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SMALL TURBINE ENGINE NOISE REDUCTION
VOLUME V, DATA TABULATIONS

AIRRESEARCH MANUFACTURING COMPANY OF ARIZONA

PREPARED FOR
AIR FORCE AERO PROPULSION LABORATORY

DECEMBER 1973

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AD-780576

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(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) AiResearch Manufacturing Company of Arizona A Division of The Garrett Corporation 402 S. 36 St., Phoenix, Arizona 85034		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	
		2b. GROUP N/A	
3. REPORT TITLE U.S. Air Force Small Turbine Engine Noise Reduction Volume V: Data Tabulations			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report - May 1971 to May 1973			
5. AUTHOR(S) (First name, middle initial, last name) Richard N. Tedrick and George T. Kantarges			
6. REPORT DATE December 1973		7a. TOTAL NO. OF PAGES 359	7b. NO. OF REFS None
8a. CONTRACT OR GRANT NO. F33615-71-C-1457		9a. ORIGINATOR'S REPORT NUMBER(S) AFAPL-TR-73-79 Volume V	
b. PROJECT NO. 3066		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) 73-210285-5	
c. Task 306614			
d. Work Unit 01			
10. DISTRIBUTION STATEMENT Approved for public release; distribution unlimited.			
11. SUPPLEMENTARY NOTES None		12. SPONSORING MILITARY ACTIVITY Air Force Aero Propulsion Laboratory Air Force Systems Command Wright-Patterson Air Force Base, Ohio	
13. ABSTRACT Volume V of AFAPL-TR-73-79 contains tabulations of the measured engine data developed under the Small Turbine Engine Noise Reduction Study (USAF AFL Contract No. F33615-71-C-1457, Project 3066, Task 14, Work Unit 01). The data is presented as tabulated listings of the one-third octave band sound pressure level for each engine configuration, each engine load point, and at each microphone position. Sound power level tabulations have also been included, to allow comparison of the effectiveness of the various hardware configurations on the basis of the sound power level. This volume also contains the impedance and acoustic absorption data sheets for those materials and material constructions not reported in Volume III. In addition, the complete tabulated data from the standing wave (impedance) tube apparatus material tests is presented. Since this volume is a companion to the four preceding volumes, it does not repeat detailed test procedure or equipment information. However, to facilitate its use, certain charts and figures are repeated to aid the reader in identifying the test conditions and the measurement locations from which the data came.			

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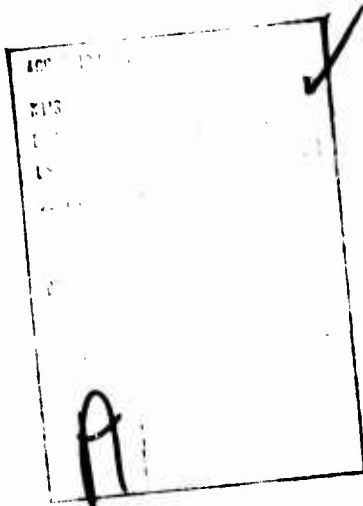
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SMALL TURBINE ENGINE NOISE REDUCTION

Volume V

DATA TABULATIONS

**R. N. Tedrick
G. T. Kantarges**

Approved for public release; distribution unlimited

**AiResearch Manufacturing Company of Arizona
A Division of The Garrett Corporation**

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FOREWORD

This document was prepared by the AiResearch Manufacturing Company of Arizona, a Division of the Garrett Corporation, Phoenix, Arizona, for the Air Force Aero Propulsion Laboratory, Wright-Patterson Air Force Base, Ohio under Contract F33615-71-C-1457. The contract was initiated under Project 3066, Task 14, Work Unit 01. The AiResearch report numbers are 73-210285-1 through -5, 73-210268, and 73-210267. The report covers work conducted from 7 May 1971 to 31 May 1973, and is submitted in six volumes as follows:

- Volume I: Small Turbine Engine Noise Reduction
Executive Summary
- Volume II: Small Turbine Engine Noise Reduction
Noise Prediction Methods
- Volume III: Small Turbine Engine Noise Reduction
Suppression Design and Prediction
Methodology/Materials Tests
- Volume IV: Small Turbine Engine Noise Reduction
Turboprop Engine Demonstration
Tests
- Volume V: Small Turbine Engine Noise Reduction
Data Tabulations
- Volume VI: Small Turbine Engine Noise Reduction
 - Part I: Noise Prediction Program User's Manual
 - Part II: Duct Design and Attenuation Program
User's Manual

The authors wish to acknowledge the assistance of Mr. L. C. Sutherland, David Brown, and Dr. E. Grande from Wyle Laboratories for their contributions to the noise prediction tasks and to Dr. P. Y. Ho and Mr. W. M. Gipson of AiResearch for their contributions to the analytical and experimental tasks at AiResearch. The authors also wish to thank Mr. Paul Shahady and 1/Lt. Craig Lyon of the Air Force Aero Propulsion Laboratory and Mr. Walter Lichtenberg and Ronald Tagg of the Aeronautical Systems Division at Wright-Patterson Air Force Base for their assistance in the preparation of the final technical report and the computer programs. The report was originally submitted by the authors in July 1973. A revised version was completed in December 1973.

Publication of this report does not constitute Air Force approval of the report's findings or conclusions. It is published only for the exchange and stimulation of ideas.


ERNEST C. SIMPSON

Director, Turbine Engine Division
Air Force Aero Propulsion Laboratory

ABSTRACT

This report summarizes an exploratory research effort to develop the technology base necessary to effectively reduce the noise signature of existing small turboprop and turbofan engines to acceptable levels for low-altitude reconnaissance/surveillance and special operation missions. Emphasis was placed on the application of sound attenuation techniques rather than internal engine design changes.

The program was conducted in three overlapping phases. Phase 1 consisted of the analysis and prediction of gas turbine engine noise sources and their relationship to engine operating conditions and pertinent propulsion system design parameters. Phase 2 involved the analysis of methods and materials to attenuate sound in turbomachinery ducts and techniques to predict such attenuation in typical installations. Phase 3 included the experimental verification of these analyses and predictions using full-scale hardware.

The principal results of the program were the development of (1) a comprehensive bank of small engine/component noise data relatively free of extraneous noise sources, (2) simple and accurate small engine component noise prediction methods for use in propulsion system design trade-off studies, (3) simplified analysis techniques to design small engine noise suppression hardware and predict the attenuation for typical installations, and (4) preliminary design methods to assess engine performance and weight penalties associated with typical suppression techniques.

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U.S. AIR FORCE
SMALL TURBINE ENGINE NOISE REDUCTION

VOLUME V

DATA TABULATIONS

SECTION I

INTRODUCTION

This volume contains tabulations of the measured engine data developed under the Small Turbine Engine Noise Reduction Study (USAF AFL Contract No. F33615-71-C-1457, Project 3066, Task 14, Work Unit 01). The data is presented as tabulated listings of the one-third octave band sound pressure level for each engine configuration, each engine load point, and at each microphone position. Thus, with this data it is possible to reconstruct each of the comparisons made in Volume IV or to make additional analyses, if required. In addition, sound power level tabulations have been included, to allow comparison of the effectiveness of the various hardware configurations on the basis of sound power level.

Also, this volume contains the impedance and acoustic absorption data sheets for those materials and material constructions not reported in Volume III. Since only those materials that were tested in the engine ducts and a few other representative materials were included in the previous volume, the majority of the material data is contained in this Volume V. In addition to these data sheets, the complete tabulated data from the standing wave (impedance) tube apparatus material tests is presented.

Since this volume is a companion to the four preceding volumes, it does not repeat detailed test procedure or equipment information. However, to facilitate its use, certain charts and figures are repeated to aid the reader in identifying the test conditions and the measurement locations from which the data came. This information is given in the pages immediately preceding the applicable data.

SECTION II

ENGINE DEMONSTRATION TEST DATA

Three series of turboprop engine tests were conducted at the AiResearch San Tan Test Facility located southeast of Phoenix, Arizona. Details of the test procedures and results can be found in Volume IV. However, the following subsections contain the complete tabulations of the resultant test data.

1. SUMMARY OF TEST CONDITIONS AND SETUP

The first series of engine tests were conducted to demonstrate the basic suitability of the engine noise rig shown in Figure 1.

To absorb the engine shaft output energy with the least possible sound radiation from the energy-absorption apparatus, the Model TPE331-5-251 Turboprop Engine was connected to a dynamometer having a sound-insulated enclosure. Further, to isolate the effects of inlet noises upon the composite engine signature, some tests were conducted with a commercial (non-aircraft) muffler system.

Sound-measurement recordings were made with input signals from microphones located as shown in Figure 2.

The ten engine load conditions specified for the test are designated alphabetically on the horsepower-speed schedule of the Model TPE331-5-251 Engine shown in Figure 3.

The second series of tests were conducted to ascertain the adequacy of a Case Radiated Acoustical Protector enclosure system that simulated the acoustical protection provided by a typical sound-attenuated flight nacelle or aircraft engine compartment. In addition, the effect of exhaust-duct length upon frequency was investigated. The microphones and load conditions employed were selected from those employed in the first series. A summary chart of the tests and run numbers from the first two series is shown in Table I.

The third and final series of tests involved the use of the same Case Radiated Acoustical Protector and also tested several inlet and exhaust-duct configurations and attenuation materials simulating various potential unobtrusive aircraft installations. These duct sections are identified in Figure 4. During this series, the load points were drawn from the previous selection (Figure 3), but some modifications were made both to the engine/dynamometer installation and the microphone locations (Figures 5 and 6). Table II summarizes the test configurations, objectives, and run numbers.

ENGINE BUILD

**U. S. NAVY T76 CONTROL TRAILER
TAYLOR 1200- HP DYNO
DYNO ATTENUATION**

**TPE 331-5-251, X-21
INLET UP
840-SHP**

SOUND-INSULATED BOX

MODEL TPE331 ENGINE

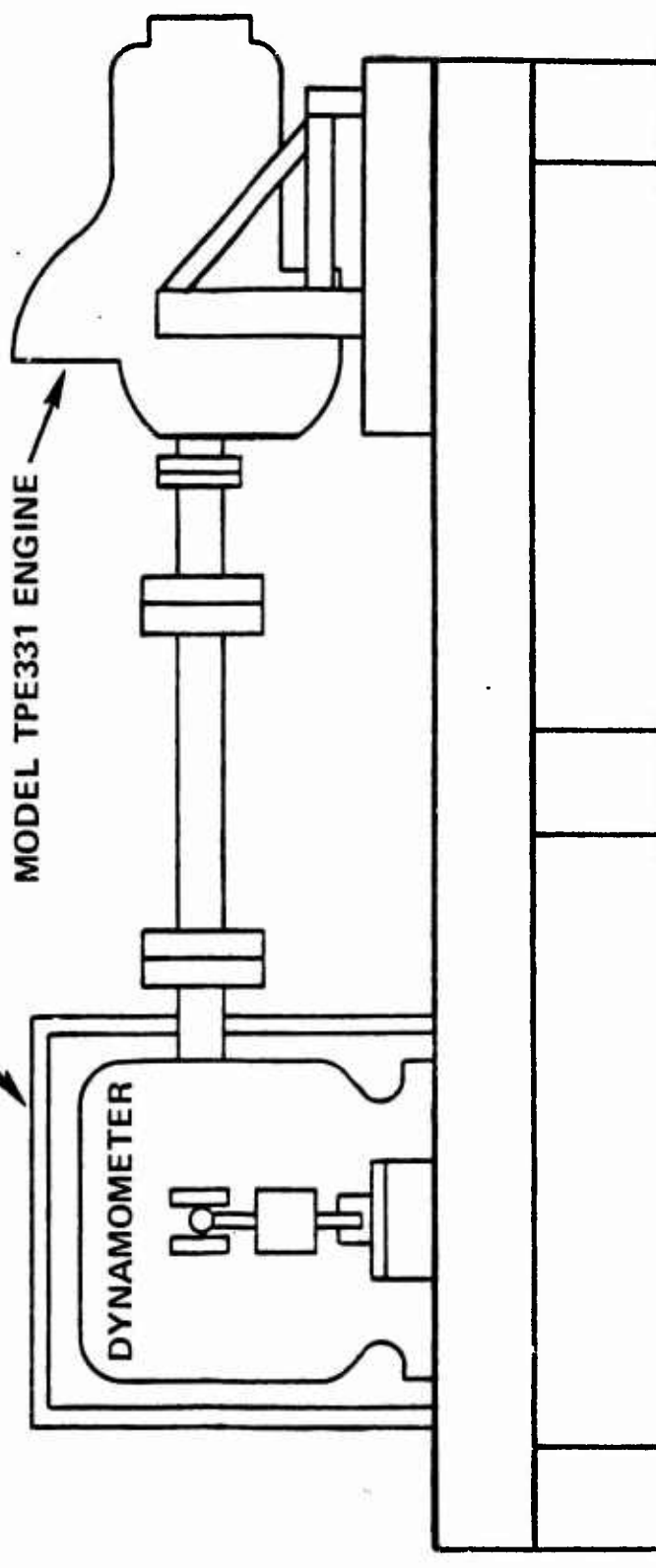


**Figure 1. TPE331 Engine Test Module Used During
Series I and II Engine Tests At
San Tan Facility.**

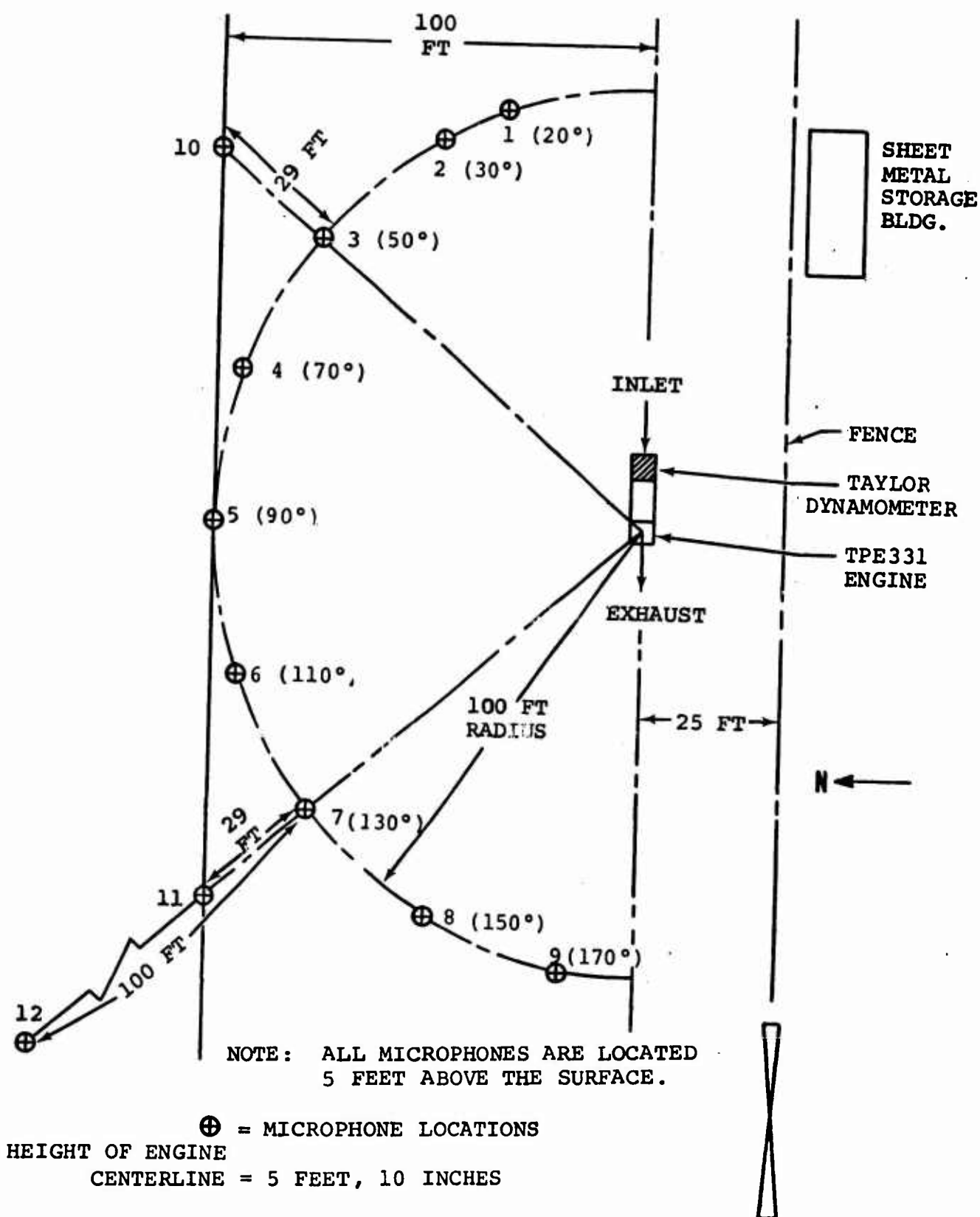


Figure 2. Schematic of San Tan Test Setup Used During Series I and II Engine Tests.

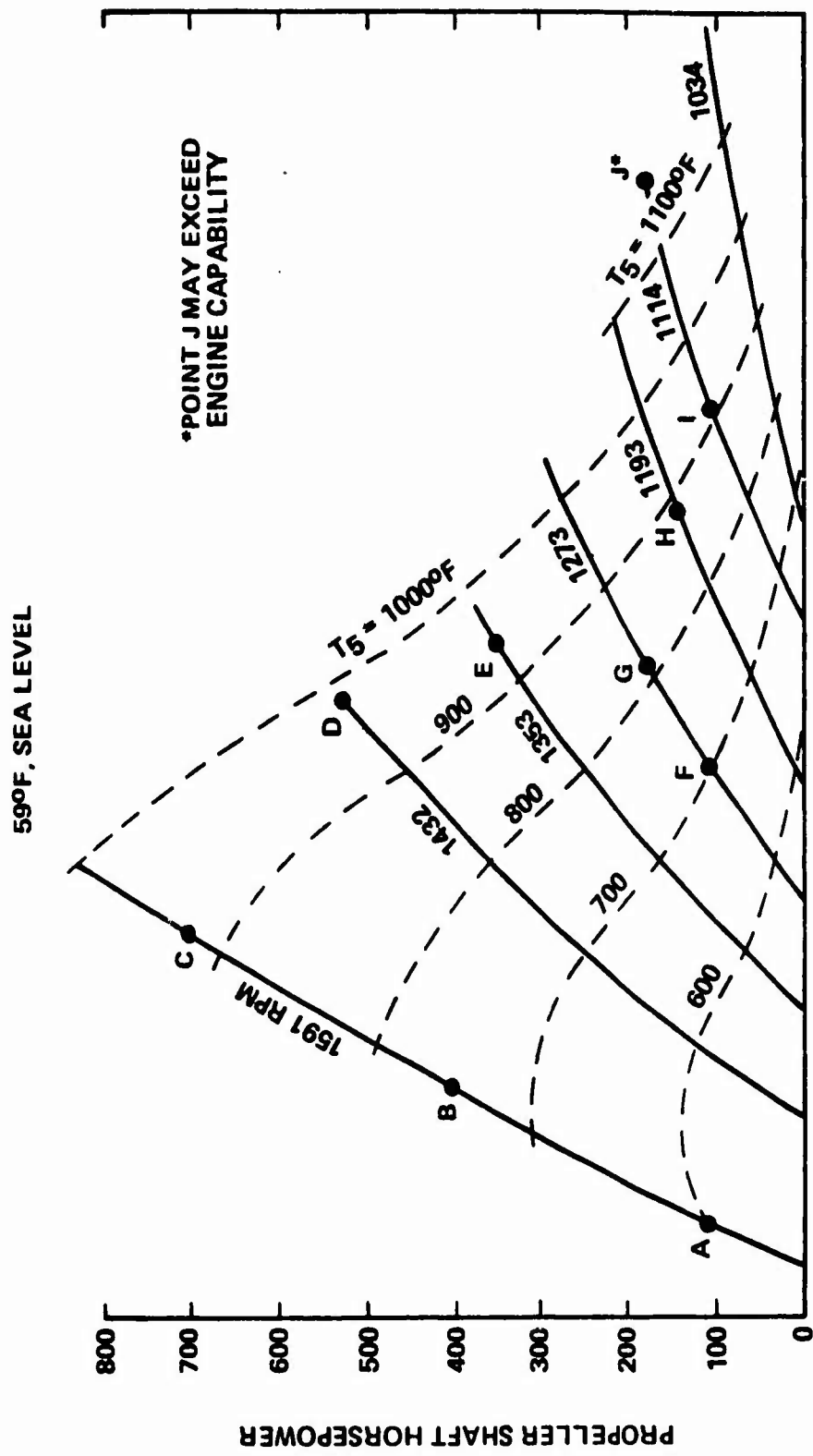


Figure 3. Horsepower-Speed Schedule for TPE331-5-251 Engine.

2. SOUND PRESSURE LEVEL DATA

The sound pressure levels measured during each acoustic run are tabulated in one-third octave bands from 20 to 20,000 Hertz for each microphone location. Three sets of tabulated data are included, one for each test series. All the tabulated data have been corrected to the FAA Standard Day (77°F, 70 percent RH).

TABLE I. BARE ENGINE, ENCLOSED ENGINE, AND UNTREATED EXHAUST DUCT TESTS
(SERIES I AND II).

Type of Test	Inlet		Body Radiation		Exhaust Duct		Run Number											
	Bare	Atten.	Bare	Cover Open	Cover Closed	None	6 ft.	12 ft.	Load Point									
									A	B	C	D	E	F	G	H	I	J
Bare Engine	X		X			X			3	2	1	10	9	6	7	8	5	4
Inlet Coupling	X		X			X									12			
Attenuated Inlet		X	X			X			15	14	13	22	21	18	19	20	17	16
Semi-Enclosed Engine		X		X		X			25	26			27	28		29		30
Enclosed Engine		X			X	X			33	34			35	36		37		32
Tailpipe Length		X					X		39	40			41	42		43		38
Tailpipe Length		X			X			X			44	45						46

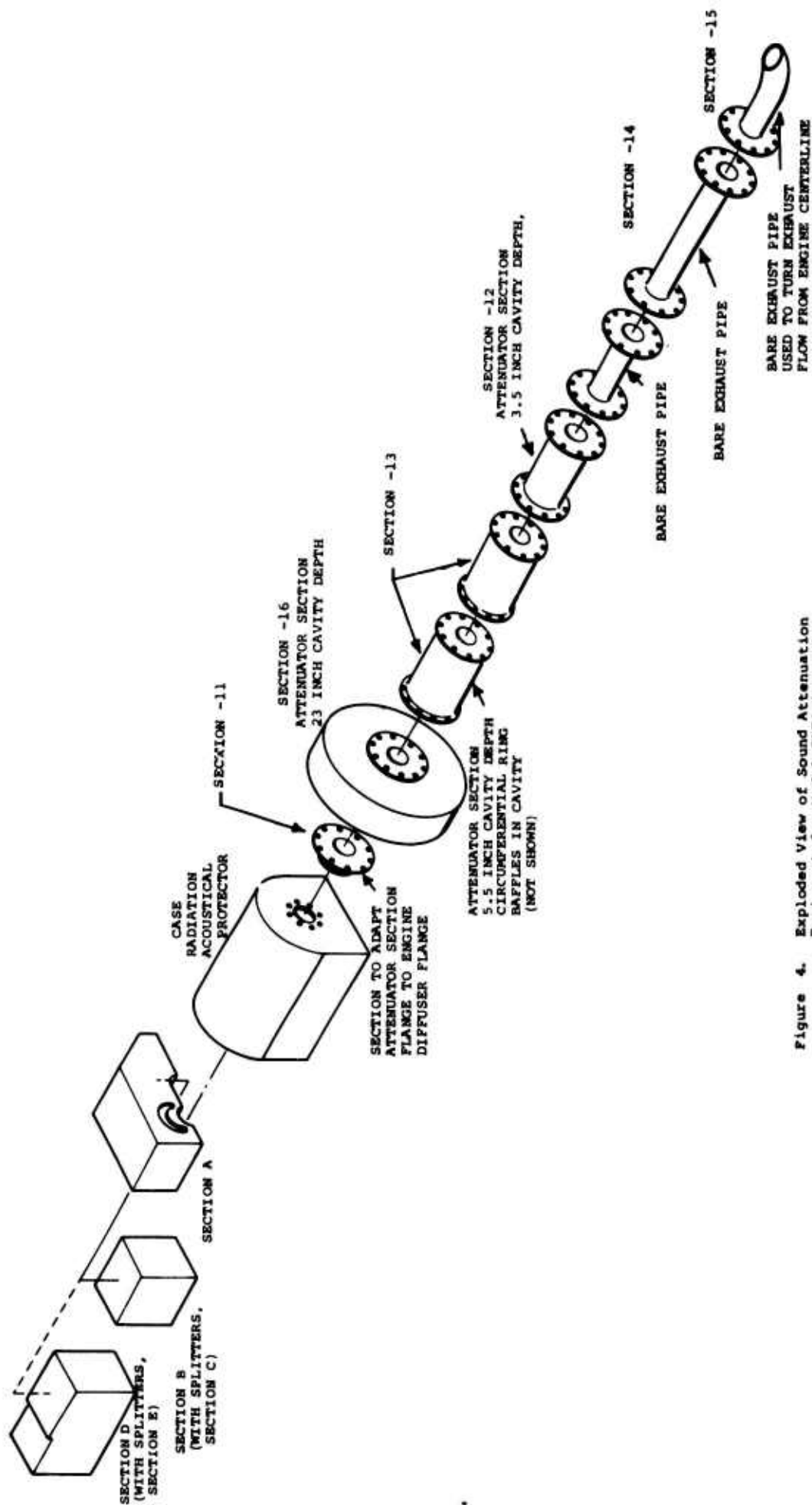


Figure 4. Exploded View of Sound Attenuation Equipment for Model TP331-5-251 Turboprop Engine.

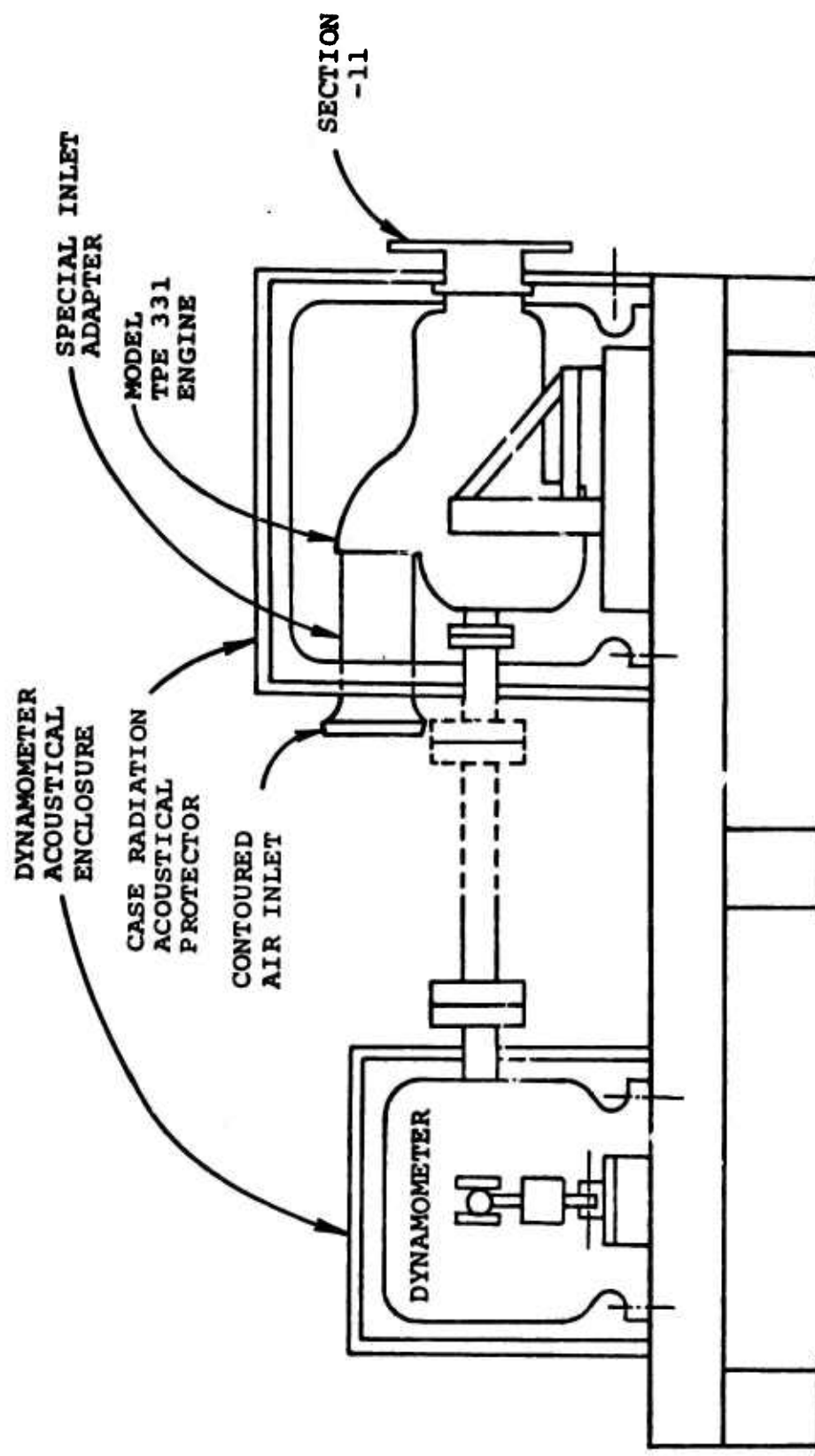


Figure 5. TPE331 Turboprop Engine Test Module During Inlet and Exhaust Duct Tests (Series III).

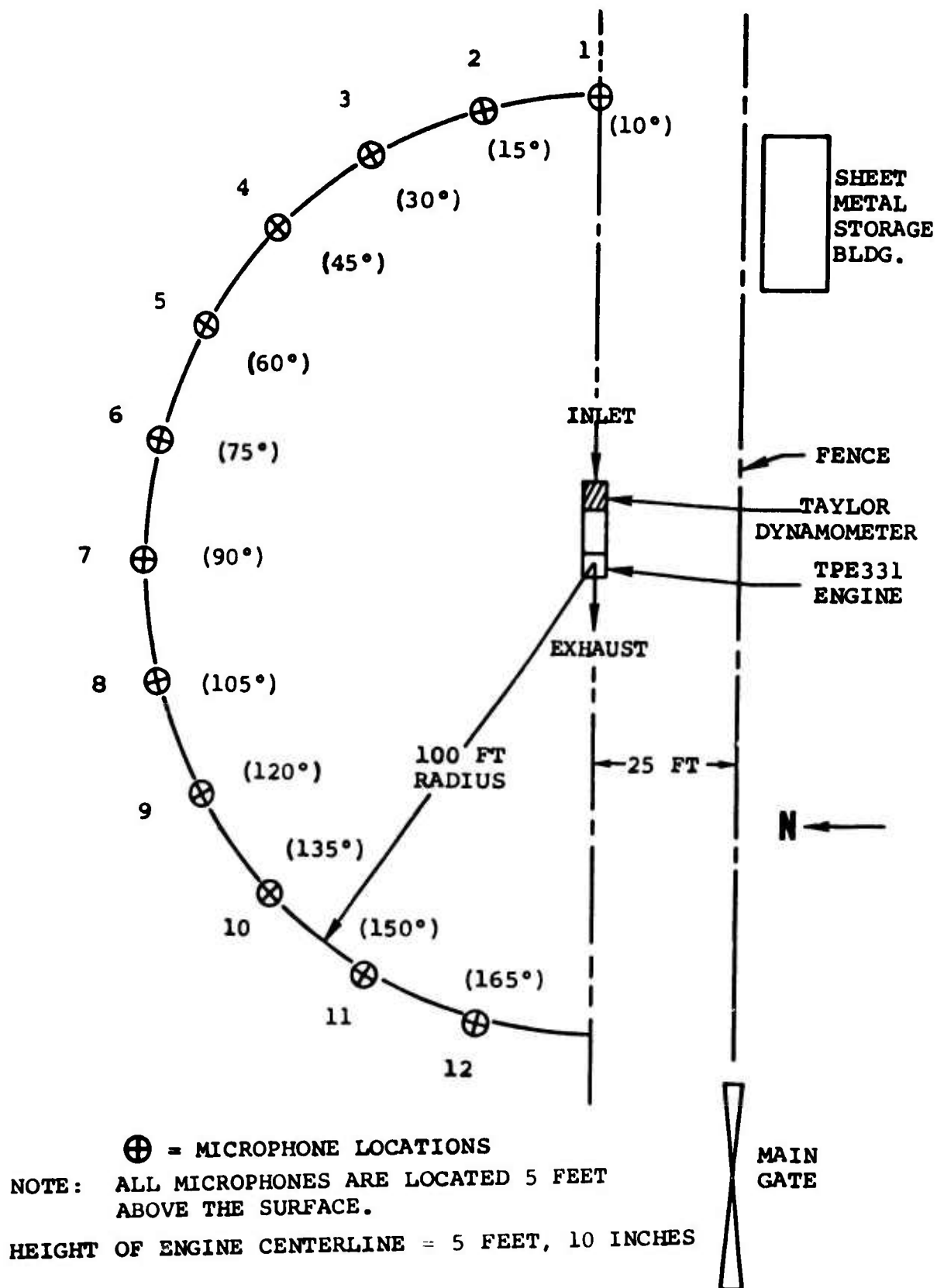


Figure 6. Schematic Diagram of San Tan Test Site During Quiet Engine Program Series III Tests.

TABLE 11. INLET AND EXHAUST NOISE CONFIGURATION COMPARISON TESTED DURING FINAL TYPING AND NOISE DEMONSTRATION TESTS.

Test No.	Inlet and Exhaust Noise Configuration	Exhaust										Test Objective	dB(A) at 100 ft		
		1	2	3	4	5	6	7	8	9	10		A	B	C
1	Exhaust											Determine unimproved engine baseline noise levels.	2	1	9
2	Exhaust											Measure bare, unimproved inlet noise.	11	17	12
3	Exhaust											Test inlet adapter and plenum without splitters.	15	19	12
4	Exhaust											Determine effects of splitters on plenum attenuation.	15	27	12
5	Exhaust											Test plenum without splitters.	15	27	12
6	Exhaust											Determine effects of splitters on alternate plenum atten.	15	27	12
7	Exhaust											Determine effect of bend in exhaust tailpipe.	15	27	12
8	Exhaust											Determine effect of the multi-tube assembly.	15	27	12
9	Exhaust											Determine effectiveness of Section -12.	15	27	12
10	Exhaust											Determine effectiveness of Section -10 (no tailpipe).	15	27	12
11	Exhaust											Determine effect of having 1.5 ratio of acoustic treatment.	15	27	12
12	Exhaust											Compare effect of multi-orifice to constant orifice tubing.	15	27	12
13	Exhaust											Establish bare duct baseline.	15	27	12
14	Exhaust											Determine effectiveness of shortened absorber system.	15	27	12
15	Exhaust											Compare effectiveness of half-metal versus split-metal.	15	27	12
16	Exhaust											Compare effectiveness of half-metal versus split-metal.	15	27	12
17	Exhaust											Determine effects of bulk absorber on prolonged absorption.	15	27	12
18	Exhaust											Test best aircraft type combination, based upon data from previous tests.	15	27	12
19	Exhaust											Determine bare engine baseline noise levels.	15	27	12
20	Exhaust												15	27	12
21	Exhaust												15	27	12
22	Exhaust												15	27	12

(1) One - 13 Sections
(2) Two - 13 Sections
with multi-tube assembly.

a. Baseline and Attenuated Inlet Engine Tests (23 pages)

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RUN 1

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TP331-S-251 RARE INLET, DYNO COVER INSTALLED

POINT C - 642 SMP, 1591 PHOP RPM, 41730 FNG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT.

FOR MICROPHONES 1 THROUGH 9 TOTAL, 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS									10°	11°	12°
		1	2	3	4	5	6	7	8	9			
20.0	0.0	47.1	47.0	1.0	54.6	63.2	59.6	62.2	68.3	60.1	50.4	61.2	56.3
25.0	0.0	44.3	48.9	52.1	54.6	61.2	57.5	62.8	65.9	61.3	50.3	58.0	51.7
31.5	0.0	50.5	50.4	53.3	55.5	59.4	57.4	61.8	66.0	62.2	49.8	57.4	55.4
40.0	0.0	54.6	53.5	56.7	58.0	59.5	58.9	63.7	65.8	66.1	53.6	59.8	57.6
50.0	.1	54.3	58.6	59.9	59.5	42.1	61.7	67.1	68.2	66.9	56.0	64.7	61.2
63.0	.1	59.8	59.6	64.2	62.9	64.0	63.7	68.6	71.9	70.9	59.8	66.4	64.7
80.0	.1	62.5	61.3	65.6	65.1	64.6	65.6	70.2	72.9	72.1	61.7	67.6	64.2
100.0	.2	65.8	63.9	67.8	67.0	67.3	68.9	72.6	76.9	75.2	64.1	71.3	67.7
125.0	.2	66.7	65.2	70.7	69.7	69.8	72.2	75.7	78.6	77.4	67.3	73.8	71.1
160.0	.3	66.0	65.8	71.7	70.8	70.9	74.2	77.7	78.6	75.9	66.9	75.3	72.4
200.0	.3	68.4	68.7	72.8	72.5	72.8	75.4	79.4	80.1	75.3	70.0	77.4	74.0
250.0	.4	68.5	68.8	71.2	72.0	73.3	76.7	80.0	78.9	73.2	69.6	78.4	76.9
315.0	.6	69.1	71.3	72.5	73.1	74.2	77.6	81.2	78.1	71.6	71.8	78.6	76.1
400.0	.7	71.7	71.6	72.5	73.0	74.6	77.4	80.0	74.1	71.9	70.4	79.1	75.2
500.0	.9	69.0	68.5	70.9	69.5	71.3	72.3	75.4	70.9	68.9	68.7	76.7	72.4
630.0	1.1	71.7	73.9	79.6	75.2	69.1	72.4	70.2	71.6	75.3	73.3	73.4	68.9
800.0	1.4	69.8	72.0	78.6	74.8	71.9	74.4	75.0	72.5	74.1	71.5	70.2	64.8
1000.0	1.8	68.0	66.2	75.9	76.2	75.0	78.8	78.6	73.9	69.4	68.6	74.1	64.8
1250.0	2.2	81.7	81.7	86.3	84.9	82.2	82.5	81.0	77.8	72.9	84.1	76.9	67.6
1600.0	2.9	79.7	79.8	83.0	81.3	80.5	82.1	79.1	76.7	72.8	81.7	76.4	69.1
2000.0	3.6	74.9	77.5	76.7	74.5	73.3	75.8	73.2	73.1	71.7	75.0	73.6	69.7
2500.0	4.6	69.9	70.0	79.1	78.7	81.5	82.6	77.3	75.0	70.8	71.6	71.6	70.8
3150.0	5.9	76.2	78.7	83.6	81.7	79.5	82.4	77.5	76.3	71.9	81.3	74.5	68.8
4000.0	7.6	74.0	77.5	88.1	80.0	79.0	81.6	78.2	78.6	73.0	81.3	78.8	69.8
5000.0	8.6	68.9	72.3	80.2	73.7	78.0	80.0	75.3	75.6	69.0	76.1	71.7	64.8
6300.0	11.1	67.4	72.9	75.5	72.3	77.5	78.2	73.4	75.1	68.4	71.9	70.7	62.4
8000.0	14.4	71.3	75.3	82.9	71.8	78.2	80.1	73.5	74.8	68.4	77.8	68.9	62.3
10000.0	20.4	77.9	80.4	88.1	75.4	78.8	81.7	78.4	79.4	71.2	83.5	72.8	63.8
12500.0	29.0	86.8	97.4	101.8	87.3	85.5	86.8	86.1	89.8	81.6	97.8	79.4	68.7
16000.0	42.8	80.9	85.9	91.1	80.7	85.3	89.6	83.5	83.3	74.6	85.8	76.7	64.5
20000.0	56.0	74.9	1.0	91.5	81.5	86.0	89.5	85.0	84.6	74.3	1.0	78.1	1.8
OVERALL (50-10K)		87.2	88.7	94.7	90.4	90.3	92.3	91.0	90.1	86.6	90.7	88.7	84.2
OVERALL (20-20K)		90.9	98.2	103.2	92.8	93.4	96.0	93.4	94.0	88.2	98.8	89.7	84.4
PNL - - -		94.3	101.4	108.6	103.7	103.6	105.7	103.0	102.6	98.1	103.4	100.5	94.7
PNLIC - -		102.0	104.3	110.9	105.8	105.3	106.9	103.0	102.6	99.3	106.4	100.5	94.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROM

**LOCATED 129 FT FROM SOURCE

ATMOS. CORR. IS IN DB PER 1000 FT.

**LOCATED 200 FT FROM SOURCE

RUN 2

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 BARE INLET, DYNO COVER INSTALLED

POINT B - 400 SHP, 1591 PROP RPM, 41730 FNG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10*	11*	12*
20.0	0.0	46.2	48.4	49.6	49.9	1.0	1.0	56.9	58.4	61.6	1.0	54.0	52.0
25.0	0.0	49.0	47.3	49.6	50.5	52.2	55.8	60.8	61.0	62.6	49.5	59.5	53.9
31.5	0.0	50.2	49.7	52.2	51.7	54.4	55.7	60.1	64.0	64.9	51.0	58.4	54.3
40.0	0.0	54.1	53.8	55.7	55.2	58.0	58.5	63.5	66.9	68.4	53.6	60.7	56.9
50.0	.1	56.7	55.7	57.4	57.8	60.8	61.8	67.2	70.9	71.7	57.1	65.2	61.3
63.0	.1	60.1	58.1	60.6	62.4	62.7	64.4	69.1	73.8	73.0	61.0	67.4	64.1
80.0	.1	60.5	59.3	62.1	62.9	63.6	65.7	70.2	75.1	75.0	61.2	68.4	64.6
100.0	.2	63.3	61.3	64.9	65.1	66.3	68.1	72.4	77.2	76.5	62.5	70.5	66.2
125.0	.2	63.5	61.9	67.4	67.8	68.0	71.1	75.0	77.7	78.1	64.5	72.5	69.0
150.0	.3	63.1	61.7	67.3	68.2	68.9	71.3	75.6	77.5	77.0	66.1	73.0	69.8
200.0	.3	65.4	65.1	68.4	69.7	70.3	72.9	76.0	78.3	75.6	66.9	74.0	70.0
250.0	.4	64.3	65.4	66.8	68.8	70.4	74.3	76.9	77.4	74.2	66.5	75.1	71.1
315.0	.6	65.7	67.7	68.1	69.9	71.2	75.6	77.8	77.6	72.9	67.8	76.6	71.9
400.0	.7	67.9	67.7	68.1	70.1	71.4	75.0	76.8	74.7	70.3	67.0	75.3	70.1
500.0	.9	65.5	65.3	66.8	66.9	67.8	70.5	73.6	71.4	66.5	64.1	73.1	64.8
630.0	1.1	70.3	63.4	79.3	74.6	64.8	69.3	70.7	69.9	67.4	70.8	70.1	64.1
800.0	1.4	68.3	63.0	77.4	73.5	66.9	68.5	68.8	67.9	65.6	68.7	67.0	59.3
1000.0	1.8	66.9	67.0	72.9	71.7	70.2	72.0	74.1	66.3	61.9	66.6	68.9	57.5
1250.0	2.2	81.6	83.1	81.6	81.3	80.6	76.8	74.1	75.4	67.8	82.3	71.8	62.9
1600.0	2.9	79.8	80.4	77.7	78.4	78.1	76.8	74.2	74.3	66.8	79.7	71.6	65.0
2000.0	3.6	74.8	74.7	74.6	73.1	70.8	73.7	72.1	72.5	66.1	73.1	69.6	65.3
2500.0	4.6	68.8	72.5	74.9	74.0	74.9	72.4	71.9	69.5	63.7	71.8	68.7	61.6
3150.0	5.9	75.3	76.2	83.7	83.9	74.6	76.5	75.6	74.0	65.5	80.5	72.8	64.2
4000.0	7.6	74.4	77.6	83.5	81.3	76.9	79.6	75.6	75.9	67.2	82.5	73.0	69.9
5000.0	8.6	70.7	71.3	76.9	73.8	72.7	74.8	71.3	71.1	62.6	76.2	68.1	61.3
6300.0	11.1	71.3	70.8	75.4	74.1	73.7	75.5	70.8	72.4	63.0	74.5	67.9	61.9
8000.0	14.9	71.7	75.1	82.6	72.9	76.4	76.4	71.4	72.3	63.6	79.3	68.3	58.6
10000.0	20.4	77.4	82.0	86.8	77.6	78.2	81.9	77.7	76.4	66.9	84.5	72.5	60.8
12500.0	29.0	91.4	97.8	98.3	88.6	86.4	85.8	83.4	85.7	77.4	95.4	81.5	63.7
16000.0	42.8	81.0	86.5	88.6	80.5	83.5	89.2	81.6	81.0	70.7	84.8	75.9	60.8
20000.0	56.0	81.1	1.0	89.5	80.3	84.3	90.0	83.3	82.5	71.8	84.8	77.7	62.0
OVERALL (50-10K)		86.9	88.5	92.3	89.5	87.4	88.7	87.9	88.6	85.7	90.3	85.7	80.6
OVERALL (20-20K)		93.3	98.6	100.0	92.6	91.7	94.7	90.9	91.5	86.7	97.1	87.9	80.8
PNL - - -		94.7	100.2	105.3	104.1	100.2	102.2	100.1	100.2	93.7	103.5	97.5	92.1
PLTC - - -		101.4	103.3	107.7	106.2	102.4	103.5	100.1	102.0	94.9	106.6	97.5	93.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

ATMOS. CORR. IS IN DB RE 1000 FT.

*LOCATED 129 FT FROM SOURCE

**LOCATED 200 FT FROM SOURCE

RUN 3

USAF QUIET ENGINE TESTING AT SANTAN - TESTED S/T 21.1971
ENGINE TESTED - TPE331-S-251 HARE INLET, DYNO COVER INSTALLED
POINT A - 105 SHP, 1591 PROP RPM, 41730 ENG. RPM - CORRECTED SPL (AA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL OF 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS												10* 50 DEG.	170 DEG.	130 DEG.	110 DEG.	90 DEG.	70 DEG.	50 DEG.	30 DEG.	10 DEG.	1.0	110	130	120
		1	2	3	4	5	6	7	8	9	10	11	12													
20.0	0.0	1.0	1.0	1.0	48.3	51.9	1.0	53.6	54.9	59.7	1.0	59.7	59.7	1.0	59.7	54.9	53.6	51.9	48.3	1.0	59.7	54.9	53.6	51.9	48.3	45.7
25.0	0.0	44.4	43.7	49.3	46.3	51.3	50.2	55.3	57.0	58.0	46.9	58.0	58.0	46.9	58.0	57.0	55.3	51.3	46.9	46.9	58.0	57.0	55.3	51.3	46.9	45.7
31.5	0.0	44.7	44.8	47.8	47.9	51.0	51.5	55.6	58.4	59.0	44.9	59.0	59.0	44.9	59.0	58.4	55.6	51.0	44.9	44.9	59.0	58.4	55.6	51.0	44.9	45.6
40.0	0.0	47.6	48.2	50.2	50.6	53.4	55.0	58.1	61.2	61.7	48.7	61.7	61.7	48.7	61.7	61.2	58.1	53.4	48.7	48.7	61.7	61.2	58.1	53.4	48.7	52.2
50.0	.1	51.7	50.7	54.7	53.7	55.7	57.4	62.7	64.8	64.9	50.9	64.9	64.9	50.9	64.9	64.8	62.7	55.7	50.9	50.9	64.9	64.8	62.7	55.7	50.9	54.0
63.0	.1	54.8	55.2	62.6	57.5	59.8	59.3	65.0	67.2	67.6	56.8	67.6	67.6	56.8	67.6	67.2	65.0	59.8	56.8	56.8	67.6	67.6	67.2	65.0	56.8	57.6
80.0	.1	55.5	54.6	56.8	58.0	58.5	59.7	64.5	67.6	67.8	54.9	67.8	67.8	54.9	67.8	67.6	64.5	59.7	54.9	54.9	67.8	67.8	67.6	64.5	54.9	57.0
100.0	.2	58.4	56.9	59.6	60.1	60.1	63.1	66.1	69.4	69.7	56.8	69.7	69.7	56.8	69.7	69.4	66.1	60.1	56.8	56.8	69.7	69.7	69.6	66.1	56.8	57.0
125.0	.2	58.7	57.5	62.0	62.6	62.9	65.2	68.2	71.1	71.6	60.3	71.6	71.6	60.3	71.6	71.1	68.2	62.9	60.3	60.3	71.6	71.6	71.2	68.2	60.3	62.0
160.0	.3	57.9	57.6	63.8	64.0	64.1	66.2	69.2	71.6	71.0	61.8	71.0	71.0	61.8	71.0	71.6	69.2	64.1	61.8	61.8	71.0	71.0	71.2	69.2	61.8	63.4
200.0	.3	61.8	62.0	66.6	66.5	65.9	67.6	71.2	73.3	71.3	64.3	71.3	71.3	64.3	71.3	73.3	71.2	67.6	64.3	64.3	71.3	71.3	71.2	67.6	64.3	66.8
250.0	.4	60.7	62.2	66.2	66.2	65.7	70.1	74.5	73.3	70.7	63.4	70.7	70.7	63.4	70.7	73.3	74.5	70.1	65.7	63.4	63.4	70.7	70.7	71.2	65.7	66.8
315.0	.6	62.8	65.2	65.9	68.0	68.8	72.2	74.3	73.2	70.9	65.2	70.9	70.9	65.2	70.9	73.2	74.3	72.2	68.8	65.2	65.2	70.9	70.9	71.2	68.8	68.9
400.0	.7	65.1	66.1	67.1	67.5	68.7	71.0	72.7	70.2	67.3	64.1	67.3	67.3	64.1	67.3	70.2	72.7	71.0	68.7	65.2	65.2	70.9	70.9	71.2	68.9	68.9
500.0	.9	64.9	64.5	66.5	65.0	66.1	65.9	68.5	67.5	63.5	60.7	63.5	63.5	60.7	63.5	67.5	68.5	65.9	66.1	60.7	60.7	63.5	63.5	67.3	68.9	64.4
630.0	1.1	71.2	73.2	76.7	71.8	68.8	71.2	65.7	65.1	66.8	60.2	66.8	66.8	60.2	66.8	71.8	73.2	71.2	68.8	60.2	60.2	66.8	66.8	71.2	68.9	66.1
800.0	1.4	68.9	70.9	75.0	70.3	67.5	70.3	68.8	68.4	65.5	62.7	65.5	65.5	62.7	65.5	70.9	70.3	67.5	67.5	62.7	62.7	65.5	65.5	70.3	68.9	66.1
1000.0	1.8	63.8	63.5	70.8	70.0	67.3	72.1	72.1	74.1	72.4	67.8	72.4	72.4	67.8	72.4	70.8	72.1	70.3	67.8	67.8	72.4	72.4	72.1	70.3	68.9	66.1
1250.0	2.2	78.2	80.5	83.3	81.0	80.2	75.1	74.1	76.4	72.4	82.1	72.4	72.4	82.1	72.4	76.4	74.1	80.2	80.2	82.1	82.1	72.4	72.4	72.1	68.9	66.1
1600.0	2.9	76.6	78.9	79.7	77.2	76.9	73.2	72.8	73.5	70.3	78.5	70.3	70.3	78.5	70.3	73.5	72.8	73.2	76.9	78.5	78.5	70.3	70.3	72.1	68.9	66.1
2000.0	3.6	73.9	78.2	72.3	71.9	71.3	72.0	70.0	68.9	68.4	69.6	68.4	68.4	69.6	68.4	72.2	70.0	72.0	71.3	69.6	69.6	68.4	68.4	72.1	68.9	66.1
2500.0	4.6	69.2	70.9	76.0	73.2	73.8	75.1	74.9	71.3	66.4	74.4	66.4	66.4	74.4	66.4	71.3	74.9	73.8	73.8	74.4	74.4	66.4	66.4	72.2	68.9	66.1
3150.0	5.9	75.1	76.9	82.6	82.8	76.1	72.6	74.8	70.8	70.7	83.9	70.7	70.7	83.9	70.7	76.9	74.8	76.1	73.8	74.4	74.4	70.7	70.7	72.3	68.9	66.1
4000.0	7.6	72.8	75.8	85.2	82.6	74.2	78.1	75.9	75.5	71.2	82.8	71.2	71.2	82.8	71.2	75.9	75.9	78.1	73.8	75.5	75.5	70.7	70.7	72.4	68.9	66.1
5000.0	8.6	68.4	71.8	76.5	72.8	71.1	73.0	71.1	70.7	65.7	73.3	65.7	65.7	73.3	65.7	71.1	71.1	73.0	71.1	73.3	73.3	70.7	70.7	72.4	68.9	66.1
6300.0	11.1	68.9	73.8	75.4	73.9	74.0	75.5	72.0	71.1	66.6	67.5	66.6	66.6	67.5	66.6	71.1	72.0	75.5	74.0	67.5	67.5	70.7	70.7	72.4	68.9	66.1
8000.0	14.9	73.9	74.1	85.2	73.9	76.7	78.2	72.9	71.4	68.2	75.0	68.2	68.2	75.0	68.2	74.2	72.9	77.4	71.4	75.0	75.0	70.7	70.7	72.4	68.9	66.1
10000.0	20.4	78.4	81.0	89.1	79.5	77.9	81.5	77.4	74.2	71.7	83.1	71.7	71.7	83.1	71.7	74.2	77.4	81.5	77.9	83.1	83.1	70.7	70.7	72.4	68.9	66.1
12500.0	29.0	91.4	96.9	102.1	83.5	83.8	86.3	86.3	83.9	79.5	94.1	79.5	79.5	94.1	79.5	83.9	86.3	86.3	83.8	83.1	83.1	70.7	70.7	72.4	68.9	66.1
16000.0	42.8	81.0	86.5	90.5	82.2	84.2	83.7	83.7	79.1	75.1	82.7	75.1	75.1	82.7	75.1	79.1	84.2	84.2	84.2	82.7	82.7	70.7	70.7	72.4	68.9	66.1
20000.0	56.0	80.6	1.0	91.3	81.7	85.3	89.6	85.2	81.6	74.7	83.2	74.7	74.7	83.2	74.7	81.6	85.2	85.3	85.3	83.2	83.2	70.7	70.7	72.4	68.9	66.1
OVERALL(50-10K)		85.3	87.8	93.5	88.6	86.6	87.4	85.9	85.4	83.0	88.8	83.0	83.0	88.8	83.0	85.4	85.9	86.6	86.6	88.8	88.8	70.7	70.7	72.4	68.9	66.1
OVERALL(20-20K)		92.9	97.7	103.2	91.0	91.1	94.1	91.4	99.1	85.5	95.9	85.5	85.5	95.9	85.5	99.1	91.4	91.1	94.1	95.9	95.9	70.7	70.7	72.4	68.9	66.1
PNL - - -		91.7	99.8	105.9	102.9	99.3	100.6	99.2	98.5	95.3	102.1	95.3	95.3	102.1	95.3	98.5	99.2	99.3	100.6	102.1	102.1	70.7	70.7	72.4	68.9	66.1
PNLTC - -		100.4	102.9	108.6	105.4	102.0	102.4	99.2	100.3	97.1	105.1	97.1	97.1	105.1	97.1	100.3	99.2	102.0	102.4	105.1	105.1	70.7	70.7	72.4	68.9	66.1

*NOTE: SOUND PRESSURE IN DECIBELS WF 0.0002 MICRORBAR
ATMOS. CORR. IS IN DB PER 1000 FT.

*LOCATED 129 FT FROM SOURCE
**LOCATED 200 FT FROM SOURCE

RUN 4

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TP311-S-251 WAVE INLET, WYNO COVER INSTALLED

POINT J, 106 SHP, 1120 PHUP WPM, 29410 FNG, RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10*	11*	12**
20.0	0.0	50.6	1.0	49.8	1.0	49.6	1.0	61.6	60.1	61.8	50.6	1.0	48.9
25.0	0.0	48.6	48.8	48.1	48.6	48.6	48.6	51.9	54.3	55.3	52.3	48.8	49.6
31.5	0.0	46.8	46.8	46.1	46.8	46.8	46.8	52.2	53.5	52.5	52.8	48.4	49.6
40.0	0.0	50.1	50.7	52.2	50.5	50.5	50.5	54.2	55.3	55.9	55.6	50.5	52.2
50.0	0.1	54.8	55.6	56.5	55.0	55.0	55.0	57.9	58.5	59.0	59.3	55.3	59.3
63.0	0.1	62.5	62.3	63.6	62.0	62.0	62.0	61.6	62.0	61.2	62.7	56.9	60.5
80.0	0.1	56.5	55.9	57.2	57.9	57.9	57.9	57.8	59.7	60.9	61.0	54.5	57.2
100.0	0.2	54.0	57.9	59.9	60.8	60.8	60.8	61.0	62.4	63.3	63.5	56.8	59.8
125.0	0.2	62.2	61.1	64.4	64.4	64.4	64.4	66.8	67.5	66.3	66.4	61.1	64.2
160.0	0.3	61.6	63.3	64.6	69.1	69.1	69.1	71.3	72.1	68.3	67.7	66.6	69.4
200.0	0.3	69.2	69.0	73.5	71.1	71.1	71.1	69.5	72.4	74.6	69.6	70.1	69.0
250.0	0.4	69.3	70.2	71.2	71.2	71.2	71.2	73.2	76.1	77.1	69.7	70.9	72.0
315.0	0.6	69.2	71.9	72.6	71.6	71.6	71.6	73.5	74.3	70.1	66.4	71.2	71.3
400.0	0.7	69.7	72.5	73.0	72.4	72.4	72.4	72.3	73.1	72.2	69.5	70.9	71.2
500.0	0.9	77.1	76.3	76.6	72.0	72.0	72.0	75.3	76.8	76.4	76.3	73.5	74.9
630.0	1.1	70.2	68.7	71.7	69.7	69.7	69.7	67.9	69.3	71.5	69.3	66.6	67.8
800.0	1.4	70.7	69.7	81.1	75.4	75.4	75.4	69.7	72.0	74.6	70.4	70.0	66.8
1000.0	1.8	77.0	77.5	84.6	82.2	82.2	82.2	74.2	74.3	79.4	70.9	78.5	70.5
1250.0	2.2	82.5	83.3	88.0	84.3	84.3	84.3	77.5	76.7	80.6	72.6	84.2	73.7
1600.0	2.9	82.0	84.3	83.7	81.0	81.0	81.0	75.9	76.7	79.3	71.3	83.5	73.3
2000.0	3.8	77.4	81.3	79.9	77.7	77.7	77.7	73.4	74.0	75.2	71.1	78.8	66.7
2500.0	4.6	77.7	81.2	86.5	83.2	83.2	83.2	73.7	74.8	78.5	71.8	70.6	69.1
3150.0	5.9	80.3	84.7	82.2	78.9	78.9	78.9	74.1	76.2	77.8	71.1	72.4	66.9
4000.0	7.6	78.1	83.4	84.1	79.3	79.3	79.3	75.2	75.6	77.6	71.9	71.4	66.2
5000.0	8.6	74.9	85.2	84.1	76.6	76.6	76.6	74.9	74.7	78.8	71.6	71.4	66.2
6300.0	11.1	79.4	82.9	82.9	76.2	76.2	76.2	73.5	74.8	79.1	71.5	70.3	65.3
8000.0	14.9	85.1	84.8	87.4	80.4	80.4	80.4	77.9	78.9	82.7	74.8	73.5	67.0
10000.0	20.4	82.1	87.8	87.4	77.4	77.4	77.4	76.5	76.3	79.8	72.2	71.4	63.8
12500.0	29.0	83.1	89.2	88.0	77.1	77.1	77.1	77.0	77.1	80.9	72.7	71.6	62.3
16000.0	42.4	86.7	93.5	92.4	82.1	82.1	82.1	85.2	83.1	84.5	76.6	76.9	64.9
20000.0	56.0	87.9	94.2	92.8	85.0	85.0	85.0	95.2	91.5	86.6	80.3	85.6	71.9
OVERALL (50-10K)		91.6	95.5	96.1	91.4	91.4	91.4	87.2	88.1	90.6	84.6	92.8	84.5
OVERALL (20-20K)		94.4	99.7	99.2	97.8	97.8	97.8	96.3	93.6	93.1	86.6	95.3	88.5
PWL - - -		103.9	107.7	108.9	104.6	104.6	104.6	99.8	100.8	102.9	97.0	105.4	97.0
PVLC - - -		104.3	109.6	117.7	106.3	106.3	106.3	101.5	102.4	104.4	99.3	106.9	94.3

*NOTE: SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM

**LOCATED 129 FT FROM SOURCE

ATMOS. CORR. IS FOR 100 FT.

**LOCATED 200 FT FROM SOURCE

RUN 5

USAF QUIET ENGINE TESTING AT SAJIAN - TESTED SEPT 21, 1971

ENGINE TESTED - TP331-5-251 NAME INLET, DYNO COVER INSTALLED

POINT 1 - 105 SWP, 1114 PROP RPM, 29240 FNG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U R C E P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S - - -												10*	11*	12*
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.	230 DEG.	50 DEG.	130 DEG.	130 DEG.
20.0	0.0	1.0	47.8	49.7	1.0	1.0	1.0	1.0	60.3	59.7	49.0	50.5	54.8	49.0	50.5	54.8
25.0	0.0	48.7	47.7	45.9	49.2	50.2	52.8	55.3	55.3	55.5	49.3	49.6	47.3	49.3	49.6	47.3
31.5	0.0	48.9	45.4	46.9	49.3	50.7	53.1	55.8	55.8	55.5	46.6	46.6	44.2	46.6	46.6	44.2
40.0	0.0	51.3	47.7	49.9	53.5	53.7	56.3	57.7	57.7	57.3	48.9	48.9	44.9	48.9	48.9	44.9
50.0	.1	55.2	53.1	54.3	55.8	56.7	57.7	58.9	58.9	59.5	55.2	55.2	52.3	55.2	55.2	52.3
63.0	.1	57.7	63.7	59.1	60.5	60.6	62.7	62.4	62.4	62.2	64.7	64.7	57.1	64.7	64.7	57.1
80.0	.1	57.2	54.1	57.2	57.3	58.3	60.3	61.1	61.1	60.9	55.7	55.7	54.2	55.7	55.7	54.2
100.0	.2	54.0	57.7	60.0	60.4	61.1	62.6	63.6	63.6	63.1	57.3	57.3	56.4	57.3	57.3	56.4
125.0	.2	64.0	62.1	68.1	70.5	74.3	72.9	72.5	72.5	69.0	63.2	63.2	60.4	63.2	63.2	60.4
160.0	.3	64.0	64.6	71.4	72.9	75.9	76.1	73.4	73.4	70.7	66.8	66.8	70.3	66.8	66.8	70.3
200.0	.3	66.6	67.9	70.3	69.3	70.2	72.0	72.0	72.0	68.2	68.9	68.9	69.4	68.9	68.9	69.4
250.0	.4	66.4	67.5	70.1	69.8	73.0	73.9	72.8	72.8	68.1	69.7	69.7	71.7	69.7	69.7	71.7
315.0	.6	66.9	67.4	71.3	71.9	74.3	74.0	69.7	69.7	66.4	70.3	70.3	72.1	70.3	72.1	68.6
400.0	.7	68.7	71.5	72.7	72.3	72.6	73.6	70.2	70.2	65.8	70.4	70.4	72.0	70.4	72.0	66.2
500.0	.9	76.0	75.4	72.6	73.5	77.7	79.2	73.5	73.5	74.4	73.6	73.6	77.7	73.6	77.7	67.6
630.0	1.1	67.1	67.2	68.7	65.2	66.6	69.4	71.0	71.0	67.3	66.3	66.3	68.2	66.3	68.2	61.6
800.0	1.4	70.0	75.7	72.2	68.4	68.1	68.6	76.4	76.4	65.6	68.8	68.8	64.5	68.8	64.5	60.0
1000.0	1.8	77.3	79.4	79.7	74.0	73.5	71.7	80.6	80.6	66.8	77.4	77.4	68.8	77.4	68.8	68.5
1250.0	2.2	82.1	83.0	82.7	79.0	76.9	75.1	80.4	80.4	69.1	83.3	83.3	72.5	83.3	72.5	68.3
1600.0	2.9	80.9	79.5	81.5	77.3	75.3	76.7	79.3	79.3	68.7	83.2	83.2	73.2	83.2	73.2	68.2
2000.0	3.6	75.6	75.2	74.7	72.7	71.9	75.2	76.9	76.9	68.2	79.4	79.4	72.0	79.4	72.0	66.5
2500.0	4.6	79.7	81.6	81.9	75.6	72.6	73.6	78.6	78.6	70.0	79.9	79.9	70.8	79.9	70.8	64.6
3150.0	5.9	79.1	77.9	77.1	75.9	72.6	76.0	80.0	80.0	70.0	81.7	81.7	71.3	81.7	71.3	67.9
4000.0	7.6	80.4	81.2	78.2	73.8	74.3	74.8	78.6	78.6	71.2	80.2	80.2	72.8	80.2	72.8	66.4
5000.0	8.6	79.3	79.7	75.2	73.5	74.2	75.1	78.7	78.7	71.0	82.8	82.8	76.9	82.8	76.9	65.5
6300.0	11.1	80.1	78.2	75.3	72.9	72.6	74.9	78.7	78.7	70.6	79.8	79.8	70.8	79.8	70.8	63.0
8000.0	14.9	85.0	83.3	80.4	76.2	76.6	79.8	82.3	82.3	74.1	82.4	82.4	75.3	82.4	75.3	60.6
10000.0	20.4	82.6	83.2	77.0	74.0	75.7	76.6	79.2	79.2	71.0	81.6	81.6	71.2	81.6	71.2	60.6
12500.0	29.0	83.7	84.0	77.1	74.2	78.6	77.7	80.3	80.3	72.1	81.9	81.9	71.7	81.9	71.7	59.6
16000.0	42.8	88.3	88.7	82.8	85.0	87.4	85.1	83.9	83.9	77.0	85.9	85.9	78.1	85.9	78.1	64.2
20000.0	56.0	89.5	89.1	87.0	93.1	94.6	95.0	86.2	86.2	81.9	86.7	86.7	87.5	86.7	87.5	72.2
OVERALL (50-10K)	91.5	96.4	91.6	90.3	87.0	87.2	88.3	90.6	90.6	83.1	92.1	92.1	85.3	92.1	85.3	79.4
OVERALL (20-20K)	95.1	100.4	95.1	92.5	94.6	99.2	96.3	92.8	92.8	86.3	94.2	94.2	89.9	94.2	89.9	80.5
PNL - - -	103.4	108.8	104.2	103.4	99.8	99.3	100.7	103.1	103.1	95.7	104.9	104.9	97.5	104.9	97.5	91.9
PNLIC - - -	106.5	111.2	104.6	105.4	101.4	102.0	103.3	103.7	103.7	98.3	106.6	106.6	100.0	106.6	100.0	93.1

*NOISE SOURCE PRESSURE IN DECIBELS RE 0.0002 MICRONS

ATMOS. CORR. IS IN DB PER 1000 FT.

*LOCATED 129 FT FROM SOURCE

**LOCATED 200 FT FROM SOURCE

RUN 6

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TP331-S-251 BARE INLET, DYNO COVER INSTALLED

POINT F, 115 SPM, 1273 PROP RPM, 33370 FNG. MOM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -									110° 130 DEG. 150 DEG. 170 DEG. 190° 120°
		1	2	3	4	5	6	7	8	9	
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190° 120°
20.0	0.0	1.0	56.9	1.0	1.0	1.0	61.5	60.4	61.1	53.2	53.1
25.0	0.0	48.6	52.9	51.5	1.0	50.1	51.6	54.3	55.0	53.1	51.8
31.5	0.0	49.9	51.8	50.5	1.0	48.7	51.7	54.4	54.4	53.8	50.1
40.0	0.0	51.8	52.9	52.9	54.4	52.4	53.1	54.4	57.7	56.9	52.5
50.0	.1	52.5	54.8	54.5	53.9	54.3	55.5	57.7	59.7	60.1	55.2
63.0	.1	56.8	62.7	63.8	58.4	58.8	59.6	61.8	62.9	62.1	60.1
80.0	.2	57.4	56.5	58.0	57.8	57.0	59.4	61.3	62.5	62.7	59.1
100.0	.2	59.7	58.2	61.3	61.0	60.2	61.8	63.9	65.1	65.0	58.4
125.0	.2	61.6	61.5	64.3	65.1	65.1	66.4	67.6	68.3	68.0	65.1
160.0	.3	63.5	63.6	70.1	71.6	75.0	75.0	78.4	78.2	72.9	75.3
200.0	.3	66.2	64.2	70.9	70.6	72.0	75.7	76.2	73.9	70.5	74.4
250.0	.4	65.3	67.5	70.1	69.7	70.1	73.7	74.5	73.6	67.3	72.8
315.0	.5	66.2	69.7	69.5	70.6	72.5	75.6	75.1	72.9	67.4	73.4
400.0	.7	68.8	70.6	70.8	71.1	73.1	75.0	72.9	72.2	66.0	72.7
500.0	.9	69.0	71.0	72.2	68.7	70.5	70.9	72.9	71.4	66.2	72.3
630.0	1.1	65.3	67.1	69.1	65.7	65.5	66.7	69.3	67.9	65.2	69.4
800.0	1.4	64.6	64.2	75.0	69.9	65.1	67.3	70.7	68.2	64.1	70.1
1000.0	1.8	72.8	73.4	79.8	77.4	71.3	72.7	74.1	73.5	66.1	73.3
1250.0	2.2	78.3	79.0	83.5	79.6	76.0	76.4	76.2	75.8	66.7	74.8
1600.0	2.9	74.7	80.9	79.9	76.5	76.0	76.1	74.8	76.8	67.6	70.3
2000.0	3.6	75.3	79.1	77.9	75.0	72.8	72.8	72.3	72.9	76.2	69.7
2500.0	4.6	77.9	80.9	85.2	81.1	76.3	73.8	75.3	76.4	83.2	72.8
3150.0	5.9	80.6	85.2	82.4	79.1	78.1	75.7	76.4	77.8	81.9	72.4
4000.0	7.6	80.9	85.3	87.7	81.0	77.7	78.2	79.3	81.2	85.8	75.6
5000.0	8.6	83.3	89.3	88.9	79.7	78.5	78.9	78.8	82.0	86.8	74.8
6300.0	11.1	81.1	85.7	86.0	78.4	76.4	76.3	77.0	79.2	84.2	74.8
8000.0	14.9	83.0	90.5	88.9	78.5	77.8	78.6	77.5	79.7	86.3	72.2
10000.0	20.4	84.5	94.4	93.5	81.0	80.7	80.9	79.8	81.9	87.6	72.1
12500.0	29.0	87.1	93.1	91.5	79.7	79.5	81.8	80.3	81.3	87.1	74.1
16000.0	42.8	89.3	97.6	95.5	84.4	84.3	86.7	85.6	85.6	90.8	78.2
20000.0	56.0	91.7	94.5	96.6	87.7	90.3	93.0	89.8	88.8	91.6	82.1
OVERALL (50-10K)		91.3	97.9	97.7	90.0	88.4	89.0	89.1	90.0	83.5	86.0
OVERALL (20-20K)		96.0	103.6	101.9	92.9	93.3	95.3	93.5	93.5	86.3	88.2
PWL - - -		104.3	104.4	109.7	103.5	101.5	101.8	102.4	103.6	96.8	99.1
PWLIC - - -		104.3	110.6	111.3	104.9	102.6	102.9	103.5	104.2	97.4	100.0

NOTE: SOUND PRESSURE IN DECIBELS AT 0.0002 MICRON

ATMOS. CORR. IS IN DB PLW 1000 FT.

*LOCATED 129 FT FROM SOURCE
**LOCATED 200 FT FROM SOURCE

RUN 7

USAF QUIET ENGINE TESTING AT SANJAN - TESTED SEPT 21, 1971

ENGINE TESTED - TP331-5-251 NAME INLET, DYNO COVER INSTALLED

POINT 10 - 1/5 SHP, 1274 PROP RPM, 33490 FNG. WPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10*	11*	12**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	50 DEG.	130 DEG.	170 DEG.
20.0	0.0	55.7	56.5	57.6	57.0	57.0	57.0	58.2	58.2	53.5	50.4	50.4	54.3
25.0	0.0	47.8	49.2	51.0	47.1	49.1	50.0	52.9	52.9	51.6	50.1	49.0	50.0
31.5	0.0	47.6	49.0	49.8	48.5	51.0	51.3	51.8	51.8	52.5	49.7	50.1	50.1
40.0	0.0	51.4	50.5	53.8	51.1	54.8	54.1	56.7	56.7	56.4	52.3	52.7	50.4
50.0	.1	52.4	54.1	55.4	52.8	55.2	56.8	57.9	57.9	57.8	52.1	54.6	50.2
63.0	.1	56.2	61.9	63.5	58.3	58.2	59.7	62.5	62.5	61.2	57.0	59.8	54.8
80.0	.1	57.0	58.4	59.1	57.8	58.5	59.6	61.2	61.2	61.6	55.6	58.1	55.8
100.0	.2	54.1	58.6	60.4	60.1	60.9	62.0	62.8	62.8	64.6	57.5	60.5	58.7
125.0	.2	60.9	60.7	64.4	65.4	64.8	65.5	65.4	65.4	67.4	60.5	63.2	61.0
160.0	.3	60.3	61.3	67.1	66.5	66.4	67.9	68.3	67.9	68.9	63.8	66.3	63.8
200.0	.3	64.8	66.0	70.0	67.2	67.7	70.0	71.2	71.2	68.4	66.4	69.4	64.4
250.0	.4	64.6	67.2	68.7	67.2	68.3	71.5	72.4	72.4	67.3	66.6	70.6	67.4
315.0	.6	65.2	68.6	68.9	68.4	70.2	72.9	73.3	71.1	65.3	67.7	71.8	68.0
400.0	.7	67.5	68.9	69.4	68.8	72.1	72.5	73.9	70.5	65.0	67.6	72.1	64.5
500.0	.9	68.7	68.6	70.8	66.8	70.6	69.9	72.2	71.8	66.8	68.6	74.2	64.4
630.0	1.1	65.4	65.5	72.7	68.3	65.5	65.2	69.1	67.5	65.1	65.9	71.8	63.0
800.0	1.4	66.9	71.7	79.6	73.3	66.0	66.8	69.3	69.5	64.5	65.6	82.0	64.1
1000.0	1.8	74.8	78.5	81.7	78.9	71.6	72.7	72.3	74.4	67.7	74.7	67.1	62.4
1250.0	2.2	79.8	82.3	82.9	78.2	76.4	76.1	74.5	76.8	70.4	80.4	71.3	64.6
1600.0	2.9	79.5	81.1	78.4	75.3	74.4	75.1	74.8	77.9	71.3	81.3	73.3	67.1
2000.0	3.6	75.1	78.2	82.1	79.8	73.9	72.0	72.0	73.7	70.2	78.1	72.7	64.8
2500.0	4.6	79.4	85.5	85.8	79.2	74.6	75.0	74.2	77.4	71.0	80.3	72.2	65.7
3150.0	5.9	80.2	83.4	84.0	79.7	78.8	75.3	75.2	78.1	72.2	82.6	73.0	67.0
4000.0	7.6	81.4	87.4	87.2	79.8	77.8	78.0	77.4	80.4	74.2	83.0	76.4	69.3
5000.0	8.6	81.7	86.2	88.9	78.1	78.3	77.6	76.3	80.7	73.1	85.9	74.2	66.4
6300.0	11.1	81.1	84.9	86.0	76.9	74.4	75.6	75.0	79.2	72.0	81.9	73.5	64.4
8000.0	14.9	83.4	89.3	89.1	77.2	78.6	78.2	75.7	80.8	73.1	84.8	74.1	63.1
10000.0	20.4	86.2	93.1	93.5	80.3	80.4	81.6	79.3	84.0	76.0	88.3	77.0	64.7
12500.0	28.0	86.9	92.7	92.0	79.0	80.9	81.2	77.8	82.6	74.4	87.0	75.3	62.0
16000.0	42.8	89.2	96.9	94.1	83.7	85.5	86.2	82.8	87.1	78.7	90.4	79.5	64.0
20000.0	56.0	91.1	94.2	97.7	86.7	90.9	91.4	85.2	89.4	81.1	91.6	82.3	65.6
OVERALL (50-10K)		91.8	97.2	97.9	89.5	88.3	89.0	87.2	90.3	83.8	93.8	85.6	79.0
OVERALL (20-20K)		96.0	103.1	102.5	92.2	93.8	94.1	90.5	94.2	86.7	97.3	88.2	79.8
PWL - - -		104.1	104.0	104.9	102.7	101.6	101.1	100.6	103.3	97.3	106.5	99.2	92.4
PWLC - - -		104.1	111.6	109.9	103.8	101.6	101.1	100.6	103.3	97.3	107.6	99.2	92.4

*NOTE: SOUND PRESSURE IN DECIBELS RE 0.0002 MICRORBAR

*LOCATED 129 FT FROM SOURCE
**LOCATED 200 FT FROM SOURCE

ATMOS. CORR. IS 1.0 DB PER 1000 FT.

RUN 8

USAF QUIET ENGINE TESTING AT SANTIAGO - TESTED SEPT 21, 1971

ENGINE TESTED - TPE311-S-251 NAME INLET, DYNO COVER INSTALLED

POINT M, 140 SMP, 1103 PROP MP+4, 31220 FNG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10*	11*	12**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	50 DEG.	130 DEG.	170 DEG.
20.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	49.6	1.0
25.0	0.0	47.1	44.5	50.1	45.3	49.3	49.2	51.1	52.6	51.7	48.1	49.0	44.1
31.5	0.0	47.6	44.0	48.6	46.1	49.4	49.4	50.8	53.4	53.8	47.6	50.4	45.1
40.0	0.0	44.8	51.7	52.9	50.0	53.3	53.8	55.2	55.7	55.9	50.8	52.6	49.1
50.0	.1	52.4	44.1	55.4	53.1	62.7	53.7	56.0	59.0	58.4	51.5	53.6	51.1
63.0	.1	50.0	63.1	63.4	58.5	59.5	59.7	60.6	61.5	61.6	56.9	59.2	55.1
80.0	.1	50.8	50.0	58.2	57.1	57.3	58.7	59.8	62.2	61.5	54.8	57.1	53.4
100.0	.2	58.9	57.9	60.6	59.6	60.6	61.7	62.2	63.1	63.3	57.1	60.0	56.4
125.0	.2	61.2	60.0	63.7	64.4	65.1	66.6	66.7	66.8	66.5	60.8	64.0	60.2
160.0	.3	62.8	62.2	67.7	68.9	72.0	74.2	74.2	70.7	68.6	65.3	71.5	68.8
200.0	.3	64.9	65.6	69.6	68.2	64.0	70.8	72.6	71.2	67.8	67.1	70.0	64.7
250.0	.4	64.9	66.6	68.6	67.7	68.5	71.4	73.2	73.1	66.7	67.0	70.6	67.2
315.0	.6	65.7	69.1	70.0	70.0	70.7	73.1	73.7	70.7	65.5	68.2	71.4	68.4
400.0	.7	67.4	70.2	70.0	70.6	70.5	72.2	73.1	71.2	66.0	67.8	71.4	67.4
500.0	.9	73.6	74.0	71.0	69.8	70.6	69.5	71.7	76.2	69.7	67.2	72.3	67.4
630.0	1.1	66.4	65.2	72.6	67.3	65.7	64.8	66.9	49.6	65.5	63.1	67.6	62.8
800.0	1.4	68.5	67.4	80.5	73.4	69.9	69.1	69.2	71.0	64.8	72.4	62.9	64.1
1000.0	1.8	76.0	76.5	82.8	79.8	75.0	74.4	72.6	75.8	67.1	78.7	70.9	64.0
1250.0	2.2	80.7	81.9	84.8	81.6	78.5	76.9	75.3	78.3	70.2	82.9	72.0	65.8
1600.0	2.9	74.7	82.7	79.2	75.9	74.6	73.6	75.3	78.3	70.2	80.1	72.0	65.8
2000.0	3.6	75.1	80.1	81.2	74.2	73.6	70.9	73.1	73.5	69.6	75.8	71.1	65.8
2500.0	4.0	74.4	84.6	84.6	81.8	78.9	74.3	73.8	76.0	70.4	84.0	69.8	67.3
3150.0	5.9	74.5	84.5	84.2	80.1	76.1	71.8	76.2	76.5	70.7	78.5	71.2	63.2
4000.0	7.6	80.2	85.5	86.9	79.5	78.0	75.8	75.8	77.8	72.1	83.2	73.3	67.8
5000.0	8.6	80.1	87.0	87.2	77.9	75.7	73.5	75.2	78.5	71.3	81.6	70.6	65.7
6300.0	11.1	80.6	84.1	84.6	77.4	75.1	72.4	74.9	77.9	70.9	80.2	70.2	62.7
8000.0	14.9	83.9	84.7	84.7	78.7	76.7	75.4	77.8	91.9	73.9	83.4	72.3	63.0
10000.0	20.4	85.8	85.0	89.5	79.4	78.1	76.7	79.7	82.4	75.3	84.7	73.5	64.3
12500.0	29.0	84.6	92.1	90.9	78.9	79.3	77.0	78.4	80.5	73.1	83.2	72.3	61.8
16000.0	42.8	89.3	96.6	95.6	83.9	84.9	84.4	84.4	84.7	77.1	88.0	77.3	65.1
20000.0	56.0	90.6	97.4	96.1	87.0	92.4	91.9	90.8	86.7	80.0	88.6	84.2	70.9
OVERALL (50-10K)		91.6	90.6	96.4	90.2	87.8	86.3	87.6	89.8	83.2	92.4	83.9	78.7
OVERALL (20-20K)		95.7	102.2	101.3	92.8	94.4	93.5	93.3	92.6	85.8	95.2	87.6	79.6
PNL - - -		103.6	104.3	104.2	103.5	101.1	99.3	100.4	102.1	96.1	105.3	97.0	91.1
POLIC - - -		105.4	110.4	110.5	104.4	102.5	100.4	101.1	104.1	97.5	107.6	97.7	91.9

*NOTE: SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM

ATMOS. CORR. IS 1 IN PER 1000 FT.

*LOCATED 129 FT FROM SOURCE

**LOCATED 200 FT FROM SOURCE

RUN 9

USAF QUIET ENGINE TESTING AT SANTAN - TEST DU SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 NAME INLET, UYNO COVER INSTALLED

POINT E, 340 SMP, 1370 PROP MP4, 35045 FNG. MPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT.

FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10	11	12
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.	230 DEG.
20.0	0.0	1.0	55.9	1.0	1.0	1.0	1.0	51.0	60.4	57.2	49.9	50.4	50.4
25.0	0.0	48.2	51.8	51.3	48.3	51.5	51.3	53.9	57.1	56.6	52.2	52.2	52.2
31.5	0.0	44.2	51.3	51.6	49.4	52.6	52.2	56.1	57.9	57.8	53.4	53.4	53.4
40.0	0.0	53.1	53.7	53.8	54.0	55.8	55.7	58.3	60.4	61.3	56.1	56.1	56.1
50.0	.1	58.6	58.4	60.5	61.2	63.2	63.3	62.4	64.7	64.3	59.0	59.0	59.0
63.0	.1	64.8	62.6	64.8	60.6	63.8	65.5	67.1	67.5	66.8	61.1	61.1	61.1
80.0	.1	58.8	58.5	60.1	61.1	61.3	61.7	64.2	66.4	66.4	61.3	61.3	61.3
100.0	.2	61.4	59.7	63.0	62.7	63.2	64.5	66.1	69.2	68.0	64.4	64.4	64.4
125.0	.2	62.3	60.6	64.4	65.5	65.8	66.6	68.3	70.2	70.2	66.1	66.1	66.1
160.0	.3	62.2	63.2	67.8	67.8	66.0	67.6	69.3	69.0	68.8	65.5	65.5	65.5
200.0	.3	66.8	65.9	70.0	68.3	67.1	68.9	71.2	73.1	71.4	67.9	67.9	67.9
250.0	.4	66.2	67.1	69.2	68.7	68.7	72.1	73.5	75.3	72.7	68.4	68.4	68.4
315.0	.6	65.2	64.0	67.7	68.2	69.2	72.5	74.1	72.8	69.0	67.7	67.7	67.7
400.0	.7	66.1	64.4	67.9	68.8	68.9	71.8	73.8	71.5	67.3	66.2	66.2	66.2
500.0	.9	65.5	67.8	68.6	66.0	67.2	67.2	71.0	69.0	67.0	65.0	65.0	65.0
630.0	1.1	64.9	62.5	74.1	67.9	66.7	64.4	66.8	67.5	69.8	65.7	65.7	65.7
800.0	1.4	72.0	67.0	79.1	71.9	69.7	67.8	66.5	67.2	67.4	61.9	61.9	61.9
1000.0	1.8	77.8	75.7	80.6	78.2	74.0	73.5	70.4	72.8	71.4	65.7	65.7	65.7
1250.0	2.2	80.6	80.8	80.4	79.3	76.9	76.1	73.1	77.3	73.2	68.7	68.7	68.7
1600.0	2.9	76.1	81.5	75.3	73.9	71.3	73.4	72.6	77.7	72.8	68.0	68.0	68.0
2000.0	3.6	76.2	77.3	81.8	79.0	76.2	74.1	71.5	72.4	71.2	62.1	62.1	62.1
2500.0	4.6	80.5	83.6	82.4	79.0	76.2	74.1	71.5	76.3	72.8	68.6	68.6	68.6
3150.0	5.9	78.3	83.9	82.8	79.8	75.6	72.8	74.5	77.1	74.1	71.7	71.7	71.7
4000.0	7.6	82.5	86.9	85.8	80.3	76.5	77.6	77.0	79.9	77.0	66.0	66.0	66.0
5000.0	8.6	83.2	84.4	85.4	79.3	76.1	76.0	75.6	81.3	77.0	65.6	65.6	65.6
6300.0	11.1	83.1	90.1	86.1	79.6	76.1	76.1	76.1	80.9	76.8	65.0	65.0	65.0
8000.0	16.9	83.4	90.3	86.7	79.2	76.8	76.8	75.2	79.9	76.8	63.7	63.7	63.7
10000.0	20.4	87.5	93.8	95.4	80.9	81.9	81.3	81.2	84.2	79.6	64.9	64.9	64.9
12500.0	24.0	85.5	93.9	92.1	81.1	79.8	82.3	82.6	82.6	77.3	66.7	66.7	66.7
16000.0	42.8	84.6	94.6	95.1	84.9	82.9	87.5	83.4	85.9	79.9	64.4	64.4	64.4
20000.0	56.0	81.2	94.8	96.3	87.9	85.9	89.8	86.6	89.1	80.8	66.7	66.7	66.7
OVERALL (50-10K)	72.7	94.1	97.8	97.8	89.8	87.6	87.4	87.3	90.4	87.0	85.6	85.6	85.6
OVERALL (20-20K)	96.5	104.1	101.8	93.0	91.0	93.5	91.1	94.0	88.9	88.9	87.7	87.7	87.7
PNL - - -	104.9	104.6	104.0	103.1	100.2	100.5	100.3	103.4	100.6	100.6	99.4	99.4	99.4
FWLIC - - -	100.1	104.6	104.0	104.2	101.7	101.4	100.3	103.4	100.6	100.6	100.7	100.7	100.7

*NOISE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROMH

*LOCATED 129 FT FROM SOURCE

ATMOS. CORR. IS 1 DB PER 1000 FT.

**LOCATED 200 FT FROM SOURCE

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

RUN 10

ENGINE TESTED - 1PE331-5-251 BARE INLET, DYNO COVER INSTALLED

POINT D, 415 SHP, 1468 PROP RPM, 38490 ENG. RPM

DISTANCE TO SOURCE = 100.0 FT.

FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10*	11*	12**
20.0	0.0	1.0	1.0	61.8	47.9	49.6	1.0	54.9	58.8	58.8	1.0	58.9	51.1
25.0	0.0	48.8	50.6	60.3	48.9	54.0	52.6	56.7	59.0	60.8	49.5	54.7	51.9
31.5	0.0	50.6	50.6	59.3	50.4	53.4	54.5	57.7	62.5	62.6	49.3	55.4	52.9
40.0	0.0	55.5	54.8	58.8	54.6	56.3	57.2	61.7	65.7	67.3	52.9	58.8	55.5
50.0	.1	59.4	58.8	61.2	58.2	60.4	61.2	65.2	68.7	69.8	55.5	61.2	58.8
63.0	.1	59.1	63.5	65.4	60.9	62.2	63.0	67.4	70.0	71.7	59.0	63.4	60.3
80.0	.1	60.1	60.3	62.7	62.7	61.9	63.6	68.1	72.1	73.1	58.8	64.8	61.6
100.0	.2	62.5	61.8	64.4	63.7	63.8	66.3	70.9	74.7	75.5	60.2	67.5	64.1
125.0	.2	62.7	63.0	65.8	65.5	66.0	68.9	71.8	75.2	77.9	63.1	69.1	65.2
160.0	.3	62.3	62.5	66.7	66.5	66.6	68.8	73.0	74.2	76.1	64.9	70.8	66.1
200.0	.3	65.7	66.0	69.9	67.9	68.0	70.7	73.6	75.8	73.2	67.0	71.6	67.4
250.0	.4	65.3	67.2	67.5	67.5	69.0	72.4	74.2	76.2	72.4	66.9	72.6	68.7
315.0	.6	64.8	67.7	67.3	68.7	69.7	73.1	73.8	74.7	71.3	67.6	74.7	71.8
400.0	.7	66.7	68.4	67.7	68.5	69.7	72.0	73.8	72.2	66.9	66.4	74.5	70.3
500.0	.9	67.9	64.2	66.1	65.4	64.7	64.5	67.8	69.3	63.8	65.6	73.2	67.7
630.0	1.1	64.3	66.4	77.4	77.1	69.6	72.7	74.1	69.4	70.8	64.6	70.8	68.3
800.0	1.4	68.5	69.1	74.2	70.9	69.0	72.4	74.6	68.3	66.0	62.3	64.3	62.8
1000.0	1.8	75.4	75.0	76.5	74.4	72.2	75.6	76.0	72.1	66.7	70.8	63.6	61.1
1250.0	2.2	77.3	77.3	77.3	73.1	73.3	74.9	74.3	75.8	73.8	77.5	67.4	64.5
1600.0	2.9	72.2	73.3	71.0	69.4	67.5	69.2	67.7	72.4	70.7	76.1	67.8	66.4
2000.0	3.6	70.8	73.6	75.5	73.1	71.3	73.3	69.5	67.5	65.6	72.5	67.9	61.9
2500.0	4.6	75.5	75.7	76.1	71.6	71.5	71.3	69.5	71.3	66.6	73.1	68.4	65.3
3150.0	5.9	74.2	75.7	75.7	70.5	71.9	71.1	71.1	70.5	67.5	77.5	65.9	65.7
4000.0	7.6	79.7	79.4	79.8	72.1	72.2	73.1	72.3	74.9	70.1	77.4	69.3	65.7
5000.0	8.6	80.1	82.3	79.6	71.6	71.7	73.0	71.1	72.1	68.9	76.6	68.4	59.3
6300.0	11.1	79.3	81.6	79.4	70.6	70.8	72.5	69.8	71.5	68.2	74.6	65.9	60.4
8000.0	14.9	79.8	83.5	81.2	70.8	71.7	75.3	70.4	71.9	69.0	76.6	64.9	59.4
10000.0	20.4	87.7	91.8	94.9	81.7	81.4	80.0	81.2	82.2	79.4	92.4	75.4	65.6
12500.0	29.0	85.6	93.1	97.7	85.3	83.9	83.5	83.8	86.0	85.3	97.3	77.5	65.8
16000.0	42.8	86.0	92.8	89.0	78.9	80.0	87.6	80.5	79.9	76.0	84.0	75.2	62.8
20000.0	56.0	87.4	92.8	91.6	80.5	82.4	87.5	84.0	85.3	81.4	1.0	77.7	63.8
OVERALL (50-10K)	90.7	93.8	95.8	86.1	86.1	85.4	86.5	87.1	87.9	86.3	93.3	83.0	79.3
OVERALL (20-20K)	94.0	99.2	100.8	89.7	89.7	89.4	92.6	90.5	91.6	89.8	98.9	85.9	79.8
PNL - - -	102.1	104.7	106.4	97.8	97.8	97.4	98.3	98.3	99.3	96.5	103.9	94.8	90.4
PNLTC - -	103.3	105.8	108.8	100.7	100.7	98.6	99.7	98.3	100.5	98.2	105.2	94.8	91.6

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

*LOCATED 129 FT FROM SOURCE
**LOCATED 200 FT FROM SOURCE

ATMOS. CORR. IS IN DB PER 1000 FT.

RUN 11

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE341-S-251 HAME INLET, DYNO COVER INSTALLED

GND IDLE, 7 SHP, 1045 PROP RPM, 27350 FNG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10*	11*	12**
20.0	0.0	1.0	1.0	57.6	1.0	1.0	60.3	1.0	61.5	53.1	1.0	66.3	63.7
25.0	0.0	47.5	49.4	59.0	45.2	51.4	53.7	52.9	57.9	54.3	52.7	61.5	59.4
31.5	0.0	48.5	49.5	58.1	46.3	49.5	52.9	52.9	56.7	54.8	52.2	59.0	57.7
40.0	0.0	50.8	51.1	57.2	47.9	49.8	52.8	53.8	56.8	56.8	51.2	58.9	56.5
50.0	.1	51.9	53.4	57.9	52.2	53.9	55.6	56.5	57.5	58.3	51.3	58.0	55.7
63.0	.1	55.9	61.9	63.9	58.1	59.1	59.6	61.2	61.2	60.0	56.7	60.3	56.9
80.0	.1	56.8	55.8	59.6	56.9	57.8	60.0	60.0	60.7	59.6	54.4	59.4	55.0
100.0	.2	59.0	59.0	62.3	61.0	62.0	63.2	63.4	62.7	61.9	58.3	61.5	56.0
125.0	.2	64.7	65.0	67.0	69.3	71.3	73.5	73.5	69.4	66.3	64.4	68.9	64.5
160.0	.3	65.0	65.3	72.5	74.0	74.0	76.9	75.0	70.9	68.1	69.5	72.7	68.9
200.0	.3	67.7	69.0	72.9	72.9	73.1	73.6	73.4	71.8	69.4	70.7	71.3	67.5
250.0	.4	67.4	69.8	71.4	71.7	72.3	74.3	74.4	73.9	69.7	70.4	71.7	69.0
315.0	.6	68.5	71.9	71.1	71.6	72.6	74.3	73.6	70.9	68.0	71.0	71.4	68.0
400.0	.7	70.2	72.7	74.3	74.2	75.1	71.7	72.2	72.5	73.8	73.2	69.6	65.8
500.0	.9	72.7	74.3	76.9	76.8	77.9	71.6	73.5	75.2	77.2	75.3	71.1	63.8
630.0	1.1	68.7	69.1	72.5	69.0	69.2	71.3	71.6	70.7	66.7	64.9	67.9	60.1
800.0	1.4	68.8	71.5	80.9	75.2	73.6	75.0	76.7	75.8	65.6	72.8	72.9	62.0
1000.0	1.8	75.2	77.9	83.2	80.5	77.0	76.9	78.6	78.6	68.7	79.5	75.3	65.3
1250.0	2.2	79.6	82.2	85.2	80.6	77.6	74.7	75.9	78.1	71.2	83.1	72.9	67.0
1600.0	2.9	79.5	83.2	80.8	76.1	78.0	73.4	73.9	76.3	70.4	80.2	71.0	64.7
2000.0	3.6	76.2	81.8	80.3	78.0	76.2	75.7	76.6	75.6	69.7	75.1	72.7	65.8
2500.0	4.6	70.2	81.3	86.1	79.6	76.6	73.6	74.9	77.6	70.7	83.1	72.1	63.0
3150.0	5.9	78.9	84.4	82.8	78.7	78.2	73.5	76.5	77.1	71.3	78.9	71.6	66.1
4000.0	7.6	77.4	85.1	86.4	77.5	75.9	76.0	76.7	79.8	72.2	83.2	73.0	66.0
5000.0	8.6	77.8	85.5	86.1	75.5	75.1	74.7	75.5	77.6	71.0	81.5	71.6	64.6
6300.0	11.1	78.1	83.9	84.0	75.0	74.0	73.5	74.5	77.7	70.5	80.0	70.4	62.9
8000.0	14.9	79.6	92.6	88.0	80.3	75.2	75.7	74.7	81.0	74.8	83.2	70.5	62.0
10000.0	20.4	77.7	86.9	85.4	73.4	73.7	74.9	73.0	76.1	70.2	79.3	67.4	57.1
12500.0	29.0	80.3	89.9	87.9	75.6	76.7	77.8	76.1	78.1	72.8	81.5	69.5	57.3
16000.0	42.8	83.9	93.3	91.1	82.3	88.0	90.6	88.3	81.5	83.2	83.5	80.1	64.4
20000.0	56.0	85.2	93.2	91.5	84.9	91.5	94.6	91.6	83.8	87.0	83.7	83.6	67.3
OVERALL (50-10K)		88.9	96.4	95.7	89.8	88.3	87.6	88.0	89.3	84.3	92.0	84.7	78.9
OVERALL (20-20K)		91.6	99.8	98.5	91.7	94.4	96.7	94.5	91.2	90.0	93.4	88.1	79.6
PNL - - -		102.1	109.0	108.9	102.6	100.9	100.3	101.0	102.5	96.7	105.4	97.4	91.0
PNLTC - -		103.1	110.2	110.4	104.3	102.9	100.9	101.0	103.7	99.0	107.5	97.4	91.0

*NOTE: SOUND PRESSURE IN DECIBELS @ 0.0002 MICRON/CM

*LOCATED 129 FT FROM SOURCE
**LOCATED 200 FT FROM SOURCE

ATMOS. CORR. IS IN DB PER 1000 FT.

RUN 12

USAF QUIET ENGINE TESTING AT SANTIAGO - TESTED SEPT 21, 1971

ENGINE TESTED - TP4331-5-251 NAME INLET - DYNCO COVER INSTALLED

REPEAT OF POINT 6 WITH WHOP INLET COWLING INSTALLED (NO INLET SCREEN)

DISTANCE TO SOURCE = 100.0 FT.

FOR MICROPHONES 1 THROUGH 9, TOTAL OF 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10*	11*	12*
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	50 DEG.	130 DEG.	130 DEG.
20.0	0.0	1.0	57.0	1.0	1.0	1.0	1.0	1.0	1.0	51.6	1.0	51.7	51.0
25.0	0.0	49.5	50.7	50.1	48.8	51.3	49.6	51.6	54.0	52.9	49.5	50.7	50.4
31.5	0.0	46.4	54.0	48.5	50.6	52.9	53.4	54.2	56.0	54.6	49.7	53.2	50.3
40.0	0.0	52.0	54.6	53.6	53.8	56.9	56.7	56.9	57.6	66.2	51.5	54.8	55.4
50.0	.1	55.2	54.7	55.8	54.8	56.7	57.2	59.2	59.8	60.1	53.4	57.2	53.6
63.0	.1	62.7	62.2	63.6	59.0	61.3	61.0	62.9	63.6	62.3	57.5	61.2	57.8
80.0	.1	54.2	57.9	59.9	59.8	59.4	60.4	61.5	62.7	61.8	55.8	59.6	59.2
100.0	.2	60.4	54.6	61.0	61.0	62.1	62.9	63.9	65.6	64.7	58.4	62.0	58.4
125.0	.2	62.1	61.5	64.9	65.1	64.8	65.9	66.8	68.1	67.1	62.4	64.3	60.7
160.0	.3	61.3	61.6	67.4	66.8	66.9	68.5	69.5	67.9	66.7	64.2	67.4	64.2
200.0	.3	65.0	65.8	69.7	67.5	68.2	70.6	72.7	72.1	68.5	66.7	70.3	67.7
250.0	.4	65.2	67.0	68.2	68.3	69.2	72.2	72.9	72.0	66.6	67.0	71.2	67.0
315.0	.6	66.7	64.3	69.0	70.0	71.3	73.5	75.0	73.1	66.6	68.4	73.1	69.2
400.0	.7	68.3	70.0	69.5	70.0	72.1	73.2	74.5	70.6	64.8	67.1	72.7	68.1
500.0	.9	64.1	71.9	72.8	69.4	69.2	69.5	73.6	70.6	67.4	67.5	72.8	64.7
630.0	1.1	64.9	69.3	70.6	66.4	65.5	65.2	69.5	68.3	67.4	64.9	68.9	63.4
800.0	1.4	69.0	67.8	77.3	73.0	69.1	69.6	68.1	68.3	67.0	62.2	64.4	60.9
1000.0	1.8	74.3	76.1	81.6	80.1	75.9	75.4	72.7	71.5	68.2	76.9	70.8	65.4
1250.0	2.2	80.0	80.8	83.7	82.1	79.1	78.7	76.0	76.5	68.7	81.1	74.4	69.8
1600.0	2.9	74.4	82.4	81.0	77.9	74.3	75.2	75.6	79.1	69.9	81.4	73.3	68.7
2000.0	3.6	75.3	80.0	81.2	74.4	74.8	72.4	73.9	73.5	69.8	76.8	71.7	67.2
2500.0	4.6	83.6	85.1	87.4	82.6	74.4	76.5	75.0	78.0	70.9	84.2	71.8	67.3
3150.0	5.9	81.1	86.5	83.0	82.1	74.1	75.3	78.1	78.0	71.5	80.9	74.9	70.0
4000.0	7.6	87.5	84.0	84.7	82.7	79.8	79.1	78.4	82.4	74.5	84.5	76.5	70.9
5000.0	11.0	84.2	89.6	87.4	82.3	77.9	77.1	78.2	81.6	73.4	85.0	74.9	69.0
6300.0	14.9	85.2	92.5	84.3	81.0	80.0	74.2	79.1	80.9	73.6	85.7	75.3	66.9
8000.0	20.4	87.4	95.8	91.4	83.6	81.0	80.3	81.3	82.9	75.9	87.7	76.6	67.2
10000.0	24.0	87.7	94.1	90.4	81.7	74.4	81.7	79.3	81.6	74.0	86.6	73.9	63.5
12500.0	27.3	87.3	93.1	83.8	83.8	83.8	85.4	83.9	84.1	76.6	88.3	76.9	64.0
20000.0	36.0	87.4	93.0	85.2	85.2	84.1	90.1	86.3	85.5	77.8	88.5	79.1	64.6
OVERALL (20-10K)	74.4	84.6	96.9	92.1	84.5	84.5	84.5	84.9	40.5	83.8	94.1	86.1	80.7
OVERALL (20-20K)	74.4	103.5	100.0	93.7	92.7	93.6	93.6	91.9	42.8	85.8	96.5	87.5	81.0
WIL - - -	107.4	110.6	104.2	105.3	102.7	101.4	102.0	102.0	104.3	97.4	106.6	99.6	94.2
POLIC - -	107.4	110.6	111.0	105.3	102.7	103.0	102.0	102.0	105.7	97.4	108.4	99.6	94.2

*LOCATED 129 FT FROM SOURCE

**LOCATED 200 FT FROM SOURCE

NOTE: SOUND PRESSURE LEVELS OF 0.0002 MICROBAR
AT 1000 Hz. IS 10 DBA 100.0 FT.

RUN 13

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED - (PE 411-5-251, INLET ATTENUATOR AND DYN) COVER INSTALLED

POINT C - 600 SMP, 1591 RPM WPM, 41730 FMS. WPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	1	2	3	4	5	6	7	8	9	10*	11*	12**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	50 DEG.	130 DEG.	130 DEG.
20.0	0.0	40.6	42.1	49.1	1.0	55.7	59.5	59.9	59.2	59.0	47.1	57.0	43.3
25.0	0.0	51.5	50.5	49.2	52.2	53.8	54.7	57.4	59.2	60.2	49.6	55.7	43.3
31.5	0.0	53.7	54.8	53.1	55.3	55.8	54.0	59.9	62.0	62.4	51.7	58.4	49.6
40.0	0.0	55.5	54.5	59.4	60.4	59.5	59.5	64.6	65.6	66.7	56.1	62.3	50.3
50.0	0.1	62.7	62.2	61.5	62.8	60.2	64.0	67.9	69.0	70.0	59.2	64.9	52.2
63.0	0.1	67.5	67.7	66.5	67.7	64.7	67.9	70.9	71.5	72.5	63.9	67.8	55.7
80.0	0.1	67.7	67.8	68.4	71.5	69.0	72.0	72.1	74.3	73.1	65.7	70.1	56.9
100.0	0.2	72.5	69.0	69.9	72.8	69.2	72.5	75.1	76.3	75.8	67.1	73.2	60.4
125.0	0.2	64.5	69.4	70.8	72.3	70.0	73.4	77.2	78.8	77.8	67.4	74.4	61.4
160.0	0.3	64.1	69.7	71.1	72.5	69.9	74.3	78.7	78.5	76.8	68.7	76.3	63.2
200.0	0.3	68.6	71.8	71.5	74.1	71.5	76.0	79.2	78.9	77.1	68.8	77.2	63.7
250.0	0.4	69.6	71.9	70.5	74.2	71.6	77.4	79.6	79.8	75.5	68.7	77.8	64.2
315.0	0.6	70.1	73.4	71.0	74.7	72.2	77.9	79.4	78.0	73.0	70.3	78.7	64.8
400.0	0.7	71.5	72.9	69.9	74.5	72.1	76.7	78.4	74.2	70.5	68.8	78.0	64.2
500.0	0.9	67.1	68.9	67.4	69.5	68.9	73.5	73.4	69.4	65.2	64.6	75.3	60.7
630.0	1.1	63.7	64.0	65.2	66.5	65.6	68.7	70.2	65.2	62.7	63.9	69.4	56.1
800.0	1.4	66.3	64.2	69.1	70.9	69.8	74.7	75.6	68.3	62.9	62.7	65.6	56.7
1000.0	1.8	67.4	68.3	70.4	75.1	73.4	80.1	79.2	71.7	63.1	63.2	71.6	52.1
1250.0	2.2	71.9	72.0	72.9	78.3	75.6	82.2	79.1	73.6	63.9	69.1	74.2	55.9
1600.0	2.9	71.3	71.0	70.2	76.0	73.9	77.3	75.7	71.6	64.4	70.2	73.7	58.1
2000.0	3.6	64.4	65.0	65.1	69.7	68.6	75.4	69.7	66.9	62.4	67.2	70.4	56.3
2500.0	4.6	70.5	68.6	72.0	77.0	77.8	81.4	75.7	72.0	63.3	65.9	67.8	58.0
3150.0	5.9	64.6	68.3	69.2	73.1	75.5	79.4	73.4	71.0	63.4	68.5	72.3	54.8
4000.0	7.6	74.1	70.1	72.1	74.6	78.4	83.7	77.9	74.1	65.6	70.2	73.7	54.8
5000.0	8.6	63.6	66.9	68.4	71.1	75.0	79.4	72.9	69.8	61.2	66.8	69.3	55.6
6300.0	11.1	60.7	65.7	67.6	72.2	74.5	78.4	71.6	68.9	58.9	65.1	67.3	52.7
8000.0	14.9	67.6	64.7	66.8	71.5	75.8	79.5	71.5	68.7	58.4	64.4	68.6	51.3
10000.0	20.4	68.0	66.2	67.9	72.6	74.9	80.5	75.2	69.4	61.0	65.7	70.1	51.2
12500.0	24.0	70.8	70.1	70.3	76.9	79.3	83.0	76.7	72.0	62.5	66.5	70.8	51.2
16000.0	42.8	72.7	70.0	71.0	76.1	80.8	87.3	78.4	73.1	63.3	66.3	71.8	50.1
20000.0	56.0	72.4	71.5	71.8	76.5	80.1	85.8	79.1	74.8	64.7	67.1	71.8	1.0
AVERAGE (50-10K)	83.3	83.0	83.4	87.2	87.2	87.2	91.8	90.0	88.2	85.3	81.1	87.5	73.7
AVERAGE (20-20K)	84.2	83.7	84.1	88.2	88.2	89.2	94.2	90.7	88.7	85.5	81.5	87.8	73.7
PNL - - -	94.7	94.7	96.0	99.9	101.1	105.9	101.9	99.7	92.1	93.9	93.9	98.5	74.7
PNLIC - - -	94.4	94.7	97.7	101.7	103.0	107.3	103.5	100.0	93.2	93.9	93.9	98.5	74.4

*LOCATED 129 FT FROM SOURCE

**LOCATED 200 FT FROM SOURCE

*SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

WPM'S. CORR. IS 1 ON PPM 1000 FT.

RUN 14

USAF GULF TAGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TYPE 331-5-251 - INLET ATTENUATOR AND WYNN COVER INSTALLED

POINT B - 400 SMP, 1591 PROP RPM, 41737 ENG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL OF 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10*	11*	12**
20.0	0.0	47.6	48.2	46.6	49.7	57.0	57.6	59.2	58.9	58.5	48.0	54.1	47.7
25.0	0.0	51.0	48.6	47.1	49.6	51.9	54.4	57.6	60.9	60.9	48.8	55.6	44.8
31.5	0.0	51.2	51.0	51.2	54.6	54.3	58.0	60.6	62.5	63.0	51.2	58.3	45.8
40.0	0.0	54.5	58.0	56.1	60.0	58.9	62.6	65.0	66.2	67.3	55.5	62.0	49.2
50.0	.1	61.7	60.9	58.9	59.8	59.8	63.2	67.2	69.8	69.5	59.1	63.9	52.3
63.0	.1	66.8	66.3	63.8	65.6	63.2	67.0	70.4	71.8	71.9	62.0	67.7	58.4
80.0	.1	69.1	64.0	67.4	71.3	68.2	71.0	72.0	73.3	72.4	66.0	69.5	56.5
100.0	.2	72.3	69.3	68.2	72.6	68.4	71.1	73.6	75.7	75.2	67.2	72.2	59.7
125.0	.2	67.1	66.6	66.2	69.4	67.1	70.9	74.6	76.8	76.2	66.0	73.2	60.3
160.0	.3	68.9	65.4	66.6	69.0	67.0	71.8	76.0	75.9	75.6	67.1	73.5	61.6
200.0	.3	65.0	67.0	67.4	70.1	68.1	73.4	75.1	75.9	74.5	66.8	73.7	61.5
250.0	.4	68.4	68.0	67.3	71.1	68.6	74.5	76.3	76.5	73.1	67.0	75.0	62.0
315.0	.6	67.5	70.0	67.6	72.1	70.1	76.1	77.4	75.6	72.1	68.3	75.9	63.1
400.0	.7	64.7	69.3	67.1	71.3	70.1	75.5	77.1	72.9	68.7	66.6	76.1	52.1
500.0	.9	68.8	63.2	63.1	66.3	66.9	68.8	72.9	68.6	64.6	61.8	73.2	57.7
630.0	1.1	64.9	61.6	64.1	63.3	61.8	65.4	64.9	64.3	62.2	63.6	67.2	52.1
800.0	1.4	63.7	59.4	65.9	65.9	64.2	67.5	68.6	63.1	62.0	61.9	63.2	47.9
1000.0	1.8	65.0	61.1	64.8	69.8	64.8	74.2	73.2	66.0	60.8	61.0	69.4	52.8
1250.0	2.2	64.7	65.6	67.1	73.7	70.7	77.2	75.3	68.9	62.0	65.6	71.8	56.9
1600.0	2.9	67.5	68.2	65.3	72.4	71.5	76.2	73.9	68.4	62.1	67.5	71.1	57.5
2000.0	3.6	64.2	63.0	61.4	66.0	65.3	69.8	68.6	65.4	60.5	64.0	68.4	55.8
2500.0	4.6	67.3	62.8	67.4	71.8	69.7	73.2	71.0	67.8	60.6	63.6	65.3	51.5
3150.0	5.9	68.5	66.8	65.9	68.5	70.4	73.1	72.3	69.7	61.4	67.9	69.5	54.6
4000.0	7.6	64.3	67.2	69.7	71.2	70.5	75.8	72.8	71.9	64.4	67.8	71.8	58.5
5000.0	8.6	65.9	65.4	65.1	67.6	68.6	74.3	69.7	68.4	60.0	65.3	67.0	53.2
6300.0	11.1	68.5	63.5	64.7	68.6	72.2	75.5	69.7	67.8	58.2	64.8	65.9	52.2
8000.0	14.9	67.2	62.8	64.2	68.0	75.4	77.4	71.4	67.0	58.3	63.5	68.7	52.1
10000.0	20.4	64.1	64.5	65.4	73.5	72.8	78.8	73.3	69.9	60.6	66.2	70.4	51.7
12500.0	29.0	64.8	67.7	68.6	75.5	76.7	81.8	74.5	71.8	62.4	66.4	70.3	51.1
16000.0	42.8	71.3	64.3	69.5	74.8	77.6	86.6	78.0	72.8	64.2	67.5	72.0	50.7
20000.0	56.0	72.2	71.5	70.1	75.5	78.3	86.3	79.8	75.3	65.6	68.1	72.6	1.0
OVERWALL (50-10K)	REL. H	74.8	74.8	79.9	83.9	83.3	87.4	87.2	86.0	83.9	79.4	85.3	71.9
OVERWALL (20-20K)	M2.1	81.0	81.0	81.0	85.4	85.9	92.2	84.6	86.4	84.2	80.2	85.9	72.0
PWL - - -	93.1	91.6	92.4	95.0	95.5	95.5	100.3	98.4	96.5	90.7	91.9	96.5	82.6
PWLIC - - -	94.2	91.6	94.3	97.4	94.7	94.7	100.3	94.4	96.5	92.0	91.9	97.7	83.0

*LOCATED 129 FT FROM SOURCE

**LOCATED 200 FT FROM SOURCE

RUN 15

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TYPE 331-5-251 - INLET ATTENUATOR AND DYNOMOMETER COVER INSTALLED

POINT A - 105 SMP - 1591 PRUP RPM - 41730 ENG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT.

FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10*	11*	12**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	50 DEG.	110 DEG.	130 DEG.
20.0	0.0	47.3	48.0	46.4	47.9	53.1	57.8	57.9	55.8	56.2	47.3	52.1	41.0
25.0	0.0	47.0	45.7	46.5	48.8	50.5	52.7	54.8	56.5	56.7	44.3	53.4	40.3
31.5	0.0	49.2	48.9	50.2	51.6	54.3	55.7	57.1	59.0	57.6	49.2	54.6	41.5
40.0	0.0	56.4	55.1	54.2	56.6	58.3	60.6	61.5	61.4	61.4	53.0	58.7	45.8
50.0	.1	58.8	57.6	55.5	58.7	57.2	60.6	62.8	63.6	63.4	55.1	58.8	46.5
63.0	.1	66.2	65.7	63.0	63.3	62.7	66.0	66.9	66.2	68.7	61.5	63.7	53.0
80.0	.1	68.8	67.3	66.2	67.8	68.2	71.9	69.9	69.0	67.2	66.7	66.3	54.5
100.0	.2	71.9	68.9	67.9	71.3	66.9	70.6	71.7	71.0	71.2	66.8	69.4	56.9
125.0	.2	65.5	64.0	65.0	67.6	66.3	69.7	70.6	70.2	70.1	64.5	68.8	55.6
160.0	.3	61.7	62.8	64.8	66.8	64.8	69.3	71.0	69.9	68.9	63.5	68.4	56.0
200.0	.3	62.9	65.1	65.8	68.1	66.2	70.7	71.9	71.5	69.5	65.1	70.1	58.4
250.0	.4	64.0	65.8	65.6	69.2	66.9	72.4	73.0	73.2	70.0	65.1	72.0	59.0
315.0	.6	69.0	68.2	66.0	69.4	68.3	73.4	74.5	73.1	68.7	64.5	72.9	60.7
400.0	.7	67.9	64.0	65.2	68.8	68.3	72.7	74.4	71.3	66.0	64.5	73.4	60.2
500.0	.9	63.3	62.3	61.8	65.0	64.6	67.5	70.9	67.8	61.9	60.4	71.0	57.0
630.0	1.1	66.2	62.6	61.5	65.9	61.9	64.7	63.8	64.5	63.7	64.9	66.2	54.8
800.0	1.4	65.0	60.9	64.5	67.4	64.3	66.6	67.0	63.1	63.7	62.7	62.5	50.1
1000.0	1.8	63.7	61.6	64.1	70.3	68.3	73.2	72.2	65.9	60.7	60.9	68.7	49.6
1250.0	2.2	67.9	67.0	64.6	74.2	72.9	78.2	75.7	69.5	61.9	66.9	72.1	53.6
1600.0	2.9	67.8	66.4	66.4	71.4	71.6	76.1	74.0	68.7	61.4	67.2	71.7	55.2
2000.0	3.6	66.2	63.7	62.7	67.9	65.5	70.5	70.6	66.4	61.2	64.4	71.2	58.2
2500.0	4.6	65.0	63.5	67.1	72.1	72.0	75.1	71.9	68.1	60.5	64.3	66.4	58.3
3150.0	5.9	67.2	67.1	67.0	69.3	68.8	73.2	73.1	70.2	61.1	67.8	70.1	55.0
4000.0	7.6	68.6	67.7	69.5	71.1	70.9	74.7	72.8	71.6	63.7	67.5	72.6	55.2
5000.0	8.6	66.3	65.3	67.0	67.8	68.8	73.0	70.8	68.6	59.4	66.5	68.5	54.2
6300.0	11.1	64.7	63.4	65.2	68.4	69.8	73.7	70.2	67.3	57.5	65.7	66.5	52.7
8000.0	14.9	65.3	63.3	64.6	68.4	69.9	75.5	69.9	66.7	57.2	64.1	66.6	51.8
10000.0	20.4	67.2	64.3	68.3	71.9	72.3	77.3	76.0	69.0	60.0	66.8	73.0	54.4
12500.0	28.0	69.5	67.3	67.9	75.1	75.3	80.4	75.0	72.1	60.1	66.5	69.4	50.7
16000.0	42.8	71.3	69.6	69.6	74.4	74.5	84.2	78.5	72.1	62.3	67.1	70.3	50.9
20000.0	56.0	71.9	72.6	71.3	75.8	77.4	85.0	79.8	76.8	64.8	68.7	71.1	50.5
OVERALL (50-10K)	NO.3	79.2	79.7	82.5	83.3	82.5	86.9	85.8	83.2	79.8	79.0	83.8	70.5
OVERALL (20-20K)	81.6	80.7	80.9	84.9	84.9	84.9	90.7	87.7	84.7	80.2	79.9	84.3	70.2
PWL - - -	92.7	91.6	92.8	95.7	95.7	95.2	99.3	98.0	95.5	89.1	91.8	96.4	81.7
PWLIC - - -	91.5	92.6	93.9	96.8	94.7	100.5	99.0	95.5	95.5	90.2	92.9	97.5	81.7

*NOISE SOUND PRESSURE LEVELS ME 0.0002 MICROMBAR

**LOCATED 129 FT FROM SOURCE
**LOCATED 200 FT FROM SOURCE

ATMOS. CORR. IS 1.0 DB PER 1000 FT.

RUN 16

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-1PE 331-5-251 - INLET ATTENUATOR AND DYNO COVER INSTALLED

POINT J - 120 SMP - 1114 RPM WPM - 79350 FNG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE 1" SOURCE = 100.0 FT.

FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10*	11*	12**
20.0	0.0	44.1	44.4	47.7	48.6	53.5	54.0	52.3	51.6	51.4	47.6	51.2	39.2
25.0	0.0	45.4	43.1	42.2	43.3	47.8	50.0	50.5	49.3	49.5	41.0	47.8	35.7
31.5	0.0	49.0	44.2	46.7	48.6	50.8	52.2	52.9	52.2	52.2	45.6	49.7	38.5
40.0	0.0	54.9	54.8	50.0	54.0	54.3	57.3	55.4	56.2	56.3	50.2	54.4	41.8
50.0	.1	54.8	53.6	50.6	52.4	52.2	55.0	56.8	56.9	57.1	50.4	54.3	42.6
63.0	.1	54.4	54.0	55.3	57.5	56.1	59.3	60.0	58.7	61.1	55.7	57.2	46.8
80.0	.1	59.5	54.4	56.4	59.6	56.3	59.6	59.8	60.4	59.9	54.7	58.2	45.1
100.0	.2	61.4	59.7	59.2	61.5	56.9	60.9	62.0	62.0	62.1	57.0	60.3	47.7
125.0	.2	63.6	62.4	62.6	65.2	63.7	68.0	67.5	66.5	64.7	61.3	65.3	53.3
150.0	.3	63.2	63.3	64.7	67.4	67.9	72.9	72.6	68.8	65.1	63.3	70.2	58.2
200.0	.3	61.8	63.8	64.5	66.9	65.5	69.3	70.5	68.1	62.8	63.3	68.1	55.3
250.0	.4	61.5	65.3	64.3	68.1	65.1	70.9	70.8	67.9	62.5	63.5	68.9	56.0
315.0	.6	65.7	68.2	65.7	69.4	68.2	73.3	72.4	67.6	63.3	66.2	71.8	58.2
400.0	.7	68.9	69.3	66.7	70.2	68.9	73.2	72.4	66.9	61.6	65.7	71.8	58.3
500.0	.9	64.8	66.1	67.3	69.9	69.3	71.5	72.5	71.5	63.0	62.7	73.3	58.3
630.0	1.1	61.2	60.1	60.1	62.3	60.4	64.0	62.0	58.7	57.6	59.7	65.1	52.1
800.0	1.4	57.5	56.6	58.7	61.2	58.4	62.7	63.7	57.6	56.3	54.3	57.2	45.7
1000.0	1.8	62.9	63.0	61.5	65.9	62.1	69.5	67.6	61.2	57.6	56.4	62.6	44.8
1250.0	2.2	64.6	64.4	64.7	69.4	65.9	72.7	69.7	63.7	58.5	61.5	65.7	47.0
1600.0	2.9	62.3	62.5	64.7	68.2	66.5	71.2	68.6	63.4	57.4	64.0	65.5	49.1
2000.0	3.6	64.0	64.5	60.4	61.4	63.0	64.8	63.3	59.1	56.7	61.5	64.3	50.7
2500.0	4.6	64.3	64.5	60.9	66.1	62.9	66.5	64.6	61.5	56.6	58.4	61.4	51.4
3150.0	5.9	64.3	64.5	65.1	65.4	64.7	68.6	64.7	65.5	58.7	63.7	65.4	50.5
4000.0	7.6	64.6	65.5	65.2	67.0	64.9	71.1	67.9	70.2	61.5	66.6	69.0	51.0
5000.0	8.6	63.9	64.1	63.8	64.5	65.7	70.8	67.4	66.8	58.9	62.3	65.0	53.0
6300.0	11.1	62.9	61.9	62.1	64.5	65.3	70.7	65.5	64.0	56.9	61.7	64.2	48.5
8000.0	14.9	62.5	62.9	67.2	68.5	69.3	75.4	71.1	60.1	60.1	65.3	70.6	53.8
10000.0	20.4	62.7	62.3	62.6	65.1	67.0	74.8	67.4	62.9	56.8	60.7	65.1	47.4
12500.0	29.0	62.3	61.0	62.4	65.8	64.6	77.1	68.4	63.6	58.6	59.9	65.5	45.4
16000.0	42.8	62.4	61.1	68.8	73.7	75.8	82.9	75.7	70.7	65.6	67.1	71.8	48.1
20000.0	56.0	74.5	73.6	72.8	79.6	84.4	92.6	86.9	78.0	73.5	71.0	81.4	55.1
OVERALL (50-10K)		77.6	77.6	77.4	80.2	79.2	84.3	82.5	79.7	74.6	76.2	81.1	67.2
OVERALL (20-20K)		79.7	79.5	79.2	83.5	84.1	93.7	88.5	82.3	77.5	77.8	84.5	57.5
PAWL - - -		84.4	84.7	89.7	92.0	91.3	96.0	93.4	92.5	85.8	89.4	92.8	77.4
PALIC - - -		90.1	90.4	91.0	92.6	92.9	96.7	95.0	95.4	86.9	90.6	94.5	78.5

NOTE SOUND PRESSURE LEVELS ARE 0.0002 MICRONBAR

*LOCATED 129 FT FROM SOURCE

APPROX. COR. IS 1 DB PER 1000 FT.

**LOCATED 200 FT FROM SOURCE

RUN 17

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED TYPE 331-5-251 - INLET ATTENUATOR AND MIMO COVER INSTALLED

POINT 1 - 105 SMP - 1119 PROP RPM - 29350 FNG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS												10*	11*	12**
		1	2	3	4	5	6	7	8	9	10	11	12			
20.0	0.0	45.9	47.6	48.2	45.7	51.1	55.3	52.2	54.0	55.7	1.0	49.5	47.2	1.0	49.5	47.2
25.0	0.0	46.1	45.6	44.7	42.3	47.0	49.5	52.1	54.6	54.6	43.1	49.5	46.2	43.1	49.5	46.2
31.5	0.0	50.9	47.9	49.5	48.4	50.8	52.3	54.4	56.3	56.9	46.8	51.3	48.8	46.8	51.3	48.8
40.0	0.0	53.5	55.4	53.4	52.8	55.1	55.7	57.1	59.6	58.1	50.8	54.5	51.4	50.8	54.5	51.4
50.0	.1	54.9	53.6	53.0	51.5	52.3	54.5	57.8	59.7	60.3	51.5	54.0	52.7	51.5	54.0	52.7
63.0	.1	54.4	59.4	58.5	56.4	56.1	59.2	62.5	62.4	63.6	56.7	57.1	56.5	56.7	57.1	56.5
80.0	.1	54.5	58.9	58.8	57.5	57.3	59.1	61.5	62.3	62.8	55.3	57.6	55.2	55.3	57.6	55.2
100.0	.2	60.3	60.4	61.0	60.9	59.9	62.1	62.4	64.3	65.1	57.6	59.8	57.4	57.6	59.8	57.4
125.0	.2	66.9	67.7	66.4	69.4	72.3	75.4	74.3	72.7	69.4	63.9	71.5	68.8	63.9	71.5	68.8
160.0	.3	66.2	66.4	68.4	71.9	74.6	77.6	77.6	74.5	71.4	66.2	74.9	71.4	66.2	74.9	71.4
200.0	.3	62.7	65.5	67.8	68.8	68.6	70.8	71.0	68.3	66.2	65.7	68.2	65.6	65.7	68.2	65.6
250.0	.4	64.2	66.6	66.7	68.4	68.4	71.0	71.4	68.8	64.6	65.2	68.3	65.8	65.2	68.3	65.8
315.0	.6	65.3	69.0	67.2	69.1	69.9	73.1	73.3	69.1	66.2	66.8	71.6	67.6	66.8	71.6	67.6
400.0	.7	67.9	69.4	67.4	68.4	70.1	71.4	73.1	67.9	64.1	65.9	71.5	67.0	65.9	71.5	67.0
500.0	.9	69.0	63.6	65.7	66.8	70.8	70.8	73.6	74.0	62.9	64.0	72.4	66.4	64.0	72.4	66.4
630.0	1.1	58.7	59.7	61.5	59.9	60.0	63.3	62.7	60.0	60.1	59.8	63.7	67.0	59.8	63.7	67.0
800.0	1.4	58.2	56.6	64.4	63.8	61.4	62.4	63.3	58.1	58.1	53.9	56.9	53.1	53.9	56.9	53.1
1000.0	1.8	62.3	61.7	65.8	67.6	65.9	69.0	68.0	60.3	59.9	57.7	63.4	54.4	57.7	63.4	54.4
1250.0	2.2	64.9	65.6	66.4	69.1	68.5	72.1	70.6	63.3	59.6	62.5	64.2	58.3	62.5	64.2	58.3
1600.0	2.9	65.0	65.7	62.6	65.2	67.5	70.7	69.3	63.0	59.3	64.7	65.9	59.9	64.7	65.9	59.9
2000.0	3.6	60.2	60.3	60.0	62.9	62.0	65.6	65.2	61.4	58.6	61.5	64.5	60.9	61.5	64.5	60.9
2500.0	4.6	60.3	59.7	64.0	66.6	67.8	65.7	64.1	61.3	58.1	58.1	60.0	59.2	58.1	60.0	59.2
3150.0	5.9	62.6	63.8	64.0	65.4	65.8	68.3	68.6	65.8	59.7	63.6	64.1	62.2	63.6	64.1	62.2
4000.0	7.6	65.1	63.9	67.2	65.2	67.9	69.9	67.1	68.2	61.7	64.7	64.9	61.9	64.7	64.9	61.9
5000.0	8.6	63.6	64.1	63.5	63.8	67.4	69.2	67.5	67.4	59.7	62.8	63.3	61.7	62.8	63.3	61.7
6300.0	11.1	61.7	61.4	62.2	63.0	67.5	69.0	65.1	64.5	60.7	60.7	61.7	61.7	60.7	61.7	61.7
8000.0	14.9	65.7	65.0	67.4	67.0	70.0	71.9	69.2	69.1	60.5	64.1	64.9	59.2	64.1	64.9	59.2
10000.0	20.4	62.7	61.0	62.7	63.8	68.2	72.0	67.3	64.1	58.4	59.8	62.5	54.1	59.8	62.5	54.1
12500.0	29.0	62.4	61.5	64.0	65.6	70.8	75.0	70.2	64.8	61.4	60.2	64.4	56.2	60.2	64.4	56.2
16000.0	42.8	60.9	60.4	70.9	73.8	79.9	82.7	79.0	72.7	68.6	66.3	70.7	57.5	66.3	70.7	57.5
20000.0	56.0	75.1	72.1	75.5	79.9	87.4	92.7	89.1	78.3	76.4	70.7	80.8	67.4	70.7	80.8	67.4
OVERALL (50-20K)		77.4	75.2	78.8	80.3	82.0	84.4	84.0	81.7	77.7	76.7	81.5	77.5	76.7	81.5	77.5
OVERALL (20-20K)		80.1	79.6	81.0	83.7	89.1	93.7	90.6	83.8	80.5	78.1	84.1	78.1	78.1	84.1	78.1
WHL - - -		84.6	84.3	91.1	91.3	93.2	95.0	94.2	92.4	87.2	88.8	91.7	84.9	88.8	91.7	84.9
PUBLIC - - -		91.5	90.0	92.3	91.9	95.1	95.8	94.1	95.8	87.8	89.4	93.3	81.1	89.4	93.3	81.1

*ENGINE SOUND PRESSURE IN DECIBELS RE 0.0002 VIBROBAR

**LOCATED 129 FT FROM SOURCE

ATMOS. CORR. IS 1.0 DB PER 1000 FT.

RUN 18

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SFPT 23.1971

ENGINE TESTED-TYPE 431-5-251 - 1-INLET ATTENUATOR AND DYNO COVER INSTALLED

POSITION - 105 SHP - 1273 PROP RPM - 33400 FPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100-0FT.

FOR MICROPHONES 1 THROUGH 9, TOTAL OF 12 MICROPHONES

FREQUENCY	ATMOSP. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10	11	12
		21 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	90 DEG.	130 DEG.	170 DEG.
20.0	0.0	47.4	48.2	47.9	45.7	50.9	50.4	53.9	53.4	54.3	51.9	51.9	44.4
25.0	0.0	44.4	45.7	45.4	45.7	48.5	49.6	52.3	52.7	54.9	50.8	50.8	47.9
31.5	0.0	44.8	49.7	48.6	48.8	51.9	52.8	55.4	55.7	55.9	52.2	52.2	49.3
40.0	0.0	55.9	55.1	54.3	54.1	57.2	56.6	58.5	59.7	59.9	51.8	51.8	51.6
50.0	-1	57.3	55.1	54.2	53.8	55.3	56.4	58.4	60.4	61.8	56.6	56.6	53.4
63.0	-1	62.2	61.2	59.4	60.1	60.4	61.0	63.6	63.4	65.0	58.4	58.4	57.3
80.0	-1	62.2	61.5	61.0	61.2	61.7	63.3	62.9	64.5	63.2	57.1	59.9	57.1
100.0	-2	63.3	62.9	63.3	63.0	62.2	63.4	65.1	65.7	66.4	59.0	62.0	64.7
125.0	-2	63.4	63.8	64.9	65.3	65.7	67.1	68.1	68.1	67.8	65.2	65.2	61.8
160.0	-3	64.3	66.2	70.4	73.4	74.4	79.3	79.6	75.5	74.0	77.2	77.2	74.2
200.0	-3	64.4	66.8	70.9	71.8	73.7	76.8	76.7	74.2	70.5	74.8	74.8	71.7
250.0	-4	65.4	68.1	67.8	69.8	70.3	73.8	73.7	72.8	67.1	72.1	72.1	69.1
315.0	-6	67.3	70.6	68.2	70.2	72.0	75.5	75.0	72.3	67.2	74.9	74.9	70.1
400.0	-7	69.2	71.2	68.3	70.5	72.7	74.8	75.0	71.1	66.8	74.5	74.5	69.1
500.0	-9	65.7	68.2	65.6	68.2	68.2	69.5	71.1	69.8	63.8	72.1	72.1	65.2
630.0	1.1	61.6	65.7	64.3	66.7	62.9	65.0	65.0	66.1	64.6	67.9	67.9	60.9
800.0	1.4	62.7	60.4	66.4	67.5	65.4	67.9	67.9	60.5	63.7	61.7	61.7	57.8
1000.0	1.8	66.8	66.5	68.1	71.4	70.8	73.0	71.9	64.8	62.6	68.3	68.3	62.7
1250.0	2.2	68.1	68.7	69.0	72.2	72.6	74.2	73.9	67.7	62.2	71.4	71.4	64.9
1600.0	2.9	67.9	67.6	65.3	67.8	70.5	70.4	71.3	67.5	62.7	71.4	71.4	64.1
2000.0	3.6	61.8	60.7	62.5	67.0	65.4	65.4	64.0	62.4	60.3	68.4	68.4	62.7
2500.0	4.0	64.9	64.0	66.3	68.5	71.7	70.1	69.4	64.8	60.3	64.2	64.2	58.3
3150.0	5.9	64.8	64.1	65.7	67.6	68.6	67.5	68.0	67.1	61.3	68.1	68.1	64.0
4000.0	7.6	69.2	69.3	70.5	67.9	71.9	72.8	72.8	74.4	64.9	70.7	70.7	64.4
5000.0	9.6	67.2	64.8	65.2	66.0	70.2	69.8	69.0	68.9	61.2	67.7	67.7	63.1
6300.0	11.1	64.5	63.8	63.9	65.1	69.1	69.8	67.6	65.9	59.5	65.9	65.9	60.0
8000.0	14.9	66.7	66.3	65.4	65.5	70.7	71.1	71.7	70.0	61.0	69.7	69.7	63.4
10000.0	20.4	67.6	64.0	64.0	65.9	70.6	73.6	69.9	66.2	60.5	67.9	67.9	60.0
12500.0	24.0	66.9	65.3	66.4	68.8	72.2	76.4	71.7	66.7	62.7	69.0	69.0	59.1
16000.0	42.4	70.9	71.0	69.8	73.1	77.4	80.4	76.7	72.6	66.9	72.6	72.6	60.5
20000.0	56.0	74.2	74.2	73.6	79.5	83.8	85.6	81.5	76.7	71.4	76.7	76.7	1.0
JWEHALL (50-10K)	74.3	80.2	80.5	82.3	84.1	84.1	86.0	85.9	83.4	79.7	79.0	84.3	80.0
UVEHALL (20-20K)	81.1	81.7	81.8	84.6	87.6	87.6	89.6	87.7	84.6	80.6	79.7	85.4	80.1
PAU - - -	92.4	92.7	93.4	93.6	96.2	96.2	96.4	97.1	94.3	89.7	91.6	95.4	90.1
PULIC - - -	91.4	94.3	95.1	94.4	97.4	97.4	98.1	98.5	98.4	90.9	93.4	96.6	91.3

*LOCATED 129 FT FROM SOURCE

**LOCATED 200 FT FROM SOURCE

RUN 19

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TYPE 331-5-251 - INLET ATTENUATOR AND DYNO COVER INSTALLED

POINT G - 1/5 SMP - 1273 PRUP WPM - 33400 FNG. WPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT.

FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORN.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10*	11*	12**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	50 DEG.	130 DEG.	130 DEG.
25.0	0.0	47.8	48.5	48.8	47.2	52.4	58.0	56.2	55.8	57.0	48.1	53.0	52.0
25.0	0.0	44.5	44.2	43.0	45.3	47.8	49.6	51.6	51.2	53.0	41.9	48.3	45.5
31.5	0.0	47.6	48.1	49.2	48.3	52.4	53.1	53.1	54.3	54.4	45.8	50.7	47.6
40.0	0.0	53.8	54.8	53.5	53.9	55.9	56.8	58.5	57.9	60.2	51.6	56.0	51.4
50.0	.1	54.9	54.9	53.6	53.9	54.5	56.4	58.2	59.6	60.5	51.1	54.9	51.1
63.0	.1	60.9	60.5	60.0	59.3	59.0	60.7	61.8	62.3	65.8	57.2	57.8	57.5
75.0	.1	60.8	60.9	61.0	60.8	60.2	62.1	61.3	63.8	64.5	58.4	61.1	57.4
100.0	.2	63.0	61.3	61.9	61.9	60.7	60.9	64.0	66.3	67.9	59.2	62.6	58.9
125.0	.2	62.4	62.1	63.9	63.7	63.2	64.1	66.0	68.1	68.2	61.7	63.6	60.8
150.0	.3	61.5	62.1	65.3	65.7	66.1	68.0	69.5	69.0	67.9	63.4	67.8	64.3
200.0	.3	61.9	64.8	66.4	66.9	67.0	70.4	71.9	70.5	66.8	64.7	69.6	66.9
250.0	.4	63.5	66.2	66.9	67.1	67.0	71.1	73.1	70.4	65.5	64.4	70.2	67.3
315.0	.6	65.3	68.8	66.6	68.7	69.0	72.7	73.1	70.4	64.8	66.4	72.1	68.2
400.0	.7	64.0	69.5	67.4	68.9	70.5	72.6	72.6	69.5	63.6	65.5	71.8	68.2
500.0	.9	65.6	66.6	64.7	67.3	69.1	67.0	69.1	67.4	63.1	61.3	69.9	64.6
630.0	1.1	61.6	64.4	63.7	65.5	63.0	64.3	63.8	63.8	63.3	57.9	64.4	59.6
800.0	1.4	60.3	59.0	65.3	66.8	64.7	68.4	69.2	62.0	60.6	56.4	62.5	54.7
1000.0	1.8	64.5	64.2	66.9	69.7	69.2	72.8	72.2	65.5	61.1	62.8	67.7	59.9
1250.0	2.2	66.1	67.0	68.0	70.6	71.0	74.0	73.2	67.5	61.4	66.1	69.4	63.5
1600.0	2.9	65.9	67.0	64.1	66.4	69.2	70.1	70.5	66.7	61.1	66.2	67.9	64.2
2000.0	3.6	60.5	60.6	62.7	66.7	63.6	65.2	63.8	61.1	59.6	60.1	62.4	62.4
2500.0	4.6	63.6	62.5	66.8	68.1	69.8	71.0	68.3	65.3	59.1	63.5	63.1	57.8
3150.0	5.9	64.0	64.9	66.1	67.9	67.1	68.4	67.5	66.8	61.7	63.9	65.8	64.2
4000.0	7.6	69.3	68.2	70.4	67.0	69.4	72.5	72.7	74.0	64.5	66.7	64.8	66.9
5000.0	8.6	65.1	64.8	65.2	64.6	67.6	70.4	68.3	67.4	60.7	63.7	64.9	62.4
6300.0	11.1	63.3	64.2	64.1	64.0	67.5	70.6	66.5	65.3	58.3	63.0	62.5	59.8
8000.0	14.9	67.0	69.6	69.3	65.1	71.9	73.7	69.7	68.4	60.7	64.7	65.7	63.1
10000.0	20.4	65.3	66.1	67.1	66.1	70.9	73.8	69.9	66.4	59.9	62.8	65.0	56.7
12500.0	29.3	66.1	66.8	67.6	67.7	71.6	76.3	71.2	67.0	61.6	62.7	66.8	56.9
15000.0	42.6	64.9	72.2	70.4	71.9	76.4	79.4	76.3	73.0	65.6	65.8	69.6	57.6
20000.0	56.0	72.9	75.6	74.1	76.7	81.9	83.7	80.5	77.0	69.3	68.8	72.9	50.2
OVERALL (50-10K)	74.3	79.2	79.6	80.4	80.4	81.5	84.0	83.4	81.6	77.8	77.1	80.9	77.4
OVERALL (20-20K)	80.1	81.5	81.3	82.5	82.5	84.5	87.9	85.9	83.4	78.8	78.1	81.9	77.4
PWL - - -	91.9	91.9	93.2	92.7	92.7	94.0	96.6	96.1	95.4	88.7	90.1	92.1	89.8
PWLIC - - -	94.5	93.0	94.8	92.7	92.7	94.5	98.0	97.7	97.7	89.8	91.2	92.1	91.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

**LOCATED 129 FT FROM SOURCE

ATMOS. CORR. IS 1 IN DB PER 1000 FT.

RUN 20

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-S-251, INLET ATTENUATOR AND DYN COVER INSTALLED

POINT M, 140 SHP, 1193 PHUP RPM, 31250 FNG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10	11	12
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	50 DEG.	130 DEG.	150 DEG.
20.0	0.0	47.5	47.4	48.7	46.5	50.3	52.4	54.4	53.2	57.4	47.4	50.0	50.8
25.0	0.0	47.8	43.0	42.0	41.1	46.9	48.9	51.5	51.3	52.8	40.7	48.6	47.3
31.5	0.0	47.4	46.6	48.1	46.1	51.0	51.5	52.0	52.5	53.2	45.6	49.9	47.2
40.0	0.0	53.8	54.2	52.1	51.2	56.6	57.7	56.5	57.4	58.2	50.6	53.3	50.9
50.0	.1	53.8	53.2	51.9	51.1	52.9	54.8	57.0	59.5	59.3	49.4	53.1	50.3
63.0	.1	58.7	54.5	58.4	56.6	57.4	58.7	60.9	61.3	63.7	54.5	57.4	55.3
80.0	.1	54.3	54.2	58.7	58.9	58.6	60.0	60.7	61.9	61.1	56.0	58.5	55.1
100.0	.2	60.4	54.7	60.0	60.2	59.4	61.7	62.3	64.6	64.8	57.6	59.5	56.9
125.0	.2	62.0	62.1	63.3	62.9	63.9	66.3	66.2	65.9	66.5	60.4	63.4	60.5
160.0	.3	63.3	63.7	66.3	68.8	71.6	74.8	74.7	71.2	70.2	64.2	72.3	69.5
200.0	.3	61.9	64.1	66.6	67.4	68.5	71.3	71.9	69.9	66.7	64.2	69.6	66.8
250.0	.4	62.9	65.6	65.9	67.9	67.2	71.4	71.2	69.9	64.8	63.9	69.2	66.3
315.0	.6	65.3	65.8	66.8	69.0	69.6	73.2	73.2	70.0	64.8	66.6	71.3	68.1
400.0	.7	68.6	67.6	67.8	69.7	70.6	73.1	73.2	68.9	63.2	66.1	72.0	67.6
500.0	.9	67.8	70.4	68.4	65.3	69.9	69.7	71.8	68.7	61.9	64.9	71.9	64.1
630.0	1.1	62.1	62.9	59.9	61.3	61.7	63.8	63.6	61.6	61.0	60.5	65.5	61.6
800.0	1.4	57.9	57.7	61.2	62.4	60.8	62.0	64.7	58.1	60.5	55.7	57.8	54.5
1000.0	1.8	54.6	58.5	64.0	67.0	65.7	68.5	68.5	61.2	60.5	55.7	64.3	54.1
1250.0	2.2	62.3	63.4	66.5	69.6	68.7	72.0	70.9	64.4	59.9	60.8	67.2	59.7
1600.0	2.9	64.1	65.3	65.1	68.2	69.7	71.3	70.8	65.6	59.4	63.6	67.8	62.0
2000.0	3.6	63.3	62.8	61.5	62.1	63.8	66.6	65.8	61.9	58.7	63.4	64.8	62.5
2500.0	4.6	54.9	59.8	63.6	67.0	67.4	66.0	65.3	61.6	58.1	59.4	60.8	61.8
3150.0	5.9	63.0	63.9	65.5	64.9	68.2	69.6	69.5	68.2	59.9	62.9	65.1	59.0
4000.0	7.6	63.9	65.9	66.8	67.4	67.7	69.7	68.9	69.7	62.6	66.3	68.2	62.2
5000.0	8.6	62.7	63.5	64.2	64.5	67.4	70.7	68.4	68.0	60.0	62.0	64.1	62.1
6300.0	11.1	60.7	61.8	63.1	64.2	67.2	69.4	66.5	64.1	57.5	61.5	62.6	57.3
8000.0	14.9	64.7	64.7	66.6	67.1	69.0	72.5	72.3	69.2	60.8	64.0	67.0	61.7
10000.0	20.4	63.5	64.5	64.7	67.5	69.6	73.9	69.7	65.3	58.4	62.1	64.2	57.9
12500.0	29.0	62.8	64.1	66.1	66.7	70.8	76.6	71.9	65.3	60.1	62.2	65.0	59.9
16000.0	42.8	68.7	70.4	70.2	72.7	76.8	81.2	77.8	75.2	65.3	65.7	68.9	57.8
20000.0	56.0	73.0	73.0	74.2	78.6	85.2	89.9	86.0	76.6	71.3	69.2	76.0	62.7
OVERALL (20-10K)		77.0	78.3	78.6	80.0	81.2	83.9	83.5	80.7	77.0	76.4	81.1	77.0
OVERALL (20-20K)		74.0	74.0	74.0	74.0	74.0	74.0	74.0	74.0	74.0	74.0	74.0	74.0
PNL - - -		88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0
PALIC - - -		88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0

*LOCATED 129 FT FROM SOURCE

**LOCATED 200 FT FROM SOURCE

SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR
ATMOS. COR. IS 1 DB PER 1000 FT.

RUN 21

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TYPE 331-S-251 - INLET ATTENUATOR AND DYNO COVER INSTALLED

POINT E - J21 SHP - 136R PROP RPM - 35900 ENG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT.

FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10*	11*	12**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	50 DEG.	130 DEG.	130 DEG.
20.0	0.0	47.3	48.6	47.7	45.8	52.9	59.5	52.7	54.6	57.9	1.0	49.6	49.7
25.0	0.0	45.1	46.2	44.6	45.6	49.5	56.3	51.4	53.9	56.3	43.1	49.8	46.3
31.5	0.0	47.9	49.9	49.6	48.6	52.2	54.6	54.2	56.1	58.7	46.1	53.2	50.7
40.0	0.0	55.4	56.2	53.6	53.3	54.5	58.0	58.3	60.0	62.4	51.6	56.6	53.1
50.0	.1	57.1	56.7	55.5	55.5	56.0	58.1	59.6	62.5	63.3	53.7	58.8	54.2
63.0	.1	62.4	63.0	60.7	59.5	60.7	61.8	63.4	64.8	66.8	58.5	60.9	58.6
80.0	.1	62.7	62.1	61.2	62.9	62.9	62.7	64.6	65.8	66.3	58.8	61.2	59.0
100.0	.2	63.2	62.9	61.9	62.4	62.4	63.3	65.7	67.4	68.5	58.8	63.6	60.3
125.0	.2	61.9	61.9	63.0	62.5	63.4	64.9	66.7	68.7	69.2	60.1	65.1	61.9
150.0	.3	61.2	61.9	65.7	63.4	63.7	67.2	68.3	69.2	67.7	63.7	66.2	63.4
200.0	.3	60.6	63.4	65.5	65.1	65.9	68.4	69.7	71.0	68.4	63.6	67.7	64.9
250.0	.4	62.3	64.5	64.0	66.6	65.7	70.2	71.3	72.0	68.1	62.8	69.9	66.4
315.0	.6	63.7	68.1	65.6	67.5	67.9	71.6	72.8	71.6	67.0	64.7	72.0	67.7
400.0	.7	67.7	68.4	66.7	67.6	69.7	72.1	73.3	71.3	64.0	64.5	71.9	67.5
500.0	.9	62.6	62.8	63.3	63.8	67.0	67.2	70.0	65.7	60.5	60.9	69.6	64.3
630.0	1.1	60.3	63.8	58.0	64.5	62.7	65.5	62.7	62.2	62.5	59.2	64.9	60.0
800.0	1.4	57.5	57.5	60.4	60.5	60.9	63.0	63.6	59.9	60.8	54.7	58.7	53.8
1000.0	1.8	59.9	56.2	62.8	64.9	64.7	69.3	68.0	63.6	59.2	55.2	64.8	55.9
1250.0	2.2	62.4	62.1	66.7	69.3	68.6	73.3	71.2	67.2	59.6	61.7	67.8	59.6
1600.0	2.9	64.1	63.6	64.4	68.3	69.4	72.6	69.5	66.4	59.8	63.4	66.8	60.7
2000.0	3.6	62.5	62.4	60.9	62.6	65.8	68.1	66.4	63.7	59.3	62.1	65.2	61.5
2500.0	4.6	64.3	64.4	66.5	66.1	69.6	70.9	66.3	68.5	61.6	64.9	66.1	58.5
3150.0	5.9	65.8	64.3	68.9	69.9	69.0	70.9	71.9	71.0	66.1	68.8	71.4	64.3
4000.0	7.6	64.4	64.1	65.8	65.3	68.8	71.1	68.4	67.6	61.7	64.7	64.7	60.9
5000.0	8.6	62.6	62.7	64.5	65.5	68.9	71.0	66.4	65.5	58.6	63.1	63.6	57.7
6300.0	11.1	62.4	64.5	66.6	66.3	69.7	74.3	68.7	67.3	59.6	63.7	64.7	58.8
8000.0	14.9	67.3	67.2	69.3	68.7	73.0	77.4	71.1	69.5	62.2	66.1	66.8	60.6
10000.0	20.4	64.3	64.3	66.4	68.5	72.1	80.0	71.0	67.9	60.5	62.8	65.4	55.5
12500.0	24.8	68.6	67.9	68.6	72.2	75.7	82.9	75.0	72.1	63.9	64.7	68.3	55.6
16000.0	42.8	73.4	75.1	75.9	81.4	82.2	84.3	82.2	81.2	70.9	70.2	73.1	59.4
20000.0	56.0	77.3	78.1	78.7	79.6	81.1	84.3	82.9	81.8	78.6	76.7	80.9	74.4
OVERALL (50-10K)		77.3	78.1	78.7	79.6	81.1	84.3	82.9	81.8	78.6	76.7	80.9	74.4
OVERALL (20-20K)		74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5
PWL - - -		91.3	91.5	91.9	93.0	93.8	96.2	95.5	94.3	89.6	90.6	93.8	88.9
PWLC - - -		91.3	93.2	93.0	94.4	93.8	96.2	95.5	94.3	91.1	92.2	95.9	91.1

*LOCATED 129 FT FROM SOURCE

**LOCATED 200 FT FROM SOURCE

SOUND PRESSURE IN DECIBELS RE 0.0002 MICRONBAR

ATMOS. CORR. IS 1.0 DB PER 1000 FT.

RUN 22

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED: 1P1 331-5-251, INLET ATTENUATOR AND DYNCO COVER INSTALLED

POINT 0, 325 SHP, 1444 RPM WPA, 3/420 ENG. RPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 1000.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOSP. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10*	11*	12*
20.0	0.0	44.9	44.7	49.5	48.0	51.2	57.1	55.5	56.8	58.4	48.1	50.3	50.2
25.0	0.0	47.5	47.7	47.4	46.1	50.7	52.5	55.8	56.0	57.3	44.2	51.7	49.2
31.5	0.0	50.2	51.5	53.1	52.8	56.6	57.3	58.9	59.8	63.9	50.2	55.6	52.2
40.0	0.0	57.0	57.8	57.1	57.0	59.2	61.8	61.0	65.0	64.9	53.6	66.9	55.1
50.0	.1	54.6	59.2	57.9	58.0	60.1	61.2	63.9	66.2	66.4	56.2	60.0	57.7
63.0	.1	63.0	63.4	62.8	61.6	63.1	64.0	66.5	68.5	69.0	59.9	62.7	60.7
80.0	.1	65.4	65.8	65.1	67.0	66.4	67.4	67.6	70.8	70.2	63.6	65.5	62.0
100.0	.2	65.9	65.7	64.6	66.5	64.7	65.7	68.7	72.2	72.4	63.0	64.2	63.1
125.0	.2	63.6	63.7	65.2	65.0	64.7	66.5	69.8	72.5	72.3	63.0	67.3	63.9
160.0	.3	61.6	62.8	65.6	64.6	64.7	68.1	70.6	71.5	70.9	63.5	68.4	64.5
200.0	.3	62.3	65.0	66.5	66.5	66.1	69.9	71.5	72.9	71.7	64.4	69.4	66.3
250.0	.4	63.0	65.2	65.6	67.7	66.8	71.5	73.1	73.9	70.8	63.9	70.6	68.0
315.0	.6	64.4	68.2	66.3	68.0	68.5	72.8	73.9	73.1	69.1	65.5	72.5	68.9
400.0	.7	64.1	68.7	66.8	67.9	70.0	72.3	74.6	71.2	66.2	64.4	72.6	68.0
500.0	.9	64.8	68.0	63.9	63.4	66.4	66.4	70.2	66.9	61.9	59.8	70.4	65.6
630.0	1.1	57.6	66.6	59.8	62.4	60.8	65.0	63.5	65.6	66.1	57.7	64.9	61.0
800.0	1.4	57.4	56.9	60.0	65.2	61.4	64.5	64.9	59.7	64.6	54.1	58.0	54.5
1000.0	1.8	61.5	57.4	62.6	65.2	64.9	70.9	69.8	63.7	61.2	57.5	64.3	58.5
1250.0	2.2	63.2	63.4	66.9	69.6	68.6	74.9	72.5	67.4	62.5	63.6	67.5	59.8
1600.0	2.9	64.5	64.6	65.9	69.1	69.9	73.2	70.6	66.5	60.8	64.4	66.9	60.0
2000.0	3.6	63.4	63.0	62.3	62.1	65.8	67.9	66.7	64.1	59.9	62.1	65.9	62.2
2500.0	4.6	61.4	62.7	64.5	67.8	64.7	69.7	67.7	64.8	61.3	61.1	64.2	64.0
3150.0	5.9	64.4	65.1	68.1	65.8	69.4	70.2	70.7	68.4	60.8	64.9	65.0	60.7
4000.0	7.6	66.5	64.5	69.1	68.8	64.2	71.7	70.9	70.9	65.0	68.2	70.0	61.4
5000.0	8.6	64.0	65.7	66.4	65.8	67.9	70.6	68.4	48.0	60.2	63.8	63.0	61.5
6300.0	11.1	62.0	62.6	64.5	65.5	64.0	71.0	67.3	65.2	57.5	61.9	63.3	58.5
8000.0	14.9	63.0	63.7	64.8	65.3	68.4	73.6	68.3	65.8	57.4	62.3	63.5	58.1
10000.0	20.4	65.6	67.4	69.4	67.9	70.3	76.4	73.0	69.0	60.2	66.9	65.4	57.9
12500.0	24.0	64.9	65.7	68.2	69.3	72.8	80.1	72.1	68.7	59.5	63.6	65.6	58.9
16000.0	42.8	67.0	69.6	69.6	72.1	75.7	83.1	75.9	71.8	62.4	63.7	68.2	55.9
20000.0	56.0	70.1	73.5	74.9	76.1	78.3	84.0	79.4	78.5	67.2	67.5	71.8	57.8
AVERAGE (50-10K)		77.7	78.8	79.3	80.0	80.9	84.6	84.1	83.4	81.2	77.2	81.4	77.4
AVERAGE (20-20K)		74.0	80.3	81.2	82.2	84.0	89.3	86.0	85.0	81.6	78.0	82.2	77.5
WNL - - -		90.3	91.6	92.4	92.7	93.6	96.7	95.9	94.8	90.0	90.6	93.4	88.0
MULTI - - -		91.8	94.0	92.4	94.0	93.6	96.7	95.9	94.8	91.5	91.9	95.3	88.0

* WNL* SOUND PRESSURE LEVELS AT 0.0002 MICRON BAR

** LOCATED 129 FT FROM SOURCE

ABOUT 0.00015 IS 1.0 PER 100 FT.

** LOCATED 200 FT FROM SOURCE

RUN 24

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TEST CELL - IFE 431-5-251 - INLET ATTENUATOR AND DYNOMETER COVER INSTALLED

WIND DIRECTION 150 DEG. 1045 P3000 WPM - 27400 FNG. WPM - CORRECTED SPL (FAA DAY)

DISTANCE TO SOURCE = 100.0 FT. FOR MICROPHONES 1 THROUGH 9, TOTAL 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS												10°	11°	12°
		1 DEG.	2 DEG.	3 DEG.	4 DEG.	5 DEG.	6 DEG.	7 DEG.	8 DEG.	9 DEG.	10 DEG.	11 DEG.	12 DEG.			
20.0	0.0	47.7	44.9	47.9	46.2	51.3	44.3	51.1	53.7	53.0	45.7	48.5	43.7	45.7	48.5	43.7
25.0	0.0	44.4	44.2	42.9	40.8	46.8	48.5	51.7	52.4	53.9	41.9	48.3	44.0	41.9	48.3	44.0
31.5	0.0	47.7	44.4	49.2	46.4	49.6	51.0	52.5	53.8	55.4	45.1	49.8	46.2	45.1	49.8	46.2
40.0	0.0	52.6	52.5	52.3	50.1	53.7	54.0	55.3	56.5	57.6	48.3	51.9	49.6	48.3	51.9	49.6
50.0	0.1	52.5	52.4	51.6	50.8	51.3	53.7	55.6	56.7	58.9	49.1	51.8	50.0	49.1	51.8	50.0
63.0	0.1	50.2	56.7	56.8	55.6	54.0	57.2	59.5	60.0	61.1	53.4	56.7	54.7	53.4	56.7	54.7
80.0	0.1	57.5	57.3	57.4	59.0	54.0	59.0	59.5	59.5	59.4	53.1	56.8	53.1	53.1	56.8	53.1
100.0	0.2	54.6	59.8	60.9	61.0	60.9	61.4	61.4	61.7	61.6	56.7	59.2	55.4	56.7	59.2	55.4
125.0	0.2	63.8	65.4	66.3	68.2	70.0	71.4	69.0	67.4	66.0	63.5	66.5	63.3	63.5	66.5	63.3
150.0	0.3	63.5	65.2	69.1	72.1	73.2	75.2	73.9	69.8	67.3	67.0	71.1	67.8	67.0	71.1	67.8
200.0	0.3	62.9	65.2	69.4	70.5	70.1	72.3	71.5	68.9	67.1	67.0	69.4	66.0	67.0	69.4	66.0
250.0	0.4	64.0	67.1	67.8	69.4	69.4	72.1	70.8	69.7	67.3	66.2	69.1	66.0	66.2	69.1	66.0
315.0	0.6	60.3	64.4	68.2	69.4	70.4	72.7	72.5	69.3	67.6	64.8	70.6	67.3	64.8	70.6	67.3
400.0	0.7	64.4	64.4	67.8	70.9	70.5	72.0	72.8	67.7	65.7	64.7	70.9	67.0	64.7	70.9	67.0
500.0	0.9	64.4	64.4	64.5	71.9	70.2	72.0	72.2	65.6	65.6	62.3	71.6	67.2	62.3	71.6	67.2
630.0	1.1	61.0	60.0	57.5	59.4	59.2	61.2	60.5	57.7	58.0	52.6	62.2	59.7	52.6	62.2	59.7
800.0	1.4	57.6	56.7	61.7	63.2	61.8	63.4	64.1	57.2	58.6	57.5	64.5	64.5	57.5	64.5	64.5
1000.0	1.8	60.4	59.3	64.4	67.4	64.6	69.4	69.2	60.5	60.6	62.3	64.7	60.8	62.3	64.7	60.8
1250.0	2.2	63.6	66.0	67.3	69.7	70.2	72.6	71.5	64.5	61.6	65.4	68.1	62.9	65.4	68.1	62.9
1600.0	2.9	65.2	65.1	65.2	66.0	68.0	69.9	70.2	62.6	59.9	63.6	68.6	62.9	63.6	68.6	62.9
2000.0	3.6	62.7	61.3	59.5	60.8	62.3	63.8	64.6	59.3	59.8	56.3	66.5	63.1	56.3	66.5	63.1
2500.0	4.6	54.7	54.0	63.4	65.3	67.8	67.1	66.5	61.2	60.6	62.3	61.7	61.7	62.3	61.7	61.7
3150.0	5.9	61.7	62.2	62.7	62.4	65.4	65.7	67.3	62.7	60.4	59.3	63.9	55.6	59.3	63.9	55.6
4000.0	7.6	62.4	63.0	64.2	64.3	66.6	68.9	67.6	68.4	62.5	63.5	66.0	61.1	63.5	66.0	61.1
5000.0	8.6	62.5	61.3	62.3	62.7	65.5	68.3	66.8	66.4	62.0	59.4	63.4	59.2	59.4	63.4	59.2
6300.0	11.1	54.7	63.3	67.2	67.5	67.8	69.7	66.0	67.9	62.3	60.9	61.9	54.1	60.9	61.9	54.1
8000.0	14.0	60.2	60.6	63.9	65.2	66.2	69.7	66.0	65.4	62.8	59.2	62.8	52.5	59.2	62.8	52.5
10000.0	20.4	54.3	50.4	58.5	60.9	65.3	69.9	66.3	60.2	63.6	54.5	61.9	52.5	54.5	61.9	52.5
12500.0	29.0	61.0	59.8	61.7	64.8	68.8	73.6	69.3	63.6	67.5	57.5	64.7	52.5	57.5	64.7	52.5
16000.0	42.8	67.3	67.3	71.2	75.7	82.7	86.9	84.0	75.1	80.6	65.5	77.3	61.9	65.5	77.3	61.9
20000.0	56.0	74.6	69.3	73.3	77.6	84.6	89.9	86.9	79.2	84.6	66.9	80.2	63.9	66.9	80.2	63.9
OVERALL (20-10K)		74.7	74.0	74.4	81.0	81.5	83.4	82.7	79.4	77.4	76.3	80.6	74.4	76.3	80.6	74.4
OVERALL (20-20K)		74.5	74.2	80.5	83.5	84.0	92.3	89.7	83.1	86.7	77.2	84.4	74.4	77.2	84.4	74.4
WHL - - -		87.9	84.6	90.1	91.3	92.5	94.4	93.5	91.6	88.2	87.6	91.4	84.4	87.6	91.4	84.4
WHL - - -		87.9	84.6	90.1	91.3	92.5	94.4	93.5	91.6	88.2	87.6	91.4	84.4	87.6	91.4	84.4

*QUIET SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

ATMOS. CORR. IS IN DB PER 1000 FT.

*LOCATED 129 FT FROM SOURCE

**LOCATED 200 FT FROM SOURCE

- b. Case-Radiated Noise and Modified Exhaust Duct Tests (21 pages)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972
ENGINE TESTED - TYPE 331-S-251 ENGINE COVER INSTALLED, TOP REMOVED
25 POINT A - 105 SHP, 1591 PROP RPM, 41730 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	53.3	51.4	50.7	50.0	1.0	54.7	53.0	55.0	72.0	61.3	47.1
25.0	0.0	51.8	50.5	49.9	51.1	51.1	50.7	53.3	56.7	72.4	59.8	50.3
31.5	0.0	54.0	53.6	54.0	53.5	55.4	54.4	55.7	58.1	68.8	62.1	52.5
40.0	0.0	58.0	57.3	56.9	56.9	58.5	57.0	59.3	61.7	68.6	64.3	53.6
50.0	.1	59.4	58.2	57.7	57.5	57.0	56.9	59.8	64.0	67.8	65.3	54.1
63.0	.1	67.0	67.3	65.0	62.8	65.5	64.4	64.9	67.3	68.7	70.6	59.0
80.0	.1	70.8	68.8	69.8	71.5	69.5	69.8	68.8	71.3	71.4	76.2	63.5
100.0	.2	73.9	73.5	69.6	68.3	71.0	70.4	70.9	72.6	72.7	76.1	65.6
125.0	.2	68.4	67.6	68.9	68.3	70.5	70.8	73.6	74.5	72.6	79.2	68.9
160.0	.3	63.8	63.9	68.2	70.6	68.4	69.6	72.3	74.0	71.0	79.4	69.6
200.0	.3	64.5	65.5	66.5	67.5	68.4	69.6	72.3	74.0	69.5	77.0	68.0
250.0	.4	64.6	66.7	64.9	66.9	67.3	71.4	72.2	73.4	67.9	75.1	67.7
315.0	.6	63.6	65.6	64.6	65.7	66.5	68.4	71.5	72.2	65.1	70.6	66.7
400.0	.7	63.9	64.9	66.4	67.6	67.7	67.7	73.1	71.4	65.3	69.6	66.6
500.0	.9	60.5	60.9	62.1	60.7	62.8	60.7	66.1	66.0	60.8	75.4	59.9
630.0	1.1	60.5	59.1	64.9	63.5	61.5	62.5	63.6	60.4	64.7	81.6	55.9
800.0	1.4	62.6	59.3	65.6	67.2	66.0	68.0	69.3	64.2	64.4	81.8	58.6
1000.0	1.8	63.7	61.6	65.6	68.9	67.9	70.9	72.4	67.0	61.9	78.1	62.2
1250.0	2.2	66.0	64.5	67.7	70.2	70.4	71.9	73.8	68.9	59.6	76.8	66.3
1600.0	2.9	63.1	64.8	64.9	64.7	68.0	68.2	69.8	66.4	58.1	79.8	65.7
2000.0	3.6	61.0	57.9	61.5	68.3	63.4	67.7	64.3	61.7	56.2	75.3	61.8
2500.0	4.6	65.8	64.1	66.3	67.2	69.1	72.5	68.8	65.6	56.2	76.6	58.3
3150.0	5.9	66.0	66.1	66.0	66.8	67.1	71.0	65.7	63.3	55.2	74.2	61.3
4000.0	7.6	70.4	68.4	70.9	67.5	69.0	74.9	68.2	65.3	55.5	77.9	59.9
5000.0	8.6	63.3	61.7	63.2	62.3	67.3	71.0	64.2	62.5	51.7	75.7	56.3
6300.0	11.1	61.5	59.7	61.5	62.2	67.6	70.8	63.3	62.2	50.0	75.7	54.3
8000.0	14.9	61.1	59.6	60.7	62.3	65.6	71.4	63.1	61.1	49.4	75.4	51.9
10000.0	20.4	64.5	66.7	66.5	65.1	60.4	72.3	65.9	64.1	51.0	78.5	53.4
12500.0	29.0	65.6	64.1	65.9	68.2	69.5	75.3	67.4	63.5	50.9	81.2	52.8
16000.0	42.8	64.4	61.7	63.6	66.3	64.9	76.3	64.9	63.8	53.2	83.8	53.4
20000.0	56.0	66.0	66.5	66.9	68.3	70.7	76.2	71.9	1.0	1.0	85.5	1.0
OVERALL (50-10K)		80.1	79.6	80.2	81.0	81.7	83.9	83.7	83.3	80.4	91.1	78.0
OVERALL (20-20K)		80.6	80.0	80.6	81.6	82.5	85.6	84.3	83.5	82.0	93.0	78.0
PNL - - -		92.4	91.2	93.1	92.3	93.7	97.5	94.0	92.0	85.0	103.0	87.1
PNLTC - -		94.3	92.6	95.2	93.5	94.9	98.8	95.3	93.0	85.0	104.2	87.1

NOTE SOUND PRESSURE IN DECIBELS OF 0.0002 MICRONBAR
ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, TOP REMOVED

26 POINT C - 650 SHP . 1591 PROP RPM . 41730 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS ---										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	53.5	54.3	53.8	57.7	54.2	53.8	55.0	57.7	67.5	61.6	52.1
25.0	0.0	55.2	54.5	56.0	55.4	55.8	54.4	57.2	61.2	67.2	63.7	53.3
31.5	0.0	57.0	55.8	58.1	56.9	57.9	56.9	60.4	63.7	67.0	66.3	55.6
40.0	0.0	60.5	60.6	60.5	60.9	61.4	60.2	63.8	66.4	67.2	68.8	57.4
50.0	.1	62.7	61.8	62.5	62.3	61.7	61.9	65.7	69.2	69.5	71.1	59.8
63.0	.1	67.8	68.5	67.1	66.5	68.0	67.9	69.4	73.2	71.4	75.7	65.6
80.0	.1	71.3	69.2	71.4	72.7	72.0	72.1	72.5	76.3	73.0	78.1	67.9
100.0	.2	74.3	73.5	72.1	72.3	71.8	71.4	75.3	78.3	76.0	79.8	70.5
125.0	.2	70.0	68.3	71.6	71.1	73.3	74.5	78.1	80.2	76.6	83.2	72.9
160.0	.3	65.8	68.2	72.2	73.5	73.8	76.0	80.3	80.3	74.8	83.0	75.2
200.0	.3	67.6	70.1	71.2	72.2	72.3	75.1	78.4	80.0	72.5	82.2	73.7
250.0	.4	67.3	70.2	69.0	70.9	71.5	74.9	77.1	77.2	68.0	79.0	71.6
315.0	.6	65.9	68.5	68.2	68.8	69.9	73.5	76.3	77.2	65.9	74.2	70.3
400.0	.7	66.0	67.5	69.1	68.4	70.6	72.3	76.7	73.8	65.3	75.5	68.7
500.0	.9	63.8	64.0	65.5	64.6	67.0	67.4	70.2	66.9	61.5	81.5	61.8
630.0	1.1	61.4	59.8	69.1	69.1	67.0	68.0	69.4	67.1	61.5	84.7	60.5
800.0	1.4	63.1	59.7	70.7	72.8	71.4	74.4	75.0	72.1	62.4	86.2	66.0
1000.0	1.8	65.2	64.1	71.1	74.1	73.9	77.8	77.2	73.2	62.8	81.1	68.4
1250.0	2.2	67.5	67.9	70.8	74.2	75.5	79.5	77.9	72.8	61.7	81.7	70.3
1600.0	2.9	67.0	67.3	67.4	69.6	72.4	75.2	73.1	69.6	62.3	82.7	67.4
2000.0	3.6	64.0	62.0	67.6	74.3	71.4	76.9	71.5	68.8	60.3	79.7	62.5
2500.0	4.6	68.3	66.4	71.3	73.2	77.5	82.5	76.3	70.8	62.0	83.3	68.8
3150.0	5.9	66.8	67.1	69.0	71.0	73.2	78.3	72.5	69.0	60.9	83.7	65.6
4000.0	7.6	68.6	69.1	72.5	71.1	75.5	82.6	75.3	69.0	60.8	83.2	67.6
5000.0	8.6	64.3	63.6	65.7	67.2	71.4	78.1	69.9	67.1	58.1	80.1	61.3
6300.0	11.1	63.8	61.1	64.5	66.7	71.6	78.8	67.9	65.4	56.5	77.6	59.3
8000.0	14.9	60.3	60.4	62.6	64.1	67.5	73.6	65.3	62.8	52.1	76.0	53.8
10000.0	20.4	63.5	64.1	67.5	66.3	70.3	75.0	66.1	64.5	51.7	77.7	52.3
12500.0	29.0	65.1	65.0	68.4	67.7	70.7	76.8	67.7	62.6	51.6	80.1	51.3
16000.0	42.8	61.7	61.6	65.6	66.1	70.4	77.9	69.2	62.7	56.5	82.1	55.5
20000.0	56.0	65.4	67.9	66.6	67.0	70.3	76.5	71.5	1.0	58.2	83.3	59.7
OVERALL (50-10K)		81.2	81.2	83.4	84.8	86.1	90.4	88.8	88.5	83.1	95.1	82.6
OVERALL (20-20K)		81.5	81.6	83.7	85.0	86.5	91.0	89.0	88.5	83.6	95.7	82.7
PNL - - -		92.6	92.7	95.8	96.7	99.5	104.6	99.9	96.7	88.4	107.7	92.4
PNLIC - -		93.6	93.9	97.5	96.7	101.1	106.2	101.3	96.7	88.6	108.8	94.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF WHIFT ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1973

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, TOP REMOVED

27 POINT E, 350 SHP, 1353 PROP RPM, 35470 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -										
		1 20 DEG.	2 30 DEG.	3 50 DEG.	4 70 DEG.	5 90 DEG.	6 110 DEG.	7 130 DEG.	8 150 DEG.	9 170 DEG.	10* 130 DEG.	11** 130 DEG.
20.0	0.0	54.4	52.2	55.5	50.8	49.9	53.6	52.4	53.9	54.1	62.2	46.9
25.0	0.0	50.8	51.8	51.4	50.7	50.7	49.4	53.5	56.3	56.7	59.0	49.1
31.5	0.0	52.9	54.9	54.7	54.6	53.1	54.2	55.7	58.5	58.8	61.1	51.4
40.0	0.0	59.0	58.4	58.2	57.0	57.4	57.2	58.1	60.9	60.9	63.7	54.2
50.0	.1	59.3	59.1	58.1	58.3	57.3	58.0	59.8	62.7	62.5	64.6	55.4
63.0	.1	64.0	65.3	62.4	61.9	61.3	63.2	64.3	66.9	66.2	70.5	59.2
80.0	.1	66.6	65.3	66.7	69.1	67.4	68.3	68.0	68.5	61.4	73.3	61.4
100.0	.2	67.7	67.6	65.0	67.4	65.5	65.7	68.2	70.3	70.6	73.6	62.9
125.0	.2	65.5	64.2	64.7	67.2	69.0	70.6	71.8	72.6	72.0	77.8	67.2
150.0	.3	64.3	66.5	71.3	73.2	73.3	74.5	76.6	75.7	72.4	80.7	72.9
200.0	.3	65.6	66.0	68.0	69.3	70.0	71.9	74.1	74.6	70.5	78.8	70.4
250.0	.4	62.1	64.9	63.0	65.3	64.6	69.1	69.7	70.2	64.4	73.0	65.0
315.0	.6	61.2	62.8	62.4	63.0	64.4	66.7	68.2	69.6	62.6	68.8	63.9
400.0	.7	62.6	63.8	64.2	63.5	66.4	66.5	69.8	67.1	63.9	69.0	65.1
500.0	.9	61.0	61.3	61.2	61.4	63.6	62.3	65.4	63.3	63.9	75.5	61.7
630.0	1.1	58.8	61.4	63.1	66.5	61.2	62.5	62.3	59.6	64.8	79.1	55.1
800.0	1.4	60.6	55.6	65.1	68.5	65.1	68.6	68.9	65.2	65.4	82.4	57.3
1000.0	1.8	62.2	59.1	65.1	68.4	64.5	71.3	71.5	67.2	63.5	77.5	59.2
1250.0	2.2	63.1	61.1	63.6	65.8	64.8	70.7	71.1	66.0	60.2	73.9	61.5
1600.0	2.9	60.7	60.8	59.5	61.6	64.9	67.7	72.1	63.0	58.9	77.7	61.8
2000.0	3.6	58.1	56.6	61.0	65.1	61.2	65.3	61.5	59.5	55.7	72.2	59.5
2500.0	4.6	63.7	62.0	65.2	63.6	68.4	69.7	66.4	63.1	57.0	74.3	55.4
3150.0	5.9	63.9	64.6	66.1	64.4	64.8	68.4	65.0	62.3	56.2	74.3	59.9
4000.0	7.6	70.3	69.7	72.0	69.5	67.9	72.8	68.5	67.6	59.6	78.1	64.5
5000.0	8.6	63.1	63.5	63.9	63.5	64.4	68.3	64.2	61.9	54.3	73.7	56.0
6300.0	11.1	61.9	61.6	61.5	61.5	64.4	67.7	62.0	60.2	52.3	72.7	55.1
8000.0	14.9	63.5	62.4	64.8	65.0	66.4	70.3	63.4	65.3	54.2	75.1	53.3
10000.0	20.4	66.2	64.9	66.9	67.7	69.7	73.0	64.7	66.9	55.5	77.0	53.0
12500.0	29.0	60.7	61.0	62.2	62.3	66.0	72.4	64.7	60.5	53.1	77.4	50.4
16000.0	42.8	64.2	63.4	63.9	63.8	67.8	74.5	68.0	62.7	55.4	81.8	52.6
20000.0	56.0	75.6	73.8	72.9	71.5	73.5	77.0	73.5	71.8	61.6	89.5	1.0
OVERALL (50-10K)		74.2	77.8	79.6	80.5	80.8	83.2	83.2	82.4	79.7	90.2	77.9
OVERALL (20-20K)		80.3	79.5	80.6	81.2	81.8	84.9	83.9	82.9	79.9	93.3	77.9
WNL - - -		41.7	91.2	93.2	92.6	92.4	96.0	93.5	92.1	86.4	102.1	87.6
WNLFC - -		93.9	93.0	95.5	94.4	94.2	97.4	95.5	93.9	87.9	103.7	89.8

*NOISE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRORAR

**MICROPHONE LOCATED 50 FT FROM SOURCE
***MICROPHONE LOCATED 200 FT FROM SOURCE

ATMOS. CORR. IS IN DB PER 1000 FT.

RUN 28

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972
ENGINE TESTED - IPE 331-S-251 ENGINE COVER INSTALLED, TOP REMOVED

28 POINT G - 175 SHP • 1273 PROP RPM • 333AS ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORN.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS ---										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	54.7	52.6	48.3	1.0	49.7	53.5	52.1	53.2	52.9	1.0	46.4
25.0	0.0	48.7	50.8	49.3	48.4	48.4	47.5	51.9	52.0	53.0	55.7	45.9
31.5	0.0	51.2	52.7	52.5	52.0	52.2	50.5	52.6	54.2	54.3	57.2	47.5
40.0	0.0	56.5	56.8	55.4	56.0	55.9	55.2	55.4	57.2	59.2	60.8	50.1
50.0	.1	58.7	58.4	56.7	55.9	56.1	55.0	56.7	57.6	59.1	62.7	51.5
63.0	.1	64.4	65.3	62.7	61.7	63.1	61.7	62.0	63.5	64.3	68.6	57.1
80.0	.1	65.5	65.1	65.0	66.9	65.8	65.6	65.2	66.8	66.4	71.7	58.8
100.0	.2	67.0	65.9	64.6	66.4	64.7	64.9	66.8	67.8	69.0	72.3	61.3
125.0	.2	65.3	66.2	71.6	73.1	69.2	69.9	71.6	71.1	70.7	77.2	65.9
160.0	.3	66.2	66.2	66.8	68.2	73.5	75.0	77.7	75.1	72.3	82.6	72.0
200.0	.3	61.8	64.9	62.7	65.1	68.3	71.0	73.0	72.4	68.8	78.6	68.4
250.0	.4	61.8	63.9	62.7	65.1	66.8	69.6	71.3	70.4	63.9	75.0	66.1
315.0	.6	60.5	62.9	62.9	63.7	65.0	68.0	70.2	68.1	62.0	70.7	64.5
400.0	.7	62.3	63.1	64.0	62.5	65.8	67.5	72.5	69.3	62.9	67.9	65.9
500.0	.9	60.0	60.0	61.1	62.1	63.2	63.0	68.8	66.0	62.1	72.7	62.7
630.0	1.1	55.4	54.5	60.6	64.5	61.4	59.0	62.0	61.8	59.5	77.7	59.3
800.0	1.4	58.5	55.2	62.4	66.4	63.2	63.2	63.2	60.3	56.3	80.5	59.4
1000.0	1.8	59.7	58.4	63.0	67.0	64.8	66.9	67.7	64.3	57.2	77.1	58.0
1250.0	2.2	60.4	60.3	62.3	64.7	65.2	68.2	69.8	65.1	56.9	70.7	57.0
1600.0	2.9	59.5	61.6	60.7	61.5	63.5	67.9	68.8	65.1	57.6	76.3	58.7
2000.0	3.6	56.4	56.9	59.8	64.7	60.5	62.7	63.8	60.0	56.1	72.2	59.3
2500.0	4.6	61.9	61.1	63.0	62.2	64.5	69.5	65.0	63.4	57.1	74.1	60.8
3150.0	5.9	63.5	64.2	65.5	65.2	64.8	68.9	68.3	64.4	58.1	74.7	61.5
4000.0	7.6	69.2	69.1	72.9	67.8	67.2	71.0	69.1	67.4	60.9	77.5	62.6
5000.0	8.6	63.0	63.7	64.4	63.3	64.5	68.8	67.4	63.1	57.4	74.1	57.9
6300.0	11.1	61.3	61.4	62.3	62.5	64.0	68.2	64.9	61.0	55.5	72.7	58.4
8000.0	14.9	66.7	63.3	67.5	64.8	64.8	70.3	69.1	66.6	56.7	78.4	57.5
10000.0	20.4	62.0	62.7	63.9	62.9	64.4	70.0	65.7	62.4	56.2	75.8	55.5
12500.0	29.0	60.7	62.1	64.5	64.5	65.0	71.4	66.7	61.9	58.2	77.7	53.1
16000.0	42.8	65.2	67.5	67.6	66.4	68.0	74.1	71.6	64.8	60.8	82.5	55.0
20000.0	56.0	67.9	70.2	69.9	70.1	72.1	77.2	73.7	70.7	64.1	86.7	1.0
OVERALL(50-10K)		77.2	77.3	79.4	79.6	79.8	82.4	83.4	81.4	78.3	89.9	77.3
OVERALL(20-20K)		78.1	78.6	80.2	80.4	80.9	84.2	84.2	81.9	78.6	92.3	77.3
PWL - - -		90.6	90.6	93.4	91.5	91.4	94.7	94.1	91.8	86.2	101.7	87.2
PULT - - -		92.5	92.3	96.0	92.6	92.2	96.0	95.0	93.0	87.2	103.3	88.1

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRORBAR

ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TYPE 331-5-251 ENGINE COVER INSTALLED, TOP REMOVED

29 POINT I - 105 SHP, 1114 PROP RPM, 29200 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS										
		1	2	3	4	5	6	7	8	9	10*	11**
20.0	0.0	56.9	53.1	61.1	55.6	1.0	1.0	51.9	51.1	52.5	53.1	53.1
25.0	0.0	56.9	52.3	52.7	51.1	49.9	47.3	50.1	51.7	50.8	55.3	46.9
31.5	0.0	55.1	52.9	52.7	52.2	53.0	51.3	53.5	53.9	54.3	59.0	48.7
40.0	0.0	57.5	56.0	56.4	56.6	56.3	54.3	55.1	57.0	56.8	61.0	50.5
50.0	.1	56.9	57.2	56.5	55.8	57.4	55.7	58.6	60.8	61.4	64.6	53.8
63.0	.1	62.9	63.5	61.4	60.9	60.6	59.9	63.9	65.0	65.3	68.0	57.9
80.0	.1	67.7	66.9	65.3	65.0	64.0	66.3	68.1	71.0	70.4	72.4	62.2
100.0	.2	67.2	67.1	66.2	65.9	64.1	67.3	69.4	72.0	70.2	75.0	62.9
125.0	.2	69.8	67.8	70.9	70.7	73.3	72.8	74.7	74.7	72.8	80.1	68.3
150.0	.3	71.8	73.7	85.6	86.8	87.9	88.6	89.6	89.0	84.2	95.4	83.3
200.0	.3	66.2	69.9	79.2	80.1	80.9	81.8	83.0	82.2	77.2	88.6	76.3
250.0	.4	64.1	67.1	66.5	68.4	69.7	71.9	72.8	71.9	63.6	76.4	66.7
315.0	.6	64.6	65.5	65.1	69.4	74.1	77.3	76.9	70.4	62.2	78.2	70.3
400.0	.7	63.0	63.7	65.2	65.8	69.2	70.9	72.8	69.6	62.0	71.1	65.7
500.0	.9	61.7	62.3	63.4	63.2	65.9	67.0	69.8	66.8	60.1	73.9	62.6
630.0	1.1	54.1	54.4	56.7	57.6	60.2	58.9	60.3	58.6	54.8	75.1	56.6
800.0	1.4	55.1	53.4	61.2	61.3	60.0	59.9	60.2	58.9	53.5	78.2	56.3
1000.0	1.8	57.0	57.0	61.1	63.7	61.4	63.9	63.5	60.9	54.0	74.2	53.8
1250.0	2.2	59.1	59.2	61.9	65.3	65.4	67.4	67.0	64.3	54.2	69.4	53.9
1600.0	2.9	59.1	60.0	60.7	64.0	64.3	67.3	66.4	63.9	55.0	73.4	55.5
2000.0	3.6	54.6	56.2	57.9	58.6	62.2	63.1	63.6	59.4	53.6	70.2	56.9
2500.0	4.6	58.8	59.6	61.2	62.5	61.6	63.9	60.6	61.5	53.6	71.4	58.0
3150.0	5.9	62.2	64.1	63.5	61.7	66.1	67.9	65.7	63.0	54.3	72.3	59.2
4000.0	7.6	65.4	64.7	64.4	64.3	64.3	66.4	65.8	63.7	55.4	73.7	57.9
5000.0	8.6	62.1	63.2	61.6	61.3	64.7	66.8	64.9	62.9	54.0	72.7	53.8
6300.0	11.1	60.6	60.0	60.4	61.6	65.1	64.8	63.2	61.1	52.4	71.5	55.9
8000.0	14.9	63.8	64.5	64.7	62.2	69.5	67.8	68.1	65.8	54.7	75.7	58.3
10000.0	20.4	54.2	59.0	60.0	60.2	63.8	65.9	63.0	61.8	52.3	73.1	51.0
12500.0	29.0	57.4	58.5	59.2	60.2	65.1	67.8	64.7	62.8	54.7	76.0	49.8
16000.0	42.8	66.6	66.5	67.2	67.2	73.5	75.2	72.0	61.8	61.8	84.9	55.3
20000.0	56.0	64.0	67.9	68.6	72.2	79.9	83.9	80.9	78.0	69.1	92.5	62.7
OVERALL (50-10K)		74.2	79.1	87.0	88.1	89.3	90.2	91.1	90.4	85.7	96.8	84.7
OVERALL (20-20K)		74.9	79.7	87.1	88.2	89.9	91.2	91.6	90.7	85.8	98.4	84.7
PNL - - -		84.9	89.0	92.2	93.1	94.9	95.9	96.2	94.9	89.0	102.7	89.2
PNLFC - -		90.1	89.8	94.0	95.0	96.6	97.7	98.0	96.7	90.6	104.5	91.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

RUN 30

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972
ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, TOP REMOVED
30 GROUND INLF , 1035 PROP RPM , 27400 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	130 DEG.	130 DEG.
20.0	0.0	48.0	47.0	46.3	46.4	48.2	1.0	1.0	52.8	49.1	1.0	42.9
25.0	0.0	47.7	49.0	47.8	47.7	49.1	47.6	50.5	50.6	49.4	54.9	44.3
31.5	0.0	49.7	49.3	51.2	49.3	50.5	50.7	51.4	50.9	51.4	56.7	44.8
40.0	0.0	53.6	53.4	53.6	53.0	53.9	53.3	51.7	54.9	55.3	59.4	47.6
50.0	.1	55.0	54.7	55.1	55.1	54.9	54.0	56.1	57.2	58.0	62.8	50.5
63.0	.1	62.1	61.5	60.8	61.6	60.1	61.1	63.9	64.7	64.8	70.3	57.8
80.0	.1	66.0	63.8	64.9	66.0	65.7	66.5	68.1	67.8	67.4	73.9	61.8
100.0	.2	72.3	71.1	72.1	71.3	71.0	74.0	73.2	72.6	72.0	79.1	67.3
125.0	.2	76.2	72.7	76.2	76.0	79.4	80.1	80.4	78.1	76.9	85.9	74.3
160.0	.3	81.9	78.0	80.8	83.7	83.9	84.7	85.5	83.2	86.5	99.5	87.2
200.0	.3	83.6	72.3	82.1	84.7	84.8	84.7	85.5	83.2	77.9	90.5	78.5
250.0	.4	67.7	70.1	70.0	71.4	73.2	74.6	74.1	70.0	65.1	78.0	68.3
315.0	.6	71.6	71.1	76.3	78.2	80.5	82.8	94.4	74.7	70.6	84.2	74.1
400.0	.7	67.5	68.3	71.1	71.6	73.6	74.5	85.5	69.5	65.4	75.0	69.0
500.0	.9	64.3	64.6	70.3	66.2	71.4	68.2	69.5	65.5	65.7	76.0	65.7
630.0	1.1	57.3	57.7	59.7	59.8	60.9	59.8	61.9	60.5	58.6	78.4	59.2
800.0	1.4	57.8	54.4	61.9	62.6	61.0	62.4	62.5	61.3	58.5	79.5	55.7
1000.0	1.8	59.4	56.2	62.6	65.7	63.7	66.5	65.7	61.2	59.2	76.6	54.7
1250.0	2.2	62.5	60.1	65.2	68.7	67.7	69.8	68.5	61.4	61.7	73.5	57.0
1600.0	2.9	62.3	61.6	64.3	66.2	68.4	69.0	68.1	63.6	63.6	80.0	61.7
2000.0	3.6	58.3	58.3	61.1	63.6	63.8	63.6	63.5	60.5	61.0	76.2	61.0
2500.0	4.6	59.1	56.3	62.1	65.3	65.5	67.1	64.6	61.0	63.4	77.1	59.0
3150.0	5.9	61.1	62.1	63.6	62.5	66.4	67.2	65.3	60.3	62.2	75.9	55.4
4000.0	7.6	64.2	63.6	64.2	65.1	66.0	66.7	66.5	61.5	62.7	76.5	56.8
5000.0	8.6	60.8	62.5	63.0	62.4	65.0	66.1	66.2	60.7	62.7	76.0	58.8
6300.0	11.1	65.8	61.5	64.8	63.8	65.7	65.3	64.2	59.8	62.0	76.8	55.6
8000.0	14.9	63.8	58.9	62.4	61.9	65.8	64.3	64.5	59.8	61.4	76.0	53.8
10000.0	20.4	55.1	55.2	57.0	59.5	63.9	64.7	62.2	59.3	61.2	75.4	48.5
12500.0	29.0	56.1	56.1	60.7	62.6	66.3	67.6	64.9	61.8	65.0	79.3	49.6
16000.0	42.8	64.5	62.0	68.0	75.0	77.3	78.6	76.6	75.6	74.9	91.7	59.7
20000.0	56.0	67.5	66.6	70.8	76.9	80.2	83.1	79.5	77.2	77.3	95.2	62.2
OVERHALL (50-10K)		84.6	82.1	91.8	94.5	94.9	94.9	95.6	93.1	87.9	100.6	88.3
OVERHALL (20-20K)		84.7	82.3	91.9	94.6	95.1	95.3	95.8	93.3	88.5	102.2	88.3
WNL - - -		90.9	89.2	96.1	98.0	99.0	99.2	101.4	96.3	93.1	106.5	92.1
WMLIC - -		92.1	90.1	99.1	100.2	100.9	101.1	104.7	98.3	94.7	108.4	93.9

NOTE SOUND PRESSURE IN DECIBELS @ 0.0002 MICROR

ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE

**MICROPHONE LOCATED 200 FT FROM SOURCE

LSAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3-5, 1972
ENGINE TESTED - TPE 331-S-251 ENGINE COVER INSTALLED, CLOSED
32 GROUND IDLE, 1035 PROP RPM, 27400 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS ---										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	50.4	50.3	47.4	47.0	48.5	54.2	51.1	52.7	49.2	1.0	45.2
25.0	0.0	49.3	57.9	48.3	51.0	51.0	55.0	52.3	49.6	61.3	55.4	44.6
31.5	0.0	50.7	52.2	51.7	52.3	51.1	51.8	52.9	53.1	55.7	58.5	46.4
40.0	0.0	54.5	54.3	55.4	55.8	55.1	55.2	55.9	56.0	60.3	59.8	52.0
50.0	.1	55.1	58.1	58.9	55.8	54.7	55.4	56.2	57.2	60.7	62.1	52.3
63.0	.1	61.9	62.3	60.9	60.9	60.7	62.4	63.5	64.7	65.7	70.1	57.8
80.0	.1	64.8	64.6	65.3	65.9	64.9	66.8	68.5	69.0	68.3	73.6	61.4
100.0	.2	71.1	71.1	71.9	71.6	71.8	73.1	74.1	72.8	73.0	79.7	67.0
125.0	.2	75.7	73.9	77.0	77.1	79.6	80.2	78.3	79.3	78.7	84.3	72.3
160.0	.3	84.2	82.6	90.9	92.9	94.1	94.3	93.6	94.0	85.4	99.2	85.0
200.0	.3	75.7	75.5	82.3	84.0	85.5	85.7	85.3	85.7	78.2	91.0	78.1
250.0	.4	68.4	71.8	69.8	71.8	73.1	74.6	74.6	72.3	68.9	78.4	67.9
315.0	.6	70.0	76.7	75.8	78.9	81.2	81.9	79.5	72.2	73.7	84.2	71.7
400.0	.7	66.9	69.8	70.6	72.2	74.0	74.7	76.0	73.3	70.2	75.6	69.2
500.0	.9	64.3	65.3	65.7	65.9	70.1	69.4	73.0	69.7	67.1	75.6	65.4
630.0	1.1	58.0	59.1	58.6	60.4	63.0	63.1	65.3	62.4	62.8	77.2	61.8
800.0	1.4	57.7	56.4	60.4	61.2	59.3	60.9	63.3	59.8	60.2	79.1	58.9
1000.0	1.8	59.3	57.8	62.2	64.5	62.7	65.1	66.5	62.4	62.2	77.6	57.5
1250.0	2.2	62.6	60.9	64.3	67.7	66.8	69.1	71.0	66.3	65.9	72.4	56.3
1600.0	2.9	63.3	61.7	63.2	66.4	68.2	69.2	73.2	67.8	67.7	80.2	60.7
2000.0	3.6	59.9	57.3	59.6	59.9	64.1	65.3	71.6	64.0	71.7	78.0	61.6
2500.0	4.6	57.6	53.7	59.1	63.6	63.1	64.8	66.3	64.1	67.8	77.4	60.5
3150.0	5.9	56.3	53.8	58.5	59.4	64.5	66.3	68.4	63.7	66.4	75.0	57.7
4000.0	7.6	53.5	51.8	57.4	60.2	63.6	64.1	66.4	62.6	67.0	76.0	54.5
5000.0	8.6	52.6	50.9	56.3	58.7	63.8	64.9	67.0	62.1	66.7	75.5	53.6
6300.0	11.1	51.4	48.5	55.2	58.0	62.5	62.9	64.7	60.6	65.6	74.7	54.7
8000.0	14.9	50.5	47.6	54.0	58.0	61.9	62.5	65.1	60.4	65.2	75.0	51.2
10000.0	20.4	50.5	46.5	53.4	56.1	63.1	64.0	66.0	60.5	65.5	76.5	50.3
12500.0	29.0	53.8	50.2	57.1	61.8	66.4	67.9	69.4	63.9	68.8	80.9	52.3
16000.0	42.8	63.4	62.2	67.8	75.6	78.9	79.7	81.8	77.7	105.4	94.0	62.6
20000.0	56.0	68.0	65.1	70.9	77.9	82.3	1.0	85.1	79.6	85.2	98.0	65.9
OVERALL (50-10K)		85.9	85.3	91.9	93.8	95.1	95.4	94.8	94.9	88.0	100.4	87.2
OVERALL (20-20K)		86.8	85.4	91.9	94.0	95.5	95.5	95.4	95.1	105.5	103.0	87.2
PNL - - -		90.3	89.4	95.0	97.0	98.7	99.3	99.7	98.2	94.9	106.3	91.2
PNLTC - -		91.7	90.7	96.9	99.1	100.6	101.2	101.7	100.1	96.3	108.2	93.0

*NOTE: SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972
ENGINE TESTED - TPE 331-S-251 ENGINE COVER INSTALLED, CLOSED
33 POINT A - 105 SHP, 1591 PROP RPM, 41730 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	50.1	49.3	50.4	50.1	50.2	54.6	52.8	55.4	55.4	61.9	51.3
25.0	0.0	50.4	50.5	50.9	51.3	53.2	50.2	54.7	56.2	58.5	60.6	50.4
31.5	0.0	53.9	55.2	55.2	55.1	55.6	55.1	58.1	58.4	61.0	63.4	51.1
40.0	0.0	57.3	57.8	56.8	57.2	56.7	55.5	60.0	60.5	62.3	63.6	53.6
50.0	.1	60.2	59.4	59.9	60.2	60.5	61.1	62.1	64.4	64.3	68.3	56.0
63.0	.1	65.6	65.2	64.4	62.3	64.0	64.0	64.4	66.8	69.2	69.9	59.3
80.0	.1	68.2	66.8	69.4	70.3	67.7	70.1	69.1	70.6	70.5	74.7	62.5
100.0	.2	72.1	69.7	70.1	70.1	69.1	68.6	70.6	71.6	73.3	76.7	64.6
125.0	.2	68.1	67.6	68.8	69.2	71.2	71.5	73.0	73.5	73.5	78.7	67.3
160.0	.3	63.0	65.5	68.4	70.1	70.1	70.1	74.1	74.1	73.0	78.5	67.8
200.0	.3	64.9	66.3	66.3	67.3	67.5	70.3	72.8	74.0	70.3	77.1	67.0
250.0	.4	64.5	66.7	64.7	67.3	67.8	71.4	73.4	74.3	67.9	76.8	66.8
315.0	.6	63.5	65.9	65.4	66.2	67.9	70.0	72.8	72.8	66.2	73.3	66.1
400.0	.7	64.6	66.2	66.9	68.5	69.6	70.5	74.5	73.9	66.7	70.5	67.6
500.0	.9	62.1	62.4	63.1	63.6	66.3	65.9	70.0	69.6	63.5	73.2	63.7
630.0	1.1	59.4	62.5	59.1	61.2	64.6	65.2	66.1	65.7	67.8	80.2	64.1
800.0	1.4	58.3	60.0	61.6	62.2	61.8	63.0	64.2	61.1	65.4	81.3	61.8
1000.0	1.8	59.5	58.0	63.5	65.7	64.0	66.6	67.7	63.7	60.2	79.8	60.1
1250.0	2.2	64.5	62.3	65.7	68.7	68.7	71.8	71.7	67.4	61.1	73.8	58.3
1600.0	2.9	63.8	62.0	63.5	66.6	69.2	71.9	72.2	67.4	60.2	79.2	59.5
2000.0	3.6	61.1	58.8	60.1	60.8	67.1	69.5	69.4	67.2	59.3	77.7	60.5
2500.0	4.6	58.3	54.5	58.8	62.4	63.4	67.0	64.3	61.6	58.6	76.4	61.3
3150.0	5.9	57.1	54.6	58.5	59.3	65.1	69.8	65.7	62.3	56.1	73.8	59.8
4000.0	7.6	53.6	52.9	56.5	58.2	63.3	67.8	63.7	60.0	55.8	74.5	58.3
5000.0	8.6	53.7	51.2	55.9	58.1	64.4	69.6	64.9	62.1	55.0	73.8	54.3
6300.0	11.1	52.2	49.7	54.8	58.0	64.2	69.7	64.3	62.0	54.5	73.6	52.4
8000.0	14.9	52.8	49.9	53.6	57.3	62.7	69.8	63.6	61.1	54.3	73.9	52.5
10000.0	20.4	56.4	52.4	58.5	59.5	64.7	72.2	67.1	66.1	57.8	78.9	55.0
12500.0	29.0	57.5	52.8	58.7	62.1	67.8	75.7	69.4	63.9	57.1	81.4	54.5
16000.0	42.8	59.5	56.4	60.2	64.9	70.4	78.5	73.6	65.3	59.0	85.8	56.1
20000.0	56.0	1.0	60.1	1.0	68.7	71.8	79.6	75.0	1.0	1.0	88.2	1.0
OVERALL (50-10K)		77.8	78.1	78.4	79.7	80.7	83.2	83.8	81.2	81.2	90.6	77.1
OVERALL (20-20K)		78.0	78.3	78.6	80.2	81.8	86.1	84.9	81.3	81.3	93.7	77.2
PNL - - -		85.4	84.5	86.3	88.4	91.4	95.1	93.7	93.9	86.8	101.7	86.3
PNLIC - - -		84.1	85.4	84.3	89.0	91.4	95.1	94.2	96.8	87.9	102.8	86.3

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRORAR
ATMOS. CORR. IS IN' OR PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

RUN 34

LSAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972
 ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, CLOSED
 34 POINT C - 590 SHP, 1591 PROP RPM, 41730 ENGINE RPM

DISIANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S										
		1	2	3	4	5	6	7	8	9	10*	11**
20.0	0.0	54.3	55.8	58.2	56.0	54.5	53.9	56.3	58.9	58.6	1.0	52.5
25.0	0.0	57.4	57.4	57.6	57.2	57.4	55.2	58.7	62.3	61.5	63.9	53.5
31.5	0.0	57.9	57.9	59.2	58.9	57.4	57.4	61.2	63.6	63.1	66.8	54.9
40.0	0.0	60.3	61.1	61.4	60.9	60.4	59.4	63.4	66.5	66.9	67.6	57.7
50.0	.1	63.5	63.7	62.1	62.1	62.0	62.0	66.2	69.4	69.4	70.7	60.1
63.0	.1	66.4	67.2	65.7	65.8	66.7	66.3	69.3	73.5	72.1	73.9	63.2
80.0	.1	68.9	68.5	69.8	70.5	69.6	70.6	72.9	76.1	74.9	77.8	66.1
100.0	.2	73.2	73.0	71.8	71.0	71.0	70.9	74.7	78.7	77.5	79.7	68.1
125.0	.2	70.3	68.5	71.0	71.9	73.3	74.0	76.2	79.2	79.0	80.7	70.1
160.0	.2	66.5	69.1	72.0	73.1	73.7	74.7	79.2	79.7	77.4	83.5	72.1
200.0	.3	67.4	69.5	69.9	72.2	71.5	74.0	77.7	79.1	74.8	81.3	71.7
250.0	.4	67.1	69.5	68.5	70.8	71.0	73.1	75.5	76.7	70.8	78.9	69.7
315.0	.6	65.6	67.8	67.9	68.9	69.8	72.3	75.7	76.0	69.6	75.5	70.2
400.0	.7	66.1	67.9	69.1	70.7	72.2	73.7	78.1	75.7	69.6	73.0	71.6
500.0	.9	64.6	65.8	66.7	68.2	70.3	71.4	74.5	70.7	66.3	77.3	68.7
630.0	1.1	60.2	62.8	60.8	63.7	66.9	68.5	68.8	67.8	67.5	83.3	66.5
800.0	1.4	60.1	61.1	65.1	65.4	65.0	66.7	67.9	65.2	66.2	85.5	65.5
1000.0	1.8	62.6	61.4	67.4	69.6	67.8	70.3	70.4	68.3	64.8	83.5	63.5
1250.0	2.2	65.9	64.9	69.0	72.6	72.4	75.8	74.9	72.1	65.1	77.3	62.3
1600.0	2.9	66.8	65.9	67.8	71.6	73.6	76.3	74.8	72.2	66.1	81.8	62.5
2000.0	3.6	63.9	62.6	64.4	65.7	71.5	74.7	72.8	70.6	65.0	79.6	64.6
2500.0	4.6	63.4	60.7	65.3	68.9	70.6	75.5	70.0	69.6	65.4	80.9	65.6
3150.0	5.9	61.9	59.9	65.2	66.8	72.5	78.0	72.7	70.7	63.3	80.4	67.1
4000.0	7.6	60.2	59.9	64.9	65.4	72.0	78.0	70.7	69.7	64.7	80.3	65.2
5000.0	8.6	58.3	55.6	61.2	63.5	70.6	76.9	68.0	68.3	62.6	78.0	60.7
6300.0	11.1	56.1	54.2	58.8	62.0	69.4	77.2	67.4	67.7	62.3	77.4	59.4
8000.0	14.9	53.0	51.7	56.1	60.2	66.9	73.2	65.2	65.3	57.9	75.6	54.2
10000.0	20.4	53.5	50.6	56.3	59.1	64.6	72.6	65.0	66.8	58.0	76.3	51.7
12500.0	29.0	54.5	51.2	56.6	61.3	66.9	74.7	66.6	66.0	59.0	78.6	51.9
16000.0	42.8	55.8	54.1	58.7	62.3	67.4	76.1	69.5	67.1	62.5	81.5	56.0
20000.0	56.0	58.3	58.9	1.0	1.0	1.0	77.4	73.2	1.0	65.2	84.0	1.0
OVERALL(50-10K)		79.7	80.0	81.3	82.9	84.4	87.9	87.6	88.1	85.4	94.0	81.1
OVERALL(20-20K)		79.9	80.2	81.4	83.0	84.6	88.7	87.9	88.3	85.6	94.7	81.2
PNL - - -		88.5	87.9	91.1	93.3	94.9	101.5	98.1	97.2	92.2	105.7	91.5
PNLTC - -		89.1	88.6	91.1	93.3	96.9	101.5	98.6	97.2	92.2	106.8	91.5

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRORAR
 ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
 **MICROPHONE LOCATED 200 FT FROM SOURCE

RUN 35

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - IPE 331-5-251 ENGINE COVER INSTALLED.CLOSFD

35 POINT E • 322 SHP • 1353 PROP RPM • 35470 ENGINE RPM

DISTANCE TO SOURCE = 100.0FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	56.3	53.3	56.3	59.8	50.7	53.1	51.7	53.7	57.7	54.7	56.2
25.0	0.0	55.8	54.1	55.4	58.4	50.7	53.5	53.2	54.9	57.4	57.9	57.0
31.5	0.0	55.9	55.0	55.8	58.5	53.9	54.5	55.9	57.8	59.0	61.4	54.8
40.0	0.0	58.4	57.5	57.3	58.6	57.1	55.9	57.5	59.9	60.9	63.5	55.2
50.0	.1	59.7	58.8	58.6	58.3	58.5	57.1	59.3	62.5	63.2	64.7	55.8
63.0	.1	63.7	64.5	63.1	62.6	64.4	63.8	62.9	65.4	67.2	69.7	59.4
80.0	.1	64.9	64.5	64.5	67.2	67.0	67.1	66.3	68.3	69.4	73.2	62.9
100.0	.2	67.4	66.8	65.2	66.3	65.5	65.8	68.5	69.3	69.9	73.9	61.6
125.0	.2	65.6	64.8	66.4	67.1	68.7	70.3	70.6	71.9	71.8	76.4	64.3
160.0	.3	67.5	68.5	72.2	72.9	73.4	73.9	76.9	76.5	73.1	82.0	70.8
200.0	.3	64.8	66.9	68.8	70.3	69.0	72.6	75.3	74.3	70.4	79.4	68.1
250.0	.4	62.4	64.9	63.7	65.3	66.4	68.7	70.3	66.5	66.5	74.0	63.6
315.0	.6	61.1	63.1	63.9	64.6	65.5	67.7	70.0	69.3	64.4	70.3	63.5
400.0	.7	62.8	64.6	66.2	67.1	68.5	69.7	73.3	71.3	65.4	68.9	66.3
500.0	.9	62.9	64.2	64.4	66.1	68.5	68.2	71.3	68.3	63.6	72.0	65.2
630.0	1.1	56.5	56.8	58.9	63.2	70.2	64.0	65.3	64.5	64.1	77.1	61.4
800.0	1.4	56.6	55.9	60.3	61.5	60.2	62.4	63.9	59.0	61.6	81.4	62.1
1000.0	1.8	58.1	56.6	61.6	62.9	61.2	64.2	65.2	61.3	57.5	79.5	60.7
1250.0	2.2	60.0	58.3	61.7	64.5	63.7	68.1	69.0	63.4	56.7	72.6	59.0
1600.0	2.9	60.7	59.5	61.0	64.7	66.6	69.7	69.2	65.1	57.5	76.9	57.2
2000.0	3.6	57.3	55.1	57.1	59.7	63.7	67.5	66.1	62.5	56.7	75.2	54.6
2500.0	4.6	54.7	52.8	55.8	58.1	59.7	63.9	60.3	57.7	57.2	72.8	53.1
3150.0	5.9	53.7	52.3	55.5	57.3	61.7	67.3	61.1	59.6	54.5	69.3	52.2
4000.0	7.6	51.3	51.4	53.9	55.3	60.3	66.0	60.4	57.7	53.9	70.6	51.9
5000.0	8.6	50.5	50.1	52.8	54.6	60.0	66.2	59.3	57.3	52.5	69.6	51.1
6300.0	11.1	49.4	48.0	51.3	53.8	60.2	65.1	58.5	56.9	51.7	68.6	49.6
8000.0	14.9	50.0	48.4	53.0	55.8	59.5	67.1	59.5	67.7	55.8	70.1	48.7
10000.0	20.4	52.0	49.4	55.2	58.0	60.2	68.5	61.2	70.6	57.8	72.1	49.8
12500.0	29.0	51.8	49.3	53.2	57.4	62.8	71.1	63.4	58.6	55.5	74.9	44.9
16000.0	42.8	54.0	51.7	54.1	60.2	64.8	72.5	66.7	59.5	56.1	77.7	48.1
20000.0	56.0	56.8	56.2	59.9	1.0	71.1	71.7	1.0	65.2	58.7	78.3	53.2
OVERALL(50-10K)		75.6	76.1	77.7	78.9	80.0	81.9	83.0	82.6	79.7	89.4	76.7
OVERALL(20-20K)		75.9	76.3	77.9	79.2	80.8	83.0	83.2	82.7	79.9	90.1	76.8
PWL - - -		82.8	82.3	84.4	86.7	88.9	92.9	91.0	90.0	85.2	99.0	83.0
PWLTC - -		83.9	82.3	85.1	87.4	91.0	92.9	91.7	90.6	85.2	100.0	83.7

MTCF SOUND PRESSURE IN DECIBELS RE 0.0002 MICROPAS

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

ATMOS. CORR. IS 1 INCH PER 1000 FT.

USAF QUIET ENGINE TESTING AT SANTAN --- 1FSTED APRIL 3, 1972
ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED,CLOSED
3A POINT C - 175 SHP • 1273 PROP RPM • 333AS ENGINE RPM

DISTANCE TO SOURCE = 100.0FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - -										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	56.5	61.9	65.8	57.4	54.1	55.1	53.4	53.0	61.6	54.4	52.6
25.0	0.0	55.2	61.2	65.2	55.5	52.9	53.5	53.6	53.9	60.3	54.0	51.4
31.5	0.0	55.4	58.7	62.9	55.1	54.0	53.3	53.5	53.8	60.5	56.0	49.6
40.0	0.0	59.2	60.7	63.7	56.3	55.5	55.2	56.3	58.0	61.3	63.1	51.5
50.0	.1	59.1	65.4	60.9	57.3	56.1	55.5	56.8	58.5	61.4	62.7	51.8
63.0	.1	63.9	64.5	64.9	62.5	63.1	62.8	61.6	63.7	64.4	67.9	57.6
80.0	.1	63.4	62.3	65.6	65.0	63.8	64.7	64.2	65.7	66.3	70.4	58.6
100.0	.2	65.8	64.9	65.6	64.5	64.8	65.2	67.2	67.3	67.6	72.4	60.9
125.0	.2	65.9	64.6	68.0	66.9	69.2	70.3	70.2	71.4	70.5	75.9	64.4
160.0	.3	66.2	67.7	73.3	73.7	75.3	74.6	74.7	77.0	73.0	82.3	70.3
200.0	.3	64.5	67.2	70.2	70.4	73.6	73.6	75.1	73.5	69.0	79.5	69.3
250.0	.4	62.4	65.9	65.9	66.4	68.4	71.3	71.7	71.1	64.8	75.7	65.7
315.0	.6	61.0	63.1	65.4	65.3	66.4	69.0	70.9	69.2	63.5	71.9	64.6
400.0	.7	62.5	64.2	67.9	67.5	69.0	69.4	73.1	70.4	63.7	69.2	66.7
500.0	.9	62.8	63.4	65.8	65.7	67.0	67.4	71.4	67.1	62.1	71.6	64.8
630.0	1.1	57.3	56.8	59.6	61.1	63.2	63.4	66.4	63.5	61.6	76.5	62.4
800.0	1.4	54.8	54.9	59.5	59.5	58.4	60.3	64.4	58.8	58.0	80.0	61.6
1000.0	1.8	54.8	53.8	60.9	60.6	59.9	62.1	63.3	59.2	56.3	77.5	59.7
1250.0	2.2	58.4	56.0	61.7	63.3	63.0	66.2	65.9	61.0	55.5	70.2	57.1
1600.0	2.9	50.0	58.3	61.7	64.0	65.4	68.3	67.4	63.0	57.0	75.3	58.5
2000.0	3.6	56.7	54.6	58.8	59.0	62.0	65.6	65.3	60.6	55.2	72.7	55.6
2500.0	4.6	53.5	51.5	56.8	57.4	59.0	63.4	61.7	57.1	54.8	72.5	56.0
3150.0	5.9	53.5	52.0	57.0	57.3	61.7	66.7	60.8	58.7	54.5	70.0	55.9
4000.0	7.6	51.8	51.8	56.8	56.6	61.2	66.6	62.5	58.3	55.2	70.8	56.3
5000.0	8.6	51.7	50.6	55.3	56.3	61.5	67.3	61.0	57.8	54.8	70.1	53.6
6300.0	11.1	49.3	47.6	52.8	54.0	58.8	65.0	60.4	56.5	53.0	69.1	48.5
8000.0	14.9	49.7	48.3	53.4	54.7	59.4	66.1	61.3	64.8	55.0	71.9	49.7
10000.0	20.4	49.7	47.1	52.7	54.6	60.2	67.4	61.2	60.1	53.3	71.9	48.1
12500.0	29.0	51.1	46.8	53.8	56.2	62.5	69.3	63.8	57.7	55.1	74.7	47.4
16000.0	42.8	1.0	51.4	59.9	58.9	64.5	70.9	66.4	1.0	1.0	77.3	1.0
20000.0	56.0	1.0	55.9	1.0	1.0	71.9	76.0	1.0	1.0	1.0	1.0	1.0
OVERALL (50-10K)		74.9	76.0	78.8	78.8	80.2	82.4	82.8	81.8	78.3	88.8	76.6
OVERALL (20-20K)		75.2	76.6	79.5	79.0	81.0	83.7	83.0	81.8	78.7	89.3	76.7
PNL - - -		82.2	81.6	85.5	86.3	88.7	92.6	90.6	88.5	84.3	98.5	83.7
PNLTC - -		81.2	82.6	84.2	87.1	89.6	93.4	91.3	89.6	84.8	99.8	84.3

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRORAR
ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

RUN 37

LSAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 7, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED.CLOSED

37 POINT I - 105 SHP . 1114 PROP RPM . 29200 ENGINE RPM

DISTANCE TO SOURCE = 100.0FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	130 DEG.
20.0	0.0	55.8	51.3	50.9	54.1	59.8	48.8	53.5	52.3	56.5	54.0	46.6
25.0	0.0	56.5	51.4	50.1	52.4	53.8	49.6	50.2	52.2	56.7	54.2	44.9
31.5	0.0	56.3	53.5	54.2	53.9	54.6	52.0	53.9	54.0	57.2	58.5	47.9
40.0	0.0	59.3	58.1	57.9	57.4	58.4	54.6	57.1	57.5	58.8	61.8	50.8
50.0	.1	58.4	56.7	56.7	56.9	58.1	57.8	58.5	60.6	60.8	65.7	54.0
63.0	.1	62.3	61.8	61.3	60.4	60.7	62.5	64.0	65.4	66.6	69.3	58.7
80.0	.1	65.8	65.8	65.4	64.4	63.5	66.0	68.0	70.5	71.8	72.7	61.4
100.0	.2	66.1	65.6	66.0	65.6	65.6	67.1	70.2	71.0	70.9	75.2	63.9
125.0	.2	70.2	67.9	71.0	67.3	73.2	72.8	73.5	74.8	73.2	78.5	68.5
160.0	.3	71.7	74.2	84.1	86.3	80.7	88.1	89.1	90.4	82.9	94.6	81.7
200.0	.3	67.0	70.0	77.3	79.5	80.8	81.5	82.6	83.5	76.6	87.5	75.2
250.0	.4	64.6	67.6	66.4	68.6	69.5	71.6	72.5	71.9	67.6	76.4	66.0
315.0	.6	63.1	66.1	66.0	69.3	74.2	77.2	77.6	71.5	68.9	78.5	70.0
400.0	.7	62.6	64.3	65.5	66.6	70.0	71.2	72.5	71.1	66.7	71.3	65.7
500.0	.9	63.4	64.1	65.0	64.6	67.4	68.4	70.9	67.0	63.2	70.8	64.1
630.0	1.1	55.3	56.4	62.8	58.8	62.7	61.6	62.4	62.3	61.2	73.9	58.9
800.0	1.4	53.5	54.1	59.0	58.0	59.0	59.6	61.7	56.8	58.6	77.2	58.3
1000.0	1.8	54.0	53.2	59.4	61.1	59.1	61.2	61.7	56.9	55.9	74.4	55.9
1250.0	2.2	57.2	56.1	61.0	63.7	63.3	66.0	65.4	62.0	55.7	68.6	53.8
1600.0	2.9	58.7	57.8	60.2	63.8	65.3	67.1	65.4	62.0	56.8	72.1	52.7
2000.0	3.6	55.7	54.5	54.5	59.0	63.0	64.8	63.4	59.5	56.9	70.3	52.3
2500.0	4.6	51.3	50.5	54.8	57.8	59.2	61.6	57.8	56.4	55.0	68.7	51.8
3150.0	5.9	52.1	51.0	55.7	56.8	62.3	64.1	59.4	57.4	55.4	66.1	51.3
4000.0	7.6	49.9	49.9	54.3	56.5	62.2	64.1	59.4	58.5	56.3	68.3	51.5
5000.0	8.6	49.9	48.6	53.7	55.3	63.3	65.9	59.9	58.3	55.8	68.6	47.4
6300.0	11.1	47.9	46.2	51.3	53.4	60.5	61.5	58.6	57.4	54.7	67.5	46.2
8000.0	14.9	48.3	46.3	50.4	54.0	61.2	62.2	60.1	60.5	55.8	69.0	48.3
10000.0	20.4	46.8	43.8	48.9	53.0	60.9	62.4	59.5	58.2	54.6	69.5	43.9
12500.0	29.0	48.5	45.0	50.5	54.4	62.6	63.4	60.9	59.5	56.4	72.0	44.6
16000.0	42.8	1.0	53.6	60.6	64.0	67.3	69.9	70.0	68.9	1.0	78.3	54.6
20000.0	56.0	1.0	57.3	63.4	67.4	73.9	76.3	74.2	73.1	1.0	85.4	57.9
OVERALL(50-10K)		77.2	78.4	85.5	87.5	89.1	89.7	90.7	91.6	85.1	95.9	83.3
OVERALL(20-20K)		77.4	78.6	85.6	87.6	89.3	90.0	90.8	91.7	85.1	96.4	83.3
PNL - - -		82.3	83.3	89.6	91.4	93.9	95.0	94.9	94.8	89.6	101.1	87.0
PNLYC - -		83.8	84.2	91.3	93.6	95.7	96.8	96.8	96.6	90.9	103.0	88.8

**NOTE* SOUND PRESSURE IN DECIBELS RE 0.0002 MICRORAP

ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 4, 1972
ENGINE TESTED - TPE 331-5-251 ENGINE COVERED, A FT TAILPIPE
38 GROUND INLE, 1035 PROP RPM, 27400 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS --										
		1	2	3	4	5	6	7	8	9	10	11
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	56.0	57.3	50.8	62.1	60.4	55.0	54.5	51.9	52.8	54.7	44.5
25.0	0.0	64.3	55.2	50.8	60.8	60.1	54.8	53.1	54.4	54.5	56.9	45.6
31.5	0.0	56.6	57.1	53.7	59.1	57.1	56.0	61.9	59.5	56.2	60.0	51.6
40.0	0.0	58.8	59.4	60.0	60.3	61.0	61.9	61.7	62.5	62.0	68.2	53.8
50.0	.1	65.5	67.5	69.5	69.9	69.7	70.2	70.0	71.3	70.9	76.8	62.0
63.0	.1	70.5	71.8	72.2	73.5	72.8	73.9	72.8	73.3	72.3	78.6	65.8
80.0	.1	69.1	67.0	67.6	68.3	66.8	67.8	67.7	68.2	66.9	72.9	60.0
100.0	.2	63.5	62.8	64.1	63.3	63.3	65.4	66.7	68.3	67.3	72.1	58.4
125.0	.2	65.1	66.1	71.0	73.8	74.8	75.4	73.8	73.9	71.2	80.6	66.1
160.0	.3	72.1	78.3	83.2	88.5	90.0	90.2	87.7	86.8	81.3	95.0	79.4
200.0	.3	67.5	71.2	73.9	74.6	75.3	75.8	75.7	76.0	73.6	80.9	68.9
250.0	.4	67.0	69.9	70.1	71.7	73.1	74.8	75.4	73.1	70.2	77.4	66.7
315.0	.6	69.4	71.3	74.2	75.7	74.9	80.5	79.3	77.3	71.4	80.9	70.7
400.0	.7	63.3	66.8	67.4	68.4	69.7	71.9	72.9	71.5	66.7	69.4	64.1
500.0	.9	60.3	65.1	65.3	65.1	67.5	71.2	70.7	69.4	64.8	74.1	69.6
630.0	1.1	54.0	57.1	56.0	57.0	59.7	60.6	62.4	61.0	61.0	75.9	58.3
800.0	1.4	53.2	53.3	59.4	59.5	57.9	60.1	61.5	61.0	57.4	77.4	56.0
1000.0	1.8	56.1	55.8	60.7	62.7	60.7	70.9	63.4	66.1	55.7	73.1	53.4
1250.0	2.2	61.3	62.3	63.5	65.8	66.0	69.3	68.1	69.4	59.8	72.8	53.0
1600.0	2.9	62.2	63.2	61.4	63.0	66.0	69.2	69.6	70.2	63.1	77.5	55.4
2000.0	3.6	57.7	60.1	57.0	57.9	61.9	66.2	67.1	64.8	61.1	72.9	59.8
2500.0	4.6	53.6	54.1	56.8	60.0	60.3	63.5	60.6	66.0	59.7	72.5	54.7
3150.0	5.9	55.1	55.6	56.2	56.6	62.4	73.4	63.5	65.3	60.2	71.3	54.3
4000.0	7.6	51.3	52.7	54.6	56.6	60.1	71.6	60.8	66.3	60.8	69.7	54.0
5000.0	8.6	51.5	51.8	54.7	56.0	61.0	65.4	62.0	65.8	60.7	70.0	52.2
6300.0	11.1	50.1	51.6	57.2	55.4	59.5	62.7	66.5	65.3	59.7	73.6	51.8
8000.0	14.9	48.2	49.1	53.8	54.2	58.7	62.3	62.4	65.4	59.9	70.9	49.1
10000.0	20.4	45.8	46.1	51.3	52.8	58.8	62.3	60.7	65.4	60.0	70.4	47.8
12500.0	29.0	47.3	48.2	52.4	56.2	61.0	65.6	63.8	68.4	62.5	74.2	46.6
16000.0	42.8	55.3	56.9	60.1	66.2	78.3	75.4	75.8	80.1	73.8	86.2	58.8
20000.0	56.0	1.0	1.0	65.1	66.7	71.7	75.3	77.3	81.8	74.9	90.1	58.5
OVERALL (50-10K)		78.6	81.8	85.2	89.4	90.8	91.5	89.4	88.7	84.1	96.1	81.3
OVERALL (20-20K)		79.1	81.9	85.3	89.5	91.1	91.7	89.9	90.0	85.0	97.4	81.4
PWL - - -		84.0	87.0	90.1	93.3	95.0	97.5	95.2	95.4	90.3	102.3	86.4
PWLTC - - -		84.9	88.6	91.9	95.4	97.5	99.9	97.4	97.4	91.8	104.7	89.2

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR
ATMOS. CORR. IS 1 DB PER 1000 FT.

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 4, 1972
 ENGINE TESTED - TPE 331-S-251 ENGINE COVERED, 4 FT TAILPIPE
 39 POINT A - 105 SHP, 1591 PROP RPM, 41730 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES										
FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -								
		1	2	3	4	5	6	7	8	9 10 11
20.0	0.0	51.1	50.7	54.7	57.2	55.5	55.4	61.2	67.3	58.5 65.5 59.7
25.0	0.0	51.3	49.5	52.9	57.8	54.9	54.4	60.5	66.7	57.9 63.0 58.9
31.5	0.0	54.1	53.4	54.2	55.9	55.6	56.3	60.5	64.5	64.1 66.0 56.0
40.0	0.0	57.4	58.3	56.8	58.3	59.3	59.1	62.3	65.0	63.1 66.0 56.2
50.0	.1	58.8	58.4	57.9	59.3	60.7	60.7	63.3	67.0	64.5 67.8 57.4
63.0	.1	65.5	65.3	65.5	62.6	64.3	65.3	66.3	70.0	68.5 71.5 59.6
80.0	.1	69.7	47.6	69.7	70.5	68.5	70.0	70.1	71.8	75.6 63.0 64.0
100.0	.2	73.6	71.4	69.8	69.1	70.2	68.1	71.6	72.8	72.7 76.1 64.0
125.0	.2	66.4	65.6	66.5	67.3	67.6	66.4	70.2	72.9	69.8 74.8 64.0
160.0	.3	62.4	64.4	67.4	67.9	68.6	69.5	72.5	74.1	68.9 76.7 67.3
200.0	.3	63.7	64.7	64.9	66.5	67.3	69.0	71.7	73.7	68.4 74.9 66.2
250.0	.4	65.2	66.2	65.1	67.7	68.5	71.2	73.6	72.8	68.5 74.2 67.1
315.0	.6	63.0	64.4	63.9	64.3	65.0	68.1	70.7	69.6	65.1 69.3 64.1
400.0	.7	61.4	64.5	63.6	63.7	66.1	67.5	70.9	66.1	62.8 68.8 61.8
500.0	.9	59.8	62.1	61.0	61.3	63.8	64.2	65.9	61.8	62.9 76.3 56.8
800.0	1.4	56.9	59.1	59.3	60.4	60.8	62.4	67.7	65.9	62.1 82.2 53.5
1000.0	1.8	56.3	57.1	62.2	62.8	60.8	65.2	67.7	65.9	59.6 82.4 58.5
1250.0	2.2	61.4	64.1	65.0	64.7	63.4	67.9	71.0	66.6	57.9 76.5 61.8
1600.0	2.9	62.8	64.1	62.5	64.6	66.8	70.0	71.3	62.9	59.0 77.3 63.9
2000.0	3.6	61.1	62.3	58.2	60.4	61.8	66.4	68.0	63.2	59.6 80.1 62.2
2500.0	4.6	54.7	55.3	59.4	61.5	65.1	68.2	69.3	63.0	58.2 76.9 57.9
3150.0	5.9	55.7	56.7	57.3	58.1	62.6	68.0	67.3	60.7	56.5 77.8 57.4
4000.0	7.6	51.9	53.5	57.0	58.6	60.7	67.7	65.4	60.1	55.5 76.7 56.2
5000.0	8.6	52.3	51.7	55.7	57.6	59.0	68.1	64.9	59.4	55.3 77.1 53.4
6300.0	11.1	50.3	50.6	56.3	57.4	59.2	68.6	64.2	59.5	55.2 76.6 50.3
8000.0	14.9	49.4	50.6	54.9	56.0	59.1	68.7	63.0	61.3	54.4 76.4 50.3
10000.0	20.4	51.1	53.2	58.1	57.8	60.8	70.1	65.8	64.9	55.4 79.5 50.6
12500.0	29.0	51.9	51.6	58.3	58.9	61.9	71.3	67.9	62.1	55.9 82.9 50.3
16000.0	42.8	51.3	51.0	58.8	59.7	62.7	72.5	70.6	61.3	58.3 86.3 51.9
20000.0	56.0	1.0	1.0	1.0	1.0	1.0	71.7	71.5	62.7	59.1 87.7 52.4
OVERALL (50-10K)		77.8	77.5	77.7	78.6	79.3	82.1	83.3	82.6	79.4 91.0 75.8
OVERALL (20-20K)		77.9	77.6	77.9	78.8	79.5	83.2	84.0	83.1	79.7 94.0 76.1
PWL - - -		84.2	85.3	85.8	87.3	89.5	93.8	94.0	90.1	85.5 103.1 85.2
PWLTC - -		85.2	86.1	87.0	89.6	90.7	93.8	94.0	90.1	85.5 104.1 86.4

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRONBAR
 ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
 **MICROPHONE LOCATED 200 FT FROM SOURCE

RUN 40

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVERED , 6 FT TAILPIPE

40 POINT C - 610 SMP , 1591 PROP RPM , 41730 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS ---										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	53.6	58.8	56.3	55.3	54.2	67.2	64.8	66.2	59.4	67.7	62.0
25.0	0.0	53.9	57.8	58.3	56.4	53.8	59.0	65.2	64.9	60.8	67.5	62.6
31.5	0.0	56.0	57.5	57.5	56.8	56.4	59.3	64.2	66.0	64.0	68.8	61.3
40.0	0.0	58.6	62.6	59.1	59.5	59.3	61.3	64.5	66.2	65.1	70.7	61.3
50.0	.1	60.9	61.3	61.3	61.1	61.3	63.1	67.4	69.4	70.3	73.5	63.8
63.0	.1	66.6	65.6	67.2	64.6	67.2	69.3	71.6	74.4	72.4	77.9	67.6
80.0	.1	69.0	67.8	70.6	69.1	69.3	71.3	71.8	75.7	73.8	79.3	68.3
100.0	.2	72.3	71.2	70.4	69.4	69.8	70.6	73.9	76.8	75.2	79.5	69.4
125.0	.2	67.2	66.6	68.2	69.3	69.3	70.4	74.5	77.3	74.1	79.3	70.6
160.0	.3	64.2	65.8	69.4	69.3	70.4	72.4	76.2	76.6	72.8	81.0	72.6
200.0	.3	66.5	68.3	69.3	70.2	71.3	74.1	77.5	77.6	71.0	82.8	73.5
250.0	.4	66.2	64.4	66.9	68.4	69.9	72.4	75.6	75.3	68.9	77.2	71.4
315.0	.6	66.2	67.0	67.1	68.2	68.8	73.2	76.2	74.6	68.9	79.5	72.2
400.0	.7	64.5	65.1	66.1	65.3	67.9	70.6	73.8	69.7	65.8	75.1	68.9
500.0	.9	61.6	63.5	62.9	61.9	63.4	65.2	69.6	65.0	65.4	82.1	65.9
630.0	1.1	58.7	59.7	62.3	64.5	62.5	66.2	66.8	66.4	64.0	85.6	60.9
800.0	1.4	57.6	58.0	65.7	67.0	66.9	71.9	71.5	69.4	62.8	86.1	62.1
1000.0	1.8	60.5	61.7	67.2	69.1	69.9	75.0	74.6	70.5	60.8	81.1	65.7
1250.0	2.2	65.1	66.1	67.8	69.8	71.7	75.8	76.4	69.8	61.7	82.7	69.4
1600.0	2.9	66.6	67.4	65.4	66.4	69.6	72.9	74.1	66.6	61.7	84.7	69.8
2000.0	3.6	62.6	62.7	61.4	66.0	66.0	71.5	69.4	66.3	61.8	81.3	66.3
2500.0	4.6	61.6	61.9	65.6	67.8	72.2	77.9	73.2	68.9	62.2	83.9	63.7
3150.0	5.9	61.3	60.6	61.4	62.5	66.8	73.7	71.0	64.1	61.3	80.3	64.9
4000.0	7.6	58.2	57.2	62.5	63.4	69.2	77.5	71.0	65.0	59.9	80.7	63.4
5000.0	8.6	57.6	55.1	58.7	60.2	67.7	73.9	69.3	63.1	57.6	79.3	61.9
6300.0	11.1	54.4	51.9	56.8	59.3	66.4	72.2	67.0	61.6	56.8	76.8	58.6
8000.0	14.9	49.2	50.1	52.3	54.3	58.3	66.1	61.0	60.2	51.6	73.2	51.0
10000.0	20.4	50.1	52.2	55.5	55.6	58.0	64.3	62.7	64.6	52.0	73.6	50.1
12500.0	29.0	48.9	49.7	53.6	54.7	56.8	64.4	61.1	59.1	51.7	73.4	46.5
16000.0	42.8	50.4	50.7	54.7	55.8	57.4	67.4	62.9	57.9	54.8	73.9	53.4
20000.0	56.0	55.3	55.4	58.0	56.8	58.8	68.5	65.1	61.8	57.5	73.8	58.5
OVERALL (50-10K)		78.6	78.5	80.0	80.5	82.3	86.6	86.9	86.2	82.6	94.9	82.0
OVERALL (20-20K)		78.7	78.8	80.1	80.7	82.4	86.8	87.0	86.4	82.8	95.1	82.2
PNL - - -		87.3	87.6	89.7	91.2	94.6	100.1	97.5	94.2	88.7	107.1	91.0
PNLTC - -		88.0	88.4	91.1	92.4	96.5	101.9	97.5	95.4	88.7	108.1	91.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

RUN 41

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972
ENGINE TESTED - TPE 331-S-251 ENGINE COVERED . 6 FT TAILPIPE

41 POINT F . 350 SMP . 1353 PROP RPM . 35470 ENGINE RPM

DISTANCE TO SOURCE = 100.0FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS ---										
		10 DEG.	20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.
20.0	0.0	60.9	59.4	54.9	55.3	58.8	62.1	61.9	66.3	56.2	75.4	53.0
25.0	0.0	59.6	60.5	55.3	55.6	58.5	62.9	60.7	66.5	58.7	73.7	53.1
31.5	0.0	57.5	57.5	55.6	55.4	57.3	60.5	59.2	63.6	59.0	72.1	51.6
40.0	0.0	57.3	58.0	57.4	57.3	58.7	60.7	60.2	64.4	62.6	70.8	55.5
50.0	.1	57.3	58.7	59.3	59.8	60.4	62.1	62.9	65.8	62.3	72.1	59.8
63.0	.1	61.8	64.0	66.4	64.6	66.9	68.4	70.5	70.3	70.1	77.2	65.4
80.0	.1	64.1	64.3	67.1	65.4	67.8	68.7	69.5	69.3	70.8	76.5	64.2
100.0	.2	64.5	64.4	64.1	63.5	65.0	65.2	67.3	68.1	69.7	74.1	63.9
125.0	.2	62.0	61.0	62.3	63.0	60.9	61.6	63.5	65.9	65.1	69.8	60.0
160.0	.3	60.0	60.1	63.4	65.1	65.3	67.4	69.0	69.0	67.9	75.3	65.5
200.0	.3	63.0	66.7	68.3	68.0	71.5	72.3	74.1	70.6	70.3	79.7	70.5
250.0	.4	58.9	62.0	60.4	67.5	64.0	66.6	67.5	65.9	63.9	71.0	64.4
315.0	.6	60.3	62.7	62.5	63.2	64.3	68.6	69.8	66.3	64.8	68.8	66.0
400.0	.7	57.7	59.2	60.4	60.2	62.2	65.4	66.7	62.1	62.3	70.0	62.7
500.0	.9	55.9	58.4	58.7	57.6	58.8	60.8	64.6	60.6	61.1	76.8	61.0
630.0	1.1	52.3	52.0	58.7	59.4	60.3	61.2	62.9	62.5	60.3	81.4	56.1
800.0	1.4	51.6	53.3	61.4	61.7	62.2	66.3	68.1	63.1	61.2	81.9	55.8
1000.0	1.8	54.3	56.3	61.7	63.0	64.1	69.2	70.0	61.9	58.5	75.2	59.2
1250.0	2.2	55.6	57.9	60.9	61.6	63.3	69.4	69.2	58.8	58.2	77.2	60.6
1600.0	2.9	57.3	59.1	57.1	57.5	60.6	65.8	63.4	57.7	58.4	71.8	61.0
2000.0	3.6	53.0	54.0	53.7	56.6	57.0	62.0	60.8	57.1	55.9	74.4	58.1
2500.0	4.6	50.9	53.6	55.3	55.9	59.7	65.8	62.5	55.4	56.0	73.7	53.7
3150.0	5.9	51.4	51.8	52.4	52.2	55.6	63.2	59.1	54.3	55.0	73.0	53.5
4000.0	7.6	48.0	49.2	52.7	52.0	55.3	64.6	59.4	53.1	53.1	71.7	50.5
5000.0	8.6	47.0	47.1	50.7	50.5	52.4	62.0	57.4	50.9	51.7	70.2	48.5
6300.0	11.1	44.3	45.8	49.6	48.6	50.1	60.3	56.1	50.6	50.5	68.5	46.6
8000.0	14.9	48.4	52.4	50.1	47.7	49.5	60.0	55.0	55.4	50.0	68.2	43.7
10000.0	20.4	50.5	54.9	51.7	48.8	50.5	59.6	56.3	57.9	50.0	69.4	45.5
12500.0	29.0	40.1	41.9	46.7	45.8	49.1	57.9	54.3	51.4	45.2	69.1	37.7
16000.0	42.8	46.7	47.0	51.7	49.9	52.4	57.5	62.4	50.4	49.1	69.6	44.2
20000.0	56.0	51.1	52.6	56.1	54.5	57.0	60.4	60.6	55.7	52.7	73.9	50.2
OVERALL (50-10K)		72.7	73.8	75.4	75.8	77.2	80.0	80.8	78.6	78.5	89.6	76.1
OVERALL (20-20K)		73.5	74.4	75.7	76.0	77.5	80.4	81.1	79.4	78.7	90.2	76.2
PNL - - -		79.2	80.9	82.1	82.6	84.9	90.4	88.7	84.5	83.9	99.5	82.7
PNLTC - -		80.2	82.0	83.2	82.6	86.0	91.4	89.7	85.1	84.6	100.7	83.6

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROMH

ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972
ENGINE TESTED - TPE 331-5-251 ENGINE COVERED, 8 FT TAILPIPE
42 POINT G - 175 SHP, 1273 PROP RPM, 33385 ENGINE RPM

DISTANCE TO SOURCE = 1000 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS ---										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	48.6	48.7	46.8	46.6	49.0	49.9	51.6	52.4	51.6	55.6	47.7
25.0	0.0	49.5	49.7	48.7	48.7	49.6	49.6	52.1	53.7	54.2	57.8	48.2
31.5	0.0	53.6	53.2	53.7	51.8	54.0	53.1	54.3	56.0	55.7	62.0	50.4
40.0	0.0	59.1	59.4	57.9	57.8	58.9	59.8	59.9	60.6	59.9	66.5	55.0
50.0	.1	59.4	60.5	62.3	62.4	63.5	62.4	63.2	64.8	62.9	71.1	60.5
63.0	.1	64.9	65.5	67.0	66.2	68.2	68.4	68.8	70.5	68.4	76.6	66.6
80.0	.1	64.3	65.2	66.6	64.6	66.1	67.0	67.9	69.1	66.1	73.0	63.1
100.0	.2	65.2	62.5	62.8	62.1	61.8	63.4	64.5	66.7	65.7	71.7	60.7
125.0	.2	59.1	57.2	58.9	58.4	61.5	62.2	64.9	67.4	65.4	71.9	61.3
160.0	.3	62.4	61.9	64.0	66.2	65.9	68.0	68.7	70.0	65.7	75.9	65.5
200.0	.3	61.3	64.0	66.9	67.8	71.4	71.5	73.4	72.9	68.6	80.2	70.8
250.0	.4	59.9	63.1	62.3	63.6	67.0	70.5	71.3	70.0	65.2	76.2	68.3
315.0	.6	59.9	61.7	62.1	63.3	63.1	67.4	68.8	69.8	62.8	70.0	64.9
400.0	.7	57.4	57.7	60.2	59.2	62.7	64.5	67.3	67.1	59.0	67.5	62.6
500.0	.9	55.2	56.6	57.1	56.9	58.6	61.1	64.7	63.6	61.4	76.6	59.9
630.0	1.1	52.1	50.6	58.1	58.3	57.2	58.9	59.7	58.4	62.2	79.8	57.3
800.0	1.4	51.9	51.2	59.7	60.9	60.2	63.1	62.1	54.1	57.1	79.3	52.8
1000.0	1.8	55.0	54.6	59.2	62.0	61.9	66.3	65.5	58.1	56.3	74.0	54.1
1250.0	2.2	56.3	56.7	57.7	60.8	62.6	67.1	67.3	61.0	54.7	71.9	58.0
1600.0	2.9	56.4	57.3	54.4	55.6	61.1	66.0	65.8	59.3	54.9	75.7	59.4
2000.0	3.6	50.7	51.6	52.1	56.5	55.2	60.7	61.4	54.9	53.0	70.4	57.2
2500.0	4.6	51.4	52.0	53.2	54.6	59.0	65.5	59.6	56.0	52.7	72.4	53.2
3150.0	5.9	50.1	50.6	50.2	52.9	55.6	64.3	61.0	55.7	51.3	71.0	50.1
4000.0	7.6	44.2	48.8	51.4	51.7	56.4	63.8	58.7	55.0	50.8	70.5	54.1
5000.0	8.6	47.3	47.5	49.5	50.8	54.0	62.9	59.3	54.7	50.1	70.0	50.9
6300.0	11.1	44.2	44.9	48.3	48.7	51.4	60.3	57.4	53.4	48.1	68.7	48.0
8000.0	14.9	46.3	51.6	48.8	47.9	51.0	59.7	57.3	61.1	50.2	68.7	44.9
10000.0	20.4	42.8	46.5	46.5	46.0	50.1	58.4	55.5	56.0	46.5	68.2	41.8
12500.0	29.0	39.7	40.5	46.6	46.8	50.6	58.3	55.7	51.8	44.2	69.7	39.4
16000.0	42.8	45.1	45.1	50.6	49.9	52.4	58.5	59.3	53.9	46.5	71.0	44.1
20000.0	56.0	49.3	49.9	52.9	53.1	55.5	60.4	60.9	57.6	51.9	75.5	49.7
OVERALL (50-10K)		72.7	73.0	74.7	75.2	77.0	79.5	80.0	79.7	76.3	88.4	76.2
OVERALL (20-20K)		73.0	73.3	74.9	75.4	77.2	79.7	80.1	79.9	76.5	88.8	76.3
PNL - - -		74.6	79.4	80.5	81.7	84.5	89.9	88.3	86.1	81.7	98.2	82.5
PNLTC - - -		79.1	80.4	81.1	82.2	85.7	89.9	88.8	87.1	82.2	99.7	83.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM
ATMOS. CORR. 15 IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

RUN 43

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972

ENGINE TESTED - TPE 331-S-251 ENGINE COVERED - 6 FT TAILPIPE

43 POINT 1 - 105 SHP - 1114 PROP RPM - 29200 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT.

11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS ---										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	49.7	49.1	48.2	1.0	46.8	54.1	49.7	52.0	53.1	62.5	55.1
25.0	0.0	47.1	47.9	47.5	1.0	47.4	54.2	49.5	51.8	52.4	62.3	53.9
31.5	0.0	53.9	52.8	51.8	55.0	52.9	54.7	53.2	54.1	54.1	62.2	53.2
40.0	0.0	59.8	58.5	58.7	59.5	59.5	59.0	59.9	59.9	60.8	67.4	55.9
50.0	.1	63.9	63.5	65.5	66.3	66.0	67.1	67.3	67.0	67.0	74.0	62.5
63.0	.1	71.8	71.5	72.1	73.3	71.8	73.4	75.3	74.6	73.5	81.4	70.4
80.0	.1	74.7	72.3	72.2	72.5	69.9	71.5	74.6	75.0	73.8	81.1	70.6
100.0	.2	65.0	64.1	65.1	64.3	64.2	66.8	69.7	69.6	69.4	76.0	65.4
125.0	.2	63.1	62.8	65.2	65.0	65.2	66.0	68.0	68.5	67.1	74.2	64.3
160.0	.3	68.5	73.7	74.0	76.8	80.7	83.2	84.0	79.6	69.9	89.9	79.7
200.0	.3	68.4	72.8	73.6	74.6	80.3	82.8	83.6	79.2	69.7	88.7	79.2
250.0	.4	61.6	63.7	64.7	65.8	69.3	70.8	72.0	67.9	63.6	76.3	69.4
315.0	.6	63.2	64.3	63.9	64.4	65.1	69.3	70.6	67.0	62.1	72.1	68.1
400.0	.7	60.8	60.9	60.3	60.5	62.0	65.0	67.3	62.6	59.6	69.0	64.2
500.0	.9	58.1	58.3	58.0	58.5	58.0	60.0	64.3	59.1	60.7	75.0	64.2
630.0	1.1	51.9	52.1	59.1	58.6	58.2	59.0	58.9	57.9	57.3	77.8	52.8
800.0	1.4	54.0	56.0	61.8	62.1	60.8	64.0	64.2	56.3	54.3	77.5	55.5
1000.0	1.8	55.9	57.9	60.5	62.0	62.6	65.5	64.9	55.8	54.2	70.9	57.6
1250.0	2.2	57.1	58.9	58.7	58.0	60.9	64.5	63.6	56.3	54.5	70.9	58.6
1600.0	2.9	56.4	56.6	53.9	54.1	55.3	58.3	58.4	55.1	54.2	72.5	56.4
2000.0	3.6	51.1	52.2	54.7	58.0	58.6	61.2	55.9	53.5	51.9	67.7	51.2
2500.0	4.6	51.2	54.8	52.6	52.8	56.5	61.2	56.6	54.1	51.7	67.9	48.8
3150.0	5.9	49.5	49.4	51.1	52.4	56.9	60.6	55.2	53.2	51.3	67.2	50.0
4000.0	7.6	48.1	50.3	50.4	50.6	55.6	61.1	55.8	53.6	51.6	67.2	49.1
5000.0	8.6	47.1	47.8	50.8	49.6	54.4	61.5	55.5	53.0	50.8	68.0	48.3
6300.0	11.1	44.0	46.0	49.0	48.5	52.0	57.7	52.3	52.7	49.0	66.7	47.1
8000.0	14.9	45.4	49.0	50.5	49.7	50.5	56.5	53.1	57.8	51.3	67.5	43.0
10000.0	20.4	41.4	43.6	44.4	43.0	48.6	55.1	50.1	52.4	45.5	65.6	39.4
12500.0	29.0	39.0	41.4	45.9	43.8	48.8	55.4	51.4	51.7	45.0	67.3	39.7
16000.0	42.8	47.0	49.1	52.7	51.9	55.9	63.1	59.7	57.0	52.5	73.9	53.6
20000.0	56.0	50.8	53.1	54.8	56.0	60.5	67.5	65.0	60.5	56.4	81.6	55.1
OVERALL (50-10K)		78.7	79.6	80.1	81.5	84.5	86.9	87.9	84.4	79.7	93.8	83.6
OVERALL (20-20K)		78.8	79.6	80.2	81.5	84.5	87.0	87.9	84.4	79.8	94.1	83.6
PNL - - -		81.0	83.5	84.5	85.4	88.9	92.0	91.7	88.2	82.5	99.5	86.9
PNLTC - -		81.5	84.9	85.3	86.9	90.2	93.4	93.1	89.2	83.2	100.9	88.2

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRONAM

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1977

ENGINE TESTED - TPE 331-5-251 ENGINE COVERED .12 FT TAILPIPE

44 POINT C - 580 SHP , 1591 PROP RPM , 41730 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S - - -										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	190 DEG.	210 DEG.
20.0	0.0	53.5	53.6	53.8	42.7	51.1	55.9	56.9	59.5	67.7	60.3	51.8
25.0	0.0	54.5	53.9	55.9	47.1	55.8	55.0	59.3	63.4	66.6	65.0	56.2
31.5	0.0	57.8	56.7	57.4	47.0	56.3	58.5	62.2	65.8	67.6	68.8	59.2
40.0	0.0	59.6	59.3	59.7	49.1	60.1	60.3	64.2	67.8	70.1	70.4	61.3
50.0	.1	63.1	61.7	62.4	53.1	62.8	61.1	64.8	70.2	73.0	73.7	65.3
63.0	.1	67.1	67.2	66.6	56.1	65.4	66.0	68.4	73.8	74.1	77.1	67.9
80.0	.1	70.2	69.4	70.8	61.2	69.5	70.7	73.0	76.3	76.2	79.3	70.4
100.0	.2	73.5	73.5	70.4	61.1	71.6	71.2	74.9	78.3	76.5	77.9	71.3
125.0	.2	68.3	68.6	69.4	60.2	70.8	71.0	75.1	79.4	76.4	79.6	72.2
160.0	.3	64.7	67.5	70.7	61.2	71.3	72.9	76.4	79.7	74.0	78.0	72.0
200.0	.3	66.9	69.3	69.7	61.1	71.3	73.2	75.8	79.7	71.4	77.2	72.2
250.0	.4	68.0	69.4	68.5	60.9	71.4	74.7	76.1	79.1	69.0	71.5	69.4
315.0	.6	67.1	69.0	67.2	58.2	69.0	72.8	75.8	77.0	66.4	74.7	66.1
400.0	.7	65.8	65.7	66.3	56.3	68.5	71.5	74.2	73.3	64.1	81.5	62.6
500.0	.9	61.0	63.2	63.5	53.0	65.8	67.6	71.1	68.6	64.1	85.2	58.9
630.0	1.1	57.6	57.2	60.5	52.9	61.5	63.4	66.1	64.9	63.8	85.1	61.8
800.0	1.4	60.6	60.1	64.7	55.4	62.3	66.9	69.3	67.5	62.7	88.4	66.1
1000.0	1.8	64.9	64.1	66.5	58.3	66.8	71.2	74.3	68.9	62.7	91.9	68.0
1250.0	2.2	66.7	66.1	66.9	58.7	70.0	73.9	76.9	69.7	62.7	92.8	66.3
1600.0	2.9	68.0	65.7	64.5	55.3	69.4	72.7	75.5	67.9	62.4	93.0	62.2
2000.0	3.6	58.9	58.1	60.1	51.8	63.5	68.4	70.5	66.3	61.0	93.6	61.0
2500.0	4.6	60.3	61.0	62.8	54.1	65.7	72.0	70.5	66.3	60.2	93.6	61.0
3150.0	5.9	57.7	57.9	59.1	48.6	63.9	70.1	69.6	62.6	57.3	93.6	58.4
4000.0	7.6	56.1	57.0	59.8	48.8	63.4	72.3	67.4	63.3	55.8	93.6	58.4
5000.0	8.6	52.0	53.0	55.6	47.3	60.4	68.7	65.7	61.6	52.5	93.6	58.4
6300.0	11.1	50.3	50.6	54.2	45.9	58.6	66.6	62.3	60.7	49.7	93.6	58.4
8000.0	14.9	46.0	48.3	49.9	39.9	52.1	57.8	57.0	57.3	48.6	93.6	58.4
10000.0	20.4	47.4	49.6	57.8	44.6	54.7	57.2	59.0	63.0	49.8	93.6	58.4
12500.0	29.0	45.9	47.3	53.5	42.2	52.6	55.4	57.2	57.9	43.1	93.6	58.4
16000.0	42.8	47.8	49.3	54.3	43.3	54.7	55.4	57.8	56.5	51.3	93.6	58.4
20000.0	56.0	54.2	54.8	58.3	47.7	58.3	63.9	62.7	61.7	55.4	93.6	58.4
OVERALL (50-10K)		79.4	79.9	80.0	70.9	81.5	84.4	86.6	87.8	84.1	93.8	81.4
OVERALL (20-20K)		79.5	80.0	80.1	71.0	81.6	84.5	86.7	87.9	84.5	93.9	81.5
PNL - - -		88.7	87.0	88.2	78.9	90.7	96.3	96.3	93.9	88.3	105.9	89.6
PNLIC - - -		87.4	87.8	89.3	80.1	90.7	96.3	96.3	95.0	88.3	105.9	90.2

NOTE SOUND PRESSURE IN DECIBELS w/ 0.0002 MICROBAR

ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE

**MICROPHONE LOCATED 200 FT FROM SOURCE

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972
ENGINE TESTED - TYPE 331-5-251 ENGINE COVERED .12 FT TAILPIPE
45 POINT C - 175 SHP , 1273 PROP RPM , 33385 ENGINE RPM

DISTANCE TO SOURCE = 100.0 FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	130 DEG.	130 DEG.
20.0	0.0	49.3	48.3	48.5	48.1	47.3	49.2	50.9	53.6	52.8	57.5	45.8
25.0	0.0	51.0	51.4	51.2	51.2	52.3	53.3	55.4	56.1	55.9	60.3	50.4
31.5	0.0	54.1	54.5	55.5	55.6	55.8	58.2	59.2	60.5	60.5	65.0	53.9
40.0	0.0	57.0	58.1	55.4	56.6	57.0	57.7	59.3	62.4	61.6	66.0	55.9
50.0	-1	57.6	57.3	55.2	55.8	55.4	56.1	58.2	60.2	60.8	63.9	54.8
63.0	.1	63.7	63.2	61.9	60.6	61.1	63.0	62.0	64.7	65.1	70.1	57.9
80.0	.1	62.6	63.3	64.8	65.9	65.2	66.6	65.9	65.9	65.4	70.1	60.5
100.0	.2	65.7	64.9	64.2	65.3	64.7	65.8	66.8	68.5	68.6	71.8	62.7
125.0	.2	61.0	60.6	62.2	63.0	62.5	62.5	65.1	66.5	66.4	68.7	61.1
160.0	.3	62.4	64.4	66.2	68.5	67.1	67.8	69.7	70.4	67.9	74.6	66.1
200.0	.3	60.2	63.1	62.3	65.2	63.8	66.2	67.7	69.3	63.8	71.6	64.2
250.0	.4	61.6	63.6	61.6	65.7	65.0	68.1	69.0	70.2	62.9	71.5	64.9
315.0	.6	62.2	64.7	59.6	62.5	62.6	65.8	68.5	68.3	63.1	64.9	65.5
400.0	.7	62.1	62.5	59.4	59.6	61.1	64.6	67.0	65.5	61.5	66.9	63.4
500.0	.9	57.1	59.2	60.2	58.0	58.1	60.1	64.1	61.5	60.8	76.1	62.0
630.0	1.1	53.5	54.3	59.0	59.2	56.4	58.6	61.0	60.3	61.8	79.8	58.9
800.0	1.4	56.3	56.0	60.9	62.0	60.9	63.3	65.6	60.3	58.2	79.1	52.7
1000.0	1.8	58.9	58.0	60.4	63.1	62.2	65.5	69.1	61.9	55.8	70.8	55.6
1250.0	2.2	58.2	59.0	57.9	60.9	61.1	65.1	69.9	62.7	55.0	73.5	59.5
1600.0	2.9	56.3	58.2	52.9	53.3	55.8	61.5	67.1	59.9	56.1	74.6	61.2
2000.0	3.6	50.7	50.6	53.1	55.9	54.8	57.7	59.2	54.2	52.6	71.5	58.0
2500.0	4.6	53.0	53.4	52.5	52.6	54.7	61.8	65.0	59.1	51.0	72.5	52.5
3150.0	5.9	48.7	49.2	51.4	51.7	51.5	57.6	60.9	55.1	49.8	71.3	52.0
4000.0	7.6	48.8	50.2	53.2	50.8	51.4	61.3	60.2	55.6	49.5	71.1	54.0
5000.0	8.6	47.1	48.6	51.8	49.8	49.2	56.6	57.1	55.4	48.0	69.9	49.4
6300.0	11.1	44.5	46.4	49.5	47.5	45.3	53.4	55.3	55.9	45.9	67.5	50.0
8000.0	14.9	45.5	48.4	51.5	46.2	44.8	53.2	55.3	55.9	50.1	68.1	46.9
10000.0	20.4	43.5	46.2	48.6	45.0	44.5	51.3	52.3	57.7	45.0	66.3	42

•••Off• SOUND PRESSURE IN DECIBELS WF 0.0002 MICRONAR
• ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972
ENGINE TESTED - TPE 331-S-251 ENGINE COVERED .12 FT TAILPIPE
46 GROUND IDLE • 1035 PROP RPM • 27400 ENGINE RPM

DISTANCE TO SOURCE = 100.0FT. 11 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS										
		1	2	3	4	5	6	7	8	9	10*	11**
		20 DEG.	30 DEG.	50 DEG.	70 DEG.	90 DEG.	110 DEG.	130 DEG.	150 DEG.	170 DEG.	130 DEG.	130 DEG.
20.0	0.0	49.5	55.2	57.7	58.2	52.0	57.0	64.1	54.4	54.0	66.2	54.3
25.0	0.0	56.4	56.9	59.0	59.4	61.0	59.2	62.4	61.3	59.3	68.5	57.6
31.5	0.0	61.0	61.8	61.8	61.8	64.1	63.5	65.1	65.7	65.1	70.8	60.1
40.0	0.0	57.4	58.3	57.7	57.7	58.9	58.1	60.6	62.0	62.0	66.6	56.4
50.0	.1	58.0	56.4	56.8	56.3	57.0	56.4	58.3	61.6	61.7	65.2	55.2
63.0	.1	61.4	62.1	62.7	60.4	59.5	59.5	63.8	65.9	67.0	68.5	59.7
80.0	.1	66.0	65.3	66.6	67.1	68.1	67.8	68.6	69.7	69.3	75.0	62.5
100.0	.2	68.7	67.3	70.1	70.5	70.0	71.4	70.9	72.2	72.9	77.1	66.2
125.0	.2	70.2	73.6	76.4	78.6	81.3	82.6	82.5	81.8	74.6	88.5	76.5
160.0	.3	71.5	75.8	78.1	80.0	82.7	84.7	84.1	83.4	78.5	90.2	78.3
200.0	.3	63.3	67.3	67.9	70.0	70.5	71.2	74.5	73.7	68.9	78.0	68.9
250.0	.4	63.9	66.2	66.5	69.3	71.0	73.3	75.9	75.0	69.1	78.3	70.0
315.0	.6	63.7	64.9	65.0	67.0	68.4	71.7	75.0	72.4	68.4	75.4	69.0
400.0	.7	62.0	62.5	63.0	63.3	65.5	73.7	70.9	69.2	64.0	69.5	65.5
500.0	.9	58.1	61.6	62.0	61.3	63.1	64.1	67.9	66.9	62.1	73.4	64.1
630.0	1.1	53.4	55.1	52.6	55.5	57.2	57.7	59.2	59.3	55.7	75.6	57.9
800.0	1.4	50.9	50.9	56.2	58.1	55.8	59.2	62.4	60.0	55.0	79.0	53.0
1000.0	1.8	50.4	50.9	56.7	60.7	58.8	62.8	66.3	61.5	60.2	71.4	56.3
1250.0	2.2	53.0	55.8	59.4	62.4	62.9	66.9	69.6	62.8	65.1	74.1	60.6
1600.0	2.9	53.9	56.4	57.7	59.6	62.0	66.4	69.5	63.1	65.9	77.0	63.6
2000.0	3.6	50.3	52.0	52.5	53.0	55.2	59.9	64.5	59.4	59.0	72.2	62.1
2500.0	4.6	48.0	48.8	52.1	55.1	56.9	60.7	65.6	61.2	59.9	73.5	58.7
3150.0	5.9	46.9	48.2	51.0	51.4	55.3	60.6	63.7	58.4	59.7	70.9	53.1
4000.0	7.6	44.5	46.1	50.7	50.7	54.5	59.4	61.4	58.5	58.0	69.9	53.0
5000.0	8.6	44.5	45.7	50.9	50.0	50.6	58.9	60.2	58.4	57.5	69.1	52.5
6300.0	11.1	45.4	47.9	53.1	50.6	48.8	56.4	59.7	56.6	56.1	68.6	48.7
8000.0	14.9	42.5	45.9	50.7	46.1	47.4	54.7	57.0	58.4	54.1	66.2	48.7
10000.0	20.4	41.4	43.7	42.5	42.3	45.3	53.7	56.5	54.7	52.2	64.6	41.6
12500.0	29.0	38.7	40.8	46.2	45.3	46.9	55.7	55.7	55.2	53.8	67.0	42.0
16000.0	42.8	47.8	50.6	54.3	55.3	56.2	66.3	65.6	63.3	63.1	76.6	50.7
20000.0	56.0	51.1	53.8	59.0	58.3	85.5	65.3	67.4	65.6	62.7	82.7	54.7
OVERALL (50-10K)		74.8	79.5	81.6	83.5	85.8	87.7	87.9	87.0	82.8	93.6	82.0
OVERALL (20-20K)		77.1	79.7	81.8	83.6	88.7	87.8	88.0	87.1	83.0	94.1	82.1
PNL - - -		80.4	83.4	85.7	87.1	89.1	92.2	93.4	91.7	88.5	99.9	87.0
PNLTC - -		81.2	84.3	86.7	88.1	90.3	93.5	94.3	92.7	89.9	101.2	87.9

*NOTE: SOUND PRESSURE IN DECIBELS RE 0.0002 MICRORAR
ATMOS. CORR. IS IN DB PER 1000 FT.

*MICROPHONE LOCATED 50 FT FROM SOURCE
**MICROPHONE LOCATED 200 FT FROM SOURCE

c. Suppressed Engine Tests (71 pages)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **

CONFIGURATION 1 * BARE ENGINE * DYNO COVERED-CRAP INSTALLED-TOP REMOVED

RUN 1 POINT C ** 700 SHP ** 100 PERCENT RPM NO SCOTTFELT ON DYNO

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	53.0	53.2	53.9	56.9	61.2	51.8	55.6	54.3	53.1	56.3	62.4	60.1
25.0	0.0	56.9	58.8	57.4	56.9	59.0	57.9	59.0	56.9	58.7	61.0	64.3	62.6
31.5	0.0	58.2	59.2	57.6	57.9	59.9	57.6	56.9	57.3	59.9	62.3	63.9	65.1
40.0	0.0	61.2	61.8	61.0	61.5	60.3	60.2	60.2	59.3	62.2	65.7	67.1	66.8
50.0	.1	62.4	63.3	61.9	62.2	61.0	60.9	60.5	61.9	63.5	67.4	68.2	68.2
63.0	.1	63.6	64.5	63.8	63.0	63.0	63.7	63.7	64.8	66.9	70.0	71.2	68.0
80.0	.1	66.6	66.5	65.9	66.1	65.5	65.1	65.1	66.5	69.1	71.8	74.5	71.3
100.0	.2	68.2	68.0	67.2	67.6	67.6	66.8	67.6	68.7	71.4	73.6	76.1	71.6
125.0	.2	67.9	68.6	67.1	68.3	68.0	68.2	69.0	70.7	72.5	74.5	77.0	71.9
160.0	.3	67.4	67.6	68.3	70.1	69.2	70.8	71.4	72.6	75.2	77.1	78.0	71.1
200.0	.3	69.4	69.2	71.5	71.3	71.3	73.1	73.2	75.6	78.4	80.4	80.3	70.8
250.0	.4	71.6	71.0	73.4	71.9	75.0	75.6	76.5	79.6	81.0	82.5	80.3	68.7
315.0	.6	67.4	68.9	71.1	72.3	73.2	72.9	79.9	77.8	77.9	80.5	77.9	68.6
400.0	.7	66.3	68.0	70.6	69.6	69.6	69.0	75.7	74.5	75.5	76.6	73.0	64.8
500.0	.9	63.0	65.9	67.5	66.3	65.5	67.3	72.8	71.8	70.7	72.4	67.9	62.4
630.0	1.1	60.7	68.1	68.4	68.7	73.3	62.9	70.5	68.4	69.5	68.0	67.1	62.7
800.0	1.4	62.9	67.8	69.0	68.8	73.4	71.4	70.4	73.0	76.7	72.2	70.0	61.9
1000.0	1.8	65.1	68.2	70.3	72.6	72.6	73.5	74.4	76.8	79.7	76.3	73.3	60.4
1250.0	2.2	73.0	78.1	82.8	84.0	78.0	82.4	82.3	83.8	82.7	78.1	78.7	64.5
1600.0	2.9	71.2	76.8	81.1	82.0	75.7	80.2	80.7	83.2	81.7	77.0	77.7	64.1
2000.0	3.6	66.1	73.2	73.9	73.4	75.3	74.7	73.3	76.0	74.9	70.9	74.5	65.5
2500.0	4.6	65.0	71.3	77.4	76.8	75.5	75.1	79.4	85.9	85.3	75.2	78.7	65.1
3150.0	5.9	68.1	69.5	75.9	83.8	86.4	79.5	79.4	85.9	81.8	74.2	79.9	66.8
4000.0	7.6	72.3	75.8	79.9	87.2	86.3	80.8	78.4	84.2	81.1	77.8	79.0	67.5
5000.0	8.6	71.6	72.8	77.6	80.5	82.1	76.4	80.7	83.7	79.9	75.8	80.0	67.9
6300.0	11.1	71.9	74.0	81.9	82.2	83.9	75.4	81.8	82.5	78.0	75.7	81.3	68.5
8000.0	14.9	67.9	78.1	83.6	85.4	85.8	77.3	79.2	83.1	77.3	76.5	81.9	70.0
10000.0	20.4	65.8	73.0	80.0	81.4	79.2	73.9	76.4	80.9	75.8	72.0	77.8	65.8
12500.0	29.0	69.3	77.5	86.8	89.8	81.9	74.3	77.4	81.0	76.4	74.7	80.8	69.5
16000.0	42.8	62.8	71.3	77.8	78.8	73.5	69.8	74.0	80.3	74.5	68.6	71.7	62.2
20000.0	56.0	59.7	68.2	74.0	75.2	75.3	69.4	72.1	77.5	72.8	65.8	69.2	59.4
OVERALL (50-10K)		82.4	86.1	90.8	93.3	93.2	89.4	90.9	94.2	92.6	90.2	91.5	81.9
OVERALL (20-20K)		82.7	86.9	92.5	95.1	93.6	89.6	91.2	94.7	92.8	90.4	91.9	82.5
A SCALE (20-20K)		81.3	86.0	91.3	94.2	93.5	89.5	90.7	94.5	92.4	87.7	90.3	78.3
PNL - - - -		95.4	99.1	103.3	107.5	107.2	103.0	103.8	108.0	106.4	102.1	106.2	92.8
PNLTC - - - -		97.0	101.0	105.7	109.7	109.0	104.8	105.4	109.7	108.8	102.1	105.2	92.8

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **

CONFIGURATION 1 * BARE ENGINE * DYNO COVERED-CRAP INSTALLED-TOP REMOVED

RUN 2 POINT A ** 105 SHP ** 100 PERCENT RPM

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S - -											
		1	2	3	4	5	6	7	8	9	10	11	12
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	50.3	55.5	59.8	59.4	53.9	48.5	51.1	48.2	49.4	52.5	51.2	71.3
25.0	0.0	55.4	56.7	61.0	56.5	57.9	58.2	59.0	59.2	60.2	58.3	57.3	79.7
31.5	0.0	54.1	55.1	64.7	53.7	54.8	54.0	52.7	53.7	55.3	58.0	60.9	80.4
40.0	0.0	57.1	57.4	66.0	56.8	58.2	56.4	55.2	55.4	59.3	61.2	63.0	83.5
50.0	.1	58.2	57.6	59.6	57.7	57.7	57.7	56.9	58.1	60.1	63.2	64.7	85.9
63.0	.1	59.7	58.9	59.2	58.8	59.5	58.8	58.3	59.4	62.4	65.8	67.0	89.4
80.0	.1	62.6	61.5	62.0	61.4	61.8	60.8	59.7	61.2	63.9	67.5	69.3	89.1
100.0	.2	64.1	63.1	63.0	63.3	63.7	61.9	61.9	63.1	65.7	68.6	70.7	90.9
125.0	.2	64.2	64.3	63.3	64.4	64.2	63.3	64.2	65.5	66.8	68.5	70.9	90.7
160.0	.3	64.1	63.4	64.8	66.5	65.8	66.9	67.4	67.6	70.2	71.3	71.4	89.9
200.0	.3	68.5	66.4	70.3	69.6	69.7	71.0	69.9	72.9	74.4	76.2	75.5	91.9
250.0	.4	70.7	68.8	72.9	69.8	69.7	72.4	73.1	76.0	77.2	79.2	77.3	93.1
315.0	.6	63.6	64.4	68.1	68.3	69.9	69.2	70.9	73.8	73.9	76.3	76.0	90.9
400.0	.7	62.9	63.4	66.6	66.2	65.0	64.3	69.7	69.5	71.1	72.7	71.9	88.4
500.0	.9	66.8	61.0	63.2	61.0	62.5	61.9	67.0	68.2	67.2	68.0	66.5	84.9
630.0	1.1	56.8	64.8	66.2	61.0	70.6	58.0	65.7	64.2	66.5	64.6	66.2	87.9
800.0	1.4	58.6	64.2	66.3	65.5	70.6	63.7	62.6	63.5	66.9	68.4	65.7	86.4
1000.0	1.8	62.3	65.4	68.1	69.3	68.7	67.2	66.4	67.5	70.5	70.7	66.1	82.6
1250.0	2.2	66.1	75.6	82.1	81.5	76.1	78.7	74.1	73.4	74.2	71.9	70.9	89.1
1600.0	2.9	64.0	74.2	80.7	74.2	75.9	76.7	72.7	73.8	74.4	69.7	69.2	87.6
2000.0	3.6	62.6	69.1	74.7	72.8	74.2	70.4	67.2	68.3	71.3	66.1	68.1	84.6
2500.0	4.6	61.7	68.8	76.9	74.6	72.7	69.4	67.1	70.6	72.6	69.1	67.4	83.6
3150.0	5.9	65.1	69.7	76.9	80.9	86.5	77.5	72.1	76.1	77.0	72.0	72.5	88.9
4000.0	7.6	65.2	75.7	78.2	89.4	86.8	78.7	76.8	76.9	77.2	72.3	74.9	89.5
5000.0	8.6	63.4	70.5	71.3	82.1	80.8	73.0	74.1	78.7	75.6	66.3	69.6	85.2
6300.0	11.1	65.7	69.6	79.6	80.6	83.2	75.3	76.3	82.7	75.9	69.2	68.9	84.9
8000.0	14.9	69.9	73.4	85.7	83.6	83.4	74.0	74.2	79.5	75.3	73.6	70.8	83.4
10000.0	20.4	65.7	74.1	82.1	78.7	79.3	73.8	76.4	78.2	76.6	76.0	71.9	86.2
12500.0	29.0	69.8	84.8	89.4	85.5	86.3	76.1	77.9	78.7	76.1	72.8	73.5	89.2
16000.0	42.8	62.1	72.7	80.1	79.0	74.8	69.6	72.3	78.4	76.2	70.2	67.1	82.5
20000.0	56.0	60.6	70.4	79.5	78.7	76.6	70.8	71.9	77.8	76.3	72.7	68.4	81.9
OVERALL (50-10K)		78.9	83.6	90.7	92.9	92.5	86.4	85.3	88.4	87.1	86.0	85.3	102.4
OVERALL (20-20K)		79.6	87.5	93.6	93.9	93.6	87.0	86.4	89.6	88.1	86.5	85.8	102.8
A SCALE (20-20K)		76.9	85.3	91.6	93.7	93.3	86.6	85.0	88.1	86.5	83.2	82.7	99.1
PNL - - - -		90.4	97.4	102.9	107.9	106.7	100.2	98.9	102.1	100.5	97.2	97.9	114.1
PNLTC - - - -		92.7	99.4	105.5	110.5	108.5	102.5	100.5	102.7	101.0	98.2	99.1	115.5

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **
 CONFIGURATION 2 * BARE INLET * DYNO COVERED-CRAP INSTALLED *
 RUN 7 POINT 6 ** 175 SHP ** 80 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES											
FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -									
		1	2	3	4	5	6	7	8	9	10
0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	51.5	52.1	65.7	61.8	54.6	57.1	52.3	55.1	55.0	57.5
25.0	0.0	50.7	52.8	67.6	58.3	54.6	58.1	54.7	54.6	54.9	58.2
31.5	0.0	53.5	54.9	63.7	58.2	55.1	60.3	56.5	55.6	54.9	55.8
40.0	0.0	55.8	58.5	61.0	62.5	59.1	62.8	59.9	59.8	59.1	57.3
50.0	.1	53.9	55.7	58.6	62.1	58.0	64.0	61.1	58.7	59.3	59.3
63.0	.1	55.4	56.4	59.5	63.4	60.6	65.6	62.5	61.9	61.9	60.0
80.0	.1	57.1	58.7	59.8	62.6	59.8	64.9	62.8	62.3	62.8	63.0
100.0	.2	60.4	60.4	60.3	63.4	59.7	65.1	63.5	62.8	62.7	64.1
125.0	.2	60.5	60.2	61.1	64.0	62.0	67.6	64.8	62.5	62.2	63.6
160.0	.3	58.5	59.6	60.7	65.0	63.6	67.8	63.9	64.4	63.9	63.8
200.0	.3	61.1	60.9	62.5	66.0	63.1	67.2	62.6	63.1	62.8	63.9
250.0	.4	62.0	63.0	65.0	67.0	62.8	66.9	61.9	61.9	60.7	63.2
315.0	.6	59.9	60.8	64.1	67.0	64.0	67.2	64.3	61.4	62.4	62.5
400.0	.7	61.4	61.5	65.7	66.3	61.7	67.3	66.6	62.7	62.1	61.1
500.0	.9	65.0	65.8	70.4	71.0	63.5	66.8	65.8	63.5	64.5	62.7
630.0	1.1	61.4	64.9	65.1	61.3	60.5	66.6	63.4	61.2	60.9	59.6
800.0	1.4	61.3	63.1	64.0	69.5	71.1	68.9	61.1	61.6	60.5	58.9
1000.0	1.8	68.4	70.8	73.0	78.9	79.0	76.8	66.2	67.3	69.1	66.7
1250.0	2.2	72.6	77.5	80.0	83.8	79.2	78.8	72.8	69.4	68.9	68.4
1600.0	2.9	71.9	78.1	82.4	86.5	79.8	78.0	71.9	68.0	66.2	68.6
2000.0	3.6	70.5	75.5	80.0	83.6	73.7	75.6	69.4	65.3	64.6	64.7
2500.0	4.6	69.3	73.2	79.8	84.4	81.6	80.7	70.3	67.9	67.1	66.2
3150.0	5.9	72.8	79.0	87.6	90.4	82.5	84.7	73.9	70.9	68.9	71.6
4000.0	7.6	74.5	80.0	87.3	89.6	83.1	83.8	73.7	72.0	70.2	74.7
5000.0	8.6	74.5	80.0	89.1	90.5	81.7	85.0	75.5	72.5	74.3	74.7
6300.0	11.1	72.7	75.8	84.3	83.0	75.2	82.5	73.4	70.7	70.7	68.6
8000.0	14.9	70.8	76.0	85.2	89.4	78.4	80.8	73.9	70.7	69.0	66.2
10000.0	20.4	70.9	82.3	91.3	91.1	81.4	81.9	76.4	70.1	70.3	71.3
12500.0	29.0	64.7	74.8	84.5	83.8	73.7	75.0	67.4	63.9	62.5	63.6
16000.0	42.8	62.7	72.1	81.4	80.8	70.7	72.6	64.0	60.4	59.4	60.4
20000.0	56.0	59.3	67.4	75.5	77.2	65.9	67.7	58.3	55.4	55.2	55.5
OVERALL(50-10K)		82.9	88.7	96.4	98.3	90.0	92.3	84.2	81.0	80.8	81.6
OVERALL(20-20K)		83.0	89.0	96.9	98.6	91.0	92.5	84.3	81.2	81.0	81.8
A SCALE(20-20K)		83.1	88.8	96.4	98.6	91.4	92.7	83.9	80.7	80.4	81.6
PNL - - - -		96.7	101.7	109.0	111.3	104.4	106.1	97.4	94.5	95.0	95.9
PNLTC - - - -		97.9	101.7	110.6	113.7	105.5	106.1	98.7	94.5	96.3	95.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PFR 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **
 CONFIGURATION 1 * BARE ENGINE * DYNO COVERED-CRAP INSTALLED-TOP REMOVED
 RUN 8 POINT 6 ** 175 SHP ** 80 PERCENT RPM **

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	62.2	53.2	57.5	56.2	52.8	64.7	58.3	50.1	51.5	51.1	50.6	49.9
25.0	0.0	62.4	56.3	57.5	56.2	52.8	66.2	59.9	52.6	54.2	53.2	52.9	48.9
31.5	0.0	61.2	58.0	57.1	54.8	52.8	62.7	56.6	52.3	53.3	54.3	54.5	54.2
40.0	0.0	62.4	60.8	56.7	56.4	55.4	65.5	59.7	54.1	55.6	55.3	57.2	55.4
50.0	.1	59.1	57.2	57.6	56.8	55.0	56.4	54.0	54.2	56.2	55.7	57.6	56.9
63.0	.1	58.3	58.1	58.4	58.1	57.1	57.1	56.7	57.7	59.0	59.0	59.8	58.8
80.0	.1	60.6	60.7	60.5	59.8	60.6	59.0	59.1	60.2	61.6	60.7	61.9	61.0
100.0	.2	62.0	61.5	60.9	60.6	61.0	60.0	61.2	62.3	63.8	64.3	63.6	62.2
125.0	.2	62.7	62.7	62.9	63.5	63.6	63.9	65.0	66.1	67.5	66.9	66.0	64.6
160.0	.3	67.1	69.1	70.3	72.9	75.7	76.6	76.6	76.5	81.0	78.1	73.6	72.0
200.0	.3	68.8	67.3	71.0	71.3	71.6	71.7	71.8	73.6	76.7	76.2	74.1	68.3
250.0	.4	70.0	68.3	71.4	69.3	71.8	71.3	72.5	75.6	76.9	77.3	75.9	68.8
315.0	.6	64.1	65.2	68.1	68.1	69.3	68.7	71.1	73.6	73.7	75.1	73.4	66.9
400.0	.7	64.7	64.6	67.6	66.2	66.0	64.6	69.9	68.9	71.2	71.5	69.6	65.3
500.0	.9	61.9	64.5	66.3	63.5	63.9	66.2	66.2	65.7	67.3	68.0	66.7	63.7
630.0	1.1	64.6	62.1	64.8	61.6	64.9	60.5	63.6	66.2	66.2	67.5	68.3	64.0
800.0	1.4	70.7	69.9	72.1	73.3	73.1	67.2	64.8	69.7	71.9	70.8	70.9	62.4
1000.0	1.8	75.6	76.6	79.6	79.7	77.5	73.3	71.8	74.1	72.5	72.5	72.6	62.4
1250.0	2.2	76.7	78.6	82.5	81.6	78.2	75.4	73.9	72.4	72.7	71.6	72.9	64.0
1600.0	2.9	73.8	77.1	80.7	80.2	73.8	72.4	70.2	69.1	69.6	68.8	71.2	65.0
2000.0	3.6	71.6	74.3	79.5	78.8	77.2	72.7	69.0	71.4	69.5	67.8	69.8	65.0
2500.0	4.6	75.2	79.1	85.7	86.0	82.4	76.7	71.8	72.7	72.8	69.7	73.3	66.6
3150.0	5.9	74.9	78.0	83.1	82.6	81.4	74.2	70.5	71.5	71.7	70.4	74.3	67.8
4000.0	7.6	73.3	82.4	86.2	87.9	83.2	76.6	71.8	73.6	75.1	71.2	78.1	71.4
5000.0	8.6	70.2	80.4	81.3	89.4	82.8	77.2	72.3	74.0	74.4	66.7	76.5	69.8
6300.0	11.1	72.2	75.9	83.9	84.6	80.9	73.5	71.4	71.8	71.1	66.7	69.3	62.7
8000.0	14.9	74.5	74.4	91.2	85.3	81.9	72.6	72.5	73.2	72.0	71.0	71.0	63.4
10000.0	20.4	74.1	77.4	93.2	89.2	81.9	73.3	71.9	73.3	72.3	72.7	74.6	67.0
12500.0	29.0	67.2	76.3	84.0	81.6	77.2	67.8	68.0	69.6	67.4	63.6	67.3	62.5
16000.0	42.8	66.8	75.2	82.8	81.7	76.4	68.8	67.4	70.0	67.6	64.1	65.7	61.8
20000.0	56.0	65.9	72.2	81.5	79.0	73.1	69.8	68.9	72.3	69.4	64.2	63.7	62.6
OVERALL (50-10K)	85.3	89.0	97.3	96.0	91.6	86.3	84.4	84.4	85.5	87.0	85.6	86.2	80.2
OVERALL (20-20K)	85.5	89.5	97.7	96.4	92.0	86.6	84.8	84.8	85.9	87.1	85.7	86.4	80.5
A SCALE (20-20K)	85.3	89.5	96.6	96.2	91.8	85.9	82.9	82.9	83.9	84.3	82.4	85.3	78.5
PNL - - - -	98.3	103.3	108.4	109.3	105.2	99.6	96.6	96.6	97.9	98.9	96.4	100.1	93.7
PNLTC - - - -	98.9	104.4	109.9	111.1	106.6	101.0	98.0	98.0	99.0	100.4	97.5	100.1	94.6

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DA'

ATMOS. CORR. IS IN DB PFR 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN ARIZ **
 CONFIGURATION 1 * BARE ENGINE * DYNO COVERED-CRAP INSTALLED-TOP REMOVED
 RUN 9 POINT F **105 SHP ** 80 PERCENT RPM **

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	51.4	50.8	54.0	53.2	50.4	49.4	48.0	49.0	52.3	50.0	51.6	51.4
25.0	0.0	51.4	52.0	54.0	53.2	52.8	50.0	50.5	51.5	52.3	53.7	54.4	55.7
31.5	0.0	53.0	53.7	55.9	54.7	51.5	51.8	50.2	51.7	52.3	54.3	54.7	56.6
40.0	0.0	56.7	56.9	56.9	56.6	55.5	54.2	55.2	53.6	55.4	57.5	58.3	59.0
50.0	.1	58.2	57.7	57.9	57.5	55.0	53.6	53.7	56.2	57.6	58.8	59.6	61.0
63.0	.1	59.7	60.1	60.1	59.2	57.6	56.6	57.0	59.5	60.0	62.1	65.4	68.9
80.0	.1	62.1	62.2	61.7	60.3	60.5	59.0	59.5	61.2	62.8	64.9	63.8	63.6
100.0	.2	63.7	62.8	62.2	62.4	62.2	61.1	61.9	63.9	64.8	65.4	65.1	65.7
125.0	.2	64.2	64.4	64.3	65.7	66.0	66.1	67.0	68.5	69.2	68.7	67.8	67.1
160.0	.3	71.7	73.0	74.3	77.4	80.4	80.9	80.7	80.4	84.2	82.6	77.0	74.5
200.0	.3	72.1	71.6	74.5	75.3	76.1	75.2	75.4	77.3	79.2	79.6	76.9	73.3
250.0	.4	71.3	70.3	73.9	70.7	73.4	72.6	74.5	77.4	78.0	79.5	76.8	74.3
315.0	.6	65.0	66.7	69.4	68.8	70.6	71.3	73.2	76.1	75.4	77.8	74.7	72.1
400.0	.7	64.0	65.8	68.6	66.5	67.6	66.9	72.1	72.7	74.2	75.9	71.8	68.7
500.0	.9	61.6	63.8	66.2	62.1	63.0	64.3	68.8	70.0	69.1	72.3	68.3	66.8
630.0	1.1	66.0	62.1	63.5	64.0	64.9	60.5	65.6	66.2	64.5	68.6	66.2	64.6
800.0	1.4	70.6	70.2	71.2	73.8	72.3	66.3	60.0	63.2	68.0	64.4	66.8	63.4
1000.0	1.8	75.1	76.6	79.2	79.8	76.5	73.0	67.9	66.8	72.2	68.0	71.2	62.7
1250.0	2.2	75.1	78.0	82.2	80.4	77.0	74.9	72.6	71.6	72.6	71.5	73.0	63.7
1600.0	2.9	72.0	75.0	80.6	76.3	71.2	73.1	72.4	73.6	72.4	72.4	73.2	65.0
2000.0	3.6	71.9	74.8	78.8	80.6	77.7	72.2	69.7	70.0	68.1	69.6	69.6	65.5
2500.0	4.6	74.3	77.8	85.6	84.3	80.2	76.6	69.9	70.3	72.8	68.3	72.1	67.9
3150.0	5.9	74.0	78.2	84.0	83.6	81.2	75.3	72.9	74.4	72.7	72.7	75.7	71.0
4000.0	7.6	74.1	82.7	87.8	87.3	82.1	77.2	74.8	74.1	75.4	73.1	80.5	74.7
5000.0	8.6	70.2	81.4	83.7	89.8	82.2	77.6	74.5	76.2	75.5	68.7	79.1	73.4
6300.0	11.1	71.8	76.5	86.3	85.7	79.8	74.9	73.7	74.1	73.5	69.7	71.8	67.2
8000.0	14.9	74.3	74.7	92.9	86.5	80.3	73.2	74.1	75.2	73.5	75.1	72.9	67.4
10000.0	20.4	73.1	77.8	93.7	88.3	81.0	72.1	73.5	74.7	73.1	74.6	75.9	70.0
12500.0	29.0	66.3	76.3	86.1	82.8	76.5	68.4	69.4	71.4	69.2	66.8	68.2	65.1
16000.0	42.8	65.4	75.1	84.9	83.0	75.9	69.0	68.5	71.5	69.2	67.4	65.3	62.7
20000.0	56.0	63.6	72.2	82.6	80.1	72.2	69.4	69.8	74.1	72.0	69.6	63.3	63.2
OVERALL (50-10K)		85.1	89.2	98.3	96.0	91.1	87.4	86.5	87.4	88.7	88.3	87.8	83.5
OVERALL (20-20K)		85.2	89.7	98.8	96.5	91.4	87.6	86.8	87.8	88.8	88.4	87.9	83.7
A SCALE (20-20K)		84.6	89.5	97.7	96.1	90.8	86.3	84.1	85.0	85.0	83.9	86.7	81.3
PNL - - - -		98.0	103.6	109.7	109.6	104.5	100.2	98.6	99.3	99.6	98.3	101.9	96.8
PNLTC - - - -		98.0	104.5	111.1	110.7	106.1	102.0	100.2	100.5	101.2	99.7	102.9	97.5

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **
 CONFIGURATION 1 * BARE ENGINE * DYNO COVERED-CRAP INSTALLED-TOP REMOVED
 RUN 10 POINT 1 ** 105 SHP ** 70 PERCENT RPM **

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	51.4	52.0	56.9	56.9	50.2	48.0	48.1	49.0	53.3	51.7	52.8	51.4
25.0	0.0	55.3	55.3	56.9	55.8	54.7	54.3	50.3	56.0	54.0	52.7	53.8	54.3
31.5	0.0	56.0	55.0	57.2	55.0	52.9	51.0	50.5	53.8	54.3	56.2	56.5	56.1
40.0	0.0	58.1	58.5	59.6	58.9	56.1	56.3	53.3	53.9	55.3	57.6	58.2	58.7
50.0	.1	59.4	59.4	60.0	58.8	57.0	56.9	54.2	54.8	56.6	58.1	60.1	60.6
63.0	.1	61.3	61.6	61.4	60.2	58.9	58.0	56.5	58.5	60.3	61.1	61.9	62.5
80.0	.1	61.6	62.0	61.4	62.0	61.2	60.0	59.2	61.9	61.4	62.9	63.4	62.9
100.0	.2	63.1	62.4	61.7	62.2	62.7	61.5	63.1	64.7	64.4	65.0	64.3	64.0
125.0	.2	67.0	68.6	73.1	72.6	72.6	73.9	75.4	77.3	75.9	74.9	74.9	72.2
160.0	.3	69.5	71.6	75.6	74.2	77.2	79.1	79.6	80.7	80.4	78.6	77.2	75.9
200.0	.3	70.1	69.0	72.2	73.1	73.4	72.8	72.4	74.2	74.8	74.7	73.7	71.2
250.0	.4	71.0	69.4	72.6	70.7	72.0	72.0	72.8	75.5	75.8	76.8	74.8	72.6
315.0	.6	66.3	66.4	70.4	69.8	70.8	70.9	72.5	74.3	74.4	75.7	72.2	70.6
400.0	.7	66.4	65.8	69.9	67.4	66.3	66.4	70.3	69.4	71.0	69.1	69.1	67.5
500.0	.9	64.6	67.7	71.5	66.8	69.4	71.4	68.6	68.9	69.0	72.9	70.8	68.0
630.0	1.1	69.6	66.3	64.3	67.5	72.1	63.2	64.3	66.0	65.4	69.4	68.9	66.3
800.0	1.4	76.6	75.4	73.7	78.6	79.2	70.7	64.4	68.1	68.8	69.5	71.7	66.8
1000.0	1.8	79.4	79.8	80.9	83.3	80.9	75.9	72.6	70.9	72.5	71.9	73.5	65.2
1250.0	2.2	78.4	80.3	83.9	84.1	79.6	78.1	76.1	73.6	71.3	72.7	74.4	66.1
1600.0	2.9	74.5	76.9	83.4	80.5	74.3	76.1	74.2	73.0	70.7	71.4	73.4	66.9
2000.0	3.6	73.1	76.3	78.3	81.6	81.0	73.4	69.3	69.0	68.3	68.1	70.0	66.5
2500.0	4.6	74.9	79.2	85.0	86.9	81.3	77.3	70.8	72.3	69.4	69.5	72.5	67.7
3150.0	5.9	73.7	78.1	84.1	83.2	82.7	74.4	72.1	71.3	70.6	69.7	73.7	69.4
4000.0	7.6	71.5	80.1	84.4	86.7	81.1	75.6	70.7	72.2	70.6	69.1	75.7	71.3
5000.0	8.6	67.6	79.0	81.5	86.9	80.6	74.7	71.1	72.7	71.0	65.5	74.5	70.2
6300.0	11.1	70.6	74.8	84.3	84.3	80.0	72.9	70.3	71.3	68.9	66.8	67.7	64.2
8000.0	14.9	74.4	75.2	85.7	85.0	80.4	72.5	72.4	73.0	70.3	72.9	71.6	66.8
10000.0	20.4	70.5	75.7	89.9	82.9	78.0	68.8	68.9	70.7	67.7	69.2	70.4	66.5
12500.0	29.0	63.9	73.5	81.6	80.2	73.0	65.0	66.2	67.8	64.2	62.4	65.6	62.8
16000.0	42.8	62.3	70.9	79.6	74.3	70.9	66.2	69.4	71.8	68.4	64.5	64.1	62.1
20000.0	56.0	59.7	66.4	76.4	74.5	67.1	67.2	72.1	75.4	71.2	67.2	66.7	65.2
OVERALL (50-10K)		86.4	89.1	98.3	95.2	91.6	87.4	85.9	86.7	86.0	85.9	86.3	82.9
OVERALL (20-20K)		86.5	89.4	98.5	95.5	91.7	87.5	86.2	87.2	86.3	86.1	86.4	83.1
A SCALE (20-20K)		86.2	89.4	97.7	95.6	91.7	86.5	83.7	83.7	82.3	82.4	84.7	79.9
PNL - - - -		98.3	102.6	110.8	108.7	105.3	100.0	97.1	97.7	96.4	96.1	99.2	95.0
PNLTC - - - -		98.9	102.6	112.2	110.3	106.0	102.2	99.1	98.5	97.2	96.9	99.8	95.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **

CONFIGURATION 2 * BARE INLET * DYNO COVERED-CRAP INSTALLED *

RUN 11 POINT A ** 105 SHP ** 100 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	45.5	49.4	49.6	48.3	47.8	46.1	44.4	45.3	45.3	45.0	46.4	45.6
25.0	0.0	54.2	53.3	55.7	55.5	55.9	53.6	53.0	53.7	57.3	56.1	53.9	52.7
31.5	0.0	53.7	53.8	54.9	54.8	55.1	55.0	55.2	54.4	54.0	53.9	54.7	55.0
40.0	0.0	56.1	55.7	56.7	55.9	57.0	57.6	58.2	58.4	56.8	58.2	57.8	57.4
50.0	.1	57.5	56.4	57.0	57.8	60.1	60.0	59.7	59.5	59.6	60.1	59.2	60.2
63.0	.1	58.5	57.9	60.0	60.2	61.4	61.5	61.9	62.3	63.8	62.4	62.7	62.4
80.0	.1	60.9	60.3	62.4	62.1	64.1	63.5	64.8	65.0	66.0	65.2	65.4	65.6
100.0	.2	63.7	62.7	64.1	63.8	65.4	64.6	66.0	67.0	68.6	68.0	68.4	68.7
125.0	.2	64.7	63.2	64.2	64.8	65.6	66.1	66.9	68.3	69.4	69.0	69.2	70.1
160.0	.3	64.2	61.9	64.2	64.9	66.7	65.8	66.8	68.2	69.1	70.1	70.7	71.3
200.0	.3	63.2	61.5	64.5	65.3	65.5	65.7	67.0	69.0	70.2	70.3	71.2	71.6
250.0	.4	63.3	61.4	64.6	63.3	64.7	65.4	65.8	66.9	67.7	68.4	68.8	69.4
315.0	.6	60.8	61.8	64.4	63.3	63.6	62.5	63.8	65.3	65.1	65.6	66.0	67.5
400.0	.7	58.9	59.3	62.3	61.0	61.4	59.6	62.4	63.5	61.5	63.7	64.0	64.8
500.0	.9	58.2	57.9	61.1	60.6	58.4	57.2	59.2	60.4	58.8	60.4	59.7	60.6
630.0	1.1	53.2	61.5	58.4	56.2	56.6	58.0	56.3	59.9	59.9	62.1	62.7	62.1
800.0	1.4	54.2	59.3	59.5	59.0	62.9	60.3	55.8	60.9	62.8	64.6	66.1	66.6
1000.0	1.8	57.8	60.1	64.6	66.0	67.9	63.5	61.1	63.9	65.0	66.8	68.7	69.3
1250.0	2.2	65.3	73.1	76.4	75.7	78.2	75.4	72.6	69.9	68.4	72.6	66.9	67.7
1600.0	2.9	64.3	71.6	75.3	75.2	76.0	73.2	70.6	67.5	65.6	70.0	63.4	63.8
2000.0	3.6	62.6	72.6	70.2	72.1	71.0	65.0	65.9	60.5	60.6	63.0	65.9	65.0
2500.0	4.6	57.7	63.3	71.2	74.5	71.9	67.0	60.6	60.5	60.4	62.7	63.4	65.3
3150.0	5.9	66.7	70.8	77.3	75.9	82.0	70.6	69.1	65.7	65.3	65.2	67.7	67.2
4000.0	7.6	72.7	69.9	80.1	80.1	80.6	69.0	70.1	67.6	70.6	63.7	69.3	72.2
5000.0	8.6	66.7	66.6	77.0	76.2	78.6	72.4	64.9	62.0	63.4	67.6	62.3	67.3
6300.0	11.1	72.2	72.2	78.9	76.7	82.1	73.8	62.2	64.6	62.7	71.2	64.0	65.3
8000.0	14.9	71.0	72.5	79.6	78.3	76.4	67.3	64.8	64.4	64.0	66.6	64.6	60.1
10000.0	20.4	62.7	69.2	78.8	79.6	70.7	64.6	62.4	59.5	58.2	61.9	63.7	61.5
12500.0	29.0	69.4	68.7	79.8	84.3	72.3	58.4	71.0	66.9	61.0	65.9	67.6	65.0
16000.0	42.8	56.2	61.5	70.6	71.2	65.0	60.7	57.3	54.4	54.2	57.8	58.9	58.9
20000.0	56.0	53.6	60.1	70.6	64.4	62.2	58.4	54.3	60.4	52.5	57.1	57.9	60.1
OVERALL (50-10K)		79.4	81.5	87.6	87.3	88.6	82.1	79.9	79.4	79.7	81.1	80.5	81.3
OVERALL (20-20K)		79.9	81.8	88.5	90.9	88.8	82.4	80.5	79.8	79.8	81.3	80.8	81.4
A SCALE (20-20K)		79.0	81.6	87.9	89.0	89.1	82.0	79.2	77.5	77.1	79.3	78.0	78.9
PNL - - - -		93.4	94.1	101.2	101.1	102.5	94.8	92.7	91.8	92.5	93.0	92.7	94.3
PNLTC - - - -		95.4	96.6	103.4	102.8	104.6	97.1	94.9	93.3	94.6	94.4	94.2	96.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PFR 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **

CONFIGURATION 2 * BARE INLET * DYNO COVERED-CRAP INSTALLED *

RUN 12 POINT F ** 105 SHP ** 80 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	51.0	50.7	59.8	50.0	50.0	52.3	50.6	53.1	54.6	57.3	57.4	58.5
25.0	0.0	51.1	50.9	60.5	53.9	52.8	51.4	50.7	52.0	53.6	54.5	55.6	56.3
31.5	0.0	51.9	51.9	60.7	53.9	53.5	52.7	53.0	52.2	53.2	54.5	55.4	55.8
40.0	0.0	53.5	53.2	60.5	55.5	55.9	57.0	56.3	55.4	56.1	56.1	56.1	56.6
50.0	.1	54.0	53.0	58.9	55.8	56.7	57.3	56.9	57.1	57.0	57.4	57.8	57.6
63.0	.1	55.1	54.7	59.5	57.7	57.8	58.5	57.4	58.3	59.4	59.1	59.1	59.4
80.0	.1	56.1	55.3	57.8	57.0	57.5	57.3	58.0	59.5	60.2	59.9	61.2	61.2
100.0	.2	59.2	58.2	57.7	57.2	58.3	58.4	59.6	59.5	59.7	60.7	61.6	62.2
125.0	.2	60.6	57.8	59.4	59.2	61.3	61.5	61.7	62.1	61.1	60.6	60.9	62.3
160.0	.3	58.7	57.7	59.3	61.8	63.5	62.3	61.3	62.0	62.9	63.2	61.4	62.1
200.0	.3	60.9	56.5	60.4	61.4	61.3	60.9	59.0	60.7	61.9	61.8	61.6	61.9
250.0	.4	61.9	60.5	62.4	60.4	62.8	61.2	59.3	60.2	59.0	61.3	61.2	62.2
315.0	.6	60.9	61.7	64.2	63.8	64.7	62.6	62.8	62.2	62.1	62.7	62.6	63.0
400.0	.7	60.9	59.6	64.2	62.1	61.3	61.6	63.3	61.0	62.4	64.9	65.2	60.6
500.0	.9	62.8	63.1	67.8	65.9	62.4	62.1	62.3	62.7	63.9	65.2	64.4	63.0
630.0	1.1	60.0	61.8	61.6	59.2	60.0	62.1	60.6	58.7	58.7	58.9	61.2	61.3
800.0	1.4	61.5	61.6	64.3	64.6	69.1	64.1	59.1	59.2	58.2	61.3	61.9	59.6
1000.0	1.8	69.0	69.3	72.4	75.5	77.6	72.0	62.9	66.3	66.9	62.7	68.7	66.0
1250.0	2.2	72.5	75.1	78.0	79.1	77.7	73.9	68.8	67.5	66.7	67.6	71.0	67.6
1600.0	2.9	70.8	75.1	79.1	80.6	76.1	71.1	68.3	65.2	64.9	68.0	70.4	68.2
2000.0	3.6	68.8	71.9	74.9	75.6	71.0	67.4	69.5	63.6	63.7	65.7	66.4	65.5
2500.0	4.6	69.1	70.9	78.4	80.8	79.3	74.4	66.1	66.5	64.6	65.0	67.5	66.5
3150.0	5.9	72.8	75.0	82.2	83.8	78.9	76.6	72.6	68.7	67.9	66.9	70.9	73.3
4000.0	7.6	75.0	74.7	83.8	85.7	82.7	76.8	72.0	70.8	71.6	66.5	72.6	75.5
5000.0	8.6	76.6	73.5	82.2	83.2	84.0	77.7	74.2	72.3	73.3	69.8	74.6	76.8
6300.0	11.1	74.2	76.3	79.9	82.8	79.9	75.2	70.7	69.9	69.5	71.3	70.4	70.9
8000.0	14.9	72.8	80.4	87.2	87.0	78.1	75.0	72.0	69.9	72.3	71.7	72.3	69.1
10000.0	20.4	71.3	81.9	75.7	86.1	77.3	76.3	73.7	69.2	70.0	71.9	78.5	71.8
12500.0	29.0	65.6	72.7	82.2	78.3	71.7	68.8	67.6	62.6	62.5	63.1	66.4	66.3
16000.0	42.8	64.0	72.9	79.9	76.5	70.9	68.7	65.5	60.4	61.5	62.6	65.0	62.2
20000.0	56.0	63.2	69.9	76.4	73.4	66.1	65.5	61.0	55.7	56.7	59.2	59.6	57.3
OVERALL (50-10K)		83.5	87.0	91.8	93.7	90.1	85.6	81.9	79.9	80.2	80.2	83.4	82.6
OVERALL (20-20K)		83.6	87.4	92.6	93.9	90.2	85.8	82.2	80.1	80.4	80.4	83.6	82.8
A SCALE (20-20K)		83.7	86.6	92.2	93.7	90.5	85.8	81.9	79.7	79.9	79.5	82.9	82.8
PNL - - -		97.3	98.5	104.8	104.6	103.8	99.0	95.5	93.7	94.1	93.0	96.2	96.8
PNLTC - - -		97.3	98.5	106.5	108.4	105.3	99.0	96.6	93.7	95.6	94.1	97.2	98.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **
 CONFIGURATION 2 * BARE INLET * DYNO COVERED-CRAP INSTALLED *
 RUN 15 POINT I ** 105 SHP ** 70 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	51.4	49.7	50.0	59.3	50.0	54.5	49.0	51.1	51.3	52.7	56.5	55.1
25.0	0.0	49.9	49.7	53.5	57.2	52.4	55.7	50.0	52.1	53.7	53.8	56.7	54.9
31.5	0.0	51.5	51.4	54.6	55.8	53.0	54.3	51.2	52.8	52.8	54.2	55.7	54.1
40.0	0.0	55.0	54.9	57.8	58.3	56.6	57.7	54.4	55.7	56.4	56.3	58.0	55.9
50.0	.1	55.1	53.8	56.3	57.7	58.5	59.4	57.6	57.8	58.2	57.1	58.3	57.5
63.0	.1	55.4	53.8	56.4	57.1	57.8	58.6	56.6	63.6	57.4	56.9	58.4	58.1
80.0	.1	54.8	54.7	56.5	56.1	55.9	55.4	56.7	57.8	58.7	58.5	59.6	59.9
100.0	.2	60.3	57.8	57.4	57.2	57.4	58.6	60.4	59.2	59.2	58.7	61.2	61.8
125.0	.2	61.8	58.6	60.8	60.4	62.0	62.6	62.4	62.0	61.6	60.9	62.0	62.8
160.0	.3	58.7	56.9	58.8	62.1	63.8	62.5	61.4	61.7	62.6	62.6	60.9	61.5
200.0	.3	61.5	58.7	61.0	62.7	62.8	61.5	58.5	59.9	60.9	60.6	60.9	60.8
250.0	.4	63.5	61.5	64.2	64.5	63.0	61.8	58.2	59.7	58.1	61.6	61.9	61.9
315.0	.6	63.6	62.0	66.8	67.0	65.6	65.6	65.9	64.3	65.0	64.3	64.2	64.4
400.0	.7	63.9	62.0	67.9	66.2	64.1	65.7	67.0	63.9	66.0	68.6	68.8	63.4
500.0	.9	66.7	67.1	73.6	73.8	66.9	66.4	66.1	68.6	70.4	71.5	72.3	69.6
630.0	1.1	63.9	65.8	66.4	64.3	64.9	65.9	64.6	62.6	62.0	62.0	65.6	63.8
800.0	1.4	68.7	66.9	69.9	71.4	75.3	71.5	65.3	65.8	64.7	69.4	69.7	65.9
1000.0	1.8	74.1	72.9	76.7	80.6	82.2	76.8	66.9	71.0	71.8	69.6	75.6	72.1
1250.0	2.2	75.4	77.3	81.3	83.1	81.3	77.0	72.2	71.3	70.1	73.1	76.8	72.6
1600.0	2.9	73.5	77.5	82.0	84.1	79.2	73.4	71.4	67.8	67.2	70.7	74.6	71.8
2000.0	3.6	71.3	73.7	77.2	78.5	73.0	69.0	70.7	65.3	65.5	67.4	69.3	68.2
2500.0	4.6	71.0	72.0	80.5	83.1	80.0	75.3	67.7	68.4	65.9	67.1	70.5	68.9
3150.0	5.9	72.8	74.8	82.2	84.2	78.8	74.3	72.5	67.1	68.0	67.0	71.6	73.4
4000.0	7.6	72.3	71.4	81.7	84.4	79.7	74.6	69.5	69.0	69.6	66.5	73.5	73.6
5000.0	8.6	73.0	69.9	79.4	80.2	80.0	74.1	70.6	68.1	69.6	66.5	72.5	74.7
6300.0	11.1	71.6	73.5	78.0	80.9	77.4	71.6	69.0	66.8	66.6	69.6	69.6	69.0
8000.0	14.9	73.1	79.5	86.9	86.1	77.4	72.1	71.6	68.6	68.8	75.4	73.7	67.5
10000.0	20.4	69.0	75.9	84.5	84.1	72.6	69.3	68.6	64.5	64.8	68.7	71.9	67.2
12500.0	29.0	63.0	69.0	79.5	76.9	69.0	65.3	65.0	60.3	59.5	60.8	64.8	62.9
16000.0	42.8	60.8	67.6	76.0	74.3	67.3	63.9	60.3	57.3	57.1	60.1	62.5	58.6
20000.0	56.0	56.3	62.9	72.5	71.0	61.9	59.1	54.2	52.6	52.4	56.3	57.1	53.1
OVERALL(50-10K)		83.7	86.0	92.5	93.7	89.8	85.1	81.7	80.2	80.4	82.1	84.6	82.7
OVERALL(20-20K)		83.8	86.2	92.9	93.9	89.9	85.2	81.8	80.3	80.5	82.2	84.7	82.8
A SCALE(20-20K)		83.9	86.0	92.5	94.0	90.3	85.4	81.7	79.8	79.9	81.4	84.5	82.9
PNL - - - -		96.5	98.1	104.8	106.5	102.5	97.9	95.3	93.0	93.2	94.3	97.1	96.3
PNLTC - - - -		96.5	99.2	107.0	109.4	103.8	99.1	96.6	94.7	95.4	96.4	98.8	98.3

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **
 CONFIGURATION 2 * BARE INLET * DYNO COVERED-CRAP INSTALLED *
 RUN 17 POINT C ** 677 SHP ** 100 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	47.9	50.0	51.4	50.0	50.0	50.5	51.0	50.9	50.4	49.3	50.4	50.1
25.0	0.0	55.7	53.2	58.1	58.8	56.9	57.8	58.5	60.2	56.3	57.0	59.0	60.6
31.5	0.0	57.3	56.0	59.4	59.1	58.7	60.4	59.4	59.4	58.7	58.6	57.8	58.1
40.0	0.0	60.6	58.5	61.5	60.6	62.1	63.1	62.9	62.8	61.6	60.4	60.9	61.8
50.0	.1	62.4	60.6	63.3	64.2	65.0	66.8	66.3	66.2	65.9	64.1	68.0	65.9
63.0	.1	64.3	62.6	65.1	66.7	66.7	66.7	67.4	67.3	68.6	66.3	67.8	68.1
80.0	.1	66.3	64.7	67.9	68.2	69.5	69.0	69.8	69.9	70.8	70.1	70.3	71.1
100.0	.2	68.2	66.1	68.7	69.9	70.5	70.3	71.5	72.3	72.4	72.6	73.2	74.3
125.0	.2	68.9	66.9	69.4	70.7	70.9	71.8	73.4	74.1	74.3	74.3	74.6	76.0
160.0	.3	69.3	66.1	70.7	71.5	72.6	72.3	73.0	74.3	75.0	75.8	76.3	77.4
200.0	.3	67.9	65.9	70.6	71.5	71.0	71.8	73.0	74.8	75.9	76.3	77.3	78.5
250.0	.4	67.2	64.7	69.4	69.6	70.4	71.4	72.4	73.6	73.8	75.4	75.6	77.5
315.0	.6	64.2	63.8	67.2	67.4	67.4	68.4	71.2	71.5	71.7	72.7	72.9	74.7
400.0	.7	62.8	62.1	66.4	65.4	65.4	66.0	70.0	70.4	68.2	71.1	70.5	71.9
500.0	.9	60.9	59.5	64.2	63.9	60.7	62.7	65.6	67.2	65.5	66.8	66.7	68.8
630.0	1.1	57.5	63.1	59.7	59.1	64.2	62.7	62.8	65.7	66.4	66.3	70.9	70.9
800.0	1.4	59.0	61.9	65.4	67.3	70.5	67.0	63.2	67.8	70.3	71.2	74.9	75.5
1000.0	1.8	62.2	63.4	70.8	72.9	73.8	70.0	68.8	71.6	72.5	74.7	76.9	77.8
1250.0	2.2	67.0	72.3	77.9	76.6	74.6	78.9	76.8	74.6	72.9	75.2	75.4	76.1
1600.0	2.9	65.8	71.3	76.7	75.0	72.2	76.9	75.2	72.4	69.9	72.4	71.5	71.4
2000.0	3.6	64.2	67.7	72.3	76.1	72.9	68.2	68.4	65.3	66.9	69.1	73.0	73.3
2500.0	4.6	62.1	67.1	76.6	78.7	72.5	69.1	67.2	68.4	69.0	71.3	71.9	74.8
3150.0	5.9	65.8	69.6	78.6	88.3	84.4	75.5	75.7	69.8	68.1	70.6	72.4	73.9
4000.0	7.6	68.1	70.9	81.7	87.0	83.9	74.4	74.4	70.2	71.1	68.8	74.3	74.1
5000.0	8.6	65.5	69.3	78.9	76.0	80.3	69.8	71.5	66.0	68.3	66.5	68.5	70.9
6300.0	11.1	72.5	72.7	80.0	77.4	81.7	69.2	67.1	65.7	67.2	70.9	68.7	66.9
8000.0	14.9	71.0	72.9	77.6	83.7	77.2	71.1	69.9	67.3	67.2	70.7	69.1	64.1
10000.0	20.4	61.9	69.2	78.4	79.8	68.8	64.9	64.3	61.7	62.2	64.8	67.3	64.5
12500.0	29.0	67.6	71.9	82.2	87.4	73.3	67.2	64.6	64.6	66.9	66.8	70.5	68.2
16000.0	42.8	56.2	61.3	71.9	73.1	65.8	59.7	61.6	57.2	56.9	59.4	59.7	58.9
20000.0	56.0	53.6	59.2	70.6	71.9	61.8	58.7	58.3	54.5	53.3	57.5	56.4	54.9
OVERALL(50-10K)		80.4	81.9	89.0	92.8	90.2	85.5	85.3	84.6	84.8	85.8	86.9	87.8
OVERALL(20-20K)		80.8	82.4	89.9	94.0	90.3	85.7	85.5	84.7	84.9	85.9	87.0	87.9
A SCALE(20-20K)		78.5	81.5	89.3	93.7	90.6	84.9	84.0	81.7	81.5	83.2	84.7	85.4
PNL - - - -		93.2	94.7	103.1	107.4	104.6	98.3	98.3	95.5	95.9	96.6	98.7	99.0
PNLTC - - - -		94.2	96.4	104.5	109.2	106.7	100.1	99.9	96.1	95.9	96.6	99.9	99.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FIA STD. DAY
 ATMOS. CORR. IS IN DB PFR 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **
 CONFIGURATION 3 * INLET A-B * DYNO COVERED-CRAP INSTALLED *
 RUN 18 POINT A ** 105 SHP ** 100 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	46.5	46.7	46.8	49.3	50.0	47.7	47.9	46.5	50.3	48.8	46.5	47.8
25.0	0.0	51.7	52.4	54.7	54.8	56.0	56.1	56.2	54.5	54.7	53.6	54.3	55.0
31.5	0.0	53.6	54.0	54.9	54.8	57.4	56.1	55.4	55.7	55.6	55.6	55.5	55.0
40.0	0.0	56.8	57.0	57.4	56.1	59.1	58.3	59.2	59.3	58.5	59.5	57.6	59.0
50.0	.1	59.1	59.3	60.3	60.3	62.6	62.0	62.3	61.8	61.2	62.1	60.5	60.9
63.0	.1	61.5	60.9	60.4	60.6	62.9	62.4	63.1	63.5	63.3	64.4	63.6	63.6
80.0	.1	62.1	62.6	62.6	62.4	66.0	63.6	65.2	65.2	66.3	66.6	66.2	65.9
100.0	.2	64.2	64.5	64.7	64.7	68.3	66.9	67.4	67.7	67.6	69.7	69.0	68.4
125.0	.2	64.4	64.8	64.8	64.3	67.0	66.3	67.5	68.6	68.9	70.1	69.8	69.2
160.0	.3	64.2	63.1	64.4	64.1	67.3	65.4	67.0	68.4	69.2	70.8	70.9	71.2
200.0	.3	62.6	62.1	64.9	64.8	65.9	65.1	67.1	68.8	69.5	70.9	71.3	71.2
250.0	.4	61.3	62.6	63.8	62.6	65.2	64.6	65.6	66.9	66.7	68.7	68.8	68.8
315.0	.6	60.7	64.5	64.3	62.4	64.5	62.1	64.7	65.5	64.7	67.4	66.9	66.8
400.0	.7	58.6	62.0	62.7	61.4	62.0	59.2	62.6	63.1	63.1	66.1	65.1	64.6
500.0	.9	54.1	55.5	57.2	55.2	55.5	55.1	56.7	58.7	57.9	61.0	60.4	60.9
630.0	1.1	50.7	56.3	57.3	55.0	55.3	55.7	58.0	59.8	60.0	63.9	61.3	60.0
800.0	1.4	51.1	53.8	57.0	55.0	61.1	58.9	58.0	61.0	61.7	63.9	65.1	64.1
1000.0	1.8	52.0	53.2	59.8	58.7	62.6	60.6	61.6	63.1	63.2	67.2	67.8	67.1
1250.0	2.2	51.8	54.0	61.1	60.2	61.3	59.4	61.2	62.5	62.2	65.9	65.5	65.8
1600.0	2.9	49.4	53.2	59.5	57.8	58.1	56.1	57.3	58.8	58.4	61.6	60.6	61.2
2000.0	3.6	47.3	50.4	54.4	53.2	55.3	54.9	55.0	56.2	56.9	61.3	62.6	60.4
2500.0	4.6	45.8	51.3	56.9	56.0	56.7	55.2	57.0	58.1	59.0	62.2	62.2	62.3
3150.0	5.9	45.9	53.6	55.6	55.1	57.6	54.5	55.0	55.3	56.3	58.5	60.7	59.8
4000.0	7.6	46.4	54.3	56.1	55.4	57.7	57.0	56.7	57.3	57.4	56.8	60.5	60.3
5000.0	8.6	43.4	48.5	49.1	48.3	56.0	53.4	53.9	54.3	54.8	52.0	56.4	57.0
6300.0	11.1	43.2	44.9	46.8	50.7	55.4	52.6	52.9	53.0	53.4	54.8	49.7	50.8
8000.0	14.9	42.6	44.5	50.0	53.7	53.0	50.9	51.4	51.9	52.3	56.9	51.4	52.1
10000.0	20.4	43.0	51.3	55.5	55.7	57.2	54.8	56.9	54.0	54.8	54.9	55.2	55.3
12500.0	29.0	40.5	46.9	49.8	49.6	51.4	47.5	48.8	49.1	49.4	49.8	51.7	54.5
16000.0	42.8	34.9	40.2	41.7	41.4	43.7	43.3	42.6	42.3	44.1	47.0	49.0	53.5
20000.0	56.0	32.1	34.7	37.9	41.1	38.2	35.4	39.6	41.0	42.4	45.9	49.2	54.1
OVERALL (50-10K)		72.6	73.5	74.7	74.1	76.1	75.2	76.5	77.4	77.7	79.6	79.5	79.3
OVERALL (20-20K)		72.8	73.7	74.9	74.3	76.4	75.4	76.6	77.6	77.8	79.6	79.6	79.4
A SCALE (20-20K)		63.2	66.4	69.6	68.6	70.7	69.0	70.1	71.4	71.5	74.3	74.7	74.3
PNL - - - -		76.5	80.5	82.9	82.3	84.5	83.2	84.0	84.8	85.2	87.6	87.8	87.7
PNLTC - - - -		76.5	81.6	84.2	83.5	85.6	84.3	84.0	84.8	85.2	87.6	87.8	87.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PFR 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 10

CONFIGURATION 3 * INLET A*B * DYNO COVERED-CHAP INSTALLED *

RUN 19 POINT C ** 677 SHP ** 100 PERCENT RPM ** T4.1 LIMITED

SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES											
FREQUENCY	ATMOS. CORR.	1	2	3	4	5	6	7	8	9	10
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.
											150 DEG.
											165 DEG.
20.0	0.0	48.9	49.0	50.1	55.9	51.9	50.3	52.3	51.4	68.4	51.7
25.0	0.0	56.1	59.6	56.4	59.4	59.0	56.8	58.3	58.6	68.8	60.1
31.5	0.0	56.8	57.4	57.9	60.6	59.0	58.7	59.5	60.6	67.3	59.4
40.0	0.0	60.0	60.3	60.8	63.0	62.6	62.9	62.9	62.5	67.4	58.1
50.0	.1	63.6	63.6	62.8	65.9	66.1	65.3	66.3	66.0	66.7	61.8
63.0	.1	65.1	65.2	64.8	68.7	68.0	65.6	67.0	67.7	66.8	65.3
80.0	.1	66.5	66.8	67.3	69.1	70.3	67.9	69.5	69.5	67.4	67.0
100.0	.2	67.8	68.8	68.6	71.4	72.0	70.2	71.9	72.3	72.3	71.0
125.0	.2	68.7	68.8	69.1	71.4	71.8	70.7	72.6	73.5	72.3	72.5
160.0	.3	68.6	67.8	70.1	72.1	73.1	71.2	72.7	73.5	73.8	73.8
200.0	.3	68.1	67.8	70.1	72.1	73.1	70.3	72.3	74.7	73.1	75.4
250.0	.4	65.7	66.7	68.7	70.4	70.8	70.0	71.9	73.1	71.7	75.1
315.0	.6	63.4	66.0	67.5	68.7	68.6	67.0	70.2	70.6	68.5	73.1
400.0	.7	61.3	63.8	66.5	67.7	66.9	64.3	68.6	69.1	66.3	71.1
500.0	.9	58.8	59.3	62.7	63.5	61.5	60.6	63.5	64.7	61.8	67.1
630.0	1.1	55.2	58.4	60.8	62.9	62.0	60.3	63.5	64.4	65.1	68.7
800.0	1.4	57.6	58.1	62.5	63.4	67.3	64.9	64.1	67.9	68.3	72.4
1000.0	1.8	59.8	60.5	67.2	68.6	68.7	67.3	69.1	71.0	70.1	75.4
1250.0	2.2	58.5	60.2	67.9	69.4	66.1	66.0	69.3	70.2	67.8	73.8
1600.0	2.9	56.0	60.3	65.9	67.2	62.8	63.4	66.9	66.2	63.0	68.9
2000.0	3.6	54.3	56.8	60.6	62.7	60.9	60.9	61.7	64.5	65.0	70.5
2500.0	4.6	53.5	58.1	64.0	65.8	63.5	62.4	64.8	66.5	65.1	70.6
3150.0	5.9	52.3	57.8	61.0	64.1	61.6	60.7	62.5	62.9	63.7	71.7
4000.0	7.6	50.9	57.6	60.5	63.2	61.6	61.2	62.4	62.9	63.0	69.5
5000.0	8.6	48.7	52.5	54.3	57.1	60.6	58.8	60.7	62.3	61.9	68.8
6300.0	11.1	46.7	46.7	50.0	58.3	58.8	57.0	59.2	60.0	59.8	66.1
8000.0	14.9	45.8	47.1	53.7	60.8	56.4	55.9	58.1	59.0	58.6	59.3
10000.0	20.4	43.3	51.9	54.5	59.6	57.2	54.8	58.1	58.0	56.6	59.7
12500.0	29.0	41.7	48.6	51.3	55.4	53.7	51.0	53.2	53.7	53.0	61.0
16000.0	42.8	37.6	44.5	44.3	48.6	47.2	45.9	48.5	49.8	49.4	58.1
20000.0	56.0	33.5	39.8	42.3	47.0	44.0	42.6	45.7	46.4	46.1	55.0
OVERALL (50-10K)		76.9	77.5	79.6	81.6	81.5	80.0	82.1	83.1	82.0	85.9
OVERALL (20-20K)		77.1	77.7	79.7	81.8	81.6	80.2	82.2	83.2	82.7	85.6
PNL - - - -		81.8	84.6	88.6	90.9	89.6	89.4	90.7	92.0	90.9	95.4
PNLTC - - - -		81.8	84.6	89.7	90.9	89.6	88.4	90.7	92.0	90.9	95.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **

CONFIGURATION 3 * INLET A*B * DYNO COVERED-CRAP INSTALLED *

RUN 23 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	52.0	49.0	48.2	46.6	47.4	49.9	48.5	50.1	51.0	53.6	53.2	53.9
25.0	0.0	53.5	50.1	51.0	49.6	50.1	52.0	52.9	52.6	54.5	54.4	54.9	55.0
31.5	0.0	54.1	52.9	52.5	51.9	52.7	52.6	53.0	52.8	55.3	54.4	55.3	55.3
40.0	0.0	56.7	55.9	56.1	56.5	57.4	58.2	58.4	59.3	59.3	58.2	58.0	57.5
50.0	.1	56.1	55.5	55.8	55.8	57.6	58.1	57.6	57.7	57.8	57.3	58.0	57.8
63.0	.1	58.5	56.8	57.0	57.3	58.1	57.4	57.4	58.4	59.2	59.4	60.1	59.9
80.0	.1	56.8	56.3	57.0	56.8	58.0	57.2	57.3	57.6	59.6	60.0	61.0	61.1
100.0	.2	58.5	58.6	59.1	58.4	60.3	60.4	59.9	59.7	60.4	60.9	61.7	61.8
125.0	.2	56.2	57.7	58.2	57.2	58.6	58.6	58.7	59.7	60.6	60.0	60.5	60.2
160.0	.3	56.2	56.1	57.2	57.8	57.7	57.8	57.8	58.6	60.7	60.0	60.9	60.9
200.0	.3	57.2	56.8	58.3	58.3	58.1	58.5	57.7	59.8	60.7	61.0	60.8	61.0
250.0	.4	58.3	59.0	59.9	58.1	59.0	58.1	57.8	58.9	59.3	59.2	59.6	60.7
315.0	.6	59.9	63.6	63.9	63.3	63.0	60.8	61.2	62.2	61.6	62.1	61.4	62.0
400.0	.7	56.8	60.8	61.6	60.3	58.7	57.1	59.6	59.1	59.2	60.7	58.7	58.6
500.0	.9	50.6	53.0	54.3	54.5	54.6	52.9	54.6	56.1	53.8	55.3	54.8	55.2
630.0	1.1	46.2	50.4	49.4	50.4	51.3	50.1	51.0	54.2	50.1	51.7	52.1	51.0
800.0	1.4	43.5	47.8	46.0	44.4	46.7	46.9	46.2	48.3	47.6	48.5	49.9	49.5
1000.0	1.8	45.9	47.6	49.4	48.6	51.0	48.5	48.1	48.4	50.1	50.4	52.2	52.4
1250.0	2.2	44.7	48.5	50.5	49.7	50.9	49.1	49.3	49.4	49.8	51.3	51.6	52.2
1600.0	2.9	43.4	48.9	51.1	51.2	48.5	50.1	49.2	49.5	48.9	50.2	49.5	50.4
2000.0	3.6	41.4	46.5	48.1	50.2	47.5	48.7	48.1	46.6	47.2	47.4	47.3	46.3
2500.0	4.6	42.3	48.6	49.1	50.5	48.8	49.6	48.6	48.1	49.5	49.8	50.6	49.1
3150.0	5.9	43.9	52.8	50.5	51.1	50.3	50.6	49.9	48.7	48.7	49.0	50.0	47.0
4000.0	7.6	47.0	53.0	52.7	55.8	56.8	54.6	54.1	53.3	51.4	48.8	52.8	46.2
5000.0	8.6	44.5	49.7	45.9	50.4	52.5	51.9	51.8	51.3	51.3	44.4	50.0	46.6
6300.0	11.1	43.4	44.1	47.7	43.7	50.6	50.7	48.6	48.0	47.7	45.2	45.0	49.6
8000.0	14.9	45.8	50.3	54.2	52.6	54.3	54.3	50.7	51.3	50.0	45.7	46.3	52.6
10000.0	20.4	46.4	49.4	52.7	53.4	51.4	50.8	49.2	49.5	48.4	50.9	46.1	47.7
12500.0	29.0	38.7	45.2	45.3	47.5	45.4	44.5	43.0	42.3	41.6	41.9	42.1	43.7
16000.0	42.8	38.8	43.9	45.8	45.4	45.8	44.8	45.3	41.4	41.2	40.0	38.8	42.4
20000.0	56.0	35.2	41.5	43.6	42.7	41.8	39.6	40.3	36.9	36.6	36.5	35.0	40.3
OVERALL(50-10K)		68.0	69.6	70.3	69.9	70.3	69.6	69.5	70.2	70.6	70.8	71.0	71.1
OVERALL(20-20K)		68.7	70.0	70.6	70.2	70.6	70.1	70.1	70.7	71.2	71.3	71.5	71.6
A SCALE(20-20K)		60.0	64.0	64.6	64.7	64.9	63.9	63.7	64.0	63.5	64.0	63.9	63.8
PNL - - - -		73.7	78.0	78.4	79.6	80.2	79.1	78.6	78.5	77.8	77.5	78.4	77.3
PNLTC - - - -		73.7	78.6	79.9	81.2	82.0	80.2	79.7	79.6	77.8	76.4	78.4	78.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OF 12

CONFIGURATION 3 * INLET A-H * DYNO COVERED-CRIP INSTALLED *

RUN 24 POINT 6 ** 175 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	52.2	48.8	48.5	46.3	47.1	48.4	48.4	50.5	53.4	50.5	51.3	53.2
25.0	0.0	53.3	51.5	50.0	50.6	51.5	51.7	51.7	52.3	53.6	55.4	54.3	54.5
31.5	0.0	55.6	54.1	53.5	53.1	52.8	53.4	53.1	53.9	54.4	54.0	55.5	54.7
40.0	0.0	56.6	56.2	55.7	55.9	58.1	58.1	59.0	58.9	59.1	59.2	57.9	57.4
50.0	.1	57.6	57.1	56.4	56.8	57.4	58.8	58.1	58.2	58.1	57.9	58.0	58.1
63.0	.1	59.3	58.5	57.9	58.0	58.4	59.3	59.2	59.8	60.4	60.6	60.8	60.7
80.0	.1	58.2	57.7	57.3	57.7	59.2	58.7	58.9	59.2	60.9	61.8	62.4	62.5
100.0	.2	59.7	60.2	59.7	59.3	61.3	61.1	62.0	60.6	61.6	62.1	62.7	63.5
125.0	.2	57.2	58.5	58.9	58.6	59.5	60.2	60.1	60.9	61.6	61.2	62.3	62.3
160.0	.3	57.7	57.2	56.8	59.5	58.7	58.9	59.5	60.1	61.5	61.5	63.1	63.0
200.0	.3	57.4	57.3	59.1	59.5	58.6	59.5	59.4	60.9	61.8	62.6	62.5	62.3
250.0	.4	58.5	59.4	60.8	58.5	60.4	59.2	59.3	59.7	60.4	60.6	61.5	62.0
315.0	.6	60.3	62.6	63.2	62.1	61.8	60.1	60.8	62.1	60.0	62.0	62.0	62.5
400.0	.7	56.1	59.9	60.7	59.7	58.3	56.6	58.8	58.5	58.4	60.6	59.0	59.8
500.0	.9	51.6	53.8	55.6	55.1	55.9	54.3	55.8	57.0	55.1	56.7	55.4	56.2
630.0	1.1	47.0	51.2	50.3	50.6	51.9	50.4	52.3	54.4	51.0	53.5	52.8	51.1
800.0	1.4	45.4	49.3	46.3	45.1	46.9	46.1	47.3	50.4	50.2	50.9	52.4	51.7
1000.0	1.8	47.0	48.3	50.1	48.7	51.1	49.1	49.6	50.6	52.2	52.8	54.5	54.5
1250.0	2.2	45.1	48.6	50.8	49.9	51.1	49.6	50.6	51.5	51.7	53.9	53.5	54.8
1600.0	2.9	43.5	48.9	51.6	51.7	50.1	50.9	50.7	51.8	50.6	53.1	50.1	52.9
2000.0	3.6	42.0	46.7	48.1	50.7	48.3	48.6	49.1	47.2	47.9	48.8	48.9	47.7
2500.0	4.6	42.6	48.3	49.0	50.7	48.5	49.5	49.5	49.0	50.8	51.3	51.8	50.8
3150.0	5.9	44.0	52.2	50.7	51.7	49.9	50.3	50.3	48.9	49.7	49.9	50.6	48.4
4000.0	7.6	46.4	52.6	51.8	55.2	56.1	53.9	53.9	55.0	51.7	49.2	53.9	46.8
5000.0	8.6	44.2	47.8	44.8	49.3	53.1	51.3	51.3	50.7	51.0	45.0	50.6	47.1
6300.0	11.1	43.5	43.3	47.3	43.8	51.0	49.0	49.0	48.8	48.4	46.5	45.3	50.1
8000.0	14.9	46.4	52.0	54.7	53.6	55.8	53.5	52.8	51.4	51.3	55.1	46.8	53.0
10000.0	20.4	44.5	50.7	52.7	53.0	53.0	51.2	50.9	50.5	50.2	52.8	47.9	48.8
12500.0	29.0	38.5	43.9	43.8	44.6	45.6	43.7	43.9	43.6	43.3	44.2	43.6	44.2
16000.0	42.8	40.1	43.7	44.2	44.2	47.4	45.2	44.6	45.6	43.0	45.8	42.1	45.3
20000.0	56.0	34.6	39.2	40.3	40.4	42.5	40.4	40.1	41.0	39.4	41.7	38.4	41.9
OVERALL (50-10K)		68.7	69.9	70.5	70.2	70.7	70.2	70.6	71.0	71.3	72.0	72.3	72.5
OVERALL (20-20K)		69.4	70.3	70.8	70.5	71.1	70.7	71.0	71.5	71.8	72.4	72.6	72.8
A SCALE (20-20K)		60.2	63.7	64.5	64.6	65.0	63.8	64.2	64.7	64.1	65.2	65.1	65.2
PAL - - - -		74.1	78.0	78.3	79.5	80.2	78.9	79.2	79.7	78.6	78.6	79.6	78.5
PALTC - - - -		74.1	78.8	79.6	81.1	81.4	80.0	80.2	81.4	78.6	79.5	80.7	79.1

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

CONFIGURATION 1 * INLET 4 * R * DYNO COVERED-CHAP INSTALLED *

RUN 25 POINT 1 ** 105 SHP ** 70 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	49.0	49.2	51.3	51.2	51.8	50.9	51.5	51.1	50.4	52.6	53.0	54.2
25.0	0.0	49.3	49.8	49.7	48.6	50.5	49.9	51.5	52.8	53.4	55.1	55.1	55.6
31.5	0.0	52.4	52.6	51.6	51.6	50.4	51.6	52.0	52.6	53.1	52.5	53.3	53.8
40.0	0.0	55.3	55.7	55.2	55.1	55.3	56.4	56.4	57.5	57.2	56.3	57.6	57.9
50.0	.1	55.8	56.5	55.9	56.3	56.6	57.6	57.5	57.3	57.5	57.9	57.9	57.9
63.0	.1	56.9	56.6	56.6	56.3	54.8	55.9	55.3	55.6	56.8	57.6	58.5	58.3
80.0	.1	55.4	54.8	55.4	54.9	55.2	54.8	54.7	54.8	55.8	57.8	60.4	60.0
100.0	.2	57.5	57.6	58.3	57.5	58.5	59.4	58.4	57.3	58.3	58.2	58.9	59.4
125.0	.2	54.9	57.3	57.9	56.8	57.0	57.2	57.1	58.6	59.6	58.0	58.7	58.3
160.0	.3	55.6	54.8	56.0	56.9	55.7	56.2	56.3	56.6	58.1	58.0	58.6	58.3
200.0	.3	56.0	55.2	57.2	57.6	56.6	57.2	57.0	58.0	58.2	58.8	58.9	58.7
250.0	.4	56.7	56.7	58.2	55.8	57.4	56.1	56.1	56.5	56.7	57.1	58.0	58.1
315.0	.6	57.0	59.7	60.5	59.5	58.4	56.3	57.4	58.1	57.7	58.3	58.4	57.6
400.0	.7	54.8	58.0	59.5	58.2	57.4	55.2	56.6	56.8	55.3	57.2	56.1	55.0
500.0	.9	52.8	61.9	57.4	61.8	67.1	54.5	56.1	65.8	57.0	56.6	54.0	56.6
630.0	1.1	46.5	51.7	51.5	49.2	51.6	49.5	52.4	51.9	47.9	52.8	51.0	49.1
800.0	1.4	46.6	48.1	47.0	46.5	46.2	47.1	48.1	49.1	48.3	50.1	47.1	48.9
1000.0	1.8	47.3	48.6	49.0	48.7	50.5	46.6	48.8	47.2	48.4	48.0	48.9	48.9
1250.0	2.2	45.4	47.7	47.8	48.1	49.6	49.3	47.9	46.7	47.0	47.7	48.2	48.4
1600.0	2.9	42.9	47.9	48.8	49.6	47.8	48.8	47.1	47.8	46.7	46.5	46.7	46.5
2000.0	3.6	41.0	44.6	46.2	48.0	47.1	47.1	47.1	45.6	45.9	45.1	44.8	44.3
2500.0	4.6	40.5	46.3	46.3	48.3	46.8	47.5	46.3	45.5	48.3	48.8	49.5	47.5
3150.0	5.9	41.5	49.3	47.9	48.8	46.9	47.9	47.2	45.5	46.7	47.1	47.5	44.6
4000.0	7.6	42.5	48.9	47.5	51.7	51.6	49.4	49.5	49.3	49.1	45.3	49.3	42.8
5000.0	8.6	42.0	44.6	43.0	49.2	50.2	49.2	49.7	48.8	48.6	43.9	49.1	45.1
6300.0	11.1	41.5	40.9	46.2	43.3	48.8	48.9	48.1	47.3	46.6	45.1	42.4	46.9
8000.0	14.9	45.7	47.8	53.5	50.8	54.3	52.9	54.3	52.4	50.8	52.8	46.6	52.4
10000.0	20.4	40.6	45.5	49.1	48.4	47.8	47.9	46.4	45.6	45.3	47.4	43.2	45.3
12500.0	29.0	36.4	41.7	42.4	44.1	42.4	41.8	41.5	41.0	40.5	40.8	39.9	39.9
16000.0	42.8	38.9	43.2	44.8	45.2	44.0	43.2	44.0	42.7	41.3	41.6	38.5	42.3
20000.0	56.0	37.1	43.2	43.4	42.0	39.8	39.3	37.6	37.8	37.3	38.2	35.4	38.6
OVERALL (50-10K)		66.7	68.6	68.7	68.8	70.5	67.8	68.0	69.9	68.5	68.8	69.1	69.0
OVERALL (20-20K)		67.3	69.0	69.1	69.2	70.8	68.4	68.6	70.4	69.1	69.4	69.8	69.7
A SCALE (20-20K)		58.8	63.2	62.8	63.7	66.2	61.8	62.3	65.0	61.9	62.1	61.7	61.5
PWL - - - -		71.9	76.2	75.9	77.2	79.2	76.0	76.2	78.1	75.8	75.5	75.8	75.1
PALTC - - - -		72.7	78.6	76.9	79.9	83.4	76.8	77.3	82.0	77.9	76.6	77.0	76.6

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 13

CONFIGURATION 4 * INLET A* C * DYNO COVERED-CRAP INSTALLED *

RUN 26 POINT A ** 105 SHP ** 100 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	45.2	47.8	47.2	47.7	47.0	48.5	48.5	47.7	47.2	47.3	46.0	57.0
25.0	0.0	56.7	62.4	60.7	59.1	60.7	61.9	61.2	59.7	56.7	59.2	57.6	61.1
31.5	0.0	55.1	56.9	54.8	55.3	55.6	56.5	56.0	55.9	55.8	54.9	54.1	58.8
40.0	0.0	57.7	59.1	58.2	58.0	58.5	59.9	59.3	59.8	59.6	59.1	58.9	59.9
50.0	.1	60.0	61.2	61.6	61.1	62.2	62.1	61.9	61.3	60.6	61.7	60.4	61.1
63.0	.1	63.0	62.0	61.2	61.7	62.6	62.9	63.2	63.4	64.2	63.7	63.7	63.7
80.0	.1	62.9	63.5	64.2	63.1	64.7	64.5	65.4	65.5	67.2	66.6	66.8	66.7
100.0	.2	65.9	66.6	65.9	65.7	67.2	67.6	68.5	69.2	70.2	69.3	69.9	69.9
125.0	.2	65.3	66.4	65.6	66.0	66.0	66.9	68.0	69.1	69.6	70.0	69.9	69.6
160.0	.3	65.3	65.1	65.0	65.1	66.5	66.6	67.5	69.3	69.5	70.8	71.3	69.6
200.0	.3	64.3	64.8	66.0	66.0	66.3	66.3	68.1	69.4	71.2	71.0	72.1	71.9
250.0	.4	62.9	64.2	64.9	64.2	65.3	66.2	66.8	68.2	68.6	69.0	69.9	69.6
315.0	.6	63.2	66.3	66.5	65.6	64.3	64.4	65.7	66.9	65.8	67.6	67.2	67.7
400.0	.7	60.9	65.8	64.8	64.0	62.6	61.8	64.5	64.8	64.6	66.2	64.9	65.5
500.0	.9	56.4	58.0	59.3	59.4	58.2	58.0	59.2	60.7	60.2	61.5	60.4	61.2
630.0	1.1	51.7	55.6	56.5	57.9	53.7	54.8	61.7	59.1	61.7	59.3	62.3	60.9
800.0	1.4	51.9	52.8	54.6	55.9	58.0	57.8	59.5	60.0	62.9	62.9	65.5	64.8
1000.0	1.8	53.0	54.4	59.1	58.9	60.5	60.8	61.3	62.9	64.4	66.2	67.3	67.7
1250.0	2.2	53.0	55.3	60.9	60.9	59.5	60.2	61.7	63.5	63.2	66.0	65.7	66.3
1600.0	2.9	50.0	55.3	60.7	60.1	56.6	59.1	60.6	60.7	59.9	62.1	61.2	61.9
2000.0	3.6	47.8	52.5	55.2	55.2	54.2	54.0	54.9	55.7	57.5	60.1	62.0	60.9
2500.0	4.6	47.1	53.6	56.2	56.4	56.0	56.5	56.9	58.9	59.8	62.3	62.7	62.1
3150.0	5.9	46.7	55.1	55.6	56.9	55.2	55.5	56.0	55.6	56.9	58.2	60.7	57.2
4000.0	7.6	46.5	53.8	54.5	57.1	57.7	56.8	57.3	57.9	58.1	57.2	61.2	54.8
5000.0	8.6	44.3	49.0	47.4	52.2	54.7	54.2	54.3	54.7	55.4	51.7	58.4	55.3
6300.0	11.1	43.2	45.9	50.3	46.6	53.6	52.8	52.7	53.0	53.7	53.1	52.2	57.5
8000.0	14.9	42.4	48.1	53.1	49.7	51.7	52.3	51.6	51.8	52.6	55.9	50.4	57.7
10000.0	20.4	47.0	52.9	53.7	55.4	57.4	58.6	58.1	55.6	55.4	57.3	55.1	56.5
12500.0	29.0	40.7	47.4	48.7	50.9	51.0	51.0	49.7	48.3	49.4	51.6	52.3	56.6
16000.0	42.8	35.4	41.0	42.9	44.2	44.3	44.4	44.2	43.8	45.7	49.8	51.0	58.7
20000.0	56.0	34.1	39.5	42.2	44.0	42.5	42.5	41.9	41.2	44.2	49.5	51.3	61.0
OVERALL (50-10K)		74.0	75.4	75.7	75.5	75.9	76.2	77.3	78.2	78.8	79.6	79.9	79.8
OVERALL (20-20K)		74.2	75.8	76.0	75.8	76.2	76.5	77.5	78.4	78.9	79.7	80.0	80.1
A SCALE (20-20K)		64.8	68.1	70.0	70.0	69.6	70.0	71.2	72.0	72.7	74.1	74.9	74.7
PNL - - - -		78.2	81.9	83.2	83.7	84.0	83.9	84.9	85.5	86.2	87.6	88.2	87.9
PNLTC - - - -		78.2	81.9	83.2	83.7	84.0	83.9	84.9	86.5	86.2	88.6	88.2	88.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **
 CONFIGURATION 4 * INLET A+C * DYNO COVERED-CRAP INSTALLED *
 RUN 27 POINT C ** 677 SHP ** 100 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S - - -											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	49.0	49.4	49.7	49.1	49.8	51.4	51.1	51.0	50.0	50.5	51.4	55.1
25.0	0.0	56.0	59.0	58.4	58.0	60.1	60.5	61.0	61.0	57.8	57.3	59.4	61.8
31.5	0.0	57.5	59.8	58.2	58.7	58.3	59.9	60.0	60.0	58.0	57.3	59.1	59.1
40.0	0.0	61.6	62.9	62.4	62.0	62.3	64.6	63.7	63.7	62.6	62.7	62.5	61.7
50.0	.1	62.7	63.9	63.3	63.6	65.2	66.4	66.1	66.1	64.6	64.6	64.4	64.9
63.0	.1	65.5	66.6	65.5	66.1	67.6	67.9	67.5	67.7	68.0	67.6	67.8	68.4
80.0	.1	66.0	68.5	68.0	68.5	69.4	69.7	70.1	69.6	70.7	69.3	70.0	71.0
100.0	.2	69.3	70.5	69.7	70.5	71.4	71.9	72.0	73.6	73.2	73.4	74.0	74.1
125.0	.2	69.3	70.0	69.8	70.8	70.5	72.0	72.4	74.1	73.9	74.8	74.6	74.8
160.0	.3	69.2	69.5	70.0	70.9	72.1	72.1	72.8	74.4	75.6	75.6	76.4	76.7
200.0	.3	68.3	69.9	70.4	71.5	71.5	72.0	73.0	75.0	75.6	76.6	78.1	78.3
250.0	.4	67.2	69.1	69.4	69.6	70.8	72.0	72.0	73.9	74.3	75.6	76.5	77.1
315.0	.6	65.3	68.3	68.4	68.0	67.8	68.7	70.7	71.4	70.1	73.0	73.5	74.6
400.0	.7	62.9	66.8	67.8	66.5	67.1	66.5	69.4	69.3	68.9	71.9	71.1	72.3
500.0	.9	60.8	62.4	64.5	64.4	63.8	63.0	64.8	66.2	65.7	67.1	67.0	68.3
630.0	1.1	57.0	60.2	61.4	61.9	59.6	61.4	64.1	64.9	66.5	65.5	69.3	68.4
800.0	1.4	57.8	57.3	61.2	60.8	65.1	66.1	64.4	68.3	69.3	70.0	73.2	72.5
1000.0	1.8	59.2	60.3	65.9	65.8	67.9	68.9	68.9	71.1	71.9	74.0	75.5	76.0
1250.0	2.2	59.1	61.2	67.3	67.8	67.1	67.8	69.3	71.3	70.8	74.4	74.5	75.2
1600.0	2.9	58.7	61.5	66.8	66.8	63.8	65.9	68.7	67.5	67.1	70.8	70.2	71.3
2000.0	3.6	55.2	58.4	60.8	61.1	60.3	62.4	62.0	64.6	65.1	67.6	70.5	69.1
2500.0	4.6	53.2	59.5	61.7	63.7	63.2	65.0	65.3	67.0	67.4	71.0	72.0	71.3
3150.0	5.9	51.5	59.5	60.3	62.9	61.2	62.1	62.8	63.0	64.1	66.0	69.5	65.8
4000.0	7.6	50.4	56.8	56.6	61.2	61.7	62.1	62.4	63.8	64.5	65.1	69.8	63.5
5000.0	8.6	49.4	51.8	51.0	56.7	59.7	59.9	60.8	62.3	62.4	65.8	67.4	64.0
6300.0	11.1	46.9	46.6	52.4	49.8	57.8	57.7	58.6	60.1	60.2	61.6	61.0	65.5
8000.0	14.9	45.1	49.4	54.9	53.1	55.5	56.3	56.9	58.7	59.0	63.9	58.3	64.4
10000.0	20.4	45.7	53.6	53.5	53.1	54.3	56.5	56.2	57.6	58.2	62.1	59.1	60.3
12500.0	29.0	41.1	47.4	48.9	51.0	51.4	51.4	51.8	53.7	54.1	57.6	57.0	58.0
16000.0	42.8	37.5	41.5	45.1	46.2	46.3	46.8	47.6	50.4	51.0	55.3	53.3	56.5
20000.0	56.0	34.4	38.6	42.0	42.8	42.7	43.2	43.7	46.6	46.9	52.0	48.5	53.0
OVERALL (50-10K)		77.6	79.3	79.9	80.5	81.0	81.7	82.3	83.7	83.9	85.3	86.3	86.5
OVERALL (20-20K)		77.8	79.4	80.1	80.6	81.1	81.8	82.5	83.8	84.0	85.3	86.3	86.5
A SCALE (20-20K)		69.4	72.2	75.1	75.6	75.6	76.6	77.6	79.0	79.2	81.6	83.0	82.8
PNL - - - -		82.4	86.2	88.2	89.1	89.2	90.3	91.0	92.5	92.8	95.1	96.3	96.0
PNLTC - - - -		82.4	86.2	88.2	89.1	89.2	90.3	91.0	93.5	92.8	96.5	96.3	97.2

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTANA, ARIZ ** OE 14

CONFIGURATION 4 * INLET A/C * DYNO COVERED-CRIP INSTALLED *

RUN 28 POINT G ** 175 SHP ** 80 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS --											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	48.1	50.0	48.7	45.7	47.3	47.8	48.2	52.0	52.7	51.8	52.5	55.7
25.0	0.0	50.4	51.1	49.9	50.0	50.6	51.3	51.3	51.9	53.3	53.3	54.2	56.7
31.5	0.0	52.6	53.5	52.9	52.8	52.4	53.1	53.0	53.9	54.0	53.3	53.8	55.4
40.0	0.0	58.3	58.5	58.5	59.7	60.8	62.0	61.5	62.0	60.3	59.3	58.5	58.5
50.0	.1	57.3	57.7	56.8	57.4	57.5	58.6	58.6	58.6	58.6	58.7	58.0	58.5
63.0	.1	59.1	59.1	58.3	59.1	60.2	60.6	59.2	59.0	60.5	60.8	61.3	60.8
80.0	.1	58.0	58.7	57.4	57.6	58.5	58.8	59.8	58.8	60.8	60.7	61.9	61.5
100.0	.2	59.7	60.2	58.6	58.5	59.7	61.2	60.7	60.7	61.6	61.8	62.6	62.3
125.0	.2	56.3	59.1	57.6	57.2	58.2	59.6	59.7	60.4	61.2	60.7	62.4	61.6
160.0	.3	57.0	57.7	58.4	59.5	58.4	58.6	59.5	60.2	61.3	61.5	62.6	62.1
200.0	.3	57.5	57.2	58.0	58.8	58.1	59.7	59.1	61.0	61.9	62.9	63.1	61.4
250.0	.4	57.9	59.4	60.0	58.2	59.6	58.9	59.2	59.6	59.8	60.2	61.1	61.2
315.0	.6	61.1	65.1	65.0	64.7	63.9	61.6	62.2	63.3	60.9	62.7	62.7	62.4
400.0	.7	57.7	61.8	61.7	60.3	58.5	57.1	59.2	58.2	58.1	60.2	58.8	58.8
500.0	.9	52.1	55.4	56.0	55.3	55.6	53.7	56.0	55.8	54.1	55.5	54.5	55.6
630.0	1.1	46.8	52.7	50.7	50.3	51.7	48.5	53.0	53.8	51.1	52.2	52.8	50.5
800.0	1.4	45.0	50.6	49.1	46.4	48.8	47.9	48.9	52.2	52.1	52.8	54.8	52.5
1000.0	1.8	46.3	49.2	50.8	49.8	52.0	50.5	52.0	52.4	53.1	54.6	55.6	55.1
1250.0	2.2	44.6	49.1	50.6	50.9	51.5	51.1	51.5	52.4	51.9	54.4	53.8	54.2
1600.0	2.9	42.3	48.4	50.5	52.0	49.1	50.2	50.1	50.1	49.7	52.2	50.5	50.7
2000.0	3.6	41.1	46.4	47.6	49.3	48.2	48.1	47.7	47.9	49.1	50.0	50.8	48.6
2500.0	4.6	41.5	47.7	48.2	50.1	48.8	49.4	49.9	49.2	50.6	52.4	51.7	50.9
3150.0	5.9	42.5	51.5	50.1	51.8	50.2	51.8	49.8	51.2	51.8	49.3	51.7	47.2
4000.0	7.6	45.7	52.2	52.5	55.9	57.7	55.6	54.8	55.9	53.6	51.6	56.2	46.7
5000.0	8.6	44.3	47.1	45.1	50.7	52.7	51.9	51.3	51.0	50.8	45.7	51.3	47.6
6300.0	11.1	41.8	43.2	48.0	44.0	50.8	51.6	49.8	49.8	49.0	47.7	46.3	49.8
8000.0	14.9	45.5	50.1	54.3	53.2	55.6	56.0	53.5	53.7	52.7	55.7	47.5	52.7
10000.0	20.4	44.6	51.4	52.8	53.1	53.1	52.2	50.8	50.1	50.3	52.0	49.2	47.8
12500.0	29.0	38.2	44.1	44.4	46.7	46.7	45.1	44.8	43.5	42.1	43.6	43.2	43.9
16000.0	42.8	39.8	43.3	44.8	46.3	45.6	47.1	46.6	44.6	42.7	43.7	40.7	43.6
20000.0	56.0	34.4	40.2	42.5	43.1	42.2	42.1	42.1	40.7	38.4	40.0	37.5	41.0
OVERALL (50-10K)		68.7	70.9	70.8	70.7	70.8	70.6	70.7	71.1	71.3	72.0	72.4	71.8
OVERALL (20-20K)		69.3	71.3	71.2	71.1	71.3	71.3	71.4	71.8	71.9	72.3	72.8	72.4
A SCALE (20-20K)		60.4	64.6	64.9	65.2	65.5	64.7	64.7	65.2	64.6	65.5	65.8	64.7
PNL - - - -		74.1	78.3	78.5	79.9	80.9	79.9	79.6	80.3	79.4	79.2	80.8	78.1
PNLTC - - - -		74.7	79.0	80.2	81.4	83.0	81.2	81.0	81.9	79.9	80.5	82.3	78.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, AHIZ ** OF 14

CONFIGURATION 4 ** INLET A/C ** DYNO COVERED-CHAP INSTALLED *

RUN 29 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	47.3	49.6	44.7	46.9	47.7	49.9	49.0	49.8	52.2	52.4	54.3	56.3
25.0	0.0	50.0	51.7	51.0	49.9	51.6	50.9	51.9	53.1	54.2	53.8	53.8	57.1
31.5	0.0	53.1	54.0	52.7	51.4	51.7	52.8	52.3	52.8	54.8	54.4	54.3	55.8
40.0	0.0	55.9	57.4	56.6	58.1	59.3	59.4	59.6	59.6	59.6	59.0	57.7	57.5
50.0	.1	56.2	57.1	55.0	55.5	57.2	57.8	57.8	57.4	57.2	57.5	57.1	57.9
63.0	.1	58.6	58.7	57.5	58.3	58.7	59.5	58.6	58.8	59.8	60.3	60.3	59.5
80.0	.1	57.2	57.7	57.4	56.2	56.9	57.2	57.4	58.2	59.2	59.8	60.9	61.0
100.0	.2	58.8	59.3	57.9	57.7	59.0	59.6	59.7	59.0	60.1	60.5	61.7	61.7
125.0	.2	55.8	57.7	56.9	56.4	56.9	58.7	58.3	59.0	59.9	60.9	60.8	60.2
160.0	.3	56.7	57.5	57.7	57.8	57.5	58.3	58.1	58.7	59.9	60.9	61.3	61.8
200.0	.3	57.3	57.6	58.7	58.9	58.5	58.8	58.6	60.7	62.0	61.8	61.6	60.9
250.0	.4	57.6	59.5	59.6	57.8	59.2	57.8	57.9	59.2	58.8	59.2	59.6	59.7
315.0	.6	60.6	65.6	65.4	64.5	63.3	61.1	61.6	62.3	61.5	62.5	62.0	61.2
400.0	.7	58.0	62.6	62.3	61.2	59.2	57.7	59.4	58.6	58.5	58.6	59.0	57.8
500.0	.9	51.5	55.4	55.5	54.9	53.9	53.5	56.1	52.6	53.5	54.6	53.7	53.3
630.0	1.1	46.6	52.6	50.3	50.4	49.2	49.9	53.6	50.9	50.8	50.6	51.8	49.5
800.0	1.4	44.4	47.0	46.7	45.6	48.5	47.3	47.2	49.9	49.8	50.4	51.9	50.5
1000.0	1.8	46.4	49.6	49.8	49.4	51.9	49.6	50.0	50.9	51.5	52.9	53.7	50.5
1250.0	2.2	45.1	49.4	50.8	50.7	51.3	50.3	50.1	51.0	50.5	52.7	52.2	52.5
1600.0	2.9	42.6	49.0	51.2	51.5	48.7	49.4	49.5	48.7	48.8	50.4	48.9	42.4
2000.0	3.6	41.5	47.2	48.1	49.8	48.2	47.9	46.8	46.9	46.4	49.2	49.4	47.0
2500.0	4.6	42.0	49.1	49.3	51.0	49.8	49.4	48.8	48.7	49.7	51.5	51.3	49.6
3150.0	5.9	42.8	52.7	50.5	52.1	50.9	51.4	48.8	49.8	51.1	49.1	50.8	46.5
4000.0	7.6	45.1	53.8	53.9	56.5	58.6	55.4	53.7	55.9	54.3	51.3	55.2	46.3
5000.0	8.6	43.8	48.6	46.0	51.1	53.0	51.5	50.7	50.3	50.2	45.6	50.9	47.3
6300.0	11.1	42.5	44.3	48.4	44.8	51.8	51.4	49.2	49.4	49.0	47.8	45.8	50.0
8000.0	14.9	46.2	52.5	56.8	52.6	54.9	56.0	52.0	51.3	52.5	54.2	47.5	53.1
10000.0	20.4	44.0	51.0	52.3	52.7	52.5	51.5	50.5	49.7	48.9	51.1	48.1	48.7
12500.0	29.0	38.5	45.1	45.1	47.3	45.9	44.3	43.7	42.5	41.7	43.5	43.5	45.5
16000.0	42.8	39.9	44.7	45.0	44.6	45.4	44.6	46.5	42.6	41.2	43.1	42.1	45.8
20000.0	56.0	34.2	42.2	43.6	42.5	42.0	40.4	41.6	38.5	62.9	40.1	39.8	45.6
OVERALL (50-10K)		68.2	71.0	70.8	70.3	70.3	69.9	69.8	70.2	70.6	71.3	71.3	70.9
OVERALL (20-20K)		68.7	71.4	71.1	70.7	70.8	70.4	70.4	70.8	71.8	71.7	71.7	71.6
A SCALE (20-20K)		60.2	65.2	65.4	65.3	65.6	64.4	64.0	64.2	64.5	64.7	64.7	63.6
PNL - - - -		73.9	78.9	79.1	80.1	81.2	79.6	78.7	79.6	79.2	78.5	79.7	77.1
PNLTC - - - -		73.9	80.0	81.0	81.7	83.4	80.9	80.0	81.5	80.4	79.8	81.2	77.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **

CONFIGURATION 4 * INLET A/C * DYNO COVERED-CRAP INSTALLED *

RUN 30 POINT I ** 105 SHP ** 70 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	49.6	50.9	50.3	50.7	51.3	50.8	50.6	51.8	50.5	53.0	54.1	55.4
25.0	0.0	49.4	50.8	50.5	49.8	50.2	51.5	52.0	52.2	53.3	54.0	54.1	55.8
31.5	0.0	51.9	53.5	51.7	51.8	51.2	51.6	51.4	52.9	53.5	54.4	53.8	55.4
40.0	0.0	54.4	56.7	54.7	54.7	54.8	56.5	56.5	57.3	57.9	57.2	58.0	57.8
50.0	.1	56.2	57.5	56.5	56.3	56.4	57.8	56.5	56.9	56.6	57.5	57.7	58.8
63.0	.1	57.2	56.6	54.5	55.2	54.9	55.8	55.5	56.2	57.1	57.6	58.0	58.3
80.0	.1	54.5	54.7	54.9	54.0	54.3	54.9	54.0	54.1	55.7	56.3	58.2	58.4
100.0	.2	57.3	58.1	56.9	56.5	57.3	58.8	57.6	57.8	57.6	56.9	58.3	58.5
125.0	.2	54.1	57.4	56.3	55.1	55.3	57.0	56.8	57.8	58.0	57.1	58.5	58.0
160.0	.3	54.9	55.3	53.9	55.1	55.3	55.5	55.5	56.8	57.4	57.3	58.6	57.7
200.0	.3	55.0	54.6	56.4	57.3	56.2	56.9	56.4	58.2	58.9	59.0	59.3	57.8
250.0	.4	56.4	57.4	57.4	57.4	57.0	56.0	56.1	56.5	56.9	56.7	57.1	57.2
315.0	.6	58.9	63.3	63.0	61.7	61.1	58.8	60.1	60.4	59.4	59.7	59.3	59.1
400.0	.7	55.7	59.5	60.1	58.8	58.7	56.2	57.5	57.9	55.6	58.2	56.8	55.0
500.0	.9	54.3	61.7	54.9	61.5	69.9	60.8	55.8	66.7	56.1	60.7	53.9	56.1
630.0	1.1	47.2	52.4	50.4	48.2	51.7	49.2	52.4	52.9	48.0	53.3	50.9	49.8
800.0	1.4	47.0	49.0	48.0	46.6	47.8	47.6	49.7	48.7	48.1	50.5	47.9	48.3
1000.0	1.8	46.8	49.9	49.9	49.1	51.1	49.3	49.1	48.3	48.5	49.0	49.6	48.8
1250.0	2.2	43.6	48.6	48.3	48.4	50.5	51.0	47.9	48.0	47.3	48.5	48.4	47.8
1600.0	2.9	41.4	47.8	47.6	49.6	48.6	48.3	46.8	46.9	46.4	46.9	45.4	45.2
2000.0	3.6	40.3	45.1	46.2	47.8	47.7	46.3	46.6	44.8	45.6	46.1	46.0	44.4
2500.0	4.6	39.2	46.7	46.2	47.6	47.5	47.2	47.3	46.3	47.3	50.1	48.7	46.8
3150.0	5.9	39.8	49.8	48.0	49.4	47.9	50.0	47.7	47.1	47.1	45.8	48.0	43.8
4000.0	7.6	40.6	48.5	48.3	52.2	51.7	51.1	49.2	49.9	49.5	45.8	50.8	42.6
5000.0	8.6	40.4	44.9	42.4	48.9	50.2	49.8	49.7	47.8	47.6	43.2	49.2	44.7
6300.0	11.1	39.7	40.9	46.0	42.9	49.2	50.6	47.6	47.2	46.9	45.4	43.3	48.6
8000.0	14.9	43.1	47.2	51.5	50.1	53.1	54.7	50.3	50.0	50.2	53.0	45.8	50.4
10000.0	20.4	38.3	45.0	47.1	47.2	47.0	47.0	45.7	44.9	44.7	47.6	43.5	43.0
12500.0	29.0	33.5	39.6	40.2	42.7	41.9	41.5	40.5	39.2	38.8	39.9	39.3	39.1
16000.0	42.8	34.3	38.5	41.3	40.4	44.5	43.3	42.0	40.2	40.6	39.0	38.5	41.0
20000.0	56.0	27.7	32.6	38.2	38.1	37.7	37.5	35.7	35.9	35.1	36.5	35.1	39.6
OVERALL(50-10K)		66.8	69.6	68.7	68.8	72.1	68.7	68.0	70.4	68.3	69.1	68.9	68.6
OVERALL(20-20K)		67.3	70.0	69.1	69.2	72.3	69.2	68.5	70.8	69.0	69.8	69.6	69.4
A SCALE(20-20K)		59.0	63.9	62.8	63.9	68.2	63.7	62.3	65.7	61.7	63.3	61.9	61.1
PNL - - - -		72.0	76.5	76.2	77.3	80.7	77.3	76.0	78.6	75.8	76.4	76.4	74.4
PNLTC - - - -		72.7	78.5	77.2	79.8	85.6	80.0	76.6	82.4	77.3	78.0	76.4	75.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 16

CONFIGURATION 5 * INLET A/D * DYNO COVERED-CHAP INSTALLED *

RUN31 POINT A ** 105 SHP ** 100 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	47.7	46.5	47.1	48.6	48.2	49.6	47.8	48.7	48.5	48.5	48.2	48.6
25.0	0.0	53.3	53.6	54.8	53.6	54.9	56.4	56.3	57.2	54.3	54.0	53.9	55.2
31.5	0.0	55.1	53.4	53.2	53.6	55.2	55.0	56.2	56.1	55.8	54.7	55.0	54.9
40.0	0.0	57.6	57.5	58.8	56.9	58.1	58.5	58.6	58.3	58.1	57.7	58.4	57.5
50.0	.1	60.0	59.4	59.0	58.8	59.4	60.3	59.8	59.9	58.8	59.2	59.8	59.8
63.0	.1	61.2	60.8	60.1	61.0	61.6	61.8	62.0	62.3	62.3	62.3	63.0	62.4
80.0	.1	61.7	62.3	62.3	62.9	64.2	63.8	64.7	64.5	66.6	65.4	65.7	66.5
100.0	.2	64.4	64.8	63.5	64.4	66.0	66.1	67.0	67.3	69.1	68.4	68.9	68.7
125.0	.2	63.7	64.1	63.4	64.2	64.8	65.5	66.6	67.1	67.9	68.8	68.7	68.7
160.0	.3	63.7	63.3	64.1	63.8	65.5	65.1	66.1	68.0	68.7	69.4	70.3	70.0
200.0	.3	63.1	63.3	65.8	64.7	65.3	66.0	66.9	68.3	70.8	70.7	71.3	71.0
250.0	.4	62.0	62.1	63.9	63.2	64.4	64.9	65.4	66.6	67.5	67.8	68.6	69.3
315.0	.6	62.0	64.5	64.0	63.4	63.0	62.7	64.0	65.1	63.5	65.9	66.1	66.8
400.0	.7	59.0	62.9	62.0	61.2	60.7	59.3	62.8	63.3	62.7	65.0	64.2	65.3
500.0	.9	53.8	55.4	56.9	56.9	56.1	54.7	56.7	59.1	57.4	60.1	59.5	61.7
630.0	1.1	50.1	55.2	56.0	52.2	52.4	58.3	58.2	56.6	59.8	58.7	59.9	58.7
800.0	1.4	51.4	53.5	55.7	53.8	58.0	59.0	57.3	58.8	61.5	61.8	63.2	62.4
1000.0	1.8	52.9	54.7	59.1	58.2	59.8	60.1	60.0	61.3	62.8	64.6	65.5	65.6
1250.0	2.2	51.6	53.8	59.8	59.8	58.3	58.7	60.0	61.6	61.5	64.5	64.6	64.6
1600.0	2.9	48.3	52.7	58.4	57.3	54.9	56.6	58.5	59.1	58.1	61.3	60.4	60.9
2000.0	3.6	48.0	49.5	53.0	52.8	52.0	53.1	53.4	54.3	56.1	58.6	59.3	57.7
2500.0	4.6	47.5	51.7	56.0	55.5	53.8	55.0	55.6	57.0	58.0	61.6	61.3	60.1
3150.0	5.9	47.4	52.6	54.5	55.3	53.0	53.2	54.1	54.4	55.6	58.5	59.0	57.1
4000.0	7.6	44.9	51.5	54.3	58.0	55.1	55.8	56.2	57.0	57.1	59.5	59.7	57.6
5000.0	8.6	39.7	44.1	46.1	51.3	51.4	51.8	52.4	53.2	53.9	55.8	57.2	56.2
6300.0	11.1	41.9	39.8	43.3	45.3	49.6	50.8	51.2	51.7	52.0	50.1	52.0	54.5
8000.0	14.9	45.0	45.3	49.0	44.0	50.5	50.8	50.1	50.7	51.2	49.0	49.4	55.1
10000.0	20.4	44.0	50.1	53.1	52.6	54.5	54.3	51.9	55.5	55.7	53.4	51.7	55.6
12500.0	29.0	39.5	45.6	47.5	48.3	48.0	48.3	46.8	48.3	48.1	50.4	50.2	54.4
16000.0	42.8	35.0	37.7	40.3	40.0	41.4	41.0	41.7	43.0	43.9	45.7	48.1	54.4
20000.0	56.0	34.1	36.8	40.2	38.6	39.2	39.7	40.3	41.7	42.5	44.5	47.5	55.3
OVERALL (50-10K)		72.6	73.5	74.2	74.0	74.7	75.0	75.8	76.7	77.8	78.4	78.8	78.9
OVERALL (20-20K)		72.9	73.7	74.4	74.2	74.9	75.2	76.0	76.9	77.9	78.5	78.9	79.0
A SCALE (20-20K)		63.6	66.1	68.6	68.4	68.1	68.7	69.4	70.5	71.2	73.0	73.4	73.3
PNL - - - -		76.9	79.6	81.8	82.8	82.0	82.6	83.2	84.2	84.7	86.7	86.9	86.5
PNLTC - - - -		76.9	79.6	81.8	84.3	82.0	83.7	83.2	85.2	84.7	87.7	86.9	86.5

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **

CONFIGURATION 5 * INLET A/D * DYNO COVERED-CRAP INSTALLED *

RUN 32 POINT C ** 677 SHP ** 100 PERCENT RPM ** 74.1 LIMITED

DISTANCE TO SOURCE = 100.0FT.		12 MICROPHONES											
FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.	180 DEG.	195 DEG.
20.0	0.0	49.6	50.5	49.9	50.2	51.4	52.2	51.8	49.0	52.8	52.0	54.6	50.6
25.0	0.0	55.4	54.8	55.7	56.8	57.5	59.4	58.5	61.0	58.7	55.7	59.0	58.1
31.5	0.0	56.0	58.1	57.6	58.5	58.3	59.2	58.5	58.0	58.0	56.7	59.0	58.3
40.0	0.0	60.8	61.4	61.0	60.4	61.5	62.9	62.3	62.0	61.2	60.1	59.8	61.6
50.0	.1	63.3	63.1	62.5	63.4	64.7	65.8	65.0	62.0	63.2	62.8	62.6	64.2
63.0	.1	64.5	64.5	64.5	65.8	67.3	68.7	66.8	65.0	66.2	66.3	66.0	66.9
80.0	.1	65.4	66.9	66.9	67.5	68.7	68.4	68.4	68.0	68.4	68.7	68.6	70.0
100.0	.2	68.4	68.3	67.8	69.4	70.7	70.3	71.7	76.0	72.0	72.4	71.7	73.3
125.0	.2	68.2	68.6	68.3	69.6	70.4	70.4	72.6	73.5	72.7	72.9	72.7	74.3
160.0	.3	67.5	68.4	70.1	70.1	70.4	71.0	74.4	72.0	73.0	74.4	74.6	75.9
200.0	.3	66.9	66.8	68.5	68.5	70.2	70.7	73.4	72.0	73.3	73.9	74.3	77.1
250.0	.4	63.7	66.5	66.7	66.3	66.4	67.8	70.2	69.5	69.2	71.6	71.7	73.2
315.0	.6	60.3	65.3	66.0	64.5	64.7	64.9	68.5	68.0	67.4	69.7	69.6	71.7
400.0	.7	56.7	59.5	62.8	60.9	60.2	61.1	65.0	64.5	62.9	64.6	64.5	67.2
500.0	.9	54.0	58.2	57.8	57.6	59.0	59.6	63.5	62.5	64.8	64.8	67.3	66.9
630.0	1.1	57.0	57.6	59.2	60.4	65.5	64.9	66.5	65.5	68.5	69.4	71.4	71.4
800.0	1.4	58.7	60.1	64.6	65.0	66.8	67.6	69.2	69.0	70.4	72.7	73.9	74.6
1000.0	2.2	57.5	60.3	66.4	66.0	64.4	66.2	69.4	69.0	69.3	72.6	72.9	73.6
1250.0	2.9	54.6	59.8	65.8	63.7	60.4	65.0	67.1	66.0	65.5	69.0	68.4	69.8
1600.0	3.6	54.3	56.0	59.6	59.0	58.8	60.0	60.9	62.0	63.9	66.9	66.3	66.5
2000.0	4.6	52.2	56.8	61.5	62.5	61.3	63.0	63.0	65.0	65.9	70.1	69.5	69.5
2500.0	5.9	51.0	55.9	60.2	60.5	58.8	59.9	62.3	61.6	62.9	66.6	67.5	68.8
3150.0	7.6	47.2	53.6	56.8	60.5	59.0	59.7	60.6	62.2	63.4	67.5	68.1	66.7
4000.0	8.6	43.0	47.8	51.6	56.1	56.9	57.8	59.8	60.3	61.6	64.2	66.1	65.2
5000.0	11.1	44.3	42.8	47.7	50.4	54.9	55.7	57.6	58.1	59.5	64.2	66.1	65.2
6300.0	14.9	46.3	47.4	52.5	47.9	53.9	55.3	56.4	57.0	58.4	63.8	66.6	63.2
8000.0	20.4	44.5	50.9	55.3	51.4	53.7	53.8	56.9	57.5	56.7	60.1	58.5	60.9
10000.0	29.0	40.3	46.4	49.4	49.4	49.6	49.5	51.6	52.7	53.4	58.2	58.5	58.5
12500.0	42.8	36.6	39.0	43.8	43.3	45.7	46.4	48.6	48.0	50.2	53.7	53.9	56.4
16000.0	56.0	34.8	37.3	41.1	40.5	42.4	44.1	45.2	44.4	46.7	50.0	49.4	52.9
20000.0													
OVERALL (50-10K)		76.7	77.7	78.9	79.1	80.0	80.3	82.5	82.5	82.7	84.0	84.3	85.4
OVERALL (20-20K)		76.9	77.9	79.0	79.2	80.1	80.5	82.6	82.6	82.7	84.0	84.4	85.5
A SCALE (20-20K)		67.8	70.4	74.0	73.8	73.9	75.1	77.3	77.0	77.9	80.5	81.2	81.6
PNL - - - -		81.1	83.7	87.0	87.4	87.4	88.6	90.2	90.7	91.4	94.1	94.5	94.8
PNLTC - - - -		81.1	83.7	87.0	87.4	87.4	89.6	90.2	91.7	91.4	95.3	94.5	95.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, AR17 ** OF 15

CONFIGURATION 5 * INLET A/D * DYNO COVERED-CHAP INSTALLED *

MUN 33 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED **

DISTANCE TO SOURCE = 100-0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	47.4	49.3	48.0	46.1	46.7	47.4	50.2	50.1	50.7	51.1	51.8	54.1
25.0	0.0	49.2	51.1	49.9	48.6	50.6	50.1	51.8	51.9	52.5	54.3	54.8	55.9
31.5	0.0	52.3	52.4	52.9	52.5	52.2	52.0	52.9	52.5	53.6	53.7	55.3	55.0
40.0	0.0	56.2	56.0	56.0	55.2	55.1	56.7	57.0	57.0	56.5	57.2	56.5	56.2
50.0	.1	55.7	55.8	55.4	55.0	55.7	57.7	57.2	56.7	56.5	57.4	56.6	57.4
63.0	.1	57.4	56.7	56.7	57.7	56.3	57.8	58.0	58.5	58.4	60.2	59.6	59.6
80.0	.1	56.3	56.3	56.8	57.0	57.0	57.1	57.3	57.4	59.1	59.5	59.9	60.2
100.0	.2	58.8	58.7	59.2	58.2	59.5	60.0	60.0	59.0	59.6	59.8	61.1	61.1
125.0	.2	55.2	55.3	56.6	56.2	56.9	57.4	58.5	58.4	59.1	59.9	59.9	60.6
160.0	.3	55.8	57.0	58.5	60.7	57.8	59.1	58.9	58.8	59.6	60.7	61.5	62.0
200.0	.3	56.9	56.1	57.8	58.4	57.7	58.9	58.1	60.2	61.2	61.2	61.9	61.1
250.0	.4	56.3	57.2	58.4	57.5	58.0	58.0	57.1	61.2	61.5	61.0	61.1	60.1
315.0	.6	59.5	63.3	64.3	64.0	62.5	60.5	58.4	57.7	57.7	59.9	57.8	57.2
400.0	.7	56.7	60.8	61.5	61.2	58.3	56.2	56.7	53.7	51.5	54.7	51.6	52.7
500.0	.9	49.5	54.3	54.6	54.0	51.4	51.9	56.7	53.7	51.5	54.7	51.6	52.7
630.0	1.1	46.4	52.3	50.3	51.2	47.6	49.4	55.0	52.4	49.4	52.8	50.5	48.6
800.0	1.4	46.3	48.8	47.8	48.8	48.2	47.8	46.5	50.5	49.5	50.9	51.3	50.7
1000.0	1.8	47.1	49.0	49.5	49.7	50.2	49.9	50.1	50.5	50.8	52.3	52.8	52.8
1250.0	2.2	44.7	47.0	48.6	49.5	48.9	49.6	49.3	49.5	49.3	51.9	51.1	51.2
1600.0	2.9	42.3	46.0	48.2	49.3	47.6	48.5	48.3	47.4	47.2	49.1	47.6	47.6
2000.0	3.6	41.7	43.8	45.9	48.7	47.0	47.4	46.5	47.8	47.1	48.9	48.4	45.5
2500.0	4.6	42.3	45.4	46.9	49.1	47.4	48.1	47.1	48.1	48.1	51.0	49.7	47.8
3150.0	5.9	42.7	49.5	49.2	50.5	47.8	48.9	48.2	49.2	49.3	49.5	49.9	45.8
4000.0	7.6	42.3	50.1	51.5	55.7	55.0	53.6	52.6	54.0	53.2	56.0	54.5	49.1
5000.0	8.6	37.2	42.2	42.8	51.0	50.3	50.6	49.3	48.5	48.2	48.9	49.5	47.5
6300.0	11.1	39.4	43.9	40.4	43.6	48.1	50.1	48.4	47.4	46.8	42.8	44.4	45.8
8000.0	14.9	44.9	47.8	49.4	46.6	49.8	54.3	52.5	54.7	51.4	47.4	44.3	47.9
10000.0	20.4	41.8	46.6	48.7	46.4	49.9	51.1	48.6	48.9	47.7	46.7	44.1	45.9
12500.0	29.0	35.0	39.0	41.1	43.4	42.1	42.2	41.4	40.4	39.8	41.7	40.3	42.3
16000.0	42.8	37.1	38.4	37.4	39.2	41.3	41.8	42.0	41.4	40.2	38.5	38.7	41.7
20000.0	56.0	31.2	34.3	34.5	35.1	36.6	37.9	37.8	37.1	37.4	35.6	35.7	40.6
OVERALL (50-10K)		67.4	70.3	69.9	70.1	69.2	69.4	69.6	69.8	69.7	70.8	70.7	70.7
OVERALL (20-20K)		67.9	70.6	70.3	70.4	69.5	69.7	70.1	70.2	70.2	71.2	71.2	71.2
A SCALE (20-20K)		59.2	66.4	63.7	64.5	63.4	63.3	63.5	63.8	62.9	64.5	63.7	62.9
PNL - - - -		72.7	81.6	77.1	79.2	78.5	78.4	78.0	78.6	78.0	79.7	78.8	76.6
PNLTC - - - -		73.4	84.8	79.0	80.9	80.5	79.7	79.3	80.4	79.5	82.0	80.4	76.6

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **

CONFIGURATION 5 * INLET A/D * DYNO COVERED-CRAP INSTALLED *

RUN 34 POINT G ** 175 SHP ** 80 PERCENT RPM ** T4.1 LIMITED **

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	47.6	49.2	48.5	46.3	48.7	50.4	53.2	53.6	53.6	53.0	51.5	55.0
25.0	0.0	52.4	54.2	52.7	52.0	53.2	52.8	54.2	54.1	54.9	54.9	55.9	55.8
31.5	0.0	54.2	55.8	55.4	54.2	55.2	54.9	56.1	55.4	55.6	54.8	56.5	56.4
40.0	0.0	57.2	58.9	58.1	58.4	59.0	59.9	59.4	60.1	59.6	59.4	58.9	58.8
50.0	.1	59.2	59.2	59.1	58.3	59.2	60.6	59.2	59.7	59.6	59.2	59.6	59.7
63.0	.1	61.2	61.5	60.3	60.6	60.8	61.0	61.0	61.9	62.5	62.4	62.8	62.5
80.0	.1	59.8	60.0	61.2	60.7	61.4	61.0	61.1	61.4	63.4	62.7	63.6	63.9
100.0	.2	61.4	62.4	62.7	61.7	62.7	63.9	62.7	62.9	63.7	63.6	64.1	64.7
125.0	.2	58.4	58.8	59.7	60.3	60.7	61.5	61.7	62.5	62.5	62.7	62.8	63.6
160.0	.3	59.0	59.6	60.9	62.2	60.9	61.1	61.2	61.9	62.4	63.3	64.3	64.7
200.0	.3	59.4	59.5	61.9	62.0	60.8	61.9	61.3	63.9	63.9	64.4	64.2	64.0
250.0	.4	59.8	59.2	61.1	59.7	61.3	60.6	60.2	61.7	61.9	61.9	62.8	63.1
315.0	.6	61.5	64.7	65.0	63.5	63.7	62.1	62.6	63.8	61.4	62.5	63.3	63.6
400.0	.7	57.3	61.6	61.0	59.2	58.5	57.8	60.8	59.7	59.0	61.0	60.3	61.2
500.0	.9	50.4	53.2	54.6	53.0	55.6	56.8	56.4	57.8	54.5	56.0	55.1	58.0
630.0	1.1	47.1	51.3	50.3	51.5	54.1	54.5	52.4	57.8	53.4	54.4	54.2	54.7
800.0	1.4	49.1	51.8	52.2	53.1	53.5	52.1	52.4	54.0	54.4	55.3	56.2	55.2
1000.0	1.8	50.2	52.5	55.4	54.8	54.2	54.1	54.8	54.9	55.4	56.6	57.3	57.3
1250.0	2.2	47.4	50.1	53.3	53.0	51.4	52.6	52.9	53.3	52.5	55.1	55.0	55.0
1600.0	2.7	45.0	48.6	50.1	50.6	49.4	51.1	50.9	50.5	48.9	51.4	50.4	51.2
2000.0	3.6	43.6	46.0	48.4	45.8	48.4	50.0	48.5	49.7	50.4	51.7	51.9	49.6
2500.0	4.6	43.2	47.3	49.3	50.5	50.1	50.0	48.7	49.8	49.9	52.5	51.5	51.5
3150.0	5.9	43.7	51.4	51.7	52.6	50.2	50.4	50.3	51.2	51.4	52.0	52.2	48.9
4000.0	7.6	42.5	50.4	50.6	55.6	53.9	52.7	52.2	51.2	52.2	55.6	55.8	51.2
5000.0	8.6	37.6	42.5	43.2	51.2	50.9	50.8	50.2	49.1	50.2	50.2	49.8	49.8
6300.0	11.1	39.9	38.1	41.0	44.9	49.1	49.5	48.1	48.1	47.6	44.1	45.9	47.8
8000.0	14.9	44.6	50.2	51.3	47.9	51.7	52.8	50.9	53.5	52.8	46.7	45.8	51.3
10000.0	20.4	41.5	49.2	50.7	49.6	49.6	50.5	50.0	48.7	49.3	47.8	46.9	48.3
12500.0	29.0	33.7	39.3	42.2	45.0	42.8	43.0	42.5	41.3	40.8	42.7	41.2	42.7
16000.0	42.8	35.8	38.7	39.0	41.5	42.4	43.3	43.2	40.3	40.1	39.6	41.0	42.5
20000.0	56.0	29.8	33.6	35.0	36.4	37.8	38.7	38.1	36.3	35.9	35.4	35.4	38.6
OVERALL(50-10K)		70.1	71.5	72.1	71.8	71.9	72.1	71.9	72.8	72.8	73.2	73.6	73.9
OVERALL(20-20K)		70.5	72.0	72.5	72.1	72.3	72.5	72.4	73.3	73.2	73.6	74.0	74.2
A SCALE(20-20K)		61.1	64.3	65.2	65.4	65.1	65.1	65.1	66.0	65.2	66.4	66.6	66.5
PNL - - -		74.7	77.9	78.8	80.2	79.7	79.5	79.1	79.4	79.5	80.9	81.1	79.7
PNLTC - - -		75.3	79.0	79.7	81.5	80.8	79.5	79.1	80.3	80.2	82.4	82.5	80.3

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PEP 1000 FT.

ATMOS. CORR. IS IN OH 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QF 17

CONFIGURATION 6 * INLET A * DYNO COVERED-CHAP INSTALLED *

MIN 36 POINT A ** 105 SHP ** 100 PERCENT RPM ** 14.1 LIMITED **

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS --											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	47.1	46.2	48.7	47.6	49.9	50.7	48.3	48.6	47.6	48.3	49.2	49.0
25.0	0.0	53.8	52.3	56.2	57.4	59.4	60.5	60.6	59.5	56.0	58.6	57.3	55.0
31.5	0.0	55.8	57.0	56.5	56.8	57.1	57.3	57.8	57.6	56.8	57.2	56.2	57.1
40.0	0.0	58.2	59.5	59.0	58.7	60.0	60.2	60.3	61.0	59.9	59.5	59.5	60.2
50.0	.1	61.3	62.0	60.7	61.0	61.9	63.0	62.4	62.6	61.8	61.9	61.7	62.5
63.0	.1	62.8	62.5	62.2	62.8	62.9	63.9	64.1	64.9	64.9	64.1	64.4	64.3
80.0	.1	63.4	64.2	64.5	64.2	65.7	65.8	66.4	66.8	68.9	67.3	67.2	67.9
100.0	.2	65.7	66.3	65.5	66.4	67.6	68.4	68.4	70.2	70.7	70.4	70.1	70.7
125.0	.2	65.6	66.3	66.0	66.6	67.1	67.6	68.2	70.2	70.9	71.0	71.0	71.0
160.0	.3	66.3	65.5	66.0	66.6	68.4	67.5	68.5	70.4	71.3	72.3	72.6	72.8
200.0	.3	65.6	65.8	67.3	67.8	67.1	68.1	69.1	71.0	72.4	72.5	73.3	73.6
250.0	.4	64.1	64.8	66.0	65.5	66.4	66.9	67.6	68.7	68.8	69.8	70.8	71.6
315.0	.6	63.6	67.1	67.0	65.8	65.4	65.2	66.5	67.0	65.1	67.6	68.3	69.1
400.0	.7	60.8	65.1	64.6	63.8	63.2	61.6	64.3	65.0	63.9	66.1	65.9	67.0
500.0	.9	56.7	57.3	58.4	58.7	57.4	57.6	58.6	60.5	59.4	61.1	61.2	62.8
630.0	1.1	53.1	54.2	55.5	56.9	54.4	59.0	62.8	60.2	64.4	61.8	63.6	62.7
800.0	1.4	53.6	54.1	57.2	57.5	60.8	61.5	61.9	62.4	65.2	65.8	66.8	66.5
1000.0	1.8	55.0	56.8	61.6	61.2	62.3	62.8	63.2	64.4	65.3	68.0	68.7	68.8
1250.0	2.2	54.1	56.1	61.9	62.1	60.4	61.4	62.2	63.8	63.3	66.9	66.7	66.7
1600.0	2.9	50.7	55.0	59.9	59.1	56.7	59.0	59.9	60.0	59.0	61.9	61.6	61.6
2000.0	3.6	49.7	52.1	54.2	54.9	54.1	56.0	56.2	57.8	59.2	62.6	63.2	61.6
2500.0	4.6	48.1	53.5	57.4	57.4	56.4	57.4	58.0	59.2	59.5	63.0	62.9	61.9
3150.0	5.9	46.1	52.3	54.5	55.8	54.4	55.4	55.3	56.2	57.6	61.0	61.6	59.4
4000.0	7.6	43.2	49.7	53.3	54.5	55.5	55.6	55.7	56.5	57.2	60.7	61.2	59.3
5000.0	8.6	39.3	44.1	45.9	52.0	52.4	53.0	53.5	54.5	55.4	57.7	59.3	58.5
6300.0	11.1	41.0	40.4	43.7	45.7	50.9	51.1	51.5	52.5	53.3	51.7	53.6	56.3
8000.0	14.9	43.0	45.8	49.5	44.8	50.0	51.0	50.6	51.3	52.0	50.7	51.0	57.2
10000.0	20.4	43.2	52.7	52.7	52.3	52.0	51.0	51.6	50.4	51.0	54.1	53.2	57.4
12500.0	29.0	39.1	46.2	46.8	47.4	48.1	46.8	47.6	46.7	47.8	51.1	52.7	57.3
16000.0	42.8	35.2	41.6	41.6	40.6	41.6	42.4	42.6	44.0	44.6	48.3	52.2	58.8
20000.0	56.0	34.6	44.8	41.8	40.0	41.2	40.8	44.3	42.0	43.3	48.0	52.5	60.6
OVERALL(50-10K)		74.6	75.6	76.2	76.3	76.7	77.1	77.9	79.2	79.9	80.5	81.0	81.2
OVERALL(20-20K)		74.8	75.9	76.4	76.5	77.0	77.4	78.1	79.3	80.0	80.6	81.0	81.4
A SCALE(20-20K)		65.5	68.0	70.5	70.4	70.1	70.8	71.7	72.6	73.3	75.4	75.9	75.8
PNL - - - -		78.4	81.4	83.2	83.6	83.4	84.1	84.9	85.9	86.5	88.6	88.9	88.8
PNL TC - - - -		78.4	81.4	84.3	83.6	83.4	84.1	84.9	85.9	86.5	88.6	88.9	88.8

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM ** DATA HAS BEEN CONNECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTANA, ARIZ ** OF 1A

CONFIGURATION 6 * INLET A*F * DYNO COVERED-CHAP INSTALLED *

HUN37 POINT C ** 677 SHP ** 100 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	50.4	50.8	50.5	50.8	51.5	51.9	51.9	51.1	48.7	57.4	52.2	52.7
25.0	0.0	59.1	60.7	60.7	59.7	60.8	61.2	61.9	61.6	57.3	59.7	61.1	62.4
31.5	0.0	59.2	59.8	59.4	59.3	60.5	60.7	59.7	60.2	60.4	60.2	59.4	60.2
40.0	0.0	62.2	63.3	62.3	62.9	63.4	64.3	63.9	64.3	63.3	62.9	62.7	64.0
50.0	.1	64.4	65.4	63.4	65.0	65.7	65.9	66.6	66.5	65.3	66.3	65.1	66.3
63.0	.1	64.5	66.8	65.6	67.3	67.9	68.2	68.4	68.6	68.9	68.7	68.7	69.7
80.0	.1	67.2	69.0	68.6	68.9	69.8	69.9	70.8	70.0	71.9	70.7	70.6	72.4
100.0	.2	69.7	71.2	69.8	70.8	71.8	72.1	72.6	73.6	74.4	73.9	74.9	75.4
125.0	.2	70.3	69.8	70.4	71.4	71.2	72.5	73.4	74.1	75.2	74.8	75.8	76.3
160.0	.3	70.5	69.7	71.0	71.6	72.7	72.8	73.7	74.0	75.8	76.5	77.2	77.6
200.0	.3	69.7	70.0	71.3	71.5	72.1	72.3	73.9	75.2	77.5	77.7	79.0	79.2
250.0	.4	68.3	68.5	70.1	69.9	71.3	71.9	73.3	74.3	75.8	76.0	77.0	78.1
315.0	.6	65.8	67.8	68.1	68.0	68.3	69.0	71.6	71.1	73.3	73.3	74.1	75.4
400.0	.7	63.6	66.5	67.5	66.6	66.8	66.4	69.4	69.3	69.0	71.4	71.2	73.4
500.0	.9	62.2	62.2	64.1	63.7	63.2	62.4	64.9	65.7	65.5	66.9	67.1	69.1
630.0	1.1	56.8	59.8	59.6	61.6	60.8	62.5	66.6	65.8	69.4	68.7	72.5	71.2
800.0	1.4	58.4	58.0	61.5	63.0	67.4	67.7	70.4	71.5	73.7	75.5	77.1	77.4
1000.0	1.8	60.8	60.3	66.5	67.1	69.1	70.0	70.1	70.7	72.0	75.0	74.7	75.7
1250.0	2.2	60.6	60.2	67.5	68.3	67.0	68.1	70.1	70.7	72.0	75.0	74.7	75.7
1600.0	2.9	59.7	60.9	66.1	66.3	63.3	65.5	69.0	66.4	68.0	71.0	69.8	70.8
2000.0	3.6	56.9	57.9	60.2	61.9	61.2	63.5	63.1	65.9	68.0	70.3	72.7	70.7
2500.0	4.6	55.4	57.8	62.3	63.9	63.1	64.8	66.3	66.5	68.7	72.4	71.5	71.3
3150.0	5.9	52.8	57.5	59.6	62.7	60.5	61.6	63.4	63.4	65.7	69.2	71.2	68.5
4000.0	7.6	48.4	53.9	56.3	61.3	60.4	61.1	62.9	62.7	65.4	69.5	70.1	68.5
5000.0	8.6	44.7	49.4	50.4	57.8	58.0	59.0	61.5	61.5	63.9	66.2	68.7	67.4
6300.0	11.1	45.6	44.8	47.5	51.7	56.3	56.5	59.8	59.2	61.6	60.0	62.9	65.0
8000.0	14.9	46.3	48.9	51.8	49.5	54.1	55.2	58.5	57.6	60.3	59.0	59.7	64.3
10000.0	20.4	44.1	51.1	51.8	51.5	52.3	52.4	53.6	54.8	57.7	60.5	60.0	62.1
12500.0	29.0	39.8	46.4	47.6	48.9	50.2	48.8	50.0	51.2	54.3	58.7	58.8	59.3
16000.0	42.8	37.4	40.7	42.7	43.6	45.4	45.5	46.5	47.4	51.2	54.0	55.6	56.6
20000.0	56.0	34.8	38.2	39.8	40.0	41.6	41.7	42.5	43.3	47.1	50.1	51.4	52.4
OVERALL (50-10K)		78.6	79.3	80.2	80.8	81.4	82.0	83.3	83.8	85.3	86.2	87.2	87.6
OVERALL (20-20K)		78.8	79.5	80.4	81.0	81.6	82.1	83.4	83.9	85.4	86.3	87.3	87.7
A SCALE (20-20K)		70.5	71.5	75.0	75.9	75.9	76.9	78.5	79.0	80.9	83.0	84.0	84.0
PNL - - - -		83.3	85.1	87.8	89.2	89.1	90.2	91.9	92.2	94.2	96.4	97.1	96.9
PNLTC - - - -		83.3	85.1	87.8	89.2	89.1	90.2	93.0	92.2	94.2	96.4	97.1	96.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROMAN ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 15

CONFIGURATION 6 * INLET A+E * DYNO COVERED-CHAP INSTALLED *

HUN 38 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED **

UTSANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	49.8	50.9	49.3	48.0	49.7	51.7	51.5	54.9	55.0	54.7	55.4	56.4
25.0	0.0	51.5	53.5	52.1	51.6	53.3	52.9	54.1	54.9	55.8	56.9	56.7	57.6
31.5	0.0	54.3	56.2	54.6	53.5	55.2	54.6	55.1	55.7	55.9	56.5	57.0	57.3
40.0	0.0	57.5	58.8	57.9	56.0	56.8	58.3	59.1	58.9	59.7	59.1	58.9	58.8
50.0	.1	58.1	58.7	56.7	57.6	58.8	60.1	59.4	58.7	58.8	59.1	58.4	58.6
63.0	.1	59.9	60.1	57.7	58.3	58.4	59.4	59.9	60.4	61.0	61.2	62.1	61.3
80.0	.1	59.6	60.6	59.5	58.3	59.6	58.9	59.3	59.7	61.4	62.2	62.5	63.0
100.0	.2	60.5	60.4	60.3	60.1	61.3	61.3	61.1	60.8	62.3	62.5	63.3	63.2
125.0	.2	57.5	58.5	58.7	58.8	59.6	60.0	60.1	61.2	62.1	62.2	62.2	62.8
160.0	.3	58.9	59.3	61.2	62.6	61.1	60.5	61.5	61.5	62.5	63.7	65.2	65.0
200.0	.3	59.3	59.0	60.2	61.2	60.9	60.9	62.0	62.8	64.1	64.6	64.5	63.6
250.0	.4	58.1	59.4	60.8	60.0	61.0	60.2	59.8	61.0	60.7	61.3	61.9	61.8
315.0	.6	61.3	65.2	66.3	66.4	65.5	63.6	64.1	64.0	62.3	64.2	63.9	63.2
400.0	.7	58.6	62.8	63.4	62.9	60.8	58.9	61.7	60.2	59.4	62.9	61.3	60.3
500.0	.9	51.0	53.0	54.4	55.0	55.7	53.2	58.5	54.7	54.0	55.7	55.6	56.2
630.0	1.1	48.8	50.7	50.4	51.9	52.8	49.3	54.7	53.6	52.2	53.0	54.6	53.3
800.0	1.4	49.1	52.4	51.5	49.9	51.0	48.8	51.4	52.5	52.3	53.8	54.2	53.2
1000.0	1.8	49.2	52.7	54.2	52.1	53.1	51.5	52.8	52.4	52.3	53.2	55.0	55.3
1250.0	2.2	46.3	49.9	52.6	51.6	51.8	51.5	51.3	51.7	51.3	51.2	53.8	53.7
1600.0	2.9	44.0	48.4	50.4	51.4	49.9	51.8	50.9	49.9	48.7	51.4	49.8	50.0
2000.0	3.6	43.4	46.3	47.7	49.1	48.4	48.6	49.7	49.6	48.5	50.6	50.6	48.1
2500.0	4.6	43.4	48.3	49.7	49.8	49.3	49.1	49.1	50.6	49.2	52.6	51.7	50.2
3150.0	5.9	41.8	49.2	50.6	52.2	49.4	50.2	49.3	47.8	48.0	50.5	50.6	47.9
4000.0	7.6	41.1	48.4	51.8	55.7	53.2	52.7	51.4	51.1	51.4	54.7	53.8	49.8
5000.0	8.6	44.2	43.6	43.8	51.7	50.2	49.2	49.8	48.2	48.4	50.9	50.9	48.9
6300.0	11.1	38.9	39.3	41.4	43.9	47.9	48.2	49.3	47.2	46.5	44.4	45.1	47.5
8000.0	14.9	45.3	48.3	51.2	47.3	51.2	52.4	52.4	50.4	48.9	48.4	45.4	50.4
10000.0	20.4	42.4	48.1	51.7	47.9	49.1	50.4	49.3	48.4	47.8	49.0	46.3	48.5
12500.0	29.0	34.2	41.9	42.6	44.8	43.6	43.6	42.6	41.3	40.7	44.3	41.9	44.6
16000.0	42.8	36.0	39.8	40.5	41.4	43.1	42.6	42.6	40.4	39.7	42.1	39.6	43.2
20000.0	56.0	30.2	36.3	37.6	38.3	39.1	38.6	38.6	36.4	36.5	39.2	37.3	42.3
OVERALL (50-10K)		69.6	71.4	71.9	72.1	71.8	71.2	71.8	71.8	72.2	73.2	73.4	73.1
OVERALL (20-20K)		70.1	71.8	72.2	72.3	72.1	71.6	71.3	72.3	72.7	73.6	73.8	73.6
A SCALE (20-20K)		61.0	64.5	65.7	66.0	65.3	64.4	65.4	64.8	64.3	66.3	66.0	65.3
PNL - - - -		74.6	77.9	79.2	80.2	79.2	78.8	79.0	78.6	78.4	80.5	80.1	78.8
PNLTC - - - -		75.9	78.7	80.7	81.5	80.4	79.8	79.5	79.6	79.5	81.9	81.1	78.8

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRONHAM ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 15
 CONFIGURATION 6 * INLET A+E * DYNO COVERED-CRAP INSTALLED *
 RUN 39 POINT 6 -> 175 SHP ** 80 PERCENT RPM ** 14.1 LIMITED **

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	48.9	43.4	48.6	47.4	50.2	52.4	52.5	55.1	54.9	55.3	54.4	55.3
25.0	0.0	52.2	53.7	51.9	52.6	52.2	53.4	53.6	54.6	55.2	55.3	56.9	57.0
31.5	0.0	55.3	56.4	55.7	55.0	54.9	55.8	55.9	55.5	56.3	56.0	57.6	56.5
40.0	0.0	58.1	58.9	58.1	57.1	58.0	60.0	59.8	59.8	59.7	59.7	59.8	59.8
50.0	.1	59.2	59.9	58.4	58.1	59.3	61.0	60.4	59.7	62.2	59.8	59.4	59.5
63.0	.1	60.3	60.6	59.3	59.9	60.1	61.2	61.2	61.2	62.9	62.1	62.3	61.9
80.0	.1	59.9	59.8	60.1	59.6	60.6	60.8	61.2	61.6	62.9	63.5	63.7	63.7
100.0	.2	61.1	61.5	61.7	61.0	61.8	62.9	62.5	62.4	63.9	64.2	65.2	65.2
125.0	.2	58.0	59.4	59.2	59.5	60.7	60.7	61.3	62.4	62.9	63.7	63.9	63.9
160.0	.3	59.3	59.5	60.3	62.2	61.3	60.8	62.2	62.3	63.3	64.1	65.3	65.3
200.0	.3	59.8	59.6	61.4	62.3	60.9	61.9	62.3	63.6	64.5	64.7	64.8	64.5
250.0	.4	59.3	59.9	61.0	60.2	61.6	60.6	60.9	61.8	62.0	62.9	63.3	63.3
315.0	.6	61.7	65.6	66.0	65.0	64.6	63.2	63.9	64.7	62.3	64.1	63.9	63.6
400.0	.7	57.6	62.3	62.0	60.4	58.8	57.8	61.0	59.4	59.3	61.4	60.4	61.2
500.0	.9	51.5	34.2	55.7	54.7	55.3	54.5	59.5	57.7	55.1	55.8	56.2	57.7
630.0	1.1	48.0	51.3	50.2	50.9	52.2	51.5	55.5	56.5	54.4	55.1	56.5	54.8
800.0	1.4	48.6	51.3	49.9	49.9	52.4	52.0	52.9	54.3	55.6	57.1	57.5	56.2
1000.0	1.6	50.6	52.2	54.2	53.0	54.2	54.3	54.8	55.2	56.2	57.6	58.4	58.0
1250.0	2.2	47.6	50.1	52.9	52.5	52.5	52.8	53.2	53.9	52.9	55.5	55.8	55.8
1600.0	2.9	44.8	49.6	51.2	51.8	49.2	51.2	51.5	52.7	50.3	53.3	51.2	51.3
2000.0	3.6	43.7	46.2	47.2	49.0	47.3	49.0	50.0	50.0	51.4	53.9	53.4	50.8
2500.0	4.6	43.2	47.5	49.4	50.1	48.8	49.2	50.2	50.2	50.6	53.2	52.8	51.6
3150.0	5.9	42.8	48.3	50.2	51.7	48.7	51.0	50.0	49.3	50.9	53.2	53.5	49.7
4000.0	7.6	41.4	46.8	50.4	55.2	52.8	52.6	52.3	51.8	53.1	55.8	55.2	51.1
5000.0	8.6	37.7	42.1	42.9	49.6	49.5	49.2	50.0	49.5	49.9	51.0	51.4	50.2
6300.0	11.1	39.5	37.9	41.4	43.5	47.6	48.0	49.5	48.6	48.0	44.8	46.4	48.7
8000.0	14.9	45.5	48.4	52.7	47.1	51.4	52.3	52.7	51.0	50.8	48.0	47.1	50.9
10000.0	20.4	45.5	48.3	52.7	49.8	51.1	51.0	50.6	50.3	49.2	48.9	48.9	49.2
12500.0	29.0	34.0	39.4	41.5	43.4	41.5	40.8	41.4	42.0	40.8	42.8	42.9	44.5
16000.0	42.8	35.4	38.3	38.5	39.5	40.8	38.8	39.8	40.8	39.4	38.7	40.5	42.9
20000.0	56.0	29.2	33.1	34.0	34.1	35.2	33.9	35.0	36.1	34.9	33.9	36.5	40.4
OVERALL (50-10K)		70.1	71.7	72.1	71.6	71.9	71.9	72.6	72.9	73.1	73.7	74.1	74.1
OVERALL (20-20K)		70.6	72.1	72.4	72.1	72.2	72.4	73.0	73.3	73.5	74.1	74.5	74.5
A SCALE (20-20K)		61.2	64.4	65.5	65.4	65.0	64.8	66.0	66.1	65.8	67.3	67.4	66.8
PNL - - - -		74.8	78.0	79.1	79.9	79.1	79.2	79.7	79.7	80.0	81.5	81.5	80.0
PNLTC - - - -		75.4	78.9	80.4	81.4	80.3	79.8	79.7	80.4	80.0	82.8	81.5	80.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 15

CONFIGURATION 6 * INLET A+E * DYNO COVERED-CRAP INSTALLED *

RUN 39 POINT 6 ** 175 SHP ** 80 PERCENT RPM ** T4.1 LIMITED **

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	48.9	48.4	48.6	47.4	50.2	52.4	52.5	55.1	54.9	55.3	54.4	55.3
25.0	0.0	52.2	53.7	51.9	52.6	52.2	53.4	53.6	54.6	55.2	55.3	56.9	57.0
31.5	0.0	55.3	56.4	55.7	55.0	54.9	55.8	55.9	55.5	56.3	56.0	57.6	57.0
40.0	0.0	58.1	58.9	58.1	57.1	58.0	60.0	59.8	59.8	59.7	59.7	59.8	59.5
50.0	.1	59.2	59.9	58.4	58.1	59.3	61.0	60.4	59.7	59.7	59.8	59.4	59.5
63.0	.1	60.3	60.6	59.3	59.9	60.1	61.2	61.2	61.2	62.2	62.1	62.3	61.9
80.0	.1	59.9	59.8	60.1	59.6	60.6	60.8	61.2	61.6	62.9	62.9	63.5	63.7
100.0	.2	61.1	61.5	61.7	61.0	61.8	62.9	62.5	62.4	63.9	63.6	64.2	65.2
125.0	.2	58.0	59.4	59.2	59.5	60.7	60.7	61.3	62.4	62.6	62.9	63.7	63.9
160.0	.3	59.3	59.5	60.3	62.2	61.3	60.8	62.2	62.3	63.3	64.1	65.3	65.3
200.0	.3	59.8	59.6	61.4	62.3	60.9	61.9	62.3	63.6	64.5	64.7	64.8	64.5
250.0	.4	59.3	59.9	61.0	60.2	61.6	60.6	60.9	61.8	62.0	62.0	62.9	63.3
315.0	.6	61.7	65.6	66.0	65.0	64.6	63.2	63.9	64.7	62.3	64.1	63.9	63.6
400.0	.7	57.6	62.3	62.0	60.4	58.8	57.8	61.0	59.4	59.3	61.4	60.4	61.2
500.0	.9	51.5	54.2	55.7	54.7	55.3	54.5	59.5	57.7	55.1	55.8	56.2	57.7
630.0	1.1	48.0	51.3	50.2	50.9	52.2	51.5	55.5	56.5	54.4	55.1	56.5	54.8
800.0	1.4	48.6	51.3	49.9	49.9	52.4	52.0	52.9	54.3	55.6	57.1	57.5	56.2
1000.0	1.8	50.0	52.2	54.2	53.0	54.2	54.3	54.8	55.2	56.2	57.6	58.4	58.0
1250.0	2.2	47.6	50.1	52.9	52.5	52.8	52.8	53.2	53.9	52.9	55.5	55.8	55.8
1600.0	2.9	44.8	49.6	51.2	51.8	49.2	51.2	51.5	52.7	50.3	53.3	51.2	51.3
2000.0	3.6	43.7	46.2	47.2	49.0	47.3	49.0	50.0	50.0	51.4	53.9	53.4	50.8
2500.0	4.6	43.2	47.5	49.4	50.1	48.8	49.1	50.2	50.2	50.6	53.2	52.8	51.6
3150.0	5.9	42.8	48.3	50.2	51.7	48.7	51.0	50.0	49.3	50.9	53.7	53.5	49.7
4000.0	7.6	41.4	46.8	50.4	55.2	52.8	52.6	52.3	51.8	53.1	55.8	55.2	51.1
5000.0	8.6	37.7	42.1	42.9	49.6	49.5	49.2	50.0	49.5	49.9	51.0	51.4	50.2
6300.0	11.1	39.5	37.9	41.4	43.5	47.6	48.0	49.5	48.6	48.0	44.8	46.4	48.7
8000.0	14.9	45.5	48.4	52.7	47.1	51.4	52.3	52.7	51.0	50.8	48.0	47.1	50.9
10000.0	20.4	45.5	48.3	52.7	49.8	51.1	51.0	50.6	50.3	49.2	48.9	48.9	49.2
12500.0	29.0	34.0	39.4	41.5	43.4	41.5	40.8	41.4	42.0	40.8	42.8	42.9	44.5
16000.0	42.8	35.4	38.3	38.5	39.5	40.8	38.8	39.8	40.8	39.4	38.7	40.5	42.9
20000.0	56.0	29.2	33.1	34.0	34.1	35.2	33.9	35.0	36.1	34.9	33.9	36.5	40.4
OVERALL (50-10K)		70.1	71.7	72.1	71.8	71.9	71.9	72.6	72.9	73.1	73.7	74.1	74.1
OVERALL (20-20K)		70.6	72.1	72.4	72.1	72.2	72.4	73.0	73.3	73.5	74.1	74.5	74.5
A SCALE (20-20K)		61.2	64.4	65.5	65.4	65.0	64.8	66.0	66.1	65.8	67.3	67.4	66.8
PNL - - - -		74.8	78.0	79.1	79.9	79.1	79.2	79.7	79.7	80.0	81.5	81.5	80.0
PNLTC - - - -		75.4	78.9	80.4	81.4	80.3	79.8	79.7	80.4	80.0	82.8	81.5	80.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANT/AN, ARIZ ** QE 18

CONFIGURATION 6 ** INLET A/E ** DYNO COVERED-CRAP INSTALLED *

RUN40 POINT I ** 105 SHP ** 70 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	50.8	49.9	50.3	49.5	49.2	50.9	52.2	52.9	52.6	55.7	56.3	56.3
25.0	0.0	51.5	52.3	51.2	49.9	51.1	51.1	52.4	53.4	54.3	55.7	56.2	57.3
31.5	0.0	54.2	54.8	53.2	52.5	52.3	53.5	53.8	55.3	55.8	56.4	56.2	56.1
40.0	0.0	57.4	59.1	57.0	56.4	56.3	58.0	58.7	58.9	59.3	58.6	58.5	58.3
50.0	.1	57.4	58.9	57.0	56.6	58.1	58.9	58.4	57.9	57.8	58.2	58.3	58.1
63.0	.1	57.8	56.6	55.2	55.5	55.6	56.5	56.5	56.6	57.9	58.4	58.5	59.0
80.0	.1	56.8	57.0	55.9	55.7	57.1	56.5	56.9	57.3	57.8	58.7	59.6	60.0
100.0	.2	59.0	59.4	58.2	57.7	59.8	60.3	59.4	58.2	58.2	58.6	59.2	59.4
125.0	.2	56.1	57.4	57.7	57.1	58.1	57.9	57.6	58.3	59.2	59.0	59.9	60.7
160.0	.3	57.1	55.9	56.6	58.2	58.0	56.7	58.7	58.3	59.2	59.9	61.2	59.9
200.0	.3	56.5	56.6	58.1	59.6	58.9	58.3	60.3	59.3	60.0	60.9	60.7	58.6
250.0	.4	57.5	57.2	58.3	57.2	58.5	56.9	57.4	57.6	57.7	57.8	59.4	59.6
315.0	.6	58.5	63.0	63.7	63.3	62.4	59.3	60.7	61.3	59.7	61.3	59.8	59.6
400.0	.7	55.1	59.6	60.3	59.3	58.6	57.0	58.9	58.5	56.4	59.1	57.3	56.3
500.0	.9	54.2	59.6	57.7	55.5	60.0	63.5	59.1	66.5	60.1	56.7	56.8	58.0
630.0	1.1	49.8	52.6	51.5	49.1	52.5	50.9	53.9	52.6	49.4	53.2	51.5	49.8
800.0	1.4	50.7	51.2	50.3	49.7	51.3	47.9	51.5	48.3	49.2	52.1	50.9	49.8
1000.0	1.8	50.4	52.8	52.1	52.1	54.0	50.7	50.5	50.4	50.4	51.4	52.1	51.0
1250.0	2.2	46.7	49.4	50.2	50.1	51.7	51.5	49.6	48.2	48.2	49.7	49.5	48.8
1600.0	2.9	43.3	47.1	48.2	49.9	48.7	48.0	47.9	47.8	46.2	47.9	46.9	45.3
2000.0	3.6	42.2	44.7	45.5	46.4	46.7	44.9	47.5	45.5	47.1	48.2	47.6	44.9
2500.0	4.6	41.1	45.2	46.3	47.5	47.5	45.3	45.1	44.4	47.3	50.0	47.7	45.9
3150.0	5.9	40.3	46.0	47.4	48.6	46.8	47.3	46.0	45.4	45.4	48.3	48.3	44.6
4000.0	7.6	36.4	42.9	45.9	50.5	49.7	47.5	47.7	46.3	47.2	50.8	49.5	46.2
5000.0	8.6	33.7	39.4	39.9	46.5	48.8	45.8	47.7	45.6	45.3	46.6	47.4	46.2
6300.0	11.1	37.0	35.8	38.6	40.9	46.3	45.1	47.5	45.2	44.8	41.4	41.9	44.1
8000.0	14.9	43.7	45.1	47.8	43.6	50.9	48.2	52.1	49.7	46.9	45.0	43.2	47.7
10000.0	20.4	37.4	42.9	46.4	42.9	46.9	44.9	44.4	43.8	42.8	43.8	40.5	42.5
12500.0	29.0	31.7	37.1	38.4	40.4	40.9	38.7	37.9	37.1	37.0	39.1	37.4	38.2
16000.0	42.8	34.1	37.1	38.8	39.2	43.4	40.0	38.8	37.6	36.4	37.3	36.5	39.1
20000.0	56.0	29.2	34.4	35.3	35.2	38.4	36.0	35.2	34.4	33.3	34.7	33.5	36.9
OVERALL (50-10K)		67.9	69.6	69.6	69.4	71.8	69.7	69.7	70.9	69.4	70.1	70.2	69.9
OVERALL (20-20K)		68.6	70.2	70.0	69.8	72.1	70.2	70.3	71.4	70.1	70.8	70.9	70.7
A SCALE (20-20K)		59.9	63.3	63.4	63.3	67.1	63.9	63.4	65.6	62.6	63.4	62.8	62.1
PNL - - - -		72.4	75.8	76.5	76.6	80.0	77.1	76.3	78.4	75.8	77.1	76.4	75.2
PNLTC - - - -		73.5	76.7	77.4	77.4	84.1	80.3	77.3	82.1	78.2	78.2	76.4	76.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 21
 CONFIGURATION 7 * INLET A*8 * SECTION -15 REMOVED FROM T.P. ASSEMBLY
 RUN 44 POINT A ** 105 SHP ** 100 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
0 DEG.	0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.	180 DEG.
20.0	0.0	45.1	46.5	45.4	46.2	45.1	47.1	45.9	48.4	48.7	51.3	53.4	53.9
25.0	0.0	52.1	56.0	56.1	56.0	57.9	58.5	58.4	57.7	56.5	58.9	58.4	59.8
31.5	0.0	52.0	53.0	53.8	53.1	53.9	53.6	55.3	55.7	55.1	59.3	60.2	62.6
40.0	0.0	55.3	56.1	56.2	57.4	56.9	58.1	57.6	59.0	60.0	61.9	63.1	63.6
50.0	.1	57.3	57.2	56.0	57.0	57.1	58.3	59.0	58.8	60.7	64.6	66.2	66.2
63.0	.1	61.9	60.1	57.7	57.6	57.3	58.4	59.0	59.8	62.0	64.3	66.5	67.1
80.0	.1	60.4	58.7	59.0	59.5	60.5	60.1	60.7	61.3	62.8	66.1	69.0	69.1
100.0	.2	62.0	61.6	63.3	62.5	64.6	65.0	64.3	63.8	65.2	67.3	69.5	69.6
125.0	.2	60.9	61.5	62.3	62.0	62.4	63.8	63.3	64.3	65.7	67.1	69.2	69.1
160.0	.3	60.0	58.4	60.1	60.3	60.8	61.6	62.2	63.6	65.0	67.2	68.5	68.0
200.0	.3	60.0	58.9	62.2	62.0	61.1	62.3	62.9	64.3	66.9	67.6	68.9	67.3
250.0	.4	59.3	61.5	62.9	62.9	62.5	62.5	62.5	63.3	65.0	66.0	67.8	64.8
315.0	.6	59.7	63.8	64.8	64.1	62.7	62.0	62.6	63.9	63.6	65.3	66.2	63.5
400.0	.7	56.0	61.4	62.7	61.5	58.3	58.2	61.5	61.3	61.2	63.7	62.8	59.7
500.0	.9	51.8	54.3	55.8	54.8	53.7	55.6	56.7	57.4	56.8	59.2	57.6	57.5
630.0	1.1	46.4	53.8	56.2	54.9	50.9	54.1	58.5	52.9	60.0	52.7	55.2	55.9
800.0	1.4	45.3	51.2	53.0	52.5	51.1	52.3	55.6	51.5	58.3	52.8	53.8	54.0
1000.0	1.8	45.0	46.1	48.5	49.8	52.8	53.8	51.9	54.5	56.3	52.7	54.4	51.4
1250.0	2.2	45.3	46.5	50.8	52.6	52.6	53.5	55.6	56.9	56.8	58.5	55.4	51.9
1600.0	2.9	43.7	46.6	51.7	53.1	51.4	54.8	56.1	57.2	56.4	58.0	54.3	50.1
2000.0	3.6	39.9	46.1	50.9	52.8	49.2	49.9	53.6	52.7	52.0	53.7	50.8	48.3
2500.0	4.6	40.3	47.6	50.7	52.2	48.4	49.2	50.2	50.9	52.2	54.0	51.9	49.2
3150.0	5.9	41.0	50.0	52.6	50.5	50.5	51.8	52.0	52.5	53.2	55.6	53.1	51.6
4000.0	7.6	43.7	50.6	55.4	59.6	53.8	54.2	54.3	54.0	53.5	55.1	55.3	53.0
5000.0	8.6	38.5	45.6	49.8	55.9	49.2	50.3	50.7	51.3	51.3	52.8	52.3	47.5
6300.0	11.1	37.2	41.5	45.2	50.2	48.6	49.1	50.0	50.2	50.5	46.4	47.4	42.7
8000.0	14.9	38.9	40.4	43.9	48.6	48.1	48.7	49.0	52.8	54.1	47.1	45.3	41.3
10000.0	20.4	42.1	46.8	48.2	51.4	50.1	51.5	55.5	55.8	56.7	54.3	48.3	46.6
12500.0	29.0	38.2	44.2	46.1	46.4	45.8	46.0	48.0	53.2	57.2	54.5	46.9	43.1
16000.0	42.8	35.5	36.8	39.2	40.1	41.6	41.3	45.6	54.4	59.9	53.8	45.3	40.8
20000.0	56.0	31.3	35.3	38.2	39.1	40.6	40.7	46.6	57.1	62.1	56.8	45.8	41.2
OVERALL (50-10K)	70.3	71.1	72.4	72.3	71.9	72.5	73.0	73.0	73.6	75.1	76.5	78.0	77.3
OVERALL (20-20K)	70.6	71.5	72.7	72.6	72.3	72.9	73.4	73.4	74.1	75.7	76.9	78.2	77.7
A SCALE (20-20K)	60.2	63.8	66.0	67.2	64.7	65.6	67.0	67.0	67.4	68.7	69.0	68.3	66.3
PNL - - - -	73.5	77.2	80.3	82.7	79.4	80.1	81.0	81.0	81.2	81.9	82.8	82.6	80.5
PNLTC - - - -	74.8	77.2	81.7	84.0	80.7	81.2	81.0	81.0	81.2	81.9	82.8	82.6	81.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 21
 CONFIGURATION 7 * INLET A+B * SECTION -15 REMOVED FROM T.P. ASSEMBLY
 MUN 45 POINT C ** 677 SHP ** 100 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT.

12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	49.6	49.4	51.1	49.6	49.9	49.5	50.2	50.0	49.9	53.0	56.5	59.1
25.0	0.0	55.1	57.1	58.3	58.4	61.3	60.7	58.4	58.0	56.9	61.1	63.3	65.2
31.5	0.0	56.8	56.8	56.2	57.4	57.0	57.3	56.9	57.6	58.2	60.5	65.8	67.4
40.0	0.0	59.2	59.6	59.7	59.0	59.7	61.3	61.5	61.4	62.7	64.8	68.2	70.6
50.0	.1	60.9	61.3	60.9	60.8	61.8	62.3	61.7	62.4	63.7	67.2	70.6	72.4
63.0	.1	63.3	62.5	61.1	61.3	62.2	62.0	63.5	63.5	66.1	69.4	73.4	74.3
80.0	.1	63.6	62.8	63.6	63.4	65.0	64.1	64.8	65.3	68.2	71.9	76.2	77.9
100.0	.2	66.4	65.0	65.3	65.7	67.4	67.8	67.8	68.0	70.5	73.8	77.4	79.5
125.0	.2	65.3	64.5	65.1	65.5	66.5	67.0	67.7	68.6	70.8	74.1	77.2	79.2
160.0	.3	65.3	63.0	64.9	65.9	66.3	66.8	67.9	69.3	72.0	75.0	77.1	78.2
200.0	.3	64.2	64.1	66.3	64.5	66.7	66.1	68.4	69.7	72.4	75.4	77.1	75.9
250.0	.4	62.1	62.6	64.4	65.1	66.0	66.7	67.4	69.5	71.4	74.1	75.6	71.2
315.0	.6	60.4	62.7	65.0	64.3	64.1	65.6	67.0	68.4	69.5	72.1	75.6	67.8
400.0	.7	58.7	62.5	63.8	62.4	62.6	64.0	67.3	67.4	68.0	70.5	69.4	66.0
500.0	.9	54.5	58.3	60.8	58.5	58.4	60.9	63.7	65.0	63.3	66.0	64.5	63.5
630.0	1.1	49.9	55.3	58.9	57.8	58.5	64.1	64.1	60.8	62.2	60.2	58.4	58.5
800.0	1.4	48.7	52.1	54.7	55.5	56.2	56.0	61.0	58.3	62.4	60.8	60.1	57.4
1000.0	1.8	48.9	49.6	53.5	55.6	59.6	60.9	57.8	62.6	65.7	66.0	63.3	58.7
1250.0	2.2	47.9	51.6	57.0	57.9	59.1	61.0	62.3	64.8	65.8	67.1	63.8	59.2
1600.0	2.9	53.2	52.4	59.3	60.0	58.4	62.8	63.9	65.4	65.4	66.2	62.5	59.1
2000.0	3.6	44.2	50.4	57.5	58.7	55.7	58.3	60.8	60.0	59.6	60.1	56.3	55.0
2500.0	4.6	43.4	50.6	55.8	56.8	53.6	54.1	55.1	57.6	60.2	60.7	58.2	56.4
3150.0	5.9	43.5	52.3	57.0	59.5	55.0	56.6	57.8	59.3	60.2	61.8	58.3	57.5
4000.0	7.6	45.1	51.5	56.8	61.5	55.7	56.3	56.0	57.1	58.2	58.9	56.5	56.2
5000.0	8.6	41.3	48.1	52.4	58.9	53.2	54.4	55.0	57.1	57.4	57.6	56.7	54.9
6300.0	11.1	39.0	42.6	47.7	52.4	50.8	51.7	52.8	54.2	55.4	50.8	51.6	49.3
8000.0	14.9	39.6	40.0	44.6	48.8	50.2	51.0	51.2	52.9	54.6	49.5	48.4	47.4
10000.0	20.4	43.8	42.8	48.7	47.9	50.0	52.8	51.2	53.1	55.3	52.1	48.6	49.1
12500.0	29.0	39.3	42.8	45.8	45.5	45.8	46.3	48.4	51.0	53.0	51.3	47.6	47.8
16000.0	42.8	37.0	35.6	37.2	39.6	40.8	41.7	42.8	47.8	50.7	48.5	46.5	44.8
20000.0	56.0	34.3	34.6	36.6	37.2	39.3	39.3	40.2	43.7	46.3	44.6	43.5	44.0
OVERALL (50-10K)		73.8	75.2	75.5	75.6	75.9	76.7	77.9	78.9	80.8	83.5	85.6	86.2
OVERALL (20-20K)		74.1	74.0	75.5	75.8	76.2	77.0	78.1	79.0	80.9	83.6	85.7	86.4
A SCALE (20-20K)		63.2	65.6	69.3	70.6	69.1	71.0	72.6	73.7	74.9	76.2	75.3	73.4
PNL - - - -		76.5	79.2	83.2	85.6	83.0	84.6	85.8	87.1	88.1	89.5	89.7	88.6
PNLTC - - - -		78.9	79.2	83.2	85.6	83.0	85.6	85.8	87.1	88.1	89.5	89.7	88.6

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRORBAR. ** DATA HAS BEEN CONNECTED TO FAA SID. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, AMIZ ** UE 21
 CONFIGURATION 7 * INLET A** * SECTION -15 REMOVED FROM T.P. ASSEMBLY
 RUN 46 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	49.7	50.1	51.0	49.1	50.1	48.7	51.8	52.0	53.0	54.7	54.6	55.8
25.0	0.0	48.8	49.4	49.6	49.6	51.0	52.0	53.1	53.6	54.2	57.8	57.5	58.8
31.5	0.0	50.4	51.3	50.3	49.5	50.1	51.9	53.4	53.0	55.0	56.3	58.0	58.3
40.0	0.0	57.0	57.1	56.2	55.5	56.4	57.4	58.3	58.5	58.4	58.6	60.0	59.8
50.0	.1	55.4	54.8	53.8	53.5	53.9	55.2	54.9	56.4	56.4	57.5	58.9	59.7
63.0	.1	57.6	55.9	53.3	53.8	53.5	55.0	54.4	56.2	56.3	59.2	60.0	59.7
80.0	.1	55.2	54.1	55.2	54.2	55.8	54.7	54.4	54.9	56.1	59.0	60.9	61.2
100.0	.2	58.9	58.0	58.9	58.2	58.3	59.9	58.9	59.1	59.2	61.0	61.4	61.6
125.0	.2	56.9	56.7	58.4	57.2	58.3	58.5	58.2	60.8	61.0	61.2	61.4	61.2
160.0	.3	57.0	57.6	58.3	59.5	58.4	57.1	57.3	59.4	60.8	62.7	63.3	63.4
200.0	.3	55.8	54.9	57.1	57.9	57.8	57.3	58.1	58.2	61.7	62.3	61.1	59.6
250.0	.4	56.3	57.3	58.7	57.1	58.0	56.5	56.6	57.6	58.5	58.4	59.2	58.2
315.0	.6	58.7	63.1	65.4	64.4	62.2	60.3	61.0	62.7	60.9	61.8	61.6	61.7
400.0	.7	57.0	59.9	51.6	60.9	56.8	55.1	58.1	57.9	56.8	60.3	58.0	58.4
500.0	.9	49.4	54.9	54.5	52.9	50.7	50.4	53.2	54.2	51.3	53.7	52.8	55.2
630.0	1.1	44.9	51.3	48.9	48.0	46.1	46.4	50.4	52.9	45.9	49.1	48.8	49.8
800.0	1.4	43.1	44.7	44.8	45.0	47.1	47.1	49.5	47.0	44.2	47.8	43.5	45.0
1000.0	1.8	45.9	47.3	48.5	47.9	49.3	47.3	47.3	46.6	47.0	47.3	47.1	46.3
1250.0	2.2	42.9	46.3	46.6	47.5	47.9	47.9	47.7	47.0	46.8	47.8	46.9	45.2
1600.0	2.9	40.2	45.9	46.7	48.7	46.8	48.4	48.8	48.0	46.9	47.8	45.9	46.3
2000.0	3.6	38.2	43.9	45.0	49.1	46.0	47.3	48.5	46.2	45.5	47.5	44.3	45.4
2500.0	4.6	38.4	44.5	47.2	49.8	46.2	47.5	47.4	46.4	46.5	48.7	45.7	45.4
3150.0	5.9	39.7	49.7	51.4	52.9	48.3	48.5	48.2	47.3	48.3	49.1	48.3	48.4
4000.0	7.6	43.7	51.6	55.2	59.3	54.7	53.6	53.6	52.5	51.3	52.4	53.5	50.9
5000.0	8.6	40.7	47.7	50.0	56.5	49.8	50.3	48.5	49.0	50.8	51.5	50.6	47.7
6300.0	11.1	37.8	40.8	44.3	48.8	47.7	48.4	47.0	47.1	49.4	43.1	45.5	41.9
8000.0	14.9	42.2	42.1	46.4	49.4	50.5	52.4	52.8	51.2	51.2	47.2	45.4	45.8
10000.0	20.4	41.9	43.4	46.9	47.5	48.3	49.3	48.5	47.8	49.3	48.7	44.0	45.6
12500.0	29.0	35.3	38.8	42.7	42.8	42.5	41.2	41.4	41.4	47.1	48.2	41.6	40.5
16000.0	42.8	38.1	38.3	40.8	42.6	42.6	42.0	42.9	41.5	47.0	45.5	40.4	38.6
20000.0	56.0	32.0	34.0	36.2	38.5	38.4	37.9	39.6	40.6	48.3	47.1	37.1	36.4
OVERALL (50-10K)	67.3	68.7	70.2	70.1	68.9	68.9	68.3	68.6	69.6	69.8	71.1	71.1	71.1
OVERALL (20-20K)	67.9	69.2	70.5	70.4	69.3	68.9	68.9	69.3	70.2	70.6	71.8	71.9	71.9
A SCALE (20-20K)	58.6	62.6	64.4	65.8	62.9	62.4	63.0	63.0	63.0	62.5	63.6	62.8	62.3
PNL - - - -	-	71.9	76.2	78.6	81.1	78.1	77.6	77.9	77.5	77.1	78.0	77.8	76.7
PNLTC - - - -	-	73.1	76.9	80.1	82.6	80.0	78.9	79.4	79.0	77.7	78.0	79.2	77.3

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROMAN ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 21
 CONFIGURATION 7 * INLET A*8 * SECTION -15 REMOVED FROM T.P. ASSEMBLY
 RUN 47 POINT G ** 175 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	50.7	51.5	52.4	51.8	52.1	52.6	54.5	54.8	55.0	55.2	56.5	56.4
25.0	0.0	51.2	51.9	51.8	51.4	54.0	54.1	54.1	55.6	57.8	57.6	59.9	59.0
31.5	0.0	55.3	55.0	54.6	53.3	55.1	54.6	55.5	56.4	56.3	58.9	59.9	59.8
40.0	0.0	59.2	59.5	59.5	58.5	57.7	59.7	61.1	60.8	60.4	61.1	62.8	61.6
50.0	.1	57.8	58.2	57.7	56.2	56.3	57.3	57.7	58.7	59.1	60.4	62.0	62.8
63.0	.1	60.3	59.2	57.2	55.7	56.0	57.3	57.3	58.0	58.8	61.4	63.4	63.7
80.0	.1	58.4	57.0	58.2	56.8	58.3	58.1	57.4	57.8	59.4	61.7	63.9	64.6
100.0	.2	60.9	61.0	61.8	60.8	62.6	63.3	61.8	62.5	63.3	62.9	64.1	65.4
125.0	.2	59.9	59.9	61.3	60.3	61.3	61.4	61.8	63.9	63.7	63.6	64.3	65.0
160.0	.3	59.8	58.9	60.9	61.8	60.4	60.4	60.7	62.4	63.4	64.8	65.7	66.2
200.0	.3	58.4	57.6	59.8	61.7	60.1	60.0	60.6	61.5	63.9	64.6	63.5	61.9
250.0	.4	58.6	59.2	60.6	58.7	60.0	59.1	58.9	59.6	60.8	60.9	62.3	61.1
315.0	.6	61.4	65.2	67.0	65.9	64.2	62.9	63.0	64.1	64.0	64.1	63.4	63.4
400.0	.7	58.2	61.6	63.1	62.3	58.6	57.6	60.8	59.7	59.1	61.4	60.8	61.1
500.0	.9	51.3	56.3	57.2	54.8	54.5	53.6	55.8	58.5	54.7	56.9	56.3	56.7
630.0	1.1	46.3	53.4	52.5	50.0	49.7	49.4	52.8	56.4	49.2	53.6	53.1	49.2
800.0	1.4	46.4	53.0	51.0	47.8	49.1	50.7	53.2	50.1	47.1	51.1	47.0	47.0
1000.0	1.8	47.2	49.6	50.3	50.0	51.7	50.7	49.5	49.6	51.1	50.6	50.2	49.5
1250.0	2.2	45.1	49.1	49.2	49.9	50.2	50.7	50.4	50.2	49.9	50.8	49.7	48.0
1600.0	2.9	42.4	48.6	49.3	51.6	48.9	51.5	51.7	51.7	49.7	50.5	48.0	48.1
2000.0	3.6	40.0	45.8	47.6	51.2	47.8	49.2	49.7	48.7	47.6	48.9	46.9	45.3
2500.0	4.6	40.6	46.8	49.7	51.8	47.6	49.6	48.4	48.6	49.2	50.8	47.6	47.6
3150.0	5.9	42.1	50.5	52.6	54.7	49.4	50.7	50.0	49.9	50.4	50.2	50.5	48.8
4000.0	7.6	45.7	52.5	55.8	60.9	56.4	55.1	54.9	54.5	53.4	54.6	55.4	53.6
5000.0	8.6	42.4	49.4	51.2	57.3	50.8	52.1	50.2	50.4	51.6	51.5	51.1	48.4
6300.0	11.1	39.6	42.8	46.1	50.6	48.5	49.9	48.7	49.0	50.5	44.7	47.1	42.9
8000.0	14.9	44.3	44.8	48.1	53.1	52.4	53.6	55.7	52.7	51.9	48.4	46.8	48.9
10000.0	20.4	44.1	45.1	49.4	50.3	49.9	50.8	51.0	49.2	50.6	50.9	46.0	48.0
12500.0	29.0	37.1	40.7	43.8	44.1	43.5	42.5	42.1	42.1	45.3	46.3	41.2	41.1
16000.0	42.8	37.7	38.8	42.5	44.6	43.8	42.6	42.3	43.8	44.4	43.8	40.1	39.4
20000.0	56.0	32.3	34.0	36.3	39.1	39.0	37.9	38.0	39.1	43.3	42.6	35.4	35.2
OVERALL (50-10K)		69.8	71.1	72.3	72.2	71.1	71.0	71.3	72.1	72.5	73.3	73.9	74.1
OVERALL (20-20K)		70.4	71.6	72.7	72.5	71.6	71.6	71.9	72.7	73.1	73.9	74.6	74.7
A SCALE (20-20K)		60.7	64.6	66.1	67.5	64.8	64.7	65.2	65.4	64.8	65.6	65.2	64.5
PNL - - - -		74.4	78.1	80.3	83.0	80.0	79.8	79.9	79.9	79.5	80.2	80.2	79.2
PNLTC - - - -		75.5	78.9	81.6	84.7	82.1	81.1	81.5	81.4	80.1	81.5	81.0	80.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

JSAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, AHIZ ** QE 21
 CONFIGURATION 7 * INLET A*B * SECTION -15 REMOVED FROM T.P. ASSEMBLY
 RUN 48 POINT 1 ** 105 SHP ** 70 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	46.2	47.3	47.9	48.3	48.9	50.1	53.4	54.4	54.2	56.7	57.2	57.3
25.0	0.0	50.0	50.6	50.7	49.3	51.9	52.5	54.0	55.3	57.4	58.9	59.4	60.4
31.5	0.0	53.1	53.0	52.3	51.8	52.1	53.2	54.2	54.5	57.0	57.6	57.6	59.0
40.0	0.0	57.3	58.3	56.1	55.9	55.8	55.3	56.6	56.7	59.2	58.8	59.6	59.8
50.0	.1	58.2	58.8	56.9	56.3	56.3	56.2	56.1	57.5	57.9	59.2	59.7	60.4
63.0	.1	58.8	57.4	54.9	54.3	54.3	55.9	55.6	56.4	57.1	59.7	60.5	60.2
80.0	.1	57.3	56.0	56.6	56.4	56.6	55.7	54.6	55.1	56.3	59.0	61.2	62.0
100.0	.2	59.7	59.0	60.2	59.7	61.0	61.9	59.8	59.9	60.8	60.8	61.7	61.5
125.0	.2	58.0	58.3	59.8	59.3	59.4	60.2	60.8	62.3	62.0	61.8	62.4	62.1
160.0	.3	58.0	56.7	57.4	57.9	57.4	58.7	57.6	60.8	61.0	63.3	62.4	61.5
200.0	.3	57.1	56.0	57.6	58.7	58.6	58.2	59.1	60.2	61.1	61.9	62.5	59.1
250.0	.4	56.9	57.2	58.1	56.6	57.4	56.8	56.4	57.2	58.2	58.1	58.6	57.8
315.0	.5	59.3	62.7	65.1	63.4	61.4	59.7	59.8	60.9	62.1	60.5	60.5	60.5
400.0	.7	56.2	59.1	61.6	60.0	58.2	57.0	58.0	57.9	57.2	60.3	58.2	58.0
500.0	.9	52.0	62.6	58.0	59.8	67.0	61.2	56.8	67.0	59.4	62.4	60.6	60.3
630.0	1.1	47.9	51.6	52.6	49.3	50.7	51.5	54.0	53.5	48.9	55.1	52.7	51.0
800.0	1.4	48.1	49.3	48.7	47.6	48.2	47.8	50.9	48.4	48.0	50.5	46.2	49.0
1000.0	1.8	48.7	50.1	49.7	49.7	52.1	48.1	50.6	48.6	47.5	47.6	47.5	47.7
1250.0	2.2	45.7	48.8	47.6	48.4	49.4	50.1	49.0	46.6	46.7	46.5	47.0	44.8
1600.0	2.9	42.7	47.3	47.8	50.0	48.5	49.6	48.0	48.0	46.8	46.2	46.2	44.1
2000.0	3.6	39.4	45.0	46.9	49.6	47.6	47.6	48.8	47.0	47.6	46.6	46.7	43.9
2500.0	4.6	40.0	46.8	49.1	50.3	45.8	47.5	46.7	45.0	49.5	50.3	48.0	46.2
3150.0	5.9	40.1	48.6	49.9	51.5	47.2	46.6	45.7	48.1	48.2	48.2	47.5	46.9
4000.0	7.6	41.7	48.3	51.5	56.3	51.4	49.0	49.5	50.2	50.9	50.1	50.6	47.8
5000.0	8.6	40.3	46.1	49.6	54.8	47.7	49.4	48.2	49.0	51.6	50.3	50.1	47.0
6300.0	11.1	38.0	40.4	44.0	47.9	46.6	47.5	46.1	47.4	47.7	46.9	44.7	40.7
8000.0	14.9	43.2	43.2	47.3	49.4	51.1	52.7	50.3	51.6	50.7	46.9	45.6	44.0
10000.0	20.4	38.9	40.2	44.0	45.1	45.5	46.6	44.9	45.0	46.1	46.0	41.9	42.3
12500.0	29.0	34.2	37.6	41.3	41.1	39.7	39.7	39.2	42.6	42.6	43.4	39.9	39.2
16000.0	42.8	36.8	38.2	40.7	40.3	43.1	40.2	40.8	42.3	43.9	43.4	39.3	38.4
20000.0	56.0	30.5	33.6	34.4	36.1	37.0	35.5	35.5	39.0	45.8	43.5	36.1	35.0
OVERALL (50-10K)		68.4	69.9	70.6	70.2	71.2	69.8	69.2	71.6	70.5	71.8	71.5	71.1
OVERALL (20-20K)		68.9	70.4	70.8	70.5	71.5	70.1	69.7	72.0	71.3	72.5	72.3	72.1
A SCALE (20-20K)		59.5	64.0	64.4	65.2	66.2	63.6	62.9	66.1	63.5	64.8	63.5	62.7
PNL - - - -		72.8	76.7	77.9	79.9	79.2	77.0	76.5	79.2	77.5	78.0	77.2	76.0
PNLTC - - - -		73.6	79.1	78.8	81.1	83.4	79.3	77.3	83.0	79.6	79.6	79.0	78.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **

CONFIGURATION 8 * INLET A*B * SAME AS CONFIG 7 BUT WITH TUBES REMOVED

RUN 49 POINT A ** 105 S4P ** 100 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT.

12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	45.8	46.7	44.7	45.9	48.0	48.0	46.7	46.7	47.5	49.2	52.1	53.8
25.0	0.0	53.5	57.2	56.9	55.8	57.0	59.1	57.4	57.7	54.6	58.2	57.4	59.5
31.5	0.0	53.0	54.2	53.5	54.2	52.9	54.1	54.1	54.6	55.9	57.6	57.4	59.5
40.0	0.0	55.8	56.8	55.8	56.6	55.7	59.3	58.0	59.2	60.1	61.0	63.6	63.8
50.0	.1	57.8	57.5	55.9	57.4	57.0	59.6	58.6	59.0	59.8	62.6	64.8	66.3
63.0	.1	60.0	59.6	58.1	58.5	59.1	60.2	59.7	60.3	61.4	64.0	66.2	68.1
80.0	.1	60.5	60.3	59.9	60.5	60.8	61.6	61.5	61.4	63.8	65.3	69.3	70.3
100.0	.2	63.7	63.6	63.8	63.6	65.2	65.9	65.4	65.3	66.5	67.7	70.0	71.5
125.0	.2	62.4	62.1	63.3	63.5	64.4	64.7	64.8	66.0	66.4	67.5	69.1	70.7
160.0	.3	63.2	61.7	62.3	63.9	64.9	65.0	65.8	66.7	68.2	67.6	69.5	69.6
200.0	.3	61.9	61.4	64.1	65.6	64.1	64.8	66.8	66.9	68.3	68.8	69.3	68.5
250.0	.4	60.9	61.1	63.0	62.1	63.9	63.6	64.4	65.6	67.0	67.4	68.1	65.8
315.0	.6	58.2	61.7	62.5	61.5	62.7	61.4	62.4	63.7	64.4	65.2	65.6	62.9
400.0	.7	54.9	58.8	59.7	58.7	59.3	58.2	61.4	61.5	61.7	63.3	61.9	60.3
500.0	.9	49.4	53.6	55.1	54.3	53.6	53.2	57.1	58.2	58.2	58.6	56.2	56.6
630.0	1.1	50.9	56.0	56.3	51.8	53.0	55.9	61.2	58.5	61.0	53.2	53.1	52.3
800.0	1.4	48.2	53.1	53.1	49.9	52.7	55.0	58.4	56.1	59.1	54.0	53.5	49.8
1000.0	1.8	47.9	48.9	51.4	51.3	54.9	56.1	57.9	56.3	58.3	56.1	56.6	50.6
1250.0	2.2	45.9	49.9	53.2	53.8	54.9	56.3	57.3	58.6	58.5	59.3	57.1	51.5
1600.0	2.9	44.6	49.3	52.5	53.5	52.0	55.8	56.6	58.5	57.8	57.8	55.6	51.9
2000.0	3.6	44.4	48.4	50.0	50.5	49.6	49.4	53.4	52.7	50.2	52.3	50.2	50.0
2500.0	4.6	43.9	48.8	48.8	48.4	48.7	50.7	49.8	51.5	52.8	52.3	50.9	49.4
3150.0	5.9	44.3	50.7	50.5	50.1	50.1	50.9	51.9	52.5	53.4	53.6	50.7	50.8
4000.0	7.6	43.4	50.1	50.1	51.8	52.3	52.4	52.8	53.7	52.2	52.2	50.0	49.8
5000.0	8.6	36.6	43.9	46.3	46.7	49.1	48.8	50.3	51.6	51.8	51.5	48.3	46.1
6300.0	11.1	31.6	37.8	43.3	43.7	47.8	46.2	47.4	48.7	50.4	46.9	45.1	39.6
8000.0	14.9	36.7	39.6	43.8	43.3	47.3	46.0	46.6	49.2	51.2	47.4	44.9	42.7
10000.0	20.4	43.8	49.0	44.9	50.8	55.1	48.6	48.9	54.6	54.8	48.6	45.8	47.2
12500.0	29.0	37.4	43.7	40.7	42.1	45.6	43.7	44.3	51.0	55.2	49.9	43.3	43.7
16000.0	42.8	33.8	34.1	37.0	34.0	37.2	35.9	39.7	47.6	54.4	48.4	42.5	41.6
20000.0	56.0	29.1	34.7	33.9	34.6	35.4	41.2	37.2	42.2	49.4	44.6	39.0	39.0
OVERALL (50-10K)		71.2	71.6	72.4	72.7	73.4	73.7	74.6	75.1	76.3	76.8	78.2	78.6
OVER (20-20K)		71.5	72.0	72.7	72.9	73.6	74.1	74.8	75.4	76.5	77.1	78.4	78.9
A SCALE (20-20K)		60.8	63.8	65.0	64.8	65.7	66.2	67.9	68.4	69.4	68.9	68.1	66.4
PNL - - - -		74.1	77.4	78.2	78.7	79.6	79.8	80.9	81.8	82.5	82.2	81.9	80.9
PNLTC - - - -		74.1	77.4	78.2	79.8	79.6	79.8	82.0	81.8	82.5	82.2	81.9	80.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 22
 CONFIGURATION B * INLET A*B * SAME AS CONFIG 7 BUT WITH TUBES REMOVED
 RUN 50 POINT C ** 677 SHP ** 100 PERCENT RPM ** T4.1 LIMITED

12 MICROPHONES

100.0FT.

12 MICROPHONES

100.0FT.

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	49.6	49.9	49.9	50.8	50.4	50.6	47.8	50.6	50.3	54.3	55.0	58.7
25.0	0.0	55.6	55.0	56.4	57.5	56.6	57.5	57.1	58.3	55.7	60.4	62.8	65.1
31.5	0.0	58.0	57.4	58.5	57.3	56.7	57.3	57.2	56.4	58.4	60.6	62.8	65.1
40.0	0.0	61.4	60.7	60.1	60.1	61.4	61.1	60.9	60.6	61.2	65.2	68.2	70.2
50.0	0.1	63.6	62.5	60.9	62.5	63.6	63.7	62.6	62.9	64.3	67.8	70.2	71.8
63.0	0.1	64.5	63.1	62.6	64.2	63.6	64.3	63.9	64.5	66.0	69.5	72.1	73.8
80.0	0.1	66.0	65.7	65.4	65.4	66.5	66.5	66.0	66.4	68.7	72.2	75.2	75.9
100.0	0.2	68.3	67.5	66.8	68.1	69.3	69.6	69.2	69.3	71.6	73.9	77.0	78.4
125.0	0.2	67.6	66.8	67.5	68.4	68.5	68.7	69.5	70.6	71.9	75.3	77.9	78.4
160.0	0.3	68.0	65.8	67.5	68.9	69.6	69.5	70.6	72.1	73.5	76.0	78.7	78.1
200.0	0.3	66.4	66.2	68.8	69.4	67.9	69.7	71.6	72.6	74.5	77.0	78.9	76.8
250.0	0.4	64.6	65.5	67.0	67.6	68.4	69.4	69.9	72.6	74.3	76.1	77.4	72.6
315.0	0.6	62.2	65.3	65.9	65.7	67.4	68.9	70.6	71.5	72.9	75.4	75.4	69.7
400.0	0.7	59.6	63.5	64.5	63.9	65.3	65.5	70.1	70.2	70.7	73.3	72.9	67.8
500.0	0.9	56.0	60.2	62.4	61.1	60.9	62.0	66.6	68.0	67.4	70.1	67.6	64.1
630.0	1.1	55.3	58.3	59.7	58.3	54.3	58.5	64.3	64.9	64.9	64.5	60.5	59.7
800.0	1.4	53.7	54.6	55.2	55.8	59.5	60.8	60.7	61.9	63.9	63.9	61.8	58.3
1000.0	1.8	53.4	53.4	56.4	56.7	64.6	66.1	61.6	66.0	68.5	69.4	65.7	58.8
1250.0	2.2	52.1	56.4	57.9	61.3	63.8	65.5	66.7	68.5	68.8	70.7	66.9	59.7
1600.0	2.9	53.3	57.4	62.2	62.9	61.4	66.6	67.9	69.3	68.7	69.7	66.0	60.9
2000.0	3.6	50.0	55.6	58.9	59.9	59.4	60.4	64.9	63.6	63.9	64.4	60.6	58.1
2500.0	4.6	49.1	53.0	54.5	54.9	56.8	58.4	58.6	60.6	61.6	61.6	60.2	56.4
3150.0	5.9	48.4	54.8	56.5	57.4	58.6	59.9	58.6	62.4	63.2	63.9	60.8	56.9
4000.0	7.6	47.4	52.8	54.1	55.6	56.3	57.3	58.6	60.0	60.0	60.1	57.8	55.3
5000.0	8.6	41.2	49.3	52.6	54.7	56.1	57.2	58.9	61.3	60.7	61.5	58.0	52.5
6300.0	11.1	35.6	41.7	48.7	50.7	53.1	53.7	56.2	56.7	57.8	56.4	53.8	46.0
8000.0	14.9	39.6	41.0	47.4	49.2	51.4	52.9	54.9	55.5	56.1	55.8	53.4	46.6
10000.0	20.4	43.6	49.2	48.4	51.4	52.3	51.7	55.0	54.1	55.2	54.0	51.0	49.7
12500.0	29.0	39.4	45.0	43.9	45.4	47.7	48.2	49.9	51.9	52.5	51.2	47.8	46.9
16000.0	42.8	33.6	38.6	38.5	40.5	43.1	44.5	46.2	50.0	51.1	48.5	46.8	44.9
20000.0	56.0	32.9	36.3	37.0	38.1	40.2	41.7	43.3	46.6	47.7	45.7	44.2	43.4
OVERALL (50-10K)		76.0	76.0	77.0	77.7	78.3	79.3	80.5	81.6	82.9	85.2	86.6	85.7
OVERALL (20-20K)		76.2	76.2	77.2	77.9	78.5	79.4	80.6	81.7	83.0	85.3	86.7	85.9
A SCALE (20-20K)		65.7	68.3	70.8	71.2	72.4	74.3	75.8	77.1	77.7	79.2	77.7	73.9
PNL - - - -		79.1	81.9	84.1	84.9	85.8	87.6	89.2	90.4	90.8	92.2	91.6	88.9
PNLTC - - - -		79.1	81.9	84.1	84.9	85.8	88.8	90.2	91.5	90.8	93.2	91.6	88.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 22
 CONFIGURATION 8 * INLET A08 * SAME AS CONFIG 7 BUT WITH TUBES REMOVED
 RUN 51 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT.		12 MICROPHONES											
FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.	180 DEG.	195 DEG.
20.0	0.0	50.6	50.8	52.0	49.3	49.1	49.5	52.9	50.7	52.2	53.7	54.7	55.9
25.0	0.0	50.1	51.3	51.6	51.7	53.1	52.2	54.1	54.3	55.3	55.6	57.0	56.6
31.5	0.0	54.3	54.0	53.5	52.0	53.5	53.3	54.1	54.3	54.4	55.1	55.6	56.3
40.0	0.0	58.3	58.9	57.7	56.9	57.6	58.5	59.0	58.8	58.7	58.6	59.5	58.5
50.0	.1	62.1	61.5	60.5	60.7	61.3	61.6	62.6	60.7	60.4	61.5	62.6	62.9
63.0	.1	61.9	61.3	60.9	61.7	61.3	60.7	59.0	58.6	60.5	62.3	63.2	62.8
80.0	.1	61.1	61.7	60.9	60.8	61.3	60.8	59.6	59.5	60.9	62.0	64.6	63.9
100.0	.2	64.4	64.3	62.9	62.9	64.2	64.1	62.9	63.9	64.7	64.6	66.2	64.8
125.0	.2	64.0	62.9	62.7	65.1	64.8	64.8	65.2	65.9	65.5	66.2	67.4	64.3
160.0	.3	65.0	65.6	66.1	70.0	72.3	73.2	74.0	76.4	77.1	74.3	79.5	70.1
200.0	.3	66.2	66.8	70.6	73.5	75.3	76.8	77.0	79.3	79.3	78.2	79.5	72.3
250.0	.4	68.5	68.9	68.8	61.0	62.2	62.7	63.1	64.8	66.3	66.6	67.0	61.1
315.0	.6	57.1	60.4	61.2	60.2	61.1	60.5	61.6	62.4	63.2	64.4	64.2	57.1
400.0	.7	55.4	59.4	60.0	58.9	54.1	57.2	61.2	60.3	60.8	62.0	60.8	56.9
500.0	.9	48.9	54.7	54.9	54.2	54.9	52.7	57.5	56.7	56.2	57.5	55.7	52.9
630.0	1.1	44.8	50.7	48.1	48.3	51.5	47.8	52.8	52.6	50.7	52.0	52.7	49.9
800.0	1.4	45.0	45.8	45.9	46.3	50.7	50.6	48.4	50.7	52.2	51.8	49.4	45.2
1000.0	1.8	48.0	48.2	50.9	50.0	54.1	54.4	51.8	54.3	56.5	55.8	51.2	46.7
1250.0	2.2	45.4	48.2	50.3	50.4	51.7	53.2	55.2	55.8	56.1	56.5	51.7	45.6
1600.0	2.9	42.9	46.6	49.2	50.3	47.6	52.0	54.4	55.2	54.7	54.4	50.4	44.9
2000.0	3.6	41.6	45.6	45.6	47.7	47.2	46.7	50.6	48.6	49.4	48.9	46.9	44.0
2500.0	4.6	42.2	44.8	45.1	44.6	48.0	49.0	48.2	49.7	50.8	49.0	47.7	44.4
3150.0	5.9	42.3	49.0	47.8	47.6	47.6	48.7	50.0	50.3	50.5	49.9	47.8	44.2
4000.0	7.6	44.6	50.8	50.4	51.6	53.0	51.3	52.0	51.0	52.0	51.6	51.0	48.9
5000.0	8.6	39.4	46.6	46.0	50.2	51.3	50.3	52.2	50.4	50.8	50.7	47.8	43.8
6300.0	11.1	40.4	38.4	44.0	45.7	48.3	46.6	48.1	48.2	49.3	46.5	45.3	37.4
8000.0	14.9	43.0	43.7	47.9	49.3	51.4	51.5	51.8	51.3	51.5	49.7	46.9	43.7
10000.0	20.4	43.5	44.4	45.9	47.2	49.0	47.8	49.0	50.9	51.6	48.9	45.7	43.5
12500.0	29.0	35.6	39.7	39.2	41.5	42.4	41.5	44.1	48.3	50.1	47.2	41.1	38.9
16000.0	42.8	38.0	37.8	39.3	41.2	43.8	43.1	44.2	46.2	48.6	46.0	42.8	38.6
20000.0	56.0	32.8	34.7	36.3	38.4	39.9	40.2	42.8	46.2	48.3	45.5	40.0	37.2
OVERALL (50-10K)		72.8	73.2	74.8	76.7	78.2	79.2	79.6	81.7	81.9	80.7	81.8	78.3
OVERALL (20-20K)		73.0	73.5	74.9	76.7	78.3	79.3	79.7	81.7	82.0	80.7	81.9	76.5
A SCALE (20-20K)		61.1	63.4	64.9	66.3	67.9	68.6	67.4	71.1	71.3	70.4	70.8	64.8
PWL - - -		75.8	77.7	79.9	81.8	83.3	83.9	84.6	86.1	86.3	85.5	85.7	80.0
PWLTC - - -		77.1	78.7	80.9	83.1	84.6	85.4	86.0	87.5	87.6	86.8	87.1	81.3

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 22
 CONFIGURATION ** INLET A+B ** SAME AS CONFIG 7 BUT WITH TUBES REMOVED
 RUN 52 POINT 3 ** 175 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
	ATMOS. CORR.	1	2	3	4	5	6	7	8	9	10	11
20.0	0.0	50.5	51.3	51.8	50.2	49.9	48.3	52.7	52.2	52.8	53.1	55.5
25.0	0.0	52.6	52.1	52.1	51.7	52.7	53.5	53.7	54.2	55.2	55.4	56.2
31.5	0.0	57.2	55.1	54.0	53.2	52.8	53.8	54.5	54.1	55.2	55.4	56.2
40.0	0.0	56.7	55.8	53.4	54.6	54.9	56.4	57.0	57.6	57.9	59.3	59.1
50.0	.1	59.2	57.0	55.8	56.4	57.9	58.5	58.8	59.2	58.8	60.2	59.0
63.0	.1	60.4	58.8	58.0	58.3	58.4	59.3	58.4	59.2	60.1	61.3	61.0
80.0	.1	60.5	59.5	59.4	59.1	60.7	60.0	59.5	60.3	61.4	63.3	61.4
100.0	.2	64.1	63.0	62.4	62.3	63.3	64.3	64.0	64.7	65.2	65.1	66.4
125.0	.2	63.6	62.1	62.3	62.5	63.2	62.9	64.4	64.7	64.6	65.1	66.4
160.0	.3	65.4	62.0	63.4	63.5	65.6	64.9	64.2	66.9	67.3	67.4	69.1
200.0	.3	60.0	58.4	61.2	61.2	62.5	62.0	62.8	63.8	65.9	66.6	68.7
250.0	.4	57.6	56.9	59.3	59.3	60.2	59.7	60.5	62.2	63.2	63.7	62.4
315.0	.6	57.0	60.0	60.6	59.6	60.6	59.6	61.3	61.6	61.9	62.8	61.6
400.0	.7	55.2	58.8	59.8	58.9	58.7	56.3	59.9	59.0	58.6	60.1	57.8
500.0	.9	50.1	54.4	55.4	53.4	55.6	54.0	56.5	57.5	54.7	54.6	53.9
630.0	1.1	45.3	51.0	50.3	47.3	52.9	50.5	52.7	55.1	50.8	50.3	51.7
800.0	1.4	44.9	46.0	45.2	45.3	47.9	48.1	48.2	50.4	51.9	52.1	49.6
1000.0	1.8	47.7	48.1	45.3	49.6	52.8	52.3	51.2	53.3	55.7	55.0	51.2
1250.0	2.2	45.5	48.5	49.7	50.2	52.0	52.2	53.8	54.4	54.4	54.5	50.3
1600.0	2.9	43.8	47.1	48.0	50.4	49.1	52.8	53.1	53.9	51.7	51.1	48.9
2000.0	3.6	41.5	46.1	45.8	47.4	47.5	47.1	49.2	47.5	48.2	46.3	46.7
2500.0	4.6	41.8	46.7	45.5	46.8	47.7	48.5	47.9	49.0	50.9	48.6	46.9
3150.0	5.9	43.1	48.6	48.7	48.1	48.9	49.2	49.5	49.3	49.6	47.7	44.6
4000.0	7.6	44.9	43.9	50.3	51.7	53.8	52.9	51.4	52.2	51.4	52.4	47.3
5000.0	8.6	39.3	44.0	47.4	49.3	52.3	50.7	50.5	50.6	50.8	48.7	47.7
6300.0	11.1	33.7	37.9	44.5	45.9	48.6	47.8	47.6	47.2	48.5	45.6	45.0
8000.0	14.9	43.1	44.0	47.9	50.4	51.8	51.6	51.9	51.3	51.1	49.2	48.6
10000.0	20.4	43.8	45.5	46.9	49.3	50.9	50.4	50.2	49.8	50.4	47.8	42.4
12500.0	29.0	44.2	39.8	39.5	41.4	42.3	41.6	42.4	45.0	47.0	43.4	39.7
16000.0	42.8	38.5	34.4	39.5	42.1	44.4	43.4	43.4	43.6	45.1	42.5	36.1
20000.0	56.0	33.0	34.9	35.9	37.6	39.4	39.1	39.8	41.1	43.0	40.1	37.3
OVERALL (50-10K)		71.5	70.5	71.1	71.2	72.2	72.0	72.5	73.8	74.0	74.5	75.0
OVERALL (20-20K)		71.9	70.9	71.4	71.5	72.4	72.3	72.8	73.7	74.3	74.8	75.2
A SCALE (20-20K)		60.1	62.1	63.1	63.2	64.5	64.1	64.9	65.6	65.7	65.6	64.6
PNL - - -		74.3	76.2	77.1	77.8	79.5	78.9	78.9	79.6	79.5	79.5	79.1
PNLTC - - -		75.5	76.2	77.1	78.8	80.5	80.0	78.9	79.6	79.5	80.9	80.3
												76.1

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM ** DATA HAS BEEN CONNECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 22
 CONFIGURATION 0 ** INLET A+B ** SAME AS CONFIG 7 BUT WITH TUBES REMOVED
 RUN 53 POINT I ** 105 SHP ** 70 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	46.8	49.0	52.3	47.7	47.8	50.6	51.8	50.2	50.5	52.6	54.0	55.1
25.0	0.0	49.4	53.0	55.0	49.2	50.0	52.7	53.1	53.4	55.3	57.2	57.2	58.9
31.5	0.0	53.8	54.5	54.0	52.5	51.8	53.4	53.0	53.5	53.7	55.2	56.2	56.3
40.0	0.0	59.4	59.5	57.7	58.2	57.5	58.8	57.5	57.9	56.8	57.4	57.1	57.1
50.0	.1	65.2	65.7	63.0	64.9	64.9	65.2	65.0	64.0	61.8	62.8	63.6	63.7
63.0	.1	67.1	64.9	64.6	66.0	66.2	65.6	63.5	62.8	62.8	64.3	64.5	64.6
80.0	.1	62.3	61.6	62.4	61.8	62.7	61.2	61.0	61.3	63.0	64.1	65.6	64.7
100.0	.2	64.4	63.6	63.4	64.5	64.7	65.0	64.7	65.9	66.8	66.0	67.2	65.2
125.0	.2	63.2	65.2	65.7	68.2	68.0	70.1	70.9	71.8	71.4	70.6	71.0	66.8
160.0	.3	65.9	72.9	73.1	75.8	76.0	79.3	80.9	81.1	81.1	78.2	78.0	71.9
200.0	.3	59.7	60.3	62.5	64.2	64.2	64.9	65.5	67.0	68.2	68.2	67.7	62.6
250.0	.4	57.5	58.0	59.8	60.1	61.2	61.0	61.6	63.4	64.9	65.3	64.5	59.0
315.0	.6	55.6	58.7	58.8	58.4	59.1	59.6	60.7	62.0	63.2	63.0	61.6	55.6
400.0	.7	54.3	57.3	58.5	57.6	57.8	55.9	58.5	57.7	57.2	59.5	58.1	55.0
500.0	.9	53.3	59.1	55.0	56.2	56.1	58.0	56.8	63.0	55.9	58.2	54.6	54.1
630.0	1.1	46.6	50.3	49.5	46.8	48.0	49.0	51.4	51.5	51.0	52.5	50.0	49.7
800.0	1.4	48.4	48.7	47.6	47.5	50.7	49.9	50.7	51.5	54.5	54.9	48.4	48.6
1000.0	1.8	49.1	49.8	49.9	49.8	53.7	53.2	53.0	54.0	56.9	56.8	50.1	48.0
1250.0	2.2	46.4	43.4	48.7	49.4	51.6	52.6	54.1	53.9	53.5	55.2	49.7	45.8
1600.0	2.9	43.3	45.9	47.7	49.2	47.6	49.7	51.0	51.5	48.1	50.9	47.6	45.0
2000.0	3.6	40.9	43.4	44.9	46.0	46.9	44.3	46.2	45.8	49.7	46.5	45.4	44.1
2500.0	4.6	41.8	44.0	44.9	45.4	45.7	46.7	48.0	48.0	48.7	48.5	45.3	44.1
3150.0	5.9	41.1	45.9	45.8	45.7	46.3	46.5	46.5	46.8	47.4	47.2	45.9	45.6
4000.0	7.6	41.2	45.3	46.0	47.4	48.3	43.1	47.5	48.5	48.8	48.2	47.3	46.3
5000.0	8.6	36.5	42.8	45.1	46.1	48.3	47.7	47.8	49.6	49.5	47.9	46.0	43.7
6300.0	11.1	32.2	36.4	42.3	44.8	45.9	45.7	46.2	46.6	46.6	45.0	44.1	37.9
8000.0	14.9	42.8	42.4	46.3	49.7	50.3	49.6	49.1	48.8	48.7	49.4	48.3	45.3
10000.0	20.4	39.1	40.8	41.7	43.7	45.3	44.8	45.7	46.5	46.1	44.1	42.5	42.0
12500.0	27.0	33.8	37.9	37.0	38.3	39.5	39.2	40.6	42.4	42.7	40.7	38.2	38.7
16000.0	42.8	36.1	41.6	40.1	41.6	43.9	43.8	44.5	45.3	46.3	43.0	42.0	38.8
20000.0	56.0	30.5	36.2	36.4	37.7	38.1	39.4	40.3	41.2	43.1	41.2	38.4	36.5
OVERALL(50-10K)		73.3	75.8	75.8	77.9	78.2	80.6	80.9	82.0	82.2	80.2	80.1	75.5
OVERALL(20-20K)		73.6	75.9	76.0	78.0	78.3	80.6	81.0	82.1	82.3	80.2	80.1	75.7
A SCALE(20-20K)		60.2	63.9	64.0	65.6	66.9	68.0	68.5	69.9	69.9	68.6	67.5	62.9
PNL - - - -		74.6	79.0	79.5	81.4	82.2	83.7	84.1	85.2	85.4	84.0	83.1	78.5
PNLTC - - - -		75.7	80.8	81.0	83.0	85.5	85.6	86.1	88.0	87.3	85.5	84.5	79.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OF 20

CONFIGURATION 9 ** INLET A** * SECTION 12 REMOVED FROM TAILPIPE

RUN 54 POINT F ** 105 SHP ** 80 PERCENT RPM ** T4.1 LIMITED

12 MICROPHONES

12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	48.5	48.5	51.1	49.5	49.7	50.9	52.6	52.7	52.1	53.7	56.1	55.6
25.0	0.0	50.4	50.4	51.6	52.2	52.7	53.1	53.3	54.7	55.6	56.0	56.1	56.8
31.5	0.0	53.7	55.1	53.8	54.5	53.4	53.9	54.7	54.1	55.3	55.5	55.8	57.6
40.0	0.0	59.4	59.3	58.0	58.3	58.5	59.8	60.6	60.4	62.3	60.1	59.1	59.2
50.0	.1	63.5	63.4	60.9	61.6	62.5	64.2	63.7	62.8	62.3	63.8	63.3	63.9
63.0	.1	64.0	64.7	64.2	64.9	63.3	64.1	62.7	62.3	63.6	65.2	65.7	65.8
80.0	.1	63.5	62.9	62.8	62.1	61.9	60.3	60.3	59.6	61.4	63.6	65.0	65.5
100.0	.2	65.5	65.2	64.5	64.9	65.3	65.1	64.9	65.7	65.6	66.5	67.4	65.6
125.0	.2	63.9	63.9	64.2	65.4	65.0	65.6	66.6	67.2	66.6	67.8	67.4	66.6
160.0	.3	67.5	67.2	70.1	72.5	75.1	75.7	77.4	79.5	79.7	77.6	79.2	79.8
200.0	.3	68.1	68.1	72.5	74.6	77.2	77.9	78.3	81.3	81.1	79.5	81.8	73.7
250.0	.4	59.1	59.6	62.2	62.3	63.0	62.3	63.5	65.7	67.5	67.6	61.8	60.1
315.0	.6	57.2	60.4	61.4	60.4	61.6	59.6	62.0	62.9	64.3	65.1	65.2	57.2
400.0	.7	55.5	59.1	60.2	59.4	58.8	55.4	61.2	60.6	60.8	62.3	61.8	57.1
500.0	.9	50.7	55.3	55.9	54.9	53.8	52.8	58.3	58.0	56.7	58.0	55.8	52.7
630.0	1.1	46.0	52.1	50.7	49.8	47.5	49.1	54.0	51.8	50.8	50.8	51.3	47.8
800.0	1.4	44.2	45.4	45.9	47.1	49.4	51.1	48.9	51.2	54.6	55.0	50.6	45.8
1000.0	1.8	46.7	47.6	48.4	50.0	53.7	52.6	53.4	55.4	58.4	58.6	53.4	46.1
1250.0	2.2	45.3	47.5	48.8	49.9	52.1	53.0	54.8	56.5	57.2	58.7	51.2	45.4
1600.0	2.9	43.9	47.2	48.9	50.1	49.0	51.9	54.7	55.9	54.9	55.3	48.3	45.4
2000.0	3.6	41.9	47.0	47.6	48.1	47.6	47.1	49.9	48.8	49.7	49.0	46.8	43.6
2500.0	4.6	42.4	45.3	45.3	46.8	47.1	49.2	49.2	50.5	52.7	51.5	46.9	43.6
3150.0	5.9	43.0	49.5	47.7	48.5	48.5	49.5	49.5	49.7	50.3	50.4	47.0	45.9
4000.0	7.6	44.3	50.4	48.8	50.2	52.8	52.8	50.4	51.6	52.1	52.3	51.0	48.3
5000.0	8.6	39.4	46.3	47.9	49.7	50.6	49.8	49.7	50.7	52.2	50.9	47.9	43.1
6300.0	11.1	34.3	38.0	43.5	45.1	47.8	47.6	47.3	48.4	50.6	48.6	44.9	37.2
8000.0	14.9	42.9	44.8	49.0	50.2	51.0	51.7	50.3	51.4	52.6	51.2	48.3	42.9
10000.0	20.4	43.8	44.4	45.9	47.9	49.0	48.3	49.3	51.2	52.7	51.0	46.2	43.0
12500.0	29.0	37.5	40.8	39.4	41.3	42.1	42.5	44.8	50.4	52.2	50.9	41.6	39.8
16000.0	42.8	38.7	38.7	41.4	41.7	44.0	43.9	45.0	48.2	51.3	49.7	44.0	38.8
20000.0	56.0	33.1	36.1	38.0	38.6	40.0	41.1	44.1	49.0	51.7	49.5	41.0	38.3
OVERALL (50-10K)		74.6	74.5	76.5	78.1	80.1	80.7	81.6	83.9	84.0	82.5	84.3	77.8
OVERALL (20-20K)		74.8	74.7	76.6	78.2	80.2	80.7	81.6	84.0	84.0	82.6	84.3	78.0
A SCALE (20-20K)		62.1	63.9	66.0	67.2	69.2	69.6	70.6	72.9	73.1	72.0	73.0	65.8
PNL - - - -		77.0	78.6	81.2	82.6	84.3	84.6	85.5	87.5	87.8	87.0	87.3	80.9
PNLTC - - - -		78.1	79.4	82.2	83.8	85.7	86.3	86.8	89.0	89.1	88.1	88.7	82.1

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 23

CONFIGURATION 9 ** INLET A+B ** SECTION 12 REMOVED FROM TAILPIPE

RUN 55 POINT 6 ** 175 SHP ** 80 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT.

12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	49.4	49.1	50.3	50.5	50.8	50.0	53.0	51.3	53.4	53.9	54.6	54.5
25.0	0.0	51.4	50.9	50.6	50.4	52.4	52.1	52.3	53.2	54.9	56.3	55.8	56.6
31.5	0.0	53.7	53.4	52.6	52.0	52.6	53.0	53.4	52.8	54.3	55.2	56.3	56.7
40.0	0.0	55.6	55.3	55.0	54.6	54.6	55.9	56.5	56.6	57.1	57.8	58.1	57.3
50.0	.1	57.9	57.3	55.9	57.1	57.0	58.9	57.8	58.0	58.4	59.3	60.3	60.4
63.0	.1	61.7	59.8	59.3	60.0	59.9	61.1	60.4	61.1	61.3	62.2	63.0	62.0
80.0	.1	60.1	59.3	59.5	60.1	61.0	59.9	59.9	60.4	61.4	62.6	64.7	63.6
100.0	.2	63.7	63.4	62.4	63.0	64.0	64.9	64.0	65.0	64.3	65.2	67.1	64.5
125.0	.2	62.8	61.8	61.6	62.6	62.7	63.6	63.4	64.4	64.7	65.0	66.7	62.7
160.0	.3	62.6	61.1	61.1	61.8	63.9	63.7	63.4	65.8	66.2	66.4	68.1	63.3
200.0	.3	59.0	58.6	61.4	62.3	61.2	62.0	62.3	64.4	65.9	66.8	66.4	60.2
250.0	.4	57.9	57.1	59.8	59.2	60.3	59.4	60.0	62.3	63.1	63.8	64.4	57.0
315.0	.6	57.1	57.1	59.4	58.5	59.8	57.9	60.5	60.8	61.8	63.0	63.0	56.0
400.0	.7	55.4	58.1	59.2	57.9	57.1	54.0	60.1	58.7	58.6	59.8	60.4	55.9
500.0	.9	50.9	54.3	55.0	53.4	53.0	51.9	56.4	56.8	54.5	54.5	54.3	53.4
630.0	1.1	46.6	50.4	49.1	47.5	48.3	48.2	52.3	54.1	52.5	52.2	50.4	48.5
800.0	1.4	44.3	45.7	45.7	46.3	49.0	49.4	47.4	50.8	54.1	55.0	50.0	45.0
1000.0	1.8	47.3	49.7	50.6	51.1	53.3	53.0	51.9	54.2	56.9	57.3	52.8	46.8
1250.0	2.2	45.3	48.9	49.4	50.3	51.6	51.7	52.8	54.5	54.5	55.8	51.9	45.0
1600.0	2.9	44.3	44.1	46.4	49.9	48.2	50.9	52.9	53.2	50.1	50.1	48.5	44.1
2000.0	3.6	42.1	46.1	46.3	47.1	47.0	46.6	48.4	46.8	49.0	48.5	47.5	42.3
2500.0	4.6	42.7	45.1	44.8	46.7	48.1	49.0	48.7	49.4	51.2	50.3	48.1	42.4
3150.0	5.9	43.1	47.1	47.4	49.1	48.9	49.2	48.6	49.9	49.2	49.2	48.1	45.0
4000.0	7.6	45.4	51.7	49.7	52.2	52.9	53.4	51.1	50.2	51.1	51.5	51.7	46.9
5000.0	8.6	39.7	46.1	48.6	50.0	52.3	50.3	49.6	51.0	51.3	50.7	49.1	41.7
6300.0	11.1	34.0	38.0	44.6	46.9	48.5	48.1	47.3	47.5	48.8	46.4	45.5	35.5
8000.0	14.9	43.4	44.7	48.1	50.3	51.8	51.3	51.1	50.5	50.8	50.9	49.5	41.7
10000.0	20.4	44.5	45.5	47.2	47.9	50.3	50.3	49.6	49.6	50.1	49.9	47.4	36.3
12500.0	29.0	36.4	39.8	39.4	41.3	42.4	41.9	42.3	46.4	47.6	46.2	40.4	35.7
16000.0	42.8	38.0	37.6	40.0	40.5	42.7	43.4	43.6	43.5	45.4	45.0	40.3	35.7
20000.0	56.0	32.9	34.0	35.5	36.7	37.7	38.5	39.1	41.3	43.3	43.0	37.8	33.1
OVERALL (50-10K)		70.8	70.3	70.8	71.1	71.8	72.0	72.1	73.3	73.8	74.4	75.3	71.7
OVERALL (20-20K)		71.1	70.6	71.0	71.3	72.0	72.2	72.4	73.5	74.0	74.7	75.5	72.2
A SCALE (20-20K)		59.8	62.1	62.8	63.1	63.9	63.6	64.5	65.2	65.8	66.3	65.4	60.2
PNL - - - -		73.4	76.8	76.7	78.0	78.8	78.9	78.5	78.8	79.5	79.9	79.3	74.2
PNLIC - - - -		74.7	74.2	77.8	78.0	78.8	80.1	78.5	78.8	79.5	79.9	80.4	75.4

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 24
 CONFIGURATION 10 * INLET A-8 * SOLID LINER IN SECTION 16, NO SECTION 12
 RUN 56 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	55.3	54.7	54.9	55.6	56.5	58.0	57.9	58.2	59.2	61.2	61.0	61.8
25.0	0.0	58.9	59.8	58.5	60.5	61.1	61.7	62.2	63.0	63.1	64.7	64.9	65.8
31.5	0.0	56.7	58.4	56.5	58.4	58.0	58.2	59.3	60.0	61.4	61.9	62.3	63.8
40.0	0.0	56.9	56.8	56.8	57.6	57.9	57.6	59.3	60.1	62.1	62.9	62.6	62.3
50.0	.1	58.4	57.5	55.4	56.6	56.6	57.0	56.2	57.1	59.4	60.3	62.1	62.9
63.0	.1	61.0	60.6	58.7	60.0	59.1	58.5	57.8	58.3	59.4	60.3	63.5	63.3
80.0	.1	62.1	61.6	60.8	60.2	61.2	59.8	60.0	60.4	61.4	63.9	65.7	65.3
100.0	.2	63.3	62.5	62.0	62.4	63.3	62.2	62.1	61.6	63.7	65.7	67.0	66.5
125.0	.2	61.8	62.0	61.8	63.0	63.0	63.1	63.9	65.1	66.1	68.0	69.1	68.4
160.0	.3	66.9	66.3	69.0	70.9	72.4	74.1	76.2	78.8	79.9	78.1	78.8	75.1
200.0	.3	63.9	63.6	66.8	69.5	72.3	72.7	73.9	77.2	77.9	75.7	77.7	73.2
250.0	.4	59.7	58.2	60.7	60.9	62.5	61.9	62.5	64.7	66.2	67.4	66.8	61.4
315.0	.6	56.8	58.8	59.5	59.4	60.0	59.0	60.9	62.0	62.7	64.3	63.5	57.9
400.0	.7	55.8	58.6	59.6	59.5	59.7	58.0	61.5	60.6	60.7	62.2	61.8	57.3
500.0	.9	51.0	56.4	55.1	55.4	53.7	54.1	58.6	56.9	55.4	59.3	54.8	54.1
630.0	1.1	46.1	53.6	50.2	49.7	47.6	49.0	55.1	53.0	50.6	55.6	53.4	50.5
800.0	1.4	45.0	46.3	45.9	46.8	50.0	48.9	49.1	51.2	54.9	54.5	54.5	48.5
1000.0	1.8	47.6	48.9	50.3	50.3	53.7	53.5	52.2	55.1	58.7	59.1	56.5	48.3
1250.0	2.2	45.4	48.7	50.3	50.7	52.3	53.0	54.8	56.6	57.8	59.2	55.1	47.7
1600.0	2.9	43.5	48.6	49.8	50.6	49.9	53.6	55.7	56.4	55.1	57.3	51.3	46.7
2000.0	3.6	43.0	47.1	47.5	48.8	47.8	49.0	52.2	51.5	51.3	52.0	52.0	45.5
2500.0	4.6	43.1	46.2	47.0	48.1	48.5	49.9	50.0	50.3	54.0	53.6	53.6	46.3
3150.0	5.9	43.4	48.7	47.9	49.7	50.2	50.8	52.1	52.8	51.9	52.6	51.0	48.0
4000.0	7.6	46.5	51.9	49.9	54.2	56.1	55.1	55.5	55.0	53.6	53.5	52.0	46.7
5000.0	8.6	42.5	49.6	48.9	49.7	51.9	52.2	51.6	52.9	53.4	52.3	49.0	40.6
6300.0	11.1	36.6	43.9	45.0	47.3	49.5	50.6	50.5	51.0	52.4	52.3	49.0	40.6
8000.0	14.9	42.5	46.0	49.7	50.7	53.3	56.1	57.9	54.0	56.4	53.8	52.6	45.9
10000.0	20.4	44.1	47.4	48.0	48.5	50.5	51.8	53.0	52.5	54.9	54.1	50.2	44.6
12500.0	29.0	40.7	43.0	41.3	43.0	45.0	45.2	47.1	51.3	54.5	60.8	47.0	41.8
16000.0	42.8	40.3	42.8	42.0	44.0	46.0	46.7	48.1	51.5	53.9	54.0	46.8	42.3
20000.0	56.0	35.9	37.9	38.4	41.3	43.5	44.9	47.7	52.4	54.4	54.6	46.5	41.7
OVERALL (50-10K)		72.3	72.2	73.5	75.1	77.6	77.5	79.1	81.6	82.0	81.2	82.2	78.6
OVERALL (20-20K)		72.8	72.9	73.9	75.4	77.8	77.8	79.3	81.7	82.7	81.5	82.4	79.1
A SCALE (20-20K)		61.1	63.4	64.2	65.6	67.5	67.7	69.3	71.0	71.9	71.4	71.1	66.8
PNL - - -		75.5	78.0	78.5	80.2	82.2	82.6	84.1	85.6	86.5	86.0	86.0	81.5
PNLTC - - -		74.6	78.5	79.3	81.7	83.9	83.8	85.3	86.9	87.8	87.0	86.9	82.6

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON * DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 24
 CONFIGURATION 10 * INLET A/R * SOLID LINE IN SECTION 16, NO SECTION 12
 RUN 57 POINT 6 ** 175 SMP ** 80 PERCENT RPM ** TALL LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	52.2	52.9	53.3	52.0	56.1	55.8	55.9	56.6	56.8	58.6	58.8	57.6
25.0	0.0	54.7	54.4	55.7	55.0	57.5	58.5	57.7	59.4	59.6	61.8	62.6	61.1
31.5	0.0	54.1	54.3	55.7	52.9	54.6	55.0	55.6	55.1	56.1	57.0	58.0	56.1
40.0	0.0	54.6	54.6	53.6	55.7	56.7	58.1	59.8	59.6	59.4	60.0	59.6	58.5
50.0	.1	56.2	55.4	53.7	54.6	55.0	55.2	56.0	56.4	57.3	58.7	59.8	59.4
63.0	.1	59.0	58.1	55.4	56.5	57.6	57.1	57.4	57.9	59.0	60.7	62.3	61.8
80.0	.1	59.1	58.6	57.3	58.4	59.7	58.3	59.6	60.3	61.0	62.9	65.8	63.8
100.0	.2	61.0	60.6	59.8	61.1	62.3	62.1	61.4	61.3	63.0	63.6	67.0	64.1
125.0	.2	59.9	59.4	59.7	60.5	61.0	60.5	60.5	62.2	62.5	64.1	66.1	62.3
160.0	.3	61.4	58.7	59.0	61.9	64.3	63.1	62.6	64.7	65.3	67.1	67.3	62.6
200.0	.3	58.3	57.3	59.6	59.8	60.8	61.1	61.3	62.7	64.9	65.1	66.0	60.4
250.0	.4	58.4	57.2	58.9	59.2	61.0	60.5	60.1	62.8	63.2	64.1	64.3	57.1
315.0	.6	57.3	59.9	60.9	59.3	59.4	59.4	60.5	61.2	61.2	62.1	63.1	55.9
400.0	.7	54.9	59.4	60.3	59.4	59.3	56.8	60.7	59.5	58.5	60.3	59.7	56.2
500.0	.9	51.5	55.2	55.5	54.8	54.6	55.1	57.3	56.7	55.8	57.7	55.1	52.0
630.0	1.1	46.0	51.8	50.1	49.9	50.5	51.9	54.1	53.2	52.8	53.9	52.3	48.0
800.0	1.4	45.0	47.8	45.2	45.9	48.2	48.4	48.1	49.3	52.1	52.2	50.6	46.3
1000.0	1.8	47.9	48.8	49.8	49.2	52.8	52.1	51.3	53.6	55.8	55.8	53.4	48.1
1250.0	2.2	45.4	48.2	49.0	49.5	51.3	51.9	52.8	54.4	55.1	55.8	53.8	47.3
1600.0	2.9	44.3	49.8	48.7	50.0	50.2	52.9	54.3	54.4	54.2	53.6	50.0	45.8
2000.0	3.6	43.0	47.1	47.1	48.1	47.6	48.3	51.8	49.1	50.1	49.5	48.3	44.2
2500.0	4.6	43.5	46.2	47.3	48.1	47.5	49.1	49.7	49.8	52.9	51.6	49.5	44.7
3150.0	5.9	43.9	49.2	47.8	49.4	50.0	50.1	51.0	51.0	50.9	50.3	49.3	46.9
4000.0	7.6	46.4	49.5	49.2	53.9	56.9	54.7	54.9	54.5	53.6	53.1	53.2	49.9
5000.0	8.6	42.6	49.5	49.2	50.7	52.0	51.5	51.3	52.5	52.5	51.6	51.2	45.3
6300.0	11.1	36.2	43.9	45.2	47.9	52.0	51.5	49.9	50.5	51.3	52.0	47.7	39.2
8000.0	14.9	42.9	49.7	49.8	52.1	53.7	55.7	55.1	53.9	55.1	52.1	44.4	44.4
10000.0	20.4	45.2	46.7	49.3	50.1	52.1	52.8	52.4	51.9	54.2	49.5	43.2	43.2
12500.0	29.0	38.8	43.1	41.7	43.8	45.2	45.3	47.2	47.7	52.7	49.1	38.2	38.2
16000.0	42.8	39.2	41.8	44.9	45.0	46.2	47.1	49.4	48.4	52.2	49.2	38.2	38.2
20000.0	56.0	34.6	37.0	40.1	41.0	42.6	44.4	46.1	47.2	51.9	48.2	36.4	36.4
OVERHALL (50-10K)		69.2	69.4	69.6	70.2	71.4	71.0	71.4	72.3	73.1	74.1	75.1	71.5
JVEHALL (20-20K)		69.7	69.9	70.1	70.6	72.0	71.7	72.1	72.9	73.7	74.7	75.7	72.4
A SCALE (20-20K)		59.7	62.9	63.0	63.7	65.0	64.	65.7	65.9	66.6	66.6	65.8	60.9
PNL - - - -		73.6	77.3	76.6	78.7	80.5	79.8	80.3	80.4	80.7	80.6	80.3	75.8
PNLTC - - - -		74.6	78.0	76.6	80.0	82.5	81.1	81.5	80.4	80.7	80.6	80.9	77.1

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM ** DATA HAS BEEN CONNECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **
 CONFIGURATION 11 * INLET A+B * SECTIONS 12,15, AND ONE SECTION 13 REMOVED
 RUN 58 POINT F ** 105 SWP ** 80 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.	180 DEG.	195 DEG.
20.0	55.4	54.5	53.8	52.8	54.5	55.7	57.1	63.9	57.4	58.1	58.4	59.5	59.5
25.0	59.0	59.3	59.0	59.0	60.9	62.6	63.0	63.4	64.3	63.9	65.6	65.7	65.7
31.5	58.0	59.2	60.0	59.6	59.2	60.5	61.1	61.0	62.8	62.5	64.2	64.7	64.7
40.0	58.4	57.5	57.5	57.8	58.2	59.6	60.9	61.6	63.0	64.0	63.5	64.0	64.0
50.0	58.7	57.9	56.3	55.8	56.1	56.5	56.5	58.2	59.4	61.2	63.0	64.8	64.8
63.0	60.2	59.3	58.8	58.2	57.8	56.8	55.1	56.0	59.6	62.0	64.5	65.3	65.3
80.0	61.5	60.7	60.7	59.7	59.7	59.0	58.4	58.8	61.2	63.7	65.5	66.1	66.1
100.0	64.8	64.0	63.0	63.8	64.4	64.0	63.8	63.9	65.1	66.6	67.9	68.0	68.0
125.0	64.2	62.9	63.9	64.5	64.9	65.0	64.5	67.3	67.4	68.8	69.4	69.8	69.8
160.0	65.3	65.7	68.5	70.6	75.0	74.4	76.9	79.8	80.4	78.0	77.7	72.6	72.6
200.0	61.4	63.7	66.6	69.5	72.1	73.3	75.1	77.7	78.7	78.5	76.5	70.8	70.8
250.0	58.9	58.5	62.2	61.8	61.9	61.5	60.1	65.3	66.4	67.7	67.9	63.1	63.1
315.0	58.1	59.5	61.1	60.6	61.1	61.7	63.1	63.8	64.8	64.3	65.6	61.5	61.5
400.0	56.8	59.3	60.5	60.0	60.7	59.6	62.8	62.1	63.0	63.0	63.4	60.6	60.6
500.0	52.3	56.7	57.7	56.9	56.3	57.1	58.9	58.2	57.1	59.9	59.1	55.3	55.3
630.0	48.6	54.0	52.9	51.9	51.7	53.5	56.4	56.4	52.4	55.7	54.5	50.6	50.6
800.0	44.3	47.1	47.7	46.2	46.5	47.6	48.7	49.7	51.4	51.1	50.4	48.2	48.2
1000.0	45.9	47.4	49.4	49.3	51.9	50.5	49.7	53.4	55.9	56.4	53.7	48.8	48.8
1250.0	44.1	47.2	49.8	48.9	52.2	51.6	52.9	56.2	57.4	58.4	54.6	48.3	48.3
1600.0	43.4	47.8	50.6	50.0	50.7	53.6	55.4	58.2	60.0	59.6	53.2	48.3	48.3
2000.0	42.3	47.4	48.4	48.4	49.2	52.5	53.8	54.2	57.3	55.1	51.0	47.4	47.4
2500.0	41.5	45.5	48.2	48.6	47.3	52.2	49.0	50.3	53.0	51.2	50.6	46.6	46.6
3150.0	41.0	46.5	47.7	48.2	49.2	48.6	50.6	51.8	53.6	53.2	51.2	47.6	47.6
4000.0	43.2	49.0	49.9	52.5	53.8	51.3	53.1	55.4	54.8	52.2	51.3	48.9	48.9
5000.0	41.3	45.7	48.3	49.3	51.1	50.1	50.5	52.2	53.8	52.4	50.3	46.8	46.8
6300.0	39.5	43.0	45.2	46.4	48.1	48.1	48.5	50.0	52.3	50.5	48.3	44.6	44.6
8000.0	14.9	44.7	48.8	49.1	51.2	51.7	50.4	54.5	55.1	52.1	50.9	50.0	50.0
10000.0	20.4	43.8	46.0	48.0	49.5	49.7	48.4	51.0	53.4	51.2	49.5	46.4	46.4
12500.0	29.0	36.9	39.3	40.6	41.8	42.4	43.9	48.0	52.0	49.4	45.7	40.8	40.8
15000.0	42.8	37.7	39.0	40.6	42.1	44.0	43.6	47.3	50.1	47.7	44.3	41.3	41.3
20000.0	56.0	32.5	34.6	36.4	38.5	41.6	43.2	47.7	49.9	47.5	44.0	39.1	39.1
OVERALL (50-10K)	72.0	72.3	73.8	75.2	77.9	77.9	79.9	82.4	83.2	81.3	81.4	77.7	77.7
OVERALL (20-20K)	72.7	72.9	74.3	75.5	78.1	78.2	80.1	82.6	83.4	81.5	81.7	78.4	78.4
A SCALE (20-20K)	60.7	63.1	64.7	65.6	67.5	67.8	69.5	71.7	72.6	71.3	70.6	66.1	66.1
PNL - - - -	74.7	76.8	78.7	80.3	82.5	82.7	84.0	86.2	87.3	85.9	85.4	81.0	81.0
PNLTC - - - -	75.4	77.7	79.3	81.5	83.7	83.6	85.1	87.5	88.5	86.8	86.2	81.8	81.8

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, AMIZ * QE 25
 CONFIGURATION 11 * INLET A-M * SECTIONS 12,15 AND ONE SECTION 13 REMOVED
 MUN 59 POINT 6 ** 175 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	51.7	53.2	53.0	51.9	52.3	53.6	53.8	54.1	54.2	55.2	57.2	57.4
25.0	0.0	54.0	54.7	56.3	55.9	57.2	57.7	58.2	59.5	60.3	60.9	61.6	61.4
31.5	0.0	54.8	55.8	54.8	56.7	55.8	55.1	57.0	57.4	58.0	57.4	59.2	59.5
40.0	0.0	55.1	55.0	54.7	55.9	56.6	58.0	58.9	59.7	59.6	59.0	59.8	59.2
50.0	.1	55.4	55.7	53.8	54.2	54.2	54.9	55.1	56.1	56.8	57.3	59.5	59.7
63.0	.1	58.5	57.4	55.8	55.3	55.9	54.7	55.1	56.2	57.9	58.7	61.3	61.5
80.0	.1	58.5	58.6	57.8	57.7	58.5	57.7	58.1	58.3	60.0	60.9	63.5	64.0
100.0	.2	63.4	62.4	61.4	62.2	63.3	62.5	62.2	62.8	63.9	64.3	65.4	65.4
125.0	.2	64.2	62.3	61.9	63.4	63.6	63.7	64.0	64.8	65.1	65.8	66.4	65.4
160.0	.3	65.9	61.7	63.4	66.4	69.2	66.5	67.9	68.4	69.0	69.6	70.2	68.4
200.0	.3	67.5	56.9	59.3	59.2	60.0	60.3	61.1	62.1	63.6	64.2	64.9	62.7
250.0	.4	57.6	56.9	59.6	59.4	60.7	61.0	61.2	63.0	62.8	63.9	64.3	61.4
315.0	.6	58.3	54.9	60.9	59.6	60.2	61.2	63.4	63.2	64.2	65.4	64.9	61.3
400.0	.7	55.5	56.0	60.1	59.1	59.4	57.3	61.0	60.7	60.9	61.9	60.9	59.3
500.0	.9	51.4	55.1	56.7	54.8	55.2	55.5	60.5	57.4	56.5	57.0	57.0	55.7
630.0	1.1	47.4	52.4	52.1	50.9	52.8	52.7	59.0	54.8	54.6	54.4	53.8	52.5
800.0	1.4	44.0	46.9	45.7	46.1	46.8	47.5	48.6	50.1	48.8	49.3	49.3	48.8
1000.0	1.8	46.8	48.3	49.8	49.1	52.9	50.7	49.0	51.4	52.7	52.8	50.5	47.1
1250.0	2.2	44.8	47.9	49.8	49.4	52.5	53.7	50.9	54.1	55.4	54.9	52.2	48.7
1600.0	2.9	44.3	49.1	49.5	50.4	49.7	53.7	53.6	56.2	58.9	55.9	51.9	48.3
2000.0	3.6	42.8	45.8	47.2	48.1	47.1	50.7	52.8	52.8	57.2	52.4	49.6	46.5
2500.0	4.6	41.6	45.8	47.6	48.1	46.2	49.4	48.9	49.9	52.2	49.5	49.6	45.5
3150.0	5.9	41.5	47.5	48.0	49.0	50.3	49.5	49.9	50.6	53.2	50.9	49.3	47.7
4000.0	7.6	43.8	49.4	49.9	54.8	54.3	53.4	54.3	55.9	53.8	51.0	50.7	48.8
5000.0	8.6	42.2	46.2	48.4	48.6	51.2	50.6	51.5	51.6	53.1	49.7	48.7	45.3
6300.0	11.1	39.3	43.3	45.3	46.9	48.0	49.6	49.1	49.3	51.1	47.5	45.9	43.6
8000.0	14.9	43.1	48.1	48.6	50.7	52.4	53.3	52.3	53.8	53.9	50.1	49.2	49.2
10000.0	20.4	43.3	45.9	48.1	48.3	50.3	50.1	50.6	49.4	52.1	49.0	47.4	47.0
12500.0	29.0	34.9	38.0	40.0	40.8	41.6	42.2	43.1	44.5	49.3	44.1	40.5	38.2
16000.0	42.8	36.3	38.4	41.8	40.1	41.8	43.7	44.0	45.5	47.7	42.3	40.1	40.0
20000.0	56.0	30.4	33.3	36.8	36.4	37.7	39.5	40.4	42.7	45.7	39.6	36.4	35.1
OVERALL (50-10K)		71.2	70.1	70.7	71.6	73.0	72.1	73.3	74.0	74.4	74.9	75.4	74.0
OVERALL (20-20K)		71.5	70.6	71.2	72.0	73.4	72.5	73.7	74.4	74.9	75.3	75.9	74.6
A SCALE (20-20K)		60.2	62.2	63.4	63.9	64.9	64.8	66.5	66.8	67.9	66.9	66.1	63.8
PNL - - - -		74.5	76.2	77.1	79.1	79.6	79.5	80.5	81.4	81.6	80.4	80.2	78.2
PNLTC - - - -		75.3	76.8	77.1	81.1	80.9	80.6	81.7	83.0	82.4	81.2	81.0	78.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 25
 CONFIGURATION 12 * INLET A/R * SECTION 15 AND ONE SECTION 13 REMOVED
 RUN 60 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES											
FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS									
		1	2	3	4	5	6	7	8	9	10
0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	55.6	53.7	55.1	54.3	54.8	56.0	56.8	57.1	58.6	59.1
25.0	0.0	58.3	58.8	59.1	60.0	60.3	60.9	61.5	62.6	63.7	64.9
31.5	0.0	58.1	58.4	58.0	58.3	58.8	58.6	59.0	60.5	60.9	61.2
40.0	0.0	57.6	58.1	57.1	57.4	58.0	58.9	59.7	60.4	61.5	62.0
50.0	.1	58.5	57.5	55.7	55.7	56.2	56.1	55.9	57.8	58.6	60.6
63.0	.1	60.7	59.4	59.3	59.6	58.1	56.7	55.9	55.9	58.1	61.0
80.0	.1	62.9	62.3	62.2	61.1	61.8	59.9	59.8	59.2	60.7	63.0
100.0	.2	63.7	63.6	63.3	63.3	63.6	63.2	62.4	62.3	64.1	65.1
125.0	.2	62.1	61.8	62.8	63.6	63.8	64.2	64.0	65.7	66.5	67.1
160.0	.3	64.8	65.5	69.8	70.5	73.6	73.8	75.1	77.6	79.9	77.7
200.0	.3	61.3	62.0	67.5	68.6	71.1	71.7	73.9	75.2	76.8	75.2
250.0	.4	58.8	58.5	61.0	61.7	62.3	62.9	62.2	64.6	65.4	66.5
315.0	.6	57.8	59.6	61.2	61.1	61.9	62.8	63.0	63.3	64.4	65.9
400.0	.7	59.1	60.4	61.7	62.3	62.0	62.4	63.0	63.5	63.4	63.0
500.0	.9	51.8	57.5	58.1	57.4	56.7	58.8	58.5	58.3	57.6	59.3
630.0	1.1	48.6	55.5	54.7	54.4	54.2	56.8	57.2	57.7	54.6	56.1
800.0	1.4	44.9	47.9	49.6	49.7	47.0	52.3	49.5	50.5	50.8	51.7
1000.0	1.8	45.4	46.5	48.4	48.6	49.6	51.4	49.1	51.5	50.8	47.4
1250.0	2.2	43.1	46.2	47.1	48.3	51.1	51.0	50.9	53.9	54.9	52.0
1600.0	2.9	42.0	46.9	47.5	47.9	49.9	52.0	53.8	55.4	54.5	52.1
2000.0	3.6	40.7	46.7	47.6	48.8	47.7	53.3	53.1	52.4	52.3	49.6
2500.0	4.6	40.5	45.4	48.1	48.1	48.2	52.6	49.6	50.4	51.1	49.5
3150.0	5.9	40.6	47.0	48.2	48.6	48.7	51.9	50.0	50.6	51.9	50.7
4000.0	7.6	43.1	50.1	50.3	51.6	53.3	54.3	53.8	53.7	52.2	52.0
5000.0	8.6	41.5	46.2	47.0	48.5	50.1	52.0	51.5	52.0	50.8	49.3
6300.0	11.1	39.2	43.4	44.9	46.4	47.4	50.1	48.4	49.1	49.1	47.2
8000.0	14.9	43.3	46.2	48.5	51.9	53.9	54.0	54.4	51.9	52.7	49.1
10000.0	20.4	40.8	44.2	46.4	48.3	49.7	51.2	50.2	50.7	50.9	48.5
12500.0	29.0	35.3	38.3	40.9	40.9	42.2	44.7	44.4	48.3	50.5	46.0
16000.0	42.8	37.1	39.0	41.3	44.9	45.2	46.2	46.3	48.1	50.1	44.4
20000.0	56.0	31.6	34.4	37.6	39.7	40.7	43.5	44.6	48.0	50.6	47.3
OVERALL(50-10K)		71.7	72.1	74.4	75.0	76.9	77.3	78.5	80.3	82.2	80.8
OVERALL(20-20K)		72.3	72.7	74.8	75.3	77.2	77.6	78.8	80.5	82.4	81.0
A SCALE(20-20K)		60.7	63.3	65.1	65.7	67.0	68.1	68.8	70.0	71.3	70.4
PNL - - -		74.4	77.0	79.1	79.9	81.6	82.7	83.5	84.7	86.1	85.1
PNLTC - - -		75.1	78.2	79.9	80.9	82.9	83.7	84.5	85.8	87.5	86.2
OVERALL											
OVERALL											
A SCALE											
PNL											
PNLTC											

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. UAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

CONFIGURATION 12 * INLET A/R * SECTION 15 AND ONE SECTION 13 REMOVED

USAF QUIET ENGINE FINAL DEMONSTRATION TFSTING ** SANTAN, ARIZ * OE 25

RUN 61 POINT G ** 175 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT.

12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	50.9	52.3	52.5	51.9	51.7	53.2	54.1	54.2	54.1	54.9	55.5	56.0
25.0	0.0	54.1	55.3	55.3	54.2	57.1	57.8	58.5	57.4	59.7	60.3	60.5	61.1
31.5	0.0	55.1	55.0	56.2	55.9	56.1	56.2	56.4	56.5	56.0	57.3	57.8	58.8
40.0	0.0	54.3	54.5	54.1	54.2	55.3	56.6	57.4	56.2	58.6	58.8	59.3	59.9
50.0	.1	56.0	55.0	53.9	53.4	54.4	54.4	54.4	55.4	56.1	57.6	58.9	59.9
63.0	.1	59.0	57.7	58.1	55.4	55.5	55.4	55.6	55.9	57.7	59.3	61.3	61.8
80.0	.1	59.1	60.6	61.0	57.8	59.5	58.2	59.7	60.1	61.8	62.6	65.0	64.4
100.0	.2	61.7	61.8	62.3	60.6	62.9	62.0	61.7	62.5	63.6	64.5	65.7	65.8
125.0	.2	60.7	60.8	60.4	60.3	60.9	60.9	61.4	63.2	63.5	64.5	65.0	64.3
160.0	.3	60.8	58.9	61.5	61.5	62.7	61.3	61.9	64.5	64.9	65.8	65.3	63.0
200.0	.3	57.1	57.2	59.9	58.4	59.1	59.5	60.0	61.7	63.7	63.9	64.2	60.6
250.0	.4	58.0	57.1	60.6	59.6	61.0	60.9	60.9	63.0	63.2	64.2	64.2	59.6
315.0	.6	58.2	60.3	61.3	59.1	60.0	60.5	61.7	62.1	62.3	63.7	63.1	58.4
400.0	.7	56.4	59.3	59.9	59.8	59.7	57.8	60.2	59.9	59.7	60.2	58.1	57.9
500.0	.9	51.5	56.6	57.4	57.1	56.2	57.4	59.7	57.3	56.4	57.9	58.3	55.0
630.0	1.1	48.3	54.5	53.2	54.1	53.4	55.2	57.8	55.1	53.5	55.1	56.0	51.3
800.0	1.4	43.9	46.9	47.5	47.1	45.9	47.4	49.2	49.6	49.1	49.7	48.2	48.3
1000.0	1.8	44.4	47.2	49.1	47.1	49.0	48.9	49.9	50.7	52.3	52.5	49.1	45.9
1250.0	2.2	42.8	46.3	48.4	47.3	50.6	49.8	49.2	52.5	52.8	54.3	50.5	47.2
1600.0	2.9	42.3	47.2	47.6	47.1	49.9	51.5	50.6	53.4	52.9	52.7	49.4	45.6
2000.0	3.6	40.6	46.0	46.8	47.8	46.8	51.2	50.7	49.0	49.4	47.6	47.4	44.6
2500.0	4.6	40.0	44.6	47.3	48.0	46.6	51.1	50.0	48.1	49.6	47.9	47.9	44.8
3150.0	5.9	40.6	46.0	47.3	48.0	48.6	48.9	49.6	48.7	49.9	48.7	48.6	45.8
4000.0	7.6	42.7	48.1	48.9	51.4	53.2	53.1	54.1	53.8	51.4	50.0	50.7	47.8
5000.0	8.6	41.0	45.4	48.0	47.8	49.6	50.8	50.6	49.5	49.3	47.6	48.2	46.0
6300.0	11.1	38.1	41.7	44.0	45.6	47.1	48.0	48.1	47.0	47.5	45.4	45.2	42.1
8000.0	14.9	42.4	48.3	49.0	49.8	52.5	52.4	50.9	50.5	50.8	49.4	48.6	48.5
10000.0	20.4	40.6	44.6	47.0	48.2	50.3	51.0	48.9	47.8	49.3	47.3	47.1	45.0
12500.0	29.0	33.7	36.6	39.0	40.3	41.1	42.1	41.6	42.1	46.3	42.1	39.4	36.8
16000.0	42.8	34.6	37.4	39.1	41.2	41.8	43.1	42.3	40.8	44.1	40.9	37.5	38.1
20000.0	56.0	28.9	32.3	34.3	36.1	36.5	38.0	37.9	37.9	41.6	37.9	34.8	33.3
OVERALL (50-10K)		69.3	69.9	70.9	69.9	70.9	70.6	71.3	72.2	72.8	73.7	74.1	72.6
OVERALL (20-20K)		69.4	70.4	71.3	70.4	71.4	71.2	71.9	72.7	73.3	74.2	74.5	73.3
A SCALE (20-20K)		59.2	62.2	63.3	63.2	63.9	64.5	65.3	65.2	65.2	65.6	64.9	62.0
PWL - - - -		72.6	75.6	76.4	77.4	78.6	79.0	79.6	79.5	79.1	79.0	78.6	76.0
PWLTC - - - -		73.1	76.5	77.3	78.5	80.0	80.1	80.9	81.1	79.1	79.5	78.6	76.8

NOTE SOUND PRESSURE IN DECIBELS OF 0.0002 MICRON/CM ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **

CONFIGURATION 14 * INLET A*B * UNTREATED 9.3 FT TAILPIPE

RUN 62 POINT A **105 SHP ** 100 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	45.4	47.5	47.2	45.7	48.6	47.8	47.1	46.7	48.1	51.8	51.3	53.0
25.0	0.0	54.8	58.0	58.9	56.4	57.4	59.3	57.4	58.1	55.5	58.8	58.6	58.8
31.5	0.0	54.8	53.6	54.4	53.4	53.1	53.5	54.1	54.3	55.9	56.9	59.5	61.2
40.0	0.0	55.7	55.6	55.3	56.3	57.0	59.4	57.4	58.8	59.9	60.5	63.6	64.9
50.0	.1	58.3	57.8	57.5	57.9	57.8	57.8	57.8	57.8	59.8	60.4	64.6	66.0
63.0	.1	61.4	60.2	57.9	58.0	58.7	58.4	58.5	59.1	60.8	63.5	65.7	67.7
80.0	.1	61.4	59.9	60.9	60.8	61.9	61.4	60.8	60.7	63.7	65.6	69.0	69.9
100.0	.2	64.6	64.6	64.1	65.0	66.1	66.3	65.3	65.7	66.9	68.3	70.4	72.1
125.0	.2	63.2	63.0	62.6	63.7	64.2	64.8	64.0	66.2	66.6	68.3	70.0	70.8
160.0	.3	63.7	61.4	61.6	62.4	64.6	64.4	64.9	66.2	68.2	69.0	70.9	71.1
200.0	.3	61.6	59.9	62.1	62.1	63.5	64.4	65.2	65.3	66.6	68.9	70.1	71.2
250.0	.4	62.7	61.4	64.5	64.5	66.0	66.6	66.0	67.8	68.6	71.1	70.7	70.8
315.0	.4	63.1	65.1	66.7	64.9	65.5	66.2	68.2	68.7	70.3	72.5	72.0	70.0
400.0	.7	61.2	63.3	63.1	63.8	63.3	63.6	66.5	67.7	69.5	71.0	71.2	68.9
500.0	.9	57.8	60.0	62.7	61.4	59.6	60.8	62.8	66.6	67.2	70.1	68.4	66.3
630.0	1.1	54.6	57.4	60.5	57.7	56.9	58.4	61.3	62.9	64.3	67.0	64.0	61.8
800.0	1.4	50.6	53.6	56.5	53.5	52.6	53.6	57.2	57.6	62.3	60.9	60.3	58.3
1000.0	1.8	49.5	49.0	49.7	51.2	53.6	55.7	54.0	57.2	64.2	65.6	61.8	58.1
1250.0	2.2	49.8	49.4	53.0	52.4	56.7	57.9	58.7	62.1	66.8	68.7	63.0	58.9
1600.0	2.9	49.9	52.3	55.9	54.4	56.0	60.2	63.0	66.0	70.0	70.2	62.1	58.4
2000.0	3.6	47.6	51.6	54.1	53.7	53.7	55.7	59.9	62.5	68.1	65.8	58.9	56.5
2500.0	4.6	46.0	49.5	49.8	52.3	51.5	52.2	54.8	55.5	63.9	60.6	54.7	52.9
3150.0	5.9	45.4	49.6	52.0	50.9	52.1	53.4	54.6	58.5	65.9	63.6	55.5	52.4
4000.0	7.6	45.7	49.4	51.0	53.7	54.0	54.2	55.2	58.7	64.5	60.1	56.5	53.8
5000.0	8.6	44.5	47.2	49.6	49.5	52.5	55.8	58.1	63.6	74.2	65.6	59.2	50.7
6300.0	11.1	42.3	45.7	47.2	47.1	50.3	54.1	57.4	61.3	66.3	59.9	58.5	48.3
8000.0	14.9	39.2	43.2	45.5	46.0	48.3	50.3	52.8	58.2	64.8	58.0	51.3	48.0
10000.0	20.4	42.2	44.6	49.4	51.4	53.3	53.6	51.2	56.3	64.2	58.4	52.0	43.5
12500.0	29.0	37.0	40.9	42.7	43.3	45.1	46.3	46.7	52.3	61.3	57.1	48.9	41.6
16000.0	42.8	33.0	34.3	35.1	37.4	37.8	39.8	42.4	48.3	58.2	54.1	45.7	38.1
20000.0	56.0	29.4	33.2	33.6	34.3	36.5	37.1	38.8	44.0	53.0	49.3	41.5	30.0
OVERALL (50-10K)		72.8	72.8	73.9	73.7	74.5	75.2	76.0	77.7	81.2	81.2	80.7	80.0
OVERALL (20-20K)		73.0	73.1	74.1	73.9	74.7	75.4	76.2	77.9	81.3	81.3	80.8	80.2
A SCALE (20-20K)		64.2	65.9	67.9	67.2	67.9	69.4	71.4	74.2	79.6	73.0	74.2	71.8
PNL - - - -		77.3	79.1	80.9	80.7	81.5	82.8	84.7	88.1	94.9	91.1	87.4	85.3
PNLTC - - - -		77.3	79.6	80.9	81.9	82.0	83.9	85.9	89.3	97.8	92.9	88.9	85.3

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PFR 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 25

CONFIGURATION 14 ** INLET A44 ** UNTREATED 9.3 FT TAILPIPE

RUN 63 POINT C ** 677 SHP ** 100 PERCENT RPM ** 74.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS --											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	51.3	50.9	50.1	50.8	51.0	50.8	51.9	51.0	52.9	54.5	56.5	58.5
25.0	0.0	57.6	57.1	57.0	57.5	57.6	58.2	60.0	61.3	59.3	59.8	62.1	64.7
31.5	0.0	58.9	59.1	58.2	58.5	58.1	57.5	58.5	59.1	60.3	62.3	65.3	67.1
40.0	0.0	62.5	63.3	62.2	62.2	62.6	63.5	62.0	63.8	65.0	66.7	69.7	71.1
50.0	.1	64.8	64.0	63.4	64.0	64.7	65.6	64.0	65.1	66.8	69.4	72.1	73.2
63.0	.1	65.5	64.5	64.5	65.4	65.2	65.2	65.1	66.0	68.0	69.9	73.2	74.5
80.0	.1	66.9	66.2	66.6	66.9	67.9	67.7	67.6	68.3	71.0	72.6	75.6	77.2
100.0	.2	69.4	68.9	68.2	69.1	70.1	70.1	70.4	71.8	73.6	74.9	77.9	79.6
125.0	.2	69.1	67.9	67.6	69.6	70.0	70.2	71.4	74.1	75.2	77.4	79.2	80.1
160.0	.3	67.7	65.7	66.8	68.1	69.6	69.9	71.1	72.8	74.3	75.7	78.6	78.5
200.0	.3	67.7	66.7	69.1	69.0	69.6	71.5	73.3	74.6	75.9	77.6	78.9	77.3
250.0	.4	69.8	68.0	71.2	70.4	70.8	72.3	72.9	75.1	78.1	78.4	79.2	76.6
315.0	.6	67.2	67.3	69.2	69.1	70.1	71.9	74.4	75.5	77.7	79.2	79.5	76.1
400.0	.7	64.6	66.3	66.6	68.0	68.2	69.2	73.0	73.4	76.1	77.7	77.2	73.5
500.0	.9	62.6	65.2	68.1	67.1	66.4	67.2	70.4	73.7	73.3	77.8	74.5	70.9
630.0	1.1	59.6	60.7	63.9	64.5	63.8	65.4	67.0	69.7	70.2	75.4	69.8	62.5
800.0	1.4	55.3	56.8	59.3	58.4	57.1	59.6	62.5	64.4	68.5	68.7	65.1	59.3
1000.0	1.8	54.1	53.3	57.5	57.6	62.1	64.1	62.3	67.4	71.9	69.3	66.4	59.3
1250.0	2.2	54.8	56.2	61.0	60.4	64.2	65.8	66.8	71.4	74.2	72.6	68.7	62.0
1600.0	2.9	55.8	58.9	63.8	62.6	63.1	68.4	70.1	73.9	77.7	74.2	69.0	65.8
2000.0	3.6	55.2	58.9	63.2	62.1	62.6	65.4	68.1	69.7	76.2	74.0	65.5	65.3
2500.0	4.6	55.2	58.1	59.0	59.8	61.1	63.7	65.8	72.6	77.4	72.1	64.9	64.1
3150.0	5.9	52.0	57.1	57.3	58.1	59.0	63.1	64.7	70.3	76.7	69.5	63.2	61.5
4000.0	7.6	49.3	51.3	55.2	56.1	57.2	61.5	61.9	66.7	72.1	66.8	60.3	58.4
5000.0	8.6	44.2	47.5	52.6	53.3	55.4	60.4	60.3	65.6	72.8	64.1	60.4	55.9
6300.0	11.1	42.5	44.7	49.4	49.6	52.8	58.1	57.8	61.3	68.5	61.1	57.1	53.1
8000.0	14.9	39.7	42.2	46.5	48.0	50.2	53.8	54.7	57.5	64.2	57.7	54.3	50.5
10000.0	20.4	39.5	43.8	47.2	48.1	50.6	51.2	53.6	54.4	60.3	54.4	52.4	49.9
12500.0	24.0	34.9	38.0	40.9	43.0	44.8	46.0	47.1	49.8	55.4	50.1	47.5	44.1
16000.0	42.8	33.4	34.8	37.5	38.0	41.0	43.1	44.8	45.9	51.8	47.6	46.1	43.7
20000.0	56.0	32.2	33.3	35.6	36.0	38.0	39.0	40.7	43.3	47.6	44.5	43.6	42.1
OVERALL (50-10K)		78.0	77.5	79.0	79.3	79.9	81.2	82.8	85.1	88.1	88.1	88.2	87.5
OVERALL (20-20K)		78.2	77.7	79.1	79.4	80.1	81.3	82.8	85.1	88.1	88.2	88.3	87.7
A SCALE (20-20K)		69.3	70.5	73.4	73.2	74.1	76.6	78.4	82.0	86.3	84.0	80.8	78.1
PNL - - - -		82.8	83.6	86.5	86.3	87.4	90.0	91.6	95.9	100.4	97.2	94.3	91.9
PNLIC - - - -		82.8	83.6	86.5	86.3	87.4	90.0	91.6	97.0	100.4	97.2	94.3	91.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF GIFT ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, AH17 * OE 25

CONFIGURATION 14 * INLET AER * UNTREATED 9.3 FT TAILPIPE

MIN 64 POINT F ** 105 SHP ** 80 PERCENT RPM ** T4.1 LIMITED

12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10	11	12
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	48.1	48.8	48.8	49.5	47.8	48.8	54.8	56.3	51.7	51.9	53.8	53.0
25.0	0.0	52.2	54.6	53.7	55.6	55.6	56.9	58.8	58.7	54.8	57.8	58.0	59.7
31.5	0.0	58.7	60.6	60.3	62.2	60.3	60.9	61.4	61.7	62.9	63.0	64.3	63.9
40.0	0.0	62.4	62.4	61.0	61.9	61.5	63.6	64.8	64.9	65.7	65.7	67.1	67.2
50.0	.1	59.5	59.7	58.2	58.3	58.3	60.2	59.8	61.7	61.8	63.1	64.4	66.3
63.0	.1	60.7	59.2	58.0	58.3	57.9	57.2	56.0	57.9	59.9	62.0	63.9	65.1
80.0	.1	60.4	59.8	60.3	59.3	59.7	59.1	57.4	58.4	61.0	62.9	64.8	65.1
100.0	.2	64.6	64.1	63.3	63.7	64.4	64.5	63.7	66.5	65.8	67.7	67.6	67.1
125.0	.2	65.0	64.4	63.9	65.8	65.6	66.0	65.9	68.4	68.7	69.2	68.4	67.1
160.0	.3	63.7	65.8	66.0	68.5	73.6	74.3	76.3	79.4	81.9	77.1	75.8	73.8
200.0	.3	63.6	64.4	66.4	68.0	72.4	72.3	74.4	76.9	79.8	75.7	73.7	72.3
250.0	.4	63.5	61.0	63.9	63.3	65.6	67.0	66.5	68.2	70.7	70.6	67.2	64.9
315.0	.6	61.7	62.3	63.7	63.7	64.3	65.3	64.5	68.3	69.2	70.4	65.7	62.1
400.0	.7	61.5	62.7	63.1	63.0	63.7	62.5	64.0	66.5	68.1	68.8	63.0	62.2
500.0	.9	58.9	60.7	63.1	60.3	60.4	61.3	64.6	67.2	67.4	70.8	63.5	61.1
630.0	1.1	56.5	57.1	59.0	56.7	57.2	57.8	60.9	63.9	62.7	67.2	60.7	57.1
800.0	1.4	50.0	51.3	53.3	49.9	50.6	51.3	55.8	58.0	61.3	61.8	57.3	53.5
1000.0	1.8	46.0	47.4	49.4	48.5	51.7	54.3	54.2	55.3	63.4	62.9	56.3	50.6
1250.0	2.2	45.9	47.0	51.1	49.9	54.0	55.7	55.7	59.7	64.7	63.9	55.4	49.5
1600.0	2.9	47.0	47.5	54.2	52.0	54.3	57.9	60.2	64.2	67.5	64.0	55.6	51.0
2000.0	3.6	44.1	45.6	50.6	50.6	52.3	54.5	56.8	60.2	65.4	61.4	54.0	49.1
2500.0	4.6	42.2	43.1	46.9	49.7	49.6	53.5	54.5	57.3	62.6	56.5	51.7	48.4
3150.0	5.9	42.5	46.8	48.4	47.8	50.3	50.7	53.0	56.3	62.3	56.7	50.1	48.9
4000.0	7.6	44.4	49.6	51.2	53.1	55.8	53.5	55.0	58.2	63.1	56.5	51.9	50.8
5000.0	8.6	42.5	44.6	47.4	48.8	51.4	52.4	53.9	59.9	65.0	57.6	51.1	49.1
6300.0	11.1	38.9	41.8	45.0	45.8	48.2	49.4	51.0	54.1	59.2	54.1	47.8	45.8
8000.0	14.9	42.8	46.7	48.5	51.0	53.0	52.7	52.2	54.0	58.1	54.5	48.7	48.2
10000.0	20.4	39.7	43.9	46.1	47.6	50.0	48.8	50.3	51.7	55.0	53.3	46.7	45.9
12500.0	29.0	34.4	36.6	39.7	41.0	41.5	42.4	45.0	48.2	53.7	50.4	42.1	40.1
16000.0	42.8	35.6	37.5	40.9	43.0	43.0	43.0	44.1	46.3	51.0	48.3	41.9	39.9
20000.0	56.0	30.5	33.1	35.8	38.0	39.5	40.8	44.0	47.6	52.0	49.1	40.5	38.3
OVERALL(50-10K)		73.1	73.4	74.2	74.9	77.9	78.3	80.0	82.7	85.1	82.3	80.0	78.5
OVERALL(20-20K)		73.7	74.0	75.1	75.3	78.1	78.6	80.2	82.8	85.2	82.4	80.3	79.0
A SCALE(20-20K)		64.1	65.1	67.6	66.6	68.8	69.5	71.5	74.2	77.4	75.5	70.3	67.9
PNL - - - -		76.9	78.2	79.7	80.3	83.2	83.7	85.5	88.4	91.5	88.6	84.7	82.6
PNLTC - - - -		77.5	79.5	80.9	81.9	84.9	84.6	86.8	89.8	92.8	89.3	85.4	83.3

NOTE SOUND PRESSURE IN DECIBELS RE 0.0012 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** DE 26

CONFIGURATION 14 * INLET A/R * 9.3 FT UNTREATED TAILPIPE ***

RUN 65 POINT 0 ** 175 SHP ** 80 PERCENT RPM ** 74.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	49.3	48.5	54.7	50.5	51.4	49.1	51.1	52.1	53.0	49.6	51.3	52.7
25.0	0.0	53.6	53.5	56.0	53.5	55.1	53.9	54.2	54.7	54.7	54.5	56.2	56.8
31.5	0.0	56.1	56.2	58.1	56.7	56.0	55.0	56.0	55.2	56.1	57.7	59.8	59.5
40.0	0.0	55.5	56.2	57.1	56.3	57.5	58.2	59.9	61.2	60.3	62.6	62.9	62.9
50.0	.1	56.6	56.3	55.8	55.6	55.9	57.2	57.0	58.9	58.1	60.0	61.2	61.4
63.0	.1	59.7	57.4	56.2	55.6	55.7	55.7	56.6	57.2	58.3	60.2	61.1	60.7
80.0	.1	58.8	58.0	58.5	57.4	58.8	58.2	58.0	59.1	59.2	62.2	63.6	62.6
100.0	.2	63.6	62.9	61.3	62.6	63.4	64.4	63.5	64.2	63.3	65.5	66.0	63.8
125.0	.2	65.0	64.9	62.7	64.9	64.9	65.1	65.5	67.4	66.3	69.0	67.9	64.6
160.0	.3	59.9	58.1	59.2	60.8	61.7	62.2	62.8	64.1	63.9	66.9	64.6	62.3
200.0	.3	63.7	61.3	64.5	62.4	64.1	65.9	68.3	67.4	68.9	70.8	67.6	63.6
250.0	.4	63.3	60.6	63.9	63.3	63.4	64.3	66.7	67.5	69.7	70.4	67.3	62.5
315.0	.6	62.5	62.3	64.0	62.4	63.2	65.6	66.4	66.6	67.5	70.5	68.0	63.7
400.0	.7	59.4	61.6	62.0	61.2	61.2	63.1	64.3	64.5	68.1	68.7	67.3	62.0
500.0	.9	58.8	58.5	61.3	60.9	58.6	61.6	62.2	64.5	69.1	68.6	65.6	61.7
630.0	1.1	55.6	55.4	57.6	56.2	54.8	59.1	57.0	59.7	64.5	66.0	63.5	58.6
800.0	1.4	51.2	50.5	52.9	50.9	42.4	51.9	54.9	58.0	65.4	64.6	61.5	56.1
1000.0	1.8	47.2	48.0	48.7	49.7	52.7	53.1	56.7	60.9	63.1	65.8	60.1	50.5
1250.0	2.2	47.2	48.3	50.3	50.3	53.2	54.5	59.3	63.5	64.0	65.7	59.2	49.4
1600.0	2.9	47.6	48.8	52.9	51.8	52.6	56.7	59.4	62.9	65.2	63.7	57.3	50.0
2000.0	3.6	44.4	47.4	50.5	49.2	51.1	52.8	53.9	55.1	64.6	60.1	54.3	47.4
2500.0	4.6	42.7	45.8	46.8	48.2	47.9	50.9	53.0	57.3	61.9	57.5	52.2	46.4
3150.0	5.9	42.2	46.3	47.4	48.7	48.9	51.0	51.8	54.4	60.8	56.4	50.8	46.3
4000.0	7.6	44.1	48.1	49.2	52.1	53.4	54.1	52.5	56.1	61.7	55.5	52.4	47.8
5000.0	8.6	41.6	44.9	47.4	48.2	50.8	51.4	51.4	54.2	59.0	54.9	50.1	44.7
6300.0	11.1	39.1	42.0	44.5	46.0	47.7	49.5	48.9	50.4	55.6	50.6	47.3	41.5
8000.0	14.9	42.7	45.7	49.5	49.5	51.7	53.5	50.5	51.2	54.7	50.8	48.5	44.0
10000.0	20.4	41.6	43.5	47.0	47.7	49.7	49.9	48.1	49.0	52.0	49.1	46.4	40.8
12500.0	29.0	34.5	36.2	38.9	40.4	40.9	41.8	41.5	43.4	47.3	44.9	39.7	34.5
16000.0	42.8	37.3	38.3	39.3	39.5	41.5	42.7	40.7	43.0	45.0	43.6	46.5	36.9
20000.0	56.0	31.3	33.0	34.6	35.6	37.0	38.3	37.5	41.0	42.5	40.7	35.8	33.3
OVERALL (50-10K)		72.4	71.6	72.5	72.3	72.8	74.2	75.3	76.4	78.8	79.5	77.1	73.5
OVERALL (20-20K)		72.6	72.0	73.0	72.6	73.1	74.4	75.5	76.6	78.9	79.6	77.4	74.2
A SCALE (20-20K)		63.8	64.0	66.0	65.4	65.8	67.9	69.3	71.7	75.6	74.9	71.1	65.8
PNL - - - -		76.4	77.2	78.7	78.9	79.9	81.3	82.0	84.5	88.3	86.7	83.5	78.3
PNLIC - - - -		77.0	77.9	79.3	80.1	81.1	82.4	82.6	85.0	88.3	86.7	83.5	78.3

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON * DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUJFT ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 26

CONFIGURATION 14 * INLET AER * 9.3 FT UNTREATED TAILPIPE ***

RUN 66 POINT I ** 105 SHP ** 70 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	45.9	47.9	47.3	47.3	47.3	47.3	49.3	45.8	50.5	50.6	49.4	52.1
25.0	0.0	51.3	53.4	52.4	54.3	55.5	55.5	55.5	55.0	55.2	56.1	56.7	57.3
31.5	0.0	58.6	60.8	60.0	60.2	59.9	61.0	60.8	60.8	60.6	61.7	62.9	62.7
40.0	0.0	62.1	63.1	63.0	62.0	61.6	63.6	64.1	65.0	64.1	66.1	66.8	66.3
50.0	.1	61.7	62.3	60.4	59.1	60.2	61.7	62.9	63.4	62.9	63.6	65.5	65.9
63.0	.1	61.2	60.0	58.9	58.4	58.3	57.8	56.3	57.0	59.1	61.8	64.4	64.4
80.0	.1	63.2	60.9	60.1	59.0	59.7	57.3	57.0	58.0	60.4	61.6	63.8	63.9
100.0	.2	63.5	63.1	62.0	62.5	63.1	62.6	62.1	63.8	63.8	65.1	65.9	65.5
125.0	.2	66.0	66.0	65.9	68.5	68.1	70.3	70.8	72.0	72.7	73.6	72.1	70.1
160.0	.3	61.8	64.4	67.8	71.3	71.7	74.9	75.7	75.7	77.7	77.9	75.2	73.5
200.0	.3	63.9	60.6	64.7	62.1	62.7	64.3	65.6	66.9	68.9	69.0	68.5	65.1
250.0	.4	61.9	60.1	63.6	62.5	62.1	62.6	64.6	65.7	67.8	67.8	67.7	63.8
315.0	.6	61.4	61.6	62.6	60.6	61.5	63.7	65.2	65.6	68.8	69.1	70.2	63.2
400.0	.7	58.8	60.3	59.9	58.3	60.6	61.6	63.2	64.7	66.2	68.1	69.4	61.4
500.0	.9	56.2	59.3	63.3	58.3	61.3	60.8	61.8	70.1	67.2	69.8	68.5	62.5
630.0	1.1	54.1	55.4	56.9	52.7	54.1	56.2	58.2	59.2	61.9	67.1	59.2	56.5
800.0	1.4	49.2	50.0	51.7	48.9	49.0	50.7	54.7	55.2	58.9	60.3	57.4	53.8
1000.0	1.8	46.7	47.3	48.1	50.8	51.5	50.3	52.2	53.7	57.8	57.4	53.1	48.3
1250.0	2.2	45.0	47.1	47.8	51.0	52.0	52.4	53.1	57.6	60.3	61.5	56.1	49.7
1600.0	2.9	45.0	47.1	48.7	51.6	50.6	54.0	55.8	60.0	62.5	62.7	57.6	49.7
2000.0	3.6	42.8	47.0	48.6	49.1	50.4	52.1	54.7	59.3	64.5	60.7	53.8	47.6
2500.0	4.6	40.6	45.4	45.8	48.1	47.0	48.5	49.8	53.1	57.3	53.9	51.0	46.6
3150.0	5.9	40.0	44.7	45.1	46.5	46.2	47.2	48.6	52.3	56.9	53.3	50.8	46.4
4000.0	7.6	39.7	44.8	46.0	49.7	49.0	48.5	50.2	53.3	57.3	53.3	51.0	47.9
5000.0	8.6	38.8	42.0	45.1	46.7	47.8	47.8	49.0	54.3	57.3	53.1	50.9	46.4
6300.0	11.1	36.7	40.1	42.2	44.3	45.6	46.2	47.2	49.6	52.8	49.6	48.1	43.5
8000.0	14.9	41.7	45.5	46.5	48.3	49.5	51.1	51.1	50.5	52.8	50.1	49.1	46.5
10000.0	20.4	36.1	39.1	41.5	42.8	44.1	45.3	45.1	45.5	48.5	46.8	45.2	40.7
12500.0	29.0	34.2	34.9	36.9	38.3	38.6	39.1	40.2	40.9	44.5	42.7	40.8	36.4
16000.0	42.8	36.7	38.2	39.6	40.8	42.2	40.4	41.6	43.7	47.4	46.1	43.8	38.4
20000.0	56.0	29.9	32.4	34.7	36.6	37.1	37.1	38.6	41.7	47.2	44.6	41.9	37.3
OVERALL (50-10K)		72.9	72.8	74.1	75.0	75.4	77.6	78.4	79.5	81.0	81.6	80.2	77.6
OVERALL (20-20K)		73.5	73.5	74.6	75.4	75.7	77.9	78.7	79.7	81.2	81.7	80.5	78.0
A SCALE (20-20K)		62.6	63.6	65.7	65.1	65.8	67.3	68.7	71.8	73.6	74.0	72.1	66.8
PNL - - - -		75.4	76.6	78.6	79.7	80.2	82.2	83.4	85.0	87.4	87.2	85.0	81.3
PNLTC - - - -		76.3	77.6	80.3	80.7	81.5	83.5	84.6	87.8	88.9	88.3	85.8	82.5

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 26

CONFIGURATION 1A - INLET A-B - SLITMETAL LINER IN BOTH SECTION 13 ***

RUN 67 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT.

12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	50.4	51.6	53.1	51.3	52.6	52.3	55.2	53.6	53.9	54.8	56.6	57.3
25.0	0.0	50.9	52.5	52.4	52.6	53.8	53.9	55.0	54.5	56.3	56.5	56.9	58.1
31.5	0.0	53.4	53.5	53.0	53.5	52.9	53.8	53.0	54.3	54.7	55.0	55.8	56.7
40.0	0.0	57.5	56.7	56.9	56.2	56.1	57.8	57.5	57.7	57.3	58.0	57.6	57.0
50.0	.1	61.1	60.3	59.2	59.3	60.3	60.7	60.1	59.6	58.7	58.5	59.8	60.3
63.0	.1	64.7	64.3	64.4	64.9	64.7	64.0	62.2	62.6	63.6	63.8	63.8	63.9
80.0	.1	65.1	65.9	64.6	64.7	65.5	63.6	63.7	64.3	65.1	65.1	66.0	64.4
100.0	.2	66.6	66.0	64.1	65.5	66.5	64.9	65.6	65.4	67.1	66.7	66.5	65.6
125.0	.2	65.0	64.2	64.4	65.4	65.6	66.2	66.2	67.4	68.6	68.0	67.3	64.6
160.0	.3	67.3	65.6	69.7	73.8	75.4	75.2	76.7	78.5	81.0	77.9	77.6	72.5
200.0	.3	65.5	66.4	69.7	73.8	75.4	75.5	77.7	79.8	82.6	80.6	79.2	73.3
250.0	.4	58.7	59.2	61.7	62.1	63.4	63.5	64.3	65.0	67.4	68.6	66.4	61.4
315.0	.6	57.6	60.7	61.7	61.7	62.5	62.5	63.4	65.3	65.4	67.0	63.5	58.2
400.0	.7	58.0	59.2	59.6	59.3	59.5	58.6	61.2	60.8	61.4	62.5	59.5	55.8
500.0	.9	51.0	54.6	56.2	57.2	56.0	56.3	59.4	58.0	57.1	58.1	56.9	53.8
630.0	1.1	49.5	51.5	52.7	52.8	51.9	52.4	54.4	54.0	53.9	51.3	54.7	49.0
800.0	1.4	44.7	47.8	50.7	49.2	48.5	49.9	51.6	53.6	57.7	53.9	51.1	46.8
1000.0	1.8	45.3	46.7	48.3	50.6	53.4	53.7	55.2	55.8	60.1	57.0	50.8	46.8
1250.0	2.2	43.6	46.5	49.5	50.9	53.3	53.6	56.8	57.8	58.6	57.2	49.8	45.2
1600.0	2.9	44.0	45.9	49.6	50.3	51.1	53.4	55.9	57.1	55.4	54.9	48.0	44.5
2000.0	3.6	41.9	44.5	47.7	48.8	48.6	49.9	51.6	52.1	54.9	49.7	47.3	42.4
2500.0	4.6	41.3	44.5	46.6	48.2	49.7	50.1	51.6	51.4	51.8	49.8	48.1	43.6
3150.0	5.9	41.3	46.5	48.4	48.2	49.7	50.1	51.6	51.4	51.8	49.8	48.1	43.6
4000.0	7.6	45.0	44.5	47.1	53.6	53.7	52.1	53.6	54.2	54.4	52.5	50.8	45.8
5000.0	8.6	40.6	44.5	47.1	48.2	51.1	50.0	50.5	51.5	51.6	49.7	47.8	41.8
6300.0	11.1	38.2	41.4	43.8	45.5	47.6	48.6	49.1	50.3	49.6	47.8	45.5	39.1
8000.0	14.9	42.0	44.8	49.0	47.8	51.3	51.3	52.0	51.6	49.7	49.3	48.5	42.3
10000.0	20.4	40.2	42.5	46.4	46.8	49.3	48.3	49.7	49.7	49.9	48.0	46.6	39.5
12500.0	29.0	34.7	37.1	39.6	40.7	42.2	42.2	44.6	47.1	46.4	45.0	41.1	35.9
16000.0	42.8	37.4	37.8	40.6	42.0	45.1	46.4	46.0	47.8	46.9	48.3	44.4	37.9
20000.0	56.0	32.5	34.6	38.5	39.8	42.2	43.9	47.0	51.2	50.3	47.7	42.1	36.7
OVERALL(50-10K)		74.2	74.1	75.5	77.9	79.3	79.5	81.1	82.8	85.3	83.6	82.2	77.4
OVERALL(20-20K)		74.4	74.3	75.6	78.0	79.4	79.5	81.1	82.9	85.4	83.6	82.3	77.6
A SCALE(20-20K)		61.9	63.1	65.3	67.3	68.6	68.8	70.7	72.2	74.4	72.8	70.9	65.6
PNL - - - -		76.0	77.6	80.1	82.6	84.0	84.0	85.8	87.1	89.1	87.5	85.7	80.4
PNLTC - - - -		77.4	78.8	81.2	84.3	85.0	85.0	87.0	88.4	90.5	88.6	86.9	81.4

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARI7 * OE 26
 CONFIGURATION 16 * INLET A-H * SLITMETAL LINER IN BOTH SECTION 13 ***
 RUN 68 POINT G ** 175 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	49.3	50.6	51.8	50.9	51.6	51.5	54.3	53.1	54.7	53.9	54.9	56.6
25.0	0.0	52.3	53.0	53.2	53.6	54.8	56.2	55.6	55.7	56.7	56.8	58.7	58.6
31.5	0.0	55.4	55.3	55.2	55.5	55.5	55.0	56.9	55.3	55.5	55.1	57.8	58.5
40.0	0.0	55.6	56.0	55.4	55.4	55.4	56.2	56.7	56.2	57.4	58.6	58.9	58.8
50.0	.1	56.6	56.4	55.5	55.9	56.6	57.4	56.8	57.8	58.1	58.6	60.4	60.8
63.0	.1	59.6	59.5	58.6	58.6	58.5	59.0	58.2	59.4	60.4	61.0	62.7	64.8
80.0	.1	62.7	63.2	61.7	61.1	63.0	61.6	61.7	61.6	62.1	62.8	64.4	64.8
100.0	.2	65.4	63.9	63.2	64.4	65.0	64.6	63.7	63.8	64.1	64.9	65.8	66.1
125.0	.2	64.5	62.1	62.0	63.0	62.6	64.5	63.7	64.9	64.8	65.8	67.1	65.8
160.0	.3	68.1	61.4	64.0	67.3	67.0	64.3	65.5	65.8	67.5	67.4	68.7	69.6
200.0	.3	58.4	57.6	60.6	61.2	61.3	61.7	61.9	64.3	65.9	64.8	64.6	64.2
250.0	.4	58.0	57.0	60.8	59.7	61.2	61.1	61.4	62.6	64.2	64.8	64.3	62.7
315.0	.6	56.7	59.5	60.4	59.8	60.4	61.0	62.8	64.4	63.8	64.6	65.0	62.1
400.0	.7	56.9	58.8	59.0	60.0	59.4	58.1	60.2	59.5	61.0	61.2	59.1	59.1
500.0	.9	51.7	55.9	58.0	55.6	58.0	56.1	57.5	59.3	56.8	58.0	58.6	55.9
630.0	1.1	49.3	53.2	53.5	52.8	55.1	52.5	54.5	56.3	51.8	54.1	56.6	52.6
800.0	1.4	45.4	46.9	51.2	48.4	45.9	46.6	47.8	51.3	49.5	48.4	47.5	46.5
1000.0	1.8	44.2	46.1	48.5	48.1	50.5	51.0	51.5	51.2	52.8	51.0	47.6	45.7
1250.0	2.2	43.1	46.2	47.9	48.6	51.4	52.0	52.4	53.4	53.4	52.9	49.6	46.3
1600.0	2.9	44.2	46.2	47.7	48.0	50.3	53.7	52.5	54.8	53.8	52.0	49.4	45.5
2000.0	3.6	40.6	46.0	46.4	47.2	48.9	49.5	51.1	51.0	51.6	49.4	46.7	44.0
2500.0	4.6	40.7	44.4	46.2	48.2	47.7	49.1	47.8	48.4	49.3	47.0	46.6	44.0
3150.0	5.9	40.9	46.2	47.4	48.0	49.3	48.8	49.6	49.0	50.3	48.1	48.5	46.1
4000.0	7.6	42.3	49.0	50.8	52.9	53.4	52.8	52.1	53.3	52.1	48.6	49.3	48.5
5000.0	8.6	40.1	44.3	47.2	47.8	50.3	49.6	49.1	50.7	50.8	47.4	47.2	44.5
6300.0	11.1	38.7	42.4	44.3	46.2	48.1	48.5	47.9	49.2	48.7	45.5	45.0	42.7
8000.0	14.9	43.8	48.3	49.6	51.7	52.0	52.6	52.1	52.9	50.7	50.0	49.4	46.6
10000.0	23.4	43.9	45.5	48.1	50.6	51.9	50.9	50.3	51.0	49.3	48.6	46.5	44.7
12500.0	25.0	35.9	38.2	40.8	42.6	43.6	43.2	43.6	46.2	46.6	43.2	41.9	38.2
16000.0	42.8	38.3	40.4	41.7	43.2	45.1	44.9	45.1	46.2	46.7	43.1	40.8	39.0
20000.0	56.0	33.5	36.5	39.0	40.2	42.0	42.3	43.2	46.8	48.1	43.5	40.0	38.0
OVERALL (50-10K)		72.7	71.0	71.7	72.6	73.0	72.5	72.8	73.7	74.3	74.6	75.3	74.9
OVERALL (20-20K)		72.9	71.4	72.0	72.9	73.3	72.9	73.1	74.0	74.6	74.8	75.6	75.3
A SCALE (20-20K)		60.8	62.0	63.0	64.0	64.9	64.7	65.2	66.3	66.2	65.8	65.7	63.9
PNL - - - -		75.5	76.0	77.6	78.7	79.6	79.3	79.3	80.4	80.0	79.4	79.5	78.4
PNLIC - - - -		74.4	77.2	78.8	80.4	80.8	80.5	79.3	81.5	80.0	79.4	79.5	79.4

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRONAM ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** DE 26
 CONFIGURATION 15 * INLET A/R * WOLFMETAL LINER IN ROTH SECTION 13 ***
 MIN 69 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - -											
		1	2	3	4	5	6	7	8	9	10	11	12
0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.		
20.0	0.0	50.2	51.0	50.5	50.3	50.9	52.3	52.3	52.9	53.3	55.5	55.8	56.7
25.0	0.0	52.4	52.7	52.3	52.1	53.7	54.7	54.7	55.2	56.5	56.2	57.6	58.1
31.5	0.0	55.0	54.7	53.9	53.6	53.4	52.6	52.6	53.5	55.3	54.7	56.5	56.7
40.0	0.0	58.6	57.7	57.4	57.0	56.9	57.4	58.0	57.5	57.7	58.4	58.9	58.8
50.0	.1	64.2	63.0	61.7	62.7	62.8	62.9	62.9	60.5	59.1	59.7	61.0	61.9
63.0	.1	70.7	70.6	70.8	70.3	70.3	67.6	67.6	66.2	65.1	65.3	66.9	66.9
80.0	.1	68.9	68.8	68.2	67.8	69.4	65.6	65.6	65.7	65.3	65.6	67.4	67.6
100.0	.2	66.7	67.1	67.2	67.6	68.9	66.9	66.9	66.1	67.1	67.6	68.5	68.0
125.0	.2	65.3	65.8	66.0	67.6	68.0	67.6	67.6	67.8	68.4	68.1	68.9	67.7
160.0	.3	69.0	69.5	69.5	73.4	76.8	77.3	78.8	81.2	81.6	81.2	79.4	76.1
200.0	.3	66.2	65.1	68.6	73.1	75.4	75.9	77.1	81.2	81.6	81.4	79.1	74.8
250.0	.4	61.3	60.5	63.4	63.0	64.8	65.2	65.7	66.9	66.9	66.9	66.7	62.1
315.0	.6	57.9	61.0	62.1	61.9	63.4	63.0	64.4	65.8	66.1	66.9	66.7	62.1
400.0	.7	55.9	58.9	59.5	60.0	60.3	60.6	62.8	61.8	63.3	63.5	63.7	59.4
500.0	.9	52.0	56.4	57.9	58.3	57.0	58.0	60.2	59.0	58.0	59.8	59.3	55.2
630.0	1.1	47.2	52.6	52.2	54.5	53.7	53.5	56.5	55.3	53.5	53.6	56.2	50.3
800.0	1.4	45.2	49.0	51.1	49.3	49.0	50.1	48.7	53.1	52.9	52.4	49.9	49.4
1000.0	1.8	46.6	47.8	47.9	49.9	53.5	53.6	52.6	54.7	56.6	56.9	52.5	49.1
1250.0	2.2	45.3	47.5	49.2	50.7	53.2	53.3	55.1	57.1	57.1	57.6	53.0	48.5
1600.0	2.9	43.7	46.4	49.4	50.1	51.8	53.8	55.3	56.3	56.5	55.6	51.1	46.6
2000.0	3.6	42.2	45.8	48.0	49.3	50.6	49.7	52.7	51.0	51.6	50.6	48.1	45.1
2500.0	4.6	41.4	45.1	46.4	48.8	48.4	50.2	49.7	49.9	52.1	50.8	49.5	44.7
3150.0	5.9	41.6	49.0	50.0	49.5	50.8	51.2	52.0	52.6	52.2	51.6	49.6	46.1
4000.0	7.6	44.6	50.9	51.2	54.1	56.4	53.3	54.2	54.6	53.1	52.4	52.0	50.4
5000.0	8.6	42.3	47.0	48.0	49.9	52.4	50.4	51.3	51.7	51.6	50.5	49.5	46.9
6300.0	11.1	39.7	43.0	44.6	46.6	48.9	49.3	49.5	50.7	50.4	49.1	47.9	44.1
8000.0	14.9	44.1	48.2	48.8	52.9	53.4	53.9	54.2	53.1	52.7	51.5	50.3	48.2
10000.0	20.4	42.0	46.8	46.8	51.0	49.7	51.2	51.0	52.9	53.0	51.1	49.3	46.2
12500.0	29.0	36.2	39.5	41.5	43.3	44.3	44.4	47.4	52.3	53.0	50.3	46.7	41.3
16000.0	42.8	40.3	41.3	42.0	45.4	45.8	47.4	49.6	51.1	52.7	49.5	46.2	44.4
20000.0	56.0	36.0	37.2	38.8	41.2	42.7	44.6	48.3	51.4	53.5	49.8	46.1	41.1
OVERALL (50-10K)		76.5	76.2	77.2	79.0	81.0	81.2	82.1	84.7	85.1	84.9	83.3	80.2
OVERALL (20-20K)		76.7	76.3	77.2	79.1	81.1	81.3	82.1	84.8	85.1	84.9	83.3	80.3
A SCALE (20-20K)		62.5	63.9	65.6	67.7	69.6	70.4	71.1	73.6	73.9	73.8	72.1	68.2
PNL - - - -		77.4	78.5	80.4	83.1	84.9	85.3	86.0	88.3	88.5	88.3	86.7	83.1
PNLTC - - - -		77.9	79.0	80.4	84.6	86.5	86.3	87.1	89.5	89.7	89.4	87.6	84.4

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROMAN ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS 1.0 DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, AM17 * DE 26
 CONFIGURATION 15 * INLET A-M * MOL/METAL LINER IN HOHM SECTION 13 ***
 RUN 70 POINT 5 ** 17% SMP ** 80 PERCENT RPM ** 10.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	49.2	47.8	48.8	48.3	49.9	49.8	51.0	51.4	52.3	53.6	55.8	55.8
25.0	0.0	51.7	52.8	53.0	52.1	53.5	53.7	53.9	55.4	54.7	56.3	57.5	57.0
31.5	0.0	53.8	56.0	55.2	54.7	54.4	54.8	55.1	54.9	54.6	55.1	56.1	57.0
40.0	0.0	55.5	54.8	54.4	54.6	55.3	56.6	55.9	56.2	57.3	57.8	57.5	57.2
50.0	.1	57.1	56.2	55.4	55.8	56.3	57.2	56.4	57.0	57.3	57.8	59.2	59.3
63.0	.1	60.0	58.3	58.3	58.7	59.0	58.6	57.7	58.5	59.3	60.5	61.6	61.6
80.0	.1	62.8	62.7	61.5	61.1	62.8	61.4	60.7	62.0	62.0	62.6	64.7	64.0
100.0	.2	65.1	64.0	62.9	63.9	64.5	63.9	64.2	63.3	64.6	64.5	64.9	65.0
125.0	.2	63.2	61.7	61.9	62.4	62.5	63.3	63.2	64.4	64.5	65.3	65.8	64.6
160.0	.3	67.0	60.9	63.7	66.1	65.6	63.1	64.4	64.4	66.0	66.8	68.3	67.9
200.0	.3	58.0	57.6	60.1	60.1	60.5	61.0	61.0	63.6	64.9	64.4	63.8	61.2
250.0	.4	58.5	57.1	60.4	59.0	60.5	60.5	60.9	61.8	62.1	61.1	63.4	58.2
315.0	.6	56.5	59.6	60.5	59.5	60.5	60.7	62.5	63.5	64.0	64.6	66.1	60.9
400.0	.7	54.2	57.8	59.0	58.5	58.5	56.8	60.2	59.8	60.8	60.6	60.9	58.0
500.0	.9	51.0	55.0	58.1	55.5	57.1	56.3	58.0	57.1	55.5	57.4	57.7	53.2
630.0	1.1	46.8	51.9	54.4	51.1	54.2	52.9	54.4	54.4	52.5	52.6	54.8	49.0
800.0	1.4	43.8	46.9	49.2	46.8	46.7	47.5	46.6	50.0	49.7	49.3	48.4	47.5
1000.0	1.8	45.9	46.4	47.7	48.8	52.2	51.7	52.4	52.6	53.8	52.5	50.0	47.3
1250.0	2.2	44.5	46.4	47.9	49.1	51.5	52.3	53.0	54.4	53.9	53.7	50.7	46.3
1600.0	2.9	42.7	46.1	48.0	49.0	49.3	51.9	52.4	53.9	52.8	52.3	49.2	46.2
2000.0	3.6	41.0	45.3	47.4	47.5	48.5	48.5	50.6	48.2	49.0	47.7	46.0	43.7
2500.0	4.6	40.3	44.0	46.4	47.6	47.0	48.9	47.6	48.9	50.5	47.9	47.5	43.8
3150.0	5.9	40.6	46.8	48.1	48.3	49.1	49.7	49.7	50.4	49.5	48.9	47.6	45.0
4000.0	7.6	43.3	49.1	50.1	52.5	54.8	51.9	52.4	53.7	52.0	50.4	50.7	49.8
5000.0	8.6	40.7	45.8	48.0	48.8	51.1	49.1	49.7	49.8	49.7	48.4	47.0	44.7
6300.0	11.1	37.2	41.5	44.0	45.0	47.1	47.6	46.8	48.0	48.2	44.9	44.0	41.4
8000.0	14.9	41.5	45.2	48.4	49.8	52.1	50.5	50.2	49.9	49.2	46.9	46.4	46.3
10000.0	20.4	39.3	43.4	45.8	48.1	48.9	48.1	48.5	48.4	49.0	46.7	44.9	43.1
12500.0	29.0	32.6	36.7	38.5	39.2	40.3	39.8	40.6	45.0	46.8	42.0	37.1	36.6
16000.0	42.8	33.6	37.1	40.0	36.8	38.8	41.1	41.1	42.8	44.9	40.7	38.3	38.9
20000.0	56.0	28.5	32.2	34.8	32.8	34.6	36.4	37.1	40.7	43.0	38.3	34.4	32.7
OVERALL (50-10K)		72.1	70.7	71.4	71.9	72.4	71.8	72.4	73.0	73.6	74.1	74.8	73.3
OVERALL (20-20K)		72.3	71.0	71.7	72.1	72.7	72.1	72.6	73.2	73.9	74.4	75.1	73.7
A SCALE (20-20K)		59.9	61.6	63.4	63.4	64.6	64.1	65.1	65.7	65.7	65.6	65.6	62.4
PNL - - -		74.6	75.7	77.2	78.2	79.7	78.5	79.1	79.9	79.5	79.2	79.5	76.9
PNLTC - - -		75.7	75.7	77.4	79.5	81.3	78.5	79.1	81.1	79.5	79.2	80.6	78.6

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRON/CM ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ **
 CONFIGURATION 17 * INLET A+B * FIBERMETAL LINER IN BOTH SECTION 13 ***
 RUN 71 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	51.6	51.3	50.2	49.6	51.6	52.0	51.6	53.6	54.1	55.6	56.9	55.8
25.0	0.0	51.8	52.7	53.1	53.2	53.2	54.4	54.6	55.6	56.6	56.6	58.1	58.4
31.5	0.0	53.6	53.6	53.7	52.3	52.6	53.1	52.9	54.9	55.6	55.8	56.8	56.8
40.0	0.0	56.8	57.1	55.8	55.6	57.1	57.1	56.7	57.8	58.3	58.2	58.3	57.7
50.0	.1	59.5	58.7	57.5	57.5	58.8	59.0	58.3	58.9	59.0	59.5	59.8	59.7
63.0	.1	61.7	60.7	61.2	61.1	61.1	60.6	59.7	60.7	61.8	62.8	62.5	62.0
80.0	.1	62.8	62.7	62.1	61.8	63.1	62.0	61.6	62.4	63.6	64.3	65.1	64.9
100.0	.2	64.6	63.3	62.3	63.4	64.4	63.6	63.6	63.0	65.5	65.1	65.4	65.4
125.0	.2	63.2	61.2	61.2	63.2	63.4	65.8	63.5	64.5	66.1	66.0	65.8	64.7
160.0	.3	62.1	60.8	63.0	66.0	66.5	65.8	66.8	68.4	70.0	70.1	68.9	67.7
200.0	.3	62.3	65.8	67.9	69.6	70.3	70.2	73.3	73.3	74.8	75.3	71.1	68.1
250.0	.4	59.3	59.2	62.3	61.6	63.8	63.4	64.2	66.2	64.8	68.7	66.3	61.1
315.0	.6	56.4	57.0	59.3	60.2	59.9	60.7	61.7	61.9	61.7	63.8	61.7	56.8
400.0	.7	56.6	59.1	58.6	58.3	60.1	58.4	61.6	60.4	61.4	61.3	65.0	57.1
500.0	.9	51.3	58.3	56.4	55.9	55.6	56.9	59.1	56.4	53.8	58.5	55.9	55.2
630.0	1.1	48.5	56.9	52.7	53.1	52.1	53.8	56.6	54.9	51.1	56.9	50.9	50.9
800.0	1.4	44.9	45.5	46.1	47.0	48.1	49.6	51.1	52.2	54.8	57.1	51.7	47.4
1000.0	1.8	46.3	48.7	49.7	51.6	53.6	53.5	53.4	56.0	57.7	59.5	51.9	46.6
1250.0	2.2	45.2	48.0	50.8	51.5	53.4	53.9	55.7	56.9	57.0	59.0	49.6	46.4
1600.0	2.9	43.4	47.4	49.2	50.2	50.5	52.4	56.0	54.7	53.6	55.0	47.2	45.7
2000.0	3.6	41.8	45.8	47.5	48.4	48.3	49.0	51.7	49.0	50.6	51.6	47.1	43.6
2500.0	4.6	41.8	45.3	48.5	48.9	48.0	50.8	51.3	50.9	53.8	52.7	47.7	44.1
3150.0	5.9	41.7	49.0	50.3	50.4	51.1	50.8	52.4	51.7	51.4	51.7	49.2	45.7
4000.0	7.6	44.8	50.4	54.3	54.3	55.5	53.9	55.0	53.7	54.0	53.8	52.2	48.6
5000.0	8.6	41.6	45.5	47.8	49.2	51.3	50.4	51.1	50.7	50.6	50.3	48.7	44.3
6300.0	11.1	38.8	41.8	44.4	46.8	48.3	48.9	49.1	48.2	47.9	47.7	44.8	40.7
8000.0	14.9	42.3	46.1	48.7	49.0	54.1	56.2	56.0	49.3	49.7	49.7	49.4	45.1
10000.0	20.4	40.4	42.4	46.7	45.9	49.3	49.8	49.6	46.2	47.4	46.5	45.8	41.2
12500.0	29.0	33.5	36.6	39.0	40.6	41.7	41.8	41.5	40.3	41.6	42.0	39.0	33.9
16000.0	42.8	35.2	38.0	40.2	41.3	42.5	42.4	42.6	41.0	42.7	42.3	39.1	37.6
20000.0	56.0	29.8	32.7	35.1	37.1	38.0	38.3	38.6	38.6	41.0	40.2	36.2	32.1
OVERALL(50-10K)		71.7	72.1	72.9	74.1	74.9	74.7	75.1	76.7	78.0	78.6	76.5	74.4
OVERALL(20-20K)		72.0	72.4	73.1	74.2	75.0	74.8	75.3	76.8	78.1	78.7	76.7	74.7
A SCALE(20-20K)		60.3	63.5	64.3	65.3	66.3	66.5	67.7	68.0	68.9	69.9	67.0	63.2
PNL - - - -		74.2	77.3	78.9	80.1	81.2	81.3	82.1	82.9	84.0	84.7	81.4	78.0
PNLTC - - - -		75.2	78.4	79.7	81.6	82.6	82.4	83.2	84.0	85.2	85.7	82.5	79.2

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PFR 1000 FT.

USAF JET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, AMIZ * DE 26
 CONFIGURATION 17 * INLET A-H * FIFTEENTH LINE IN ROTM SECTION J3 ***
 MIN 72 POINT G ** 175 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - -											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	49.1	50.0	49.2	49.0	49.2	50.7	51.6	52.9	54.3	54.5	54.8	55.2
25.0	0.0	50.3	51.4	51.9	51.5	52.3	53.4	53.1	54.0	54.6	54.5	54.8	55.2
31.5	0.0	52.6	54.2	53.7	52.6	53.2	54.4	52.9	53.5	54.3	54.7	54.4	54.9
40.0	0.0	55.5	55.3	54.7	54.7	56.1	56.6	57.2	57.2	58.3	57.8	58.0	58.4
50.0	.1	57.7	57.0	55.9	55.8	56.9	56.9	57.5	58.0	58.6	58.3	59.5	59.3
63.0	.1	60.7	59.2	58.4	58.3	59.4	58.8	59.4	59.5	59.8	60.2	62.0	61.3
80.0	.1	63.3	62.9	61.4	60.8	63.2	61.4	60.8	62.8	61.7	62.2	64.2	64.1
100.0	.2	65.4	64.9	62.7	63.5	64.4	63.8	63.4	63.3	63.9	63.7	64.7	65.0
125.0	.2	67.8	67.4	65.3	66.1	67.0	66.2	65.5	65.0	65.4	64.6	65.6	64.5
160.0	.3	71.8	71.6	69.5	70.4	71.4	70.6	69.9	69.4	69.8	69.3	70.5	69.2
200.0	.3	75.5	75.2	73.1	74.0	75.0	74.2	73.5	73.0	73.4	72.9	74.1	73.8
250.0	.4	79.4	79.1	77.0	77.9	78.9	78.1	77.4	76.9	77.3	76.8	78.0	77.7
315.0	.6	83.2	82.9	80.8	81.7	82.7	81.9	81.2	80.7	81.1	80.6	81.8	81.5
400.0	.7	87.1	86.8	84.7	85.6	86.6	85.8	85.1	84.6	85.0	84.5	85.7	85.4
500.0	.9	91.0	90.7	88.6	89.5	90.5	89.7	89.0	88.5	88.9	88.4	89.6	89.3
630.0	1.1	94.9	94.6	92.5	93.4	94.4	93.6	92.9	92.4	92.8	92.3	93.5	93.2
800.0	1.4	98.8	98.5	96.4	97.3	98.3	97.5	96.8	96.3	96.7	96.2	97.4	97.1
1000.0	1.8	102.7	102.4	100.3	101.2	102.2	101.4	100.7	100.2	100.6	100.1	101.3	101.0
1250.0	2.2	106.6	106.3	104.2	105.1	106.1	105.3	104.6	104.1	104.5	104.0	105.2	104.9
1600.0	2.9	110.5	110.2	108.1	109.0	110.0	109.2	108.5	108.0	108.4	107.9	109.1	108.8
2000.0	3.6	114.4	114.1	112.0	112.9	113.9	113.1	112.4	111.9	112.3	111.8	113.0	112.7
2500.0	4.6	118.3	118.0	115.9	116.8	117.8	117.0	116.3	115.8	116.2	115.7	116.9	116.6
3150.0	5.9	122.2	121.9	119.8	120.7	121.7	120.9	120.2	119.7	120.1	119.6	120.8	120.5
4000.0	7.6	126.1	125.8	123.7	124.6	125.6	124.8	124.1	123.6	124.0	123.5	124.7	124.4
5000.0	8.6	130.0	129.7	127.6	128.5	129.5	128.7	128.0	127.5	127.9	127.4	128.6	128.3
6300.0	11.1	133.9	133.6	131.5	132.4	133.4	132.6	131.9	131.4	131.8	131.3	132.5	132.2
8000.0	14.9	137.8	137.5	135.4	136.3	137.3	136.5	135.8	135.3	135.7	135.2	136.4	136.1
10000.0	20.4	141.7	141.4	139.3	140.2	141.2	140.4	139.7	139.2	139.6	139.1	140.3	140.0
12500.0	29.0	145.6	145.3	143.2	144.1	145.1	144.3	143.6	143.1	143.5	143.0	144.2	143.9
16000.0	42.8	149.5	149.2	147.1	148.0	149.0	148.2	147.5	147.0	147.4	146.9	148.1	147.8
20000.0	56.0	153.4	153.1	151.0	151.9	152.9	152.1	151.4	150.9	151.3	150.8	152.0	151.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROMAN ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** DE 22

CONFIG 20 * INLET A-M * CERAFLIT BEHIND FIBERMETAL IN ROOM SEC 13

RUN 73 POINT F ** 105 SMP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - -											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	49.7	49.7	49.8	48.9	50.7	50.3	55.4	54.1	54.4	55.5	57.3	56.1
25.0	0.0	51.2	51.4	52.0	51.2	52.7	53.0	55.3	55.4	55.9	56.9	58.4	56.3
31.5	0.0	52.5	52.3	52.4	51.2	52.7	52.7	53.2	53.6	53.1	55.1	56.0	56.6
40.0	0.0	55.6	55.5	54.9	54.5	54.8	55.9	57.5	57.2	56.8	58.0	58.7	57.9
50.0	.1	57.3	56.6	55.1	55.1	55.1	56.3	56.2	56.5	55.8	57.3	58.5	59.5
63.0	.1	60.6	58.2	58.0	58.1	57.7	56.8	57.1	58.0	58.1	58.9	60.6	61.2
80.0	.1	60.8	60.5	60.2	59.3	60.8	59.2	59.9	60.2	61.4	61.0	62.7	63.1
100.0	.2	64.1	63.2	62.6	62.6	64.3	63.0	62.7	62.6	62.9	63.0	64.3	64.5
125.0	.2	61.8	61.2	60.9	61.8	62.7	62.1	62.7	64.6	63.7	64.1	65.1	65.4
160.0	.3	60.5	59.5	61.5	62.6	63.2	62.9	64.7	66.0	66.5	66.4	66.4	66.1
200.0	.3	59.8	61.6	64.6	67.0	67.3	67.8	68.4	71.3	71.1	69.4	67.7	66.0
250.0	.4	60.6	61.3	64.7	65.9	67.3	67.8	68.4	71.7	69.4	70.6	69.2	66.3
315.0	.6	55.7	59.8	60.4	60.4	61.3	61.4	63.5	64.8	65.6	67.8	65.1	62.1
400.0	.7	55.7	58.8	59.3	58.9	59.8	58.7	62.5	61.8	64.3	67.4	64.0	61.1
500.0	.9	49.9	54.6	55.2	55.1	54.6	55.8	55.4	57.0	58.6	65.1	60.6	55.4
630.0	1.1	48.3	55.1	53.4	52.1	54.0	54.6	54.4	56.2	55.6	64.8	58.5	52.8
800.0	1.4	45.8	46.5	47.4	51.2	54.0	54.4	56.9	57.3	55.1	56.1	51.7	48.3
1000.0	1.8	48.4	51.0	52.8	55.4	57.0	57.3	59.3	60.6	59.1	56.0	53.4	48.4
1250.0	2.2	46.4	50.1	52.9	54.2	55.1	55.9	59.9	61.2	59.5	59.7	54.2	48.5
1600.0	2.9	43.9	48.0	50.7	51.3	50.6	52.6	56.0	56.8	57.3	59.9	53.4	47.8
2000.0	3.6	42.8	45.8	47.3	48.2	51.4	51.4	54.3	53.4	52.9	57.6	50.9	45.4
2500.0	4.6	42.0	44.3	48.7	50.0	51.7	52.4	54.2	61.7	54.6	55.2	50.5	45.7
3150.0	5.9	42.4	48.4	50.2	52.0	51.5	51.5	53.3	53.3	54.1	54.7	50.6	46.4
4000.0	7.6	45.3	50.5	53.7	54.3	54.1	54.1	55.4	55.0	54.3	54.2	52.1	48.8
5000.0	8.6	42.0	45.9	47.6	49.7	51.6	50.9	52.9	53.0	52.1	51.7	48.8	44.9
6300.0	11.1	38.5	43.1	45.1	47.3	48.6	48.8	49.9	50.1	49.5	49.0	45.7	41.9
8000.0	14.9	41.9	46.7	48.6	51.4	53.2	54.2	53.1	52.0	50.9	49.2	47.6	45.4
10000.0	20.4	40.1	43.7	46.8	48.2	49.8	50.1	49.4	48.4	48.7	47.7	45.2	42.4
12500.0	29.0	34.7	38.5	42.5	42.5	43.1	44.6	45.1	45.0	45.6	46.0	41.5	38.1
16000.0	42.8	39.0	38.4	41.3	42.7	43.4	44.8	46.5	45.8	45.8	45.0	42.0	38.0
20000.0	56.0	37.7	35.2	36.9	38.8	39.9	42.2	46.0	45.6	46.7	45.2	42.4	35.8
OVERALL (50-10K)		70.4	71.0	72.0	73.0	73.9	73.8	74.9	77.1	76.5	77.3	75.7	74.3
OVERALL (20-20K)		70.9	71.2	72.3	73.2	74.1	74.0	75.1	77.2	76.6	77.5	76.0	74.6
A SCALE (20-20K)		60.0	63.2	64.8	65.9	66.8	67.2	69.0	70.9	69.7	71.6	68.0	64.7
PWL - - - -		73.9	77.1	79.1	80.1	80.8	81.0	82.3	84.9	83.2	84.3	81.7	78.5
PWLTC - - - -		74.9	78.2	80.7	81.2	81.4	81.8	82.9	87.7	83.7	84.3	81.7	79.6

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY

ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** QE 30
 CONFIG 20 * INLET A-B * CERAFELT BEHIND FIBERMETAL IN ROTH SEC 13
 RUN 74 POINT 6 ** 175 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.		
20.0	0.0	49.5	50.7	51.1	49.4	51.0	50.9	53.9	54.7	53.1	53.7	53.2	53.9
25.0	0.0	50.9	52.4	51.9	52.3	52.3	53.9	54.1	56.2	55.2	55.8	56.0	56.5
31.5	0.0	54.4	55.3	55.1	53.8	54.2	54.1	57.5	56.3	54.5	54.9	56.1	56.9
40.0	0.0	56.1	57.0	55.4	55.3	56.6	57.1	57.6	58.1	58.6	59.4	59.1	58.7
50.0	.1	58.4	57.3	55.9	56.3	56.7	57.0	56.6	57.1	59.2	59.6	59.6	61.1
63.0	.1	60.5	59.2	58.0	58.3	58.9	58.3	58.6	59.5	61.1	61.2	61.7	62.1
80.0	.1	61.5	61.0	60.2	60.0	61.9	61.4	61.0	62.1	63.0	62.8	63.7	64.8
100.0	.2	64.2	63.7	62.7	63.5	64.8	64.6	64.3	64.1	66.1	65.1	65.1	65.5
125.0	.2	63.3	61.8	62.1	63.4	63.7	64.6	63.7	65.5	67.2	66.1	65.3	65.6
160.0	.3	61.9	59.5	61.9	63.4	63.5	63.6	64.4	65.9	69.6	69.4	67.9	66.3
200.0	.3	58.9	58.5	61.6	61.9	61.7	61.9	62.2	65.0	69.1	66.9	64.6	62.3
250.0	.4	58.5	58.7	61.3	60.8	62.2	62.9	63.2	63.6	67.8	68.3	65.3	61.2
315.0	.6	57.6	61.2	61.3	60.4	61.4	61.8	65.0	65.7	67.5	67.9	66.2	59.7
400.0	.7	56.2	60.4	60.5	60.2	59.8	57.7	62.5	61.7	64.5	66.2	64.6	60.1
500.0	.9	49.5	56.9	56.8	54.6	55.0	54.7	57.8	56.9	56.8	61.4	59.9	55.0
630.0	1.1	47.7	55.6	53.9	52.9	53.9	52.6	54.7	56.8	60.3	59.8	58.3	53.5
800.0	1.4	46.7	47.5	49.1	51.0	54.2	54.5	53.3	57.3	62.5	58.5	51.6	48.2
1000.0	1.8	49.6	50.5	54.0	55.1	56.6	57.0	54.9	60.1	63.1	60.0	52.5	47.1
1250.0	2.2	47.2	50.1	53.5	54.0	55.0	55.7	58.9	59.7	61.1	59.7	53.0	46.8
1600.0	2.9	45.1	49.3	50.4	52.4	51.6	53.7	55.4	55.0	57.7	57.1	52.7	47.1
2000.0	3.6	43.8	45.8	47.3	49.4	51.0	50.5	50.0	53.5	57.2	53.0	50.8	45.5
2500.0	4.6	42.7	46.2	49.1	50.1	51.7	52.1	53.5	54.0	57.3	54.0	50.1	44.7
3150.0	5.9	42.9	48.5	50.7	52.7	50.9	51.1	51.3	52.7	55.5	53.7	50.2	46.3
4000.0	7.6	45.2	51.2	53.1	54.9	54.7	53.7	53.4	53.3	56.2	54.6	52.0	48.4
5000.0	8.6	42.1	46.0	48.0	49.9	52.3	50.5	51.9	52.1	53.8	51.7	48.0	44.3
6300.0	11.1	39.3	43.6	45.1	47.8	48.7	48.4	48.8	49.0	50.9	48.9	45.3	41.0
8000.0	14.9	43.3	46.4	49.1	52.6	53.1	52.8	51.3	51.0	51.8	50.1	47.1	43.7
10000.0	20.4	41.5	46.2	48.1	49.4	51.6	50.0	50.1	48.2	50.0	48.2	45.1	41.7
12500.0	29.0	39.1	38.3	39.9	42.4	42.5	42.5	43.2	42.4	44.6	42.3	38.7	36.1
16000.0	42.8	38.2	38.3	41.7	50.5	42.3	43.7	43.6	44.1	44.4	43.0	39.2	36.5
20000.0	56.0	32.2	38.7	37.2	38.8	38.3	39.4	39.7	40.5	42.0	39.5	36.9	36.9
OVERALL(50-10K)		71.0	71.1	71.6	72.1	72.8	72.8	73.6	74.6	77.4	76.9	75.3	73.7
OVERALL(20-20K)		71.3	71.5	71.9	72.3	73.0	73.1	73.9	74.9	77.5	77.1	75.5	74.0
A SCALE(20-20K)		60.3	63.6	64.6	65.5	66.1	66.1	67.6	68.6	71.4	70.3	67.4	63.1
PNL - - -		73.8	77.4	79.0	80.2	80.7	80.3	80.9	81.5	84.3	83.3	80.7	76.9
PNLTC - - -		73.8	78.7	80.2	81.4	81.7	80.9	80.9	82.0	84.3	83.3	80.7	77.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

DISTANCE TO SOURCE = 100.0 FT. 12 MICROPHONES

•NOTE• SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR •• DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 31
 CONFIG 21 * INLET A+B * SECTIONS 13,12,15 WITH TUBES IN SEC 13 (RERUN)
 RUN 81 POINT G ** 175 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES											
FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -									
		1	2	3	4	5	6	7	8	9	10
0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	51.4	51.9	52.6	51.0	51.5	52.0	50.9	50.5	51.5	50.9
25.0	0.0	54.6	55.4	55.5	57.1	56.2	56.3	56.8	57.7	57.9	57.1
31.5	0.0	54.1	56.4	55.4	56.1	54.8	55.7	55.6	56.0	55.8	55.6
40.0	0.0	55.0	55.9	56.6	56.8	56.6	57.3	58.5	58.6	57.0	56.9
50.0	.1	57.2	56.1	56.3	56.1	56.9	56.8	57.3	57.7	56.9	56.8
63.0	.1	59.4	58.7	57.8	57.9	58.7	58.8	58.3	58.4	59.1	59.6
80.0	.1	60.6	61.1	60.1	60.2	61.7	61.2	61.9	62.1	62.1	61.9
100.0	.2	61.7	61.5	61.3	62.4	63.2	63.1	63.9	63.2	65.0	64.4
125.0	.2	59.8	58.7	59.1	59.9	60.0	60.6	61.6	62.3	63.4	62.9
160.0	.3	58.2	56.8	58.0	59.9	59.6	59.1	61.5	62.6	63.9	63.7
200.0	.3	56.0	56.0	59.1	58.4	57.6	59.1	60.1	60.7	62.9	61.8
250.0	.4	57.7	56.7	59.5	57.5	57.7	59.2	59.4	60.0	57.0	60.7
315.0	.6	53.1	54.9	56.6	56.1	56.3	57.4	59.5	59.5	58.7	61.4
400.0	.7	52.4	53.2	54.5	54.6	54.5	53.9	58.3	56.8	59.2	57.9
500.0	.9	50.4	56.7	55.2	56.4	54.4	54.1	55.0	55.0	53.2	56.9
630.0	1.1	47.3	54.9	51.1	51.7	51.7	50.7	54.2	52.9	48.9	55.7
800.0	1.4	43.8	47.1	46.4	46.8	46.5	47.0	47.9	48.2	49.9	50.5
1000.0	1.8	45.2	47.1	48.1	48.4	52.6	50.7	52.5	52.1	53.0	53.9
1250.0	2.2	44.6	47.2	48.0	48.4	51.2	50.8	52.6	53.1	54.1	54.1
1600.0	2.9	43.1	46.9	48.7	48.8	49.1	51.6	51.8	52.2	50.5	51.5
2000.0	3.6	39.6	44.4	46.1	47.6	45.6	48.7	49.9	47.8	47.7	47.7
2500.0	4.6	40.6	43.5	44.3	46.2	46.6	48.9	47.7	46.9	50.0	51.2
3150.0	5.9	40.0	44.2	45.4	45.9	47.4	48.5	49.9	49.8	50.1	50.8
4000.0	7.6	40.9	44.0	45.0	48.5	48.9	48.0	49.6	49.6	50.3	50.8
5000.0	8.6	41.2	45.2	45.7	48.3	49.9	47.8	47.9	48.9	48.9	49.2
6300.0	11.1	38.8	42.0	43.0	46.3	46.5	46.9	45.8	46.3	46.5	47.1
8000.0	14.9	43.5	45.6	47.7	50.0	50.8	51.5	50.2	48.8	49.8	50.2
10000.0	20.4	42.5	45.4	45.8	49.8	49.6	49.4	48.1	47.0	47.8	48.0
12500.0	29.0	36.7	39.8	40.2	42.5	43.1	43.1	41.8	42.1	43.0	45.0
16000.0	42.8	37.7	39.2	39.5	40.9	42.0	42.8	42.5	43.1	44.1	45.9
20000.0	56.0	32.6	36.3	36.1	38.1	38.5	39.6	38.6	39.7	41.1	44.2
OVERALL (50-10K)		68.7	68.8	69.2	69.6	70.0	70.2	71.2	71.4	72.1	72.3
OVERALL (20-20K)		69.2	69.5	69.8	70.3	70.6	70.8	71.8	71.9	72.6	72.7
A SCALE (20-20K)		57.8	60.7	61.1	62.1	62.3	62.6	63.8	63.6	63.9	65.0
PNL - - - -		71.6	73.9	74.4	76.1	76.4	76.6	77.6	77.5	77.9	79.7
PNLTC - - - -		72.1	73.9	75.0	76.1	77.7	77.1	78.2	77.5	78.5	79.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 33
 CONFIG 21 * INLET A+B * SECTIONS 13,12,15 WITH TUBES IN SEC 13 (RERUN)
 RUN 82 POINT I ** 105 SMP ** 70 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0 FT.		12 MICROPHONES											
FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	49.9	55.0	50.0	50.8	51.3	51.2	51.4	50.1	50.1	48.9	49.2	48.5
25.0	0.0	55.9	56.5	57.6	56.8	57.9	58.0	57.5	58.6	58.6	58.1	57.9	57.9
31.5	0.0	56.7	58.0	57.7	57.8	57.2	58.3	58.2	58.5	59.5	59.2	57.4	58.0
40.0	0.0	56.0	56.6	55.4	55.9	56.1	56.6	56.9	55.5	55.8	55.7	55.0	54.2
50.0	.1	54.6	58.8	55.2	53.6	54.1	56.4	56.8	57.3	57.2	56.2	54.5	54.4
63.0	.1	57.3	55.4	55.1	53.2	54.9	55.6	55.4	56.2	56.4	56.7	56.1	56.2
80.0	.1	56.4	55.9	56.3	55.4	56.7	55.8	56.4	56.2	56.8	58.9	58.0	57.3
100.0	.2	58.8	58.6	59.5	59.0	61.0	60.6	59.6	59.6	61.5	59.6	58.7	59.3
125.0	.2	54.9	56.9	58.3	57.0	57.8	57.5	57.5	57.7	59.9	58.3	58.0	56.8
160.0	.3	54.1	54.6	55.0	56.9	55.6	55.2	56.0	57.9	59.7	57.8	57.7	56.8
200.0	.3	52.8	53.5	56.5	55.5	55.5	56.4	56.5	57.9	59.5	57.3	57.4	56.4
250.0	.4	55.8	55.5	58.3	56.3	56.0	55.9	56.8	57.6	56.4	58.0	58.4	57.6
315.0	.6	52.3	53.2	53.9	53.6	53.8	54.4	56.1	56.5	54.1	56.7	55.6	55.2
400.0	.7	51.6	51.1	54.6	53.8	55.2	55.4	55.2	54.0	54.3	53.3	52.7	54.4
500.0	.9	57.8	59.7	62.4	56.8	60.5	64.5	59.1	63.3	53.8	51.2	51.8	56.7
630.0	1.1	47.4	51.6	52.5	49.9	49.1	50.2	53.4	50.7	46.5	51.3	47.7	47.0
800.0	1.4	45.9	46.7	44.9	45.5	46.7	44.7	48.0	47.3	46.7	46.5	45.5	45.3
1000.0	1.8	45.4	46.9	47.2	47.9	51.8	47.2	48.8	49.4	50.7	47.8	47.0	46.6
1250.0	2.2	44.0	46.3	46.9	46.4	50.0	48.6	50.5	49.6	48.7	46.9	46.6	47.0
1600.0	2.9	42.3	43.8	46.1	45.5	46.7	47.1	48.3	46.9	45.9	44.6	44.7	44.9
2000.0	3.6	38.8	41.9	43.2	46.0	44.6	46.5	46.7	45.5	45.2	43.4	44.4	45.5
2500.0	4.6	38.1	43.3	44.2	43.8	45.8	46.0	45.6	43.4	46.0	46.8	45.8	47.1
3150.0	5.9	36.7	39.8	42.2	42.9	45.0	44.3	46.2	44.5	45.9	46.2	44.8	46.3
4000.0	7.6	38.2	40.8	41.8	45.3	46.3	44.4	45.7	45.9	46.4	45.9	46.8	49.0
5000.0	8.6	38.2	41.3	42.8	44.4	46.4	43.7	44.8	45.0	45.3	45.4	48.2	49.8
6300.0	11.1	35.3	38.9	40.5	42.2	44.3	44.0	43.8	42.9	43.3	43.3	45.6	46.7
8000.0	14.9	38.5	42.9	44.1	46.0	47.2	47.4	46.2	47.2	45.0	45.3	46.4	46.4
10000.0	20.4	34.1	37.7	38.7	40.3	41.8	42.9	41.4	40.3	40.5	41.0	42.2	43.1
12500.0	29.0	31.2	33.2	34.7	36.5	37.9	37.8	36.7	35.7	36.7	37.3	38.9	40.6
16000.0	42.8	31.5	33.0	34.3	35.7	36.6	37.4	37.7	38.0	38.2	39.7	41.0	41.7
20000.0	56.0	26.4	31.8	30.6	31.4	34.5	34.4	32.8	33.2	35.3	38.0	41.7	44.2
OVERALL (50-10K)		66.7	67.2	68.3	67.0	68.1	69.1	69.1	69.3	68.7	68.1	67.7	67.6
OVERALL (20-20K)		67.4	68.5	69.3	68.2	69.1	70.0	69.2	70.2	69.8	69.3	68.8	68.7
A SCALE (20-20K)		58.3	60.1	62.1	59.9	61.9	63.5	61.8	63.1	60.4	60.1	59.8	60.9
PNL - - -		71.2	73.2	75.1	73.2	75.2	76.6	74.9	76.3	74.1	73.8	74.1	75.1
PNLIC - - -		74.0	76.0	78.0	74.9	78.0	80.5	76.5	80.0	74.6	74.4	74.1	77.1

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRONHAM ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 31
 CONFIG 21 * INLET A+B * SECTIONS 13,12,15 WITH TUBES IN SEC 13 (RERUN)
 RUN 83 POINT A ** 105 SMP ** 100 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	50.7	51.9	52.9	49.0	51.1	51.7	49.7	50.7	47.9	50.2	48.0	48.2
25.0	0.0	56.3	59.6	58.4	56.0	55.7	56.1	56.6	57.0	55.3	56.7	53.9	54.0
31.5	0.0	55.5	56.5	55.7	55.0	54.7	55.1	53.9	54.2	52.7	52.8	53.0	52.7
40.0	0.0	58.2	58.0	58.5	57.4	59.9	59.5	57.7	57.4	56.8	56.7	56.6	56.6
50.0	.1	59.9	59.9	59.3	60.1	61.3	60.9	59.6	58.9	57.2	57.1	56.7	59.4
63.0	.1	64.1	63.5	62.3	62.8	63.2	62.9	60.4	61.3	60.8	60.9	61.5	61.9
80.0	.1	66.1	66.3	65.1	65.0	66.8	65.2	64.3	65.1	64.5	65.2	65.0	65.0
100.0	.2	67.9	66.6	66.4	67.5	68.9	67.7	66.8	66.4	67.4	66.2	66.4	67.8
125.0	.2	65.9	65.2	65.5	66.3	67.3	66.6	65.3	66.5	66.6	66.6	66.0	66.6
160.0	.3	64.6	62.2	63.6	66.2	65.4	65.1	65.3	66.2	67.4	66.4	66.3	67.1
200.0	.3	61.6	61.6	64.8	64.2	64.0	63.7	63.8	65.0	64.9	65.7	66.4	66.2
250.0	.4	62.0	61.4	64.8	62.7	63.0	63.1	61.0	62.5	61.4	63.7	64.3	64.4
315.0	.6	59.9	61.7	63.1	61.9	61.8	62.6	63.0	63.0	62.8	63.5	63.9	63.9
400.0	.7	59.4	60.8	61.9	59.8	60.5	59.4	62.8	61.4	62.0	61.7	61.8	61.7
500.0	.9	55.0	57.8	59.6	57.6	56.4	56.9	56.9	55.6	55.4	55.2	55.3	56.2
630.0	1.1	54.1	57.1	59.5	57.7	55.3	56.7	56.1	58.0	59.1	55.3	58.8	57.2
800.0	1.4	50.1	51.5	53.6	53.6	54.8	55.5	53.6	56.3	58.8	56.8	60.7	60.2
1000.0	1.8	51.2	52.3	54.0	56.8	59.1	58.5	54.6	58.7	59.8	60.6	62.4	62.7
1250.0	2.2	50.8	54.0	56.7	57.7	58.8	57.0	58.6	60.1	59.6	60.9	61.4	62.1
1600.0	2.9	49.0	54.1	57.3	57.0	55.6	57.1	57.8	57.9	57.2	58.4	57.0	58.1
2000.0	3.6	46.9	52.2	55.7	54.2	52.1	52.3	55.8	52.9	53.5	53.6	56.0	56.9
2500.0	4.6	45.7	49.5	52.5	51.3	53.1	52.7	52.7	54.5	55.2	56.8	57.8	58.3
3150.0	5.9	44.3	50.3	52.6	52.7	51.5	53.6	54.6	53.3	54.2	54.5	55.1	55.9
4000.0	7.6	43.3	48.9	51.9	50.5	51.5	51.3	52.0	53.3	53.5	55.1	56.1	57.1
5000.0	8.6	42.1	48.2	50.1	50.0	49.8	50.6	51.6	51.9	52.0	53.2	54.7	56.3
6300.0	11.1	39.1	45.1	47.6	46.4	47.9	47.9	48.3	49.2	49.3	51.4	52.6	54.4
8000.0	14.9	38.0	43.8	45.5	45.5	45.9	47.7	46.6	47.3	47.7	50.0	51.5	53.2
10000.0	20.4	37.3	43.6	43.4	43.9	47.2	47.2	45.2	47.8	47.2	49.5	50.9	53.3
12500.0	29.0	35.8	41.1	40.9	41.6	42.2	43.1	41.9	42.5	43.7	46.8	50.1	54.2
16000.0	42.8	34.0	39.3	37.3	38.1	37.2	38.9	38.4	39.6	41.9	46.0	50.5	54.8
20000.0	56.0	30.6	36.0	35.0	34.6	36.0	37.2	36.6	37.6	40.1	44.3	49.2	53.0
OVERALL(50-10K)		74.2	74.0	74.8	74.9	75.5	74.9	74.4	75.0	75.5	75.2	75.7	76.2
OVERALL(20-20K)		74.5	74.3	75.1	75.1	75.8	75.2	74.7	75.2	75.6	75.4	75.8	76.4
A SCALE(20-20K)		63.3	65.4	67.8	67.2	67.4	67.4	67.7	68.4	68.8	69.3	70.3	70.9
PNL - - - -		76.5	78.8	80.9	80.6	80.7	81.1	81.4	81.6	82.1	82.8	83.7	84.4
PNLTC - - - -		76.5	78.8	80.9	80.6	80.7	81.1	81.4	81.6	82.1	82.8	83.7	84.4

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PFR 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 31
 CONFIG 21 * INLET A+B * SECTIONS 13,12,15 WITH TUBES IN SEC 13 (RERUN)
 RUN 84 POINT C ** 677 SMP ** 100 PERCENT RPM ** 14.1 LIMITED

		DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES											
		SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
FREQUENCY	ATMOS. CORR.	1 2 3 4 5 6 7 8 9 10 11 12											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	52.3	52.4	51.8	51.6	51.5	52.5	51.3	49.8	47.6	0.0	0.0	0.0
25.0	0.0	57.1	58.2	57.2	59.2	59.0	60.8	60.6	59.1	53.4	55.8	55.4	56.3
31.5	0.0	59.5	60.0	59.3	59.2	59.9	58.4	57.9	56.6	55.4	56.1	57.0	57.0
40.0	0.0	62.5	62.6	62.1	62.8	63.3	62.4	62.4	61.2	58.8	58.8	59.2	59.6
50.0	.1	64.6	64.9	64.6	64.5	64.9	65.5	64.6	63.6	61.5	60.7	59.7	63.2
63.0	.1	66.9	67.0	67.4	68.0	68.9	68.2	67.2	67.6	65.5	64.2	64.4	65.1
80.0	.1	68.7	69.7	68.4	68.9	70.5	70.0	69.4	69.0	68.6	67.5	67.0	68.4
100.0	.2	72.3	71.2	70.8	72.0	73.0	73.0	72.1	71.6	72.8	71.6	71.5	72.8
125.0	.2	70.4	69.7	69.9	72.0	72.3	72.9	71.6	72.3	72.0	71.7	71.8	72.2
160.0	.3	68.6	67.5	68.7	71.8	71.5	71.1	71.9	71.7	73.3	71.6	71.1	73.2
200.0	.3	67.3	66.8	70.0	70.0	69.8	69.9	71.0	71.2	73.2	71.1	71.7	72.9
250.0	.4	67.8	67.0	70.2	68.8	69.6	70.0	68.9	70.4	68.0	71.1	71.3	72.3
315.0	.6	64.2	66.9	68.8	68.0	68.1	69.7	70.6	70.3	68.7	70.4	70.5	71.3
400.0	.7	62.8	64.9	66.6	65.9	66.5	69.5	70.0	67.6	68.7	67.5	67.2	69.4
500.0	.9	60.3	63.2	65.4	64.5	63.8	62.2	64.8	64.1	61.9	63.6	62.2	63.8
630.0	1.1	57.2	61.0	62.7	63.8	62.1	61.5	64.3	62.7	62.0	62.4	63.9	63.8
800.0	1.4	55.2	55.5	58.2	57.7	60.6	61.8	61.0	61.8	64.3	63.4	67.2	67.8
1000.0	1.8	58.0	59.7	61.3	62.5	65.8	66.1	61.6	66.3	67.9	67.9	70.3	70.5
1250.0	2.2	57.8	62.2	64.3	64.3	66.2	65.2	66.1	68.4	67.6	69.2	70.1	70.4
1600.0	2.9	58.8	62.8	64.9	64.1	64.6	65.5	67.2	68.9	65.1	67.4	66.3	66.8
2000.0	3.6	53.0	58.5	61.8	61.8	61.5	59.6	65.2	59.8	61.5	62.2	63.4	63.7
2500.0	4.6	51.8	56.6	58.1	57.0	59.8	61.1	60.5	62.7	64.1	64.9	66.5	66.0
3150.0	5.9	50.4	57.7	60.5	59.0	61.0	61.1	63.9	62.3	61.9	63.6	62.9	62.7
4000.0	7.6	48.0	54.7	56.8	55.3	57.5	57.5	59.3	60.3	61.5	62.0	63.7	62.6
5000.0	8.6	46.3	53.5	56.2	55.0	56.8	56.8	58.8	59.4	59.3	61.2	62.2	60.9
6300.0	11.1	43.6	51.0	53.1	51.7	54.5	54.5	55.9	57.1	57.5	59.1	60.6	59.6
8000.0	14.9	41.5	49.5	51.4	50.5	52.6	53.6	54.5	55.3	56.0	57.3	58.8	57.8
10000.0	20.4	39.2	48.1	49.8	48.6	50.5	52.2	53.5	53.1	54.9	55.2	56.5	55.4
12500.0	29.0	37.6	44.6	45.4	45.3	47.4	48.3	49.3	49.0	49.7	51.3	53.1	52.0
16000.0	42.8	36.0	42.0	43.0	43.2	45.4	46.3	47.7	47.2	47.9	49.9	51.0	50.2
20000.0	56.0	34.5	38.8	39.3	39.6	41.8	42.6	43.5	43.0	43.8	46.0	47.5	46.8
OVERALL (50-10K)		78.5	78.7	79.8	80.3	80.9	81.0	81.2	81.2	81.5	81.2	81.6	82.4
OVERALL (20-20K)		78.7	78.9	79.9	80.5	81.1	81.1	81.3	81.3	81.5	81.3	81.7	82.5
A SCALE (20-20K)		68.8	71.6	73.7	73.4	74.5	74.5	75.8	76.0	76.0	76.9	77.9	78.1
PNL - - - -		82.0	85.2	87.3	86.8	88.1	88.2	89.8	89.3	89.7	90.4	91.3	91.3
PNLTC - - - -		83.2	85.2	88.3	86.8	88.1	89.2	91.1	89.3	89.7	90.4	92.4	91.3

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
 ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 33

CONFIG 22 * COMPLETELY RARE ENGINE * DYNO COVERED *

RUN 85 POINT A ** 105 SHP ** 100 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	48.3	50.5	50.9	0.0	51.5	0.0	50.3	50.3	51.3	50.8	52.1	51.5
25.0	0.0	58.0	59.9	58.1	57.9	56.6	59.2	65.3	63.2	65.5	61.5	59.7	59.5
31.5	0.0	53.3	53.0	54.2	53.4	53.3	53.3	54.6	54.7	56.8	57.1	60.6	61.4
40.0	0.0	55.5	55.6	56.2	56.8	56.3	56.8	54.4	55.3	57.9	60.6	64.1	64.7
50.0	.1	56.1	55.1	56.2	56.4	56.8	55.4	54.8	55.2	58.8	61.3	64.8	65.9
63.0	.1	57.6	57.5	58.2	58.0	58.6	58.6	57.9	59.8	63.1	64.2	67.4	67.8
80.0	.1	59.4	59.4	59.9	59.9	59.9	58.9	59.5	61.1	63.8	66.0	69.6	69.6
100.0	.2	60.6	61.1	62.3	62.3	64.5	61.3	62.7	64.1	66.8	67.9	71.3	71.4
125.0	.2	65.8	60.8	61.9	62.9	64.4	62.7	63.6	64.8	67.5	69.3	71.0	71.3
160.0	.3	63.1	60.4	61.2	64.0	64.2	64.0	64.6	65.8	68.9	69.9	71.4	71.9
200.0	.3	62.6	61.5	63.3	64.7	63.7	63.4	64.3	65.9	69.4	70.7	72.2	78.1
250.0	.4	62.1	62.4	65.6	64.2	65.6	66.0	66.6	69.2	70.3	72.6	75.0	69.8
315.0	.6	65.4	64.8	68.5	67.2	69.5	68.9	70.4	72.8	75.4	75.3	75.3	70.9
400.0	.7	66.0	63.8	66.2	65.1	68.2	65.8	71.6	73.3	75.0	73.9	72.3	68.3
500.0	.9	60.2	63.1	66.5	64.9	67.0	63.8	68.2	68.0	68.0	70.8	68.4	68.2
630.0	1.1	59.8	61.2	67.6	63.2	66.7	62.7	68.2	67.4	67.3	70.2	65.2	65.7
800.0	1.4	60.2	61.9	65.5	63.4	67.6	61.8	62.4	64.6	63.5	65.0	61.4	62.5
1000.0	1.8	64.0	66.3	68.2	69.9	70.0	66.7	65.2	66.3	69.9	64.3	64.0	61.6
1250.0	2.2	67.2	79.9	81.9	81.5	80.7	72.6	73.2	71.6	74.7	69.5	71.3	69.8
1600.0	2.9	67.5	78.0	80.4	79.9	78.5	73.0	73.7	75.3	75.3	71.0	70.6	68.7
2000.0	3.6	67.8	72.9	78.3	75.4	70.7	65.5	70.6	71.5	72.4	71.1	69.3	73.8
2500.0	4.6	63.1	67.1	72.6	72.0	71.1	67.8	68.1	70.2	71.3	67.5	66.3	68.2
3150.0	5.9	63.0	68.9	78.6	84.2	78.1	77.7	74.5	71.7	76.3	72.7	76.1	70.9
4000.0	7.6	71.5	74.4	78.2	90.5	92.7	80.6	73.8	71.4	75.6	74.2	78.0	72.3
5000.0	8.6	64.8	69.7	79.8	82.4	83.3	72.9	72.6	77.8	75.2	71.3	71.7	69.3
6300.0	11.1	67.2	70.3	79.1	79.7	78.5	71.6	71.0	75.4	73.8	71.8	68.5	69.8
8000.0	14.9	66.0	79.7	83.0	86.1	82.3	72.9	77.3	76.9	75.5	72.2	68.0	69.3
10000.0	20.4	63.1	73.0	78.9	78.8	76.5	71.9	70.7	75.0	73.8	68.9	66.8	68.2
12500.0	29.0	66.8	82.0	86.3	85.3	81.4	71.4	74.3	74.8	75.0	68.7	68.6	69.7
16000.0	42.8	58.8	58.7	78.0	80.5	71.6	67.7	70.1	73.1	74.7	68.0	65.2	62.2
20000.0	56.0	57.0	66.9	77.3	76.7	71.4	68.2	70.3	73.3	74.5	67.8	66.8	62.5
OVERALL (50-10K)		78.7	85.8	89.9	93.9	94.3	85.2	84.3	85.4	86.3	84.6	85.4	83.4
OVERALL (20-20K)		79.1	87.4	91.9	94.9	94.6	85.6	85.1	86.3	87.1	84.9	85.6	83.8
A SCALE (20-20K)		78.2	86.5	90.8	94.7	95.1	85.6	84.1	85.0	85.8	83.0	83.9	81.5
PNL - - - -		93.0	97.4	102.1	108.6	109.5	100.3	97.6	99.1	99.6	97.7	99.2	96.2
PNLTC - - - -		95.5	100.0	104.7	111.0	113.5	102.0	98.7	100.6	100.1	97.7	100.6	98.2

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ • QE 33

CONFIG 22 • COMPLETELY BARE ENGINE • DYNO COVERED •

RUN 86 POINT C • 677 SHP • 100 PERCENT RPM • 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT.		12 MICROPHONES											
FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS											
		1	2	3	4	5	6	7	8	9	10	11	12
0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.		
20.0	0.0	50.9	0.0	51.5	0.0	51.3	50.9	50.9	50.6	0.0	54.4	56.6	
25.0	0.0	56.0	55.9	57.0	56.7	57.2	57.7	62.2	59.5	61.5	60.6	61.8	
31.5	0.0	58.1	57.4	58.2	57.1	57.5	58.0	57.0	56.2	58.8	63.8	64.6	
40.0	0.0	61.2	60.9	60.9	60.9	60.0	60.0	59.0	59.5	62.1	64.5	67.6	
50.0	.1	62.8	61.9	62.6	61.9	61.5	61.5	61.1	60.5	63.7	65.6	68.4	
63.0	.1	64.8	64.3	64.5	63.7	64.5	64.6	64.2	64.5	67.0	69.7	71.8	
80.0	.1	66.5	66.0	66.1	66.0	66.9	66.2	65.9	66.7	68.7	71.7	74.4	
100.0	.2	67.9	68.2	68.5	68.0	69.4	68.4	69.1	69.4	73.2	75.0	76.8	
125.0	.2	68.3	67.4	68.5	69.8	70.8	69.9	69.7	70.8	74.5	77.1	78.3	
160.0	.3	68.2	66.6	68.5	71.9	70.8	71.1	71.7	73.0	77.0	78.8	79.4	
200.0	.3	68.1	67.8	70.2	71.3	69.9	73.8	71.7	72.8	77.4	79.0	79.3	
250.0	.4	68.3	70.0	71.6	70.0	71.9	72.4	74.1	75.8	79.3	80.7	76.5	
315.0	.6	69.0	69.8	73.9	72.8	73.8	73.9	76.6	78.7	79.5	81.6	75.9	
400.0	.7	68.8	68.5	71.7	71.5	72.9	71.8	77.0	78.1	81.7	77.3	72.9	
500.0	.9	64.0	68.2	70.3	67.7	69.9	69.4	75.0	73.5	74.9	72.2	67.8	
630.0	1.1	62.7	66.0	68.4	67.8	73.8	69.6	75.3	72.5	73.1	71.0	67.8	
800.0	1.4	64.3	65.0	67.1	67.6	73.6	68.6	76.9	70.3	70.6	67.2	65.1	
1000.0	1.8	67.4	68.9	71.9	73.8	75.5	73.9	71.7	76.7	77.1	70.7	65.4	
1250.0	2.2	69.8	78.3	83.5	82.6	79.9	80.5	80.0	79.8	80.9	77.2	67.5	
1600.0	2.9	68.7	77.2	82.1	81.4	78.4	79.4	80.6	80.0	80.9	73.5	67.0	
2000.0	3.6	67.0	73.0	76.6	76.3	73.9	78.0	78.0	74.1	75.6	71.5	69.6	
2500.0	4.6	66.1	68.4	75.4	75.9	77.6	73.7	75.3	81.8	76.4	71.8	67.6	
3150.0	5.9	65.9	69.8	77.9	80.7	79.7	78.8	79.6	81.4	78.7	76.2	69.7	
4000.0	7.6	70.9	73.4	80.9	90.1	86.4	82.5	77.3	79.2	75.6	78.2	73.3	
5000.0	8.6	65.6	68.9	77.6	83.0	82.8	74.7	76.8	78.6	75.5	73.6	68.5	
6300.0	11.1	63.5	67.1	76.2	74.7	81.9	71.8	75.3	79.6	74.5	70.2	67.5	
8000.0	14.9	65.5	77.8	84.2	88.9	79.3	71.7	74.0	78.6	73.9	70.9	65.9	
10000.0	20.4	63.0	71.6	79.6	81.3	80.0	72.2	74.2	75.2	72.2	69.6	64.5	
12500.0	29.0	70.0	80.4	86.4	89.6	88.1	73.9	74.4	75.9	71.9	68.9	68.3	
16000.0	42.8	58.8	69.4	75.7	81.4	74.1	68.7	71.4	73.5	72.4	64.8	59.8	
20000.0	56.0	55.7	67.4	73.2	74.4	69.4	67.7	70.1	71.9	71.1	65.3	57.1	
OVERALL (50-10K)		80.9	85.3	90.9	94.5	91.8	88.6	89.5	90.8	90.5	89.9	87.0	
OVERALL (20-20K)		81.4	86.7	92.4	95.9	93.4	88.9	89.6	91.1	90.7	90.0	87.2	
A SCALE (20-20K)		79.2	85.5	91.4	95.2	92.6	88.8	89.2	90.6	89.3	86.0	81.4	
PNL - - - -		93.9	97.4	103.7	109.0	106.8	103.2	102.9	104.4	102.9	101.6	97.3	
PNLTC - - - -		95.6	99.1	105.9	111.8	108.5	105.1	104.0	105.8	103.7	102.7	98.7	

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICRONAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** DE 33

CONFIG 22 * COMPLETELY BARE ENGINE * DYNO COVERED *

RUN 87 POINT F ** 105 SHP ** 80 PERCENT RPM ** 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	0.0	50.4	0.0	0.0	52.4	53.1	0.0	54.1	55.6	56.1	57.3	58.0
25.0	0.0	49.5	51.9	56.2	54.6	52.8	50.9	51.0	53.0	53.8	53.0	54.7	56.2
31.5	0.0	51.9	53.0	56.3	54.1	52.8	50.6	50.6	52.4	53.1	52.3	55.0	55.3
40.0	0.0	53.6	56.9	56.1	55.6	56.9	52.8	51.2	52.8	53.4	54.9	56.5	56.8
50.0	.1	54.1	54.8	55.0	54.3	52.4	51.7	51.3	53.0	54.3	55.5	56.5	57.7
63.0	.1	56.5	57.3	57.4	56.6	56.6	54.2	54.2	55.6	56.1	59.3	59.7	59.3
80.0	.1	57.7	58.1	59.1	57.9	58.4	55.8	55.9	57.9	58.7	60.5	61.1	61.0
100.0	.2	59.9	60.6	59.8	59.4	60.9	59.5	58.7	60.7	61.6	62.6	63.6	64.0
125.0	.2	60.7	60.7	60.2	61.9	63.1	62.3	61.2	62.5	63.5	64.3	65.0	64.9
160.0	.3	62.1	62.2	61.2	65.4	67.5	67.9	70.1	72.9	75.2	72.8	69.7	68.1
200.0	.3	63.8	63.4	64.1	66.6	66.0	66.4	68.9	71.7	75.5	72.5	70.6	68.0
250.0	.4	63.1	64.7	66.6	65.2	67.1	66.5	66.4	69.9	68.6	71.5	72.0	67.8
315.0	.4	66.6	66.8	70.3	69.1	70.0	69.0	71.7	74.0	72.8	73.8	73.1	68.7
400.0	.7	67.6	66.6	68.9	68.1	69.7	67.6	74.2	74.7	76.3	73.4	70.8	65.8
500.0	.9	61.4	67.9	69.5	65.8	68.0	68.5	70.2	71.2	71.8	70.8	71.7	68.5
630.0	1.1	62.2	66.7	66.4	64.6	67.8	67.4	69.9	70.3	67.7	70.9	70.8	57.4
800.0	1.4	67.5	71.8	66.3	69.1	72.8	65.5	61.9	63.9	64.5	64.8	63.5	62.8
1000.0	1.8	72.6	71.8	74.6	78.0	75.8	72.5	69.4	69.3	70.5	68.7	68.2	63.8
1250.0	2.2	75.0	75.9	79.4	79.7	77.0	74.8	74.7	72.8	71.8	70.8	71.2	65.2
1600.0	2.9	74.4	77.1	80.8	79.9	75.7	73.8	74.7	73.2	72.7	70.8	72.0	66.1
2000.0	3.6	70.5	74.9	77.6	76.5	75.0	69.6	71.3	70.3	70.1	70.4	67.6	67.4
2500.0	4.6	73.0	74.3	81.6	83.1	81.6	74.4	71.6	70.5	70.4	69.6	68.9	67.3
3150.0	5.9	74.0	79.3	85.3	83.3	80.2	74.1	73.5	73.4	72.8	72.7	72.6	69.5
4000.0	7.6	75.0	78.3	86.0	86.8	83.3	76.4	73.0	72.3	73.2	74.9	74.6	73.7
5000.0	8.6	75.6	81.4	89.1	88.8	82.7	75.3	73.8	75.6	74.7	75.3	75.1	72.9
6300.0	11.1	72.6	78.3	84.6	85.9	80.3	72.2	70.3	71.3	71.0	71.3	71.7	72.7
8000.0	14.9	71.2	76.3	88.6	86.7	81.1	71.8	71.2	73.1	71.6	71.5	70.9	69.5
10000.0	20.4	72.1	76.5	90.2	85.5	80.7	69.8	71.0	71.7	71.1	71.1	69.8	68.8
12500.0	29.0	66.1	73.0	84.0	82.2	76.4	68.7	68.7	69.7	68.7	65.8	65.1	63.8
15000.0	42.8	65.4	73.2	83.8	81.9	75.1	68.0	69.5	71.0	70.7	69.0	67.4	64.0
20000.0	56.0	63.7	71.8	82.9	78.3	72.5	69.2	73.4	75.4	75.1	69.8	66.6	63.9
OVERALL(50-10K)		84.4	88.3	96.1	95.1	90.9	84.8	84.6	85.1	85.3	84.9	84.3	82.1
OVERALL(20-20K)		84.6	88.6	96.8	95.6	91.3	85.1	85.1	85.8	86.0	85.2	84.6	82.3
A SCALE(20-20K)		84.7	88.6	96.1	95.4	91.2	84.9	84.1	84.1	83.8	83.7	83.4	81.3
PNL - - - -		97.9	102.1	108.9	108.5	104.8	98.8	97.5	98.2	97.9	98.2	97.8	96.0
PNLTC - - - -		98.5	103.1	110.2	108.5	106.2	99.3	98.3	99.5	98.7	99.2	97.8	96.0

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ • QE 25

CONFIG 22 • COMPLETELY BARE ENGINE • DYNO COVERED •

RUN 88 POINT 6 • 175 SHP • 80 PERCENT RPM • 14.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	51.7	51.0	0.0	0.0	51.7	52.9	0.0	52.2	53.9	56.3	56.7	57.2
25.0	0.0	53.0	53.7	57.5	56.2	54.3	52.1	52.4	52.3	53.1	54.2	54.1	55.1
31.5	0.0	53.1	52.7	55.3	54.1	52.9	50.9	50.3	50.9	51.4	53.3	53.6	55.3
40.0	0.0	54.2	54.2	54.7	55.1	54.4	54.4	51.4	52.2	53.6	54.7	56.4	56.4
50.0	.1	54.7	54.9	56.0	56.2	53.2	53.2	51.7	52.3	53.5	54.9	57.3	57.7
63.0	.1	56.3	57.0	58.7	58.5	57.0	56.0	55.1	54.7	58.0	59.3	60.0	59.9
80.0	.1	58.0	58.1	58.2	58.7	58.6	57.5	57.2	58.1	58.3	59.7	62.2	61.8
100.0	.2	60.5	60.8	60.1	59.6	60.5	60.3	59.8	60.5	61.0	62.5	64.7	64.9
125.0	.2	61.3	60.0	60.4	61.5	63.0	62.4	61.5	62.3	63.1	64.4	65.0	65.6
160.0	.3	61.5	61.3	61.0	64.6	65.5	64.1	64.6	65.4	67.5	66.6	66.2	66.1
200.0	.3	64.1	63.6	63.9	66.4	64.8	63.8	63.8	65.8	69.9	68.9	68.4	66.4
250.0	.4	64.2	64.6	66.4	66.5	65.7	65.6	65.1	68.1	67.0	70.5	71.6	67.3
315.0	.6	65.8	65.9	69.4	67.9	69.2	67.6	69.3	71.6	72.1	72.8	72.5	65.7
400.0	.7	65.9	65.2	67.4	65.2	68.6	65.7	72.6	72.4	72.8	71.1	69.2	63.9
500.0	.9	63.9	66.6	67.0	64.8	66.6	67.9	67.8	68.9	66.1	69.3	70.0	65.9
630.0	1.1	64.9	66.3	65.8	64.8	68.5	66.6	67.2	68.7	65.6	68.2	69.8	66.4
800.0	1.4	70.0	68.9	71.7	73.3	74.4	73.6	70.4	70.4	71.7	69.5	71.2	67.9
1000.0	1.8	74.9	74.8	78.3	80.5	76.8	76.3	75.5	73.1	71.4	71.0	72.7	68.7
1250.0	2.2	76.9	77.9	81.7	81.5	76.5	76.3	73.9	71.1	69.0	69.5	71.6	67.2
1600.0	2.9	76.1	77.6	80.6	79.5	75.4	73.1	73.9	71.1	68.2	67.1	68.0	67.8
2000.0	3.6	73.2	74.0	78.6	81.5	76.2	71.5	70.5	68.9	68.2	69.3	70.7	67.8
2500.0	4.6	75.9	77.8	85.7	86.2	82.7	76.1	75.5	72.4	71.8	70.9	72.0	70.1
3150.0	5.9	76.2	78.7	84.7	84.3	80.9	75.3	72.1	71.1	70.1	75.2	76.8	71.2
4000.0	7.6	77.1	79.8	89.7	87.7	82.4	77.5	75.7	73.5	74.3	74.0	74.9	71.5
5000.0	8.6	76.9	79.9	88.2	90.2	81.8	76.3	74.3	74.8	74.0	71.2	72.8	70.1
6300.0	11.1	74.6	79.4	86.7	85.7	80.5	74.1	71.3	71.8	70.4	70.2	67.4	66.9
8000.0	14.9	72.9	78.9	89.8	88.4	81.2	72.9	72.9	72.8	71.3	70.1	65.1	61.1
10000.0	20.4	72.3	78.7	92.7	87.7	80.3	72.0	71.9	72.2	71.1	64.5	67.7	60.0
12500.0	29.0	66.9	72.7	85.2	82.7	76.1	67.2	68.5	69.6	68.2	66.0	67.7	58.3
16000.0	42.8	65.2	72.3	84.3	81.9	74.2	67.7	70.7	73.2	71.3	65.5	64.4	58.3
20000.0	56.0	62.4	70.3	82.8	78.9	71.0	68.0	70.7	73.2	71.3	65.5	64.4	58.3
OVERALL (50-10K)	86.3	88.9	97.8	96.6	90.9	85.7	84.8	84.8	84.1	83.7	83.6	84.7	81.2
OVERALL (20-20K)	86.4	89.2	98.3	96.9	91.2	85.9	85.1	85.1	84.7	84.2	83.8	84.9	81.3
A SCALE (20-20K)	86.7	89.2	97.6	96.8	91.2	86.0	84.8	84.8	83.7	83.0	82.8	84.2	80.5
PNL - - - -	99.7	102.2	110.4	109.9	104.5	99.7	98.4	98.4	97.4	97.2	97.6	98.9	94.7
PNLTC - - - -	99.7	102.2	111.7	111.1	105.8	99.7	99.8	99.8	97.4	97.8	97.6	100.0	94.7

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** OE 33

CONFIG 22 * COMPLETELY RARE ENGINE * DYNO COVERED *

RUN 89 POINT I ** 105 SHP ** 70 PERCENT RPM ** T4.1 LIMITED

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - -											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	51.3	51.3	51.9	0.0	52.5	52.6	51.7	51.3	52.4	53.1	52.5	54.0
25.0	0.0	51.5	51.3	52.6	52.0	52.5	52.0	51.3	51.1	51.8	52.3	52.5	54.3
31.5	0.0	53.3	52.8	53.5	53.2	52.3	51.7	52.4	50.9	51.4	53.2	54.6	55.0
40.0	0.0	55.3	55.4	55.3	54.6	53.2	52.6	51.6	51.6	53.1	55.1	56.9	55.9
50.0	.1	56.2	56.5	56.4	56.2	55.3	55.4	57.6	63.4	57.4	57.3	58.6	58.8
63.0	.1	57.3	57.3	56.7	55.9	56.0	55.3	58.5	55.2	56.8	58.0	59.4	59.4
80.0	.1	58.6	57.4	58.6	58.3	58.6	56.9	58.1	57.9	58.9	59.1	60.4	60.8
100.0	.2	59.6	60.0	59.3	59.8	61.0	60.2	61.0	60.3	60.9	61.3	62.5	62.7
125.0	.2	61.2	60.0	61.8	62.6	63.9	65.6	65.9	66.5	67.7	67.3	68.5	64.1
160.0	.3	62.2	63.0	62.8	67.0	68.7	70.5	72.0	72.7	74.1	71.7	70.0	67.6
200.0	.3	66.2	64.7	65.2	68.7	66.7	65.4	65.3	66.5	70.0	68.6	68.2	64.8
250.0	.4	66.8	66.5	67.6	66.9	67.6	67.1	67.4	68.9	67.2	71.4	71.6	67.2
315.0	.6	68.8	68.3	71.6	70.2	71.4	69.6	71.9	73.0	71.4	72.2	70.8	67.9
400.0	.7	67.7	66.4	69.4	70.0	70.9	69.3	73.3	72.4	73.4	72.4	69.0	66.2
500.0	.9	68.1	70.8	71.8	67.5	69.9	70.4	72.0	71.7	71.2	72.4	72.3	68.4
630.0	1.1	67.8	68.5	68.6	67.0	70.8	66.8	69.4	68.4	64.8	70.4	71.5	68.0
800.0	1.4	72.9	70.9	71.8	76.3	78.1	70.7	65.5	66.6	67.9	67.6	69.7	67.9
1000.0	1.8	76.8	75.8	78.1	81.9	80.0	76.9	71.1	70.7	72.4	69.8	73.3	67.4
1250.0	2.2	78.1	78.8	82.4	82.5	79.7	78.8	77.2	74.1	71.9	71.0	74.3	67.9
1600.0	2.9	78.2	78.2	82.2	80.9	75.4	76.6	75.3	71.3	70.1	69.7	72.3	66.9
2000.0	3.6	74.7	75.2	78.6	78.6	77.8	72.4	71.4	68.2	67.9	67.9	68.9	66.7
2500.0	4.6	73.7	75.4	82.3	84.8	80.9	76.2	73.0	70.5	70.6	67.5	70.0	66.6
3150.0	5.9	74.7	77.8	84.1	81.5	79.4	74.2	71.8	70.6	70.5	69.9	71.9	67.6
4000.0	7.6	73.5	76.9	85.6	84.4	80.6	75.0	72.0	70.2	70.4	70.4	72.8	67.6
5000.0	8.6	73.2	76.9	85.6	83.6	77.8	73.5	71.7	72.5	71.3	71.3	73.8	68.8
6300.0	11.1	71.3	77.9	83.6	81.3	78.3	72.2	70.1	70.4	69.1	68.6	71.2	67.8
8000.0	14.9	71.0	77.8	82.9	82.9	79.7	73.2	71.8	73.3	72.2	71.8	73.4	69.2
10000.0	28.4	67.8	74.2	86.0	81.5	77.3	68.7	68.3	70.6	68.1	67.2	68.4	63.8
12500.0	29.0	62.6	70.2	80.4	78.3	71.1	64.9	65.4	67.9	65.2	63.0	62.8	59.2
16000.0	42.8	61.0	70.1	79.5	76.0	68.7	66.5	70.2	75.1	71.6	67.5	63.0	60.4
20000.0	56.0	59.2	67.3	76.3	71.9	65.6	67.3	72.9	79.2	76.7	70.7	62.5	62.2
OVERALL (50-10K)		86.0	87.8	95.1	93.1	90.1	86.3	84.9	84.1	83.7	83.3	84.5	80.5
OVERALL (20-20K)		86.0	88.0	95.4	93.4	90.2	86.4	85.3	85.8	84.8	83.7	84.6	80.7
A SCALE (20-20K)		86.3	88.1	95.1	93.5	90.3	86.4	84.4	83.3	82.5	81.7	83.7	79.3
PNL - - - -		98.5	101.0	107.7	106.5	103.5	99.0	97.0	96.4	95.7	95.5	97.3	93.0
PNLTC - - - -		98.5	102.1	108.5	108.1	104.0	99.8	98.4	97.4	96.6	96.1	97.9	93.5

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR ** DATA HAS BEEN CORRECTED TO FAA STD. DAY
ATMOS. CORR. IS IN DB PER 1000 FT.

d. Ambient Noise Levels (3 pages)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** FQE 3
ENGINE TESTED - TPE 331-5-251 * S/N X21 * DATE TESTED - JAN 30 1973
RUN 3 AMBIENT NOISE SURVEY ** CONTROL TRAILER EQUIP. OPERATING **

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. COR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	36.7	37.2	38.5	36.6	37.8	37.8	36.6	39.2	37.9	35.3	38.2	35.8
25.0	0.0	41.3	42.0	41.0	39.4	41.8	39.4	39.2	40.7	41.2	39.6	41.7	39.5
31.5	0.0	41.3	39.6	41.7	39.5	40.9	39.7	39.5	40.9	41.9	40.3	44.7	39.1
40.0	0.0	48.1	42.9	45.7	44.7	44.3	44.4	42.5	45.0	45.2	43.9	46.6	46.3
50.0	.1	43.1	41.2	42.1	42.2	42.6	45.3	43.5	41.6	43.1	42.5	43.5	42.8
63.0	.1	39.8	45.8	42.1	53.1	48.8	48.4	46.2	47.0	46.7	46.0	46.0	46.0
80.0	.1	36.9	38.8	40.8	44.2	38.0	37.5	39.2	42.5	40.8	43.0	38.0	35.2
100.0	.2	36.1	36.7	43.8	36.6	36.4	36.6	36.5	36.3	37.1	38.6	36.6	35.8
125.0	.2	47.3	51.7	49.9	51.4	47.7	47.2	54.0	53.9	55.8	51.7	52.2	50.5
160.0	.3	38.2	41.7	40.0	41.5	38.8	37.2	42.7	42.9	44.5	41.2	41.1	39.3
200.0	.3	29.9	33.8	34.6	33.1	30.0	30.7	29.2	32.2	32.1	33.2	33.4	31.4
250.0	.4	36.9	38.5	35.2	40.7	34.2	34.4	39.0	42.2	40.5	47.1	44.2	45.1
315.0	.6	31.4	33.5	31.1	32.1	27.8	35.2	33.5	33.9	33.1	38.0	36.7	36.1
400.0	.7	47.8	44.2	39.7	35.7	30.1	32.6	37.0	35.6	45.6	47.4	52.0	47.5
500.0	.9	38.7	35.0	34.5	30.6	25.5	29.9	32.0	36.4	36.6	37.4	39.7	37.6
630.0	1.1	46.3	41.6	42.7	44.3	39.2	42.5	43.9	42.1	44.0	40.5	42.3	43.6
800.0	1.4	33.8	35.3	38.5	33.7	31.1	32.1	35.8	36.0	37.3	37.0	37.9	38.9
1000.0	1.8	30.0	28.7	32.5	26.3	26.0	26.9	27.9	28.5	29.5	29.1	31.1	31.9
1250.0	2.2	36.3	37.6	35.8	32.7	27.9	30.4	34.7	36.8	36.8	40.3	41.0	37.7
1600.0	2.9	36.3	36.9	37.6	35.3	27.9	29.7	33.7	36.6	38.8	41.6	41.7	40.5
2000.0	3.6	36.9	37.3	38.1	32.2	30.3	30.7	32.9	35.5	36.2	38.8	37.5	38.1
2500.0	4.6	34.8	37.7	35.1	32.2	24.4	27.4	29.9	33.5	34.7	35.4	36.0	36.4
3150.0	5.9	33.6	36.9	33.4	31.5	23.9	26.6	27.4	29.5	30.7	32.0	33.5	31.8
4000.0	7.6	31.4	38.6	31.7	33.4	25.2	27.5	28.9	33.2	34.2	30.6	36.8	33.6
5000.0	8.6	28.8	36.3	31.8	33.7	26.7	28.8	29.5	34.3	36.4	28.5	35.5	32.5
6300.0	11.1	33.3	30.1	32.4	31.6	23.4	27.1	27.2	30.8	31.7	29.2	27.3	27.2
8000.0	14.9	33.4	29.7	33.5	29.5	20.3	25.4	24.2	29.3	28.1	30.9	29.0	26.6
10000.0	20.4	27.6	27.9	27.9	25.8	16.6	19.3	19.9	23.9	23.6	26.1	26.7	25.2
12500.0	29.0	26.1	29.2	26.4	22.8	16.8	19.2	18.8	20.6	21.3	22.0	25.7	23.8
16000.0	42.8	24.2	26.6	24.3	21.8	19.2	21.9	22.8	23.4	22.0	23.2	27.5	23.1
20000.0	56.0	22.4	24.9	22.0	22.1	22.1	26.8	27.6	27.9	26.8	28.2	29.9	27.4
OVERALL(50-10K)		53.9	55.1	54.0	56.8	52.8	53.7	56.1	56.3	57.9	56.4	57.2	58.5
OVERALL(20-20K)		55.4	55.8	55.1	57.2	54.0	54.5	56.5	56.9	58.3	56.8	58.0	56.2
PNL - - -	-	61.2	62.6	60.6	60.1	53.8	56.6	58.2	59.8	61.4	61.9	64.2	61.8
PNLTC - - -	-	64.5	64.7	62.7	64.1	57.4	60.4	61.6	62.2	63.9	63.9	66.5	63.9

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR

ATMOS. COR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** F0E 3

ENGINE TESTED - TPE 331-5-251 * S/N X21 * DATE TESTED - JAN 30 1973

RUN 4 AMBIENT NOISE SURVEY ** EVERYTHING TURNED OFF **

DISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	SOUND PRESSURE LEVELS AT MICROPHONE LOCATIONS - - -											
		1	2	3	4	5	6	7	8	9	10	11	12
20.0	0.0	37.5	37.6	40.1	40.7	40.6	38.3	37.1	38.3	38.7	40.0	39.4	37.8
25.0	0.0	37.0	38.2	39.8	39.7	38.9	39.8	36.8	36.8	37.7	40.1	38.2	39.8
31.5	0.0	37.1	37.3	38.4	43.4	36.7	39.3	37.3	38.4	40.6	39.6	39.9	43.2
40.0	0.0	43.1	44.2	44.8	48.3	45.8	42.2	42.2	44.5	42.4	41.8	48.2	49.9
50.0	.1	38.4	40.0	41.0	42.8	41.5	39.1	37.6	39.2	38.5	40.3	42.5	43.1
63.0	.1	47.1	47.3	36.4	36.6	35.1	37.3	34.2	34.4	36.8	38.4	38.8	39.3
80.0	.1	40.5	40.6	34.0	34.4	35.6	37.4	35.1	34.2	35.6	44.4	37.6	35.1
100.0	.2	34.4	33.5	36.7	35.2	35.4	37.7	36.0	36.0	35.7	39.3	36.3	34.9
125.0	.2	33.8	31.1	36.2	38.5	32.4	36.0	35.6	36.7	31.9	35.5	36.3	36.1
160.0	.3	28.9	29.6	28.6	28.7	29.1	31.8	28.5	28.6	28.1	28.2	30.6	28.6
200.0	.3	26.8	28.2	27.8	25.5	27.8	27.9	27.9	27.4	28.0	26.8	31.4	27.0
250.0	.4	24.7	29.7	24.4	20.2	31.8	20.8	18.8	17.6	28.2	26.0	30.1	24.5
315.0	.6	20.4	21.2	21.4	20.6	21.6	19.0	14.4	16.9	19.5	15.4	22.8	19.4
400.0	.7	22.4	23.9	20.0	15.7	23.2	16.6	15.9	16.5	16.2	13.3	17.7	15.5
500.0	.9	21.9	19.3	18.0	15.7	18.1	13.8	13.0	11.7	14.2	11.1	14.9	13.2
630.0	1.1	18.4	17.2	12.9	12.2	12.4	12.3	9.3	9.6	10.7	9.4	14.3	8.3
800.0	1.4	18.4	17.9	15.5	11.9	12.4	12.3	7.0	7.3	9.4	7.8	13.7	9.1
1000.0	1.8	15.0	15.0	14.9	12.3	11.7	11.1	6.7	7.0	8.1	7.0	12.5	7.5
1250.0	2.2	10.8	11.7	11.2	9.7	7.9	9.6	6.7	7.0	8.1	7.8	12.7	7.0
1600.0	2.9	9.5	10.3	9.6	9.0	6.8	10.3	8.4	9.5	9.3	8.1	13.1	7.6
2000.0	3.6	8.1	7.6	7.2	7.2	6.8	8.6	7.7	8.1	15.6	7.9	13.6	7.2
2500.0	4.6	7.4	7.0	6.0	6.3	5.6	8.3	6.3	6.6	6.9	7.9	14.6	7.9
3150.0	5.9	7.9	7.4	6.4	6.7	5.9	9.2	7.0	7.4	7.6	8.0	15.5	9.0
4000.0	7.6	7.7	7.1	6.8	7.3	6.6	9.8	8.1	8.4	8.7	8.8	17.0	9.9
5000.0	8.6	8.5	9.0	7.6	8.2	7.6	10.8	9.2	9.7	10.1	10.1	17.6	10.3
6300.0	11.1	8.8	9.4	8.1	8.7	7.9	11.3	9.8	10.3	10.6	10.6	19.9	12.4
8000.0	14.9	10.9	11.3	10.1	10.7	10.1	13.3	11.9	12.4	12.8	12.6	21.3	13.9
10000.0	20.4	12.2	12.7	12.3	12.4	11.8	14.7	13.3	13.7	14.5	13.9	23.6	21.9
12500.0	29.0	15.9	19.0	18.1	16.5	15.9	17.3	15.4	16.0	19.1	16.2	27.2	24.7
16000.0	42.8	20.0	21.7	20.2	22.8	19.8	21.0	20.5	21.3	22.9	22.2	27.2	24.7
20000.0	56.0	21.4	22.0	20.8	21.8	21.9	23.2	21.7	22.3	24.0	22.5	28.5	22.4
OVERALL (50-10K)		48.9	49.1	44.8	45.8	44.7	45.1	43.3	43.8	43.6	47.7	46.4	46.1
OVERALL (20-20K)		50.5	51.0	49.4	51.7	49.6	48.7	47.3	48.5	48.2	50.2	51.4	52.5
PNL - - - -		40.1	40.9	39.0	39.5	40.4	40.0	38.6	38.6	39.4	40.1	43.4	38.7
PNLTC - - - -		40.1	41.7	39.0	40.6	41.6	40.0	38.6	39.4	41.9	40.1	43.9	39.4

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR
ATMOS. CORR. IS IN DB PER 1000 FT.

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING ** SANTAN, ARIZ ** FQE 5
ENGINE TESTED - TPE 331-5-251 * S/N X21 * DATE TESTED - FEB 08 1973
RUN 6 ** AMBIENT NOISE WITH EVERYTHING ON -- ATTENUATORS INSTALLED **

UISTANCE TO SOURCE = 100.0FT. 12 MICROPHONES

FREQUENCY	ATMOS. CORR.	S O U N D P R E S S U R E L E V E L S A T M I C R O P H O N E L O C A T I O N S - - -											
		0 DEG.	15 DEG.	30 DEG.	45 DEG.	60 DEG.	75 DEG.	90 DEG.	105 DEG.	120 DEG.	135 DEG.	150 DEG.	165 DEG.
20.0	0.0	46.2	39.3	42.4	41.2	41.4	41.9	39.4	35.6	34.8	36.4	37.8	36.7
25.0	0.0	47.3	40.5	48.7	44.4	42.8	44.3	39.8	38.5	38.3	39.8	39.9	40.2
31.5	0.0	49.0	40.5	42.2	42.7	39.6	42.8	40.2	39.7	41.3	39.3	41.3	39.7
40.0	0.0	48.5	47.3	48.9	44.9	43.7	42.8	42.8	45.3	47.1	44.8	44.1	43.9
50.0	.1	45.3	40.7	50.1	45.9	41.5	46.8	44.7	39.9	40.7	42.4	43.0	41.8
63.0	.1	43.7	40.1	44.0	47.0	40.6	42.5	39.0	37.2	40.5	39.2	40.1	38.2
80.0	.1	41.0	38.2	41.9	43.9	39.4	41.3	40.5	38.2	39.5	40.5	40.5	39.2
100.0	.2	41.6	40.8	41.6	43.4	39.2	45.0	47.2	39.5	42.3	40.7	43.2	42.3
125.0	.2	45.1	45.8	39.7	42.8	38.4	41.4	40.8	42.4	37.7	39.3	41.1	40.2
160.0	.3	41.2	42.2	42.2	42.8	38.0	38.8	37.0	37.4	36.0	37.0	37.2	38.2
200.0	.3	40.3	42.3	42.5	43.6	38.7	40.7	38.0	38.1	36.6	36.3	39.3	38.9
250.0	.4	37.4	38.8	39.5	42.0	36.5	38.7	36.6	36.1	36.9	35.6	36.2	36.1
315.0	.6	36.2	36.6	36.0	37.8	34.1	34.2	33.3	31.9	31.5	32.4	33.8	36.4
400.0	.7	32.2	37.3	35.6	35.0	32.9	34.2	31.8	30.7	30.1	30.5	31.7	30.2
500.0	.9	32.2	34.0	32.8	33.3	31.2	31.6	30.0	32.5	26.9	31.4	28.7	32.1
630.0	1.1	32.2	35.5	33.5	37.0	32.7	34.7	34.5	38.2	28.4	34.9	25.8	34.1
800.0	1.4	24.6	26.5	26.3	28.2	20.6	27.4	21.9	22.5	22.0	23.8	21.6	22.3
1000.0	1.8	20.2	20.9	21.8	23.5	19.8	22.2	18.7	18.3	19.2	17.1	21.0	21.7
1250.0	2.2	17.7	20.3	17.2	22.3	20.0	21.1	19.1	19.1	20.7	18.8	17.5	17.5
1600.0	2.9	15.8	18.9	19.8	25.1	18.5	21.1	20.5	19.1	17.9	18.1	17.5	17.5
2000.0	3.6	14.3	18.6	19.9	24.6	20.3	21.6	20.4	21.1	19.7	18.7	25.9	16.8
2500.0	4.6	12.1	17.2	19.1	23.4	17.4	19.7	17.9	17.8	17.9	17.7	17.4	15.7
3150.0	5.9	15.0	18.8	17.1	21.2	16.1	19.3	18.8	19.0	16.6	16.1	16.1	16.8
4000.0	7.6	16.7	18.1	19.2	23.3	18.2	21.1	20.6	19.2	17.5	16.4	17.4	16.4
5000.0	8.6	11.8	14.7	18.1	19.8	13.4	20.9	19.8	16.8	16.3	15.9	15.7	16.0
6300.0	11.1	10.2	11.2	13.5	18.3	10.6	21.9	18.5	15.9	15.4	15.4	13.3	16.0
8000.0	14.9	10.7	11.0	13.0	20.1	12.2	23.7	17.5	15.5	15.8	15.2	14.8	15.6
10000.0	20.4	11.2	11.6	13.4	20.4	13.5	22.4	16.0	15.7	16.2	15.6	15.7	16.1
12500.0	29.0	13.8	13.5	15.7	22.4	12.9	23.8	17.7	17.4	18.9	17.4	17.6	17.9
16000.0	42.8	21.2	20.4	23.6	29.4	16.7	27.2	21.4	20.9	22.7	20.9	21.1	21.4
20000.0	56.0	21.0	20.8	22.6	30.1	19.5	28.6	23.6	23.0	27.1	22.8	23.1	23.2
OVERALL (50-10K)		51.9	51.4	53.5	53.6	48.8	52.1	51.4	48.8	48.6	48.9	50.0	49.4
OVERALL (20-20K)		56.0	53.5	56.1	55.1	51.5	54.2	52.7	51.1	51.7	51.2	51.9	51.3
PNL - - - -		49.5	51.7	51.4	53.8	48.7	51.6	50.3	51.0	48.2	49.3	49.3	49.7
PNLTC - - - -		50.6	53.5	52.7	55.9	51.0	53.3	53.1	54.6	49.5	51.7	52.1	52.8

NOTE SOUND PRESSURE IN DECIBELS RE 0.0002 MICROBAR
ATMOS. CORR. IS IN DB PER 1000 FT.

3. SOUND POWER LEVEL DATA

In addition to the one-third octave band sound pressure level data presented in the previous section, the mean-square sound pressure level and power level for each measurement were calculated and are presented here. They were calculated from the free-field sound pressure levels measured at 100 feet radius from the engine under each load condition. (All data was normalized to the FAA standard day.)

a. Series I Engine Tests - Power Level Data (24 pages)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 BARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 1 POINT C , 692 SHP , 1591 PROP RPM , 41730 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	61.51	109.28	
25.0	60.13	107.90	
31.5	59.57	107.34	113.03
40.0	60.93	108.71	
50.0	63.59	111.36	
63.0	66.31	114.08	116.69
80.0	67.67	115.44	
100.0	70.73	118.50	
125.0	73.18	120.95	123.62
160.0	74.16	121.93	
200.0	75.65	123.42	
250.0	75.71	123.48	127.77
315.0	76.49	124.26	
400.0	75.72	123.49	
500.0	71.75	119.52	127.63
630.0	74.49	122.26	
800.0	74.80	122.57	
1000.0	76.24	124.02	127.79
1250.0	83.15	130.92	
1600.0	80.87	128.64	
2000.0	74.98	122.75	133.34
2500.0	79.46	127.23	
3150.0	80.71	128.48	
4000.0	82.04	129.81	133.41
5000.0	77.34	125.11	
6300.0	75.53	123.30	
8000.0	78.19	125.96	129.70
10000.0	81.96	129.73	
12500.0	94.58	142.35	
16000.0	86.87	134.65	143.23
20000.0	86.96	134.73	
OVERALL (50-10KHZ)	91.40	139.18	
OVERALL (20-20KHZ)	97.19	144.97	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 BARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 2 POINT B , 400 SHP , 1591 PROP RPM , 41730 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.57	101.34	
25.0	56.56	104.33	
31.5	58.18	105.95	109.04
40.0	61.11	108.88	
50.0	64.61	112.38	
63.0	67.15	114.92	117.49
80.0	68.33	116.10	
100.0	70.51	118.28	
125.0	72.15	119.92	123.14
160.0	72.23	120.00	
200.0	73.04	120.81	
250.0	73.14	120.92	125.37
315.0	73.95	121.72	
400.0	73.02	120.79	
500.0	69.59	117.36	125.09
630.0	73.24	121.01	
800.0	71.80	119.57	
1000.0	70.80	118.58	124.61
1250.0	79.94	127.71	
1600.0	77.56	125.33	
2000.0	73.53	121.31	130.28
2500.0	73.23	121.00	
3150.0	79.79	127.56	
4000.0	79.49	127.26	130.89
5000.0	73.60	121.37	
6300.0	73.66	121.43	
8000.0	76.90	124.67	127.55
10000.0	81.33	129.11	
12500.0	92.51	140.28	
16000.0	85.61	133.38	141.36
20000.0	85.95	133.73	
OVERALL (50-10KHZ)	89.12	136.89	
OVERALL (20-20KHZ)	95.26	143.03	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 BARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 3 POINT A , 105 SHP , 1591 PROP RPM , 41730 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.53	99.31	
25.0	52.29	100.06	
31.5	52.99	100.76	104.85
40.0	55.74	103.51	
50.0	59.29	107.07	
63.0	62.37	110.14	112.47
80.0	61.86	109.63	
100.0	63.88	111.65	
125.0	65.90	113.67	116.73
160.0	66.68	114.45	
200.0	68.45	116.22	
250.0	68.78	116.55	120.61
315.0	70.66	118.44	
400.0	69.51	117.28	
500.0	66.30	114.07	121.73
630.0	71.85	119.62	
800.0	70.61	118.38	
1000.0	69.93	117.70	123.41
1250.0	79.67	127.44	
1600.0	76.65	124.42	
2000.0	72.64	120.41	129.74
2500.0	73.95	121.72	
3150.0	78.81	126.58	
4000.0	79.35	127.12	130.49
5000.0	72.74	120.51	
6300.0	73.87	121.64	
8000.0	78.70	126.47	128.46
10000.0	82.51	130.28	
12500.0	94.55	142.32	
16000.0	86.22	133.99	143.15
20000.0	86.74	134.51	
OVERALL (50-10KHZ)	88.64	136.41	
OVERALL (20-20KHZ)	96.51	144.28	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 10, 1971

ENGINE TESTED - TPE331-5-251 HARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 4 POINT J , 146 SHP , 1120 PROP RPM , 29400 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.0050.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	57.34	105.11	
25.0	51.79	99.56	
31.5	51.04	98.81	106.91
40.0	53.58	101.35	
50.0	57.33	105.10	
63.0	61.58	109.35	111.21
80.0	58.43	106.20	
100.0	61.18	108.95	
125.0	66.02	113.79	115.56
160.0	69.57	117.34	
200.0	71.41	119.18	
250.0	73.47	121.24	124.32
315.0	72.60	120.37	
400.0	72.49	120.26	
500.0	75.61	123.38	126.37
630.0	69.53	117.31	
800.0	75.12	122.89	
1000.0	79.71	127.48	129.08
1250.0	82.99	130.76	
1600.0	80.54	128.31	
2000.0	76.99	124.76	133.36
2500.0	81.14	128.92	
3150.0	79.46	127.23	
4000.0	80.41	128.18	132.93
5000.0	79.68	127.45	
6300.0	78.92	126.70	
8000.0	83.64	131.42	133.82
10000.0	82.21	129.98	
12500.0	83.21	130.98	
16000.0	87.92	135.69	137.75
20000.0	91.88	139.65	
OVERALL (50-10KHZ)	91.82	139.59	
OVERALL (20-20KHZ)	95.90	143.67	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-S-251 RARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 5 POINT I , 105 SHP , 1114 PROP RPM , 29240 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.48	100.25	
25.0	50.95	98.73	
31.5	51.03	98.81	104.09
40.0	53.89	101.66	
50.0	56.31	104.08	
63.0	61.65	109.42	111.06
80.0	58.21	105.98	
100.0	60.82	108.59	
125.0	70.88	118.65	119.27
160.0	73.08	120.85	
200.0	70.02	117.79	
250.0	71.22	118.99	124.17
315.0	71.85	119.62	
400.0	71.93	119.70	
500.0	76.02	123.79	126.28
630.0	67.97	115.74	
800.0	71.97	119.75	
1000.0	77.13	124.91	126.45
1250.0	80.51	128.28	
1600.0	79.40	127.17	
2000.0	75.66	123.43	131.51
2500.0	78.76	126.53	
3150.0	78.16	125.93	
4000.0	78.48	126.25	131.01
5000.0	78.63	126.40	
6300.0	77.71	125.48	
8000.0	83.98	131.76	133.59
10000.0	80.96	128.73	
12500.0	82.07	129.84	
16000.0	87.68	135.45	137.18
20000.0	93.96	141.73	
OVERALL (50-10KHZ)	90.64	138.41	
OVERALL (20-20KHZ)	96.43	144.20	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 BARE INLET, DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 6 POINT F, 105 SHP, 1273 PROP RPM, 33370 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT. BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	57.55	105.32	
25.0	52.17	99.95	
31.5	51.82	99.59	107.24
40.0	54.16	101.93	
50.0	56.06	103.84	
63.0	61.17	108.94	110.72
80.0	59.33	107.10	
100.0	62.05	109.82	
125.0	65.88	113.65	115.78
160.0	75.02	122.79	
200.0	73.18	120.96	
250.0	71.75	119.52	126.07
315.0	72.81	120.59	
400.0	72.88	120.65	
500.0	71.01	118.78	124.86
630.0	67.32	115.09	
800.0	69.94	117.71	
1000.0	75.46	123.23	124.80
1250.0	78.88	126.65	
1600.0	77.45	125.22	
2000.0	75.04	122.81	129.94
2500.0	79.88	127.65	
3150.0	79.88	127.65	
4000.0	82.45	130.22	133.46
5000.0	83.92	131.69	
6300.0	81.11	128.88	
8000.0	84.10	131.87	135.78
10000.0	87.99	135.76	
12500.0	86.60	134.37	
16000.0	90.98	138.75	141.46
20000.0	93.48	141.25	
OVERALL (50-10KHZ)	92.95	140.72	
OVERALL (20-20KHZ)	97.72	145.49	

* 10^{-10} WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 HARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 7 POINTING , 175 SHP , 1273 PROP RPM , 33490 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.0050.FT.

1/3 OCT. BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	54.35	102.12	
25.0	50.15	97.92	
31.5	50.45	98.22	104.64
40.0	54.25	102.02	
50.0	56.09	103.86	
63.0	60.93	108.70	110.59
80.0	59.45	107.22	
100.0	61.67	109.44	
125.0	65.06	112.83	115.22
160.0	66.88	114.65	
200.0	69.23	117.01	
250.0	69.93	117.70	121.41
315.0	70.76	118.54	
400.0	71.23	119.01	
500.0	70.21	117.98	123.30
630.0	68.34	116.12	
800.0	73.16	120.93	
1000.0	76.94	124.71	126.63
1250.0	78.89	126.66	
1600.0	77.14	124.91	
2000.0	77.41	125.18	130.43
2500.0	80.76	128.53	
3150.0	80.00	127.77	
4000.0	82.43	130.20	133.72
5000.0	82.80	130.57	
6300.0	80.67	128.45	
8000.0	83.75	131.52	135.13
10000.0	87.62	135.39	
12500.0	86.65	134.42	
16000.0	90.93	138.70	141.35
20000.0	93.39	141.16	
OVERALL (50-10KHZ)	92.66	140.43	
OVERALL (20-20KHZ)	97.58	145.35	

* RE...10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 RARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 8 POINT H , 140 SHP , 1193 PROP RPM , 31220 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62432.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	45.12	92.39	
25.0	49.67	97.44	
31.5	49.78	97.55	101.20
40.0	53.47	101.24	
50.0	57.86	105.63	
63.0	60.87	108.64	110.90
80.0	58.74	106.51	
100.0	61.08	108.85	
125.0	65.27	113.05	115.09
160.0	71.46	119.23	
200.0	69.91	117.68	
250.0	70.25	118.02	123.13
315.0	71.12	118.90	
400.0	71.11	118.98	
500.0	71.88	119.65	123.93
630.0	68.07	115.85	
800.0	73.93	121.70	
1000.0	77.88	125.65	127.44
1250.0	80.52	128.29	
1600.0	77.63	125.41	
2000.0	76.90	124.67	131.19
2500.0	81.01	128.78	
3150.0	80.19	127.96	
4000.0	81.49	129.26	133.47
5000.0	81.66	129.43	
6300.0	79.86	127.64	
8000.0	83.02	130.79	134.24
10000.0	85.14	132.92	
12500.0	85.66	133.43	
16000.0	90.42	138.19	140.31
20000.0	92.82	140.59	
OVERALL (50-10KHZ)	91.87	139.64	
OVERALL (20-20KHZ)	96.92	144.69	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 BARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 9 POINT E , 340 SHP , 1370 PROP RPM , 35885 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.0050.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB) *	OCTAVE BAND (DB)
20.0	53.23	101.00	
25.0	52.59	100.36	
31.5	53.63	101.40	105.71
40.0	56.55	104.32	
50.0	62.37	110.14	
63.0	64.97	112.74	115.03
80.0	62.47	110.24	
100.0	64.73	112.50	
125.0	66.65	114.42	117.49
160.0	67.53	115.31	
200.0	69.55	117.32	
250.0	71.16	118.94	122.21
315.0	70.84	118.61	
400.0	70.54	118.31	
500.0	68.34	116.11	122.58
630.0	68.66	116.43	
800.0	72.61	120.38	
1000.0	76.27	124.04	126.09
1250.0	78.20	125.98	
1600.0	75.61	123.38	
2000.0	76.68	124.45	129.50
2500.0	78.85	126.62	
3150.0	79.17	126.94	
4000.0	81.74	129.52	132.67
5000.0	81.96	129.73	
6300.0	82.90	130.67	
8000.0	83.08	130.86	135.22
10000.0	88.99	136.76	
12500.0	87.30	135.07	
16000.0	91.25	139.03	142.03
20000.0	92.78	140.55	
OVERALL (50-10KHZ)	92.89	140.66	
OVERALL (20-20KHZ)	97.57	145.34	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 BARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 10 POINT D , 415 SHP , 1468 PROP RPM , 38490 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	55.82	103.60	
25.0	56.11	103.88	
31.5	57.13	104.90	108.93
40.0	60.12	107.89	
50.0	63.33	111.11	
63.0	65.49	113.26	116.05
80.0	66.24	114.01	
100.0	68.65	116.42	
125.0	70.01	117.79	121.11
160.0	69.88	117.66	
200.0	71.06	118.93	
250.0	71.49	119.26	123.40
315.0	71.74	119.51	
400.0	70.67	118.44	
500.0	66.14	113.91	122.64
630.0	74.03	121.80	
800.0	71.85	119.62	
1000.0	74.72	122.49	126.24
1250.0	75.20	122.97	
1600.0	70.22	118.00	
2000.0	72.55	120.32	125.67
2500.0	72.83	120.60	
3150.0	72.66	120.43	
4000.0	75.69	123.46	126.50
5000.0	76.15	123.92	
6300.0	75.59	123.36	
8000.0	77.25	125.02	128.93
10000.0	88.16	135.93	
12500.0	90.73	138.50	
16000.0	86.37	134.14	141.33
20000.0	87.64	135.42	
OVERALL (50-10KHZ)	90.36	138.13	
OVERALL (20-20KHZ)	95.17	142.94	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 BARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 11 GND IDLE, 7 SHP , 1045 PROP RPM , 27350 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	56.00	103.77	
25.0	54.31	102.09	
31.5	53.63	101.41	107.31
40.0	53.62	101.39	
50.0	55.60	103.37	
63.0	60.75	108.52	110.28
80.0	59.06	106.83	
100.0	62.15	109.92	
125.0	70.39	118.16	119.04
160.0	74.00	121.77	
200.0	72.65	120.42	
250.0	72.71	120.48	125.71
315.0	72.42	120.19	
400.0	73.49	121.26	
500.0	75.77	123.54	126.66
630.0	70.55	118.32	
800.0	76.27	124.04	
1000.0	79.26	127.03	129.17
1250.0	80.29	128.06	
1600.0	78.19	125.96	
2000.0	77.90	125.67	131.47
2500.0	80.12	127.90	
3150.0	79.31	127.08	
4000.0	80.90	128.67	132.70
5000.0	80.50	128.28	
6300.0	78.97	126.74	
8000.0	84.63	132.40	134.60
10000.0	80.37	128.14	
12500.0	83.13	130.90	
16000.0	89.04	136.81	138.25
20000.0	91.38	139.15	
OVERALL (50-10KHZ)	91.55	139.32	
OVERALL (20-20KHZ)	95.81	143.58	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 21, 1971

ENGINE TESTED - TPE331-5-251 BARE INLET , DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 12 REPEAT OF POINT G WITH PROP INLET COWLING INSTALLED (NO INLET

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT. BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	49.64	97.42	
25.0	50.94	98.71	
31.5	53.01	100.78	103.97
40.0	57.01	104.78	
50.0	57.22	104.99	
63.0	62.00	109.77	111.94
80.0	60.35	108.12	
100.0	62.59	110.36	
125.0	65.59	113.36	115.92
160.0	67.43	115.20	
200.0	69.87	117.64	
250.0	70.32	118.10	121.92
315.0	71.94	119.71	
400.0	71.75	119.52	
500.0	70.90	118.67	124.10
630.0	67.91	115.68	
800.0	71.99	119.76	
1000.0	77.57	125.35	126.76
1250.0	80.32	128.09	
1600.0	78.69	126.46	
2000.0	77.39	125.17	131.51
2500.0	82.20	129.97	
3150.0	81.03	128.81	
4000.0	83.27	131.04	134.81
5000.0	83.62	131.39	
6300.0	82.29	130.06	
8000.0	85.17	132.94	136.39
10000.0	88.06	135.83	
12500.0	86.73	134.50	
16000.0	89.67	137.44	140.86
20000.0	90.80	138.57	
OVERALL (50-10KHZ)	93.55	141.33	
OVERALL (20-20KHZ)	96.87	144.64	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 13 POINT C , 660 SHP , 1591 PROP RPM , 41730 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62932.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	56.66	104.41	
25.0	55.04	102.80	
31.5	57.82	105.57	109.18
40.0	62.23	109.99	
50.0	64.92	112.68	
63.0	68.55	116.30	118.52
80.0	71.17	118.93	
100.0	72.82	120.58	
125.0	74.16	121.92	125.42
160.0	74.65	122.41	
200.0	75.55	123.31	
250.0	76.06	123.82	127.99
315.0	75.93	123.69	
400.0	74.81	122.57	
500.0	69.78	117.54	126.73
630.0	67.01	114.77	
800.0	71.86	119.62	
1000.0	75.80	123.56	125.42
1250.0	77.89	125.65	
1600.0	74.58	122.33	
2000.0	70.44	118.20	127.81
2500.0	77.10	124.86	
3150.0	74.69	122.45	
4000.0	78.45	126.21	129.54
5000.0	74.33	122.09	
6300.0	74.06	121.82	
8000.0	74.36	122.12	126.78
10000.0	75.23	122.99	
12500.0	78.13	125.88	
16000.0	81.11	128.87	131.33
20000.0	80.18	127.94	
OVERALL (50-10KHZ)	88.30	136.06	
OVERALL (20-20KHZ)	89.90	137.66	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 . INLET ATTENUATOR AND DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 14 POINT B , 400 SHP , 1591 PROP RPM , 41730 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.0050.FT.

1/3 OCT. BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	56.12	103.88	
25.0	55.10	102.86	
31.5	57.76	105.52	104.99
40.0	62.23	109.99	
50.0	64.34	112.10	
63.0	67.67	115.43	117.86
80.0	70.58	118.33	
100.0	71.95	119.71	
125.0	71.67	119.42	123.97
160.0	71.88	119.64	
200.0	72.08	119.84	
250.0	72.90	120.66	124.84
315.0	73.76	121.52	
400.0	73.05	120.81	
500.0	68.41	116.17	124.83
630.0	63.85	111.61	
800.0	65.86	113.61	
1000.0	70.17	117.93	119.98
1250.0	73.17	120.23	
1600.0	72.30	120.06	
2000.0	66.59	114.35	124.02
2500.0	70.27	118.03	
3150.0	70.20	117.96	
4000.0	72.14	119.20	123.50
5000.0	69.74	117.50	
6300.0	70.88	118.64	
8000.0	72.81	120.57	123.86
10000.0	73.83	121.59	
12500.0	76.58	124.33	
16000.0	80.08	127.84	130.10
20000.0	80.25	128.01	
OVERALL (50-10KHZ)	84.96	132.72	
OVERALL (20-20KHZ)	87.56	135.72	

* REF. 10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 15 POINT A , 105 SHP , 1591 PROP RPM , 41730 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	54.54	102.30	
25.0	52.20	99.96	
31.5	54.90	102.65	106.56
40.0	59.06	106.82	
50.0	60.16	107.92	
63.0	65.15	112.91	114.85
80.0	69.56	117.32	
100.0	70.15	117.91	
125.0	68.26	116.01	121.92
160.0	67.83	115.58	
200.0	69.08	116.84	
250.0	70.40	118.16	121.76
315.0	71.17	118.93	
400.0	70.64	118.39	
500.0	66.57	114.33	122.41
630.0	63.96	111.71	
800.0	65.55	113.31	
1000.0	69.73	117.49	119.66
1250.0	74.11	121.86	
1600.0	72.19	119.95	
2000.0	67.79	115.55	124.60
2500.0	71.52	119.28	
3150.0	70.52	118.28	
4000.0	71.75	119.51	123.83
5000.0	69.54	117.30	
6300.0	69.62	117.38	
8000.0	70.46	118.21	122.42
10000.0	73.36	121.12	
12500.0	75.59	123.35	
16000.0	78.38	126.14	128.79
20000.0	79.45	127.21	
OVERALL (50-10KHZ)	83.80	131.56	
OVERALL (20-20KHZ)	86.38	134.14	

* RE...10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 16 POINT J , 146 SHP , 1119 PROP RPM , 29350 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.0050.FT.

1/3 OCT. BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.19	100.95	
25.0	47.80	95.56	
31.5	50.77	98.53	103.65
40.0	55.04	102.80	
50.0	54.39	102.15	
63.0	58.29	106.05	108.79
80.0	58.86	106.61	
100.0	60.60	108.35	
125.0	65.66	113.41	115.23
160.0	69.52	117.28	
200.0	67.44	115.19	
250.0	68.15	115.91	120.99
315.0	70.04	117.79	
400.0	70.44	118.20	
500.0	70.13	117.89	122.73
630.0	61.63	109.39	
800.0	60.66	108.41	
1000.0	65.46	113.22	115.64
1250.0	68.58	116.33	
1600.0	67.70	115.46	
2000.0	62.55	110.30	119.49
2500.0	63.98	111.74	
3150.0	66.62	114.37	
4000.0	67.87	115.62	118.97
5000.0	66.91	114.67	
6300.0	66.07	113.83	
8000.0	70.74	118.50	120.94
10000.0	68.89	116.65	
12500.0	70.75	118.51	
16000.0	77.00	124.75	126.19
20000.0	86.40	134.15	

OVERALL (50-10KHZ)	80.86	128.62
OVERALL (20-20KHZ)	87.93	135.69

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNQ COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 17 POINT I , 105 SHP , 1119 PROP RPM , 29350 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.88	99.64	
25.0	49.53	97.28	
31.5	52.37	100.12	103.95
40.0	55.81	103.56	
50.0	55.42	103.17	
63.0	59.69	107.45	109.96
80.0	59.57	107.33	
100.0	61.74	109.50	
125.0	72.23	119.99	120.57
160.0	74.60	122.36	
200.0	69.04	116.79	
250.0	69.06	116.82	124.28
315.0	70.60	118.36	
400.0	70.16	117.92	
500.0	70.42	118.18	122.93
630.0	61.26	109.01	
800.0	62.29	110.05	
1000.0	66.57	114.32	116.55
1250.0	68.98	116.74	
1600.0	67.34	115.10	
2000.0	63.09	110.85	119.63
2500.0	65.19	112.94	
3150.0	66.24	114.00	
4000.0	67.19	114.95	118.81
5000.0	66.63	114.38	
6300.0	65.63	113.39	
8000.0	69.09	116.85	119.90
10000.0	67.41	115.17	
12500.0	70.02	117.78	
16000.0	78.20	125.96	126.88
20000.0	87.30	135.06	

OVERALL(50-10KHZ)

81.92

129.68

OVERALL(20-20KHZ)

88.87

136.62

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 18 POINT F , 105 SHP , 1273 PROP RPM , 33400 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.82	98.58	
25.0	49.54	97.30	
31.5	52.58	100.34	103.69
40.0	56.88	104.64	
50.0	57.36	105.12	
63.0	61.56	109.32	111.68
80.0	62.38	110.13	
100.0	63.75	111.51	
125.0	66.36	114.11	117.01
160.0	76.32	124.08	
200.0	74.03	121.79	
250.0	71.37	119.13	126.89
315.0	72.57	120.33	
400.0	72.49	120.25	
500.0	68.72	116.48	124.12
630.0	65.05	112.80	
800.0	66.27	114.03	
1000.0	70.53	118.29	120.49
1250.0	72.00	119.75	
1600.0	69.13	116.89	
2000.0	64.63	112.39	122.06
2500.0	68.85	116.61	
3150.0	67.16	114.92	
4000.0	71.38	119.14	122.01
5000.0	68.24	116.00	
6300.0	67.16	114.92	
8000.0	69.39	117.15	120.89
10000.0	69.43	117.18	
12500.0	71.69	119.45	
16000.0	76.17	123.93	125.88
20000.0	81.61	129.36	
OVERALL (50-10KHZ)	83.75	131.51	
OVERALL (20-20KHZ)	86.43	134.18	

* RE...10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 19 POINT G , 175 SHP , 1273 PROP RPM , 33400 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	54.20	101.96	
25.0	48.66	96.41	
31.5	51.81	99.57	104.65
40.0	56.32	104.08	
50.0	56.31	104.07	
63.0	60.79	108.55	110.89
80.0	61.47	109.23	
100.0	62.86	110.62	
125.0	64.73	112.49	115.76
160.0	67.02	114.78	
200.0	68.76	116.52	
250.0	68.85	116.61	120.82
315.0	70.30	118.06	
400.0	70.47	118.23	
500.0	67.02	114.77	122.05
630.0	64.06	111.81	
800.0	66.27	114.03	
1000.0	69.80	117.56	119.89
1250.0	71.08	118.84	
1600.0	68.25	116.01	
2000.0	64.08	111.84	121.20
2500.0	68.32	116.08	
3150.0	67.05	114.81	
4000.0	70.92	118.68	121.60
5000.0	67.43	115.19	
6300.0	66.79	114.55	
8000.0	70.45	118.21	121.06
10000.0	69.82	117.58	
12500.0	71.45	119.21	
16000.0	75.44	123.20	125.44
20000.0	79.98	127.73	
OVERALL (50-10KHZ)	81.72	129.48	
OVERALL (20-20KHZ)	84.74	132.50	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 20 POINT H , 140 SHP , 1193 PROP RPM , 31250 ENG. RPM

NUMBER OF MICROPHONES -0 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62032.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS, LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.52	99.28	
25.0	48.07	95.83	
31.5	50.36	98.12	102.74
40.0	55.75	103.51	
50.0	55.05	102.81	
63.0	59.13	106.89	109.56
80.0	59.67	107.43	
100.0	61.39	109.15	
125.0	64.68	112.44	114.96
160.0	71.73	119.49	
200.0	69.17	116.92	
250.0	68.89	116.65	122.66
315.0	70.57	118.32	
400.0	70.85	118.61	
500.0	69.30	117.06	122.82
630.0	62.26	110.01	
800.0	61.69	109.44	
1000.0	66.14	113.90	116.37
1250.0	69.07	116.83	
1600.0	68.83	116.59	
2000.0	64.03	111.79	120.37
2500.0	65.33	113.09	
3150.0	67.51	115.27	
4000.0	68.11	115.87	119.67
5000.0	67.40	115.16	
6300.0	66.04	113.80	
8000.0	69.62	117.38	120.47
10000.0	69.45	117.21	
12500.0	71.31	119.07	
16000.0	76.67	124.42	126.13
20000.0	84.65	132.41	
OVERALL (50-10KHZ)	81.40	129.15	
OVERALL (20-20KHZ)	86.90	134.66	

* RE $\cdot$ 10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNO COVER INSTALLED
POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 21 POINT E , 321 SHP , 1368 PROP RPM , 35900 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT. BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	54.31	102.07	
25.0	51.82	99.58	
31.5	53.07	100.93	105.71
40.0	57.18	104.93	
50.0	58.30	106.06	
63.0	62.24	110.00	112.34
80.0	63.38	111.13	
100.0	64.08	111.84	
125.0	64.97	112.73	116.72
160.0	65.95	113.71	
200.0	67.46	115.22	
250.0	68.51	116.27	119.96
315.0	69.72	117.48	
400.0	70.19	117.95	
500.0	66.42	114.17	121.60
630.0	63.28	111.04	
800.0	61.32	109.08	
1000.0	65.76	113.52	116.36
1250.0	69.62	117.38	
1600.0	68.93	116.69	
2000.0	65.07	112.83	120.81
2500.0	66.09	113.85	
3150.0	68.56	116.32	
4000.0	70.11	117.87	121.08
5000.0	67.99	115.74	
6300.0	67.37	115.13	
8000.0	69.65	117.40	120.97
10000.0	72.55	120.31	
12500.0	73.70	121.45	
16000.0	76.93	124.69	127.34
20000.0	81.39	129.15	
OVERALL (50-10KHZ)	81.43	129.19	
OVERALL (20-20KHZ)	85.45	133.21	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 22 POINT D , 385 SHP , 1445 PROP RPM , 37820 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.93	101.69	
25.0	52.34	100.10	
31.5	57.00	104.76	107.40
40.0	60.59	108.34	
50.0	61.76	109.51	
63.0	64.70	112.46	115.24
80.0	67.36	115.12	
100.0	67.50	115.26	
125.0	67.63	115.39	120.03
160.0	67.67	115.43	
200.0	69.01	116.77	
250.0	70.06	117.82	121.55
315.0	70.74	118.49	
400.0	70.82	118.58	
500.0	66.31	114.06	122.26
630.0	63.72	111.48	
800.0	62.33	110.09	
1000.0	66.90	114.66	117.28
1250.0	70.63	118.39	
1600.0	69.52	117.28	
2000.0	65.18	112.93	121.53
2500.0	66.95	114.70	
3150.0	68.57	116.33	
4000.0	69.78	117.54	121.11
5000.0	67.86	115.62	
6300.0	67.24	115.00	
8000.0	68.73	116.49	120.52
10000.0	71.83	119.59	
12500.0	74.07	121.82	
16000.0	77.06	124.82	127.37
20000.0	79.22	126.98	
OVERALL (50-10KHZ)	82.10	129.85	
OVERALL (20-20KHZ)	85.11	132.86	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNO COVER INSTALLED
POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 23 FLT IDLE, 10 SHP , 1590 PROP RPM , 41730 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.96	101.72	
25.0	51.38	99.14	
31.5	53.56	101.32	105.64
40.0	58.06	105.82	
50.0	58.66	106.42	
63.0	64.61	112.37	114.06
80.0	69.16	116.91	
100.0	69.55	117.31	
125.0	67.00	114.76	121.23
160.0	67.73	115.49	
200.0	70.52	118.28	
250.0	71.25	119.01	122.61
315.0	71.45	119.21	
400.0	70.85	118.61	
500.0	67.56	115.32	122.79
630.0	64.52	112.28	
800.0	65.70	113.46	
1000.0	71.29	119.04	120.77
1250.0	74.07	121.83	
1600.0	72.78	120.54	
2000.0	68.56	116.32	124.89
2500.0	71.38	119.14	
3150.0	71.12	118.88	
4000.0	71.38	119.14	123.83
5000.0	69.58	117.34	
6300.0	69.95	117.71	
8000.0	70.51	118.26	122.56
10000.0	73.12	120.87	
12500.0	75.13	122.89	
16000.0	77.18	124.94	127.98
20000.0	78.51	126.27	
OVERALL (50-10KHZ)	84.00	131.76	
OVERALL (20-20KHZ)	86.11	133.87	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN - TESTED SEPT 23, 1971

ENGINE TESTED-TPE 331-5-251 , INLET ATTENUATOR AND DYNO COVER INSTALLED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 24 GND IDLE, 7 SHP , 1045 PROP RPM , 27400 ENG. RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.06	97.82	
25.0	48.43	96.19	
31.5	50.61	98.37	102.33
40.0	53.86	101.62	
50.0	53.68	101.44	
63.0	57.60	105.36	107.98
80.0	58.79	106.54	
100.0	61.09	108.85	
125.0	68.84	116.60	117.63
160.0	72.40	120.15	
200.0	70.25	118.01	
250.0	69.76	117.52	123.49
315.0	70.56	118.32	
400.0	70.65	118.40	
500.0	69.85	117.61	122.90
630.0	59.59	107.35	
800.0	62.10	109.85	
1000.0	66.87	114.63	116.45
1250.0	69.81	117.57	
1600.0	67.59	115.35	
2000.0	62.23	109.99	120.06
2500.0	65.47	113.23	
3150.0	64.49	112.25	
4000.0	66.57	114.32	118.12
5000.0	65.47	113.23	
6300.0	67.16	114.92	
8000.0	66.20	113.96	118.86
10000.0	65.16	112.91	
12500.0	68.67	116.43	
16000.0	82.05	129.81	130.09
20000.0	84.83	132.59	
OVERALL (50-10KHZ)	81.21	128.96	
OVERALL (20-20KHZ)	87.82	135.57	

* RE..10E-13 WATT. (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

b. Series II Engine Tests - Power Level Data (21 pages)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, TOP REMOVED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 25 25 POINT A - 105 SHP , 1591 PROP RPM , 41730 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	58.14	105.91	
25.0	58.37	106.14	
31.5	57.31	105.08	110.51
40.0	59.43	107.20	
50.0	59.77	107.54	
63.0	65.46	113.23	115.05
80.0	70.13	117.90	
100.0	70.89	118.66	
125.0	71.15	118.92	123.28
160.0	71.11	118.88	
200.0	69.69	117.46	
250.0	69.63	117.40	122.74
315.0	68.24	116.01	
400.0	68.94	116.71	
500.0	62.99	110.76	119.94
630.0	62.79	110.56	
800.0	66.66	114.43	
1000.0	68.95	116.72	119.35
1250.0	70.44	118.21	
1600.0	67.00	114.77	
2000.0	65.12	112.89	120.63
2500.0	68.68	116.45	
3150.0	67.36	115.13	
4000.0	70.43	118.20	121.55
5000.0	66.28	114.05	
6300.0	65.97	113.74	
8000.0	65.79	113.56	118.56
10000.0	68.26	116.03	
12500.0	69.97	117.74	
16000.0	70.58	118.35	122.25
20000.0	71.21	118.98	
OVERALL (50-10KHZ)	82.15	129.92	
OVERALL (20-20KHZ)	83.04	130.81	

* REF..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, TOP REMOVED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 26 26 POINT C - 650 SHP , 1591 PROP RPM , 41730 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	57.05	104.82	
25.0	57.77	105.54	
31.5	59.55	107.32	110.80
40.0	62.43	110.20	
50.0	64.31	112.08	
63.0	68.86	116.63	118.62
80.0	72.57	120.34	
100.0	73.82	121.59	
125.0	75.09	122.86	126.49
160.0	76.19	123.96	
200.0	75.07	122.84	
250.0	73.65	121.42	127.63
315.0	72.66	120.43	
400.0	72.03	119.80	
500.0	66.86	114.63	123.71
630.0	67.83	115.60	
800.0	72.40	120.17	
1000.0	74.67	122.44	124.99
1250.0	75.66	123.43	
1600.0	71.74	119.51	
2000.0	72.70	120.47	126.24
2500.0	77.08	124.85	
3150.0	73.33	121.10	
4000.0	76.65	124.42	128.52
5000.0	72.13	119.90	
6300.0	72.37	120.14	
8000.0	67.84	115.61	123.75
10000.0	69.84	117.61	
12500.0	71.15	118.92	
16000.0	71.65	119.42	123.49
20000.0	71.19	118.96	
OVERALL (50-10KHZ)	87.09	134.86	
OVERALL (20-20KHZ)	87.46	135.23	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, TOP REMOVED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 27 27 POINT E, 350 SHP, 1353 PROP RPM, 35470 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.92	100.69	
25.0	52.30	100.07	
31.5	55.20	102.97	106.20
40.0	58.23	106.00	
50.0	59.20	106.97	
63.0	63.94	111.71	113.76
80.0	67.88	115.65	
100.0	67.29	115.06	
125.0	69.61	117.38	120.92
160.0	73.78	121.55	
200.0	71.21	118.98	
250.0	67.39	115.16	124.06
315.0	65.69	113.46	
400.0	66.28	114.05	
500.0	62.89	110.66	117.73
630.0	63.12	110.90	
800.0	66.83	114.60	
1000.0	68.51	116.28	119.22
1250.0	67.69	115.46	
1600.0	66.41	114.18	
2000.0	62.62	110.39	118.59
2500.0	66.53	114.30	
3150.0	65.52	113.29	
4000.0	70.13	117.90	120.41
5000.0	64.87	112.64	
6300.0	63.75	111.52	
8000.0	66.24	114.01	117.61
10000.0	68.91	116.68	
12500.0	66.69	114.46	
16000.0	68.85	116.62	120.81
20000.0	73.89	121.66	
OVERALL (50-10KHZ)	81.41	129.18	
OVERALL (20-20KHZ)	82.47	130.24	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, TOP REMOVED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 28 28 POINT G - 175 SHP , 1273 PROP RPM , 33385 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT. BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.26	99.03	
25.0	49.86	97.63	
31.5	52.35	100.12	103.82
40.0	56.07	103.84	
50.0	56.70	104.47	
63.0	62.90	110.67	112.27
80.0	65.85	113.62	
100.0	66.01	113.78	
125.0	69.20	116.97	119.86
160.0	74.13	121.90	
200.0	69.84	117.61	
250.0	67.90	115.67	123.97
315.0	66.44	114.21	
400.0	67.47	115.24	
500.0	64.21	111.98	118.78
630.0	61.41	109.18	
800.0	63.18	110.95	
1000.0	65.49	113.26	116.22
1250.0	66.04	113.81	
1600.0	65.14	112.91	
2000.0	62.03	109.80	117.25
2500.0	65.12	112.89	
3150.0	66.31	114.08	
4000.0	69.57	117.34	119.96
5000.0	65.60	113.37	
6300.0	64.33	112.10	
8000.0	67.05	114.82	118.34
10000.0	65.63	113.40	
12500.0	66.62	114.39	
16000.0	69.83	117.60	120.29
20000.0	72.93	120.70	
OVERALL (50-10KHZ)	80.81	128.58	
OVERALL (20-20KHZ)	81.91	129.68	

* RE..10E-13 WATTS (BASED ON SPI DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, TOP REMOVED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 29 29 POINT I - 105 SHP , 1114 PROP RPM , 29200 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	54.82	102.59	
25.0	51.18	98.95	
31.5	52.89	100.66	105.76
40.0	56.06	103.83	
50.0	57.64	105.41	
63.0	62.30	110.08	112.06
80.0	66.98	114.75	
100.0	67.93	115.70	
125.0	72.61	120.38	122.46
160.0	87.41	135.18	
200.0	80.69	128.46	
250.0	70.14	117.91	136.09
315.0	73.59	121.36	
400.0	69.10	116.87	
500.0	66.05	113.82	123.21
630.0	58.51	106.28	
800.0	59.87	107.64	
1000.0	62.26	110.03	113.04
1250.0	65.09	112.86	
1600.0	64.94	112.71	
2000.0	61.02	108.79	116.59
2500.0	61.74	109.51	
3150.0	65.07	112.84	
4000.0	64.86	112.63	116.67
5000.0	64.02	111.79	
6300.0	62.89	110.66	
8000.0	66.70	114.47	117.38
10000.0	62.70	110.47	
12500.0	63.93	111.70	
16000.0	71.89	119.66	120.73
20000.0	79.21	126.98	
OVERALL (50-10KHZ)	88.89	136.66	
OVERALL (20-20KHZ)	89.43	137.20	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, TOP REMOVED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 30 30 GROUND IDLE, 1035 PROP RPM, 27400 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	47.20	94.97	
25.0	48.88	96.65	
31.5	50.55	98.32	101.63
40.0	53.71	101.48	
50.0	55.37	103.14	
63.0	62.12	109.89	111.21
80.0	66.35	114.12	
100.0	72.32	120.09	
125.0	78.35	126.12	127.30
160.0	91.81	139.58	
200.0	83.79	131.56	
250.0	72.40	120.17	140.26
315.0	86.39	134.16	
400.0	77.87	125.64	
500.0	68.75	116.52	134.80
630.0	60.17	107.94	
800.0	61.53	109.30	
1000.0	64.30	112.07	114.89
1250.0	67.35	115.12	
1600.0	66.88	114.65	
2000.0	62.30	110.07	118.56
2500.0	64.52	112.29	
3150.0	64.76	112.54	
4000.0	65.27	113.04	117.40
5000.0	64.26	112.03	
6300.0	64.31	112.08	
8000.0	63.44	111.21	116.56
10000.0	61.78	109.55	
12500.0	64.50	112.27	
16000.0	75.76	123.53	124.00
20000.0	79.01	126.78	
OVERALL (50-10KHZ)	93.81	141.58	
OVERALL (20-20KHZ)	94.03	141.80	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED,CLOSED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 32 32 GROUND IDLE , 1035 PROP RPM , 27400 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.76	98.52	
25.0	53.62	101.38	
31.5	52.24	99.99	104.89
40.0	55.67	103.43	
50.0	56.77	104.53	
63.0	62.34	110.09	111.84
80.0	66.61	114.37	
100.0	72.45	120.20	
125.0	78.44	126.20	127.39
160.0	92.84	140.40	
200.0	84.30	132.06	
250.0	72.80	120.56	141.21
315.0	79.24	127.00	
400.0	73.39	121.15	
500.0	69.20	116.96	128.33
630.0	62.33	110.09	
800.0	60.70	108.46	
1000.0	63.77	111.53	114.97
1250.0	67.68	115.44	
1600.0	68.58	116.74	
2000.0	65.97	113.73	120.07
2500.0	63.71	111.47	
3150.0	64.37	112.13	
4000.0	62.99	110.75	116.26
5000.0	63.18	110.93	
6300.0	61.39	109.15	
8000.0	61.27	109.02	114.56
10000.0	62.17	109.93	
12500.0	65.68	113.44	
16000.0	90.49	138.25	138.27
20000.0	80.12	127.88	
OVERALL (50-10KHZ)	93.90	141.66	
OVERALL (20-20KHZ)	95.66	143.42	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED,CLOSED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 33 33 POINT A - 105 SHP , 1591 PROP RPM , 41730 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRES. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.38	100.14	
25.0	53.05	100.81	
31.5	56.36	104.12	106.83
40.0	58.05	105.81	
50.0	61.30	109.06	
63.0	64.66	112.41	114.67
80.0	69.36	117.12	
100.0	70.45	118.20	
125.0	71.12	118.87	122.90
160.0	71.02	118.78	
200.0	69.83	117.58	
250.0	70.21	117.97	122.91
315.0	69.24	117.00	
400.0	70.68	118.44	
500.0	66.44	114.20	121.65
630.0	64.16	111.91	
800.0	62.41	110.17	
1000.0	65.01	112.77	116.52
1250.0	69.17	116.93	
1600.0	69.01	116.77	
2000.0	67.63	115.39	121.19
2500.0	63.31	111.06	
3150.0	64.88	112.64	
4000.0	62.95	110.71	116.32
5000.0	64.35	112.10	
6300.0	64.18	111.94	
8000.0	63.90	111.66	116.68
10000.0	66.59	114.35	
12500.0	69.49	117.25	
16000.0	72.46	120.21	122.68
20000.0	73.66	121.41	
OVERALL (50-10KHZ)	81.56	129.32	
OVERALL (20-20KHZ)	82.89	130.64	

* 10^{-13} WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED,CLOSED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 34 34 POINT C - 590 SHP , 1591 PROP RPM , 41730 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.HAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	56.32	104.08	
25.0	58.23	105.98	
31.5	59.68	107.44	110.82
40.0	62.27	110.03	
50.0	64.56	112.32	
63.0	68.31	116.07	118.30
80.0	71.61	119.36	
100.0	73.56	121.32	
125.0	74.49	122.25	125.91
160.0	75.56	123.32	
200.0	74.36	122.12	
250.0	72.67	120.43	126.88
315.0	71.98	119.74	
400.0	73.51	121.27	
500.0	70.46	118.22	124.69
630.0	66.50	114.26	
800.0	65.70	113.46	
1000.0	68.63	116.38	119.65
1250.0	72.89	120.65	
1600.0	73.03	120.79	
2000.0	70.84	118.59	124.89
2500.0	70.77	118.53	
3150.0	72.66	120.42	
4000.0	72.18	119.94	124.47
5000.0	70.84	118.60	
6300.0	70.67	118.43	
8000.0	67.24	114.99	122.40
10000.0	66.58	114.34	
12500.0	68.41	116.17	
16000.0	69.90	117.66	121.04
20000.0	70.93	118.69	
OVERALL (50-10KHZ)	85.49	133.24	
OVERALL (20-20KHZ)	85.87	133.63	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED,CLOSED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 35 35 POINT E , 322 SHP , 1353 PROP RPM , 35470 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	55.51	103.27	
25.0	55.06	102.82	
31.5	56.25	104.01	108.17
40.0	57.84	105.60	
50.0	59.23	106.99	
63.0	63.93	111.69	113.69
80.0	66.90	114.66	
100.0	66.93	114.69	
125.0	69.11	116.37	120.31
160.0	73.98	121.73	
200.0	71.79	119.55	
250.0	67.60	115.36	124.37
315.0	66.75	114.51	
400.0	69.33	117.09	
500.0	67.65	115.41	120.57
630.0	65.46	113.22	
800.0	61.26	109.02	
1000.0	62.54	110.29	115.98
1250.0	65.45	113.21	
1600.0	66.50	114.26	
2000.0	63.63	111.38	117.88
2500.0	59.81	107.57	
3150.0	61.77	109.53	
4000.0	60.62	108.38	113.34
5000.0	60.46	108.21	
6300.0	59.26	107.02	
8000.0	62.41	110.17	113.43
10000.0	64.31	112.07	
12500.0	64.66	112.42	
16000.0	66.42	114.17	117.76
20000.0	67.31	115.07	
OVERALL (50-10KHZ)	80.54	128.30	
OVERALL (20-20KHZ)	81.06	128.82	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED,CLOSED

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 36 36 POINT G - 175 SHP , 1273 PROP RPM , 33385 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	59.69	107.45	
25.0	58.91	106.66	
31.5	57.40	105.16	111.30
40.0	58.90	106.66	
50.0	59.78	107.54	
63.0	63.35	111.11	113.66
80.0	64.64	112.40	
100.0	65.72	113.47	
125.0	69.10	116.86	119.45
160.0	75.03	122.78	
200.0	72.00	119.76	
250.0	69.14	116.89	125.23
315.0	67.59	115.35	
400.0	69.32	117.08	
500.0	67.37	115.13	120.71
630.0	62.87	110.63	
800.0	60.23	107.99	
1000.0	60.72	108.48	113.96
1250.0	63.60	111.36	
1600.0	65.26	113.02	
2000.0	62.31	110.06	116.42
2500.0	59.64	107.40	
3150.0	61.58	109.34	
4000.0	61.61	109.37	113.57
5000.0	61.73	109.49	
6300.0	59.57	107.33	
8000.0	61.34	109.10	113.51
10000.0	61.57	109.32	
12500.0	63.39	111.15	
16000.0	65.34	113.09	116.23
20000.0	69.74	117.50	
OVERALL (50-10KHZ)	80.57	128.33	
OVERALL (20-20KHZ)	81.21	128.97	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 3, 1972
 ENGINE TESTED - TPE 331-5-251 ENGINE COVER INSTALLED, CLOSED
 POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 37 37 POINT I - 105 SHP , 1114 PROP RPM , 29200 ENGINE RPM
 NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.
 SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	55.02	102.78	
25.0	52.22	99.97	
31.5	54.04	101.80	106.44
40.0	57.49	105.25	
50.0	58.09	105.85	
63.0	62.57	110.33	112.55
80.0	66.69	114.45	
100.0	67.70	115.46	
125.0	72.14	119.90	122.06
160.0	87.19	134.94	
200.0	80.48	128.23	
250.0	70.06	117.82	135.85
315.0	73.89	121.65	
400.0	69.55	117.31	
500.0	67.32	115.08	123.66
630.0	61.49	109.25	
800.0	58.99	106.74	
1000.0	59.80	107.55	112.75
1250.0	63.44	111.19	
1600.0	64.22	111.98	
2000.0	61.53	109.29	115.73
2500.0	58.22	105.97	
3150.0	60.13	107.89	
4000.0	60.12	107.87	112.10
5000.0	61.17	108.93	
6300.0	58.01	105.77	
8000.0	59.09	106.85	112.16
10000.0	58.64	106.40	
12500.0	59.96	107.72	
16000.0	67.11	114.87	116.12
20000.0	72.49	120.24	
OVERALL (50-10KHZ)	88.63	136.38	
OVERALL (20-20KHZ)	88.77	136.53	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 4, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVERED , 6 FT TAILPIPE

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 38 38 GROUND IDLE , 1035 PROP RPM , 27400 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	58.05	105.80	
25.0	58.65	106.40	
31.5	58.27	106.03	110.86
40.0	61.06	108.92	
50.0	69.81	117.57	
63.0	72.35	120.71	122.61
80.0	67.69	115.44	
100.0	65.09	112.85	
125.0	73.55	121.31	122.77
160.0	87.90	135.65	
200.0	74.84	122.59	
250.0	73.00	120.75	136.00
315.0	77.33	125.08	
400.0	70.18	117.93	
500.0	68.33	116.09	126.29
630.0	59.61	107.37	
800.0	59.41	107.17	
1000.0	65.30	113.05	114.89
1250.0	66.80	114.55	
1600.0	66.98	114.74	
2000.0	63.46	111.21	118.54
2500.0	61.22	108.98	
3150.0	66.69	114.44	
4000.0	65.15	112.90	117.42
5000.0	61.69	109.44	
6300.0	61.78	109.53	
8000.0	60.31	108.06	113.83
10000.0	59.75	107.50	
12500.0	62.75	110.50	
16000.0	75.73	122.99	123.34
20000.0	74.84	122.60	
OVERALL (50-10KHZ)	89.19	136.95	
OVERALL (20-20KHZ)	89.54	137.30	

* 4F..10E-13 WATTS(BASED) ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 4, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVERED , 6 FT TAILPIPE

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 39 39 POINT A - 105 SHP , 1591 PROP RPM , 41730 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	59.64	107.39	
25.0	59.08	106.83	
31.5	58.32	106.08	111.57
40.0	60.38	108.14	
50.0	61.77	109.53	
63.0	65.84	113.60	115.84
80.0	69.48	117.63	
100.0	70.61	118.36	
125.0	68.45	116.21	122.26
160.0	69.80	117.55	
200.0	68.98	116.73	
250.0	70.06	117.82	122.16
315.0	67.08	114.84	
400.0	66.66	114.41	
500.0	63.23	110.99	118.49
630.0	61.60	109.36	
800.0	64.00	111.76	
1000.0	66.29	114.04	116.90
1250.0	69.44	117.20	
1600.0	67.37	115.13	
2000.0	63.96	111.71	119.99
2500.0	65.22	112.97	
3150.0	63.81	111.56	
4000.0	62.91	110.67	116.61
5000.0	62.45	110.20	
6300.0	62.81	110.56	
8000.0	62.69	110.45	115.18
10000.0	64.55	112.30	
12500.0	65.65	113.41	
16000.0	67.14	114.90	118.44
20000.0	66.71	114.46	
OVERALL (50-10KHZ)	80.57	128.33	
OVERALL (20-20KHZ)	81.10	128.93	

* REF..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972

ENGINE TESTED - TPF 331-S-251 ENGINE COVERED, 6 FT TAIL PIPE

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 40 40 POINT C - 610 SHP, 1591 PROP RPM, 41730 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0 FT. MIC. HEIGHT 5.0 FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00 SQ. FT.

1/3 OCT. BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (D _W)*	OCTAVE BAND (D _W)
20.0	62.73	117.09	
25.0	60.56	108.31	
31.5	60.79	108.55	114.00
40.0	62.14	119.89	
50.0	64.66	112.41	
63.0	69.43	117.18	119.00
80.0	71.23	118.98	
100.0	72.17	119.93	
125.0	71.84	119.60	124.29
160.0	72.49	120.24	
200.0	73.61	121.36	
250.0	71.67	119.42	125.19
315.0	71.84	119.60	
400.0	69.29	117.05	
500.0	65.12	112.88	122.08
630.0	64.58	112.33	
800.0	68.72	116.48	
1000.0	71.46	119.20	121.61
1250.0	72.57	120.33	
1600.0	70.19	117.95	
2000.0	67.52	115.27	123.09
2500.0	72.54	120.30	
3150.0	68.58	116.33	
4000.0	71.27	119.03	123.62
5000.0	68.22	115.97	
6300.0	66.50	114.25	
8000.0	60.50	108.26	118.63
10000.0	60.67	108.43	
12500.0	59.38	107.14	
16000.0	61.57	109.32	113.16
20000.0	63.15	110.91	
OVERALL (50-15KHZ)	83.97	131.73	
OVERALL (20-20KHZ)	84.15	131.90	

* REF. 1 E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVERED . 6 FT TAILPIPE

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 41 41 POINT F . 350 SHP . 1353 PROP RPM , 35470 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	60.77	108.53	
25.0	60.92	108.68	
31.5	58.92	106.68	112.82
40.0	59.94	107.69	
50.0	61.83	109.58	
63.0	67.80	115.55	117.07
80.0	67.86	115.61	
100.0	65.72	113.47	
125.0	62.77	110.52	118.45
160.0	66.38	114.13	
200.0	70.92	118.67	
250.0	65.52	113.28	120.82
315.0	66.17	113.93	
400.0	63.16	110.91	
500.0	60.43	108.19	116.40
630.0	60.44	108.19	
800.0	63.99	111.75	
1000.0	65.88	113.64	116.50
1250.0	65.33	113.09	
1600.0	61.57	109.33	
2000.0	58.44	106.20	115.20
2500.0	60.74	108.49	
3150.0	57.87	105.62	
4000.0	58.67	106.43	111.79
5000.0	56.18	103.93	
6300.0	54.57	102.32	
8000.0	54.69	102.44	107.73
10000.0	55.33	103.09	
12500.0	52.49	100.25	
16000.0	56.11	103.86	107.43
20000.0	57.61	105.36	
OVERALL (50-10KHZ)	78.05	125.80	
OVERALL (20-20KHZ)	78.40	126.15	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)



USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVERED , 6 FT TAILPIPE

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 42 42 POINT G - 175 SHP , 1273 PROP RPM , 33385 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	49.58	97.34	
25.0	50.38	98.13	
31.5	53.79	101.55	104.18
40.0	59.19	106.95	
50.0	62.80	110.55	
63.0	67.93	115.69	117.27
80.0	65.47	113.23	
100.0	63.59	111.35	
125.0	62.54	110.30	116.57
160.0	66.91	114.67	
200.0	70.57	118.33	
250.0	67.97	115.73	121.29
315.0	65.87	113.62	
400.0	63.62	111.38	
500.0	60.50	108.25	116.38
630.0	58.22	105.97	
800.0	60.45	108.20	
1000.0	62.83	110.58	113.43
1250.0	63.60	111.36	
1600.0	62.11	109.86	
2000.0	57.62	105.38	114.28
2500.0	59.84	107.60	
3150.0	58.83	106.59	
4000.0	58.16	105.92	111.53
5000.0	57.32	105.07	
6300.0	54.98	102.74	
8000.0	55.96	103.71	108.72
10000.0	53.60	101.35	
12500.0	53.19	100.95	
16000.0	55.02	102.78	106.54
20000.0	57.23	104.99	
OVERALL (50-10KHZ)	77.61	125.36	
OVERALL (20-20KHZ)	77.78	125.53	

* REF..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVERED , 6 FT TAILPIPE

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 43 43 POINT I - 105 SHP , 1114 PROP RPM , 29200 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.06	97.82	
25.0	49.88	97.63	
31.5	53.72	101.48	104.13
40.0	59.39	107.15	
50.0	66.30	114.05	
63.0	73.27	121.02	121.96
80.0	72.74	120.49	
100.0	66.74	114.50	
125.0	66.04	113.79	122.15
160.0	80.38	128.14	
200.0	79.88	127.63	
250.0	68.70	116.45	131.06
315.0	67.01	114.76	
400.0	63.33	111.09	
500.0	60.06	107.81	116.89
630.0	58.21	105.96	
800.0	61.82	109.58	
1000.0	62.62	110.37	113.79
1250.0	61.13	108.88	
1600.0	56.30	104.05	
2000.0	57.63	105.39	111.38
2500.0	56.65	104.40	
3150.0	55.96	103.71	
4000.0	55.99	103.74	108.74
5000.0	55.82	103.58	
6300.0	52.78	100.54	
8000.0	53.30	101.06	106.71
10000.0	50.16	97.91	
12500.0	50.51	98.26	
16000.0	58.03	105.78	107.05
20000.0	62.48	110.23	
OVERALL (50-10KHZ)	84.53	132.24	
OVERALL (20-20KHZ)	84.58	132.34	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVERED ,12 FT TAILPIPE

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 44 44 POINT C - 580 SHP , 1591 PROP RPM , 41730 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.0050.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	56.70	104.45	
25.0	58.13	105.88	
31.5	60.23	107.99	111.12
40.0	62.49	110.25	
50.0	64.25	112.01	
63.0	67.91	115.66	118.01
80.0	71.30	119.05	
100.0	73.04	120.80	
125.0	72.58	120.33	124.89
160.0	73.52	121.28	
200.0	73.43	121.18	
250.0	73.46	121.22	126.00
315.0	71.97	119.73	
400.0	70.03	117.78	
500.0	66.59	114.34	122.58
630.0	62.37	110.12	
800.0	65.27	113.03	
1000.0	69.22	116.97	119.04
1250.0	71.54	119.29	
1600.0	70.32	118.08	
2000.0	65.22	112.97	122.28
2500.0	67.41	115.17	
3150.0	65.65	113.40	
4000.0	66.37	114.13	119.07
5000.0	63.20	110.95	
6300.0	61.13	108.89	
8000.0	54.18	101.93	113.38
10000.0	57.11	104.87	
12500.0	53.99	101.74	
16000.0	54.43	102.18	107.93
20000.0	60.16	107.92	
OVERALL (50-10KHZ)	83.37	131.12	
OVERALL (20-20KHZ)	83.48	131.23	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVERED ,12 FT TAILPIPE

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 45 45 POINT G - 175 SHP , 1273 PROP RPM , 33385 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	49.70	97.45	
25.0	53.27	101.03	
31.5	57.29	105.05	107.01
40.0	58.34	106.10	
50.0	57.09	104.85	
63.0	62.46	110.21	112.46
80.0	65.42	113.17	
100.0	65.87	113.63	
125.0	63.49	111.24	117.47
160.0	67.95	115.71	
200.0	65.64	113.40	
250.0	66.69	114.45	119.39
315.0	65.10	112.86	
400.0	63.37	111.13	
500.0	60.44	108.20	115.90
630.0	58.86	106.62	
800.0	62.12	109.87	
1000.0	64.25	112.01	114.80
1250.0	64.10	111.85	
1600.0	60.83	108.59	
2000.0	55.95	103.70	113.96
2500.0	59.29	107.04	
3150.0	55.62	103.38	
4000.0	56.83	104.58	110.05
5000.0	53.64	101.39	
6300.0	51.73	99.48	
8000.0	54.64	102.40	106.02
10000.0	50.82	98.58	
12500.0	47.94	95.69	
16000.0	52.30	100.06	103.23
20000.0	55.00	102.75	

OVERALL (50-10KHZ)	76.50	124.25
OVERALL (20-20KHZ)	76.70	124.45

* REF..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE TESTING AT SANTAN --- TESTED APRIL 5, 1972

ENGINE TESTED - TPE 331-5-251 ENGINE COVERED ,12 FT TAILPIPE

POWER LEVEL BASED ON MEASURED DATA CORRECTED TO FAA STD. DAY COND.

RUN NUMBER 46 46 GROUND IDLE , 1035 PROP RPM , 27400 ENGINE RPM

NUMBER OF MICROPHONES 9 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	58.45	106.21	
25.0	60.16	107.91	
31.5	63.58	111.33	113.79
40.0	59.18	106.94	
50.0	57.84	105.60	
63.0	62.35	110.11	112.74
80.0	67.79	115.53	
100.0	70.61	118.37	
125.0	80.46	128.22	128.85
160.0	82.15	129.90	
200.0	71.17	118.93	
250.0	72.11	119.46	130.62
315.0	70.45	118.20	
400.0	68.85	116.60	
500.0	64.21	111.97	121.06
630.0	56.98	104.73	
800.0	58.49	106.24	
1000.0	61.58	109.33	111.98
1250.0	64.81	112.56	
1600.0	64.40	112.15	
2000.0	58.85	106.61	115.91
2500.0	59.90	107.65	
3150.0	58.40	106.16	
4000.0	56.99	104.74	111.12
5000.0	55.99	103.74	
6300.0	55.76	103.52	
8000.0	53.36	101.12	107.71
10000.0	51.52	99.28	
12500.0	52.47	100.23	
16000.0	62.01	109.77	110.56
20000.0	78.03	125.78	
OVERALL (50-10KHZ)	85.54	133.30	
OVERALL (20-20KHZ)	86.32	134.07	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

c. Series III Engine Tests - Power Level Data (71 pages)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 1 RUN 1 POINT C ** 700 SHP ** 100 PERCENT RPM NO SCOTTFELT ON DYN0

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	57.27	104.98	
25.0	59.48	107.19	
31.5	59.78	107.49	111.46
40.0	62.59	110.30	
50.0	63.83	111.54	
63.0	66.26	113.98	115.99
80.0	68.61	116.33	
100.0	70.38	119.09	
125.0	71.39	119.10	122.76
160.0	73.26	120.98	
200.0	75.94	123.66	
250.0	78.23	125.95	128.75
315.0	76.73	124.45	
400.0	73.39	121.10	
500.0	69.88	117.60	126.67
630.0	68.95	116.66	
800.0	72.32	120.03	
1000.0	75.18	122.90	125.34
1250.0	81.82	129.53	
1600.0	80.34	128.05	
2000.0	74.24	121.95	132.29
2500.0	80.95	128.66	
3150.0	82.38	130.09	
4000.0	82.72	130.44	134.57
5000.0	80.19	127.90	
6300.0	80.85	128.56	
8000.0	81.96	129.67	133.54
10000.0	78.01	125.72	
12500.0	83.44	131.15	
16000.0	75.68	123.39	132.78
20000.0	73.45	121.17	
OVERALL (50-10KHZ)	91.82	139.53	
OVERALL (20-20KHZ)	92.56	140.28	

* RE. 10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 2 RUN 2 POINT A ** 105 SHP ** 100 PERCENT RPM

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	58.84	106.55	
25.0	66.30	114.02	
31.5	66.72	114.43	117.60
40.0	69.74	117.45	
50.0	71.97	119.68	
63.0	75.39	123.10	125.47
80.0	75.21	122.92	
100.0	76.99	124.70	
125.0	76.86	124.58	128.91
160.0	76.40	124.11	
200.0	78.83	126.54	
250.0	80.39	128.10	131.32
315.0	78.06	125.77	
400.0	75.36	123.07	
500.0	71.88	119.60	128.27
630.0	74.37	122.08	
800.0	73.23	120.95	
1000.0	71.33	119.05	125.64
1250.0	79.14	126.85	
1600.0	77.60	125.32	
2000.0	73.91	121.62	129.87
2500.0	73.97	121.68	
3150.0	80.74	128.46	
4000.0	83.14	130.86	133.15
5000.0	77.99	125.70	
6300.0	79.64	127.36	
8000.0	80.15	127.87	131.84
10000.0	78.53	126.25	
12500.0	84.08	131.80	
16000.0	76.30	124.01	133.40
20000.0	76.31	124.02	

OVERALL (50-10KHZ) 91.56 139.27
OVERALL (20-20KHZ) 92.53 140.25

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 7 RUN 7 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	58.35	106.07	
25.0	58.71	106.43	
31.5	57.95	105.66	110.83
40.0	60.37	108.09	
50.0	60.55	108.27	
63.0	62.33	110.05	113.67
80.0	62.72	110.43	
100.0	63.02	110.74	
125.0	64.06	111.78	115.79
160.0	64.57	112.29	
200.0	64.16	111.87	
250.0	63.90	111.61	116.70
315.0	64.21	111.93	
400.0	64.95	112.67	
500.0	66.66	114.38	117.88
630.0	62.86	110.58	
800.0	66.37	114.08	
1000.0	74.35	122.06	122.96
1250.0	77.52	125.24	
1600.0	78.94	126.65	
2000.0	75.88	123.60	130.11
2500.0	78.31	126.03	
3150.0	83.14	130.85	
4000.0	82.78	130.50	134.37
5000.0	83.73	131.45	
6300.0	78.52	126.24	
8000.0	81.30	129.02	134.17
10000.0	84.13	131.85	
12500.0	77.81	125.52	
16000.0	74.03	121.74	133.09
20000.0	69.43	117.15	

OVERALL (50-10KHZ) 91.46 139.17
OVERALL (20-20KHZ) 91.75 139.47

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 8 RUN A POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	57.95	105.66	
25.0	59.34	107.06	
31.5	57.02	104.73	110.69
40.0	59.44	107.16	
50.0	55.99	103.70	
63.0	58.07	105.79	110.54
80.0	60.39	108.11	
100.0	62.12	109.83	
125.0	65.26	112.97	115.55
160.0	76.68	124.39	
200.0	73.37	121.08	
250.0	74.08	121.79	127.44
315.0	71.71	119.42	
400.0	68.72	116.43	
500.0	65.74	113.46	121.87
630.0	65.21	112.92	
800.0	70.66	118.37	
1000.0	75.39	123.10	124.66
1250.0	76.96	124.67	
1600.0	74.67	122.38	
2000.0	74.31	122.02	127.96
2500.0	79.98	127.69	
3150.0	77.72	125.44	
4000.0	81.30	129.01	132.39
5000.0	81.23	128.94	
6300.0	78.25	125.96	
8000.0	81.65	129.37	133.10
10000.0	83.87	131.59	
12500.0	76.95	124.66	
16000.0	75.57	123.28	132.89
20000.0	74.02	121.74	
OVERALL (50-10KHZ)	90.67	138.38	
OVERALL (20-20KHZ)	91.07	138.78	

* RE..10E-13 WATTS(RASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 9 PUN 0 POINT F ** 105 SHP ** 80 PERCENT RPM ** *

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.97	98.69	
25.0	52.58	100.29	
31.5	53.23	100.94	104.85
40.0	56.06	103.77	
50.0	57.03	104.75	
63.0	60.19	107.91	110.62
80.0	61.80	109.51	
100.0	63.46	111.18	
125.0	67.28	114.99	117.29
160.0	80.62	128.33	
200.0	76.76	124.47	
250.0	75.80	123.51	130.74
315.0	73.85	121.56	
400.0	71.63	119.34	
500.0	68.07	115.78	124.27
630.0	65.18	112.89	
800.0	68.84	116.55	
1000.0	74.50	122.21	123.64
1250.0	76.20	123.92	
1600.0	74.31	122.02	
2000.0	74.76	122.48	127.66
2500.0	78.80	126.51	
3150.0	78.56	126.27	
4000.0	81.54	129.26	132.34
5000.0	81.85	129.57	
6300.0	79.50	127.21	
8000.0	82.96	130.67	134.15
10000.0	83.92	131.63	
12500.0	78.32	126.03	
16000.0	76.92	124.63	133.32
20000.0	75.08	122.79	
OVERALL (50-10KHZ)	91.37	139.08	
OVERALL (20-20KHZ)	91.82	139.54	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 10 RUN 10 POINT I ** 105 SHP ** 70 PERCENT RPM ***

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DR)*	OCTAVE BAND (DB)
20.0	52.48	100.19	
25.0	54.52	102.23	
31.5	54.35	102.06	106.36
40.0	56.81	104.52	
50.0	57.64	105.36	
63.0	59.85	107.56	110.78
80.0	61.42	109.13	
100.0	63.46	111.18	
125.0	74.72	122.43	122.93
160.0	78.58	126.29	
200.0	73.41	121.12	
250.0	73.94	121.65	128.46
315.0	72.65	120.36	
400.0	69.16	116.88	
500.0	69.96	117.67	123.34
630.0	67.53	115.25	
800.0	73.87	121.58	
1000.0	77.70	125.41	127.20
1250.0	78.78	126.49	
1600.0	76.53	124.24	
2000.0	76.05	123.77	129.78
2500.0	79.95	127.66	
3150.0	78.48	126.20	
4000.0	79.69	127.40	131.90
5000.0	79.11	126.82	
6300.0	77.92	125.64	
8000.0	84.69	132.40	134.13
10000.0	79.79	127.51	
12500.0	74.72	122.43	
16000.0	72.72	120.44	129.29
20000.0	71.97	119.68	
OVERALL (50-10KHZ)	90.92	138.63	
OVERALL (20-20KHZ)	91.14	138.86	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 11 RUN 11 POINT A ** 105 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	46.64	94.35	
25.0	54.99	102.70	
31.5	54.68	102.40	105.88
40.0	57.47	105.19	
50.0	59.46	107.17	
63.0	61.92	109.63	112.48
80.0	64.47	112.18	
100.0	66.49	114.21	
125.0	67.48	115.20	118.80
160.0	67.86	115.58	
200.0	68.24	115.95	
250.0	66.34	114.06	120.04
315.0	64.50	112.21	
400.0	62.27	109.98	
500.0	59.51	107.22	115.04
630.0	59.44	107.16	
800.0	62.13	109.84	
1000.0	65.59	113.30	115.59
1250.0	74.10	121.82	
1600.0	72.25	119.97	
2000.0	67.79	115.51	124.57
2500.0	68.34	116.05	
3150.0	74.75	122.47	
4000.0	75.49	123.21	126.30
5000.0	72.84	120.56	
6300.0	75.23	122.95	
8000.0	73.02	120.73	126.33
10000.0	72.07	119.79	
12500.0	79.16	126.87	
16000.0	63.76	111.48	127.75
20000.0	62.05	109.76	
OVERALL (50-10KHZ)	84.04	131.75	
OVERALL (20-20KHZ)	85.33	133.04	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 12 RUN 12 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	54.69	102.40	
25.0	54.26	101.97	
31.5	54.59	102.30	107.00
40.0	56.51	104.23	
50.0	57.09	104.80	
63.0	58.46	106.17	109.92
80.0	58.86	106.58	
100.0	59.43	107.15	
125.0	61.08	108.80	112.38
160.0	62.10	109.82	
200.0	60.99	108.70	
250.0	60.95	108.66	113.87
315.0	63.03	110.75	
400.0	62.70	110.42	
500.0	64.00	111.72	115.77
630.0	60.31	108.03	
800.0	63.56	111.27	
1000.0	71.83	119.55	120.41
1250.0	74.25	121.97	
1600.0	74.27	121.98	
2000.0	70.26	117.97	125.77
2500.0	75.01	122.72	
3150.0	77.35	125.07	
4000.0	79.40	127.12	130.10
5000.0	78.99	126.71	
6300.0	76.76	124.47	
8000.0	80.11	127.83	131.32
10000.0	78.40	126.12	
12500.0	74.32	122.03	
16000.0	71.69	119.41	128.17
20000.0	68.20	115.92	
OVERALL (50-10KHZ)	87.55	135.27	
OVERALL (20-20KHZ)	87.91	135.63	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 15 RUN 15 POINT I ** 105 SHP ** 70 PERCENT RPM **
NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.
SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.73	101.45	
25.0	54.11	101.82	
31.5	53.74	101.46	106.35
40.0	56.69	104.41	
50.0	57.92	105.64	
63.0	58.87	106.58	110.40
80.0	57.39	105.11	
100.0	59.11	106.82	
125.0	61.76	109.47	112.28
160.0	62.00	109.71	
200.0	61.02	108.74	
250.0	61.68	109.39	114.07
315.0	65.75	113.47	
400.0	66.29	114.00	
500.0	70.17	117.89	120.37
630.0	64.34	112.05	
800.0	70.20	117.91	
1000.0	76.77	124.48	125.55
1250.0	77.93	125.64	
1600.0	77.44	125.15	
2000.0	72.53	120.24	129.03
2500.0	76.67	124.38	
3150.0	77.32	125.04	
4000.0	77.43	125.15	129.64
5000.0	75.63	123.35	
6300.0	74.54	122.25	
8000.0	79.52	127.23	129.60
10000.0	76.99	124.71	
12500.0	71.94	119.65	
16000.0	68.28	116.00	126.31
20000.0	64.51	112.22	
OVERALL (50-10KHZ)	87.66	135.37	
OVERALL (20-20KHZ)	87.85	135.57	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 17 RUN 17 POINT C ** 677 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.44	98.15	
25.0	58.24	105.95	
31.5	59.07	106.79	109.71
40.0	61.95	109.66	
50.0	65.44	113.16	
63.0	67.06	114.77	117.78
80.0	69.60	117.31	
100.0	71.51	119.22	
125.0	73.05	120.76	124.09
160.0	73.86	121.58	
200.0	74.23	121.94	
250.0	73.02	120.73	126.22
315.0	70.67	118.38	
400.0	68.75	116.47	
500.0	65.20	112.91	121.23
630.0	65.55	113.26	
800.0	69.75	117.46	
1000.0	72.97	120.68	122.88
1250.0	76.16	123.88	
1600.0	74.05	121.76	
2000.0	71.13	118.85	126.73
2500.0	72.77	120.48	
3150.0	80.52	128.23	
4000.0	79.85	127.57	131.30
5000.0	74.31	122.03	
6300.0	75.29	123.01	
8000.0	75.79	123.50	127.66
10000.0	72.12	119.83	
12500.0	79.15	126.86	
16000.0	66.01	113.72	127.82
20000.0	64.33	112.05	
OVERALL (50-10KHZ)	87.79	135.50	
OVERALL (20-20KHZ)	88.41	136.12	

* RE .10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 18 RUN 18 POINT A ** 105 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.3 TOTAL AREA 62780.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	48.33	93.05	
25.0	55.09	99.81	
31.5	55.71	100.42	103.54
40.0	58.53	103.24	
50.0	61.57	106.28	
63.0	62.84	107.55	110.81
80.0	65.12	109.83	
100.0	67.54	112.25	
125.0	67.43	112.14	116.31
160.0	68.03	112.74	
200.0	68.12	112.83	
250.0	66.21	110.92	117.02
315.0	64.91	109.63	
400.0	63.01	107.72	
500.0	57.85	102.57	112.28
630.0	58.29	103.01	
800.0	60.93	105.65	
1000.0	63.43	108.15	110.86
1250.0	62.49	107.21	
1600.0	58.75	103.46	
2000.0	57.45	102.16	109.60
2500.0	58.63	103.35	
3150.0	56.68	101.40	
4000.0	57.38	102.09	107.13
5000.0	53.90	98.61	
6300.0	52.84	97.55	
8000.0	52.64	97.35	102.65
10000.0	55.49	100.21	
12500.0	51.11	95.82	
16000.0	45.56	90.28	101.87
20000.0	44.95	89.67	

OVERALL (50-10KHZ)
OVERALL (20-20KHZ)

77.03
77.17

121.74
121.88

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 19 RUN 19 POINT C ** 677 ** 100 PERCENT 47 ** **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND. CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	59.66	107.37	
25.0	61.83	109.55	
31.5	61.29	109.00	113.51
40.0	63.29	111.00	
50.0	65.62	113.34	
63.0	67.35	115.06	118.21
80.0	69.41	117.12	
100.0	71.75	119.46	
125.0	72.60	120.31	123.93
160.0	73.47	121.18	
200.0	73.74	121.45	
250.0	72.48	120.20	125.75
315.0	70.11	117.83	
400.0	68.31	116.02	
500.0	63.91	111.62	120.61
630.0	64.90	112.61	
800.0	68.35	116.06	
1000.0	71.32	119.04	121.42
1250.0	70.16	117.87	
1600.0	66.31	114.03	
2000.0	65.83	113.55	120.38
2500.0	66.93	114.64	
3150.0	64.39	112.10	
4000.0	63.89	111.61	117.77
5000.0	61.21	108.92	
6300.0	59.29	107.00	
8000.0	59.55	107.26	112.58
10000.0	58.48	106.19	
12500.0	55.35	103.07	
16000.0	50.48	98.19	108.36
20000.0	47.23	94.94	
OVERALL (50-10KHZ)	82.79	130.50	
OVERALL (20-20KHZ)	82.93	130.64	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 23 RUN 23 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.45	98.14	
25.0	52.80	100.51	
31.5	53.50	101.21	104.92
40.0	58.10	105.81	
50.0	57.41	105.13	
63.0	58.33	106.05	110.45
80.0	58.45	106.17	
100.0	60.17	107.89	
125.0	59.22	106.94	111.82
160.0	58.86	106.57	
200.0	59.34	107.06	
250.0	58.91	106.62	111.53
315.0	62.19	109.91	
400.0	59.46	107.17	
500.0	54.58	102.29	112.23
630.0	51.36	99.08	
800.0	47.42	95.14	
1000.0	49.70	97.41	102.27
1250.0	50.14	97.85	
1600.0	49.75	97.47	
2000.0	47.90	95.61	101.85
2500.0	49.34	97.05	
3150.0	49.97	97.68	
4000.0	53.82	101.54	104.01
5000.0	50.74	98.46	
6300.0	48.33	96.04	
8000.0	52.52	100.24	103.34
10000.0	50.47	98.18	
12500.0	44.92	92.64	
16000.0	43.84	91.55	99.93
20000.0	40.05	87.77	
OVERALL (50-10KHZ)	70.21	117.92	
OVERALL (20-20KHZ)	70.69	118.41	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET E FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 24 RUN24 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)

20.0	50.06	97.77	
25.0	52.66	100.37	
20.0	50.06	97.77	
31.5	53.79	101.50	104.91
40.0	58.21	105.92	
50.0	57.92	105.63	
63.0	59.51	107.23	111.09
80.0	59.87	107.58	
100.0	61.35	109.07	
125.0	60.51	108.23	113.11
160.0	60.32	108.03	
200.0	60.56	108.28	
250.0	60.07	107.78	112.81
315.0	61.59	109.30	
400.0	58.95	106.69	
500.0	55.69	103.40	111.87
630.0	52.10	99.82	
800.0	49.05	96.76	
1000.0	51.20	98.91	103.45
1250.0	51.56	99.27	
1600.0	51.24	98.95	
2000.0	48.58	96.30	103.13
2500.0	50.01	97.73	
3150.0	50.23	97.95	
4000.0	53.75	101.47	104.18
5000.0	50.50	98.21	
6300.0	48.57	96.29	
8000.0	53.37	101.08	103.75
10000.0	51.43	99.15	
12500.0	45.15	92.86	
16000.0	45.00	92.71	100.80
20000.0	40.69	88.40	

OVERALL (50-10KHZ)	70.97	118.69
OVERALL (20-20KHZ)	71.39	119.10

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 25 RUN 25 POINT I ** 105 SHP ** 70 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.57	99.29	
25.0	52.39	100.10	
31.5	52.21	99.93	104.56
40.0	56.45	104.17	
50.0	57.25	104.96	
63.0	56.23	103.94	109.15
80.0	56.26	103.98	
100.0	58.37	106.08	
125.0	57.93	105.64	110.10
160.0	56.94	104.65	
200.0	57.68	105.40	
250.0	56.86	104.57	109.66
315.0	58.25	105.97	
400.0	56.90	104.61	
500.0	61.81	109.52	111.99
630.0	51.05	98.77	
800.0	47.97	95.69	
1000.0	48.50	96.22	101.88
1250.0	48.11	95.83	
1600.0	47.80	95.51	
2000.0	46.39	94.11	99.98
2500.0	47.47	95.19	
3150.0	47.30	95.02	
4000.0	49.45	97.16	100.67
5000.0	48.53	96.24	
6300.0	47.02	94.73	
8000.0	52.61	100.32	102.54
10000.0	46.89	94.61	
12500.0	42.49	90.20	
16000.0	43.16	90.87	97.13
20000.0	39.54	87.26	
OVERALL (50-10KHZ)	68.98	116.69	
OVERALL (20-20KHZ)	69.48	117.20	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 26 RUN 26 POINT A ** 105 SHP **100 PERCENT **M **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	48.74	96.46	
25.0	60.20	107.91	
31.5	55.85	103.56	109.49
40.0	59.20	106.92	
50.0	61.50	109.22	
63.0	63.10	110.81	114.03
80.0	65.49	113.20	
100.0	68.37	116.09	
125.0	68.21	115.92	120.03
160.0	68.42	116.14	
200.0	69.03	116.75	
250.0	67.35	115.06	120.81
315.0	66.07	113.78	
400.0	64.39	112.11	
500.0	59.71	107.43	116.59
630.0	59.34	107.05	
800.0	60.76	108.47	
1000.0	63.19	110.91	113.88
1250.0	62.80	110.51	
1600.0	60.21	107.93	
2000.0	57.16	104.87	113.12
2500.0	58.97	106.59	
3150.0	56.79	104.50	
4000.0	57.52	105.24	110.34
5000.0	54.36	102.07	
6300.0	52.82	100.53	
8000.0	52.72	100.44	105.85
10000.0	56.69	104.40	
12500.0	51.62	99.34	
16000.0	48.20	95.92	106.03
20000.0	49.01	96.72	
OVERALL (50-10KHZ)	77.72	125.43	
OVERALL (20-20KHZ)	77.91	125.62	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 27 RUN 27 POINT C ** 677 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.70	98.41	
25.0	59.96	107.67	
31.5	58.91	106.62	110.47
40.0	63.15	110.87	
50.0	65.22	112.94	
63.0	67.47	115.18	118.12
80.0	69.64	117.36	
100.0	72.43	120.14	
125.0	72.90	120.61	124.36
160.0	73.67	121.39	
200.0	74.42	122.13	
250.0	73.31	121.03	126.31
315.0	70.67	118.38	
400.0	69.09	116.80	
500.0	65.32	113.04	121.37
630.0	64.64	112.35	
800.0	67.92	115.63	
1000.0	71.05	118.77	121.11
1250.0	70.79	118.50	
1600.0	67.91	115.63	
2000.0	64.91	112.63	120.99
2500.0	67.34	115.05	
3150.0	64.05	111.77	
4000.0	63.77	111.49	117.86
5000.0	61.47	109.18	
6300.0	59.37	107.08	
8000.0	58.87	106.53	112.53
10000.0	57.79	105.51	
12500.0	54.61	102.32	
16000.0	50.58	98.30	107.74
20000.0	46.90	94.62	
OVERALL (50-10KHZ)	83.18	130.89	
OVERALL (20-20KHZ)	83.27	130.98	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 28 RUN 28 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.61	98.32	
25.0	52.21	99.93	
31.5	53.38	101.10	104.70
40.0	60.61	108.33	
50.0	58.22	105.93	
63.0	59.97	107.69	112.20
80.0	59.60	107.31	
100.0	60.82	108.54	
125.0	59.96	107.67	112.64
160.0	60.12	107.84	
200.0	60.55	108.27	
250.0	59.64	107.35	112.60
315.0	63.07	110.79	
400.0	59.20	106.91	
500.0	55.22	102.93	112.76
630.0	51.81	99.53	
800.0	50.76	98.47	
1000.0	52.51	100.23	104.24
1250.0	52.08	99.79	
1600.0	50.48	98.19	
2000.0	48.69	96.40	103.12
2500.0	50.11	97.83	
3150.0	50.91	98.62	
4000.0	55.06	102.78	105.09
5000.0	50.70	98.41	
6300.0	49.30	97.02	
8000.0	54.11	101.83	104.34
10000.0	51.58	99.29	
12500.0	45.49	93.21	
16000.0	45.12	92.84	100.97
20000.0	41.30	89.01	
OVERALL (50-10KHZ)	71.14	118.85	
OVERALL (20-20KHZ)	71.68	119.39	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 29 RUN 29 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCT. BAND (DB)
20.0	50.89	98.60	
25.0	52.73	100.44	
31.5	53.28	100.99	104.90
40.0	58.95	106.67	
50.0	57.19	104.91	
63.0	59.16	106.87	111.01
80.0	58.35	106.06	
100.0	59.65	107.37	
125.0	58.88	106.60	111.48
160.0	59.08	106.80	
200.0	60.09	107.80	
250.0	58.80	106.52	111.84
315.0	62.76	110.48	
400.0	59.70	107.42	
500.0	54.32	102.03	112.62
630.0	51.05	98.77	
800.0	48.86	96.57	
1000.0	51.18	98.90	102.97
1250.0	51.01	98.72	
1600.0	49.67	97.38	
2000.0	48.21	95.92	102.26
2500.0	49.89	97.61	
3150.0	50.59	98.30	
4000.0	55.25	102.97	105.10
5000.0	50.49	98.21	
6300.0	49.36	97.07	
8000.0	53.69	101.40	104.07
10000.0	50.98	98.69	
12500.0	45.26	92.97	
16000.0	44.34	92.05	100.41
20000.0	53.67	101.39	
OVERALL (50-10KHZ)	70.47	118.18	
OVERALL (20-20KHZ)	71.05	118.76	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 30 RUN30 POINT I ** 105 SHP ** 70 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.70	99.41	
25.0	52.29	100.00	
31.5	52.66	100.37	104.72
40.0	56.61	104.33	
50.0	57.00	104.71	
63.0	56.30	104.01	109.13
80.0	55.31	103.03	
100.0	57.52	105.24	
125.0	57.04	104.76	109.21
160.0	56.32	104.04	
200.0	57.62	105.33	
250.0	56.61	104.32	109.37
315.0	60.50	108.21	
400.0	57.78	105.49	
500.0	63.57	111.28	113.73
630.0	51.23	98.94	
800.0	48.49	96.20	
1000.0	49.31	97.02	102.32
1250.0	48.84	96.56	
1600.0	47.55	95.27	
2000.0	46.35	94.06	100.18
2500.0	47.59	95.31	
3150.0	48.07	95.78	
4000.0	50.00	97.71	101.17
5000.0	48.35	96.06	
6300.0	47.42	95.14	
8000.0	51.61	99.33	102.00
10000.0	46.14	93.85	
12500.0	41.37	89.09	
16000.0	41.55	89.26	96.11
20000.0	36.79	84.51	
OVERALL (50-10KHZ)	69.44	117.16	
OVERALL (20-20KHZ)	69.91	117.62	

* RE..10E-13 WATTS(RASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 31 RUN 31 POINT A** 105 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 30.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62632.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	48.42	96.14	
25.0	55.36	103.07	
31.5	55.18	102.80	106.42
40.0	58.02	105.73	
50.0	59.53	107.25	
63.0	61.90	109.52	112.60
80.0	64.69	112.40	
100.0	67.12	114.84	
125.0	66.70	114.41	118.78
160.0	67.25	114.97	
200.0	68.31	116.03	
250.0	66.16	113.88	119.82
315.0	64.34	112.06	
400.0	62.68	110.39	
500.0	57.84	105.55	114.85
630.0	57.56	105.27	
800.0	59.51	107.23	
1000.0	61.80	109.51	112.45
1250.0	61.33	109.05	
1600.0	58.48	106.19	
2000.0	55.22	102.93	111.51
2500.0	57.61	105.32	
3150.0	55.46	103.18	
4000.0	57.07	104.78	109.29
5000.0	53.30	101.01	
6300.0	50.57	98.29	
8000.0	50.20	97.92	104.07
10000.0	54.01	101.72	
12500.0	49.64	97.35	
16000.0	44.79	92.50	103.44
20000.0	44.48	92.20	
OVERALL (50-10KHZ)	76.45	124.16	
OVERALL (20-20KHZ)	76.59	124.31	

* RE...10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 32 RUN 32 POINT C ** 677 SHP ** 1/0 PERCENT RPM **
NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.
SOURCE HEIGHT 6.0 TOTAL AREA 42032.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.64	99.35	
25.0	59.08	106.80	
31.5	58.10	105.82	109.76
40.0	61.53	109.25	
50.0	63.90	111.61	
63.0	66.20	113.92	116.77
80.0	68.46	116.18	
100.0	72.12	119.83	
125.0	71.87	119.59	123.59
160.0	72.50	120.22	
200.0	73.34	121.06	
250.0	72.26	119.98	125.21
315.0	69.35	117.07	
400.0	67.57	115.28	
500.0	63.40	111.12	119.89
630.0	63.00	110.71	
800.0	66.98	114.70	
1000.0	69.79	117.50	119.89
1250.0	69.27	116.98	
1600.0	66.17	113.89	
2000.0	63.16	110.87	119.38
2500.0	65.75	113.47	
3150.0	62.92	110.63	
4000.0	63.20	110.91	116.64
5000.0	60.95	108.66	
6300.0	57.57	105.28	
8000.0	56.55	104.26	111.27
10000.0	56.76	104.47	
12500.0	54.35	102.07	
16000.0	49.84	97.55	106.97
20000.0	46.20	94.02	
OVERALL (50-10KHZ)	82.04	129.71	
OVERALL (20-20KHZ)	82.13	129.84	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 33 RUN 33 POINT F ** 105 SHP ** 80 PERCENT RPM

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	49.76	97.47	
25.0	52.11	99.82	
31.5	53.11	100.82	104.35
40.0	56.43	104.15	
50.0	56.65	104.36	
63.0	58.30	106.02	109.70
80.0	58.01	105.72	
100.0	59.64	107.35	
125.0	58.29	106.01	111.19
160.0	59.56	107.27	
200.0	59.79	107.50	
250.0	58.24	105.95	111.73
315.0	61.82	109.53	
400.0	58.83	106.55	
500.0	53.73	101.44	111.73
630.0	51.54	99.26	
800.0	49.19	96.91	
1000.0	50.69	98.40	103.06
1250.0	49.74	97.45	
1600.0	48.03	95.75	
2000.0	47.46	95.18	101.01
2500.0	48.46	96.17	
3150.0	49.07	96.79	
4000.0	54.01	101.72	103.76
5000.0	49.13	96.85	
6300.0	51.23	98.94	
8000.0	51.55	99.27	103.25
10000.0	48.54	96.26	
12500.0	42.28	90.00	
16000.0	40.63	88.34	97.71
20000.0	36.94	84.65	
OVERALL (50-10KHZ)	69.91	117.62	
OVERALL (20-20KHZ)	70.31	118.02	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 34 RUN 34 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.92	99.63	
25.0	54.05	101.76	
31.5	55.43	102.14	106.51
40.0	59.31	107.02	
50.0	59.48	107.19	
63.0	61.57	109.29	112.73
80.0	61.91	109.62	
100.0	63.19	110.90	
125.0	61.76	109.48	114.82
160.0	62.08	109.79	
200.0	62.69	110.40	
250.0	61.28	108.99	114.54
315.0	63.11	110.83	
400.0	59.84	107.56	
500.0	56.21	103.92	113.07
630.0	54.24	101.95	
800.0	53.74	101.45	
1000.0	55.21	102.93	106.92
1250.0	53.20	100.92	
1600.0	50.37	98.08	
2000.0	49.87	97.58	103.89
2500.0	50.27	97.99	
3150.0	51.22	98.93	
4000.0	53.40	101.12	104.32
5000.0	49.97	97.68	
6300.0	47.38	95.10	
8000.0	51.39	99.10	102.36
10000.0	49.40	97.12	
12500.0	43.27	90.99	
16000.0	41.58	89.29	95.61
20000.0	36.95	84.66	
OVERALL (50-10KHZ)	72.50	120.22	
OVERALL (20-20KHZ)	72.89	120.60	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 35 RUN 35 (JOINT I ** 105 SHP ** 70 PERCENT R.M **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	54.15	101.87	
25.0	54.28	101.99	
31.5	54.39	102.10	106.76
40.0	57.87	105.58	
50.0	58.06	105.77	
63.0	57.31	105.03	110.24
80.0	57.33	105.05	
100.0	60.10	107.81	
125.0	58.46	106.17	111.27
160.0	58.06	105.77	
200.0	59.44	107.15	
250.0	58.51	106.22	111.19
315.0	61.00	108.71	
400.0	58.27	105.98	
500.0	62.67	110.38	113.48
630.0	51.71	99.43	
800.0	49.79	97.50	
1000.0	51.31	99.03	103.50
1250.0	49.85	97.56	
1600.0	48.04	95.75	
2000.0	47.25	94.96	101.00
2500.0	47.41	95.12	
3150.0	48.11	95.83	
4000.0	49.73	97.44	101.01
5000.0	47.37	95.08	
6300.0	45.34	93.05	
8000.0	51.06	98.78	101.07
10000.0	44.65	92.37	
12500.0	39.86	87.57	
16000.0	39.39	87.10	94.49
20000.0	34.73	82.44	
OVERALL (50-10KHZ)	70.21	117.93	
OVERALL (20-20KHZ)	70.77	118.48	

* RE. 10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 36 RUN 36 POINT A ** 105 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	48.85	96.57	
25.0	58.82	106.54	
31.5	57.14	104.86	109.04
40.0	59.95	107.66	
50.0	62.08	109.79	
63.0	63.94	111.65	114.77
80.0	66.58	114.29	
100.0	69.02	116.73	
125.0	69.09	116.80	120.86
160.0	69.83	117.54	
200.0	70.40	118.11	
250.0	68.18	115.89	122.05
315.0	66.55	114.27	
400.0	64.45	112.16	
500.0	59.43	107.14	116.84
630.0	61.00	108.71	
800.0	63.07	110.79	
1000.0	64.78	112.49	115.70
1250.0	63.52	111.24	
1600.0	59.69	107.40	
2000.0	58.59	106.30	113.63
2500.0	59.44	107.16	
3150.0	57.36	105.08	
4000.0	57.26	104.97	110.63
5000.0	54.81	102.53	
6300.0	51.60	99.31	
8000.0	51.02	98.73	105.30
10000.0	52.41	100.12	
12500.0	50.33	98.04	
16000.0	47.86	95.58	103.07
20000.0	48.75	96.47	
OVERALL (50-10KHZ)	78.63	126.34	
OVERALL (20-20KHZ)	78.78	126.50	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 37 RUN 37 POINT C ** 677 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB) *	OCTAVE BAND (DB)
20.0	52.35	100.07	
25.0	60.75	108.47	
31.5	60.07	107.79	111.48
40.0	63.53	111.25	
50.0	65.78	113.49	
63.0	68.21	115.92	118.74
80.0	70.36	118.08	
100.0	72.99	120.70	
125.0	73.58	121.30	125.01
160.0	74.35	122.06	
200.0	75.32	123.04	
250.0	74.01	121.73	127.08
315.0	71.17	118.89	
400.0	69.16	116.87	
500.0	65.13	112.84	121.62
630.0	66.96	114.68	
800.0	70.21	117.92	
1000.0	72.42	120.13	122.89
1250.0	71.20	118.92	
1600.0	67.70	115.41	
2000.0	66.85	114.56	121.50
2500.0	67.80	115.51	
3150.0	65.40	113.12	
4000.0	64.87	112.58	118.70
5000.0	62.90	110.62	
6300.0	59.29	107.01	
8000.0	57.89	105.61	113.05
10000.0	56.39	104.10	
12500.0	54.69	102.40	
16000.0	50.19	97.91	106.93
20000.0	46.15	93.86	
OVERALL (50-10KHZ)	83.95	131.66	
OVERALL (20-20KHZ)	84.04	131.75	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 38 RUN 38 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.11	100.83	
25.0	54.68	102.40	
31.5	55.24	102.95	106.92
40.0	58.50	106.22	
50.0	58.85	106.56	
63.0	60.06	107.78	111.68
80.0	60.39	108.10	
100.0	61.52	109.24	
125.0	60.76	108.47	113.40
160.0	62.27	109.98	
200.0	62.53	110.24	
250.0	60.71	108.42	114.39
315.0	64.49	112.20	
400.0	61.31	109.03	
500.0	55.48	103.19	114.26
630.0	52.76	100.47	
800.0	51.89	99.60	
1000.0	53.31	101.03	105.18
1250.0	52.12	99.83	
1600.0	50.45	98.17	
2000.0	49.19	96.91	103.24
2500.0	50.12	97.83	
3150.0	49.80	97.51	
4000.0	52.84	100.55	103.63
5000.0	49.47	97.19	
6300.0	46.85	94.57	
8000.0	50.48	98.19	101.67
10000.0	49.05	96.77	
12500.0	43.70	91.42	
16000.0	41.56	89.28	98.44
20000.0	38.18	85.89	
OVERALL (50-10KHZ)	72.12	119.83	
OVERALL (20-20KHZ)	72.52	120.24	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 39 RUN 39 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62780.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.12	97.84	
25.0	54.24	98.96	
31.5	55.88	100.59	104.05
40.0	59.29	104.00	
50.0	59.73	104.44	
63.0	61.18	105.90	109.63
80.0	61.62	106.33	
100.0	62.79	107.51	
125.0	61.66	106.37	111.54
160.0	62.56	107.28	
200.0	63.04	107.75	
250.0	61.47	106.18	111.99
315.0	64.20	108.91	
400.0	60.16	104.88	
500.0	56.45	101.17	110.85
630.0	54.17	98.89	
800.0	54.11	98.82	
1000.0	55.45	100.17	104.11
1250.0	53.54	98.26	
1600.0	51.38	96.09	
2000.0	50.50	95.21	101.49
2500.0	50.55	95.27	
3150.0	50.90	95.62	
4000.0	53.27	97.98	101.24
5000.0	49.51	94.23	
6300.0	47.29	92.01	
8000.0	50.95	95.66	98.99
10000.0	50.32	95.03	
12500.0	42.70	87.41	
16000.0	39.85	84.57	96.05
20000.0	35.17	79.89	
OVERALL (50-10KHZ)	72.69	117.40	
OVERALL (20-20KHZ)	73.08	117.79	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY;

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 40 RUN 40 POINT I ** 105 SHP ** 70 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.77	100.48	
25.0	53.37	101.09	
31.5	54.61	102.32	106.14
40.0	58.20	105.91	
50.0	58.06	105.78	
63.0	56.94	104.65	110.25
80.0	57.47	105.19	
100.0	59.04	106.75	
125.0	58.21	105.92	110.77
160.0	58.64	106.36	
200.0	59.56	107.28	
250.0	57.82	105.53	111.22
315.0	61.37	109.09	
400.0	58.39	106.10	
500.0	62.95	110.66	113.77
630.0	51.91	99.62	
800.0	50.26	97.97	
1000.0	51.57	99.29	103.79
1250.0	49.99	97.70	
1600.0	47.89	95.60	
2000.0	46.60	94.32	100.87
2500.0	46.86	94.58	
3150.0	46.94	94.65	
4000.0	48.34	96.05	99.92
5000.0	46.42	94.13	
6300.0	44.57	92.29	
8000.0	48.73	96.44	99.39
10000.0	44.36	92.07	
12500.0	39.47	87.18	
16000.0	39.31	87.02	94.21
20000.0	35.48	83.20	
OVERALL (50-10KHZ)	70.16	117.88	
OVERALL (20-20KHZ)	70.70	118.42	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 44 RUN 44 POINT A ** 105 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	48.82	96.53	
25.0	57.81	105.53	
31.5	56.46	104.17	108.22
40.0	59.42	107.13	
50.0	60.11	107.82	
63.0	61.52	109.23	112.92
80.0	63.35	111.06	
100.0	65.42	113.19	
125.0	65.01	112.73	117.19
160.0	64.19	111.91	
200.0	64.82	112.53	
250.0	63.93	111.65	116.82
315.0	63.80	111.52	
400.0	61.26	108.98	
500.0	56.56	104.27	113.94
630.0	55.93	103.65	
800.0	54.04	101.75	
1000.0	53.83	101.55	107.19
1250.0	55.20	102.91	
1600.0	55.18	102.90	
2000.0	51.81	99.53	106.81
2500.0	51.08	98.80	
3150.0	52.96	100.67	
4000.0	55.11	102.82	105.84
5000.0	51.62	99.34	
6300.0	48.91	96.63	
8000.0	49.79	97.51	102.75
10000.0	53.56	101.27	
12500.0	52.30	100.01	
16000.0	52.57	100.28	105.33
20000.0	54.85	102.56	
OVERALL (50-10KHZ)	74.24	121.95	
OVERALL (20-20KHZ)	74.65	122.37	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 45 RUN 45 POINT C ** 677 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.99	99.71	
25.0	60.16	107.87	
31.5	59.97	107.68	111.11
40.0	63.34	111.06	
50.0	65.05	112.76	
63.0	66.95	114.67	117.85
80.0	69.62	117.34	
100.0	71.49	119.20	
125.0	71.40	119.11	123.40
160.0	71.51	119.22	
200.0	71.47	119.19	
250.0	70.10	117.81	123.56
315.0	68.18	115.89	
400.0	66.77	114.48	
500.0	63.07	110.79	118.97
630.0	60.28	108.00	
800.0	59.01	106.72	
1000.0	61.94	109.65	113.06
1250.0	63.06	110.78	
1600.0	63.30	111.02	
2000.0	58.78	106.49	114.63
2500.0	57.28	105.00	
3150.0	58.59	106.30	
4000.0	57.71	105.42	110.38
5000.0	56.12	103.83	
6300.0	52.39	100.10	
8000.0	50.97	98.68	106.21
10000.0	51.79	99.50	
12500.0	49.95	97.67	
16000.0	45.89	93.60	102.32
20000.0	42.34	90.06	
OVERALL (50-10KHZ)	80.34	128.05	
OVERALL (20-20KHZ)	80.51	128.23	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 46 RUN 46 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.13	99.84	
25.0	54.40	102.12	
31.5	53.93	101.64	106.08
40.0	57.94	105.65	
50.0	56.02	103.74	
63.0	56.38	104.10	109.35
80.0	56.64	104.35	
100.0	59.73	107.44	
125.0	59.60	107.31	111.35
160.0	60.00	107.71	
200.0	59.29	107.00	
250.0	57.77	105.49	111.60
315.0	62.30	110.02	
400.0	58.57	106.28	
500.0	52.92	100.63	111.89
630.0	49.28	96.99	
800.0	46.74	94.45	
1000.0	47.53	95.25	100.47
1250.0	47.33	95.04	
1600.0	47.64	95.36	
2000.0	46.84	94.55	99.77
2500.0	47.29	95.00	
3150.0	49.25	96.96	
4000.0	54.31	102.02	103.81
5000.0	51.15	98.86	
6300.0	47.19	94.90	
8000.0	50.42	98.13	102.38
10000.0	48.06	95.78	
12500.0	44.56	92.28	
16000.0	43.25	90.96	98.27
20000.0	42.57	90.29	
OVERALL (50-10KHZ)	69.69	117.41	
OVERALL (20-20KHZ)	70.29	118.01	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 47 RUN 47 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	54.13	101.84	
25.0	55.84	103.55	
31.5	56.48	104.20	108.08
40.0	60.35	108.06	
50.0	58.79	106.51	
63.0	59.08	106.79	111.95
80.0	59.63	107.34	
100.0	62.72	110.44	
125.0	62.62	110.34	114.36
160.0	62.57	110.29	
200.0	61.87	109.59	
250.0	60.07	107.78	114.11
315.0	64.27	111.98	
400.0	60.47	108.19	
500.0	56.01	103.72	113.93
630.0	52.46	100.17	
800.0	50.35	98.06	
1000.0	50.29	98.00	103.64
1250.0	50.06	97.78	
1600.0	50.52	98.23	
2000.0	48.70	96.41	102.31
2500.0	49.35	97.06	
3150.0	50.97	98.68	
4000.0	55.97	103.68	105.54
5000.0	52.15	99.86	
6300.0	48.65	96.36	
8000.0	52.38	100.10	103.84
10000.0	49.98	97.69	
12500.0	44.31	92.03	
16000.0	43.17	90.89	99.39
20000.0	39.59	87.30	
OVERALL (50-10KHZ)	72.18	119.90	
OVERALL (20-20KHZ)	72.73	120.45	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 48 RUN 48 POINT I ** 105 SHP ** 70 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.52	101.23	
25.0	55.65	103.37	
31.5	55.08	102.80	107.33
40.0	57.42	105.13	
50.0	57.59	105.30	
63.0	57.07	104.79	109.85
80.0	57.25	104.96	
100.0	60.66	108.38	
125.0	62.01	108.72	112.42
160.0	60.03	107.74	
200.0	59.69	107.40	
250.0	57.44	105.15	111.68
315.0	61.54	109.25	
400.0	58.68	106.39	
500.0	62.98	110.69	113.89
630.0	52.35	100.06	
800.0	48.81	96.52	
1000.0	49.33	97.04	102.94
1250.0	48.14	95.85	
1600.0	48.04	95.76	
2000.0	47.51	95.22	100.39
2500.0	48.08	95.80	
3150.0	48.05	95.77	
4000.0	51.31	99.02	101.92
5000.0	50.29	98.00	
6300.0	46.32	94.03	
8000.0	50.12	97.83	101.74
10000.0	45.16	92.88	
12500.0	41.68	89.40	
16000.0	41.77	89.48	95.68
20000.0	39.94	87.66	
OVERALL (50-10KHZ)	70.70	118.41	
OVERALL (20-20KHZ)	71.22	118.94	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 49 RUN 49 POINT A ** 105 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	48.33	96.05	
25.0	57.44	105.15	
31.5	55.99	103.71	107.80
40.0	59.51	107.23	
50.0	60.41	108.13	
63.0	61.82	109.54	113.17
80.0	63.89	111.60	
100.0	66.46	114.18	
125.0	66.00	113.71	118.07
160.0	66.46	114.17	
200.0	66.78	114.49	
250.0	65.25	112.97	118.70
315.0	63.27	110.99	
400.0	60.78	108.50	
500.0	56.45	104.17	113.47
630.0	57.55	105.26	
800.0	55.61	103.32	
1000.0	55.61	103.32	108.84
1250.0	56.84	104.56	
1600.0	56.02	103.73	
2000.0	51.54	99.26	107.82
2500.0	50.64	98.35	
3150.0	51.75	99.47	
4000.0	52.29	100.01	104.10
5000.0	49.76	97.47	
6300.0	47.12	94.83	
8000.0	47.33	95.05	100.73
10000.0	51.89	99.60	
12500.0	49.80	97.51	
16000.0	46.91	94.62	102.47
20000.0	42.77	90.48	
OVERALL (50-10KHZ)	75.17	122.88	
OVERALL (20-20KHZ)	75.44	123.15	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 50 RUN 50 POINT C ** 677 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.93	99.64	
25.0	58.80	106.51	
31.5	59.66	107.38	110.36
40.0	63.25	110.97	
50.0	65.41	113.12	
63.0	66.96	114.67	117.95
80.0	69.46	117.18	
100.0	71.81	119.52	
125.0	72.32	120.04	123.85
160.0	73.09	120.81	
200.0	73.47	121.18	
250.0	72.44	120.15	125.50
315.0	71.32	119.04	
400.0	69.42	117.14	
500.0	66.05	113.77	121.92
630.0	62.36	110.08	
800.0	61.11	108.82	
1000.0	65.44	113.15	115.85
1250.0	66.73	114.44	
1600.0	66.88	114.60	
2000.0	62.31	110.02	118.24
2500.0	59.11	106.82	
3150.0	61.07	108.79	
4000.0	58.17	105.88	112.11
5000.0	58.65	106.37	
6300.0	54.85	102.58	
8000.0	53.69	101.41	108.77
10000.0	53.13	100.84	
12500.0	50.46	98.18	
16000.0	47.04	94.76	103.36
20000.0	44.14	91.85	

OVERALL (50-10KHZ)	81.99	129.70
OVERALL (20-20KHZ)	82.10	129.41

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 51 RUN 51 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 3.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.98	99.70	
25.0	54.17	101.89	
31.5	54.18	101.89	106.05
40.0	58.46	106.18	
50.0	61.43	109.15	
63.0	61.01	108.72	112.97
80.0	61.30	109.01	
100.0	64.19	111.90	
125.0	65.30	113.01	116.38
160.0	74.11	121.82	
200.0	77.19	124.90	
250.0	64.11	111.82	126.78
315.0	62.02	109.73	
400.0	60.04	107.76	
500.0	55.74	103.46	112.45
630.0	51.12	98.83	
800.0	49.94	97.66	
1000.0	53.65	101.36	104.34
1250.0	53.98	101.70	
1600.0	52.71	100.42	
2000.0	48.18	95.89	104.73
2500.0	48.53	96.24	
3150.0	49.15	96.86	
4000.0	51.85	99.57	102.58
5000.0	50.36	98.08	
6300.0	47.11	94.83	
8000.0	50.48	98.19	102.06
10000.0	48.93	96.65	
12500.0	46.34	94.06	
16000.0	44.65	92.36	99.49
20000.0	43.66	91.37	
OVERALL (50-10KHZ)	79.79	127.50	
OVERALL (20-20KHZ)	79.86	127.57	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 52 RUN 52 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.30	100.01	
25.0	54.16	101.88	
31.5	54.80	102.51	106.36
40.0	57.12	104.83	
50.0	58.77	106.49	
63.0	59.69	107.41	111.14
80.0	61.08	108.80	
100.0	64.29	112.01	
125.0	64.05	111.76	115.85
160.0	65.96	113.67	
200.0	63.67	111.38	
250.0	61.24	108.95	116.52
315.0	60.98	108.69	
400.0	58.77	106.48	
500.0	55.26	102.97	111.41
630.0	51.85	99.57	
800.0	49.23	96.95	
1000.0	52.68	100.39	103.97
1250.0	52.73	100.44	
1600.0	51.50	99.22	
2000.0	47.37	95.00	103.55
2500.0	48.19	95.90	
3150.0	48.89	96.61	
4000.0	52.03	99.74	102.53
5000.0	50.02	97.73	
6300.0	46.89	94.61	
8000.0	50.62	98.33	101.94
10000.0	49.49	97.20	
12500.0	44.03	91.74	
16000.0	43.00	90.72	98.99
20000.0	39.78	87.50	
OVERALL (50-10KHZ)	72.92	120.64	
OVERALL (20-20KHZ)	73.20	120.92	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 53 RUN 53 POINT I ** 105 SHP ** 70 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.31	99.02	
25.0	53.83	101.55	
31.5	53.85	101.57	105.64
40.0	57.79	105.51	
50.0	64.21	111.93	
63.0	64.63	112.34	115.60
80.0	62.63	110.34	
100.0	65.40	113.12	
125.0	70.05	117.76	119.59
160.0	78.67	126.38	
200.0	66.01	113.72	
250.0	62.62	110.34	126.72
315.0	60.87	108.59	
400.0	57.76	105.47	
500.0	59.26	106.97	111.97
630.0	50.31	98.03	
800.0	51.38	99.10	
1000.0	53.73	101.45	104.54
1250.0	52.58	100.30	
1600.0	49.46	97.17	
2000.0	46.36	94.07	102.67
2500.0	47.02	94.74	
3150.0	46.52	94.23	
4000.0	47.85	95.57	99.65
5000.0	47.78	95.49	
6300.0	45.34	93.05	
8000.0	48.92	96.63	100.07
10000.0	44.86	92.58	
12500.0	41.22	88.94	
16000.0	43.82	91.53	96.04
20000.0	40.05	87.77	
OVERALL (50-10KHZ)	80.18	127.89	
OVERALL (20-20KHZ)	80.23	127.95	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 54 RUN 54 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.38	100.09	
25.0	54.21	101.92	
31.5	54.74	102.46	106.37
40.0	59.58	107.29	
50.0	63.06	110.77	
63.0	64.06	111.78	115.10
80.0	62.10	109.82	
100.0	65.53	113.24	
125.0	66.23	113.95	117.44
160.0	77.09	124.80	
200.0	78.87	126.59	
250.0	64.91	112.63	128.90
315.0	62.53	110.25	
400.0	60.14	107.85	
500.0	56.29	104.01	112.83
630.0	51.00	98.71	
800.0	51.18	98.89	
1000.0	54.91	102.62	105.25
1250.0	54.63	102.34	
1600.0	53.14	100.86	
2000.0	48.41	96.12	105.24
2500.0	49.44	97.15	
3150.0	49.10	96.81	
4000.0	51.50	99.22	102.63
5000.0	50.09	97.80	
6300.0	47.51	95.22	
8000.0	50.70	98.42	102.12
10000.0	49.56	97.28	
12500.0	48.25	95.97	
16000.0	46.67	94.39	100.81
20000.0	46.40	94.11	
OVERALL (50-10KHZ)	81.77	129.49	
OVERALL (20-20KHZ)	81.82	129.54	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 55 RUN 55 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.0050.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.22	99.93	
25.0	53.57	101.28	
31.5	53.80	101.51	105.73
40.0	56.37	104.09	
50.0	58.29	106.00	
63.0	61.01	108.72	111.46
80.0	61.14	108.86	
100.0	64.51	112.23	
125.0	63.90	111.62	115.90
160.0	64.73	112.45	
200.0	63.80	111.51	
250.0	61.42	109.13	116.01
315.0	60.59	108.31	
400.0	58.49	106.20	
500.0	54.69	102.41	111.03
630.0	51.13	98.84	
800.0	50.61	98.33	
1000.0	53.85	101.56	104.59
1250.0	52.79	100.51	
1600.0	50.73	98.44	
2000.0	47.47	95.18	103.33
2500.0	48.80	96.51	
3150.0	48.59	96.30	
4000.0	51.62	99.34	102.39
5000.0	50.37	98.08	
6300.0	47.12	94.84	
8000.0	50.46	98.17	102.05
10000.0	49.24	96.96	
12500.0	44.79	92.51	
16000.0	43.04	90.75	98.99
20000.0	39.95	87.67	
OVERALL (50-10KHZ)	72.77	120.48	
OVERALL (20-20KHZ)	73.02	120.74	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 56 RUN 56 POINT F ** 105 ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	58.54	106.25	
25.0	62.64	110.35	
31.5	60.06	107.78	113.23
40.0	60.32	108.04	
50.0	58.48	106.19	
63.0	60.02	107.74	112.17
80.0	61.83	109.54	
100.0	63.57	111.29	
125.0	65.13	112.85	116.20
160.0	76.65	124.37	
200.0	74.82	122.54	
250.0	64.08	111.80	126.70
315.0	61.41	109.13	
400.0	60.35	108.07	
500.0	56.32	104.04	112.34
630.0	52.34	100.06	
800.0	51.40	99.11	
1000.0	55.12	102.84	105.74
1250.0	55.17	102.88	
1600.0	54.14	101.86	
2000.0	50.43	98.14	106.16
2500.0	50.68	98.40	
3150.0	51.27	98.98	
4000.0	54.37	102.08	104.91
5000.0	51.97	99.68	
6300.0	50.14	97.85	
8000.0	54.67	102.39	105.15
10000.0	52.06	99.77	
12500.0	53.45	101.16	
16000.0	49.76	97.48	104.49
20000.0	49.96	97.68	
OVERALL (50-10KHZ)	79.70	127.42	
OVERALL (20-20KHZ)	79.93	127.65	

* RE..10E-13 WATTS(RASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 57 RUN 57 POINT 6 ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	56.34	104.06	
25.0	59.11	106.82	
31.5	55.64	103.35	109.79
40.0	58.52	106.23	
50.0	56.67	104.38	
63.0	58.66	106.38	110.53
80.0	60.91	108.63	
100.0	62.62	110.34	
125.0	62.06	109.77	114.41
160.0	64.26	111.97	
200.0	62.62	110.33	
250.0	61.69	109.40	115.47
315.0	60.63	108.35	
400.0	59.33	107.04	
500.0	55.89	103.60	111.52
630.0	52.30	100.02	
800.0	49.32	97.03	
1000.0	53.02	100.74	104.30
1250.0	52.98	100.69	
1600.0	52.61	100.33	
2000.0	49.15	96.86	104.37
2500.0	49.76	97.47	
3150.0	50.16	97.88	
4000.0	54.18	101.89	104.34
5000.0	51.41	99.13	
6300.0	49.64	97.35	
8000.0	53.76	101.47	104.42
10000.0	51.90	99.61	
12500.0	48.38	96.09	
16000.0	48.11	95.82	102.31
20000.0	46.47	94.18	
OVERALL (50-10KHZ)	72.11	119.82	
OVERALL (20-20KHZ)	72.73	120.44	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 58 RUN 58 POINT F ** 105 SHP ** 80 PERCENT RPM

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	58.45	106.17	
25.0	63.00	110.71	
31.5	61.48	109.20	113.84
40.0	61.34	109.05	
50.0	59.01	106.72	
63.0	59.67	107.38	112.61
80.0	61.31	109.02	
100.0	64.95	112.66	
125.0	66.46	114.17	117.21
160.0	76.97	124.68	
200.0	75.13	122.84	
250.0	64.31	112.03	127.01
315.0	63.30	111.02	
400.0	61.62	109.34	
500.0	57.85	105.56	113.95
630.0	54.29	102.00	
800.0	49.15	96.86	
1000.0	52.73	100.45	105.02
1250.0	54.52	102.24	
1600.0	56.09	103.81	
2000.0	53.31	101.02	107.28
2500.0	50.26	97.97	
3150.0	50.78	98.50	
4000.0	53.03	100.75	104.02
5000.0	51.13	98.85	
6300.0	49.02	96.73	
8000.0	52.68	100.40	103.68
10000.0	50.02	97.74	
12500.0	47.46	95.17	
16000.0	45.51	93.23	100.54
20000.0	45.05	92.76	

OVERALL (50-10KHZ) 80.10 127.81
OVERALL (20-20KHZ) 80.33 128.04

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 59 RUN 59 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	54.19	101.90	
25.0	58.97	106.68	
31.5	57.14	104.85	109.67
40.0	58.47	106.18	
50.0	56.17	103.88	
63.0	57.27	104.99	109.89
80.0	59.61	107.32	
100.0	63.25	110.96	
125.0	64.42	112.14	115.34
160.0	68.25	115.97	
200.0	61.89	109.61	
250.0	61.88	109.59	117.62
315.0	62.78	110.49	
400.0	60.16	107.87	
500.0	57.07	104.78	113.08
630.0	54.68	102.40	
800.0	48.27	95.99	
1000.0	51.06	98.77	104.60
1250.0	52.72	100.44	
1600.0	54.48	102.19	
2000.0	52.18	99.89	105.73
2500.0	49.18	96.89	
3150.0	50.27	97.99	
4000.0	53.57	101.29	103.91
5000.0	50.71	98.42	
6300.0	48.52	96.23	
8000.0	52.14	99.85	103.18
10000.0	49.73	97.45	
12500.0	44.82	92.54	
16000.0	43.75	91.46	99.42
20000.0	40.77	88.49	
OVERALL (50-10KHZ)	73.41	121.13	
OVERALL (20-20KHZ)	73.85	121.57	

* RE...10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 60 RUN 60 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	56.93	104.64	
25.0	62.12	109.83	
31.5	60.00	107.71	112.66
40.0	60.19	107.90	
50.0	58.48	106.19	
63.0	59.02	106.73	111.77
80.0	61.70	109.42	
100.0	64.00	111.72	
125.0	65.37	113.08	116.43
160.0	75.79	123.50	
200.0	73.55	121.26	
250.0	63.84	111.55	125.70
315.0	63.04	110.76	
400.0	62.68	110.39	
500.0	58.02	105.73	114.25
630.0	56.12	103.84	
800.0	49.91	97.62	
1000.0	51.29	99.01	105.79
1250.0	52.48	100.19	
1600.0	52.92	100.64	
2000.0	51.48	99.19	104.82
2500.0	50.00	97.71	
3150.0	50.41	98.12	
4000.0	52.71	100.42	103.69
5000.0	50.53	98.24	
6300.0	48.15	95.87	
8000.0	52.50	100.22	103.23
10000.0	49.90	97.62	
12500.0	46.94	94.66	
16000.0	46.51	94.23	100.55
20000.0	45.78	93.49	
OVERALL (50-10KHZ)	78.94	126.66	
OVERALL (20-20KHZ)	79.18	126.89	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 61 RUN 61 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.76	101.48	
25.0	58.42	106.14	
31.5	56.53	104.24	109.12
40.0	57.32	105.04	
50.0	55.80	103.52	
63.0	57.55	105.26	109.44
80.0	61.02	108.74	
100.0	63.04	110.75	
125.0	62.49	110.21	114.75
160.0	63.39	111.11	
200.0	61.39	109.10	
250.0	61.96	109.67	114.82
315.0	61.51	109.22	
400.0	59.48	107.20	
500.0	57.52	105.23	112.29
630.0	55.02	102.74	
800.0	48.58	96.29	
1000.0	49.99	97.70	104.61
1250.0	51.02	98.73	
1600.0	51.11	98.83	
2000.0	48.93	96.65	102.95
2500.0	48.66	96.37	
3150.0	48.68	96.40	
4000.0	52.23	99.95	102.69
5000.0	49.25	96.96	
6300.0	46.69	94.40	
8000.0	50.72	98.44	101.68
10000.0	48.76	96.48	
12500.0	42.95	90.66	
16000.0	41.62	89.33	98.11
20000.0	37.81	85.53	
OVERALL (50-10KHZ)	71.89	119.61	
OVERALL (20-20KHZ)	72.41	120.13	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 62 RUN 62 POINT A **105 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	48.75	96.46	
25.0	57.94	105.65	
31.5	55.61	103.32	107.97
40.0	59.50	107.21	
50.0	59.92	107.63	
63.0	61.19	108.90	112.75
80.0	63.76	111.47	
100.0	66.97	114.68	
125.0	66.23	113.94	118.34
160.0	66.60	114.32	
200.0	65.92	113.63	
250.0	67.55	115.37	119.27
315.0	68.85	116.57	
400.0	67.48	115.20	
500.0	65.45	113.17	119.96
630.0	62.30	110.01	
800.0	58.04	105.76	
1000.0	59.70	107.41	112.86
1250.0	62.64	110.35	
1600.0	65.08	112.79	
2000.0	62.04	109.75	115.94
2500.0	57.83	105.54	
3150.0	59.51	107.22	
4000.0	58.29	106.01	111.09
5000.0	65.83	113.54	
6300.0	59.51	107.22	
8000.0	57.43	105.14	114.94
10000.0	57.12	104.83	
12500.0	54.71	102.42	
16000.0	50.57	98.29	107.37
20000.0	45.77	93.48	
OVERALL (50-10KHZ)	77.98	125.70	
OVERALL (20-20KHZ)	78.14	125.86	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 63 RUN 63 POINT C **677 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES. 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.84	100.55	
25.0	59.83	107.54	
31.5	60.69	108.40	111.38
40.0	65.09	112.80	
50.0	67.16	114.87	
63.0	68.06	115.77	119.42
80.0	70.58	118.29	
100.0	73.04	120.76	
125.0	74.33	122.04	125.40
160.0	73.27	120.99	
200.0	74.39	122.11	
250.0	75.20	122.91	126.84
315.0	75.45	123.16	
400.0	73.51	121.23	
500.0	72.35	120.06	126.44
630.0	69.18	116.80	
800.0	64.22	111.93	
1000.0	66.38	114.09	119.55
1250.0	69.28	117.00	
1600.0	71.91	119.62	
2000.0	70.14	117.85	123.07
2500.0	70.56	118.27	
3150.0	69.33	117.04	
4000.0	65.43	113.14	121.41
5000.0	65.17	112.88	
6300.0	61.24	108.96	
8000.0	57.30	105.02	114.84
10000.0	54.23	101.94	
12500.0	50.02	97.73	
16000.0	45.98	93.69	103.79
20000.0	42.56	90.28	
OVERALL (50-10KHZ)	84.85	132.56	
OVERALL (20-20KHZ)	84.93	132.64	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 64 RUN 64 POINT F ** 105SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.64	100.36	
25.0	57.28	104.99	
31.5	61.83	109.55	111.22
40.0	64.50	112.22	
50.0	61.38	109.10	
63.0	59.74	107.46	114.82
80.0	60.80	108.52	
100.0	65.47	113.19	
125.0	67.13	114.84	117.67
160.0	76.91	124.63	
200.0	74.95	122.66	
250.0	67.57	115.28	127.06
315.0	66.84	114.55	
400.0	65.53	113.24	
500.0	65.47	113.19	118.48
630.0	61.78	109.50	
800.0	57.16	104.88	
1000.0	57.76	105.48	111.91
1250.0	59.25	106.96	
1600.0	61.75	109.46	
2000.0	59.05	106.77	112.68
2500.0	56.17	103.89	
3150.0	55.64	103.36	
4000.0	57.13	104.85	108.85
5000.0	57.97	105.69	
6300.0	52.94	100.66	
8000.0	53.71	101.42	107.96
10000.0	51.54	99.26	
12500.0	48.31	96.03	
16000.0	54.08	101.80	104.40
20000.0	46.06	93.77	

OVERALL (50-10KHZ) 80.74 128.45
OVERALL (20-20KHZ) 80.93 128.64

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 65 RUN 65 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62780.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.54	96.25	
25.0	54.75	99.46	
31.5	56.77	101.49	104.34
40.0	60.05	104.76	
50.0	58.11	102.82	
63.0	57.78	102.50	108.25
80.0	59.73	104.44	
100.0	63.93	108.65	
125.0	66.20	110.92	113.51
160.0	63.26	107.97	
200.0	67.18	111.89	
250.0	66.82	111.54	115.56
315.0	66.79	111.50	
400.0	65.07	109.79	
500.0	64.69	109.40	115.10
630.0	61.63	106.34	
800.0	59.74	104.45	
1000.0	59.67	104.38	109.93
1250.0	60.60	105.31	
1600.0	60.37	105.08	
2000.0	57.53	102.24	109.19
2500.0	55.62	100.33	
3150.0	54.45	99.17	
4000.0	55.50	100.22	104.71
5000.0	53.79	98.51	
6300.0	50.27	94.98	
8000.0	51.51	96.23	101.59
10000.0	48.99	93.70	
12500.0	43.64	88.36	
16000.0	42.65	87.37	95.53
20000.0	38.98	83.70	
OVERALL (50-10KHZ)	75.98	120.69	
OVERALL (20-20KHZ)	76.19	120.90	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 66 RUN 66 POINT I ** 105 SHP ** 70 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	49.00	96.71	
25.0	55.33	103.04	
31.5	60.96	108.68	109.94
40.0	64.55	112.26	
50.0	62.71	110.43	
63.0	59.65	107.36	115.23
80.0	60.07	107.78	
100.0	63.58	111.29	
125.0	70.93	118.64	119.66
160.0	75.07	122.78	
200.0	66.26	113.98	
250.0	65.20	112.91	123.70
315.0	66.01	113.72	
400.0	64.53	112.24	
500.0	66.04	113.76	118.07
630.0	60.62	108.33	
800.0	55.49	103.20	
1000.0	53.66	101.38	110.12
1250.0	56.41	104.12	
1600.0	58.20	105.91	
2000.0	58.01	105.72	110.09
2500.0	51.95	99.66	
3150.0	51.32	99.04	
4000.0	52.06	99.77	104.27
5000.0	51.91	99.63	
6300.0	48.22	95.93	
8000.0	50.28	98.00	102.88
10000.0	45.31	93.02	
12500.0	41.53	89.25	
16000.0	43.41	91.13	96.17
20000.0	41.67	89.38	
OVERALL (50-10KHZ)	78.65	126.36	
OVERALL (20-20KHZ)	78.91	126.62	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 67 RUN 67 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	54.00	101.71	
25.0	54.99	102.71	
31.5	54.14	101.86	106.89
40.0	57.27	104.99	
50.0	59.75	107.47	
63.0	63.79	111.51	113.60
80.0	64.73	112.44	
100.0	65.91	113.62	
125.0	66.66	114.38	118.32
160.0	77.04	124.75	
200.0	78.36	126.07	
250.0	65.03	112.74	128.59
315.0	63.85	111.57	
400.0	60.32	108.04	
500.0	57.29	105.00	113.78
630.0	53.11	100.82	
800.0	52.66	100.38	
1000.0	55.24	102.95	106.31
1250.0	55.42	103.13	
1600.0	53.96	101.67	
2000.0	49.82	97.53	106.12
2500.0	50.79	98.50	
3150.0	50.17	97.89	
4000.0	52.96	100.68	103.97
5000.0	49.99	97.70	
6300.0	48.01	95.73	
8000.0	50.44	98.15	102.09
10000.0	48.47	96.19	
12500.0	44.82	92.54	
16000.0	46.46	94.18	99.33
20000.0	46.90	94.61	
OVERALL (50-10KHZ)	81.56	129.28	
OVERALL (20-20KHZ)	81.61	129.32	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 68 RUN 68 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.31	101.02	
25.0	55.98	103.69	
31.5	55.64	103.36	107.61
40.0	56.69	104.40	
50.0	57.75	105.46	
63.0	59.74	107.45	110.73
80.0	62.38	110.10	
100.0	64.47	112.18	
125.0	64.44	112.16	116.35
160.0	66.59	114.30	
200.0	63.25	110.96	
250.0	62.39	110.10	116.96
315.0	62.73	110.45	
400.0	59.90	107.62	
500.0	57.53	105.24	113.05
630.0	54.27	101.99	
800.0	48.68	96.40	
1000.0	50.59	98.30	104.30
1250.0	51.60	99.32	
1600.0	52.13	99.84	
2000.0	49.56	97.28	103.72
2500.0	47.93	95.64	
3150.0	48.79	96.50	
4000.0	52.03	99.74	102.44
5000.0	49.20	96.91	
6300.0	47.47	95.18	
8000.0	51.41	99.12	102.14
10000.0	50.01	97.72	
12500.0	44.69	92.40	
16000.0	44.58	92.30	99.71
20000.0	43.91	91.62	
OVERALL (50-10KHZ)	73.46	121.18	
OVERALL (20-20KHZ)	73.75	121.47	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 69 RUN 69 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.09	100.80	
25.0	55.23	102.95	
31.5	54.26	101.97	106.77
40.0	57.73	105.44	
50.0	61.83	109.54	
63.0	68.54	116.25	117.38
80.0	67.10	114.82	
100.0	67.52	115.23	
125.0	67.79	115.50	119.96
160.0	78.88	126.59	
200.0	78.47	126.18	
250.0	66.12	113.83	129.52
315.0	64.64	112.35	
400.0	62.90	110.61	
500.0	58.57	106.28	115.18
630.0	54.43	102.14	
800.0	50.95	98.66	
1000.0	53.86	101.57	105.81
1250.0	54.87	102.58	
1600.0	54.10	101.81	
2000.0	50.44	98.15	106.00
2500.0	49.74	97.45	
3150.0	51.14	98.85	
4000.0	53.77	101.49	104.36
5000.0	50.87	98.58	
6300.0	48.94	96.65	
8000.0	52.65	100.37	103.56
10000.0	50.97	98.68	
12500.0	49.52	97.24	
16000.0	48.89	96.61	102.37
20000.0	48.52	96.24	
OVERALL (50-10KHZ)	82.67	130.38	
OVERALL (20-20KHZ)	82.71	130.42	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 70 RUN 70 POINT G ** 175 SHP ** 80 PERCENT RPM

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.76	99.48	
25.0	54.69	102.40	
31.5	55.08	102.79	106.56
40.0	56.32	104.03	
50.0	57.09	104.80	
63.0	59.22	106.94	110.21
80.0	62.20	109.92	
100.0	64.14	111.86	
125.0	63.80	111.52	115.95
160.0	65.47	113.19	
200.0	62.39	110.10	
250.0	61.37	109.08	115.93
315.0	62.63	110.34	
400.0	59.49	107.20	
500.0	56.81	104.53	112.77
630.0	53.40	101.12	
800.0	48.27	95.98	
1000.0	51.65	99.37	104.07
1250.0	52.27	99.98	
1600.0	51.50	99.21	
2000.0	48.37	96.09	103.49
2500.0	48.14	95.86	
3150.0	49.14	96.85	
4000.0	52.31	100.03	102.73
5000.0	49.20	96.92	
6300.0	46.55	94.27	
8000.0	49.63	97.34	101.14
10000.0	47.81	95.53	
12500.0	43.01	90.73	
16000.0	41.11	88.83	97.42
20000.0	38.19	85.90	
OVERALL (50-10KHZ)	72.84	120.56	
OVERALL (20-20KHZ)	73.11	120.83	

* RE..10E-13 WATTS(RASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 71 RUN 71 POINT F ** 105 SHP ** 80 PERCENT

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62032.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.29	101.01	
25.0	55.39	103.10	
31.5	54.41	102.12	106.93
40.0	57.33	105.05	
50.0	58.80	106.52	
63.0	61.25	108.97	111.92
80.0	62.99	110.71	
100.0	64.18	111.90	
125.0	64.32	112.03	116.36
160.0	67.65	115.36	
200.0	71.94	119.65	
250.0	64.83	112.54	121.60
315.0	61.58	109.29	
400.0	60.69	108.41	
500.0	56.81	104.53	112.61
630.0	54.38	102.10	
800.0	51.97	99.68	
1000.0	54.97	102.69	106.44
1250.0	55.10	102.81	
1600.0	53.07	100.78	
2000.0	49.53	97.24	105.61
2500.0	50.73	98.45	
3150.0	51.08	98.79	
4000.0	53.84	101.55	104.60
5000.0	50.12	97.83	
6300.0	47.67	95.38	
8000.0	52.67	100.38	103.11
10000.0	47.76	95.47	
12500.0	41.68	89.40	
16000.0	41.66	89.37	97.21
20000.0	38.39	86.10	
OVERALL (50-10KHZ)	75.94	123.65	
OVERALL (20-20KHZ)	76.09	123.81	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 72 RUN 72 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.38	100.09	
25.0	54.33	102.04	
31.5	53.87	101.59	106.09
40.0	56.97	104.68	
50.0	57.67	105.38	
63.0	59.58	107.29	110.70
80.0	62.24	109.95	
100.0	63.84	111.56	
125.0	63.53	111.24	115.74
160.0	63.39	111.11	
200.0	61.20	108.91	
250.0	61.61	109.32	114.66
315.0	61.67	109.38	
400.0	59.79	107.11	
500.0	56.54	104.25	112.17
630.0	53.82	101.53	
800.0	49.81	97.52	
1000.0	53.18	100.89	105.07
1250.0	53.47	101.18	
1600.0	51.76	99.48	
2000.0	48.57	96.28	104.19
2500.0	49.27	96.98	
3150.0	50.39	98.10	
4000.0	53.53	101.24	103.94
5000.0	49.40	97.11	
6300.0	46.84	94.56	
8000.0	50.80	98.51	101.79
10000.0	46.95	94.66	
12500.0	39.84	87.55	
16000.0	39.76	87.47	96.08
20000.0	35.94	83.65	
OVERALL (50-10KHZ)	72.38	120.09	
OVERALL (20-20KHZ)	72.67	120.39	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 73 RUN 73 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.73	101.44	
25.0	54.95	102.66	
31.5	53.56	101.27	106.61
40.0	56.69	104.40	
50.0	56.46	104.17	
63.0	58.27	105.98	109.70
80.0	60.65	108.37	
100.0	63.18	110.89	
125.0	63.30	111.01	115.02
160.0	64.78	112.49	
200.0	68.65	116.36	
250.0	68.74	116.46	120.22
315.0	63.87	111.59	
400.0	62.55	110.26	
500.0	58.59	106.31	114.67
630.0	57.53	105.24	
800.0	54.75	102.46	
1000.0	57.61	105.33	109.30
1250.0	57.93	105.65	
1600.0	55.32	103.03	
2000.0	52.81	100.53	108.33
2500.0	55.37	103.09	
3150.0	52.51	100.23	
4000.0	54.10	101.81	106.63
5000.0	51.27	98.99	
6300.0	48.53	96.24	
8000.0	51.73	99.44	103.21
10000.0	48.52	96.23	
12500.0	44.99	93.70	
16000.0	44.57	92.28	98.90
20000.0	43.75	91.47	
OVERALL (50-10KHZ)	75.19	122.91	
OVERALL (20-20KHZ)	75.37	123.08	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 74 RUN 74 POINT G ** 175 SHP ** 80 PERCENT RPM

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	52.73	100.44	
25.0	54.53	102.25	
31.5	55.45	103.16	106.86
40.0	57.76	105.47	
50.0	57.85	105.56	
63.0	59.74	107.45	111.03
80.0	62.03	109.75	
100.0	64.62	112.33	
125.0	64.88	112.60	116.51
160.0	66.15	113.86	
200.0	64.57	112.29	
250.0	64.47	112.18	117.62
315.0	64.73	112.44	
400.0	62.40	110.11	
500.0	57.38	105.09	114.92
630.0	56.60	104.31	
800.0	56.61	104.32	
1000.0	58.44	106.15	109.79
1250.0	57.67	105.38	
1600.0	54.58	102.30	
2000.0	52.32	100.04	107.89
2500.0	53.11	100.82	
3150.0	52.28	100.00	
4000.0	53.94	101.69	105.66
5000.0	51.28	98.99	
6300.0	48.39	96.10	
8000.0	51.29	99.01	103.00
10000.0	49.31	97.02	
12500.0	43.15	90.86	
16000.0	44.55	92.26	99.00
20000.0	39.50	87.22	
OVERALL (50-10KHZ)	74.45	122.16	
OVERALL (20-20KHZ)	74.67	122.39	

* RE. 10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 80 RUN #0 POINT F ** 105 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.20	100.92	
25.0	58.39	106.10	
31.5	55.90	103.62	108.81
40.0	56.85	104.56	
50.0	56.04	103.76	
63.0	57.94	105.66	109.50
80.0	60.58	108.29	
100.0	62.03	109.75	
125.0	60.28	107.99	113.52
160.0	59.99	107.71	
200.0	59.51	107.22	
250.0	59.13	106.84	112.04
315.0	57.69	105.40	
400.0	55.90	103.62	
500.0	54.85	102.57	108.79
630.0	53.07	100.78	
800.0	48.85	96.56	
1000.0	52.07	99.79	104.15
1250.0	52.07	99.79	
1600.0	50.61	98.32	
2000.0	48.44	96.15	103.11
2500.0	49.35	97.06	
3150.0	49.44	97.16	
4000.0	49.79	97.50	102.02
5000.0	49.24	96.95	
6300.0	47.46	95.17	
8000.0	51.16	98.87	102.03
10000.0	49.14	96.85	
12500.0	46.65	94.37	
16000.0	46.16	93.87	100.01
20000.0	46.79	94.51	
OVERALL (50-10KHZ)	70.10	117.81	
OVERALL (20-20KHZ)	70.84	118.55	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 81 RUN 81 POINT G ** 175 SHP ** 80 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	51.38	99.09	
25.0	57.12	104.84	
31.5	55.99	103.70	107.93
40.0	57.43	105.14	
50.0	57.00	104.72	
63.0	58.87	106.58	110.33
80.0	61.80	109.51	
100.0	63.68	111.40	
125.0	61.76	109.48	115.00
160.0	61.86	109.67	
200.0	60.63	108.34	
250.0	59.62	107.34	113.28
315.0	58.87	106.58	
400.0	56.87	104.58	
500.0	55.38	103.09	109.76
630.0	53.41	101.12	
800.0	48.70	96.41	
1000.0	52.36	100.08	104.39
1250.0	52.23	99.95	
1600.0	50.89	98.60	
2000.0	48.03	95.75	103.20
2500.0	48.66	96.38	
3150.0	49.15	96.86	
4000.0	49.63	97.34	101.65
5000.0	48.88	96.59	
6300.0	46.83	94.54	
8000.0	50.24	97.95	101.35
10000.0	48.83	96.54	
12500.0	44.82	92.53	
16000.0	44.02	91.73	98.91
20000.0	42.26	89.97	
OVERALL (50-10KHZ)	71.21	118.92	
OVERALL (20-20KHZ)	71.73	119.44	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER R2 RUN #2 POINT I ** 105 SHP ** 70 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.0050.F1.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.80	98.51	
25.0	57.96	105.67	
31.5	58.29	106.01	109.24
40.0	56.15	103.86	
50.0	56.15	103.87	
63.0	55.79	103.50	108.52
80.0	56.82	104.53	
100.0	60.02	107.73	
125.0	58.32	106.03	111.07
160.0	57.04	104.75	
200.0	57.03	104.74	
250.0	57.09	104.80	109.54
315.0	55.10	102.81	
400.0	54.37	102.08	
500.0	60.46	108.17	110.04
630.0	50.58	98.29	
800.0	46.41	94.13	
1000.0	48.97	96.68	101.46
1250.0	48.62	96.34	
1600.0	46.40	94.11	
2000.0	45.33	93.05	99.49
2500.0	45.40	93.12	
3150.0	44.91	92.62	
4000.0	45.70	93.42	97.84
5000.0	45.45	93.16	
6300.0	43.63	91.34	
8000.0	46.28	93.99	97.74
10000.0	41.23	88.94	
12500.0	38.01	85.72	
16000.0	38.05	85.77	91.86
20000.0	36.44	84.15	
OVERALL(50-10KHZ)	68.32	116.03	
OVERALL(20-20KHZ)	69.36	117.08	

* RE..10E-13 WATTS(BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 83 RUN 83 POINT A ** 105 SHP ** 100 PERCENT RPM **

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62932.0050.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.38	98.10	
25.0	56.41	104.13	
31.5	54.28	102.00	106.83
40.0	58.14	105.86	
50.0	59.45	107.17	
63.0	61.96	109.67	112.63
80.0	65.15	112.87	
100.0	67.23	114.95	
125.0	66.35	114.06	110.81
160.0	65.87	113.58	
200.0	64.95	112.66	
250.0	62.88	110.60	117.22
315.0	62.81	110.52	
400.0	61.39	109.11	
500.0	56.42	104.13	113.43
630.0	57.41	105.13	
800.0	56.59	104.30	
1000.0	58.88	106.59	110.22
1250.0	59.20	106.91	
1600.0	57.26	104.97	
2000.0	54.16	101.87	109.82
2500.0	54.55	102.26	
3150.0	53.68	101.39	
4000.0	53.11	100.82	106.31
5000.0	51.89	99.61	
6300.0	49.48	97.19	
8000.0	48.09	95.81	102.60
10000.0	47.72	95.43	
12500.0	46.31	94.02	
16000.0	44.66	92.37	98.89
20000.0	42.99	90.71	

OVERALL (50-10KHZ)	75.12	122.83
OVERALL (20-20KHZ)	75.32	123.03

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 84 RUN 84 POINT C ** 677 SHP ** 100 PERCENT RPM **
NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.
SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.27	97.98	
25.0	58.62	106.33	
31.5	58.02	105.74	109.38
40.0	61.80	109.51	
50.0	63.87	111.58	
63.0	67.16	114.87	117.33
80.0	69.09	116.80	
100.0	72.20	119.92	
125.0	71.94	119.66	123.77
160.0	71.64	119.36	
200.0	70.99	118.71	
250.0	69.87	117.58	123.38
315.0	69.58	117.30	
400.0	67.62	115.34	
500.0	63.70	111.42	120.07
630.0	62.86	110.57	
800.0	62.64	110.35	
1000.0	66.43	114.15	116.83
1250.0	67.33	115.04	
1600.0	66.11	113.82	
2000.0	62.45	110.16	118.22
2500.0	62.87	110.59	
3150.0	62.58	110.29	
4000.0	60.71	108.42	114.64
5000.0	59.76	107.47	
6300.0	57.99	105.70	
8000.0	56.85	104.56	110.85
10000.0	55.61	103.33	
12500.0	52.63	100.35	
16000.0	49.97	97.68	105.82
20000.0	46.17	93.89	
OVERALL (50-10KHZ)	81.10	128.81	
OVERALL (20-20KHZ)	81.21	128.92	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 85 RUN 85 POINT A ** 105 SHP ** 100 PERCENT RPM ** CONFIGURATION 22

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	50.78	98.50	
25.0	62.10	109.82	
31.5	56.07	103.79	111.03
40.0	58.49	106.20	
50.0	59.24	106.95	
63.0	61.93	109.64	112.63
80.0	63.64	111.36	
100.0	65.90	113.61	
125.0	66.35	114.07	117.93
160.0	67.08	114.79	
200.0	67.32	115.03	
250.0	69.26	116.97	120.48
315.0	72.19	119.91	
400.0	71.36	119.08	
500.0	67.49	115.20	123.26
630.0	66.88	114.60	
800.0	64.21	111.92	
1000.0	67.64	115.36	118.96
1250.0	77.15	124.87	
1600.0	76.06	123.78	
2000.0	72.70	120.42	128.17
2500.0	69.84	117.56	
3150.0	77.68	125.40	
4000.0	85.43	133.15	133.92
5000.0	78.21	125.92	
6300.0	75.49	123.20	
8000.0	79.79	127.51	130.66
10000.0	74.63	122.35	
12500.0	80.97	128.68	
16000.0	74.04	121.75	130.25
20000.0	72.69	120.41	
OVERALL (50-10KHZ)	89.22	136.93	
OVERALL (20-20KHZ)	90.03	137.75	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 86 RUN R6 POINT C ** 677 SHP ** 100 PERCENT RPM ** CONFIGURATION

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.48	101.19	
25.0	59.75	107.47	
31.5	59.26	106.98	110.75
40.0	62.54	110.25	
50.0	63.76	111.47	
63.0	66.90	114.61	117.29
80.0	69.35	117.06	
100.0	72.23	119.95	
125.0	73.63	121.34	124.56
160.0	74.94	122.65	
200.0	74.82	122.54	
250.0	75.53	123.24	127.59
315.0	77.83	125.54	
400.0	77.61	125.32	
500.0	72.79	120.51	129.09
630.0	72.76	120.47	
800.0	69.83	117.55	
1000.0	74.31	122.02	125.15
1250.0	80.19	127.91	
1600.0	79.67	127.38	
2000.0	75.21	122.93	131.34
2500.0	76.68	124.39	
3150.0	78.96	126.67	
4000.0	83.16	130.87	132.93
5000.0	78.54	126.25	
6300.0	76.84	124.55	
8000.0	80.97	128.69	131.60
10000.0	76.39	124.10	
12500.0	83.97	131.68	
16000.0	74.27	121.99	132.76
20000.0	70.49	118.21	
OVERALL (50-10KHZ)	90.78	138.49	
OVERALL (20-20KHZ)	91.73	139.44	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMER 87 RUN #7 POINT F ** 105 SHP ** 80 PERCENT RPM ** CONFIGURATION 22
NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.
SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.95	101.66	
25.0	53.40	101.11	
31.5	53.27	100.98	106.03
40.0	54.75	102.47	
50.0	54.02	101.74	
63.0	57.06	104.77	107.96
80.0	58.43	106.15	
100.0	61.00	108.71	
125.0	62.84	110.55	113.60
160.0	70.80	118.52	
200.0	70.49	118.20	
250.0	68.48	116.19	122.52
315.0	71.71	119.42	
400.0	72.55	120.26	
500.0	69.93	117.64	124.01
630.0	68.77	116.48	
800.0	67.09	114.80	
1000.0	73.20	120.91	122.97
1250.0	75.48	123.19	
1600.0	75.64	123.36	
2000.0	72.92	120.64	127.33
2500.0	77.40	125.11	
3150.0	78.47	126.19	
4000.0	80.60	128.31	131.52
5000.0	82.36	130.07	
6300.0	79.00	126.72	
8000.0	80.73	128.44	133.39
10000.0	80.90	128.62	
12500.0	77.05	124.76	
16000.0	76.08	123.80	131.02
20000.0	75.40	123.12	
OVERALL (50-10KHZ)	89.71	137.42	
OVERALL (20-20KHZ)	90.26	137.98	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN
ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS
POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 88 RUN 88 POINT G ** 175 SHP ** 80 PERCENT RPM ** CONFIGURATION 22
NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.
SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DB)*	OCTAVE BAND (DB)
20.0	53.29	101.01	
25.0	54.07	101.79	
31.5	52.63	100.34	105.86
40.0	54.19	101.90	
50.0	54.44	102.16	
63.0	57.57	105.28	108.17
80.0	58.85	106.56	
100.0	61.27	108.99	
125.0	62.82	110.53	113.76
160.0	65.34	113.06	
200.0	66.56	114.27	
250.0	67.54	115.25	119.06
315.0	70.32	118.03	
400.0	70.26	117.98	
500.0	67.69	115.41	122.07
630.0	67.41	115.12	
800.0	69.69	117.40	
1000.0	74.91	122.62	124.32
1250.0	76.71	124.42	
1600.0	75.03	122.75	
2000.0	74.71	122.42	128.06
2500.0	80.04	127.76	
3150.0	78.57	126.28	
4000.0	82.11	129.82	132.97
5000.0	82.62	130.33	
6300.0	79.66	127.37	
8000.0	81.92	129.64	134.06
10000.0	82.98	130.69	
12500.0	77.68	125.39	
16000.0	76.10	123.82	132.45
20000.0	74.54	122.25	
OVERALL (50-10KHZ)	90.66	138.37	
OVERALL (20-20KHZ)	91.12	138.83	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

Y

USAF QUIET ENGINE FINAL DEMONSTRATION TESTING AT SANTAN

ENGINE TESTED TPE 331-5-251 INLET AND EXHAUST DUCT CONFIGURATIONS

POWER LEVELS BASED ON MEASURED DATA CORRECTED TO FAA STD DAY

RUN NUMBER 89 RUN 89 POINT I ** 105 SHP ** PERCENT RPM ** CONFIGURATION 22 *

NUMBER OF MICROPHONES 12 MICROPHONE RADIUS 100.0FT. MIC. HEIGHT 5.0FT.

SOURCE HEIGHT 6.0 TOTAL AREA 62832.00SQ.FT.

1/3 OCT.BAND CENTER FREQ.	MEAN SQUARE SOUND PRESS. LEVEL	1/3 OCTAVE POWER LEVEL (DH)*	OCTAVE BAND (DB)
20.0	52.13	99.85	
25.0	52.19	99.90	
31.5	52.63	100.34	104.81
40.0	54.22	101.93	
50.0	58.48	106.19	
63.0	57.08	104.80	109.42
80.0	58.56	106.27	
100.0	60.81	108.53	
125.0	65.64	113.35	115.19
160.0	70.96	118.67	
200.0	67.27	114.98	
250.0	68.45	116.17	121.66
315.0	71.30	119.02	
400.0	71.25	118.97	
500.0	71.08	118.80	123.70
630.0	68.87	116.58	
800.0	72.40	120.12	
1000.0	76.59	124.30	126.21
1250.0	78.18	125.89	
1600.0	76.40	124.11	
2000.0	74.20	121.91	129.04
2500.0	78.18	125.89	
3150.0	77.12	124.83	
4000.0	78.73	126.44	130.54
5000.0	78.18	125.89	
6300.0	76.54	124.25	
8000.0	80.07	127.78	130.99
10000.0	77.04	124.75	
12500.0	73.30	121.02	
16000.0	72.81	120.52	127.31
20000.0	73.99	121.71	
OVERALL (50-10KHZ)	88.65	136.36	
OVERALL (20-20KHZ)	89.02	136.74	

* RE..10E-13 WATTS (BASED ON SPL DATA NORMALIZED TO FAA STANDARD DAY)

4. ENGINE PERFORMANCE DATA (9 pages)

The measured engine performance data from the TPE331-5-251 engine runs are presented in the following charts.

*Refer Figure 3.		ALTITUDE EQUIPMENT DIVISION CALCULATED RECORDED DRAWN CHECKED APPROVED		SEP108 I TPE331-5-251, S/N X-21 Small Turbine Engine Noise-Reduction Program Data Sheet

TEST SITE: San Tan Facility

DATE	1-26-73	1-30-73	2-8-73	1-30-73	1-30-73	1-30-73	2-14-73	2-14-73	2-14-73	2-14-73	2-14-73	2-16-73	2-16-73	2-16-73	2-23-73	2-23-73	2-23-73
TIME																	
DATA POINT*	C	A	G	G	F	I	A	E	I	C	A	C	C	F	F	G	F
RUN NUMBER	1	2	7	8	9	10	11	12	15	17	18	19	23	23	24	25	
ENGINE LOAD DATA																	
Horsepower	700	105	175	175	105	105	105	105	105	700	105	700	105	105	175	105	
Prop shaft speed (set)	1591	1591	1273	1273	1273	1114	1591	1273	1114	1591	1591	1591	1273	1273	1273	1114	
Engine speed (set)	100	100	80	80	80	70	100	80	70	100	100	100	80	80	80	70	
(actual)	100	100	80	80	80	70	100	80	70	100	100	100	80	80	80	70	
Prop shaft torque (set)	2732	4164	8664	8664	5196	5940	4164	5196	5940	2732	4164	2732	5196	5196	8664	5940	
(actual)	27700	4200	8050	8650	5280	5900	3850	4800	5750	26150	2850	25280	4625	4625	8110	5920	
Turbine exhaust temp. T5	886	587	822	838	706	907	584	680	874	903	586	909	724	724	846	942	
Engine speed (actual)	12176	12176	9737	9740	9740	8523	12176	9740	8526	12176	12178	12181	9735	9735	9732	8527	
Fuel consumption																	
lb/hr																	
Barometer	28.73	28.84	28.63	28.84	28.84	28.84	28.70	28.70	28.71	28.71	28.67	28.67	28.73	28.73	28.73	28.73	
ENGINE CONDITION DATA																	
Compr discharge press., Pt3	265.5	229.0	167.5	167.0	166.0	147.8	235.5	168.0	149.2	270.0	231.0	262.5	165.4	165.4	166.4	148.2	
Fuel pressure																	
Oil pressure	102	100	96	102	102	102	101	97	89	101	100.5	101.5	96	96	96	89	
Engine inlet temp., Tt2	45	61	57	61.5	60	57	51	50	50	45	48.5	48	61	61	63.5	63	
Turbine temp., Tt4.1	1490	1038	1145	1163	1020	1148	1030	992	1115	1495	1027	1497	1026	1026	1121	1175	
Fuel temp.	47	65	58	66	65	62	54	50	48	47	49	48	61	61	61	60.5	
Oil temp.	173	123	141	116	111	106	145	130	123	173	136	164	122	122	129	119	
Compr. discharge temp., Tt3	666	666	454	461	455	373	655	444	363	669	651	669	453	453	460	376	
Dyno water disch. temp.	122	95	102	100	96	91	92	92	89	118							
Gearbox vibration	0.46	0.35	0.21	0.17	0.15	0.21	0.34	0.18	0.18	0.40	0.34	0.43	0.22	0.22	0.18	0.20	
Turbine vibration	0.23	0.31	0.15	0.18	0.17	0.18	0.19	0.12	0.13	0.16	0.20	0.19	0.13	0.13	0.14	0.19	
Engine inlet total press. Pt2	±0.6	-0.6	-0.3	-0.2	-0.3	-0.3	-0.16	-0.4	-0.2	-0.7	-6.6	-6.3	+2.2	+2.2	+2.1	+1.3	
Tailpipe static press., P45	-12.6	-9.9	-6.3	-4.5	-3.6	-1.3	+5.6	+9.4	+7.1	+15.6	+6.7	+13.7	+9.1	+6.7	+6.7	+6.6	
in.H2O																	

*Refer Figure 3.

Series III
TPE331-5-251, S/N X-21
Small Turbine Engine
Noise-Reduction Program
Data Sheet

ALTITUDE EQUIPMENT DIVISION
CALCULATED
RECORDED
DRAWN
CHECKED
APPROVED

TEST SITE: San Tan Facility

DATE	3-8-73	3-8-73	3-8-73	3-8-73	3-8-73	3-8-73	3-8-73	3-8-73	3-8-73	3-20-73	3-20-73	3-20-73	3-20-73	3-20-73	3-21-73	3-21-73	3-21-73	3-25-73
TIME	1653	1702	1706	1715	1725	1814	1833	1855	1917	1934	2234	2250	2250	2250	2000	2017	2017	0833
DATA POINT*	A	C	F	G	I	A	C	F	G	I	F	G	F	G	F	G	F	F
RUN NUMBER	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58			
ENGINE LOAD DATA																		
Horsepower	hp	105	700	105	175	105	700	105	175	105	105	175	105	175	105	175	105	105
Prop shaft speed (set)	rpm	1591	1591	1273	1273	1114	1591	1591	1273	1273	1114	1273	1273	1273	1273	1273	1273	1273
Engine speed (set)	%	100	100	80	80	70	100	100	80	80	70	80	80	80	80	80	80	80
Prop shaft torque (set)	lb-in.	4164	27732	5196	8664	5940	4164	27732	5196	8664	5940	5196	8664	5196	8664	5196	8664	5196
Prop shaft torque (actual)	lb-in.	3080	24780	4910	7850	5800	3300	26050	5600	8460	6080	5000	8290	4820	8400	4900	8400	4900
Turbine exhaust temp. T5	°F	593	930	716	811	916	604	952	732	833	926	677	795	675	785	686	785	686
Engine speed (actual)	cps	12177	12178	9740	9730	8527	12169	12183	9741	9732	8526	9733	9737	9730	9734	9734	9734	9734
Fuel consumption	lb/hr																	
Barometer	in.HgA	28.42	28.42	28.42	28.42	28.42	28.47	28.47	28.47	28.47	28.47	28.51	28.51	28.51	28.65	28.65	28.66	28.66
ENGINE CONDITION DATA																		
Compr discharge press., Pt3	in.HgA	227.6	255.5	165.7	167.0	147.8	220.2	250.0	165.4	166.3	147.6	166.7	167.5	167.3	168.5	168.5	166.5	166.5
Fuel pressure	psig																	
Oil pressure	psig	101	101.5	95	95	85.5	102	102	97	97	93.5	97	97	96.5	96.5	96.5	96.5	96.5
Engine inlet temp., Tt2	°F	53	56.5	59	55	57	68	68.5	68.5	61	61	52	52	48	49.5	49.5	52	52
Turbine temp., Tt4.1	°F	1030	1519	1020	1138	1150	1048	1546	1040	1160	1163	996	1124	984	1115	997	997	997
Fuel temp.	°F	53.5	55.5	55.5	54.5	54	70	68	63	62	61	55	52.5	51	49	54	54	54
Oil temp.	°F	154	179	149	143	132	150	189	146	144	134	131	140	113	125	121	121	121
Compre. discharge temp., Tt3	°F	655	680	453	452	371	674	691	457	458.5	373	443	450	439	446	444	444	444
Dyno water disch. temp.	°F																	
Gearbox vibration	mils	0.37	0.43	0.22	0.19	0.29	0.40	0.48	0.21	0.19	0.32	0.20	0.17	0.21	0.18	0.21	0.21	0.21
Turbine vibration	mils	0.23	0.22	0.12	0.12	0.29	0.24	0.20	0.12	0.12	0.27	0.11	0.12	0.15	0.13	0.13	0.13	0.13
Engine inlet total press. Pt2	in.H2O	-6.3	-6.0	-2.1	-2.1	-0.9	-6.3	-6.1	-2.1	-2.0	-1.1	-2.2	-2.2	-2.2	-2.2	-2.2	-2.1	-2.1
Tailpipe static press., Pa5	in.H2O	+4.9	+11.5	+8.2	+6.0	+6.3	-6.6	-5.7	-1.7	-3.2	-0.2	-1.7	-3.5	-1.7	-3.7	-1.9	-1.9	-1.9

*Refer Figure 3.

Series III TPE331-5-251, S/N X-21
Small Turbine Engine
Noise-Reduction Program
Data Sheet

ALTIMETER EQUIPMENT DIVISION

CALCULATED

RECORDED

INDEXED

CHECKED

APPROVED

SECTION III

ACOUSTICAL MATERIALS TEST DATA

The complete listing of acoustic materials tested during this program is presented in Table III. Table IV is a list of the materials impedance and absorption data charts included in this section. These are the remaining material data plots not included in Volume III of this report. The materials reported in Volume III are identified in Table III by an asterisk.

TABLE IV. LIST OF MATERIALS IMPEDANCE AND ABSORPTION
DATA CHARTS IN THIS VOLUME.

Sample No.	Page No.	Material Description	Category
21-GS		4.5% open area 0.629 in. dia. holes	 Perforated Plates
16-GS		8.0% OA 0.0625 in. dia. holes	
10-2S		8.0% OA 0.0625 in. dia. holes	
7-2S		8.0% OA 0.0625 in. dia. holes	
13-GS		8.0% OA 0.0625 in. dia. holes	
14-GS		8.0% OA 0.0625 in. dia. holes	
24-2S		8.0% OA 0.0625 in. dia. holes	
19-GS		8.8% OA 0.0629 in. dia. holes	
47-2S		10.0% OA 0.125 in. dia. holes	
18-GS		40.0% OA 0.625 in. dia. holes	
A-3S		41.0% OA 0.0625 in. dia. holes	
A-1S		41.0% OA 0.0625 in. dia. holes	
45-2S		FM103 Face	 Feltmetals
A-5S		FM103 Face	
46-2S		FM103 Face	
44-2S		FM103 Face	
6B		FM123 Face	
6A		FM123 Face	
7		FM125 Face	
8		FM129 Face	
1-GS		FM129 Face	
20-GS		FM129 Face	
8-2S		FM134 Face	
10-GS		FM134 Face	
5-2S		FM134 Face	 Fibermetals
3-GS		FM134 Face	
11-2S		FM134 Face	
5B		FM134 Face	
10B		FM134 Face	
11A		FM134 Face	
10A		FM134 Face	

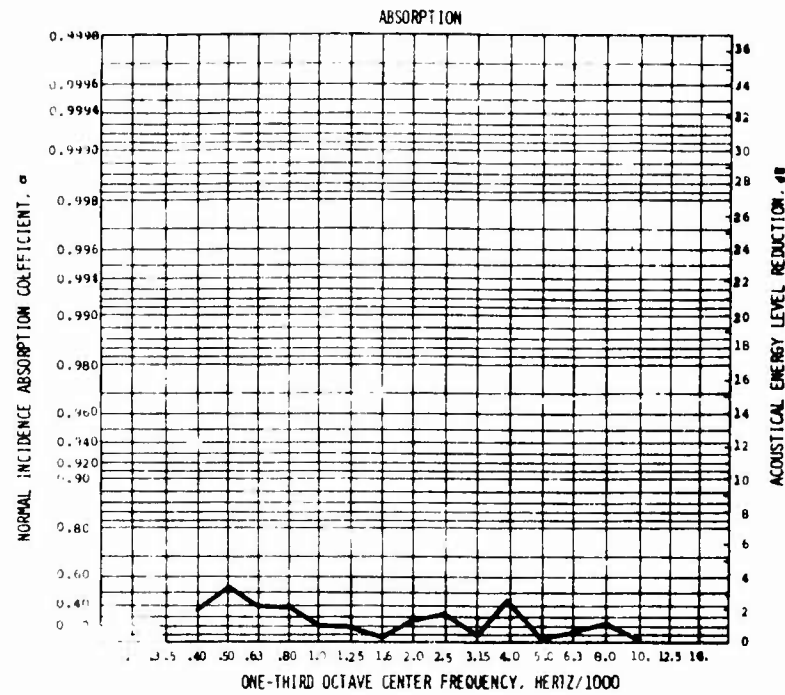
TABLE IV (CONTD). LIST OF MATERIALS IMPEDANCE AND ABSORPTION DATA CHARTS IN THIS VOLUME.

Sample No.	Page No.	Material Description	Category
10		FM134 Face	 Fibermetals
9A		FM134 Face	
12		FM134 Face Double Layer	
A-4S		FM134 Face	
16-2S		FM185 Face	
11-4GS		FM185 Face	
7-4GS		FM185 Face	
51-2S		FM185 Face	
8-4GS		FM185 Face	
13-2S		FM197 Face	
14-2S		FM197 Face	
15-2S		FM197 Face	
15		40 Rayl Feltmetal	
16		40 Rayl Feltmetal	
16A		40 Rayl Feltmetal	
38-2S		40 Rayl Feltmetal	
A-11S		PMS-1512 Face	 Woven Wire Cloth
A-10S		PMS-1512 Face	
A-9S		PMS-1512 Face	
A-8S		PMS-1512 Face	
9-2S		37 Rayl	 Slitmetal
12-2S		37 Rayl	
40-2S		7.2 Rayl Nominal	
42-2S		7.2 Rayl Nominal	
4-2S		7.2 Rayl Nominal	
43-2S		7.2 Rayl Nominal	
6-2S		7.2 Rayl Nominal	
41-2S		7.2 Rayl Nominal	
A-7S		Scott Foam 90 PPI	 Bulk absorbers
A-6S		Scott Foam 90 PPI	
28-2S		Scottafonic	

TABLE IV (CONTD). LIST OF MATERIALS IMPEDANCE AND ABSORPTION DATA CHARTS IN THIS VOLUME.

Sample No.	Page No.	Material Description	Category
18		Scottfelt FR3-900	Bulk Absorbers
19		Scottfelt FR3-900	
29-2S		Cerafelt CRF-300	
3		3-M Composite 15 Rayl	Composites
3A		3-M Composite 15 Rayl	
4A		3-M Composite 40 Rayl	
4		3-M Composite 40 Rayl	
78-32-3		3-M Composite 40 Rayl	
1		3-M Composite	
2		3-M Composite 7.37% OA	
13		Quadricore Perf., Dimpled	Misc. Materials
11		Quadricore Thermoplastic	
10D		5/16 in. Thermoplastic, Dimpled	
10C		5/16 in. Alum., Dimpled	
9		Plastic Dimpled	
37-2S		20 Lino Polyimide	Polyimide
36-2S		20 Lino Polyimide	
35-2S		20 Lino Polyimide	
34-2S		20 Lino Polyimide	
32-2S		20 Lino Polyimide	
31-2S		20 Lino Polyimide	

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 21GS

TEST DATE: SEPT. 26, 1972

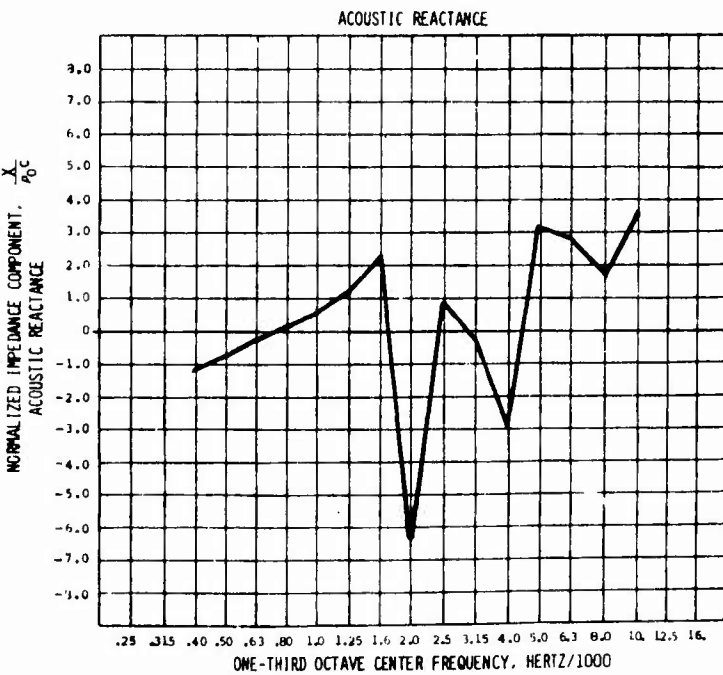
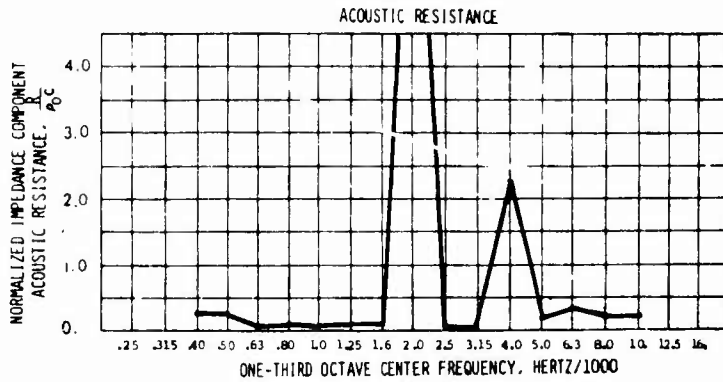
MATERIAL DESCRIPTION:

PERFORATE PLATE,
4.5% OPEN AREA
0.629 DIA. HOLES

CONFIGURATION:

3.9 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	5
0.05	116.0	7
0.10	122.0	10
0.20	128.0	14.5
0.30	131.5	18
0.50	136.0	24
0.80	140.0	32
1.25	144.0	41
2.00	148.0	56
3.00	151.5	70
4.00	154.0	82

*

*

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

8

NON-LINEARITY
FACTOR

70

*

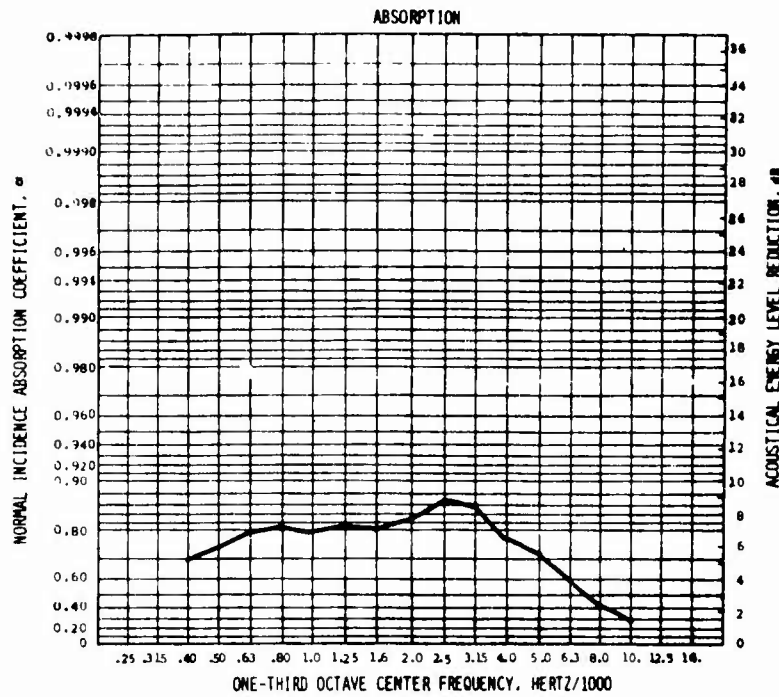
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 16GS

TEST DATE: SEPT. 25, 1972

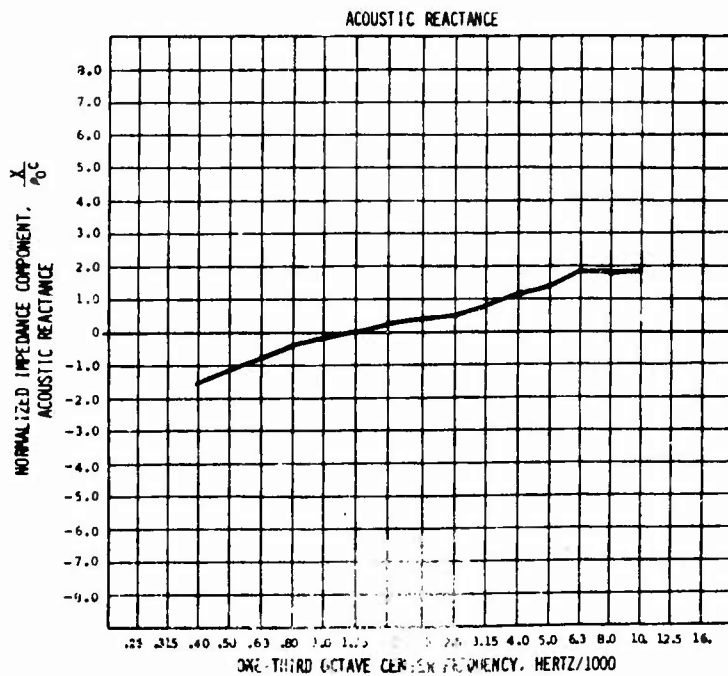
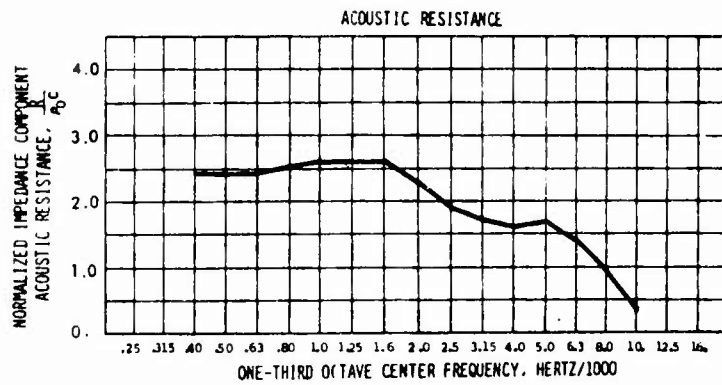
MATERIAL DESCRIPTION:

PERFORATE PLATE
8.0% OPEN AREA
.0625 DIA. HOLES

CONFIGURATION:

2.0 INCH THICKNESS
SCOTTFELT FR 3-900
BEHIND PERFORATE
SAMPLE.

MEASURED D-C FLOW RESISTANCE (CGS RAYLS) *



ΔP	SPL ²	RAYLS
0.02	108.0	320
0.05	116.0	266
0.10	122.0	256
0.20	128.0	256
0.30	131.5	256
0.50	136.0	249
0.80	140.0	240
1.25	144.0	228
2.00	148.0	248
3.00	151.5	262
4.00	154.0	279

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

250

NON-LINEARITY/
FACTOR

2.25 *

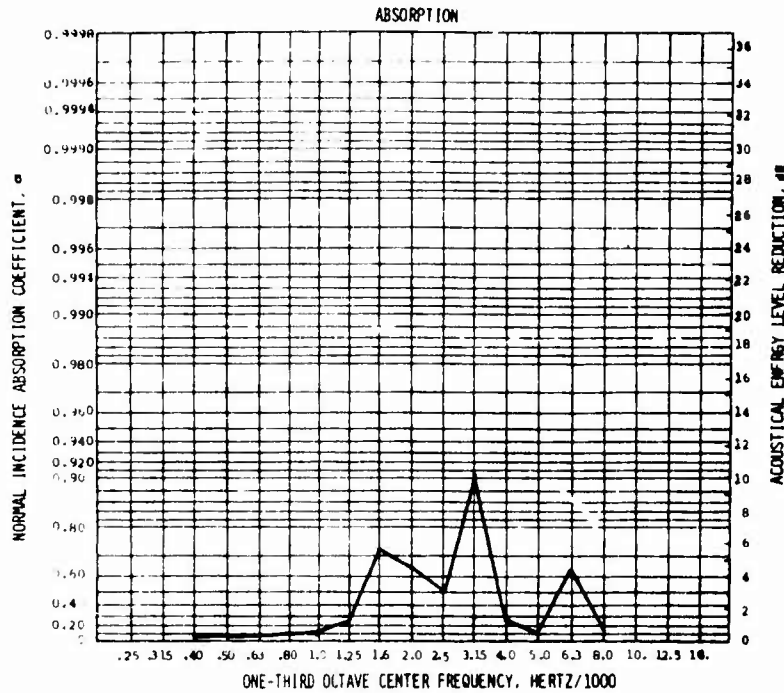
1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET

Y



SAMPLE NO: 10-2S

TEST DATE: SEPT. 2, 1972

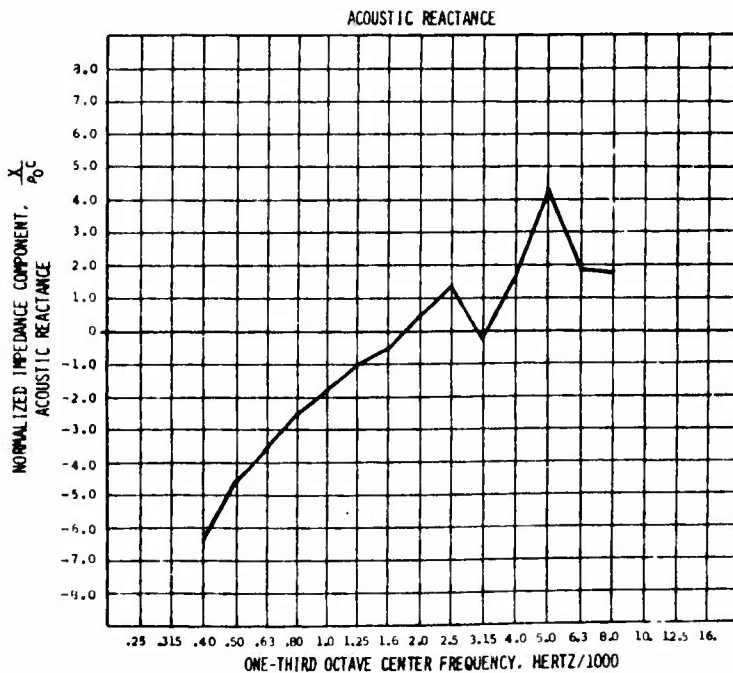
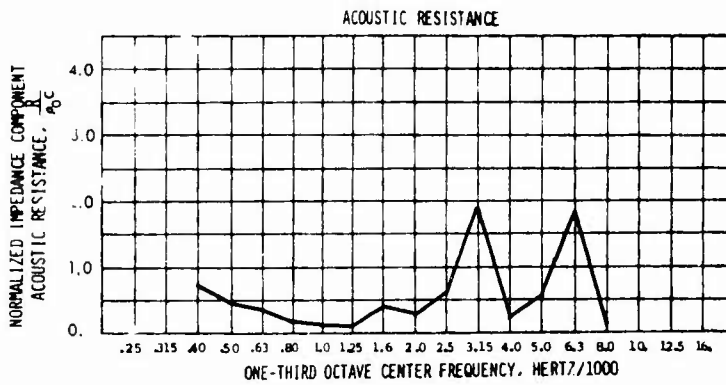
MATERIAL DESCRIPTION:

PERFORATE PLATE
8.0% OPEN AREA
0.0625 DIA HOLES

CONFIGURATION:

G.E. DOUBLE DIAMOND
BAFFLING IN 0.9 INCH
CAVITY BEHIND PERFORATE
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS) **



ΔP 1	SPL 2	RAYLS
0.02	108.0	2.6
0.05	116.0	4.0
0.10	122.0	5.7
0.20	128.0	8.3
0.30	131.5	10.3
0.50	136.0	14.1
0.80	140.0	18.5 *
1.25	144.0	25. *
2.00	148.0	32. *
3.00	151.5	40. *
4.00	154.0	50. *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

2.7

NON-LINEARITY
FACTOR

70 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER

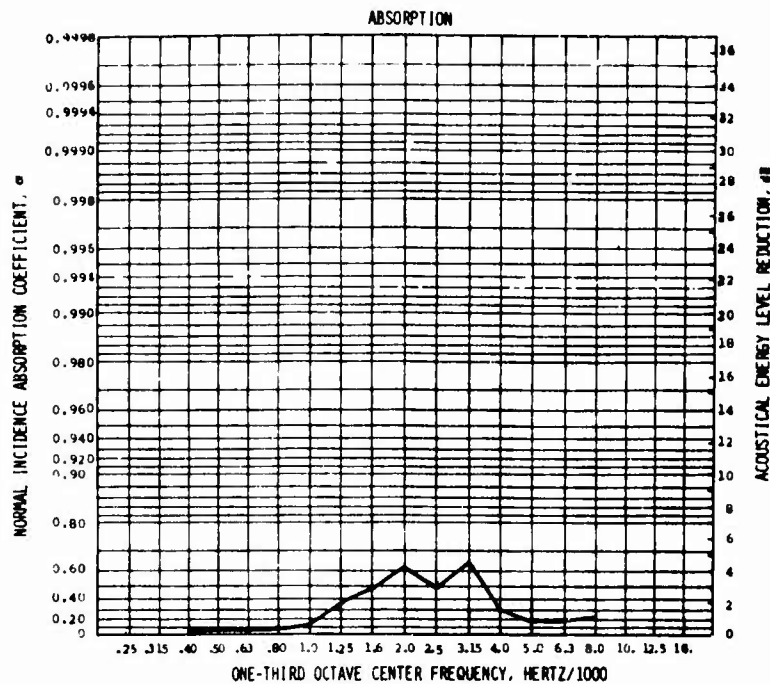
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

**PERFORATE PLATE ONLY

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 7-2S

TEST DATE: NOV. 2, 1972

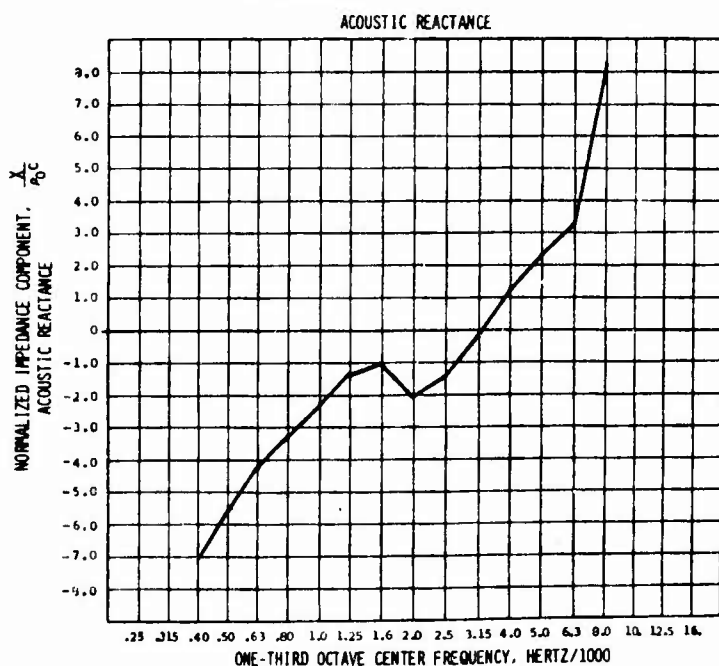
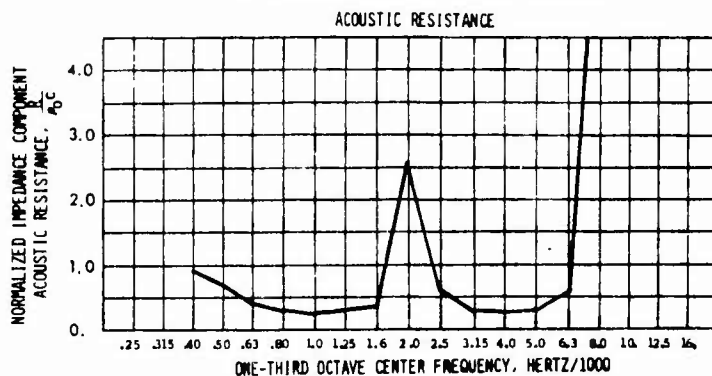
MATERIAL DESCRIPTION:

PERFORATE PLATE
8.0% OPEN AREA
0.0625 DIA HOLES

CONFIGURATION:

45 DEG SLANTED ALUM
BAFFLES IN 0.9 INCH
CAVITY BEHIND PERFORATE
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS) **



ΔP	SPL	RAYLS
0.02	108.0	2.6
0.05	116.0	4.0
0.10	122.0	5.7
0.20	128.0	8.3
0.30	131.5	10.3
0.50	136.0	14.1
0.80	140.0	18.5 *
1.25	144.0	25. *
2.00	148.0	32. *
3.00	151.5	40. *
4.00	154.0	50. *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

2.7

NON-LINEARITY
FACTOR

70 *

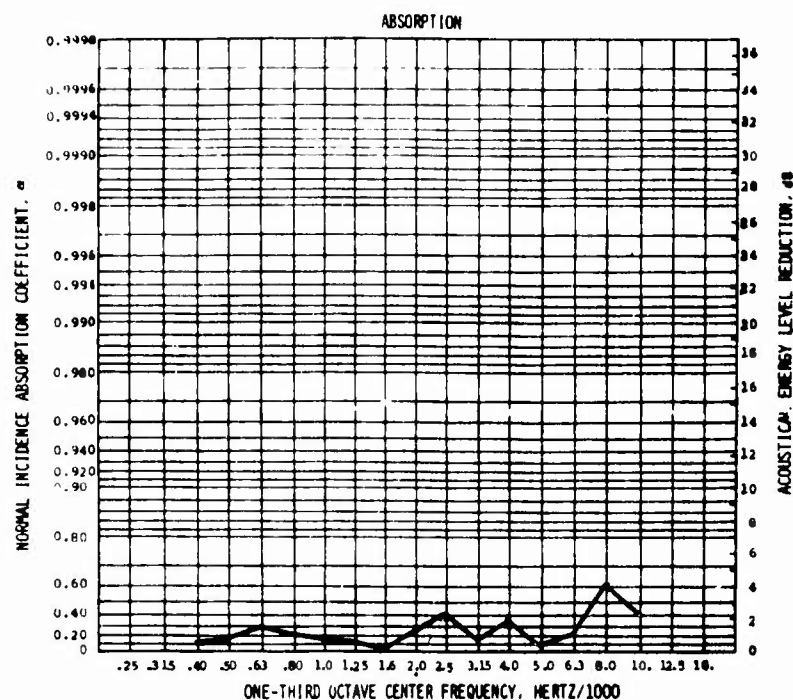
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 + 0.6 P + 74

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED
** PERFORATE PLATE ONLY

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 13GS

TEST DATE: SEPT. 23, 1972

MATERIAL DESCRIPTION:

PERFORATED PLATE

8.0% OPEN AREA

0.0625 DIA. HOLES

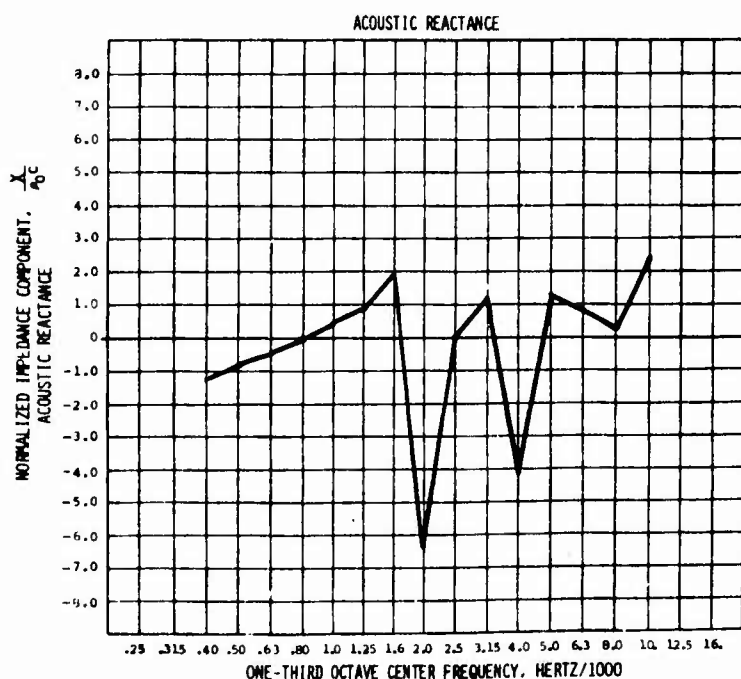
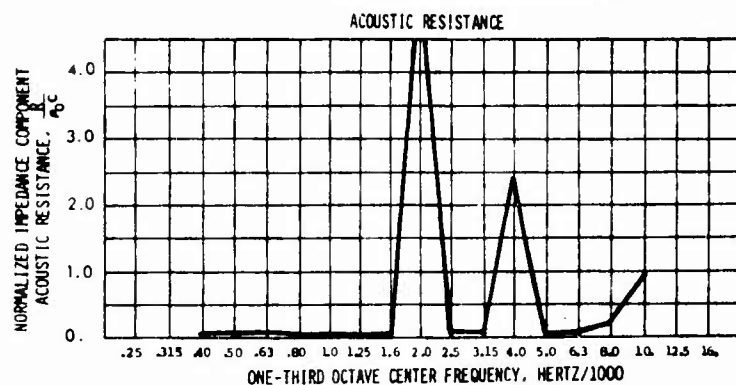
CONFIGURATION:

3.5 INCH AIRSPACE

BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP 1	SPL 2	RAYLS
0.02	108.0	2.6
0.05	116.0	4.0
0.10	122.0	5.7
0.20	128.0	8.3
0.30	131.5	10.3
0.50	136.0	14.1
0.80	140.0	18.5
1.25	144.0	25.
2.00	148.0	32.
3.00	151.5	40.
4.00	154.0	50.



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

2.7

NON-LINEARITY
FACTOR

70

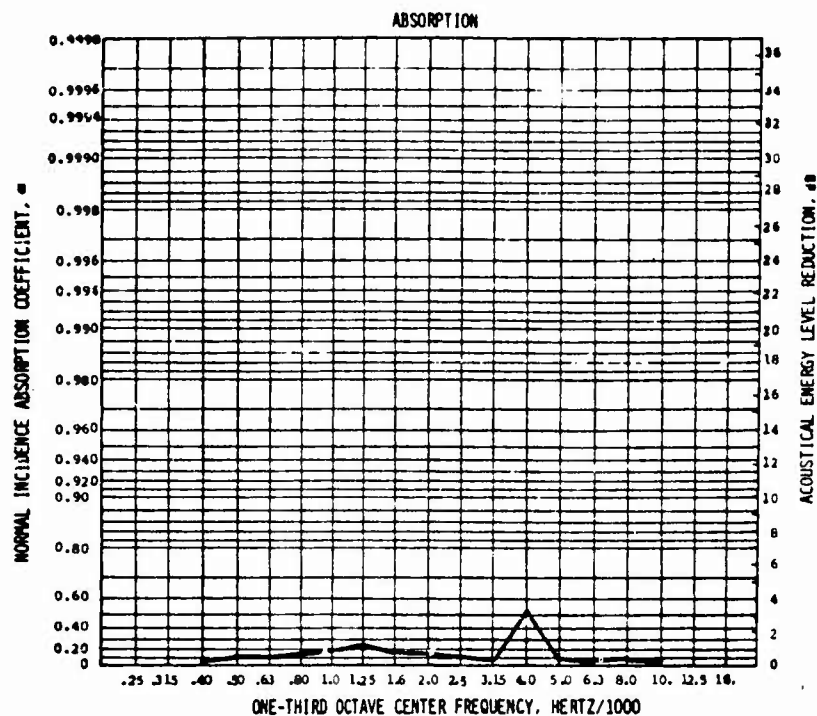
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 14GS

TEST DATE: SEPT. 23, 1972

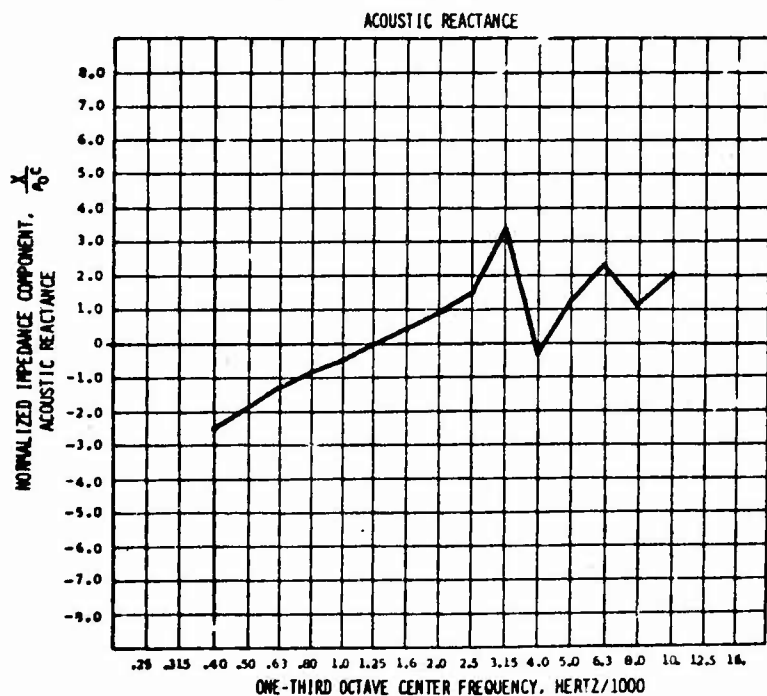
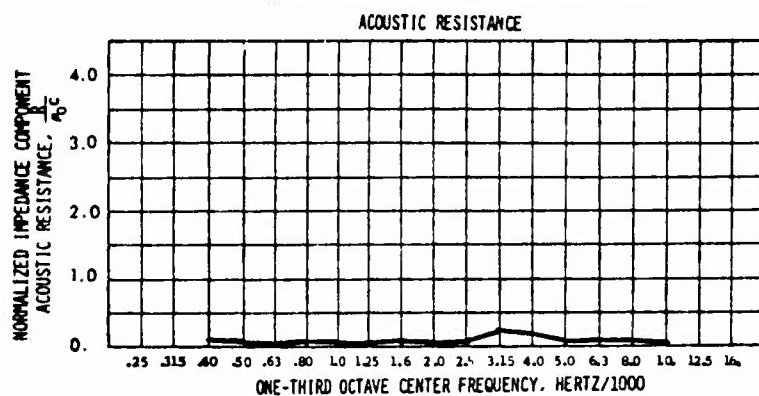
MATERIAL DESCRIPTION:

PERFORATE PLATE
8.0 % OPEN AREA
.0625 DIA. HOLES

CONFIGURATION:

2.0 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	2.6
0.05	116.0	4.0
0.10	122.0	5.7
0.20	128.0	8.3
0.30	131.5	10.3
0.51	136.0	14.1
0.80	140.0	18.5 *
1.25	144.0	25.0 *
2.00	148.0	32.0 *
3.00	151.5	40.0 *
4.00	154.0	50.0 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

2.7

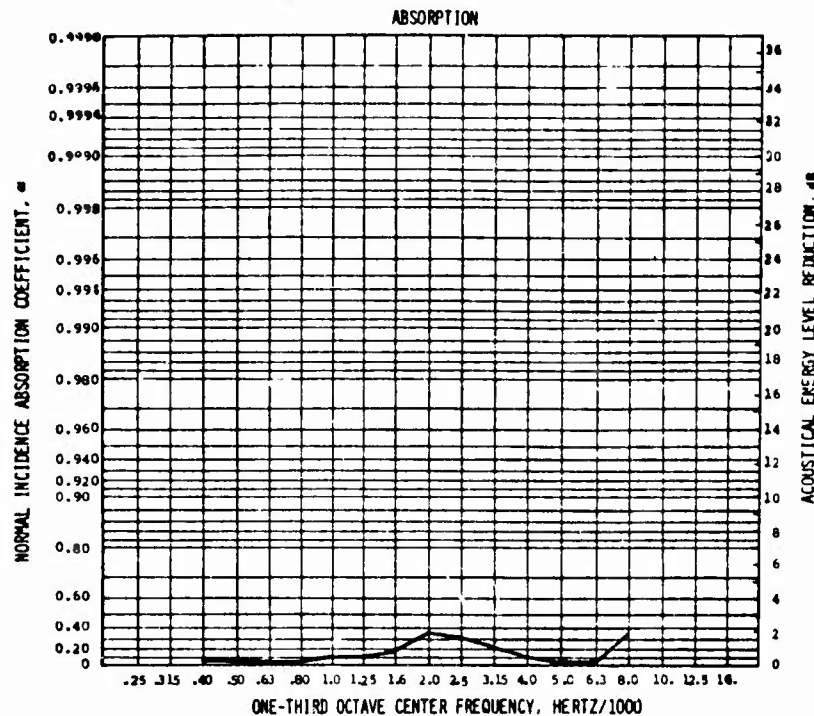
NON-LINEARITY
FACTOR

70 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED



SAMPLE NO: 24-2S

TEST DATE: OCT. 20, 1972

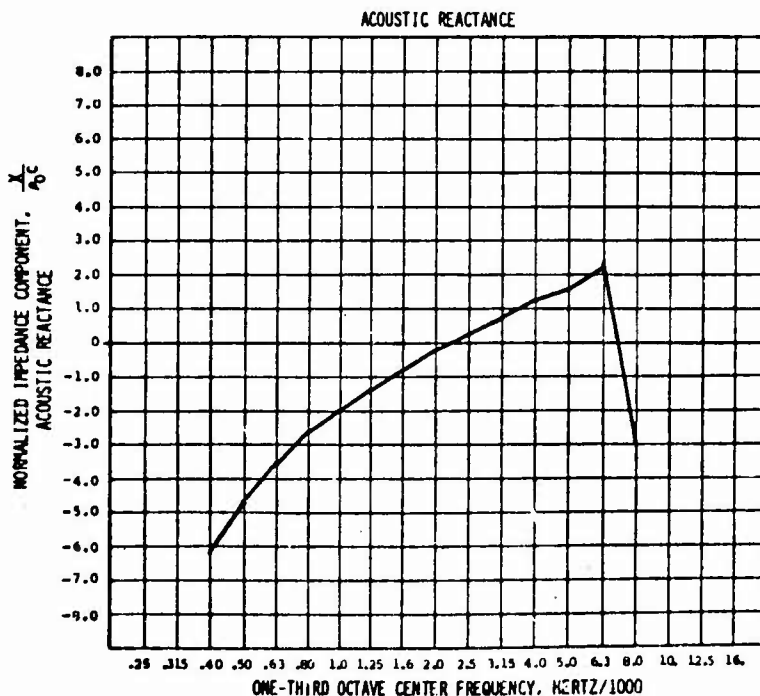
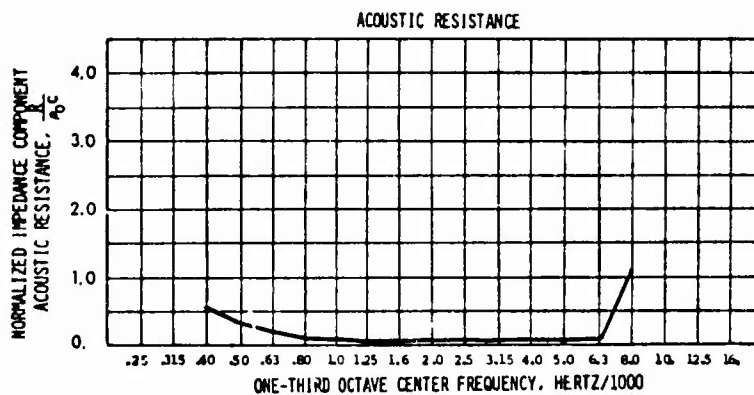
MATERIAL DESCRIPTION:

PERFORATE PLATE
8.0% OPEN AREA
0.0625 DIA HOLES

CONFIGURATION:

0.9 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	2.6
0.05	116.0	4.0
0.10	122.0	9.7
0.20	128.0	8.3
0.30	131.5	10.3
0.50	136.0	14.1
0.80	140.0	18.5 *
1.25	144.0	29. *
2.00	148.0	32. *
3.00	151.5	40. *
4.00	154.0	90. *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

2.7

NON-LINEARITY
FACTOR

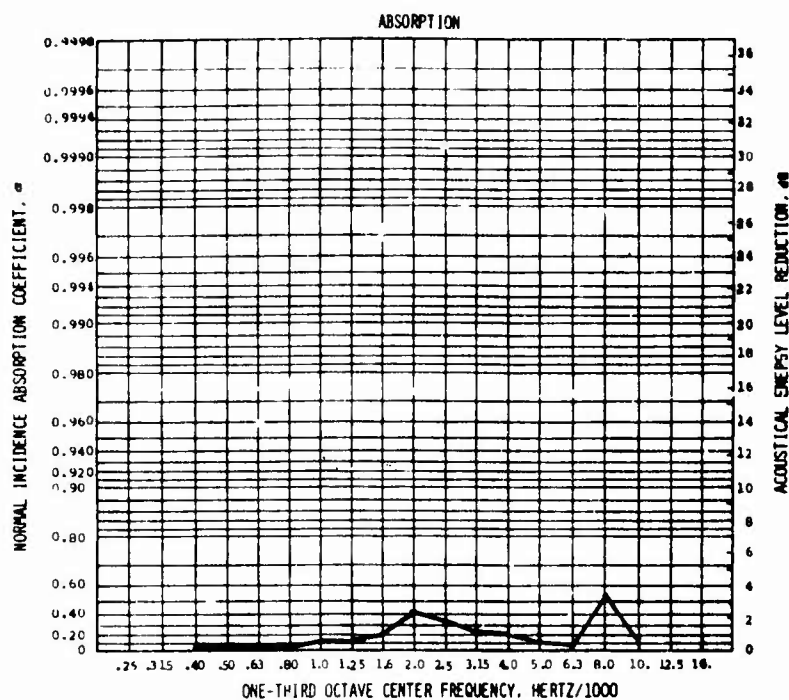
70 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST - REPORT DATA SHEET



SAMPLE NO: 19GS

TEST DATE: SEPT. 29, 1972

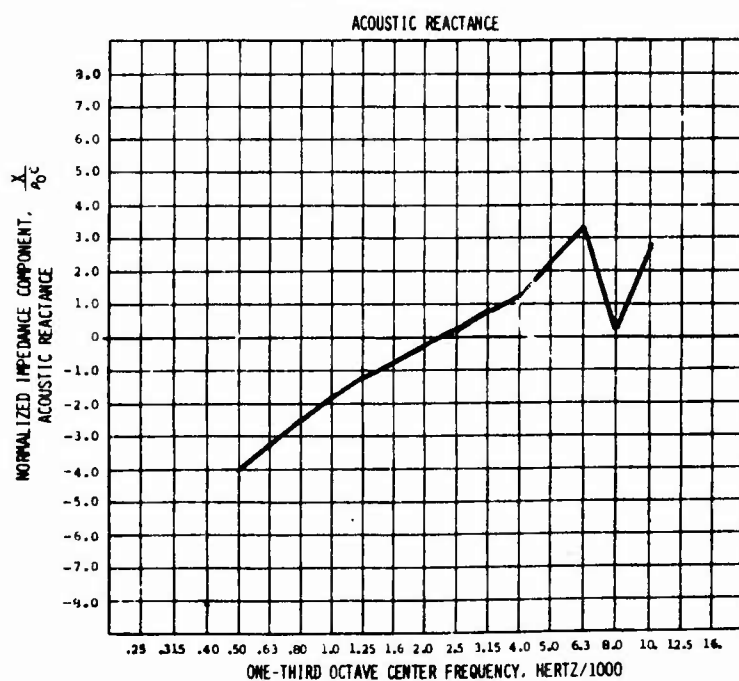
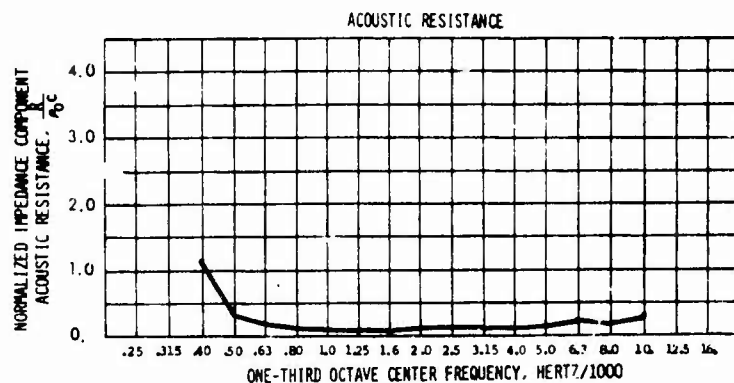
MATERIAL DESCRIPTION:

PERFORATE PLATE
8.8% OPEN AREA
0.0629 DIA. HOLES

CONFIGURATION:

1.0 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	2.8
0.05	116.0	4.6
0.10	122.0	6.5
0.20	128.0	9.1
0.30	131.5	11.3
0.50	136.0	19.2
0.80	140.0	20.
1.25	144.0	25. *
2.00	148.0	34. *
3.00	151.5	39. *
4.00	154.0	47. *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

3.2

NON-LINEARITY
FACTOR

38

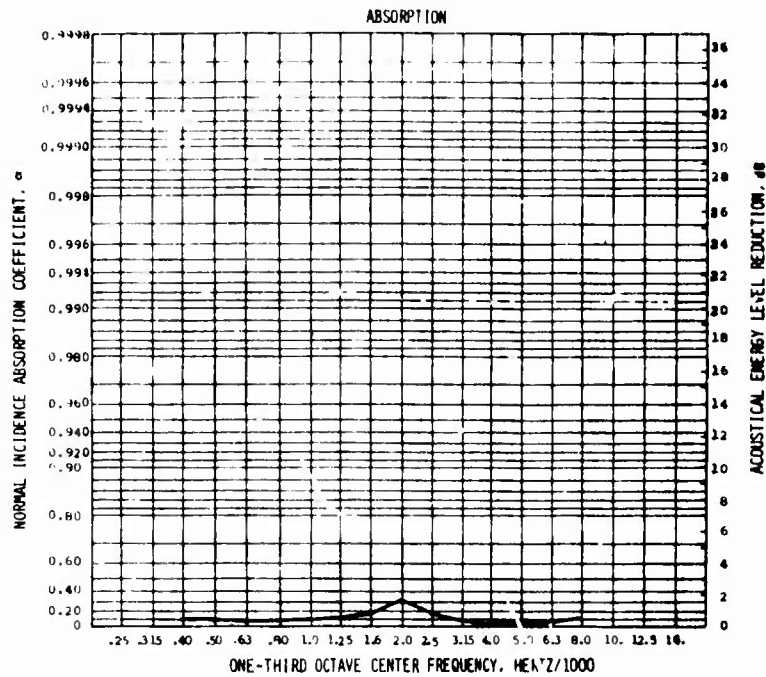
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 47-2S

TEST DATE: OCT. 27, 1972

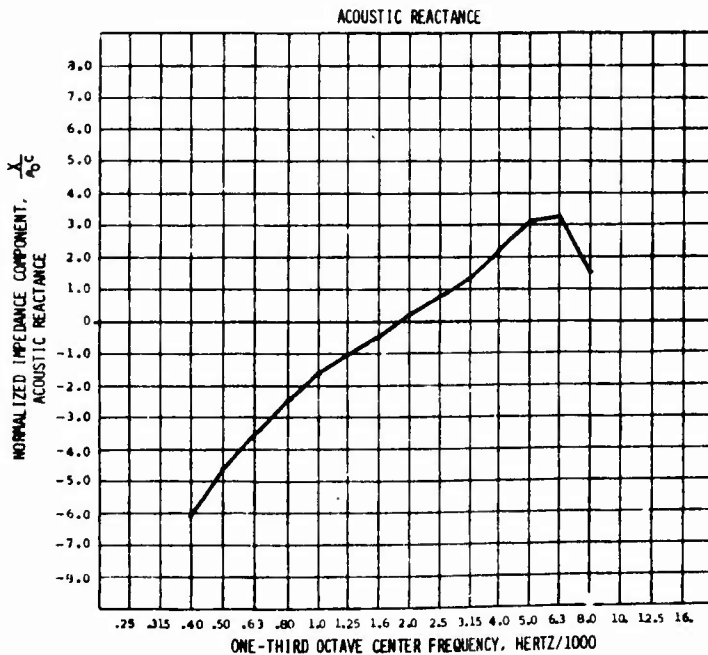
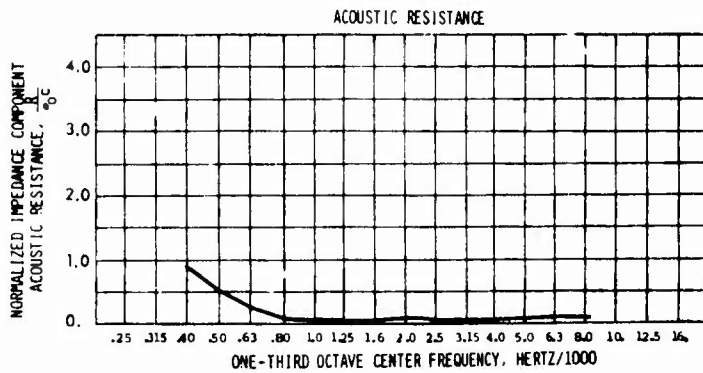
MATERIAL DESCRIPTION:

PERFORATE METAL
10.0% OPEN AREA
0.125 DIA HOLES

CONFIGURATION:

1.0 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP L	SPL ²	RAYLS
0.02	108.0	2.1
0.05	116.0	3.4
0.10	122.0	5.0
0.20	128.0	7.3
0.30	131.5	9.3
0.50	136.0	13.1*
0.80	140.0	17.*
1.25	144.0	23.*
2.00	148.0	30.*
3.00	151.5	39.*
4.00	154.0	47.*

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

1.8 *

NON-LINEARITY
FACTOR

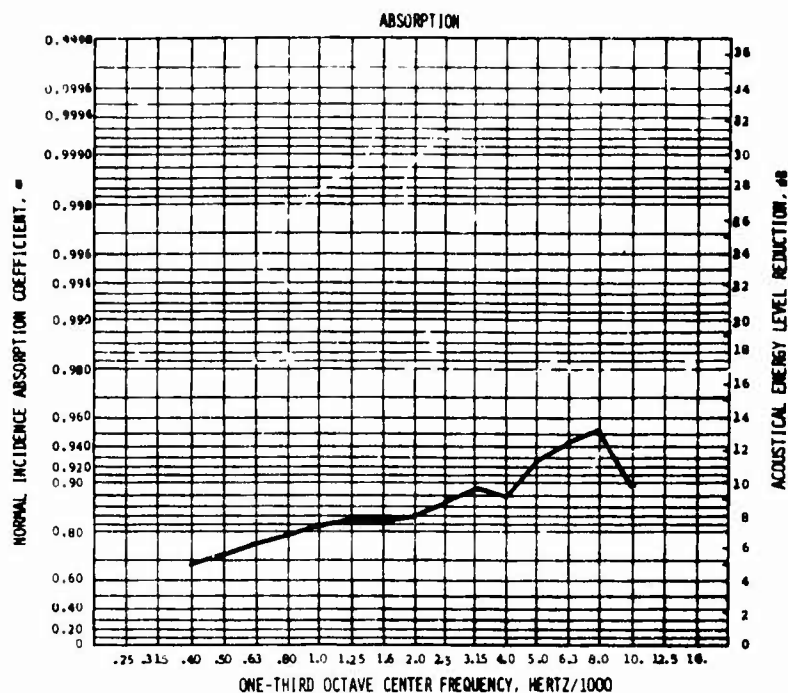
119 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 18GS

TEST DATE: SEPT. 27, 1972

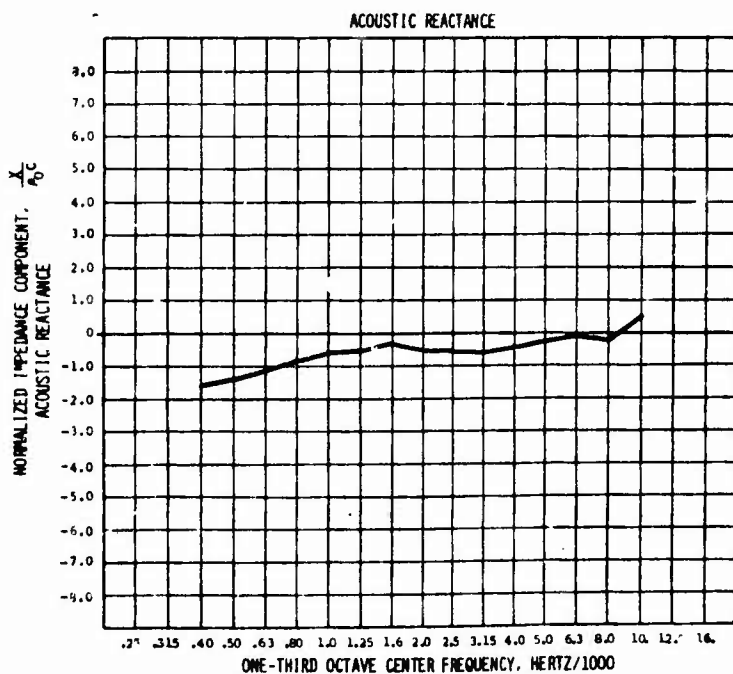
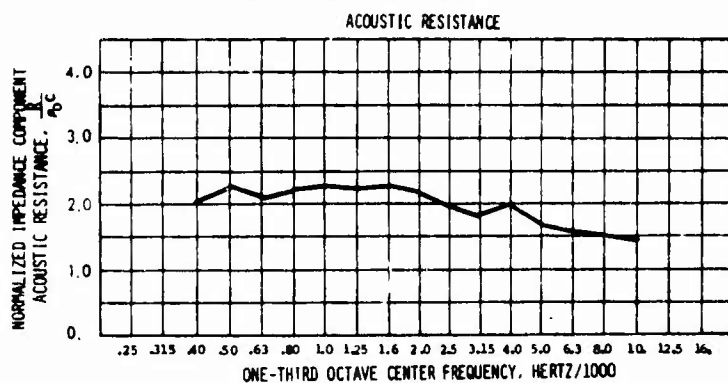
MATERIAL DESCRIPTION:

PERFORATE PLATE
40.0% OPEN AREA
.0625 DIA. HOLES

CONFIGURATION:

2.0 INCH THICKNESS
SCOTTFELT IR 3-900
BEHIND PERFORATE
SAMPLE.

MEASURED D-C FLOW RESISTANCE (CGS RAYLS) *



ΔP	SPL ²	RA/LS
0.02	108.0	256
		234
		240
0.125	125.0	248
0.5		245
0.50	136.0	246
0.80	140.0	231
1.25	144.0	223
2.00	148.0	244
3.00	151.5	259
4.00	154.0	274

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

240

NON-LIN ARITY
FACTOR

2.30 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET

SAMPLE NO: A-3S

TEST DATE: DEC. 15, 1972

MATERIAL DESCRIPTION:

PERFORATE PLATE
41% OPEN AREA
0.0625 DIA. HOLES

CONFIGURATION:

1.0 INCH CERAFELT
CRF - 300 BACKING

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP 1	SPL 2	RAYLS
0.02	106.0	128
0.05	116.0	128
0.10	122.0	137
0.20	128.0	132
0.30	131.5	135
0.50	136.0	129
0.80	140.0	128
1.25	144.0	141
2.00	148.0	151
3.00	151.5	155
4.00	154.0	163

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

140

NON-LINEARITY
FACTOR

1.85

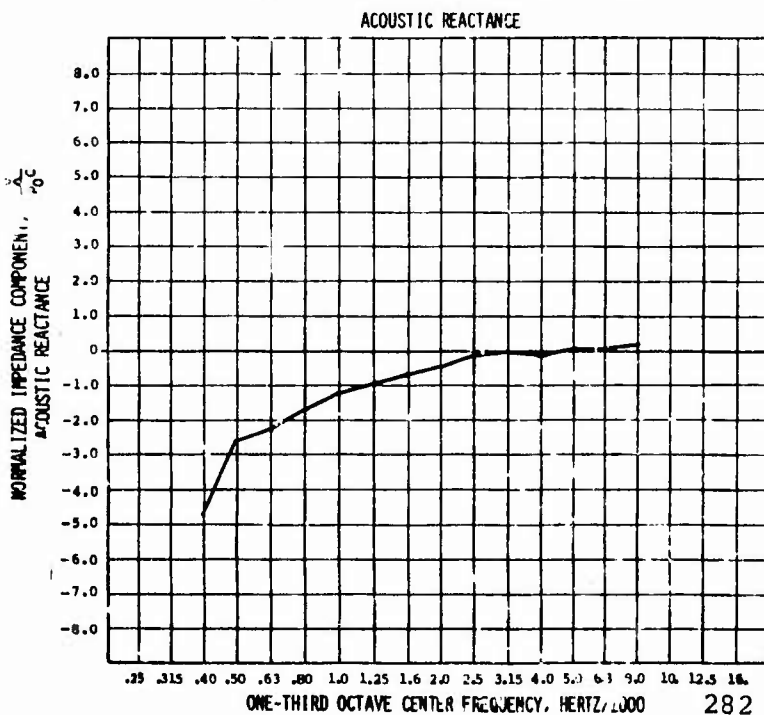
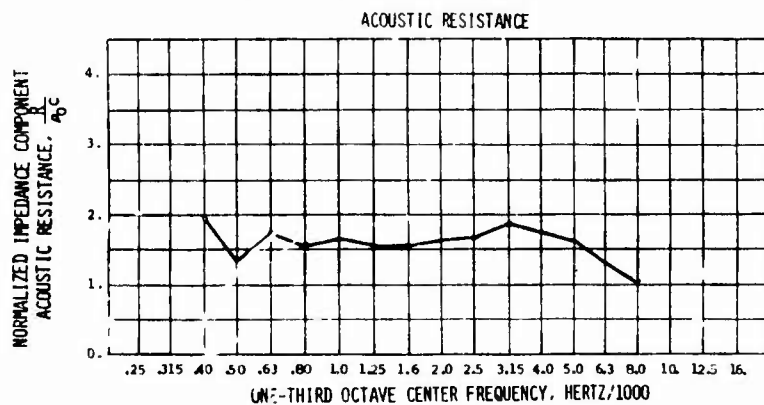
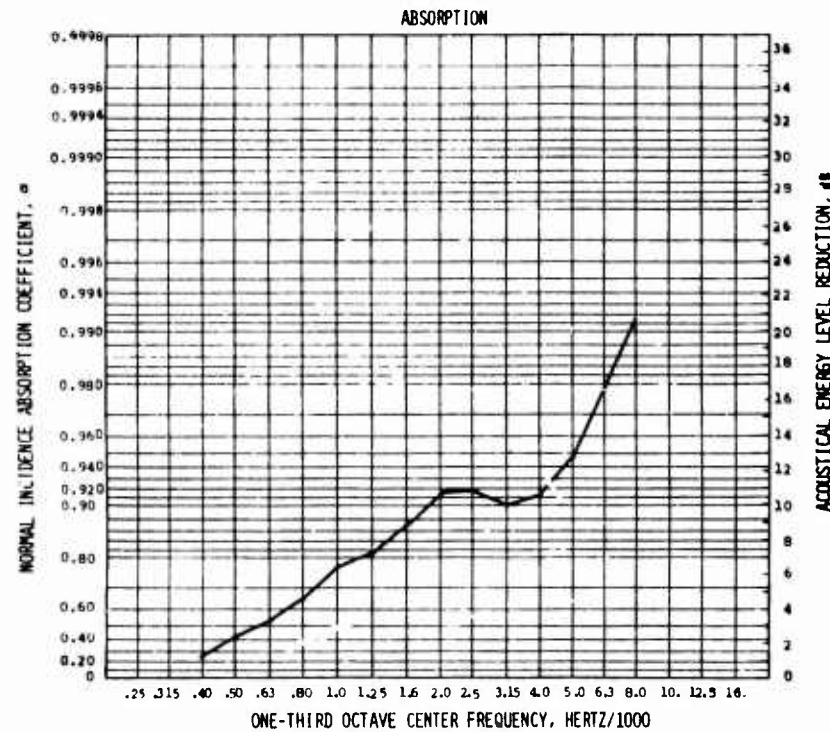
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER

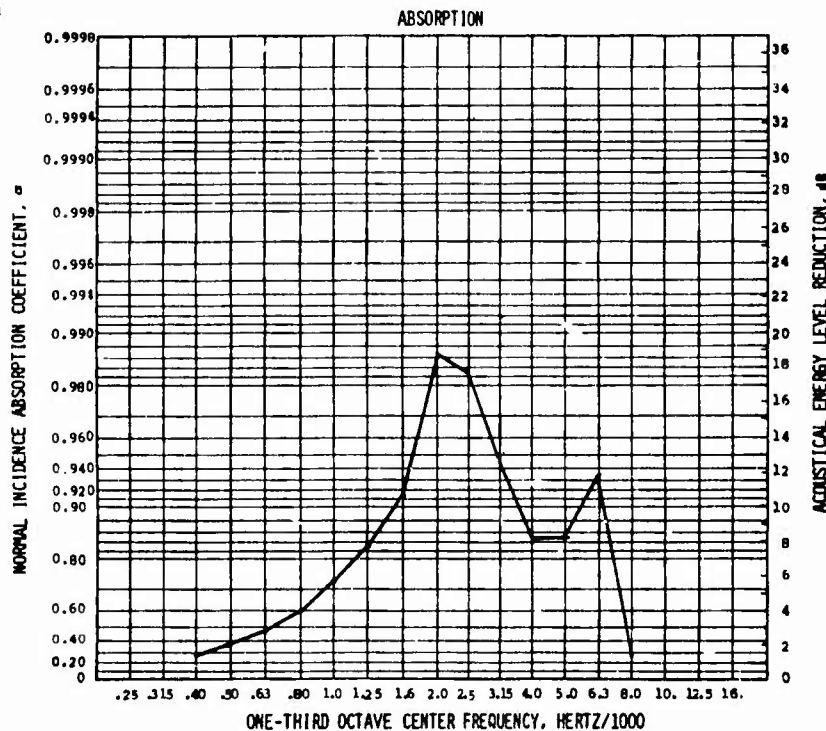
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED



ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: A - 1S

TEST DATE: DEC. 14, 1972

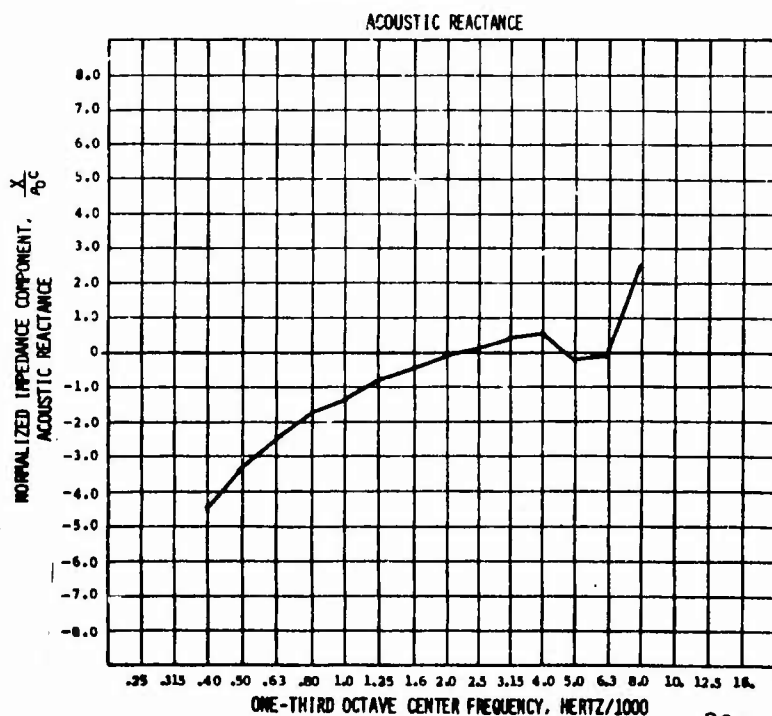
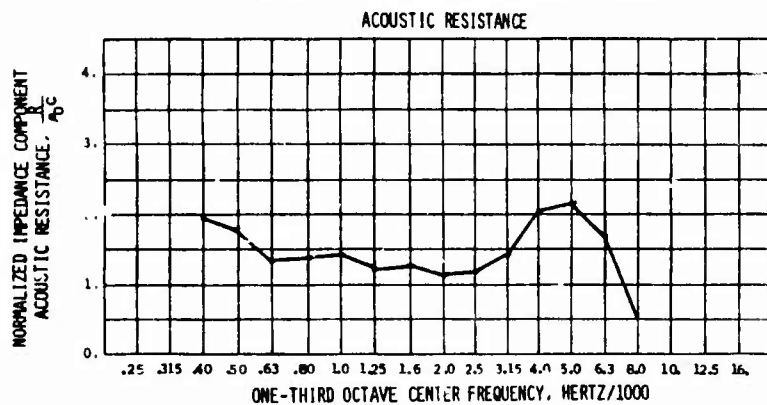
MATERIAL DESCRIPTION:

PERFORATE PLATE
41.0% OPEN AREA
0.0625 DIA HOLES

CONFIGURATION:

FR-3-900 SCOTTFELT
1.0 INCH THICK
BACKING

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	118
0.05	116.0	116
0.10	122.0	120
0.20	128.0	114
0.30	131.5	111
0.50	136.0	111
0.80	140.0	110
1.25	144.0	117
2.00	148.0	128
3.00	151.5	136
4.00	154.0	145

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

110

NON-LINEARITY
FACTOR

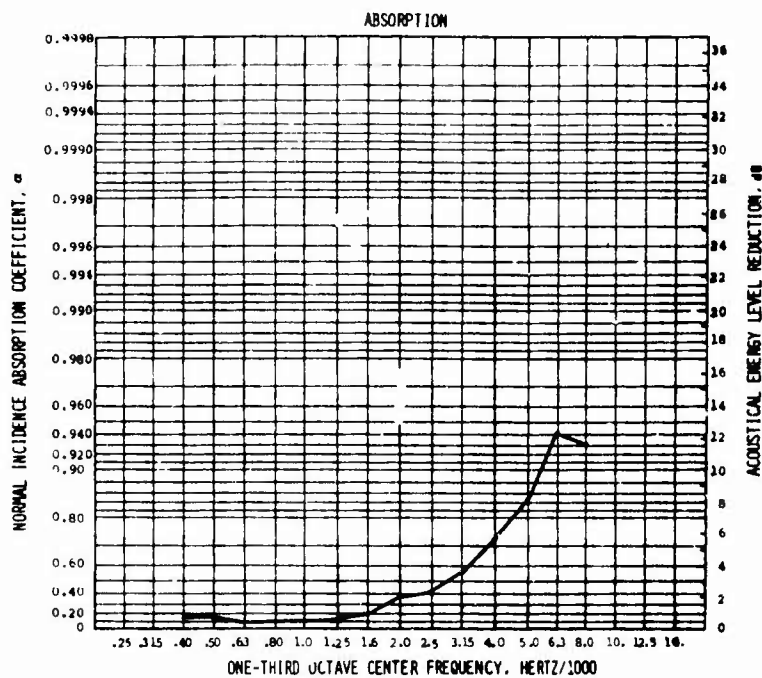
2.17 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 79 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 45-2S

TEST DATE: OCT. 26, 1972

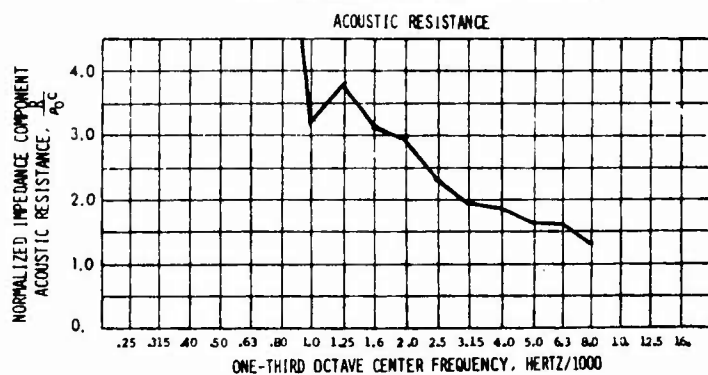
MATERIAL DESCRIPTION:

FELTMETAL
FM 103

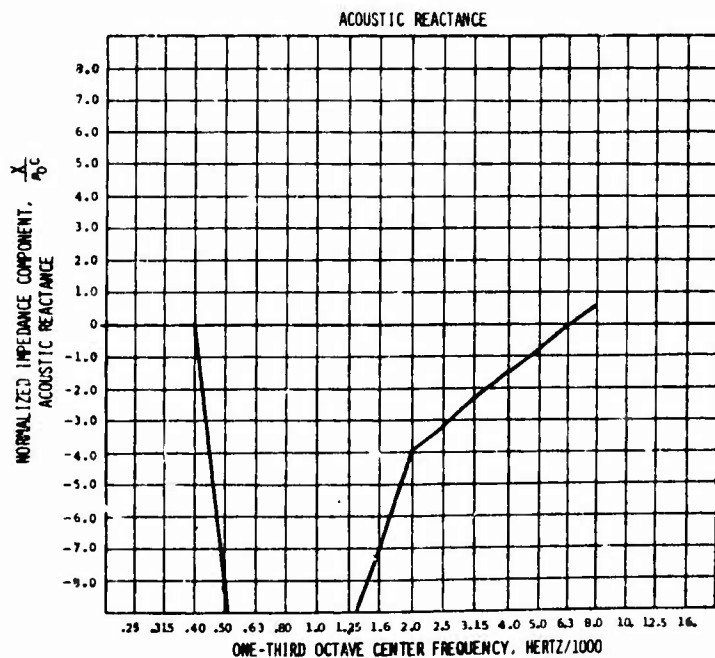
CONFIGURATION:

0.25 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP L	SPL ²	RAYLS
0.02	108.0	45
0.05	116.0	46
0.10	122.0	46
0.20	128.0	44
0.30	131.5	44
0.50	136.0	49
0.80	140.0	56
1.25	144.0	61
2.00	148.0	69
3.00	152.0	81
4.00	154.0	89 *



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

46

NON-LINEARITY
FACTOR

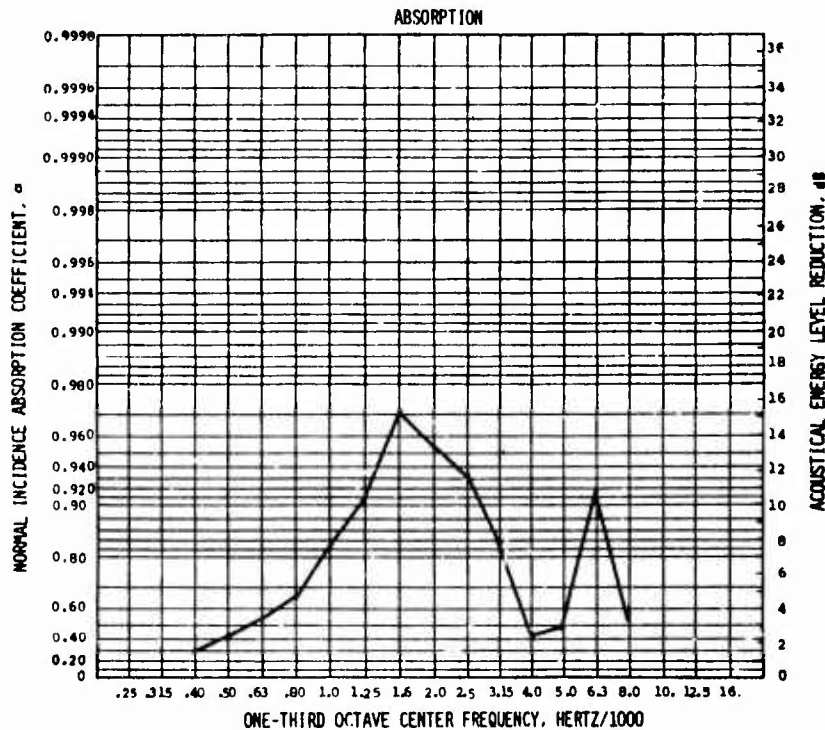
4.3 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



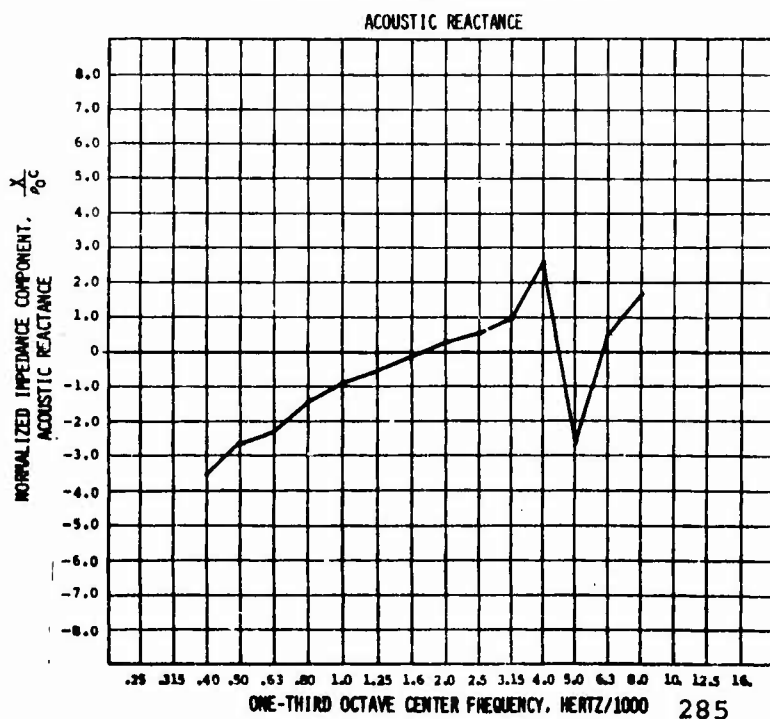
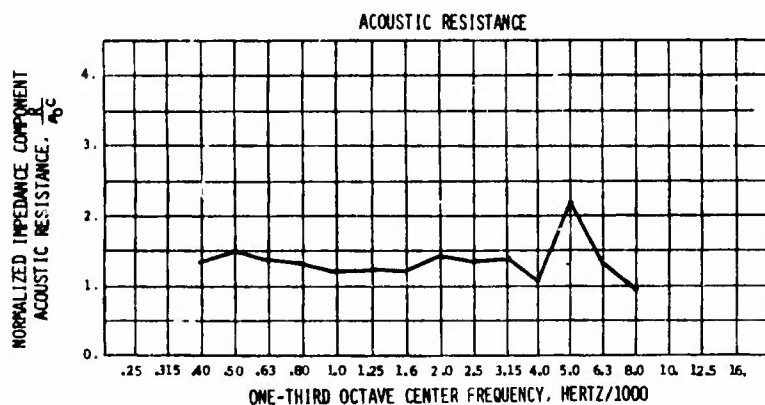
SAMPLE NO: A-5 S

TEST DATE: DEC. 18, 1972

MATERIAL DESCRIPTION:
FELTMETAL FM103

CONFIGURATION:
1.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	45.1
0.05	116.0	45.6
0.10	122.0	45.6
0.20	128.0	43.6
0.30	131.5	44.2
0.50	136.0	49.2
0.80	140.0	55.8
1.25	144.0	61.4
2.00	148.0	69.1
3.00	151.5	80.8
4.00	154.0	95.0

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

46.0

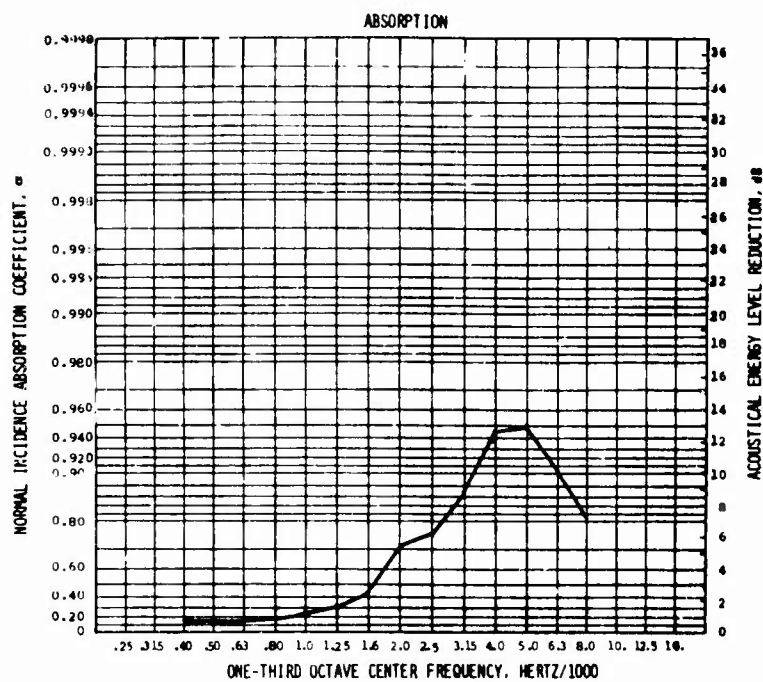
NON-LINEARITY
FACTOR

2.8

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 46-2S

TEST DATE: OCT. 26, 1972

MATERIAL DESCRIPTION:

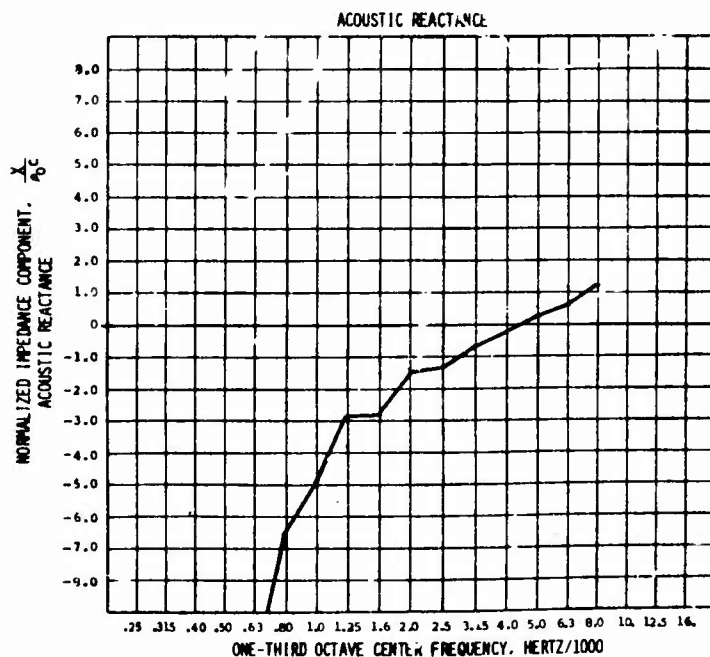
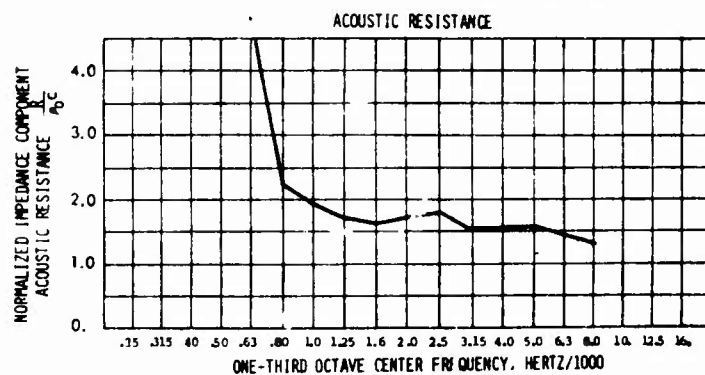
FELTMETAL
FM 103

CONFIGURATION:

0.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP	SPL	RAYLS
0.02	108.0	45
0.05	116.0	46
0.10	122.0	46
0.20	128.0	44
0.30	131.5	44
0.50	136.0	49
0.80	140.0	56
1.25	144.0	61
2.00	148.0	69
3.00	151.5	81
4.00	154.0	89



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR FLOW VELOCITY

46

NON-LINEARITY
FACTOR

4.3

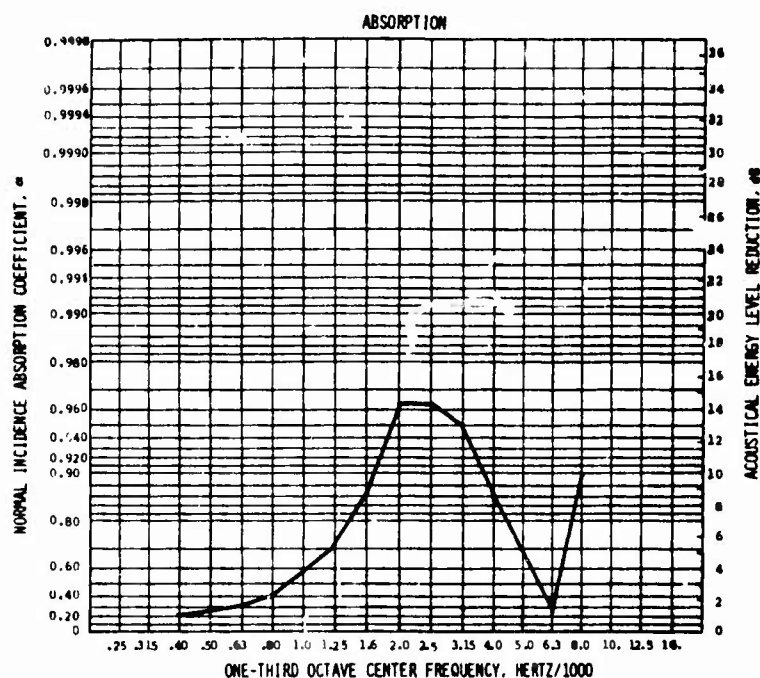
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 44-2S

TEST DATE: OCT. 26, 1972

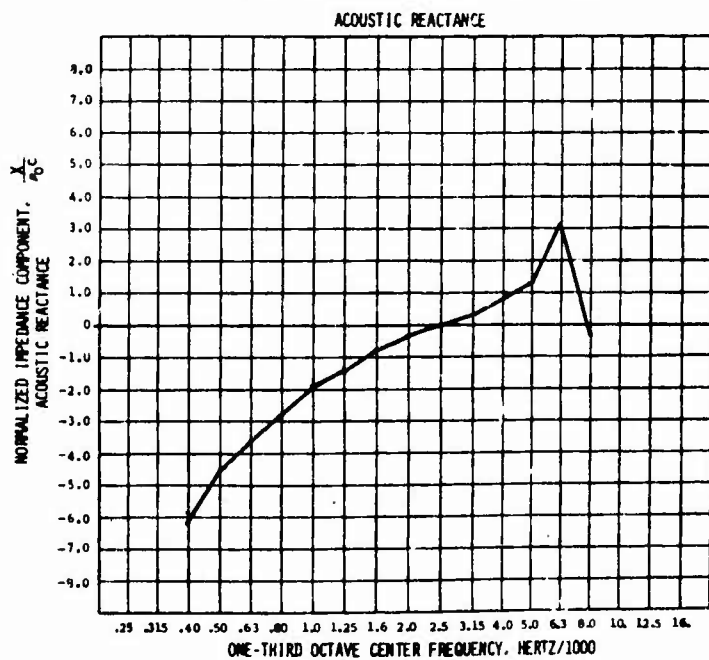
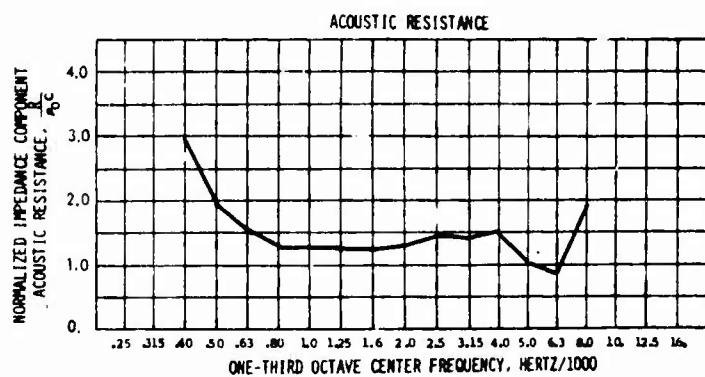
MATERIAL DESCRIPTION:

FELTMETAL
FM 103

CONFIGURATION:

1.0 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL	RAYLS
0.02	108.0	45
0.05	116.0	46
0.10	122.0	46
0.20	128.0	44
0.30	131.5	44
0.50	136.0	49
0.80	140.0	56
1.25	144.0	61
2.00	148.0	69
3.00	151.5	81
4.00	154.0	89

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

46

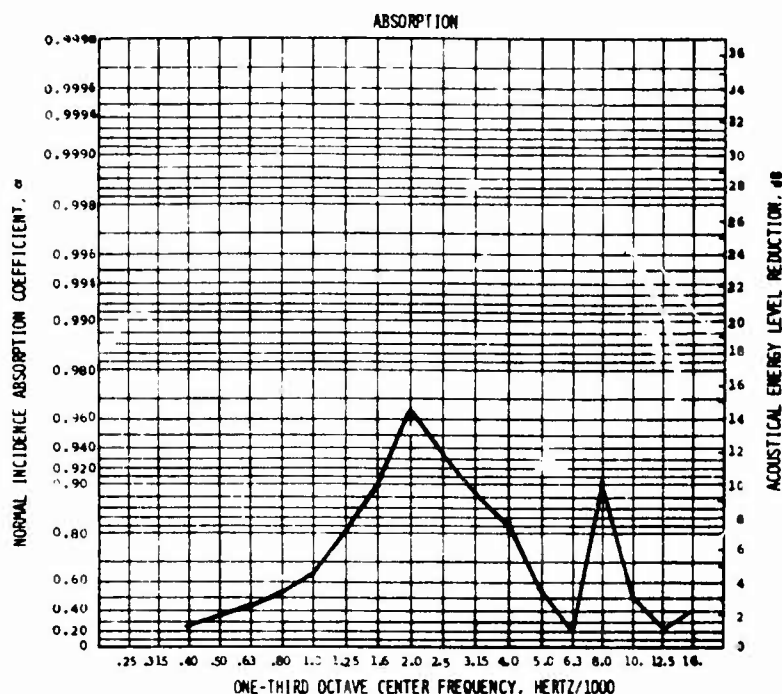
NON-LINEARITY
FACTOR

4.3

- DIFFERENTIAL PRESSURE, INCHES OF WATER
 - EQUIVALENT SPL = $20 \log P + 74$ dB
- WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 6 B

TEST DATE: NOV. 13, 1972

MATERIAL DESCRIPTION:

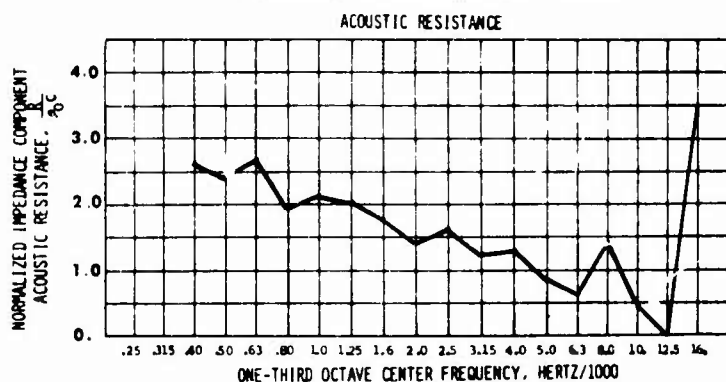
FELTMETAL

FM 123

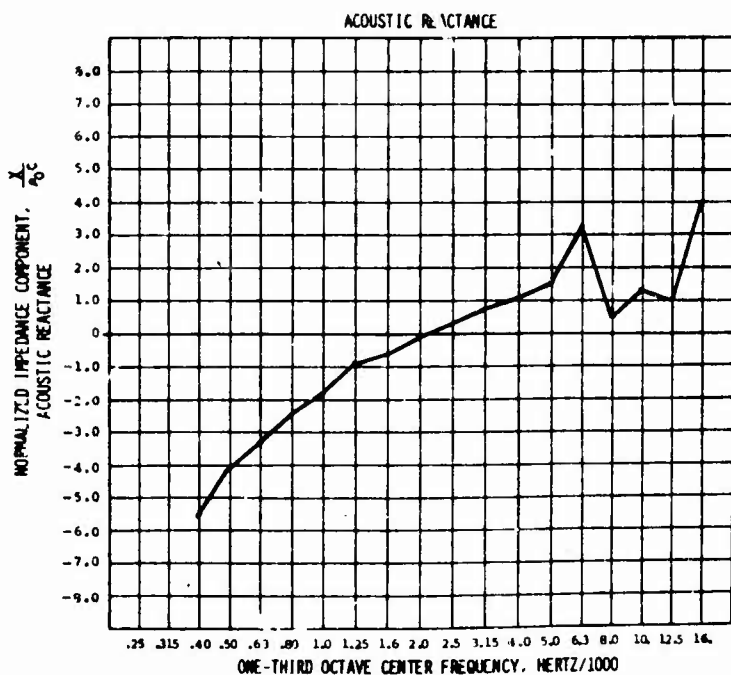
CONFIGURATION:

1.0 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL	RAYLS
0.02	108.0	60
0.05	116.0	66
0.10	122.0	68
0.20	128.0	64
0.30	131.5	68
0.50	136.0	74
0.80	140.0	77
1.25	144.0	89
2.00	148.0	100
3.00	151.5	110
4.00	154.0	123



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

73

NON-LINEARITY
FACTOR

5.8

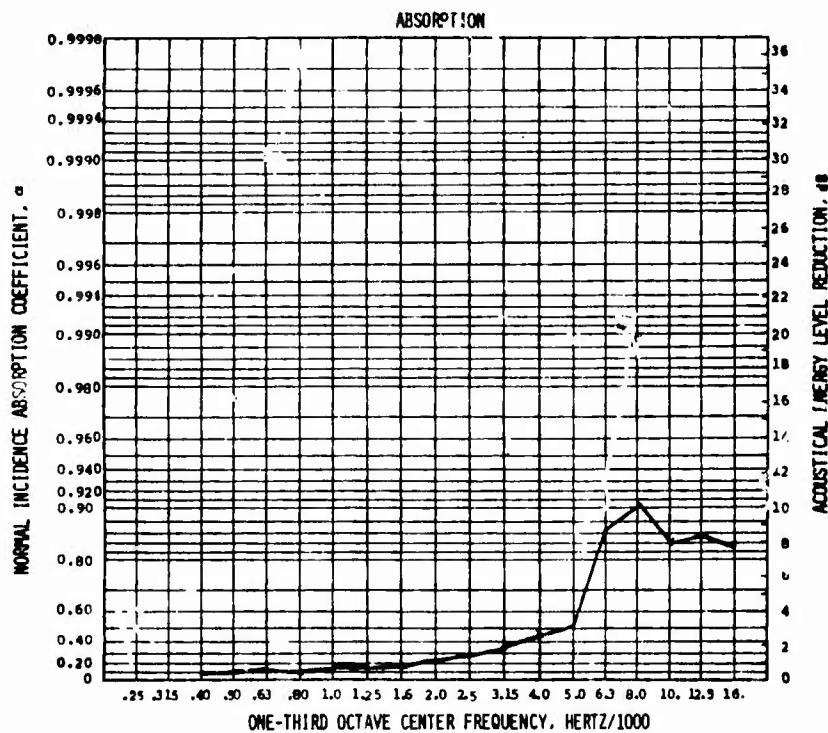
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 6A

TEST DATE: NOV. 1972

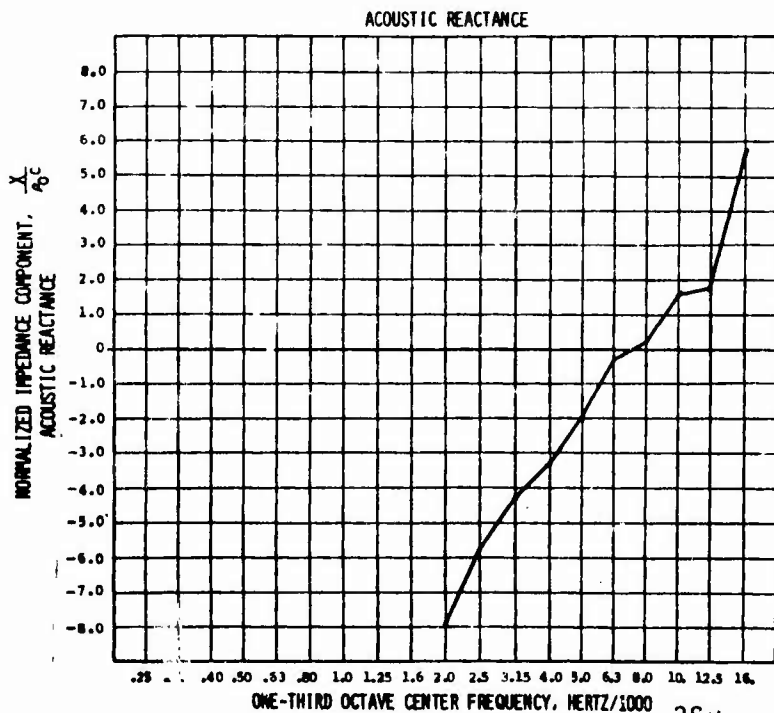
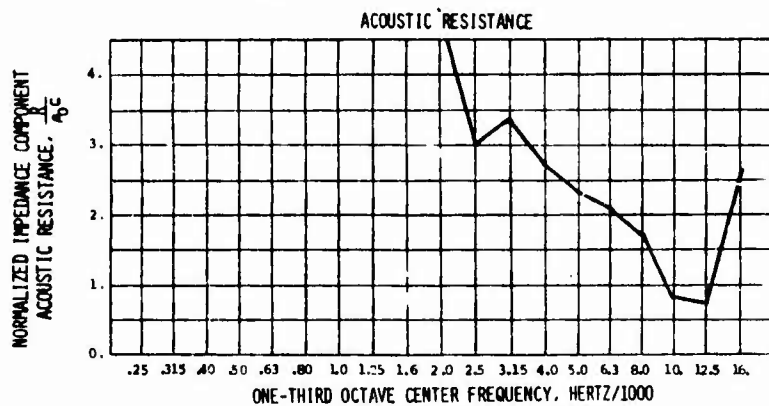
MATERIAL DESCRIPTION:

FELT METAL
FM 123

CONFIGURATION:

1/2 INCH AIR SPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1.	SPL 2.	RAYLS
0.02	108.0	60.0
0.05	116.0	66.0
0.10	122.0	67.5
0.20	128.0	63.5
0.30	131.5	68.0
0.50	136.0	71.0
0.80	140.0	77.0
1.25	144.0	89.0
2.00	148.0	99.5
3.00	151.5	110.5
4.00	154.0	123.0

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

73.0

NON-LINEARITY
FACTOR

1.35 *

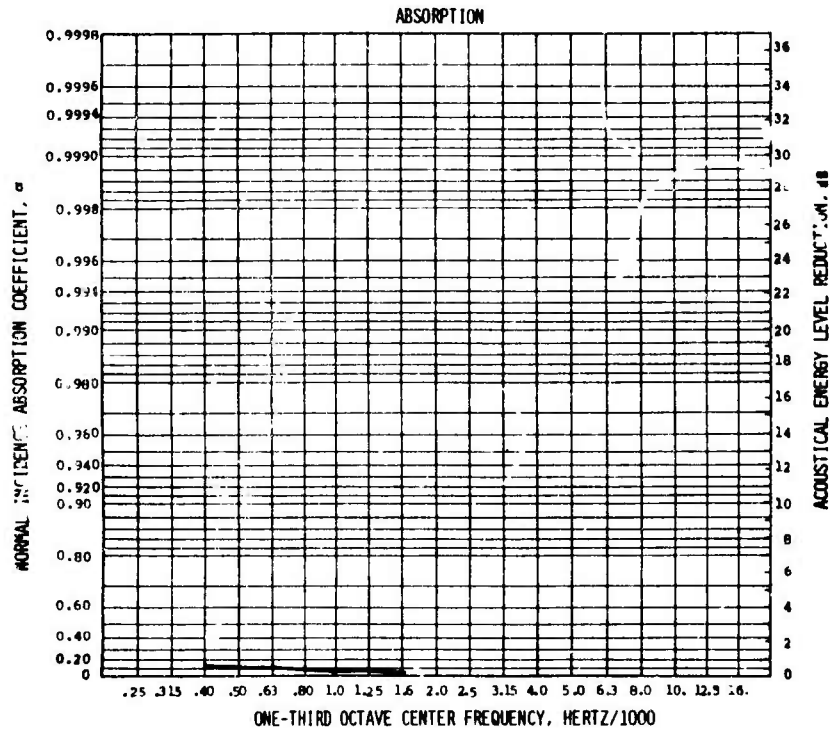
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



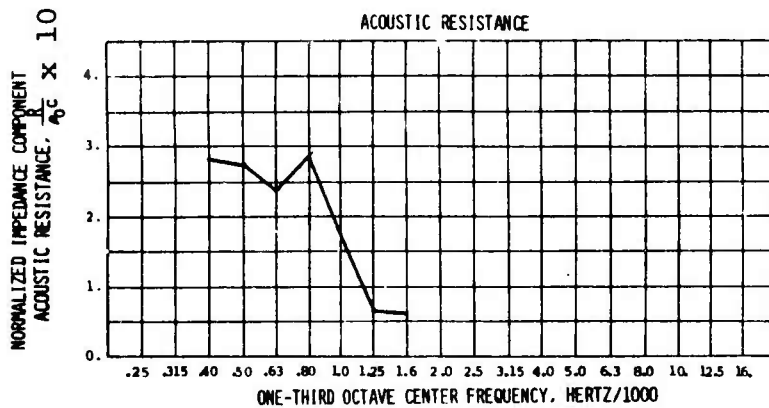
SAMPLE NO: 7

TEST DATE: NOV. 6, 1971

MATERIAL DESCRIPTION:
HUYCK FELTMETAL
10 RAYI FM 125

CONFIGURATION:
0.125 INCH DEEP
AIRSPACE BEHIND
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	7.75
0.05	116.0	8.75
0.10	122.0	9.60
0.20	128.0	11.60
0.30	131.5	12.60
0.50	136.0	15.00
0.80	140.0	17.00
1.25	144.0	20.0 *
2.00	148.0	23.5 *
3.00	151.5	26.5 *
4.00	154.0	28.5 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

9.0

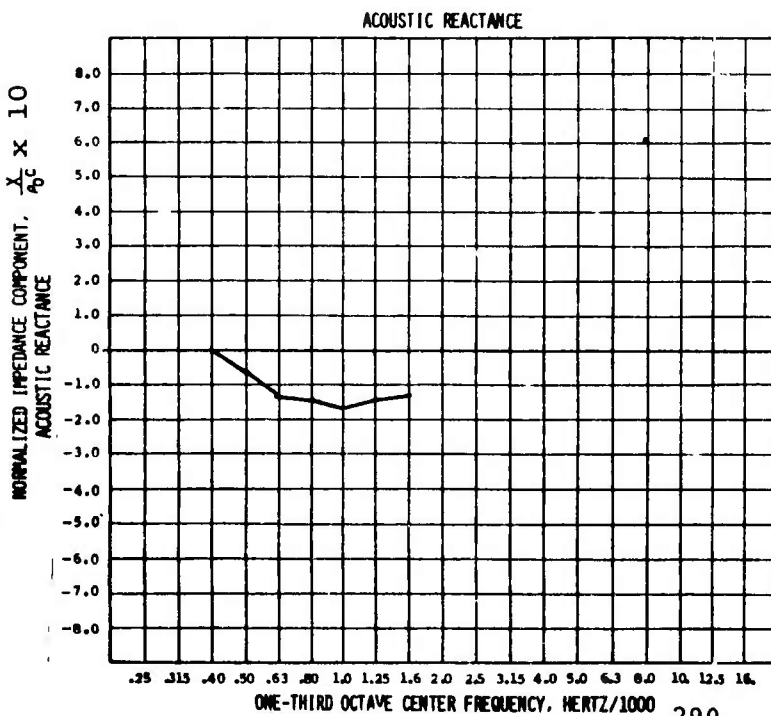
NON-LINEARITY
FACTOR

3.6

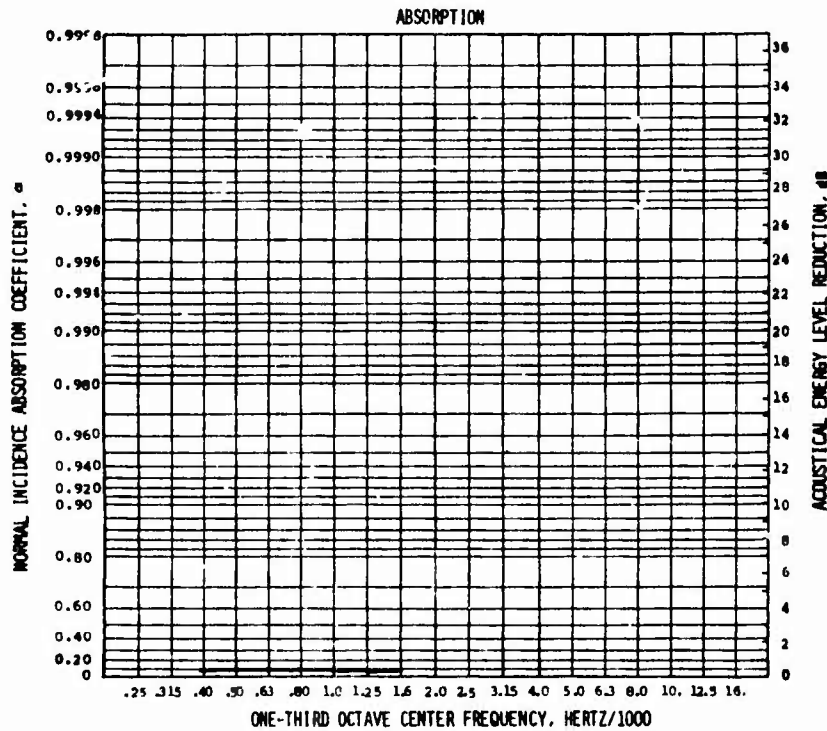
1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 9$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED



ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



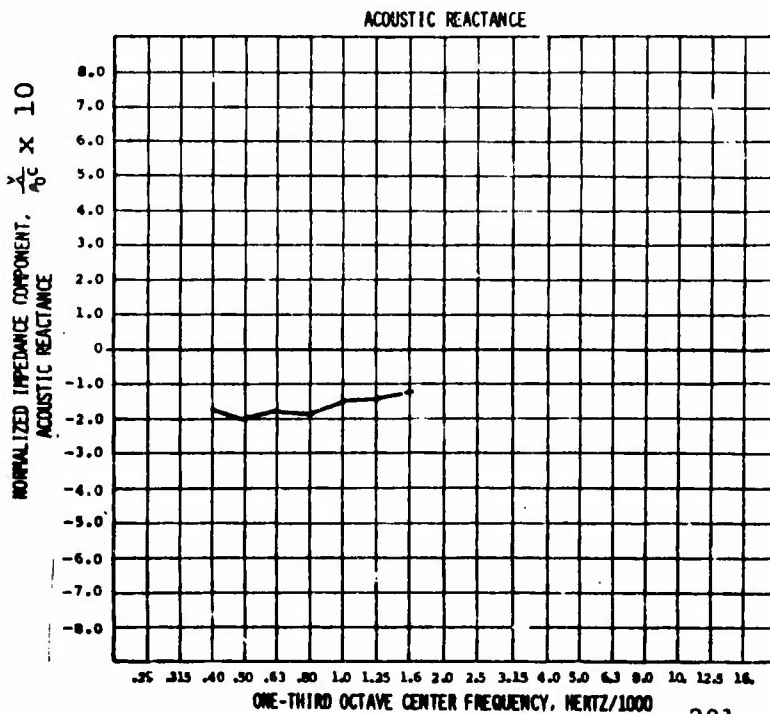
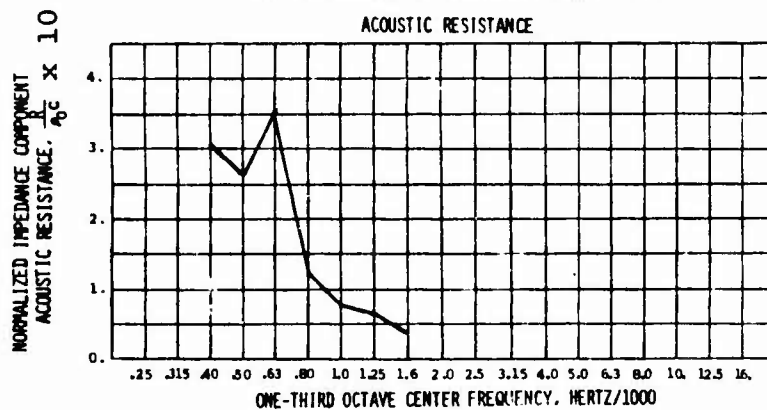
SAMPLE NO: 8

TEST DATE: NOV. 13, 1971

MATERIAL DESCRIPTION:
HUYCK FELTMETAL
FM-129 25 RAYL

CONFIGURATION:
0.125 INCH DEEP
AIRSPACE BEHIND
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	19.7
0.05	116.0	19.5
0.10	122.0	21.7
0.20	128.0	23.2
0.30	131.5	25.6
0.50	136.0	29.0
0.80	140.0	32.4
1.25	144.0	37.8
2.00	148.0	40.3
3.00	151.5	50.0 *
4.00	154.0	55.0 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

23.0

NON-LINEARITY
FACTOR

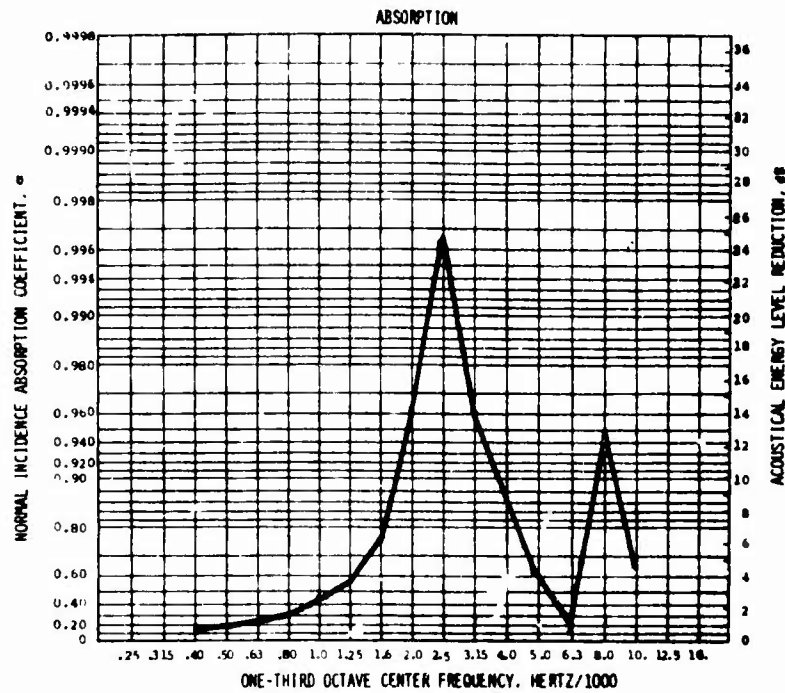
3.6

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: $P = \Delta P$ PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 1GS

TEST DATE: SEPT. 5, 1972

MATERIAL DESCRIPTION:

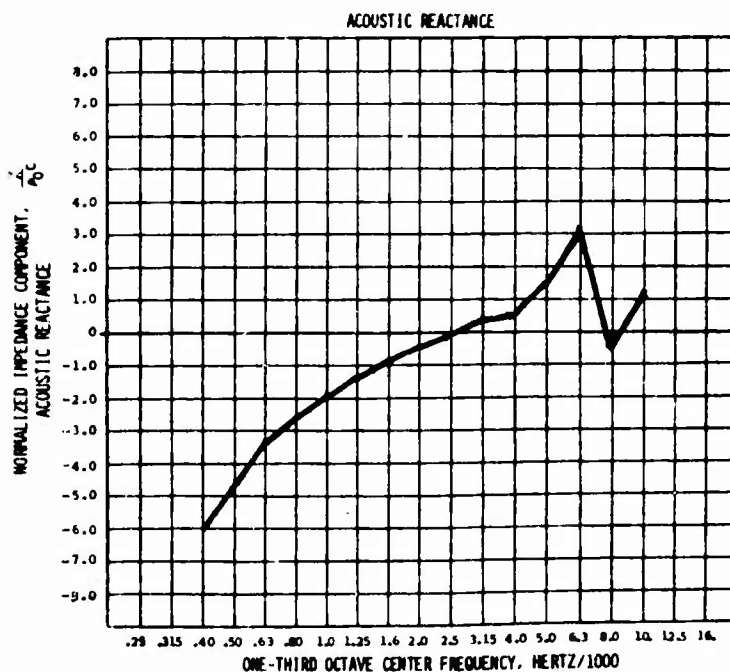
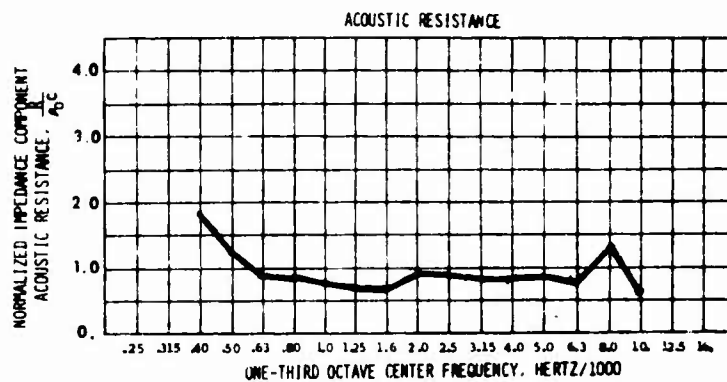
FELTMETAL

FM 129

CONFIGURATION:

1.0 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL	RAYLS
0.02	108.0	20
0.05	116.0	20
0.10	122.0	22
0.20	128.0	23
0.30	131.5	26
0.50	136.0	29
0.80	140.0	32
1.25	144.0	38
2.00	148.0	45 *
3.00	151.5	51 *
4.00	154.0	58 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

26

NON-LINEARITY
FACTOR

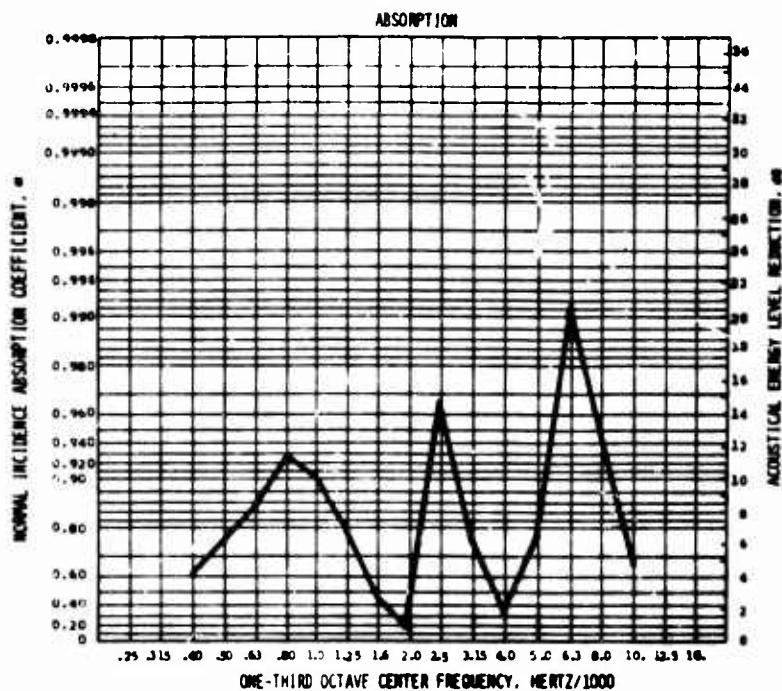
4.6 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



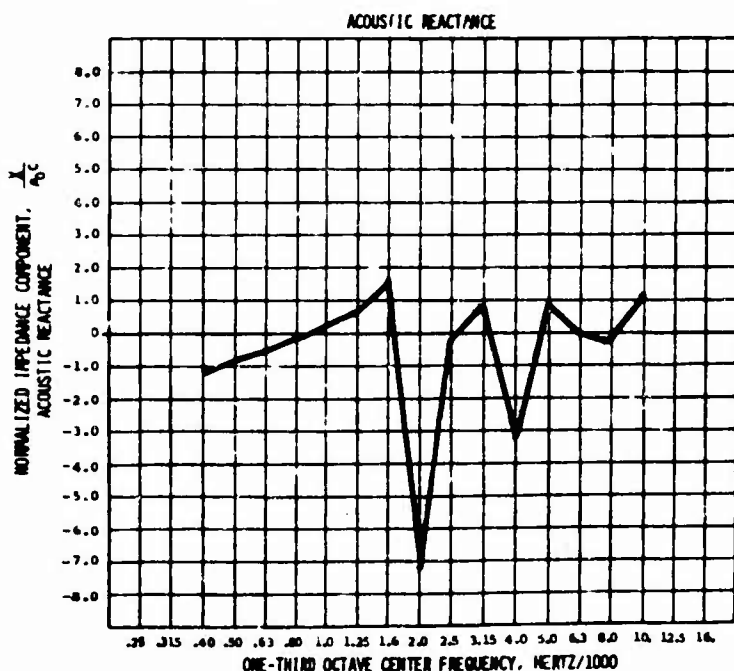
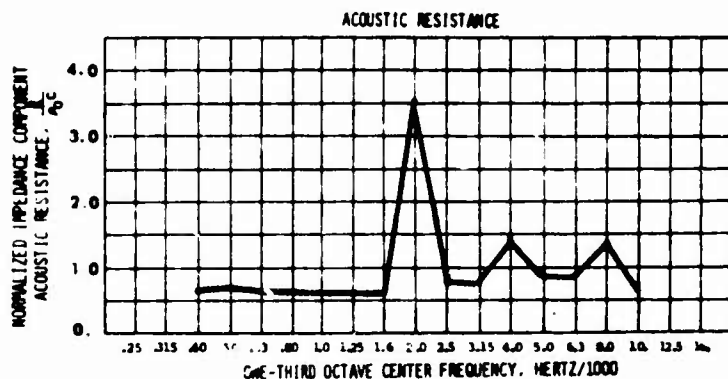
SAMPLE NO: 20GS

TEST DATE: SEPT. 12, 1972

MATERIAL DESCRIPTION:
FELT/METAL
FM 129

CONFIGURATION:
3.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL	RAYLS
0.02	108.0	20
0.05	116.0	20
0.10	122.0	22
0.20	128.0	23
0.30	131.5	26
0.50	136.0	29
0.80	140.0	32
1.25	144.0	38
2.00	148.0	45 *
3.00	151.5	51 *
4.00	154.0	58 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

26

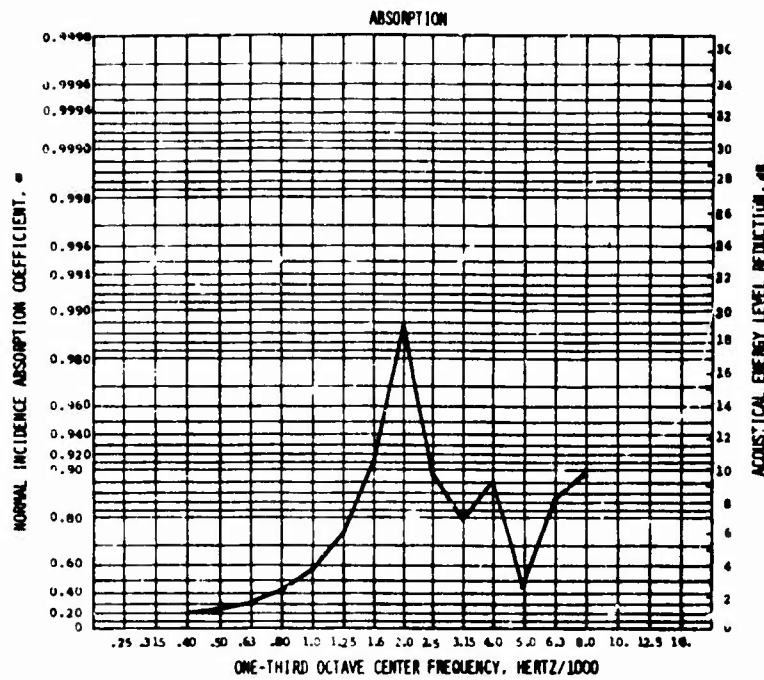
NON-LINEARITY
FACTOR

4.6 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
 2. EQUIVALENT SPL = $20 \log P + 74$ dB
- WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 8-2S

TEST DATE: SEPT. 22, 1972

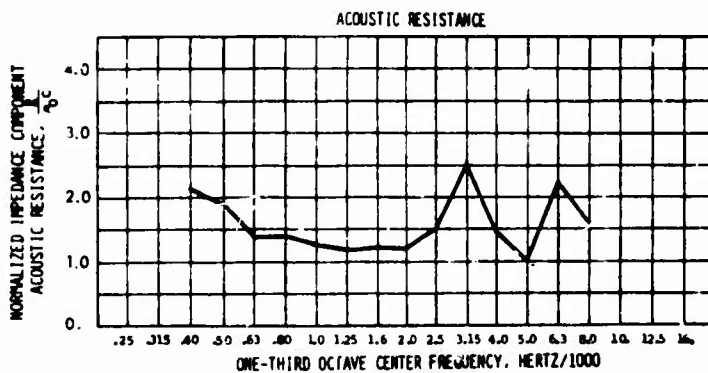
MATERIAL DESCRIPTION:

FELTMETAL
FM 134

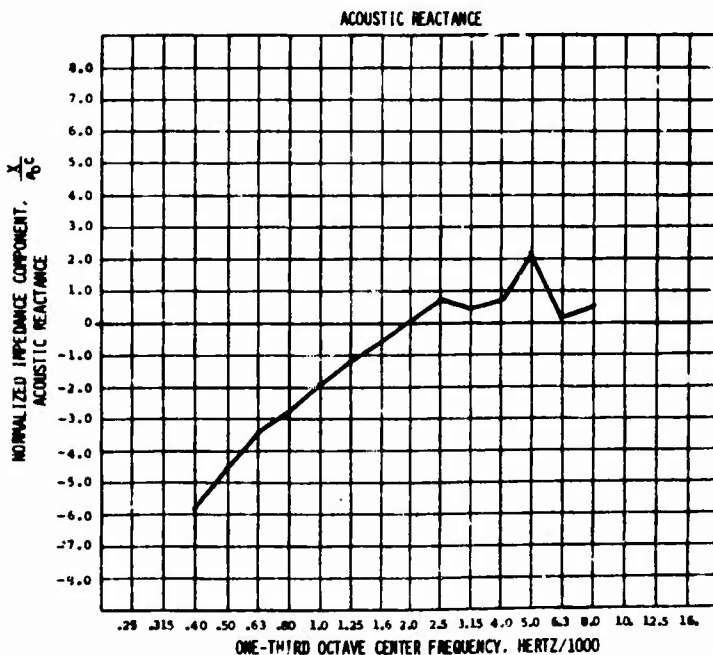
CONFIGURATION:

G.E. DOUBLE DIAMOND
BAFFLING 0.9 INCH
CAVITY BEHIND FM 134
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP^1	SPL ²	RAYLS
0.02	108.0	32
0.05	116.0	33
0.10	122.0	32
0.20	128.0	35
0.30	131.5	37
0.50	136.0	42
0.80	140.0	47
1.25	144.0	52
2.00	148.0	60
3.00	151.5	70
4.00	154.0	80



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37

NON-LINEARITY
FACTOR

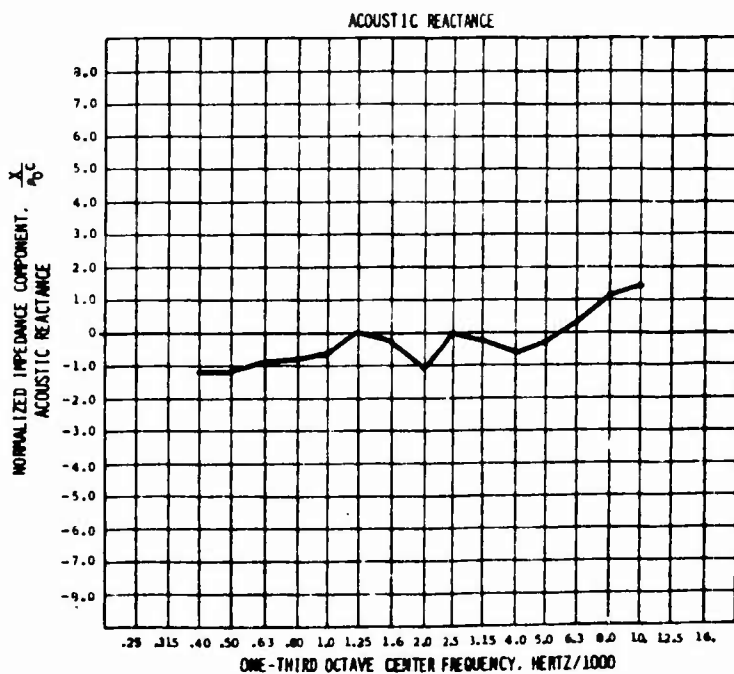
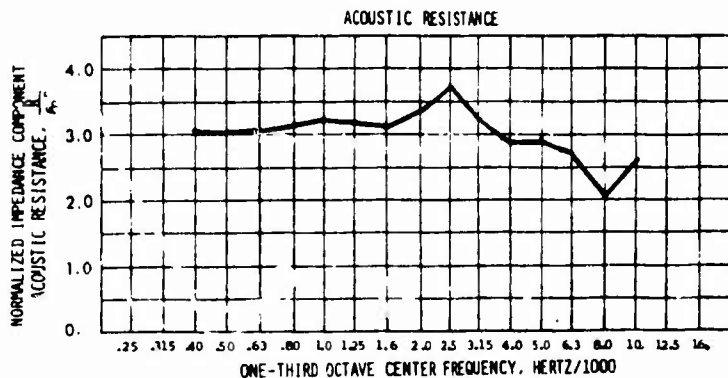
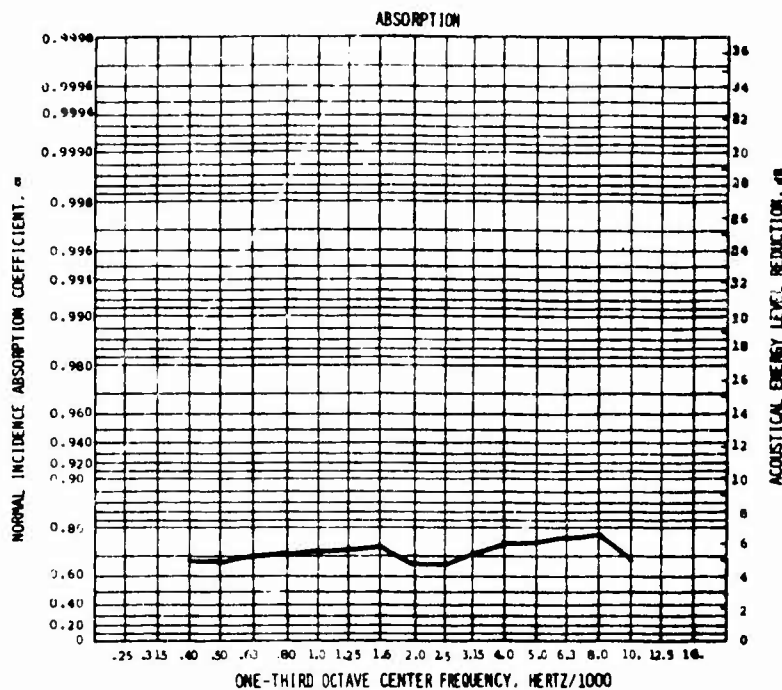
6.1

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 10GS

TEST DATE: SEPT. 12, 1972

MATERIAL DESCRIPTION:
FELTMETAL
FM 134

CONFIGURATION:
2.0 INCH THICKNESS
SCOTTFELT FR 3-900
BEHIND FM 134
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS) **

ΔP	SPL	RAYLS
0.02	108.0	213
0.05	116.0	216
0.10	122.0	226
0.20	128.0	233
0.30	131.5	230
0.50	136.0	232
0.80	140.0	219
1.15	144.0	218
2.00	148.0	240
3.00	151.5	245
4.00	154.0	260

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

220

NON-LINEARITY
FACTOR

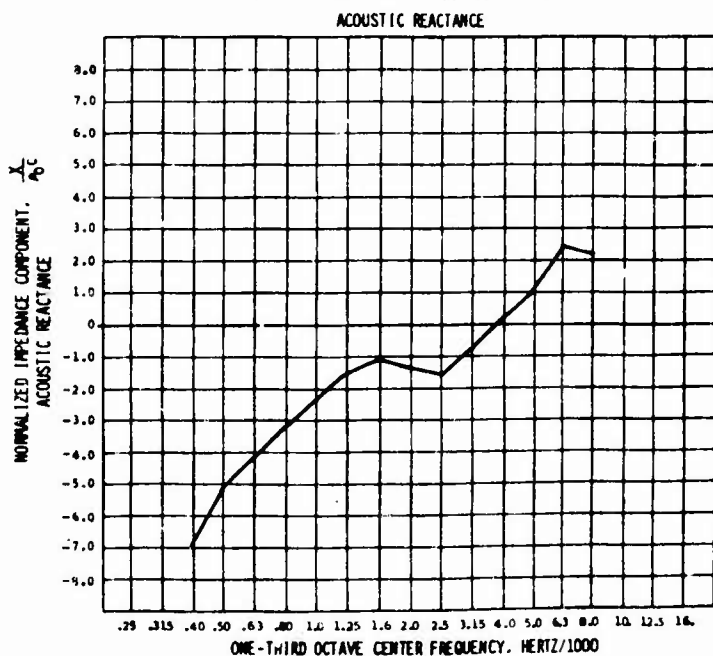
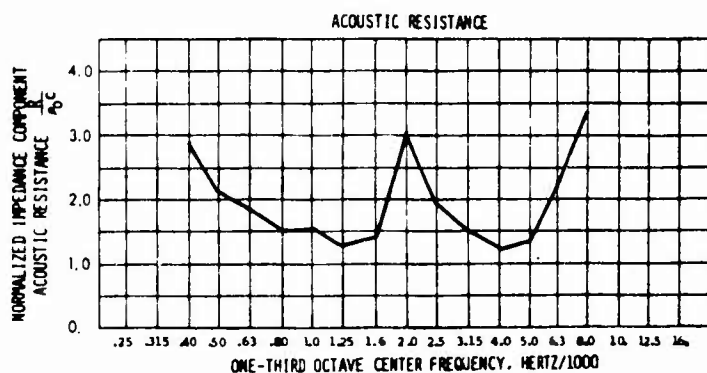
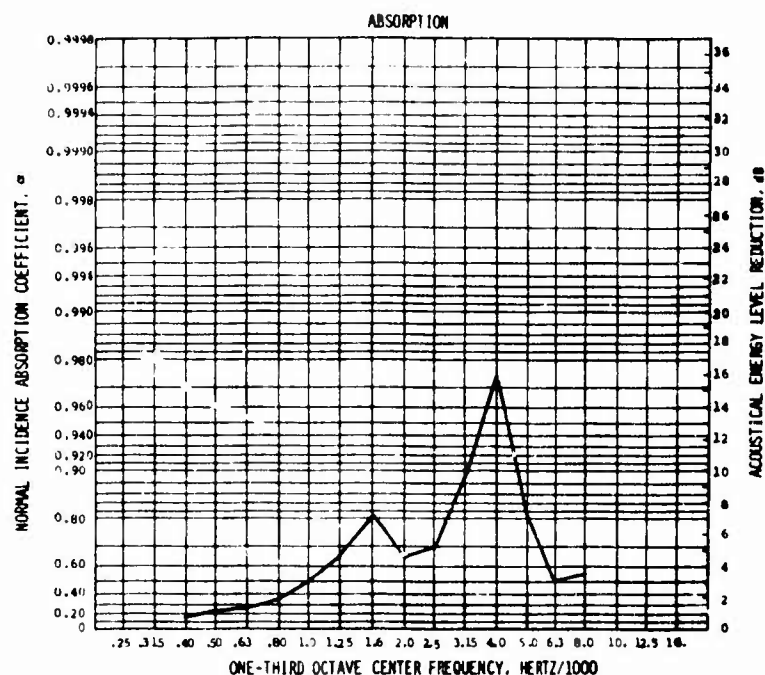
2.8 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

** FOR COMBINED MATERIAL
* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 5-2S

TEST DATE: NOV. 2, 1972

MATERIAL DESCRIPTION:

FELTMETAL
FM 134

CONFIGURATION:

45 DEG SLANTED ALUM
BAFFLES IN 0.9 INCH
CAVITY BEHIND FM 134
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP	SPL ²	RAYLS
0.02	108.0	32
0.05	116.0	33
0.10	122.0	32
0.20	128.0	35
0.30	131.5	37
0.50	136.0	42
0.80	140.0	47
1.25	144.0	52
2.00	148.0	60
3.00	151.5	70 *
4.00	154.0	80 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37

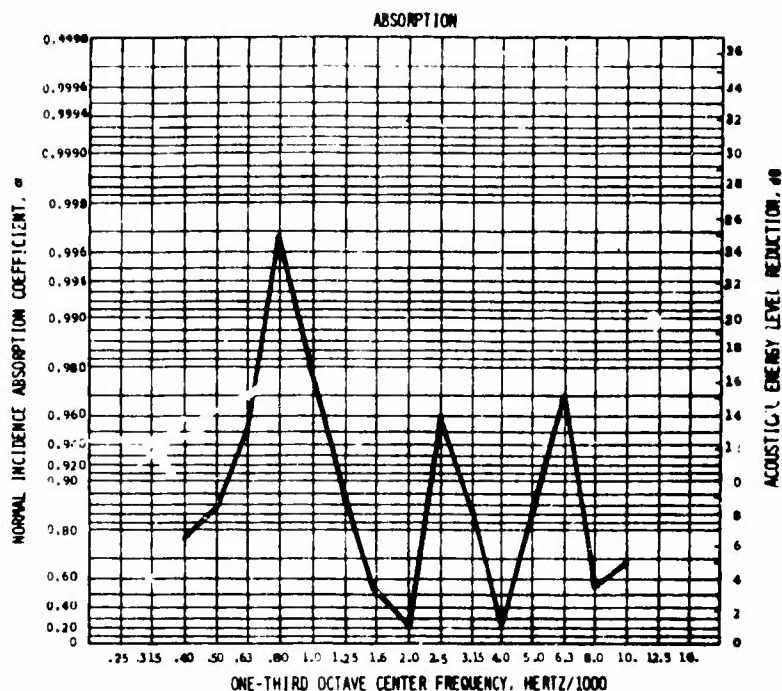
NON-LINEARITY
FACTOR

6.1 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
 2. EQUIVALENT SPL = $20 \log P + 74$ dB
- WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 3GS

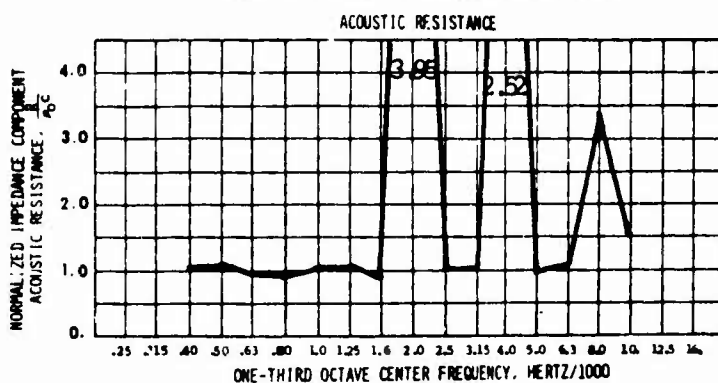
TEST DATE: SEPT. 6, 1972

MATERIAL DESCRIPTION:
FELTMETAL
FM 134

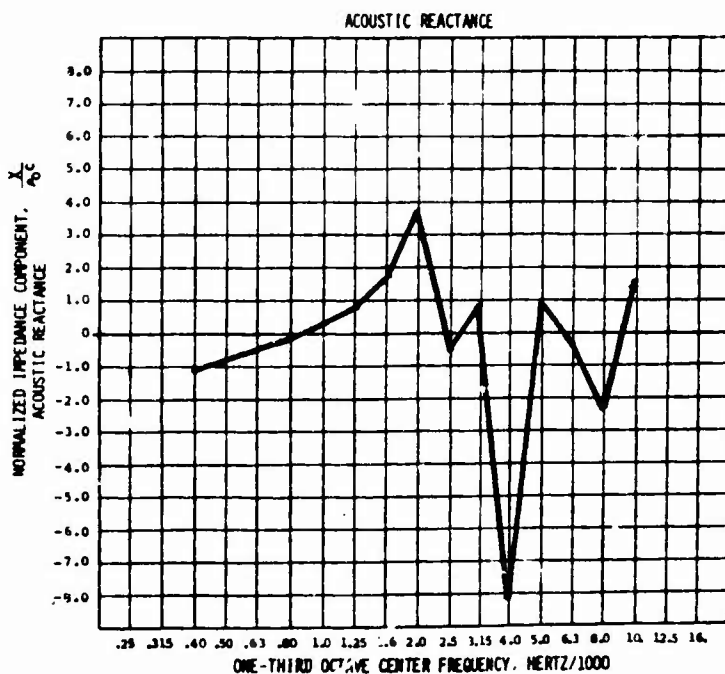
CONFIGURATION:

3.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	32
0.05	116.0	33
0.10	122.0	32
0.20	128.0	35
0.30	131.5	37
0.50	136.0	42
0.80	140.0	47
1.25	144.0	52
2.00	148.0	60
3.00	151.5	70 *
4.00	154.0	80 *



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37

NON-LINEARITY
FACTOR

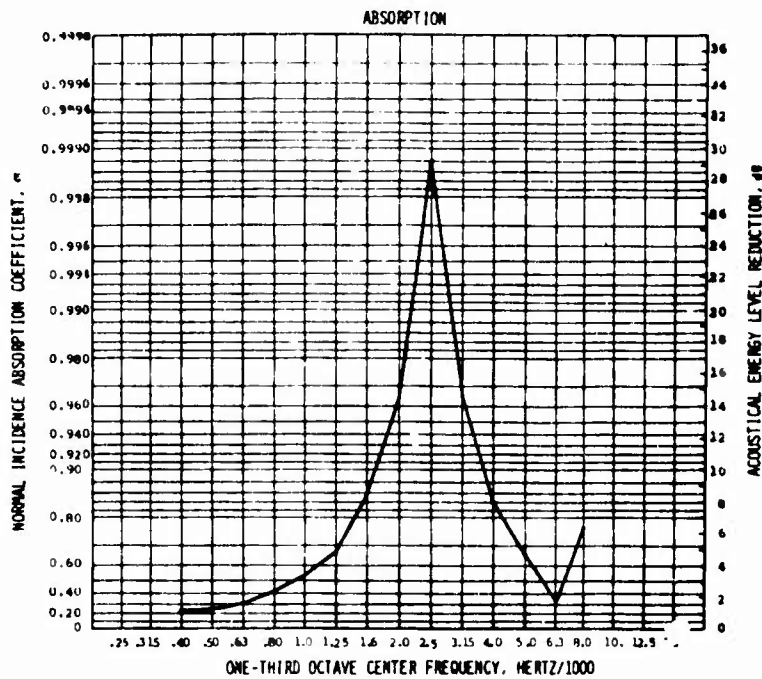
6.1 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 11-2S

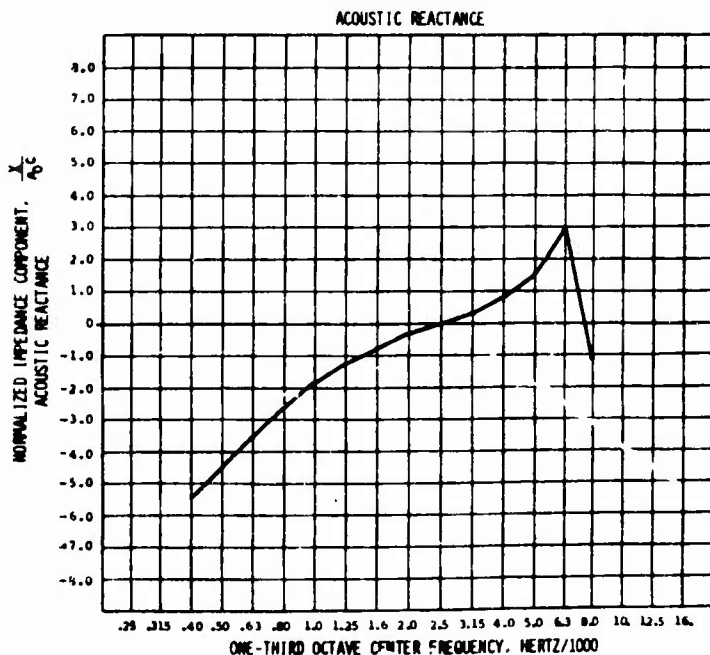
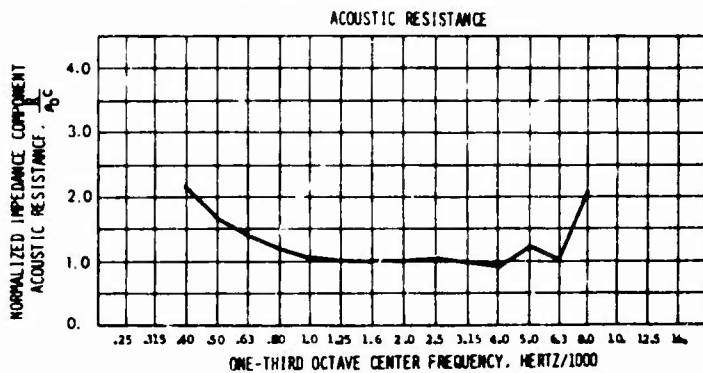
TEST DATE: OCT. 9, 1972

MATERIAL DESCRIPTION:
FELTMETAL
FM 134

CONFIGURATION:

0.9 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL ²	RAYLS
0.02	108.0	32
0.05	116.0	33
0.10	122.0	32
0.20	128.0	35
0.30	131.5	37
0.50	136.0	42
0.80	140.0	47
1.25	144.0	52
2.00	148.0	60
3.00	151.5	70 *
4.00	154.0	80 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37

NON-LINEARITY
FACTOR

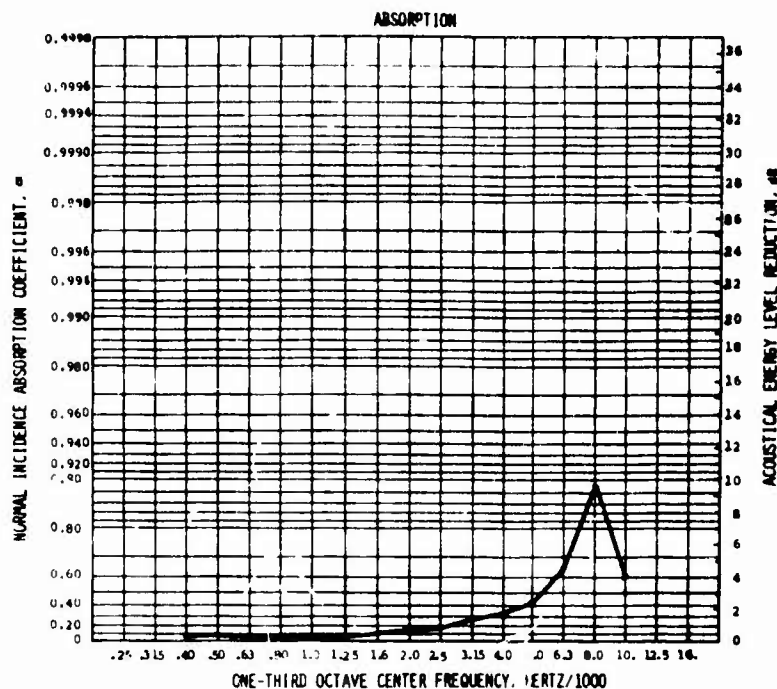
6.1 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 5B

TEST DATE: SEPT. 14, 1972

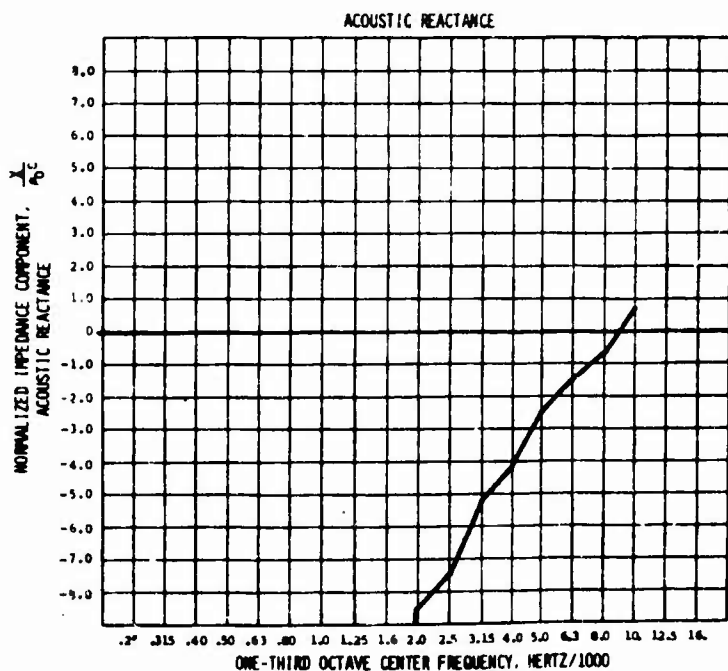
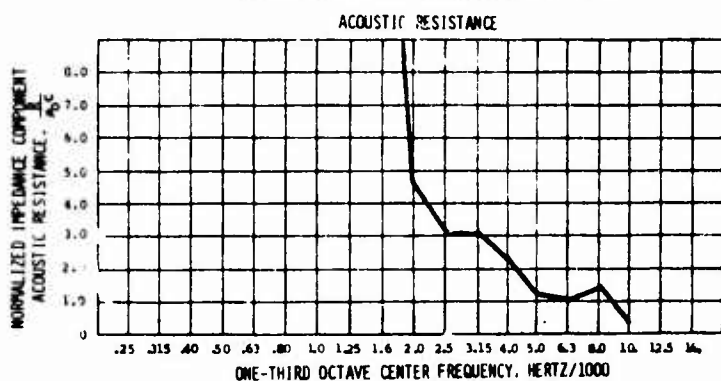
MATERIAL DESCRIPTION:

FELTMETAL
FM 134

CONFIGURATION:

0.125 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP^1	SPL^2	RAYLS
0.02	108.0	32
0.05	116.0	33
0.10	122.0	32
0.20	128.0	35
0.30	131.5	37
0.50	136.0	42
0.80	140.0	47
1.25	144.0	52
2.00	148.0	60
3.00	151.5	70 *
4.00	154.0	80 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37

NON-LINEARITY
FACTOR

6.1 *

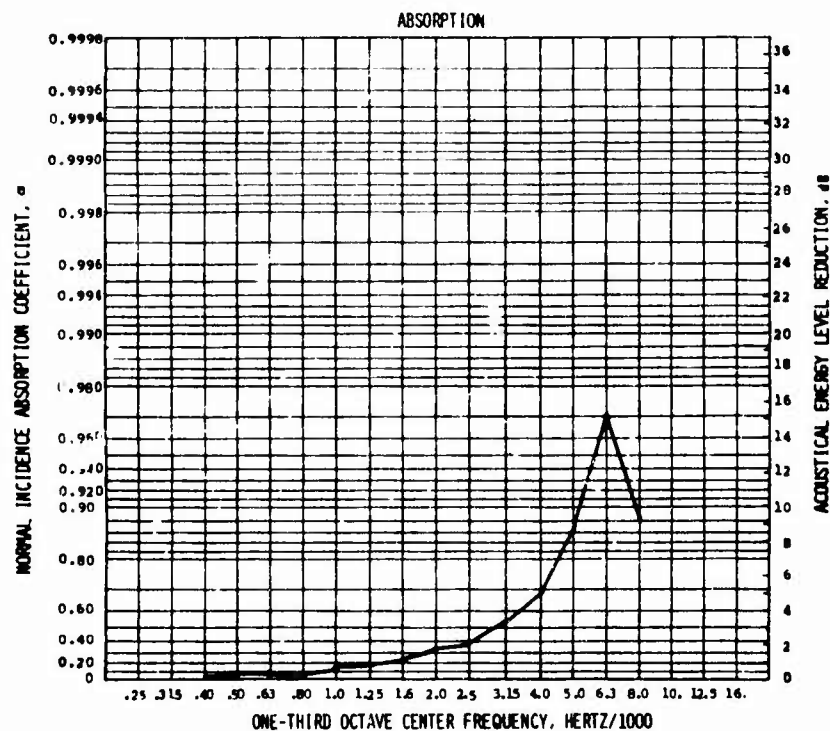
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT $SPL = 20 \log P + 74$ dB

WHERE: $P = \Delta P$ PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



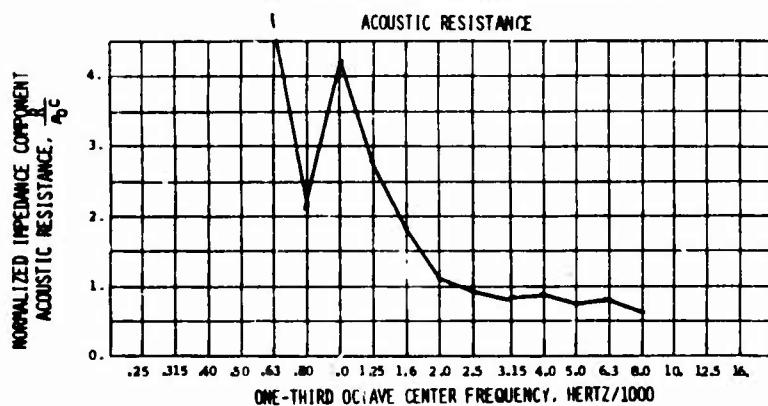
SAMPLE NO: 10B

TEST DATE: FEB. 21, 1972

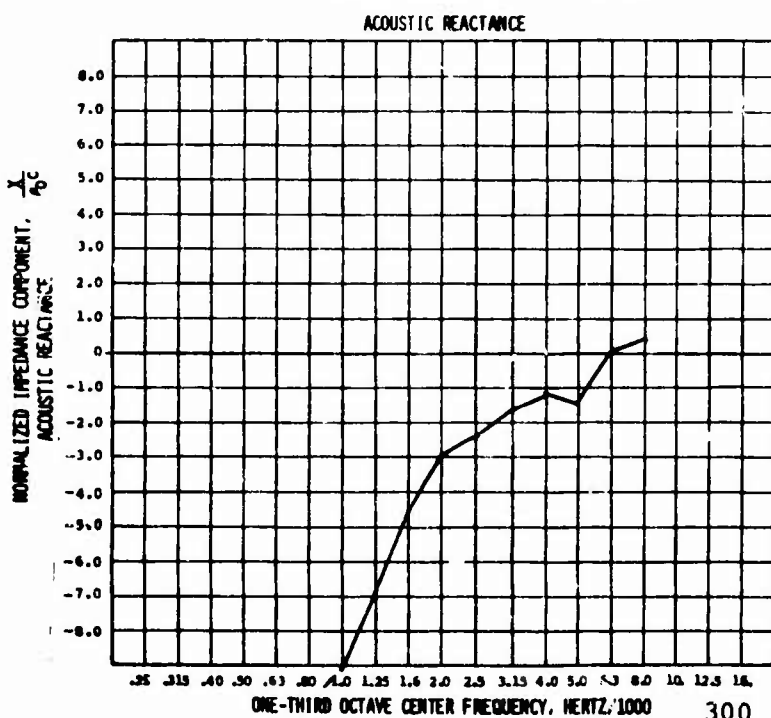
MATERIAL DESCRIPTION:
FELTMETAL FM 134
FACE

CONFIGURATION:
5/16 INCH DEEP
AIRSPACE BEHIND
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	32.0
0.05	116.0	32.5
0.10	122.0	31.5
0.20	128.0	35.7
0.30	131.5	37.0
0.50	136.0	41.5
0.80	140.0	47.0
1.25	144.0	51.5
2.00	148.0	60.0
3.00	151.5	70.0
4.00	154.0	78.0



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37.0

NON-LINEARITY
FACTOR

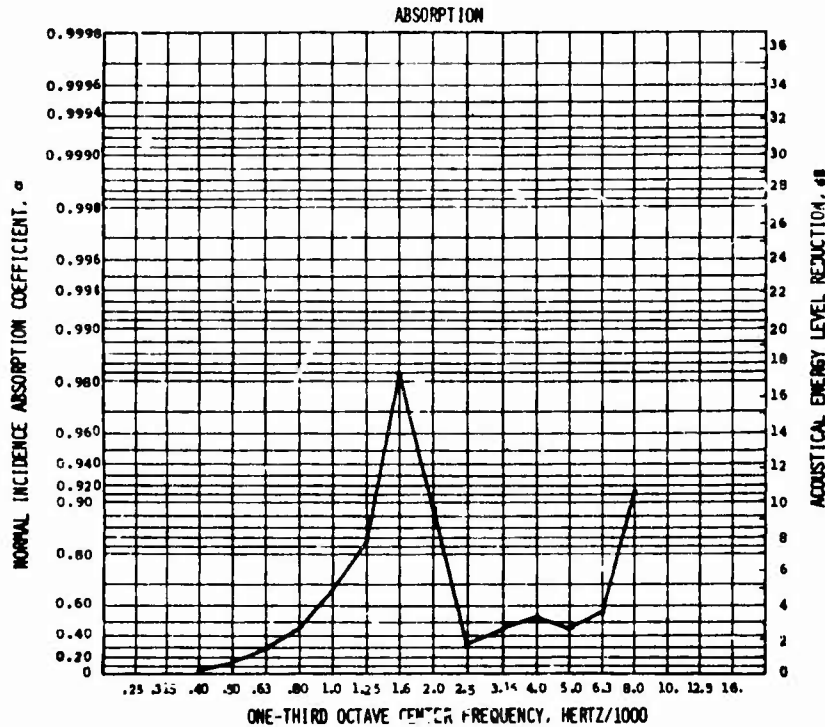
4.7

1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



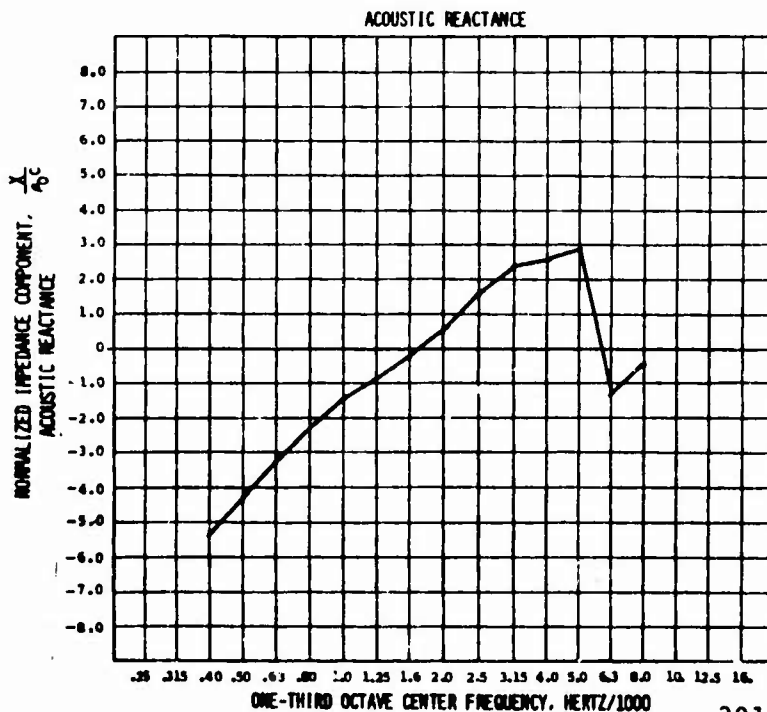
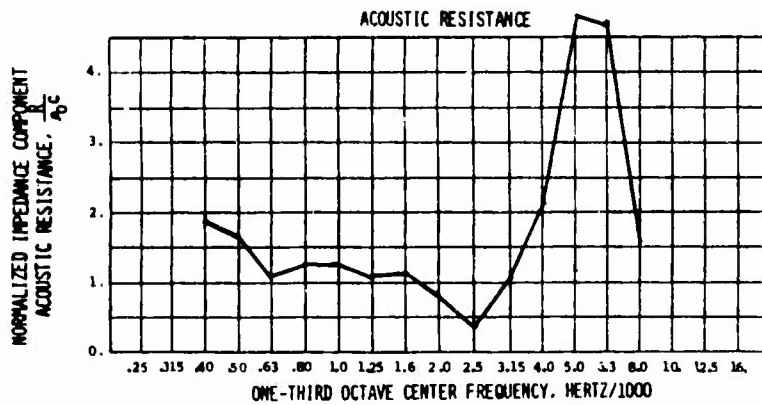
SAMPLE NO: 11A

TEST DATE: FEB. 1, 1972

MATERIAL DESCRIPTION:
FELTMETAL FM 134
FACE

CONFIGURATION:
1 1/16 INCH DEEP
QUADRICORE THERMOPLASTIC
BACKING

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1.	SPL 2.	RAYLS
0.02	108.0	32.0
0.05	116.0	32.5
0.10	122.0	31.5
0.20	128.0	35.0
0.30	131.5	37.0
0.50	136.0	41.0
0.80	140.0	47.0
1.25	144.0	51.5
2.00	148.0	60.0
3.00	151.5	70.0
4.00	154.0	78.0

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37.0

NON-LINEARITY
FACTOR

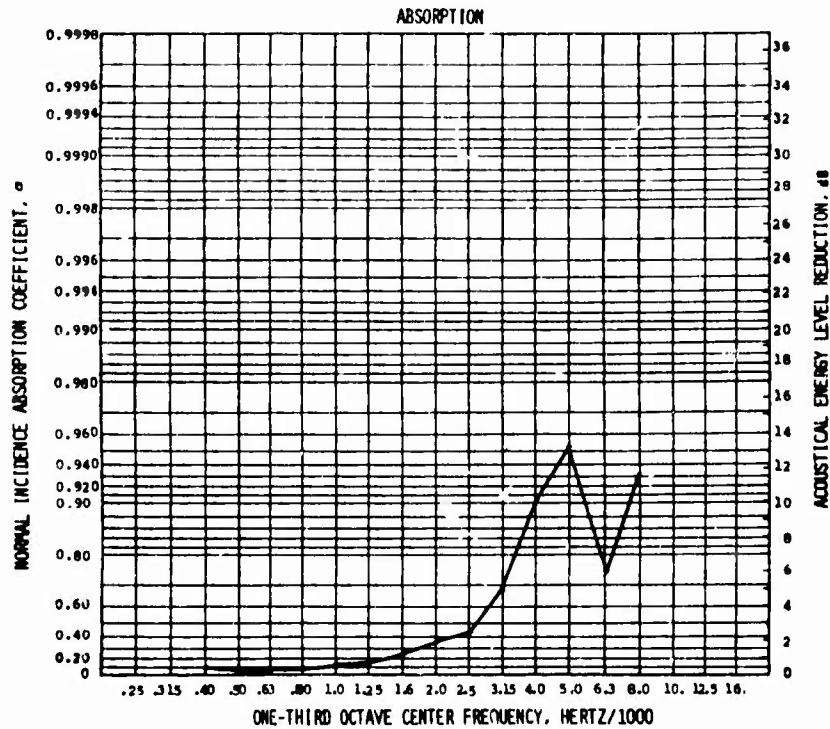
4.7

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



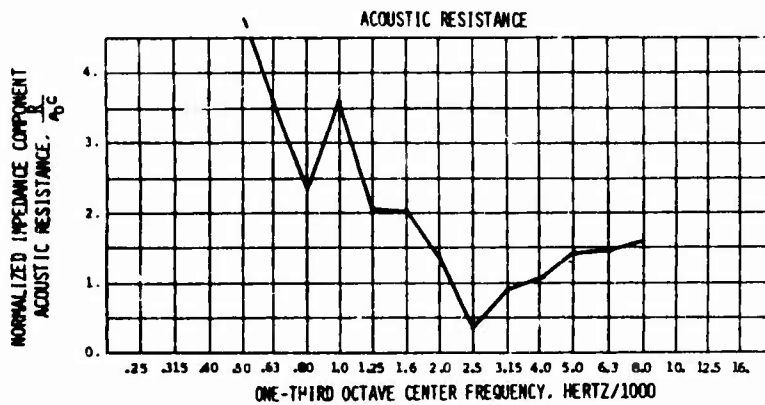
SAMPLE NO: 10A

TEST DATE: JAN. 29, 1972

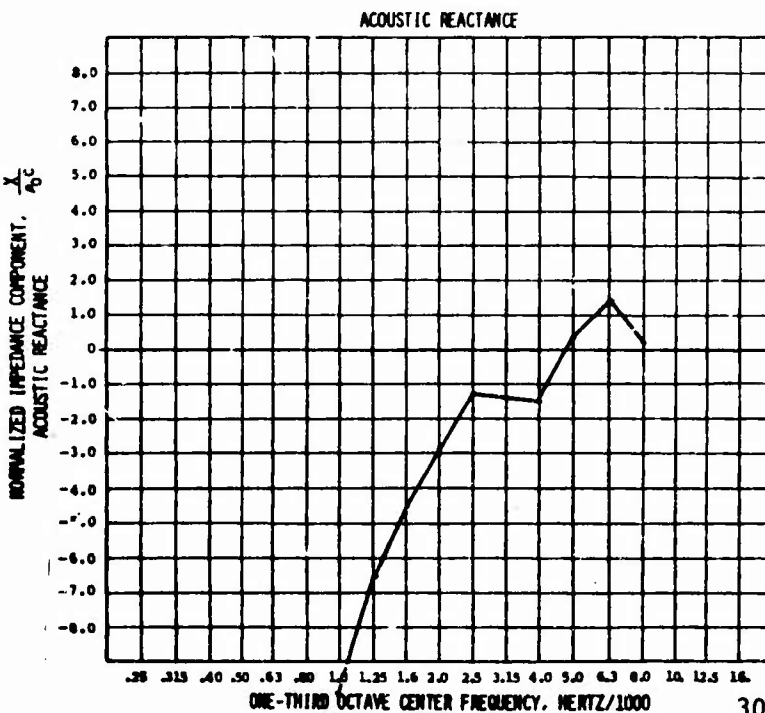
MATERIAL DESCRIPTION:
FELTMETAL FM 134
FACE

CONFIGURATION:
15/16 INCH DEEP
ALUMINUM BACKING,
DIMPLED FACE REMOVED

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	32.0
0.05	116.0	32.5
0.10	122.0	31.5
0.20	128.0	35.0
0.30	131.5	37.0
0.50	136.0	41.5
0.80	140.0	47.0
1.25	144.0	51.5
2.00	148.0	60.0
3.00	151.5	70.0
4.00	154.0	78.0 *



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37.0

NON-LINEARITY
FACTOR

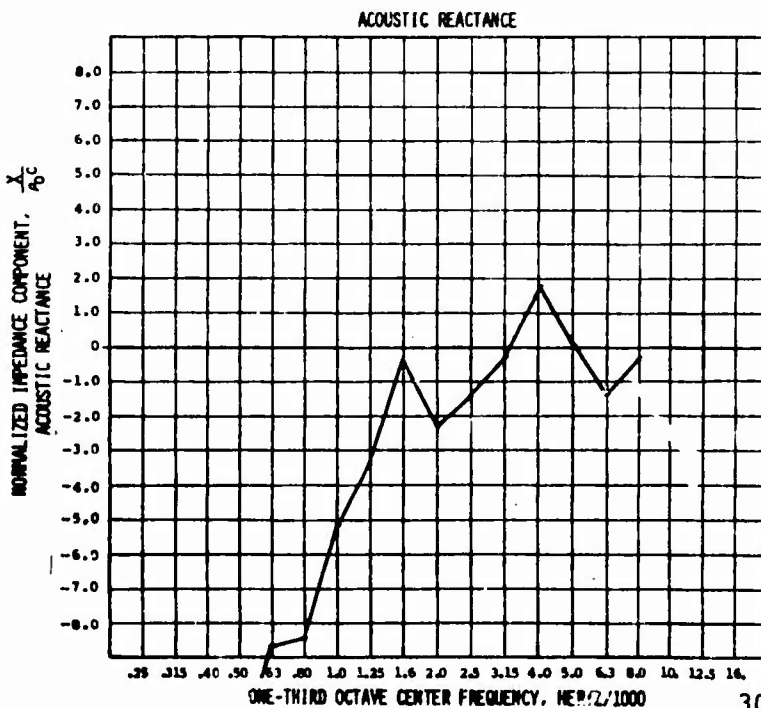
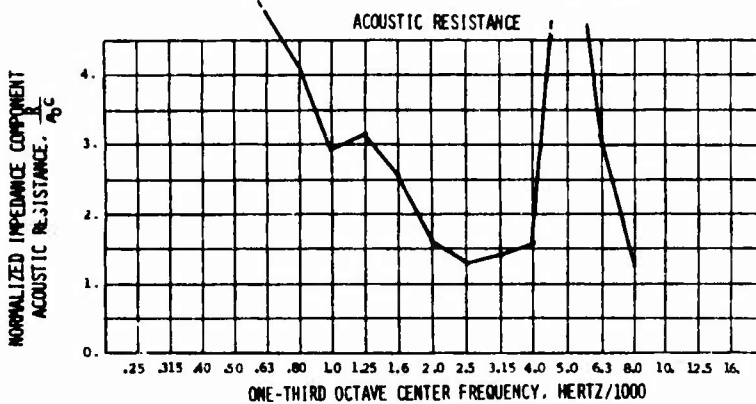
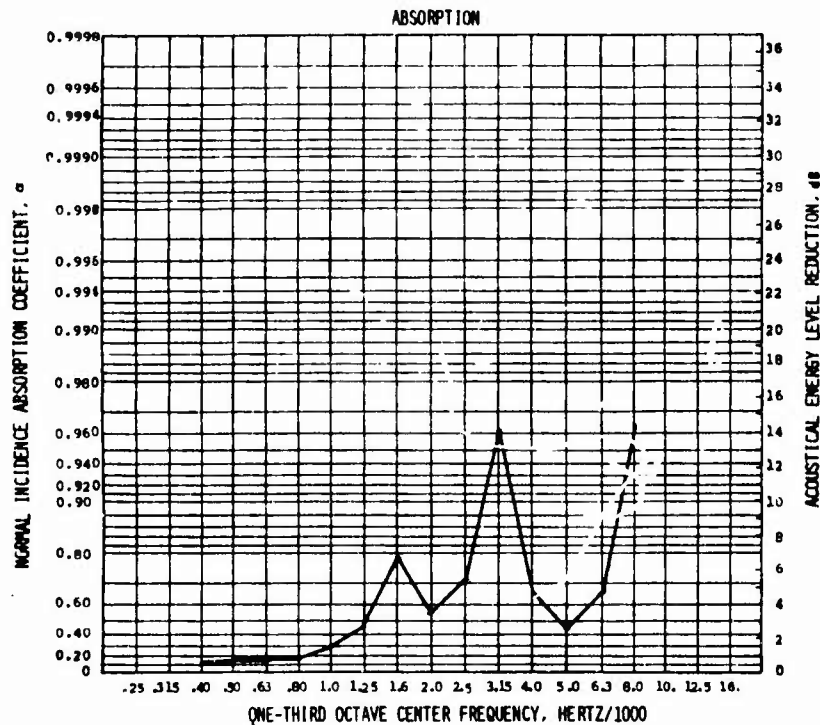
4.7

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 79$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 10

TEST DATE: JAN. 29, 1972

MATERIAL DESCRIPTION:
FELTMETAL FM 134
FACE

CONFIGURATION:
15/16 INCH ALUMINUM
DIMPLED BACKING
BEHIND FACE SHEET

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP 1.	SPL 2.	RAYLS
0.02	108.0	32.0
0.05	116.0	32.5
0.10	122.0	31.5
0.20	128.0	35.0
0.30	131.5	37.0
0.50	136.0	41.5
0.80	140.0	47.0
1.25	144.0	51.5
2.00	148.0	60.0
3.00	151.5	70.0
4.00	154.0	78.0

*

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37.0

NON-LINEARITY
FACTOR

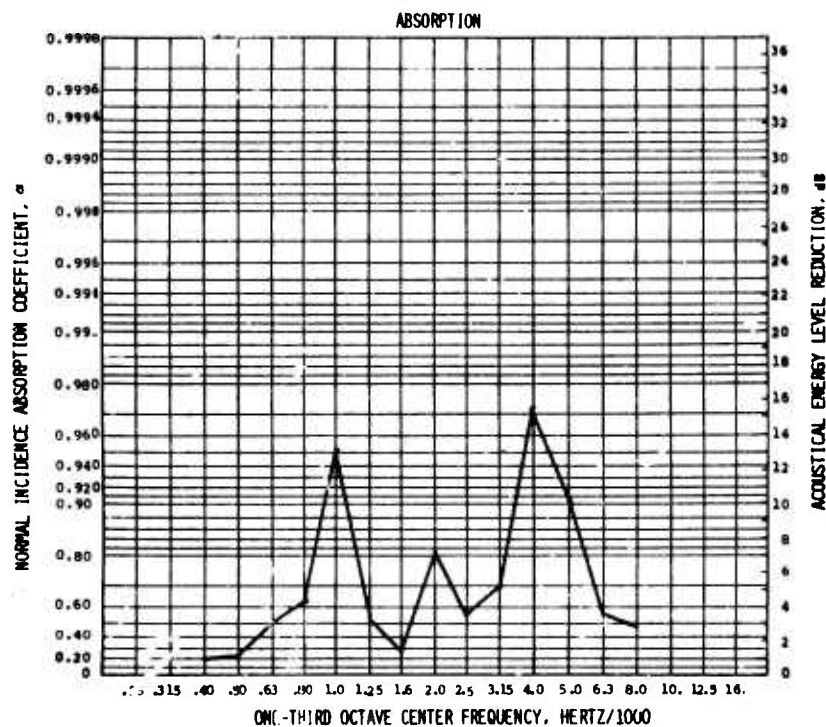
4.7

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



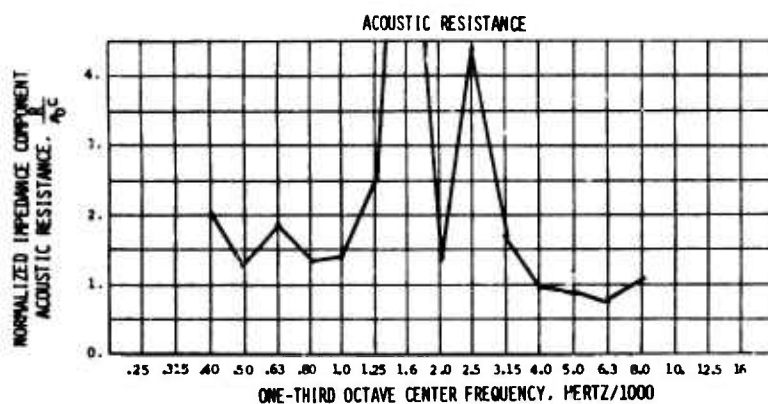
SAMPLE NO: 9A

TEST DATE: JAN. 28, 1972

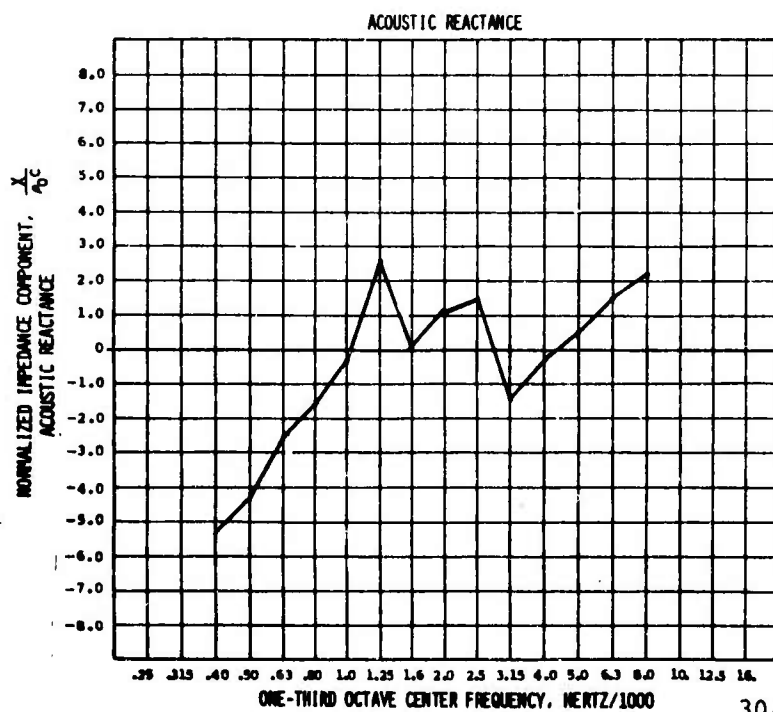
MATERIAL DESCRIPTION:
FELTMETAL FM 134
FACE

CONFIGURATION:
15/16 INCH PLASTIC
DIMPLED BACKING
BEHIND FACE SHEET

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	32.0
0.05	116.0	32.5
0.10	122.0	31.5
0.20	128.0	35.0
0.30	131.5	37.0
0.50	136.0	41.5
0.80	140.0	47.0
1.25	144.0	51.5
2.00	148.0	60.0
3.00	151.5	70.0
4.00	154.0	78.0 *



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37.0

NON-LINEARITY
FACTOR

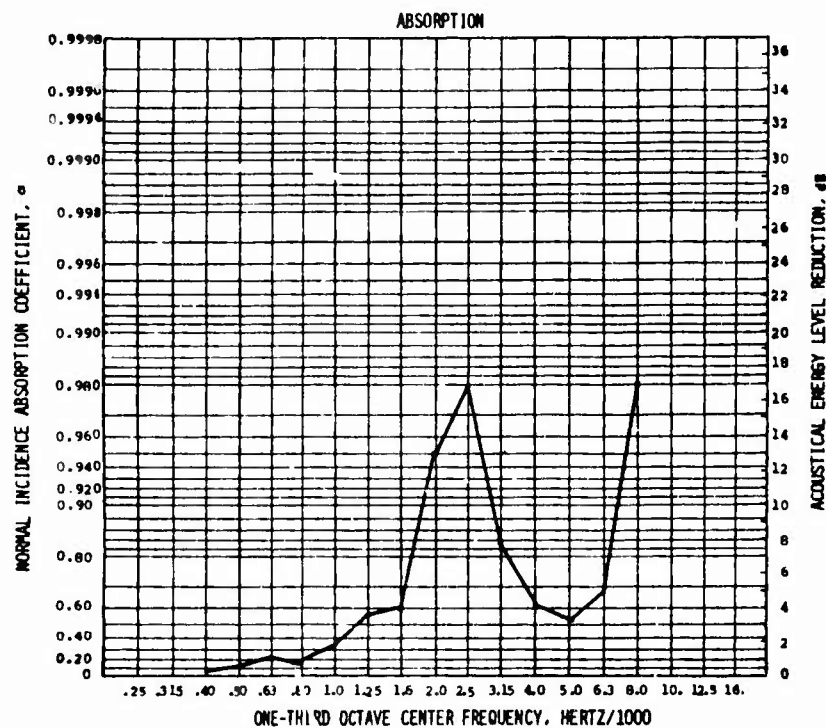
4.7

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 12

TEST DATE: MARCH 6, 1972

MATERIAL DESCRIPTION:

FELTMETAL FM 134

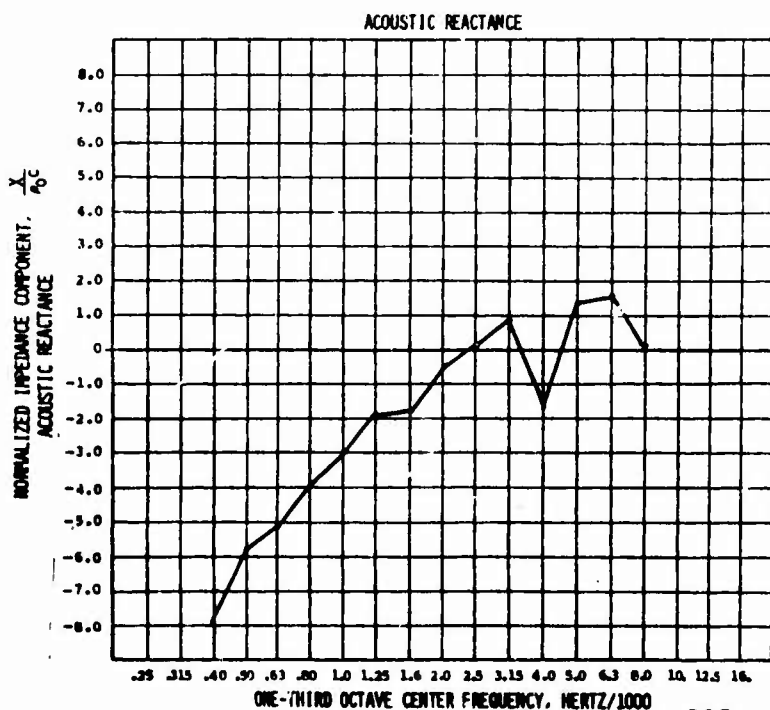
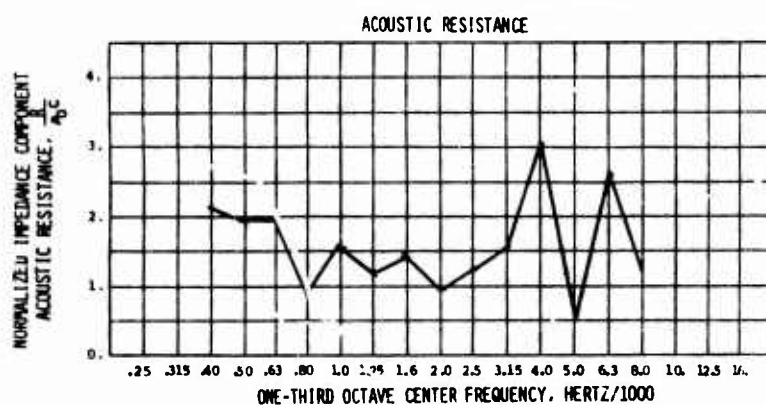
DOUBLE LAYER

CONFIGURATION: BACKING

5/16 INCH DEEP PLASTIC

5/16 INCH DEEP ALUMINUM

DIMPLED FACES REMOVED



MEASURED D-C FLOW RESISTANCE (CGS RAYLS)
EACH FACE

ΔP 1.	SPL ²	RAYLS
0.02	108.0	32.0
0.05	116.0	32.5
0.10	122.0	31.5
0.20	128.0	35.0
0.30	131.5	37.0
0.50	136.0	41.5
0.80	140.0	47.0
1.25	144.0	51.5
2.00	148.0	60.0
3.00	151.5	70.0
4.00	154.0	78.0 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

37.0

NON-LINEARITY
FACTOR

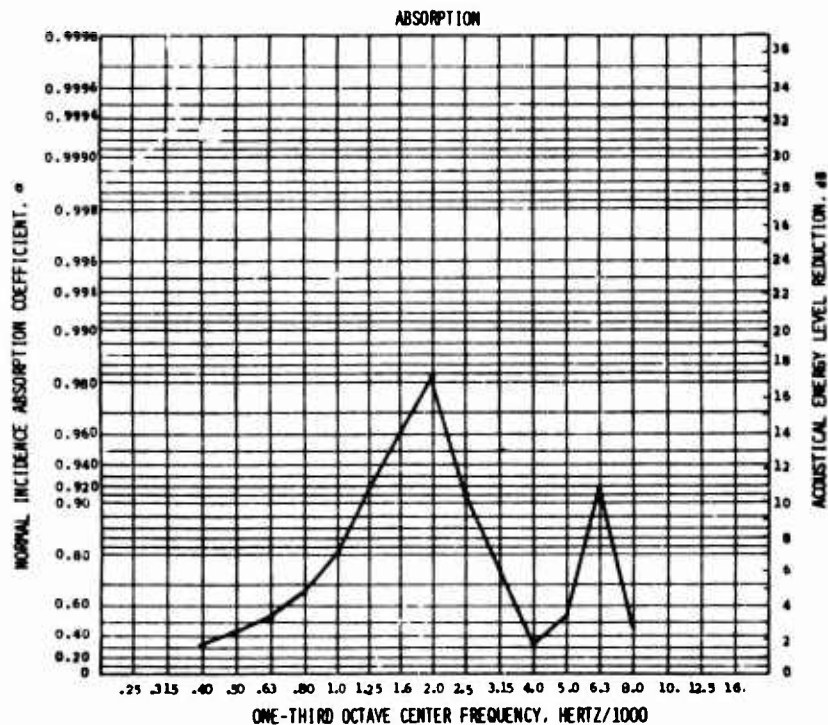
4.7

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



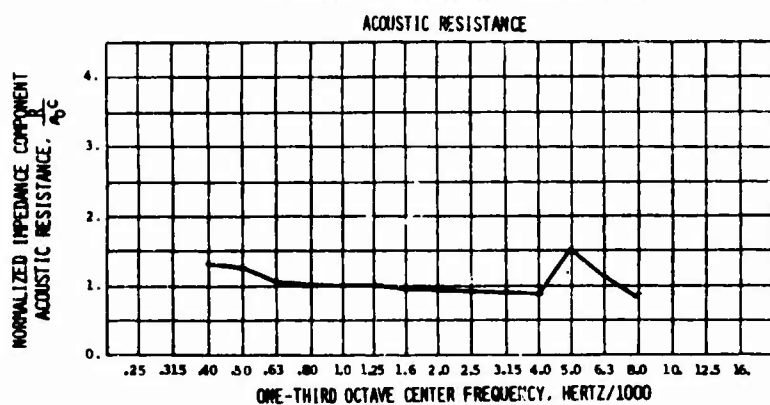
SAMPLE NO: A-4 S

TEST DATE: DEC. 18, 1972

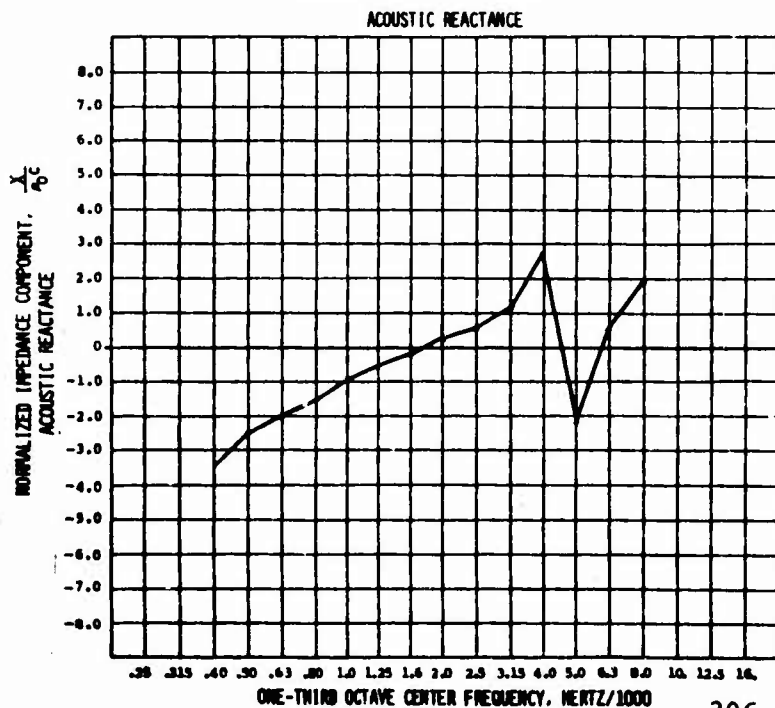
MATERIAL DESCRIPTION:
FELTMETAL FM134

CONFIGURATION:
1.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	32
0.05	116.0	32.5
0.10	122.0	31.5
0.20	128.0	35.0
0.30	131.5	37.0
0.50	136.0	41.5
0.80	140.0	47.0
1.25	144.0	51.5
2.00	148.0	60.0
3.00	151.5	66.5
4.00	154.0	73.5



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY 36.0

NON-LINEARITY
FACTOR 6.1 *

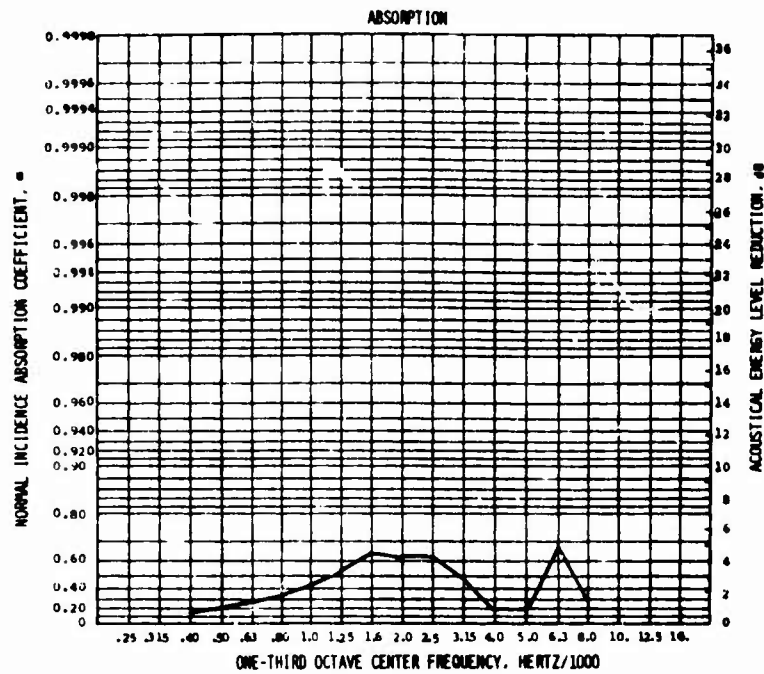
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 79$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 16-2 S

TEST DATE: OCT. 12, 1972

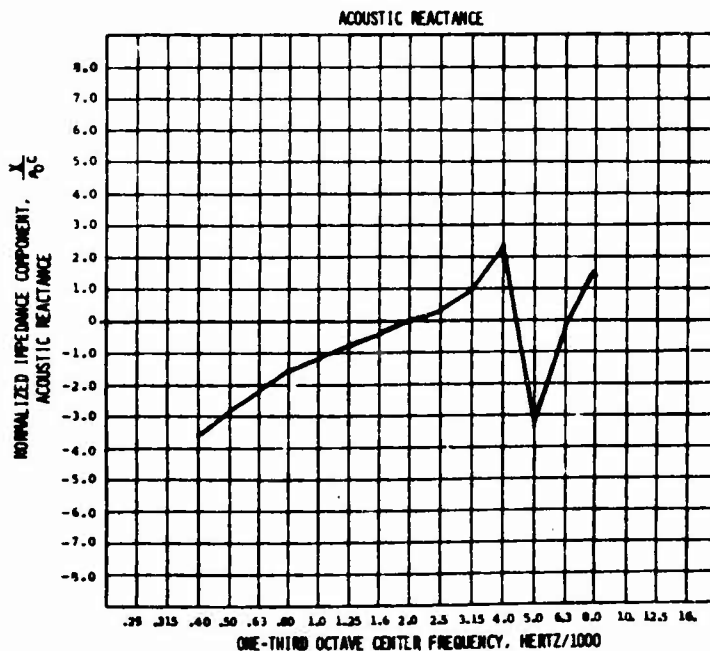
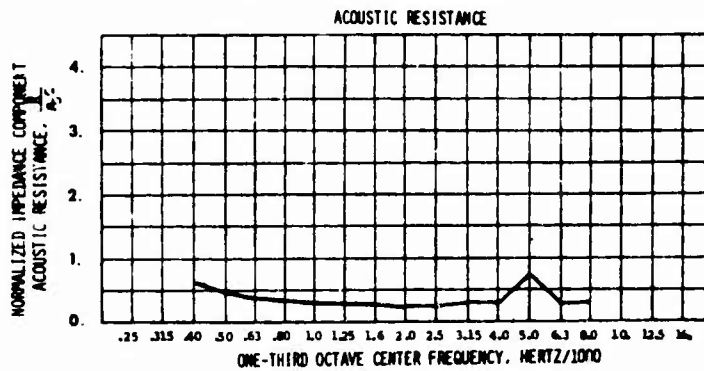
MATERIAL DESCRIPTION:

FELTMETAL
FM 185

CONFIGURATION:

1.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP L	SPL ²	RAYLS
0.02	108.0	9.2
0.05	116.0	9.7
0.10	122.0	10.7
0.20	128.0	12.6
0.30	131.5	13.7
0.50	136.0	15.7
0.80	140.0	17.0
1.25	144.0	19.3
2.00	148.0	21.5
3.00	151.5	24.0
4.00	154.0	26.0

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

10.5

NON-LINEARITY
FACTOR

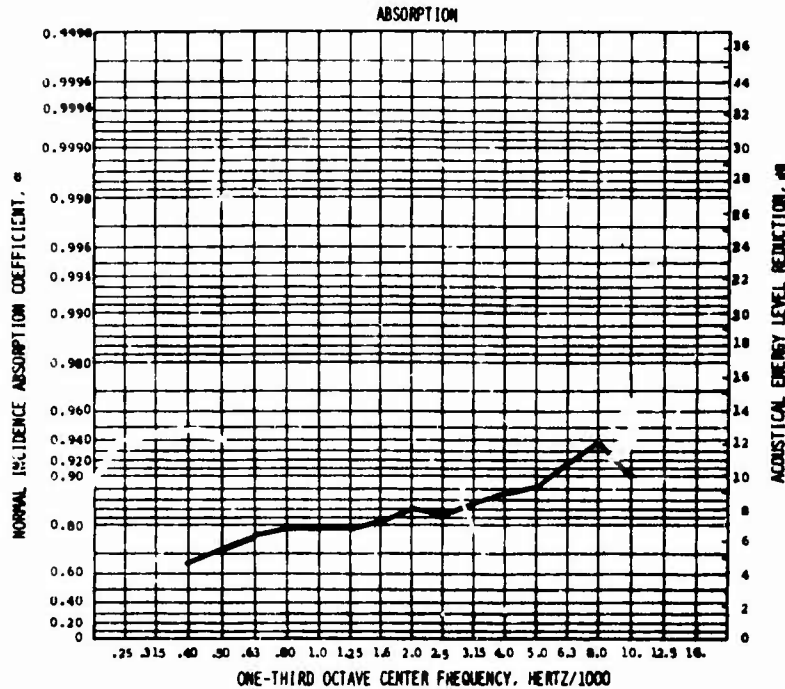
3.23 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 11GS

TEST DATE: SEPT. 11, 1972

MATERIAL DESCRIPTION:

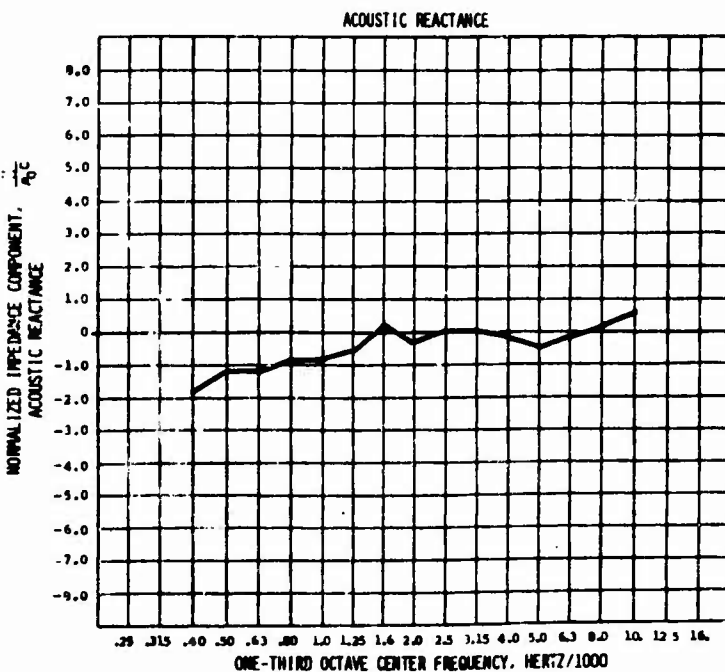
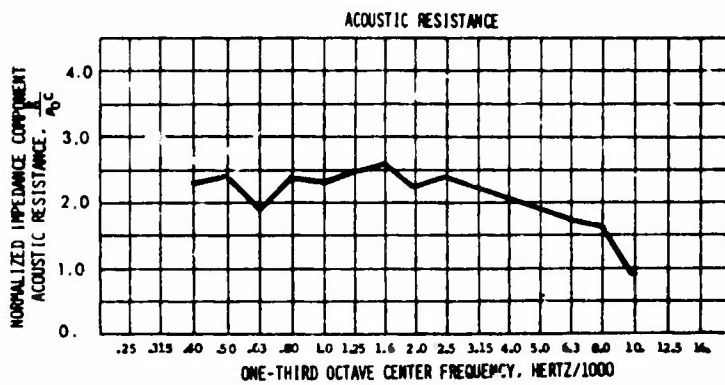
FELTMETAL

FM 185

CONFIGURATION:

2.0 INCH THICKNESS
SCOTTFELT FR 3-900
BEHIND FM 185 SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS) **



ΔP	SPL ²	RAYLS
0.02	108.0	240
0.05	116.0	198
0.10	122.0	214
0.20	128.0	208
0.30	131.5	210
0.50	136.0	198
0.80	140.0	198
1.25	144.0	200
2.00	148.0	214
3.00	151.5	226
4.00	154.0	236

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

210

NON-LINEARITY
FACTOR

2.1 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER

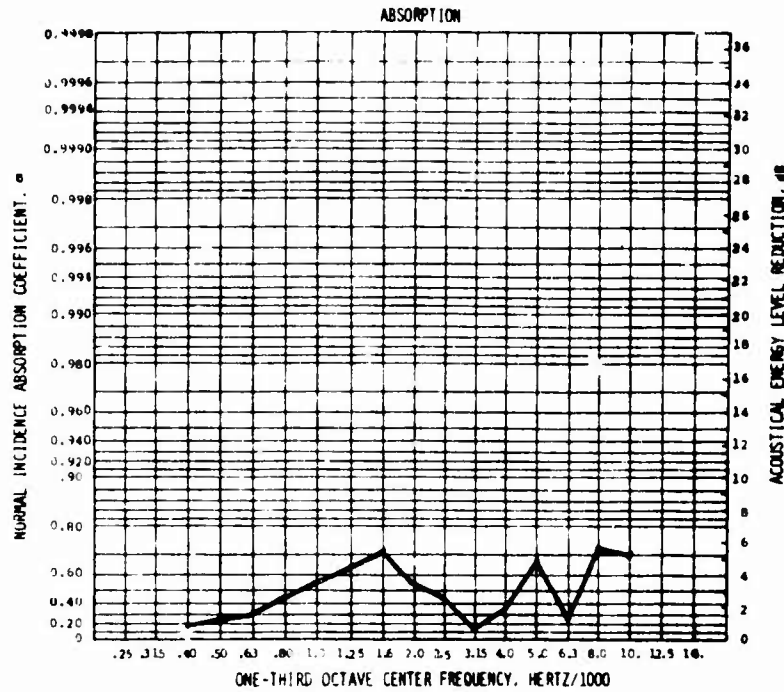
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

** FOR COMBINED MATERIALS

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



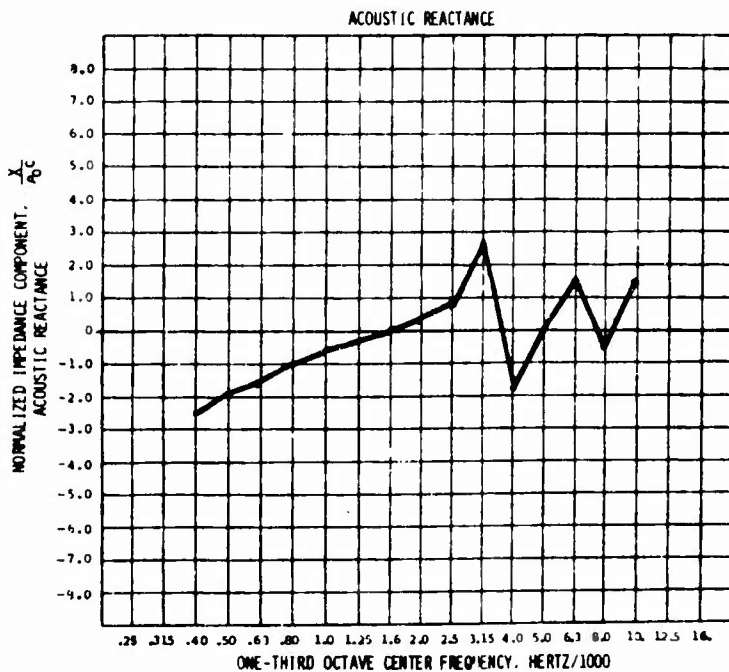
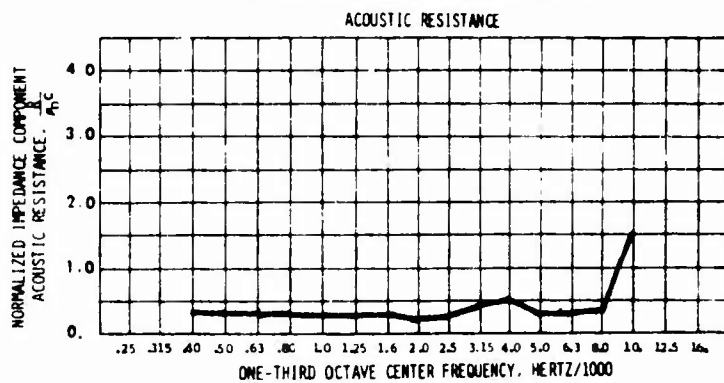
SAMPLE NO: 7GS

TEST DATE: SEPT 11, 1972

MATERIAL DESCRIPTION:
FELTMETAL
FM 185

CONFIGURATION:
2.0 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	9.2
0.05	116.0	9.5
0.10	122.0	10.7
0.20	128.0	12.6
0.30	131.5	13.7
0.50	136.0	15.7
0.80	140.0	18.
1.25	144.0	20.
2.00	148.0	24.
3.00	151.5	26.
4.00	154.0	29.

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

10.2

NON-LINEARITY
FACTOR

3.3

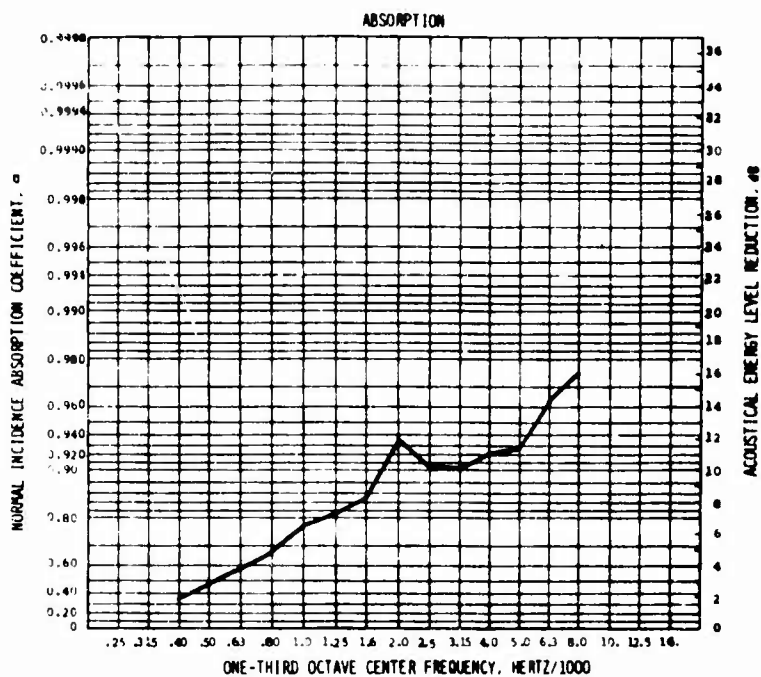
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 51-2S

TEST DATE: NOV. 6, 1972

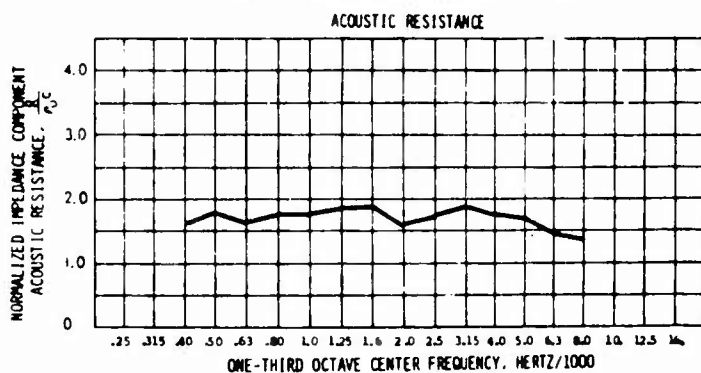
MATERIAL DESCRIPTION:

FELTMETAL
FM 185

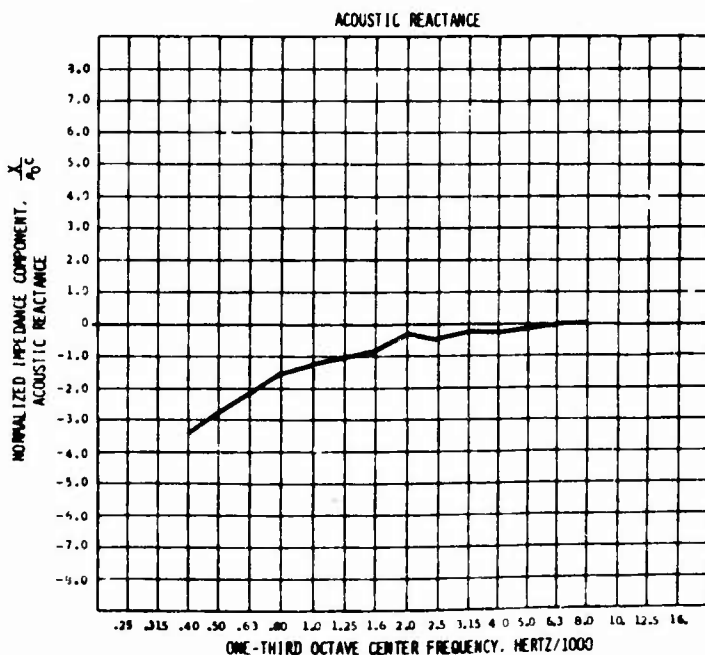
CONFIGURATION:

BACKED WITH 1.0 INCH
THICKNESS CERAFELT
(CRF 300) 3 LB DENSITY

MEASURED D-C FLOW RESISTANCE (CGS RAYLS) **



ΔP	SPL ²	RAYLS
0.02	108.0	187
0.05	116.0	177
0.10	122.0	183
0.20	128.0	174
0.30	131.5	176
0.50	136.0	166
0.80	140.0	173
1.25	144.0	171
2.00	148.0	181
3.00	151.5	192
4.00	154.0	194



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

170

NON-LINEARITY
FACTOR

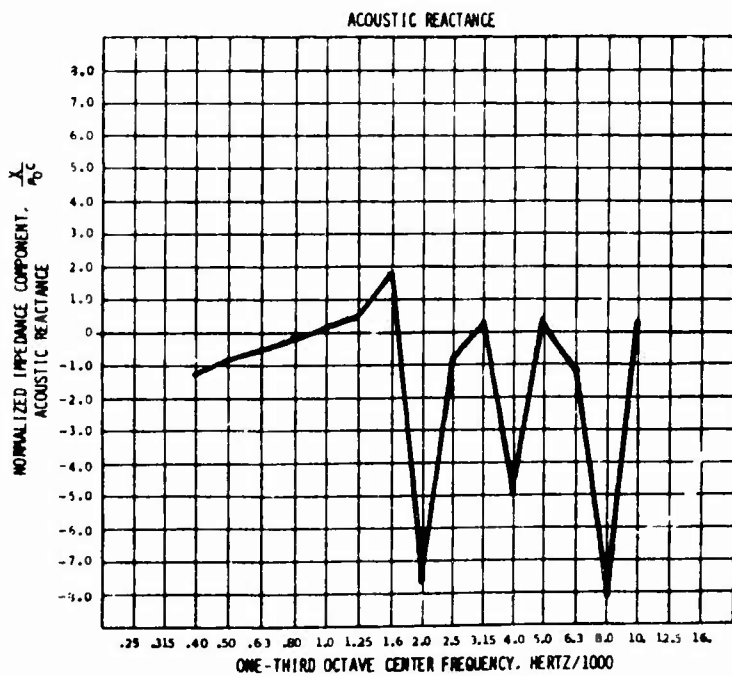
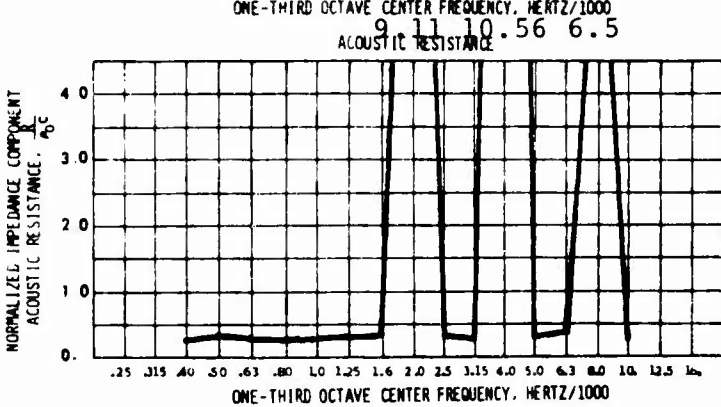
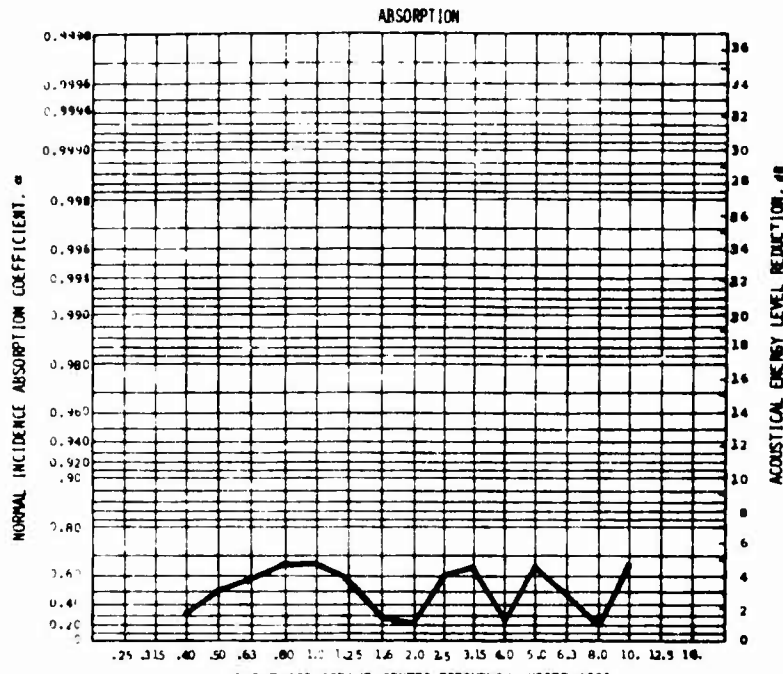
1.3 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED
** FOR COMBINED MATERIALS

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 8GS

TEST DATE: SEPT. 11, 1972

MATERIAL DESCRIPTION:

FELTMETAL

FM 185

CONFIGURATION:

3.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP	SPL	RAYLS
0.02	108.0	9.2
0.05	116.0	9.5
0.10	122.0	10.7
0.20	128.0	12.6
0.30	131.5	13.7
0.50	136.0	15.7
0.80	140.0	13 *
1.25	144.0	20 *
2.00	148.0	24 *
3.00	151.5	26 *
4.00	154.0	29 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

10.2

NON-LINEARITY
FACTOR

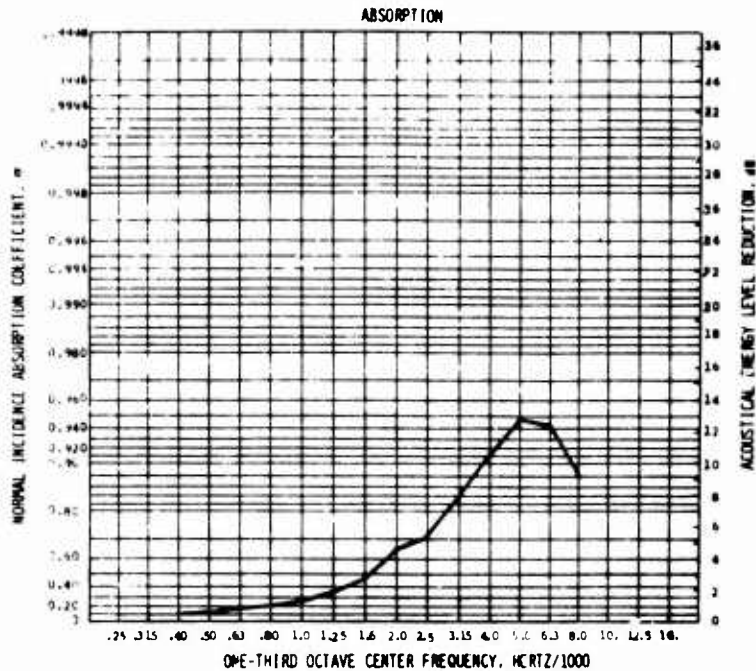
3.3 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 13-2S

TEST DATE OCT. 11, 1972

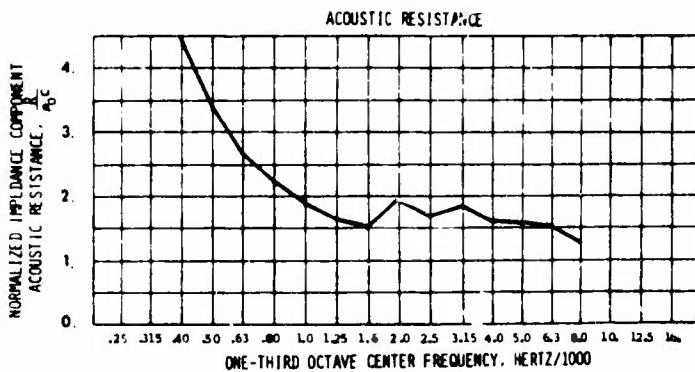
MATERIAL DESCRIPTION:

FELTMETAL
FM 197

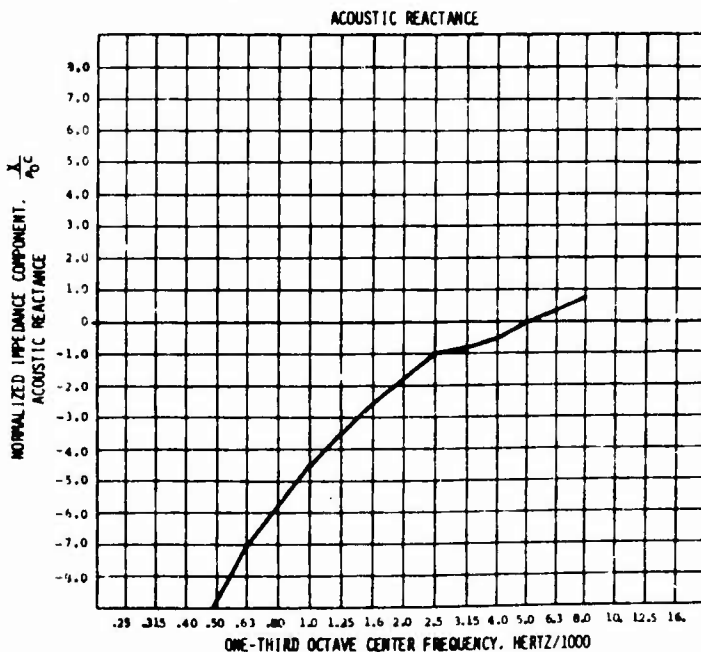
CONFIGURATION:

0.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	47
0.05	116.0	52
0.10	122.0	51
0.20	128.0	47
0.30	131.5	48
0.50	136.0	52
0.80	140.0	56
1.25	144.0	61
2.00	148.0	67
3.00	151.5	75
4.00	154.0	80



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

50

NON-LINEARITY
FACTOR

2.7

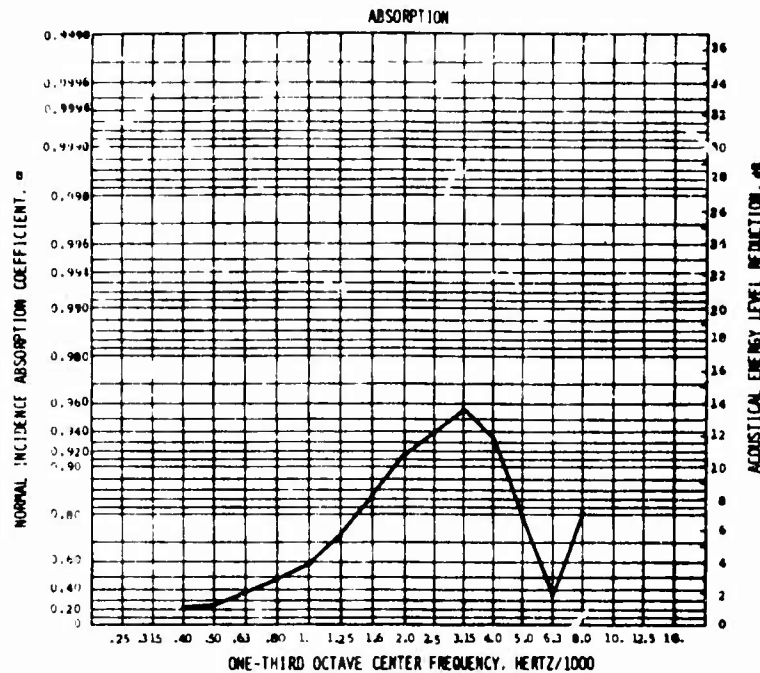
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 14-2S

TEST DATE: OCT. 11, 1972

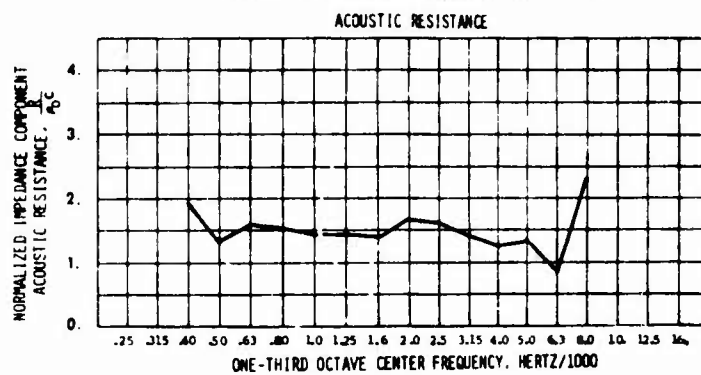
MATERIAL DESCRIPTION:

FELTMETAL
FM 197

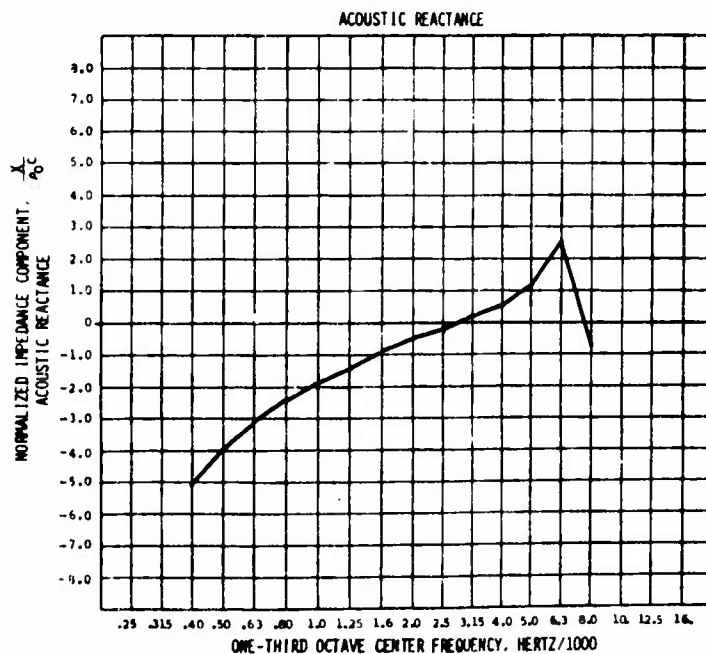
CONFIGURATION:

1.0 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL ²	RAYLS
0.02	108.0	47
0.05	116.0	52
0.10	122.0	51
0.20	128.0	47
0.30	131.5	48
0.50	136.0	52
0.80	140.0	56
1.25	144.0	61
2.00	148.0	67
3.00	151.5	75
4.00	154.0	80



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

50

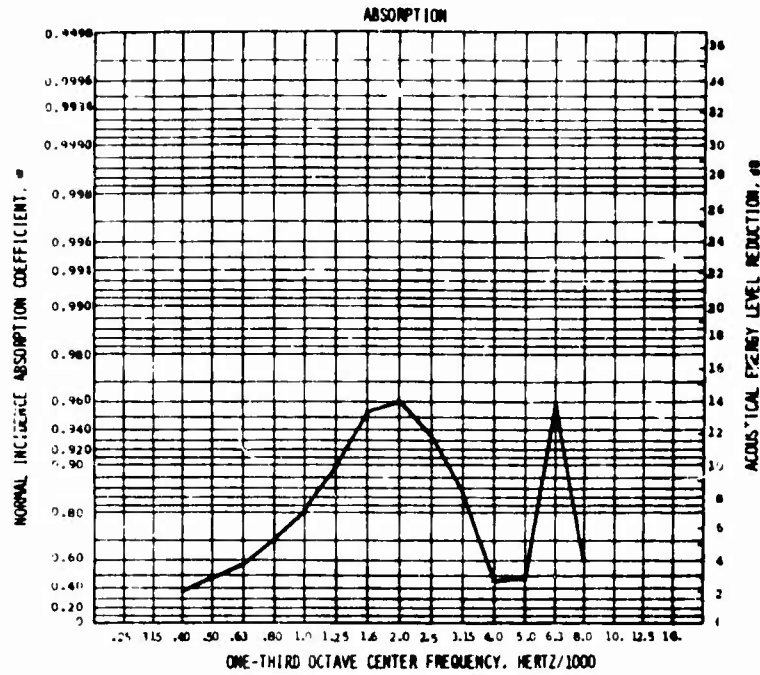
NON-LINEARITY
FACTOR

2.7

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
 2. EQUIVALENT SPL = 20 LOG P + 74
- WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 15-2S

TEST DATE: OCT. 11, 1972

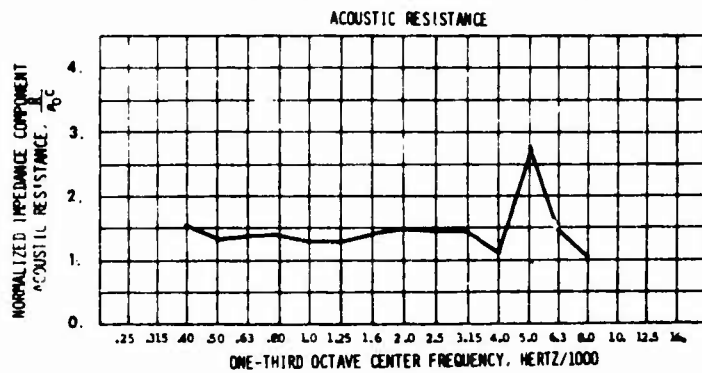
MATERIAL DESCRIPTION:

FELTMETAL
FM 197

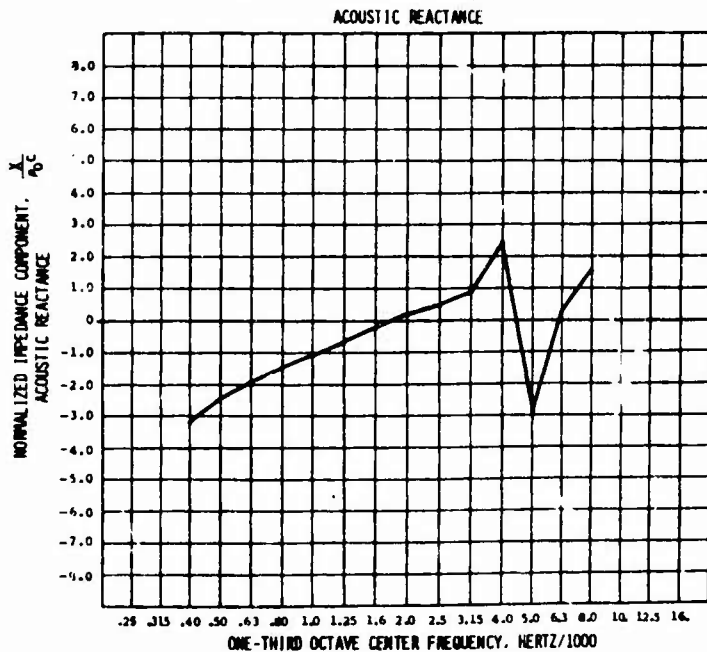
CONFIGURATION:

1.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP , l	SPL ²	RAYLS
0.02	108.0	47
0.05	116.0	52
0.10	122.0	51
0.20	128.0	47
0.30	131.5	48
0.50	136.0	52
0.80	140.0	56
1.25	144.0	61
2.00	148.0	67
3.00	151.5	75
4.00	154.0	80



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

50

NON-LINEARITY
FACTOR

2.7

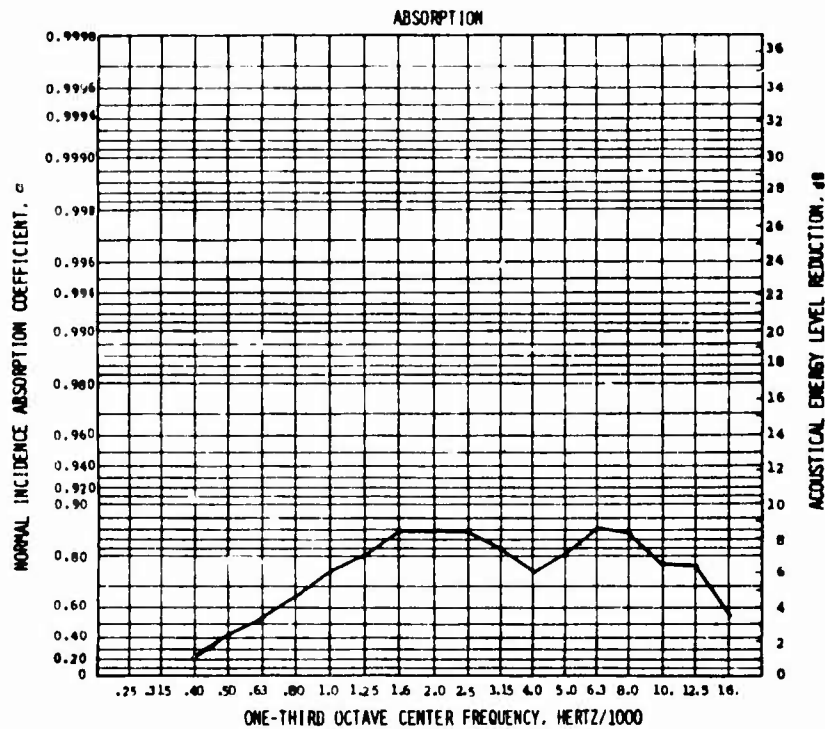
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



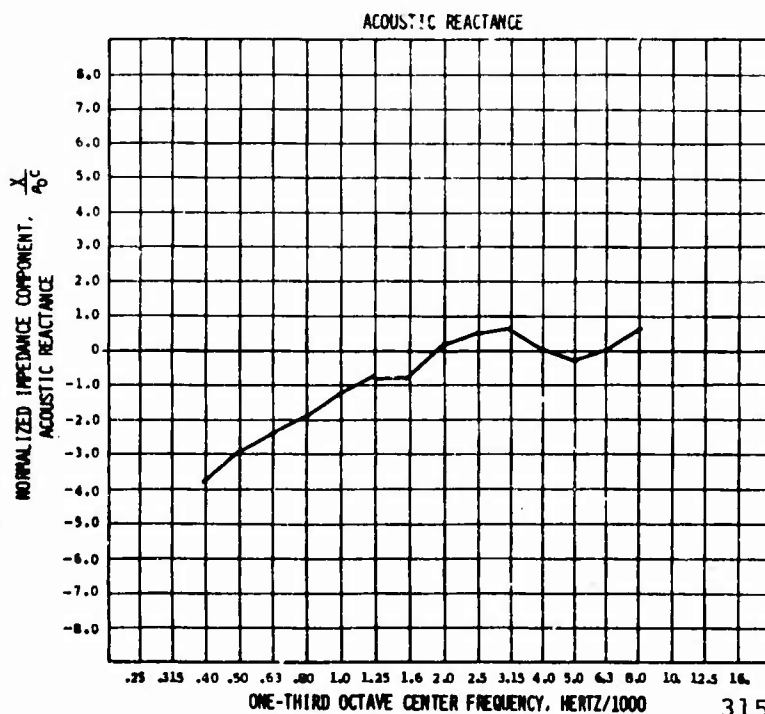
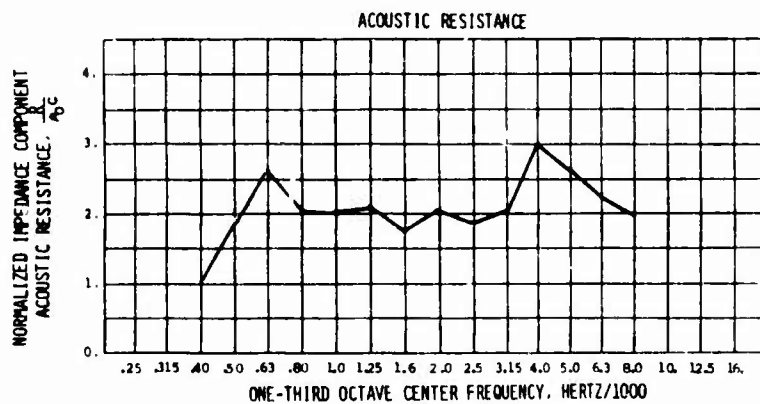
SAMPLE NO: 15

TEST DATE: SEPT. 15, 1972

MATERIAL DESCRIPTION:
FELT METAL
NOMINAL 40 RAYL

CONFIGURATION:
FR3-900 SCOTTFELT
1.0 INCH THICK
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	130
0.05	116.0	128
0.10	122.0	132
0.20	128.0	130
0.30	131.5	128
0.50	136.0	123
0.80	140.0	121
1.25	144.0	133
2.00	148.0	145
3.00	151.5	155
4.00	154.0	104

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

130

NON-LINEARITY
FACTOR

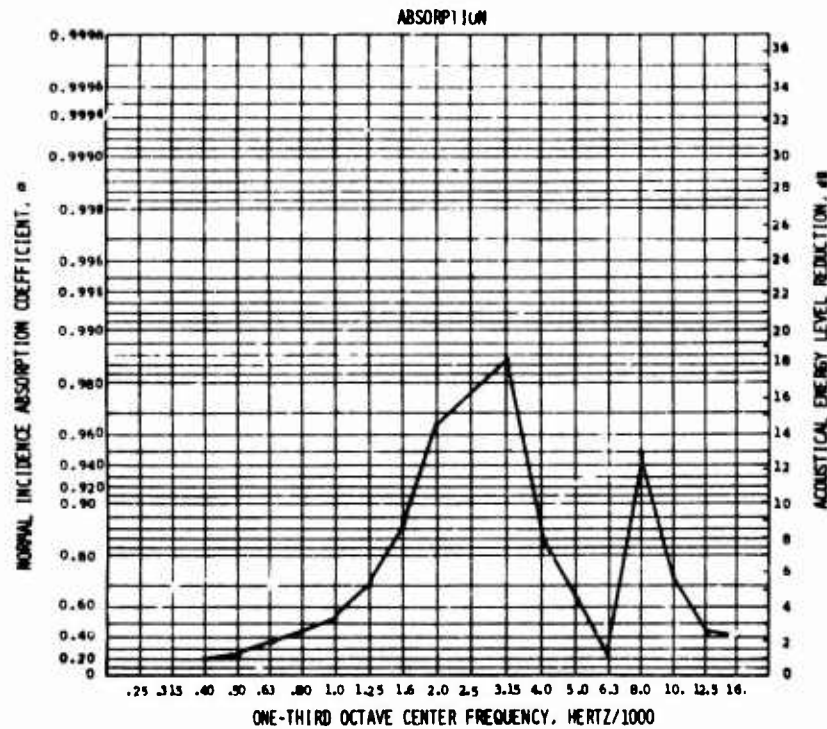
2.3 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



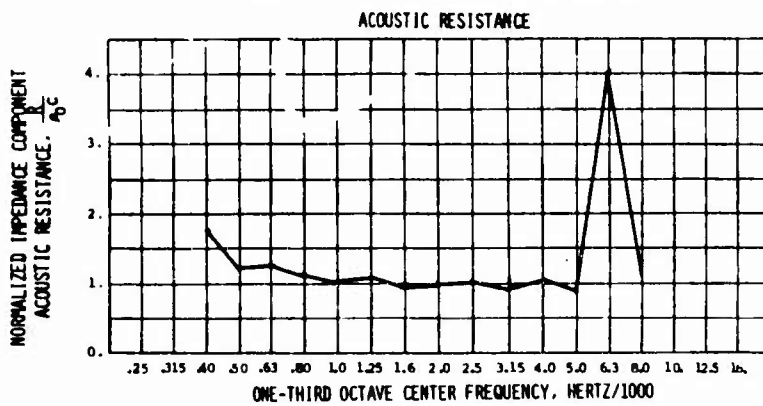
SAMPLE NO: 16

TEST DATE: SEPT. 15, 1972

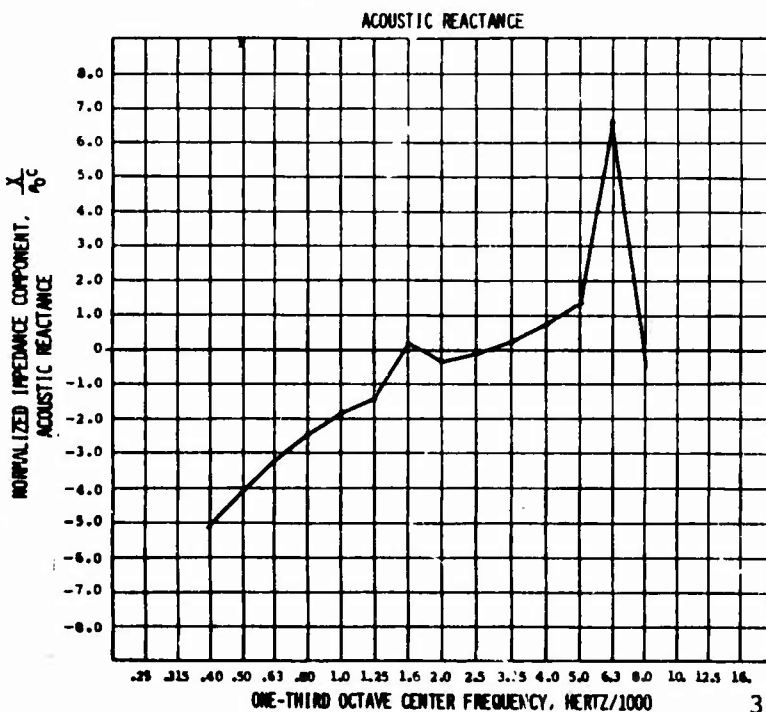
MATERIAL DESCRIPTION:
FELTMETAL
NOMINAL 40 RAYLS

CONFIGURATION:
1.0 INCH AIR SPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP^1	SPL ²	RAYLS
0.02	108.0	44.0
0.05	116.0	43.6
0.10	122.0	42.2
0.20	128.0	42.4
0.30	131.5	42.6
0.50	136.0	45.7
0.80	140.0	49.9
1.25	144.0	54.6
2.00	148.0	62.4
3.00	151.5	68.0
4.00	154.0	75.0



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

42.0

NON-LINEARITY
FACTOR

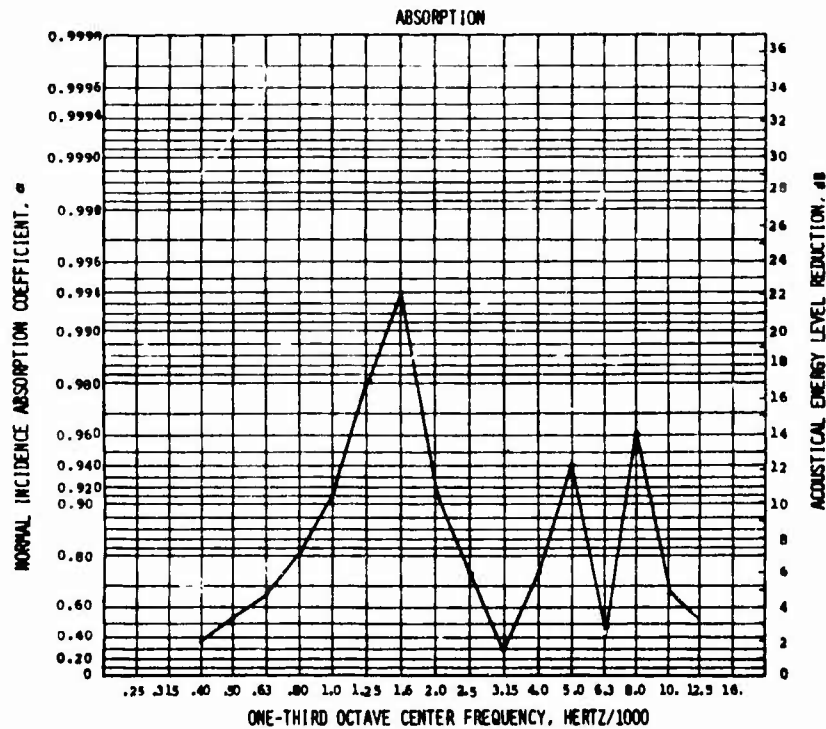
3.18 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



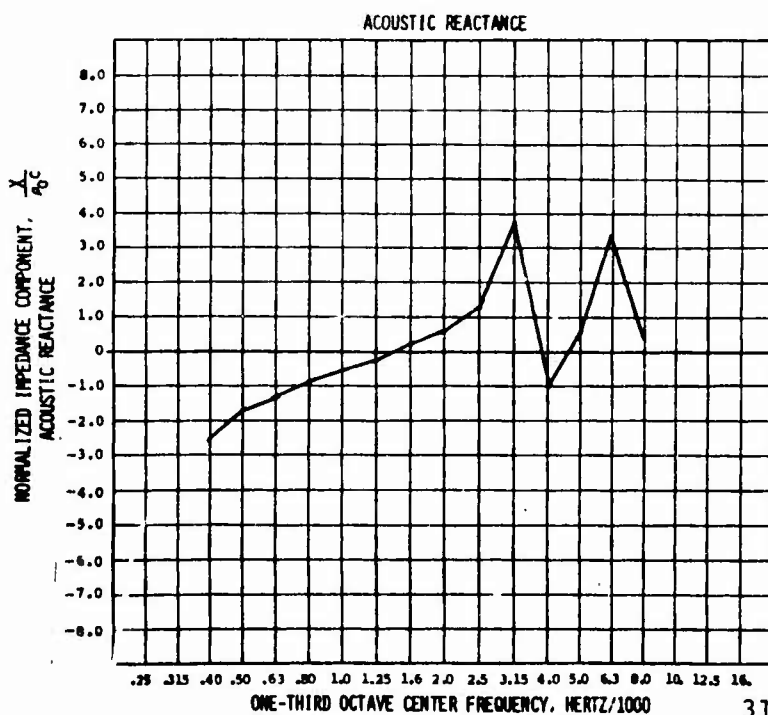
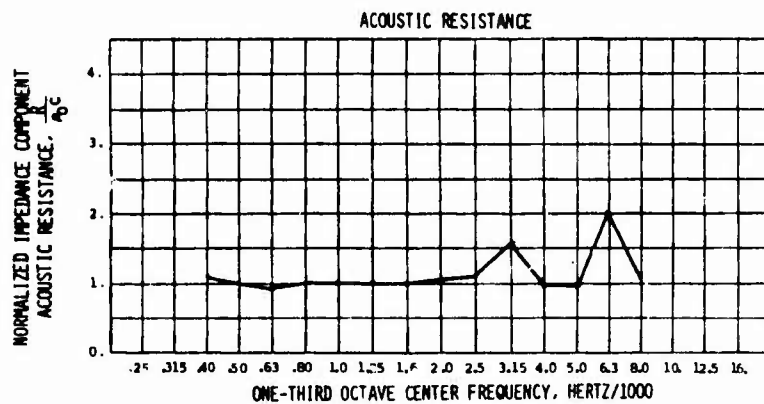
SAMPLE NO: 16A

TEST DATE: SEPT. 15, 1972

MATERIAL DESCRIPTION:
FELTMETAL
NOMINAL 40 RAYLS

CONFIGURATION:
2.0 INCH AIR SPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1.	SPL 2.	RAYLS
0.02	108.0	44.0
0.05	116.0	43.6
0.10	122.0	42.2
0.20	128.0	42.4
0.30	131.5	42.6
0.50	136.0	45.7
0.80	140.0	49.9
1.25	144.0	54.6
2.00	148.0	62.4
3.00	151.5	68.0
4.00	154.0	75.0

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

42.0

NON-LINEARITY
FACTOR

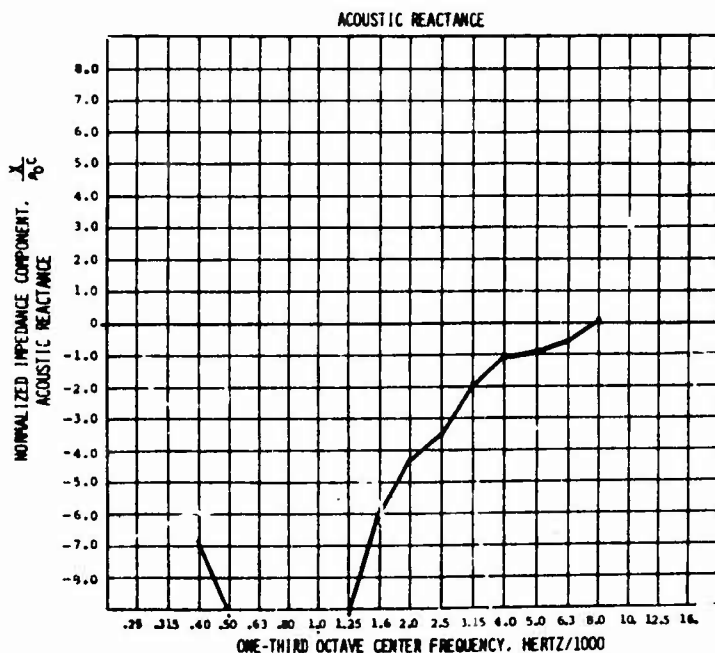
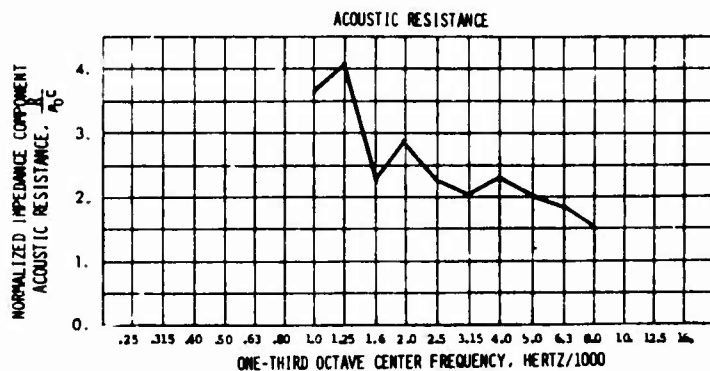
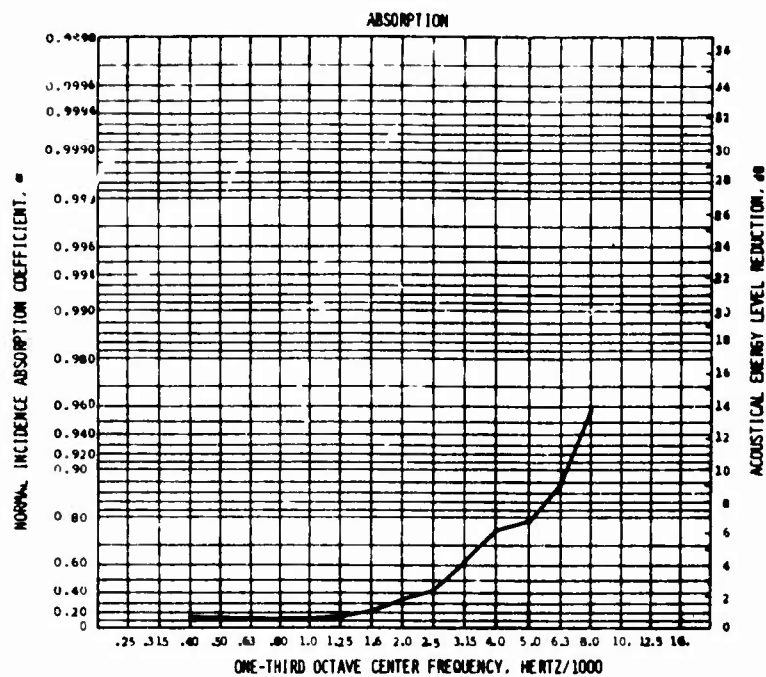
3.18 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 38-2S

TEST DATE: OCT. 24, 1972

MATERIAL DESCRIPTION:

RIGIMESH
(40 RAYL NOMINAL)

CONFIGURATION:

0.25 INCH CAVITY
0.90 INCH CELL HONEYCOMB
IN CAVITY BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP	SPL ²	RAYLS
0.02	108.0	—
0.05	116.0	43
0.10	122.0	40
0.20	128.0	42
0.30	131.5	46
0.50	136.0	46
0.80	140.0	49
1.25	144.0	49
2.00	148.0	49
3.00	151.5	49
4.00	154.0	54

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

46

NON-LINEARITY
FACTOR

1.2 *

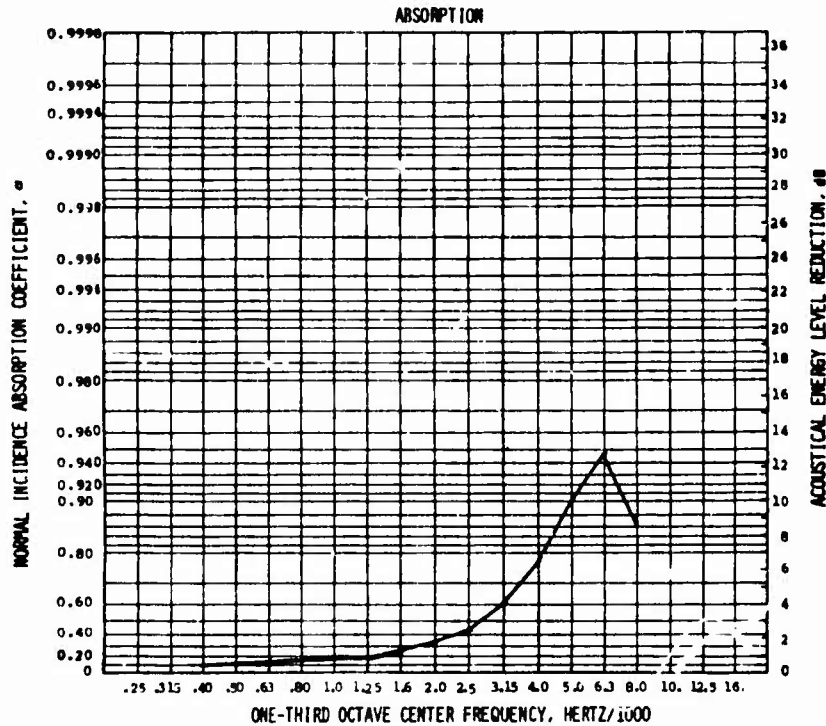
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: A-116

TEST DATE: DEC. 20, 1972

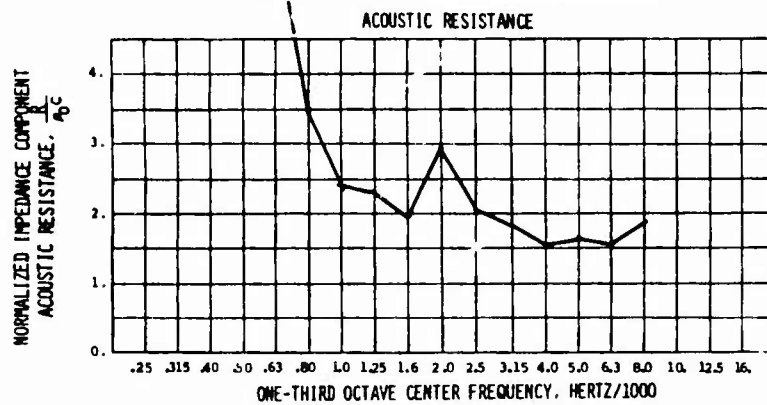
MATERIAL DESCRIPTION:

AIRCRAFT POROUS MEDIA
PMS-1512

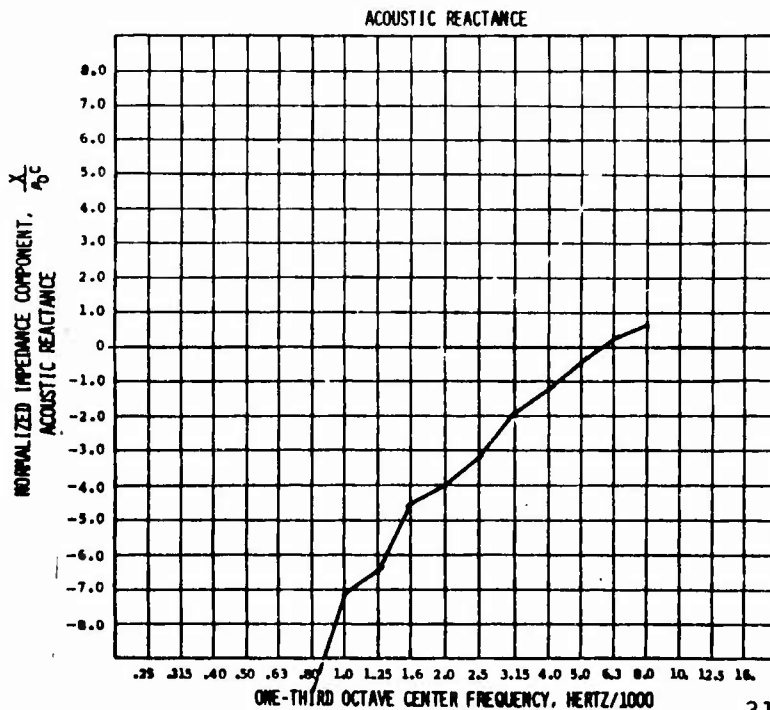
CONFIGURATION:

0-25 INCH AIR SPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1.	SPL 2.	RAYLS
0.02	108.0	51.1
0.05	116.0	54.8
0.10	122.0	57.6
0.20	128.0	54.6
0.30	131.5	59.4
0.50	136.0	59.9
0.80	140.0	66.7
1.25	144.0	74.3
2.00	148.0	82.9
3.00	151.5	94.3
4.00	154.0	106



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

60.0

NON-LINEARITY
FACTOR

4.17*

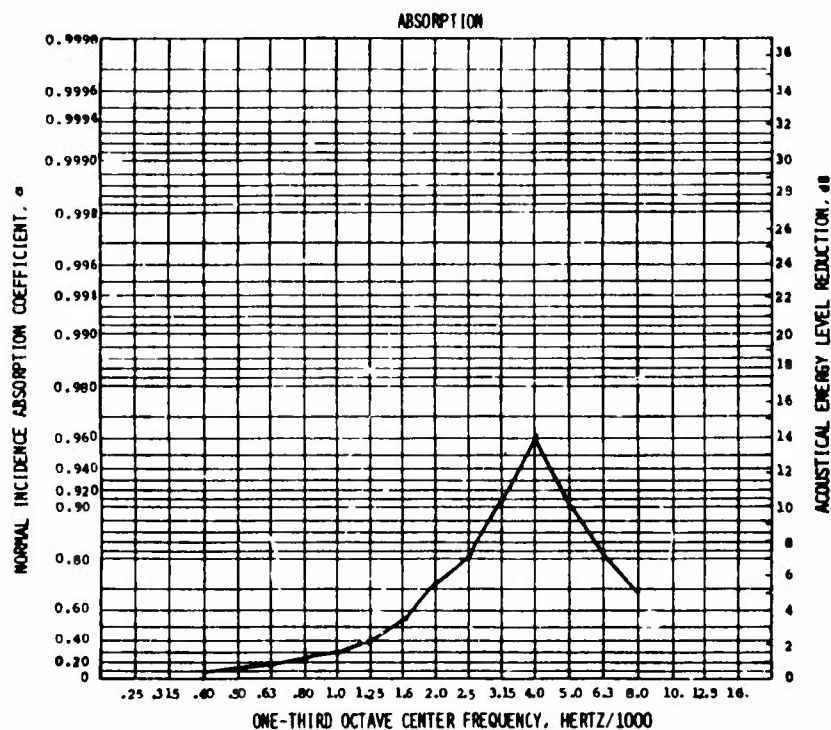
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: A-10 S

TEST DATE: DEC. 20, 1972

MATERIAL DESCRIPTION:

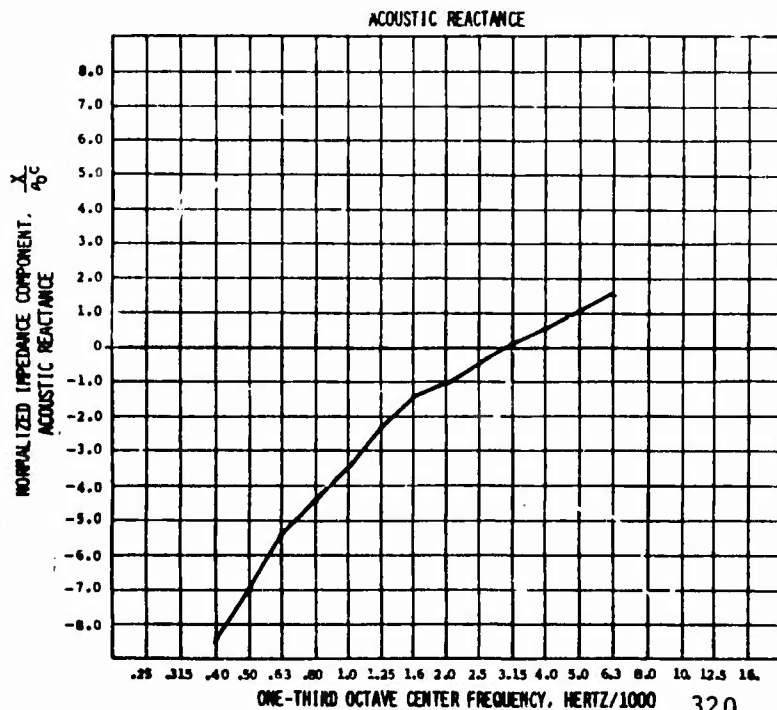
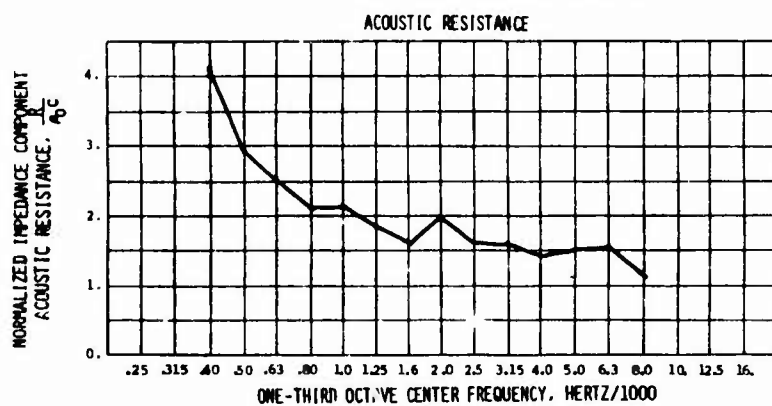
AIRCRAFT POROUS MEDIA
PMS-1512

CONFIGURATION:

0.5 INCH AIR SPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP 1	SPL ²	RAYLS
0.02	108.0	51.1
0.05	116.0	54.8
0.10	122.0	57.6
0.20	128.0	54.6
0.30	131.5	59.4
0.50	136.0	59.9
0.80	140.0	66.7
1.25	144.0	74.3
2.00	148.0	82.9
3.00	151.5	94.3
4.00	154.0	106.0



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

60.0

NON-LINEARITY
FACTOR

4.17 *

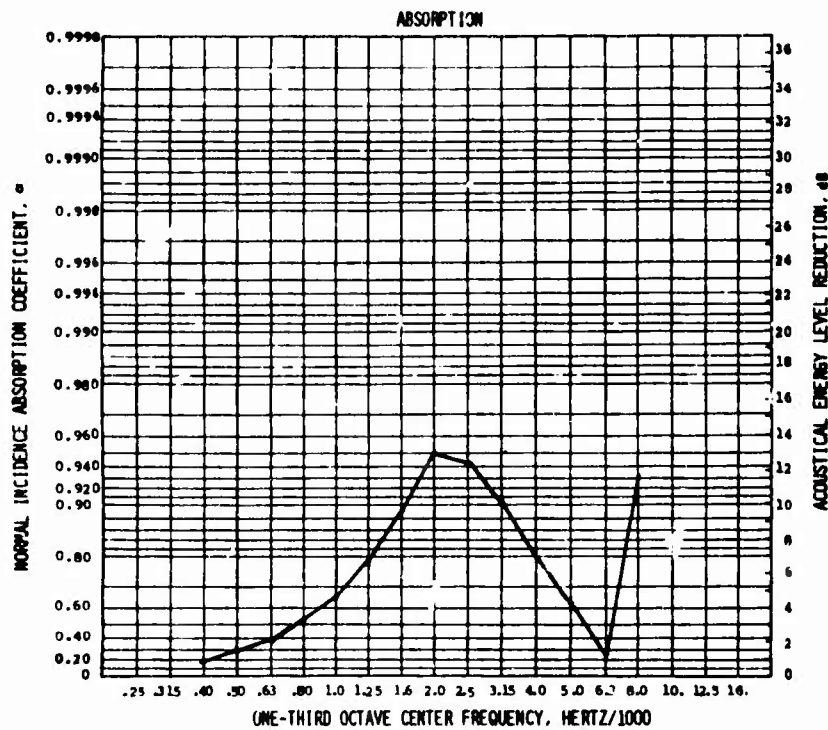
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: A-9S

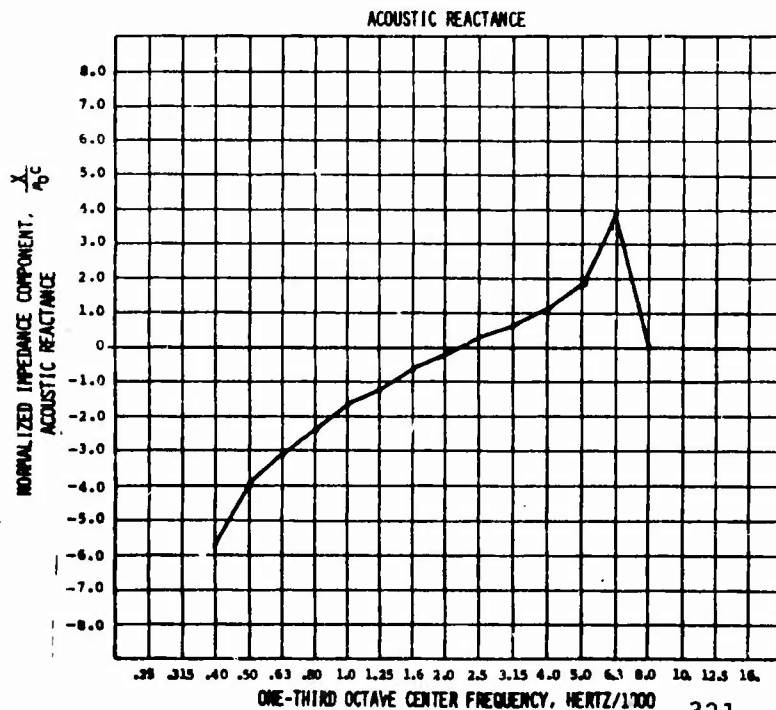
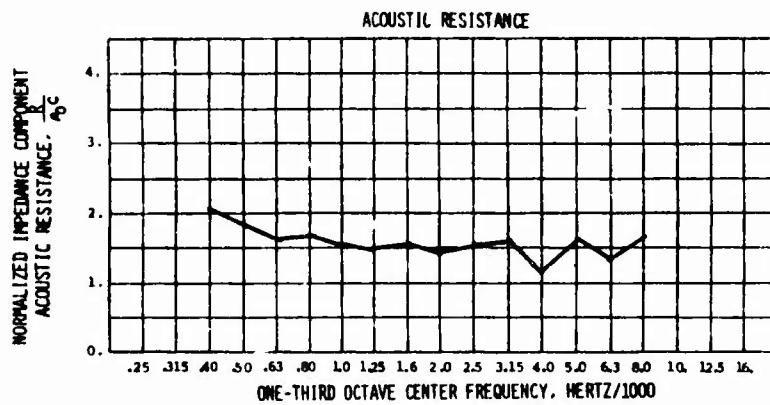
TEST DATE: DEC. 20, 1972

MATERIAL DESCRIPTION:
AIRCRAFT POROUS MEDIA
PMS-1512

CON:IGURATION:

1.0 INCH AIR SPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP^1	SPL ²	RAYLS
0.02	108.0	51.1
0.05	116.0	54.8
0.10	122.0	57.6
0.20	128.0	54.6
0.30	131.5	59.4
0.50	136.0	59.9
0.80	140.0	66.7
1.25	144.0	74.3
2.00	148.0	82.9
3.00	151.5	94.3
4.00	154.0	106.0

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

60.0

NON-LINEARITY
FACTOR

4.17 *

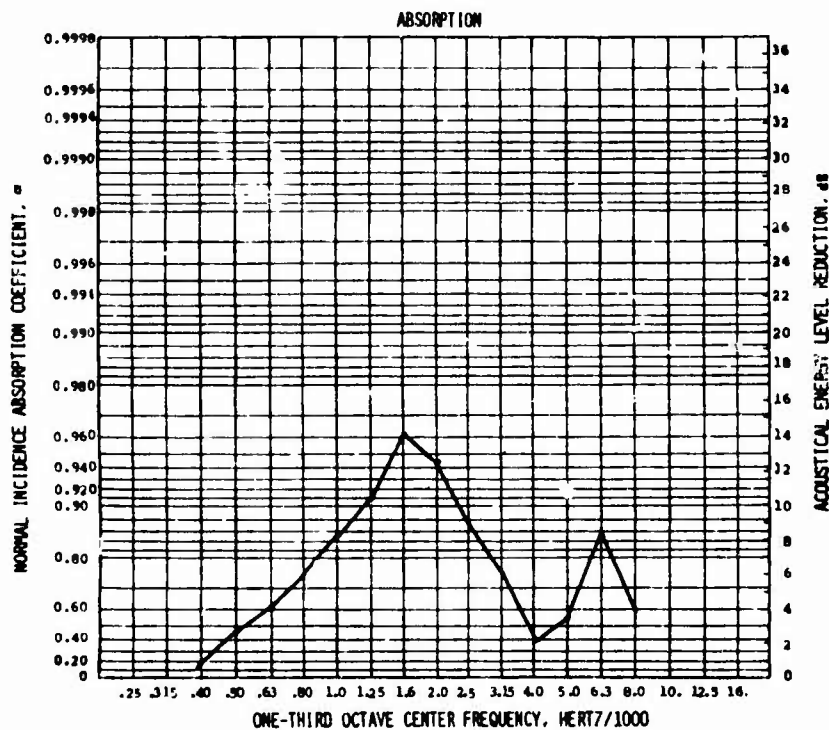
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: A-8 S

TEST DATE: DEC. 20, 1972

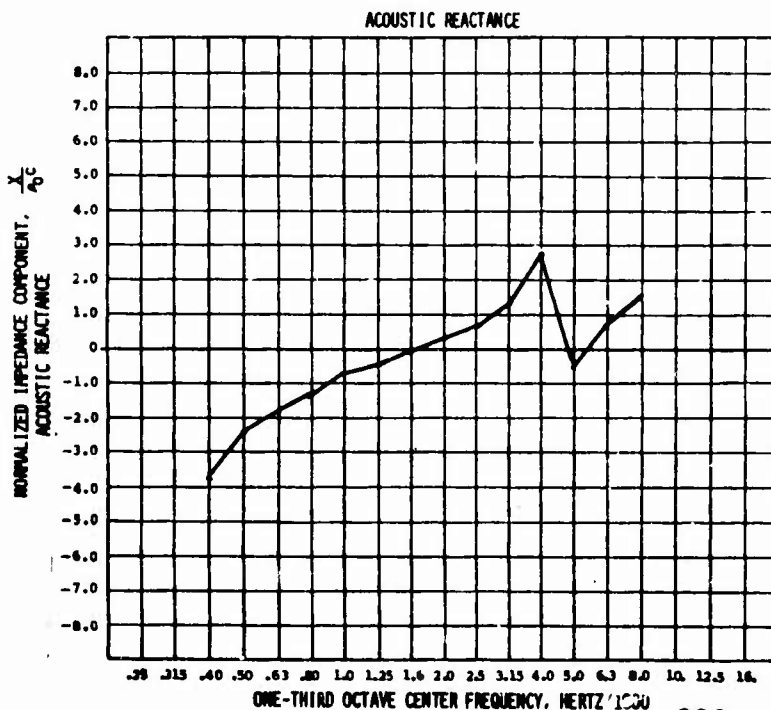
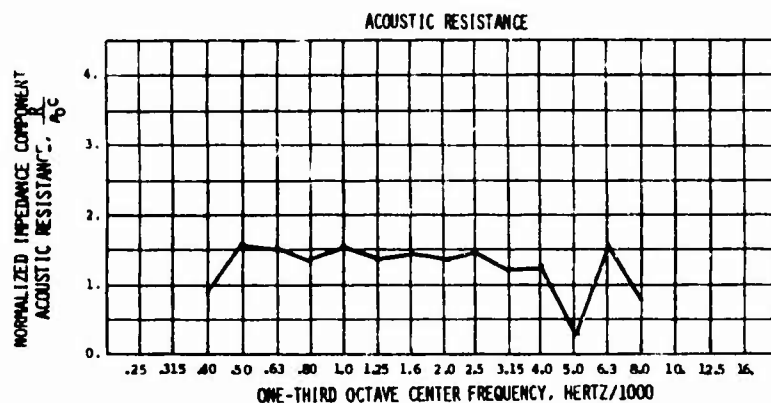
MATERIAL DESCRIPTION:
AIRCRAFT POROUS MEDIA
PMS-1512

CONFIGURATION:

1.5 INCH AIR SPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP	SPL	RAYLS
0.02	108.0	51.1
0.05	116.0	54.8
0.10	122.0	57.6
0.20	128.0	54.6
0.30	131.5	59.4
0.50	136.0	59.9
0.80	140.0	66.7
1.25	144.0	74.3
2.00	148.0	82.9
3.00	151.5	94.3
4.00	154.0	106



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

60.0

NON-LINEARITY
FACTOR

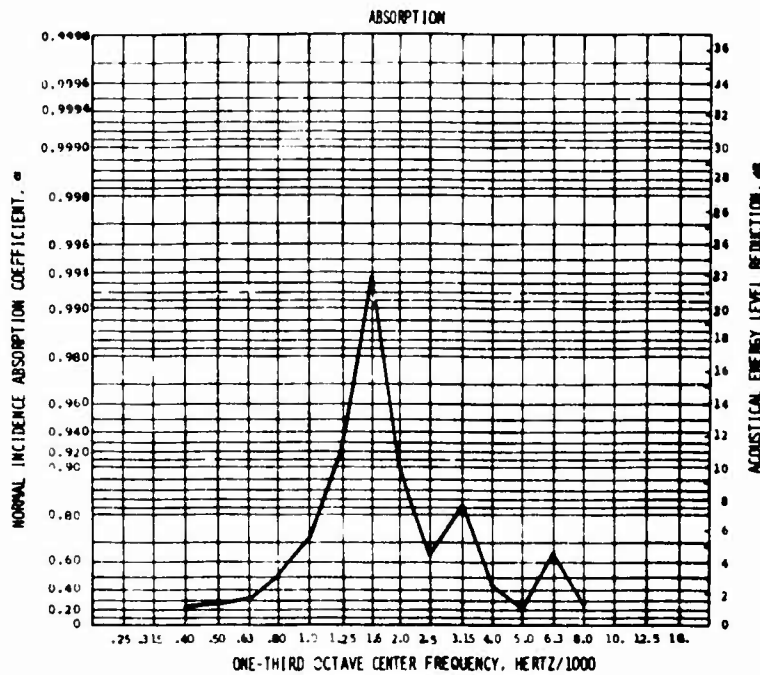
4.17 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 9-2S

TEST DATE: SEPT. 30, 1972

MATERIAL DESCRIPTION:

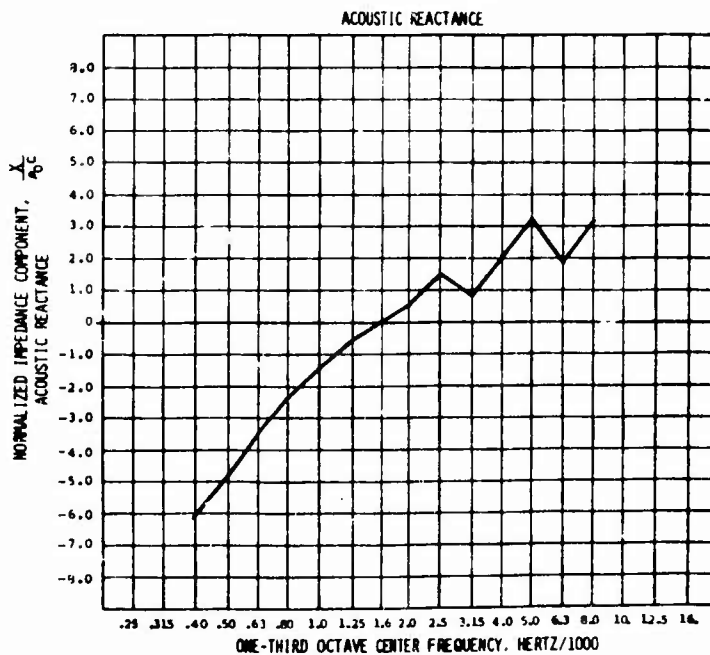
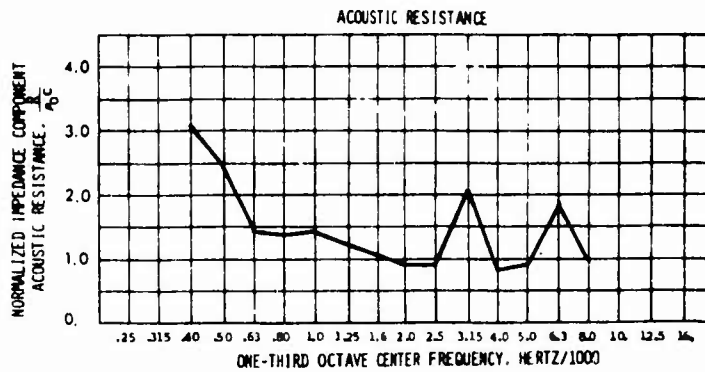
SLITMETAL

37 RAYL

CONFIGURATION:

G.E. DOUBLE DIAMOND
BAFFLING IN 0.9 INCH
CAVITY BEHIND SPLIT-
METAL SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS) **



ΔP	SPL	RAYLS
0.02	108.0	32
0.05	116.0	36
0.10	122.0	40
0.20	128.0	47
0.30	131.5	52
0.50	136.0	66
0.80	140.0	79
1.25	144.0	98
2.00	148.0	124
3.00	151.5	149
4.00	154.0	172

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

66

NON-LINEARITY
FACTOR

20 *

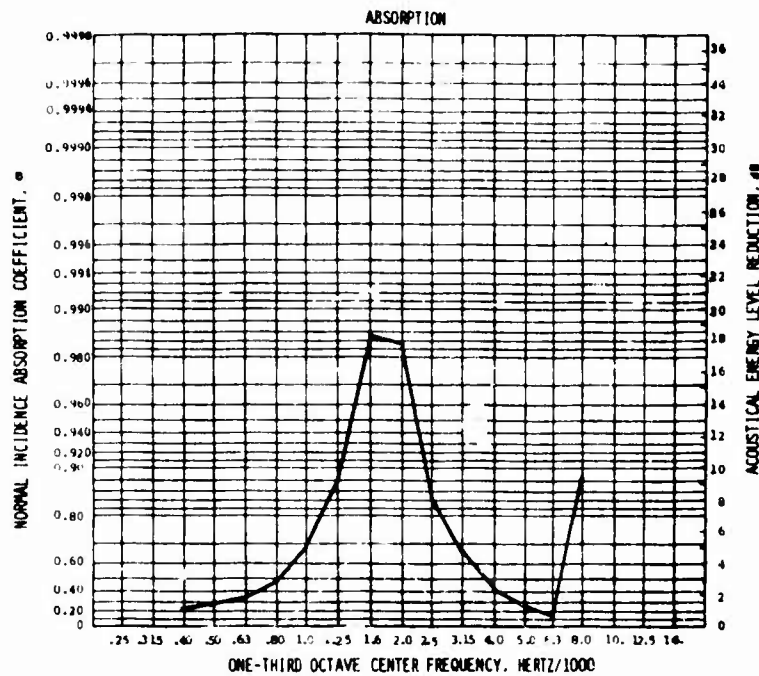
1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

**SLITMETAL ALONE

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 12-2S

TEST DATE: OCT. 10, 1972

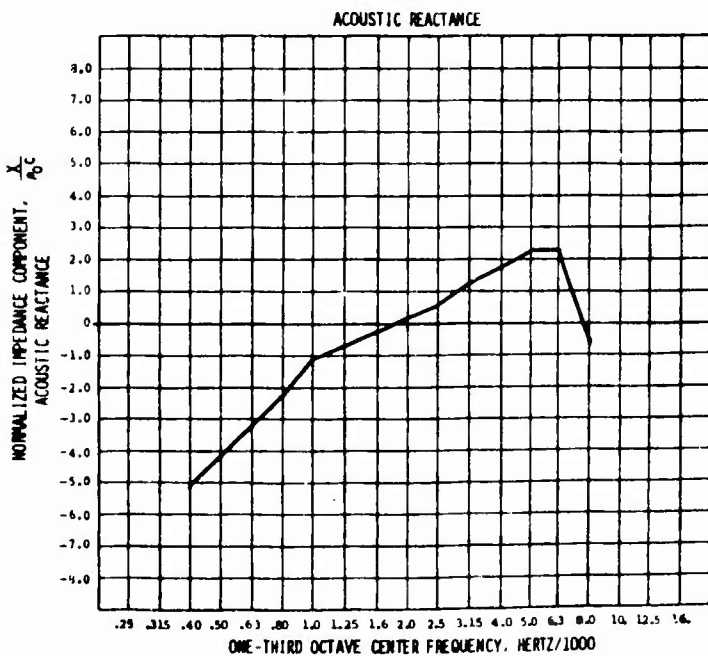
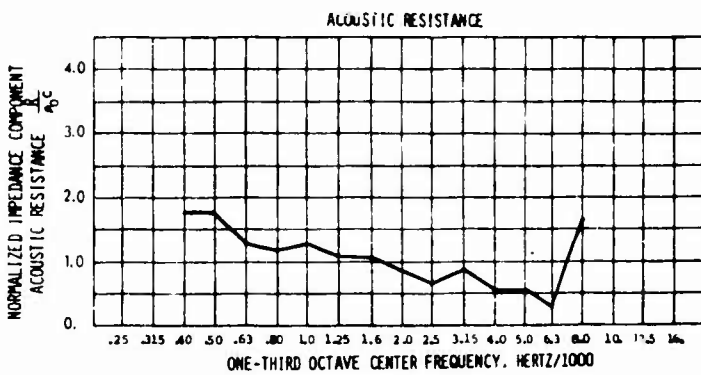
MATERIAL DESCRIPTION:

SLITMETAL

CONFIGURATION:

0.9 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL ²	RAYLS
0.02	108.0	32
0.05	116.0	36
0.10	122.0	40
0.20	128.0	47
0.30	131.5	52
0.50	136.0	66
0.80	140.0	79
1.25	144.0	98
2.00	148.0	124
3.00	151.5	149
4.00	154.0	172

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

66

NON-LINEARITY
FACTOR

20 *

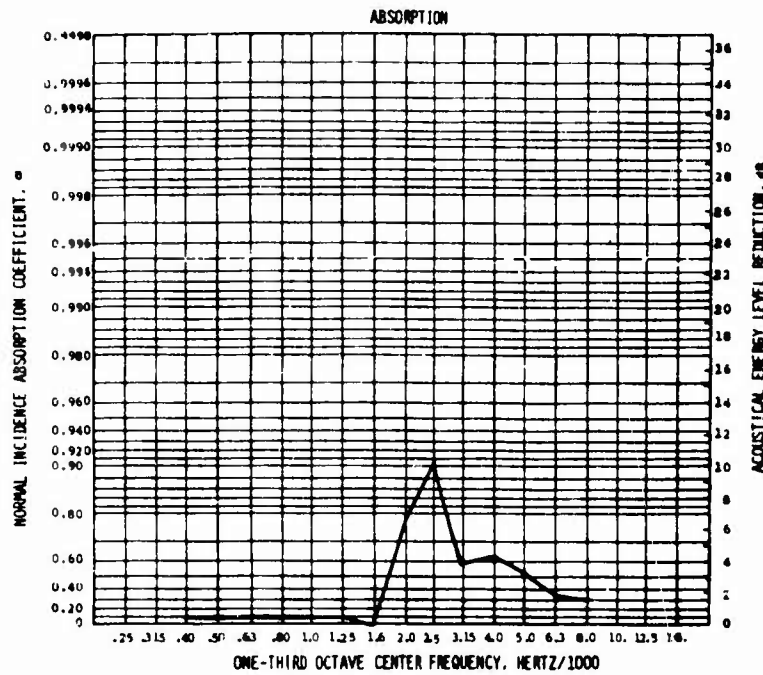
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



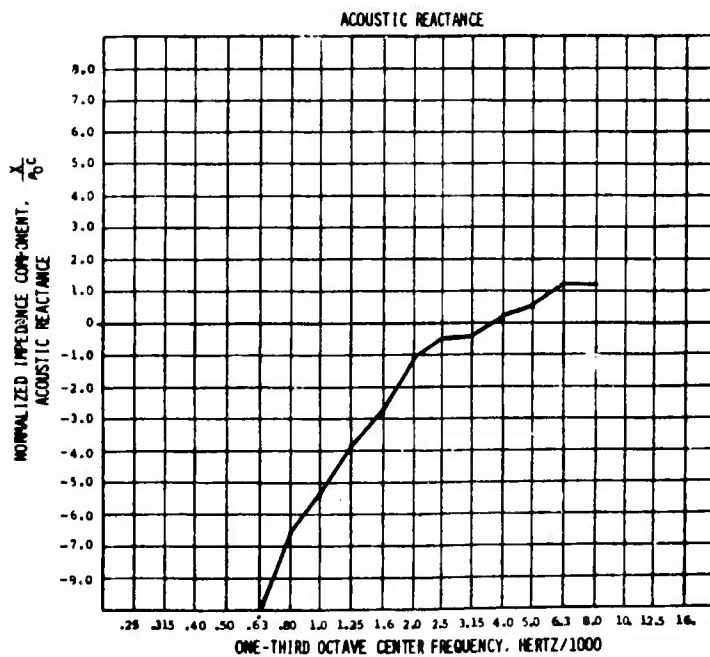
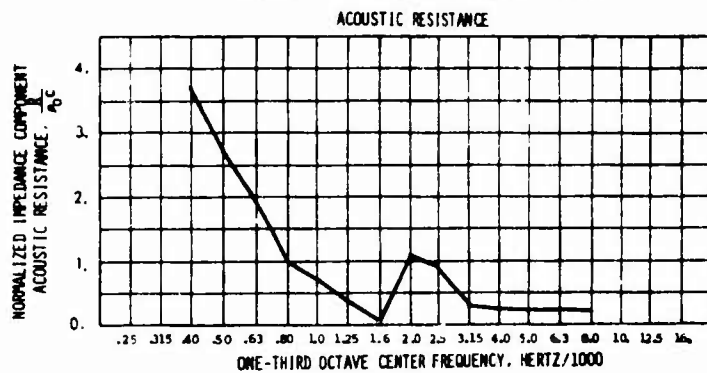
SAMPLE NO: 40-2S

TEST DATE: OCT. 25, 1972

MATERIAL DESCRIPTION:
SLITMETAL

CONFIGURATION:
0.5 INCH AIRSPACE
BHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL ²	RAYLS
0.02	108.0	-
0.05	116.0	6.7
0.10	122.0	9.4
0.20	128.0	13.0
0.30	131.5	16.0
0.50	136.0	20.5
0.80	140.0	26.
1.25	144.0	34.
2.00	148.0	46. *
3.00	151.5	53. *
4.00	154.0	65. *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

7.2

NON-LINEARITY
FACTOR

43 *

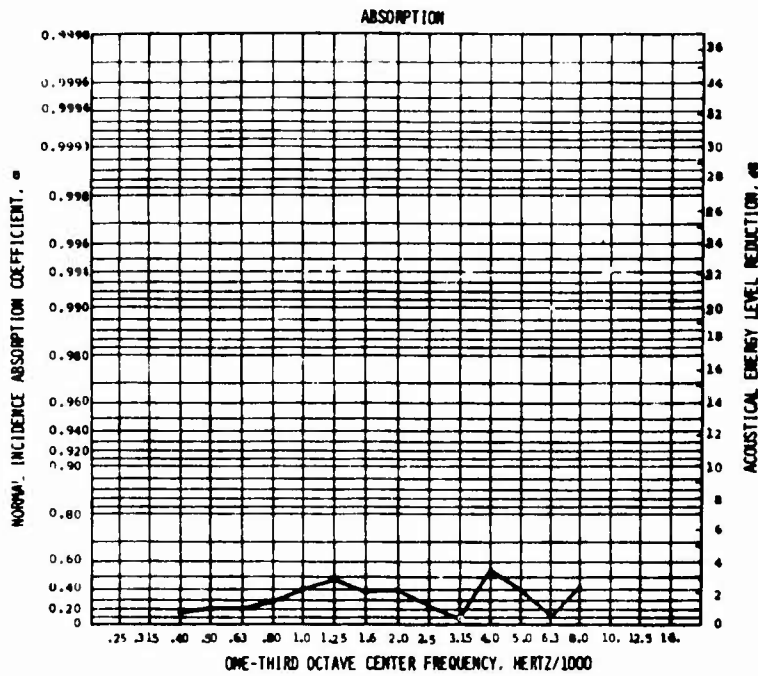
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 42-2S

TEST DATE: OCT. 25, 1972

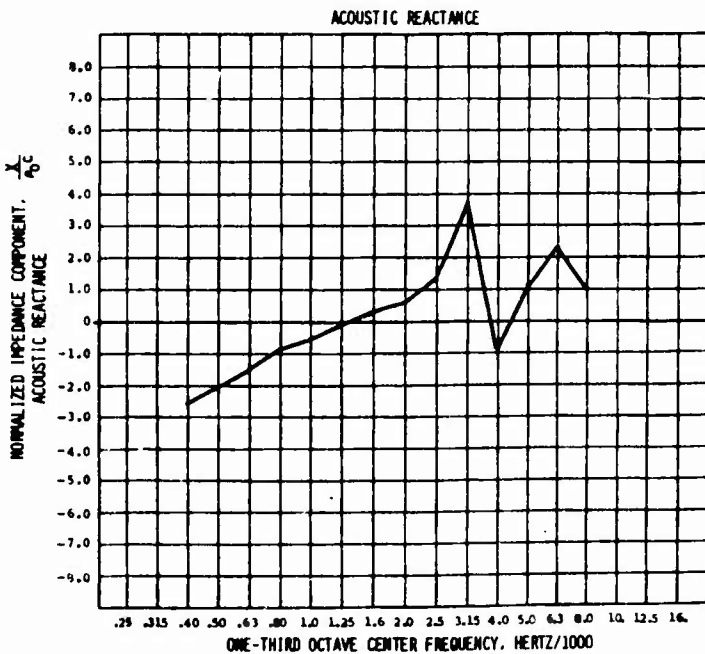
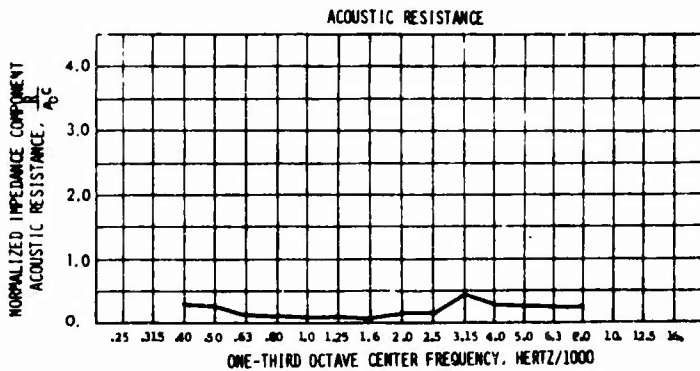
MATERIAL DESCRIPTION:

SLITMETAL

CONFIGURATION:

2.0 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL ²	RAYLS
0.02	108.0	-
0.05	116.0	6.7
0.10	122.0	9.4
0.20	128.0	13.
0.30	131.5	16.
0.50	136.0	20.5
0.80	140.0	26.
1.25	144.0	34.
2.00	148.0	46.*
3.00	151.5	53.*
4.00	154.0	65.*

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

7.2

NON-LINEARITY
FACTOR

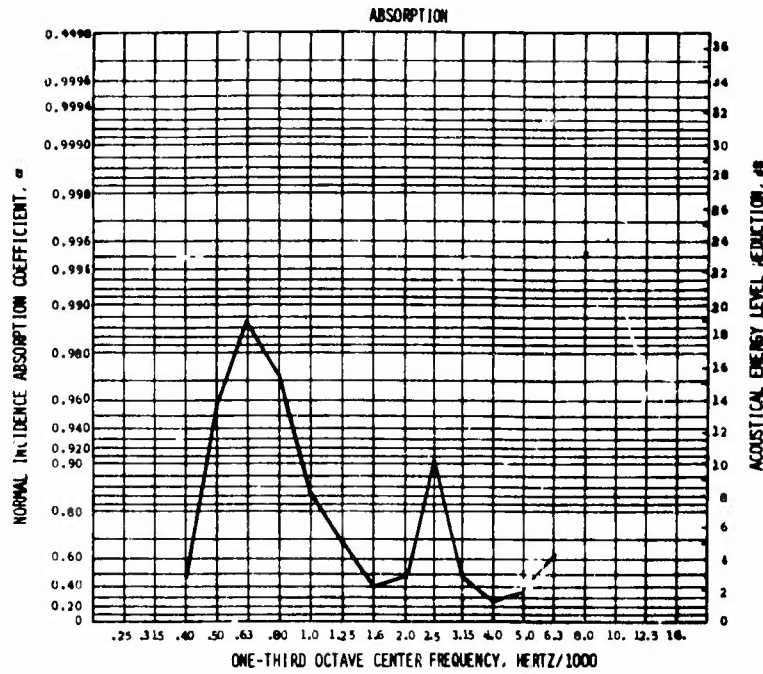
43 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 4-2S

TEST DATE: SEPT 21, 1972

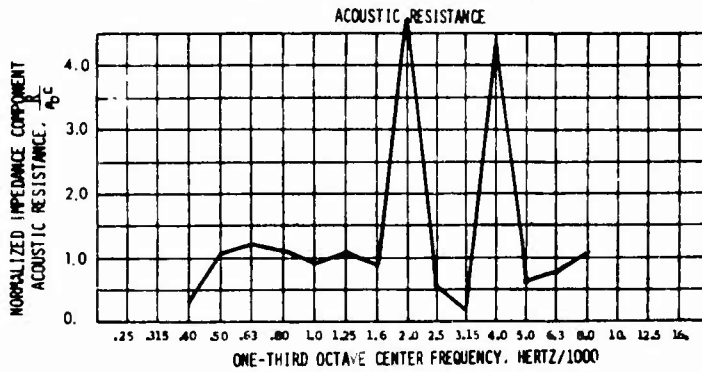
MATERIAL DESCRIPTION:

SLITMETAL

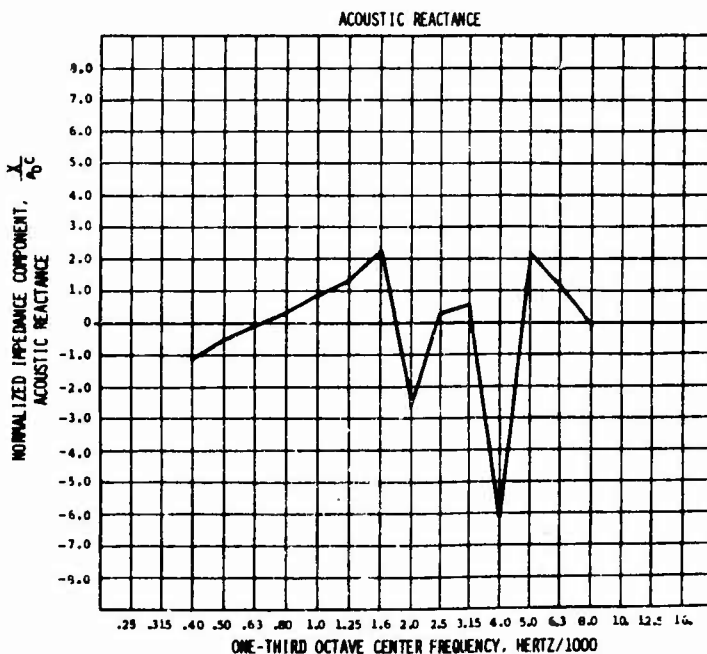
CONFIGURATION:

3.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL	RAYLS
0.02	108.0	32
0.05	116.0	36
0.10	122.0	40
0.20	128.0	47
0.30	131.5	52
0.50	136.0	66
0.80	140.0	79
1.25	144.0	98
2.00	148.0	124
3.00	151.5	149
4.00	154.0	172



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

66

NON-LINEARITY
FACTOR

20

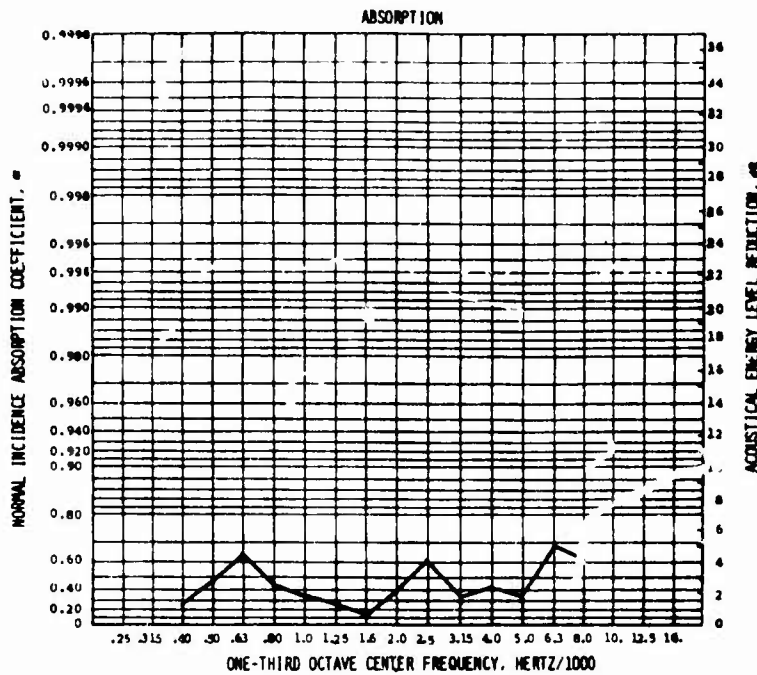
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 43-2S

TEST DATE: OCT. 25, 1972

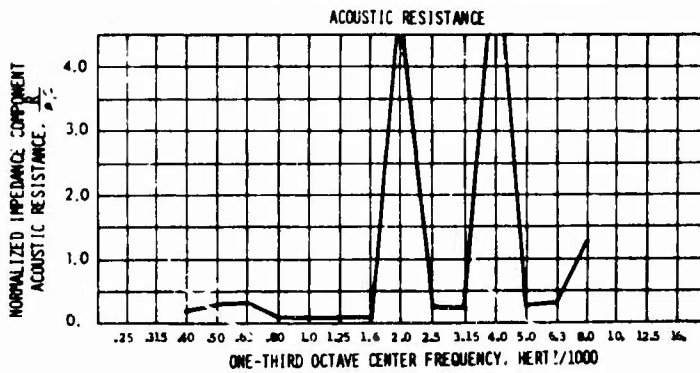
MATERIAL DESCRIPTION:

SLITMETAL

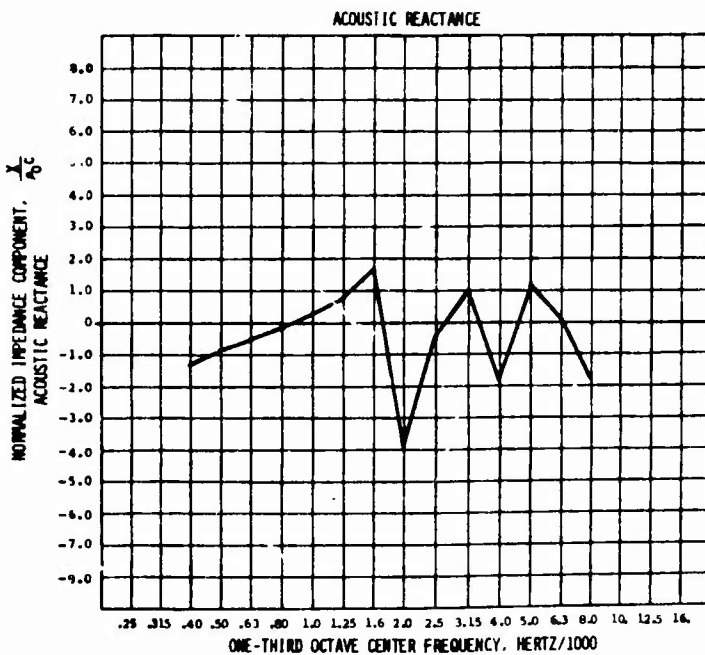
CONFIGURATION:

3.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP L	SPL 2	RAYLS
0.02	108.0	-
0.05	116.0	6.7
0.10	122.0	9.4
0.20	128.0	13.
0.30	131.5	16.
0.50	136.0	20.5
0.80	140.0	26.
1.25	144.0	34.
2.00	148.0	46. *
3.00	151.5	53. *
4.00	154.0	65. *



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

7.2

NON-LINEARITY
FACTOR

43 *

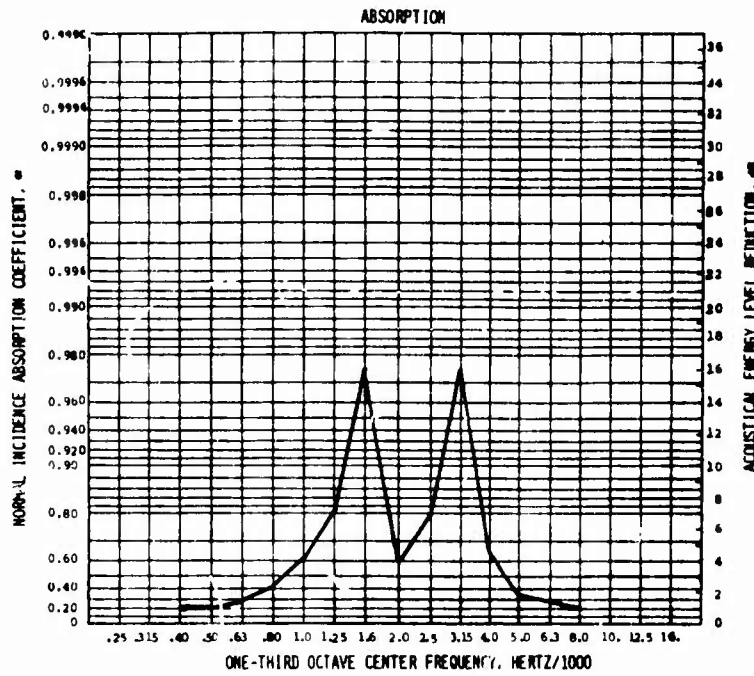
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 6-2S

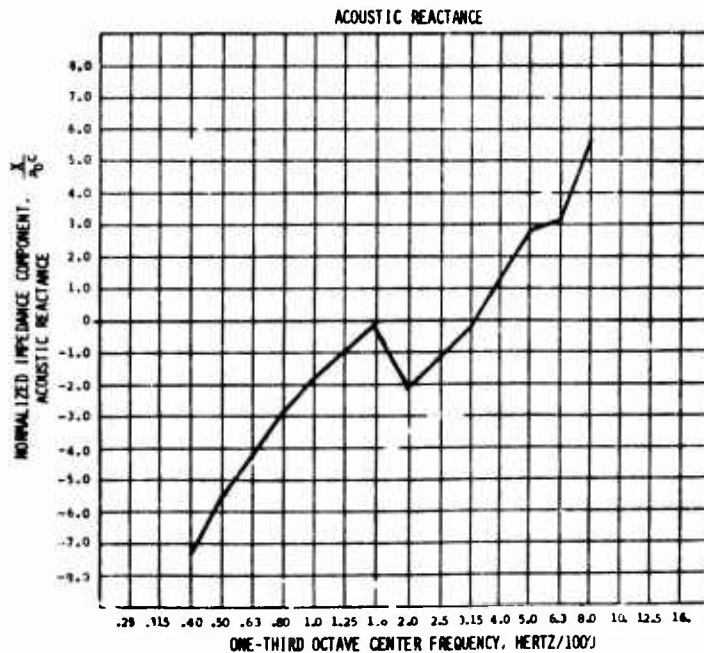
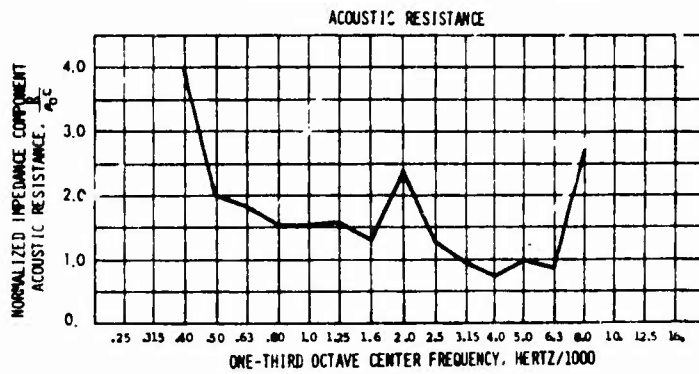
TEST DATE: NOV. 2, 1972

MATERIAL DESCRIPTION:
SLITMETAL

CONFIGURATION:

45 DEG SLANTED ALUM
BAFFLES IN 0.9 INCH
CAVITY BEHIND SPLITMETAL
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS) **



ΔP L	SPL ²	RAYLS
0.02	108.0	32
0.05	116.0	36
0.10	122.0	40
0.20	128.0	47
0.30	131.5	52
0.50	136.0	66
0.80	140.0	79
1.25	144.0	98
2.00	148.0	124
3.00	151.5	149
4.00	154.0	172

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

66

NON-LINEARITY
FACTOR

20

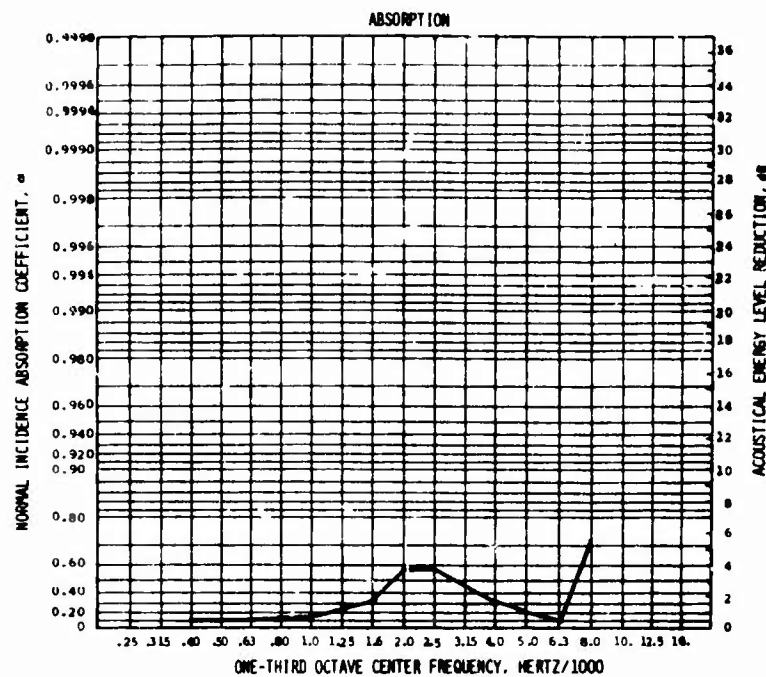
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED
**SPLITMETAL ALONE

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



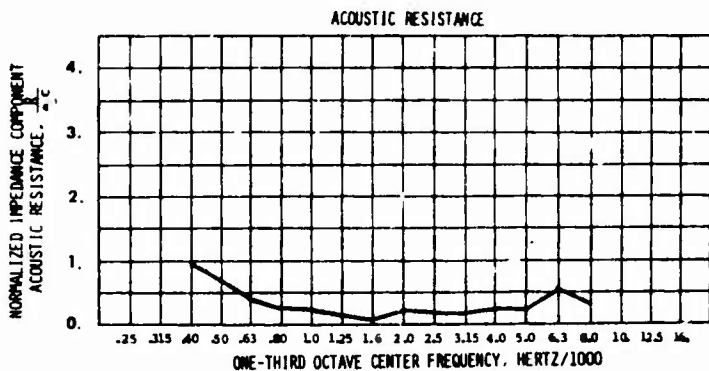
SAMPLE NO: 41-2S

TEST DATE: OCT. 25, 1972

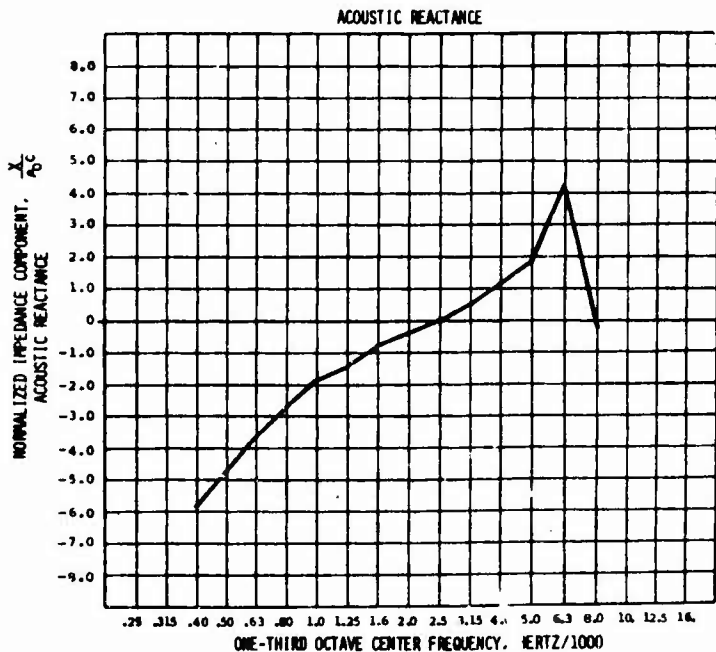
MATERIAL DESCRIPTION:
SLITMETAL

CONFIGURATION:
1.0 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	-
0.05	116.0	6.7
0.10	122.0	9.4
0.20	128.0	13.
0.30	131.5	16.
0.50	136.0	20.5
0.80	140.0	26.
1.25	144.0	34.
2.00	148.0	46.*
3.00	151.5	53.*
4.00	154.0	65.*



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

7.2

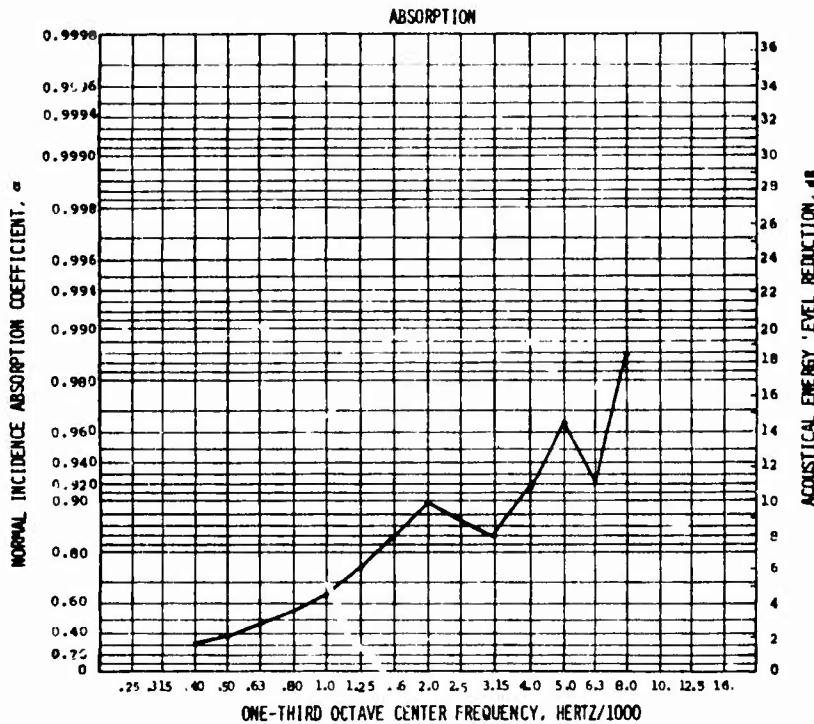
NON-LINEARITY
FACTOR

43 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
 2. EQUIVALENT SPL = $20 \log P + 74$ dB
- WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



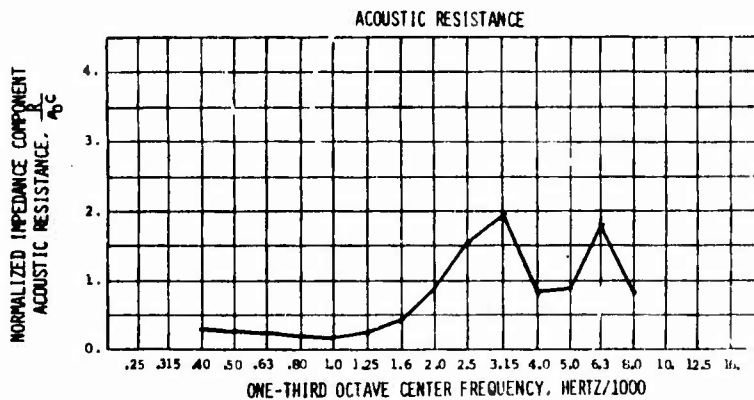
SAMPLE NO: A-7S

TEST DATE: DEC. 19, 1972

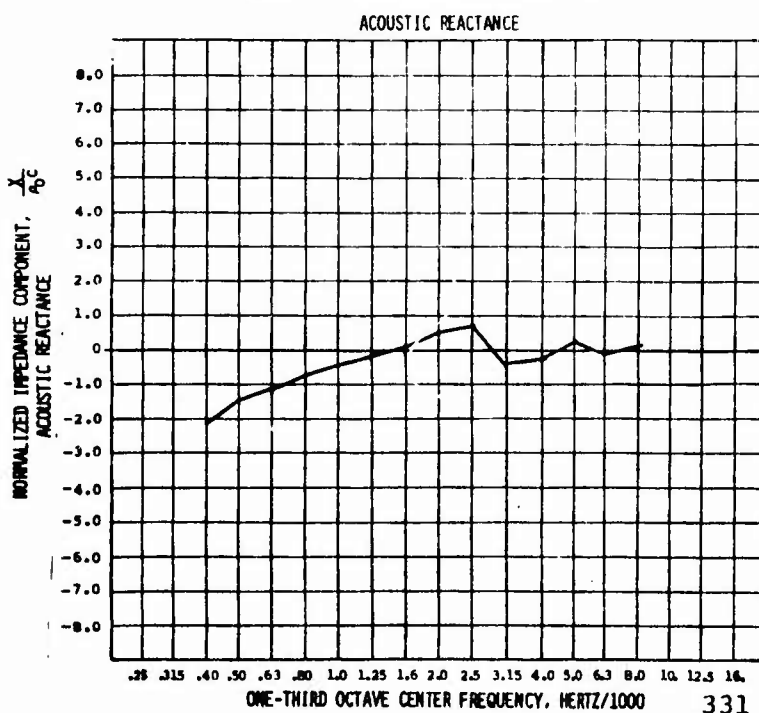
MATERIAL DESCRIPTION:
SCOTTFOAM 90PPI

CONFIGURATION:
2.0 INCH THICK

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	30.7
0.05	116.0	26.6
0.10	122.0	24.7
0.20	128.0	26.5
0.30	131.5	27.1
0.50	136.0	29.5
0.80	140.0	31.9
1.25	144.0	36.7
2.00	148.0	37.0
3.00	151.5	40.0
4.00	154.0	42.0



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

27.0

NON-LINEARITY
FACTOR

3.26 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET

SAMPLE NO: A-6S

TEST DATE: DEC. 19, 1972

MATERIAL DESCRIPTION:

SCOTTFOAM 90PPI

CONFIGURATION:

1.0 INCH THICK

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP 1.	SPL 2.	RAYLS
0.02	108.0	13.5
0.05	116.0	13.2
0.10	122.0	13.5
0.20	128.0	14.8
0.30	131.5	16.0
0.50	136.0	17.4
0.80	140.0	20.3
1.25	144.0	23.0
2.00	148.0	26.0
3.00	151.5	29.0
4.00	154.0	32.0

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

13.7

NON-LINEARITY
FACTOR

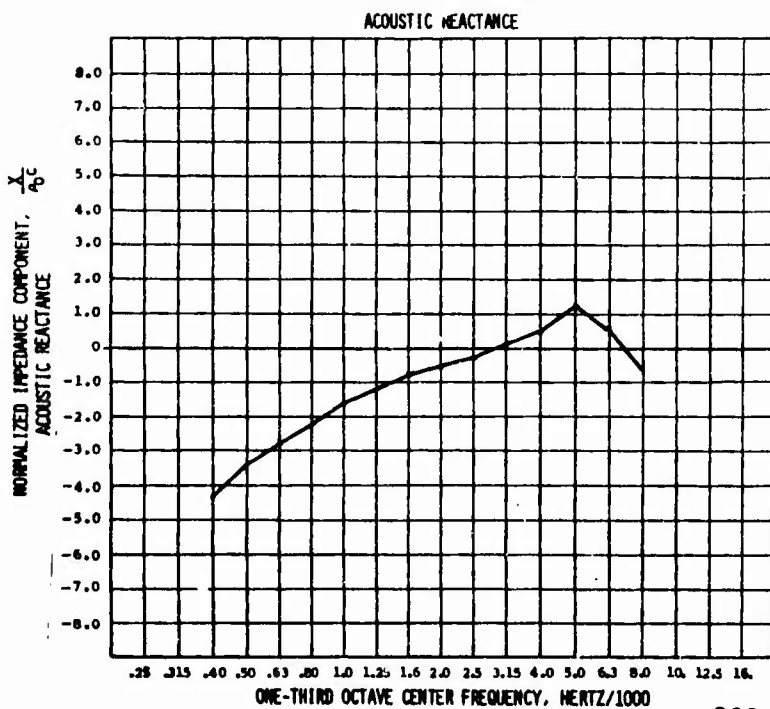
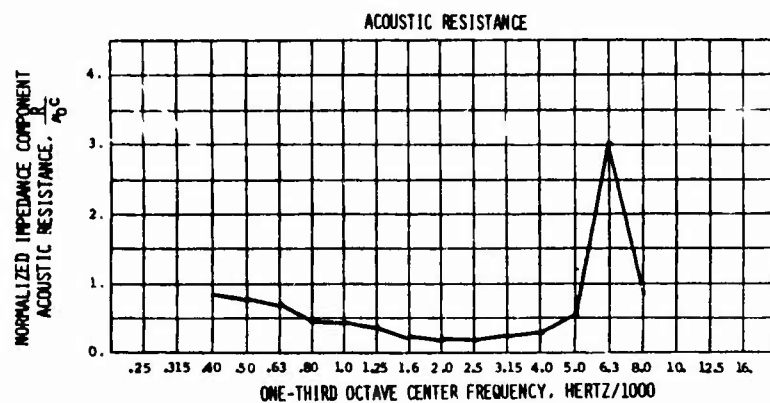
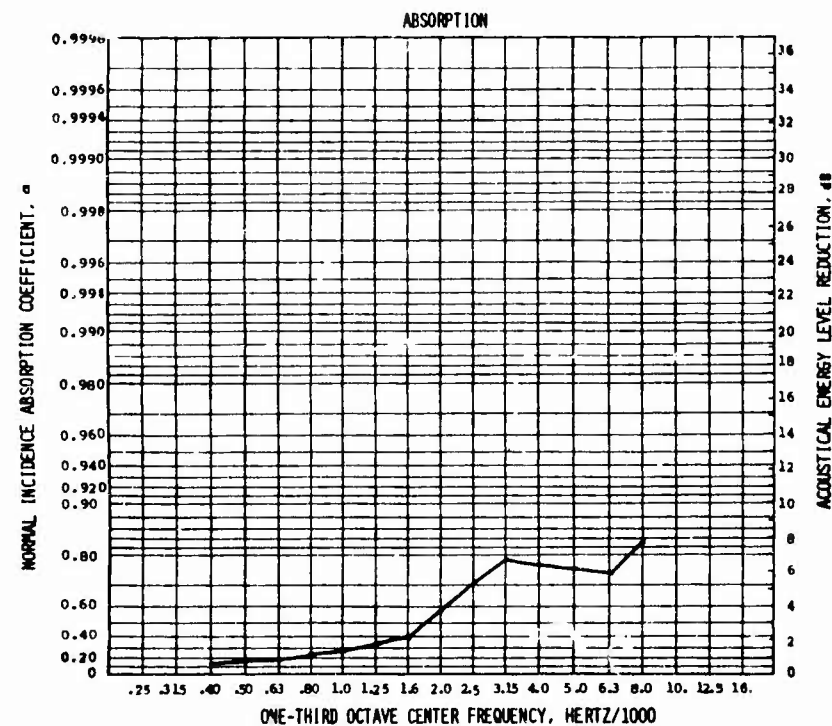
3.42 *

1. DIFFERENTIAL PRESSURE, INCHES OF WATER

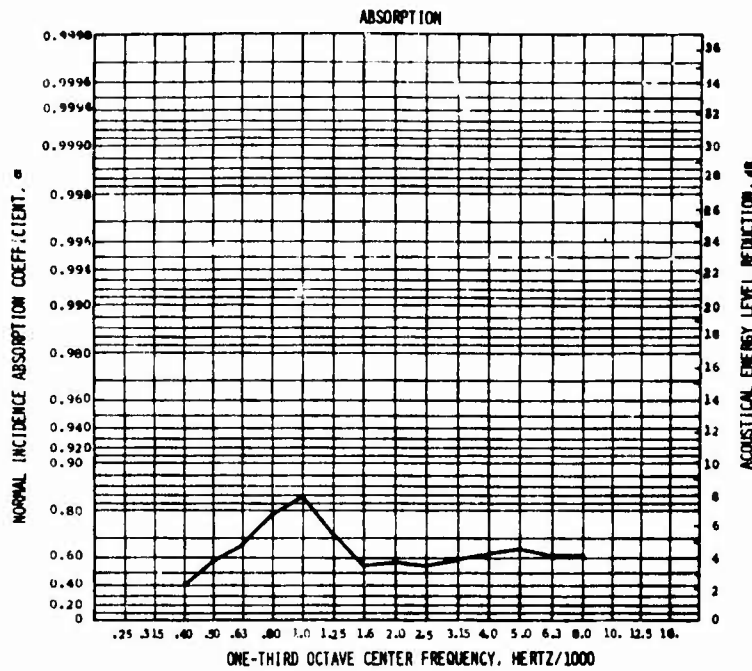
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED



ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 28-2S

TEST DATE: OCT. 20, 1972

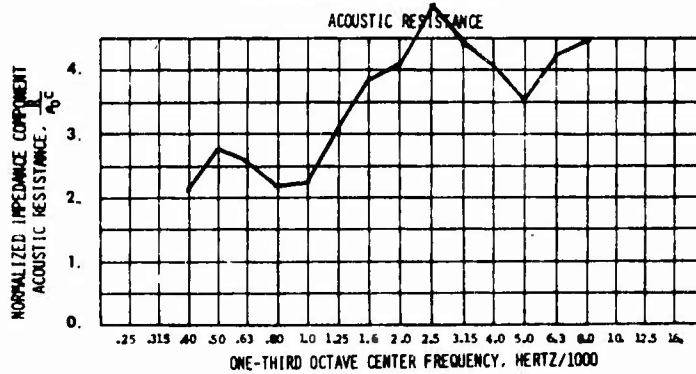
MATERIAL DESCRIPTION:

SCOTT AFONIC*
(EMBOSSSED)

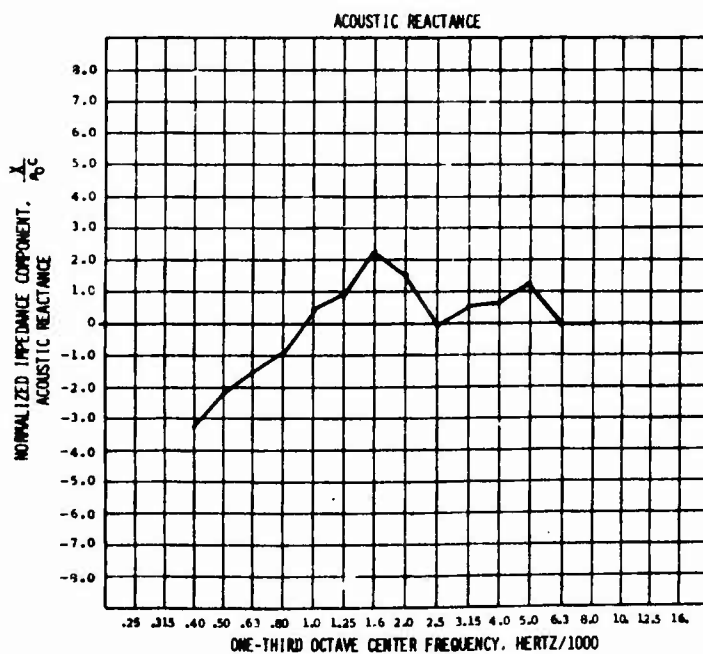
CONFIGURATION:

1.0 INCH THICKNESS

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	247
0.05	116.0	216
0.10	122.0	226
0.20	128.0	248
0.30	131.5	262
0.50	136.0	295
0.80	140.0	334
1.25	144.0	372
2.00	148.0	400
3.00	151.5	523
4.00	154.0	614



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

800

**

**ESTIMATED

NON-LINEARITY
FACTOR

-

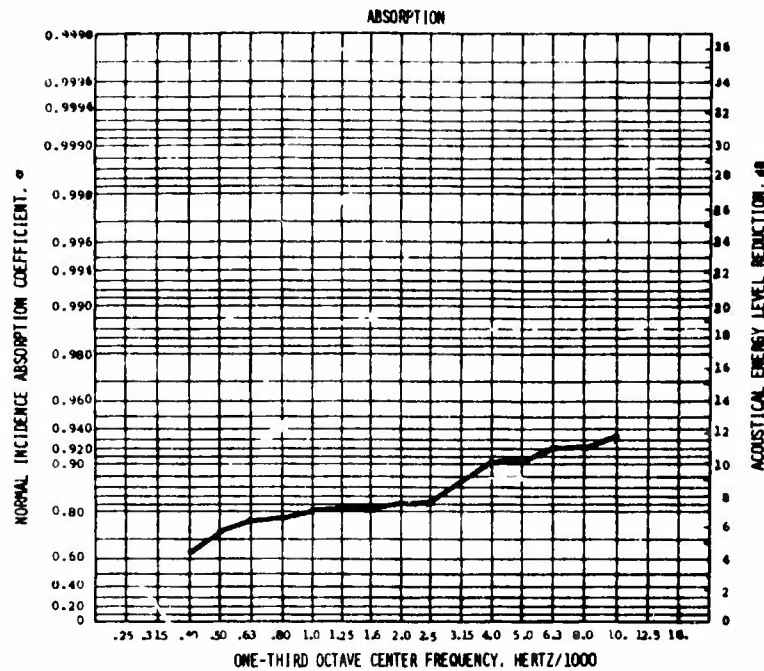
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EMBOSSSED SURFACE
TOWARDS SOUND SOURCE

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 18

TEST DATE: JUNE 16, 1972

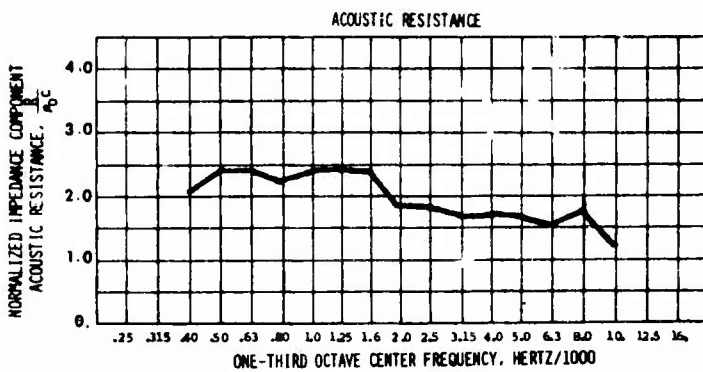
MATERIAL DESCRIPTION:

SCOTTFELT FR 3-900

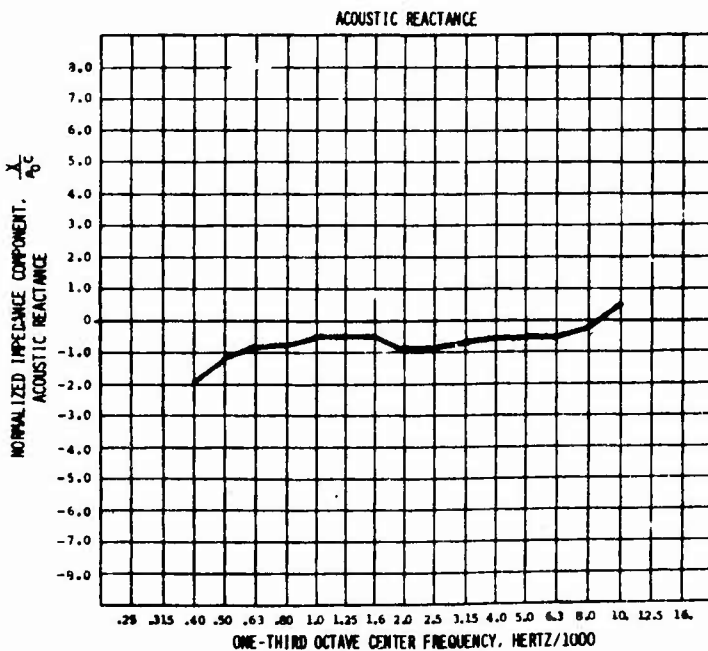
CONFIGURATION:

2.0 INCH THICKNESS

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	226
0.05	116.0	188
0.10	122.0	213
0.20	128.0	202
0.30	131.5	198
0.50	136.0	188
0.80	140.0	186
1.25	144.0	185
2.00	148.0	199
3.00	151.5	215
4.00	154.0	222



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

195

NON-LINEARITY
FACTOR

2.5 *

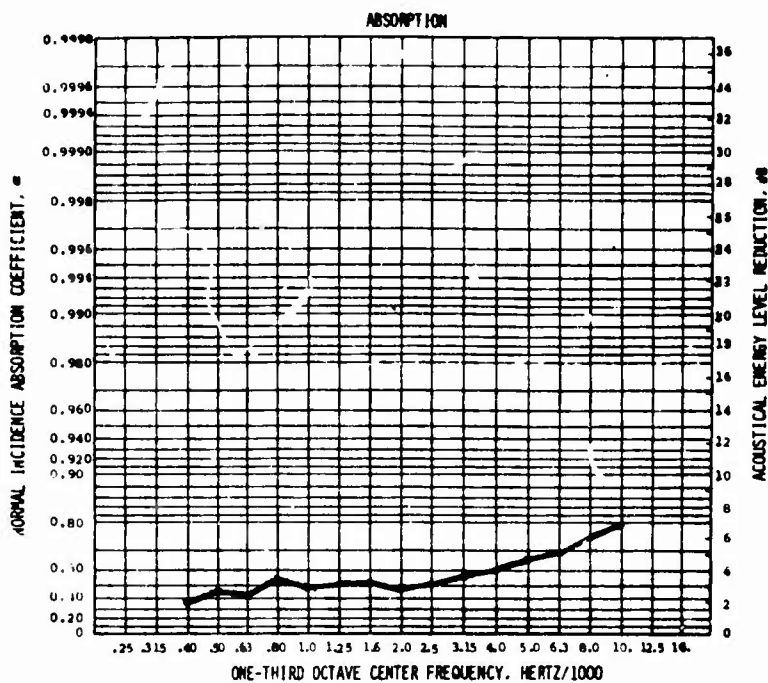
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 19

TEST DATE: JUNE 19, 1972

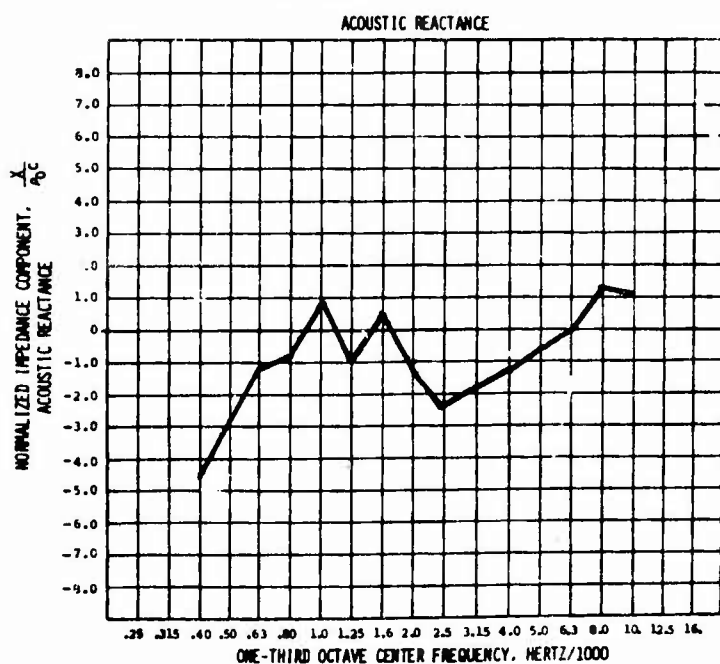
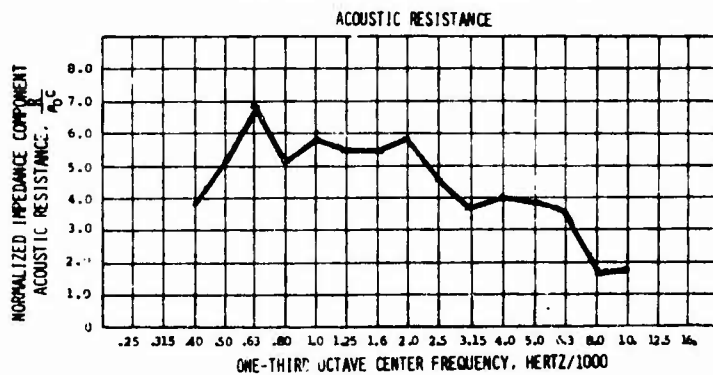
MATERIAL DESCRIPTION:

SCOTTFELT FR 7-900

CONFIGURATION:

1.0 INCH THICKNESS

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL ²	RAYLS
0.02	108.0	—
0.05	116.0	581
0.10	122.0	508
0.20	128.0	513
0.30	131.5	548
0.50	136.0	527
0.80	140.0	520
1.25	144.0	505
2.00	148.0	505
3.00	151.5	501
4.00	154.0	521

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

520

NON-LINEARITY
FACTOR

1.3

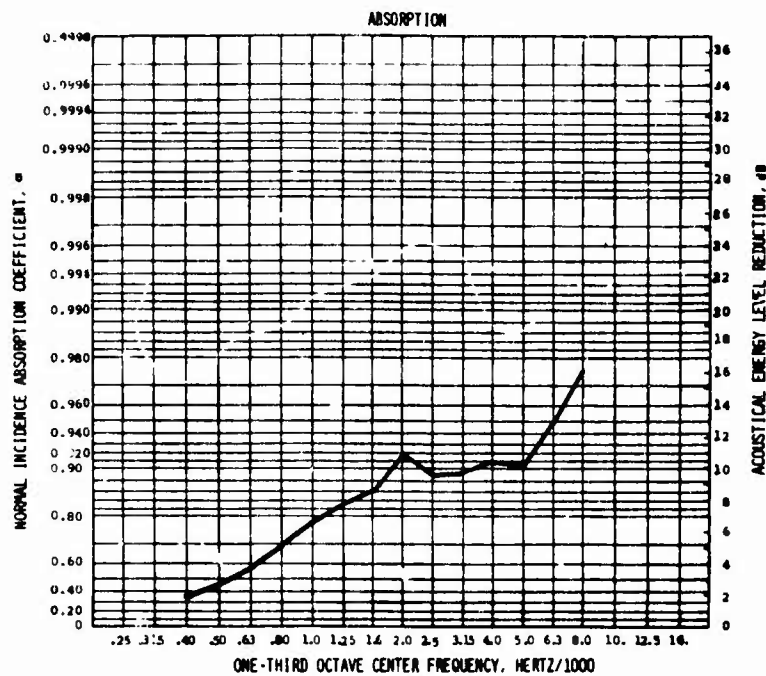
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

* EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 29-2S

TEST DATE: NOV. 6, 1972

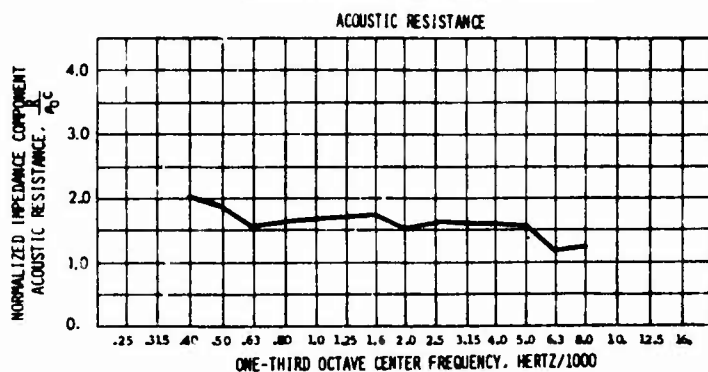
MATERIAL DESCRIPTION:

CERAFELT (CRF 300)
REFRACTORY FIBER FELT
3 LB DENSITY

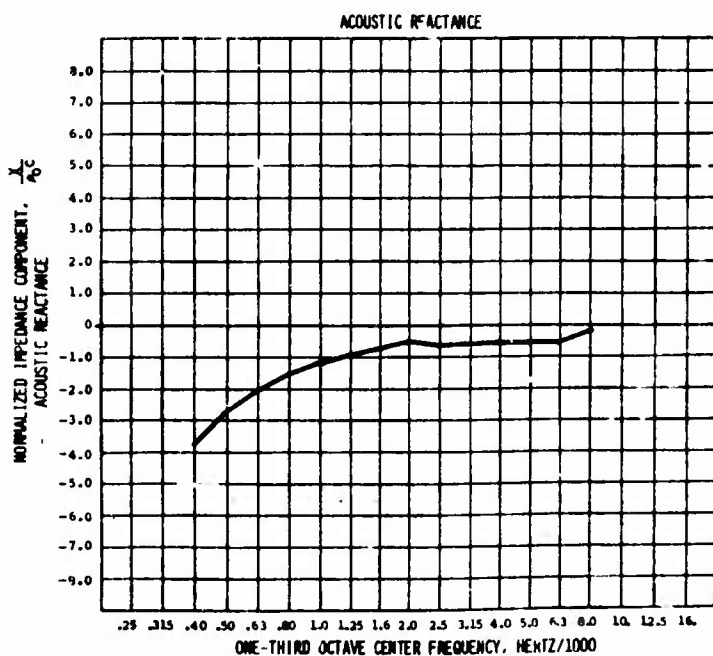
CONFIGURATION:

1.0 INCH THICKNESS
(2 x 1/2 INCH)

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL	RAYLS
0.02	108.0	219
0.05	116.0	188
0.10	122.0	202
0.20	128.0	192
0.30	131.5	192
0.50	136.0	184
0.80	140.0	180
1.25	144.0	178
2.00	148.0	192
3.00	151.5	205
4.00	154.0	212



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

180

NON-LINEARITY
FACTOR

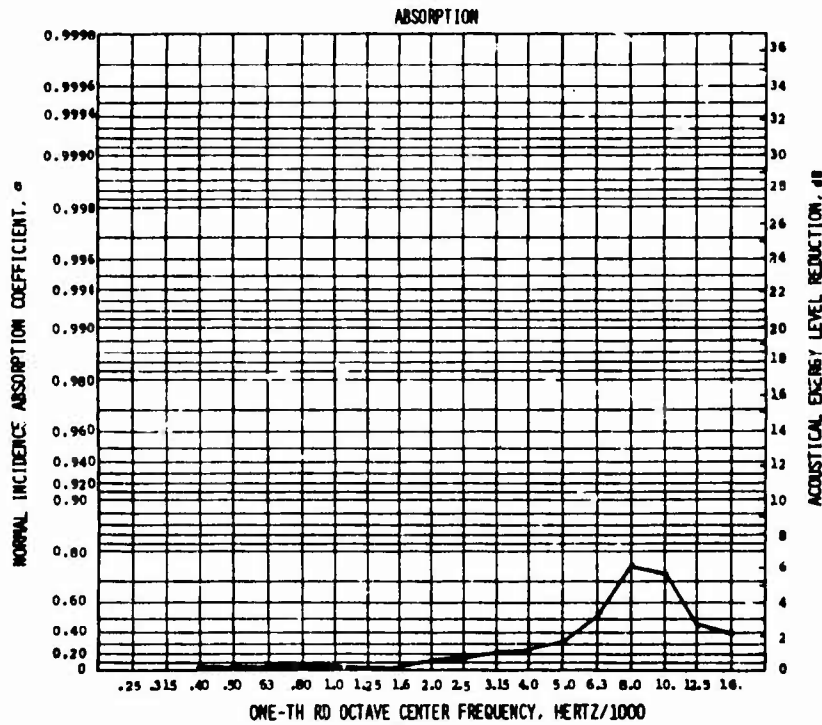
--

1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



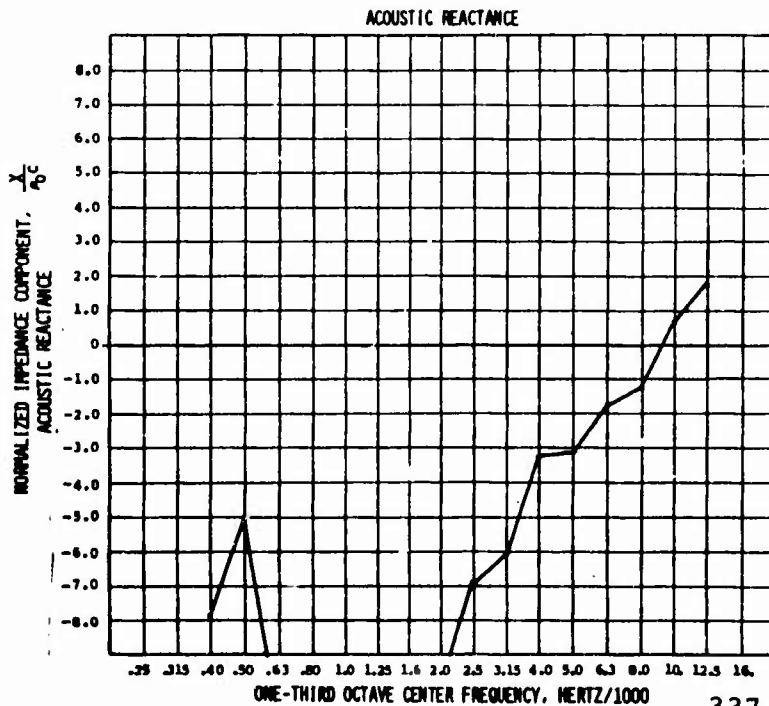
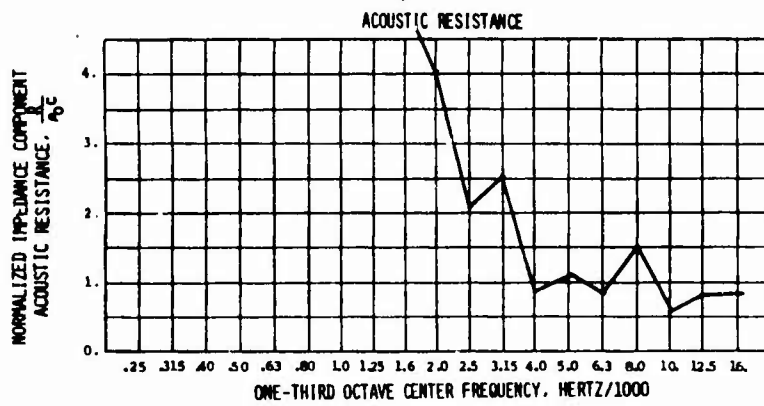
SAMPLE NO: 3

TEST DATE: NOV. 13, 1972

MATERIAL DESCRIPTION:
3-M COMPOSITE
15 RAYL

CONFIGURATION:
0.125 INCH DEEP
AIRSPACE BEHIND
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP^1	SPL ²	RAYLS
0.02	108.0	18.0
0.05	116.0	15.5
0.10	122.0	17.5
0.20	128.0	19.0
0.30	131.5	21.5
0.50	136.0	23.5
0.80	140.0	27.0
1.25	144.0	32.0
2.00	148.0	37.0 *
3.00	151.5	42.0 *
4.00	154.0	45.5 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

18.0

NON-LINEARITY
FACTOR

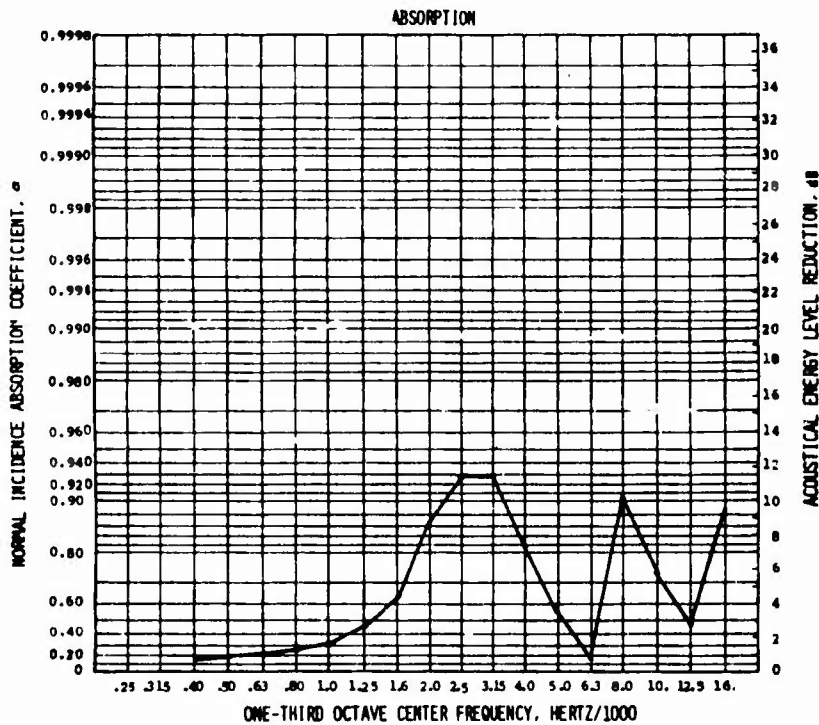
2.8

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 3A

TEST DATE: DEC. 22, 1971

MATERIAL DESCRIPTION:

3-M COMPOSITE

15 RAYL; 0.77 INCH I.D.

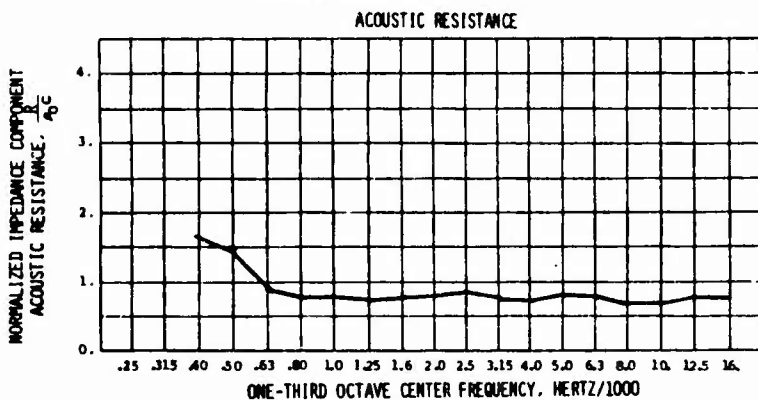
CONFIGURATION:

1.0 INCH DEEP

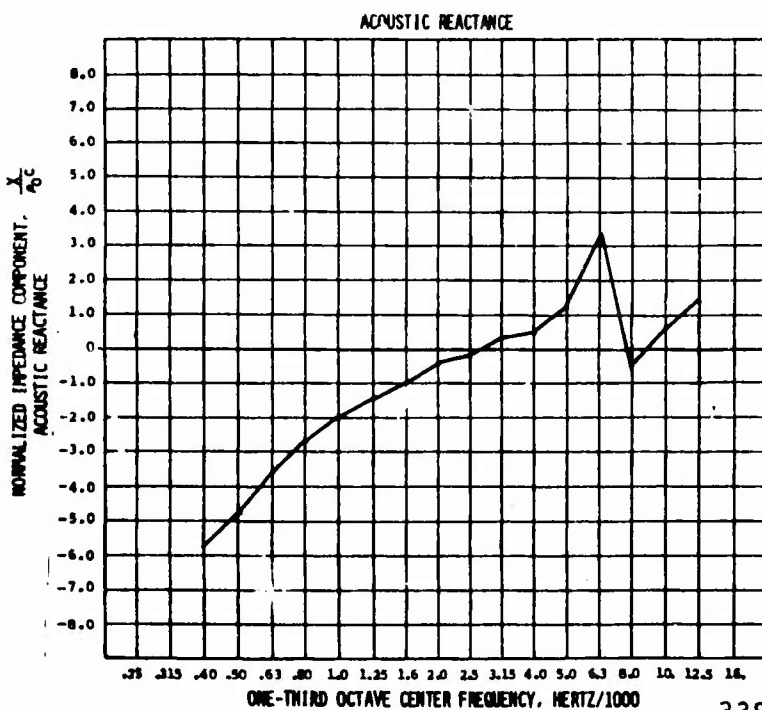
AIRSPACE BEHIND

SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	18.0
0.05	116.0	15.5
0.10	122.0	17.5
0.20	128.0	19.0
0.30	131.5	21.5
0.50	136.0	23.5
0.80	140.0	27.0
1.25	144.0	32.0
2.00	148.0	37.0 *
3.00	151.5	42.0 *
4.00	154.0	45.5 *



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

18.0

NON-LINEARITY
FACTOR

2.8

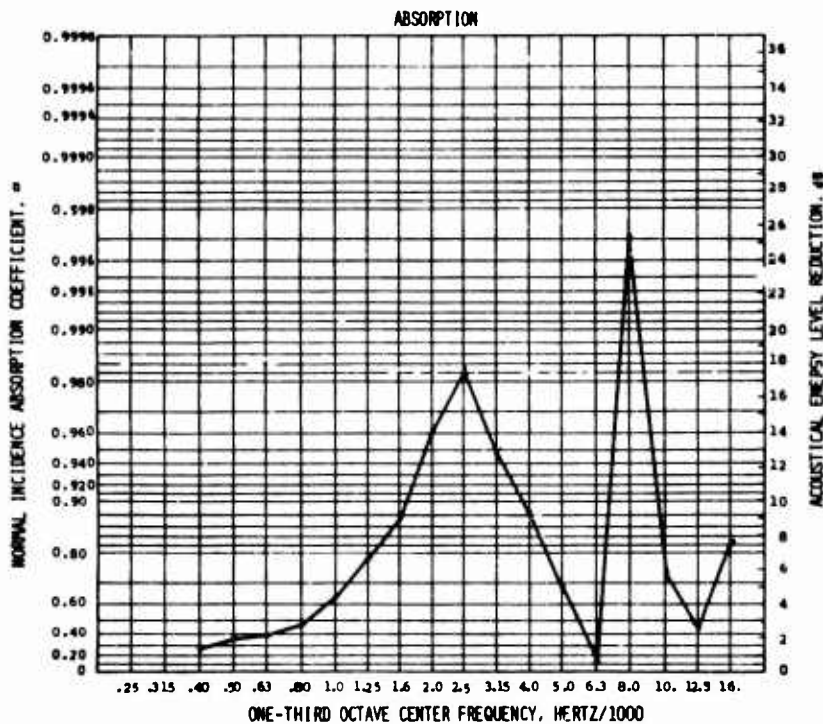
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 4A

TEST DATE: DEC. 28, 1971

MATERIAL DESCRIPTION:

3-M MATERIAL

40 RAYL

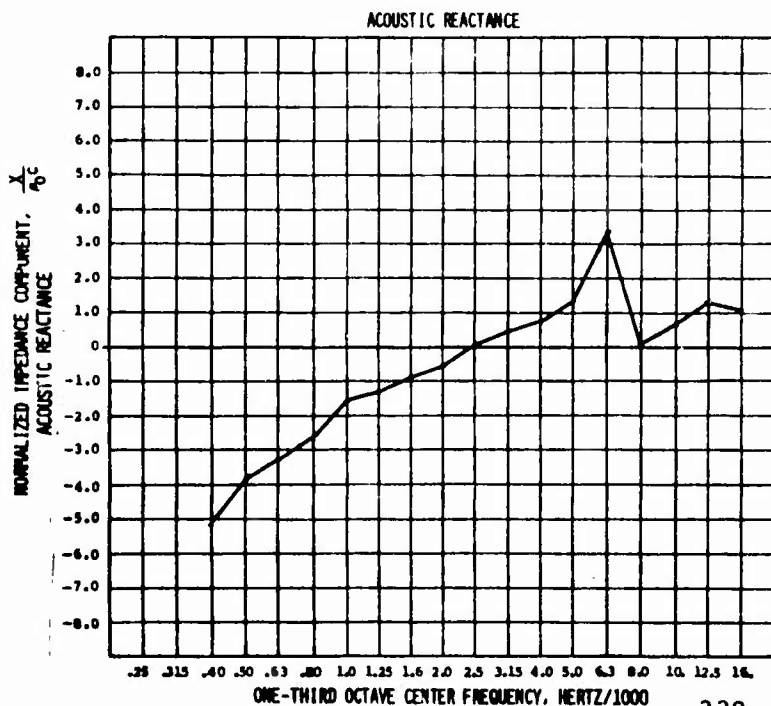
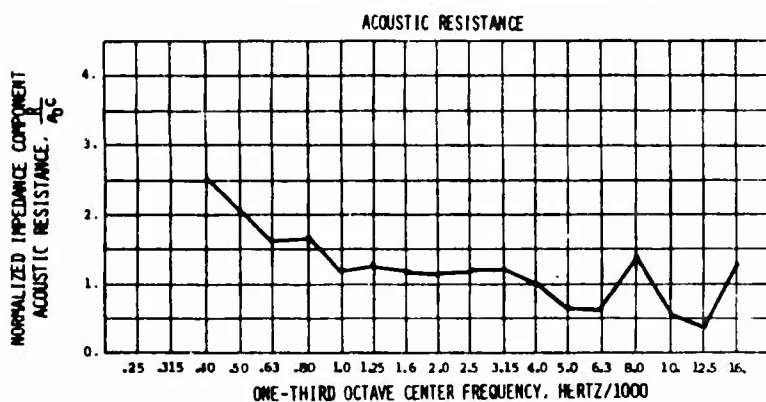
CONFIGURATION:

1.0 INCH DEEP

AIRSPACE BEHIND

SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP^1	SPL ²	RAYLS
0.02	108.0	47.5
0.05	116.0	39.0
0.10	122.0	37.5
0.20	128.0	42.5
0.30	131.5	42.5
0.50	136.0	44.5
0.80	140.0	49.0
1.25	144.0	54.0
2.00	148.0	62.0
3.00	151.5	73.5
4.00	154.0	84.0

*

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

43.0

NON-LINEARITY
FACTOR

2.5

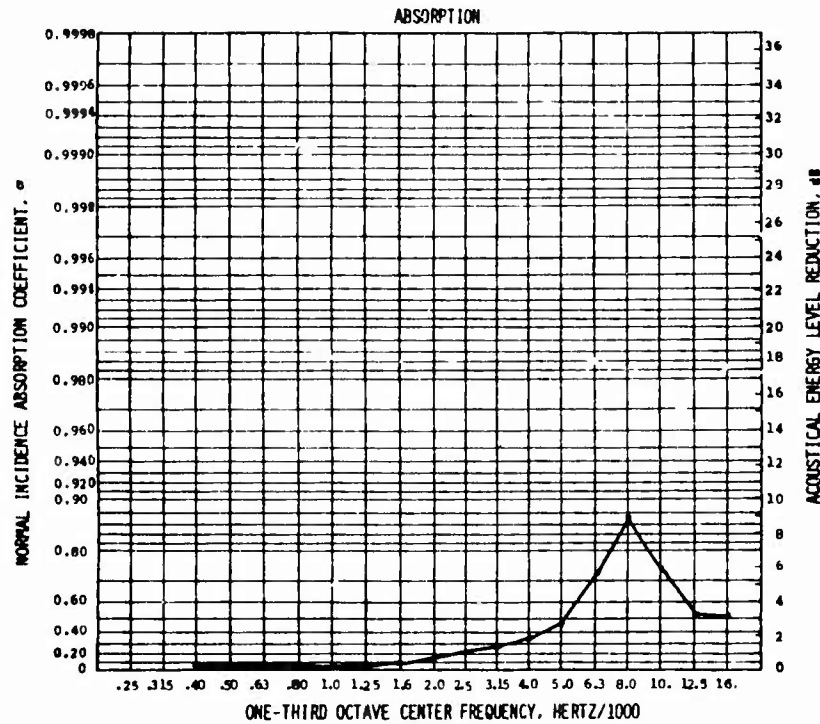
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 4

TEST DATE: NOV. 16, 1971

MATERIAL DESCRIPTION:

3-M COMPOSITE

40 RAYL

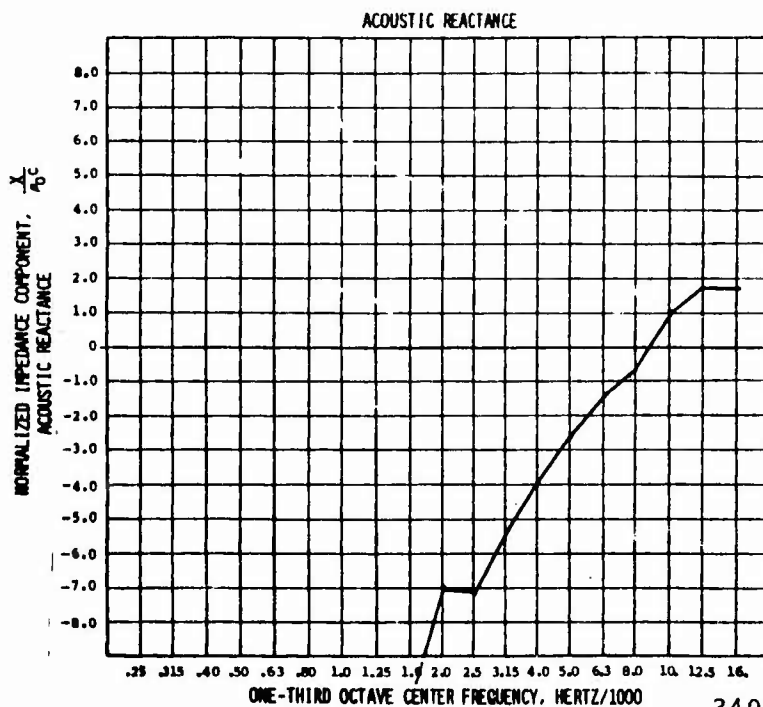
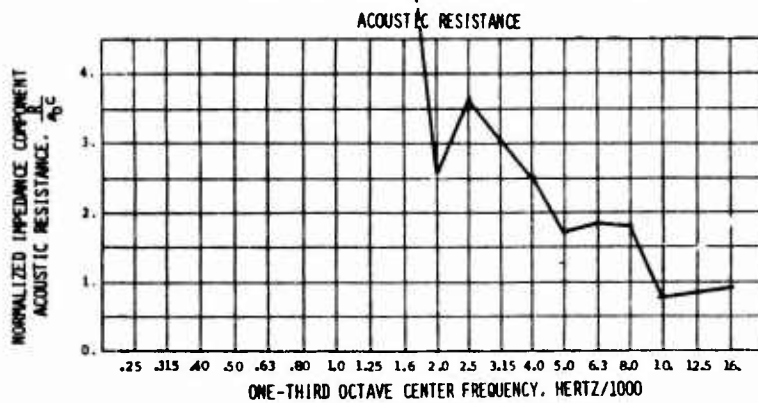
CONFIGURATION:

0.125 INCH DEEP

AIRSPACE BEHIND

SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	47.5
0.05	116.0	39.0
0.10	122.0	37.5
0.20	128.0	42.5
0.30	131.5	42.5
0.50	136.0	44.5
0.80	140.0	49.0
1.25	144.0	54.0
2.00	148.0	62.0
3.00	151.5	73.5
4.00	154.0	84.0 *

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

43.0

NON-LINEARITY
FACTOR

2.5

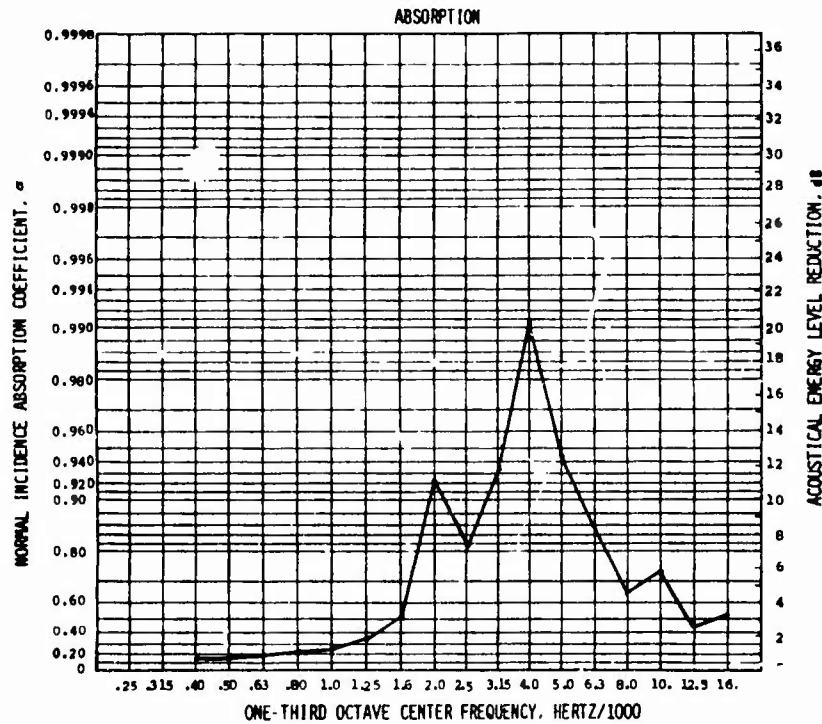
1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = $20 \log P + 79.4$

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 78-32-3

TEST DATE: NOV. 13, 1971

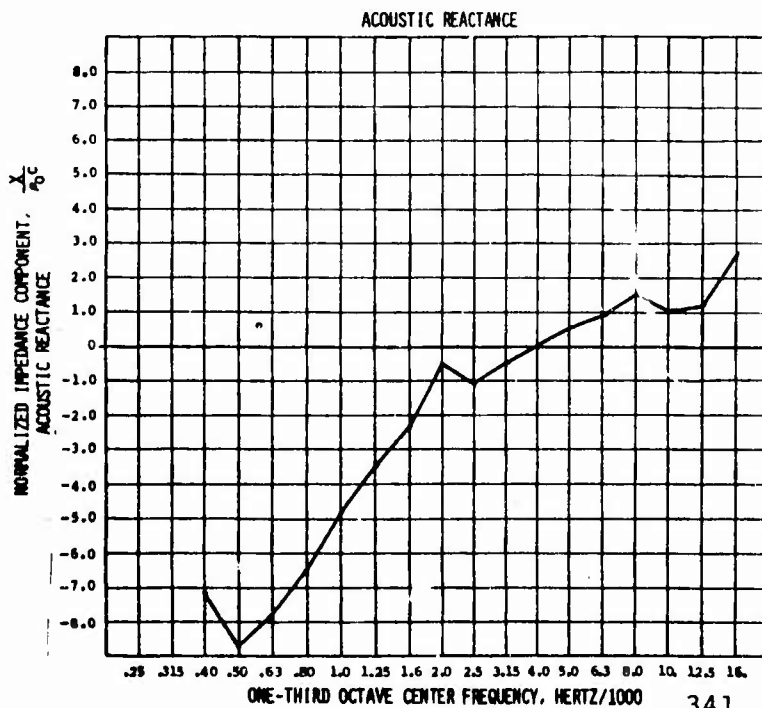
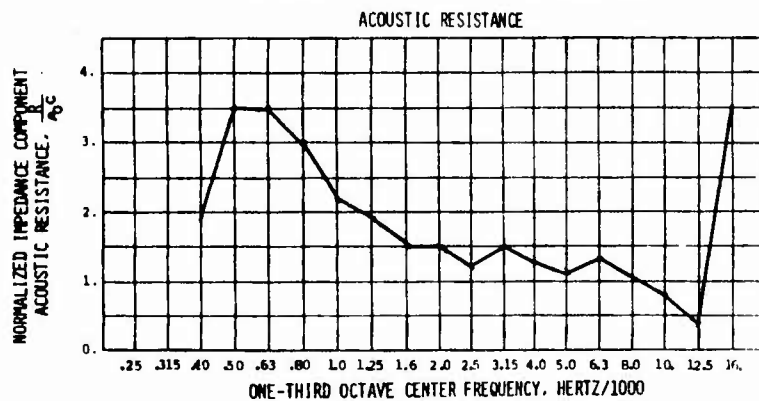
MATERIAL DESCRIPTION:

3M COMPOSITE
40 RAYL

CONFIGURATION:

0.50 INCH DEEP
AIRSPACE BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL ²	RAYLS
0.02	108.0	48.0
0.05	116.0	46.5
0.10	122.0	44.0
0.20	128.0	47.5
0.30	131.5	48.0
0.50	136.0	50.5
0.80	140.0	56.0
1.25	144.0	60.0
2.00	148.0	68.0
3.00	151.5	75.0
4.00	154.0	78.0

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

49.5

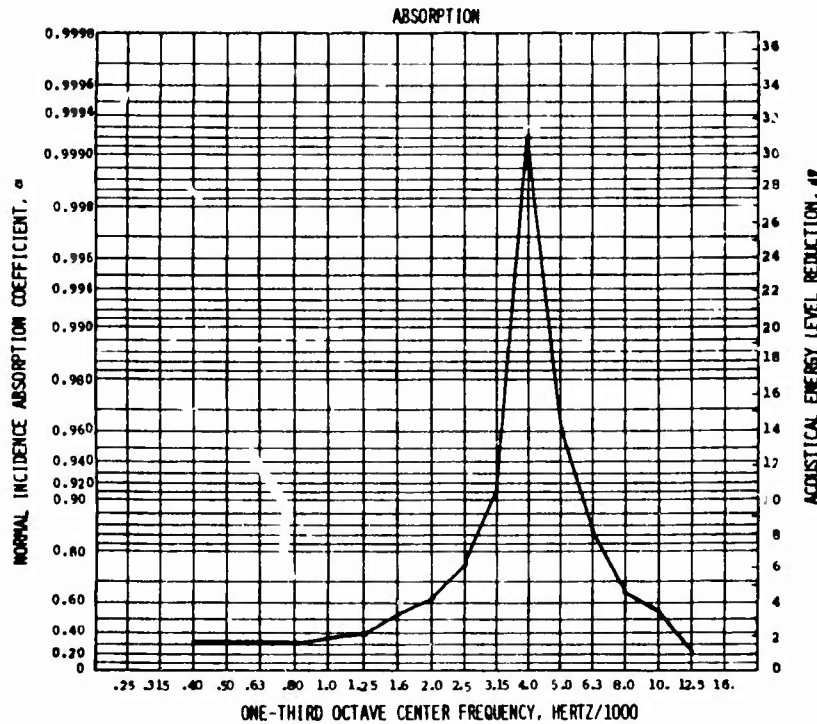
NON-LINEARITY
FACTOR

3.5

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



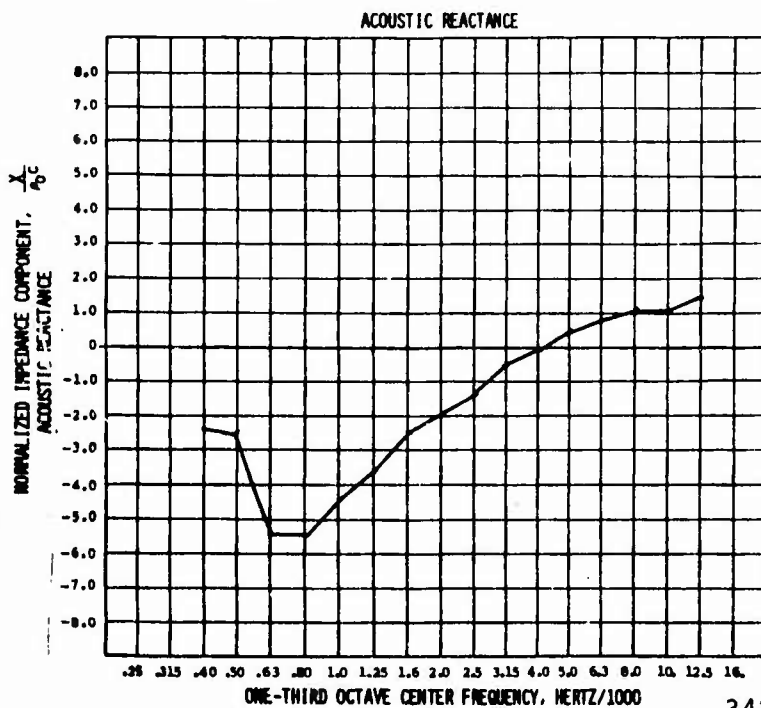
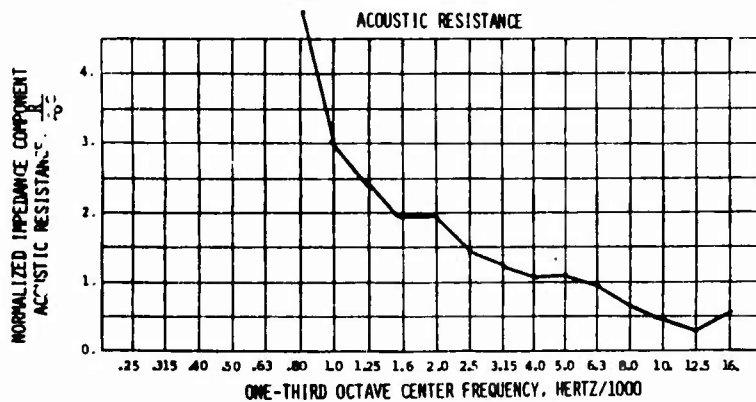
SAMPLE NO: 1

TEST DATE: NOV. 1, 1971

MATERIAL DESCRIPTION:
3M COMPOSITE

CONFIGURATION:
0.5 INCH DEEP
AIRSPACE HONEYCOMB
BACKING BONDED

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP 1	SPL 2	RAYLS
0.02	108.0	-
0.05	116.0	-
0.10	122.0	-
0.20	128.0	-
0.30	131.5	-
0.50	136.0	-
0.80	140.0	-
1.25	144.0	-
2.00	148.0	-
3.00	151.5	-
4.00	154.0	-

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

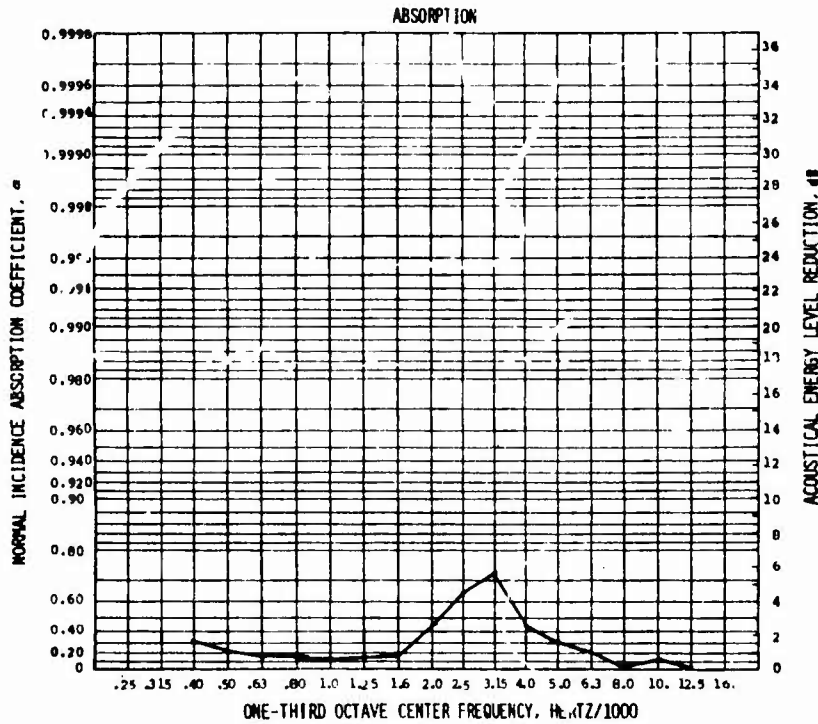
-

NON-LINEARITY
FACTOR

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 79$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



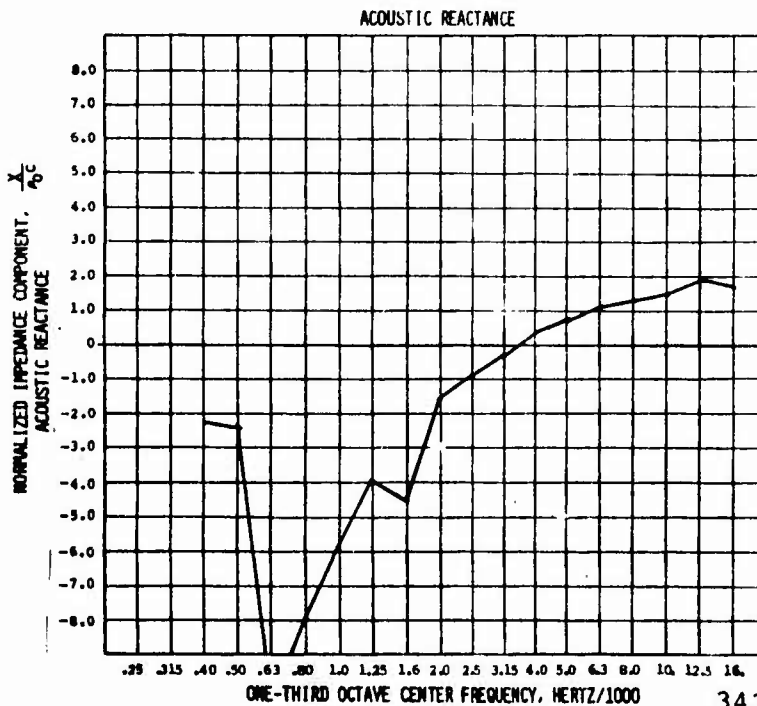
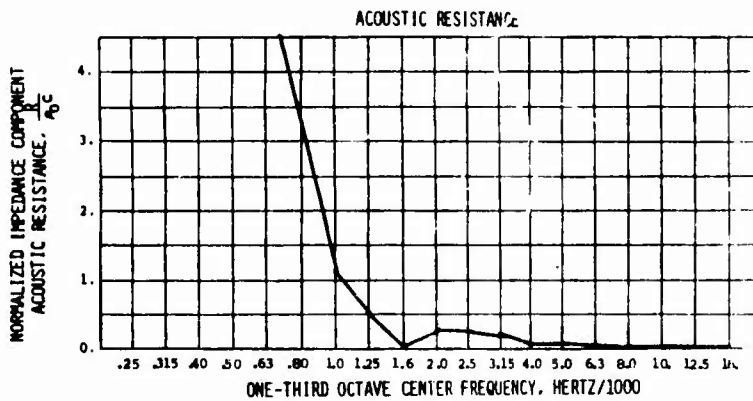
SAMPLE NO: 2

TEST DATE: NOV. 2, 1971

MATERIAL DESCRIPTION:
3-M COMPOSITE
7.37 PERCENT
OPEN AREA

CONFIGURATION:
0.5 INCH DEEP
AIRSPACE HONEYCOMB
BACKING BONDED

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP^1	SPL ²	RAYLS
0.02	108.0	—
0.05	116.0	—
0.10	122.0	—
0.20	128.0	—
0.30	131.5	—
0.50	136.0	—
0.80	140.0	—
1.25	144.0	—
2.00	148.0	—
3.00	151.5	—
4.00	154.0	—

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

—

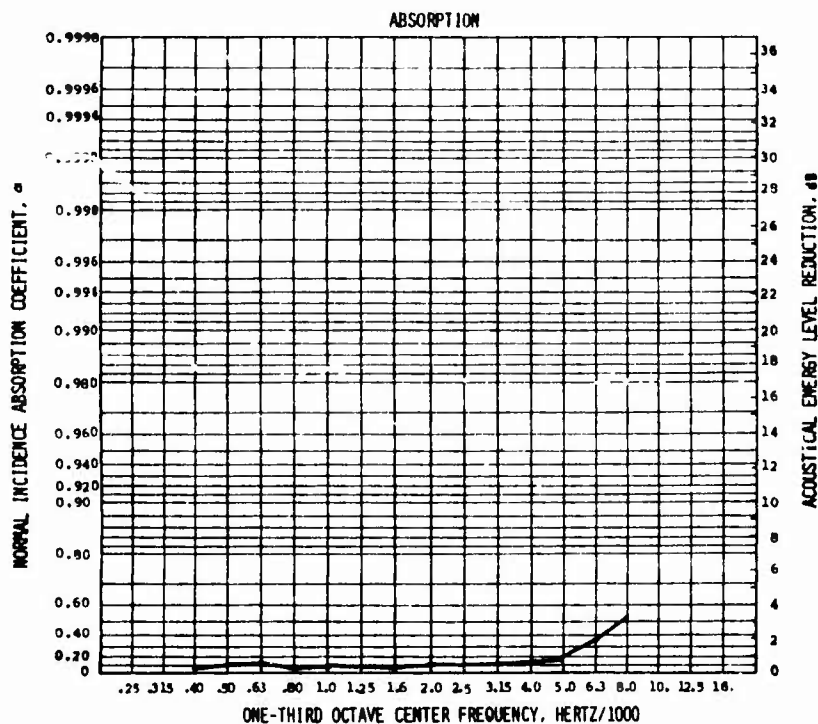
NON-LINEARITY
FACTOR

—

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



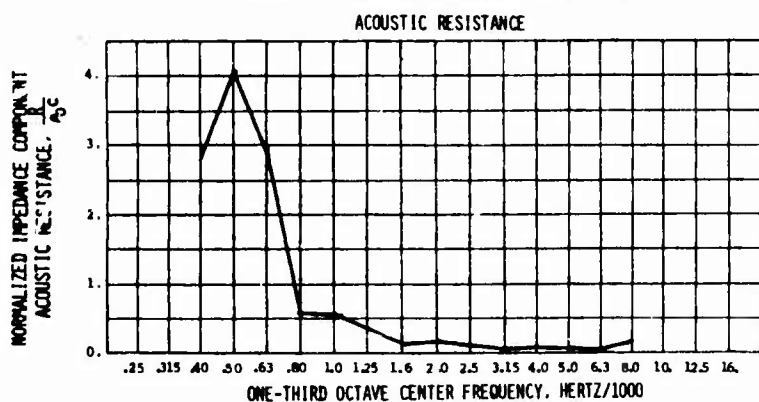
SAMPLE NO: 13

TEST DATE: MARCH 9, 1972

MATERIAL DESCRIPTION:
QUADRICORE
PERFORATED, DIMPLED

CONFIGURATION:

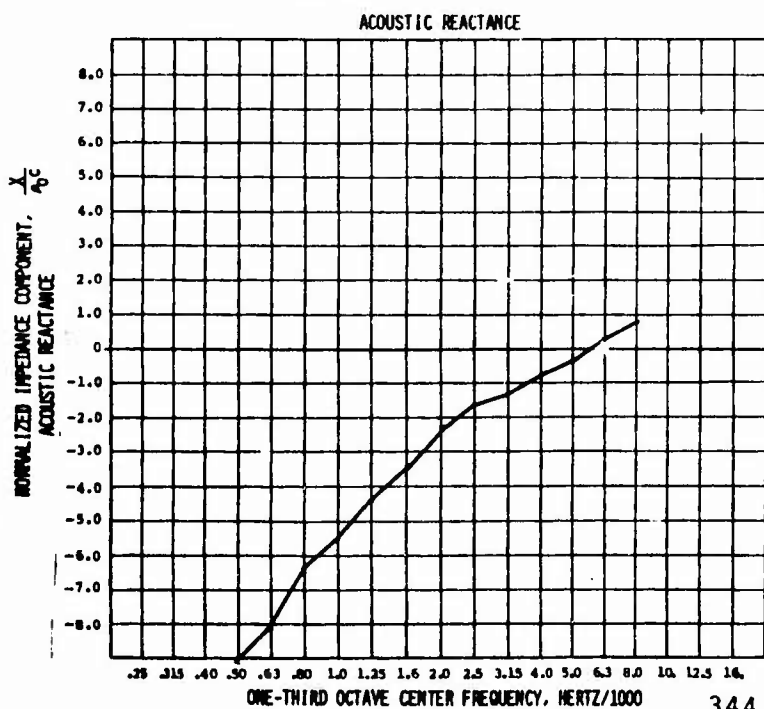
5/16 INCH THICK
NO FACING MATERIAL



MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

NOT APPLICABLE

ΔP 1	SPL 2	RAYLS
0.02	108.0	
0.05	116.0	
0.10	122.0	
0.20	128.0	
0.30	131.5	
0.50	136.0	
0.80	140.0	
1.25	144.0	
2.00	148.0	
3.00	151.5	
4.00	154.0	



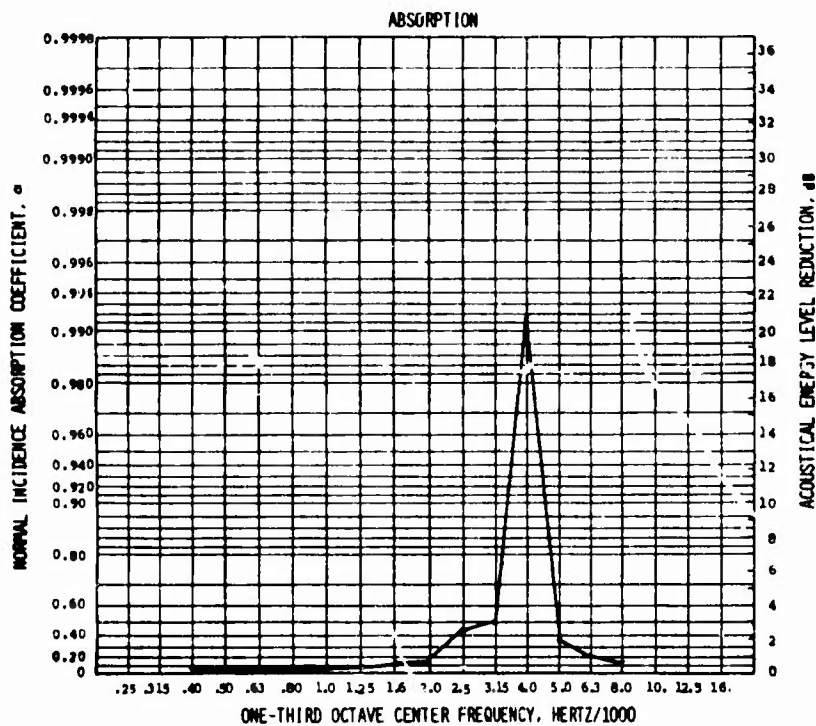
MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

NON-LINEARITY
FACTOR

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET

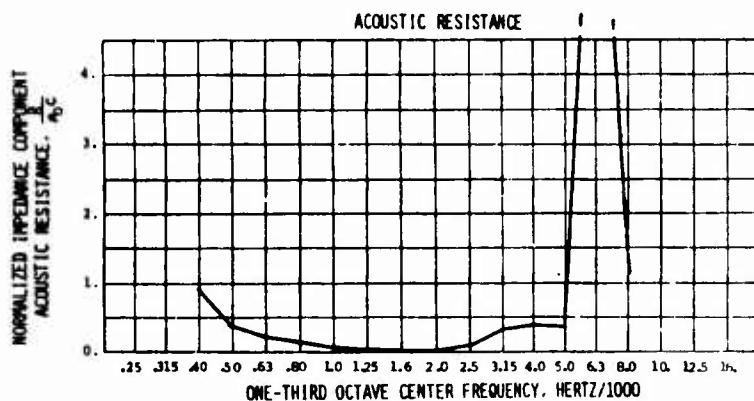


SAMPLE NO: 11

TEST DATE: FEB. 1, 1972

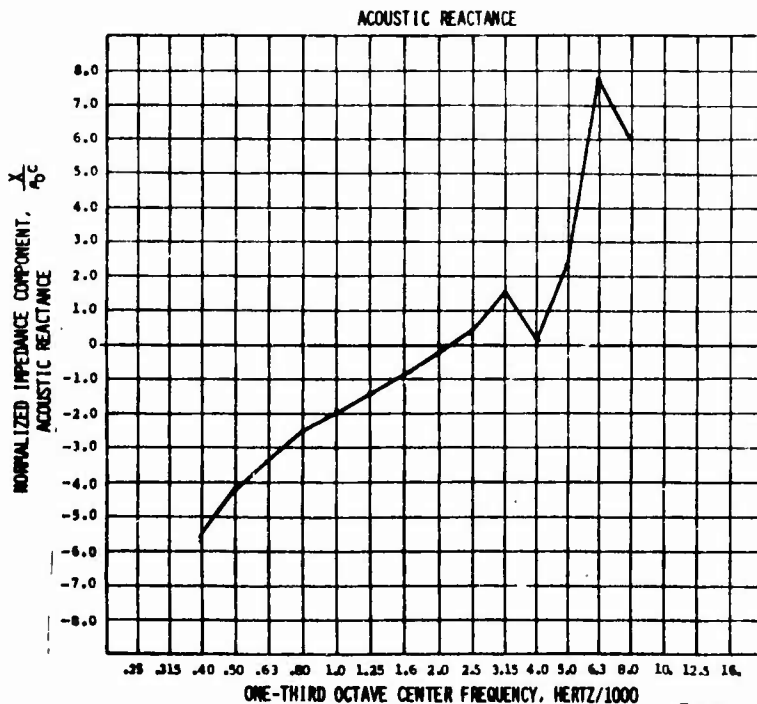
MATERIAL DESCRIPTION:
QUADRICORE
THERMOPLASTIC
BACKING

CONFIGURATION:
NO FACE SHEET



MEASURED D-C FLOW RESISTANCE (CGS RAYLS)
NOT APPLICABLE

ΔP	SPL	RAYLS
0.02	108.0	
0.05	116.0	
0.10	122.0	
0.20	128.0	
0.30	131.5	
0.50	136.0	
0.80	140.0	
1.25	144.0	
2.00	148.0	
3.00	151.5	
4.00	154.0	

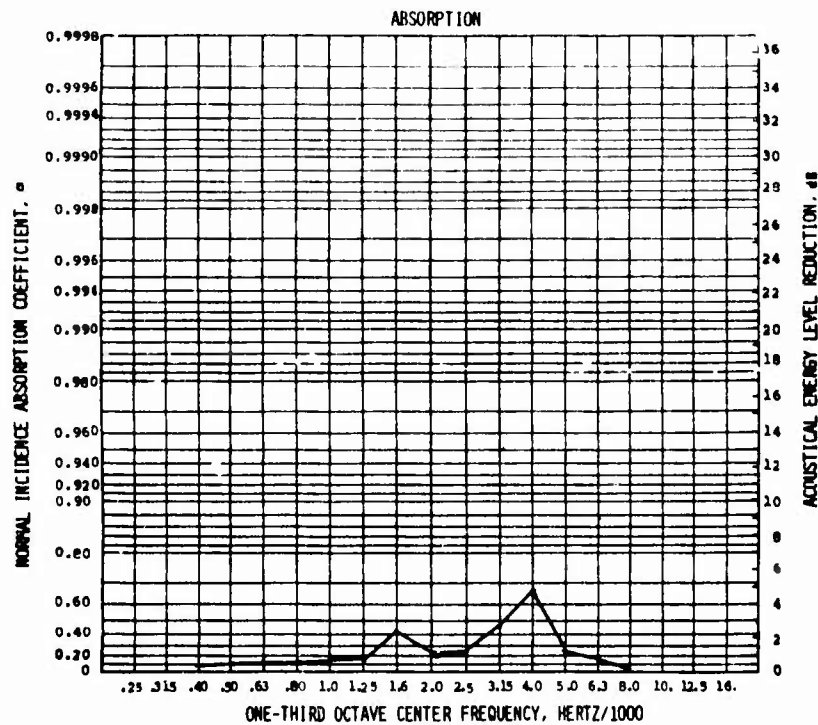


MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

NON-LINEARITY
FACTOR

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
 2. EQUIVALENT SPL = $20 \log P + 74$ dB
- WHERE: P = ΔP PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 10D

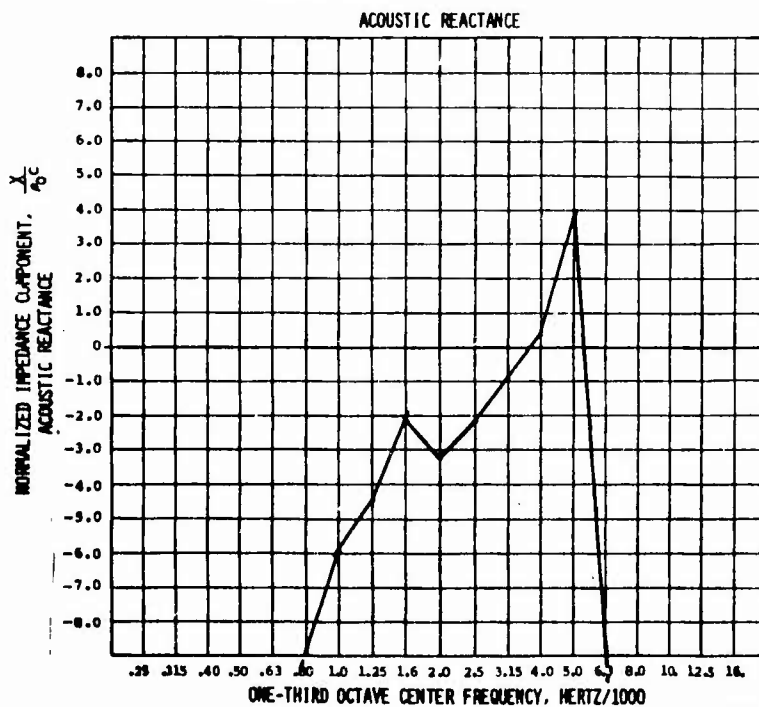
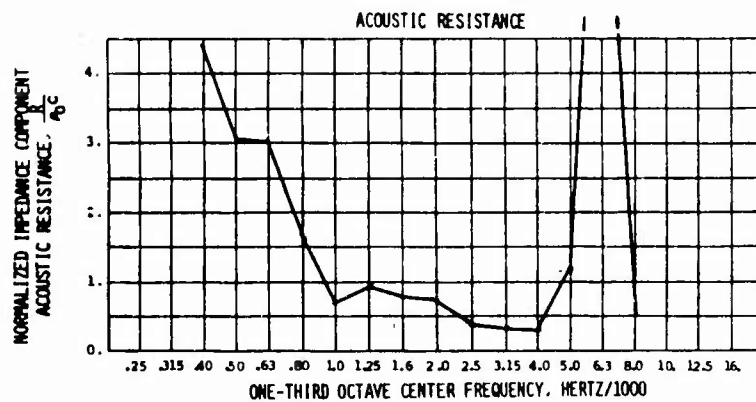
TEST DATE: FEB. 2, 1972

MATERIAL DESCRIPTION:

5/16 INCH DEEP CLEAR
THERMOPLASTIC DIMPLED
BACKING

CONFIGURATION:

NO FACE SHEET



MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

NOT APPLICABLE

ΔP 1	SPL 2	RAYLS
0.02	108.0	
0.05	116.0	
0.10	122.0	
0.20	128.0	
0.30	131.5	
0.50	136.0	
0.80	140.0	
1.25	144.0	
2.00	148.0	
3.00	151.5	
4.00	154.0	

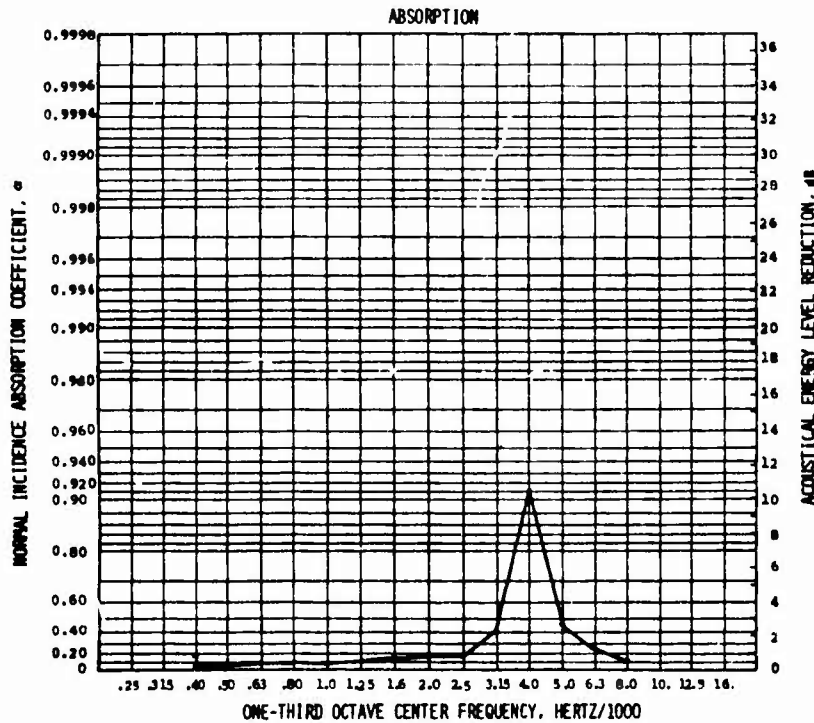
MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

NON-LINEARITY
FACTOR

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 10C

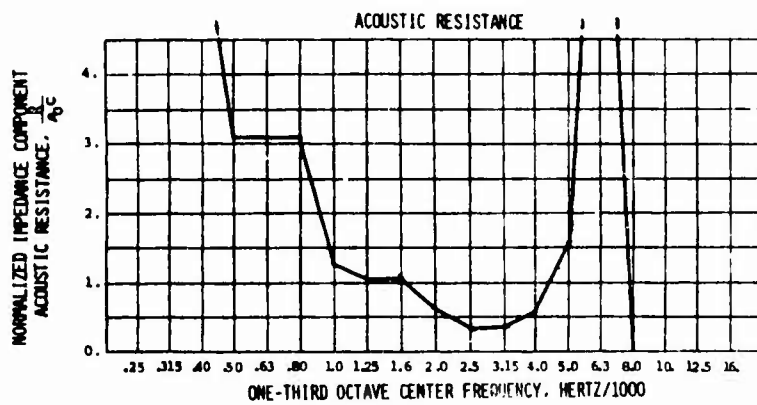
TEST DATE: FEB 22, 1972

MATERIAL DESCRIPTION:

5/16 INCH DEEP ALUM.
DIMPLED BACKING

CONFIGURATION:

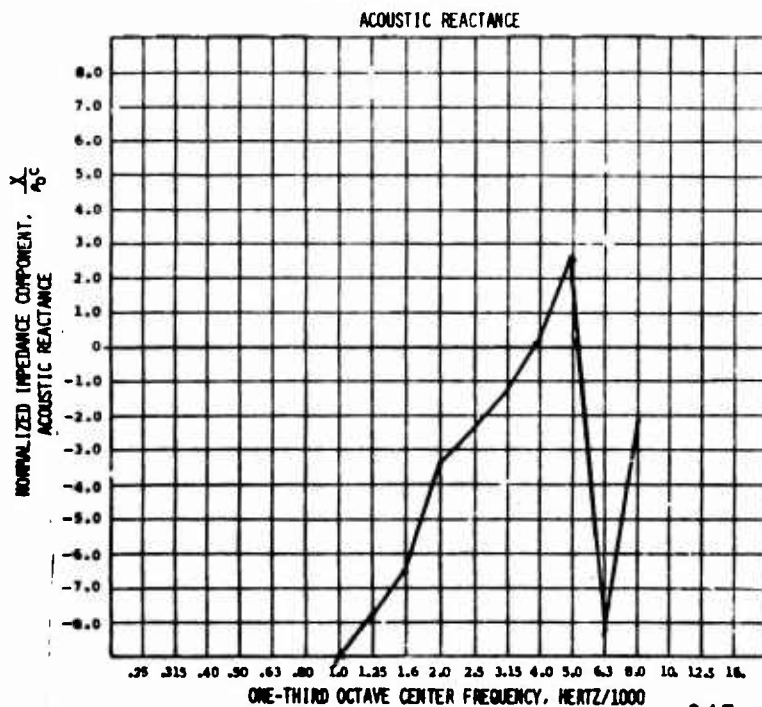
NO FACE SHEET



MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

NOT APPLICABLE

ΔP 1	SPL 2	RAYLS
0.02	108.0	
0.05	116.0	
0.10	122.0	
0.20	128.0	
0.30	131.5	
0.50	136.0	
0.80	140.0	
1.25	144.0	
2.00	148.0	
3.00	151.5	
4.00	154.0	



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

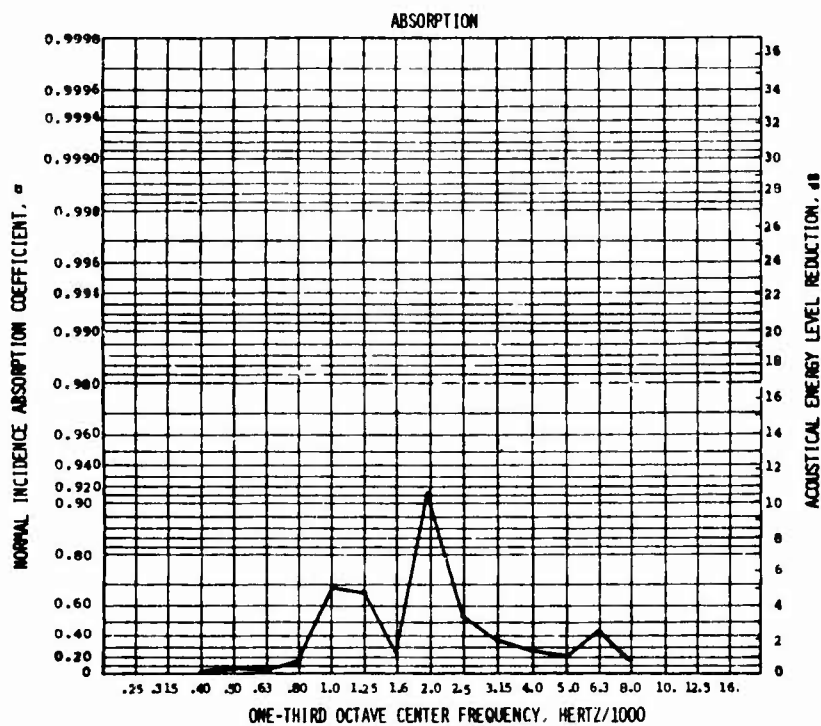
NON-LINEARITY
FACTOR

1. DIFFERENTIAL PRESSURE, INCHES OF WATER

2. EQUIVALENT SPL = 20 LOG P + 74 dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 9

TEST DATE: JAN. 27, 1972

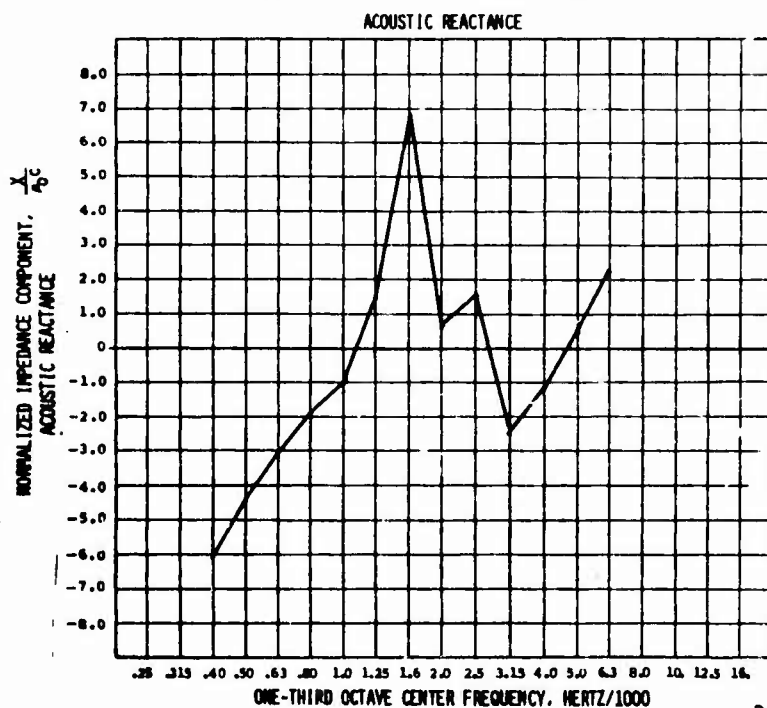
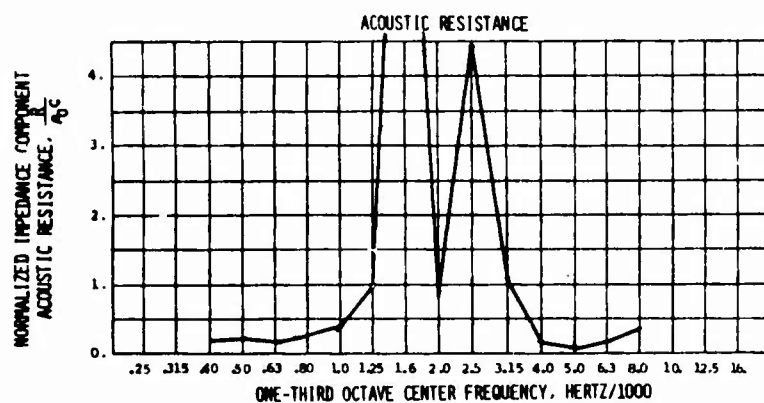
MATERIAL DESCRIPTION:
PLASTIC DIMPLED
BACKING MATERIAL

CONFIGURATION:
NO FACE SHEET

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

NOT APPLICABLE

ΔP 1	SPL 2	RAYLS
0.02	108.0	
0.05	116.0	
0.10	122.0	
0.20	128.0	
0.30	131.5	
0.50	136.0	
0.80	140.0	
1.25	144.0	
2.00	148.0	
3.00	151.5	
4.00	154.0	



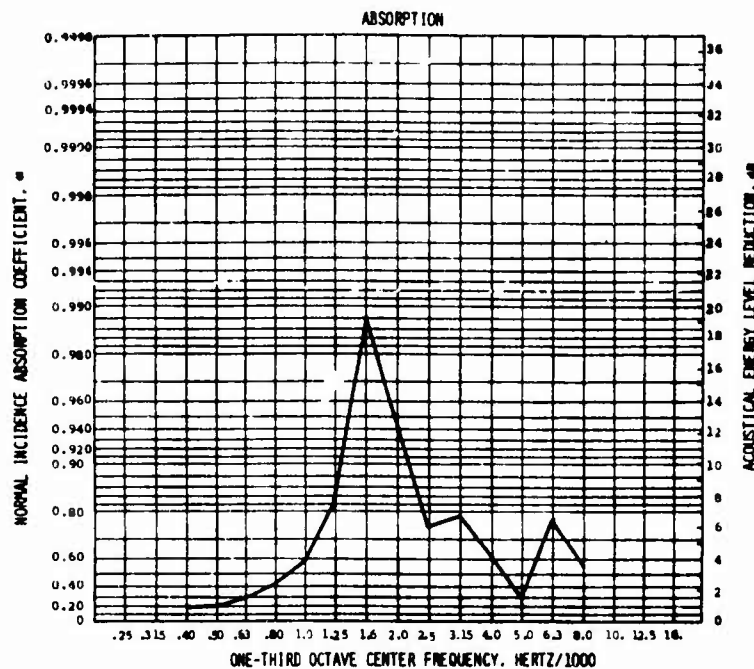
MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

NON-LINEARITY
FACTOR

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: $P = \Delta P$ PRESSURE IN DYNE/CM²

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 37-2S

TEST DATE: OCT. 6, 1972

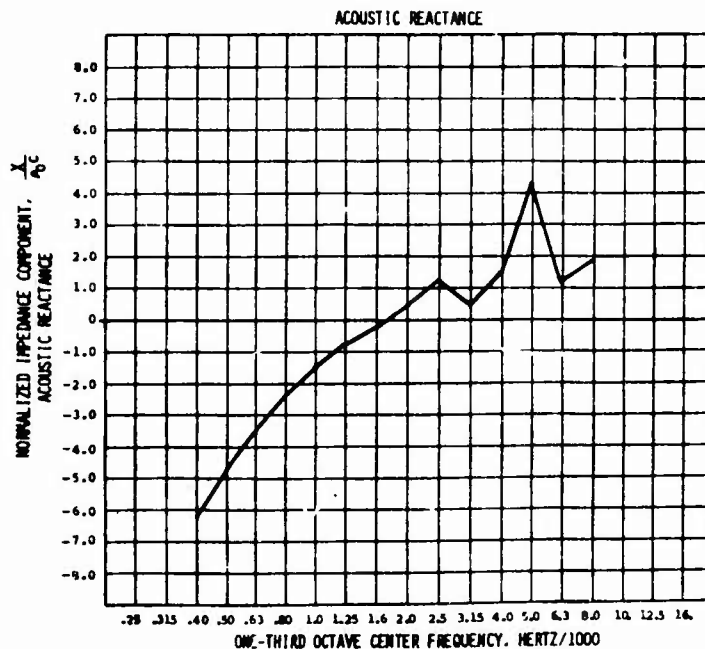
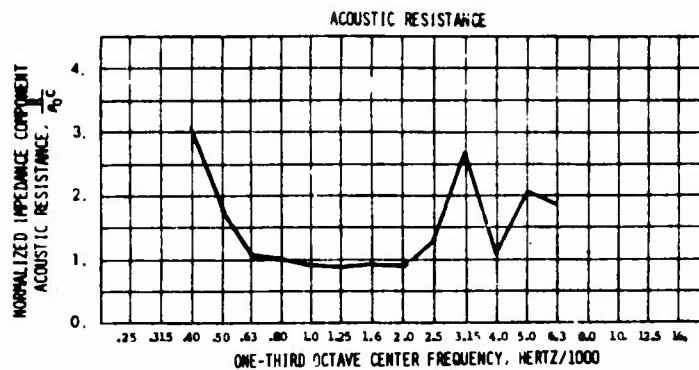
MATERIAL DESCRIPTION:

20 LINO POLYIMIDE

CONFIGURATION:

G.E. DOUBLE DIAMOND
BAFFLING IN 0.9 INCH
CAVITY BEHIND POLYIMIDE
SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL ²	RAYLS
0.02	108.0	26
0.05	116.0	26
0.10	122.0	28
0.20	128.0	31
0.30	131.5	35
0.50	136.0	43
0.80	140.0	52
1.25	144.0	61
2.00	148.0	74
3.00	151.5	92
4.00	154.0	105

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

35

NON-LINEARITY
FACTOR

62

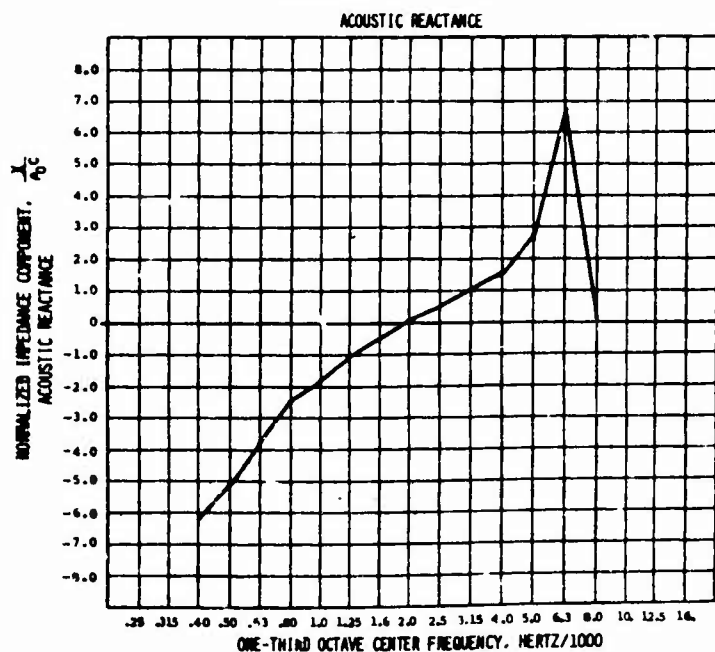
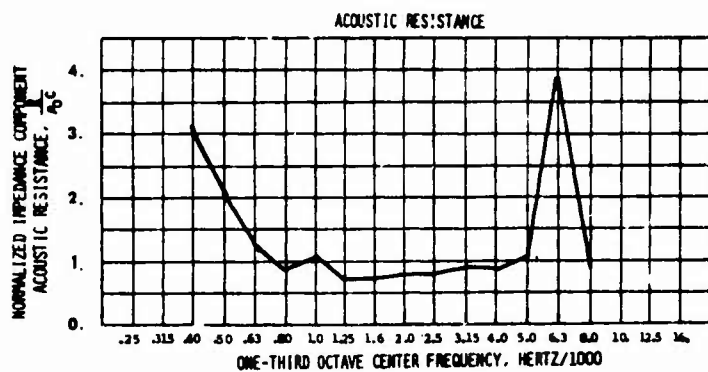
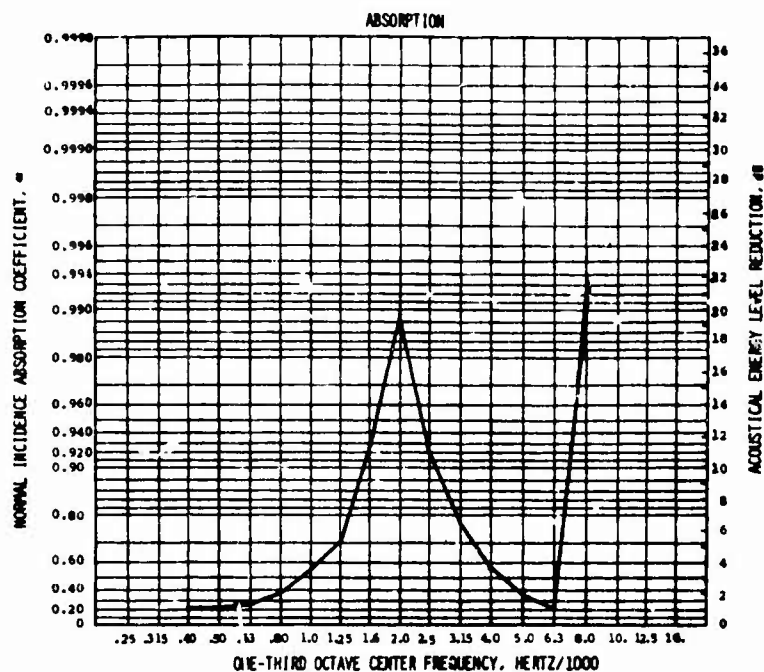
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 36-2S

TEST DATE: OCT. 23, 1972

MATERIAL DESCRIPTION:

20 LINO POLYIMIDE

CONFIGURATION:

0.9 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP	SPL	RAYLS
0.02	108.0	26
0.05	116.0	26
0.10	122.0	28
0.20	128.0	31
0.50	131.5	35
1.00	136.0	43
2.00	140.0	52
3.00	144.0	61
4.00	148.0	74
5.00	151.5	92
6.00	154.0	105

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

35

NON-LINEARITY
FACTOR

62

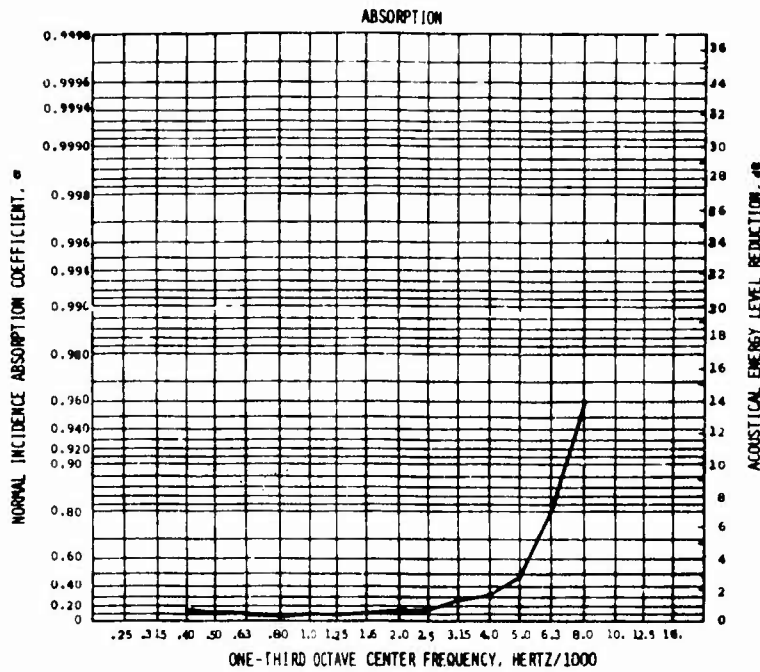
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 35-2S

TEST DATE: OCT. 21, 1972

MATERIAL DESCRIPTION:

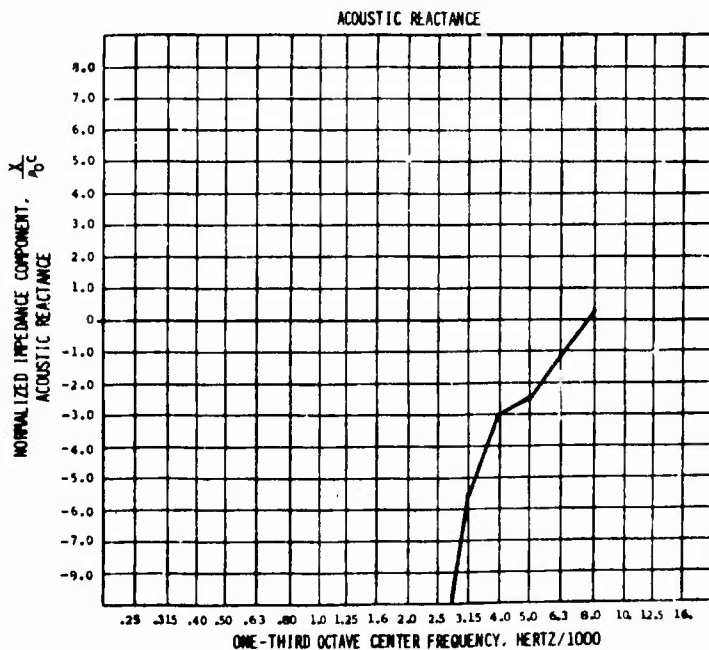
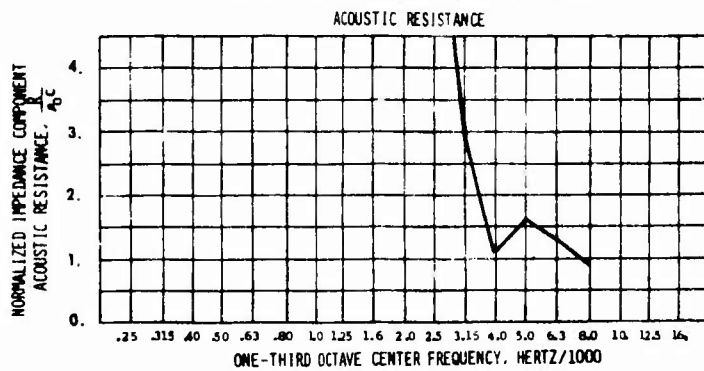
20 LINO POLYIMIDE

CONFIGURATION:

1/16 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP^1	SPL ²	RAYLS
0.02	108.0	26
0.05	116.0	26
0.10	122.0	28
0.20	128.0	31
0.30	131.5	35
0.50	136.0	43
0.80	140.0	52
1.25	144.0	61
2.00	148.0	74
3.00	151.5	92
4.00	154.0	105



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

35

NON-LINEARITY
FACTOR

62

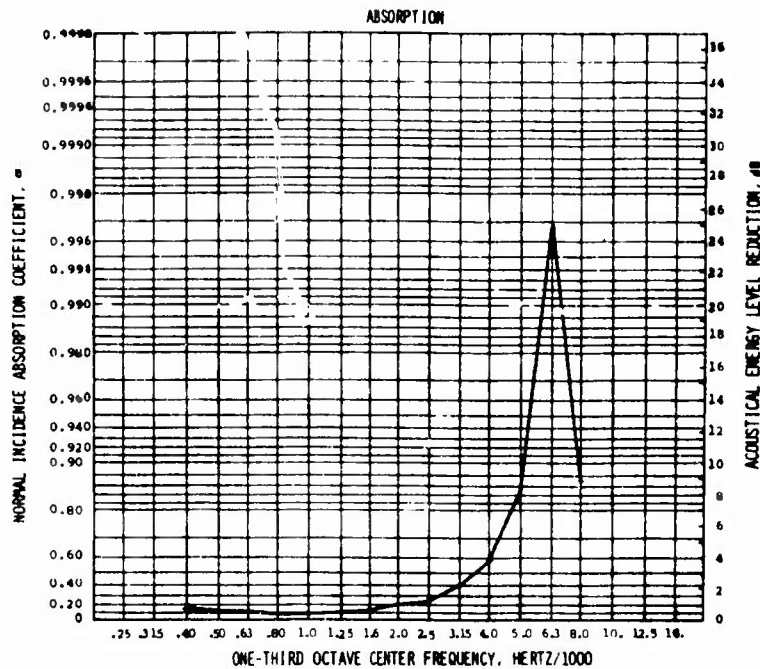
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*. EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 34-2S

TEST DATE: OCT. 21, 1972

MATERIAL DESCRIPTION:

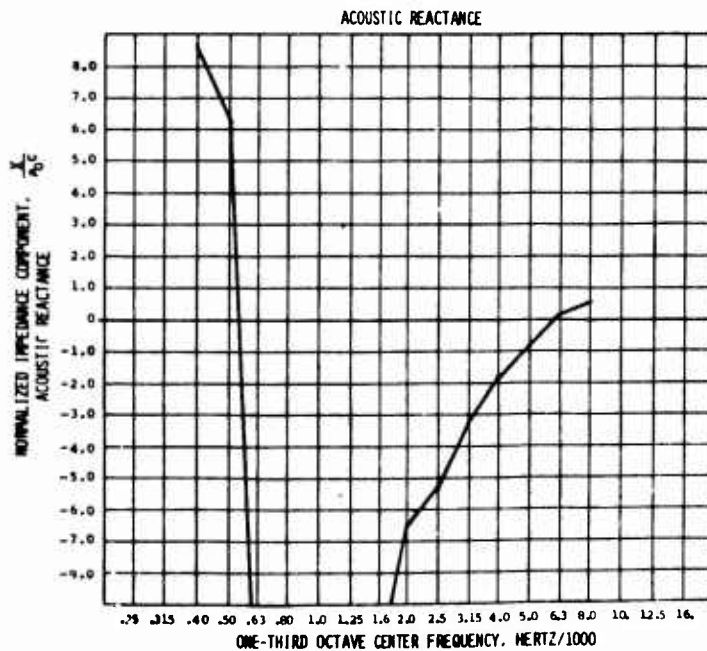
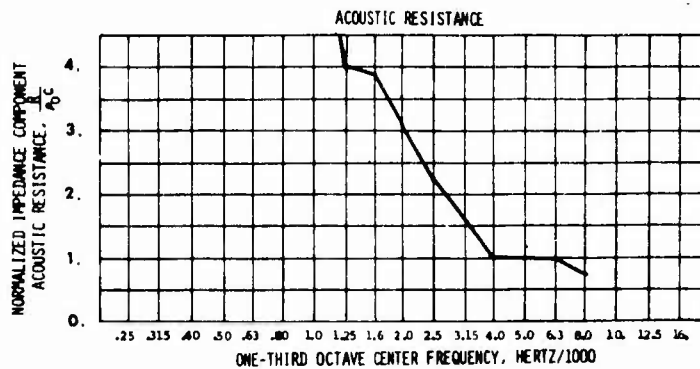
20 LINO POLYIMIDE

CONFIGURATION:

0.125 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP L	SPL ²	RAYLS
0.02	108.0	26
0.05	116.0	26
0.10	122.0	28
0.20	128.0	31
0.30	131.5	35
0.50	136.0	43
0.80	140.0	52
1.25	144.0	61
2.00	148.0	74
3.00	151.5	92
4.00	154.0	105



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

35

NON-LINEARITY
FACTOR

62

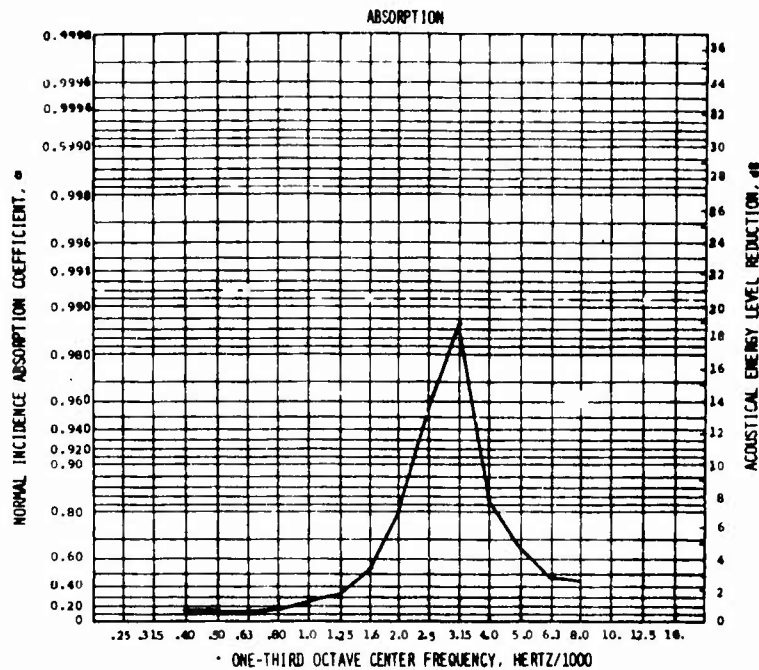
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 32-2S

TEST DATE: OCT. 21, 1972

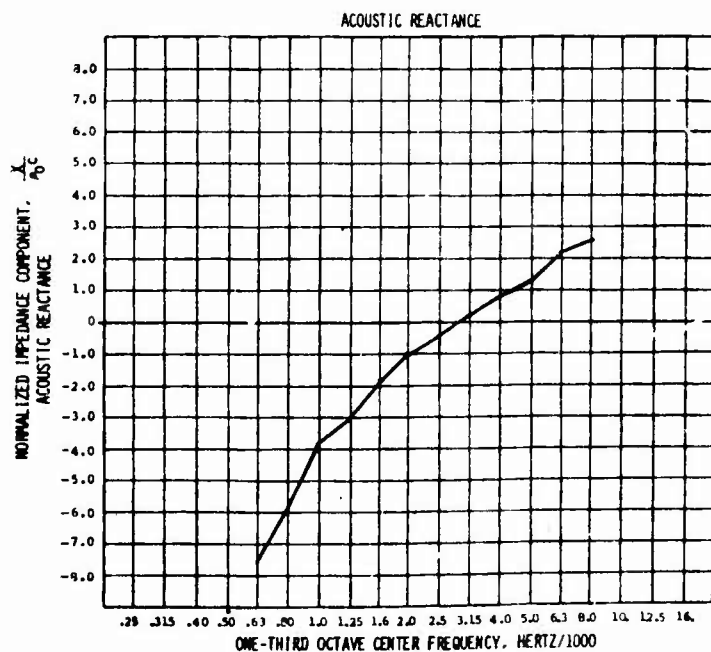
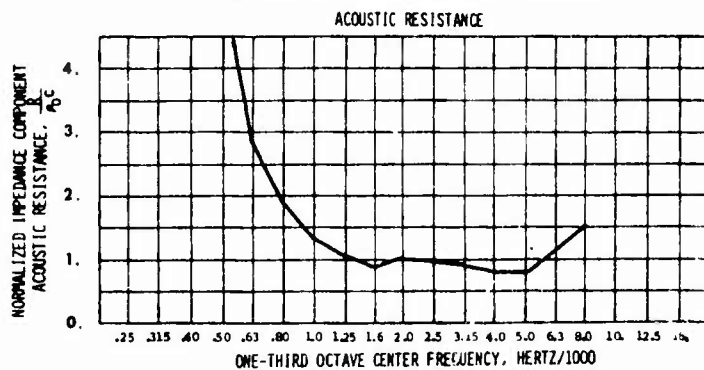
MATERIAL DESCRIPTION:

20 LINO POLYIMIDE

CONFIGURATION:

0.5 INCH AIRSPACE
BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)



ΔP	SPL	RAYLS
0.02	108.0	26
0.05	115.0	26
0.10	122.0	28
0.20	128.0	31
0.30	131.5	35
0.50	136.0	43
0.80	140.0	52
1.25	144.0	61
2.00	148.0	74
3.00	151.5	92
4.00	154.0	105

MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

35

NON-LINEARITY
FACTOR

62

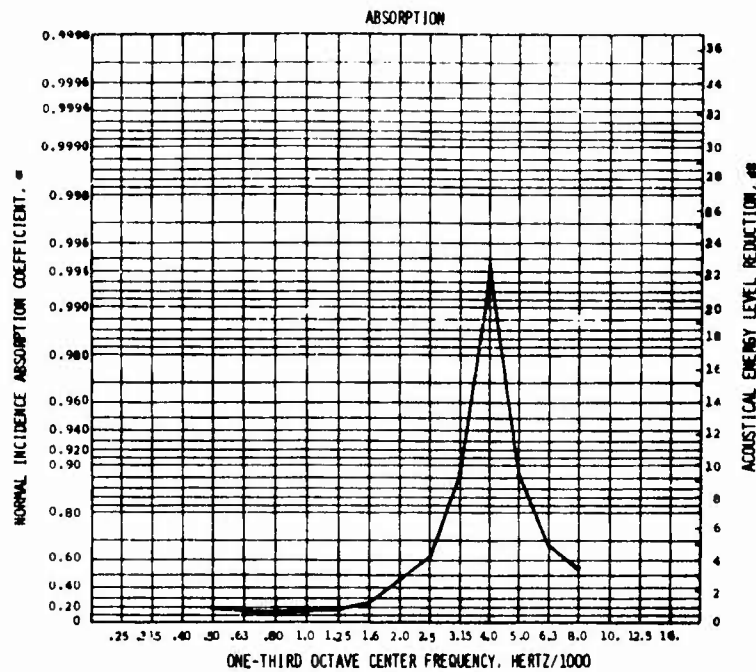
*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED

ACOUSTICAL MATERIAL TEST-REPORT DATA SHEET



SAMPLE NO: 31-2S

TEST DATE: OCT. 2, 1972

MATERIAL DESCRIPTION:

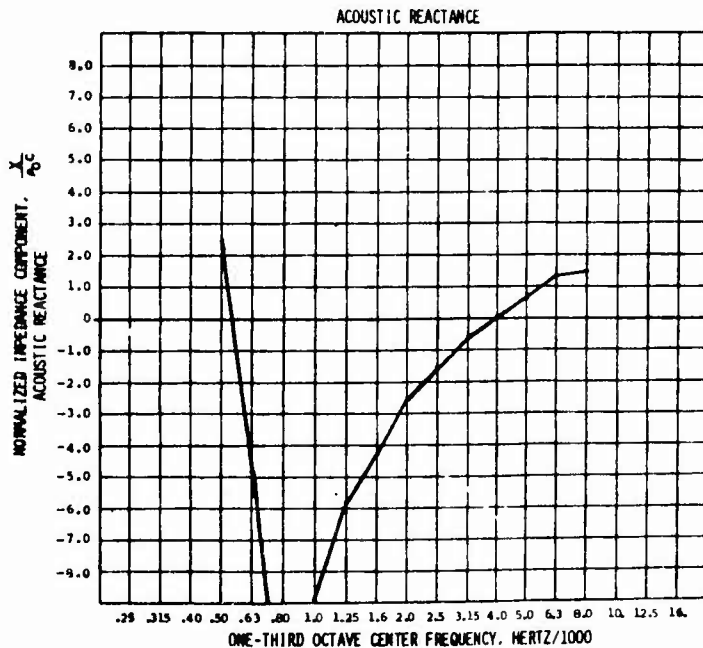
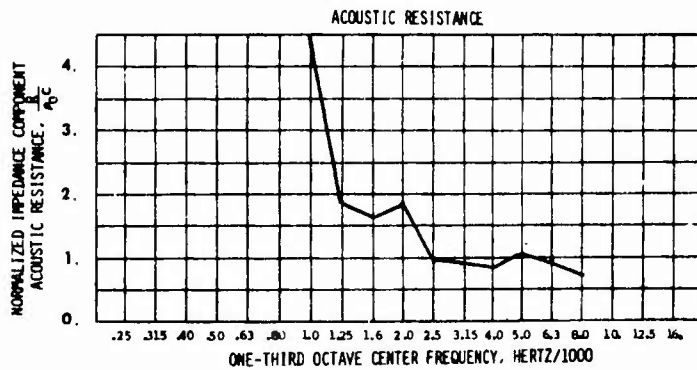
20 LINO POLYIMIDE

CONFIGURATION:

0.25 INCH CAVITY DEPTH
3/8 INCH CELL HONEYCOMB
IN CAVITY BEHIND SAMPLE

MEASURED D-C FLOW RESISTANCE (CGS RAYLS)

ΔP	SPL	RAYLS
0.02	108.0	26
0.05	116.0	26
0.10	122.0	28
0.20	128.0	31
0.30	131.5	35
0.50	136.0	43
0.80	140.0	52
1.25	144.0	61
2.00	148.0	74
3.00	151.5	92
4.00	154.0	105



MEASURED RAYL VALUE AT 20 CM/SEC
LINEAR AIRFLOW VELOCITY

35

NON-LINEARITY
FACTOR

62*

1. DIFFERENTIAL PRESSURE, INCHES OF WATER
2. EQUIVALENT SPL = $20 \log P + 74$ dB

WHERE: P = ΔP PRESSURE IN DYNE/CM²

*EXTRAPOLATED