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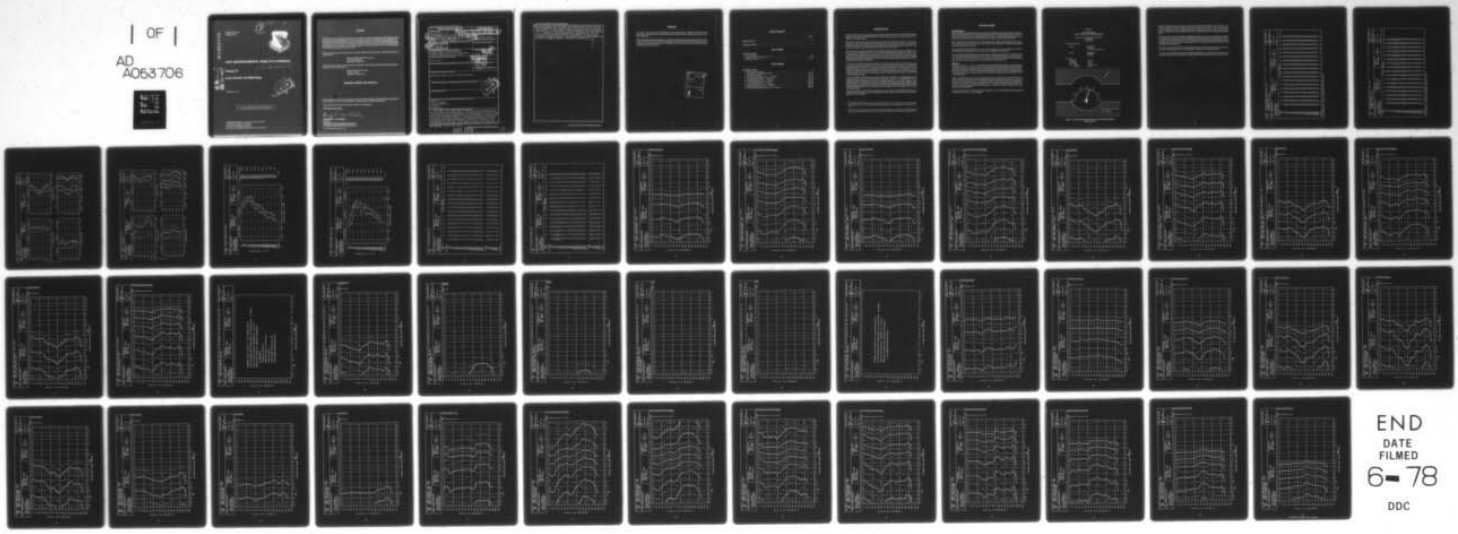

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Volume 76

(2)

USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK

V. 77 AD-A048 835

Volume 76

O-2A Aircraft, Far-Field Noise

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FEBRUARY 1977

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

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FOR THE COMMANDER

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

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The USAF O-2A is a light cargo and forward air control aircraft powered by two IO-360-D reciprocating engines. This report provides far-field measured and extrapolated data defining both physical and psychoacoustic measures of the bioacoustic environments produced by this aircraft operating on a ground runup pad for two engine/power conditions. Far-field data measured at 18 locations are normalized to standard meteorological conditions and extrapolated from 50-8000 meters to derive sets of equal-value contours as a function of angle and distance from the source. These contours are measures of: overall and

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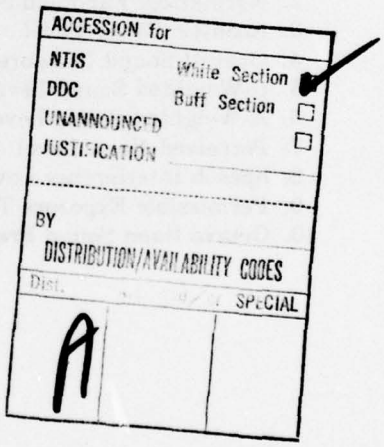
band sound pressure levels, C-weighted and A-weighted sound levels, preferred speech interference level, perceived noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise 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 and Prediction of Noise Environments of Air Force Operations.

The authors gratefully acknowledge Mr. John Cole for his assistance in preparing this report, 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 O-2A is a light cargo and forward air control aircraft powered by two IO-360-D reciprocating engines. The aircraft was manufactured by the Cessna Aircraft Company and the engines by the Teledyne Continental Motors.

This volume provides measured and extrapolated far-field 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 O-2A aircraft.

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

Volume 1 of this handbook discusses the objectives and design of the handbook, types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. 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.

FAR-FIELD NOISE

MEASUREMENTS

AMRL acquired far-field data during a 1-hour test period at Eglin Air Force Base. Figure 1 shows the ground runup pad, ground cover, aircraft orientation and the 19 microphone measurement sites on the semicircle. The center of the 30 meter radius semicircle used in surveying the IO-360-D engines was on the ground directly below a point midway between the engines on the aircraft's centerline.

Table 1 provides cockpit readouts of some engine characteristics (RPM and manifold pressure) for each power setting used in the far-field tests. Also listed in this table are the surface meteorological conditions during data acquisition.

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

Test personnel acquired far-field noise data by using a hand-held microphone (1.7 meters/5-1/2 feet above the ground plane and pointed at the noise source, 0° incidence) and sequentially recording 5 to 10 seconds of data at each far-field location on a portable microphone/tape recorder system. The samples were then time-integrated to derive a root-mean-square sound pressure level.

RESULTS

Table 2 lists the overal[illegible]nd 1/3 octave band SPL measured at the far-field locations under meteorological conditions at the time of the test. Data in all other figures and tables are based on these levels. These data were normalized to 100 meters distance and standard meteorological conditions (15 C temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 2 which provides a compact summary of the far-field noise characteristics of the O-2A aircraft in a standard format.

Figure 3 and Table 3 present two basic acoustic measures, the acoustic power level and the directivity index, respectively. The acoustic power level describes the power radiated by the source as a function of frequency. The directivity index is a standard acoustical engineering measure that describes the geometric way in which the source radiates this power as a function of both frequency and angle from source. These basic source measures are primarily of interest for acoustical engineers and noise generation/control specialists.

Estimates of noise levels for intermediate power conditions (e.g., 1800 engine RPM) can be determined as explained in Volume 1 of this handbook.

TABLE 1

TEST CONDITIONS
FOR FAR-FIELD NOISE MEASUREMENTS

O-2A Aircraft, Ground Runups, Eglin AFB, FL
14 May 1971
Tail # 68-7649

Aircraft Engine Operation

Idle/Taxi	Both Engines 1000 RPM 18 Inches, Manifold Pressure
Military	Both gengines 2800 RPM 26" MAP

Meteorology

Temperature	19 C
Ba Pressure	.762 M Hg
Rel Humidity	66 %
Wind — Speed	2.6 M/Sec (5 Kts)
— Direction	340 Deg.

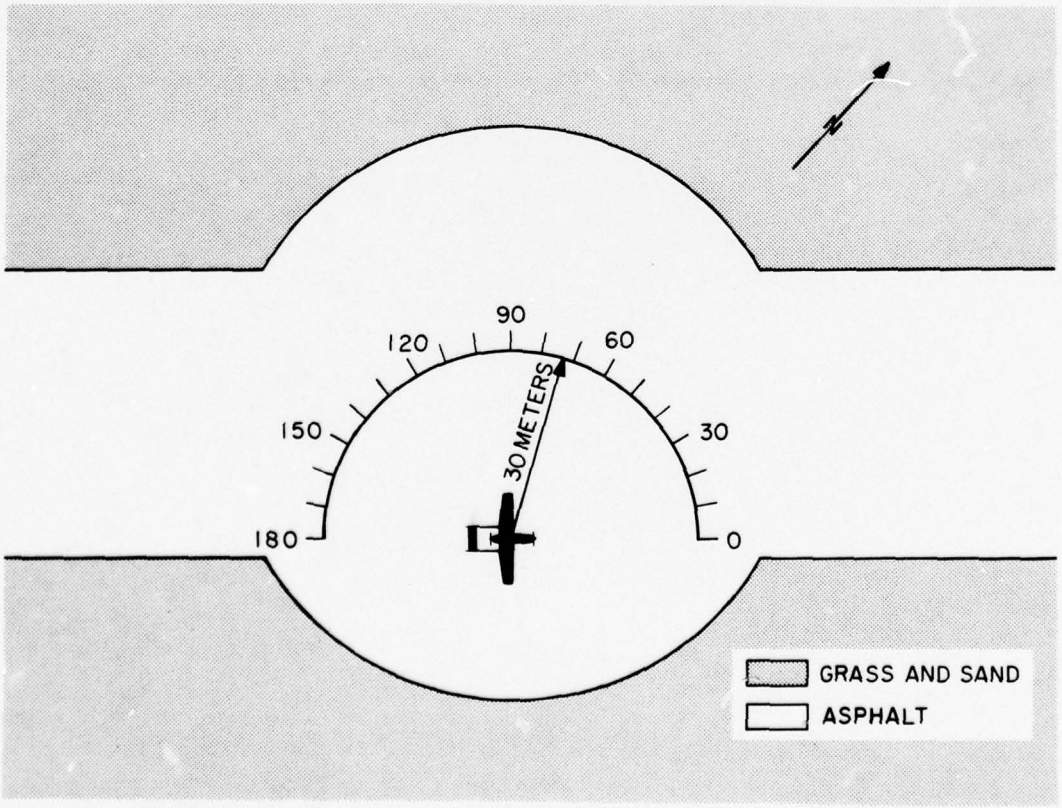


Figure 1. Far-Field Measurement Locations on Hot Cargo Pad, Eglin AFB, FL

Figures 4 through 10 are sets of equal noise contours describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. They are respectively, overall sound pressure level, C-weighted sound level, A-weighted sound level, perceived noise level, speech interference level, permissible exposure times for personnel and octave band sound pressure levels.

Data excessively influenced by spurious background/electronic noise were eliminated from all figures and tables. No data are presented at the 180 degree location for the idle/taxi power setting and at the 170 and 180 degree locations for the military power setting because of turbulent air flow behind the aircraft. Typically, the A-weighted levels for these angles are 10 to 20 dBA below the level measured at the preceding microphone location.

Test personnel performed noise surveys during quiet periods when the background noise was minimal, e.g., early in the morning when no other aircraft or engine test stands were operating.

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
DISTANCE = 30 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

METEOROLOGY:
TEMP = 19 C
BAR PRESS = .762 M HG
REL HUMID = 66 %

FREQ (HZ)	ANGLE (DEGREES)																		
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	65	64	63	64	62	63	65	61	61	61	62	61	61	59	60	62	65	74	
31.5	74	75	75	75	76	74	74	76	77	76	75	75	76	75	77	76	74	76	
40	69	68	67	68	68	68	68	70	70	70	70	70	70	70	69	73	73	74	
50	75	75	75	75	75	74	75	75	76	76	76	76	76	76	77	78	77	76	
63	79	79	79	79	80	79	79	79	79	79	78	77	76	77	76	75	75	73	
80	74	75	74	75	75	75	77	77	77	77	78	78	79	78	77	75	74	72	
100	81	82	83	83	84	83	82	80	78	79	82	84	84	84	84	83	81	78	
125	75	75	74	76	75	77	77	75	74	74	75	74	75	77	77	76	76	73	
160	78	77	77	78	78	76	76	75	73	73	75	75	76	79	79	79	80	74	
200	73	72	72	73	72	72	71	68	66	66	69	68	69	72	74	75	77	70	
250	69	70	69	70	69	67	67	64	61	61	65	66	66	69	69	70	74	66	
315	70	70	68	69	71	65	65	63	62	63	63	64	68	66	69	71	70	62	
400	75	74	73	73	74	69	68	67	65	64	68	68	72	71	73	75	74	66	
500	72	72	71	71	71	69	66	66	62	60	65	65	70	70	70	73	74	66	
630	67	68	64	65	65	63	60	61	60	59	59	61	64	65	62	65	66	61	
800	68	66	66	66	66	62	61	62	59	58	61	62	65	64	63	66	64	59	
1000	69	68	67	67	65	64	62	62	60	59	62	64	65	67	65	64	63	60	
1250	64	63	63	65	63	60	60	60	58	59	59	60	63	64	63	62	63	57	
1600	62	61	60	61	60	59	57	58	57	57	58	58	61	60	61	61	63	55	
2000	58	57	58	59	58	57	56	56	54	54	55	56	58	59	58	59	60	54	
2500	55	55	56	57	57	56	55	54	54	55	55	56	57	57	59	59	59	53	
3150	55	54	56	56	56	55	54	55	55	56	57	58	58	58	56	58	57	53	
4000	54	54	53	54	54	54	52	54	53	56	56	57	58	59	54	57	56	52	
5000	53	54	54	55	55	54	53	54	54	54	55	55	57	57	58	60	59	57	
6300	51	51	52	52	52	52	52	51	52	52	52	53	55	55	55	58	56	50	
8000	51	50	51	51	51	51	50	51	51	50	51	51	52	54	54	56	54	49	
10000	49	50	50	50	50	50	50	49	50	49	50	51	52	52	52	54	53	47	
OVERALL	87	87	87	87	88	87	87	86	85	85	87	87	87	88	88	88	87	85	

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: 2

MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 30 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

METEOROLOGY:
TEMP = 19 C
BAR PRESS = .762 M HG
REL HUMID = 66 %

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

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

FIGURE: NORMALIZED FARFIELD NOISE LEVELS

2 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 6

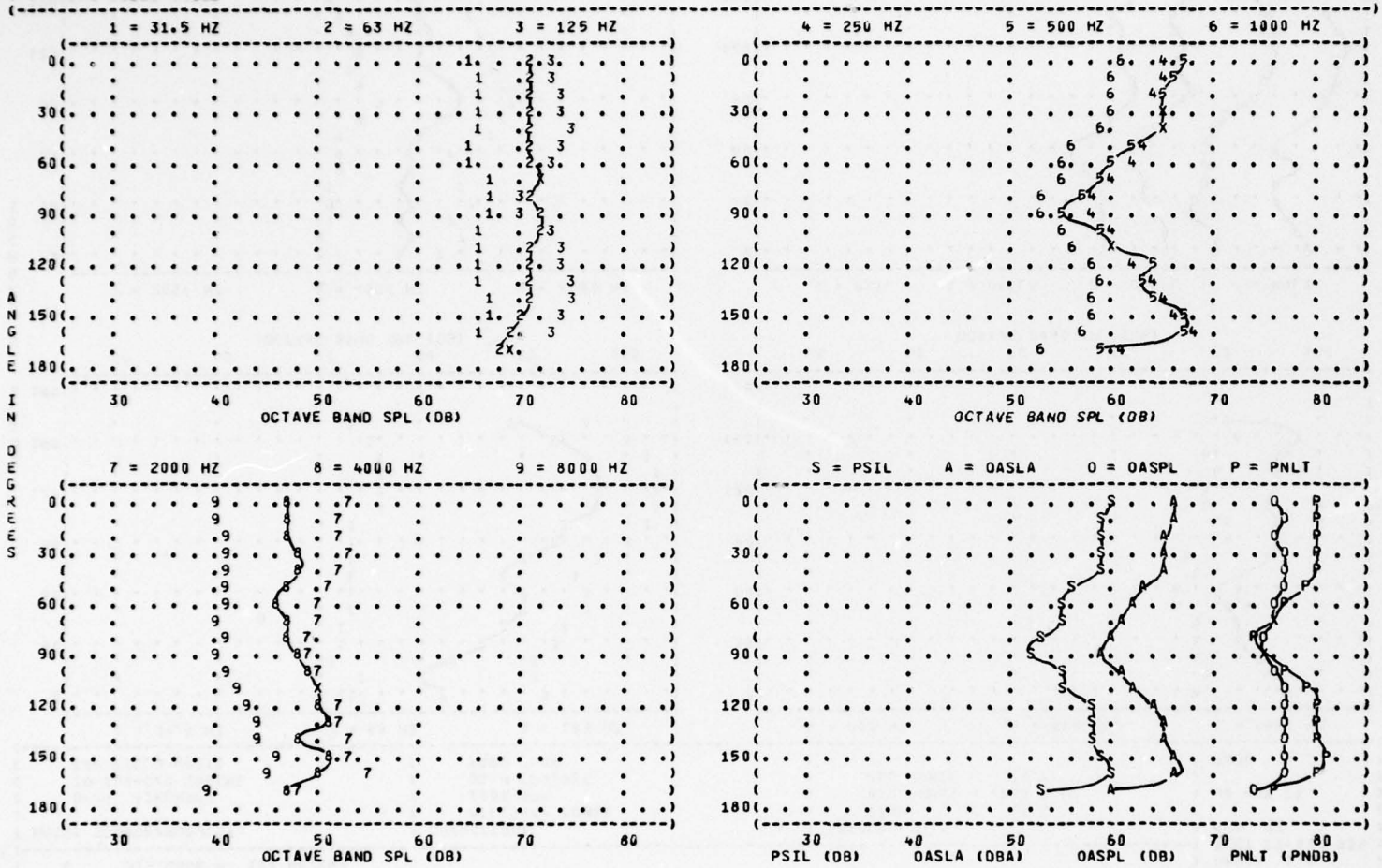


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

2 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 6

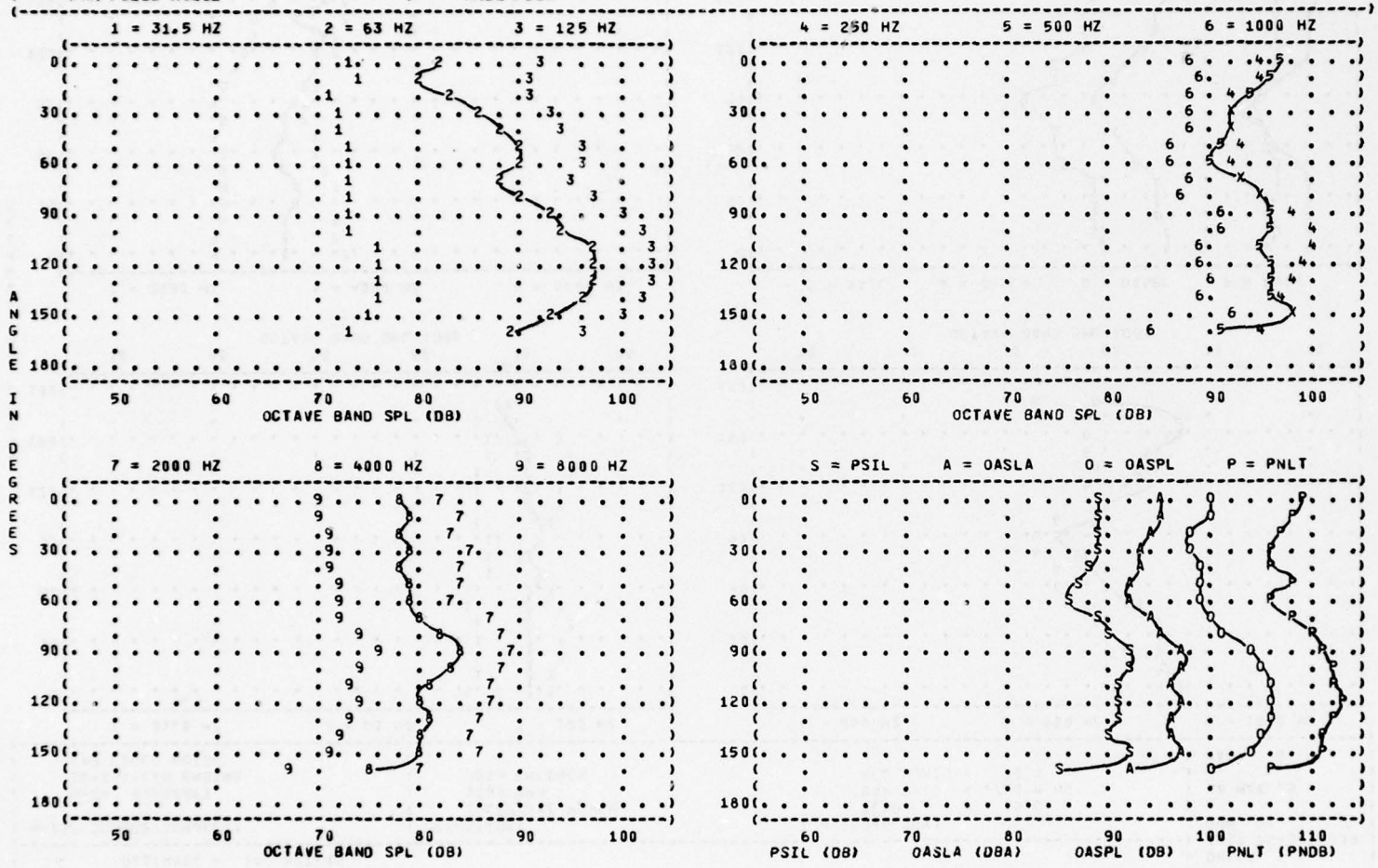


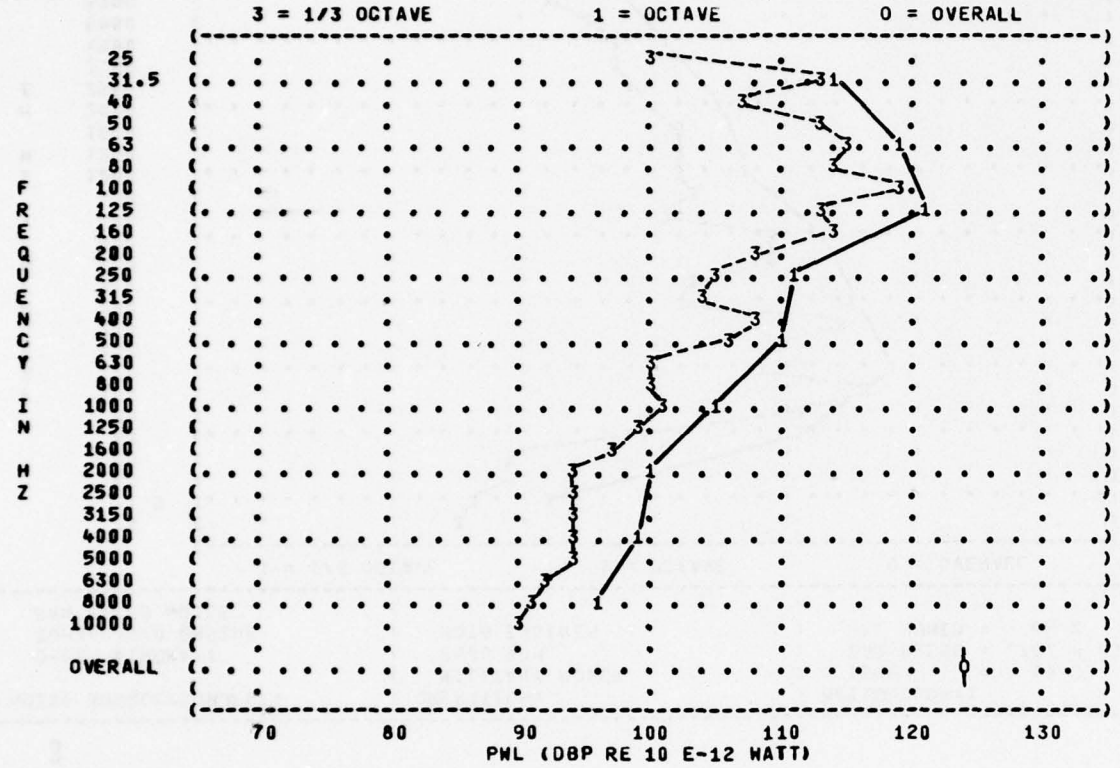
FIGURE: 3 ACOUSTIC POWER LEVEL (PWL)

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

METEOROLOGY:
TEMP = 19 C
BAR PRESS = .762 M HG
REL HUMID = 66 %

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 3



	PWL 1/3 OCTAVE	PWL OCTAVE
25	100.3	
31.5	112.8	114.0
40	107.1	
50	113.1	
63	115.3	119.0
80	114.1	
100	119.5	
125	112.7	121.2
160	113.7	
200	108.2	
250	104.6	110.8
315	104.0	
400	107.8	
500	105.9	110.4
630	100.0	
800	100.5	
1000	101.4	105.1
1250	98.8	
1600	96.6	
2000	94.5	99.9
2500	93.8	
3150	94.2	
4000	93.6	98.6
5000	93.8	
6300	91.6	
8000	90.7	95.7
10000	90.3	
OVERALL	124.2	

FIGURE: ACOUSTIC POWER LEVEL (PWL)

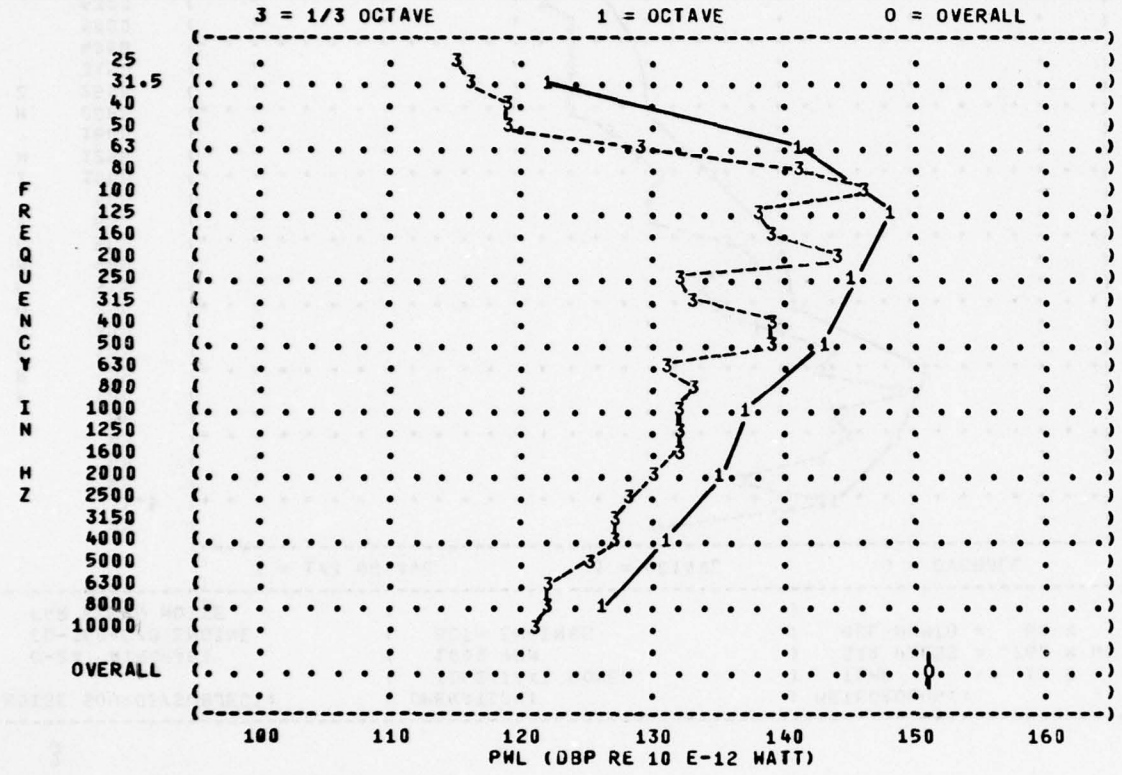
3

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

METEOROLOGY:
TEMP = 19 C
BAR PRESS = .762 M HG
REL HUMID = 66 %

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 3



1/3 OCTAVE	PWL OCTAVE
115.0	
116.1	121.9
119.2	
119.3	
128.8	141.3
141.0	
146.3	
137.6	147.5
139.2	
144.0	
132.5	144.6
132.9	
139.4	
139.5	142.8
131.4	
133.3	
131.8	137.2
132.1	
131.6	
130.3	134.9
127.8	
126.7	
126.5	130.9
124.8	
122.4	
121.6	126.4
120.7	
	151.1

TABLE: 3 DIRECTIVITY INDEX (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 4

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

METEOROLOGY:
TEMP = 19 C
BAR PRESS = .762 M HG
REL HUMID = 66 %

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	2	1	0	1	-1	0	2	-2	-2	-2	-1	-2	-2	-4	-3	-1	2	11	
31.5	-1	-0	-0	-0	0	-1	-1	1	1	1	-0	-0	0	-0	1	0	-2	0	
40	-1	-2	-3	-2	-2	-2	-2	-0	0	0	-0	0	0	-0	-1	3	3	4	
50	-1	-1	-1	-1	-1	-2	-1	-1	-0	0	0	0	0	0	1	2	1	0	
63	1	1	1	1	2	1	1	1	1	1	-0	-1	-2	-1	-2	-3	-3	-5	
80	-3	-2	-3	-2	-2	-2	-0	0	-0	0	1	1	2	1	-0	-2	-3	-5	
100	-1	-1	0	1	1	1	-1	-2	-4	-4	-0	2	2	1	1	0	-1	-5	
125	-0	-0	-1	0	-0	2	1	-0	-2	-1	-0	-1	-1	1	2	1	0	-3	
160	1	1	0	1	1	-0	-0	-2	-4	-4	-1	-2	-0	2	3	3	3	-2	
200	2	1	1	2	1	1	-0	-3	-5	-5	-2	-3	-2	1	3	4	6	-1	
250	2	2	1	2	2	-0	-1	-3	-6	-6	-2	-2	-1	2	1	2	6	-2	
315	3	3	2	2	4	-2	-1	-3	-5	-4	-4	-2	1	-1	2	4	3	-5	
400	4	4	3	2	3	-2	-2	-3	-6	-7	-3	-2	1	0	2	5	4	-4	
500	4	3	2	3	2	0	-2	-3	-6	-9	-3	-3	1	1	2	4	5	-3	
630	4	5	1	2	2	-0	-2	-2	-3	-4	-4	-2	1	2	-0	2	4	-2	
800	4	3	3	3	3	-1	-2	-2	-4	-5	-2	-2	1	1	-0	3	1	-4	
1000	5	4	3	3	1	-0	-2	-2	-4	-5	-2	-0	1	3	1	-0	-1	-4	
1250	3	1	2	4	1	-1	-2	-2	-3	-3	-3	-1	1	2	1	1	2	-4	
1600	2	2	1	2	0	-0	-2	-2	-2	-3	-1	-1	1	1	2	2	4	-4	
2000	1	0	1	2	1	-0	-1	-1	-3	-3	-2	-1	1	2	1	2	3	-3	
2500	-1	-1	-0	1	1	-0	-1	-2	-2	-1	-1	0	1	1	3	3	3	-3	
3150	-2	-2	-0	-0	-1	-1	-3	-2	-1	-0	0	2	2	2	-1	1	0	-3	
4000	-2	-1	-2	-1	-1	-2	-3	-2	-3	1	1	2	3	3	-2	1	1	-3	
5000	-2	-2	-2	-1	-1	-1	-2	-2	-1	-2	-1	-0	1	1	2	5	3	1	
6300	-2	-2	-2	-2	-1	-1	-1	-2	-2	-2	-1	-0	1	2	1	5	3	-3	
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10000	-1	-1	-1	-1	-0	-1	-1	-2	-1	-1	-1	0	1	1	2	3	2	-4	
OCTAVE																			
31.5	-1	-0	-1	-1	-0	-1	-1	0	1	0	-0	-0	0	-0	1	1	0	3	
63	-0	-0	-1	-0	0	-0	0	0	0	1	0	0	0	0	-1	-1	-2	-3	
125	-0	-0	0	1	1	1	-0	-2	-4	-3	-0	1	1	2	2	1	0	-4	
250	2	2	1	2	2	0	-0	-3	-5	-5	-3	-3	-1	1	3	3	6	-2	
500	4	4	2	2	3	-1	-2	-3	-6	-7	-3	-3	1	1	2	4	4	-4	
1000	4	3	3	3	2	-1	-2	-2	-4	-4	-2	-1	1	2	1	1	1	-4	
2000	2	1	1	2	1	-0	-2	-2	-2	-2	-1	-1	1	1	2	2	3	-4	
4000	-2	-2	-1	-1	-1	-1	-3	-2	-2	-0	0	1	2	2	0	3	1	-1	
8000	-2	-2	-1	-1	-1	-1	-1	-2	-1	-2	-1	-0	1	2	2	4	2	-3	
OVERALL	0	0	0	1	1	0	-0	-1	-2	-1	-0	0	1	1	1	1	0	-2	

TABLE: DIRECTIVITY INDEX (DB)

3

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 4

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

METEOROLOGY:
TEMP = 19 C
BAR PRESS = .762 M HG
REL HUMID = 66 %

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	2	3	-3	-1	-1	-1	-1	0	-0	-1	-1	2	2	1	1	1	-2		
31.5	-1	1	-2	-1	-1	-1	-0	-1	-0	-2	-2	2	1	2	2	1	-2		
40	-3	-3	-4	-3	-2	-1	-1	-2	-1	-1	-2	2	2	2	3	1	0		
50	-3	-4	-4	-3	-2	-0	-1	-1	-1	-1	-1	2	2	3	2	1	-0		
63	-10	-10	-8	-5	-3	-2	-1	0	-0	-0	0	3	3	2	1	-0	-4		
80	-12	-14	-11	-8	-6	-4	-4	-6	-3	-0	1	4	4	3	3	-0	-5		
100	-12	-14	-11	-8	-6	-4	-4	-4	-3	1	3	3	3	3	2	-1	-5		
125	-3	-4	-4	-4	-4	-4	-7	-6	-3	-2	-3	1	3	4	4	4	2		
160	-4	-4	-6	-5	-4	-3	-4	-4	-2	1	2	3	3	2	1	1	-2		
200	-2	-3	-7	-5	-5	-4	-5	-4	-2	1	3	3	3	2	-0	1	-2		
250	0	3	0	0	-2	-3	-4	-4	1	2	0	0	-2	-2	1	4	2		
315	2	3	1	-1	-2	-4	-3	-1	-0	1	2	0	-0	0	1	4	0		
400	3	2	1	-2	-2	-4	-4	-1	0	1	3	0	0	0	1	4	-2		
500	0	0	-3	-3	-3	-3	-5	-2	0	1	0	1	3	2	2	2	-7		
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800	-1	-1	-0	-1	-1	-3	-4	-2	-4	3	3	-0	-2	0	1	4	-5		
1000	1	0	0	1	-1	-2	-2	-2	-2	1	0	0	1	2	0	3	-5		
1250	-2	-1	-2	-1	-2	-3	-2	-0	-1	0	2	1	2	1	-1	2	-5		
1600	-4	-2	-3	-1	-3	-2	-3	1	2	2	1	1	2	0	-1	-1	-6		
2000	-4	-3	-3	-2	-2	-2	-3	1	1	3	2	1	1	-1	-1	-1	-6		
2500	-4	-3	-3	-2	-1	-0	-2	-2	1	4	1	0	0	0	-1	0	-5		
3150	-3	-2	-2	-2	-2	-2	-2	-1	2	2	1	0	-0	0	-0	0	-5		
4000	-4	-3	-3	-2	-3	-2	-1	-1	1	3	3	1	-0	-0	-1	-1	-6		
5000	-3	-3	-3	-2	-3	-1	-2	-0	1	4	1	0	0	-1	-1	-2	-7		
6300	-3	-3	-2	-2	-2	-1	-1	-1	1	3	2	1	1	0	-1	-2	-6		
8000	-4	-3	-2	-2	-2	-0	-1	-0	0	3	1	-0	1	-1	-1	-1	-6		
10000	-3	-2	-2	-2	-2	-1	-0	-1	1	2	2	0	1	-0	-0	-1	-5		
OCTAVE																			
31.5	-1	-0	-3	-2	-2	-1	-1	-1	-1	-1	-2	2	2	2	2	1	-1		
63	-12	-14	-11	-7	-6	-4	-3	-5	-3	-0	1	4	4	3	3	-0	-5		
125	-8	-9	-9	-7	-6	-4	-4	-4	-3	0	2	3	3	3	2	0	-3		
250	-2	-2	-5	-4	-5	-4	-5	-4	-2	1	3	3	3	2	-0	1	-2		
500	2	1	-1	-2	-2	-3	-5	-2	0	1	2	1	1	1	2	3	-3		
1000	-1	-0	-1	-0	-1	-3	-3	-1	-2	2	2	0	0	1	0	3	-5		
2000	-4	-2	-3	-2	-2	-2	-3	1	1	2	1	1	1	-0	-1	-1	-6		
4000	-3	-2	-3	-2	-2	-2	-2	-1	1	3	2	0	-0	-0	-1	-1	-6		
8000	-3	-3	-2	-2	-2	-1	-1	-1	1	3	2	0	1	-0	-1	-1	-6		
OVERALL	-3	-3	-5	-5	-4	-4	-4	-3	-2	1	2	3	3	2	1	1	-3		

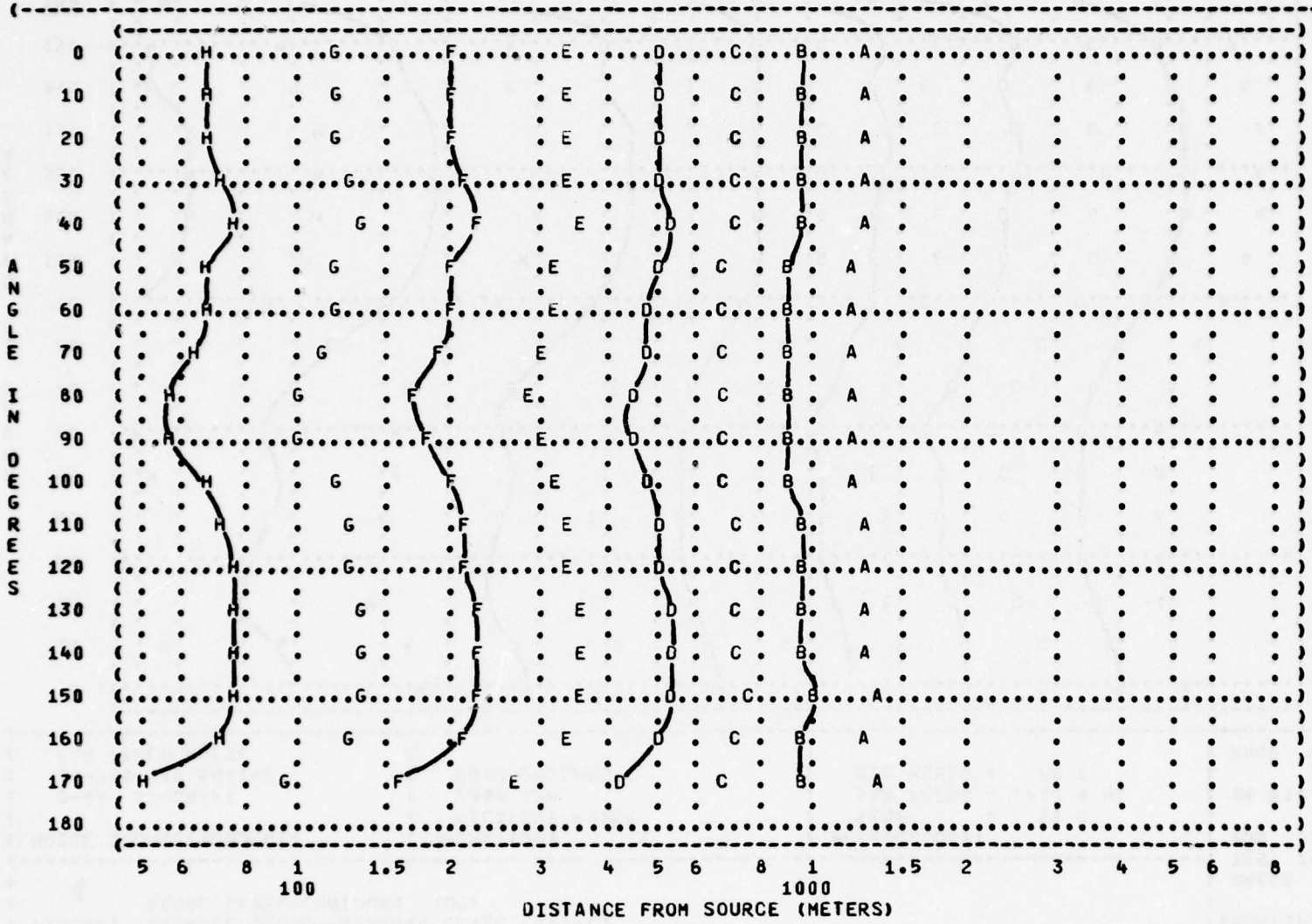
FIGURE: 4 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 13



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

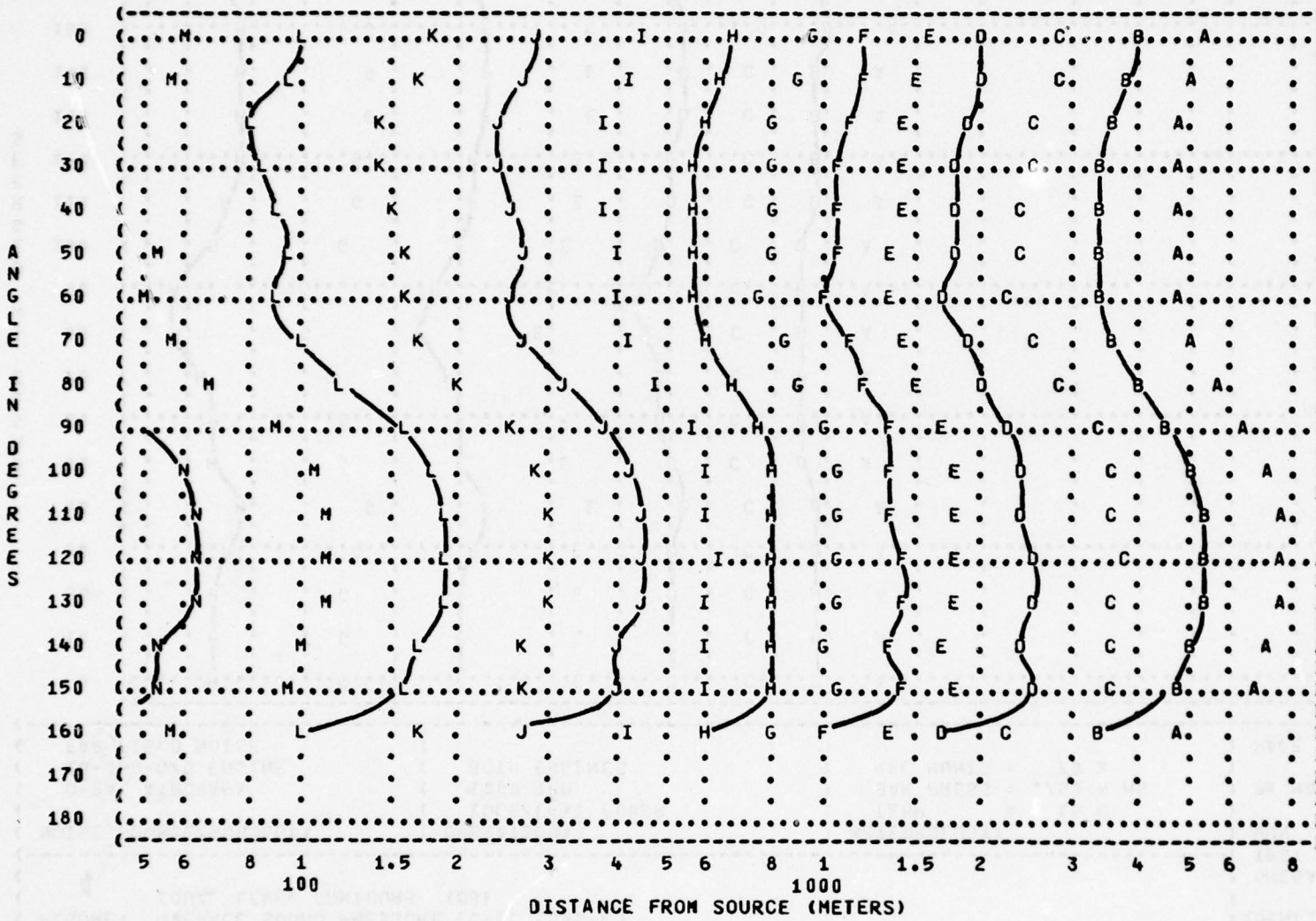
FIGURE 4 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 13



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

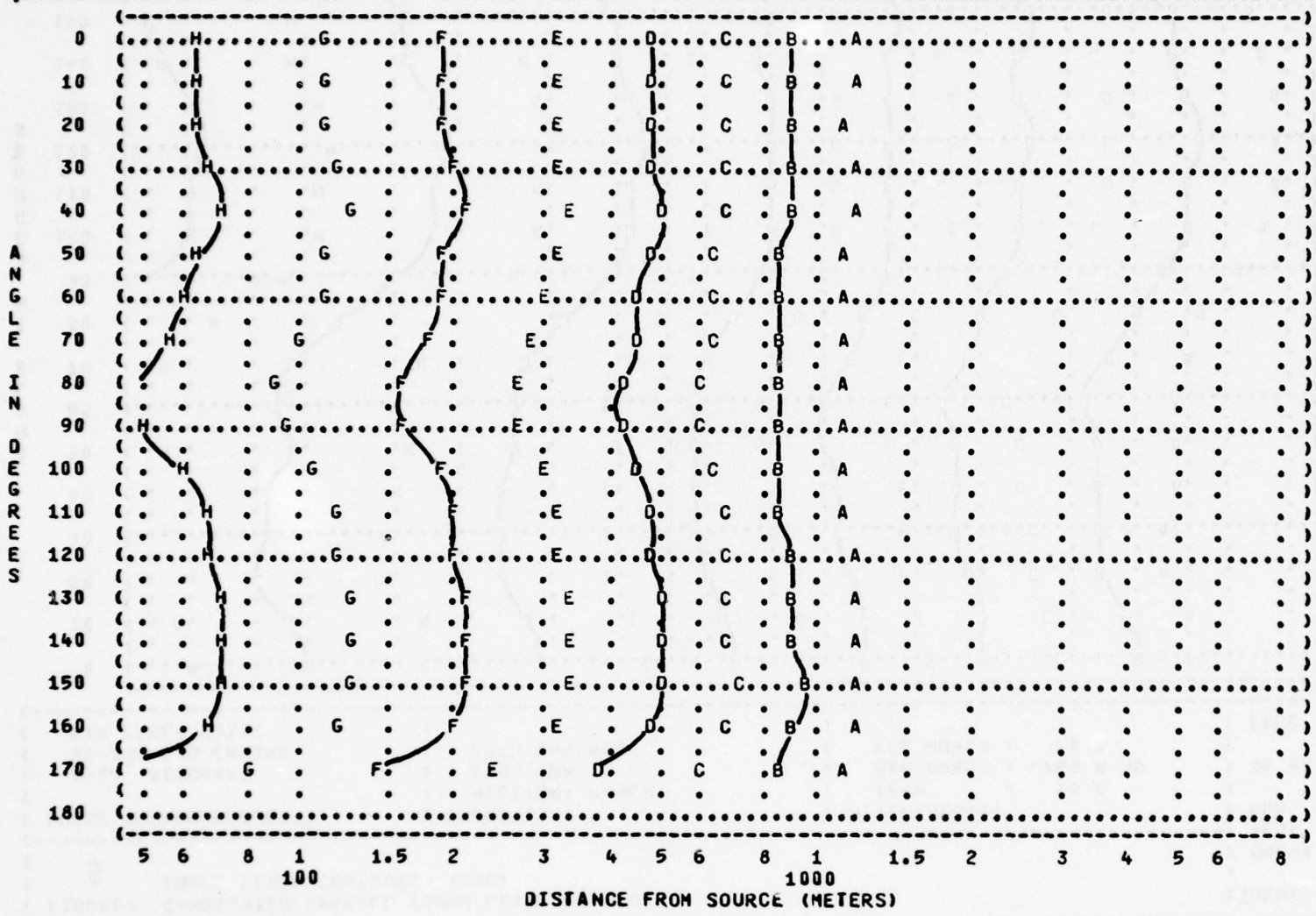
FIGURE 5 C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
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

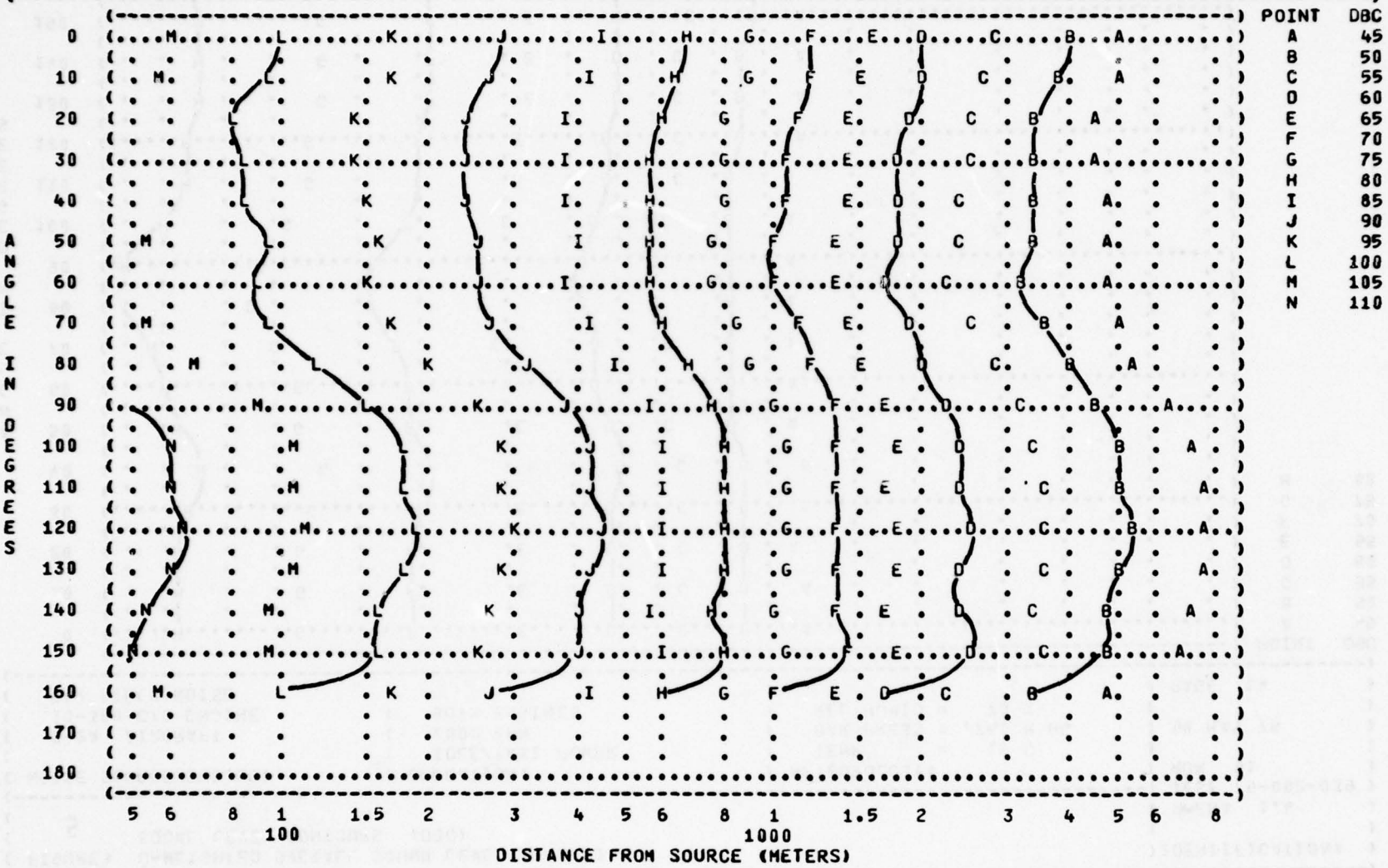
FIGURE 5 C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:
ONEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 14

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

FIGURE 6: A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 15

POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70

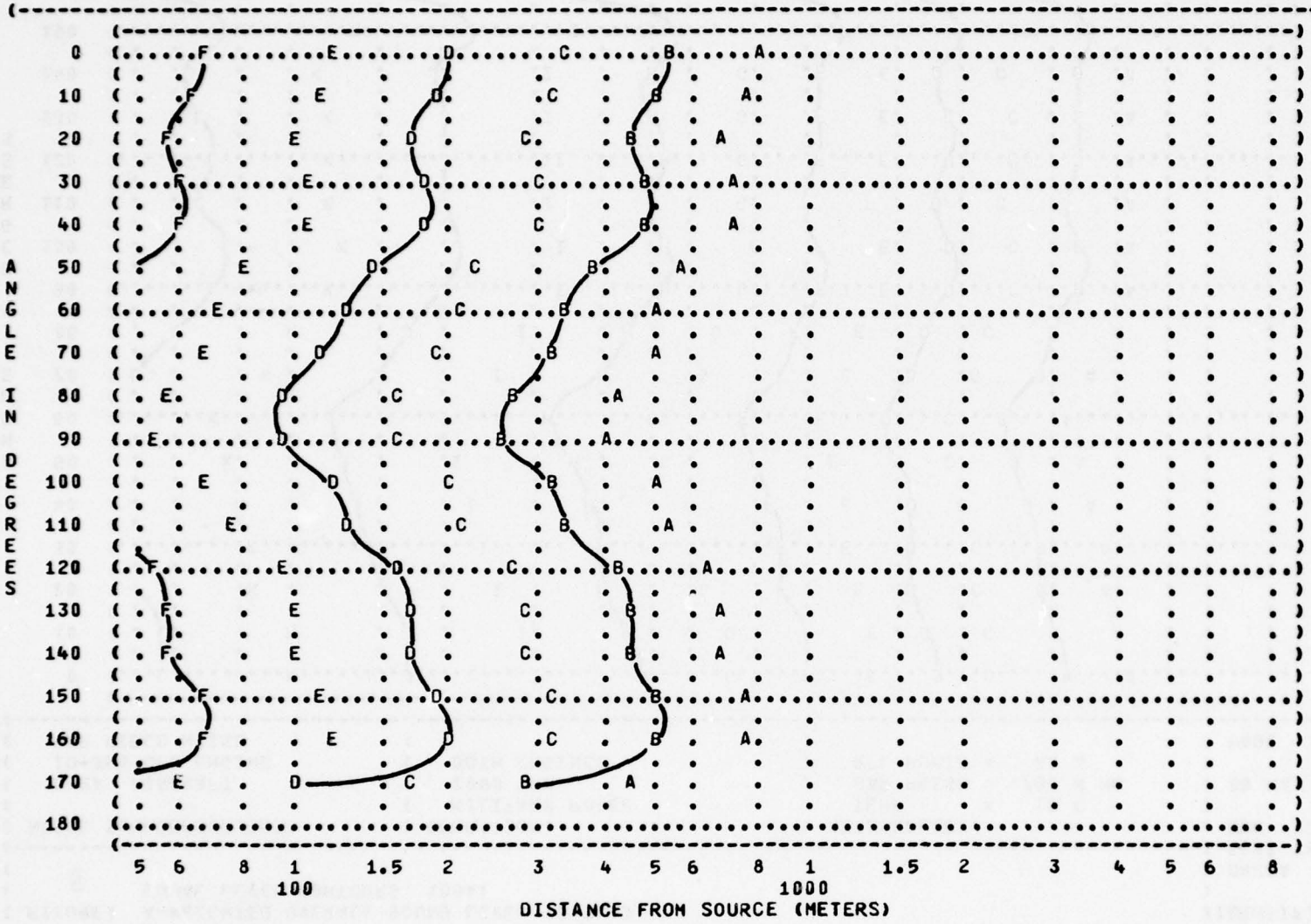


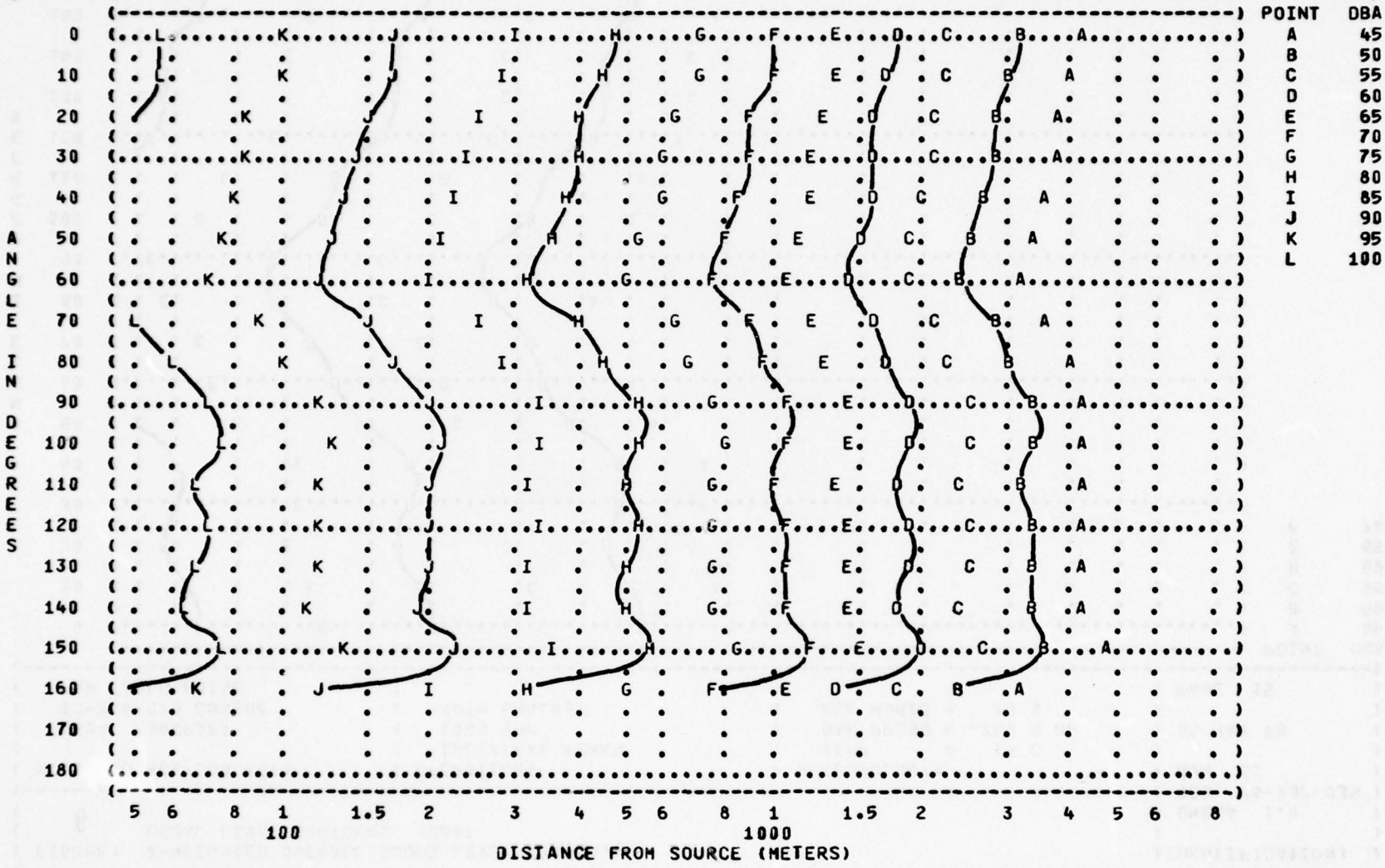
FIGURE 6: A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 15

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 16

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

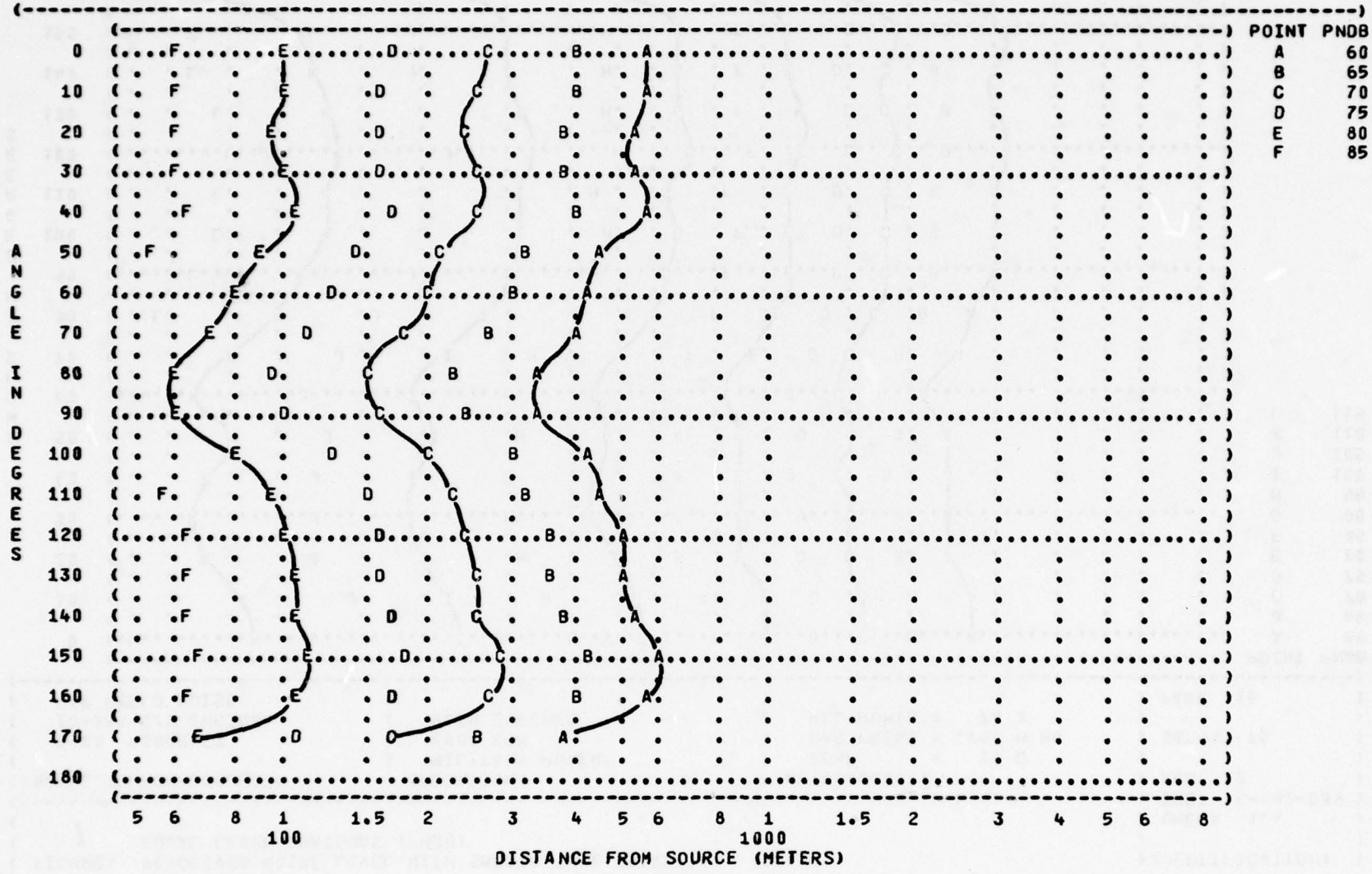


FIGURE 7 PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT) EQUAL LEVEL CONTOURS (PNDB)

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 16

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

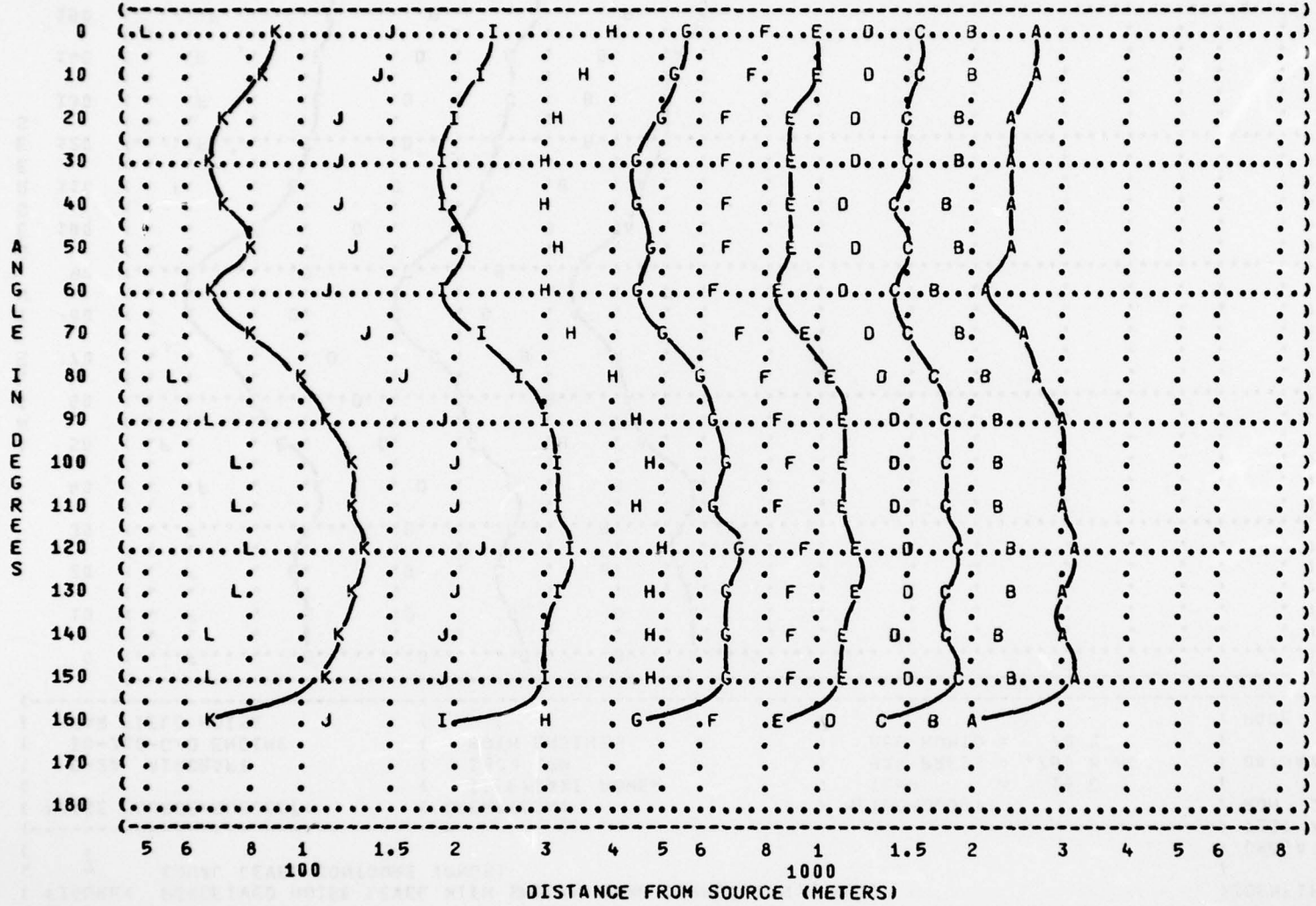


FIGURE 8 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 17

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

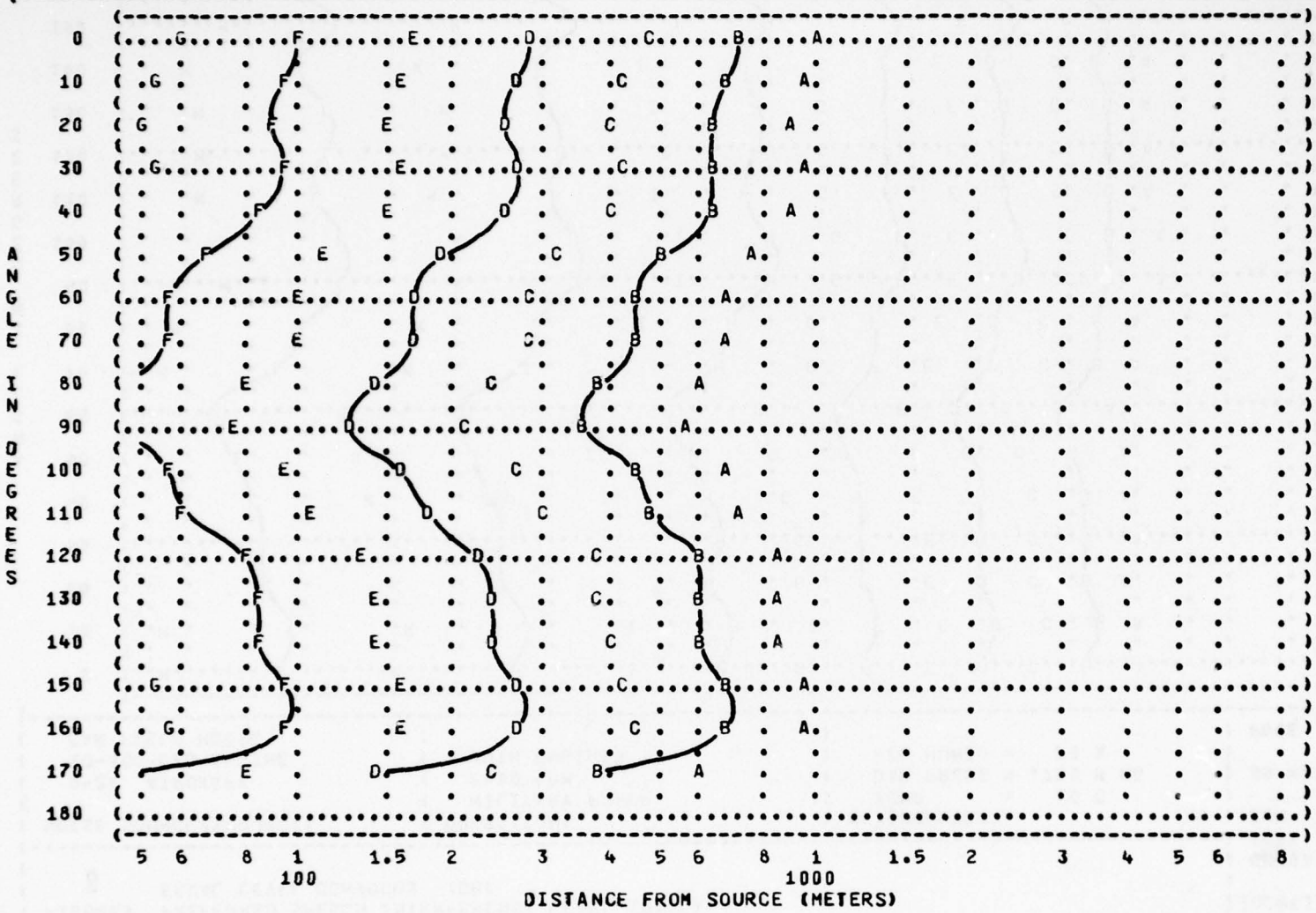


FIGURE 8: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (OB)

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 17

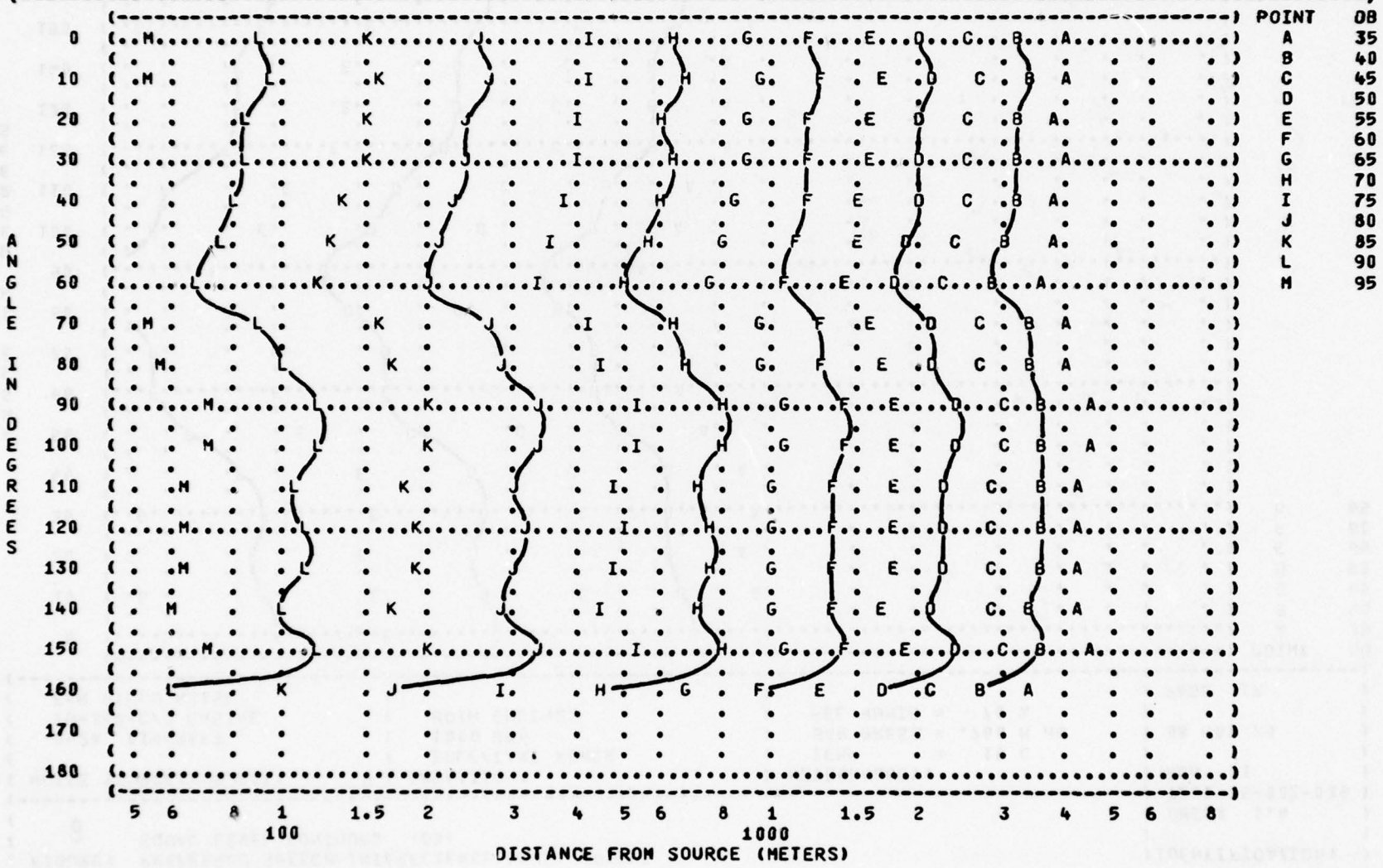


FIGURE 9: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 7

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

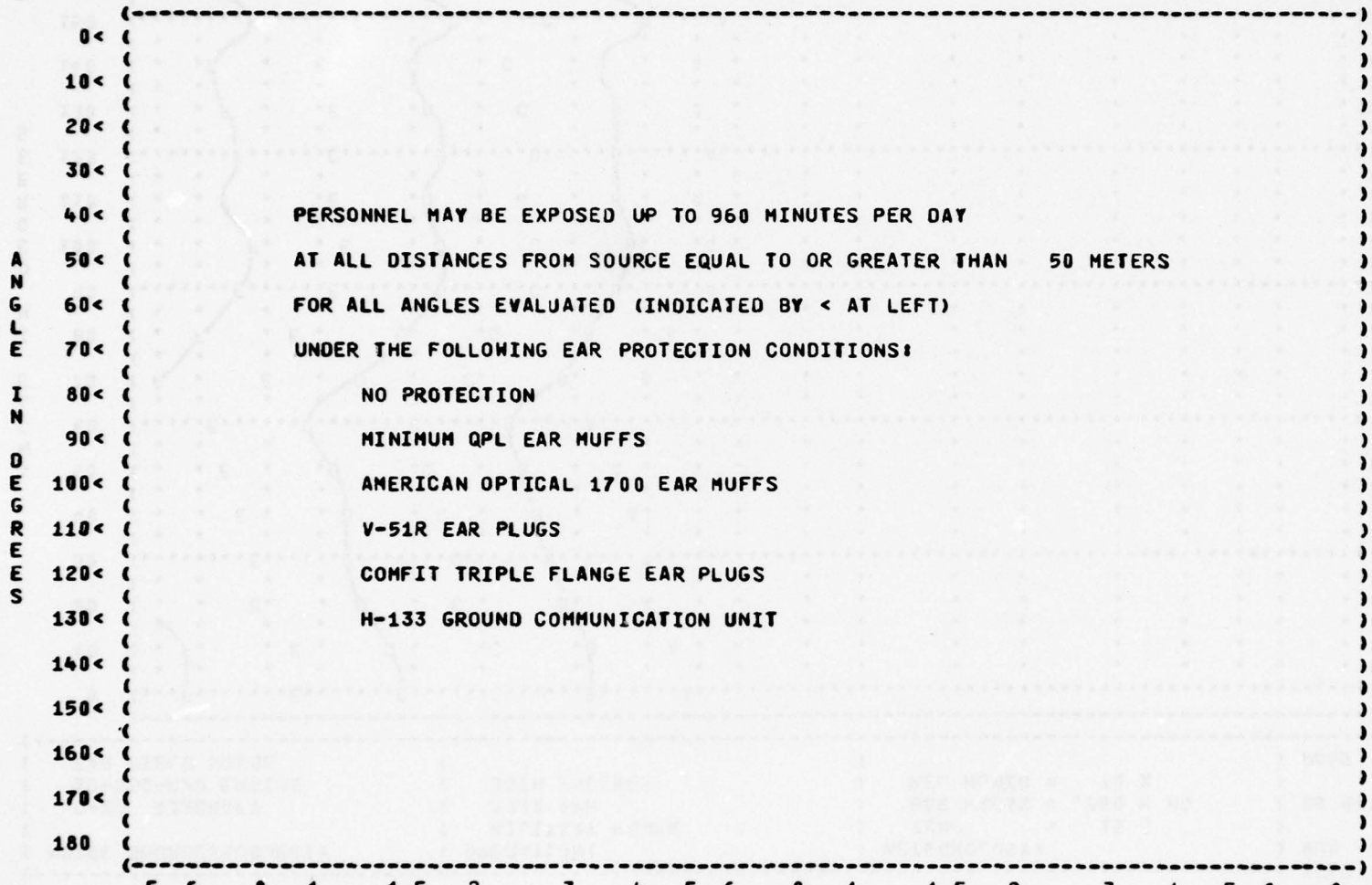


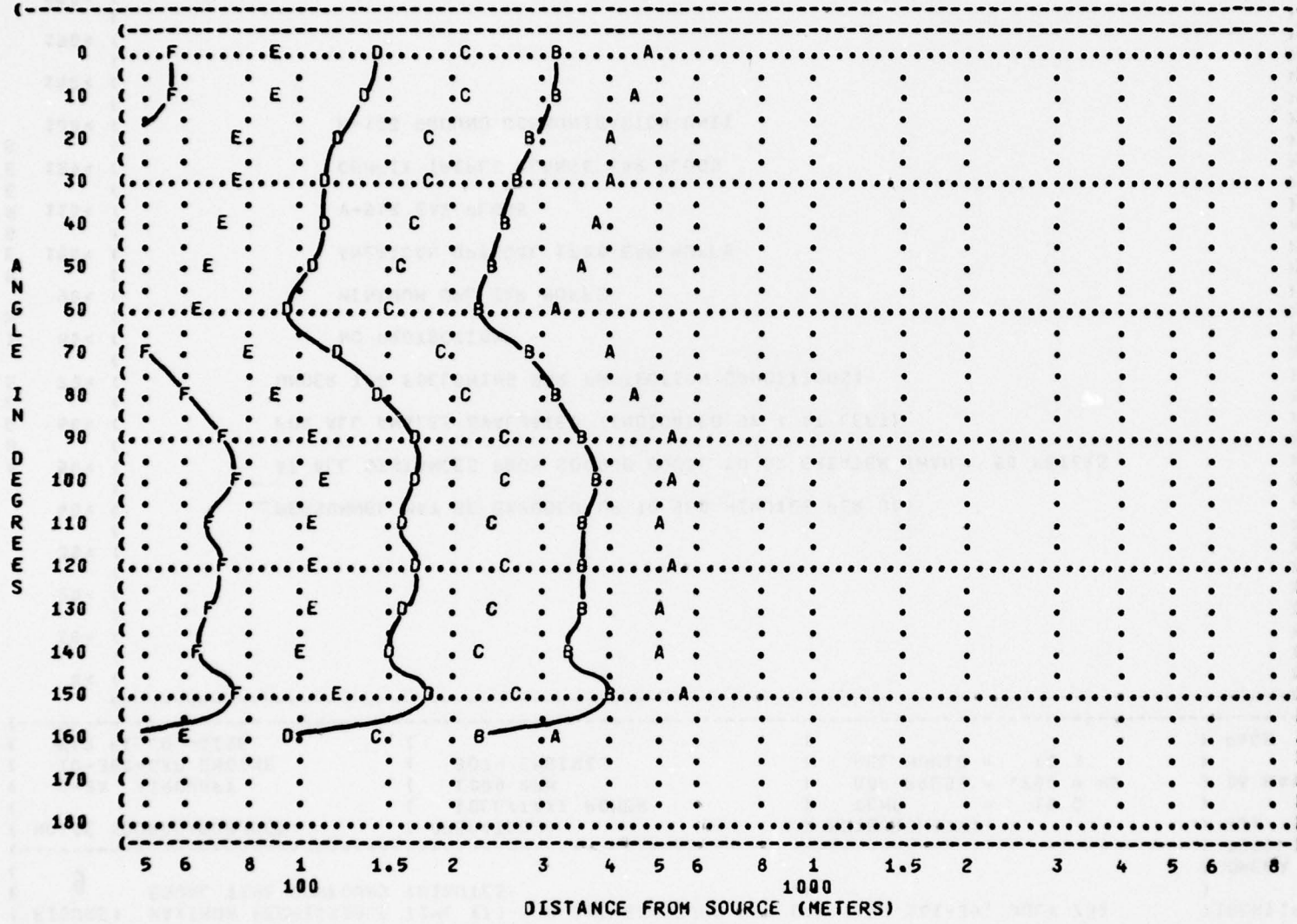
FIGURE 9: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
NO PROTECTION

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 7

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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 9: 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:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 8

POINT	MIN
A	960
B	480
C	240

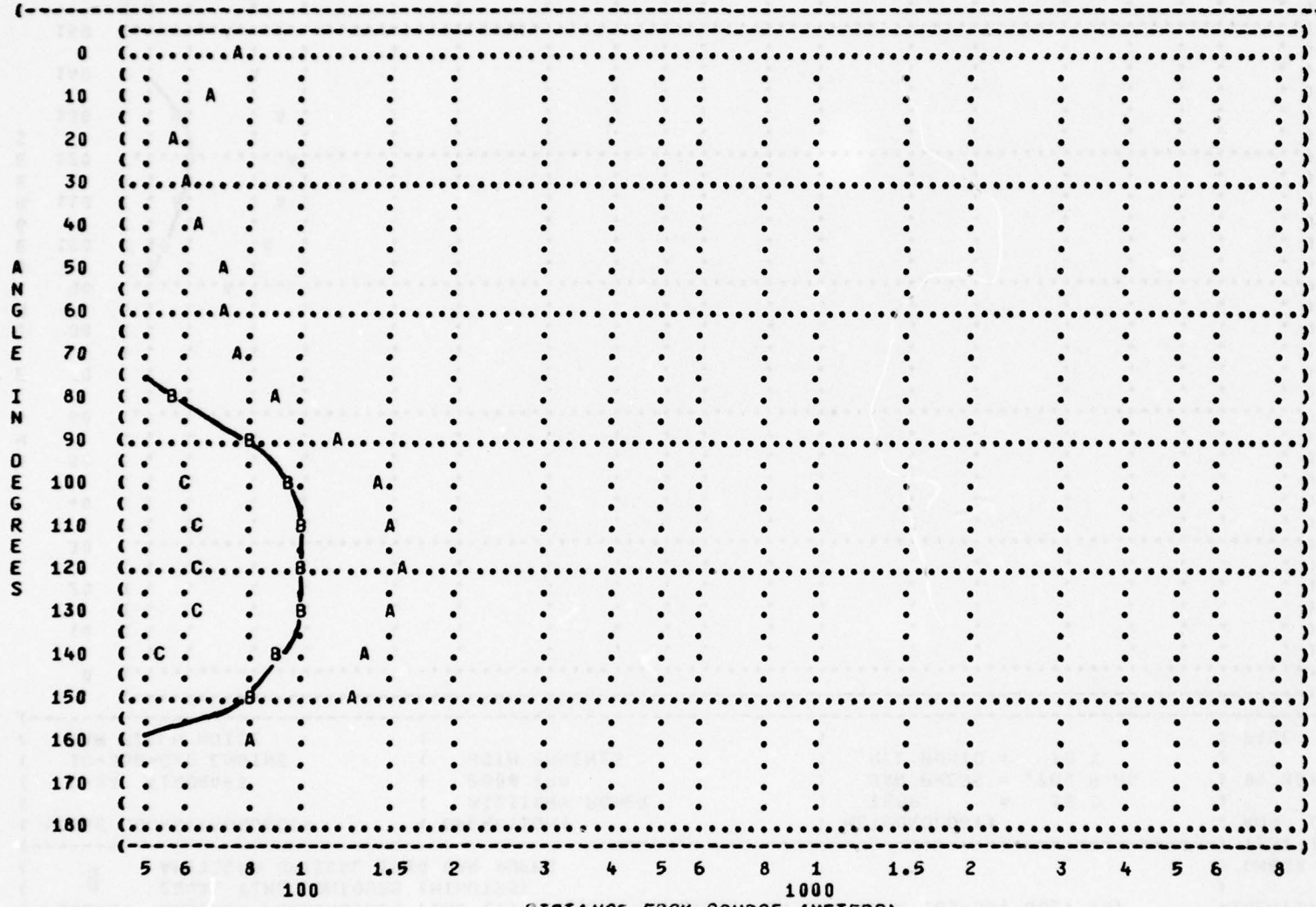


FIGURE 9 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
AMERICAN OPTICAL 1700 EAR MUFFS

IDENTIFICATION:
OMEGA 1.4
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PAGE 9

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

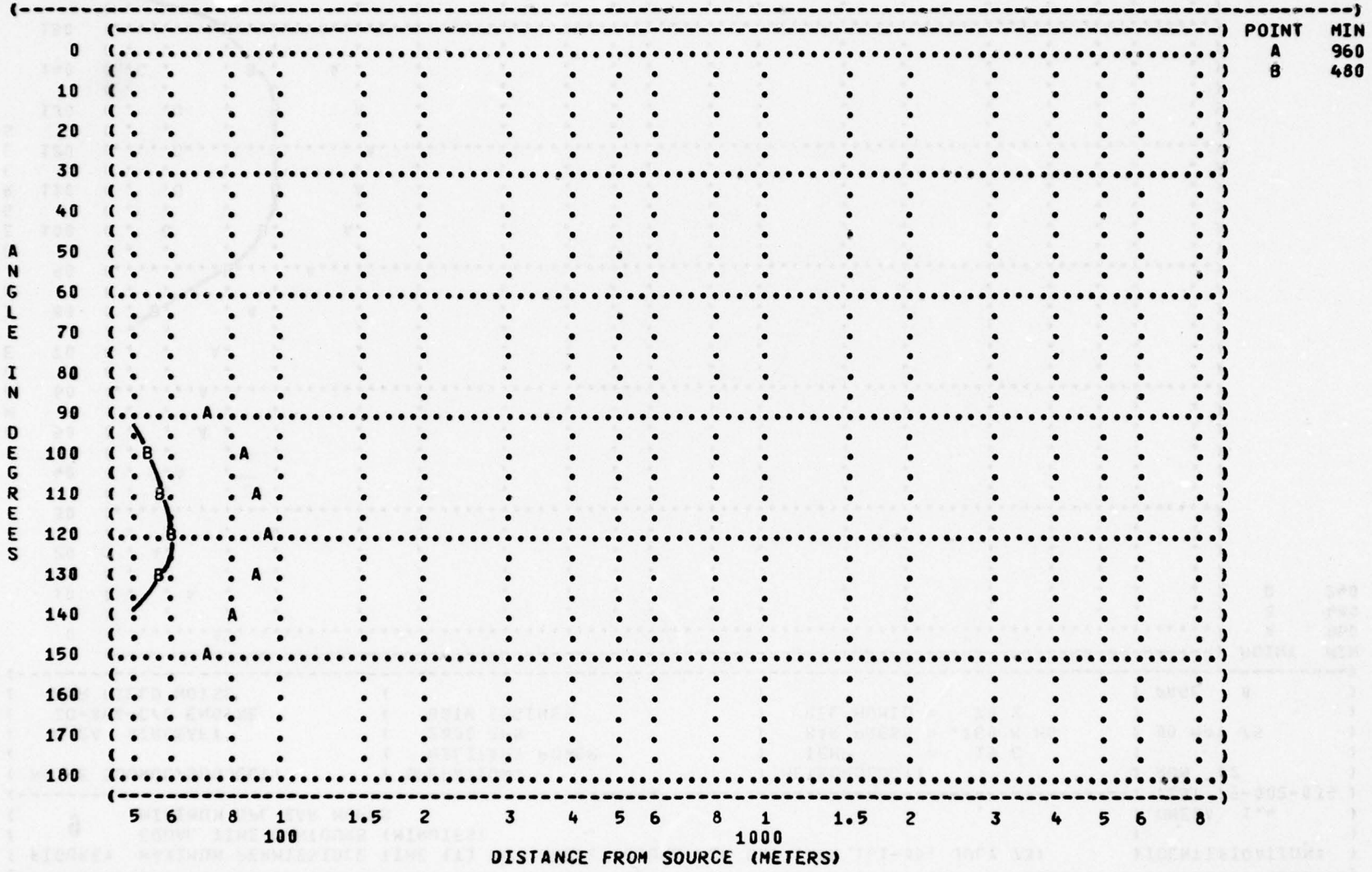

FIGURE 9 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
V-51R EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
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08 MAY 75
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NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

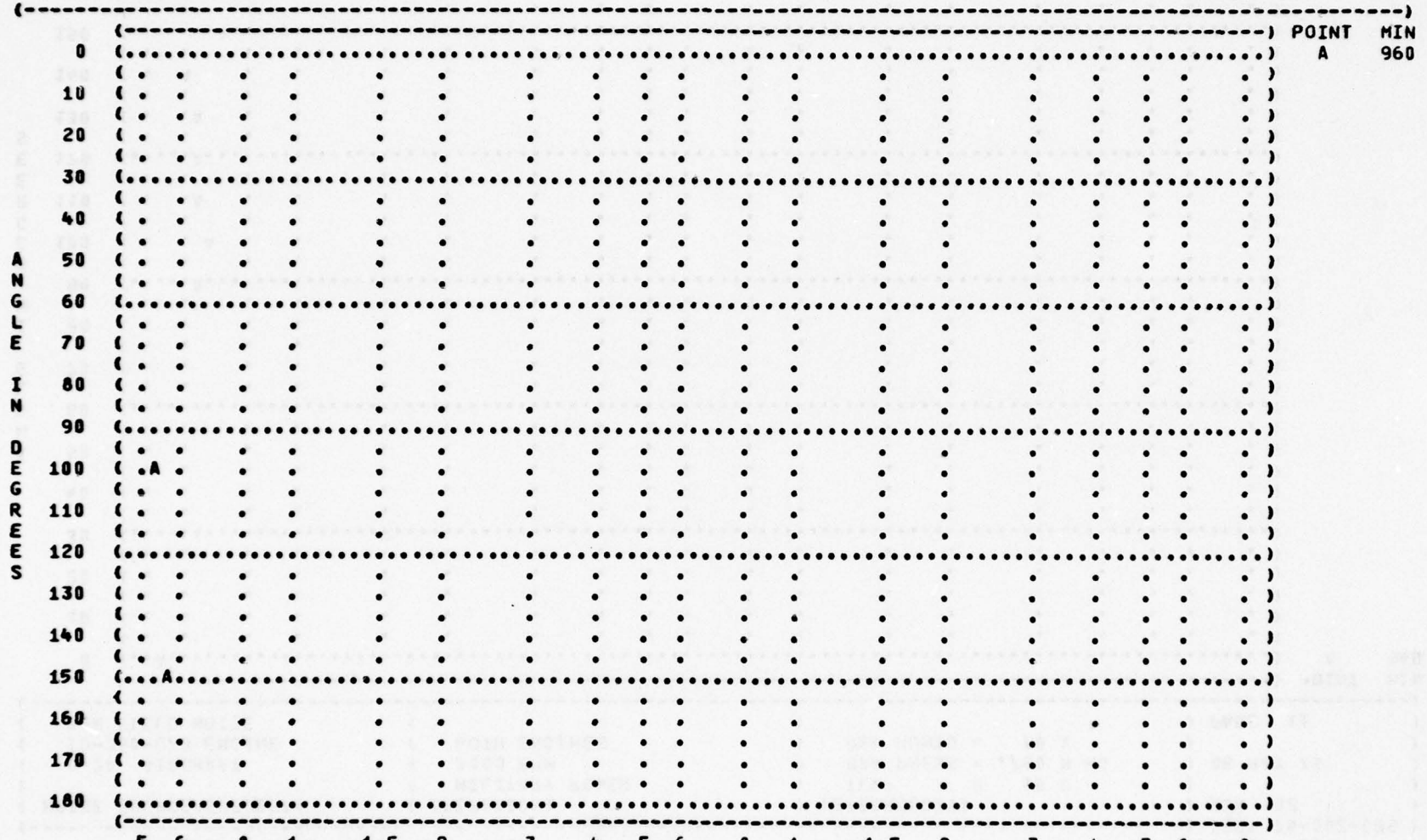

FIGURE 9 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
COMFIT TRIPLE FLANGE EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
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NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

POINT	MIN
A	960

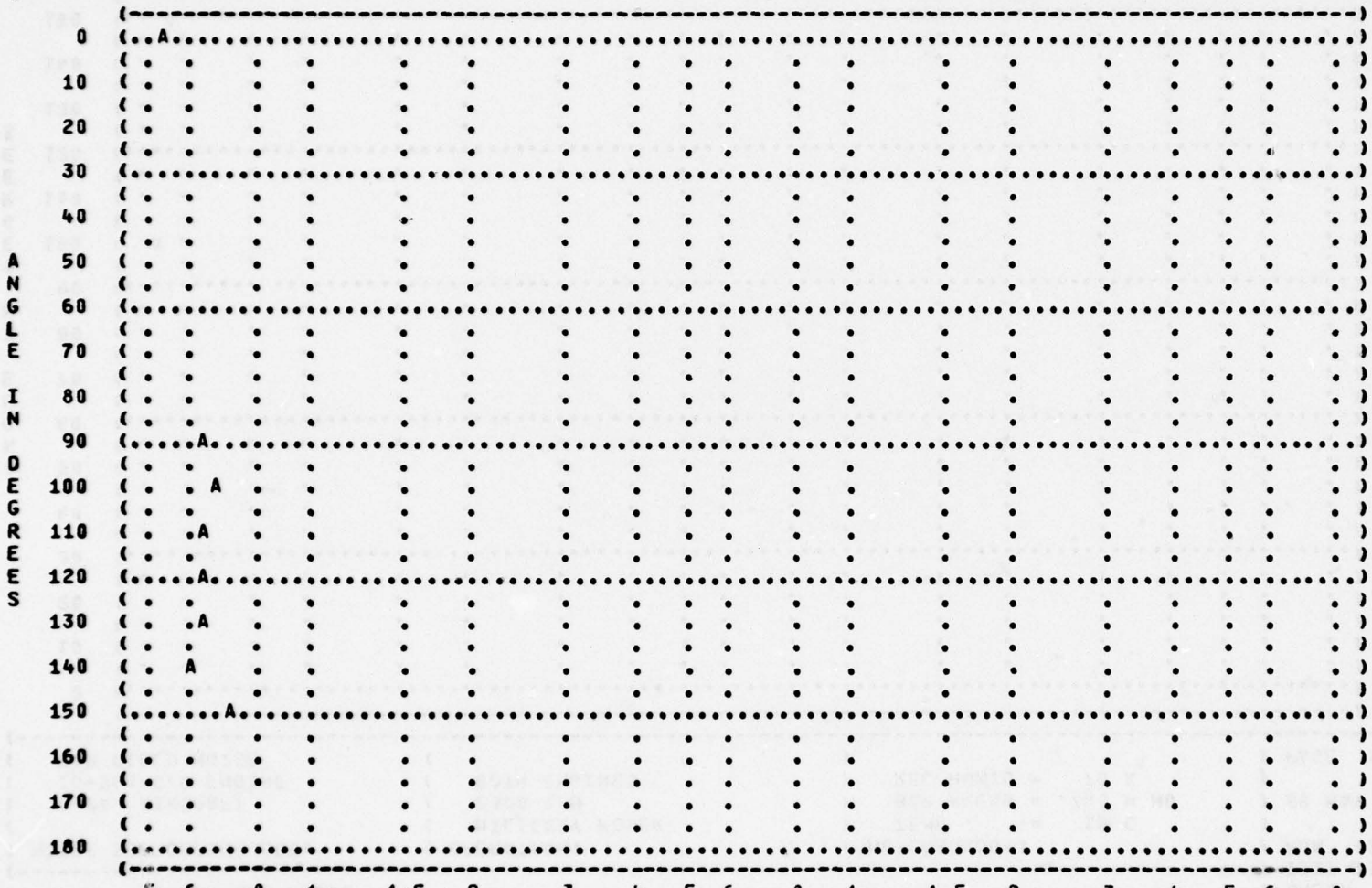

FIGURE 9 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
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NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

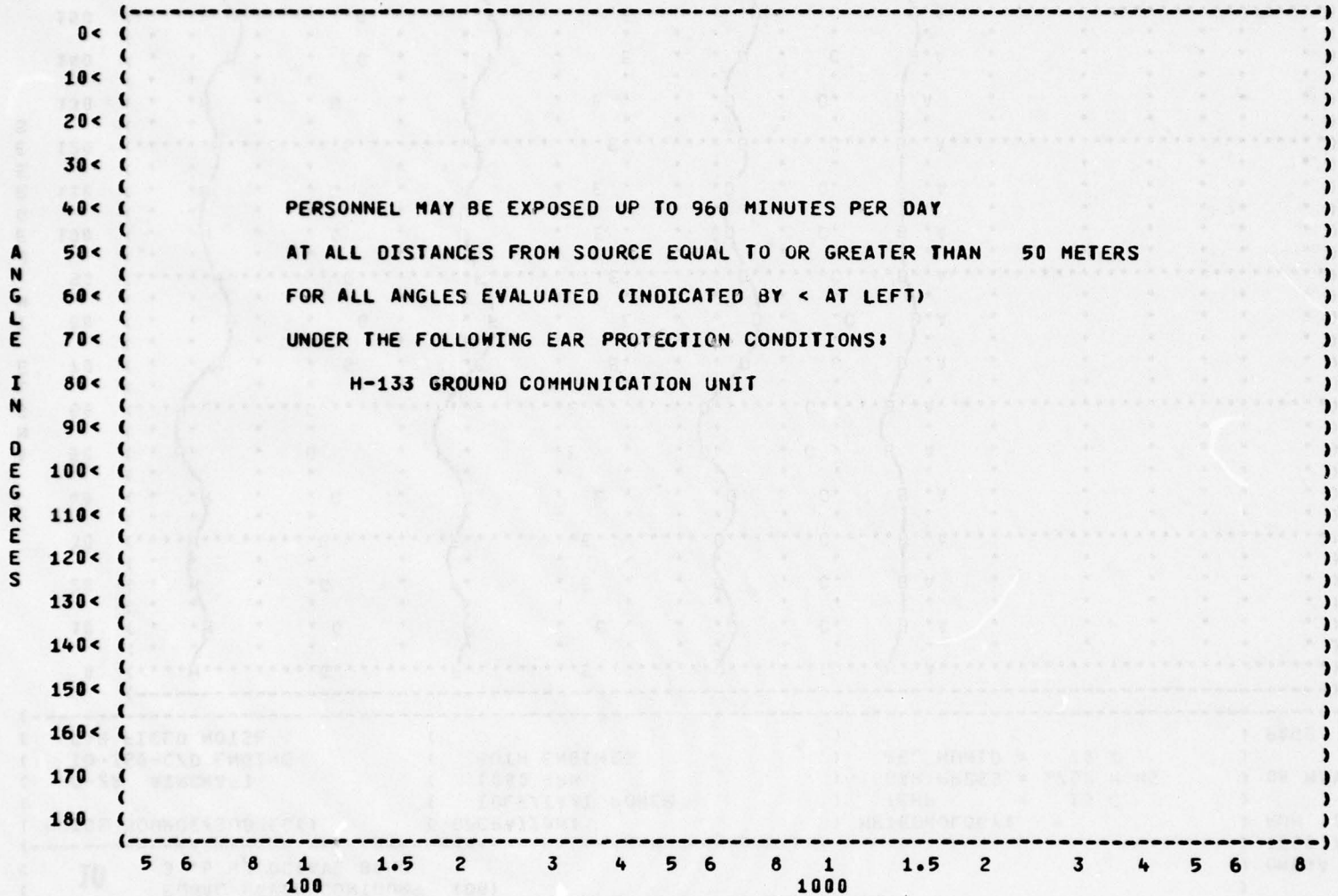

FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 18

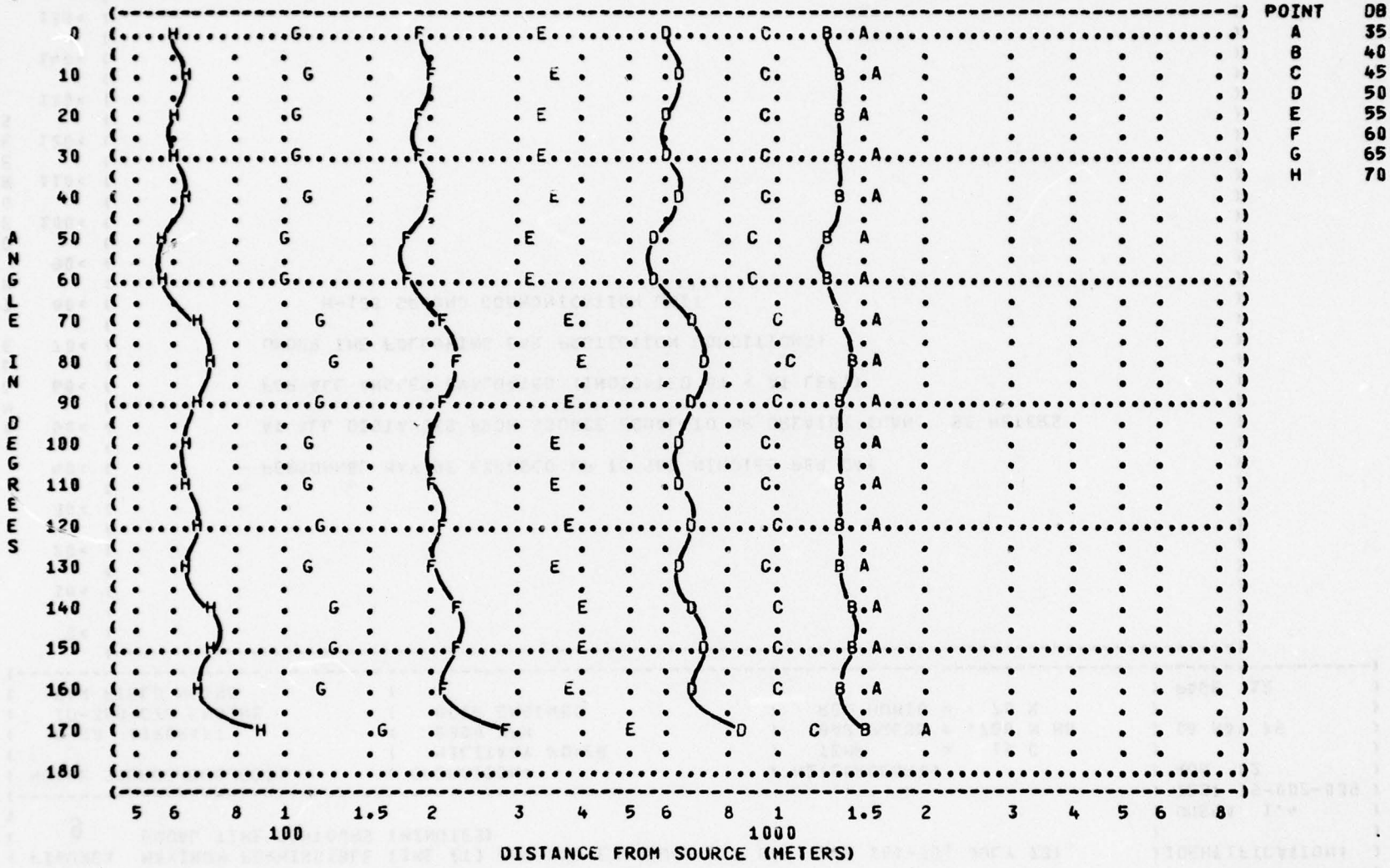

FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
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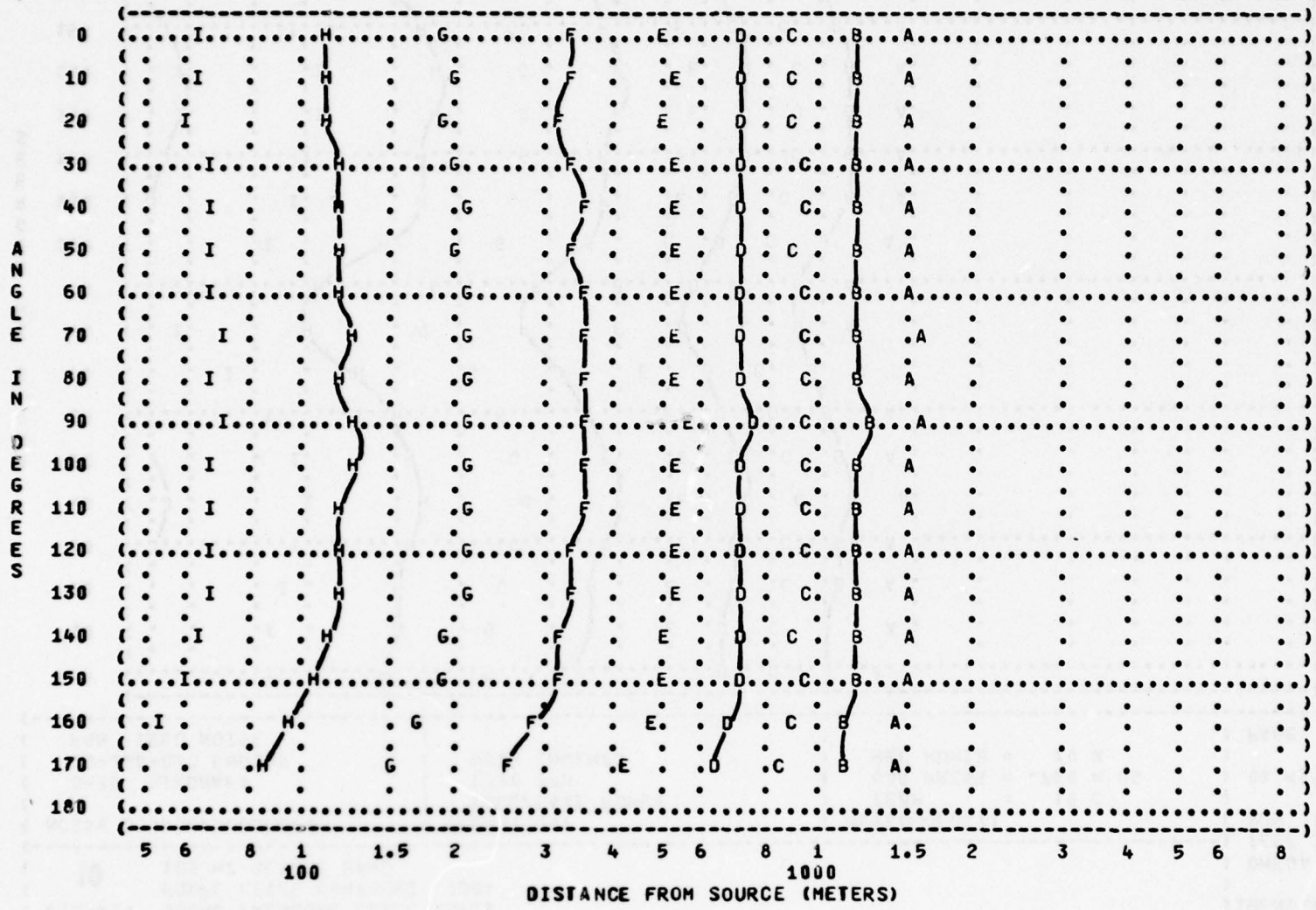
PAGE 19



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

FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
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

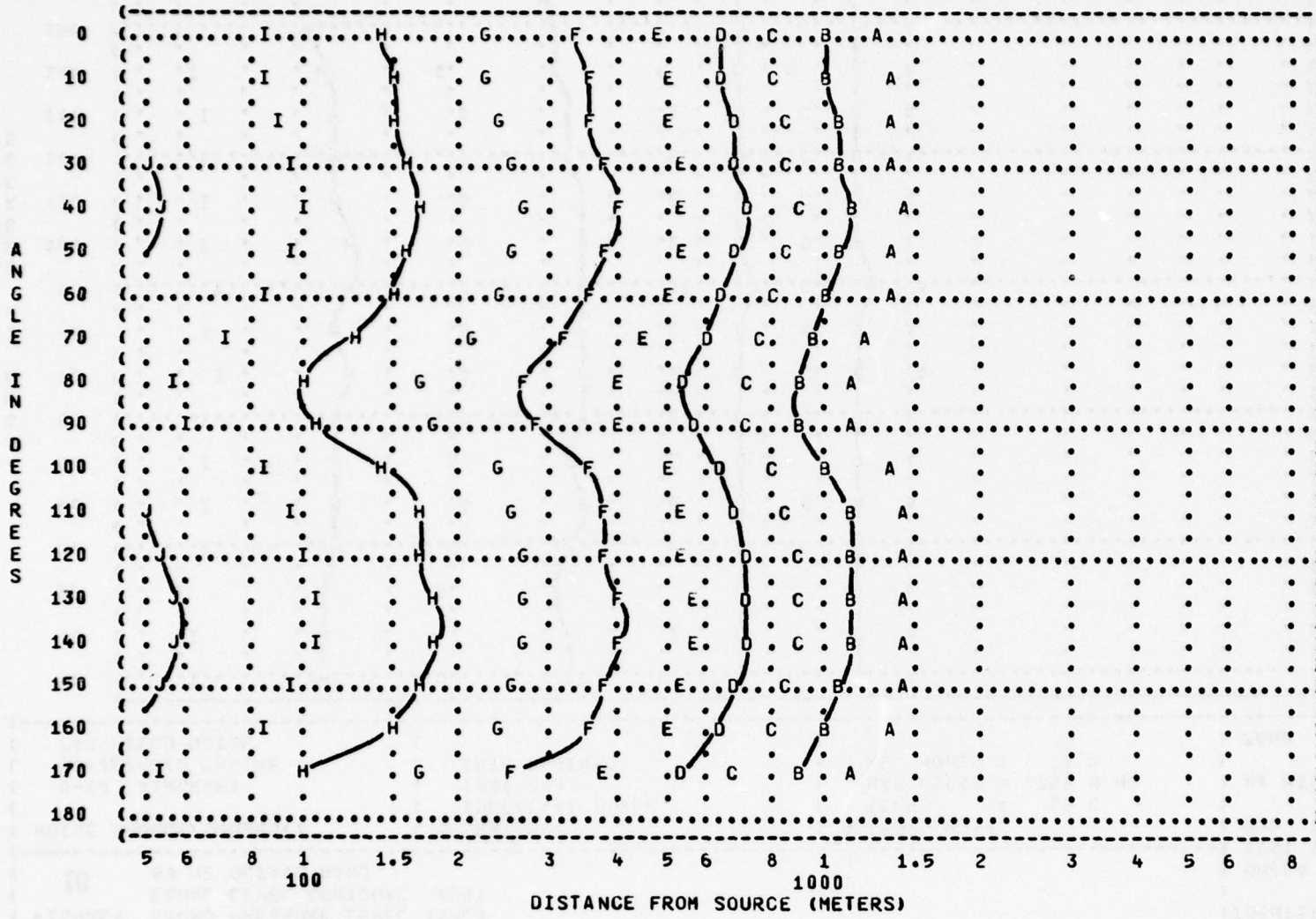


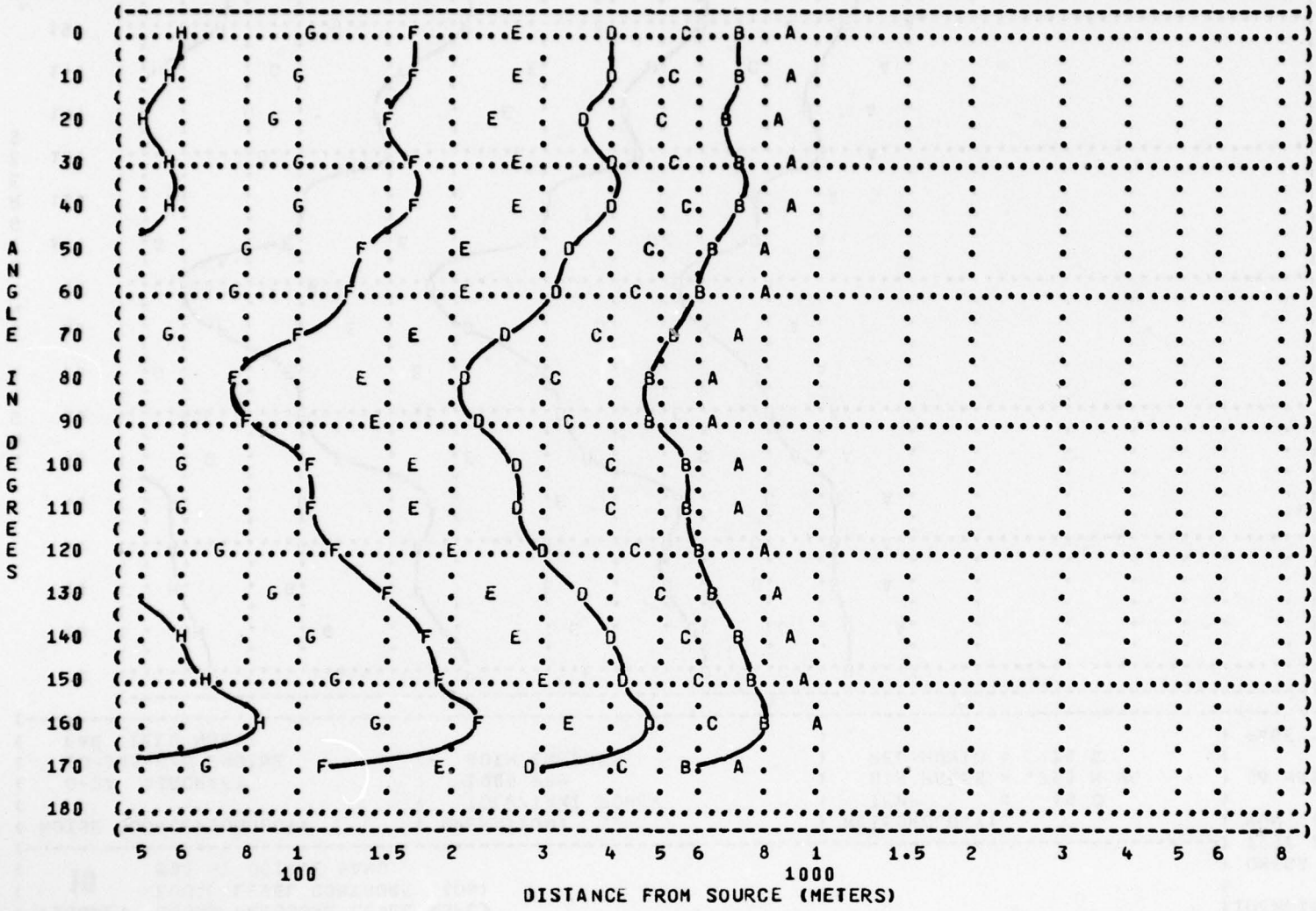
FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 250 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
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

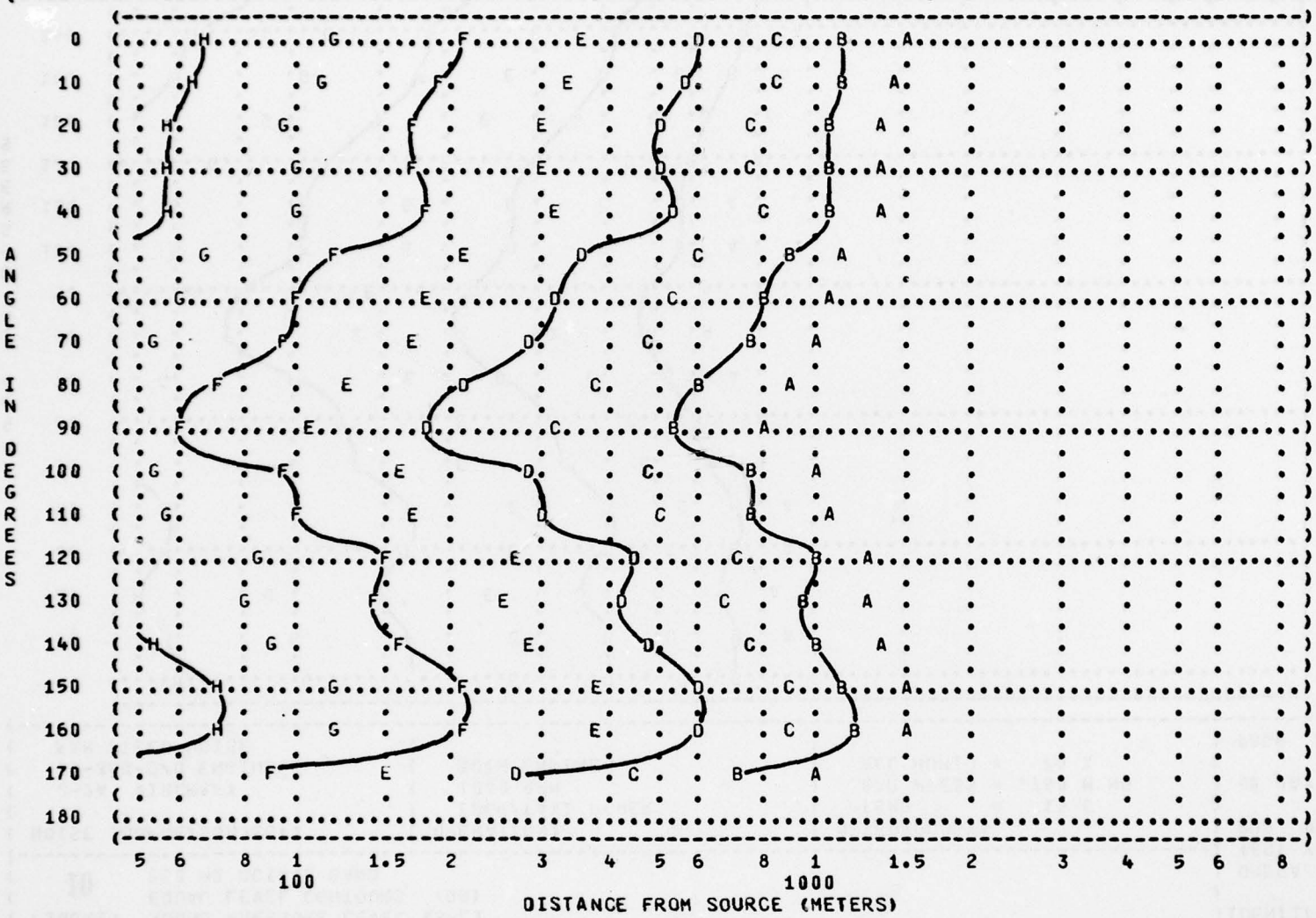
FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
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

FIGURE: 10

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
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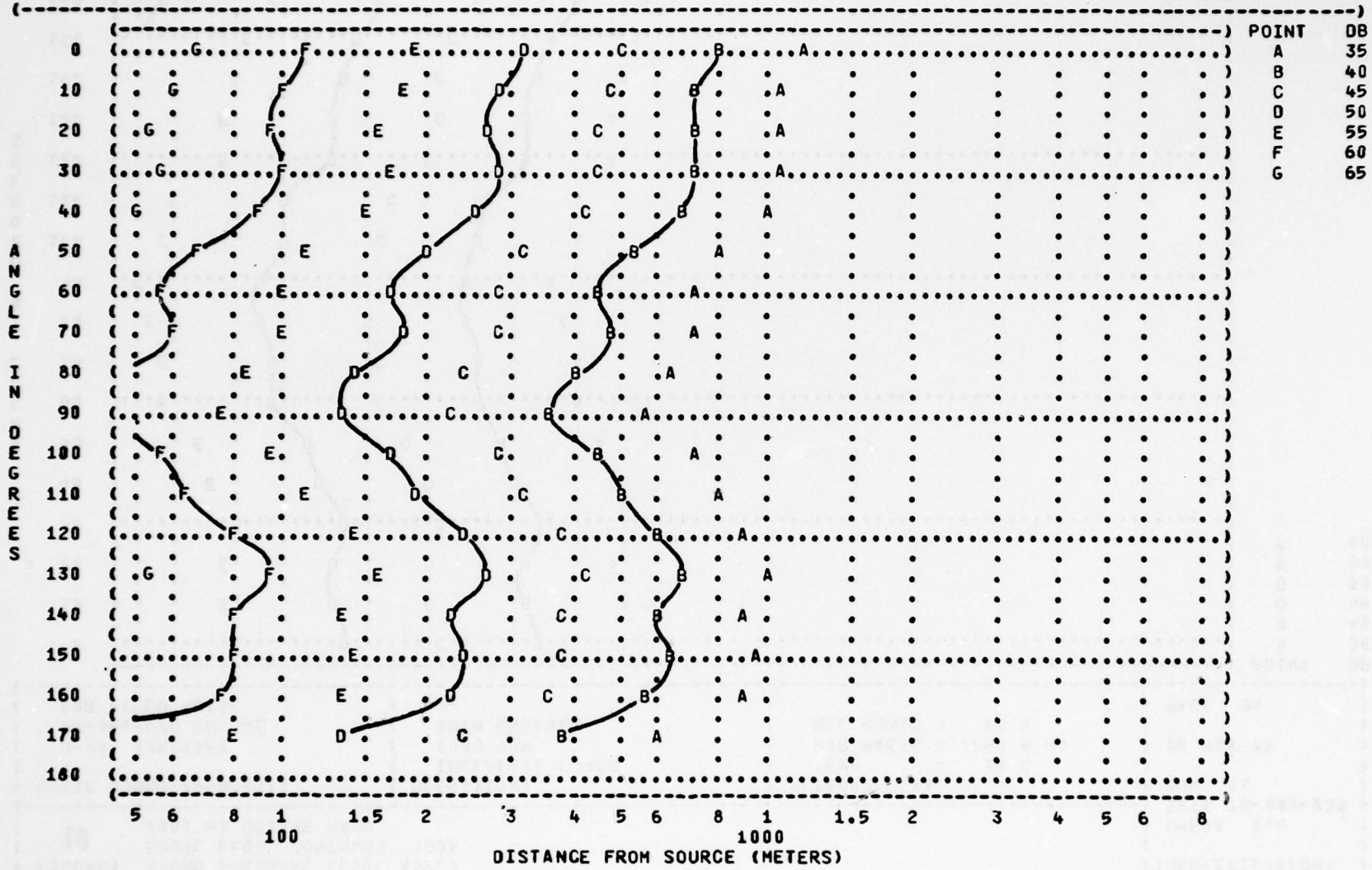
NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

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

IDENTIFICATION: OMEGA 1.4 TEST 75-002-039 RUN 01 08 MAY 75 PAGE 24

NOISE SOURCE/SUBJECT: O-2A AIRCRAFT IO-360-C/D ENGINE FAR FIELD NOISE

OPERATION: IDLE/TAXI POWER 1000 RPM BOTH ENGINES

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

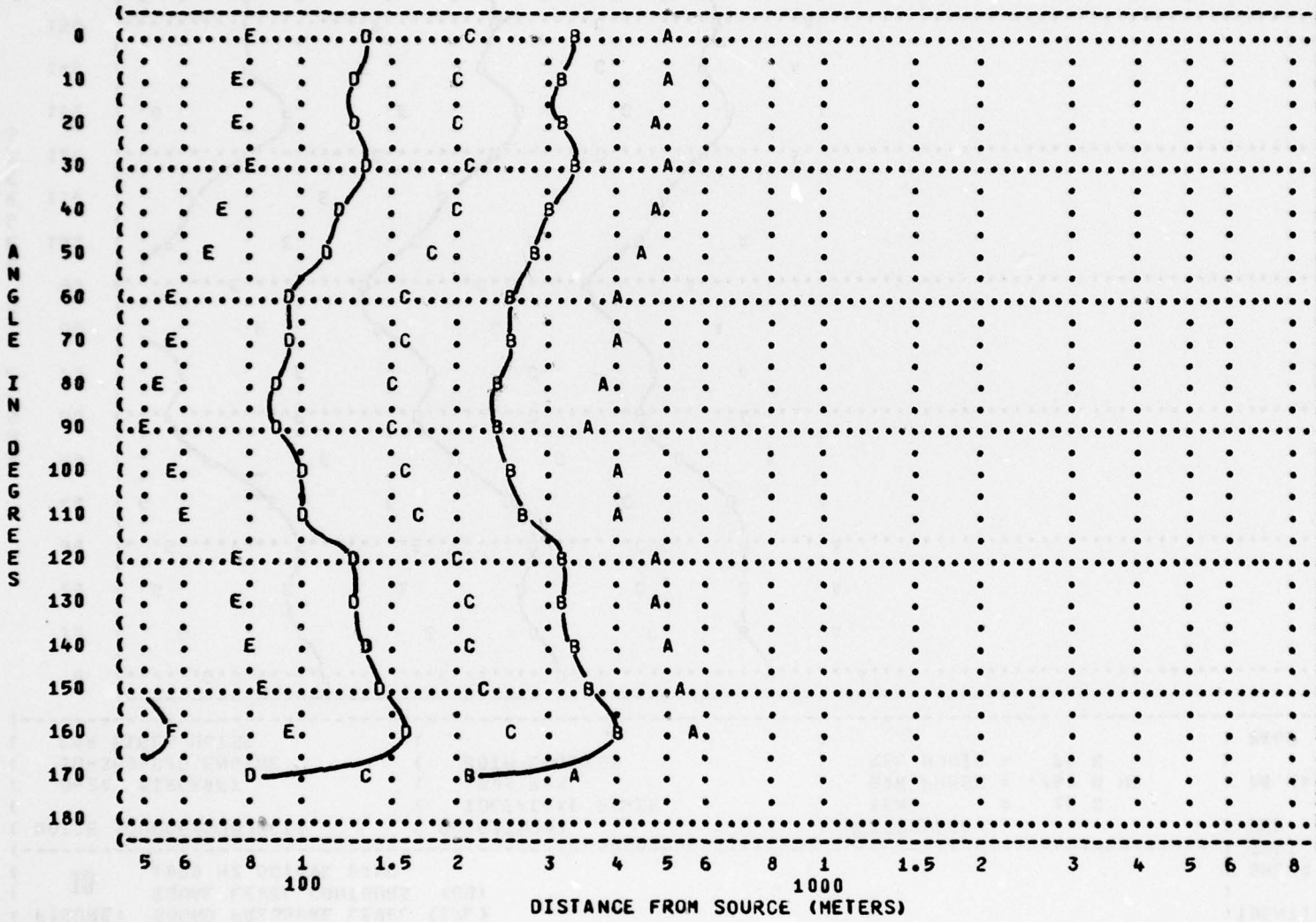


FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 25

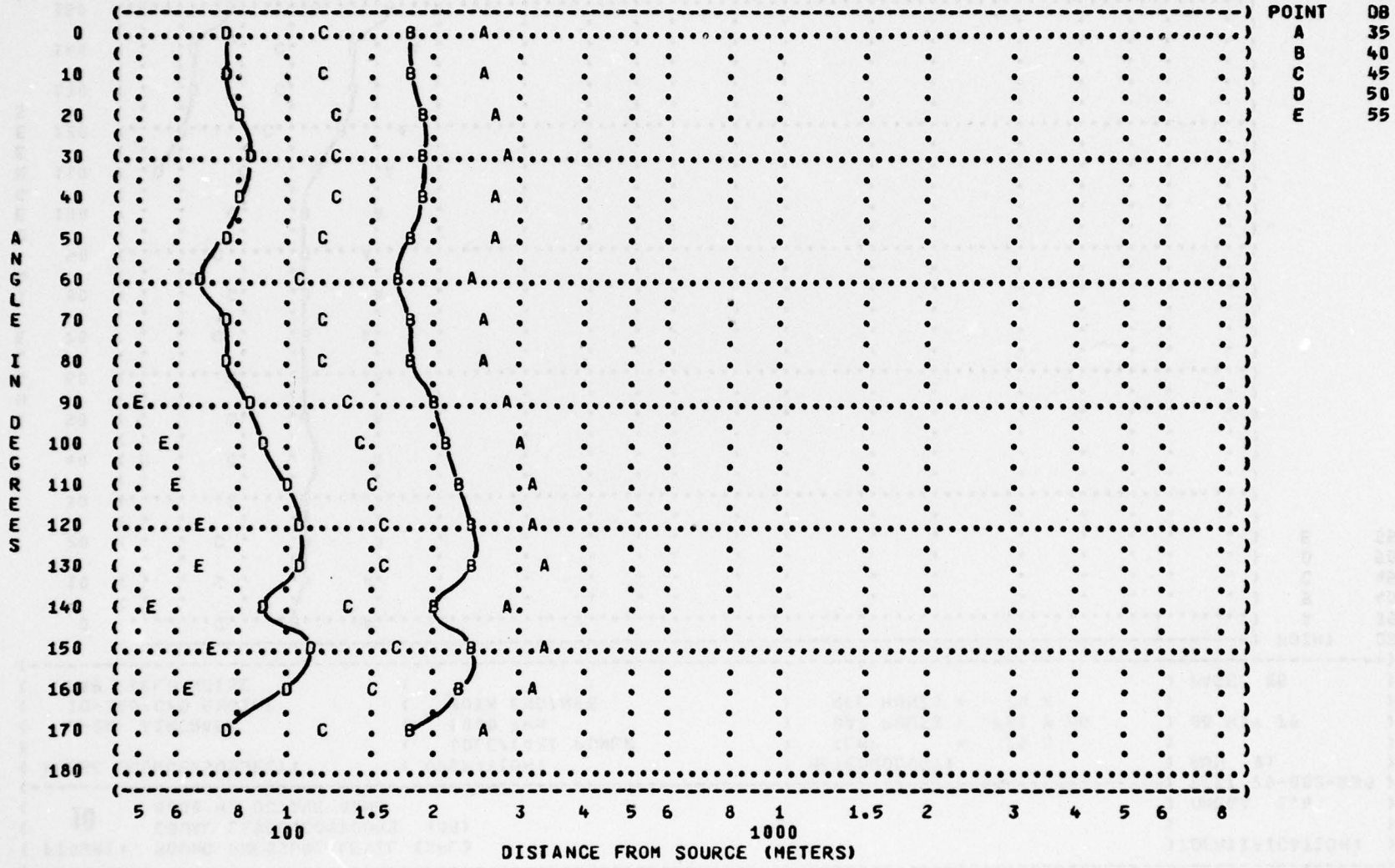


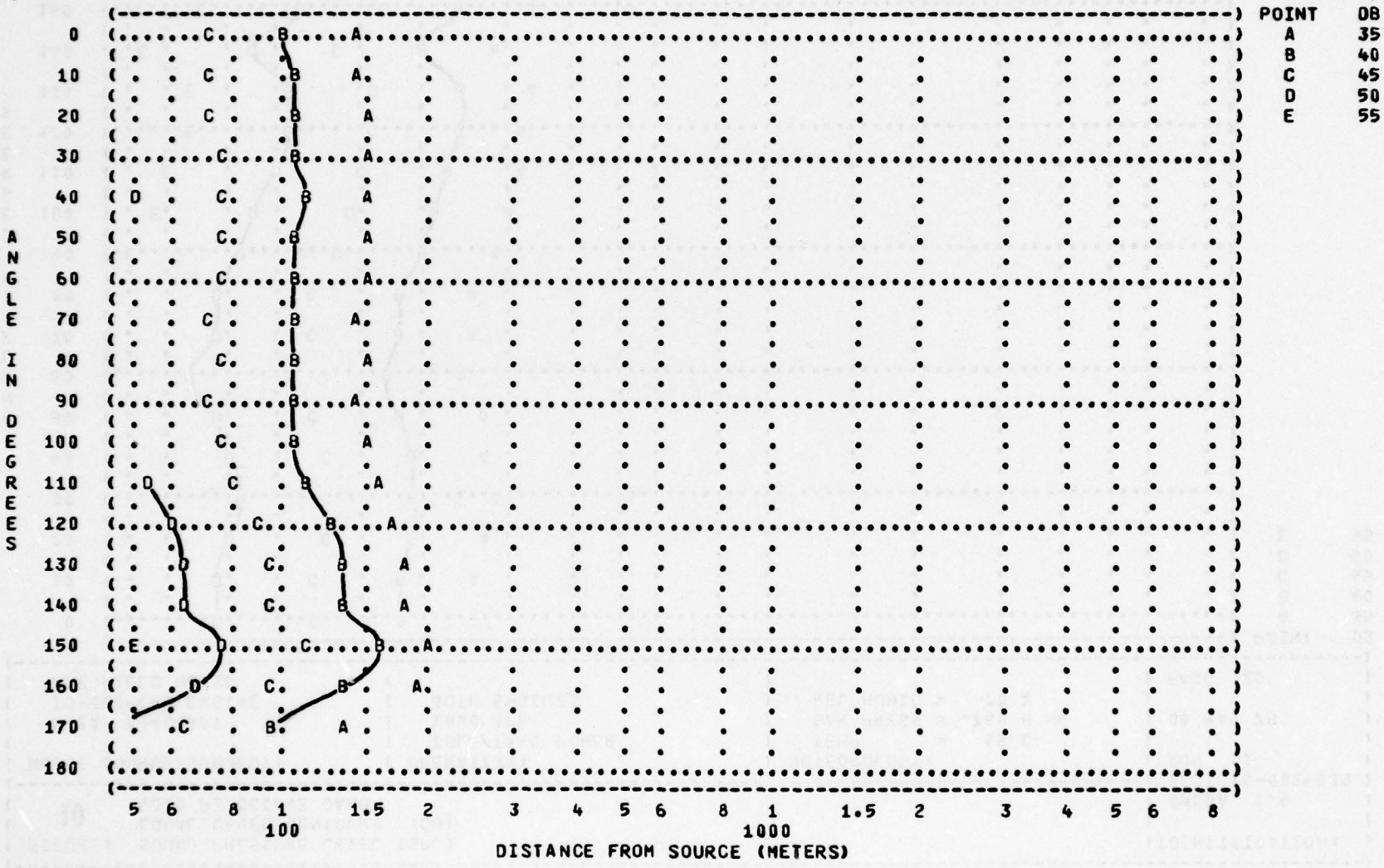
FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
IDLE/TAXI POWER
1000 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 01
08 MAY 75
PAGE 26



POINT	DB
A	35
B	40
C	45
D	50
E	55

FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 18

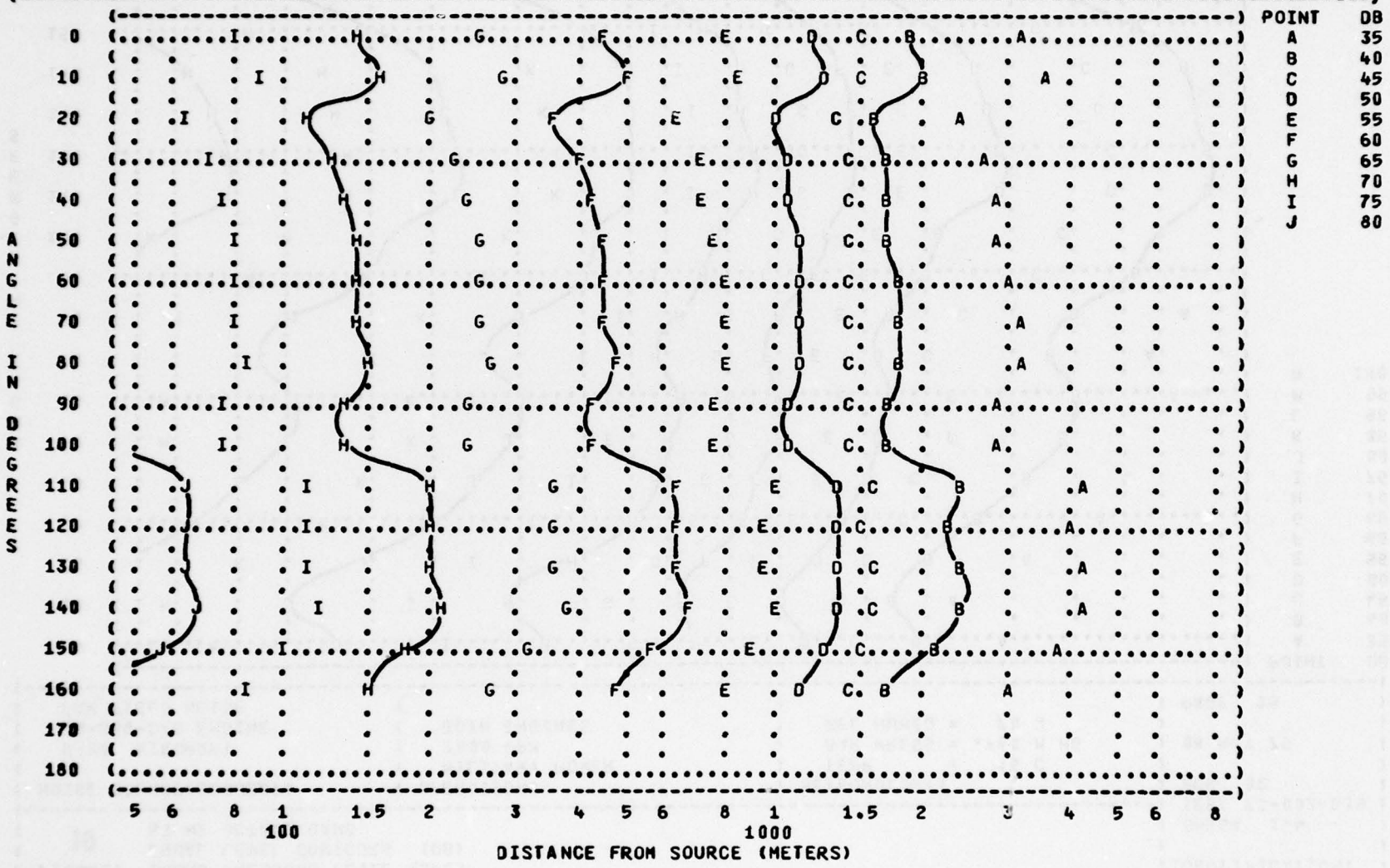


FIGURE 10 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
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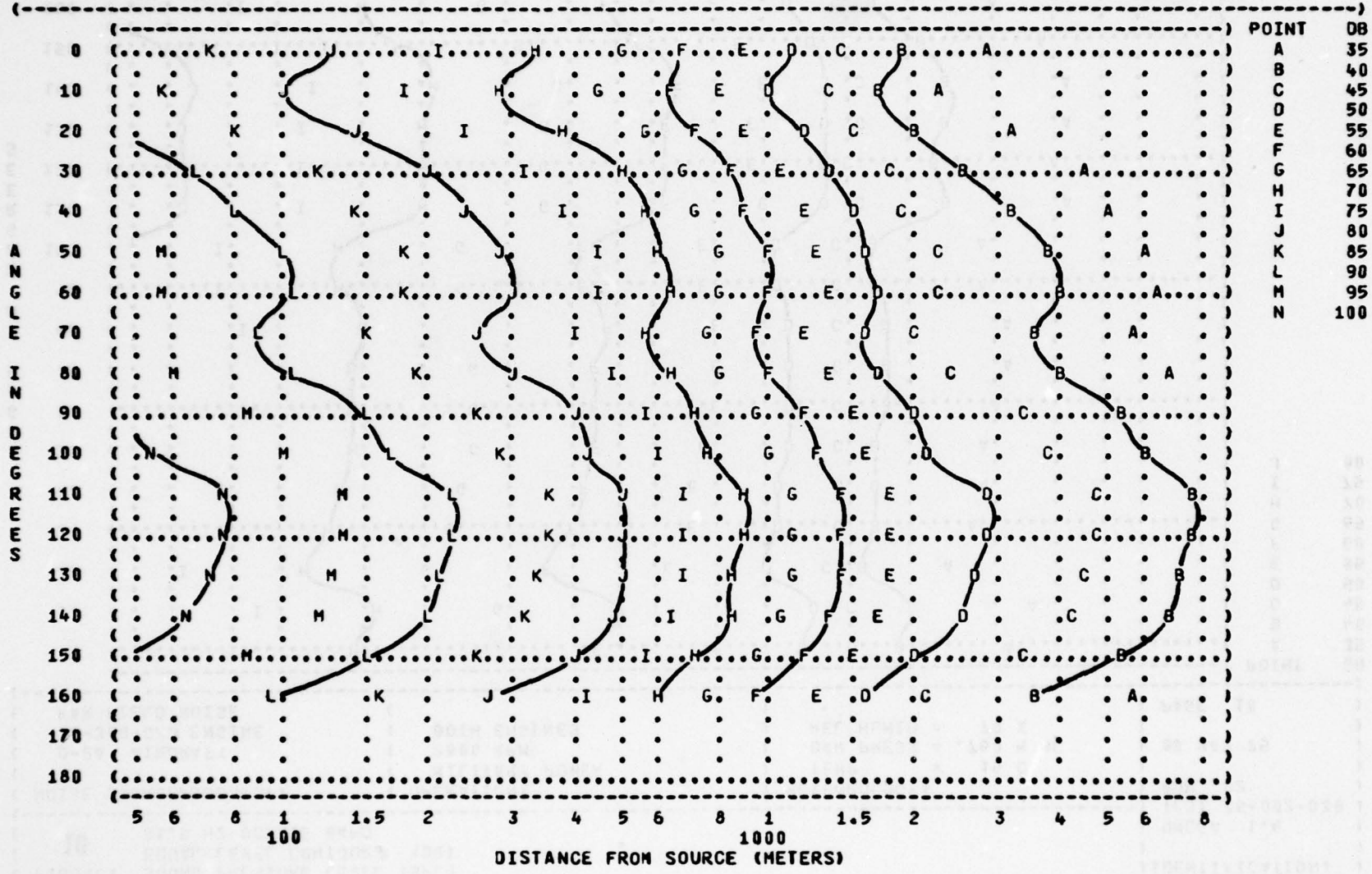

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95
N	100

FIGURE: 10 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
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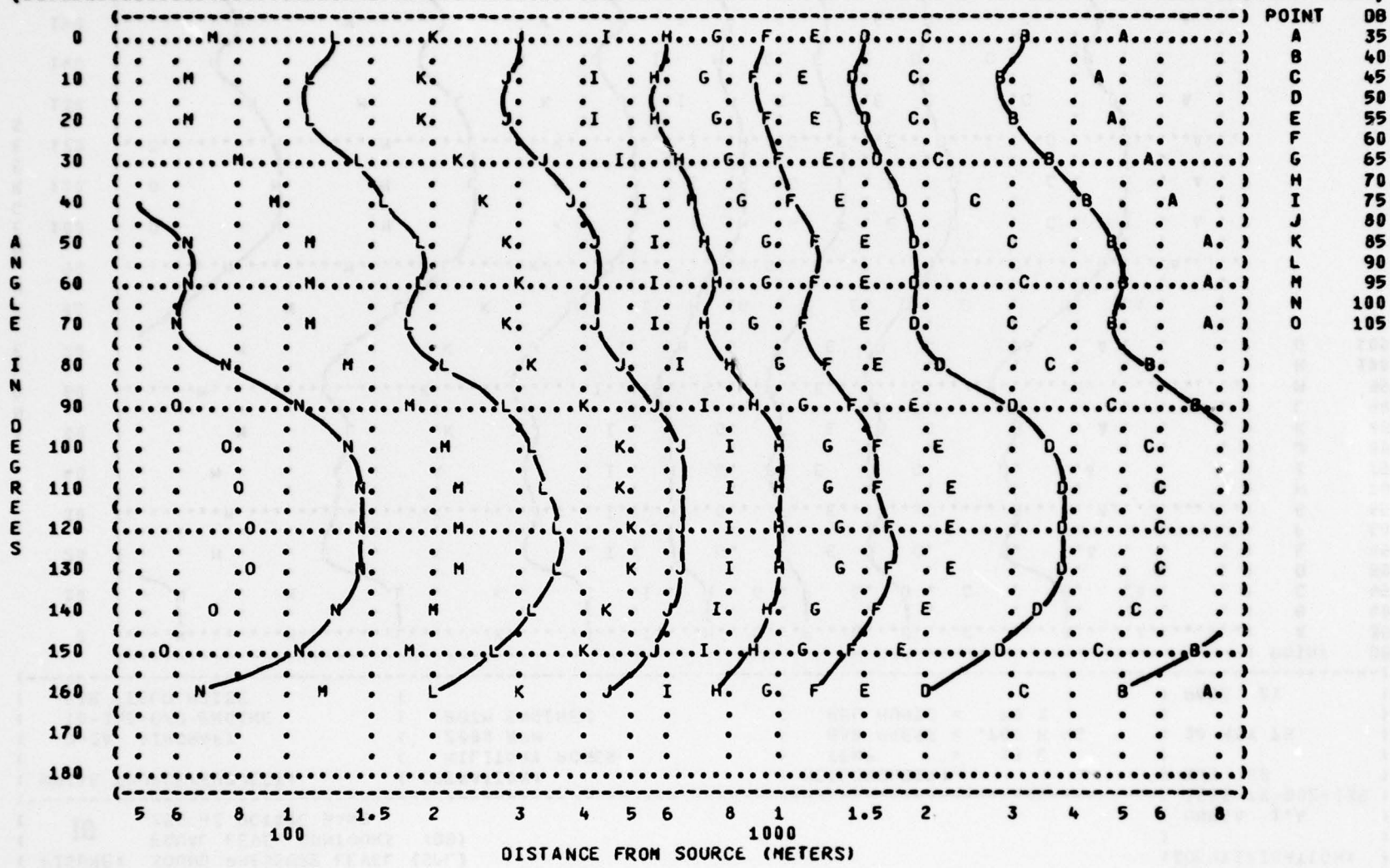
NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
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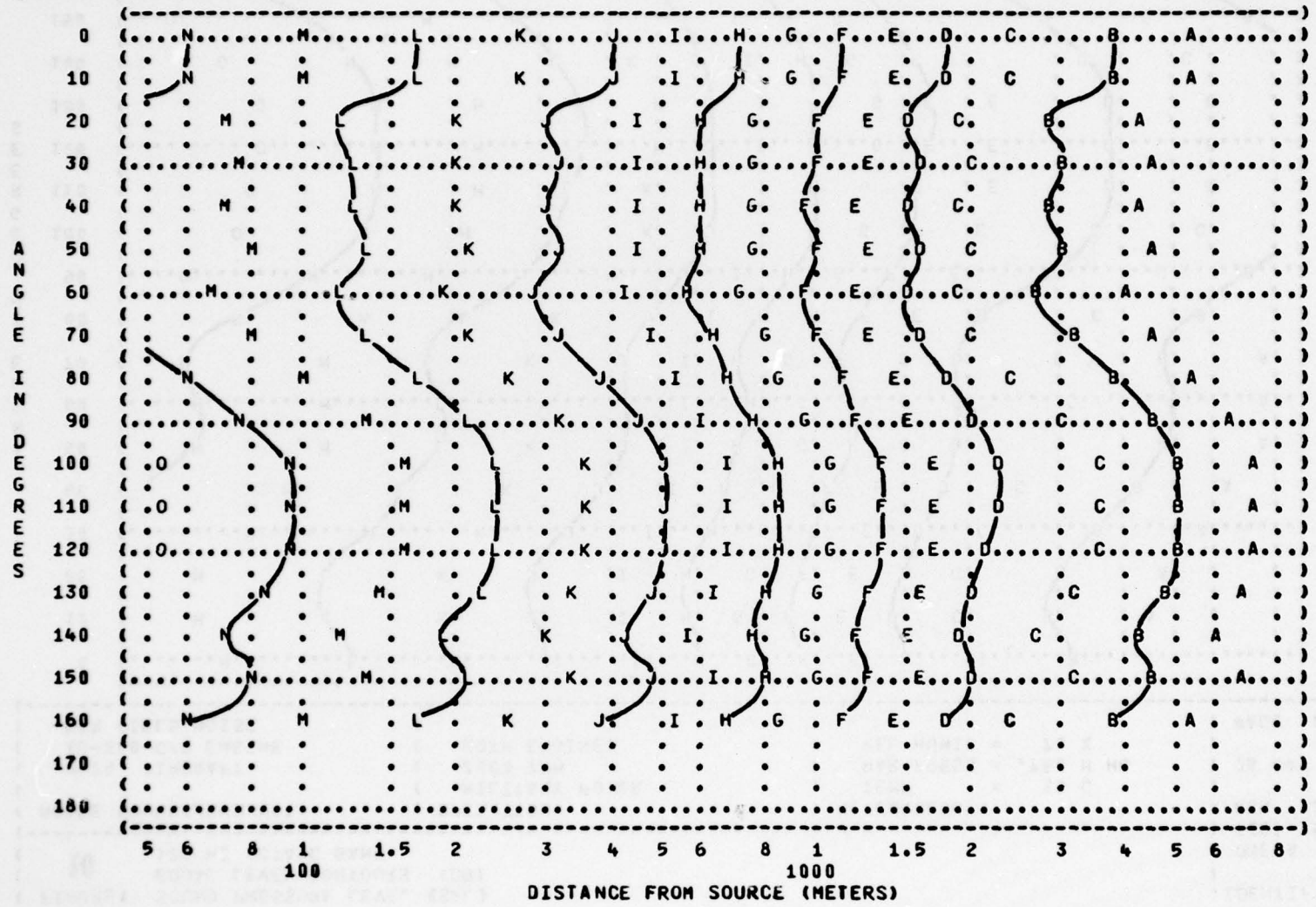
PAGE 21



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

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

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
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

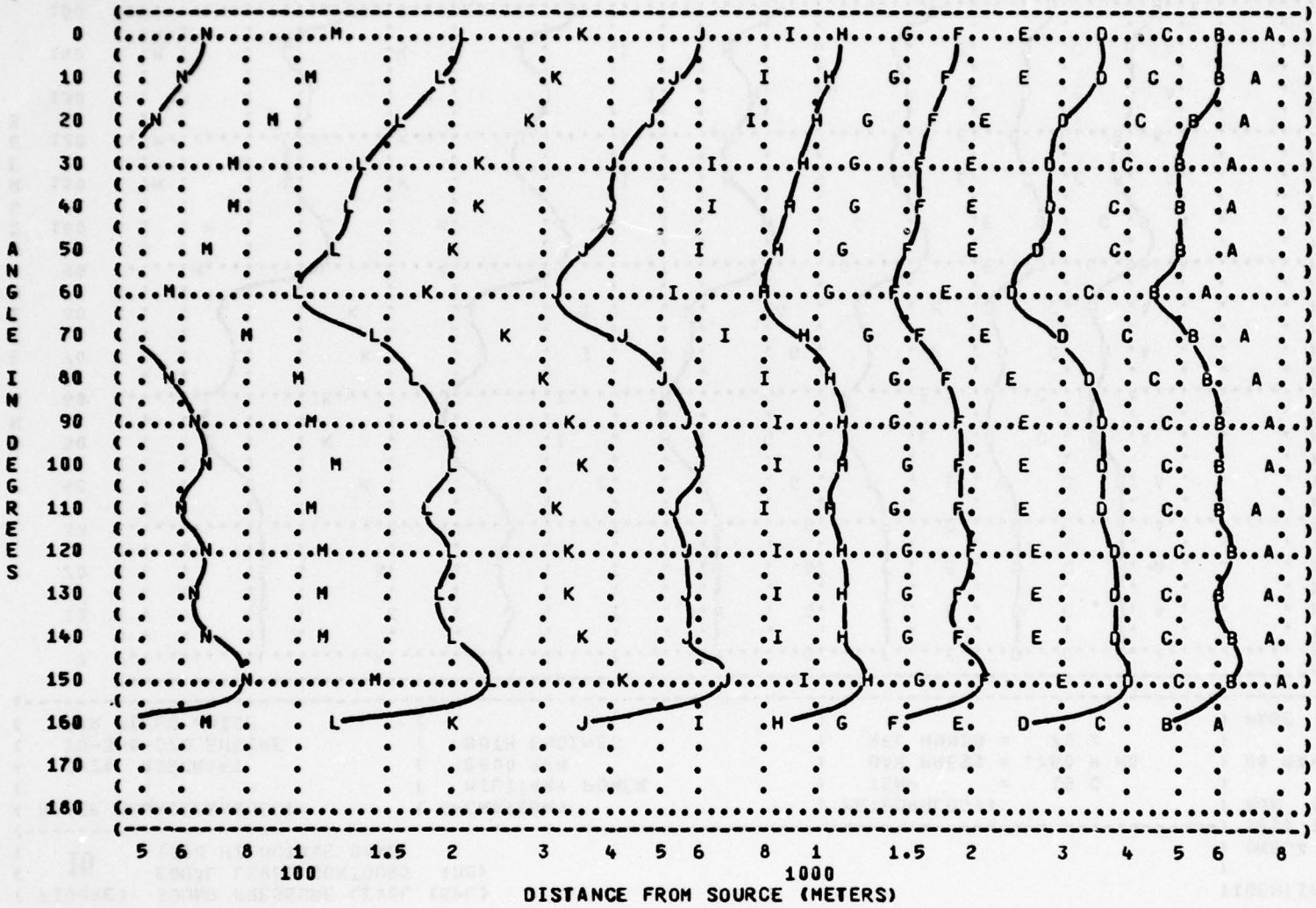


FIGURE: 10

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

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02

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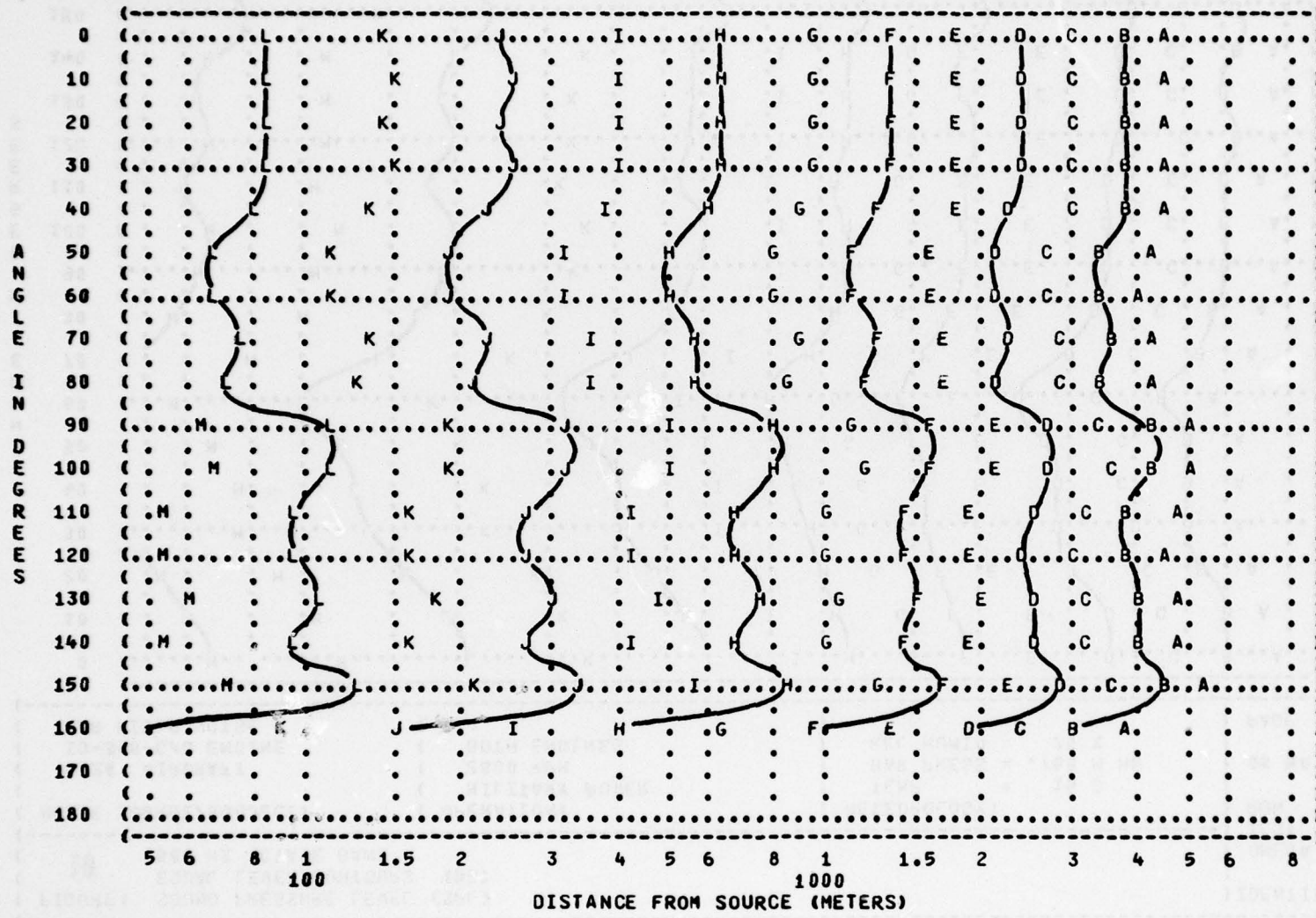
PAGE 23



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

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
08 MAY 75
PAGE 24

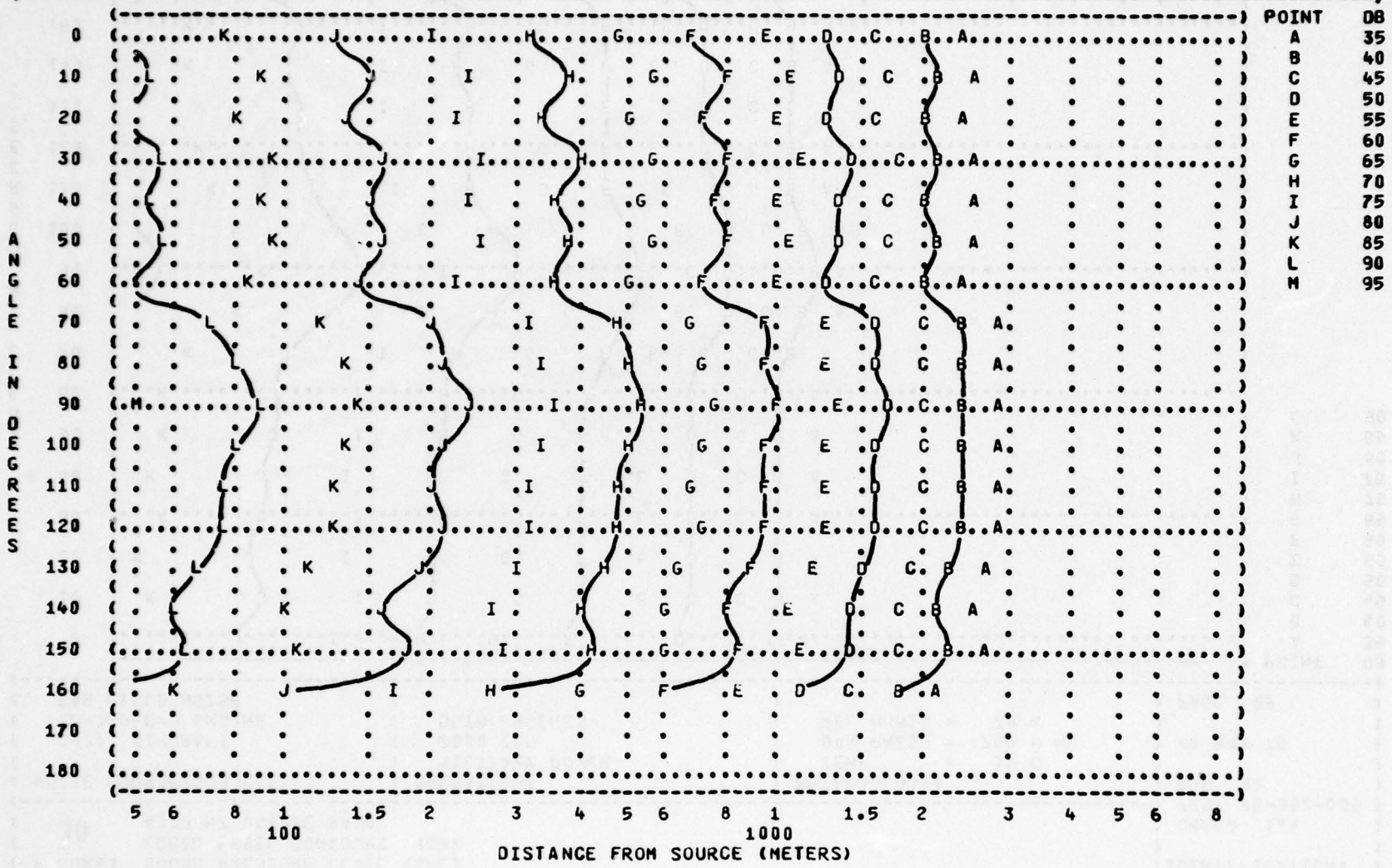


FIGURE: 10

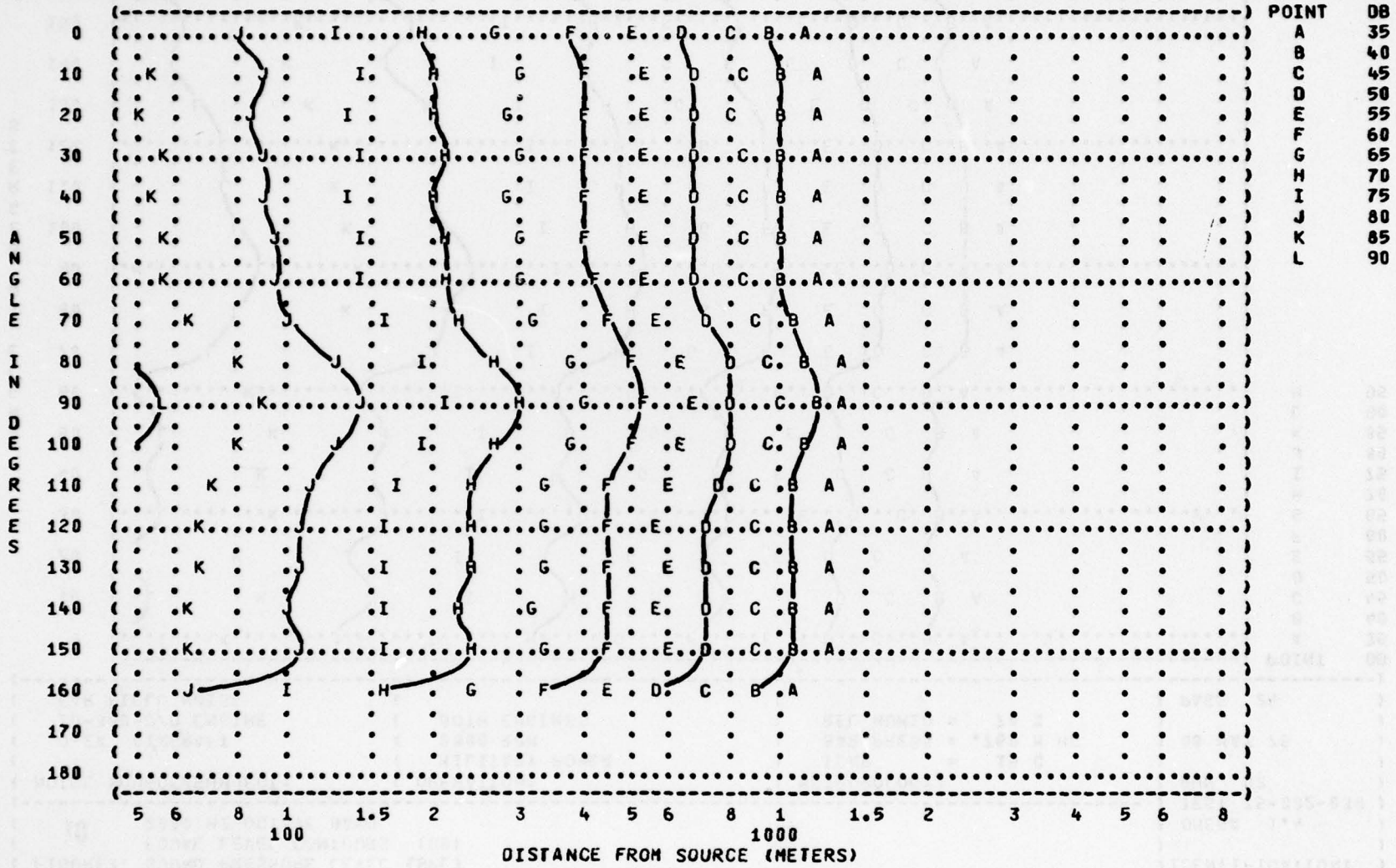
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
RUN 02
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

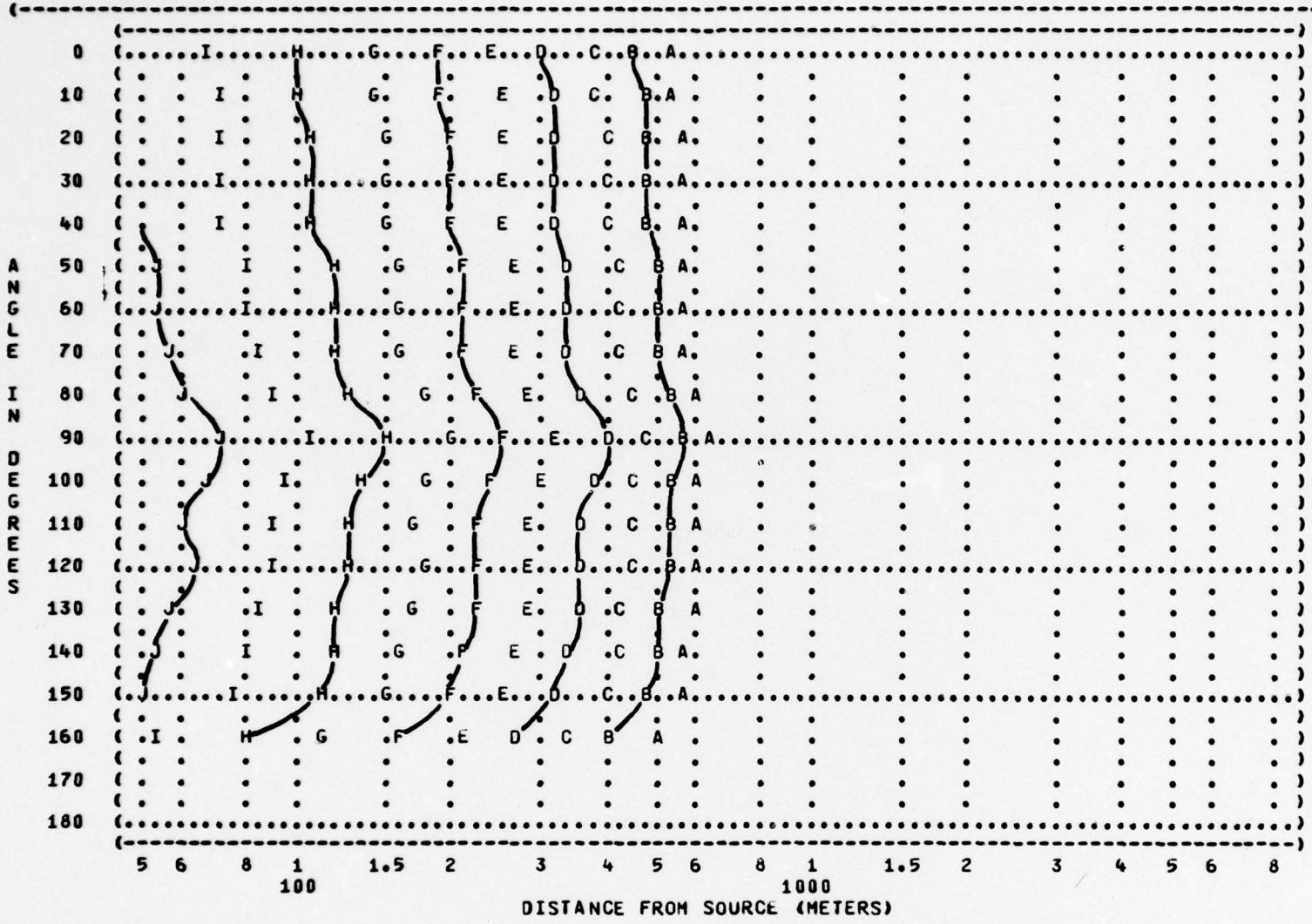
FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
O-2A AIRCRAFT
IO-360-C/D ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
2800 RPM
BOTH ENGINES

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-039
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

*U.S.Government Printing Office: 1978 — 757-080/346