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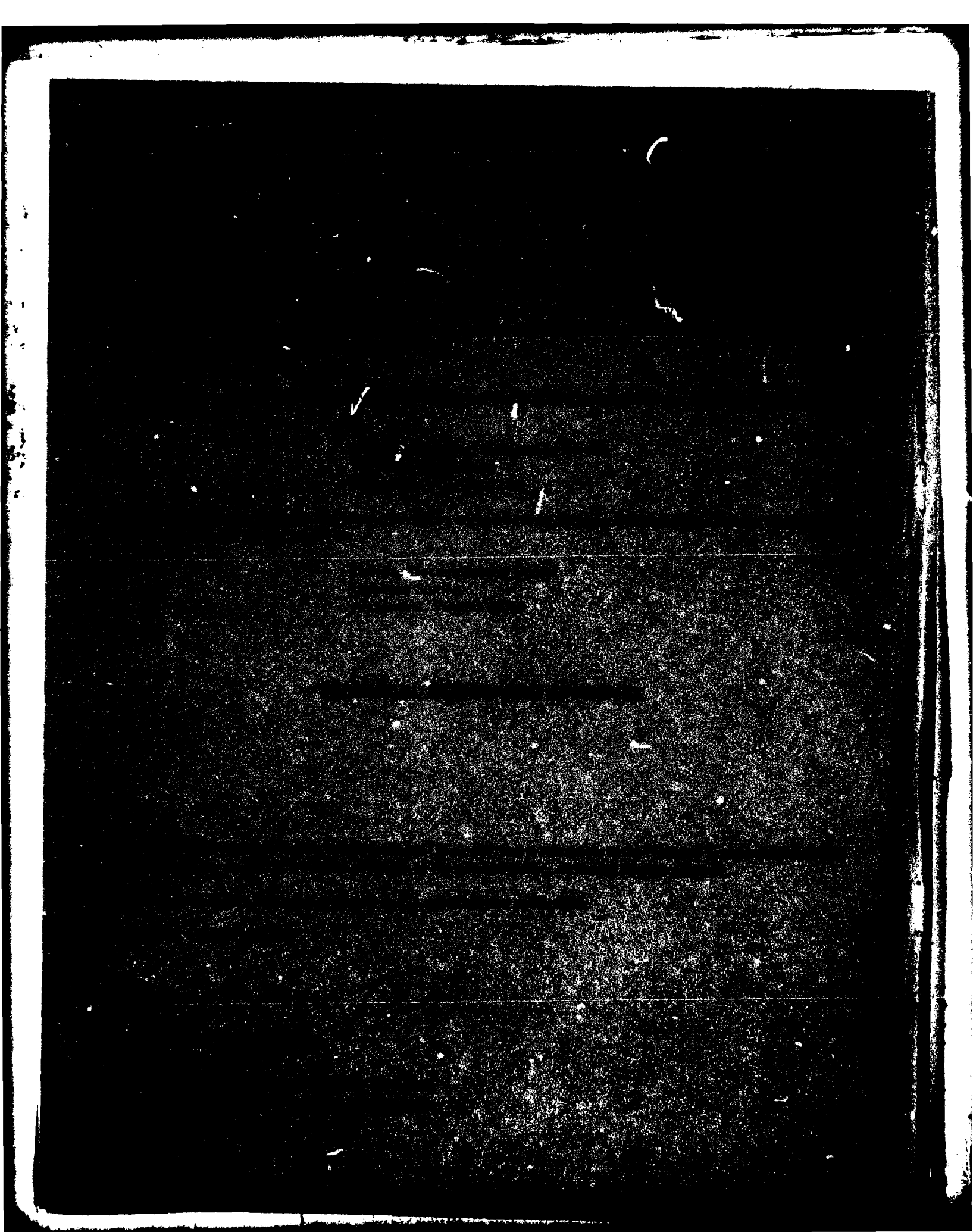
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> The AF32A-52A noise suppressor was made by Industrial Acoustics Corporation and modified by the Air Force for acoustical suppression of the KC-135A aircraft. This report provides measured and extrapolated data defining the bioacoustic environments produced by this aircraft operating in an AF32A-52A suppressor for three engine power configurations. Far-field data measured at 19 locations are normalized to standard			

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→ meteorological conditions and extrapolated from 75-8000 meters to derive sets of equal-value contours for 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, 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 their assistance in preparing this report, Capt. Nick Farinacci for his assistance in acquiring the raw data, Mr. Keith Kettler, Mr. Henry Mohlman and Mr. Fred Lampley of the University of Dayton for assistance in the mechanics of data processing, and Mrs. Peggy Massie for assistance in typing this report.

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INTRODUCTION

The KC-135A is an aerial refueling tanker powered by four Pratt and Whitney J57-P-59W engines. The aircraft is manufactured by the Boeing Company and code named the Stratotanker. The AF32A-52A noise suppressor was made by the Industrial Acoustics Corporation for use by Tactical Air Command (TAC) on the J57-P-21 engines, and has been modified according to specifications developed by the US Navy for use with their F-8 aircraft, which use the J57 engines. The modification consists of replacing the original colander with one fabricated of 1/4-inch cold-rolled steel, perforated with 1/4-inch diameter holes so as to remove approximately 30% of the colander surface area. The modification drawings are on file at the 126 Aerial Refueling Wing (ANG)/MA, O'Hare International Airport, Chicago IL 60666. This modified AF32A-52A portable type suppressor provides noise level reduction for the KC-135A aircraft during ground runup operations.

This volume provides measured and extrapolated data defining bioacoustic environments produced by this aircraft in this suppressor system 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 KC-135A aircraft operating in the AF32A-52A noise suppressor.

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

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

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

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

1. Cole, John N., *USAF Bioenvironmental Noise Data Handbook Volume 1: Organization, Content and Application*, AMRL-TR-74-50 (1), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.
2. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 2: Procedure to Evaluate Effects of Non-standard Meteorological Conditions on Far-Field Noise*, AMRL-TR-75-50 (2), AMRL, WPAFB, OH 1975.

FAR-FIELD NOISE

MEASUREMENTS

AMRL acquired the far-field data during a 1-2-hour test period, thus keeping similar meteorological conditions. Figure 1 shows the aircraft on a concrete parking apron in the suppressor and its orientation relative to 19 microphone measurement sites on a 100 meter (328 feet) semicircle. The center of the semicircle was located on the ground directly beneath the intersection of the aircraft centerline and a plane passing through the exhaust nozzle of the muffler when installed on the inboard engine (#3 engine).

Table 1 provides cockpit readouts of engine characteristics (% RPM, 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 19 microphone measurement sites are in the acoustic far-field of the source where the sound wave-fronts 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 2 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 2 which provides a compact summary of the far-field noise characteristics of the KC-135A aircraft operating in the modified AF32A-52A noise suppressor in a standard format.

Figure 3 and Table 3 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 that 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.

Estimates of the noise levels for intermediate power settings (e.g., 90% RPM) and/or different number of engines operating (e.g., single engine) can be determined as explained in Volume 1 of this handbook.

Figures 4 through 10 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.

Data excessively influenced by spurious background/electronic noise were eliminated from all figures and tables.

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.

Volume 2 of the handbook describes the influence of meteorology on far-field noise environments, and provides, if required, the factors necessary to adjust the handbook's standard meteorological day data.

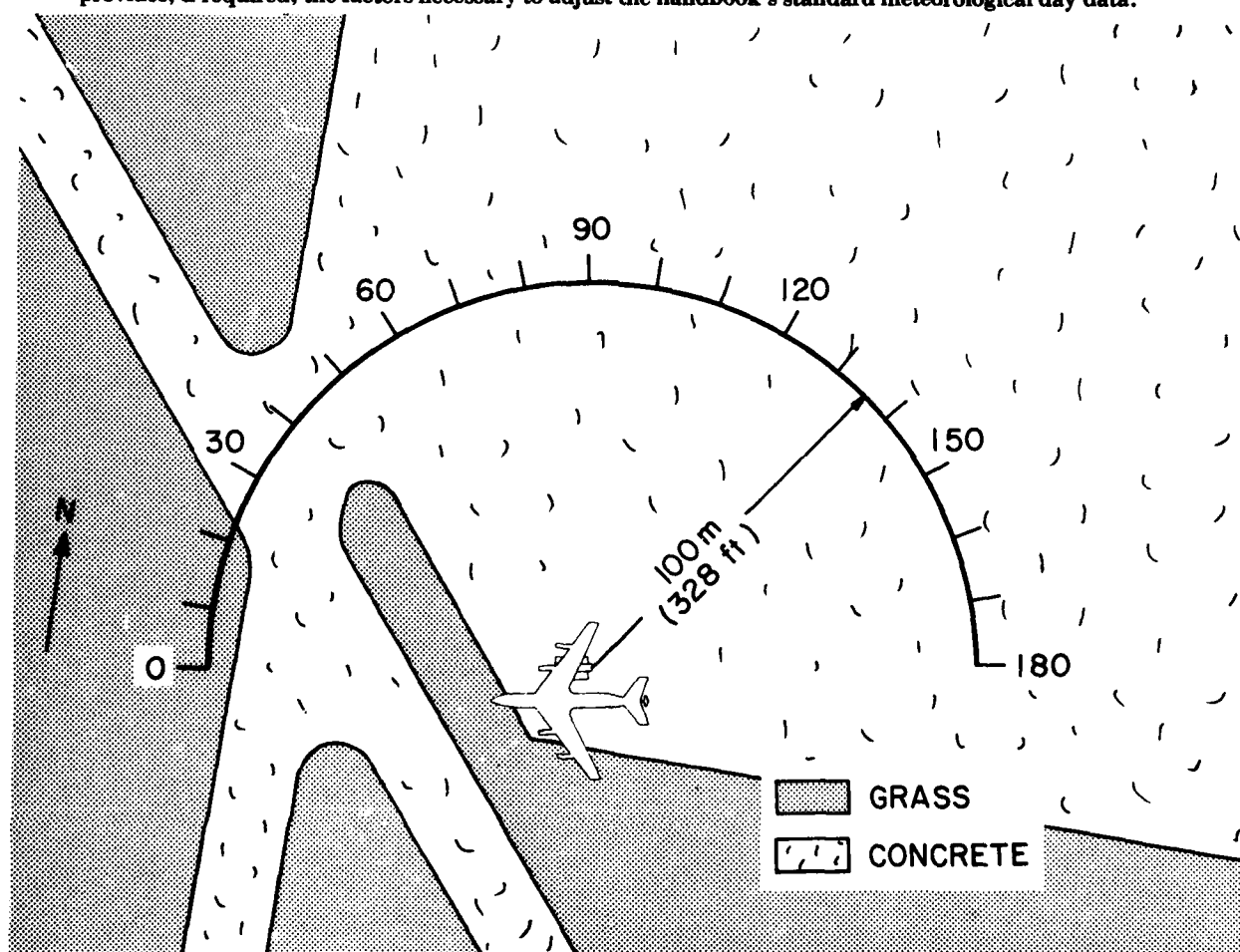


Figure 1. Far-Field Measurement Locations on Parking Apron, O'Hare Int. Airport, Chicago IL

TABLE 1
TEST CONDITIONS
FOR FAR-FIELD NOISE MEASUREMENTS

C-135A Aircraft In The Modified AF32A-52A Noise Suppressor, Ground Runup
O'Hare Int. Arpt., Chicago IL, Test #77-726-001

Aircraft Engine Operation

80% RPM	One Engine 80 % RPM 315 °C EGT 1.22 E.P.R. 2200 LBS/HR Fuel Flow
Military Power (Dry)	One Engine 95.5 % RPM 607 °C EGT 2.35 E.P.R. 8550 LBS/HR Fuel Flow
Military Power (Wet)	One Engine 96.3 % RPM 615 °C EGT 2.79 E.P.R. 13,000 LBS/HR Fuel Flow

Meteorology

Temperature	31 C
Bar Pressure	0.742 M Hg
Rel Humidity	52 %
Wind — Speed	3.5 M/Sec (7 Kt)
— Direction	250 Deg

TABLE 1		MEASURED SOUND PRESSURE LEVEL (DB)													IDENTIFICATION:					
1/3 OCTAVE BAND		DISTANCE = 100 METERS																		
2																				
NOISE SOURCE/SUBJECT:		OPERATION:													METEOROLOGY:					
KC-135A AIRCRAFT IN THE		80% RPM													TEMP = 31 C					
(MODIFIED) AF32A-52		INBOARD ENGINE WITH													BAR PRESS = 29.42 M HG					
NOISE SUPPRESSOR		SUPPRESSOR MOUNTED													REL HUMID = 52 %					
FAR-FIELD NOISE															PAGE 2					
FREQ		ANGLE (DEGREES)																		
(HZ)		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25								71<		73<	75<	73<	73<	73<	70<	77<			69<	
31.5																				
40																				
50																				
63																				
80	70<	71<	72<	73<	74<	75<	76<	77<	78<	79<	80<	81<	82<	83<	84<	85<	86<	87<	88<	89<
100	73<	74<	75<	76<	77<	78<	79<	80<	81<	82<	83<	84<	85<	86<	87<	88<	89<	90<	91<	92<
125	74<	75<	76<	77<	78<	79<	80<	81<	82<	83<	84<	85<	86<	87<	88<	89<	90<	91<	92<	93<
160	72<	73<	74<	75<	76<	77<	78<	79<	80<	81<	82<	83<	84<	85<	86<	87<	88<	89<	90<	91<
200	69<	70<	68<	67<	69<	68<	69<	68<	69<	71<	76<	73<	74<	76<	78<	78<	75<	73<	72<	71<
250	71<	72<	69<	68<	69<	68<	69<	68<	69<	72<	73<	72<	76<	80<	81<	78<	75<	73<	72<	71<
315	72	74	72	71<	68<	68<	67<	67<	67<	70	73	72	77	83	84	77	77	74	71<	61<
400	72	72	72	70	67<	67<	67<	67<	67<	73	73	73	74	80	85	79	76	74	68	62<
500	73	72	72	71	67	68	65<	67	71	74	75	72	79	82	78	74	71	66	62<	62<
630	75	74	76	73	68	71	67	69	74	75	76	75	78	82	77	73	67	62<	62<	62<
800	74	74	77	75	69	73	69	69	74	75	74	75	78	82	79	73	72	66	63<	63<
1000	75	74	78	76	70	76	70	69	71	73	73	74	77	78	76	72	69	64<	60<	60<
1250	78	79	82	78	70	76	71	67	71	71	73	72	76	77	74	71	69	64	60<	60<
1600	83	84	86	85	77	83	76	73	78	75	75	71	76	77	75	75	73	65	62	62
2000	86	89	88	93	85	92	82	80	85	81	82	74	82	77	80	81	79	69	67	67
2500	80	79	85	81	77	82	76	72	74	72	74	70	75	75	74	72	69	62	61	61
3150	79	78	86	82	75	83	78	75	76	73	73	69	76	75	74	69	67	61	62	62
4000	85	86	92	89	82	92	88	86	88	83	81	74	79	78	76	72	69	65	68	68
5000	80	78	86	85	76	84	79	77	77	73	73	71	77	75	74	68	66	59	60	60
6300	80	77	84	82	75	82	76	75	77	74	79	79	86	84	84	77	74	65	64	64
8000	78	75	81	80	72	80	75	72	73	69	71	68	70	70	72	66	63	56	55	55
10000	75	72	78	75	68	77	70	67	69	66	67	64	70	69	69	64	60	54	52	52
OVERALL	92	93	96	96	89	96	91	89	92	90	89	88	93	94	92	89	86	81	75	75
< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.																				

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																			
1/3 OCTAVE BAND																			
DISTANCE = 100 METERS																			
NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)																			
KC-135A AIRCRAFT IN THE () TEMP = 31 C																			
((MODIFIED) AF32A-52 () MILITARY POWER (DRY),) BAR PRESS = .742 M HG																			
(NOISE SUPPRESSOR () 96% RPM, INBOARD ENGINE) REL HUMID = 52 %																			
(FAR-FIELD NOISE () WITH SUPPRESSOR MOUNTED))																			
FREQ																			
(HZ)																			
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																			
(	25	73<	75<	75<	73<	80<	70<	77<	83	78<	77<	76<	79<	81<	76<	77<	77<	78<	73<
(	31.5	78<	77<	75<	79<	77<	76<	81	78<	77<	77<	77<	80	82	82	81	77<	76<	73<
(	40	83	80<	78<	78<	79<	78<	77<	81<	86<	79<	81<	82<	86	85	88	81<	76<	
(	50	86	81<	78<	84	80<	83	83	85	84	85	86	84	86	84	91	86	77<	
(	63	82	79<	82	83	80<	83	80<	83<	83	85	85	88	89	87	89	86	79<	
(	80	82	81	83	81	82	82	80<	80<	81	85	85	86	89	89	88	84	81	
(	100	84	84	83	84	82<	84	81<	81<	83	85	86	87	91	91	90	84	80<	
(	125	84	84	81<	83<	83<	83<	82<	80<	83<	84	86	90	93	93	93	86	80<	
(	160	82	83	82	83	83	81	80	80	82	84	86	90	92	94	90	85	78	
(	200	80	81	82	81	80	80	79	79	83	83	85	88	90	92	87	84	77	68<
(	250	82	83	82	82	83	80	80	78	83	84	86	92	94	92	88	85	77	68<
(	315	81	82	80	82	81	78	78	76	80	83	84	94	95	93	88	85	77	69<
(	400	78	80	77	77	78	74	76	72	77	83	85	92	94	92	86	84	77	68<
(	500	76	77	75	75	76	72	74	70	77	84	87	90	91	89	85	82	74	63<
(	630	75	77	74	74	74	71	74	69	78	84	87	89	89	88	83	81	74	64<
(	800	75	77	75	75	74	71	75	69	77	82	85	90	87	88	82	80	74	65<
(	1000	73	76	75	75	72	71	77	69	75	81	83	89	85	87	81	80	74	66<
(	1250	74	74	73	74	70	69	74	68	74	80	82	89	83	86	80	80	73	68
(	1600	73	74	74	75	70	69	72	67	74	80	81	87	83	85	80	79	75	68
(	2000	75	77	78	78	73	74	76	70	75	79	81	87	83	85	80	79	74	65
(	2500	83	85	87	86	82	83	87	79	82	83	80	86	83	86	82	82	75	67
(	3150	81	83	84	84	80	80	85	78	80	82	79	84	81	84	79	81	74	65
(	4000	74	77	77	78	72	73	77	69	73	76	77	81	79	82	76	75	71	61
(	5000	74	78	79	79	73	74	77	70	71	74	73	78	76	78	73	72	68	57
(	6300	72	75	76	76	71	72	76	69	71	74	73	77	75	77	72	71	68	56
(	8000	70	72	74	73	68	69	73	65	66	69	69	74	72	73	69	67	64	53
(	10000	67	69	70	70	64	66	69	62	63	67	67	71	71	72	68	66	64	50
(	OVERALL	94	94	94	94	93	93	94	92	94	96	98	102	103	103	100	96	91	80
(	< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE																		

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																	IDENTIFICATION:		
1/3 OCTAVE BAND																			
DISTANCE = 100 METERS																	OMEGA 1.4		
NOISE SOURCE/SUBJECT: (OPERATION:)																	TEST 77-726-001		
KC-135A AIRCRAFT IN THE ()																	RUN 03		
((MODIFIED) AF32A-52 () MILITARY POWER (MET),)																			
((NOISE SUPPRESSOR () 96% RPM, INBOARD ENGINE)																	14 SEP 78		
((FAR-FIELD NOISE () WITH SUPPRESSOR MOUNTED)																	PAGE 2		
ANGLE (DEGREES)																			
FREQ (HZ)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	77<	79<	78<	79<	78<	81<	83	85	85	83	85	84	83	84	82<	83	83	81<	78<
31.5	81	83	79<	78<	80<	81	81	81	81	81	83	86	86	87	87	82	83	81	77<
40	86	86	81<	80<	83	81<	84	90	91	88	90	90	90	92	93	88	83	81<	72<
50	88	87	80<	80	86	90	93	95	94	92	95	95	91	97	96	93	86	81<	73<
63	86	85	85	89	86	88	85	86	89	91	93	96	98	96	97	91	88	83	79<
80	87	84	86	83	87	86	87	87	88	90	92	92	93	97	95	89	83	83	73<
100	86	87	87	85	87	88	87	87	88	90	91	94	97	97	95	88	82<	85	
125	86	87	83<	84	86	86	85	86	87	89	91	94	96	99	96	89	81<	86	
160	83	85	84	83	85	84	85	88	87	88	93	96	97	99	93	89	81	86	72<
200	81	82	82	81	83	83	84	86	87	87	89	92	95	97	92	88	80	80	70<
250	83	83	82	81	83	83	82	85	86	86	88	94	96	96	93	89	81	80	72<
315	82	83	81	80	82	82	80	83	84	87	89	97	98	95	94	89	81	78	72
400	81	82	78	78	80	79	79	81	82	87	90	97	99	95	92	89	81	75	72
500	79	79	76	75	77	77	77	80	82	88	93	96	98	94	93	89	81	74	70
630	77	77	73	74	74	76	77	80	82	88	92	96	95	93	91	87	79	72	69
800	76	78	73	74	73	76	78	81	81	88	91	96	94	92	89	85	79	71	69
1000	74	76	71	72	72	76	77	81	78	87	90	96	92	91	88	84	78	70	68
1250	74	75	70	70	70	74	76	80	76	86	90	95	91	91	88	85	78	70	68
1600	74	75	69	70	71	76	77	81	75	86	89	95	91	90	88	84	79	70	67
2000	75	76	71	71	72	76	78	81	75	86	88	94	90	89	88	84	79	71	67
2500	80	80	74	74	75	79	81	84	76	86	87	93	90	89	88	83	79	71	67
3150	82	83	78	78	79	82	84	86	77	85	86	92	89	88	87	84	79	70	67
4000	76	78	73	71	73	77	80	84	76	83	84	91	87	87	85	81	76	68	64
5000	72	73	69	68	69	73	76	78	71	79	80	86	83	83	81	78	72	64	60
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8000	67	69	66	63	67	70	72	75	67	74	74	80	77	79	81	81	76	62	55
10000	64	66	62	61	64	67	67	70	63	71	70	77	74	74	73	72	65	56	51
OVERALL	96	96	94	96	96	97	98	100	100	101	104	108	108	108	106	101	95	94	86
< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE																			

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

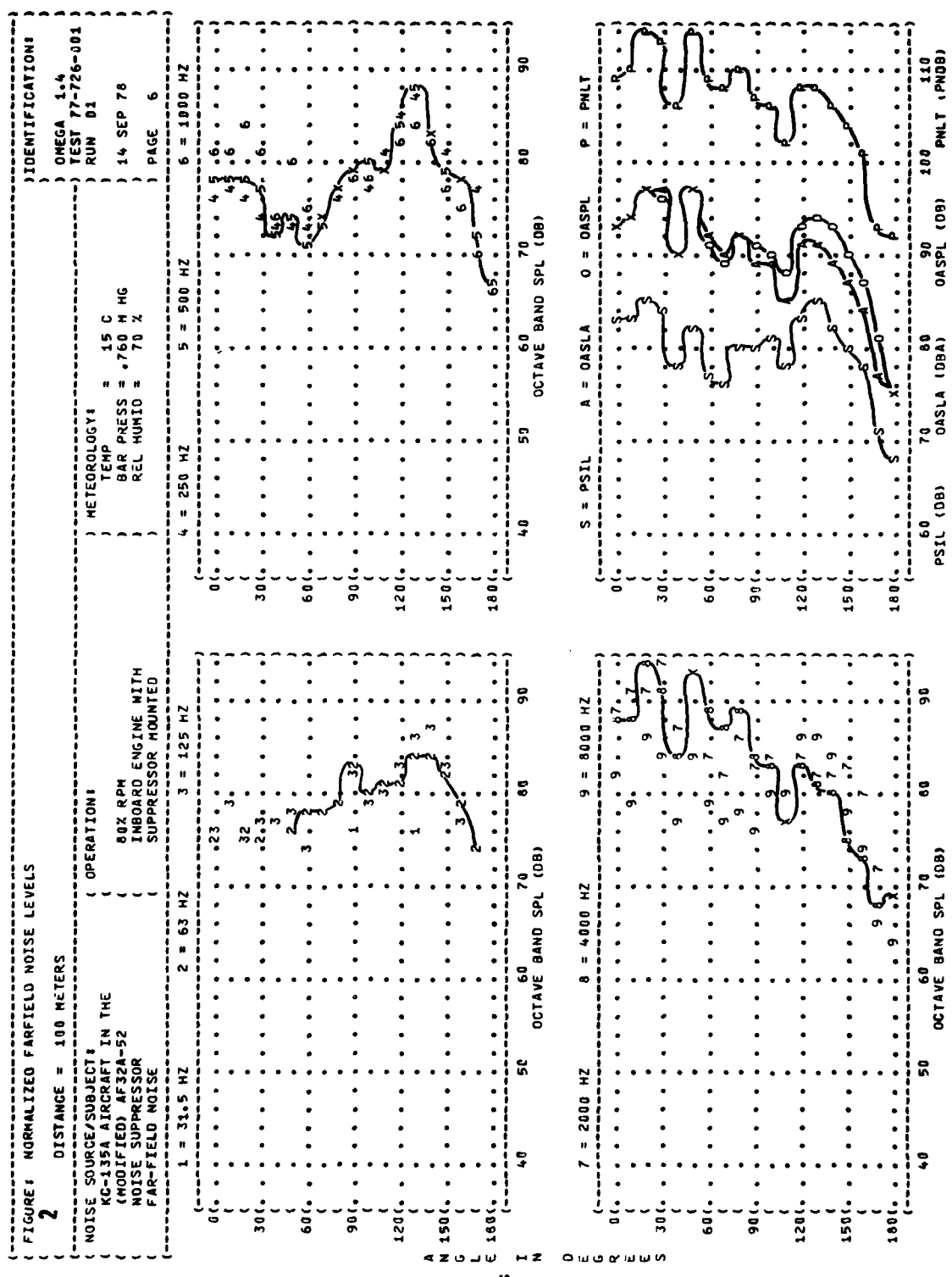


FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS

2 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT: (OPERATION)

KC-135A AIRCRAFT IN THE ()

(MODIFIED) AF32A-52 ()

NOISE SUPPRESSOR ()

FAR-FIELD NOISE ()

1 = 31.5 HZ 2 = 63 HZ 3 = 125 HZ

4 = 250 HZ 5 = 500 HZ 6 = 1000 HZ

METEOROLOGY: ()

TEMP = 15 C ()

BAR PRESS = .760 M HG ()

REL HUMID = 70 % ()

14 SEP 78 ()

PAGE 6 ()

IDENTIFICATION: ()

OMEGA 1.4 ()

TEST 77-726-001 ()

RUN 02 ()

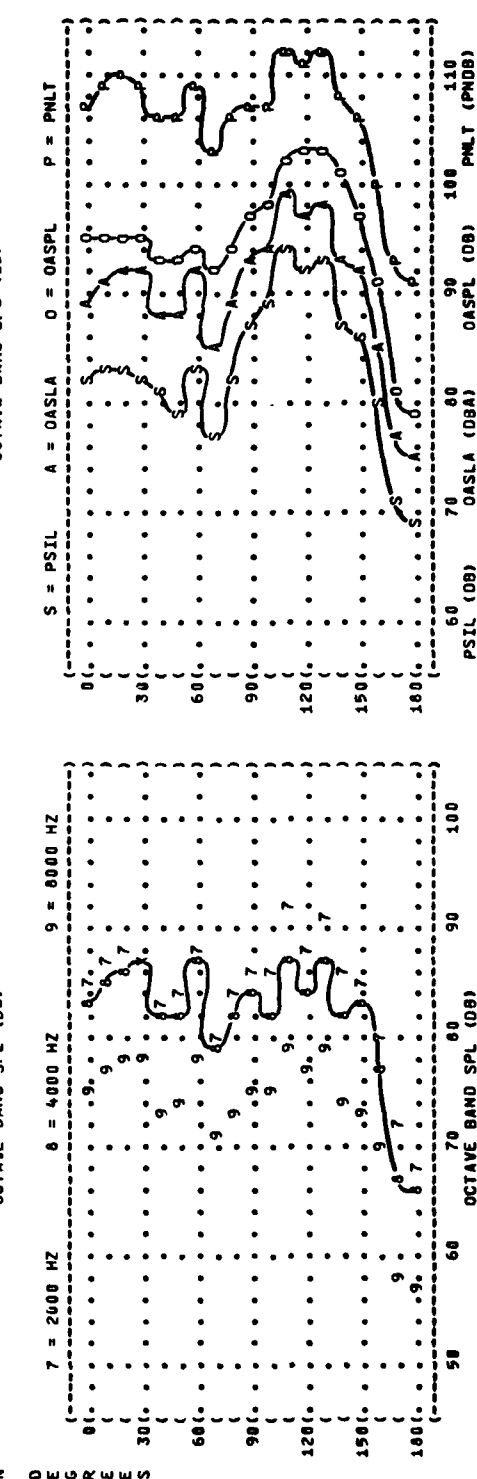
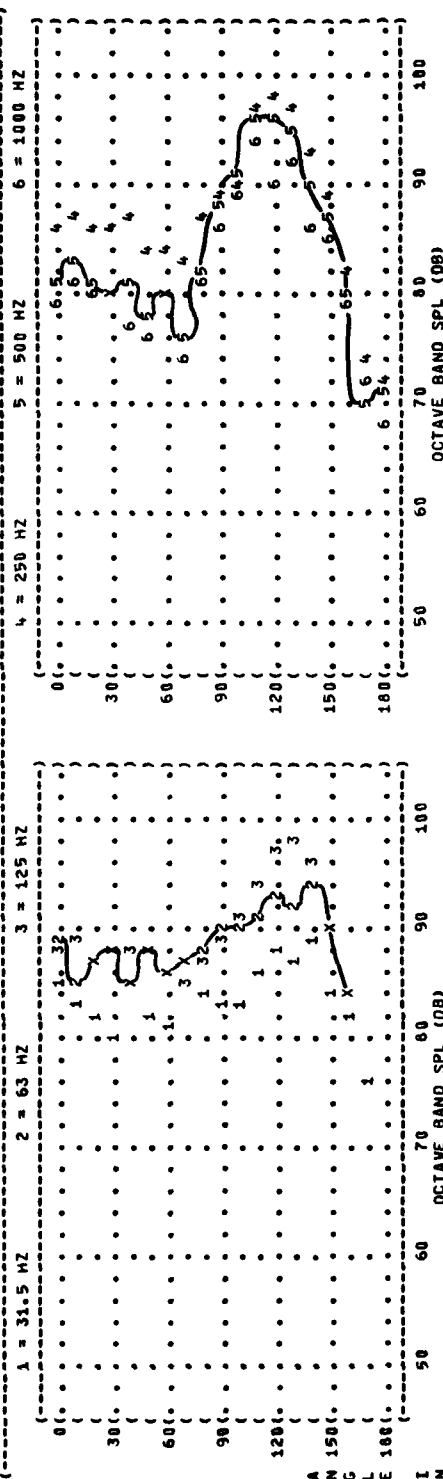


FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS

2 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT: (OPERATION:)

KG-159A AIRCRAFT IN THE ()

(MODIFIED) AF32A-52 ()

NOISE SUPPRESSOR ()

FAR-FIELD NOISE ()

1 = 31.5 HZ 2 = 63 HZ 3 = 125 HZ

4 = 250 HZ 5 = 500 HZ 6 = 1000 HZ

METEOROLOGY: ()

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

OMEGA 1.4

TEST 77-726-001

RUN 03

14 SEP 78

PAGE 6

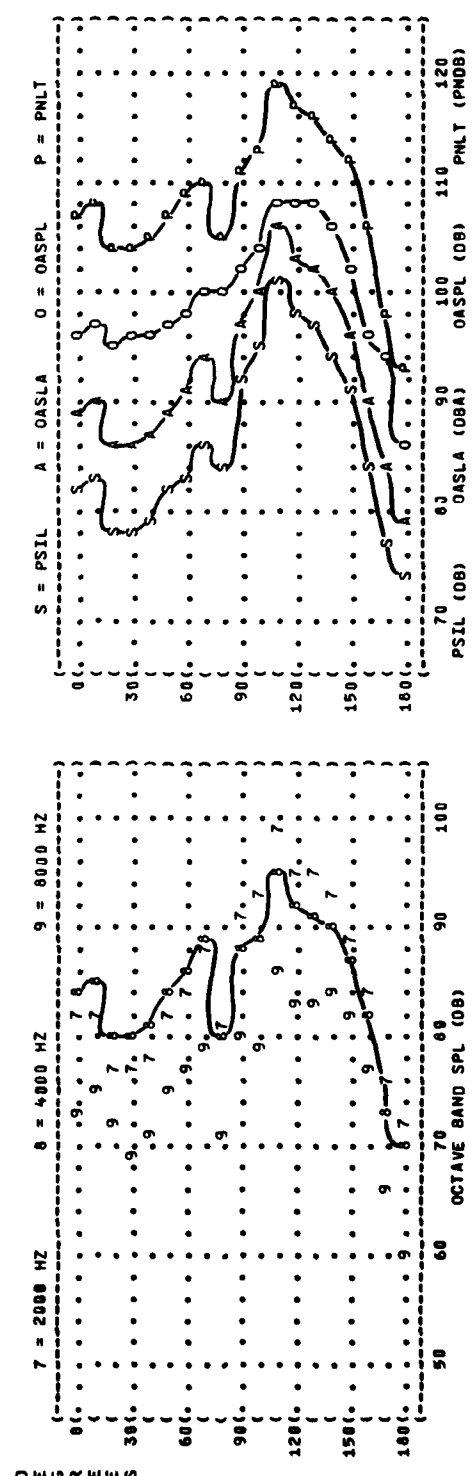
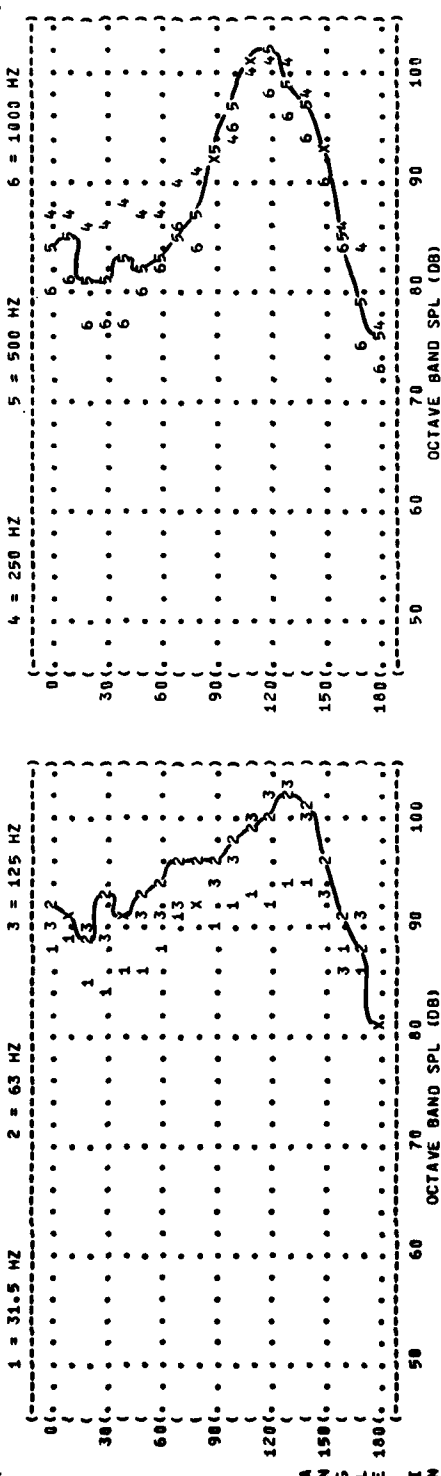


FIGURE 1: ACOUSTIC POWER LEVEL (PWL)

3

IDENTIFICATION:

OMEGA 1.4

TEST 77-726-001

RUN 02

14 SEP 78

PAGE 3

NOISE SOURCE/SUBJECT:

OPERATION:

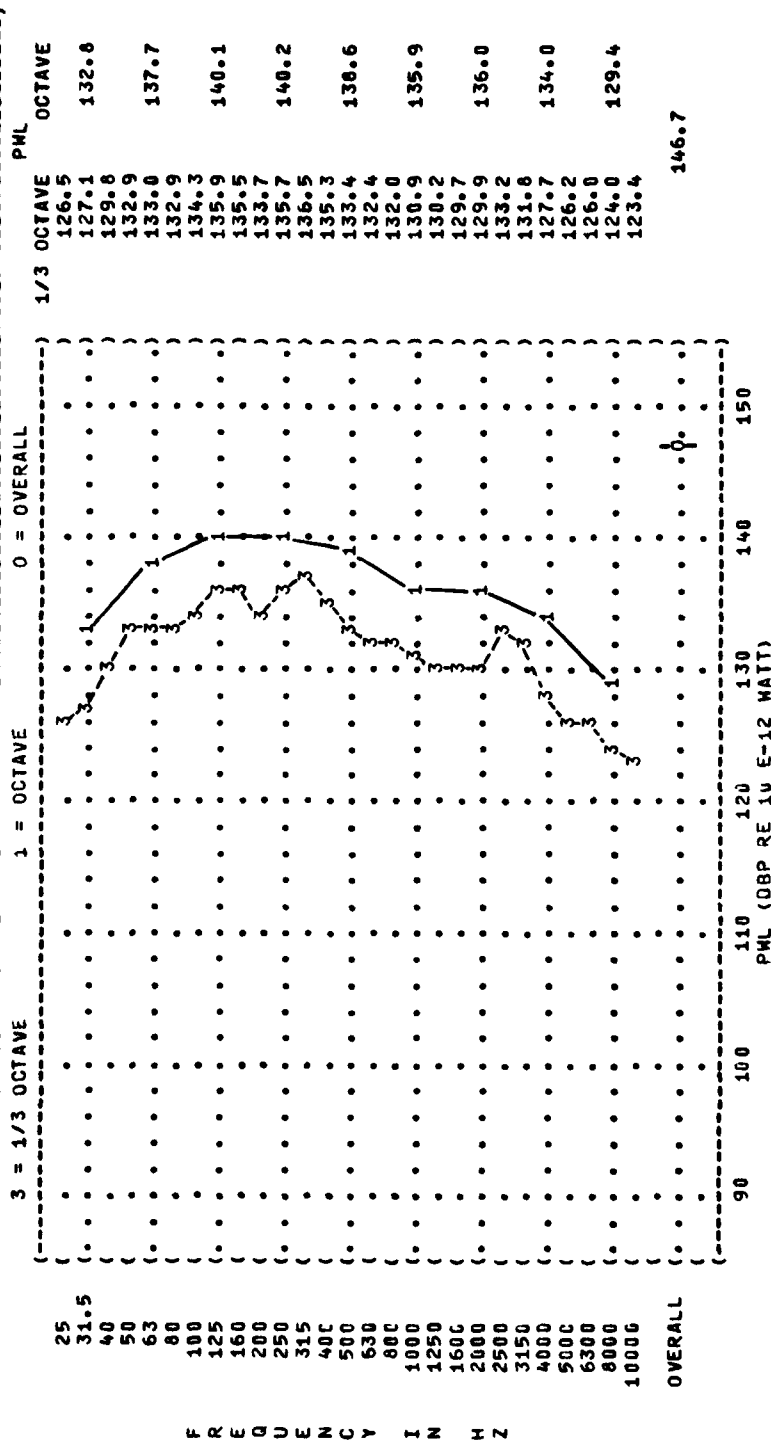
METEOROLOGY:

TEMP = 31 C

MILITARY POWER (DRY), BAR PRESS = .742 H HG

96% RPM, INBOARD ENGINE REL HUMID = 52 %

WITH SUPPRESSOR MOUNTED



((FIGURE: ACOUSTIC POWER LEVEL (PWL)))
 ((3))
 ((NOISE SOURCE/SUBJECT:))
 ((KC-135A AIRCRAFT IN THE))
 (((MODIFIED) AF32A-52))
 ((NOISE SUPPRESSOR))
 ((FAR-FIELD NOISE))
 ((OPERATION:))
 ((MILITARY POWER (MET),))
 ((96% RPM, INBOARD ENGINE))
 ((WITH SUPPRESSOR MOUNTED))
 ((METEOROLOGY:))
 ((TEMP = 31 C))
 ((BAR PRESS = .742 H HG))
 ((REL HUMID = 52 %))
 ((IDENTIFICATION:))
 ((OMEGA 1.4))
 ((TEST 77-726-001))
 ((RUN 03))
 ((14 SEP 78))
 ((PAGE 3))

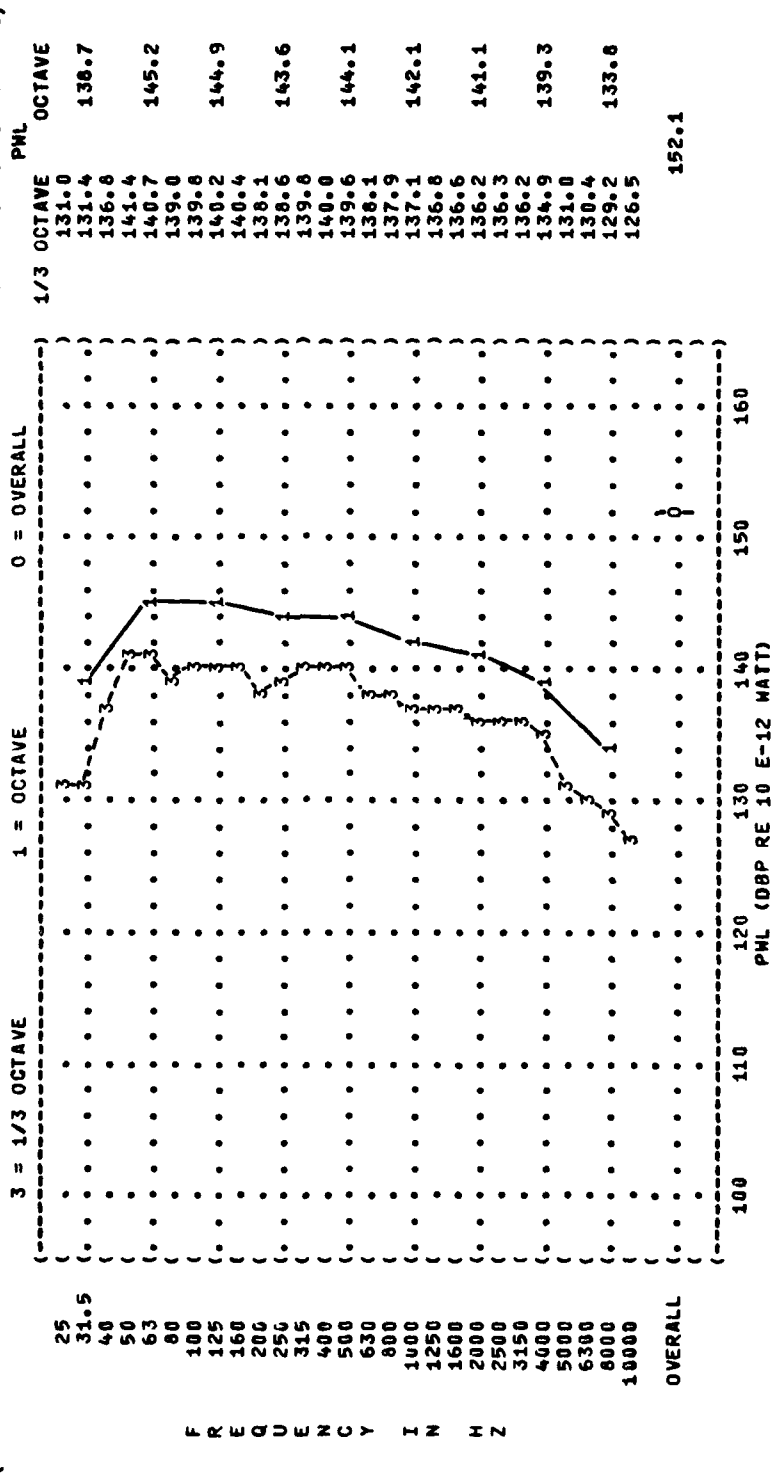


TABLE: DIRECTIVITY INDEX (DB)										IDENTIFICATION:									
3										OMEGA 1.4									
NOISE SOURCE/SUBJECT:										TEST 77-726-001									
KC-135A AIRCRAFT IN THE										RUN 01									
(MODIFIED) AF32A-52										14 SEP 76									
NOISE SUPPRESSOR										PAGE 4									
FAR-FIELD NOISE																			
OPERATION:										METEOROLOGY:									
80% RPM										TEMP = 31 C									
INBOARD ENGINE WITH										BAR PRESS = .742 M HG									
SUPPRESSOR MOUNTED										REL HUMID = 52 %									
FREQ	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
(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																			
2500																			
3150																			
4000																			
5000																			
6300																			
8000																			
10000																			
OCTAVE																			
31.5																			
63																			
125																			
250																			
500																			
1000																			
2000																			
4000																			
8000																			
OVERALL																			

TABLE: DIRECTIVITY INDEX (DB)																			IDENTIFICATION:	
3																			OMEGA 1.4	
NOISE SOURCE/SUBJECT:																			TEST 77-726-001	
KC-135A AIRCRAFT IN THE																			RUN 02	
(MODIFIED) AF32A-52																				
NOISE SUPPRESSOR																			14 SEP 70	
(FAR-FIELD NOISE																			PAGE 4	
METEOROLOGY:																				
TEMP = 31 C																				
BAR PRESS = .742 M HG																				
REL HUMID = 52 %																				
WITH SUPPRESSOR MOUNTED																				
FREQ	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	
(HZ)																				
1/3 OCTAVE																				
25	-5	-3	-3	-6	2	-2	-2	4	0	-2	-3	1	3	3	-2	-2	-1	0	-6	
31.5	-1	-1	-2	-4	0	-2	-3	2	-1	-2	-2	1	3	3	2	2	-2	-3	-6	
40	1	-1	-4	-4	-3	-4	-5	-1	-2	-3	-1	0	4	4	3	6	0	-6		
50	1	-4	-7	-1	-5	-2	-2	0	-1	0	1	-1	1	1	-1	6	1	-8		
63	-3	-6	-3	-2	-5	-2	-5	-5	-2	0	0	3	4	4	2	4	1	-6		
80	-3	-4	-2	-4	-3	-3	-5	-5	-4	0	0	1	4	4	4	3	-1	-4		
100	-3	-4	-4	-3	-4	-2	-5	-5	-4	-2	0	1	4	5	4	4	-2	-6		
125	-4	-4	-7	-5	-5	-5	-6	-8	-5	-4	-2	2	5	5	5	5	-2	-8		
160	-6	-5	-5	-4	-5	-7	-8	-8	-6	-3	-1	2	5	6	6	3	-2	-10	-21	
200	-6	-5	-4	-5	-6	-6	-7	-7	-7	-3	-2	3	4	6	4	2	-2	-9	-17	
250	-6	-5	-6	-6	-5	-8	-8	-9	-9	-3	-1	4	6	4	0	0	-3	-11	-19	
315	-8	-7	-8	-7	-7	-10	-10	-13	-9	-5	-4	5	7	4	0	0	-4	-11	-19	
400	-9	-8	-10	-10	-9	-13	-12	-15	-10	-4	-2	5	6	5	-1	-1	-4	-11	-20	
500	-9	-8	-10	-10	-10	-13	-11	-15	-8	-2	3	5	6	4	4	-1	-4	-11	-22	
630	-9	-7	-10	-10	-10	-13	-10	-15	-6	0	3	5	5	5	4	-1	-3	-10	-19	
800	-9	-7	-9	-9	-10	-12	-9	-14	-7	-1	2	6	3	3	5	-2	-3	-10	-20	
1000	-9	-6	-7	-7	-11	-11	-6	-13	-7	-1	1	7	3	3	5	-1	-3	-8	-16	
1250	-8	-8	-8	-8	-12	-12	-8	-14	-7	-2	0	7	1	2	5	-1	-1	-8	-13	
1600	-8	-7	-6	-6	-11	-11	-8	-14	-7	-1	0	7	2	2	5	-1	-2	-6	-13	
2000	-6	-3	-3	-3	-8	-7	-5	-10	-6	-2	0	6	2	4	4	-1	-2	-7	-16	
2500	0	2	3	2	-1	-1	-3	-5	-2	0	-4	2	2	2	2	-2	-2	-8	-17	
3150	-1	2	2	3	-2	-1	3	-4	-1	1	-2	2	-1	2	2	-3	-1	-8	-17	
4000	-3	0	0	1	-5	-4	0	-8	-4	-1	0	4	3	1	2	-2	-2	-6	-18	
5000	-1	2	3	4	-2	-1	2	-5	-4	-1	-2	3	1	2	2	-2	-3	-8	-19	
6300	-2	1	2	2	-3	-2	2	-5	-3	0	-1	3	3	1	3	-2	-3	-6	-18	
8000	0	2	3	2	-3	-2	3	-5	-5	-1	-1	3	3	2	2	-2	-4	-6	-18	
10000	-2	0	1	2	-4	-2	0	-6	-6	-1	-1	3	3	3	4	0	-2	-5	-18	
OCTAVE																				
31.5	0	-2	-3	-4	0	-3	-4	2	-1	-2	-2	1	3	3	2	4	-1	-3	-9	
63	-1	-4	-3	-2	-4	-2	-4	-3	-3	0	1	1	3	3	2	5	0	-6		
125	-4	-4	-5	-4	-5	-5	-6	-7	-5	-3	-1	2	5	5	6	4	-2	-8		
250	-6	-6	-6	-6	-6	-8	-8	-9	-5	-4	-2	4	6	5	5	0	-3	-10	-18	
500	-9	-8	-10	-10	-9	-13	-11	-15	-8	-2	1	5	6	5	-1	-1	-3	-10	-20	
1000	-9	-7	-8	-8	-11	-12	-7	-14	-7	-1	1	7	2	5	-1	-1	-3	-9	-16	
2000	-2	0	1	0	-4	-3	1	-7	-3	-1	5	1	4	4	-1	-1	-2	-7	-15	
4000	-1	1	2	2	-2	-2	3	-5	-2	0	-2	3	0	3	3	-2	-2	-7	-17	
8000	-1	1	2	2	-3	-2	2	-5	-4	-1	-1	3	3	3	3	-2	-3	-6	-18	
OVERALL	-4	-4	-4	-4	-5	-5	-5	-6	-5	-2	-1	4	5	4	4	2	-2	-8	-20	

TABLE: DIRECTIVITY INDEX (DB)																			IDENTIFICATION:	
3																			OMEGA 1.4	
NOISE SOURCE/SUBJECT: (OPERATION:)																			TEST 77-726-001	
(KC-135A AIRCRAFT IN THE (MILITARY POWER (WET),)																			RUN 03	
((MODIFIED) AF32A-52) BAR PRESS = 31 C)																				
(NOISE SUPPRESSOR (96% RPM, INBOARD ENGINE) REL HUMID = 52 %)																			14 SEP 78	
(FAR-FIELD NOISE (WITH SUPPRESSOR MOUNTED))																			PAGE 4	
FREQ	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	
(HZ)																				
1/3 OCTAVE																				
25	-6	-4	-5	-4	-5	-2	0	2	1	0	2	1	0	0	-1	-1	0	-2	-5	
31.5	-2	0	-4	-6	-4	-3	-2	-3	-3	-3	0	3	3	4	3	-1	-1	0	-3	
40	-3	-3	-8	-9	-6	-8	-5	1	2	-1	1	1	1	3	3	4	-1	-6	-6	
50	-6	-6	-14	-3	-7	-4	-1	2	1	-1	1	1	-2	3	3	0	-8	-12	-20	
63	-6	-8	-7	-4	-7	-5	-7	-7	-4	-2	1	3	5	3	5	-2	-5	-9	-14	
80	-4	-7	-5	-8	-4	-5	-4	-4	-3	-1	1	1	2	6	4	-2	-8	-8	-18	
100	-6	-5	-5	-7	-5	-4	-5	-5	-4	-2	-1	2	5	5	3	-4	-10	-7		
125	-7	-5	-9	-9	-7	-6	-7	-6	-5	-3	-2	2	4	7	4	-3	-11	-6		
160	-9	-7	-8	-9	-8	-8	-7	-5	-5	-4	0	3	4	6	1	-4	-11	-6	-21	
200	-9	-8	-8	-9	-7	-7	-6	-4	-3	-3	-1	2	5	7	2	-2	-10	-10	-20	
250	-8	-8	-9	-10	-7	-8	-8	-6	-4	-4	-2	3	6	6	3	-1	-9	-10	-18	
315	-9	-9	-11	-12	-10	-13	-11	-9	-7	-4	-2	3	6	4	2	-3	-10	-14	-19	
400	-11	-10	-13	-14	-12	-13	-13	-11	-9	-5	-2	6	7	4	1	-3	-11	-16	-20	
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630	-13	-13	-17	-16	-16	-14	-13	-10	-8	-2	2	6	5	3	1	-3	-11	-18	-21	
800	-13	-12	-17	-16	-16	-14	-12	-8	-8	-2	2	7	4	2	0	-4	-10	-19	-21	
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1250	-14	-13	-18	-18	-18	-14	-12	-8	-12	-2	2	7	3	3	0	-3	-10	-18	-20	
1600	-13	-13	-18	-17	-16	-12	-10	-6	-12	-2	1	8	3	2	0	-3	-9	-17	-21	
2000	-12	-11	-16	-16	-15	-11	-9	-6	-12	-1	1	7	3	3	1	-3	-8	-16	-20	
2500	-7	-7	-12	-13	-12	-8	-6	-3	-11	-1	1	7	3	3	1	-3	-7	-16	-19	
3150	-4	-4	-8	-8	-7	-4	-2	0	-9	-2	0	6	2	1	1	-3	-8	-15	-19	
4000	-9	-6	-11	-13	-11	-7	-4	-1	-9	-1	0	6	3	2	1	-3	-7	-16	-19	
5000	-8	-7	-11	-12	-11	-7	-4	-2	-9	-1	0	6	3	3	1	-2	-8	-16	-20	
6300	-8	-6	-9	-12	-10	-5	-4	-2	-10	-1	-1	6	3	3	2	-1	-6	-15	-20	
8000	-9	-7	-10	-13	-9	-6	-4	-1	-9	-2	-2	4	1	3	5	5	0	-14	-21	
10000	-8	-5	-9	-10	-8	-4	-4	-1	-8	-1	-1	6	3	3	2	1	-6	-15	-20	
OCTAVE																				
31.5	-3	-2	-6	-7	-5	-5	-3	0	1	-1	1	2	1	3	3	-1	-3	-5	-9	
63	-5	-7	-8	-4	-6	-4	-3	-1	-1	-1	1	2	2	4	4	-1	-6	-10	-16	
125	-7	-6	-7	-8	-6	-6	-6	-5	-5	-3	-1	2	5	6	3	-4	-11	-6		
250	-9	-8	-9	-10	-8	-8	-8	-6	-5	-4	-2	4	5	5	2	-2	-10	-11	-19	
500	-12	-11	-15	-15	-13	-14	-13	-11	-9	-3	1	5	6	3	1	-3	-11	-17	-20	
1000	-14	-13	-17	-17	-17	-13	-12	-11	-10	-2	2	7	4	2	0	-4	-10	-16	-20	
2000	-10	-10	-15	-15	-14	-10	-8	-5	-12	-1	1	7	3	2	1	-3	-8	-16	-20	
4000	-6	-5	-9	-10	-8	-5	-3	0	-9	-1	0	6	3	2	1	-3	-8	-16	-20	
8000	-8	-6	-9	-12	-10	-5	-4	-2	-9	-1	-1	6	3	3	3	2	-3	-15	-20	
10000	-8	-5	-9	-10	-8	-4	-4	-1	-8	-1	-1	6	3	3	2	1	-3	-15	-20	
OVERALL	-7	-7	-9	-8	-8	-7	-6	-4	-4	-2	0	4	4	4	2	-2	-8	-10	-18	

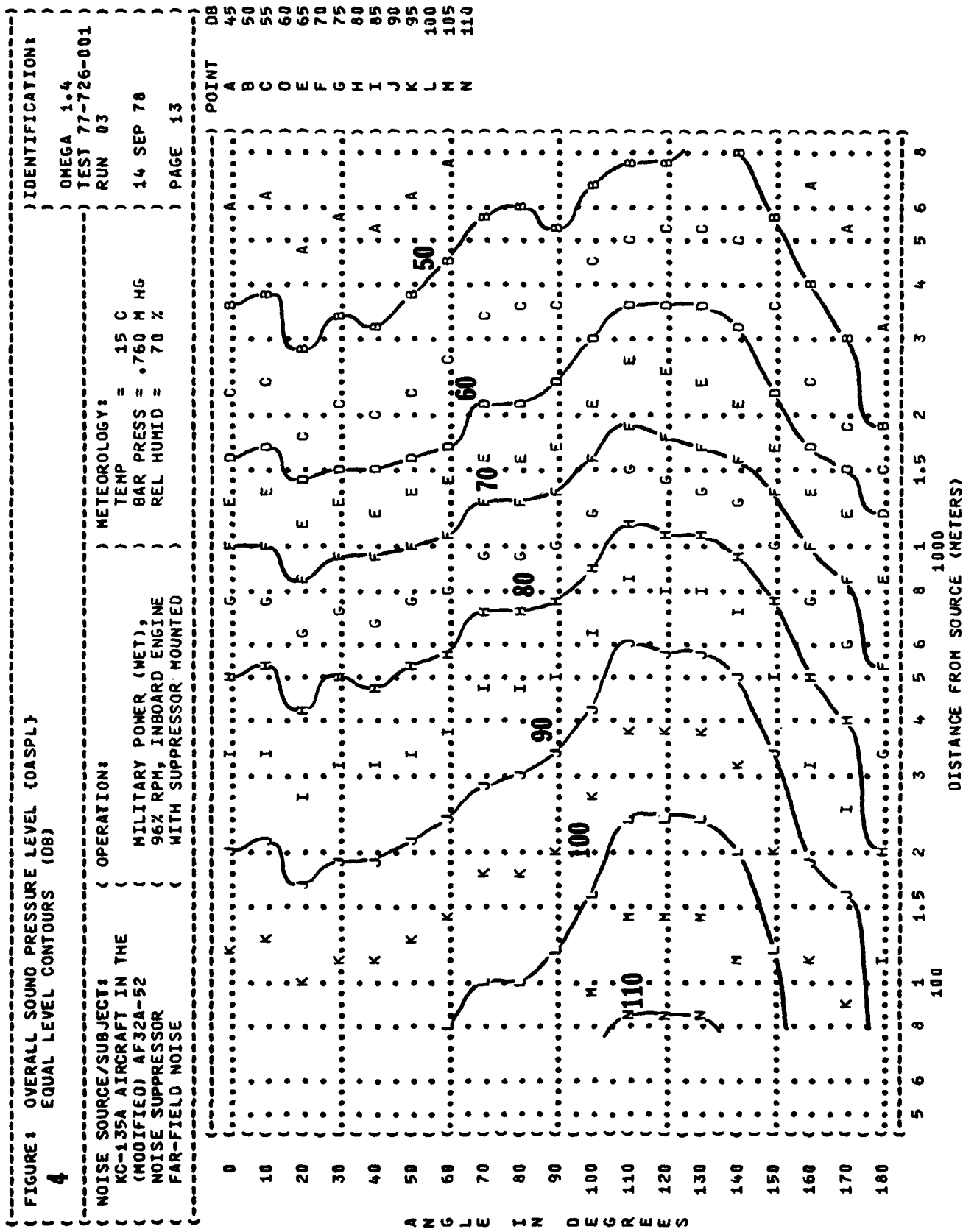
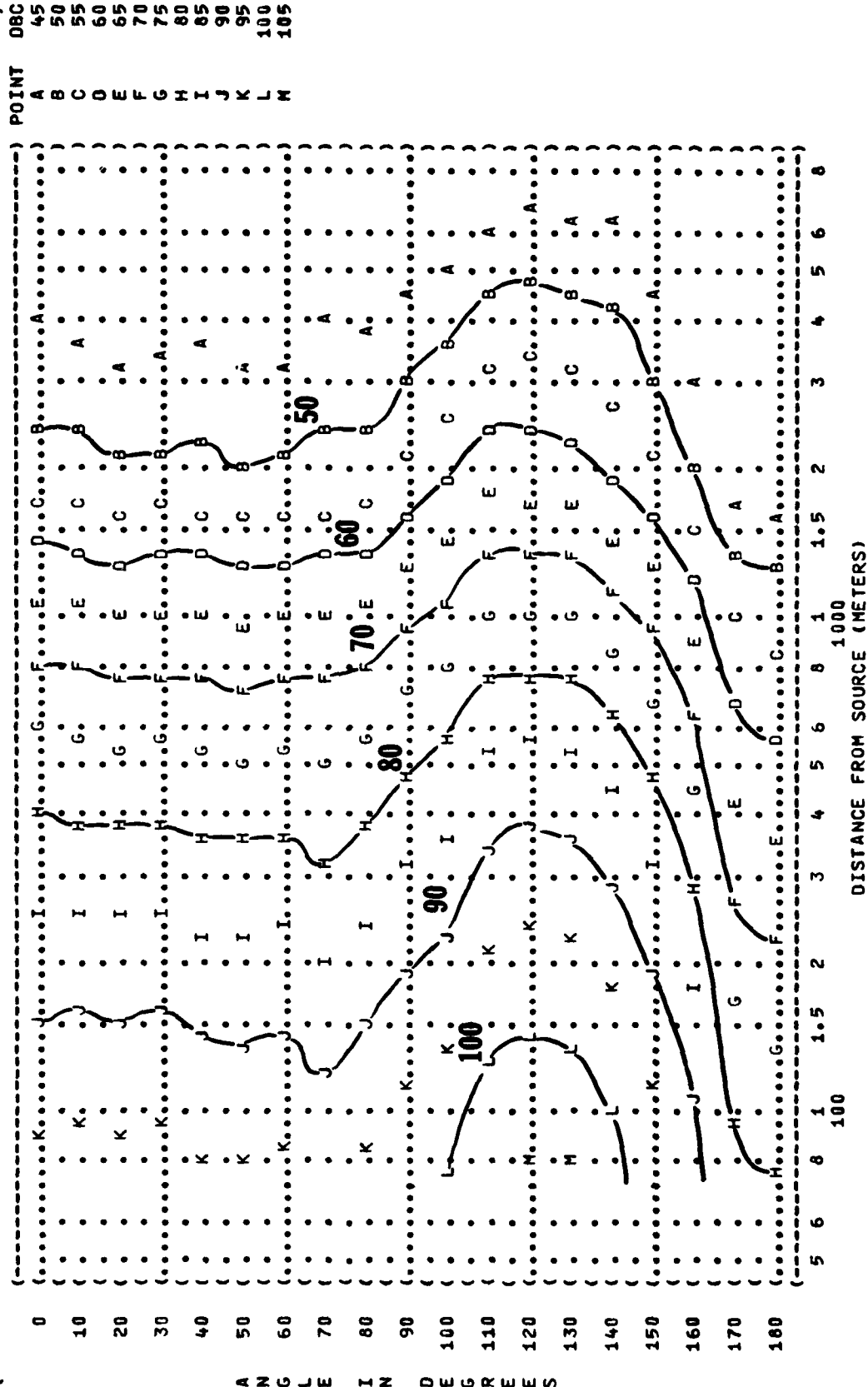


FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
 5
 EQUAL LEVEL CONTOURS (DBC)

NOISE SOURCE/SUBJECT: () IDENTIFICATION: ()
 KC-135A AIRCRAFT IN THE () OMEGA 1.4
 (MODIFIED) AF32A-52 () TEST 77-726-001
 NOISE SUPPRESSOR () RUN 02
 FAR-FIELD NOISE () WITH SUPPRESSOR MOUNTED () PAGE 14
 METEOROLOGY: ()
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %



4

PAGE 15



(FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
 (6
 () IDENTIFICATION:)
 () OMEGA 1.4
 () TEST 77-726-001
 () RUN 02
 () METEOROLOGY:)
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () 14 SEP 78
 () PAGE 15
 ()
 (NOISE SOURCE/SUBJECT: (OPERATION:)
 (KC-135A AIRCRAFT IN THE ()
 ((MODIFIED) AF32A-52 ()
 (NOISE SUPPRESSOR (96% RPM, INBOARD ENGINE
 (FAR-FIELD NOISE (WITH SUPPRESSOR MOUNTED)

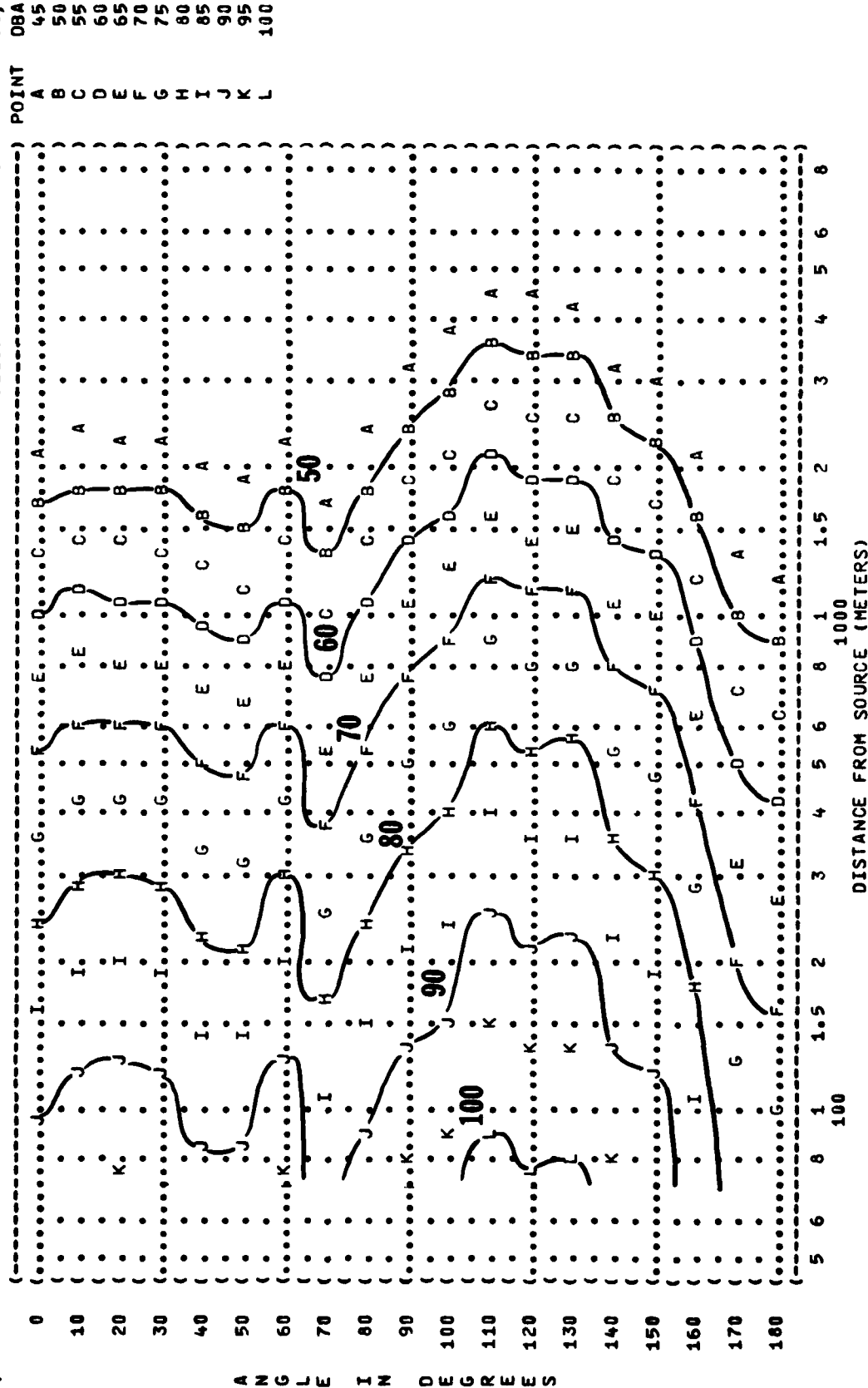


**FIGURE: PERCEIVED NOISE LEVEL, TONE CORRECTED {PNLT}
EQUAL LEVEL CONTOURS (PNDB)**

1

FIGURE: PERCEIVED NOISE LEVEL, TONE CORRECTED {PNLT}
 EQUAL LEVEL CONTOURS (PNDB)

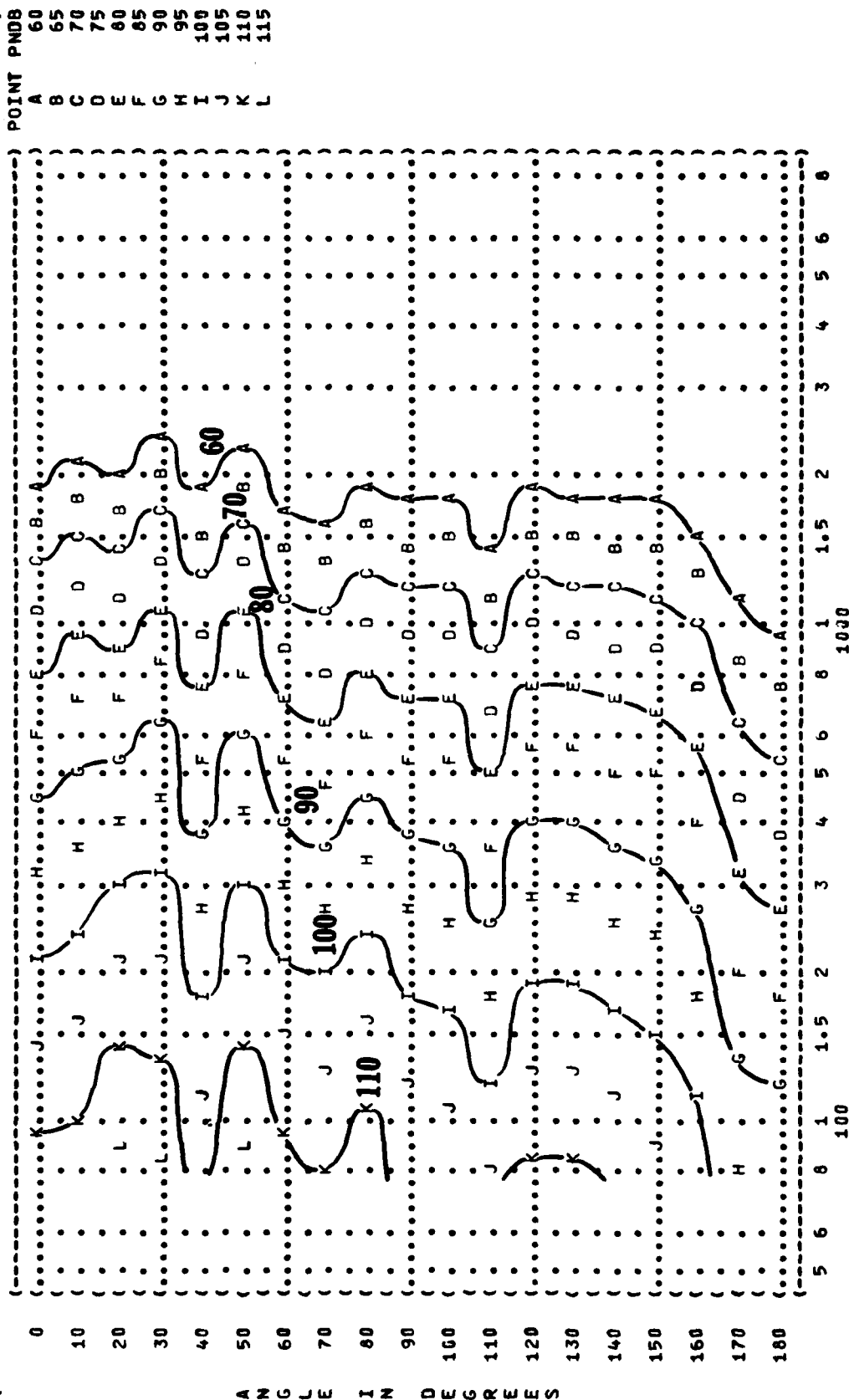
7

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) IDENTIFICATION:)
 KC-135A AIRCRAFT IN THE () TEMP = 15 C))
 (MODIFIED) AF32A-52 (80% RPM) BAR PRESS = .760 M HG)
 NOISE SUPPRESSOR (INBOARD ENGINE WITH) REL HUMID = 70 %)
 FAR-FIELD NOISE (SUPPRESSOR MOUNTED)) PAGE 16)

OMEGA 1.4
 TEST 77-726-001
 RUN 01

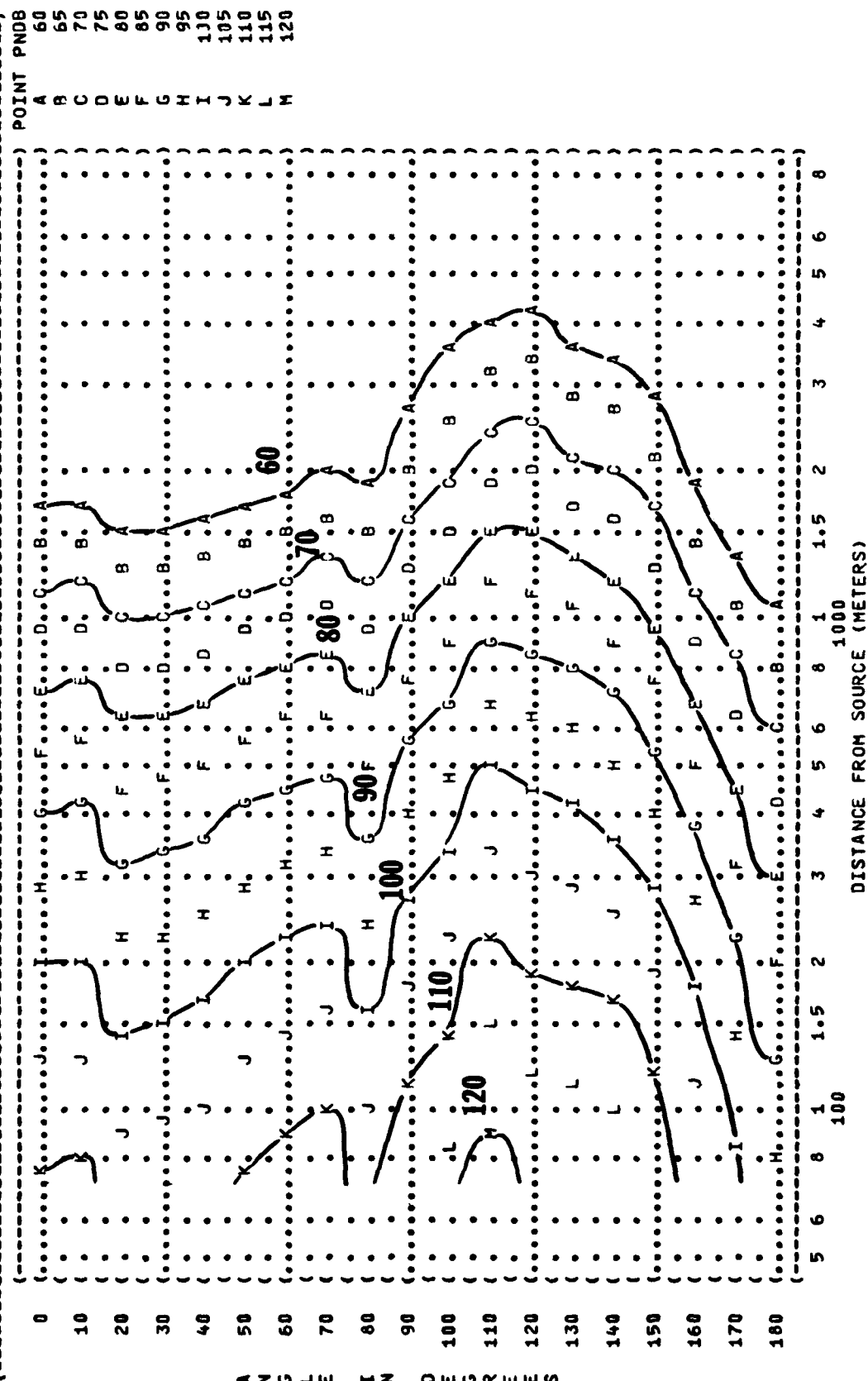
NOISE SOURCE/SUBJECT:
KC-135A AIRCRAFT IN
(MODIFIED) AF32A-52
NOISE SUPPRESSOR
FAR-FIELD NOISE

OPERATION:
80% RPM
INBOARD ENGINE WITH
SUPPRESSOR MOUNTED

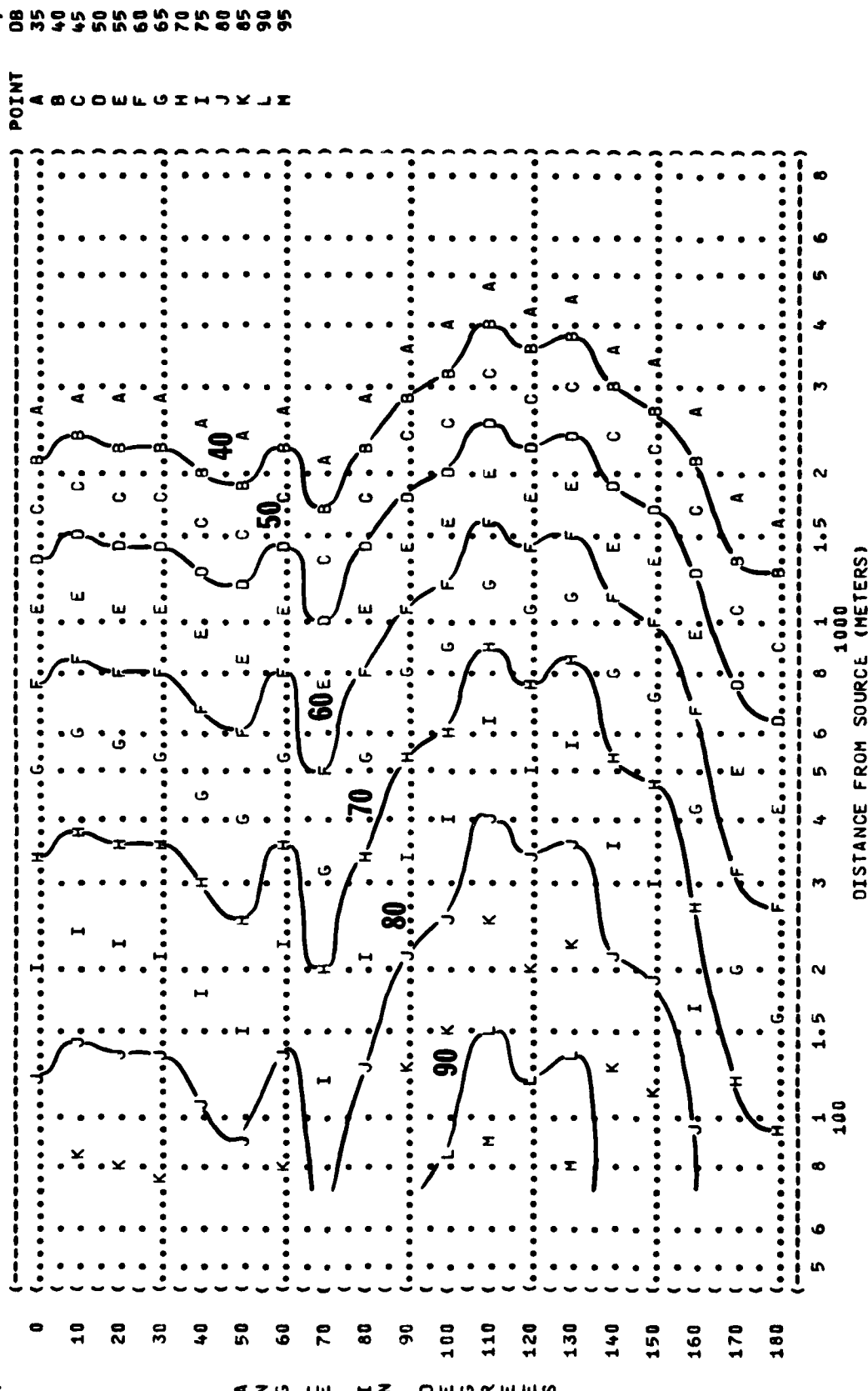


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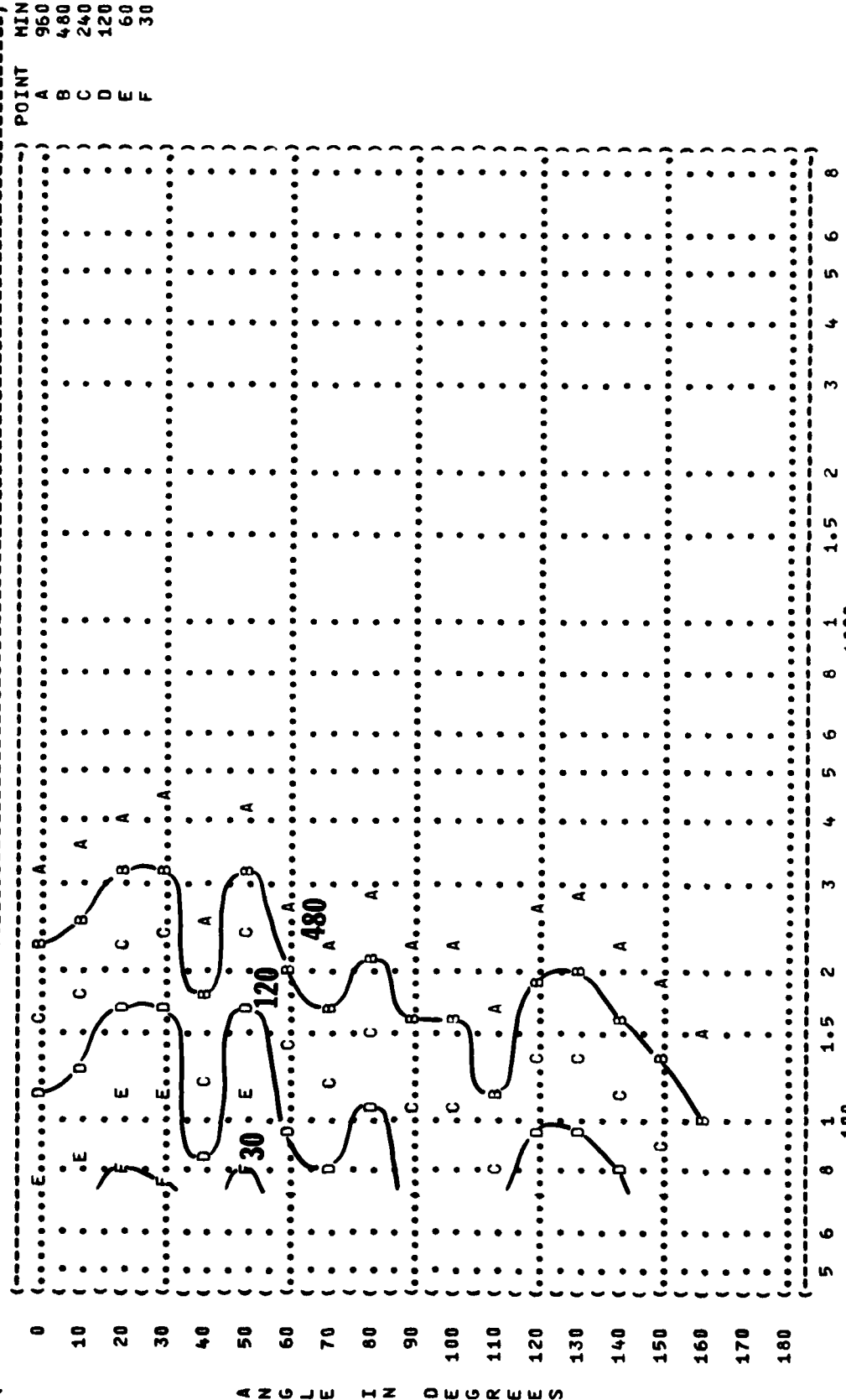
(FIGURE: PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT))
 (7)
 () IDENTIFICATION:)
 () OMEGA 1.4)
 () TEST 77-726-001)
 () RUN 03)
 () METEOROLOGY:)
 () TEMP = 15 C)
 () BAR PRESS = .760 M HG)
 () REL HUMID = 70 %)
 () OPERATION:)
 () KC-135A AIRCRAFT IN THE)
 () (MODIFIED) AF32A-52)
 () NOISE SUPPRESSOR)
 () FAR-FIELD NOISE)
 () WITH SUPPRESSOR MOUNTED)
 () 14 SEP 78)
 () PAGE 16)



(FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
 (8
 (EQUAL LEVEL CONTOURS (DB)
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST 77-726-001
 () RUN 02
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () 14 SEP 78
 () PAGE 17
 () NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-135A AIRCRAFT IN THE
 ((MODIFIED) AF32A-52
 (NOISE SUPPRESSOR
 (96% RPM, INBOARD ENGINE
 (FAR-FIELD NOISE
 (WITH SUPPRESSOR MOUNTED



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



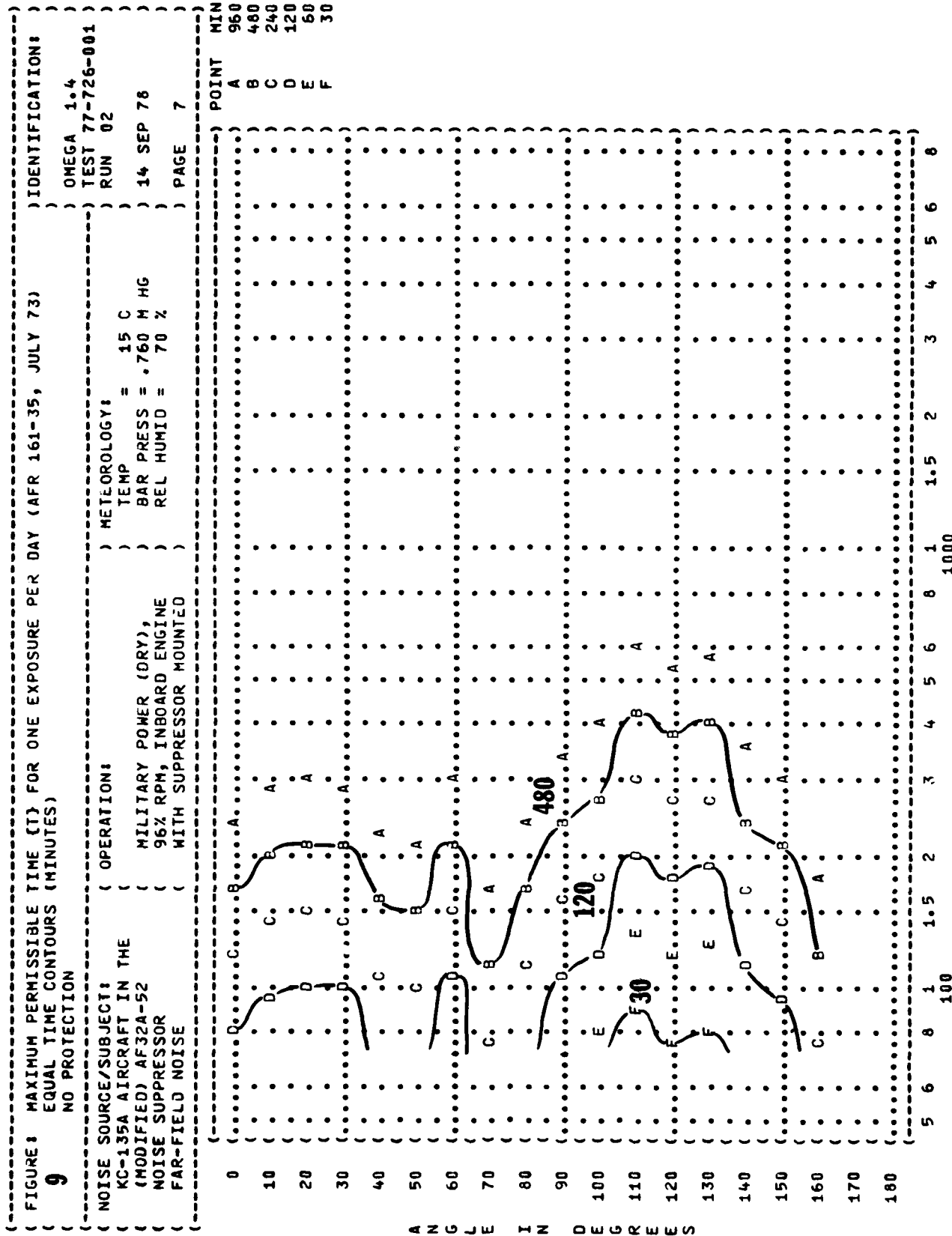
1000
DISTANCE FROM SOURCE (METERS)

```
(-----)
( FIGURE: MAXIMUM PERMISSIBLE TIME {T} FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
(      9 EQUAL TIME CONTOURS (MINUTES) ) ) )
(-----)
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: ) RUN 01 )
( KC-135A AIRCRAFT IN THE ) TEMP = 15 C ) )
( (MODIFIED) AF32A-52 ) BAR PRESS = .760 M HG ) )
( NOISE SUPPRESSOR ) INBOARD ENGINE WITH ) )
( FAR-FIELD NOISE ) SUPPRESSOR MOUNTED ) ) 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 < 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
M-133 GROUND COMMUNICATION UNIT

DISTANCE FROM SOURCE (METERS)



POINT A	MIN 960
0	
10	
20	
30	
40	
50	
60	
70	
80	
90	
100	
110	
120	
130	
140	
150	
160	
170	
180	

37

```
(-----)
( FIGURE: MAXIMUM PERMISSIBLE TIME {T} FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
(      9 EQUAL TIME CONTOURS (MINUTES) ) ) )
(-----)
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: )
( KC-135A AIRCRAFT IN THE ) TEMP = 15 C )
( (MODIFIED) AF32A-52 ) MILITARY POWER (DRY), BAR PRESS = .760 M HG )
( NOISE SUPPRESSOR ) 96% RPM, INBOARD ENGINE ) REL HUMID = 70 % )
( FAR-FIELD NOISE ) WITH SUPPRESSOR MOUNTED ) PAGE 9 )
(-----)
```

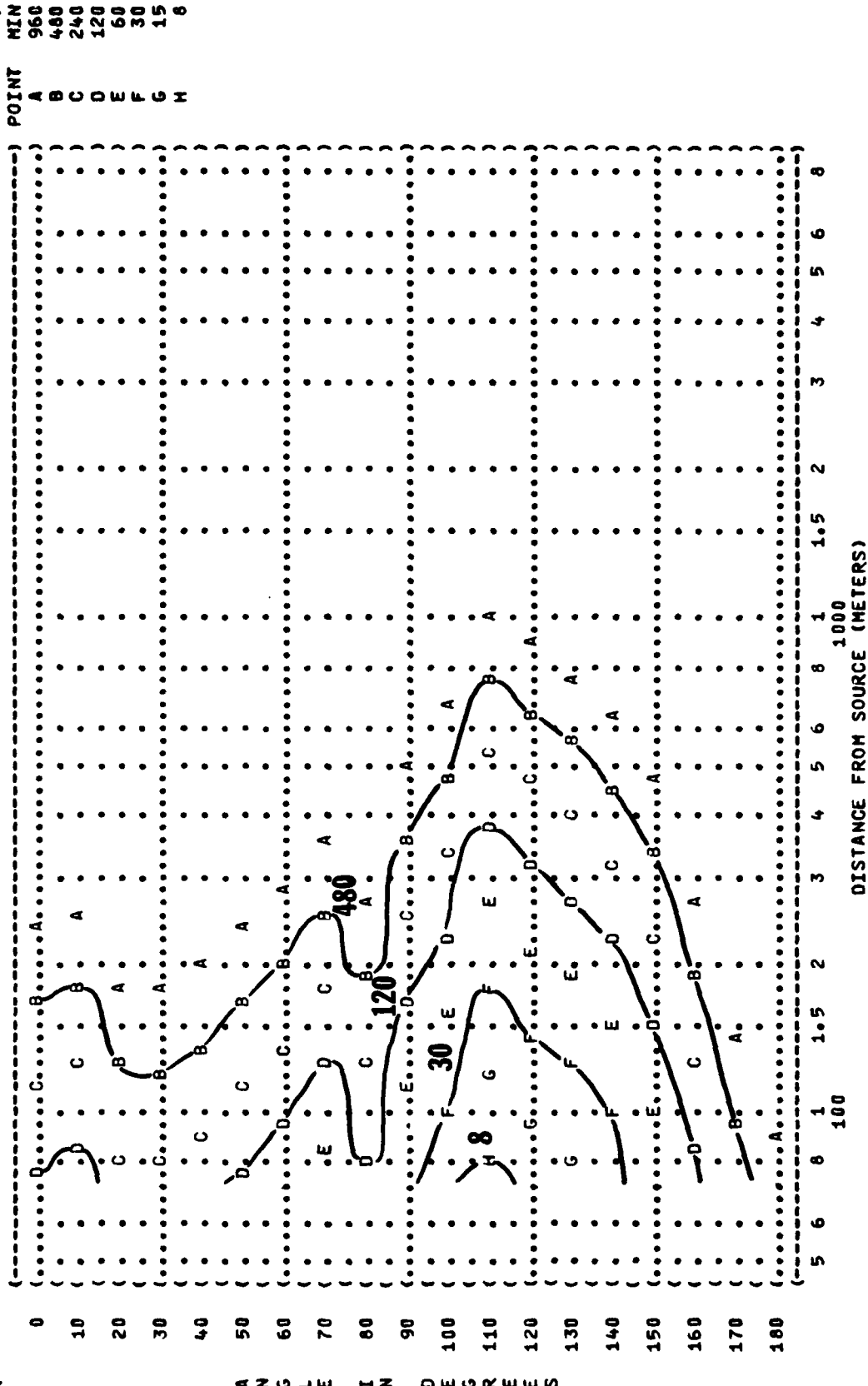
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PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY
AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS
FOR ALL ANGLES EVALUATED (INDICATED BY $\angle$ AT LEFT)
UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:

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

DISTANCE FROM SOURCE (METERS)

(FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)) IDENTIFICATION:)
 (9) EQUAL TIME CONTOURS (MINUTES))
 (NO PROTECTION)
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (KC-135A AIRCRAFT IN THE () TEMP = 15 C)
 ((MODIFIED) AF32A-52 () MILITARY POWER (WET),) BAR PRESS = .760 M HG)
 (NOISE SUPPRESSOR () 96% RPM, INBOARD ENGINE) REL HUMID = 70 %)
 (FAR-FIELD NOISE () WITH SUPPRESSOR MOUNTED)) PAGE 7)



[illegible]

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(-----)
( FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
( EQUAL TIME CONTOURS (MINUTES) ) )
( 9 ) )
( COMFIT TRIPLE FLANGE EAR PLUGS ) )
(-----)
( NOISE SOURCE/SUBJECT: ) OPERATION: ) METEOROLOGY: )
( KC-135A AIRCRAFT IN THE ) ( ) TEMP = 15 C ) )
( (MODIFIED) AF32A-52 ) ( ) MILITARY POWER (WET), ) )
( NOISE SUPPRESSOR ) ( 96% RPM, INBOARD ENGINE ) BAR PRESS = .760 M HG ) )
( FAR-FIELD NOISE ) ( WITH SUPPRESSOR MOUNTED ) REL HUMID = 70 % ) )
(-----)
( PAGE 11 )
(-----)

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[illegible]

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(-----)
( FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
( ( EQUAL TIME CONTOURS (MINUTES) ) ) )
( ( H-133 GROUND COMMUNICATION UNIT ) ) )
(-----)
( NOISE SOURCE/SUBJECT: ) OPERATION: ) METEOROLOGY: )
( ( KC-135A AIRCRAFT IN THE ) ) TEMP = 15 C )
( ( (MODIFIED) AF32A-52 ) ) ) BAR PRESS = .760 M HG )
( ( NOISE SUPPRESSOR ) ) 96% RPM, INBOARD ENGINE ) REL HUMID = 70 % )
( ( FAR-FIELD NOISE ) ) WITH SUPPRESSOR MOUNTED ) ) PAGE 12 )
(-----)

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[illegible]

DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL (SPL) (10 EQUAL LEVEL CONTOURS (DB) (31.5 HZ OCTAVE BAND (NOISE SOURCE/SUBJECT: (OPERATION: (KC-135A AIRCRAFT IN THE (80X RPM ((MODIFIED) AF32A-52 (INBOARD ENGINE WITH (NOISE SUPPRESSOR (SUPPRESSOR MOUNTED (FAR-FIELD NOISE (									
) IDENTIFICATION:) OMEGA 1.4) TEST 77-726-001) RUN 01) METEOROLOGY:) TEMP = 15 C) BAR PRESS = .760 H HG) REL HUMID = 70 %) PAGE 18)									
(-----) POINT DB (-----)									
0	(	(	(	(	(	(	(	(	(
10	(	(	(	(	(	(	(	(	(
20	(	(	(	(	(	(	(	(	(
30	(	(	(	(	(	(	(	(	(
40	(	(	(	(	(	(	(	(	(
50	(	(	(	(	(	(	(	(	(
60	(	(	(	(	(	(	(	(	(
70	(	(	(	(	(	(	(	(	(
80	(	(	(	(	(	(	(	(	(
90	(	(	(	(	(	(	(	(	(
100	(	(	(	(	(	(	(	(	(
110	(	(	(	(	(	(	(	(	(
120	(	(	(	(	(	(	(	(	(
130	(	(	(	(	(	(	(	(	(
140	(	(	(	(	(	(	(	(	(
150	(	(	(	(	(	(	(	(	(
160	(	(	(	(	(	(	(	(	(
170	(	(	(	(	(	(	(	(	(
180	(	(	(	(	(	(	(	(	(

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

DISTANCE FROM SOURCE (METERS)

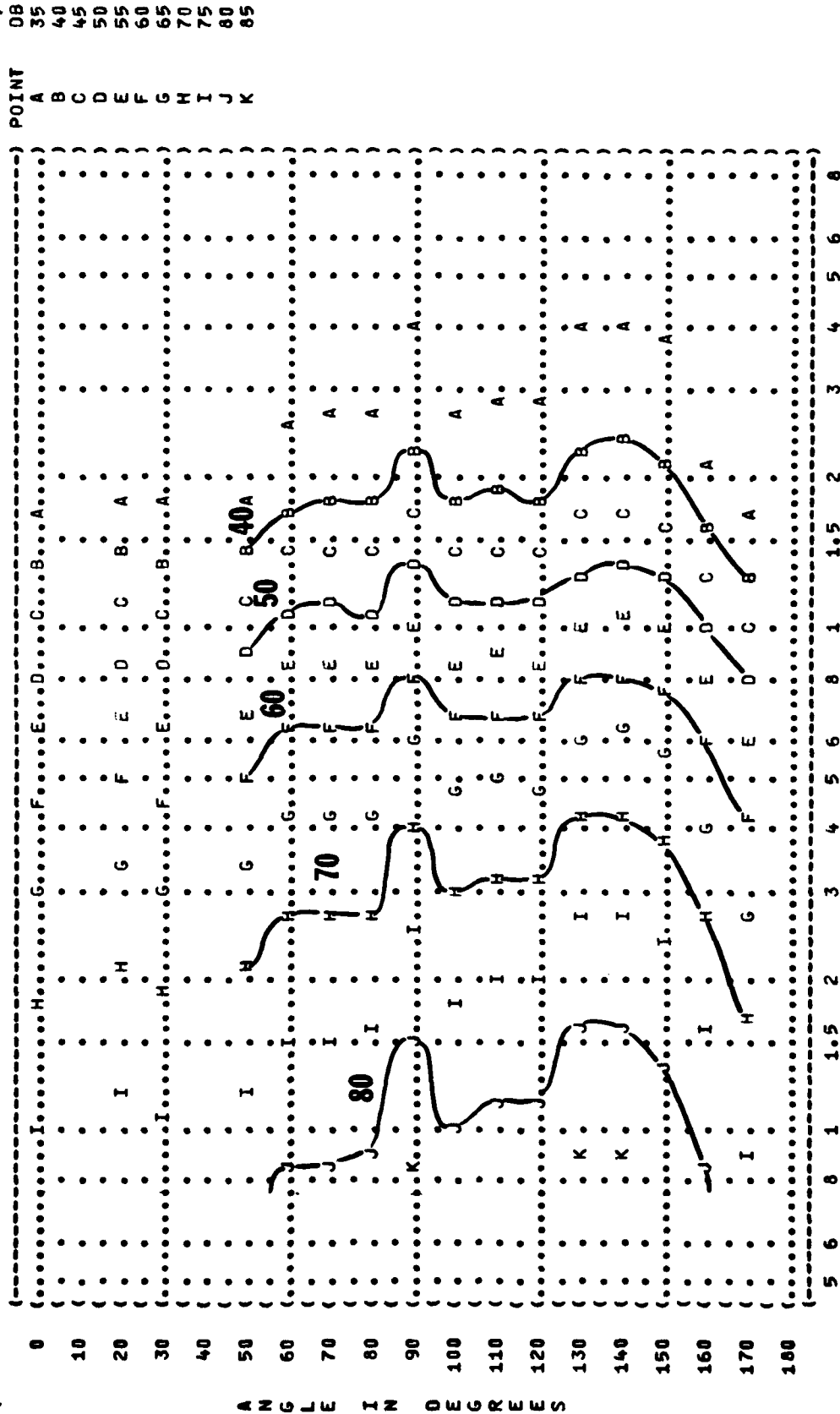
FIGURE: SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (DB)
 63 HZ OCTAVE BAND

10

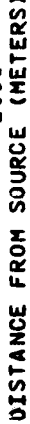
NOISE SOURCE/SUBJECT: (OPERATION:)
 KC-135A AIRCRAFT IN THE ()
 (MODIFIED) AF32A-52 (30% RPM)
 NOISE SUPPRESSOR (INBOARD ENGINE WITH)
 FAR-FIELD NOISE (SUPPRESSOR MOUNTED)

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

IDENTIFICATION:
 OMEGA 1.4
 TEST 77-726-001
 RUN 01
 14 SEP 78
 PAGE 19



NOISE SOURCE/SUBJECT:
KC-135A AIRCRAFT IN
(MODIFIED) AF32A-52
NOISE SUPPRESSOR
FAR-FIELD NOISE



(	(	FIGURE: SOUND PRESSURE LEVEL {SPL}	(	)	IDENTIFICATION:	(	)
(	(	EQUAL LEVEL CONTOURS (DB)	(	)		(	)
(	(	10	(	)	OMEGA 1.4	(	)
(	(	250 HZ OCTAVE BAND	(	)	TEST 77-726-001	(	)
(	(	NOISE SOURCE/SUBJECT:	(	)	RUN 01	(	)
(	(	KC-135A AIRCRAFT IN THE	(	)		(	)
(	(	(MODIFIED) AF32A-52	(	)	TEMP = 15 C	(	)
(	(	NOISE SUPPRESSOR	(	)	BAR PRESS = .760 M HG	(	)
(	(	FAR-FIELD NOISE	(	)	REL HUMID = 70 %	(	)
(	(		(	)		(	)
(	(		(	)	METEOROLOGY:	(	)
(	(		(	)	OPERATION:	(	)
(	(		(	)	80% RPM	(	)
(	(		(	)	INBOARD ENGINE WITH	(	)
(	(		(	)	SUPPRESSOR MOUNTED	(	)
(	(		(	)		(	)
(	(		(	)	PAGE 21	(	)

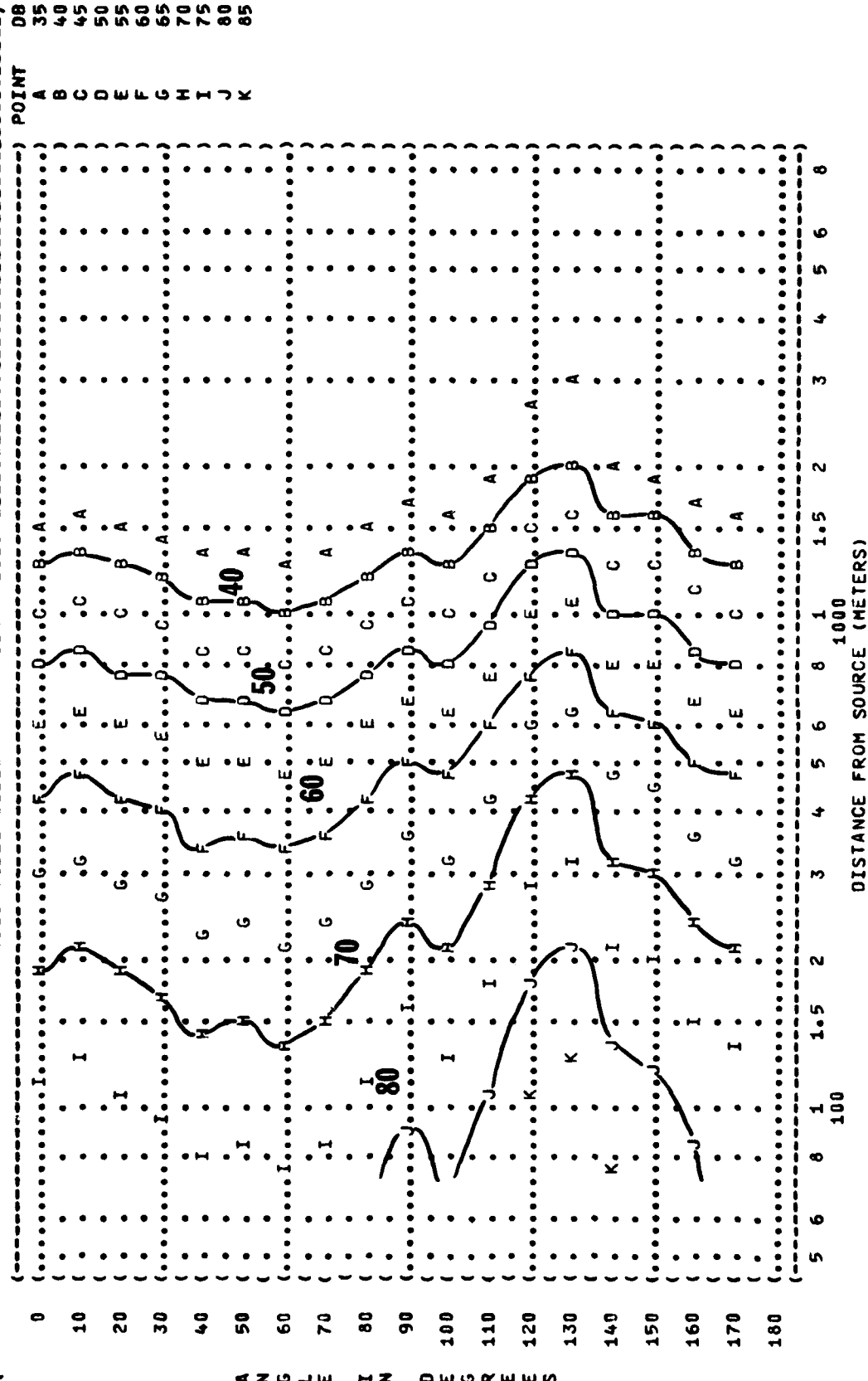


FIGURE 10 SOUND PRESSURE LEVEL {SPL} EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

10

NOISE SOURCE/SUBJECT:
KC-135A AIRCRAFT IN
(MODIFIED) AF32A-52
NOISE SUPPRESSOR
FAR-FIELD NOISE

(OPERATION:
(
(80% RPM
(INBOARD E
(SUPPRESSO

) METEOROLOGY: =
) TEMP =
) BAR PRESS =
) REL HUMID =

OMEGA 1.4

TEST 77-726-001

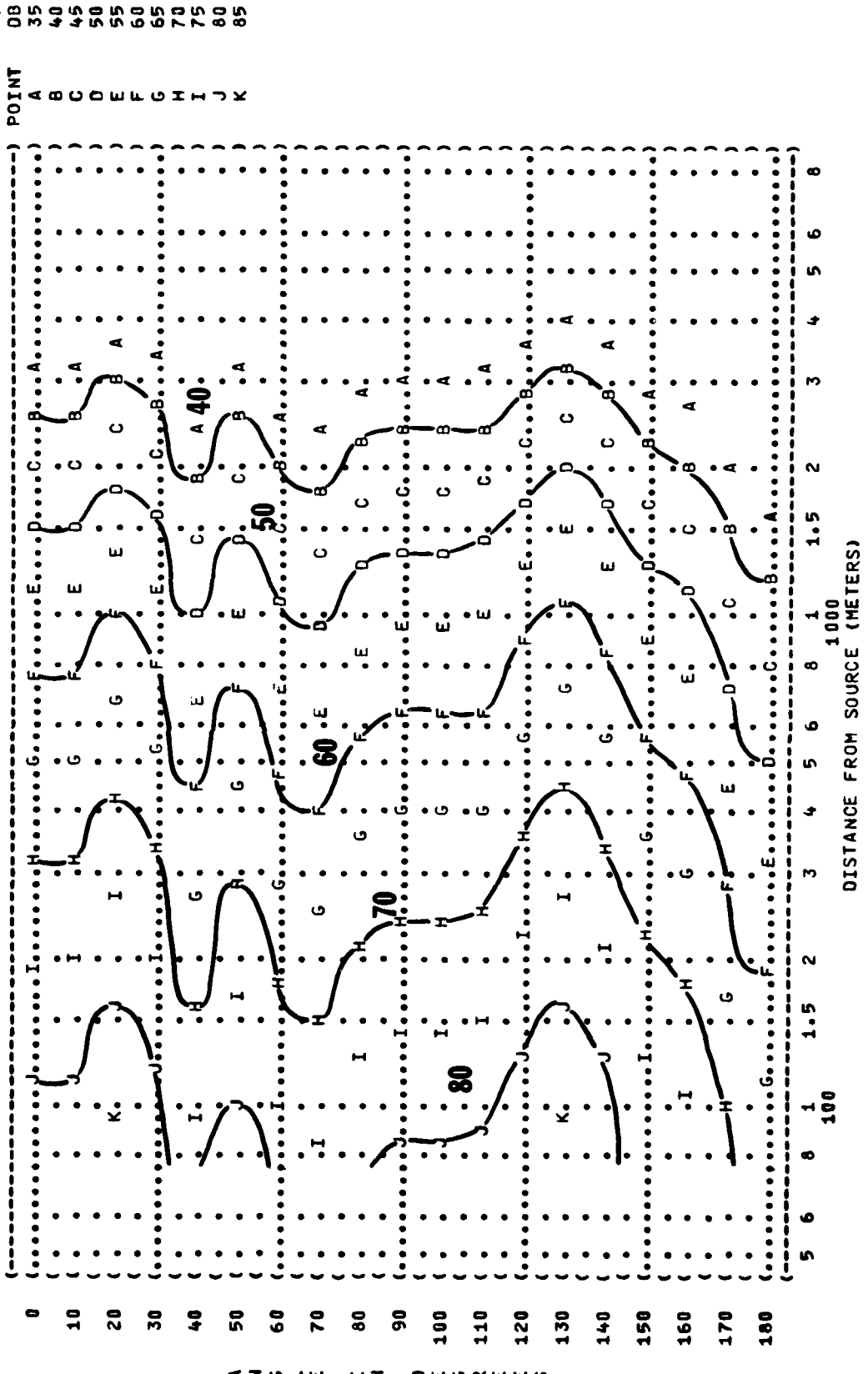
01 RUN

14 SEP 78

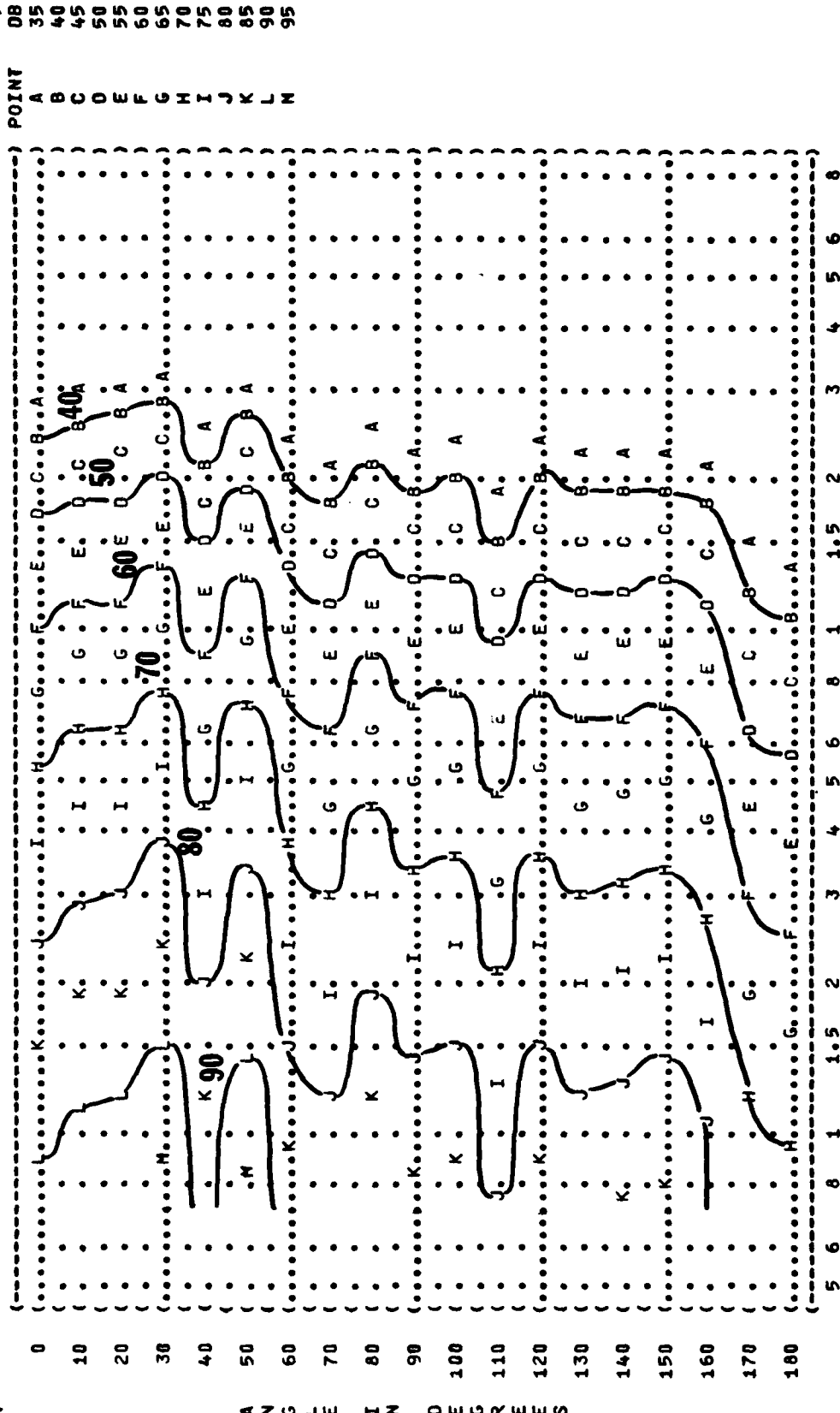
PAGE 22

POINT	08
A	08
B	09
C	10
D	11
E	12
F	13
G	14
H	15
I	16
J	17
K	18
L	19

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (10 EQUAL LEVEL CONTOURS (DB)
 (1000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-135A AIRCRAFT IN THE (80% RPM
 ((MODIFIED) AF32A-52 (INBOARD ENGINE WITH
 (NOISE SUPPRESSOR (SUPPRESSOR MOUNTED
 (FAR-FIELD NOISE
 (NOISE SOURCE/SUBJECT: (METEOROLOGY:
 (KC-135A AIRCRAFT IN THE (TEMP = 15 C
 ((MODIFIED) AF32A-52 (BAR PRESS = .760 M HG
 (NOISE SUPPRESSOR (INBOARD ENGINE WITH
 (FAR-FIELD NOISE (SUPPRESSOR MOUNTED (REL HUMID = 70 %
 (IDENTIFICATION: (OMEGA 1.4
 (TEST 77-726-001
 (RUN 01
 (14 SEP 78
 (PAGE 23
 (



(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (10 2000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-135A AIRCRAFT IN THE (80% RPM
 ((MODIFIED) AF32A-52 (INBOARD ENGINE WITH
 (NOISE SUPPRESSOR (SUPPRESSOR MOUNTED
 (FAR-FIELD NOISE)
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST 77-726-001
 () RUN 01
 () 14 SEP 78
 () PAGE 24
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %



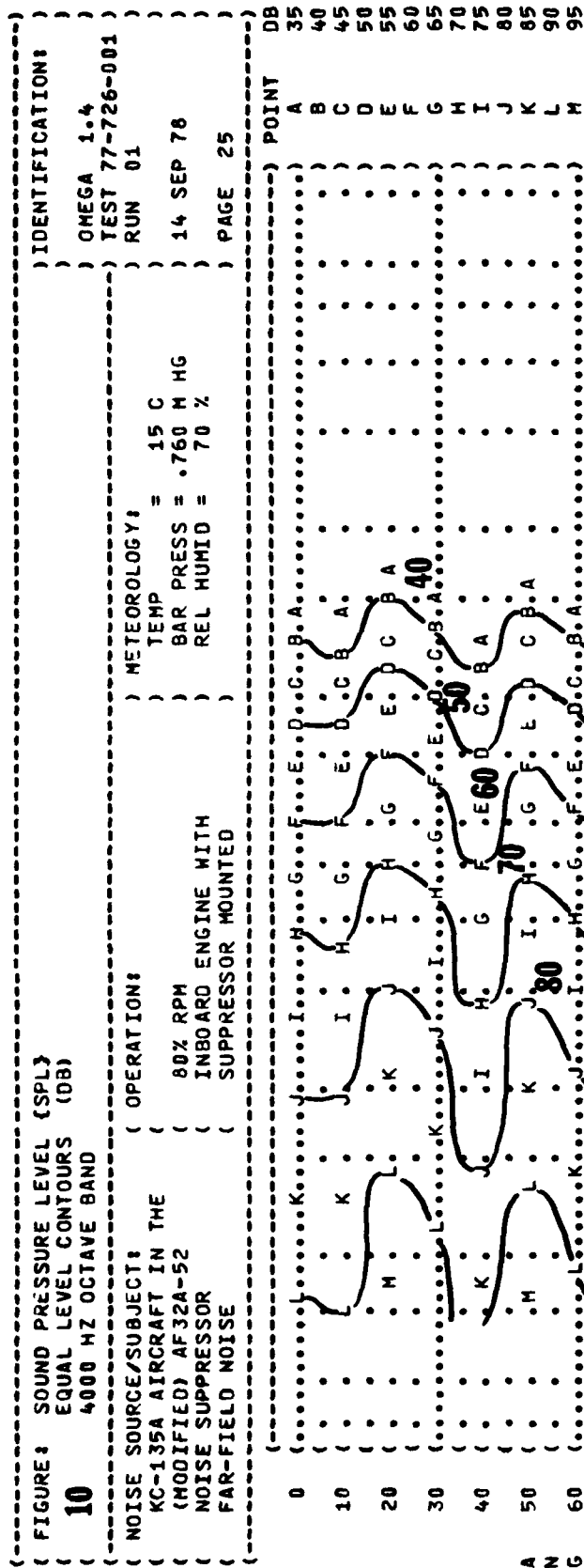


FIGURE: SOUND PRESSURE LEVEL (SPL)
 10 EQUAL LEVEL CONTOURS (DB)
 250 HZ OCTAVE BAND

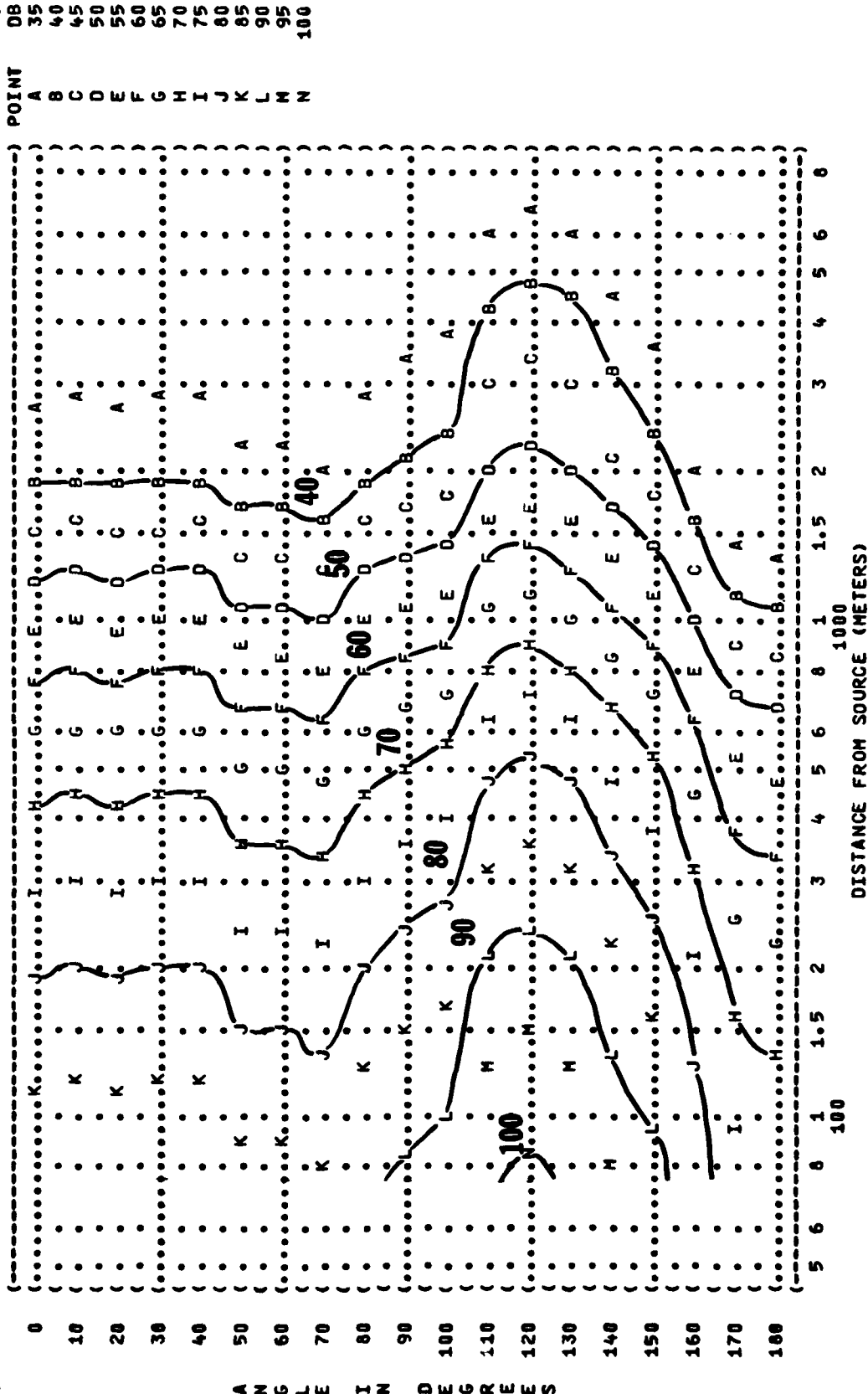
IDENTIFICATION:
 OMEGA 1.4
 TEST 77-726-001
 RUN 02

NOISE SOURCE/SUBJECT:
 KC-135A AIRCRAFT IN THE
 (MODIFIED) AF32A-52
 NOISE SUPPRESSOR
 FAR-FIELD NOISE

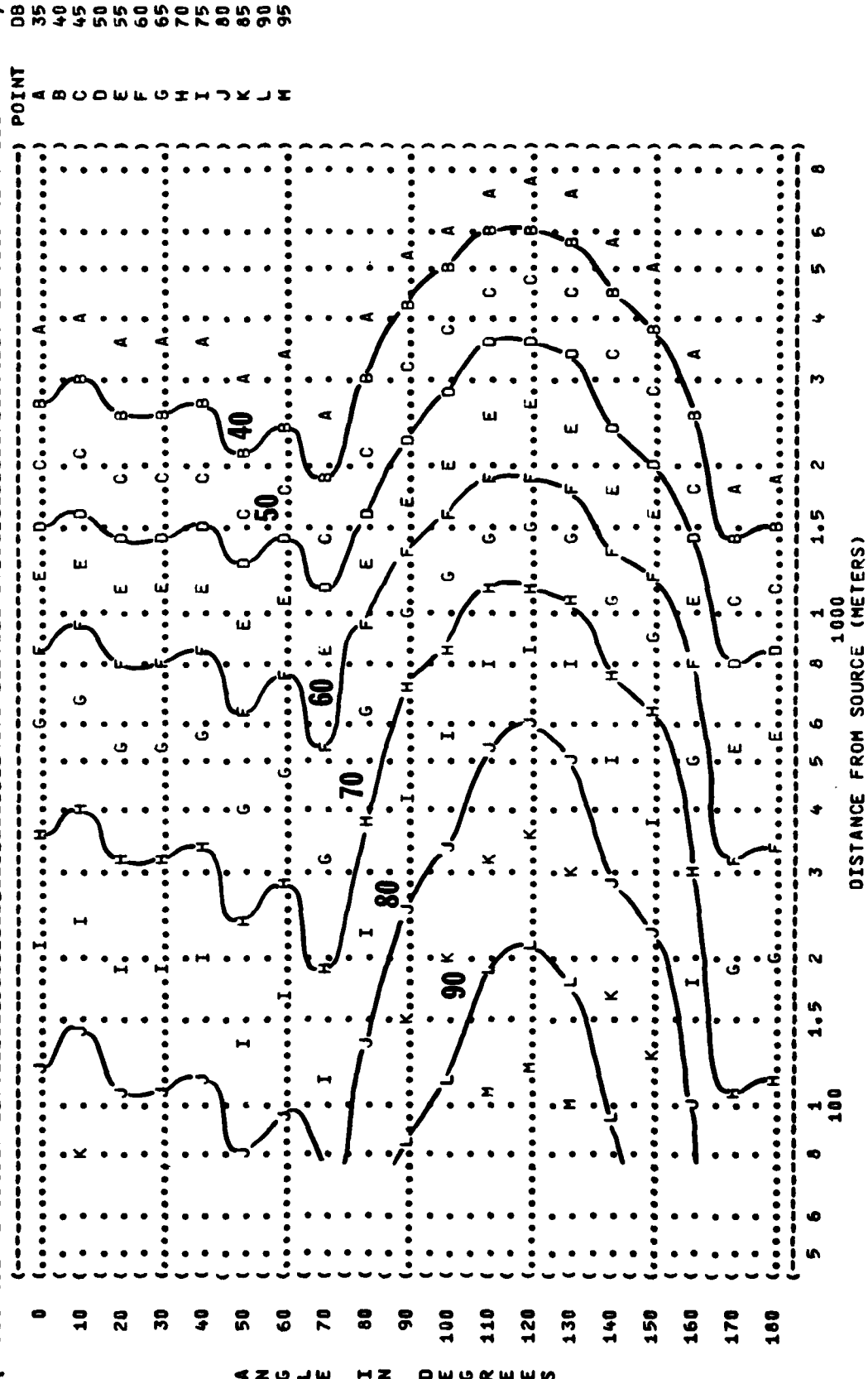
OPERATION:
 MILITARY POWER (DRY),
 96% RPM, INBOARD ENGINE
 WITH SUPPRESSOR MOUNTED

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

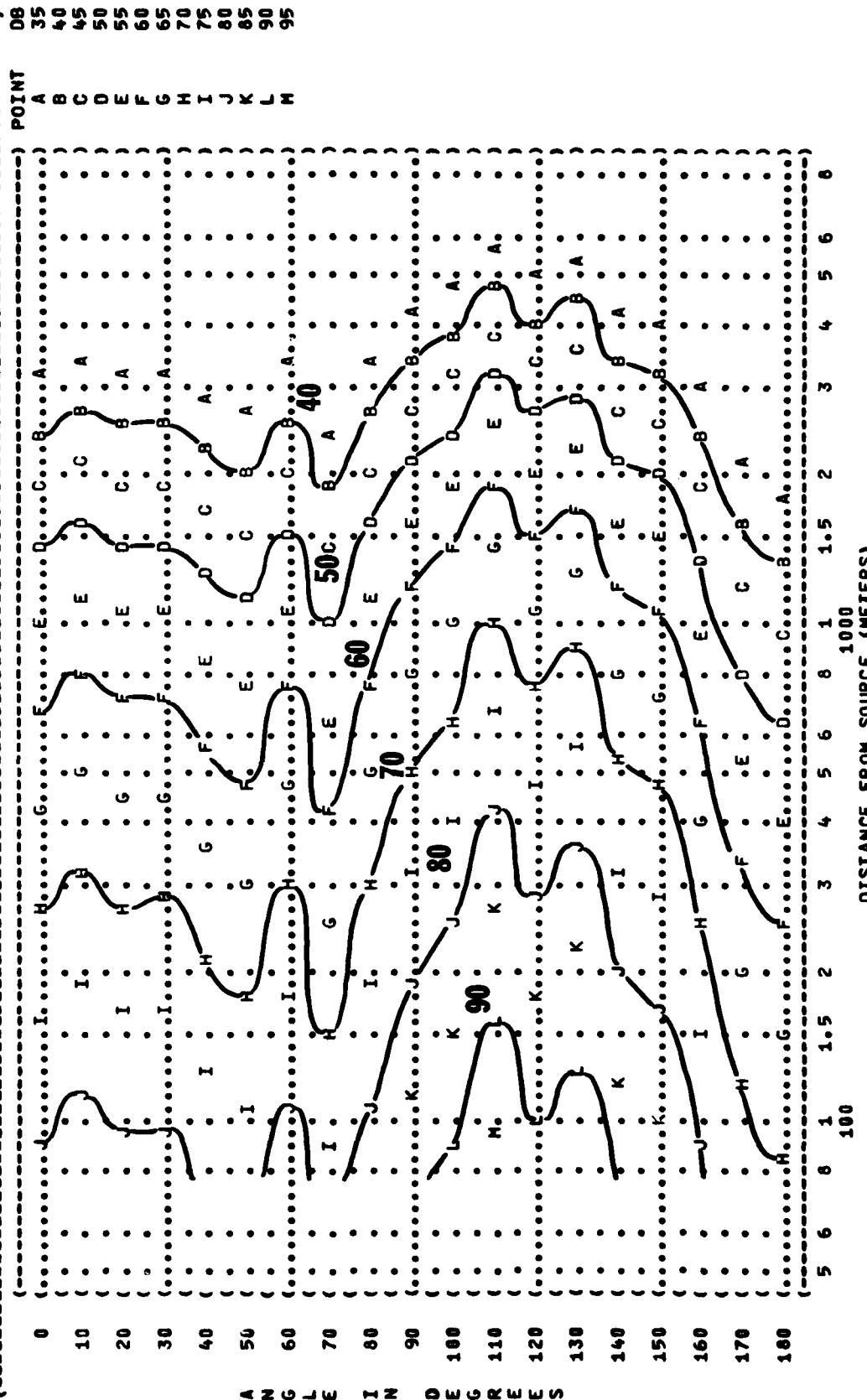
PAGE 21



(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (10 500 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-135A AIRCRAFT IN THE ((MILITARY POWER (DRY),
 ((MODIFIED) AF32A-52 (96% RPM, INBOARD ENGINE
 (NOISE SUPPRESSOR (WITH SUPPRESSOR MOUNTED
 (FAR-FIELD NOISE
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 77-726-001
 (RUN 02
 (14 SEP 78
 (PAGE 22
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %



(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (10 1000 HZ OCTAVE BAND
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST 77-726-001
 () RUN 02
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () 14 SEP 78
 () PAGE 23
 () NOISE SOURCE/SUBJECT:
 () OPERATION:
 () KC-135A AIRCRAFT IN THE
 () MILITARY POWER (DRY),
 () (MODIFIED) AF32A-52
 () 96% RPM, INBOARD ENGINE
 () NOISE SUPPRESSOR
 () WITH SUPPRESSOR MOUNTED
 () FAR-FIELD NOISE



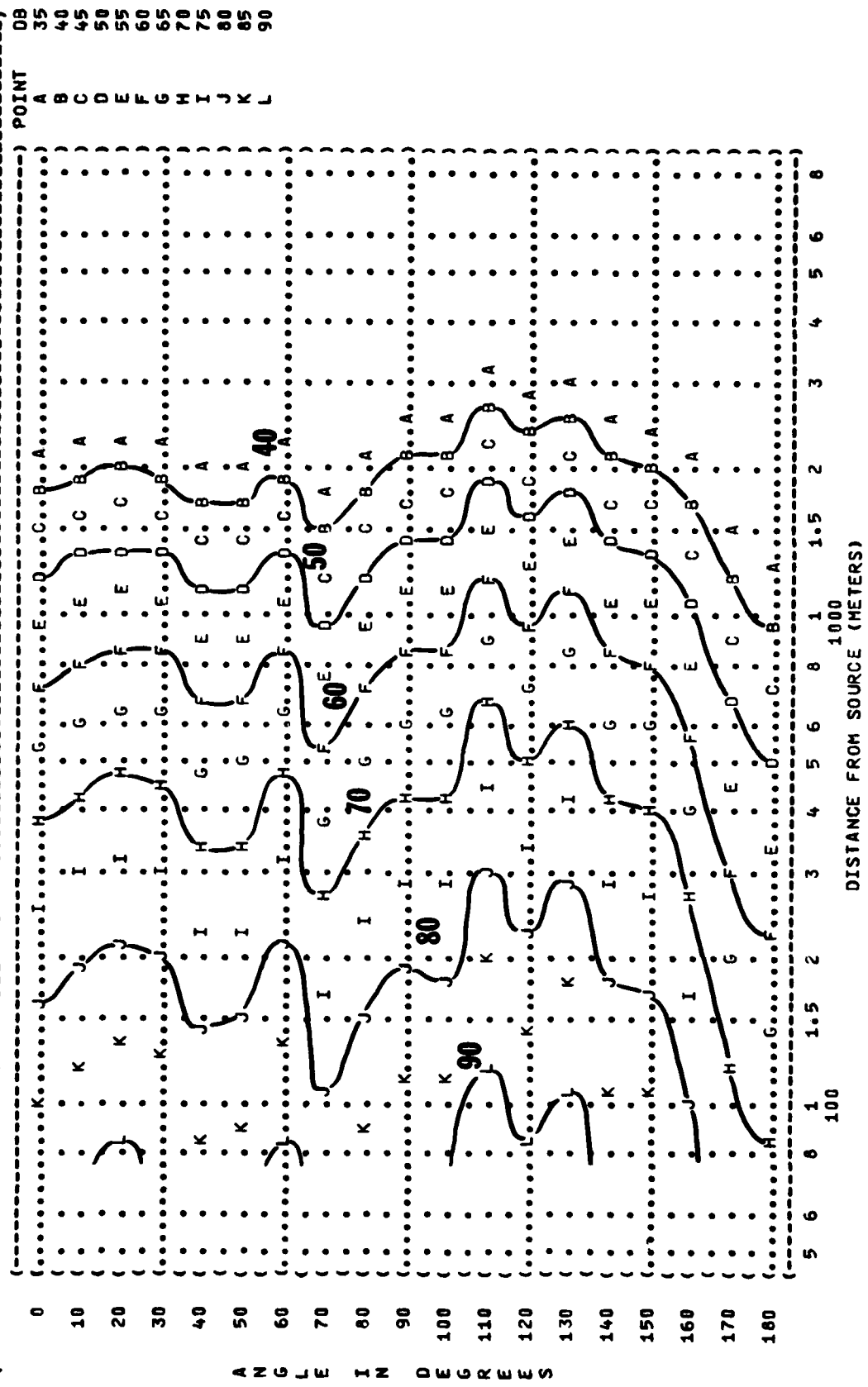
A N G L E I N D E G R E E S

FIGURE 10 SOUND PRESSURE LEVEL {SPL} EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 77-726-00
RUN 02
14 SEP 78
PAGE 24

NOISE SOURCE/SUBJECT:	OPERATION:
KC-135A AIRCRAFT IN THE	(
(MODIFIED) AF32A-52	(
NOISE SUPPRESSOR	(
FAR-FIELD NOISE	(
	MILITARY
	96% RPM,
	WITH SUP

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



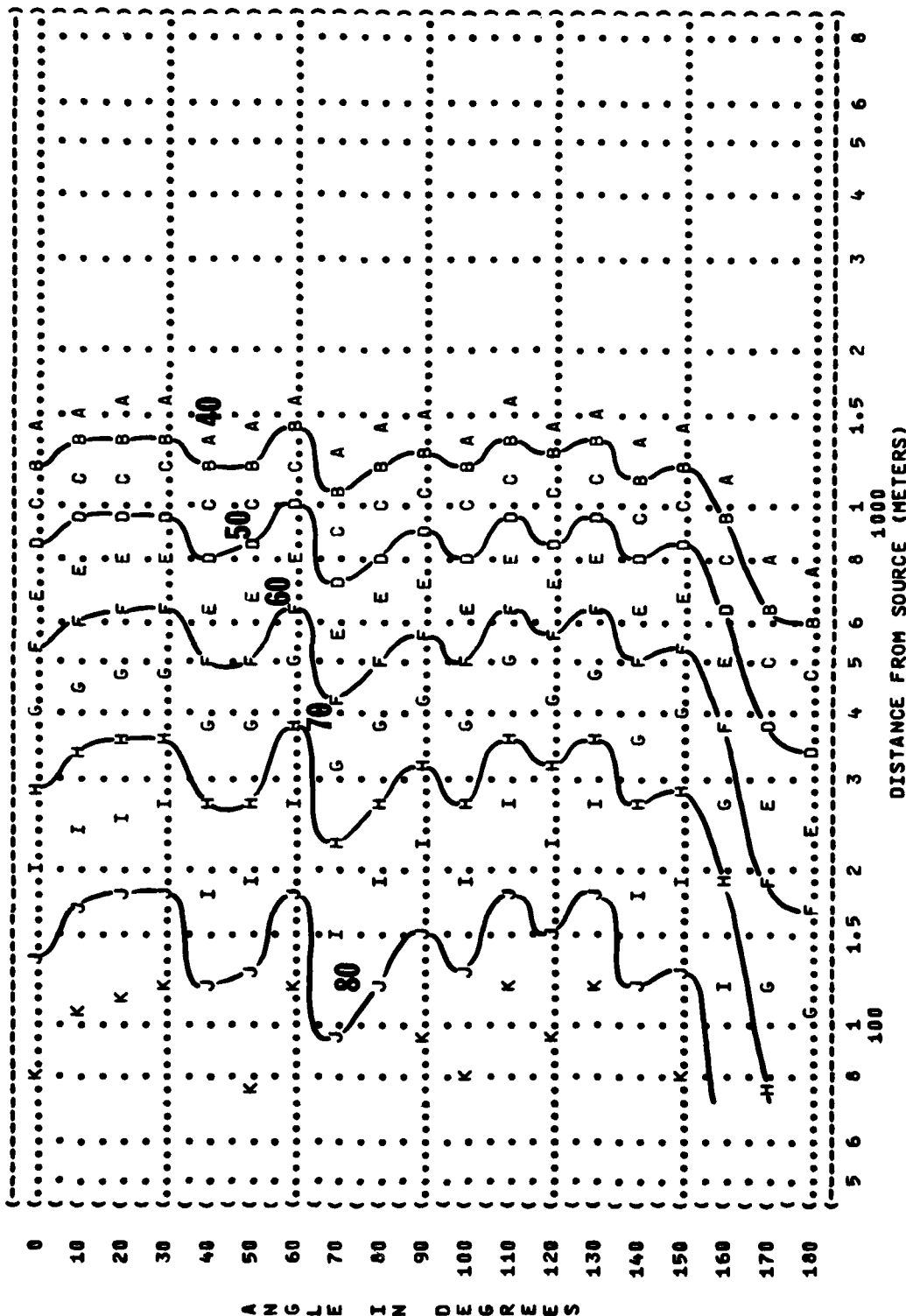
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IDENTIFICATION: )
OMEGA 1.4 )
TEST 77-726-001 )
```

```

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

```

DB	35	40	45	50	55	60	65	70	75	80	85
JINT	A	B	C	D	E	F	G	H	I	J	K



(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (10 EQUAL LEVEL CONTOURS (DB))
 (31.5 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (KC-135A AIRCRAFT IN THE)
 ((MODIFIED) AF32A-52)
 (NOISE SUPPRESSOR)
 (FAR-FIELD NOISE)
 (OPERATION:)
 (MILITARY POWER (WET),)
 (96% RPM, INBOARD ENGINE)
 (WITH SUPPRESSOR MOUNTED)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 77-726-001)
 (RUN 03)
 (14 SEP 78)
 (PAGE 18)

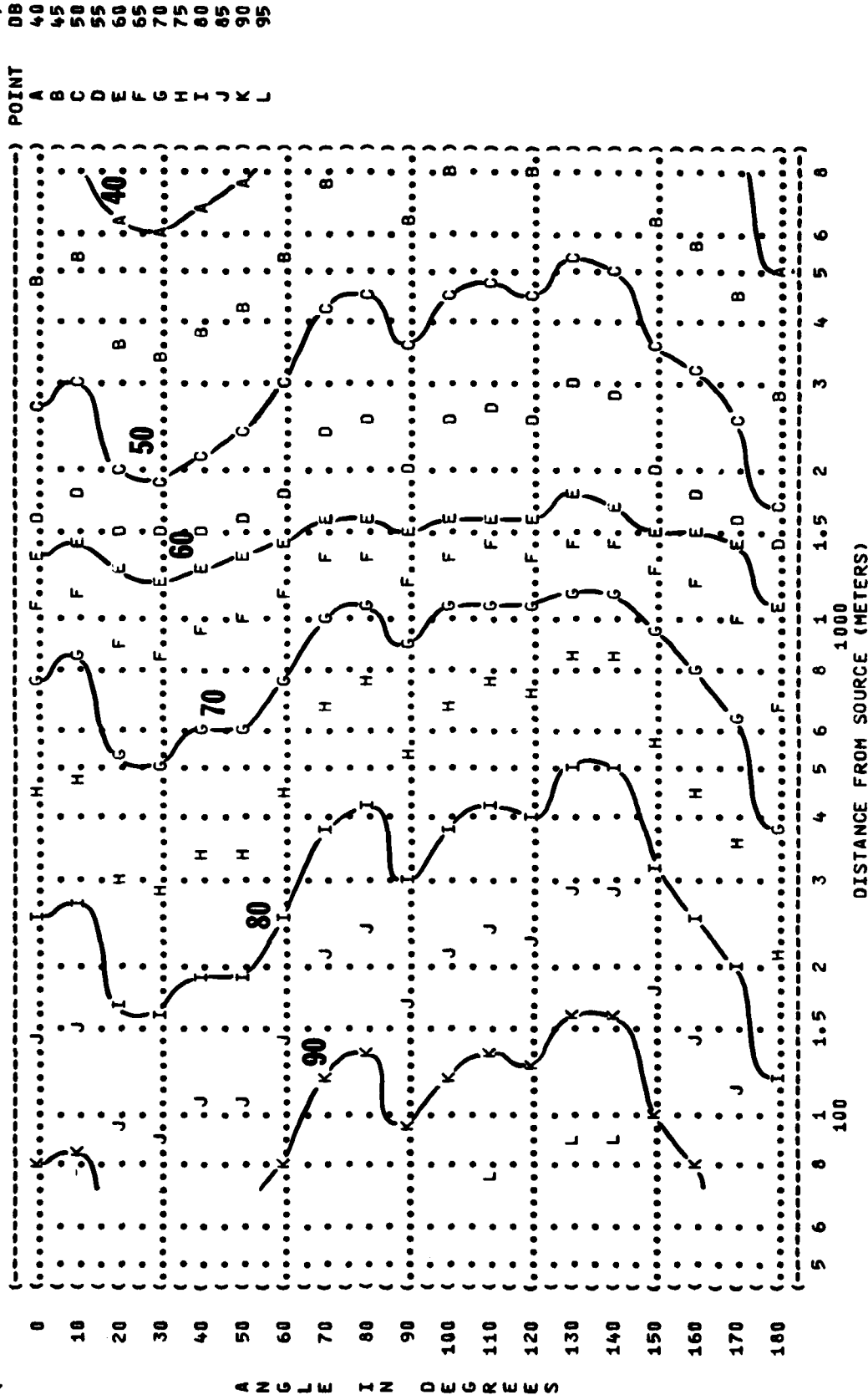


FIGURE 10 SOUND PRESSURE LEVEL {SPL} EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

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IDENTIFICATION:
OMEGA 1.4
TEST 77-726-00
RUN 03
14 SEP 78
PAGE 19

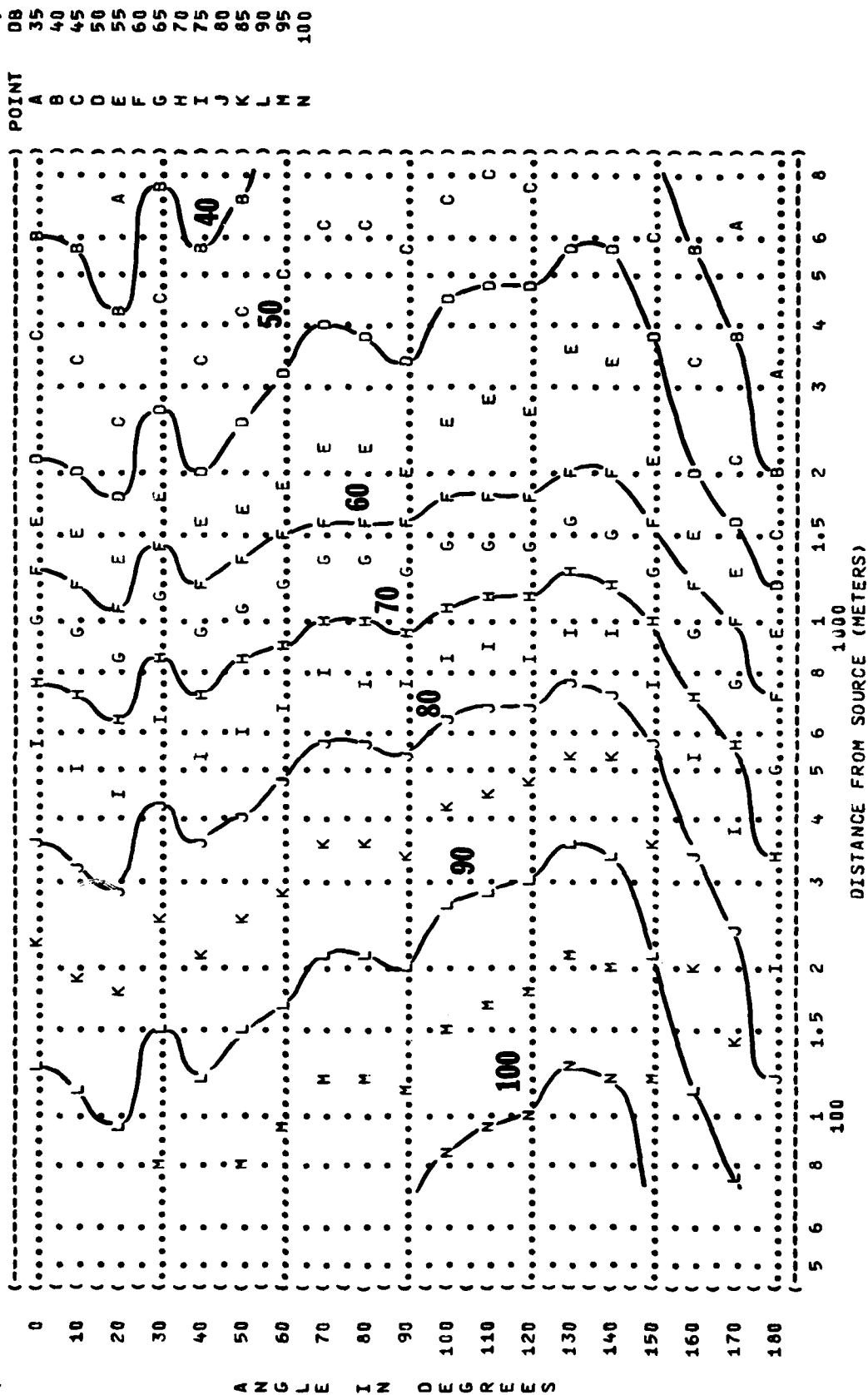
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9 METEOROLOGY:

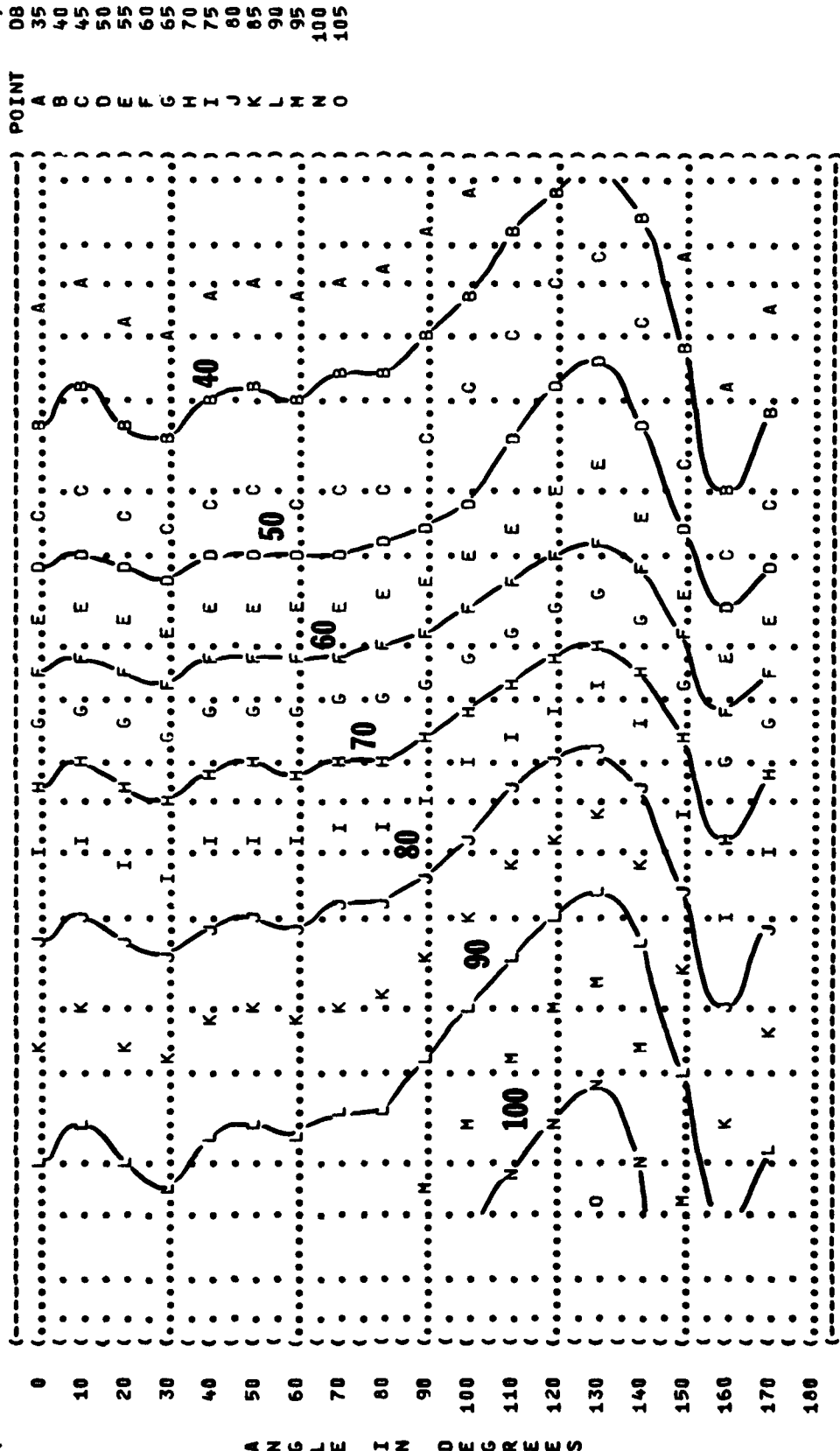
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

OPERATION:

MILITARY POWER (WET),
96% RPM, INBOARD ENGINE
WITH SUPPRESSOR MOUNTED



(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (EQUAL LEVEL CONTOURS (DB))
 (10 125 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (KC-135A AIRCRAFT IN THE)
 ((MODIFIED) AF32A-52)
 (NOISE SUPPRESSOR)
 (FAR-FIELD NOISE)
 (OPERATION:)
 (MILITARY POWER (WET),)
 (96% RPM, INBOARD ENGINE)
 (WITH SUPPRESSOR MOUNTED)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 77-726-001)
 (RUN 03)
 (14 SEP 78)
 (PAGE 20)



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

FIGURE 10: SOUND PRESSURE LEVEL {SPL} EQUAL LEVEL CONTOURS (DB) 250 HZ OCTAVE BAND

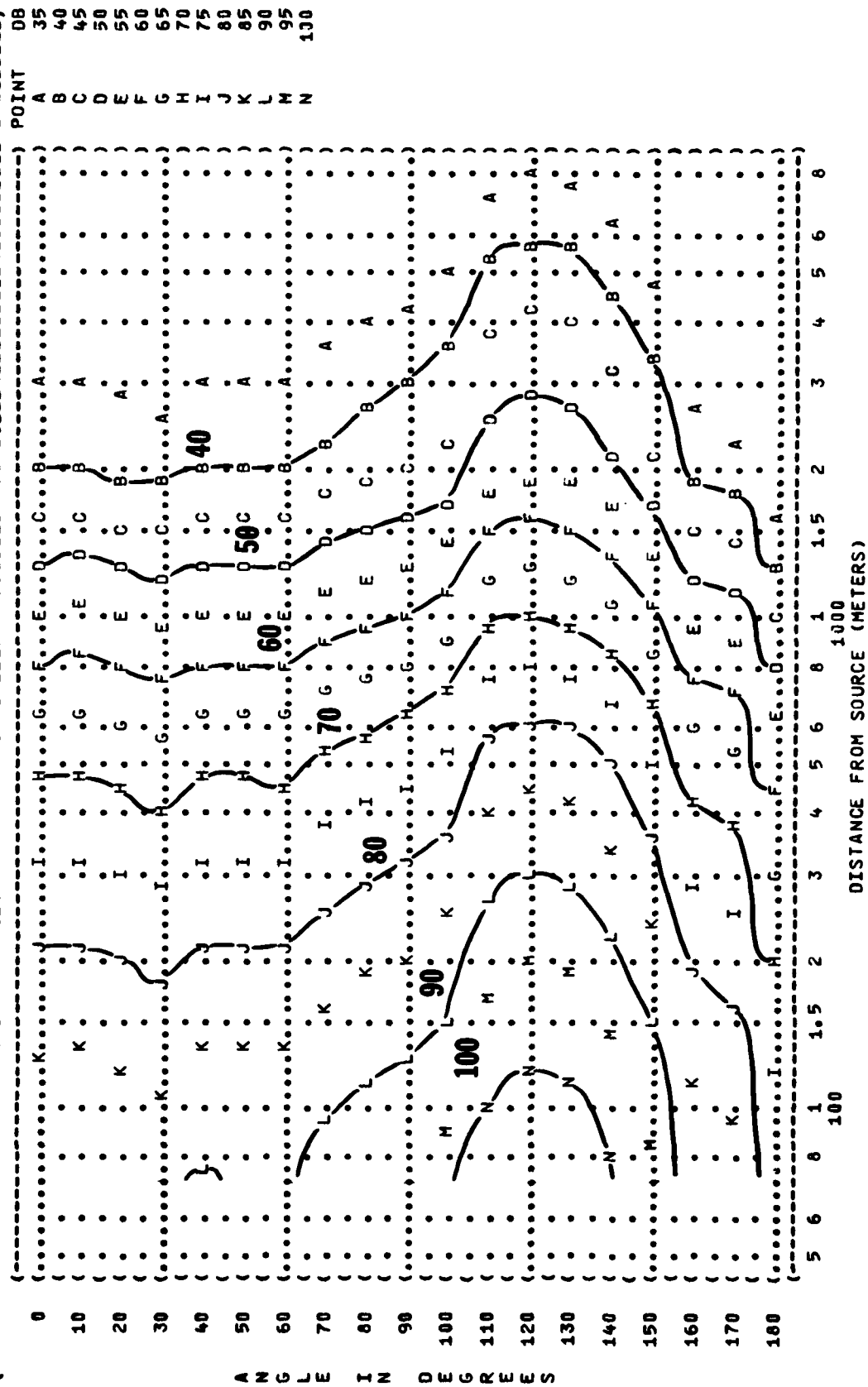
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IDENTIFICATION:
)
)
) OMEGA 1.4
) TEST 77-726-C01
) RUN 03
)
) 14 SEP 78
)
) PAGE 21
)

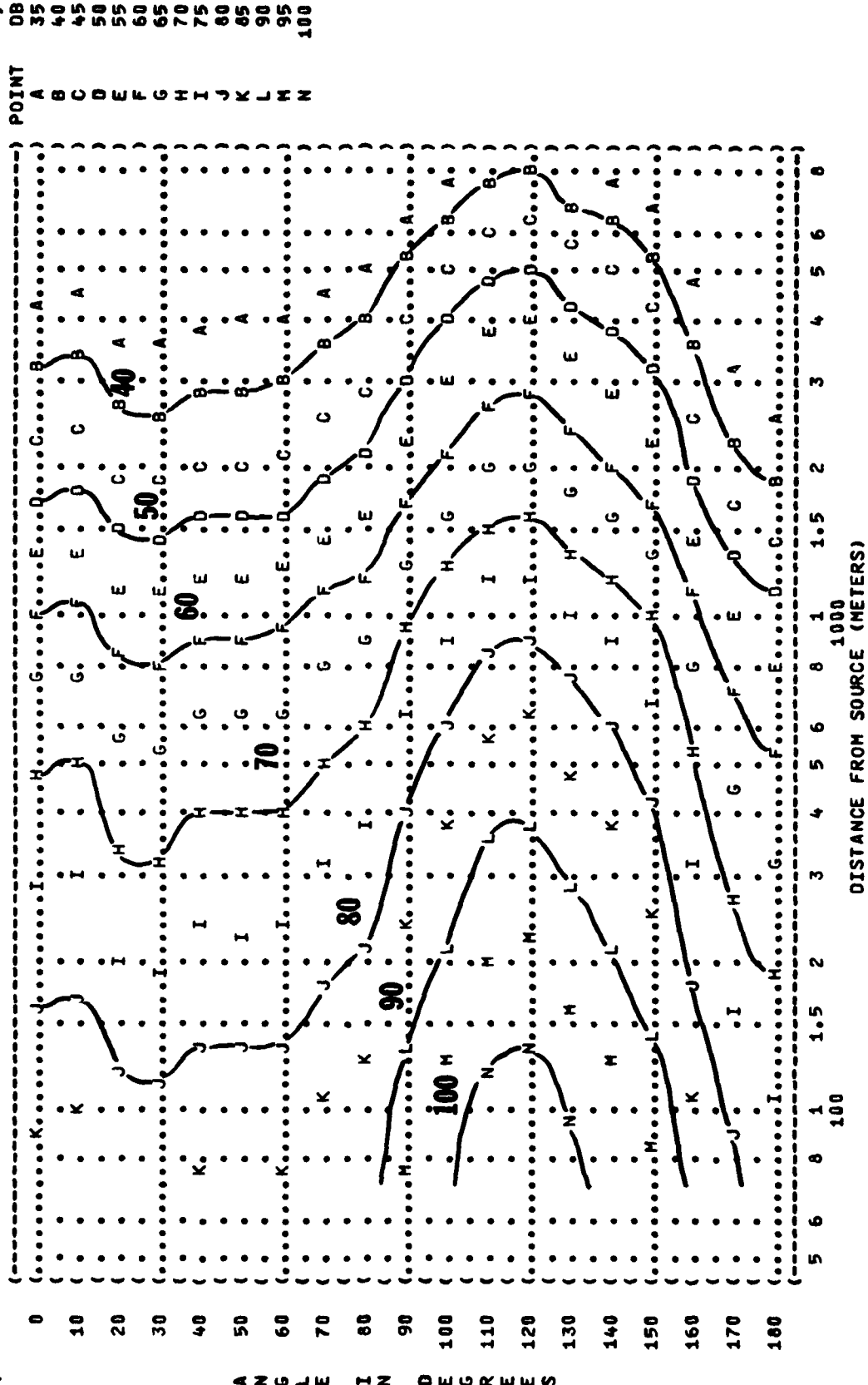
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NOISE SOURCE/SUBJECT:	(	OPERATION:
KC-135A AIRCRAFT IN THE	(	
(MODIFIED) AF32A-52	(	MILITARY
NOISE SUPPRESSOR	(	96% RPM,
FAR-FIELD NOISE	(	WITH SUP

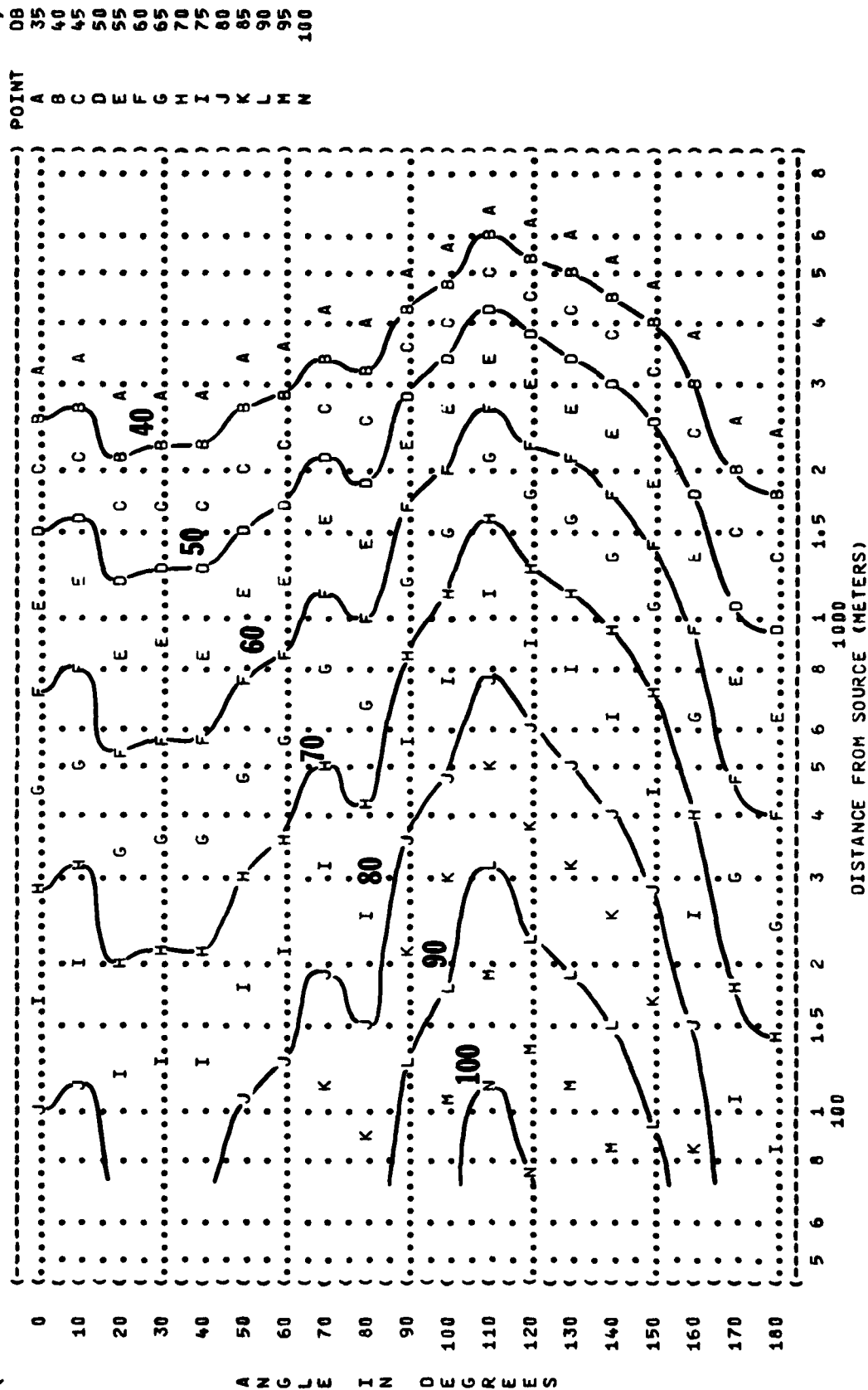
METEOROLOGY:
TEMP
BAR PRESS
REL HUMID



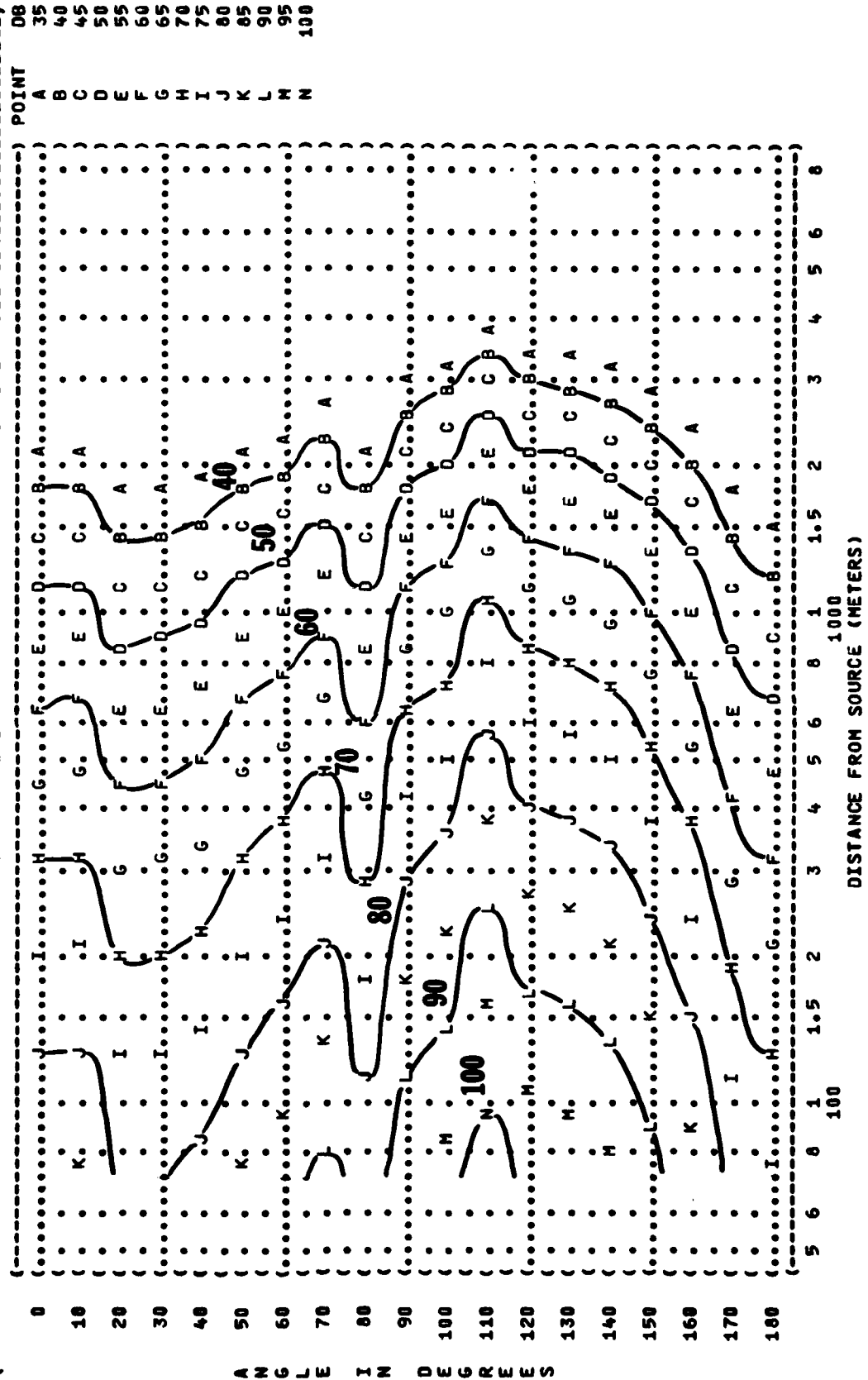
(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (10 EQUAL LEVEL CONTOURS (DB))
 (500 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (KC-135A AIRCRAFT IN THE)
 ((MODIFIED) AF32A-52)
 (NOISE SUPPRESSOR)
 (FAR-FIELD NOISE)
 (OPERATION:)
 (MILITARY POWER (WET),)
 (96% RPM, INBOARD ENGINE)
 (WITH SUPPRESSOR MOUNTED)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 77-726-001)
 (RUN 03)
 (14 SEP 78)
 (PAGE 22)



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(-----)
( FIGURE: SOUND PRESSURE LEVEL {SPL} ) IDENTIFICATION: )
( EQUAL LEVEL CONTOURS (DB) ) )
( 10 ) OMEGA 1.4 )
( 1000 HZ OCTAVE BAND ) )
(-----)
( NOISE SOURCE/SUBJECT: ) OPERATION: ) METEOROLOGY: )
( KC-135A AIRCRAFT IN THE ) ) TEMP = 15 C )
( (MODIFIED) AF32A-52 ) ) MILITARY POWER (WET), ) BAR PRESS = .760 M HG )
( NOISE SUPPRESSOR ) ) 96% RPM, INBOARD ENGINE ) REL HUMID = 70 % )
( FAR-FIELD NOISE ) ) WITH SUPPRESSOR MOUNTED ) ) PAGE 23 )
(-----)
```



(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (10 EQUAL LEVEL CONTOURS (DB))
 (2000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (KC-135A AIRCRAFT IN THE)
 ((MODIFIED) AF32A-52)
 (NOISE SUPPRESSOR)
 (FAR-FIELD NOISE)
 (OPERATION:)
 (MILITARY POWER (NET),)
 (96% RPM, INBOARD ENGINE)
 (WITH SUPPRESSOR MOUNTED)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 77-726-001)
 (RUN 03)
 (14 SEP 78)
 (PAGE 24)



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(-----)
( FIGURE: SOUND PRESSURE LEVEL {SPL} ) IDENTIFICATION: )
( ( EQUAL LEVEL CONTOURS (DB) ) ) )
( ( 10 ) ) )
( ( 4000 HZ OCTAVE BAND ) ) )
(-----)
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: )
( KC-135A AIRCRAFT IN THE ) TEMP = 15 C )
( (MODIFIED) AF32A-52 ) MILITARY POWER (NET), )
( NOISE SUPPRESSOR ) 96% RPM, INBOARD ENGINE )
( FAR-FIELD NOISE ) WITH SUPPRESSOR MOUNTED )
(-----)
( PAGE 25 )
(-----)

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