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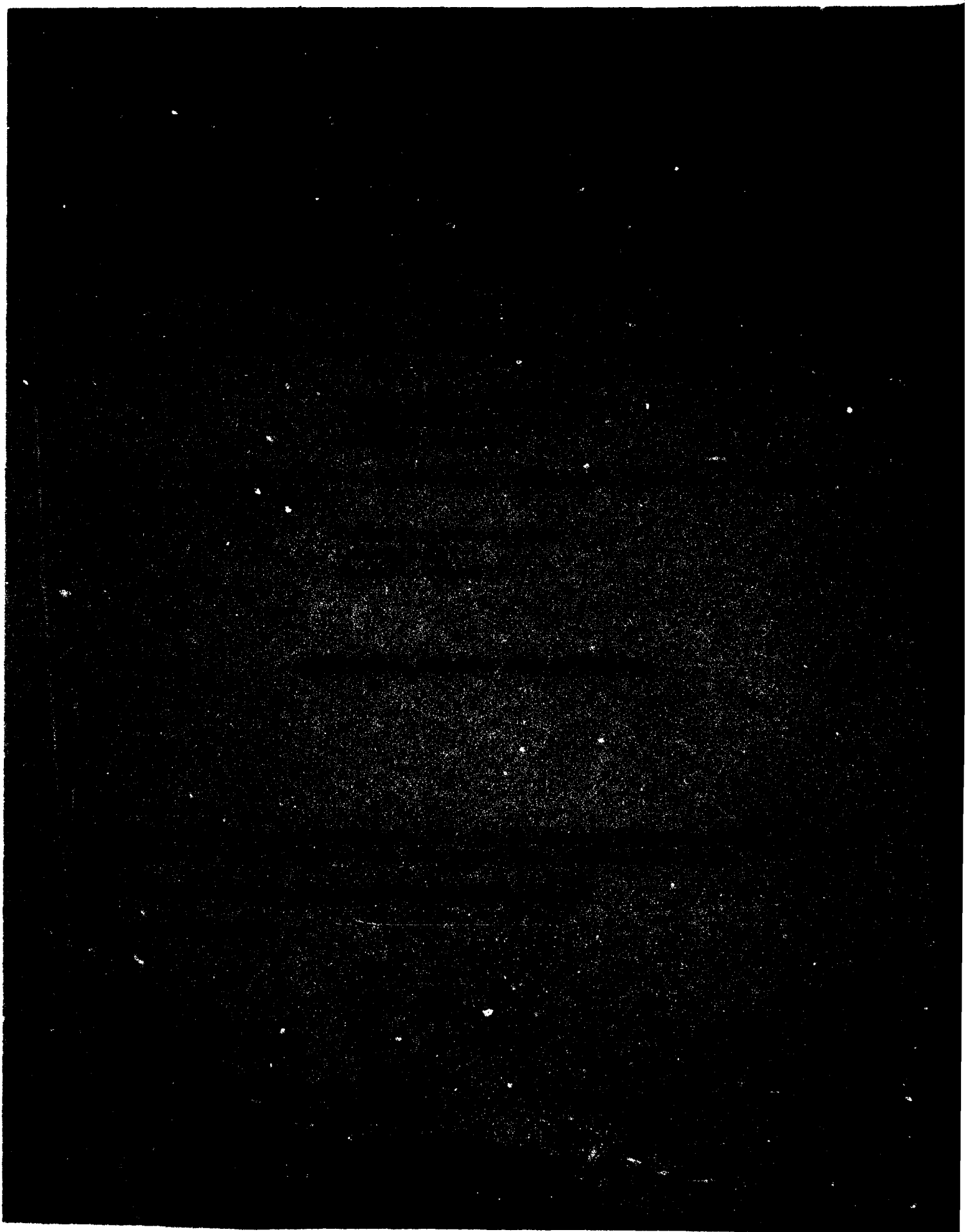

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

→ The USAF C-141A is a transport aircraft powered by four TF33-P-7 turbofan engines. This report provides measured and extrapolated data defining the bioacoustic environments produced by this aircraft operating on a concrete runup pad for three power conditions. Near-field data are reported for ten locations in a wide variety of physical and psychoacoustic measures: overall and band sound pressure levels, C-weighted and

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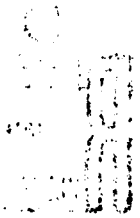
A-weighted sound levels, preferred speech interference level, perceived noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 19 locations are normalized to standard meteorological conditions and extrapolated 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 723107, Technology to Define and Assess Environmental Quality of Noise from Air Force Operations and 723108, Crew Safety in Operational Noise Environments.

The author gratefully acknowledges Mr. John Cole for his assistance in preparing this report, Mr. Robert Lee, Mr. Jerry Speakman and Lt Thomas Rau for their assistance in acquiring the raw data, Mr. Henry Mohlman, Mr. Keith Kettler and Mr. Fred Lampley of the University of Dayton for assistance in the mechanics of data processing and Mrs. Peggy Massie for assistance in typing and preparation of the graphics.

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# INTRODUCTION

The USAF C-141A is a transport aircraft powered by four TF33-P-7 turbofan engines. The aircraft was manufactured by the Lockheed Aircraft Corporation 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 C-141A 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 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

# NEAR-FIELD NOISE

## MEASUREMENTS

AMRL acquired near-field noise data on the C-141A aircraft during ground runup operations of its turbofan engines. For these tests, the aircraft was located on a concrete parking apron at Wright-Patterson AFB along with other similar aircraft. Table 1 gives the engine power conditions. The ground-crew chief selected power conditions and near-field locations generally used during routine maintenance or engine runup for preflight checks.

At each near-field location a test engineer randomly moved a hand-held microphone in and around each location, probing all areas where a crew member's head would normally be located. He recorded all of the noise 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 ten numbered near-field locations where ground crews are usually located for maintenance and/or preflight checkout operations. Estimates of noise levels at other locations in the near-field are difficult since the noise source is spatially distributed, i.e., not a point source. The noise levels at near-field locations can vary widely depending upon relative distances from each noise source (intake noise, exhaust noise, panel resonances, internal engine noise through the engine wall, etc.).

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

## RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the C-141A aircraft at the ten ground crew locations. This table includes the overall, 1/3 octave band and octave band levels. From these data one can calculate the variety of measures 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 MEASUREMENT

C-141A Aircraft, Ground Runup, Wright-Patterson AFB, OH
8 and 14 May 1979
Tail #12777

**Ground Crew Location**

| | |
|---|---|
| 1 | MD-3 Operator |
| 2 | Engine #4 Start |
| 3 | Engine #3 Start |
| 4 | Electric Disconnect |
| 5 | Engine #2 Start |
| 6 | Engine #1 Start |
| 7 | Right Wheel Well |
| 8 | Engine Trim |
| 9 | Telephone Talker |
| 10 | Left Wheel Well (Near APU) |

**Aircraft Engine and Ground Support Equipment Operation**

| | |
|---|---|
| A | MD-3 |
| B | MD-3 and APU |
| C | MD-3 and Engine #4 Idle |
| D | MD-3 and Engine #3 and #4 Idle |
| E | Engines #2, #3, and #4 Idle |
| F | All Engines Idle |
| G | Engine #3 Maximum Power<br>Other Engines Idle |

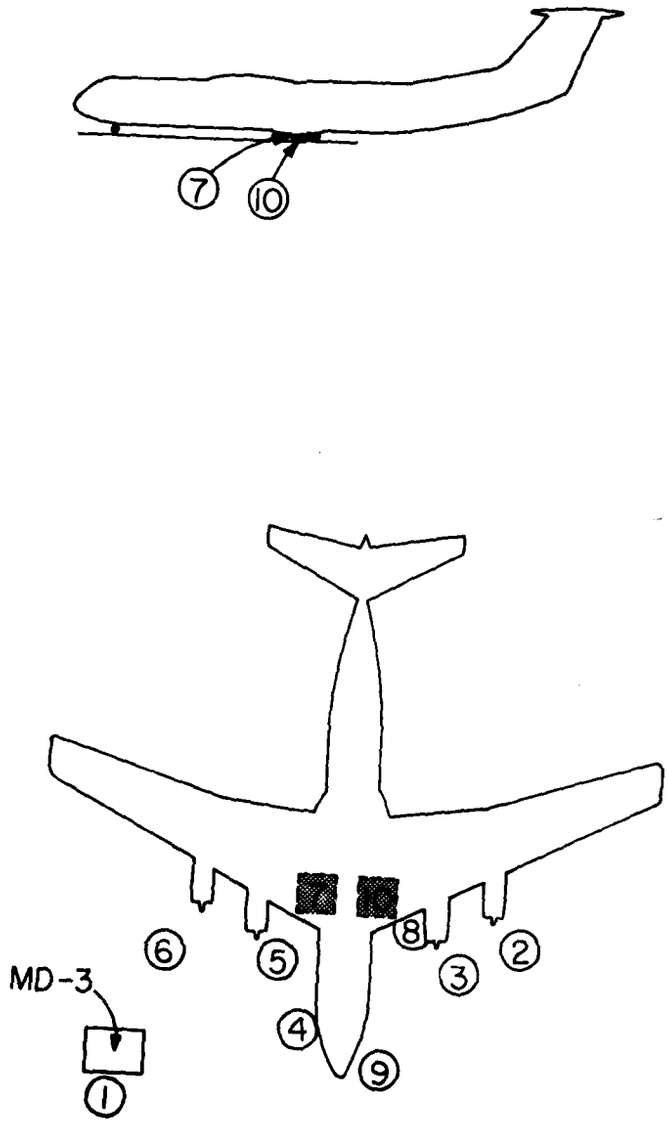



**Figure 1. Near-Field Measurement Locations at Wright-Patterson AFB OH**

# FAR-FIELD NOISE

## MEASUREMENTS

AMRL acquired far-field data during a one hour test period, thus keeping similar meteorological conditions throughout the test. Figure 2 shows the ground runup pad, 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 TF33-P-7 engines was on the ground directly below the intersection of the aircraft's centerline and the plane passing through the inboard engines' exhaust-nozzle exits. The ground runup area did not have a blast deflector; therefore, the engines' exhausts were in a "free-flow" condition.

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

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

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

## RESULTS

Table 5 lists the overall and 1/3 octave band SPL measured at the far-field locations under meteorological conditions at the time of the test. Data in all other figures and tables are based on these levels. These data were normalized to 100 meters distance and standard meteorological conditions (15C 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 C-141A aircraft in a standard format.

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

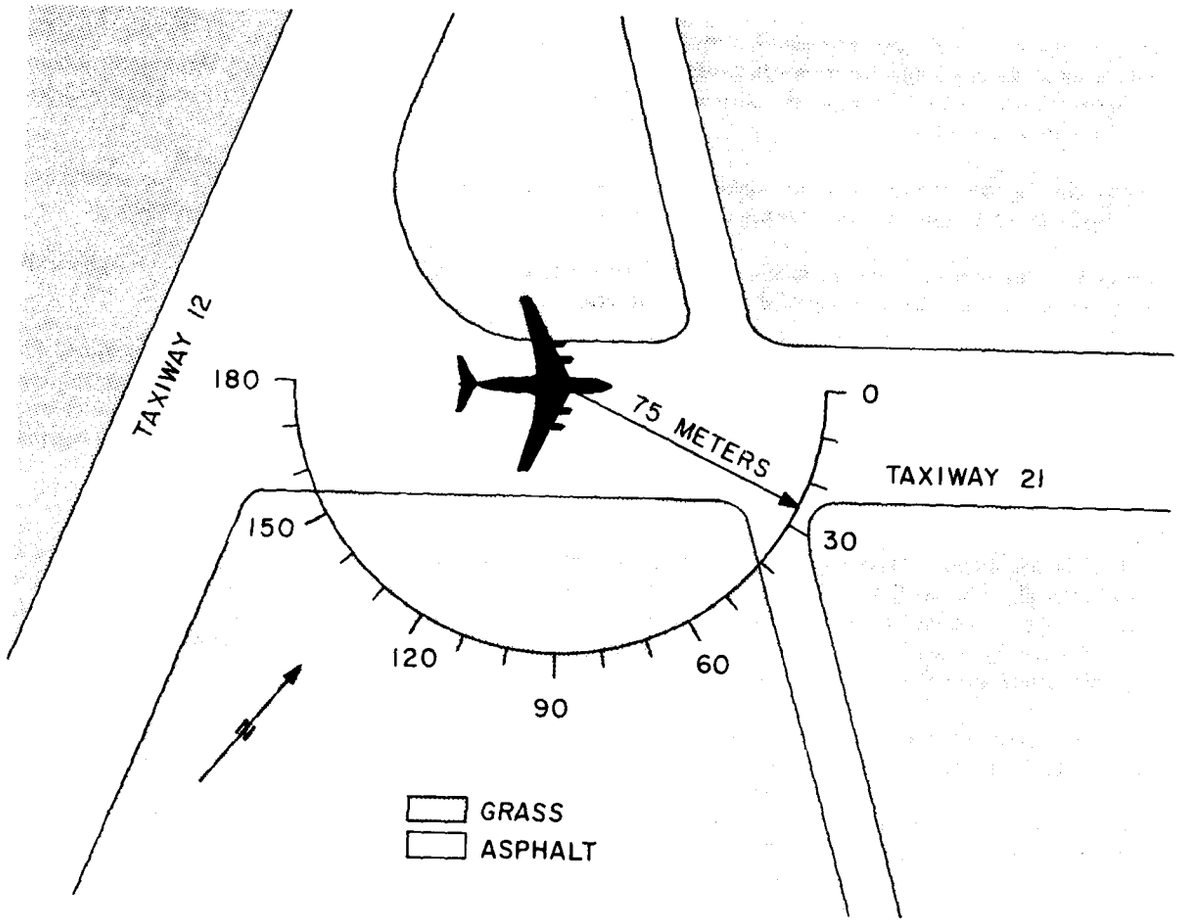



**Figure 2. Far-Field Measurement Locations at Wright-Patterson AFB OH**

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

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

No data are presented at the 170 and 180 degree locations at idle power, 150 through 180 degree locations at 70% runup power nor 160 through 180 degree locations for military power because of turbulent air flow behind the aircraft. A-weighted levels at the 170 and 180 degree locations for idle power are 0 to 5 dBA lower than the 160 degree data. Typical A-weighted levels at the missing angles for the two higher power settings are 5 to 10 dBA below the level of the last measured angle.

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

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 AP-027-001
RUN 01
23 MAY 79
PAGE F1

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
GROUND CREW

NEAR FIELD NOISE LEVELS

OPERATION:

| FREQ (HZ) | LOCATION/CONDITION 1/A | 2/C | 3/D | 4/D | 5/E | 6/F | 7/B | 8/F | 8/G | 9/F | 10/B |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 78< | 80 | 82 | 76< | 77< | 62 | 83 | 95 | 112 | 80 | 80 |
| 31.5 | 81 | 82 | 83 | 83 | 82 | 87 | 82 | 92 | 111 | 84 | 84 |
| 40 | 88 | 83 | 87 | 91 | 86 | 86 | 85 | 95 | 113 | 86 | 86 |
| 50 | 93 | 86 | 90 | 99 | 88 | 87 | 89 | 95 | 121 | 88 | 85 |
| 63 | 96 | 88 | 92 | 101 | 89 | 91 | 89 | 96 | 122 | 88 | 80< |
| 80 | 91 | 87 | 91 | 93 | 92 | 90 | 88 | 96 | 119 | 88 | 79 |
| 100 | 101 | 91 | 92 | 101 | 88 | 88 | 89 | 97 | 126 | 91 | 86 |
| 125 | 106 | 95 | 95 | 105 | 88 | 87 | 91 | 99 | 127 | 89 | 85 |
| 160 | 96 | 90 | 94 | 95 | 90 | 85 | 93 | 97 | 126 | 90 | 83 |
| 200 | 97 | 92 | 95 | 94 | 93 | 87 | 94 | 97 | 121 | 87 | 86 |
| 250 | 103 | 96 | 99 | 100 | 95 | 94 | 99 | 101 | 122 | 88 | 90 |
| 315 | 90 | 96 | 99 | 97 | 95 | 97 | 94 | 102 | 121 | 91 | 85 |
| 400 | 89 | 99 | 103 | 94 | 101 | 100 | 95 | 105 | 121 | 97 | 83 |
| 500 | 89 | 99 | 103 | 91 | 101 | 99 | 92 | 104 | 120 | 97 | 83 |
| 630 | 90 | 99 | 103 | 93 | 101 | 100 | 93 | 106 | 120 | 98 | 83 |
| 800 | 91 | 101 | 105 | 91 | 103 | 101 | 93 | 106 | 123 | 100 | 87 |
| 1000 | 94 | 103 | 106 | 91 | 105 | 102 | 92 | 105 | 121 | 101 | 87 |
| 1250 | 88 | 100 | 104 | 89 | 101 | 99 | 88 | 105 | 118 | 98 | 76 |
| 1600 | 88 | 102 | 106 | 91 | 104 | 102 | 91 | 103 | 117 | 100 | 80 |
| 2000 | 91 | 102 | 107 | 93 | 104 | 103 | 93 | 104 | 117 | 102 | 82 |
| 2500 | 85 | 100 | 103 | 87 | 101 | 99 | 90 | 105 | 116 | 98 | 77 |
| 3150 | 84 | 99 | 105 | 88 | 102 | 101 | 96 | 106 | 121 | 101 | 77 |
| 4000 | 84 | 99 | 103 | 87 | 101 | 99 | 93 | 105 | 123 | 98 | 79 |
| 5000 | 81 | 98 | 102 | 85 | 99 | 98 | 91 | 105 | 118 | 97 | 78 |
| 6300 | 79 | 96 | 99 | 83 | 97 | 95 | 90 | 102 | 120 | 95 | 76 |
| 8000 | 74 | 95 | 99 | 81 | 96 | 94 | 89 | 102 | 121 | 93 | 74 |
| 10000 | 71 | 95 | 104 | 87 | 92 | 91 | 95 | 109 | 119 | 95 | 81 |
| OVERALL | 110 | 112 | 116 | 110 | 113 | 112 | 107 | 117 | 136 | 110 | 98 |

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

2 OCTAVE BAND

OMEGA 3.2
TEST AP-027-001
RUN 01

23 MAY 79

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
GROUND CREW

OPERATION:

NEAR FIELD NOISE LEVELS



| FREQ (HZ) | LOCATION/CONDITION 1/A | 2/C | 3/D | 4/D | 5/E | 6/F | 7/B | 8/F | 8/G | 9/F | 10/B |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 31.5 | 89 | 86 | 89 | 91 | 87 | 90 | 88 | 99 | 117 | 88 | 89 |
| 63 | 98 | 92 | 96 | 103 | 95 | 94 | 93 | 101 | 125 | 93 | 87 |
| 125 | 107 | 97 | 98 | 107 | 94 | 91 | 96 | 102 | 131 | 95 | 90 |
| 250 | 104 | 100 | 103 | 102 | 99 | 99 | 101 | 105 | 126 | 94 | 92 |
| 500 | 94 | 104 | 108 | 98 | 106 | 104 | 98 | 110 | 125 | 102 | 88 |
| 1000 | 96 | 106 | 110 | 95 | 108 | 106 | 96 | 110 | 126 | 104 | 90 |
| 2000 | 94 | 106 | 110 | 95 | 108 | 106 | 96 | 109 | 121 | 105 | 85 |
| 4000 | 88 | 103 | 108 | 92 | 105 | 104 | 99 | 110 | 126 | 103 | 82 |
| 8000 | 80 | 100 | 106 | 89 | 100 | 98 | 97 | 110 | 125 | 99 | 82 |
| OVERALL | 110 | 112 | 116 | 110 | 113 | 112 | 107 | 117 | 136 | 110 | 98 |

TABLE: 3 MEASURES OF HUMAN NOISE EXPOSURE

IDENTIFICATION:
OMEGA 3.2
TEST AP-027-001
RUN 01
23 MAY 79
PAGE H1

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
GROUND CREW

NEAR FIELD NOISE LEVELS

OPERATION:

| | LOCATION/CONDITION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1/A | 2/C | 3/D | 4/D | 5/E | 6/F | 7/B | 8/F | 8/G | 9/F | 10/B |
| **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 | 110 | 112 | 115 | 110 | 113 | 112 | 106 | 117 | 135 | 110 | 97 |
| OASLA | 101 | 112 | 116 | 102 | 113 | 112 | 104 | 116 | 132 | 110 | 94 |
| T | 25 | 3.8 | P | 21 | 3.2 | 3.8 | 15 | P | P | 5 | 85 |
| MINIMUM QPL EAR MUFFS | | | | | | | | | | | |
| OASLA* | 87 | 86 | 89 | 87 | 87 | 85 | 82 | 92 | 112 | 84 | 73 |
| T | 285 | 339 | 202 | 285 | 285 | 404 | 679 | 120 | 3.8 | 480 | 960 |
| AMERICAN OPTICAL 1700 EAR MUFFS | | | | | | | | | | | |
| OASLA* | 83 | 80 | 84 | 83 | 81 | 79 | 78 | 87 | 107 | 78 | 69 |
| T | 571 | 960 | 480 | 571 | 807 | 960 | 960 | 285 | 9 | 960 | 960 |
| V-51R EAR PLUGS | | | | | | | | | | | |
| OASLA* | 78 | 85 | 89 | 78 | 86 | 85 | 78 | 90 | 116 | 83 | 70 |
| T | 960 | 404 | 202 | 960 | 339 | 404 | 960 | 170 | 11 | 571 | 960 |
| AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS | | | | | | | | | | | |
| OASLA* | 66 | 72 | 75 | 66 | 73 | 71 | 64 | 77 | 93 | 70 | 56 |
| T | 960 | 960 | 960 | 960 | 960 | 960 | 960 | 960 | 191 | 960 | 960 |
| H-133 GROUND COMMUNICATION UNIT | | | | | | | | | | | |
| OASLA* | 77 | 84 | 88 | 77 | 86 | 84 | 77 | 89 | 105 | 83 | 67 |
| T | 960 | 480 | 240 | 960 | 339 | 480 | 960 | 202 | 13 | 571 | 960 |
| **COMMUNICATION** | | | | | | | | | | | |
| PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB) | | | | | | | | | | | |
| PSIL | 95 | 105 | 109 | 96 | 107 | 105 | 97 | 109 | 124 | 104 | 88 |
| **ANNOYANCE** | | | | | | | | | | | |
| PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB) | | | | | | | | | | | |
| TONE CORRECTION (C IN DB) | | | | | | | | | | | |
| PNLT | 117 | 125 | 129 | 118 | 126 | 125 | 121 | 131 | 148 | 125 | 108 |
| C | 2 | 1 | 0 | 1 | 0 | 0 | 2 | 1 | 1 | 1 | 1 |

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

## TABLE 4

## TEST CONDITIONS FOR FAR-FIELD NOISE MEASUREMENTS

C-141A Aircraft, Ground Runups, Wright-Patterson AFB, OH
14 August 1974
Tail #612775

| | |
|---|---|
| **Aircraft Engine Operation** | |
| Idle | All Engines |
| | 55 % RPM NC (Core Speed) |
| | 28 % RPM NF (Fan Speed) |
| | 310 C EGT (Exhaust Gas Temperature) |
| | 1.04 EPR (Engine Pressure Ratio) |
| | 1100 LBS/HR FF (Fuel Flow) |
| 70% RPM | All Engines |
| | 87 % RPM NC |
| | 70 % RPM NF |
| | 345 C EGT |
| | 1.27 EPR |
| | 4100 LBS/HR FF |
| Military Power | All Engines |
| | 98 % RPM NC |
| | 95 % RPM NF |
| | 500 C EGT |
| | 1.85 EPR |
| | 10,000 LBS/HR FF |
| **Meteorology** | |
| Temperature | 25.6 C |
| Bar Pressure | 0.743 M Hg |
| Rel Humidity | 60 % |
| Wind — Speed | 2.1 M/Sec (4 Kts) |
| — Direction | 100 Deg |

TABLE: 5

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 26 C
BAR PRESS = .743 M HG
REL HUMID = 60 %

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

< 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 75-002-025
RUN 02
06 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 26 C
BAR PRESS = .743 M HG
REL HUMID = 60 %

| 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 | 81 | 78 | 80 | 79 | 82 | 85 | 84 | 83 | 83 | | | | | | | | | |
| 31.5 | 78 | 80 | 79 | 81 | 81 | 82 | 84 | 84 | 84 | 85 | | | | | | | | | |
| 40 | 82 | 83 | 83 | 82 | 83 | 85 | 84 | 86 | 86 | 88 | | | | | | | | | |
| 50 | 82 | 82 | 83 | 82 | 82 | 83 | 85 | 86 | 87 | 88 | 91 | 92 | 94 | 98 | 102 | | | | |
| 63 | 85 | 85 | 84 | 83 | 86 | 86 | 87 | 87 | 88 | 90 | 90 | 93 | 95 | 99 | 103 | | | | |
| 80 | 86 | 86 | 85 | 86 | 87 | 88 | 88 | 88 | 90 | 91 | 90 | 93 | 94 | 100 | 103 | | | | |
| 100 | 87 | 86 | 86 | 86 | 87 | 87 | 88 | 89 | 90 | 91 | 91 | 93 | 96 | 99 | 102 | | | | |
| 125 | 87 | 87 | 86 | 87 | 86 | 86 | 87 | 87 | 89 | 90 | 92 | 94 | 95 | 98 | 100 | | | | |
| 160 | 88 | 88 | 87 | 86 | 85 | 86 | 87 | 87 | 88 | 90 | 92 | 93 | 94 | 96 | 97 | | | | |
| 200 | 87 | 87 | 86 | 86 | 85 | 85 | 85 | 85 | 88 | 89 | 90 | 91 | 92 | 94 | 92 | | | | |
| 250 | 86 | 87 | 89 | 86 | 85 | 85 | 85 | 85 | 87 | 88 | 88 | 89 | 91 | 94 | 92 | | | | |
| 315 | 87 | 86 | 86 | 85 | 82 | 81 | 82 | 81 | 82 | 83 | 85 | 86 | 88 | 91 | 88 | | | | |
| 400 | 86 | 86 | 87 | 85 | 82 | 82 | 82 | 82 | 81 | 82 | 81 | 83 | 87 | 87 | 85 | | | | |
| 500 | 86 | 87 | 87 | 85 | 82 | 81 | 82 | 82 | 80 | 82 | 80 | 82 | 84 | 82 | 81 | | | | |
| 630 | 89 | 89 | 88 | 85 | 82 | 82 | 82 | 83 | 82 | 84 | 82 | 84 | 84 | 81 | 80 | | | | |
| 800 | 90 | 90 | 89 | 87 | 84 | 83 | 83 | 83 | 82 | 84 | 82 | 85 | 83 | 79 | 79 | | | | |
| 1000 | 93 | 94 | 95 | 95 | 93 | 92 | 92 | 89 | 88 | 86 | 83 | 84 | 84 | 79 | 79 | | | | |
| 1250 | 104 | 104 | 103 | 100 | 97 | 96 | 95 | 93 | 91 | 89 | 85 | 86 | 86 | 80 | 80 | | | | |
| 1600 | 99 | 98 | 99 | 99 | 97 | 96 | 95 | 94 | 90 | 89 | 87 | 87 | 87 | 81 | 81 | | | | |
| 2000 | 99 | 98 | 97 | 97 | 93 | 94 | 93 | 93 | 91 | 89 | 90 | 89 | 89 | 83 | 81 | | | | |
| 2500 | 103 | 102 | 108 | 114 | 104 | 100 | 100 | 99 | 99 | 97 | 99 | 100 | 102 | 92 | 90 | | | | |
| 3150 | 100 | 100 | 102 | 106 | 100 | 98 | 97 | 97 | 95 | 93 | 96 | 97 | 98 | 92 | 91 | | | | |
| 4000 | 101 | 101 | 100 | 100 | 98 | 97 | 97 | 97 | 95 | 93 | 97 | 96 | 95 | 89 | 87 | | | | |
| 5000 | 102 | 102 | 102 | 106 | 100 | 100 | 101 | 99 | 99 | 96 | 98 | 97 | 98 | 90 | 89 | | | | |
| 6300 | 99 | 99 | 99 | 101 | 98 | 97 | 97 | 97 | 95 | 93 | 95 | 94 | 94 | 87 | 86 | | | | |
| 8000 | 96 | 97 | 97 | 101 | 96 | 96 | 96 | 96 | 94 | 93 | 97 | 96 | 96 | 89 | 87 | | | | |
| 10000 | 93 | 93 | 94 | 97 | 93 | 91 | 91 | 92 | 89 | 88 | 93 | 92 | 92 | 85 | 83 | | | | |
| OVERALL | 111 | 111 | 112 | 116 | 109 | 107 | 108 | 107 | 106 | 105 | 107 | 107 | 108 | 107 | 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 75-002-025
RUN 03
06 MAY 75
PAGE 2

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 26 C
BAR PRESS = .743 M HG
REL HUMID = 60 %

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

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 6

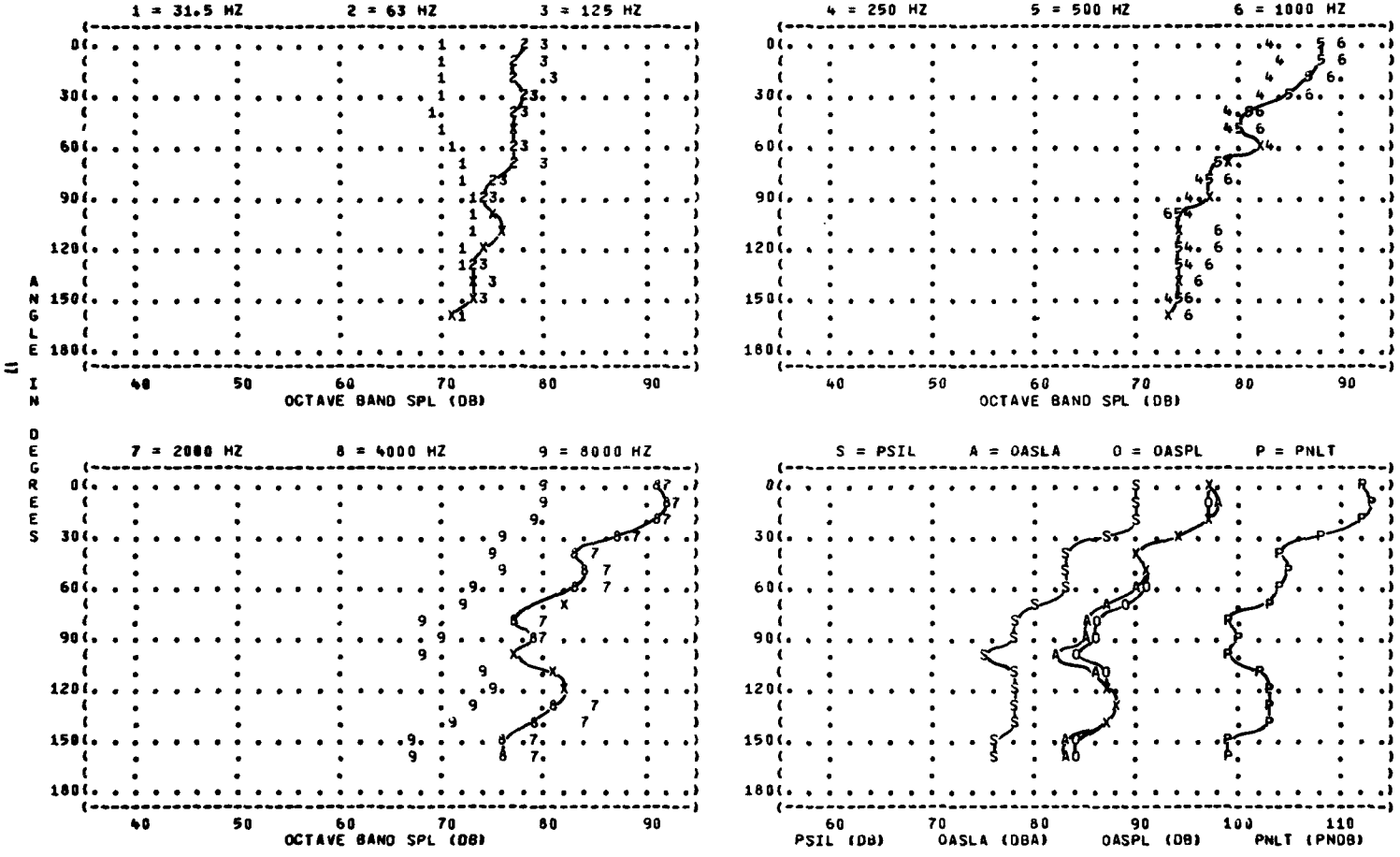


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:

87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

METEOROLOGY:

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

IDENTIFICATION:

OMEGA 1.4
TEST 75-002-025
RUN 02

06 MAY 75

PAGE 6

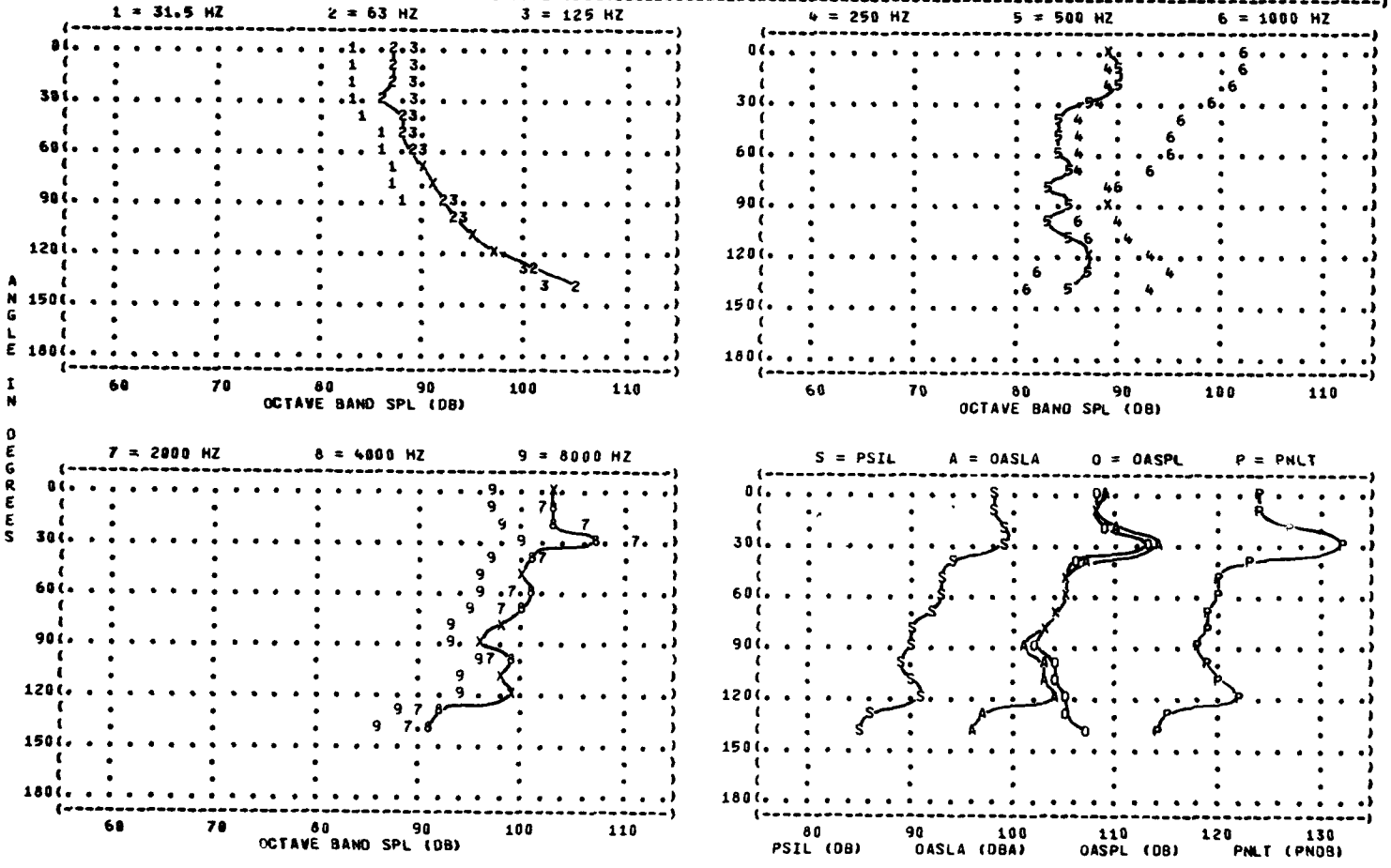


FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
90% RPM, 1.85 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
ONEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 6

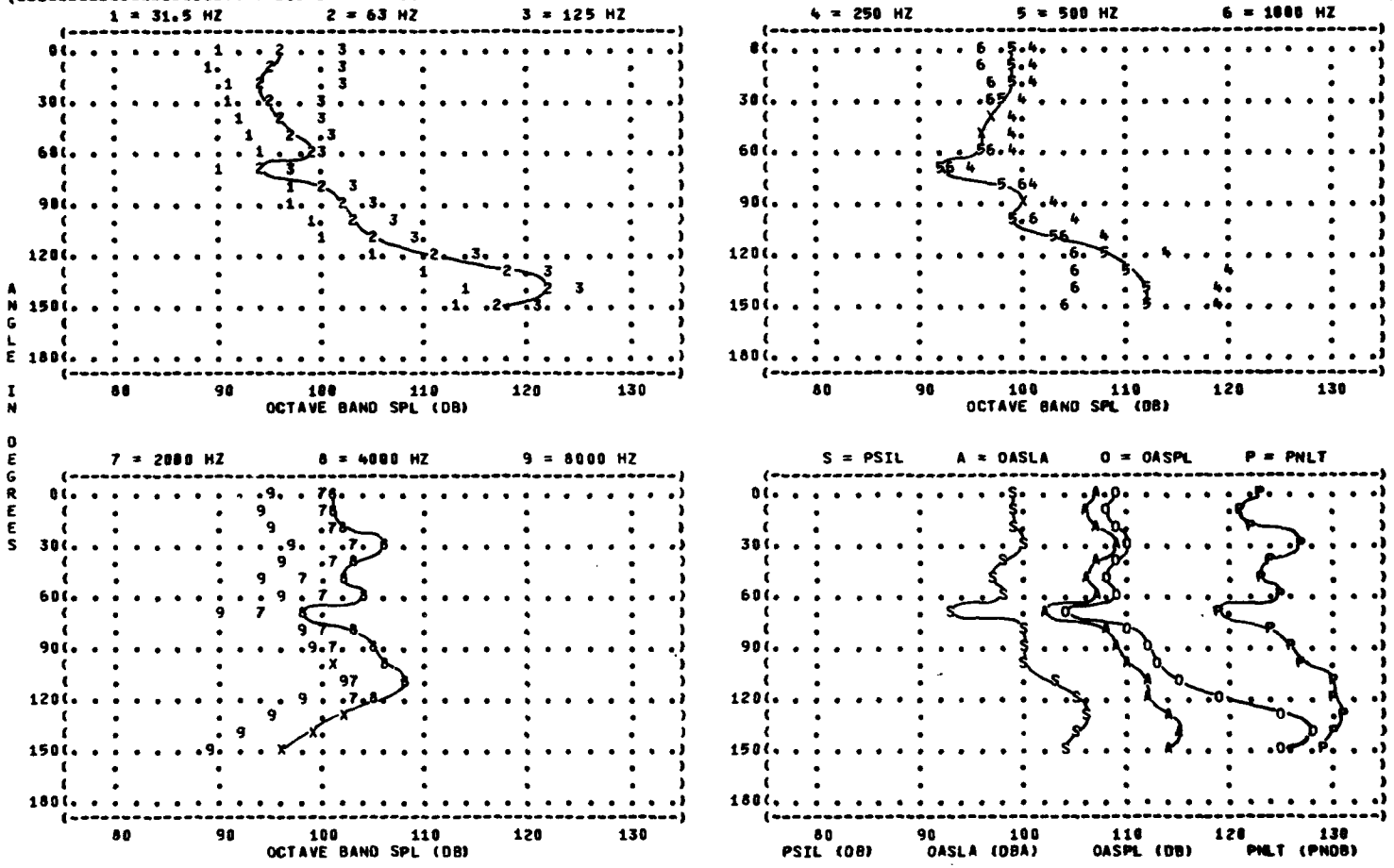


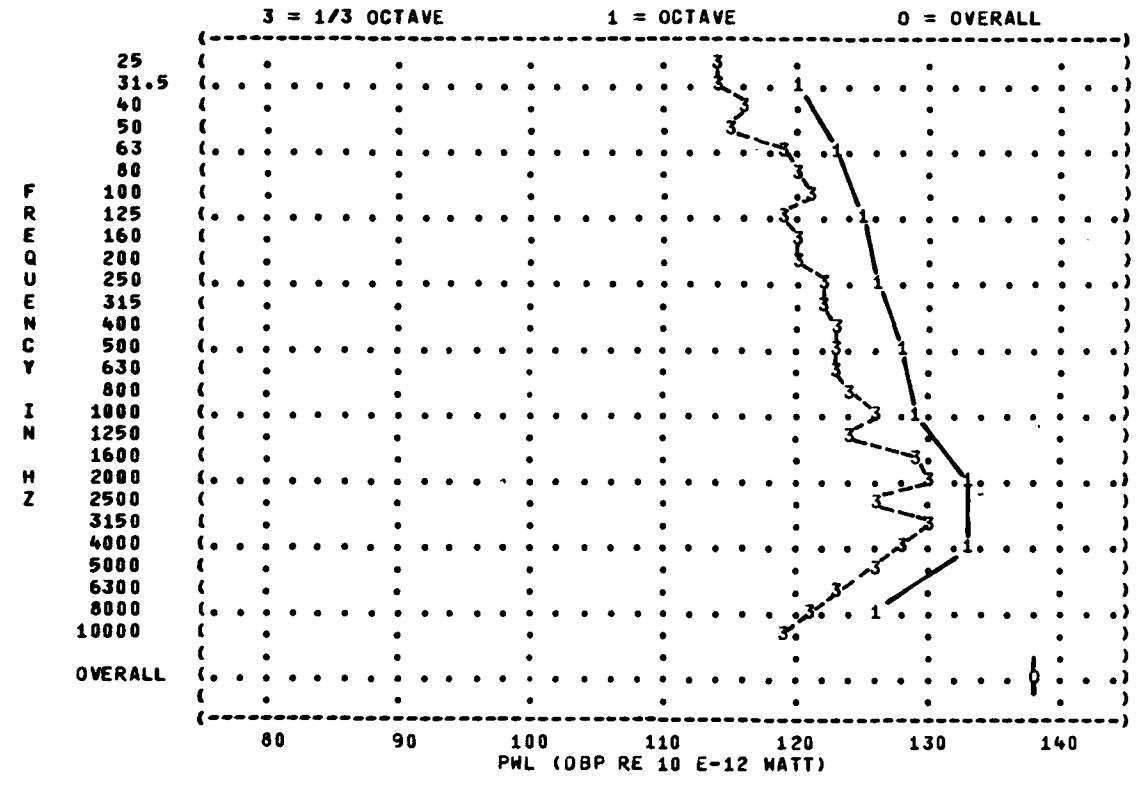
FIGURE: 4 ACOUSTIC POWER LEVEL (PWL)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 3

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 26 C
BAR PRESS = .743 M HG
REL HUMID = 60 %




| FREQUENCY | PWL 1/3 OCTAVE | PWL OCTAVE |
|---|---|---|
| 25 | 113.7 | |
| 31.5 | 114.1 | 119.7 |
| 40 | 116.5 | |
| 50 | 115.5 | |
| 63 | 119.3 | 123.4 |
| 80 | 119.9 | |
| 100 | 120.8 | |
| 125 | 119.2 | 124.8 |
| 160 | 119.8 | |
| 200 | 120.2 | |
| 250 | 121.8 | 126.1 |
| 315 | 121.8 | |
| 400 | 123.0 | |
| 500 | 123.0 | 127.7 |
| 630 | 122.8 | |
| 800 | 123.8 | |
| 1000 | 125.9 | 129.5 |
| 1250 | 124.1 | |
| 1600 | 128.7 | |
| 2000 | 129.9 | 133.2 |
| 2500 | 125.7 | |
| 3150 | 130.1 | |
| 4000 | 127.5 | 132.9 |
| 5000 | 125.5 | |
| 6300 | 123.4 | |
| 8000 | 121.4 | 126.4 |
| 10000 | 119.0 | |
| OVERALL | | 136.4 |

FIGURE: ACOUSTIC POWER LEVEL (PWL)

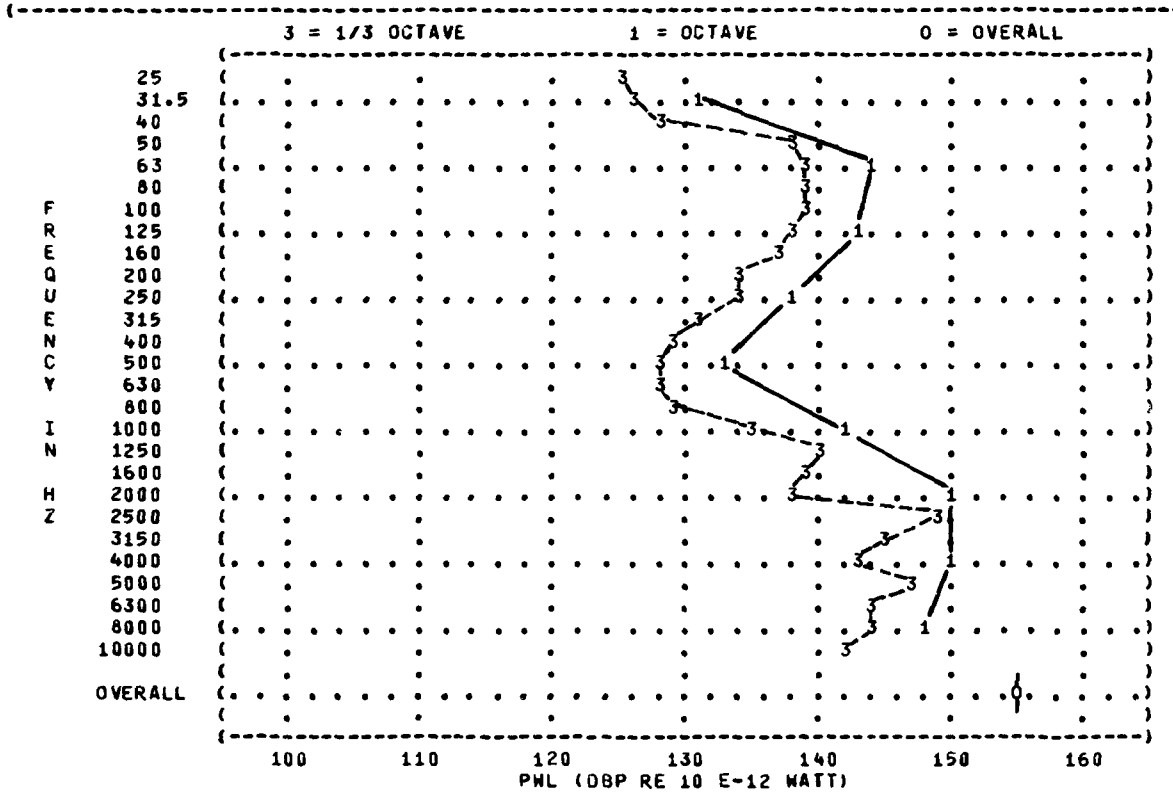
4

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 26 C
BAR PRESS = .743 M HG
REL HUMID = 60 %

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 3




| | PWL | |
|---|---|---|
| | 1/3 OCTAVE | OCTAVE |
| 25 | 125.3 | |
| 31.5 | 12[illegible].8 | 131.4 |
| 40 | 128.1 | |
| 50 | 138.0 | |
| 63 | 139.4 | 143.8 |
| 80 | 139.4 | |
| 100 | 139.2 | |
| 125 | 137.8 | 142.7 |
| 160 | 136.5 | |
| 200 | 134.4 | |
| 250 | 133.8 | 138.0 |
| 315 | 130.7 | |
| 400 | 128.9 | |
| 500 | 127.5 | 133.1 |
| 630 | 128.5 | |
| 800 | 129.0 | |
| 1000 | 134.8 | 141.6 |
| 1250 | 140.3 | |
| 1600 | 139.1 | |
| 2000 | 137.9 | 150.1 |
| 2500 | 149.4 | |
| 3150 | 144.7 | |
| 4000 | 143.3 | 149.8 |
| 5000 | 146.5 | |
| 6300 | 143.7 | |
| 8000 | 144.5 | 148.2 |
| 10000 | 141.8 | |
| OVERALL | | 155.2 |

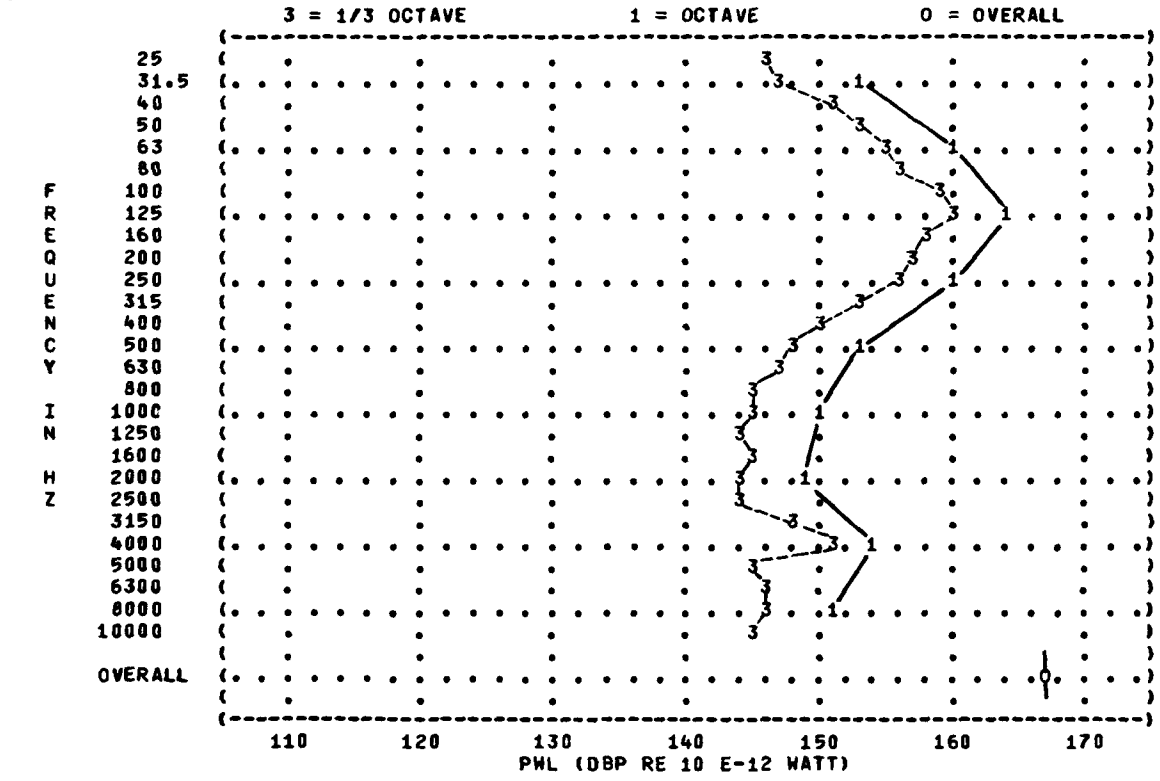
FIGURE: 4 ACOUSTIC POWER LEVEL (PWL)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 3

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 26 C
BAR PRESS = .743 M HG
REL HUMID = 60 %




| 1/3 OCTAVE | PWL OCTAVE |
|---|---|
| 145.6 | |
| 147.2 | 153.2 |
| 150.8 | |
| 153.0 | |
| 155.1 | 159.8 |
| 156.3 | |
| 158.8 | |
| 159.8 | 163.8 |
| 158.2 | |
| 157.0 | |
| 155.6 | 160.2 |
| 152.8 | |
| 150.1 | |
| 147.6 | 153.2 |
| 146.8 | |
| 145.5 | |
| 144.8 | 149.6 |
| 144.3 | |
| 145.4 | |
| 143.8 | 149.1 |
| 143.6 | |
| 148.4 | |
| 151.4 | 153.8 |
| 145.0 | |
| 146.2 | |
| 146.4 | 150.7 |
| 145.0 | |
| | 167.3 |

TABLE: DIRECTIVITY INDEX (DB)

6

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 26 C
BAR PRESS = .743 M HG
REL HUMID = 60 %

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-02[illegible]
RUN 01
06 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 | -2 | -3 | -3 | -4 | -2 | -3 | -2 | 1 | -1 | 0 | 1 | 1 | -1 | 1 | 2 | 1 | 3 | | |
| 31.5 | -3 | -2 | -1 | -2 | -3 | -1 | -1 | -0 | 1 | 2 | 1 | -1 | -2 | -0 | 1 | 1 | 1 | | |
| 40 | -1 | -2 | -2 | -1 | -3 | -2 | -1 | -1 | -0 | 1 | 2 | 2 | 2 | 0 | -0 | 1 | -2 | | |
| 50 | 1 | 0 | 1 | 0 | 1 | 1 | -1 | 0 | -1 | -1 | 0 | 1 | 0 | 0 | -1 | 0 | -0 | | |
| 63 | 2 | 1 | 1 | 2 | 3 | 1 | 2 | 1 | -1 | -1 | 0 | 0 | -1 | -5 | -4 | -3 | -6 | | |
| 80 | 4 | 2 | 3 | 3 | 0 | 1 | 2 | 3 | 0 | -1 | -1 | -0 | -3 | -2 | -3 | -3 | -5 | | |
| 100 | 3 | 2 | 4 | 2 | 2 | -0 | 1 | 3 | -0 | -2 | -2 | -0 | -3 | -3 | -2 | -3 | -6 | | |
| 125 | 3 | 3 | 3 | 2 | 0 | 0 | 0 | 3 | -0 | -1 | -2 | -1 | -3 | -1 | -2 | -2 | -4 | | |
| 160 | 3 | 4 | 3 | 2 | 1 | 1 | 2 | 3 | -1 | -2 | -2 | -2 | -2 | -3 | -3 | -4 | -6 | | |
| 200 | 4 | 4 | 4 | 2 | 0 | -0 | 5 | 3 | -2 | -3 | -3 | -3 | -3 | -3 | -4 | -5 | -6 | | |
| 250 | 4 | 4 | 3 | 2 | 0 | 1 | 6 | 2 | -2 | -3 | -4 | -5 | -4 | -3 | -4 | -5 | -6 | | |
| 315 | 6 | 7 | 6 | 5 | 2 | 1 | 3 | -1 | -3 | -4 | -3 | -5 | -4 | -4 | -5 | -6 | -5 | | |
| 400 | 8 | 8 | 7 | 6 | 1 | 2 | 2 | -0 | -3 | -3 | -5 | -7 | -7 | -5 | -7 | -6 | -6 | | |
| 500 | 8 | 9 | 8 | 6 | 1 | 1 | 3 | -2 | -3 | -3 | -6 | -6 | -7 | -7 | -7 | -6 | -7 | | |
| 630 | 9 | 9 | 8 | 5 | 0 | -1 | 2 | -2 | -2 | -3 | -6 | -3 | -3 | -6 | -4 | -4 | -6 | | |
| 800 | 10 | 10 | 8 | 5 | 0 | -1 | 1 | -3 | -2 | -3 | -7 | -3 | -2 | -4 | -4 | -5 | -5 | | |
| 1000 | 9 | 9 | 8 | 6 | 1 | 1 | 1 | -3 | -2 | -4 | -9 | -4 | -5 | -4 | -6 | -7 | -7 | | |
| 1250 | 7 | 7 | 8 | 6 | 2 | 1 | 1 | -2 | -4 | -4 | -9 | -4 | -4 | -4 | -5 | -8 | -7 | | |
| 1600 | 9 | 9 | 8 | 5 | 2 | 2 | 2 | -3 | -5 | -5 | -9 | -5 | -4 | -2 | -3 | -8 | -8 | | |
| 2000 | 7 | 7 | 6 | 3 | 0 | 2 | 1 | -3 | -5 | -4 | -6 | -2 | -2 | 2 | 1 | -4 | -4 | | |
| 2500 | 9 | 9 | 8 | 5 | 1 | 2 | 0 | -2 | -5 | -4 | -8 | -3 | -2 | -1 | -5 | -7 | -7 | | |
| 3150 | 9 | 10 | 9 | 4 | -0 | 1 | -1 | -1 | -6 | -4 | -6 | -2 | -1 | -3 | -5 | -7 | -7 | | |
| 4000 | 7 | 8 | 8 | 4 | 1 | 2 | 0 | -2 | -6 | -4 | -6 | -2 | -1 | -2 | -3 | -6 | -6 | | |
| 5000 | 7 | 7 | 7 | 4 | 1 | 3 | 0 | -1 | -5 | -4 | -6 | -1 | -0 | -1 | -4 | -7 | -7 | | |
| 6300 | 6 | 7 | 6 | 3 | 1 | 3 | 0 | -1 | -5 | -3 | -5 | -0 | 1 | -1 | -3 | -6 | -7 | | |
| 8000 | 6 | 6 | 6 | 2 | 1 | 1 | -1 | -2 | -6 | -4 | -5 | 1 | 3 | 1 | -1 | -5 | -6 | | |
| 10000 | 6 | 6 | 5 | 2 | 1 | 1 | -2 | -2 | -5 | -4 | -4 | 2 | 3 | 1 | -2 | -5 | -5 | | |
| OCTAVE | | | | | | | | | | | | | | | | | | | |
| 31.5 | -2 | -2 | -2 | -2 | -3 | -2 | -1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | | |
| 63 | 3 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | -0 | -1 | -0 | 0 | -2 | -2 | -3 | -3 | -4 | | |
| 125 | 3 | 3 | 4 | 2 | 2 | 0 | 1 | 3 | -0 | -2 | -2 | -1 | -2 | -2 | -2 | -3 | -6 | | |
| 250 | 5 | 6 | 5 | 4 | 1 | 1 | 5 | 1 | -2 | -3 | -3 | -4 | -3 | -3 | -4 | -5 | -6 | | |
| 500 | 8 | 9 | 8 | 6 | 1 | 1 | 2 | -1 | -3 | -3 | -6 | -5 | -5 | -6 | -6 | -5 | -6 | | |
| 1000 | 9 | 9 | 8 | 6 | 1 | 1 | 1 | -3 | -3 | -4 | -8 | -4 | -4 | -4 | -5 | -6 | -6 | | |
| 2000 | 8 | 8 | 7 | 4 | 1 | 2 | 1 | -3 | -5 | -4 | -7 | -3 | -2 | 0 | -1 | -6 | -6 | | |
| 4000 | 8 | 9 | 8 | 4 | 0 | 2 | -0 | -1 | -6 | -4 | -6 | -2 | -1 | -2 | -4 | -7 | -7 | | |
| 8000 | 6 | 6 | 6 | 3 | 1 | 2 | -1 | -2 | -5 | -4 | -5 | 1 | 2 | 0 | -3 | -6 | -6 | | |
| OVERALL | 8 | 8 | 7 | 4 | 1 | 1 | 1 | -1 | -3 | -3 | -5 | -3 | -2 | -2 | -3 | -5 | -6 | | |

TABLE: DIRECTIVITY INDEX (DB)

6

IDENTIFICATION:

OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 4

NOISE SOURCE/SUBJECT:

C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:

87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

METEOROLOGY:

TEMP = 26 C
BAR PRESS = .743 M HG
REL HUMID = 60 %

| 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 | 0 | 1 | -2 | -0 | -1 | 2 | 5 | 4 | 3 | 3 | | | | | | | | | |
| 31.5 | -2 | -1 | -1 | 1 | 0 | 2 | 3 | 3 | 4 | 4 | | | | | | | | | |
| 40 | -1 | -0 | 0 | -1 | 0 | 2 | 1 | 3 | 3 | 5 | | | | | | | | | |
| 50 | -11 | -11 | -10 | -10 | -11 | -10 | -8 | -7 | -6 | -5 | -2 | -1 | 1 | 5 | 9 | | | | |
| 63 | -9 | -9 | -10 | -11 | -8 | -8 | -7 | -7 | -6 | -4 | -4 | -1 | 1 | 5 | 9 | | | | |
| 80 | -8 | -8 | -9 | -8 | -7 | -6 | -6 | -6 | -4 | -3 | -4 | -1 | 0 | 6 | 9 | | | | |
| 100 | -7 | -7 | -7 | -8 | -7 | -6 | -6 | -5 | -4 | -3 | -2 | -1 | 2 | 5 | 9 | | | | |
| 125 | -6 | -5 | -6 | -6 | -6 | -7 | -6 | -5 | -4 | -3 | -1 | 1 | 2 | 5 | 7 | | | | |
| 160 | -3 | -3 | -4 | -5 | -6 | -5 | -4 | -4 | -3 | -1 | 1 | 2 | 3 | 5 | 6 | | | | |
| 200 | -2 | -2 | -3 | -3 | -4 | -4 | -4 | -4 | -1 | -0 | 1 | 2 | 3 | 5 | 3 | | | | |
| 250 | -2 | -1 | 0 | -2 | -3 | -4 | -4 | -3 | -1 | -1 | -0 | 1 | 3 | 6 | 3 | | | | |
| 315 | 1 | 1 | 1 | -0 | -3 | -4 | -4 | -4 | -3 | -2 | -0 | 1 | 3 | 6 | 3 | | | | |
| 400 | 2 | 2 | 4 | 2 | -2 | -1 | -1 | -2 | -3 | -1 | -3 | -1 | 3 | 4 | 1 | | | | |
| 500 | 4 | 5 | 5 | 3 | -0 | -1 | -0 | 0 | -2 | 0 | -2 | -0 | 2 | 0 | -1 | | | | |
| 630 | 6 | 6 | 5 | 2 | -1 | -1 | -1 | -0 | -1 | 1 | -1 | 1 | 1 | -2 | -3 | | | | |
| 800 | 7 | 7 | 6 | 3 | 1 | -1 | -1 | -0 | -1 | 0 | -1 | 1 | -0 | -4 | -4 | | | | |
| 1000 | 4 | 5 | 6 | 6 | 4 | 3 | 3 | 0 | -1 | -3 | -6 | -5 | -5 | -10 | -10 | | | | |
| 1250 | 10 | 10 | 9 | 6 | 3 | 1 | 1 | -1 | -4 | -5 | -9 | -8 | -9 | -15 | -15 | | | | |
| 1600 | 6 | 5 | 6 | 6 | 4 | 3 | 2 | 1 | -3 | -4 | -6 | -6 | -6 | -12 | -12 | | | | |
| 2000 | 7 | 6 | 6 | 5 | 2 | 3 | 2 | 1 | -1 | -2 | -2 | -2 | -3 | -9 | -10 | | | | |
| 2500 | 0 | -1 | 5 | 11 | 1 | -3 | -3 | -4 | -4 | -6 | -4 | -3 | -1 | -11 | -13 | | | | |
| 3150 | 2 | 2 | 4 | 8 | 2 | 0 | -1 | -1 | -3 | -5 | -2 | -1 | 0 | -6 | -7 | | | | |
| 4000 | 5 | 5 | 4 | 4 | 2 | 1 | 1 | 1 | -1 | -3 | 1 | -0 | -1 | -7 | -9 | | | | |
| 5000 | 3 | 3 | 3 | 7 | 1 | 1 | 2 | 0 | -0 | -3 | -1 | -2 | -1 | -9 | -10 | | | | |
| 6300 | 3 | 4 | 3 | 5 | 3 | 2 | 2 | 1 | -1 | -2 | -1 | -1 | -1 | -8 | -10 | | | | |
| 8000 | 1 | 1 | 2 | 6 | 1 | 0 | 0 | 0 | -2 | -2 | 2 | 1 | 0 | -6 | -9 | | | | |
| 10000 | 1 | 2 | 3 | 6 | 2 | -0 | 0 | 0 | -2 | -3 | 2 | 0 | 0 | -6 | -8 | | | | |
| OCTAVE | | | | | | | | | | | | | | | | | | | |
| 31.5 | -1 | -0 | -1 | -0 | 0 | 2 | 3 | 3 | 3 | 5 | | | | | | | | | |
| 63 | -9 | -9 | -9 | -10 | -8 | -8 | -7 | -6 | -5 | -4 | -3 | -1 | 1 | 5 | 9 | | | | |
| 125 | -6 | -5 | -6 | -6 | -6 | -6 | -5 | -5 | -4 | -2 | -1 | 0 | 2 | 5 | 8 | | | | |
| 250 | -1 | -1 | -1 | -2 | -4 | -4 | -4 | -4 | -1 | -1 | 0 | 1 | 3 | 5 | 3 | | | | |
| 500 | 4 | 5 | 5 | 2 | -1 | -1 | -1 | -0 | -2 | 0 | -2 | 0 | 2 | 2 | -0 | | | | |
| 1000 | 9 | 9 | 8 | 6 | 3 | 2 | 1 | -1 | -3 | -4 | -7 | -6 | -7 | -12 | -12 | | | | |
| 2000 | 2 | 1 | 5 | 10 | 1 | -1 | -2 | -3 | -3 | -5 | -4 | -3 | -2 | -11 | -12 | | | | |
| 4000 | 3 | 3 | 4 | 7 | 2 | 1 | 1 | 0 | -1 | -4 | -1 | -1 | -1 | -7 | -9 | | | | |
| 8000 | 2 | 3 | 3 | 6 | 2 | 1 | 1 | 1 | -1 | -2 | 1 | -0 | -0 | -7 | -9 | | | | |
| OVERALL | 3 | 2 | 4 | 8 | 1 | -1 | -1 | -1 | -2 | -4 | -2 | -1 | -0 | -1 | 1 | | | | |

TABLE: DIRECTIVITY INDEX (DB)

6

IDENTIFICATION:

OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 4

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL ENGINES
FREE FLOW

METEOROLOGY:
TEMP = 26 C
BAR PRESS = .743 M HG
REL HUMID = 60 %

| 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 | -15 | -15 | -13 | -12 | -13 | -11 | -10 | -14 | -8 | -7 | -4 | -4 | 0 | 3 | 8 | 9 | | | |
| 31.5 | -15 | -16 | -13 | -14 | -13 | -12 | -11 | -15 | -7 | -9 | -7 | -5 | -2 | 4 | 9 | 8 | | | |
| 40 | -15 | -16 | -16 | -16 | -14 | -13 | -13 | -16 | -9 | -10 | -8 | -6 | -0 | 6 | 9 | 7 | | | |
| 50 | -18 | -19 | -18 | -17 | -17 | -15 | -15 | -18 | -11 | -12 | -9 | -5 | -2 | 6 | 10 | 6 | | | |
| 63 | -18 | -17 | -19 | -17 | -15 | -14 | -12 | -17 | -12 | -10 | -9 | -6 | -1 | 6 | 10 | 4 | | | |
| 80 | -15 | -17 | -17 | -16 | -16 | -15 | -13 | -19 | -12 | -9 | -10 | -7 | -1 | 6 | 10 | 4 | | | |
| 100 | -15 | -15 | -15 | -16 | -15 | -15 | -15 | -19 | -13 | -10 | -10 | -7 | -1 | 6 | 9 | 5 | | | |
| 125 | -14 | -14 | -14 | -16 | -17 | -16 | -16 | -20 | -14 | -12 | -11 | -6 | -2 | 5 | 10 | 5 | | | |
| 160 | -14 | -14 | -14 | -14 | -15 | -13 | -15 | -18 | -12 | -9 | -8 | -6 | 1 | 6 | 9 | 6 | | | |
| 200 | -13 | -13 | -13 | -13 | -13 | -13 | -14 | -18 | -11 | -9 | -8 | -6 | 1 | 8 | 6 | 7 | | | |
| 250 | -11 | -11 | -10 | -13 | -13 | -14 | -14 | -18 | -12 | -9 | -7 | -4 | 1 | 8 | 7 | 6 | | | |
| 315 | -9 | -8 | -9 | -10 | -12 | -13 | -12 | -17 | -10 | -8 | -7 | -3 | 2 | 6 | 8 | 6 | | | |
| 400 | -7 | -7 | -7 | -8 | -10 | -10 | -11 | -15 | -9 | -6 | -7 | -3 | 2 | 6 | 7 | 7 | | | |
| 500 | -5 | -5 | -5 | -6 | -7 | -9 | -8 | -13 | -7 | -6 | -6 | -2 | 2 | 5 | 7 | 7 | | | |
| 630 | -6 | -6 | -5 | -6 | -6 | -8 | -7 | -11 | -4 | -4 | -4 | 0 | 3 | 5 | 5 | 7 | | | |
| 800 | -6 | -6 | -5 | -5 | -5 | -7 | -6 | -9 | -3 | -2 | -2 | 2 | 4 | 4 | 5 | 4 | | | |
| 1000 | -4 | -5 | -4 | -4 | -4 | -5 | -5 | -8 | -1 | -1 | -0 | 3 | 3 | 4 | 3 | 2 | | | |
| 1250 | -4 | -4 | -4 | -3 | -3 | -4 | -3 | -7 | -0 | 0 | -0 | 3 | 3 | 4 | 2 | -1 | | | |
| 1600 | -3 | -3 | -1 | 4 | 1 | -2 | 0 | -6 | -0 | 0 | -1 | 1 | 2 | 1 | -1 | -4 | | | |
| 2000 | -2 | 0 | 2 | 2 | -1 | -3 | -2 | -7 | -1 | -1 | 1 | 3 | 3 | 2 | -0 | -4 | | | |
| 2500 | 4 | 2 | 2 | 1 | -0 | -2 | -1 | -6 | 1 | 1 | 1 | 2 | 1 | -0 | -3 | -6 | | | |
| 3150 | -2 | -2 | -1 | 1 | -0 | -2 | -1 | -5 | 1 | 2 | 3 | 4 | 2 | -1 | -4 | -8 | | | |
| 4000 | -3 | -4 | -3 | 3 | 0 | -1 | 1 | -6 | -1 | 1 | 2 | 5 | 2 | -2 | -6 | -8 | | | |
| 5000 | -0 | 1 | -0 | 2 | 0 | -0 | 0 | -6 | 1 | 1 | 2 | 3 | 0 | -1 | -3 | -6 | | | |
| 6300 | -2 | -2 | -1 | 0 | -1 | -2 | -1 | -6 | 1 | 2 | 3 | 4 | -1 | -3 | -6 | -9 | | | |
| 8000 | -4 | -4 | -4 | -1 | -2 | -4 | -2 | -8 | -0 | 1 | 4 | 4 | 1 | -2 | -5 | -7 | | | |
| 10000 | -4 | -5 | -4 | -2 | -3 | -4 | -2 | -8 | -0 | 1 | 4 | 5 | 1 | -1 | -4 | -7 | | | |
| OCTAVE | | | | | | | | | | | | | | | | | | | |
| 31.5 | -15 | -16 | -15 | -15 | -14 | -13 | -11 | -15 | -8 | -9 | -7 | -5 | -1 | 5 | 9 | 7 | | | |
| 63 | -16 | -17 | -18 | -17 | -16 | -15 | -13 | -18 | -12 | -10 | -9 | -6 | -1 | 6 | 10 | 5 | | | |
| 125 | -14 | -14 | -14 | -15 | -16 | -15 | -16 | -19 | -13 | -10 | -9 | -6 | -1 | 6 | 9 | 6 | | | |
| 250 | -11 | -11 | -11 | -12 | -13 | -13 | -14 | -18 | -11 | -9 | -7 | -5 | 1 | 7 | 7 | 6 | | | |
| 500 | -6 | -6 | -6 | -7 | -8 | -9 | -9 | -13 | -7 | -6 | -6 | -2 | 2 | 5 | 7 | 7 | | | |
| 1000 | -5 | -5 | -5 | -4 | -4 | -5 | -5 | -8 | -1 | -1 | -1 | 3 | 3 | 4 | 4 | 3 | | | |
| 2000 | 0 | -0 | 1 | 3 | 0 | -2 | -1 | -6 | -0 | 0 | 1 | 2 | 2 | 1 | -1 | -5 | | | |
| 4000 | -2 | -2 | -2 | 2 | -0 | -1 | 0 | -6 | -0 | 1 | 2 | 4 | 1 | -2 | -5 | -8 | | | |
| 8000 | -3 | -3 | -2 | -1 | -1 | -3 | -2 | -7 | 0 | 1 | 4 | 4 | 1 | -2 | -5 | -8 | | | |
| OVERALL | -10 | -11 | -10 | -9 | -10 | -11 | -10 | -15 | -9 | -7 | -6 | -4 | 0 | 6 | 9 | 5 | | | |

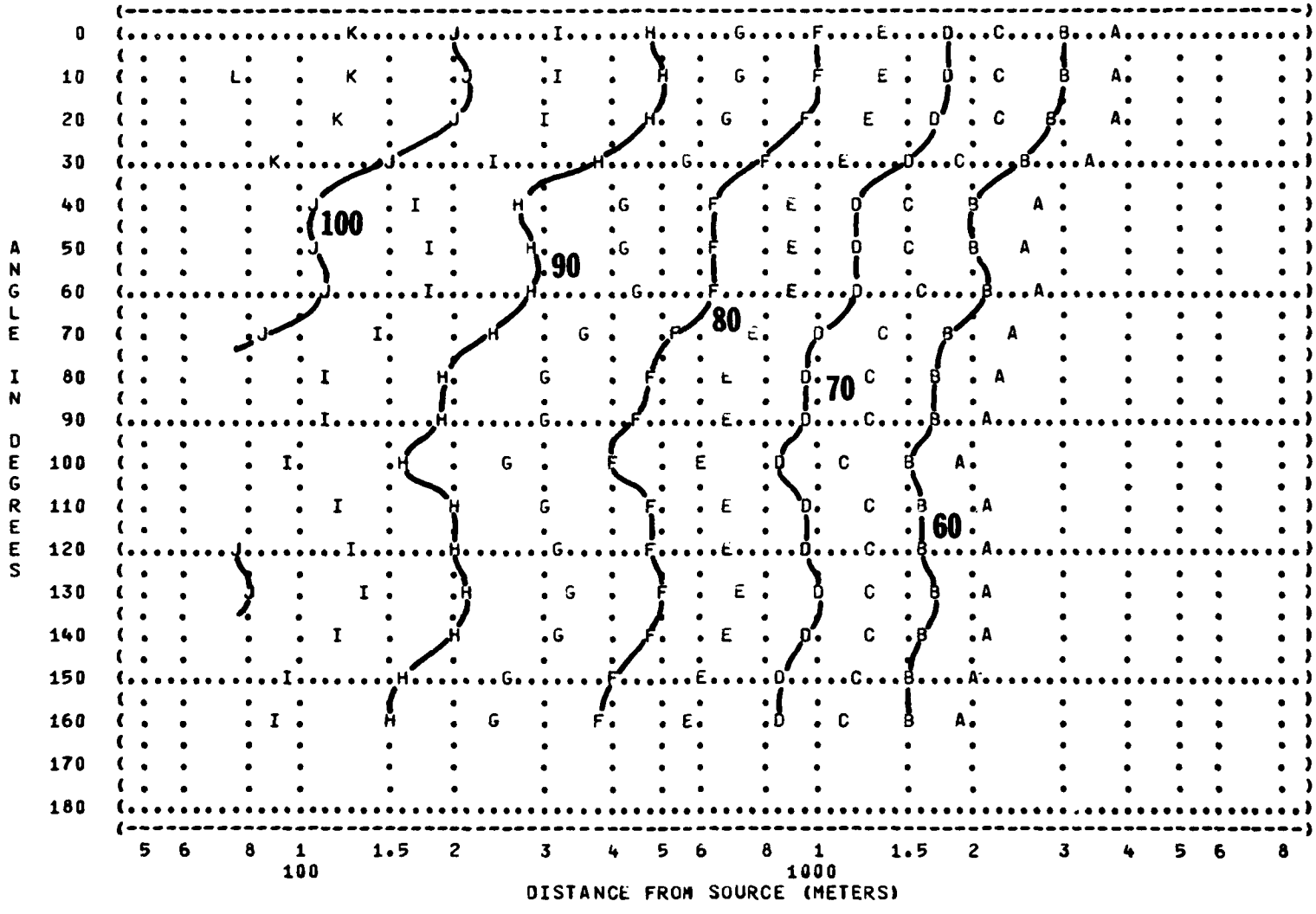
FIGURE 5: OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 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 |

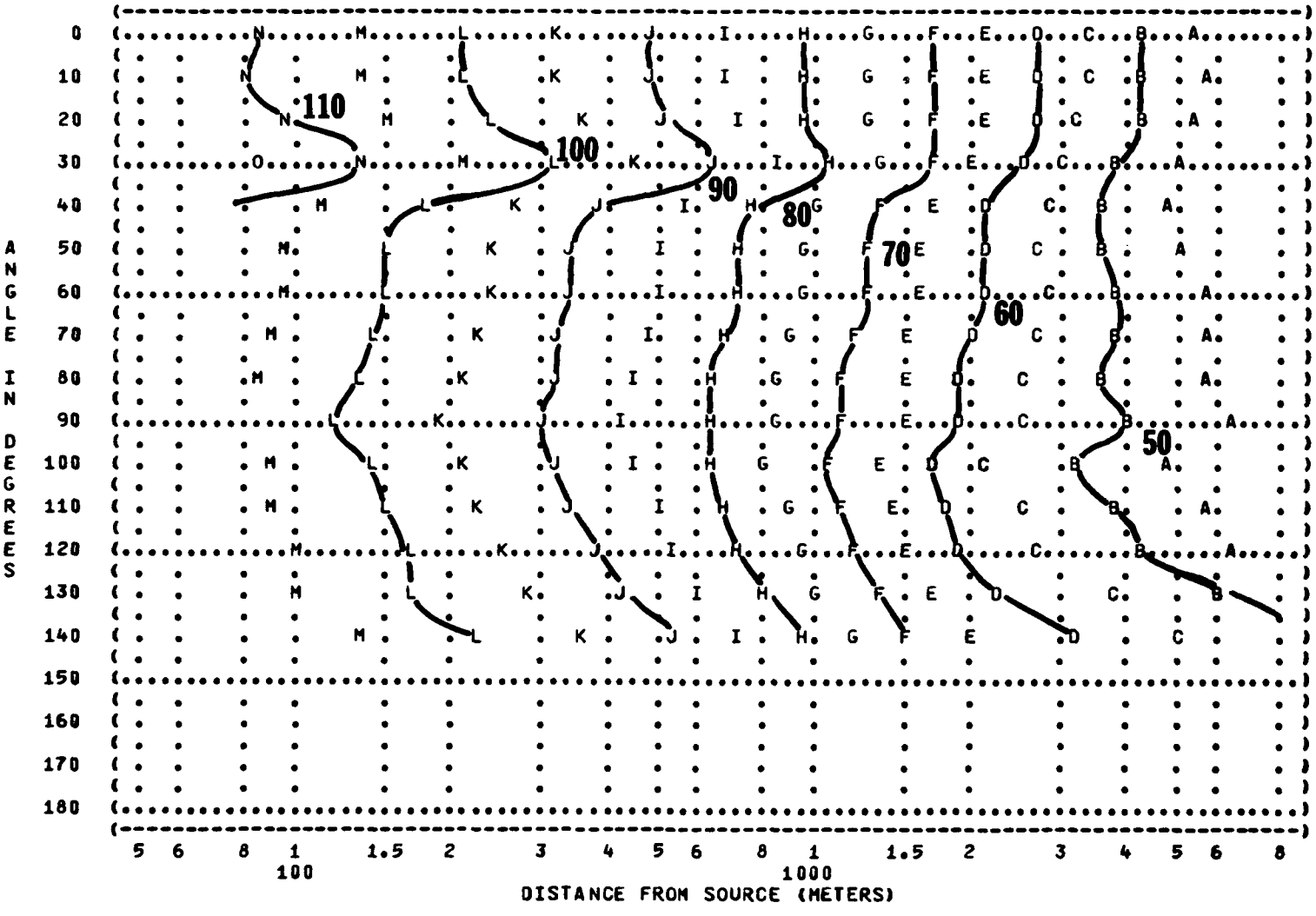
FIGURE 5 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
ONEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 13

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL 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 |

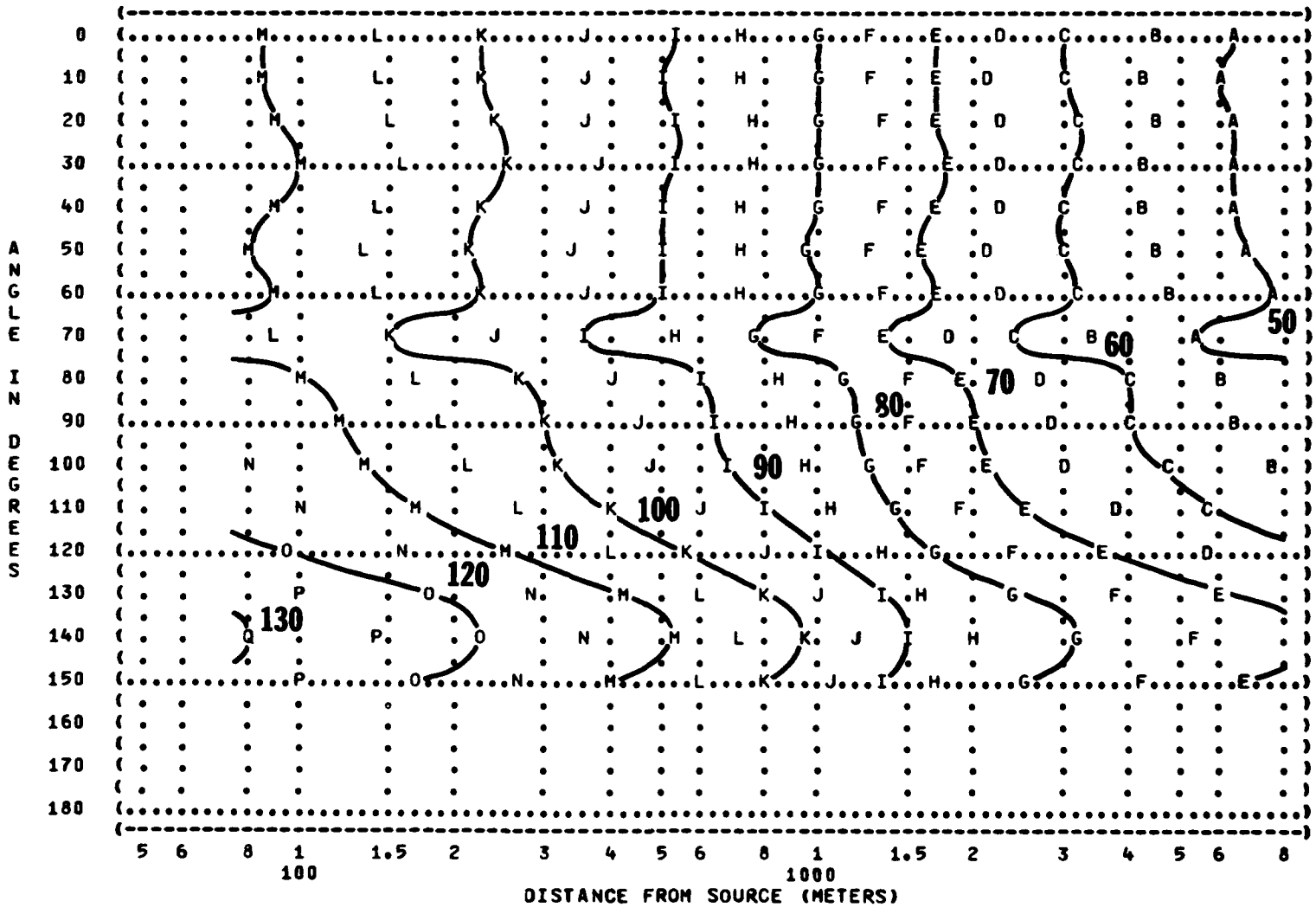
FIGURE 5 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 13

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL ENGINES
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)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 14

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

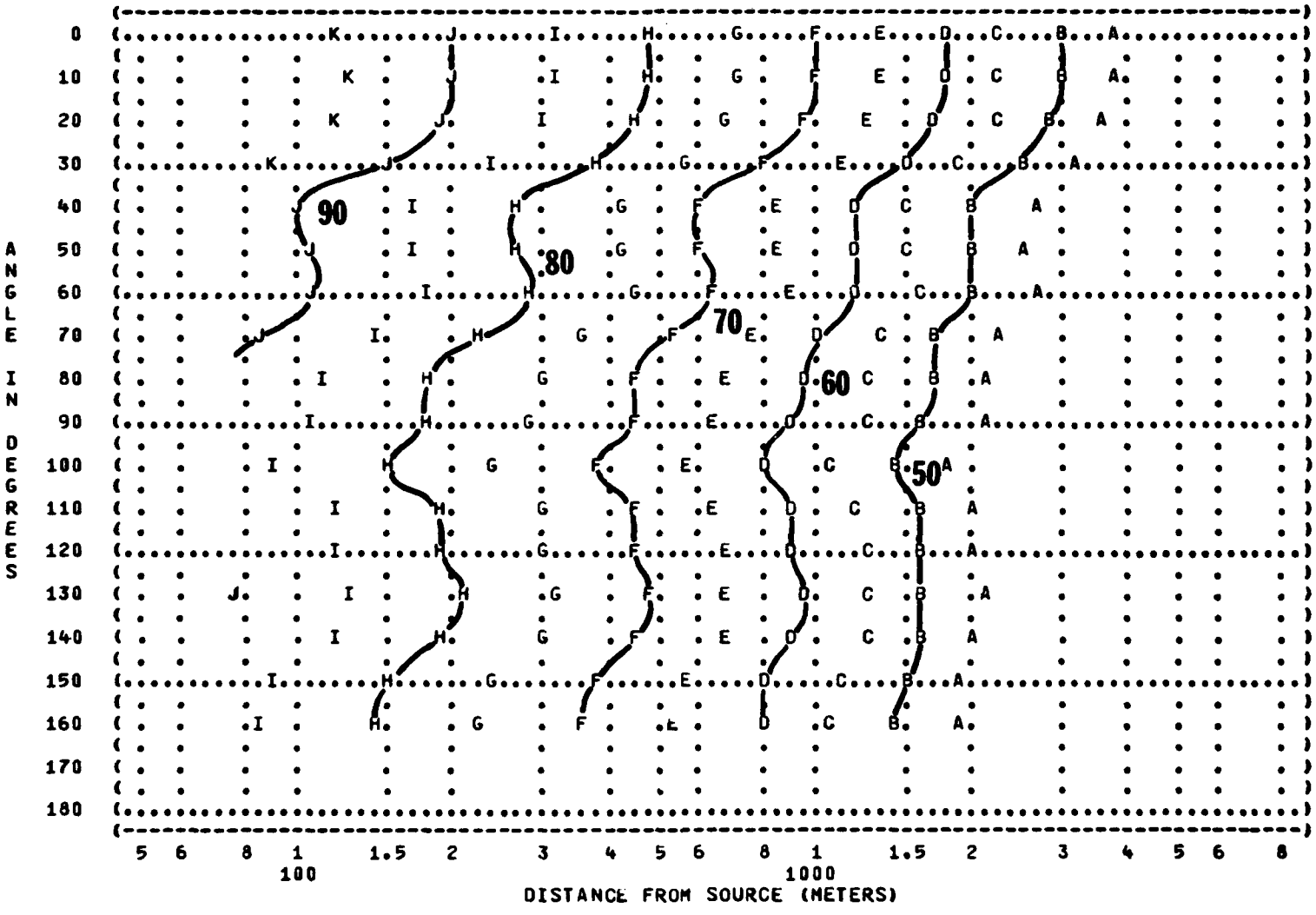


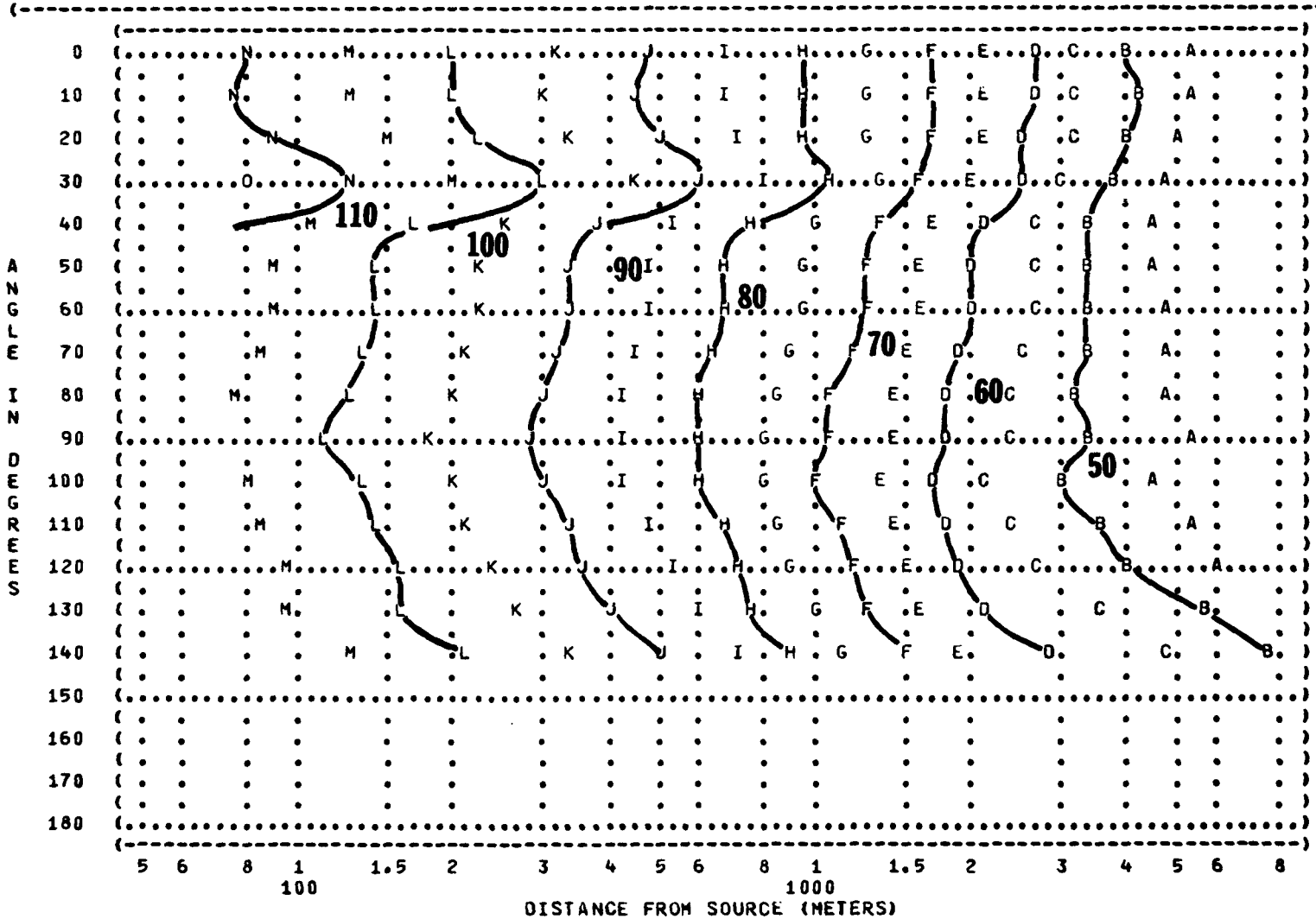
FIGURE: 6 C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 14

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
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 |

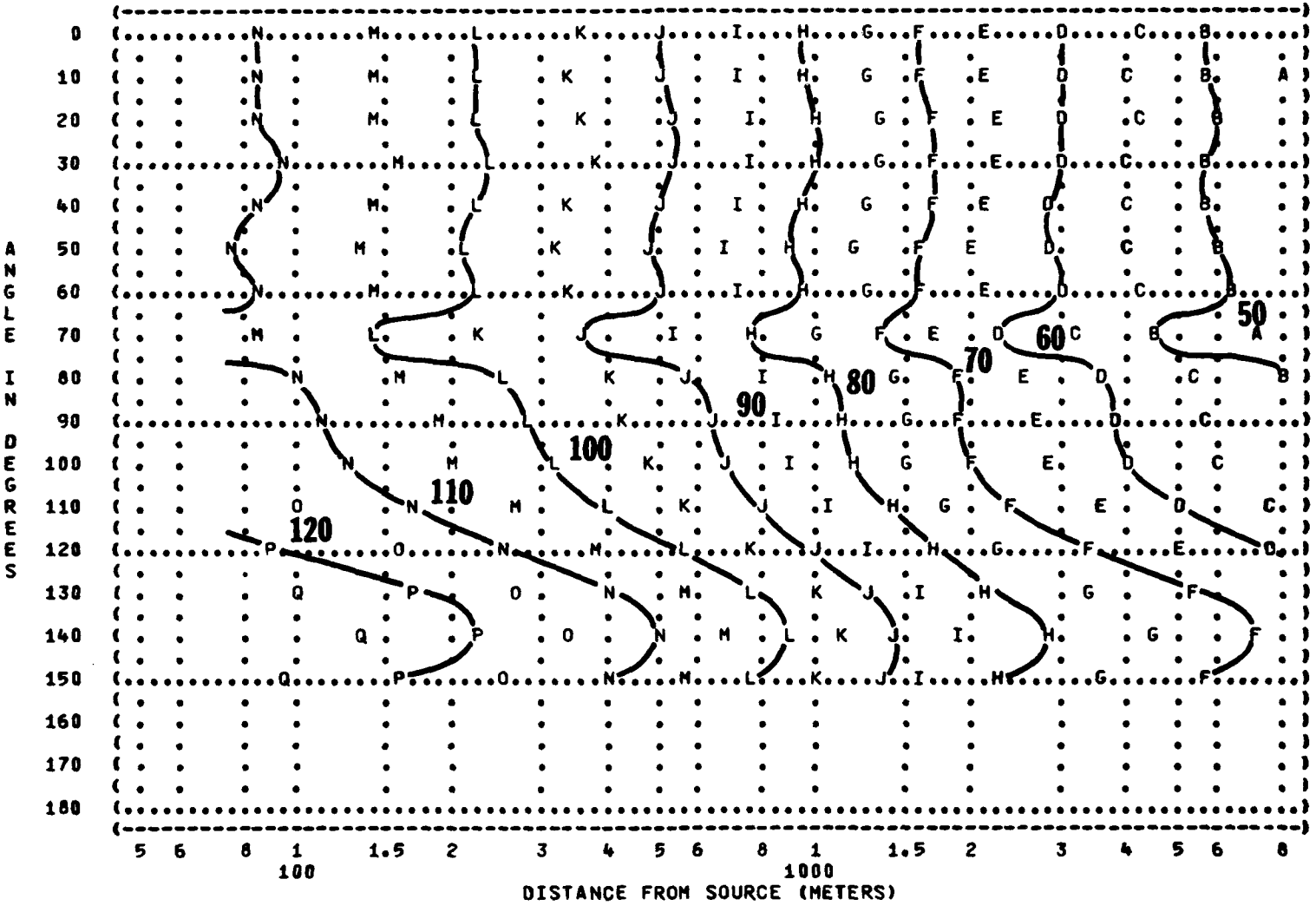
FIGURE 6 C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 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 |
| Q | 125 |

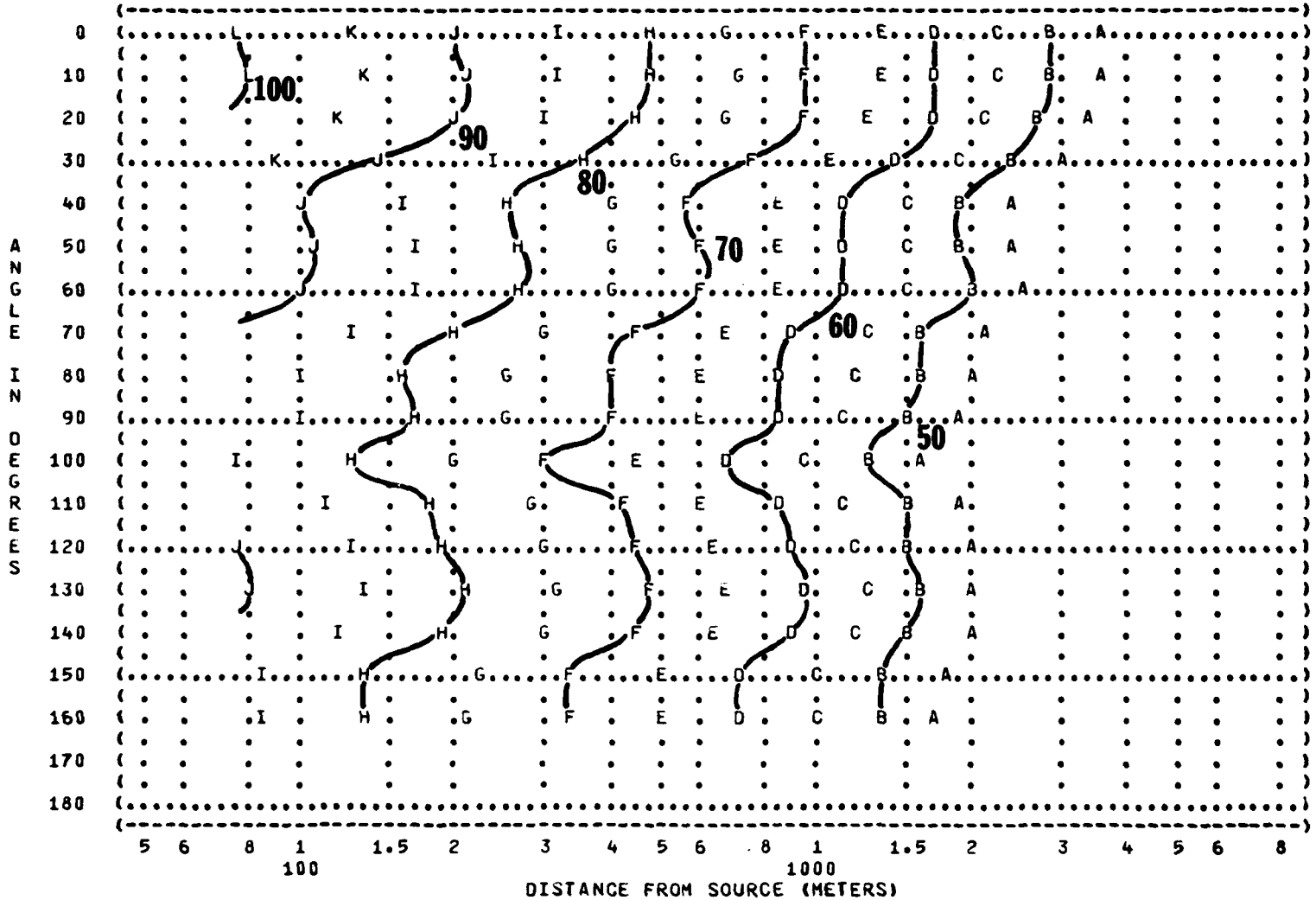
FIGURE 7: A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 15

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL 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 |

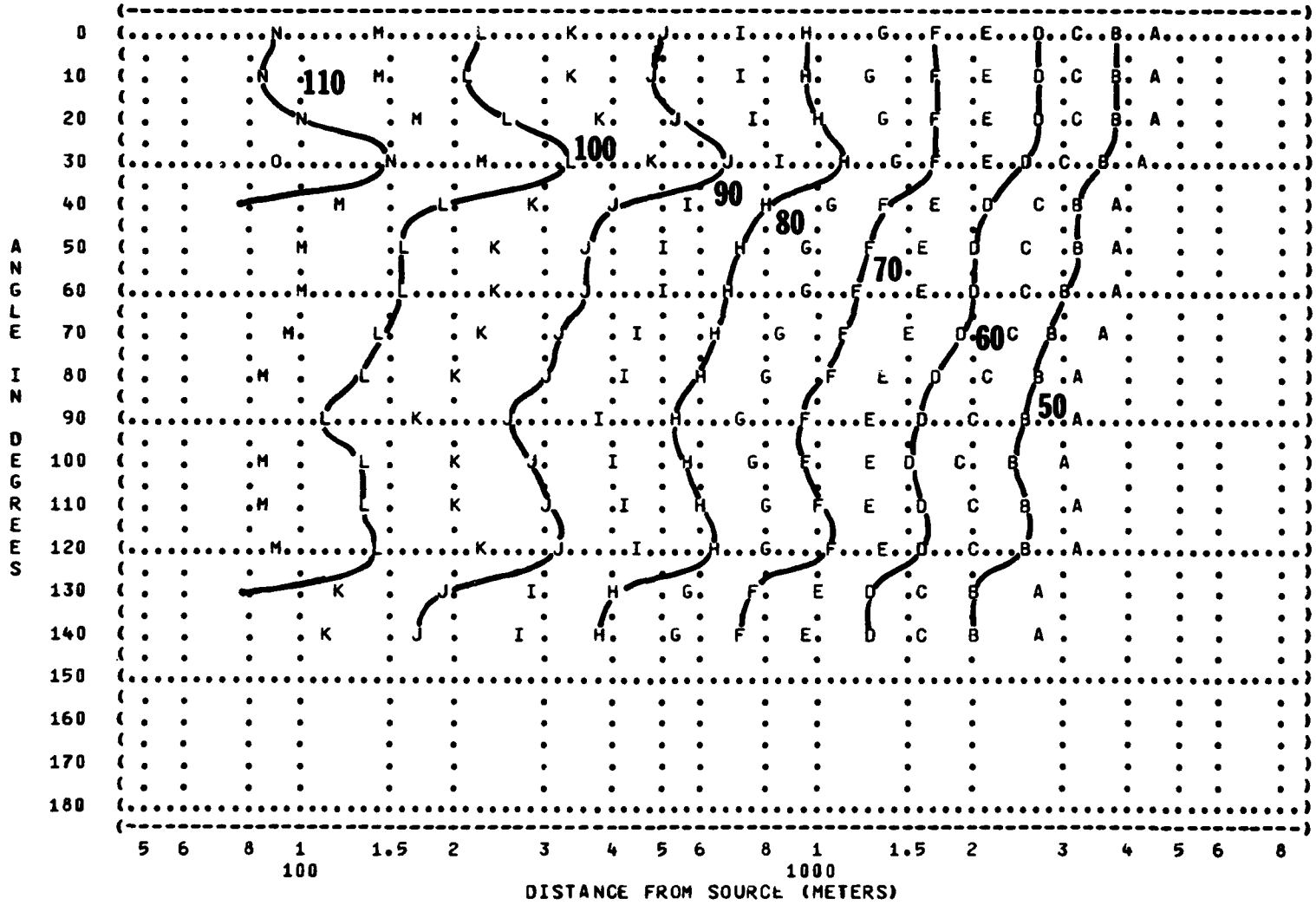
FIGURE 7: A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 15

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL 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 |
| N | 110 |
| O | 115 |

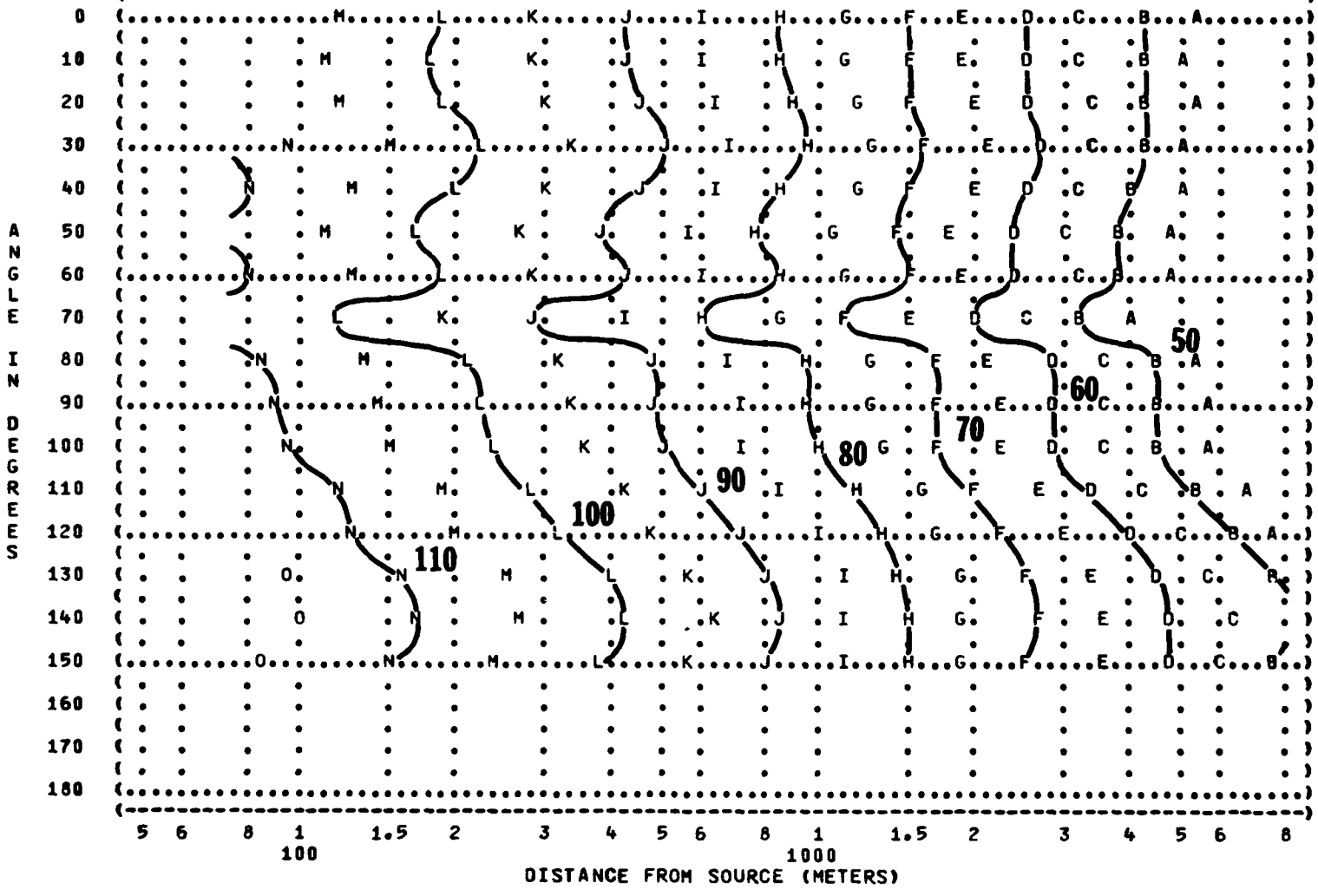
FIGURE: 7 A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 15

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |
| N | 110 |
| O | 115 |

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 16

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL 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 |

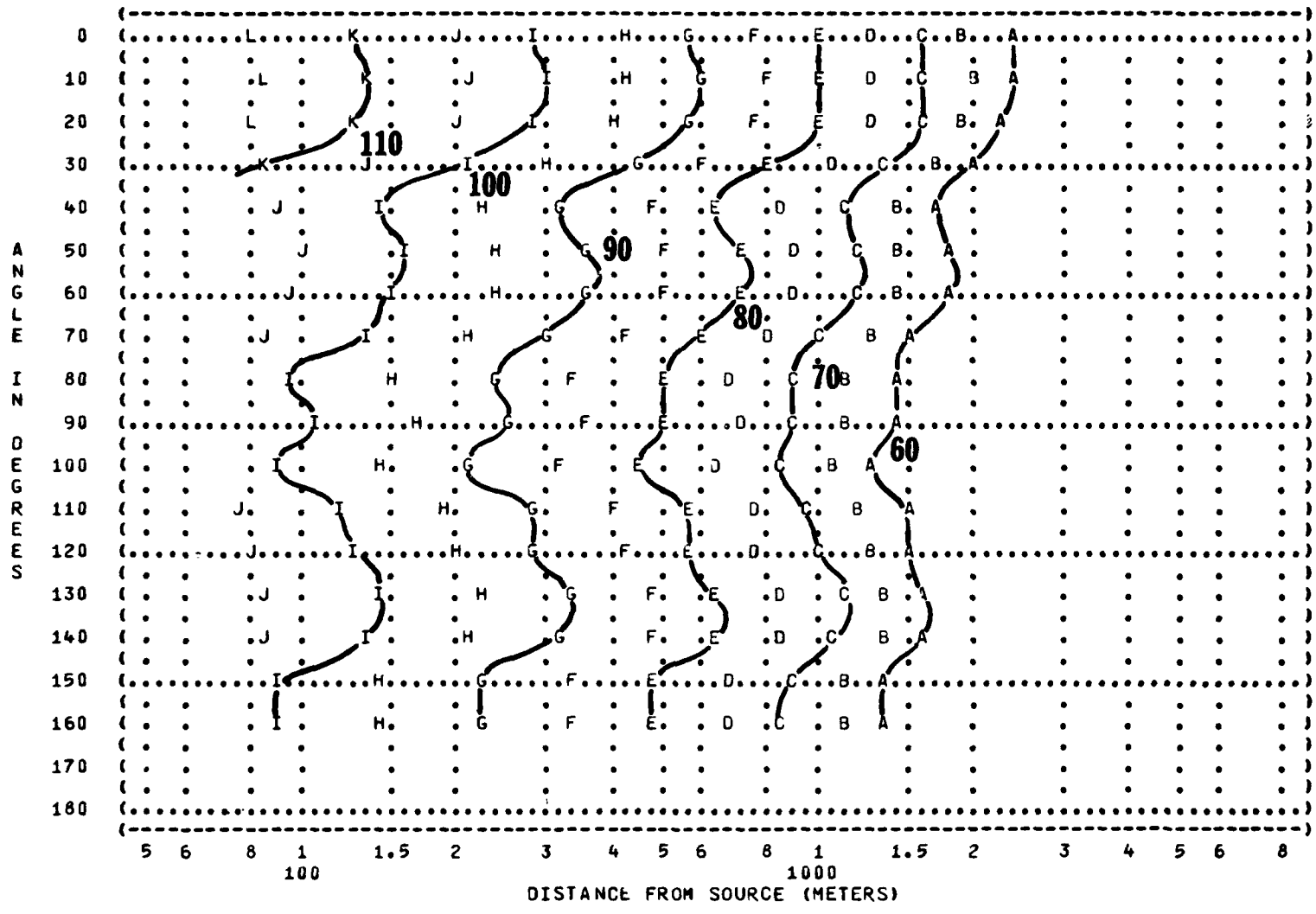


FIGURE: 8

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 16

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL 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 |
| N | 125 |
| O | 130 |

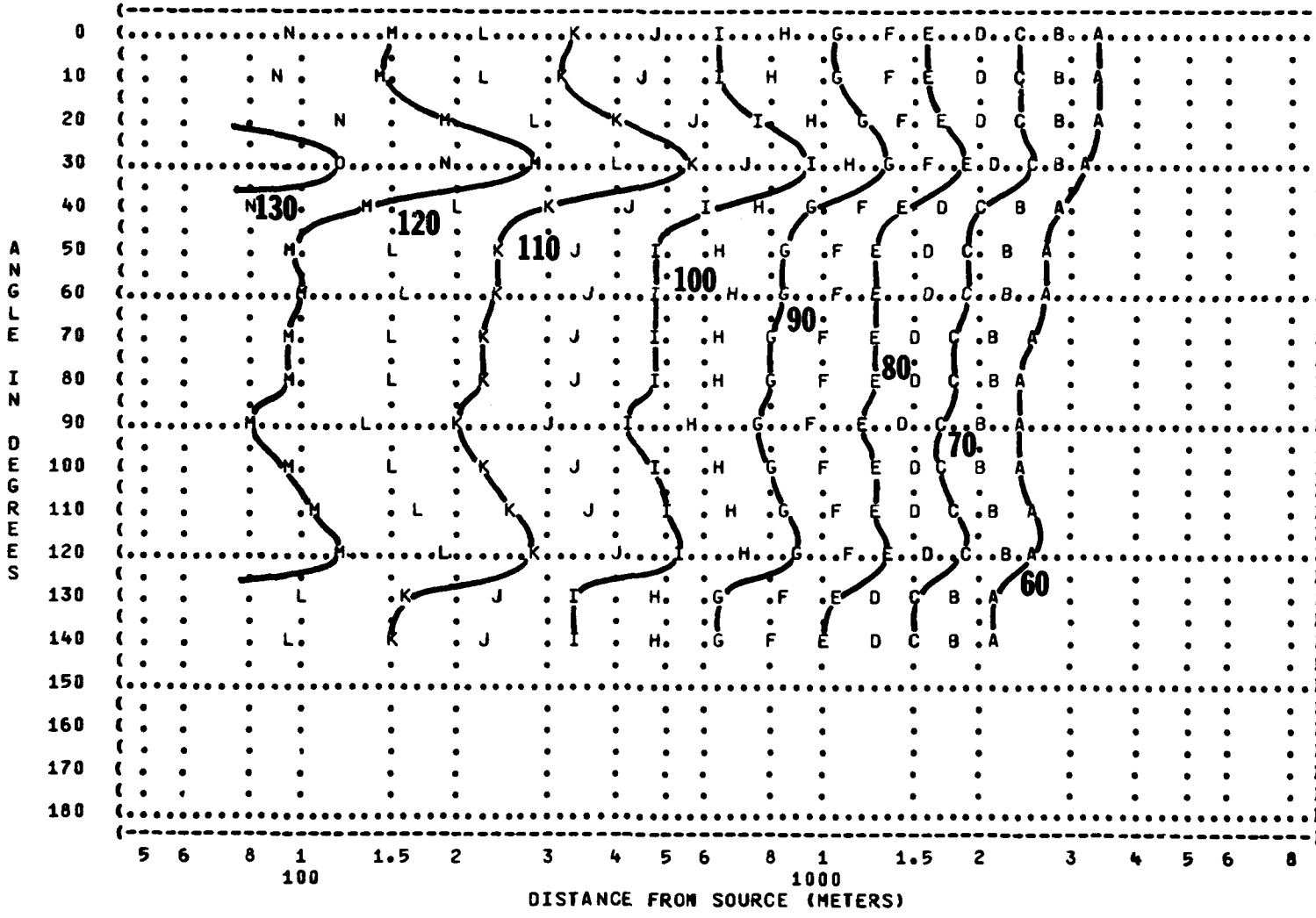


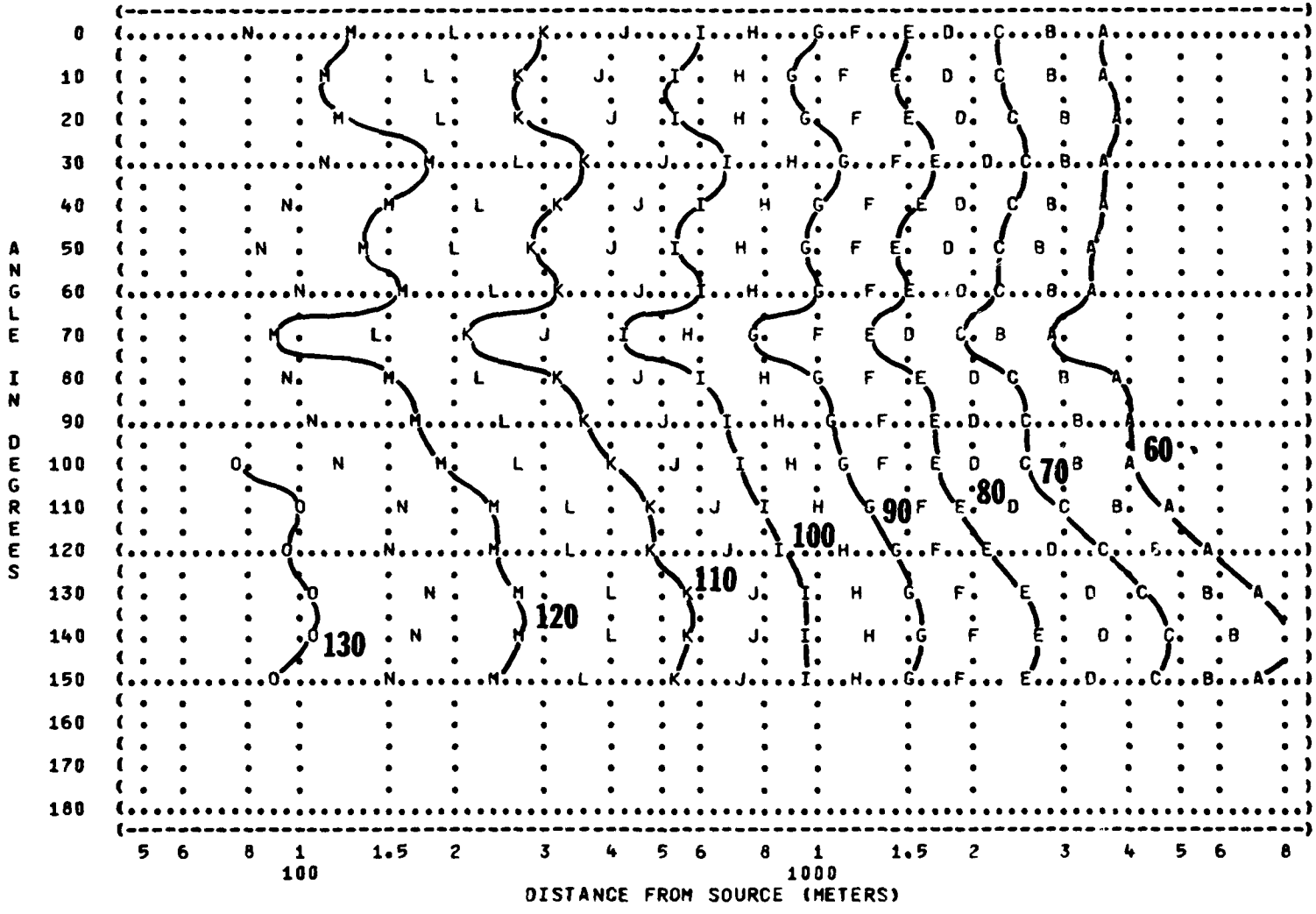
FIGURE 8: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT) EQUAL LEVEL CONTOURS (PNDB)

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 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 |
| M | 120 |
| N | 125 |
| O | 130 |

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01

06 MAY 75

PAGE 17

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

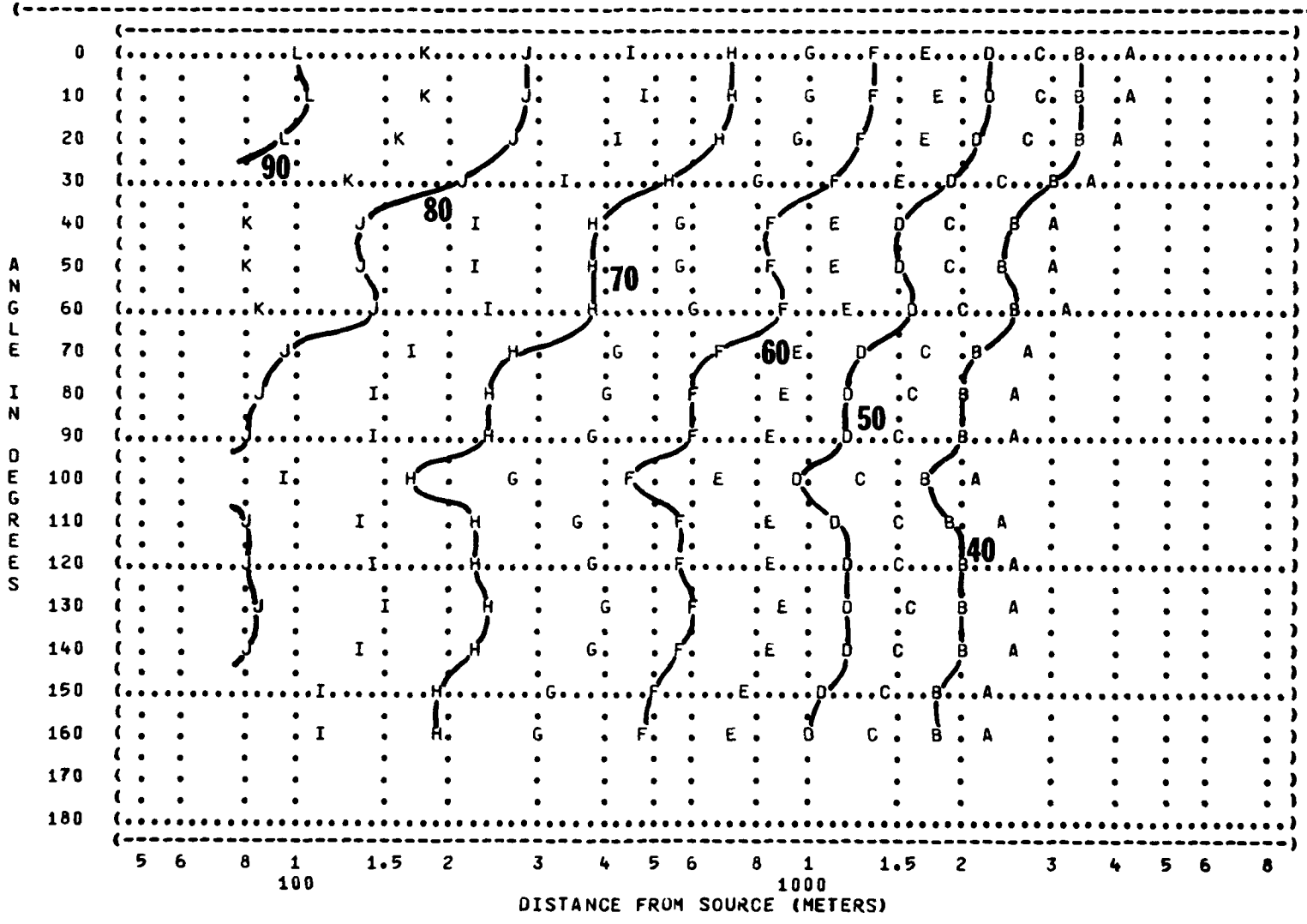


FIGURE: 9 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 17

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL 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 |

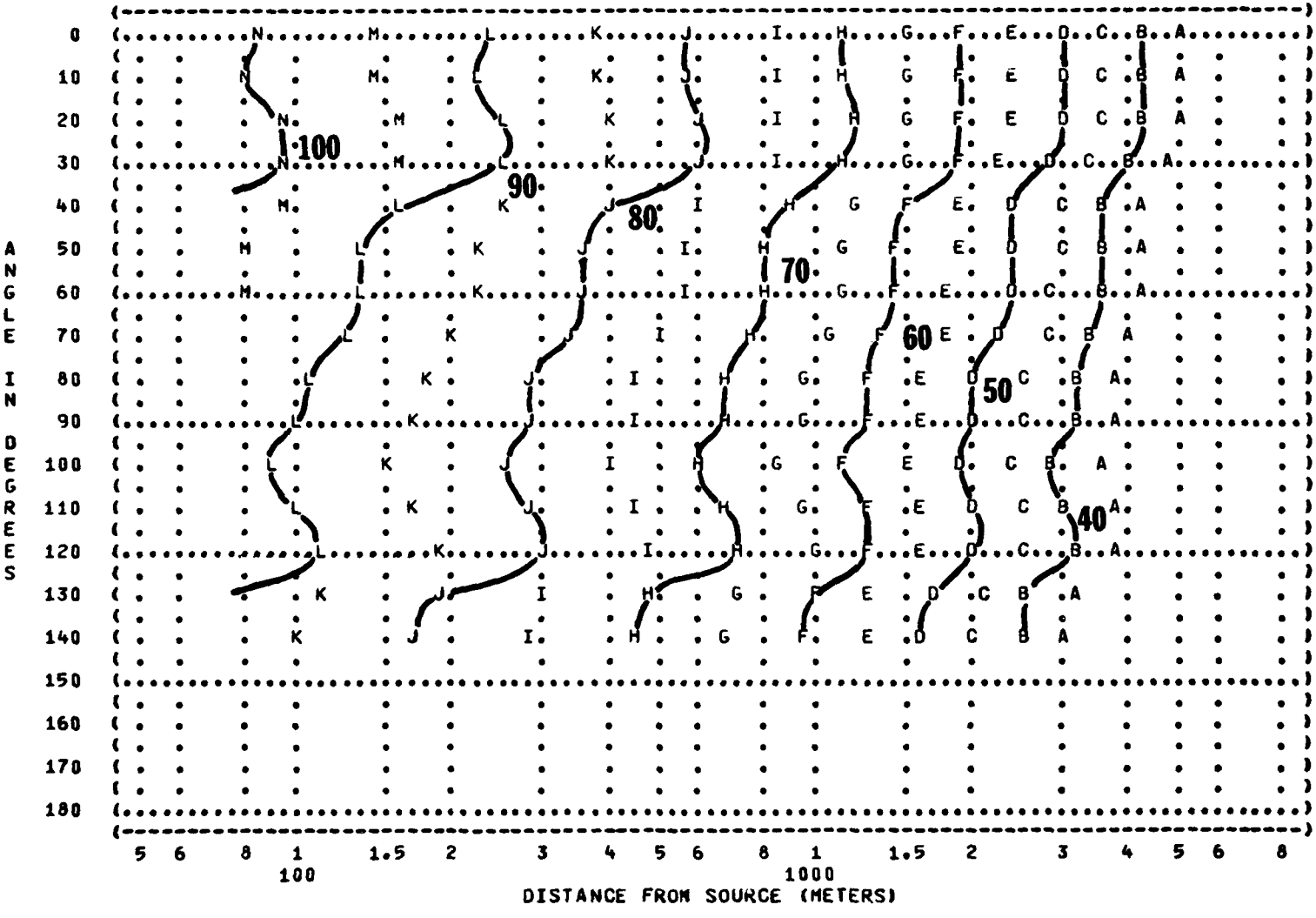


FIGURE: 9 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 17

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |

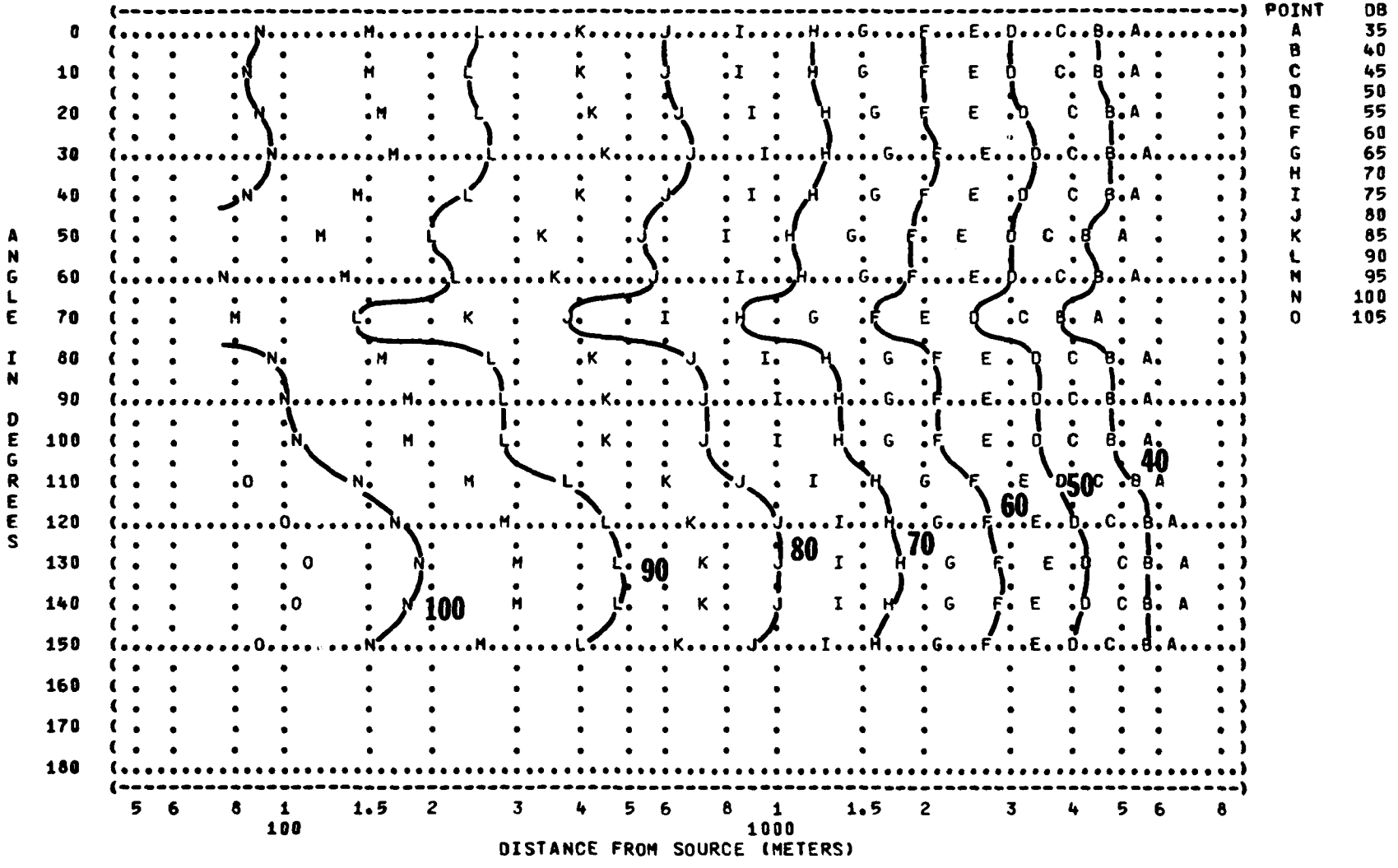


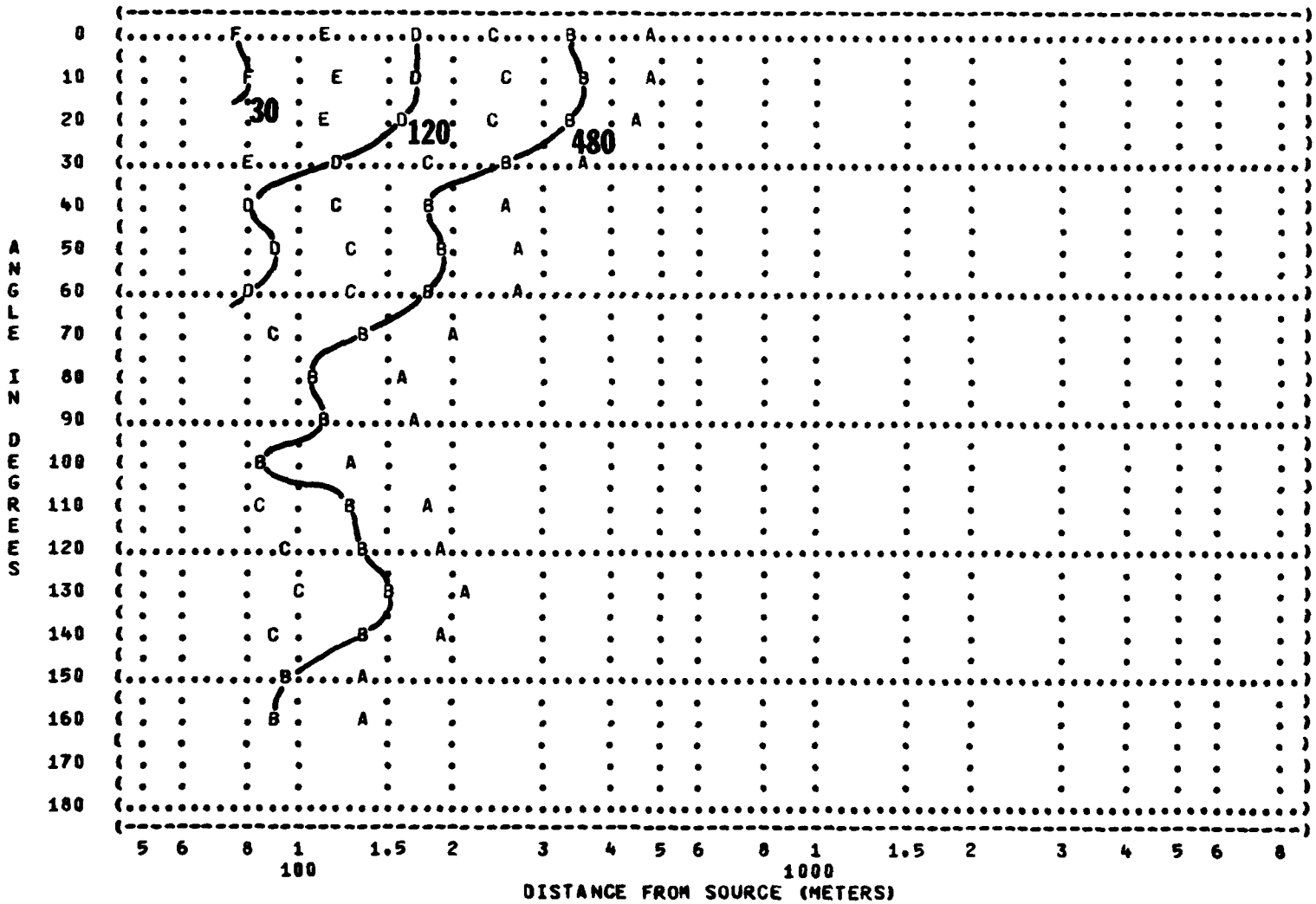
FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
NO PROTECTION

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 7

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL 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 75-002-025
RUN 01
06 MAY 75
PAGE 8

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

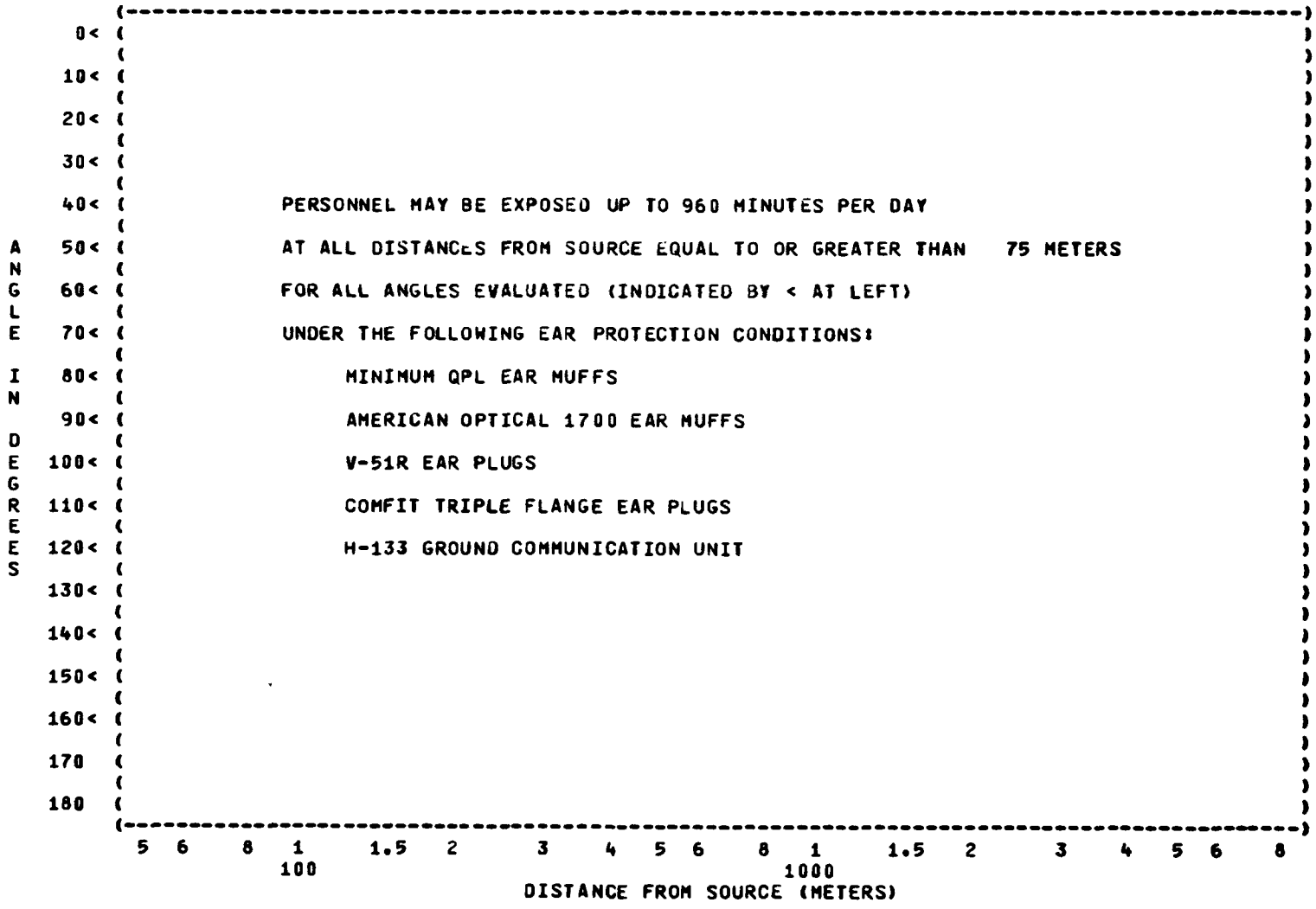


FIGURE: 10

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

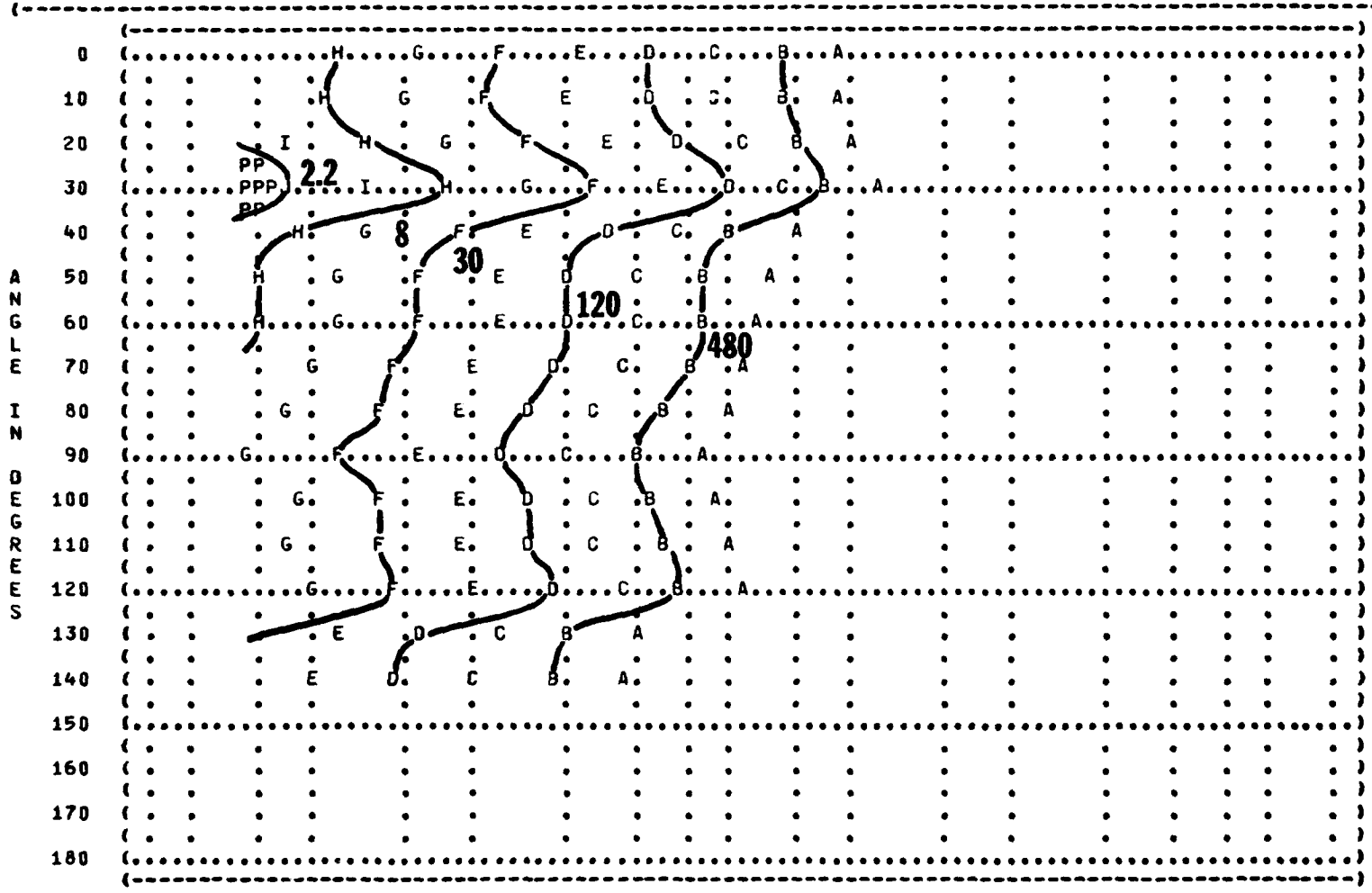
IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 7

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL 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 |
| G | 15 |
| H | 8 |
| I | 4 |
| J | 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:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 8

| POINT | MIN |
|---|---|
| A | 960 |
| B | 480 |
| C | 240 |

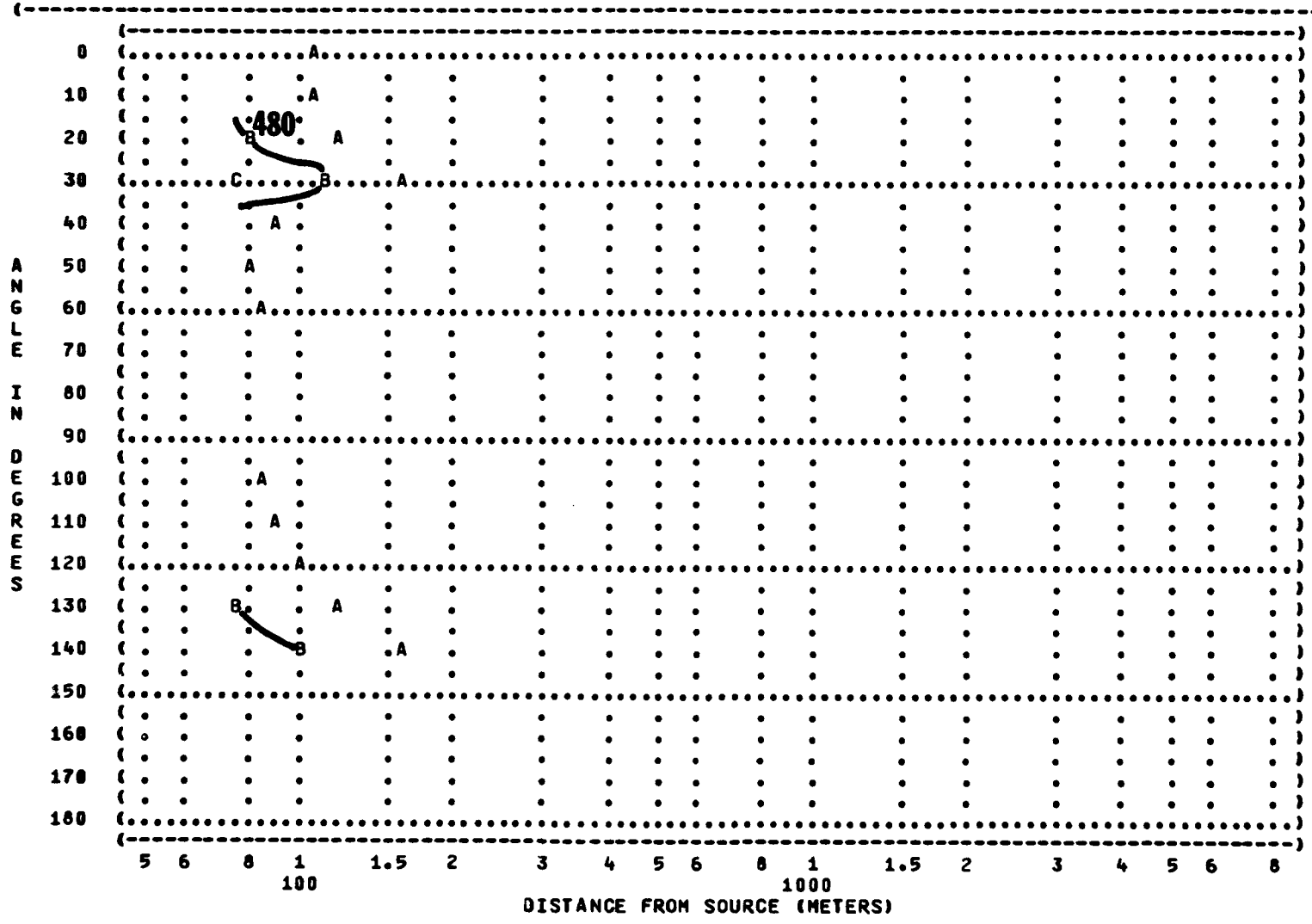


FIGURE: 10

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 75-002-025
RUN 02
06 MAY 75
PAGE 9

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

| POINT | MIN |
|---|---|
| A | 960 |

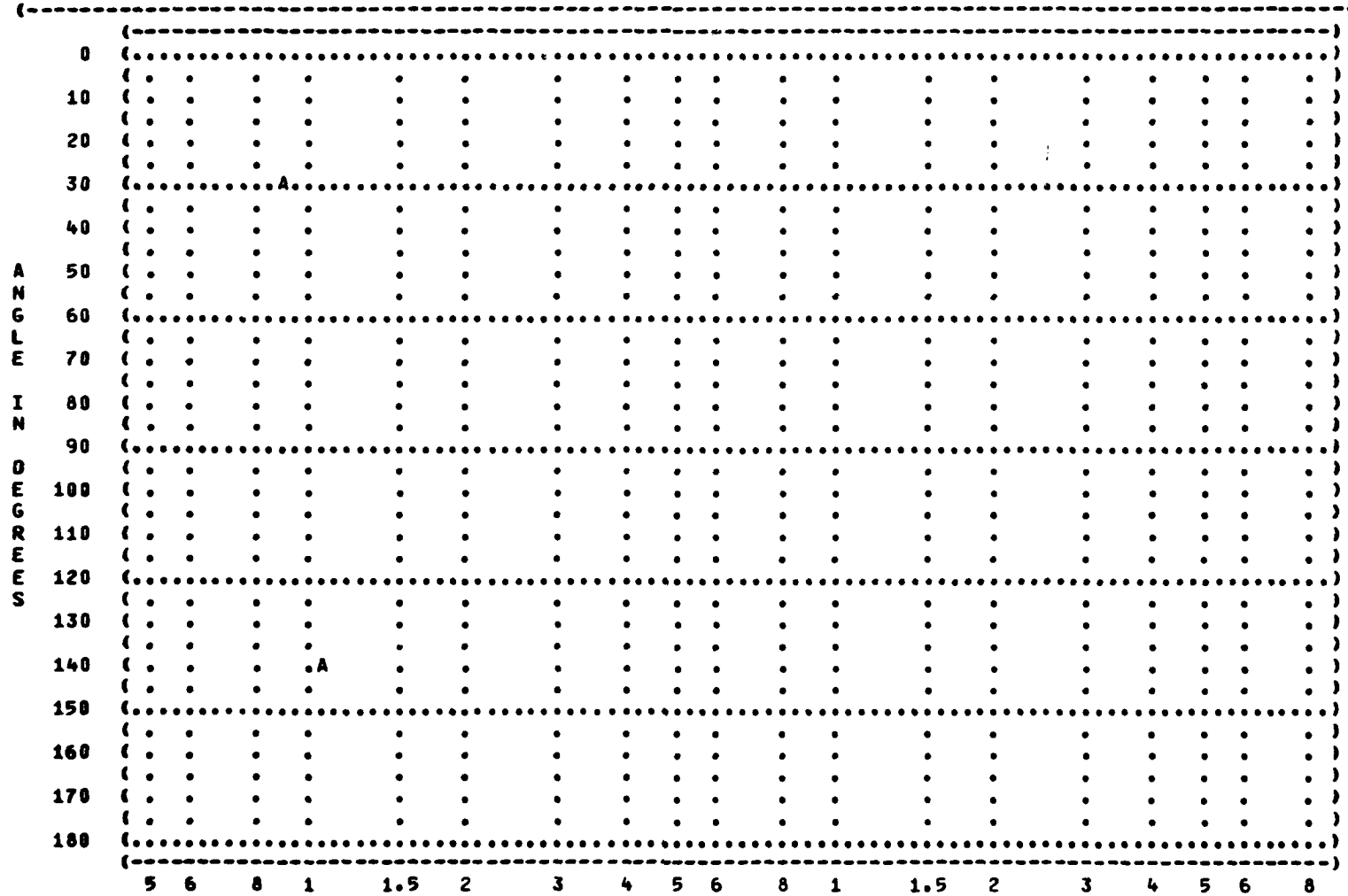


FIGURE: 10

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:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 10

| POINT | MIN |
|---|---|
| A | 960 |
| B | 480 |

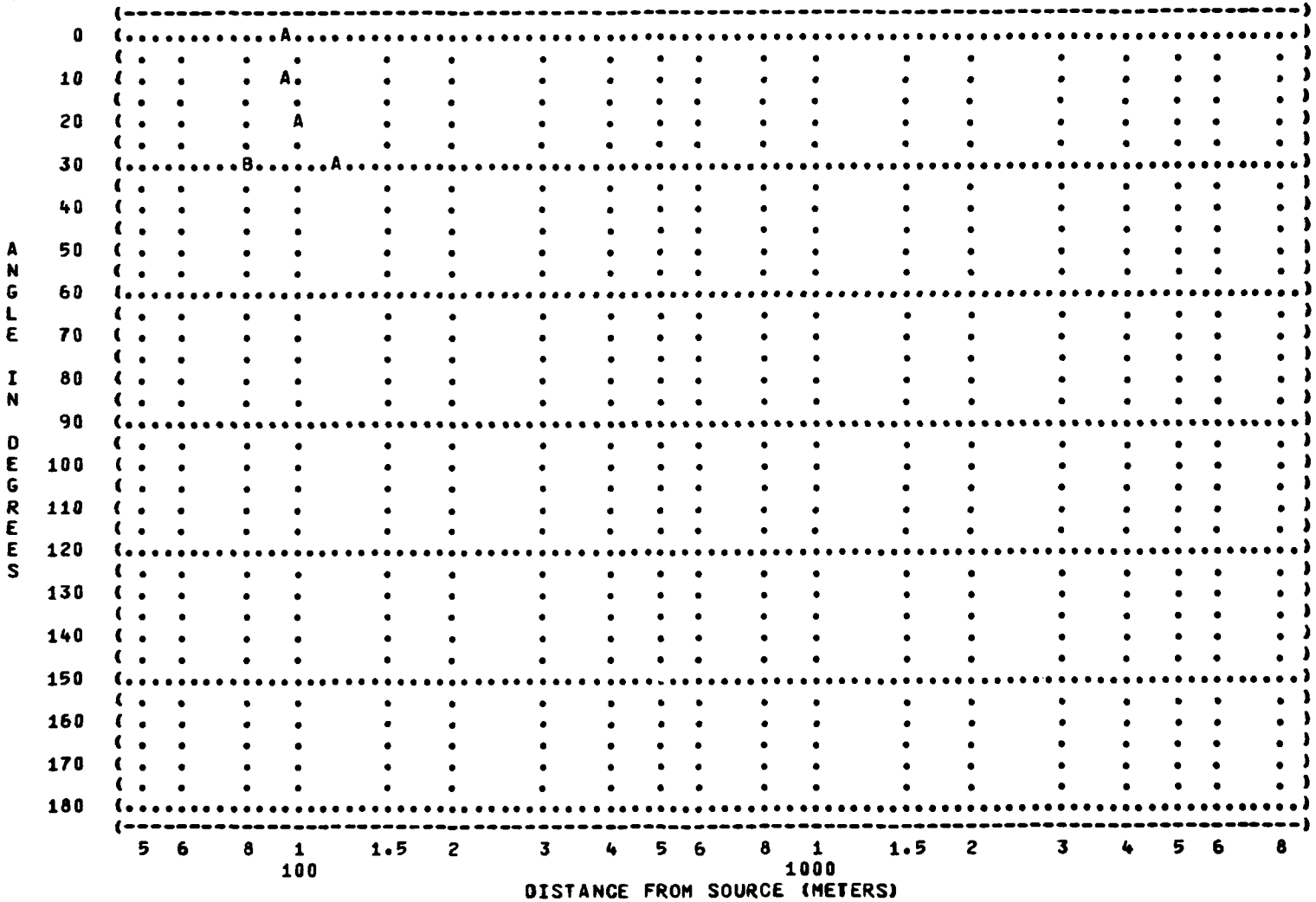


FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
COMFIT TRIPLE FLANGE EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 11

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL 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 |

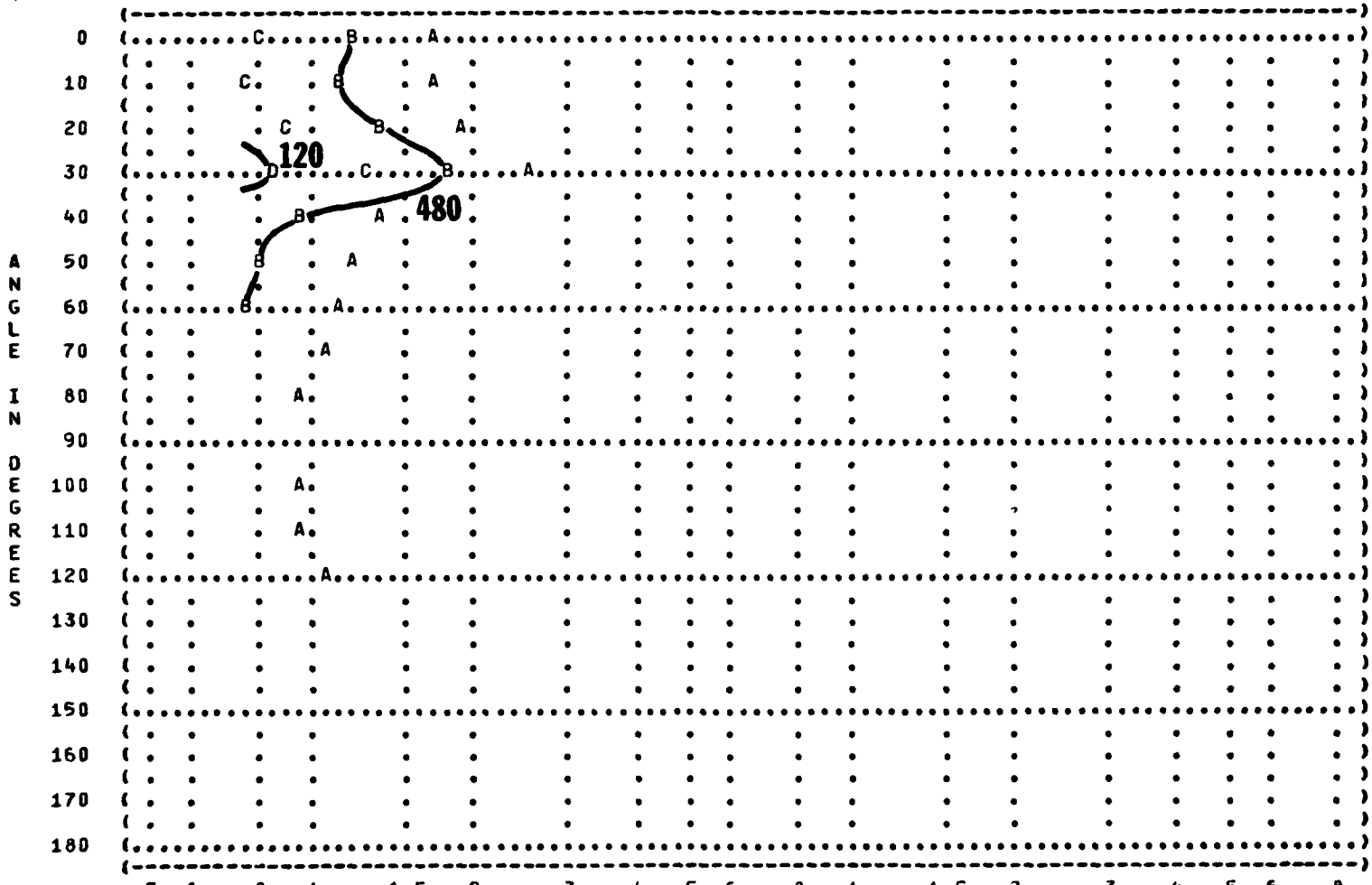


FIGURE: 10

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 75-002-025
RUN 02
06 MAY 75
PAGE 12

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

| POINT | MIN |
|---|---|
| A | 960 |
| B | 480 |
| C | 240 |

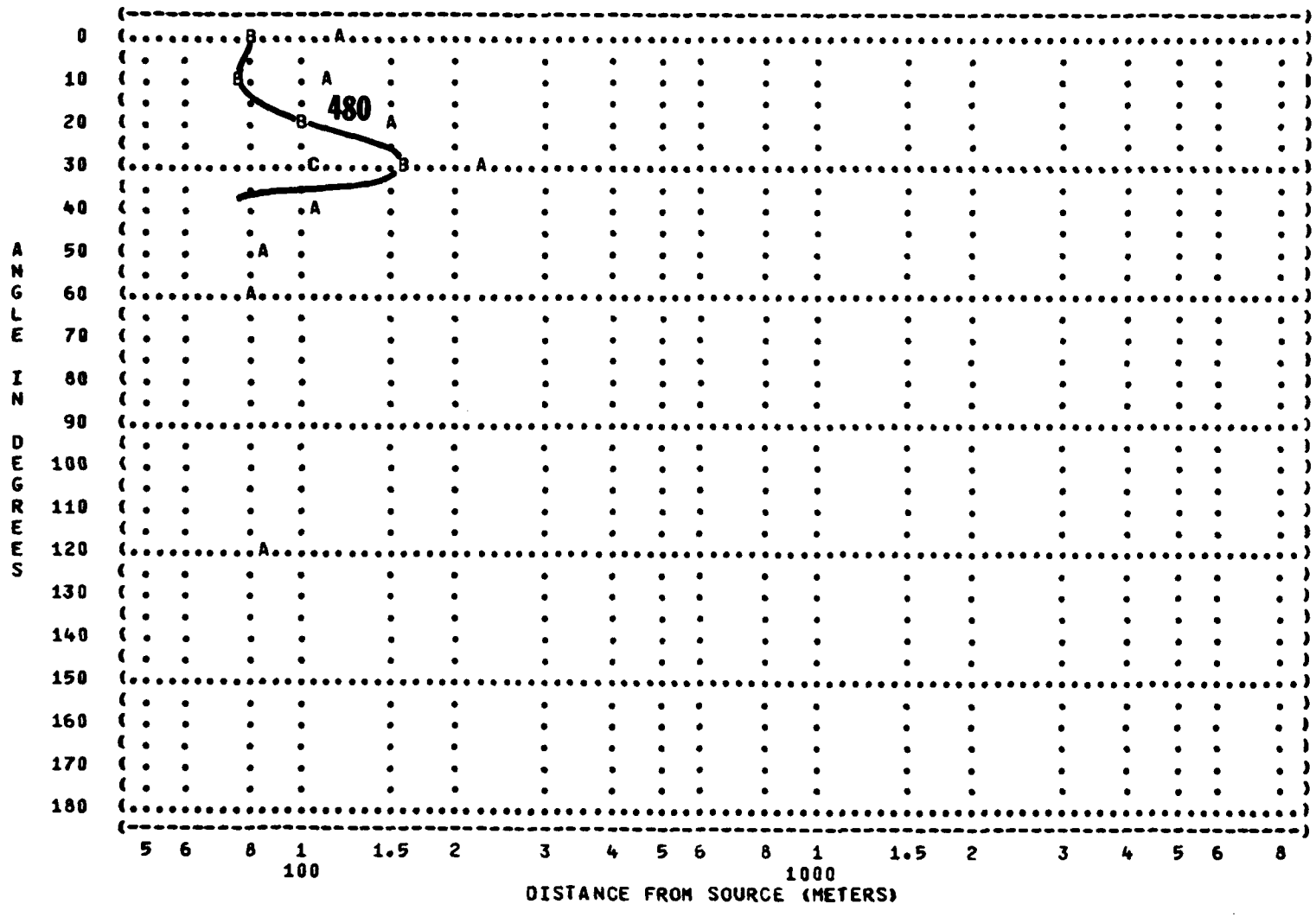


FIGURE: 10

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

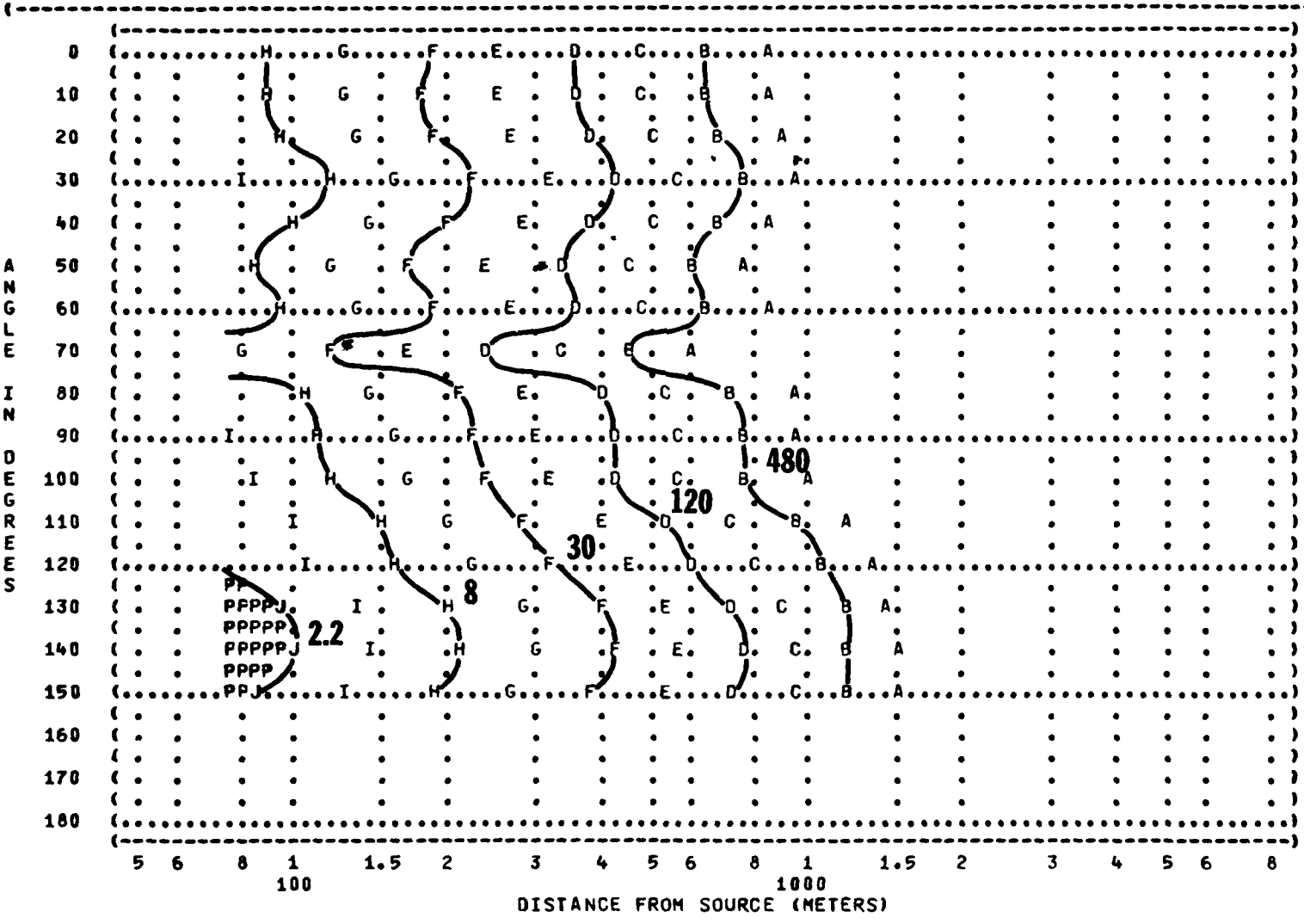
IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 7

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |
| 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 75-002-025
RUN 03
06 MAY 75
PAGE 8

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |
| G | 15 |
| H | 8 |

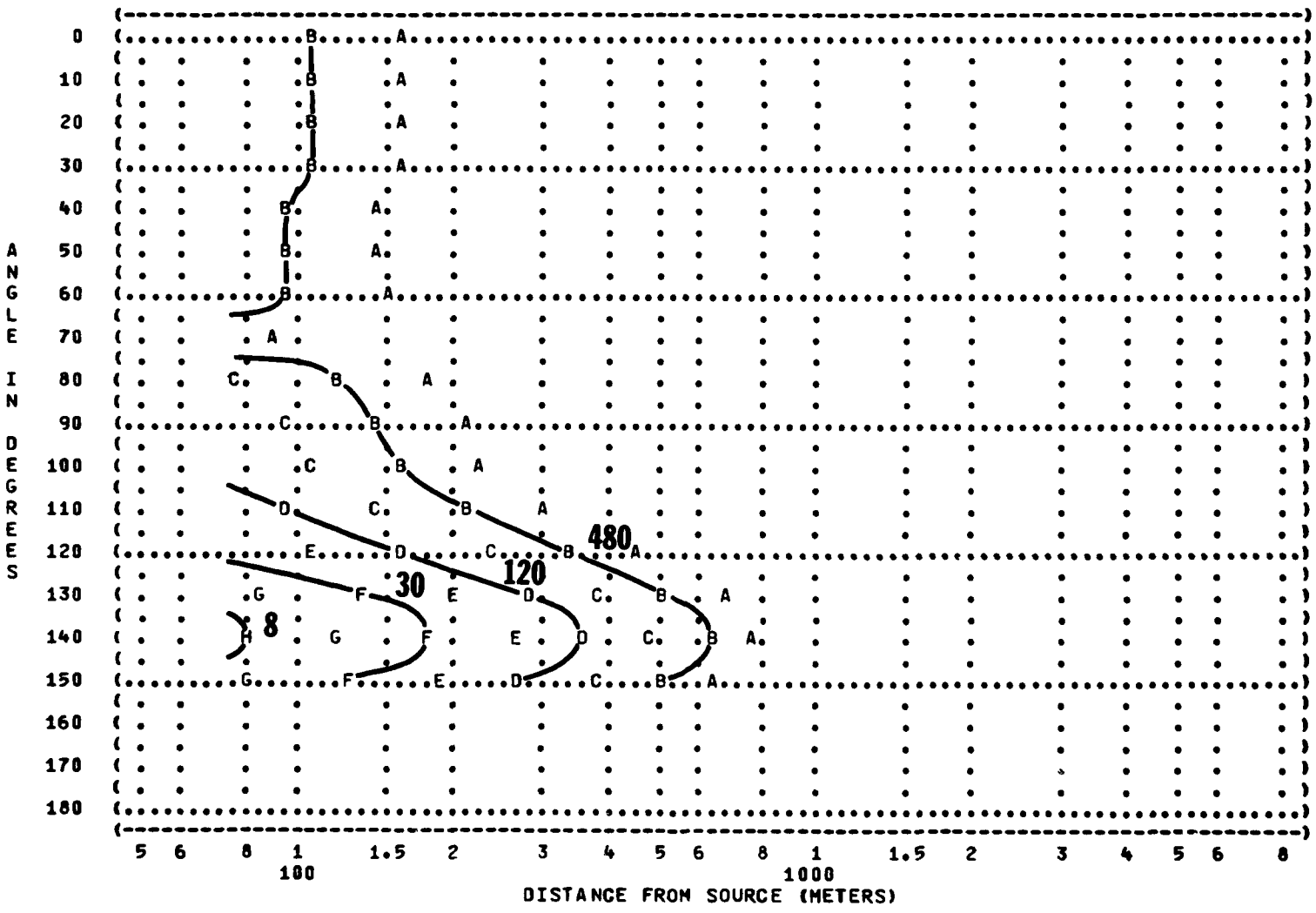


FIGURE: 10

MAXIMUM PERMISSIBLE TIME (1) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
AMERICAN OPTICAL 1700 EAR MUFFS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 9

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |

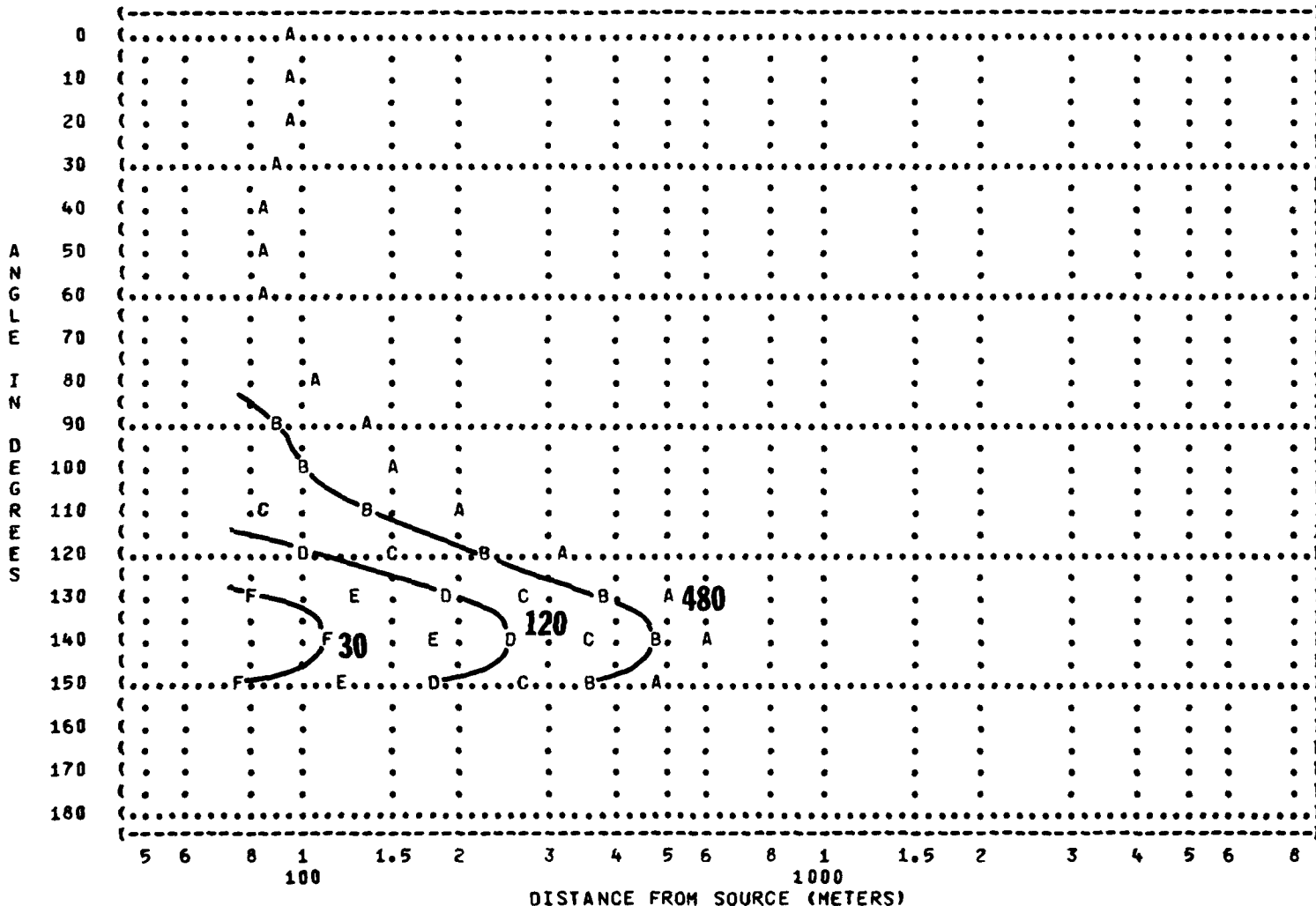


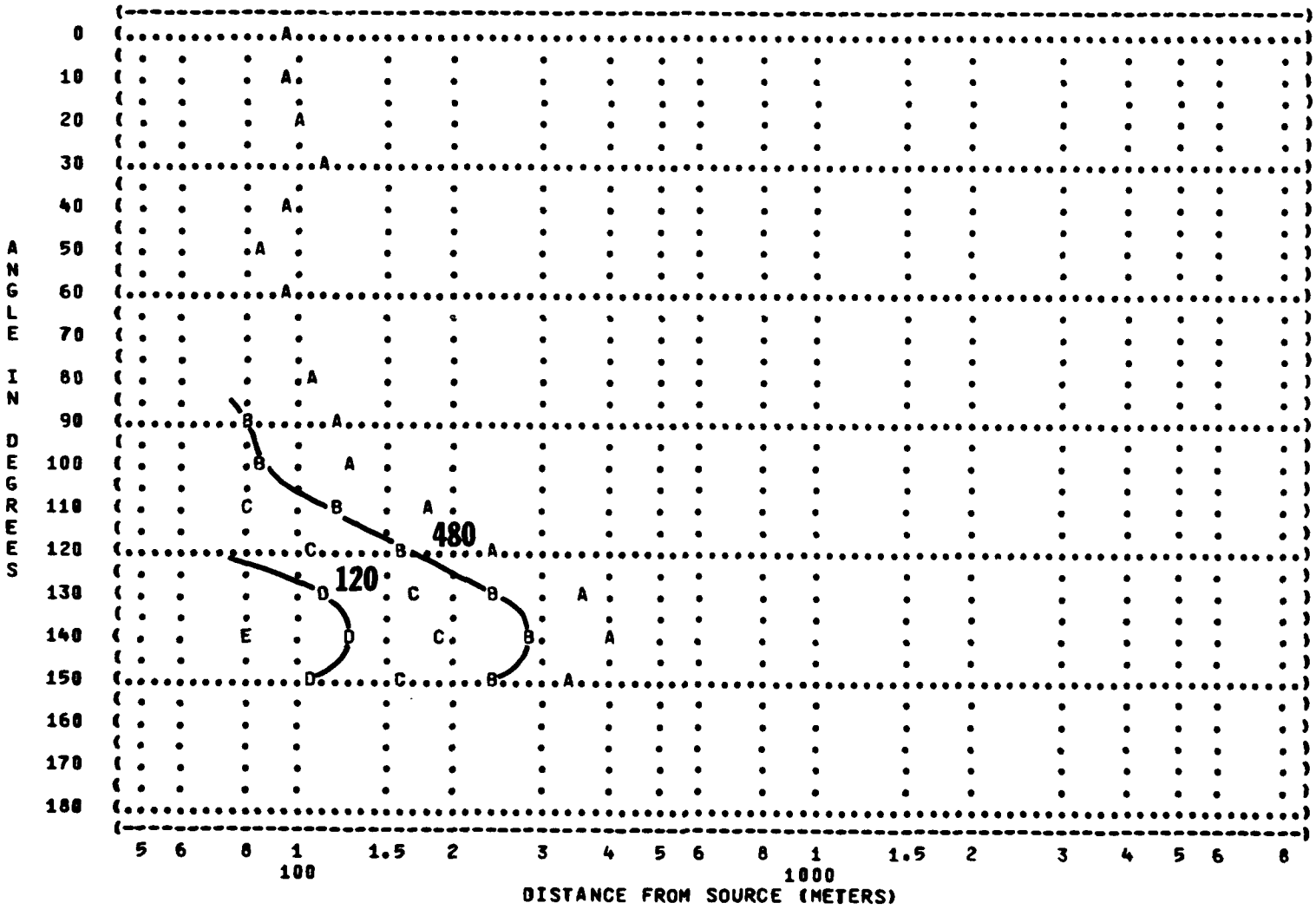
FIGURE: 10 MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
V-51R EAR PLUGS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 10

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |

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:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 11

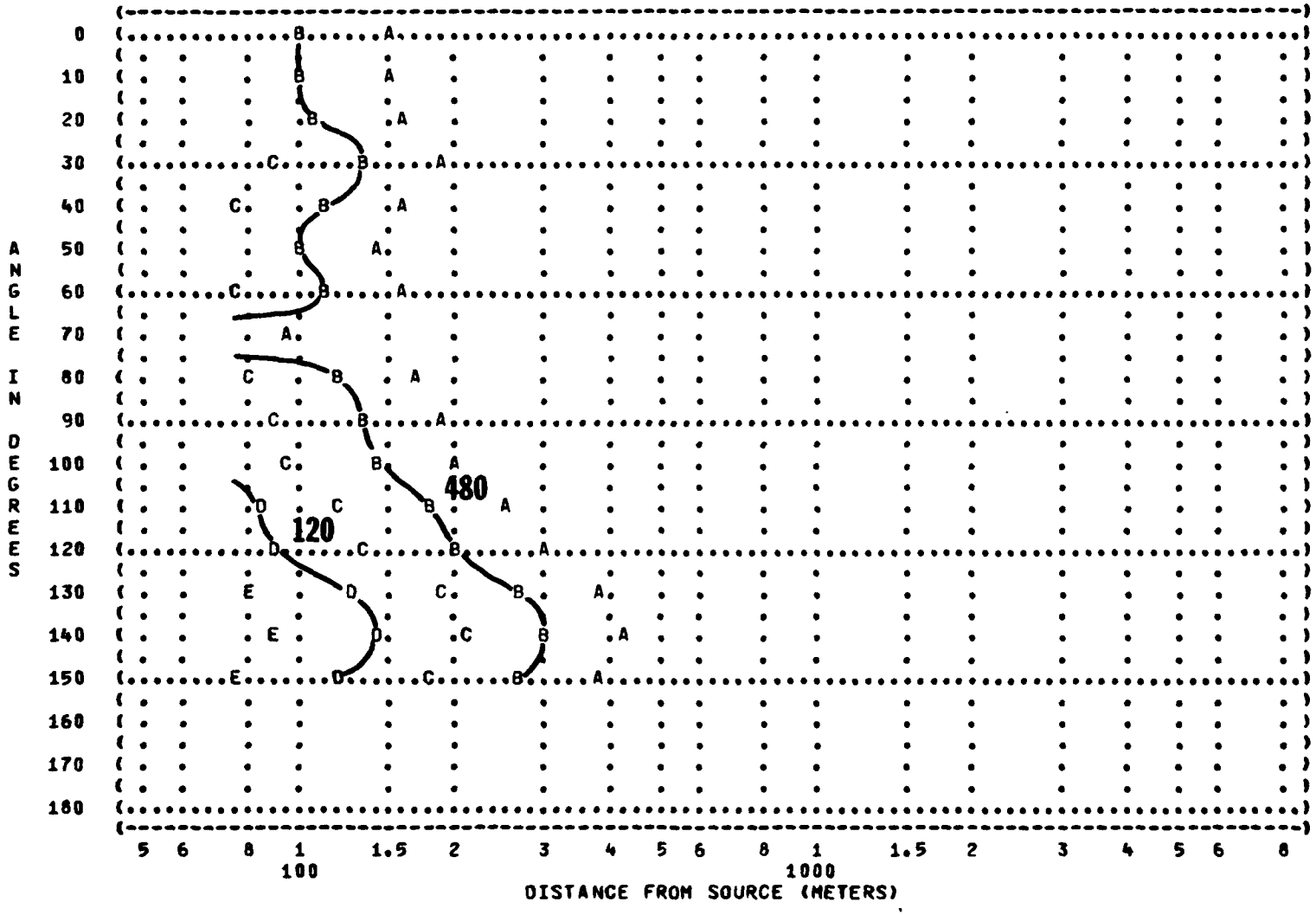


FIGURE 10: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
H-133 GROUND COMMUNICATION UNIT

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 12

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |

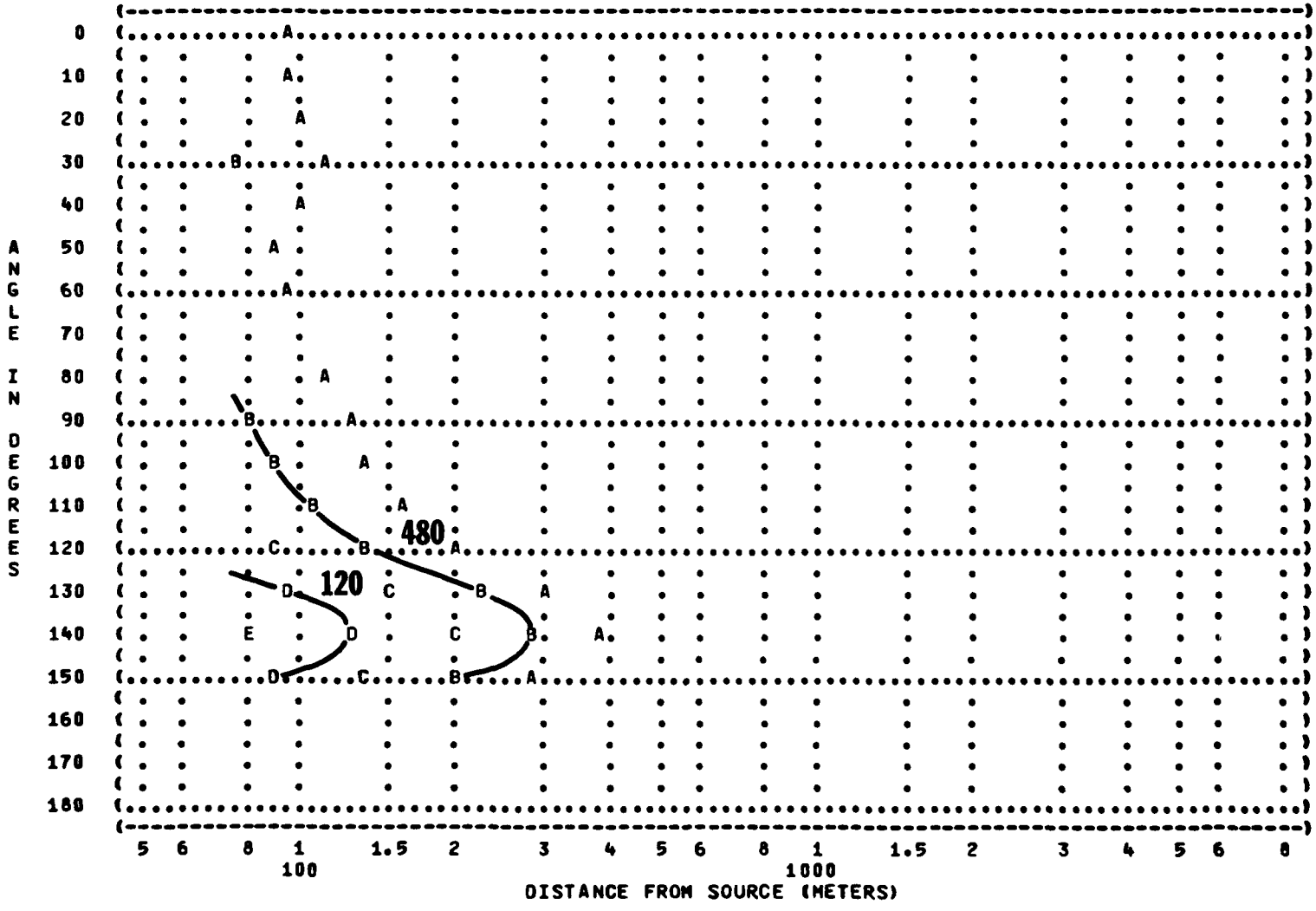


FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 18

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

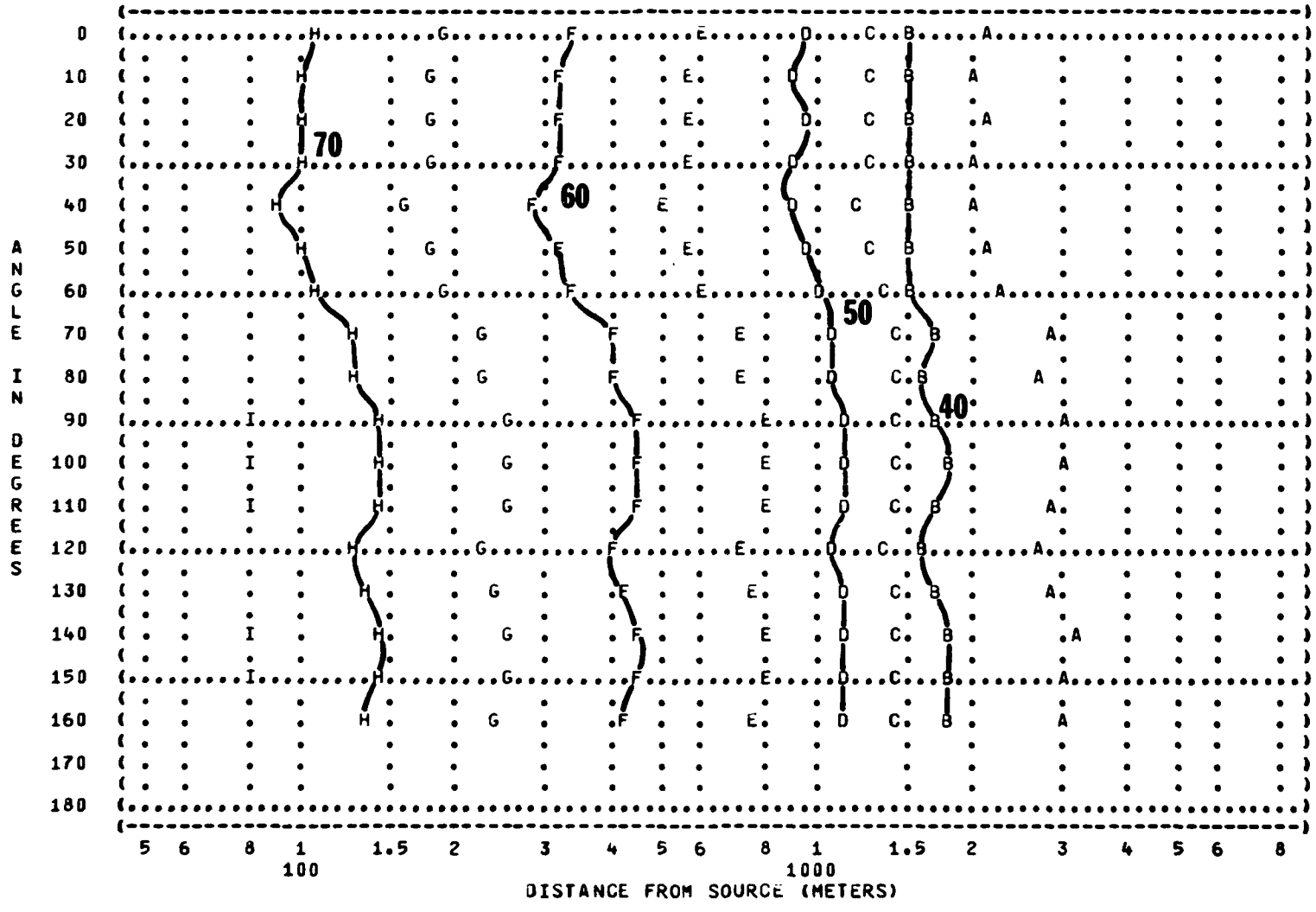


FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 19

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL 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 |

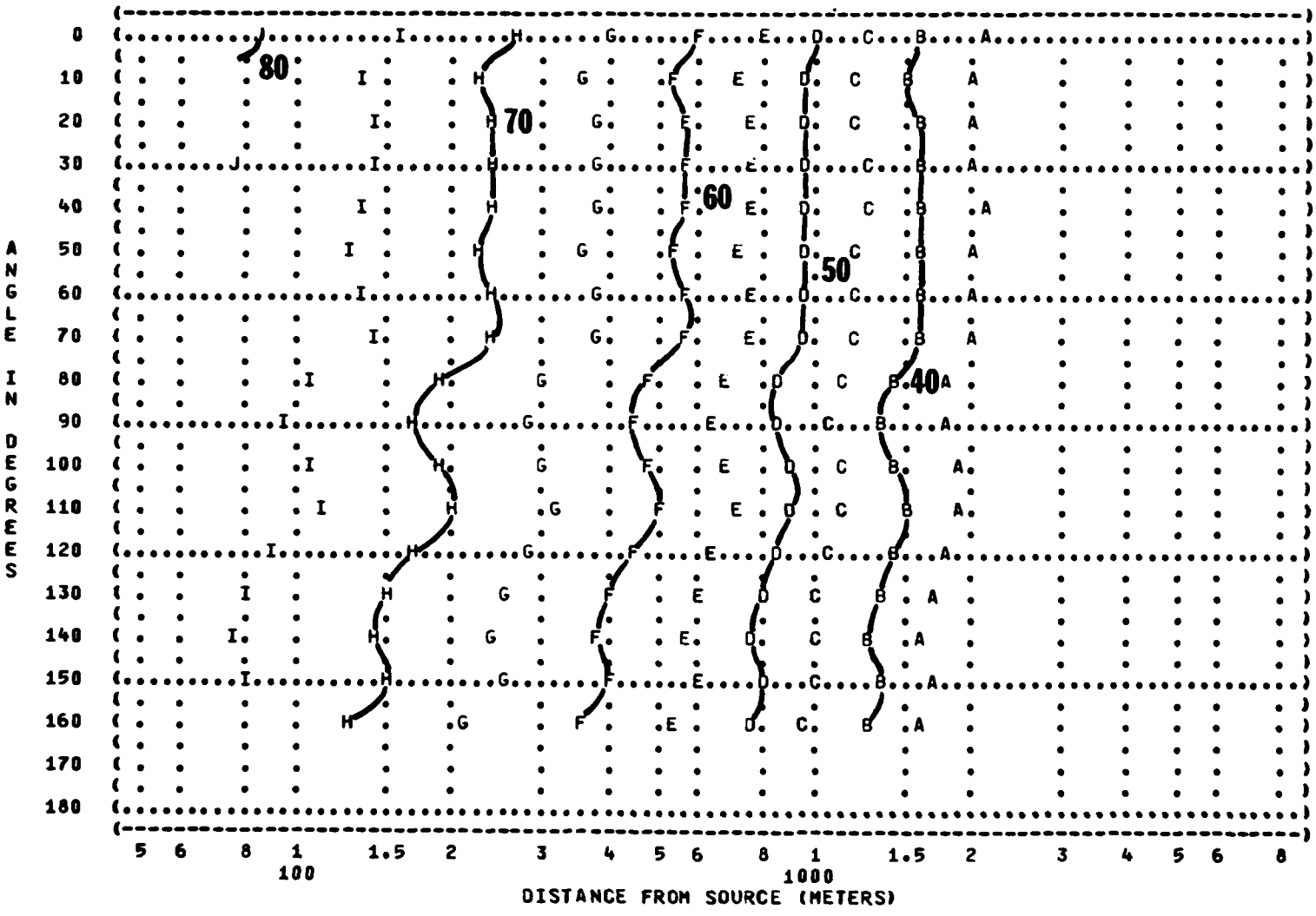


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 20

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

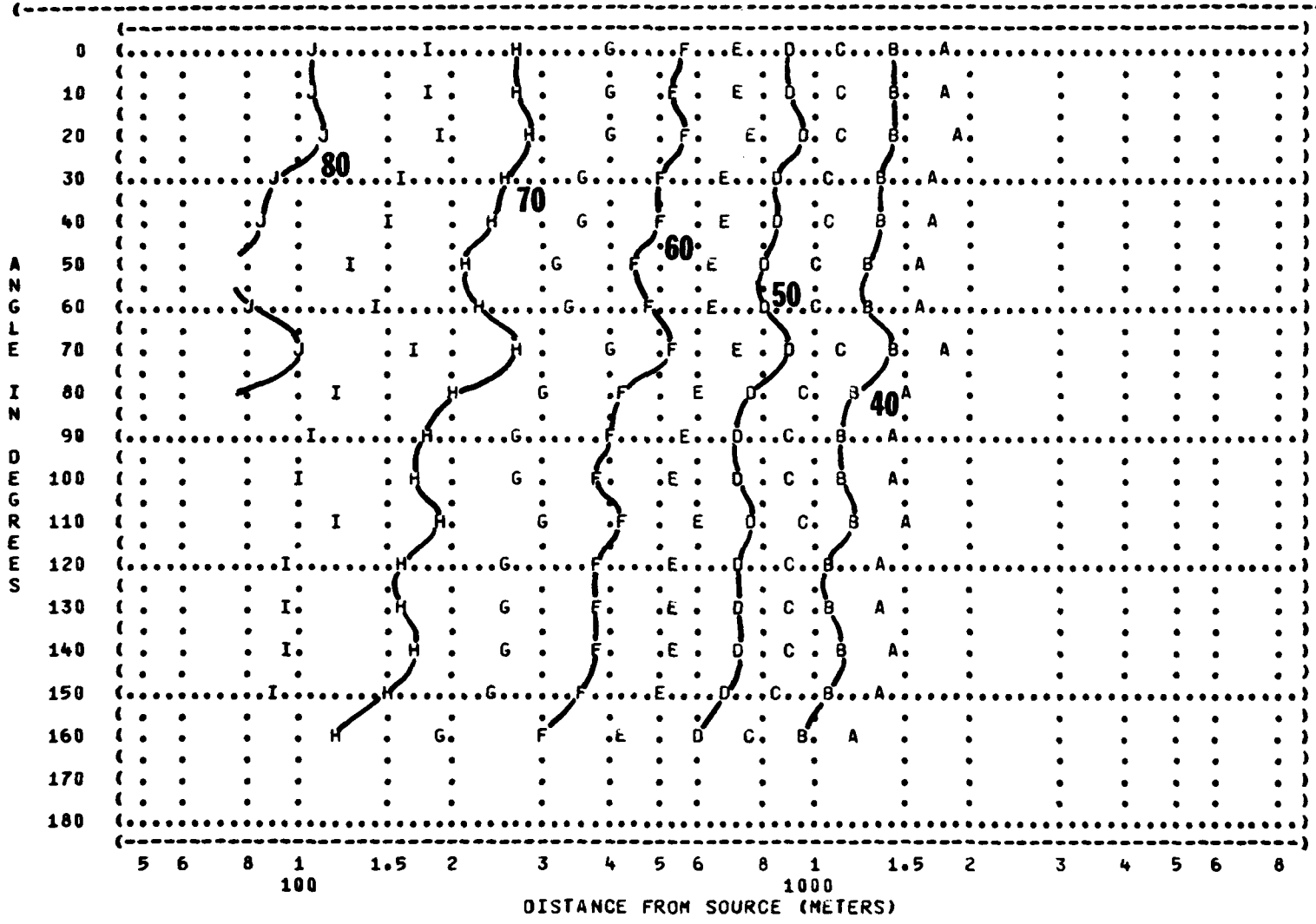


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 250 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 21

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL 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 |

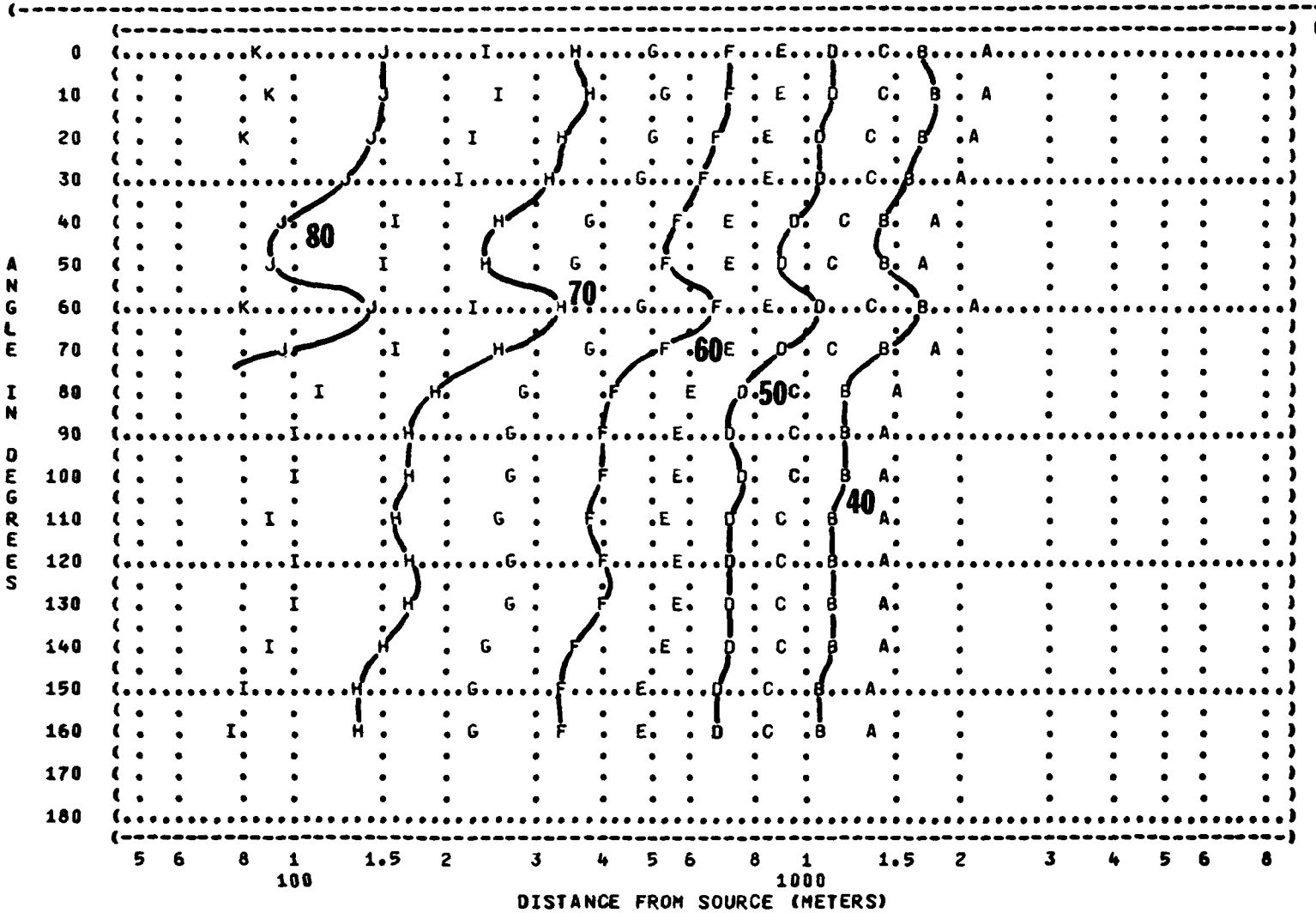


FIGURE: 11

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 22

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

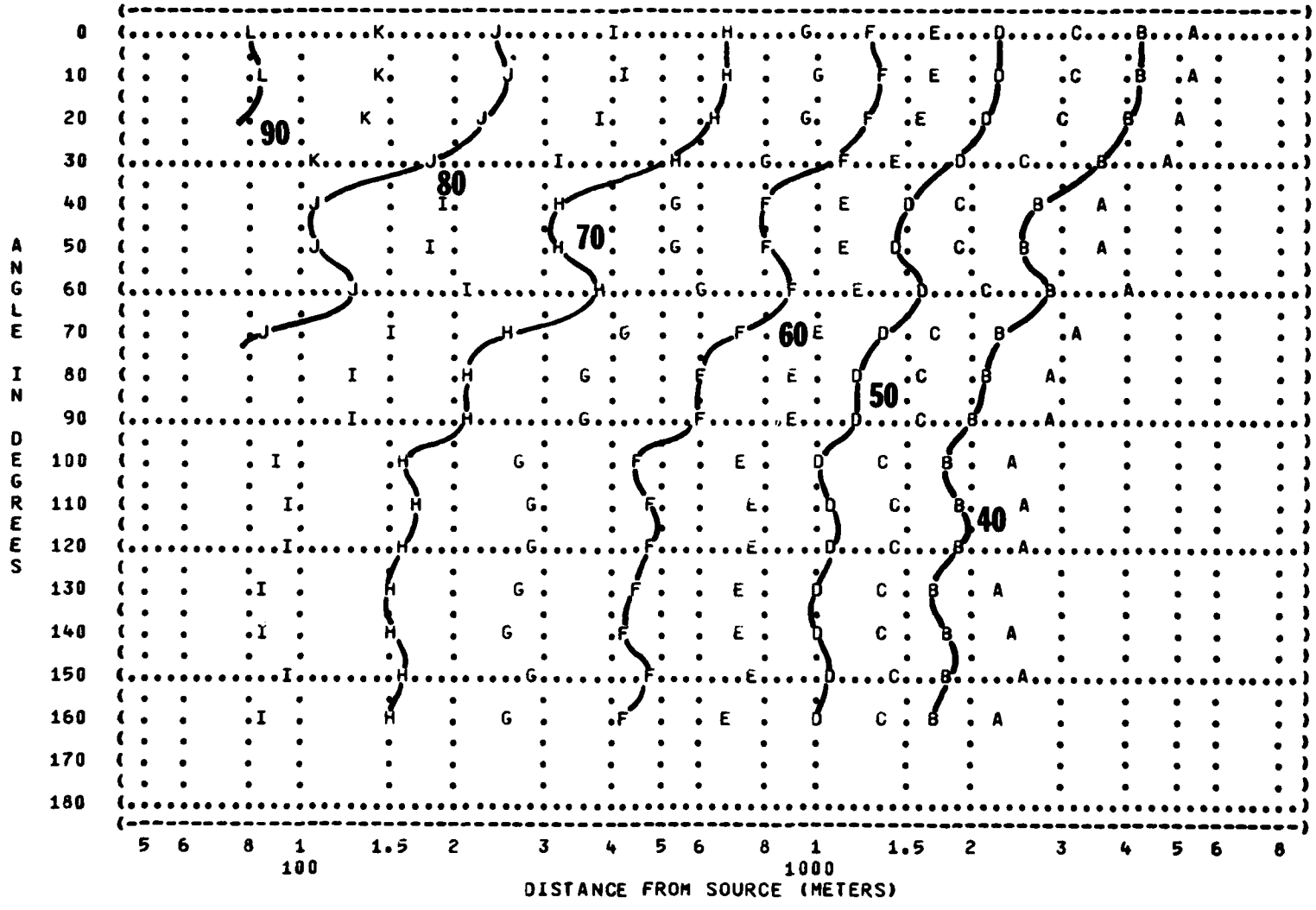


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 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 |

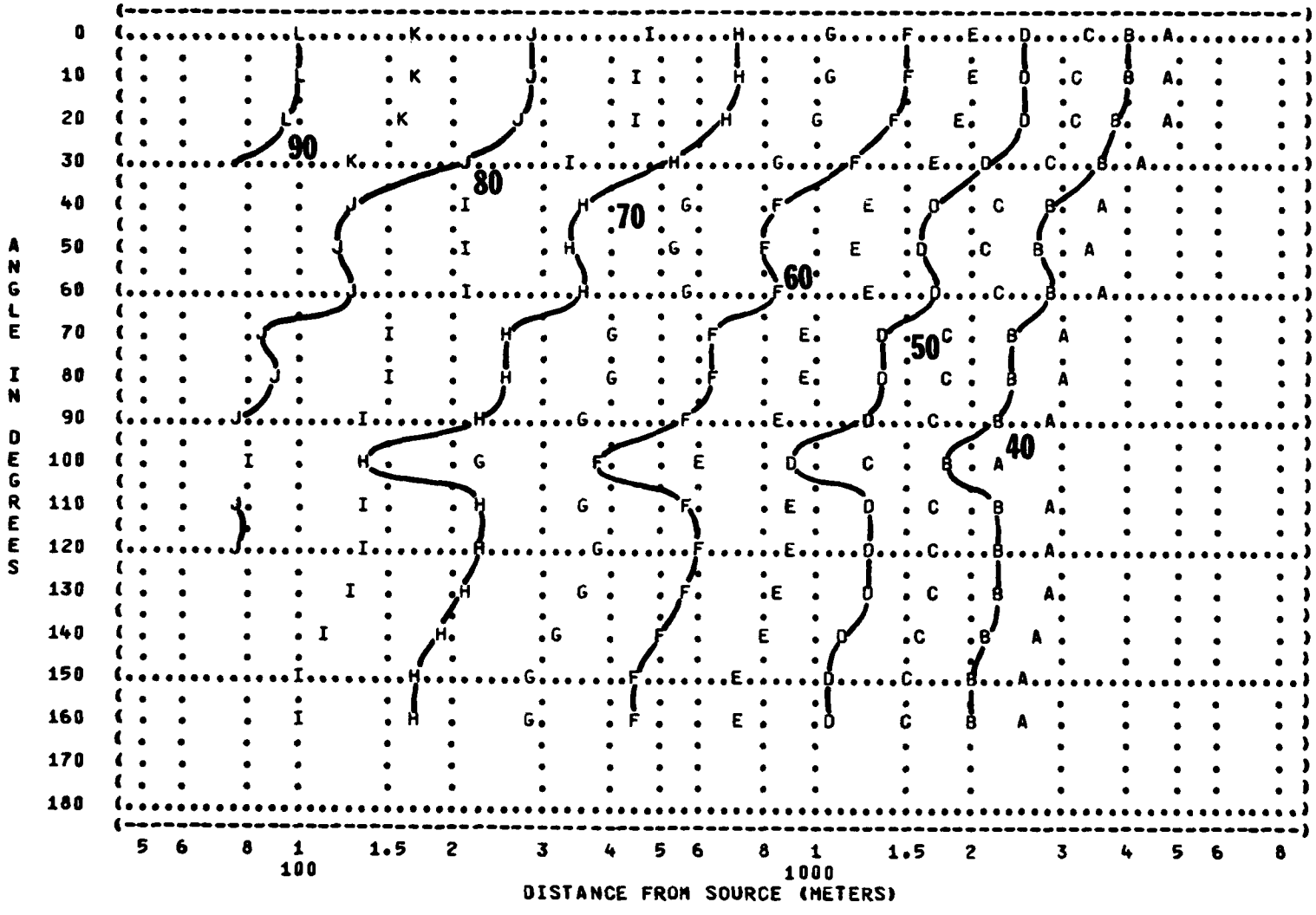


FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 24

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

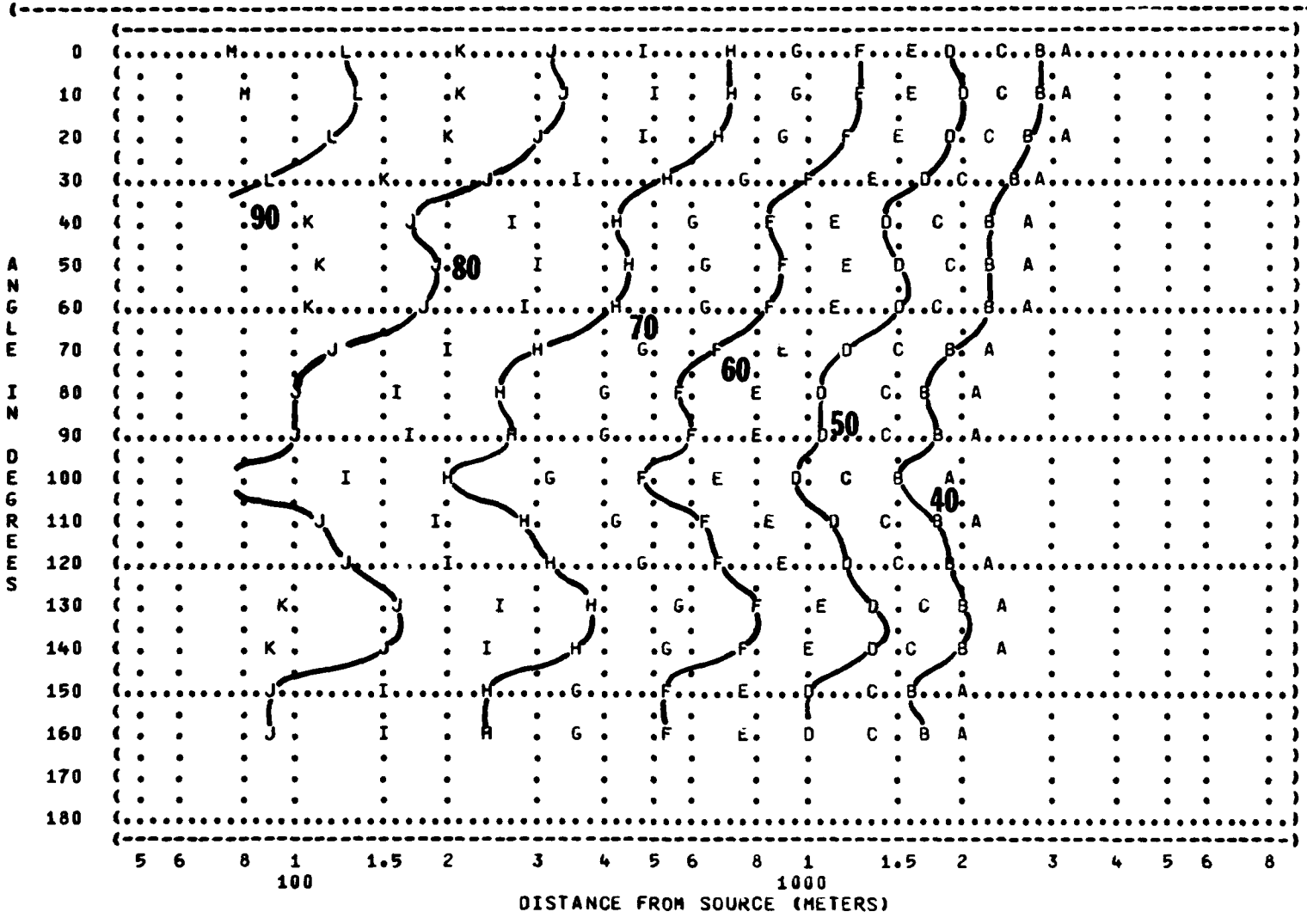


FIGURE: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
11 4000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 MAY 75
PAGE 25

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL 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 |

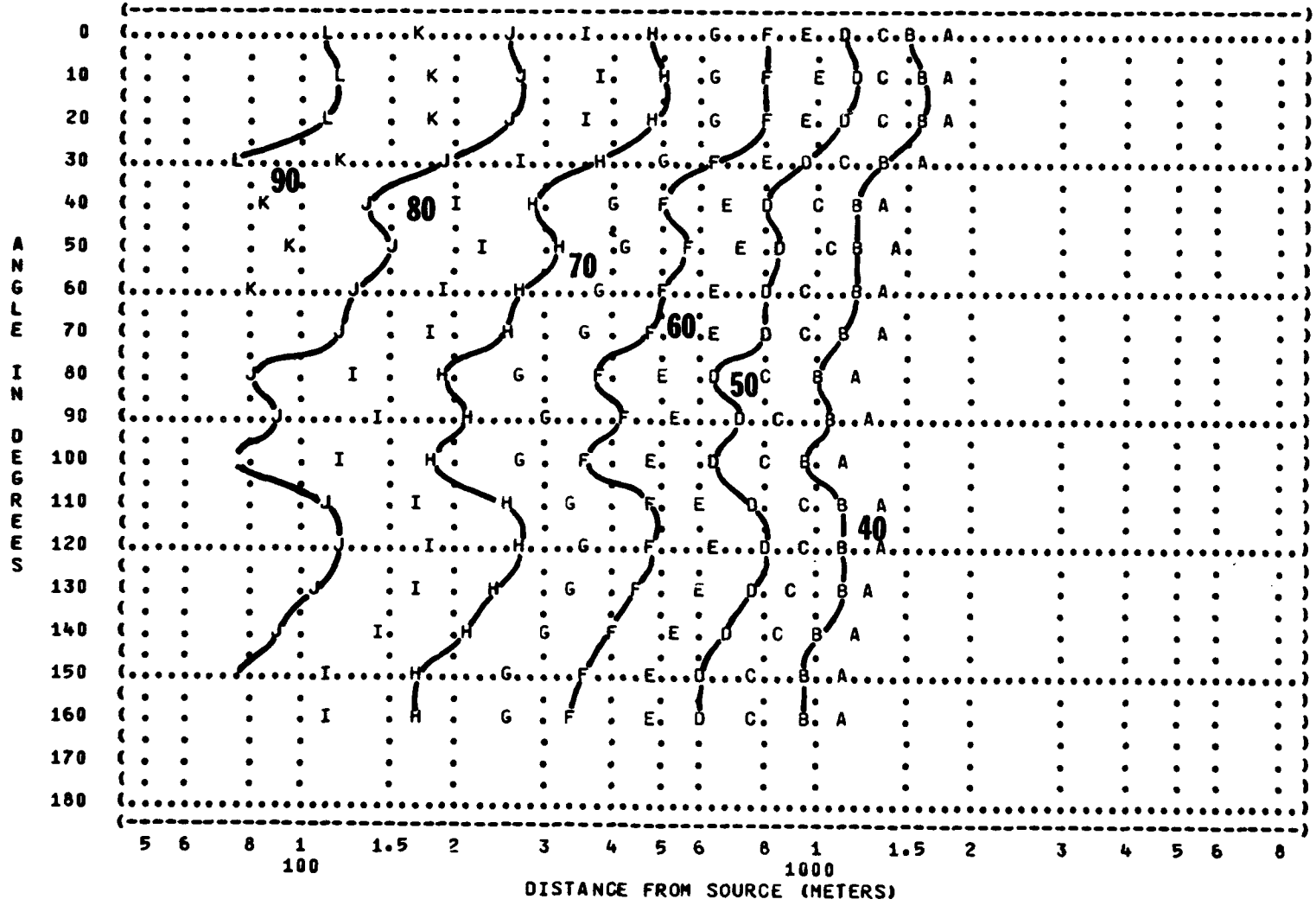


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
IDLE
55% RPM, 1.04 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 01
06 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 |

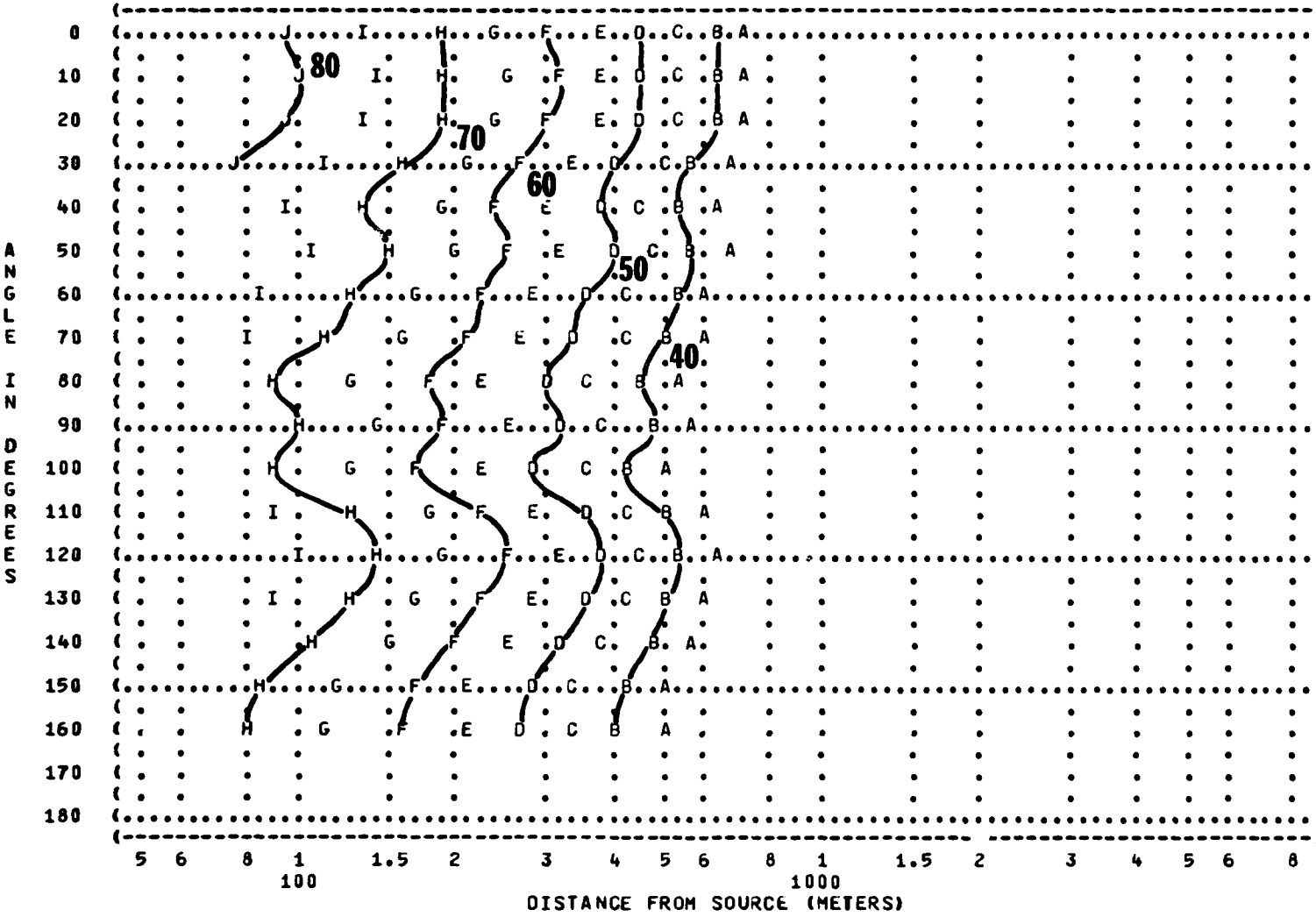


FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 18

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

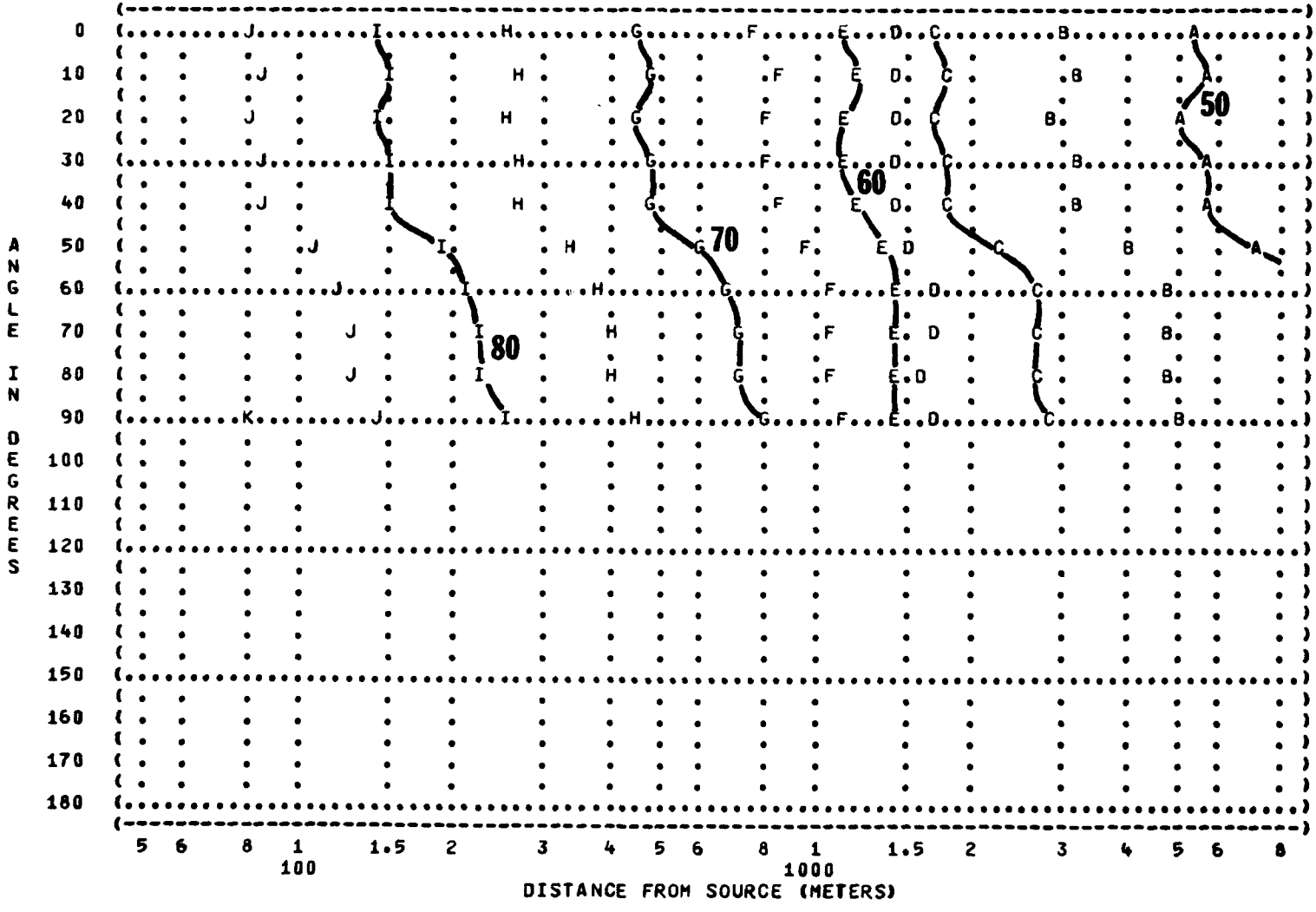


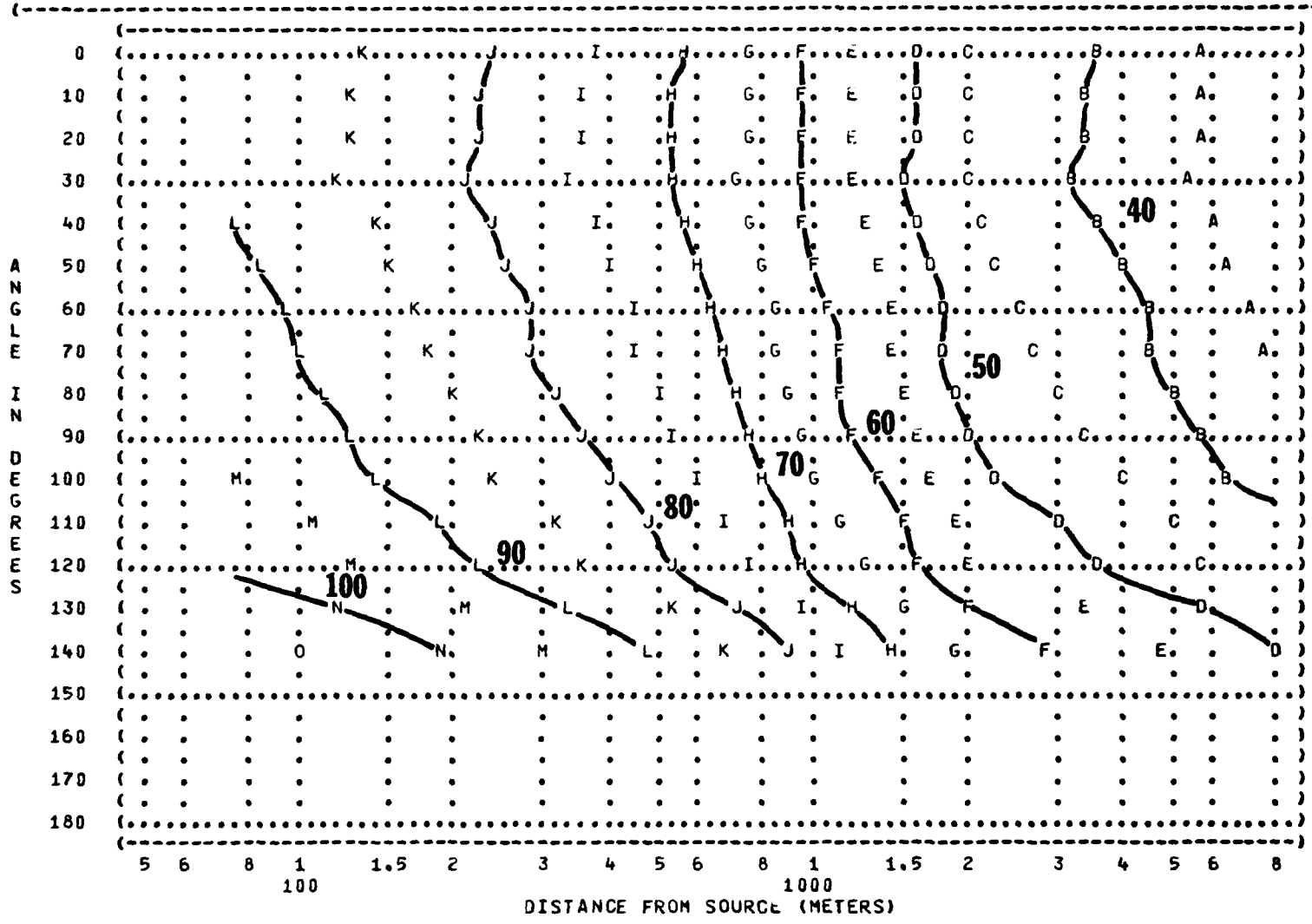
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 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 |

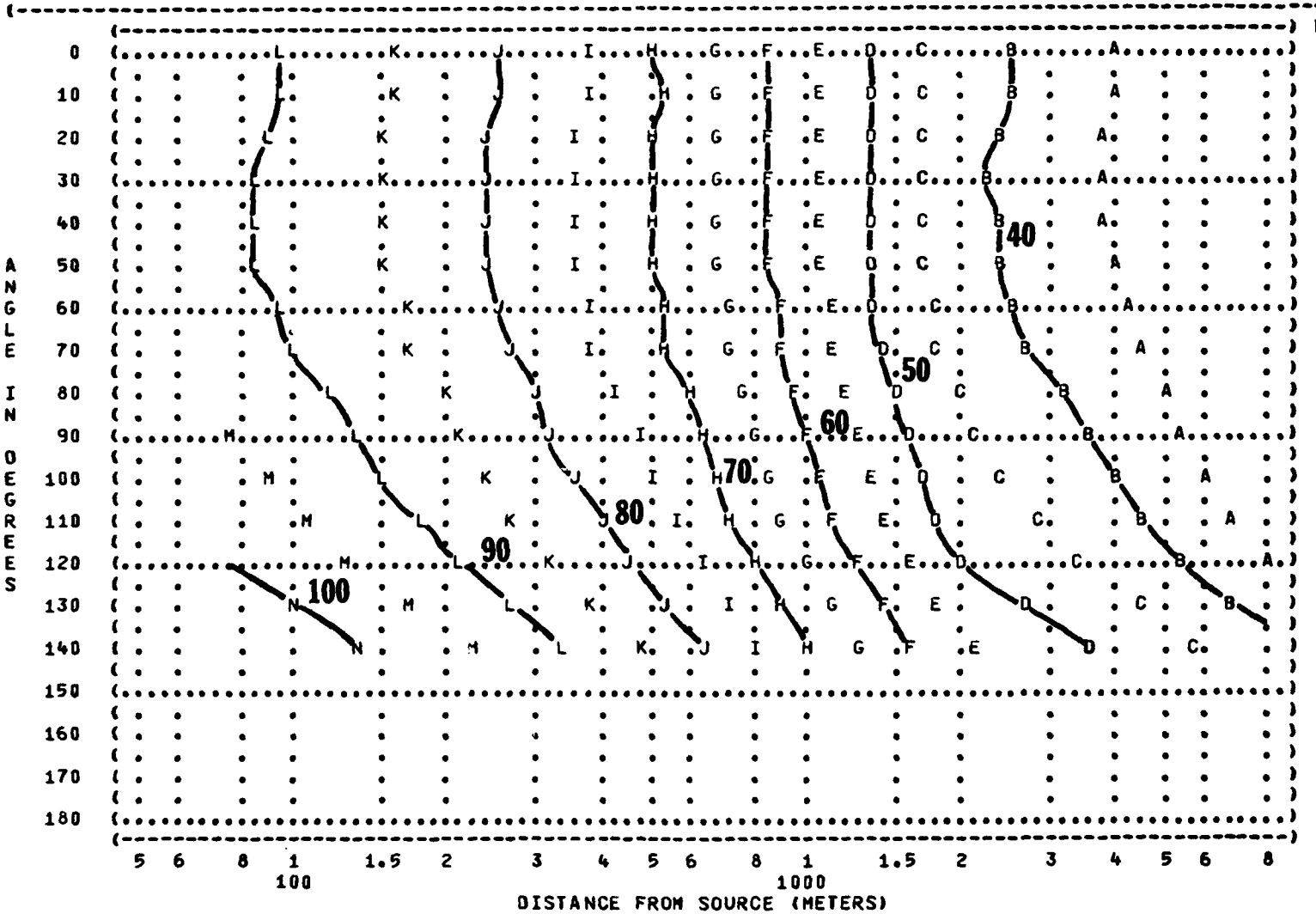
FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 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 |

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

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 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 |

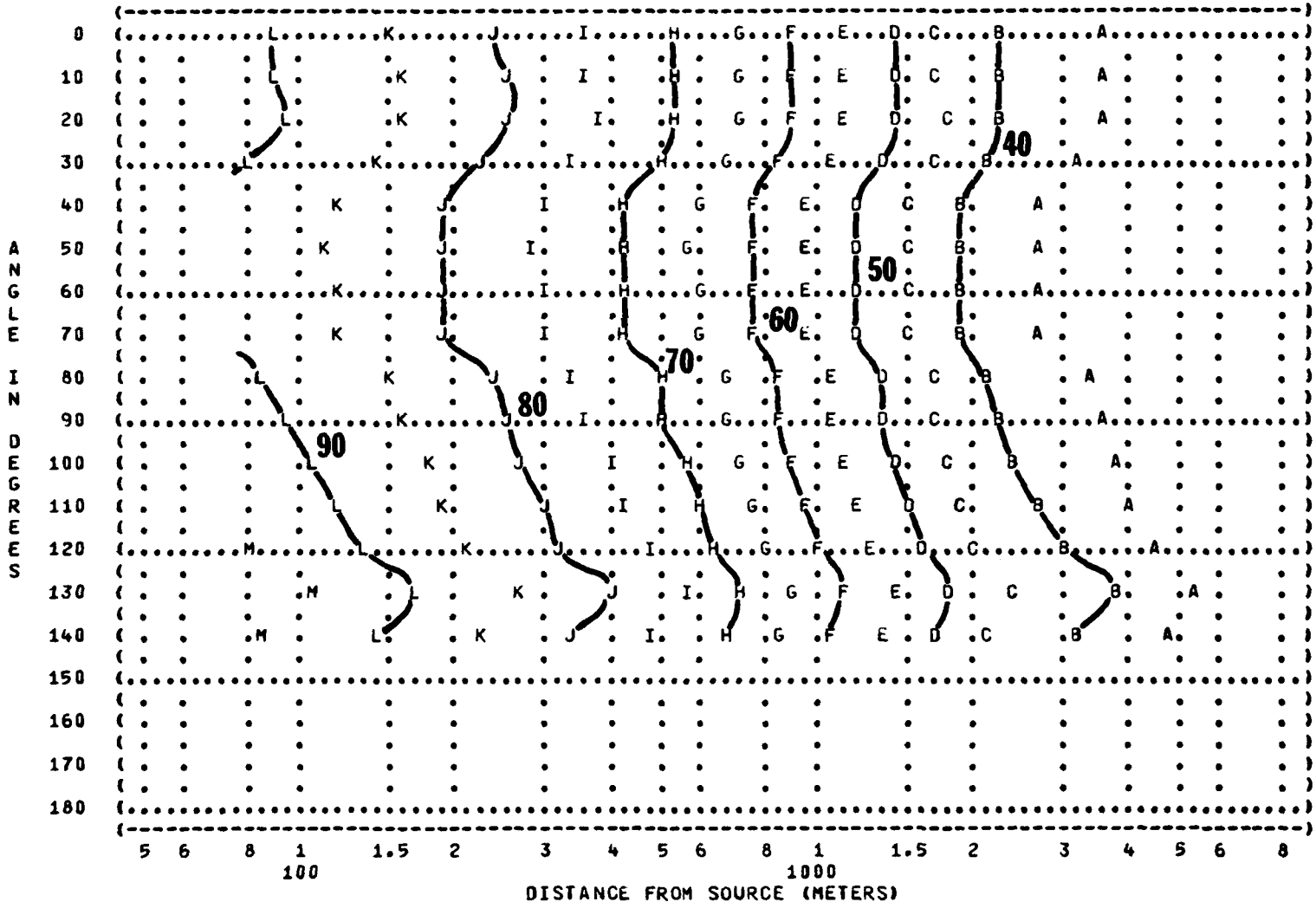


FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 MAY 75
PAGE 22

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

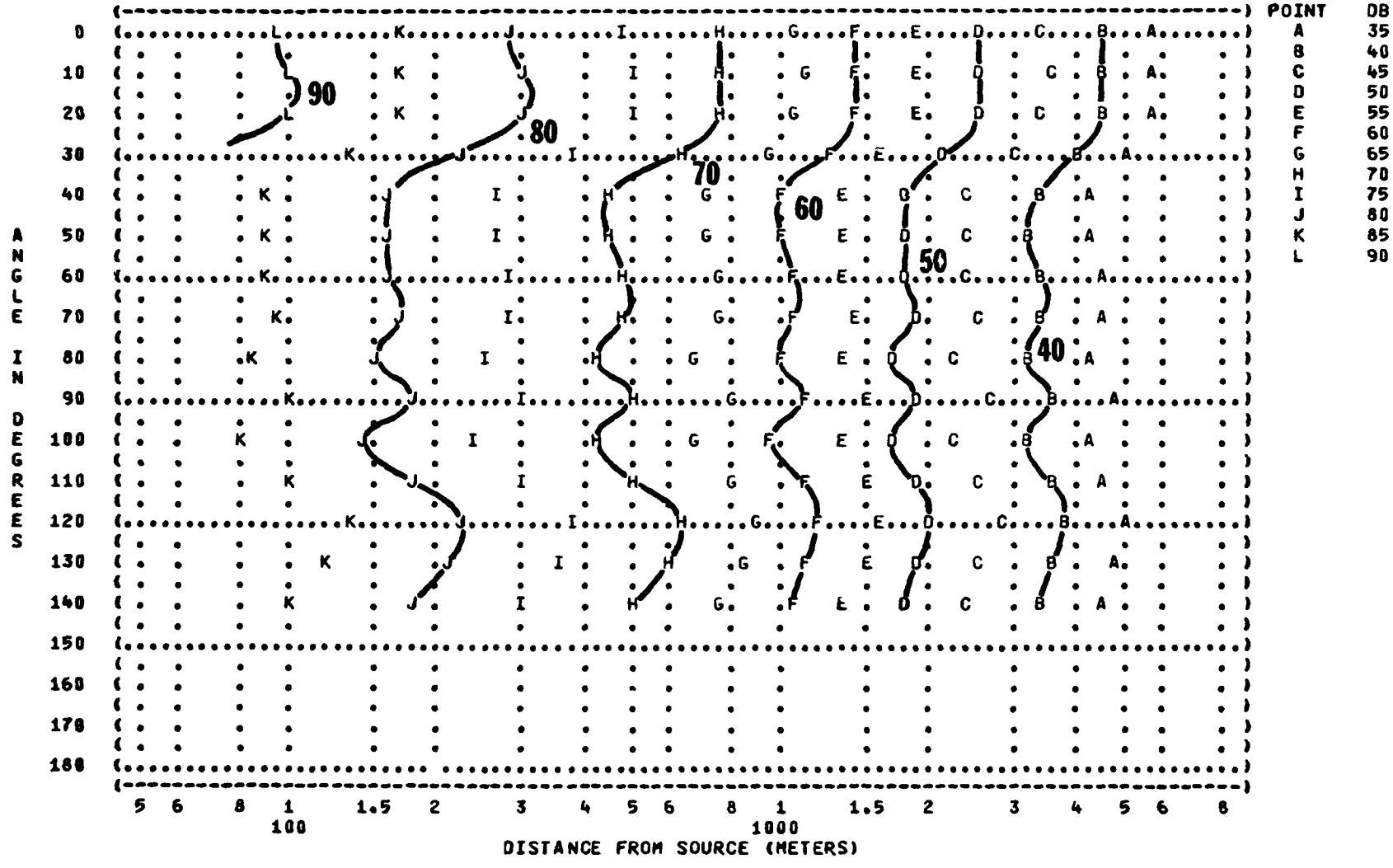


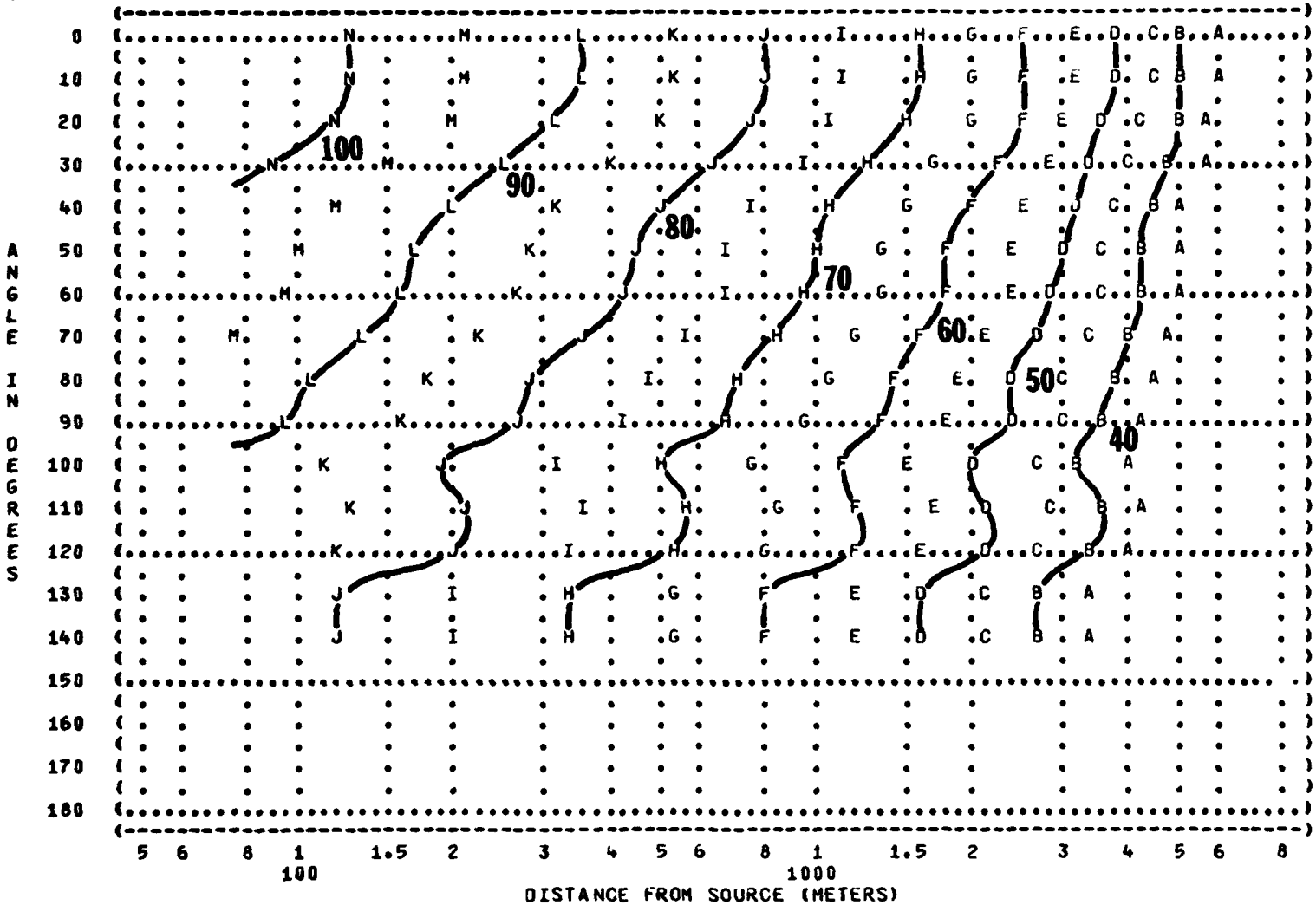
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 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 |

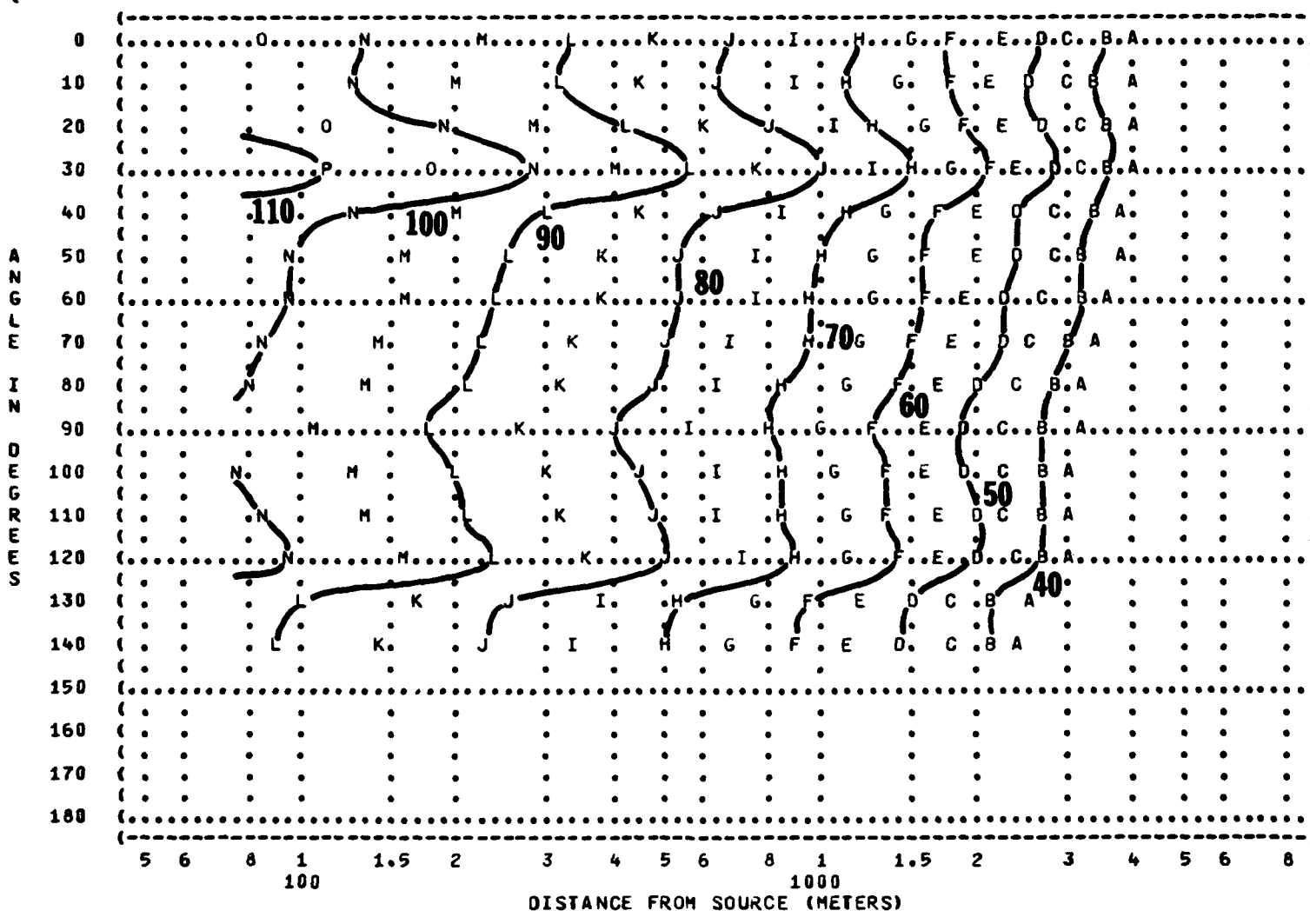
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-802-025
RUN 02
06 MAY 75
PAGE 24

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL 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 |

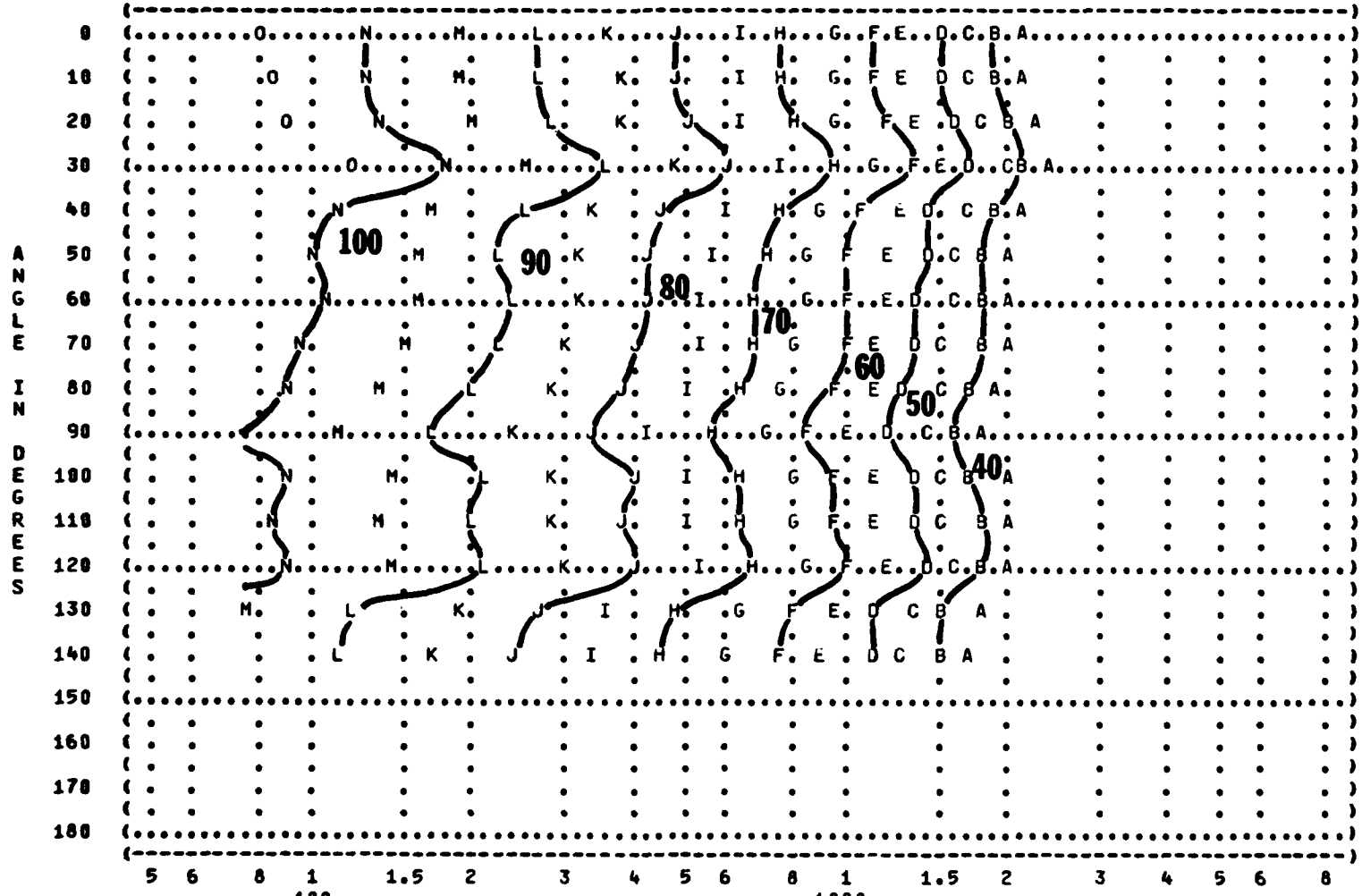
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 02
06 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 |

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

IDENTIFICATION:
ONEGA 1.4
TEST 75-002-025
RUN 02

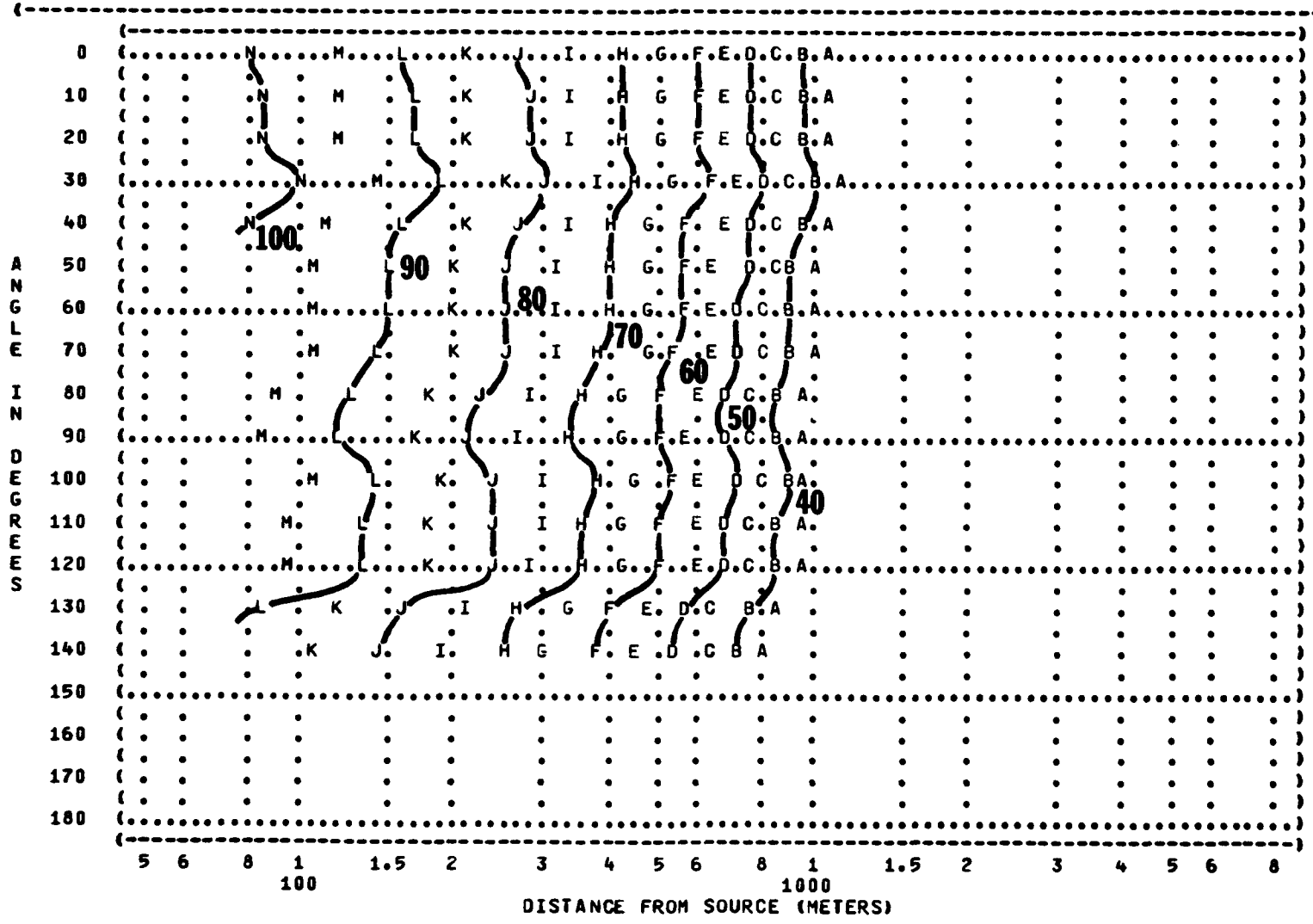
06 MAY 75

PAGE 26

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
87% RPM, 1.27 EPR
ALL 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 |

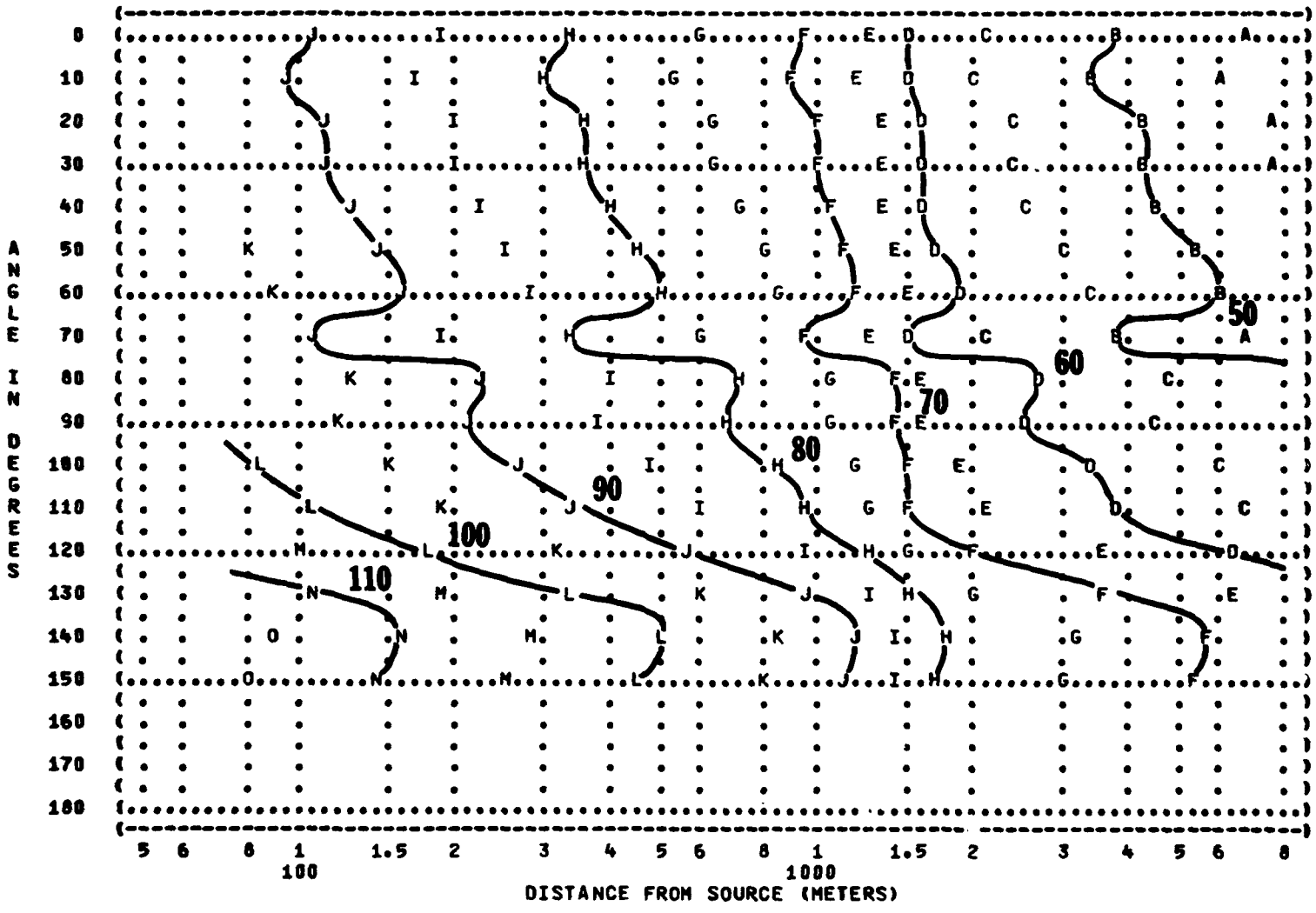
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 75-882-025 RUN 03 06 MAY 75 PAGE 18

NOISE SOURCE/SUBJECT: C-141A AIRCRAFT; TF33-P-7 ENGINE; FAR FIELD NOISE

OPERATION: MILITARY POWER; 98% RPM, 1.85 EPR; ALL 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 |

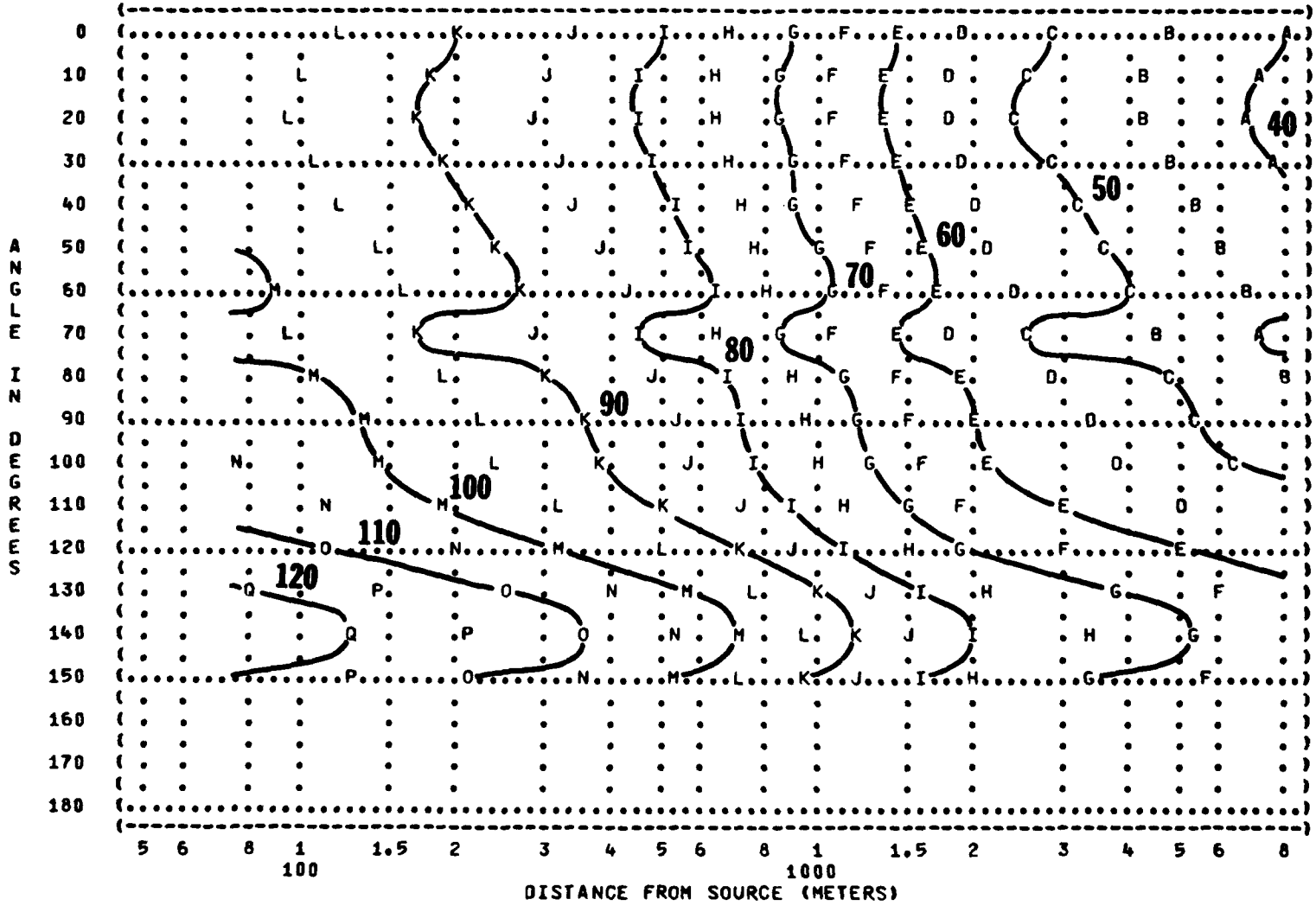
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 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 |

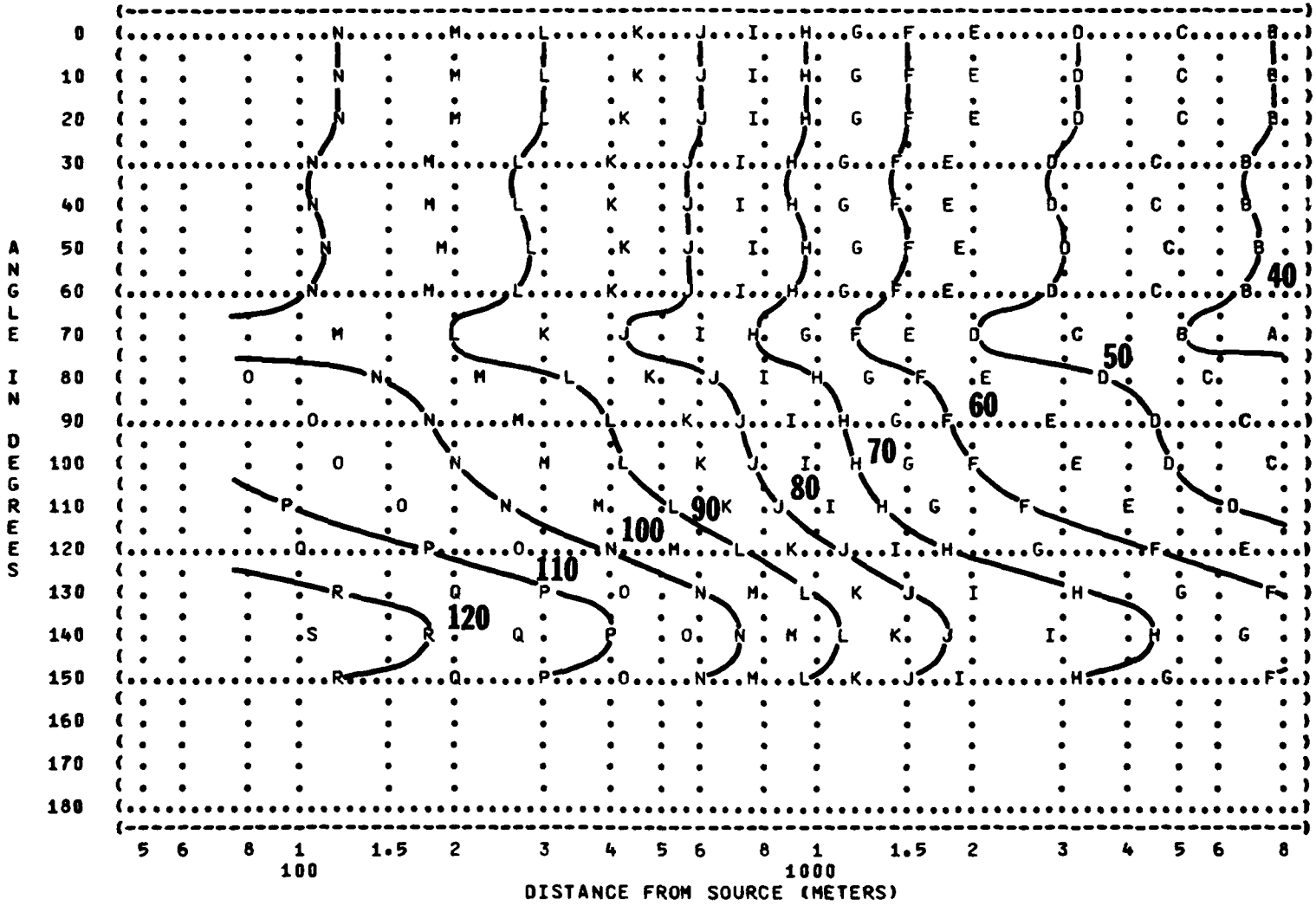
FIGURE 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 20

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |
| R | 120 |
| S | 125 |

FIGURE: 11

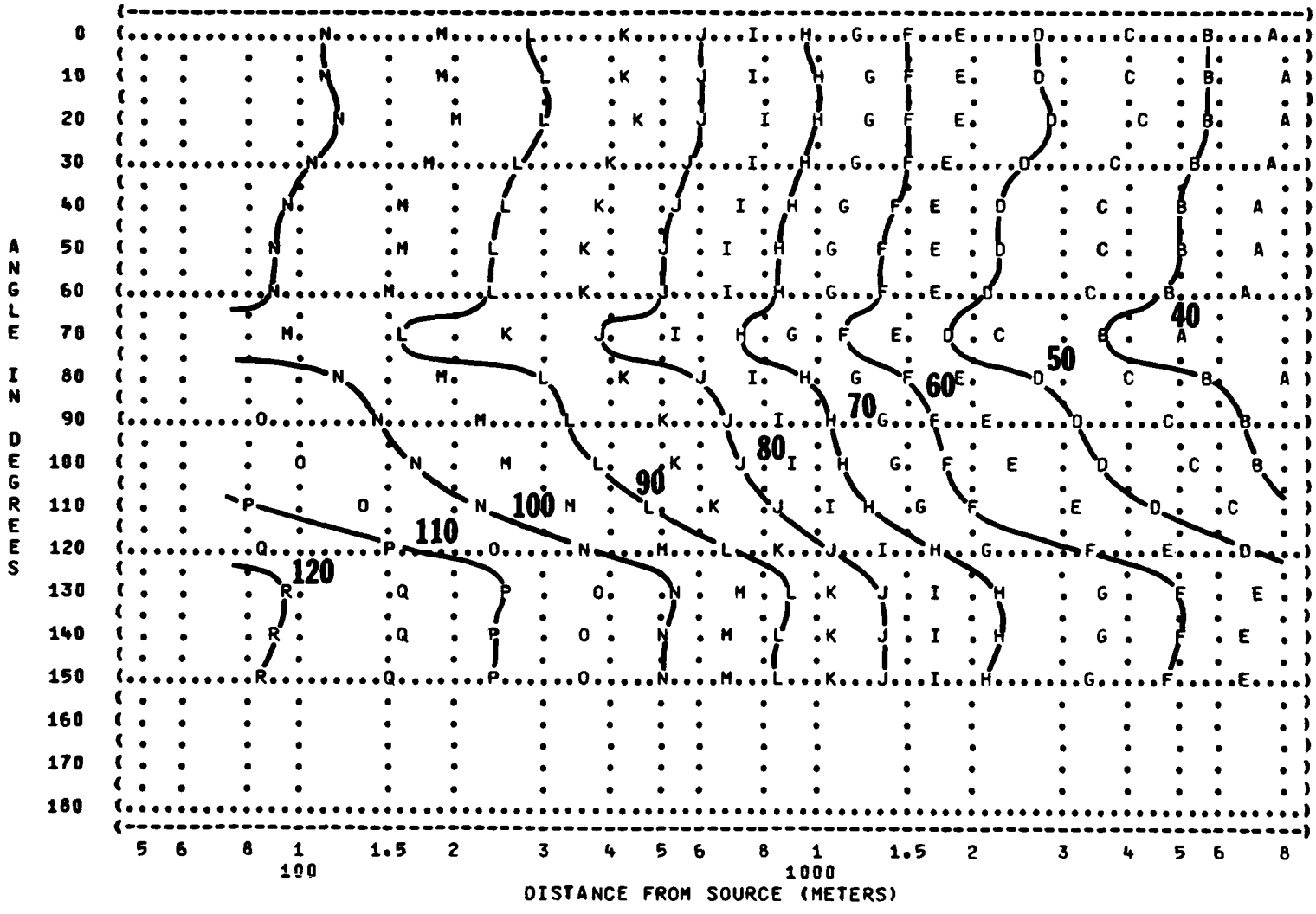
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
250 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 21

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |
| R | 120 |

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

IDENTIFICATION: OMEGA 1.4 TEST 75-002-025 RUN 03 06 MAY 75 PAGE 22

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |

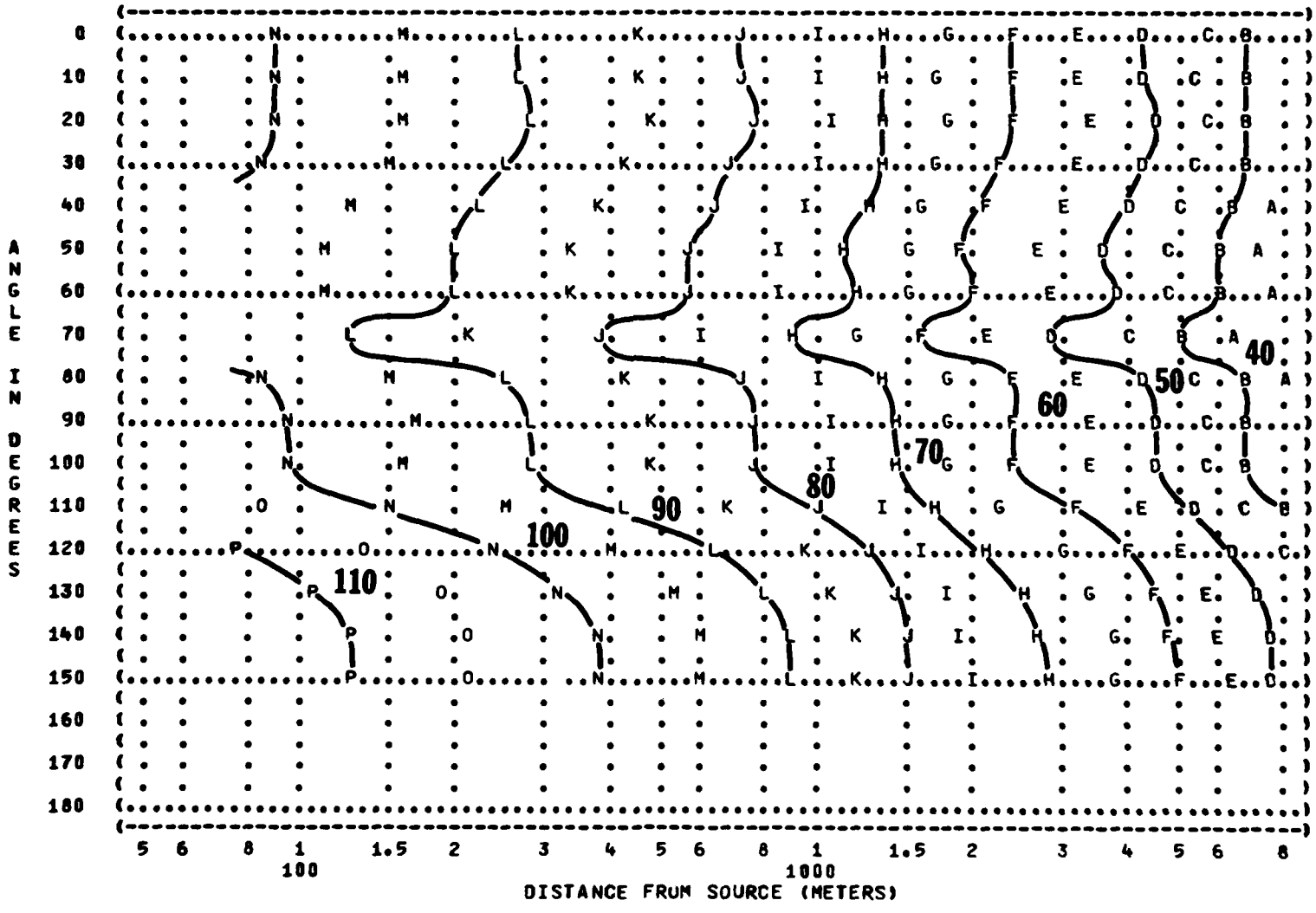


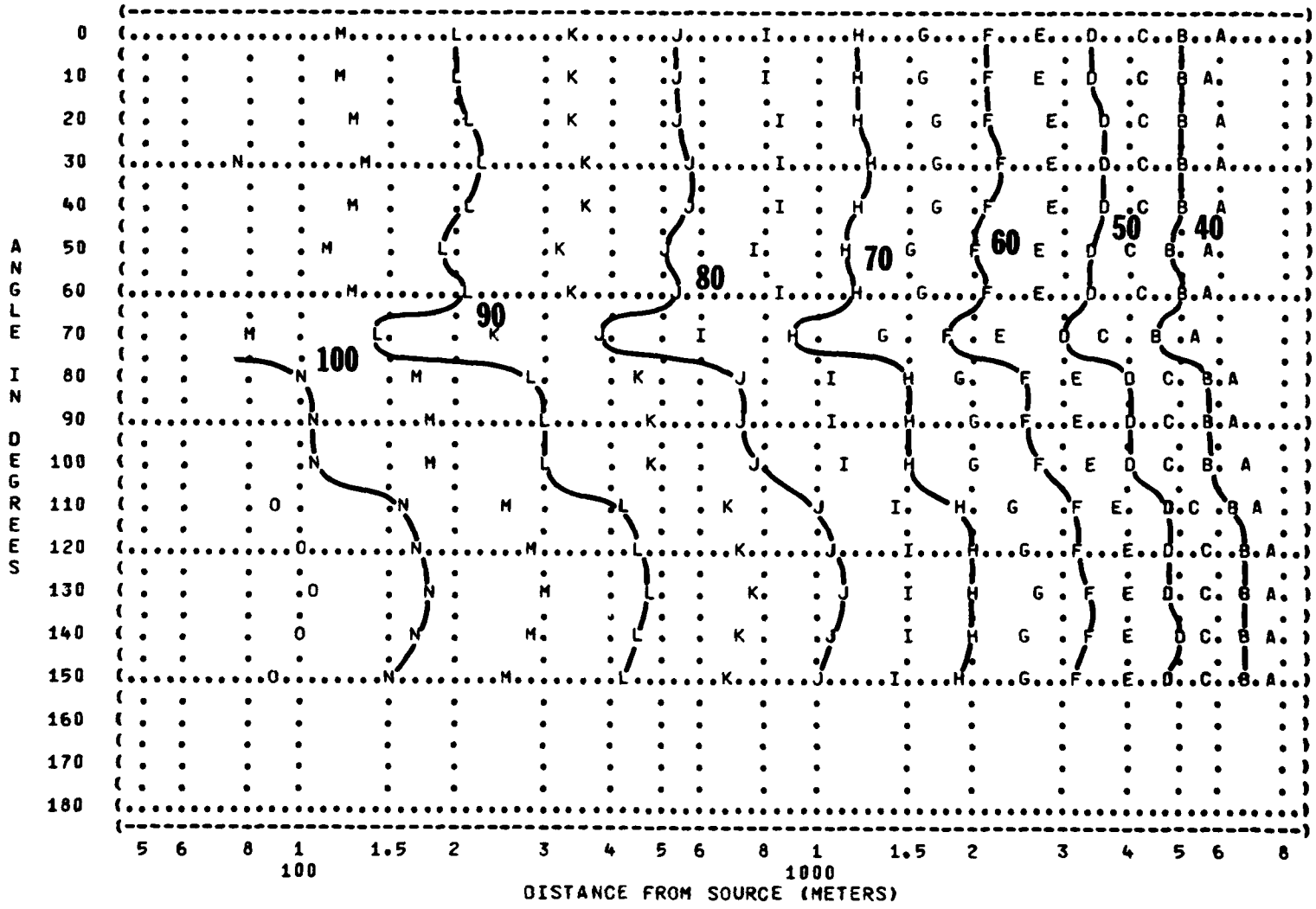
FIGURE: 11 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 23

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |

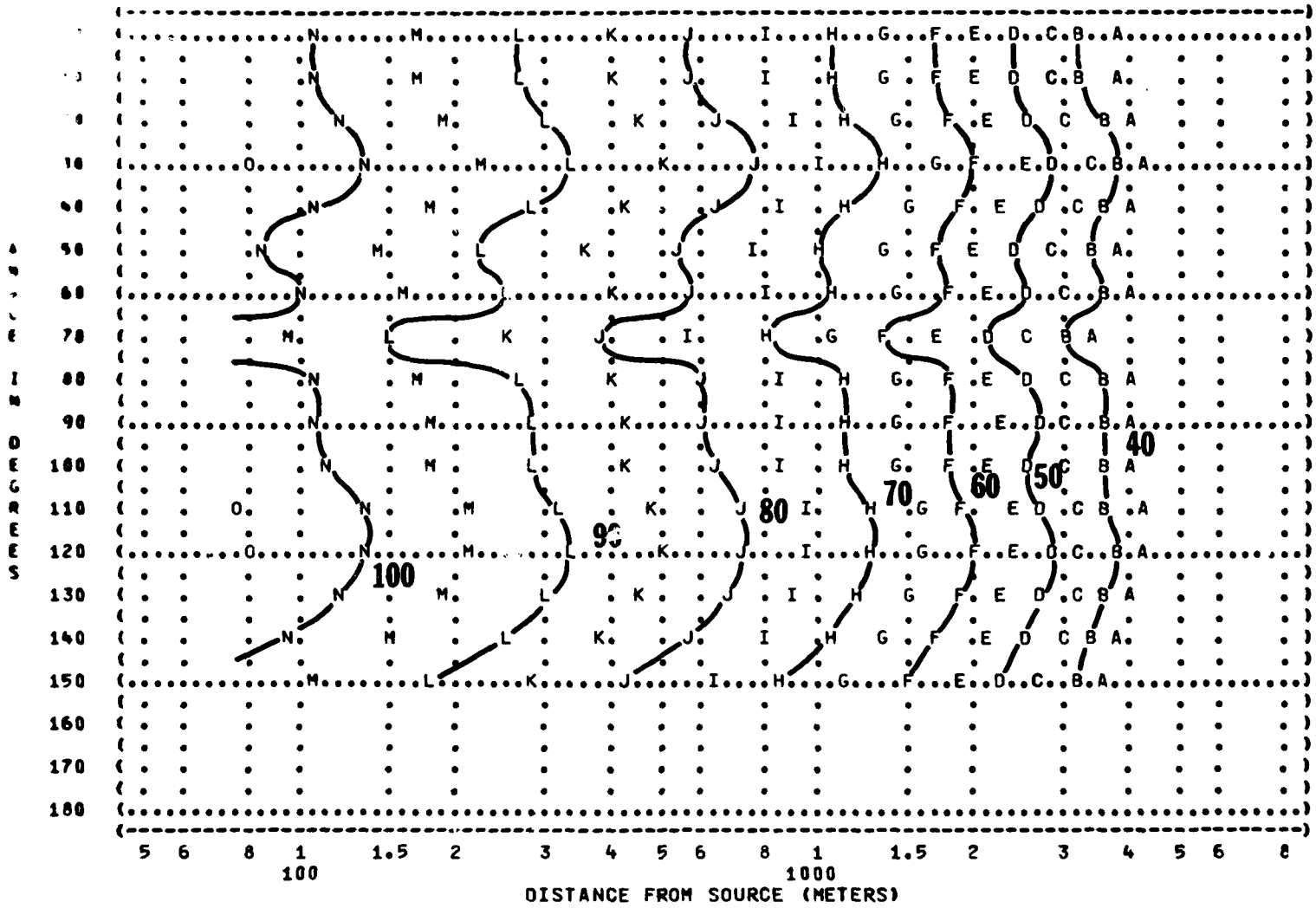
...ND PRESSURE LEVEL (SPL)
...AL LEVEL CONTOURS (DB)
... HZ OCTAVE BAND

...CE/SUBJECT:
...A AIRCRAFT
...-P ENGINE
... FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 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 |

FIGURE: 11

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 MAY 75
PAGE 25

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL 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 |

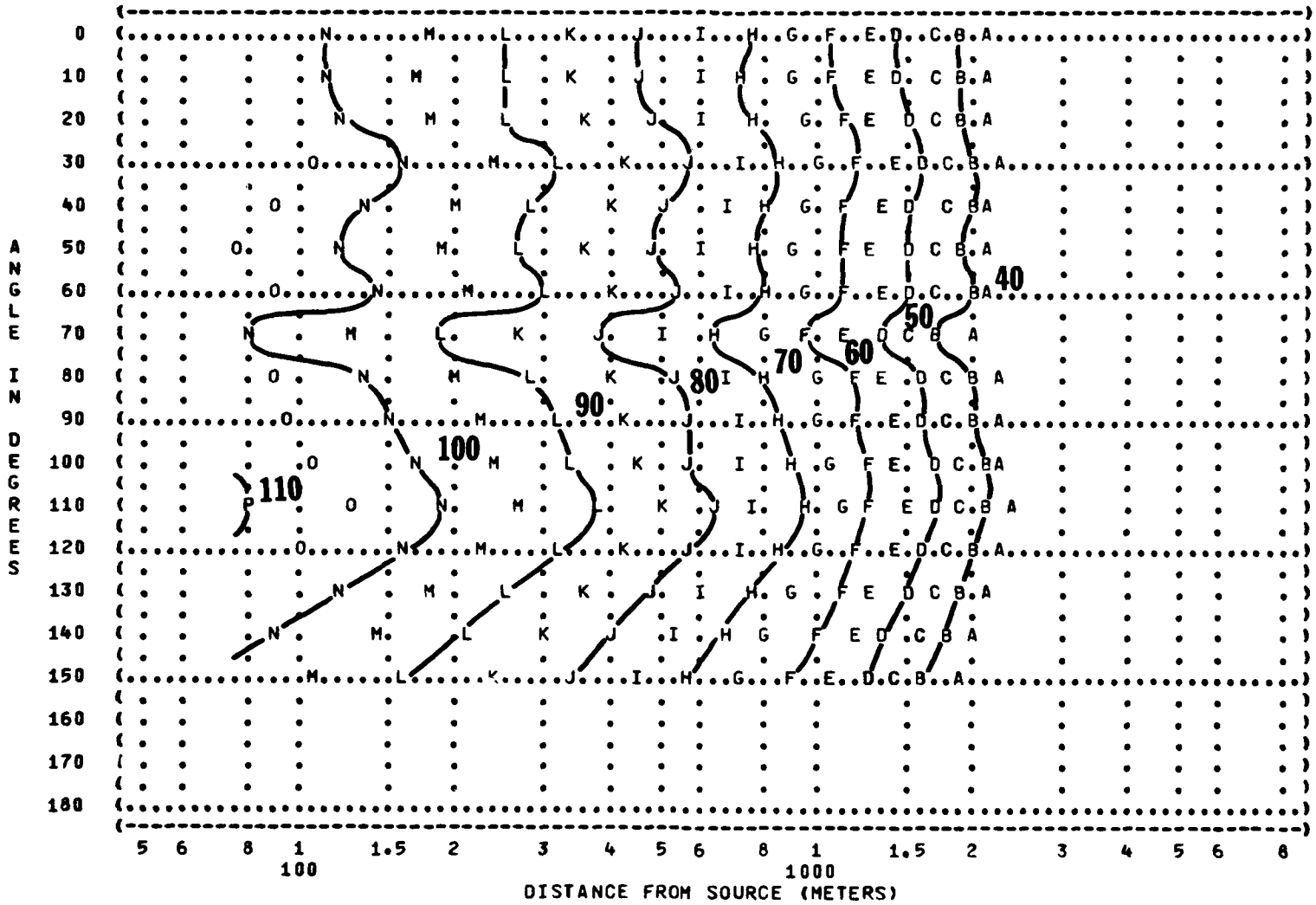


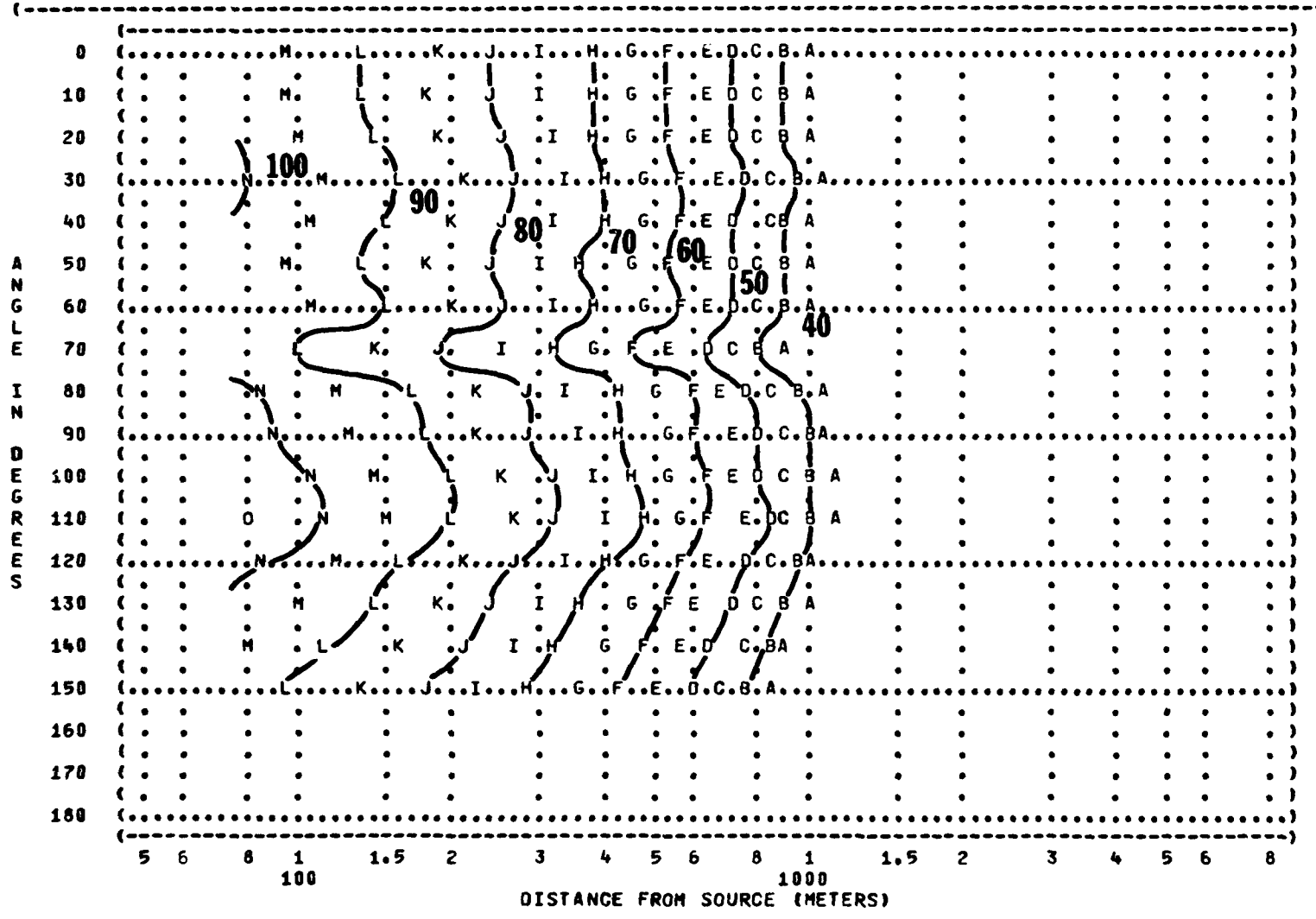
FIGURE 11: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
C-141A AIRCRAFT
TF33-P-7 ENGINE
FAR FIELD NOISE

OPERATION:
MILITARY POWER
98% RPM, 1.85 EPR
ALL ENGINES
FREE FLOW

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

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-025
RUN 03
06 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 |
| N | 100 |
| O | 105 |



*U.S.Government Printing Office: 1979 — 657-084/295