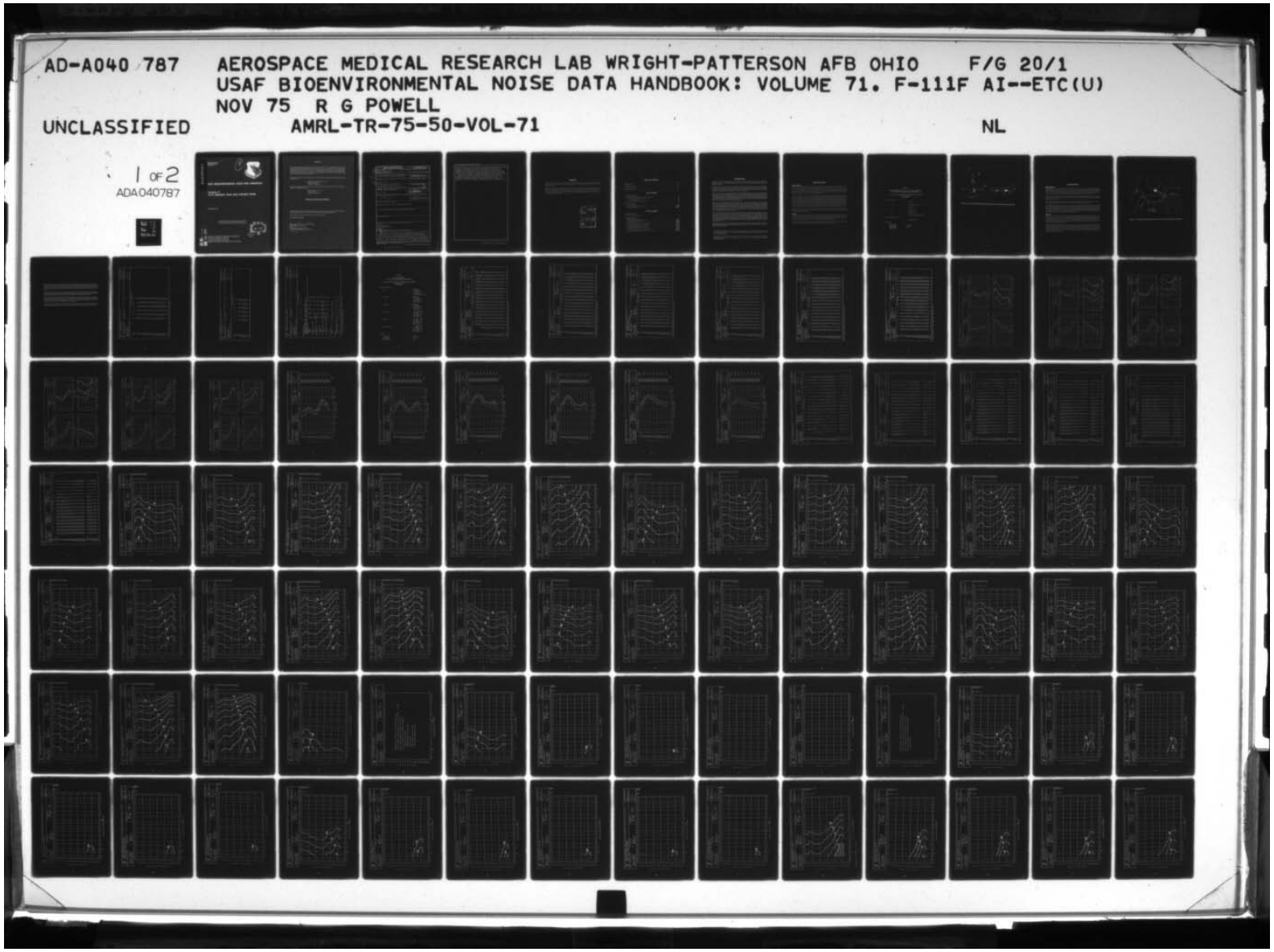
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Volume 71



USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK

Volume 71
F-111F AIRCRAFT, NEAR AND FAR-FIELD NOISE

NOVEMBER 1975

Approved for public release; distribution unlimited

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AEROSPACE MEDICAL RESEARCH LABORATORY
AEROSPACE MEDICAL DIVISION
AIR FORCE SYSTEMS COMMAND
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FOR THE COMMANDER

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

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The USAF F-111F aircraft is a tactical fighter powered by two TF30-P-100 turbofan engines. This report provides measured and extrapolated data defining the bioacoustic environments produced by this aircraft operating on a concrete runup pad for five engine/power configurations. Near-field data are reported for eight locations in a wide variety of physical and psychoacoustic measures: overall and band sound pressure levels, C-weighted and A-weighted sound levels, preferred speech interference level, perceived noise level, and

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limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 19 locations are normalized to standard meteorological conditions and extrapolated from 75-8000 meters to derive sets of equal-value contours for these same seven acoustic measures as functions of angle and distance from the source. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application", AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc.

PREFACE

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

The author gratefully acknowledges Mr. John Cole for his assistance in preparing this report, Mr. Robert Lee and Mr. Jerry Speakman for their assistance in acquiring the raw data, Mr. Keith Kettler, Mr. Henry Mohlman and Mr. David Eilerman of the University of Dayton for assistance in the mechanics of data processing and Mrs. Norma Peachey and Mr. Mike Patterson for assistance in typing and preparation of the graphics.

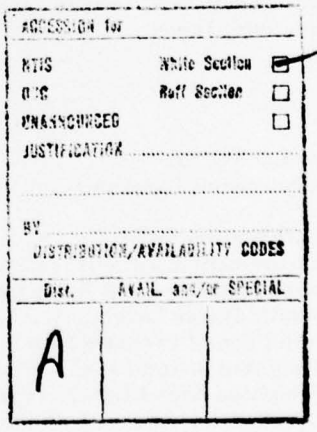


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INTRODUCTION

The USAF F-111F is a tactical fighter-type aircraft powered by two TF30-P-100 turbofan engines. The aircraft is manufactured by General Dynamics Corp. and the engines by United Aircraft, Pratt and Whitney Division.

This volume provides measured and extrapolated data defining bioacoustic environments produced by this aircraft during ground runup operations. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with ground runups of the F-111F aircraft.

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

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

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

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

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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

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

NEAR-FIELD NOISE

MEASUREMENTS

AMRL acquired near-field noise data on the F-111F aircraft during ground runup operations of its turbofan engines and aerospace ground equipment. For these tests the aircraft was located on a concrete taxiway at Wright-Patterson AFB, OH with no significant reflecting surfaces in the vicinity except the ground plane. Table 1 gives the surface meteorological conditions and the power condition. The ground-crew chief selected the power condition and near-field locations generally used during routine maintenance or engine runup for preflight checks.

At each near-field location a test engineer randomly moved a hand held microphone in and around each location, probing all areas where a crew member's head would normally be located. He recorded all of the noise samples on magnetic tape. During analysis of each sample, he determined the root-mean-square sound pressure using a 4- or 8-second integration time to derive a power-averaged level for each location. Figure 1 shows the six near-field locations where ground crew are usually located for maintenance and/or preflight checkout operations. Estimates of noise levels at other locations in the near-field are difficult since the noise source is spatially distributed, i.e., not a point source. The noise levels at near-field locations can vary widely depending upon relative distances from each noise source (intake noise, exhaust noise, panel resonances, internal engine noise through the engine wall, etc.).

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

RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the F-111F aircraft at the six ground crew locations. This table includes the overall, 1/3 octave band, and octave band levels. From these data one can calculate the variety of measure given in Table 3, which are widely used to assess the effects of noise on personnel and their performance.

All near-field data are for the meteorological conditions at the time of test but are valid for all typical airbase meteorology because of the short sound propagation distances involved.

TABLE 1

MEASUREMENT LOCATIONS AND TEST CONDITIONS
FOR NEAR-FIELD NOISE MEASUREMENTS

F-111F Aircraft, Ground Runup, Wright-Patterson AFB, OH
16 September 1974
Tail # 70240

Ground Crew Location

1	Marshall
2	Ground Communicator
3	Observer
4	FLG Pin Pull
5	MLG Wheel Chock
6	MLG Compartment, Leak Check

Aircraft Engine Operation

A	Both Engines Idle

Meteorology

Temperature	15.0 C
Bar Pressure	0.767 M Hg
Rel Humidity	75 %
Wind — Speed	Calm

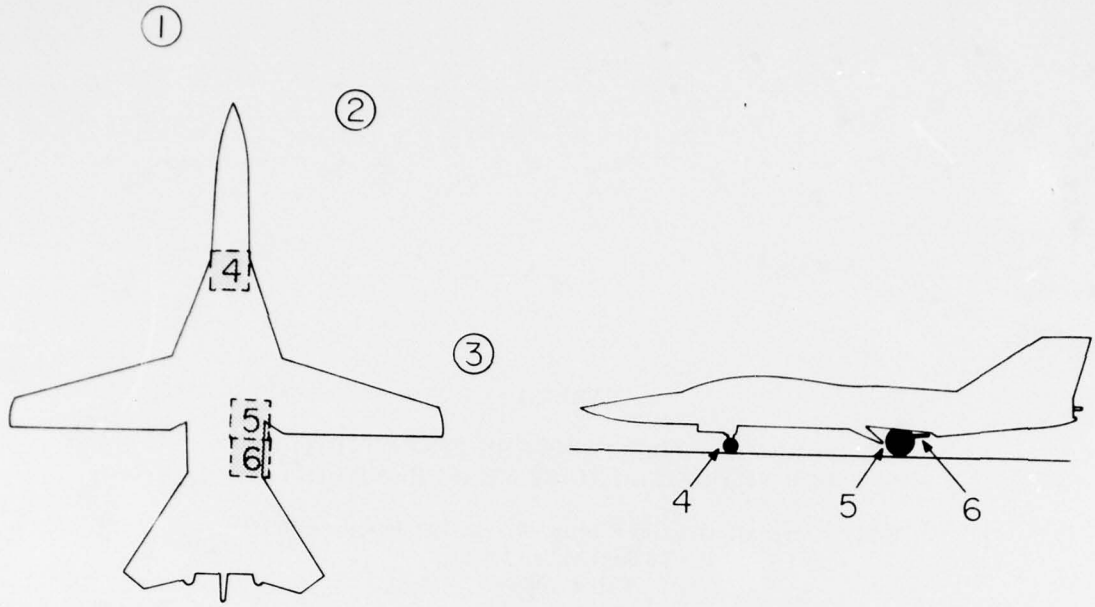


Figure 1. Near-Field Measurement Locations on Taxiway 21, Wright-Patterson AFB, Ohio

FAR-FIELD NOISE

MEASUREMENTS

AMRL acquired both near and far-field data during a 1- 2-hour test period, thus keeping similar meteorological conditions. Figure 2 shows the ground runup pad, ground cover, aircraft orientation and the 19 microphone measurement sites on a semicircle. The center of the 75 meter radius semicircle used in surveying the TF30-P-100 engines was on the ground directly below the intersection of the aircraft's centerline and the plane passing through both engines' exhaust-nozzle exits.

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

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

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

RESULTS

Table 5 lists the overall and 1/3 octave band SPL measured at the far-field locations under meteorological conditions at the time of the test. Data in all other figures and tables are based on these levels. These data were normalized to 100 meters distance and standard meteorological conditions (15 C temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 3 which provides a compact summary of the far-field noise characteristics of the F-111F aircraft in a standard format.

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

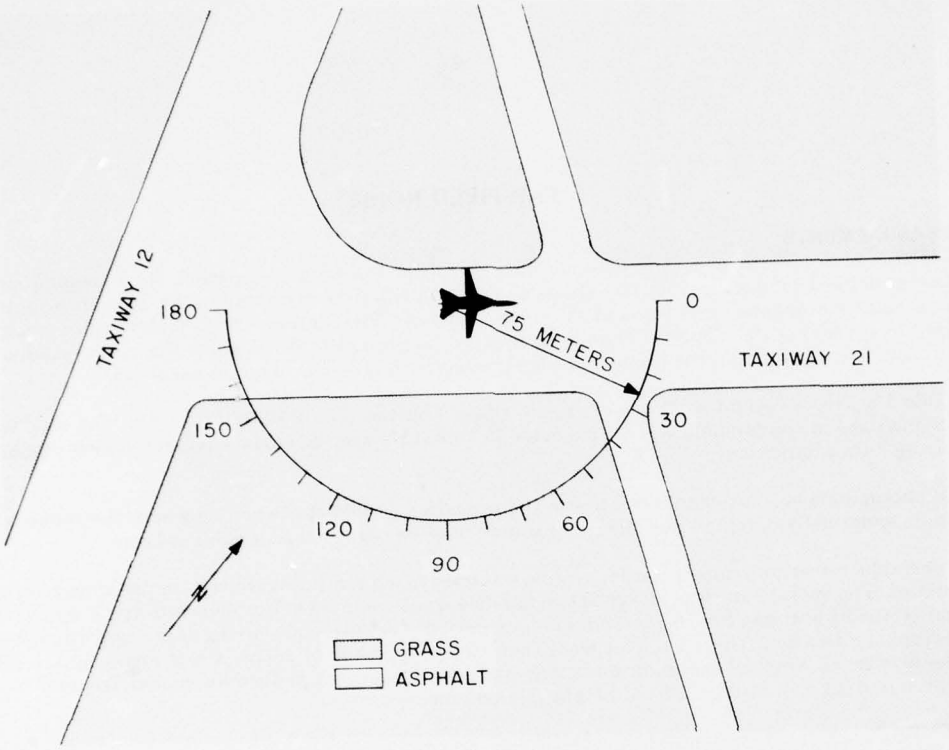


Figure 2. Far-Field Measurement Locations on Taxiway 21, Wright-Patterson AFB, OH

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

Data excessively influenced by spurious background/electronic noise were eliminated from all figures and tables. No data are presented at the 170 degree location for idle power and at the 170 and 180 degree locations for the remaining settings because of turbulent air flow behind the aircraft.

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 and Figure 11 at idle power).

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

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

IDENTIFICATION:
OMEGA 3.2
TEST 74-079-001
RUN 01
17 MAY 76
PAGE F1

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
GROUND CREW
NEAR FIELD NOISE LEVELS

OPERATION:

FREQ (HZ)	LOCATION/CONDITION 1/A	2/A	3/A	4/A	5/A	6/A
25	72<	77	79	84	89	88
31.5	71<	74	79	83	88	85
40	71<	75	79	87	88	87
50	75	80	79	90	87	89
63	77	82	83	92	91	92
80	83	85	89	94	96	97
100	84	87	88	90	94	96
125	80	83	81	88	88	92
160	80	83	79	88	97	100
200	80	81	79	88	91	93
250	84	80	80	87	94	95
315	83	79	84	89	93	97
400	79	78	80	91	94	95
500	80	85	83	95	102	105
630	80	86	84	96	99	100
800	90	97	93	104	102	98
1000	91	97	92	102	100	99
1250	93	96	90	102	97	97
1600	103	109	100	115	106	103
2000	107	114	105	120	111	108
2500	99	102	96	108	104	100
3150	100	102	96	109	103	100
4000	104	106	101	113	107	103
5000	100	101	95	107	101	100
6300	99	102	97	108	101	101
8000	98	101	96	106	101	103
10000	94	97	94	103	97	101
OVERALL	112	117	109	122	116	114

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

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

IDENTIFICATION: OMEGA 3.2 TEST 74-079-001 RUN 01 17 MAY 76 PAGE J1

NOISE SOURCE/SUBJECT: F-111F AIRCRAFT GROUND CREW NEAR FIELD NOISE LEVELS

OPERATION:

FREQ (HZ)	LOCATION/CONDITION 1/A	2/A	3/A	4/A	5/A	6/A
31.5	76	80	84	89	93	91
63	85	86	90	97	97	98
125	86	89	89	94	99	102
250	87	85	86	93	98	100
500	85	89	87	99	104	106
1000	96	101	96	107	105	103
2000	109	113	106	121	113	110
4000	106	108	103	115	109	106
8000	102	105	100	111	105	107
OVERALL	112	117	109	122	116	114

TABLE: 3 MEASURES OF HUMAN NOISE EXPOSURE

IDENTIFICATION:
OMEGA 3.2
TEST 74-079-001
RUN 01
17 MAY 76
PAGE H1

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
GROUND CREW
NEAR FIELD NOISE LEVELS

OPERATION:

	LOCATION/CONDITION					
	1/A	2/A	3/A	4/A	5/A	6/A
HAZARD/PROTECTION						
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR						
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR						
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)						
NO PROTECTION						
OASLC	111	116	109	122	115	114
OASLA	112	118	110	123	116	114
T	3.8	P	5	P	P	2.7
MINIMUM UPL EAR MUFFS						
OASLA*	84	88	82	94	89	89
T	480	240	679	85	202	202
AMERICAN OPTICAL 1700 EAR MUFFS						
OASLA*	77	82	76	88	83	83
T	960	679	960	240	571	571
V-51R EAR PLUGS						
OASLA*	81	86	79	92	87	86
T	807	339	960	120	285	339
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS						
OASLA*	68	72	66	78	73	72
T	960	960	960	960	960	960
H-133 GROUND COMMUNICATION UNIT						
OASLA*	84	89	81	95	88	85
T	480	202	807	71	240	404
COMMUNICATION						
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)						
PSIL	97	102	97	109	107	106
ANNOYANCE						
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)						
TONE CORRECTION (C IN DB)						
PNLT	127	133	125	139	132	130
C	2	3	3	3	2	2

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.
P ADDITIONAL EAR PROTECTION REQUIRED.

TABLE 4

TEST CONDITIONS
FOR FAR-FIELD NOISE MEASUREMENTS

F-111F Aircraft, Ground Runups, Wright-Patterson AFB, OH
16 September 1974
Tail #702406

Aircraft Engine Operation

Idle	Both Engines
	1.04 EPR
	65 % RPM, HPC
	554 C, TIT
	1000 LBS/HR, Fuel Flow
80% Runup	Both Engines
	1.44 EPR
	80 % RPM, HPC
	736 C, TIT
	2650 LBS/HR, FF
85% Runup	Both Engines
	1.66 EPR
	85 % RPM, HPC
	838 C, TIT
	4150 LBS/HR, FF
85% Runup	#2 (Right) Engine
	1.63 EPR
	85 % RPM, HPC
	852 C, TIT
	4200 LBS/HR, FF
Military	#2 (Right) Engine
	2.21 EPR
	94.8 % RPM, HPC
	1086 C, TIT
	8100 LBS/HR, FF
Afterburner (Zone 3)	#2 (Right) Engine
	2.25 EPR
	95 % RPM, HPC
	1114 C, TIT
	28,100 LBS/HR, FF

Meteorology

Temperature	15.0 C
Bar Pressure	0.767 M Hg
Rel Humidity	75 %
Wind — Speed	Calm

TABLE 5: MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 75 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25		62<	65<	65<	67<	65<	66<	64<	65<	68<	68<	67<	68<	68<	67<	69<	68<	66<	
31.5		63<	62<	63<	67<	67<	66<	65<	65<	69<	68<	69<	67<	67<	66<	68<	65<	64<	
40		64<		64<	66<	66<	67<	66<	67<	67<	67<	67<	67<	67<	67<	69<	69<	67<	64<
50		66<	68<	68<	66<	66<	67<	65<	65<	68<	66<	68<	68<	66<	68<	68<	66<		
63		69<	70<	70<	68<	68<	69<	68<	69<	70<	70<	69<	70<	70<	71<	72<	69<		
80	69<	74	76	76	76	78	77	76	75	75	77	78	77	78	78	79	76	64<	
100	68<	74	76	75	75	77	75	73<	74	77	78	79	78	78	79	80	77	66<	
125	63<	70	71	70	67<	67<	68<	68<	71	73	74	74	73	72	72	74	71	62<	
160	65	71	71	69	66	65	70	71	72	74	74	75	78	76	75	74	74	63	
200	67	73	72	67	65	66	68	66	68	71	72	73	74	74	73	71	74	61	
250	70	74	71	69	67	67	69	68	68	70	70	70	71	71	71	71	74	62	
315	69	75	72	71	68	68	68	65	64	66	67	67	70	73	72	76	74	63	
400	70	75	72	73	68	65	69	64	62	62	64	66	68	69	70	74	73	63	
500	71	73	73	75	71	67	70	64	67	64	65	67	67	68	70	72	74	63	
630	71	72	75	75	70	66	69	64	65	63	63	65	65	68	68	70	70	60	
800	78	81	85	82	78	75	75	73	69	68	68	67	67	70	69	70	71	62	
1000	79	81	84	83	79	76	76	74	69	68	68	67	68	69	67	69	69	60	
1250	78	82	81	81	79	76	75	72	69	65	66	66	68	68	66	68	67	58	
1600	94	99	98	96	91	86	87	83	81	75	73	74	72	75	79	78	78	69	
2000	93	98	97	96	91	87	87	84	81	79	78	78	76	79	81	82	80	72	
2500	85	89	88	88	85	82	80	79	76	75	75	73	77	78	74	73	72	66	
3150	85	89	88	87	86	82	79	78	76	75	74	73	74	73	72	71	71	65	
4000	88	92	90	90	89	85	83	82	80	80	78	78	78	78	77	74	74	68	
5000	84	87	86	84	84	79	78	76	73	73	72	73	75	75	73	70	69	60	
6300	81	85	84	82	82	78	76	74	71	74	73	73	76	77	73	71	69	59	
8000	77	81	80	78	79	74	73	70<	68<	73	70<	70<	73	72	69<	67<	66<		
10000	74	77	75	74	74	70	69	66	66	71	68	68	70	70	67	65	64	52<	
OVERALL	98	103	102	100	97	93	92	90	88	87	87	87	88	88	88	88	87	78	

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: 5

MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 75 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	74	74	73	71<	73	75	74	76	76	76	76	77	81	85	90	91	92		
31.5	73	72<	72<	72<	74	73	76	76	76	75	77	78	80	86	90	92	92		
40	75	74<	75	74<	76	78	78	80	79	79	80	83	86	89	95	96	94		
50	76	75	78	75	78	78	79	78	79	81	82	84	86	92	95	97	95		
63	76	78	79	80	80	78	80	82	83	83	84	86	89	95	99	101	97		
80	79	80	82	83	83	82	84	84	86	84	86	88	91	96	101	103	98		
100	81	82	85	87	87	86	86	86	87	89	90	91	93	99	103	107	103		
125	83	84	85	85	85	82	85	87	88	88	90	91	93	97	101	107	102		
160	85	86	86	85	84	83	86	87	89	89	91	92	94	97	99	104	104		
200	85	86	86	83	83	83	84	85	87	87	89	90	92	95	98	99	100		
250	85	85	85	85	83	84	86	87	88	86	86	86	89	92	96	94	95		
315	83	85	85	84	83	83	83	82	83	80	82	84	87	90	92	94	93		
400	83	84	85	85	80	80	79	79	80	78	79	82	83	87	89	90	88		
500	83	82	84	83	78	79	79	80	79	78	78	82	82	86	87	88	87		
630	83	82	84	83	80	80	80	80	81	80	79	83	82	86	85	86	84		
800	82	81	84	83	79	80	79	80	80	79	79	82	81	84	84	85	82		
1000	84	84	86	83	82	81	80	81	80	79	79	81	80	83	82	82	79		
1250	89	89	89	87	86	85	83	83	80	79	79	80	79	82	81	81	77		
1600	92	91	91	90	88	87	86	84	82	79	79	80	79	81	80	80	77		
2000	92	90	91	91	87	86	84	84	81	80	80	81	80	81	80	80	76		
2500	99	97	97	97	94	92	90	90	86	83	82	82	80	81	80	81	79		
3150	103	101	101	100	99	97	95	95	92	89	89	88	85	86	84	85	83		
4000	95	94	95	93	93	91	90	90	88	88	89	89	87	87	84	82	81		
5000	95	93	93	92	91	90	88	88	84	82	82	81	80	80	79	78	76		
6300	95	93	93	92	91	89	88	89	85	84	82	82	80	80	79	78	77		
8000	90	88	88	87	87	84	83	84	80	81	81	81	79	79	77	76	75		
10000	86	86	85	84	83	81	80	80	76	79	79	77	75	76	74	73	72		
OVERALL	106	105	105	104	103	101	100	100	99	98	99	100	102	106	109	112	110		

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE 5: MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 75 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	75	74	76	77	75	78	78	79	81	80	81	84	87	91	93	98	96		
31.5	77	76	76	76	76	78	80	81	81	82	82	85	86	93	97	100	96		
40	77	79	78	80	80	82	82	83	85	85	85	88	92	99	101	102	100		
50	79	79	79	81	79	80	81	83	85	87	87	90	93	99	104	106	99		
63	81	80	81	83	83	83	85	85	87	88	88	92	95	102	106	109	100		
80	84	84	86	85	86	87	88	88	90	90	91	93	98	104	108	111	102		
100	86	87	89	89	88	89	89	90	93	93	94	96	101	106	112	114	106		
125	86	88	89	89	88	89	89	90	92	93	94	97	100	106	109	115	107		
160	89	90	90	89	88	89	91	92	93	95	96	98	102	107	109	116	110		
200	90	90	90	90	88	89	90	90	92	93	95	96	100	107	108	113	109		
250	88	89	89	91	88	89	91	91	92	91	93	94	97	102	108	107	106		
315	88	89	91	90	88	89	90	88	89	90	91	91	96	101	106	107	102		
400	88	88	90	89	86	85	86	86	86	88	88	92	94	99	103	105	97		
500	88	86	88	89	86	83	85	87	85	87	87	92	94	98	101	102	94		
630	88	85	88	88	85	84	86	87	87	87	88	93	93	97	100	100	91		
800	86	86	87	86	86	83	85	86	86	87	89	93	92	96	98	97	88		
1000	86	86	86	86	86	84	86	87	87	86	89	92	92	95	97	95	86		
1250	86	85	85	86	86	84	86	87	87	86	88	91	90	93	95	92	84		
1600	88	88	88	88	87	86	87	88	88	87	88	91	90	93	94	90	83		
2000	87	87	86	87	85	84	85	85	86	87	88	91	90	92	92	87	82		
2500	92	91	90	90	88	86	86	86	86	87	87	90	88	90	89	84	80		
3150	100	98	98	97	96	94	93	91	90	90	90	93	89	90	90	86	82		
4000	97	96	96	95	95	94	92	91	91	92	90	95	90	90	90	86	83		
5000	90	90	90	89	90	87	87	86	86	87	86	91	87	96	87	82	79		
6300	90	89	88	87	87	85	83	83	83	85	84	88	85	85	85	80	77		
8000	86	85	85	84	83	82	81	80	80	83	83	87	82	83	83	78	76		
10000	82	81	82	80	79	78	76	76	77	81	81	84	80	80	80	76	73		
OVERALL	104	103	104	103	102	101	102	102	103	103	104	107	109	115	118	122	116		

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: 5

MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 75 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	73	73	74	73	73	74	75	76	77	77	77	79	84	89	92	94	94		
31.5	74	75	73	72<	72<	76	75	76	77	78	79	80	84	91	94	97	96		
40	76	76	76	75	77	78	78	78	80	81	82	86	89	94	97	101	100		
50	74	78	76	77	77	78	79	79	81	82	84	86	91	94	100	103	101		
63	78	80	80	80	80	81	81	81	82	85	85	89	93	98	105	108	103		
80	79	82	83	83	83	84	85	84	84	85	87	91	95	100	107	110	104		
100	81	84	86	85	85	86	87	87	87	89	91	95	99	103	110	114	107		
125	83	86	86	86	86	85	86	86	88	90	92	96	99	104	107	114	109		
160	85	88	88	86	85	86	86	87	90	92	94	97	102	106	108	116	112		
200	86	89	86	87	85	85	86	87	88	90	93	95	100	105	109	111	109		
250	85	87	88	89	87	87	90	87	87	88	90	93	97	101	107	102	106		
315	84	88	89	89	85	88	88	86	85	86	89	92	96	100	103	105	101		
400	85	87	89	87	84	83	84	80	81	85	86	91	94	96	98	103	96		
500	85	86	87	87	83	83	83	80	82	85	84	91	93	94	97	100	92		
630	85	85	87	86	83	83	83	81	83	86	85	92	92	93	95	97	90		
800	84	85	87	85	83	83	82	81	83	86	86	92	92	92	93	94	88		
1000	85	87	87	85	83	83	82	81	82	85	86	91	90	91	91	93	86		
1250	85	88	86	85	84	84	82	81	82	85	86	90	89	90	89	91	83		
1600	93	91	89	88	86	86	84	82	82	86	86	90	89	89	88	89	82		
2000	98	92	89	88	85	86	84	84	84	86	87	90	89	88	88	88	82		
2500	92	93	91	90	87	87	84	85	83	84	86	89	87	85	86	84	79		
3150	98	100	99	99	96	95	92	92	90	89	89	90	89	86	88	87	84		
4000	96	96	96	96	95	95	92	94	92	90	90	92	89	87	88	87	84		
5000	90	90	90	90	88	88	86	88	85	86	85	88	86	84	84	82	78		
6300	89	90	89	88	87	87	84	86	83	83	83	86	84	81	83	81	76		
8000	85	86	85	85	84	83	81	85	82	83	82	85	82	80	81	80	75		
10000	82	83	82	81	81	80	77	81	79	80	79	82	80	77	78	77	71		
OVERALL	104	104	104	103	101	101	100	100	99	101	102	106	109	113	117	121	117		

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE 5: MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 75 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	76	76	78	77	79	80	80	81	85	84	85	87	92	95	102	104	103		
31.5	76	77	78	78	79	79	81	81	84	85	86	87	92	99	103	106	106		
40	81	79	81	80	82	83	84	85	86	89	90	92	96	102	107	110	107		
50	78	78	80	81	81	82	85	84	88	89	91	93	99	104	110	112	108		
63	81	81	84	84	84	84	86	87	90	90	93	96	101	107	114	116	110		
80	84	84	87	87	87	88	89	90	92	93	94	98	103	110	116	119	113		
100	86	89	89	89	88	90	91	91	94	96	98	101	106	113	120	122	117		
125	88	90	91	91	89	90	91	93	95	97	98	102	108	113	117	122	118		
160	92	93	93	92	91	91	92	94	97	98	101	104	111	118	117	124	120		
200	91	93	92	91	91	91	92	92	93	97	100	103	110	119	119	121	119		
250	88	90	93	93	91	91	93	94	93	95	100	102	109	115	120	118	120		
315	88	92	95	93	91	92	92	92	93	94	96	100	107	114	119	121	119		
400	90	91	94	94	91	91	90	91	92	94	96	100	105	111	116	121	118		
500	98	97	103	97	92	92	91	92	95	97	95	101	105	109	117	118	118		
630	91	95	96	96	94	92	91	92	94	97	97	102	105	108	115	117	114		
800	88	94	96	96	95	94	93	93	95	97	98	102	105	107	114	116	112		
1000	86	91	94	94	95	94	94	94	95	97	98	101	104	107	112	115	110		
1250	85	89	91	92	93	93	93	94	95	97	98	101	104	105	111	113	108		
1600	92	90	91	91	92	94	93	94	95	97	99	101	104	105	111	112	107		
2000	97	92	90	89	89	90	90	91	96	98	99	102	103	106	110	111	107		
2500	88	85	86	87	87	89	90	90	95	96	98	100	101	103	107	109	104		
3150	86	84	86	86	87	89	89	91	95	96	99	101	102	103	107	110	104		
4000	91	85	85	86	87	88	89	89	95	96	98	100	102	103	106	108	103		
5000	85	81	83	84	85	86	87	87	92	94	96	97	99	100	103	107	100		
6300	84	79	80	81	82	83	84	84	90	92	95	96	97	99	103	106	100		
8000	80	75	77	77	79	80	81	82	89	90	92	94	95	98	103	107	98		
10000	77	73	74	75	76	77	78	78	86	87	89	91	93	96	103	106	97		
OVERALL	104	104	107	105	104	104	104	105	107	109	111	114	119	125	129	131	128		

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: 5

MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 75 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	89	87	90	89	89	89	90	91	94	94	96	101	101	107	112	114	111		
31.5	88	88	88	88	90	91	93	93	95	96	96	102	105	111	114	115	111		
40	90	90	89	91	91	93	94	95	97	97	99	104	109	114	118	119	112		
50	90	89	91	91	92	93	93	94	95	96	96	105	111	117	120	118	111		
63	92	91	94	95	94	95	97	97	98	100	102	107	114	121	124	119	113		
80	93	94	97	97	96	98	97	100	100	103	104	110	116	123	126	119	116		
100	94	97	99	98	98	98	100	101	103	105	106	113	117	126	128	124	120		
125	96	99	100	99	99	99	100	100	103	106	108	113	118	122	127	124	120		
160	99	101	100	100	99	100	101	102	103	107	108	116	122	122	126	125	122		
200	98	99	98	100	98	99	100	101	102	106	108	114	121	124	123	123	120		
250	93	95	99	100	98	100	99	100	101	106	107	111	118	124	121	119	117		
315	94	98	101	100	97	99	98	99	100	103	106	111	116	122	120	118	118		
400	94	96	100	100	98	98	98	99	100	103	105	111	115	119	118	116	115		
500	94	96	99	101	98	97	98	99	102	102	107	112	115	119	117	116	113		
630	93	98	99	101	98	97	98	100	103	104	108	113	114	118	116	114	110		
800	90	96	98	100	100	98	100	100	103	104	108	113	115	117	115	114	107		
1000	90	95	97	99	100	99	101	102	104	106	109	113	115	118	115	113	105		
1250	90	94	96	98	99	98	100	103	104	106	109	112	114	117	115	111	103		
1600	93	95	96	98	99	99	102	104	106	107	111	111	113	115	113	108	100		
2000	98	94	94	95	96	96	100	102	103	105	108	112	114	116	114	108	100		
2500	89	91	92	94	95	96	100	102	103	105	107	111	112	114	112	105	98		
3150	88	90	91	94	95	96	100	103	104	104	107	111	112	114	112	105	98		
4000	92	89	90	94	94	94	99	102	102	104	106	111	112	115	112	105	97		
5000	87	86	88	92	93	92	96	99	100	102	104	108	110	113	110	103	94		
6300	85	83	85	88	90	90	94	97	97	100	102	108	110	112	109	103	92		
8000	82	79	81	85	86	86	90	94	94	97	100	107	110	112	109	103	90		
10000	78	76	78	82	83	83	87	92	92	95	98	107	110	114	109	104	88		
OVERALL	107	109	111	111	111	111	113	114	116	118	120	125	129	134	135	132	129		

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 6

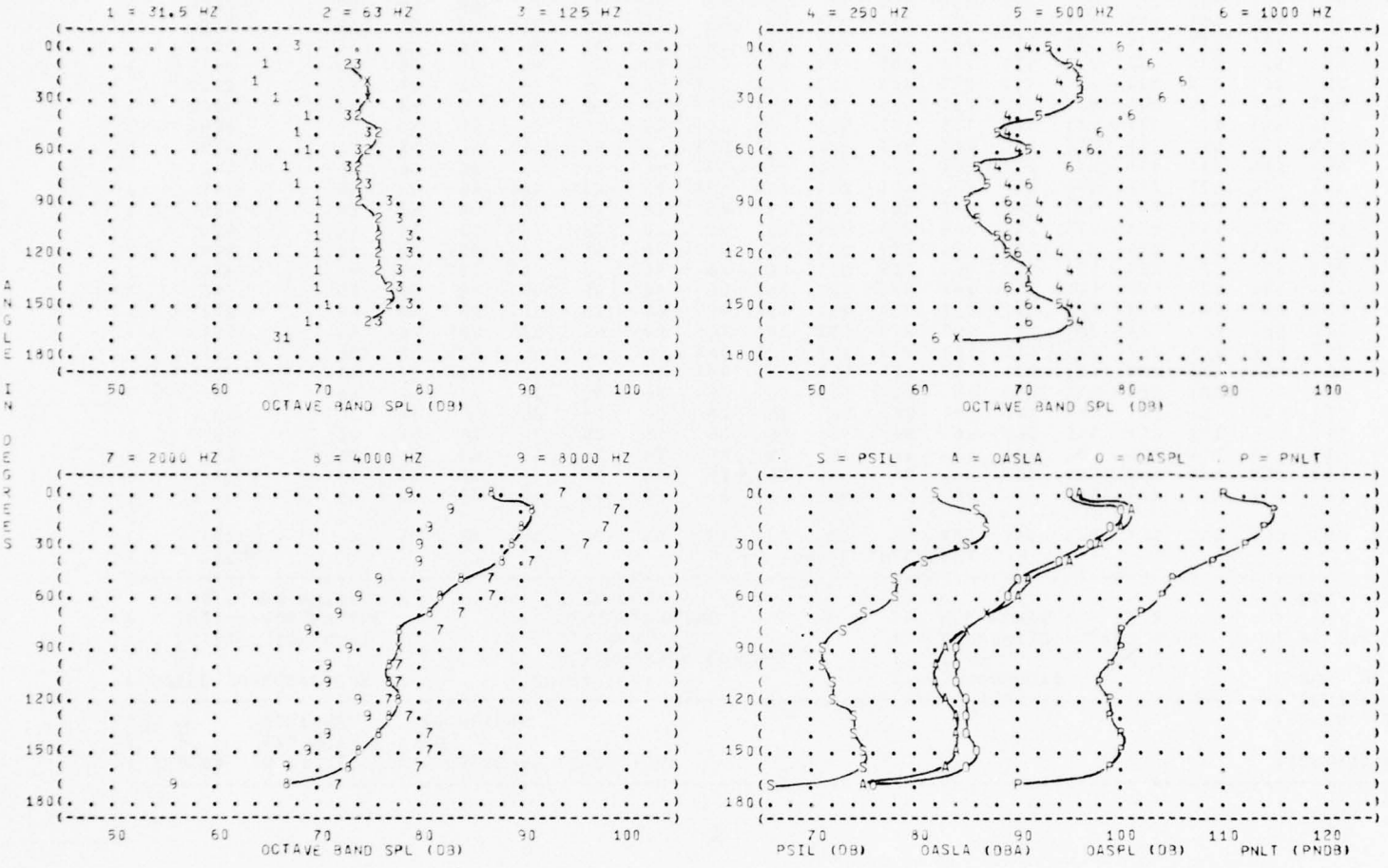


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3

DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:

80% RPM
BOTH ENGINES
FREE FLOW

METEOROLOGY:

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

IDENTIFICATION:

OMEGA 1.4
TEST 75-002-037
RUN 02

08 MAY 75

PAGE 6

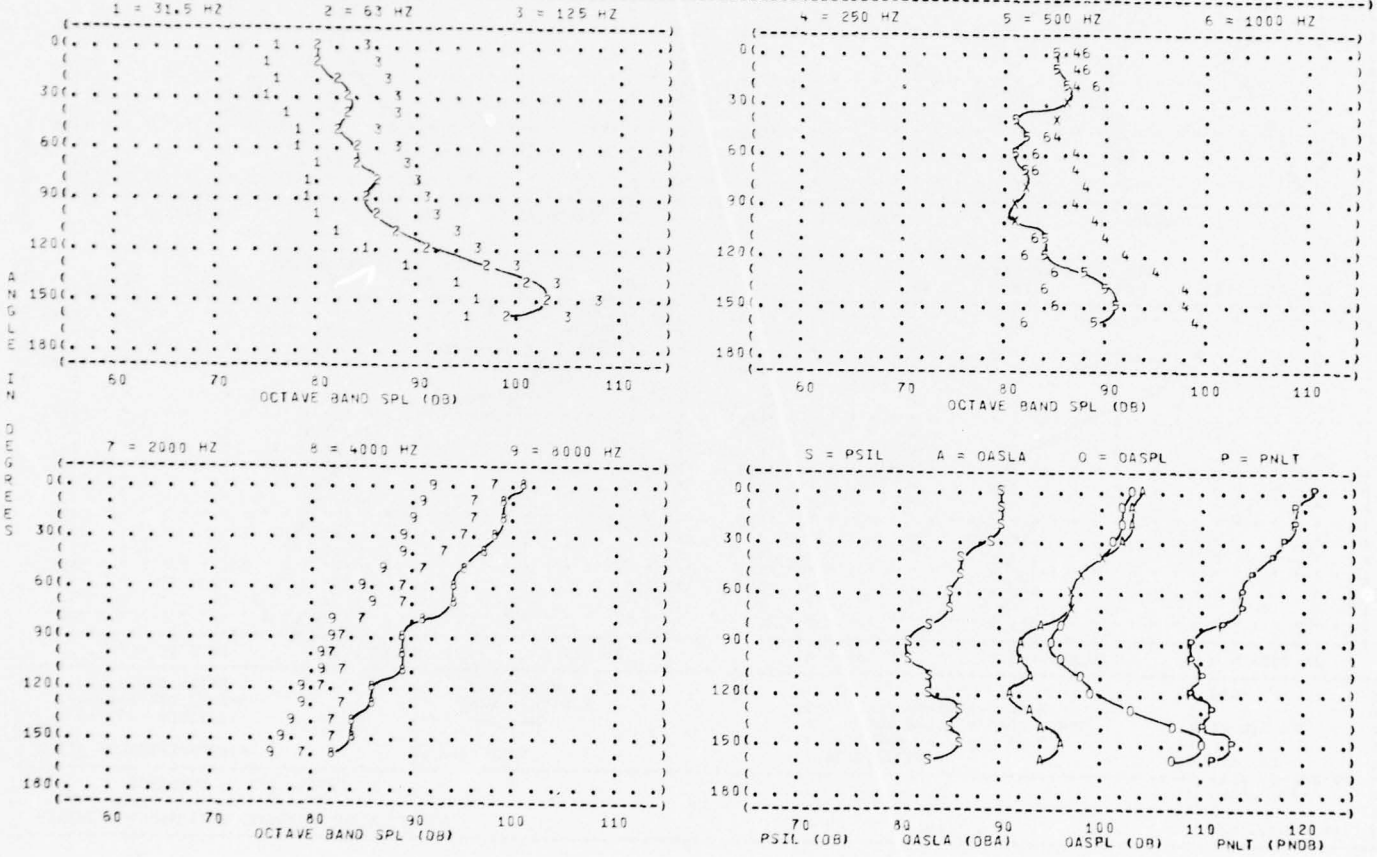


FIGURE 3 NORMALIZED FARFIELD NOISE LEVELS

DISTANCE = 100 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 6

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

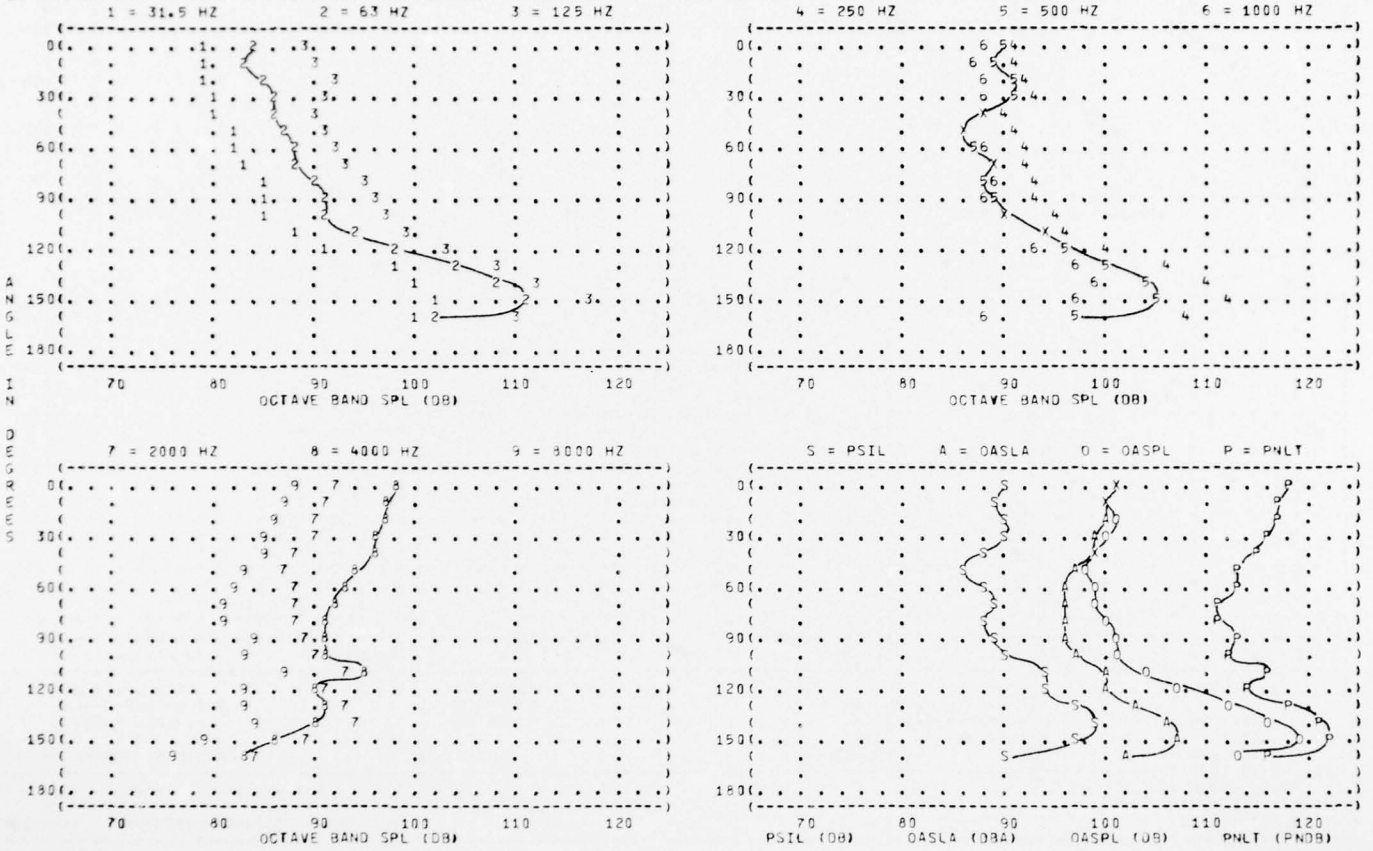


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3

DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:

85% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY:

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

IDENTIFICATION:

OMEGA 1.4
TEST 75-002-037
RUN 04

08 MAY 75

PAGE 6

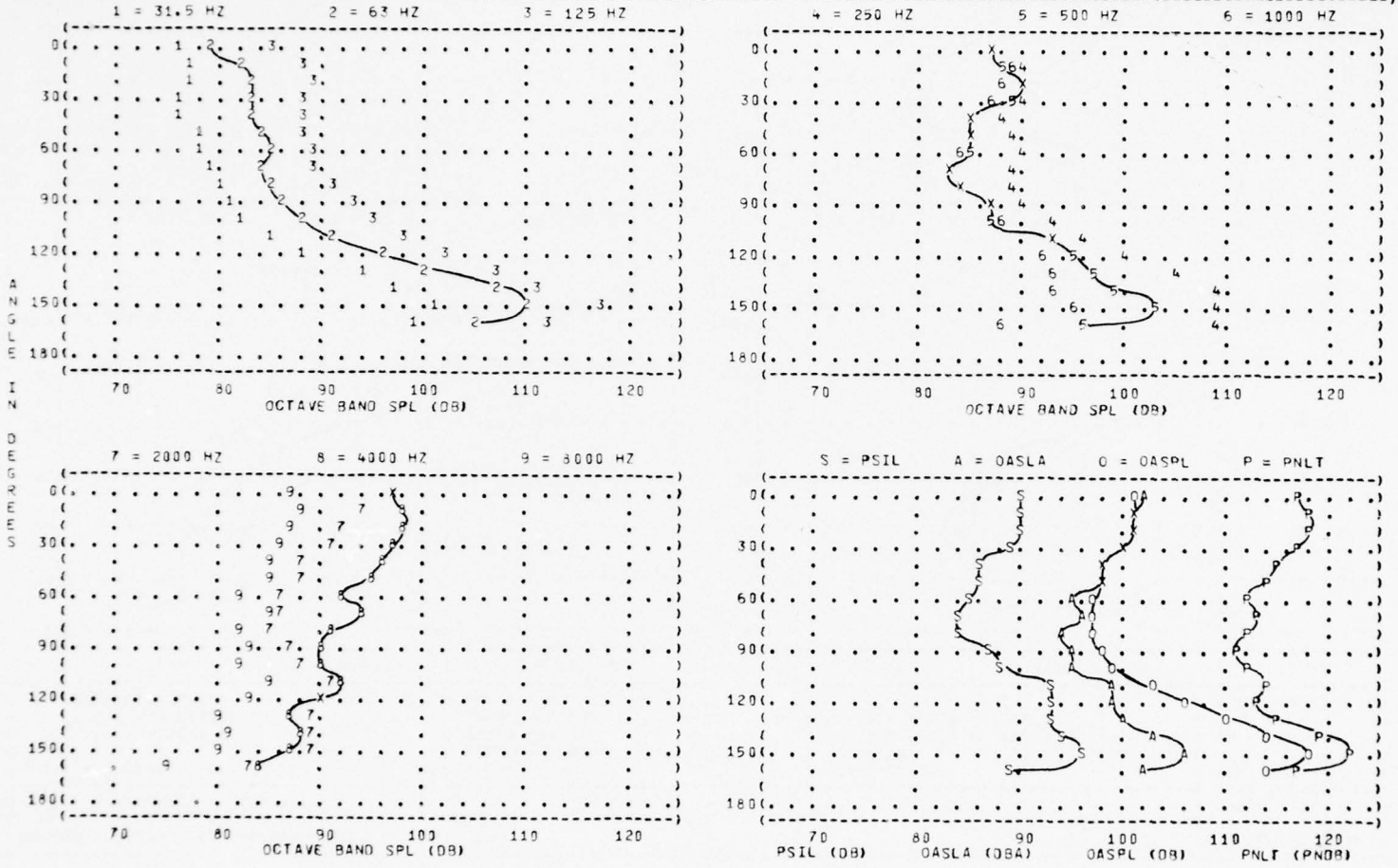


FIGURE 3 NORMALIZED FARFIELD NOISE LEVELS

DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 6

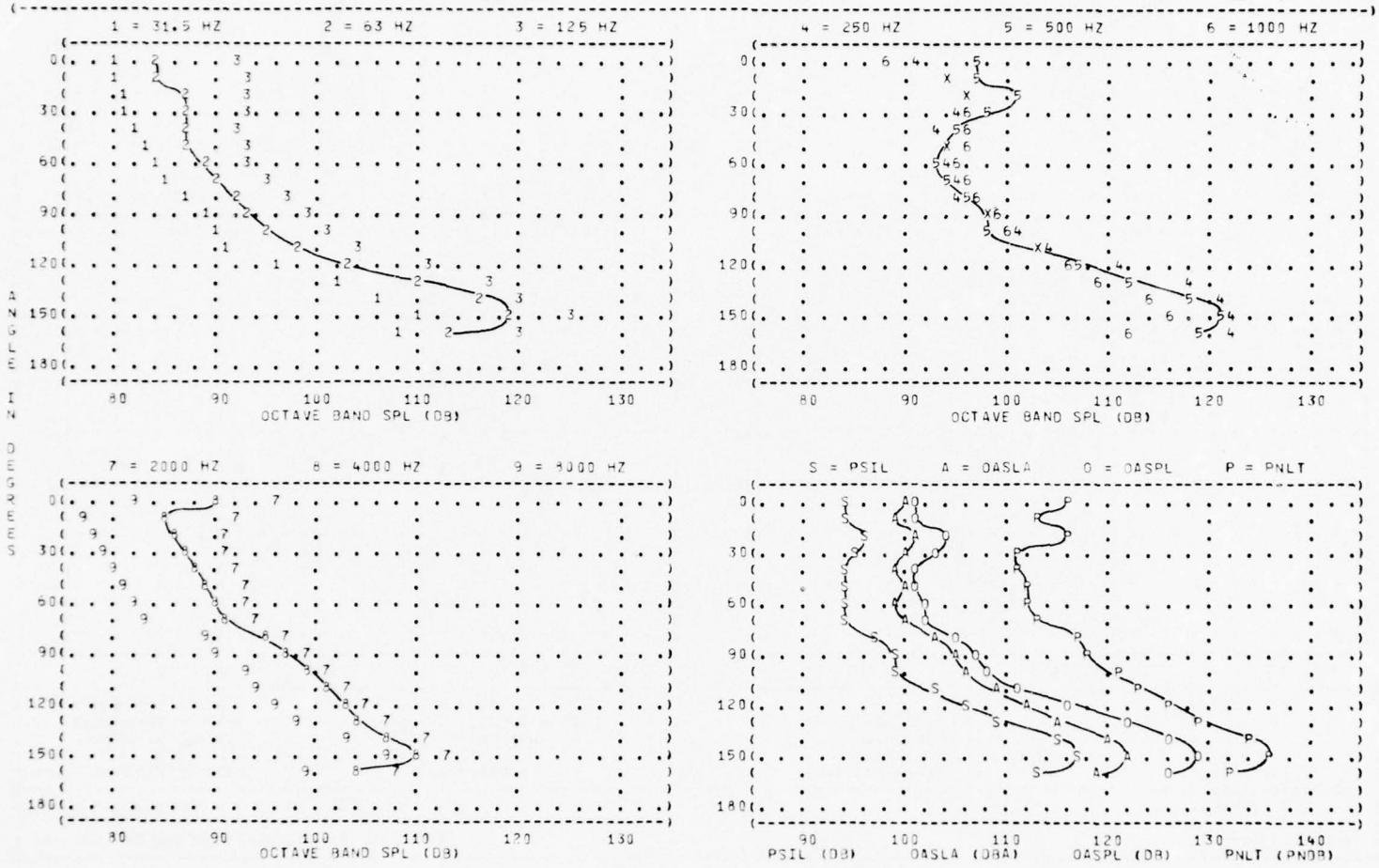


FIGURE 3 NORMALIZED FARFIELD NOISE LEVELS

DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 6

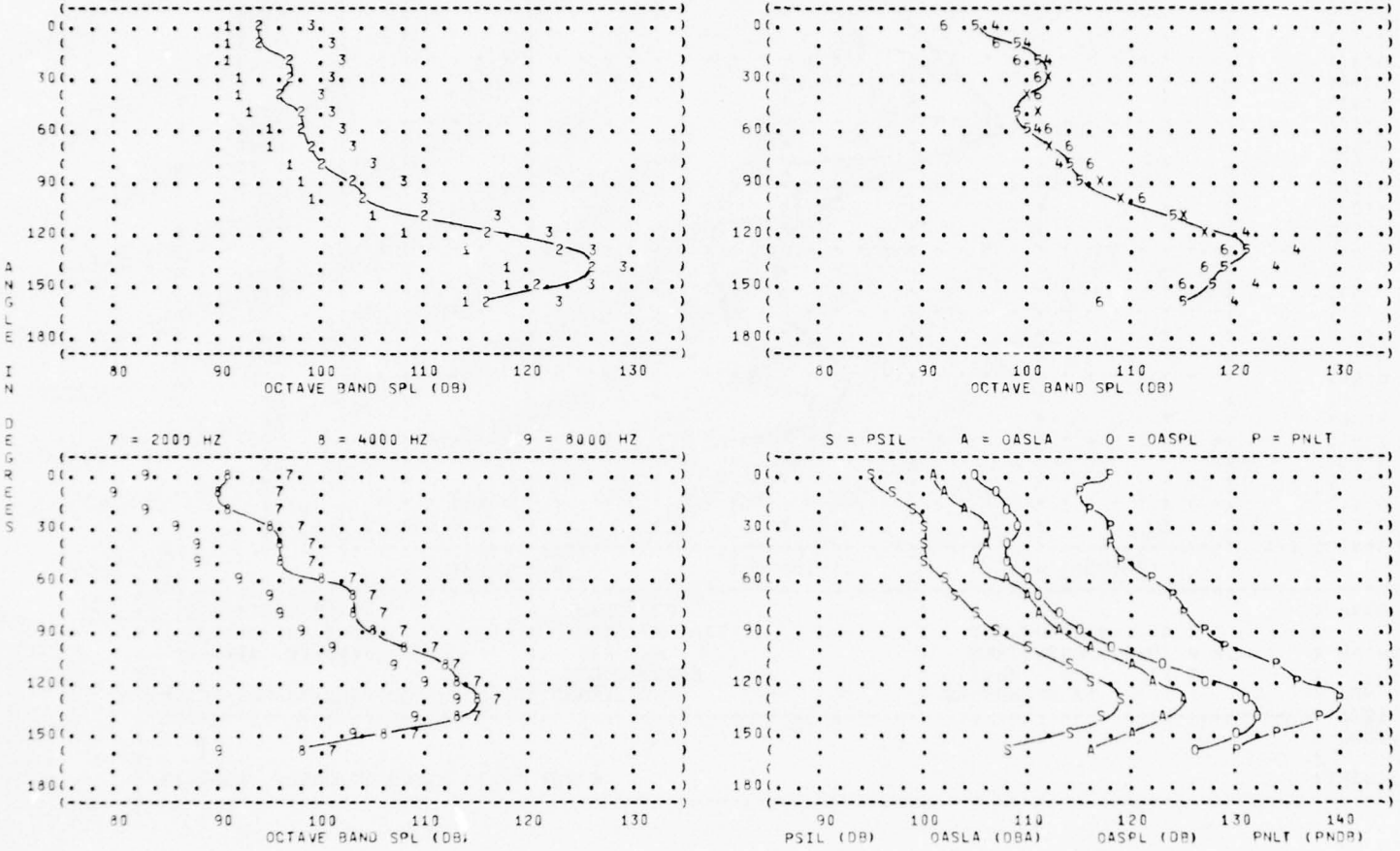


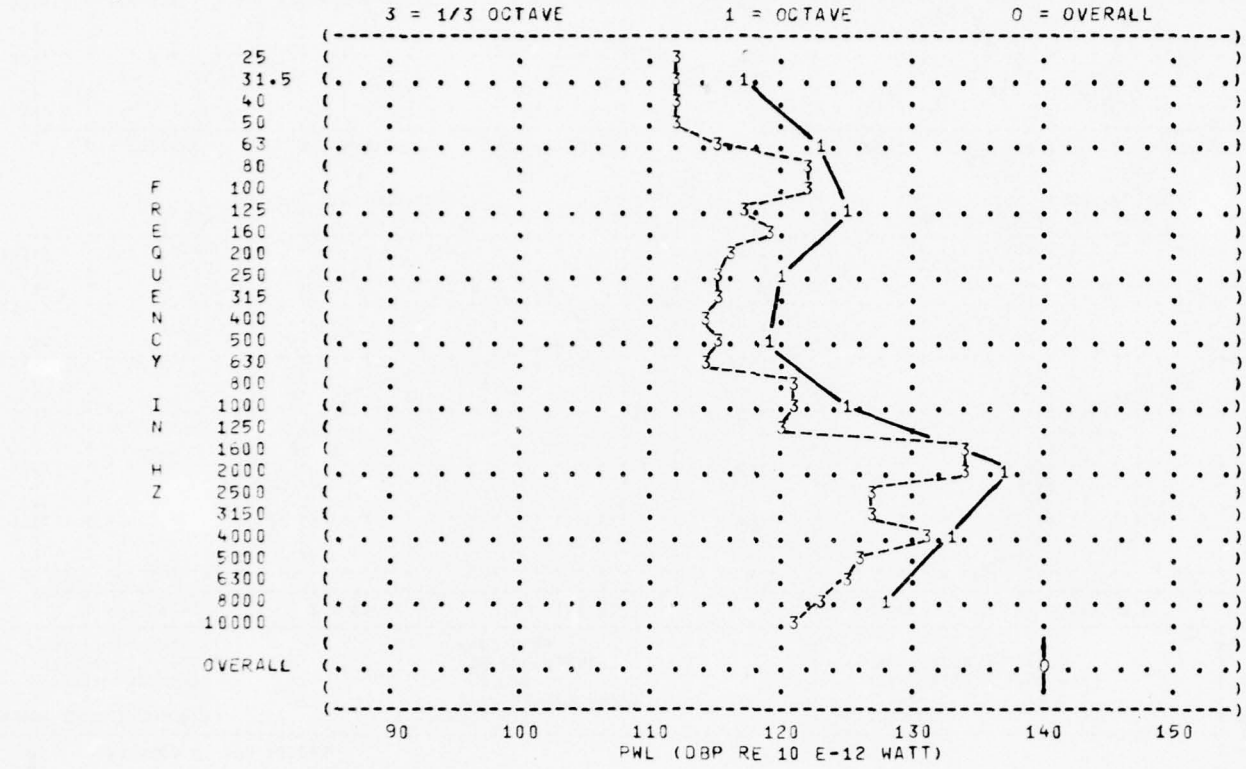
FIGURE: 4 ACOUSTIC POWER LEVEL (PWL)

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 3



	PWL	
	1/3 OCTAVE	OCTAVE
25	112.0	
31.5	111.9	116.8
40	112.1	
50	112.0	
63	114.7	123.0
80	121.9	
100	122.2	
125	116.9	124.6
160	118.6	
200	116.3	
250	115.2	120.3
315	115.1	
400	113.9	
500	114.5	118.8
630	113.8	
800	120.6	
1000	120.8	125.2
1250	119.8	
1600	133.8	
2000	133.8	137.3
2500	126.9	
3150	126.9	
4000	130.6	133.0
5000	125.7	
6300	125.3	
8000	123.1	128.4
10000	121.5	
OVERALL	139.6	

FIGURE: ACOUSTIC POWER LEVEL (PWL)

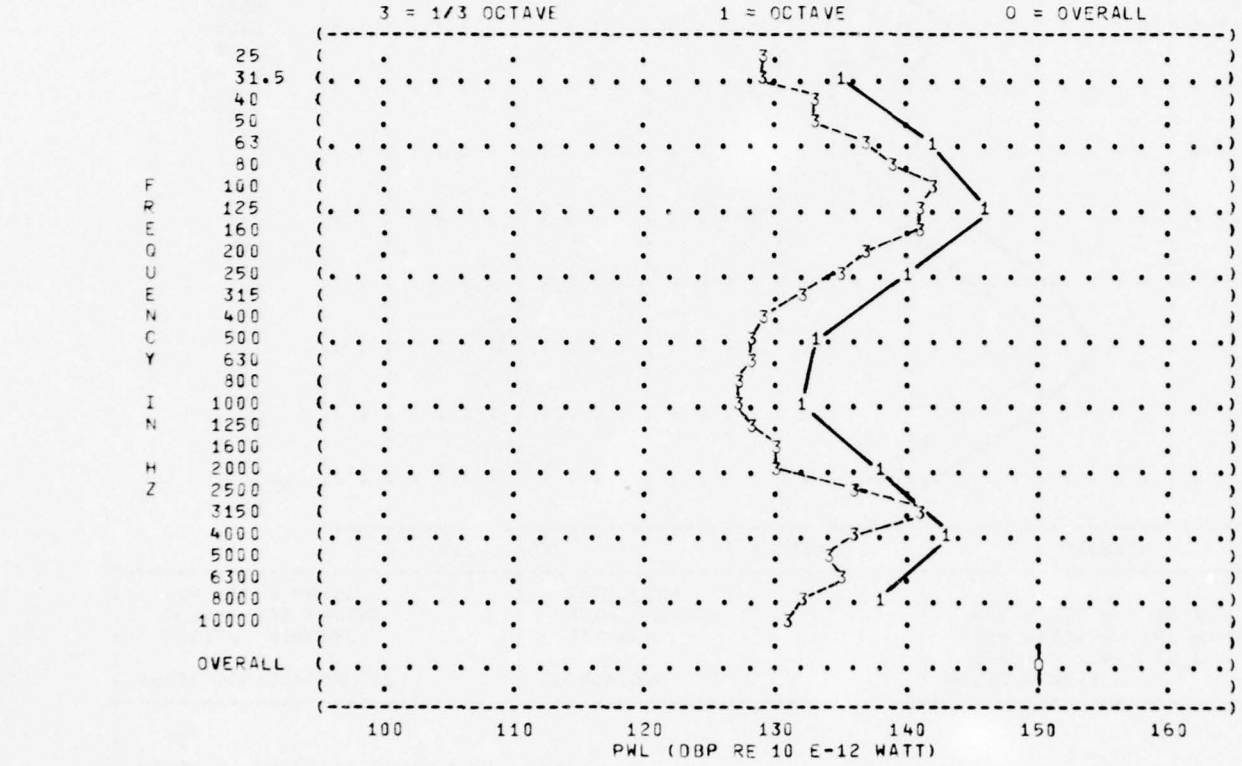
4

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 3



1/3 OCTAVE PWL	OCTAVE PWL
128.5	
128.7	135.1
132.6	
133.5	
136.9	141.7
138.8	
142.2	
141.2	146.1
140.5	
137.4	
134.7	140.0
132.1	
129.1	
127.9	133.0
127.6	
126.6	
126.6	132.1
128.3	
130.3	
130.1	137.8
135.9	
140.8	
136.5	142.8
134.0	
134.9	
132.1	137.8
131.0	
	150.2

FIGURE: ACOUSTIC POWER LEVEL (PWL)

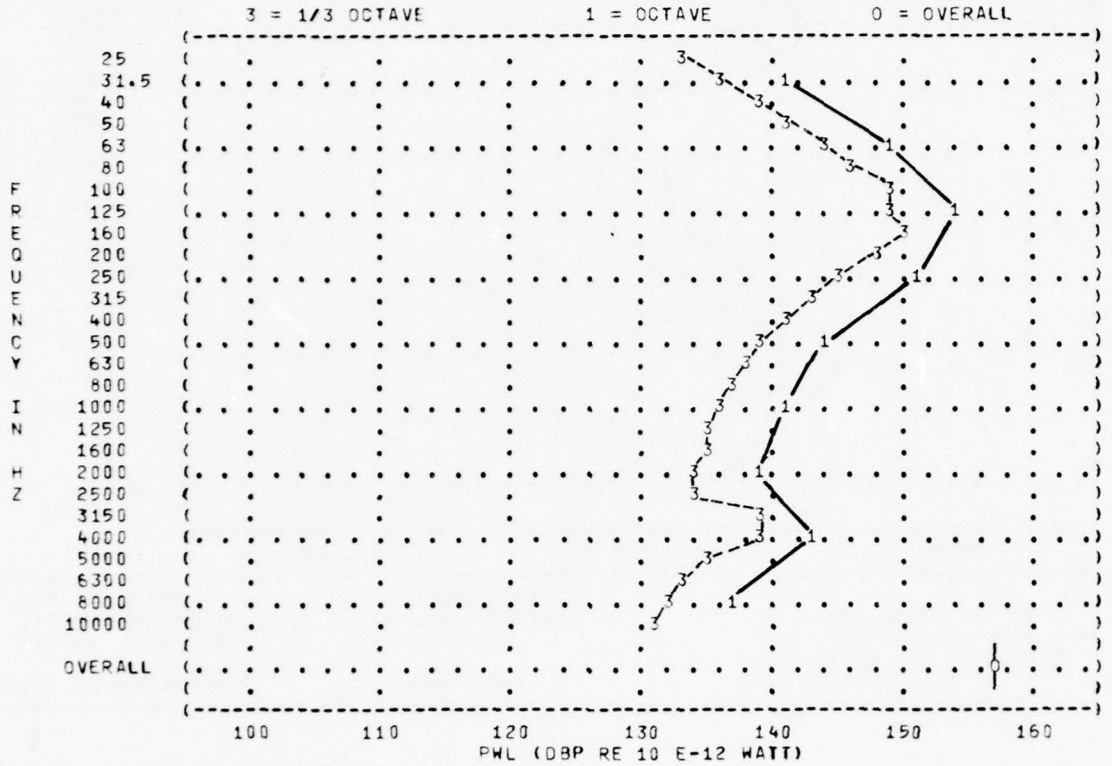
4

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 3



	PWL 1/3 OCTAVE	PWL OCTAVE
25	133.4	
31.5	135.5	141.4
40	139.1	
50	141.5	
63	143.8	149.0
80	146.1	
100	149.3	
125	148.9	154.2
160	150.0	
200	148.1	
250	145.0	150.7
315	143.3	
400	141.2	
500	139.3	144.5
630	138.2	
800	137.0	
1000	136.0	140.8
1250	134.7	
1600	134.9	
2000	134.1	139.1
2500	133.8	
3150	138.8	
4000	139.2	142.7
5000	134.6	
6300	133.1	
8000	132.3	137.1
10000	131.2	
OVERALL		157.4

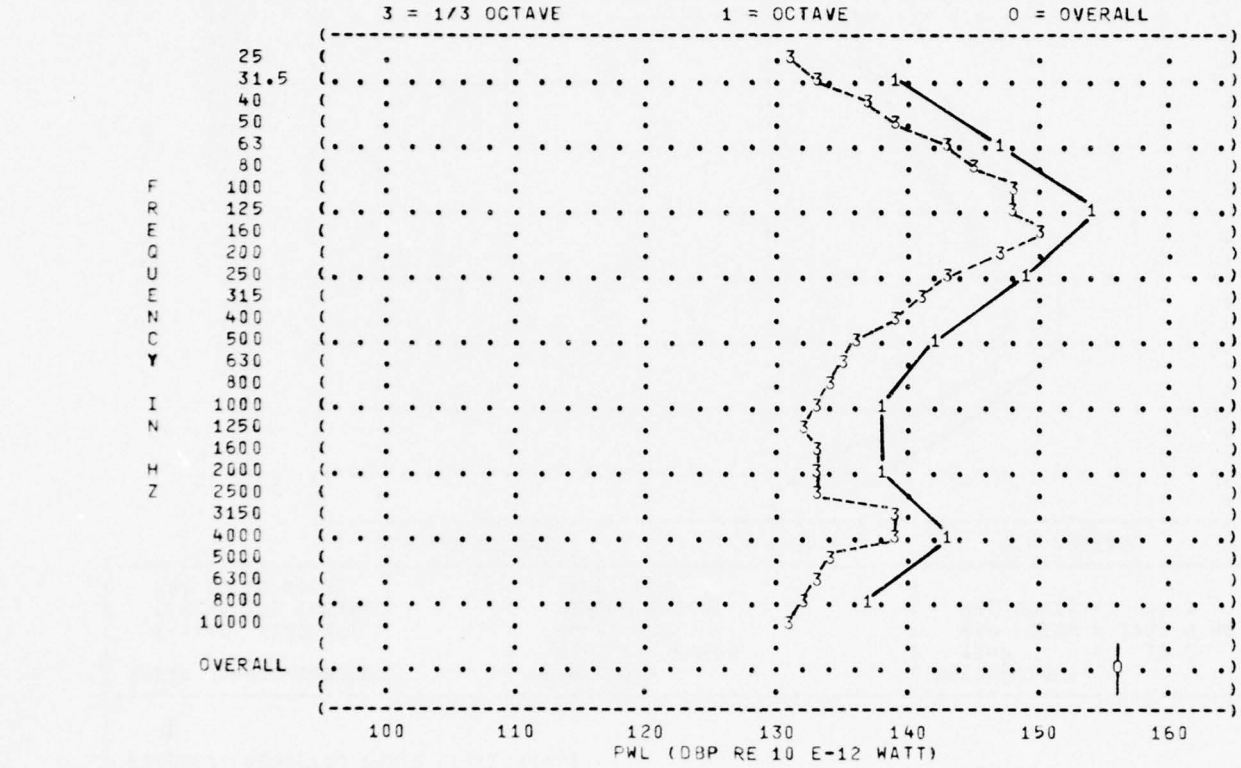
FIGURE: 4 ACOUSTIC POWER LEVEL (PWL)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 3

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %



	PWL 1/3 OCTAVE	PWL OCTAVE
25	130.9	
31.5	132.8	139.0
40	136.8	
50	138.6	
63	142.6	147.4
80	144.8	
100	148.3	
125	147.9	153.5
160	149.8	
200	147.2	
250	143.5	149.5
315	141.4	
400	138.7	
500	136.4	141.7
630	135.1	
800	134.2	
1000	133.2	138.0
1250	132.2	
1600	132.8	
2000	132.9	137.6
2500	132.6	
3150	138.9	
4000	139.0	142.6
5000	133.9	
6300	133.0	
8000	132.2	136.9
10000	131.0	
OVERALL		156.3

FIGURE: ACOUSTIC POWER LEVEL (PWL)

4

IDENTIFICATION:

OMEGA 1.4
TEST 75-002-037
RUN 05

08 MAY 75

PAGE 3

NOISE SOURCE/SUBJECT:

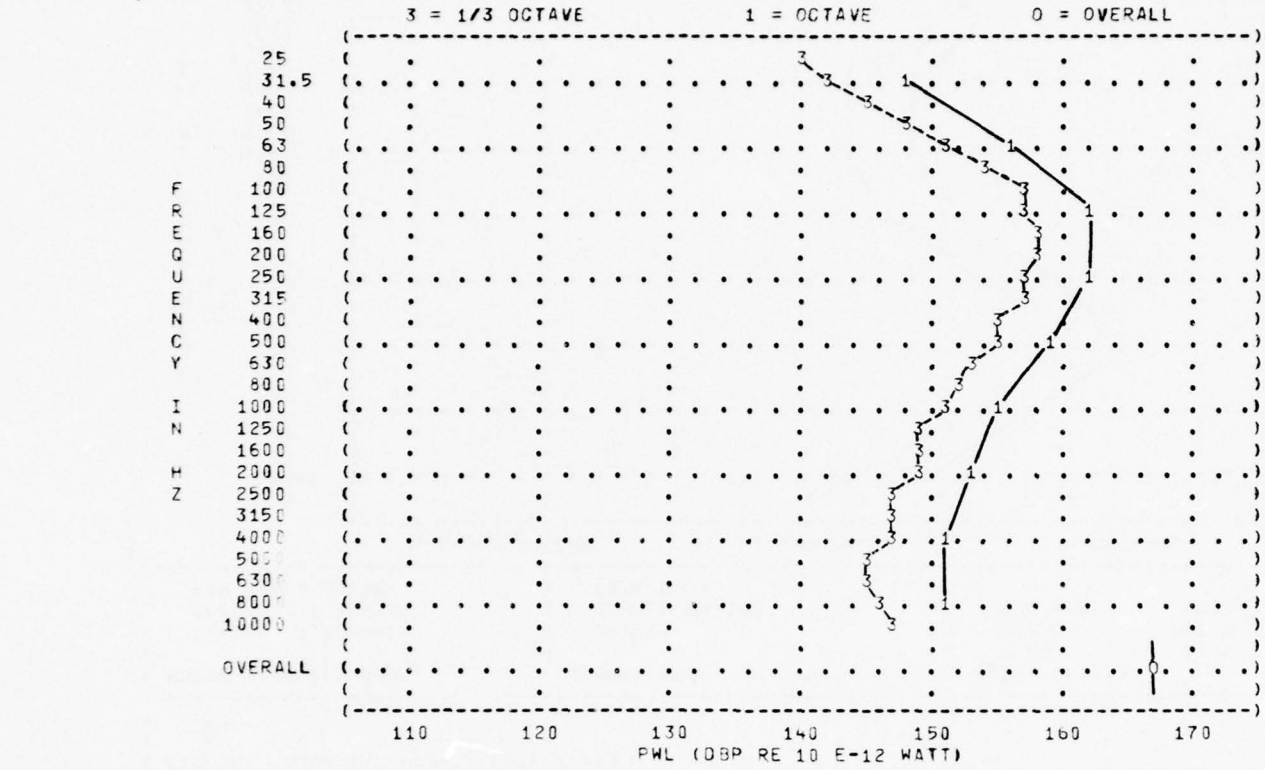
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:

MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY:

TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %



	PWL	
	1/3 OCTAVE	OCTAVE
25	140.0	
31.5	142.0	147.7
40	145.2	
50	147.6	
63	151.0	156.3
80	153.8	
100	157.2	
125	156.6	162.3
160	158.5	
200	157.8	
250	156.9	161.9
315	156.6	
400	155.3	
500	154.6	159.2
630	153.0	
800	151.7	
1000	150.8	155.5
1250	149.3	
1600	149.2	
2000	148.7	153.1
2500	146.9	
3150	147.5	
4000	147.1	151.4
5000	144.9	
6300	145.2	
8000	146.1	150.9
10000	147.0	
OVERALL		167.3

FIGURE: ACOUSTIC POWER LEVEL (PWL)

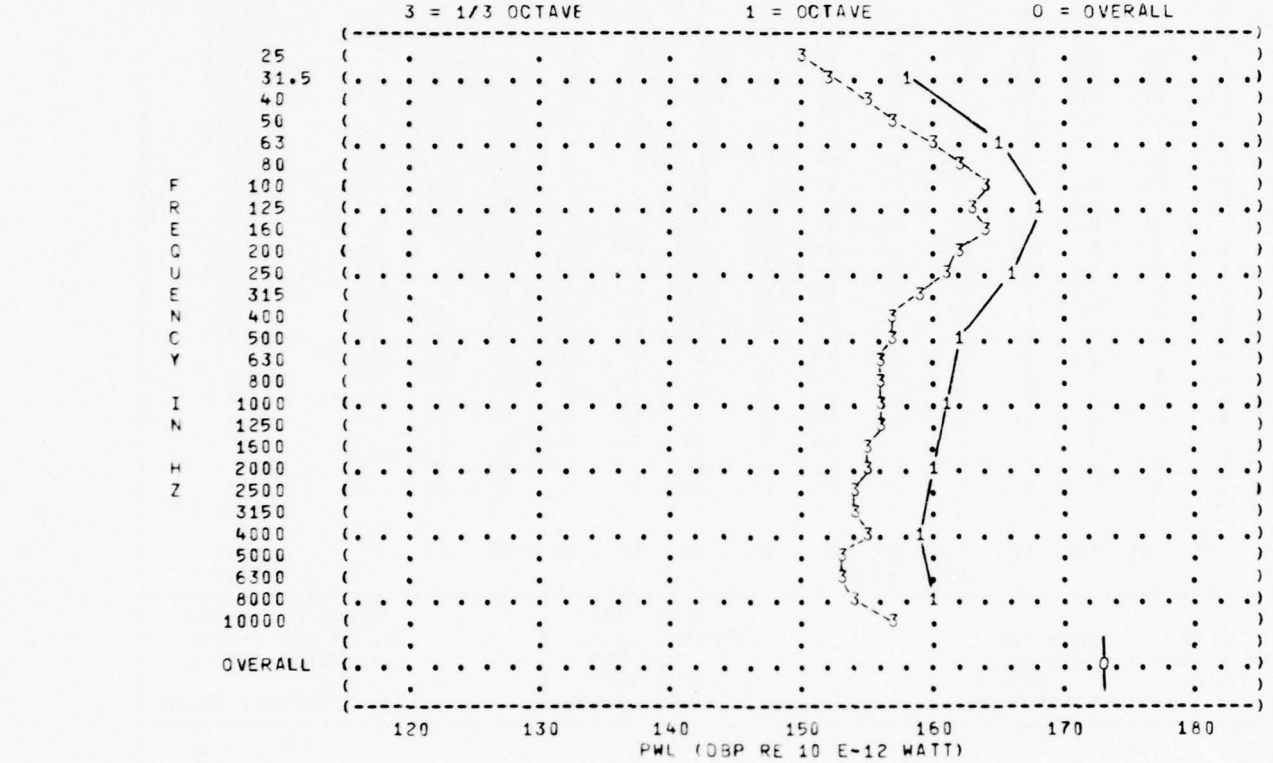
4

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 3



	PWL 1/3 OCTAVE	PWL OCTAVE
25	149.7	
31.5	151.7	157.6
40	155.2	
50	156.5	
63	159.9	164.6
80	161.7	
100	164.1	
125	163.2	168.4
160	163.6	
200	162.4	
250	160.8	165.8
315	159.3	
400	157.4	
500	157.0	161.7
630	156.4	
800	155.9	
1000	156.4	160.9
1250	155.9	
1600	155.1	
2000	155.4	159.7
2500	154.1	
3150	154.3	
4000	154.9	158.9
5000	152.9	
6300	153.1	
8000	154.0	159.7
10000	156.7	
OVERALL		172.9

TABLE: DIRECTIVITY INDEX (DB)

6

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 4

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
25		-5	-2	-1	0	-1	-0	-3	-2	1	1	0	1	1	1	2	1	-1	
31.5		-4	-5	-3	-0	0	-1	-1	-2	2	1	2	0	1	-1	1	-1	-3	
40		-3		-3	-1	-1	1	-1	-0	0	0	0	0	1	2	2	1	-3	
50		-0	1	1	-1	-1	0	-1	-2	2	-1	1	1	-0	1	1	-0		
63		-1	0	1	-1	-1	-0	-1	-1	1	1	-0	0	0	1	2	-1		
80	-8	-3	-1	-1	-1	1	-0	-1	-1	-2	0	1	1	1	2	2	-1	-13	
100	-9	-3	-1	-2	-2	0	-2	-4	-3	0	1	2	1	1	2	3	-0	-11	
125	-9	-2	-1	-2	-4	-5	-4	-3	-1	2	2	3	1	0	0	2	-0	-10	
160	-8	-2	-2	-4	-8	-8	-4	-3	-1	1	0	1	5	2	1	1	0	-11	
200	-4	2	1	-4	-6	-5	-3	-5	-3	0	1	2	3	3	2	-0	3	-10	
250	-0	4	1	-1	-3	-3	-1	-2	-2	-0	0	-0	1	1	1	1	4	-8	
315	-1	5	2	1	-2	-2	-2	-5	-6	-4	-3	-3	0	3	2	6	4	-7	
400	2	6	3	4	-0	-3	0	-5	-6	-7	-4	-2	-0	1	1	6	4	-6	
500	2	3	4	6	1	-2	0	-5	-2	-5	-4	-2	-2	-1	0	3	4	-6	
630	3	4	7	6	2	-2	0	-4	-4	-6	-5	-4	-3	-0	-1	2	2	-8	
800	3	6	10	7	3	0	-1	-3	-6	-8	-7	-8	-8	-5	-7	-5	-4	-13	
1000	4	8	9	7	4	1	0	-1	-6	-7	-8	-8	-7	-7	-8	-6	-6	-15	
1250	4	7	7	7	5	2	1	-2	-6	-9	-8	-8	-6	-6	-6	-7	-8	-16	
1600	5	11	10	7	2	-3	-2	-5	-7	-13	-15	-14	-16	-13	-9	-10	-11	-19	
2000	5	10	9	8	3	-1	-1	-4	-7	-9	-10	-10	-12	-9	-7	-6	-8	-16	
2500	4	8	7	7	4	2	-1	-2	-5	-6	-6	-7	-4	-3	-7	-8	-9	-15	
3150	4	8	7	6	6	1	-1	-2	-4	-6	-6	-7	-7	-7	-9	-9	-10	-16	
4000	4	8	7	6	6	1	-1	-2	-4	-4	-5	-6	-5	-5	-7	-9	-10	-16	
5000	5	9	7	6	5	1	-1	-2	-6	-5	-6	-6	-3	-3	-6	-8	-9	-19	
6300	4	8	6	5	5	1	-1	-3	-6	-4	-5	-4	-1	-0	-4	-7	-8	-18	
8000	4	7	6	5	5	1	-0	-3	-6	-1	-4	-3	-1	-1	-5	-6	-7		
10000	4	7	5	4	4	0	-1	-4	-4	1	-2	-2	0	-0	-3	-5	-6	-18	
OCTAVE																			
31.5		-4	-5	-3	-0	-1	-0	-2	-1	1	1	1	1	1	1	2	0	-2	
63		-2	-0	-0	-1	1	-0	-1	-1	-1	0	1	1	1	2	2	-1		
125	-9	-3	-1	-2	-4	-1	-3	-3	-2	1	1	2	2	1	1	2	-0	-11	
250	-2	4	1	-1	-4	-3	-2	-4	-3	-1	-0	0	2	2	2	3	4	-8	
500	2	5	5	6	1	-3	0	-5	-4	-6	-4	-3	-2	-0	0	4	4	-7	
1000	4	6	9	7	4	1	0	-2	-6	-8	-7	-8	-7	-6	-7	-6	-6	-14	
2000	5	10	10	8	3	-1	-1	-4	-7	-10	-11	-11	-11	-9	-8	-8	-9	-17	
4000	4	8	7	6	6	1	-1	-2	-4	-4	-6	-6	-5	-5	-7	-9	-10	-16	
8000	4	7	6	5	5	1	-1	-3	-6	-2	-4	-4	-1	-0	-4	-6	-8	-20	
OVERALL	4	9	9	7	3	-0	-1	-3	-5	-6	-6	-6	-5	-5	-5	-5	-6	-15	

TABLE: DIRECTIVITY INDEX (DB)

6

IDENTIFICATION:

OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 4

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
25	-10	-10	-10	-12	-10	-8	-9	-7	-7	-7	-7	-6	-3	2	7	8	9		
31.5	-11	-12	-11	-12	-9	-10	-8	-7	-7	-8	-7	-5	-3	3	6	8	8		
40	-12	-13	-13	-13	-11	-10	-10	-8	-9	-9	-7	-5	-2	2	7	8	7		
50	-12	-13	-10	-13	-10	-10	-9	-10	-9	-8	-6	-4	-2	3	7	8	7		
63	-15	-14	-13	-12	-12	-13	-12	-10	-9	-9	-8	-6	-3	3	8	9	5		
80	-15	-13	-12	-10	-11	-11	-10	-10	-8	-10	-8	-6	-3	2	7	9	4		
100	-16	-15	-12	-10	-10	-11	-11	-11	-10	-8	-7	-6	-4	2	6	10	6		
125	-13	-12	-11	-11	-11	-14	-11	-9	-8	-8	-6	-5	-3	1	5	11	6		
160	-10	-9	-9	-11	-12	-12	-10	-8	-6	-6	-5	-3	-1	2	4	9	8		
200	-7	-7	-6	-9	-9	-9	-8	-8	-6	-6	-3	-2	0	3	6	6	7		
250	-5	-4	-4	-4	-6	-5	-3	-2	-2	-3	-3	-3	-1	2	7	5	6		
315	-4	-2	-2	-3	-4	-4	-4	-5	-4	-7	-5	-3	-0	3	5	7	6		
400	-1	0	1	1	-4	-4	-5	-5	-4	-6	-5	-2	-1	3	5	6	4		
500	0	-0	2	0	-5	-4	-4	-3	-3	-5	-5	-1	-1	3	5	6	4		
630	1	-0	2	1	-3	-2	-2	-2	-1	-3	-3	0	-1	3	3	4	2		
800	1	0	3	1	-2	-1	-2	-2	-2	-2	-2	0	-1	3	2	4	0		
1000	2	3	5	2	0	-0	-1	-1	-1	-3	-3	-0	-1	2	1	1	-3		
1250	7	6	7	4	3	2	0	0	-3	-4	-4	-3	-4	-1	-2	-2	-5		
1600	8	7	7	6	4	2	1	-0	-3	-6	-5	-4	-5	-3	-4	-4	-8		
2000	7	6	7	6	3	2	0	-1	-4	-4	-4	-5	-3	-4	-5	-8			
2500	9	7	7	7	4	2	0	0	-4	-7	-8	-8	-10	-9	-10	-9	-11		
3150	8	7	7	6	5	2	1	1	-2	-5	-5	-6	-10	-9	-10	-9	-11		
4000	6	5	5	4	4	2	0	1	-2	-2	-0	-0	-3	-3	-6	-7	-9		
5000	9	6	7	5	5	3	1	1	-3	-5	-5	-6	-7	-7	-8	-9	-10		
6300	8	8	6	5	4	2	1	2	-2	-3	-5	-5	-7	-7	-8	-9	-10		
8000	7	6	5	4	4	1	0	1	-2	-1	-2	-2	-4	-4	-6	-7	-8		
10000	7	6	5	4	3	2	0	0	-3	-1	-1	-2	-5	-4	-6	-7	-8		
OCTAVE																			
31.5	-11	-12	-12	-13	-10	-10	-9	-7	-8	-8	-7	-5	-2	2	7	8	8		
63	-14	-13	-12	-11	-11	-12	-10	-10	-8	-9	-8	-5	-3	3	7	9	5		
125	-13	-12	-11	-10	-11	-12	-11	-10	-8	-7	-6	-5	-3	2	5	10	7		
250	-6	-5	-5	-6	-7	-7	-6	-5	-4	-5	-3	-2	-0	3	6	6	7		
500	0	-0	1	1	-4	-3	-4	-3	-3	-4	-4	-1	-1	3	5	6	4		
1000	4	4	5	3	1	1	-1	-1	-2	-3	-3	-1	-2	1	1	1	-2		
2000	9	7	7	7	4	2	0	-0	-3	-6	-6	-6	-7	-6	-7	-7	-10		
4000	8	6	6	5	4	2	1	1	-2	-4	-4	-4	-7	-6	-9	-9	-10		
8000	8	6	6	5	4	2	1	1	-2	-2	-3	-4	-5	-6	-7	-8	-9		
OVERALL	2	1	1	-0	-1	-3	-4	-4	-5	-6	-5	-4	-3	1	5	8	5		

TABLE: DIRECTIVITY INDEX (DB)

6

IDENTIFICATION:

OMEGA 1.4
TEST 75-002-037
RUN 03

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

08 MAY 75

PAGE 4

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
25	-13	-14	-12	-11	-13	-11	-10	-9	-7	-9	-8	-5	-1	3	5	10	7		
31.5	-14	-14	-15	-14	-14	-12	-11	-9	-9	-8	-8	-6	-4	3	7	10	6		
40	-17	-15	-16	-14	-14	-12	-12	-11	-9	-9	-9	-6	-2	5	7	8	6		
50	-18	-18	-17	-16	-17	-16	-15	-13	-11	-9	-10	-6	-3	3	7	10	2		
63	-18	-19	-17	-16	-16	-15	-14	-14	-12	-11	-11	-7	-4	3	7	10	1		
80	-17	-17	-15	-16	-15	-14	-13	-13	-11	-11	-10	-8	-3	3	7	10	1		
100	-19	-17	-15	-15	-16	-16	-15	-14	-12	-11	-10	-8	-4	2	8	10	2		
125	-18	-16	-15	-15	-16	-15	-15	-14	-12	-11	-9	-7	-3	2	6	11	4		
160	-16	-15	-15	-16	-17	-16	-14	-13	-12	-10	-9	-7	-3	2	4	11	5		
200	-13	-13	-13	-13	-15	-14	-13	-13	-11	-10	-8	-7	-3	4	5	10	6		
250	-12	-11	-10	-8	-11	-11	-8	-9	-7	-9	-7	-6	-3	3	9	7	6		
315	-10	-9	-7	-8	-10	-9	-8	-10	-9	-8	-7	-7	-2	3	8	9	4		
400	-8	-8	-6	-7	-10	-11	-10	-10	-10	-8	-8	-4	-2	3	7	9	1		
500	-6	-8	-6	-5	-8	-11	-9	-7	-9	-7	-7	-2	0	4	7	8	0		
630	-5	-8	-5	-5	-7	-9	-7	-6	-6	-6	-5	0	1	4	7	7	-2		
800	-6	-6	-4	-5	-6	-8	-6	-5	-5	-4	-3	1	1	5	7	6	-4		
1000	-4	-5	-5	-4	-5	-7	-5	-3	-3	-4	-2	2	1	4	6	4	-4		
1250	-4	-4	-4	-3	-3	-5	-4	-3	-2	-3	-1	2	1	4	5	2	-5		
1600	-0	-1	-1	-1	-2	-3	-2	-1	-2	-2	-1	2	1	3	5	0	-6		
2000	-1	-1	-2	-2	-4	-4	-3	-3	-3	-1	-0	3	2	3	4	-1	-6		
2500	4	4	2	2	-0	-1	-2	-2	-2	-1	-0	2	0	2	2	-3	-8		
3150	7	6	5	4	4	1	0	-1	-2	-3	-3	0	-3	-3	-3	-7	-10		
4000	4	3	3	3	3	1	0	-1	-1	-1	-2	2	-2	-2	-3	-6	-10		
5000	3	3	3	2	2	-0	-1	-1	-1	-1	-1	4	-0	-1	-1	-6	-8		
6300	5	4	3	2	2	-0	-2	-2	-2	-0	-1	3	-0	-0	-0	-5	-8		
8000	3	2	2	1	0	-1	-2	-3	-3	0	0	4	-1	-0	0	-5	-7		
10000	3	2	2	0	-1	-2	-3	-3	-3	1	1	5	0	0	0	-4	-6		
OCTAVE																			
31.5	-15	-15	-15	-14	-14	-12	-11	-10	-9	-9	-9	-6	-3	4	7	9	6		
63	-18	-18	-16	-16	-15	-15	-13	-13	-11	-11	-10	-7	-3	3	7	10	1		
125	-17	-16	-15	-15	-16	-15	-15	-13	-12	-10	-9	-7	-3	2	6	11	4		
250	-12	-12	-11	-10	-13	-12	-10	-11	-10	-9	-8	-6	-3	3	7	9	6		
500	-7	-8	-6	-6	-9	-10	-9	-8	-8	-7	-7	-2	-1	3	7	9	0		
1000	-5	-5	-4	-4	-5	-7	-5	-4	-4	-4	-2	2	1	4	6	4	-4		
2000	1	1	-0	-0	-2	-3	-2	-2	-2	-2	-0	2	1	3	4	-1	-7		
4000	6	5	4	4	3	1	0	-1	-2	-1	-2	2	-2	-2	-2	-6	-10		
8000	4	3	3	2	1	-1	-2	-3	-2	0	-0	4	-0	-0	-0	-5	-7		
OVERALL	-8	-9	-8	-9	-10	-11	-10	-10	-9	-9	-8	-5	-3	3	6	10	4		

TABLE: DIRECTIVITY INDEX (DB) 6

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 4

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
25	-13	-13	-12	-13	-13	-12	-11	-10	-9	-8	-9	-6	-2	3	6	9	8		
31.5	-14	-13	-15	-15	-15	-12	-13	-12	-10	-10	-9	-8	-4	3	6	9	8		
40	-16	-16	-16	-16	-15	-13	-14	-13	-12	-11	-10	-6	-3	2	6	10	8		
50	-19	-15	-17	-16	-16	-15	-14	-14	-12	-12	-9	-7	-3	1	7	10	8		
63	-20	-18	-18	-17	-17	-17	-16	-16	-16	-13	-12	-9	-4	1	7	10	5		
80	-21	-18	-16	-17	-16	-16	-14	-16	-15	-14	-12	-9	-4	1	8	10	5		
100	-22	-19	-17	-18	-18	-17	-16	-17	-16	-14	-12	-8	-4	-0	7	11	4		
125	-20	-17	-17	-17	-17	-17	-17	-17	-15	-13	-11	-7	-4	1	4	11	6		
160	-20	-17	-16	-19	-20	-19	-18	-17	-15	-13	-11	-7	-3	2	3	11	7		
200	-16	-13	-16	-15	-17	-17	-16	-15	-14	-12	-9	-7	-2	3	7	9	7		
250	-13	-11	-10	-10	-11	-11	-8	-11	-11	-10	-8	-5	-2	3	9	4	8		
315	-12	-8	-7	-7	-11	-8	-8	-11	-11	-10	-8	-4	-0	3	6	9	4		
400	-8	-6	-5	-6	-9	-10	-9	-13	-12	-9	-8	-2	1	3	5	10	3		
500	-6	-5	-4	-4	-8	-8	-8	-11	-9	-6	-7	-0	2	3	6	9	1		
630	-5	-5	-2	-3	-7	-7	-7	-9	-7	-4	-5	2	3	3	5	7	-0		
800	-4	-4	-2	-4	-6	-6	-7	-7	-6	-2	-3	3	3	3	4	6	-1		
1000	-3	-1	-1	-2	-5	-5	-5	-7	-6	-2	-2	3	3	3	4	5	-2		
1250	-2	1	-1	-2	-3	-3	-4	-5	-5	-2	-1	3	3	3	3	4	-3		
1600	6	4	2	1	-1	-1	-3	-5	-5	-2	-1	3	2	2	1	2	-5		
2000	11	5	2	1	-2	-1	-3	-3	-3	-1	-0	3	2	1	1	1	-5		
2500	7	6	5	4	1	0	-2	-2	-3	-2	-0	2	1	-1	-1	-2	-7		
3150	6	7	6	6	4	2	-1	-0	-3	-4	-4	-2	-4	-6	-5	-6	-9		
4000	4	4	4	4	3	3	-0	2	-0	-2	-2	-0	-3	-5	-4	-5	-8		
5000	3	4	4	3	2	2	-1	1	-2	-1	-1	2	-1	-3	-3	-5	-9		
6300	4	5	4	3	2	2	-1	1	-2	-2	-2	1	-1	-4	-2	-4	-9		
8000	2	3	3	2	1	1	-2	2	-1	-0	-1	2	-1	-3	-2	-3	-8		
10000	2	3	3	2	1	0	-3	2	-1	0	-1	2	0	-2	-2	-3	-8		
OCTAVE																			
31.5	-15	-14	-15	-15	-15	-13	-13	-12	-11	-10	-9	-6	-3	2	6	9	8		
63	-20	-17	-17	-17	-17	-16	-15	-16	-15	-13	-12	-8	-4	1	7	10	5		
125	-20	-17	-17	-18	-18	-18	-17	-17	-15	-13	-11	-7	-3	1	5	11	6		
250	-15	-12	-12	-11	-14	-13	-11	-13	-13	-11	-8	-6	-1	3	8	8	7		
500	-7	-6	-4	-5	-8	-9	-8	-11	-10	-7	-7	-0	1	3	5	9	2		
1000	-3	-1	-1	-3	-4	-4	-6	-7	-5	-2	-2	3	3	3	3	5	-2		
2000	8	5	3	2	-1	-1	-3	-3	-4	-2	-1	3	1	1	1	0	-6		
4000	5	6	5	5	3	2	-1	1	-2	-3	-3	-1	-3	-5	-4	-5	-9		
8000	3	4	3	3	2	1	-1	2	-1	-1	-1	1	-1	-3	-2	-4	-8		
OVERALL	-7	-7	-7	-8	-10	-10	-11	-11	-11	-10	-9	-5	-2	2	6	10	6		

TABLE: DIRECTIVITY INDEX (DB)

6

IDENTIFICATION:

OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 4

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
25	-19	-19	-17	-18	-16	-15	-15	-14	-10	-11	-10	-8	-3	0	7	9	8		
31.5	-21	-20	-19	-19	-18	-18	-16	-16	-13	-12	-11	-10	-5	2	6	9	9		
40	-19	-21	-19	-20	-18	-17	-16	-15	-14	-11	-10	-8	-4	2	7	10	7		
50	-24	-24	-23	-21	-22	-21	-18	-19	-15	-14	-12	-10	-4	2	7	10	6		
63	-25	-25	-22	-22	-22	-22	-20	-19	-16	-16	-13	-10	-5	1	8	10	4		
80	-24	-24	-22	-22	-22	-21	-20	-19	-17	-16	-15	-11	-6	1	8	10	5		
100	-26	-23	-23	-23	-24	-22	-21	-21	-18	-16	-14	-11	-6	1	8	10	5		
125	-24	-21	-20	-20	-22	-22	-21	-19	-17	-15	-13	-10	-3	2	5	11	6		
160	-21	-20	-20	-21	-22	-22	-21	-19	-17	-15	-13	-10	-2	4	4	11	6		
200	-22	-20	-21	-21	-21	-22	-21	-20	-19	-15	-12	-9	-3	6	6	8	6		
250	-24	-22	-19	-18	-21	-20	-19	-18	-19	-16	-12	-9	-3	3	9	6	9		
315	-23	-19	-16	-18	-21	-19	-19	-20	-18	-17	-15	-11	-5	2	7	9	8		
400	-20	-19	-16	-16	-19	-19	-20	-19	-18	-16	-14	-10	-5	1	6	11	8		
500	-11	-12	-7	-12	-17	-17	-18	-17	-14	-13	-14	-8	-4	0	8	9	8		
630	-17	-13	-11	-12	-14	-16	-17	-15	-13	-11	-11	-6	-2	0	7	10	7		
800	-19	-13	-10	-11	-11	-13	-14	-14	-11	-9	-8	-5	-2	1	7	9	6		
1000	-19	-14	-11	-11	-11	-11	-11	-11	-11	-8	-8	-4	-1	2	7	9	5		
1250	-19	-15	-12	-12	-11	-11	-11	-10	-9	-7	-6	-3	-0	1	7	9	4		
1600	-12	-14	-13	-12	-11	-10	-10	-9	-8	-6	-5	-2	0	2	7	9	3		
2000	-6	-11	-13	-14	-14	-13	-13	-12	-7	-5	-4	-1	0	3	7	8	4		
2500	-13	-16	-15	-14	-14	-12	-11	-11	-6	-5	-3	-1	0	2	6	8	3		
3150	-15	-17	-15	-15	-14	-12	-12	-10	-6	-5	-2	-0	1	2	6	9	3		
4000	-9	-16	-15	-14	-13	-13	-11	-11	-6	-4	-2	-0	2	3	6	8	3		
5000	-12	-17	-15	-14	-13	-12	-11	-10	-6	-4	-2	-1	1	2	5	9	2		
6300	-13	-18	-17	-16	-15	-14	-13	-13	-7	-5	-2	-1	0	2	6	9	3		
8000	-16	-21	-20	-19	-18	-17	-16	-15	-8	-7	-5	-3	-1	1	6	10	1		
10000	-18	-23	-22	-21	-20	-19	-17	-17	-10	-9	-6	-5	-2	1	7	10	1		
OCTAVE																			
31.5	-20	-20	-19	-19	-18	-17	-16	-15	-13	-11	-10	-9	-4	2	7	10	8		
63	-25	-24	-22	-22	-22	-21	-19	-19	-16	-15	-14	-10	-5	1	8	10	5		
125	-23	-21	-21	-21	-23	-22	-21	-20	-17	-15	-13	-10	-3	3	6	11	6		
250	-23	-20	-18	-19	-21	-20	-20	-19	-19	-16	-13	-10	-3	4	7	8	8		
500	-15	-14	-10	-13	-16	-17	-18	-17	-15	-13	-13	-8	-4	0	7	10	8		
1000	-19	-14	-11	-11	-11	-12	-12	-12	-10	-8	-7	-4	-1	1	7	9	5		
2000	-9	-13	-13	-13	-13	-11	-11	-10	-7	-6	-4	-1	0	2	7	8	3		
4000	-12	-16	-15	-14	-13	-12	-11	-10	-6	-4	-2	-0	1	2	6	8	3		
8000	-15	-20	-19	-18	-17	-16	-15	-14	-8	-7	-4	-3	-1	1	7	10	2		
OVERALL	-18	-18	-15	-17	-18	-18	-17	-17	-14	-13	-11	-8	-3	3	7	10	7		

TABLE: DIRECTIVITY INDEX (DB)

6

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY:
TEMP = 13 C
BAR PRESS = .767 M HG
REL HUMID = 80 %

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 4

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
25	-16	-17	-14	-16	-16	-16	-14	-14	-11	-10	-8	-3	-4	3	7	9	6		
31.5	-19	-18	-18	-18	-17	-16	-14	-13	-11	-10	-10	-4	-2	4	8	8	5		
40	-20	-20	-21	-19	-19	-17	-16	-15	-13	-13	-11	-6	-1	4	8	9	2		
50	-21	-22	-21	-20	-19	-18	-18	-18	-16	-15	-15	-6	-0	6	9	7	-0		
63	-23	-23	-21	-20	-21	-20	-18	-18	-17	-15	-13	-8	-1	7	9	4	-1		
80	-24	-23	-19	-20	-21	-19	-19	-17	-16	-14	-12	-6	-0	7	9	3	-0		
100	-25	-22	-20	-21	-21	-21	-19	-18	-16	-14	-13	-6	-2	7	9	5	1		
125	-22	-19	-18	-19	-19	-19	-18	-18	-15	-12	-10	-5	0	4	9	6	2		
160	-19	-17	-18	-19	-20	-19	-17	-17	-15	-11	-10	-2	4	4	8	6	3		
200	-20	-18	-20	-18	-20	-18	-17	-17	-15	-12	-10	-3	3	7	6	5	3		
250	-23	-20	-16	-16	-17	-16	-16	-15	-14	-10	-9	-4	3	8	6	3	2		
315	-20	-16	-13	-14	-17	-15	-16	-15	-14	-11	-8	-3	2	8	6	4	4		
400	-18	-16	-12	-12	-14	-14	-14	-13	-12	-9	-7	-1	3	7	6	4	3		
500	-18	-16	-12	-11	-14	-15	-14	-12	-10	-9	-5	0	4	7	5	4	1		
630	-18	-13	-12	-10	-13	-14	-13	-11	-8	-7	-3	2	3	7	5	3	-1		
800	-20	-14	-12	-10	-11	-12	-11	-10	-8	-6	-2	2	4	7	4	3	-3		
1000	-21	-16	-14	-12	-11	-12	-10	-9	-7	-5	-2	2	4	7	4	2	-6		
1250	-20	-16	-15	-13	-12	-12	-10	-7	-6	-5	-1	2	4	7	4	0	-8		
1600	-16	-14	-13	-11	-10	-10	-7	-5	-4	-2	1	2	4	6	4	-1	-9		
2000	-11	-15	-15	-15	-14	-13	-10	-8	-6	-4	-2	3	4	7	4	-1	-9		
2500	-19	-17	-16	-14	-13	-12	-8	-6	-5	-3	-1	3	4	6	4	-3	-10		
3150	-20	-18	-17	-14	-13	-12	-8	-5	-4	-4	-1	3	4	6	4	-3	-10		
4000	-16	-19	-18	-14	-14	-14	-9	-6	-6	-4	-2	3	4	7	4	-3	-11		
5000	-19	-20	-18	-14	-13	-14	-9	-6	-6	-4	-1	2	4	7	4	-2	-12		
6300	-20	-22	-20	-17	-15	-15	-11	-8	-8	-5	-3	3	5	7	4	-2	-13		
8000	-23	-26	-24	-20	-19	-19	-15	-11	-10	-8	-5	2	5	8	4	-2	-15		
10000	-27	-30	-27	-23	-22	-22	-18	-13	-13	-10	-7	2	5	8	4	-2	-17		
OCTAVE																			
31.5	-19	-19	-18	-18	-18	-17	-15	-14	-12	-12	-11	-5	-2	4	8	9	4		
63	-23	-23	-20	-20	-21	-19	-19	-17	-17	-14	-13	-7	-1	6	9	4	-1		
125	-21	-19	-19	-19	-20	-19	-18	-18	-15	-13	-11	-4	1	5	9	6	2		
250	-20	-18	-16	-16	-18	-17	-17	-16	-15	-11	-9	-3	3	8	6	5	3		
500	-18	-15	-12	-11	-14	-15	-13	-12	-10	-9	-5	0	3	7	5	4	1		
1000	-21	-15	-13	-12	-11	-12	-10	-9	-7	-5	-2	2	4	7	4	2	-5		
2000	-14	-15	-15	-13	-12	-12	-8	-6	-5	-3	-0	3	4	6	4	-2	-10		
4000	-18	-19	-17	-14	-13	-13	-9	-6	-5	-4	-1	3	4	7	4	-3	-11		
8000	-22	-25	-23	-19	-18	-18	-14	-10	-10	-7	-4	2	5	8	4	-2	-15		
OVERALL	-20	-18	-17	-16	-17	-16	-15	-13	-12	-10	-7	-2	2	6	8	5	1		

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 13

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

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

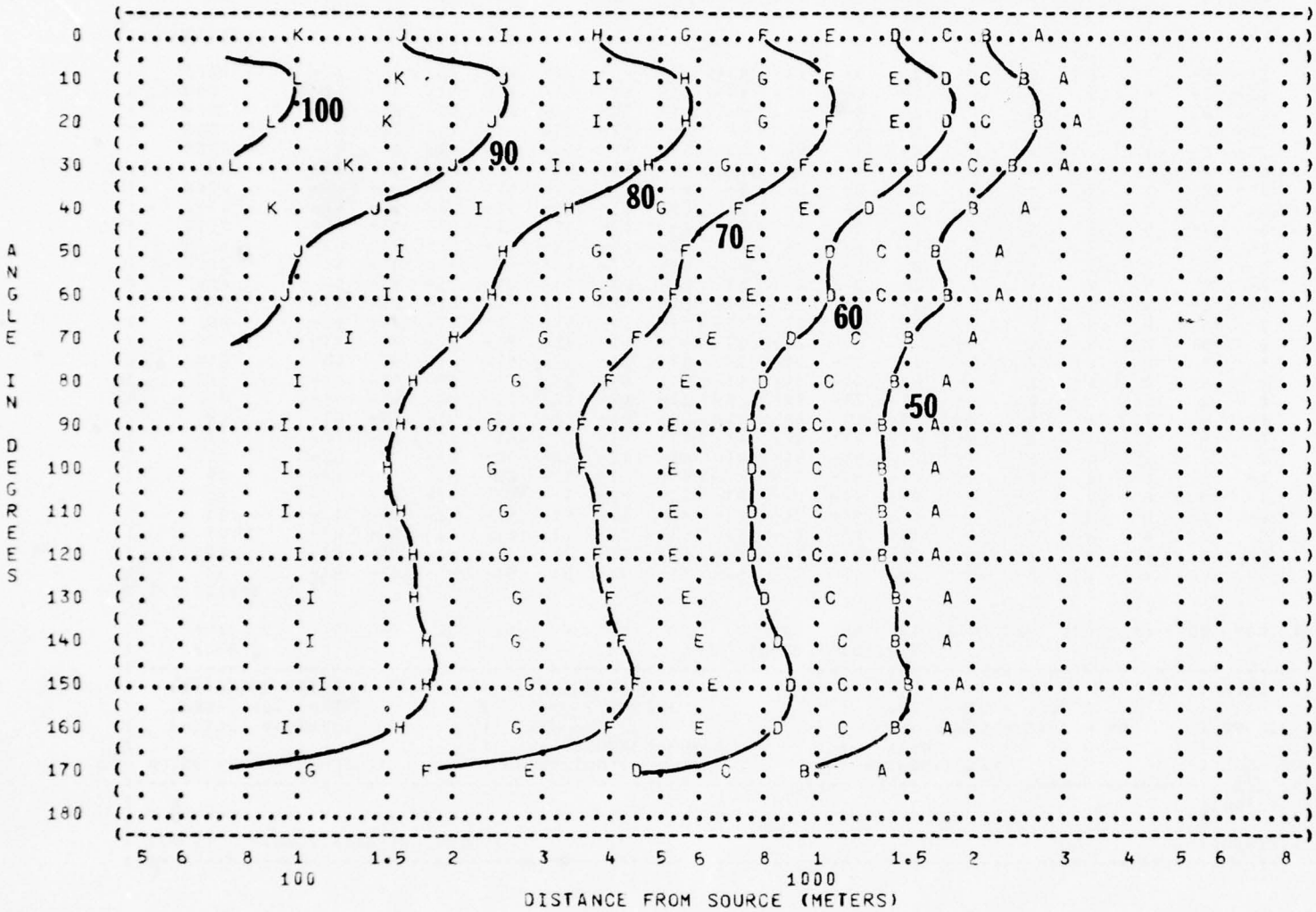


FIGURE: 5 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 13

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

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

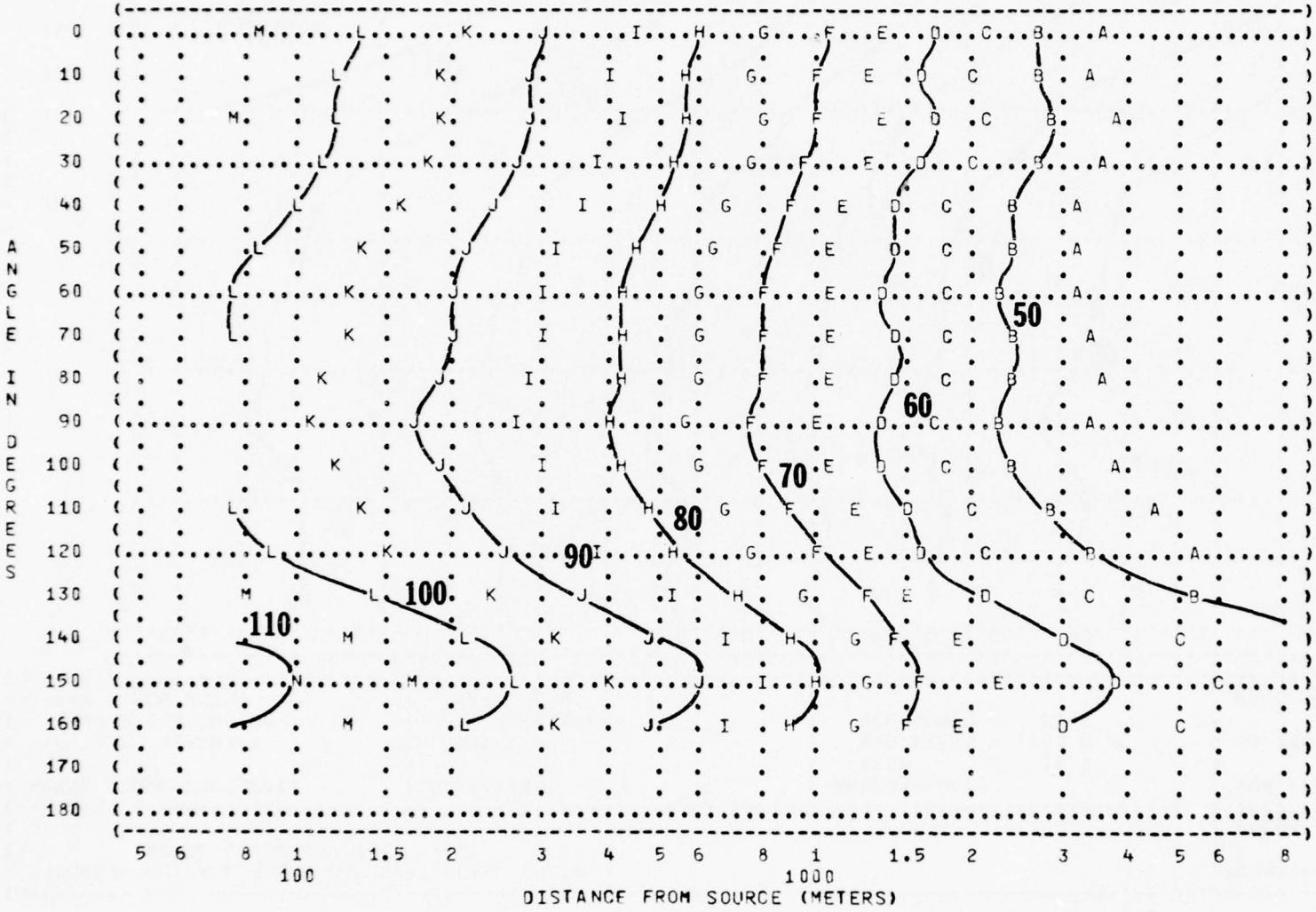


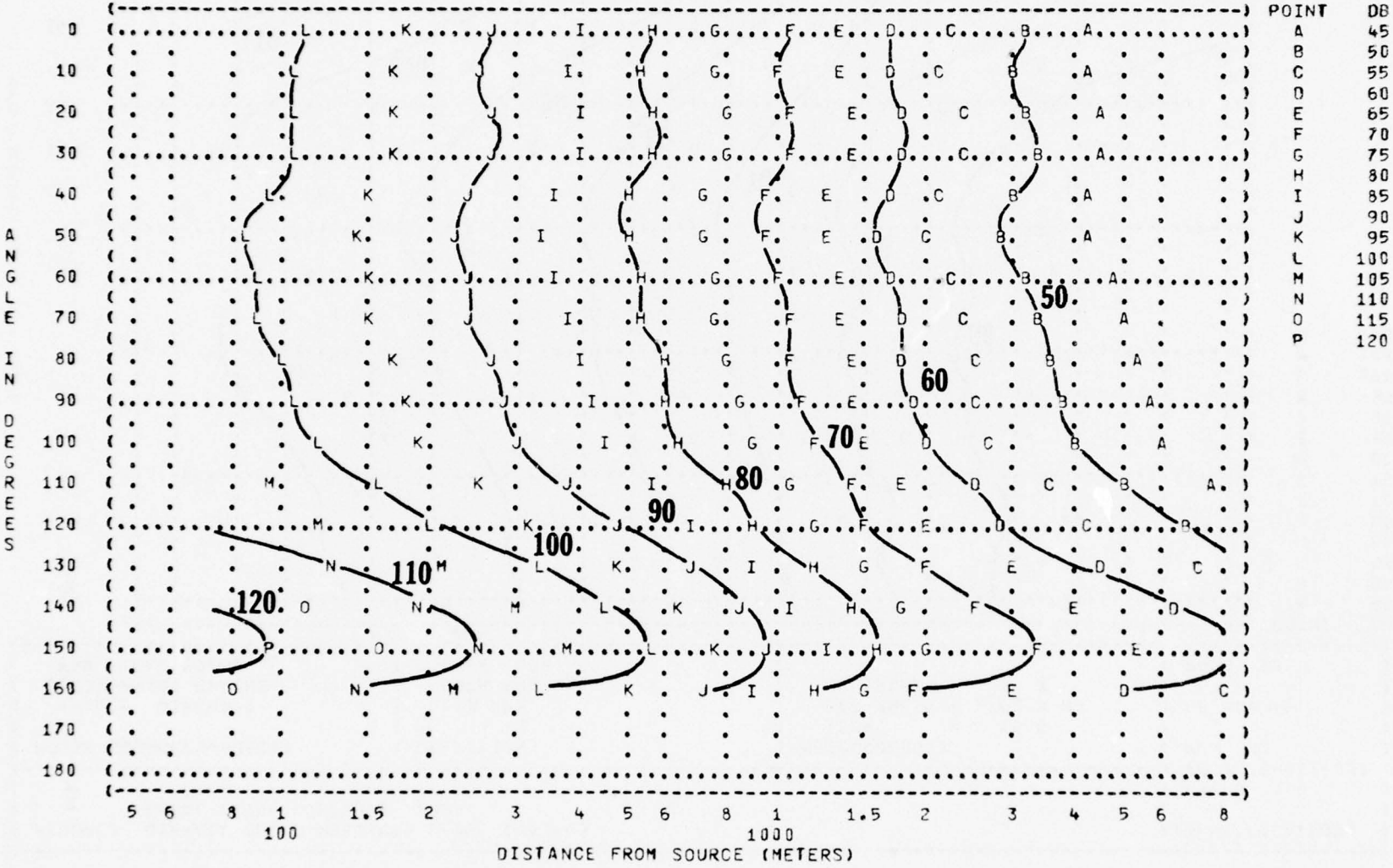
FIGURE: 5 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 13

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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



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

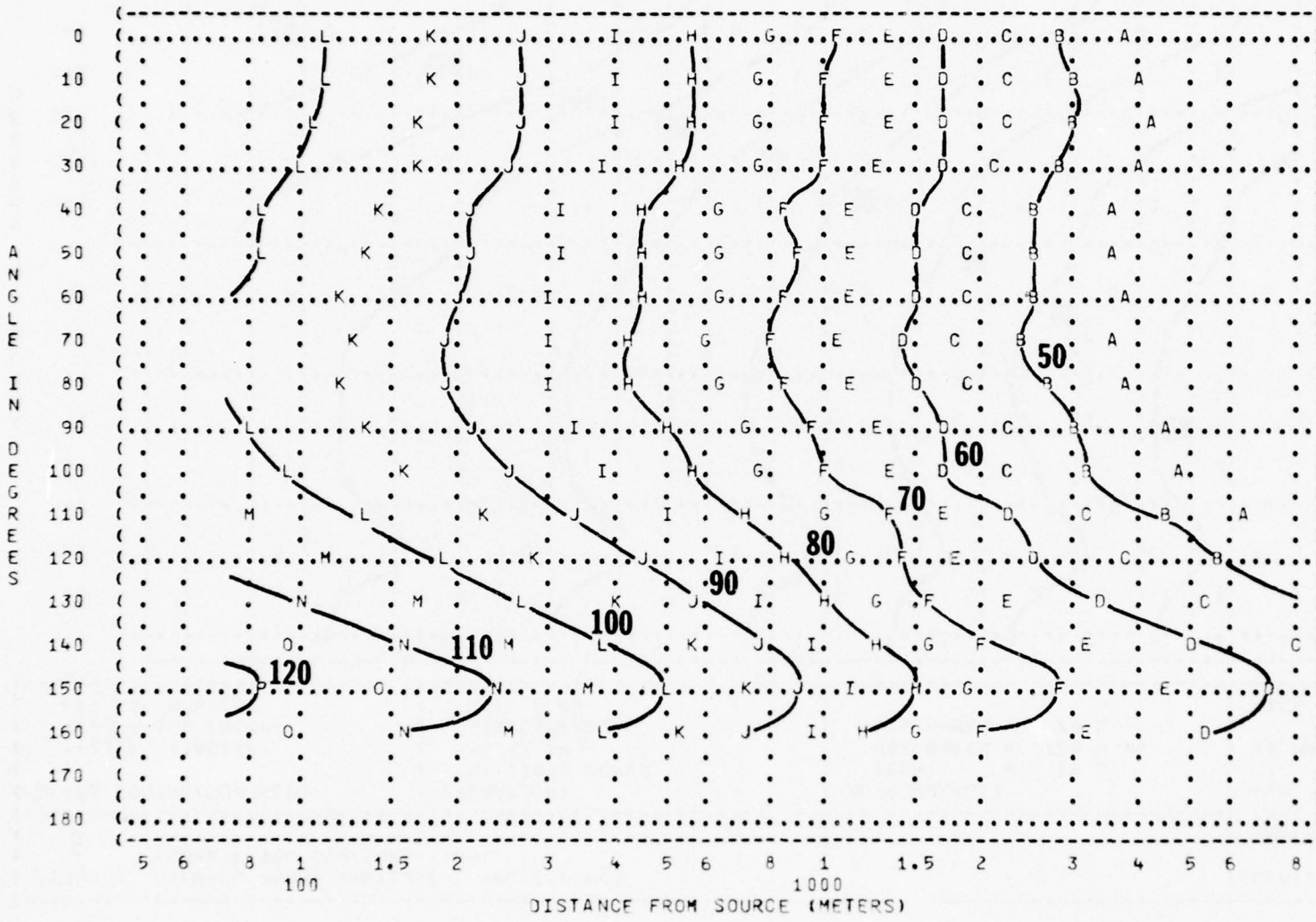
FIGURE: 5 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 13

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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



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

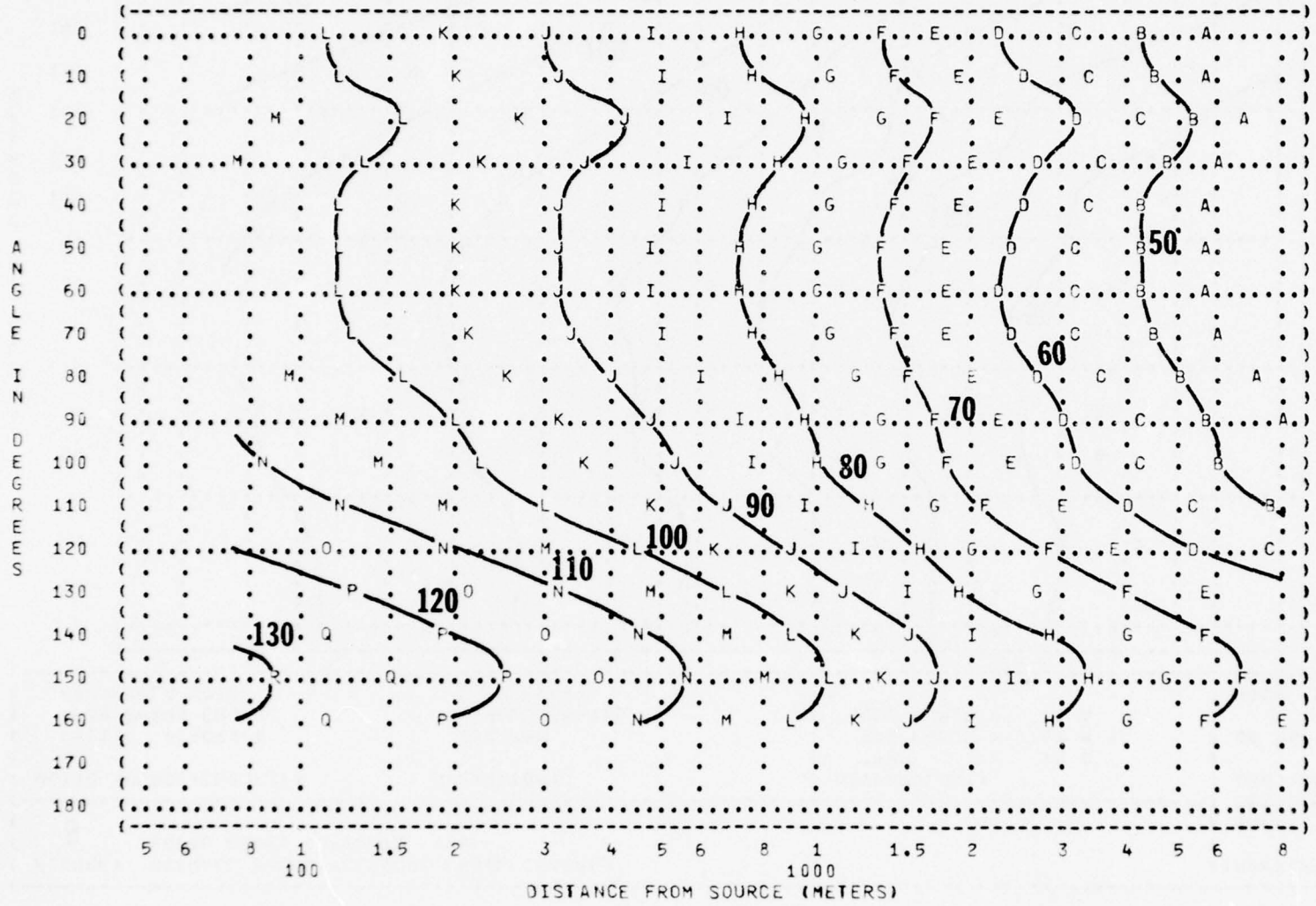
FIGURE: 5 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 13

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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



POINT	DB
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115
P	120
Q	125
R	130

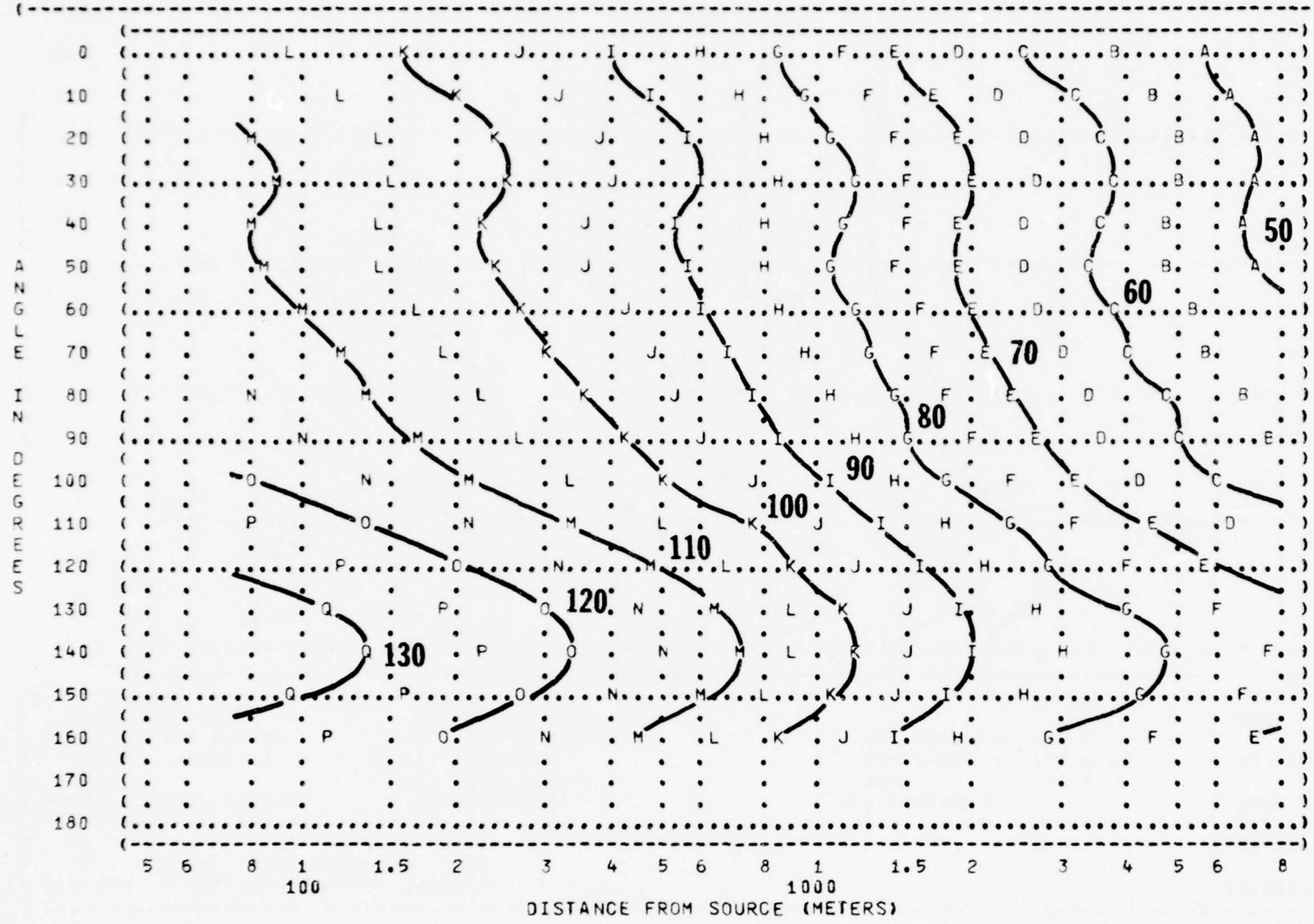
FIGURE: 5 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 13

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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



POINT	DB
A	50
B	55
C	60
D	65
E	70
F	75
G	80
H	85
I	90
J	95
K	100
L	105
M	110
N	115
O	120
P	125
Q	130

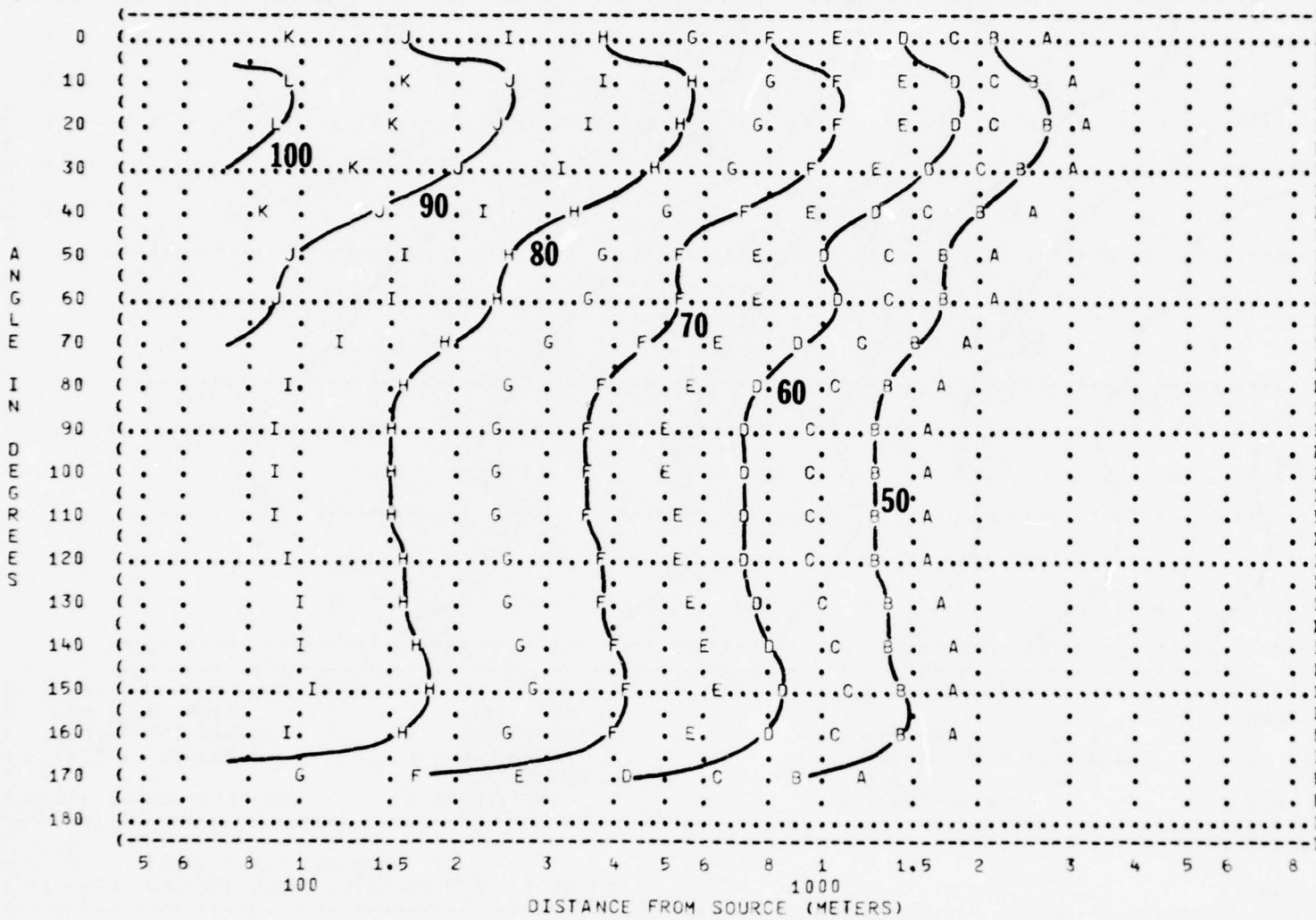
FIGURE 6: C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 14



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

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 14

POINT	DBC
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110

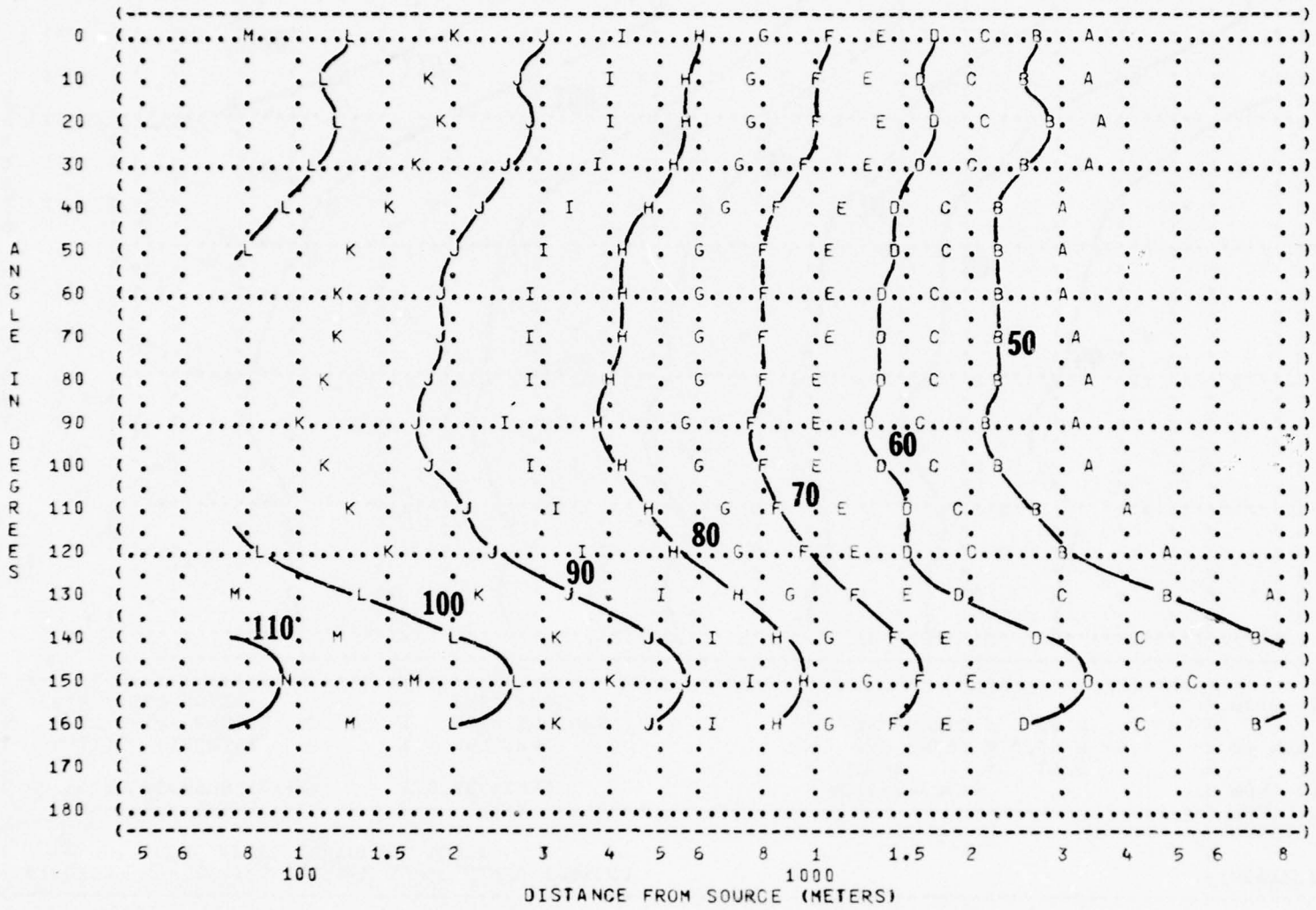


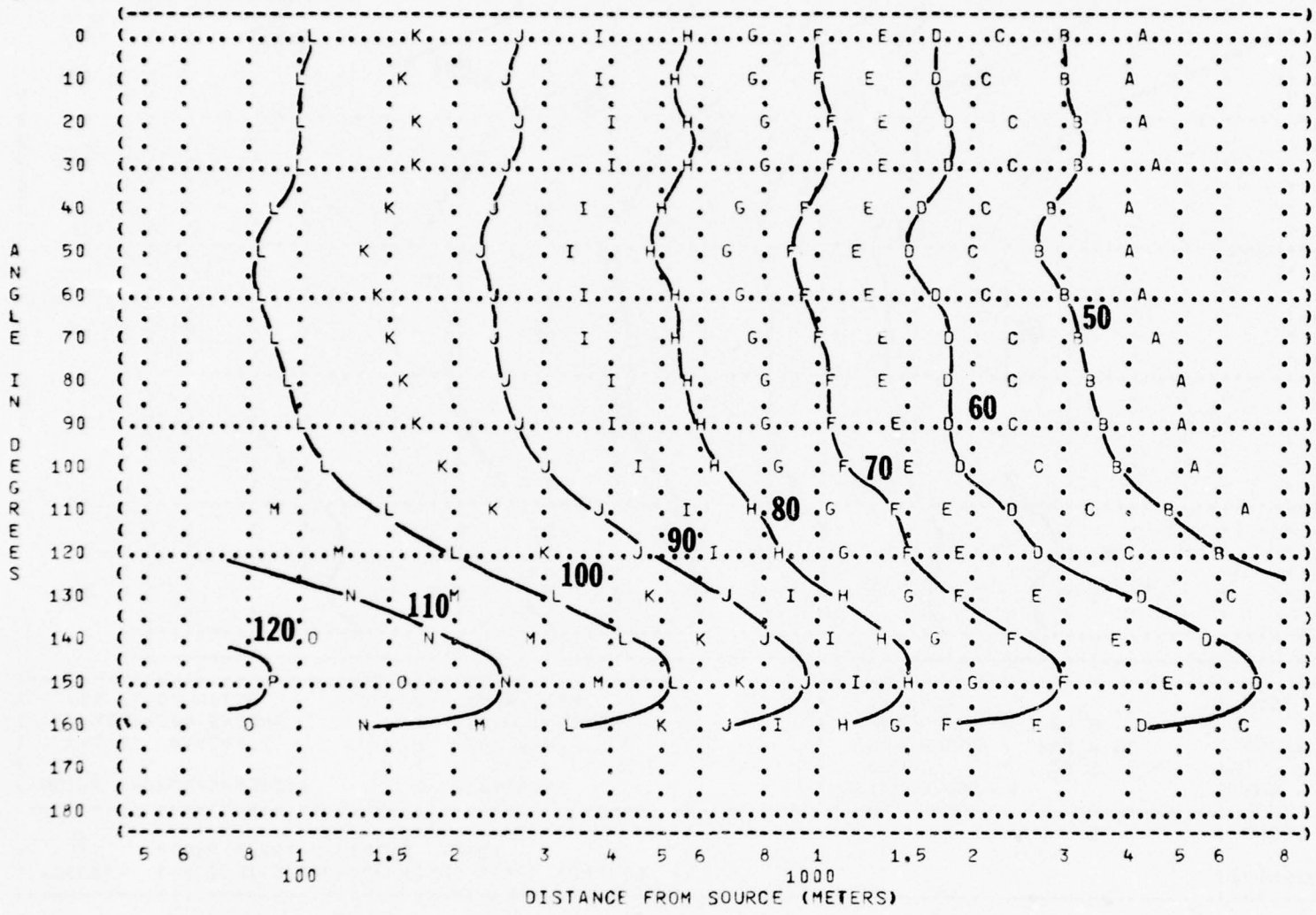
FIGURE: 6 C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 14



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

FIGURE: 6

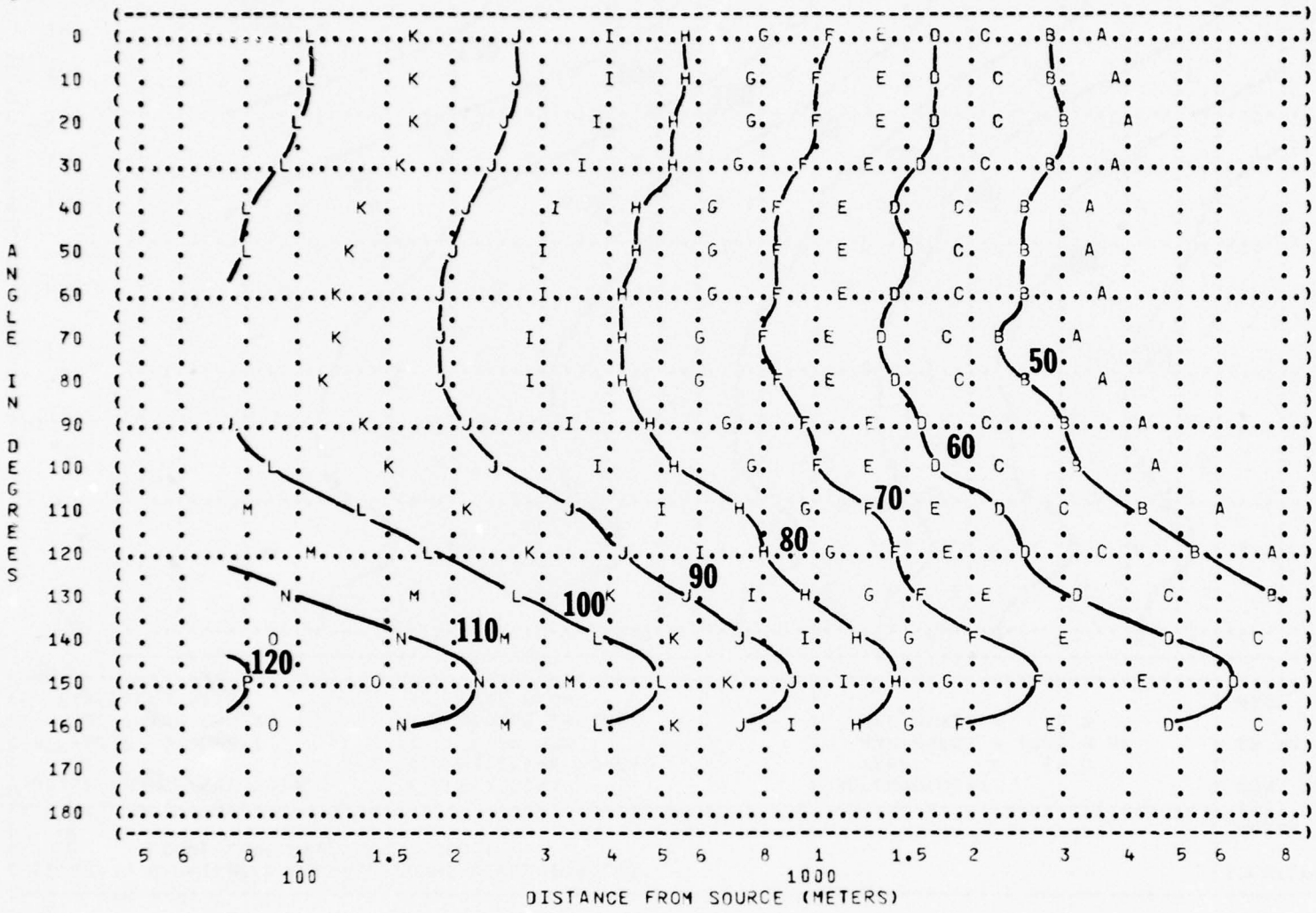
C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
EQUAL LEVEL CONTOURS (DBC)

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 14



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

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 14

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

POINT	DBC
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115
P	120
Q	125
R	130

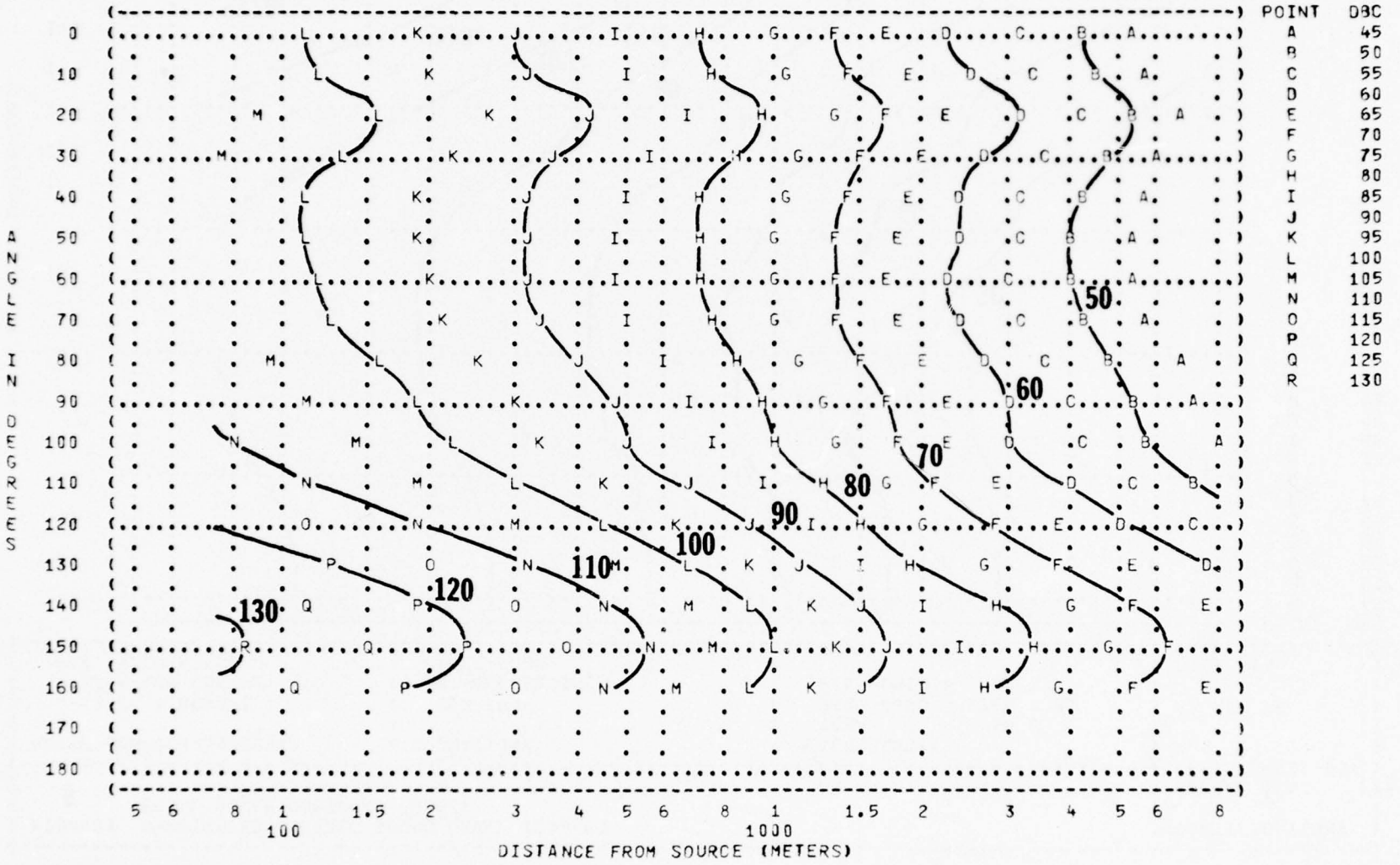


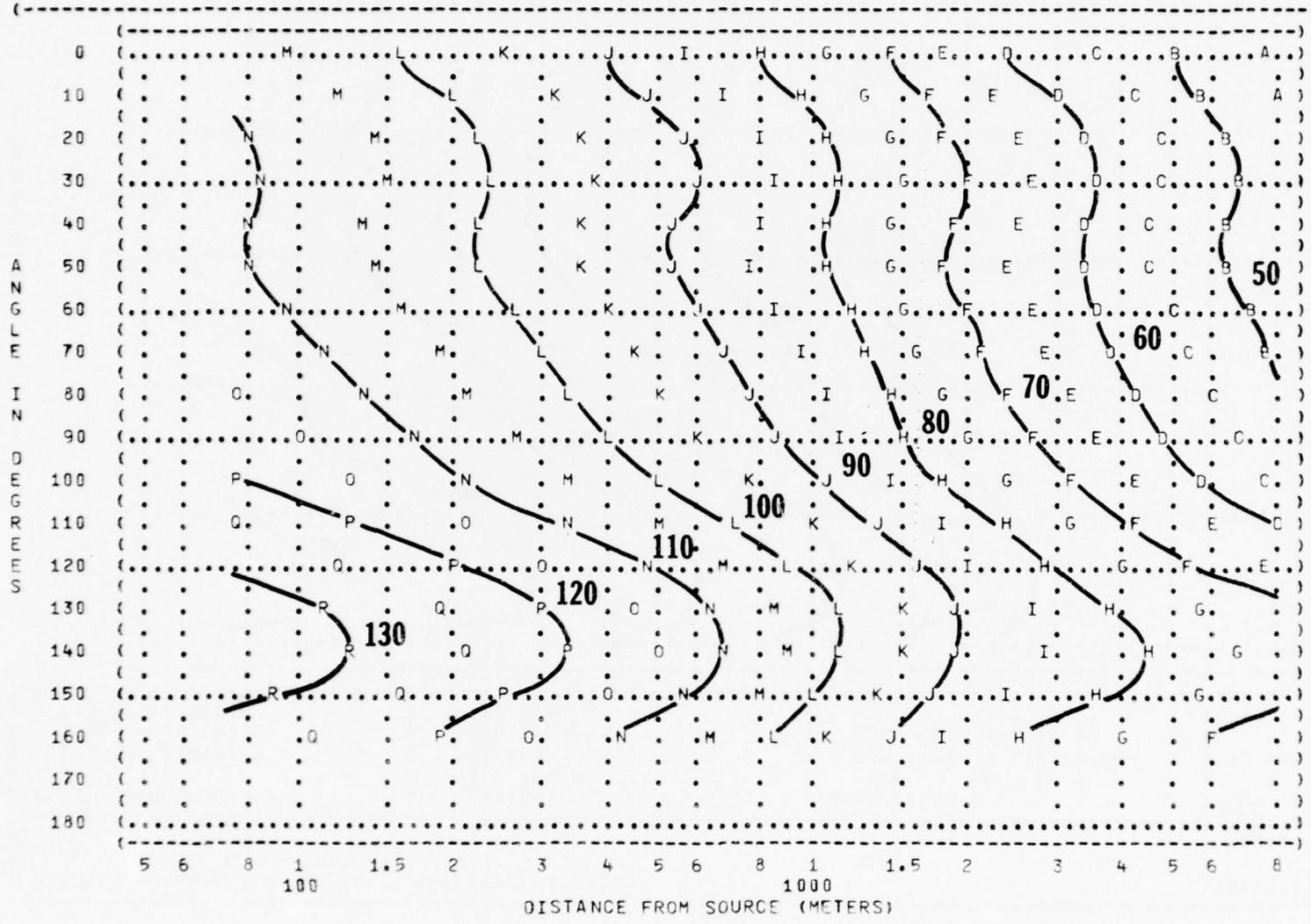
FIGURE 6: C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 14

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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



POINT	DBC
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115
P	120
Q	125
R	130

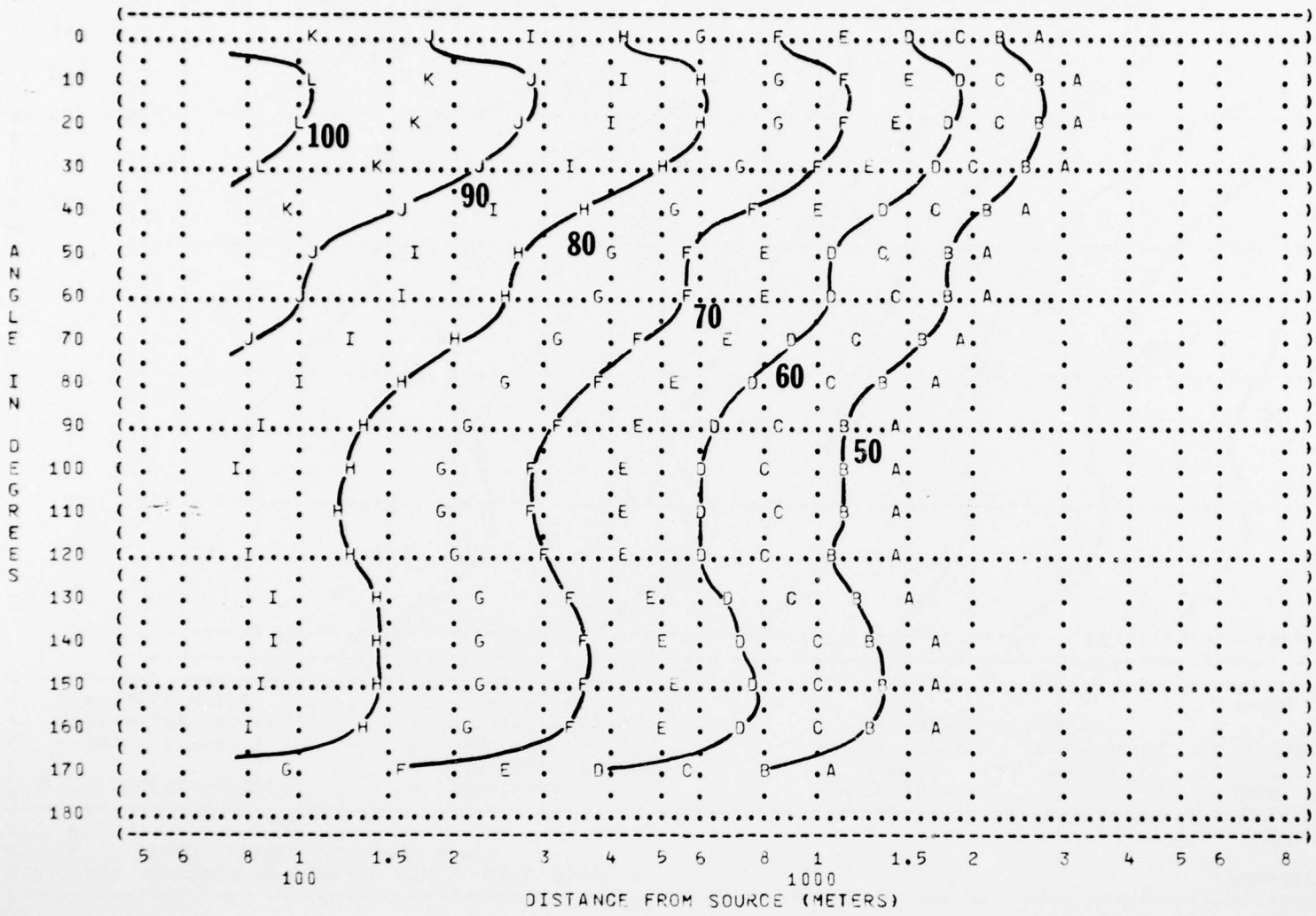
FIGURE: 7 — A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 15

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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



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

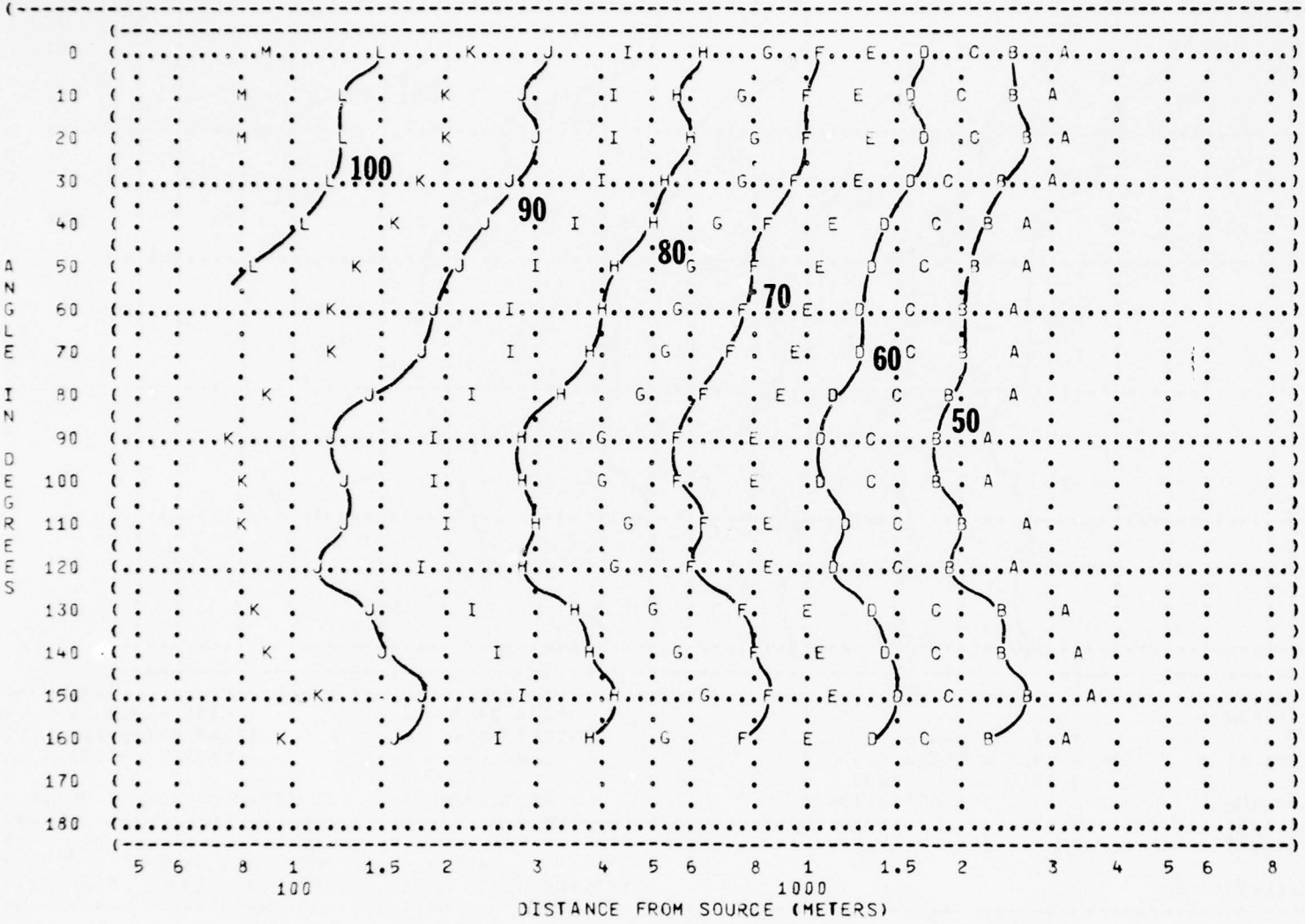
FIGURE: 7 A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 15



POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 15

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105

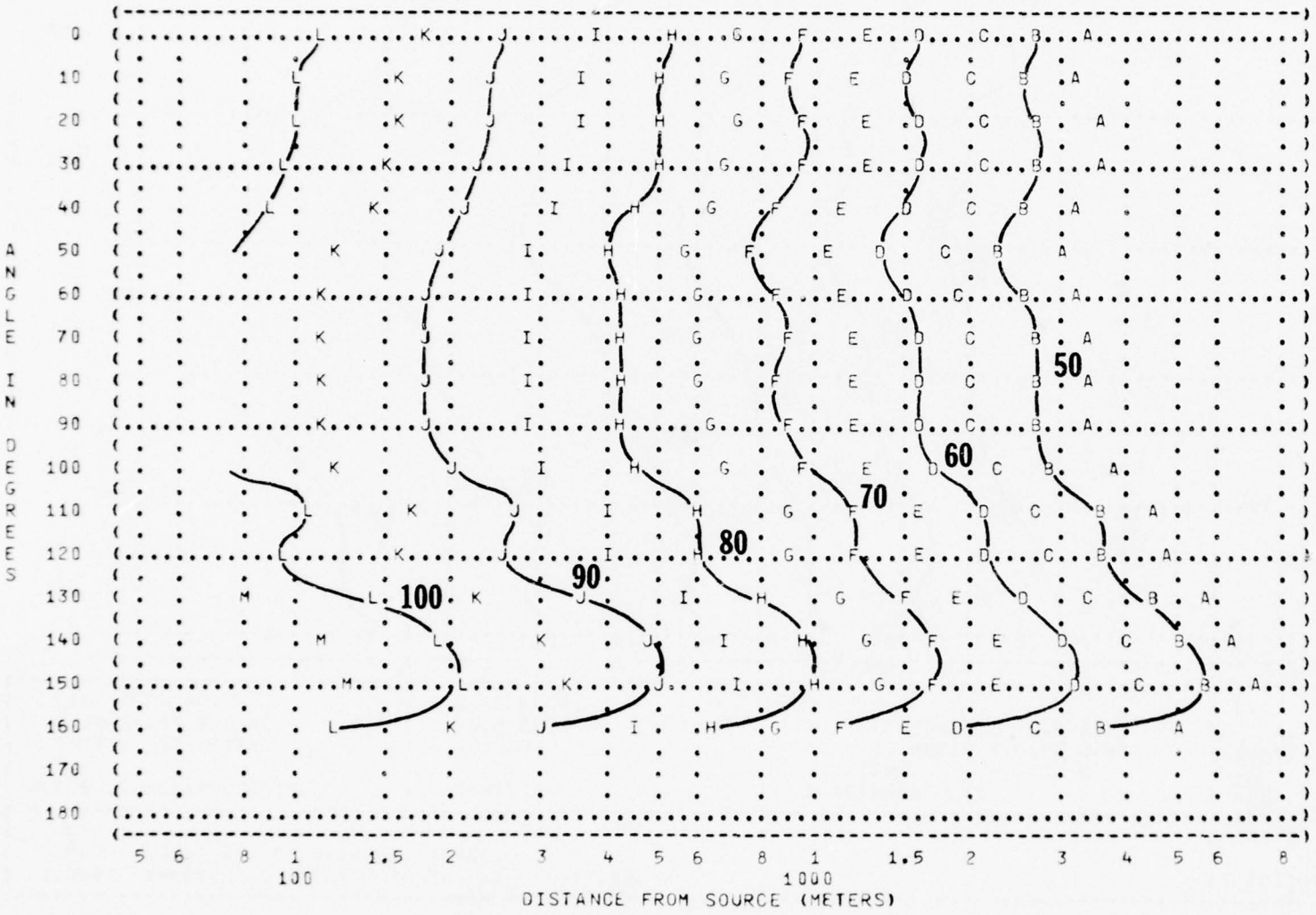


FIGURE: 7 A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 15

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105

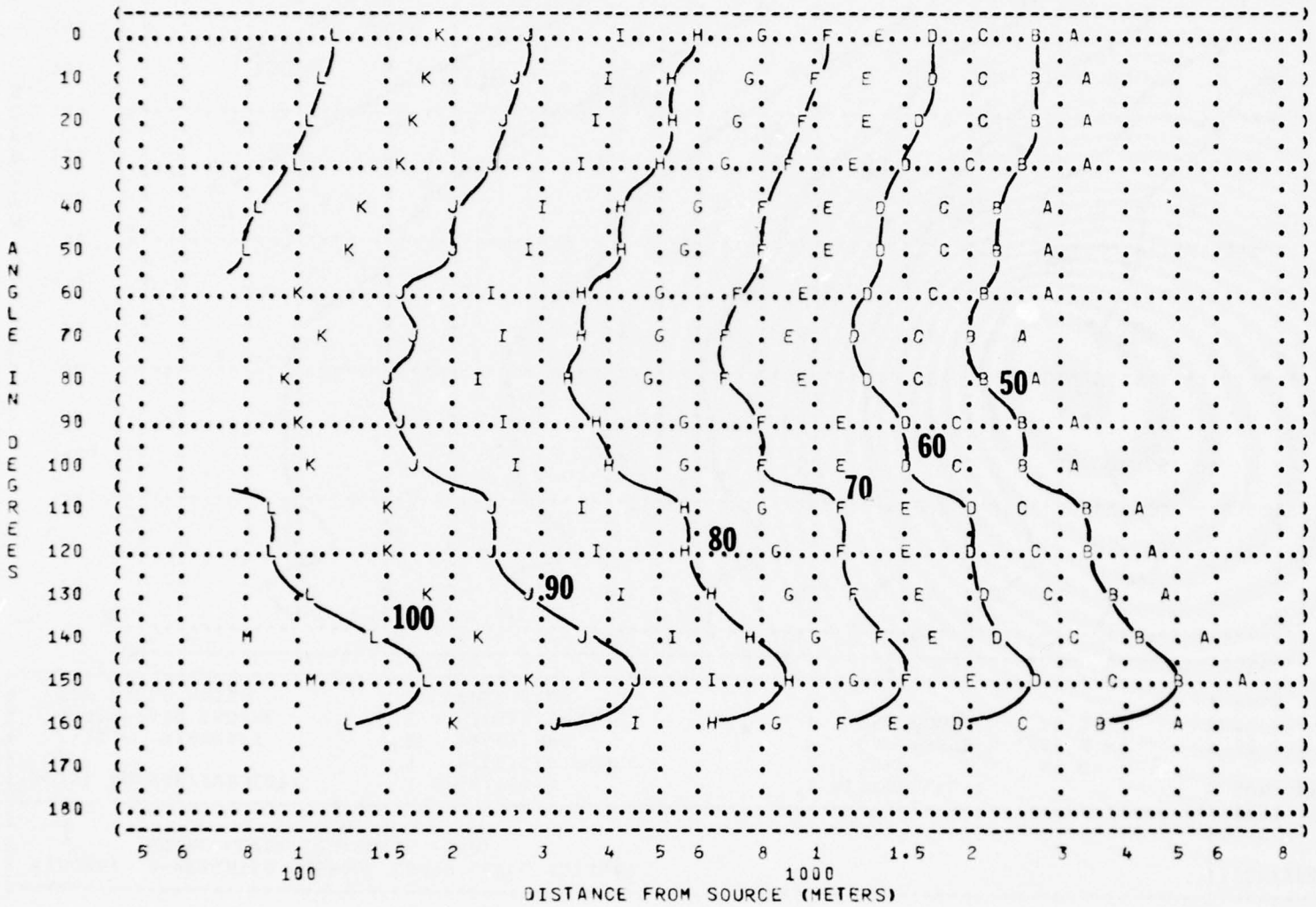


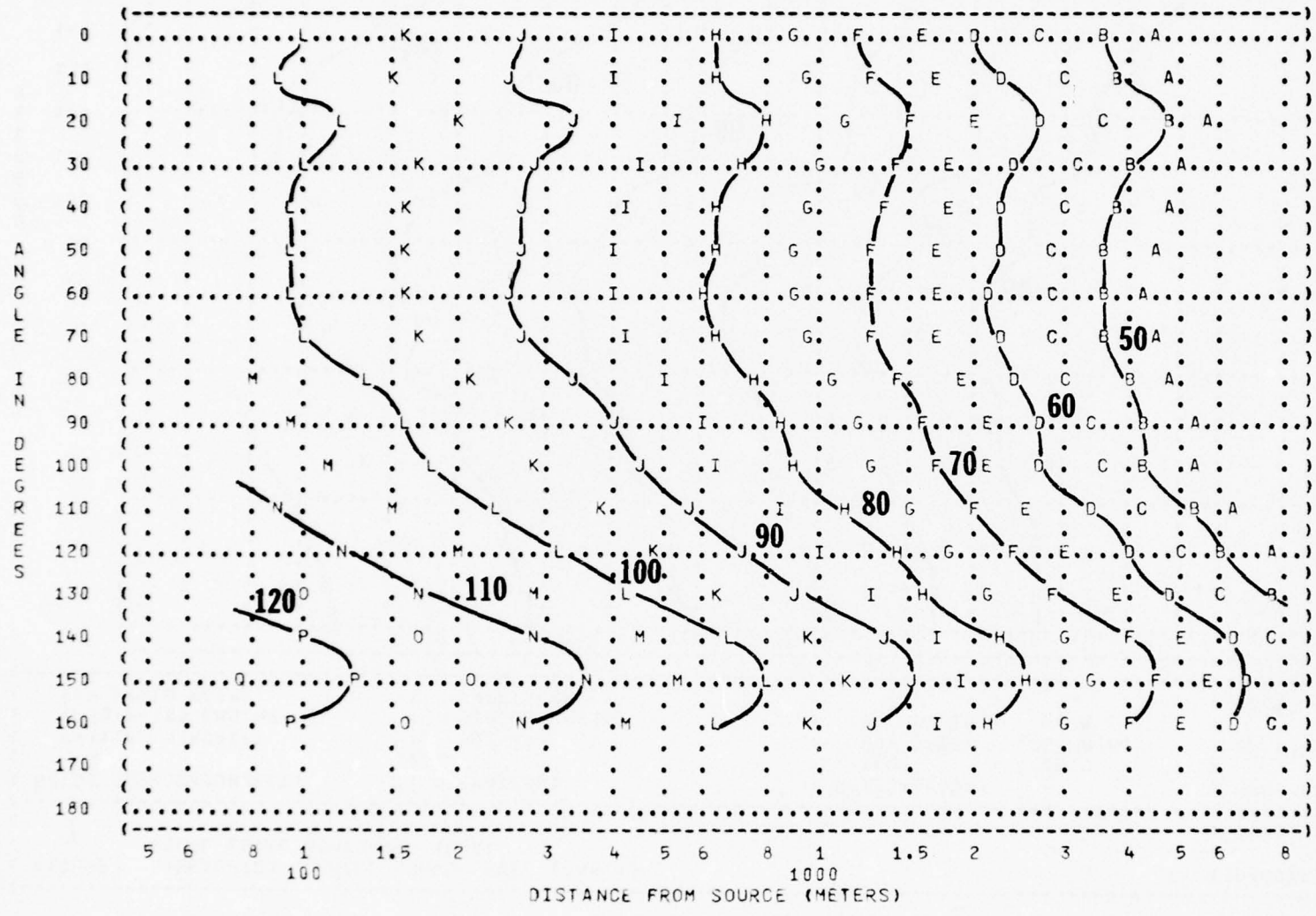
FIGURE 7 A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 15

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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



POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115
P	120
Q	125

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 15

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105
N	110
O	115
P	120
Q	125

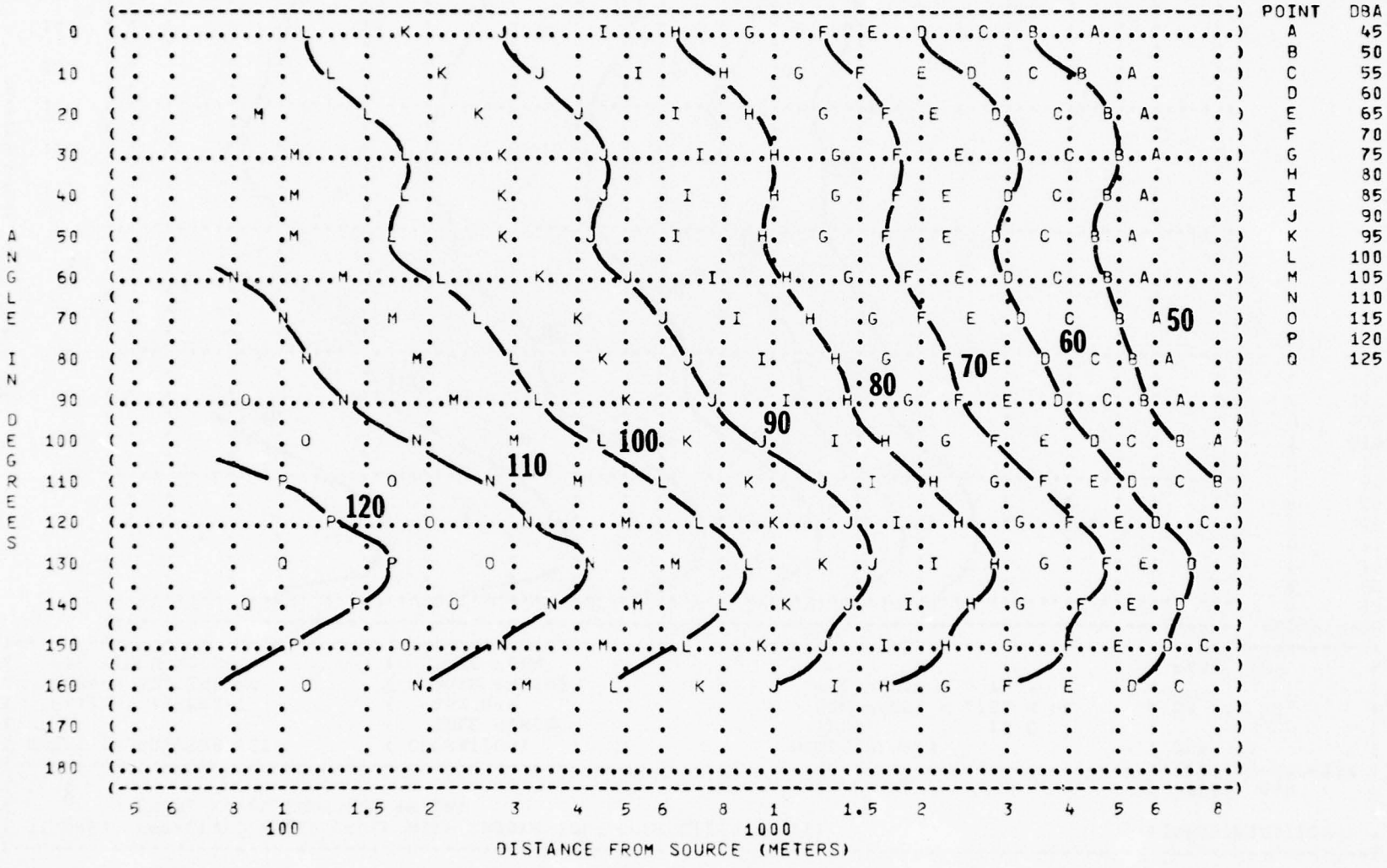


FIGURE 8 PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT) EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 16

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

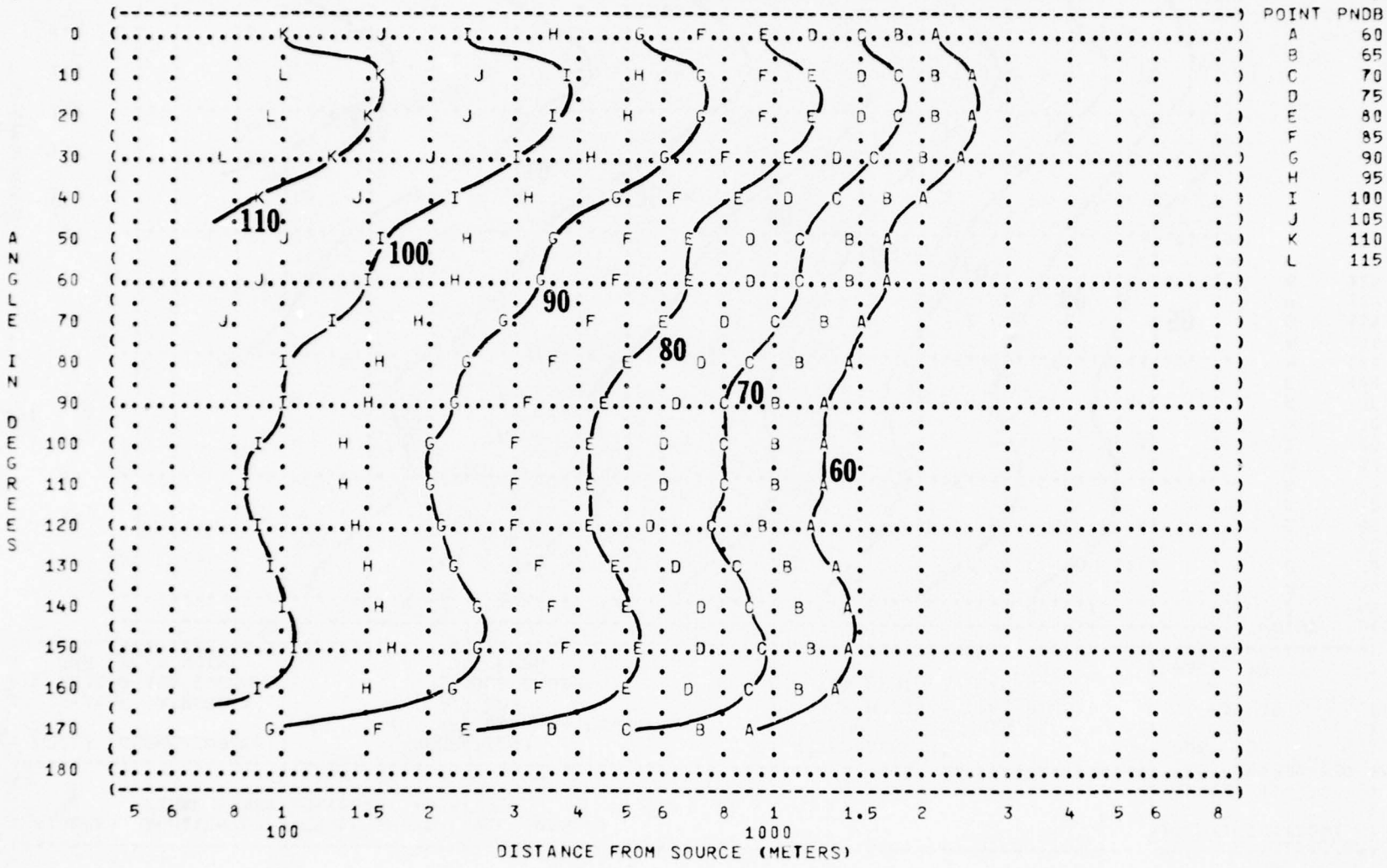


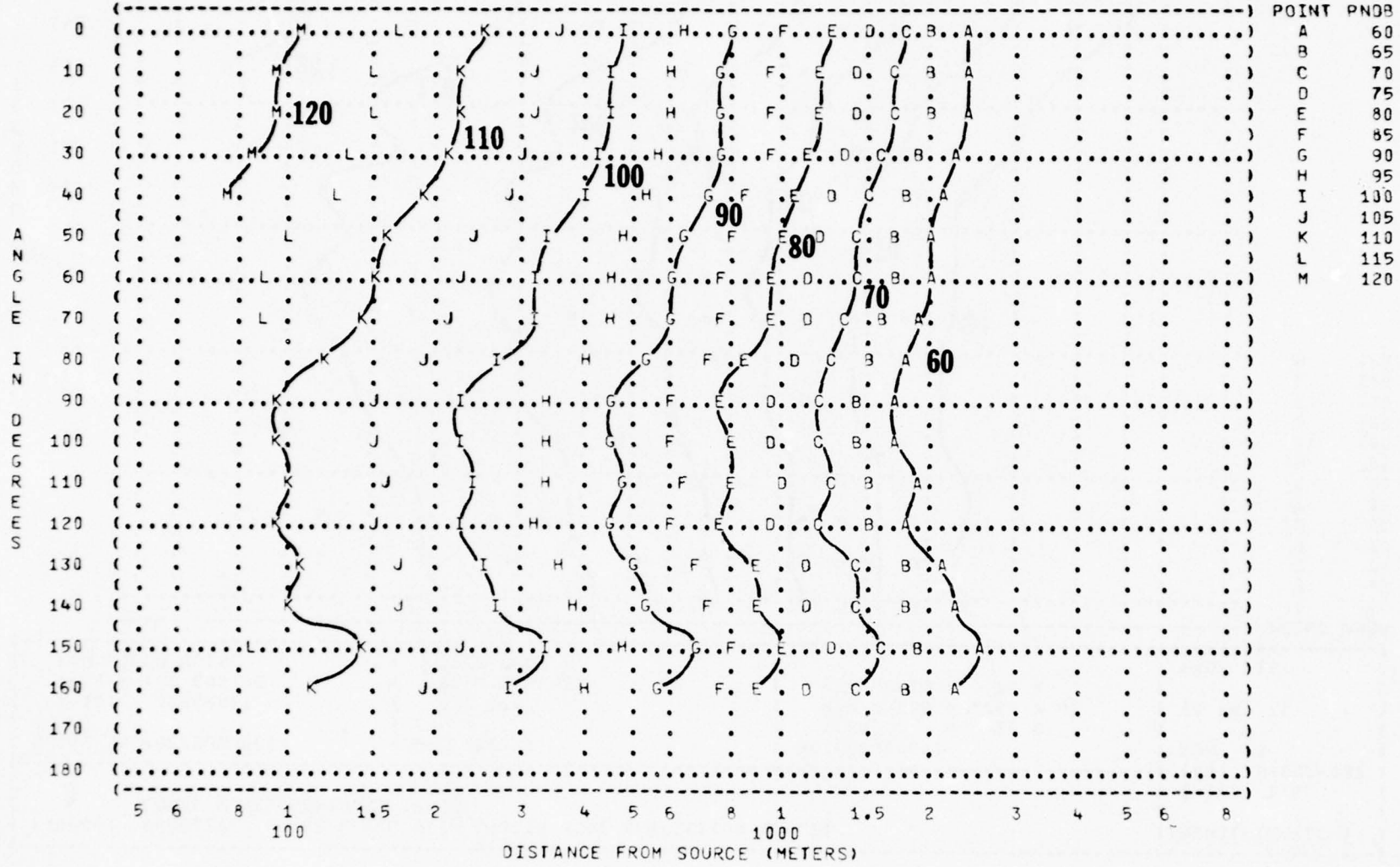
FIGURE 8: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 16

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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



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
M	120

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 16

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

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
M	120

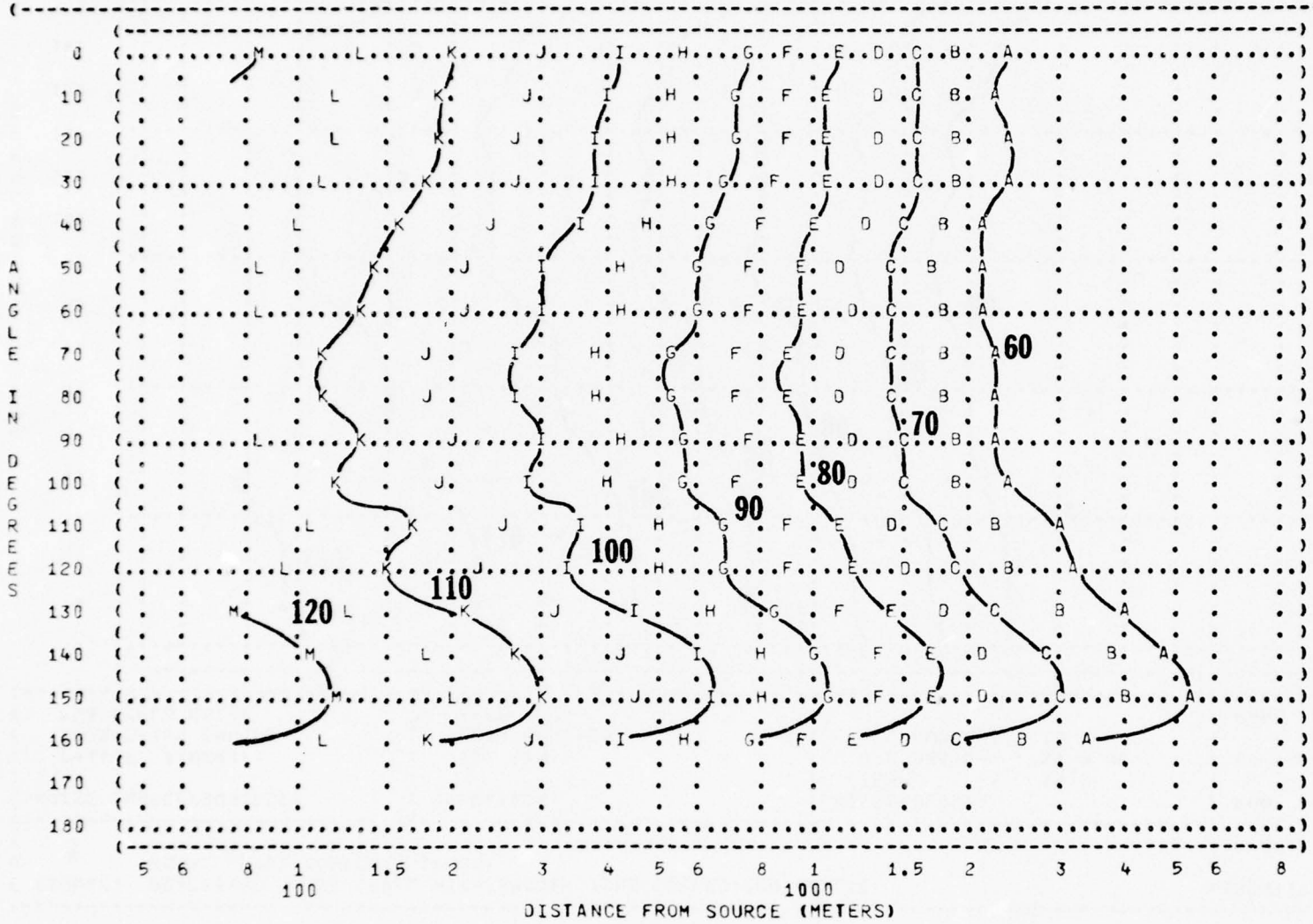


FIGURE 8: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT) EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 16

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

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
M	120

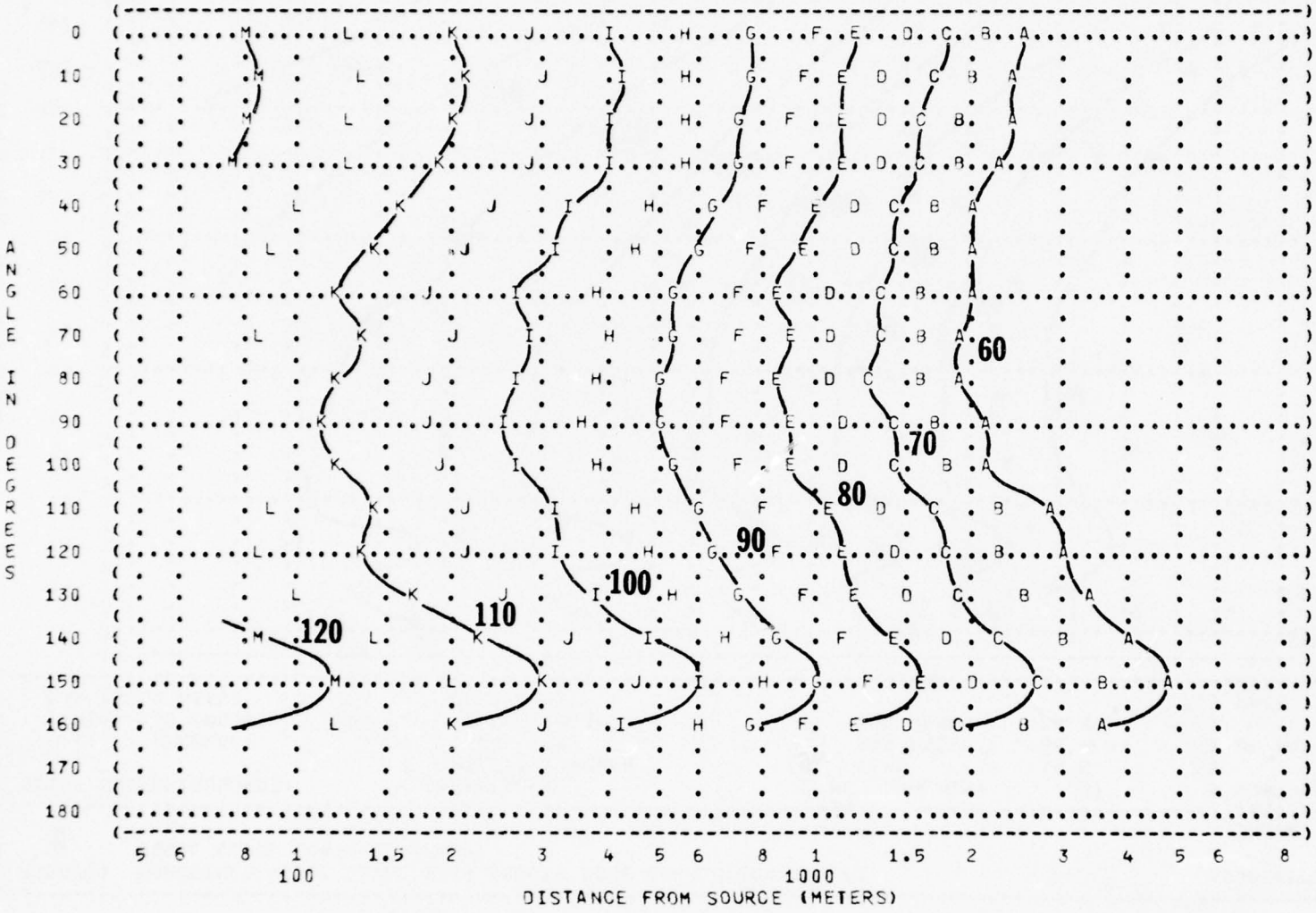


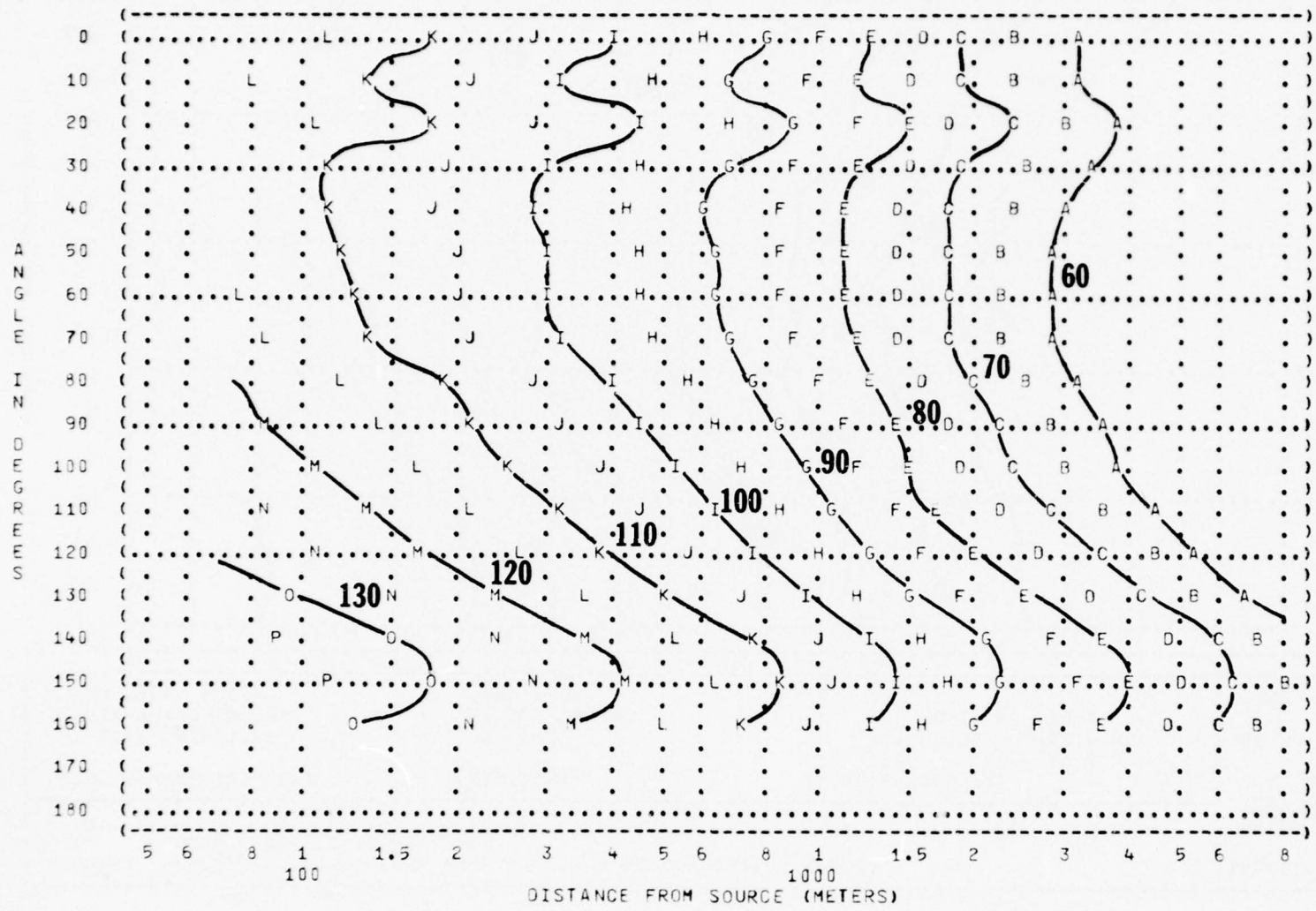
FIGURE 8 PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT) EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 16

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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



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
M	120
N	125
O	130
P	135

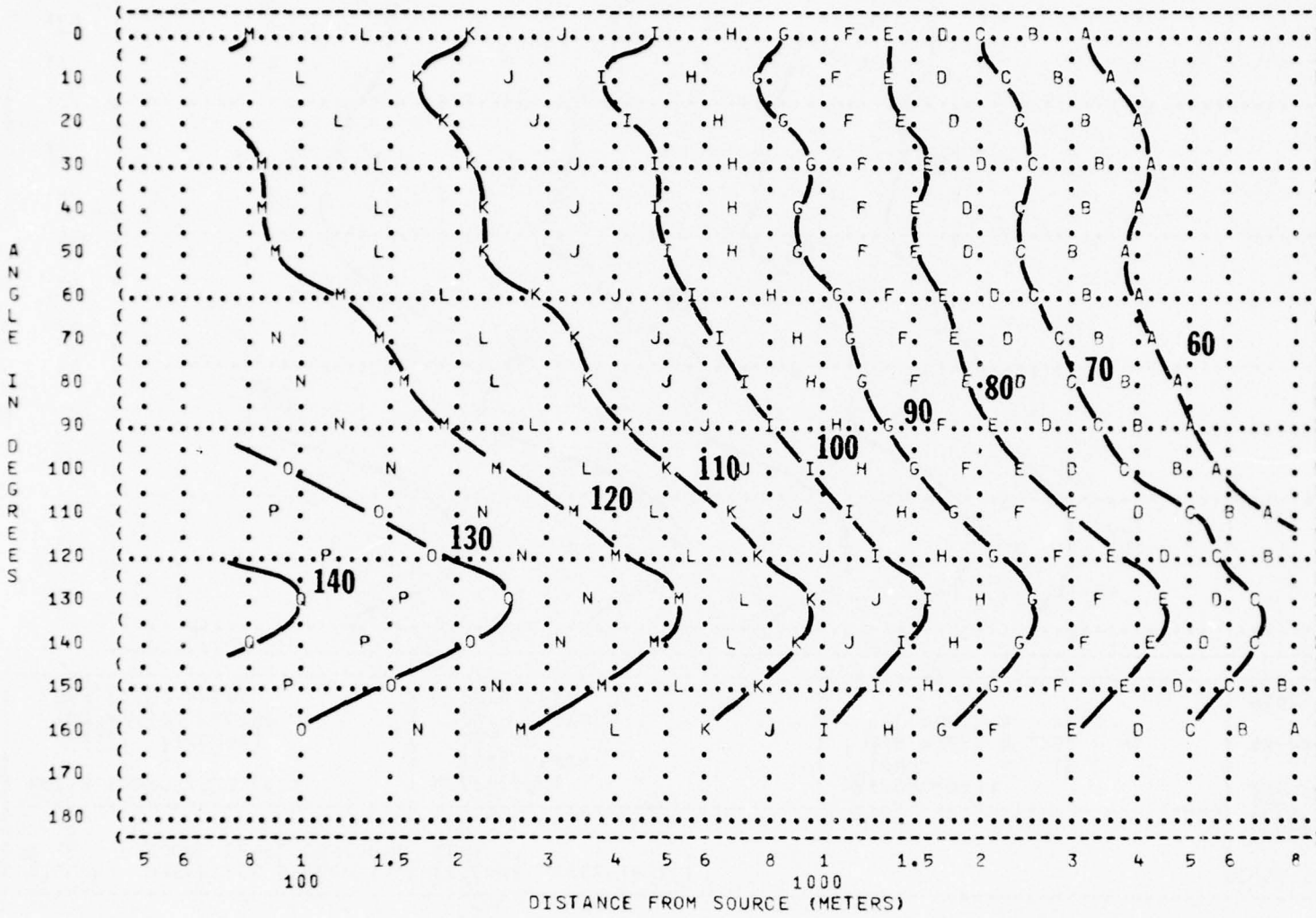
FIGURE: 8 PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT) EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 16

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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



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
M	120
N	125
O	130
P	135
Q	140

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 17

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

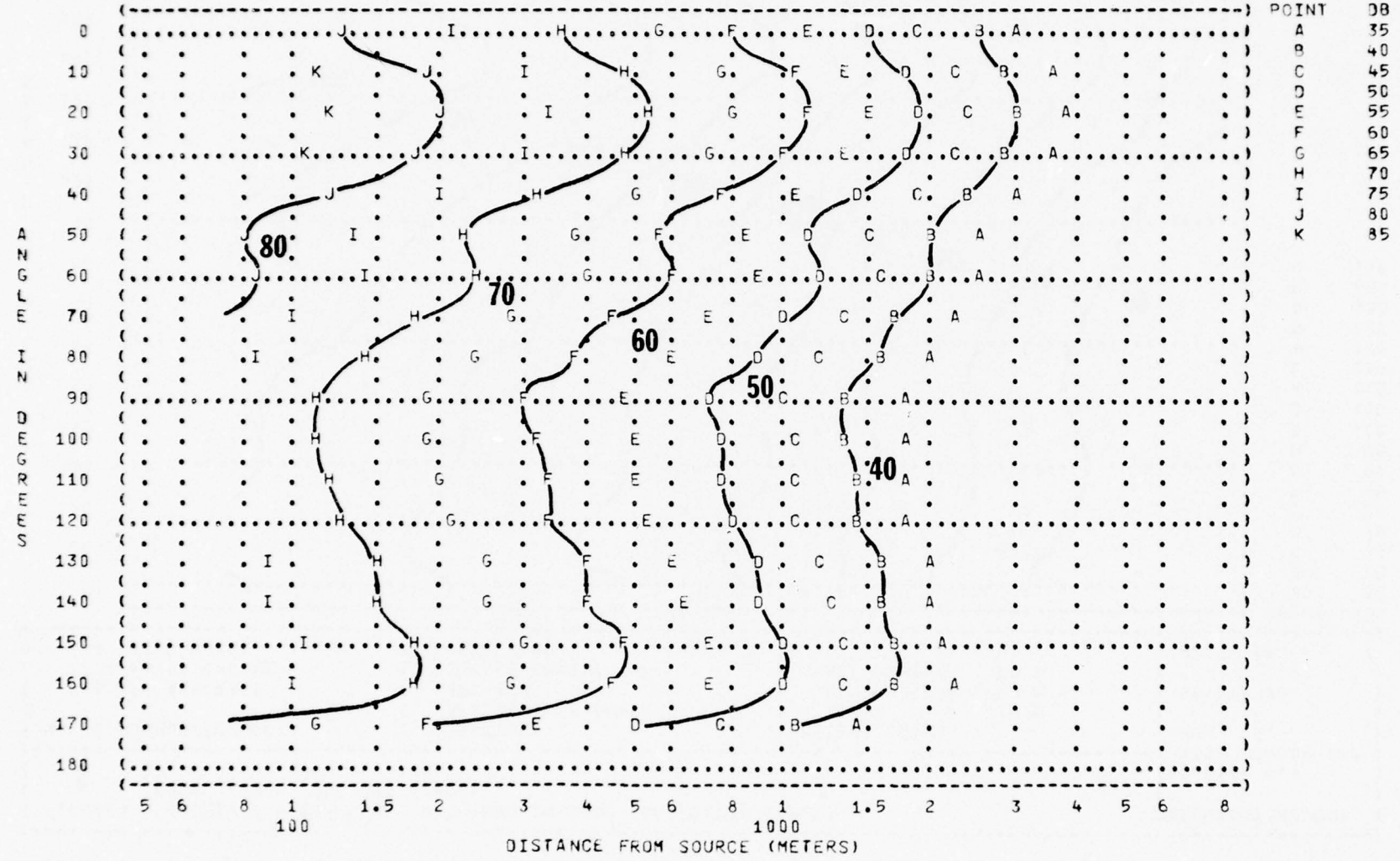


FIGURE: 9 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 17

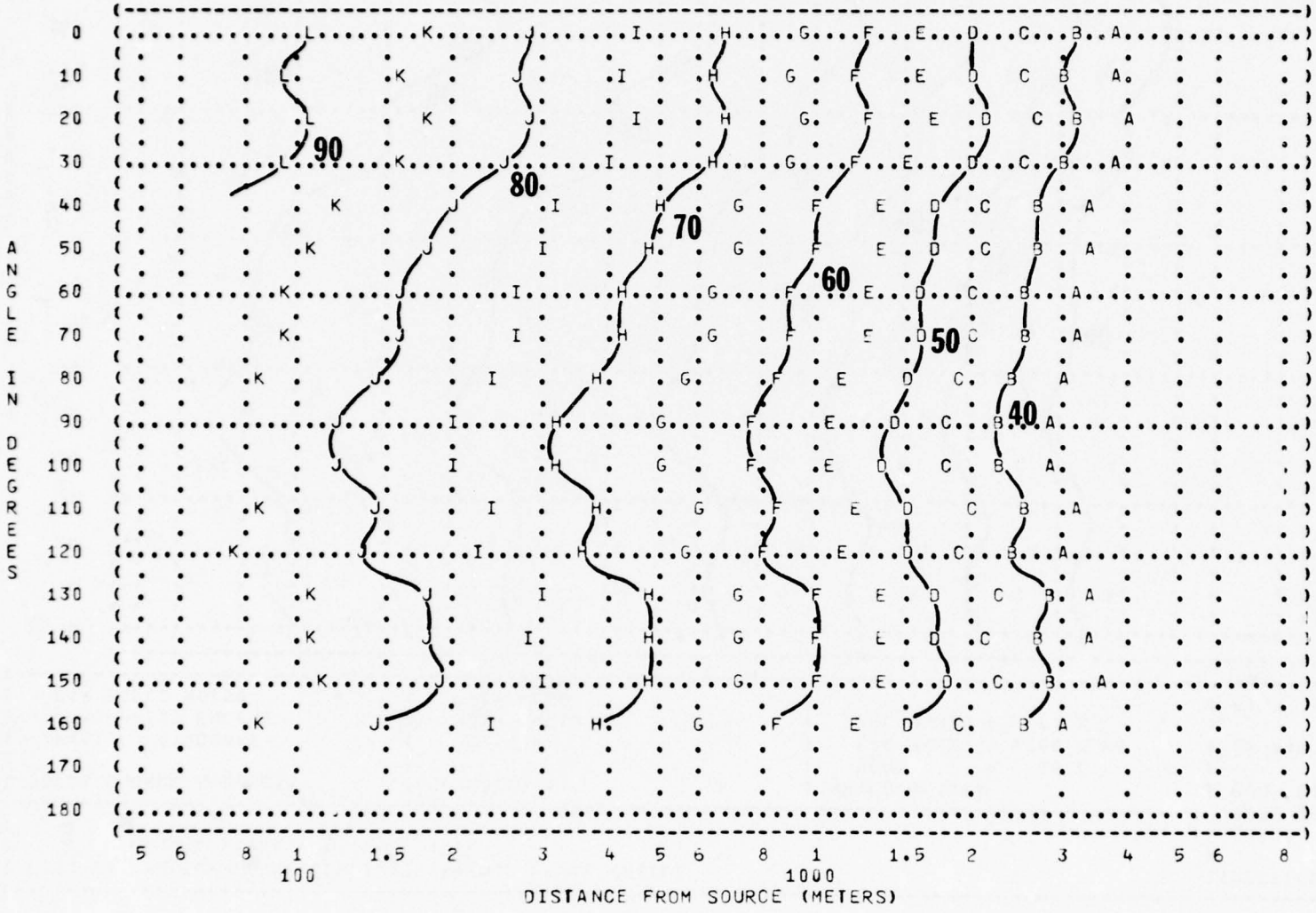


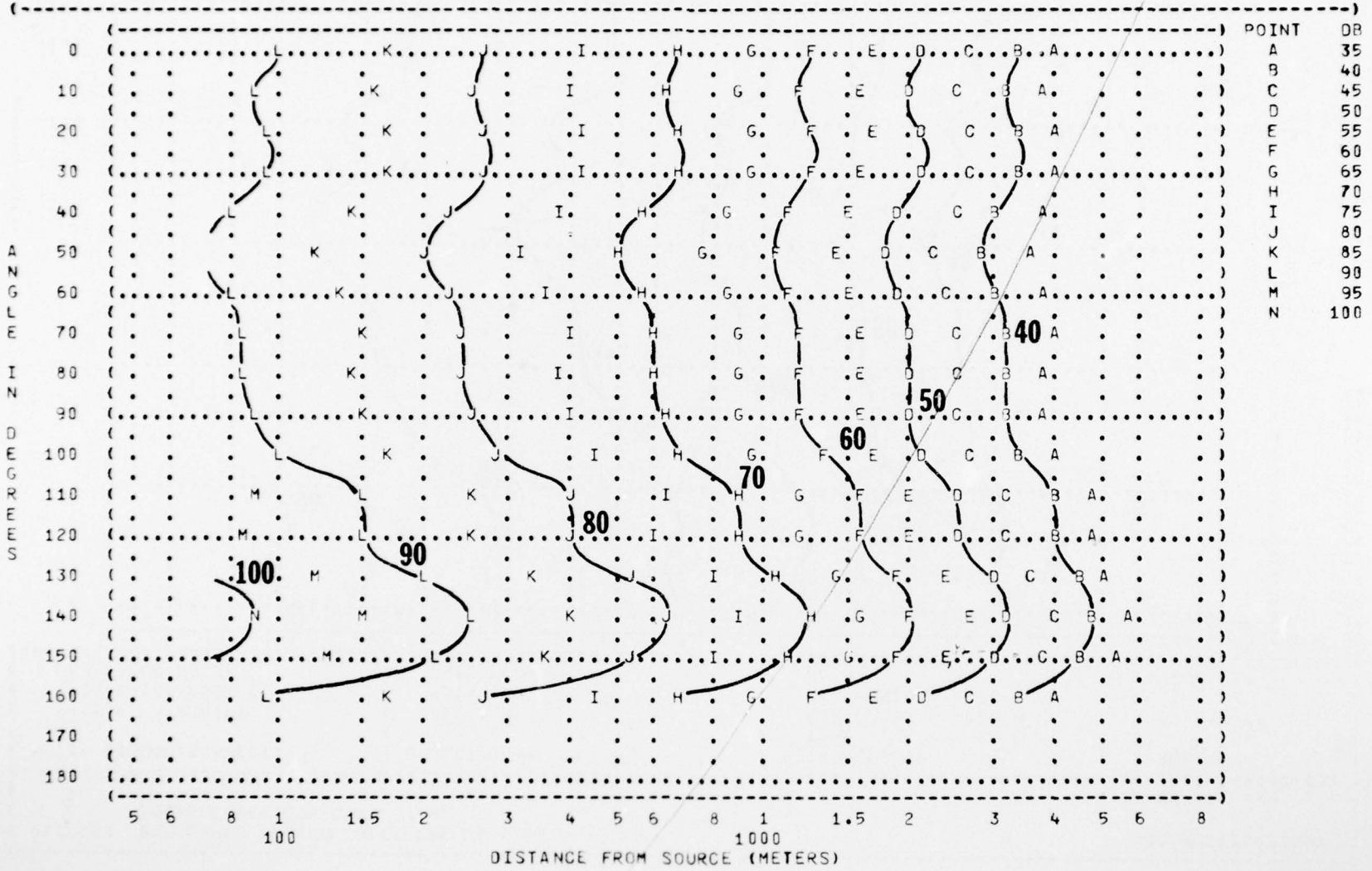
FIGURE: 9 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 17

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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



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

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 17

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

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

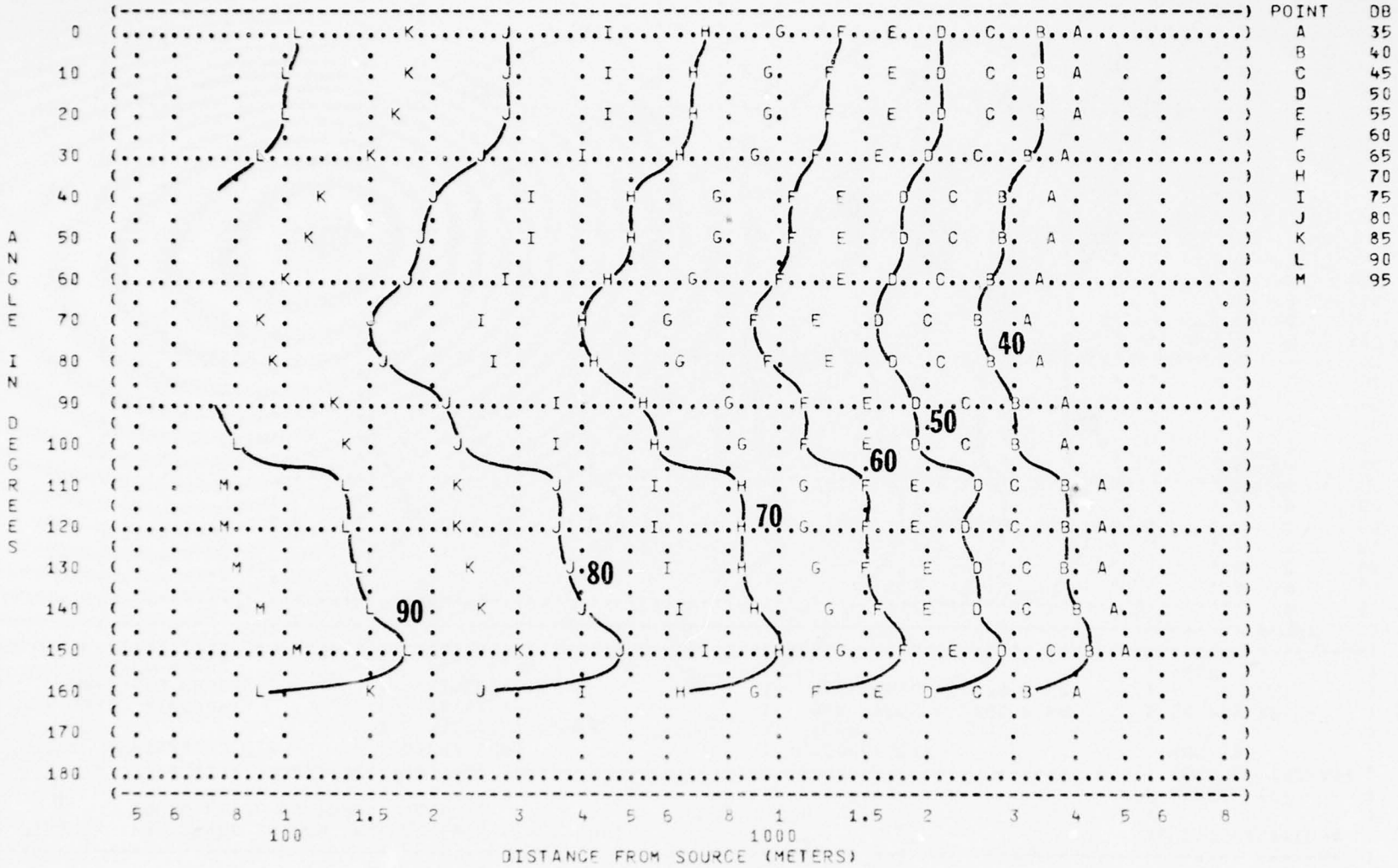


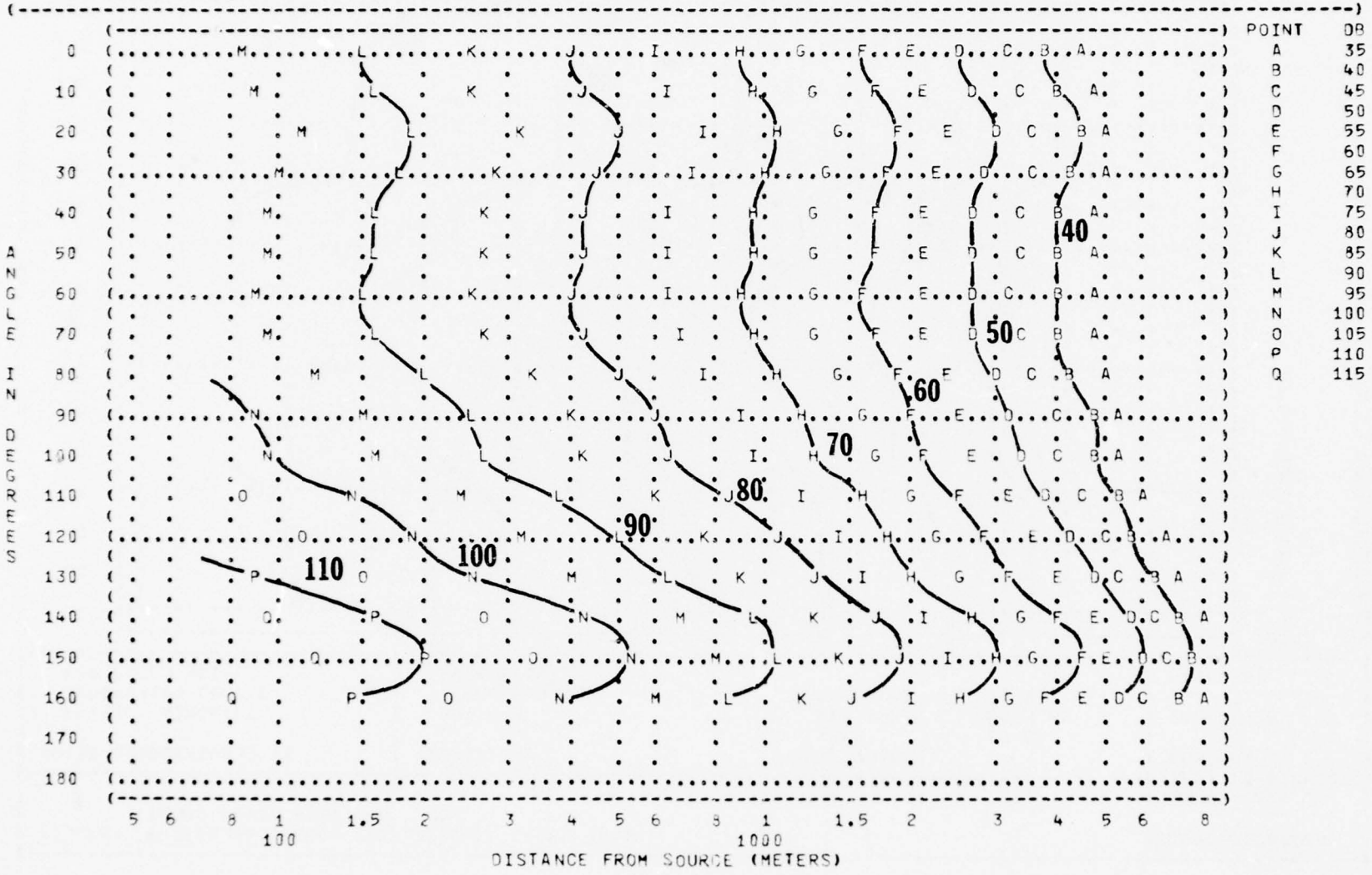
FIGURE 9 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 17

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115

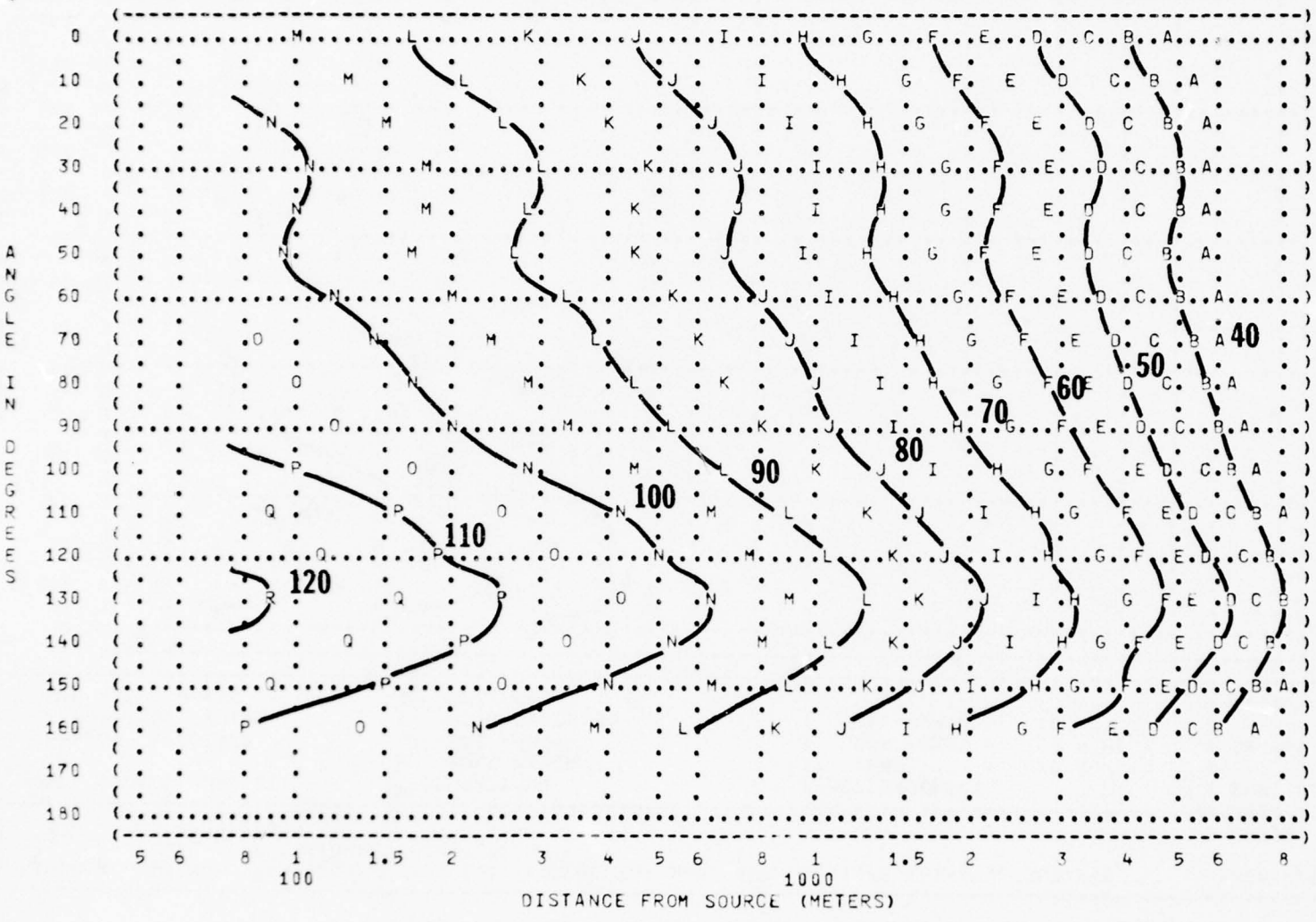
FIGURE 9 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 17

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115
R	120

FIGURE: 10

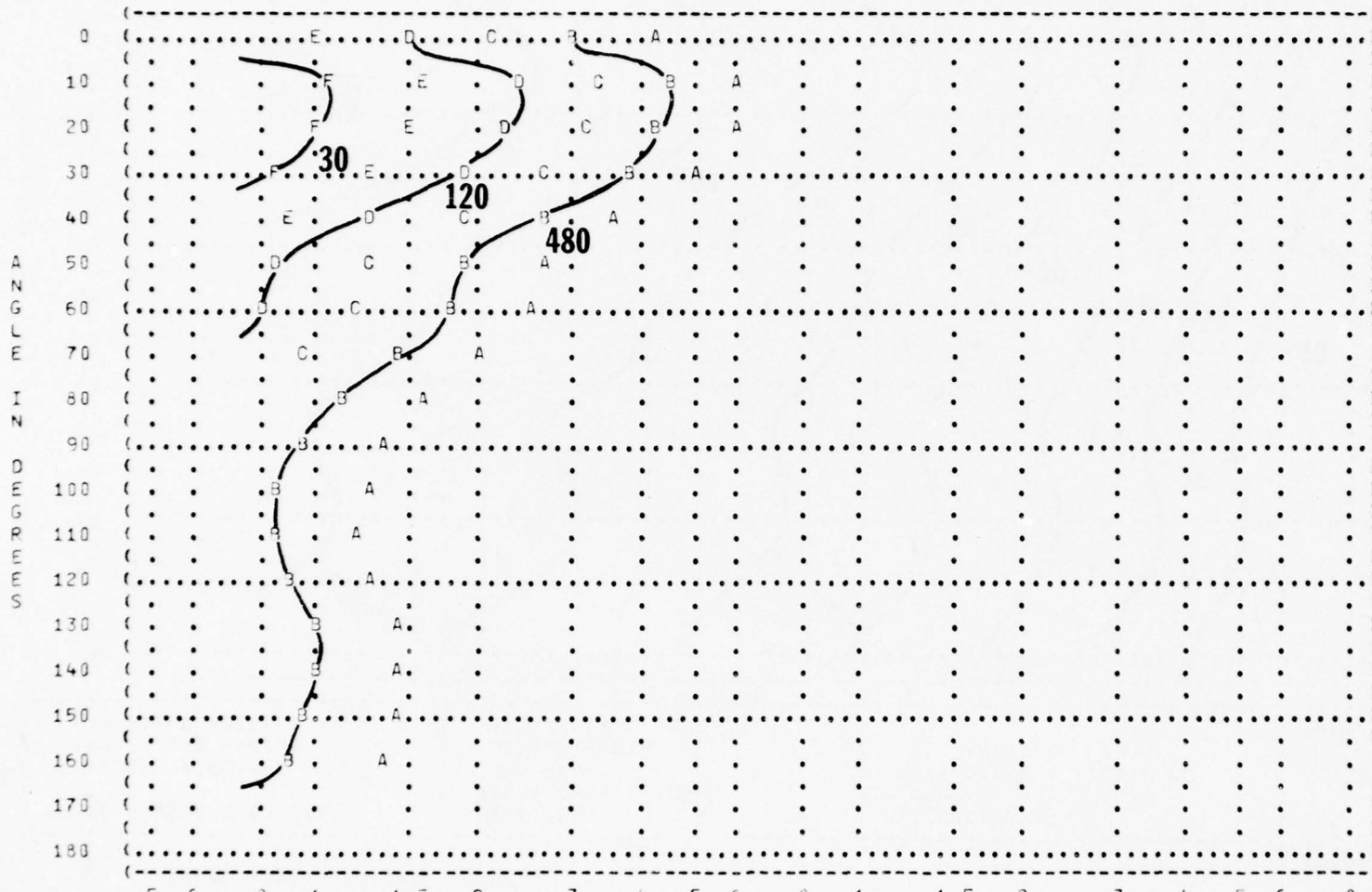
MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
NO PROTECTION

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 7

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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



POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 8

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

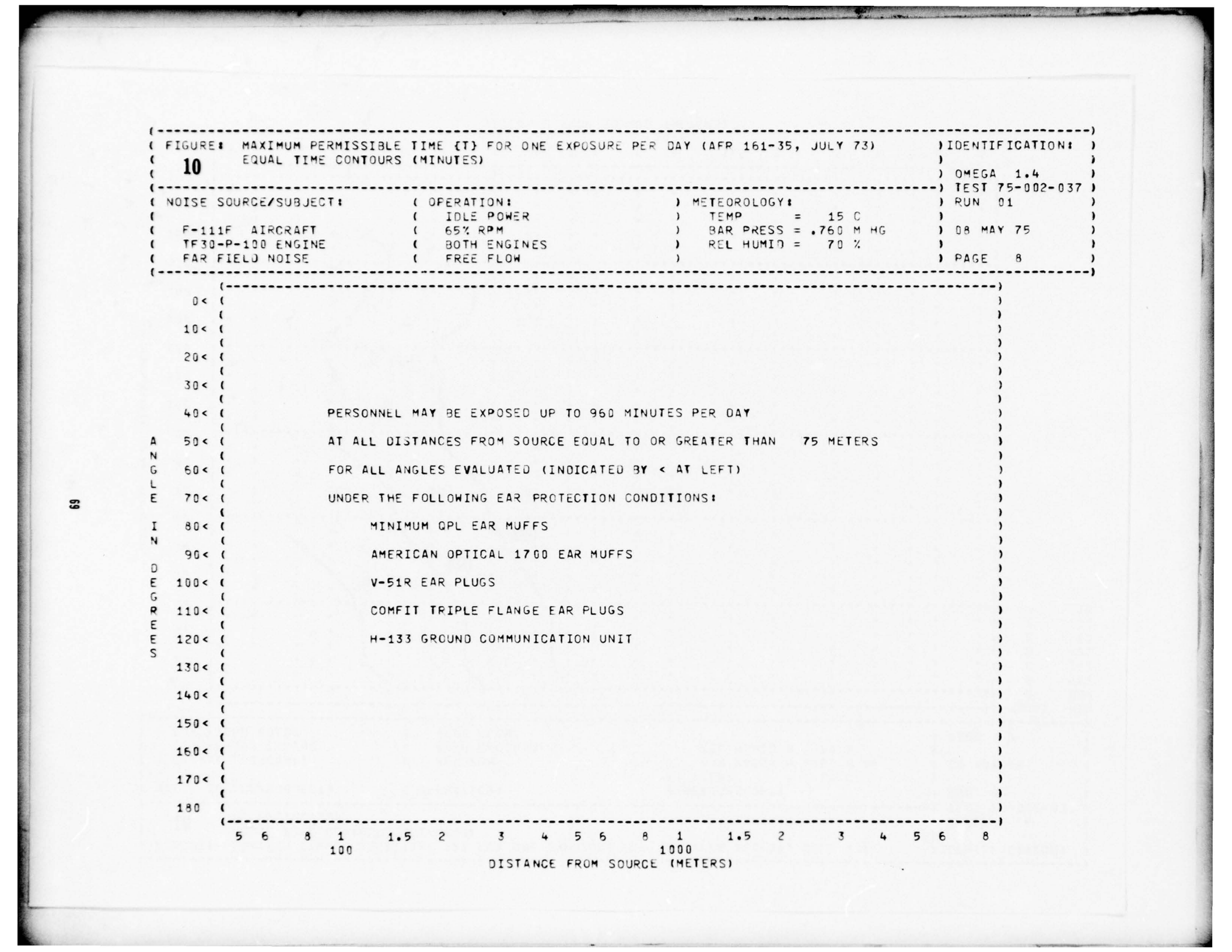


FIGURE: 10

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 7

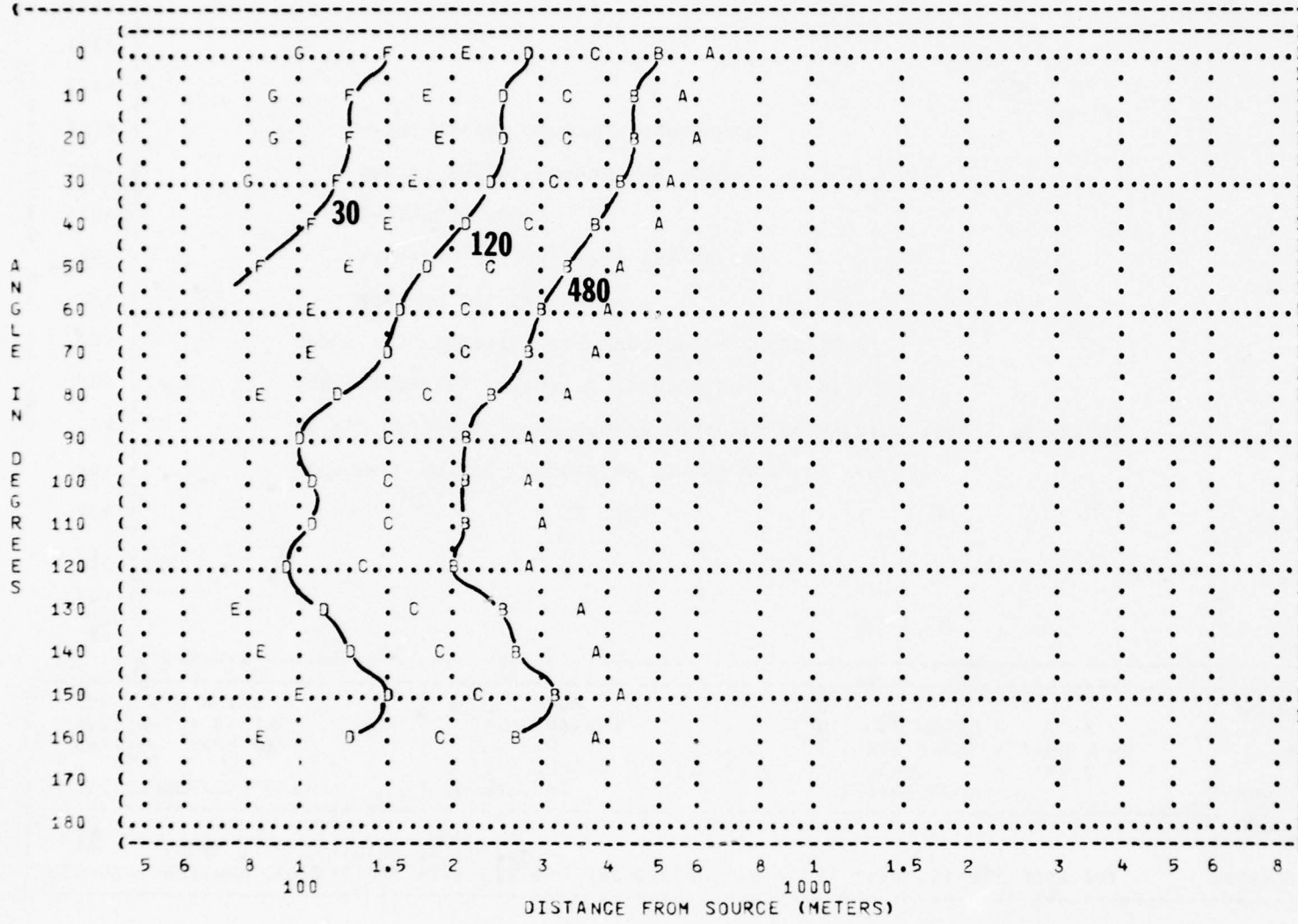


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
MINIMUM QPL EAR MUFFS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 8

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

POINT	MIN
A	960
B	480
C	240

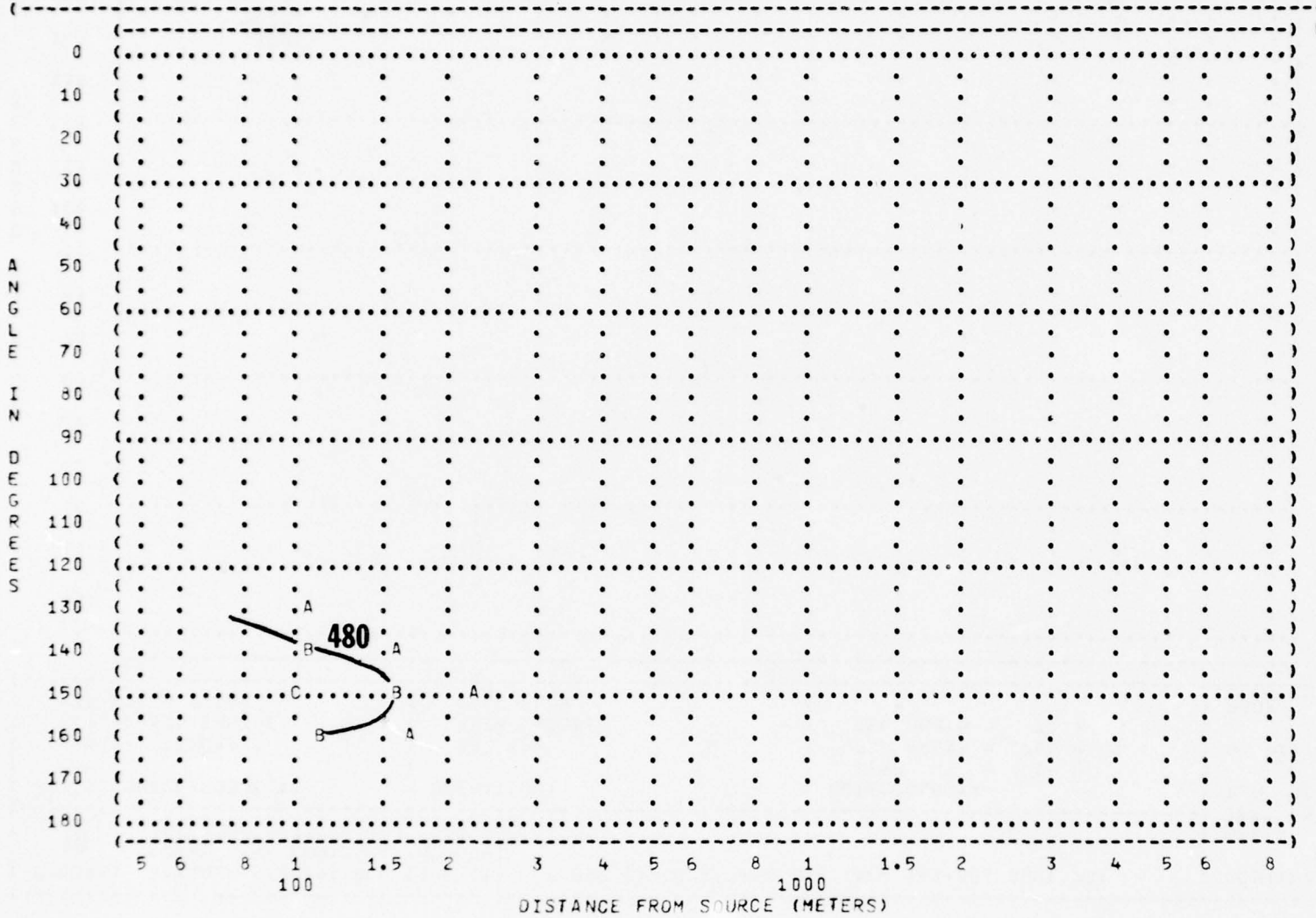


FIGURE: 10

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 9

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

POINT	MIN
A	960
B	480

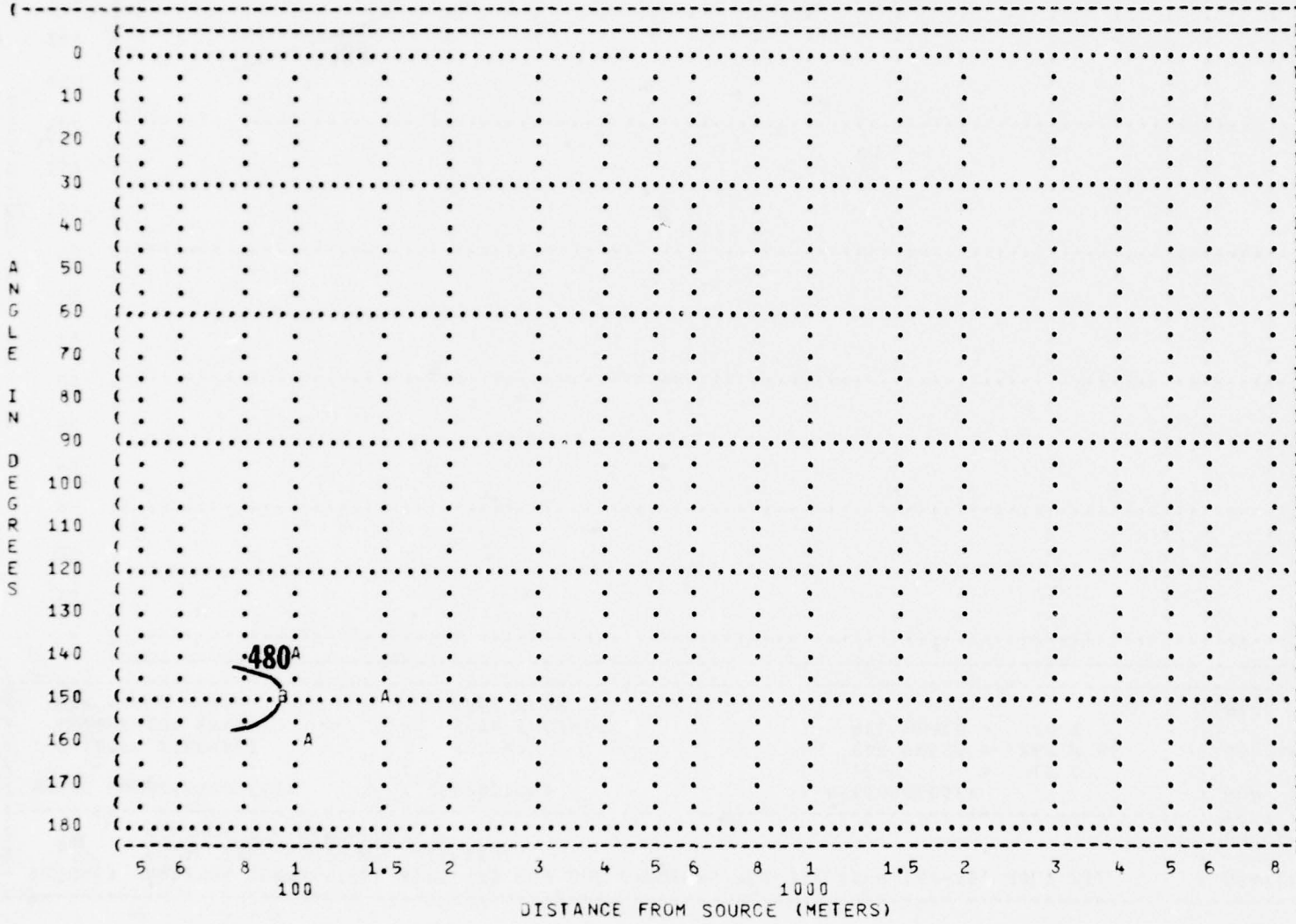


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
COMFIT TRIPLE FLANGE EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 10

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

POINT	MIN
A	960
B	480

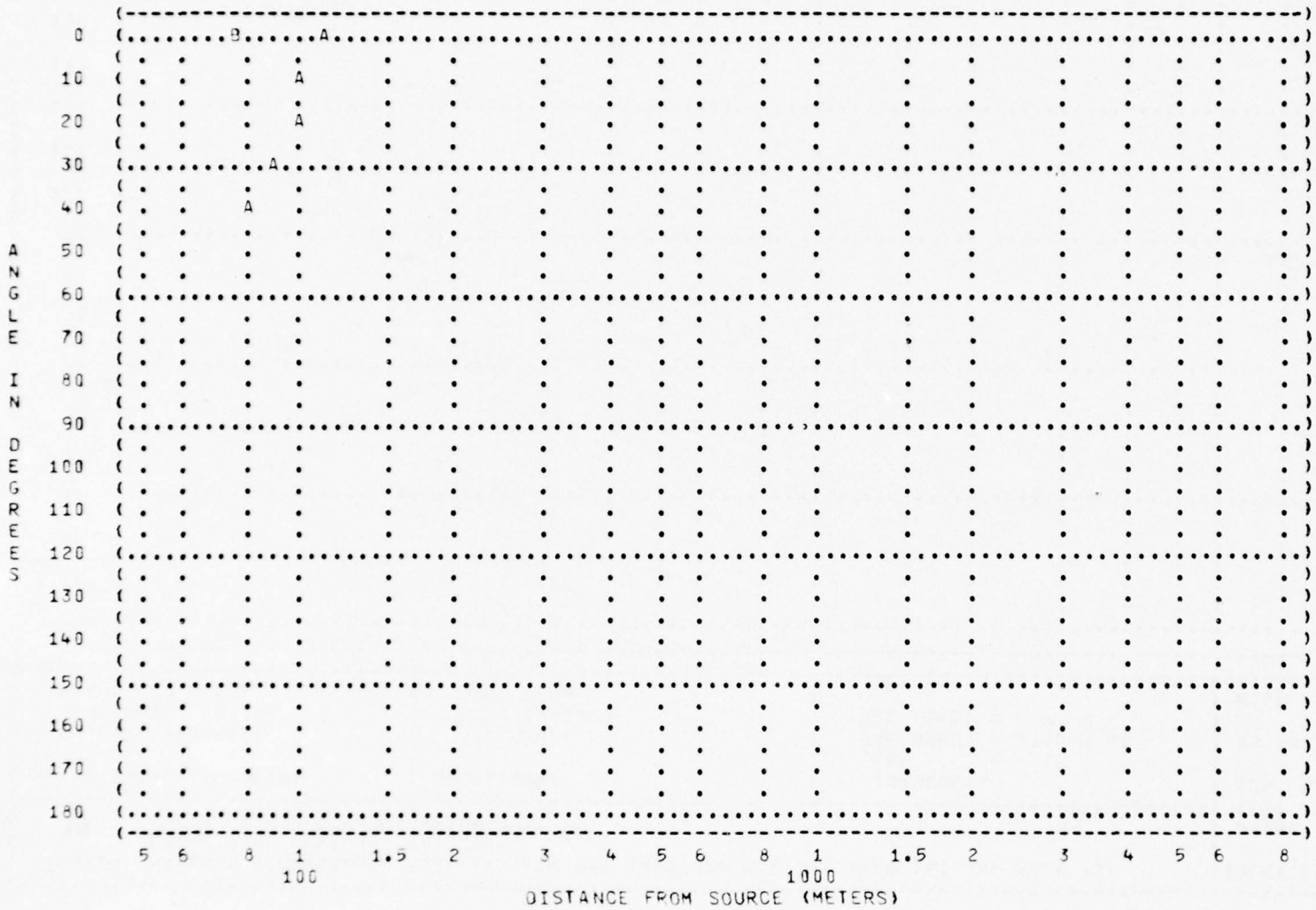


FIGURE: **10**

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
H-133 GROUND COMMUNICATION UNIT

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 11

POINT A MIN 960

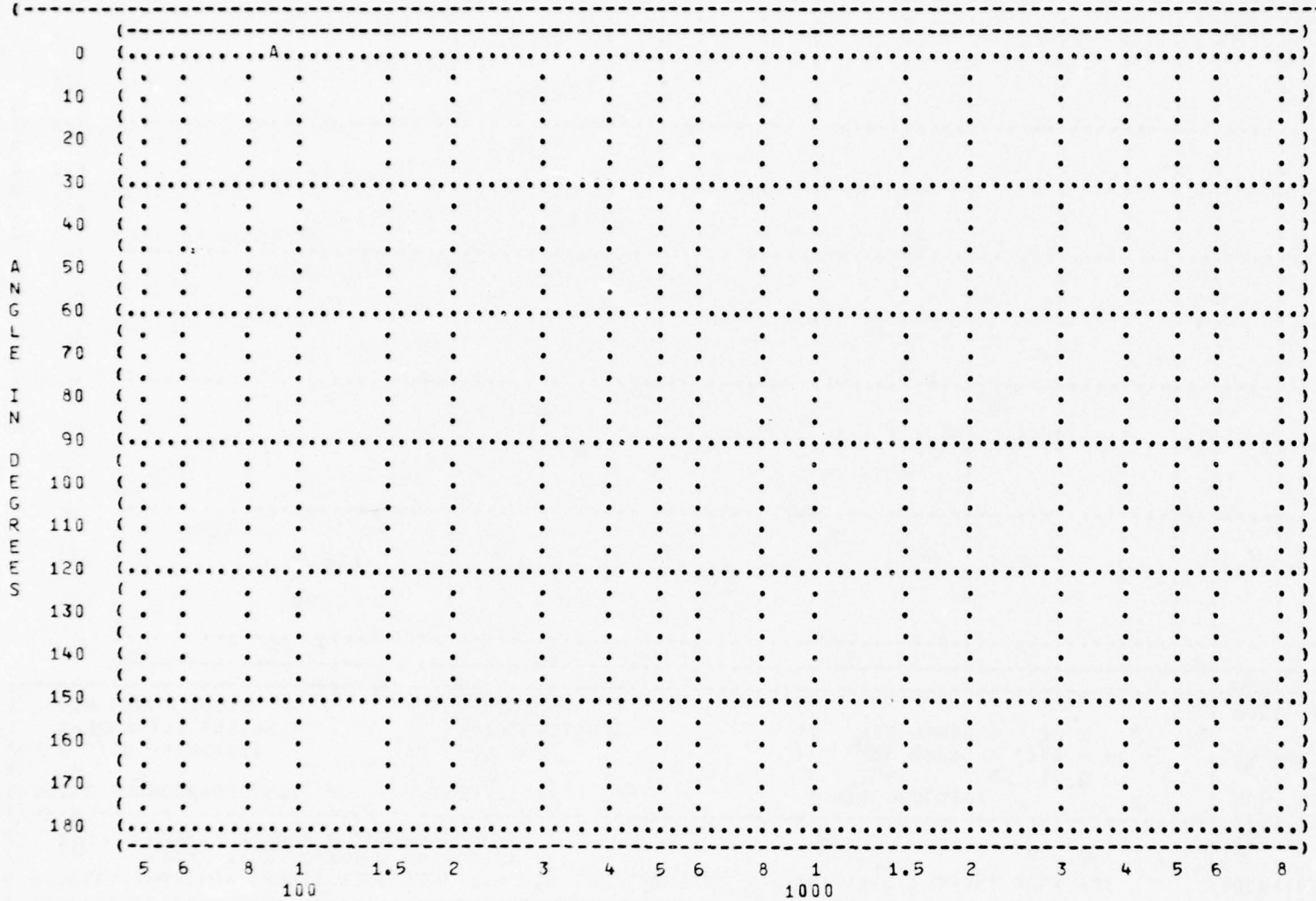


FIGURE: 10 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 12

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

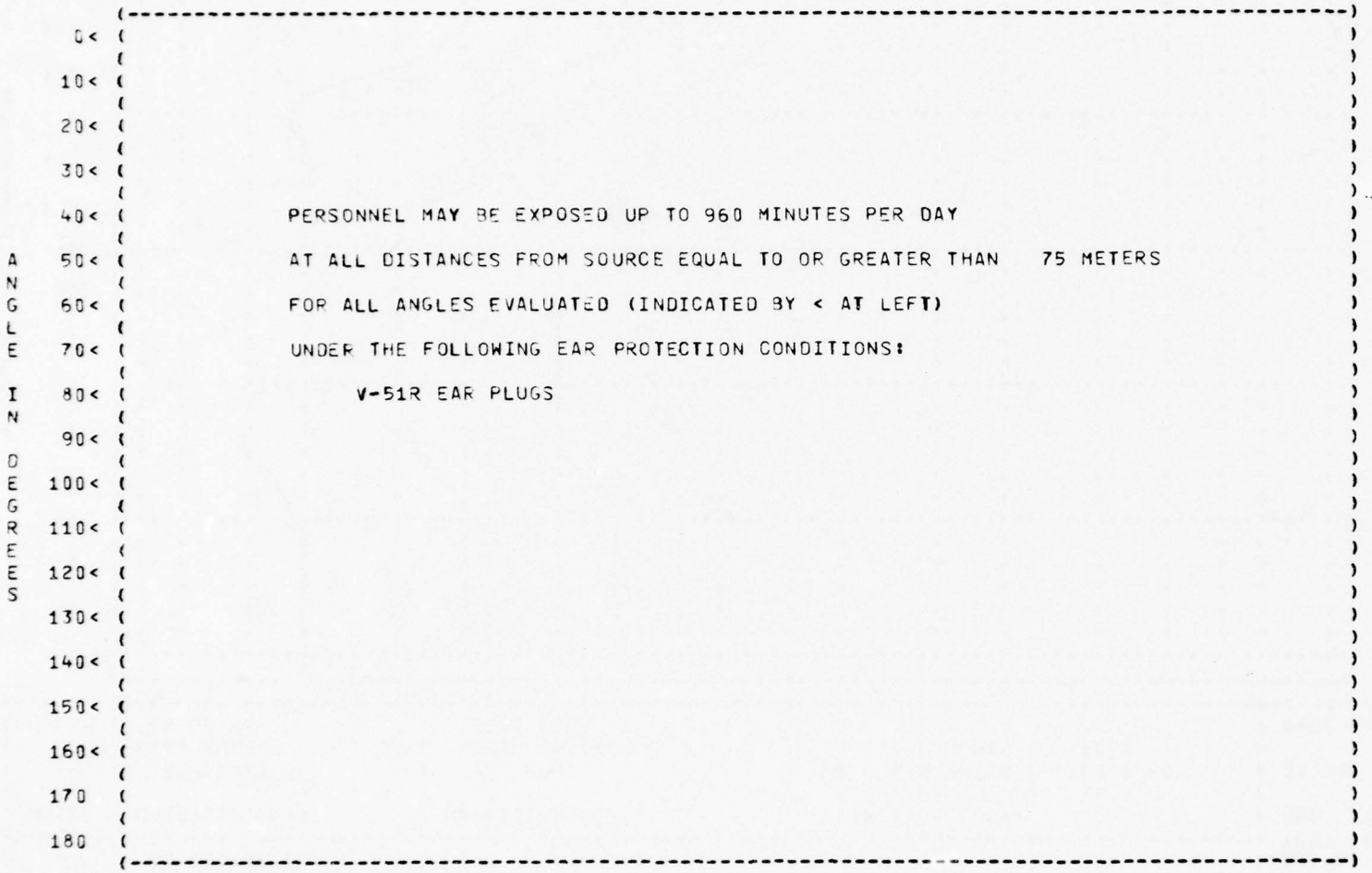


FIGURE: 10

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 7

POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15
H	8

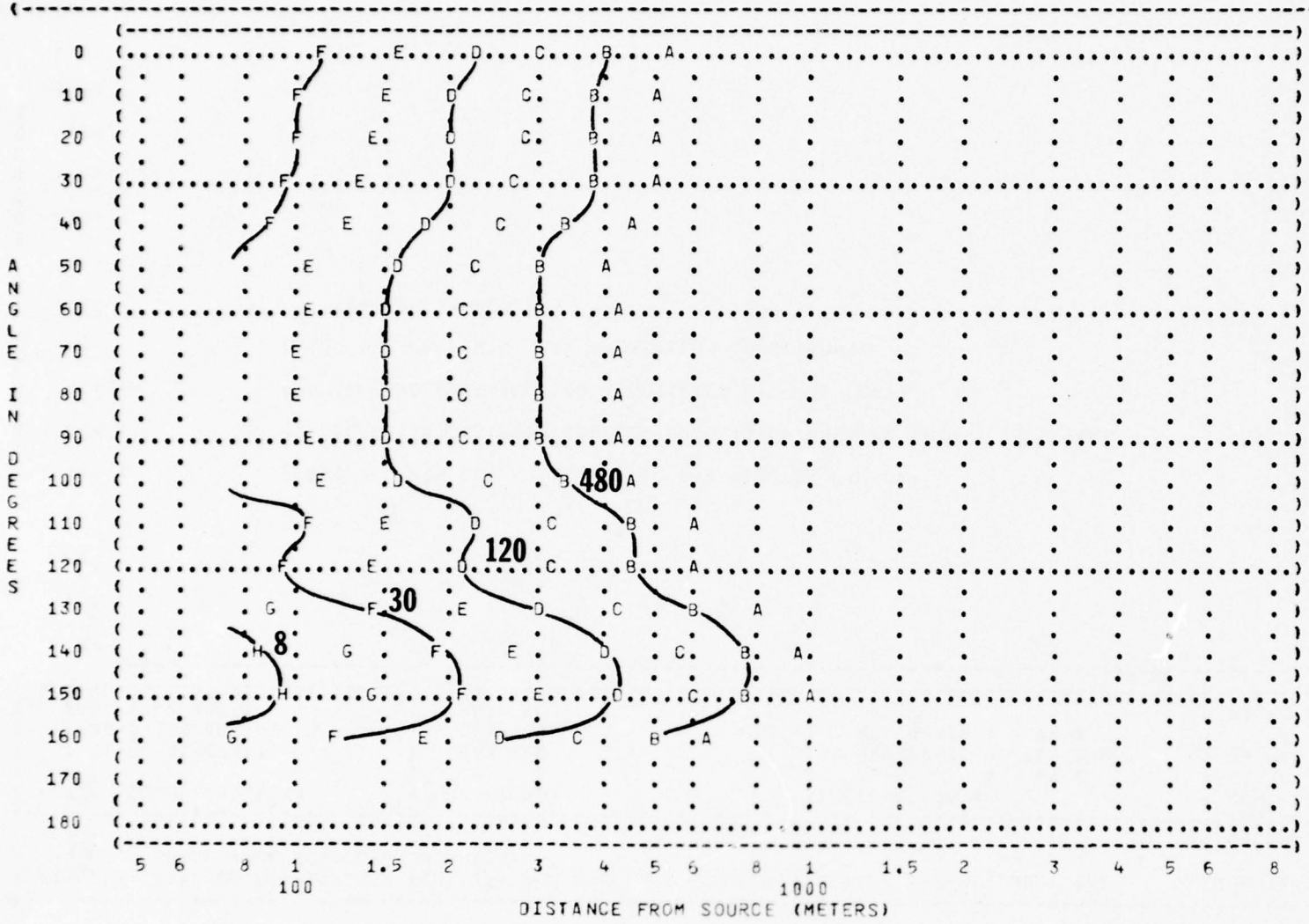


FIGURE: **10**

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
MINIMUM QPL EAR MUFFS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 8

POINT	MIN
A	960
B	480
C	240
D	120
E	60

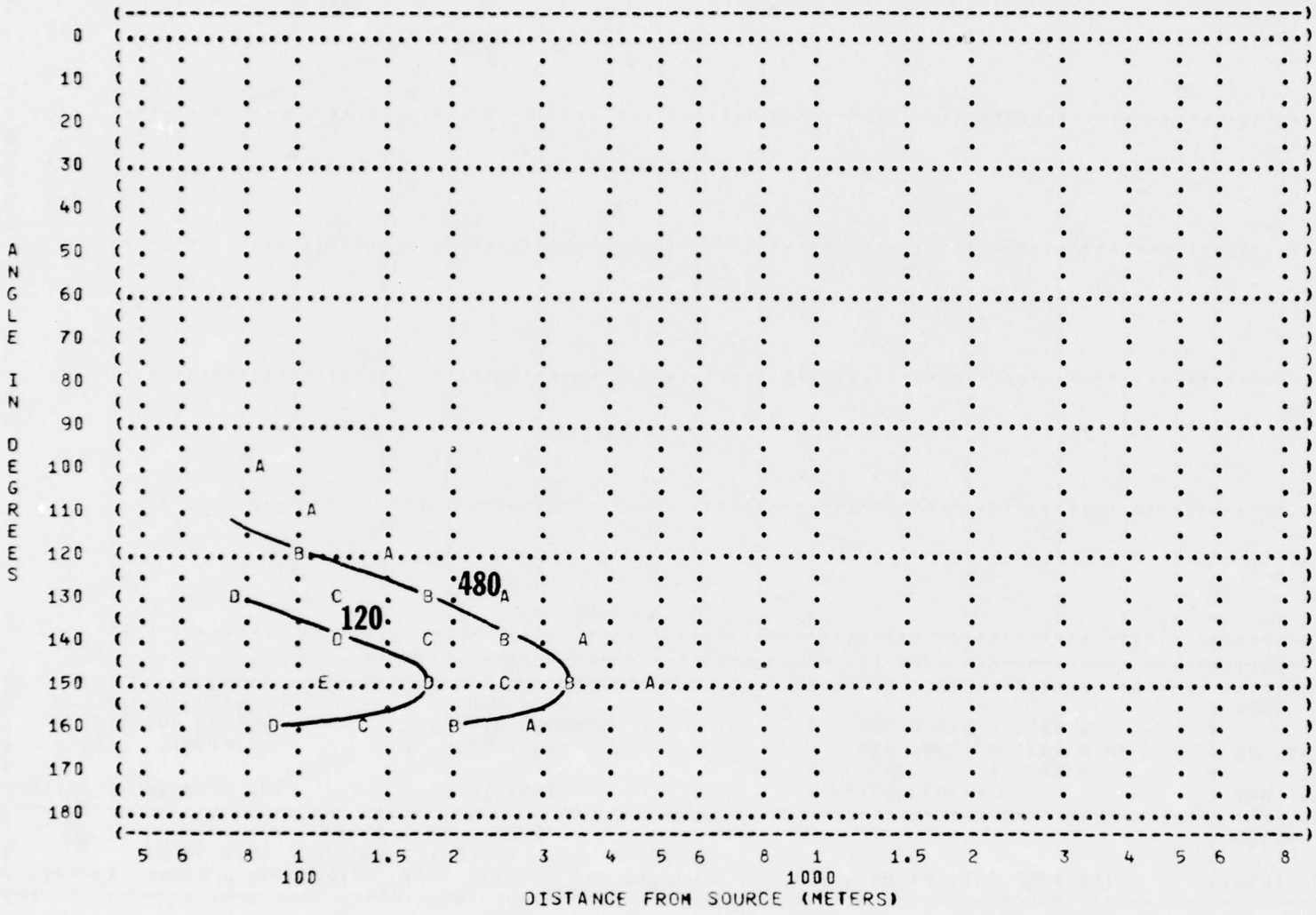


FIGURE: 10

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 9

POINT	MIN
A	960
B	480
C	240
D	120

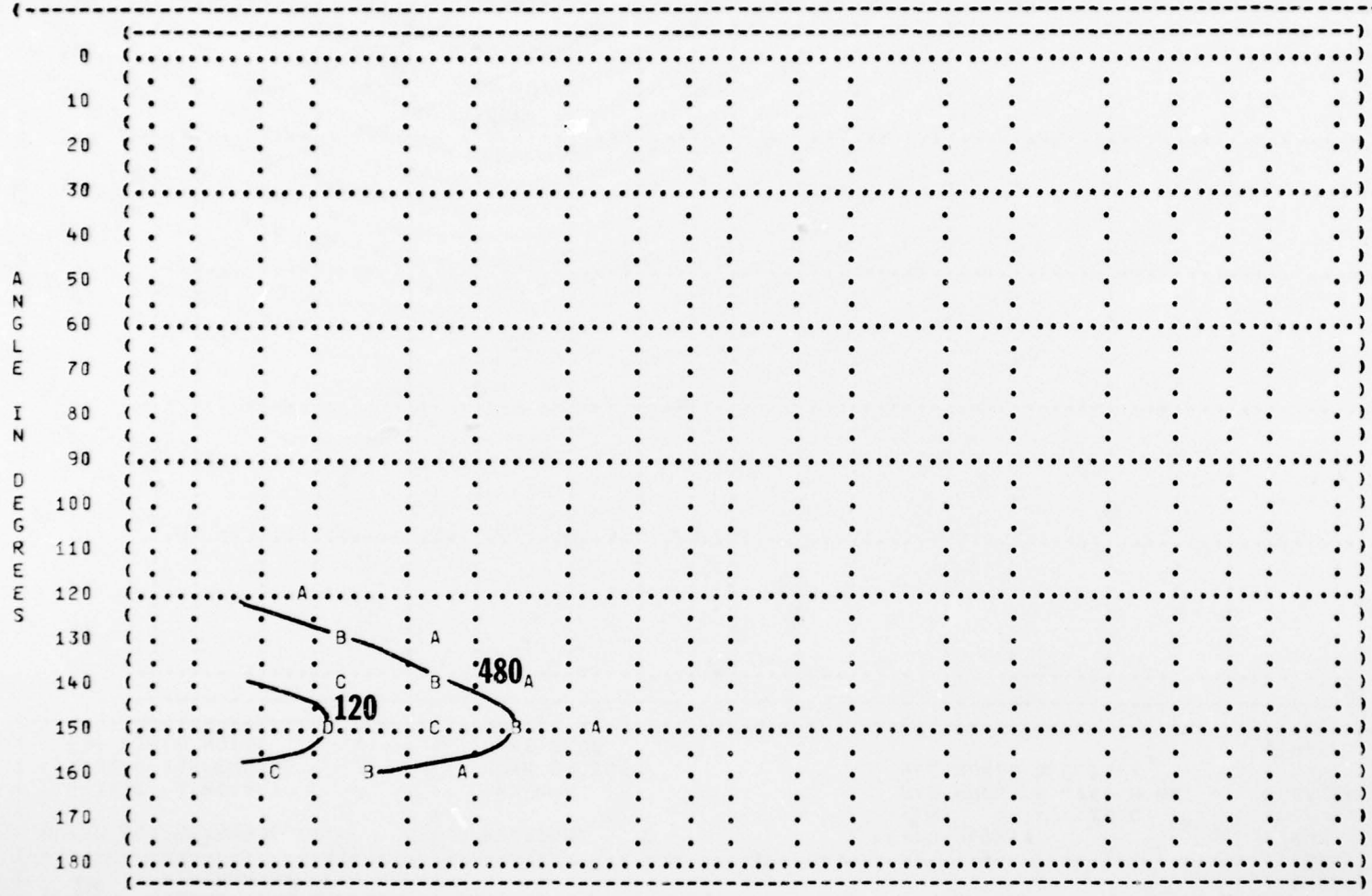


FIGURE 10 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
V-51R EAR PLUGS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 10

POINT	MIN
A	960
B	480
C	240

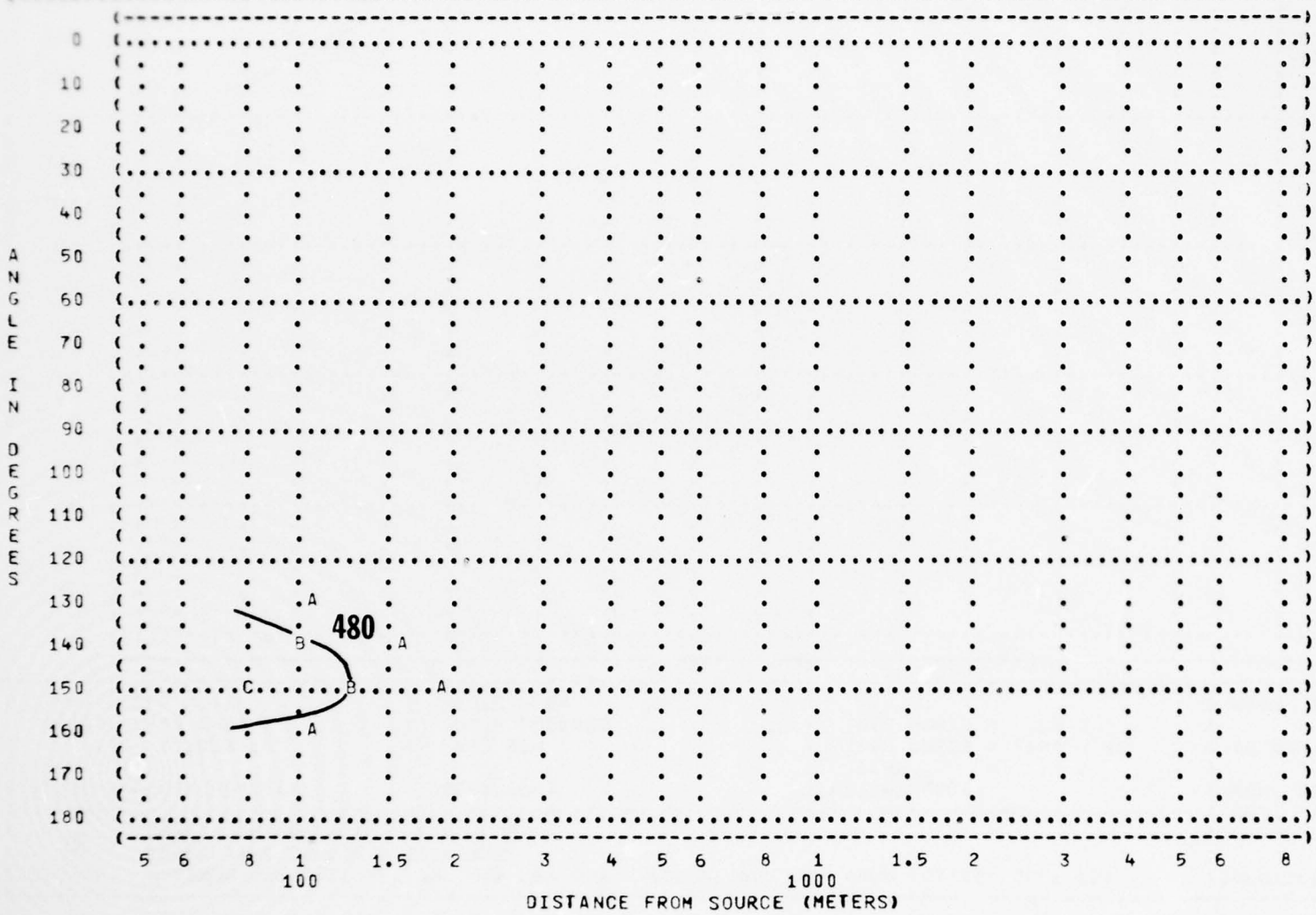


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
COMFIT TRIPLE FLANGE EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03

08 MAY 75

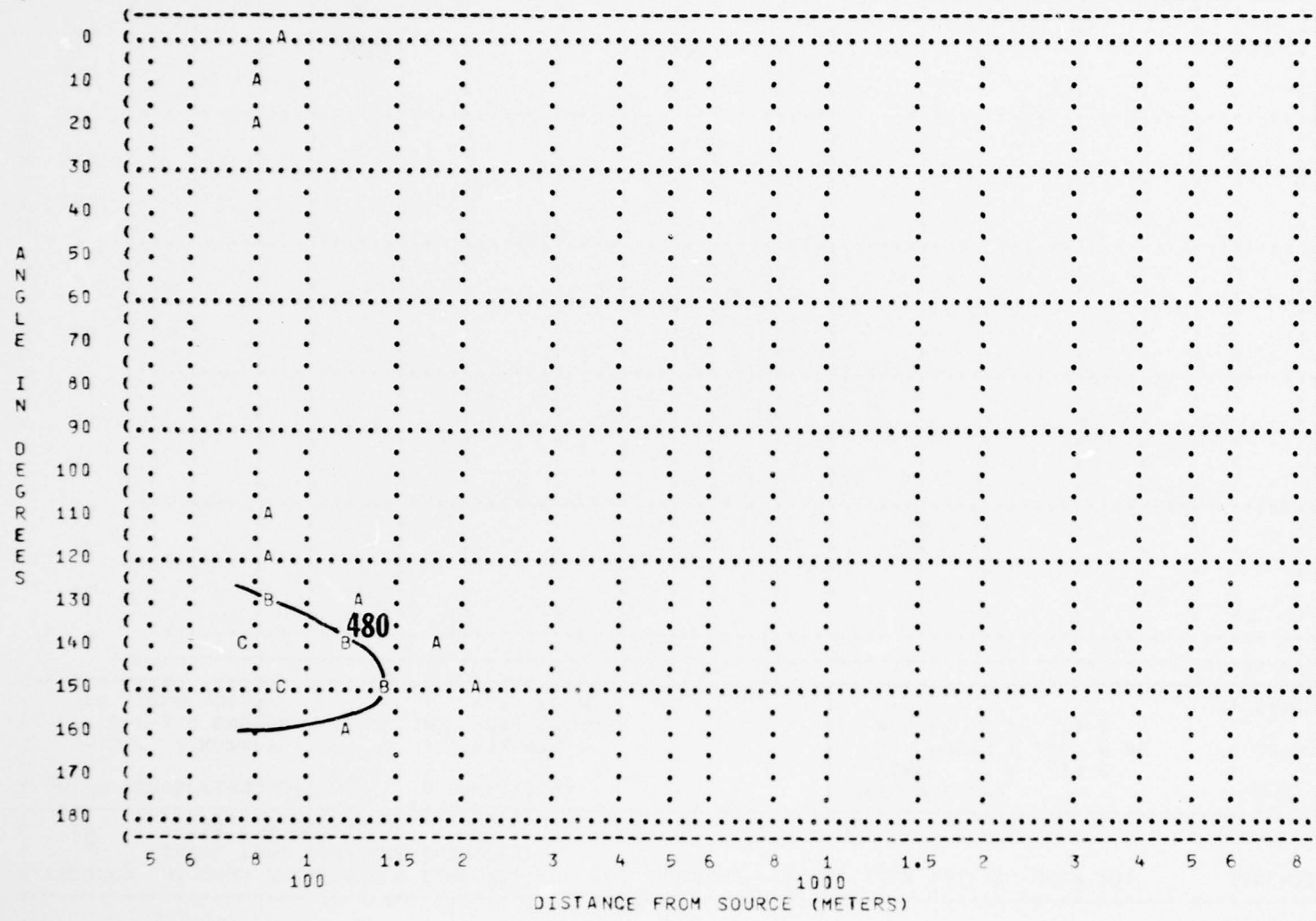
PAGE 11

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

POINT	MIN
A	960
B	480
C	240



08

FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
H-133 GROUND COMMUNICATION UNIT

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 12

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

POINT	MIN
A	960
B	480
C	240

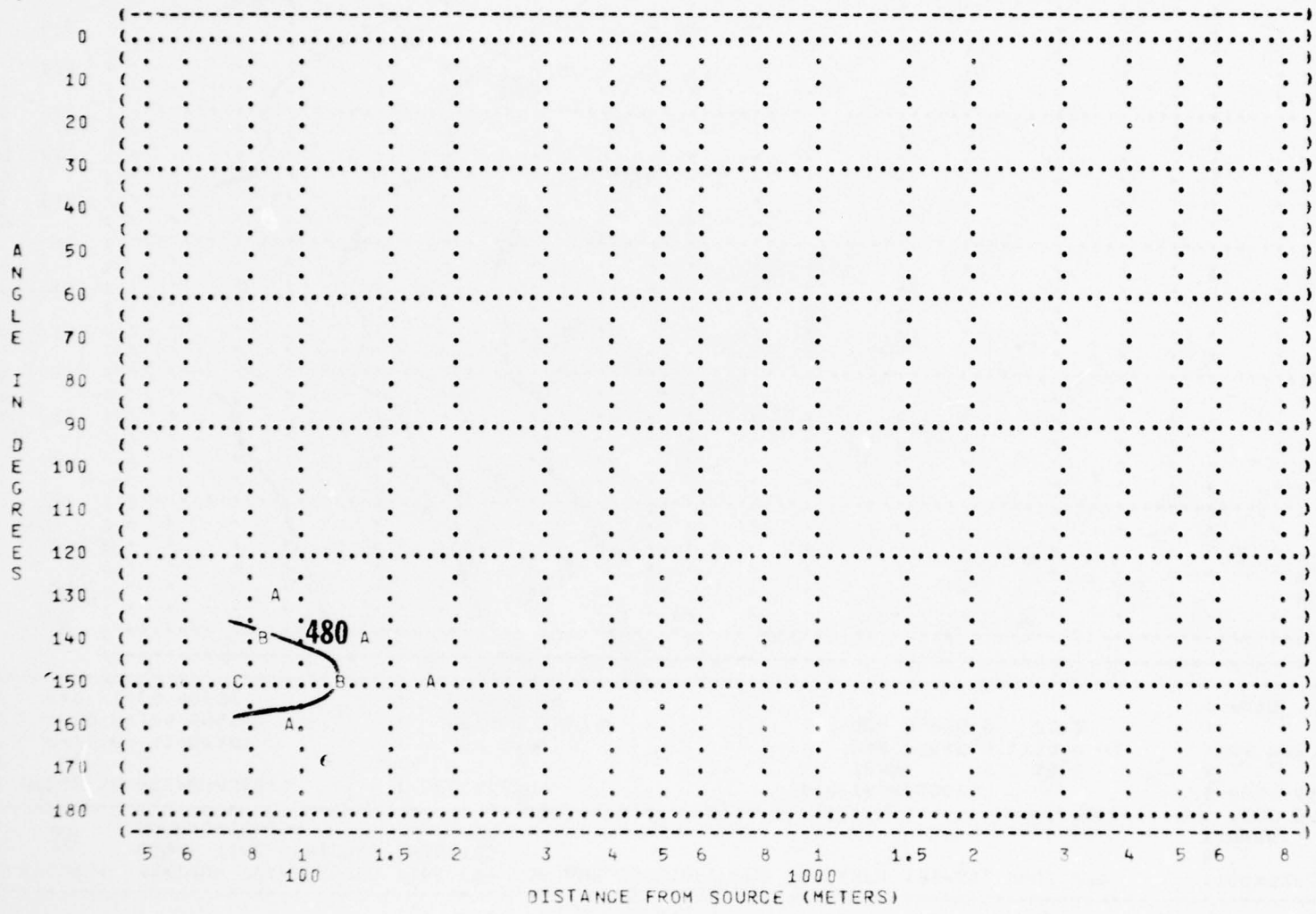


FIGURE: 10

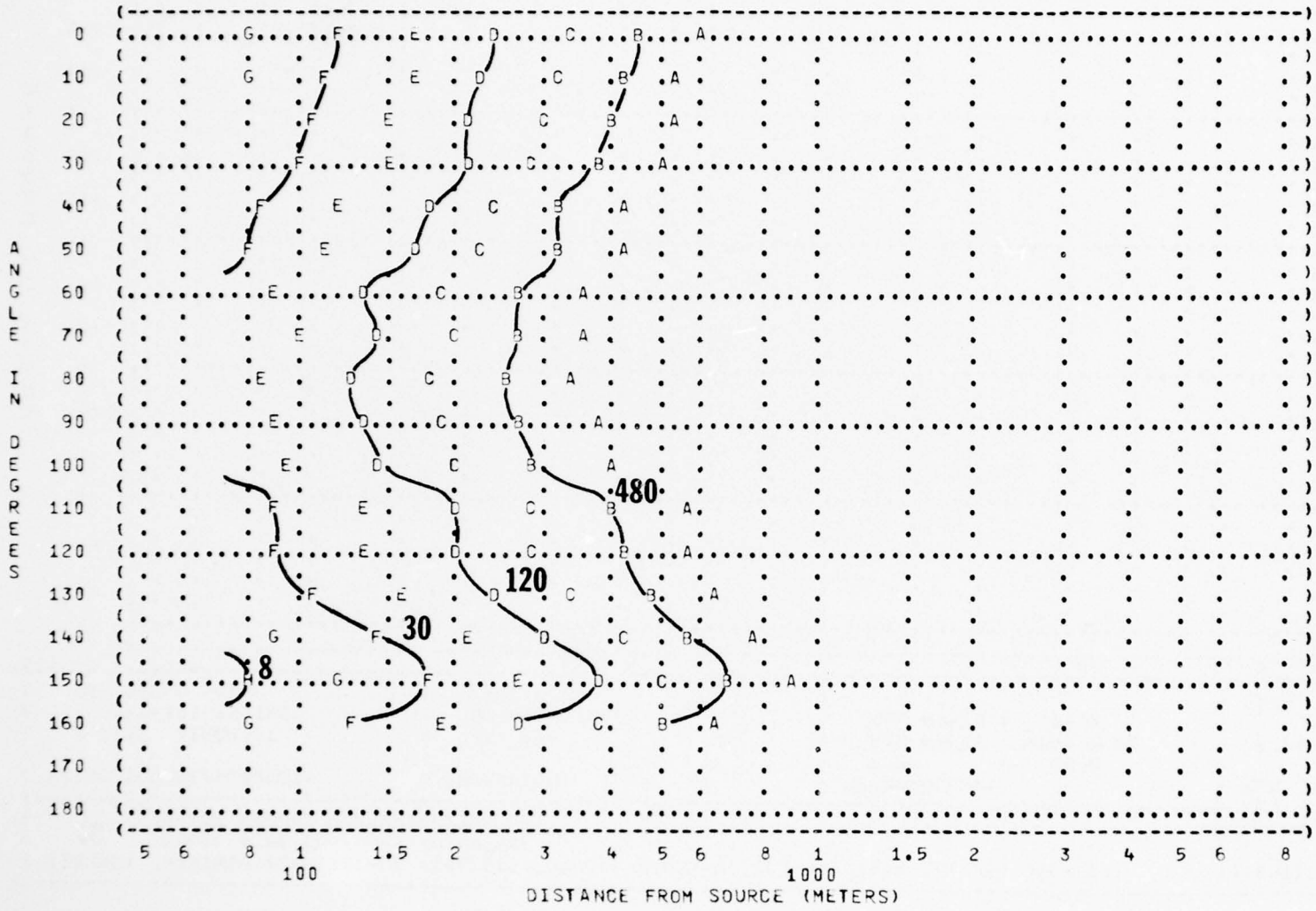
MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
NO PROTECTION

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 7

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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



POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15
H	8

FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
MINIMUM QPL EAR MUFFS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 8

POINT	MIN
A	960
B	480
C	240
D	120
E	60

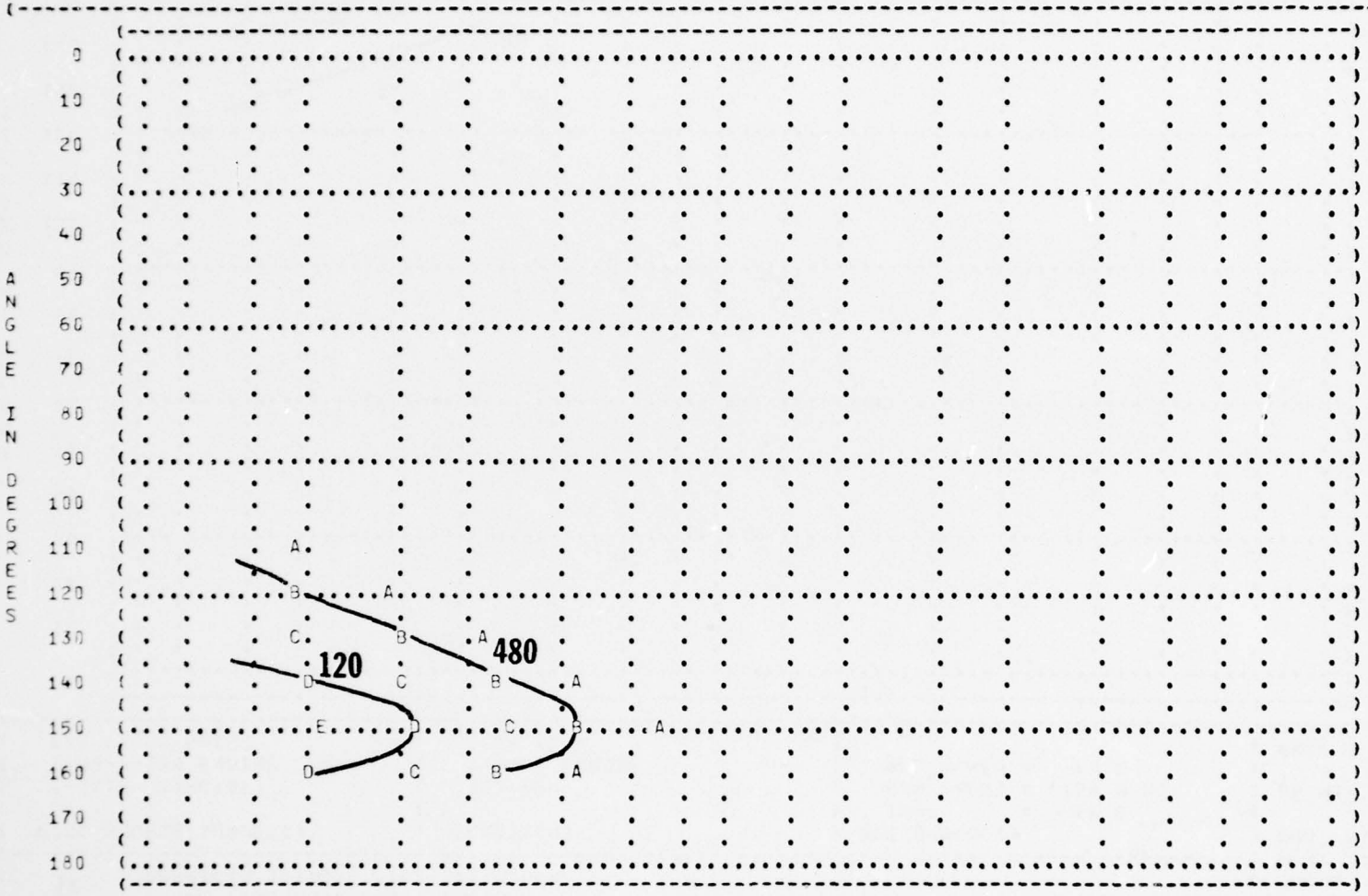


FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
AMERICAN OPTICAL 1700 EAR MUFFS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 9

POINT	MIN
A	960
B	480
C	240
D	120

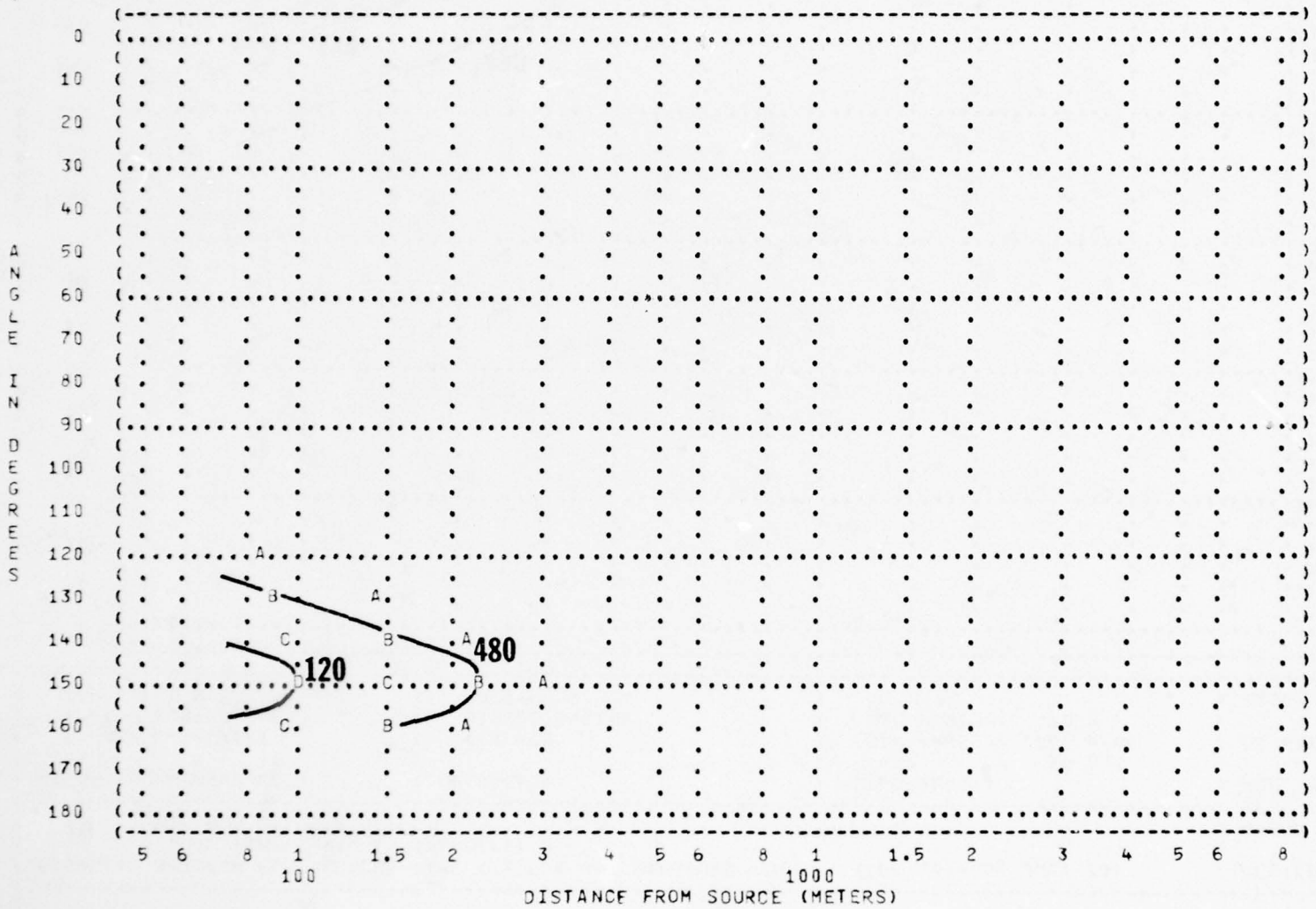


FIGURE: 10 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
V-51R EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 10

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

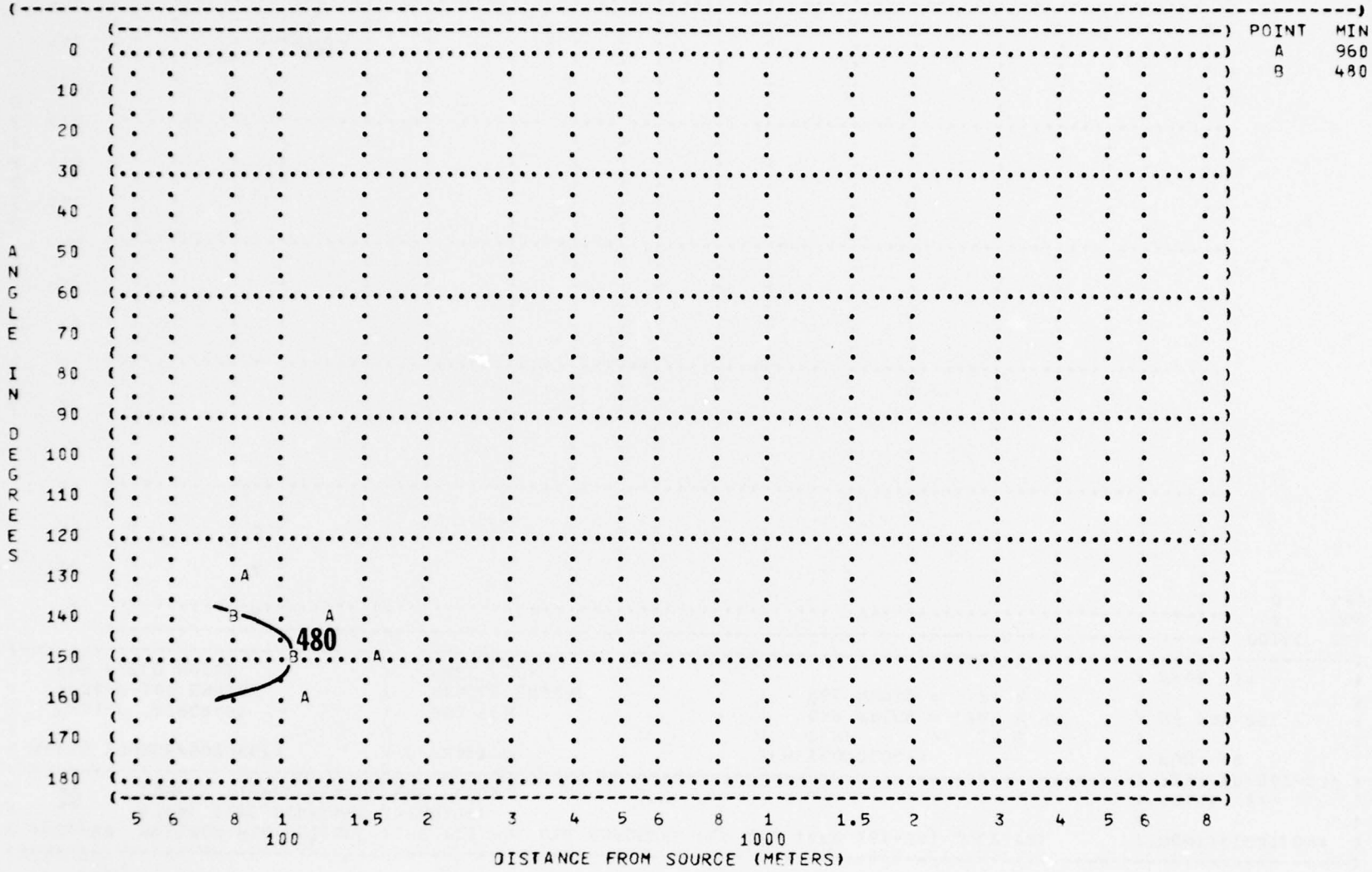


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
COMFIT TRIPLE FLANGE EAR PLUGS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04

08 MAY 75

PAGE 11

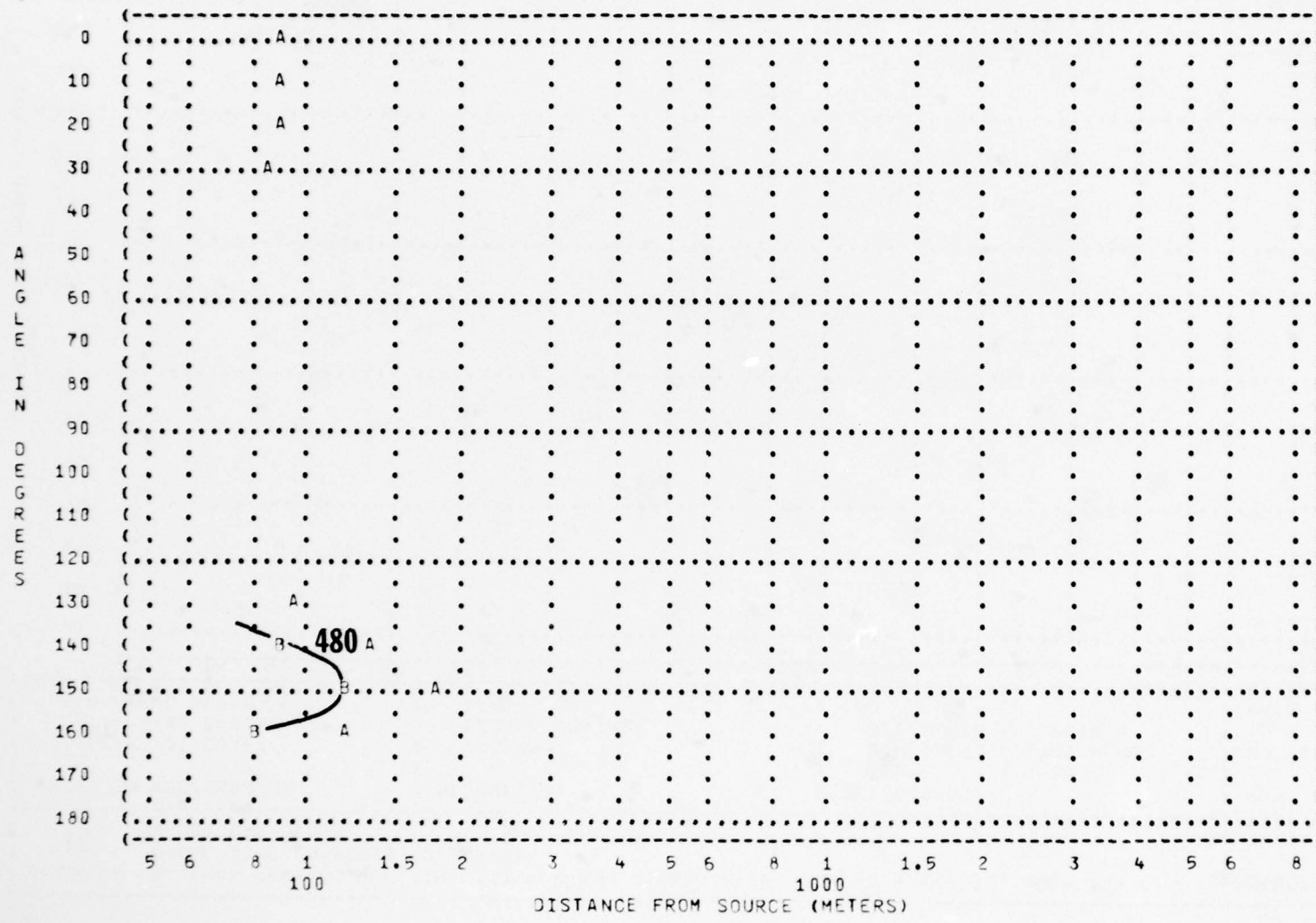


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
H-133 GROUND COMMUNICATION UNIT

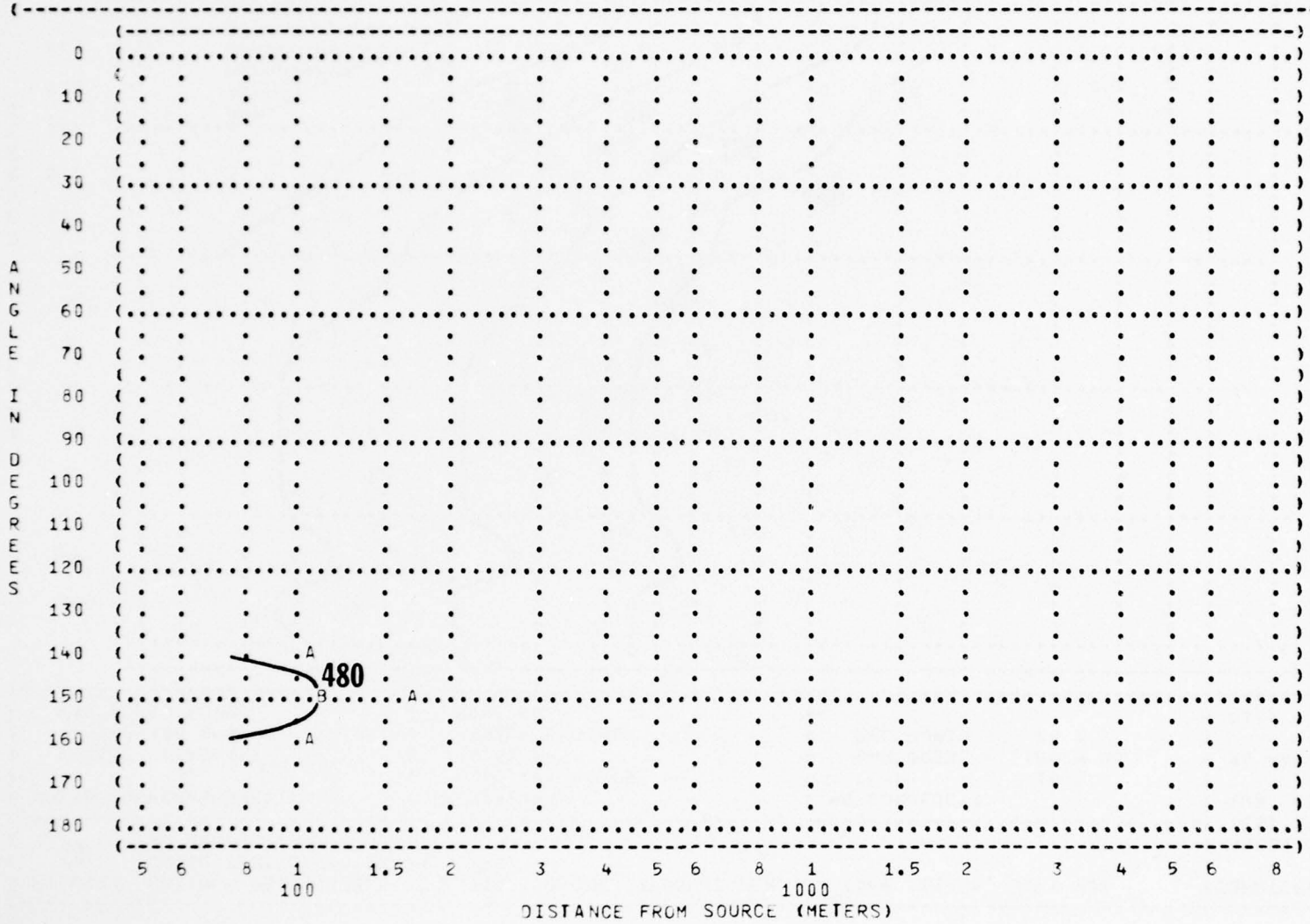
IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 12

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

POINT	MIN
A	960
B	480



87

FIGURE: 10

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

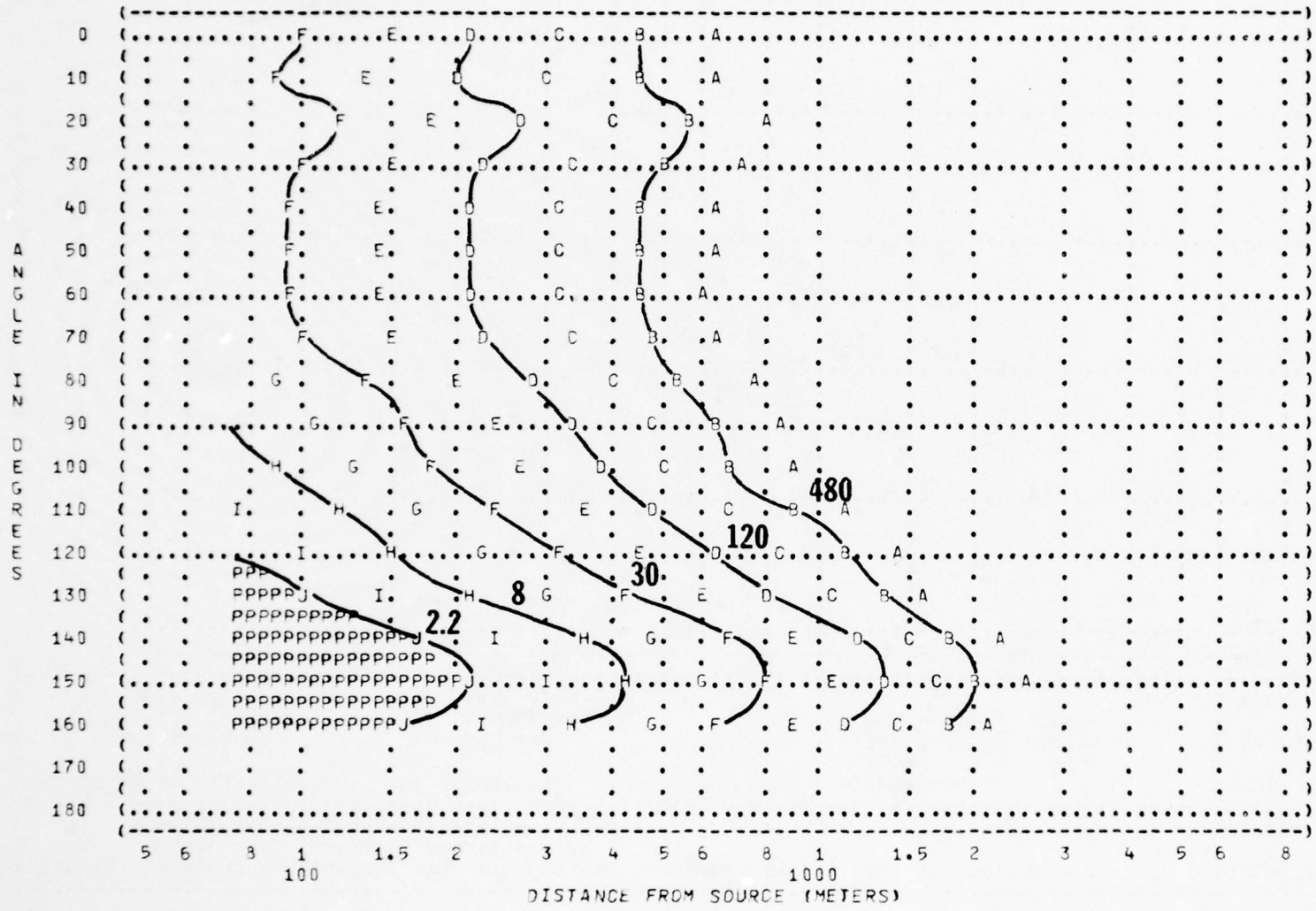
NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 7

POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15
H	8
I	4
J	2.2



P ADDITIONAL EAR PROTECTION REQUIRED.

FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
MINIMUM QPL EAR MUFFS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 8

POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15
H	8

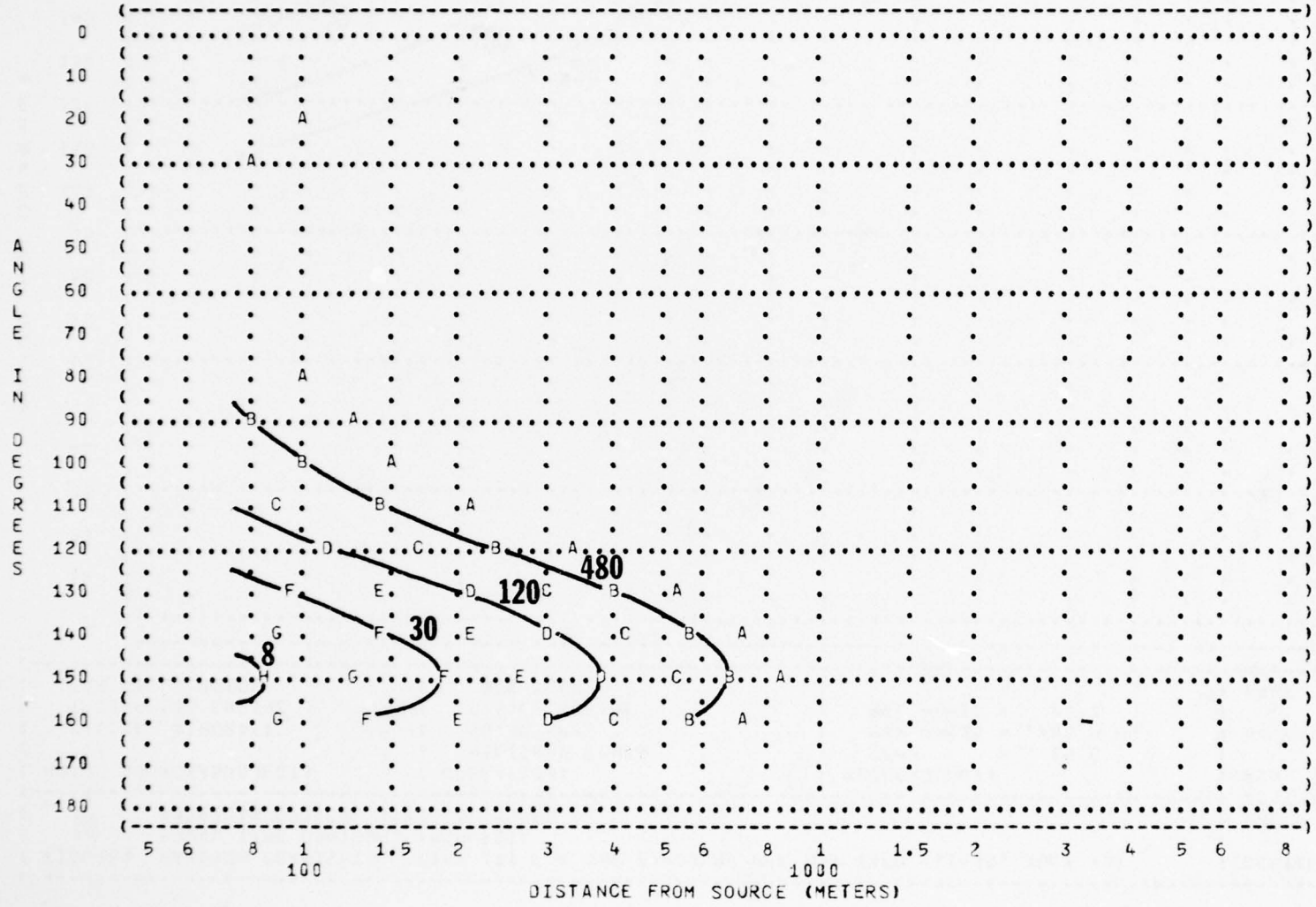


FIGURE: 10

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

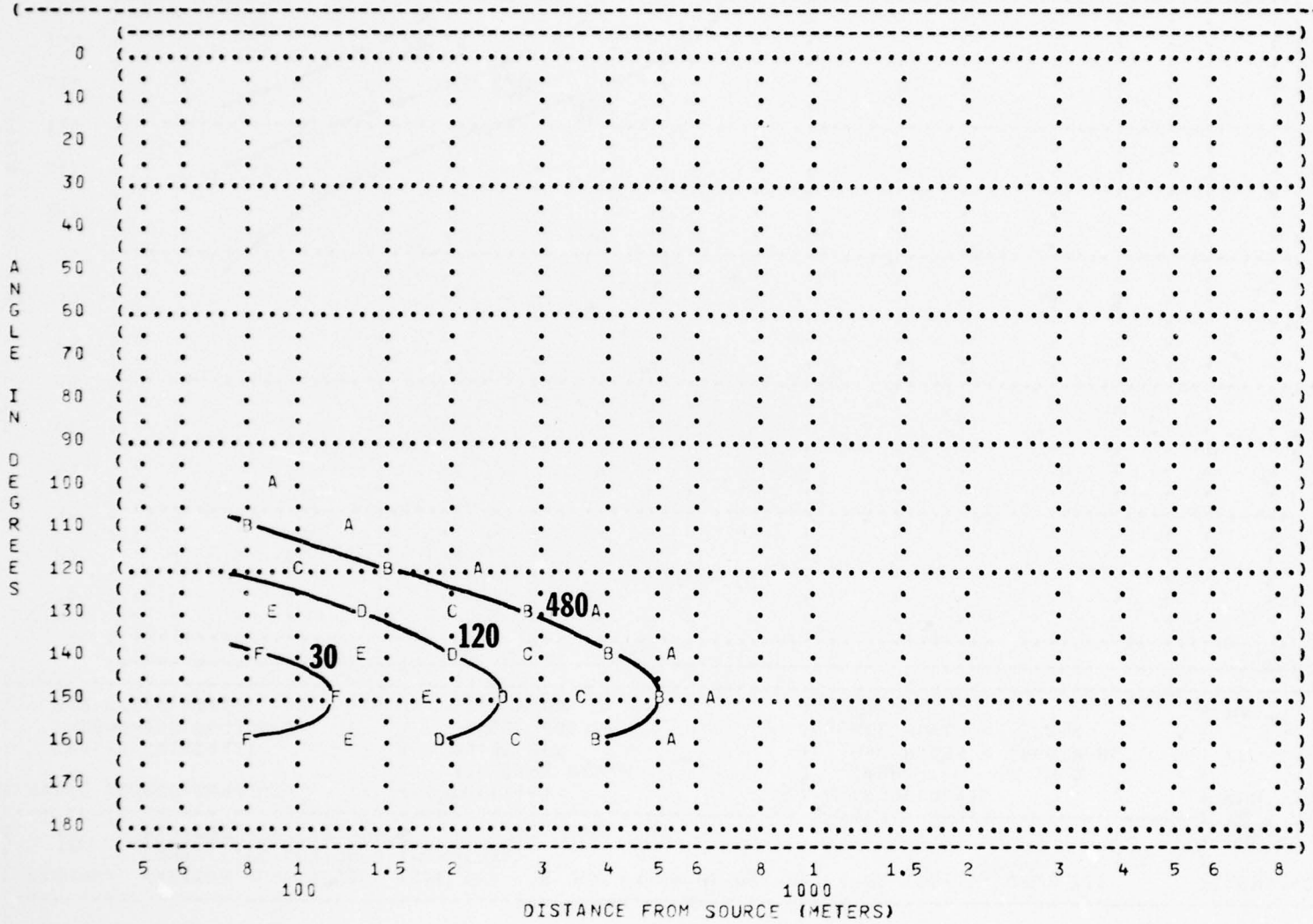
NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 9

POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30



06

FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
V-51R EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 10

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30

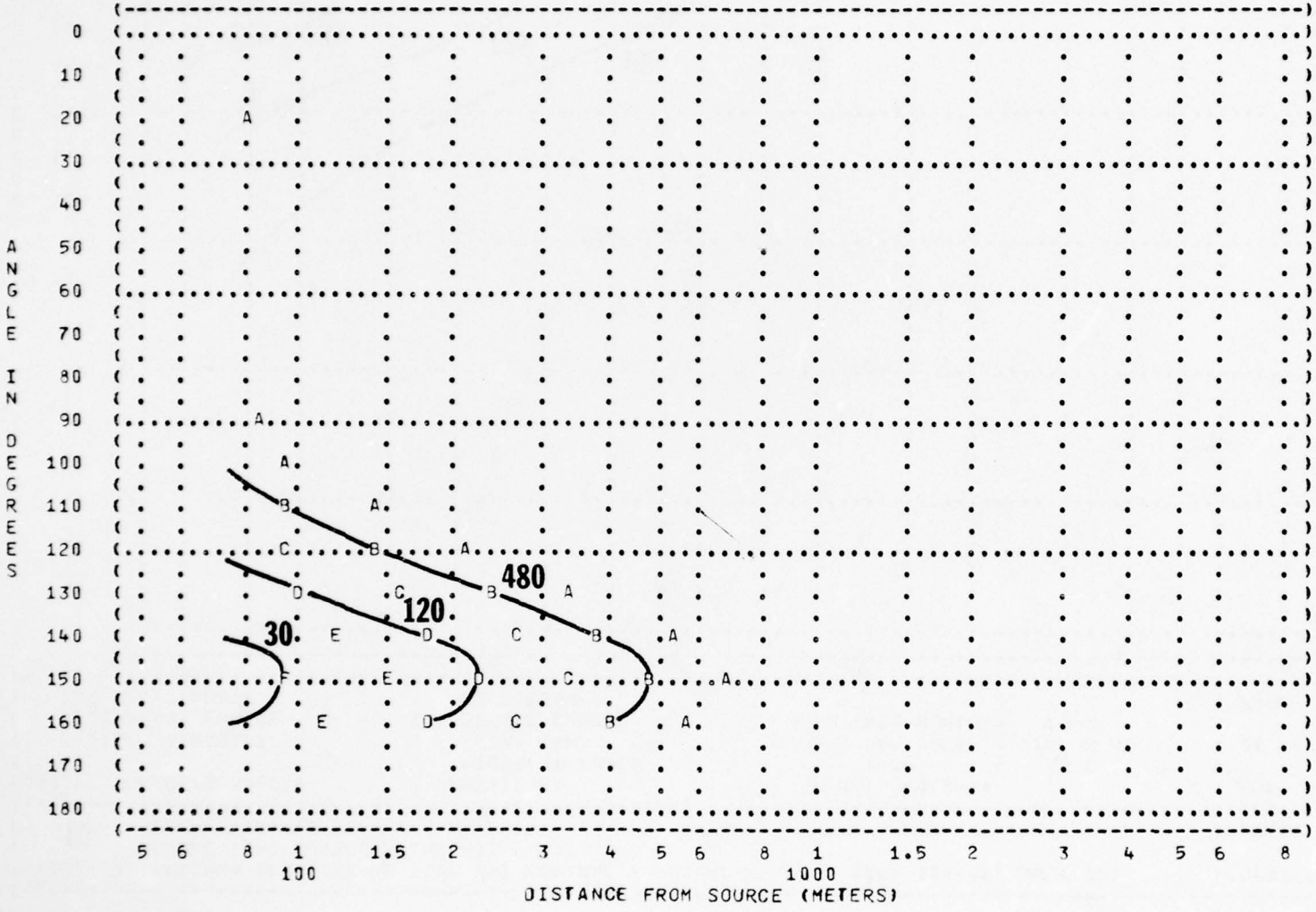


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
COMFIT TRIPLE FLANGE EAR PLUGS

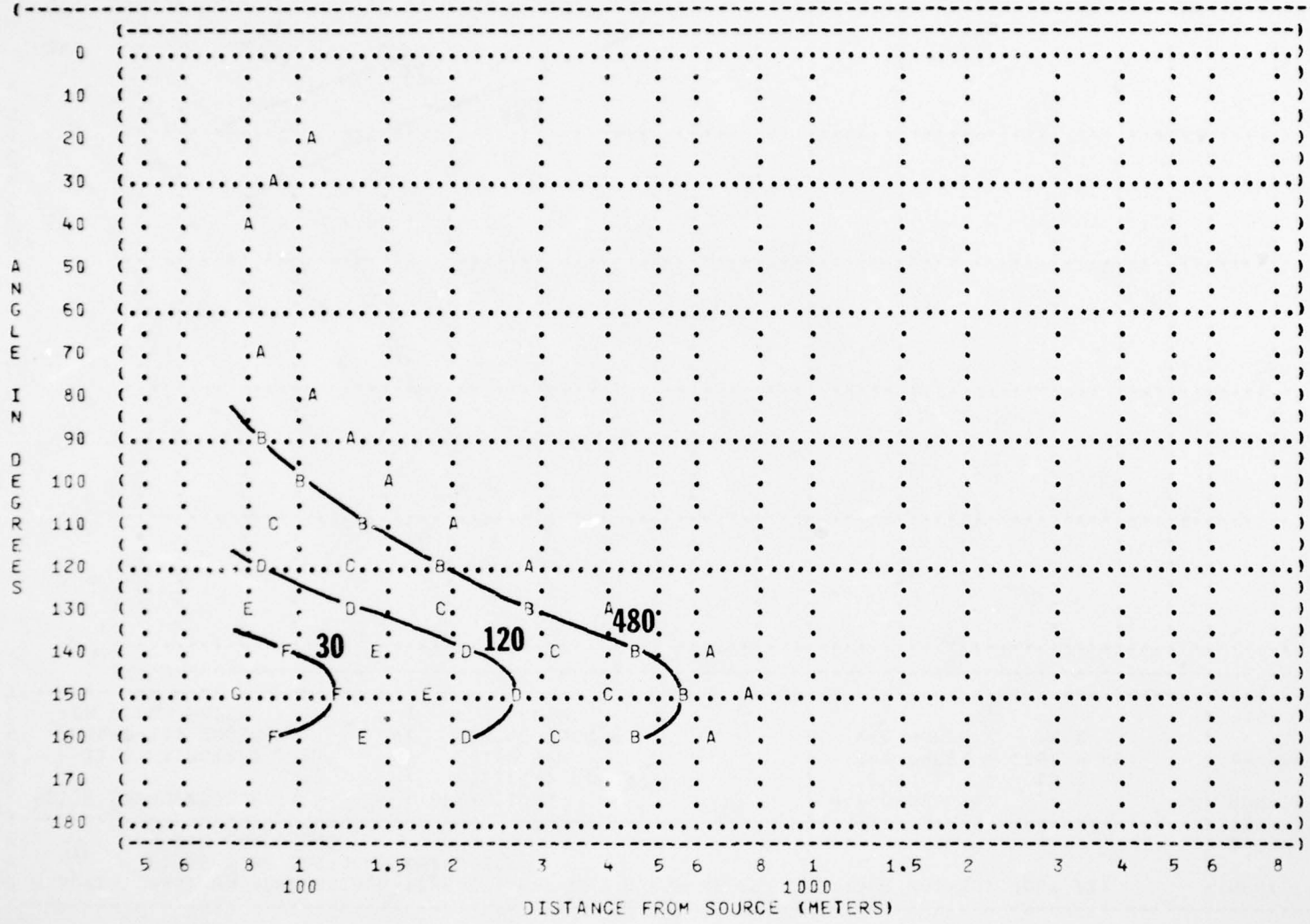
IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 11

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

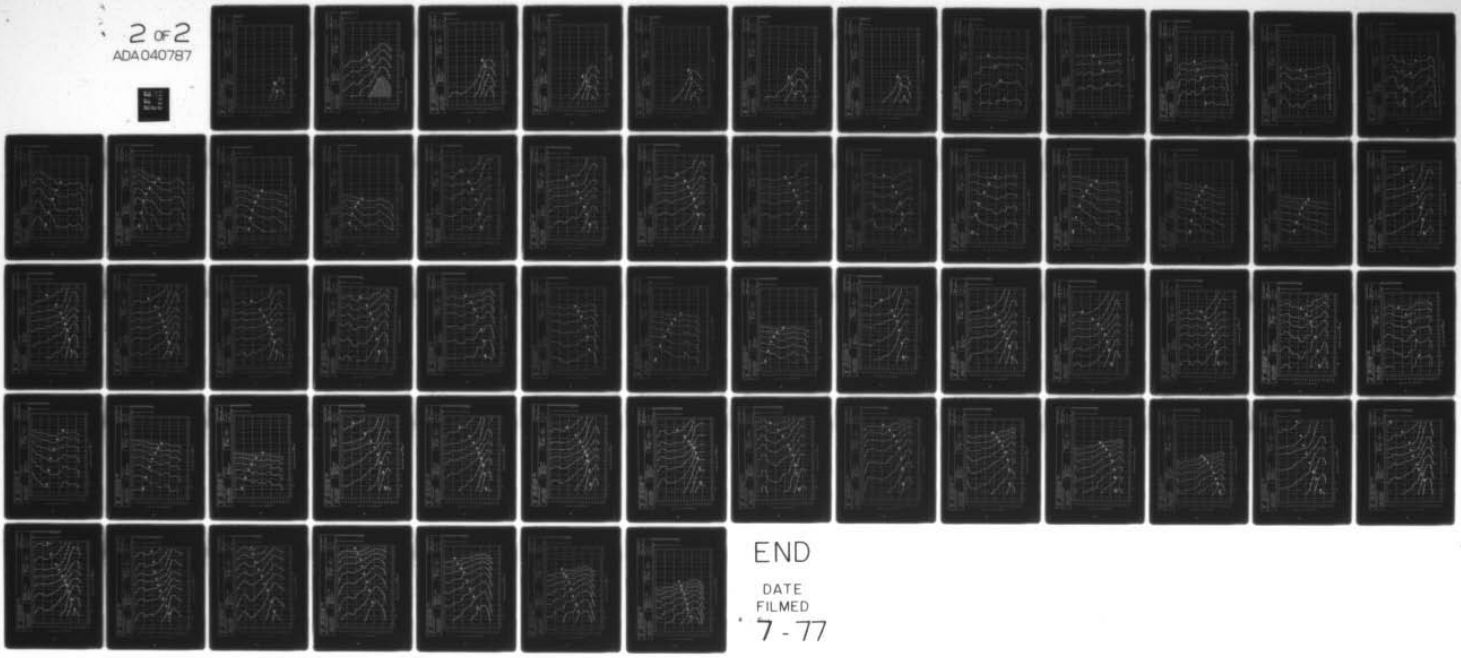
POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15



AD-A040 787 AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO F/G 20/1
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK: VOLUME 71. F-111F AI--ETC(U)
NOV 75 R G POWELL

UNCLASSIFIED AMRL-TR-75-50-VOL-71 NL

2 OF 2
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FIGURE: 10 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
H-133 GROUND COMMUNICATION UNIT

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 12

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

POINT	MIN
A	960
B	480
C	240
D	120
E	60

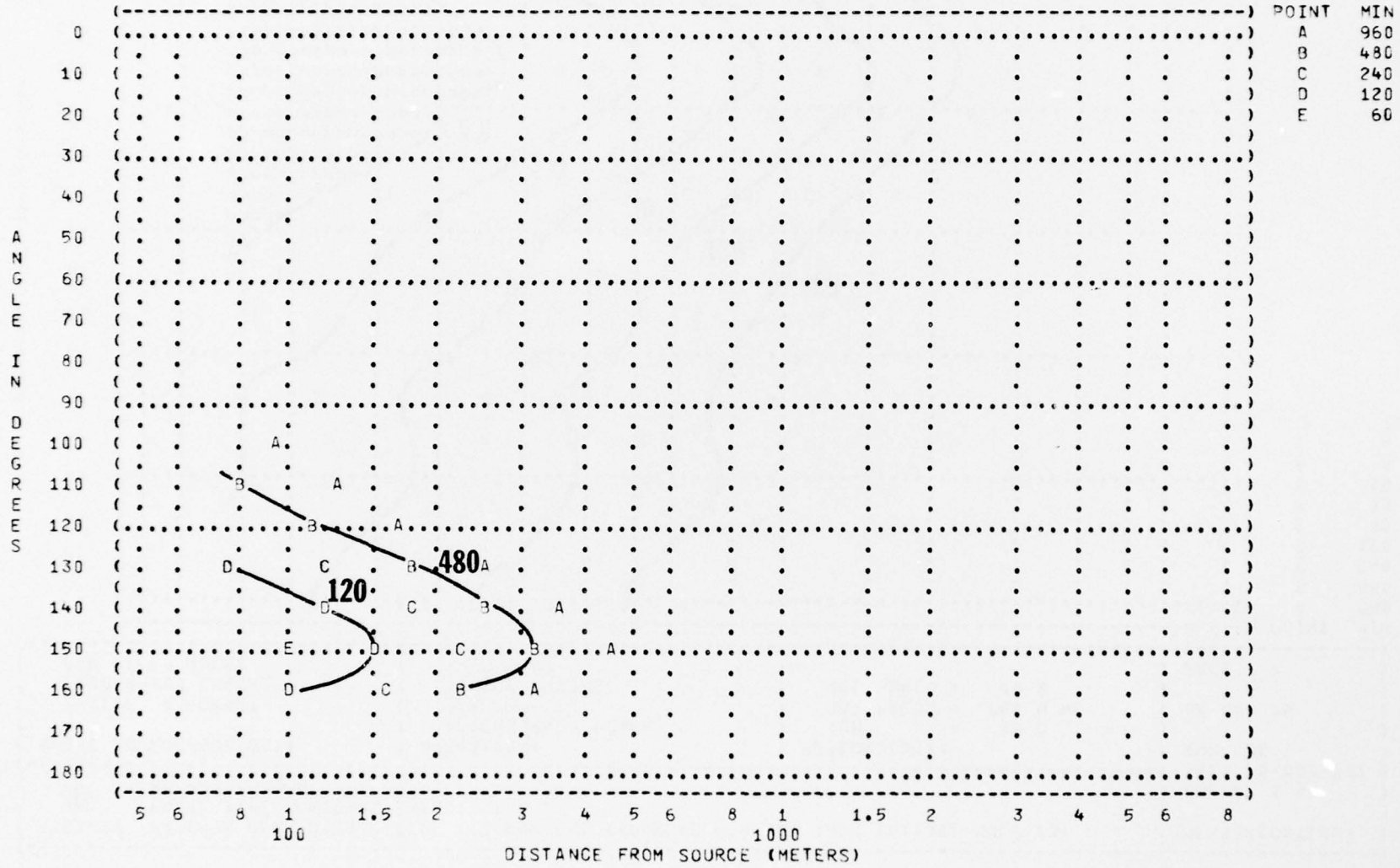


FIGURE: 10

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06

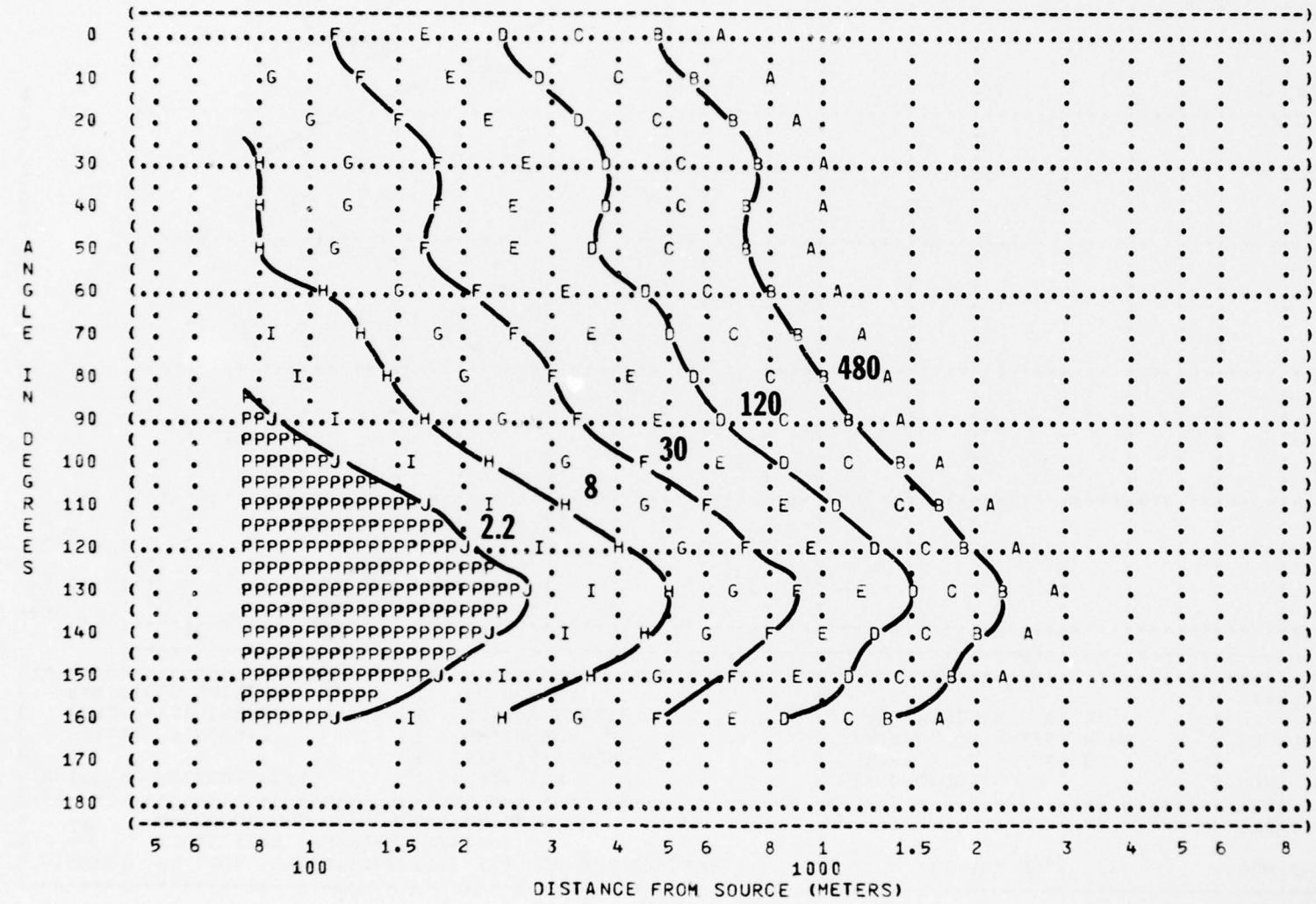
08 MAY 75

PAGE 7

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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



POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15
H	8
I	4
J	2.2

P ADDITIONAL EAR PROTECTION REQUIRED.

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 8

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15
H	8
I	4

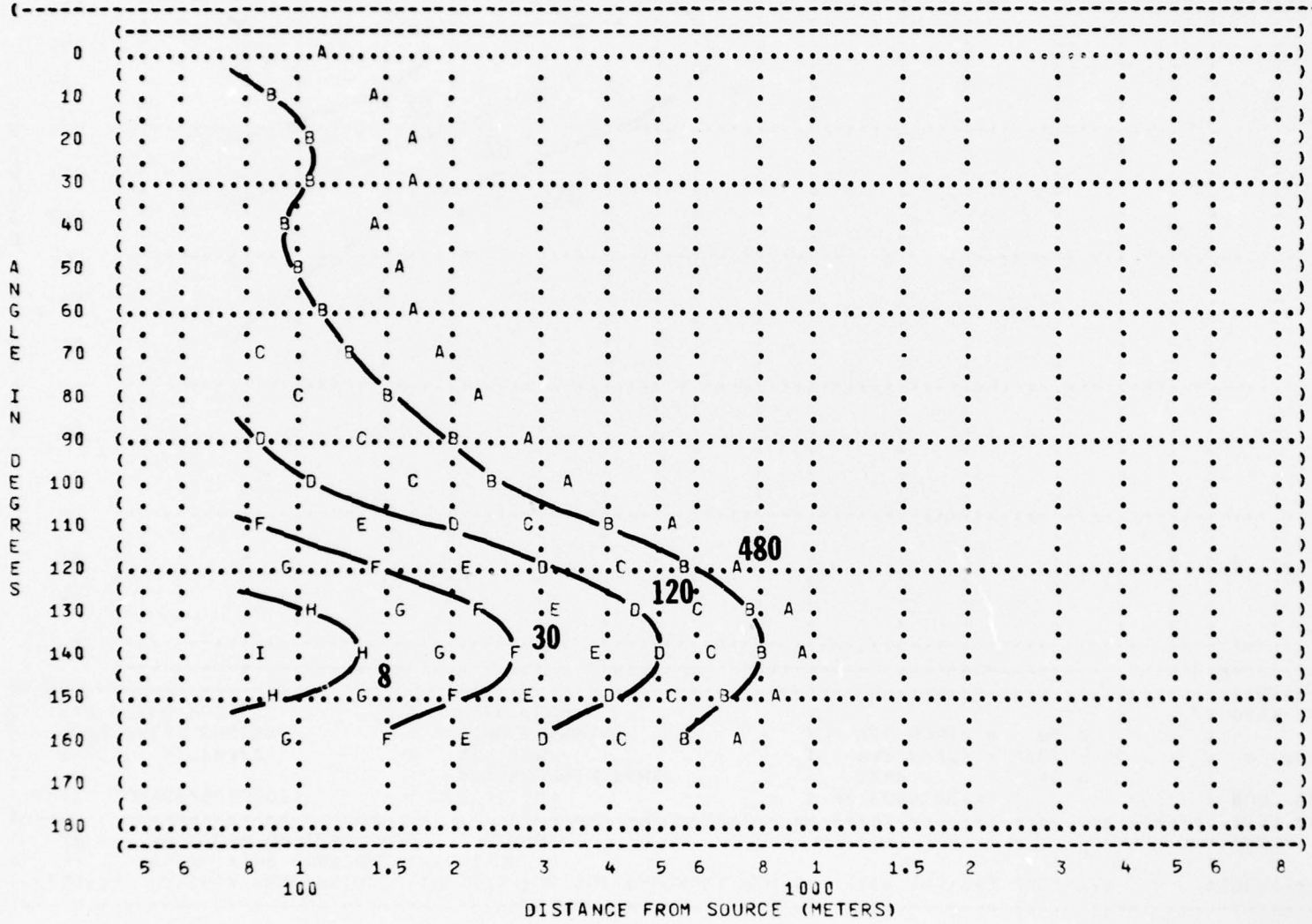


FIGURE: 10

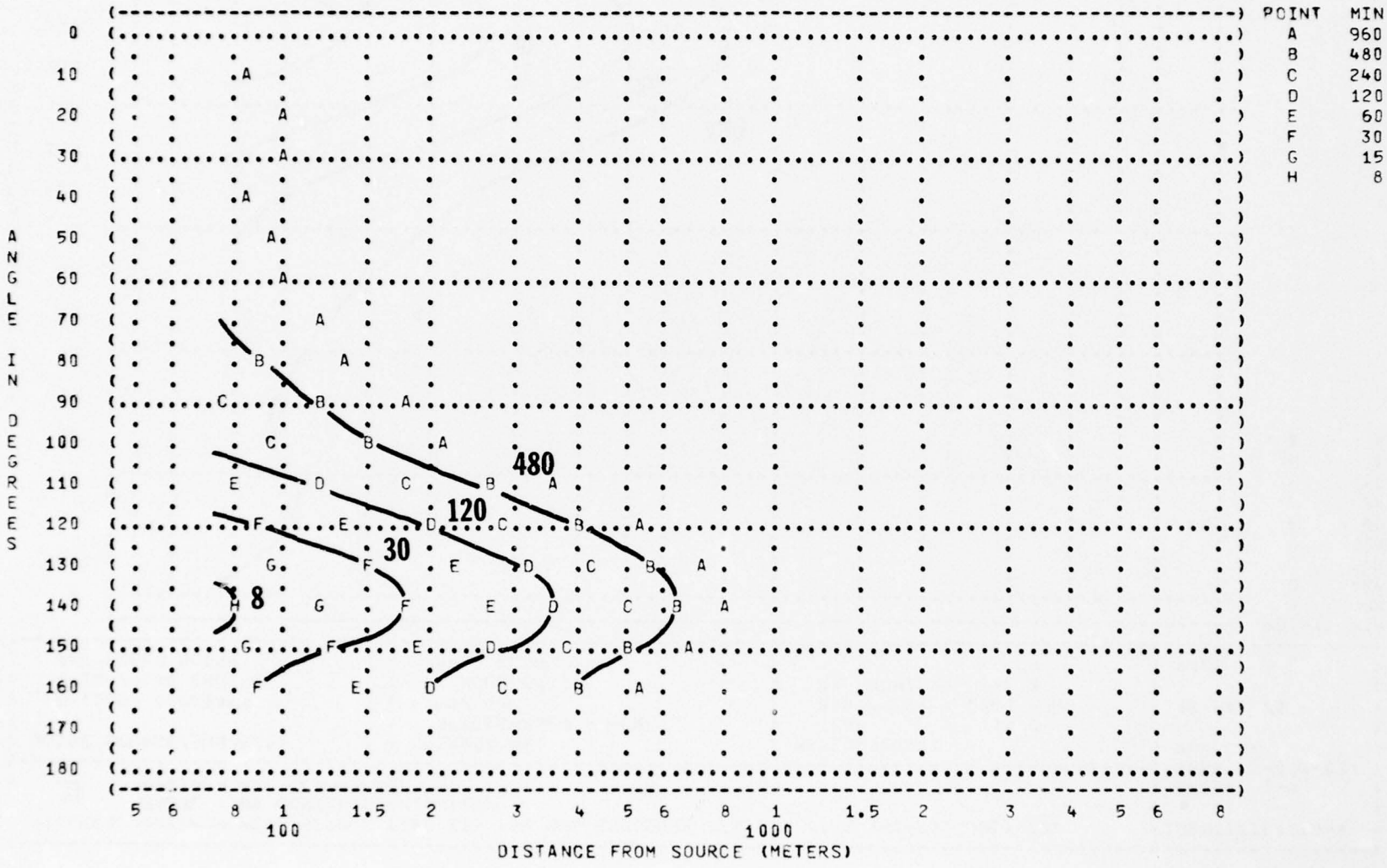
MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
AMERICAN OPTICAL 1700 EAR MUFFS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 9



POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15
H	8

FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
V-51R EAR PLUGS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 10

POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30

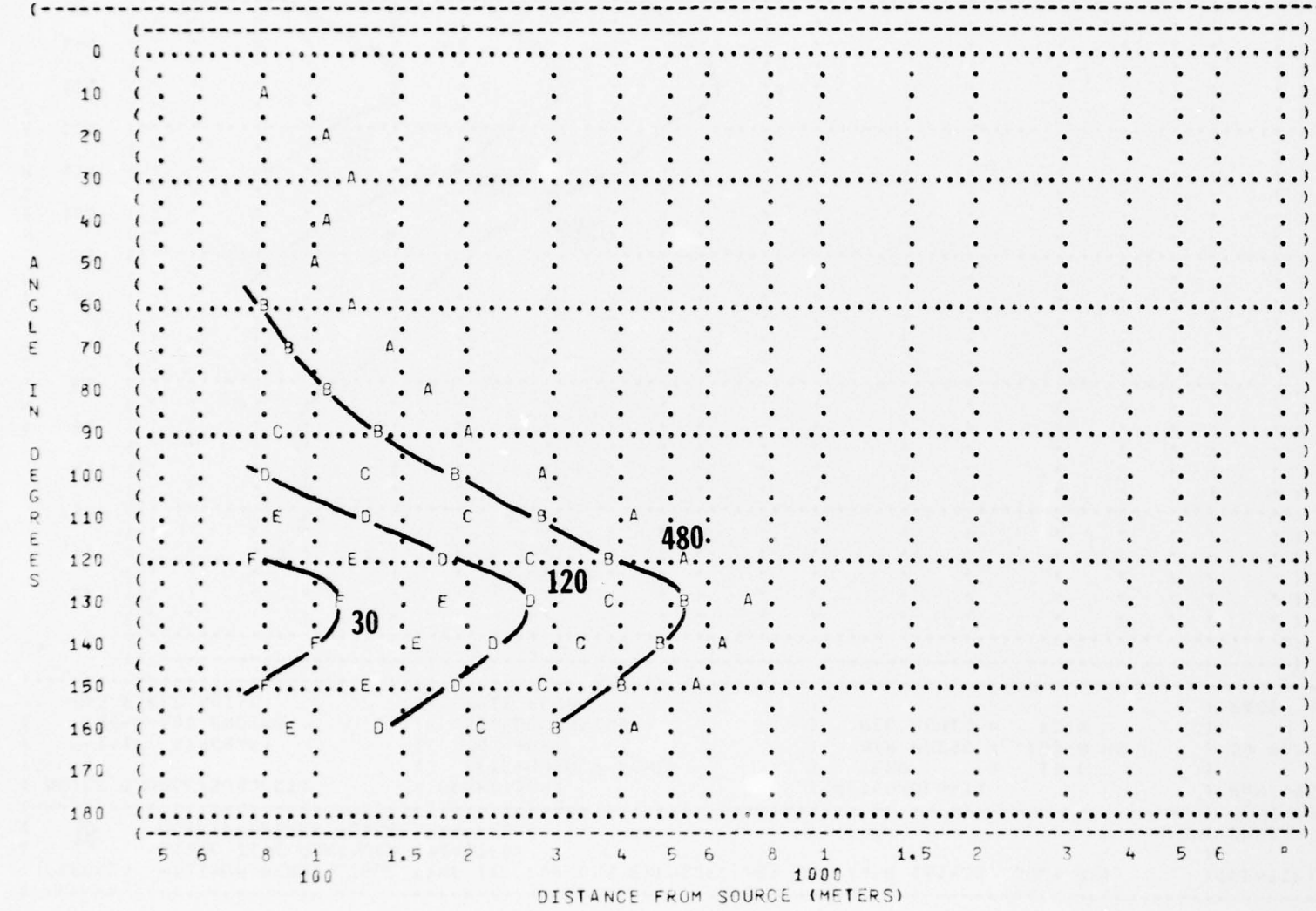


FIGURE: 10

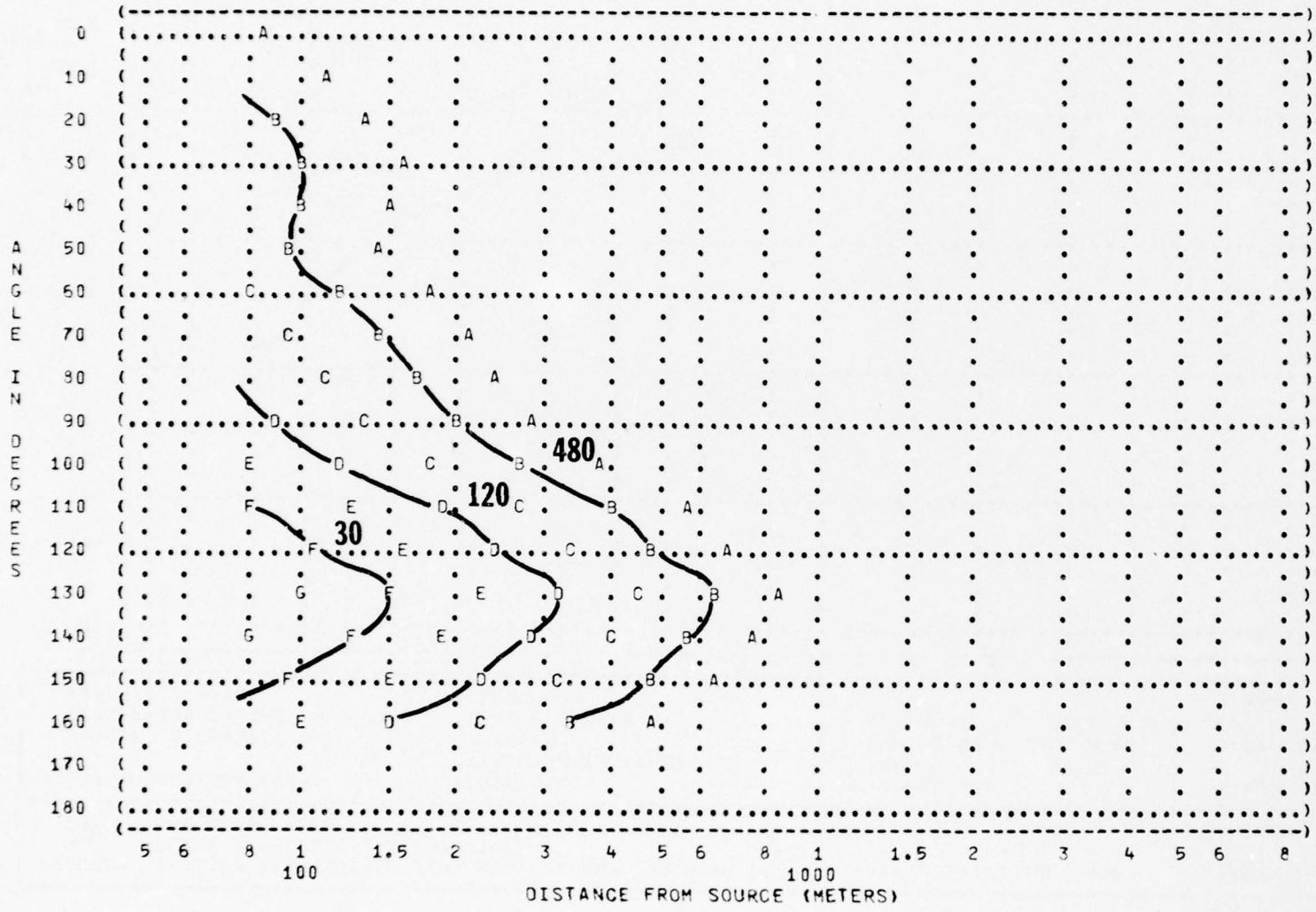
MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
COMFIT TRIPLE FLANGE EAR PLUGS

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 11



POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30
G	15

FIGURE: 10

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
H-133 GROUND COMMUNICATION UNIT

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 12

POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30

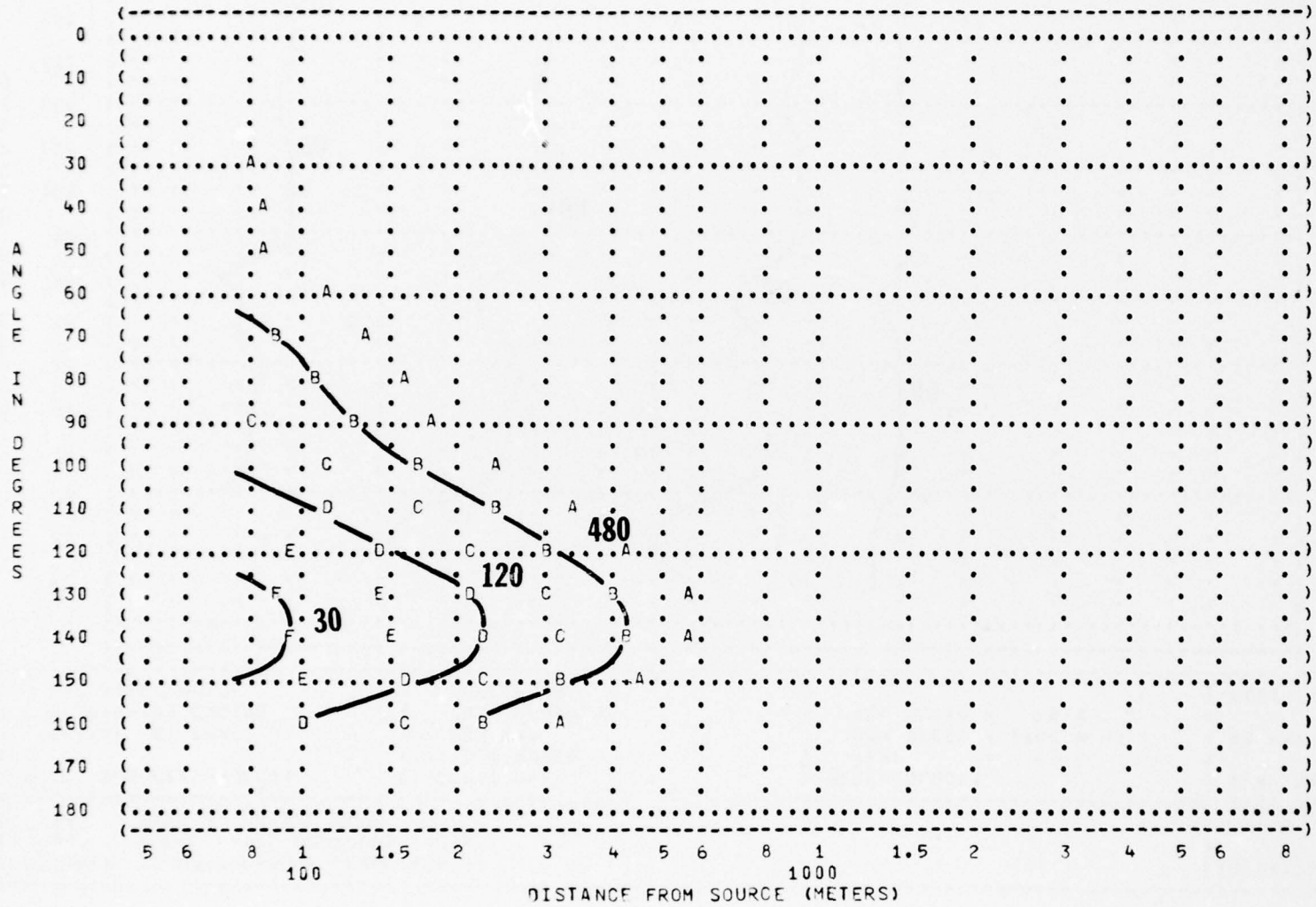


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 18

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70

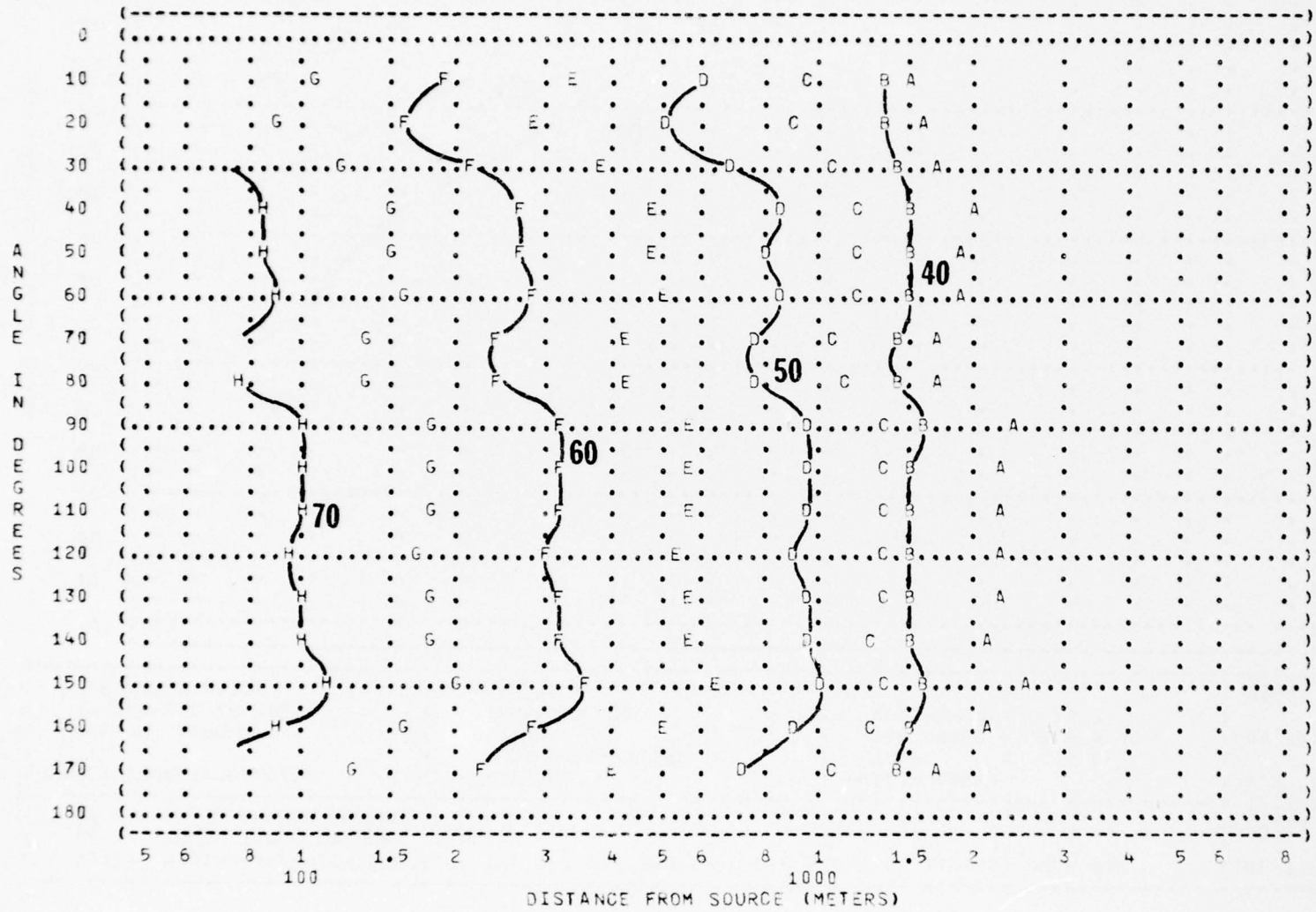


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 19

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75

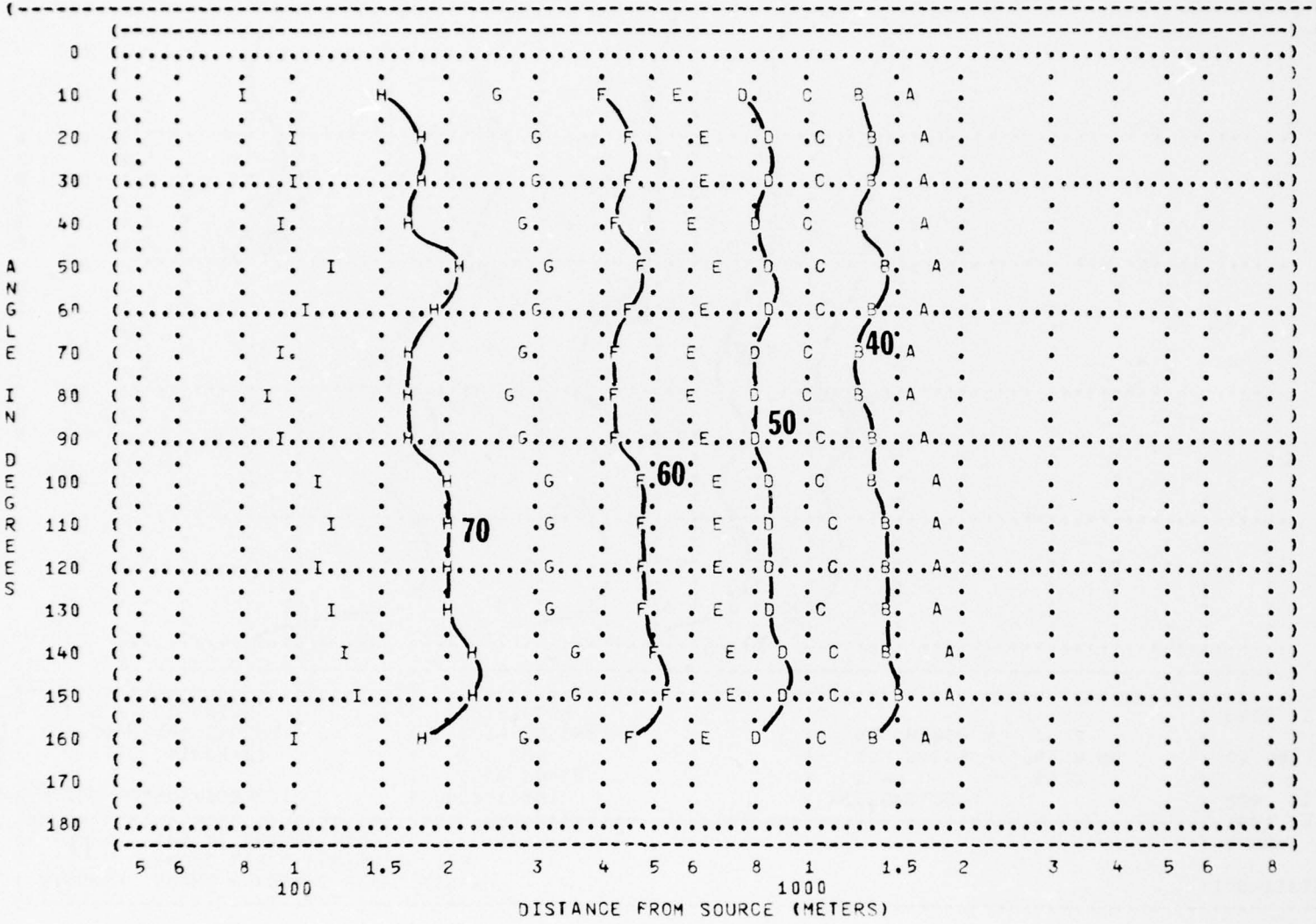


FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 20

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

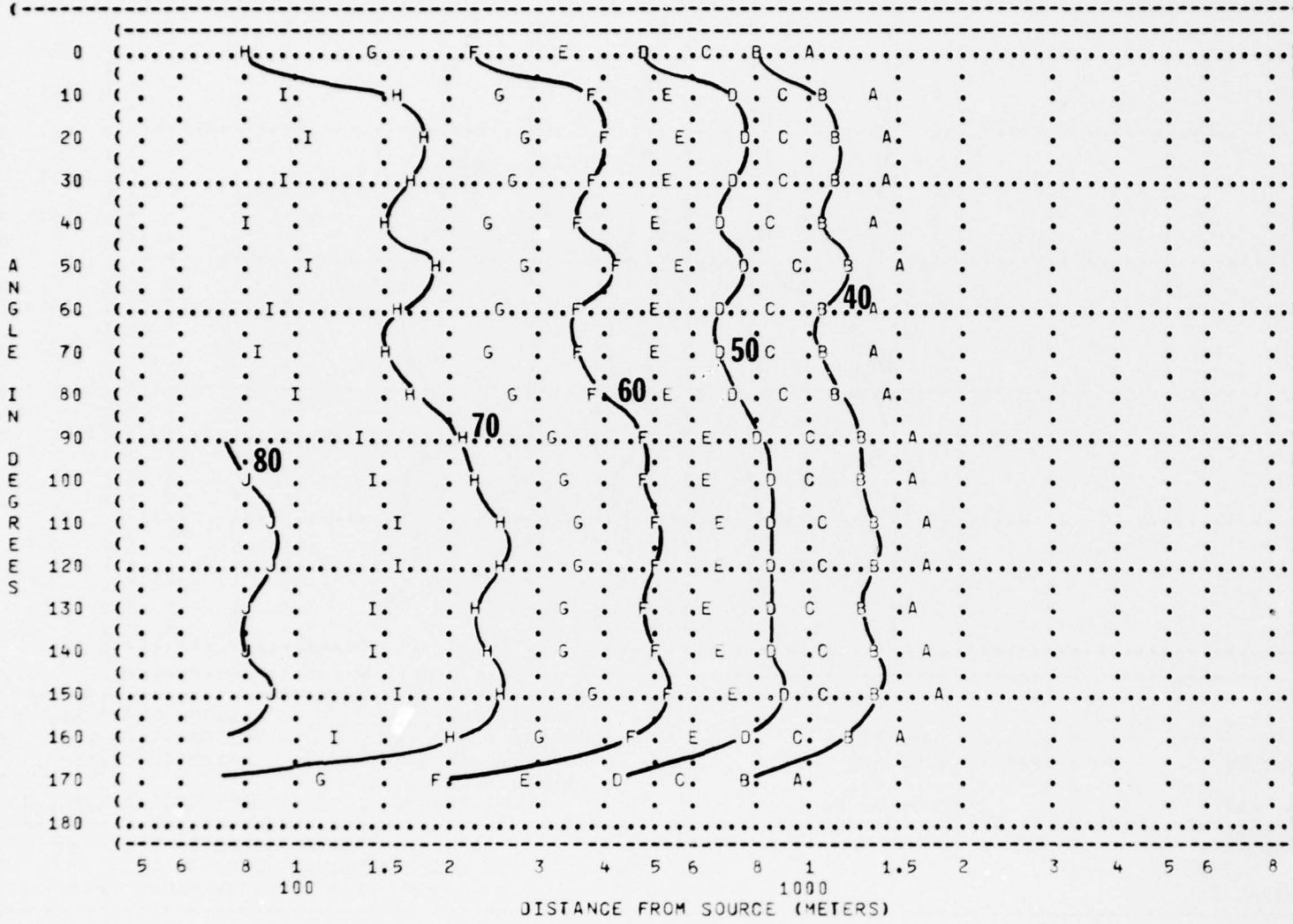


FIGURE: 11

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 21

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75

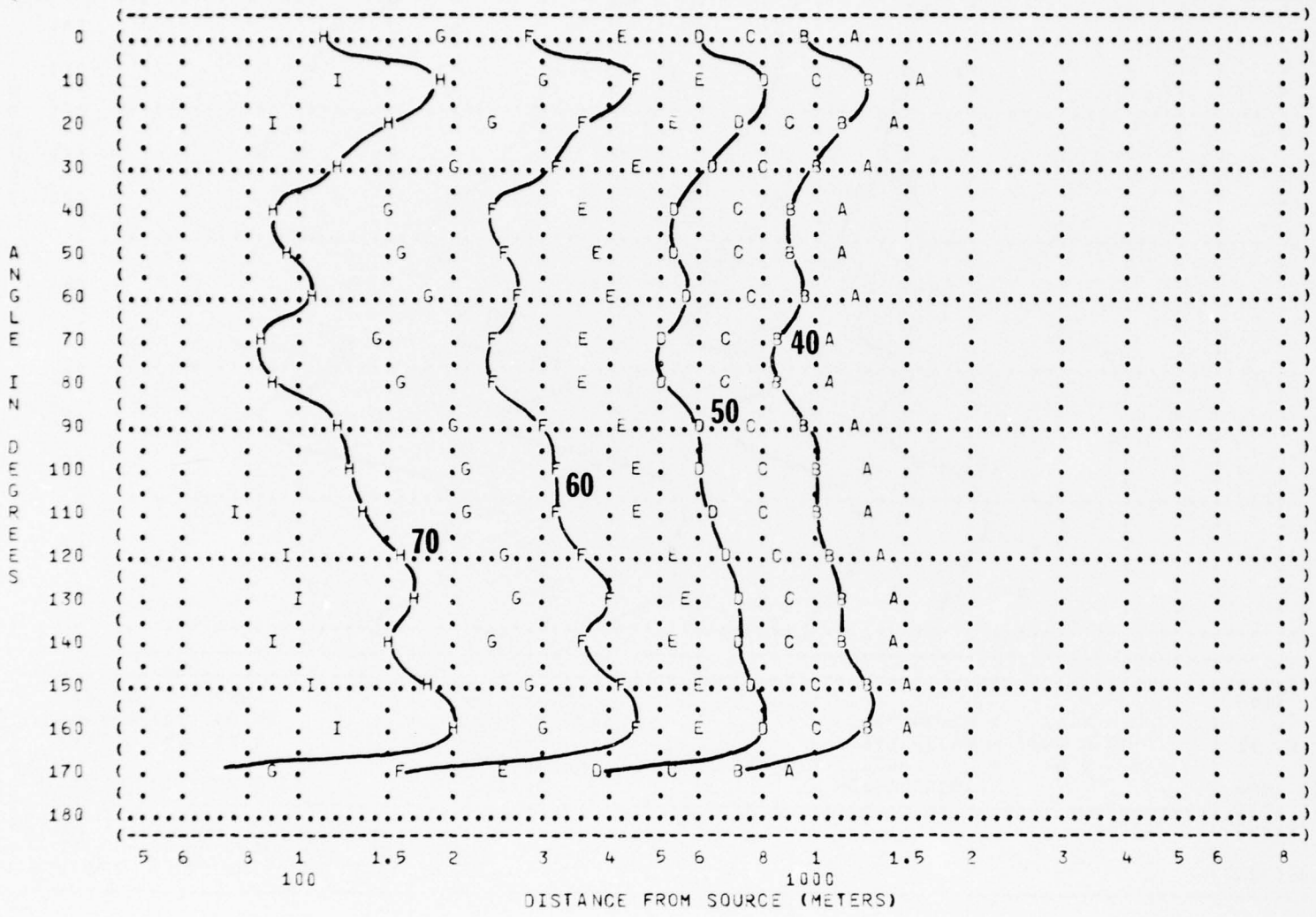


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 22

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75

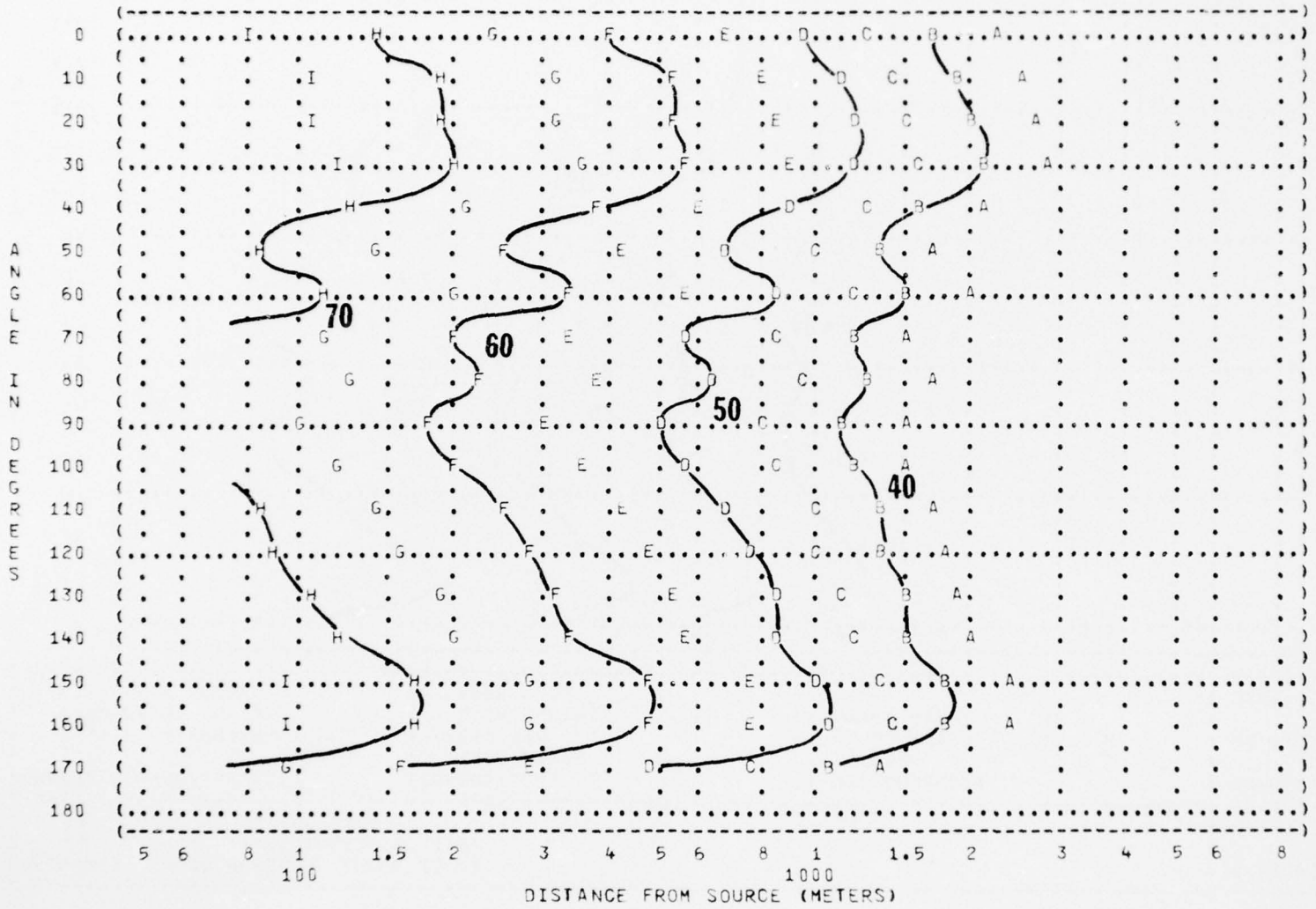


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 23

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

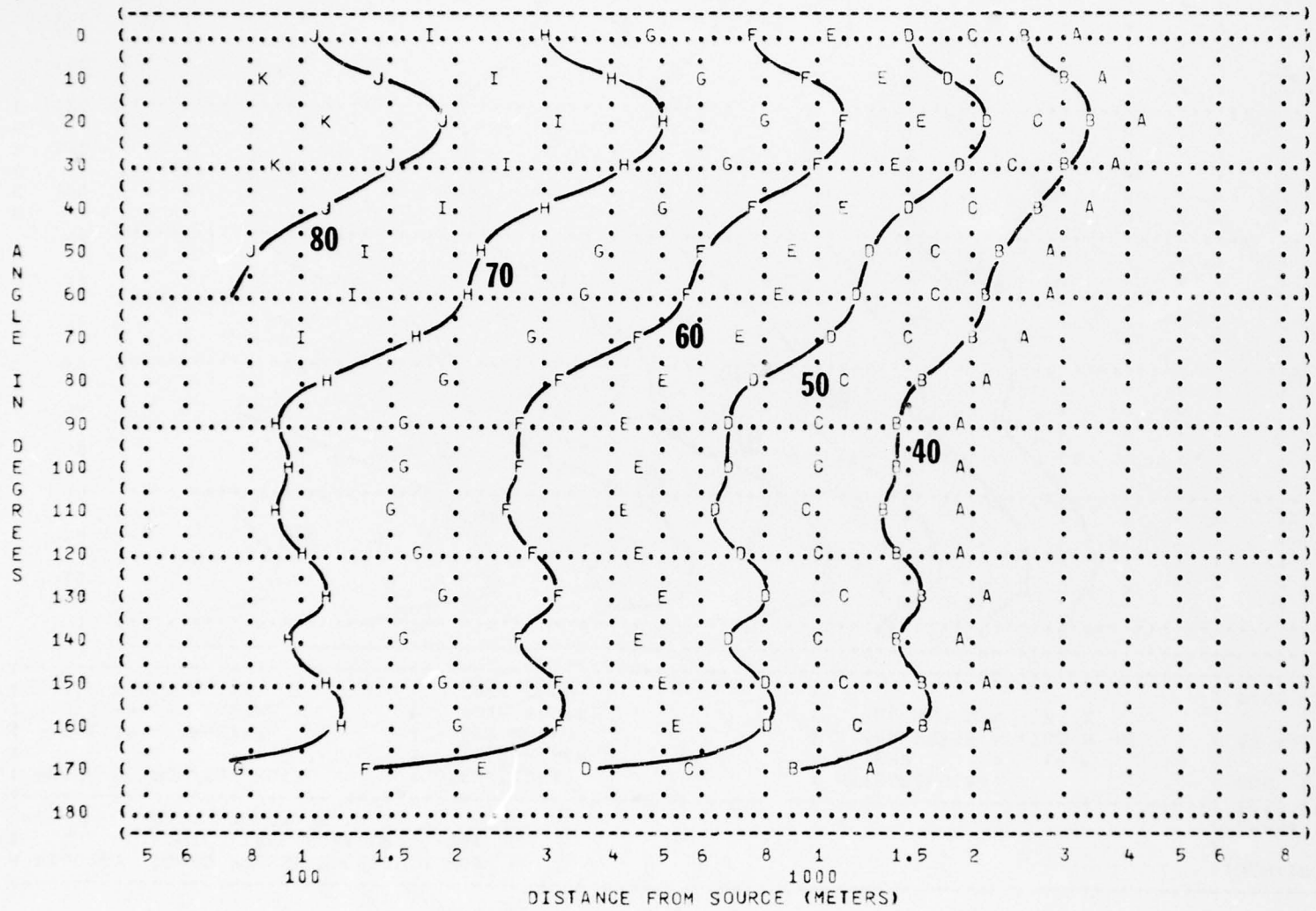


FIGURE: 11

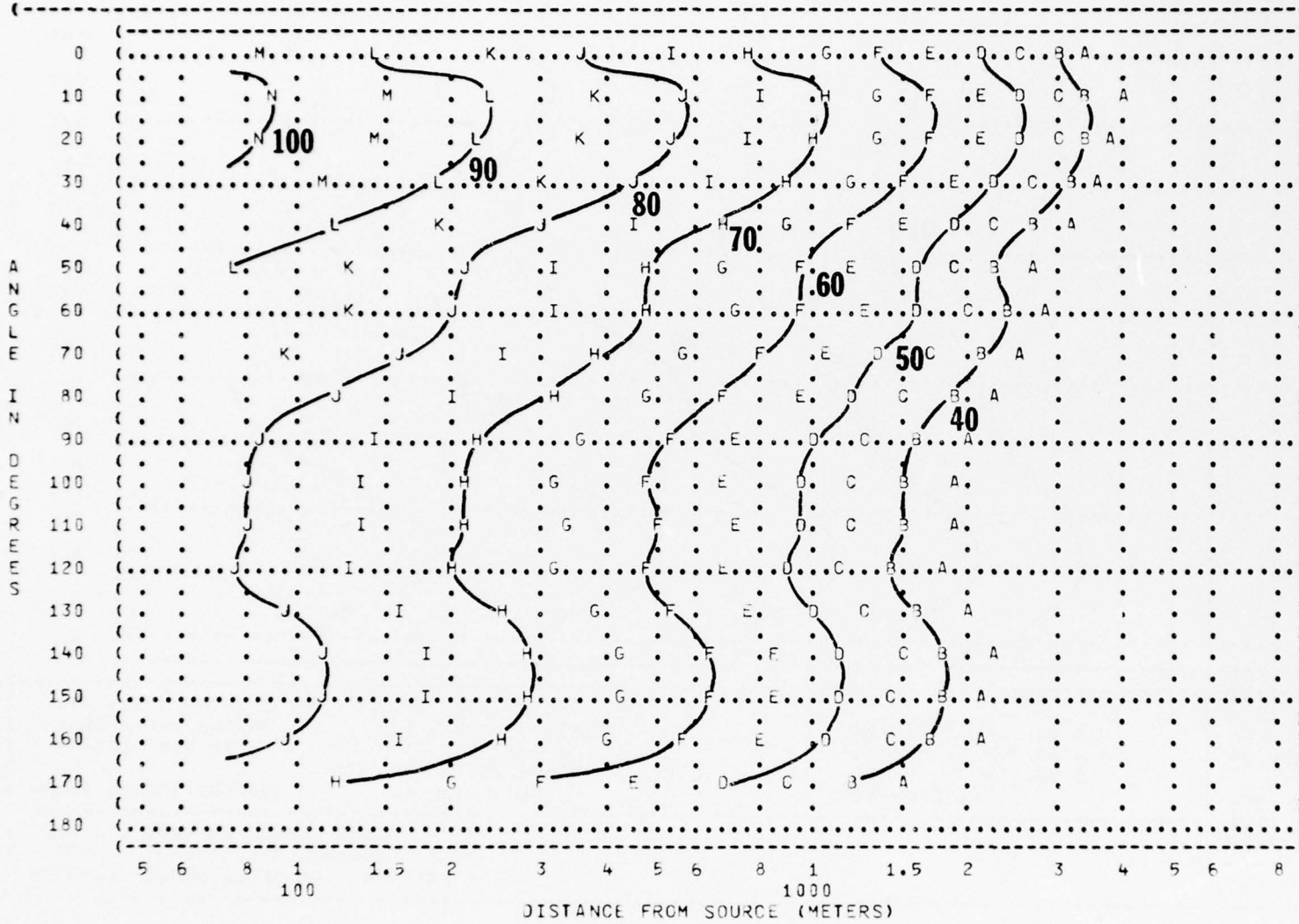
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
2000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 24



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

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
55% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 25

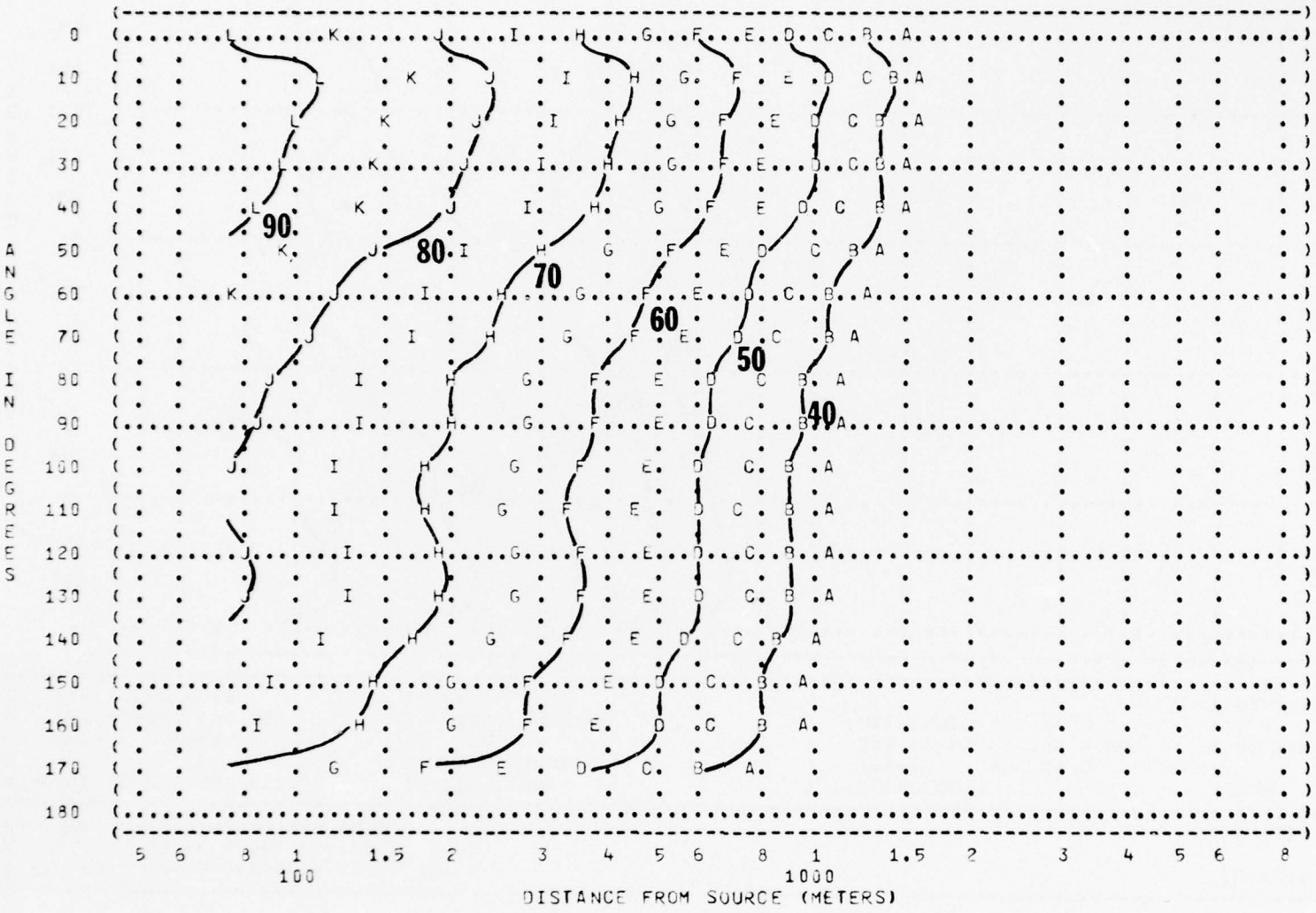


FIGURE: 11

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE POWER
65% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 01
08 MAY 75
PAGE 26

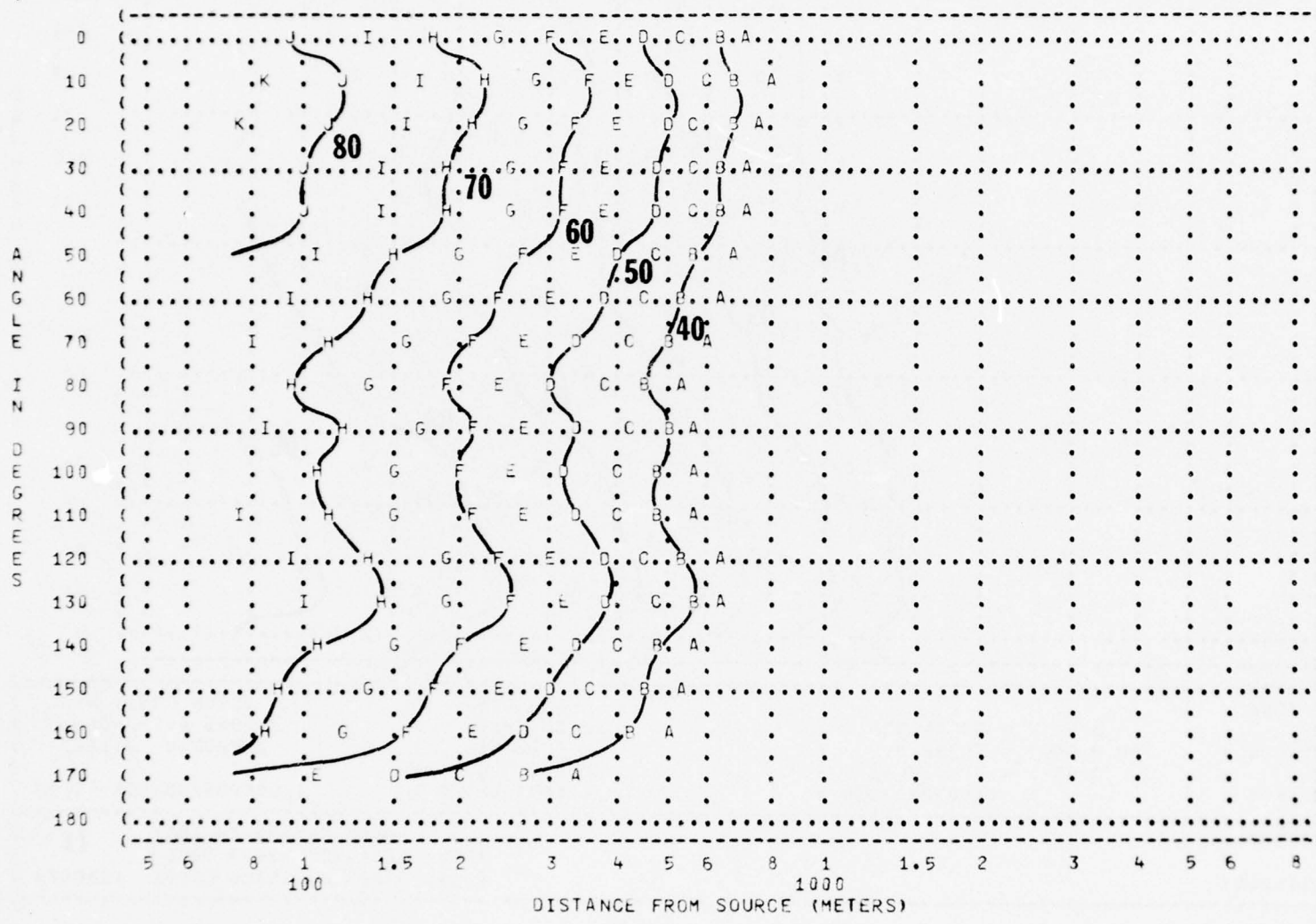


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 18

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

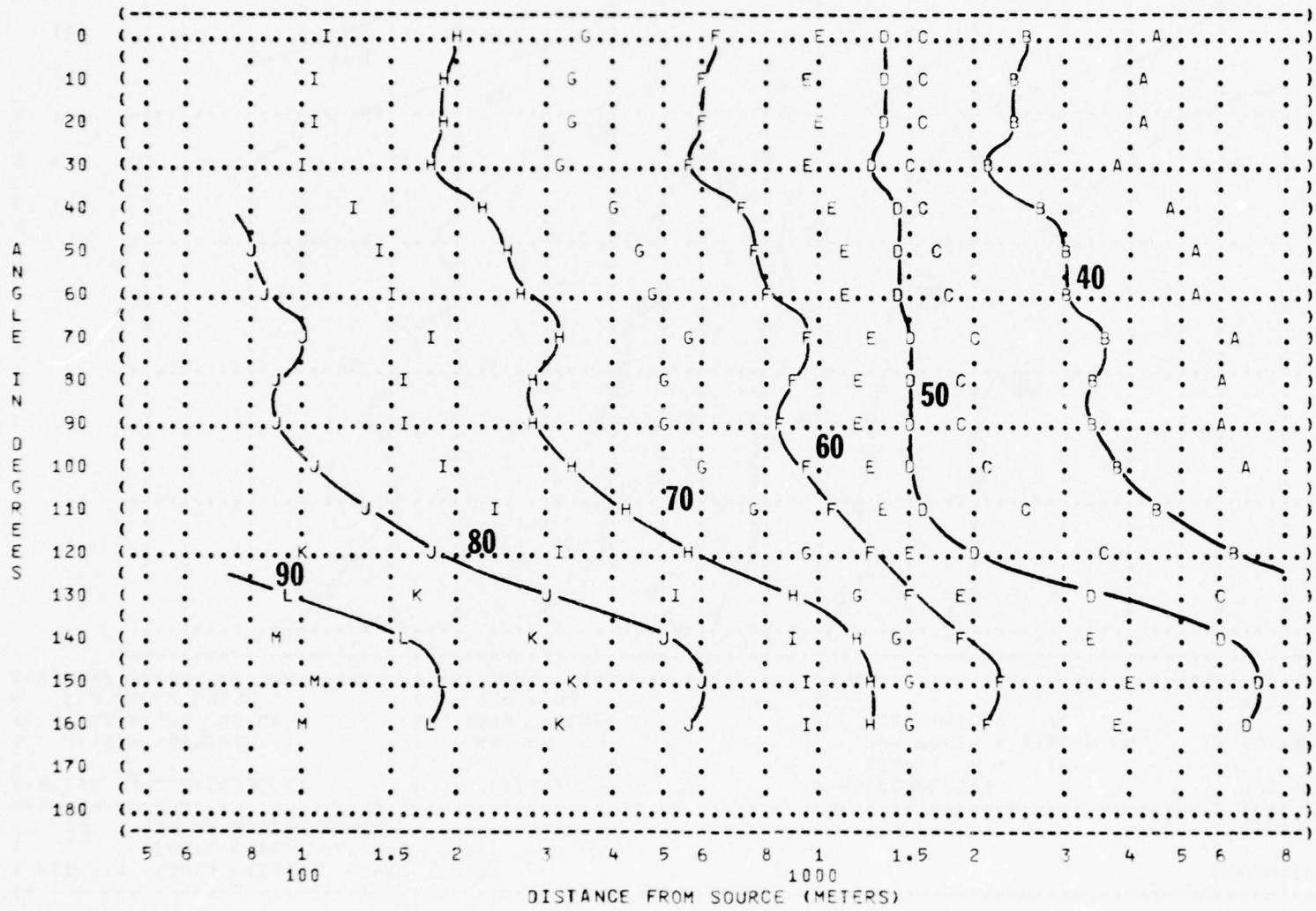


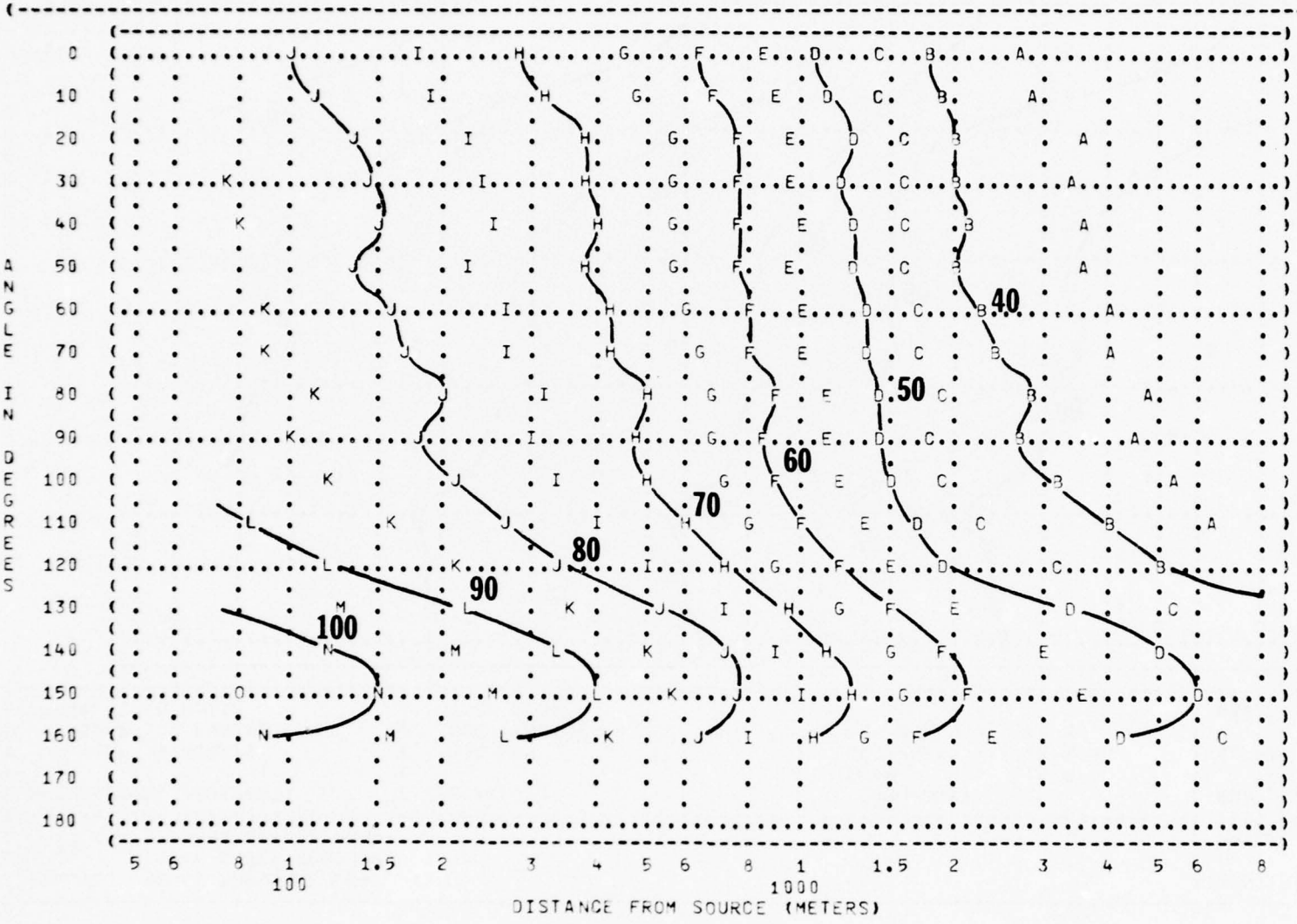
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 19



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

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 20

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

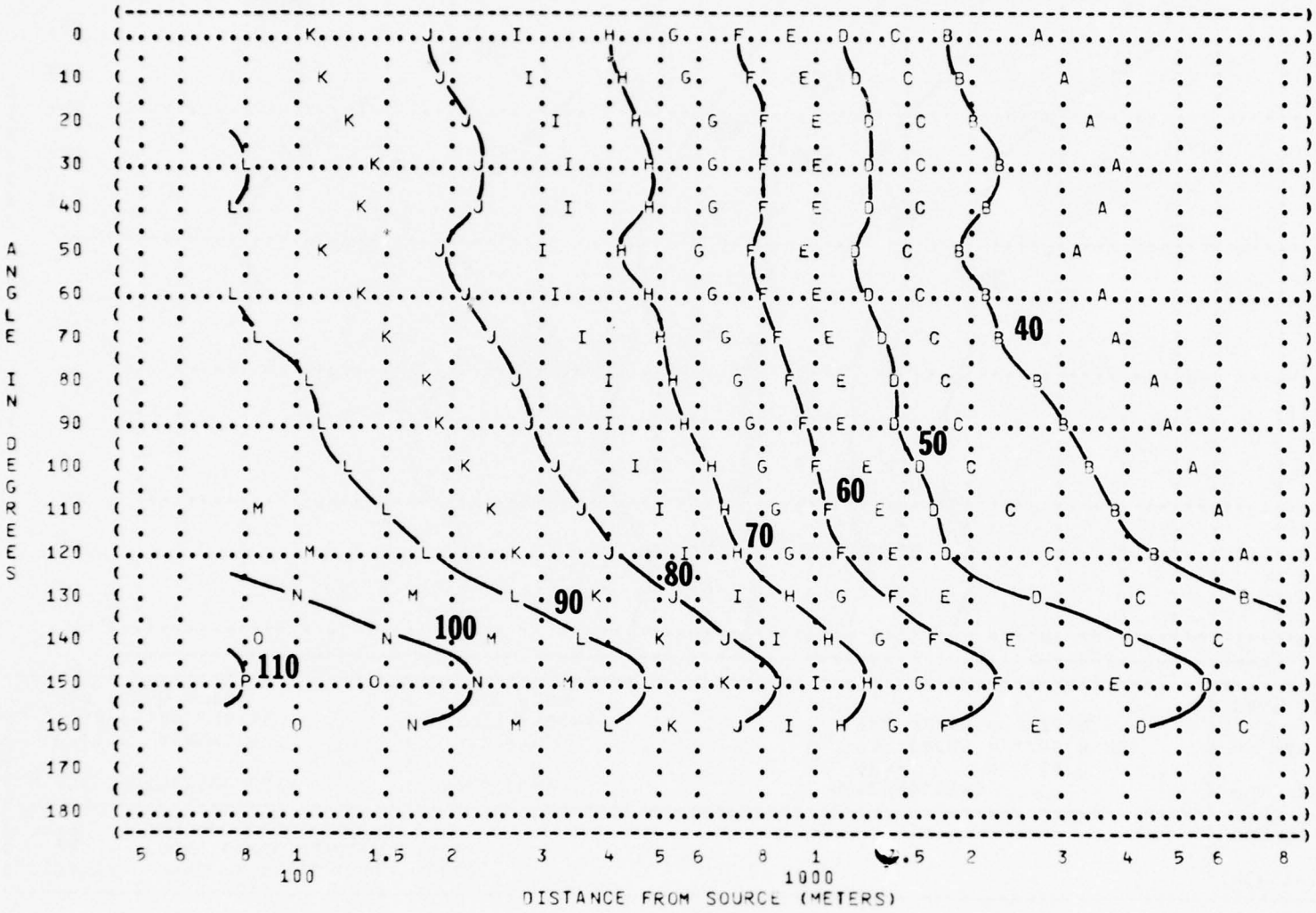


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 250 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 21

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

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

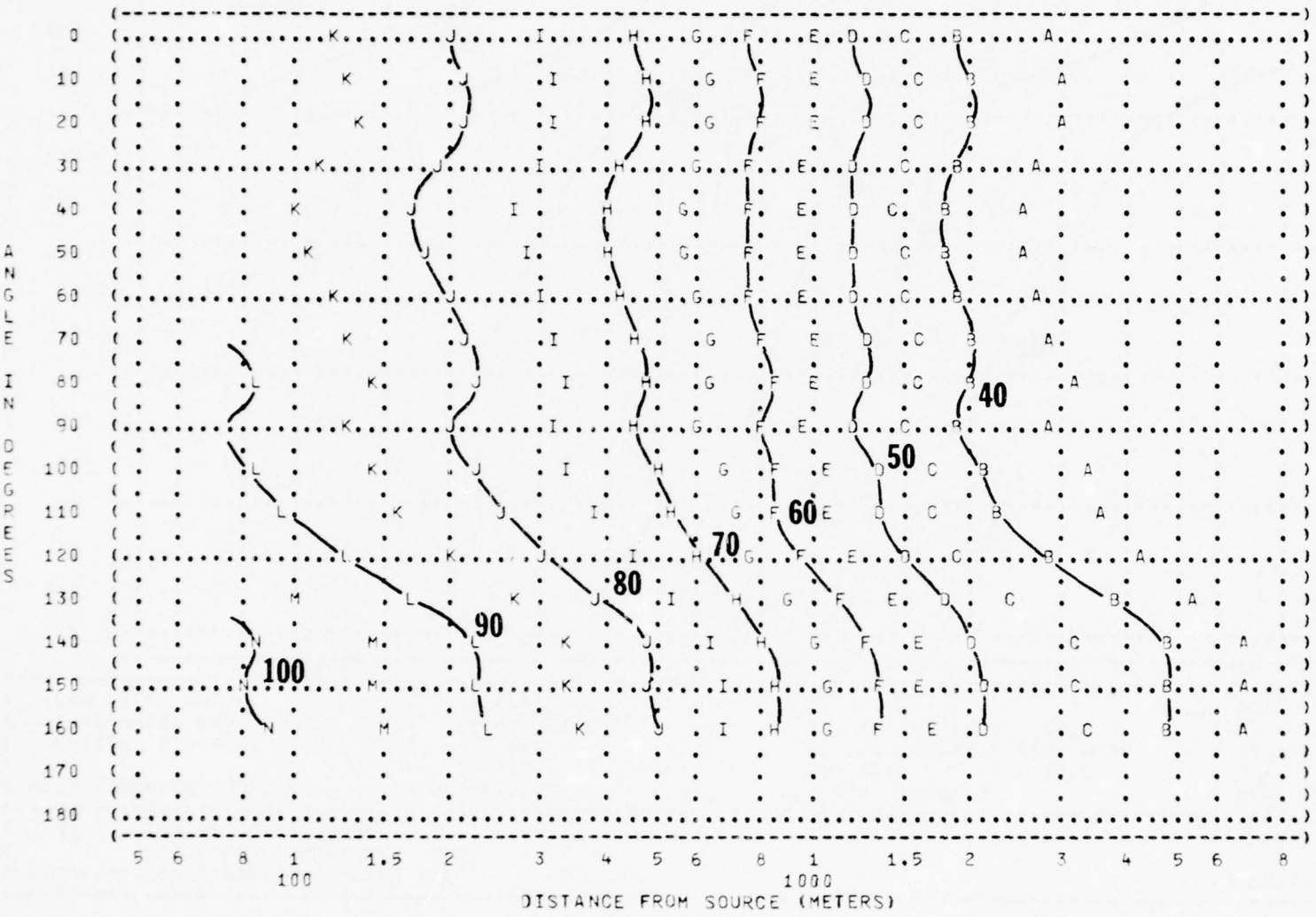


FIGURE: 11

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 22

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

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

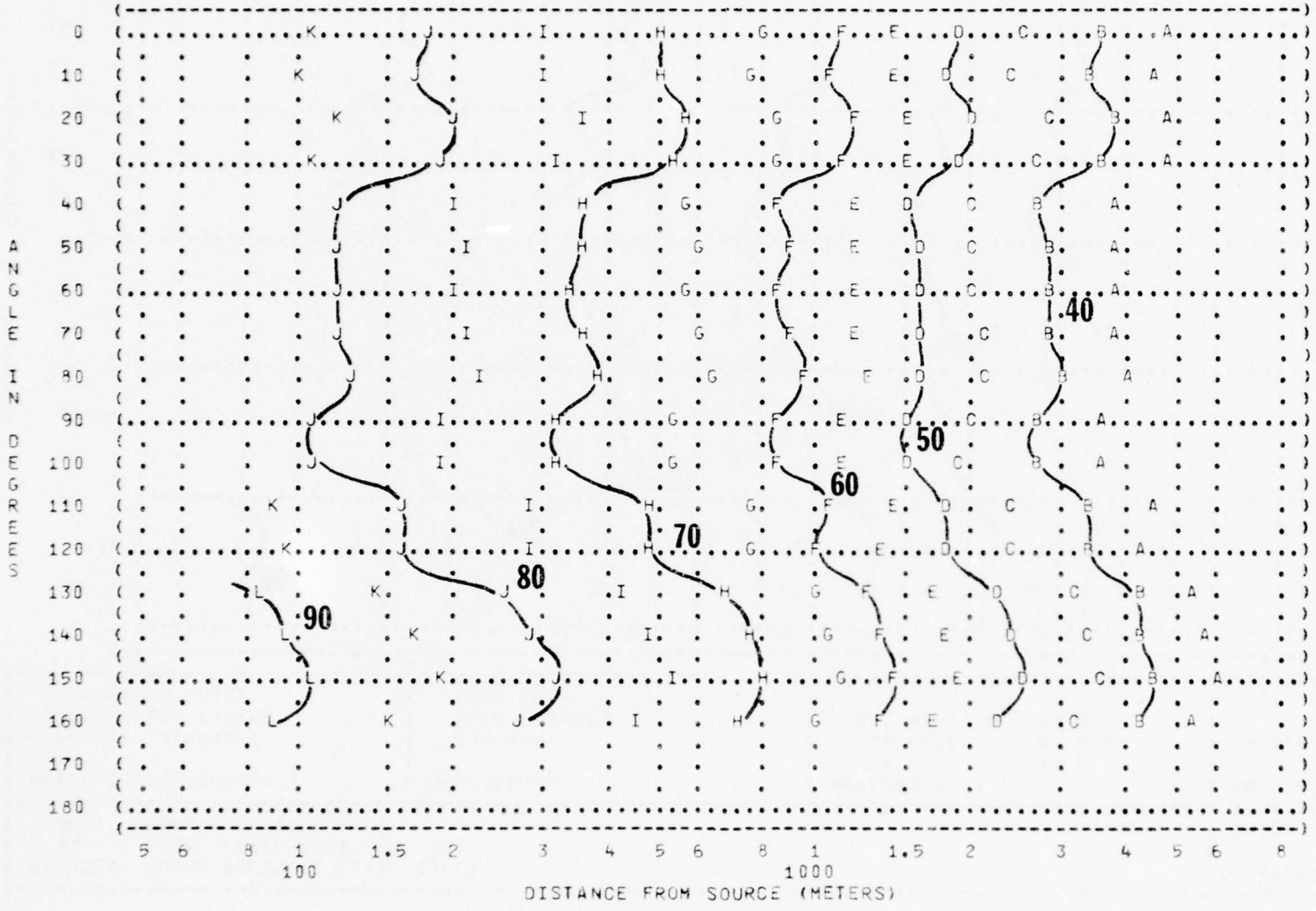


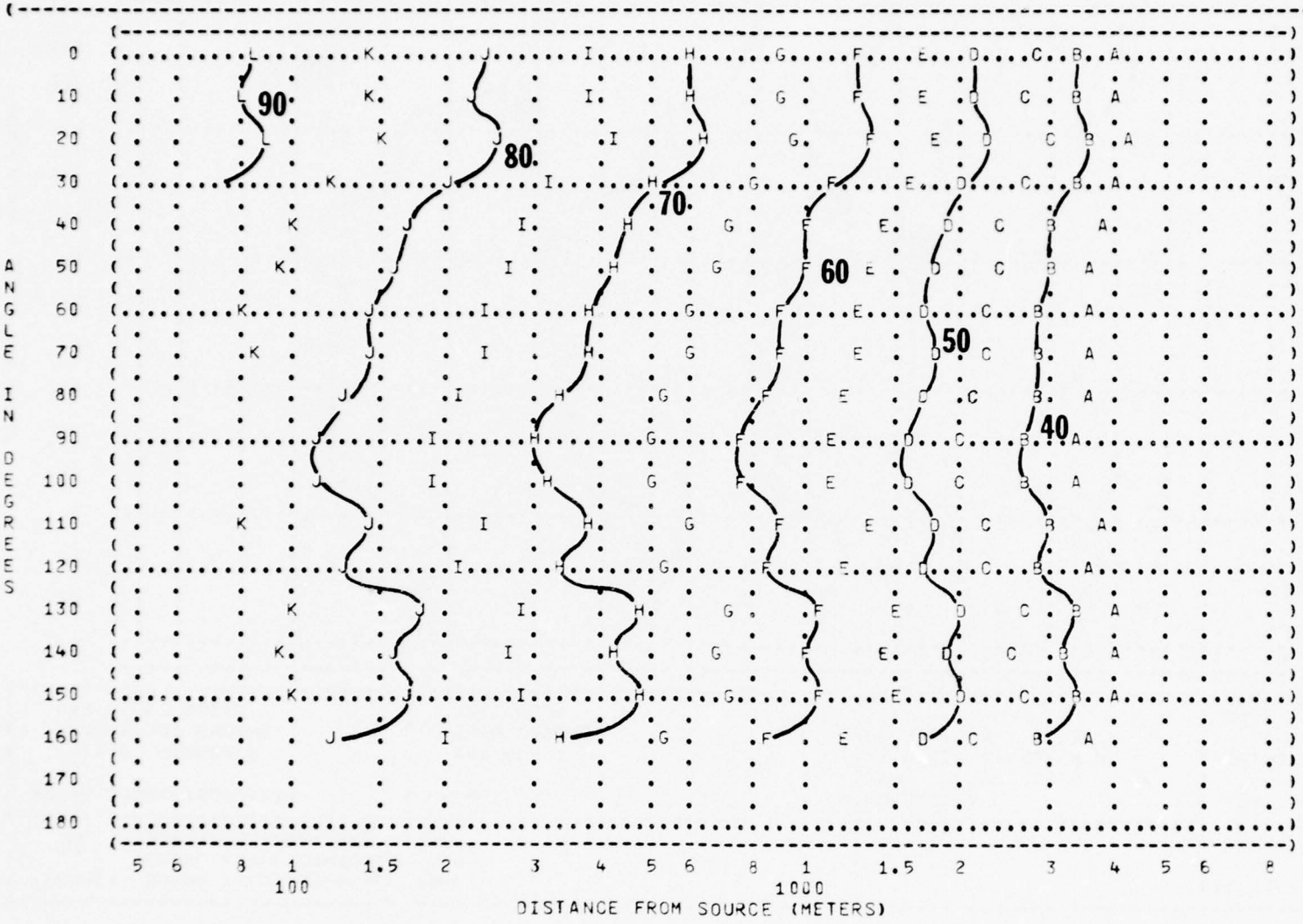
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 23



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

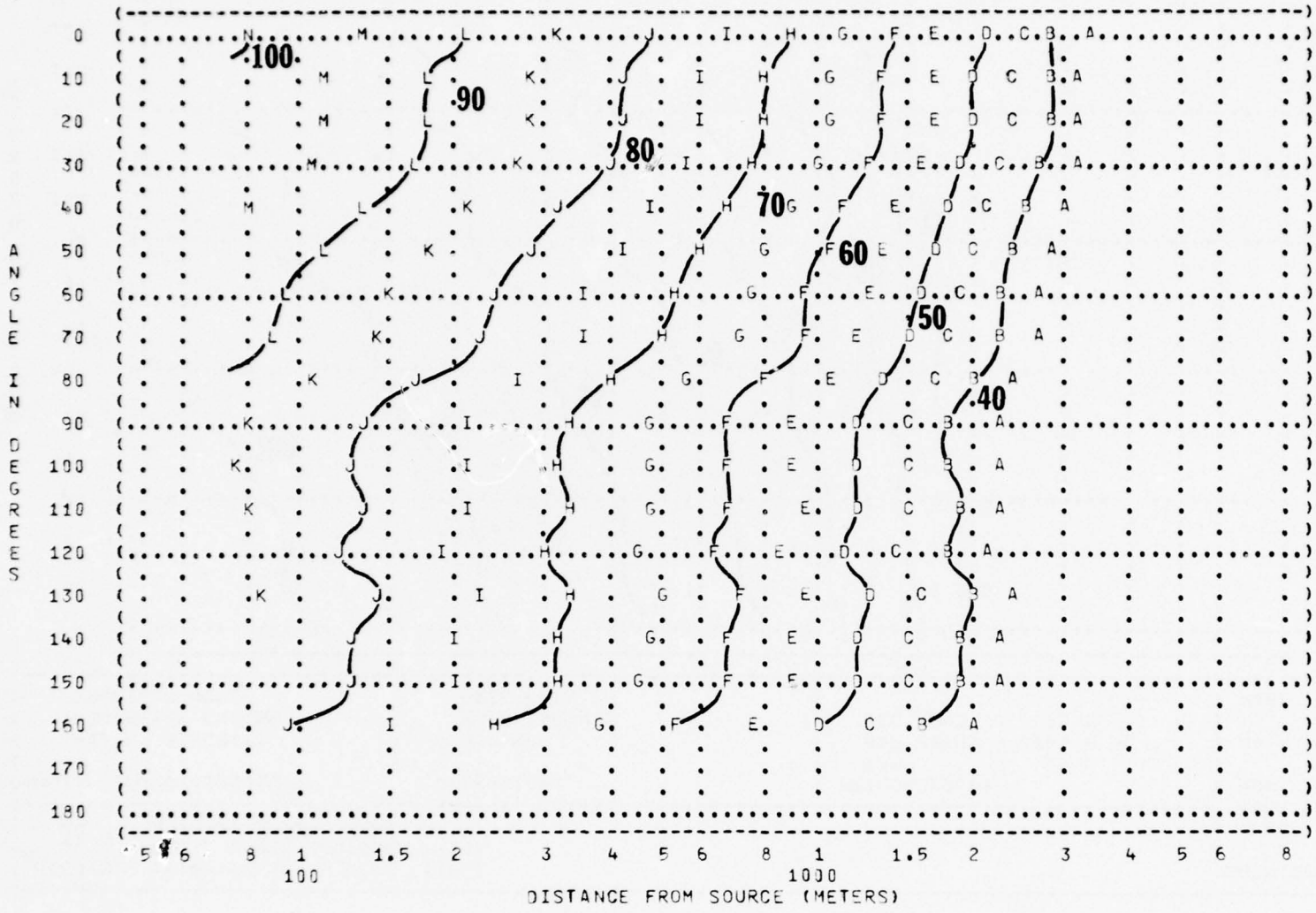
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 24



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

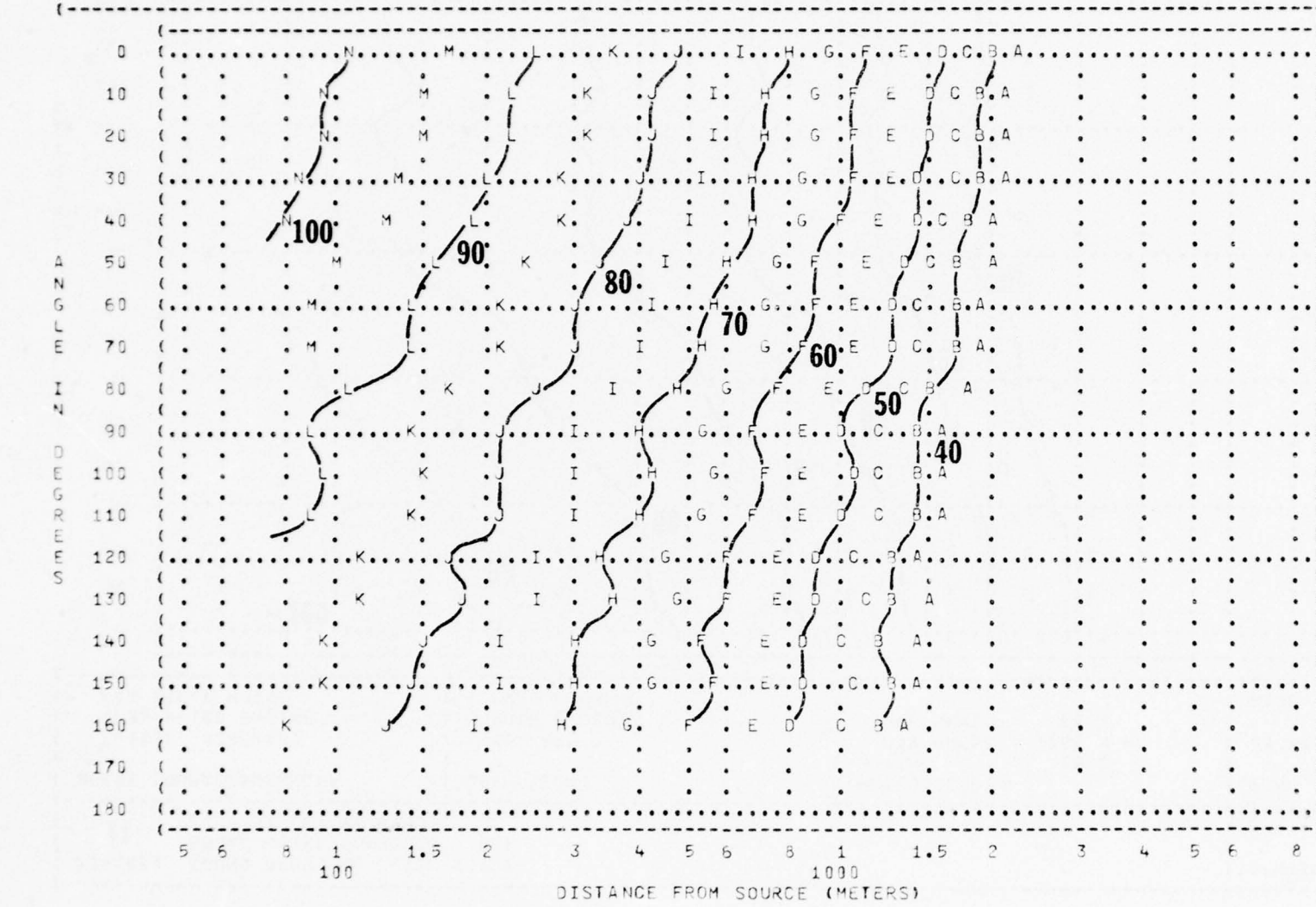
FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 75-002-037 RUN 02 08 MAY 75 PAGE 25

NOISE SOURCE/SUBJECT: F-111F AIRCRAFT TF30-P-100 ENGINE FAR FIELD NOISE

OPERATION: 80% RPM BOTH ENGINES FREE FLOW

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



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

FIGURE: 11

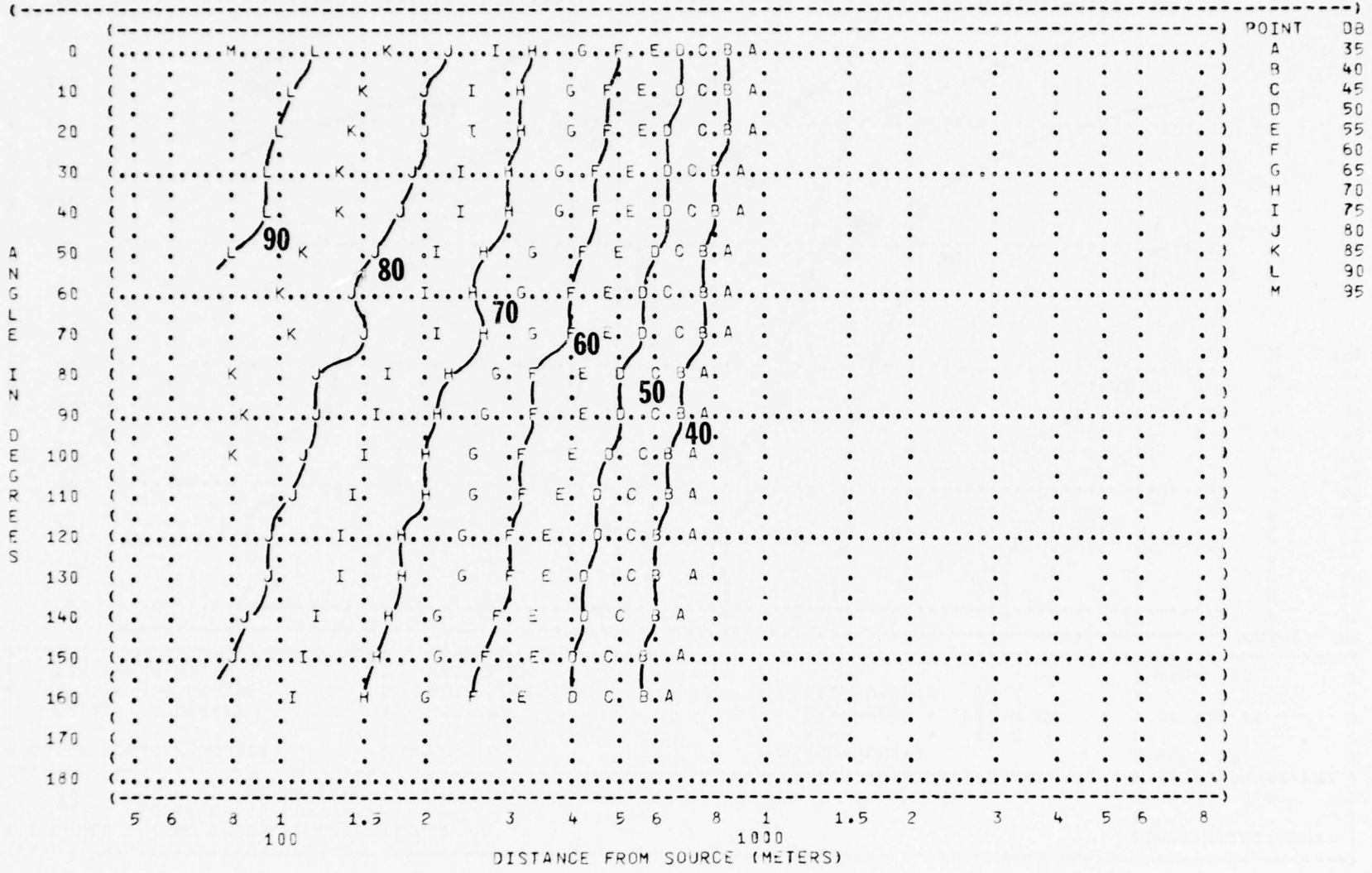
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
80% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 02
08 MAY 75
PAGE 26



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

FIGURE: 11

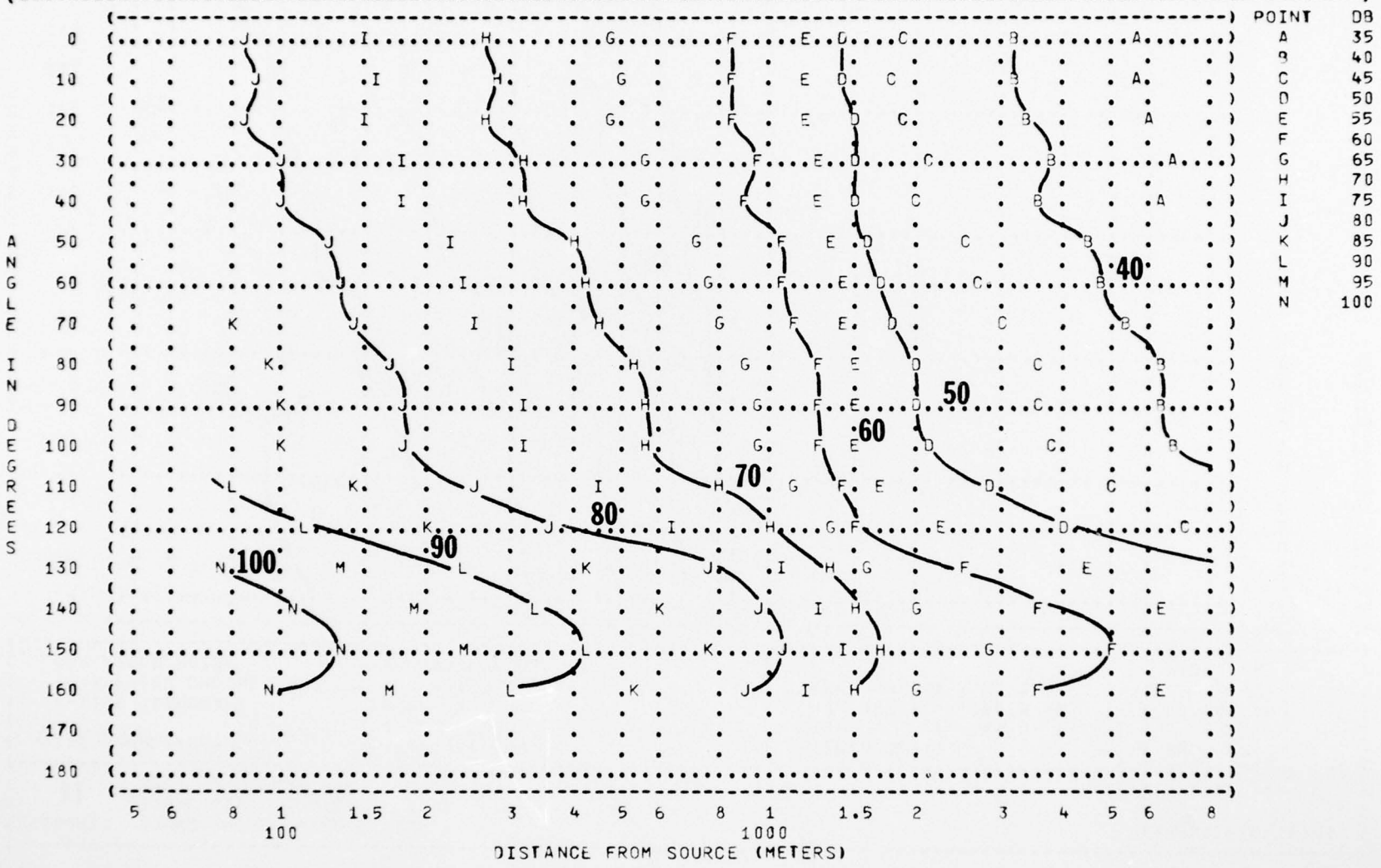
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 18



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

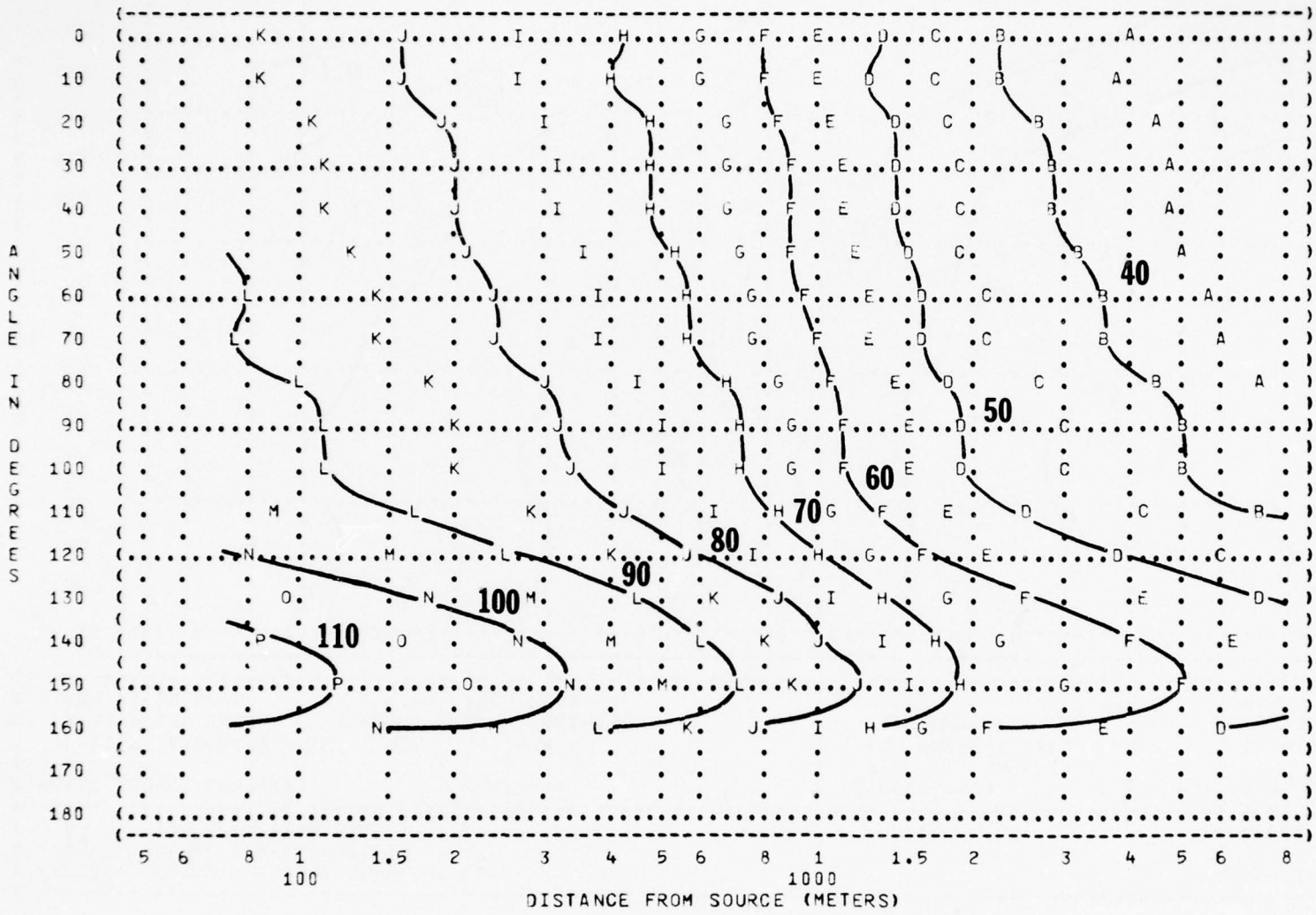
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 19

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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



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

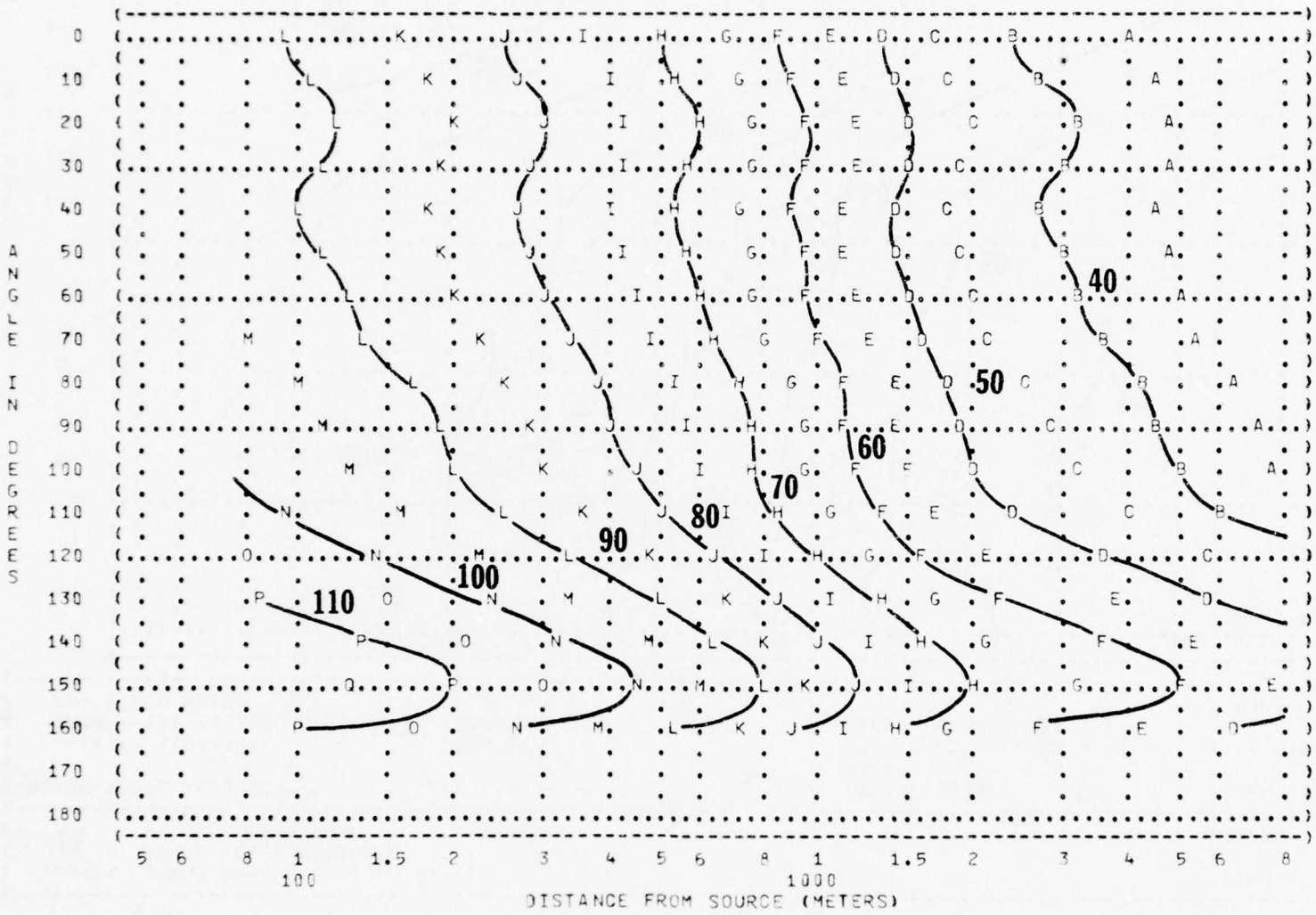
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 75-002-037 RUN 03 08 MAY 75 PAGE 20

NOISE SOURCE/SUBJECT: F-111F AIRCRAFT TF30-P-100 ENGINE FAR FIELD NOISE

OPERATION: 85% RPM BOTH ENGINES FREE FLOW

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



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 21

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

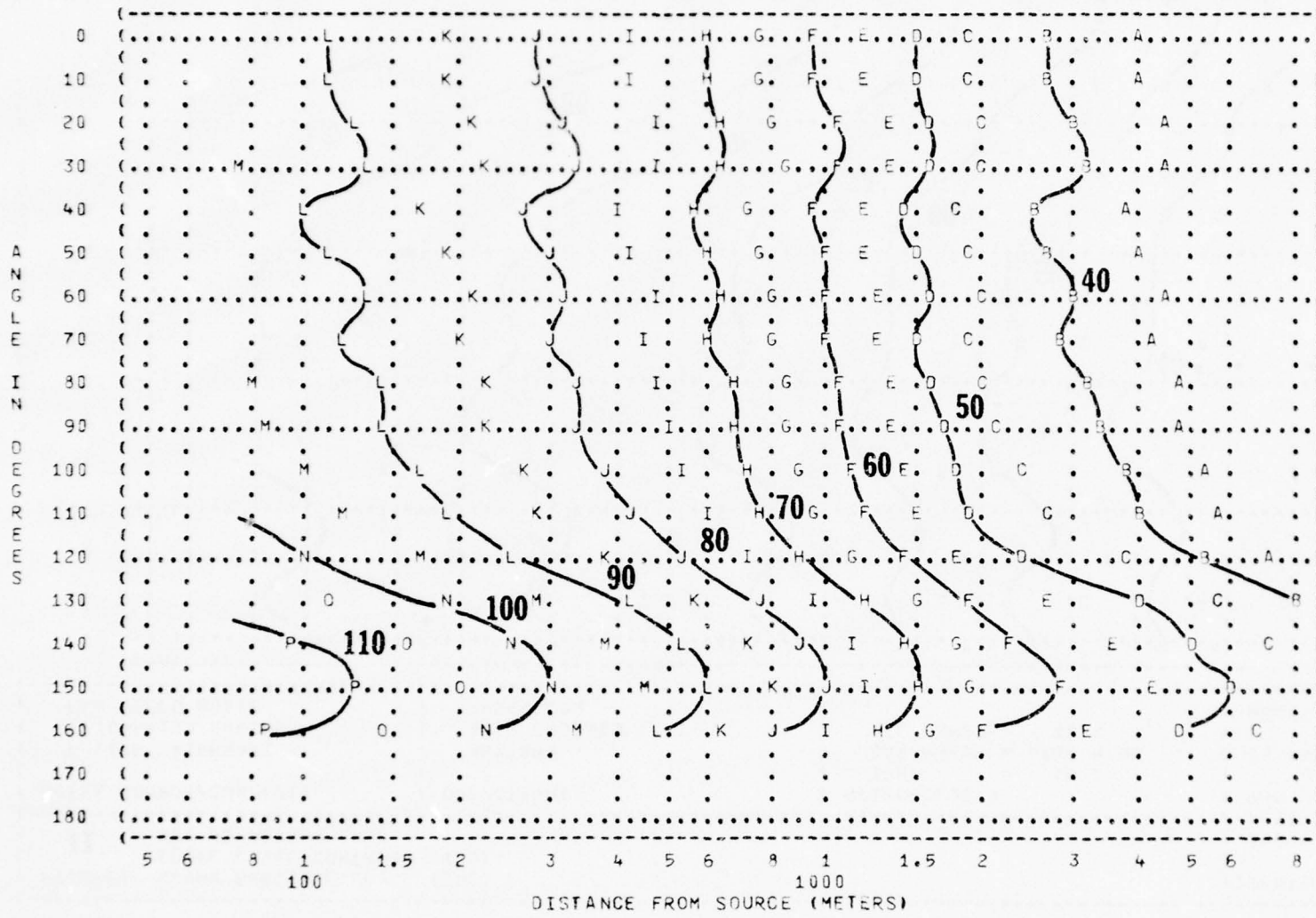


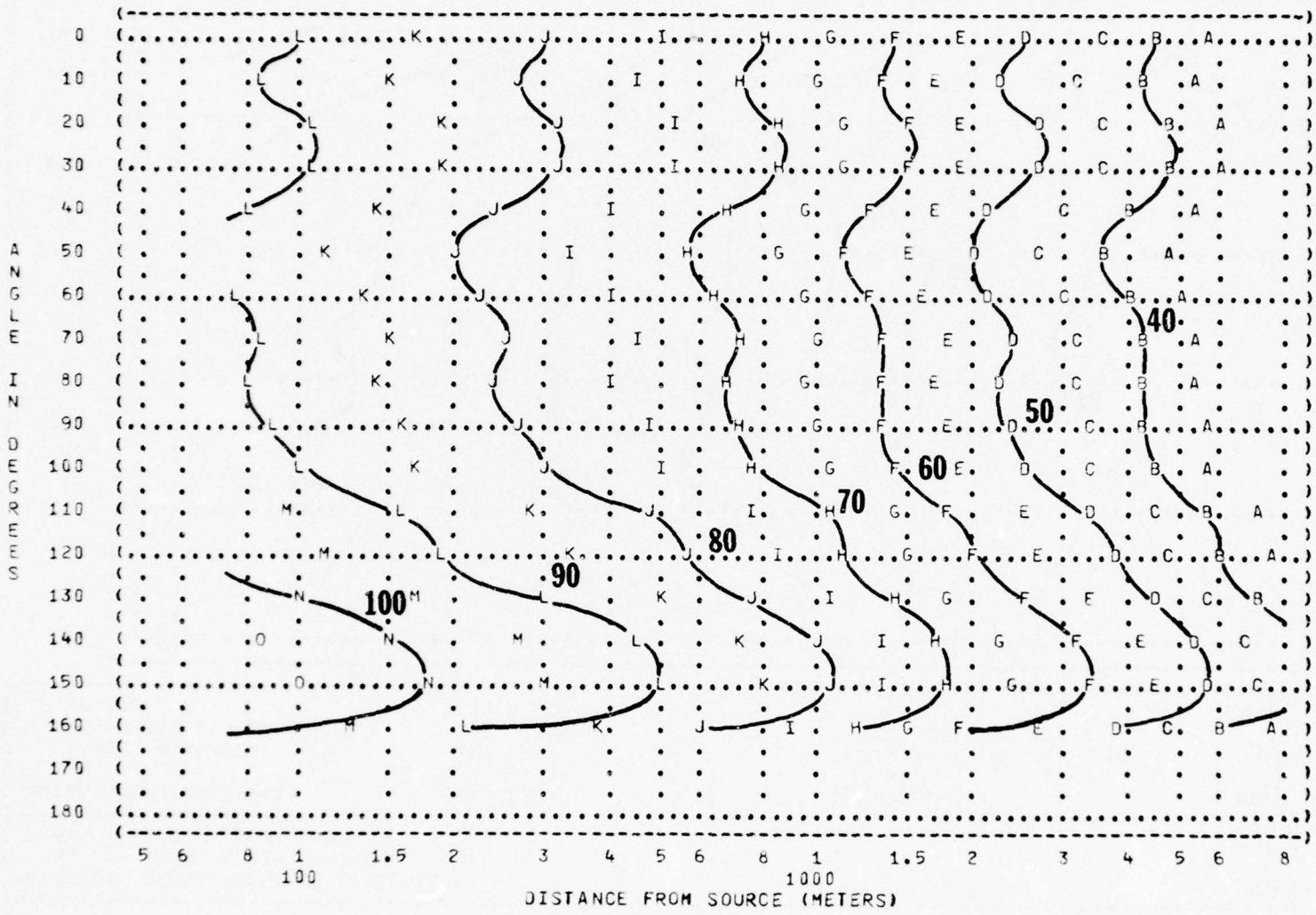
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 22



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

FIGURE: 11

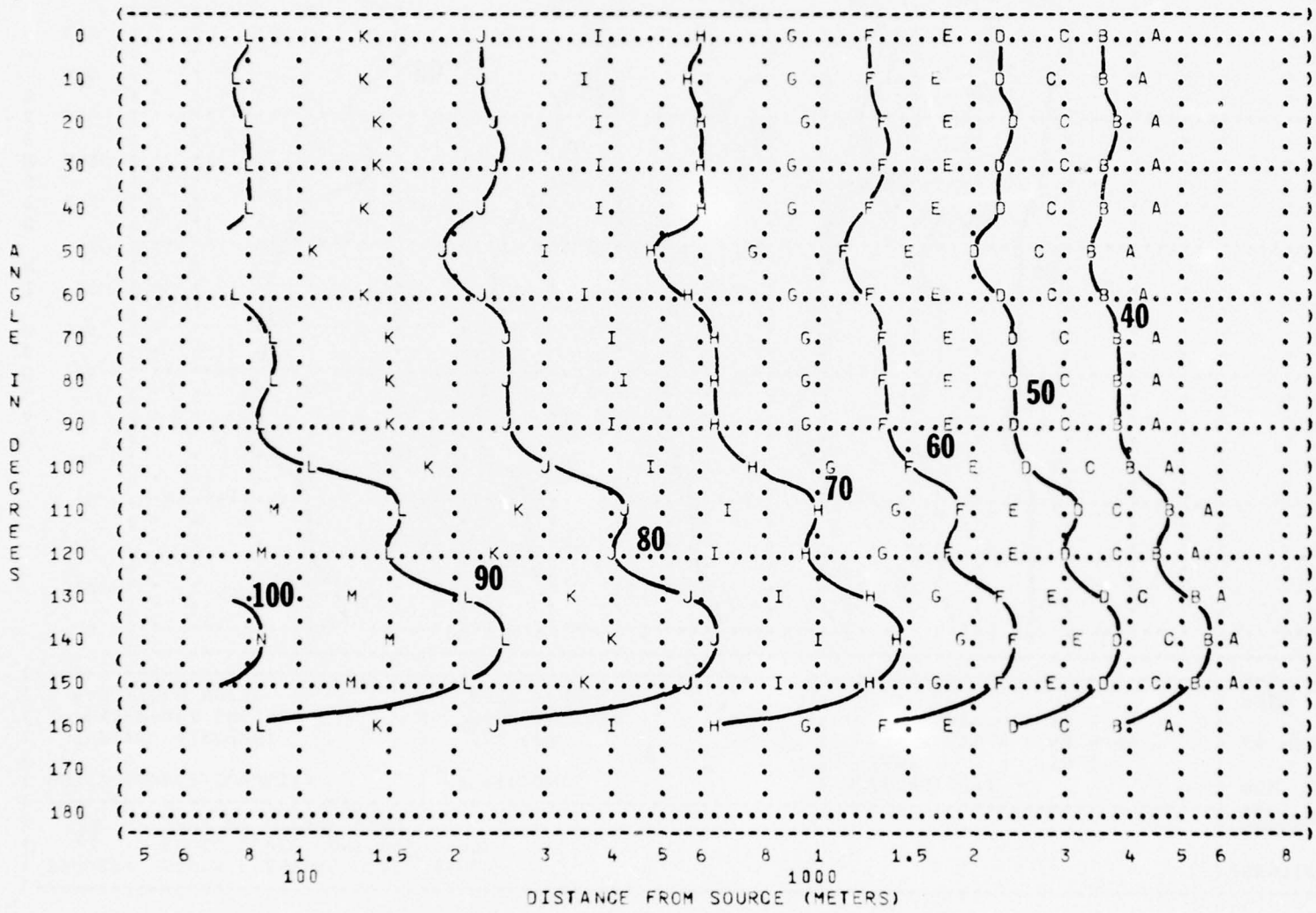
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 23



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

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 24

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

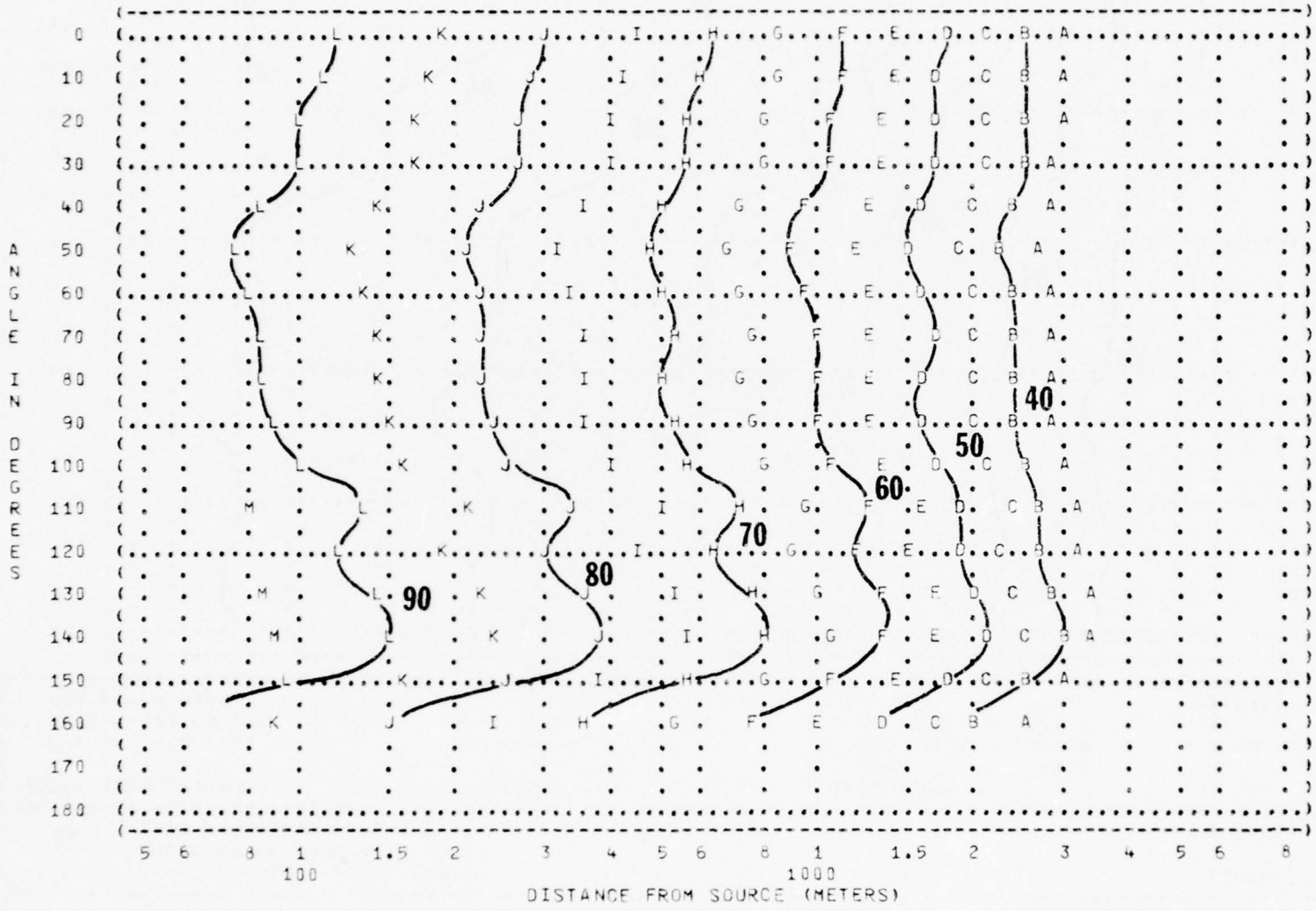


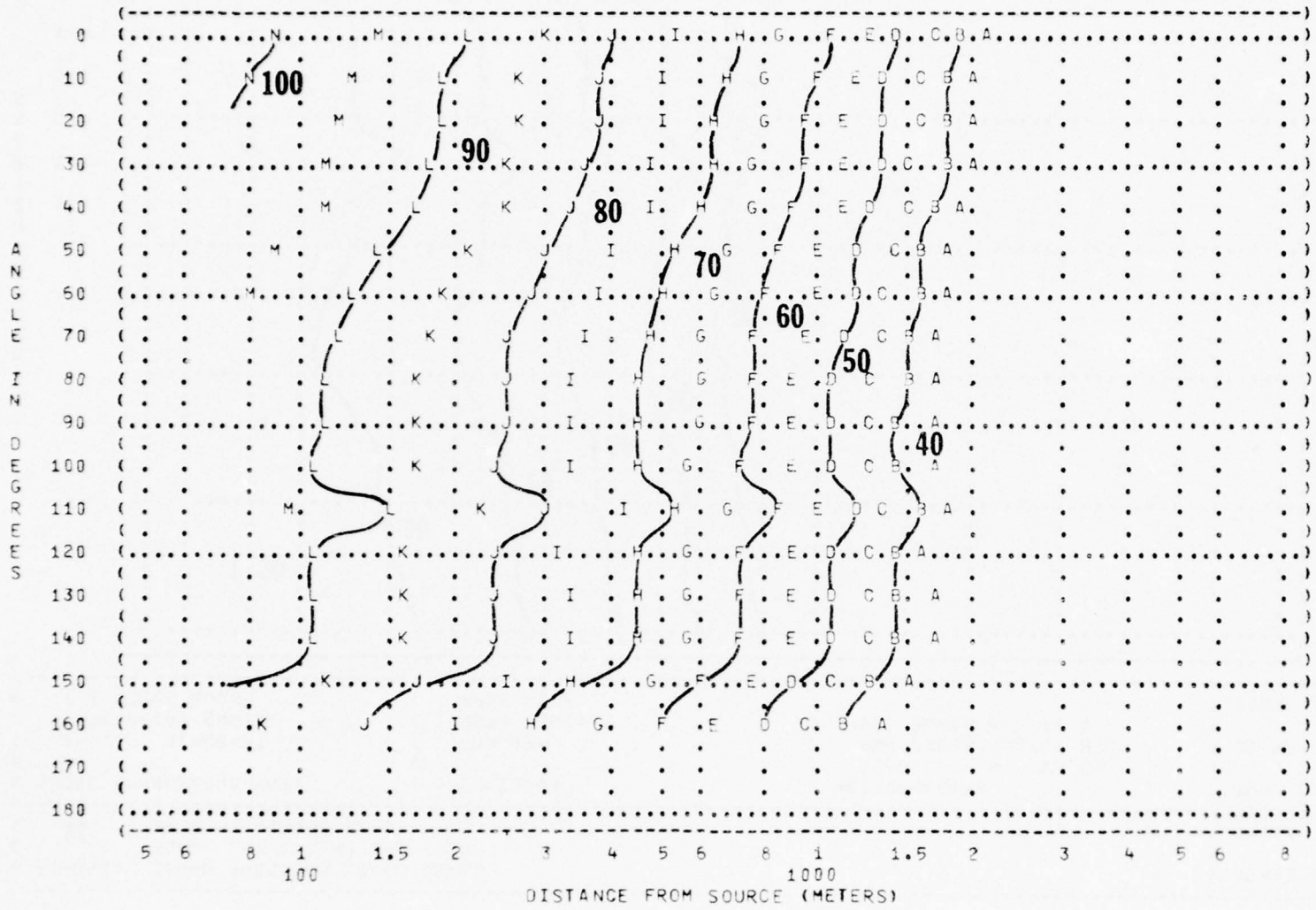
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 25



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

FIGURE: 11

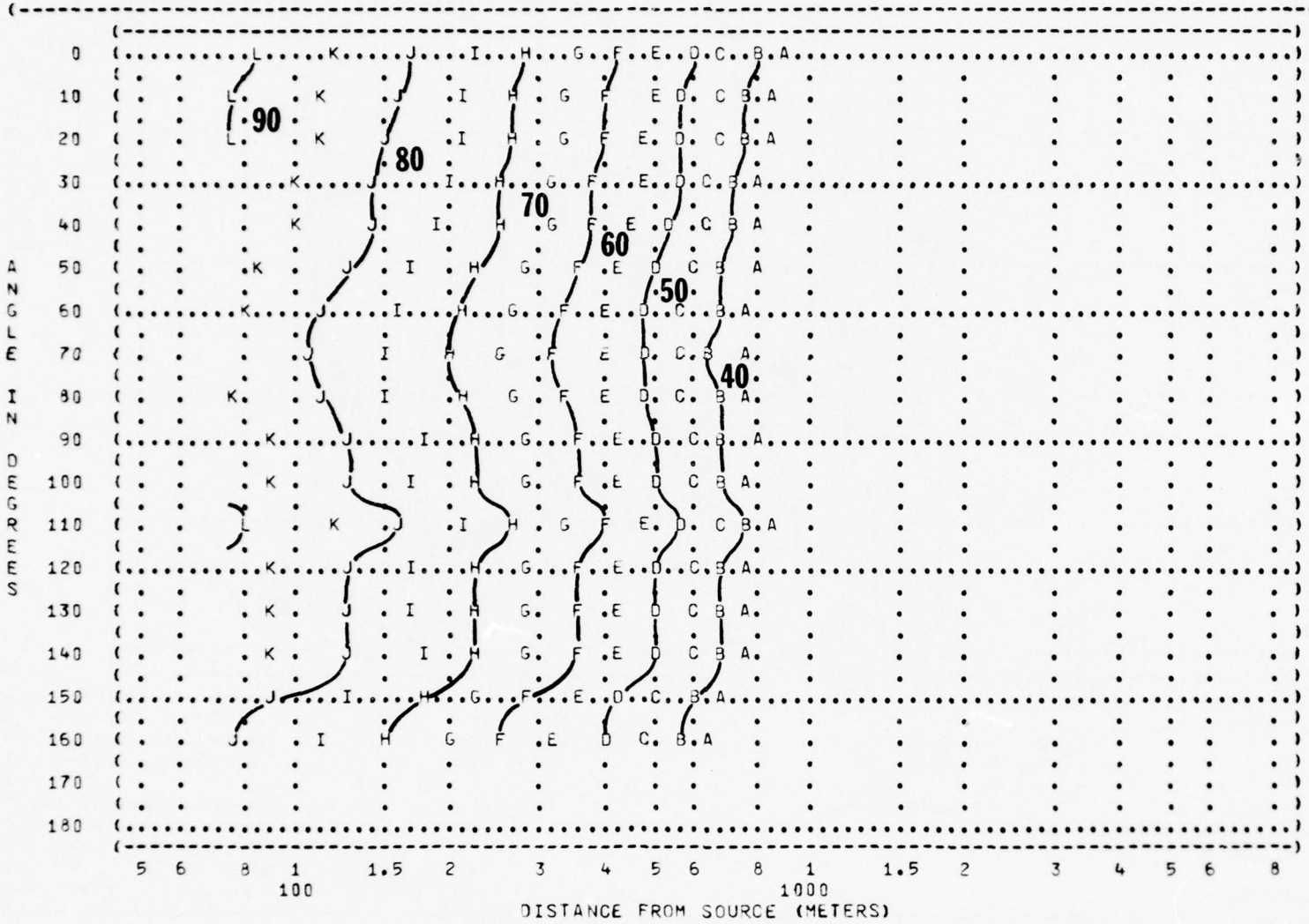
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 03
08 MAY 75
PAGE 26



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

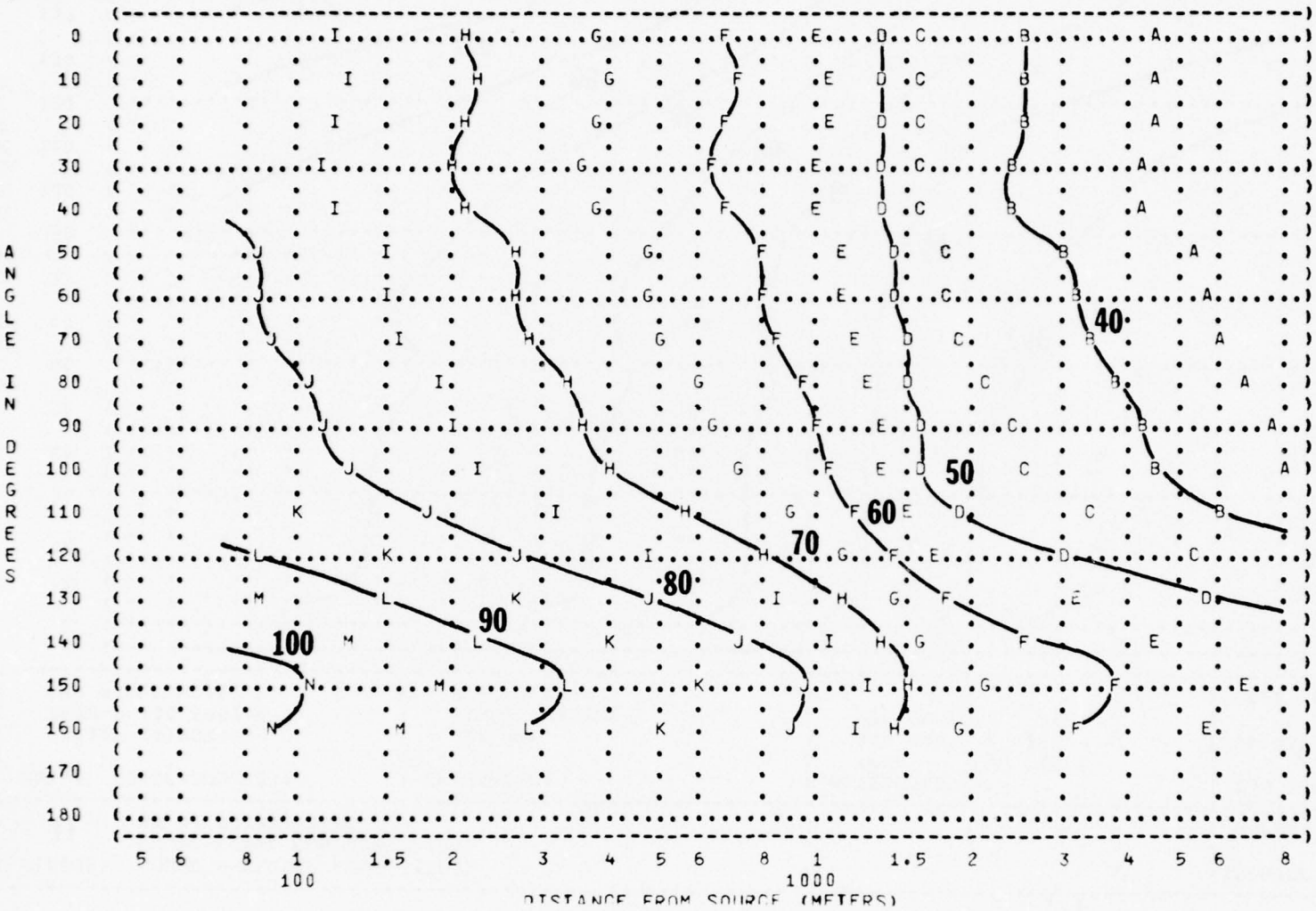
FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 18



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

FIGURE: 11

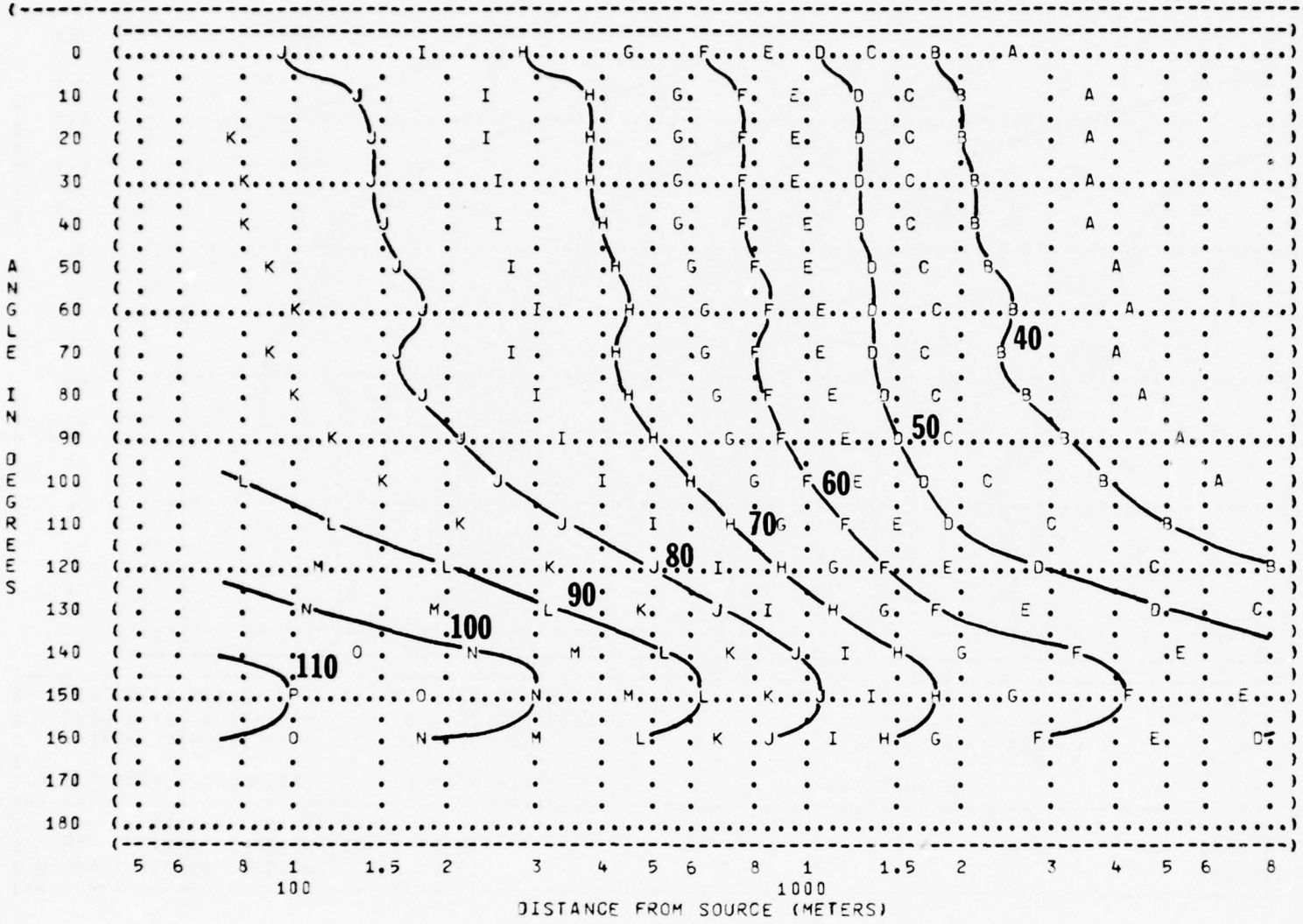
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 19



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

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 20

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115

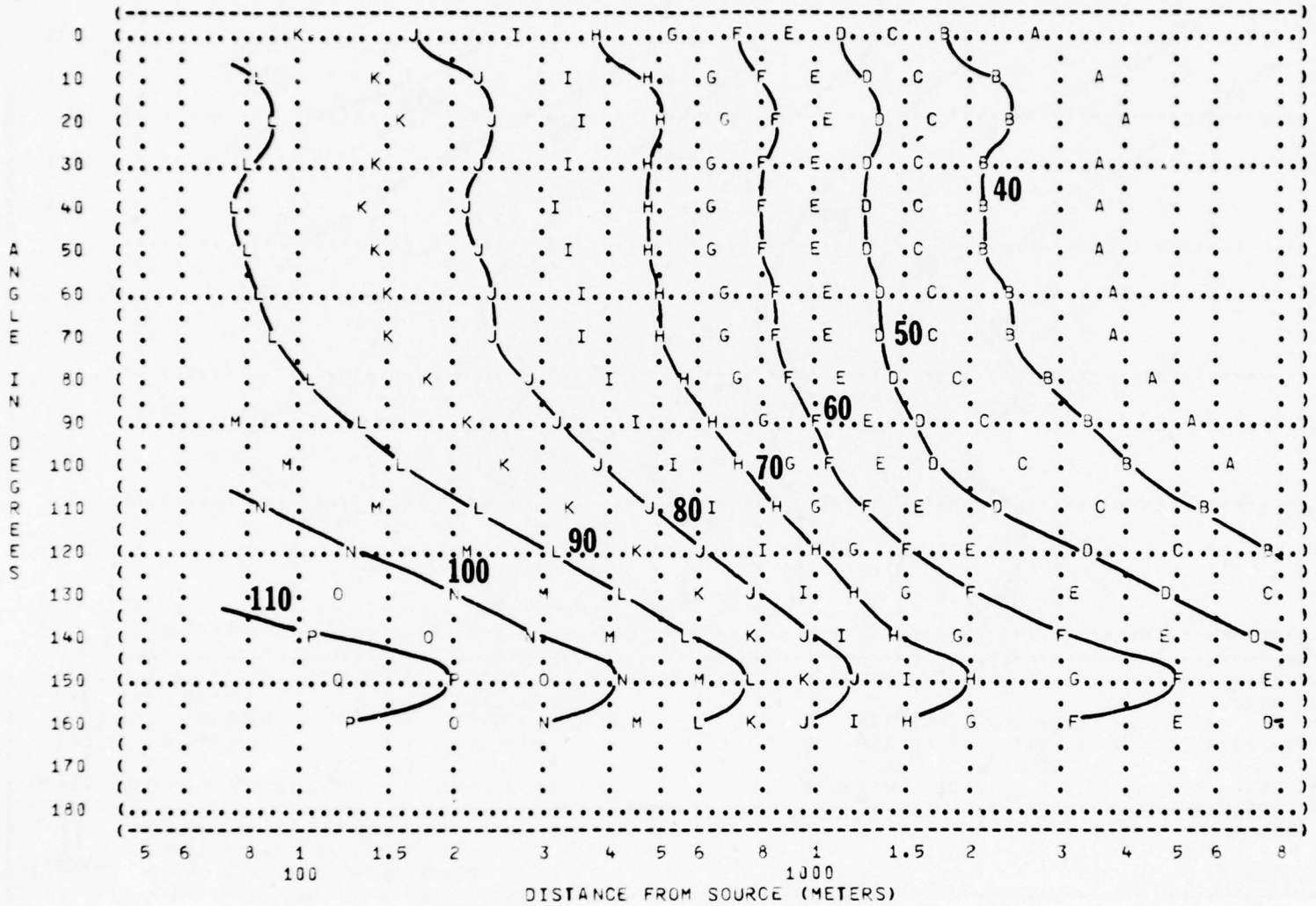


FIGURE 11: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
250 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 21

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

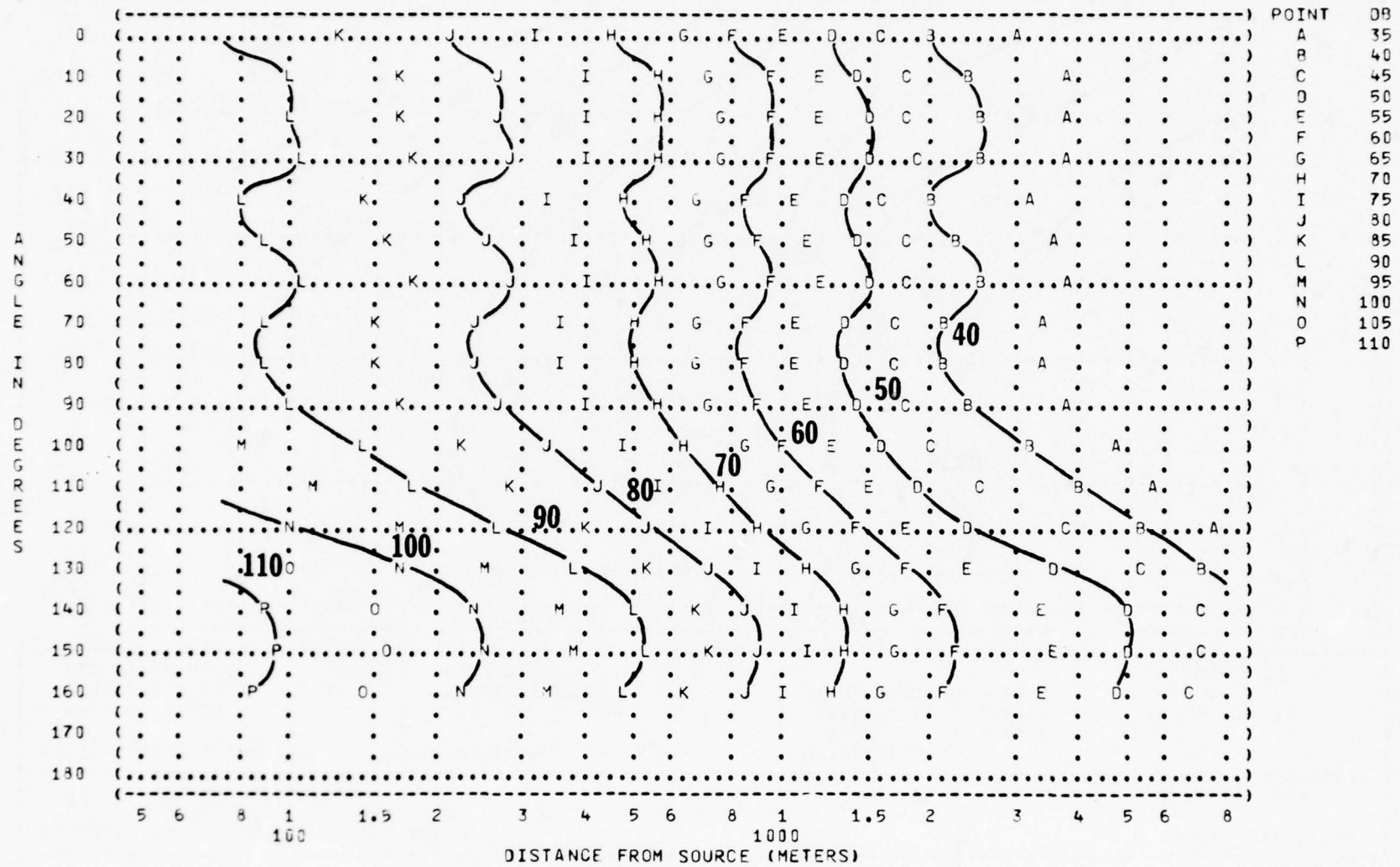


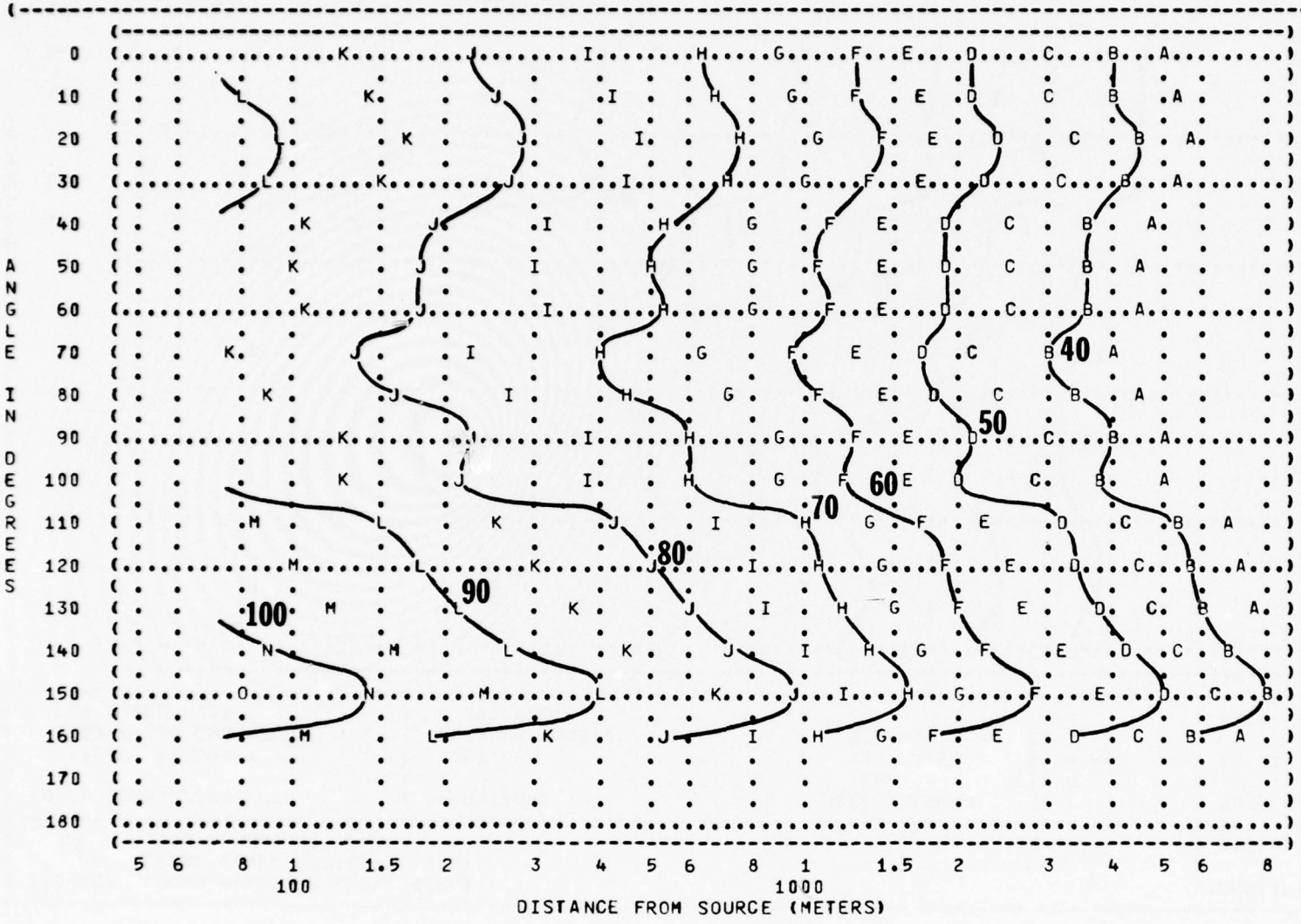
FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 22

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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



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

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 23

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

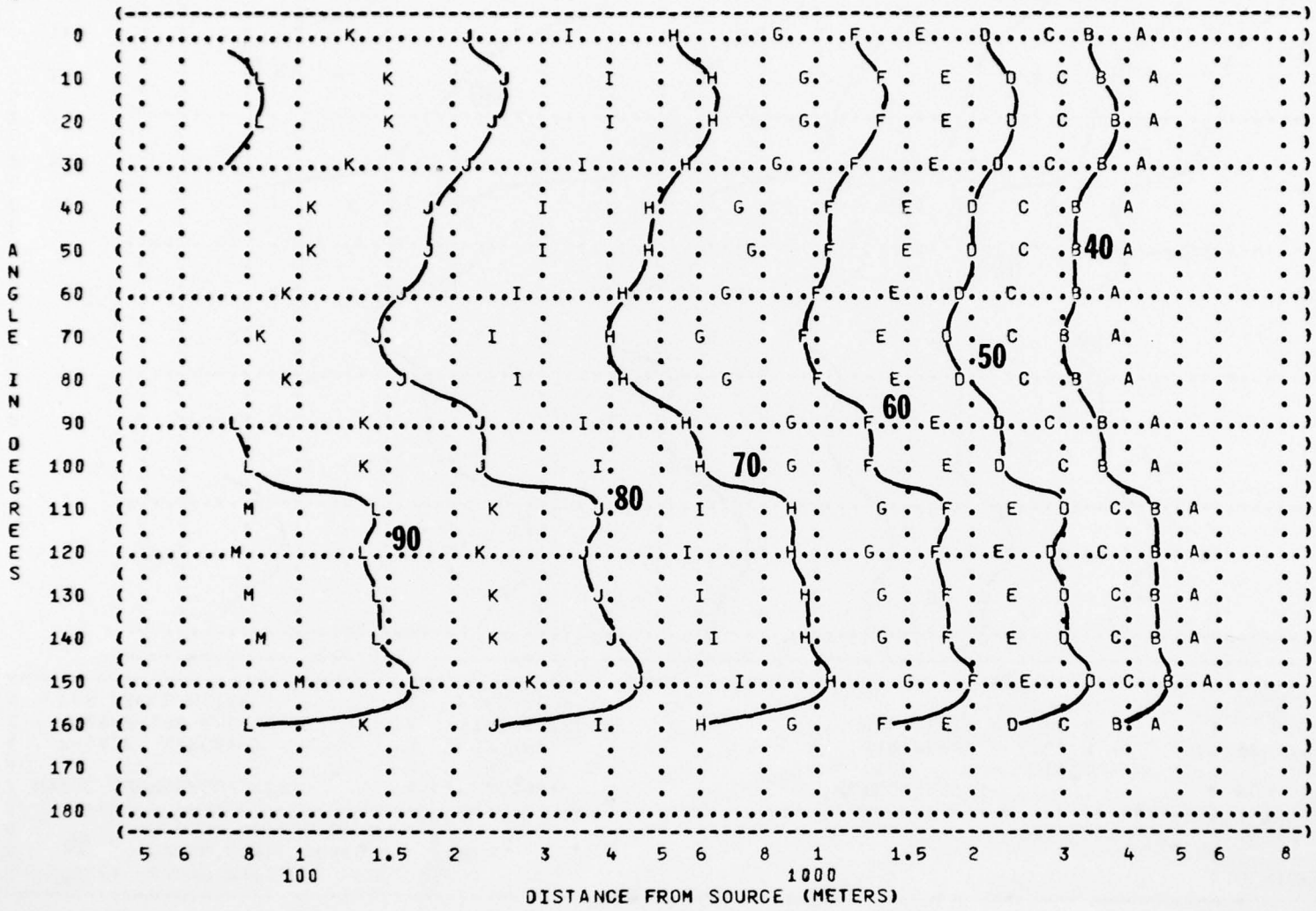


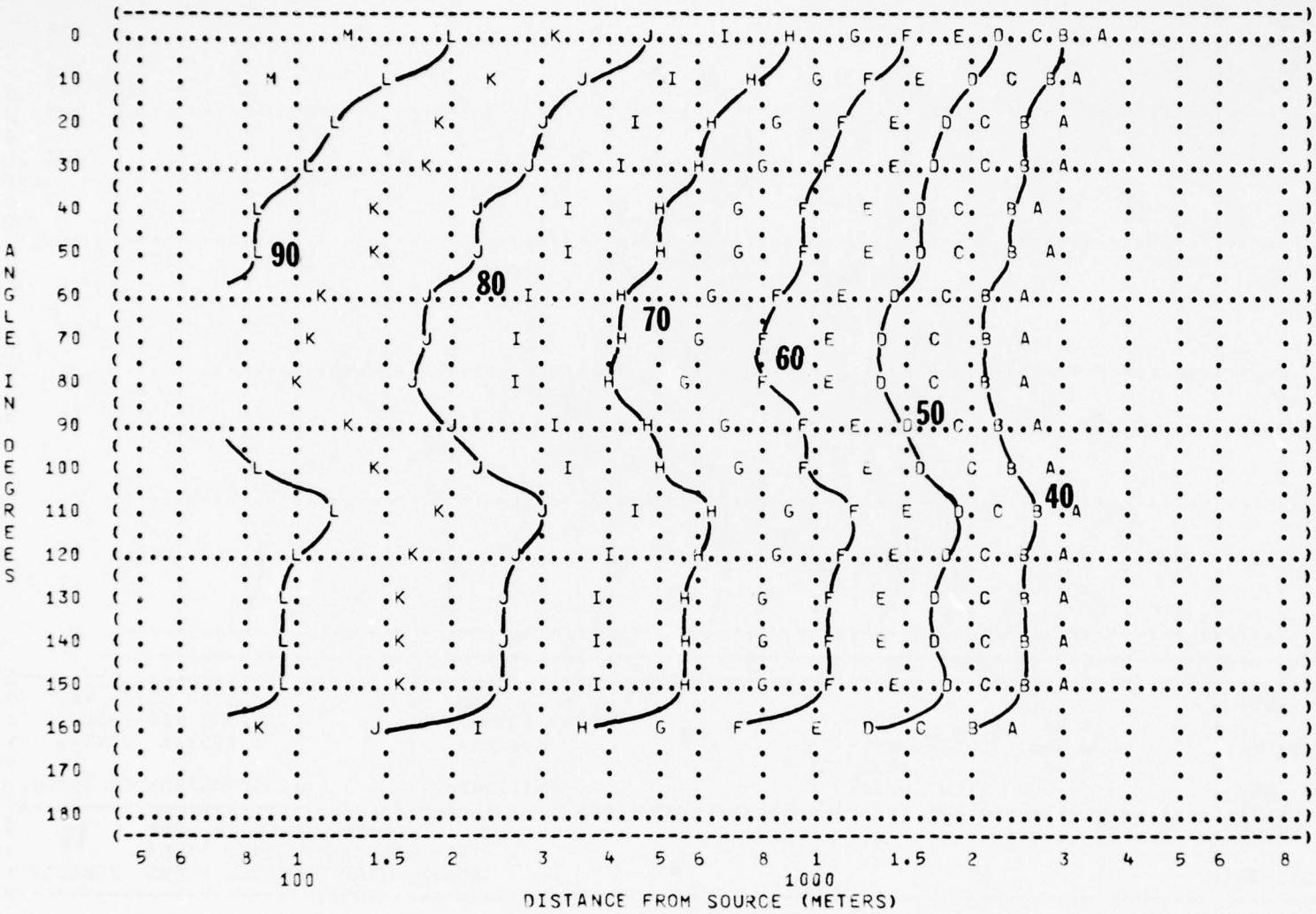
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 24



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

FIGURE: 11

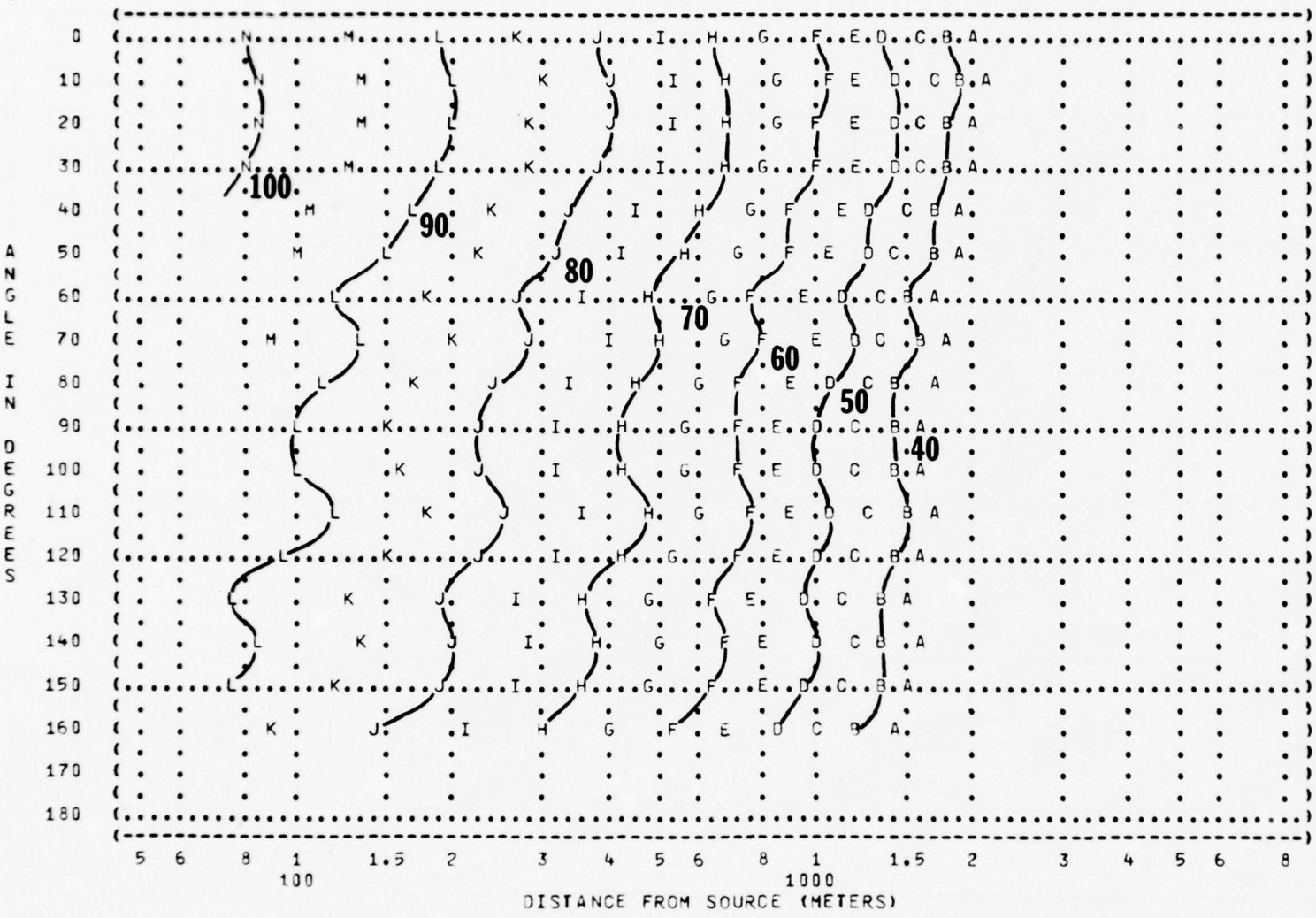
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 25



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

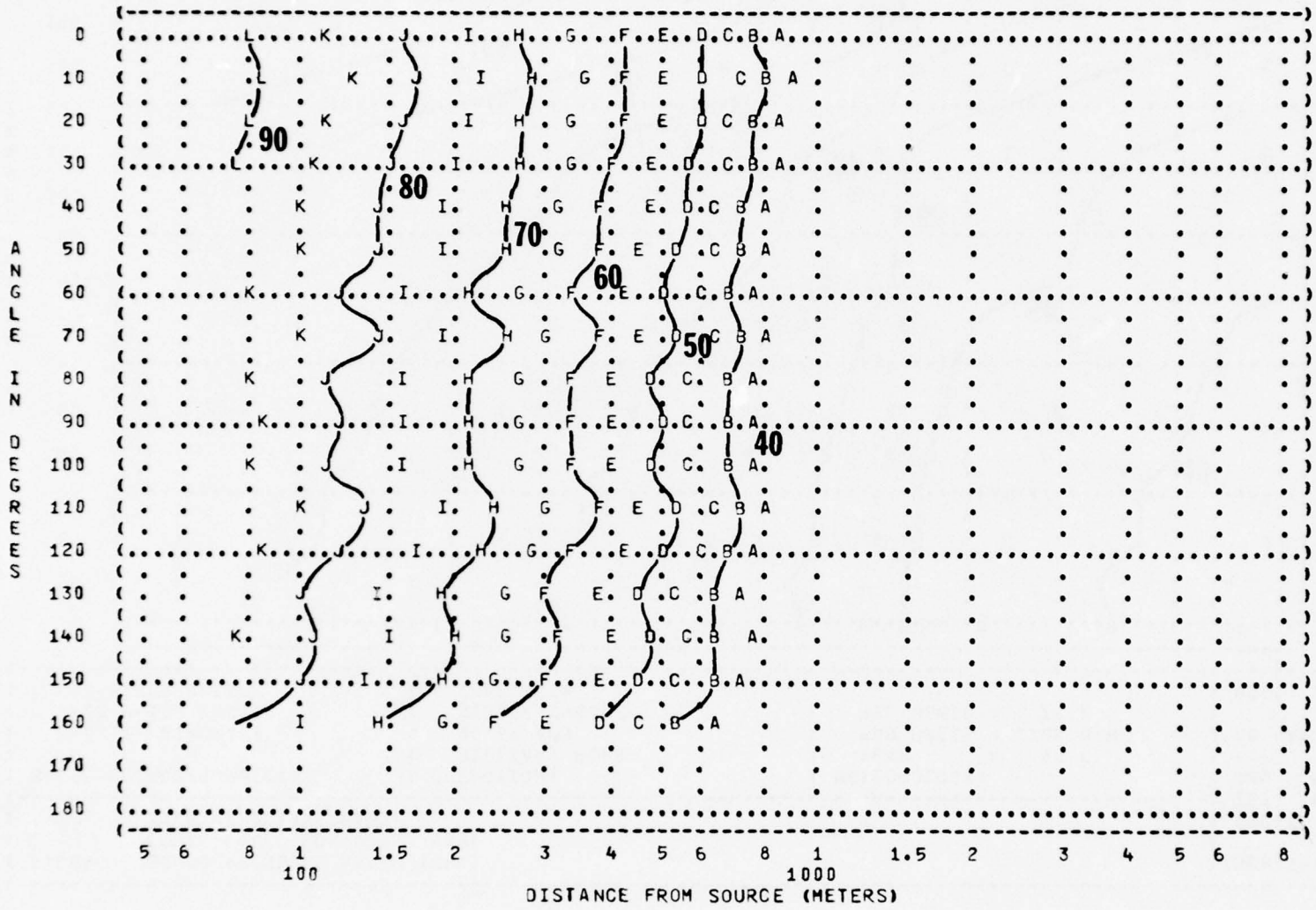
FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 04
08 MAY 75
PAGE 26

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
85% RPM
SINGLE ENGINE
FREE FLOW

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



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

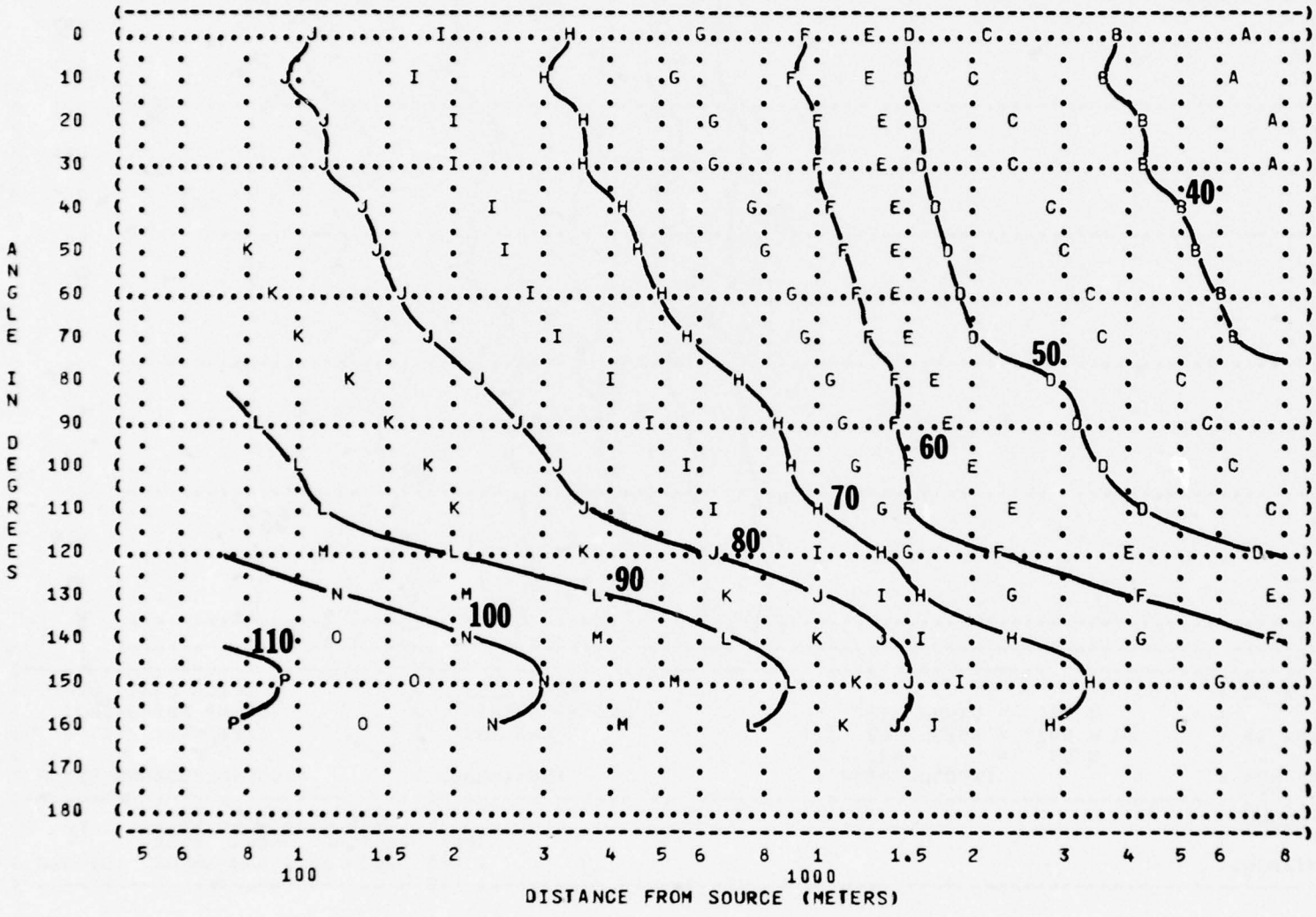
FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 18



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

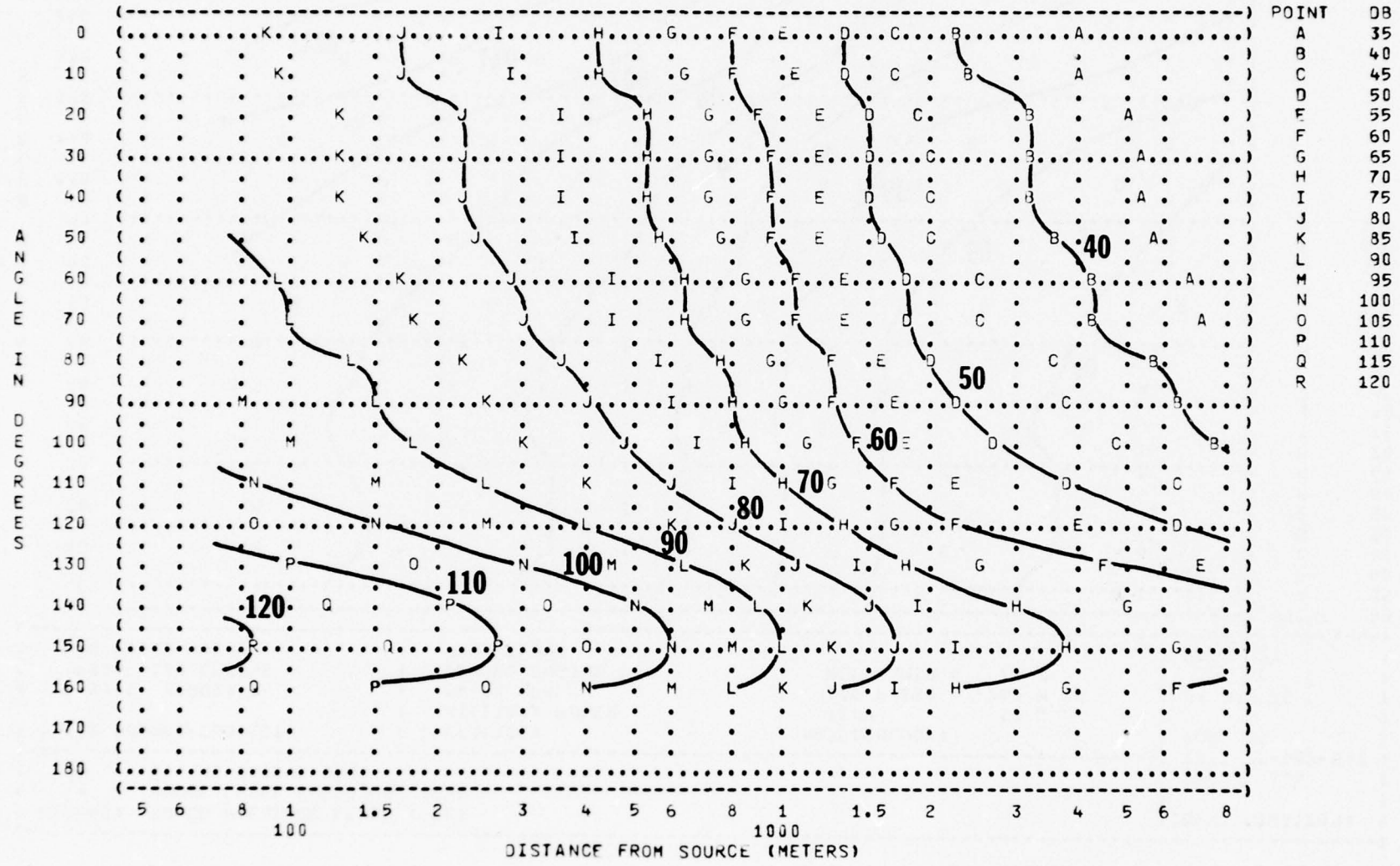
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 19



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115
R	120

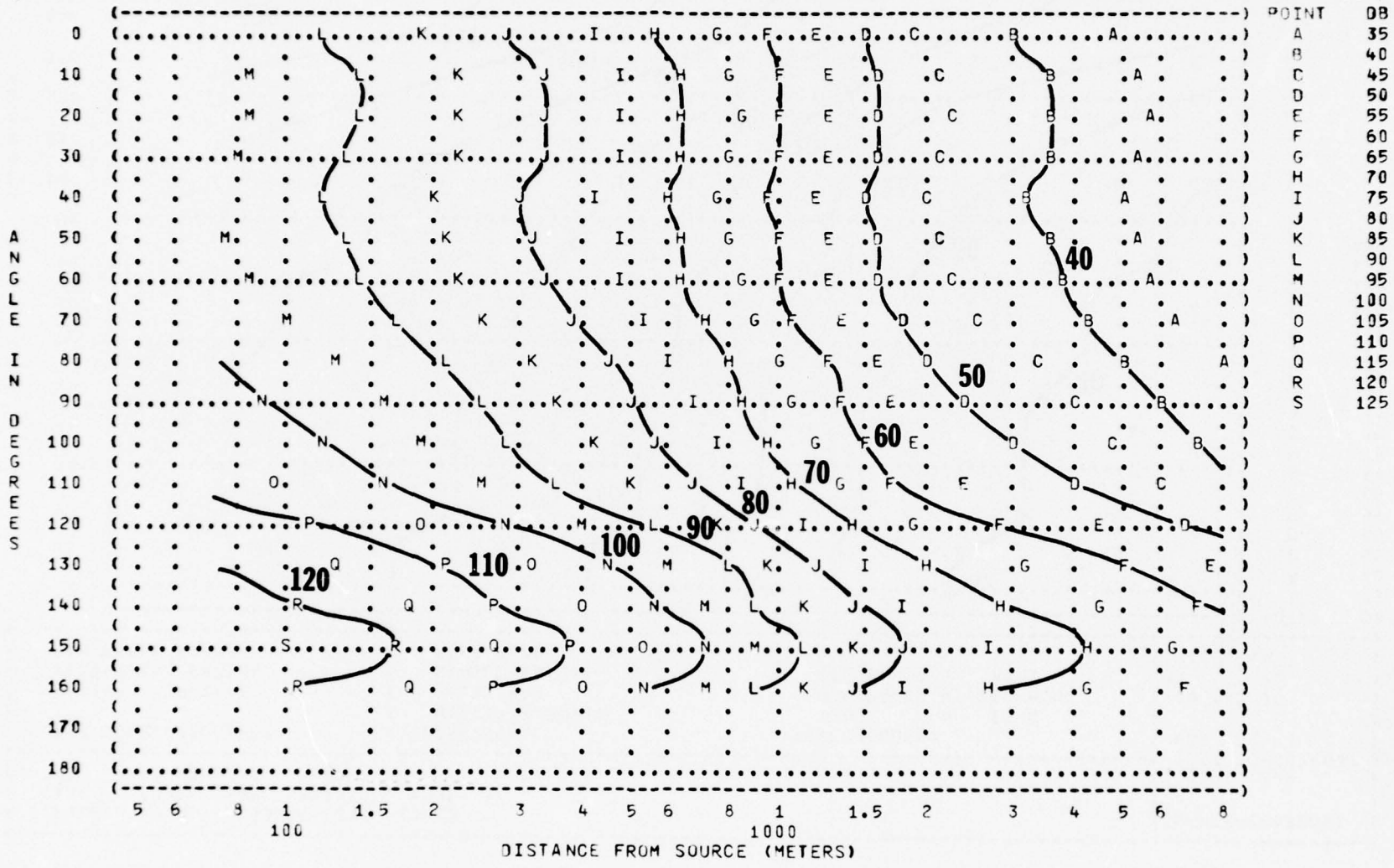
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 20



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115
R	120
S	125

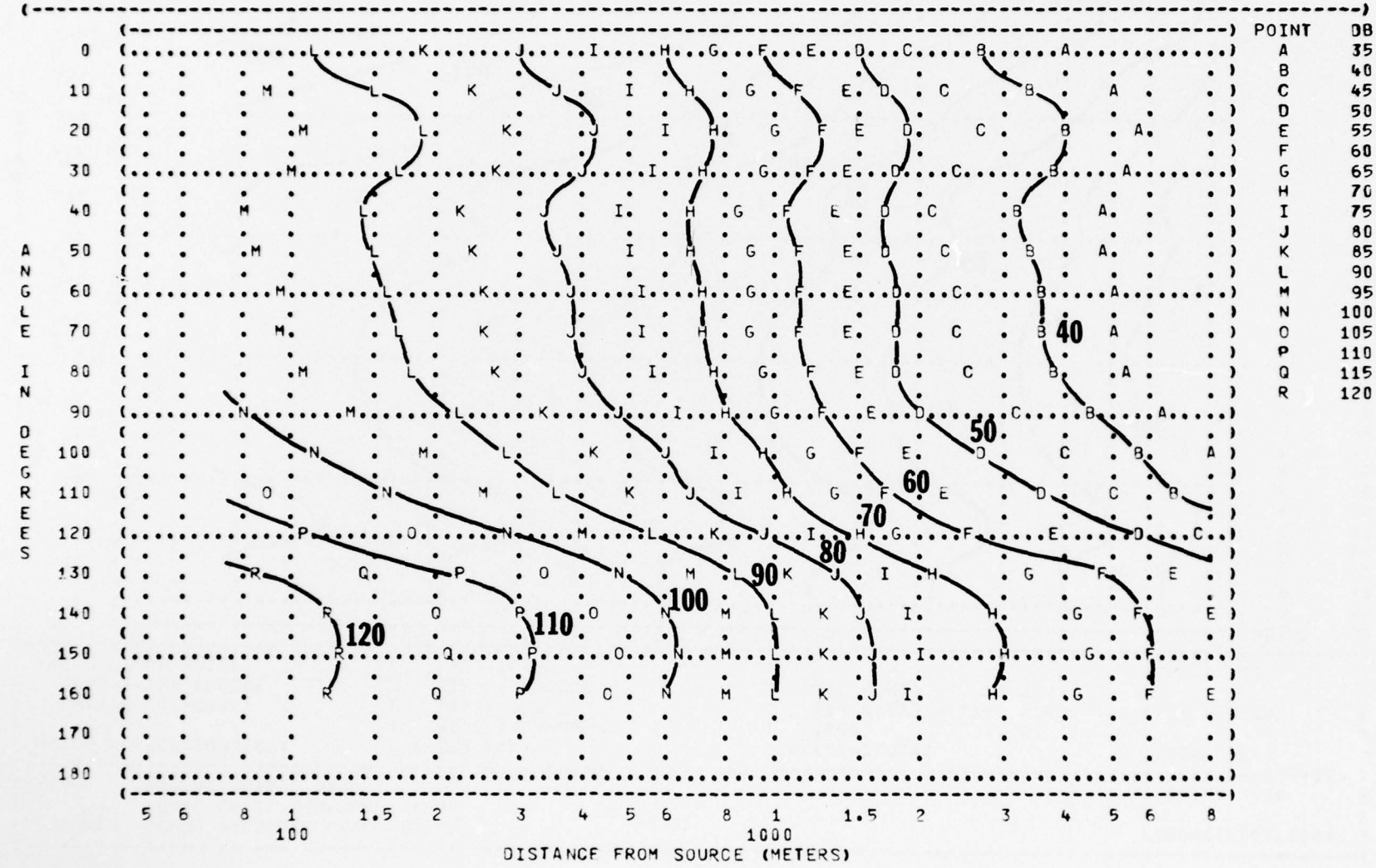
FIGURE 11 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
250 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 21

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115
R	120

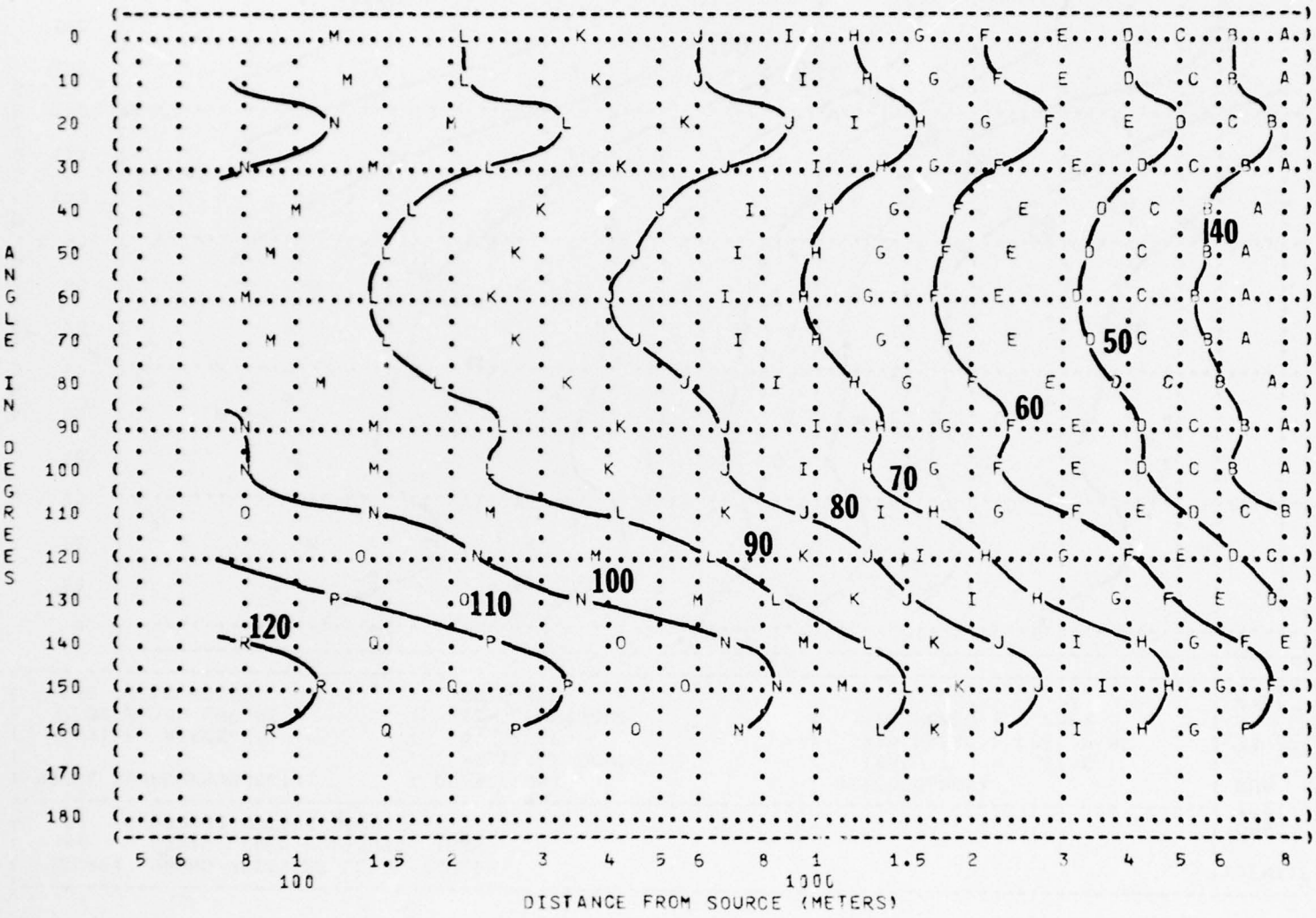
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 22



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115
R	120

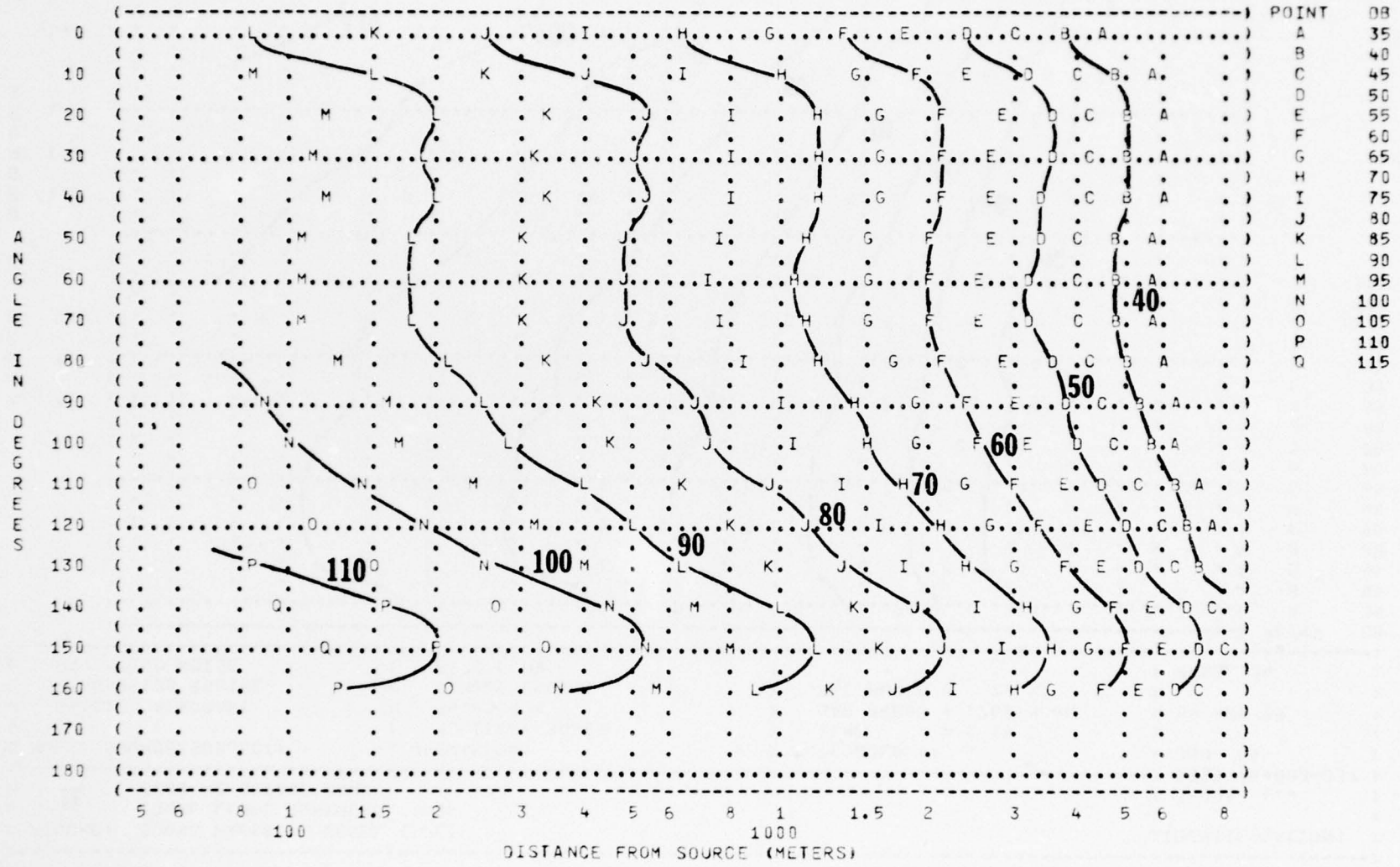
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 75-002-037 RUN 05 08 MAY 75 PAGE 23

NOISE SOURCE/SUBJECT: F-111F AIRCRAFT TF30-P-100 ENGINE FAR FIELD NOISE

OPERATION: MILITARY POWER 94.8% RPM SINGLE ENGINE FREE FLOW

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



POINT DB

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 24

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115

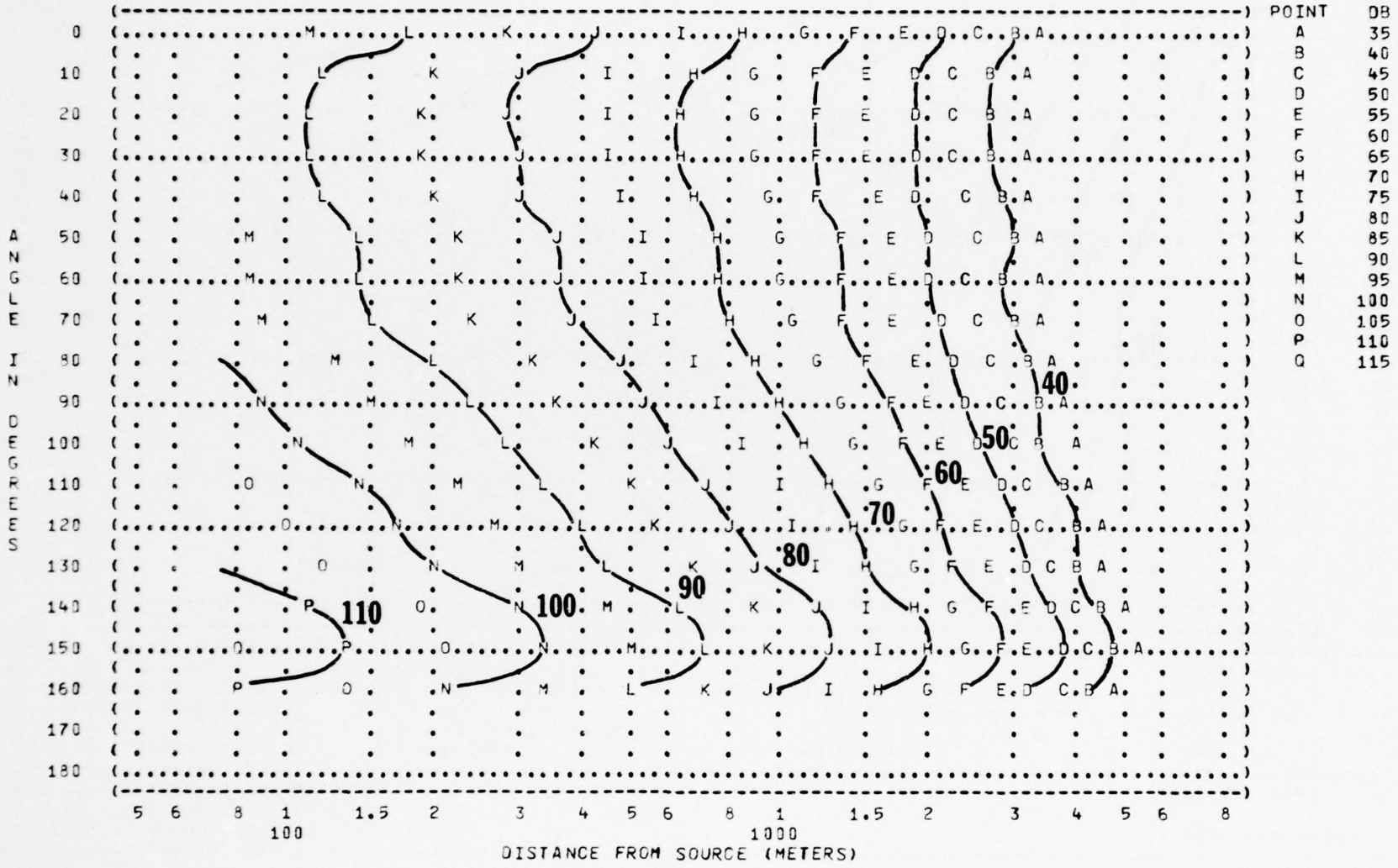


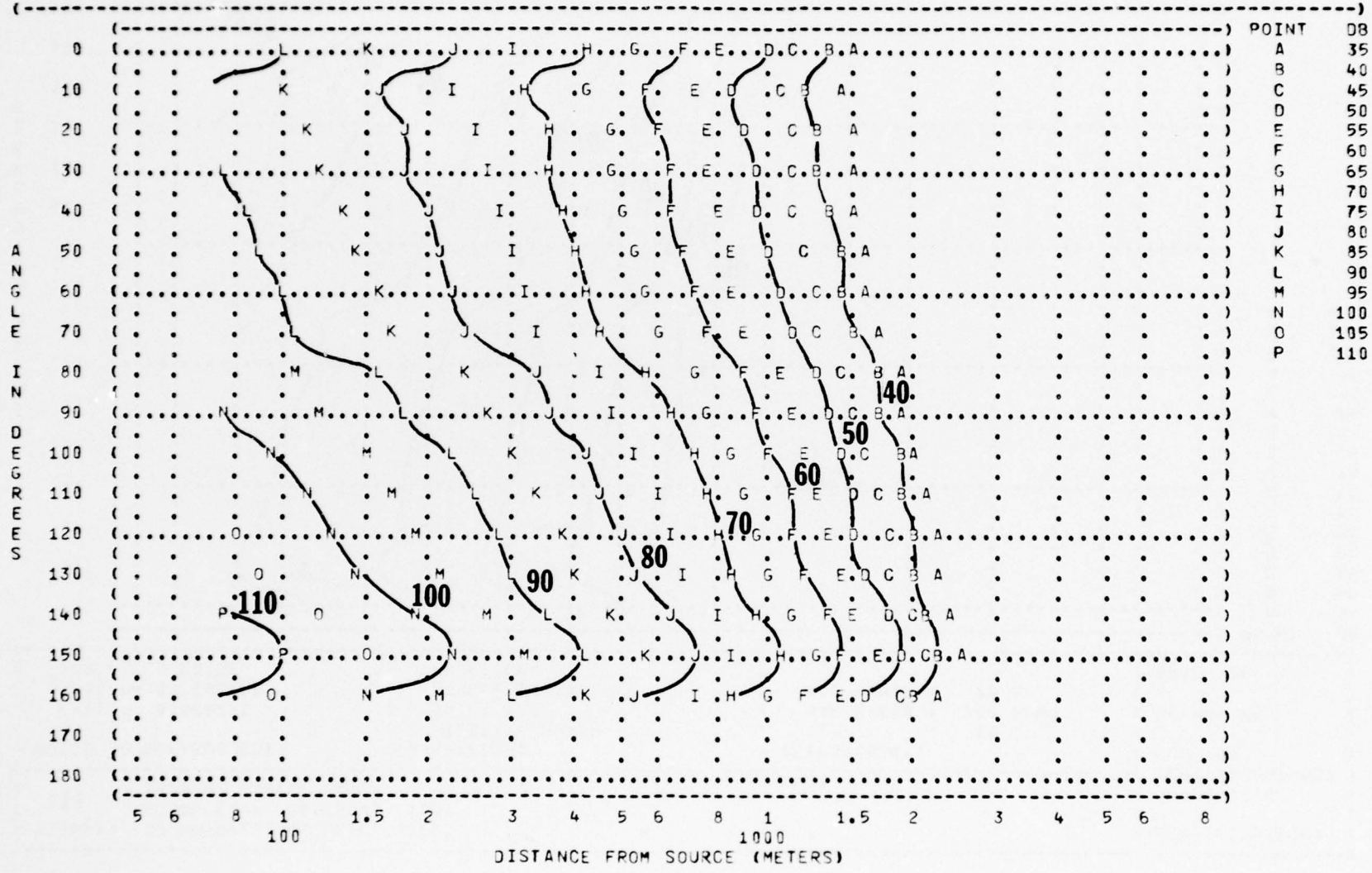
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 25



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

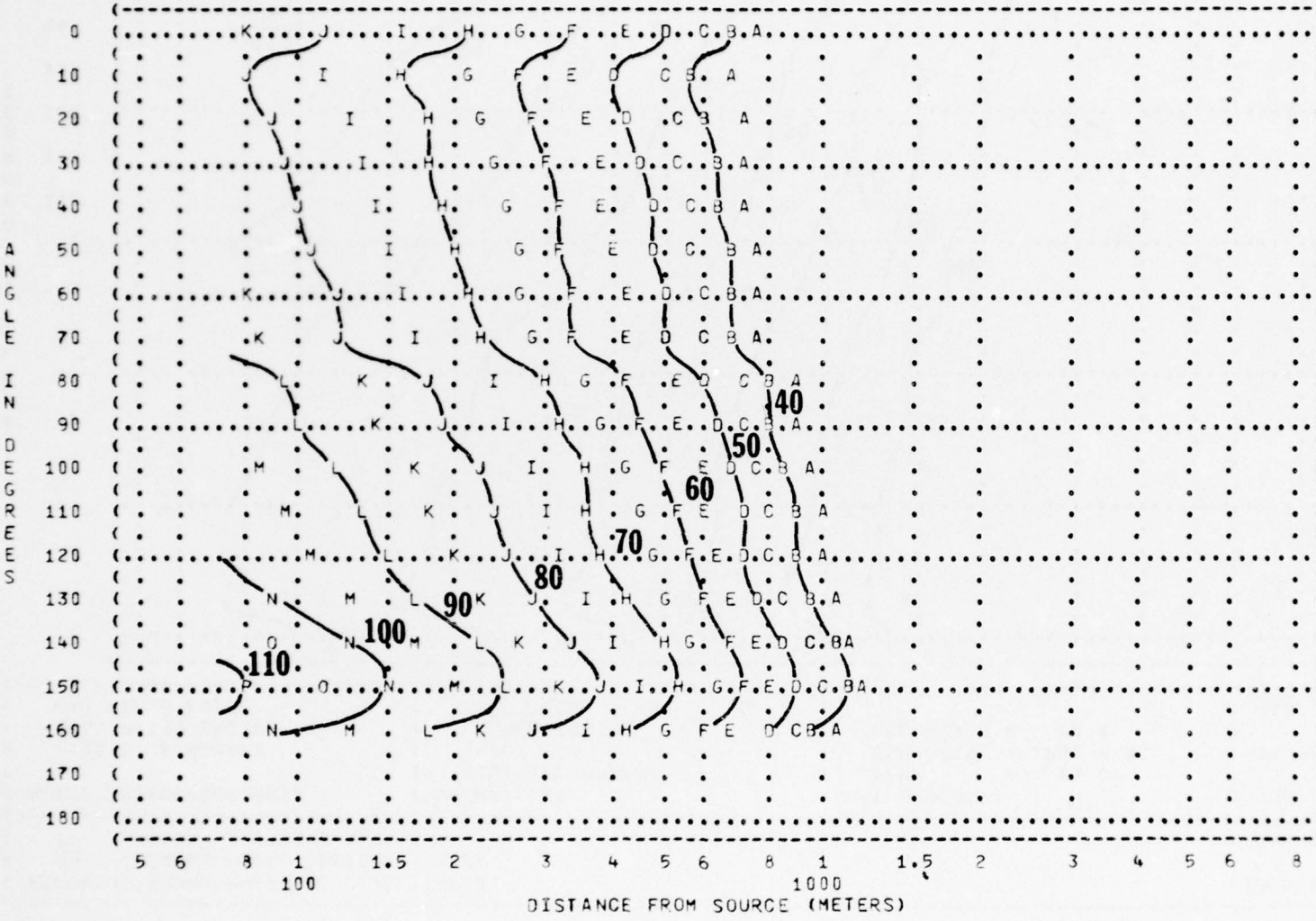
FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 05
08 MAY 75
PAGE 26

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
94.8% RPM
SINGLE ENGINE
FREE FLOW

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



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

FIGURE: 11

SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 18

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

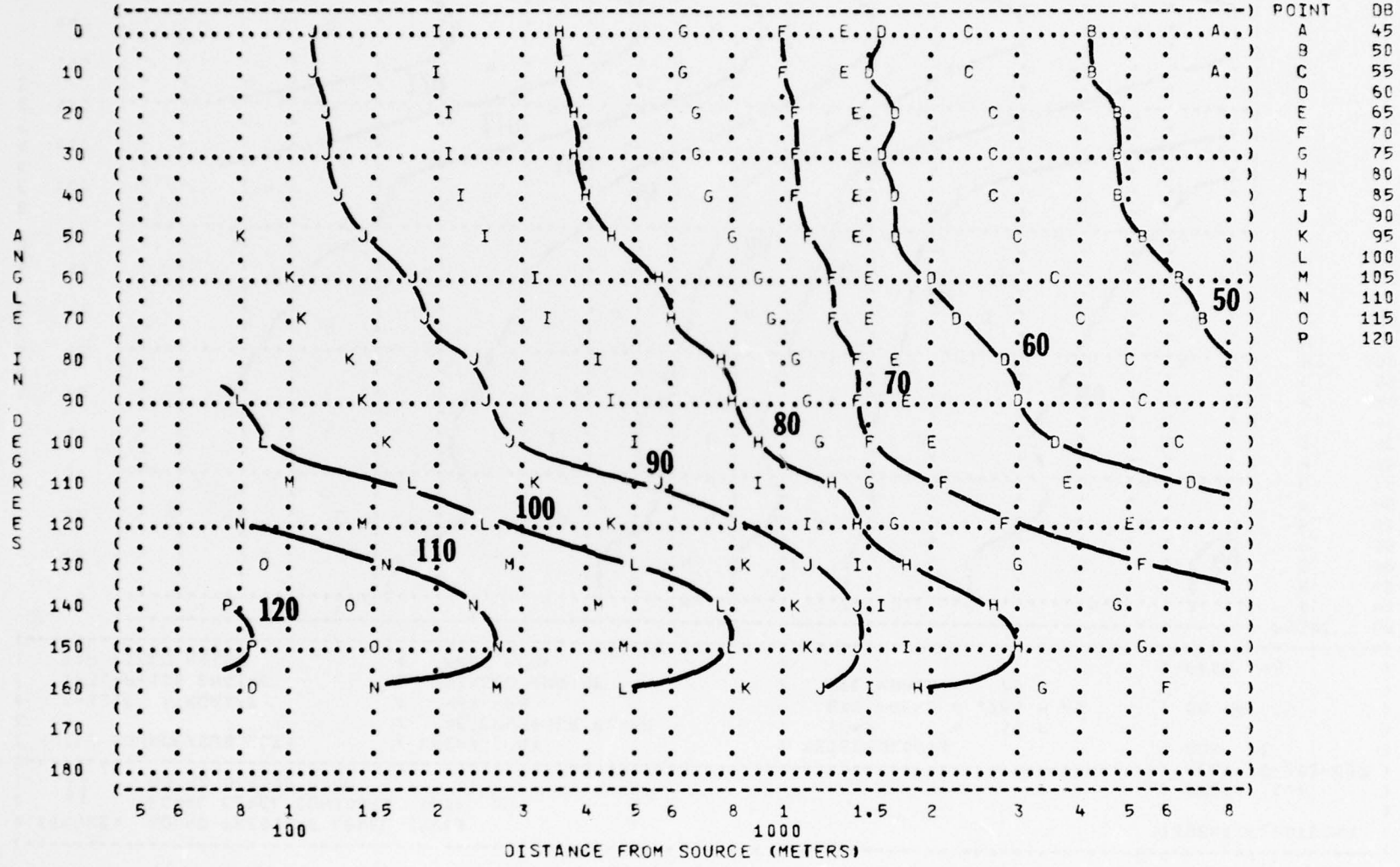


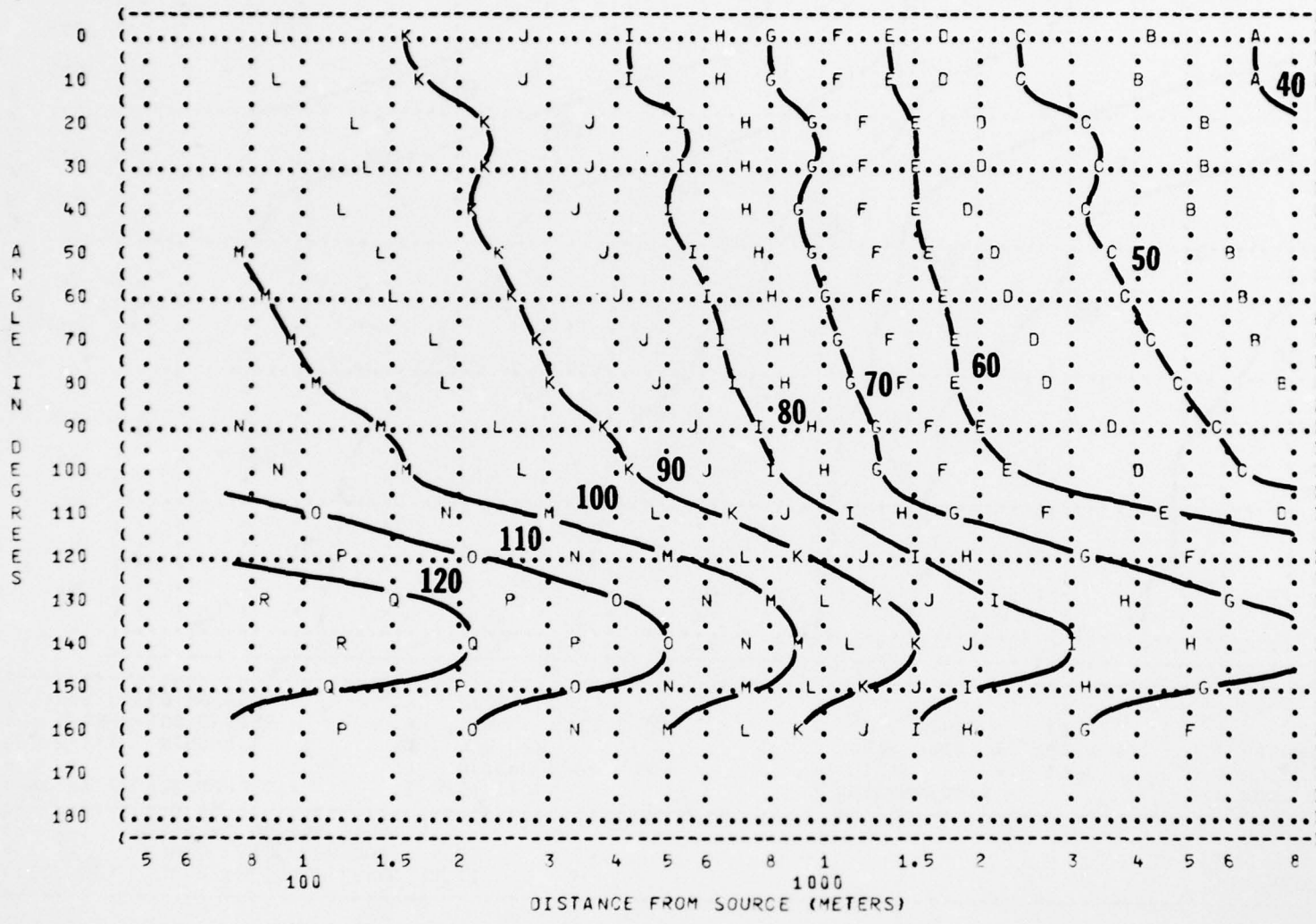
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 19



POINT	DB
A	40
B	45
C	50
D	55
E	60
F	65
G	70
H	75
I	80
J	85
K	90
L	95
M	100
N	105
O	110
P	115
Q	120
R	125

FIGURE: 11

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06

08 MAY 75

POINT	DB
A	40
B	45
C	50
D	55
E	60
F	65
G	70
H	75
I	80
J	85
K	90
L	95
M	100
N	105
O	110
P	115
Q	120
R	125
S	130

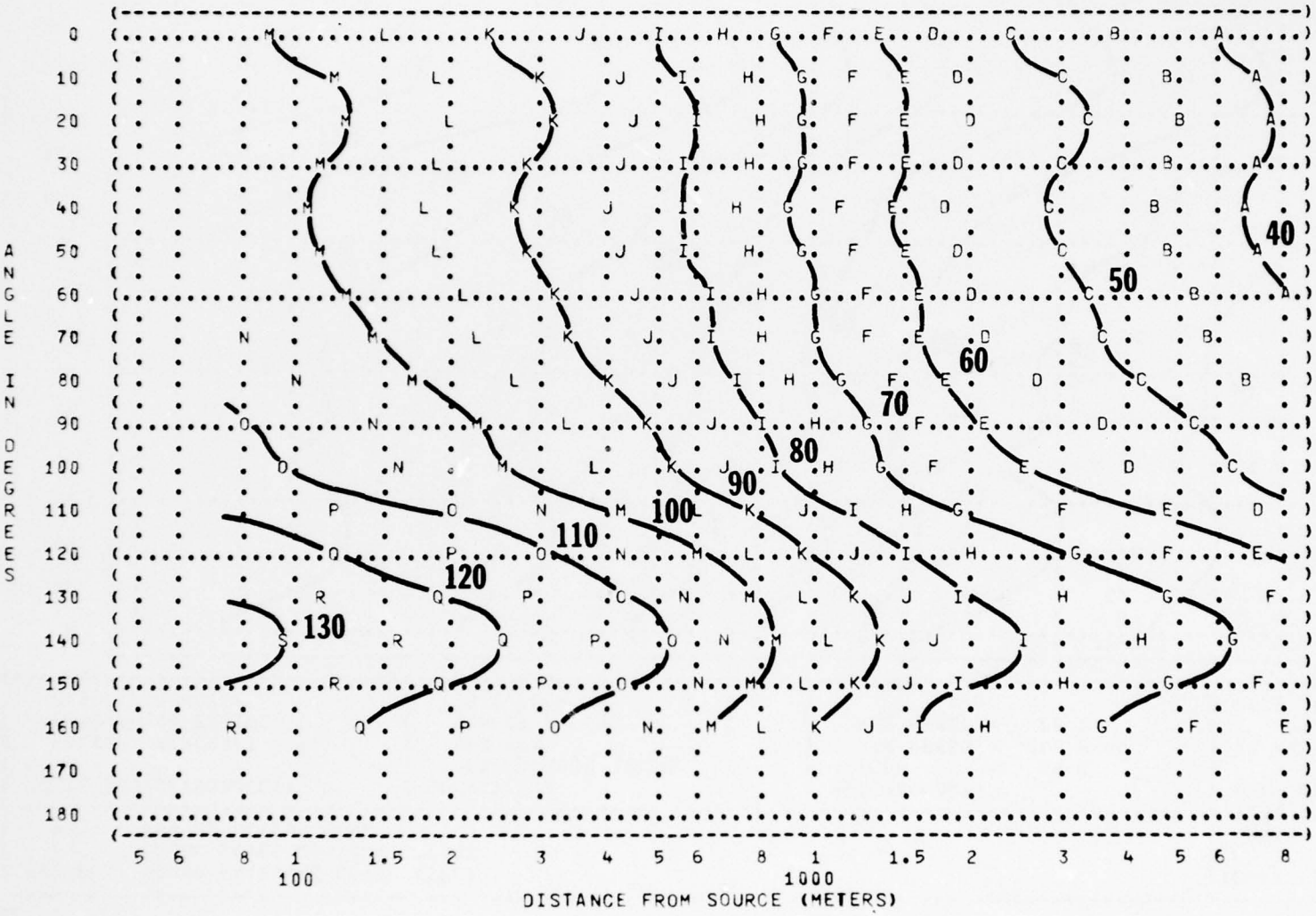


FIGURE: 11

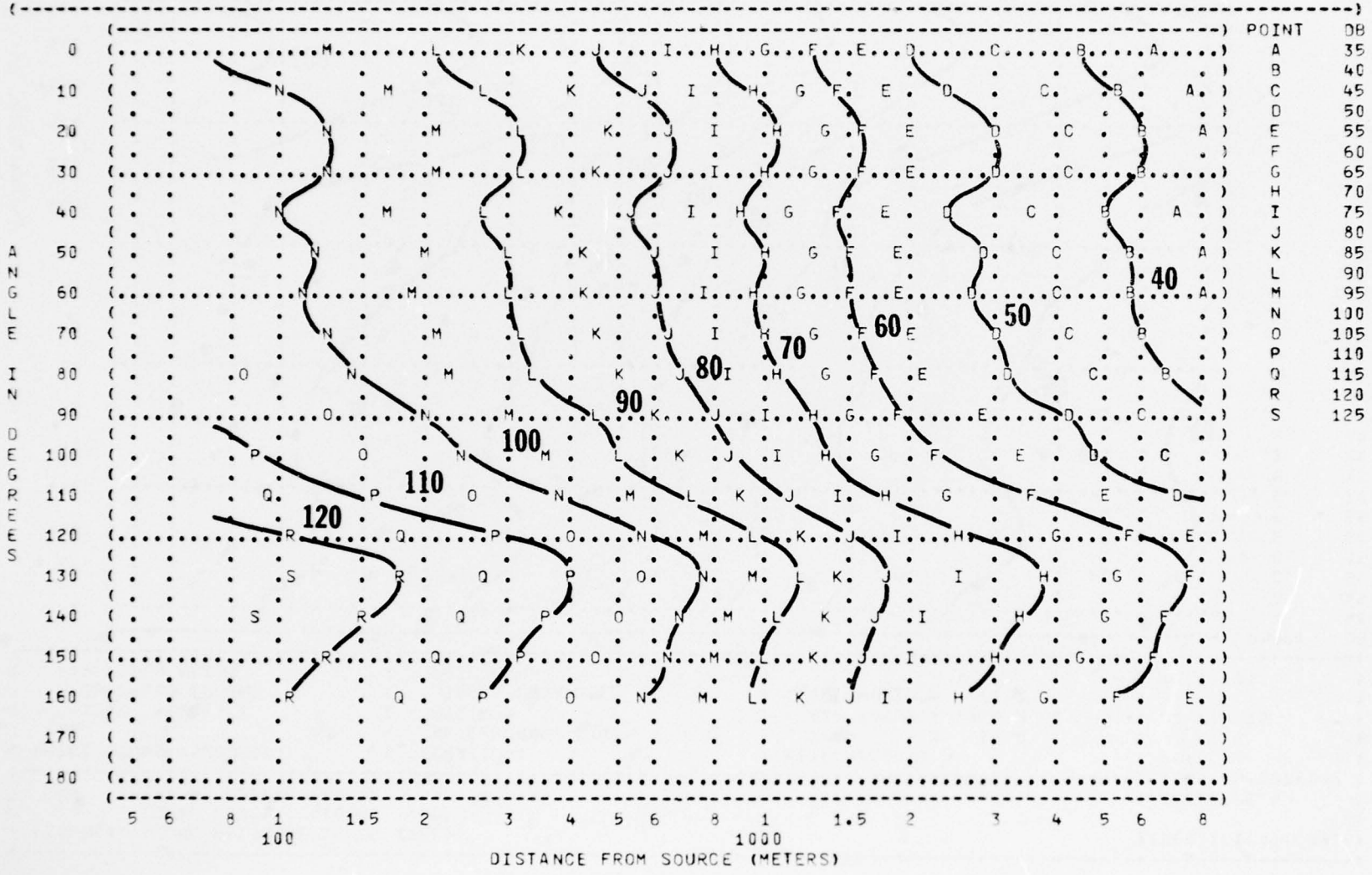
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
250 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 21



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115
R	120
S	125

FIGURE: 11

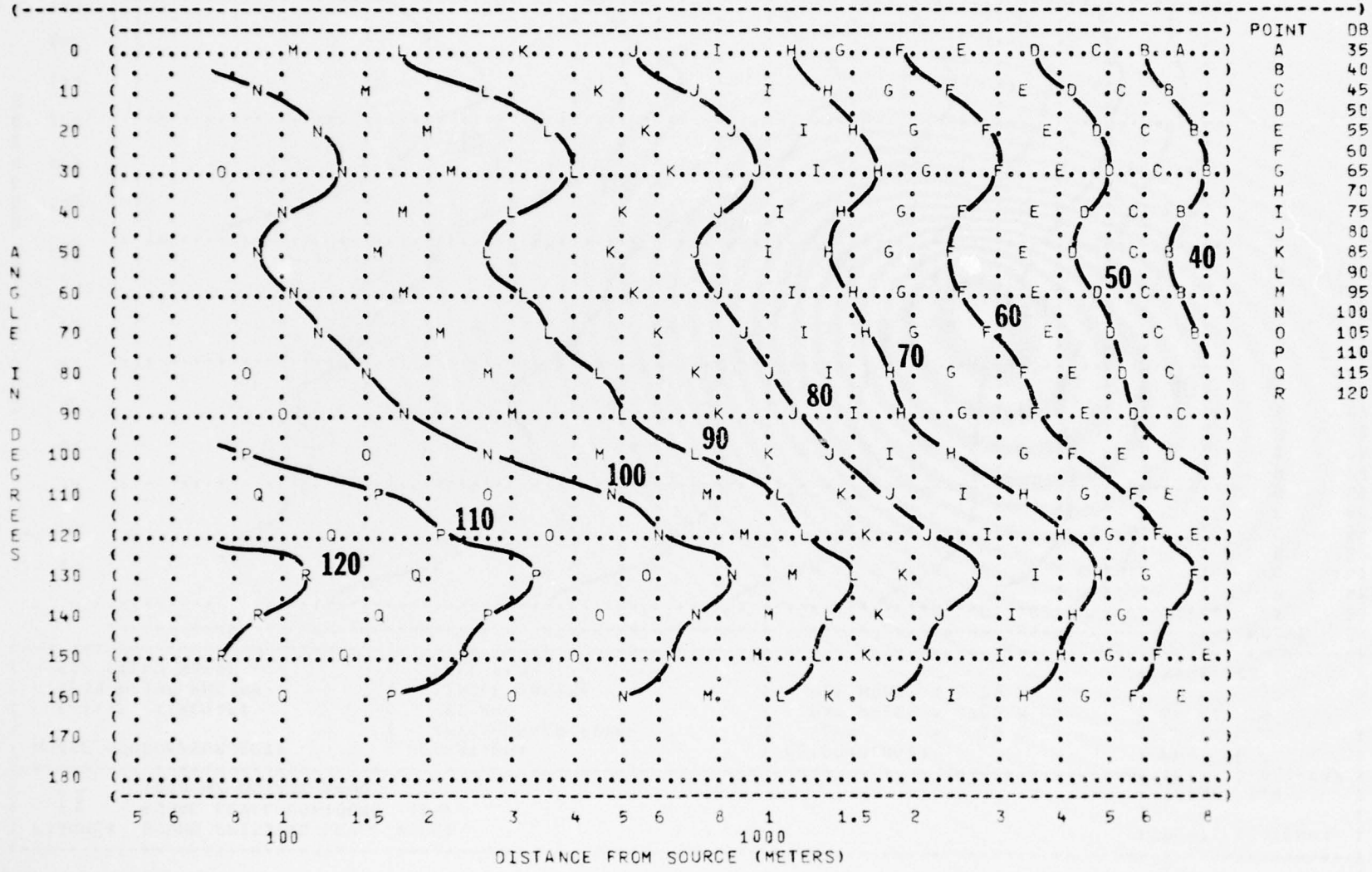
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
500 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 22



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115
R	120

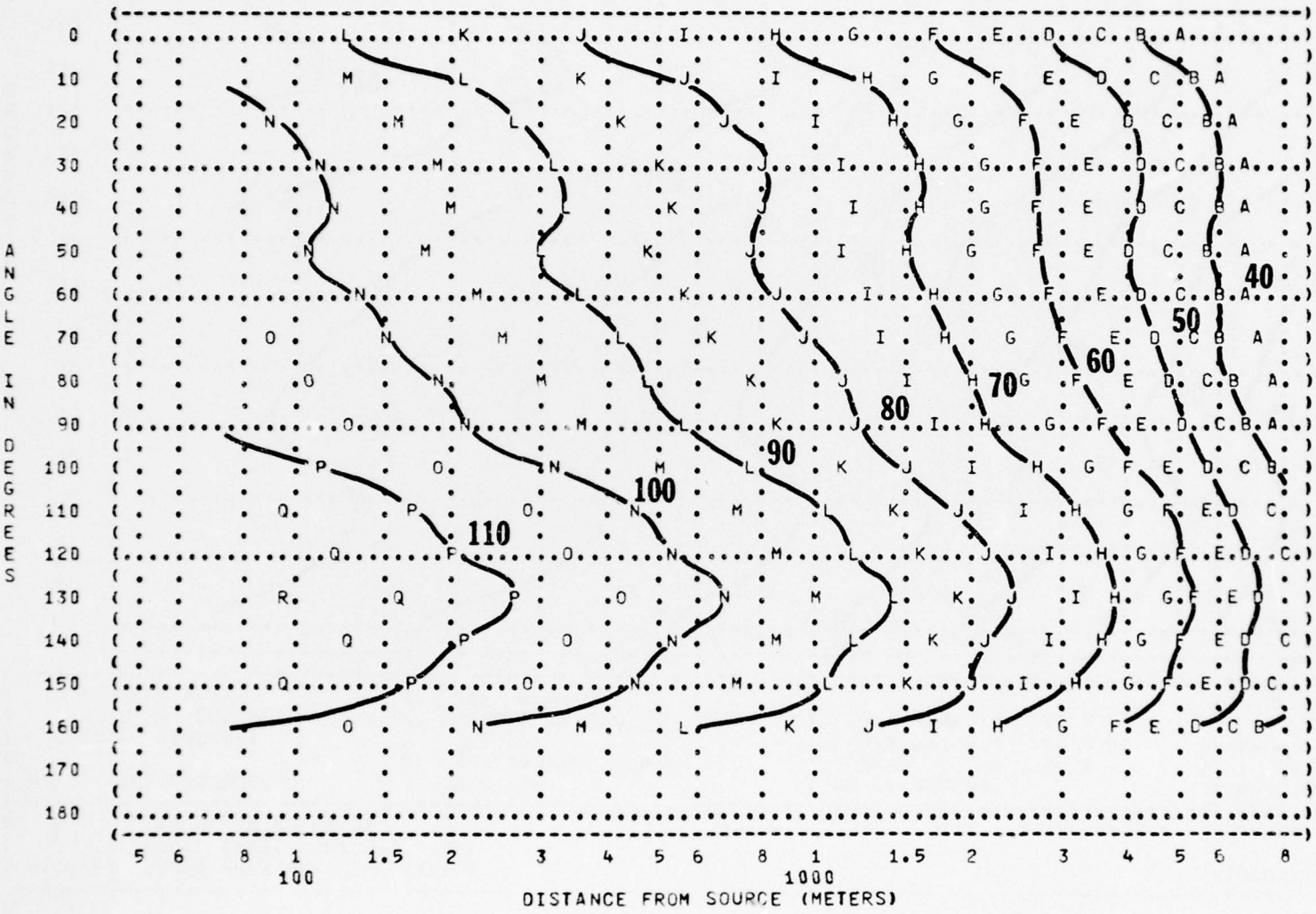
FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 23



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115
R	120

FIGURE: 11

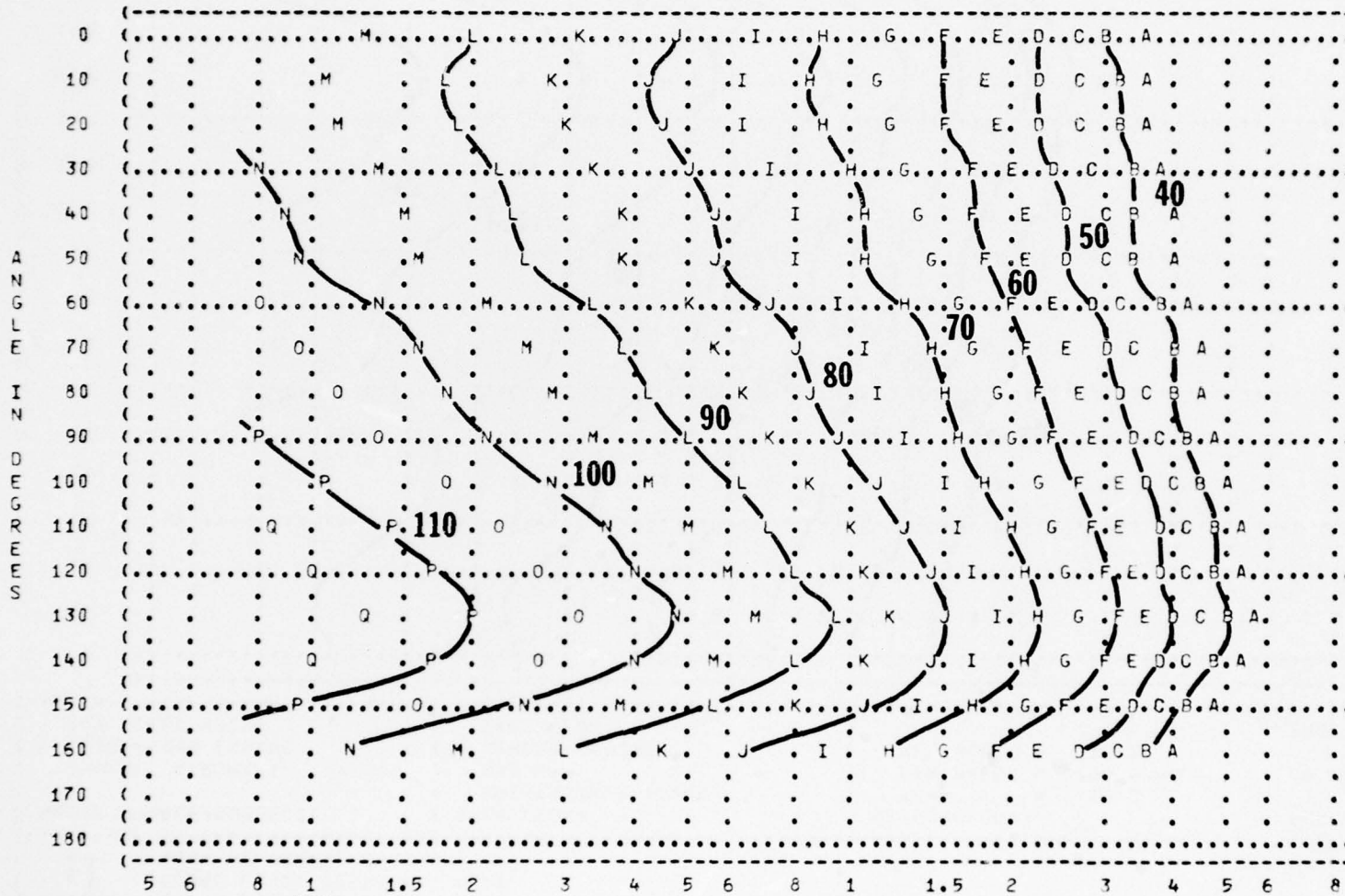
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
2000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 24



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115

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

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 25

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115

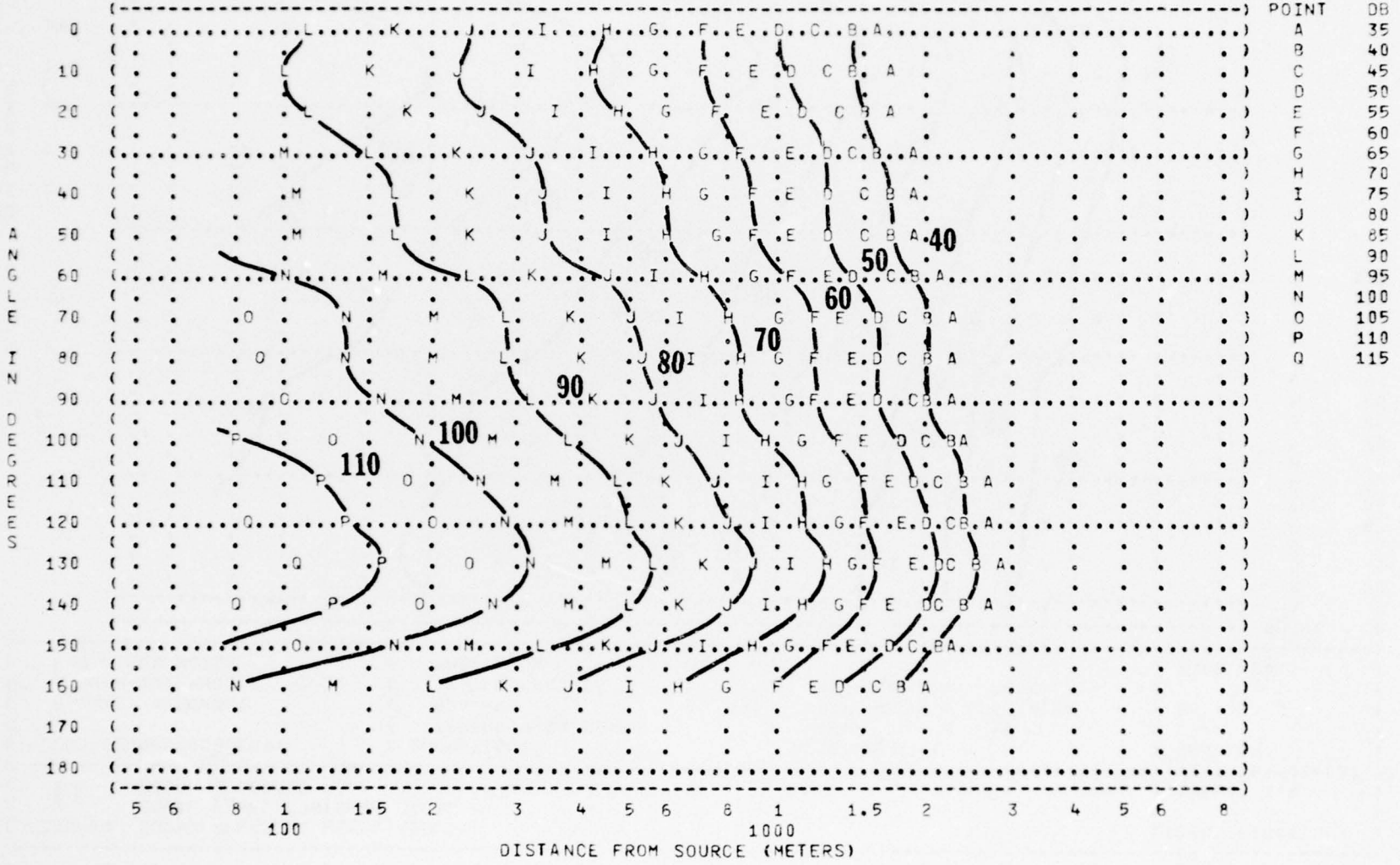


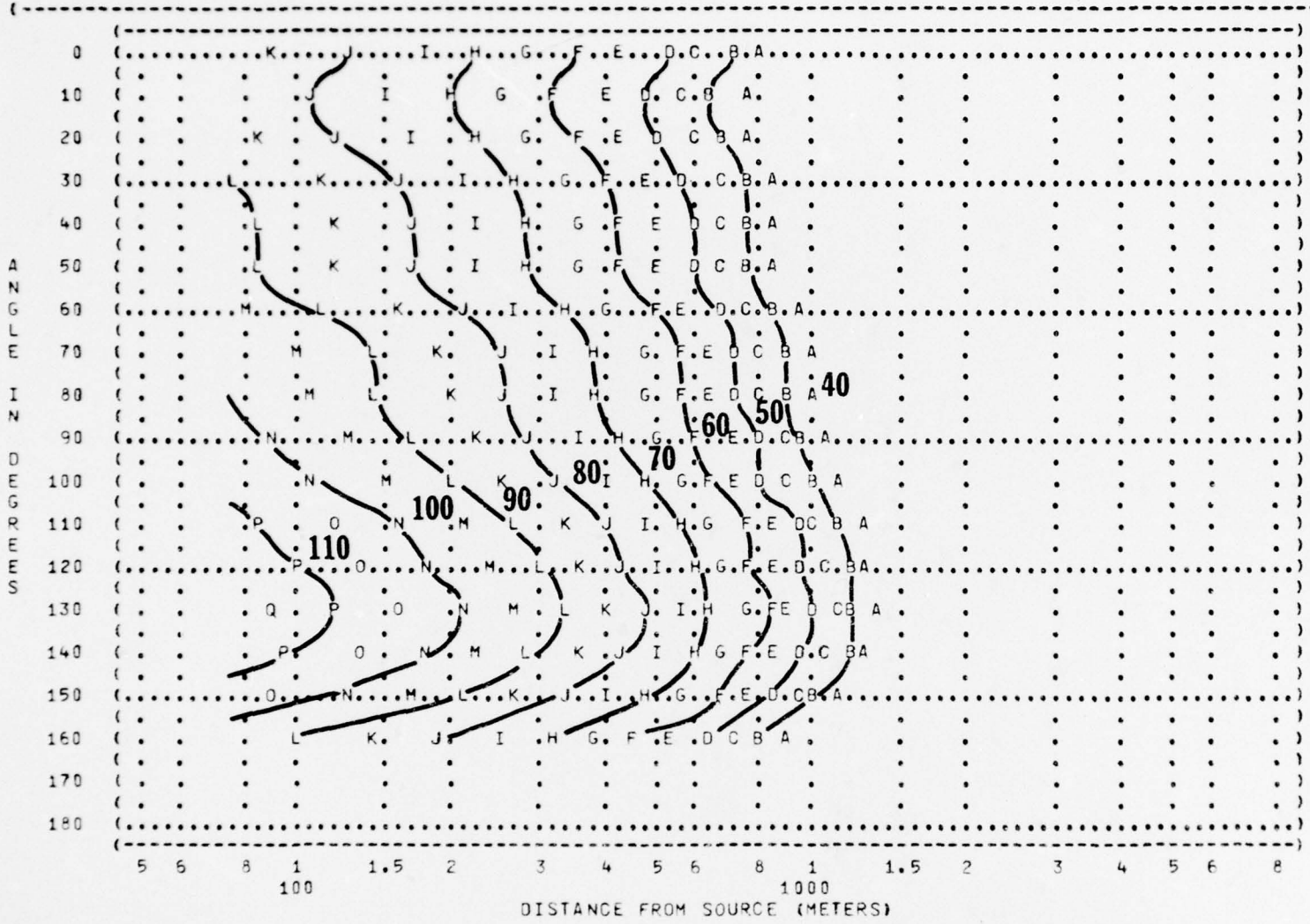
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-037
RUN 06
08 MAY 75
PAGE 26

NOISE SOURCE/SUBJECT:
F-111F AIRCRAFT
TF30-P-100 ENGINE
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
95% RPM
SINGLE ENGINE
FREE FLOW

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



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100
O	105
P	110
Q	115