 ((10 EQUAL TIME CONTOURS (MINUTES)))
 (H-133 GROUND COMMUNICATION UNIT)
 (NOISE SOURCE/SUBJECT:)
 (F-106A AIRCRAFT) OPERATION: ()
 ((J75-P-17 ENGINE)) (95% RPM)
 ((FAR FIELD NOISE)) (FREE FLOW)
 ()
 () METEOROLOGY:)
 () TEMP = 15 C)
 () BAR PRESS = .760 M Hg)
 () REL HUMID = 70 %)
 ()
 () PAGE 12)
 ()
 () POINT MIN
 () A 960
 () B 480

ANGLE IN DEGREES



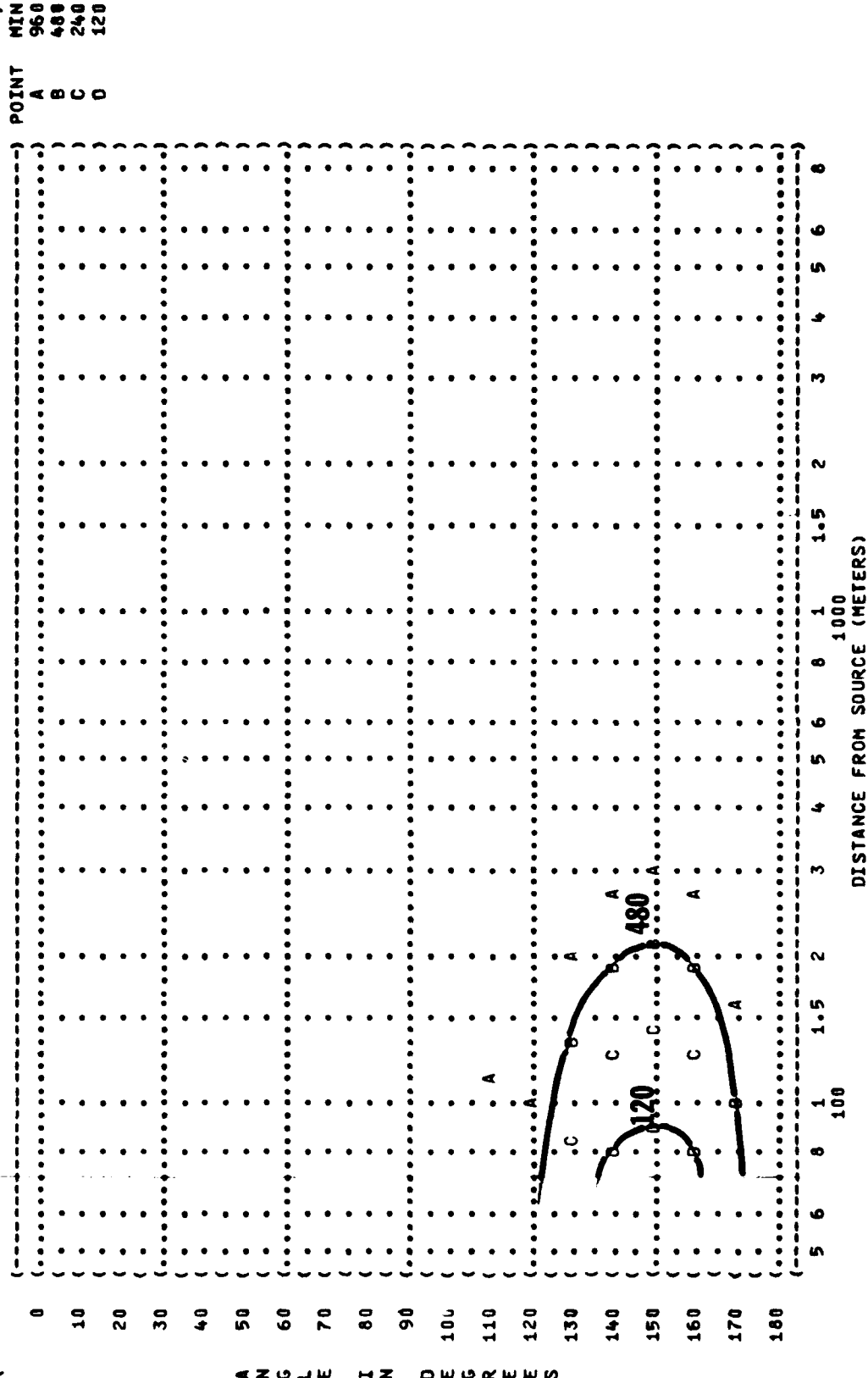
DISTANCE FROM SOURCE (METERS)

FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) IDENTIFICATIONS:)
 () EQUAL TIME CONTOURS (MINUTES))
 () NO PROTECTION)
 () OMEGA 1.4)
 () TEST BN-070-001)
 () RUN 04)
 () METEOROLOGY:)
 () TEMP = 15 C)
 () BAR PRESS = .760 M HG)
 () REL HUMID = 70 %)
 () 25 JAN 02)
 () PAGE 7)

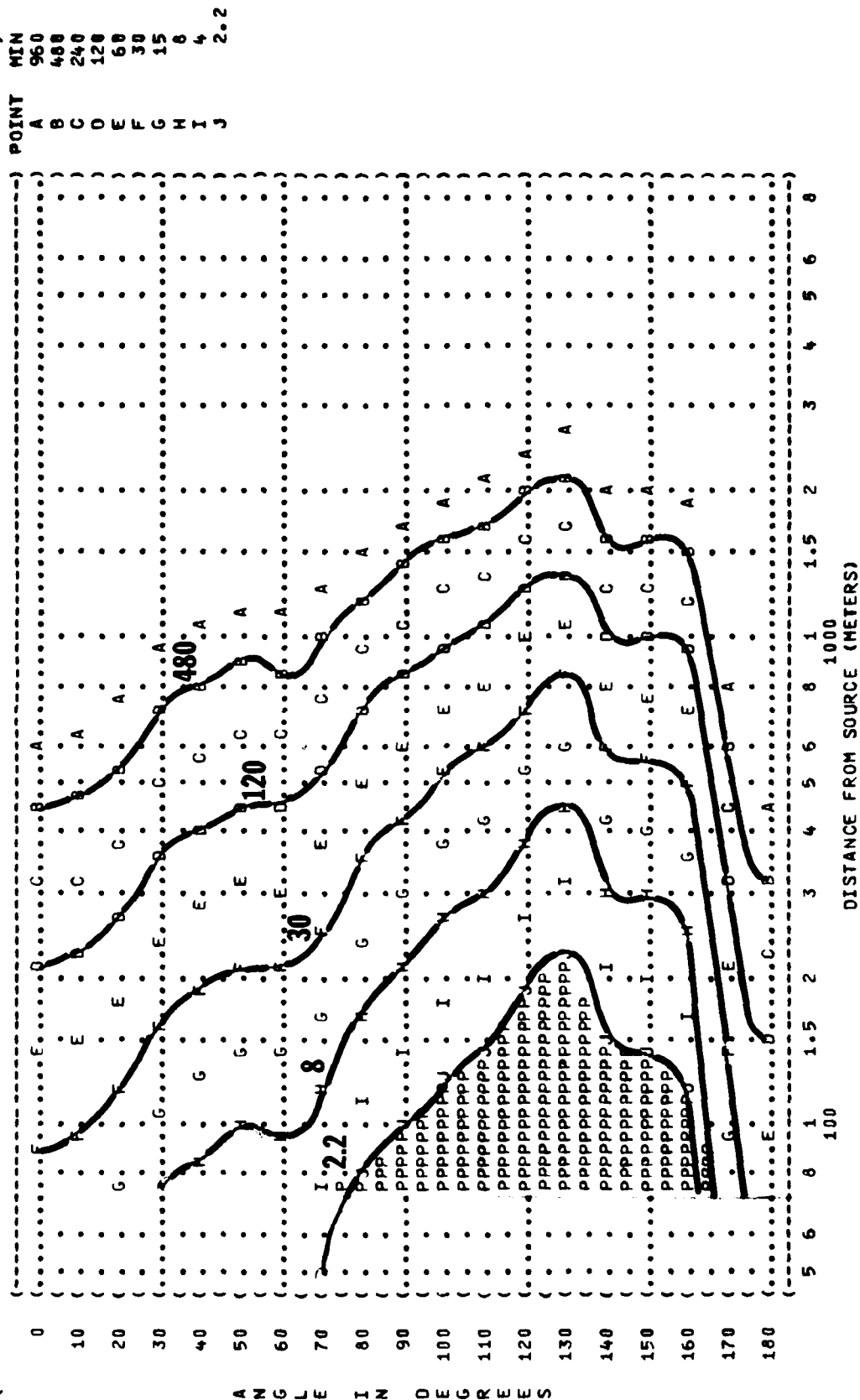


	(	.	-	)	MIN	POINT
0	(	.	.	.	 A	960)
	(	.	.	.	 B	480)
10	(	.	.	.	 C	240)
	(	.	.	.	 D	120)
20	(	.	.	.	 E	60)
	(	.	.	.	 F	30)

() FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)) IDENTIFICATION:)
 () EQUAL TIME CONTOURS (MINUTES))
 () **10** H-133 GROUND COMMUNICATION UNIT) OMEGA 1.4
 () NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) TEST BN-078-001
 () F-106A AIRCRAFT (MILITARY PMR) TEMP = 15 C) RUN 04
 () (J75-P-17 ENGINE) (102% RPM) BAR PRESS = .760 M HG) 25 JAN 82
 () FAR FIELD NOISE (FREE FLOW) REL HUMID = 70 %)
 () ()) PAGE 12)



```
(-----) IDENTIFICATION# )  
(( FIGURE# MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)  
(( EQUAL TIME CONTOURS (MINUTES)  
(( NO PROTECTION  
(-----) OMEGA 1.4  
((( TEST BN-078-001  
(-----) RUN 05  
  
(( NOISE SOURCE/SUBJECT: ) METEOROLOGY:  
(( F-106A AIRCRAFT ) TEMP = 15 C  
(( J75-P-17 ENGINE ) BAR PRESS = .760 M HG  
(( FAR FIELD NOISE ) REL HUMID = 70 %  
(( ) PAGE 7
```



P ADDITIONAL EAR PROTECTION REQUIRED.

FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

10) IDENTIFICATION:
)
) OMEGA 1.4

CONFIT TRIPLE FLANGE EAR PLUGS

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NOISE SOURCE/SUBJECT:
F-106A AIRCRAFT
(J75-P-17 ENGINE)
FAR FIELD NOISE

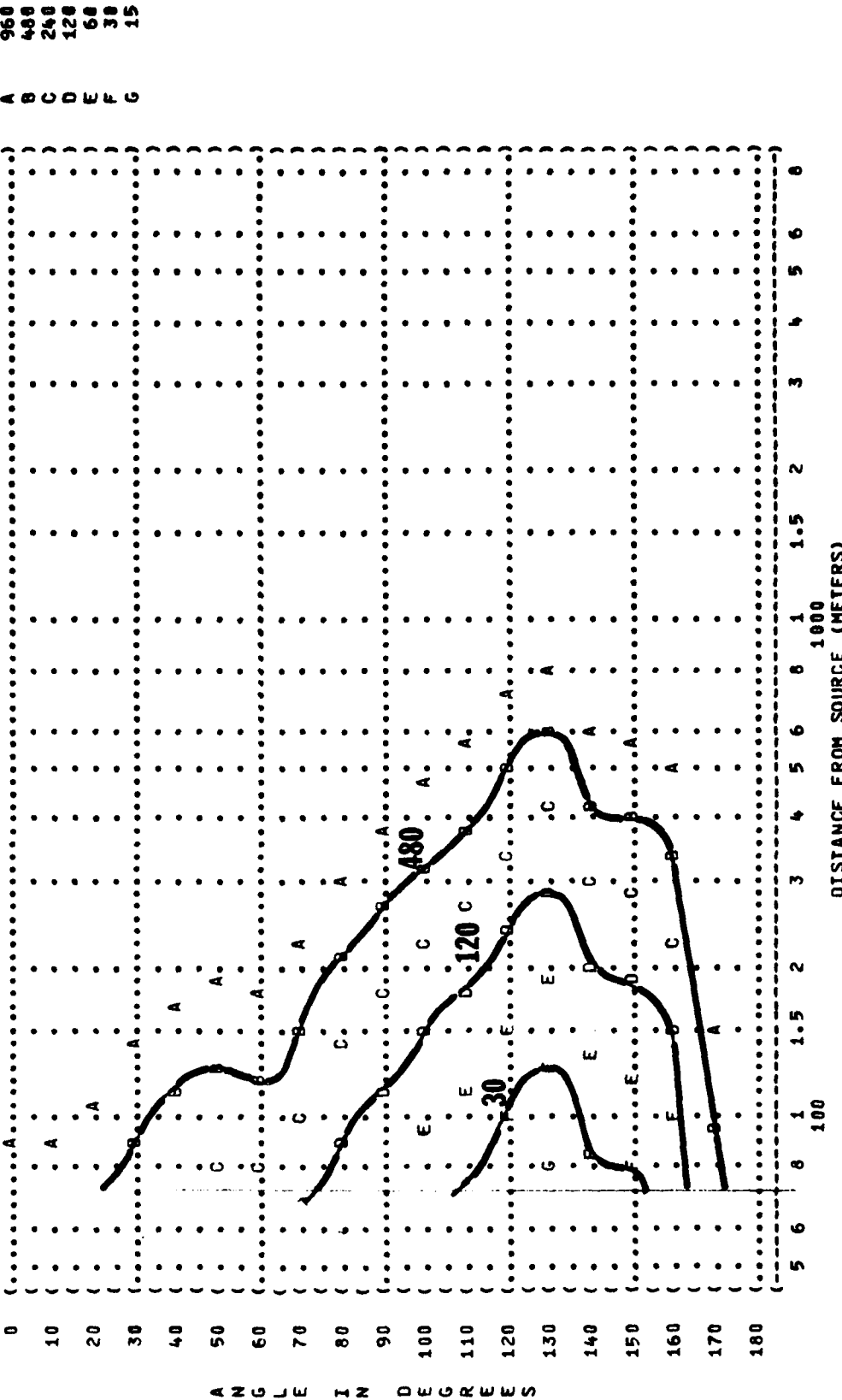
( OPERATION:
( AFTERBURNER PWR
( 102% RPM
( FREE FLOW
(

) METEOROLOGY:
) TEMP = 15 C
) BAR PRESS = .760 M H3
) REL HUMID = 70 %
)

) RUN 85
TEST 8N-078-080
25 JAN 82
PAGE 11

```

(-----) POINT (-----)



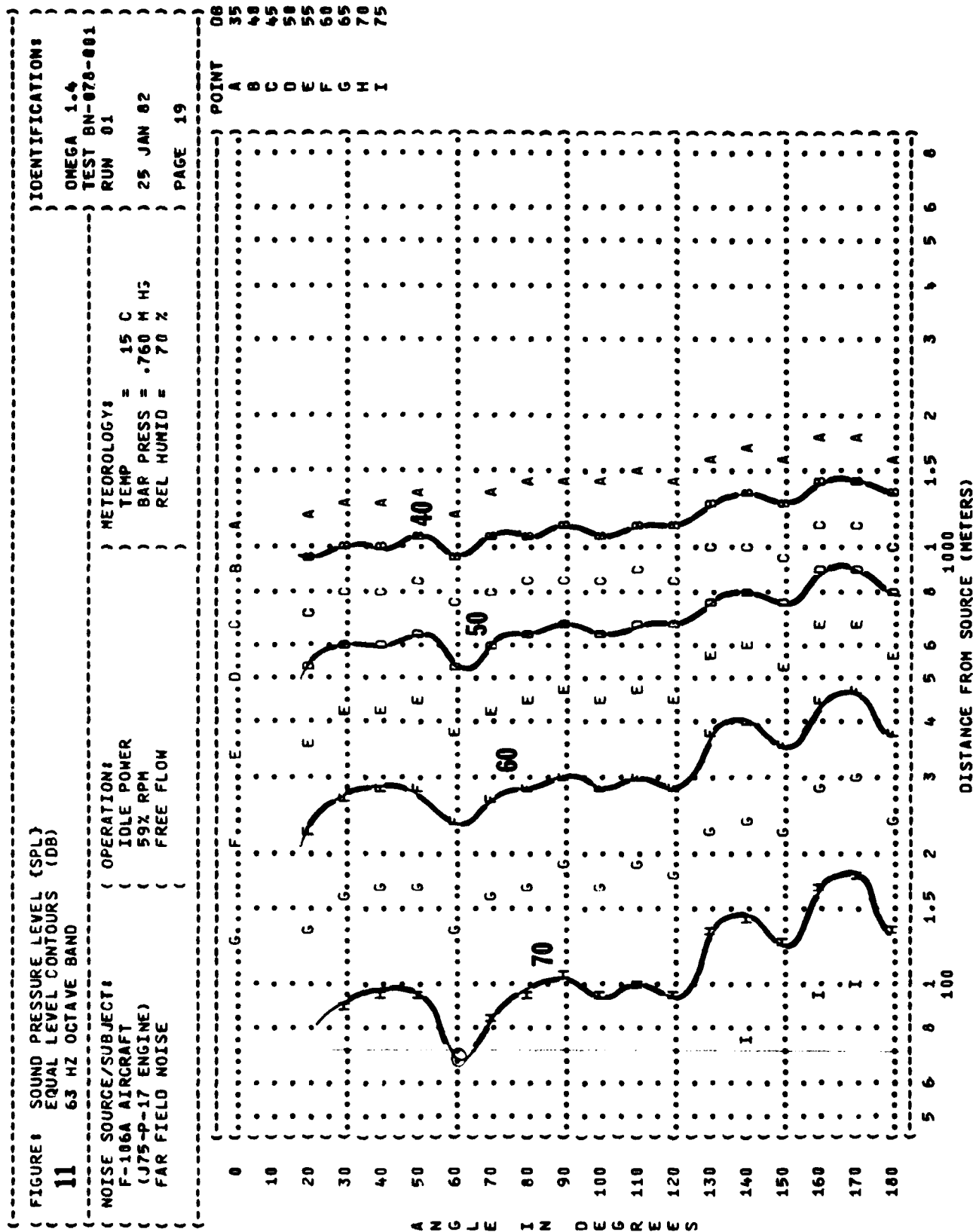


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUIL LEVEL CONTOURS (DB)
125 HZ OCTAVE BAND

11

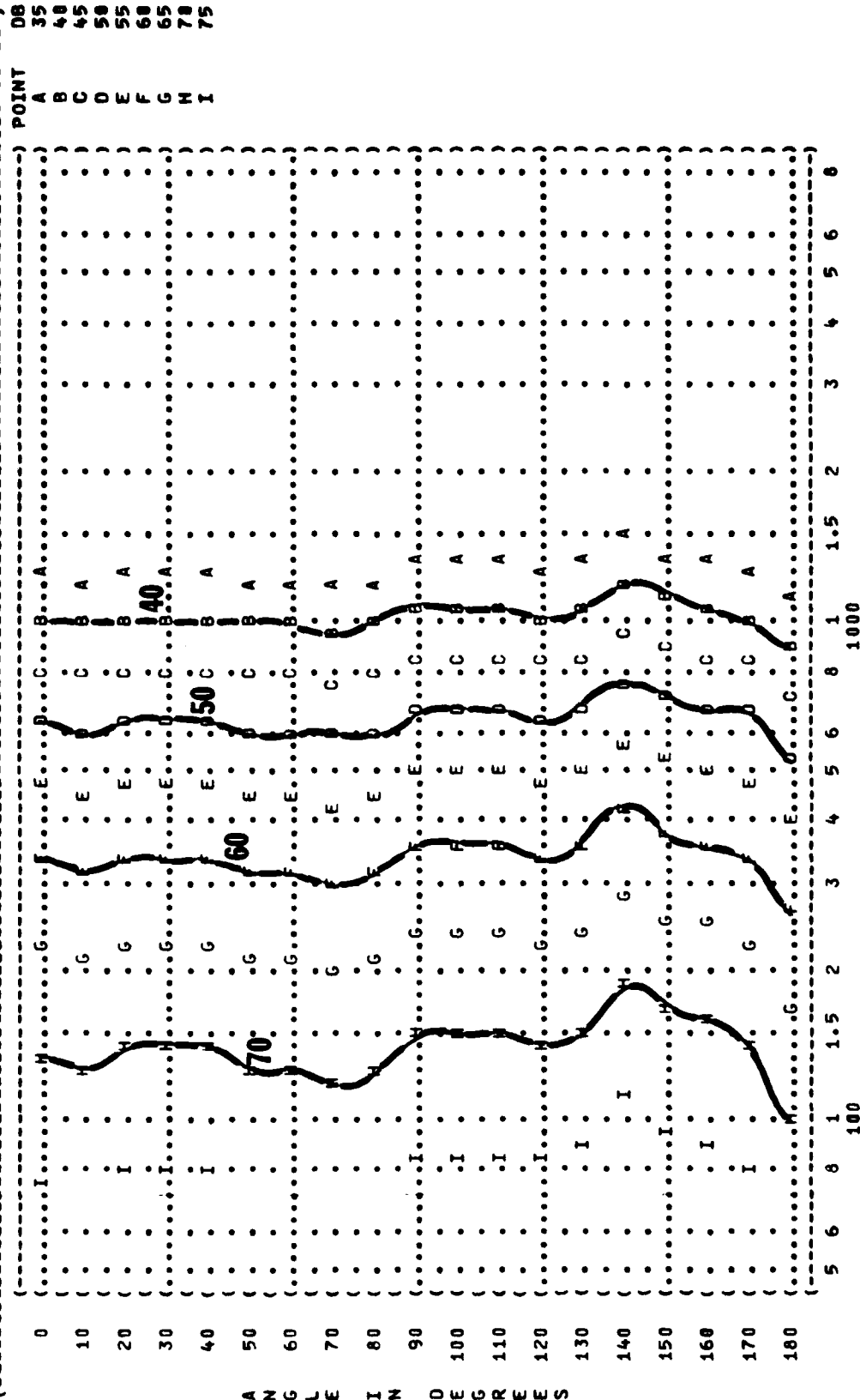
IDENTIFICATION:
OMEGA 1.4
TEST BN-078-001
RUN 01

NOISE SOURCE/SUBJECT:
F-106A AIRCRAFT
(J75-P-17 ENGINE)
FAR FIELD NOISE

OPERATION:
IDLE POWER
59% RPM
FREE FLOW

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HS
REL HUMID = 70 %

PAGE 20



1000
DISTANCE FROM SOURCE (METERS)

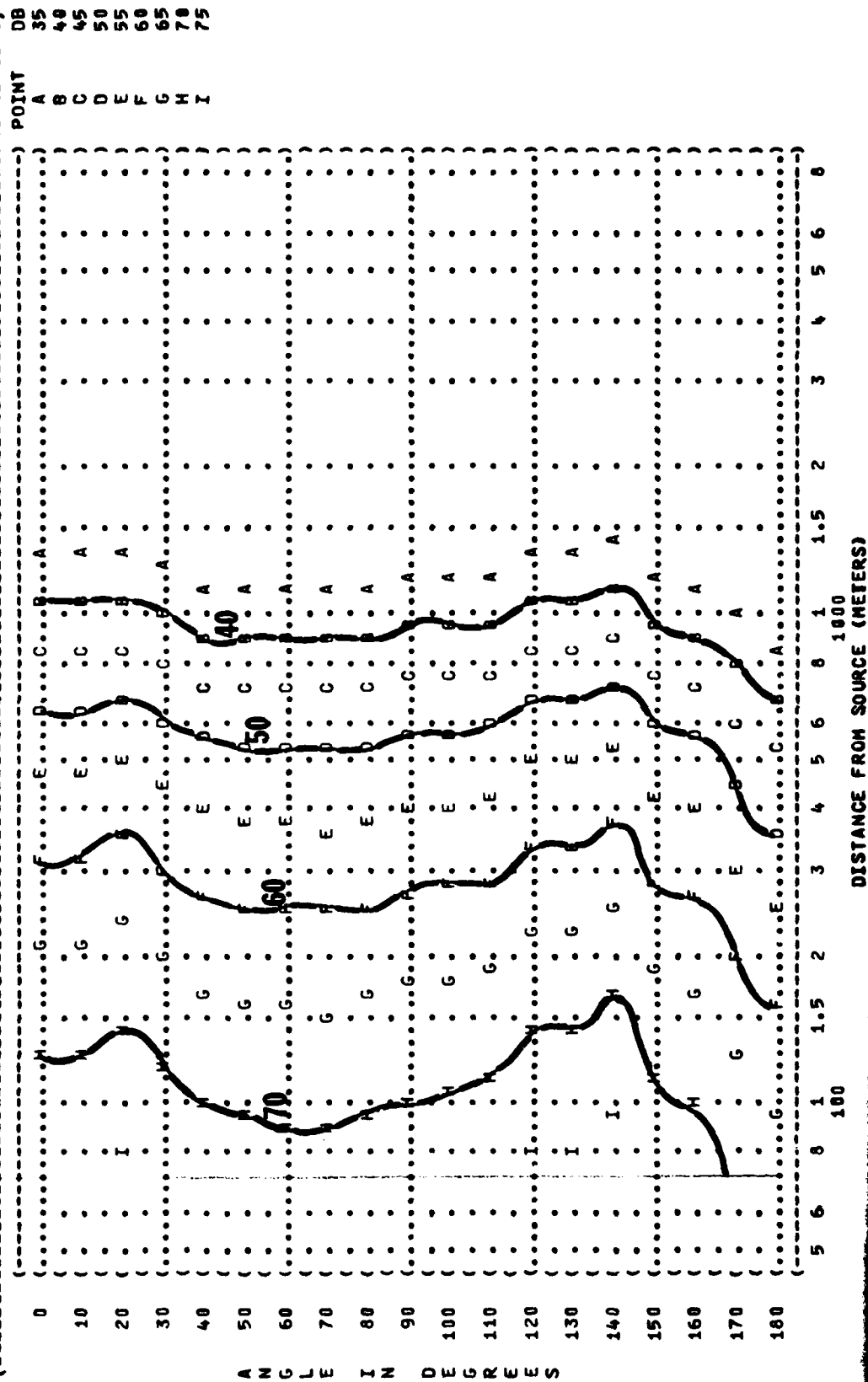
IDENTIFICATIONS

OMEGA 1.4

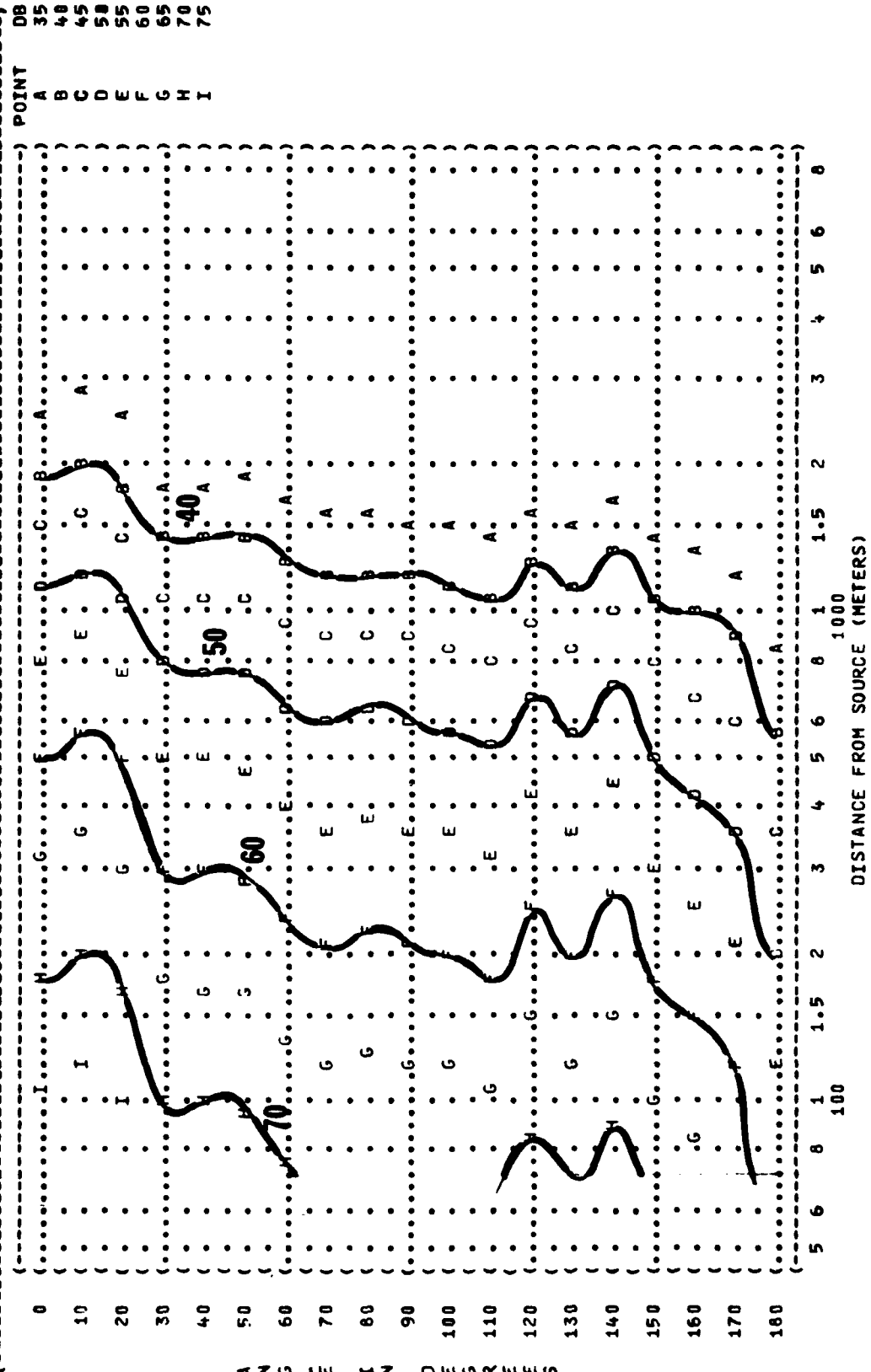
) RUN 01
)
) 25 JAN 82
)
) PAGE 21

METEOROLOGY:
TEMP
BAR PRESS
REL HUMID

) RUN 01
)
) 25 JAN 82
)
) PAGE 21

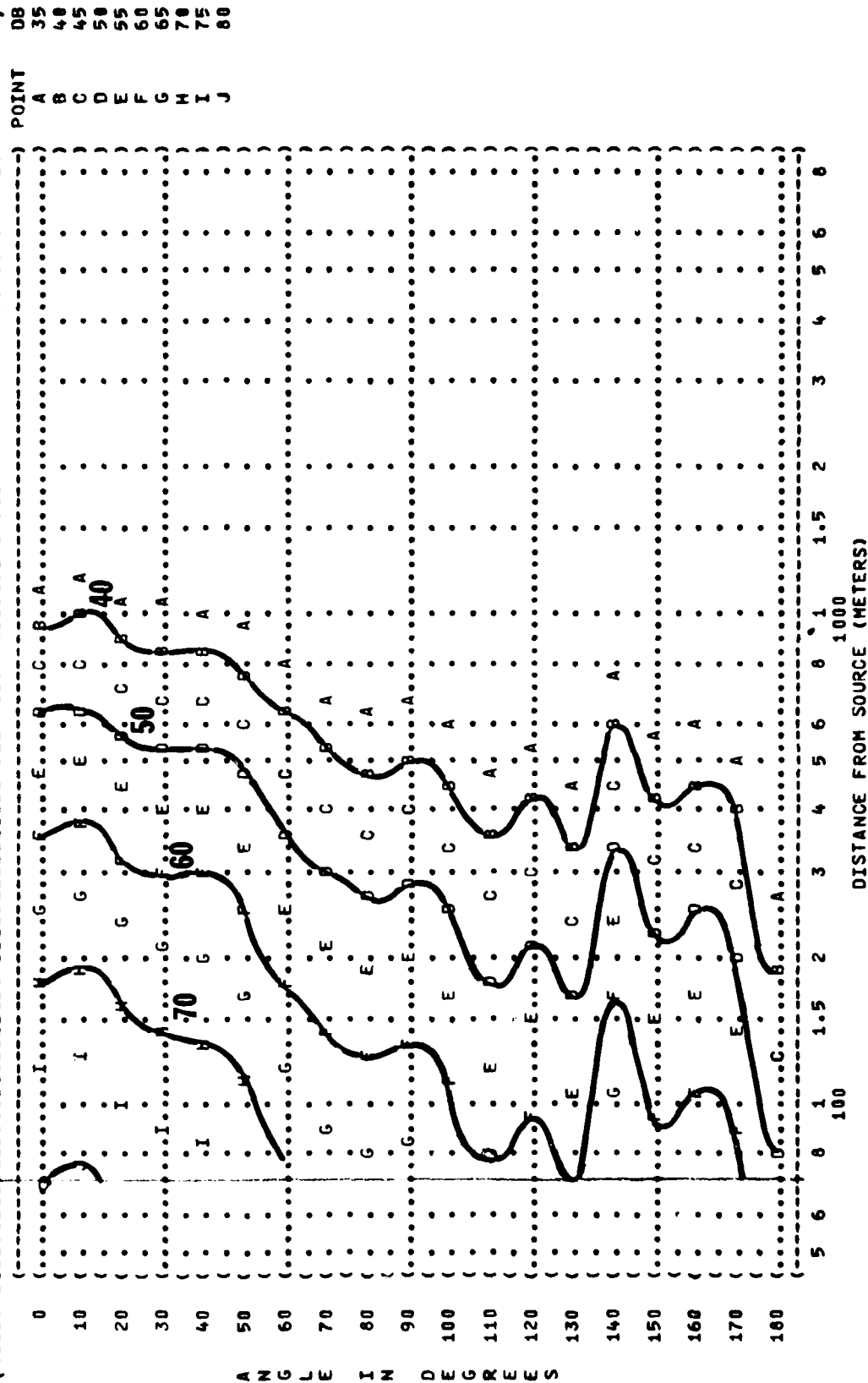


(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (500 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY: (15 C
 (F-106A AIRCRAFT (IDLE POWER (TEMP
 ((J75-P-17 ENGINE) (59% RPM (BAR PRESS = .760 M HG
 (FAR FIELD NOISE (FREE FLOW (REL HUMID = 70 %
 (((((PAGE 22
 (IDENTIFICATION: (OMEGA 1.4
 (TEST BN-078-001
 (RUN 01
 (25 JAN 82
 (



A N G L E I N D E G R E E S

(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (4000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (F-106A AIRCRAFT)
 ((J75-P-17 ENGINE))
 (FAR FIELD NOISE)
 (OPERATION:)
 (IDLE POWER)
 (59% RPM)
 (FREE FLOW)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST BN-078-001)
 (RUN 01)
 (25 JAN 82)
 (PAGE 25)



AD-A116 930

AIR FORCE AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATT--ETC F/G 1/2
USAF BIODENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 158. F-106A A--ETC(U)
MAY 82 T H RAU

UNCLASSIFIED

AMRL-TR-75-50-VOL 158

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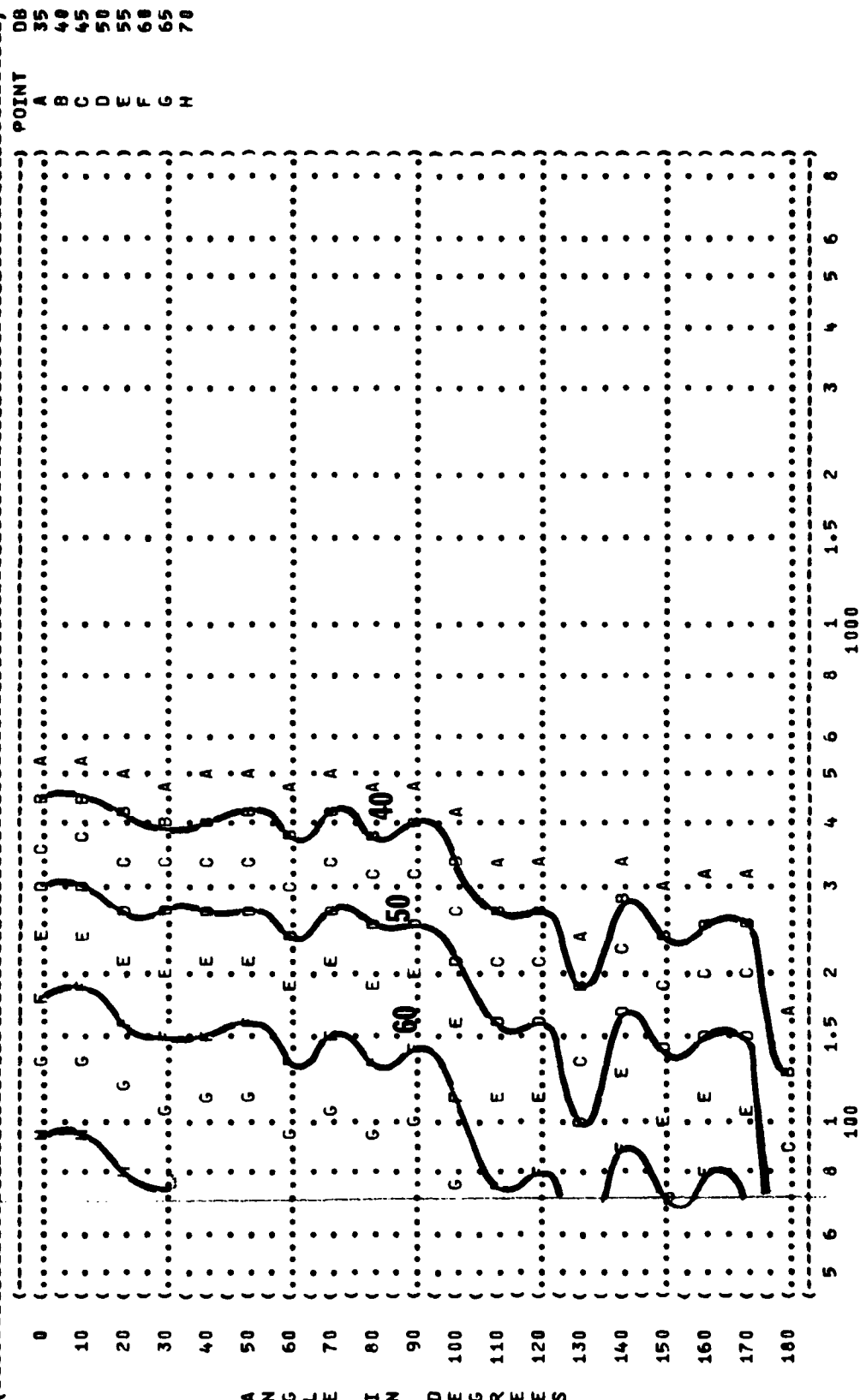
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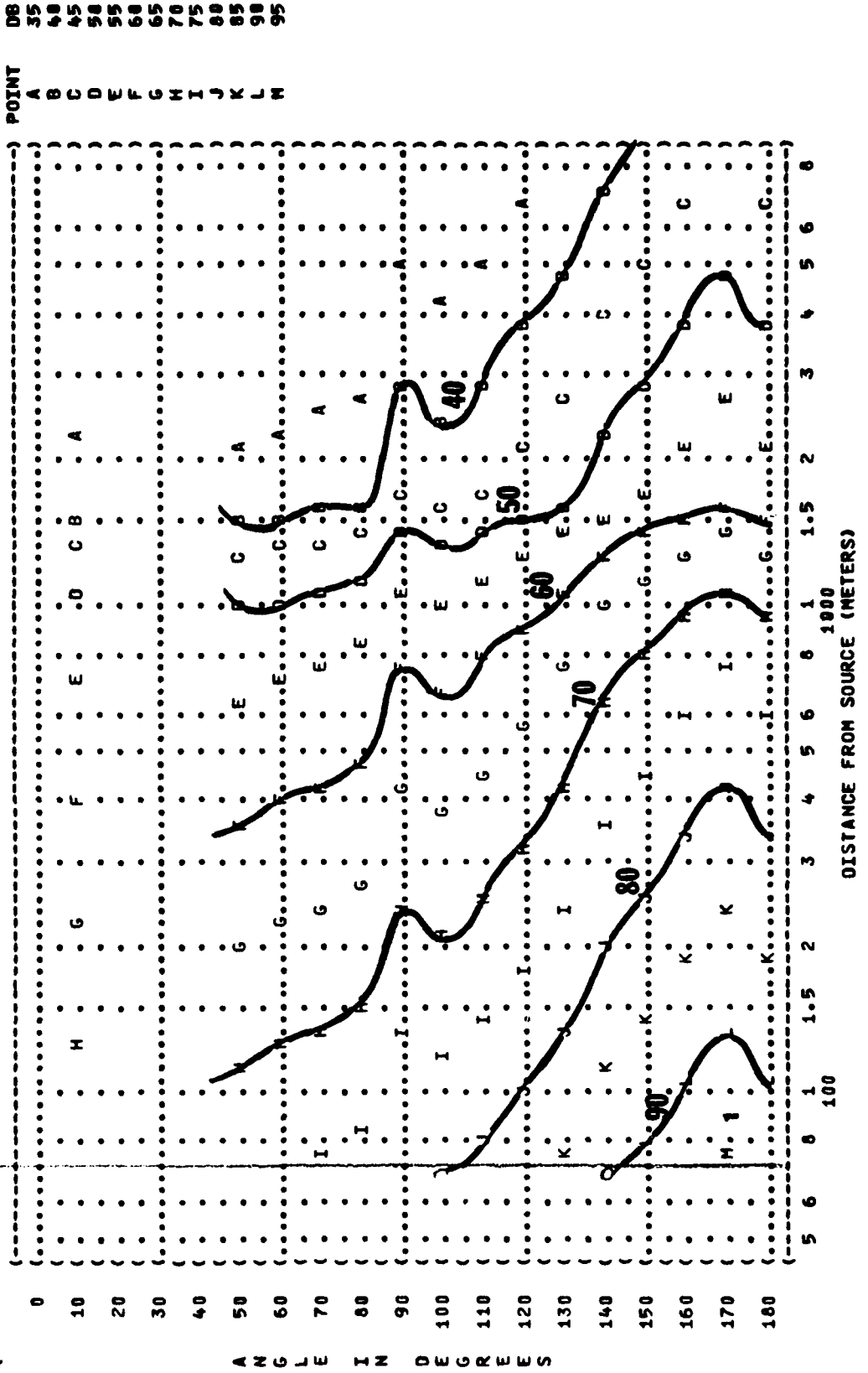
(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (8000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (F-106A AIRCRAFT (IDLE POWER
 ((J75-P-17 ENGINE) (59% RPM
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY: (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION: (OMEGA 1.4
 (TEST BN-078-001
 (RUN 01
 (25 JAN 82
 (PAGE 26



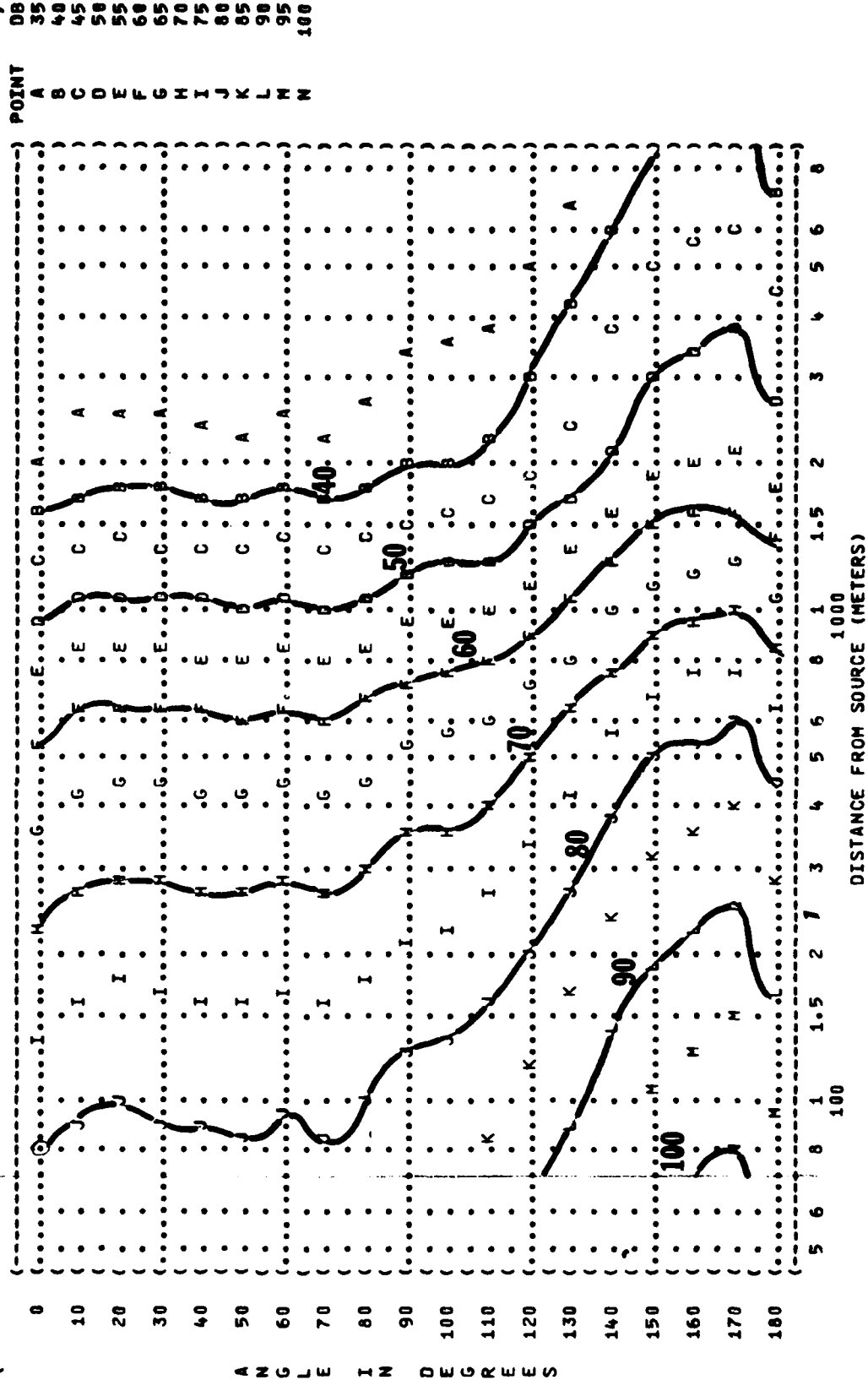
A N G L E I N D E G R E E S

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (11 31.5 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (F-106A AIRCRAFT (85% RPM
 ((J75-P-17 ENGINE) (FREE FLOW
 (FAR FIELD NOISE ((

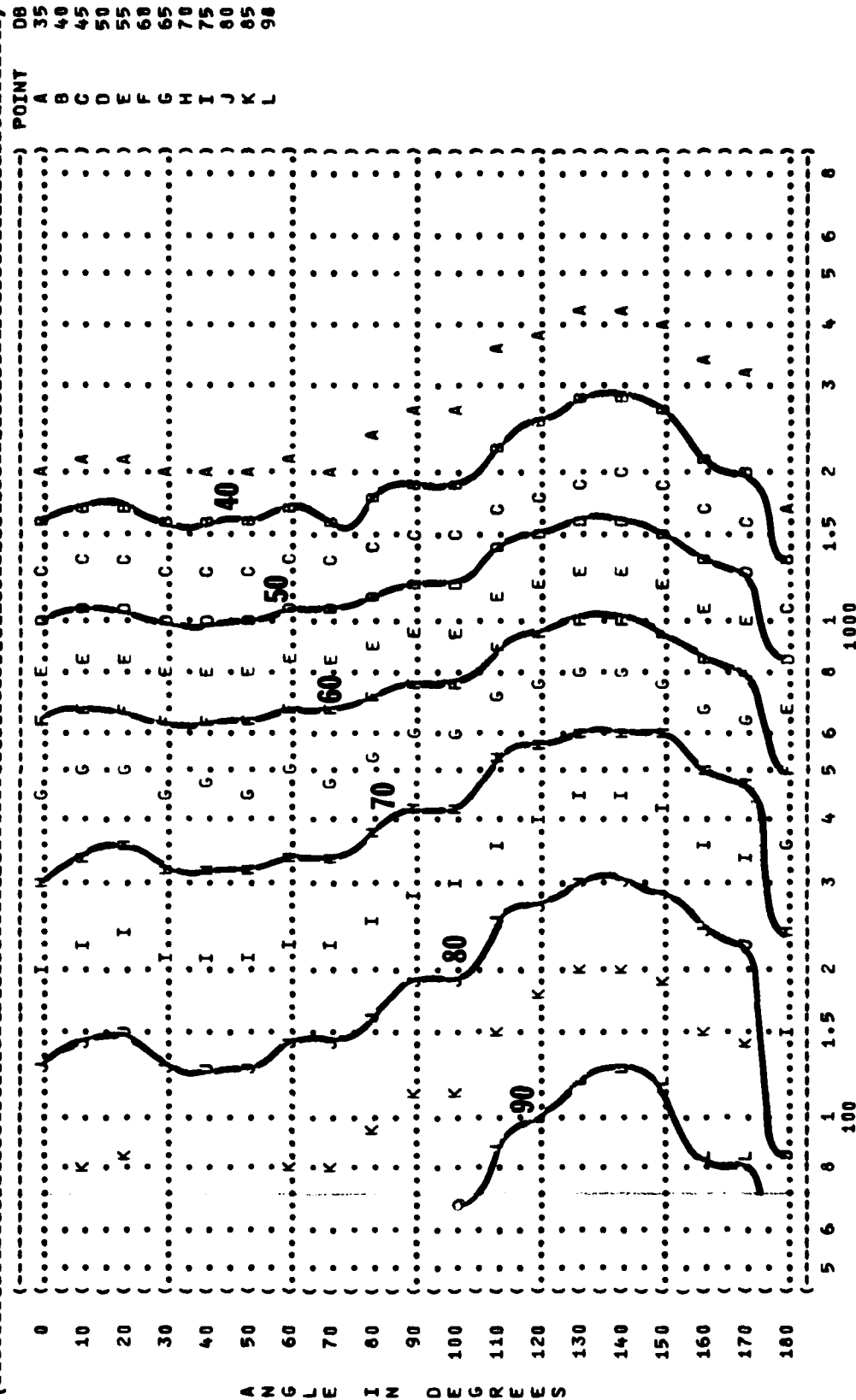
) IDENTIFICATION:
)
) OMEGA 1.4
) TEST BN-878-001
) RUN 02
)
) METEOROLOGY:
) TEMP = 15 C
) BAR PRESS = .760 M HG
) 25 JAN 82
)
) REL HUMID = 70 %
)
) PAGE 18



```
(-----)
( FIGURE: SOUND PRESSURE LEVEL {SPL} ) IDENTIFICATION: )
( EQUAL LEVEL CONTOURS (DB) ) )
( 11 ) OMEGA 1.4 )
( 63 HZ OCTAVE BAND ) TEST BN-078-001 )
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: )
( F-106A AIRCRAFT ) TEMP = 15 C )
( (J75-P-17 ENGINE) ) BAR PRESS = .768 M HS )
( FAR FIELD NOISE ) REL HUMID = 70 % )
( ) ) PAGE 19 )
```



(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (250 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (F-106A AIRCRAFT)
 ((J75-P-17 ENGINE))
 (FAR FIELD NOISE)
 (OPERATION:)
 (85% RPM)
 (FREE FLOW)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HS)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST BN-078-001)
 (RUN 02)
 (25 JAN 82)
 (PAGE 21)



A N G L E I N D E G R E E S

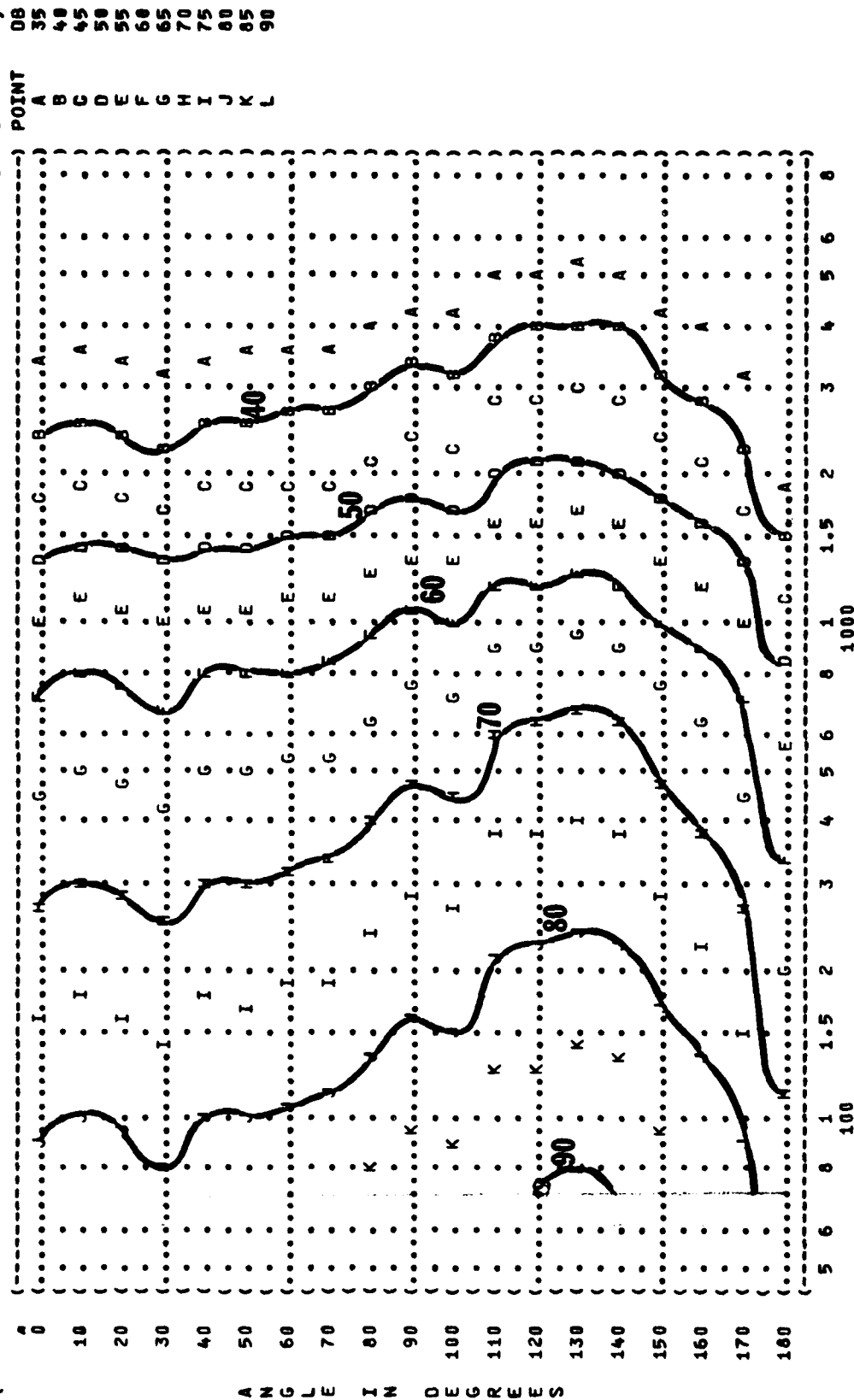
IDENTIFICATION: OMEGA 1.4

OMEGA 1.4

0 METEOROLOGY: = 15 C
0 TEMP =
0 BAR PRESS = .760 H H3
0 REL HUMID = 70 %

(OPERATION:
(85% RPM
(FREE FLOW

PAGE 22



AZULE IN DEGREES

DISTANCE FROM SOURCE (METERS)

IDENTIFICATIONS
OMEGA 1.4
TEST BN-078-001

OMEGA 1.4

```

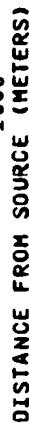
) METEOROLOGY:
) TEMP
) BAR PRESS
) REL HUMID

```

TEMP = 15 C

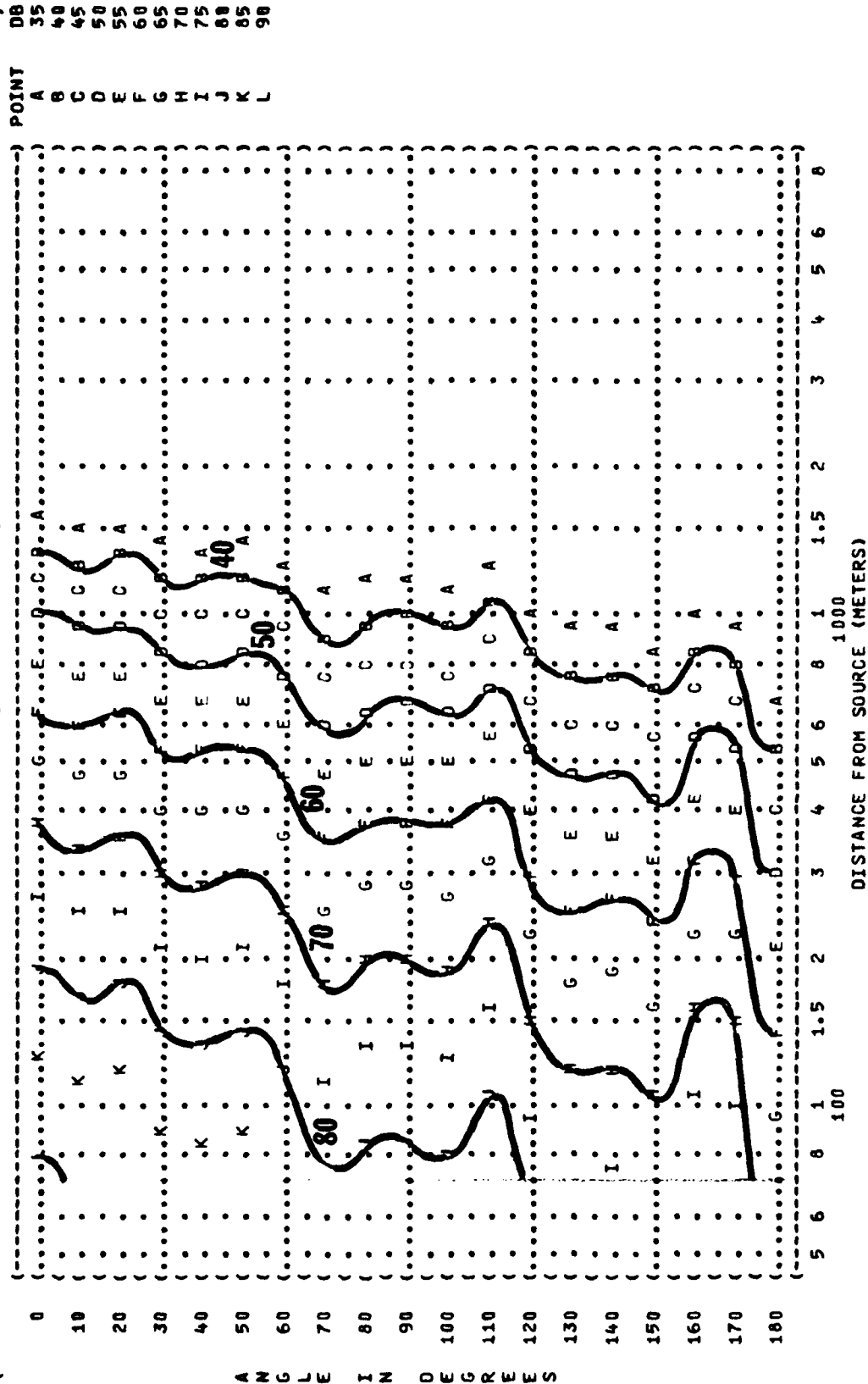
BAR PRESS = .760 N HG

REL HUMID = 70 %



AZUL IN OCEANES

(OPERATION:
(85% RPM
(FREE FLOW
(
(



SOUND PRESSURE LEVEL {SPL}
UNEQUAL LEVEL CONTOURS (DB)
31.5 HZ OCTAVE BAND

ISE SOURCE/SUBJECT:
F-106A AIRCRAFT
(J75-P-17 ENGINE)
FAR FIELD NOISE

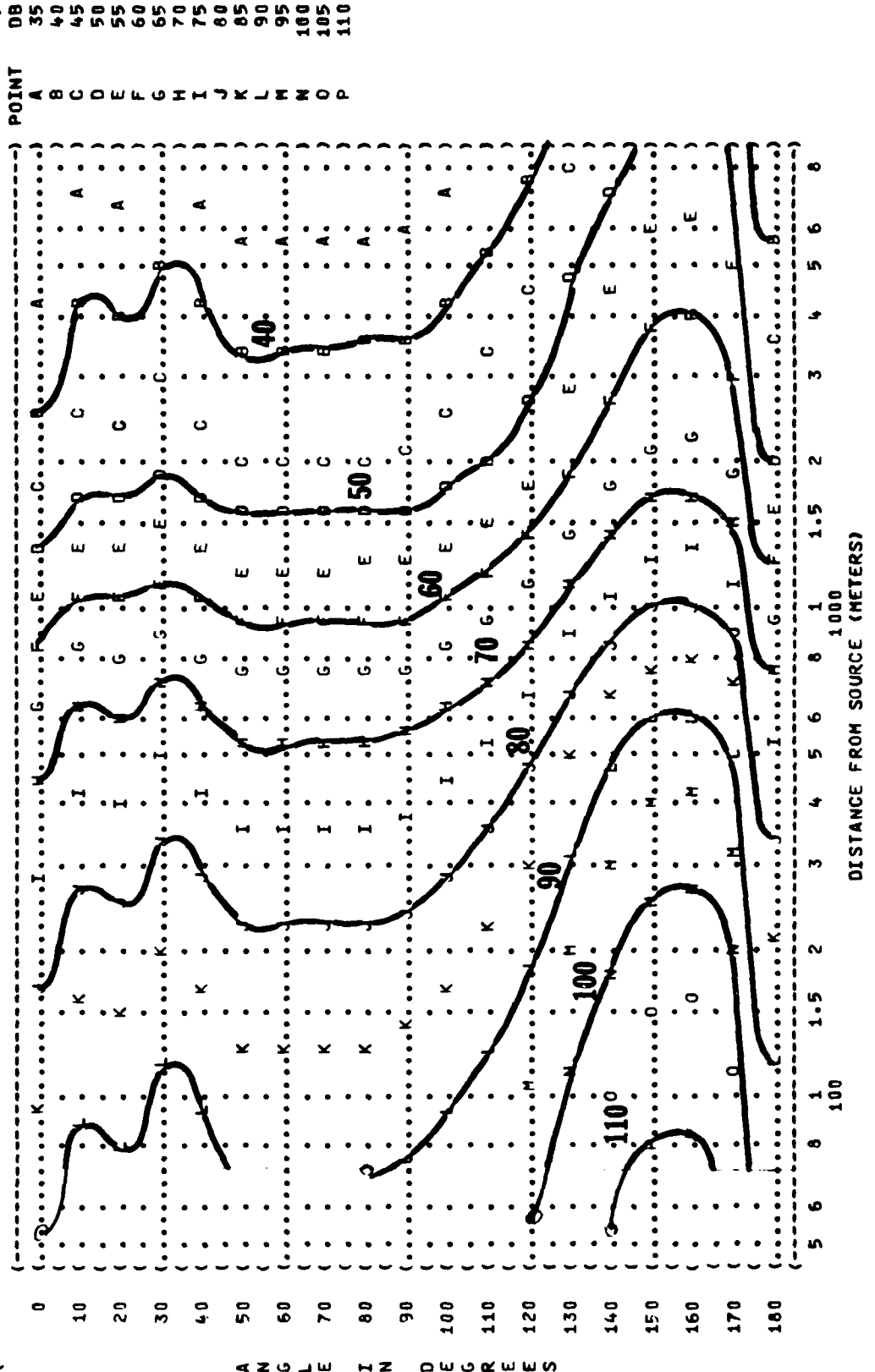
(OPERATION:
(95% RPM
(FREE FLOW

TEOROLOGY:
TEMP
BAR PRESS
REL HUMID

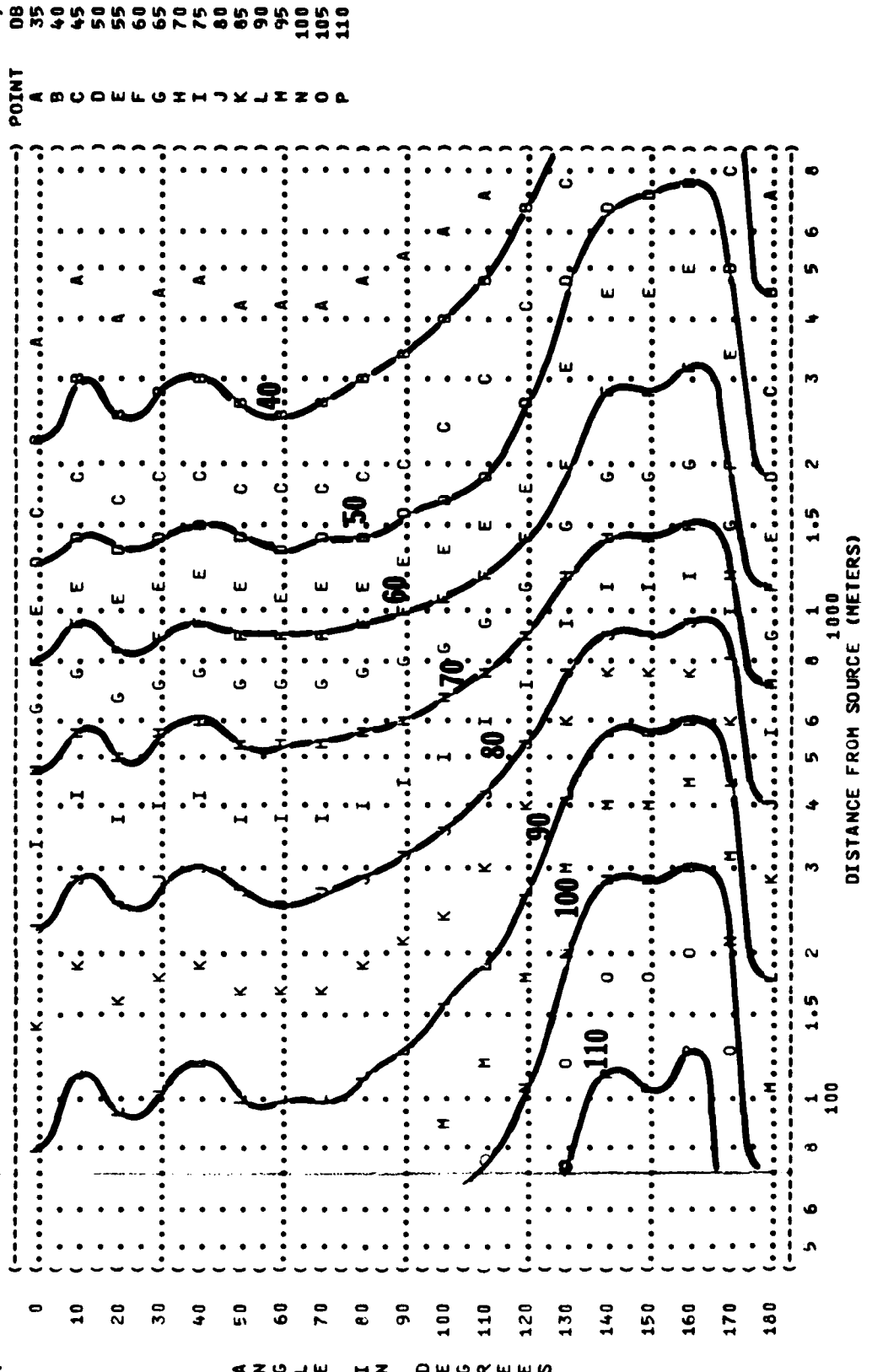
PAGE 18



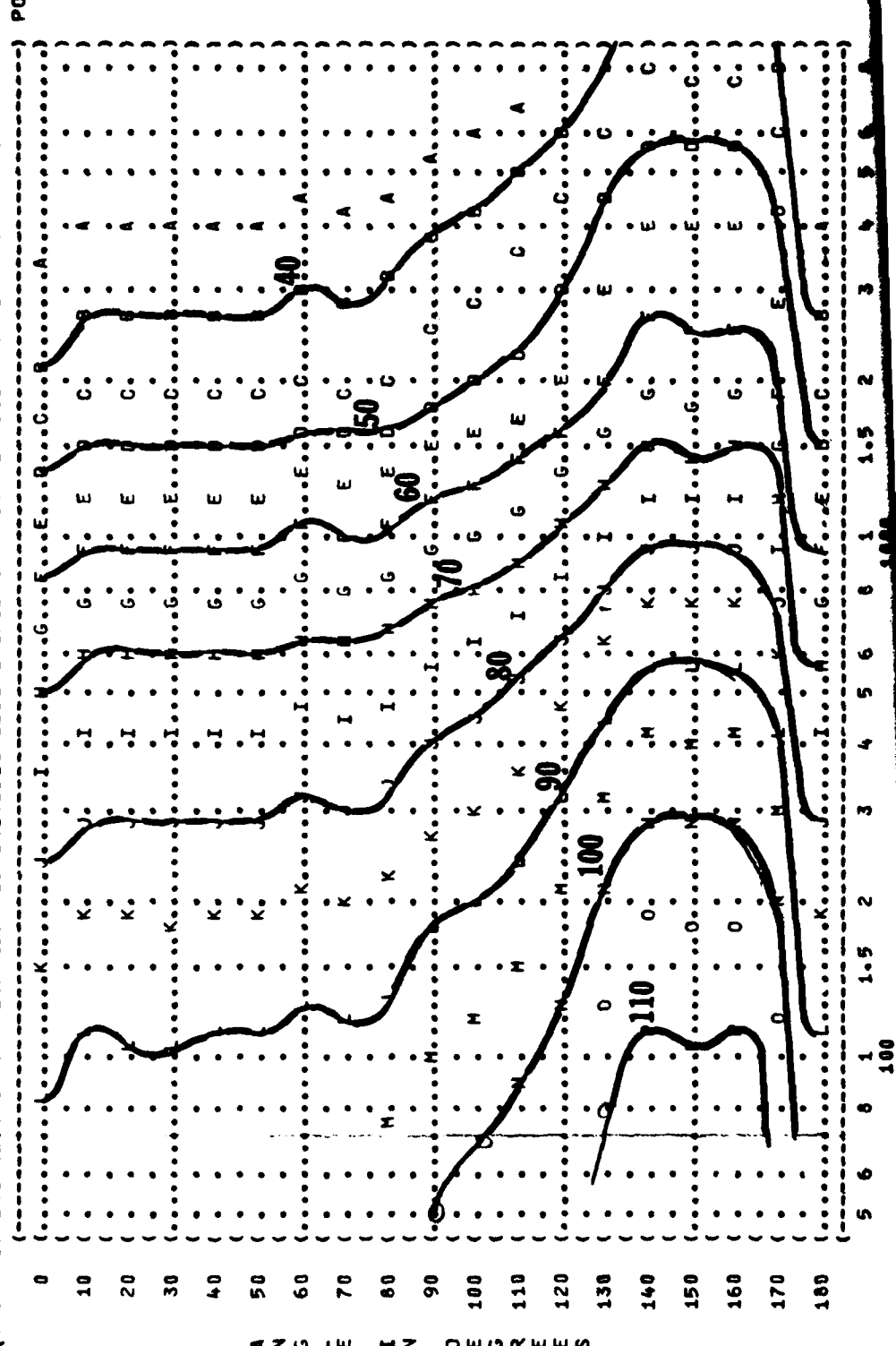
() FIGURE: SOUND PRESSURE LEVEL (SPL)
 () EQUAL LEVEL CONTOURS (DB)
 () 11 63 HZ OCTAVE BAND
 () NOISE SOURCE/SUBJECT: () OPERATION: () METEOROLOGY: ()
 () F-106A AIRCRAFT () 95% RPM () TEMP = 15 C
 () (J75-P-17 ENGINE) () FREE FLOW () BAR PRESS = .760 M Hg
 () FAR FIELD NOISE () () REL HUMID = 70 %
 () () ()
 () IDENTIFICATION: ()
 () ()
 () OMEGA 1.4
 () TEST 8N-078-081
 () RUN 03
 () 25 JAN 82
 () PAGE 19



(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (**11** 125 HZ OCTAVE BAND
 () IDENTIFICATION:
 ()
 () OMEGA 1.4
 () TEST BN-070-001
 () RUN 03
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (F-106A AIRCRAFT (95% RPM
 ((J75-P-17 ENGINE) (FREE FLOW
 (FAR FIELD NOISE ()
 ()
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M H5
 () REL HUMID = 70 %
 () PAGE 20



DB	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
DINT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P



◀ Z U J W H Z O W U X W W S

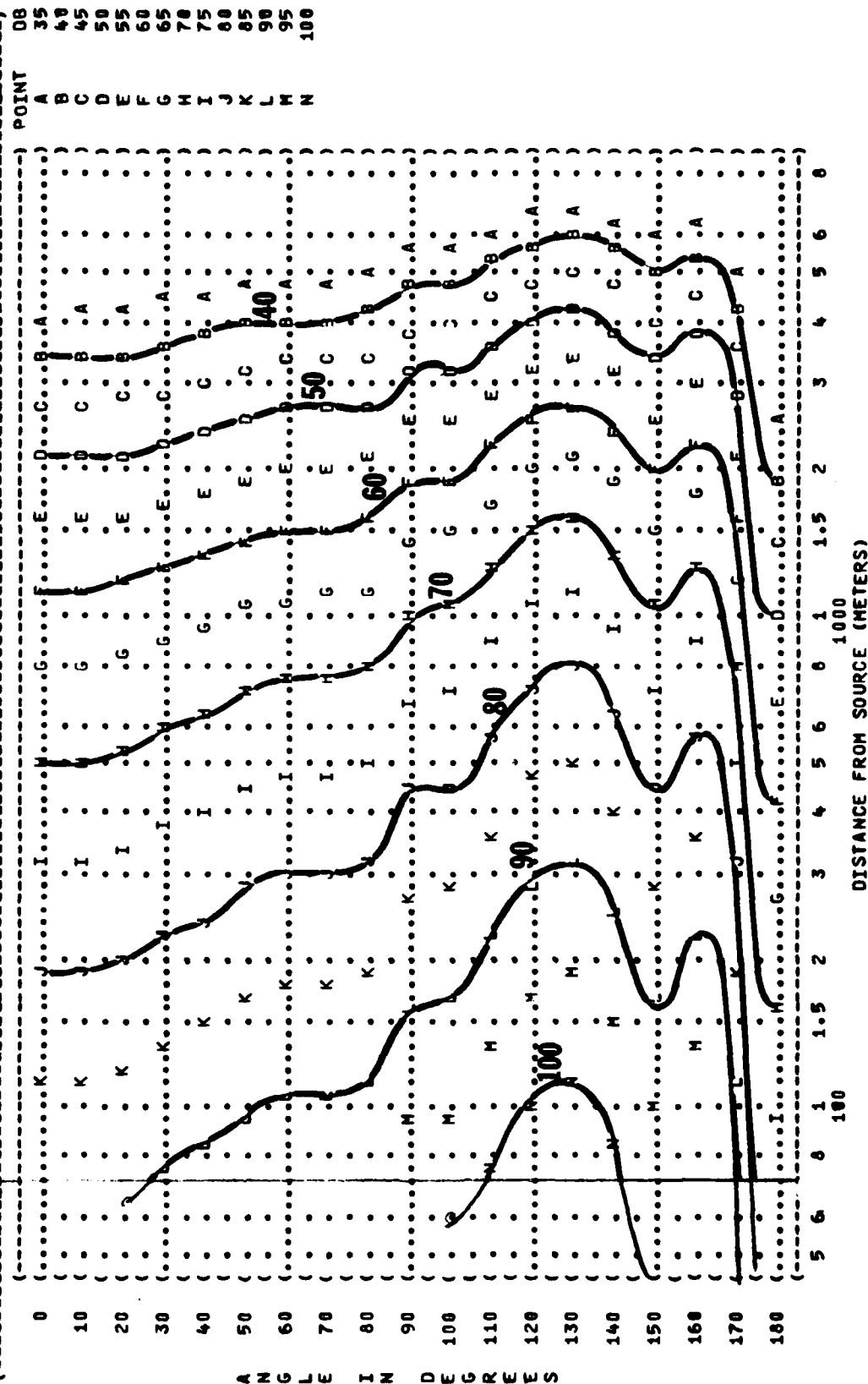


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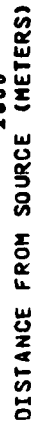
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(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (11 1000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (F-106A AIRCRAFT (95% RPM
 ((J75-P-17 ENGINE) (FREE FLOW
 (FAR FIELD NOISE ((

) IDENTIFICATION:
) OMEGA 1.4
) TEST BN-078-001
) RUN 03
) METEOROLOGY:
) TEMP = 15 C
) BAR PRESS = .760 M HG
) REL HUMID = 70 %
) PAGE 23



DENTIFICATION:
OMEGA 1.4
TEST BN-078-00



IDENTIFICATION:)
OMEGA 1.4)
TEST BN-076-001)

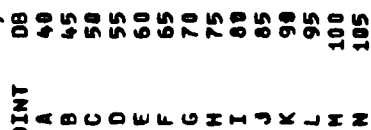
OMEGA 1.4)
TEST BN-078-001)

0 METEOROLOGY:

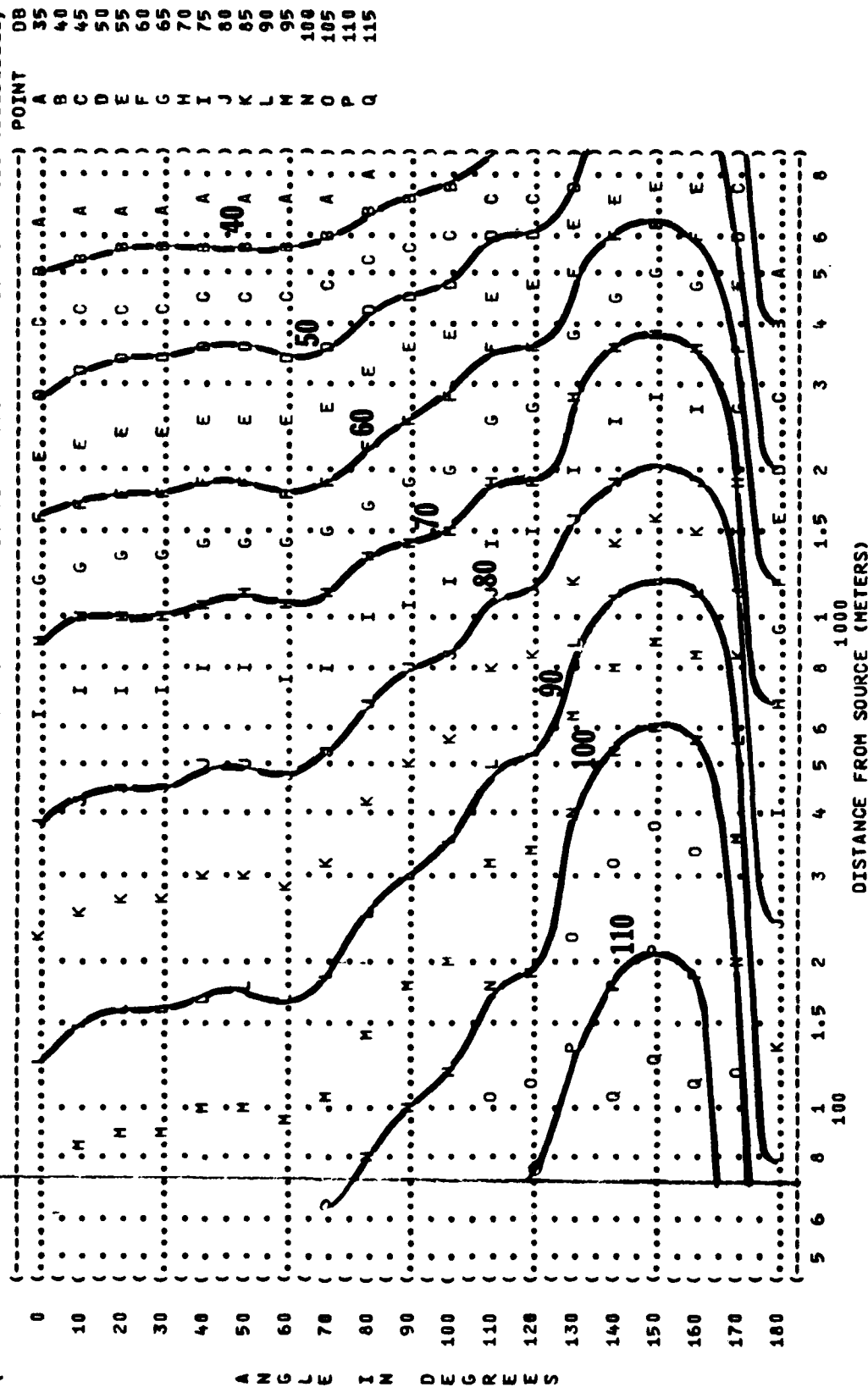
TEMP = 15 C

BAR PRESS = .760 M H₂

REL HUMID = 70 %

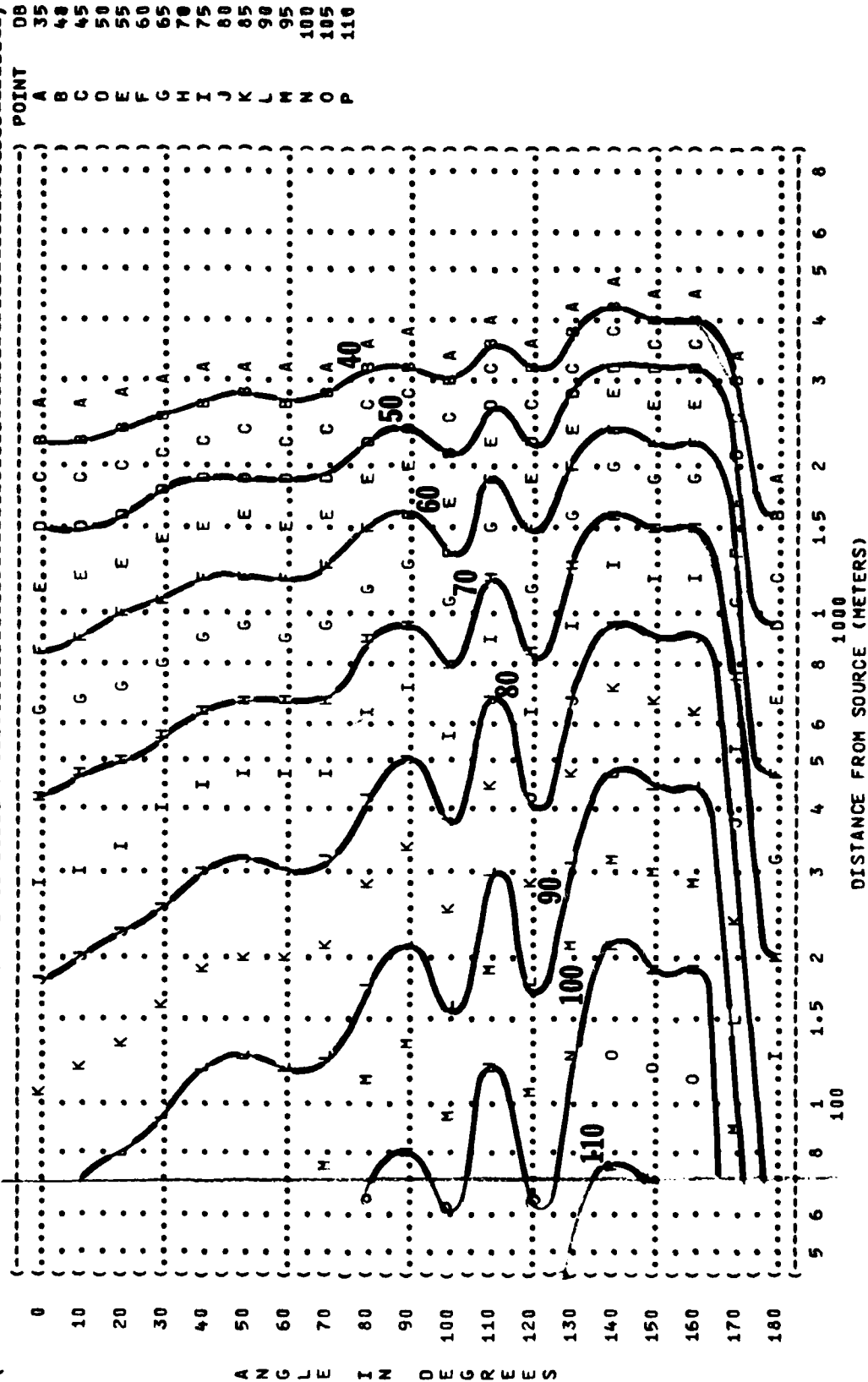


(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (500 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (F-106A AIRCRAFT)
 ((J75-P-17 ENGINE))
 (FAR FIELD NOISE)
 (OPERATION:)
 (MILITARY PMR)
 (102% RPM)
 (FREE FLOW)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST BN-878-001)
 (RUN 04)
 (25 JAN 82)
 (PAGE 22)

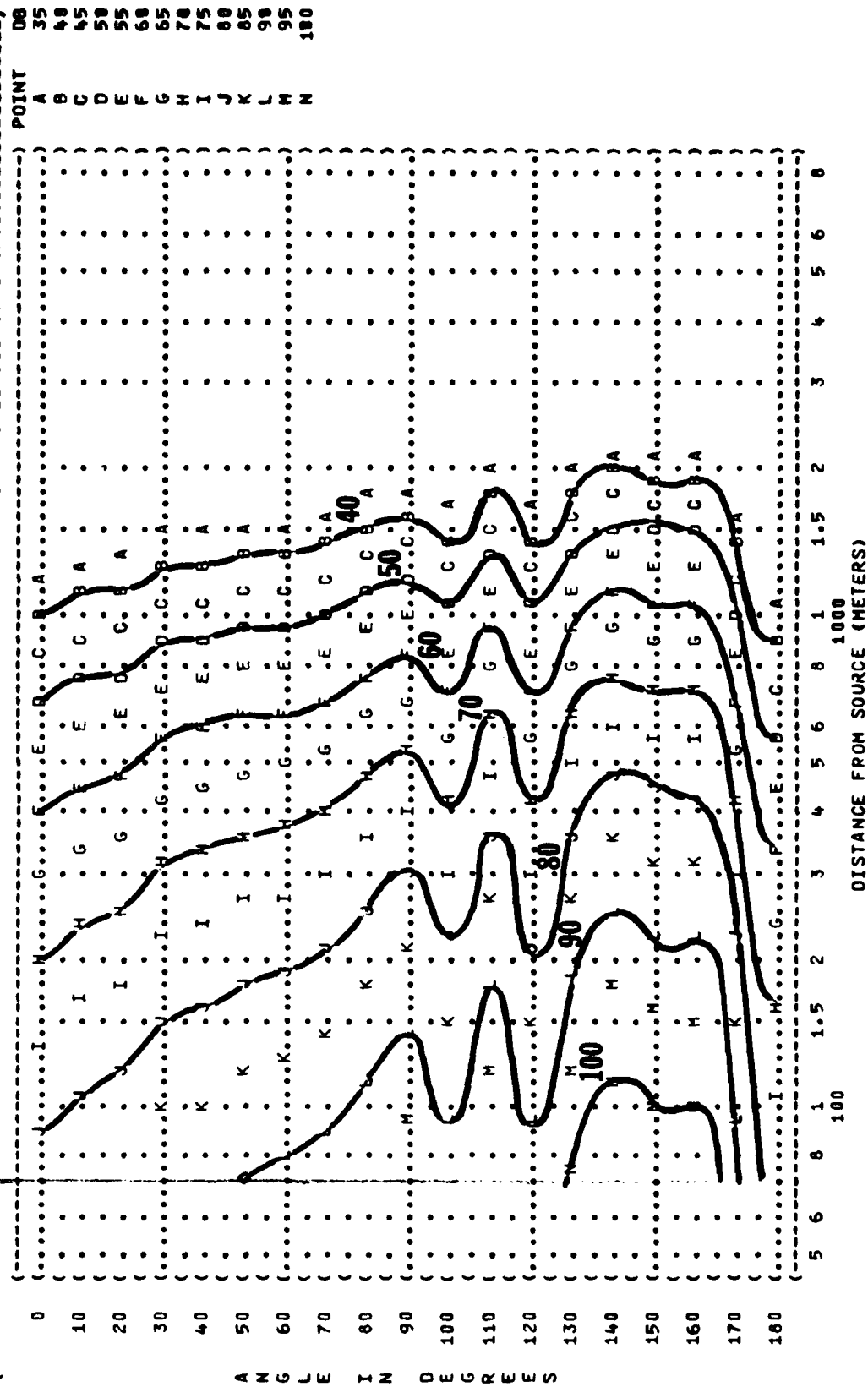




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( { FIGURE: SOUND PRESSURE LEVEL (SPL)
( { EQUAL LEVEL CONTOURS (DB)
( { 11
( { 2080 HZ OCTAVE BAND
( { NOISE SOURCE/SUBJECT:
( { F-106A AIRCRAFT
( { (J75-P-17 ENGINE)
( { FAR FIELD NOISE
( { OPERATION:
( { MILITARY PMR
( { 102% RPM
( { FREE FLOW
( { METEOROLOGY:
( { TEMP = 15 C
( { BAR PRESS = .760 M Hg
( { REL HUMID = 70 %
( { PAGE 24
( { IDENTIFICATION:
( { OMEGA 1.4
( { TEST BN-078-081
( { RUN 04
( { 25 JAN 82
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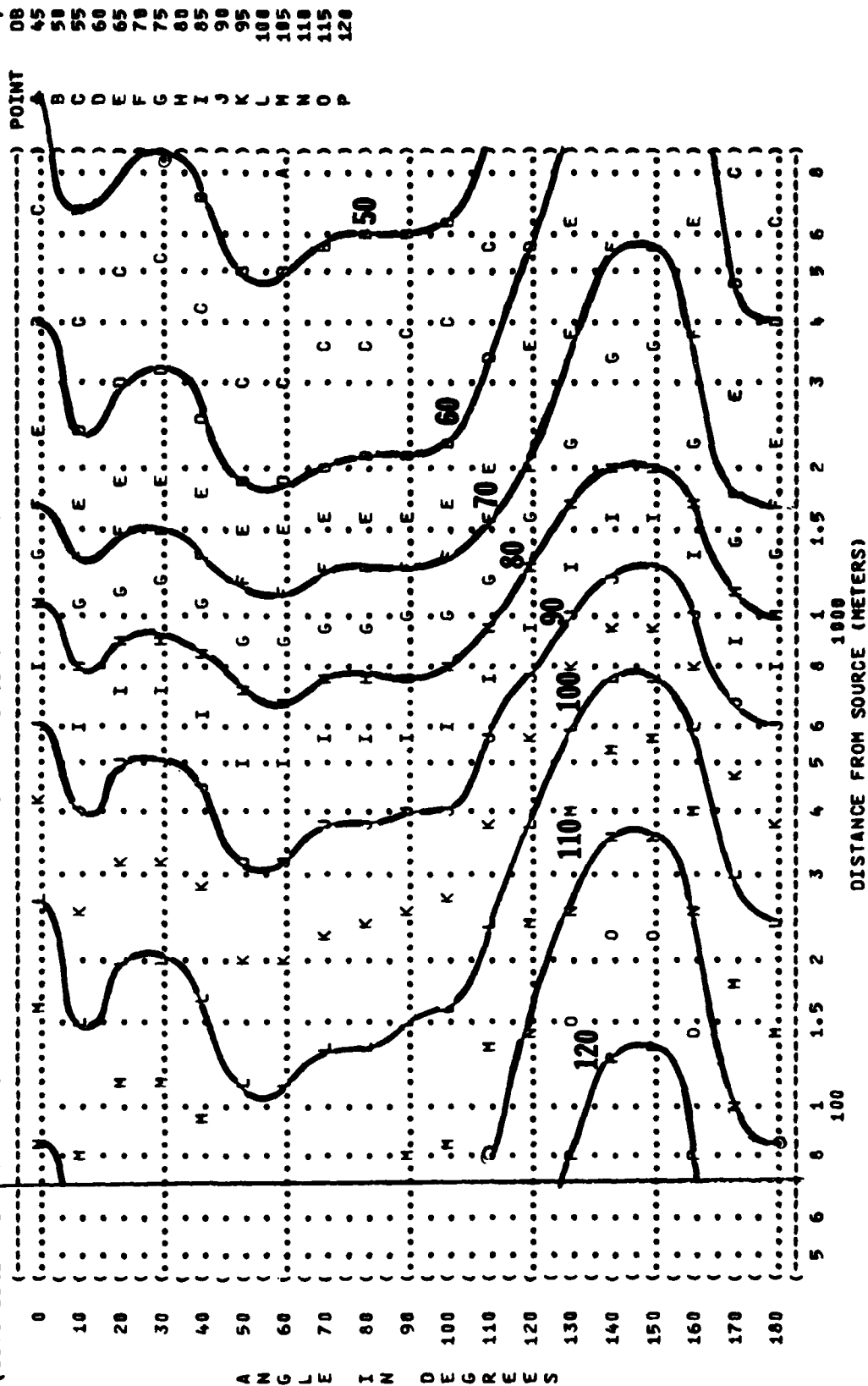


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(-----)
( FIGURE: SOUND PRESSURE LEVEL {SPL} ) IDENTIFICATION: )
( EQUAL LEVEL CONTOURS (DB) ) )
( 11 ) OMEGA 1.4 )
( 4000 HZ OCTAVE BAND ) TEST BN--870-801 )
(-----)
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: )
( F-106A AIRCRAFT ) TEMP = 15 C )
( (J75-P-17 ENGINE) ) BAR PRESS = .760 M HG )
( FAR FIELD NOISE ) REL HUMID = 70 % )
( ) ) PAGE 25 )
(-----)
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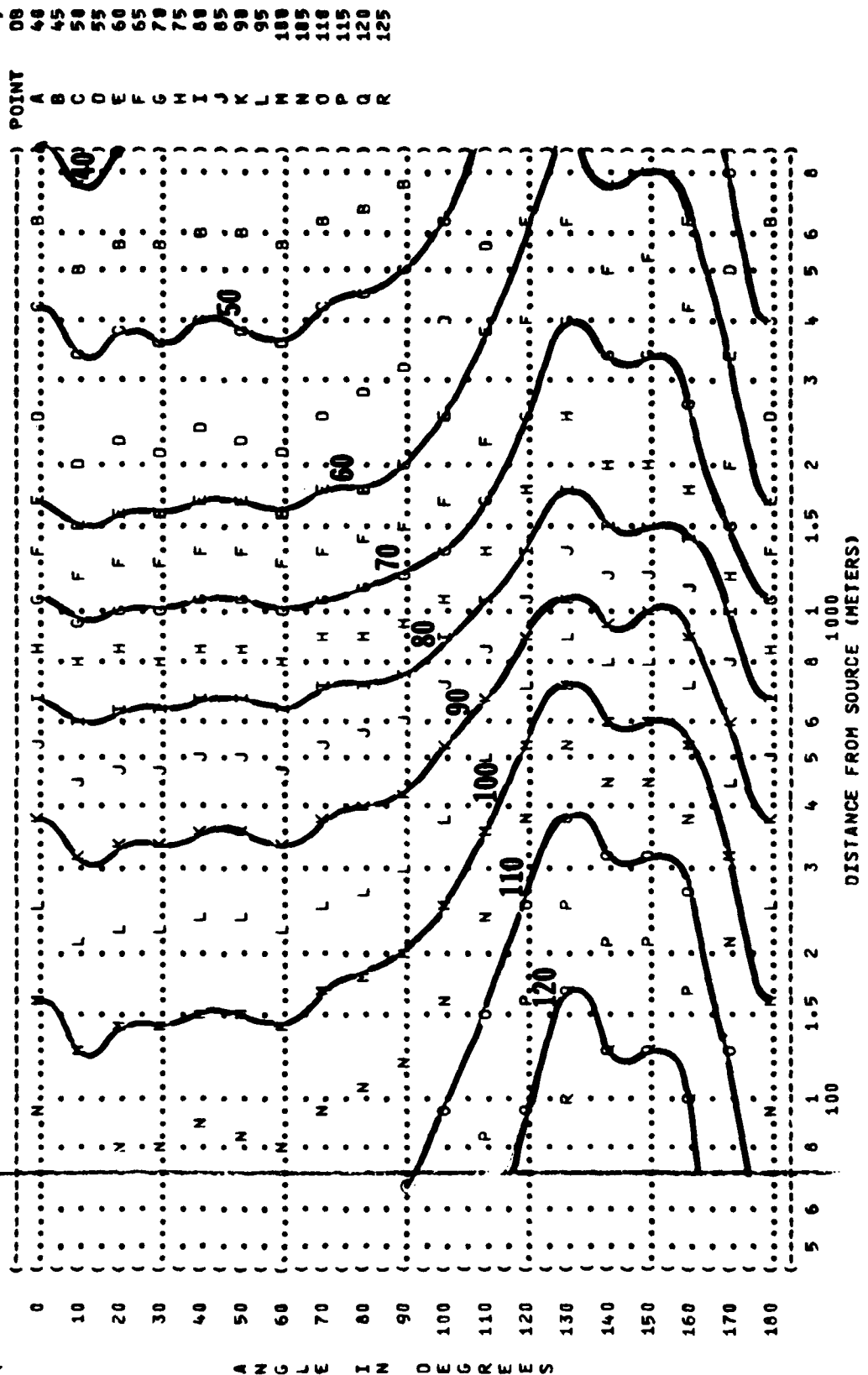


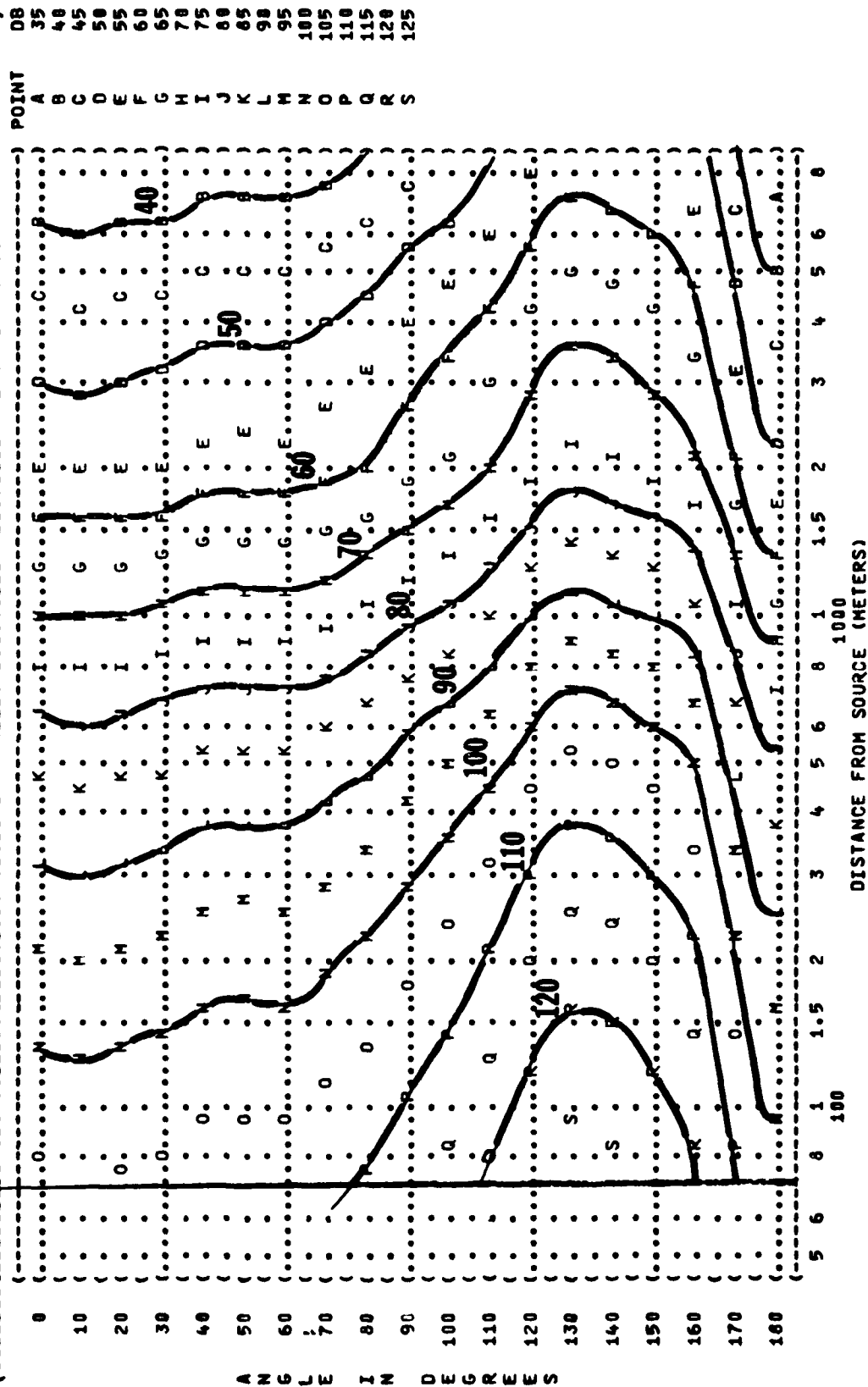


(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (**11** 63 HZ OCTAVE BAND
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST BN-076-001
 () RUN 05
 (NOISE SOURCE/SUBJECT:) METEOROLOGY:
 (F-106A AIRCRAFT) TEMP = 15 C
 ((J75-P-17 ENGINE)) BAR PRESS = .760 H HG
 (FAR FIELD NOISE) REL HUMID = 70 %
 () PAGE 19



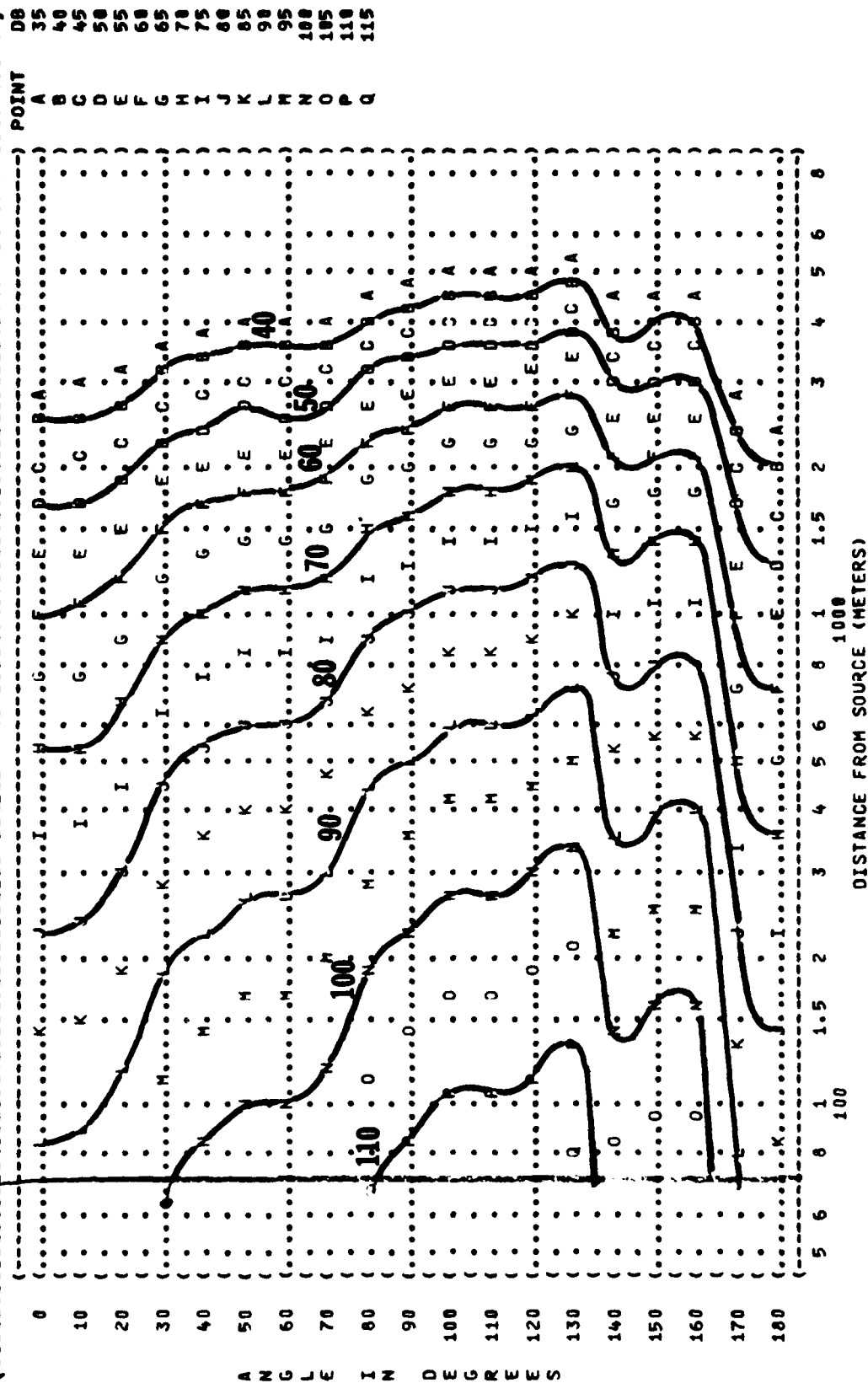
(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (11 125 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (F-106A AIRCRAFT (AFTERBURNER PWR
 ((J75-P-17 ENGINE) (102% RPM
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 H MG
 (REL HUMID = 70 %
 (PAGE 20
 (IDENTIFICATIONS:
 (OMEGA 1.4
 (TEST BN-878-001
 (RUN 05
 (25 JAN 82
 (



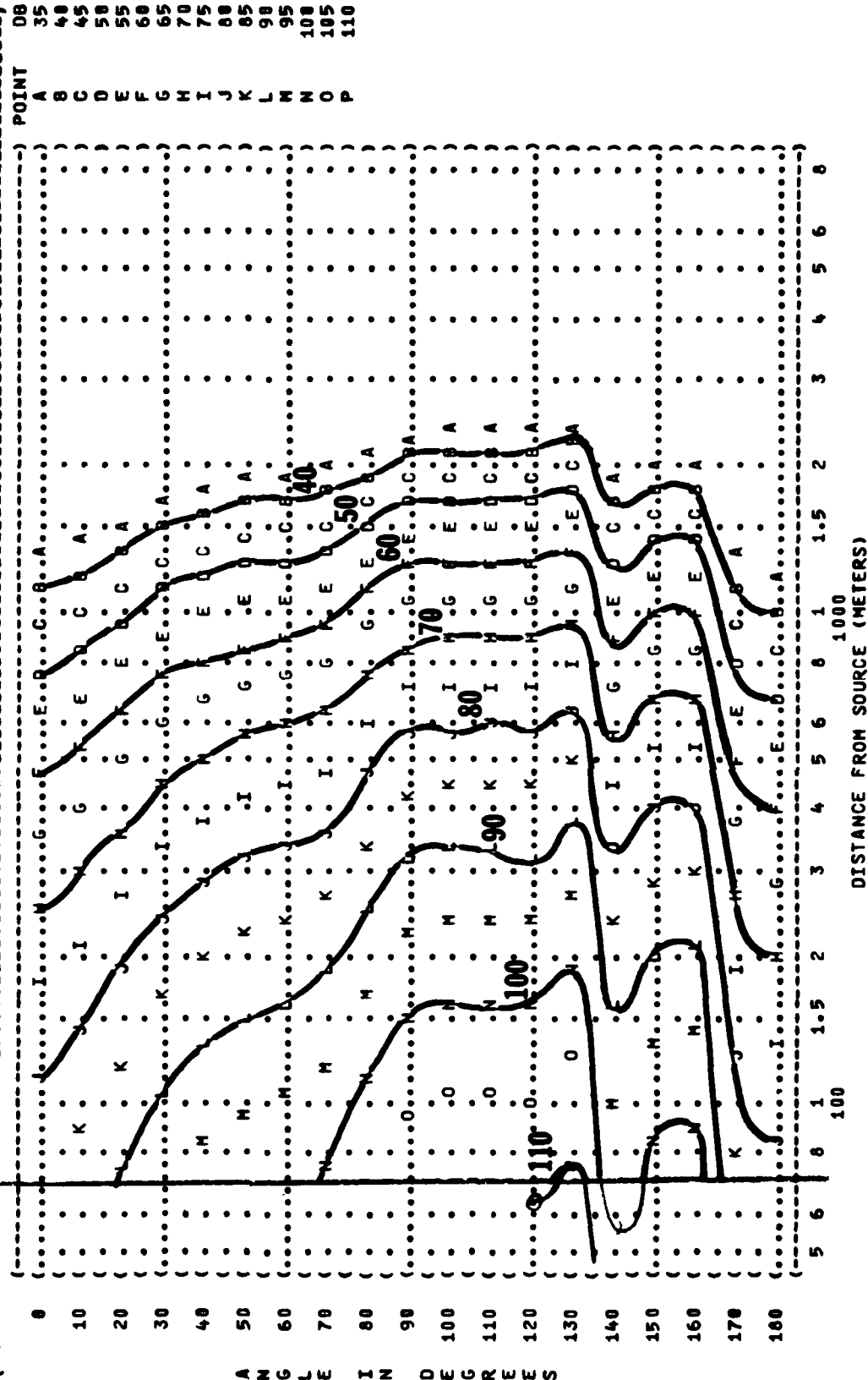
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DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (2000 HZ OCTAVE BAND
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST 8N-078-001
 () RUN 05
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () PAGE 24
 ()
 (NOISE SOURCE/SUBJECT:
 () OPERATION:
 () AFTERBURNER PMR
 () 102% RPM
 () FREE FLOW
 () F-106A AIRCRAFT
 () (J75-P-17 ENGINE)
 () FAR FIELD NOISE



(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (4000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (F-106A AIRCRAFT)
 (J75-P-17 ENGINE)
 (FAR FIELD NOISE)
 (OPERATIONS:)
 (AFTERBURNER PMR)
 (102% RPM)
 (FREE FLOW)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HS)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST BN-078-001)
 (RUN 05)
 (25 JAN 82)
 (PAGE 25)



(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (8000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (F-106A AIRCRAFT)
 ((J75-P-17 ENGINE))
 (FAR FIELD NOISE)
 (OPERATION:)
 (AFTERBURNER PMR)
 (182% RPM)
 (FREE FLOW)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST BN-070-001)
 (RUN 05)
 (25 JAN 82)
 (PAGE 26)

