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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK

Volume 160

KC-10A AIRCRAFT, NEAR AND FAR-FIELD NOISE

SEPTEMBER 1982

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AIR FORCE AEROSPACE MEDICAL RESEARCH LABORATORY
AEROSPACE MEDICAL DIVISION
AIR FORCE SYSTEMS COMMAND
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433

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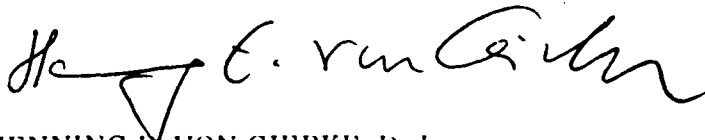
TECHNICAL REVIEW AND APPROVAL

AMRL-TR-75-50, Vol. 160

This report has been reviewed by the Office of Public Affairs (PA) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER



HENNING E. VON GIERKE, Dr Ing
Director
Biodynamics and Bioengineering Division
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sound levels, preferred speech interference levels, perceived noise levels, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 15 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 and 723109, Communication and Performance Capability and Operational Noises.

The author gratefully acknowledges University of Dayton Research Institute personnel, Mr. Keith Kettler, Mr. Fred Lampley, Mr. Henry Mohlman, Mr. Douglas Sauer and Mr. Casey Conway for acquiring and analyzing the noise data and for assistance in the mechanics of data processing. Also acknowledged are Mr. John Cole for his assistance in preparing this report, Mr. Jerry Speakman for his assistance in acquiring the raw data, and Mrs. Norma Peachey for typing and assistance in report preparation.



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INTRODUCTION

The USAF KC-10A is the advanced tanker/cargo aircraft powered by three CF6-50C2 turbofan engines. The aircraft was manufactured by the McDonnell Douglas Aircraft Corporation and the engines by General Electric Co., Aircraft Engine Group. The commercial version of the aircraft is the DC-10.

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 operations of the KC-10A 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, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Refer to Volume 1 (reference 1) for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight/flight crew and passenger noise, near-field ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published.

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

NEAR-FIELD NOISE

MEASUREMENTS

AFAMRL acquired near-field noise data on the KC-10A aircraft during ground runup operations of its turbofan engines. For these tests, the aircraft was located on a concrete taxiway at Wright-Patterson AFB with no significant reflecting surfaces in the vicinity except the ground plane. Table 1 gives the surface meteorological conditions and the engine power condition. The ground-crew chief selected the power condition and near-field location used during routine maintenance or engine runup for preflight checks.

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

Figure 1 shows the near-field location where a ground crew is 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 designator used on the data pages in this report to identify the measurement location and test condition.

RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the KC-10A aircraft at the ground crew location. This table includes the overall, 1/3 octave band, and octave band levels. From these data one can calculate the variety of measures given in Table 3 which are widely used to assess the effects of noise on personnel and their performance.

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 MEASUREMENT**

KC-10A Aircraft, Ground Runup, Wright-Patterson AFB, OH
29 June 1982
Tail #91946

Ground Crew Location

1

Telephone Talker, Under
Aircraft by Forward
Landing Gear

Aircraft Engine Operation

A

Maximum Continuous Power,
Engine #1

Meteorology

Temperature

18 °C m Hg

Bar Pressure

.735 %

Rel Humidity

70 m/Sec (3.5 Kts)

Wind - Speed

1.8 Deg

-Direction

270

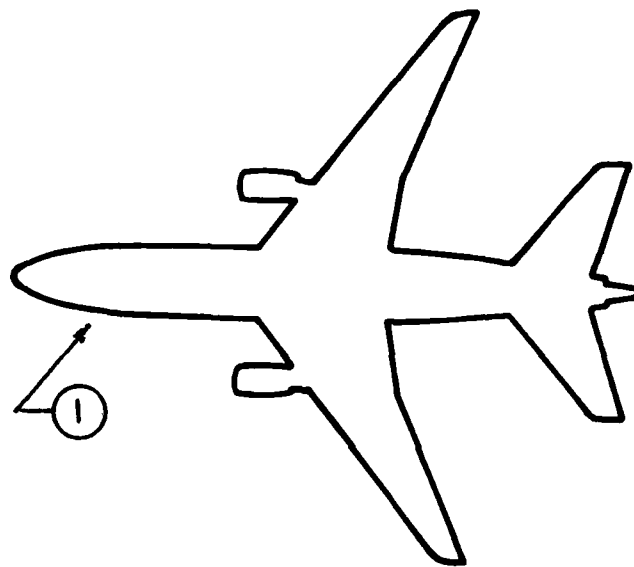


**Figure 1. Near-Field Measurement Locations on
Taxiway 16 at Wright-Patterson AFB OH**

FAR-FIELD NOISE

MEASUREMENTS

AFAMRL acquired near and far-field data during a one hour test period, thus keeping similar meteorological conditions throughout the test. Figure 2 shows the ground runup pad, ground cover, aircraft orientation and the 19 microphone measurement sites on a semicircle. The center of the 100 meter radius semicircle used in surveying the CF6-50C2 engines was on the ground directly below the intersection of the aircraft's centerline and the plane passing through the wings' engines' exhaust-nozzle exits. The ground runup area did not have a blast deflector; therefore, the engines' exhausts were in a "free-flow" condition.

Table 4 provides cockpit readouts of some 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 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. The single engine runups used engine number one, the wing engine nearest the microphones.

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 the 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 KC-10A 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.

Estimates of noise characteristics for intermediate power settings (e.g., 88% engine) and/or different number of engines operating (e.g., single engine) can be determined as explained in Volume 1 of this handbook.

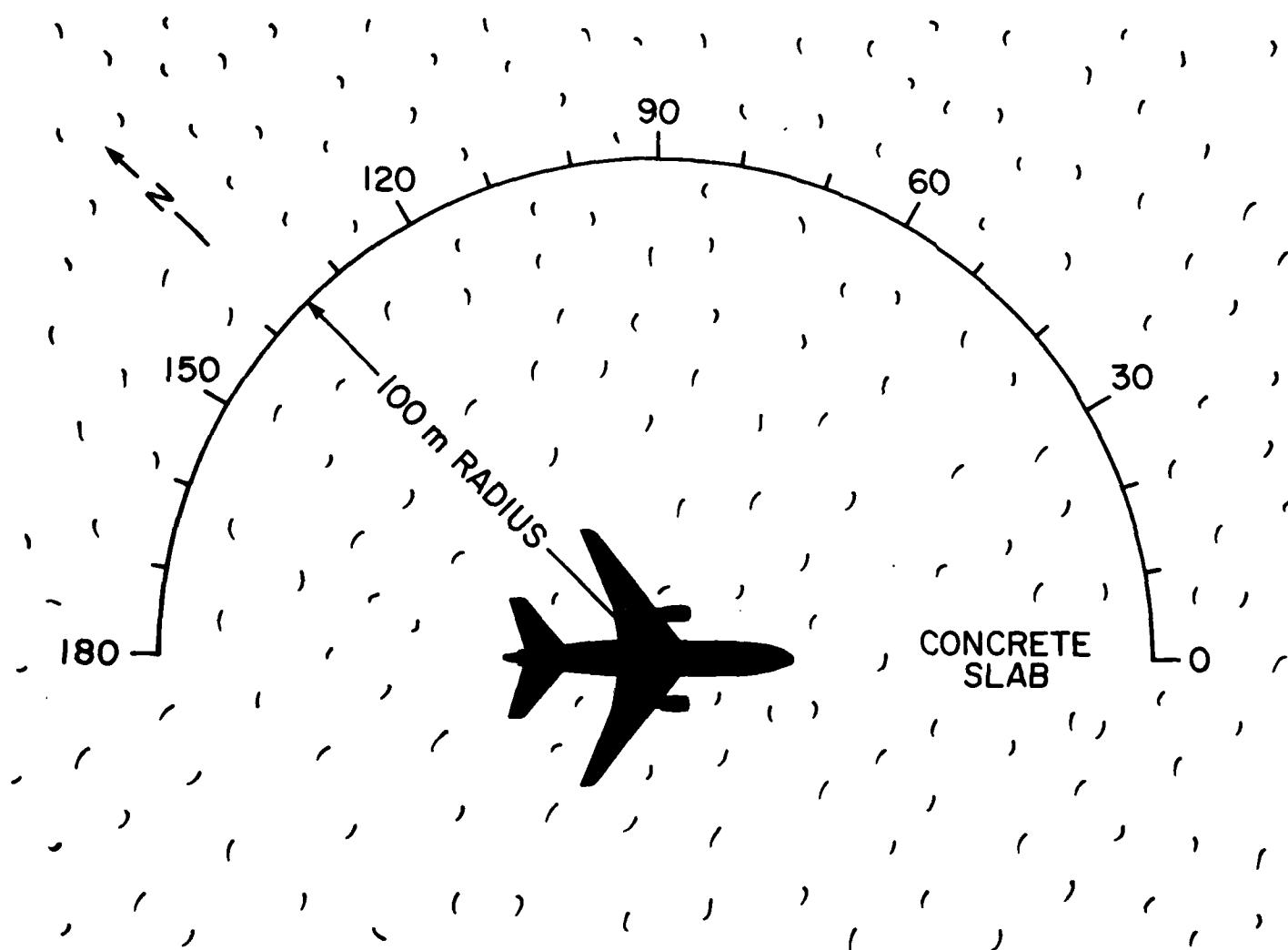


Figure 2. Far-Field Measurement Locations at
Wright-Patterson AFB OH

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 pressure level, A-weighted sound level, perceived noise level, speech interference level, permissible exposure times for personnel and octave band sound pressure levels.

No data are presented from 150 through 180 degree locations because of turbulent air flow behind the aircraft. Typical A-weighted levels for these angles are 5 to 10 dBA below the last measurement location.

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)	IDENTIFICATION:
2	1/3 OCTAVE BAND	
NOISE SOURCE/SUBJECT:	OPERATION:	OMEGA 3.2
KC-10A AIRCRAFT		TEST BS-005-001
GROUND CREW		RUN 01
NEAR FIELD NOISE LEVELS		23 JUL 82
		PAGE F1
	LOCATION/CONDITION	
FREQ (HZ)	1/A	
25	99	
31.5	100	
40	101	
50	104	
63	104	
80	105	
100	104	
125	105	
160	104	
200	102	
250	101	
315	102	
400	103	
500	103	
630	104	
800	104	
1000	105	
1250	103	
1600	103	
2000	107	
2500	107	
3150	103	
4000	104	
5000	103	
6300	104	
8000	101	
10000	99	
OVERALL	118	
LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.		

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:	
2	OCTAVE BAND		
NOISE SOURCE/SUBJECT:		OMEGA 3-2	
KC-10A AIRCRAFT		TEST 6S-005-001	
GROUND CREW		RUN 01	
NEAR FIELD NOISE LEVELS		23 JUL 82	
		PAGE J1	
		LOCATION/CONDITION	
FREQ	1/A		
(HZ)			
31.5	105		
63	109		
125	109		
250	106		
500	108		
1000	109		
2000	111		
4000	108		
8000	106		
OVERALL	118		

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

KC-10A Aircraft, Ground Runups, Wright-Patterson AFB OH
29 June 1982
Tail #91946

Aircraft Engine Operation

Idle	Engine No. 1
	23.7 % RPM NF (Fan Speed)
	65.6 % RPM NC (Core Speed)
	406 C EGT (Exhaust Gas Temperature)
	1360 LBS/HR FF (Fuel Flow)
45% RPM	Engine No. 1
	45 % RPM NF
	81.8 % RPM NC
	445 C EGT
	2800 LBS/HR FF
70% RPM	Engine No. 1
	70 % RPM NF
	90.5 % RPM NC
	530 C EGT
	5700 LBS/HR FF
95% RPM	Engine No. 1
	95 % RPM NF
	100.6 % RPM NC
	750 C EGT
	13000 LBS/HR FF
Maximum Continuous	Engine No. 1
	103 % RPM NF
	102 % RPM NC
	820 C EGT
	1700 LBS/HR FF
Takeoff Rated Thrust	Engine No. 1
	111 % RPM NF
	106.7 % RPM NC
	908 C EGT
	20000 LBS/HR FF
45% RPM	All Three Engines
	45 % RPM NF
	81 % RPM NC
	420 C EGT
	2600 LBS/HR FF

95% RPM

All Three Engines
95 % RPM NF
99 % RPM NC
745 C EGT
13000 LBS/HR FF

Meteorology

Temperature
Bar Pressure
Rel Humidity
Wind - Speed
- Direction

18 C
.735 M Hg
70 %
1.8 M/Sec (3.5 Kts)
270 Deg.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																	IDENTIFICATION:	
1/3 OCTAVE BAND																		
DISTANCE = 100 METERS																		
NOISE SOURCE/SUBJECT:																	OMEGA 1.4	
(OPERATION:																	TEST BS-005-001	
(IDLE POWER 23.7% RPM																	RUN 01	
(ENGINE NO. 1																		
(FREE FLOW																	26 JUL 82	
																	PAGE 2	
FREQ																		
(HZ)																		
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																		
25																		
31.5																		
40																		
50																	76K 75K	
63																	74K 78	
80																	81	
100																	78K 81	
125																	75K 78	
160																	73K 76	
200																	72 73	
250																	72 72	
315																	75 69K	
400																	71 71	
500																	75 71	
630																	74 73	
800																	72 68K	
1000																	72 72	
1250																	67K 67K	
1600																	66 62K	
2000																	65K 65K	
2500																	66K 66K	
3150																	67 65	
4000																	66 66	
5000																	67 67	
6300																	64 64	
8000																	63 60	
10000																	57 57	
OVERALL																	88 87 88 86 84 83 83 84 86 86 87 88	

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:																	
1/3 OCTAVE BAND		OMEGA 1.4																	
DISTANCE = 100 METERS		TEST 88-005-001																	
NOISE SOURCE/SUBJECT:		RUN 02																	
OPERATION:		METEOROLOGY:																	
(45% RPM		TEMP = 18 C																	
(ENGINE NO. 1		BAR PRESS = .735 M HG																	
(FREE FLOW		REL HUMID = 70 %																	
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																			
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	98	92	92	93	94	90	88	87	88	89	89	91	91	91	90			

< 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:														TEST 88-005-001	
(														RUN 03	
(															
(														26 JUL 82	
(														PAGE 2	
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TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																		
1/3 OCTAVE BAND																		
DISTANCE = 100 METERS																		
NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) IDENTIFICATION:																		
(KC-10A AIRCRAFT (95X RPM) TEMP = 18 C) OMEGA 1.4																		
(CF6-50C2 (ENGINE NO. 1) BAR PRESS = .735 M HG) TEST BS-005-001																		
(FAR FIELD NOISE (FREE FLOW) REL HUMID = 70 %) RUN 04																		
(PAGE 2																		
FREQ (HZ)																		
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																		
25 78< 81 81 81 81 83 86 85 86 86 87 85 88 90 94 99																		
31.5 82 82 83 82 86 86 85 86 88 88 89 90 95 97 101																		
40 82 84 83 84 87 86 86 86 88 89 92 94 97 101 103																		
50 86 87 85 88 87 87 87 87 90 90 92 94 96 99 102 105																		
63 85 87 85 88 87 86 87 89 91 93 95 96 100 104 103																		
80 87 88 86 87 88 89 89 90 91 93 96 98 100 104 104																		
100 86 87 87 89 89 89 90 91 92 93 96 98 99 103 102																		
125 86 87 89 89 89 90 91 91 92 93 96 98 100 102 101																		
160 85 86 88 88 89 89 90 90 92 93 96 98 100 101 99																		
200 84 85 86 88 89 89 89 90 91 92 94 96 99 99 97																		
250 83 84 85 86 88 88 88 89 90 91 92 93 95 97 98 94																		
315 83 84 86 87 88 88 88 89 91 91 94 95 96 97 92																		
400 86 87 91 90 92 92 91 93 92 93 94 95 96 96 91																		
500 84 85 90 89 88 89 89 90 89 91 92 94 96 94 89																		
630 84 85 88 89 90 90 90 89 89 90 91 93 94 94 88																		
800 84 85 87 88 88 90 89 87 86 87 90 91 92 92 87																		
1000 85 86 89 89 90 90 87 86 85 85 88 90 91 90 85																		
1250 87 88 88 89 89 88 86 86 84 84 87 88 89 89 84																		
1600 88 88 90 92 91 89 87 87 85 85 86 88 89 88 81																		
2000 93 96 98 98 96 96 92 91 88 87 87 90 92 89 82																		
2500 87 89 90 91 90 90 88 87 84 84 86 87 88 86 79																		
3150 86 88 89 90 90 89 86 86 84 84 86 87 88 85 79																		
4000 90 92 93 93 92 91 87 88 86 86 85 87 90 93 86 80																		
5000 86 88 89 90 89 89 86 86 86 85 86 89 89 85 79																		
6300 86 87 88 89 89 88 86 86 85 87 91 93 94 89 82																		
8000 83 84 85 86 86 85 83 84 81 83 87 88 88 85 79																		
10000 80 81 82 83 83 82 80 80 77 79 82 84 84 80 76																		
OVERALL 101 102 103 104 104 104 102 103 103 104 106 108 110 112 112																		
< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.																		

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																			
1/3 OCTAVE BAND																			
DISTANCE = 100 METERS																			
NOISE SOURCE/SUBJECT:																			
OPERATION:																			
KC-10A AIRCRAFT																			
CF6-50C2																			
FAR FIELD NOISE																			
METEOROLOGY:																			
TEMP = 18 C																			
BAR PRESS = .735 M HG																			
REL HUMID = 70 %																			
PAGE 2																			
IDENTIFICATION:																			
OMEGA 1.4																			
TEST 85-005-001																			
RUN 06																			
26 JUL 82																			
ANGLE (DEGREES)																			
FREQ	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
(HZ)																			
25	83	85	84	86	85	88	89	89	92	91	91	94	94	101	106				
31.5	86	87	86	87	88	89	90	91	91	92	93	95	97	104	109				
40	87	89	87	89	90	89	90	90	91	93	95	98	102	107	110				
50	90	91	89	91	91	91	91	93	96	96	98	102	105	110	113				
63	91	92	91	92	92	91	92	94	97	98	100	103	106	114	111				
80	91	91	92	92	93	94	94	95	97	99	101	104	106	113	112				
100	90	90	92	94	94	95	95	97	97	99	101	104	107	113	111				
125	90	91	94	95	95	96	97	99	100	99	102	105	107	113	111				
160	89	89	92	93	94	95	96	97	98	100	102	105	107	112	110				
200	89	89	91	94	93	95	95	96	97	99	101	105	105	109	108				
250	88	89	90	92	92	93	94	96	96	98	100	104	104	108	107				
315	89	88	90	92	93	93	94	95	95	98	99	103	104	106	105				
400	89	89	90	92	92	93	93	95	94	97	99	103	103	105	103				
500	88	88	89	91	91	92	92	94	93	97	98	102	102	103	100				
630	86	86	88	89	90	91	91	93	91	96	97	101	100	101	96				
800	87	86	87	89	90	90	90	92	90	95	96	99	99	99	94				
1000	85	85	87	87	88	89	89	91	90	93	95	97	97	97	91				
1250	84	84	86	86	87	89	89	90	91	92	93	96	95	96	90				
1600	84	84	85	86	87	88	88	90	90	92	93	95	94	94	87				
2000	85	84	85	86	87	88	89	90	90	92	94	92	94	92	86				
2500	88	87	88	88	89	89	89	90	90	91	93	96	94	93	85				
3150	83	82	85	85	86	86	86	88	88	89	90	93	91	90	83				
4000	81	81	83	84	85	85	85	87	87	89	89	92	90	89	82				
5000	82	81	84	84	85	86	86	88	89	90	90	93	90	89	81				
6300	81	81	83	83	84	85	85	87	89	91	93	93	90	88	80				
8000	79	79	80	80	82	82	82	84	85	86	89	92	90	88	79				
10000	75	75	76	77	79	79	79	82	83	82	84	87	85	84	77				
OVERALL	102	102	103	104	105	105	106	107	108	110	112	115	116	122	121				

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

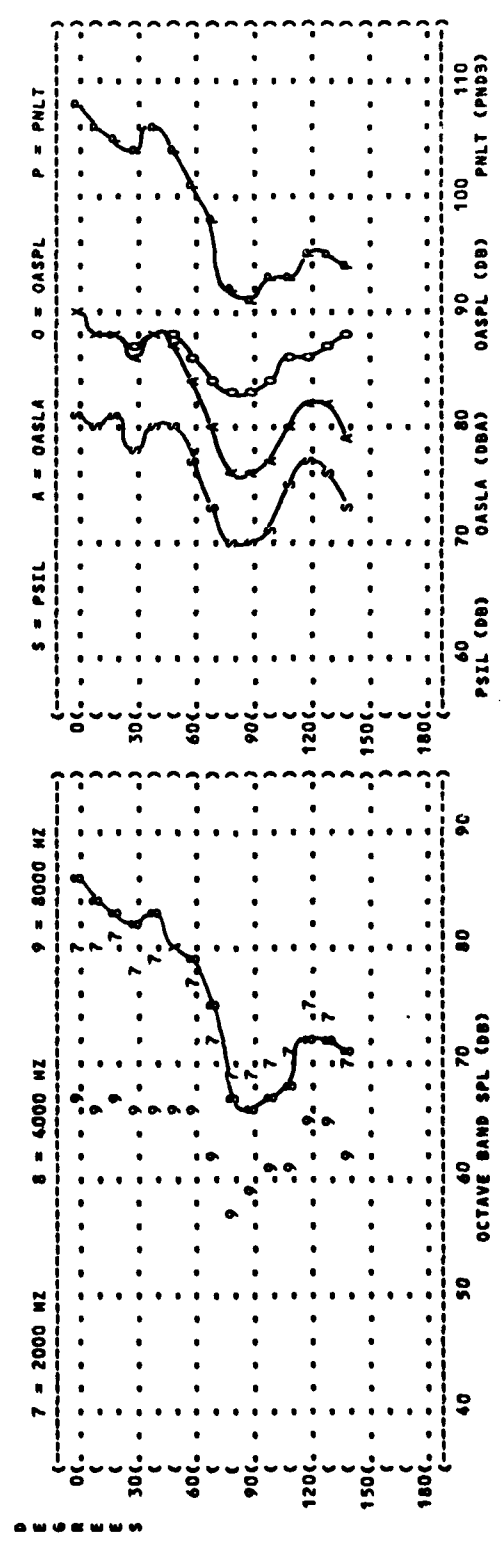
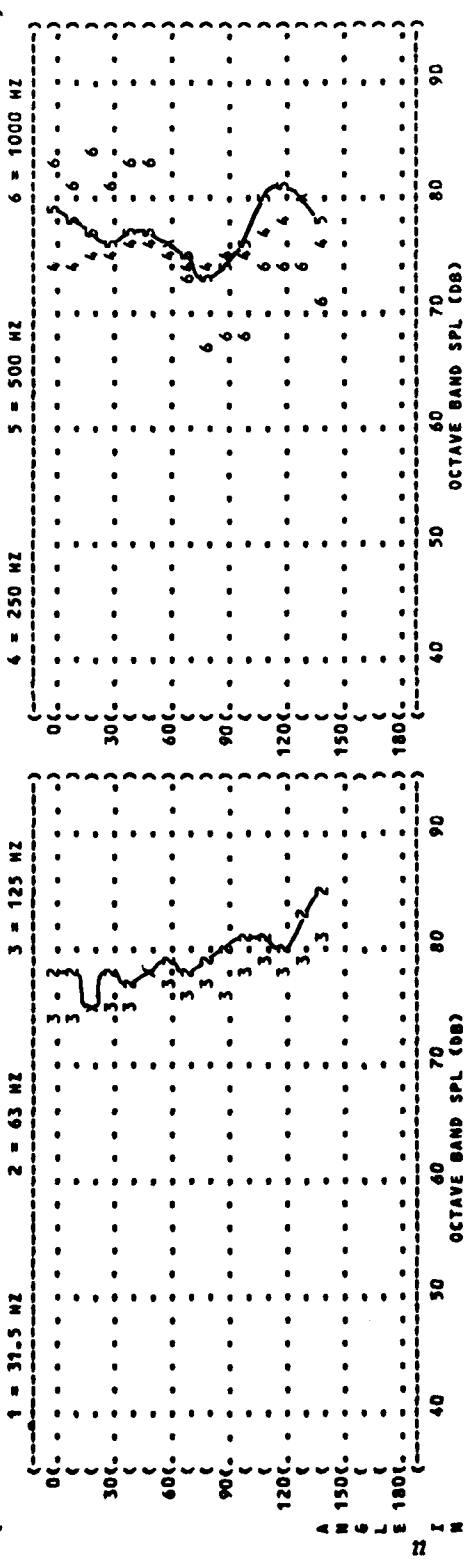
TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																			
1/3 OCTAVE BAND																			
DISTANCE = 100 METERS																			
NOISE SOURCE/SUBJECT:																			
OPERATION:																			
KC-10A AIRCRAFT																			
CF6-SOC2																			
FAR FIELD NOISE																			
METEOROLOGY:																			
TEMP = 18 C																			
BAR PRESS = .735 M HG																			
REL HUMID = 70 %																			
PAGE 2																			
IDENTIFICATION:																			
OMEGA 1.4																			
TEST BS-005-001																			
RUN 07																			
26 JUL 82																			
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		71<	71<	72<	69<	70<	70<	71<	69<	71<	71<	75<	74<	75<	74<				
31.5		72<	71<	73<						71<	73<	77<	77<	77<	76<	76<			
40	71<	75<	72<	76<	72<	72<	72<	73<	73<	75<	76<	76<	77<	78<	80<				
50	76<	77<	74<	78<	77<	77<	77<	76<	77<	78<	80<	80<	81<	81<	85				
63	77<	75<	75<	76<	75<	76<	77<	78<	78<	80<	80<	81<	83	82	84				
80	79	78<	76<	75<	76<	77<	77<	78<	78<	80	81	82	83	83	85				
100	78	77	78	76<	75<	76<	75<	76<	78	77	79	79	82	82	82				
125	77	79	78	79	77	78	79	79	79	78	79	79	78	80	81				
160	73	73	74	73	74	73	74	74	73	74	75	75	75	76	77				
200	75	74	76	74	74	74	73	73	72	73	74	74	75	75	76				
250	76	77	76	76	75	75	74	75	75	76	76	76	79	78	78				
315	77	77	78	76	76	76	75	76	75	78	79	79	80	80	79				
400	78	79	78	75	77	78	76	76	77	78	79	79	82	80	79				
500	79	78	79	76	78	79	76	77	75	77	79	80	81	81	80				
630	79	79	79	77	79	78	76	76	74	75	76	78	81	82	80				
800	82	79	80	76	79	79	76	76	73	73	74	76	79	80	80				
1000	93	85	85	82	82	83	81	81	75	75	74	76	78	79	80				
1250	84	82	81	78	78	78	75	75	70	70	70	70	71	73	72				
1600	84	83	82	79	79	79	76	75	70	70	70	70	72	74	73				
2000	94	95	91	91	88	91	87	85	79	76	76	74	75	76	75				
2500	84	85	85	84	83	82	80	77	73	73	74	75	77	78	76				
3150	84	84	84	83	82	83	82	80	76	77	77	80	83	84	83				
4000	84	85	84	82	81	82	80	79	74	73	72	73	75	77	77				
5000	86	85	84	81	81	82	82	81	76	74	72	72	73	77	77				
6300	80	80	80	78	78	79	79	77	72	70	69	70	71	74	74				
8000	76	76	76	74	74	74	74	72	67	67	68	69	69	72	71				
10000	74	74	74	71	71	71	71	68	64	66	68	69	70	72	71				
OVERALL	98	98	96	95	94	95	93	92	89	90	91	91	93	93	94				
< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE																			

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

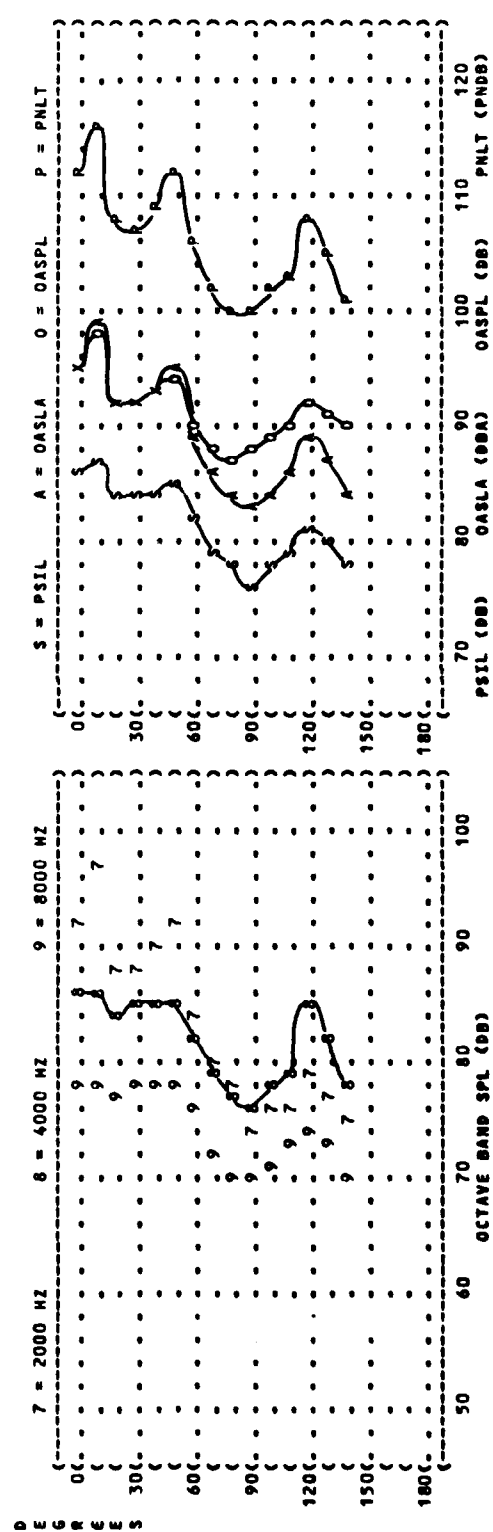
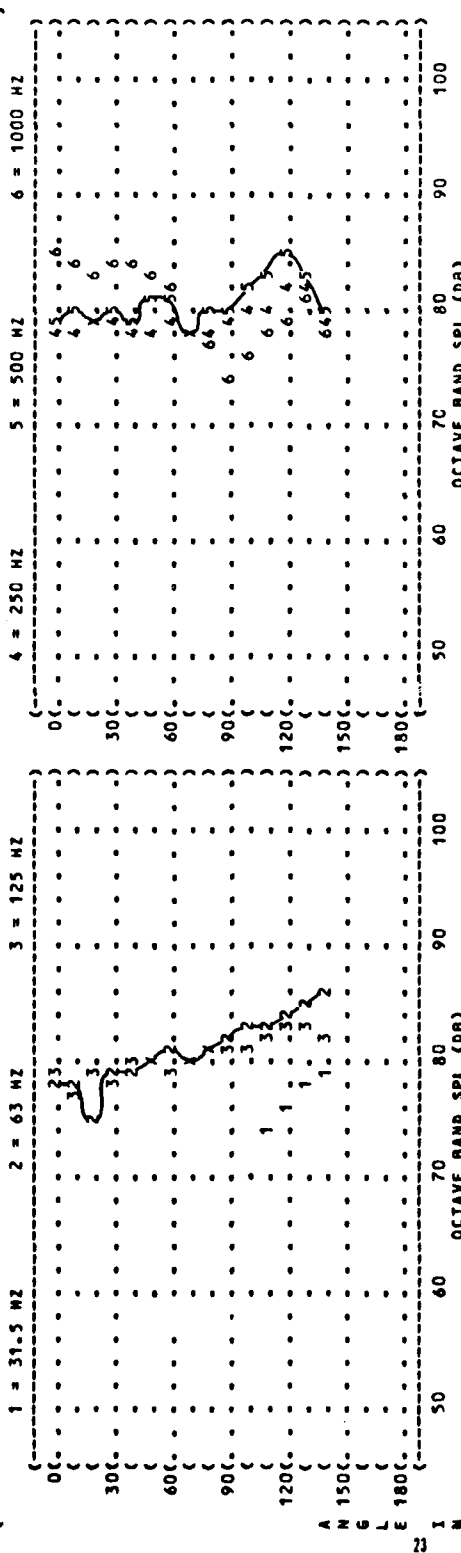
TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																			IDENTIFICATION:	
1/3 OCTAVE BAND																				
5																			OMEGA 1.4	
DISTANCE = 100 METERS																			TEST 8S-005-001	
NOISE SOURCE/SUBJECT:																			RUN 08	
OPERATION:																				
KC-10A AIRCRAFT																			TEMP = 18 C	
CF6-SOC2																			BAR PRESS = .735 M HG	
FAR FIELD NOISE																			REL HUMID = 70 %	
																			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	83	83	83	84	85	86	88	88	89	89	90	91	92	96	98					
31.5	85	85	85	86	86	88	88	88	89	90	91	93	97	97	102					
40	86	86	86	87	88	88	88	89	91	92	95	95	96	100	103					
50	89	89	87	90	89	89	90	91	92	94	96	98	99	102	106					
63	90	90	88	89	90	89	90	93	94	95	97	98	101	104	106					
80	91	90	90	90	90	90	91	92	94	95	98	99	101	104	107					
100	90	90	91	92	92	91	93	93	94	95	98	99	101	105	104					
125	89	91	92	92	92	92	93	94	94	95	97	99	101	104	103					
160	88	90	91	92	92	92	92	93	94	95	97	99	100	103	103					
200	87	88	89	90	91	90	91	92	93	94	96	98	100	101	100					
250	86	87	88	89	89	90	91	92	92	93	94	96	99	100	98					
315	86	88	88	89	90	89	91	91	92	93	94	96	97	99	97					
400	90	90	93	90	93	90	95	93	92	95	95	96	97	98	95					
500	90	93	90	90	92	89	92	92	92	93	93	95	96	96	93					
630	87	89	90	90	92	91	92	92	91	91	92	94	95	95	92					
800	89	89	91	90	90	90	92	92	90	90	91	93	94	93	90					
1000	90	91	90	90	92	88	91	90	89	88	89	91	93	92	89					
1250	90	91	92	91	91	89	90	89	88	88	88	90	91	91	89					
1600	93	93	94	94	92	90	91	90	88	88	88	90	91	91	88					
2000	99	99	100	100	98	97	97	94	92	91	90	92	93	94	92					
2500	91	92	93	92	92	91	92	90	88	88	87	89	90	90	87					
3150	90	92	92	91	91	90	91	89	88	87	87	89	90	90	87					
4000	96	96	96	95	94	93	91	90	89	88	89	93	93	94	91					
5000	91	91	92	90	90	90	89	88	87	89	89	90	91	91	87					
6300	89	90	91	90	90	89	89	88	87	89	91	93	95	96	91					
8000	86	87	88	87	87	86	86	85	84	86	87	89	91	92	88					
10000	83	84	85	83	83	83	83	82	80	81	82	85	86	88	84					
OVERALL	105	105	106	106	106	105	106	105	105	106	108	110	111	114	114					
LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.																				

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

FIGURE: NORMALIZED FARFIELD NOISE LEVELS		IDENTIFICATION:	
3			OMEGA 1.4
DISTANCE = 100 METERS		TEST BS-005-001	
NOISE SOURCE/SUBJECT:		RUN 01	
OPERATION:		METEOROLOGY:	
KC-10A AIRCRAFT	TEMP	= 15 C	
CF6-SOC2	IDLE POWER 23.7% RPM	BAR PRESS = -760 M MG	
FAR FIELD NOISE	ENGINE NO. 1	REL HUMID = 70 %	
	FREE FLOW	PAGE 6	



(FIGURE: NORMALIZED FARFIELD NOISE LEVELS
 (3
 (DISTANCE = 100 METERS
 (NOISE SOURCE/SUBJECT:
 (KC-10A AIRCRAFT
 (CF6-50C2
 (FAR FIELD NOISE
 (OPERATION:
 (45% RPM
 (ENGINE NO. 1
 (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = -760 MM HG
 (REL HUMID = 70 %
 (PAGE 6
 (IDENTIFICATION:
 (OMEGA 1-4
 (TEST BS-005-001
 (RUN 02
 (26 JUL 82
 ()



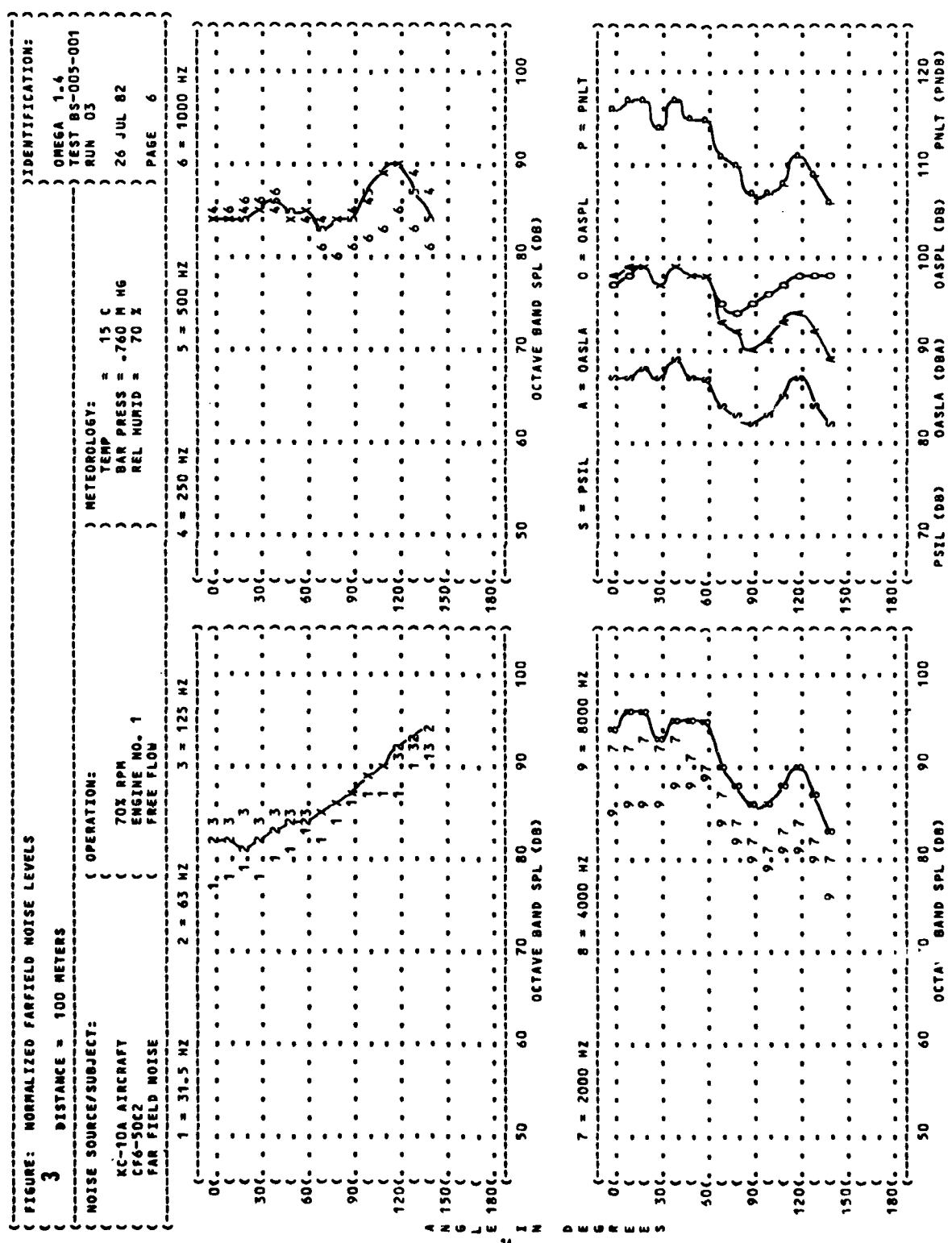


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

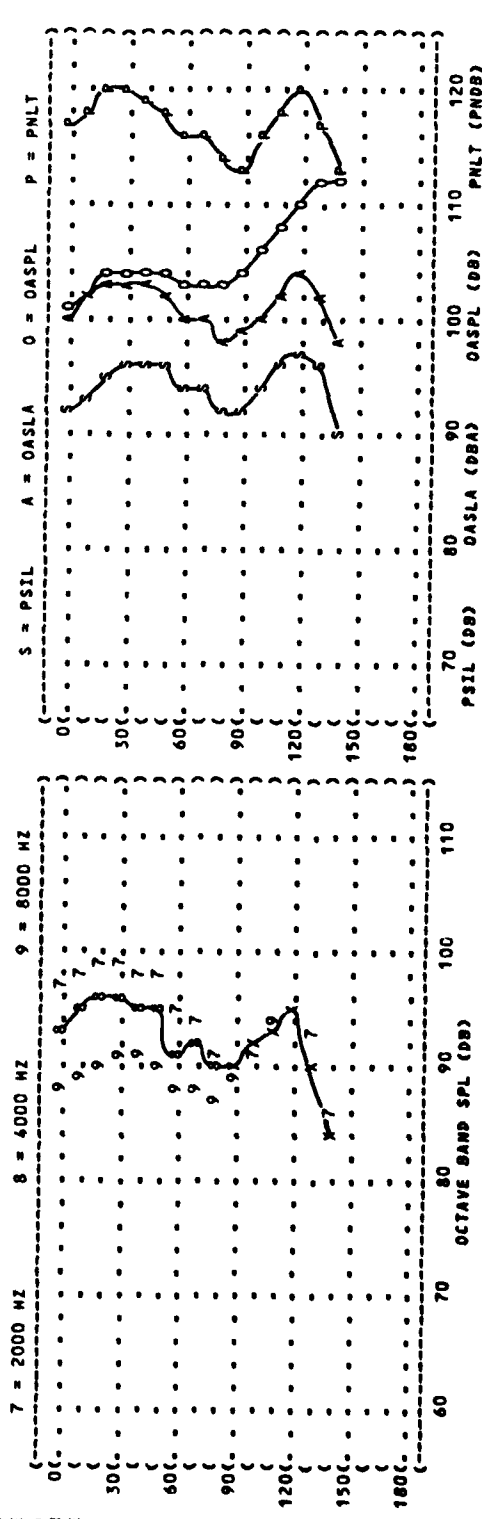
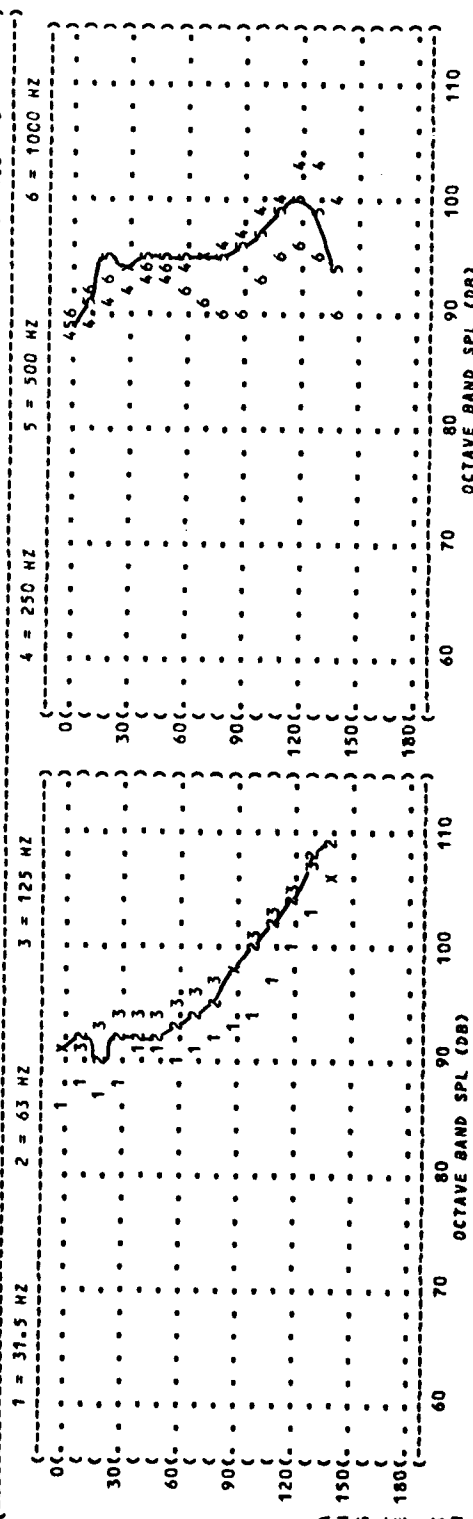
3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT: KC-10A AIRCRAFT
ENGINE NO. 1
CF6-50C2
FAR FIELD NOISE

OPERATION: 95% RPM
FREE FLOW

METEOROLOGY: TEMP = 15 C
BAR PRESS = -760 MM HG
REL HUMID = 70 %

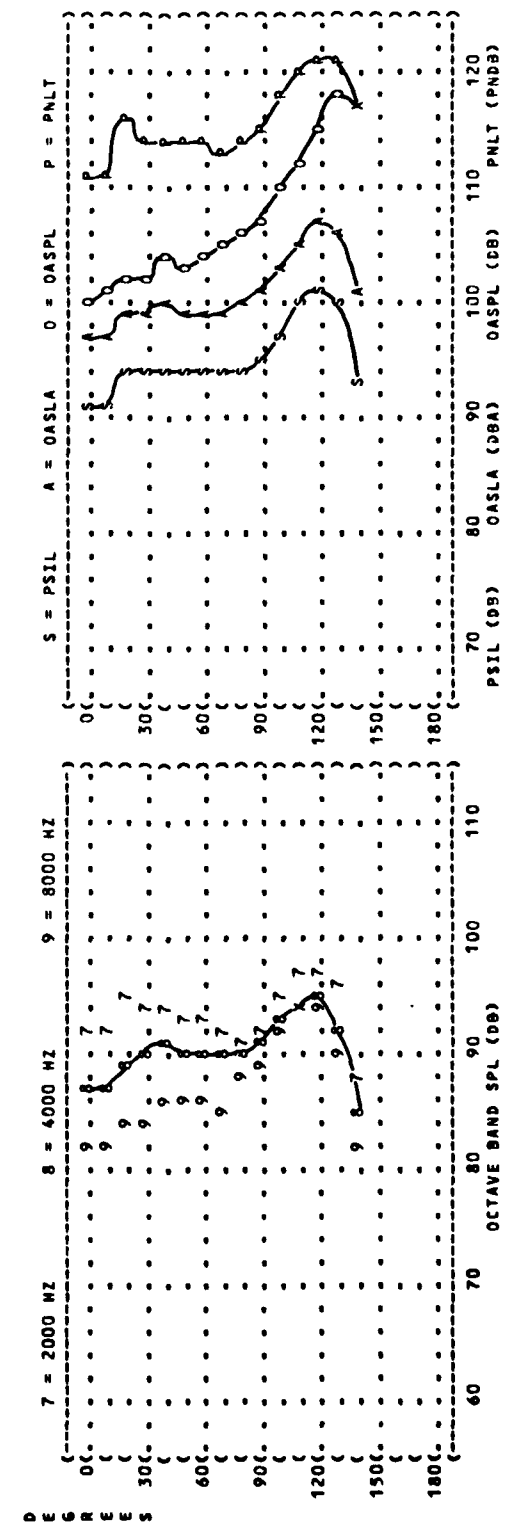
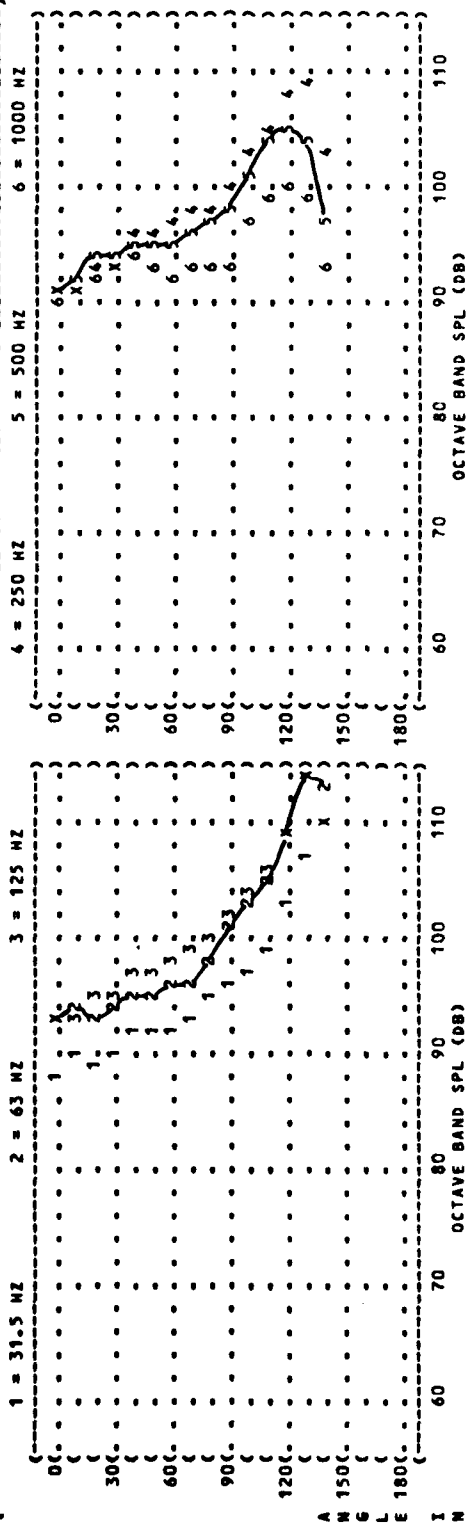
IDENTIFICATION: OMEGA 1.4
TEST BS-0C5-0C1
RUN 04
26 JUL 82
PAGE 6



) IDENTIFICATION:)
) OMEGA 1-4)
) TEST 85-005-001)
) RUN 05)
)
) METEOROLOGY:)
) TEMP = 15 C)
) BAR PRESS = -740 M HG)
) REL HUMID = 70 %)
) 26 JUL 82)
) PAGE 6)

) NOISE SOURCE/SUBJECT:)
) KC-10A AIRCRAFT)
) ENGINE NO. 1)
) FREE FLOW)

) OPERATION:)
) MAXIMUM CONTINUOUS POWER)
) ENGINE NO. 1)
) FREE FLOW)



(-----)
(FIGURE: NORMALIZED FARFIELD NOISE LEVELS)
(-----)
(IDENTIFICATION:)

3
DISTANCE = 100 METERS
OMEGA 1.4

3 DISTANCE = 100 METERS) OMEGA 1.4)
VECT 88-005-004)

(-----) TEST BS-005-001)
(NOISE SOURCE/SUBJECT:) METEOROLOGY:
(OPERATION:)
() RUN 06)

(
 NAME SOURCE/SUBJECT:
)
 OPERATOR:
)
 METEOROLOGIST:
)
 TEMP = 15 C
)
 KJN UG
)

[illegible]

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( ( CF6-SOC2 ( ( ENGINE NO. 1 ( REL HUMID = 70 % ( PAGE 6 )
( ( FAR FIELD NOISE ( ( FREE FLOW ( )

```

(PAM FIELD NOISE (FREE FLOW) PAGE 6)

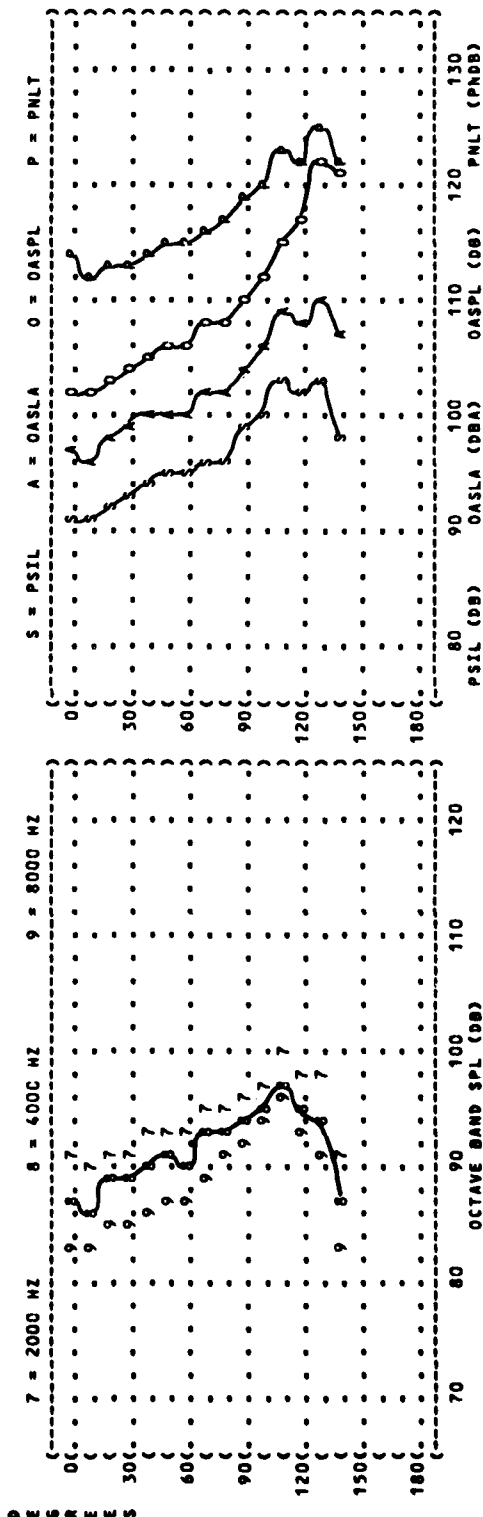
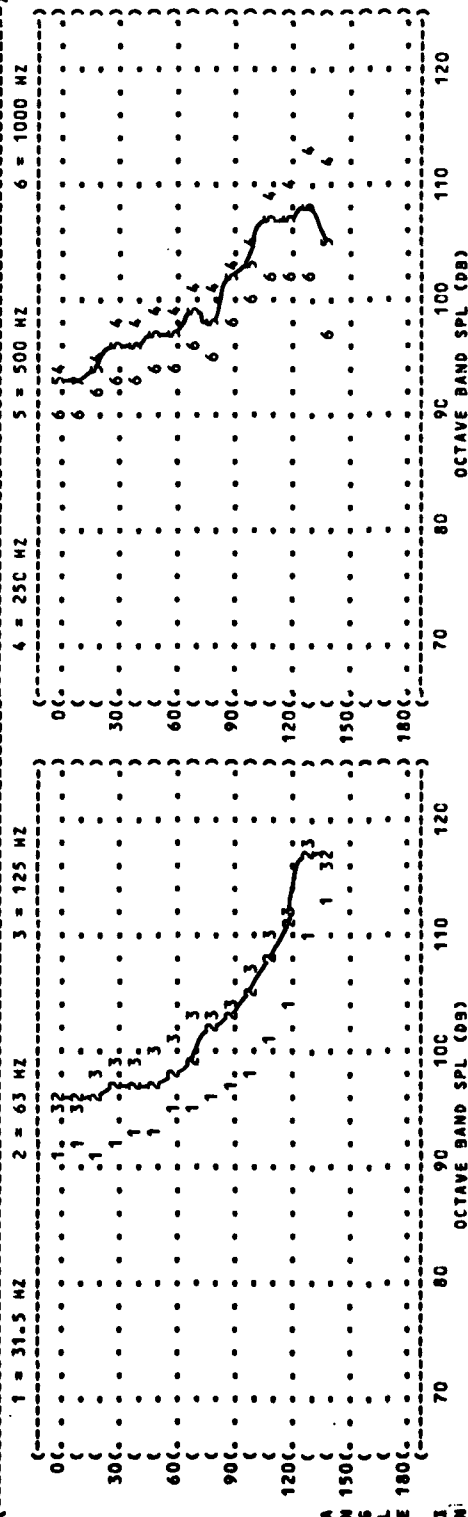
1 = 31.5 MZ 2 = 63 MZ 3 = 125 MZ 4 = 250 MZ 5 = 500 MZ 6 = 1000 MZ

(NOISE SOURCE/SUBJECT: (OPERATION:

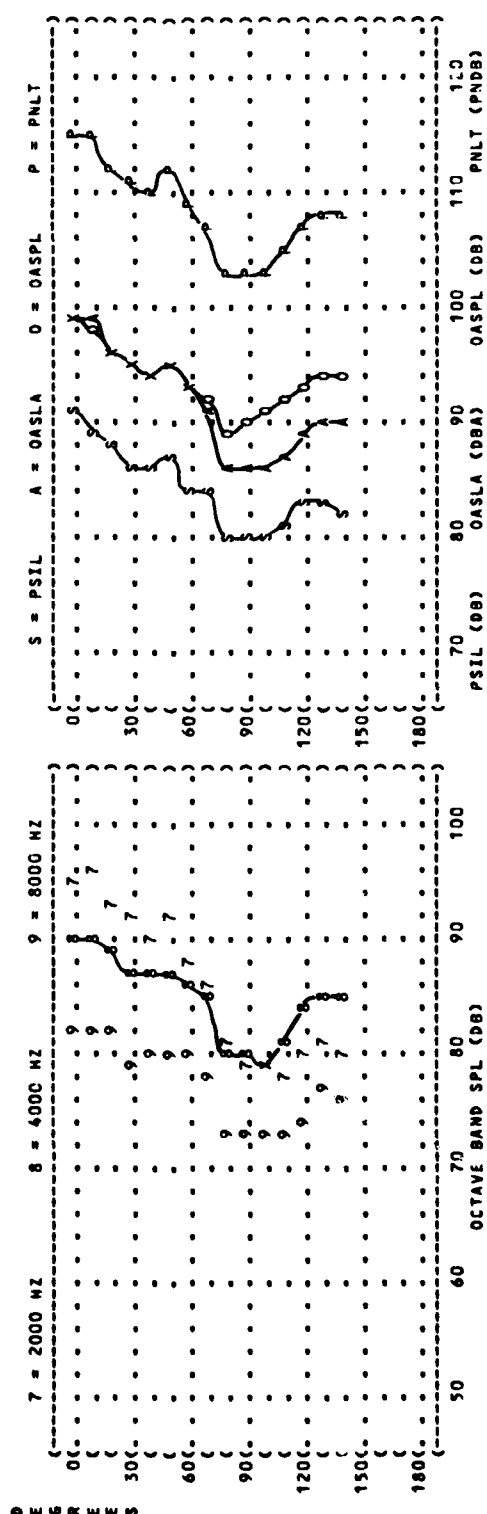
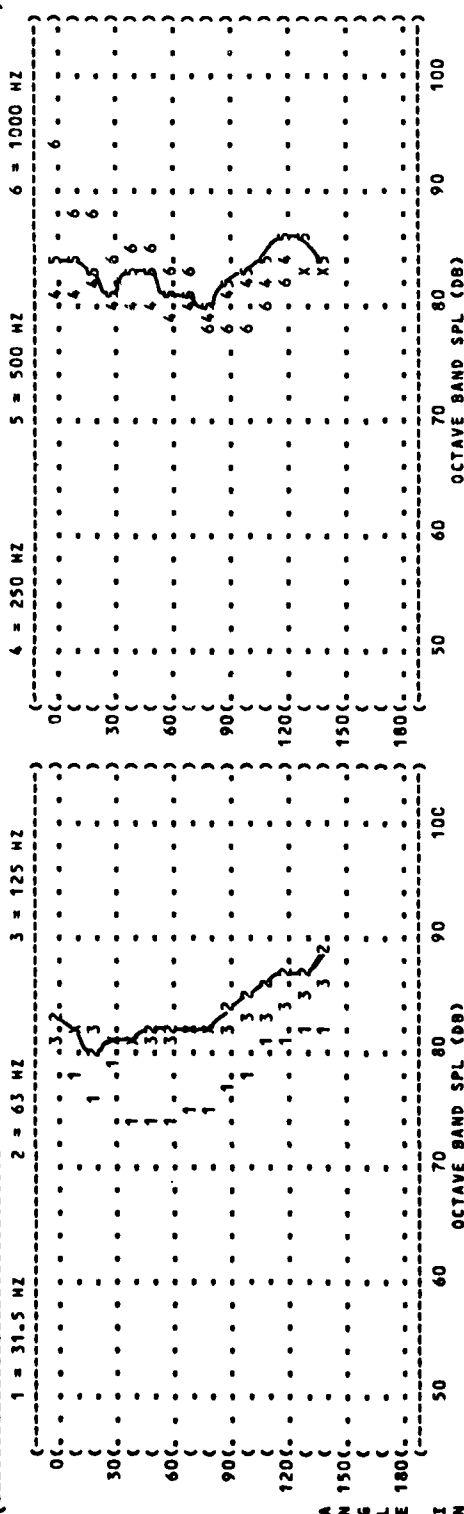
KC-10A AIRCRAFT	() TAKEOFF RATED THRUST
284-2062	() ENGINE NO.

(C76-50C2
(FAR FIELD NOISE
(ENGINE NO. 1
(FREE FLOW

(FAN FIELD NOISE (FREE FLOW



```
( ( 3 DISTANCE = 100 METERS ) OMEGA 1.4 )
( ( ) ) TEST 9S-005-001 )
( ( NOISE SOURCE/SUBJECT: ) RUN 07 )
( ( ) )
( ( OPERATION: ) METEOROLOGY: = 15 C )
( ( ) ) TEMP )
( ( KC-10A AIRCRAFT ) BAR PRESS = -760 M HG )
( ( FREE FLOW ) REL HUMID = 70 % )
( ( CF6-SOC2 ) )
( ( FAR FIELD NOISE ) )
( ( ) ) PAGE 6 )
```



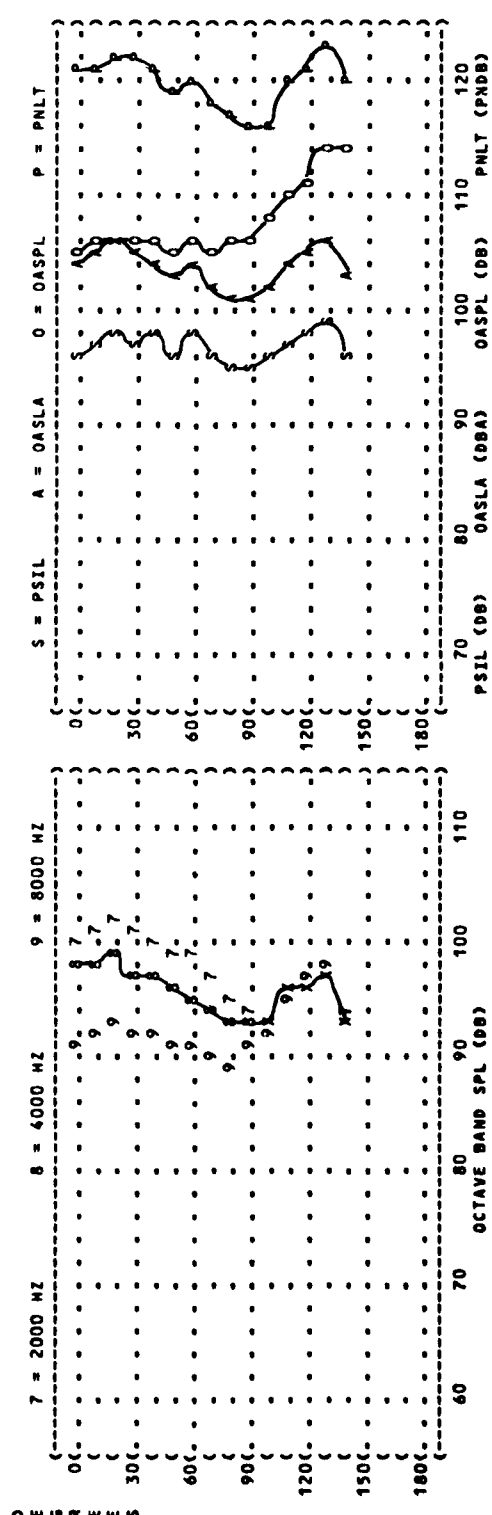
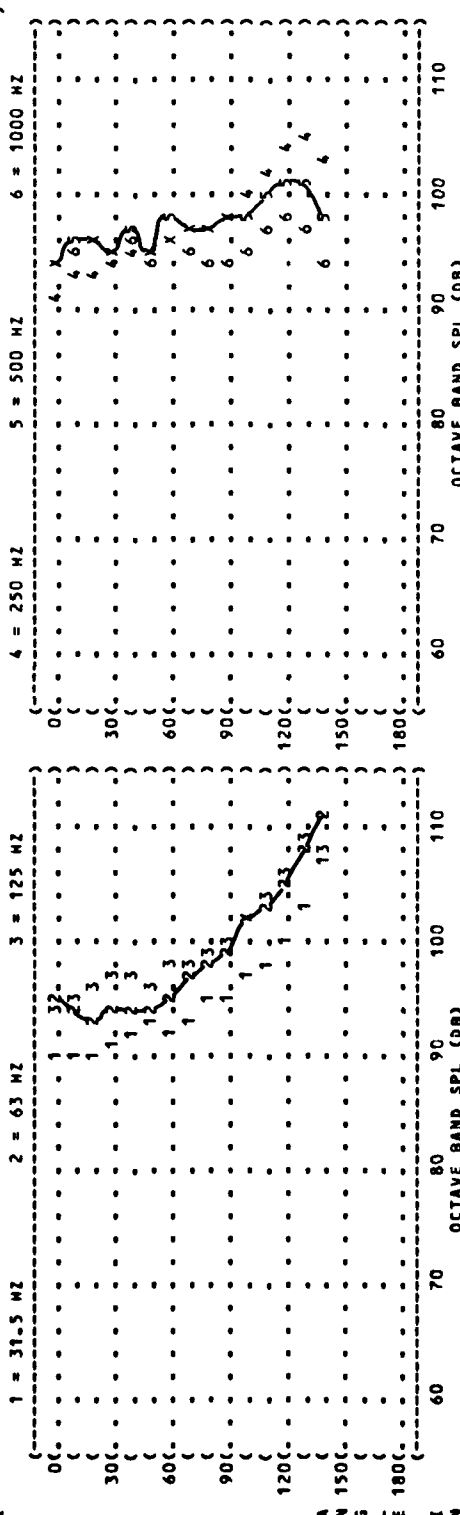
[illegible]

FIGURE: ACOUSTIC POWER LEVEL (PWL)

4

IDENTIFICATION:
 OMEGA 1.4
 TEST BS-005-001
 RUN 02
 26 JUL 82
 PAGE 3

NOISE SOURCE/SUBJECT: KC-10A AIRCRAFT
 CF6-50C2
 FAR FIELD NOISE

OPERATION:
 45X RPM
 ENGINE NO. 1
 FREE FLOW

METEOROLOGY:
 TEMP = 18 C
 BAR PRESS = .735 M HG
 REL HUMID = 70 %

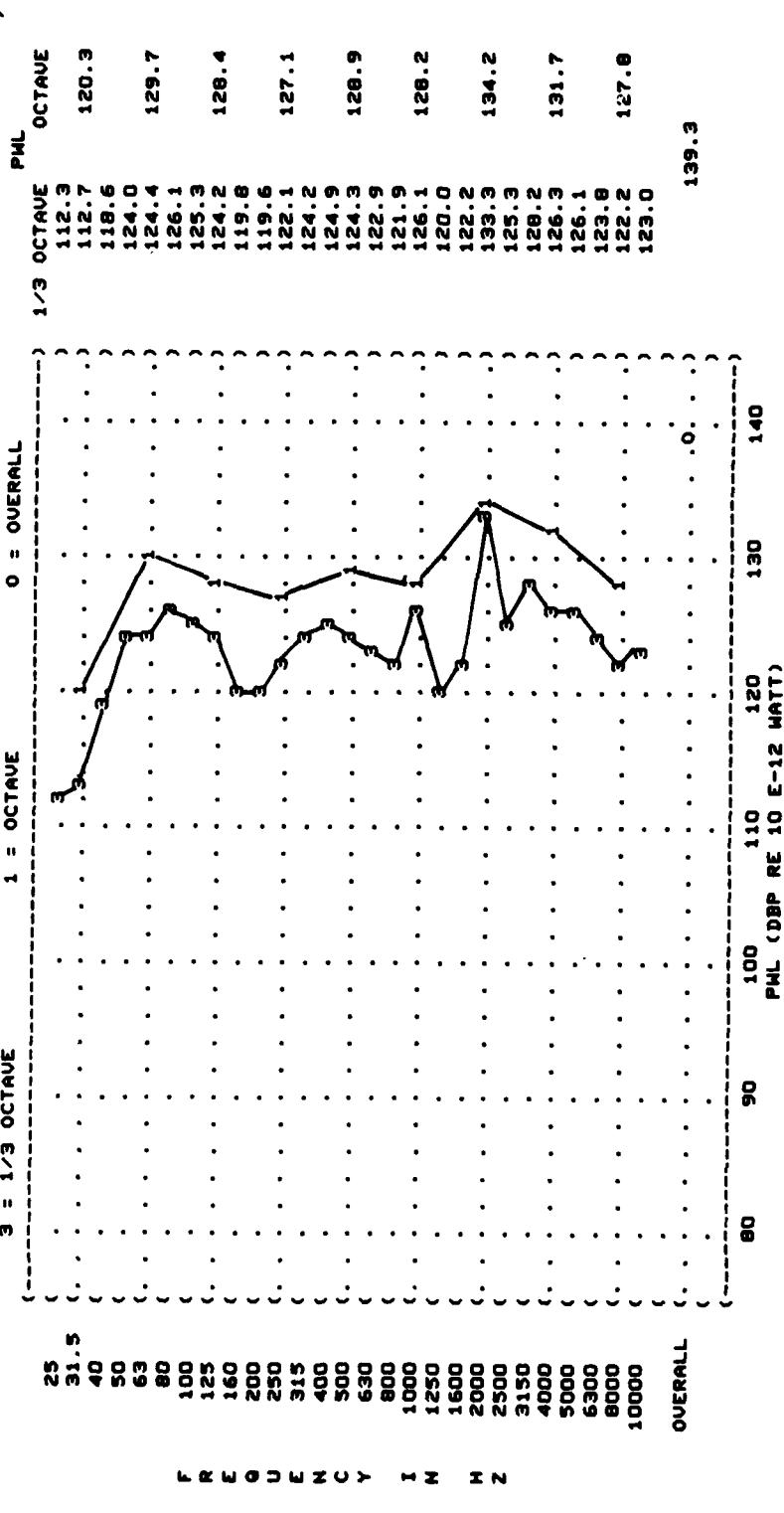


FIGURE: ACOUSTIC POWER LEVEL [PWL]

4

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 03

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

TEMP = 18 C

KC-10A AIRCRAFT

70X RPM

BAR PRESS = .735 M HG

CFB-50C2

ENGINE NO. 1

REL HUMID = 70 X

FAR FIELD NOISE

FREE FLOW

PAGE 3

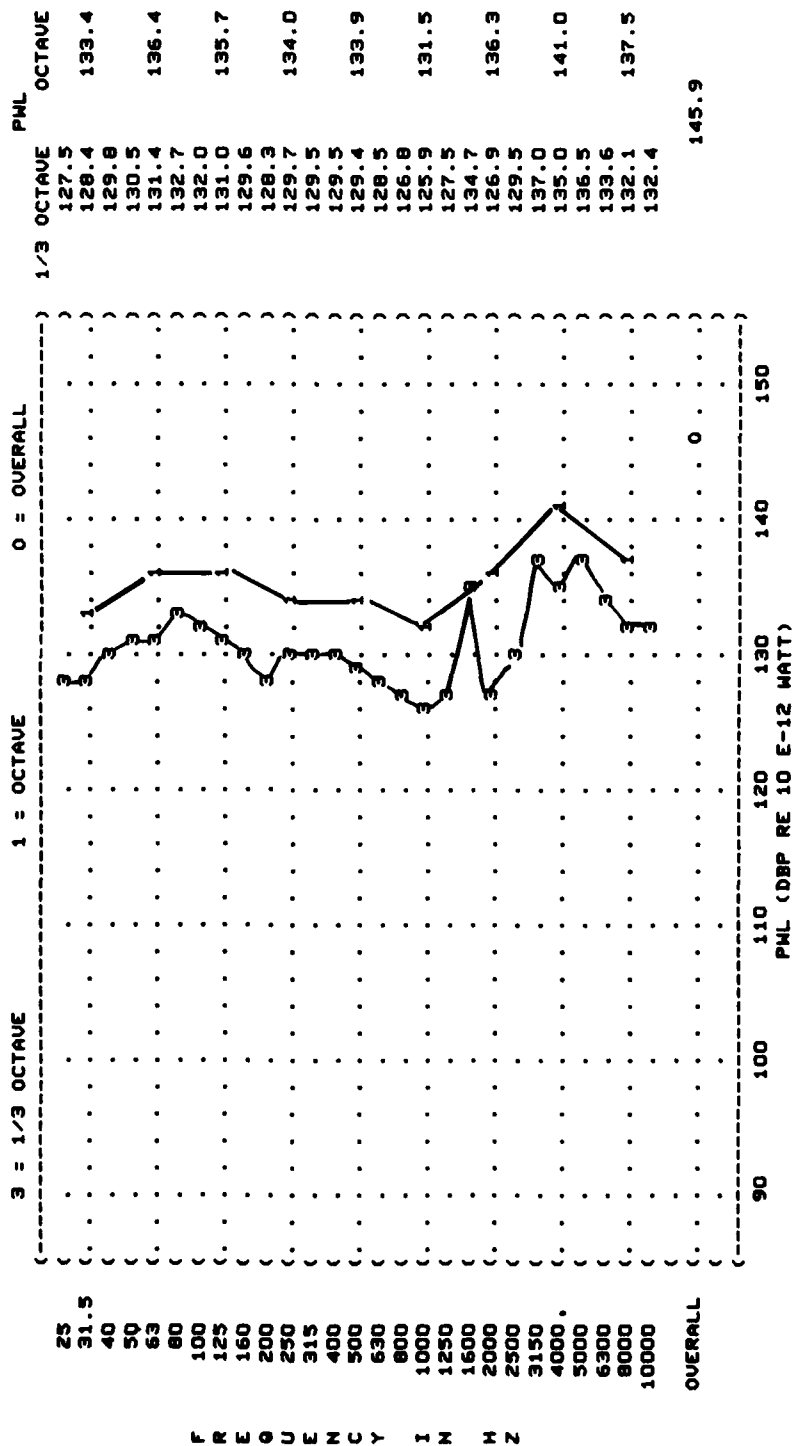


FIGURE: ACOUSTIC POWER LEVEL (PWL)

OMEGA 1.4

TEST 85-005-001

3

20 JUL 82

PAGE 3

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NOCTAUF **NOCTAUF**

140.1

146.5
149.3
149.3

147.0

143.2 133.0

149.1

140.3 133.6

146.6

145.7 130.5

144.1

142.9 147.8

140.3

138.6 **143.7**

136.7

138.2 142.6

135.9

136.5 141.4

139.4
139.4

137.5 142.6

0.001

159.0

—



RE: ACOUSTIC POWER LEVEL [PWL]

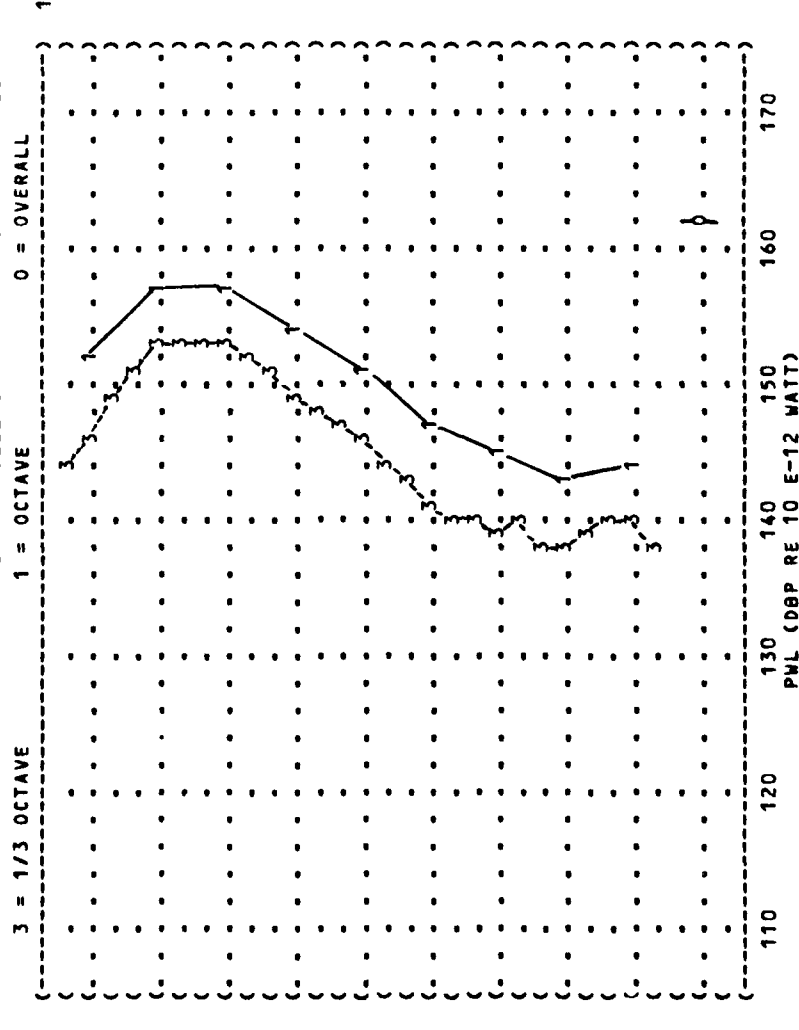


FIGURE: ACOUSTIC POWER LEVEL (PWL)

4

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 07

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

TEMP = 18 C

45X RPM ALL ENGINES

BAR PRESS = .735 M HG

CF6-50C2

FREE FLOW

REL HUMID = 70 X

FAR FIELD NOISE

PAGE 3

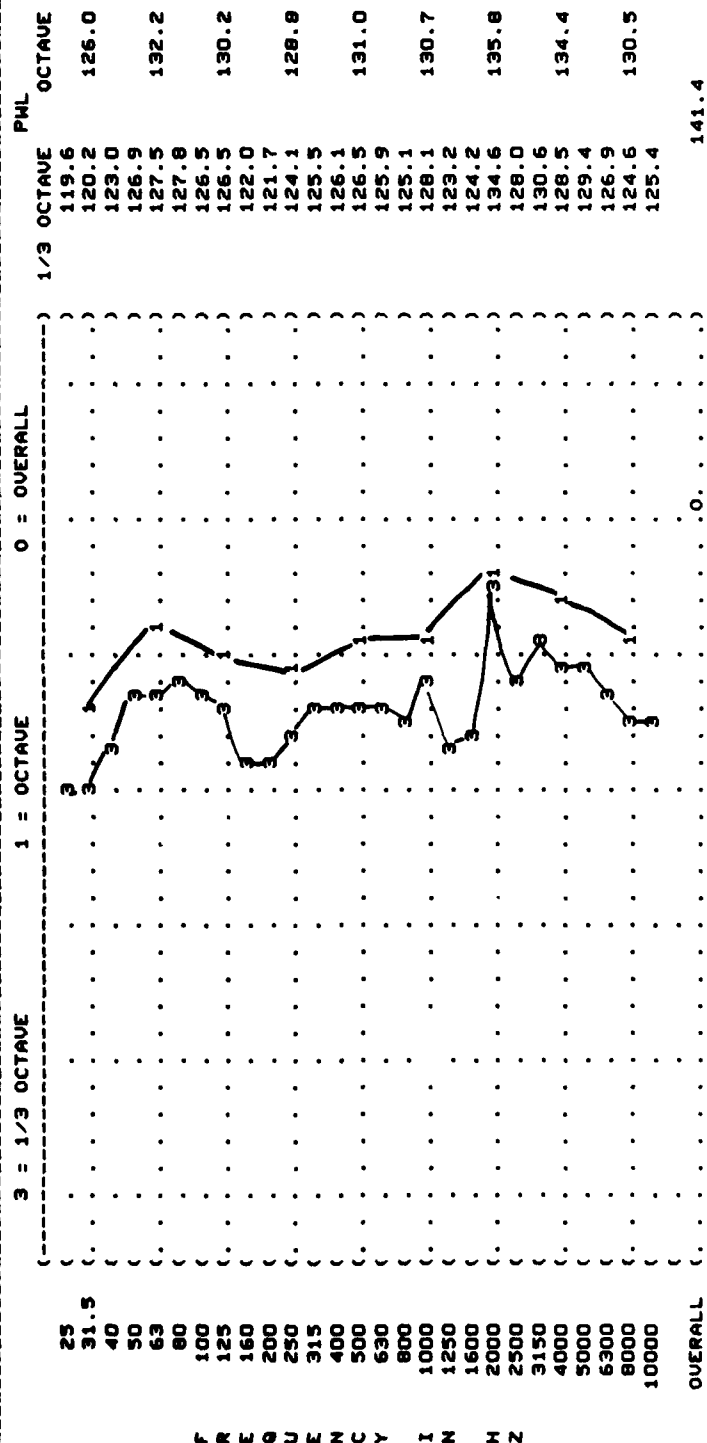


TABLE: DIRECTIVITY INDEX (DB)																			IDENTIFICATION:																		
6																			OMEGA 1.4																		
NOISE SOURCE/SUBJECT:																			TEST BS-005-001																		
(																			RUN 01																		
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TABLE: DIRECTIVITY INDEX (DB)																				IDENTIFICATION:	
6																				OMEGA 1.4	
NOISE SOURCE/SUBJECT:																				TEST 88-005-001	
(OPERATION:																				RUN 02	
(KC-10A AIRCRAFT																				26 JUL 82	
(CPG-SOC2																				PAGE 4	
(FAR FIELD NOISE																					
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																					
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																
NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY: TEST BS-005-001																
KC-10A AIRCRAFT (70X RPH) TEMP = 18 C																
CF6-SOC2 (ENGINE NO. 1) BAR PRESS = .735 M HG																
FAR FIELD NOISE (FREE FLOW) REL HUMID = 70 X																
FREQ (HZ) 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																
ANGLE (DEGREES)																
1/3 OCTAVE																
25	-7	-7	-6	-6	-6	-3	-1	-2	0	-1	1	2	2	4	5	5
31.5	-8	-8	-6	-6	-4	-3	-3	-4	-3	-2	0	0	1	5	7	7
40	-9	-8	-8	-6	-7	-5	-4	-4	-2	1	2	2	2	4	5	5
50	-8	-7	-8	-5	-4	-5	-4	-4	-3	-2	0	2	3	5	6	6
63	-7	-7	-8	-6	-6	-6	-4	-4	-2	-1	1	0	3	5	5	5
80	-6	-7	-6	-5	-4	-4	-4	-2	-3	-1	1	2	3	5	5	5
100	-4	-5	-3	-4	-4	-4	-4	-3	-2	-1	1	2	3	4	5	5
125	-3	-4	-3	-4	-3	-3	-2	-3	-2	0	0	2	3	4	4	4
160	-4	-3	-2	-3	-2	-2	-2	-3	-2	0	0	2	3	4	2	3
200	-2	-1	-1	-1	-1	-2	-3	-2	-2	0	0	2	3	4	3	3
250	1	-1	0	-1	-1	-2	-3	-2	-1	0	0	4	4	3	1	1
315	-4	-3	-1	-1	-1	-2	-2	-2	-1	0	1	2	5	2	0	0
400	-3	-4	-3	-1	0	1	-1	-2	-2	-1	1	3	4	1	-2	1
500	-2	-2	-1	0	1	-1	-1	-3	-2	-2	1	3	5	1	-2	1
630	-2	-1	0	0	1	0	0	-3	-2	-2	0	2	5	1	-1	1
800	-2	-1	0	1	2	0	1	-4	-2	-2	0	1	4	1	-1	1
1000	0	1	2	3	4	0	1	-3	-3	-3	-2	0	3	1	-2	1
1250	3	3	4	4	5	2	3	-1	-4	-4	-4	-6	-4	-6	-9	1
1600	4	4	5	4	6	4	3	-1	-4	-3	-3	-1	-1	-3	-5	1
2000	3	4	5	4	5	3	2	-1	-4	-3	-3	-1	-1	-3	-5	1
2500	3	5	5	4	5	3	2	-2	-5	-5	-4	-6	-3	-5	-8	1
3150	6	8	7	3	6	4	2	-2	-5	-8	-7	-6	-2	-5	-9	1
4000	0	1	1	2	3	4	5	-1	-2	-3	-3	-1	-1	-5	-9	1
5000	-1	0	0	0	3	4	5	0	0	-4	-4	-2	1	-3	-7	1
6300	1	2	2	2	4	3	5	0	-1	-3	-4	-3	-2	-4	-7	1
8000	1	2	3	2	4	4	5	0	-3	-4	-5	-4	-4	-5	-9	1
10000	1	2	2	2	4	4	6	-1	-3	-5	-6	-3	-3	-5	-9	1
OCTAVE																
31.5	-8	-8	-7	-6	-5	-3	-3	-3	-2	0	1	1	1	5	6	6
63	-7	-7	-6	-6	-5	-4	-3	-3	-3	-1	1	1	3	5	6	6
125	-4	-4	-3	-4	-3	-3	-3	-2	-1	1	1	2	3	4	4	4
250	-1	-2	-1	-1	-2	-2	-2	-2	-1	0	3	4	3	1	1	1
500	-2	-2	-2	-1	0	-1	0	-3	-2	-1	1	3	4	1	-1	1
1000	1	2	3	3	4	1	2	-3	-3	-3	-2	0	2	0	-3	1
2000	4	4	5	4	6	4	3	-1	-4	-6	-6	-4	-3	-5	-8	1
4000	3	5	5	2	5	4	4	-1	-2	-5	-4	-3	-1	-4	-8	1
8000	1	2	2	2	4	4	5	0	-2	-4	-5	-3	-3	-4	-8	1
OVERALL	1	2	2	0	2	1	1	-2	-2	-2	-1	0	2	2	2	2

TABLE: DIRECTIVITY INDEX (DB)																								
6																								
NOISE SOURCE/SUBJECT:										(OPERATION:					) METEOROLOGY:					) IDENTIFICATION:				
KC-10A AIRCRAFT										(95X RPM					) TEMP = 18 C					) OMEGA 1.4				
CF6-SOC2										(ENGINE NO. 1					) BAR PRESS = .735 M HG					) TEST 8S-005-001				
FAR FIELD NOISE										(FREE FLOW					) REL HUMID = 70 %					) RUN 04				
																				) 26 JUL 82				
																				) 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	-12	-9	-9	-9	-7	-4	-5	-4	-4	-3	-5	-2	0	4	9									
31.5	-10	-10	-9	-10	-6	-6	-7	-6	-4	-4	-3	-2	3	5	9									
40	-12	-10	-11	-10	-8	-9	-8	-9	-7	-6	-3	-1	2	6	9									
50	-11	-9	-12	-9	-10	-10	-9	-9	-7	-6	-4	0	2	6	8									
63	-11	-10	-12	-9	-9	-10	-9	-7	-6	-4	-1	0	3	7	7									
80	-10	-9	-10	-10	-9	-8	-8	-7	-6	-4	-1	1	3	7	7									
100	-10	-10	-10	-8	-8	-8	-7	-6	-5	-4	-1	2	3	7	6									
125	-10	-9	-7	-7	-7	-6	-6	-5	-4	-3	-1	2	4	6	5									
160	-10	-9	-8	-7	-6	-6	-6	-5	-4	-2	1	3	4	6	4									
200	-10	-10	-8	-6	-5	-5	-5	-4	-3	-2	0	2	5	5	3									
250	-10	-9	-7	-6	-5	-5	-4	-3	-2	-1	0	2	5	5	2									
315	-10	-8	-6	-6	-5	-4	-3	-3	-2	-1	1	2	4	5	0									
400	-7	-6	-2	-3	-1	-1	-2	0	-1	0	1	2	3	3	-2									
500	-7	-6	-2	-2	-3	-3	-2	-2	-2	0	0	3	4	3	-2									
630	-7	-5	-2	-1	0	0	0	-2	-1	0	0	2	3	3	-2									
800	-5	-4	-2	-1	-1	1	0	-2	-3	-2	1	2	3	3	-2									
1000	-3	-1	1	1	2	2	1	-1	-3	-3	0	2	3	2	-3									
1250	0	1	1	3	2	1	0	-1	-3	-2	0	1	2	2	-3									
1600	1	1	3	4	3	2	0	0	-3	-3	-1	0	1	0	-6									
2000	3	4	6	6	4	4	0	-1	-4	-5	-5	-2	0	-3	-10									
2500	0	2	3	4	3	3	1	0	-3	-3	-1	0	1	-1	-8									
3150	0	1	3	4	3	3	0	0	-2	-2	-1	0	2	-2	-8									
4000	1	3	4	4	3	2	-2	-1	-3	-4	-2	1	4	-3	-9									
5000	-1	1	2	3	2	2	-1	-1	-2	-1	1	2	2	-2	-8									
6300	-3	-2	-1	0	0	-1	-3	-3	-4	-2	2	4	5	0	-7									
8000	-2	-1	0	1	1	0	-2	-1	-3	-1	2	3	3	0	-6									
10000	-1	0	1	2	2	1	-1	-1	-4	-2	1	3	3	-1	-5									
OCTAVE																								
31.5	-12	-10	-10	-10	-7	-7	-7	-7	-5	-5	-3	-1	2	5	9									
63	-11	-9	-11	-9	-9	-9	-9	-7	-6	-4	-1	0	3	7	7									
125	-10	-10	-8	-7	-7	-7	-6	-5	-4	-3	0	2	4	6	5									
250	-10	-9	-7	-6	-5	-5	-4	-3	-2	-1	1	2	5	5	2									
500	-7	-6	-2	-2	-1	-1	-2	-1	-1	0	0	3	4	3	-2									
1000	-2	-1	0	1	1	1	0	-1	-3	-2	0	2	3	3	-3									
2000	2	3	5	5	4	3	0	-1	-4	-4	-3	-1	1	-2	-8									
4000	0	2	3	3	3	2	-1	-1	-3	-2	1	1	3	-2	-8									
8000	-2	-1	0	0	0	0	-2	-2	-4	-2	2	4	4	0	-7									
OVERALL	-6	-5	-4	-3	-3	-3	-4	-4	-4	-3	-1	1	3	5	5									

TABLE: DIRECTIVITY INDEX (DB)															
6															
NOISE SOURCE/SUBJECT:															
KC-10A AIRCRAFT															
CF6-50C2															
FAR FIELD NOISE															
FREQ (HZ)															
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180															
1/3 OCTAVE															
25	-13	-11	-12	-10	-10	-8	-7	-7	-4	-5	-4	-2	-2	5	10
31.5	-13	-12	-12	-12	-10	-10	-9	-8	-7	-7	-6	-4	-1	6	10
40	-14	-12	-14	-12	-11	-12	-11	-11	-10	-8	-6	-3	2	7	9
50	-13	-13	-14	-12	-13	-12	-12	-11	-9	-7	-5	-1	1	6	9
63	-14	-13	-14	-13	-13	-14	-13	-11	-8	-7	-5	-2	1	9	6
80	-14	-14	-13	-12	-11	-11	-10	-10	-8	-7	-5	-1	1	8	7
100	-14	-14	-12	-11	-10	-10	-10	-8	-7	-5	-3	-1	2	8	6
125	-15	-15	-11	-11	-10	-10	-8	-6	-6	-6	-4	0	1	8	6
160	-15	-15	-12	-11	-10	-9	-8	-7	-6	-4	-2	1	3	8	6
200	-14	-14	-12	-9	-9	-8	-8	-6	-6	-4	-2	2	3	7	6
250	-13	-13	-11	-9	-9	-8	-7	-6	-5	-3	-2	2	3	7	6
315	-12	-12	-10	-8	-7	-7	-7	-5	-5	-2	-1	3	4	6	4
400	-10	-10	-9	-7	-6	-6	-6	-4	-5	-2	-1	4	4	5	4
500	-10	-10	-9	-7	-6	-5	-5	-4	-5	-1	1	4	4	5	2
630	-10	-10	-9	-7	-6	-5	-5	-4	-5	0	1	4	4	5	0
800	-8	-8	-7	-6	-5	-4	-4	-3	-5	0	2	4	4	4	-1
1000	-8	-8	-6	-5	-4	-4	-4	-2	-3	0	2	4	4	4	-2
1250	-7	-8	-6	-5	-4	-3	-3	-2	-1	1	2	4	3	4	-2
1600	-7	-7	-6	-5	-4	-3	-3	-1	-1	1	2	4	3	3	-4
2000	-6	-7	-5	-4	-3	-3	-3	-1	-1	1	2	4	2	2	-4
2500	-3	-5	-5	-4	-3	-2	-3	-1	-1	1	1	5	2	2	-5
3150	-6	-6	-3	-4	-3	-2	-2	0	-1	1	2	4	2	2	-6
4000	-6	-7	-4	-4	-3	-2	-3	0	0	1	2	4	2	1	-6
5000	-6	-7	-5	-5	-4	-3	-3	0	1	2	2	5	2	0	-7
6300	-7	-8	-6	-6	-5	-4	-4	-1	0	2	4	4	2	-1	-8
8000	-8	-8	-6	-6	-5	-4	-4	-2	-1	0	3	5	4	2	-7
10000	-8	-8	-6	-5	-4	-3	-3	0	1	0	2	5	3	1	-5
OCTAVE															
31.5	-13	-12	-13	-12	-11	-10	-9	-9	-7	-7	-5	-3	0	6	10
63	-13	-13	-14	-13	-12	-12	-12	-10	-8	-7	-5	-1	1	8	8
125	-15	-15	-12	-11	-10	-9	-8	-7	-6	-5	-3	0	2	8	6
250	-13	-13	-11	-9	-9	-8	-7	-6	-5	-3	-1	2	3	7	6
500	-10	-10	-9	-7	-7	-6	-6	-4	-5	-1	0	4	4	5	3
1000	-8	-8	-7	-6	-5	-4	-4	-2	-3	0	2	4	4	4	-1
2000	-5	-6	-4	-3	-3	-3	-3	-1	-1	1	2	5	3	3	-5
4000	-6	-7	-4	-4	-3	-2	-2	0	0	1	2	4	2	1	-6
8000	-8	-8	-6	-6	-5	-4	-4	-2	-1	0	3	5	3	0	-7
OVERALL															
	-13	-13	-11	-10	-9	-9	-8	-7	-6	-4	-3	1	2	7	7

TABLE: DIRECTIVITY INDEX (DB)																			
6																			
NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY: (TEMP = 18 C)																			
(KC-10A AIRCRAFT (45X RPM ALL ENGINES) BAR PRESS = .735 M HG																			
(CF6-50C2 (FREE FLOW) REL HUMID = 70 %																			
(FAR FIELD NOISE () 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	-1	-1	0	0	-3	-2	-1	-1	-2	-1	-1	3	2	4	2				
31.5	0	-1	0	0	-3	-3	-3	-2	-2	-2	0	4	5	4	4				
40	-4	0	-3	1	-3	-2	-2	-3	-2	0	1	1	2	3	5				
50	-3	-4	-1	-2	-2	-2	-2	-3	-2	-1	1	1	2	2	6				
63	-2	-4	-3	-4	-4	-4	-2	-1	-1	0	1	2	4	2	4				
80	0	-2	-3	-5	-4	-3	-3	-2	-2	0	1	2	3	3	5				
100	-1	-2	-1	-3	-3	-2	-4	-2	0	-1	1	1	3	4	4				
125	-1	0	-1	0	-1	-1	0	1	0	0	1	1	0	2	3				
160	-1	0	-1	0	-1	-1	0	0	-1	0	1	1	1	2	3				
200	1	1	2	1	0	0	-1	-1	-1	0	1	0	1	1	3				
250	0	1	0	0	-1	-1	-2	-1	-2	0	0	0	3	2	2				
315	0	0	1	-2	-1	-1	-2	-1	-2	0	1	1	3	3	2				
400	0	1	0	-3	-1	0	-2	-2	-1	0	1	1	4	2	1				
500	1	0	0	-2	0	0	-2	-2	-3	-1	1	2	3	3	1				
630	1	1	2	-1	1	1	-1	-2	-4	-3	-2	1	3	4	2				
800	5	2	3	-1	2	2	-1	-1	-4	-4	-3	-1	2	3	3				
1000	13	6	6	2	2	3	1	2	-5	-5	-5	-4	-2	0	0				
1250	10	7	6	3	4	3	1	0	-4	-5	-5	-5	-3	-1	-3				
1600	9	8	7	4	3	3	1	0	-6	-6	-6	-6	-4	-2	-3				
2000	8	10	6	5	2	6	2	-1	-7	-9	-9	-11	-11	-9	-10				
2500	5	6	6	5	4	3	1	-1	-6	-5	-5	-4	-2	-1	-3				
3150	3	3	3	2	1	2	1	-1	-5	-4	-4	-1	2	3	2				
4000	6	7	6	3	3	3	3	2	-4	-5	-6	-6	-4	-1	-2				
5000	7	7	5	3	3	3	3	2	-3	-4	-6	-6	-5	-2	-2				
6300	5	5	5	2	3	3	3	2	-3	-5	-6	-6	-4	-1	-1				
8000	4	5	5	2	3	3	2	1	-4	-4	-3	-2	-2	1	0				
10000	4	5	5	4	1	2	1	-2	-5	-3	-2	0	1	3	1				
OCTAVE																			
31.5	0	-2	0	-4	-4	-4	-4	-3	-3	-1	0	3	3	3	4				
63	-2	-3	-4	-3	-3	-3	-2	-2	-2	0	1	1	3	3	5				
125	-1	-1	-1	-1	-2	-1	-1	-1	0	-1	1	1	2	3	3				
250	0	0	1	-1	-1	-1	-2	-1	-1	0	1	1	3	2	2				
500	1	1	1	-2	0	0	-2	-2	-3	-1	0	1	3	3	2				
1000	11	5	5	2	2	3	1	1	-4	-5	-3	0	0	1	1				
2000	8	9	6	5	3	5	1	-1	-6	-8	-8	-7	-6	-7	-7				
4000	5	5	5	3	2	3	2	1	-4	-4	-5	-3	0	1	0				
8000	5	5	5	2	3	3	3	1	-4	-4	-4	-3	-2	0	-1				
OVERALL																			
	6	5	4	2	1	2	0	-1	-3	-3	-2	-1	1	1	1				

TABLE: DIRECTIVITY INDEX (DB)																
IDENTIFICATION:																
6																
NOISE SOURCE/SUBJECT:																
OPERATION:																
METEOROLOGY:																
TEMP = 18 C																
BAR PRESS = .735 M HG																
REL HUMID = 70 %																
PAGE 4																
FREQ (HZ)																
ANGLE (DEGREES)																
1/3 OCTAVE																
25	-8	-8	-7	-6	-5	-3	-3	-2	-2	-1	0	1	5	7		
31.5	-8	-8	-7	-7	-5	-7	-5	-5	-4	-2	0	4	4	9		
40	-9	-9	-8	-7	-7	-7	-6	-4	-3	0	0	1	1	5	8	
50	-8	-9	-10	-8	-9	-7	-7	-5	-4	-2	0	1	1	5	9	
63	-8	-8	-10	-9	-8	-8	-5	-4	-3	-1	0	3	6	8		
80	-8	-9	-9	-9	-9	-8	-6	-5	-4	-1	1	2	6	8		
100	-8	-9	-7	-7	-8	-6	-5	-4	-3	0	1	3	6	6		
125	-8	-7	-6	-6	-6	-5	-4	-3	-3	0	1	4	6	5		
160	-9	-7	-6	-5	-5	-5	-4	-3	-3	-1	2	3	6	5		
200	-9	-7	-6	-5	-5	-5	-4	-3	-2	0	2	4	5	4		
250	-9	-7	-5	-5	-5	-4	-3	-3	-2	0	2	4	5	3		
315	-8	-6	-5	-4	-5	-3	-2	-1	0	0	2	3	5	3		
400	-4	-4	-1	-2	-4	1	-2	-2	1	1	1	3	4	1		
500	-2	0	-3	-1	-3	-1	0	-1	0	0	3	3	4	0		
630	-5	-3	-2	0	-1	0	0	-1	-1	0	2	3	3	0		
800	-2	-2	0	-1	-1	1	1	-1	-1	0	2	3	2	-1		
1000	0	1	0	0	2	1	0	-1	-2	-1	1	3	2	-1		
1250	1	2	3	2	1	0	0	-1	-2	-1	1	2	2	0		
1600	3	3	4	2	0	1	0	-2	-2	-1	1	2	1	-2		
2000	4	4	5	4	2	2	0	-3	-4	-5	-2	0	1	-3		
2500	1	2	3	2	1	2	0	-1	-2	-2	0	0	1	-3		
3150	1	3	3	2	1	2	0	-1	-2	-3	0	1	1	-2		
4000	4	4	5	3	2	1	-1	-2	-3	-3	1	1	3	-1		
5000	1	2	3	1	1	0	-1	-2	-1	0	1	2	2	-2		
6300	-2	-1	0	-1	-2	-2	-3	-4	-2	0	2	4	5	0		
8000	-1	-1	0	-1	-1	-2	-2	-3	-2	-1	2	3	5	0		
10000	0	1	1	0	0	-1	-1	-4	-3	-1	1	3	4	1		
OCTAVE																
31.5	-8	-8	-9	-7	-6	-6	-5	-4	-3	-1	0	2	5	8		
63	-8	-9	-10	-8	-9	-8	-6	-5	-4	-1	0	2	5	8		
125	-8	-8	-7	-6	-6	-5	-5	-4	-3	0	1	3	6	6		
250	-8	-7	-6	-5	-5	-4	-3	-2	-1	0	2	4	5	3		
500	-4	-2	-2	-3	-1	-3	0	-1	0	0	2	3	3	1		
1000	-1	0	1	0	1	1	0	-1	-1	0	1	3	2	-1		
2000	3	4	5	4	3	2	0	-2	-3	-4	-1	0	-3	-3		
4000	3	3	4	2	2	1	0	-1	-2	-2	1	1	2	-2		
8000	-1	-1	0	-1	-1	-2	-2	-3	-4	0	2	4	5	0		
OVERALL																
	-4	-3	-3	-3	-4	-3	-3	-3	-2	-1	1	3	5	6		

5

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

5

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 03
METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %
OPERATION:
70% RPM
ENGINE NO. 1
FREE FLOW
NOISE SOURCE/SUBJECT:
KC-10A AIRCRAFT
CF6-SOC2
FAR FIELD NOISE

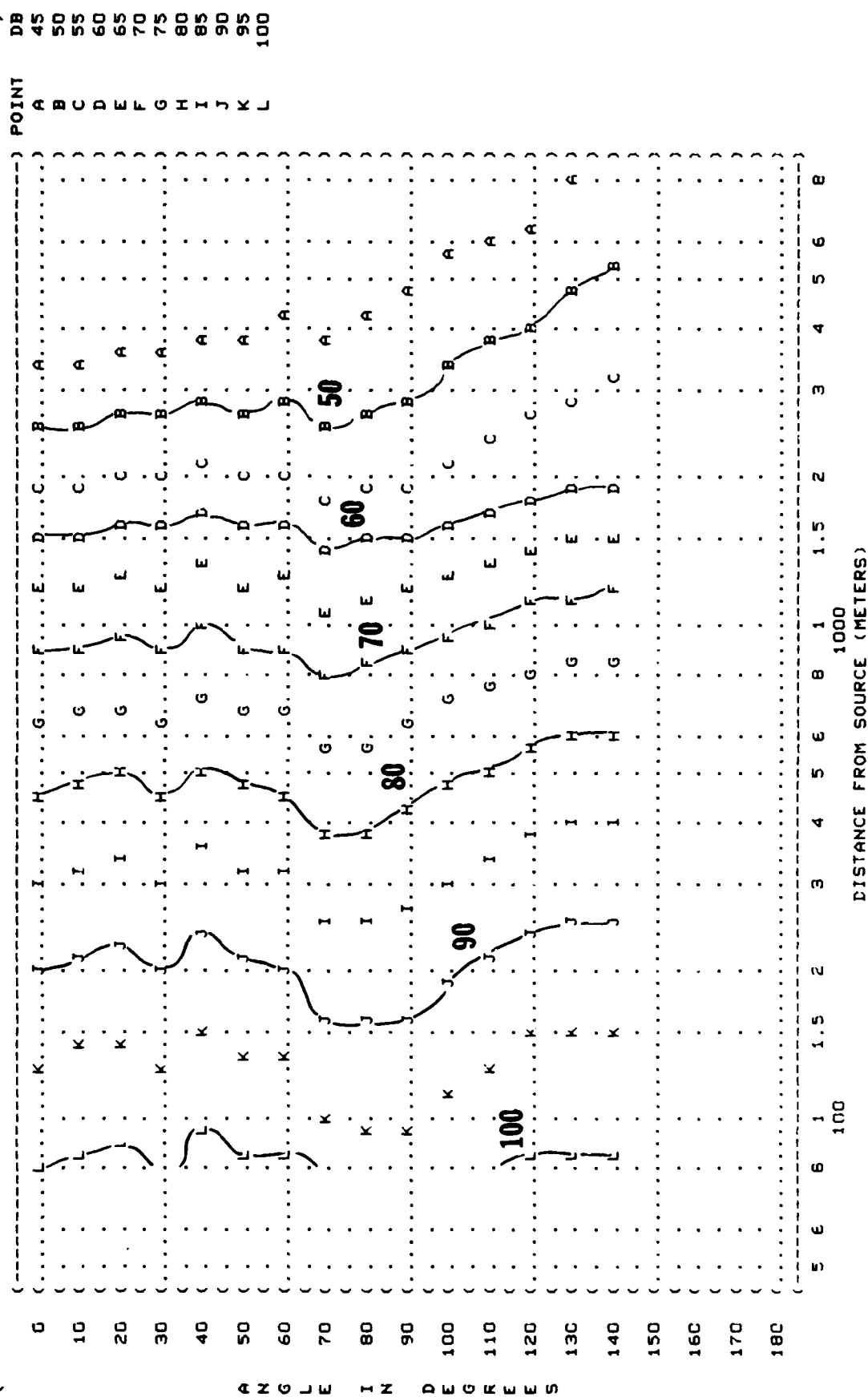


FIGURE: OVERALL SOUND PRESSURE LEVEL [OASPL]
5 EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
CF6-SOC2
FAR FIELD NOISE

TAKEOFF RATED THRUST
ENGINE NO. 1
FREE FLOW

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

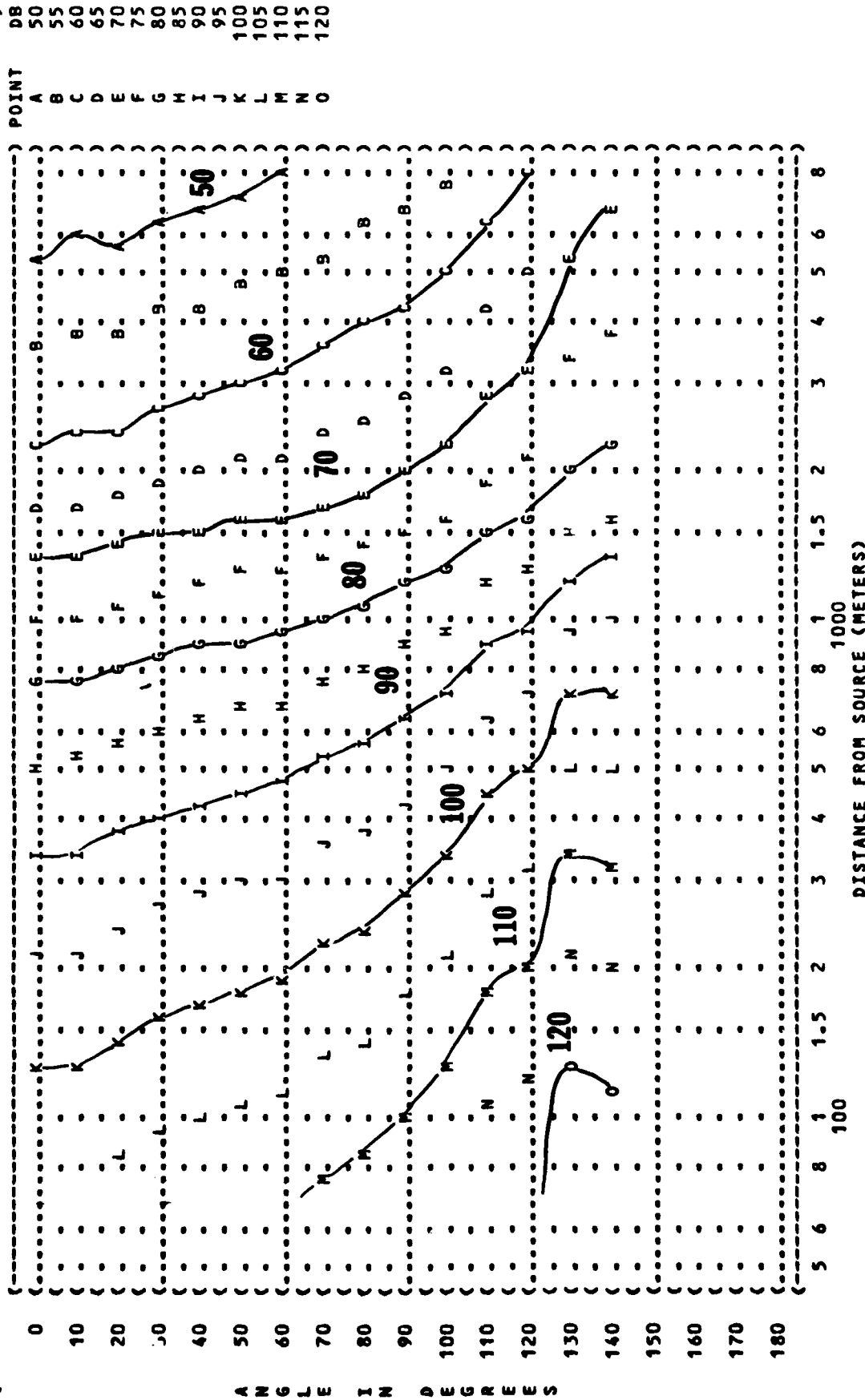
OMEGA 1.4

TEST BS-005-001

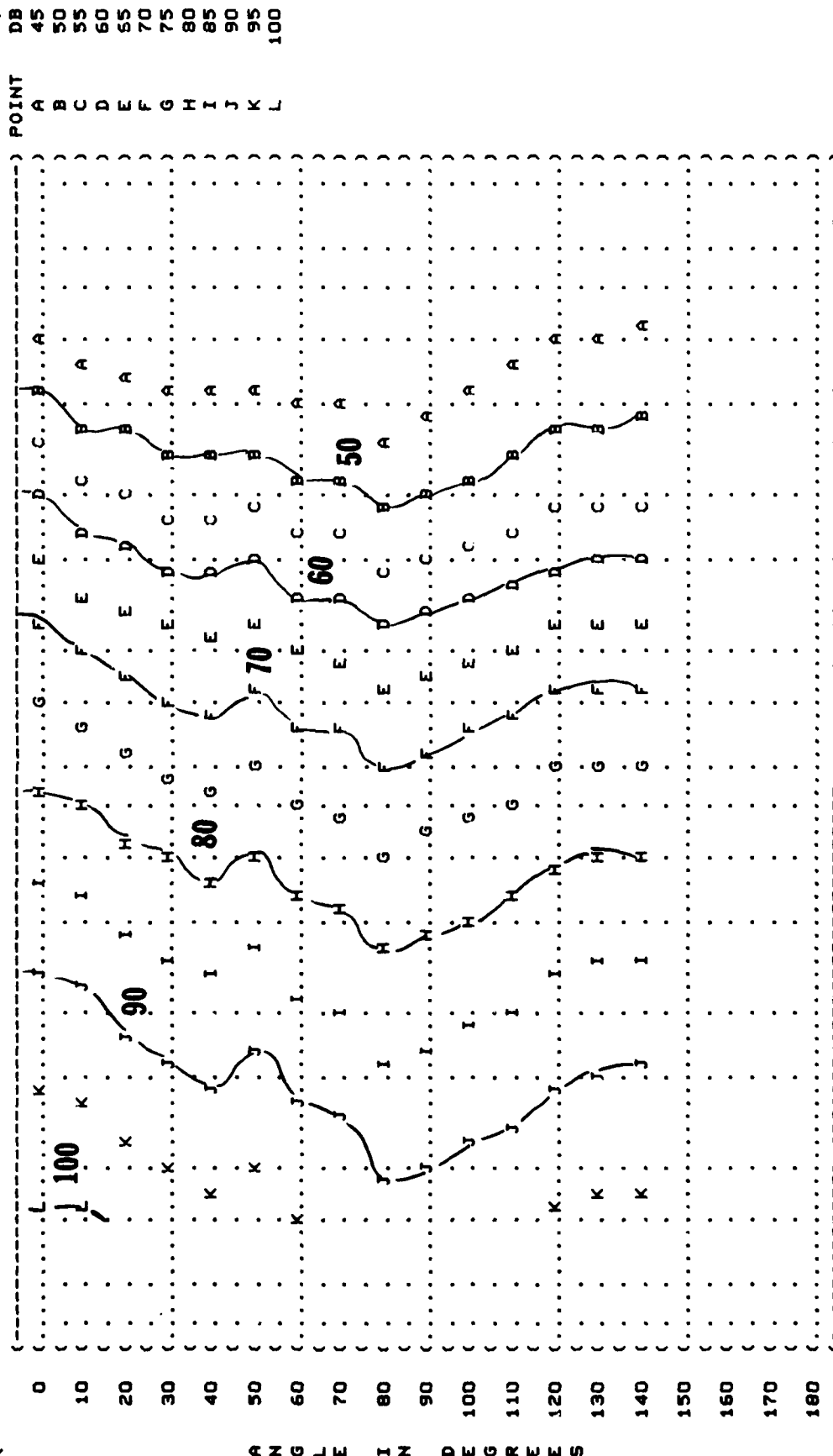
RUN 06

26 JUL 82

PAGE 13



(FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)
 (5
 (EQUAL LEVEL CONTOURS (DB)
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST BS-005-001
 () RUN 07
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () OPERATION:
 () 45% RPM ALL ENGINES
 () FREE FLOW
 () NOISE SOURCE/SUBJECT:
 () KC-10A AIRCRAFT
 () CF6-50C2
 () FAR FIELD NOISE
 () PAGE 13

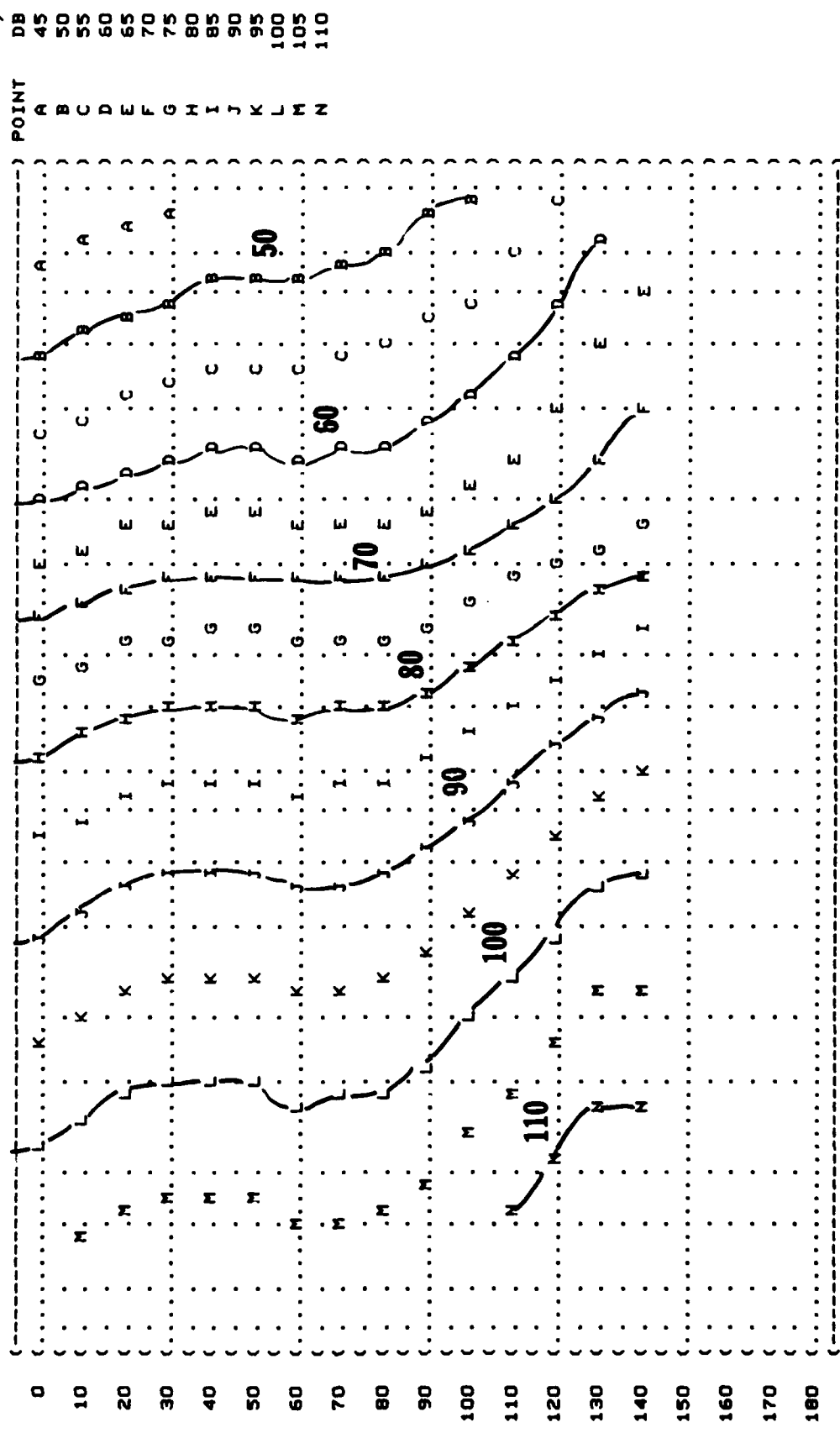


ANGLES

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

5

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) IDENTIFICATION:)
 KC-10A AIRCRAFT (95X RPM) TEMP = 15 C) OMEGA 1.4
 CF6-50C2 (ENGINE NO. 1) BAR PRESS = .760 M HG) TEST BS-005-001
 FAR FIELD NOISE (FREE FLOW) REL HUMID = 70 %) RUN 04
) 26 JUL 82
) PAGE 13



DISTANCE FROM SOURCE (METERS)

FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)
 5
 EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

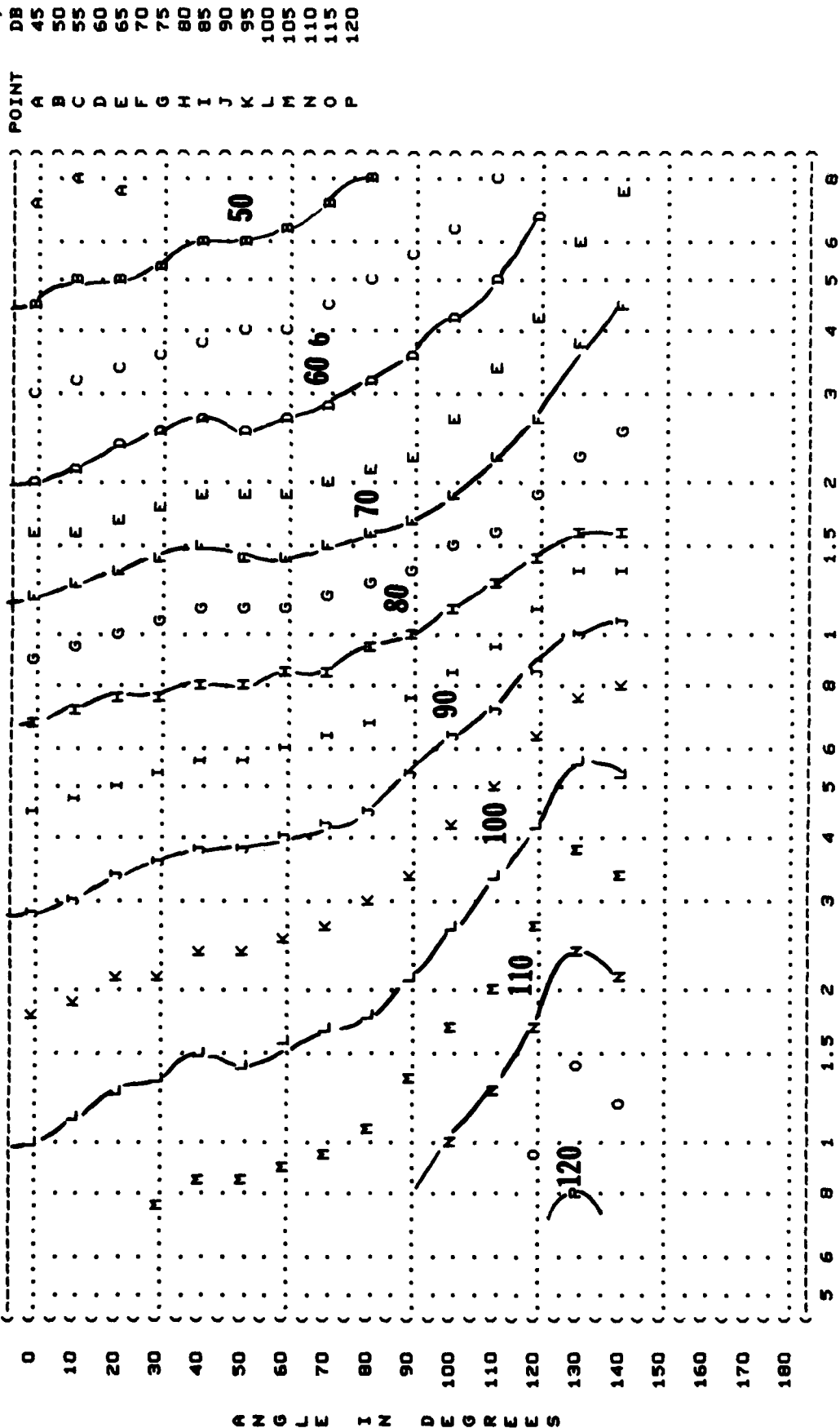
IDENTIFICATION:
 OMEGA 1.4
 TEST BS-005-001
 RUN 05

KC-10A AIRCRAFT
 CF6-50C2
 FAR FIELD NOISE

MAXIMUM CONTINUOUS POWER
 ENGINE NO. 1
 FREE FLOW

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

PAGE 13



DISTANCE FROM SOURCE (METERS)

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

5

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 08

NOISE SOURCE/SUBJECT:

OPERATION:

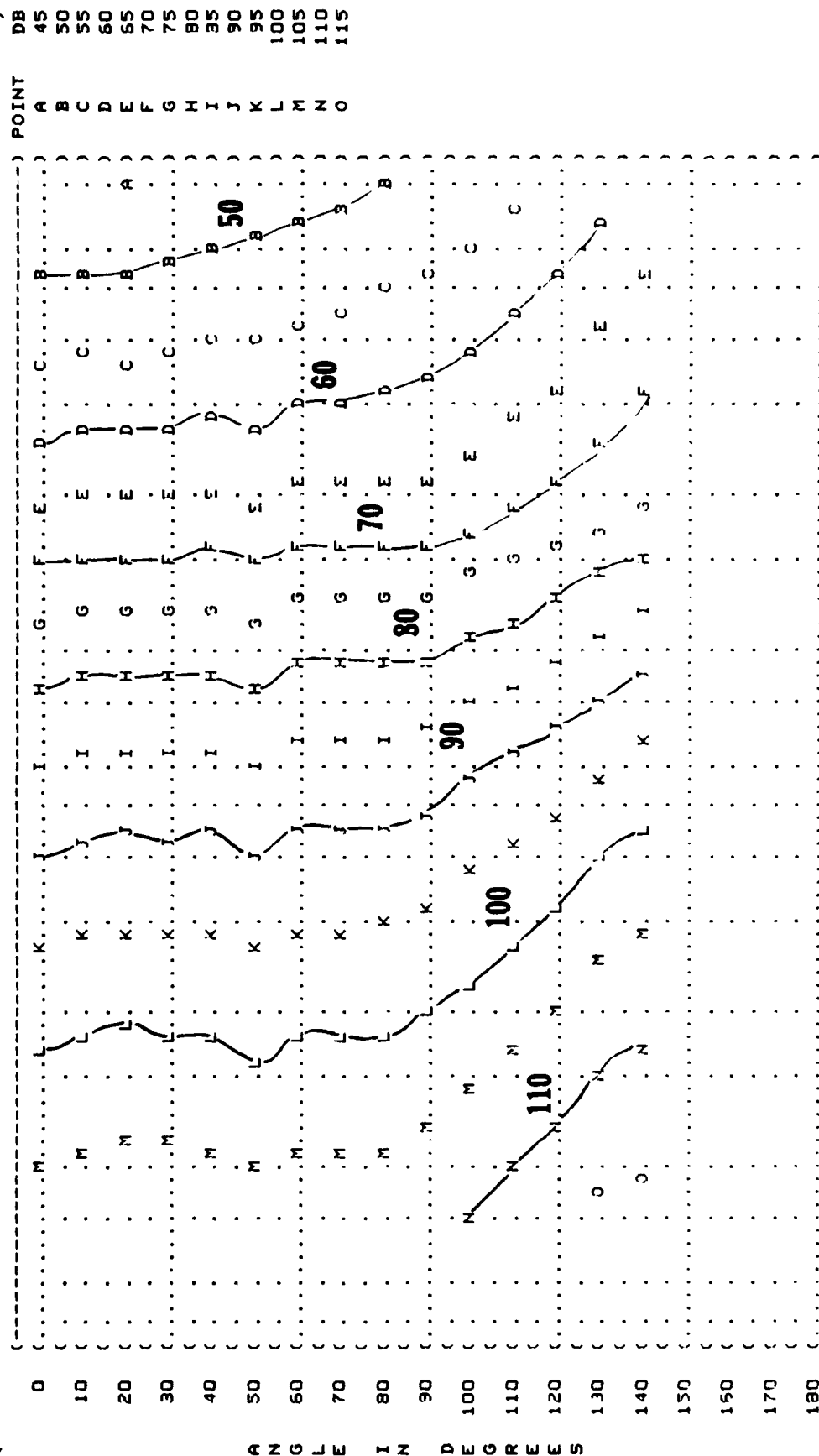
METEOROLOGY:

KC-10A AIRCRAFT
CF6-S0C2
FAR FIELD NOISE

95% RPM ALL ENGINES
FREE FLOW

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

PAGE 13



DISTANCE FROM SOURCE (METERS)

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

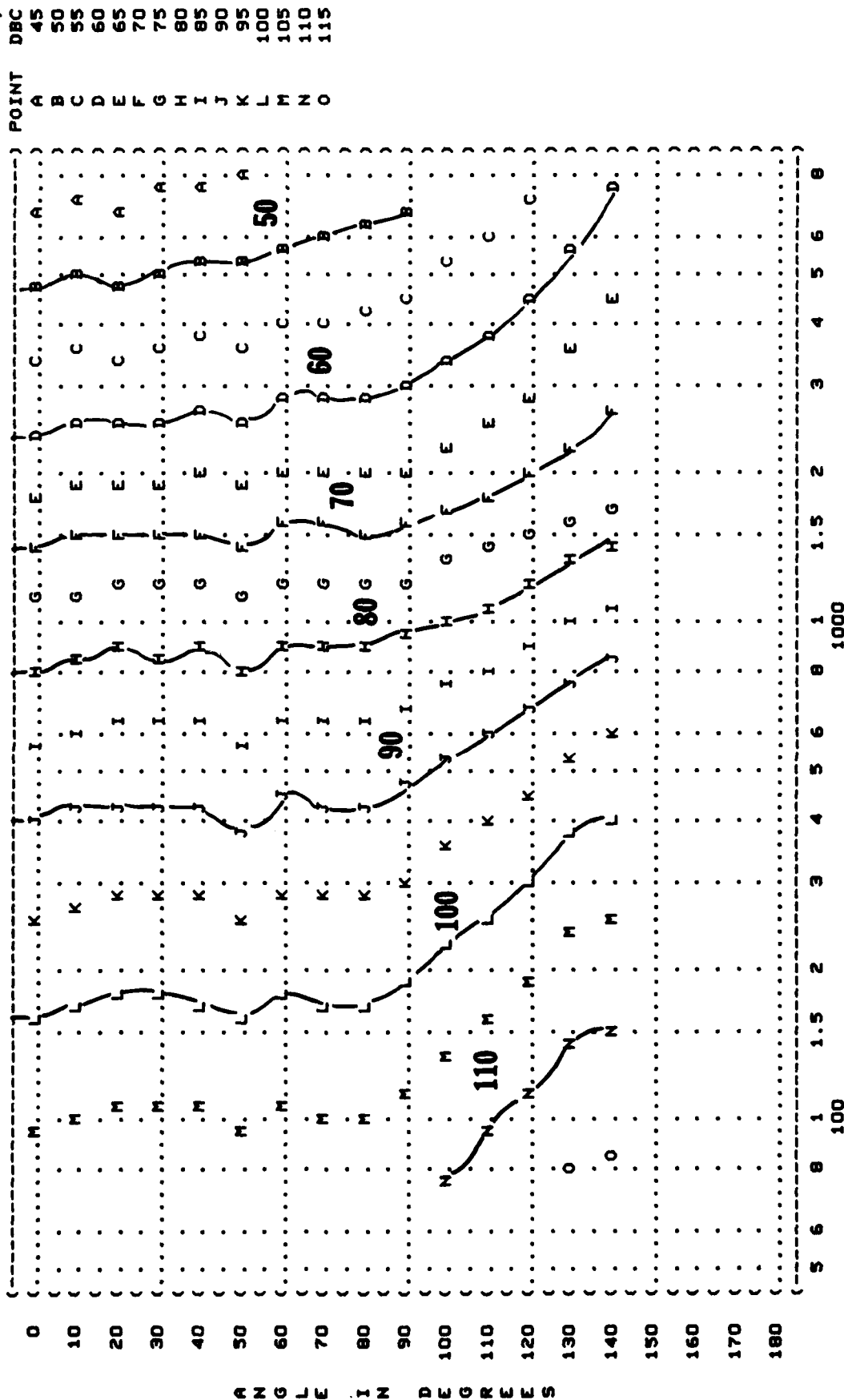
6

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 08
26 JUL 82
PAGE 14

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

OPERATION:
KC-10A AIRCRAFT
CF6-50C2
FREE FLOW
FAR FIELD NOISE

NOISE SOURCE/SUBJECT:



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

IDENTIFICATION:

•
•
•
•
•

METEOROLOGY:

07 00 RUN

BAR PRESS = .760 M HG

REL HUMID = 70 %

P

55

1000

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

6

NOISE SOURCE/SUBJECT:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

OPERATION:

TAKEOFF RATED THRUST
ENGINE NO. 1
FREE FLOW

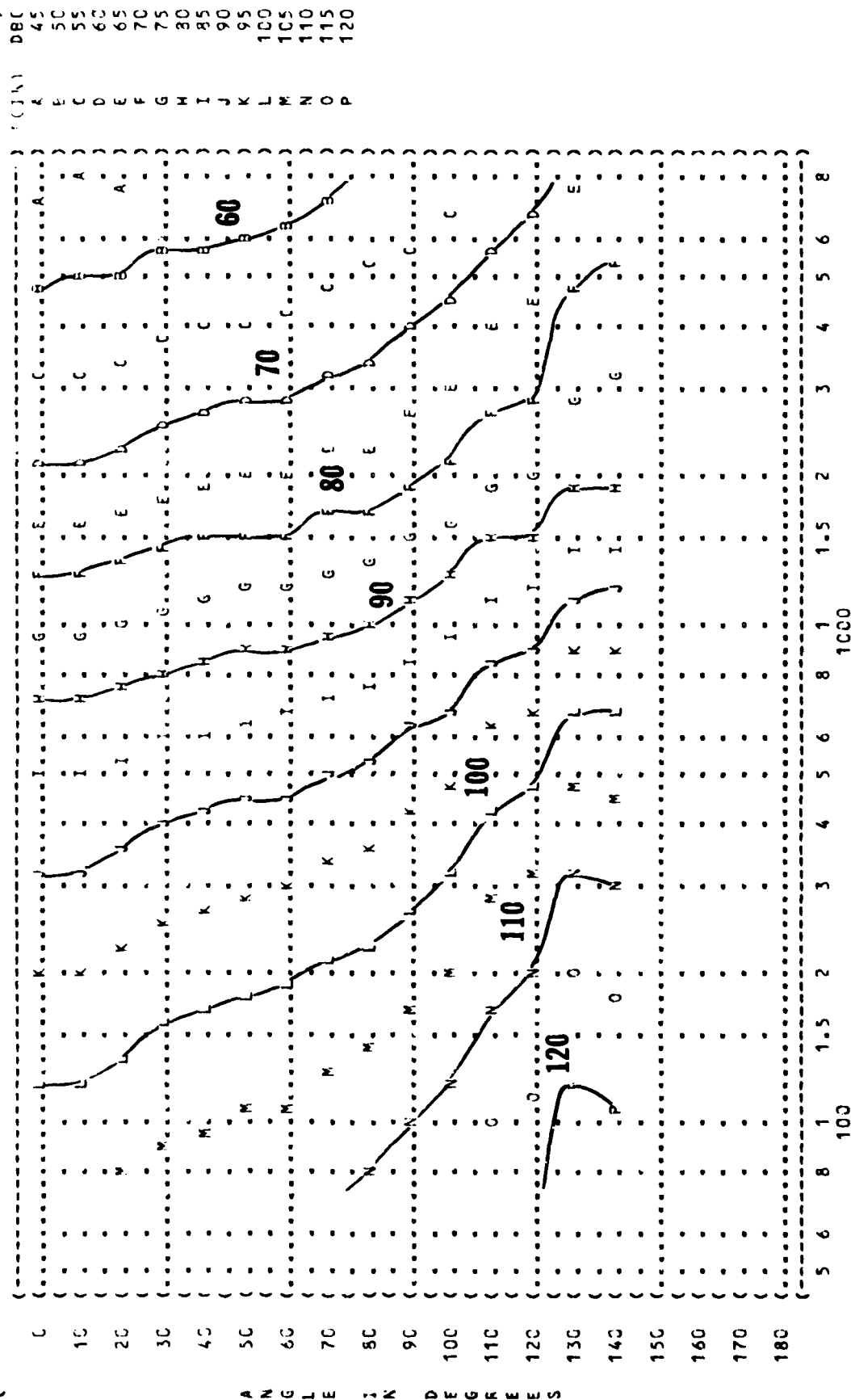
METEORCLOGY:

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

IDENTIFICATION:

OMEGA 1-4
TEST 95-005-001
RUN OF

PAGE 1



DISTANCE FROM SOURCE (METERS)

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

IDENTIFICATION:
 OMEGA 1.4
 TEST BS-005-001
 RUN 05
 26 JUL 82
 PAGE 14

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

OPERATION:
 MAXIMUM CONTINUOUS POWER
 ENGINE NO. 1
 FREE FLOW

NOISE SOURCE/SUBJECT:
 KC-10A AIRCRAFT
 CF6-SOC2
 FAR FIELD NOISE

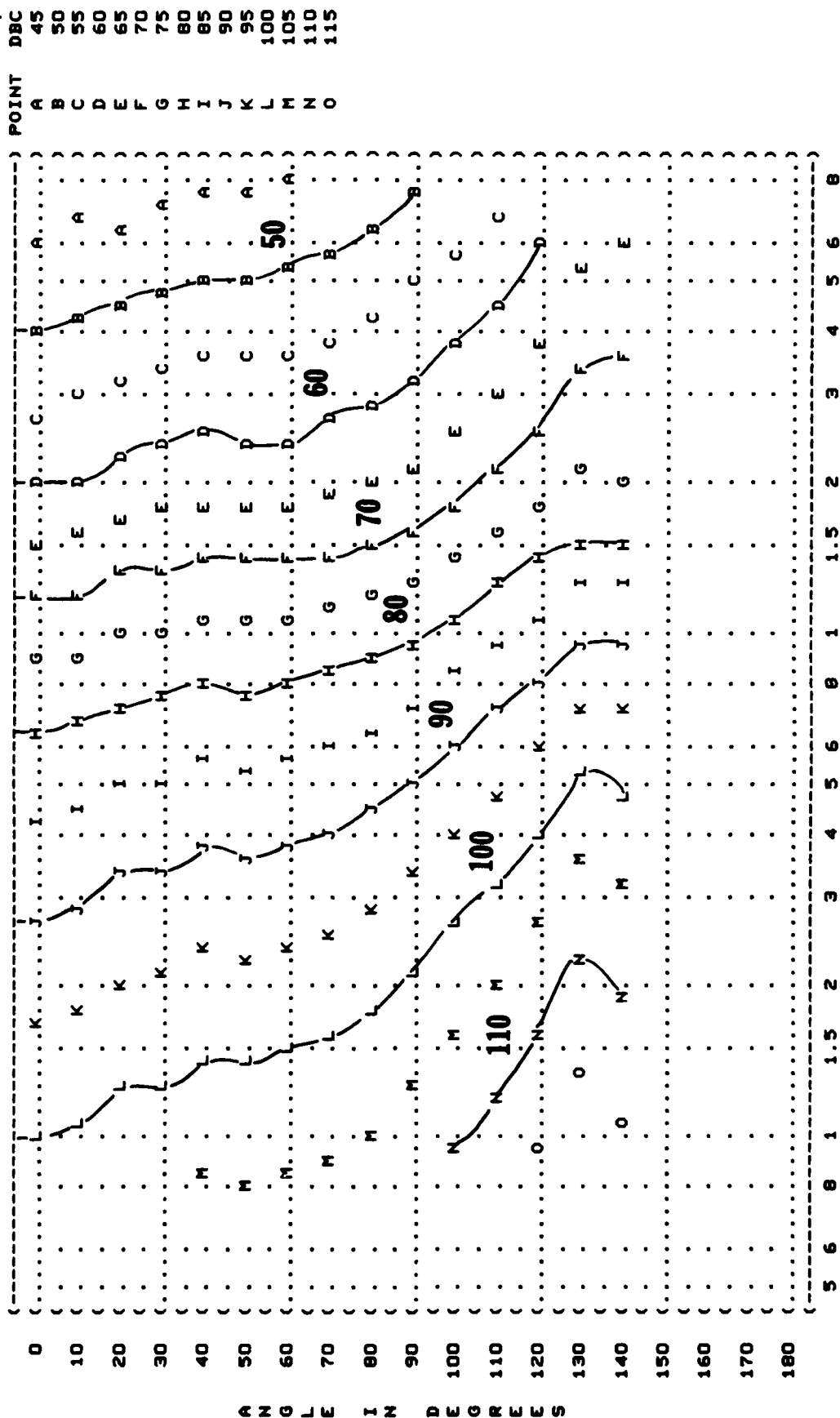


FIGURE: C-WEIGHTED OVERALL SOUND LEVEL [OASLC]
6
EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 04
METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 X
OPERATION:
95% RPM
ENGINE NO. 1
FREE FLOW
NOISE SOURCE/SUBJECT:
KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE
PAGE 14

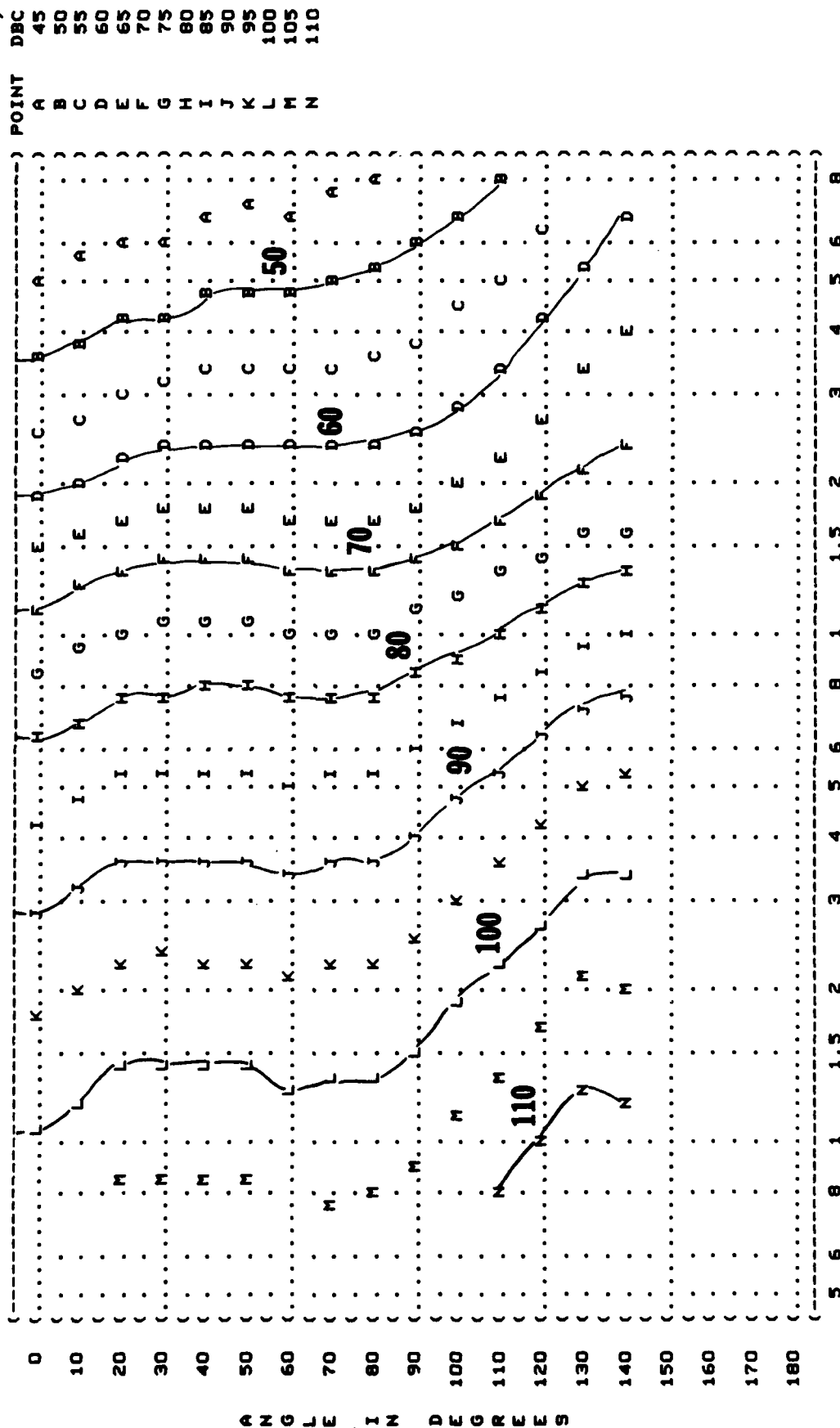


FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
EQUAL LEVEL CONTOURS (DBC)

6

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

70% RPM
ENGINE NO. 1
FREE FLOW

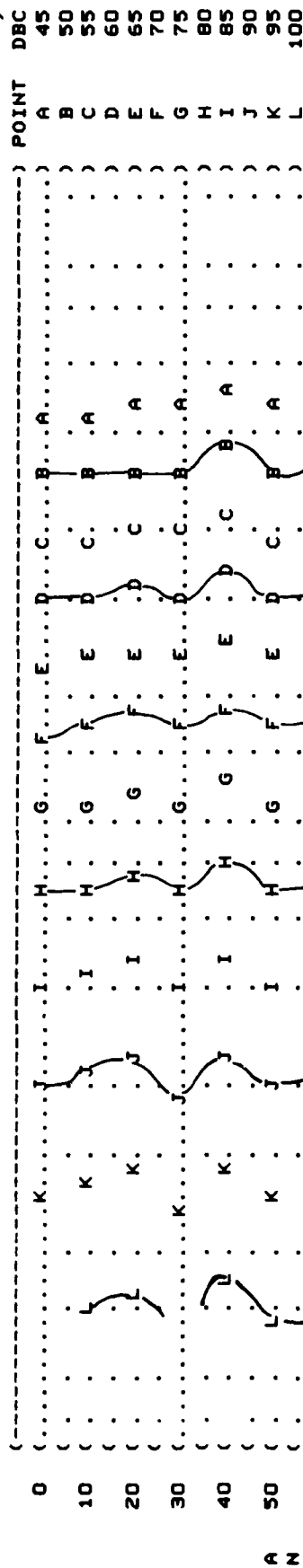
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

OMEGA 1.4

TEST BS-005-001

RUN 03

PAGE 14



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

DISTANCE FROM SOURCE (METERS)

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

6

IDENTIFICATION:
OMEGA 1.4
TEST 85-005-001

RUN 02
26 JUL 82
PAGE 14

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

OPERATION:
KC-10A AIRCRAFT
CF6-50C2
FREE FLOW

NOISE SOURCE/SUBJECT:

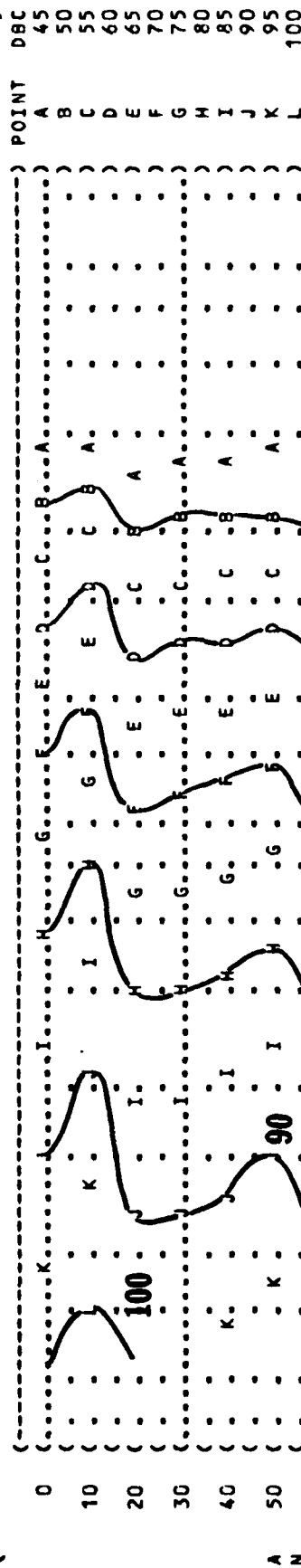


FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLCI)
EQUAL LEVEL CONTOURS (DBC)

6

IDENTIFICATION:
OMEGA 1.4
TEST 95-005-001
RUN 01

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

OPERATION:
IDLE POWER 23.7% RPM
ENGINE NO. 1
FREE FLOW

NOISE SOURCE/SUBJECT:
KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

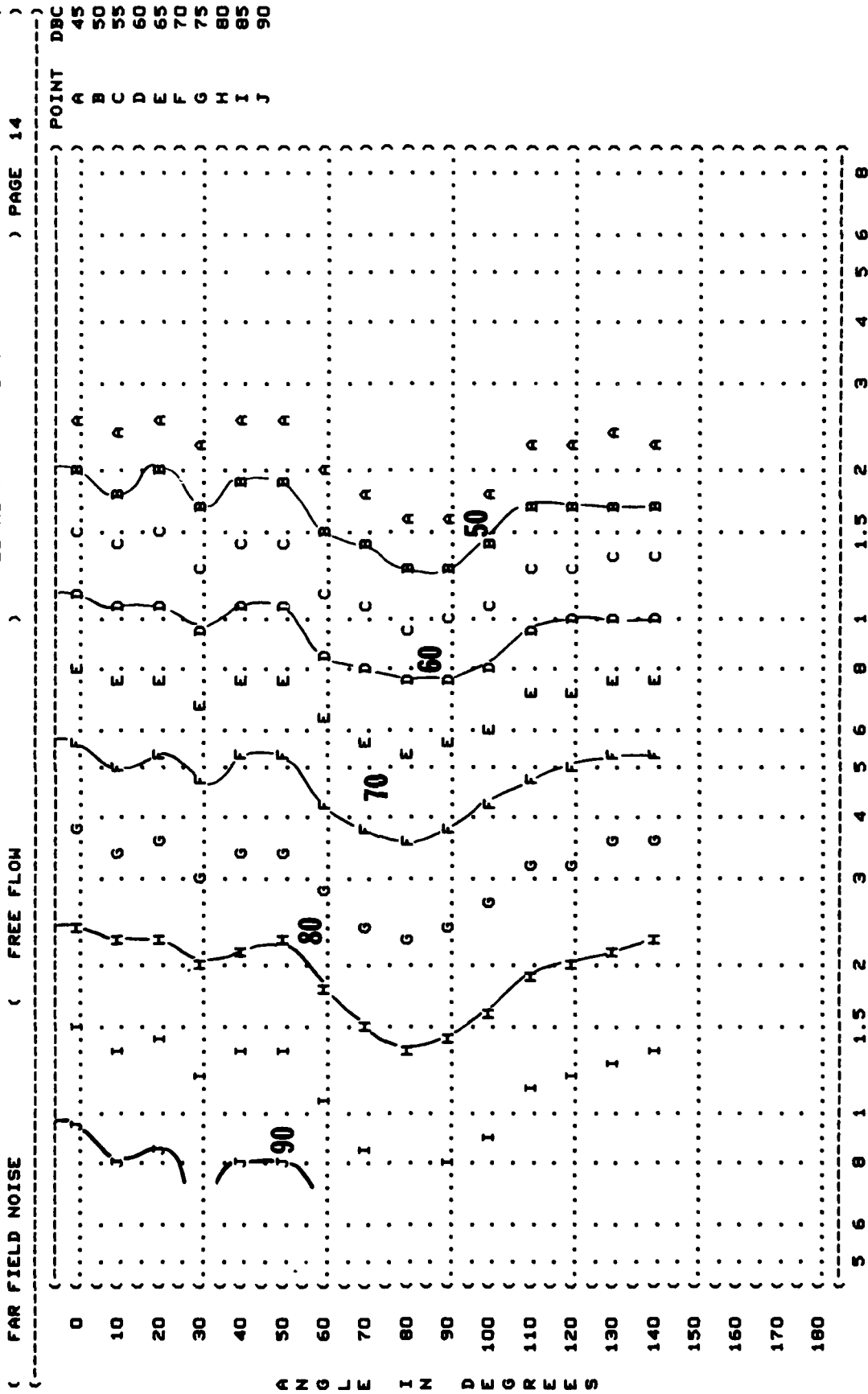


FIGURE: A-WEIGHTED OVERALL SOUND LEVEL [OASLA]
 7
 EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
 OMEGA 1.4
 TEST BS-005-001
 RUN 01
 26 JUL 82
 PAGE 15

NOISE SOURCE/SUBJECT:
 KC-10A AIRCRAFT
 CF6-50C2
 FAR FIELD NOISE

OPERATION:
 IDLE POWER 23.7% RPM
 ENGINE NO. 1
 FREE FLOW

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

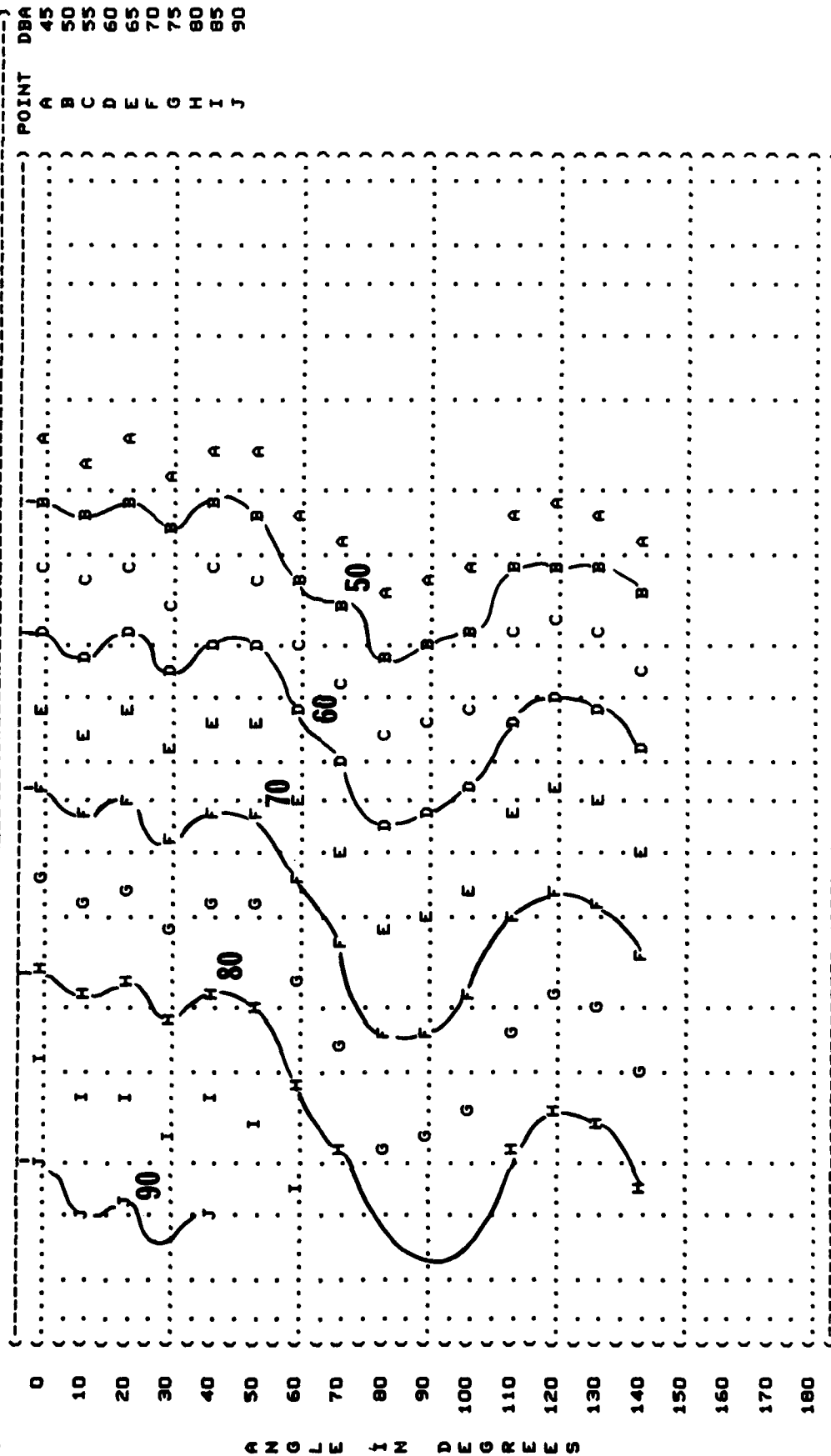


FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASL)
EQUAL LEVEL CONTOURS (DBA)

7

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT 45% RPM
CF6-50C2 ENGINE NO. 1
FAR FIELD NOISE FREE FLOW

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

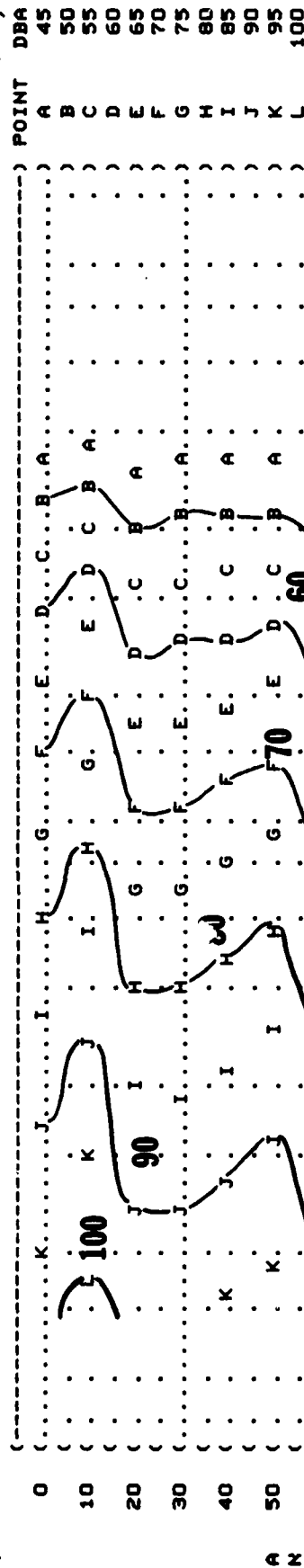
OMEGA 1.4

TEST BS-005-001

RUN 02

26 JUL 82

PAGE 15



ANGL E I N D G R E E S

7

OMEGA 1.4

)

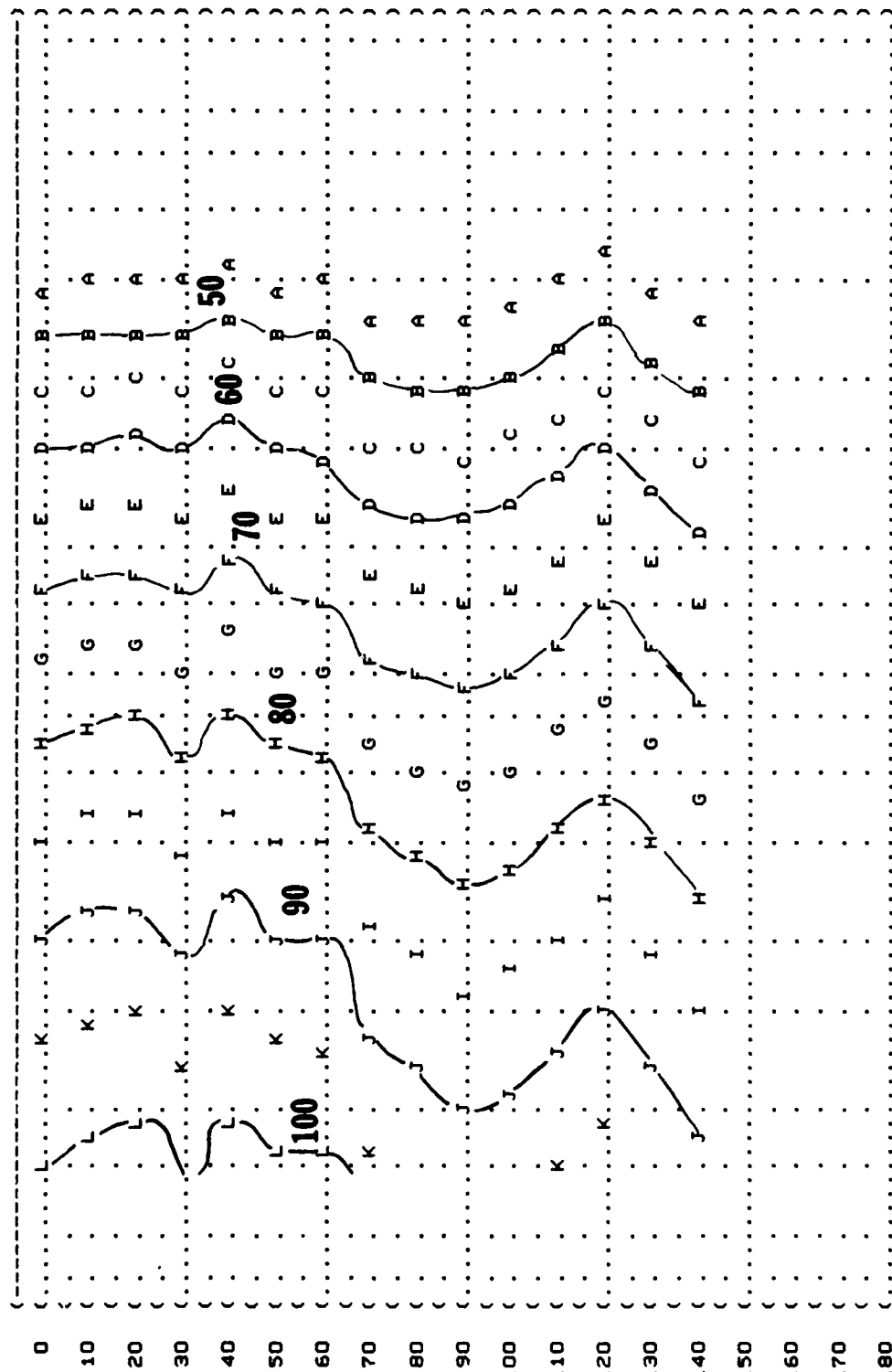
P = 15 C

70% RPM

ENGINE NO. 1

FREE FLOW

POINT	A	B	C	D	E	F	G	H	I	J	K	L
DBA	45	50	55	60	65	70	75	80	85	90	95	100



DISTANCE FROM SOURCE (METERS)

420 JW HZ DE 08 15 5

IDENTIFICATION:

1

OMEGA 14

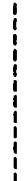
OMEGA 14

0 RUN 04

0

26 JUL 82

PAGE 15



DISTANCE FROM SOURCE (METERS)

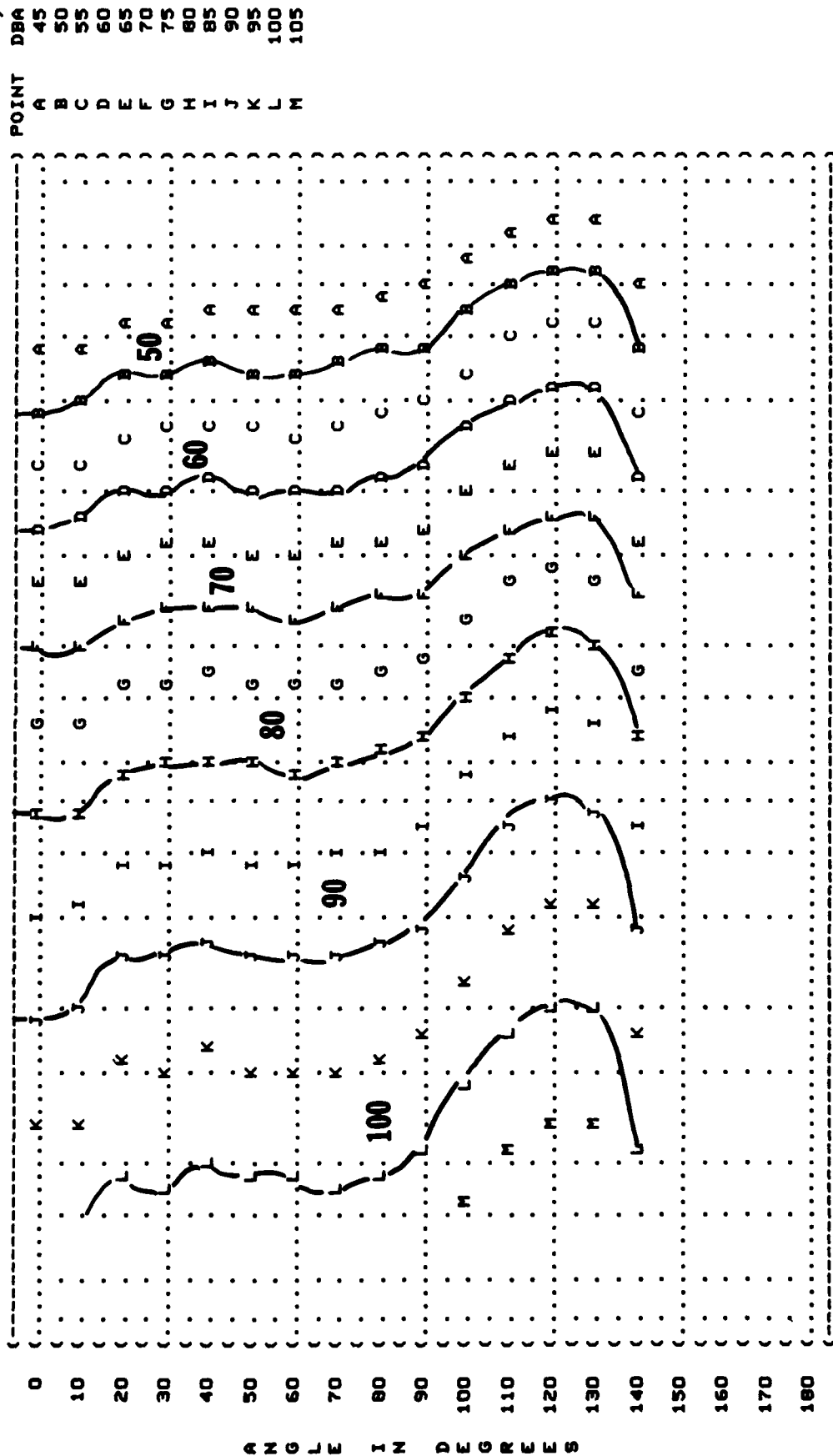
FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASL)
 7
 EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION: OMEGA 1.4
 TEST BS-005-001
 RUN 05
 26 JUL 82
 PAGE 15

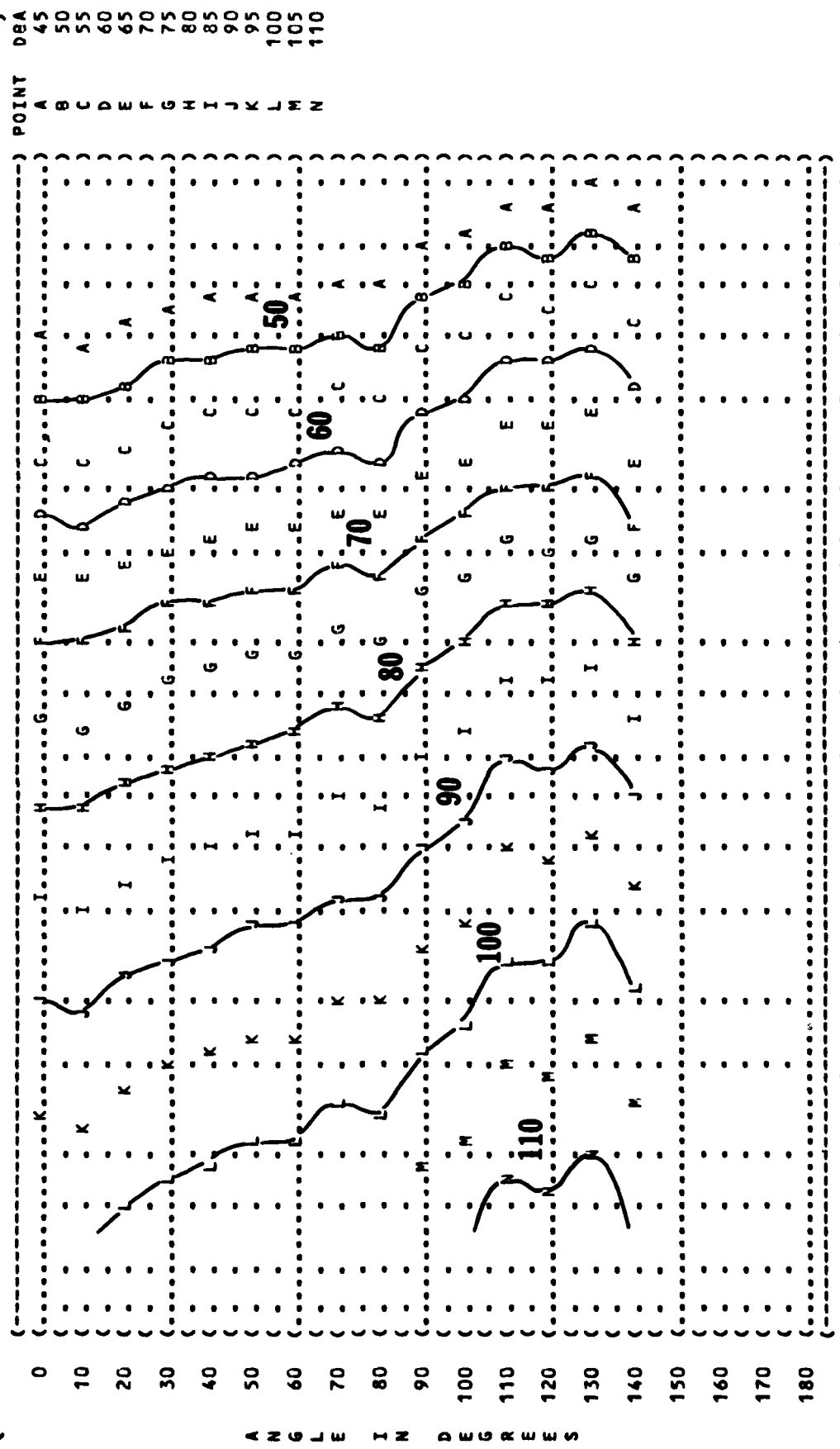
NOISE SOURCE/SUBJECT: METEOROLOGY:
 KC-10A AIRCRAFT
 CF6-SOC2
 FAR FIELD NOISE

OPERATION:
 MAXIMUM CONTINUOUS POWER
 ENGINE NO. 1
 FREE FLOW

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



(FIGURE: A-WEIGHTED OVERALL SOUND LEVEL [OASLAJ
 (7 EQUAL LEVEL CONTOURS (DBA)
 () IDENTIFICATION:
 () OMEGA 1-4
 () TEST 95-005-001
 () RUN 06
 () METEORCLGY:)
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () OPERATION:)
 () TAKEOFF RATED THRUST
 () ENGINE NO. 1
 () FREE FLOW
 () KC-10A AIRCRAFT
 () CF6-50C2
 () FAR FIELD NOISE
 () PAGE 15



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

DISTANCE FROM SOURCE (METERS)

FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASL)
 7 EQUAL LEVEL CONTOURS (DBA)

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 07

26 JUL 82

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

PAGE 15

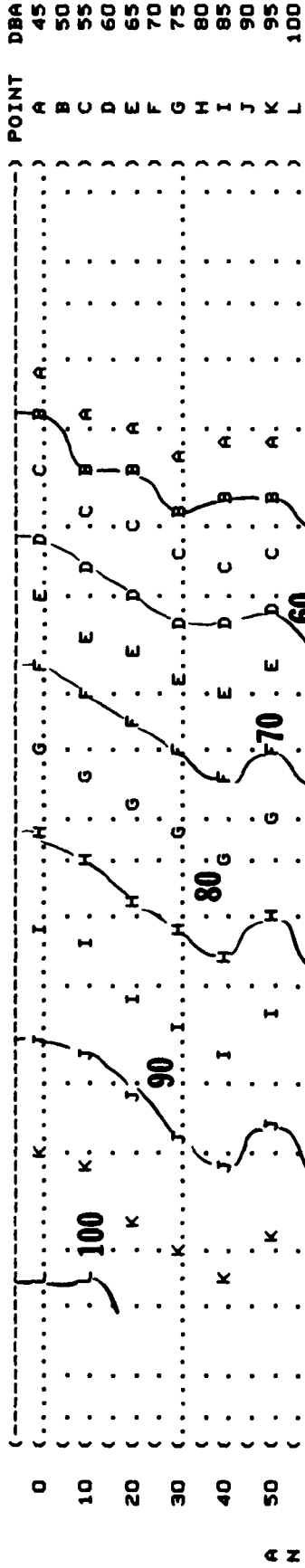
45% RPM ALL ENGINES

FREE FLOW

KC-10A AIRCRAFT

CF6-50C2

FAR FIELD NOISE



ANGL E I N D E R E S

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

FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
 7 EQUAL LEVEL CONTOURS (DBA)

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 08

TEMP = 15 C

26 JUL 82

BAR PRESS = .760 M HG

REL HUMID = 70 %

PAGE 15

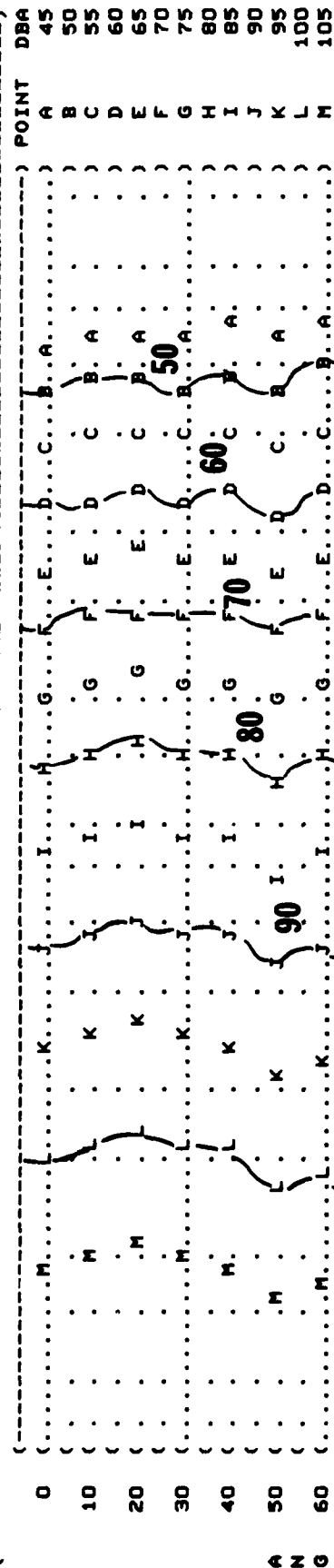
95X RPM ALL ENGINES

FREE FLOW

KC-10A AIRCRAFT

CF6-50C2

FAR FIELD NOISE



EQUAL LEVEL CONTOURS (PNDB)

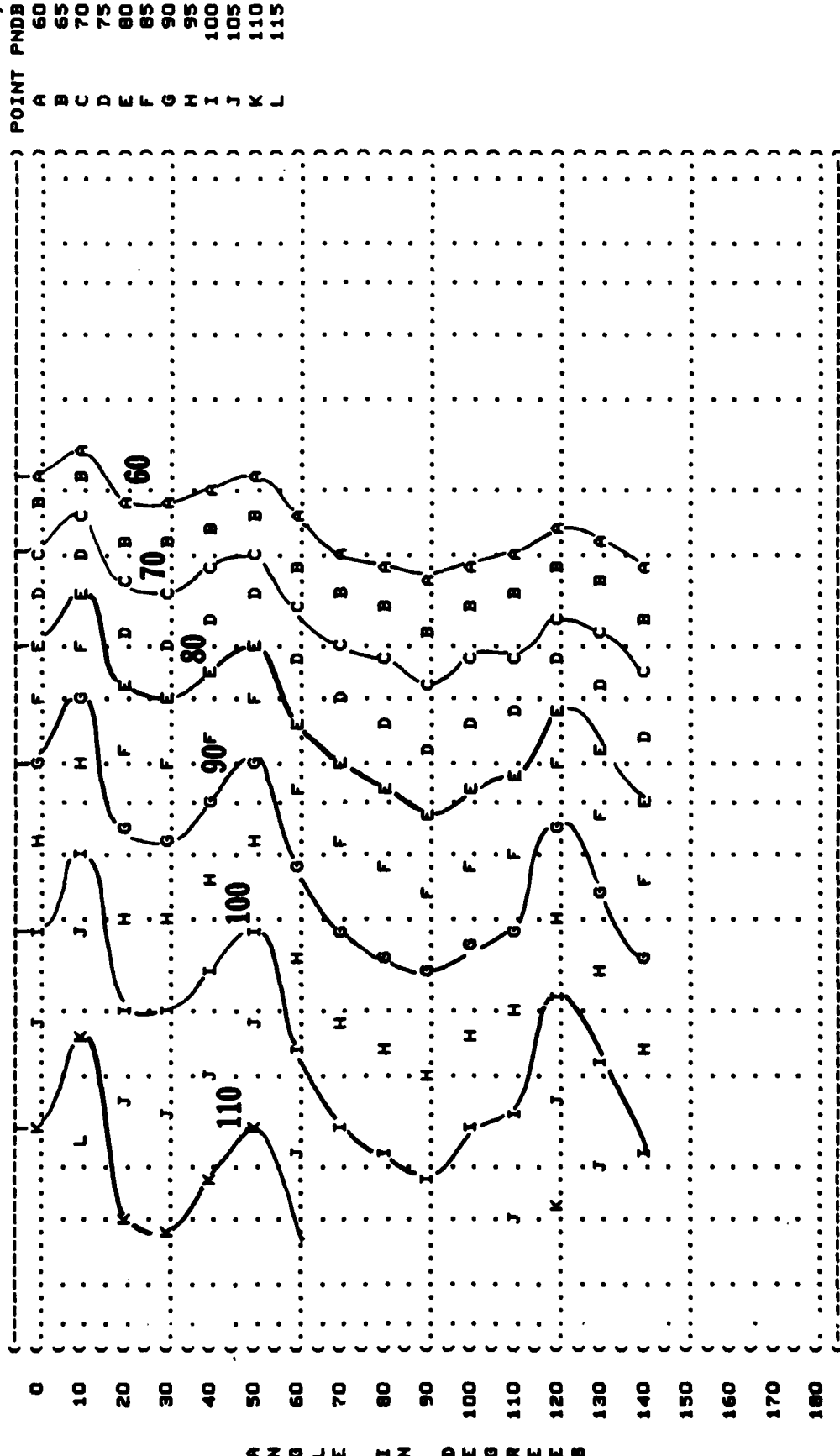
TEST BS-005-001
RUN 01

TEMP

FAR FIELD NOISE (FREE FLOW



(FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
 (8 EQUAL LEVEL CONTOURS (PNDB)
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (45X RPM
 (CF6-50C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 02
 (26 JUL 82
 (PAGE 16



POINT PNDB
 A 60
 B 65
 C 70
 D 75
 E 80
 F 85
 G 90
 H 95
 I 100
 J 105
 K 110
 L 115

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

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

IDENTIFICATION:

OMEGA 1

) METEOROLOGY:

RUN 03

BAR PRESS = .760 M HG

REL HUMID = 70 x

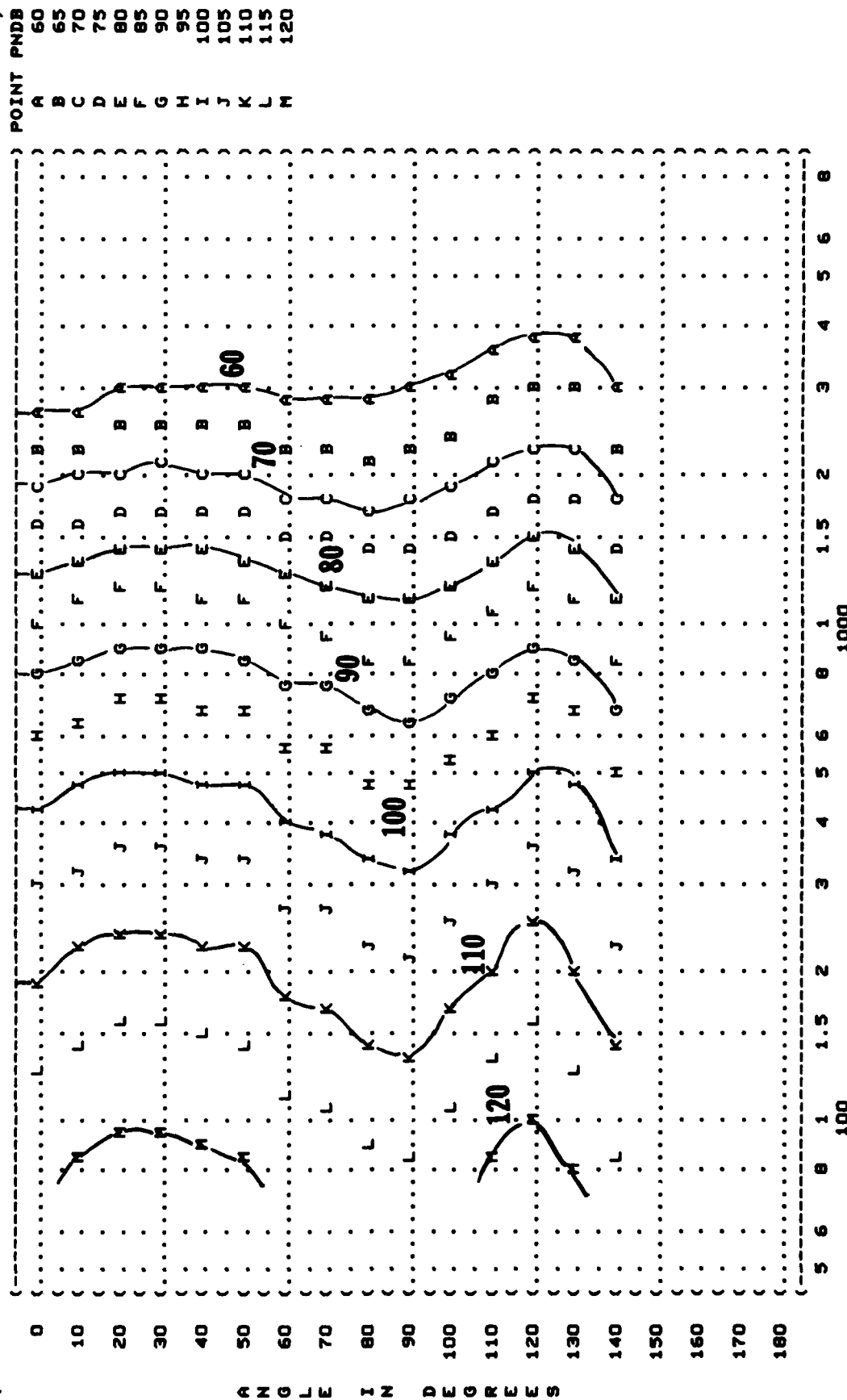
620 JW HZ AEW 02WWS

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 04
26 JUL 82
PAGE 16

OPERATION:

0 METEOROLOGY:

26 JUL 82
PAGE 16



DISTANCE FROM SOURCE (METERS)

EQUAL LEVEL CONTOURS (PNDB)

1

88

OMEGA 1.4

TEST 86-005-001

05 RUN

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG) 26 JUL 82

REL HUMID = 70 %)

) PAGE 16

OPERATION:

—

MAXIMUM CONTINUOUS POWER

ENGINE NO. 1

FREE FLOW

DISSEMINATION SOURCE/SUBJECT:

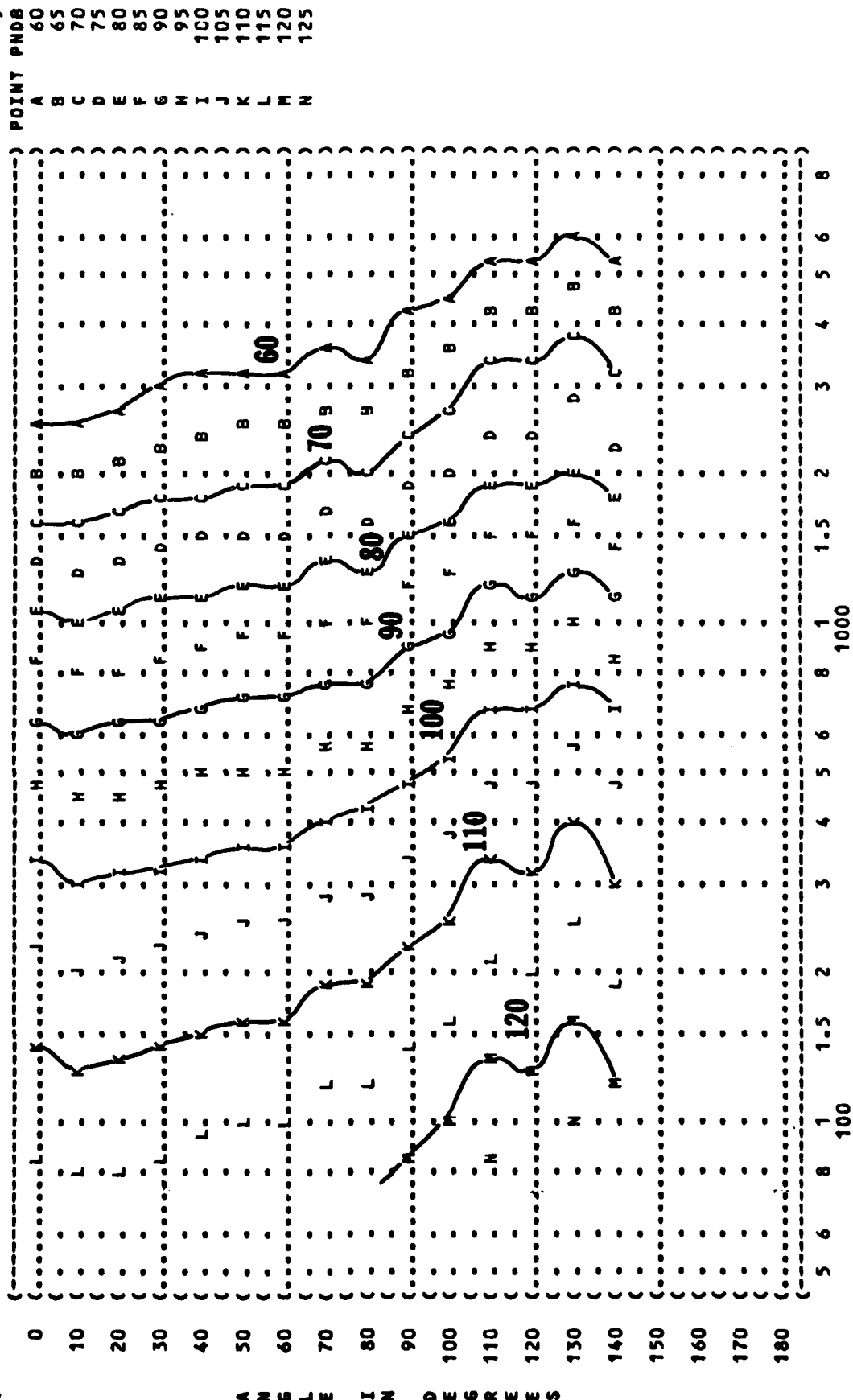
KC-10A AIRCRAFT

CF6-50C2

FAR FIELD NOISE



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(-----)
( FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION [PNLT] )
(      8 EQUAL LEVEL CONTOURS (PNDB) )
(-----)
( NOISE SOURCE/SUBJECT: ) METEOROLOGY:
( KC-10A AIRCRAFT ) TEMP = 15 C
( CF6-50C2 ) TAKEOFF RATED THRUST ) BAR PRESS = -760 M HG
( FAR FIELD NOISE ) ENGINE NO. 1 ) REL HUMID = 70 %
( ) FREE FLOW )
(-----)
( IDENTIFICATION: )
( ) )
( OMEGA 1.4 )
( TEST BS-005-001 )
( RUN 06 )
( ) )
( ) 26 JUL 82 )
( ) )
( PAGE 16 )
(-----)
```



(FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION [PNLT]
 (8 EQUAL LEVEL CONTOURS (PNDB)
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST BS-005-001
 () RUN 07
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () PAGE 16
 () NOISE SOURCE/SUBJECT:
 () OPERATION:
 () KC-10A AIRCRAFT
 () 45% RPM ALL ENGINES
 () CF6-50C2
 () FREE FLOW
 () FAR FIELD NOISE

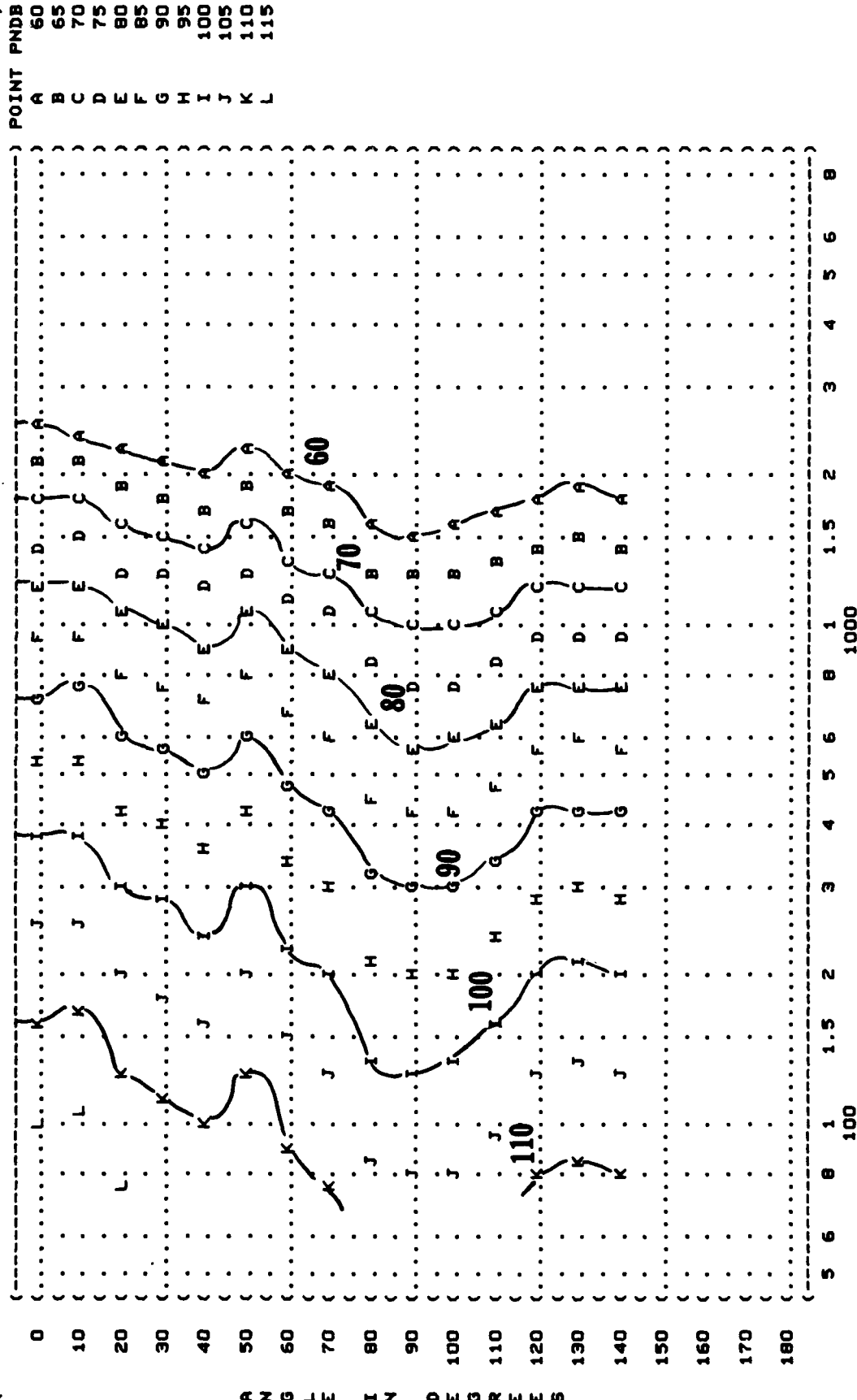


FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION [PNLT]
 8 EQUAL LEVEL CONTOURS (PNDB)

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 KC-10A AIRCRAFT (95% RPM ALL ENGINES) TEMP = 15 C)
 CF6-50C2 (FREE FLOW) BAR PRESS = .760 M HG)
 FAR FIELD NOISE () REL HUMID = 70 %)

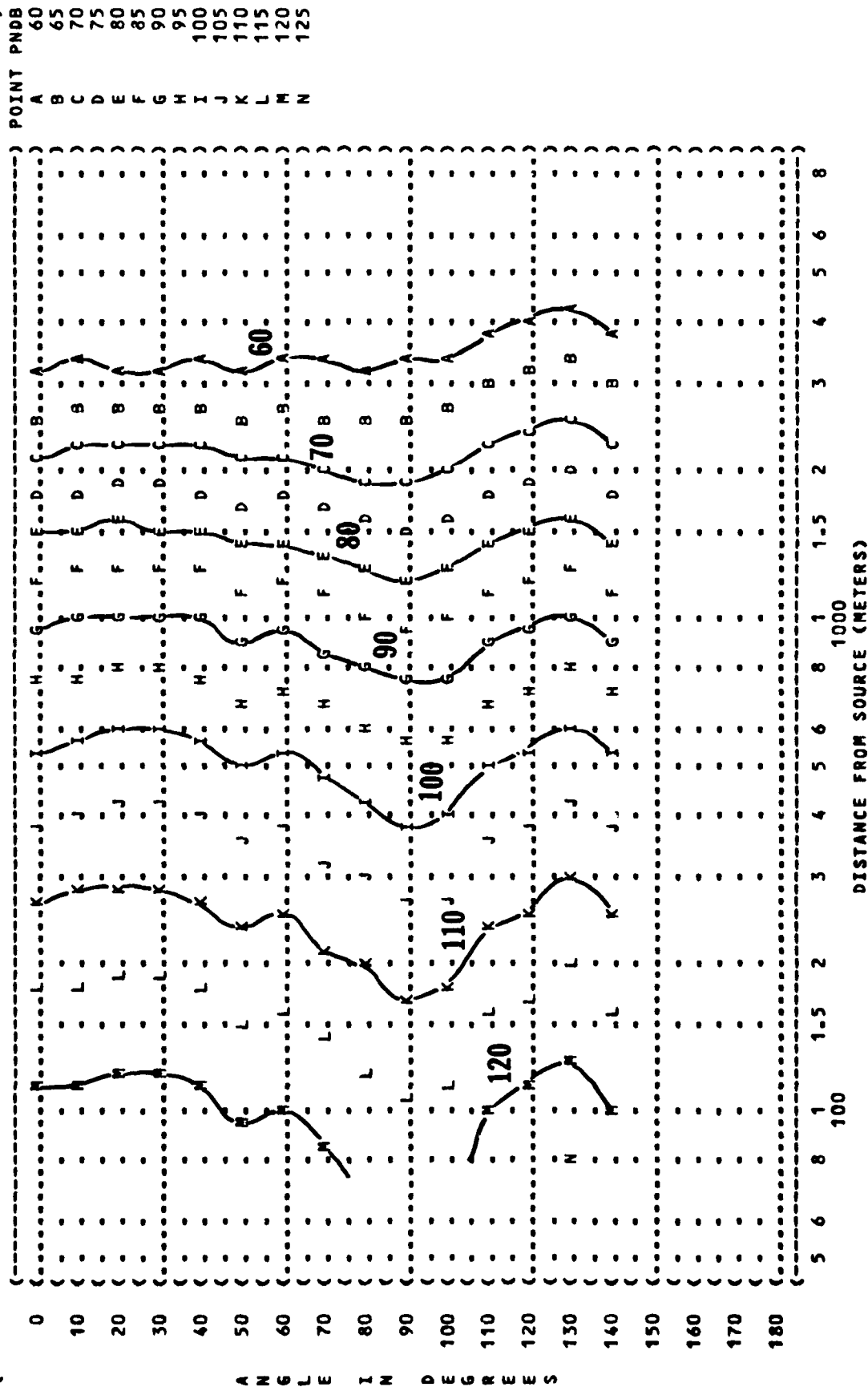
OMEGA 1.4

TEST BS-005-001

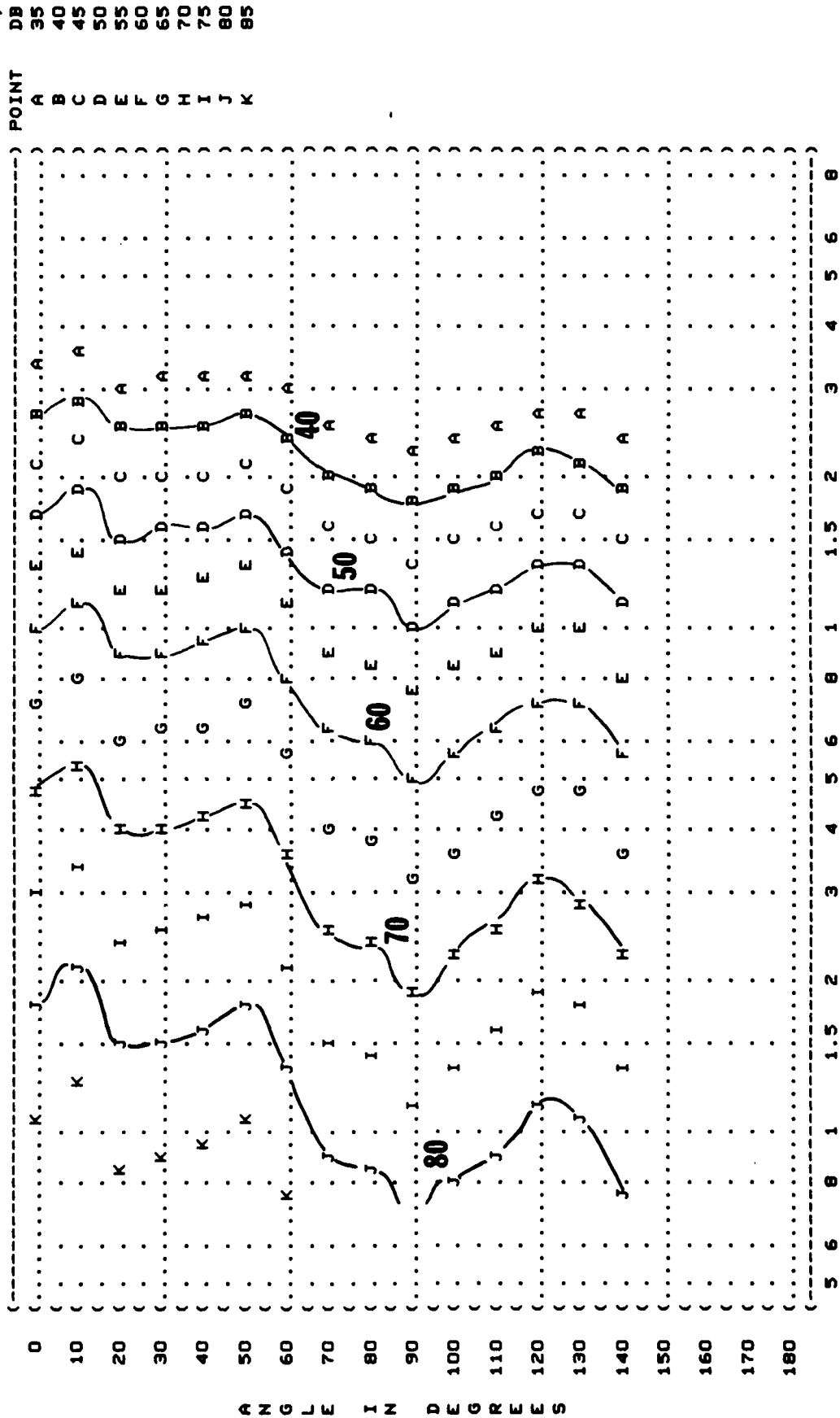
RUN 08

26 JUL 82

PAGE 16



(FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
 (9 EQUAL LEVEL CONTOURS (DB)
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST BS-005-001
 () RUN 02
 ()
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:
 () TEMP = 15 C
 (KC-10A AIRCRAFT (45% RPM (BAR PRESS = .760 M HG
 (CF6-50C2 (ENGINE NO. 1 (REL HUMID = 70 %
 (FAR FIELD NOISE (FREE FLOW ()
 () PAGE 17
 ()

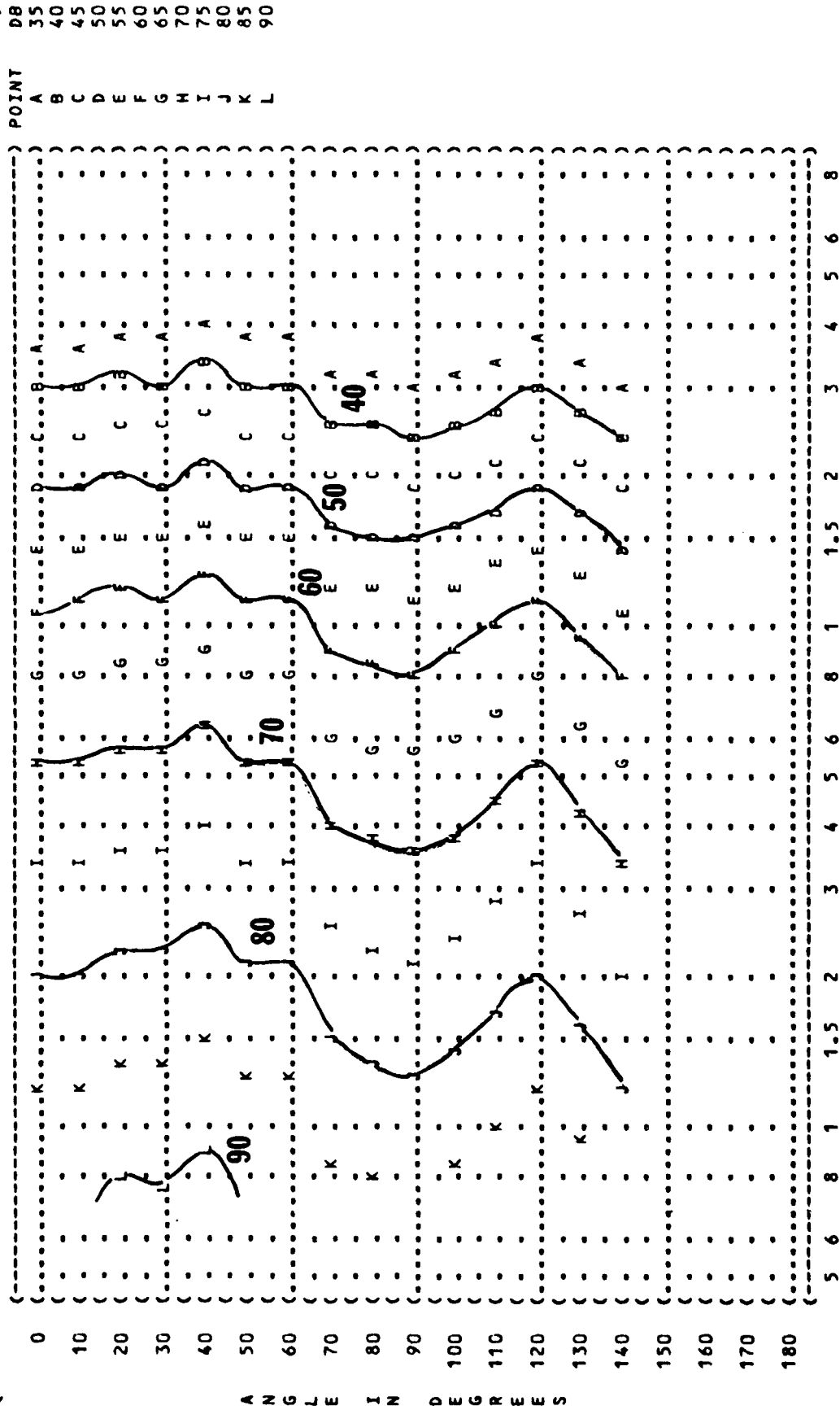


DISTANCE FROM SOURCE (METERS)

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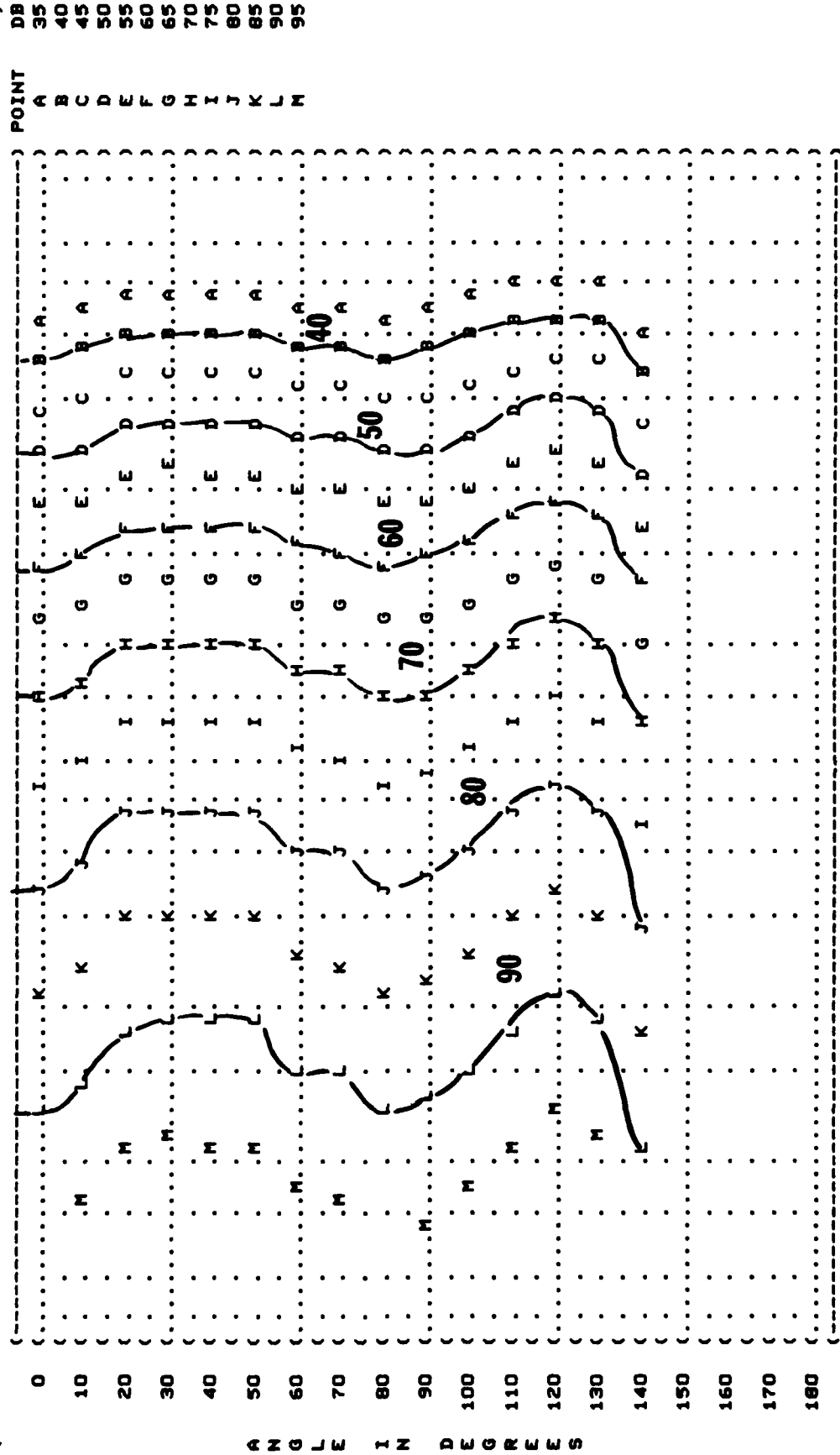
FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL [PSIL]
 9 EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
 OMEGA 1.4
 TEST BS-005-001
 RUN 03
 METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 OPERATION:
 70% RPM
 ENGINE NO. 1
 FREE FLOW
 NOISE SOURCE/SUBJECT:
 KC-10A AIRCRAFT
 CF6-50C2
 FAR FIELD NOISE



DISTANCE FROM SOURCE (METERS)

(FIGURE: 9
 (PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
 (EQUAL LEVEL CONTOURS (DB)
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-003-001
 (RUN 04
 (NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY:
 (KC-10A AIRCRAFT (95% RPM (TEMP = 15 C
 (CF6-50C2 (ENGINE NO. 1 (BAR PRESS = .760 M HG
 (FAR FIELD NOISE (FREE FLOW (REL HUMID = 70 X
 (PAGE 17



DB 35 40 45 50 55 60 65 70 75 80 85 90 95
 POINT A B C D E F G H I J K L M
 5 6 8 1 1.5 2 3 4 5 6 8
 100 1000 1800
 DISTANCE FROM SOURCE (METERS)

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

IDENTIFICATION:

OMEGA 1.4

TEST DS-005-001

05 RUN

3. METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

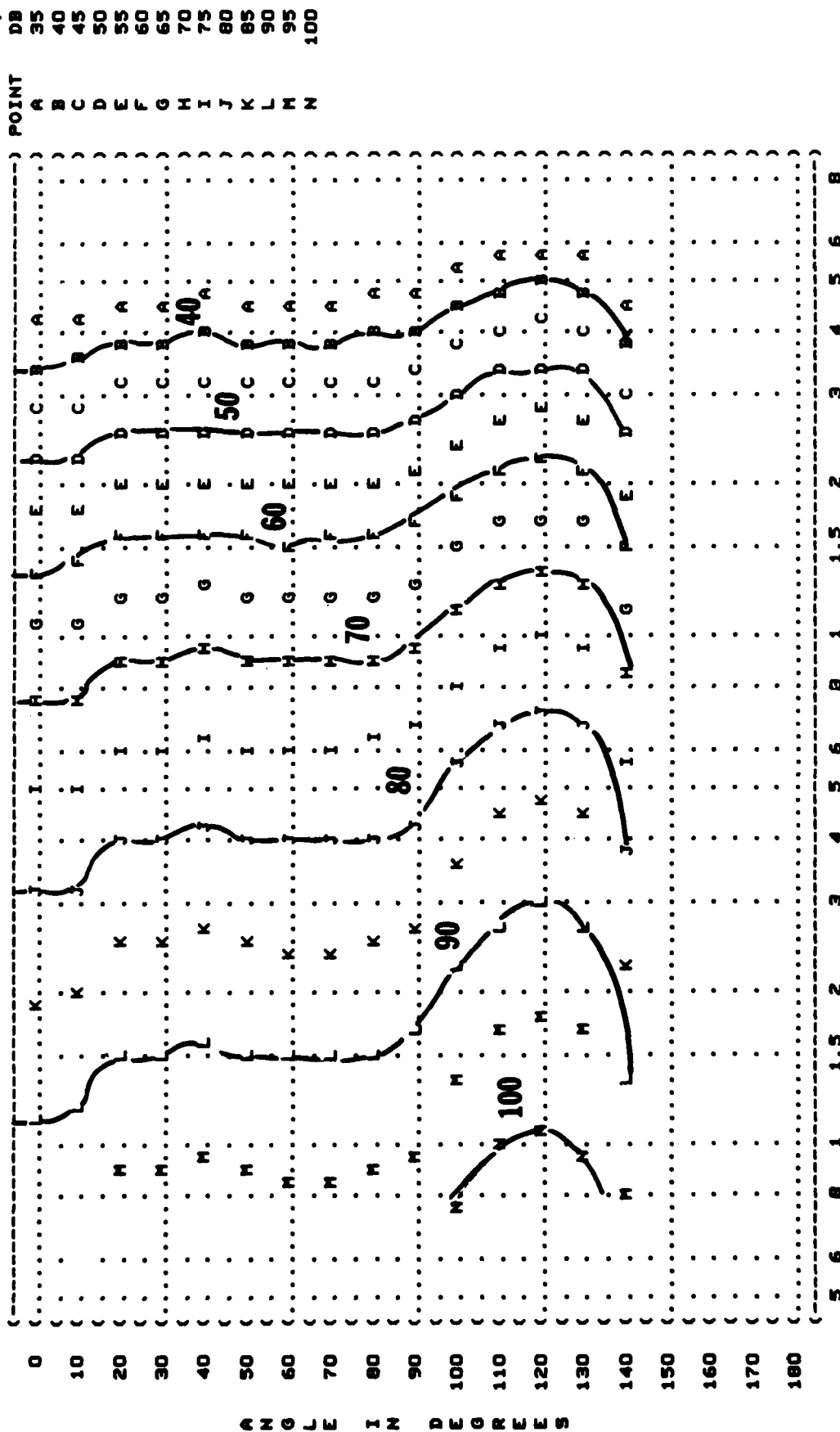
REL HUMID = 70 %

OPERATION:

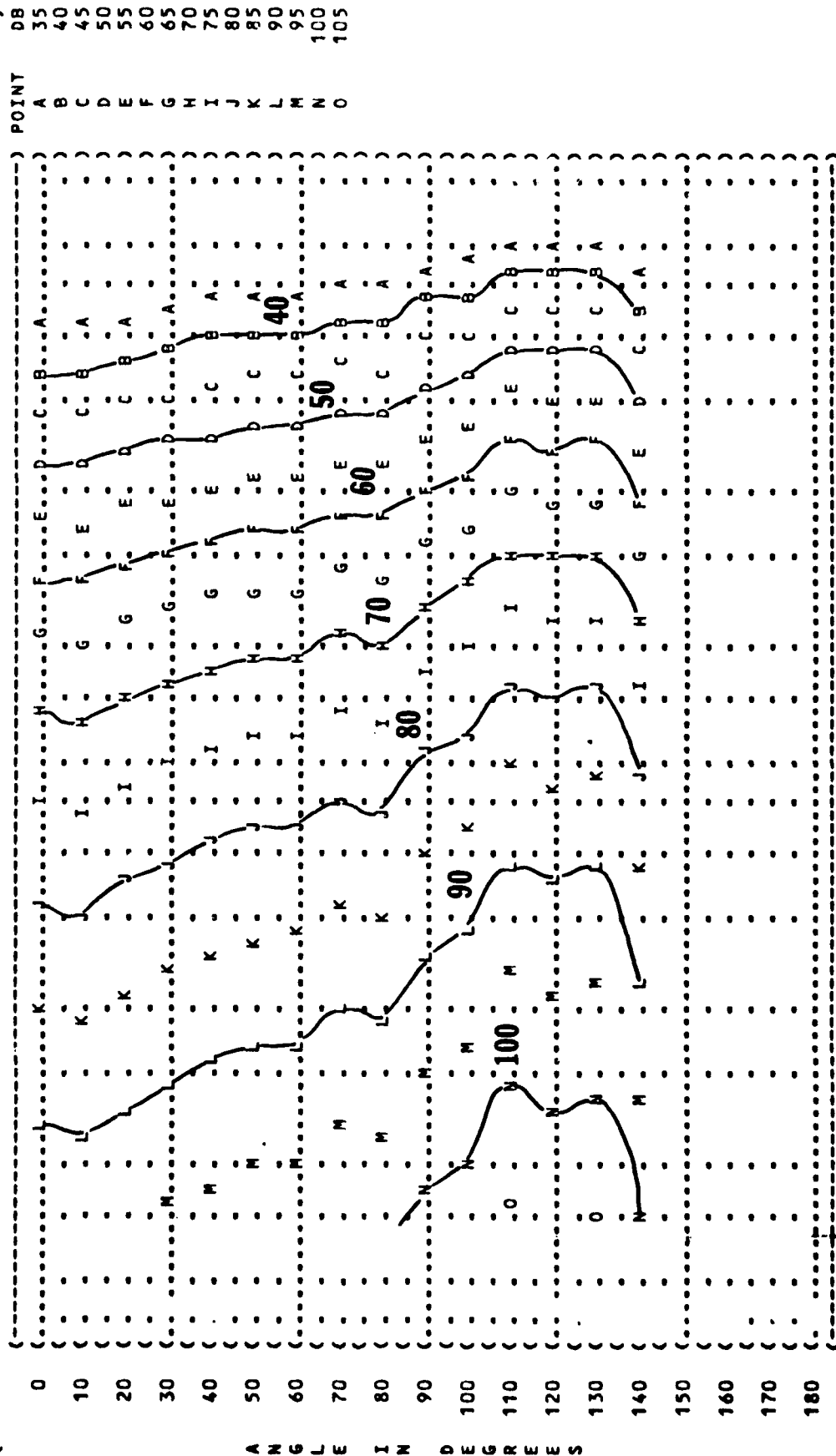
(X) MAXIMUM CONTINUOUS POWER

(ENGINE NO. 1

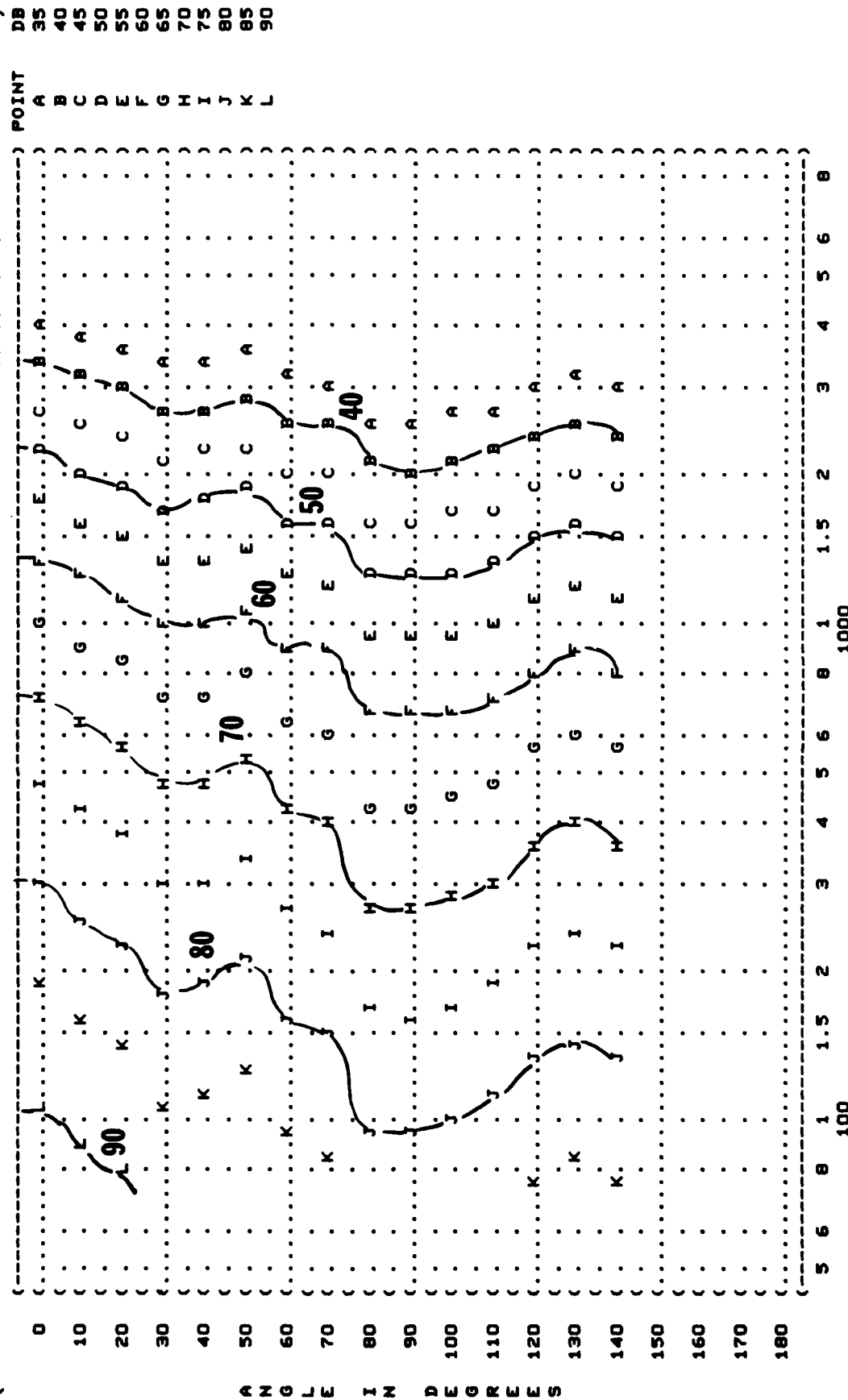
FREE FLOW



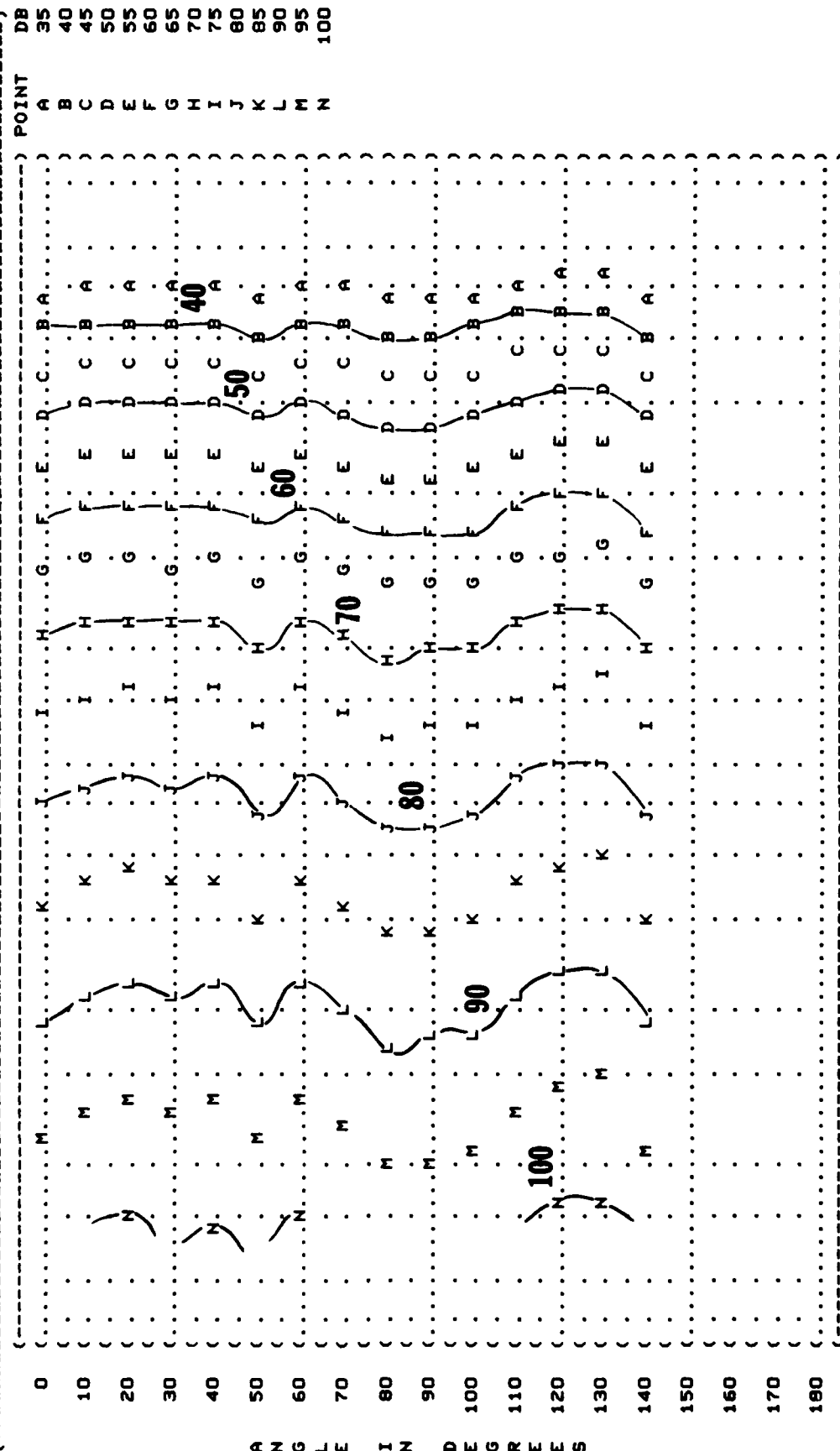
(FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL [PSIL]
 (9 EQUAL LEVEL CONTOURS (DB)
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST BS-005-001
 () RUN 06
 (NOISE SOURCE/SUBJECT: (OPERATION:
 () TEMP = 15 C
 () KC-10A AIRCRAFT (TAKEOFF RATED THRUST
 () CF6-50C2 (ENGINE NO. 1
 () FAR FIELD NOISE (FREE FLOW
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () PAGE 17



(FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
 (9 EQUAL LEVEL CONTOURS (DB)
 () IDENTIFICATION:
 ()
 () OMEGA 1.4
 (TEST 85-005-001
 () RUN 07
 ()
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:
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 () TEMP = 15 C
 (KC-10A AIRCRAFT (45X RPM ALL ENGINES (BAR PRESS = .760 M HG
 (CF6-SOC2 (FREE FLOW (REL HUMID = 70 %
 (FAR FIELD NOISE ()
 () PAGE 17
 ()



(FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
 (9 EQUAL LEVEL CONTOURS (DB)
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST BS-005-001
 () RUN OB
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:
 () TEMP = 15 C
 () KC-10A AIRCRAFT (95% RPM ALL ENGINES) BAR PRESS = .760 M HG
 () CF6-50C2 (FREE FLOW) REL HUMID = 70 %
 () FAR FIELD NOISE () PAGE 17



IDENTIFICATION:

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OPERATION:

3) METEOROLOGY:

1291 03-0000
RUN 01

IDLE POWER 23.7x RPM

BAR PRESS = .760 M

26 JUL 82

ENGINE NO. 1

REL HUMID = 70 %

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FREE FLOW

PAGE 8

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DISTANCE FROM SOURCE (METERS)

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FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
 EQUAL TIME CONTOURS (MINUTES)
 10
 NO PROTECTION
 IDENTIFICATION:
)
) OMEGA 1.4
)

10 NO PROTECTION) OMEGA 1.4)
(-----) TEST BS-005-001)
(NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
() RUN 02)

NOISE SOURCE/SUBJECT:	OPERATION:	METEOROLOGY:	RUN
KC-10A AIRCRAFT	45X RPM	TEMP = 15 C	02
CF6-50C2	ENGINE NO. 1	BAR PRESS = .760 M HG	26 JUL 82
FAR FIELD NOISE	FREE FLOW	REL HUMID = 70 %	PAGE 7

[illegible]

ANGLE IN DEGREES

44

DISTANCE FROM SOURCE (METERS)

FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
 10
 EQUAL TIME CONTOURS (MINUTES)
 NO PROTECTION

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 03

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

OPERATION:

70X RPM

ENGINE NO. 1

FREE FLOW

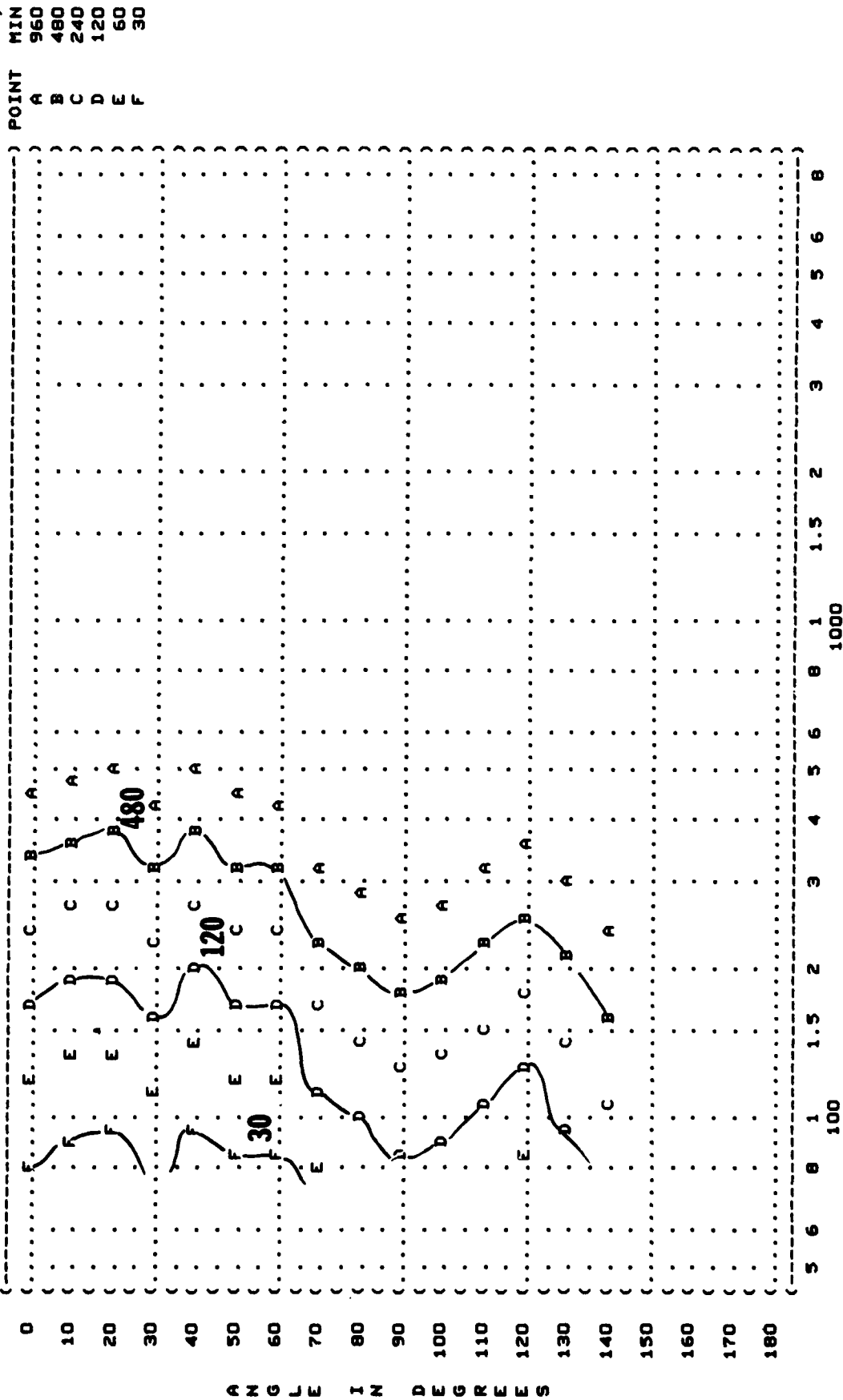
NOISE SOURCE/SUBJECT:

KC-10A AIRCRAFT

CF6-50C2

FAR FIELD NOISE

PAGE 7



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))
 () OMEGA 1.4
 () TEST BS-005-001
 () RUN 03
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () OPERATION:
 () 70X RPM
 () ENGINE NO. 1
 () FREE FLOW
 () NOISE SOURCE/SUBJECT:
 () KC-10A AIRCRAFT
 () CF6-50C2
 () FAR FIELD NOISE
 () PAGE 8

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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 < AT LEFT)
 UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:
 MINIMUM GPL EAR MUFFS
 AMERICAN OPTICAL 1700 EAR MUFFS
 U-51R EAR PLUGS
 COMFIT TRIPLE FLANGE EAR PLUGS
 H-133 GROUND COMMUNICATION UNIT

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

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((FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
((EQUAL TIME CONTOURS (MINUTES)
((10
((CONFIT TRIPLE FLANGE EAR PLUGS
(() IDENTIFICATION:
(()
(() OMEGA 1.4
(()

NOISE SOURCE/SUBJECT:	OPERATION:	METEOROLOGY:	RUN
		TEMP = 15 C	04
KC-10A AIRCRAFT	95X RPM	BAR PRESS = .760 M HG	26 JUL 62
CF6-50C2	ENGINE NO. 1	REL HUMID = 70 X	
FAR FIELD NOISE	FREE FLOW		PAGE 11

	MIN	POINT
0	960	A
	480	B

[illegible]

1000
DISTANCE FROM SOURCE (METERS)

IDENTIFICATION: OMEGA 1.4

H-133 GROUND COMMUNICATION UNIT

METEOROLOGY:

OPERATION:

1571 83-00
RUN 04

1ES1 89-003-001
RUN 04

BAR PRESS = .760 M

95X RPM

26 JUL 82

REL HUMID = 70 %

ENGINE NO. 1

100

FREE FLOW

PAGE 12

POINT MIN

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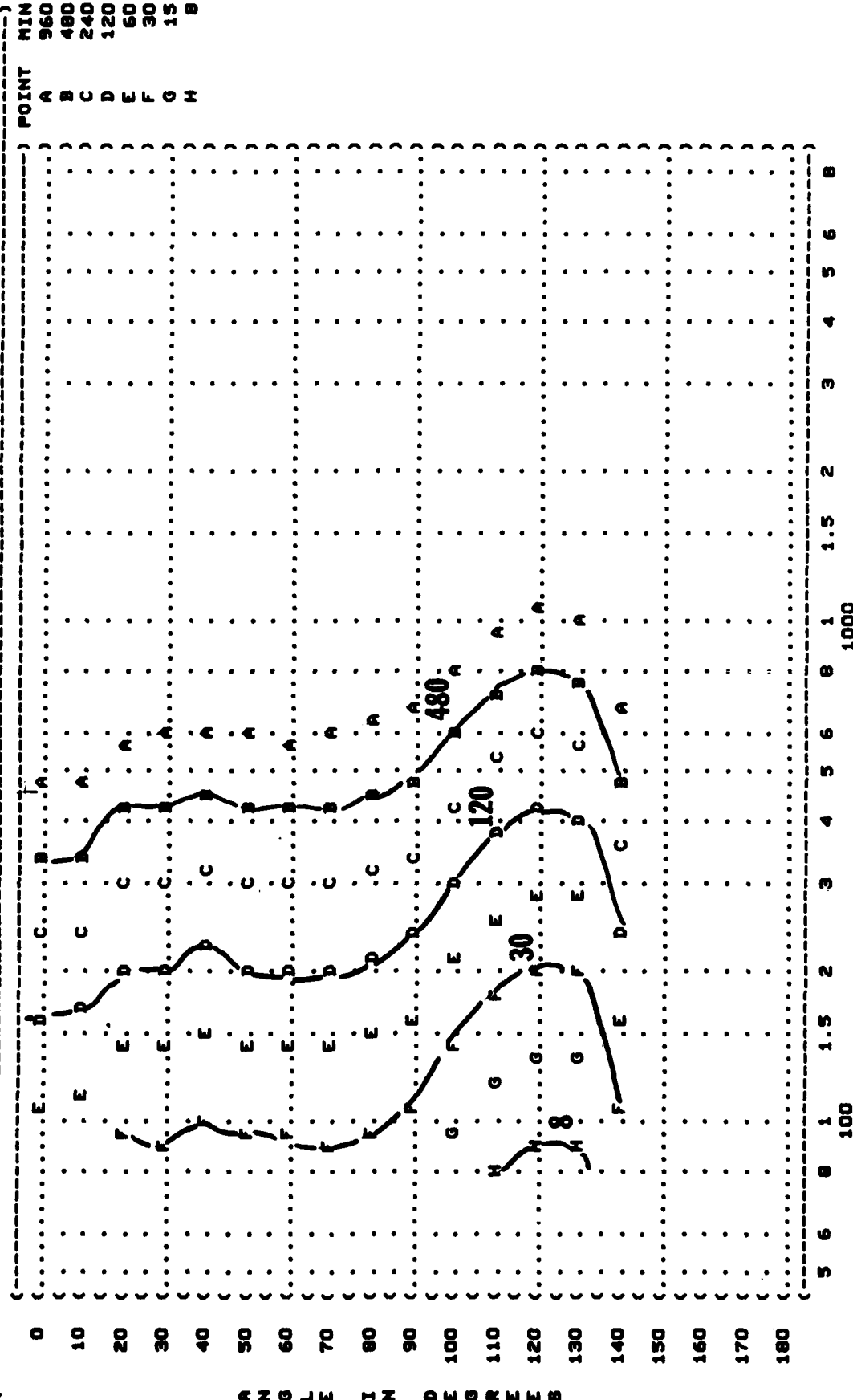
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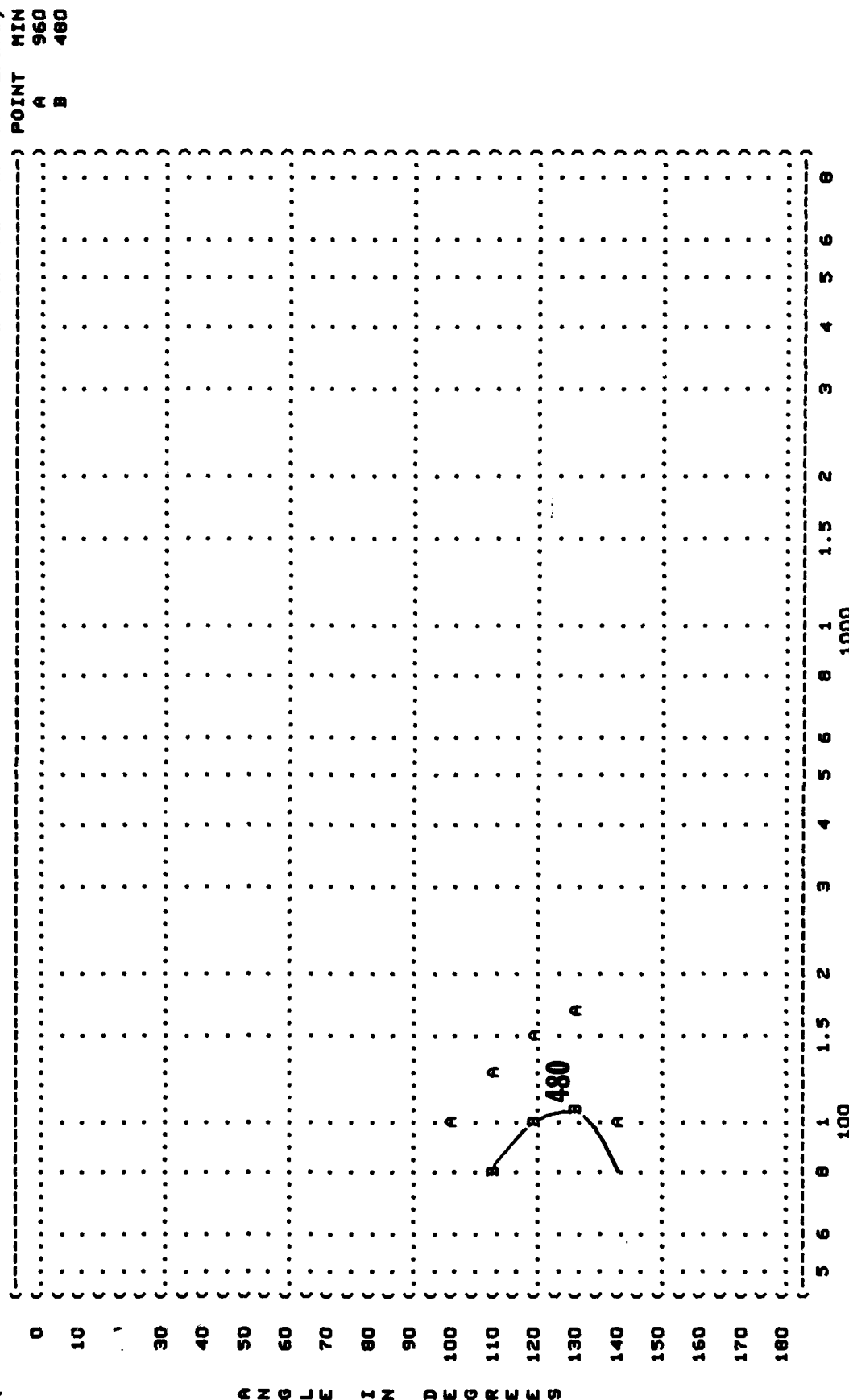
DISTANCE FROM SOURCE (METERS)

) 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:) METEOROLOGY:
)
) KC-10A AIRCRAFT (MAXIMUM CONTINUOUS POWER) TEMP = 15 C
) CFS-50C2 (ENGINE NO. 1) BAR PRESS = .760 M HG
) FAR FIELD NOISE (FREE FLOW) REL HUMID = 70 X
)
)
)
) OMEGA 1.4
) TEST BS-005-001
) RUN 05
) 26 JUL 82
) PAGE 7



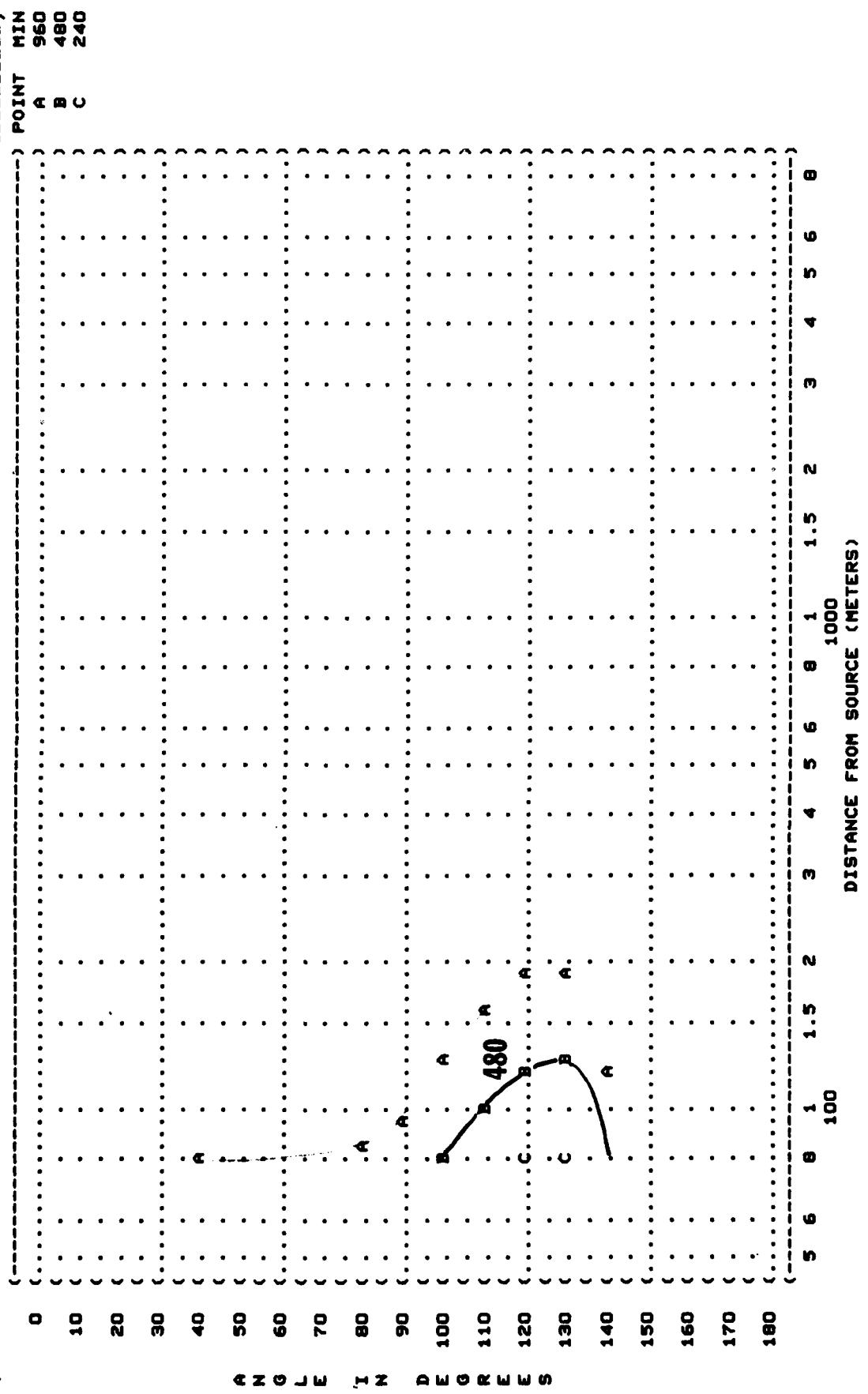
A N G L E I N D E G R E E S

FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
 IDENTIFICATION:
 10 U-51R EAR PLUGS
 OMEGA 1.4
 TEST BS-003-001
 RUN 05
 METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 OPERATION:
 MAXIMUM CONTINUOUS POWER
 ENGINE NO. 1
 FREE FLOW
 NOISE SOURCE/SUBJECT:
 KC-10A AIRCRAFT
 CF6-SOC2
 FAR FIELD NOISE
 PAGE 10



ANGLER IN DEGREE S

) FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
) IDENTIFICATION:
)
) 10 EQUAL TIME CONTOURS (MINUTES)
) COMFIT TRIPLE FLANGE EAR PLUGS
)
) NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
) KC-10A AIRCRAFT (MAXIMUM CONTINUOUS POWER) TEMP = 15 C)
) CF6-50C2 (ENGINE NO. 1) BAR PRESS = .760 M HG)
) FAR FIELD NOISE (FREE FLOW) REL HUMID = 70 %)
) TEST BS-005-001)
) RUN 05)
) 26 JUL 82)
) PAGE 11)



) FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)) IDENTIFICATION:
) 10 EQUAL TIME CONTOURS (MINUTES))
) AMERICAN OPTICAL 1700 EAR MUFFS) OMEGA 1.4
) NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) TEST BS-005-001
) KC-10A AIRCRAFT (TAKEOFF RATED THRUST) TEMP = 15 C) RUN 06
) CP6-50C2 (ENGINE NO. 1) BAR PRESS = .760 M HG) 26 JUL 82
) FAR FIELD NOISE (FREE FLOW) REL HUMID = 70 %)
) PAGE 9

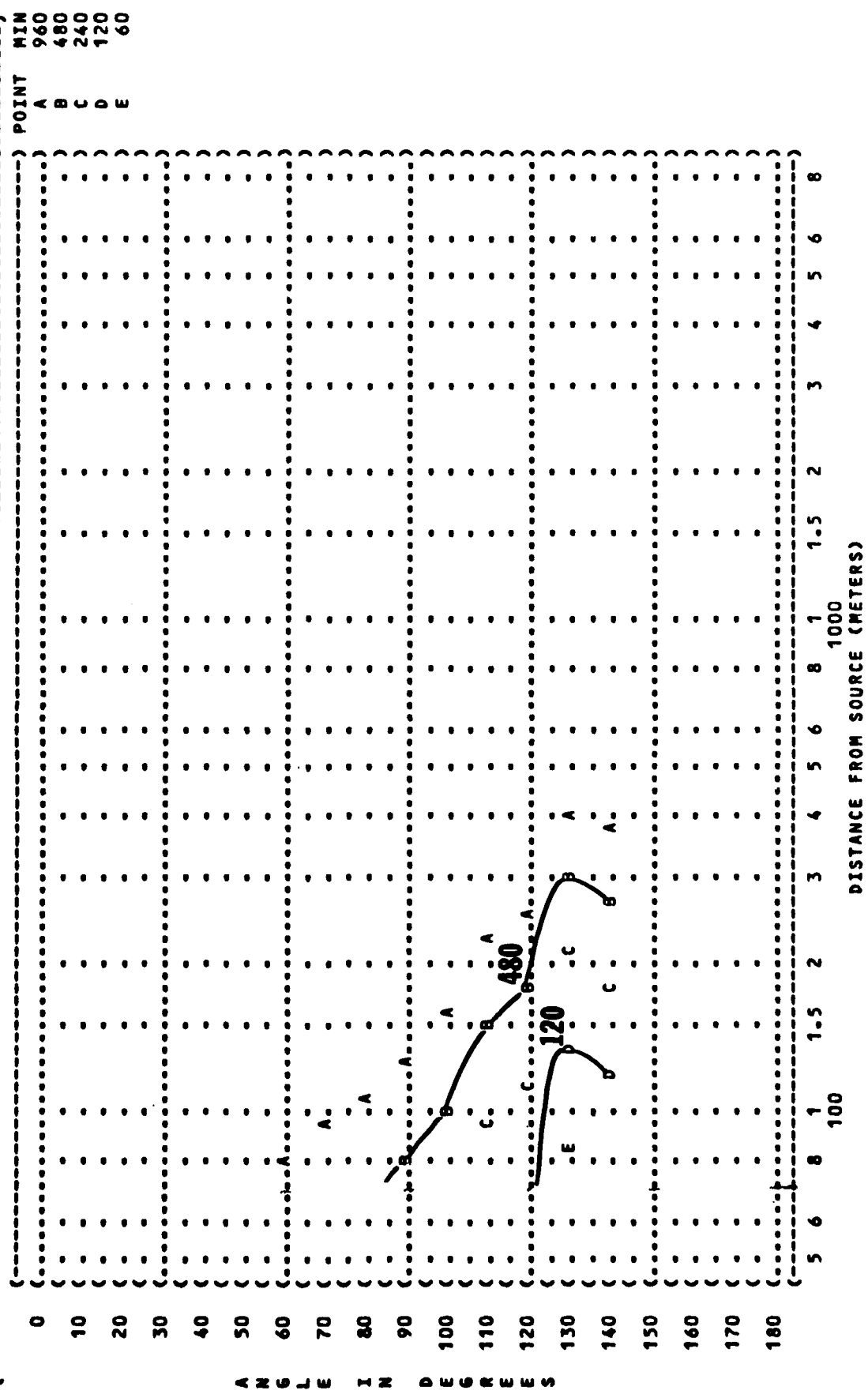


FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)

IDENTIFICATION:

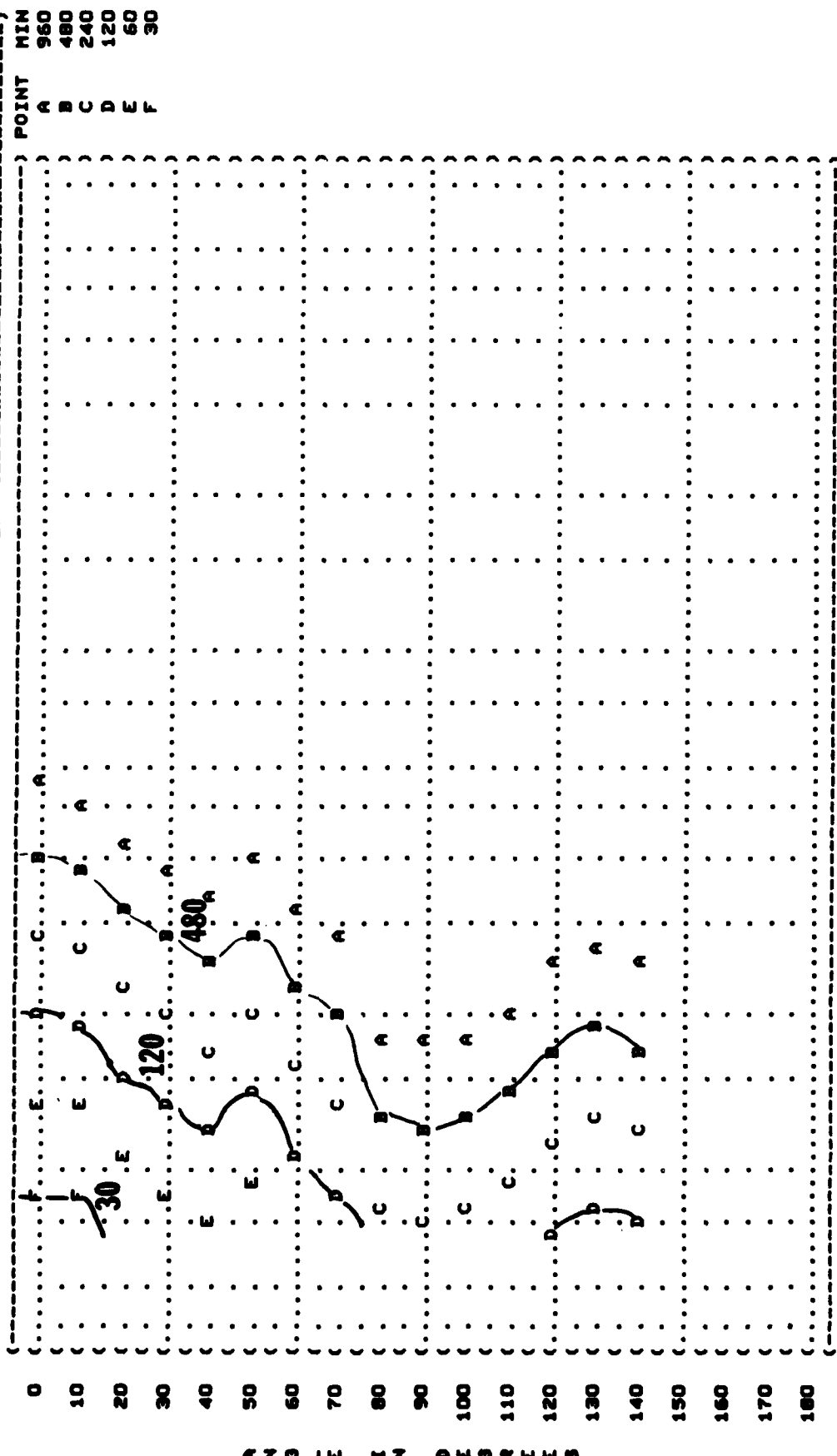
10 NO PROTECTION

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY: TEMP = 15 C

KC-10A AIRCRAFT (45X RPM ALL ENGINES) BAR PRESS = .760 M HG

CF6-50C2 (FREE FLOW) REL HUMID = 70 X

FAR FIELD NOISE () PAGE 7



ANGLER IN DEGREE

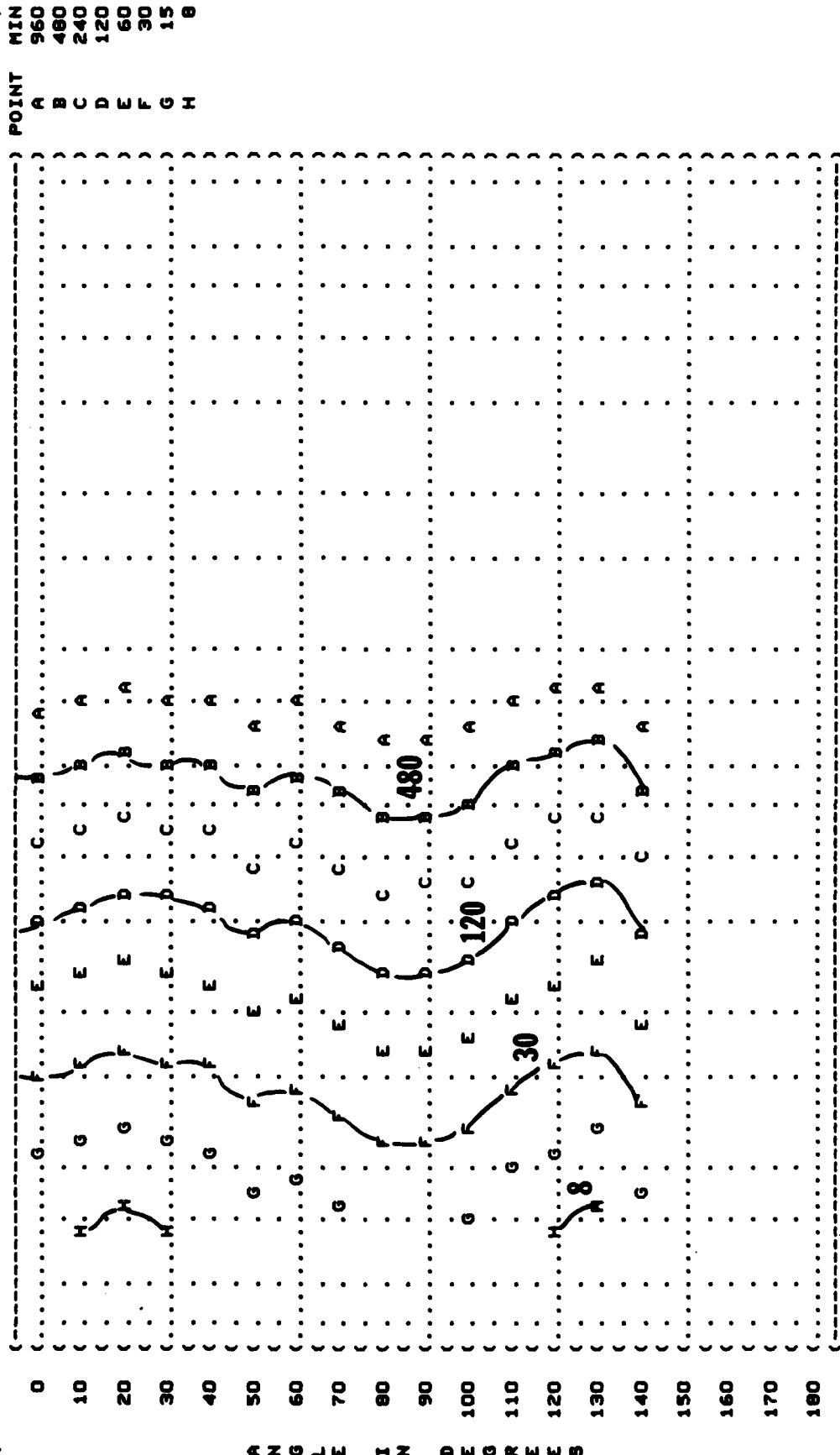
FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
 10 EQUAL TIME CONTOURS (MINUTES)
 NO PROTECTION

NOISE SOURCE/SUBJECT: KC-10A AIRCRAFT
 CF6-50C2
 FAR FIELD NOISE

OPERATION: 95% RPM ALL ENGINES
 FREE FLOW

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

IDENTIFICATION: OMEGA 1.4
 TEST BS-005-001
 RUN 08
 26 JUL 82
 PAGE 7



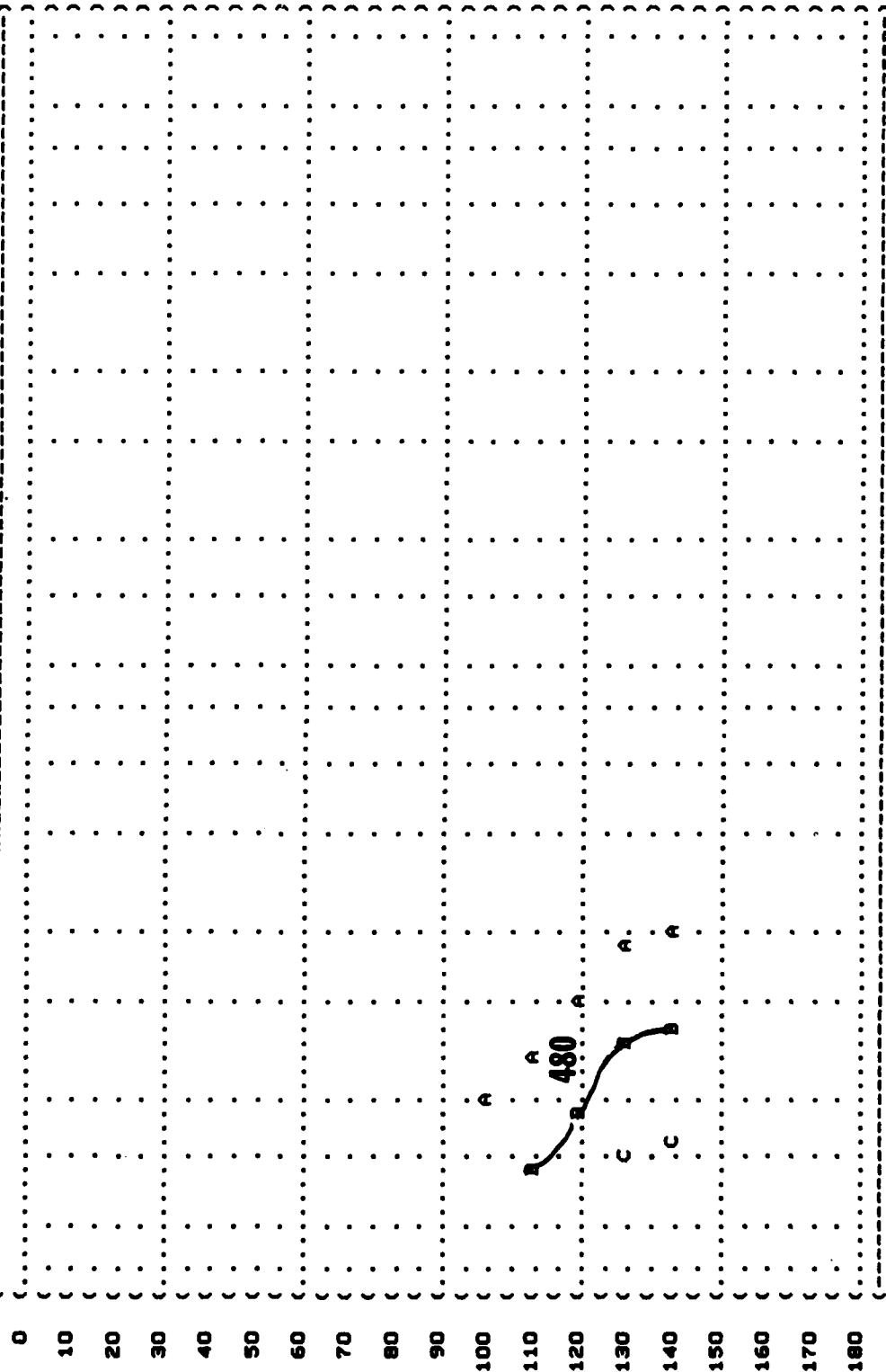
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 100
 DISTANCE FROM SOURCE (METERS)

FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
 10 EQUAL TIME CONTOURS (MINUTES)
 AMERICAN OPTICAL 1700 EAR MUFFS

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) OMEGA 1.4
 KC-10A AIRCRAFT () TEMP = 15 C) TEST BS-005-001
 CF6-50C2 () 95% RPM ALL ENGINES) BAR PRESS = .760 M HG) RUN 08
 FAR FIELD NOISE () FREE FLOW) REL HUMID = 70 %) 26 JUL 82
))))) PAGE 9

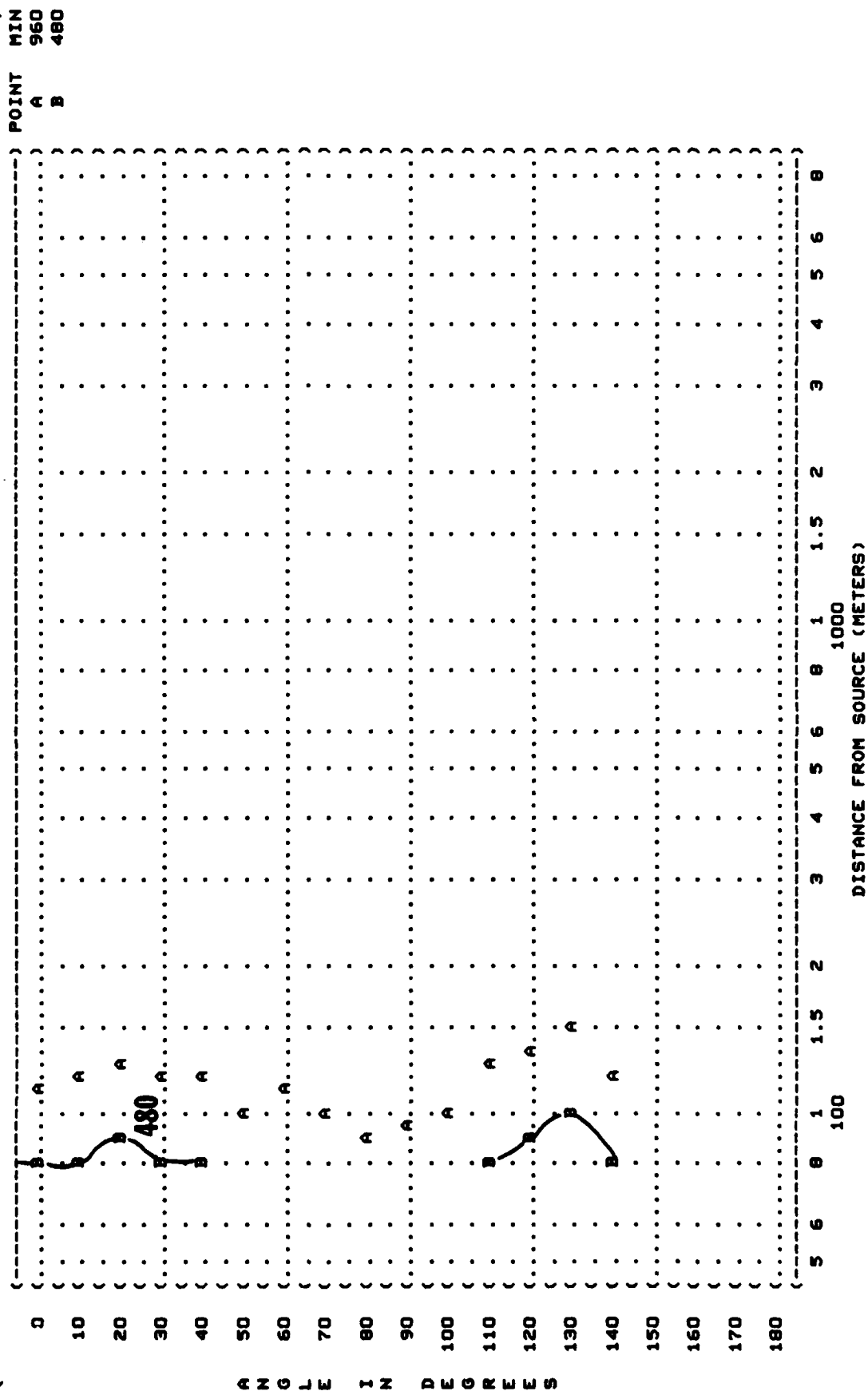
POINT MIN
 A 960
 B 480
 C 240

ANGLIES



DISTANCE FROM SOURCE (METERS)

((FIGURE: MAXIMUM PERMISSIBLE TIME [T] FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
((EQUAL TIME CONTOURS (MINUTES)
((**10**
((COMFIT TRIPLE FLANGE EAR PLUGS
(-----
(NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:
((((TEMP = 15 C
((KC-10A AIRCRAFT (95% RPM ALL ENGINES) BAR PRESS = .760 M HG
((CF6-SOC2 (FREE FLOW) REL HUMID = 70 %
((FAR FIELD NOISE ()
(-----
(IDENTIFICATION:
(OMEGA 1.4
(TEST BS-005-001
(RUN 08
(PAGE 11




```
(-----)
( FIGURE: SOUND PRESSURE LEVEL (SPL) )IDENTIFICATION:
( 11 EQUAL LEVEL CONTOURS (DB) )
( 31.5 HZ OCTAVE BAND )OMEGA 1.4
( )TEST BS-005-001
( NOISE SOURCE/SUBJECT: )METEOROLOGY:
( )TEMP = 15 C
( KC-10A AIRCRAFT )IDLE POWER 23.7% RPM )BAR PRESS = .760 M HG
( CF6-50C2 )ENGINE NO. 1 )REL HUMID = 70 %
( FAR FIELD NOISE )FREE FLOW )PAGE 18
(-----)
( )
( NO CONTOUR DATA---EITHER NO INPUT DATA WERE COMPUTED (=9999.0) )
( OR MINIMUM CONTOUR LEVEL REQUESTED IS GREATER THAN MAXIMUM COMPUTED LEVEL. )
( )
```

FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

IDLE POWER 23.7% RPM
ENGINE NO. 1
FREE FLOW

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

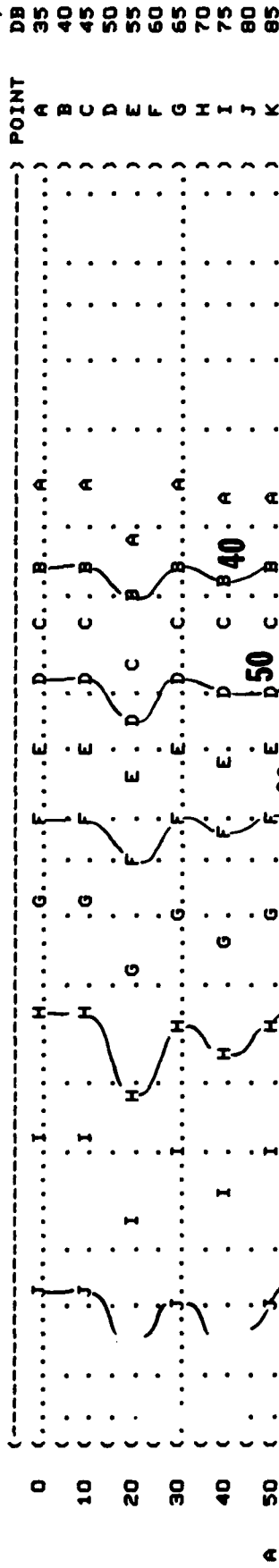
OMEGA 1.4

TEST BS-005-001

RUN 01

26 JUL 82

PAGE 19

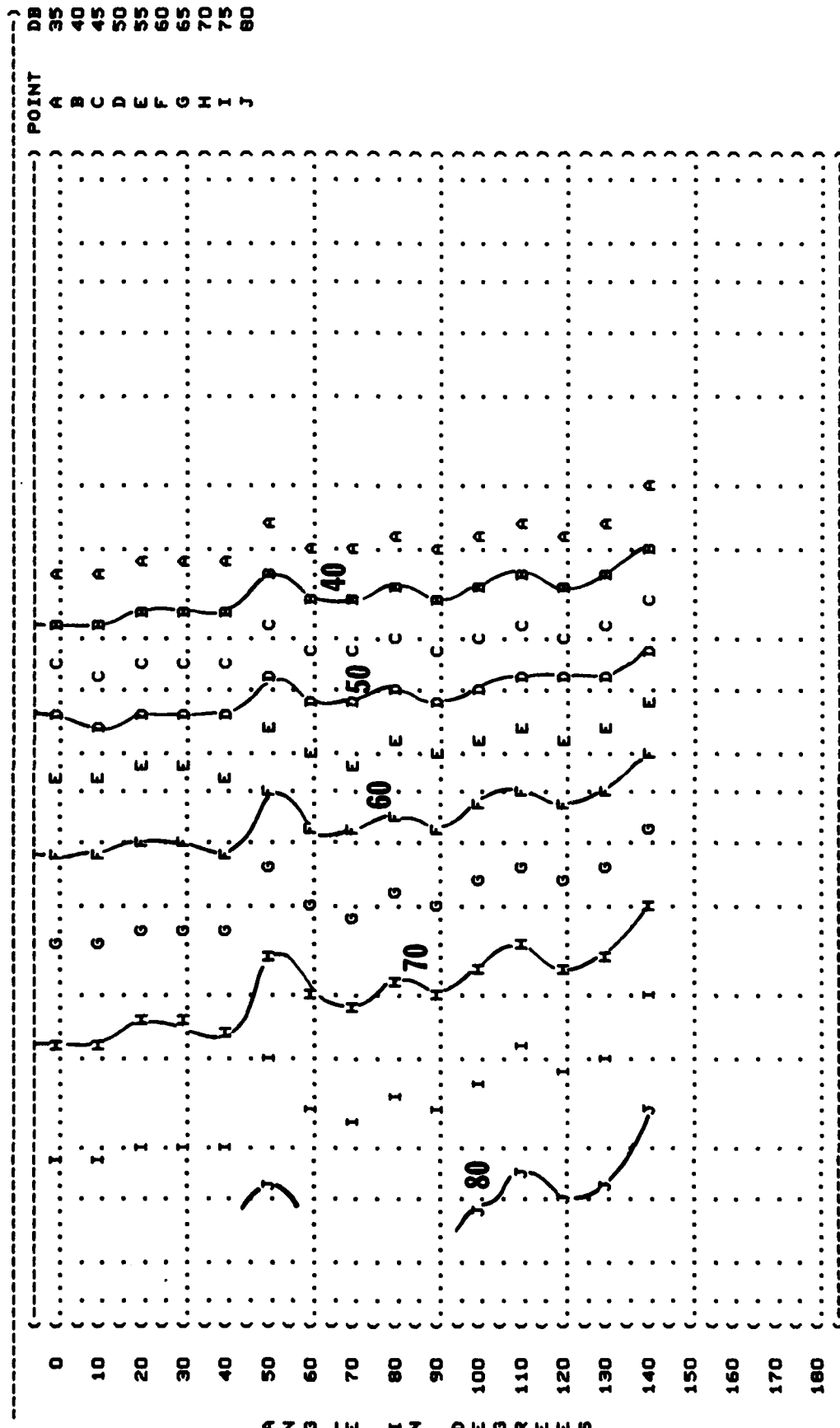


ANGLING DEGR EES

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

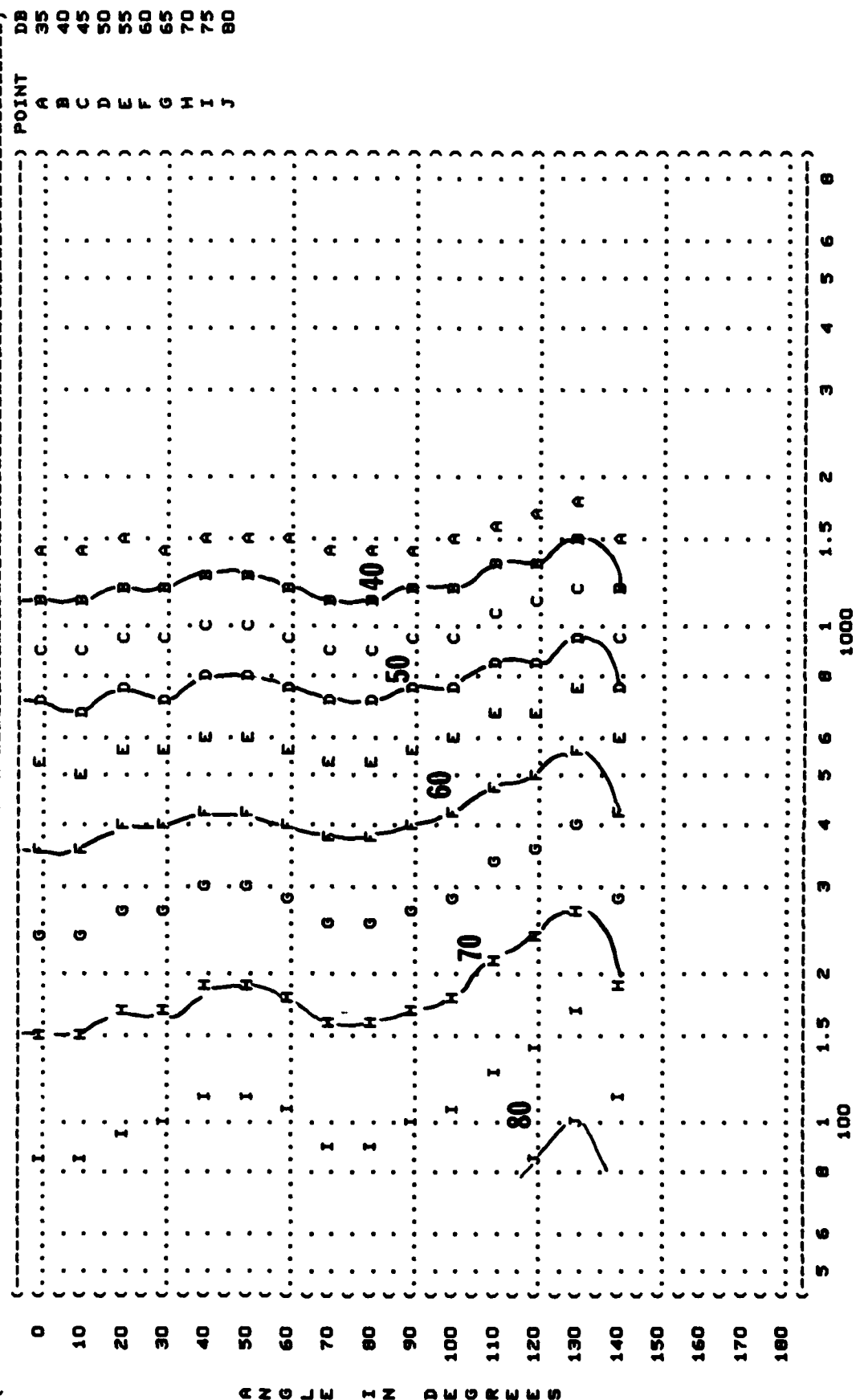
NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (KC-10A AIRCRAFT (IDLE POWER 23.7% RPM) TEMP = 15 C)
 (CF6-50C2 (ENGINE NO. 1) BAR PRESS = .760 M HG)
 (FAR FIELD NOISE (FREE FLOW) REL HUMID = 70 %)

IDENTIFICATION:)
) OMEGA 1.4
) TEST 85-005-001
) RUN 01
) 26 JUL 82
) PAGE 20



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

(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 250 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (IDLE POWER 23.7% RPM
 (CF6-50C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 01
 (26 JUL 82
 (PAGE 21



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

FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
500 HZ OCTAVE BAND

11

IDENTIFICATION:

OMEGA 1.4

TEST 95-005-001

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

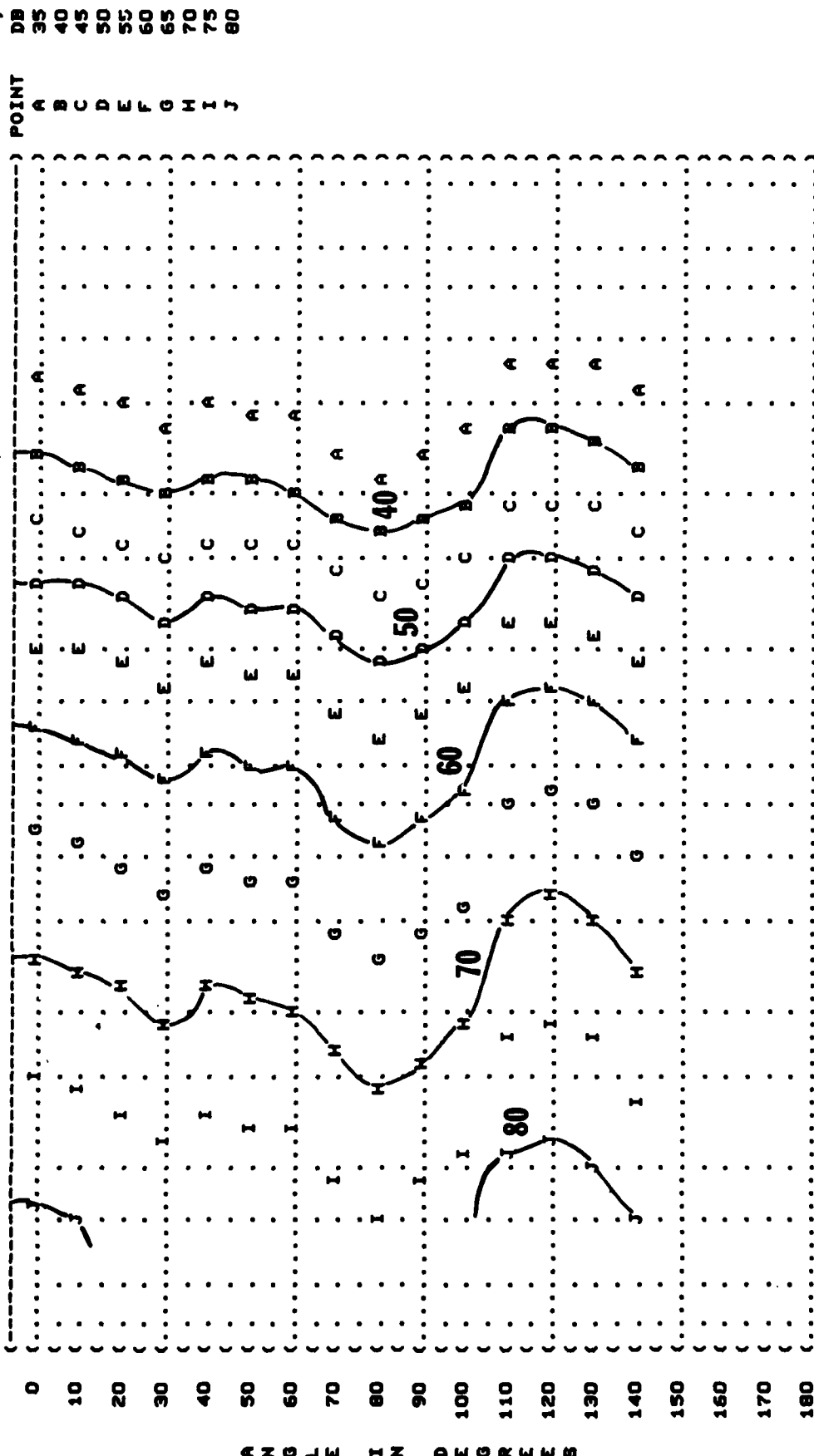
IDLE POWER 23.7X RPM
ENGINE NO. 1
FREE FLOW

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

RUN 01

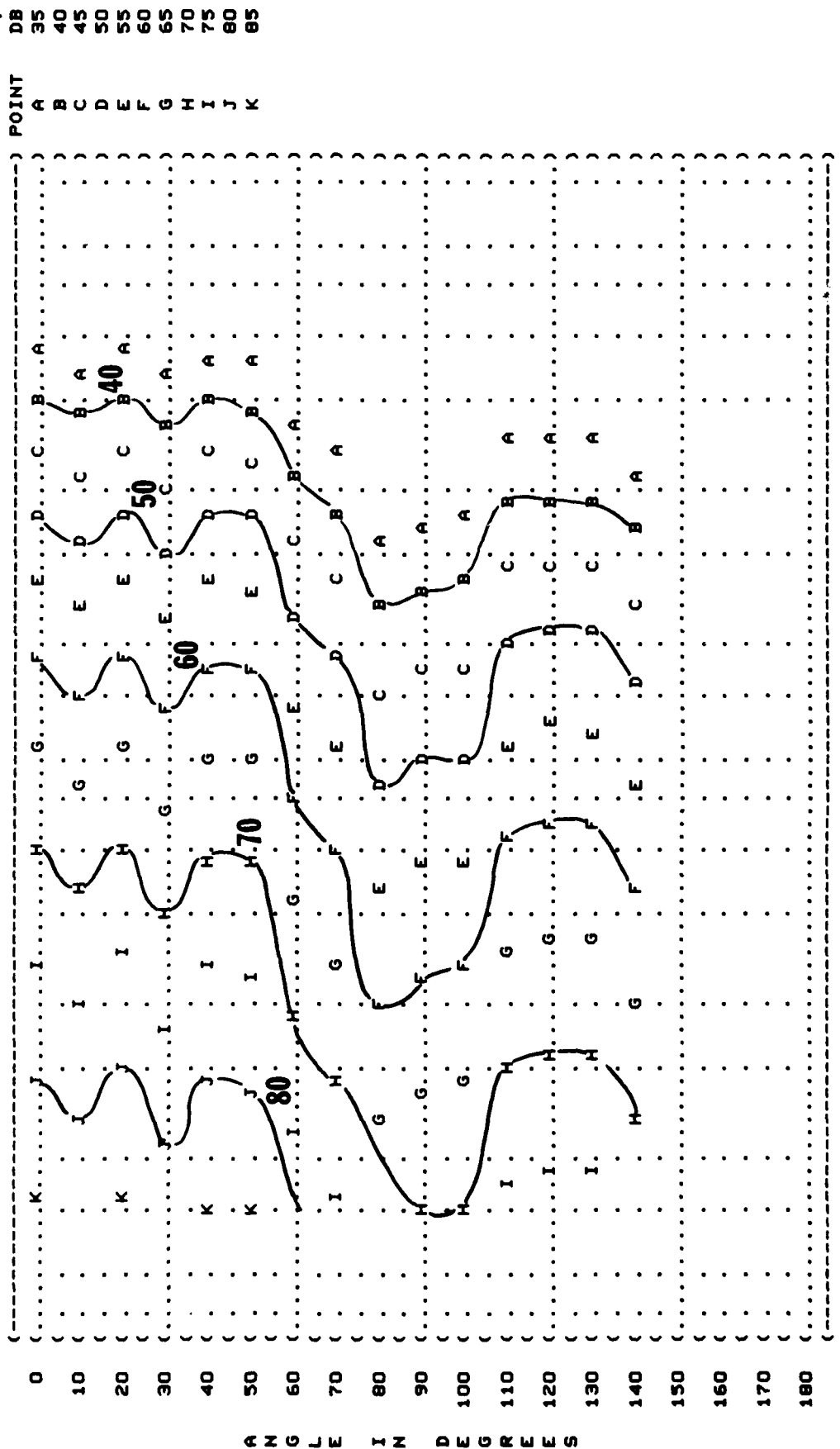
26 JUL 82

PAGE 22



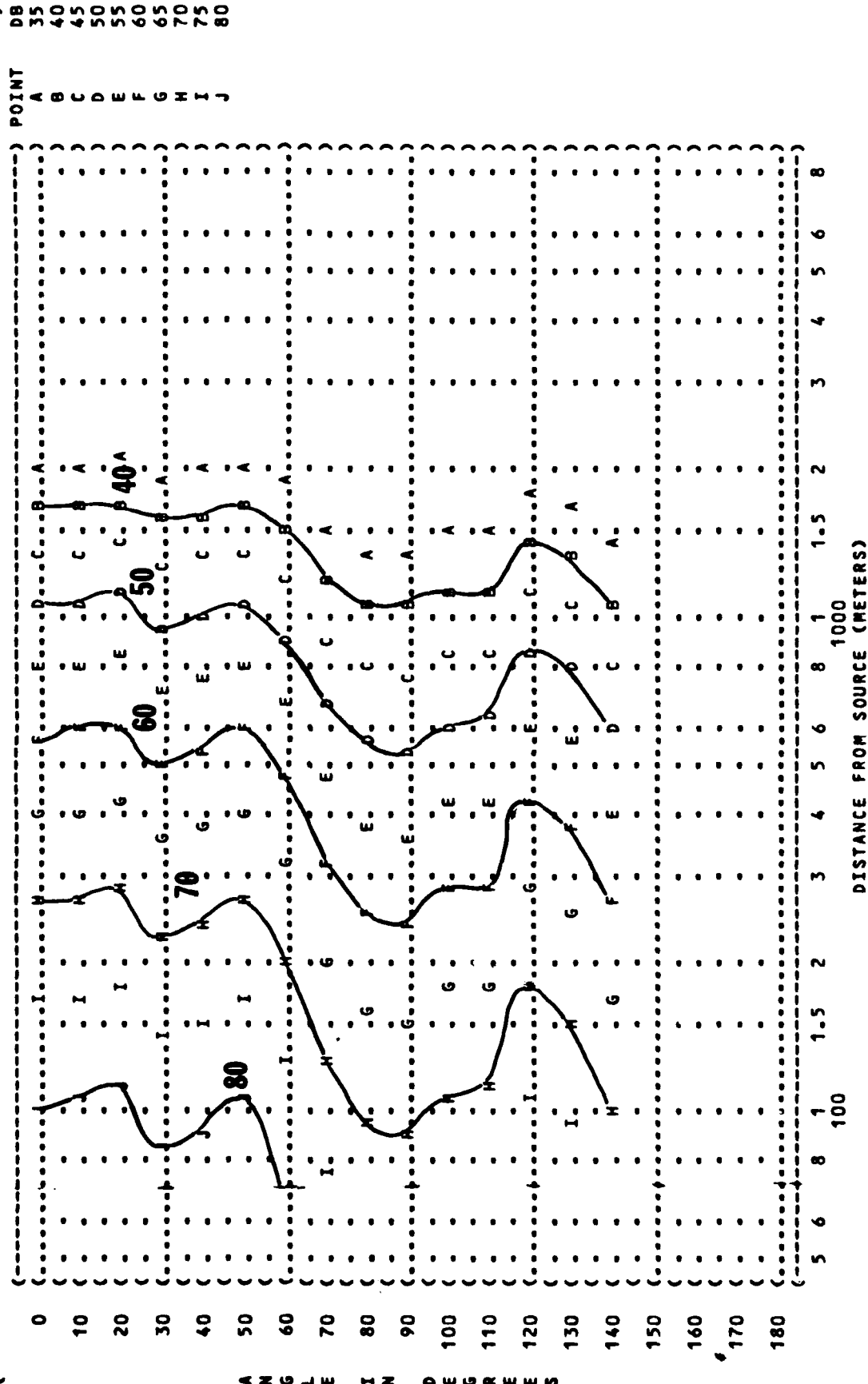
ANGLES

(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 1000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (IDLE POWER 23.7% RPM
 (CF6-50C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 01
 (26 JUL 82
 (PAGE 23

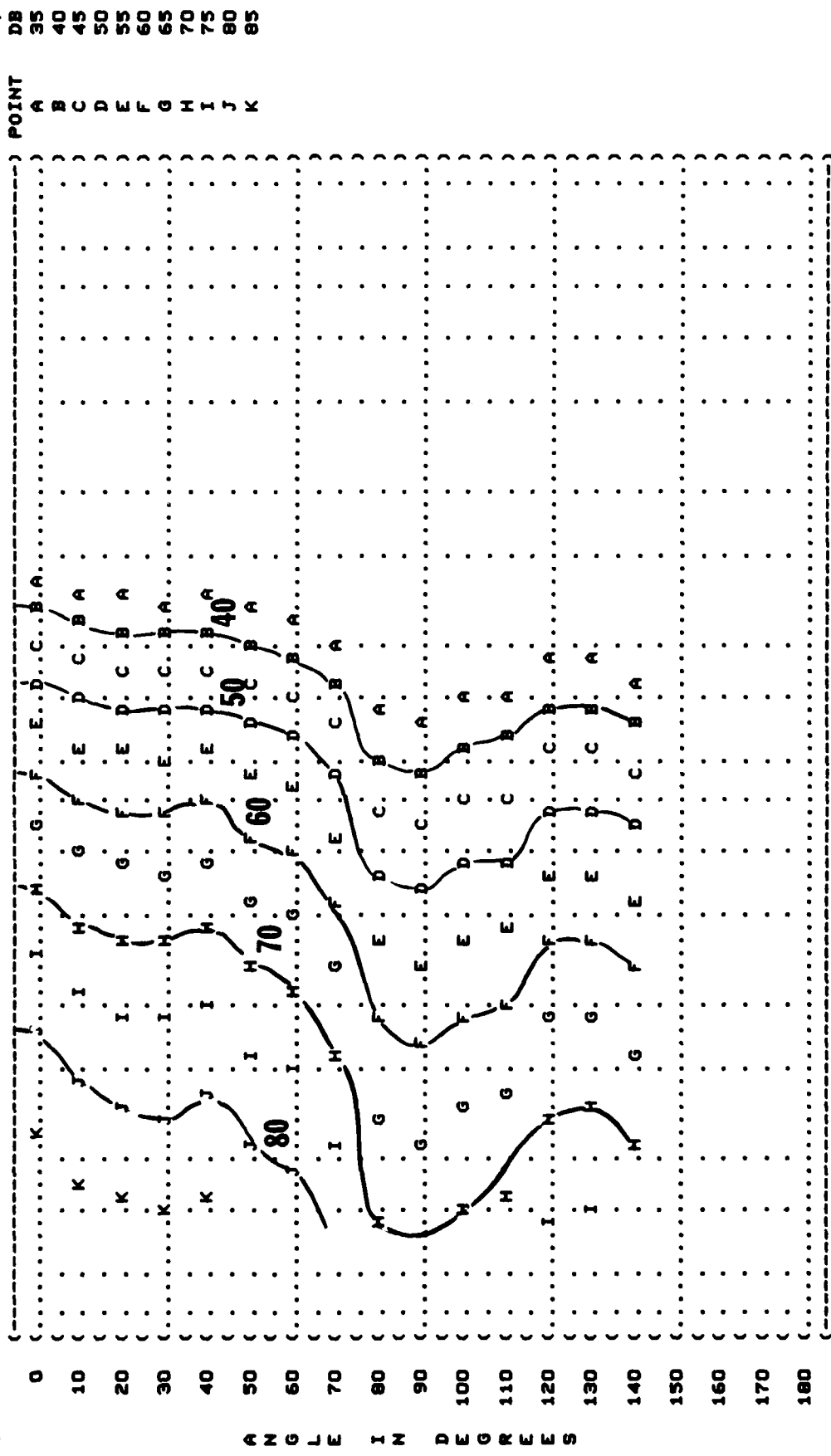


A N G L E I N D E G R E E S

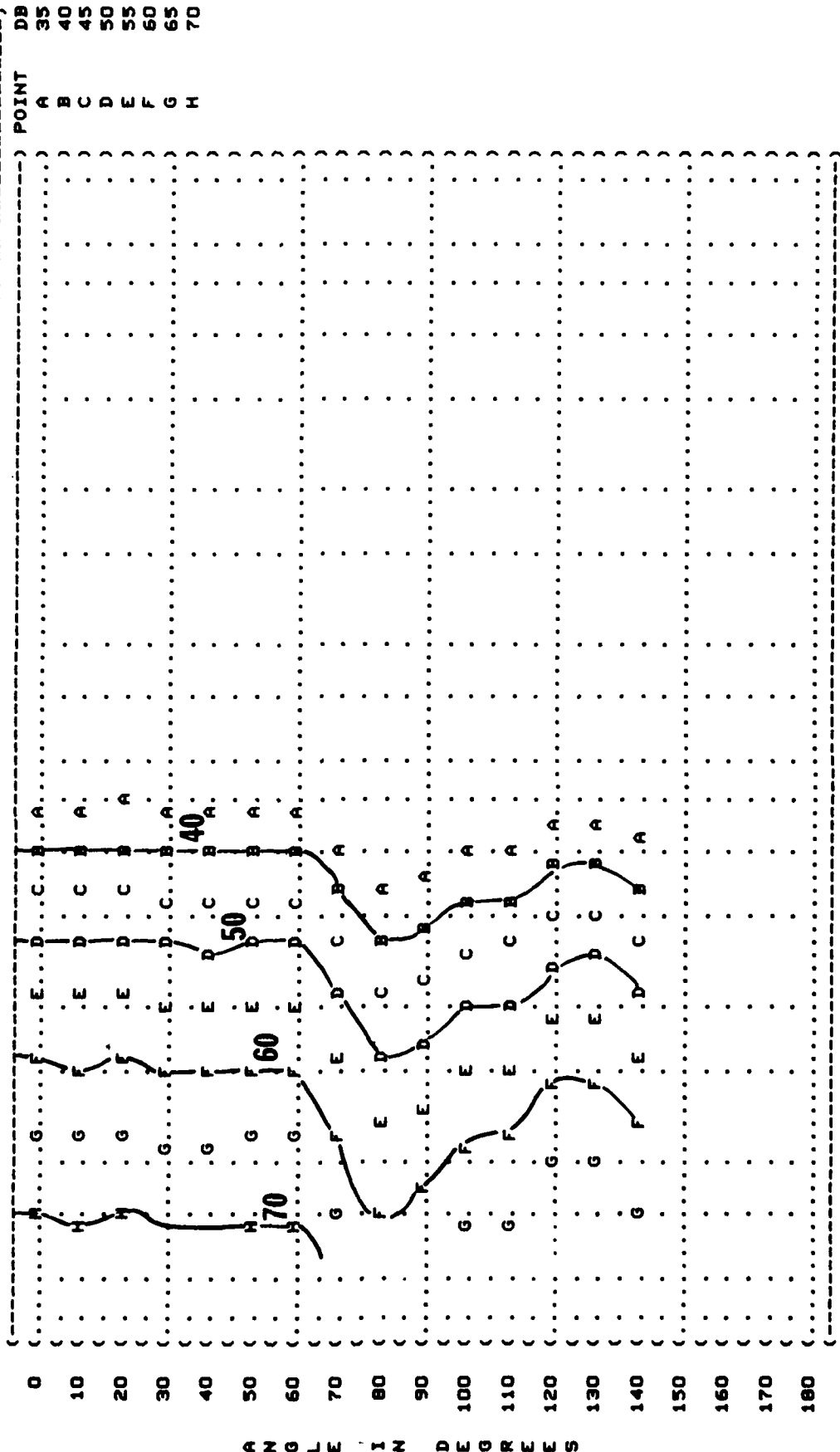
(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 2000 HZ OCTAVE BAND
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST BS-005-001
 () RUN 01
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () PAGE 24
 (NOISE SOURCE/SUBJECT:
 () OPERATION:
 () KC-10A AIRCRAFT
 () IDLE POWER 23.7% RPM
 () ENGINE NO. 1
 () FREE FLOW
 () FAR FIELD NOISE



(FIGURE: SOUND PRESSURE LEVEL [SPL]) IDENTIFICATION:)
 (11 EQUAL LEVEL CONTOURS (DB))
 (4000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (KC-10A AIRCRAFT (IDLE POWER 23.7X RPM) TEMP = 15 C)
 (CF6-50C2 (ENGINE NO. 1) BAR PRESS = .760 M HG)
 (FAR FIELD NOISE (FREE FLOW) REL HUMID = 70 %)
 (TEST BS-005-001)
 (RUN 01)
 (26 JUL 82)
 (PAGE 25)



(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 8000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (IDLE POWER 23.7% RPM
 (CF6-30C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 01
 (26 JUL 82
 (PAGE 26



ANGLED IN DEGREE S

FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
11 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:
(KC-10A AIRCRAFT
(45X RPM
(ENGINE NO. 1
(FREE FLOW

METEOROLOGY:

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

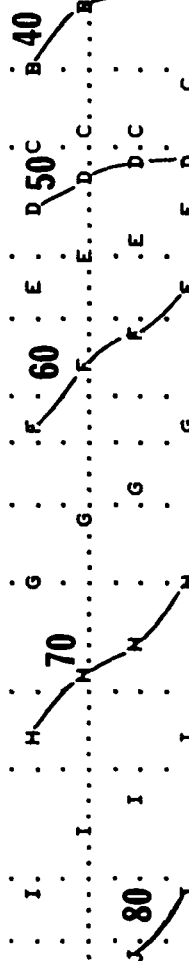
OMEGA 1.4

TEST BS-005-001
RUN 02

PAGE 18

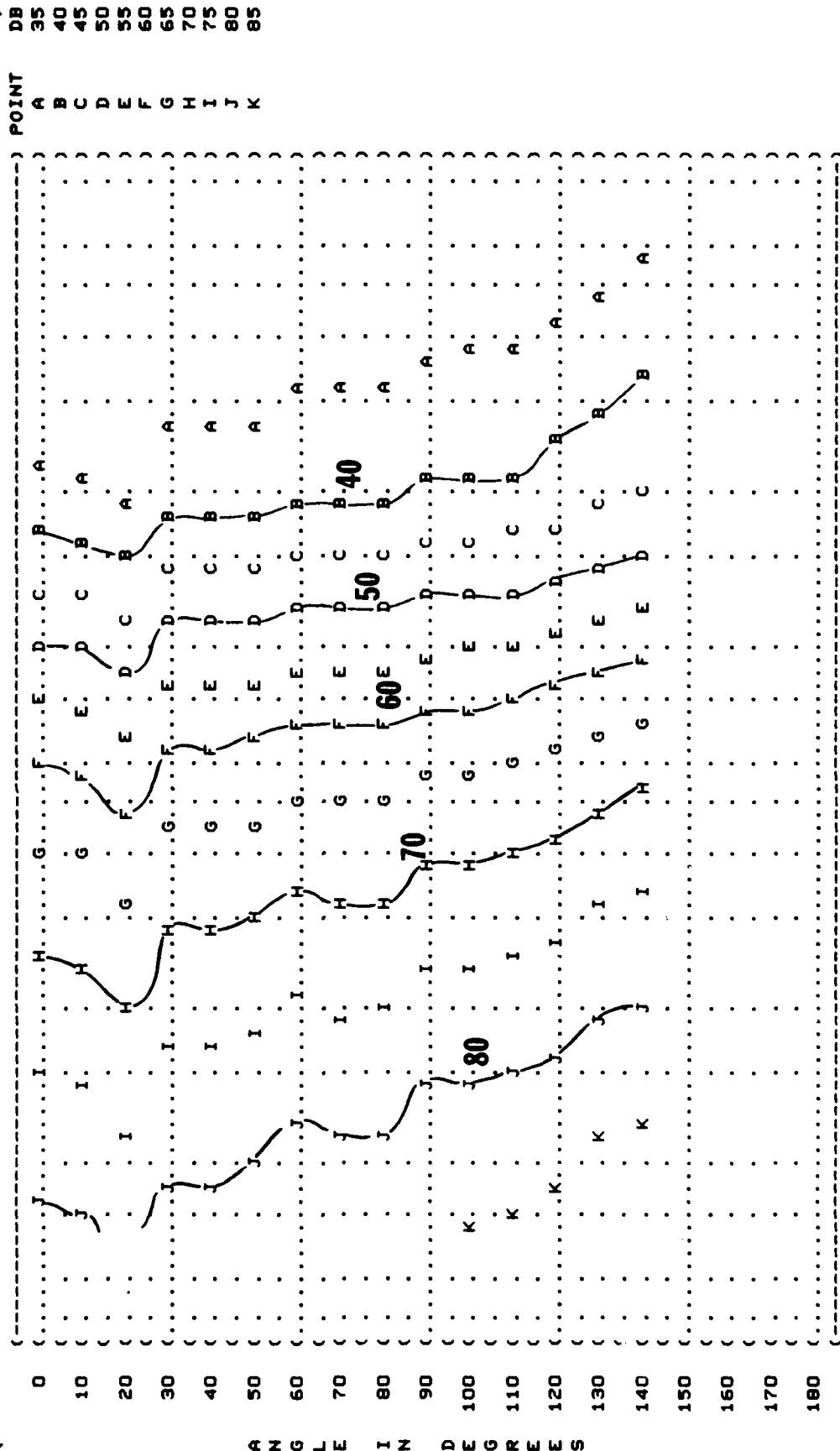
DB	POINT
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40	B
45	C
50	D
55	E
60	F
65	G
70	H
75	I
80	J

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



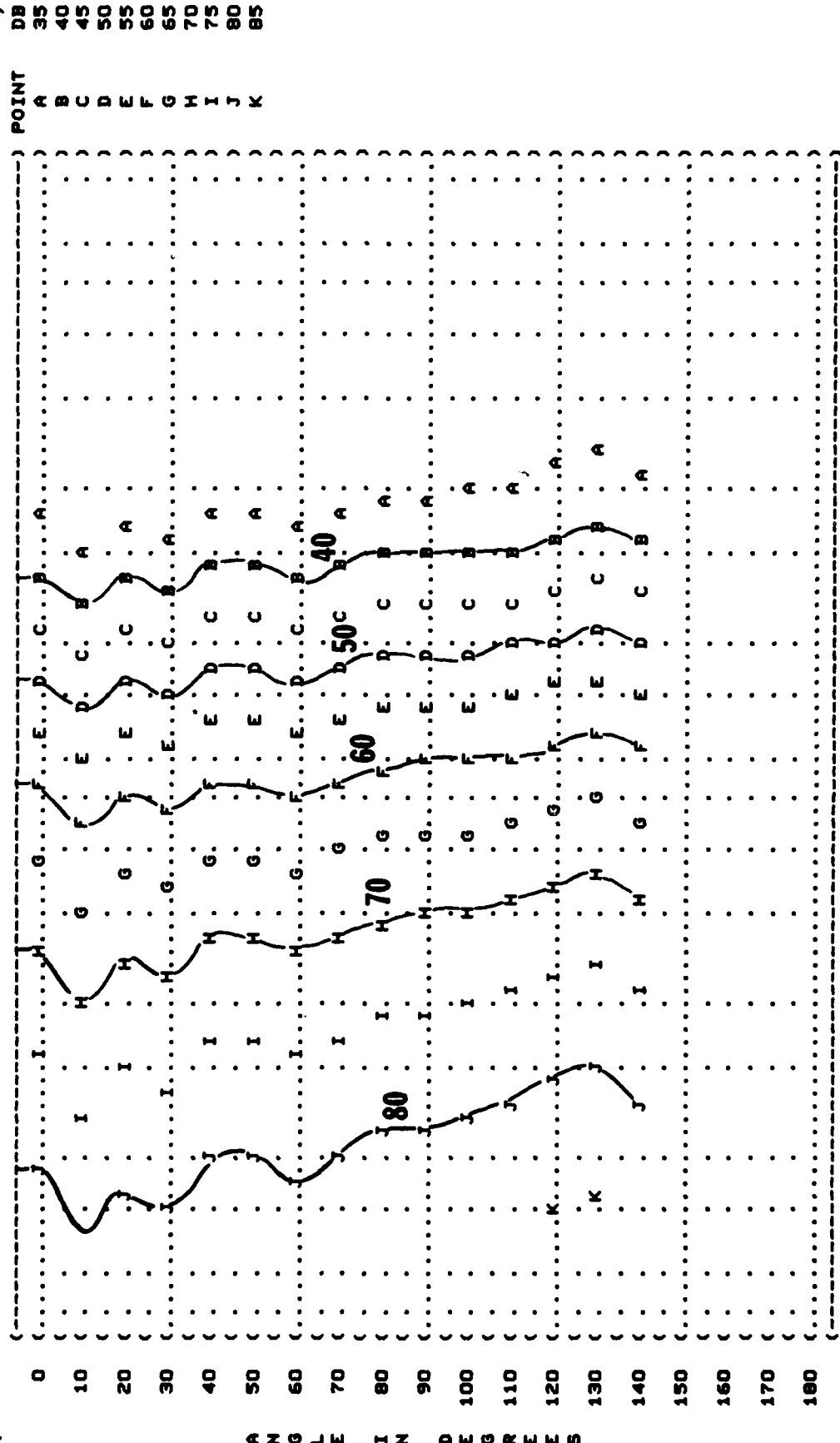
5 6 8 1 1.5 2 3 4 5 6 8 1000
DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 63 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY:
 (KC-10A AIRCRAFT (45X RPM (TEMP = 15 C
 (CFS-SOC2 (ENGINE NO. 1 (BAR PRESS = .760 M HG
 (FAR FIELD NOISE (FREE FLOW (REL HUMID = 70 %
 ((((RUN 02
 (TEST 95-005-001
 (OMEGA 1.4
 (IDENTIFICATION:
 (PAGE 19



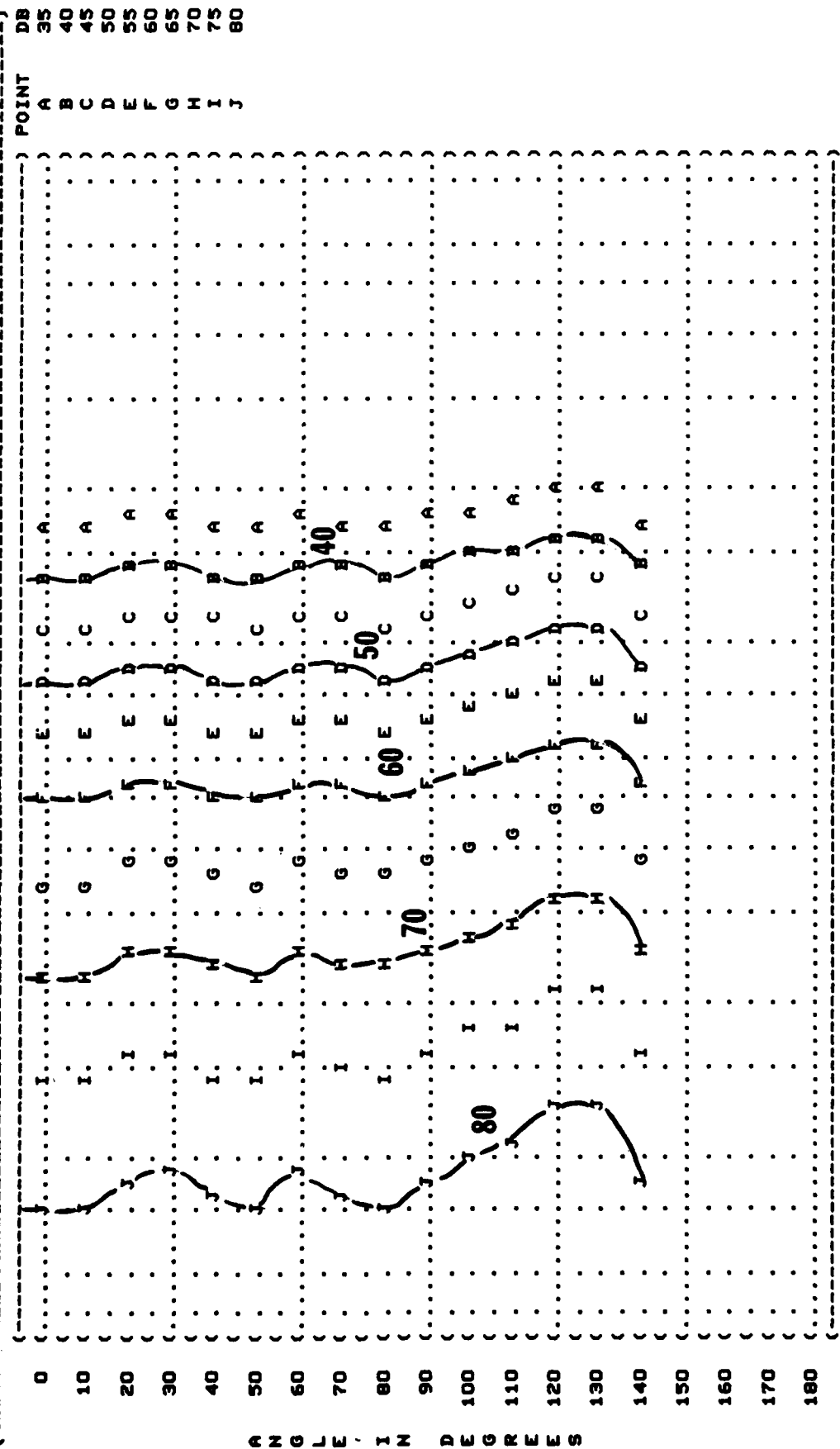
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(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 125 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY:
 (KC-10A AIRCRAFT (45X RPM (TEMP = 15 C
 (CF6-50C2 (ENGINE NO. 1 (BAR PRESS = .760 M HG
 (FAR FIELD NOISE (FREE FLOW (REL HUMID = 70 %
 ((((PAGE 20
 (IDENTIFICATION: (OMEGA 1.4
 (TEST BS-005-001
 (RUN 02
 (26 JUL 82
 (



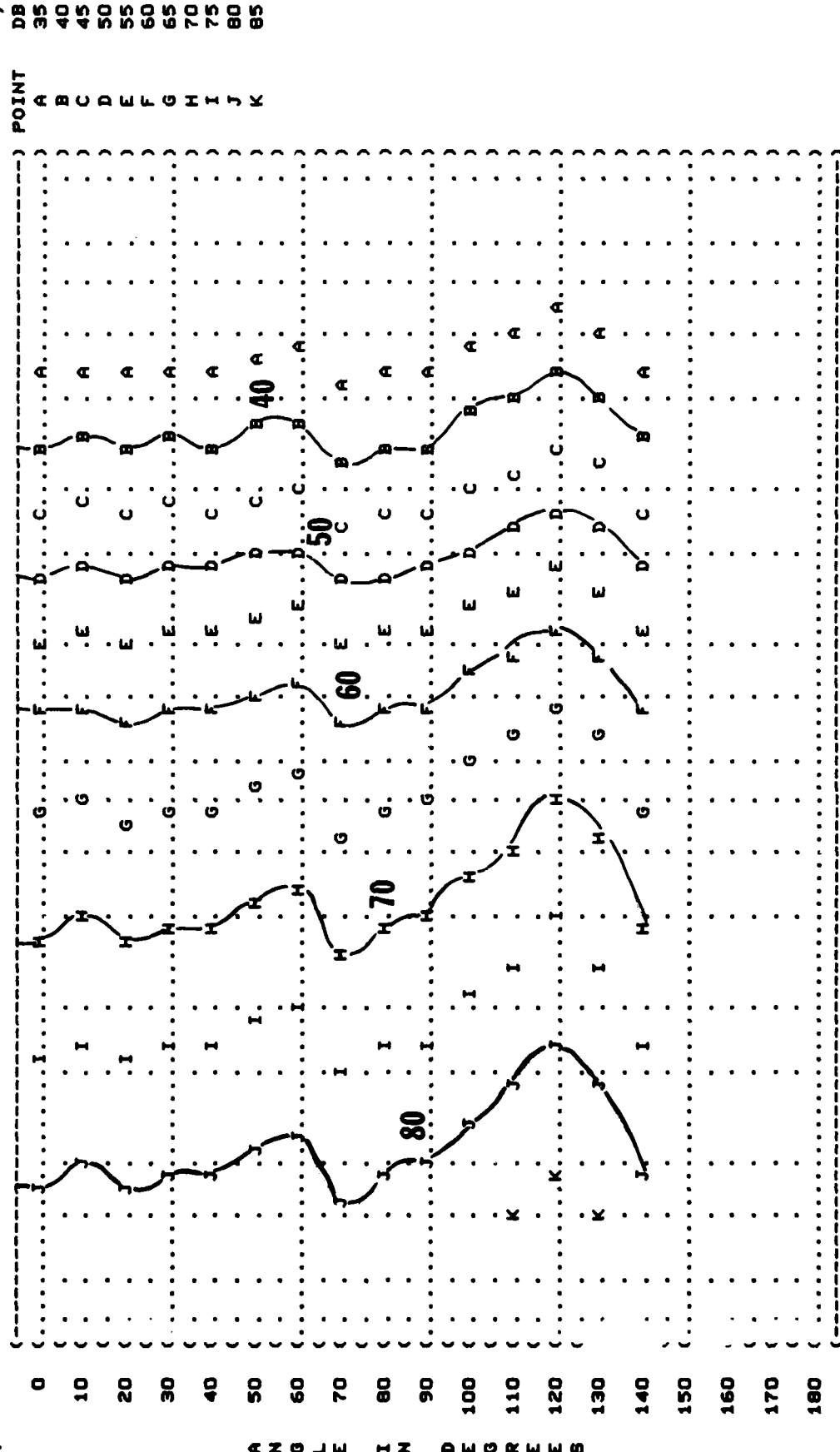
5 6 8 1 1.5 2 3 4 5 6 8
 100
 DISTANCE FROM SOURCE (METERS)

) IDENTIFICATION:
)
) OMEGA 1.4
) TEST BS-005-001
) RUN 02
)
) METEOROLOGY:
) TEMP = 15 C
) BAR PRESS = .760 M HG
) REL HUMID = 70 X
)
) OPERATION:
)
) 45X RPM
) ENGINE NO. 1
) FREE FLOW
)
) NOISE SOURCE/SUBJECT:
) KC-10A AIRCRAFT
) CF6-50C2
) FAR FIELD NOISE



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

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (11 500 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (45X RPM
 (CF6-50C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 X
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 02
 (PAGE 22



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

(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 1000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (45X RPM
 (CF6-SOC2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 X
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 02
 (PAGE 23

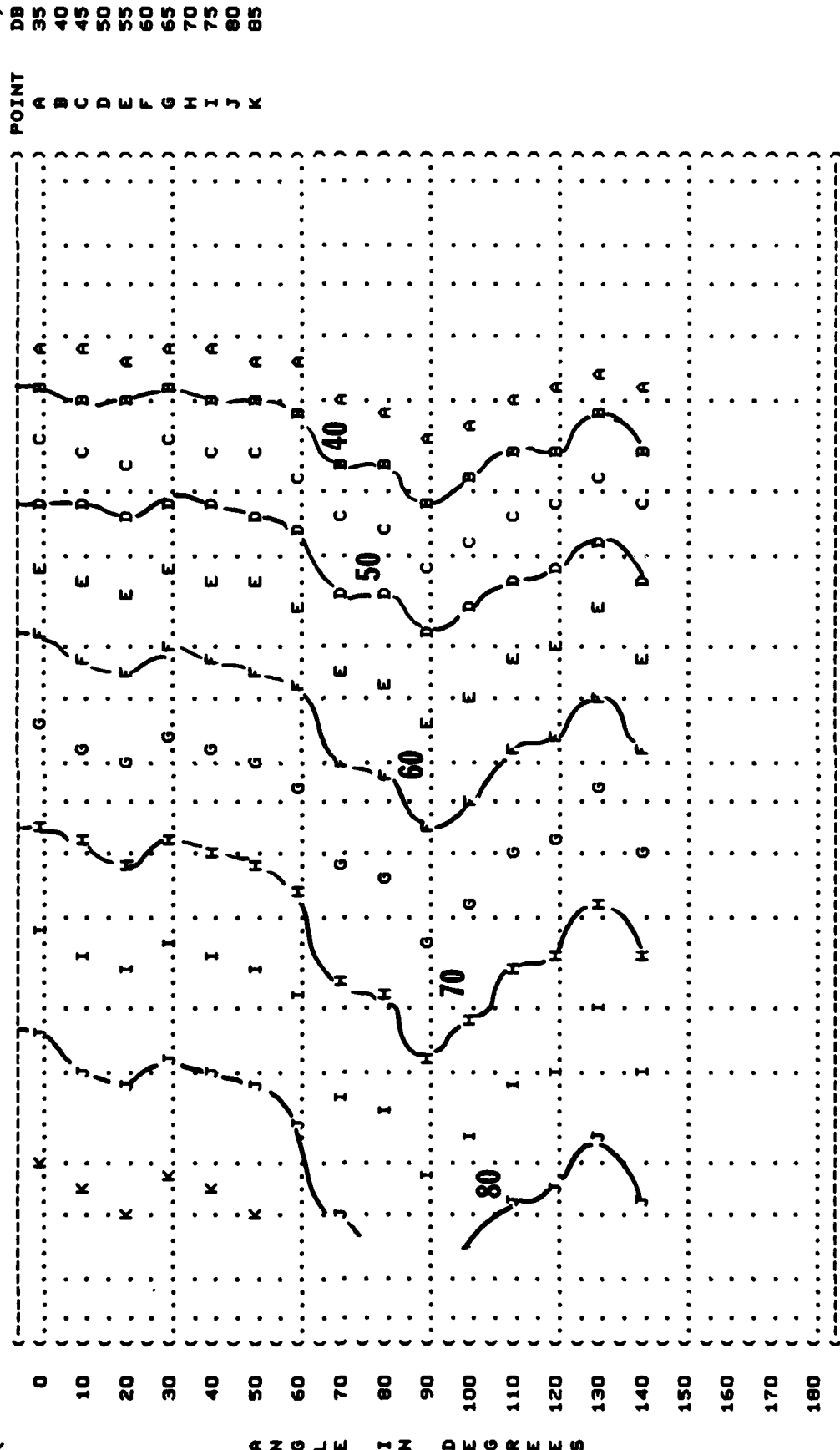


FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
11 2000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
CF6-SOC2
FAR FIELD NOISE

45X RPM
ENGINE NO. 1
FREE FLOW

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

OMEGA 1.4

TEST BS-005-001
RUN 02

PAGE 24

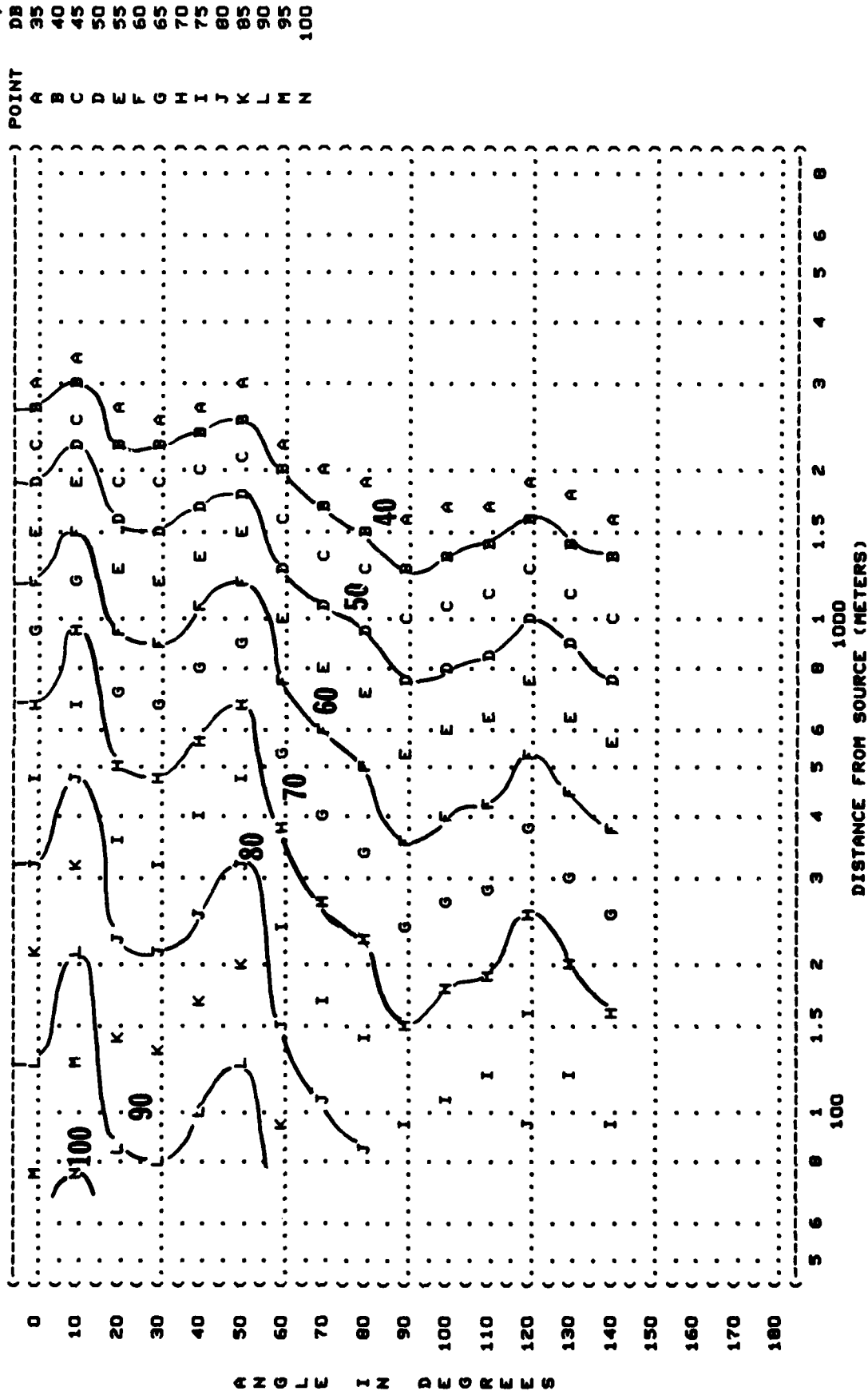


FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
4000 HZ OCTAVE BAND

11

NOISE SOURCE/SUBJECT:

OPERATION:
KC-10A AIRCRAFT
CF6-SOC2
FAR FIELD NOISE
45X RPM
ENGINE NO. 1
FREE FLOW

METEOLOGY:

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

IDENTIFICATION:

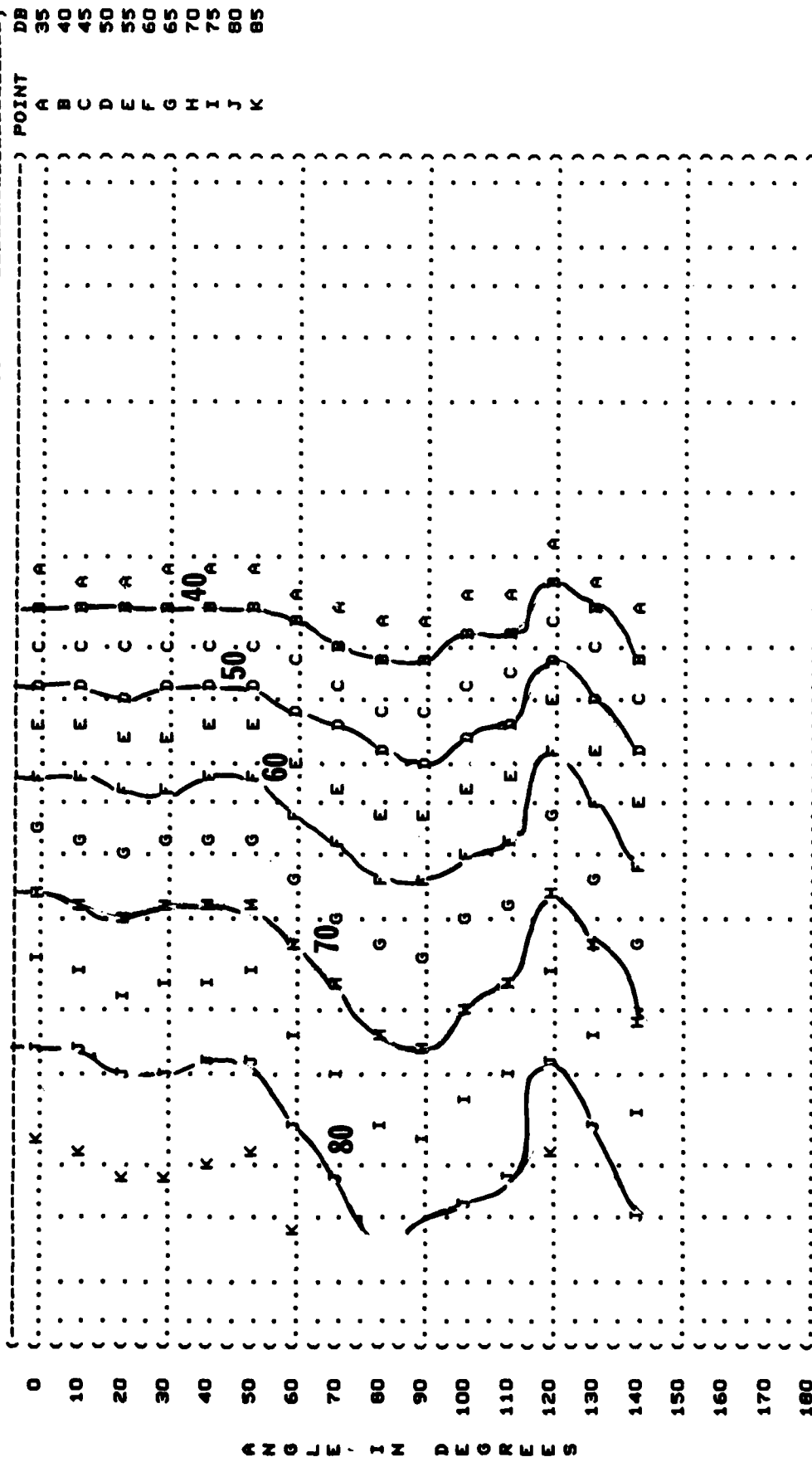
OMEGA 1.4

TEST BS-005-001

RUN 02

26 JUL 82

PAGE 25



DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
11 31.5 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 03

NOISE SOURCE/SUBJECT:
KC-10A AIRCRAFT
CF6-SOC2
FAR FIELD NOISE

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

OPERATION:
70% RPM
ENGINE NO. 1
FREE FLOW

PAGE 18

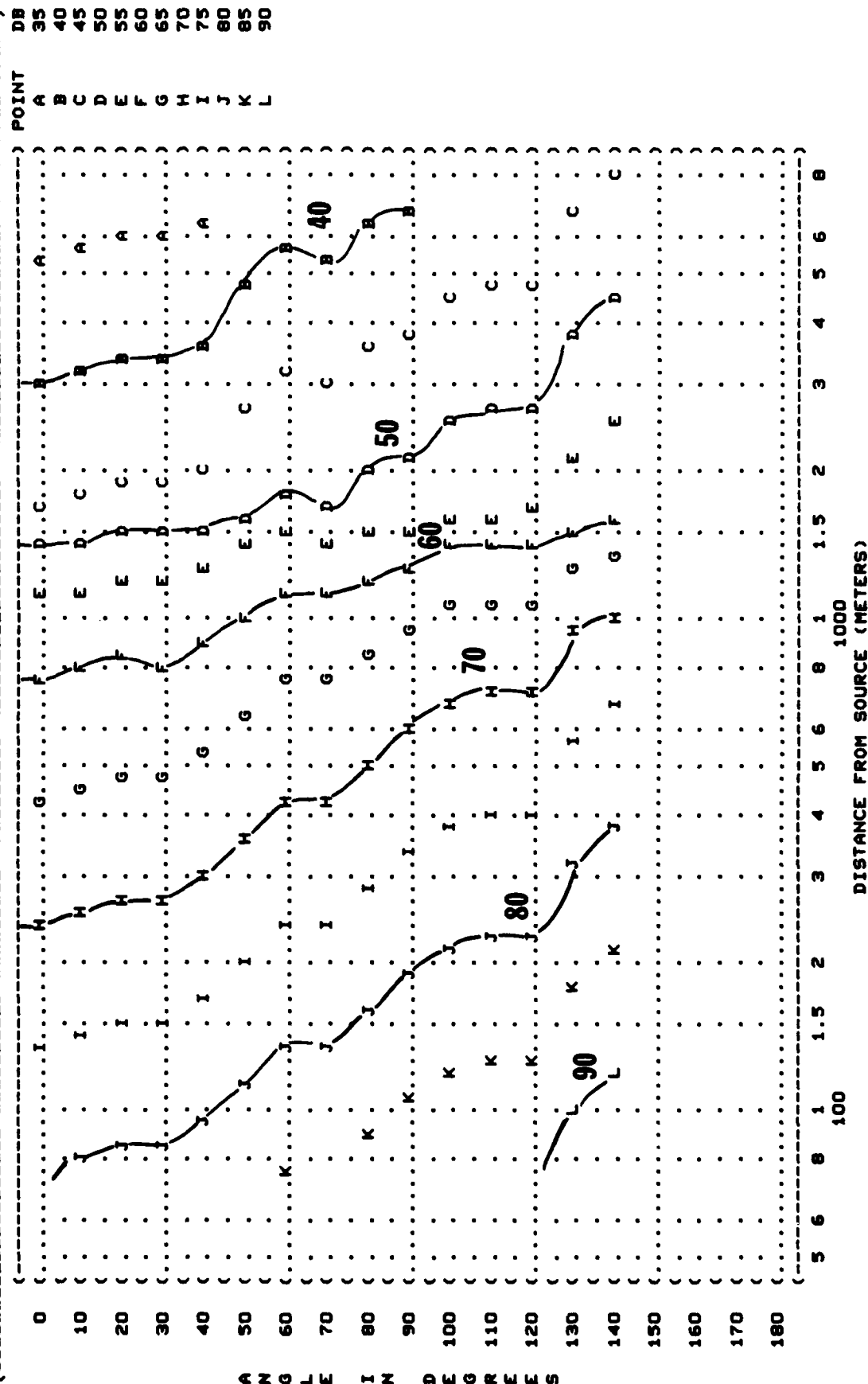


FIGURE: SOUND PRESSURE LEVEL [SPL]
 11 EQUAL LEVEL CONTOURS (DB)
 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
 CF6-50C2
 FAR FIELD NOISE

70X RPM
 ENGINE NO. 1
 FREE FLOW

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

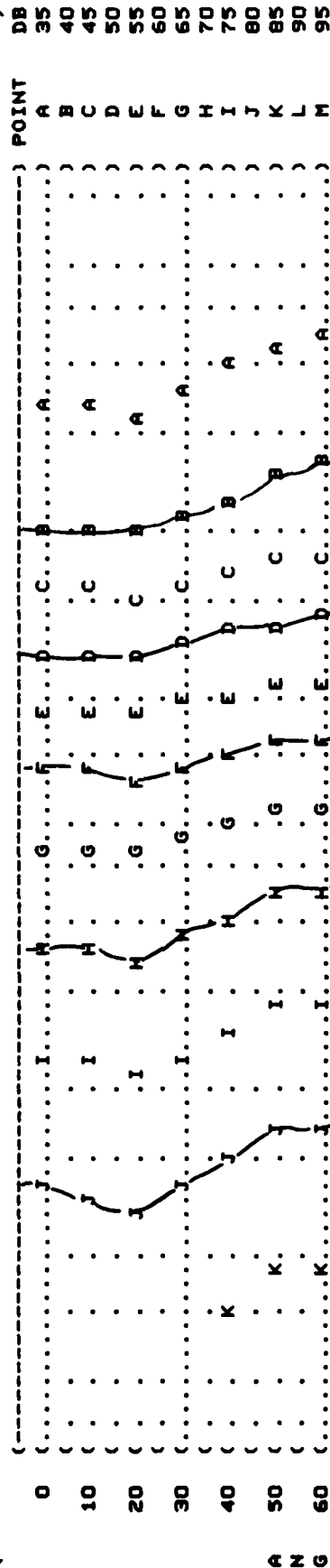
OMEGA 1.4

TEST BS-005-001

RUN 03

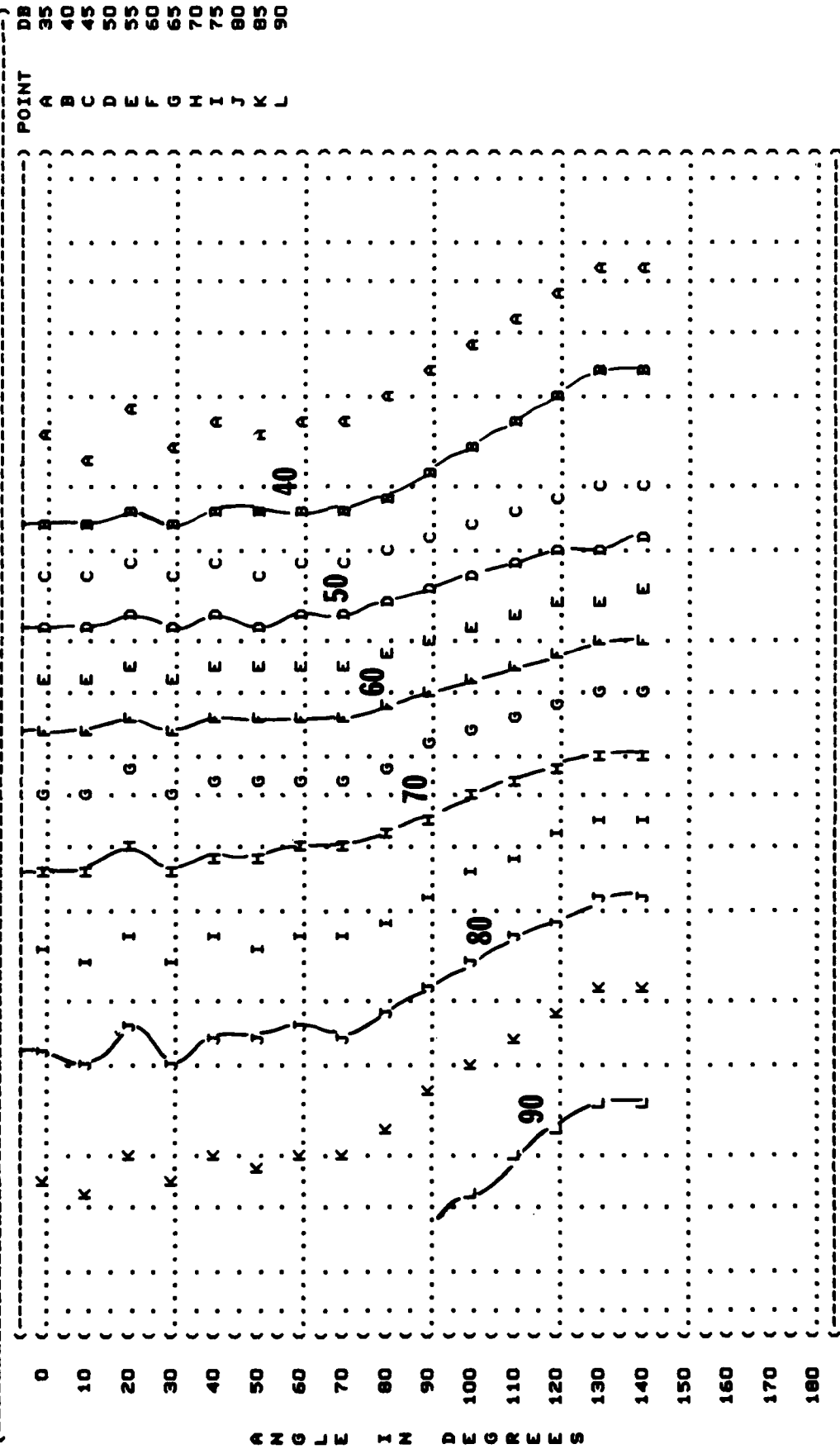
26 JUL 82

PAGE 19



ANGLES

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (125 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (70X RPM
 (CF6-50C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 X
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 03
 (26 JUL 82
 (PAGE 20



DB 35 40 45 50 55 60 65 70 75 80 85 90
 POINT A B C D E F G H I J K L
 5 6 8 1 1.5 2 3 4 5 6 8
 100 1000
 DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
11 250 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

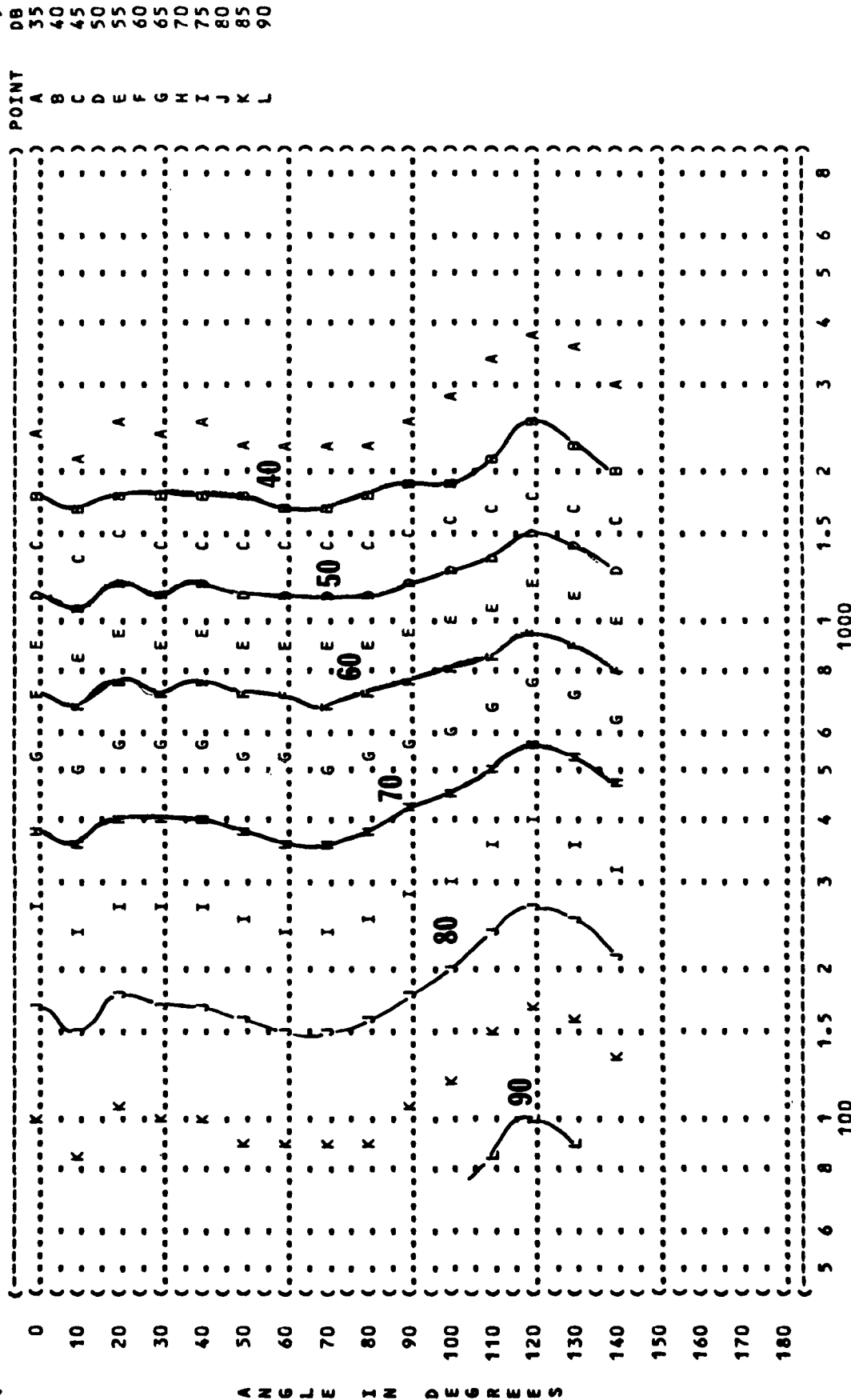
OPERATION:
KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

METEOROLOGY:

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

IDENTIFICATION:

OMEGA 1.4
TEST BS-005-001
RUN 03
26 JUL 82
PAGE 21



IDENTIFICATION:
OMEGA 1.4

OMEGA 1.4

TEST BS-005-001
RUN 03

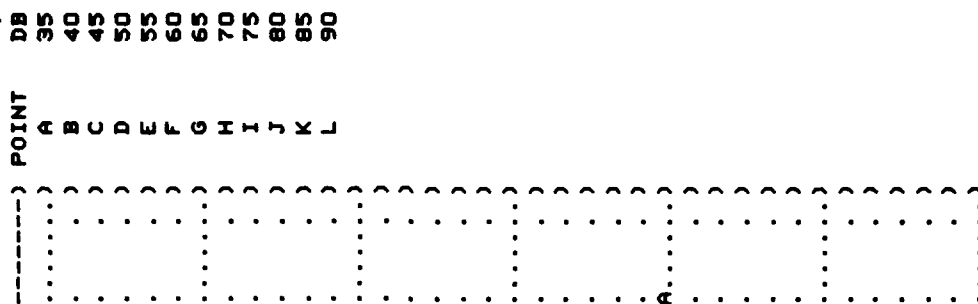
METEOROLOGY:

RUN 03

TEMP = 15 C

26 JUL 82

REL HUMID = 70 %



DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

70X RPM
ENGINE NO. 1
FREE FLOW

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

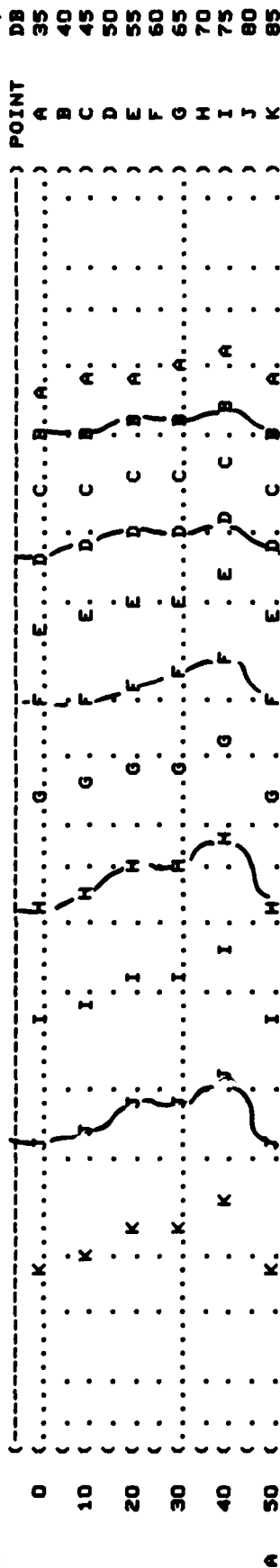
OMEGA 1.4

TEST BS-005-001

RUN 03

26 JUL 82

PAGE 23



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

FIGURE: SOUND PRESSURE LEVEL [SPL]
 11 EQUAL LEVEL CONTOURS (DB)
 2000 HZ OCTAVE BAND

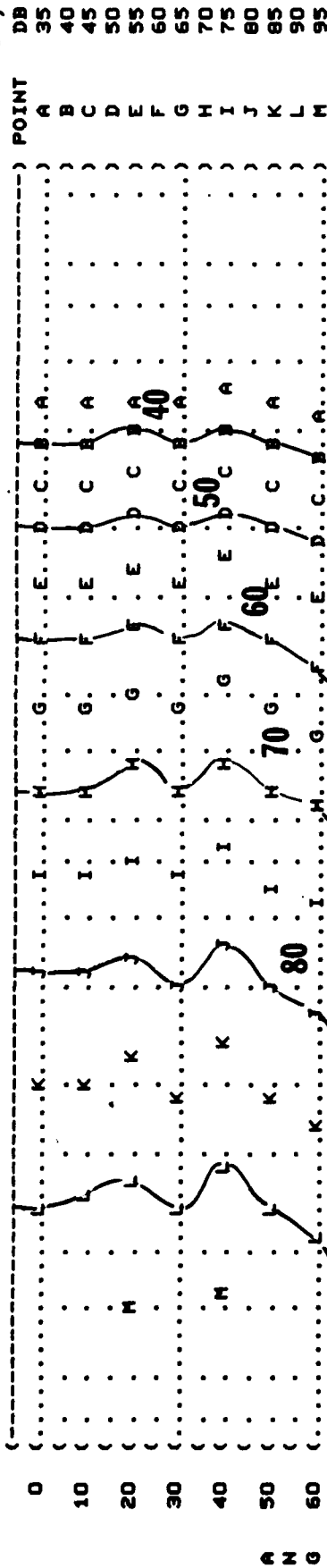
IDENTIFICATION:
 OMEGA 1.4
 TEST BS-005-001
 RUN 03

NOISE SOURCE/SUBJECT:
 KC-10A AIRCRAFT
 CF6-50C2
 FAR FIELD NOISE

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

OPERATION:
 70X RPM
 ENGINE NO. 1
 FREE FLOW

PAGE 24



ANGLE IN DEGREES

DISTANCE FROM SOURCE (METERS)

FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

70X RPM
ENGINE NO. 1
FREE FLOW

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

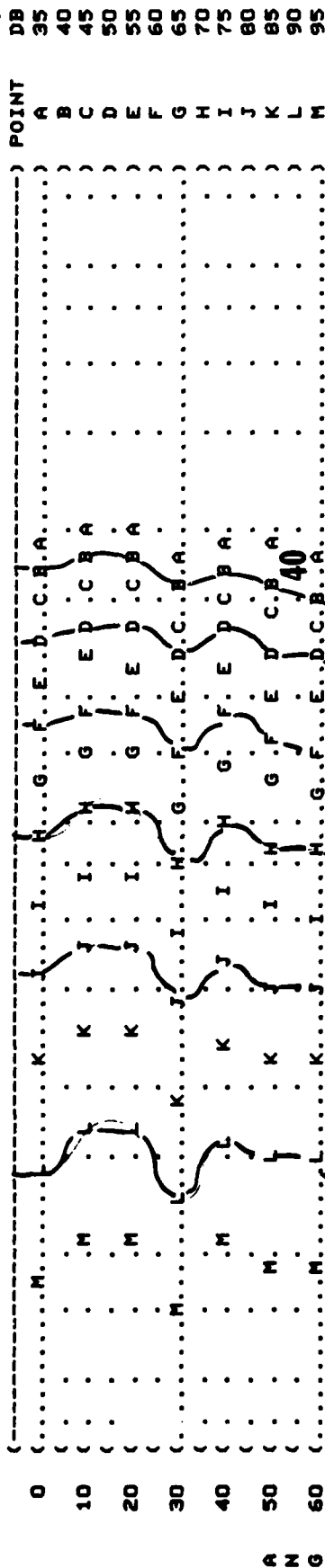
OMEGA 1.4

TEST BS-005-001

RUN 03

26 JUL 82

PAGE 25



AGLEINDEGR EES

FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
8000 HZ OCTAVE BAND

11

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 03

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

OPERATION:

70% RPM

ENGINE NO. 1

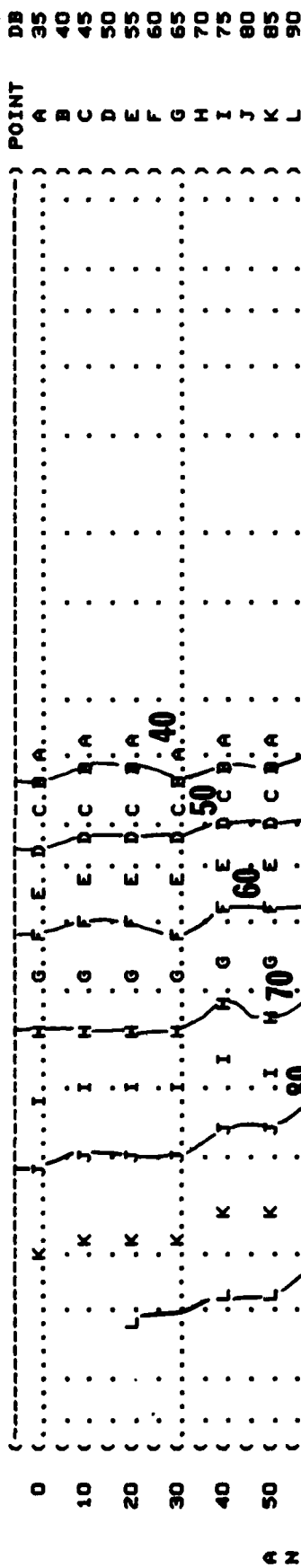
FREE FLOW

NOISE SOURCE/SUBJECT:

KC-10A AIRCRAFT

CF6-50C2

FAR FIELD NOISE



ANGLES

IDENTIFICATION:
OMEGA 1.4
TEST BS-003-00

0 METEOROLOGY:

RUN 04

BAR PRESS = .760 M HG

REL HUMID = 70 %

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

IDENTIFICATION:
OMEGA 1.4

NOISE SOURCE/SUBJECT: (OPERATION:

5) METEOROLOGY:

TEOROLOGY:

26 JUL 82

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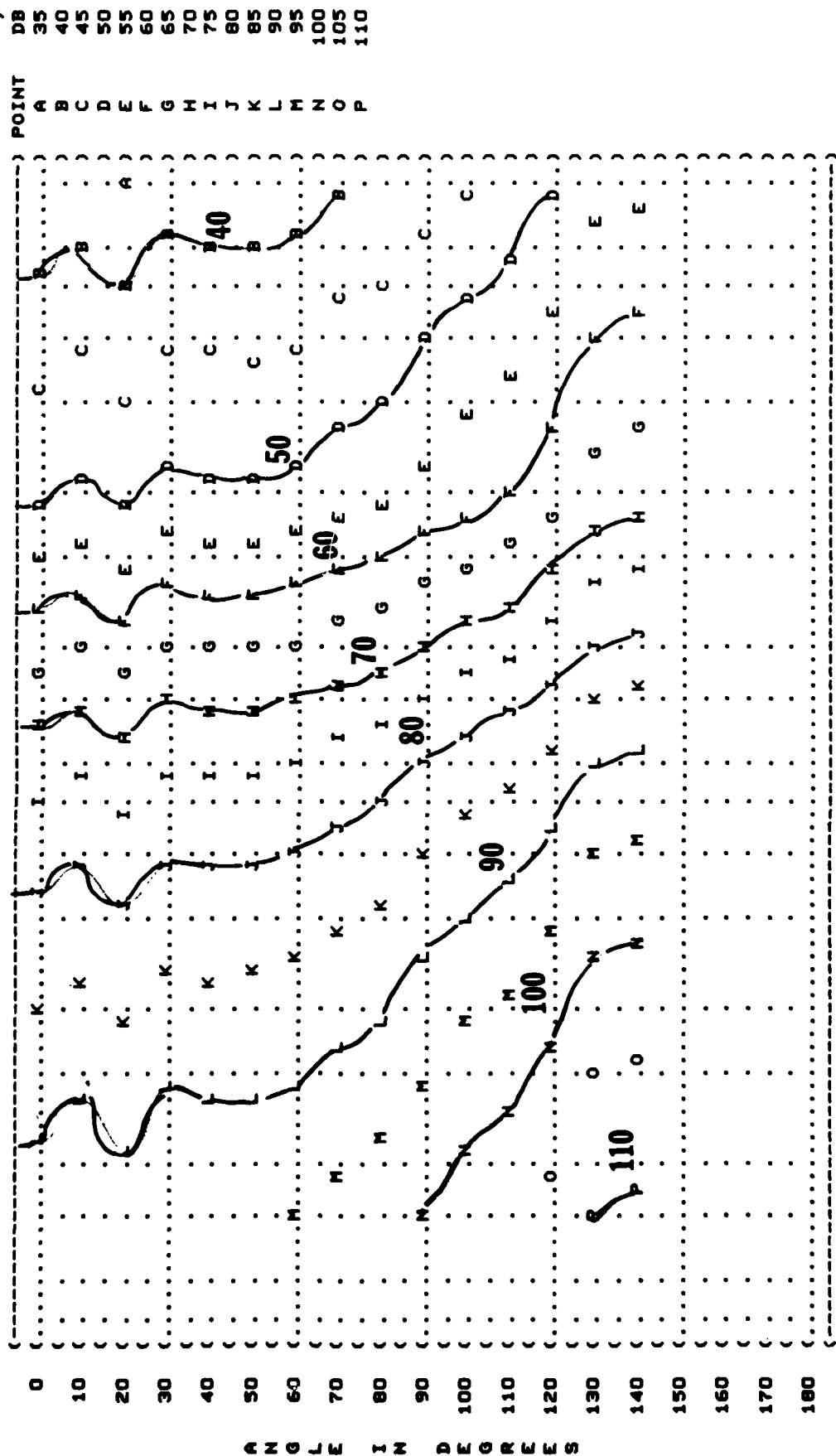


FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
11 125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: OPERATION:
(KC-10A AIRCRAFT 95% RPM
(CF6-50C2 ENGINE NO. 1
(FAR FIELD NOISE FREE FLOW

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

IDENTIFICATION:
(OMEGA 1.4
(TEST BS-005-001
(RUN 04
(PAGE 20

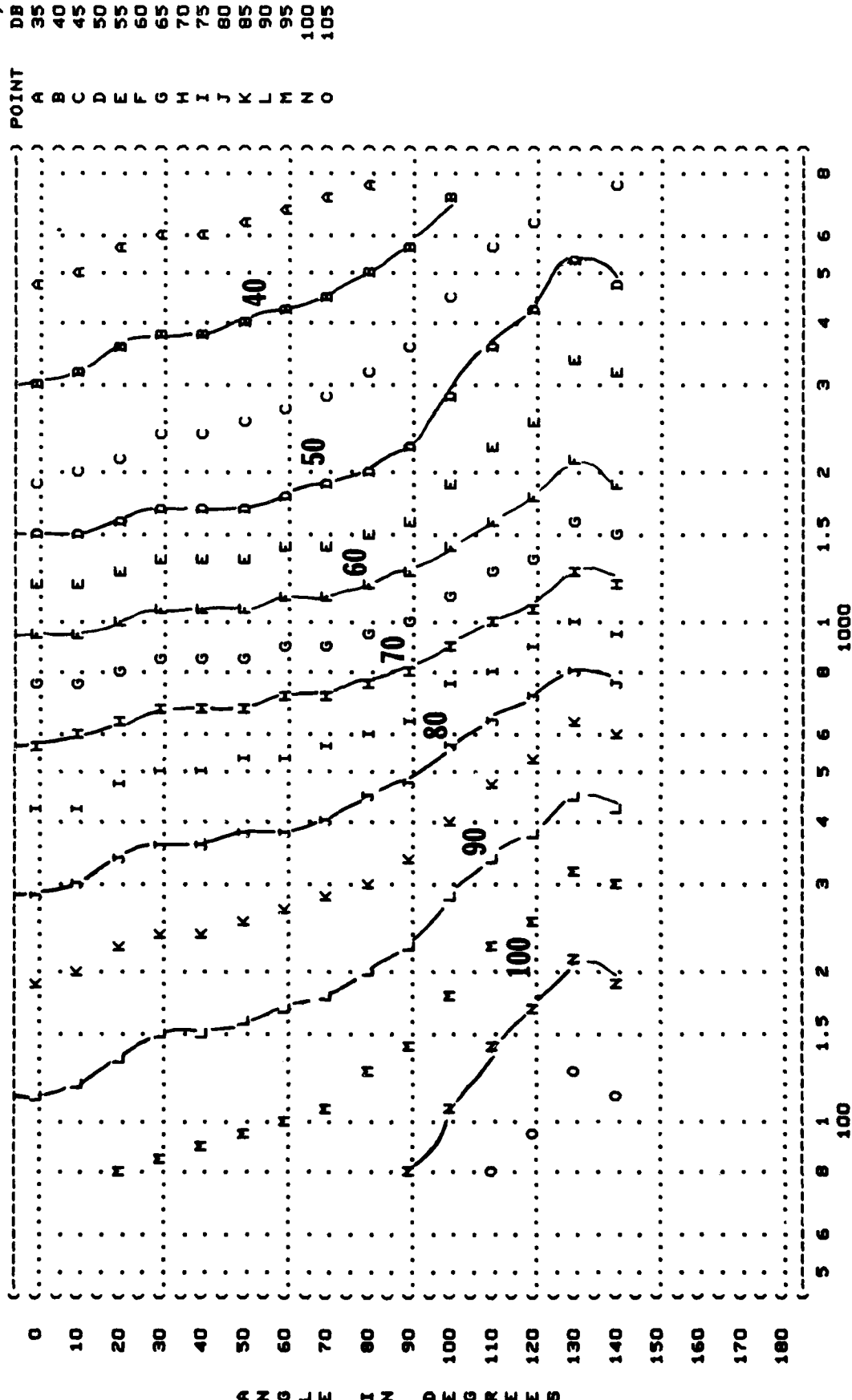


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 500 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:
KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

METEOROLOGY:

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

OMEGA 1.4

TEST BS-005-001

RUN 04

26 JUL 82

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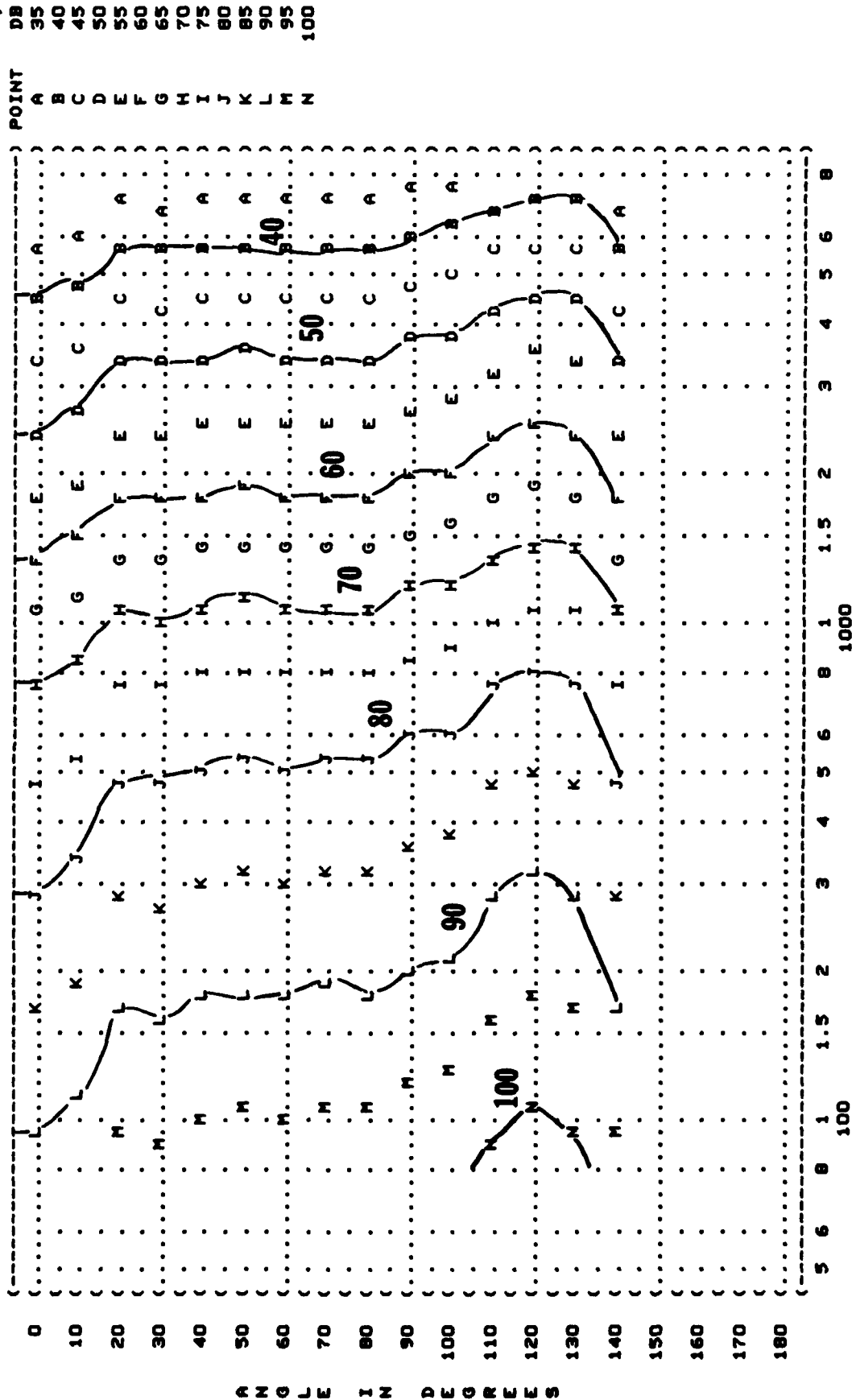
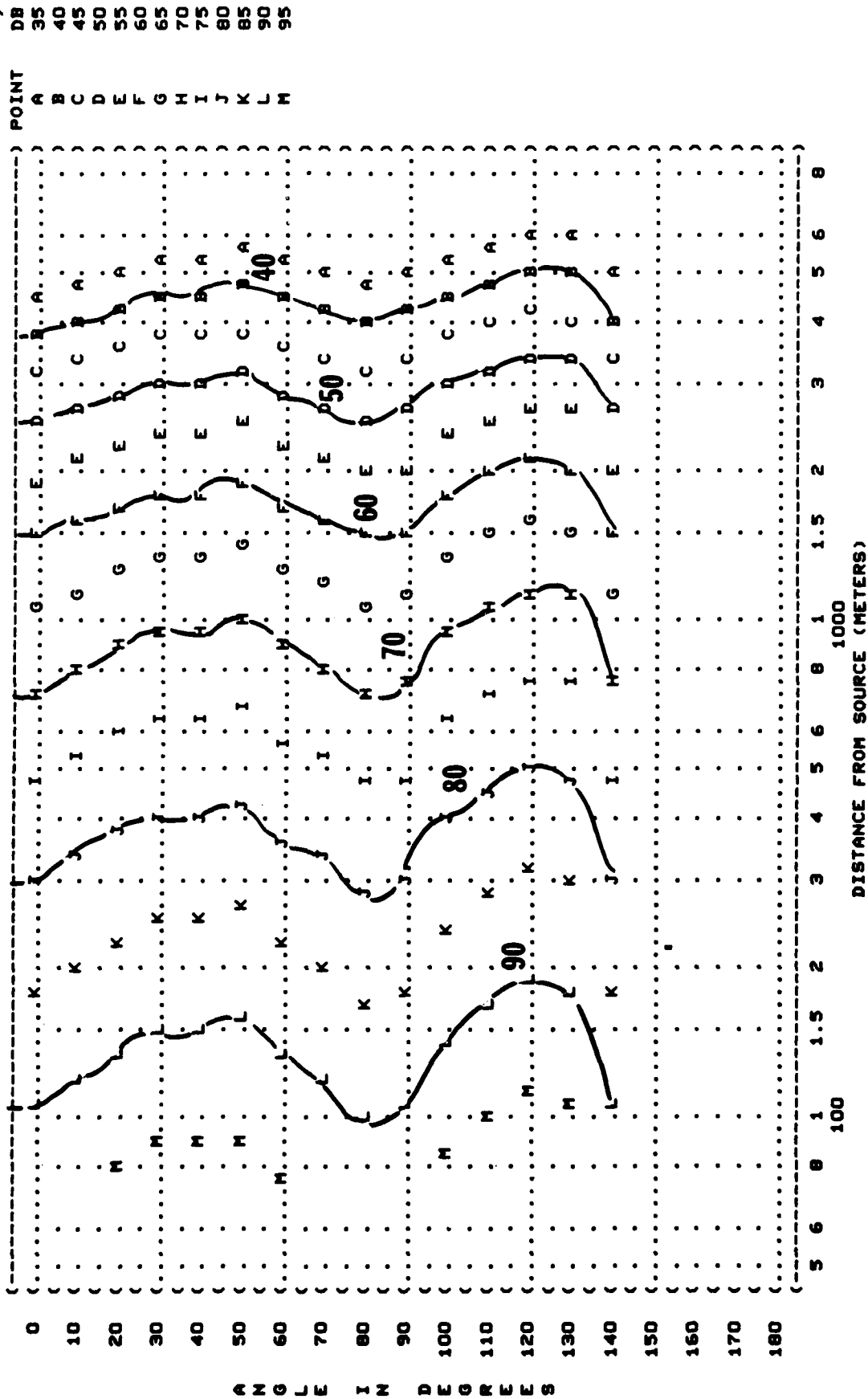
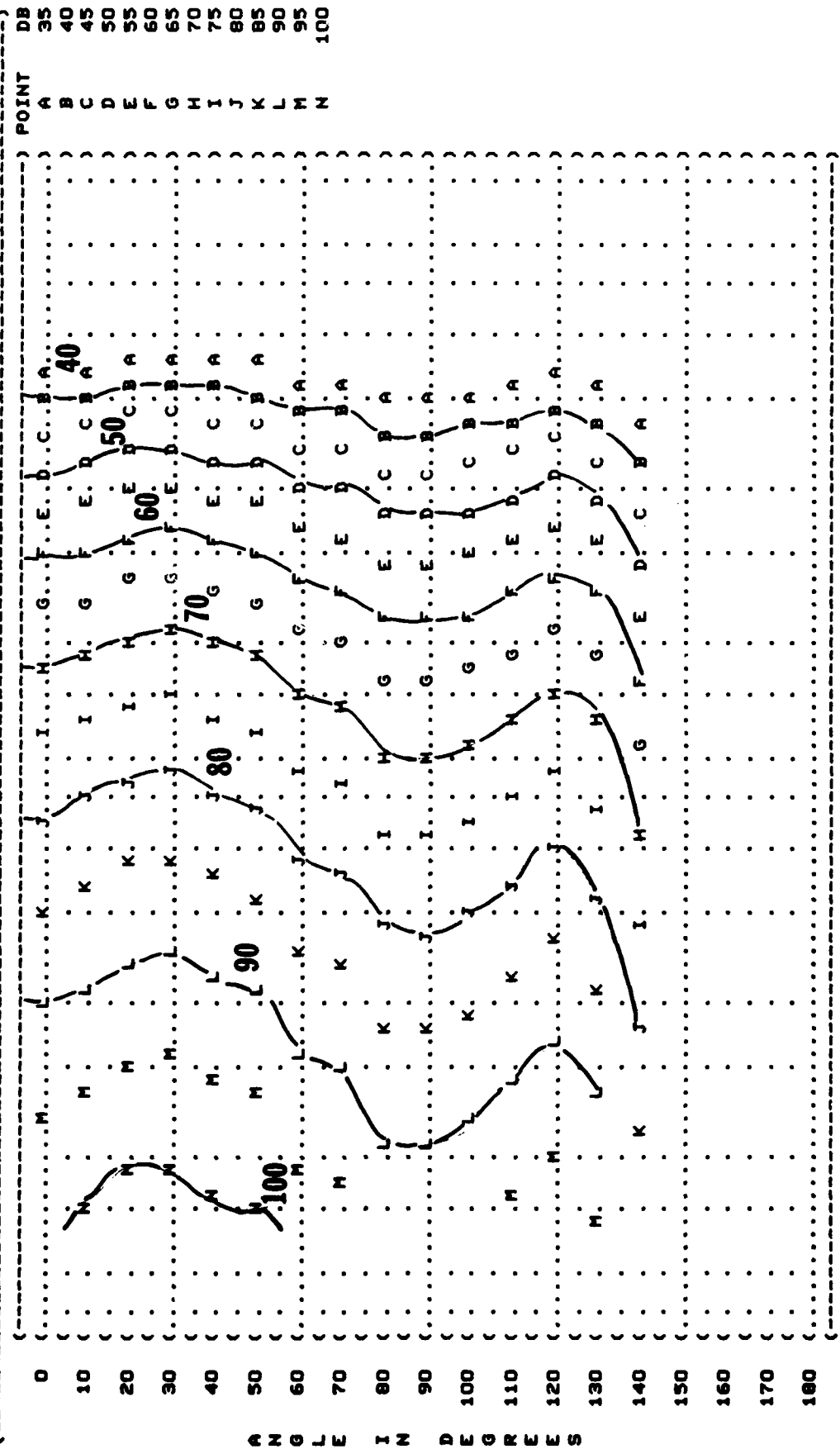


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 1000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 04
METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %
OPERATION:
KC-10A AIRCRAFT
95X RPM
ENGINE NO. 1
FREE FLOW
NOISE SOURCE/SUBJECT:



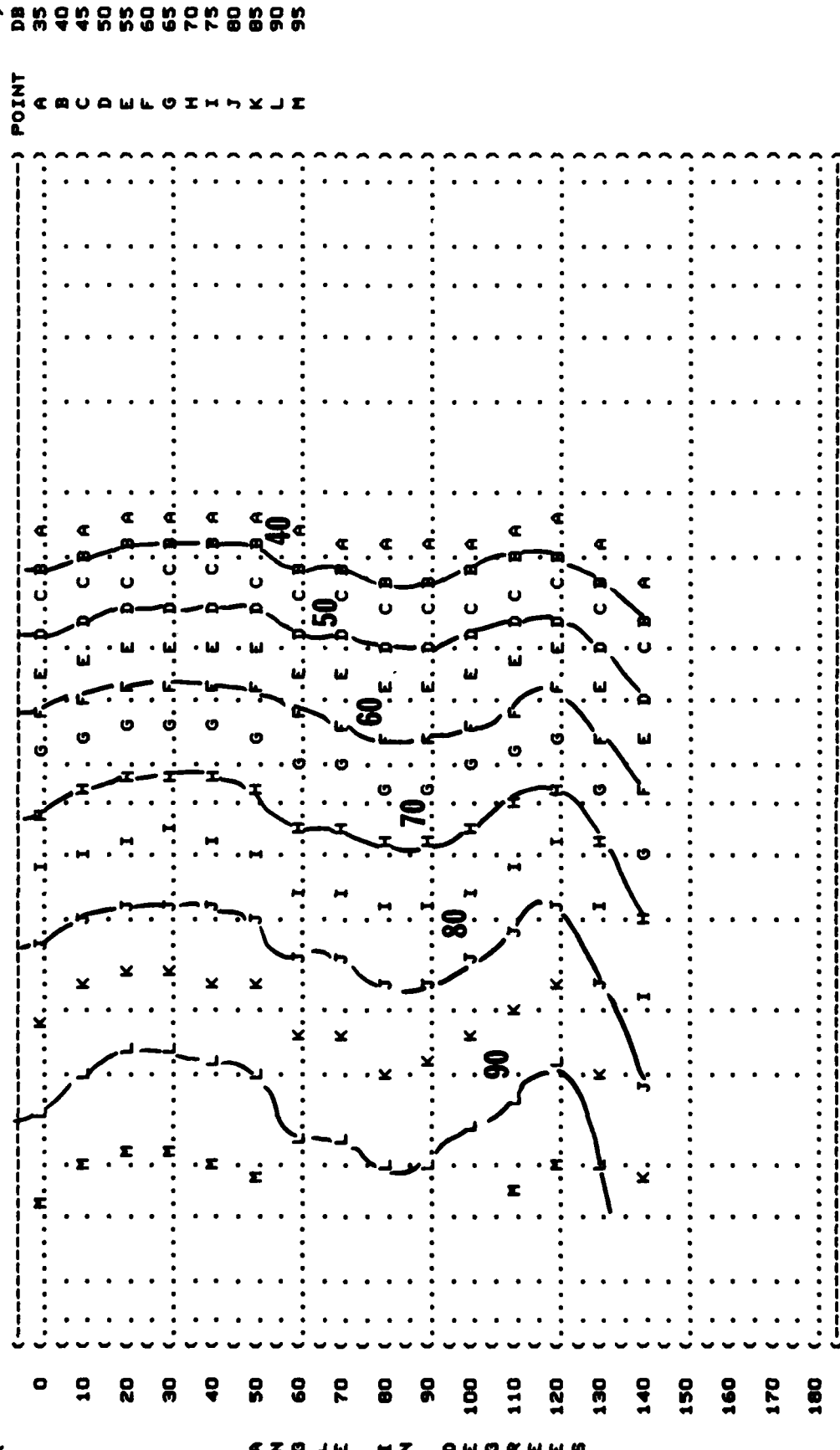
(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (2000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (95X RPM
 (CF6-50C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 X
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 04
 (PAGE 24



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)
 (11 4000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (95X RPM
 (CF6-SOC2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY: (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION: (OMEGA 1.4
 (TEST BS-005-001
 (RUN 04
 (26 JUL 82
 (PAGE 25



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

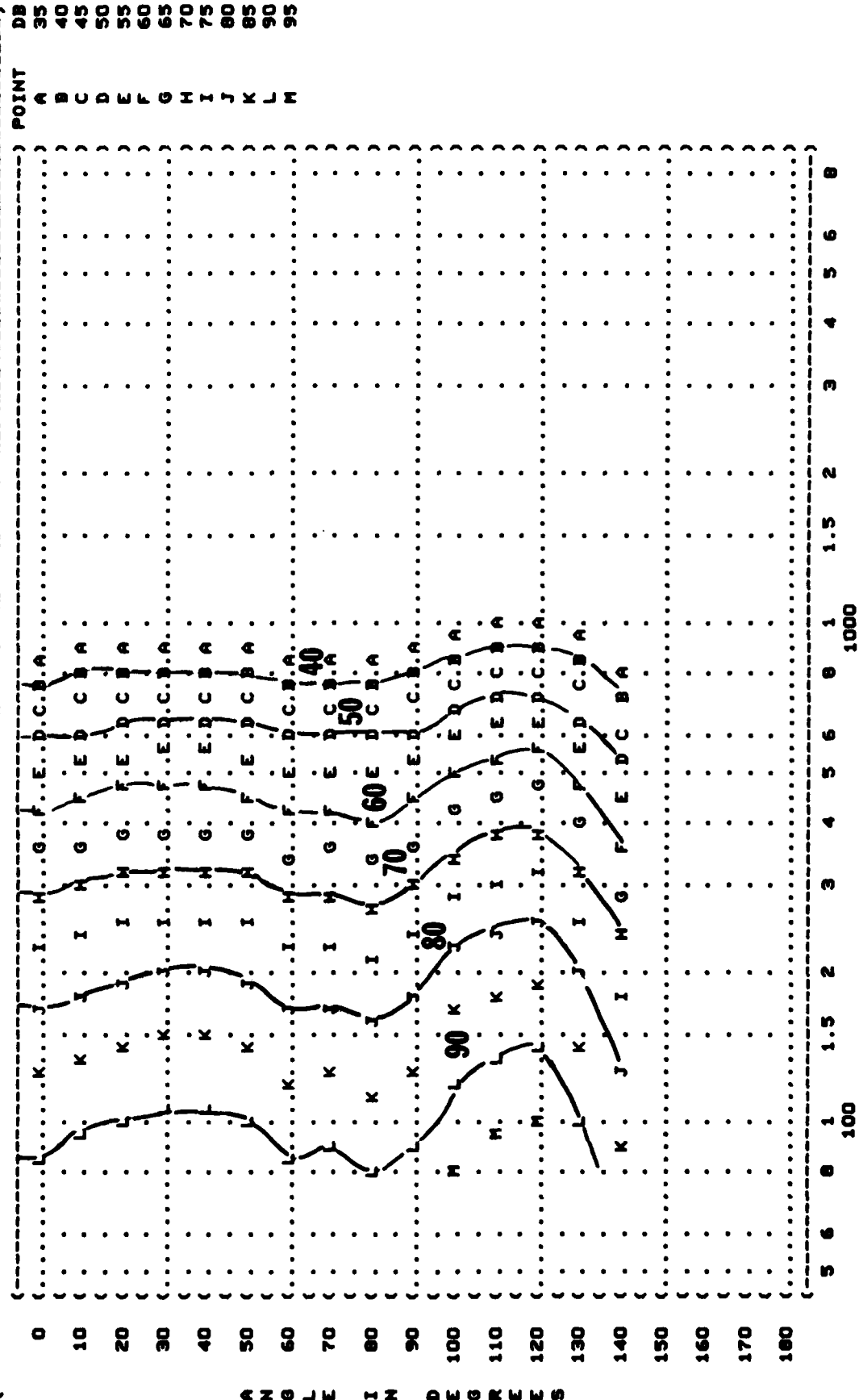
A M G L E I M D E R E E S

FIGURE: SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS (DB)
 8000 HZ OCTAVE BAND

IDENTIFICATION:
 OMEGA 1.4
 TEST BS-005-001
 RUN 04
 26 JUL 82
 PAGE 26

NOISE SOURCE/SUBJECT: (OPERATION:
 KC-10A AIRCRAFT (95X RPM
 CF6-SOC2 (ENGINE NO. 1
 FAR FIELD NOISE (FREE FLOW

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



IDENTIFICATION: OMEGA 1.4

● METEOROLOGY:

1631
RUN 05

TEMP = 15 C

26 JUL 82

REL HUMID = 70 x

PAGE 18



FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)

11

63 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 05

NOISE SOURCE/SUBJECT:

OPERATION:

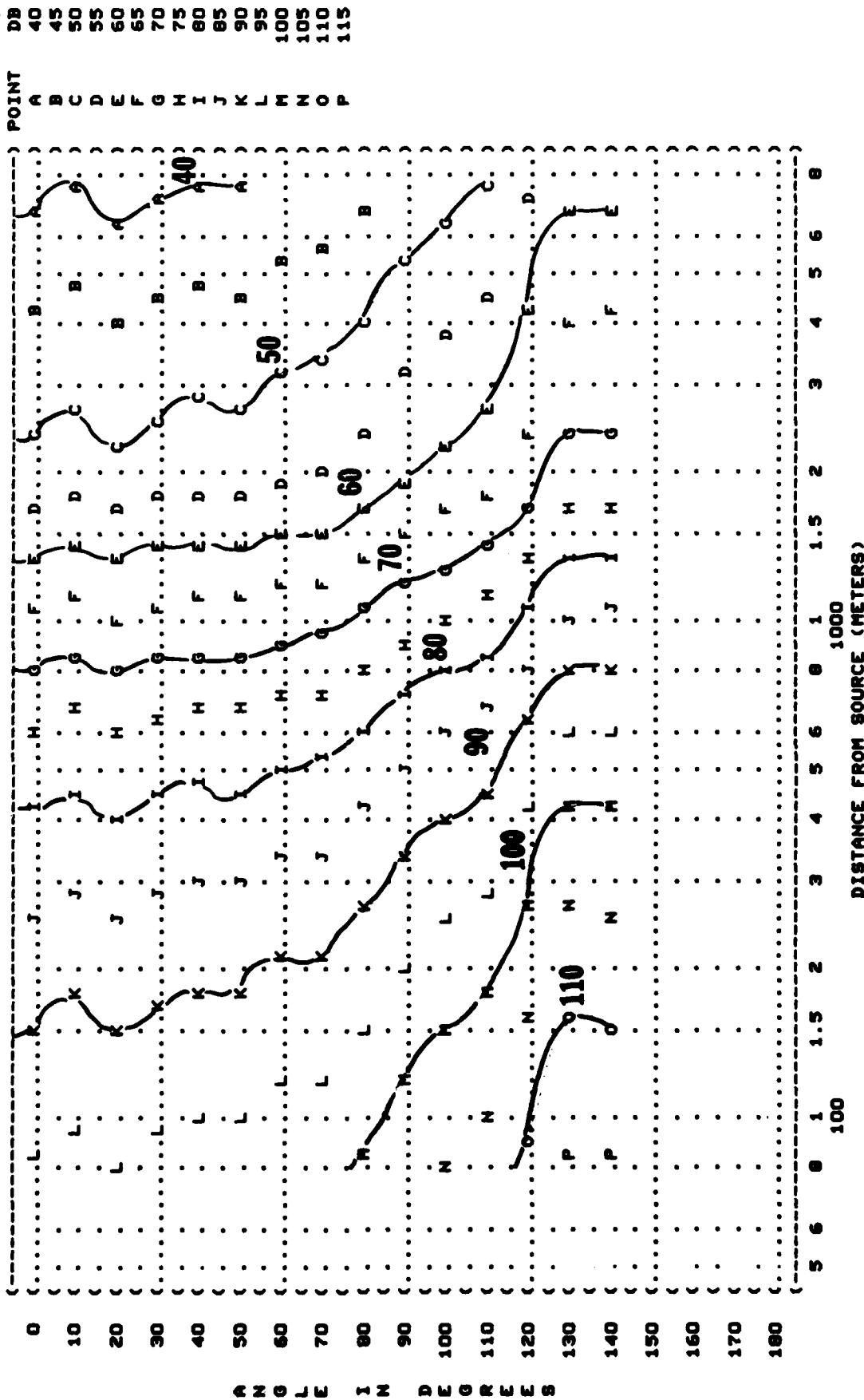
METEOROLOGY:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

MAXIMUM CONTINUOUS POWER
ENGINE NO. 1
FREE FLOW

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

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IDENTIFICATION:
OMEGA 1.4
TEST BS-005-00
RUN 05

0 METEOROLOGY:

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



FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 250 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
CF6-SOC2
FAR FIELD NOISE

MAXIMUM CONTINUOUS POWER
ENGINE NO. 1
FREE FLOW

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

OMEGA 1.4

TEST BS-005-001

RUN OS

26 JUL 82

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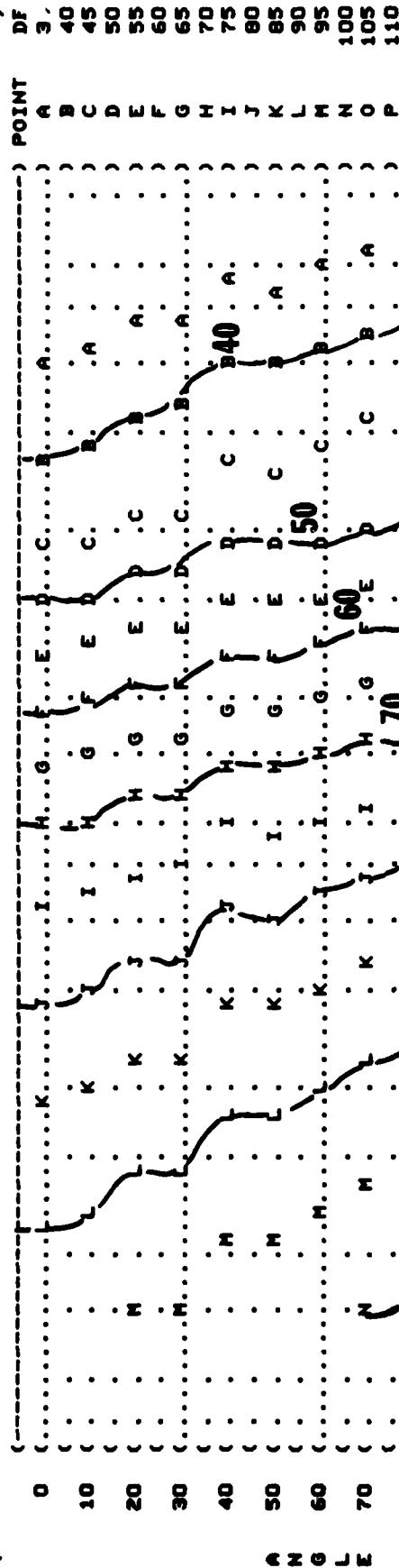


FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
500 HZ OCTAVE BAND

11

IDENTIFICATION:

OMEGA 1.4

TEST BS-005-001

RUN 05

NOISE SOURCE/SUBJECT:

OPERATION:

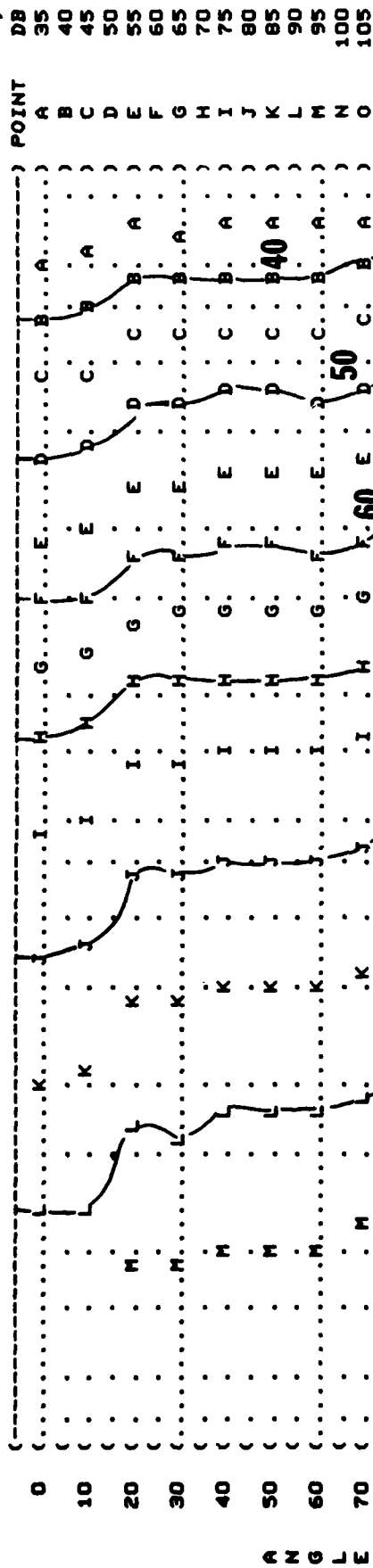
METEOROLOGY:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

MAXIMUM CONTINUOUS POWER
ENGINE NO. 1
FREE FLOW

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

PAGE 22



(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 1000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (TEMPERATURE = 15 C
 (CF6-50C2 (MAXIMUM CONTINUOUS POWER (BAR PRESS = .760 M HG
 (FAR FIELD NOISE (ENGINE NO. 1 (REL HUMID = 70 %
 (FREE FLOW
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 05
 (26 JUL 82
 (PAGE 23

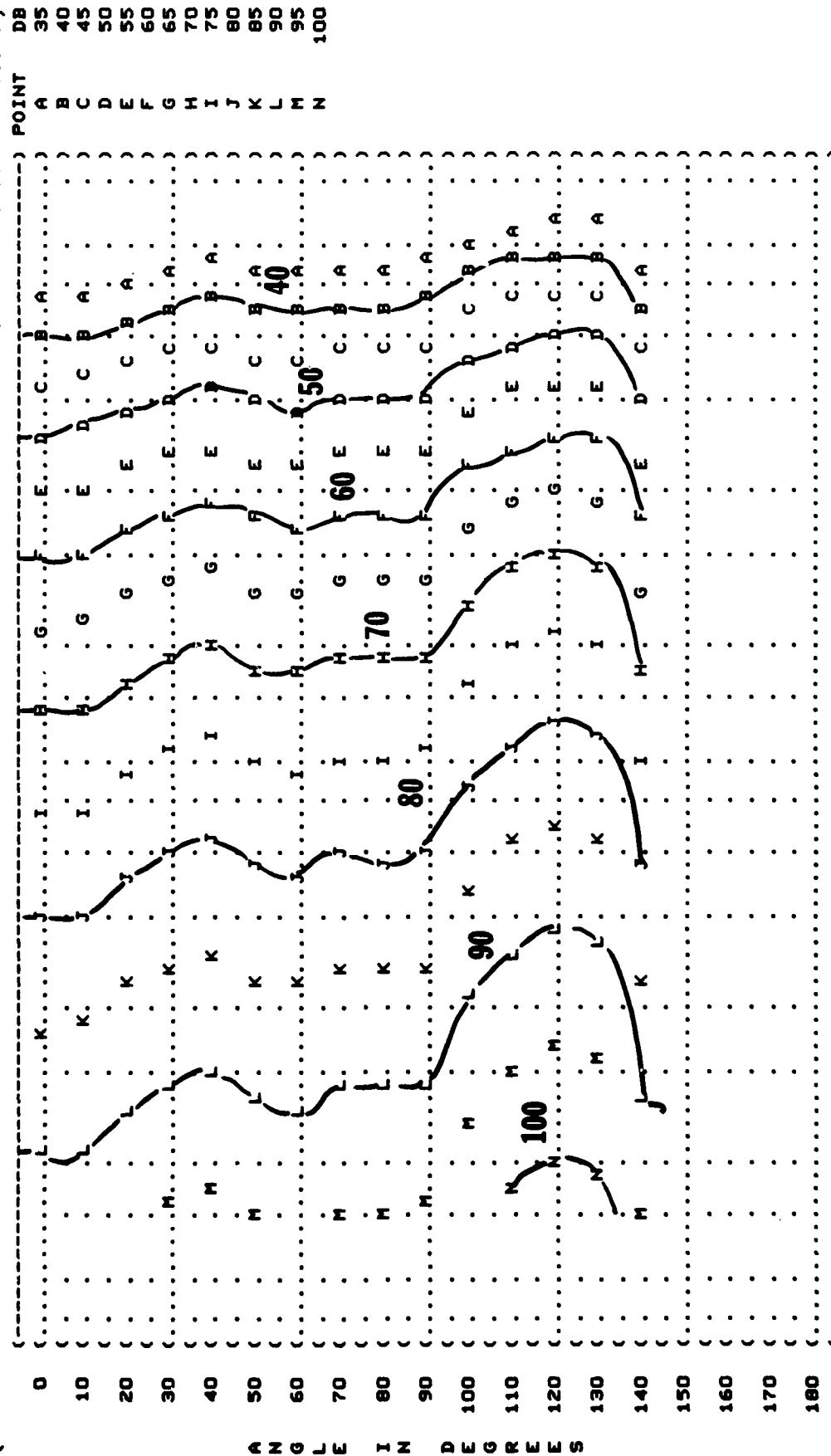


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 2000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

OMEGA 1.4

TEST BS-005-001

RUN CS

KC-10A AIRCRAFT

MAXIMUM CONTINUOUS POWER

TEMP = 15 C

CF6-50C2

ENGINE NO. 1

BAR PRESS = .760 M HG

FAR FIELD NOISE

FREE FLOW

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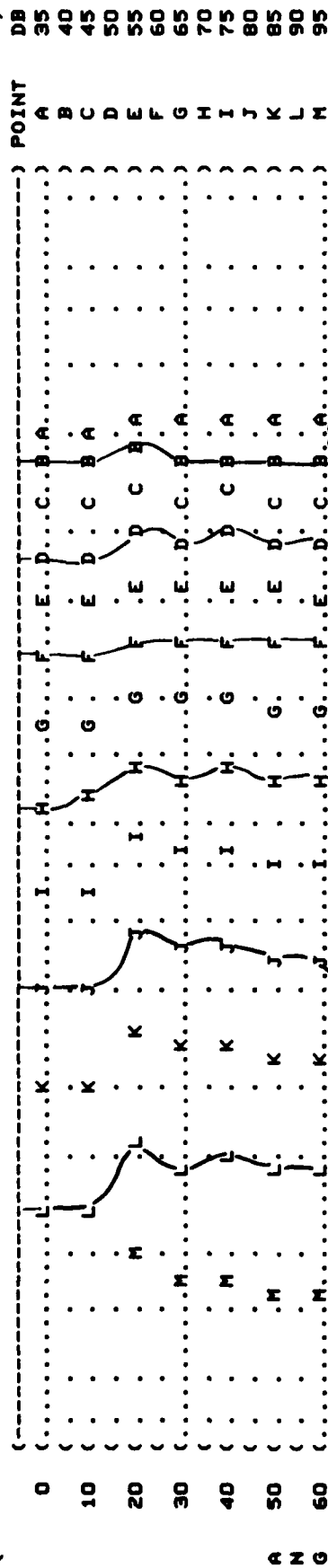


FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
4000 HZ OCTAVE BAND

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NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

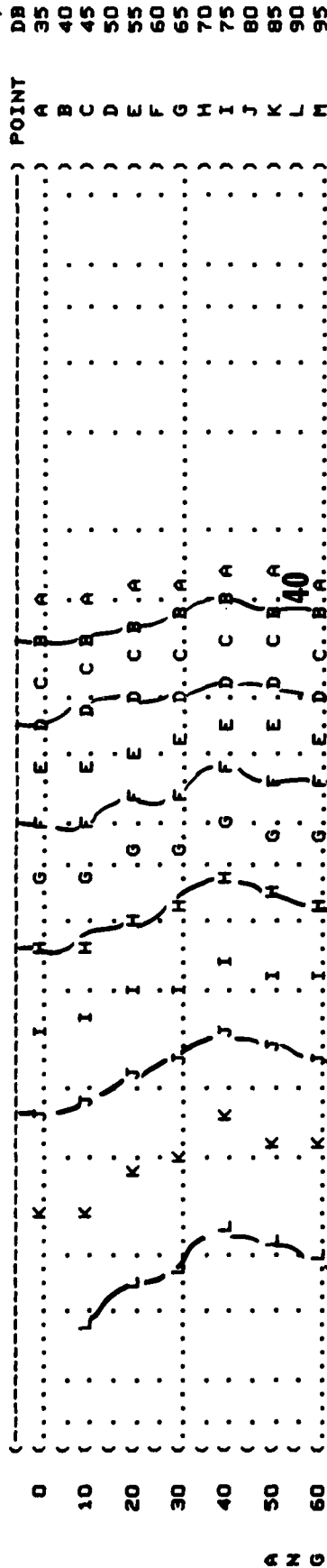
KC-10A AIRCRAFT
CF6-SOC2
FAR FIELD NOISE

MAXIMUM CONTINUOUS POWER
ENGINE NO. 1
FREE FLOW

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

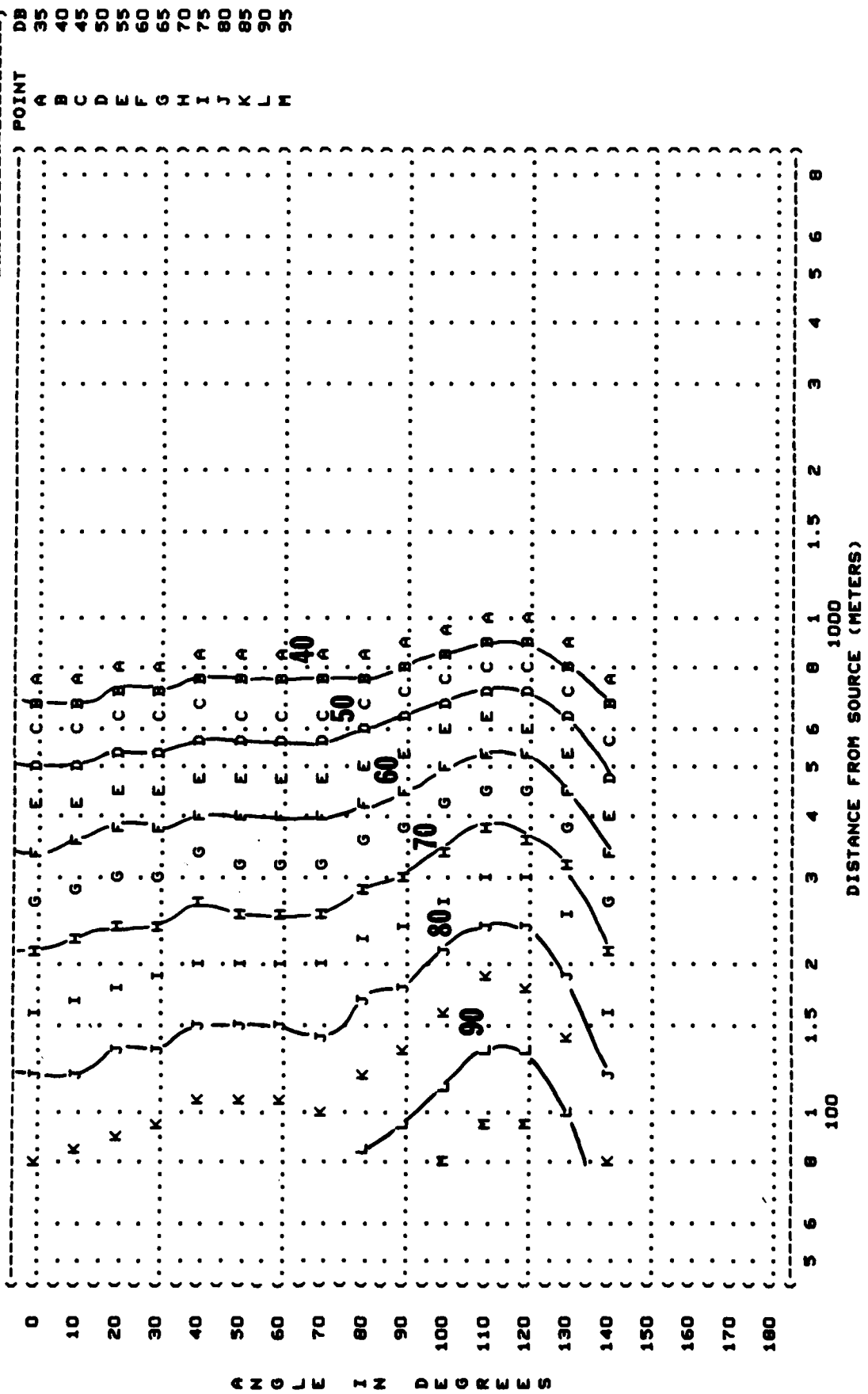
IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 05

PAGE 25

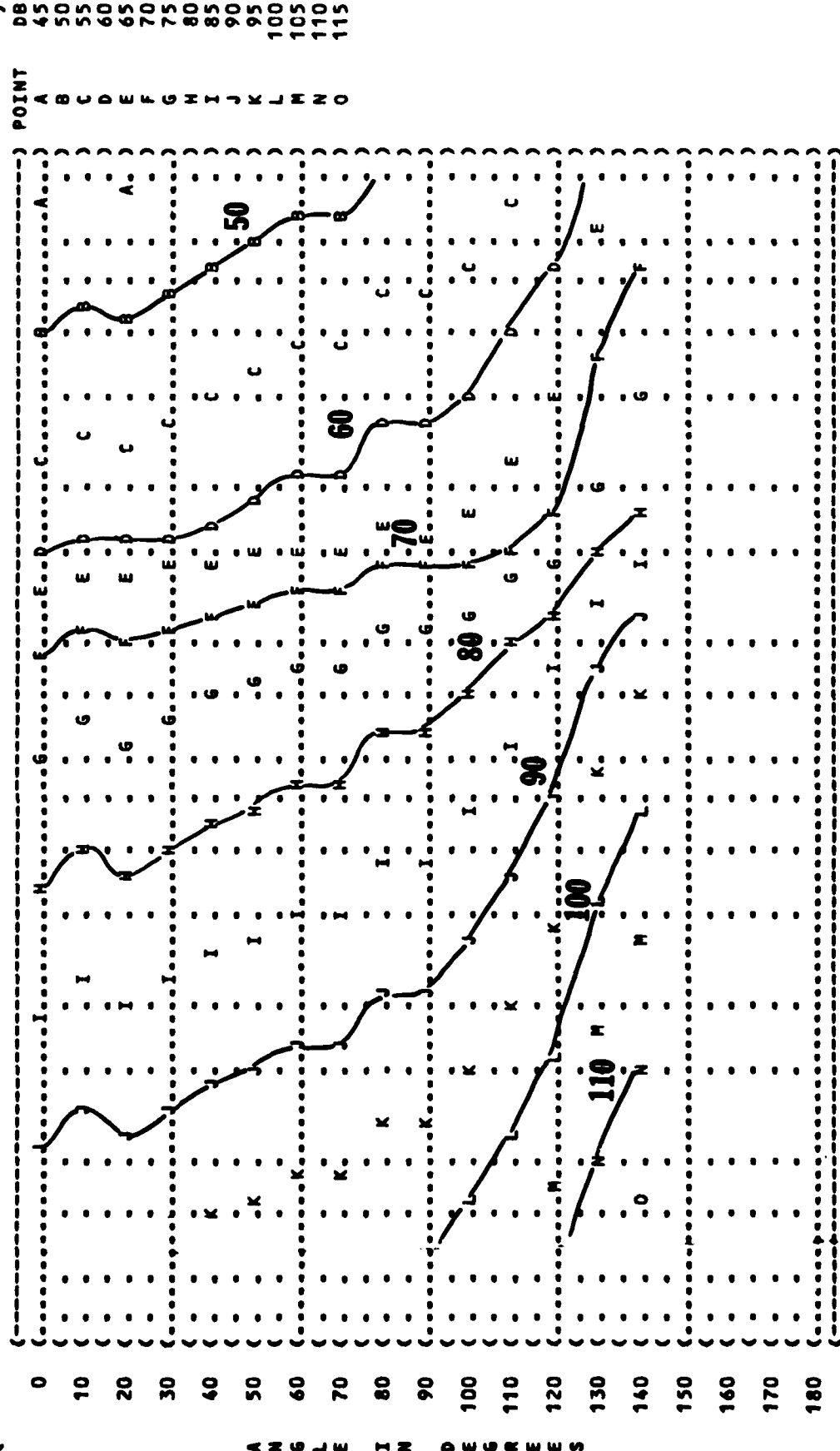


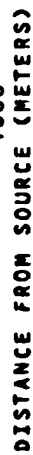
ANSWER

(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (11 EQUAL LEVEL CONTOURS (DB)
 (8000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (MAXIMUM CONTINUOUS POWER
 (CF6-30C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 05
 (26 JUL 82
 (PAGE 26

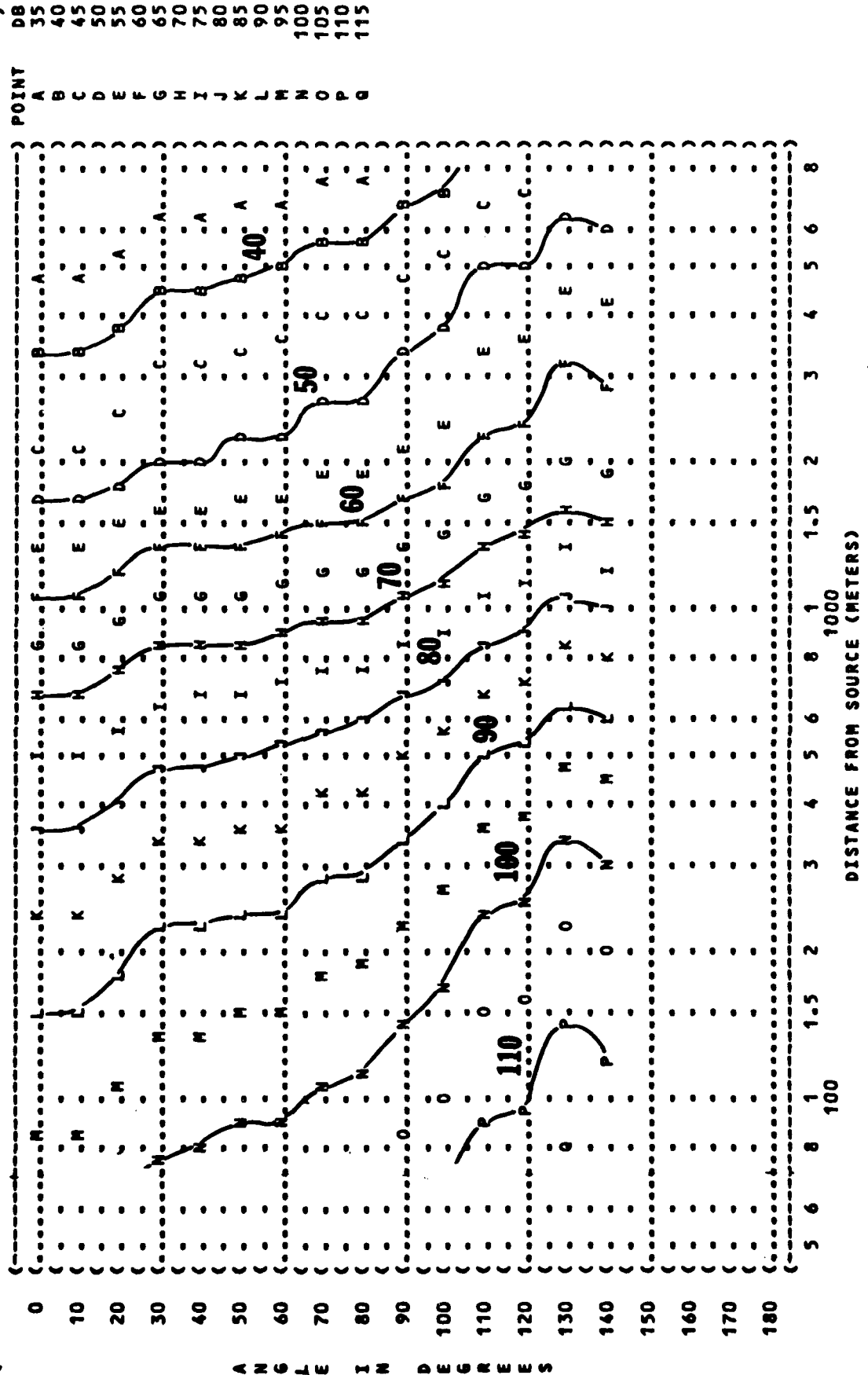


(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 31.5 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (TAKEOFF RATED THRUST
 (CF6-50C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (NOISE SOURCE/SUBJECT: (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (RUN 06
 (TEST 85-005-001
 (OMEGA 1-4
 (IDENTIFICATION:
 (26 JUL 82
 (PAGE 18



[illegible]

(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (11 EQUAL LEVEL CONTOURS (DB)
 (250 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (TAKEOFF RATED THRUST
 (CF6-50C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 06
 (26 JUL 82
 (PAGE 21



(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (11 EQUAL LEVEL CONTOURS (DB)
 (500 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (TAKEOFF RATED THRUST
 (CF6-50C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEORLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1-4
 (TEST BS-005-001
 (RUN 06
 (26 JUL 82
 (PAGE 22

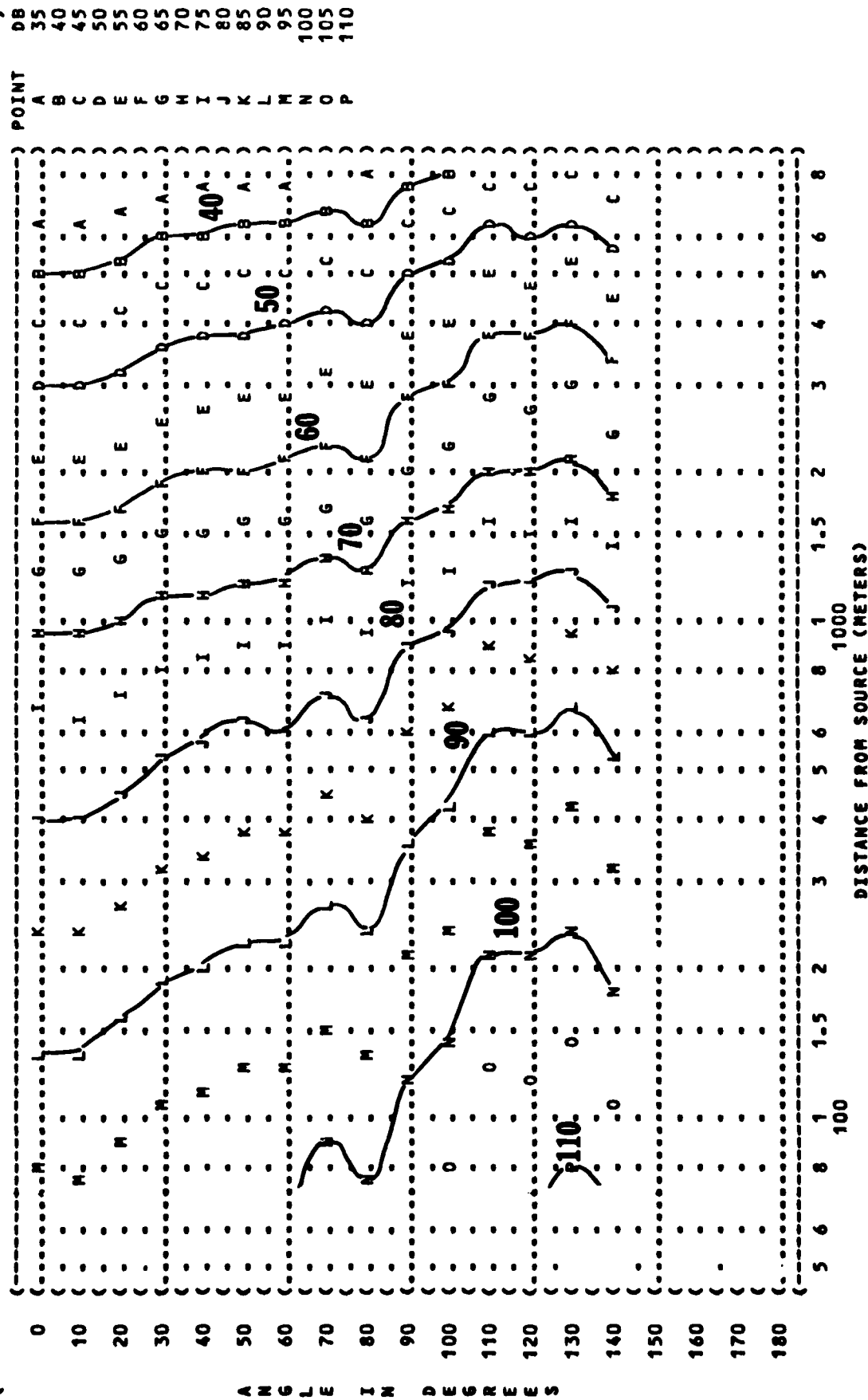


FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
1000 HZ OCTAVE BAND

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IDENTIFICATION:
OMEGA 1.4
TEST 9S-005-001
RUN 06

NOISE SOURCE/SUBJECT:

OPERATION:

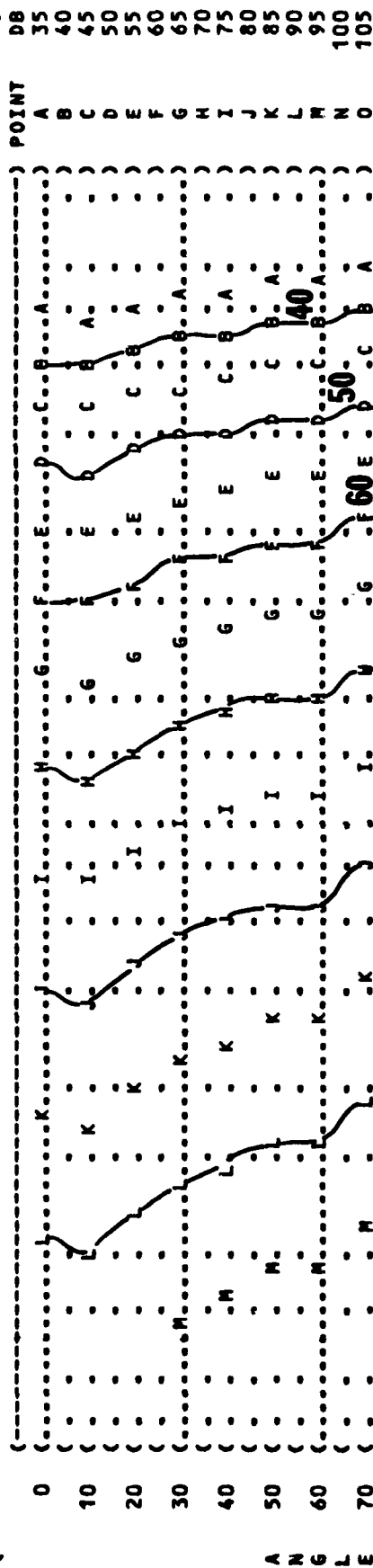
METEOROLOGY:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

TAKEOFF RATED THRUST
ENGINE NO. 1
FREE FLOW

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

PAGE 23



IDENTIFICATION:
OMEGA 1-4
TEST BS-005-001

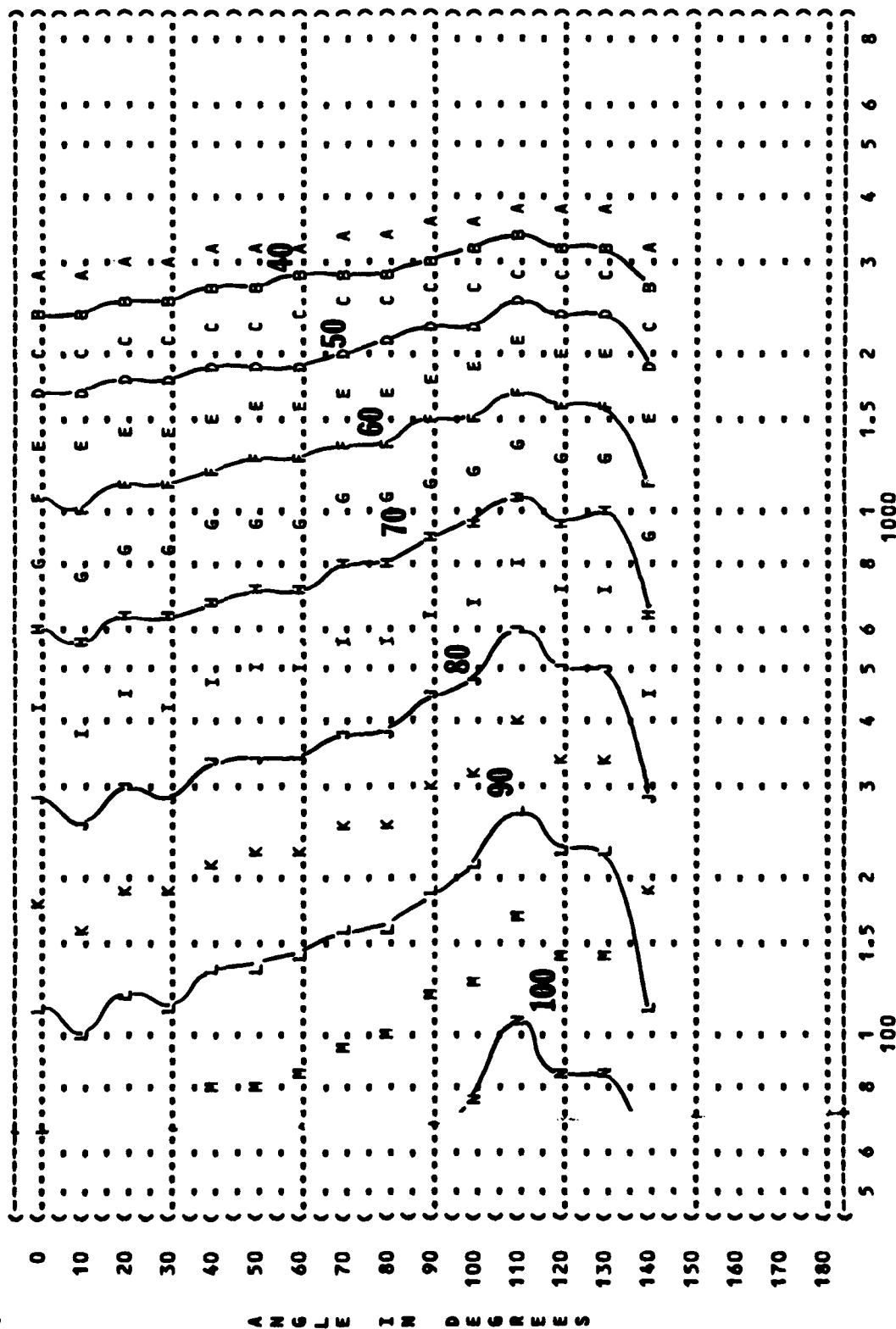
(OPERATION:

RUN 06

TAKEOFF RATED THRUST
ENGINE NO. 1
FREE FLOW

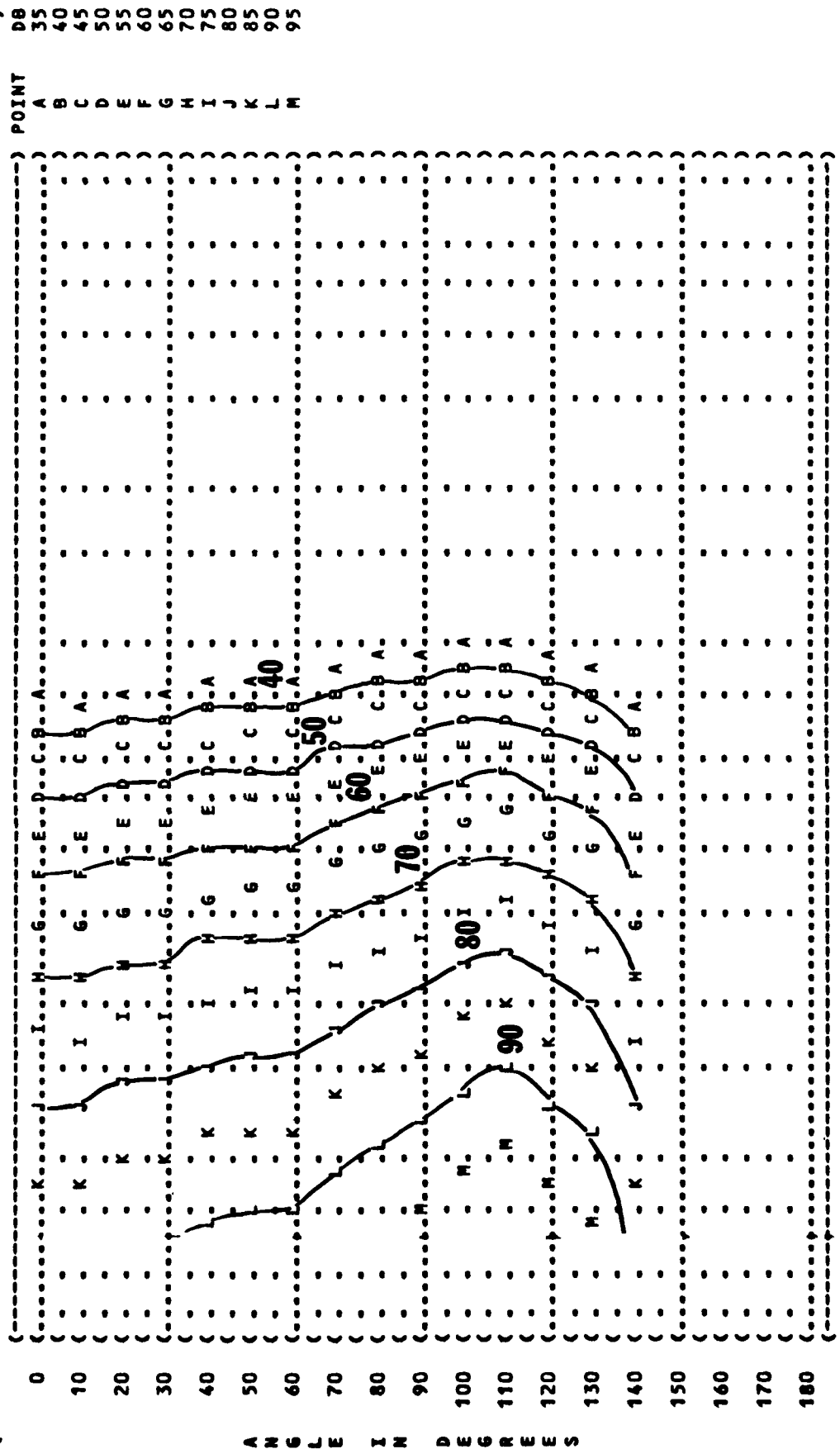
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

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



DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (11 EQUAL LEVEL CONTOURS (DB)
 (8000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (TAKEOFF RATED THRUST
 (CF6-50C2 (ENGINE NO. 1
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 06
 (26 JUL 82
 (PAGE 26



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

IDENTIFICATION: OMEGA 1.4

OMEGA 1.4
TEST BS-003-001

METEORLOGY:

RUN 07

45X RPM ALL ENGINES

BAR PRESS = .760 M HG

FREE FLOW

REL HUMID = 70 %

PAGE 18



FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
11 63 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 07

METEOROLOGY:

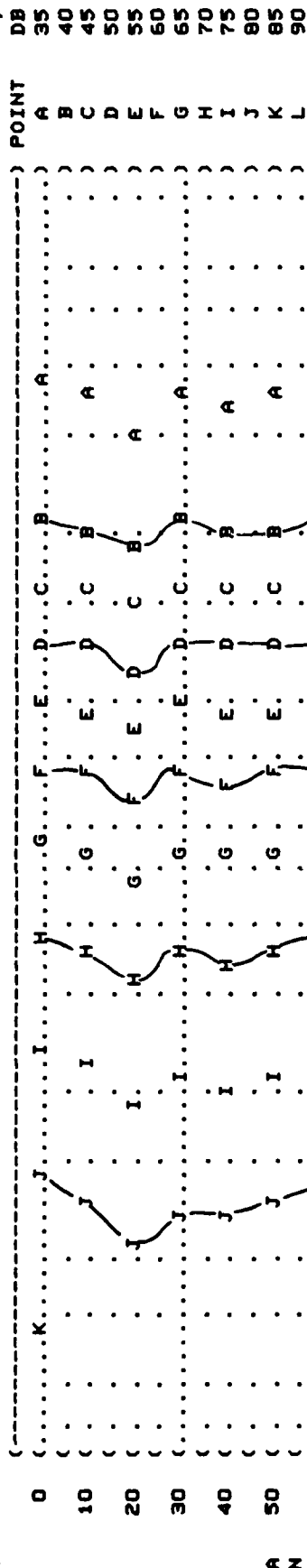
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

OPERATION:

45% RPM ALL ENGINES
FREE FLOW

NOISE SOURCE/SUBJECT:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

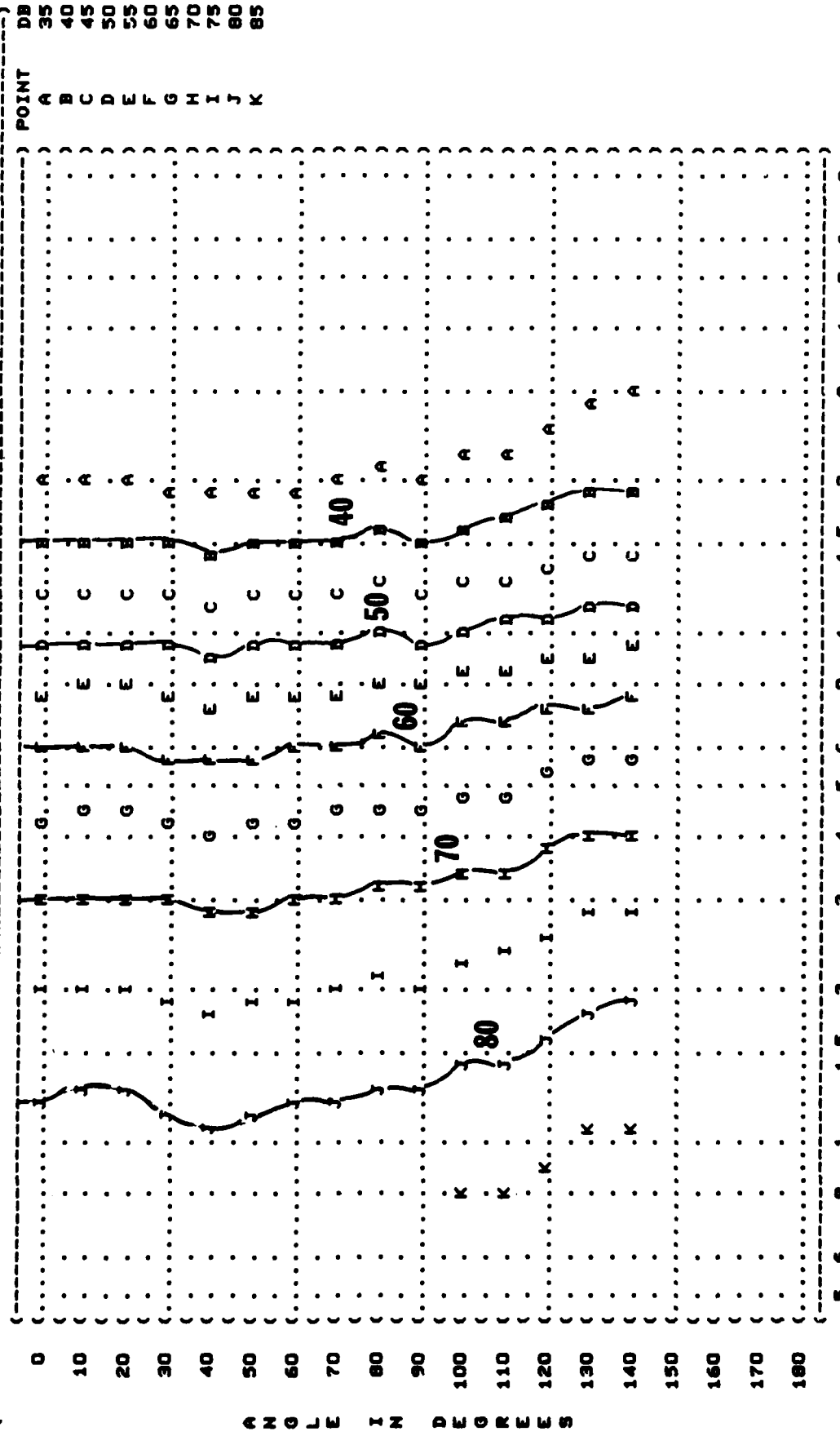


ANGL IN DEGR EES

FIGURE: SOUND PRESSURE LEVEL [SPL]
 EQUAL LEVEL CONTOURS (DB)
 11 125 HZ OCTAVE BAND

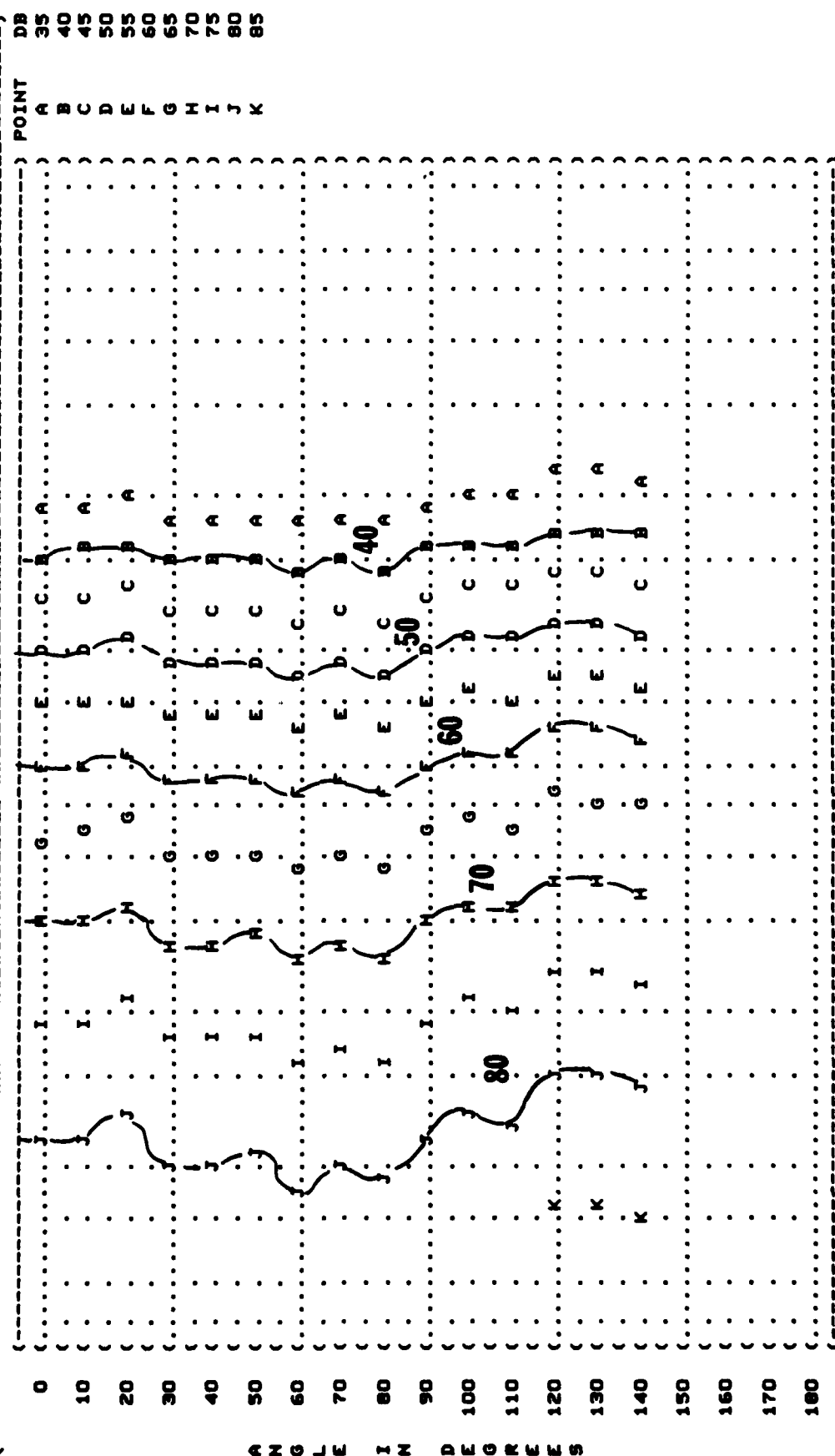
NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (KC-10A AIRCRAFT (45X RPM ALL ENGINES) TEMP = 15 C)
 (CF6-50C2 (FREE FLOW) BAR PRESS = .760 M HG)
 (FAR FIELD NOISE () REL HUMID = 70 X)

IDENTIFICATION:)
) OMEGA 1.4)
) TEST 89-005-001)
) RUN 07)
) 26 JUL 82)
) PAGE 20)



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

(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 250 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (45X RPM ALL ENGINES
 (CFS-SOC2 (FREE FLOW
 (FAR FIELD NOISE (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 X
 (PAGE 21
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 07



ANGLE IN DEGREES

FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
500 HZ OCTAVE BAND

11

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

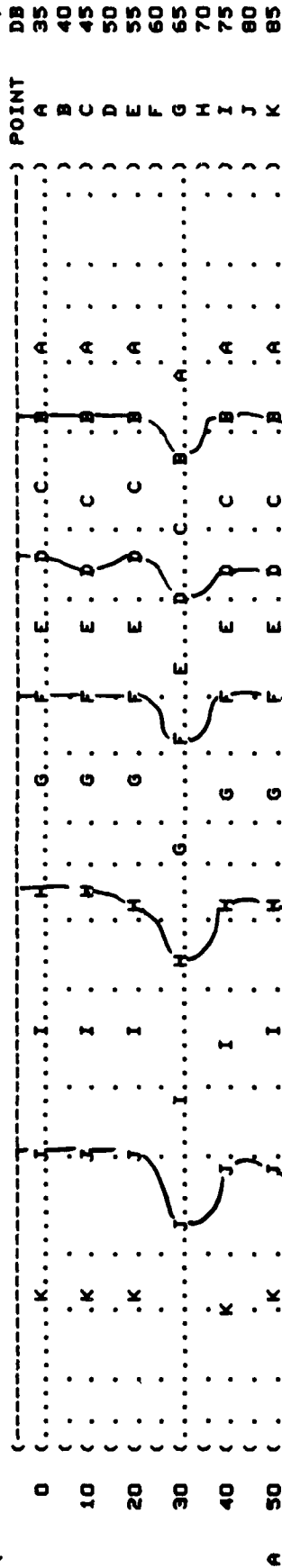
IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 07

KC-10A AIRCRAFT
CF6-SOC2
FAR FIELD NOISE

45X RPM ALL ENGINES
FREE FLOW

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

PAGE 22



ANGLE IN DEGREES

FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

45X RPM ALL ENGINES
FREE FLOW

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

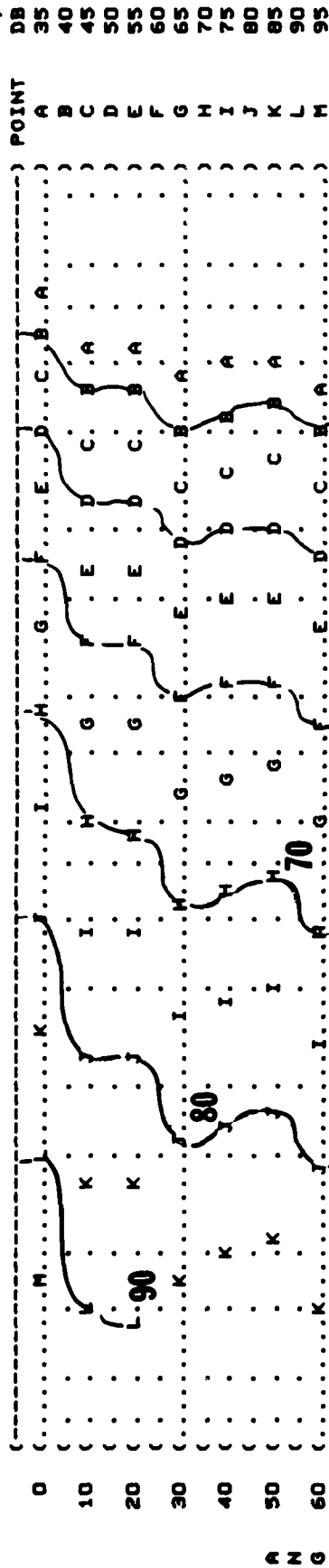
OMEGA 1.4

TEST BS-005-001

RUN 07

26 JUL 82

PAGE 23



ANGLE IN DEGREE S

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-00
RUN 07

OPERATION:

METEOROLOGY:

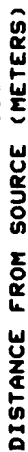
45X RPM ALL ENGINES

BAR PRESS = .760 M HG

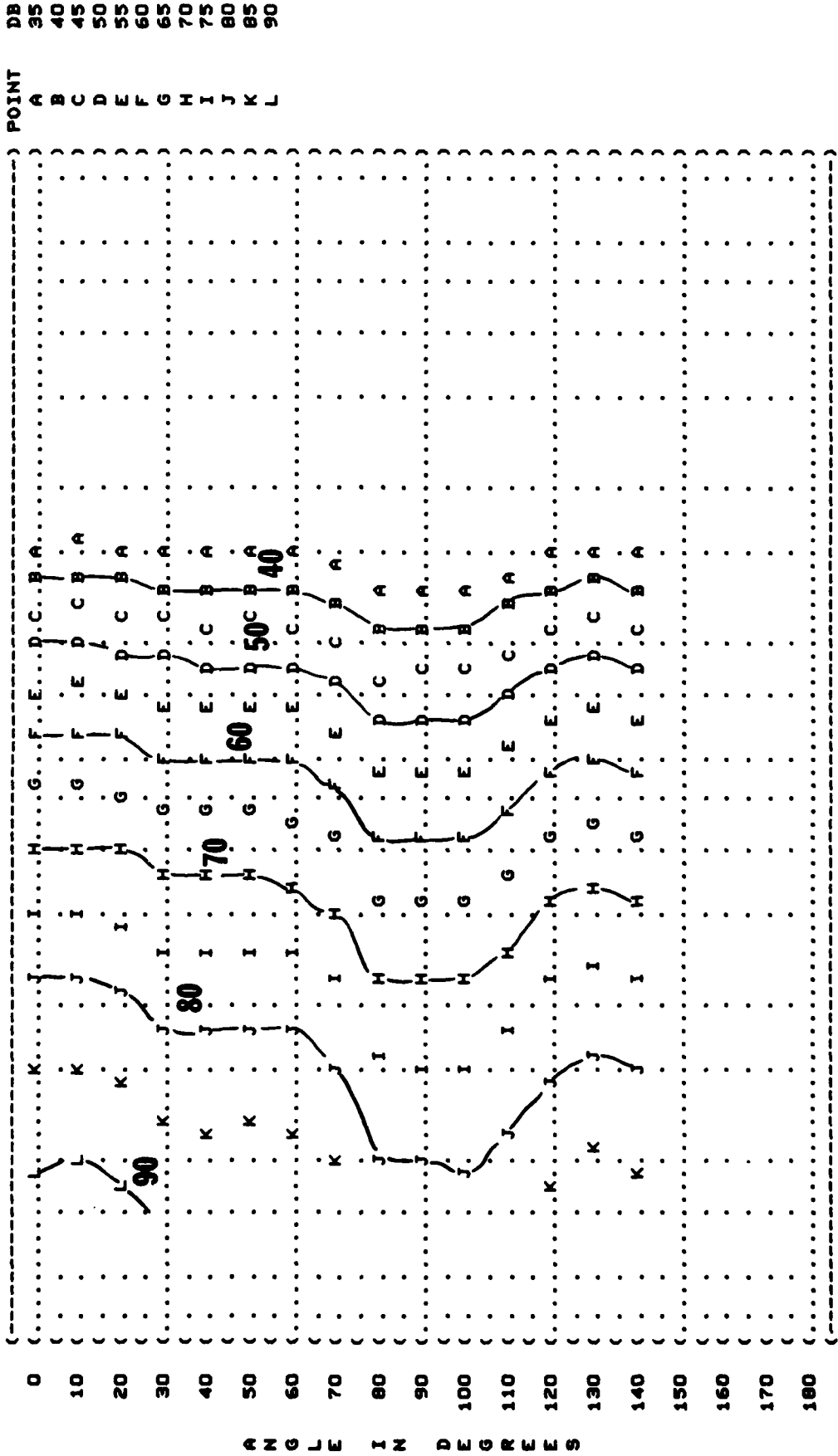
FREE FLOW

REL HUMID = 70 %

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(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 4000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (45X RPM ALL ENGINES
 (CF6-50C2 (FREE FLOW
 (FAR FIELD NOISE (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 X
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST BS-005-001
 (RUN 07
 (26 JUL 82
 (PAGE 25



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

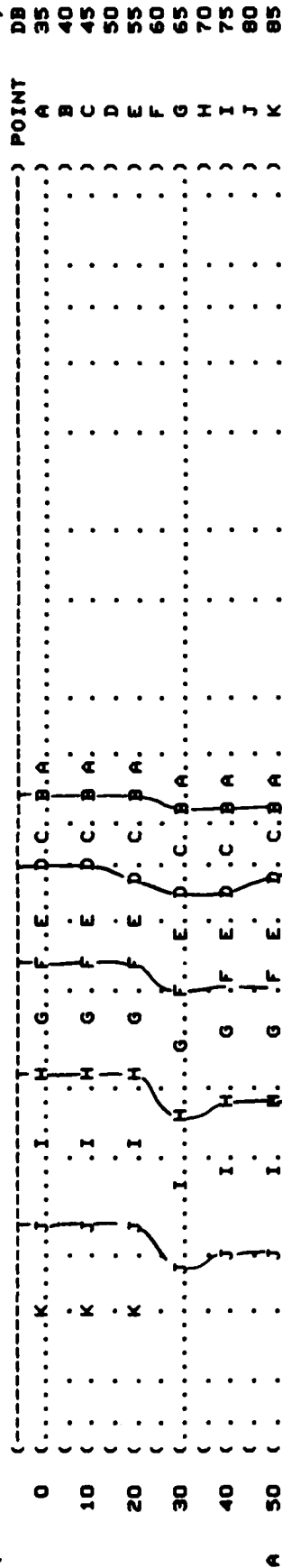
FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
11 8000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 07
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %
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NOISE SOURCE/SUBJECT: KC-10A AIRCRAFT
CF6-SOC2
FAR FIELD NOISE

OPERATION:
45X RPM ALL ENGINES
FREE FLOW

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



ANGLINES DEGR EES

FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)

11

31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

95X RPM ALL ENGINES
FREE FLOW

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

OMEGA 1.4

TEST BS-005-001

RUN 08

26 JUL 82

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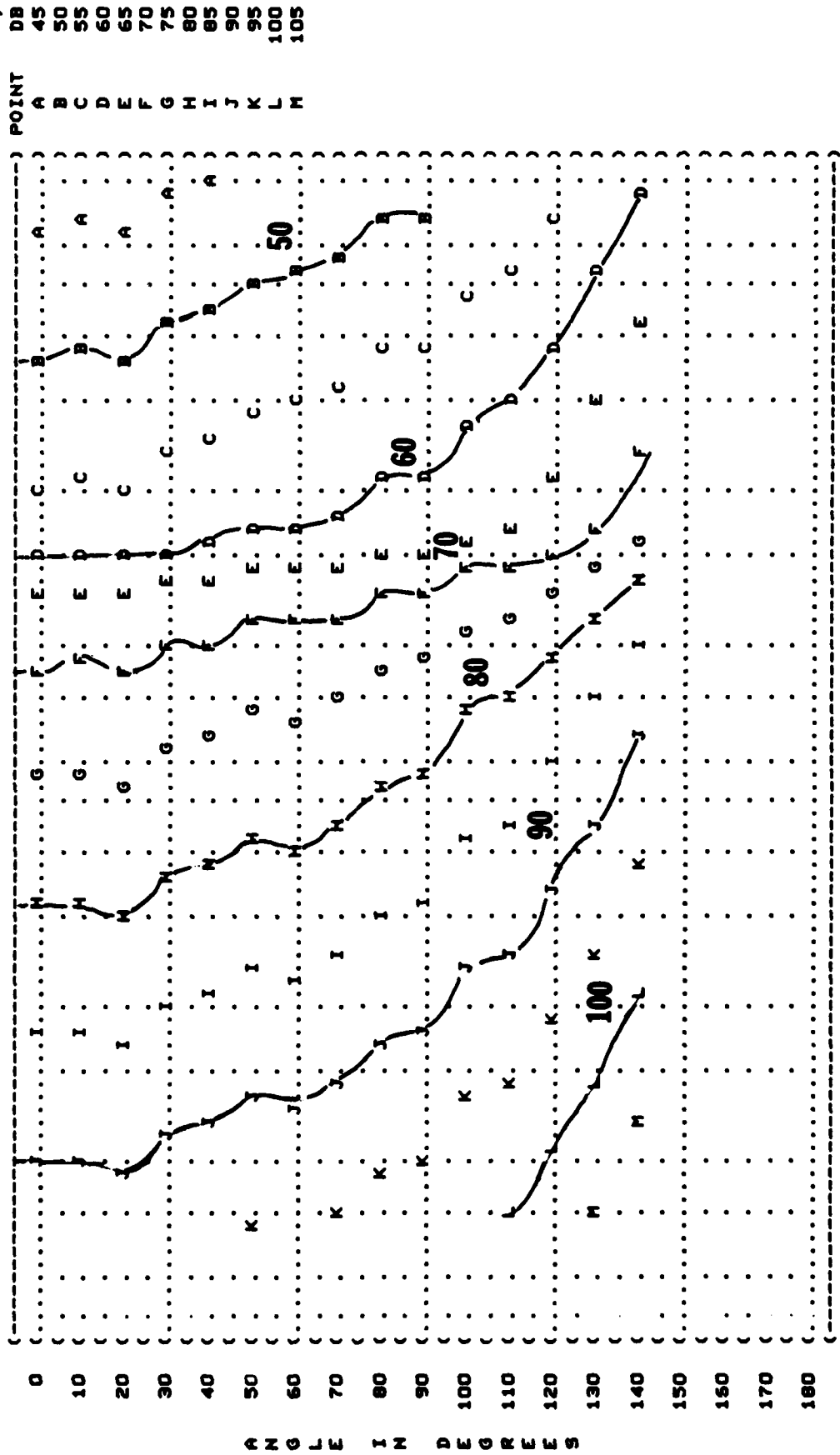


FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
11 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

IDENTIFICATION:

OMEGA 1.4

TEST 88-005-001

RUN 08

TEMP = 15 C

95% RPM ALL ENGINES

BAR PRESS = .760 M HG

FREE FLOW

REL HUMID = 70 %

FAR FIELD NOISE

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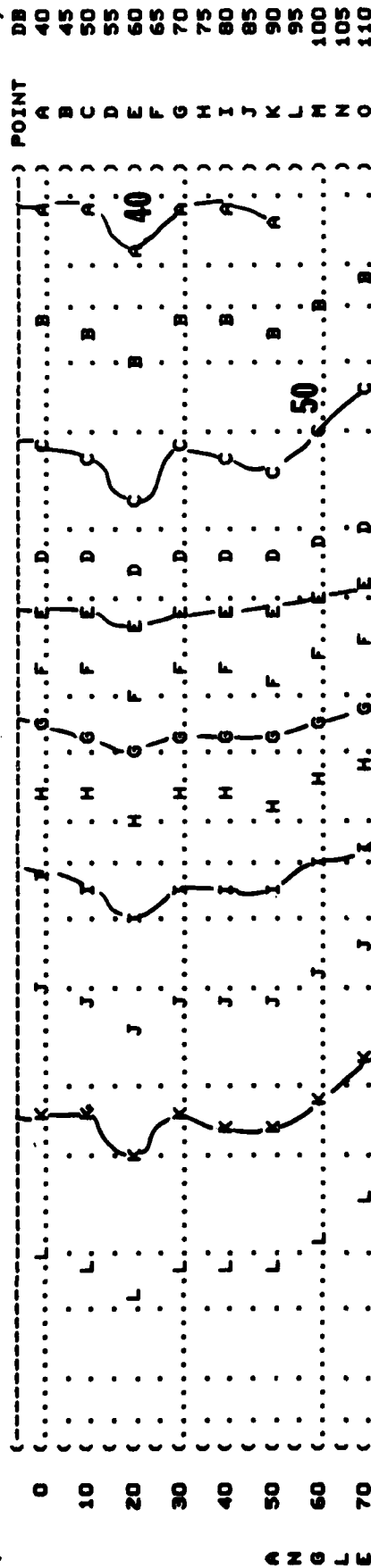
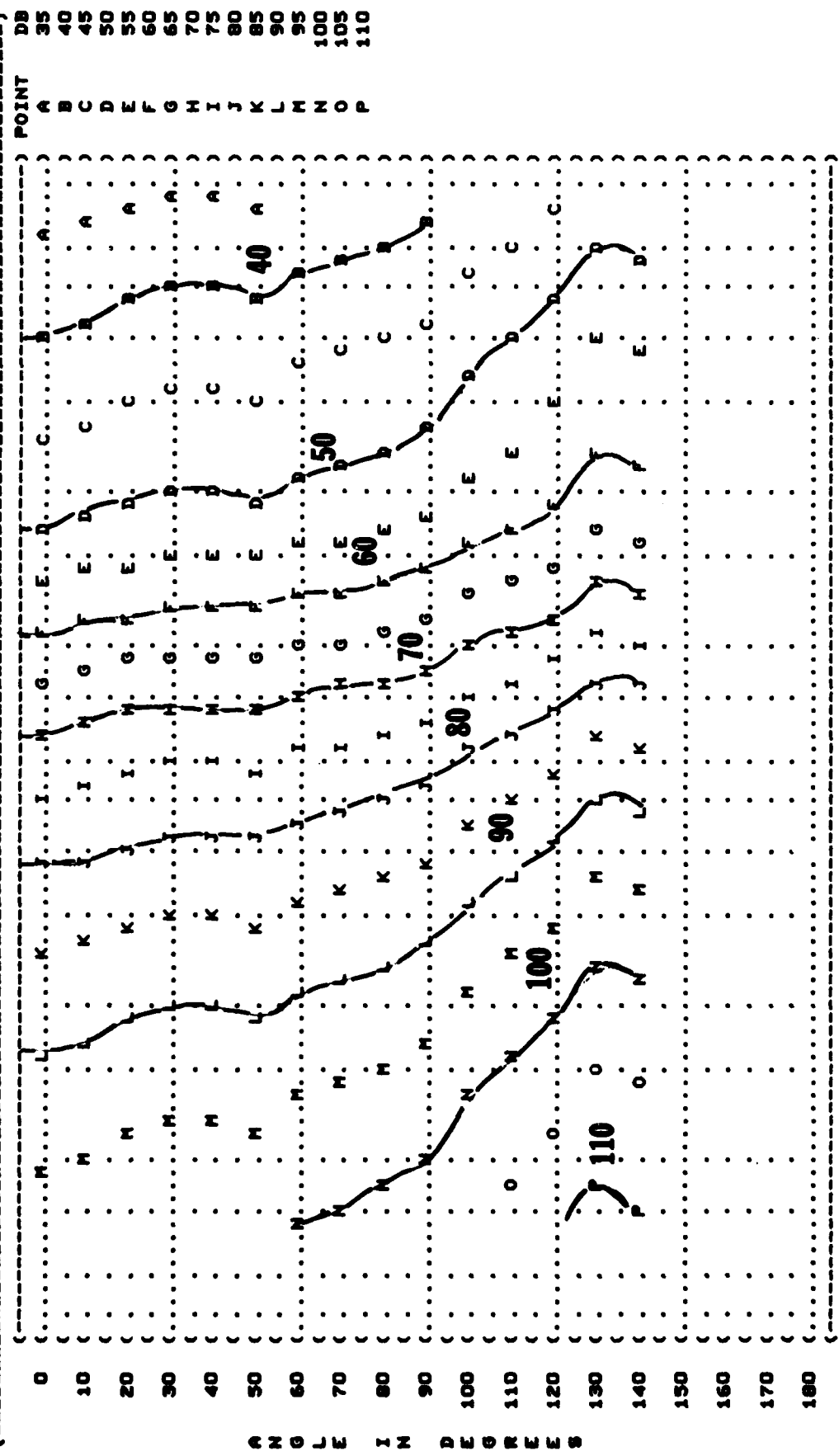


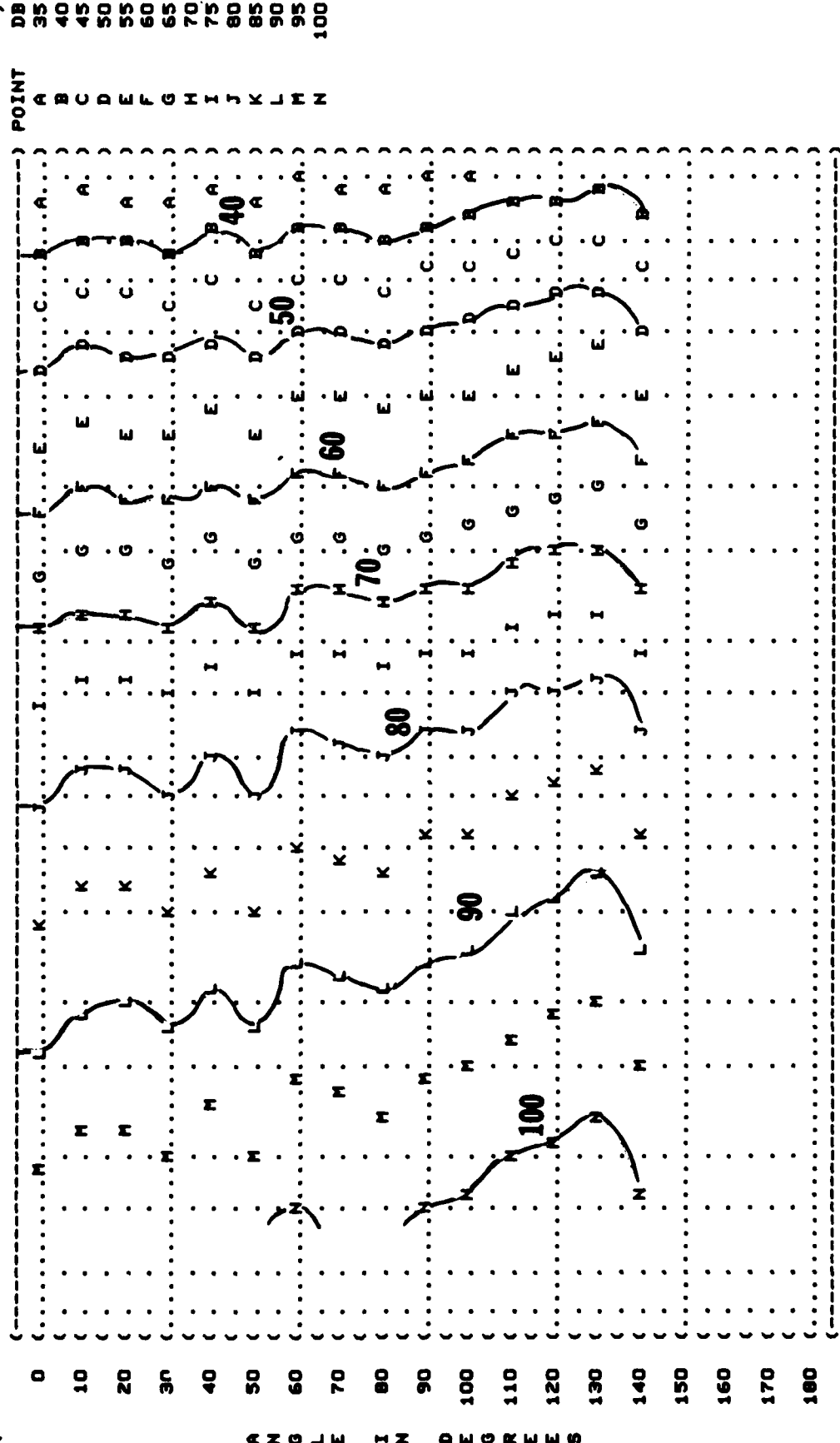
FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 125 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST BS-005-001
RUN 08
METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 H HG
REL HUMID = 70 X
OPERATION:
95X RPM ALL ENGINES
FREE FLOW
NOISE SOURCE/SUBJECT:
KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE



DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL [SPL]
 (EQUAL LEVEL CONTOURS (DB)
 (11 500 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (KC-10A AIRCRAFT (95X RPM ALL ENGINES
 (CF6-50C2 (FREE FLOW
 (FAR FIELD NOISE ()
 () METEOROLOGY:
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () PAGE 22
 (IDENTIFICATION:
 () OMEGA 1.4
 () TEST BS-005-001
 () RUN 08
 () 26 JUL 82



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

IDENTIFICATION:

OMEGA 1.4

NOISE SOURCE/SUBJECT:

OPERATION:

► METEOROLOGY:

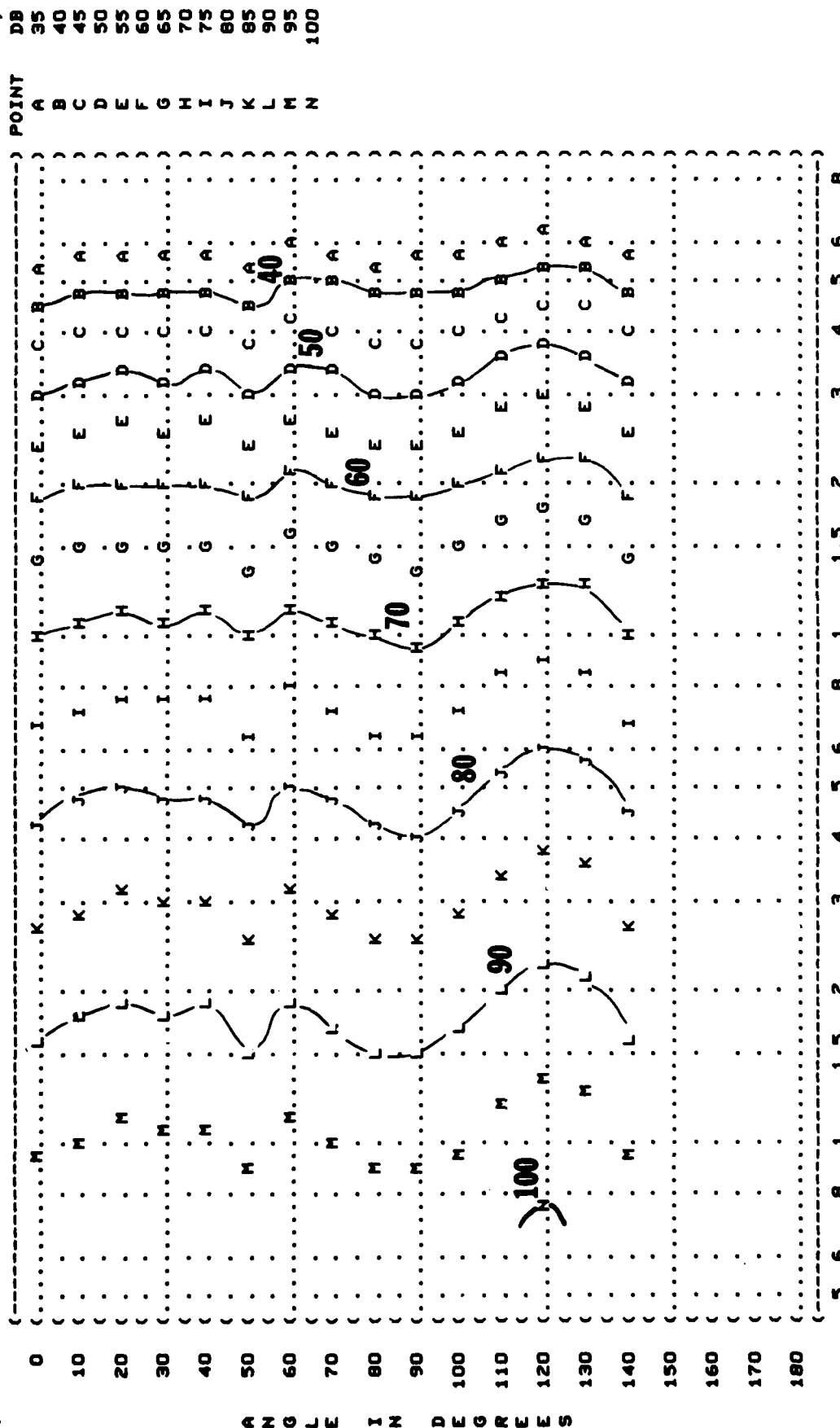
KC-10A AIRCRAFT
CF6-50C2
FAR FIELD NOISE

**95X RPM ALL ENGINES
FREE FLOW**

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

FAR FIELD NOISE

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DISTANCE FROM SOURCE (METERS)

IDENTIFICATION:)
OMEGA 1.4)

2000 HZ OCTAVE BAND

1) METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %



FIGURE: SOUND PRESSURE LEVEL [SPL]
EQUAL LEVEL CONTOURS (DB)
11 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:

OPERATION:

KC-10A AIRCRAFT
CF6-SOC2
FAR FIELD NOISE

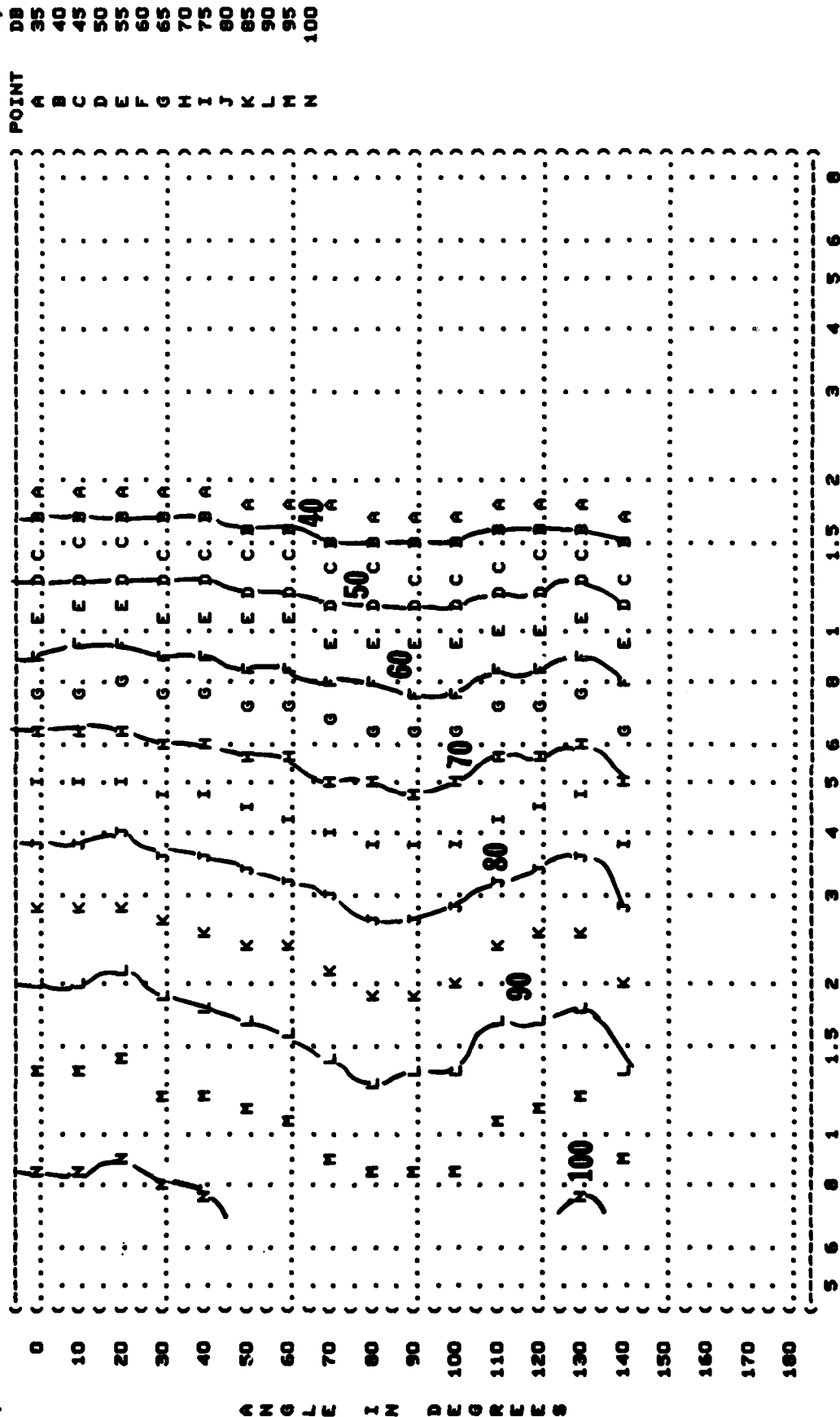
95X RPM ALL ENGINES
FREE FLOW

METEOROLOGY:

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

IDENTIFICATION:

OMEGA 1.4
TEST 89-005-001
RUN 08
26 JUL 82
PAGE 25



DISTANCE FROM SOURCE (METERS)

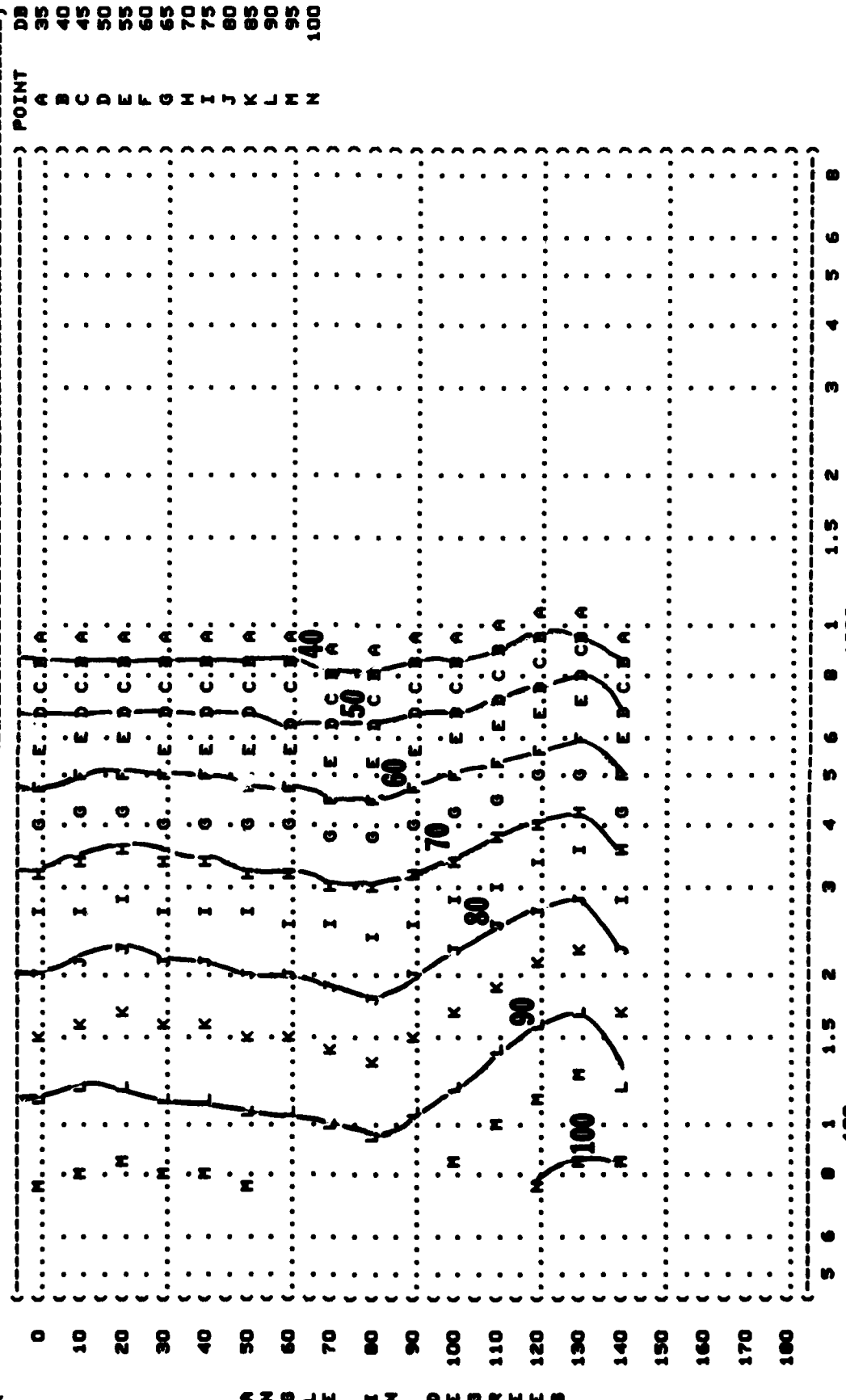
FIGURE: SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS (DB)
 8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: KC-10A AIRCRAFT
 CF6-50C2
 FAR FIELD NOISE

OPERATION: 95X RPM ALL ENGINES
 FREE FLOW

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

IDENTIFICATION: OMEGA 1.4
 TEST 88-005-001
 RUN 08
 26 JUL 82
 PAGE 26



ANGLE IN DEGREES

DISTANCE FROM SOURCE (METERS)