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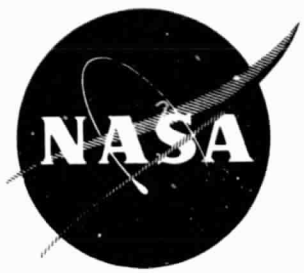
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NASA CR-72456
R68AEG482

LOW TIP SPEED FAN NOISE DEMONSTRATION PROGRAM

by

R. E. Motsinger
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W. R. Minzner
E. B. Smith
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Prepared for:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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AIRCRAFT ENGINE GROUP
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TOPICAL REPORT

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ABSTRACT

Noise levels are presented for a two stage fan, high bypass ratio turbofan engine, having a fan rotor tip speed of 1000 ft./sec. (305 m/sec.), pressure ratio of 1.45, bypass ratio of 5:1, and a thrust of 20,000 lb. (89,000 newtons) at the sea level static, standard day takeoff power setting. All noise data given in the report are for a bare engine, i.e. no sound absorption treatment was used during the tests. Data are presented as measured around a 225' (68.6 m) radius and as estimated for the 200' (60.9 m) sideline, for a 1000' (304.8 m) level flyover at the takeoff power setting, and for a 300' (91.4 m) level flyover at the "approach" power setting. Correlations of the measured noise levels with aerodynamic parameters are included.

1.0 SUMMARY

The purpose of this program is to establish the noise levels of a full scale two stage fan having a rotor tip speed, fan pressure ratio, bypass ratio, and thrust level essentially the same as those values derived from the NASA Quiet Engine Definition Program, specifically:

Rotor Tip Speed	~ 1000 ft/sec. (305 m/sec.)
Fan Pressure Ratio (Takeoff)	~ 1.45
Bypass Ratio	~ 5:1
Thrust (SLS)	18,000 - 22,000 lb (80,000 - 97,800 newtons)

The fan used for this purpose was that from the TF39 engine, modified to eliminate the outer half of the second stage and to increase the rotor/stator spacing to at least one true chord, such that all the above conditions were met in a two- stage configuration. The noise data included in this report will be directly comparable, to the extent that the above conditions are met, with those to be obtained from single stage fans such as those being considered for use on "quiet" turbofan engines in the NASA Quiet Engine Program. Desirable features not included in this test vehicle, because of practical considerations in modifying an existing engine, consist of a rotor/stator spacing of at least 2 aerodynamic chords and a vane/blade ratio of at least 2 to 1. The blade/vane numbers for the machine tested were 25R, 36V, 40 R, and 25V. Based on experience, a more optimum blade/vane ratio should provide for additional noise reduction

The test program included noise measurements for three fan operating lines to determine the sensitivity of noise to loading. Also, the core

engine nozzle area was changed to determine the relative importance of core engine jet noise.

In terms of aboslute levels, the following values were established for the standard configuration.

	Ground(1)	Level Flyover (2)	
Power Setting	1 Engine (Maximum PNdB)	3 Engines (Maximum PNdB)	4 Engines (Maximum PNdB)
Takeoff	124.7 $\pm$ 1.0	110.7 $\pm$ 1.0	112.0 $\pm$ 1.0
Approach	114.4 $\pm$ 1.5	114.2 $\pm$ 1.5	115.5 $\pm$ 1.5

Notes: (1) For 200' (60.9 m) sideline.

(2) "Takeoff" flyover is at 1000' (304.8 m), and "Approach" flyover is at 300' (91.4 m).

The results show that the engine noise is dominated by the pure tones generated by the blade passing frequencies of the fan rotors, that "sum and difference" tones were present but not significant in terms of Perceived Noise level, and that the noise levels at takeoff power were reduced in the order of 2 PNdB by lowering the fan operating line. (i.e., the relationship between fan pressure ratio and fan airflow) so that at constant speed the fan delivers a higher airflow at a lower pressure ratio.

Correlations of the noise levels with aerodynamic parameters by semi-empirical methods, together with analytical predictions of the noise levels based upon a purely theoretical approach, are included.

2.0 INTRODUCTION

To alleviate the annoyance currently being experienced by residents near commercial airports, NASA has been charged with the responsibility of evolving a turbofan engine of significantly lower noise levels than those currently on subsonic transport aircraft. The Lewis Research Center has the assignment of developing and demonstrating methods for reducing the noise output of the engine itself through appropriate choice of the engine thermodynamic cycle characteristics and mechanical design features basic to the configuration of the engine.

As a result of work done since July 1967 under the NASA sponsored Quiet Engine Definition Program, the area of interest was identified as being a turbofan engine having:

- o A low design tip speed ($\sim$1000 ft/sec (305 M/sec));
- o A bypass ratio of $\sim$5:1;
- o A fan pressure ratio at take-off power setting of $\sim$1.45:1;
- o A thrust level in the range of 18,000 to 22,000 lb (80,000 to 97,800 Newton).

In the Quiet Engine Definition Program, both single stage and two stage fan designs were studied. Predictions of the noise level differences between the two were unreliable because of the lack of data on the effect of stage loading on noise levels.

A two stage fan closely matching the desired conditions described above can be obtained by relatively minor modification of the fan portion of the TF39 engine. As designed for the C5A aircraft, the fan consists

of one and one-half stages: the first stage being the "half stage" and the second being the full stage. By removing the outer portion of the second stage, a two stage fan of the required characteristics in terms of tip speed, bypass ratio, pressure ratio, and airflow is obtained. Under contract with the NASA Lewis Research Center such modification was made to an early version (Block I) of an existing TF39 fan for obtaining the noise data included in this report.

The objective and scope of work reported here is given in detail by the Work Statement, Appendix A. Briefly, the purpose of the program is to determine the noise characteristics of a full-scale two-stage fan so that direct comparisons can be made with those of typical single-stage low tip speed fans of comparable size and pressure ratio, such as those being considered for use on "quiet" turbofan engines in the NASA quiet engine program. The program included modification of the TF39 turbofan engine, serial number GE-441004, by removing the outer half (outer panel) of the second fan stage and increasing the axial spacing between the remaining fan rotor and stator rows. The engine was operated at the GE Peebles Test Site, measuring the noise in the far field with microphones at 10° (0.174 rad) increments on a 225 ft (68.6M) radius and in the near field with acoustic probes in the fan inlet, fan discharge, and turbine discharge ducts. Four major test variations were investigated, besides a check of the effect of inlet probes on noise levels, including: three variations of the fan discharge nozzle area (to put the fan on the normal operating line, above it, and below it) to determine the effect of fan loading, and one variation of the core engine

discharge nozzle area. The three fan nozzle areas were used with an oversized core engine nozzle to prevent the core engine jet noise from obscuring changes in the fan noise spectrum as the loading was changed; the core engine nozzle was then changed to the nominal size to obtain the normal jet noise.

This report presents the detailed test data obtained from the experimental program plus analysis of the results in terms of in-flight noise comparison, effect of operating line variations, and correlations of noise levels with the aerodynamic parameters of the fan.

3.0 TEST VEHICLE, FACILITY AND TEST PROGRAM DEFINITION

This section defines the vehicle as tested, the test facility in which the far field noise measurements were made, the instrumentation used for measuring both aerodynamic and acoustic data, and a summary description of the test program content.

3.1 TEST VEHICLE

The engine configuration as tested in this program is shown by the cross-sectional assembly drawing given in Figure 3.1-1 A. A photograph of the engine assembly as built is shown in Figure 3.1-1 B. The engine configuration is a Block I design as modified for this program and designated as Serial Number GE-441004 B/U 6. Modifications made in the fan section from the original TF39 configuration are illustrated in Figure 3.1-2; attention is directed to the fan rotor/stator assembly in this illustration, not the inlet (an ASME bellmouth was used in the acoustic tests). The modification was accomplished by removing the outer half of the second stage fan rotor and the associated inlet and outlet guide vanes, and using the inner half (inner panel) of the fan. At the same time, the fan rotor shaft was increased in length by substituting the parts indicated by cross-hatching. The stage 2 rotor is moved forward by 6 inches (0.152 M), the stage 1 stator by 9.4 inches (0.238 M), and the stage 1 rotor by 14.3 inches (0.363 M). The rotor/stator spacing resulting from these changes are 1.06, 1.24, and 1.22 true chord lengths, where the chord is measured at the mean radius at the inlet of that rotor or stator row and the spacing is measured

in the direction of flow at the mean radius for the flow angles at the cruise design point.

It should be noted that insofar as the rotor blades and stator vanes are concerned, existing parts were reworked, and new parts were not required; thus, the flow path within the blades and vanes, themselves, is the same as in the unmodified TF39 Block I inner panel. Pertinent design point parameters for the TF39 inner panel fan are tabulated in Tables 3.1-1 and 3.1-2, giving the inner flow path design and the design point parameters at altitude cruise, respectively. Photographs of the TF39 fan rotor and of the inner panel fan rotor are shown in Figures 3.1-3 and 3.1-4, respectively.

The inlet to the fan was an ASME bellmouth with an L/D of approximately 1; a photograph of the bellmouth mounted on the engine is shown in Figure 3.1-5. The discharge flowpath from the fan was designed for the modified configuration, simulating the discharge Mach number schedule as in the conventional TF39 fan exhaust, with three fan exhaust nozzles sized to provide fan pressure ratios of 1.50, 1.45 (design point), and 1.35 for a fan airflow of 750 lb/sec (340 Kg/sec)*.

* The actual conditions achieved are given in Section 4.1, Summary of Performance Data.

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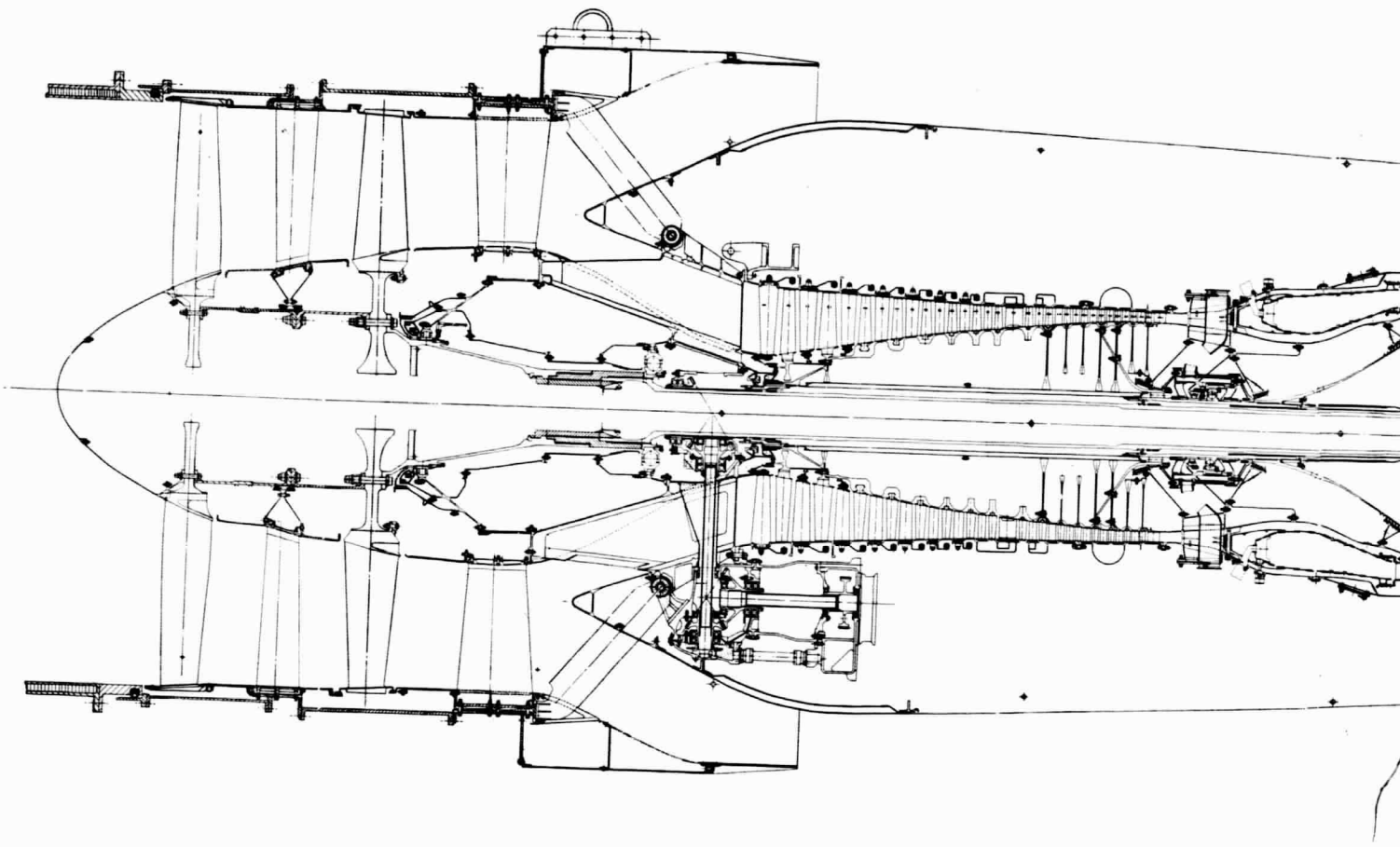
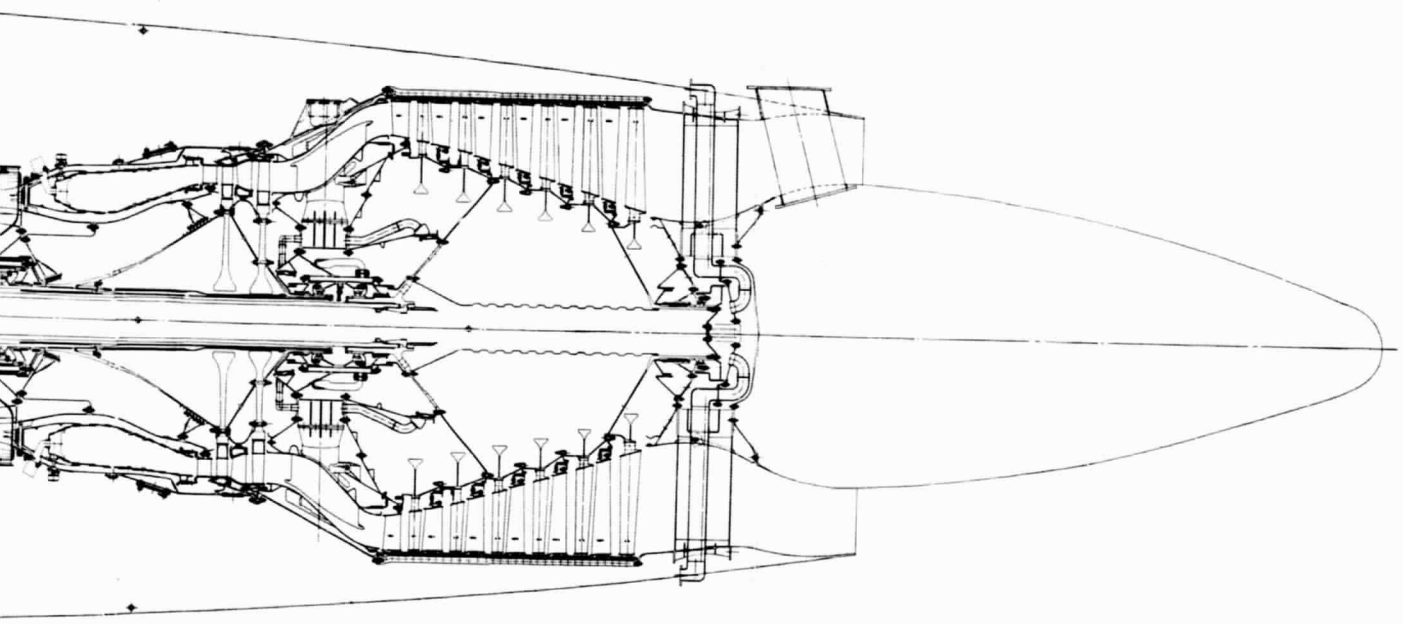


Figure 3.1-1A Low Tip Speed Fan Noise

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ed Fan Noise Demonstration Vehicle

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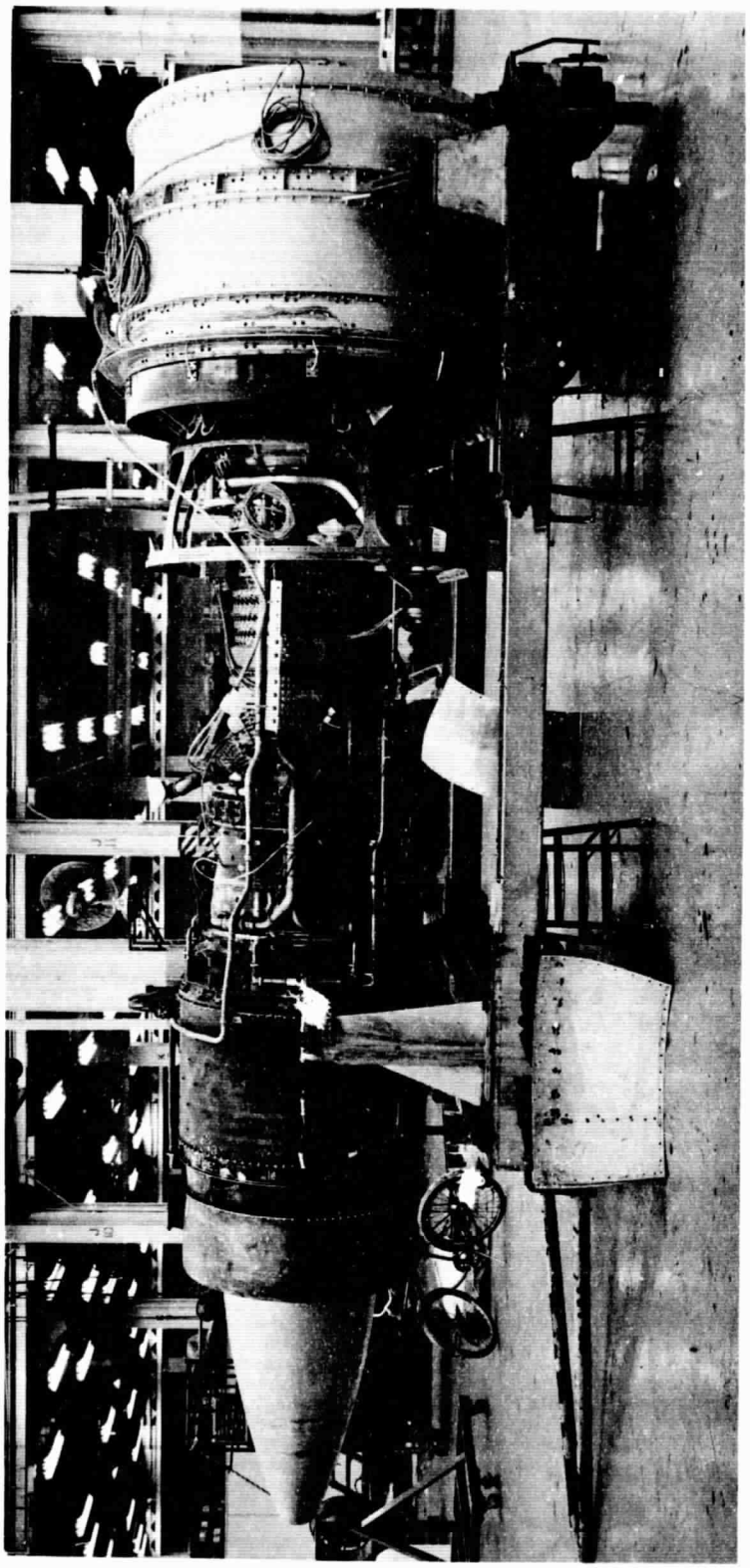


Figure 3.1-1B Engine Assembly

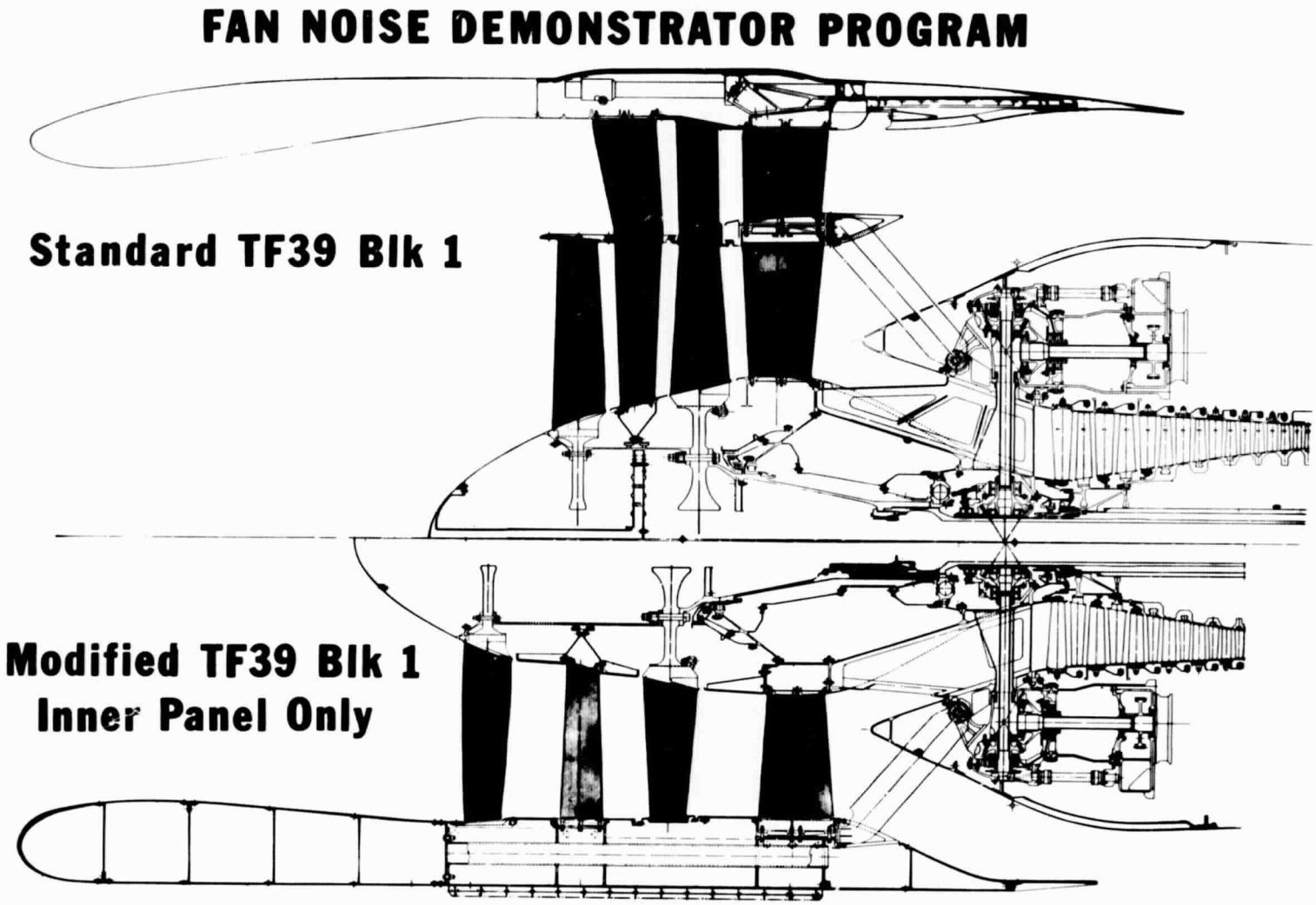


Figure 3.1-2 Fan Noise Demonstrator Program

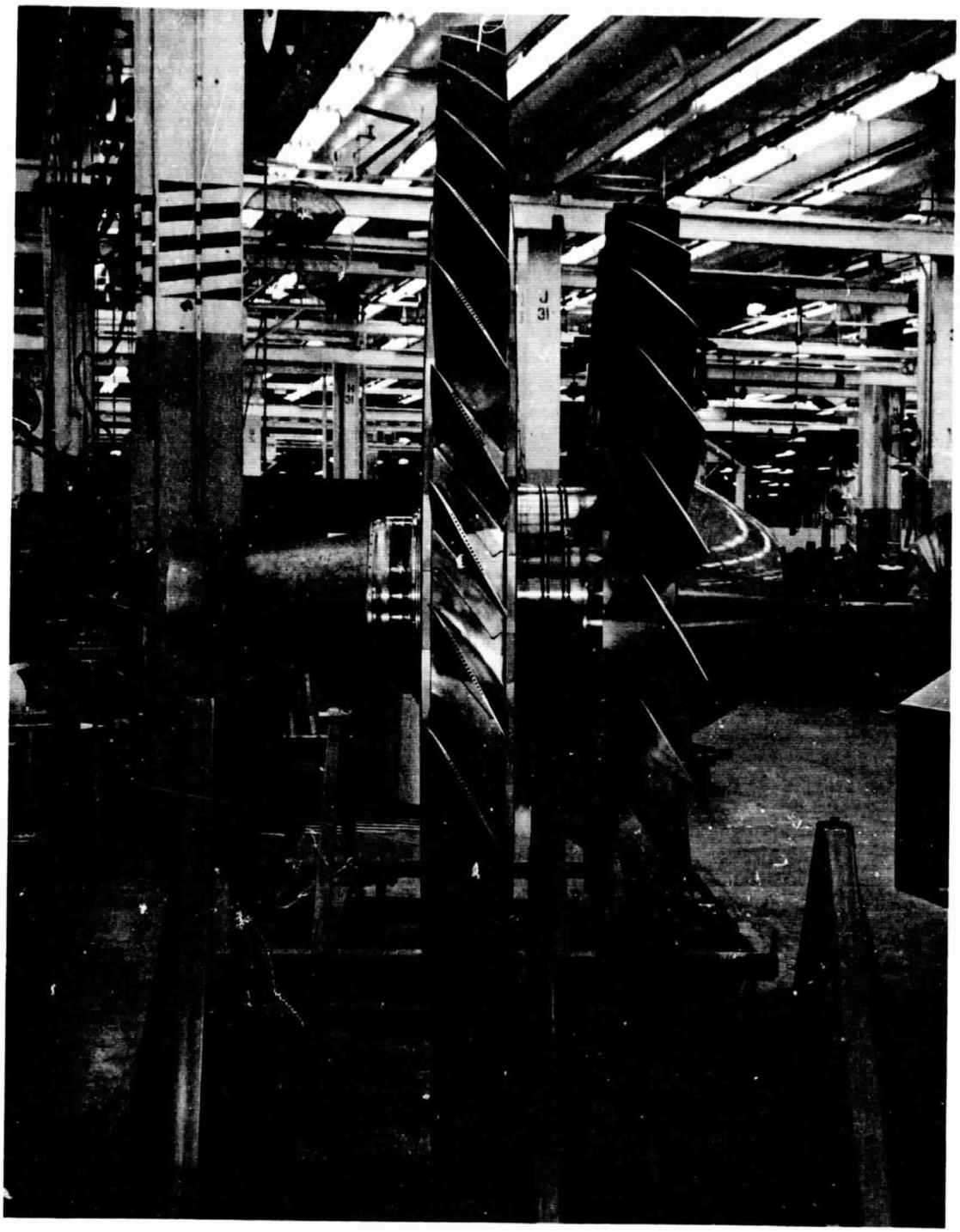


Figure 3.1-3 TF39 Fan Rotor Assembly

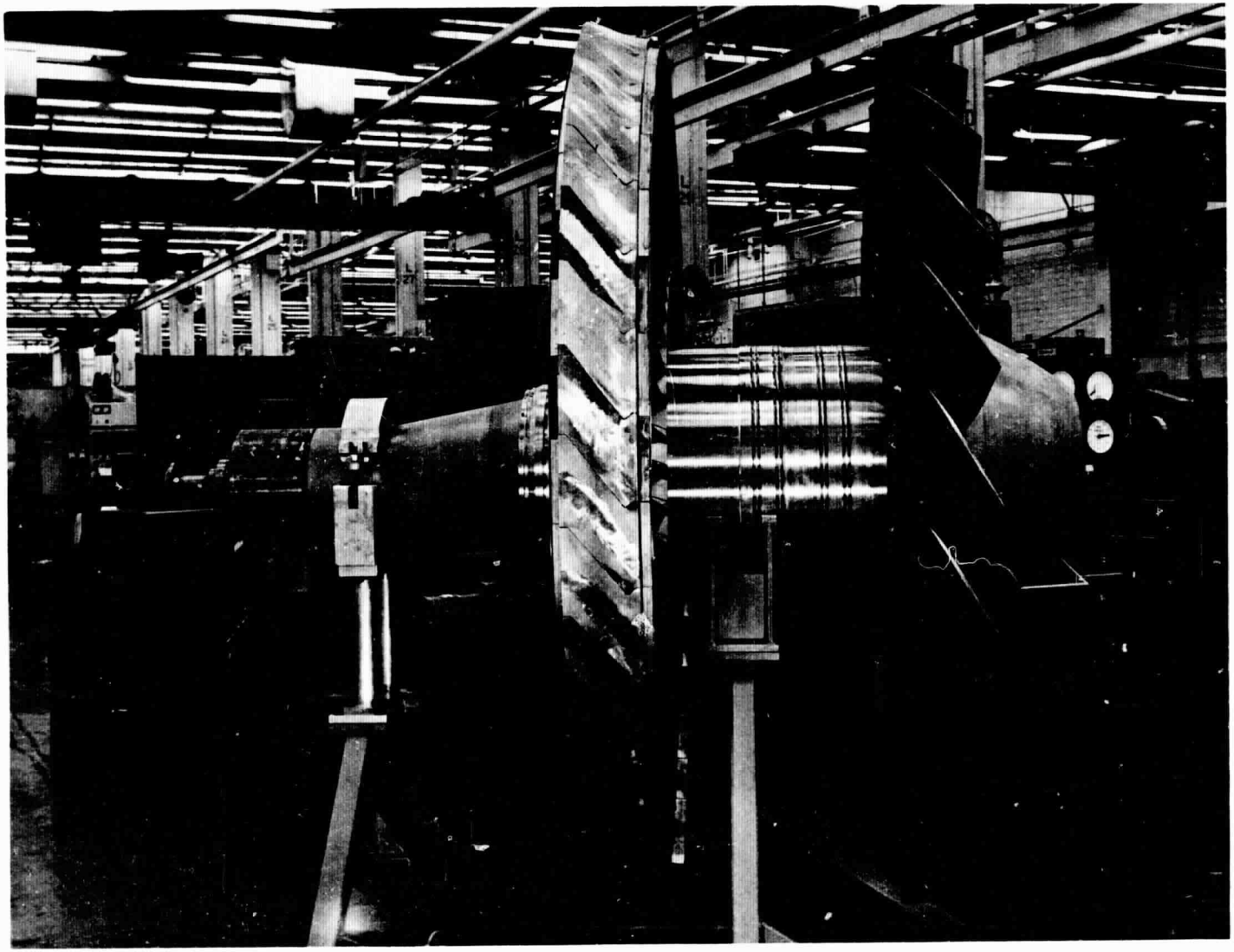


Figure 3.1-4 Inner Panel Fan Assembly

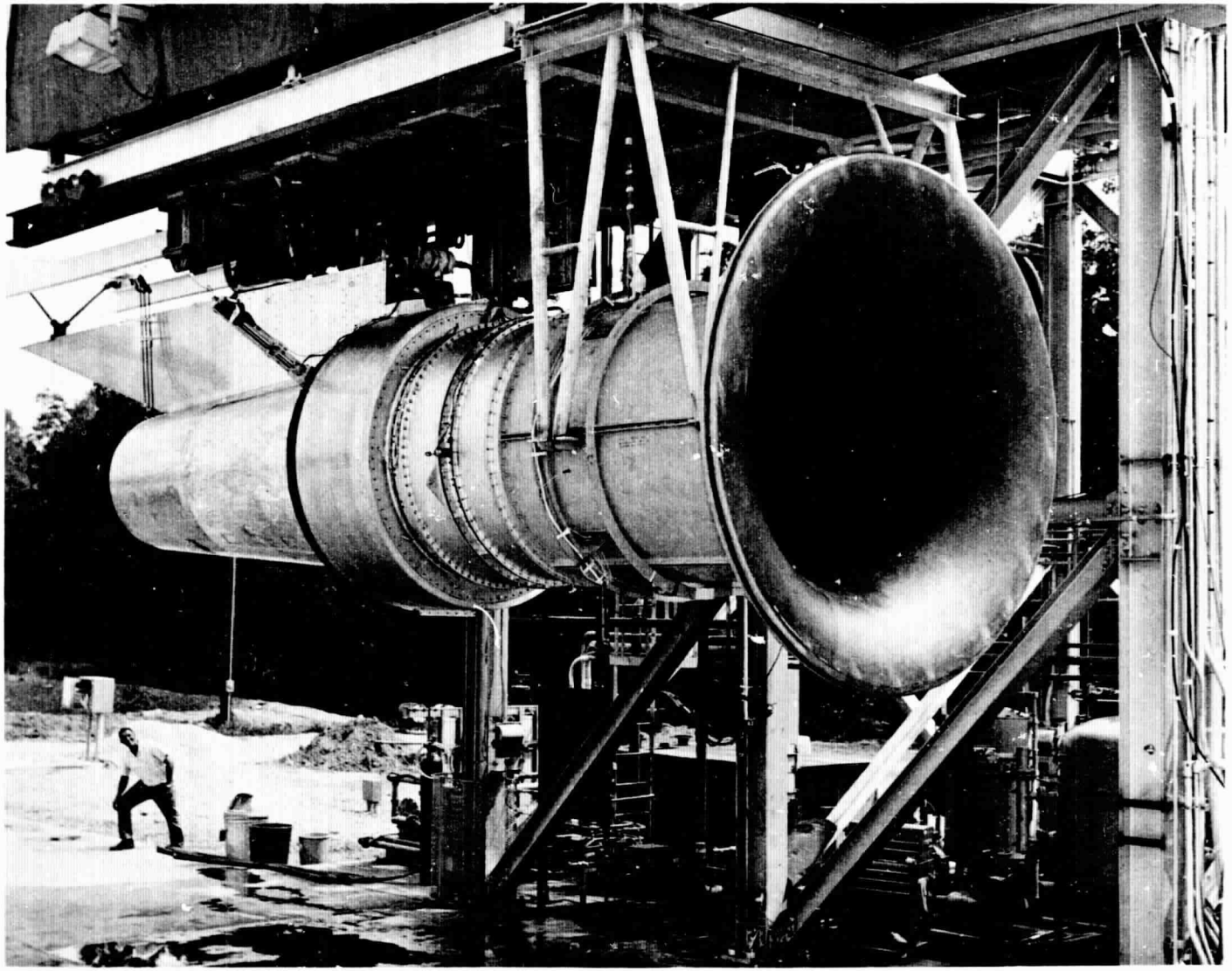


Figure 3.1-5 Two Stage Low Tip Speed Fan Noise Demonstrator Engine

TABLE 3.1-1

BLOCK I TF39 FAN INNER FLOWPATH DESIGN

		Cruise Design Point	SLS
Corrected Airflow	lb/sec (Kg/sec)	847.15 (384)	750 (340)
Corrected RPM	RPM (Rad/sec)	3954 (414)	3475 (364)
Corrected Tip Speed	ft/sec (m/sec)	1154 (352)	1015 (309)
Engine Fan Operating Line Pressure Ratio		1.55	1.45
Computational Fan Pressure Ratio		1.579	
Corrected Flow per Annulus Area	$lb/sec/ft^2$ $(Kg/sec/m^2)$	40 (195.5)	
Inlet Axial Mach Number		.586	
Exit Axial Mach Number		.527	
First Rotor Tip Relative Mach Number		1.2055	.978
Tip Diameter	ft (m)	5.573 (1.699)	
Number of Stages		2	
Number of Blades & Vanes			
First Rotor		25	
First Stator		36	
Second Rotor		40	
Second Stator		25	

TABLE 3.1-2

BLOCK I - DESIGN POINT PARAMETERS

ALTITUDE CRUISE

		Inner 1	2
Rotor Velocity, ft/sec (M/Sec)	Tip	1154 (352)	1138 (347)
	Pitch	872 (268)	892 (272)
	Hub	419 (127)	555 (169)
Stage Pressure Ratio	Tip	1.245	1.259
	Pitch	1.248	1.268
	Hub	1.237	1.272
Stage Temperature Rise, ^{o}F (^{o}K)	Tip	42.54 (23.63)	46.91 (26.06)
	Pitch	37.07 (20.59)	43.51 (24.17)
	Hub	37.06 (20.59)	46.28 (25.71)
Rotor $\Delta P/q$	Tip	.1606	.2050
	Pitch	.2940	.3215
	Hub	.2763	.3610
Stator $\Delta P/q$	Tip	.0831	.2462
	Pitch	.0024	.2105
	Hub	.2849	.2734
Rotor Inlet Hub to Tip Ratio		.3613	.4853
Stator Inlet Hub to Tip Ratio		.4407	.5498

3.2 TEST FACILITIES

All testing for this program was performed at the G.E.facilities at Peebles Proving Ground, Site IV, shown in an aerial view in Figure 3.2-1. The cleared space in the left center of the photo has three test pads for sound measurements. A ground view of Pad D, the pad used for these tests, is shown in Figure 3.2-2 at the left side of the photo. The sound field consists of level crushed rock, over a 250 ft (76.2 M) arc centered on the front face of the fan. The plat plan of the test stand and sound field is shown in Figure 3.2-3.

A view of the test stand with the test vehicle mounted is shown in Figure 3.1-5. The engine mounting pylon was covered to provide a smooth transition over the pylon surface, simulating a typical aircraft installation. Engine centerline height from the ground was 13 ft (3.96 M). Instrumentation and service lines were routed through the mounting pylon to prevent obstructions in the flow stream.

Aerodynamic instrumentation lines were led to transducer banks located near the base of the test stand, and the resulting electrical signal led to an automatic digital recording system located in the central control room. Resulting digital readout data were converted to engineering units, and aerodynamic calculations were made with the G.E. Time Share Computer, allowing "on line" computation of performance data.

Acoustic data were recorded by means of a 28 channel Sangamo Tape Recorder (Model 4700), having 25 FM channels with a response of 0-20 KHz

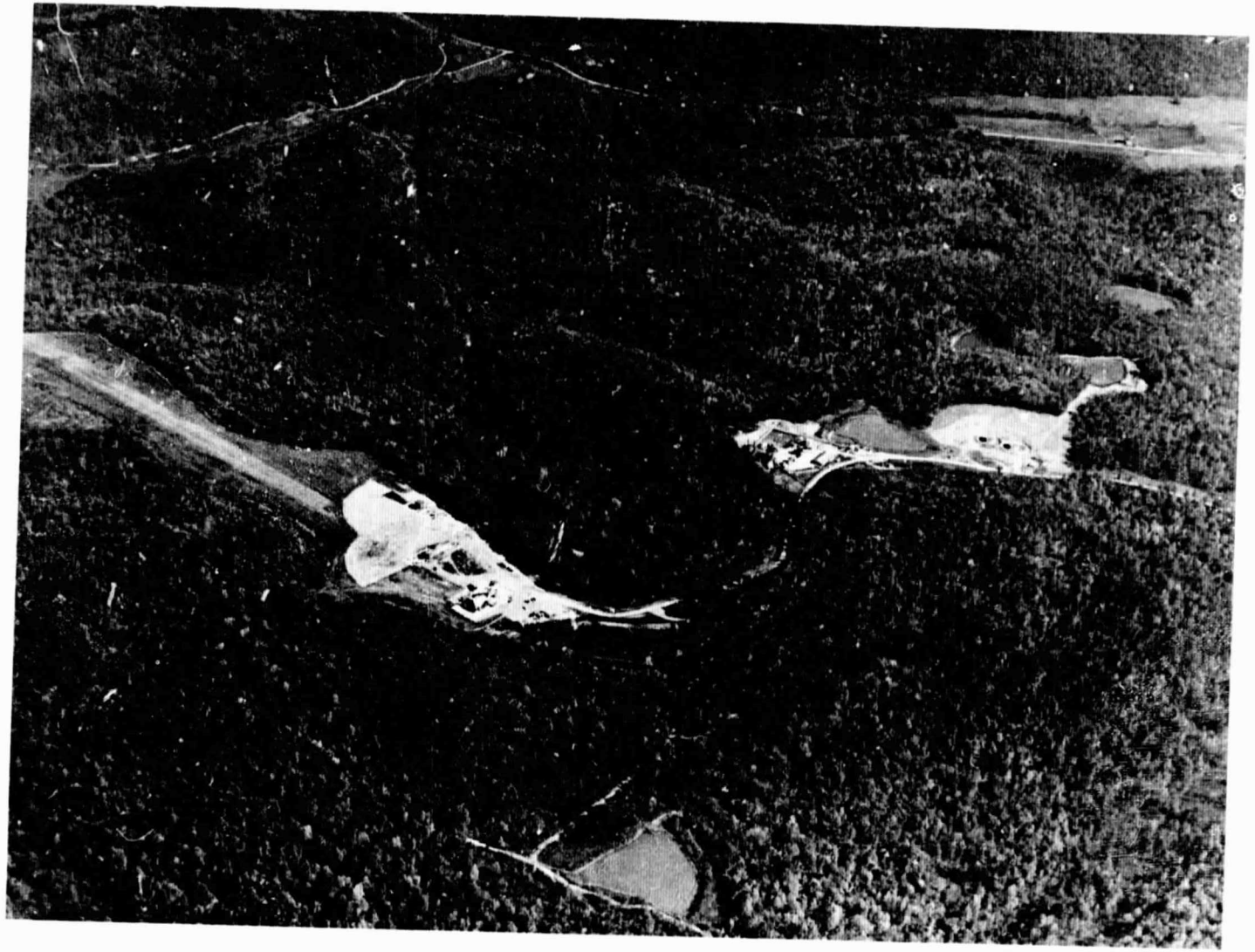


Figure 3.2-1 Aerial View of Peebles Facilities

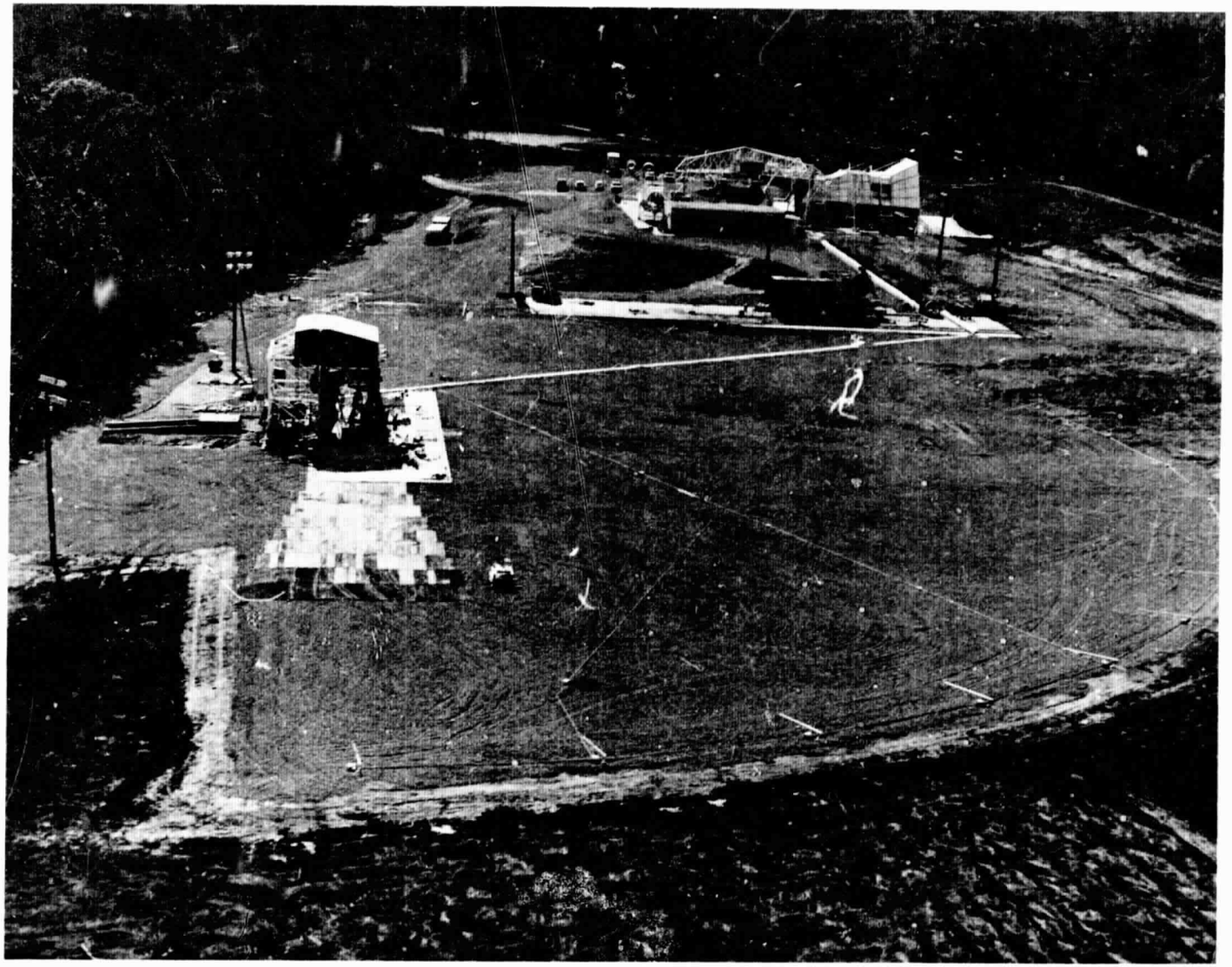


Figure 3.2-2 Peebles Test Facilities

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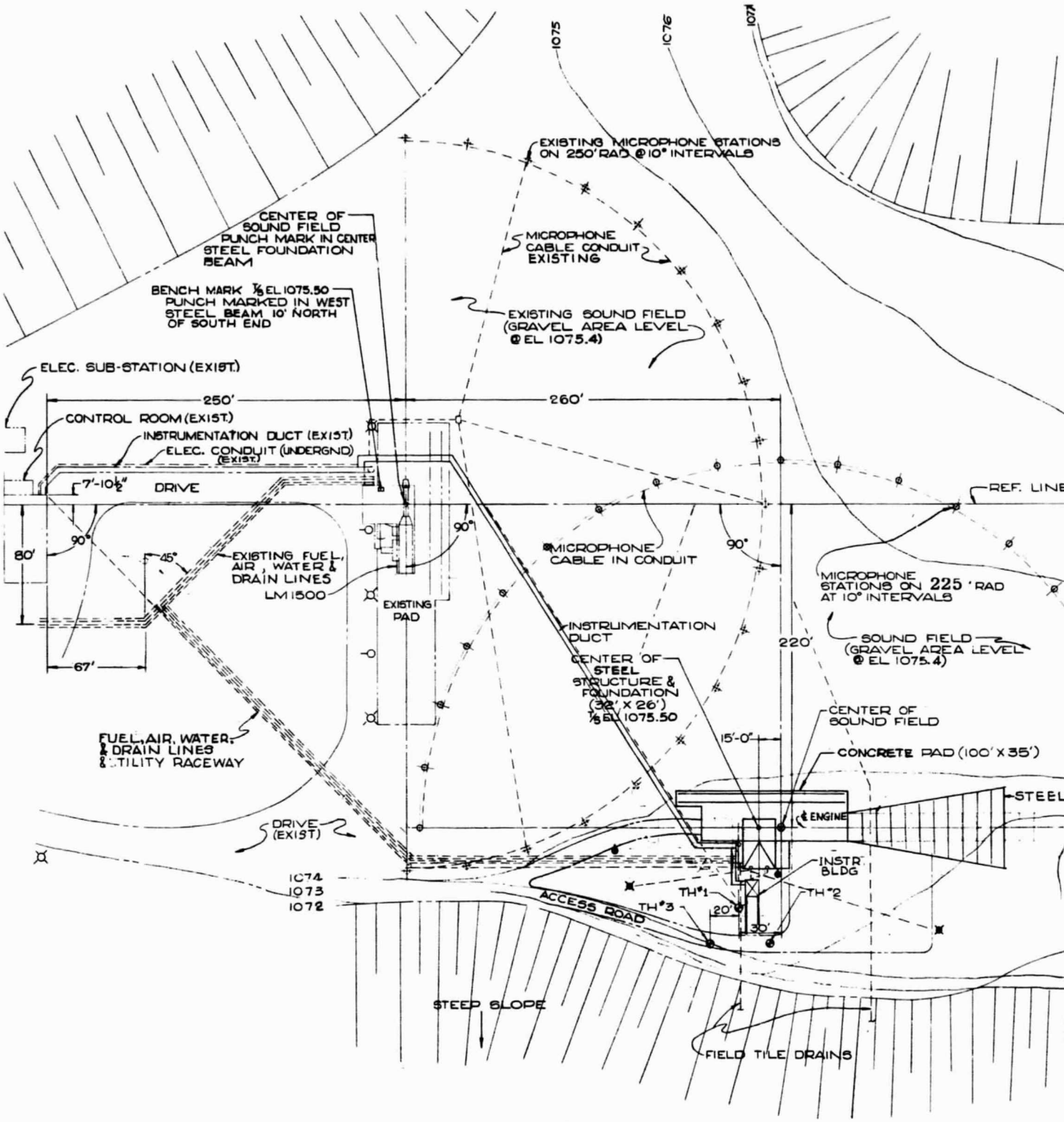
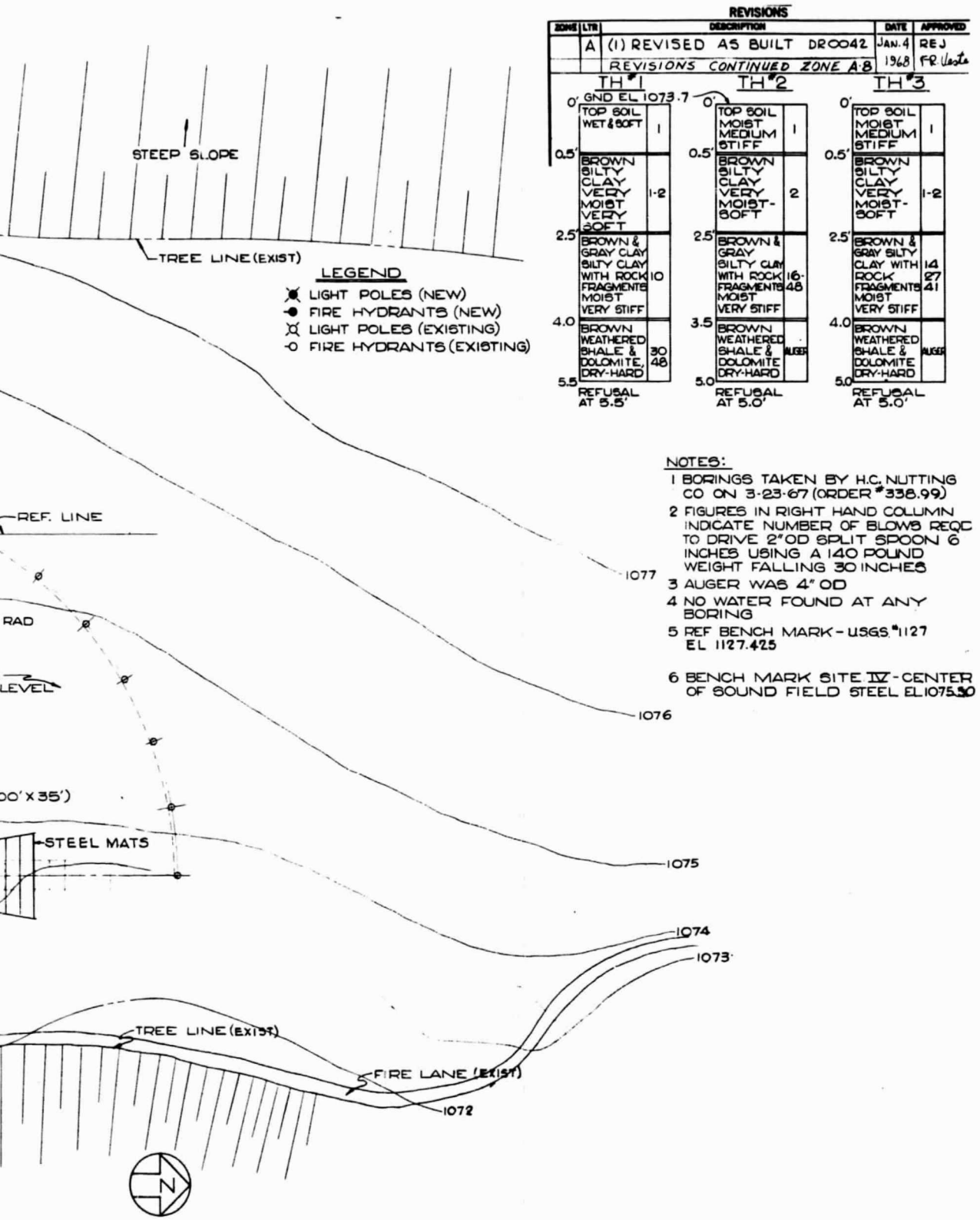


Figure 3.2-3 Engine Sound Facility Plot Plan

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for acoustic data and 3 AM channels for voice, fan speed, and gas generator speed. Data were recorded on 1-3/4 inch (0.0445 M) magnetic tape at a tape speed of 30 IPS (0.76 m/sec).

Acoustic data taken during the test were reduced on the digital computer data reduction facilities of the Evendale Plant.

All far field data were reduced in 1/3 octave bands from 50-10,000 Hz using a Bruel and Kjaer parallel filter set with an analogue-to-digital converter system. Final output of this system was provided by the GE635 computer.

Far field and probe data were reduced to 20 Hz narrow band spectrum plots using a Federal Scientific Company Analyzer and GE 635 computer, using an analogue-to-digital conversion system.

3.3 INSTRUMENTATION

This section defines the aerodynamic and acoustic instrumentation used in this test program.

- Aerodynamic Instrumentation

  The test vehicle was instrumented to determine aerodynamic operating characteristics in the various configurations tested. Instrumentation type, location, and quantity were as specified below. Station designations showing the location of the instrumentation are given in Figure 3.3-1.

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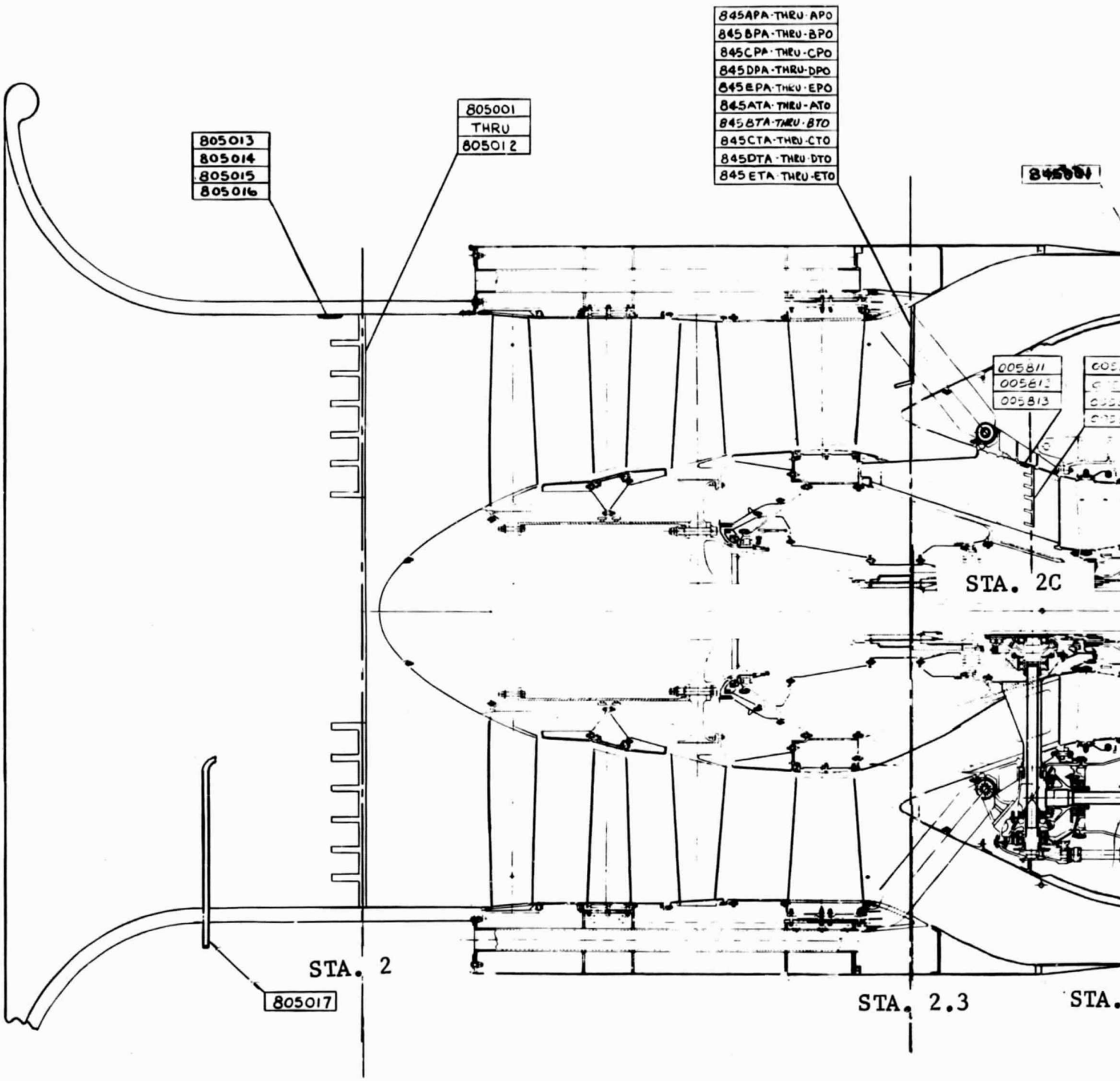
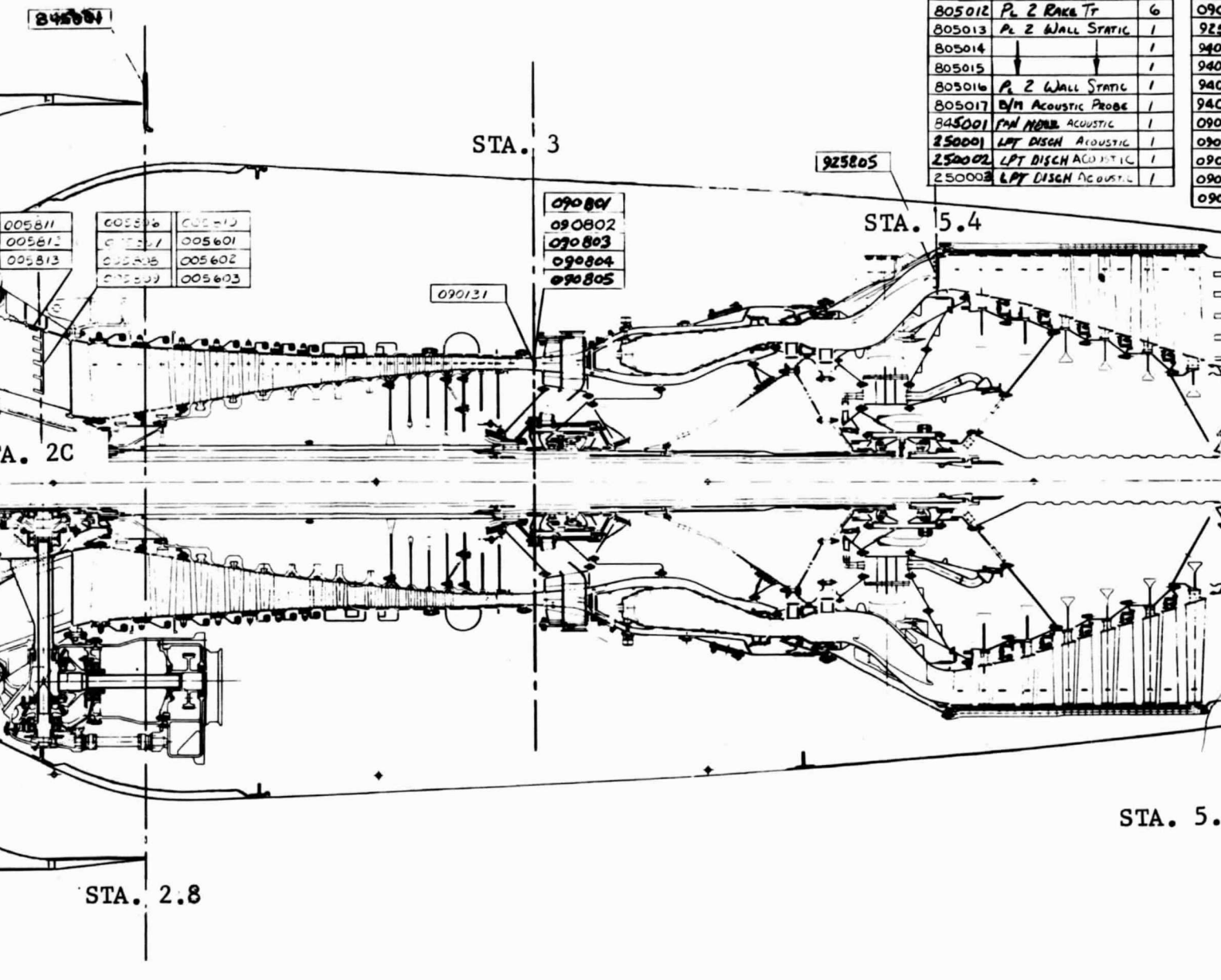


Figure 3.3-1 Low Tip

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AERODYNAMIC INSTRUMENTATION		
ITEM NO	DESCRIPTION	QTY
845APA THRU APO	PL 23 PT ARC RAKE	15
845BPA THRU BPO		15
845CPA THRU CPO		15
845DPA THRU DPO		15
845EPA THRU EPO	PL 23 PT ARC RAKE	15
845ATA THRU ATO	PL 23 TT ARC RAKE	15
845BTA THRU BTO		15
845CTA THRU CTO		15
845DTA THRU DTO		15
845ETA THRU ETO	PL 23 TT ARC RAKE	15

AERODYNAMIC INSTRUMENTATION		
ITEM NO	DESCRIPTION	QTY
805001	PL 2 RAKE PT	6
805002	PL 2 RAKE PS	6
805003	PL 2 RAKE TT	6
805004	PL 2 RAKE PT	6
805005	PS	6
805006	TT	6
805007	PT	6
805008	PS	6
805009	TT	6
805010	PT	6
805011	PS	6
805012	PL 2 RAKE TT	6
805013	PL 2 WALL STATIC	1
805014		1
805015		1
805016	PL 2 WALL STATIC	1
805017	B/M ACOUSTIC PROBE	1
845001	FAN NOISE ACOUSTIC	1
250001	LPT DISCH ACOUSTIC	1
250002	LPT DISCH ACOUSTIC	1
250003	LPT DISCH ACOUSTIC	1

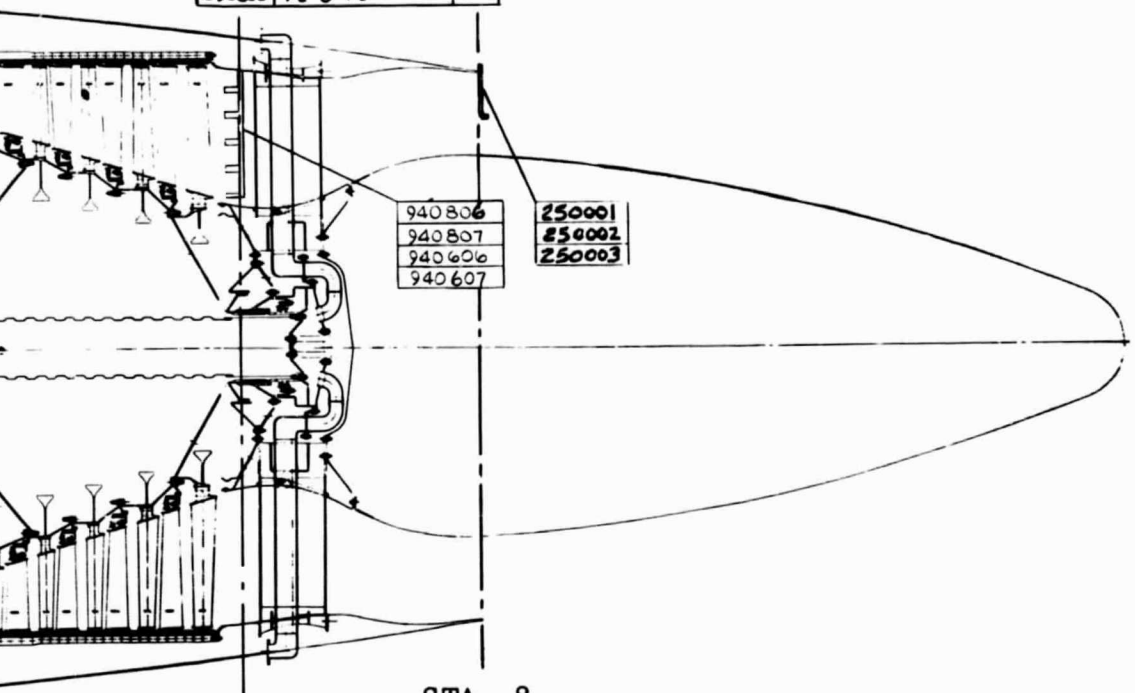


Low Tip Speed Fan Noise Demonstrator Instrumentation Drawing

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INSTRUMENTATION	
SCRIPTION	QTY
RAKE P_T	6
RAKE P_S	6
RAKE T_T	6
RAKE P_T	6
P_S	6
T_T	6
P_T	6
P_S	6
T_T	6
P_T	6
P_S	6
RAKE T_T	6
WALL STATIC	1
	1
	1
WALL STATIC	1
ACOUSTIC PROBE	1
ACOUSTIC	1
ACOUSTIC	1
ACOUSTIC	1
ACOUSTIC	1

AERODYNAMIC INSTRUMENTATION		
ITEM NO	DESCRIPTION	QTY
005806	P_L 2c P_T RAKE	5
005807		5
005808		5
005809		5
005810	P_L 2c P_T RAKE	5
005601	P_L 2c T_T RAKE	5
005602	P_L 2c T_T RAKE	5
005603	P_L 2c T_T RAKE	5
005811	P_L 2c P_S	1
005812	P_L 2c P_S	1
005813	P_L 2c P_S	1
090131	P_L 3 T_T PROBE	1
925805	P_L 5.4 P_T RAKE	5
940806	P_L 5.6 P_T RAKE	5
940807	P_L 5.6 P_T RAKE	5
940606	P_L 5.6 T_T RAKE	5
940607	P_L 5.6 T_T RAKE	5
090801	P_L 3 P_S	1
090802		1
090803		1
090804		1
090805	P_L 3 P_S	1



STA. 8

STA. 5.6

SCALE

0 4 8 12 16 inches

0 .1 .2 .3 .4 meters

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Fan Inlet (Sta. 2)

Total Pressure	4 radial rakes with 6 elements/rakes
Static Pressure	4 radial rakes with 6 elements/rakes
Total Temperature	4 radial rakes with 6 elements/rakes
Wall Static Pressure	4 wall static pressure taps

Fan Exhaust (Sta. 2.3)

Total Pressure	5 arc rakes with 15 elements/rake
Total Temperature	5 arc rakes with 15 elements/rake

Core Compressor Inlet (Sta. 2C)

Total Pressure	5 radial rakes with 5 elements/rake
Static Pressure	3 wall static taps
Total Temperature	3 radial rakes with 5 elements/rake

Core Compressor Discharge (Sta. 3)

Total Temperature	1 element probe
Static Pressure	5 wall static taps

High Pressure Turbine Discharge (Sta. 5.4)

Total Temperature	Standard TF39 T5.4 harness
Total Pressure	1 radial rake with 5 elements

Low Pressure Turbine Discharge (Sta. 5.6)

Total Temperature	2 radial rakes with 5 elements/rake
Total Pressure	2 radial rakes with 5 elements/rake

After determining the far field noise levels with and without the inlet rakes and after making a correlation between bellmouth airflow and the bellmouth wall static taps, the fan inlet radial rakes (station 2) were removed.

o Acoustic Instrumentation

Far Field

For field instrumentation consisted of 17 microphones located on a 225 ft (68.6 M) arc with 10 degree (0.174 rad) spacing, from

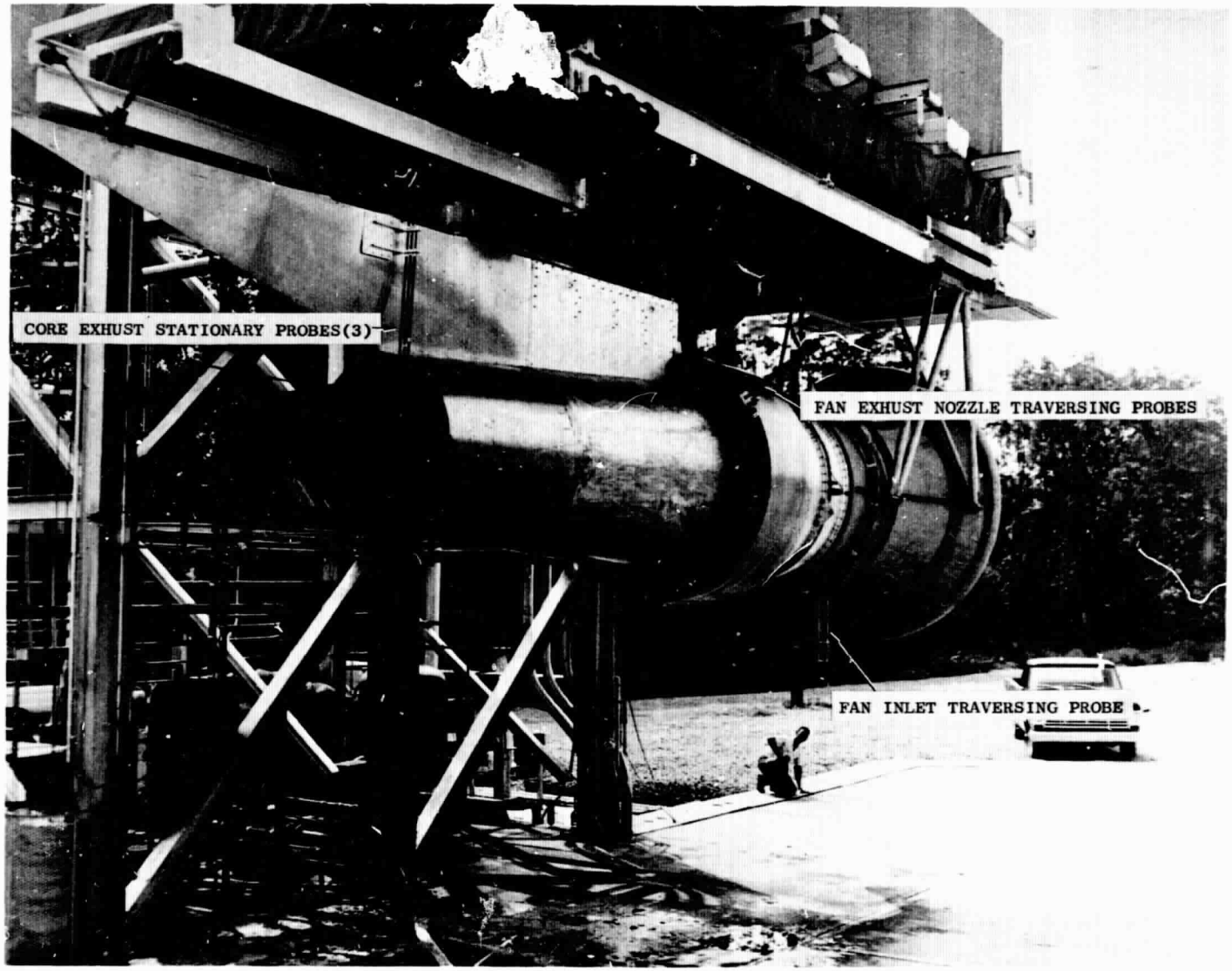


Figure 3.3-2 Acoustic Probe Locations on Engine

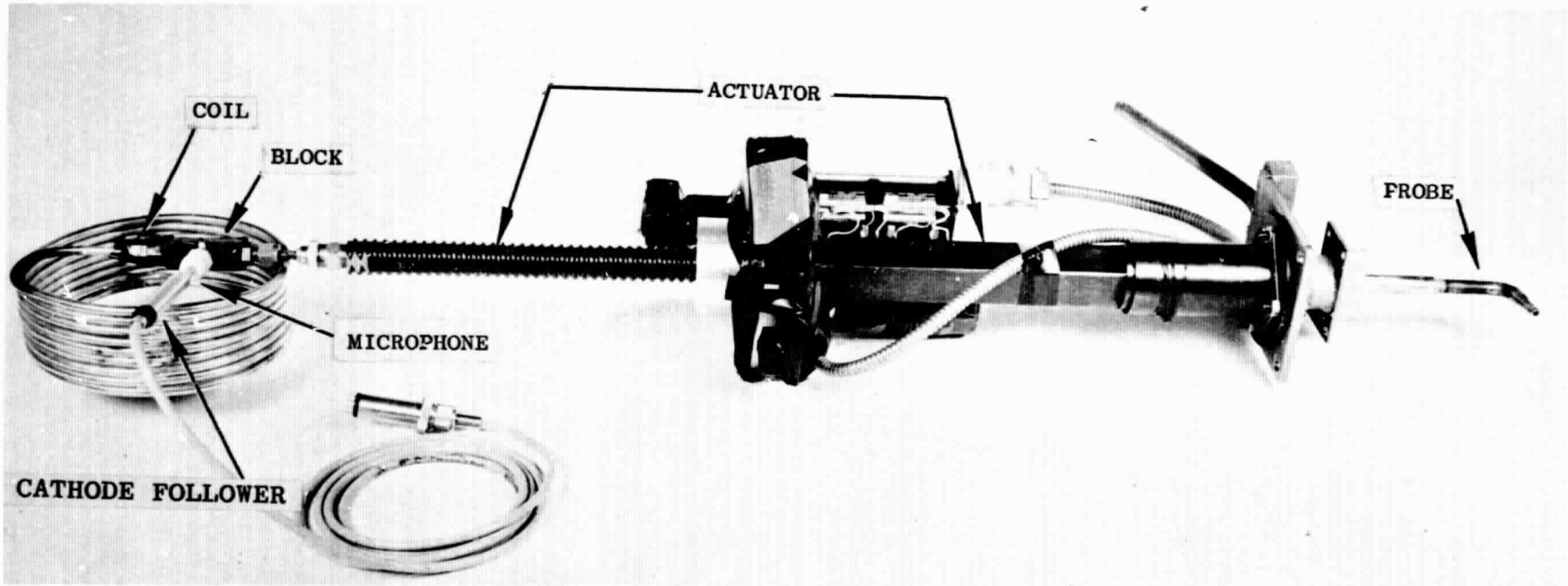


Figure 3.3-3 Typical Acoustic Probe System

0 to 160 degrees (2.79 rad). Microphone height was equal to the engine centerline height of 13 ft (3.96 M).

Each channel of the far field microphone system consisted of the following equipment:

Microphone ..... Bruel & Kjaer 1/2" (.0127 M) mod. 4133
Cathode Follower ..... Bruel & Kjaer mod. 2615
Power Supply ..... Bruel & Kjaer mod. 2801
Microphone Calibration ..... Bruel & Kjaer 124 db pistonphone model 4220

Near Field (Acoustic Probes)

Near field data was obtained by means of traversing acoustic probes with one probe located in the fan bellmouth and one location on the lip of the fan discharge nozzle. Three stationary probes were mounted on the lip of the core engine exhaust nozzle, with their immersions set on centers of equal annular areas of the flow path. Figure 3.3-2 shows locations of acoustic probes installed on the test vehicle. Figure 3.3-3 shows the components of a typical probe system consisting of probe, coil, block, microphone, cathode follower, and actuator. Type of equipment used is specified below:

Microphone ..... Bruel & Kjaer 1/4" (.00635 M) head mod. 4136
Power Supply ..... Bruel & Kjaer mod. 2801
Actuator ..... L.C. Smith mod. BBR-2600
Coil ..... 40 ft of 1/4" (.028" wall) tubing (12.2 M of .00635 M (.00063 M wall))

The systems were calibrated for frequency response as a complete system prior to testing and remained unchanged for the duration of the test program.

During traversing operations, probe positions were monitored and recorded by means of a voltage signal proportional to the probe displacement.

3.4 TEST PROGRAM

The test program consisted of noise measurements for five engine configuration changes. The first was to determine the effect of inlet instrumentation on far field noise levels; the second, third and fourth were to determine the effects of low, high and normal fan loading, respectively; and the fifth, to determine the effects of increasing the core engine jet velocity from less than 600 ft/sec (183 m/sec) to more than 1100 ft/sec (335 m/sec) at 100% fan speed.

Test I (Run 4) The engine was first operated with full bellmouth instrumentation including the temperature and pressure rakes, and then with both the inlet rakes removed and the inlet acoustic probe fully retracted. Far field data were recorded at 2300, 2750, and 3100 rpm (240.9, 288.0 and 335 rad/sec) for both cases. The same fan nozzle and core engine exhaust nozzles were used as in the next test, described below.

Test II (Run 5) The second test was the low fan loading configuration using the 1718.5 in^2 (1.1087 m^2) fan nozzle which was 13.9% larger than the standard nozzle. Core engine exhaust nozzle area was 927.7 in^2 (0.5987 m^2) providing a low core jet exhaust velocity.

Test III (Run 6) — The third test was the high fan loading configuration with 1409.7 in^2 (0.9095 m^2) fan nozzle which was 6.5% smaller than the standard fan nozzle. Core engine exhaust nozzle was the same as in Test II.

Test IV (Run 7) — The fourth test was the normal fan loading configuration with a 1508.3 in^2 (0.9732 m^2) fan exhaust nozzle and the 927.7 (0.5987 m^2) core

TEST V (Run 8) — The fifth test used the standard fan nozzle (as in test IV) but replaced the large core exhaust nozzle with a 580 $in.^2$ (0.3741 m^2) nozzle to increase the core engine exhaust velocity to the value typical of the TF39 engine design value (see Table 4.1-1)

The types of data and the speeds at which they were recorded for tests II to V are listed in Table 3.4-1

Probe immersions for tests II - V were set on centers of equal annular area in accordance with the specifications listed in Table 3.4-2A for English Units and in Table 3.4-2B for International Units.

TABLE 3.4 - 1

TYPES OF DATA RECORDED

FAN SPEED		ACOUSTIC DATA								AERODYNAMIC DATA	
		FAR FIELD		FAN INLET & EXHAUST PROBES				CORE ENGINE EXHAUST PROBE			
				TRAVERSE		FIXED IMMERSION					
RPM	RAD/SEC	INITIAL	REPEAT	INITIAL	REPEAT	INITIAL	REPEAT	INITIAL	REPEAT	INITIAL	REPEAT
1700	178.0	X	X	X	X			X	X	X	
1850	193.7	X	X	X	X	X		X	X	X	X
2000	209.4	X	X	X	X			X	X	X	
2150	225.1	X	X	X	X			X	X	X	
2300	240.9	X	X	X	X	X		X	X	X	
2450	256.6	X	X	X	X			X	X	X	
2600	272.3	X	X	X	X			X	X	X	
2750	288.0	X	X	X	X	X		X	X	X	
2900*	303.7	X	X	X	X			X	X	X	
3050*	319.4	X	X	X	X	X		X	X	X	X
3200	335.1	X	X	X	X			X	X	X	
3350	350.8	X	X	X	X			X	X	X	
3473	363.7	X	X	X	X	X		X	X	X	X
3565	373.3	X	X	X	X			X	X	X	
3650	382.2	X	X	X	X			X	X	X	

In addition, probe and far field data were recorded for a 2 minute accel from 1250 rpm (225 rad/sec) to 3650 rpm (382 rad/sec), and a 2 minute decel from 3650 rpm to 1250 rpm for each nozzle configuration tested.

* These speeds could not be set on the high fan-loading configuration (Run 6) due to blade instability in this speed region.

TABLE 3.4 - 2a

ACOUSTIC PROBE IMMERSION DEPTHS

English Units	RADIAL PROBE POSITIONS			
	TEST II	TEST III	TEST IV	TEST V
Fan Inlet (Bellmouth)				
Immersion 1 (inches)	31.721	31.721	31.721	31.721
Immersion 2	27.976	27.976	27.976	27.976
Immersion 3	26.643	26.643	26.643	26.643
Immersion 4	18.314	18.314	18.314	18.314
Immersion 5	10.573	10.573	10.573	10.573
Outer Radius (inches)	33.473	33.473	33.473	33.473
Inner Radius (inches)	0.	0.	0.	0.
Annulus Area (inches^2)	3512.	3512.	3512.	3512.
Fan Exhaust				
Immersion 1 (inches)	40.120	38.902	39.295	39.295
Immersion 2	38.596	37.614	37.931	37.931
Immersion 3	37.010	36.281	36.515	36.515
Immersion 4	35.353	34.896	35.043	35.043
Immersion 5	33.614	34.527	33.506	33.506
Outer Radius (inches)	40.860	39.53	39.96	39.96
Inner Radius (inches)	32.710	32.710	32.710	32.710
Annulus Area (inches^2) (less pylon area)	1718.5	1409.7	1508.3	1508.3
Core Exhaust				
Immersion 1 (inches)	22.521	22.521	22.521	22.521
Immersion 2	20.235	20.235	20.235	18.429
Immersion 3	17.661	17.661	17.661	16.757
Outer Radius (inches)	23.580	23.580	23.580	20.685
Inner Radius (inches)	16.220	16.220	16.220	15.855
Annulus Area (inches^2)	927.7	927.7	927.7	580.

TABLE 3.4 - 2b

ACOUSTIC PROBE IMMERSION DEPTHS

International Units	RADIAL PROBE POSITIONS			
	TEST II	TEST III	TEST IV	TEST V
Fan Inlet (Bellmouth)				
Immersion 1 (meters)	0.806	0.806	0.806	0.806
Immersion 2	0.711	0.711	0.711	0.711
Immersion 3	0.677	0.677	0.677	0.677
Immersion 4	0.465	0.465	0.465	0.465
Immersion 5	0.269	0.269	0.269	0.269
Outer Radius (meters)	0.8507	0.850	0.850	0.850
Inner Radius (meters)	0	0	0	0
Annulus Area ($meters^2$)	2.266	2.266	2.266	2.266
Fan Exhaust				
Immersion 1 (meters)	1.019	0.988	0.998	0.998
Immersion 2	0.980	0.955	0.963	0.963
Immersion 3	0.940	0.922	0.928	0.928
Immersion 4	0.898	0.886	0.890	0.890
Immersion 5	0.858	0.877	0.851	0.851
Outer Radius (meters)	1.038	1.004	1.015	1.015
Inner Radius (meters)	0.831	0.831	0.831	0.831
Annulus Area ($meters^2$) (Less Pylon Area)	1.109	0.909	0.973	0.973
Core Exhaust				
Immersion 1 (meters)	0.572	0.572	0.572	0.507
Immersion 2	0.514	0.514	0.514	0.468
Immersion 3	0.449	0.449	0.449	0.426
Outer Radius (meters)	0.599	0.599	0.599	0.525
Inner Radius (meters)	0.412	0.412	0.412	0.403
Annulus Area ($meters^2$)	0.598	0.598	0.598	0.374

4.0 TEST RESULTS

The basic data obtained during this program are included in Appendices B, C, and D. Appendix B includes the plotted acoustic and performance data; Appendix C includes the tabulated acoustic data complementing the plotted data of Appendix B; Appendix D includes selected narrowband spectral analysis data for the far field and near field microphones. These data are discussed in this Section; special analyses and correlations are included in Section 5: Analysis of Results.

4.1 SUMMARY OF PERFORMANCE DATA

The fan operating map of the test variations included in this program is given in Figure 4.1-1. For reference, lines of constant total engine thrust are also included, using the fan thrust as achieved for each variation in fan nozzle area and using the core engine thrust as achieved for the normal size core engine nozzle area. Note that the fan speed of 3473 rpm (363.7 rad/sec) corresponds to the takeoff fan speed, defined as 100% speed in this contract. For the normal operating line at takeoff speed, 19,800 lb (88,075 newtons) total engine thrust is obtained with a fan pressure ratio of 1.422 and an airflow of 725 lb/sec (330 Kg/sec). Over the range of the operating line variations included in this test program, the lines of constant total engine thrust follow closely the lines of constant fan speed; only for the smallest fan nozzle area is a slight increase in fan speed required to maintain total engine thrust.

The bypass ratio as a function of fan speed is shown in Figure 4.1-2. The data show that increasing the fan nozzle area increases the bypass

ratio, and that with increasing fan speed, the bypass ratio decreases. At 100% fan speed, a bypass ratio of 5.0 is bracketed for the nominal fan nozzle setting, depending upon the core engine nozzle area: with the oversize core nozzle the bypass ratio is 5.1 and with the nominal core nozzle the bypass ratio is 4.9.

The detailed engine performance data for each test configuration as required by the work statement are included with the noise data in Appendix B. These data are corrected to standard day, sea level static conditions. The core engine airflow, however, is corrected to the inlet conditions for the compressor, taking into account the fan discharge temperature and pressure according to conventional practice. All other core engine parameters are corrected to standard conditions at the fan inlet.

The jet velocities of the fan and core engine are summarized in Table 4.1-1 for the takeoff fan speed (values over the full range of fan speed are included in Appendix B), showing that the fan jet velocity was the higher when the oversize core engine nozzle was used and that the desired value for the core engine jet velocity, approximately 1100 ft/sec (335 m/sec), was achieved with the nominal size core engine nozzle.

The corresponding thrust levels obtained are summarized in Table 4.1-2. It should be noted that the values for total engine thrust given on Figure 4.1-1 were calculated by adding the core engine thrust obtained with the nominal core engine exhaust nozzle area to the fan thrust obtained from each fan nozzle area. This is more meaningful than the thrust obtained with the

grossly oversized core engine nozzle. The data in Table 4.1-2 show that when the core engine nozzle was changed from the large to the nominal size, the fan thrust decreased by about 250 lb. (1112 newtons) because of a decrease in fan jet velocity (lower measured pressure ratio) and a decrease in bypass ratio (from 5.15 to 4.90). Similar effects should be expected to some extent for the other fan nozzle sizes, so the thrust values shown in Figure 4.1-1 should be considered as reference values of approximately correct magnitude (within 2 to 2.5%); in the isonoise plots (Section 5.2) superimposed on the fan map, values of fan thrust, rather than total engine thrust, are shown for reference.

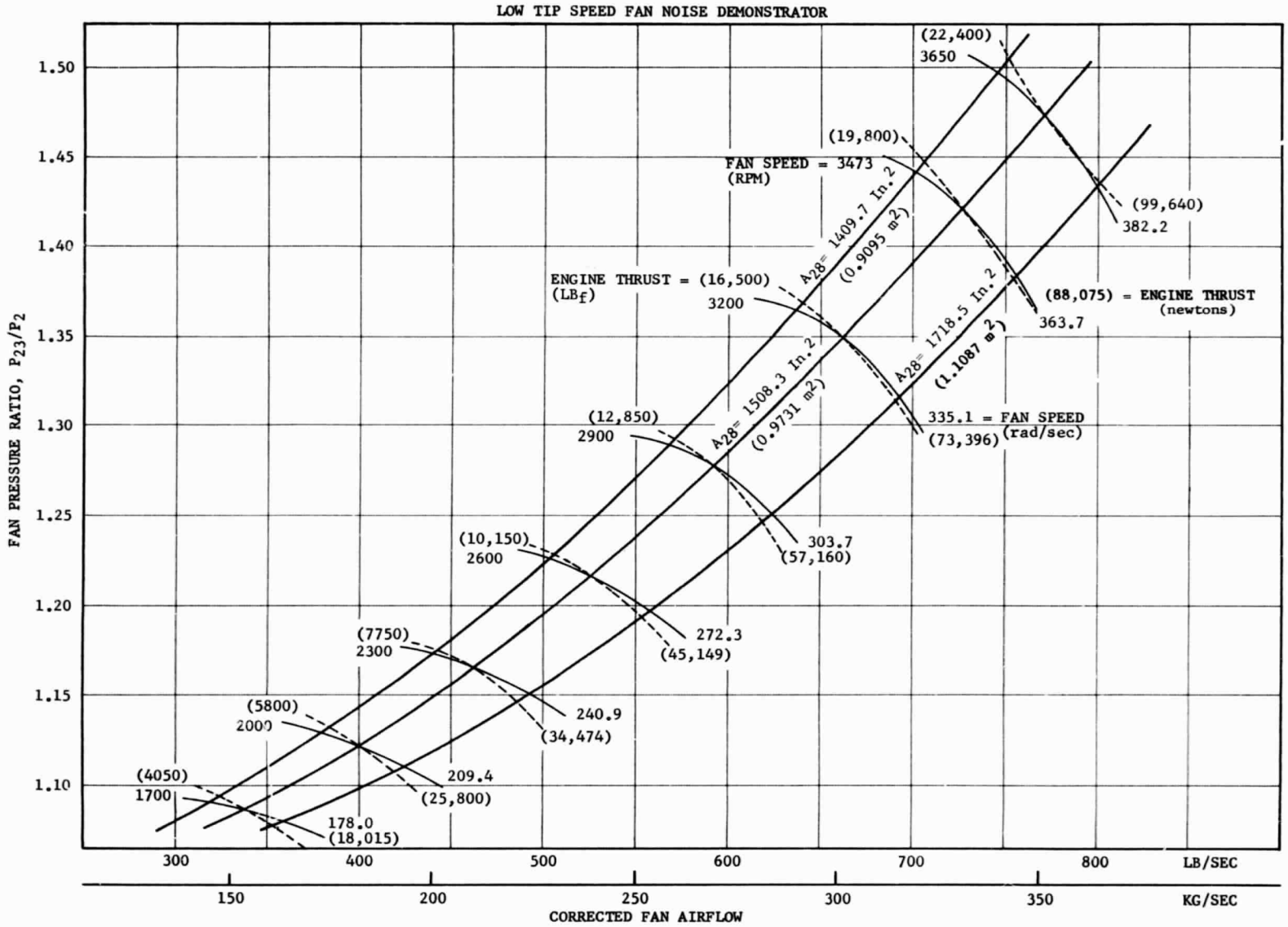
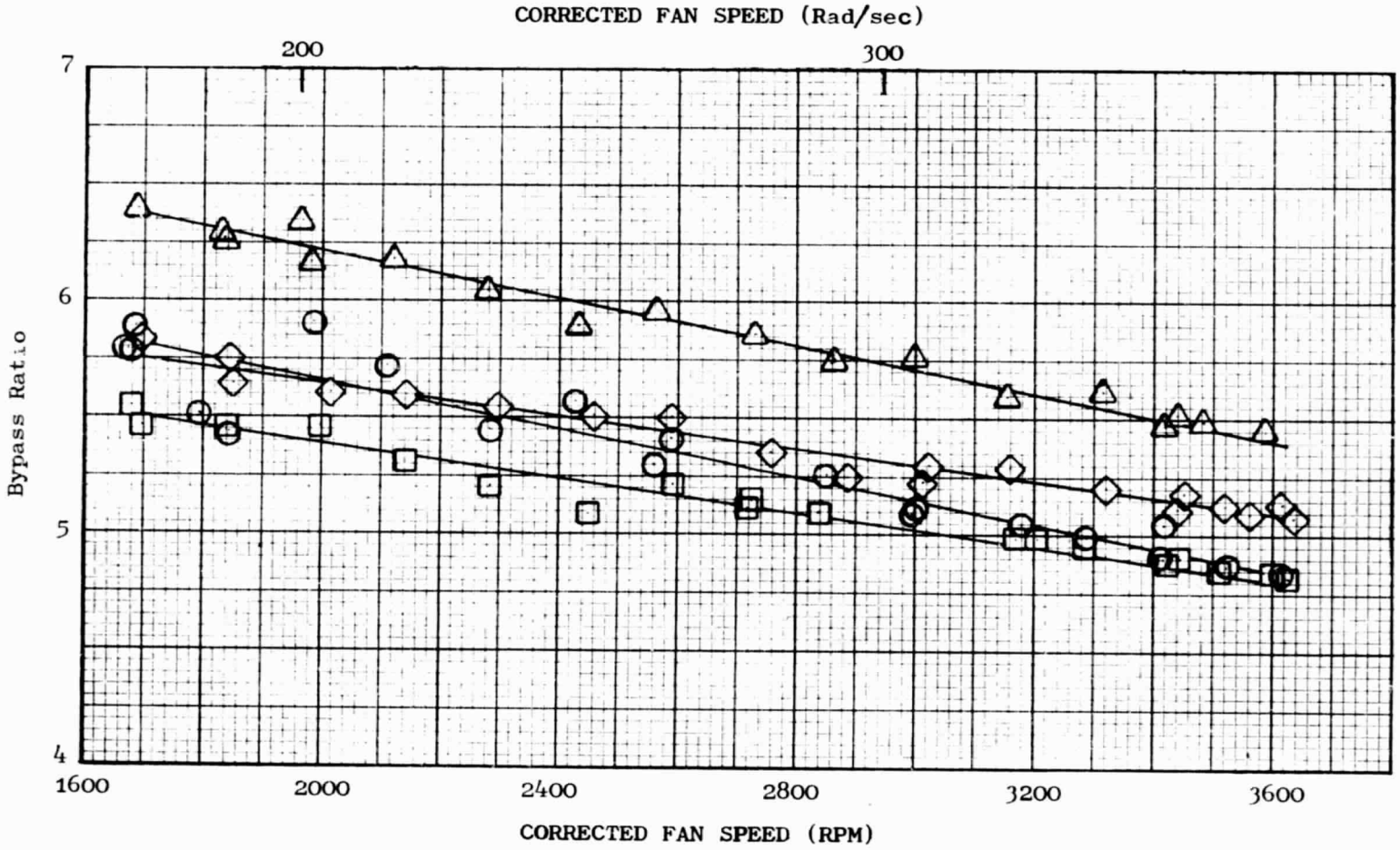

LOW TIP SPEED FAN NOISE DEMONSTRATOR
FAN PRESSURE RATIO, P_{23}/P_2
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
(22,400)
3650
(19,800)
FAN SPEED = 3473
(RPM)
(99,640)
382.2
ENGINE THRUST = (16,500)
(LB_f)
3200
A_{28}= 1409.7 In.^{2}
(0.9095 m^2)
(88,075) = ENGINE THRUST
(newtons)
363.7
A_{28}= 1718.5 In.^{2}
(1.1087 m^2)
(12,850)
2900
A_{28}= 1508.3 In.^{2}
(0.9731 m^2)
335.1 = FAN SPEED
(rad/sec)
(73,396)
(10,150)
2600
303.7
(57,160)
(7750)
2300
272.3
(45,149)
(5800)
2000
240.9
(34,474)
(4050)
1700
209.4
(25,800)
178.0
(18,015)
300
400
500
600
700
800
LB/SEC
150
200
250
300
350
KG/SEC
CORRECTED FAN AIRFLOW

Figure 4.1-1



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	□	◇	○
Run No.		5	6	7	8
Date		9/4/68	9/ 6/68	9/10/68	9/13/68
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	1508.3
	m^2	1.1087	.9095	.9731	.9731
Core Noz. Area	In^2	927.7	927.7	927.7	580
	m^2	.5986	.5986	.5986	.3741

Bypass Ratio Versus Corrected Fan Speed

Figure 4.1-2

TABLE 4.1-1

CORRECTED JET VELOCITIES AT T/O FAN SPEED

Fan Nozzle Area		Large	Nominal	Small	Nominal
Core Nozzle Area		Large	Large	Large	Nominal
Fan Jet Velocity	(Ft/Sec)	787	822	842	815
	(M/Sec)	(240)	(251)	(257)	(248)
Core Jet Velocity	(Ft/Sec)	600	580	590	1130
	(M/Sec)	(183)	(177)	(180)	(344)

TABLE 4.1-2

CORRECTED THRUST AT T/O FAN SPEED

Fan Nozzle Area		Large	Nominal	Small	Nominal
Core Nozzle Area		Large	Large	Large	Nominal
Fan Thrust	(Lb)	15600	15550	15200	15300
	(N)	(69390)	(69170)	(67613)	(68058)
Core Thrust	(Lb)	2190	2140	2260	4310
	(N)	(9742)	(9519)	(10053)	(19172)
Total Thrust	(Lb)	17790	17690	17460	19610
	(N)	(79134)	(78689)	(77666)	(87230)

4.2 SUMMARY OF ACOUSTIC DATA

4.2.1 EFFECT OF INLET RAKES ON NOISE LEVELS

The inlet rakes are shown in Figure 4.2-1. The width of the rake was 0.5 in. (0.012 M) and the trailing edge was 16.5 in. (0.42 M) upstream from the fan rotor.

The Perceived Noise Levels with and without the rakes are shown on the polar plots in Figures 4.2-2 to 4.2-4 for the three speed points tested; the points shown are the averages of duplicate data. The data show a measureable effect in the front quadrant, the rakes causing the higher noise level. The greatest difference occurs in the region between 40 to 50° (0.70 to 0.87 rad) and is larger at the lower engine speeds.

The power level 1/3 octave spectral data given in Figures 4.2-5 to 4.2-7, show that these effects occur at frequencies of 1000 Hz and greater. Additional resolution of the differences is given by the narrowband sound pressure level spectra at the 50° (0.87 rad.) microphone location in Figures 4.2-8 and 4.2-9 with and without the rakes, respectively. The spectrum from the case with inlet rakes shows, in addition to the harmonic and combination tones, noise spikes which appear to be associated with the vortex shedding frequency of the rakes and their harmonics.

The overall sound power levels with and without the inlet rakes are shown as a function of fan thrust in Figure 4.2-10. The resulting differences are not as apparent as in the case of the polar PNdB comparison, since the results of the power level calculations are dominated by the higher noise

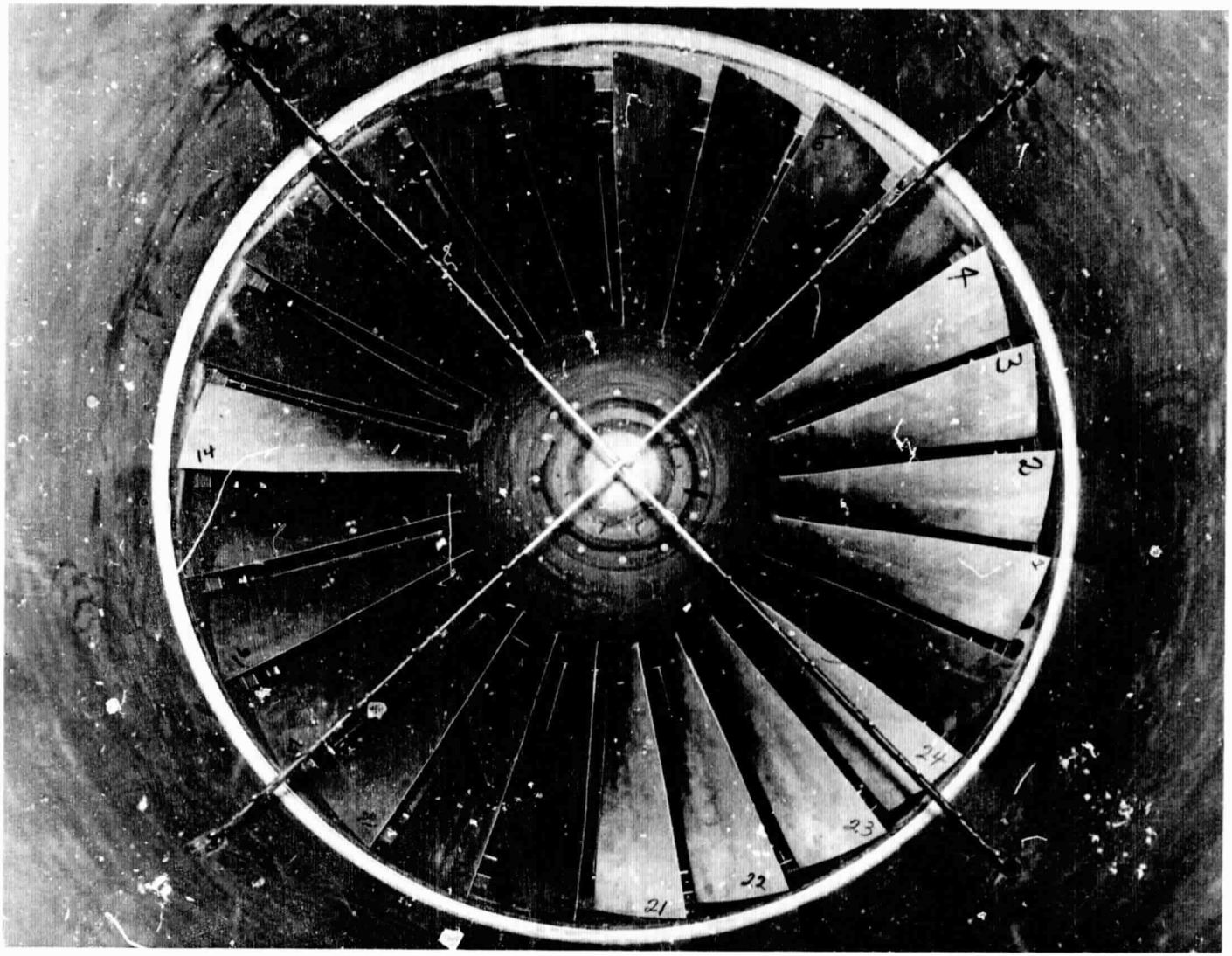
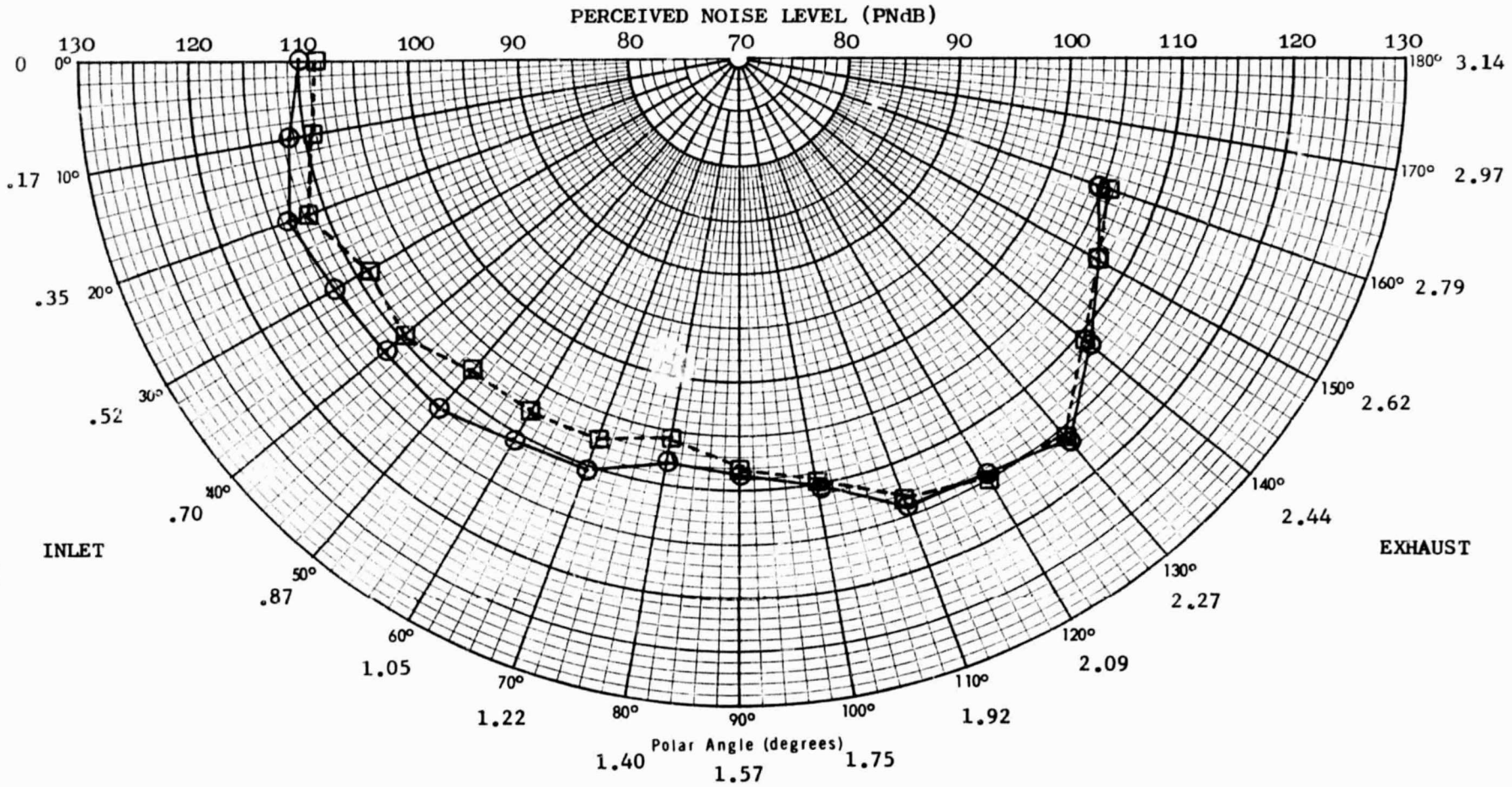


Figure 4.2-1 Fan Inlet Rakes Installed



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

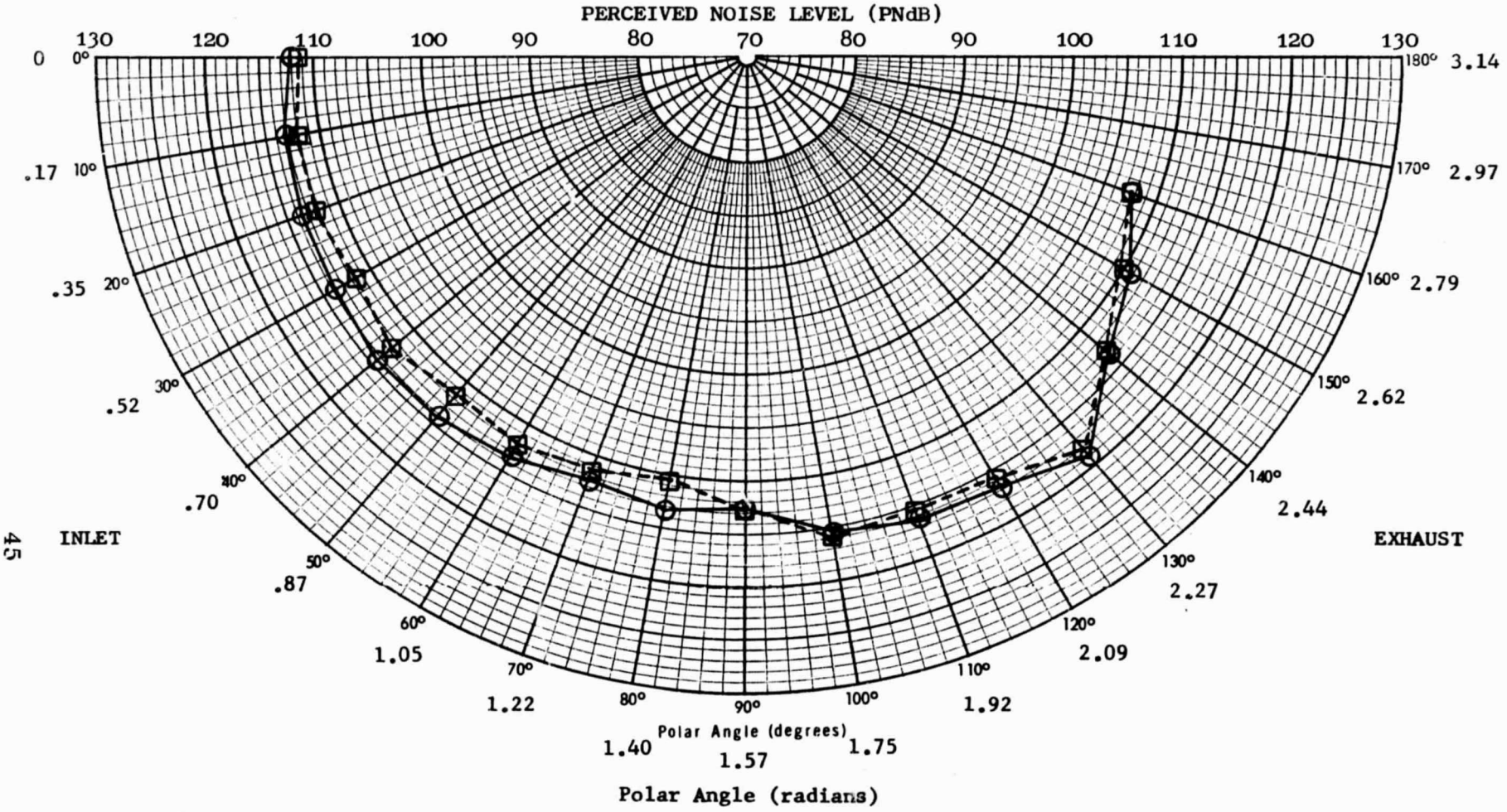
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Run No.		2	3		
Date		8/30/68	8/30/68		
Tape No.		P619,621	P621		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.9	240.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure 4.2-2

KEY		⊖	--□--		
Corr. Speed %		65.7	65.0		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5985	.5985		

Form No. N-3



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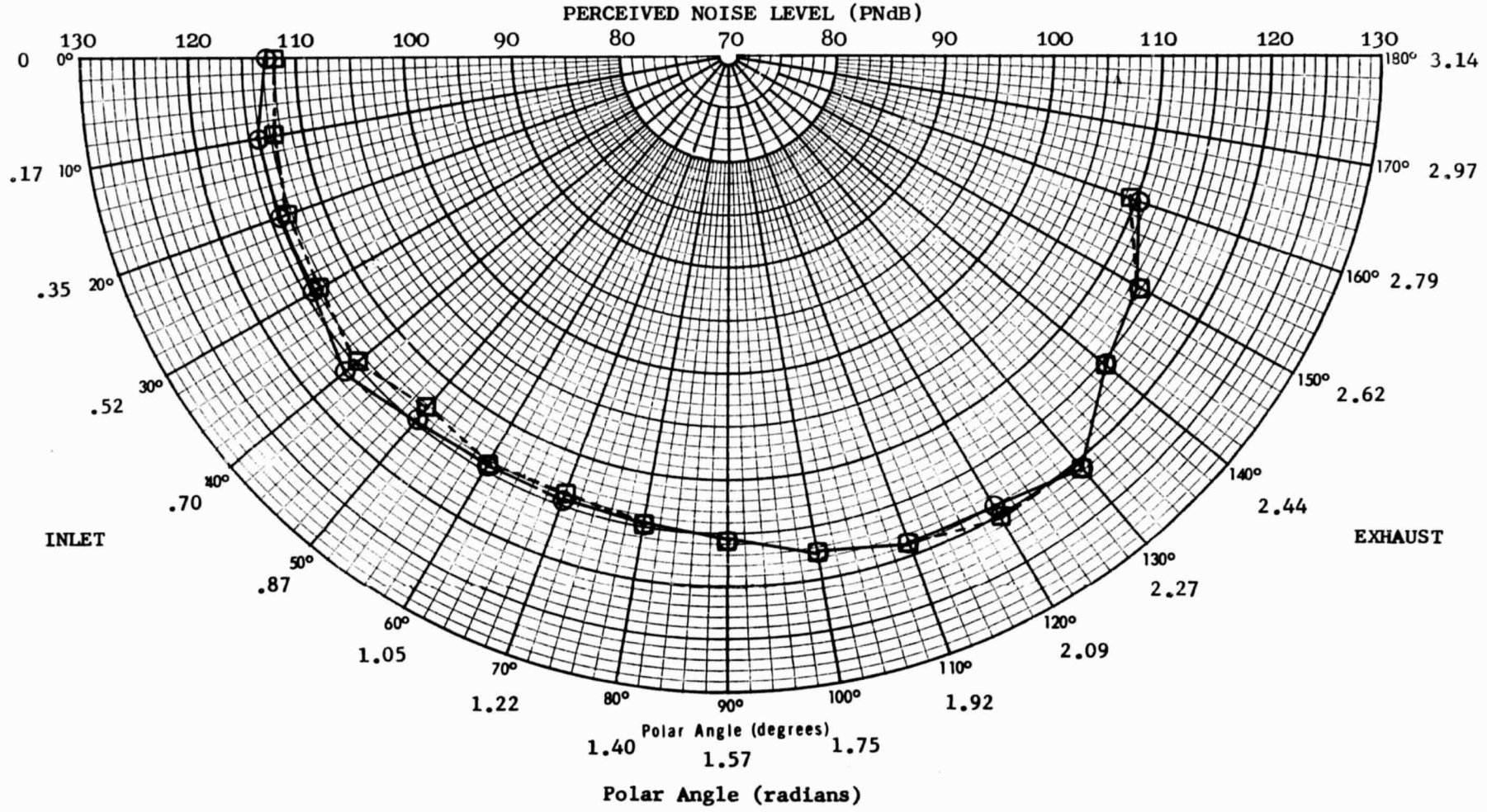
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		With ⊖	Without -⊡-		
Run No.		2	3		
Date		8/30/68	8/30/68		
Tape No.		P621	P621		
Physical Speed	RPM	2700	2700		
	Rad/sec	282.7	282.7		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure 4.2-3

KEY		⊖	--⊡--		
Corr. Speed %		77.0	76.3		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5985	.5985		



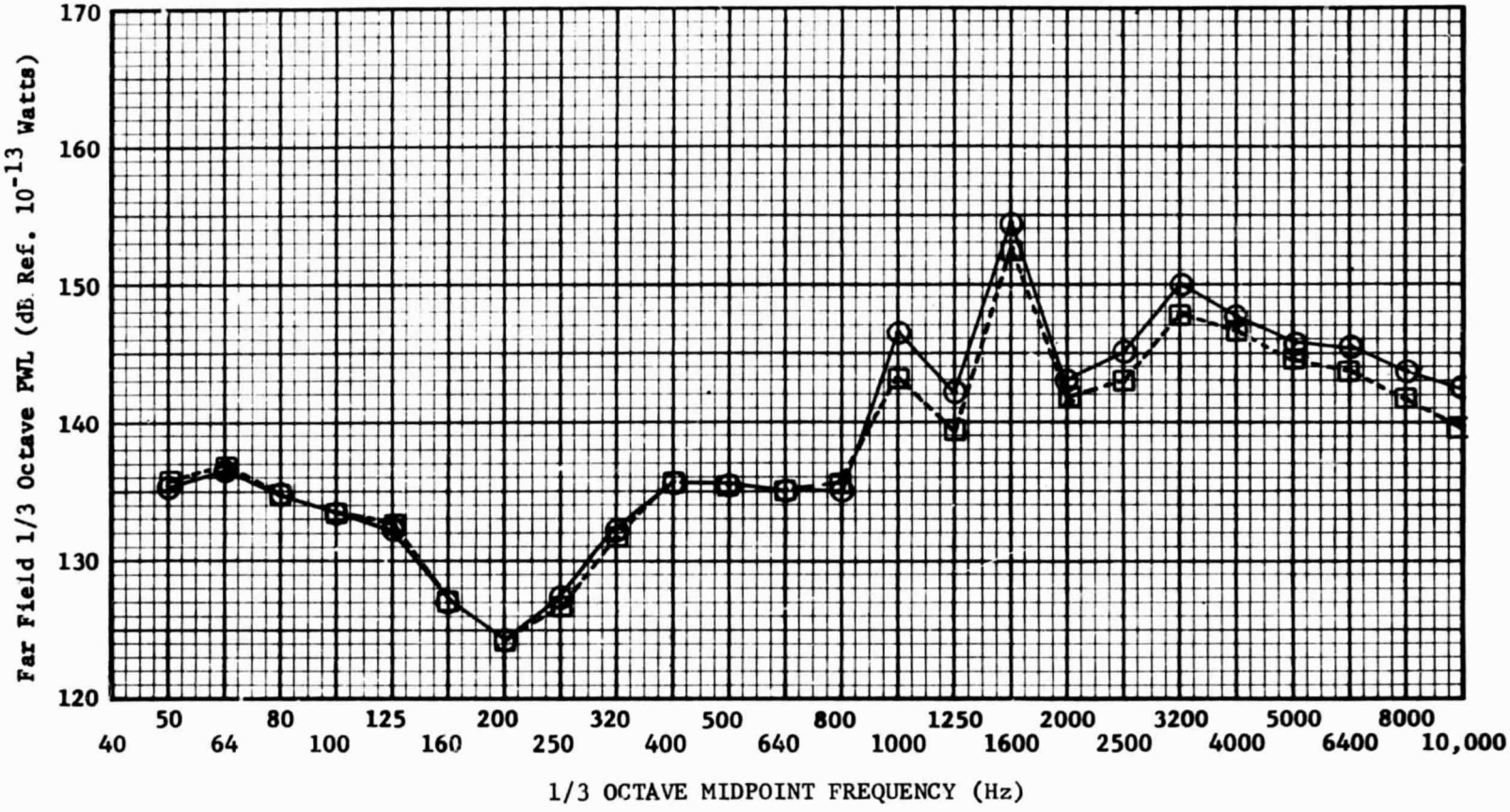
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		With —⊖—	Without --⊡--		
Run No.		2	3		
Date		8/30/68	8/30/68		
Tape No.		P619,621	P621		
Physical Speed	RPM	3100	3100		
	Rad/sec	324.6	324.6		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure 4.2-4

KEY		—⊖—	--⊡--		
Corr. Speed %		88.6	87.8		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5985	.5985		



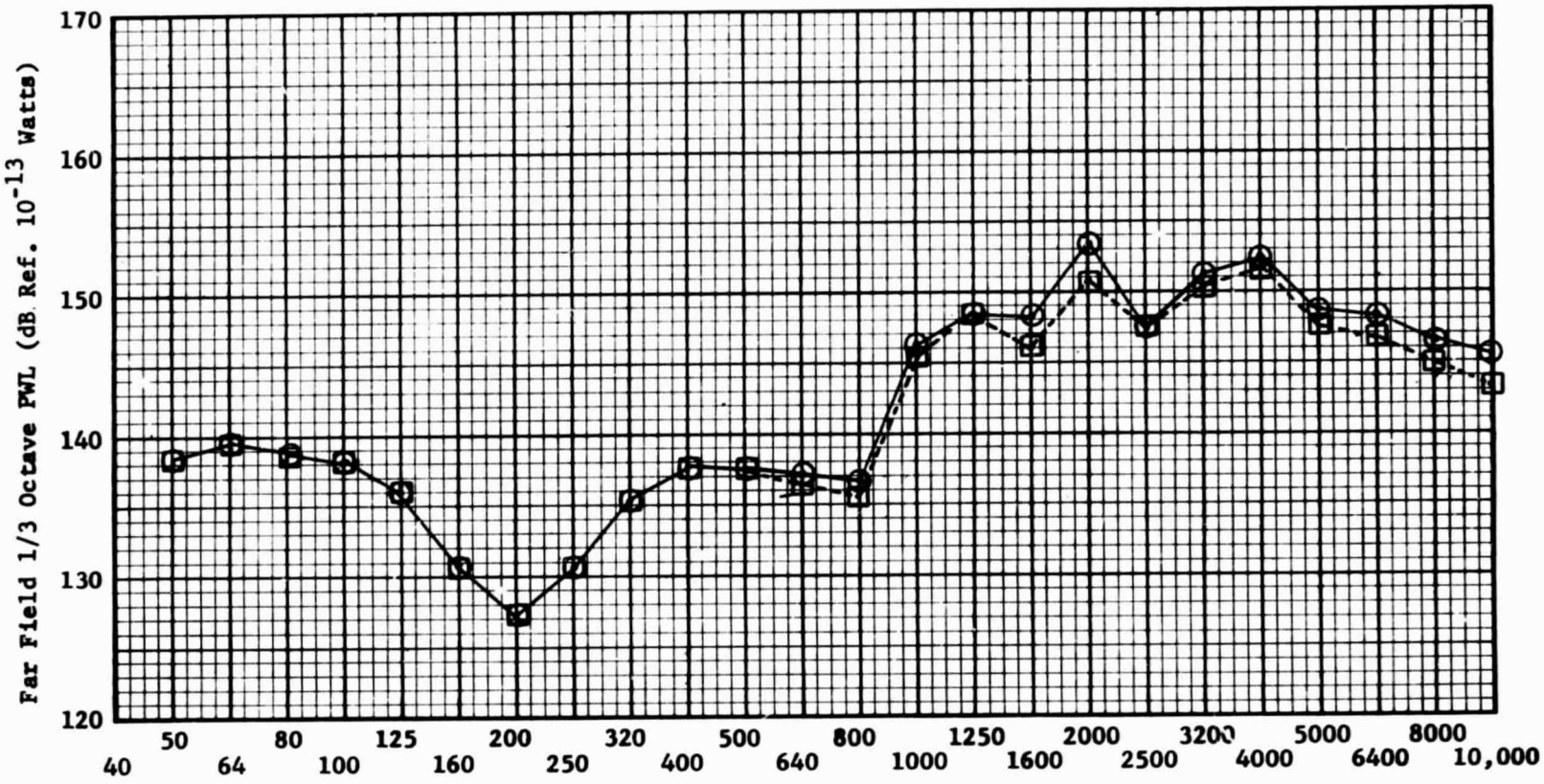
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

		With	Without Rakes		
KEY		—⊖—	--⊟--		
Run No.		2	3		
Date		8/30/68	8/30/68		
Tape No.		P619,621	P621		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.9	240.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure 4.2-5

KEY		—⊖—	--⊟--		
Corr. Speed %		65.7	65.0		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5985	.5985		



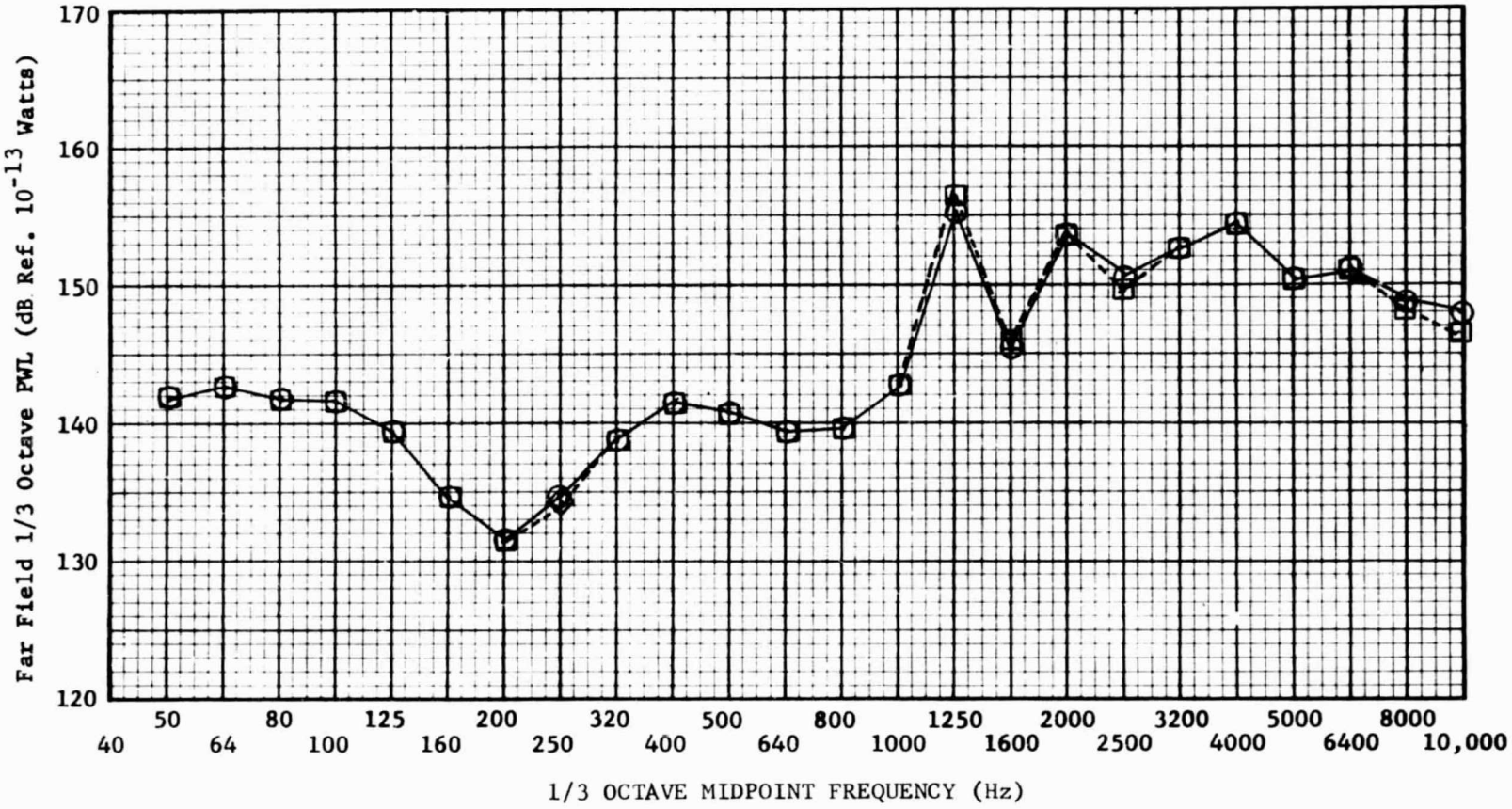
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

		With	With-Out	Rakes	
KEY		-O-	-□-		
Run No.		2	3		
Date		8/30/68	8/30/68		
Tape No.		P621	P621		
Physical Speed	RPM	2700	2700		
	Rad/sec	282.7	282.7		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure 4.2-6

KEY		-O-	--□--		
Corr. Speed %		77.0	76.3		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5985	.5985		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		With Rakes	Without Rakes		
Run No.		2	3		
Date		8-30-68	8-30-68		
Tape No.		P619,621	P621		
Physical Speed	RPM	3100	3100		
	Rad/sec	324.6	324.6		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure 4.2-7

KEY		—⊖—	--⊟--		
Corr. Speed %		88.6	87.8		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5985	.5985		

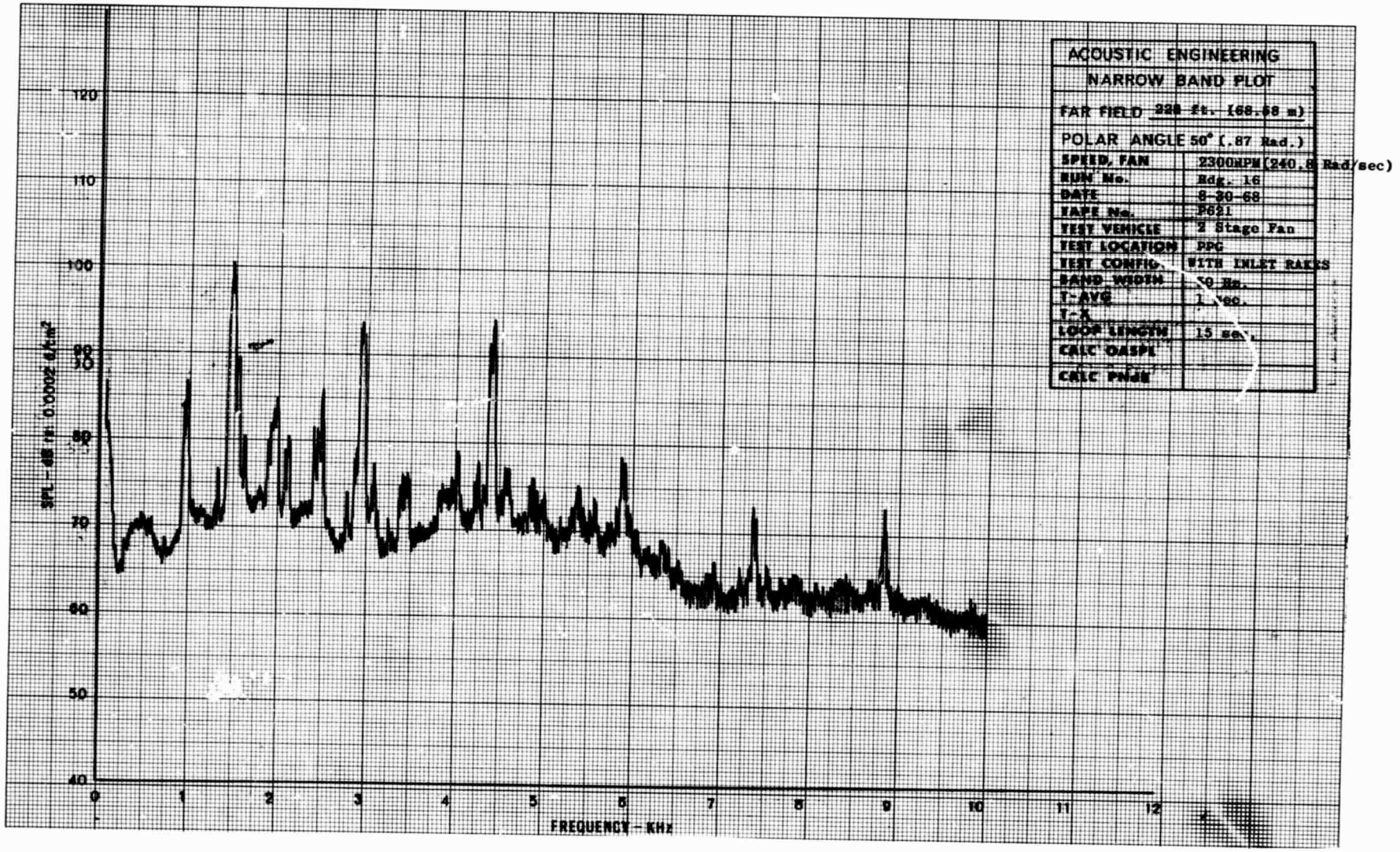


Figure 4.2-8 Narrow Band With Rakes

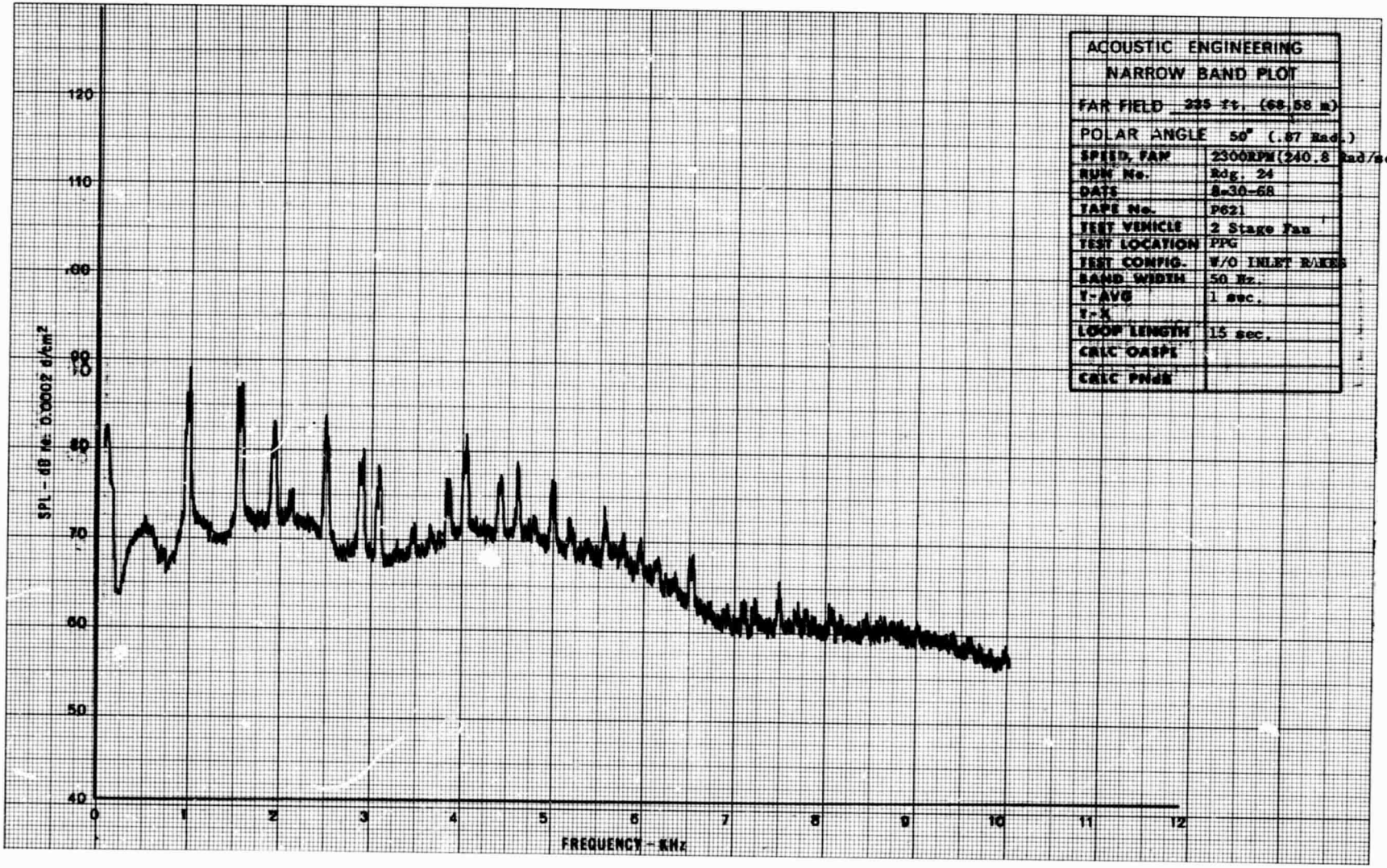
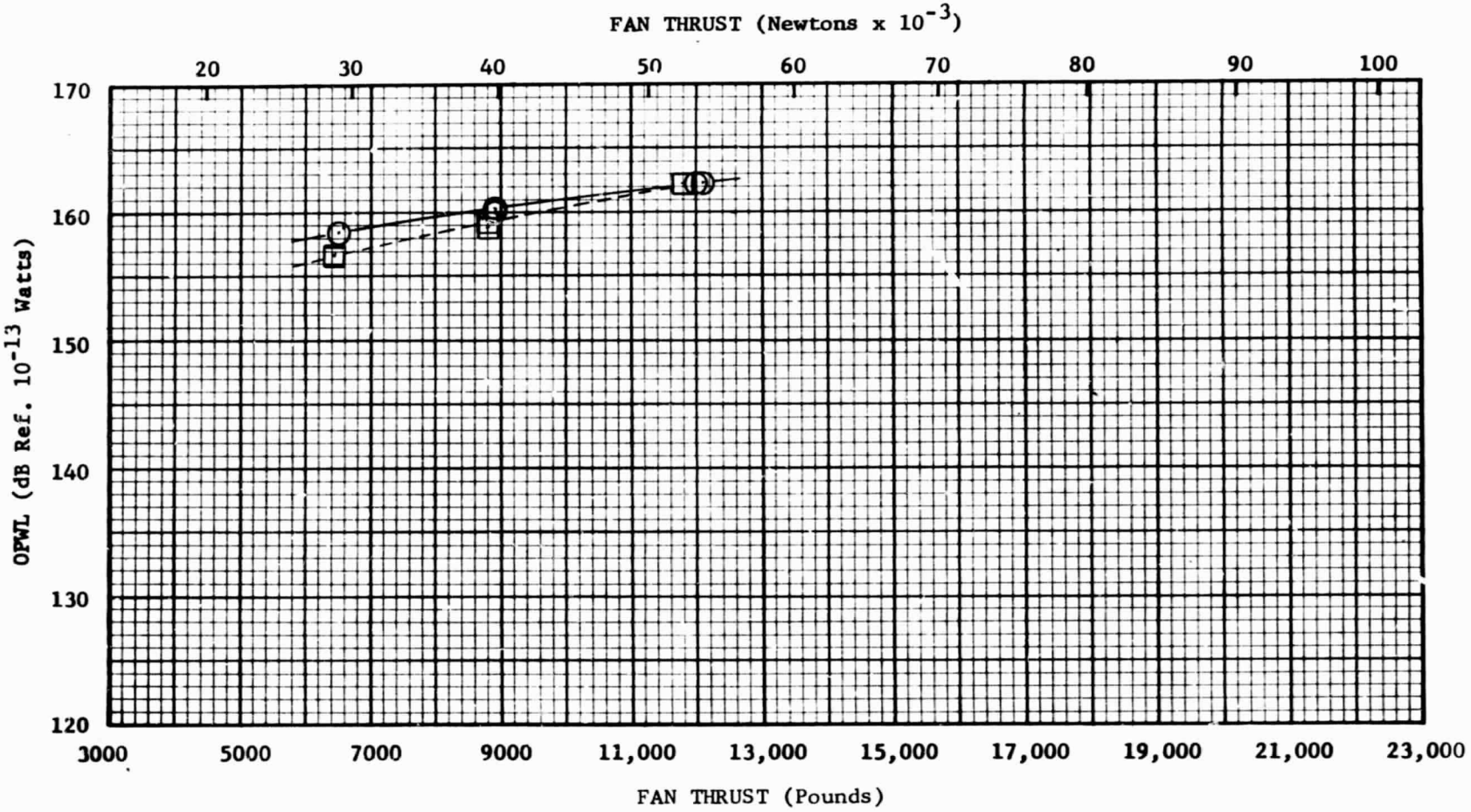


Figure 4.2-9 Narrow Band Without Rakes



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

	With	With-out	Rakes	
KEY	-⊖-	-⊟-		
Run No.	2	3		
Date	8-30-68	8-30-68		
Tape No.	P619 & 621	P621		

OPWL
Vs.
Fan Thrust

Figure 4.2-10

KEY		-⊖-	--⊟--		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5985	.5985		

levels in the aft quadrant.

The bellmouth was calibrated for airflow measurement from the wall static taps while the inlet rakes were in place, and for all subsequent noise measurements the inlet rakes were removed.

4.2.2 OVERALL SOUND POWER LEVEL AS A FUNCTION OF FAN THRUST

The overall sound power level data are shown as a function of fan thrust in Figure 4.2-11, for each of the configurations tested. The shapes of the curves are quite similar for each configuration with the high fan loading configuration resulting in the highest noise levels, the low fan loading producing the lowest noise levels and the normal fan loading giving intermediate levels. The results obtained using the reduced core nozzle area to increase the core engine jet velocity show no apparent effect on the sound power levels.

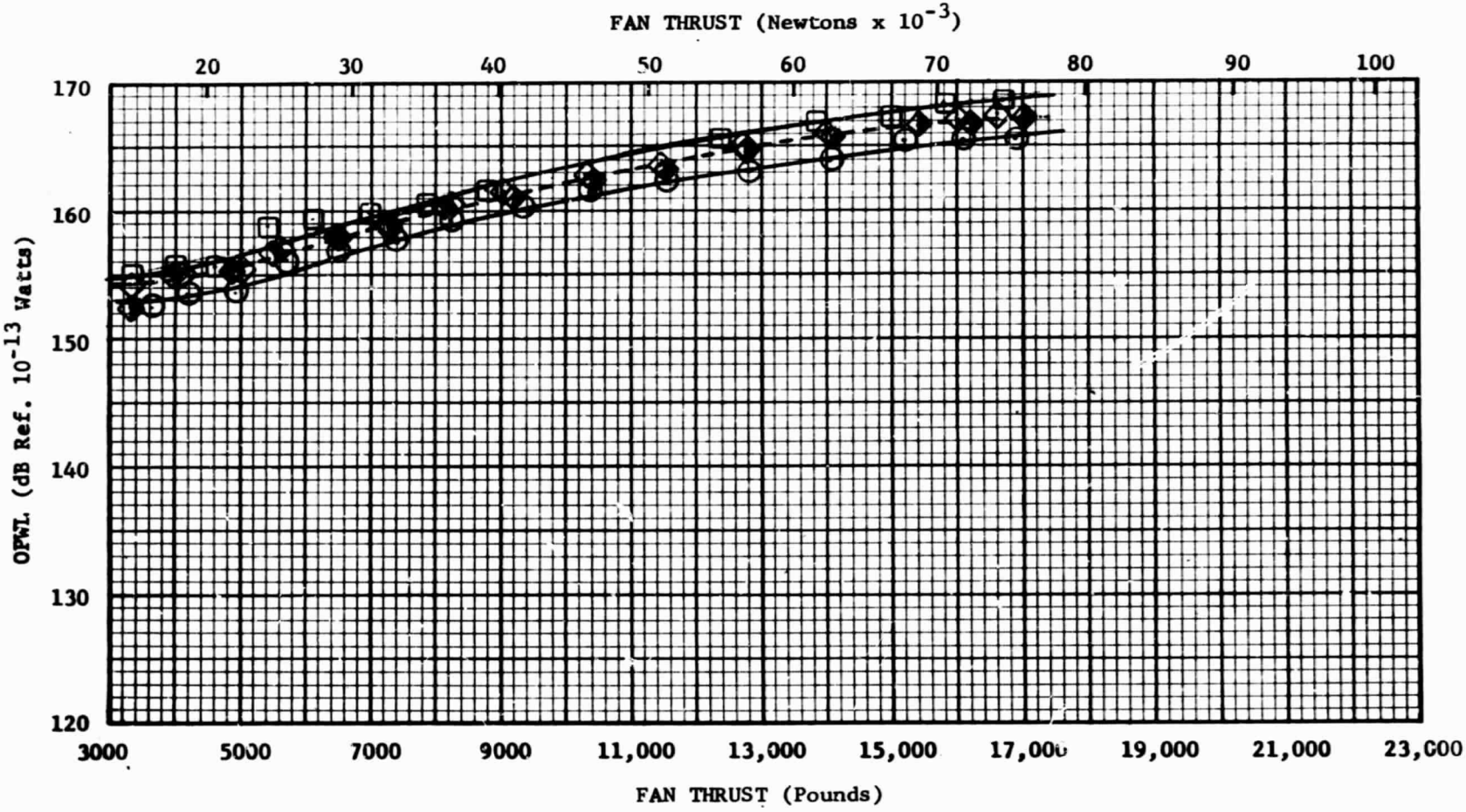
4.2.3 MAX. PNdB ALONG 200 ft. (60.96M) SIDELINE AS A FUNCTION OF FAN THRUST

The 200 ft. (60.96M) sideline perceived noise levels for each of the test configurations are shown in Figure 4.2-12 as a function of fan thrust. These data show the same trends as the overall sound power level insofar as differences between configurations are concerned.

4.2.4 POLAR DIRECTIVITY PATTERNS - 225 ft. (68.58M) ARC

o PERCEIVED NOISE LEVEL

The perceived noise levels around a 225 ft. (68.58M) arc are shown in Appendix B, Figures B-18 to B-32, B-70 to B-81, B-119 to B-133 and B-174 to B-188 for the data taken in test Runs 5 through 8. The general trend of the data shows that the highest noise levels are in the aft quadrant, with



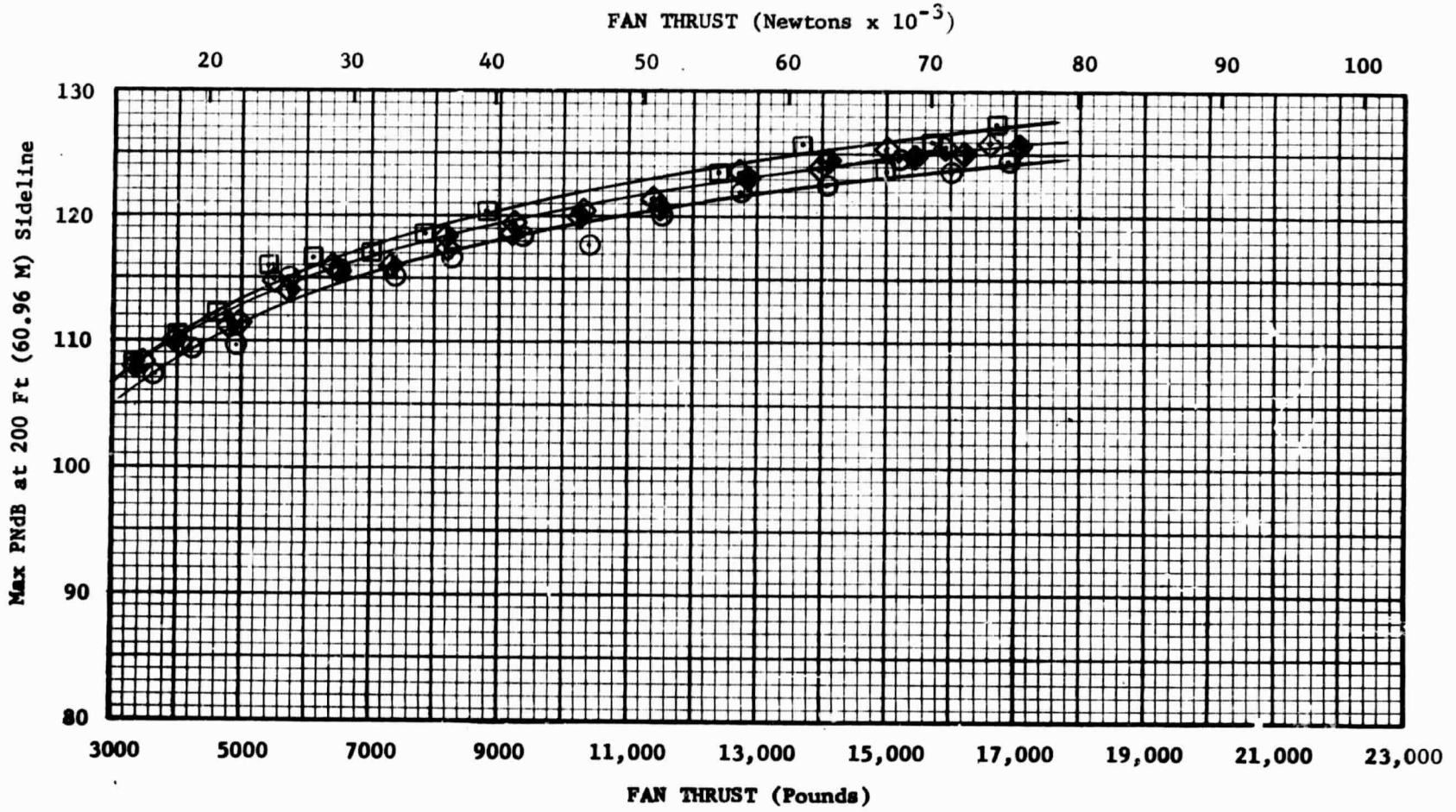
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY	○	□	◇	◆
Run No.	5	6	7	8
Date	9/4/68	9/6/68	9/10/68	9/13/68
Tape No.	P625-634	P635-644	P645-655	P658 666

OPWL
Vs.
Fan Thrust

Figure 4.2-11

KEY		○	□	◇	◆
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	1508.3
	m^2	1.1087	.9095	.9731	.9731
Core Noz. Area	In^2	927.7	927.7	927.7	580
	m^2	.5985	.5985	.5985	.3742



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY	○	□	◇	◆
Run No.	5	6	7	8
Date	9/4/68	9/6/68	9/10/68	9/13/68
Tape No.	P625-634	P635 644	P645 655	P658 666

200 Ft Sideline
(60.96 Meter Sideline)
Maximum PNdB
Vs.
Fan Thrust

Figure 4.2-12

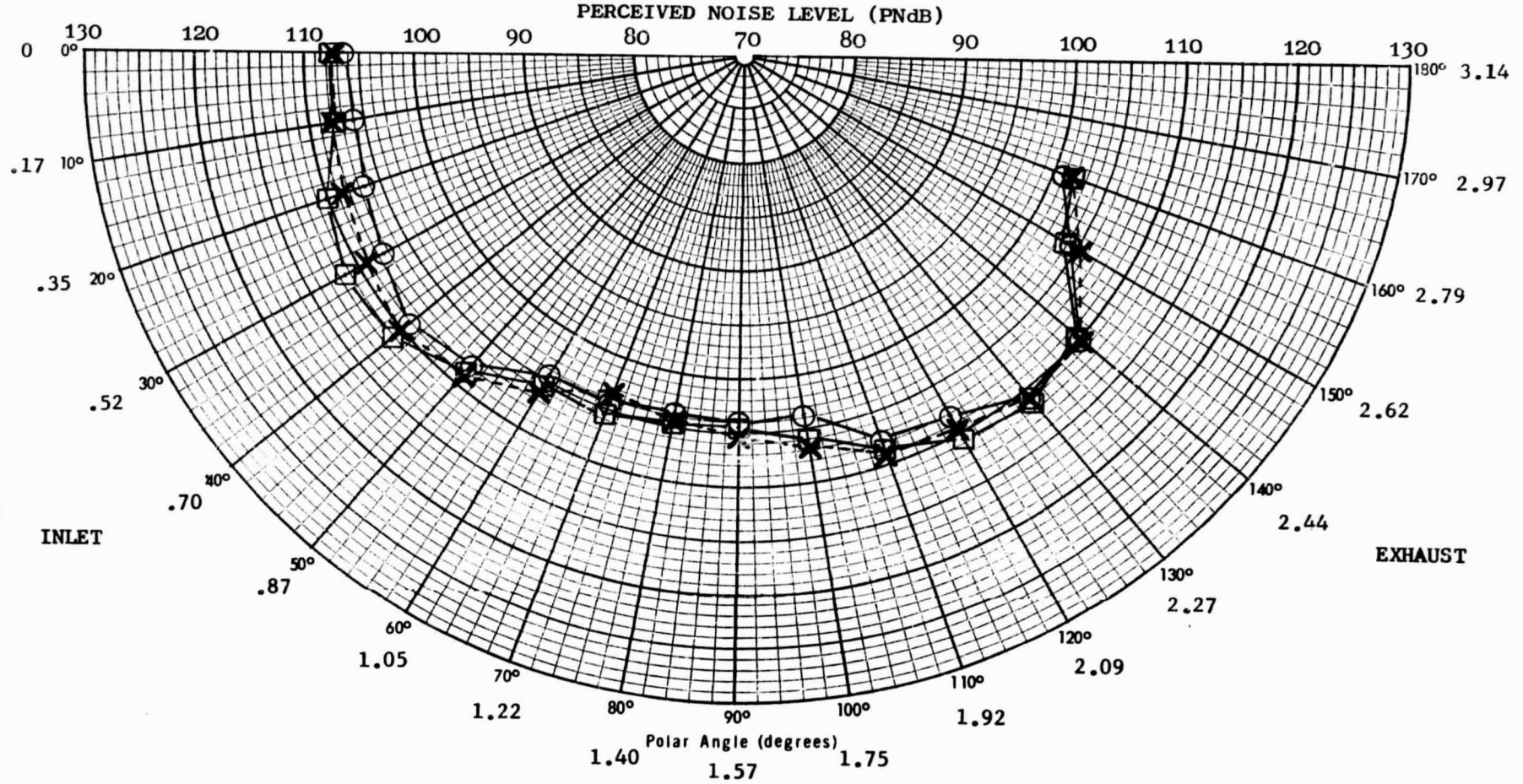
KEY		○	□	◇	◆
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	1508.3
	m^2	1.1087	.9095	.9731	.9731
Core Noz. Area	In^2	927.7	927.7	927.7	580
	m^2	.5985	.5985	.5985	.3742

the maximum level in the region of 110° to 130° (1.92 to 2.27 rad.) from the engine inlet. At the lowest fan speed settings, 1700 and 1850 rpm (117.9 and 193.7 rad/sec) which are below approach power settings, the noise is higher in the front quadrant because of a lobe in the region of 40°(0.7 rad.) from the engine inlet, but this lobe is no longer controlling at approach fan speeds or higher.

The effect of fan loading upon Perceived Noise Level around the 225 ft. (68.58 M) arc is summarized in Figures 4.2.4-1 through 4.2.4-5, which present the average of duplicate data points for fan speed settings of 1850, 2300, 2750 3200, and 3473 rpm (193.7, 240.8, 287.9, 335.0, and 363.6 rad/sec), respectively. These data are all for the oversize core engine nozzle (the effect of the variation of core nozzle size is treated separately in paragraph 4.2.8). Although the differences in noise levels for the three fan loadings are not equal in magnitude at all angular locations, the data generally show a decrease in Perceived Noise Level with increasing fan nozzle area, i.e. decreased fan loading. The differences in noise level are most pronounced forward of the region of maximum noise level.

o BLADE-PASSING FREQUENCY SPL

The blade-passing frequency sound pressure level distribution (for both rotor stages) around the 225 ft. (68.58M) arc are shown on Figures 4.2.4-6 to 4.2.4-15. These results are similar to the Perceived noise Level directivity patterns. Also, the data show a general decrease in noise from the undersize fan nozzle to the oversize fan nozzle. The blade-passing frequencies from the second stage rotor in general show the maximum change from one configuration to the next to be forward of 90° (1.57 rad.) with smaller differences



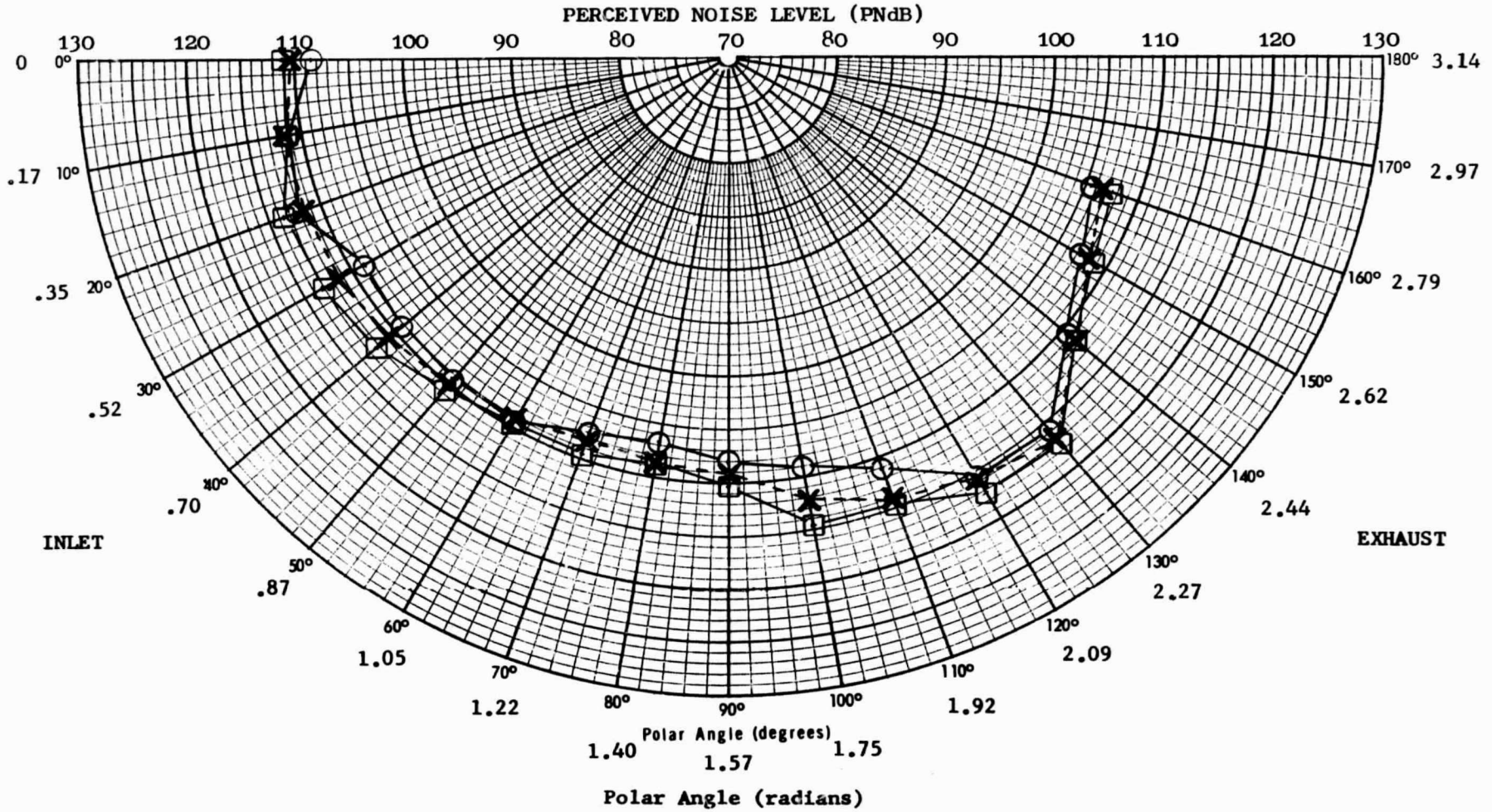
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	1850	1850	1850	
	Rad/sec	193.7	193.7	193.7	

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure 4.2.4-1

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



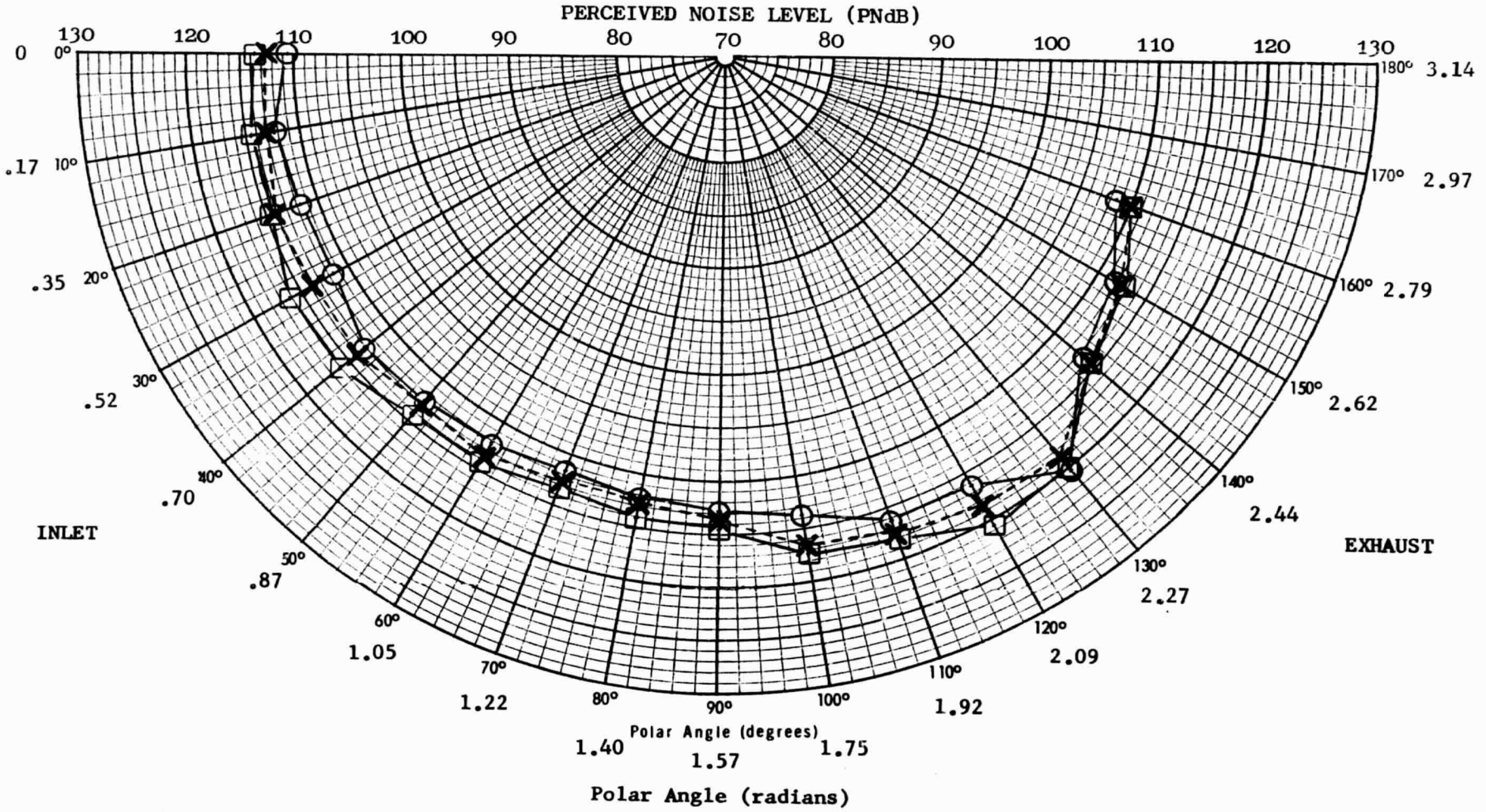
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	✕	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10, 9-13-68	
Tape No.					
Physical Speed	RPM	2300	2300	2300	
	Rad/sec	240.8	240.8	240.8	

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure 4.2.4-2

KEY		○	□	✕	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

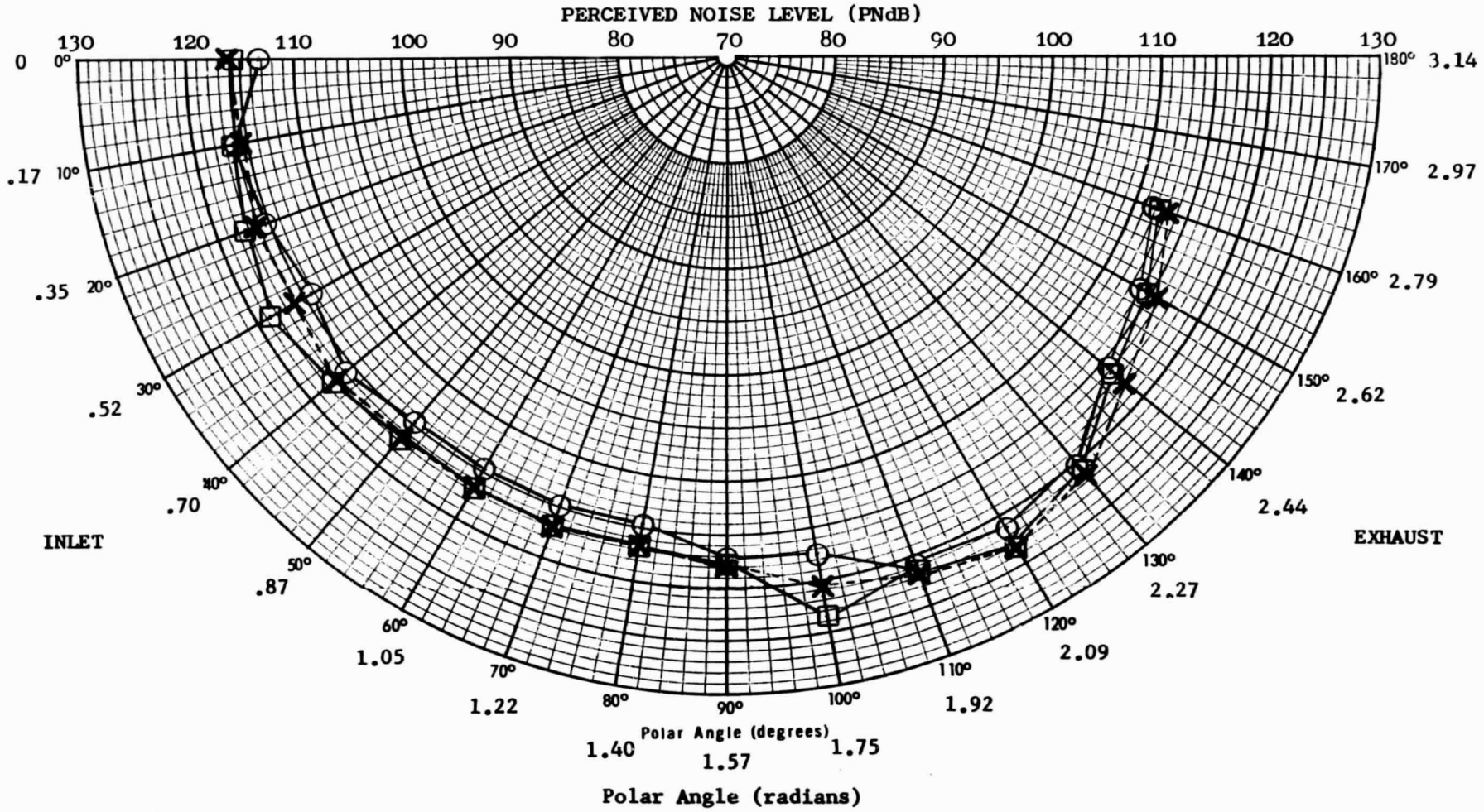
KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10, 9-13-68	
Tape No.					
Physical Speed	RPM	2750	2750	2750	
	Rad/sec	287.9	287.9	287.9	

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure 4.1.4-3

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



60

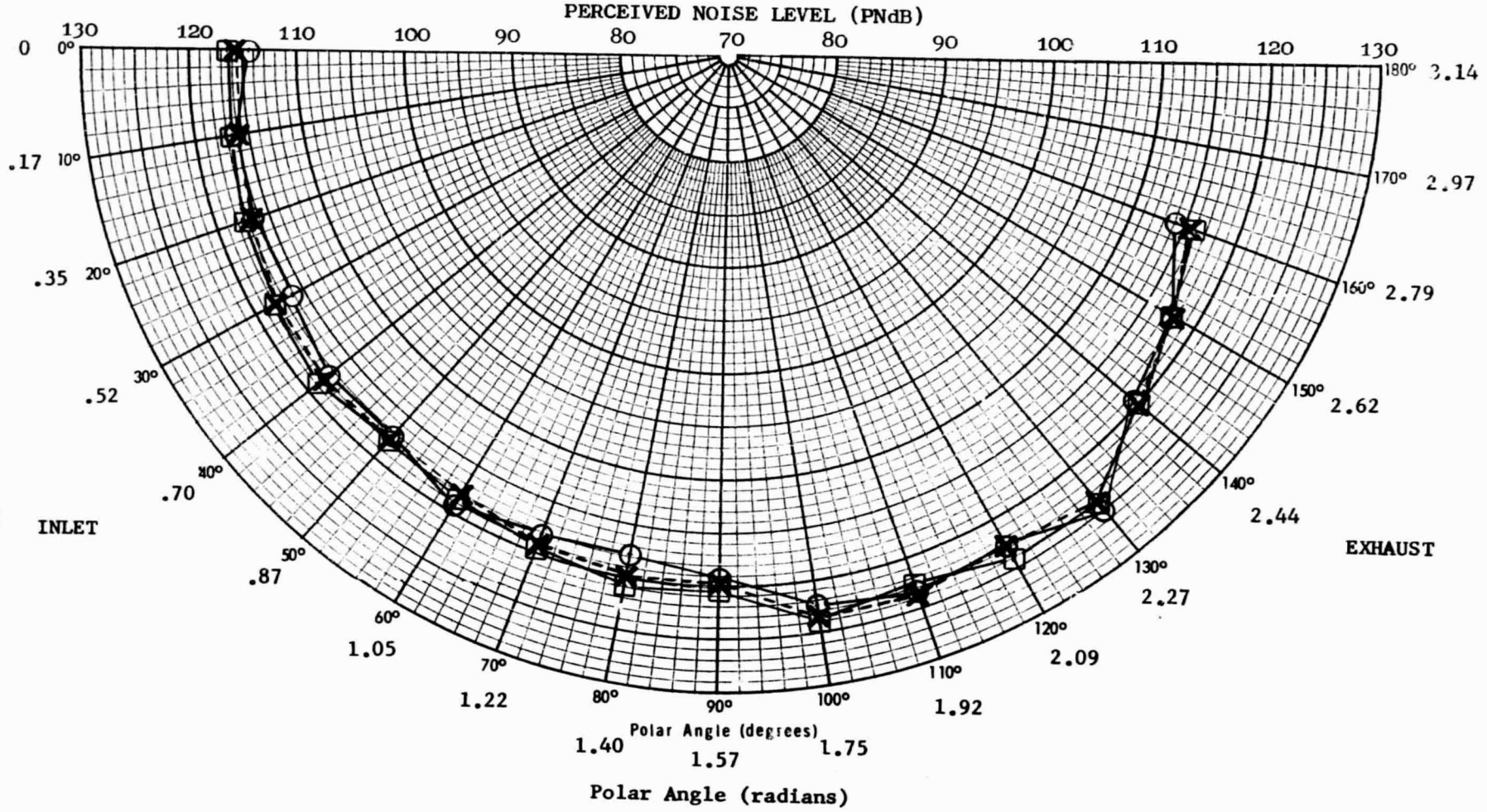
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	3200	3200	3200	
	Rad/sec	335.0	335.0	335.0	

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure 4.2.4-4

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



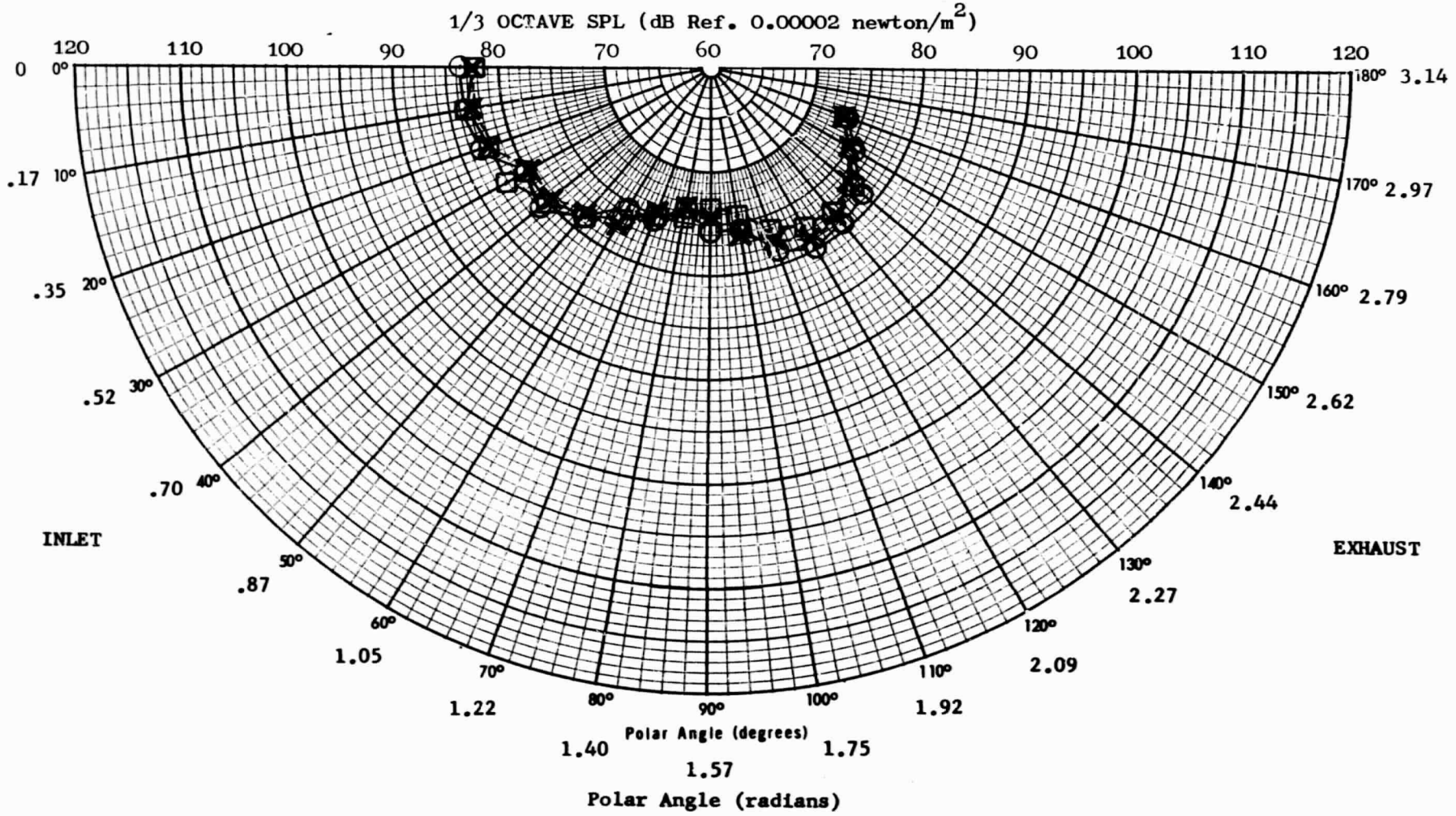
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10, 9-13-68	
Tape No.					
Physical Speed	RPM	3473	3473	3473	
	Rad/sec	363.6	363.6	363.6	

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure 4.2.4-5

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



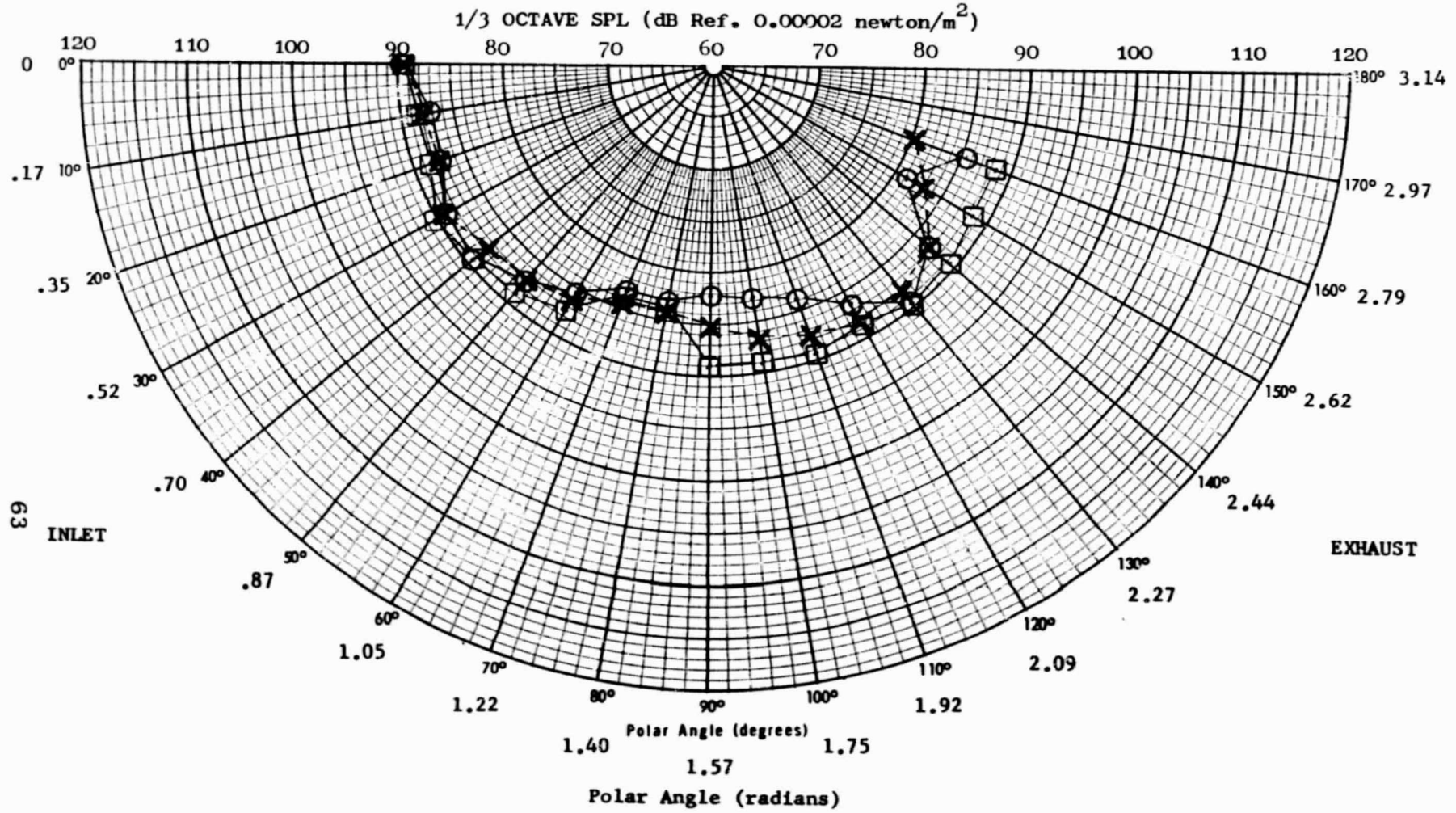
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10, 9-13-68	
Tape No.					
Physical Speed	RPM	1850	1850	1850	
	Rad/sec	193.7	193.7	193.7	

1/3 Octave SPL
For 1st Stage Rotor
Fundamental Frequency
At 225 Ft (68.58 M)
Radius
Vs.
Polar Angle

Figure 4.2.4-6

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



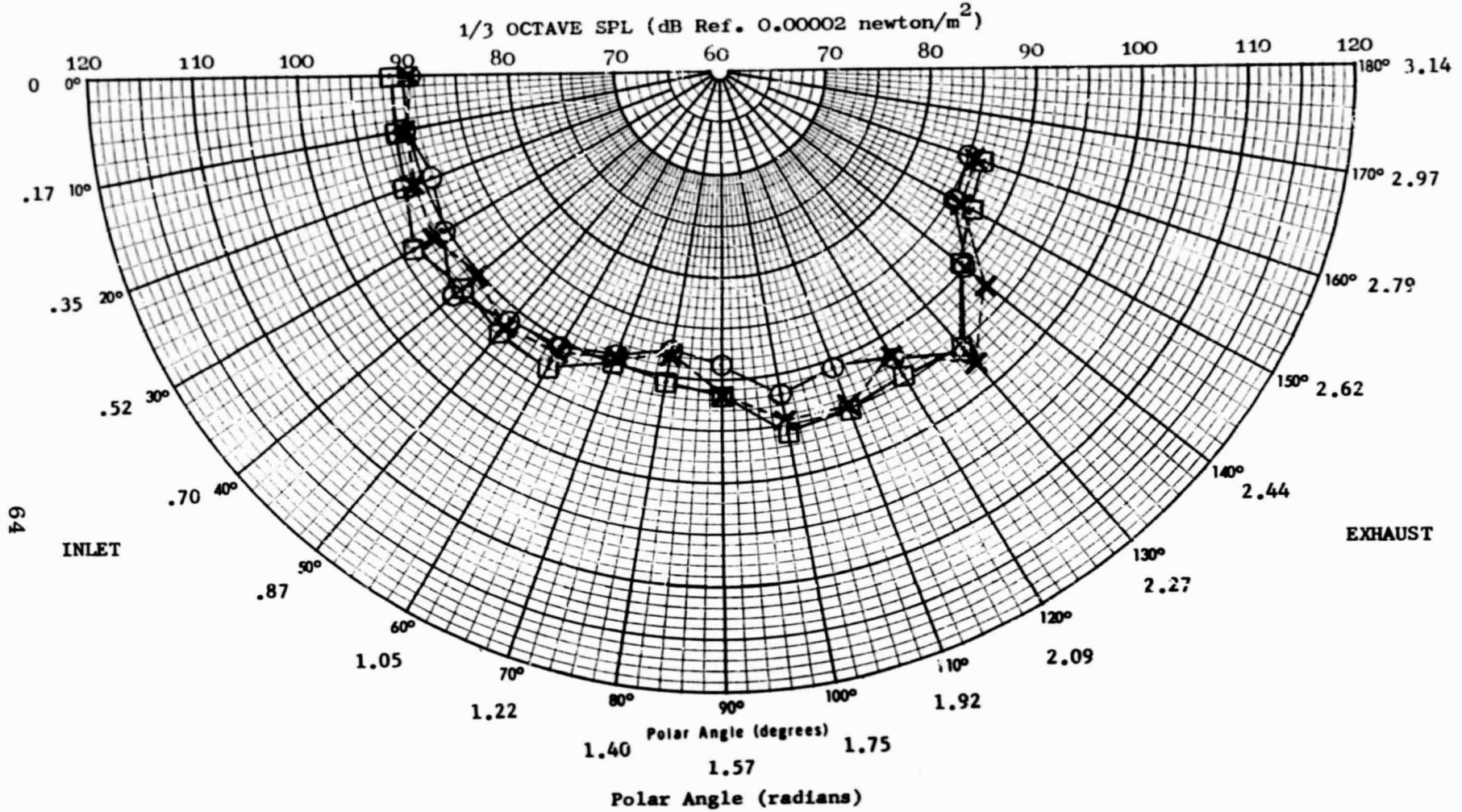
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10, 9-13-68	
Tape No.					
Physical Speed	RPM	2300	2300	2300	
	Rad/sec	240.8	240.8	240.8	

1/3 Octave SPL
For 1st Stage Rotor
Fundamental Frequency
At 225 Ft (68.58 M)
Radius
Vs.
Polar Angle

Figure 4.2.4-7

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

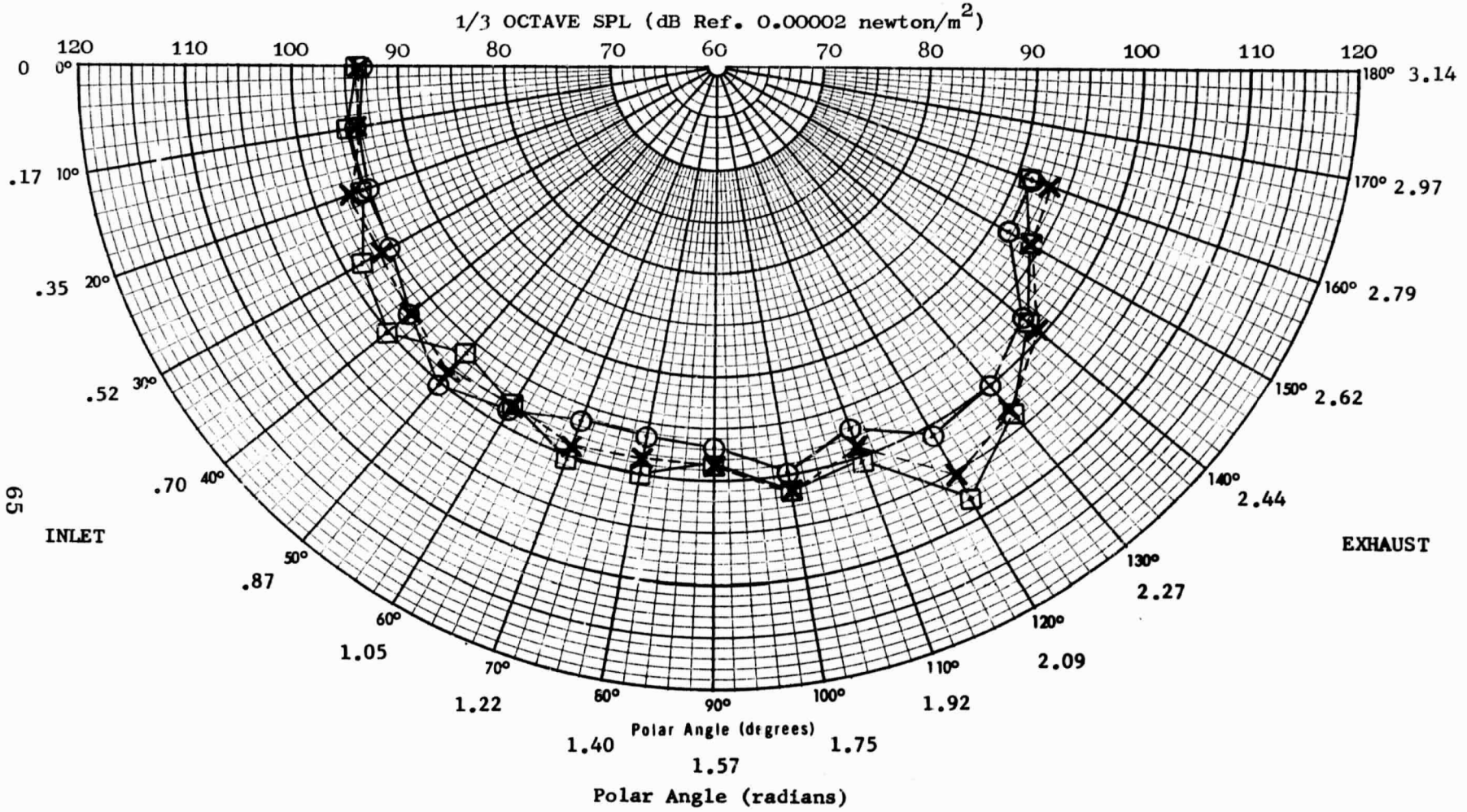
KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10, 9-13-68	
Tape No.					
Physical Speed	RPM	2750	2750	2750	
	Rad/sec	287.9	287.9	287.9	

1/3 Octave SPL
For 1st Stage Rotor
Fundamental Frequency
At 225 Ft (68.58 M)
Radius
Vs.
Polar Angle

Figure 4.2.4-8

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-4



TWO-STAGE LOw TIP SPEED FAN NOISE DEMONSTRATOR

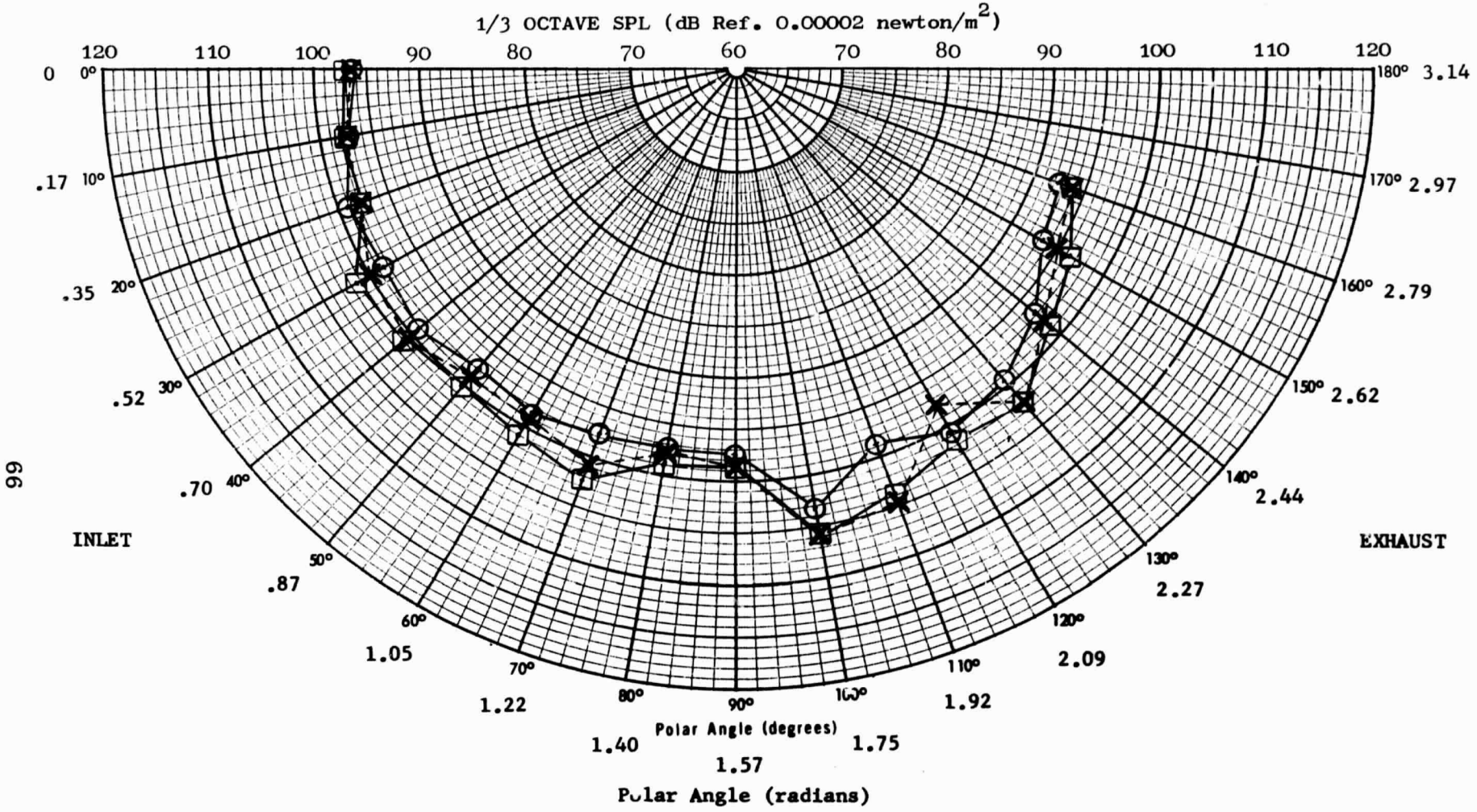
KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	3200	3200	3200	
	Rad/sec	335.0	335.0	335.0	

1/3 Octave SPL
For 1st Stage Rotor
Fundamental Frequency
At 225 Ft (68.58 M)
Radius
Vs.
Polar Angle

Figure 4.2.4-9

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-4



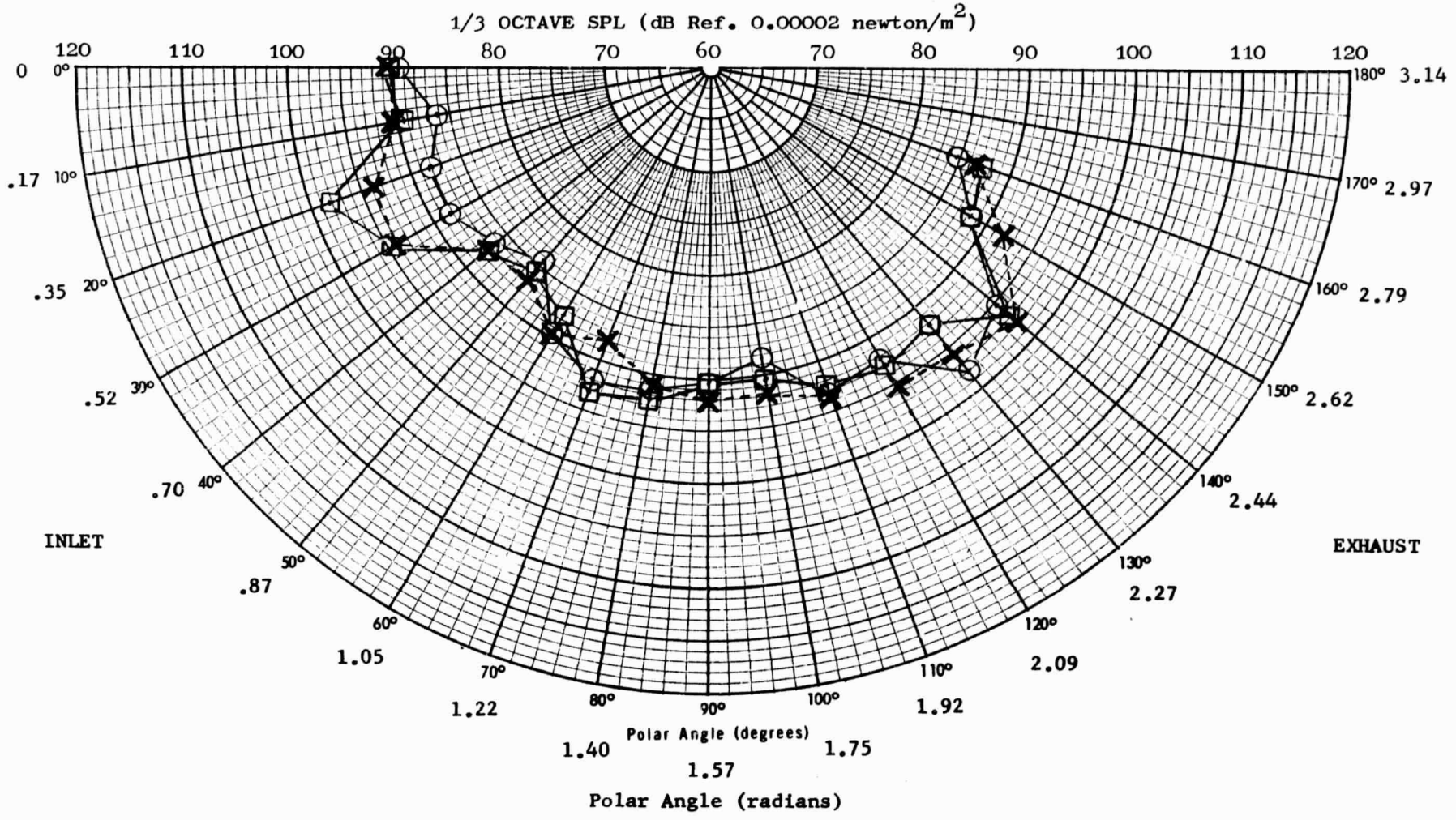
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10, 9-13-68	
Tape No.					
Physical Speed	RPM	3473	3473	3473	
	Rad/sec	363.6	363.6	363.6	

1/3 Octave SPL
For 1st Stage Rotor
Fundamental Frequency
At 225 Ft (68.58 M)
Radius
Vs.
Polar Angle

Figure 4.2.4-10

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

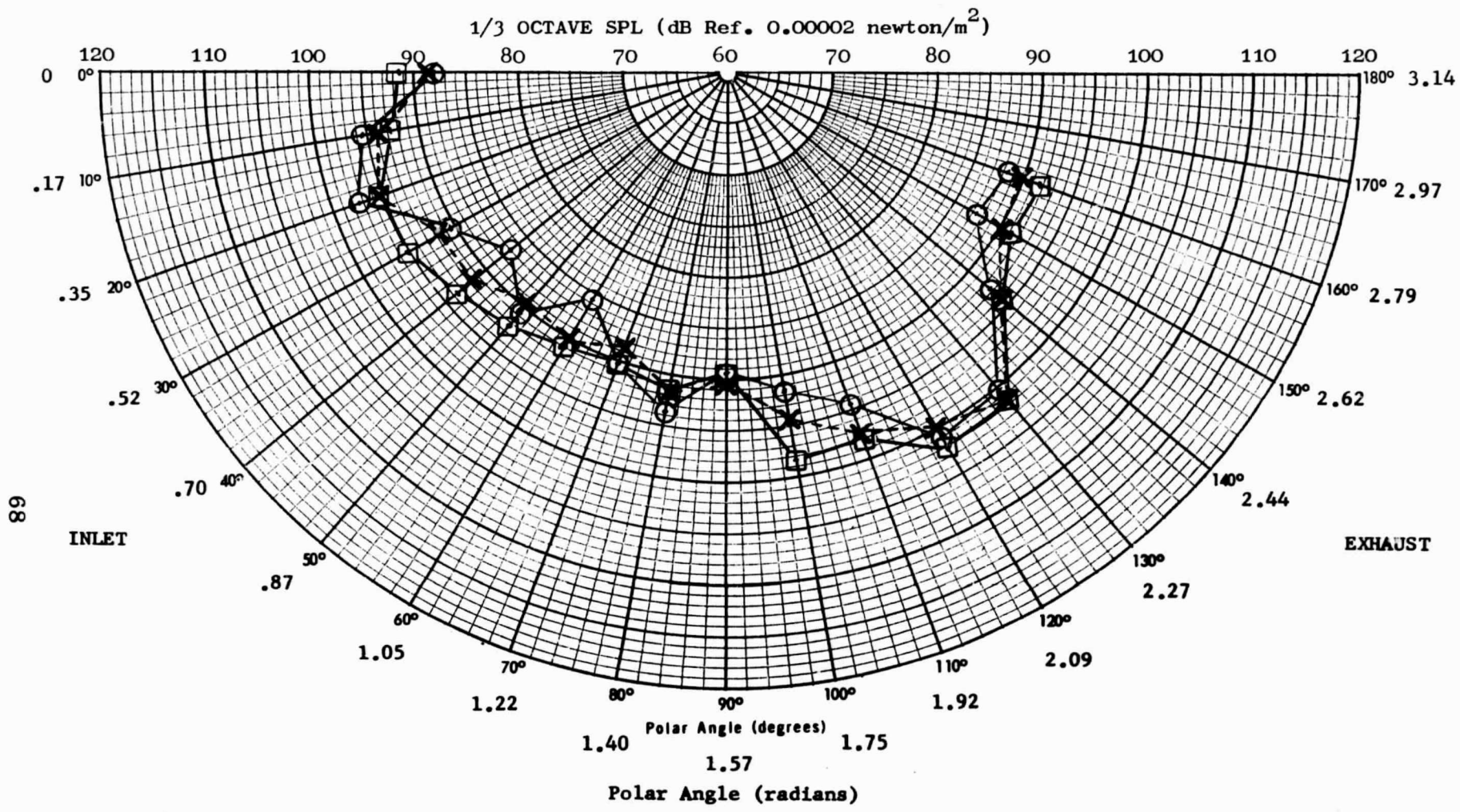
KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical	RPM	1850	1850	1850	
Speed	Rad/sec	193.7	193.7	193.7	

1/3 Octave SPL
For 2nd Stage Rotor
Fundamental Frequency
At 225 Ft (68.58 M)
Radius
Vs.
Polar Angle

Figure 4.2.4-11

KEY		○	□	×	
Corr. Speed %					
Fan Noz.	In^2	1718.5	1409.7	1508.3	
Area	m^2	1.1087	.9095	.9732	
Core Noz.	In^2	927.7	927.7		
Area	m^2	.5986	.5986		

Form No. N-4



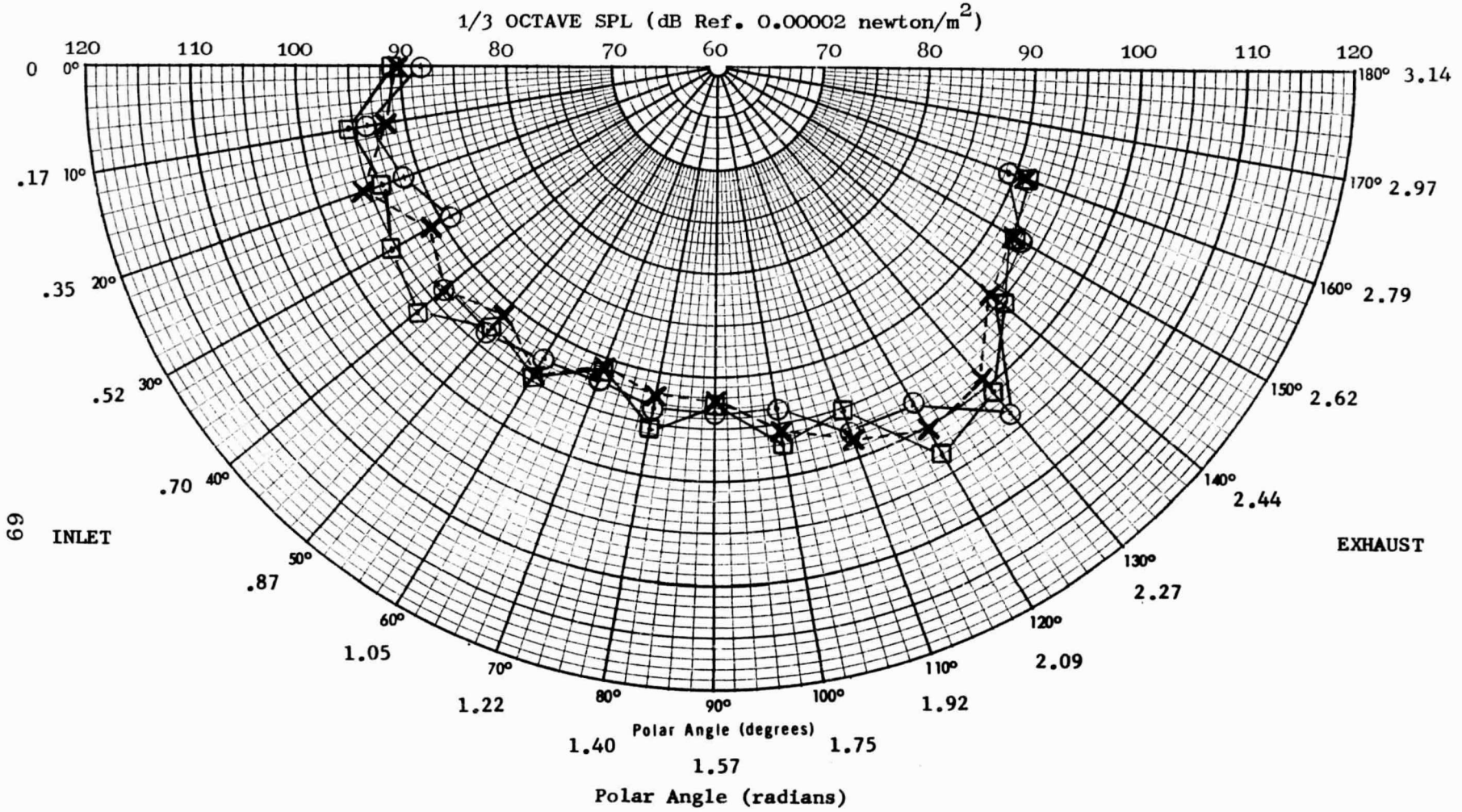
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	2300	2300	2300	
	Rad/sec	240.8	240.8	240.8	

1/3 Octave SPL
For 2nd Stage Rotor
Fundamental Frequency
At 225 Ft (68.58 M)
Radius
Vs.
Polar Angle

Figure 4.2.4-12

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



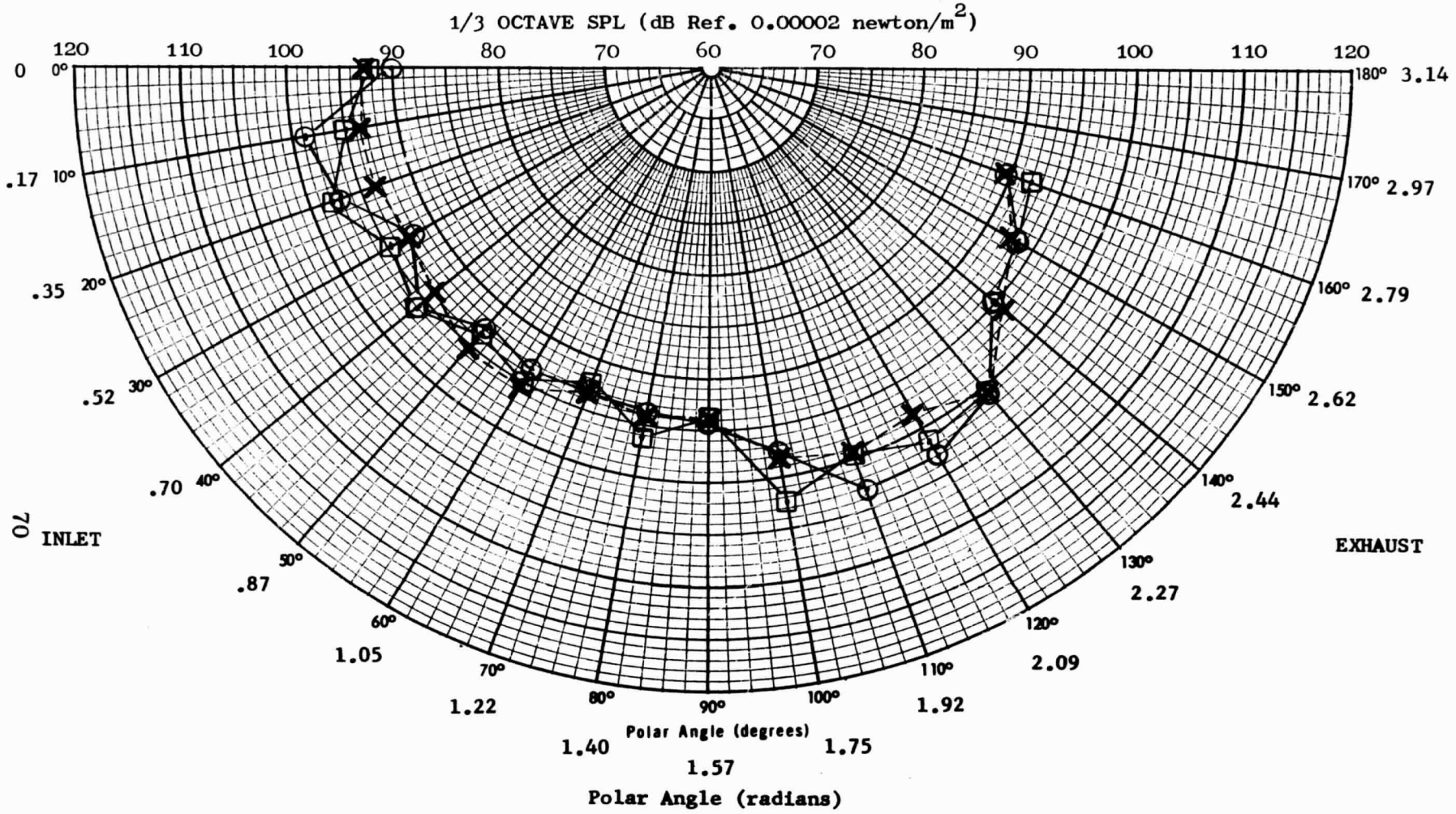
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	2750	2750	2750	
	Rad/sec	287.9	287.9	287.9	

1/3 Octave SPL
For 2nd Stage Rotor
Fundamental Frequency
At 225 Ft (68.58 M)
Radius
Vs.
Polar Angle

Figure 4.2.4-13

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



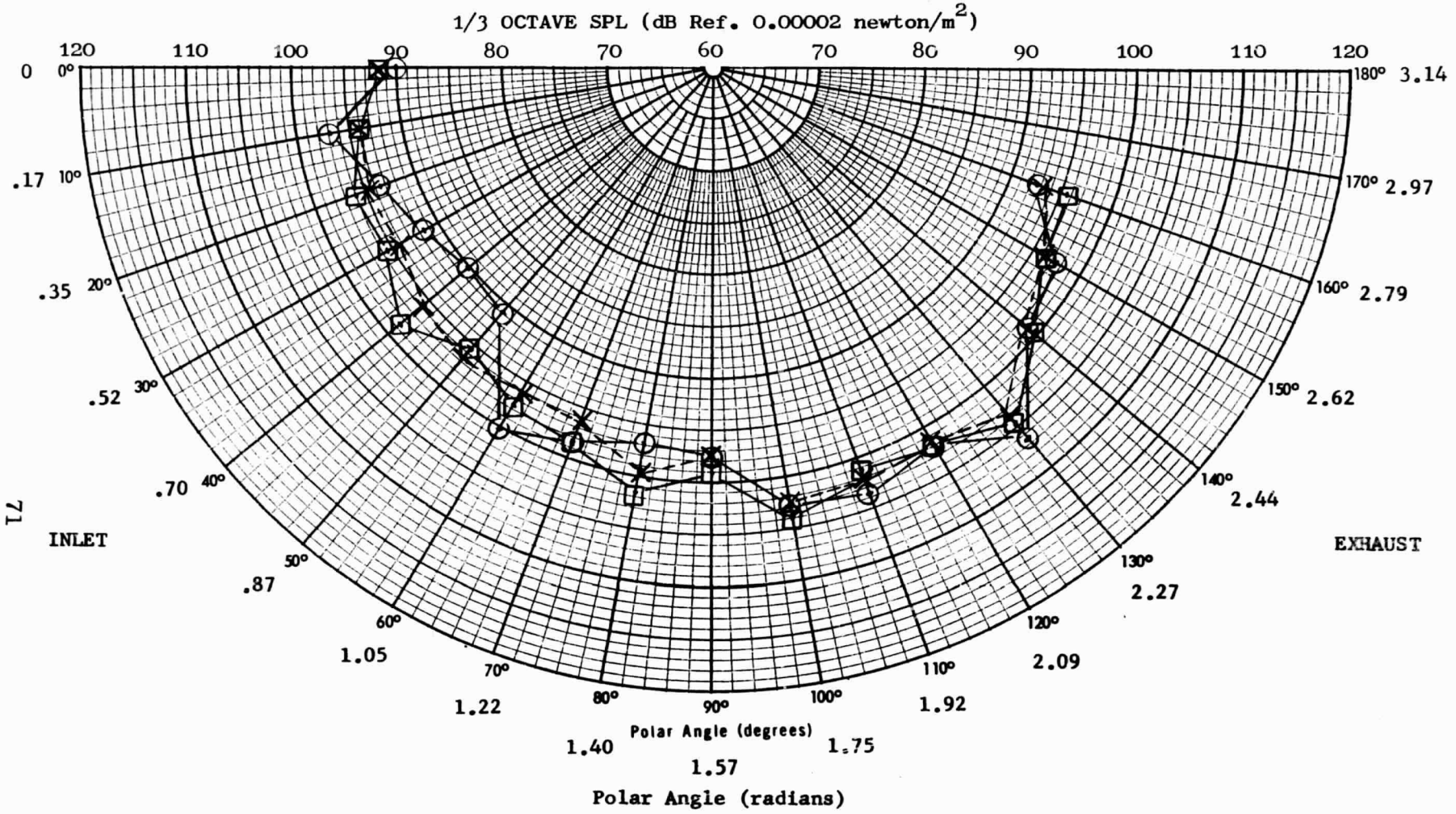
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	✕	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10-9	-13-68
Tape No.					
Physical Speed	RPM	3200	3200	3200	
	Rad/sec	335.0	335.0	335.0	

1/3 Octave SPL
For 2nd Stage Rotor
Fundamental Frequency
At 225 Ft (68.58 M)
Radius
Vs.
Polar Angle

Figure 4.2.4-14

KEY		○	□	✕	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	✕	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10, 9-13-68	
Tape No.					
Physical Speed	RPM	3473	3473	3473	
	Rad/sec	363.6	363.6	363.6	

1/3 Octave SPL
For 2nd Stage Rotor
Fundamental Frequency
At 225 Ft (68.58 M)
Radius
Vs.
Polar Angle

Figure 4.2.4-15

KEY		○	□	✕	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

in the region of maximum noise between 100° and 130° (1.75 and 2.27 rad) from the engine inlet. In contrast with the second stage rotor, the blade passing frequencies from the first stage rotor are more noticeably affected in the aft quadrant by changes in configuration, particularly at the fan speed of 3200 rpm (335.1 rad/sec).

The second stage rotor blade-passing frequencies are higher in level than those of the first stage rotor at 1850 rpm (193.7 rad/sec) and 2300 rpm (240.8 rad/sec). At higher speeds, the tones of the two stages are nearly equivalent.

4.2.5 SIDELINE DIRECTIVITY PATTERNS - 200 ft. (60.96M) SIDELINE

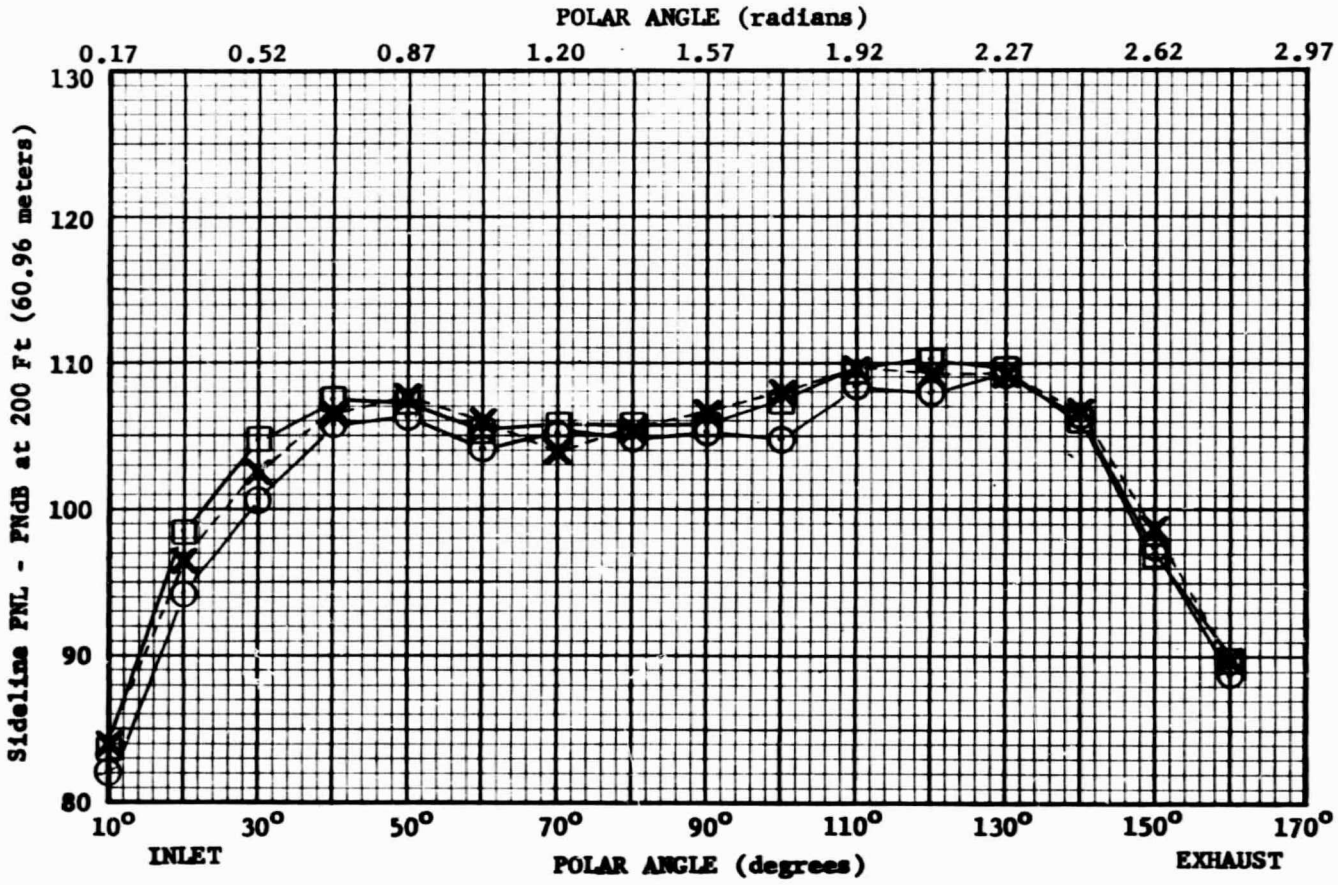
o PERCEIVED NOISE LEVEL

The same data points, converted to the 200 ft. (61.0M) sideline are shown in Figures 4.2.5-1 through -5. The maximum noise level along the sideline occurs in the vicinity of 130° (2.27 rad) at the lower fan speeds, and shifts forward to the vicinity of 100° (1.75 rad) from the inlet at the higher fan speeds. The lobe in the forward quadrant observed in the polar plots is still evident along the sideline at the lower fan speeds. The effect of fan loading shows the same trends on the sideline as in the polar plots, discussed in the preceding paragraph.

o BLADE PASSING FREQUENCY

The sideline blade passing frequency radiation patterns are shown in Figures 4.2.5-6 to 4.2.5-15. The results are similar to the perceived noise level directivity patterns. This similarity exists because the blade

passing frequency tones do, in fact, dominate perceived noise level patterns. Again, the trends indicate that noise levels are decreased with increased fan nozzle area, but the results are somewhat more pronounced on the tones from the first stage rotor than on the tones from the second stage rotor and the trends are most noticeable at higher fan speeds. Also, the second stage rotor tones are again seen to exhibit higher noise levels than the first stage rotor at lower fan speeds, whereas at higher fan speeds the levels are, in general, equivalent.



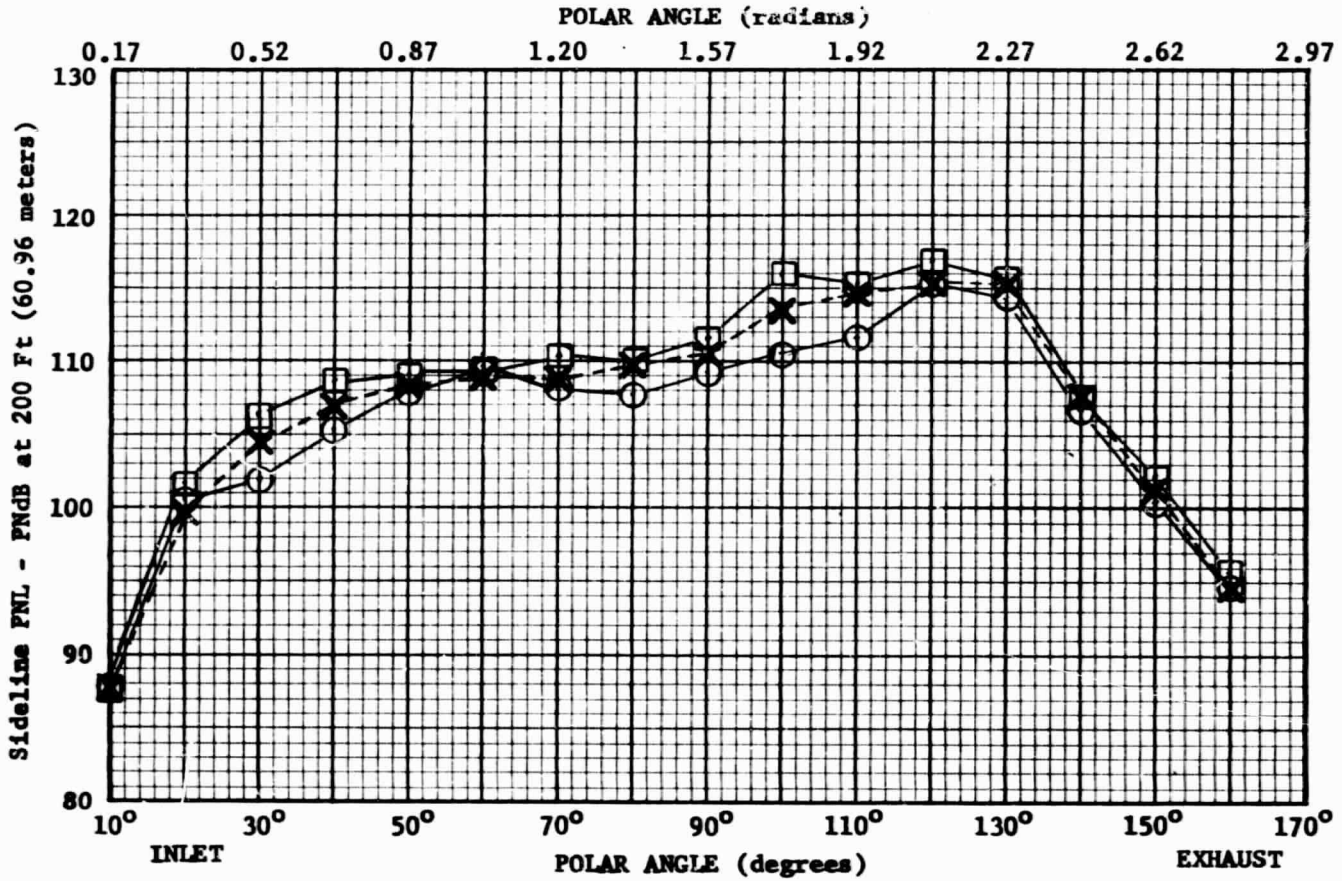
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	✕	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,19-13-68	
Tape No.					
Physical Speed	RPM	1850	1850	1850	
	Rad/sec	193.7	193.7	193.7	

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure 4.2.5-1

KEY		○	□	✕	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



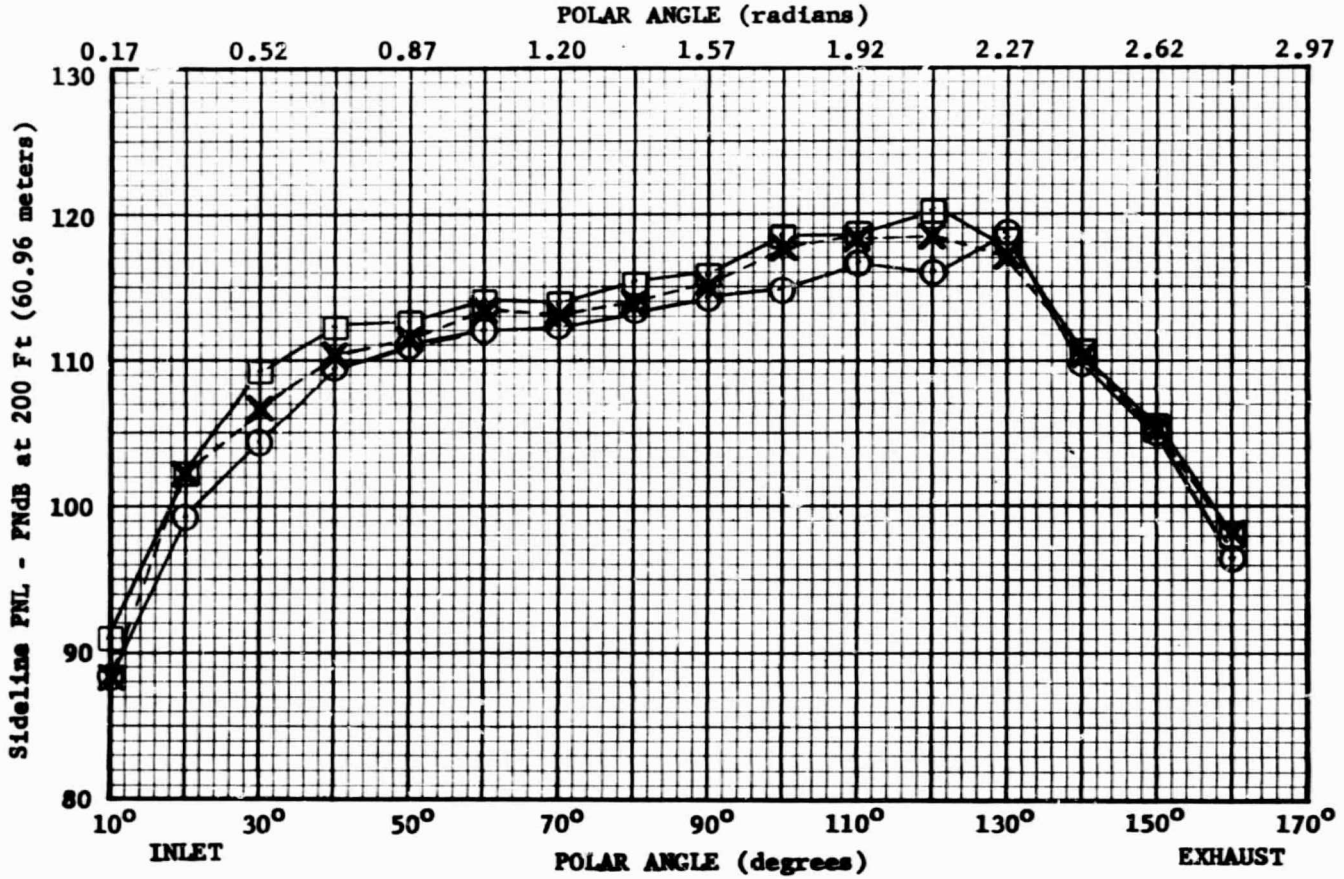
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	2300	2300	2300	
	Rad/sec	240.8	240.8	240.8	

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure 4.2.5-2

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



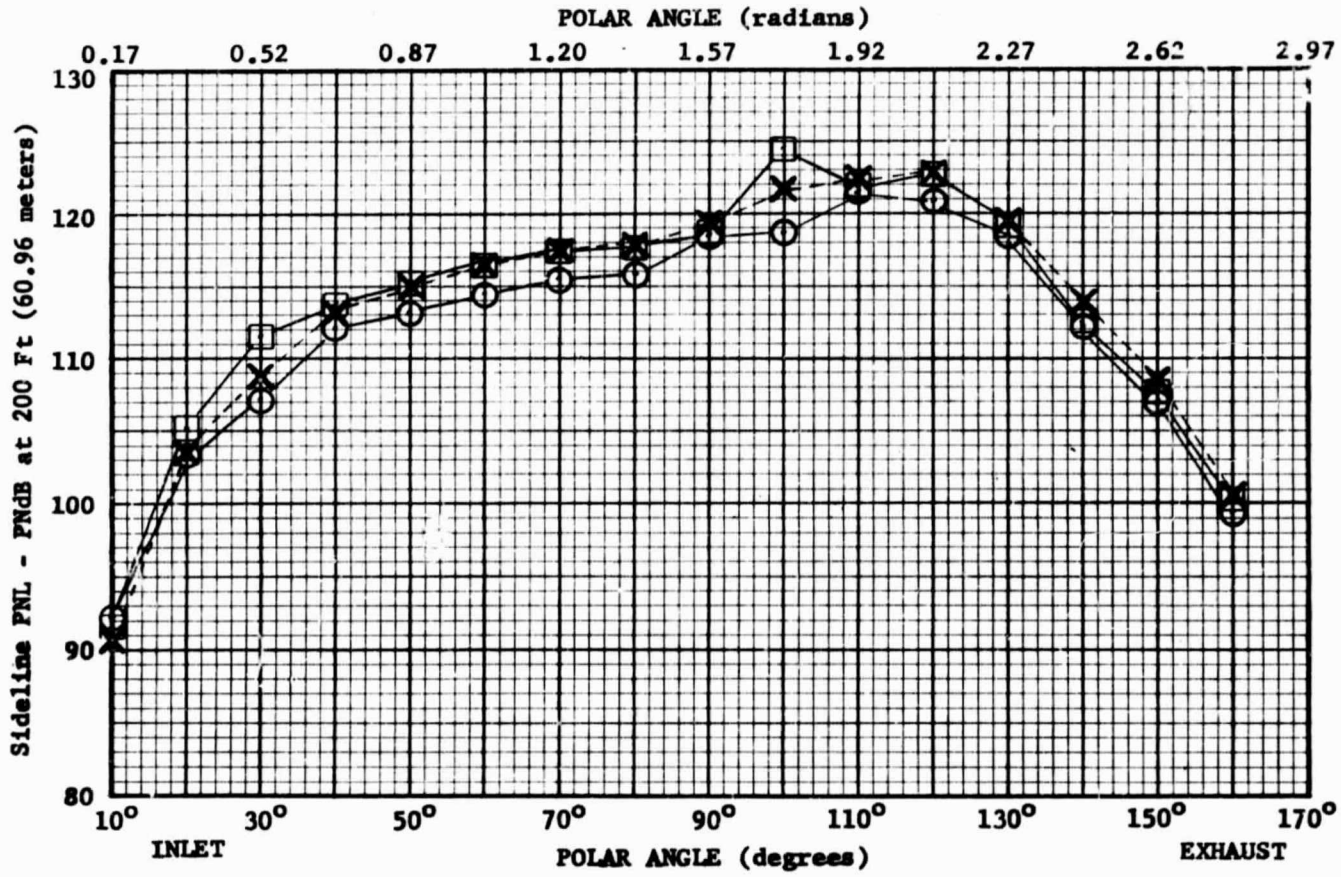
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	✕	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,13-68	
Tape No.					
Physical Speed	RPM	2750	2750	2750	
	Rad/sec	287.9	287.9	287.9	

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure 4.2.5-3

KEY		○	□	✕	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



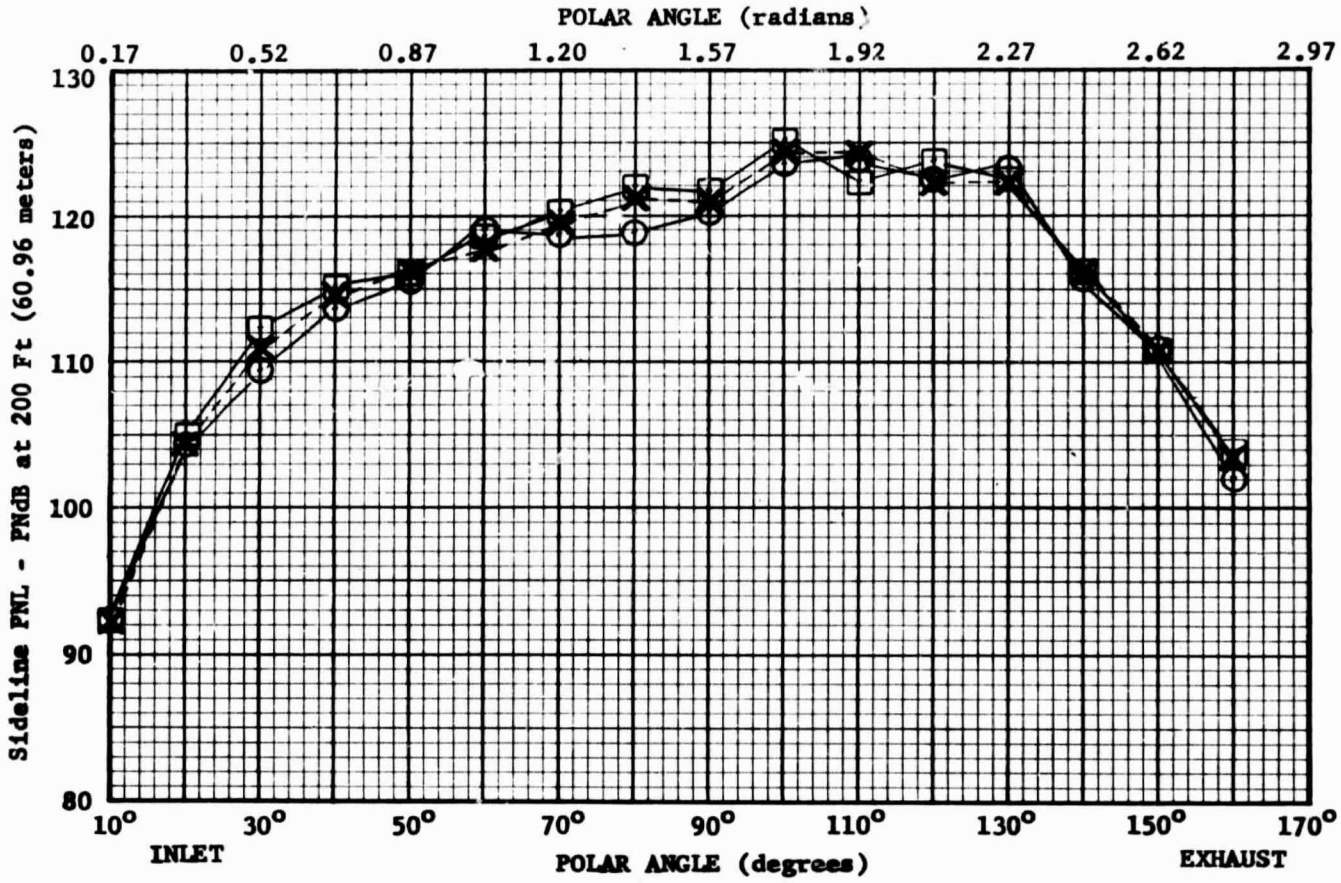
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	3200	3200	3200	
	Rad/sec	335.0	335.0	335.0	

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure 4.2.5-4

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



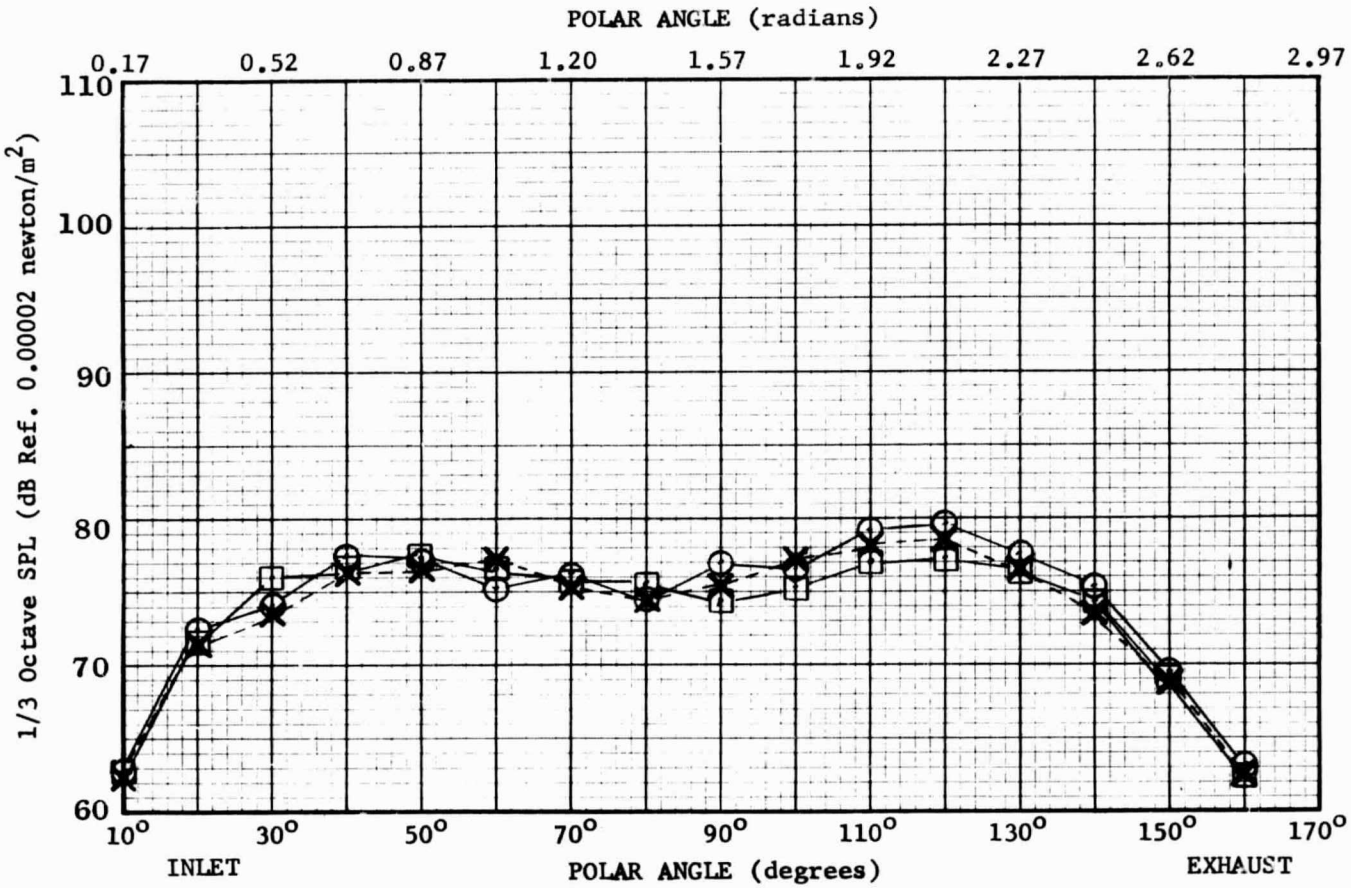
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	✕	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	3473	3473	3473	
	Rad/sec	363.6	363.6	363.6	

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure 4.2.5-5

KEY		○	□	✕	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



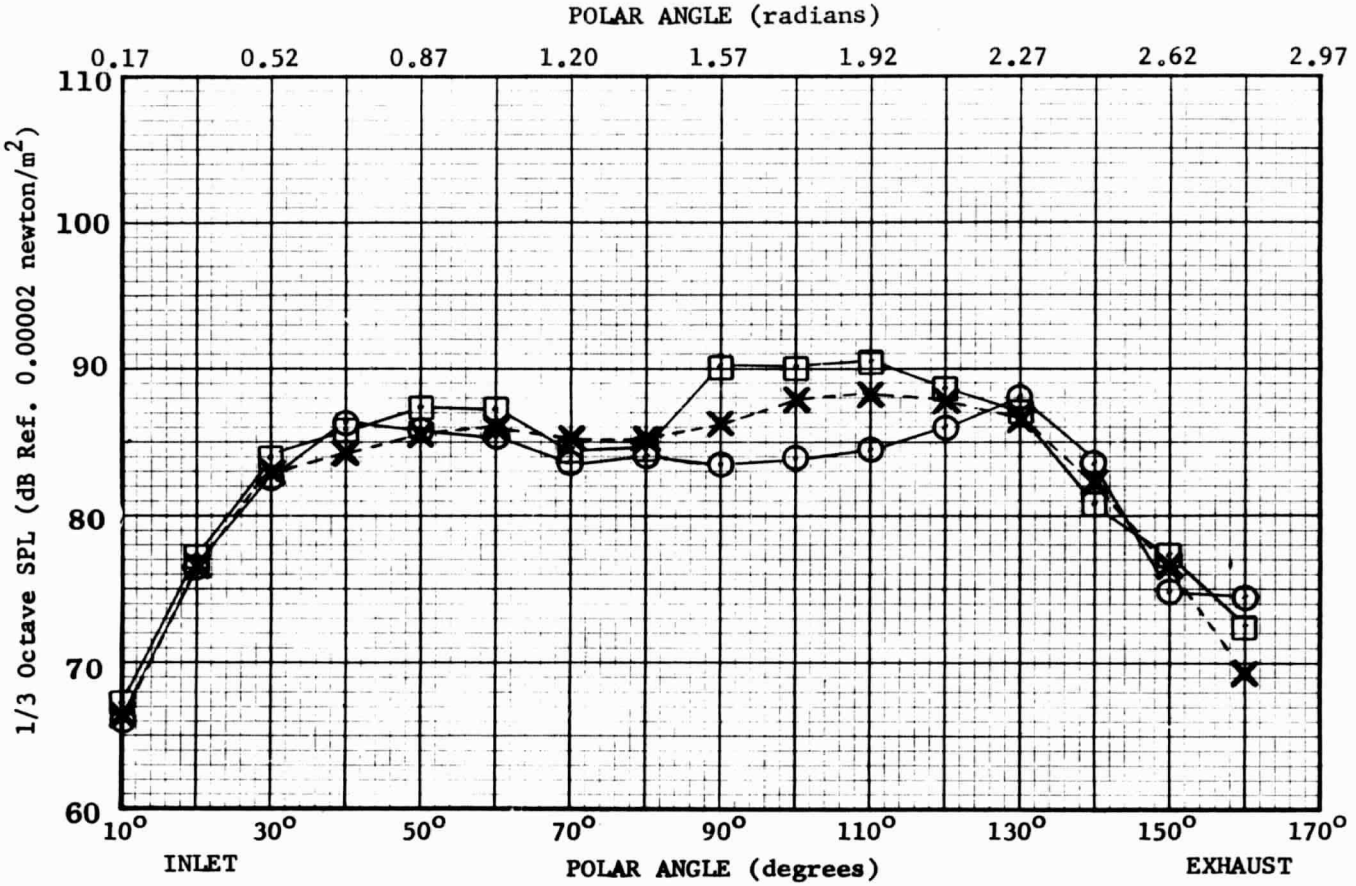
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	1850	1850	1850	
	Rad/sec	193.7	193.7	193.7	

1/3 Octave SPL
For 1st Stage Rotor
Fundamental Frequency
At 200 Ft (60.96 M)
Sideline
Vs.
Polar Angle

Figure 4.2.5-6

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



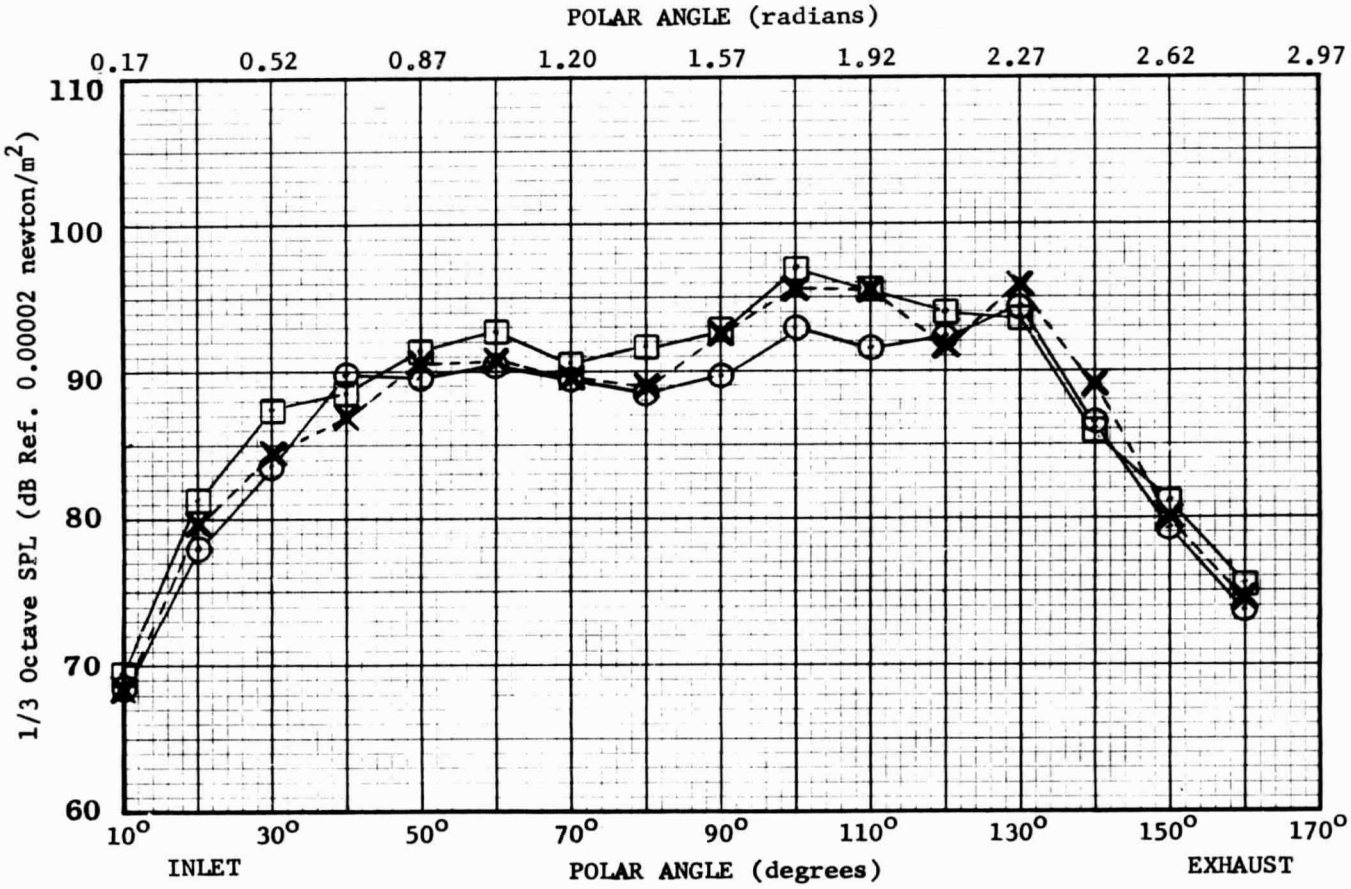
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,	9-13-68
Tape No.					
Physical Speed	RPM	2300	2300	2300	
	Rad/sec	240.8	240.8	240.8	

1/3 Octave SPL
For 1st Stage Rotor
Fundamental Frequency
At 200 Ft (60.96 M)
Sideline
Vs.
Polar Angle

Figure 4.2.5-7

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



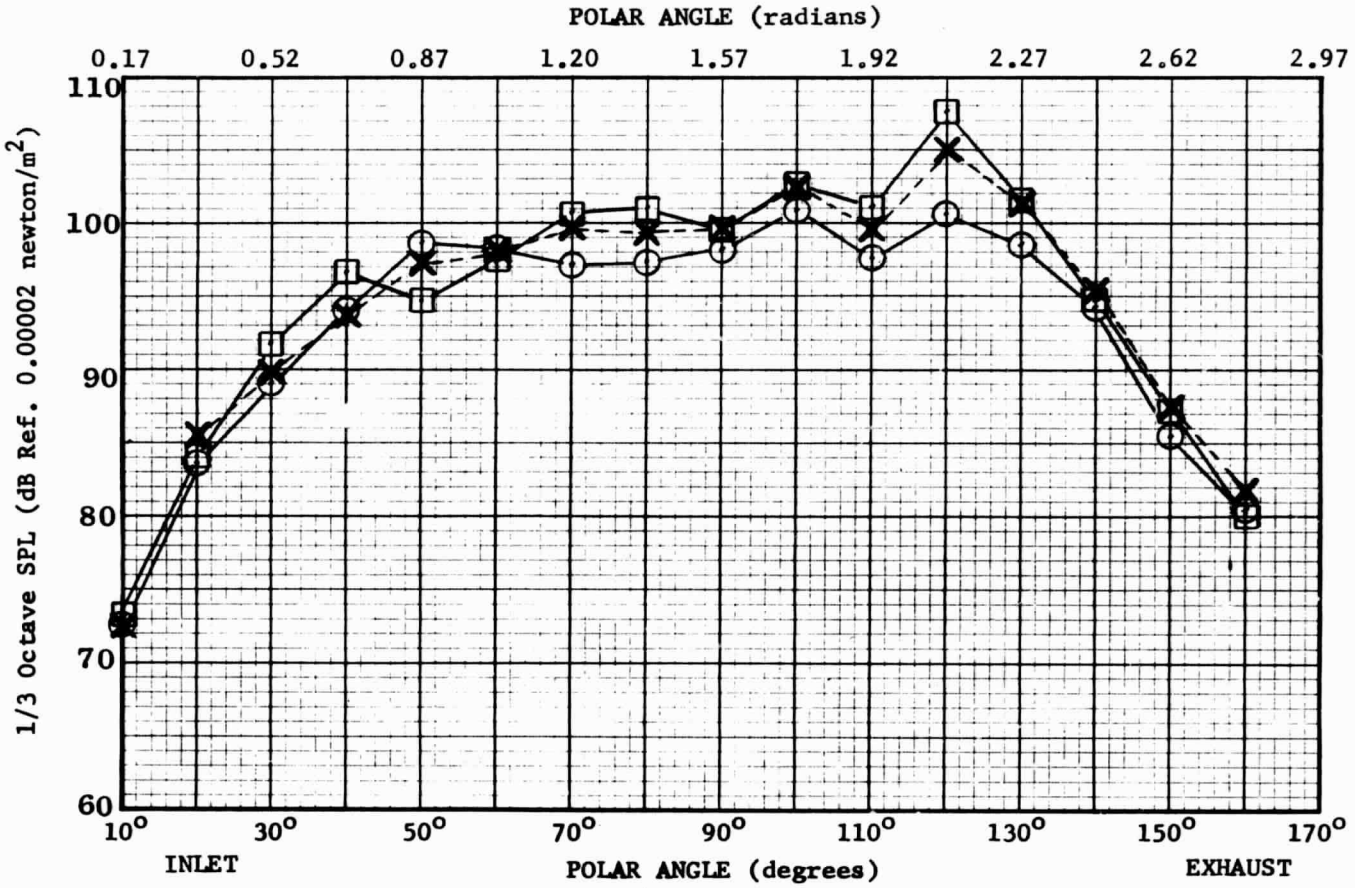
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	2750	2750	2750	
	Rad/sec	287.9	287.9	287.9	

1/3 Octave SPL
For 1st Stage Rotor
Fundamental Frequency
At 200 Ft (60.96 M)
Sideline
Vs.
Polar Angle

Figure 4.2.5-8

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



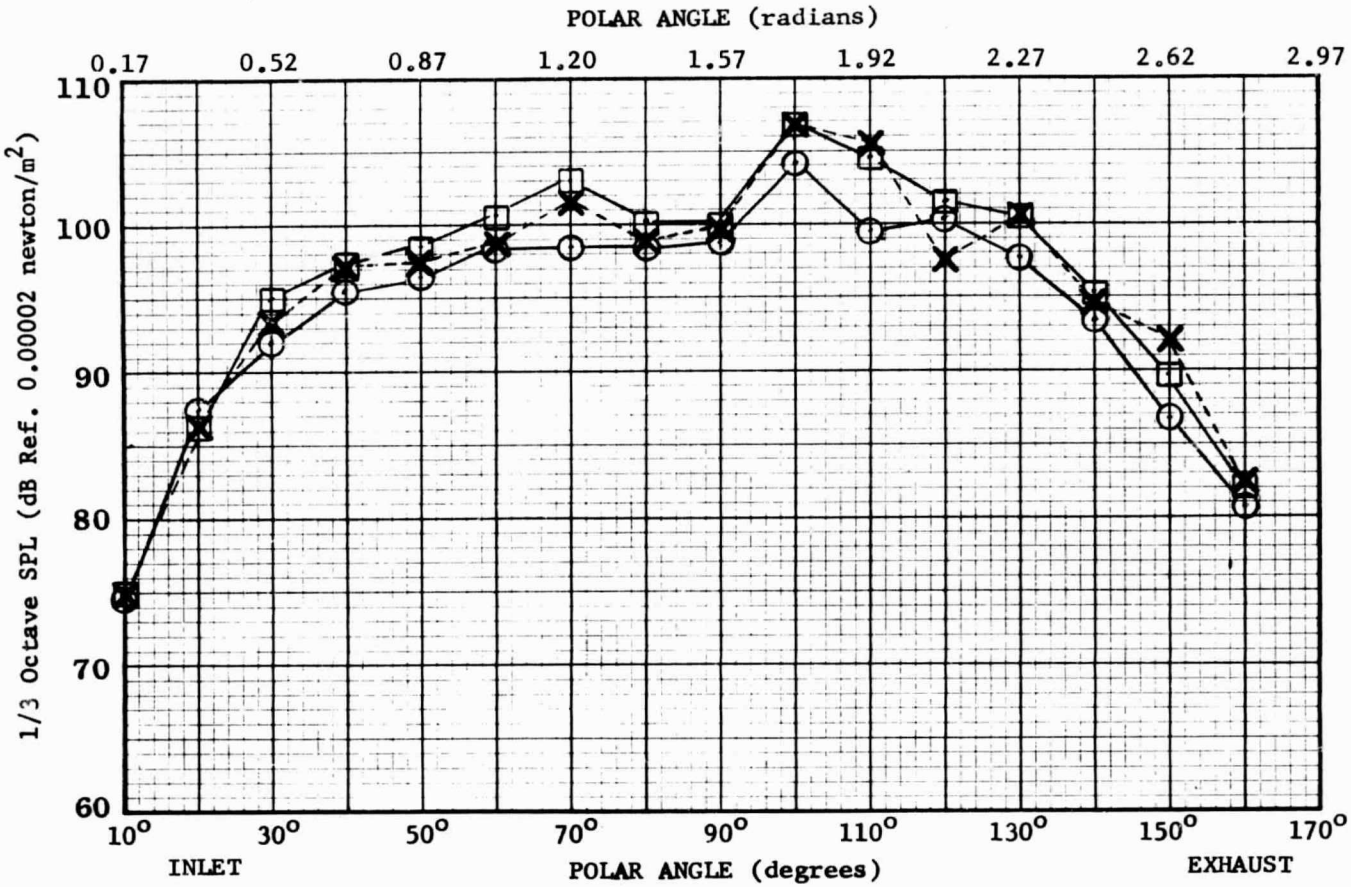
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	3200	3200	3200	
	Rad/sec	335.0	335.0	335.0	

1/3 Octave SPL
For 1st Stage Rotor
Fundamental Frequency
At 200 Ft (60.96 M)
Sideline
Vs.
Polar Angle

Figure 4.2.5-9

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



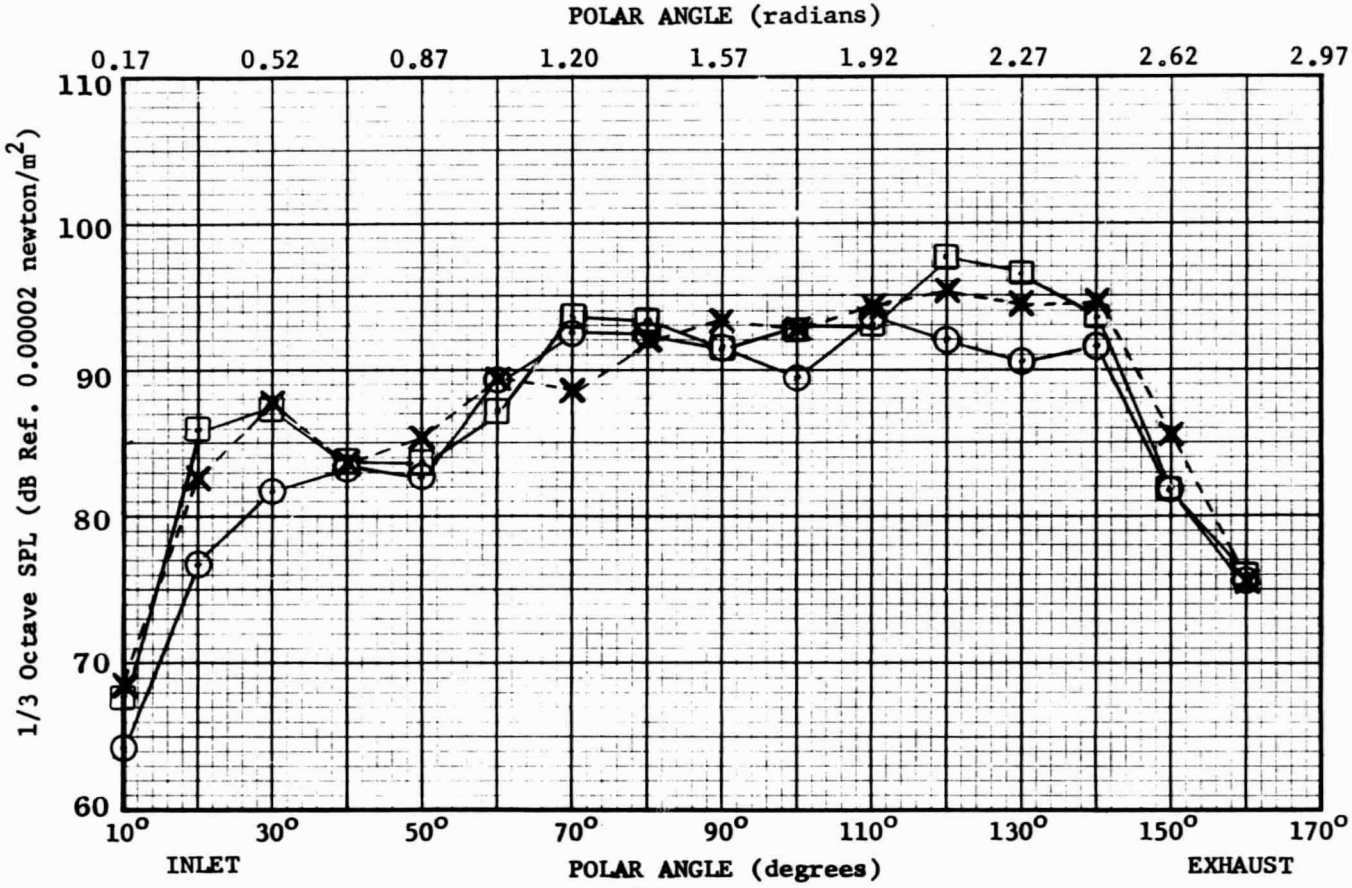
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical	RPM	3473	3473	3473	
Speed	Rad/sec	363.6	363.6	363.6	

1/3 Octave SPL
For 1st Stage Rotor
Fundamental Frequency
At 200 Ft (60.96 M)
Sideline
Vs.
Polar Angle

Figure 4.2.5-10

KEY		○	□	×	
Corr. Speed %					
Fan Noz.	In^2	1718.5	1409.7	1508.3	
Area	m^2	1.1087	.9095	.9732	
Core Noz.	In^2	927.7	927.7		
Area	m^2	.5986	.5986		



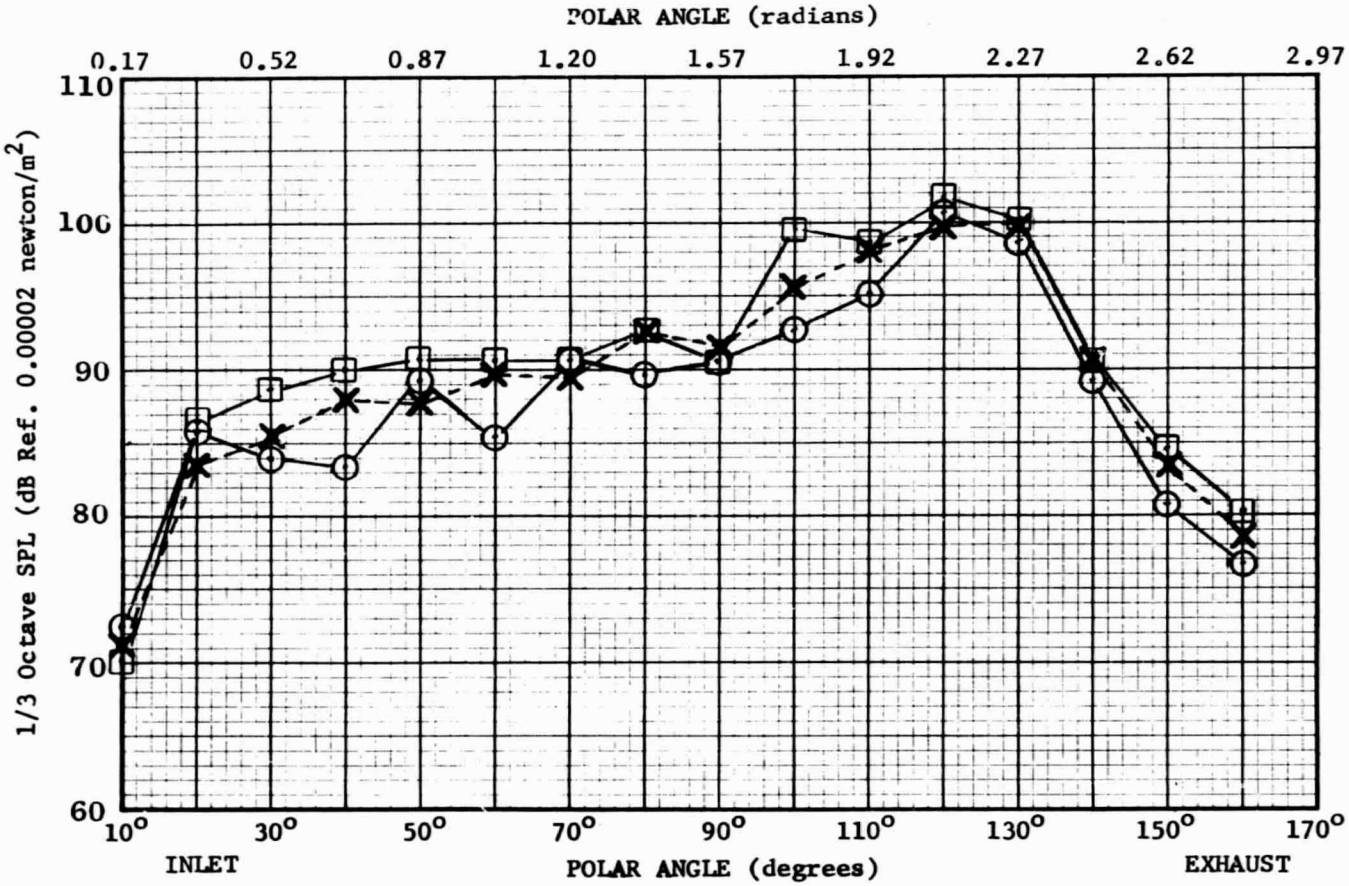
TWC-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	✕	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	1850	1850	1850	
	Rad/sec	193.7	193.7	193.7	

1/3 Octave SPL
For 2nd Stage Rotor
Fundamental Frequency
At 200 Ft (60.96 M)
Sideline
Vs.
Polar Angle

Figure 4.2.5-11

KEY		○	□	✕	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



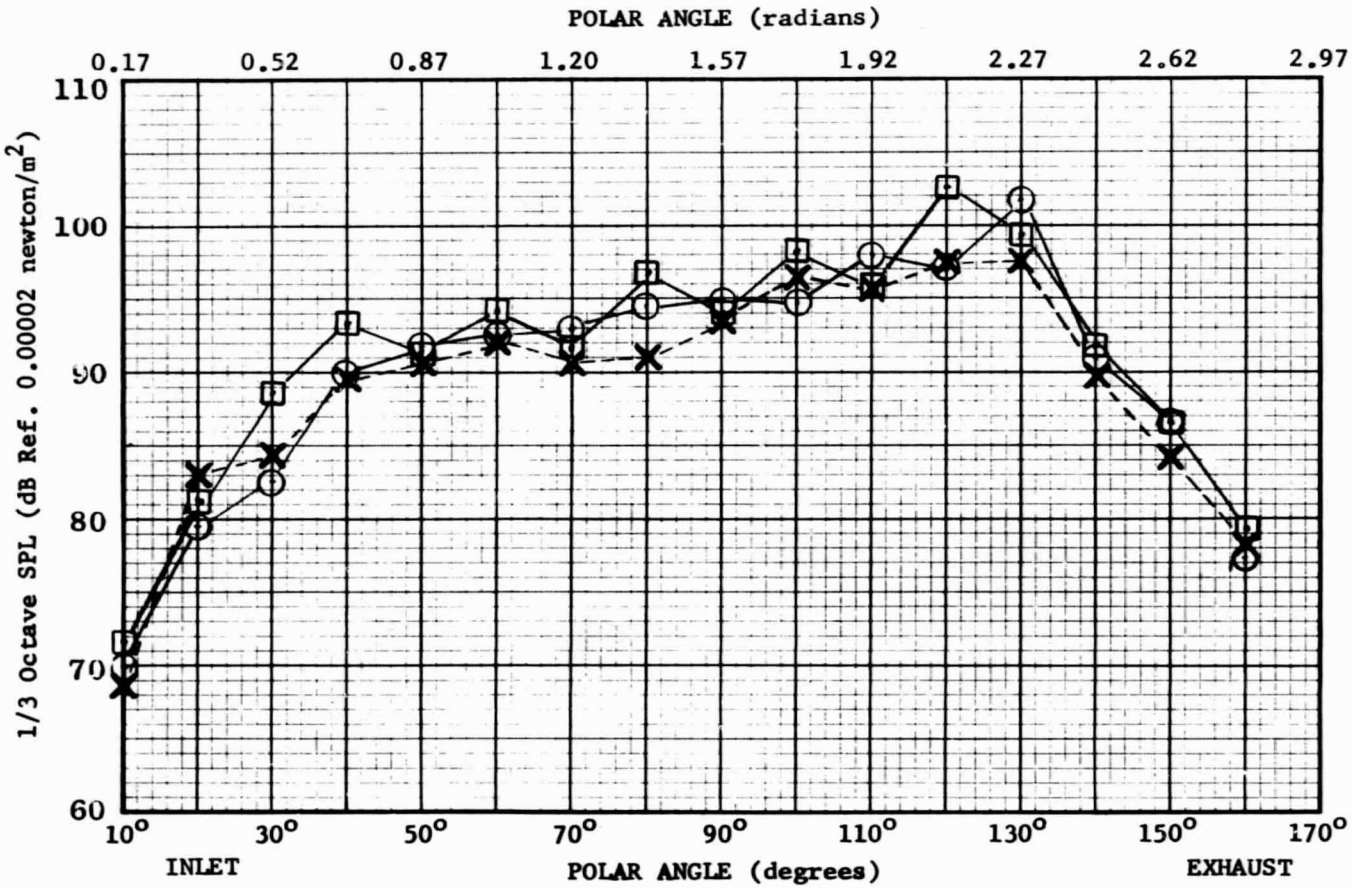
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13,68	
Tape No.					
Physical Speed	RPM	2300	2300	2300	
	Rad/sec	240.8	240.8	240.8	

1/3 Octave SPL
For 2nd Stage Rotor
Fundamental Frequency
At 200 Ft (60.96 M)
Sideline
Vs.
Polar Angle

Figure 4.2.5-12

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



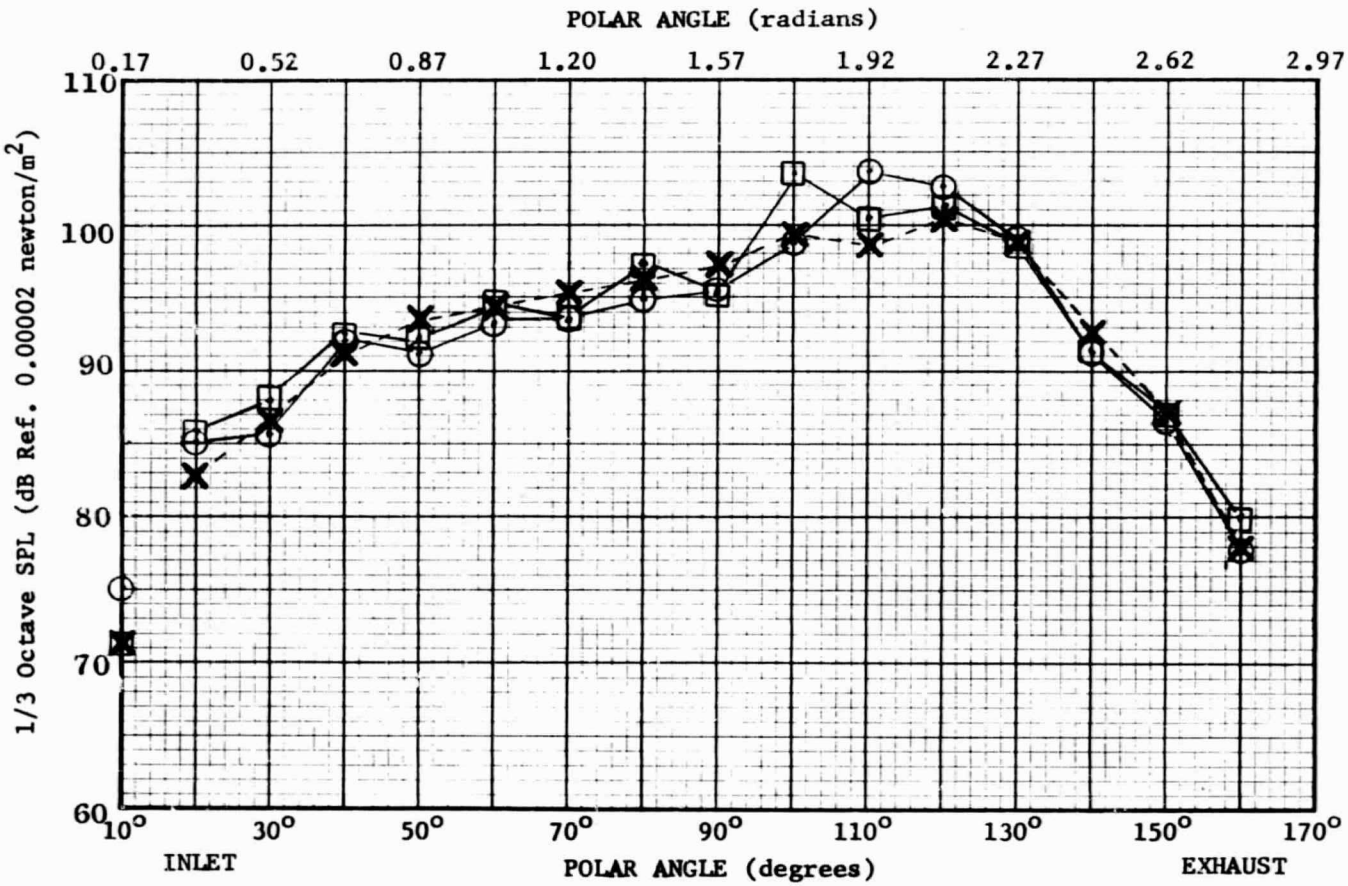
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7, 8	
Date		9-4-68	9-6-68	9-10, 9-13-68	
Tape No.					
Physical Speed	RPM	2750	2750	2750	
	Rad/sec	287.9	287.9	287.9	

1/3 Octave SPL
For 2nd Stage Rotor
Fundamental Frequency
At 200 Ft (60.96 M)
Sideline
Vs.
Polar Angle

Figure 4.2.5-13

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.8	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



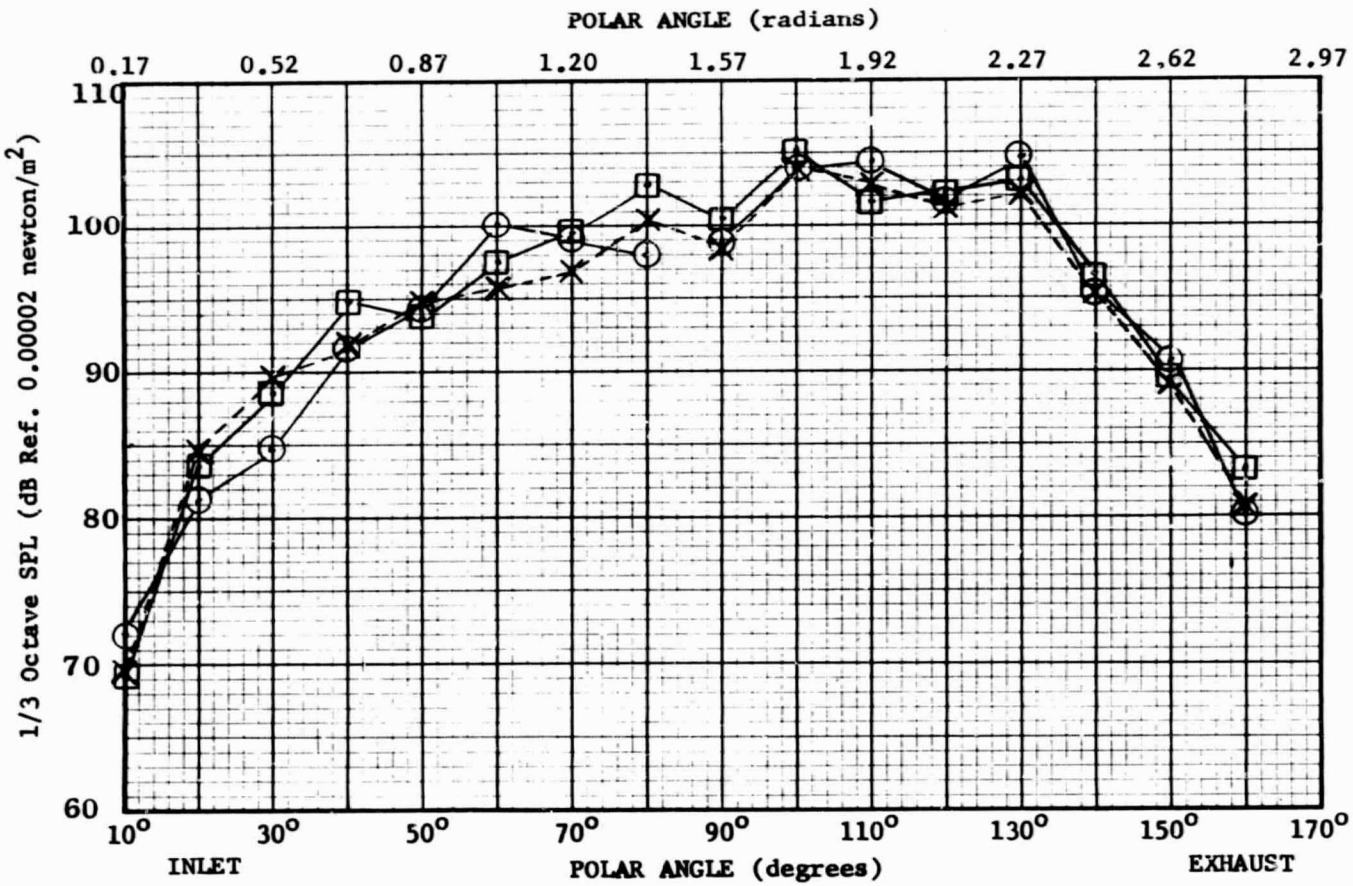
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	×	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	3200	3200	3200	
	Rad/sec	335.0	335.0	335.0	

1/3 Octave SPL
For 2nd Stage Rotor
Fundamental Frequency
At 200 Ft (60.96 M)
Sideline
Vs.
Polar Angle

Figure 4.2.5-14

KEY		○	□	×	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	✕	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	3473	3473	3473	
	Rad/sec	363.6	363.6	363.6	

1/3 Octave SPL
For 2nd Stage Rotor
Fundamental Frequency
At 200 Ft (60.96 M)
Sideline
Vs.
Polar Angle

Figure 4.2.5-15

KEY		○	□	✕	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

4.2.6 FAR FIELD SPECTRAL DATA

Spectral content of the noise reaching the far field is given in terms of 1/3 octave band power level in Appendix B for all data runs made in this program and in terms of 20 Hz filter-width narrowband sound pressure level for selected* data runs in Appendix D. The specific data included in each case are identified by figure number for ease in reference, in Tables 4.2.6-1 and 4.2.6-2, respectively. The fundamental fan rotor blade passing frequencies and the 1/3 octave band in which they occur for each fan speed point setting, are given in Table 4.2.6-3.

- o ONE-THIRD OCTAVE RESULTS

The 1/3 octave spectra show the following characteristics:

- o The blade passing fundamental frequency is generally dominant. Second harmonics are detectable, becoming more prominant at the higher end of the fan speed range to the extent that they are occasionally higher than the fundamental.

- o The second rotor fundamental is dominant at the lower end of the speed range, but the first rotor fundamental increases to equal and occasionally greater magnitude at the higher end of the speed range. This is shown by the data for the sound power level for each rotor fundamental, standard configuration, in Figure 4.2.6-1.

- o A deep trough occurs about the 200 to 250 Hz band regardless of the fan speed or nozzle configuration. This trough is believed to be caused by the ground effects associated with the choice of the far-field microphone layout. A combination of ground reflection interference and ground absorption is postulated, as discussed further in Section 5.4.

- o Evaluation of the jet noise levels requires use of corrections for the ground effects, and is treated to the extent possible with available data in Section 5.4. The other analyses given in Section 5 do not include any correction for ground effects, and are unnecessary since the fan noise is dominant.

*Practical considerations from the sheer bulk of data imposes the need for selection of representative data sufficient to identify the tones radiated to the far-field.

The duplicate data points plotted for the 1/3 octave spectra show good agreement and whatever anomalies appear are believed to be truly representative of the noise levels received by the far-field microphones. Future programs of this type should include microphones at different heights for at least one angle in the far-field to assist in the analysis of ground effects.

o 20 Hz NARROWBAND RESULTS

The 20 Hz narrowband data included in Appendix D (per figure numbers given in Table 4.2.6-2), resolve further detail of the spectrum, showing the presence of a multitude of tones arising from not only the higher harmonics of the blade passing frequencies but also the sums and differences of these tones. By having a two stage rotor, the sum and different tones are introduced, thereby affecting the apparent broadband noise in a 1/3 octave band reduction of the data. Some of the tones that can be expected are tabulated in Table 4.2.6-4A and B for 2300 rpm (240.8 rad/sec) and 3473 rpm (363.6 rad/sec), respectively. This tabulation covers the first four harmonics; Figure D11 of Appendix D shows the presence of all harmonics up through the sixth for the second stage rotor, so the tabulation, while including 40 possible frequencies, is not comprehensive.

To assess the contributions of these tones to overall sound power level the strongest sum and difference tones from 30^{o} to 150^{o} (0.52 to 2.62 rad) for Run 8 have been summed*, with the results as given in Tables 4.2.6-5 and 4.2.6-6 for the 2300 and 3473 rpm (240.8 and 363.6 rad/sec) cases, respectively.

*The contributions from 0^{o} through 20^{o} and 160^{o} (0 through 0.35 and 2.79 rad) are negligible.

These Tables show:

- At the lower speed, the integrated blade passing frequency tones and harmonics amount to ~155 dB, while the sum and difference tones amount to only ~141 dB.
- At the higher speed, the corresponding values are ~162 dB and ~149 dB, respectively.

Similar characteristics are observed for the other configurations tested in this program: the tones are generally in the same proportion to total power as for Run 8. One exception is noted, however, in which the sum and difference tone was greater than the fundamental (Figure D30), but this was not observed in any other case. Consequently, it is concluded that the sum and difference tones are not significant contributions to overall sound power level.

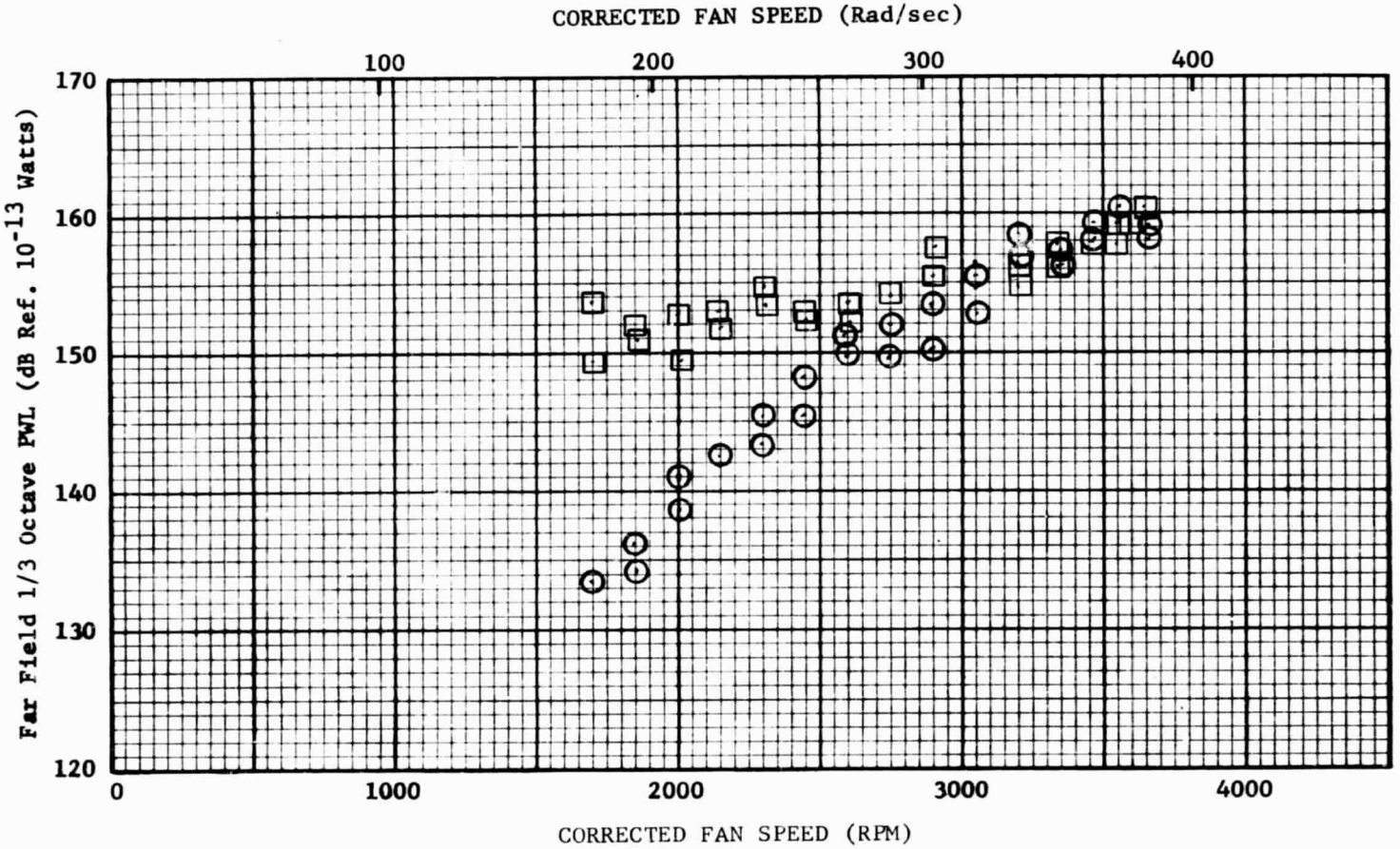
In terms of the sound pressure level in a particular band, however, the effects are noticeable. A case in point is at 2300 rpm (240.8 rad/sec) at 50° (Reading No. 133 of Run 8). Page C95 of Appendix C shows the 2500 Hz band to have a level of 87 dB. Figure D3 shows the $R_1F_1 + R_2F_1$ tone to have a level of 82.5 dB at 2500 Hz. The broadband level within the 2500 Hz 1/3 octave band is seen to add up to approximately 83.5 dB by adding $10 \log_{10} (550/20)$ (where 550 is the 1/3 octave bandwidth) to the narrowband levels. Together the tone plus broadband level is approximately 86 dB, which is quite close to the measured 1/3 octave level of 87 dB. It is, therefore, obvious that the level in the 2500 Hz is approximately 3 dB higher than the level which would occur without the $R_1F_1 + R_2F_1$ tone and it is noted that 3 dB would change the perceived noise level by 0.3 PNdB. The difference is greater for the exceptional case, Figure D-30 (for 2300 rpm (240.8 rad/sec) at 60° (1.05 rad) for Run 5, mentioned above. The 2500 Hz

band, page 9 of Appendix C lists a level of 89.6 dB whereas the $R_1F_1 + R_2F_1$ tone on Figure D-30 is 87 dB, and the broadband level derived from the figure is approximately 83 dB, totaling approximately 88 dB. In this singular case, the the change in SPL, due to the $R_1F_1 + R_2F_1$ tone alone, results in a perceived noise level change of 2.2 PNdB.

o SPECTRAL EFFECTS FROM OPERATING LINE VARIATIONS

Figures 4.2.6-2 and 4.2.6-3 are sound power spectra for each fan configuretion at 2300 rpm (240.8 rad/sec) and 3473 rpm (363.6 rad/sec), respectively. The average of duplicate points are plotted in each case. Runs 7 and 8 have also been averaged in order to provide a higher statistical accuracy as to the noise levels from the standard fan nozzle. Although this practice averages out the primary nozzle area differences between those two runs, it gives a more accurate representation of the effect of operating line variations upon the region of the spectra containing the dominant levels. Since this region is in the high frequencies dominated by fan noise, which is essentially the same in those runs, the process of averaging those runs is valid.

These graphs illustrate that the effect of operating line variations is, within the scatter of the data, approximately the same upon broadband noise as upon pure tone noise.



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

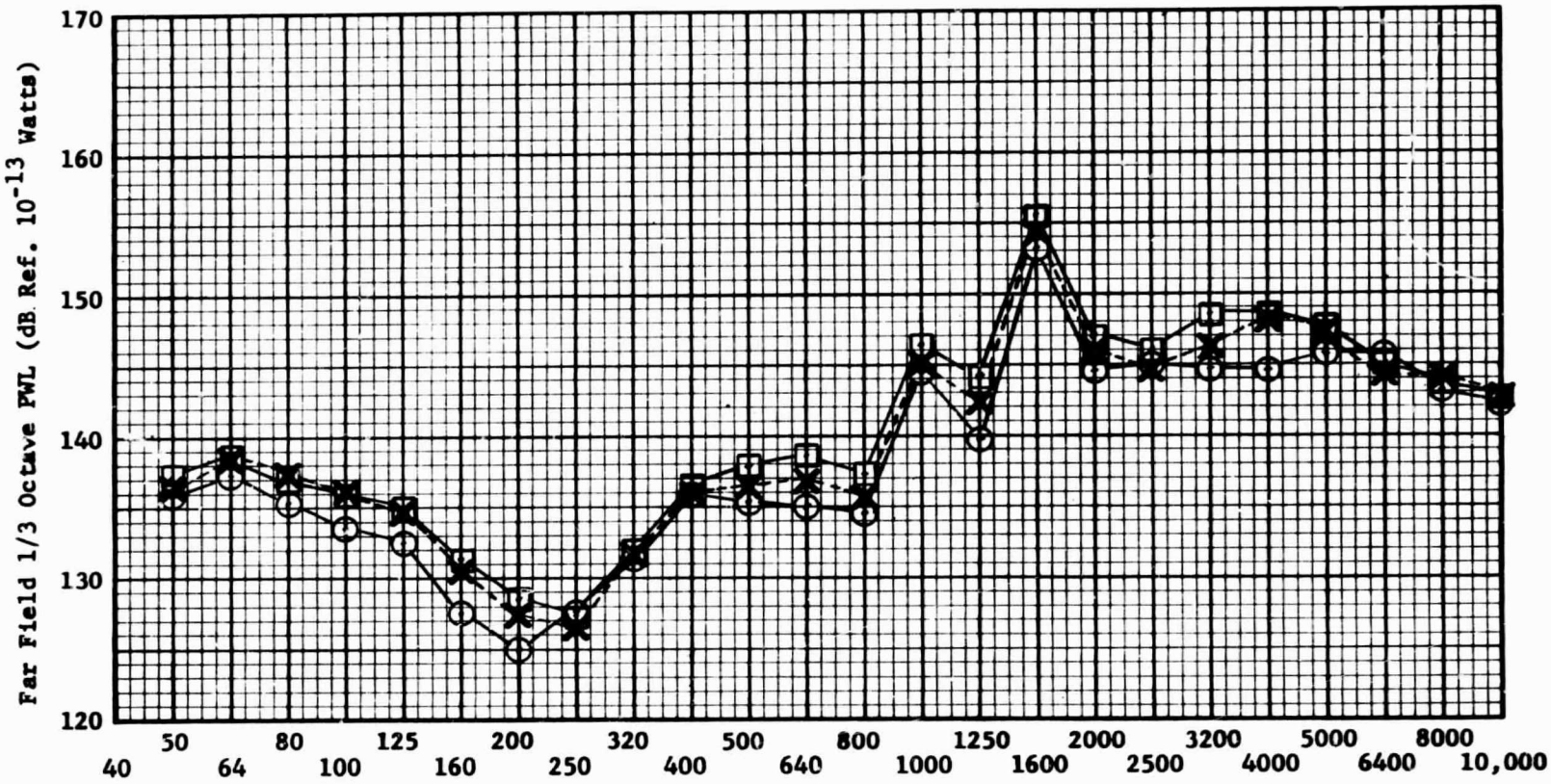
1/3 Octave PWL

Fundamental Frequency
Vs.
Fan Speed

Figure 4.2.6-1

KEY	○	□		
Run No.	8	8		
Date	9-13-68	9-13-68		
Stage	1	2		

KEY		○	□		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



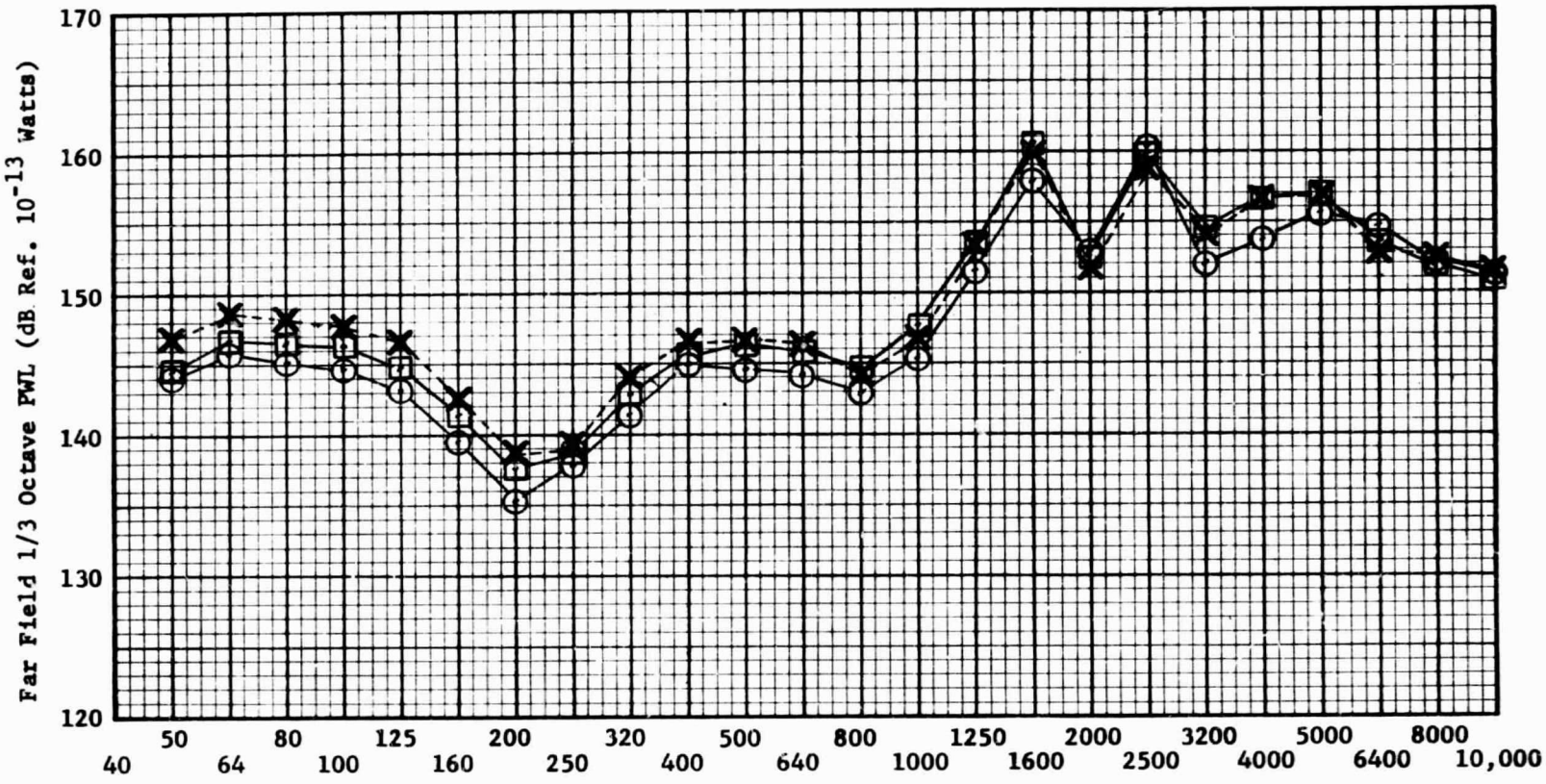
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	✕	
Run No.		5	6	7, 8	
Date		9-4-68	9-6-68	9-10, 9-13-68	
Tape No.					
Physical Speed	RPM	2300	2300	2300	
	Rad/sec	240.8	240.8	240.8	

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure 4.2.6-2

KEY		○	□	✕	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□	✕	
Run No.		5	6	7,8	
Date		9-4-68	9-6-68	9-10,9-13-68	
Tape No.					
Physical Speed	RPM	3473	3473	3473	
	Rad/sec	363.6	363.6	363.6	

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure 4.2.6-3

KEY		○	□	✕	
Corr. Speed %					
Fan Noz. Area	In^2	1718.5	1409.7	1508.3	
	m^2	1.1087	.9095	.9732	
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

TABLE 4.2.6 - 1

ONE-THIRD OCTAVE SOUND POWER LEVEL SPECTRA INCLUDED IN APPENDIX B (FIGURE NUMBERS)

Speed Setting No.	Fan Nozzle Core Nozzle (rpm)	Rad/Sec	Large Large Run 5	Small Large Run 6	Nominal Large Run 7	Nominal Nominal Run 8
1	1700	177.9	B-33+	B-82	B-134	B-189
2	1850	193.7	B-34	B-83	B-135	B-190
3	2000	209.5	B-35	B-84	B-136	B-191
4	2150	225.1	B-36	B-85	B-137	B-192
5**	2300	240.8	B-37	B-86	B-138	B-193
6	2450	256.5	B-38	B-87	B-139	B-194
7	2600	272.2	B-39	B-88	B-140	B-195
8	2750	287.9	B-40	B-89	B-141	B-196
9	2900	303.6	B-41	*	B-142	B-197
10	3050	319.4	B-42	*	B-143	B-198
11	3200	335.0	B-43	B-90	B-144	B-199
12	3350	350.7	B-44	B-91	B-145	B-200
13***	3473	363.6	B-45	B-92	B-146	B-201
14	3560	372.8	B-46	B-93	B-147	B-202
15	3650	382.2	B-47	B-93A	B-148	B-203

\+ Figure Nomenclature

* These points not run because of fan blade stress limits.

** Fan speed corresponding to "approach" power setting.

*** Fan speed corresponding to take-off power setting.

TABLE 4.2.6 - 2

FAR FIELD 20 Hz NARROWBAND SOUND PRESSURE LEVEL SPECTRA

INCLUDED IN APPENDIX D (FIGURE NUMBERS)

Run No.	Nozzle Area Fan	Nozzle Area Core	Fan Speed Setting*	Far Field Location	Figure
8	Nominal	Nominal	Approach	30° to 150°	D1 to D13
			Approach	50°**	D27
			Takeoff	30° to 150°	D14 to D26
5	Large	Large	Approach	Front Quad. Max.	D28
			Approach	Aft Quad., Max.	D29
			Approach	60°	D30
			Takeoff	Front Quad. Max.	D31
			Takeoff	Aft Quad., Max.	D32
6	Small	Large	Approach	Front Quad., Max.	D33
			Approach	Aft Quad., Max.	D34
			Takeoff	Front Quad., Max.	D35
			Takeoff	Aft Quad., Max.	D36
7	Nominal	Large	Approach	Front Quad., Max.	D-37
			Approach	Aft Quad., Max.	D-38
			Takeoff	Front Quad., Max.	D-39
			Takeoff	Aft Quad., Max.	D-40

* Nominal identification - "approach" corresponds to 2300 rpm (240.8 rad/sec) and "takeoff" corresponds to 3473 rpm (363.6 rad/sec).

** For 0 to 450 Hz

TABLE 4.2.6 - 3

FUNDAMENTAL FAN ROTOR FREQUENCIES

Speed Setting No.	Nominal Fan Speed		First Harmonic Blade Passing Frequency (Hz)		1/3 Octave Midpoint (Hz)	
	RPM	Rad/Sec	1st Rotor*	2nd Rotor**	1st	2nd
1	1700	177.9	708	1133	+	1250
2	1850	193.7	771	1233	800	1250
3	2000	209.5	833	1333	800	1250
4	2150	225.1	896	1433	+	1600
5	2300	240.8	958	1533	1000	1600
6	2450	256.5	1021	1633	1000	1600
7	2600	272.2	1083	1733	1000	1600
8	2750	287.9	1146	1833	1250	2000
9	2900	303.6	1208	1933	1250	2000
10	3050	319.4	1271	2033	1250	2000
11	3200	335.0	1333	2133	1250	2000
12	3350	250.7	1396	2233	+	+
13	3473	363.6	1447	2315	1600	2500
14	3560	372.8	1483	2373	1600	2500
15	3650	382.2	1521	2433	1600	2500

* 25 blades

** 40 blades

\+ Can occur in next higher or lower 1/3 octave band, depending upon actual speed setting held while recording noise data.

TABLE 4.2.6 - 4a

BLADE PASSING FREQUENCY FUNDAMENTAL
HARMONICS, AND SUM & DIFFERENCE TONES (Hz)
FOR A FAN SPEED OF 2300 RPM (240.9 RAD/SEC)

R_2^{**} \ R_1^{*}	0	f_1	f_2	f_3	f_4
0		958	1917	2875	3833
f_1 Sum	1533	2491	3450	4408	5366
f_1 Diff.		575	383	1342	2300
f_2 Sum	3067	4025	4983	5942	6900
f_2 Diff.		2108	1150	192	767
f_3 Sum	4600	5558	6517	7475	8433
f_3 Diff.		3642	2683	1725	767
f_4 Sum	6133	7092	8050	9008	9966
f_4 Diff.		5175	4217	3258	2300

* R_1 = 25 blade, first stage rotor

** R_2 = 40 blade, second stage rotor

Note: f_1, f_2, ... are the first, second, etc., harmonics.

TABLE 4.2.6 - 4b

BLADE PASSING FREQUENCY FUNDAMENTAL

HARMONICS, AND SUM & DIFFERENCE TONES (Hz)

FOR A FAN SPEED OF 3473 RPM (363.7 RAD/SEC)

R_2^{**} \ R_1^{*}	0	f_1	f_2	f_3	f_4
0		1447	2894	4341	5788
f_1 Sum	2315	3762	5209	6656	8103
f_1 Diff.		868	579	2026	3473
f_2 Sum	4631	6078	7525	8972	10419
f_2 Diff		3184	1737	290	1157
f_3 Sum	6946	8393	9840	11287	12734
f_3 Diff.		5499	4052	2605	1158
f_4 Sum	9261	10708	12155	13602	15049
f_4 Diff.		7814	6367	4920	3473

* R_1 = 25 blade, first stage rotor

** R_2 = 40 blade, second stage rotor

Note: f_1, f_2, ... are the first, second, etc., harmonics.

TABLE 4.2.6-5

PURE TONE POWER LEVEL (dB) FROM NARROWBAND ANALYSIS (APPROACH SPEED)*

	1st Rotor Fund. & Harmonics				2nd Rotor Fund. & Harmonics				Sum and Difference Tones						
TONE SOURCE	R1f1	R1f2	R1f3	R1f4	R2f1	R2f2	R2f3	R2f4	R1f1+ R2f1	R1f2+ R2f1	R1f1+ R2f2	R1f2+ R2f2	R1f4+ R2f1	R1f1+ R2f3	R1f3+ R2f2
FREQ.(Hz)	958	1917	2875	3833	1533	3067	4600	6133	2491	3450	4025	4983	5366	5558	5942
Deg. Rad.															
30° 0.52	85.2**	85.3	72.4	73.6	87.7	79.9	73.1	63.6	75.4	76.1	77.2	69.1	68.1	68.1	65.3
40° 0.70	85.6	85.8	71.8	73.7	88.3	74.5	75.6	67.6	77.7	73.3	77.8	77.2	70.6	73.6	68.9
50° 0.87	82.1	84.4	76.4	73.1	89.1	75.6	76.7	65.7	82.5	72.4	75.6	73.5	67.0	69.4	66.6
60° 1.05	83.3	84.3	74.7	72.1	89.4	79.4	75.9	64.0	81.1	72.4	73.4	73.7	67.2	68.2	67.5
70° 1.22	84.1	77.9	76.6	71.2	86.5	80.8	72.5	60.3	77.4	74.2	70.3	67.4	63.8	62.2	60.1
80° 1.40	81.2	75.2	69.0	71.1	90.8	76.5	74.0	61.3	72.1	73.3	70.7	64.1	61.5	62.3	58.9
90° 1.57	84.6	80.7	67.2	71.3	88.0	78.0	77.1	62.3	73.7	71.6	71.3	66.4	66.3	66.1	63.7
100° 1.75	91.1	87.4	68.8	74.1	96.7	79.7	79.6	68.4	76.8	71.8	74.4	70.2	68.5	67.7	70.7
110° 1.92	85.7	81.9	69.3	82.2	96.6	74.6	85.4	68.4	77.7	79.9	79.0	72.9	73.6	68.6	67.3
120° 2.09	84.6	87.0	71.4	77.7	101.3	87.2	82.5	69.2	81.3	76.5	78.2	73.2	69.7	69.1	67.4
130° 2.27	83.2	83.5	74.6	77.3	101.4	84.2	88.4	77.4	79.7	75.3	75.1	75.2	75.3	72.2	70.1
140° 2.44	84.0	78.1	68.0	71.0	93.4	77.1	77.2	57.0	74.6	71.7	71.7	68.6	68.3	67.5	66.7
150° 2.62	81.5	75.8	64.4	69.9	87.2	76.4	74.8	63.4	71.5	69.3	68.7	65.6	63.7	65.2	62.3
PWL Narrowband	143.4	142.3	131.4	135.3	153.9	139.9	141.1	129.7	137.2	133.9	134.8	132.0	129.5	128.5	127.8
1/3 Octave	145.6				154.8										
PWL (TONES)	146.3				154.3				141.7						
ΣPWL TONES	155.2														
OAPWL ***	158.7														

* 2300 RPM (240.8 rad/sec); Reading 133, Run 8

** Sound Pressure Level (dB)

*** 50 Hz to 10K Hz

TABLE 4.2.6-6

PURE TONE POWER LEVEL (dB) FROM NARROWBAND ANALYSIS (TAKE-OFF SPEED)*

	1st Rotor Fund. & Harm.			2nd Rotor Fund. & Harm.			Sum and Difference Tones			
TONE SOURCE	R1f1	R1f2	R1f3	R2f1	R2f2	R2f3	R1f1 + R2f1	R1f2 + R2f1	R2f3 - R1f1	R1f1+ R2f2
FREQ.(Hz)	1447	2894	4341	2315	4631	6946	3762	5209	5499	6087
Deg. Rad.										
30° .52	104.7**	91.4	87.3	92.2	86.5	74.9	90.5	78.5	75.3	72.5
40° .70	101.5	85.1	83.6	91.0	82.2	71.9	82.7	77.5	74.8	74.8
50° .87	99.7	88.3	86.7	93.5	82.0	65.8	80.7	76.2	73.0	70.1
60° 1.05	97.6	81.7	84.7	92.7	84.4	70.6	82.9	78.4	74.7	73.1
70° 1.22	97.8	86.6	80.3	92.5	89.0	72.0	88.6	75.7	72.0	69.5
80° 1.40	96.6	83.8	82.6	96.6	90.5	76.5	87.7	77.9	74.1	69.6
90° 1.57	93.9	83.6	84.5	93.9	90.3	75.0	86.7	82.0	78.1	73.9
100° 1.75	106.6	80.4	85.2	102.3	97.9	74.9	84.0	83.6	82.1	79.9
110° 1.92	104.8	80.3	86.6	97.6	94.5	81.1	91.8	85.9	79.5	79.9
120° 2.09	96.5	84.0	86.2	96.7	97.7	76.8	91.6	84.9	78.7	75.7
130° 2.27	97.6	82.0	82.7	102.1	92.5	77.5	84.1	83.7	82.3	79.2
140° 2.44	95.6	78.7	80.0	97.4	82.3	72.5	78.2	78.9	75.8	75.5
150° 2.62	94.0	76.6	79.0	94.1	82.6	72.8	77.8	76.1	73.5	71.6
PWL Narrowband	159.5	143.8	144.2	156.3	152.6	136.5	147.2	141.6	137.9	136.7
1/3 Octave	159.3			157.9						
PWL(Tones)	159.7			157.8			149			
ΣPWL Tones	162.2									
OAPWL	166.3									

* 3473 RPM (363.6 rad/sec)

** Sound Pressure Level (dB)

*** 50 Hz to 10K Hz

4.2.7 CHARACTER AND TRENDS OF PROBE NARROWBANDS

Spectral content, radial distribution of sound pressure level, and relative sound power level within the fan inlet and exhaust ducts are presented and discussed in this section, based upon the 20 Hz narrowband data from the acoustic probes. The basic data are presented in Appendix D per Figure numbers given in Table 4.2.7-1. Also, 20 Hz narrowband data for the acoustic probe in the turbine discharge are included.

- o SPECTRAL CONTENT

  The fan inlet probe data show the same character of spectral content as observed from the far-field data, containing the harmonics of blade passing frequencies and the sums and differences of these harmonics. The fan discharge probe data, on the other hand, reveal only the blade passing frequencies and, occasionally, their harmonics; the sum and difference tones, if present, are obscured by the higher level of background noise which results from the probe's being immersed in the relatively high velocity fan discharge jet.

  The inlet probe data at the take-off power setting reveal low frequency tones at frequencies of 4, 8, 12, ... times the rotor shaft rotational frequency, particularly at the deeper probe immersion.* These tones are not present in any other narrowband data, i.e., not from the same probe at the "approach" fan speed settings, not

*It should be noted that the probe immersion is measured from the engine axis, zero being on the rotor centerline.

from any of the fan discharge probe settings, nor from any of the far-field microphone locations.

The tones occur at 230, 460, 690, and 910 Hz; these do not correspond to any of the "sum and difference" tones listed in Table 4.2.6-4E, the closest ones being 290, 579, 868, ..., which correspond more closely with multiples of 5 times the rotor rotational frequency. The tones are not of the classic "multiple pure tone" variety, which are separated by integral, not quadruple, multiples of the shaft rotational frequency. Conceivably these tones could be generated by a Strouhal effect* but this is doubtful since the measured frequencies are far lower than predicted Strouhal frequencies. Since there is no known aero-acoustic phenomenon which could cause such strong pure tone levels it is believed they were caused by electrical, mechanical, or aerodynamic resonances in the data acquisition system.

No compressor frequency tones were present in any of the narrowband data.

o RADIAL DISTRIBUTION

The patterns of the radial distribution are important when acoustic treatment is to be used to suppress the noise levels. The detailed data in Appendix D will provide the necessary initial input for that purpose. Maximum suppression effectiveness will be obtained when the treatment is placed on the wall adjacent to the maximum sound pressure level.

*From the probe itself.

The sound pressure levels of the blade passing frequencies have been abstracted from the uncorrected* narrowband data in Appendix D and summarized in Tables 4.2.7-2 and 4.2.7-3 for the standard configuration and the small fan nozzle, respectively. The data are presented versus the probe immersion setting for the "approach" and "takeoff" fan speeds, and for the inlet and exhaust ducts. The data for the standard configurations are representative of the trends obtained for the other fan nozzle areas.

At "approach" speed, the second stage rotor dominates both the inlet and aft duct, with the aft duct having the higher level. There, radial peaks of 8 to 10 dB are apparent, the peaks occuring at next to the outermost position and at the innermost position. At the inlet, the second rotor fundamental is about 5 to 10 dB below the maximum value in the aft duct, and the radial variation amounts to 6 to 8 dB. In the standard configuration, the peak values occur within the inner half of the bellmouth; for the small fan nozzle it occurs at the outermost position.

At "take-off" speed, the inlet is dominated by the first rotor, and the discharge is dominated by the second rotor. The level of the first rotor in the inlet is roughly the same as the level of the second rotor in the discharge. The radial distribution of the controlling level in the inlet is highest in the vicinity of

*Probe calibration corrections are required to obtain absolute levels. These are not necessary here.

the outer wall and lowest at the innermost position, with a range of 7 to 10 dB. The radial distribution of the controlling level in the exhaust is highest in the vicinty of the outer wall, and drops about 10 dB near or at the innermost position.

o SOUND POWER LEVEL OF BLADE PASSING FUNDAMENTAL FREQUENCIES

The blade passing frequency fundamental sound pressure level was summed and converted to sound power level for the first stage, 25 blade rotor and for the second stage, 40 blade rotor. These data were computed for the inlet, the exhaust, and the sum of the inlet and exhaust, and are given as a function of fan speed in Figures 4.2.7-1 and -2 for the inlet, 4.2.7-3 and -4 for the exhaust and 4.2.7-5 and -6 for the sum of the two. Data for each of the the three fan nozzle areas are included, the average being used for the two runs made with the standard fan nozzle area.

Probe calibration corrections applied in making these calculations are given in Figure 4.2.7-7; also, the probe calibration for the turbine probe is given in Figure 4.2.7-8. The calculation procedure for including these and other necessary corrections are presented later in this section.

o Inlet Sound Power Level

At the inlet, the first stage rotor (Figure 4.2.7-1) shows continuously increasing power level with increasing speed, varying from 130 - 135 dB at low speed to 150 - 155 dB at high speed; the spread at each speed setting reflects the range introduced by

variations in the fan nozzle area. The case for the small fan nozzle (Run 6) gives the largest variation in power level with fan speed; the case for the large fan nozzle (Run 5) gives the smallest variation.

The second stage rotor (Figure 4.2.7-2) at the inlet shows practically no variation in sound power level with fan speed; in fact, the values at top speed are equal to or lower than the values at the lowest speed. The data at 3050 rpm (319 rad/sec), however, are about 5 dB higher than at the other speed points. The data also show that the power level in the inlet of the second stage rotor fundamental is lowest for the large fan nozzle (Run 5).

o Exhaust Sound Power Level

In the exhaust, the first stage rotor (Figure 4.2.7-3) shows an increasing power level, as in the inlet, but by a smaller amount, varying from 135 - 140 dB at low speed to 145 - 150 dB at the higher end of the speed range. There is no consistent trend introduced by the effect of fan nozzle area variations on the sound power level from the first rotor in the exhaust.

The second stage rotor (Figure 4.2.7-4) power level in the exhaust shows an increase of about 5 dB over the entire speed range. The variation in power level from the three fan nozzle area configuration is generally within 3 dB.

o Total of Inlet and Exhaust

The sum of the inlet and exhaust power level of the blade passing frequency fundamental for the first stage rotor is given in Figure 4.2.7-5, and for the second stage rotor, in Figure 4.2.7-6. These data indicate that the second stage rotor (40 blades) dominates at the low end of the speed range but the first stage rotor (25 blades) dominates at the high end.

Corresponding data were obtained by integration of the far-field data. In the correlation of the predicted power levels and the measured power levels in Section 5.3, the data from the far-field are used. The power level from the probe data are believed to be indicative of the trends of noise levels within the duct, to be useful for assessing the radial distribution of sound pressure level, and to provide information on the relative magnitudes of power levels in the inlet and in the exhaust. The power level from the far-field measurements are believed to be more meaningful, on the other hand, in terms of the noise levels imposed upon the listener.

o Core Engine Exhaust Probe Microphone Spectra

Representative probe microphone spectra taken in the core engine exhaust are shown in Appendix D, Figure D-121 through D-128. The spectra from the probe near the center of the nozzle annulus is presented for the nominal settings of 2300 rpm (240.8 rad/sec) and 3473 rpm (363.6 rad/sec) for Runs 5, 6, 7, and 8.

As was explained above for the fan probe microphone data, these spectra are as-recorded data and must be corrected for the probe frequency response in order to derive absolute sound pressure levels.

As is seen in these spectra, turbine stage pure tones are evident only for the lower speed point. At the higher speed point, only broadband noise is apparent. Figure D-126 for the oversize core engine nozzle, standard fan nozzle, shows a number of pertubations in the spectra some of which happen to be located at turbine stage fundamental frequencies; the other highspeed point data show the same character. At these frequencies, however, the spectral content does not differ in character from the many other spectral pertubations which appear to be part of the broadband signal. It may, therefore, be a coincidence that two of these pertubations happen to occur at turbine stage blade passing frequencies.

It is concluded that the pure tones from the turbine on the Two Stage Low Tip Speed Demonstrator Engine were low in level and had insignificant import upon total engine noise.

o <u>METHOD USED FOR CALCULATING SOUND POWER LEVELS WITHIN THE FAN DUCTS</u>

Sound power level, PWL, within the ducts were computed by an equation of the form:

$$PWL = SPL + 10 \text{ Log } A/1.12 + 10 \text{ Log } \sqrt{\Theta/8} - 2 \text{ dB}$$

This equation is the basic formula relating sound power level to the sound pressures from probe measurements. SPL is the sound pressure level of the tip of the acoustic probe and A is the area over which SPL is considered constant.

Four assumptions are inherent in the development of this equation, that is: (1) ideal gas law, (2) small amplitude sound, (3) plane wave noise field, and (4) the noise field within the duct is assumed to be symmetrical about the engine axis. The effect of the first two is considered small for all practical cases of interest, but a correction is ultimately made for the third assumption. When the sound frequencies of interest are high, the acoustic wave will not be truly diffuse. The actual noise field will be somewhere between the two extremes which means that the calculated result can be as much as six decibels too high in the limit of complete diffusivity. Based upon experience, a correction of two decibels is used as the average correction for random incidence sound, independent of frequency.

The total sound power level was calculated by integration over the five areas represented by the five probe positions, as follows:

$$PWL = \sum_i \left[(APL)_i + 10 \text{ Log } (A_i/1.12) \right] + (TC)$$

where: i denotes the probe position

(APL) = the sound pressure level recorded by the sound analyzer, dB re 2×10^{-4} dynes/cm^2

A = The area increment over which the (APL) term applies, $\underline{ft}^2$. (The factor 1.12 converts the units to a consistent system)

and:

$$TC = EC + PC + AC + RC$$

where:

EC = electronic correction (magnetic tape recorder, etc.)

AC = atmospheric correction (10 Log $\sqrt{\theta/8}$, θ = Tamb/Tstd)

PC = probe tube correction

RC = random incidence correction, 2-decibels

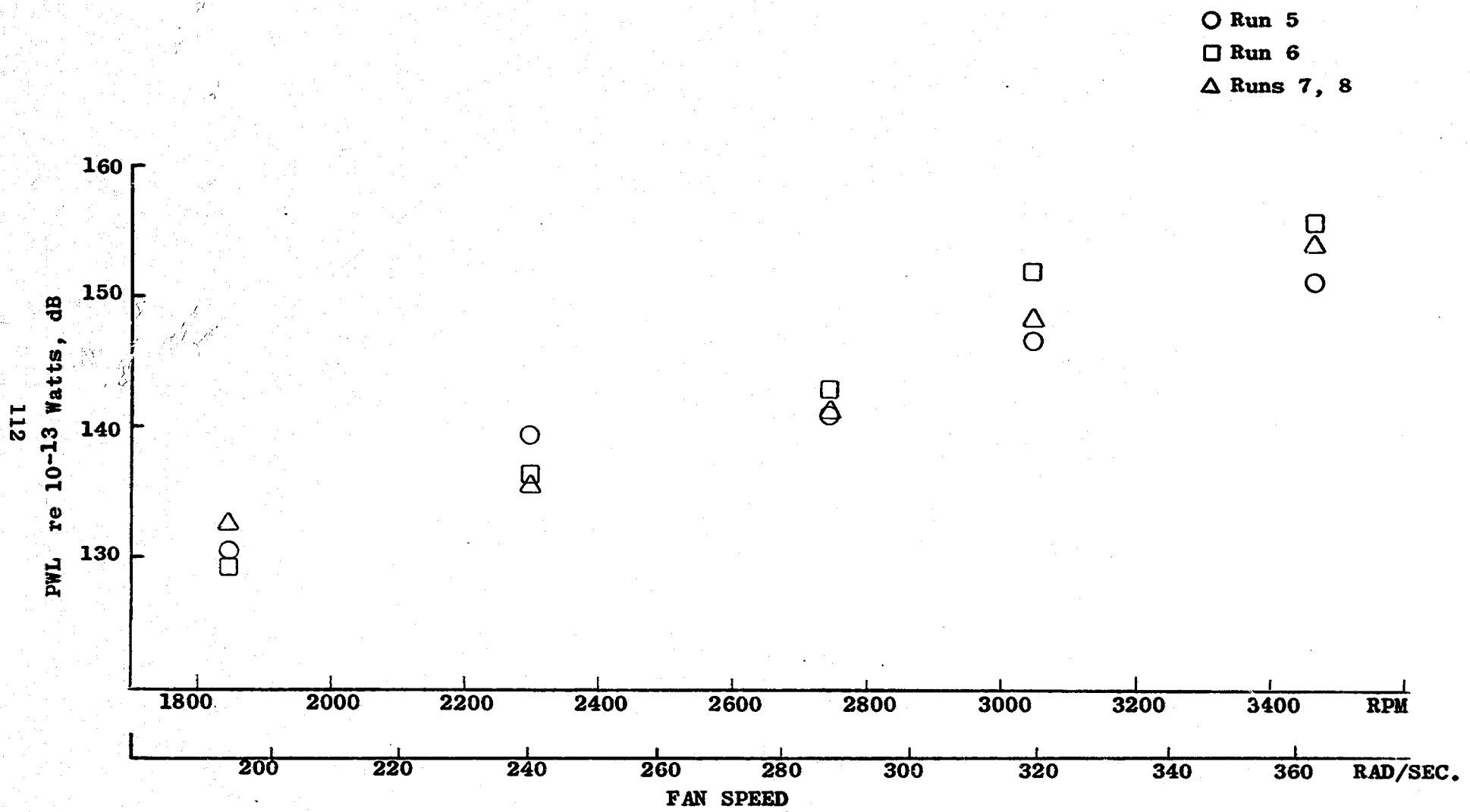


Figure 4.2.7-1 25 Blade Rotor Fundamental - Inlet

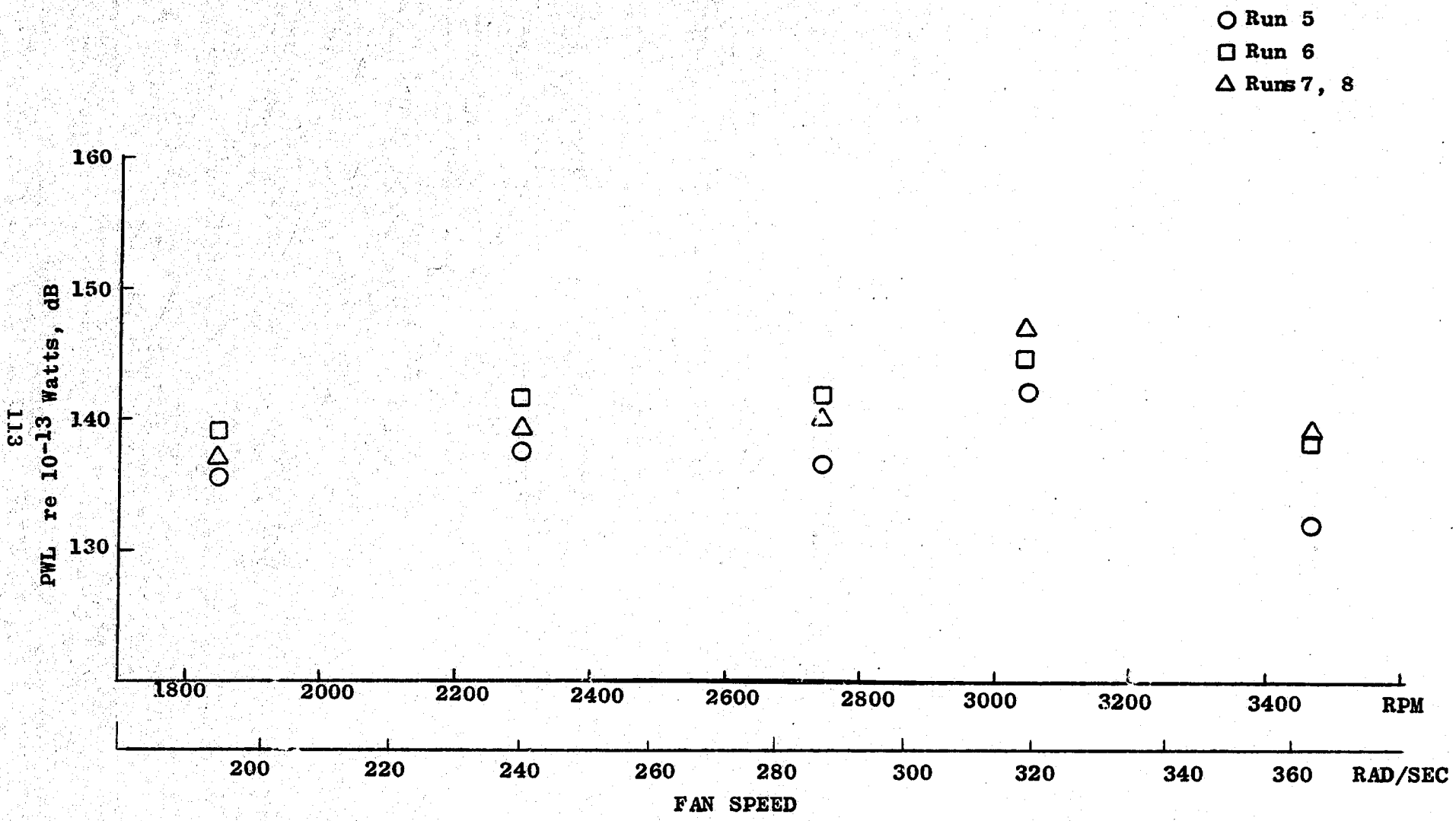


Figure 4.2.7-2 40 Blade Rotor Fundamental - Inlet

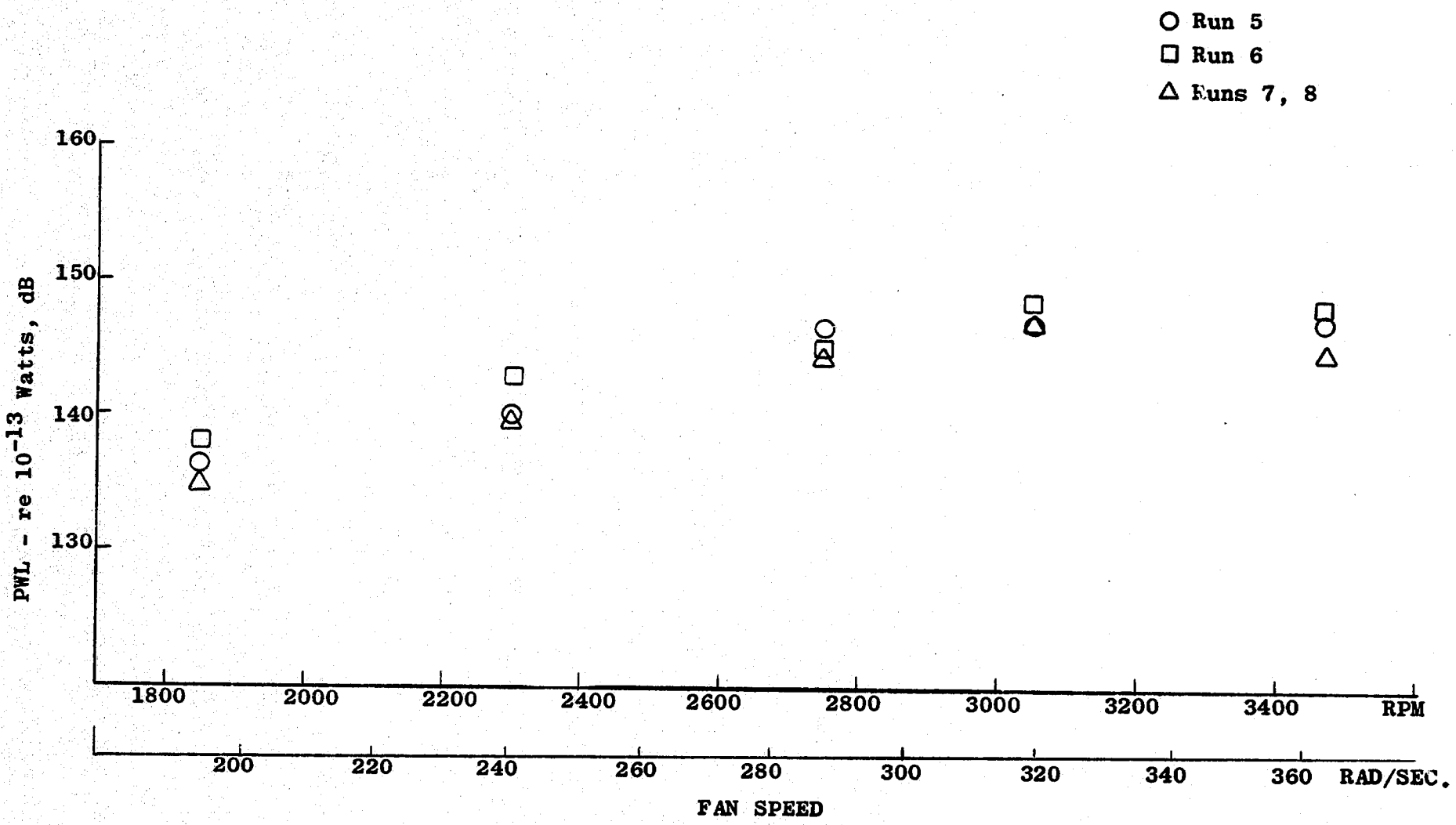


Figure 4.2.7-3 25 Blade Rotor Fundamental - Exhaust

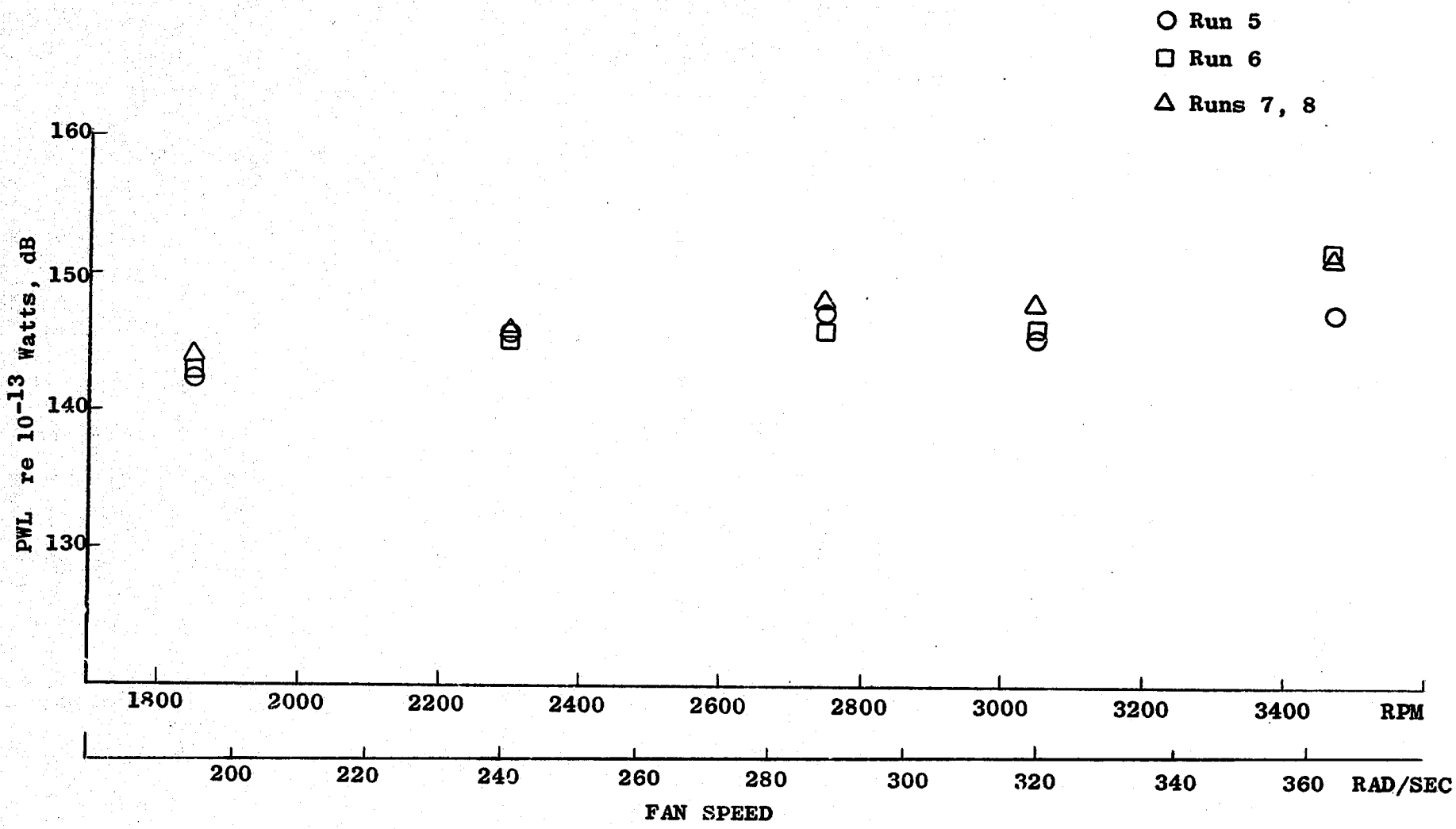


Figure 4.2.7-4 40 Blade Rotor Fundamental - Exhaust

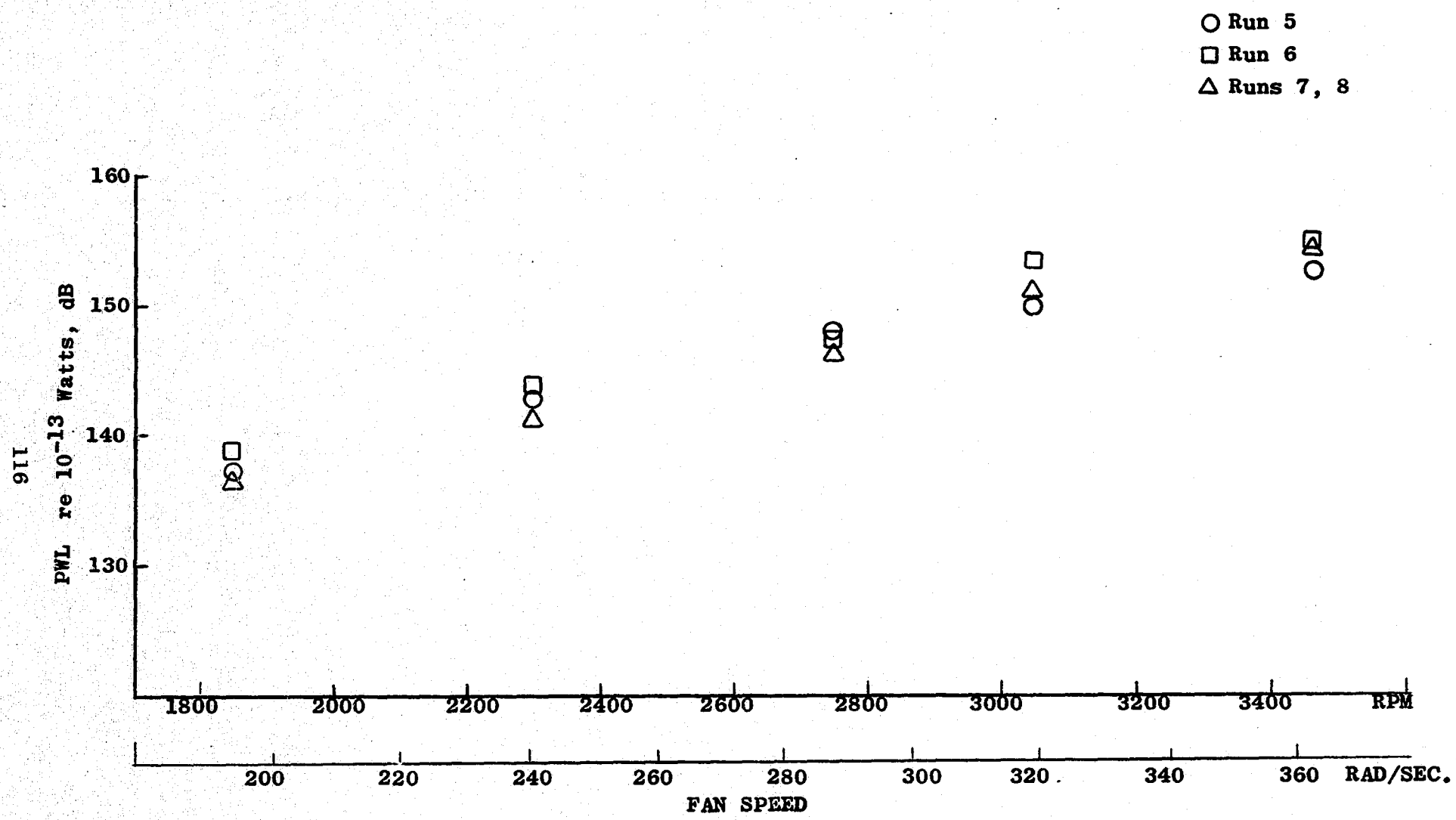


Figure 4.2.7-5 25 Blade Rotor Fundamental - Total

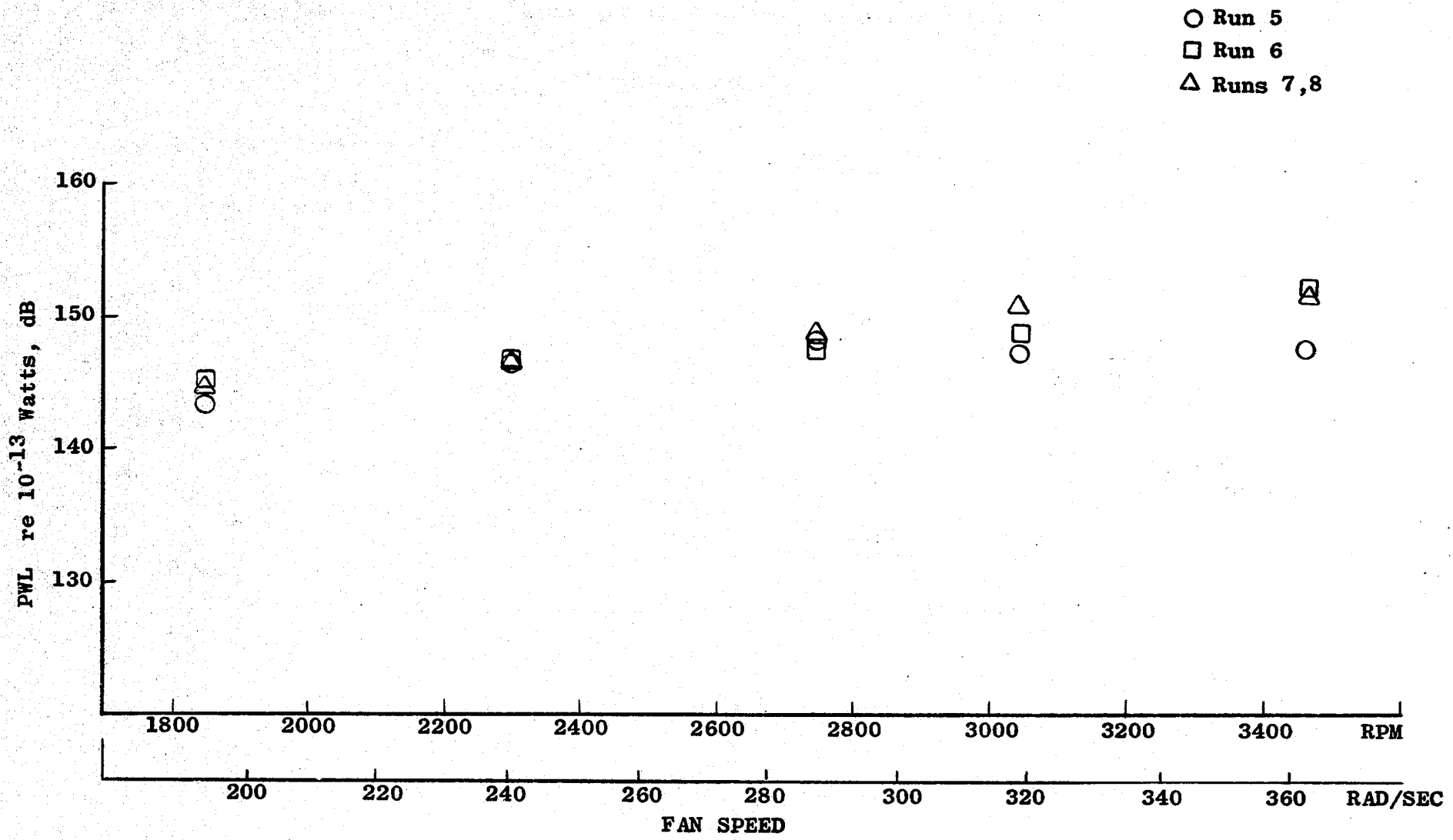


Figure 4.2.7-6 40 Blade Rotor Fundamental - Total

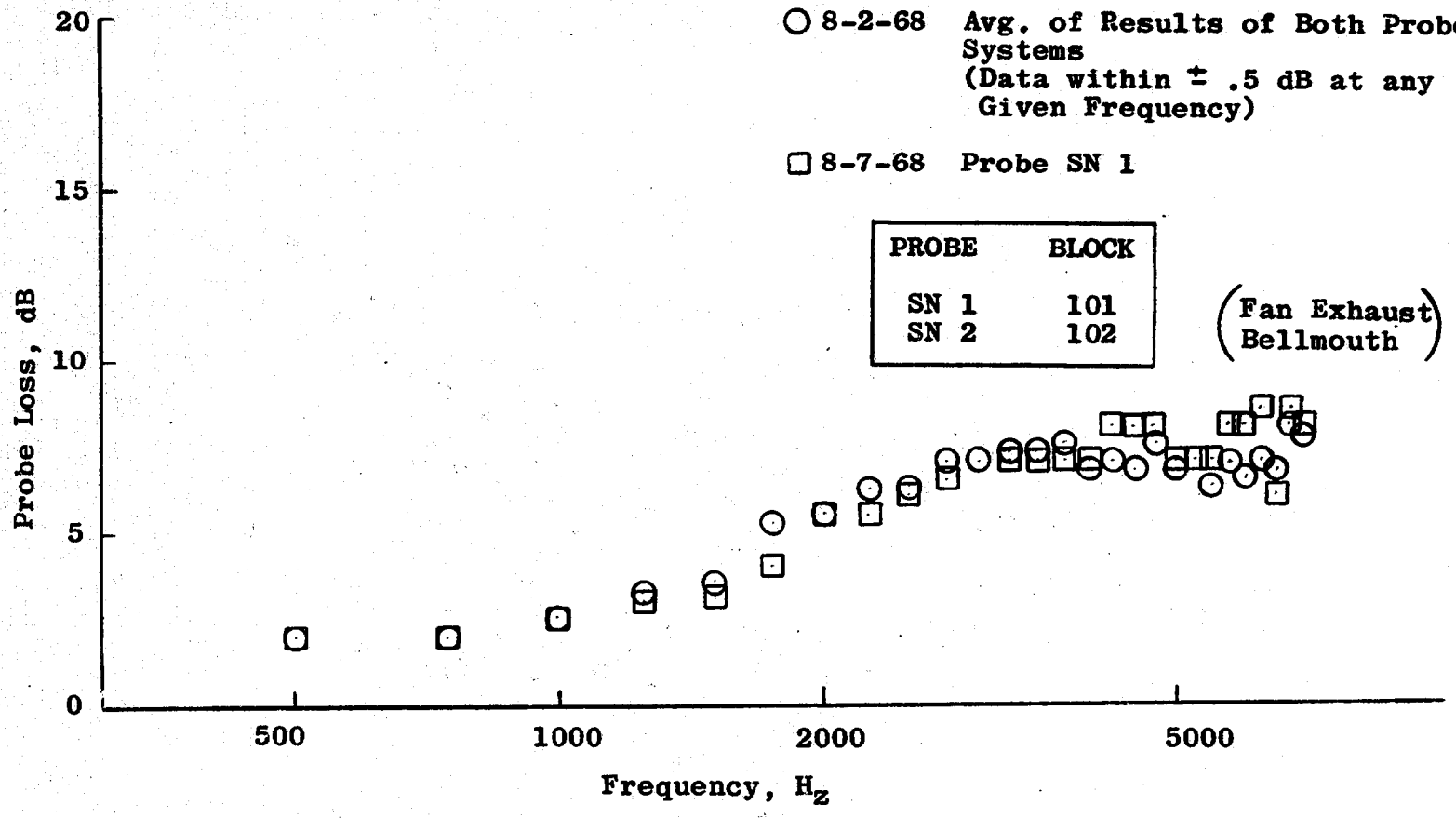


Figure 4.2.7-7 Acoustic Probe Calibration Fan Probes

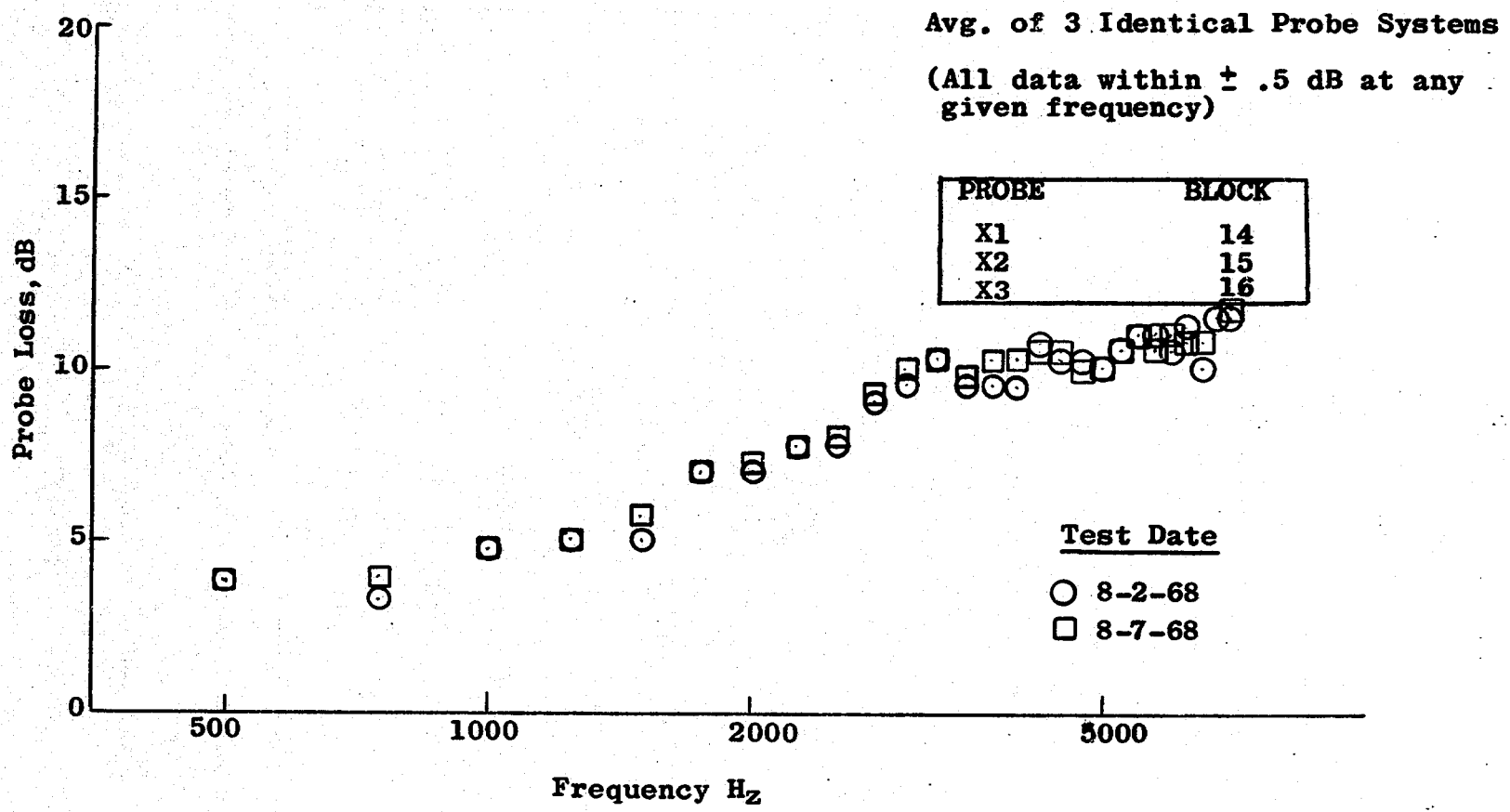


Figure 4.2.7-8 Acoustic Probe Calibration Core Engine Nozzle Probes

TABLE 4.2.7 - 1

NEARFIELD 20 Hz NARROWBAND SOUND PRESSURE
LEVEL SPECTRA INCLUDED IN APPENDIX D (FIGURE NUMBERS)

Run No.	Nozzle Area Fan	Nozzle Area Core	Fan Speed Setting+	Location (Fan Duct)	Figure No. (5 Immersions)
8	Nominal	Nominal	Approach	Inlet	D 41 - D 45
				Aft	D 46 - D 50
			Take-off	Inlet	D 51 - D 55
				Aft	D 56 - D 60
7	Nominal	Large	Approach	Inlet	D 61 - D 65
				Aft	D 66 - D 70
			Take-off	Inlet	D 71 - D 75
				Aft	D 76 - D 80
6	Small	Large	Approach	Inlet	D 81 - D 85
				Aft	D 86 - D 90
			Take-off	Inlet	D 91 - D 95
				Aft	D 96 - D100
5	Large	Large	Approach	Inlet	D101 - D105
				Aft	D106 - D110
			Take-off	Inlet	D111 - D115
				Aft	D116 - D120
5 thru 8	-	-	Approach & Take-off	Turbine Discharge	D121 - D128

+ Nominal identification:
"Approach" corresponds to 2300 rpm (240.8 rad/sec).
"Take-off" corresponds to 3473 rpm (363.6 rad/sec).

TABLE 4.2.7-2

RADIAL DISTRIBUTION OF SOUND PRESSURE LEVEL AT BLADE PASSING FREQUENCY

Run 8: Standard Configuration		Relative Sound Pressure Level, dB (Probe Calibration Not Included)			
Immersion Setting	Fundamental Frequency	Approach Speed Inlet	Aft	Takeoff Speed Inlet	Aft
1 (Outer)	Rotor 1	123.5	129.0	138.2	132.2
	2	120.0	126.0	123.0	139.7
2	Rotor 1	123.5	(2)	138.5	134.2
	2	119.5	136.5	116.5	140.5
3	Rotor 1	121.6(1)	(2)	135.7	132.2
	2	125.0	130.5	118.8	132.8
4	Rotor 1	119.0	(2)	138.2	125.2
	2	125.6	127.7	120.6	128.5
5 (Inner)	Rotor 1	118.0	(2)	131.5	131.6
	2	122.2	137.0	117.4	134.7

NOTES: 1) 2nd Harmonic higher (127 dB)

2) Obscured in high background noise

TABLE 4.2.7-3

RADIAL DISTRIBUTION OF SOUND PRESSURE LEVEL AT BLADE PASSING FREQUENCY

Run 6: Small Fan Nozzle		Relative Sound Pressure Level, dB (Probe Calibration Not Included)			
Immersion Setting	Fundamental Frequency	Approach Speed Inlet	Aft	Takeoff Speed Inlet	Aft
1 (Outer)	Rotor 1	123.5	130.2	140.0	138.6
	2	131.0	136.0	121.5	143.5
2	Rotor 1	119.8	(2)	135.6	137.4
	2	122.5	137.8	121.2	137.7
3	Rotor 1	120.5(1)	(2)	133.5	(2)
	2	124.6	(2)	120.0	136.5
4	Rotor 1	120.0	131.5	131.0	(2)
	2	125.8	132.5	121.5	138.7
5 (Inner)	Rotor 1	117.0	(2)	130.5	134.1
	2	122.7	135.0	120.3	133.7

NOTES: 1) 2nd Harmonic higher (124 dB)

2) Obscured in high background noise

4.2.8 EFFECT OF CORE ENGINE NOZZLE AREA

The engine configuration tested to determine the operating line effects had an oversize core engine jet nozzle so that the fan noise spectrum would not be obscured by the core engine jet noise. The final test variation consisted of using a standard size core engine jet nozzle to simulate the actual conditions to be expected for a complete engine.

The frequency range affected by this change is that below 1000 Hz, and includes the region affected by ground absorption and reflection phenomena. Because of the complications involved in correcting for test site characteristics, this is discussed in detail in Section 5.4, together with an estimate of the corrected jet noise levels.

Regarding the effects upon total engine noise in terms of over-all sound power level or Maximum Perceived Noise Level along a 200 ft. sideline, comparison of Figure B-103 with Figure B-158 and comparison of Figure B-102 with Figure B-157 in Appendix B shows that there are no appreciable systematic differences between Run 7 (oversize core nozzle) and Run 8 (standard core nozzle). As would be expected, there is no appreciable difference in pure tone fan noise between Run 7 and Run 8. Figure 4.2.8-1 plots the Perceived Noise Level as a function of fan speed for both runs and no systematic differences are seen.

Regarding directivity effects, comparison of Figures B-104 to B-118 with Figures B-159 to B-173 and comparison of Figures B-119 to B-133 with Figures B-174 to B-188 show no systematic differences.

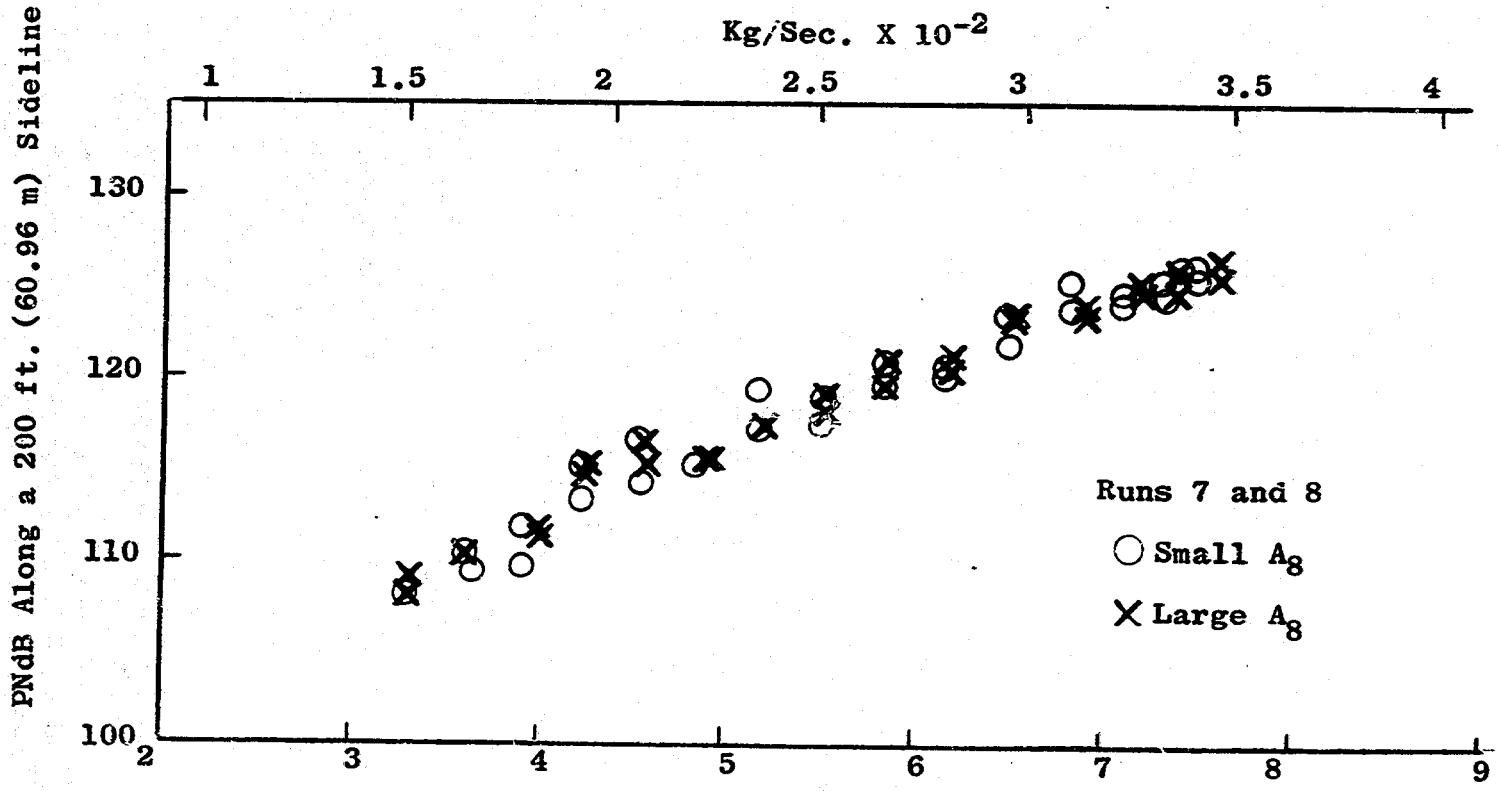


Figure 4.2.8-1 Fan Weight Flow x 10-2 lb/sec.

5.0 SPECIAL PRESENTATION OF TEST DATA

In order to achieve a deeper understanding of the test results and to establish a meaningful basis from which definitive conclusions can be drawn from those results, systematic analyses have been performed on key aspects of the test data. Topics covered in these analyses include in-flight noise estimates of 3 and 4 engine aircraft powered by the two stage low tip speed demonstrator engine, examination of the effects of operating line variation, correlation of test results with fan aerodynamic parameters and estimation of jet noise contribution.

5.1 IN-FLIGHT NOISE CALCULATIONS

The data from this program has been analyzed in terms of the in-flight noise levels which might be expected from 707 and 727 class aircraft powered by engines of the type investigated here. In-flight calculations were made for level fly-overs at 1000 ft. (304.8M) altitude and at 300 ft. (91.44M) altitude for both three engine and four engine aircraft. Flight Mach number was assumed to be 0.2.

For this study, the takeoff predictions were based upon operation at the standard TF39 takeoff fan speed of 3473 RPM (363.6 rad/sec.), and the approach predictions were based upon a nominal fan speed of 2300 RPM (240.8 rad/sec.), which is the speed yielding closest to 5000 lb. (22,240 newtons) net thrust during the approach. At sea level, static, standard day conditions the standard engine configuration produces a total thrust of approximately 20,000 lb. (89,000 newtons) at the takeoff speed setting and about 7700 lb. (34,250 newtons) at the approach speed setting.

5.1.1 TAKEOFF NOISE LEVEL ESTIMATES

The takeoff flight noise estimate for each fan nozzle area case was made assuming that each is operated with the standard primary nozzle. Assessments were made of the effects of flight speed upon the jet noise portion of the spectra, and the portion of the measured spectra associated with jet noise was then adjusted for the calculated in-flight jet noise levels. The resulting spectra were extrapolated (inverse square plus atmospheric absorption) to an altitude of 1000 ft. (304.8 M).

Results are given for the takeoff case in the upper portion of Figure 5.1-1, for a four engine aircraft, and Figure 5.1-2, for a three engine aircraft. On each figure is shown representative noise levels of current aircraft at similar operating conditions (Reference 1). The data in each figure show the levels as estimated from the average of the specific speed points used for "approach" and "takeoff" as well as the levels based upon curve-fits through the data over the entire speed range tested in this program. Curve-fitting over the entire speed range is believed to improve the accuracy of the predicted results. Nevertheless, the shaded portion of the bar-charts in the figures is indicative of the difference between the "averaged" and the "curve-fitted" data and is representative of the uncertainty in the predictions.

The 707-320C powered by its present engines is 7 - 10 PNdB noisier at takeoff than would be the case if it were powered by four of the engines tested during this program. Similarly, the current 727-100 is 4 - 7 PNdB noisier. The takeoff in-flight thrust of the JT3D-3B engine (Reference 1), used in

707 aircraft, at 14,500 lbs. (64,499 newtons) of thrust, is quite comparable to the in-flight thrust level of the TF39 inner panel fan engine. On the other hand, JT8D-1 engine, used on the 727 aircraft, develops only approximately 12,000 lbs. (53,400 newtons) thrust (Reference 1). Even so, it is significantly noisier at takeoff than the engine tested in this program. Assuming the two-stage low tip speed demonstrator to be scaled in size to 12,000 lbs. (53,379 newtons) net takeoff thrust, the noise levels would decrease by about 1 dB On the basis of equivalent thrust, therefore, the noise from the 727 could be reduced by 5 - 8 PNdB at takeoff if the engine tested in this program were used.

5.1.2 APPROACH NOISE LEVEL ESTIMATES

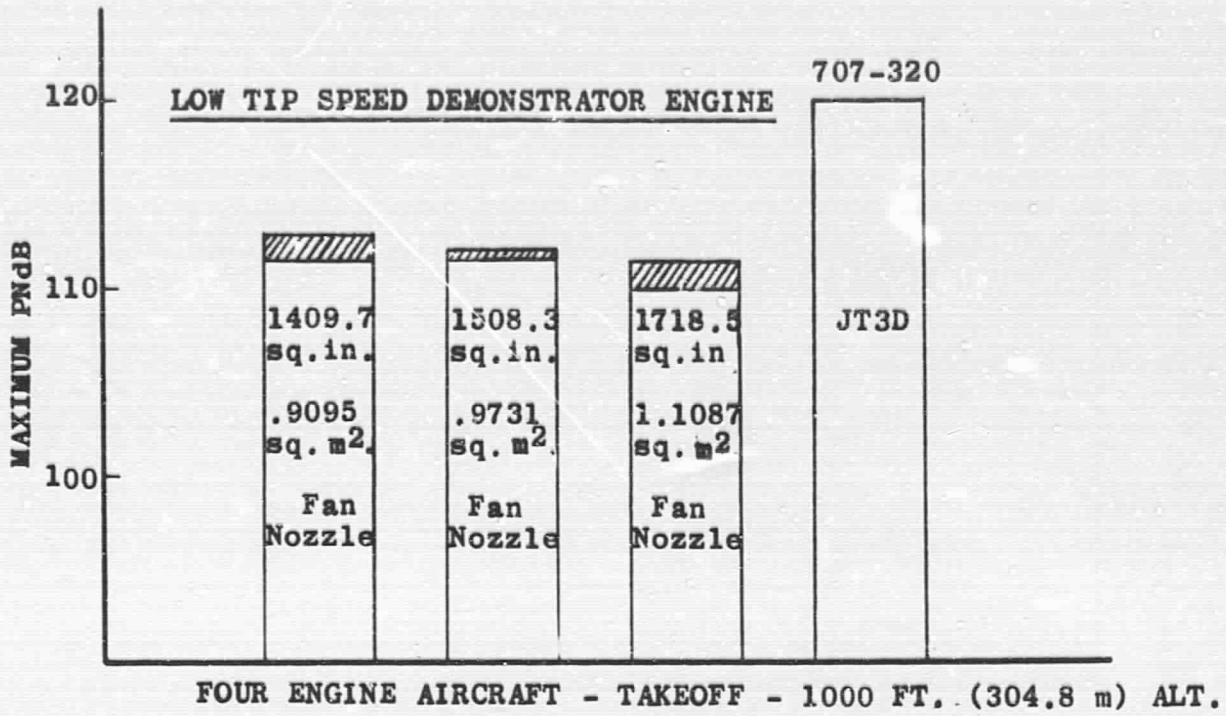
The data at 2300 RPM (240.8 rad/sec) for each fan nozzle configuration, modified to the standard core engine nozzle, was corrected for jet velocity effects and extrapolated to an altitude of 300 feet in a manner similar to that described above for the in-flight calculations at takeoff power.

Results are shown in the lower portions of Figures 5.1-1 and 5.1-2. The engine tested in this program is estimated to be 8 to 10 PNdB quieter than the JT3D-3B on the 707, and 3 to 4 PNdB quieter than the JT8D-1 powered 727-100.

5.1.3 EFFECT OF FAN OPERATING LINE VARIATIONS

The variation in noise levels at a given power setting due to variations in fan operating line is also illustrated in Figures 5.1-1 and 5.1-2.

For the takeoff case the noise decreases as the fan nozzle area increases by an amount only slightly less than the differences which are demonstrated in the Isonoise curves (Figures 5.2-2 to 5 of section 5.2). At the approach conditions, the same general agreement between Figures 5.1-1 and 5.1-2 and Figure 5.2-5 of section 5.2 occurs.



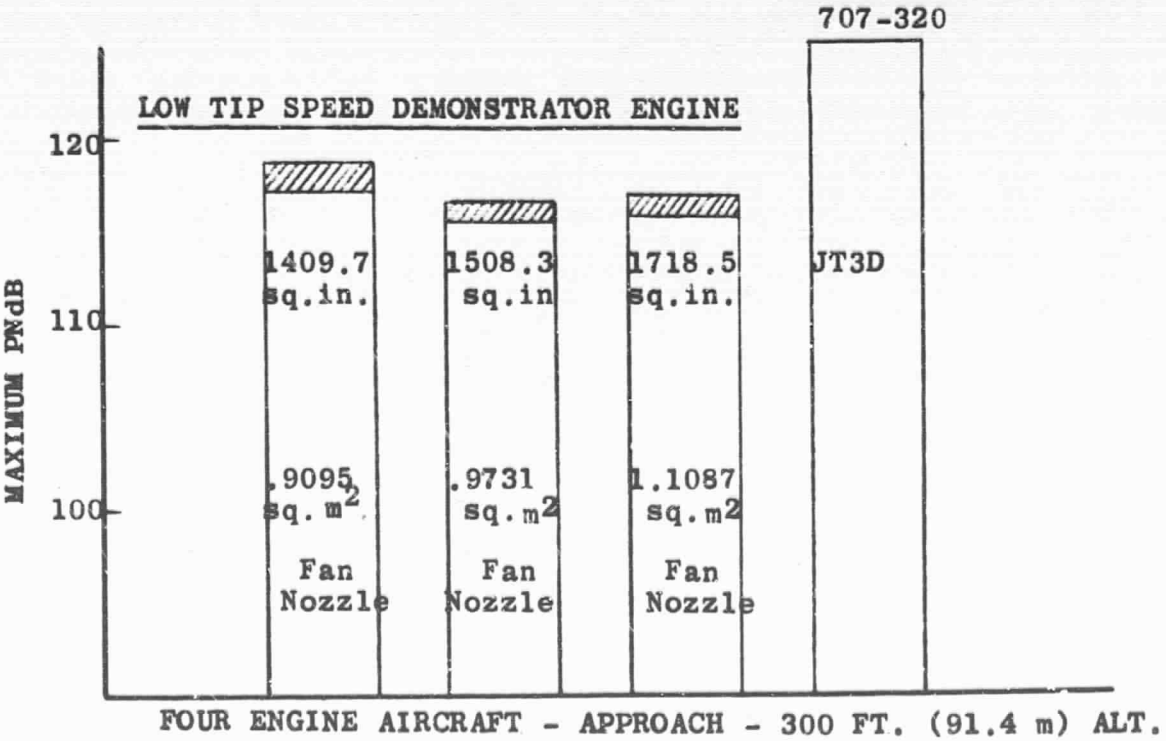
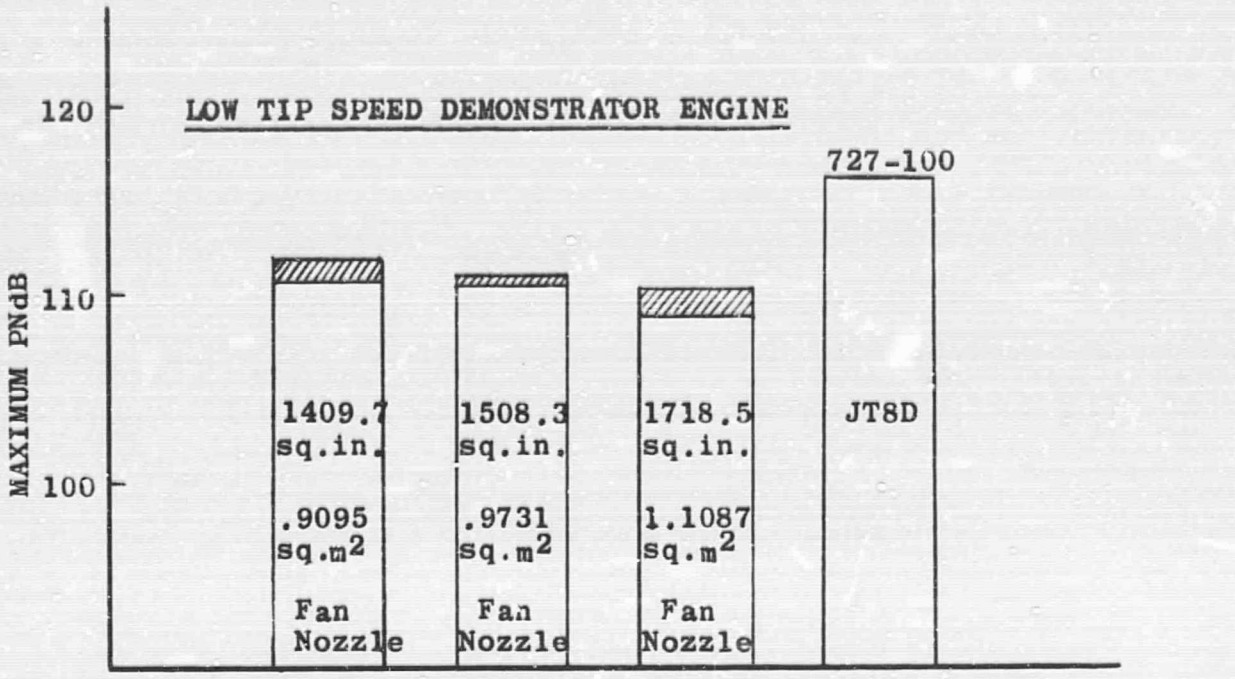


Figure 5.1-1 In-flight Noise 4 Engine Aircraft



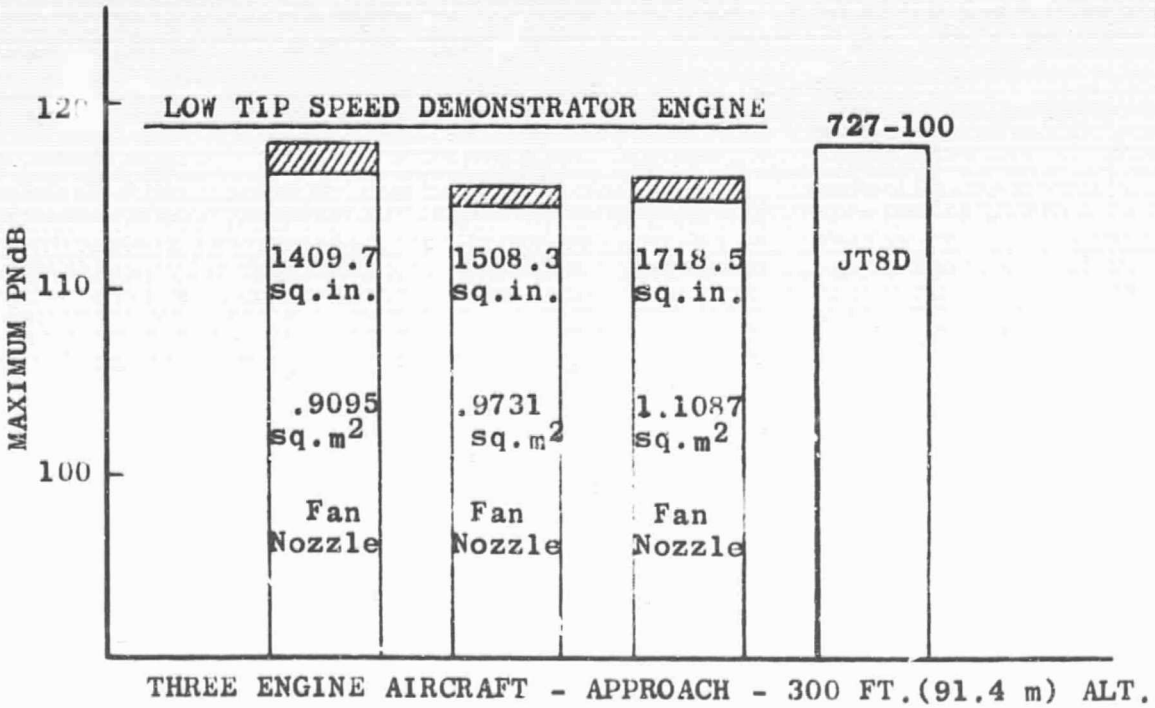


Figure 5.1-2 In-flight Noise 3 Engine Aircraft

5.2 EFFECT OF FAN OPERATING LINE VARIATIONS

It has been demonstrated in Section 4.2 that the noise levels measured during this program at any given fan speed were in general highest for Run 6 (high fan operating line) and lowest for Run 5 (low operating line) with the levels from Runs 7 and 8 (nominal operating line) being between those of Runs 5 and 6. This section summarizes the effect of fan operating line variations, and illustrates the fact that fan pressure ratio was the most significant factor controlling the sound power levels of the Two Stage Low Tip Speed Demonstrator engine.

In order to best describe the effects of fan operating line variations, it is first necessary to construct a fan map, similar to the map shown on Figure 4.1-1. Figure 5.2-1, shown for reference, is a plot of fan total pressure ratio versus fan airflow corrected to standard day conditions for each of the three fan nozzle configurations tested during the course of the program. This figure gives fan speed and fan thrust in International Units for comparison with subsequent Figures. Lines of corrected fan speed are shown, as well as lines of fan thrust. The next step is to superimpose upon the fan map lines of constant noise level, hereafter called Isonoise lines. These lines were established by plotting the maximum 200 ft. sideline PNdB, OAPWL, and blade passing frequency PWL data from all configurations as a function of fan weightflow or fan speed. Subsequently, smooth lines were fitted to each of the sets of data. Most of the data fitted to within $\pm$ 1 dB (or PNdB) of the lines and all but a very few of the points plotted were within $\pm$ 2 dB of the fitted lines. Figure 5.2-6 and 5.2-7 are typical of the data and curves. Having been established, the lines were then used as a basis for constructing the Isonoise lines on Figures 5.2-2 through 5.2-5.

5.2.1 SECOND STAGE ROTOR BLADE PASSING FREQUENCY SOUND POWER LEVELS

Figure 5.2-2, for instance, is a plot which incorporates lines of constant sound power level (integrated over the far-field microphone array) of the 1/3 octave band containing the second stage (40 blade) rotor blade passing frequency. In order to clarify the meaning of the lines of constant noise level, examples of the interpretation of Figure 5.2-2 are shown in the following table for a representative PWL curve:

A28		P_{23}/P_2	Weightflow		PWL-dB re 10^{-13} Watts
sq. inches	sq. M		lbs.sec.	Kg/sec	
1409.7	(.9095)	1.133	385	(174.6)	152
1508.3	(.9732)	1.122	401	(181.9)	152
1718.5	(1.1087)	1.156	503	(228.1)	152

Further analysis of that particular curve shows that 152 dB occurs very close to 2000 rpm (209.4 rad/sec) for both the upper and nominal operating lines, while not occurring until almost 2400 rpm (251.3 rad/sec) along the lower operating line.

As Figure 5.2-2 is further examined, it becomes clear that the sound power level of the 40 blade rotor fundamental frequency exhibits a marked dependency upon operating map location at any given fan speed. At 2300 rpm (240.8 rad/sec) for instance, the noise level changes approximately 2 dB from the upper operating line to the lower operating line. This change in noise level accompanies a weightflow increase of approximately 12% and a 2% decrease in fan pressure ratio. At higher fan speeds, the same general result is seen. At 3473 rpm (363.6 rad/sec) a level change of almost 2 dB is demonstrated between the upper and lower operating lines. In this case,

the weightflow increases by 8% and the fan pressure ratio decreases by approximately 4%.

Along any one operating line it can be seen that a speed increase of approximately 15% is required to produce a 2 dB increase in noise level. Along any particular operating line, however, these increases in fan speed are also accompanied by increases in fan pressure ratio and fan weightflow. In order to determine which of these variables (independently or in combination with each other) has the most influence on noise, it is necessary to further examine the character of the Isonoise curves.

It is quite apparent that weightflow alone does not have a strong effect on noise in the case of these tests which involve variation of fan operating line on a given size vehicle. This is to say that examination of the Isonoise lines at any given weightflow indicates, as demonstrated above, that it is quite possible to go across a map in the direction of decreasing weightflow and obtain an increase in noise level. In the same regard it is obviously equally possible to increase weightflow and to decrease noise level. It is, therefore, apparent that the fan speed and pressure ratio are the primary factors controlling the Isonoise lines on Figure 5.2-2.

The above statements on the effect of weightflow in determining the effect of operating line variations upon noise is not to be confused with the altogether different case of acoustic scaling. In the case of predicting the noise level difference between two identically geometric and aerodynamic vehicles with the same tip speed and pressure ratio but of different sizes, the noise levels differences are determined primarily by ten times the

Log_{10} of the weightflow ratio between the vehicles.

The most interesting analysis to be derived from Figure 5.2-2 involves the qualitative comparison of the relative effects of fan speed and pressure ratio variations upon noise. Although noise increases both with increasing pressure ratio and with increasing speed, Figure 5.2-2 indicates a somewhat greater dependency upon pressure ratio. To illustrate the importance of fan pressure ratio on Figure 5.2-2, it is seen that at 2600 rpm (273.3 rad/sec) on the upper operating line, a PWL of 155 ½ dB was determined at a pressure ratio of 1.227. Along that same operating line at a speed of 2900 rpm (303.7 rad/sec) the pressure ratio increases by 5% to 1.29 and the PWL increases to almost 157 ½ dB. At 2900 rpm (303.7 rad/sec) on the lower operating line, however, the power level has decreased to slightly under 156 dB at a pressure ratio of 1.255. In addition, it is clear that, had a fan nozzle larger than 1718.5 sq. inches (1.1087 sq. M) been tested, 155 ½ dB would have occurred at 2900 rpm (303.7 rad/sec) at a pressure ratio very close to the original 1.227.

At other fan speeds, similar relationships occur, particularly in the higher speed ranges, where pressure ratio seems to be a dominant factor in determining the PWL of the second stage rotor blade passing frequency. At the very low speeds, the PWL spread between the various operating lines is very slight and definitive patterns are difficult to establish. At these conditions (in general below 2000 rpm (209.4 rad/sec)) the Isonoise lines are closely bunched together and the shape and location of these lines are probably less accurately established than the estimated $\pm$ 1 to 2 dB

variance inherent in the data. At the higher speeds, however, the differences between the Isonoise lines are more clearly seen in the data as systematic variations with operating line variations as shown by Figure 5.2-2.

The fact of primary interest in Figure 5.2-2, is not whether any of the Isonoise lines are plus or minus a decibel, but rather that an increase in fan tip speed from one operating condition to another does not necessarily mean that the noise level of the blade passing frequency increases. The inference is that fan pressure ratio appears to be a more dominant factor.

5.2.2 FIRST STAGE ROTOR BLADE PASSING FREQUENCY SOUND POWER LEVEL

Figure 5.2-3 is similar to Figure 5.2-2 but for the 25 blade rotor. In this case the Isonoise lines are somewhat straighter than those for the 40 blade PWL. In addition, it is seen that there is a greater incremental increase in PWL from low thrust settings to high thrust settings than were observed with the 40 blade PWL data. Otherwise, the results here are quite similar to those on Figure 5.2-2. Figure 5.2-3 is even more illustrative of the fact that tip speed cannot be considered to be the only factor in determinating noise level. As an example, 3473 rpm (363.6 rad/sec) at a pressure ratio of 1.443 has a higher noise level than 3650 rpm (382.2 rad/sec) at a pressure ratio of 1.428, even though the latter condition has a 5% higher tip speed.

5.2.3 OVERALL SOUND POWER LEVEL

Figure 5.2-4 shows the Isonoise curves for over-all sound power level. In this case, the Isonoise curves are a series of lines which are almost parallel, although the curves at the higher power settings have somewhat

different inflection than those at the lower power settings. This figure shows that within 1 dB, a given pressure ratio defines OAPWL, regardless of tip speed or weightflow. Otherwise, the OAPWL relationships are quite similar to the relationships exhibited on the previous curves in that the noise level decreases along a speed line with decreasing pressure ratio.

Again, it is seen that in comparing two operating conditions, higher tip speed does not result in higher noise levels unless pressure ratio is also higher.

5.2.4 MAXIMUM PNdB ALONG A 200 FT. (60.96M) SIDELINE

Figure 5.2-5 shows the Isonoise curves of maximum Perceived Noise Level along a 200 ft. (60.96M) sideline. As would be expected from the previous curves, PNdB decreases with increasing fan nozzle area. The difference between Figure 5.2-5 and the previous curves is that Perceived Noise Levels are significantly affected by fan speed inasmuch as the blade passing frequencies are, in general, the strongest tones in the 1/3 octave spectra, and since the Perceived Noise Level is highly dependent upon frequency, the PNdB levels can be expected to vary in a manner which is governed not only by physical noise generating phenomena, but also by the shape of the noy curves which determine PNdB.

In the high speed range of Figure 5.2-5 for instance, it is seen that the Isonoise curves become progressively steeper with increasing fan speed. This means that along any particular Isonoise line, there is a trend for a greater net change in fan speed between the upper and lower operating lines

at low power settings than at high power settings. Accordingly, the change in blade passing frequency along any particular Isonoise line is in general greater at the high power settings.

As the blade passing frequencies increase, the highest noy (greatest weighting on the PNdB scale) region of 2500 - 4000 Hz is approached. Since the PNdB weighting gradually increases up to 3150 Hz it can be readily determined that as the frequencies increase, the PNdB would increase, even at constant sound level. Since the sound level does increase, the increase in PNdB is further magnified. The slope of the PNdB Isonoise curves in the higher power settings would, therefore, be expected to be more prounounced than the PWL Isonoise curves on Figure 5.2-4.

As is seen on Figure 5.2-5, this is certainly the case. In terms of impact upon annoyance, the incremental PNdB reduction obtained at a given thrust setting is for this reason great r than the incremental dB reduction shown on Figures 5.2-2 to 5.2-4.

The PNdB Isonoise curves are the most indicative in this series of curves of the controlling influence of pressure ratio upon noise. In Figure 5.2-5 between 3200 rpm (335.1 rad/sec) on the upper operating line and 3473 rpm (363.6 rad/sec) on the lower operating line, a 1.5 PNdB decrease results. Such an effect would be impossible if tip speed were the most important parameter influencing fan noise.

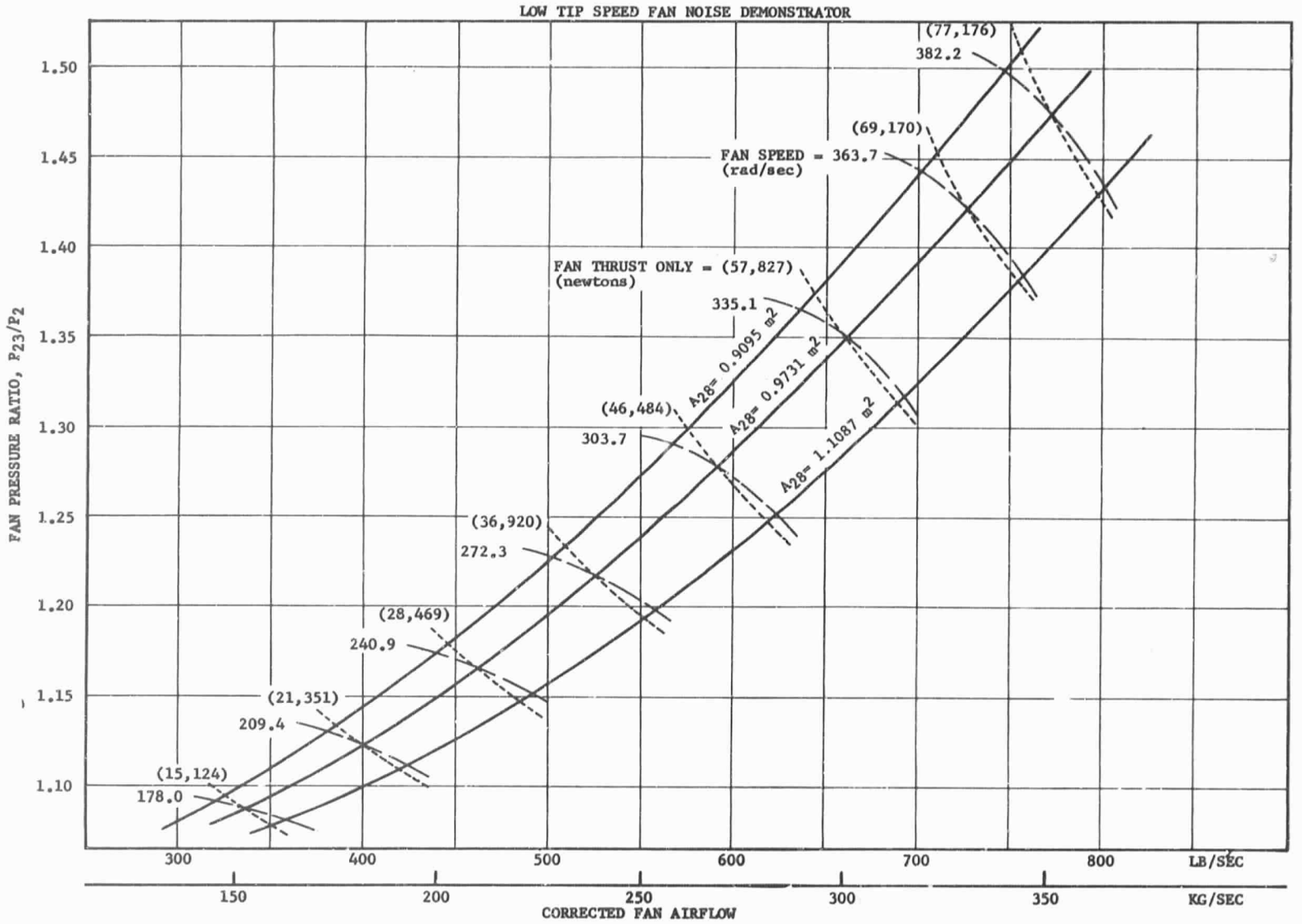

LOW TIP SPEED FAN NOISE DEMONSTRATOR
FAN PRESSURE RATIO, P_{23}/P_2
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
(77,176)
382.2
(69,170)
FAN SPEED = 363.7
(rad/sec)
FAN THRUST ONLY = (57,827)
(newtons)
335.1
A_{28}= 0.9095 m2
A_{28}= 0.9731 m2
A_{28}= 1.1087 m2
(46,484)
303.7
(36,920)
272.3
(28,469)
240.9
(21,351)
209.4
(15,124)
178.0
300
400
500
600
700
800
LB/SEC
150
200
250
300
350
KG/SEC
CORRECTED FAN AIRFLOW

Figure 5.2-1

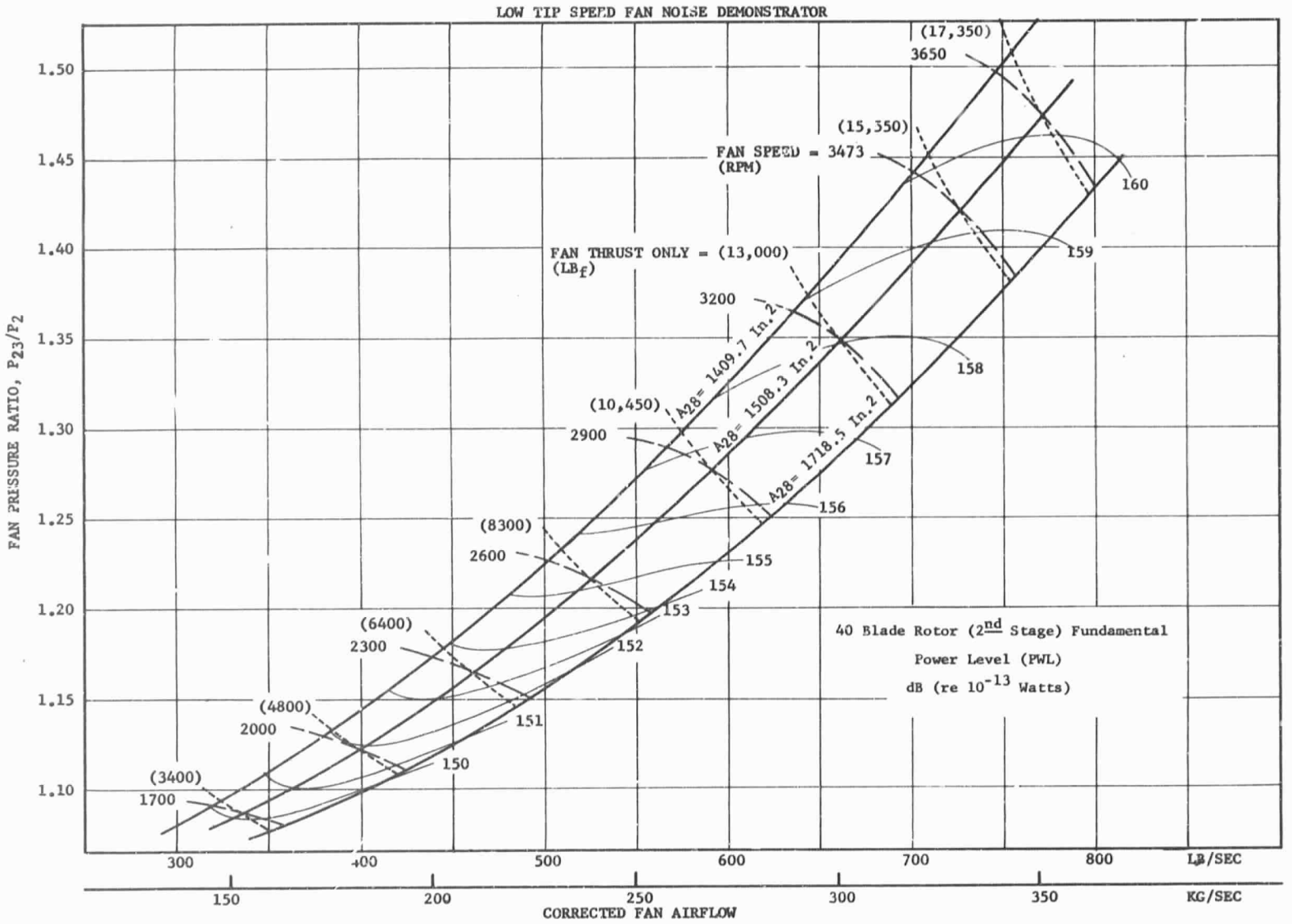

LOW TIP SPEED FAN NOISE DEMONSTRATOR
FAN PRESSURE RATIO, P_{23}/P_2
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
(17,350)
3650
(15,350)
FAN SPEED = 3473 (RPM)
160
FAN THRUST ONLY = (13,000) (LB_f)
159
3200
158
(10,450)
2900
157
(8300)
2600
156
155
154
(6400)
2300
153
152
(4800)
2000
151
150
(3400)
1700
A_{28}= 1409.7 In.2
A_{28}= 1508.3 In.2
A_{28}= 1718.5 In.2
40 Blade Rotor (2nd Stage) Fundamental
Power Level (PWL)
dB (re 10^{-13} Watts)
300
400
500
600
700
800
LB/SEC
150
200
250
300
350
KG/SEC
CORRECTED FAN AIRFLOW

Figure 5.2-2

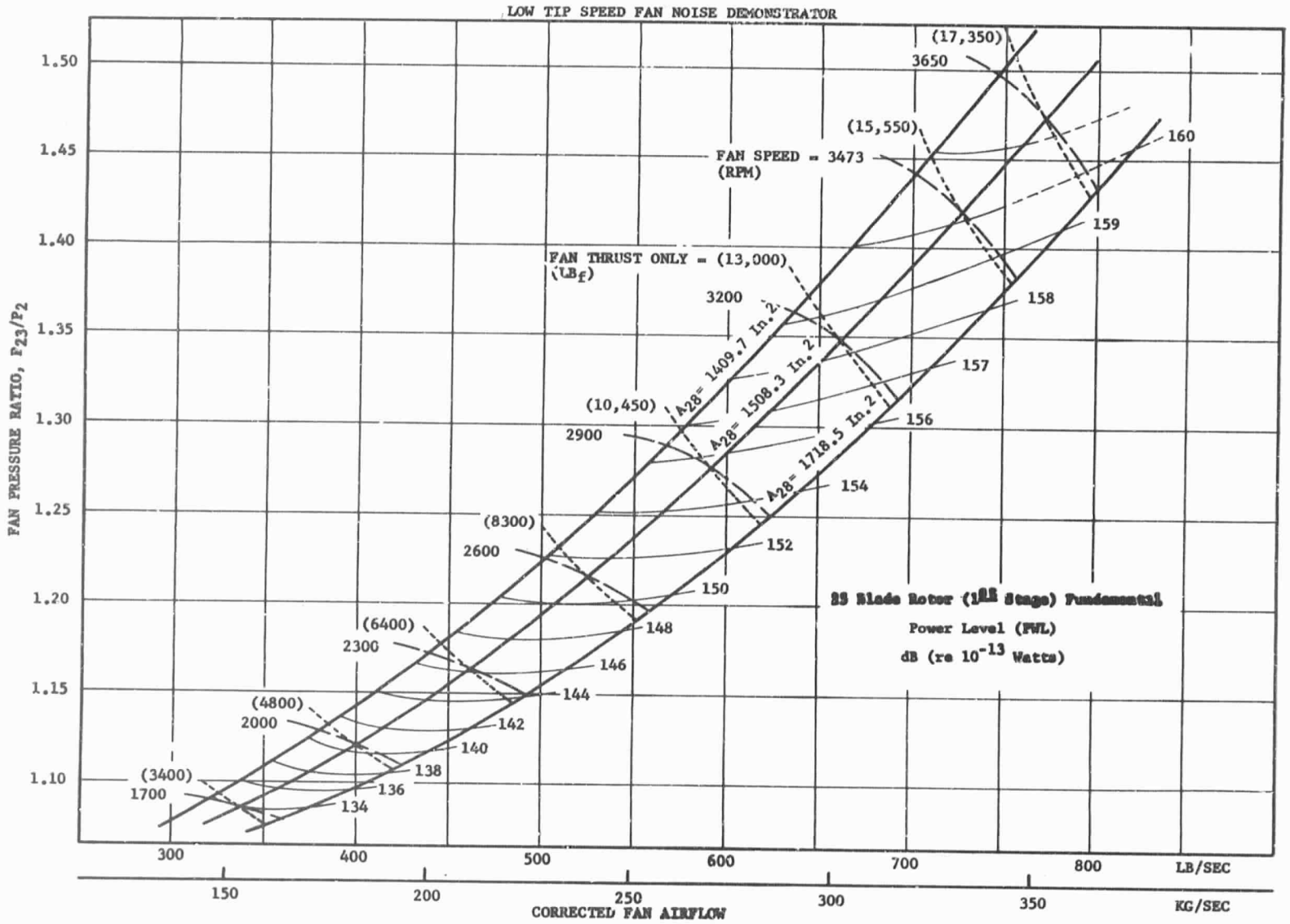

LOW TIP SPEED FAN NOISE DEMONSTRATOR
FAN PRESSURE RATIO, P_{23}/P_2
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
(17,350)
3650
(15,550)
FAN SPEED = 3473 (RPM)
160
159
FAN THRUST ONLY = (13,000) (LB_f)
3200
158
A_{28}= 1409.7 In.2
A_{28}= 1508.3 In.2
157
(10,450)
2900
156
A_{28}= 1718.5 In.2
154
(8300)
2600
152
150
(6400)
2300
148
146
144
(4800)
2000
142
140
138
(3400)
1700
136
134
22 Blade Rotor (1st Stage) Fundamental
Power Level (PWL)
dB (re 10^{-13} Watts)
300
400
500
600
700
800
LB/SEC
150
200
250
300
350
KG/SEC
CORRECTED FAN AIRFLOW

Figure 5.2-3

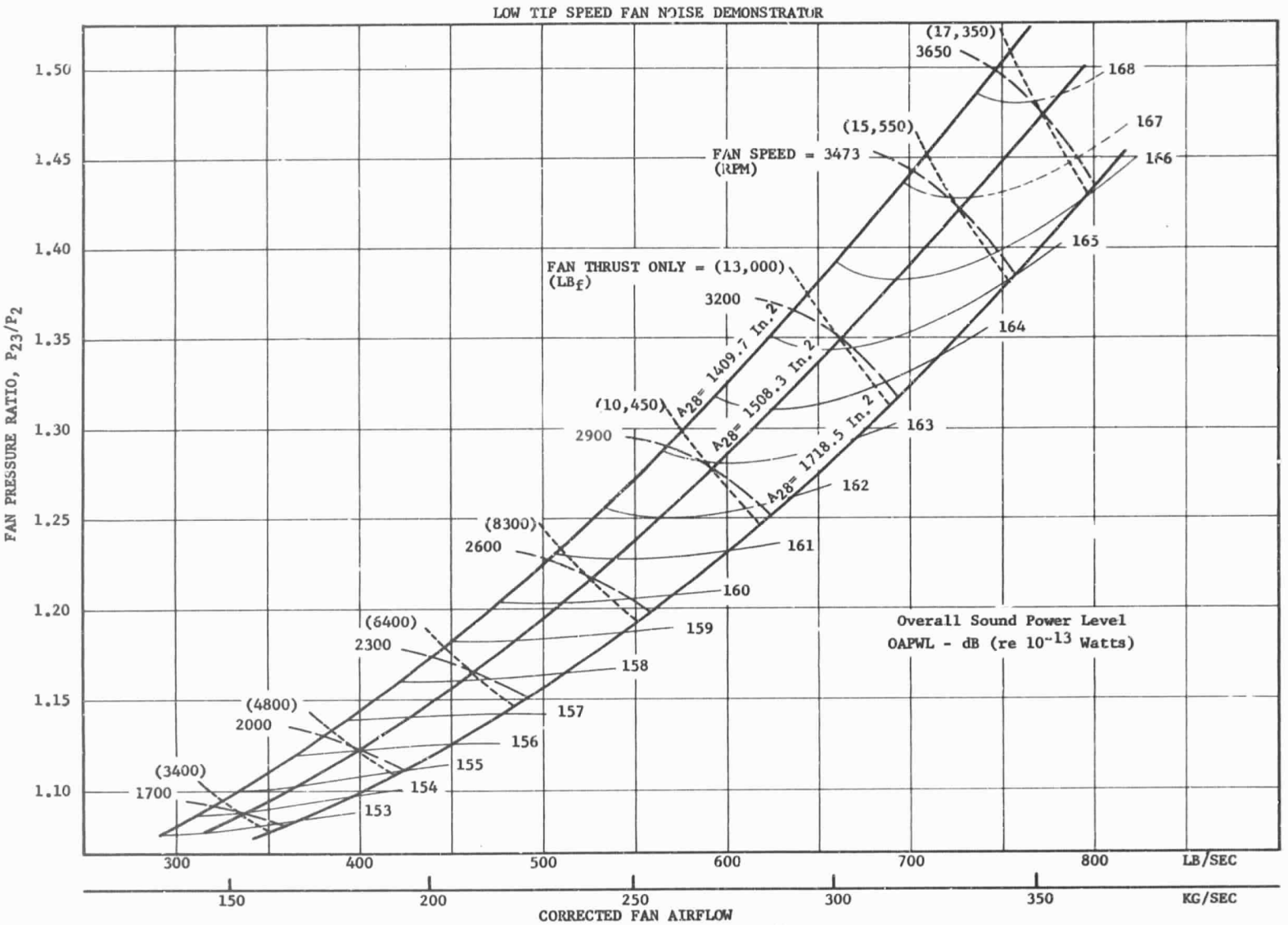

LOW TIP SPEED FAN NOISE DEMONSTRATOR
FAN PRESSURE RATIO, P_{23}/P_2
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
(17,350)
3650
168
(15,550)
167
FAN SPEED = 3473 (RPM)
166
165
FAN THRUST ONLY = (13,000) (LB_f)
3200
164
A28= 1409.7 In.2
A28= 1508.3 In.2
(10,450)
2900
A28= 1718.5 In.2
163
162
(8300)
2600
161
160
(6400)
2300
159
158
(4800)
2000
157
156
155
(3400)
1700
154
153
Overall Sound Power Level
OAPWL - dB (re 10^{-13} Watts)
300
400
500
600
700
800
LB/SEC
150
200
250
300
350
KG/SEC
CORRECTED FAN AIRFLOW

Figure 5.2-4

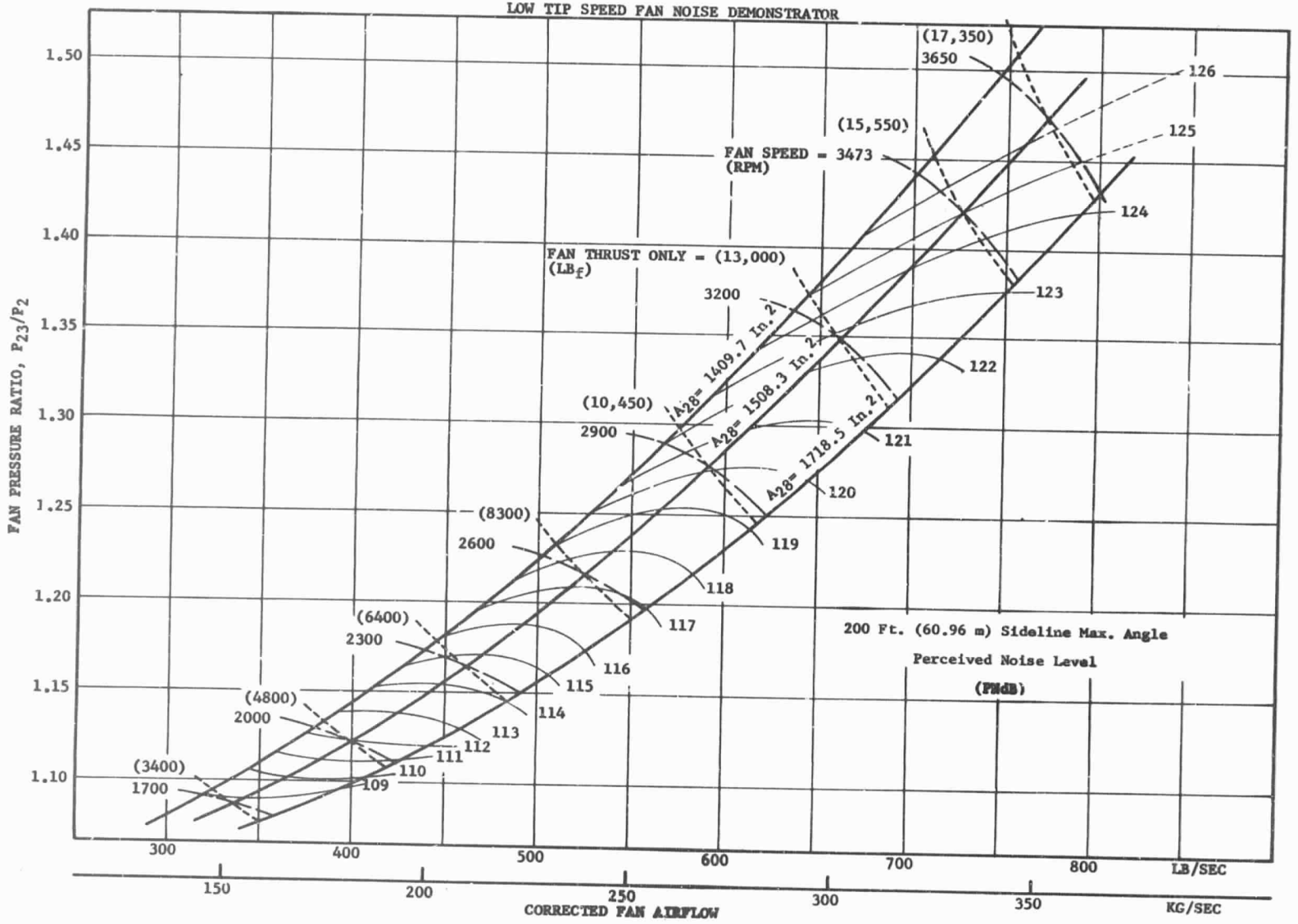

LOW TIP SPEED FAN NOISE DEMONSTRATOR
FAN PRESSURE RATIO, P_{23}/P_2
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
(17,350)
3650
126
(15,550)
FAN SPEED = 3473 (RPM)
125
124
FAN THRUST ONLY = (13,000) (LB_f)
3200
123
A_{28}= 1409.7 In.2
A_{28}= 1508.3 In.2
122
(10,450)
2900
A_{28}= 1718.5 In.2
121
120
(8300)
2600
119
118
(6400)
2300
117
116
115
(4800)
2000
114
113
112
111
(3400)
1700
110
109
200 Ft. (60.96 m) Sideline Max. Angle
Perceived Noise Level
(PNdB)
300
400
500
600
700
800
LB/SEC
150
200
250
300
350
KG/SEC
CORRECTED FAN AIRFLOW

Figure 5.2-5

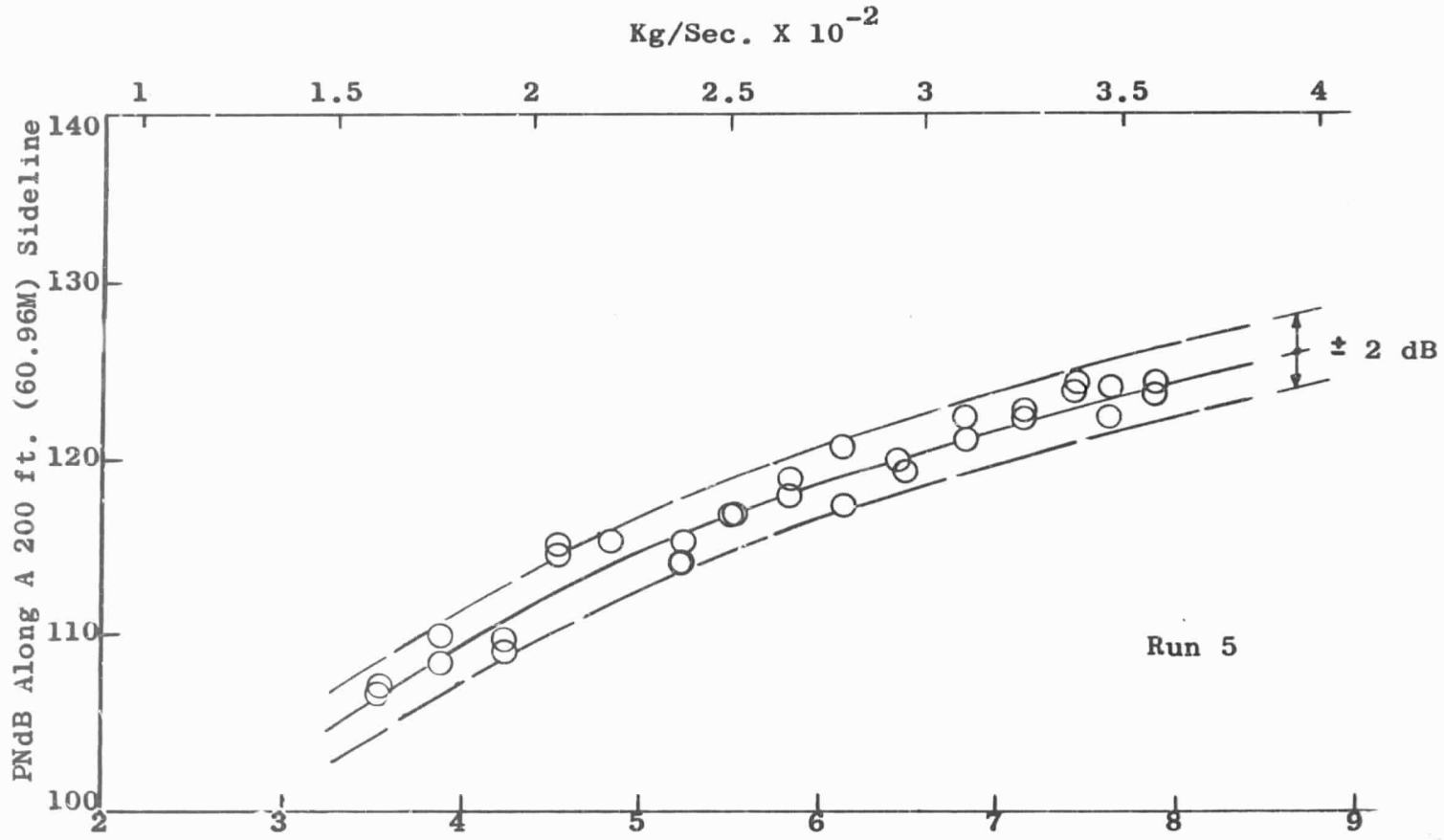


Figure 5.2-6 Fan Weight Flow X 10^{-2} Lbs/Sec.

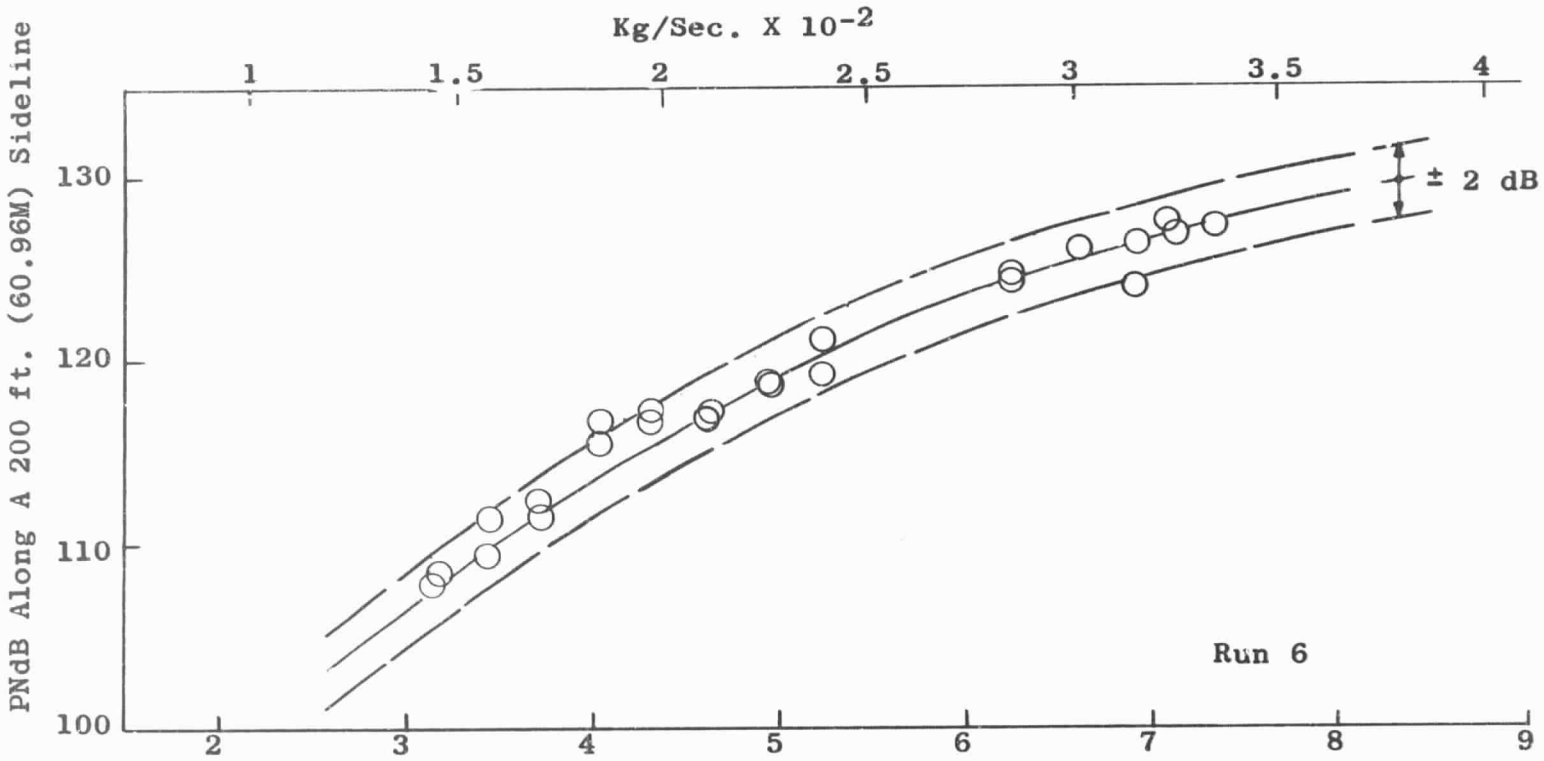


Figure 5.2-7 Fan Weight Flow X 10^{-2} Lbs/Sec.

5.3 ANALYSIS OF ACOUSTIC RESULTS IN TERMS OF BASIC AERODYNAMIC PARAMETERS

5.3.1 ANALYTICAL PREDICTION OF BLADE PASSING FREQUENCY POWER LEVELS

In general, there are two major kinds of blade passing frequency noise generating mechanisms:

1. Those relating to the rotating blade row alone
2. Those that are a result of the interaction of moving blade rows with stationary blade rows

The former results from the rotating steady rotor pressure field, while the latter mechanism is the result of

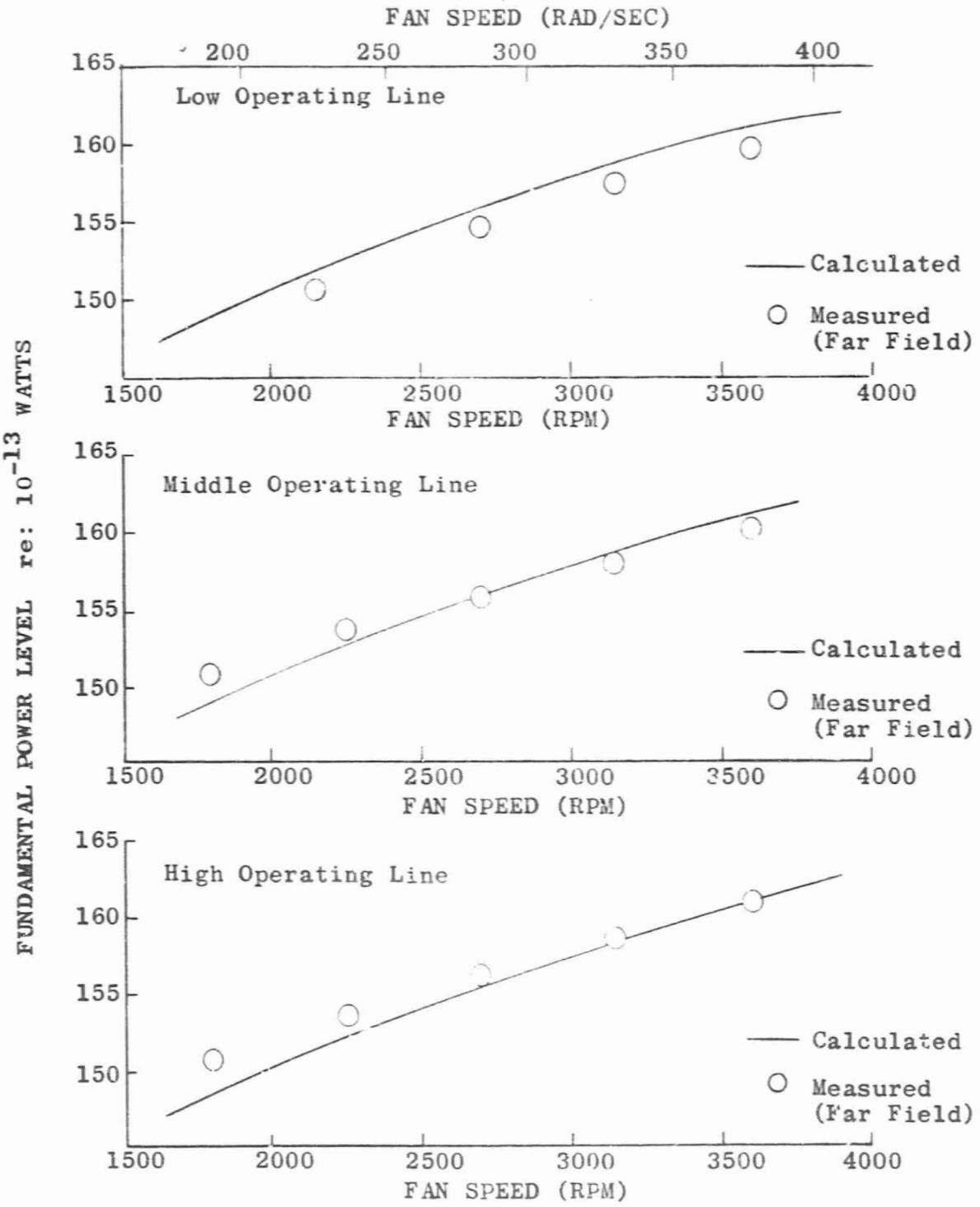
1. Potential field interaction and
2. viscous wake interaction.

A potential interaction is associated with the mutual disturbance of the pressure fields of two adjacent blade rows moving relative to one another. The viscous wake interaction, however, is the result of the impingment of an upstream blade row's wake on an adjacent downstream blade row.

At low rotor tip speeds the rotor alone noise does not propagate and for spacing to chord ratios greater than 0.25, potential interaction is not a significant contributor to blade passing frequency noise. Thus, for the vehicle under study viscous wake interaction is the most important pure tone generating mechanism.

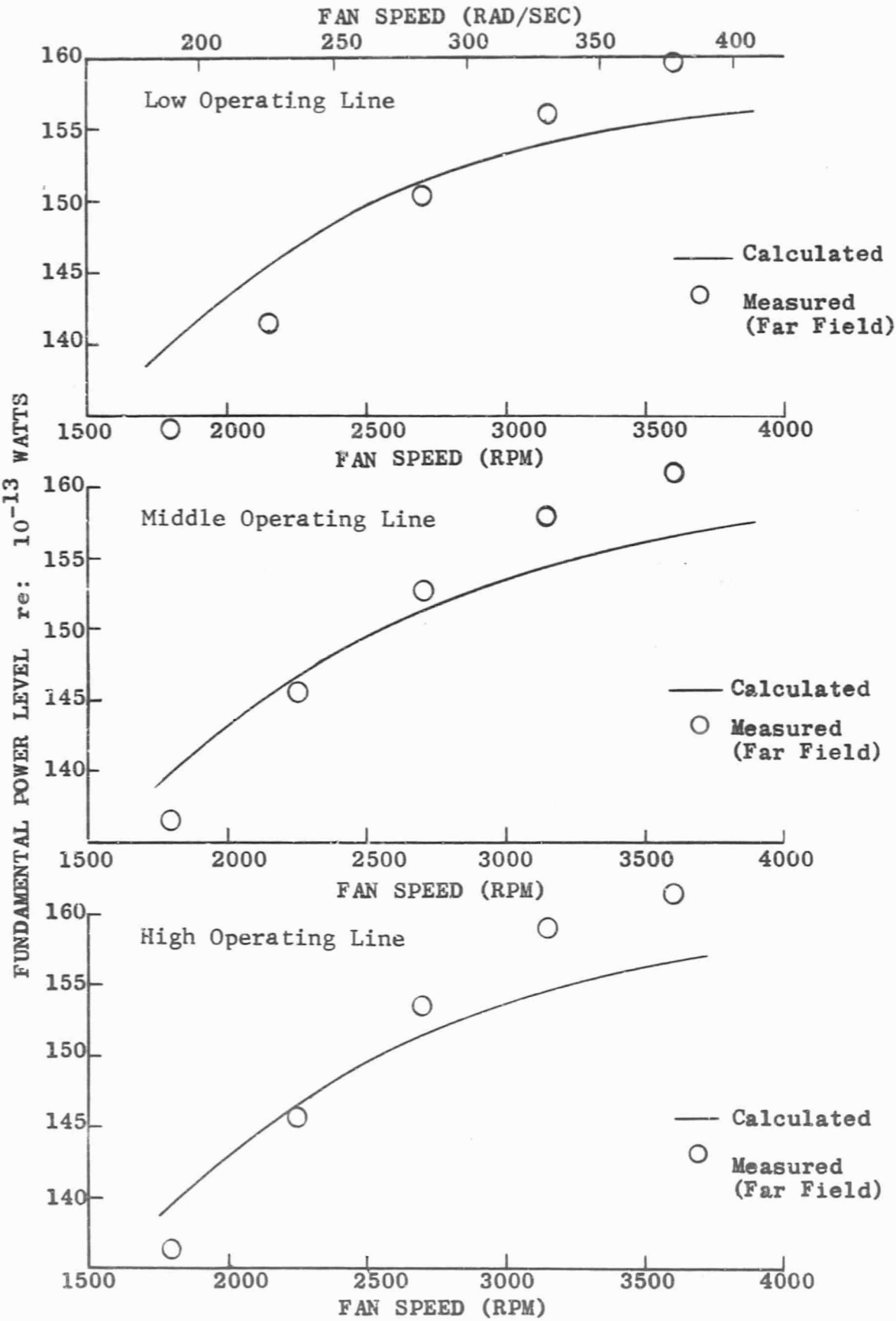
An analytic procedure has been developed by the General Electric Company which will predict the pure tone noise levels of a fan from the basic aerodynamic and geometric design parameters. (Reference 14). This procedure has been applied to the two stage fan. The results for

fundamentals of blade passing frequency along the three operating lines of the two rotors are shown in Figures 5.3.1-1 and 5.3.1-2. It can be seen that the agreement between theory and experiment is excellent for the downstream, forty blade rotor. The upstream twenty-five blade rotor, however, does not correlate with the data as well as the second rotor. The reason for this is most likely related to the sensitivity of the first rotor to variation in incidence angle with speed. The present analysis requires knowledge of the profile drag coefficient which is obtained through a diffusion factor - drag coefficient correlation. This correlation is known to be accurate only for blades operating at, or near, minimum loss; thus, the operating conditions experienced by the first rotor, which is more sensitive to incidence angle changes than the second rotor, require an extrapolation of this data which exceeds its capabilities. Effort is under way, however, to extend this aerodynamic correlation so that future acoustic predictions can be improved.



40 BLADE FUNDAMENTAL FREQUENCY

Figure 5.3.1-1



25 BLADE FUNDAMENTAL FREQUENCY

Figure 5.3.1-2

5.3.2 EMPIRICAL CORRELATION OF ACOUSTIC DATA WITH AERODYNAMIC PARAMETERS

The acoustic results, i.e., fundamental blade passing frequency tones of first and second stage, the overall sound power levels, and the perceived noise levels on a 200 ft. (60.96 m) sideline, were correlated against a series of aerodynamic parameters.

$$PWL_{r1} = f\left(W, M_{RT1}, \left(\frac{V_z}{U_T}\right)_1, D_{T1}\right)$$

$$PWL_{r2} = f\left(W, M_{RT2}, M_{A2}, D_{T2}\right)$$

$$OAPWL = f\left(W, M_{RT1}, \left(\frac{V_z}{U_T}\right)_1, D_{T1}\right)$$

$$PNdB = f\left(W, M_{RT1}, \left(\frac{V_z}{U_T}\right)_1, D_{T1}\right)$$

where:

W = Weightflow

M_{RT1}, M_{RT2} = Respectively the tip relative Mach number to rotor 1 and 2

$\left(\frac{V_z}{U_T}\right)_1$ = Flow coefficient in front of the first stage.

V_z = Tip Axial inlet velocity.

U_T = Tip wheel speed.

M_{A2} = Absolute Mach number at the exit of the first stator.

D_{T1}, D_{T2} = Respectively, tip diffusion factor in rotor 1 and 2.

No direct dependancy on tip speed was assumed because of the close relationship between relative Mach number and tip speed. It was felt that not enough data points were available to differentiate between trends which were function of tip speed and not of relative Mach number.

It was assumed also that a relationship existed between M_{RT1} and M_{RT2}

as well as $\left(\frac{V_z}{U_T}\right)_2$ and M_{A2} so that the overall sound power levels and the perceived noise levels could be assumed to be a function of the first stage aerodynamic parameters. Here again the quantity of data did not permit to differentiate between an M_{RT1} and an M_{RT2} dependancy.

A tabulation of the values for the aerodynamic parameters is given in Table 5.3.2-1. A statistical analysis of the data gave the following results.

RUN 5

$$PWL_{r1} = 167.0 + 10 \log W - 40 \log\left(\frac{V_z}{U_T}\right)_1 + 60 \log M_{RT1} + 90 \log D_{T1}$$

$$PWL_{r2} = 152.8 + 10 \log W - 35 \log M_{A2} + 40 \log M_{RT2} + 50 \log D_{T2}$$

$$OAPWL = 152.2 + 10 \log W - 40 \log\left(\frac{V_z}{U_T}\right)_1 + 30 \log M_{RT1} + 50 \log D_{T1}$$

$$PNL = 132.1 + 10 \log W - 40 \log\left(\frac{V_z}{U_T}\right)_1 + 30 \log M_{RT1} + 90 \log D_{T1}$$

The correlation of the test data is shown on Figures 5.3.2-1 to 5.3.2-4. It can be seen that the agreement is fairly good.

RUN 6

$$PWL_{r1} = 164.1 + 10 \log W - 40 \log\left(\frac{V_z}{U_T}\right)_1 + 70 \log M_{RT1} + 90 \log D_{T1}$$

$$PWL_{r2} = 148.9 + 10 \log W - 35 \log M_{A2} + 40 \log M_{RT2} + 50 \log D_{T2}$$

$$OAPWL = 150.4 + 10 \log W - 40 \log\left(\frac{V_z}{U_T}\right)_1 + 30 \log M_{RT1} + 50 \log D_{T1}$$

$$PNL = 128.6 + 10 \log W - 40 \log\left(\frac{V_z}{U_T}\right)_1 + 35 \log M_{RT1} + 90 \log D_{T1}$$

The correlation of the test data is shown on Figures 5.3.2-5 to 5.3.2-8. Here again the agreement is within 2 dB.

RUN 7

$$PWL_{r1} = 167.7 + 10 \log W - 40 \log \left(\frac{V_z}{U_T}\right)_1 + 60 \log M_{RT1} + 90 \log D_{T1}$$

$$PWL_{r2} = 149.6 + 10 \log W - 35 \log M_{A2} + 40 \log M_{RT2} + 50 \log D_{T2}$$

$$OAPWL = 152.9 + 10 \log W - 40 \log \left(\frac{V_z}{U_T}\right)_1 + 30 \log M_{RT1} + 50 \log D_{T1}$$

$$PNL = 133.0 + 10 \log W - 40 \log \left(\frac{V_z}{U_T}\right)_1 + 35 \log M_{RT1} + 90 \log D_{T1}$$

The correlation of the test data is shown on Figures 5.3.2-9 to 5.3.2-12. It can be seen that it fits the data fairly well.

A general conclusion to be drawn from the correlation of the data is that three major aero parameters seem to have an influence on the sound generation.

1) The flow coefficient.

2) The relative Mach number.

3) The diffusion factor.

The last parameter was found to be quite powerful. A small change in tip diffusion factor affected the sound generated appreciably. This confirms the results given by the analytical prediction.

One should be careful in the interpretation of the OAPWL and PNdB correlations. They were derived from the data obtained on this particular vehicle. They cannot be generalized to apply to other vehicles. The PNdB rating for example is composed of pure tones and broadband noise which have different physical laws of generation. A general law for the PNdB rating

could be erroneous if the relative contribution of broadband vs. pure tone noise is changed. This points again to the fact that one has to go back to the fundamental mechanisms before an accurate prediction can be obtained.

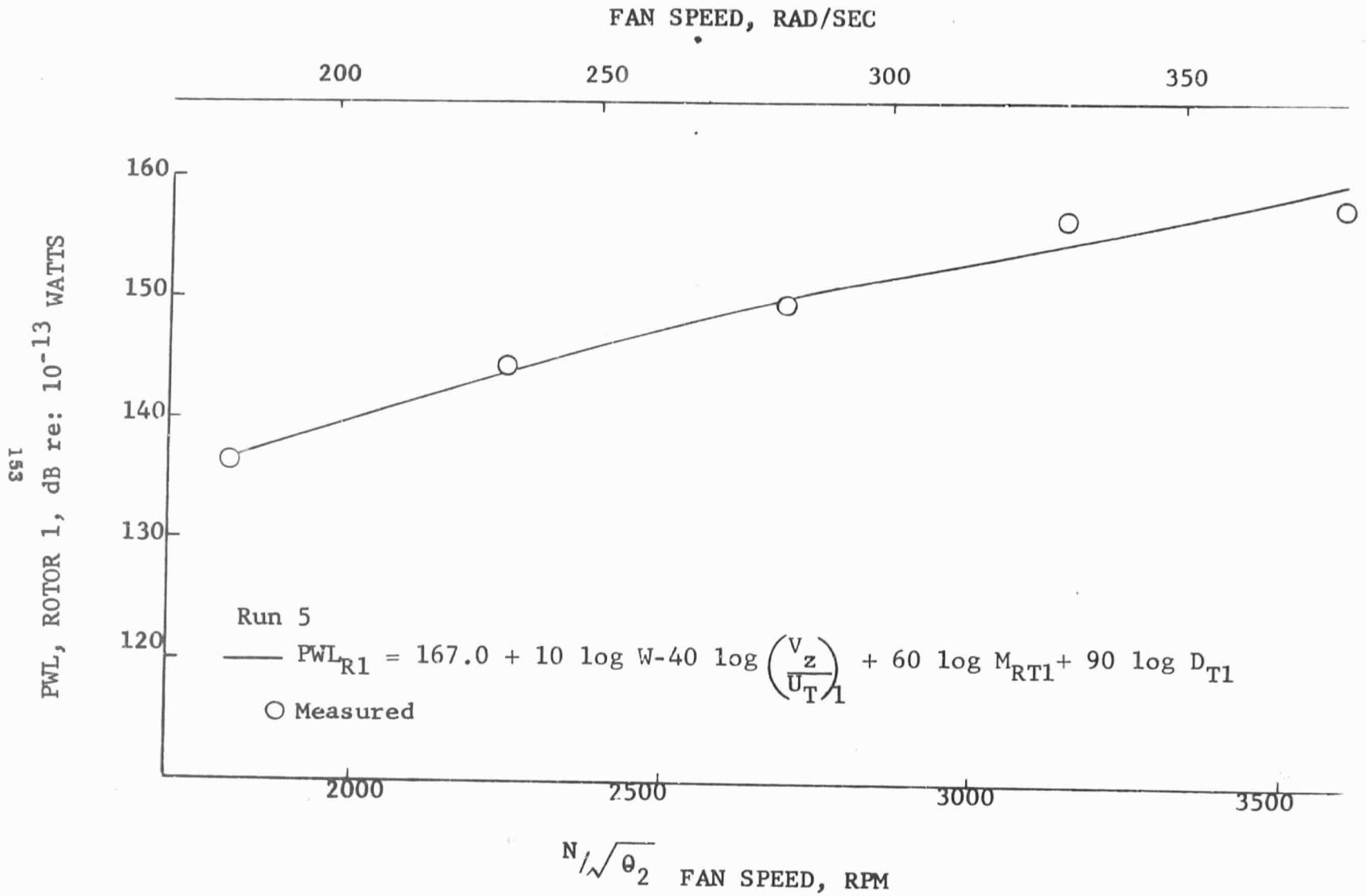


Figure 5.3.2-1 Sound Power Level at the 1st Stage Rotor Fundamental Frequency vs. Corrected Fan Speed

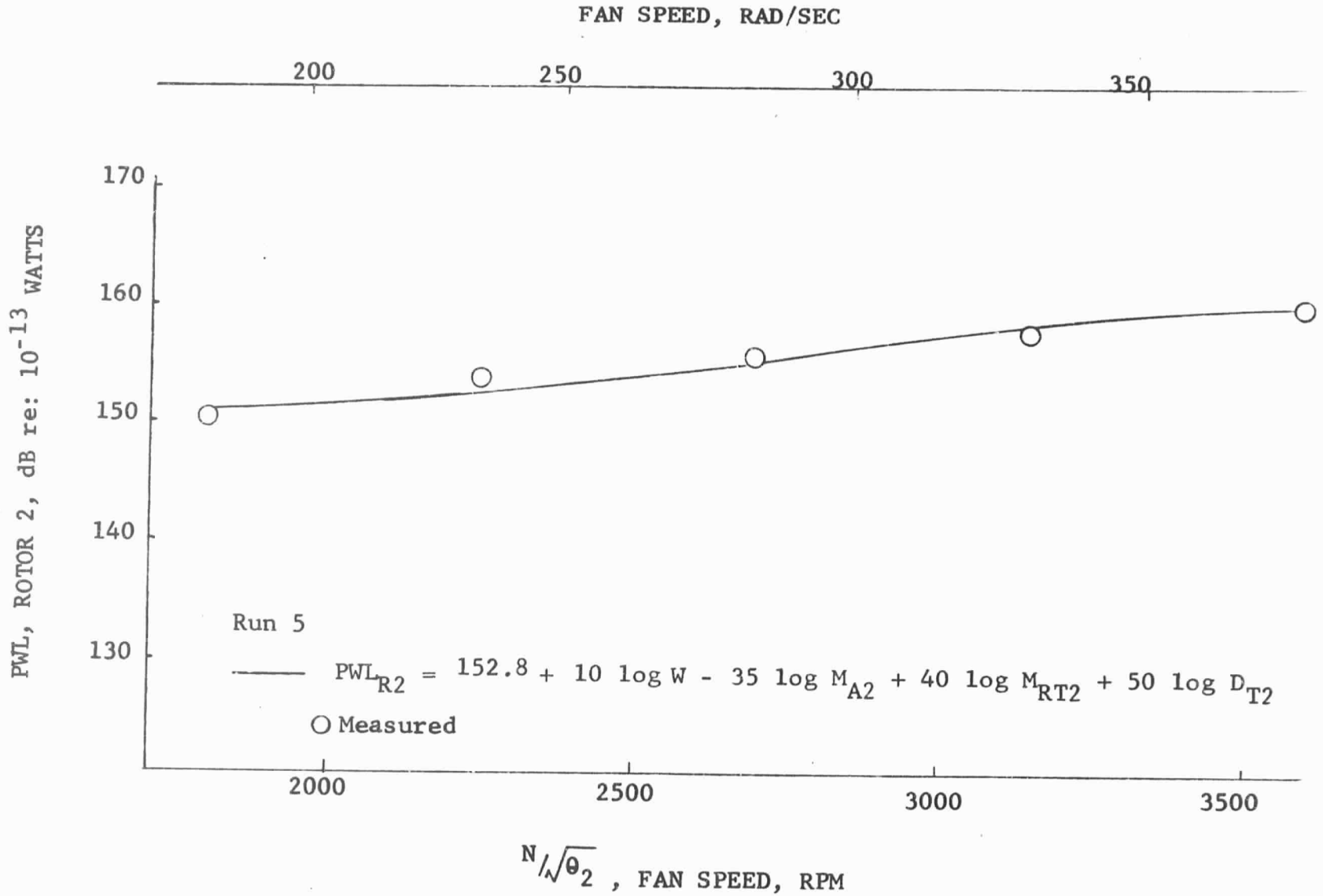


Figure 5.3.2-2 Sound Power Level at the 2nd Stage Rotor Fundamental Frequency vs. Corrected Fan Speed

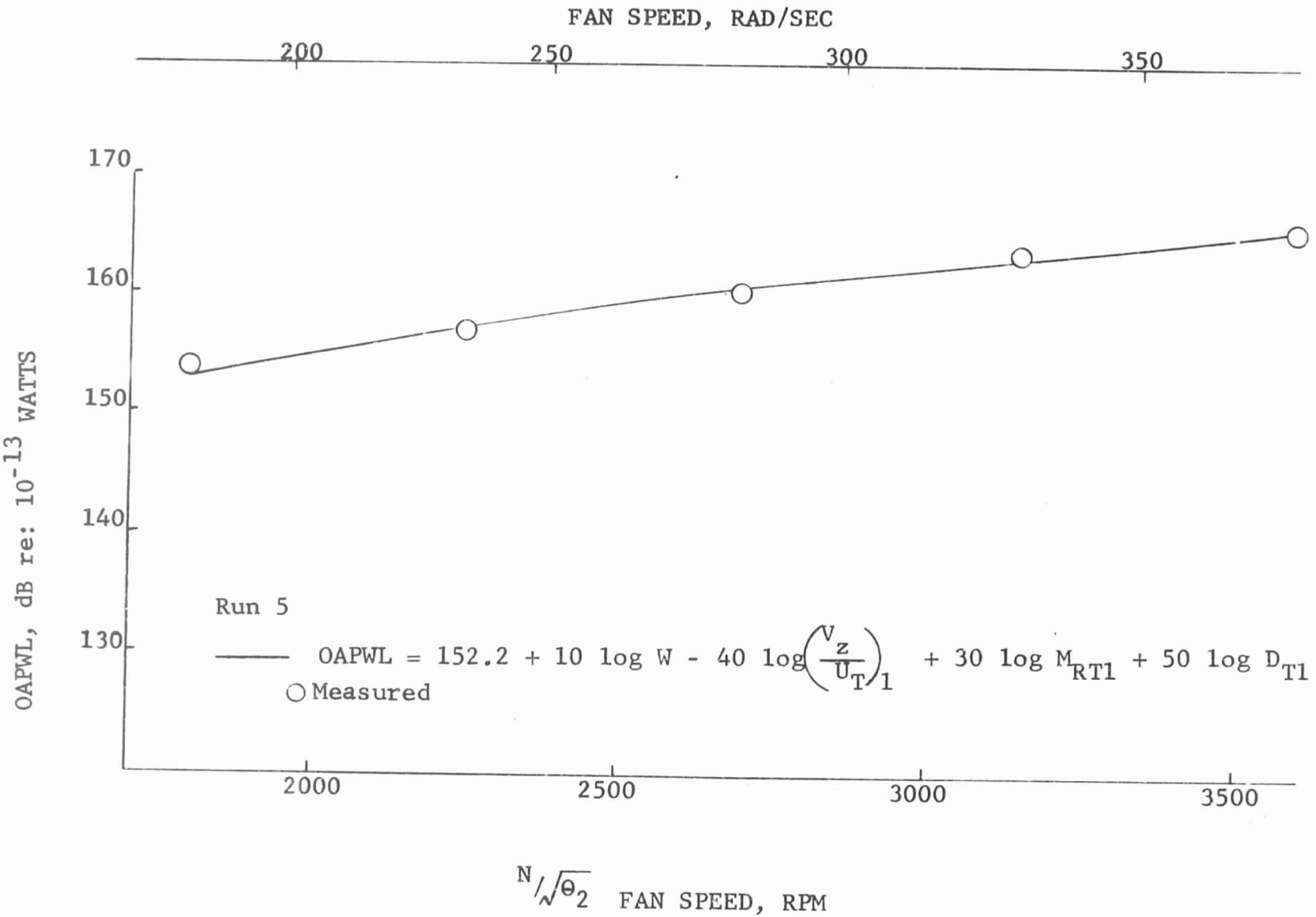


Figure 5.3.2-3 Overall Sound Power Level vs. Corrected Fan Speed

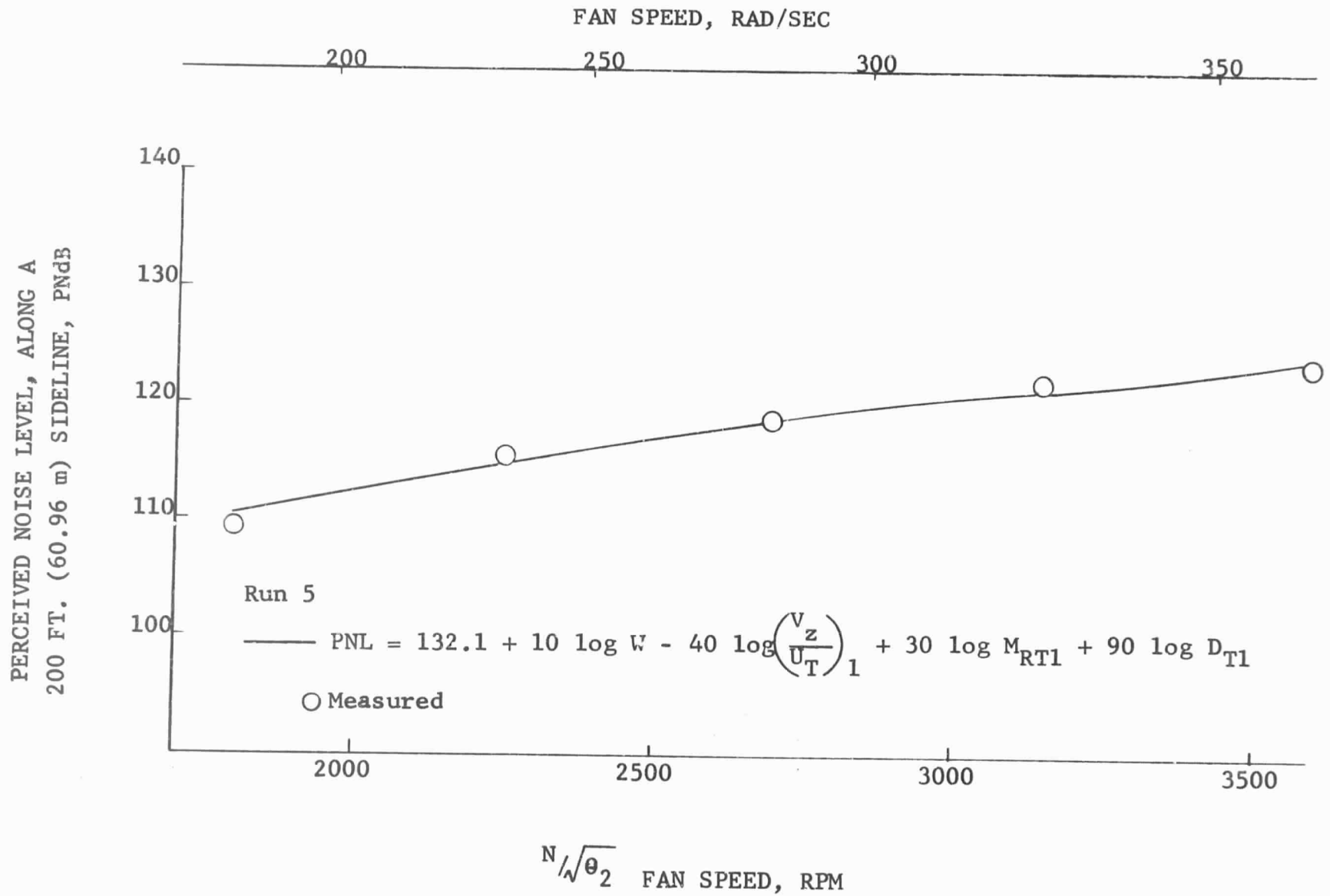


Figure 5.3.2-4 Perceived Noise Level vs. Corrected Fan Speed

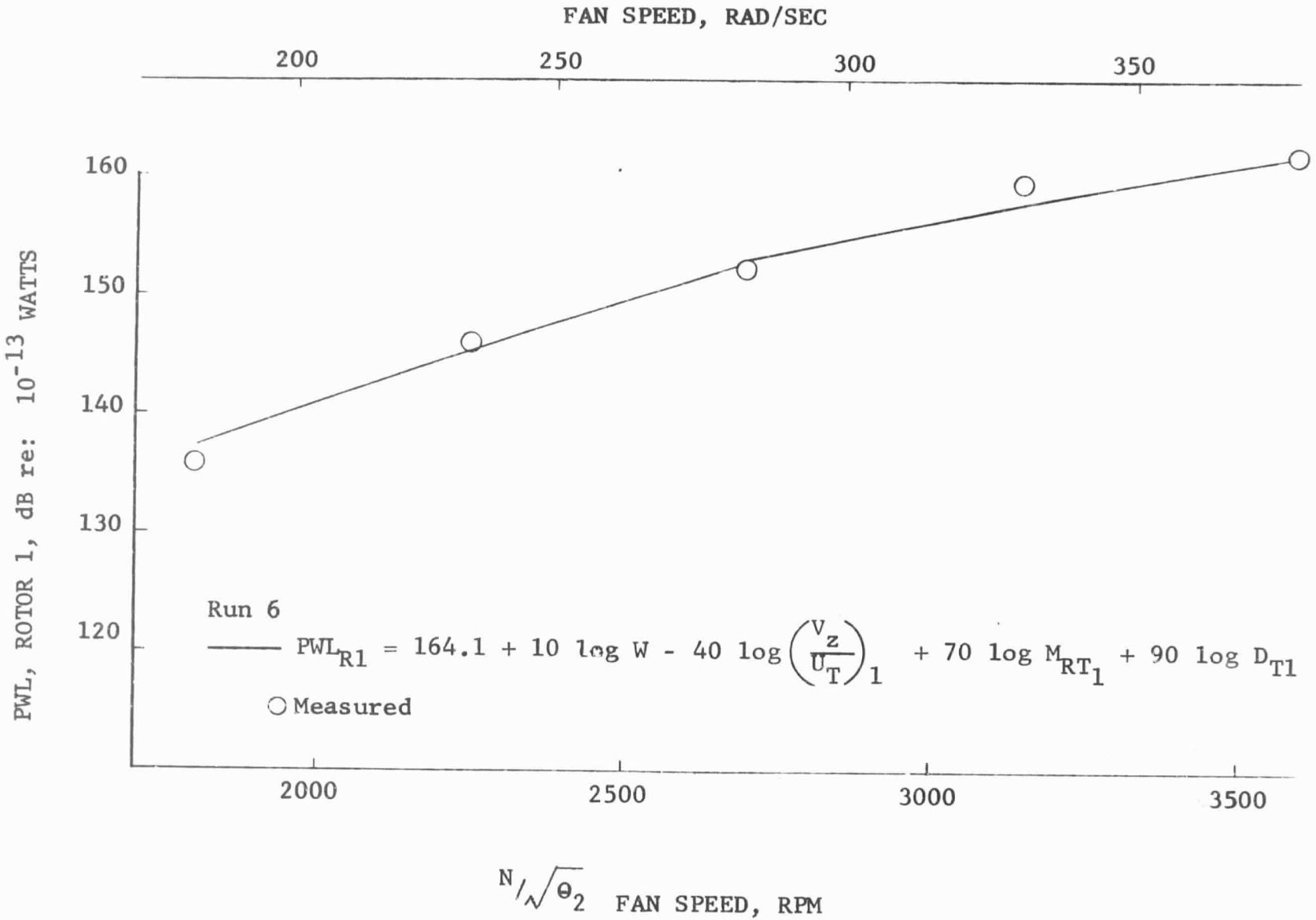


Figure 5.3.2-5 Sound Power Level at the 1st Stage Rotor Fundamental Frequency vs. Corrected Fan Speed

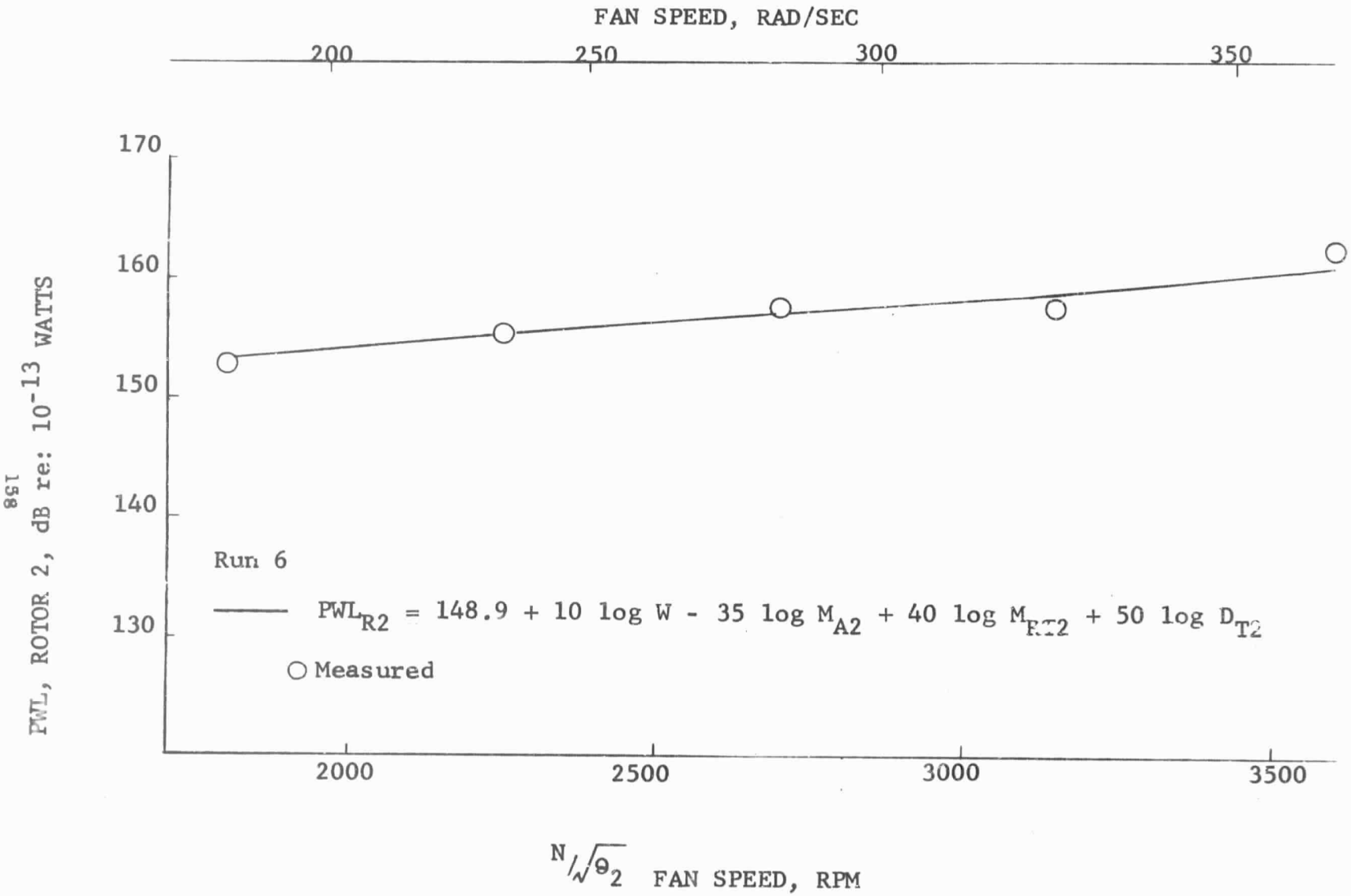


Figure 5.3.2-6 Sound Power Level at the 2nd Stage Rotor Fundamental Frequency vs. Corrected Fan Speed

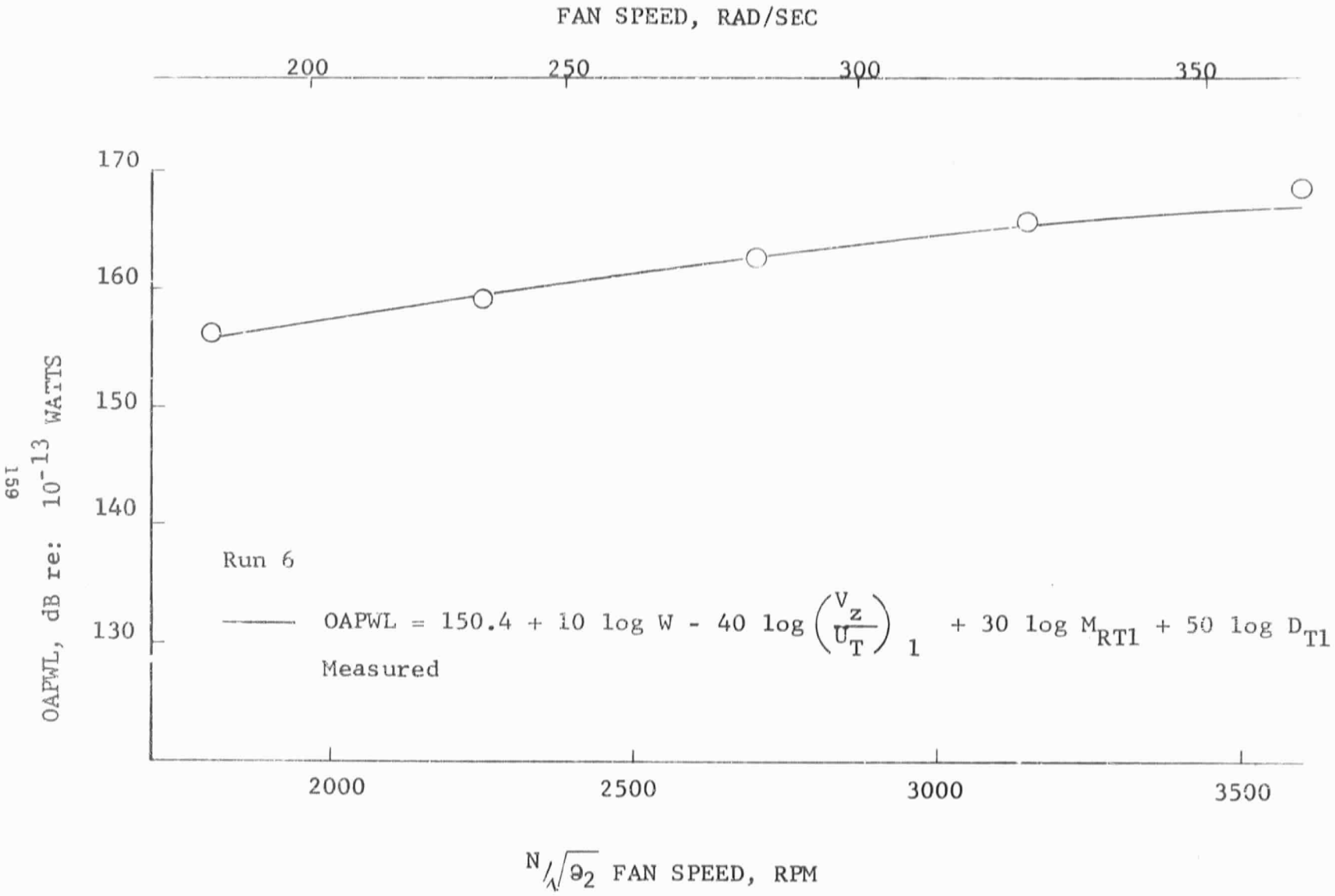


Figure 5.3.2-7 Overall Sound Power Level vs. Corrected Fan Speed

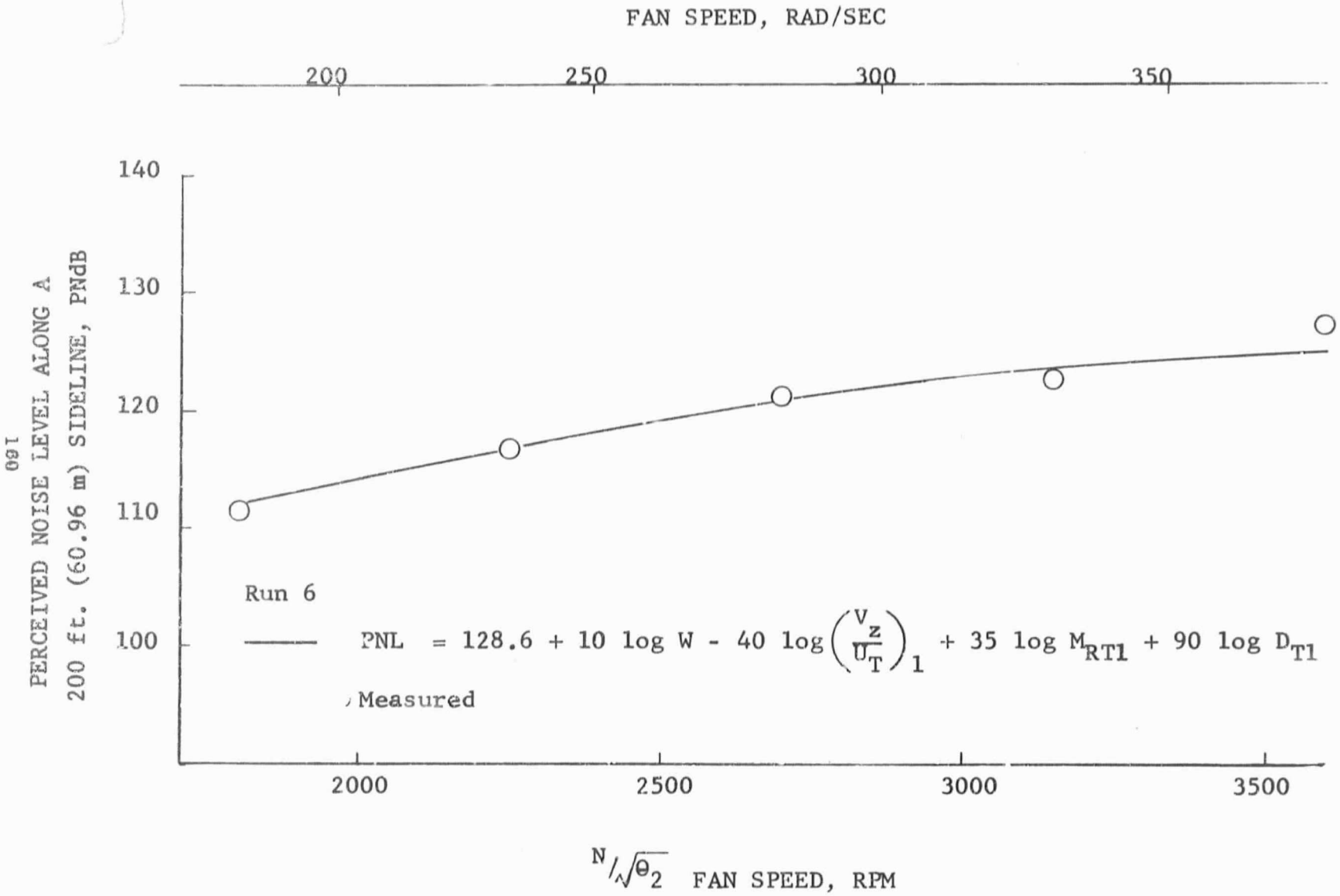


Figure 5.3.2-8 Perceived Noise Level vs. Corrected Fan Speed

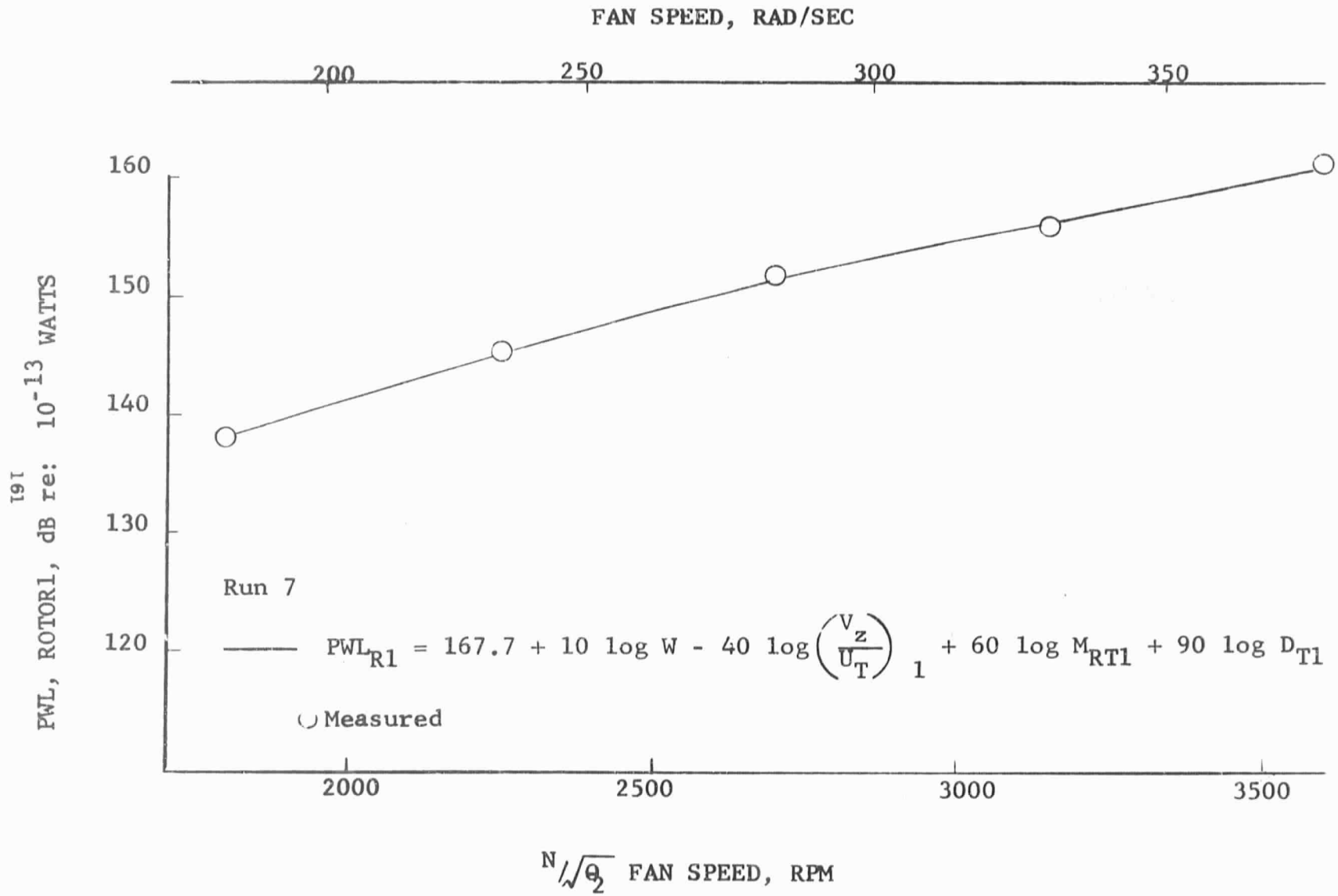


Figure 5.3.2-9 Sound Power Level at the 1st Stage Rotor Fundamental Frequency vs. Corrected Fan Speed

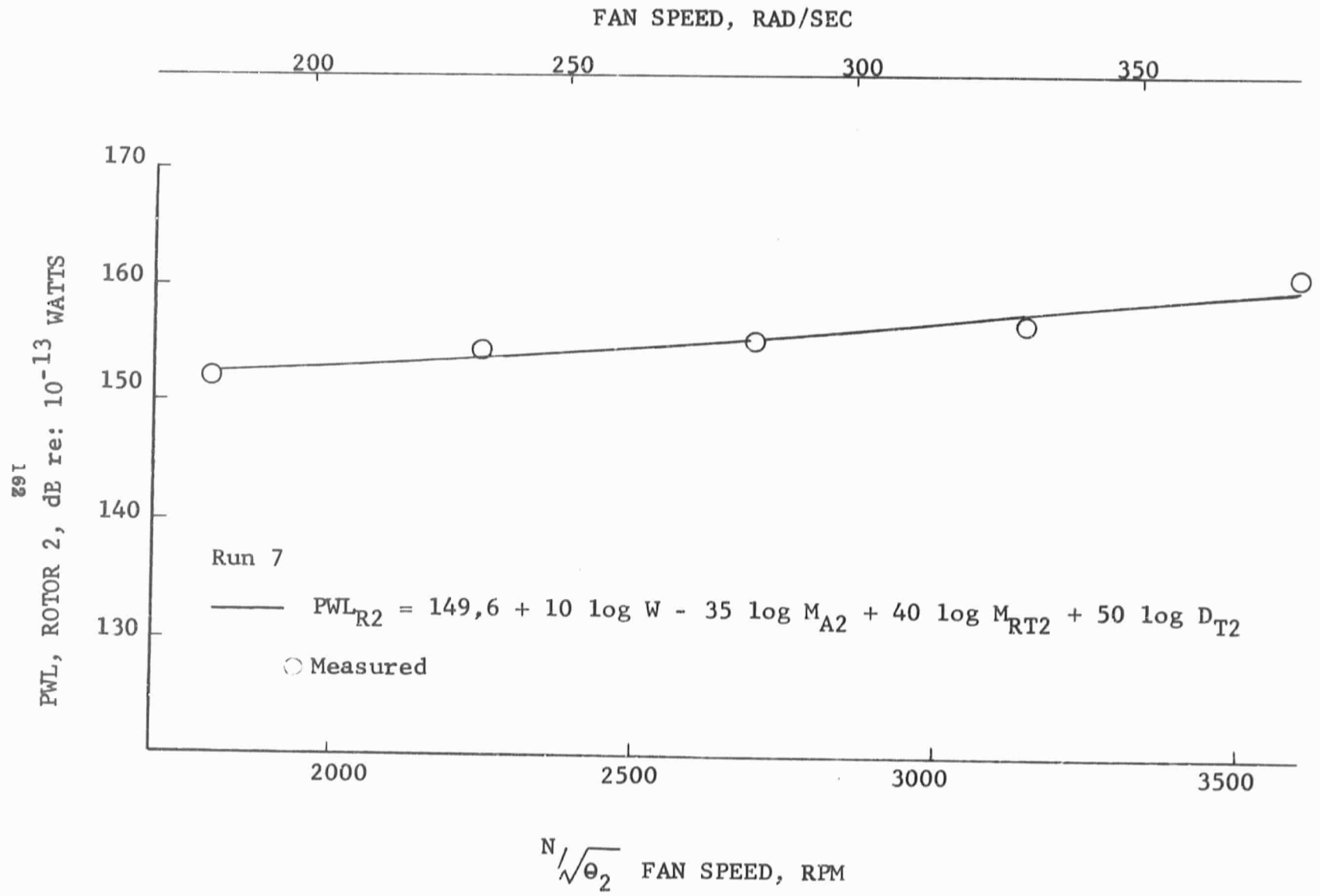


Figure 5.3.2-10 Sound Power Level at the 2nd Stage Rotor Fundamental Frequency vs. Corrected Fan Speed

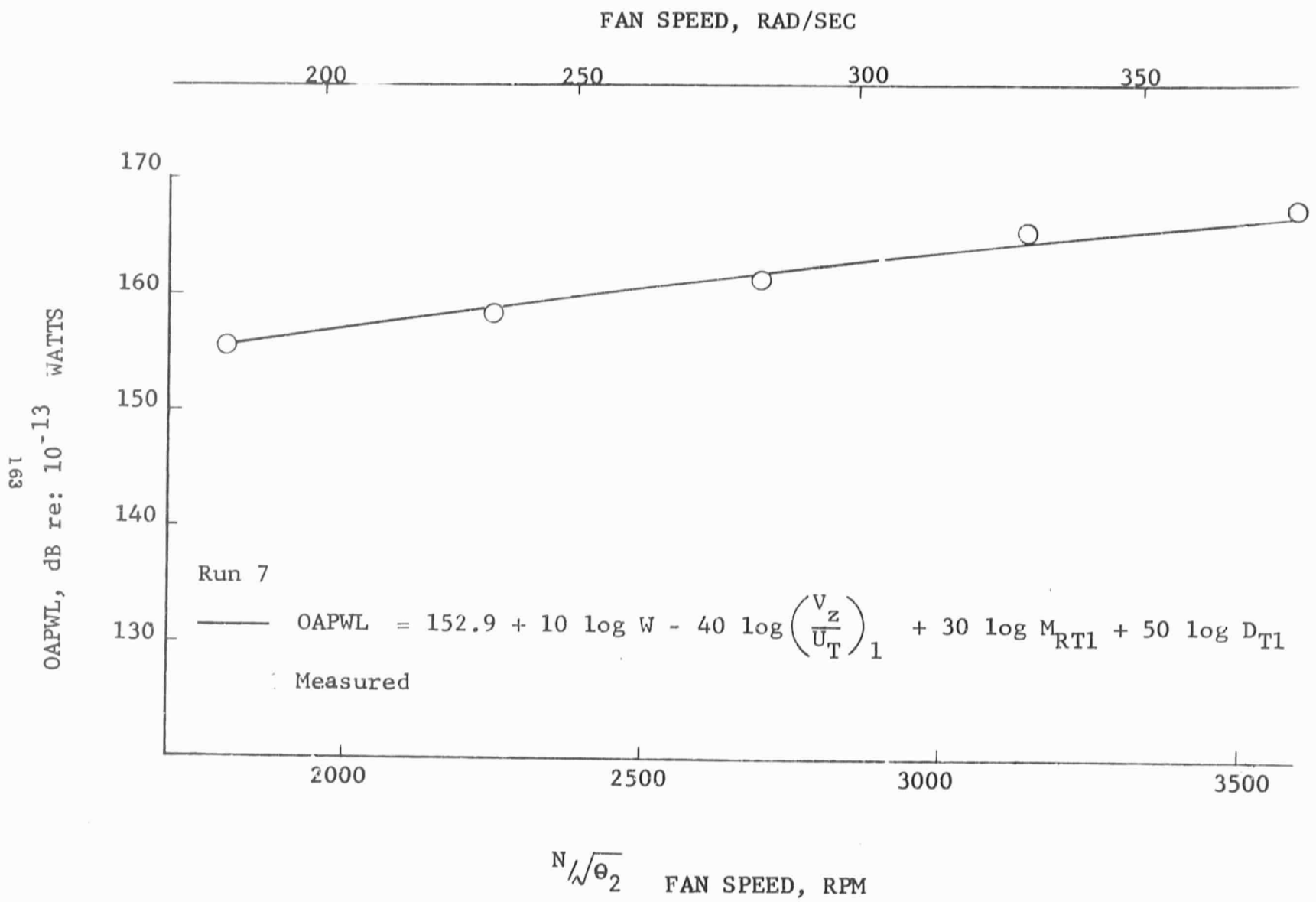


Figure 5.3.2-11 Overall Sound Power Level vs. Corrected Fan Speed

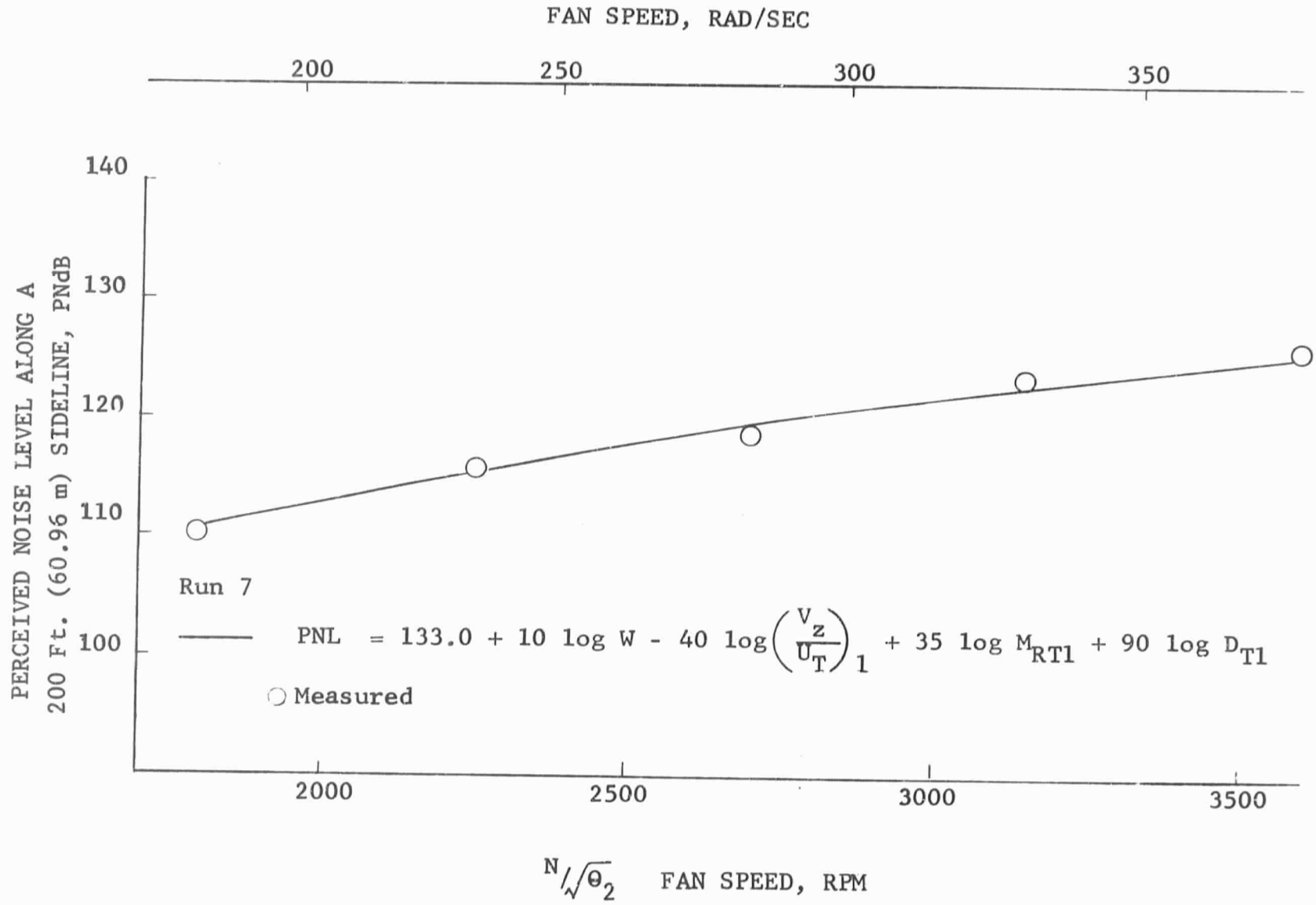


Figure 5.3.2-12 Perceived Noise Level vs. Corrected Fan Speed

TABLE 5.3.2 - 1

AERO - DATA FOR NOISE CORRELATION

Run Number	Fan Nozzle	Fan Speed (rpm)	Fan Speed (rad/sec)	FIRST STAGE ROTOR V_z (ft/sec)	V_z (M/sec)	U_T (ft/sec)	U_T (M/sec)	M_{RT}	D_T	AIRFLOW W (#/sec)	W (Kg/sec)	SECOND STAGE ROTOR V_{2T} (ft/sec)	V_{2T} (M/sec)	M_{RT}	D_T
6	Small	1800	188.5	225	68.6	525	160.0	.50	.31	340	154.2	282	86.0	.47	.27
	Small	2250	235.6	285	86.9	657	200.2	.63	.31	430	195.0	355	108.2	.59	.27
	Small	2700	282.7	350	106.7	788	240.1	.77	.32	521	236.3	426	129.8	.70	.28
	Small	3150	329.9	429	130.8	920	280.3	.90	.32	621	281.7	505	153.9	.82	.29
	Small	3600	377.0	525	160.0	1051	319.9	1.05	.32	732	332.0	596	181.7	.95	.31
7	Nominal	1800	188.5	233	71.0	525	160.0	.50	.29	355	161.0	290	88.4	.47	.25
	Nominal	2250	235.6	300	91.4	657	200.2	.64	.30	453	205.5	370	127.8	.59	.25
	Nominal	2700	282.7	373	113.7	788	240.1	.77	.30	550	249.5	446	135.9	.71	.25
	Nominal	3150	329.9	452	137.8	920	280.3	.92	.32	650	294.8	524	159.7	.83	.27
	Nominal	3600	377.0	549	167.3	1051	319.9	1.06	.32	756	342.9	610	185.9	.96	.29
5	Large	1800	188.5	253	77.1	525	160.0	.51	.27	385	174.6	313	95.4	.48	.20
	Large	2250	235.6	326	99.4	657	200.2	.65	.27	485	220.0	395	114.3	.60	.20
	Large	2700	282.7	395	120.4	788	240.1	.78	.28	581	263.5	475	144.8	.72	.22
	Large	3150	329.9	480	136.3	920	280.3	.92	.28	683	309.8	560	170.7	.85	.24
	Large	3600	377.0	579	176.5	1051	319.9	1.07	.29	786	356.5	648	197.5	.97	.25

V_z - Tip axial inlet velocity

U_T - Tip wheel speed

M_{RT} - Tip relative Mach number

V_{2T} - Tip absolute inlet velocity (Rotor 2)

D_T - Tip diffusion factor

5.4 GROUND EFFECTS AND JET NOISE ESTIMATES

The propagation of sound from a broadband noise source located close to the ground is effected by a number of phenomena. Parkin and Scholes (Reference 2 and 3) and Weiner and Keast (Reference 4) are among those who have measured the very large changes in sound pressure levels produced by wind and temperature gradients close to the ground. Substantial losses are measured not only for upwind propagation but also when the direction of the sound propagation and wind are the same. These are, of course, losses in excess of the inverse square law decay and atmospheric attenuation. The variability in the measured far field sound pressure levels due to this phenomena has been minimized during the present study by restricting the measurements to winds less than 10 mph (.447 meters/second).

The presence of the ground plane can also give rise to a reflection phenomena. This effect is produced when source and receiver are close to the ground and the sound wave which is reflected from the ground is combined with the wave arriving by the direct path to produce constructive and destructive interference. Franken (Reference 5) and Morgan, et al (Reference 6) have studied this ground effect and demonstrated that it has a large impact on the measured sound pressure levels.

Figure 5.4-1 give the schematic geometry and the equation which describes the phenomena as follows:

$$C_r = (P_o/P_d)^2 = 1 + Q^2/Z^2 + 2\,(Q/Z) \cdot \left\{ \frac{\sin \Delta f/2fc \cdot 2\pi(2h/\lambda)\,(Z-1)/(2h/r)}{(\Delta f/f_c) \cdot 2\pi(2h/\lambda)(Z-1)/(2h/r)} \cos \sqrt{1+(\Delta f/2fc)^2} \cdot (2h/\lambda)(Z-1)/(2h/r) \right\}$$

$$Z = 1 + \sqrt{\frac{2h}{r}\ (2\ \text{SIN}\ \theta + 2h/r)}$$

θ = Angle defined in Figure 5.4-1

Q = reflection coefficient at the surface

f_c = center frequency of filter band

f = filter bandweight

h = height of receiver above ground

r = separation ofsource and receiver

P_o = RMS values of combined pressures

P_d = RMS values of direct pressure

Figure 5.4-2 is a plot of Δ SPL as a function of frequency for a typical source and receiver geometry shown on the figure and for one-third octave filtered noise. The Δ SPL, (10 log C_r), is equal to the SPL with the ground plane minus the free field SPL. Positive values of Δ SPL indicate the ground plane increases the sound pressure relative to the free field. Q is the plane wave reflection coefficient and a value of one indicates a perfect reflector. Three regions are of interest here. One, at low frequency, (or more generally small values of $2h/\lambda$) the SPL is increased uniformly by 6 dB which is the phenomena of pressure doubling at the surface of a reflector. A series of maxima and minima follow as the frequency is increased indicating the points of constructive and destructive inference of direct and reflected signal. These maximum and minimum values slowly damp out because the increasing bandwidth masks the phenomena. If a narrower bandwidth was used the oscillations would persist longer. Finally, at high frequencies a small oscillation occurs around a mean value of 3 dB, which accounts for the total energy.

For ground conditions which are not infinitely hard, two major changes occur which alter the results shown on Figure 5.4-2. The reflected wave is attenuated and also undergoes a phase shift due to the non-infinite impedance of the boundary. The attenuation results in an effective lowering of Q with typical values of 0.4 to 0.5 producing a good fit to the data.

The phase shift has been determined experimentally. A loud speaker system has been set up at the engine centerline height. The SPL at the far field microphones is recorded as the frequency of a pure tone is slowly changed from 400 Hz to 3500 Hz. The null points are clearly shown and appear at frequencies which are approximately 75% of the calculated null points. This shift to lower frequencies is a result of the phase change which occurs upon reflection. Figure 5.4-3 is a plot of the ground reflection correction for the present study. A value of Q = 0.5 has been selected based on previous measurements and the phase shift factor of 0.75 set by the pure tone speaker data and the observed spectra.

Another important effect due to progation close to an absorbing plane is the ground absorption. This phenomena has been reported on and discussed by a number of investigators (Reference 7 through 13). This attenuation (again in excess of atmospheric absorption) can produce at some frequencies an additional 20 dB/decade SPL decay with increasing distance from source to receiver. (Additional, that is, to the normal 20 dB per decade due to inverse square law reduction.)

Nyborg and Mintzer (Reference 10) have a solution for the case of a ground plane (such as long stemmed grass) that approximates the normal impedance boundary conditions. For certain values of the normalized impedance ξ (i.e. SIN $\theta << \xi << 1/\text{SIN } \theta$) and at large measuring distances such that the product of the wave number ($k = 2\pi/\lambda$) and the source-to-receiver distance (r) is much larger than one, an approximation for the ground attenuation is:

$$\text{Ground Attenuation (dB)} = 20 \log r/r_1 \qquad (2)$$

where

$$r_1^2 = 4\xi^2 \left[h + H\right]^2 + \left(\frac{4\pi hH}{\lambda} - \frac{\lambda\xi^2}{\pi}\right)^2 \qquad (3)$$

H = source height

h = receiver height

λ = wavelength of the acoustic wave in air

ξ = ground impedance

It can be seen from equation (2) that the attenuation is a maximum where r_1 is a minimum. This occurs when the second term in equation (3) is zero or when

$$\lambda_{max} = \frac{2\pi}{\xi}\sqrt{hH} \qquad (4)$$

Experimental data can be used with equation (4) to determine the effective ground impedance. Equation (4) also gives the functional relationship between the frequency of maximum ground attenuation (at λ max) and the source height, receiver height, and effective ground impedance. Figure 5.4-4 is a good example of measured data allowing a check

with the calculated results, where the maximum frequency does indeed shift down by approximately the calculated amount using equation (4). This solution is not valid generally though, since using the data from Figure 5.4-4 the ground attenuation can be calculated from equation (2) and (3) and is a negative number. This means the SPL as a function of r is increasing. The answer to this anomaly is simply that the equations do not apply to such "small" source-to-receiver distances as 250 feet (68.58 M). When the measuring distance (r) is less than r_1 obviously equation one will give negative values. For this case, r_1 = 785 feet (239.3 M).

On the other hand, Figure 5.4-5 shows the calculated values of the ground attenuation compared with the measured data of Parkin and Scholes and quite good agreement is found for this large source-to-reciever case.

In general, the conclusion is that basically the model is a correct one but a solution must be obtained in such a way so as to account for the measured effects at small measuring distances.

At present the ground attenuation for a large number of measurements has been correlated and a curve fit technique used to obtain the functional relationships. Some of the parameters have been varied over a very small range and, therefore, the general validity of this technique is not known.

When the two ground effects (reflection and absorption) are combined the curve of Figure 5.4-6 is the result. For the geometry and phase shift indicated on the graph the first reflection null occurs very close to the ground absorption peak (reflection null at 260 Hz and the ground absorption

maximum at 220 Hz). The data on Figure 5.4-6 resulted from a ground measurement of a GE Turbojet at 250 feet (68.58 M) and 120° (2.09 Rad) and a SPL spectrum taken from a balloon suspended over the engine, also at 120° (2.09 Rad) from the inlet axis. A total of eight readings were taken. The difference between these two measurements is presumably the combined ground effects and the calculation is seen to agree with the data in that all the major features are correctly identified.

Finally Figure 5.4-7 shows a typical far field spectrum from the present work at 120° (2.09 Rad) and 2300 RPM (240.8 Rad/Sec). The large "dip" in the region of 200 Hz and a smaller one at 800 Hz are believed due to the previously described ground effects. Using the procedure described, a calculated curve has been plotted in Figure 5.4-8 combining the ground absorption and reflection. The phase shift was obtained from study of the spectrums and the ground impedance was set by using the measured data with equation (4). This correction curve has been applied to the data of Figure 5.4-7 Figure 5.4-9. The corrected spectrum is much smoother but there is an indication that there has been too little correction in some 1/3 octave bands.

The described technique has not been used to correct the measured data since there is still some uncertainty about the variability of the ground effects from test to test. Rather than mask a real effect by a questionable data correction procedure, this discussion has been presented for the purpose of identifying and describing the basic phenomena which can be seen so clearly in all the far field data. Further work is required to obtain a correction procedure.

Having factored out the propagation phenomena and obtaining the "corrected" spectra in Figure 5.4- 9, it is possible to evaluate the contribution of jet noise to the total engine spectra.

Figure 5.4-10 is similar to Figure 5.4-9 but in addition to the "corrected" engine spectrum, the predicted total (bypass jet plus primary jet) jet noise spectra is added. This prediction is based upon procedures established in SAE Aerospace Information Report 876. It is seen on Figure 5.4-10 that at the low frequency end of the spectrum (below 160 Hz), the predicted jet noise is in good agreement with the data. Above 160 Hz, broadband noise from other sources within the engine is seen to dominate.

The predicted jet noise characteristics from each of the tested configurations has been plotted on a normalized basis on Figures 5.4-11 to 5.4-14.

These figures show that runs 5, 6, and 7, all with the 927.7 square inch (0.5985sq.M) nozzle, exhibit bypass (fan) nozzle exhaust velocities which are higher, at all fan speeds, than the exhaust velocities of the core engine nozzle. Accordingly, the predicted core engine noise levels are quite low compared to the total jet noise, which is dominated by jet noise from the fan nozzle.

Run 8, however, having the 580 square inch (.374 sq. M) core engine nozzle exhibits core nozzle velocities which are higher than fan nozzle velocities. As a esult of these higher core engine exhaust velocities, the predicted core engine jet noise is seen in Figure 5.4-14 to affect

the total engine jet noise levels.

Comparing Run 7 to Run 8, where both have the same fan nozzle area with the latter having a 60% smaller core engine nozzle area, Run 8 is predicted to generate considerably more core jet noise and slightly more total jet noise than Run 7. This increase in jet noise is reflected in the measured results, as seen on Figures 5.4-13 and 5.4-14.

While "predicted" values are quoted in these figures, they are extrapolation of the SAE AIR876 methods below 1000 ft/sec (304.8 m/sec) which are known to be unapplicable; in the absence of a better method, however, the extrapolation has been made to provide a basis for reference. It is not surprising, therefore, that the extrapolation disagrees with the measured data for the low jet velocities obtained with the oversize core engine nozzle. For the highest power setting, with the small core engine nozzle, the jet velocity was in the applicable range of the SAE method, and the fact that the measured data was lower in that region may be significant, since the SAE method does not cover the case of co-axial jet exhausts.

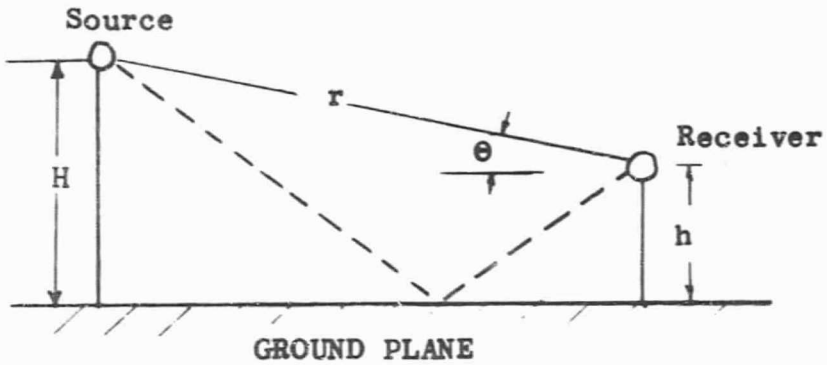


Figure 5.4-1 Schematic of Ground Reflection Geometry

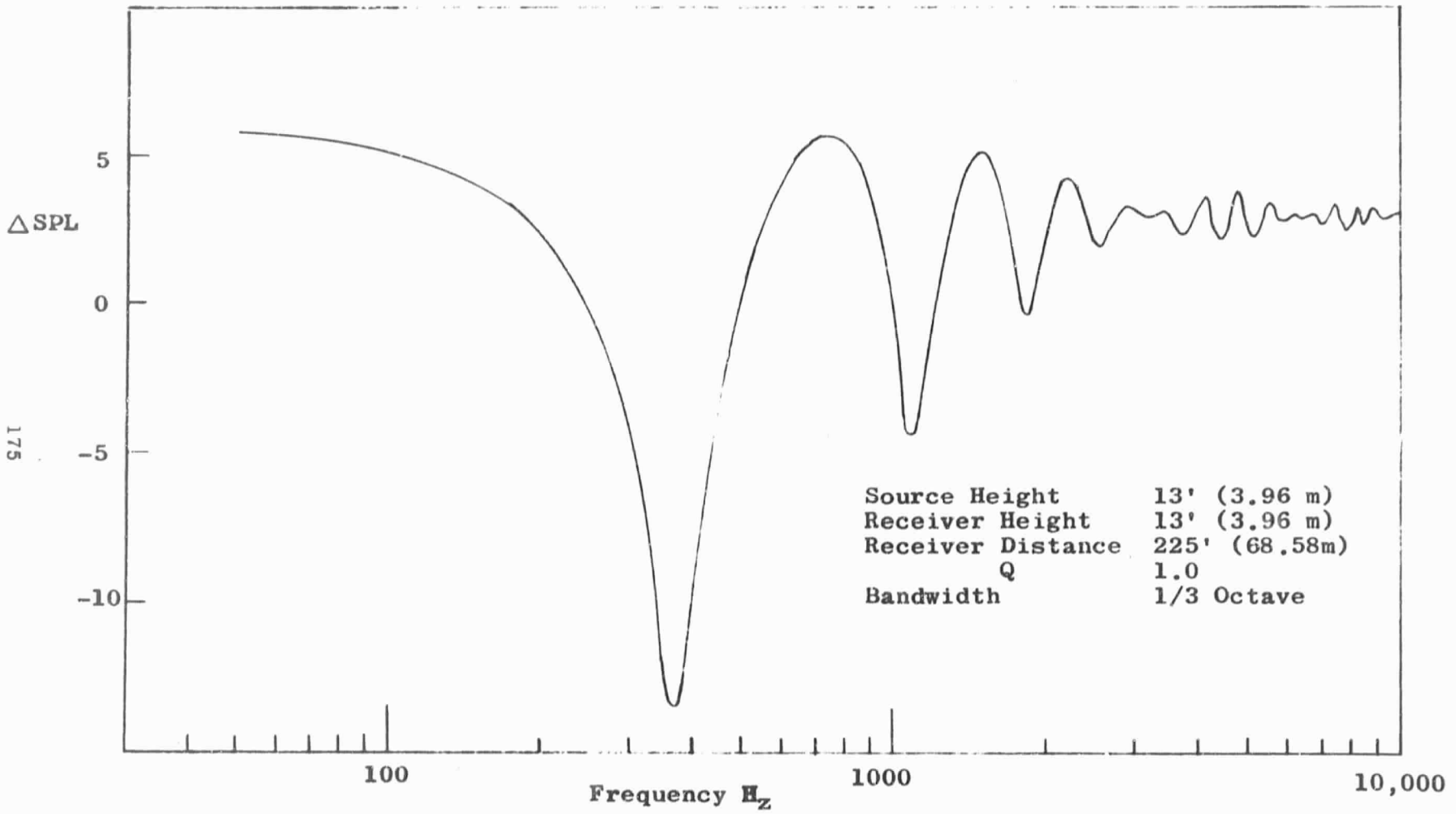


Figure 5.4-2 Typical Change in the Free Field SPL Due to Reflection from the Ground Plane

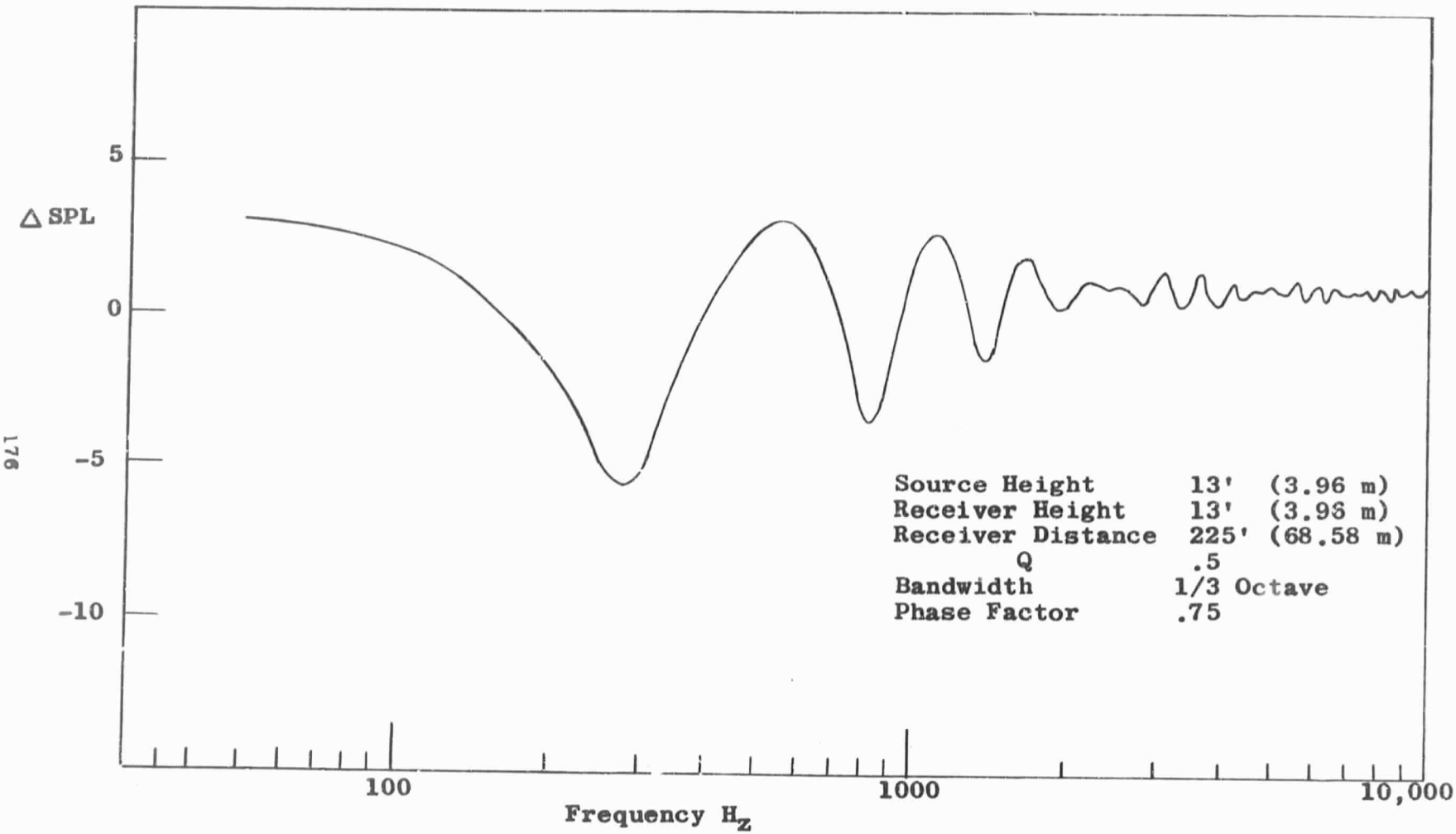


Figure 5.4-3 Estimated Correction to Far Field SPL Due to Reflection from the Ground Plane for the Present Study

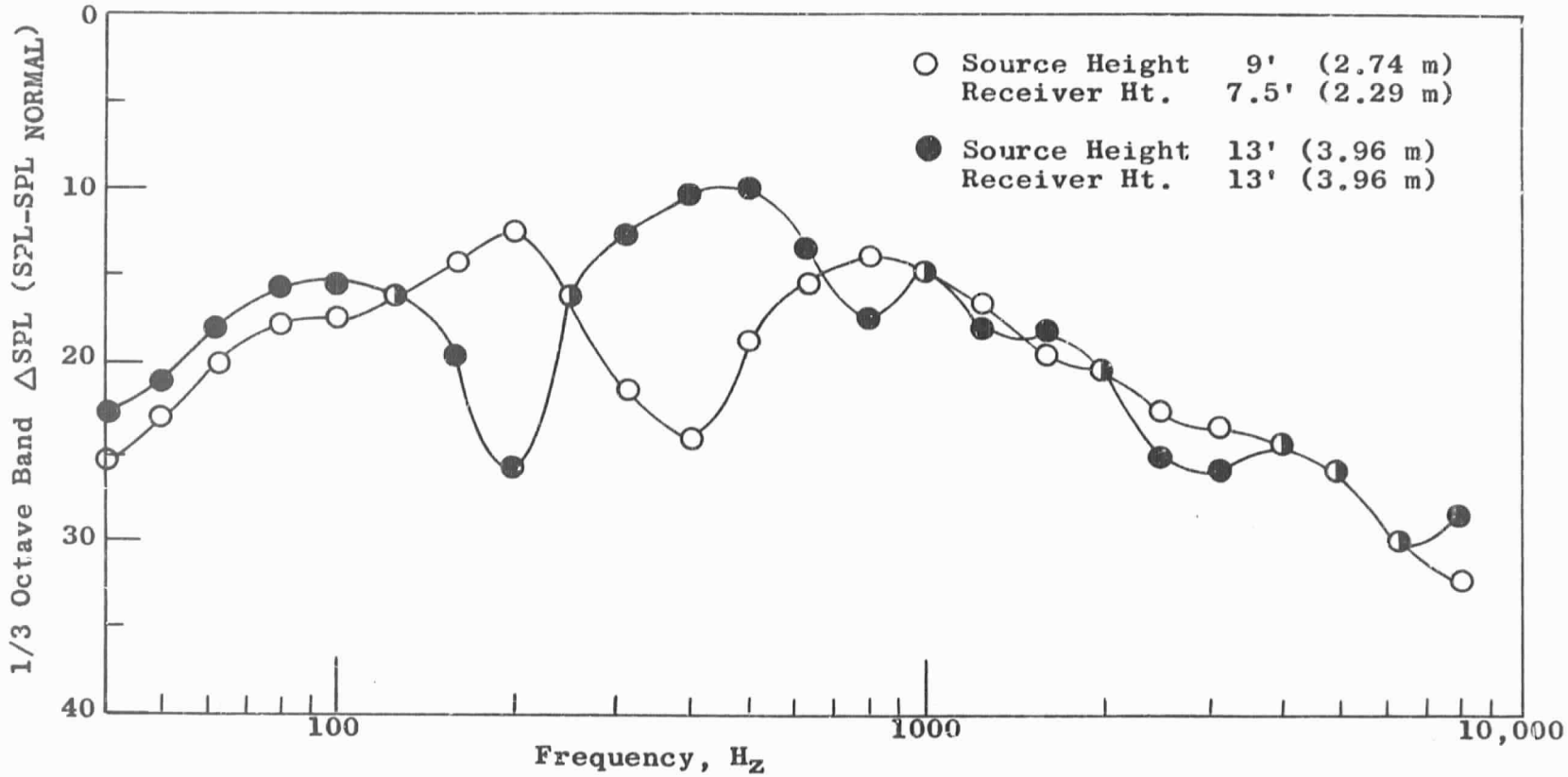


Figure 5.4-4 Ground Absorption Measured over 250' (76.2 m) Noise Source, General Electric Turbojet

Source Height 6' (1.83 m)
Receiver Height 5' (1.52 m)
Measured Distance 1140' (347.5 m)

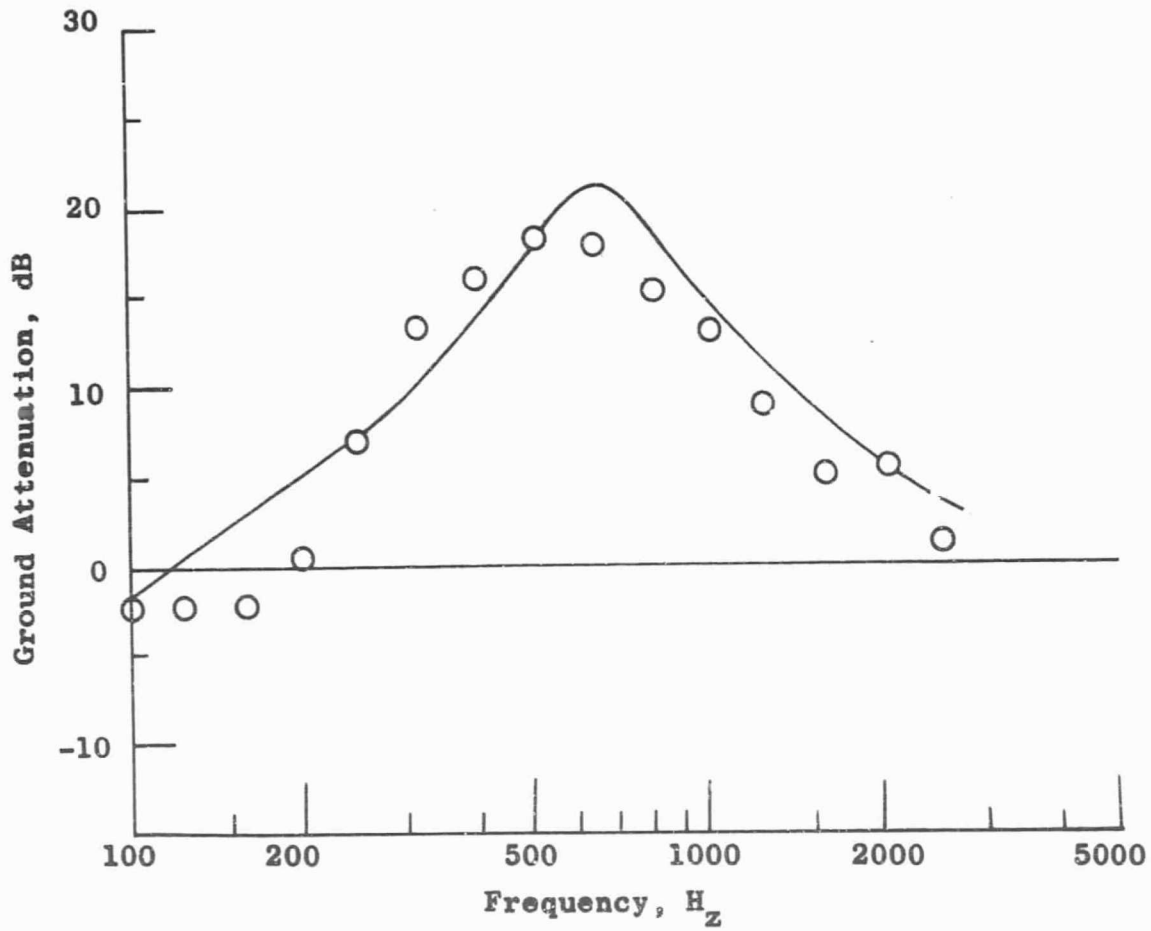


Figure 5.4-5 Comparison of Theoretical Curve with Measured Data from Parkin and Scholes (Ref. 2).

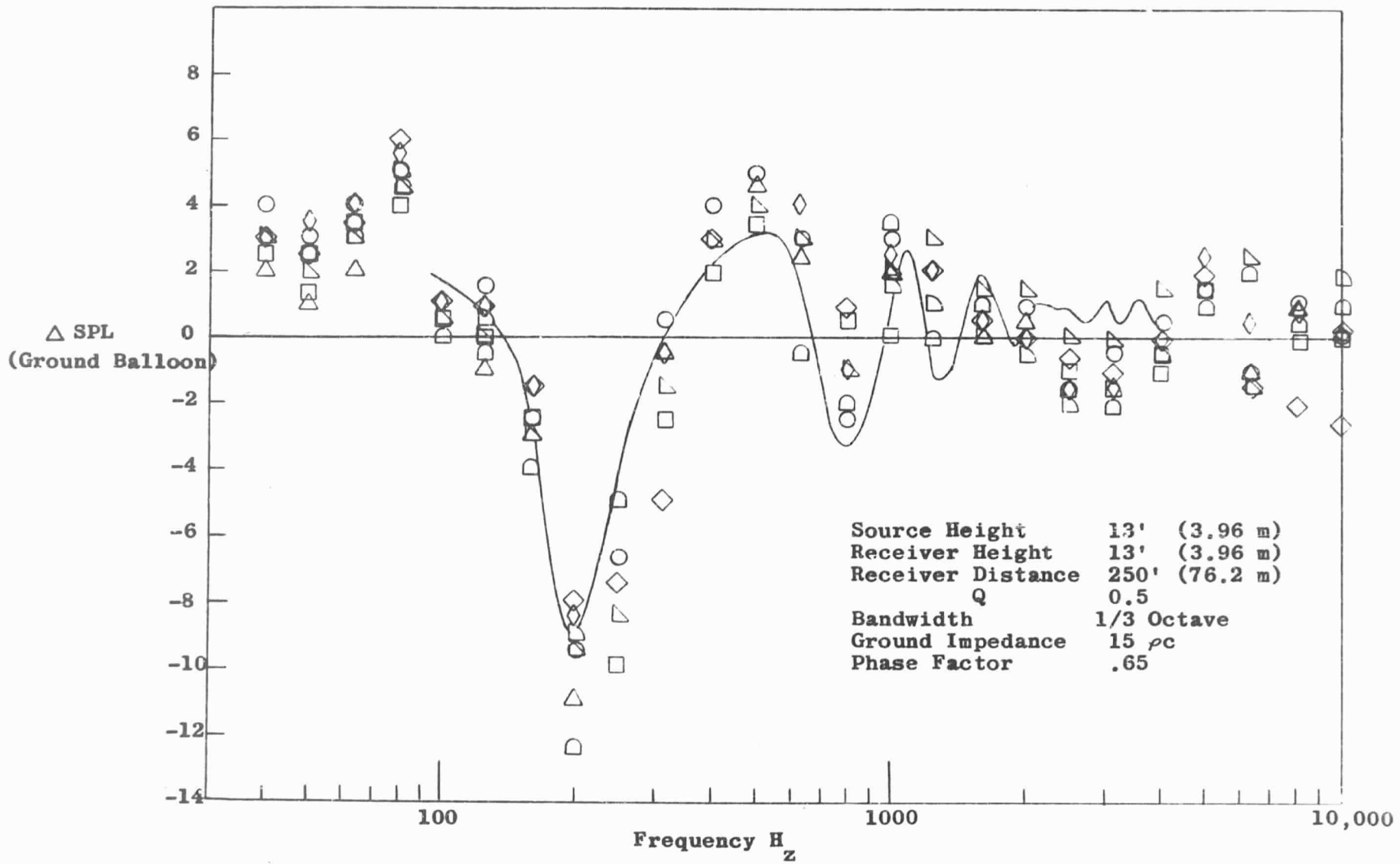
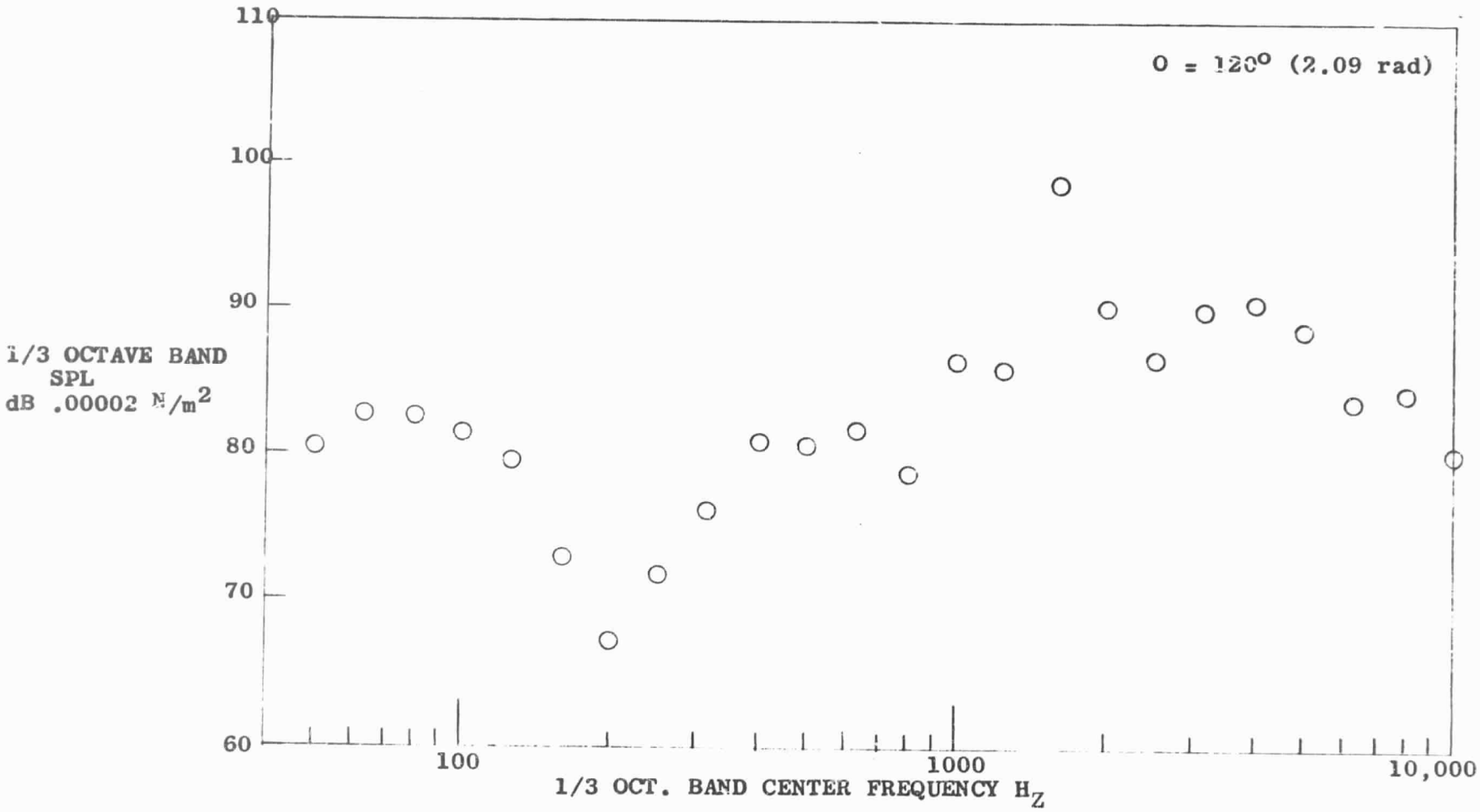


Figure 5.4-6 Comparison of Calculated and Measured SPL Differences Using Balloon and Ground Data



180

Figure 5.4-7 Typical Far Field SPL Spectrum

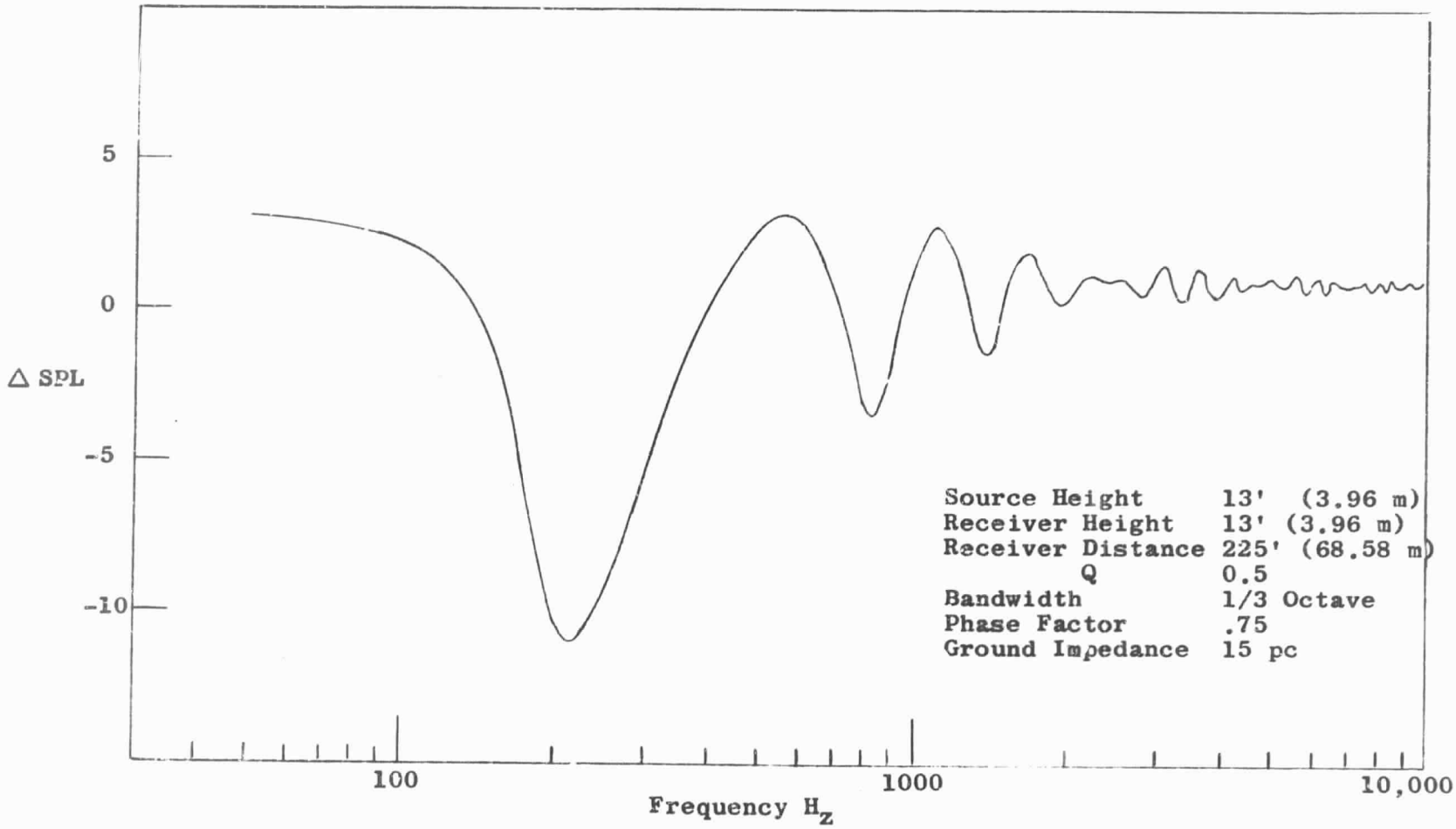


Figure 5.4-8 Combined Reflection and Absorption Effects for Present Study

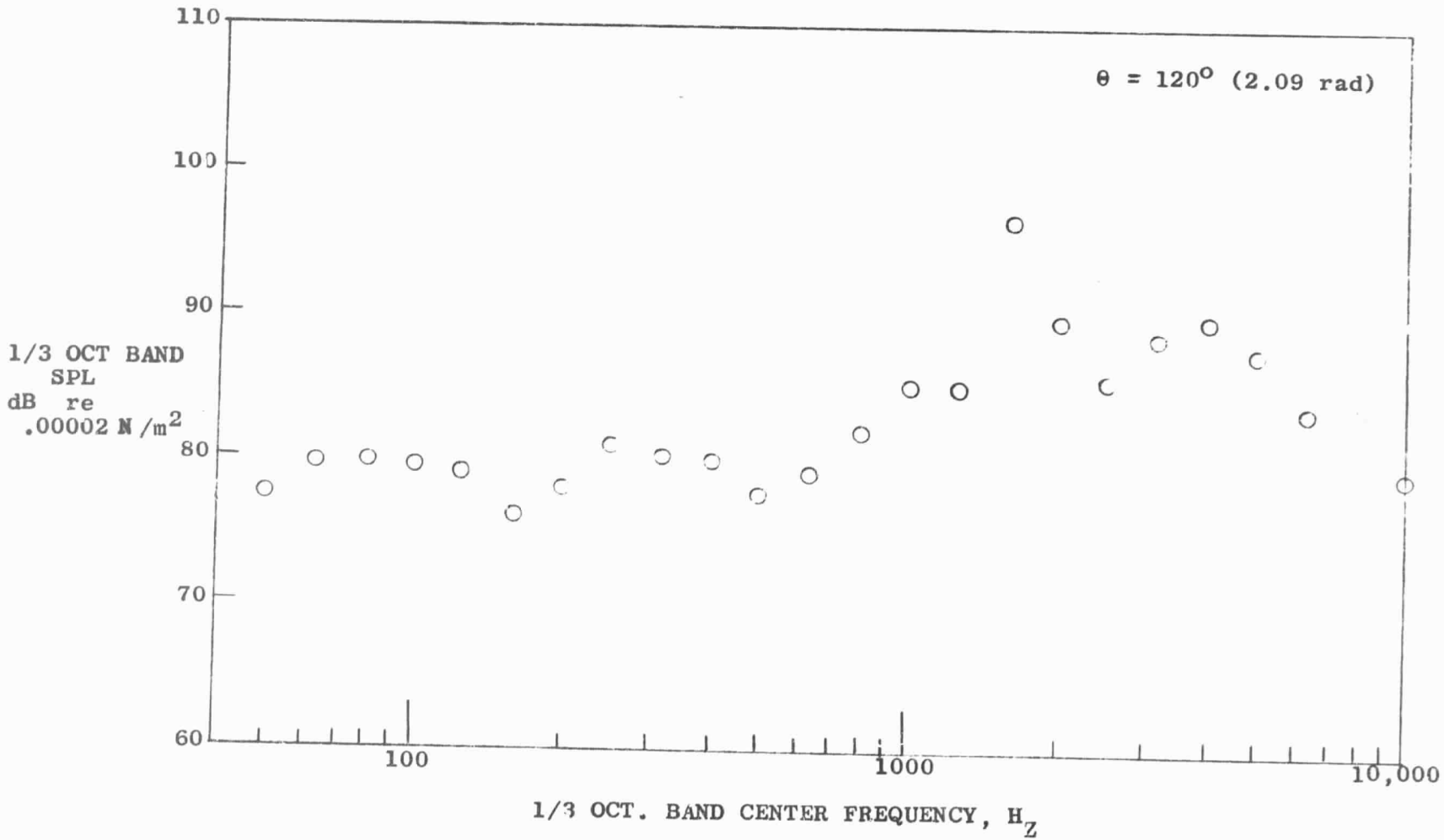


Figure 5.4-9 Far Field SPL Spectrum Corrected for Ground Reflection and Absorption Effects

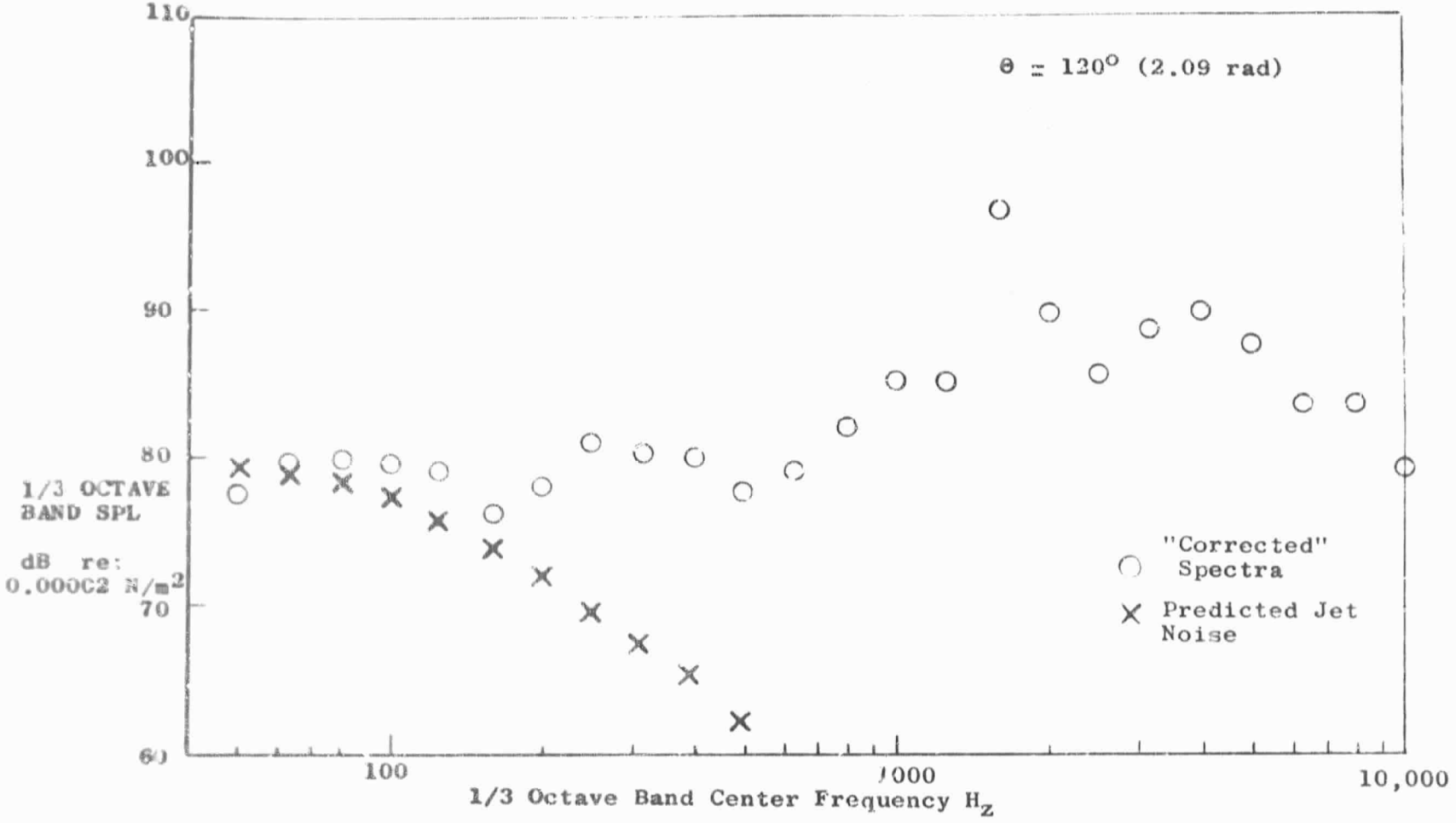


Figure 5.4-10 Corrected Spectra and Jet Noise Contribution

LOW TIP SPEED DEMONSTRATOR VEHICLE NOISE LEVELS
(TF39 INNER PANEL)

RUN #5 A_8 = 927.7 in^2 (.5985 m^2), A_{28} = 1718.5 in^2 (1.1087 m^2)

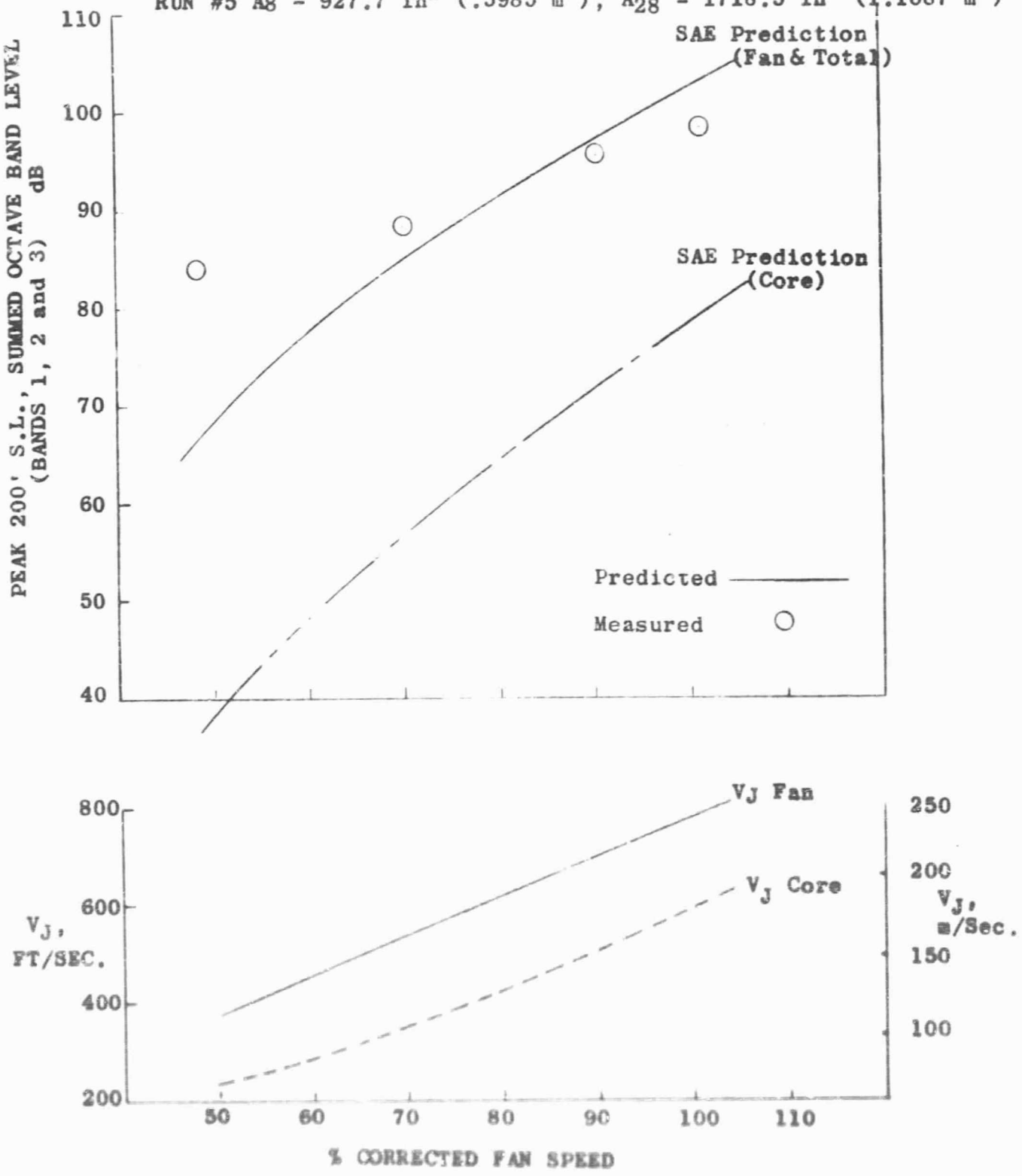


Figure 5.4-11

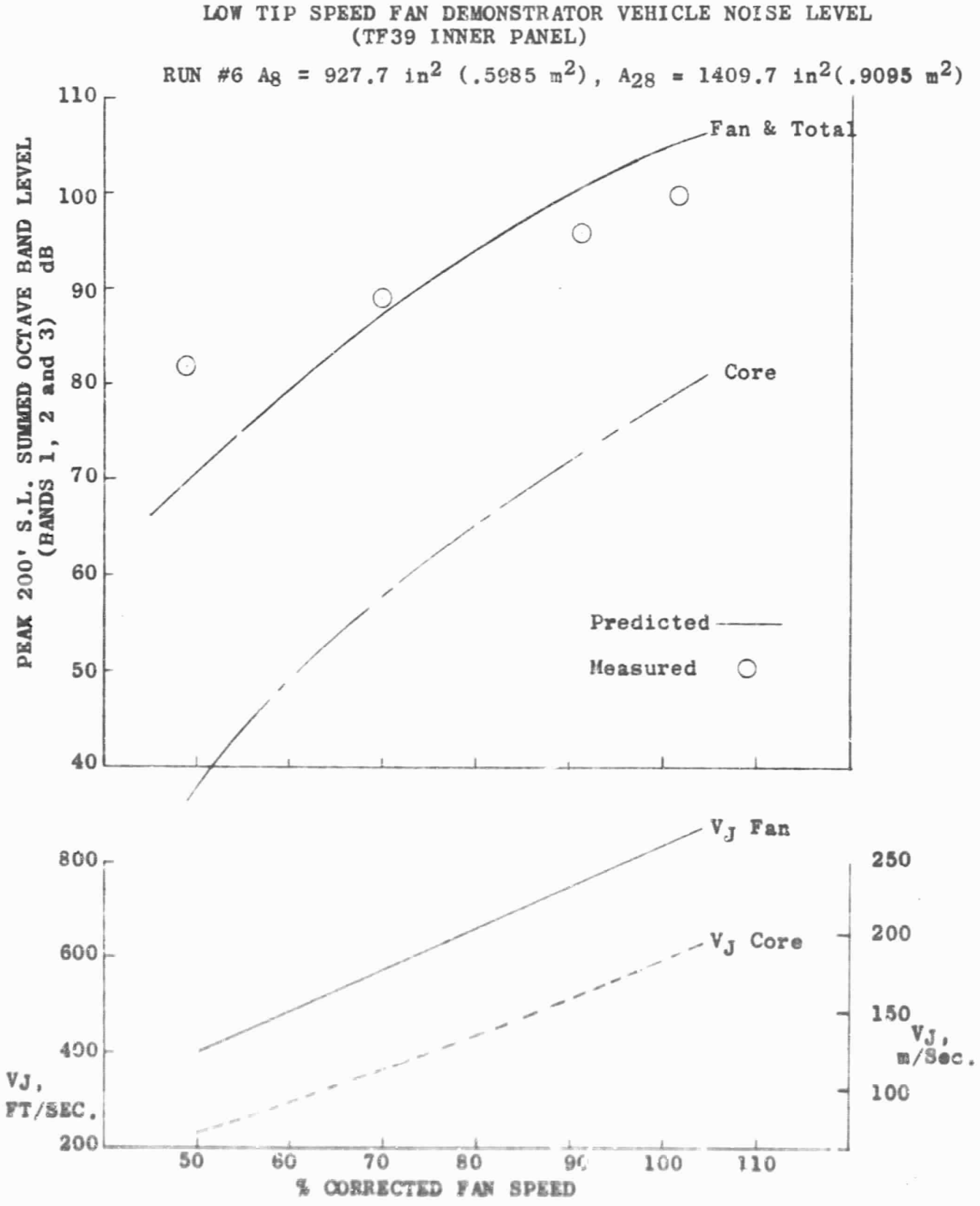

LOW TIP SPEED FAN DEMONSTRATOR VEHICLE NOISE LEVEL
(TF39 INNER PANEL)
RUN #6 A_8 = 927.7 in^2 (.5985 m^2), A_{28} = 1409.7 in^2(.9095 m^2)
PEAK 200' S.L. SUMMED OCTAVE BAND LEVEL (BANDS 1, 2 and 3) dB
110
100
90
80
70
60
50
40
Fan & Total
Core
Predicted
Measured
V_J Fan
V_J Core
800
600
400
200
VJ, FT/SEC.
250
200
150
100
VJ, m/Sec.
50
60
70
80
90
100
110
% CORRECTED FAN SPEED

Figure 3.4-12

LOW TIP SPEED DEMONSTRATOR VEHICLE NOISE LEVELS
(TF39 INNER PANEL)
RUN #7 A_8 = 927.7 in^2 (.5985 m^2), A_{28} = 1508.3 in^2 (.9731 m^2)

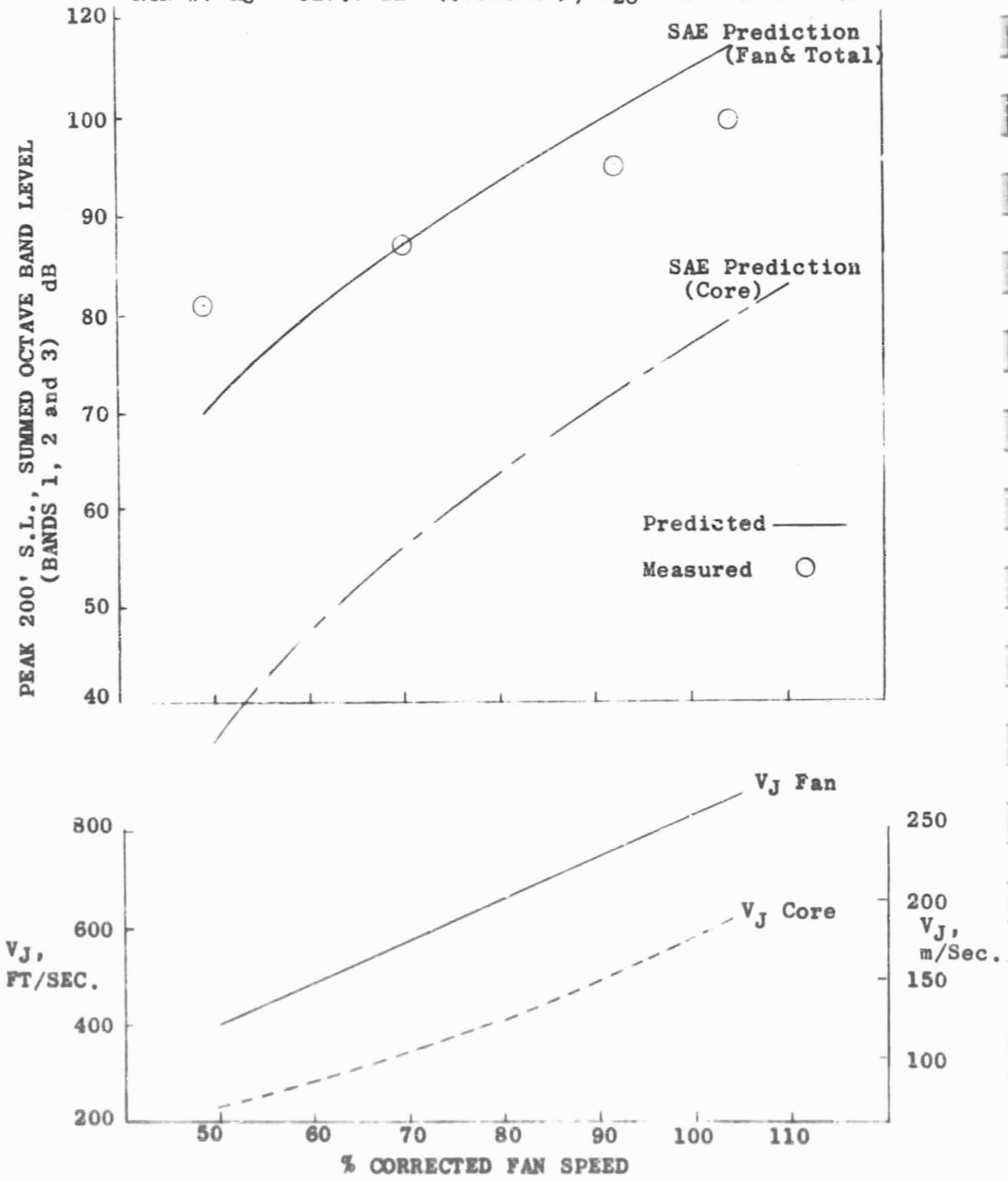


Figure 5.4-13

LOW TIP SPEED FAN DEMONSTRATOR VEHICLE NOISE LEVELS
(TF39 INNER PANEL)

RUN #8 A8 = 580 in^2 (.3742 m^2), A28 = 1508.3 in^2(.9731 m^2)

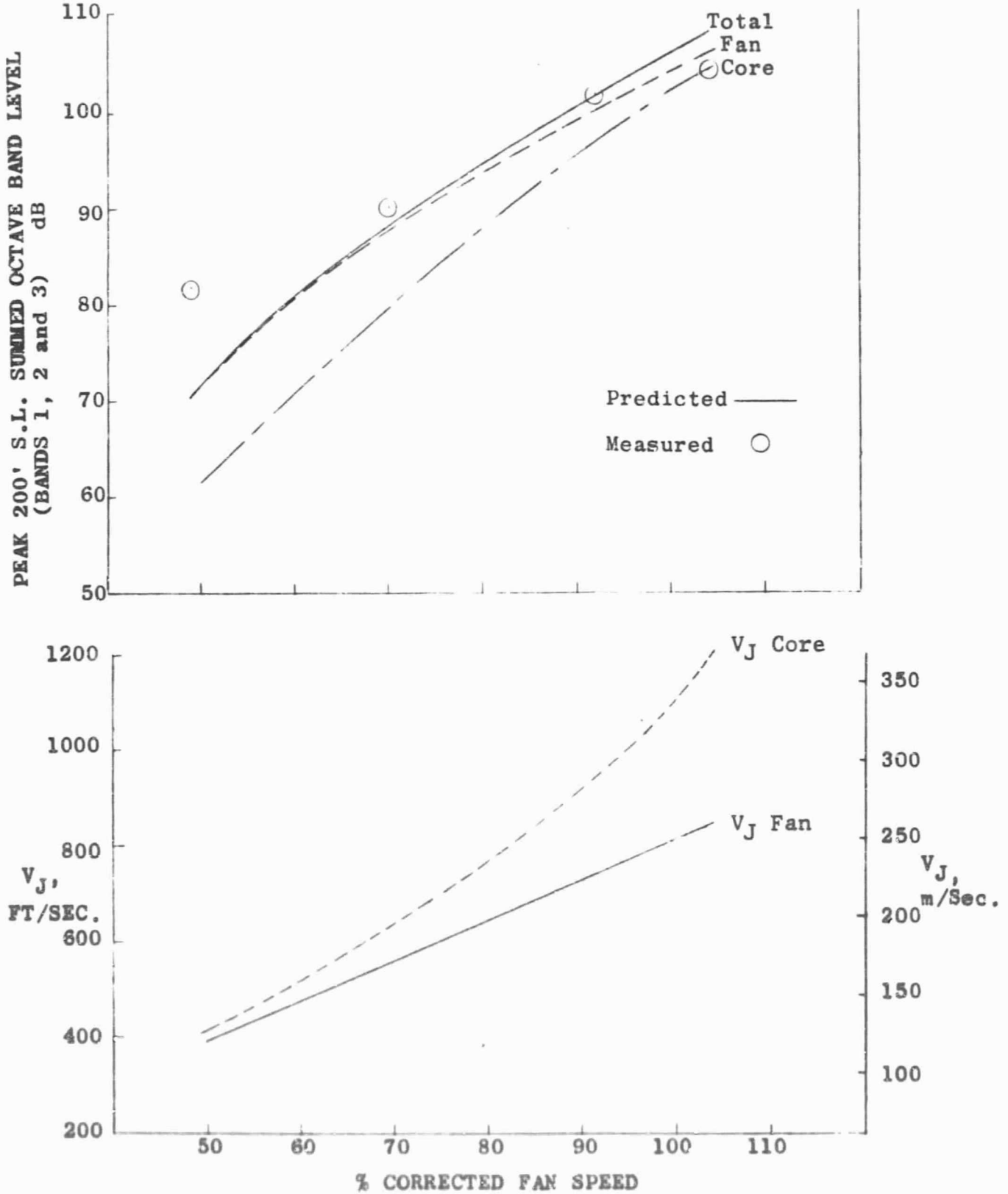


Figure 5.4-14

6.0 CONCLUSIONS

Based upon the results obtained in this program the following conclusions have been reached:

6.1 Absolute noise levels were as summarized in the Table below:

Power Setting	Maximum Noise Level (PNdB)		
	Ground[1]	Level Flyover[2]	
	1 Engine	3 Engines	4 Engines
Takeoff	124.7 ± 1.0	110.7 ± 1.0	112.0 ± 1.0
Approach	114.4 ± 1.5	114.2 ± 1.5	115.5 ± 1.5

Notes: 1. For 200 foot (60.9M) sideline

2. "Takeoff" flyover is at 1000 foot (304.8M) and "approach" flyover is at 300 foot (91.4M)

6.2 An increase of the fan nozzle area by 13% above the standard value decreased the maximum fan noise level on the 200' (61.0 m) sideline, ground static conditions, by almost 2 PNdB at the takeoff power setting. At the approach power setting, the effect was a decrease of about 0.5 PNdB.

6.3 An decrease in core engine nozzle area causing a nearly 100% increase in core engine nozzle velocity at takeoff power, resulted in negligible change in total engine perceived noise level. The perceived noise levels of the two stage low tip speed demonstrator engine are dominated by fan pure tones from both rotors; low frequency jet noise had no appreciable effect upon total engine perceived noise.

6.4 An analytical prediction relating the power levels generated at the fundamental frequency to the basic aerodynamic and geometric characteristics agreed fairly well with the measured data.

A semi-empirical correlation with aerodynamic parameters of the sound power levels generated at the fundamental frequency of the first and second stage, of the overall sound power levels, and of the perceived noise levels, shows the noise levels to be a strong function of the tip diffusion factors.

6.5 At takeoff power four-engine aircraft powered by the engine configurations tested in this program would be 7-10 PNdB quieter than current (707 class) four-engine aircraft. Similarly, three-engine aircraft powered by the engine configurations tested in this program would be 4-7 PNdB quieter than current (727 class) three-engine aircraft. At approach power, four-engine aircraft powered by the engine configurations tested in this program would be 8 to 10 PNdB quieter than the current JT3D-3B powered 707 aircraft, and the three-engine aircraft powered by the engine configurations tested in this program would be 3 to 4 PNdB quieter than the JT8D - 1 powered 727 aircraft.

6.6 The fan noise was dominated by the pure tones generated from the two rotors, the fundamental of the second stage being controlling at lower speeds and the fundamentals of both contributing about equal amounts at high speeds. Also, sum and difference tones of the fundamentals and higher harmonics from both rotors were observed, but these tones had negligible effect upon overall sound power level and, in most cases, upon perceived noise levels.

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Work Statement for
Contract NAS3-11166

LOW TIP SPEED TWO-STAGE FAN NOISE PROGRAM

I. Objective

The objective of this turbofan engine test program is the determination of the noise characteristics of a full-scale two-stage fan operating at the low design tip speed of approximately 1,000 feet per second and at a design pressure ratio of approximately 1.45 to 1. These design tip speed and pressure ratio values are such that the noise characteristics of this two-stage fan can be compared directly with those of typical single-stage low tip speed fans of comparable size and pressure ratio, such as those being considered for use on "quiet" turbofan engines in the NASA quiet engine program.

Noise characteristics of the two-stage fan will be determined for variations in fan operating speed and fan stage loading in an engine aerodynamic and acoustic test program in which the test engine is run over a range of operating speeds with three separate fan discharge nozzles of different exhaust areas.

II. Scope of Work

The Contractor shall provide all facilities, engineering services, materials, fabrication services, test operations, data acquisition equipment and services, and data reduction services required to modify a development model of the USAF/General Electric TF39 turbofan engine for purposes of this test program, to perform the engine operational tests described below, and to acquire and report the aerodynamic and acoustic performance characteristics of that engine as specified below.

Specific Requirements

1. Engine Modifications

   The Contractor shall modify the Government furnished General Electric TF39 turbofan engine, serial number GE-441-004, to the extent of removing the outer half (outer panel) of the second fan stage and increasing the axial spacing

between the remaining fan rotor and stator rows so that there is not less than one chord-length spacing along the flow path between the trailing edge of one row and the leading edge of the next adjacent downstream row. For purposes of this spacing requirement, a chord-length is defined as the true aerodynamic chord of the upstream blade or vane of the rotor-stator row pair in question, measured at the mean radius at the inlet of that rotor or stator row.

A properly sized inlet bellmouth shall be designed and provided by the Contractor for use in all engine tests.

The Contractor shall equip the test engine with a new fan exhaust duct which is sized to produce duct Mach numbers which are representative of high bypass ratio fan engines.

The Contractor shall provide three new fan exhaust nozzles to be used in the engine operational tests under this program. The first (No. 1) fan nozzle shall be sized to allow operation of the modified fan along the normal TF39 inner panel operating line at sea level static conditions. The second (No. 2) nozzle shall be smaller in area to the extent that the fan operates on a line somewhat above the normal operating line, but below its surge and blade stress limits. The third nozzle (No. 3) shall be sized approximately 12 percent greater in area than the No. 1 nozzle so that the fan operates on a line below the normal operating line.

The Contractor shall provide a new alternate core engine nozzle of smaller exhaust area than the normal TF39 primary nozzle. This nozzle shall be sized to produce in the modified engine at 100% fan speed, a core exhaust jet velocity approximately equal to that produced by the unmodified TF39 engine at its takeoff thrust setting. This nozzle will be installed on the test engine in a High Primary Exhaust Velocity Configuration described under Engine Test Requirements, below.

2. Test Plan

The Contractor shall prepare and present to the NASA

Project Manager a test plan outlining the test dates, engine operating conditions, fan nozzle configurations, data acquisition equipment locations, and schedule of probe actuation for all engine tests under this program. This test plan will be either a single document covering all tests, submitted to NASA at least fifteen calendar days before first test date, or it will consist of an individual document for each engine test date, submitted to the NASA at least fifteen calendar days before the date of the test it covers.

3. Engine Test Requirements

The Contractor shall accomplish, as a minimum, the following operational tests of the modified TF39 engine and shall accomplish for each test the acquisition and reduction of the test data as specified under Test Data Requirements and Test Results Requirements below. Test engine runs which do not result in reasonably complete test data, acceptable to the NASA Project Manager, to meet the intent of the Test Results Requirements, shall be rescheduled and performed again.

A. Test Procedures

Each engine configuration described in C. D. E. and F. below shall be tested at each of a minimum of fifteen speed points with one repeat of each, a total of at least 30 data points. These fifteen speed points shall be approximately equally spaced along the fan RPM speed line from 50 to 105 percent of TF39 sea level standard day takeoff fan speed.

Each engine configuration shall be run over the operating speed range from idle to 100% RPM and back to idle in a slow acceleration/deceleration test. During these runs, fan and core engine speeds and acoustic data shall be taken and recorded.

At each speed point setting, the fan inlet and fan exhaust noise probes, described under Test Data Requirements below, shall be traversed to record noise data at each of at least five radial positions in the

fan annulus. A slow traverse of each probe across the annulus from inner diameter to outer diameter shall be made and the acoustic data recorded.

B. Operational Checkout

This modified engine with each fan nozzle configuration shall first be run in an operational checkout to verify structural integrity and safe operating conditions. The engine shall be installed in the outdoor noise test facility for these checkout tests. The fan rotor shall be balanced prior to the checkout runs. During the operational checkout runs, the engine shall be operated over the entire fan speed range from idle to 105 percent of sea level standard day takeoff speed for the unmodified TF39 engine. All aerodynamic and acoustic instrumentation shall be installed on the engine for these checkout tests.

C. Inlet Probe Acoustic Effect Checkout

With the test engine in the baseline configuration described below, all engine inlet instrument probes shall be removed and the engine run at three steady-state speed points intermediate in the range of the fifteen (15) test speed points. Far-field acoustic data shall be taken at each of the three speed points.

D. Baseline Configuration

The test engine shall be operated as described in (A) above as the Baseline Configuration with the No. 1 (normal operating line) fan nozzle installed.

E. High Fan Loading Configuration

The test engine shall be operated as described in (A) above as the High Fan Loading Configuration with the No. 2 (above normal operating line) fan nozzle installed.

F. Low Fan Loading Configuration

The test engine shall be operated as described in (A) above as the Low Fan Loading Configuration with the No. 3 (below normal operating line) fan nozzle installed.

G. High Primary Exhaust Velocity Configuration

The test engine shall be operated as described in (A) above as the High Primary Exhaust Velocity Configuration with the No. 1 (normal operating line) fan nozzle installed and with the alternate core engine nozzle of smaller primary exhaust area installed.

4. Test Data Requirements

A. Safety and Operational Instrumentation

Instrumentation shall be provided by the Contractor during each operational engine test to provide data for monitoring the operational safety of the test engine throughout its operating range. This safety instrumentation shall monitor engine vibrations, oil and fuel pressures, engine temperatures, and oil sump pressures.

B. Aerodynamic Instrumentation and Data

In each engine operational test, the Contractor shall equip the test engine with pressure rakes, temperature probes, and rotor speed meters to provide aerodynamic data sufficient to establish actual and corrected air flows in the fan and core engine, fan and compressor rotor speeds, fan pressure ratio, fan nozzle and primary nozzle pressure ratios, primary nozzle exhaust temperature.

C. Acoustic Instrumentation and Data

The Contractor shall take far field acoustic data during each operational engine test with an array of at least

seventeen microphones. The first microphone shall be located along the upstream axis of the engine at a distance of 225 feet. The additional microphones in the array shall be spaced at ten degree increments around to 160 degrees from the upstream engine axis on a 225 foot radius from the engine. The microphone height shall lie in the horizontal plane passing through the engine axis.

Near field acoustic data shall be taken from two traversing acoustic probes. The two required traversing probe locations are in the fan inlet duct and in the fan exhaust duct. Data from each of the traversing probes shall be taken at a minimum of five radial locations in the flowstream annulus during each operational engine test.

Near field acoustic data shall also be taken by a minimum of three stationary microphone probes mounted in the core engine turbine exhaust duct.

All acoustic data from the near and far field instrumentation locations shall be recorded on FM magnetic tape for each engine configuration and speed.

All far field acoustic data shall be reduced on a one-third octave band analyzer. Averaging time for the data in each one-third octave filter shall be ten seconds at the minimum and the filters should range from a lower center frequency of 50 hertz to an upper filter center frequency of 10 kilohertz.

In addition, far field noise data for a minimum of 100 selected microphone spectra approximately evenly distributed over the four operational engine tests, shall be analyzed on a narrow band analyzer. A filter bandwidth of 20 hertz maximum shall be used for the narrow band spectrum analyses. The narrow band analyses shall range from forty hertz to ten kilohertz.

Near field probe data shall also be reduced for a minimum of 200 selected probe spectra, approximately evenly distributed over the four operational engine tests, with the narrow band analyzer at a maximum filter band width of twenty hertz. One-third octave band and analysis need not be done for the near field acoustic data.

5. Test Results Requirements

The test results for each operational engine test shall include, as a minimum, the following at each fan operating speed point of each engine operational test:

A. Engine Performance Data

Fan airflow versus fan speed
Fan thrust (calculated) versus fan speed
Fan pressure ratio versus fan airflow
Fan jet exhaust velocity versus fan speed
Core engine jet exhaust velocity versus fan speed
Engine high rotor speed versus fan speed
Core engine airflow versus fan speed
Turbine exhaust temperature at each test point

B. Engine Acoustic Data

Overall sound power level versus fan thrust
One-third octave band sound power level spectrum
One-third octave band sound pressure level spectrum at each far-field microphone location
Polar plot of PNdb versus angle from the engine axis
Angular directivity of engine noise on a spectral basis in one-third octave bands
Linear plot of PNdb versus angle from the engine axis on a 200-foot sideline
Plot of maximum 200-foot sideline PNdb versus fan thrust
Far field narrowband (20 Hz maximum bandwidth) spectral sound pressure level data sufficient to

permit identification of pure tone signals, including those associated with blade passing fundamental frequencies and their harmonics.

Near-field narrowband sound pressure level spectra.

Perceived noise levels in PNdb shall be computed in accordance with SAE Aerospace Recommended Practice Number 865. Far field acoustic data shall be corrected for atmospheric absorption to standard day conditions in accordance with SAE ARP Number 866.

Test results from the Inlet Probe Acoustic Effect checkout specified above shall be sound power level in one-third octave bands, overall sound power level, and polar plots of PNdb versus angle from the engine axis.

In addition to the above operational engine test results, the Contractor shall make available to the extent authorized by the cognizant Air Force Contracting Officer for Contract AF33(657)-15003, to recipients of the Final Report in the final program report, fan efficiency results from previous TF39 Block I inner panel aerodynamic tests.

6. Special Presentation of Test Data

A. In-Flight Noise Comparison

The Contractor shall compare all tested engine configurations based upon in-flight noise levels calculated from the ground static test data. Curves shall be presented comparing the takeoff noise (maximum PNdb on the ground under a 1000 foot altitude flyover at takeoff power) and approach noise (maximum PNdb on the ground under the aircraft at 300 foot altitude flyover at approach power) for 3-engine and 4-engine aircraft of the B-727 and the DC-8/707 classes powered by engines of each configuration tested in this program. These takeoff and approach noise levels shall be compared to those of existing aircraft. Comparisons shall be presented in a manner which permits evaluation of the effects of fan operating line variations and loading variations on in-flight noise levels.

B. Effects of Operating Line Variations

The Contractor shall present the effects of fan loading and fan operating line variations as lines of equal fan noise level and equal fan thrust drawn on the fan operating map.

Noise level parameters for this purpose shall be maximum PNdb along a 200-foot sideline, sound power level at the fundamental blade passing frequency of each fan stage, and overall sound power level of the engine.

The directivity effects of operating line variations shall be presented in the form of 225-foot polar and 200-foot sideline PNdb contours and fundamental blade passing frequency sound pressure level contours for each operating line, at five (5) selected speeds.

Narrow band and one-third octave band spectra for each operating line shall be plotted at selected microphone locations and fan speeds to identify the effects on broadband and pure tone components of fan noise due to operating line variations.

Data from all tested engine configurations shall be presented in a normalized format to describe the effect of fan loading on noise output. This format will be in the form of a series of curves relating fan noise levels to several fan aerodynamic parameters such as loading (blade diffusion factors), weight flow, tip Mach number, relative blade and vane Mach numbers, and blading flow coefficients. The noise parameters to be presented in this manner are blade passing frequency sound pressure level, overall sound power level, and maximum Perceived Noise Level (PNdb) along a 200-foot sideline.

INTRODUCTION - APPENDIX B

Appendix B contains detailed plots of engine acoustic and performance data obtained for each configuration tested. All engine acoustic and performance data have been corrected for sea level-static, standard day conditions. The types of data plots presented for each test configuration are as listed below:

Engine Acoustic Data

200 foot (60.96M) sideline Max. PNdB versus fan thrust
Overall sound power level versus fan thrust
200 foot (60.96M) sideline PNdB versus polar angle for each speed point
225 foot (68.58M) radius PNdB versus polar angle for each speed point
1/3 octave PWL versus 1/3 octave frequency for each speed point

Engine Performance Data

Fan flow versus fan speed
Fan thrust versus fan speed
Fan pressure ratio versus fan airflow
Fan jet exhaust velocity versus fan speed
Core engine exhaust velocity versus fan speed
Core engine rotor speed versus fan speed
Core engine airflow versus fan speed
Turbine exhaust temperature versus fan speed

Run #5

Date: 9/4/68

A_{28} = 1718.5 in^2 (1.1087m^2) (Large Fan Nozzle)

A_8 = 927.7 in^2 (.5985m^2) (Large Core Nozzle)

Reading No.	Nominal Fan Speed (RPM)	(RAD/SEC)	Sound Tape
34	1700	178.0	P625
35	1850	193.7	P625
36	2000	209.4	P626
37	2150	225.1	P626
38	2300	240.9	P626
39	2450	256.6	P627
40	2600	272.3	P627
41	2750	288.0	P627
42	2900	303.7	P628
43	3050	319.4	P628
44	3200	335.1	P628
45	3350	350.8	P628
46	3473	363.7	P629
47	1700	178.0	P629
49	1850	193.7	P629
50	3562	373.0	P630
51	2000	209.4	P630
52	3650	382.2	P630
53	2150	225.1	P630
54	2300	240.9	P631
55	3650	382.2	P631
56	2450	256.6	P631
57	3562	373.0	P631
58	2600	272.3	P632
59	3473	363.7	P632
60	2750	288.0	P632
61	3350	350.8	P633
62	2900	303.7	P633
63	3200	335.1	P633
64	3050	319.4	P634

Run #6

Date: 9/6/68

A_{28} = 1409.7 in^2 (.9095m^2) (Small Fan Nozzle)

A_8 = 927.7 in^2 (.5985m^2) (Large Core Nozzle)

Reading No.	Nominal Fan Speed (RPM)	(RAD/SEC)	Sound Tape #
65	1700	178.0	P-635
66	1850	193.7	P-636
67	2000	209.4	P-636
68	2150	225.1	P-636
69	2300	240.9	P-637
70	2450	256.6	P-637
71	2600	272.3	P-638
72	2750	288.0	P-638
75	3200	335.1	P-639
76	3350	350.8	P-639
77	3473	363.7	P-639
78	3562	373.0	P-640
79	3650	382.2	P-640
80	1700	178.0	P-640
81	1850	193.7	P-640
82	2000	209.4	P-641
83	2150	225.1	P-641
84	2300	240.9	P-641
85	2450	256.6	P-642
86	2600	272.3	P-642
87	2750	288.0	P-642
88	3200	335.1	P-643
89	3350	350.8	P-643
90	3473	363.7	P-643
91	3562	373.0	P-644
92	3650	382.2	P-644

Run #7

Date: 9/10/68

A_{28} = 1508.3 in^2 (.9731m^2) (Standard Fan Nozzle)

A_8 = 927.7 in^2 (.5985m^2) (Large Core Nozzle)

Reading No.	Nominal Fan Speed (RPM)	(RAD/SEC)	Sound Tape #
98	1700	178.0	P-655
99	1850	193.7	P-654
100	2000	209.4	P-654
101	2150	225.1	P-654
102	2300	240.9	P-653
103	2450	256.6	P-653
104	2600	272.3	P-653
105	2750	288.0	P-652
106	2900	303.7	P-652
107	3050	319.4	P-652
108	3200	335.1	P-651
109	3350	350.8	P-651
110	3473	363.7	P-650
111	3562	373.0	P-650
112	3650	382.2	P-650
113	1700	178.0	P-650
114	1850	193.7	P-640
115	3050	319.4	P-640
116	3200	335.1	P-640
117	3350	350.8	P-648
118	3473	363.7	P-648
119	3562	373.0	P-648
120	3650	382.2	P-648
122	2000	209.4	P-647
123	2150	225.1	P-647
124	2300	240.9	P-647
125	2450	256.6	P-646
126	2600	272.3	P-646
127	2750	288.0	P-646
128	2900	303.7	P-645

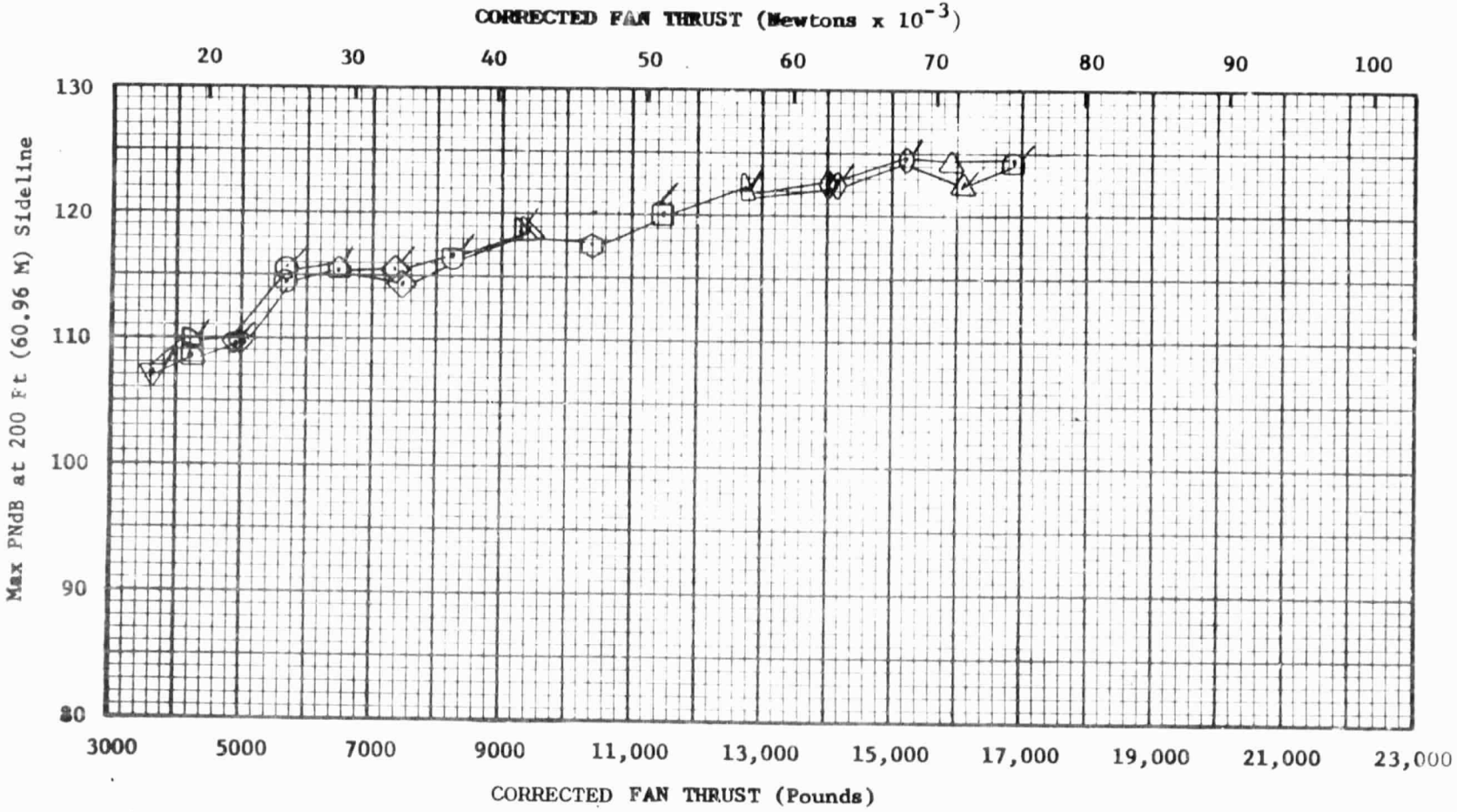
Run #8

Date: 9/13/68

A_{28} = 1508.3 in^2 (.9731m^2) (Standard Fan Nozzle)

A_8 = 580.0 in^2 (.3742m^2) (Standard Core Nozzle)

Reading No.	Nominal Fan Speed (RPM)	(RAD/SEC)	Sound Tape #
129	1700	178.0	P-658
130	1850	193.7	P-658
131	2000	209.4	P-659
132	2150	225.1	P-659
133	2300	240.9	P-659
134	2450	256.6	P-660
135	2600	272.3	P-660
136	2750	288.0	P-660
137	2900	303.7	P-661
138	3050	319.4	P-661
139	3200	335.1	P-662
140	3350	350.8	P-662
141	3473	363.7	P-662
143	1700	178.0	P-663
144	1850	193.7	P-663
145	2000	209.4	P-663
146	2150	225.1	P-663
147	2300	240.9	P-664
148	2450	256.6	P-664
149	2600	272.3	P-664
150	2750	288.0	P-665
151	2900	303.7	P-665
152	3050	319.4	P-665
153	3200	335.1	P-665
154	3350	350.8	P-666
155	3473	363.7	P-666
156	3562	373.0	P-666
158	3650	382.2	P-666
159	3562	373.0	P-666
161	3650	382.2	P-667



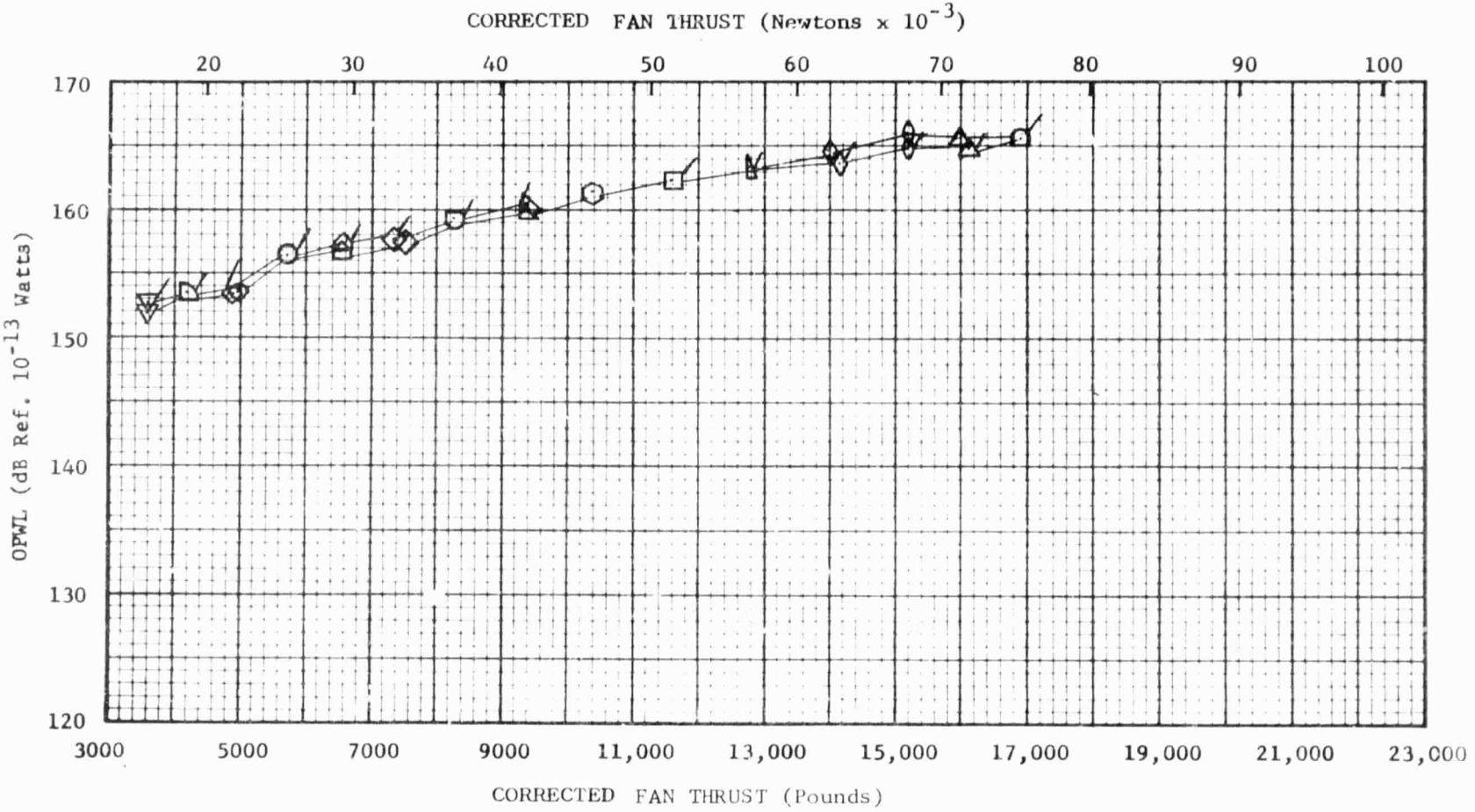
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY	O	♂		
Run No.	5	5		
Date	9/4/68	9/4/68		
Tape No.	P625 thru P634			

200 Ft Sideline
(60.96 Meter Sideline)
Maximum PNdB
Vs.
Fan Thrust

Figure B-1

KEY		O	♂		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



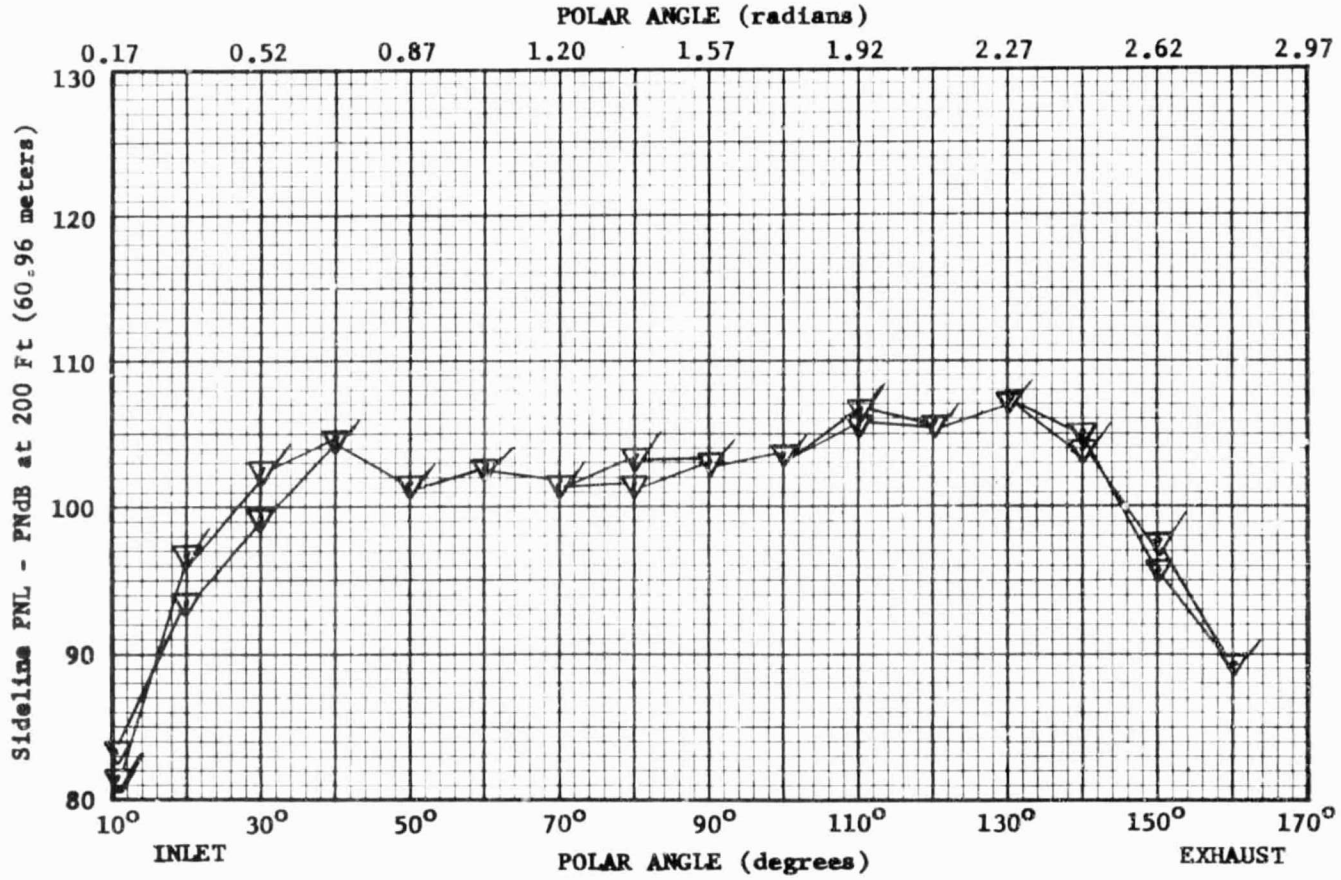
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY	○	◇		
Run No.	5	5		
Date	9/4/68	9/4/68		
Tape No.	P625 thru P634			

OPWL
Vs.
Fan Thrust

Figure B-2

KEY		○	◇		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



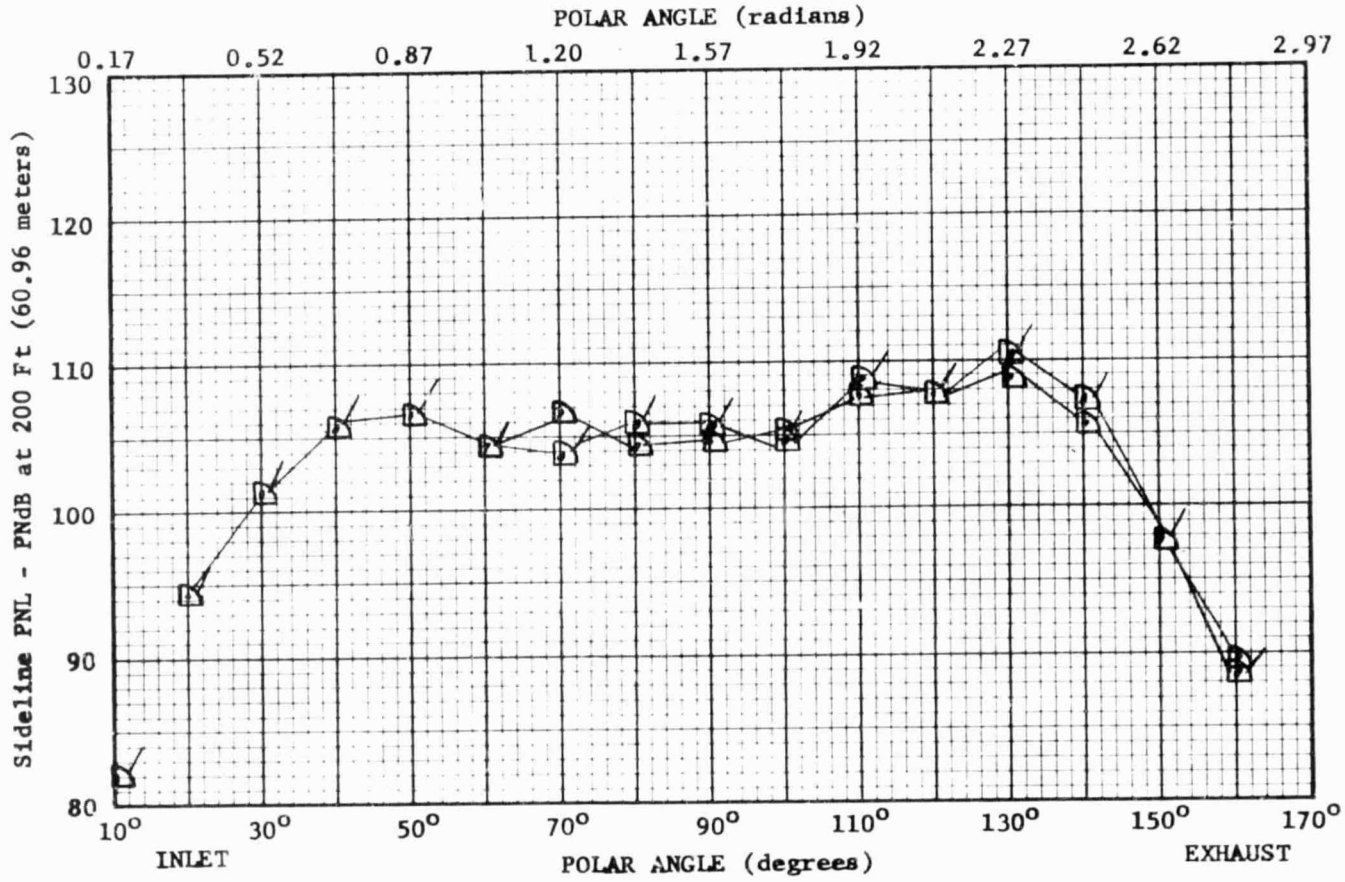
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		▽	▽		
Run No.		5-34	5-47		
Date		9/4/68	9/4/68		
Tape No.		P-625	P-629		
Physical Speed	RPM	1707	1700		
	Rad/sec	178.7	177.9		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-3

KEY		▽	▽		
Corr. Speed %		48.8	48.1		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

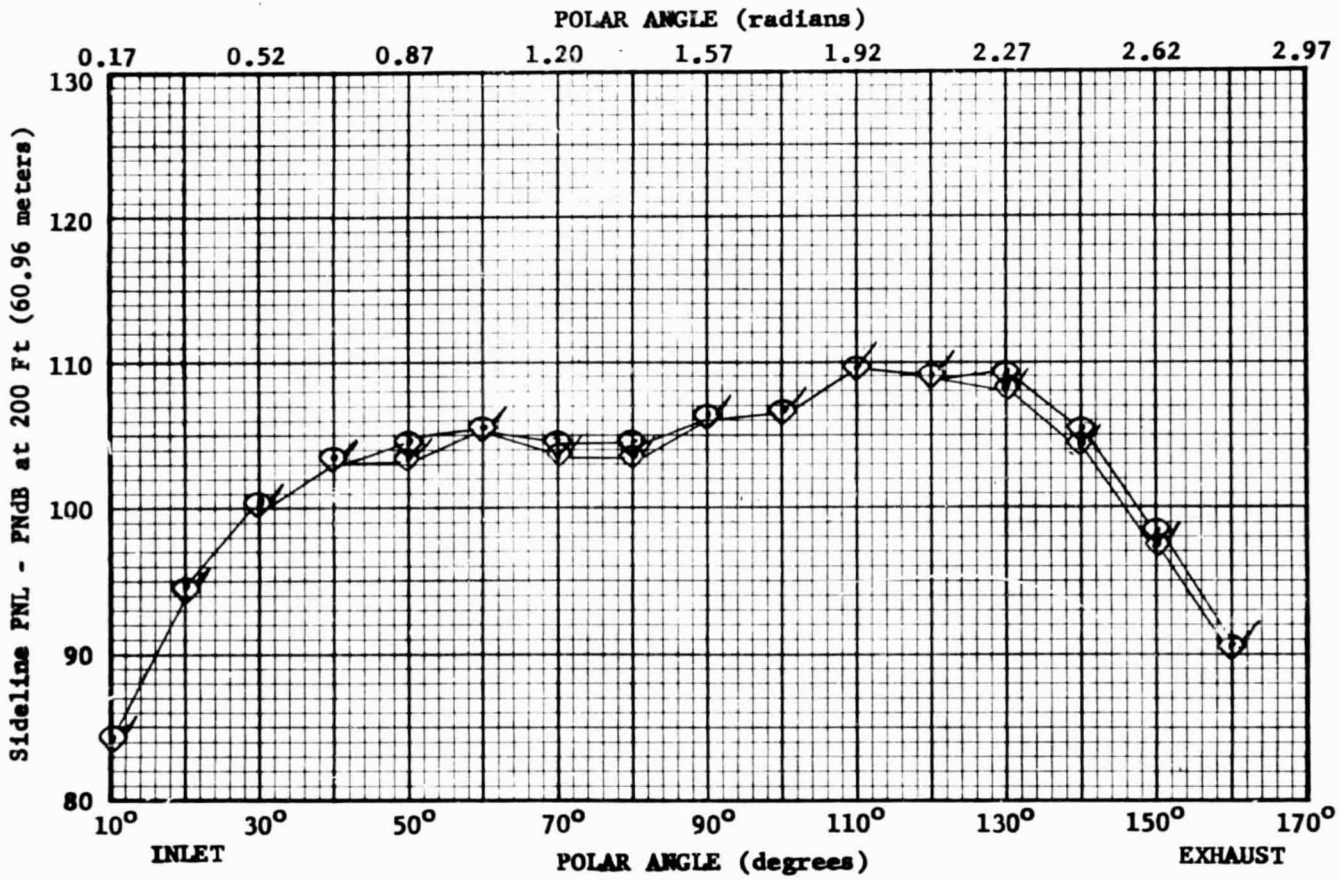
KEY		□	◸		
Run No.		5-35	5-49		
Date		9/4/68	9/4/68		
Tape No.		P-625	P-629		
Physical	RPM	1856	1850		
Speed	Rad/sec	194.3	193.7		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-4

KEY		□	◸		
Corr. Speed %		52.9	52.4		
Fan Noz.	In^2	1718.5	1718.5		
Area	m^2	1.1087	1.1087		
Core Noz.	In^2	927.7	927.7		
Area	m^2	.5986	.5986		

Form No. N



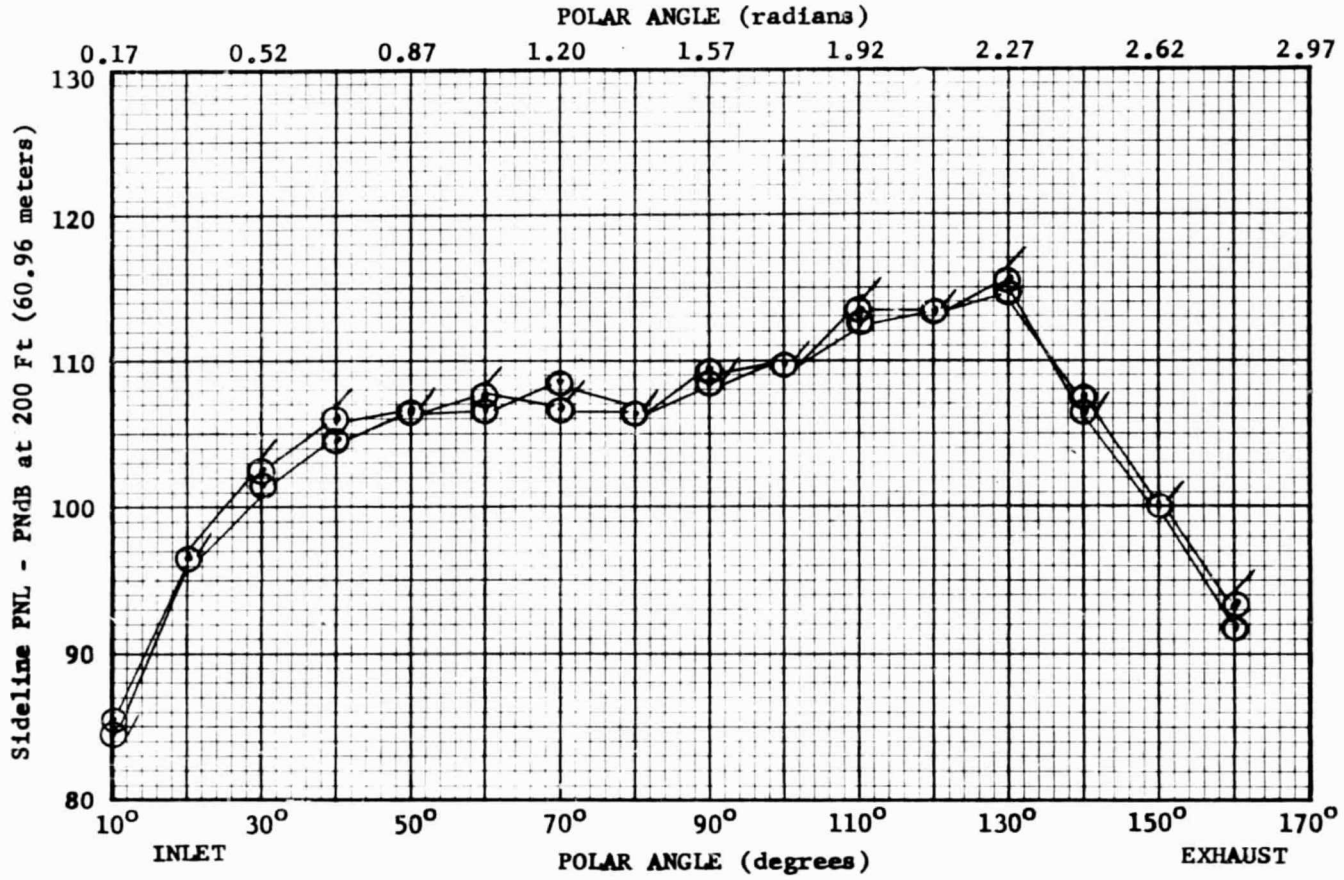
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◁		
Run No.		5-36	5-51		
Date		9/4/68	9/4/68		
Tape No.		P-626	P-636		
Physical Speed	RPM	2016	2001		
	Rad/sec	211.1	209.5		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-5

KEY		◇	◁		
Corr. Speed %		57.5	56.7		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



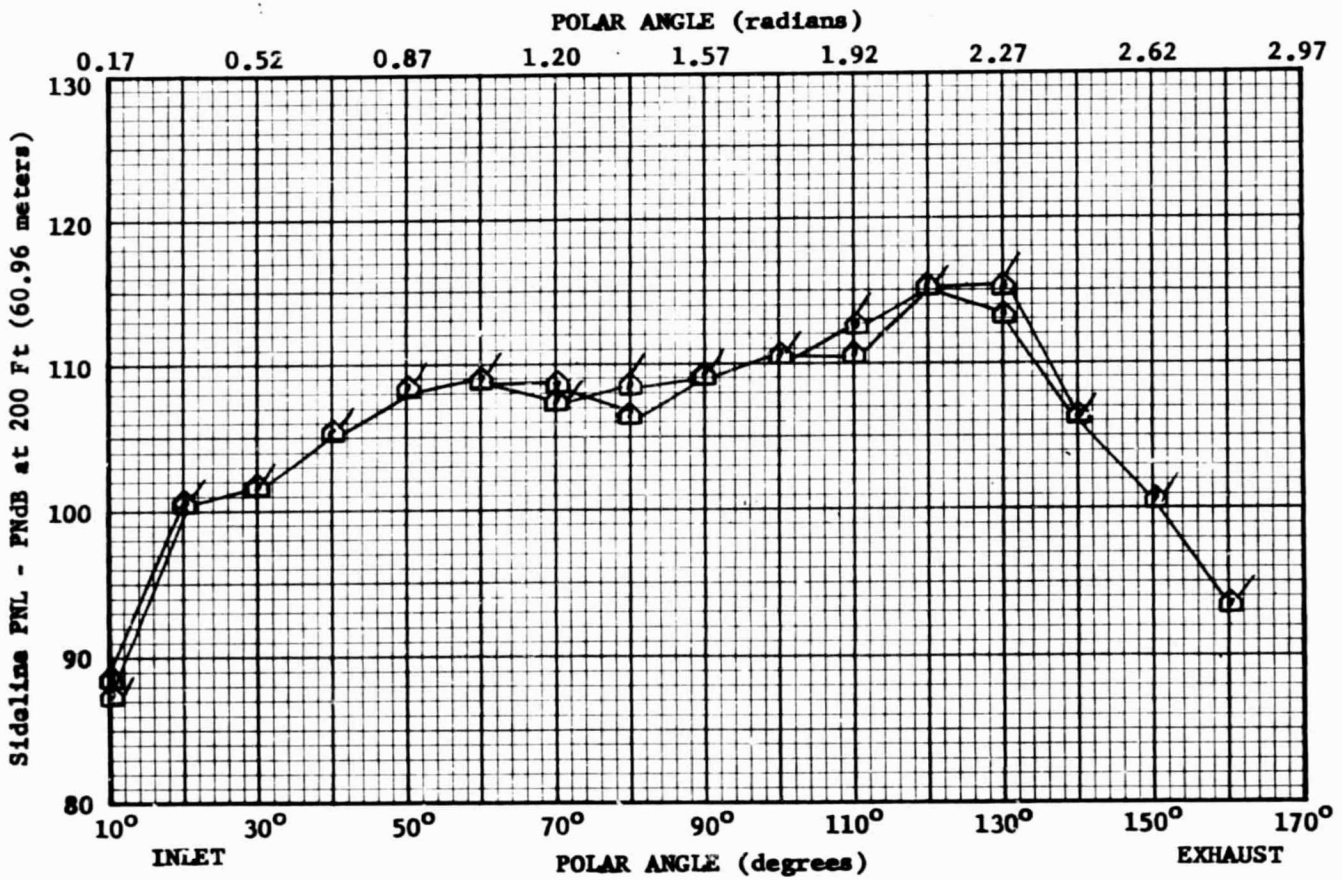
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		5-37	5-53		
Date		9/4/68	9/4/68		
Tape No.		P-626	P-630		
Physical Speed	RPM	2148	2150		
	Rad/sec	224.9	225.1		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-6

KEY		○	◇		
Corr. Speed %		61.3	61.0		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



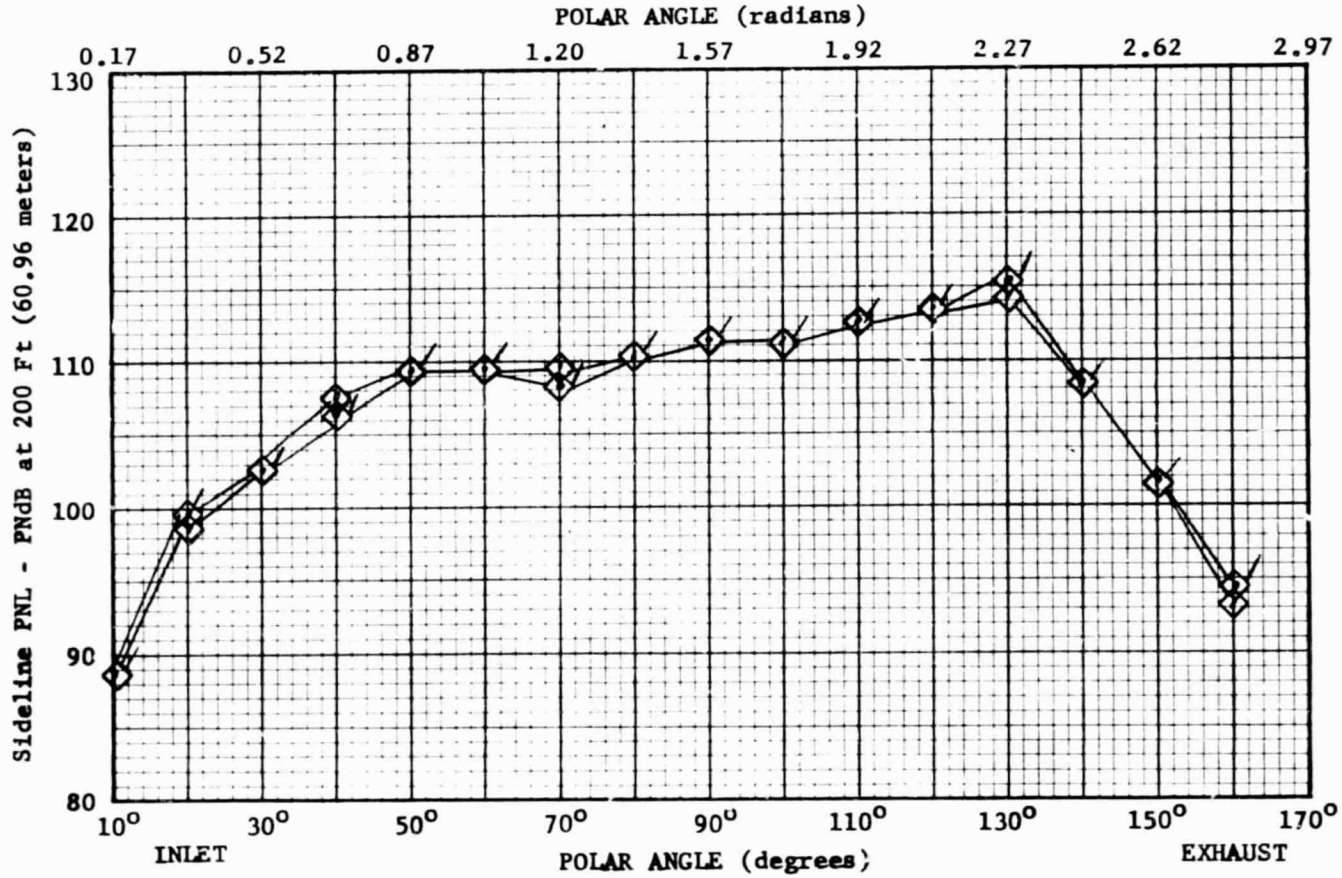
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		⌂	⌂		
Run No.		5-38	5-54		
Date		9/4/68	9/4/68		
Tape No.		P-626	P-631		
Physical	RPM	2300	2316		
Speed	Rad/sec	240.8	242.5		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-7

KEY		⌂	⌂		
Corr. Speed %		65.5	65.6		
Fan Noz.	In^2	1718.5	1718.5		
Area	m^2	1.1087	1.1087		
Core Noz.	In^2	927.7	927.7		
Area	m^2	.5986	.5986		



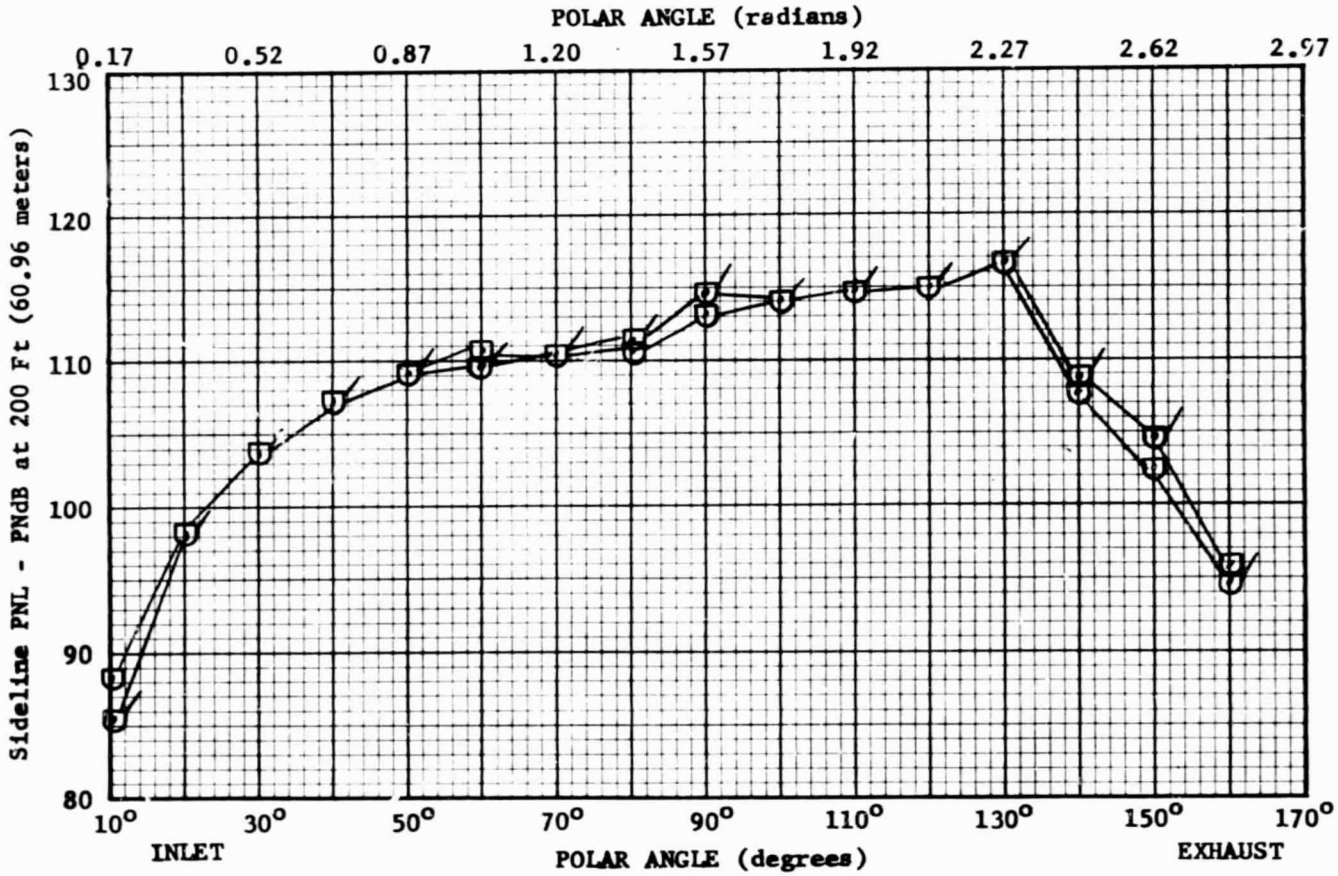
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		^	^		
Run No.		5-39	5-56		
Date		9/4/68	9/4/68		
Tape No.		P-627	P-631		
Physical Speed	RPM	2467	2450		
	Rad/sec	258.3	256.5		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-8

KEY		◇	◇		
Corr. Speed %		70.3	69.7		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



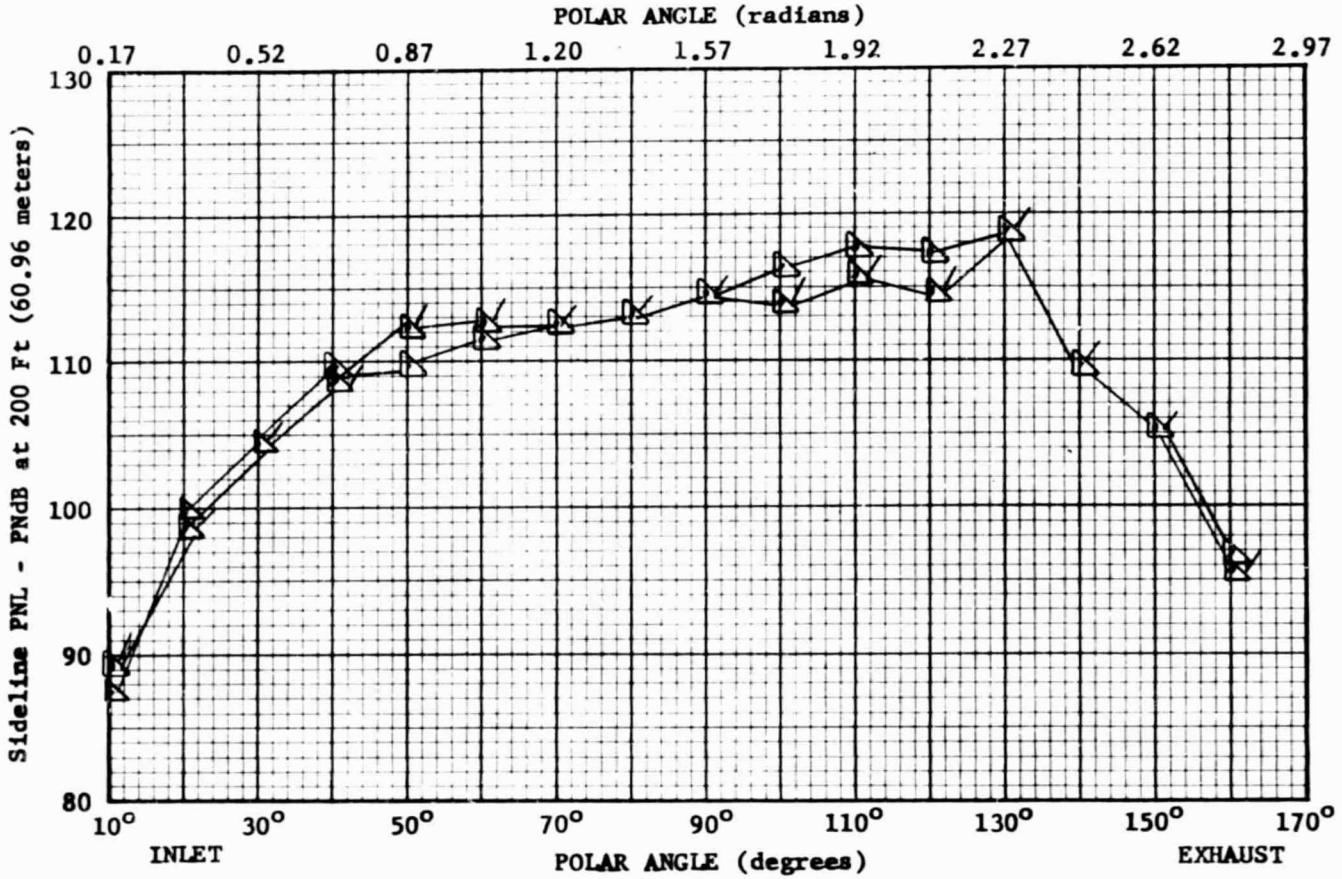
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□		
Run No.		5-40	5-58		
Date		9/4/68	9/4/68		
Tape No.		P-627	P-632		
Physical Speed	RPM	2606	2615		
	Rad/sec	272.8	273.8		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-9

KEY		□	□		
Corr. Speed %		74.1	74.4		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



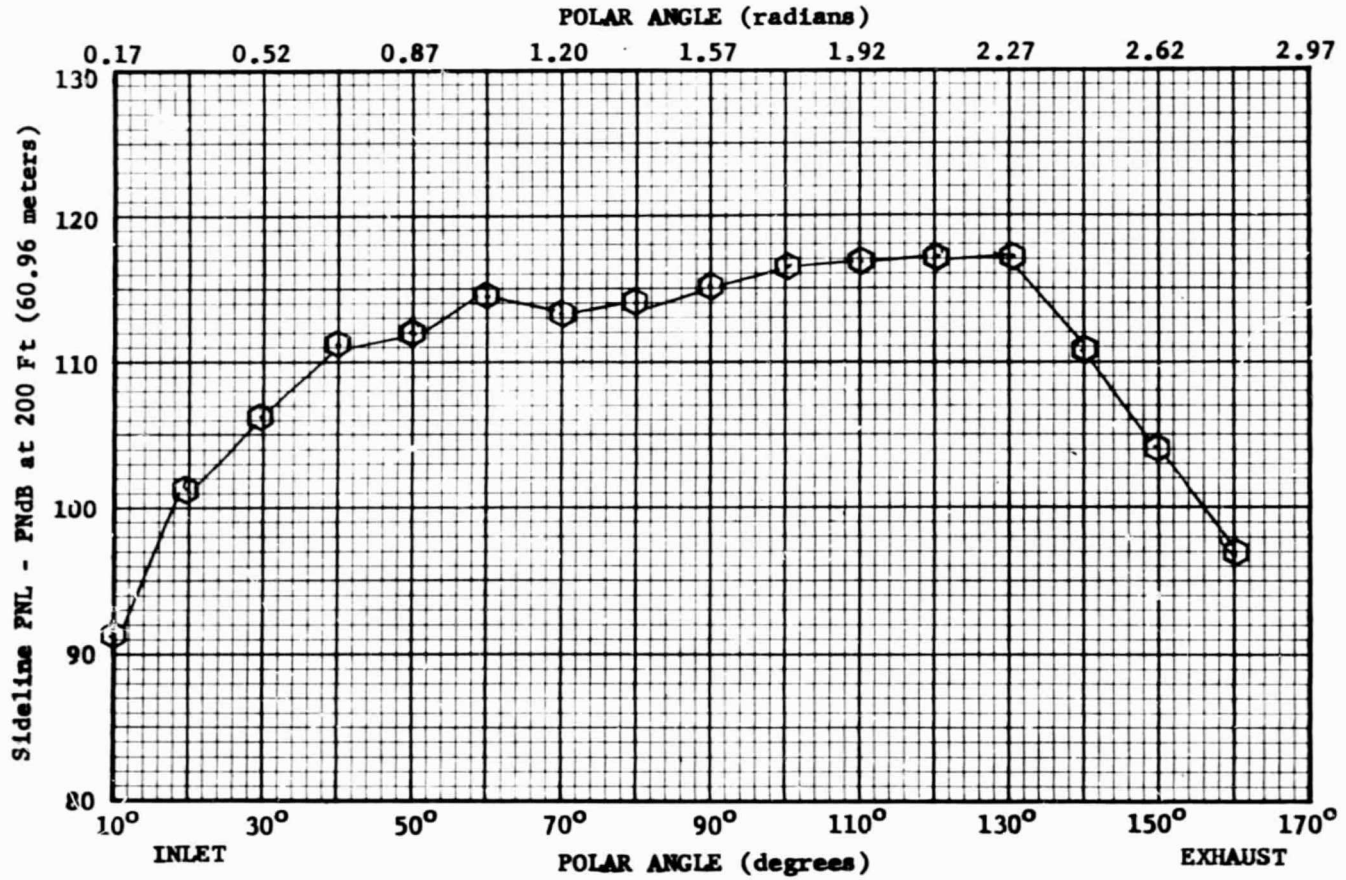
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	◺		
Run No.		5-41	5-60		
Date		9/4/68	9/4/68		
Tape No.		P-627	P632		
Physical	RPM	2766	2743		
Speed	Rad/sec	289.6	287.2		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-10

KEY		△	◺		
Corr. Speed %		78.7	78.1		
Fan Noz.	In^2	1718.5	1718.5		
Area	m^2	1.1087	1.1087		
Core Noz.	In^2	927.7	927.7		
Area	m^2	.5986	.5986		



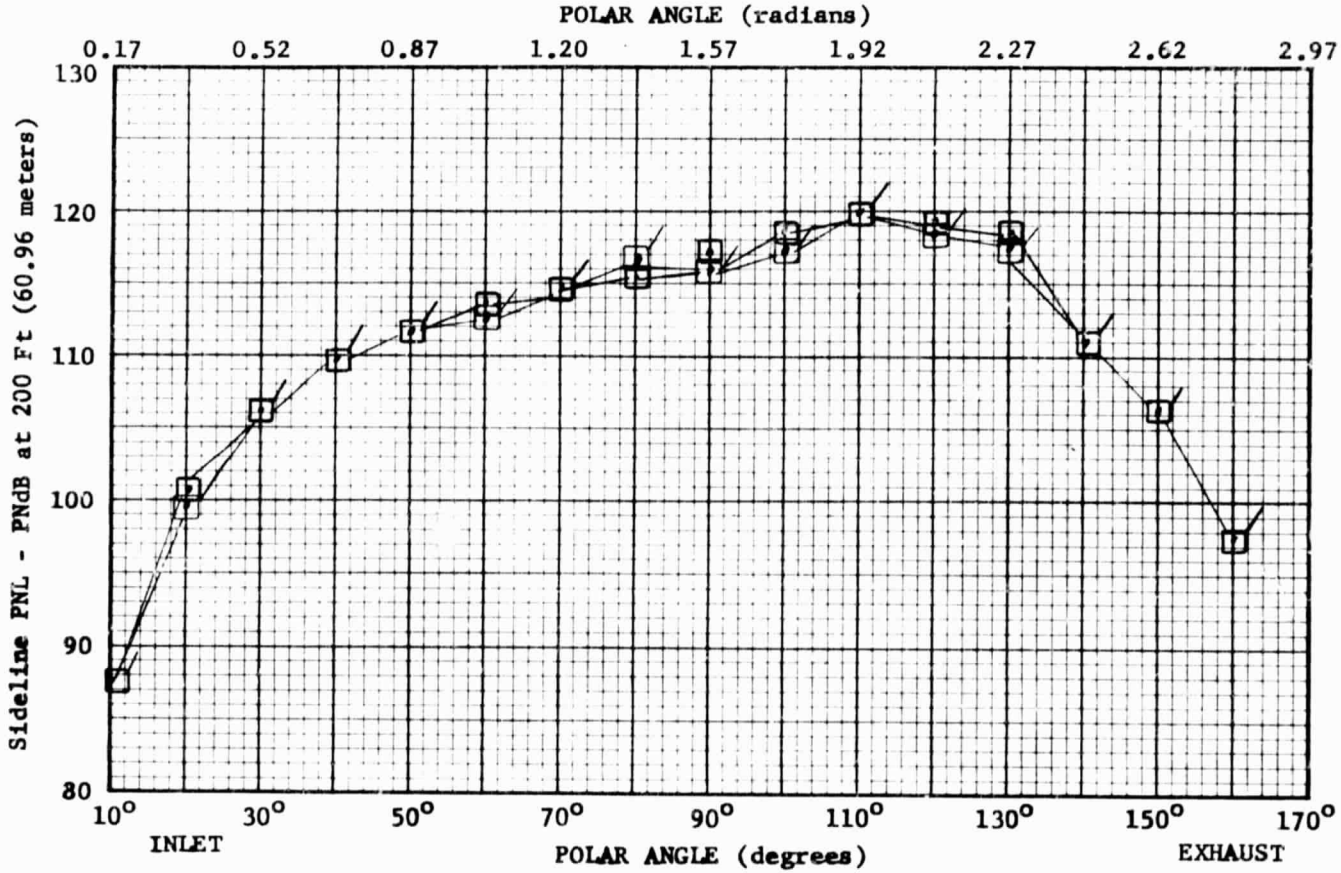
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		⬡			
Run No.		5-62			
Date		9/4/68			
Tape No.		P-633			
Physical Speed	RPM	2900			
	Rad/sec	303.6			

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-11

KEY		⬡			
Corr. Speed %		82.6			
Fan Noz. Area	In^2	1718.5			
	m^2	1.1087			
Core Noz. Area	In^2	927.7			
	m^2	.5986			



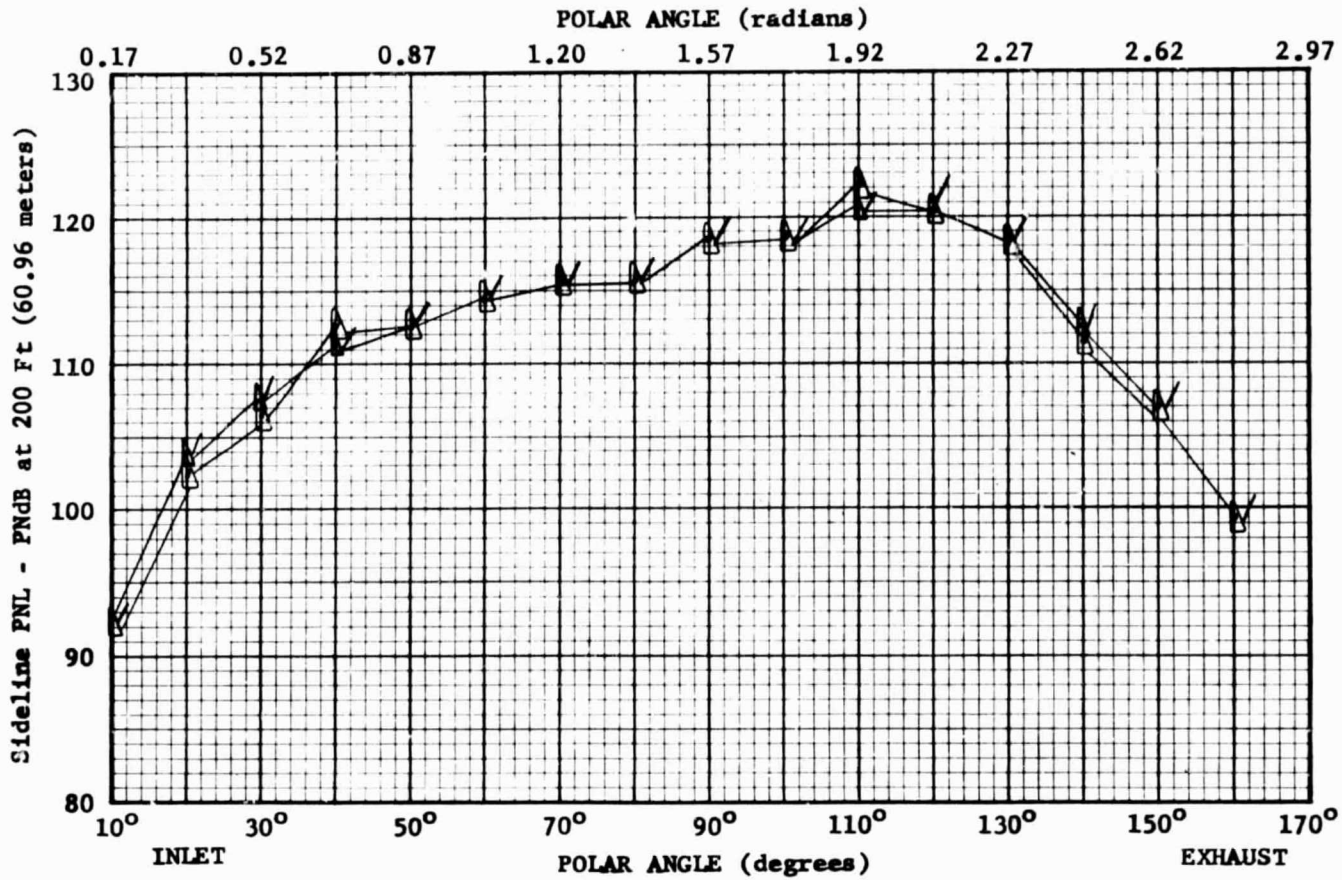
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		□	□		
Run No.		5-43	5-64		
Date		9/4/68	9/4/68		
Tape No.		P-628	P-634		
Physical Speed	RPM	3054	3050		
	Rad/sec	319.8	319.4		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-12

KEY		□	□		
Corr. Speed %		86.7	86.8		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



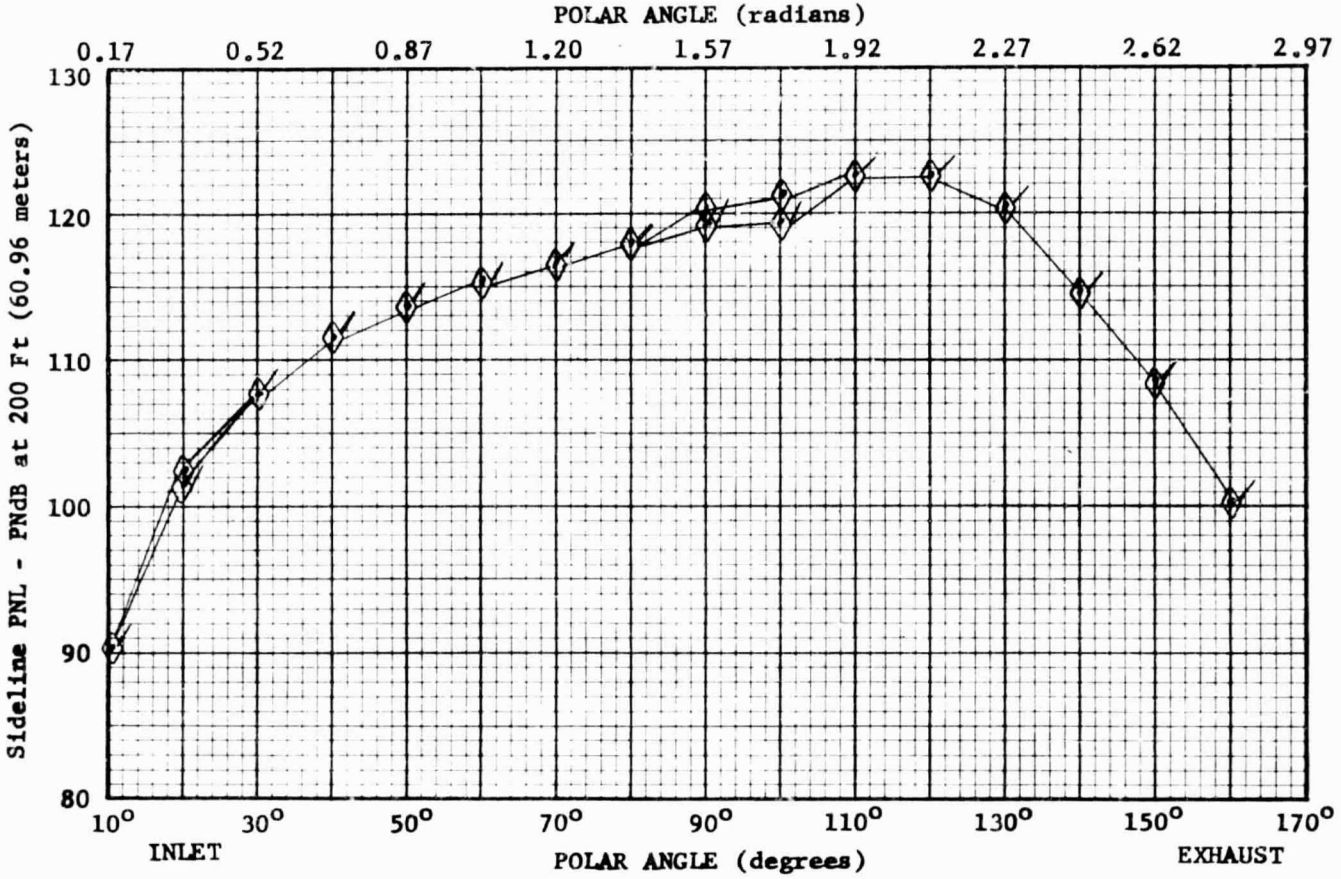
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		Δ	∇		
Run No.		5-44	5-63		
Date		9/4/68	9/4/68		
Tape No.		P-628	P-633		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-13

KEY		Δ	∇		
Corr. Speed %		90.8	91.1		
Fan Noz. Area	In^2	1718.5	1715.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



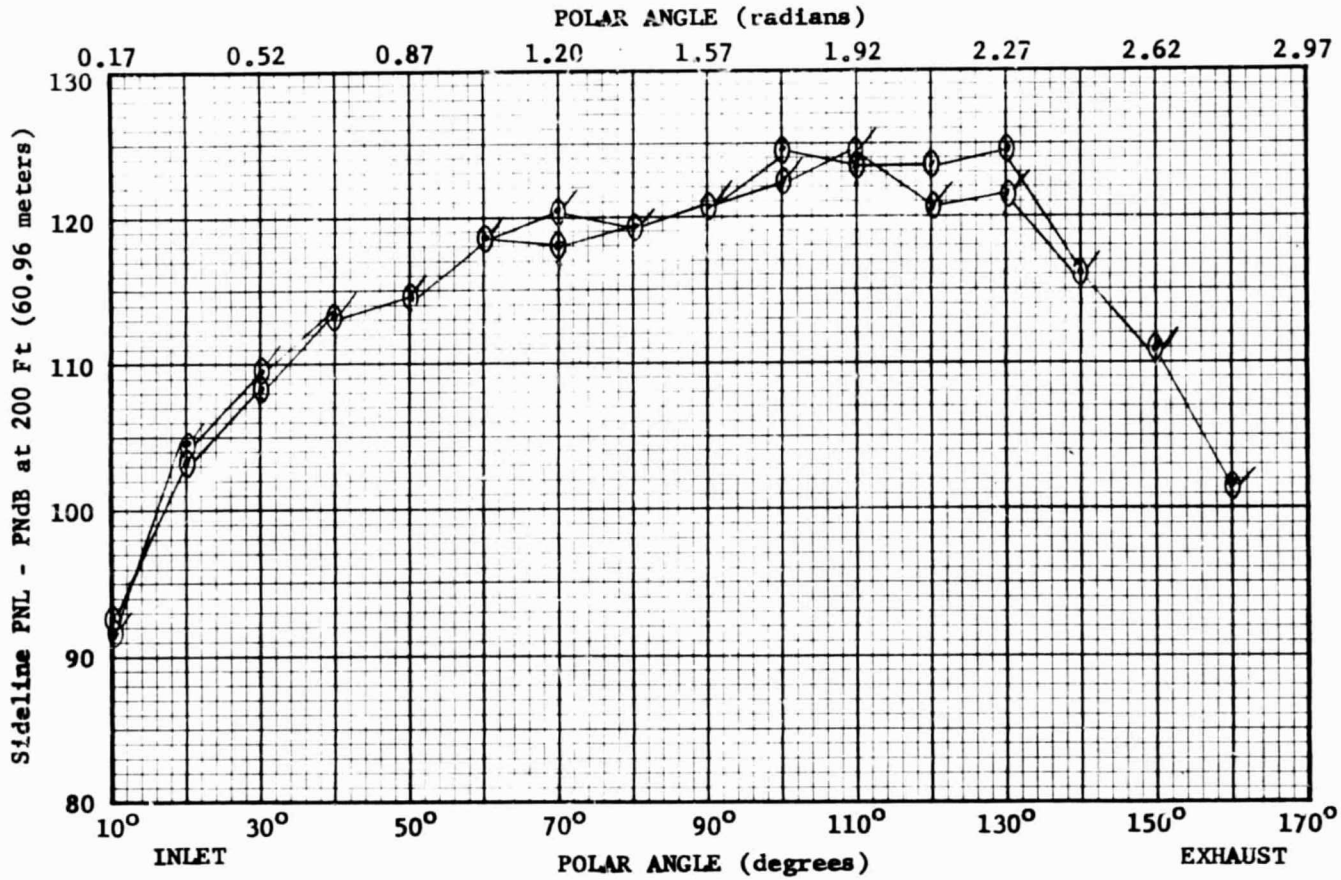
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		5-45	5-61		
Date		9/4/68	9/4/68		
Tape No.		P-628	P-633		
Physical	RPM	3350	3350		
Speed	Rad/sec	350.7	350.7		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-14

KEY		◇	◇		
Corr. Speed %		95.1	95.4		
Fan Noz.	In^2	1718.5	1718.5		
Area	m^2	1.1087	1.1087		
Core Noz.	In^2	927.7	927.7		
Area	m^2	.5986	.5986		



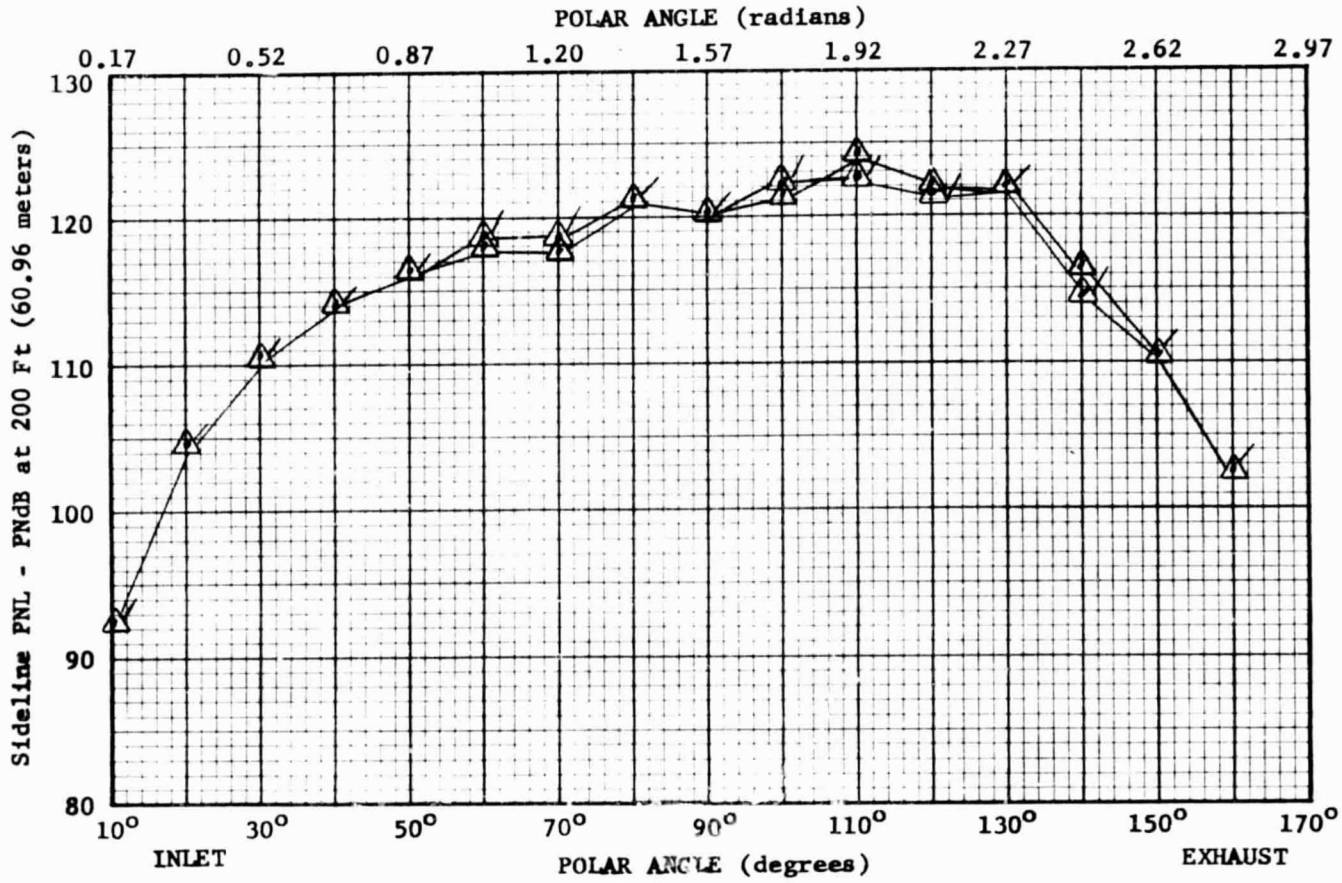
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		O	O		
Run No.		5-46	5-59		
Date		9/4/68	9/4/68		
Tape No.		P-629	P-632		
Physical Speed	RPM	3484	3468		
	Rad/sec	364.8	363.1		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-15

KEY		O	O		
Corr. Speed %		98.7	98.7		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



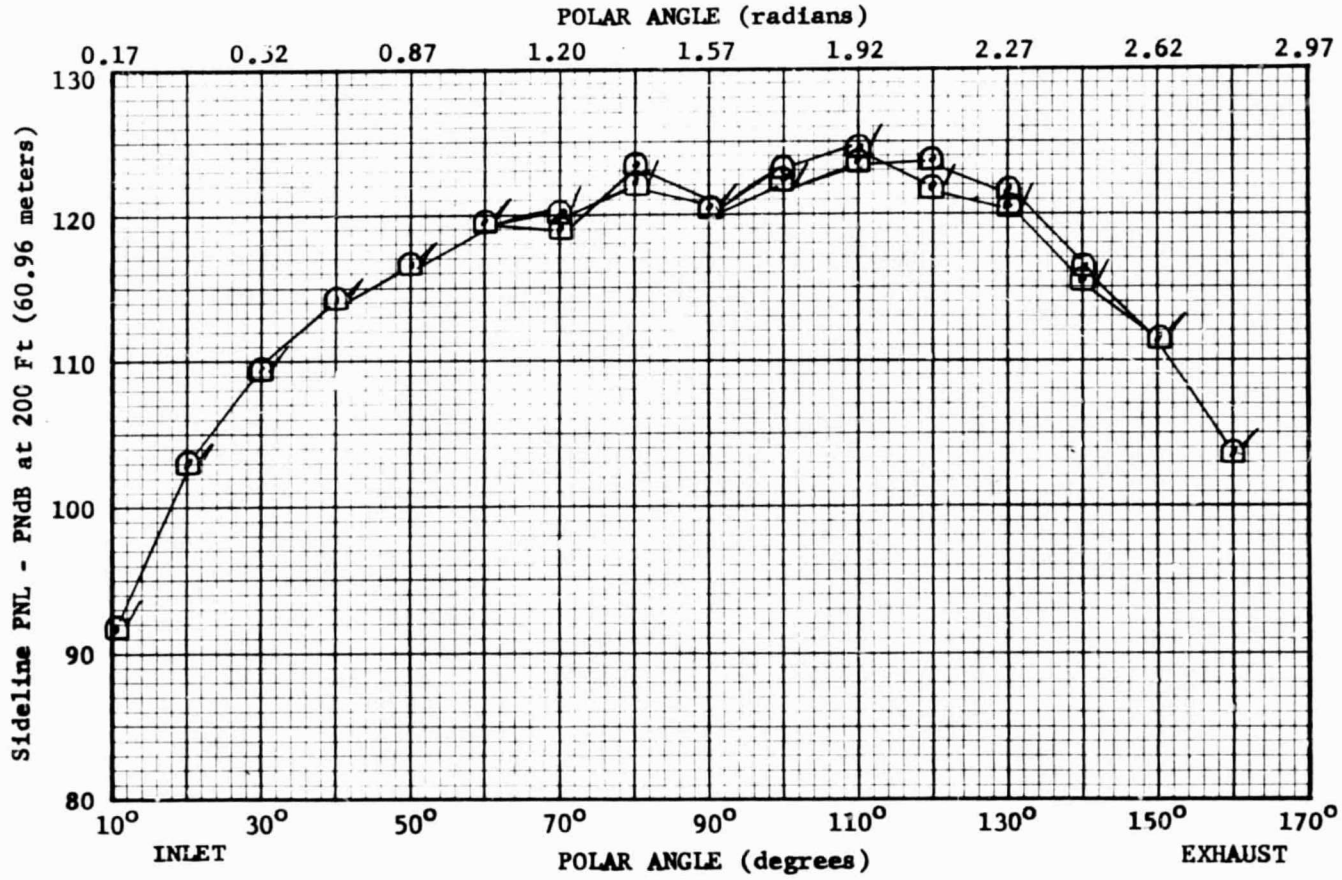
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	▽		
Run No.		5-50	5-57		
Date		9/4/68	9/4/68		
Tape No.		P-630	P-631		
Physical	RPM	3557	3562		
Speed	Rad/sec	372.4	372.9		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-16

KEY		△	▽		
Corr. Speed %		100.8	101.4		
Fan Noz. Area	In	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In	927.7	927.7		
	m^2	.5986	.5986		



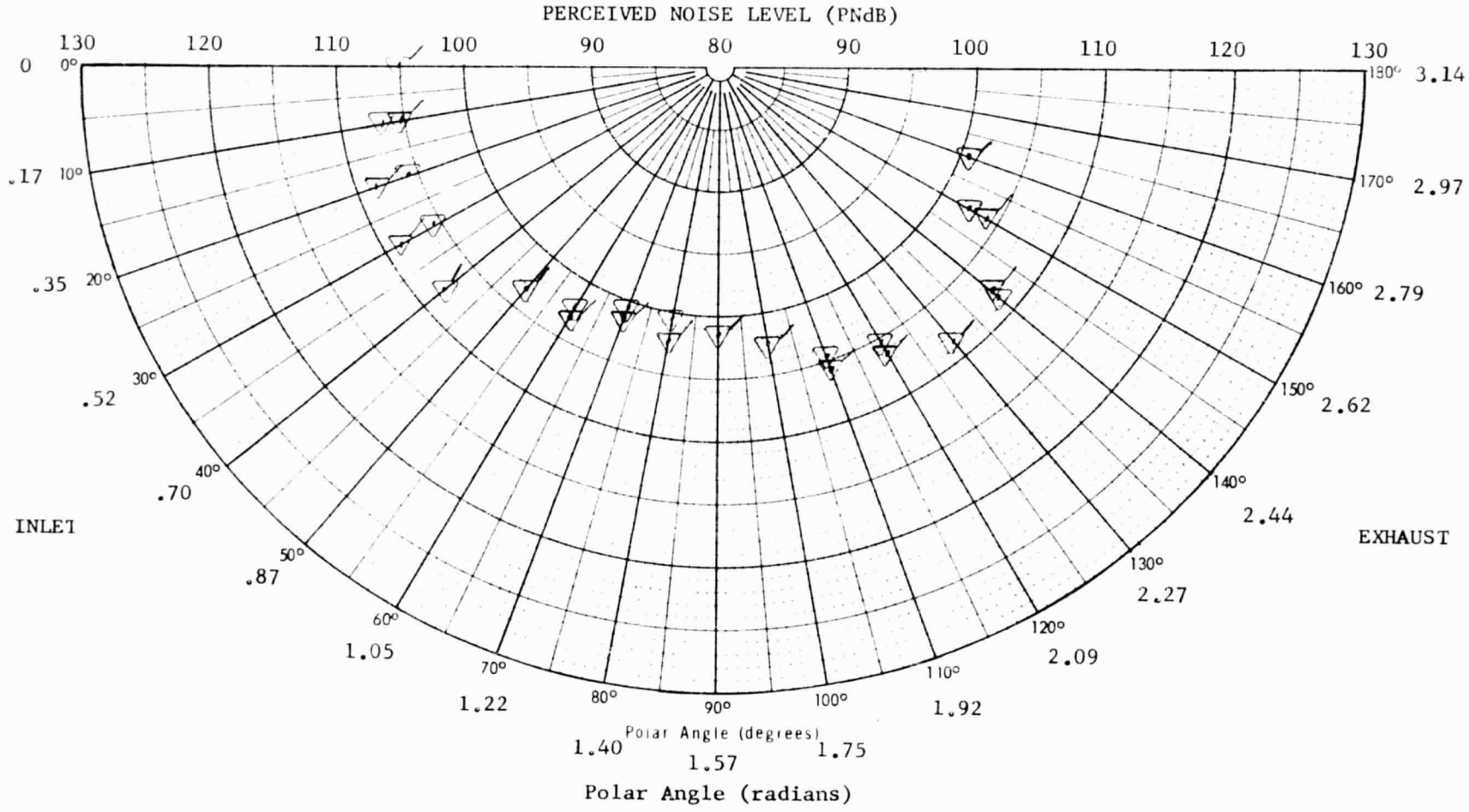
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		∩	⍁		
Run No.		5-52	5-55		
Date		9/4/68	9/4/68		
Tape No.		P-630	P-631		
Physical Speed	RPM	3662	3650		
	Rad/sec	383.4	382.2		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-17

KEY		∩	⍁		
Corr. Speed %		103.9	103.8		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B18

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

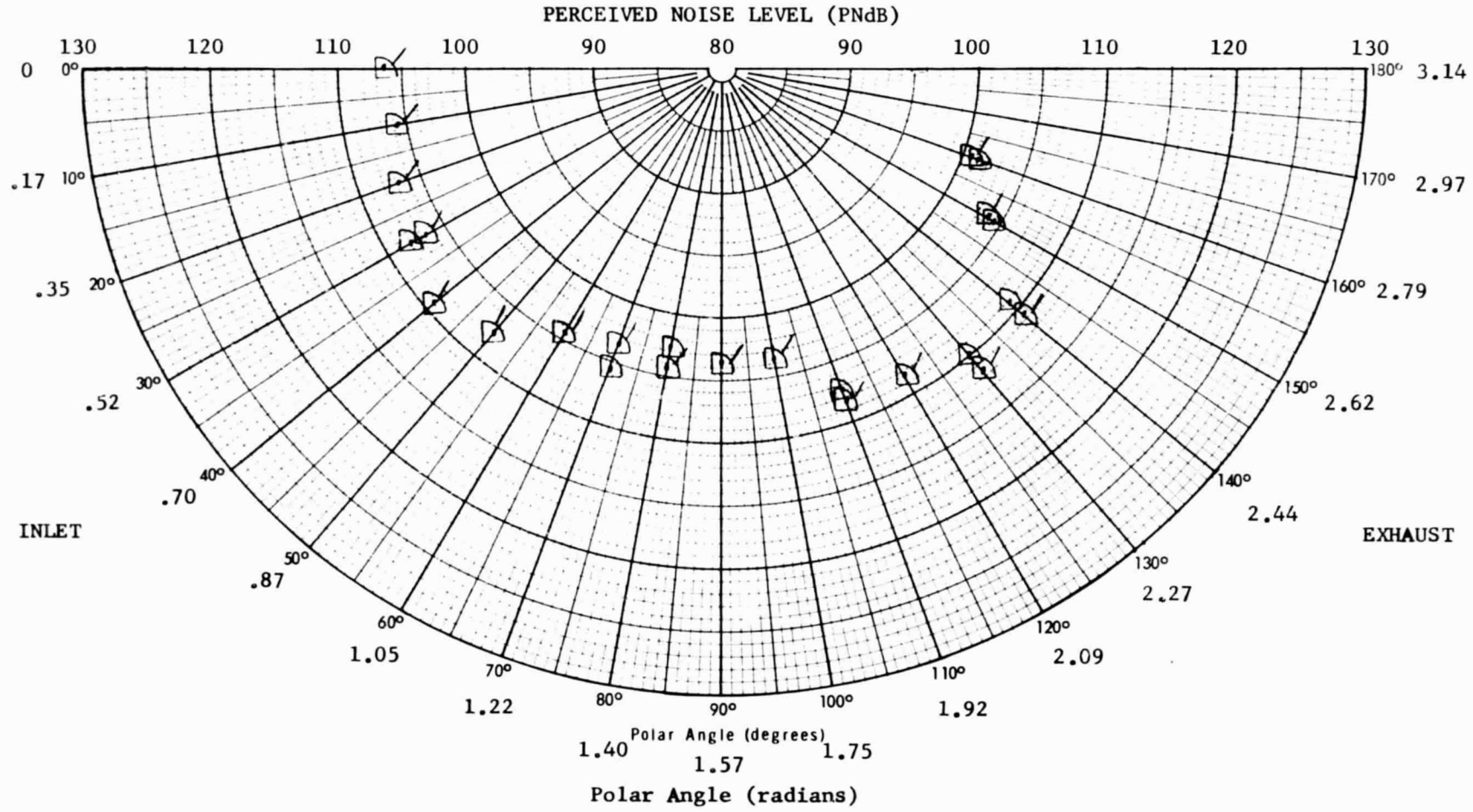
KEY		—	▽		
Run No.		5-34	5-47		
Date		9/4/68	9/4/68		
Tape No.		P-625	P-629		
Physical Speed	RPM	1707	1700		
	Rad/sec	178.7	177.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-18

KEY		—	▽		
Corr. Speed %		48.8	48.1		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



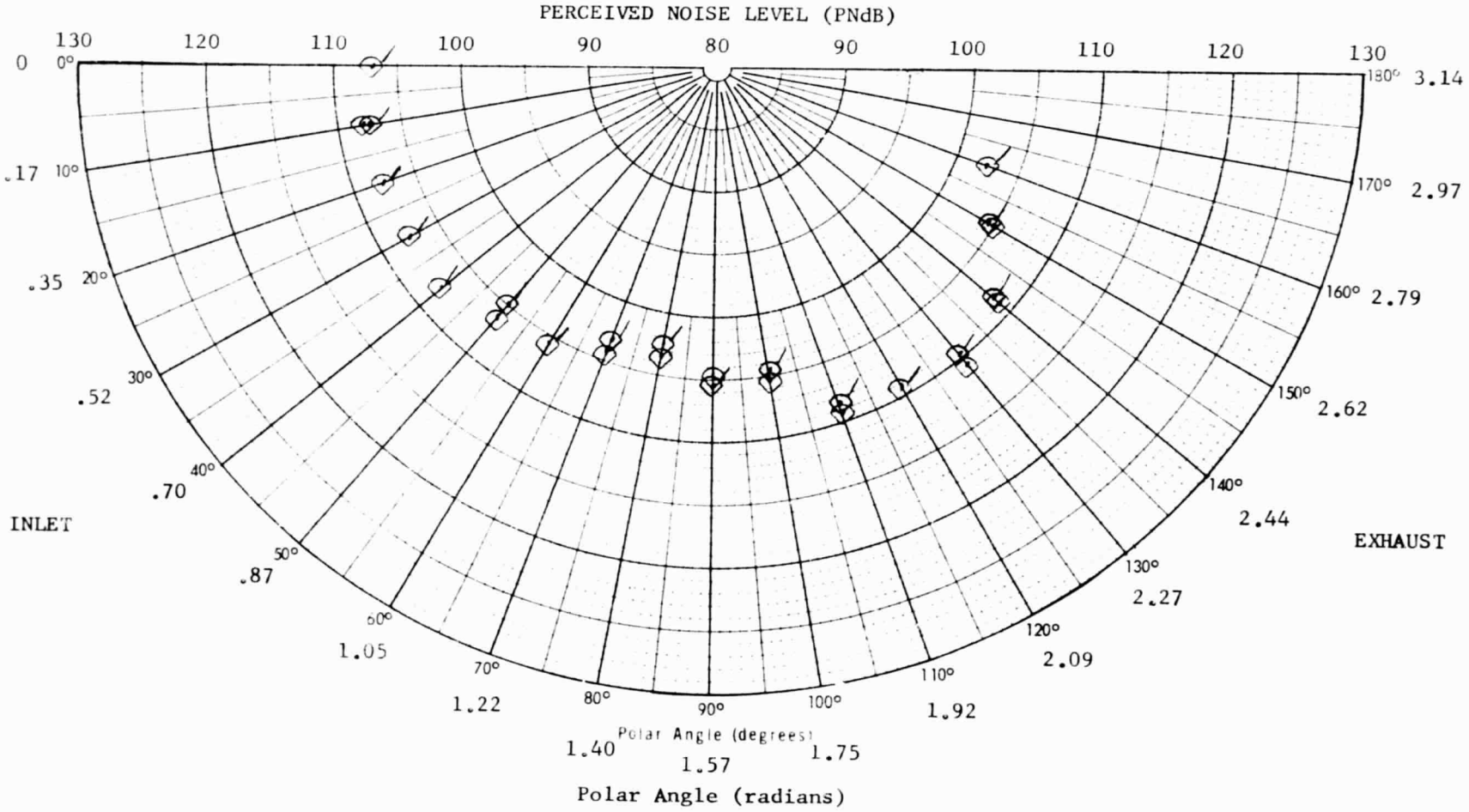
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		□	◁		
Run No.		5-35	5-49		
Date		9/4/68	9/4/68		
Tape No.		P-625	P-629		
Physical Speed	RPM	1856	1850		
	Rad/sec	194.3	193.7		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-19

KEY		⌒	⌒		
Corr. Speed %		52.9	52.4		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B20

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

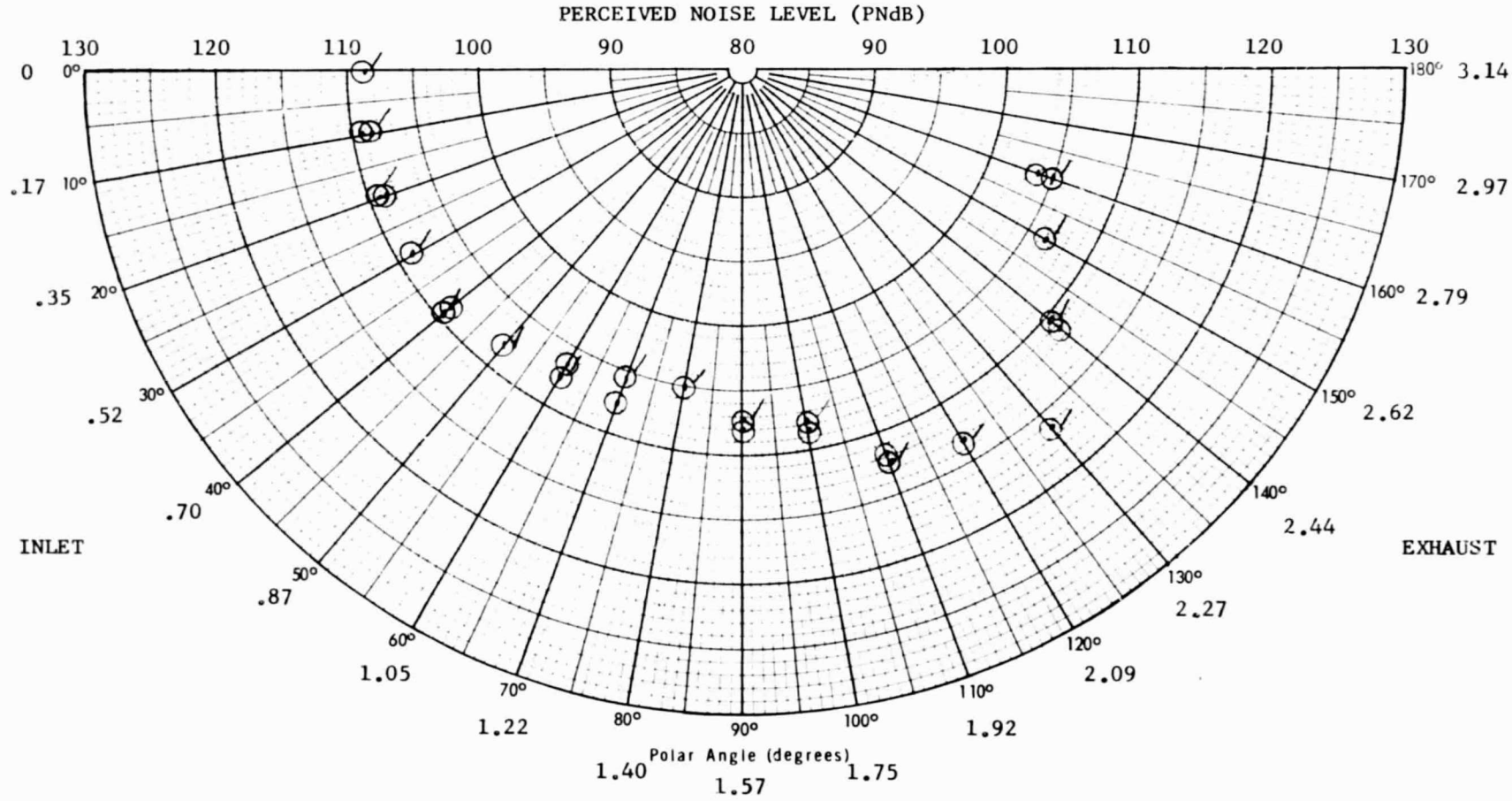
KEY		○	◇		
Run No.		5-36	5-51		
Date		9/4/68	9/4/68		
Tape No.		P-626	P-636		
Physical Speed	RPM	2016	2001		
	Rad/sec	211.1	209.5		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-20

KEY		○	◇		
Corr. Speed %		57.5	56.7		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B21

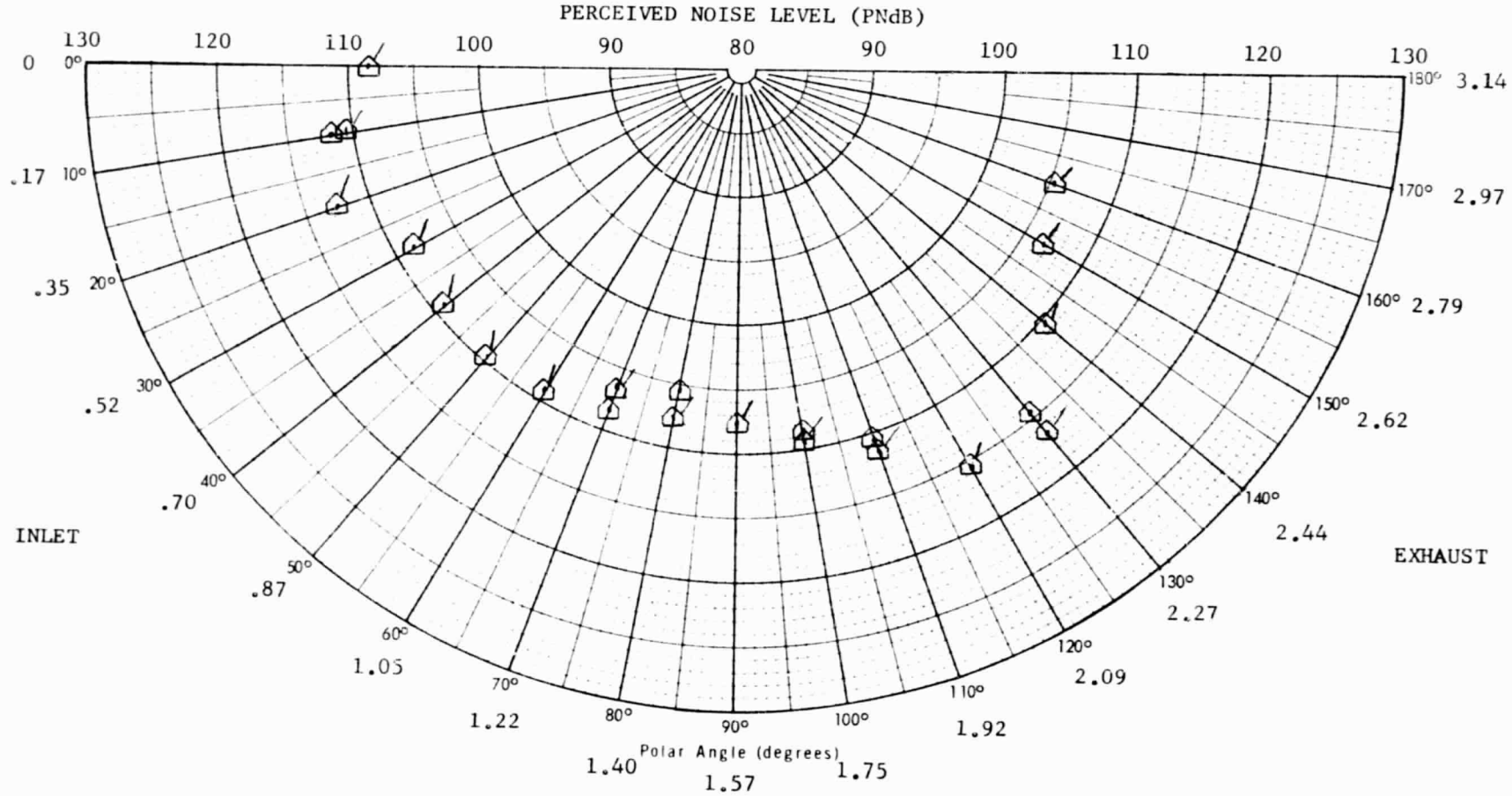
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◔		
Run No.		5-37	5-53		
Date		9/4/68	9/4/68		
Tape No.		P-626	P-630		
Physical Speed	RPM	2148	2150		
	Rad/sec	224.9	225.1		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

KEY		○	◔		
Corr. Speed %		61.3	61.0		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Figure B-21



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

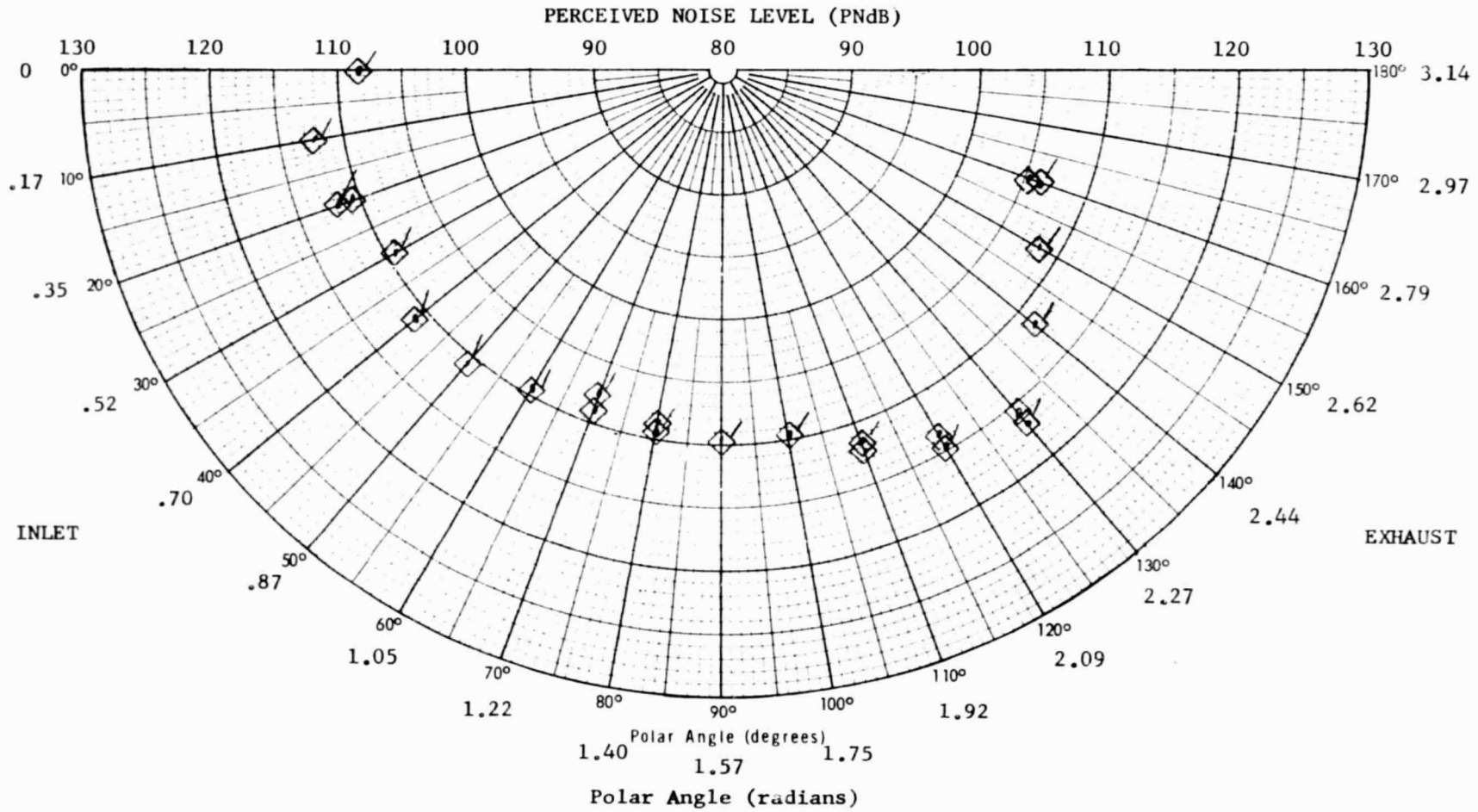
KEY		○	△		
Run No.		5-38	5-54		
Date		9/4/68	9/4/68		
Tape No.		P-626	P-631		
Physical Speed	RPM	2300	2316		
	Rad/sec	240.8	242.5		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-22

KEY		○	△		
Corr. Speed %		65.5	65.6		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B23

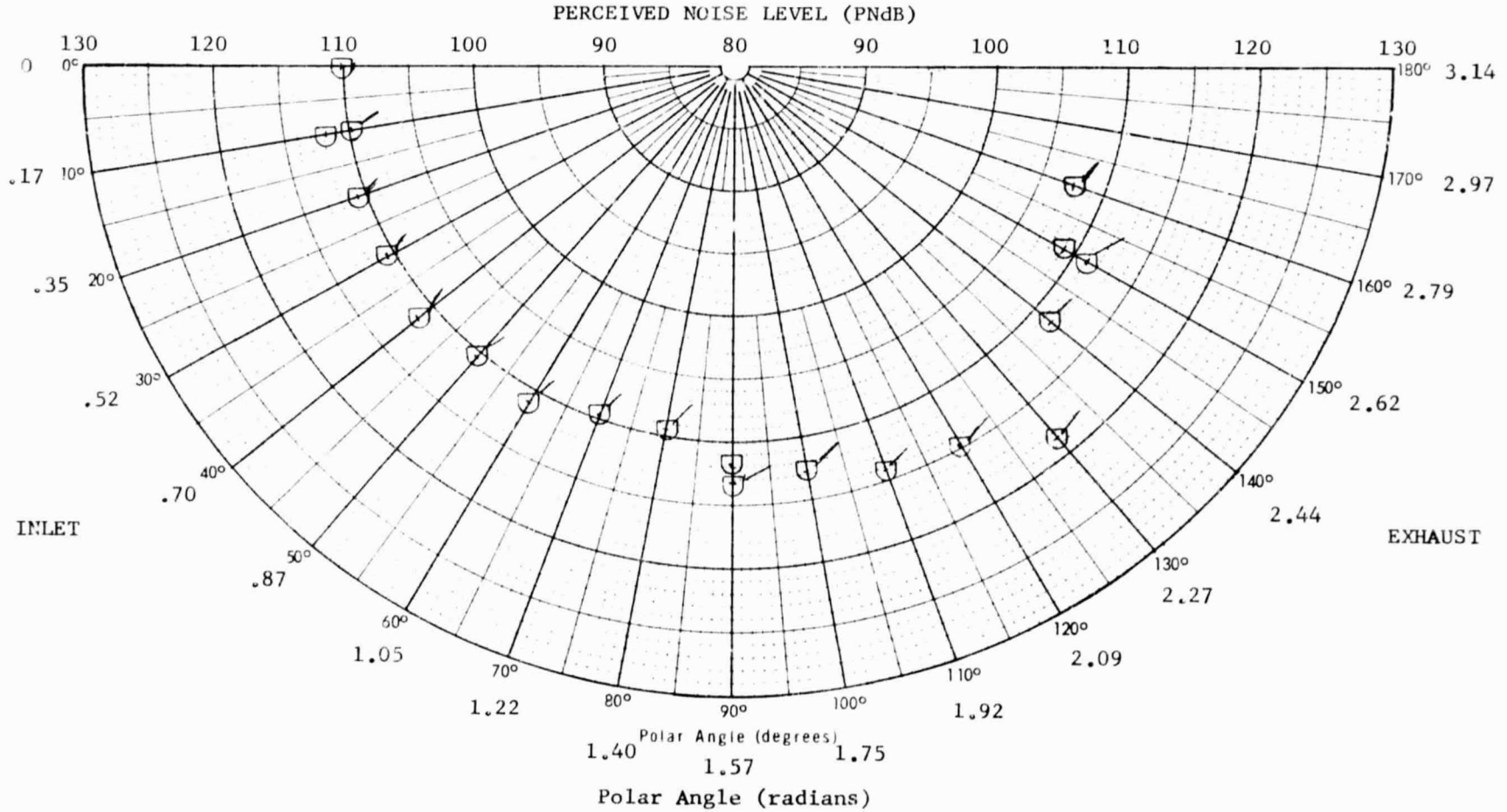
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		5-39	5-56		
Date		9/4/68	9/4/68		
Tape No.		P-627	P-631		
Physical Speed	RPM	2467	2450		
	Rad/sec	258.3	256.5		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-23

KEY		◇	◇		
Corr. Speed %		70.3	69.7		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

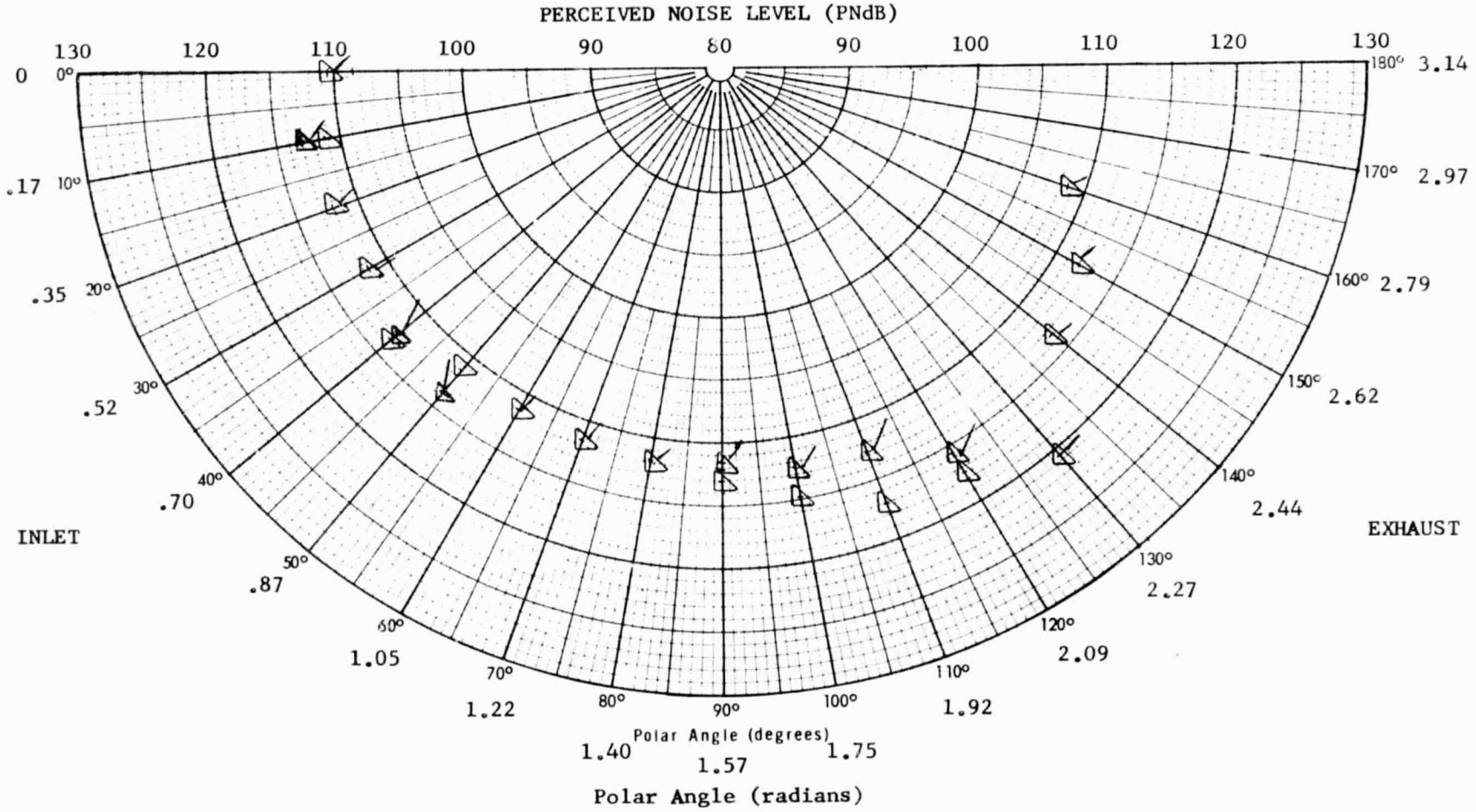
KEY		○	□		
Run No.		5-40	5-58		
Date		9/4/68	9/4/68		
Tape No.		P-627	P-632		
Physical Speed	RPM	2606	2615		
	Rad/sec	272.8	273.8		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-24

KEY		○	□		
Corr. Speed %		74.1	74.4		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B25

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

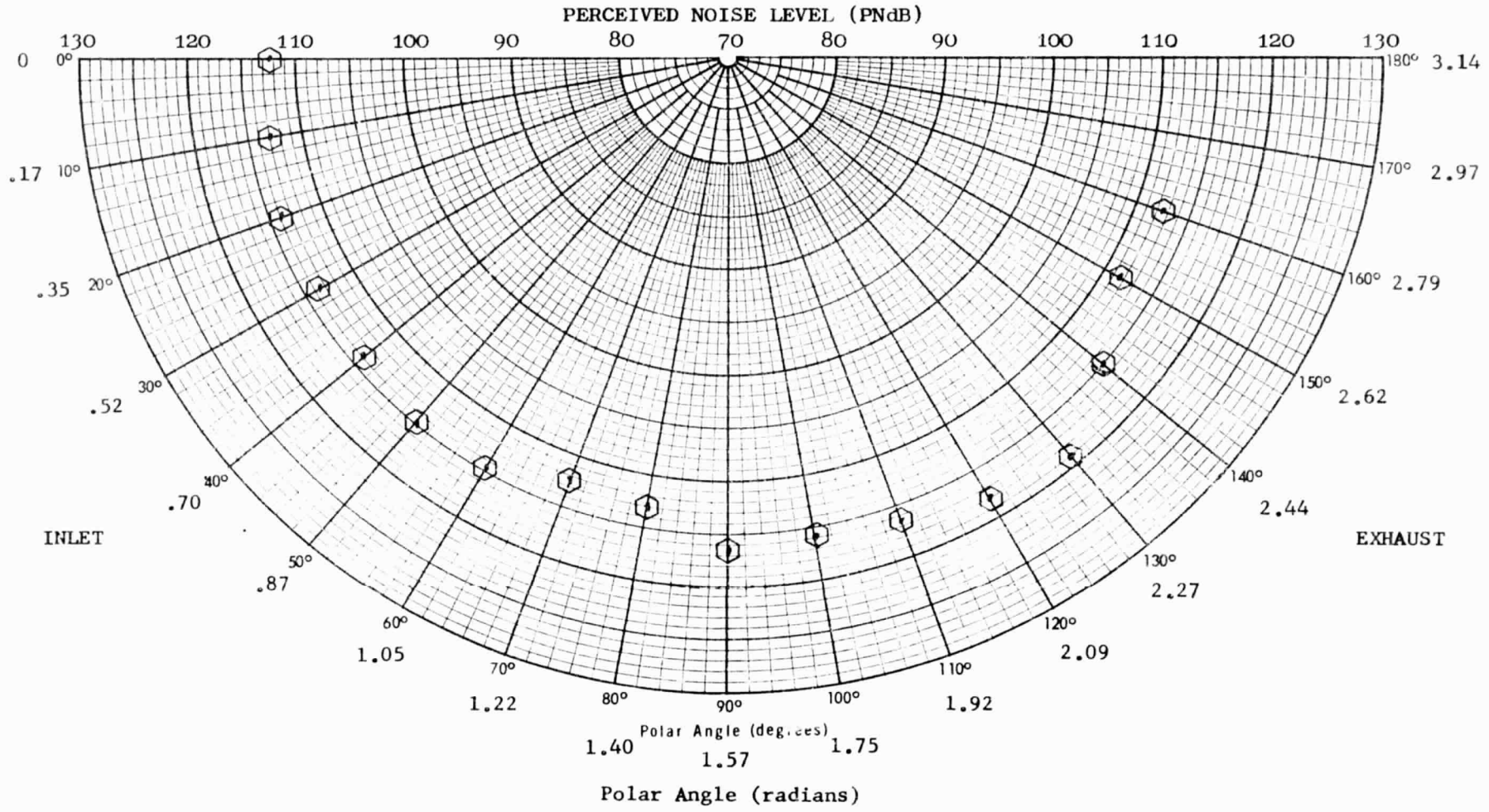
KEY		◺	◹		
Run No.		5-41	5-60		
Date		9/4/68	9/4/68		
Tape No.		P-627	P-632		
Physical Speed	RPM	2766	2774		
	Rad/sec	289.6	287.2		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-25

KEY		◺	◹		
Corr. Speed %		78.7	78.1		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



B26

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

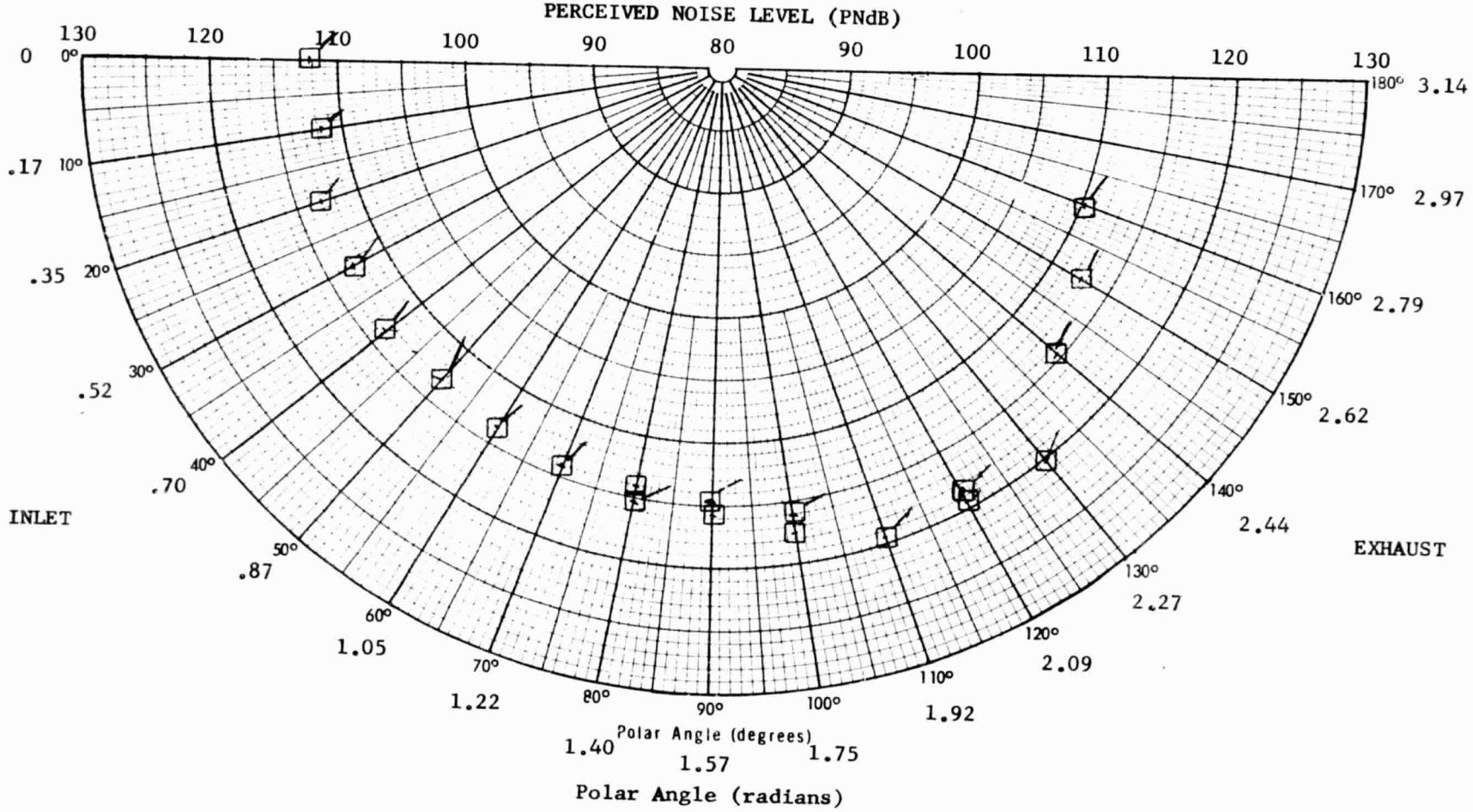
KEY		∩			
Run No.		5-62			
Date		9/4/68			
Tape No.		P-633			
Physical Speed	RPM	2900			
	Rad/sec	303.6			

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-26

KEY		⬡			
Corr. Speed %		82.6			
Fan Noz. Area	In^2	1718.5			
	m^2	1.1087			
Core Noz. Area	In^2	927.7			
	m^2	.5986			

Form No. N-



R27

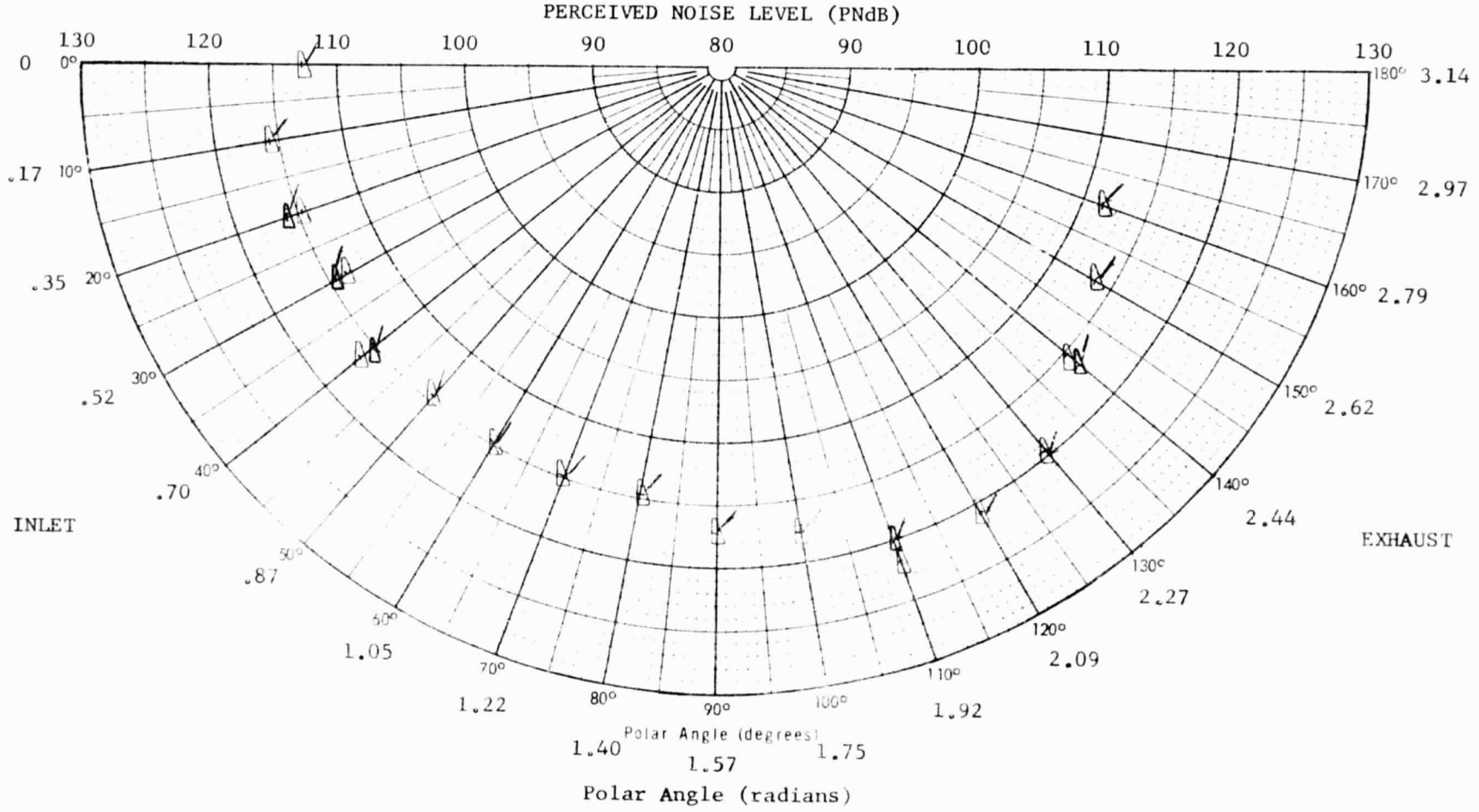
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		□	⊓		
Run No.		5-43	5-64		
Date		9/4/68	9/4/68		
Tape No.		P-628	P-634		
Physical Speed	RPM	3054	3050		
	Rad/sec	319.8	319.4		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-27

KEY		□	⊓		
Corr. Speed %		86.7	86.8		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B28

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

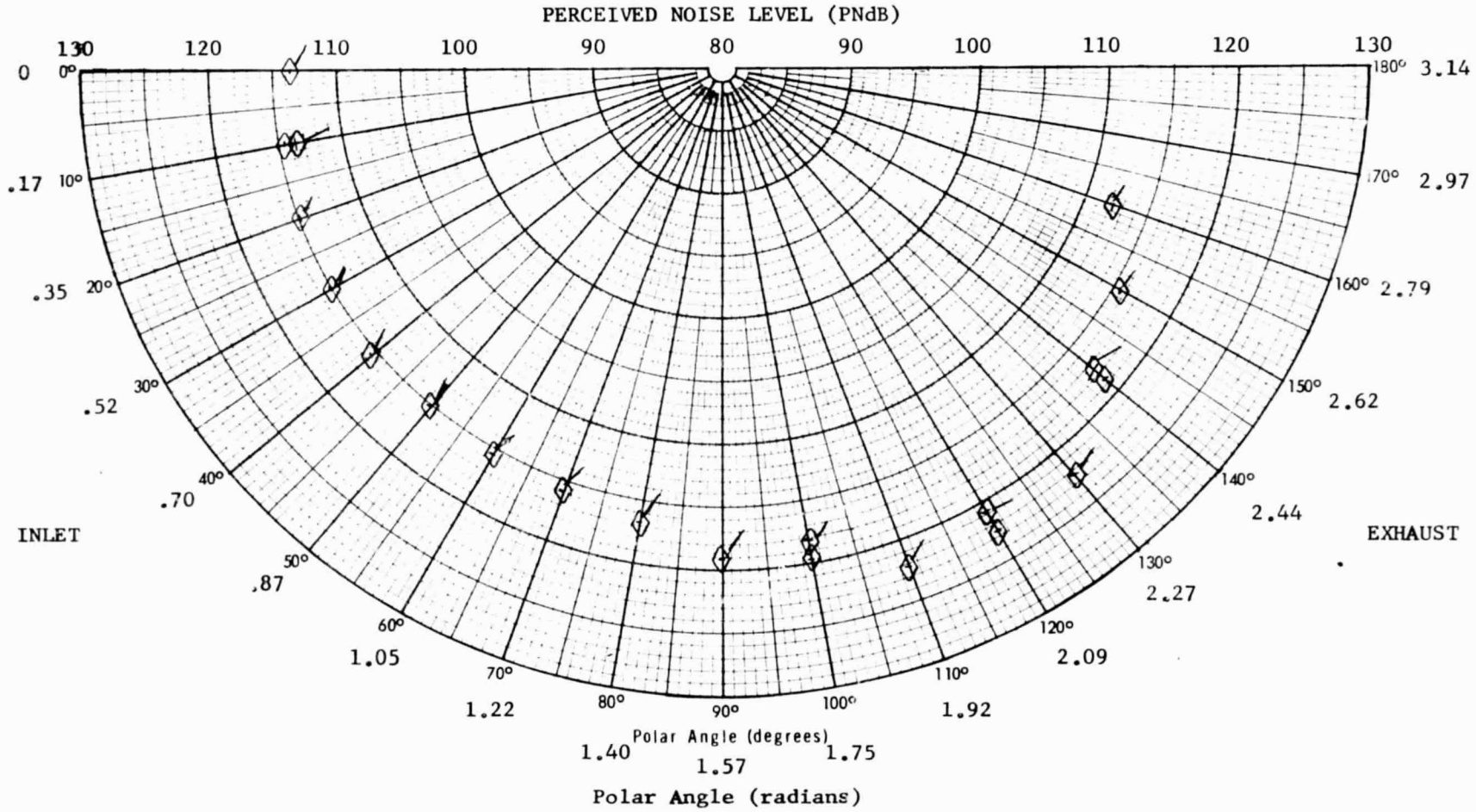
KEY		∧	∨		
Run No.		5-44	5-65		
Date		9/4/68	9/4/68		
Tape No.		P-628	P-633		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-28

KEY		∧	∨		
Corr. Speed %		90.8	91.1		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B29

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

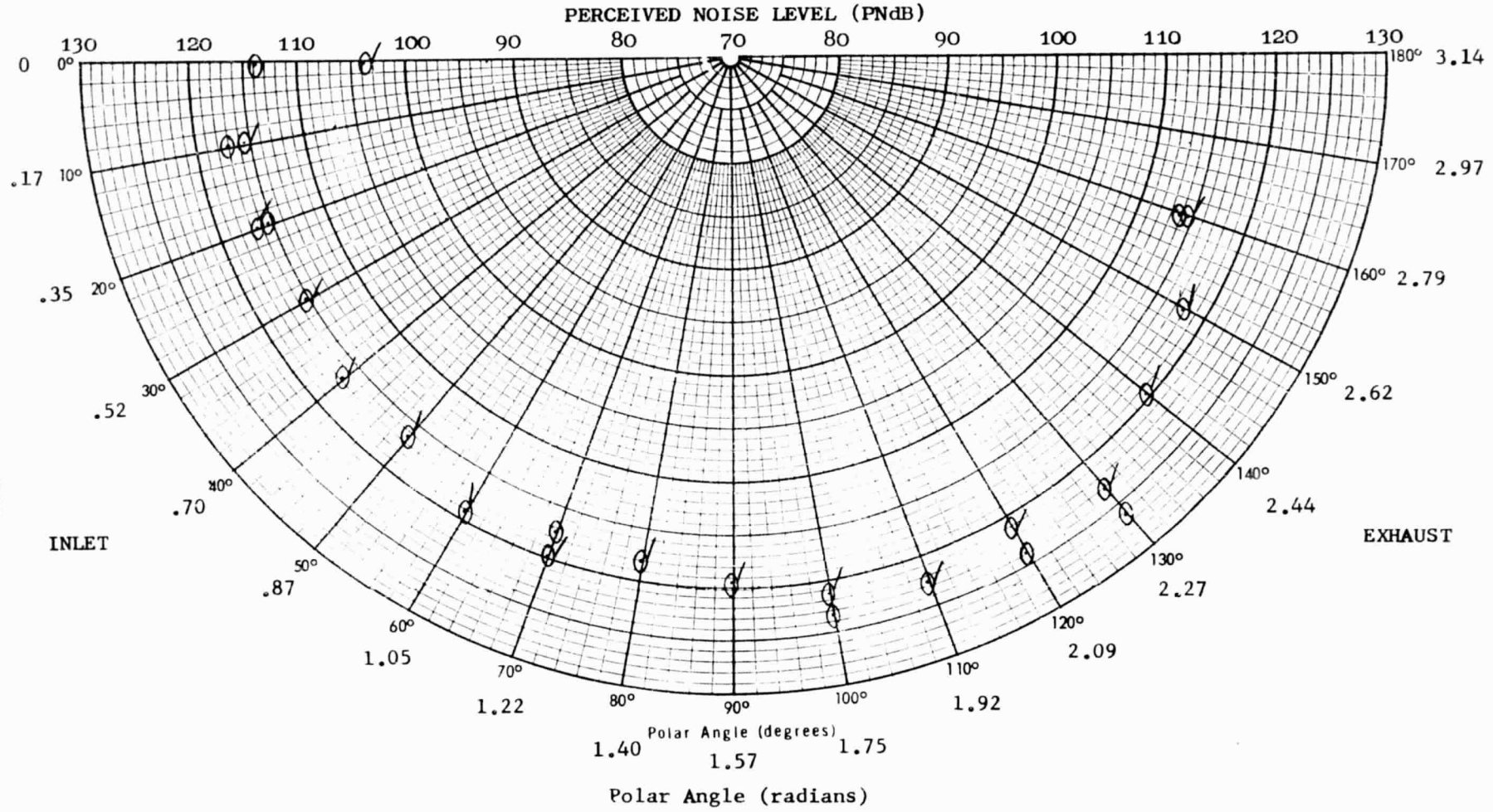
KEY		◇	◇		
Run No.		5-45	5-61		
Date		9/4/68	9/4/68		
Tape No.		P-628	P-633		
Physical Speed	RPM	3350	3350		
	Rad/sec	350.7	350.7		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

KEY		◇	◇		
Corr. Speed %		95.1	95.4		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Figure B-29

Form No. N-3



B30

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

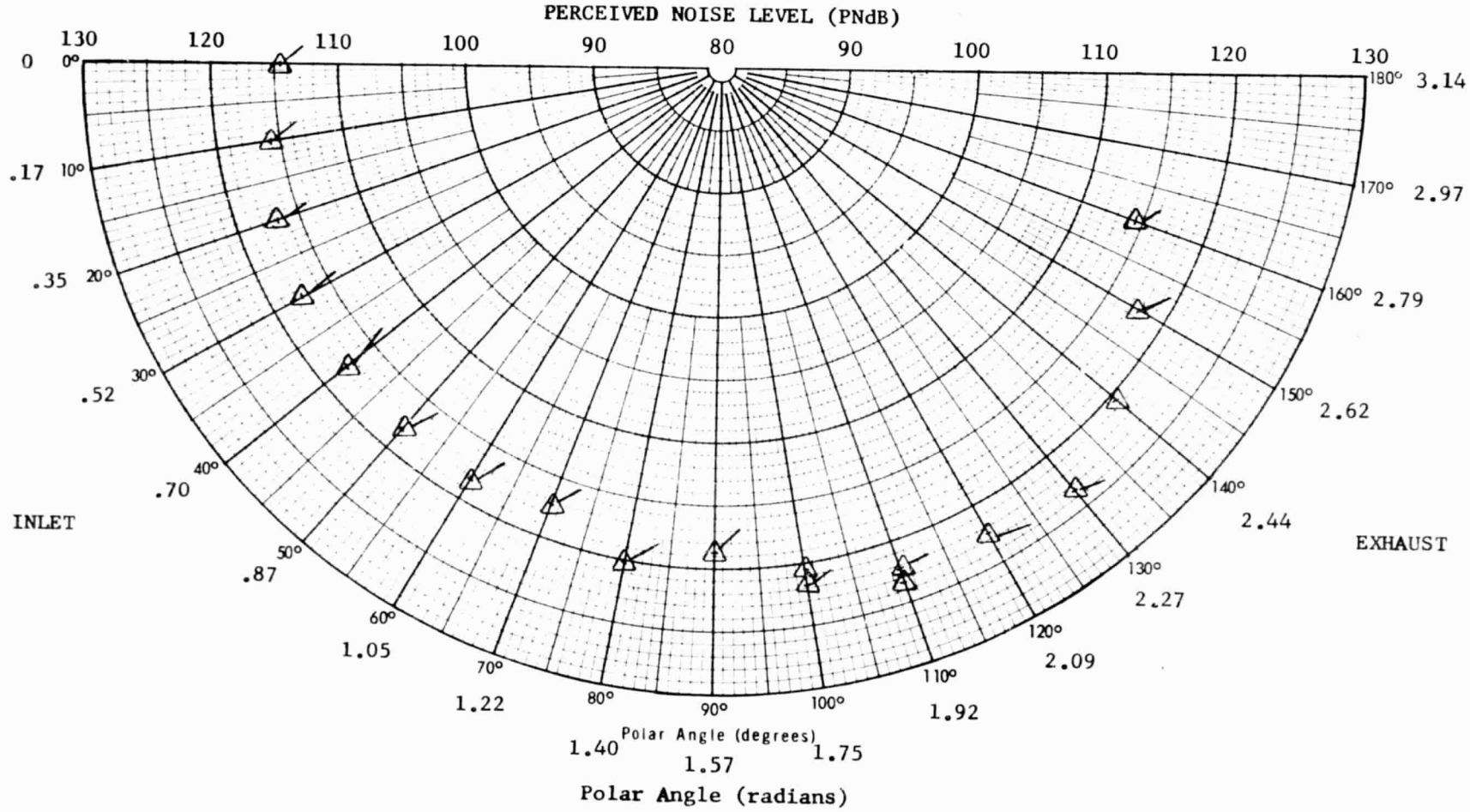
KEY		0	0'		
Run No.		5-46	5-59		
Date		9/4/68	9/4/68		
Tape No.		P-629	P-632		
Physical Speed	RPM	3484	3468		
	Rad/sec	364.8	363.1		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-30

KEY		0	0'		
Corr. Speed %		98.7	98.7		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B31

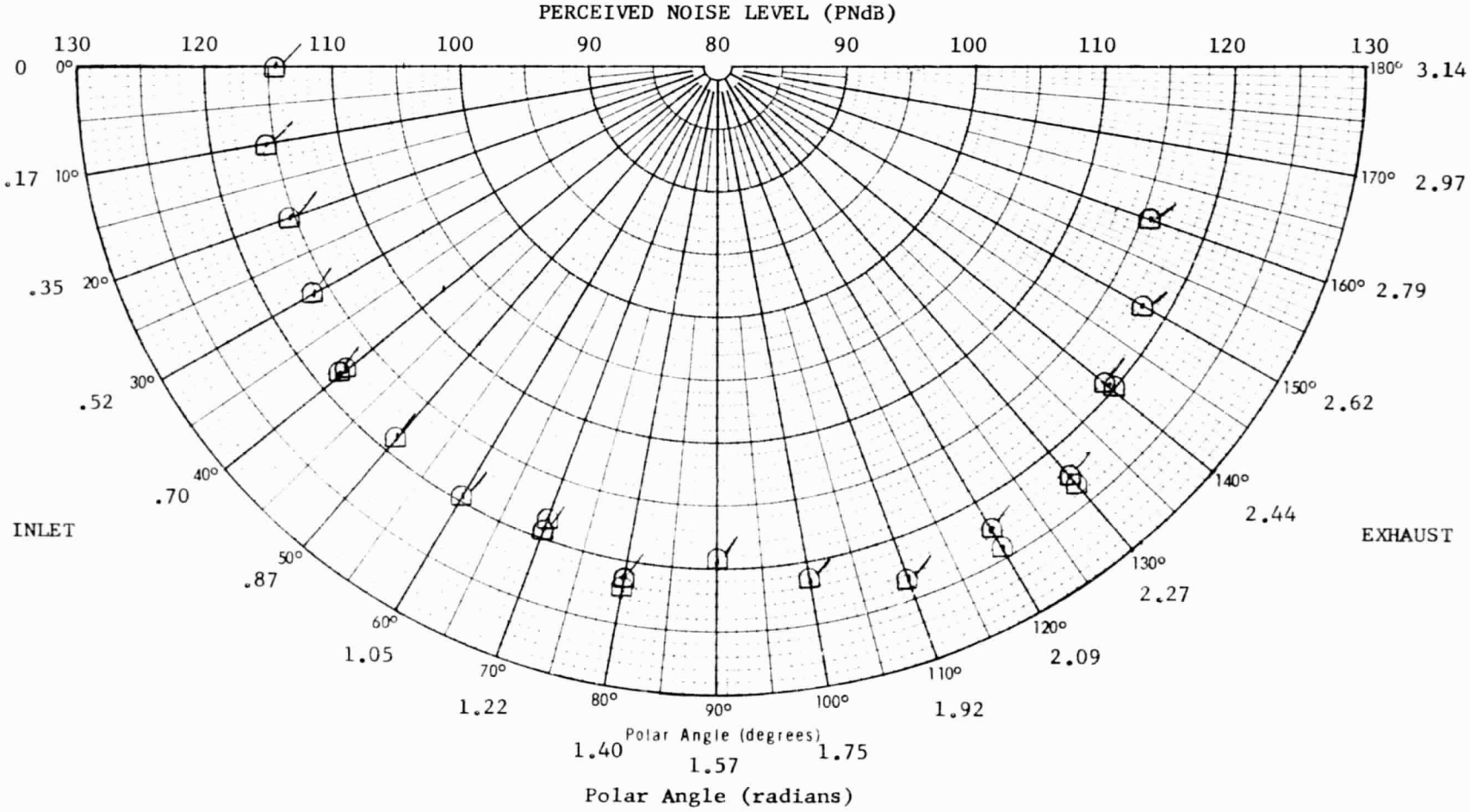
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	△		
Run No.		5-50	5-57		
Date		9/4/68	9/4/68		
Tape No.		P-630	P-631		
Physical Speed	RPM	3557	3562		
	Rad/sec	372.4	372.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-31

KEY		△	△		
Corr. Speed %		100.8	101.4		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

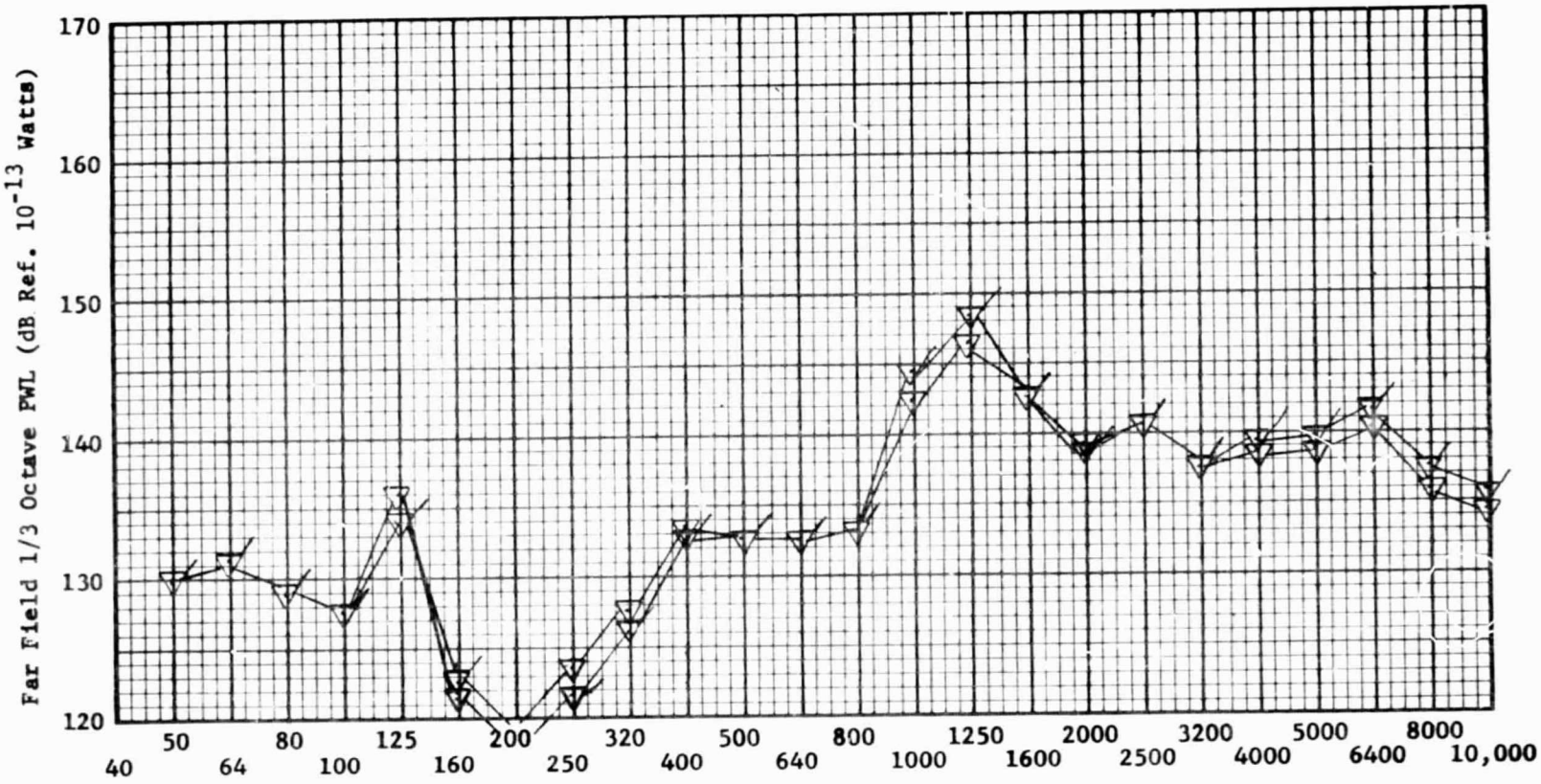
KEY		∩	∩		
Run No.		5-52	5-55		
Date		9/4/68	9/4/68		
Tape No.		P-630	P-631		
Physical Speed	RPM	3662	3650		
	Rad/sec	383.4	382.2		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-32

KEY		∩	∩		
Corr. Speed %		103.9	103.8		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. " 2



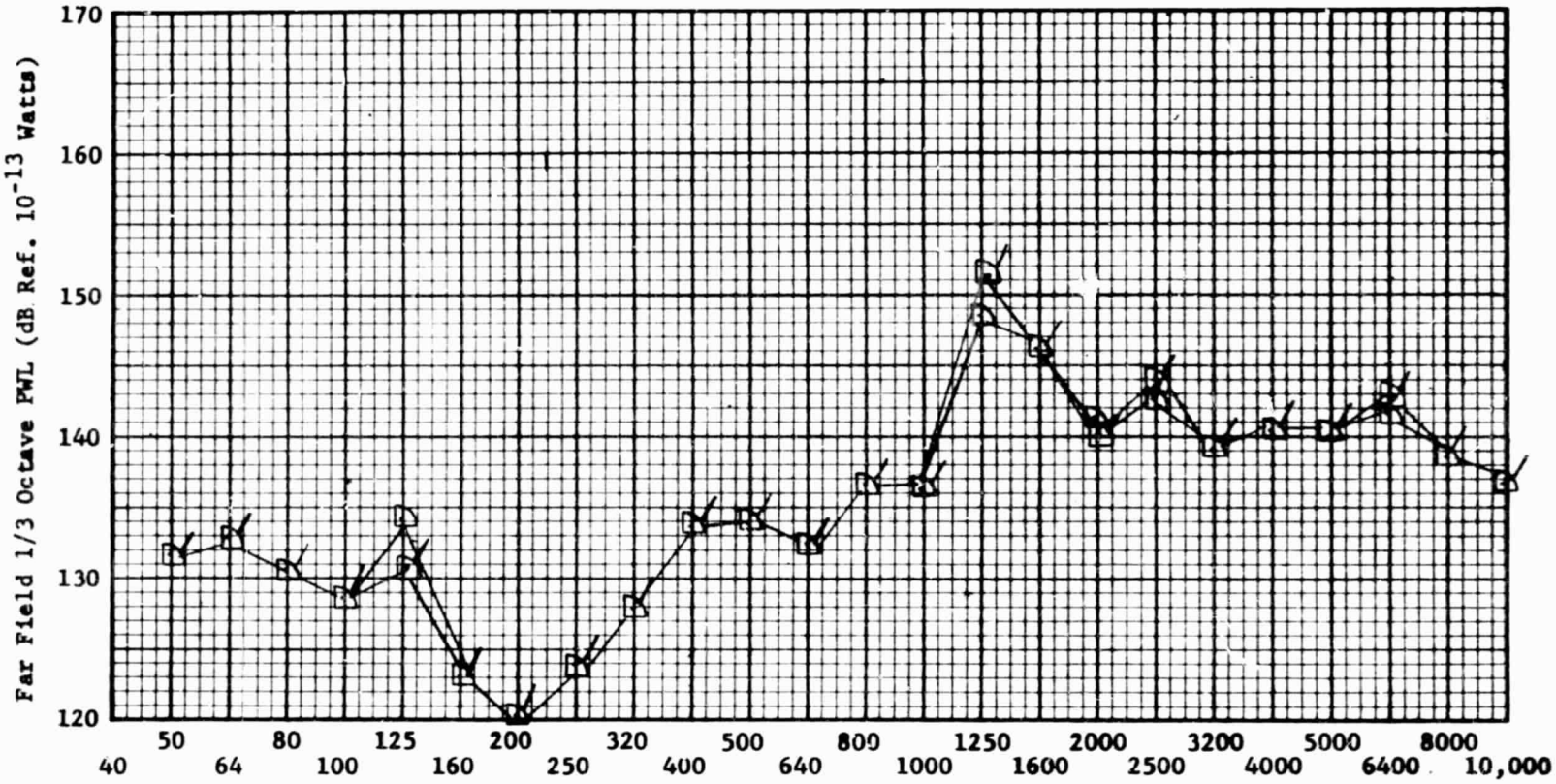
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		▽	▽		
Run No.		5-34	5-47		
Date		9/4/68	9/4/68		
Tape No.		P-625	P-629		
Physical Speed	RPM	1707	1700		
	Rad/sec	178.7	177.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

KEY		▽	▽		
Corr. Speed %		48.8	48.1		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Figure B-33



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

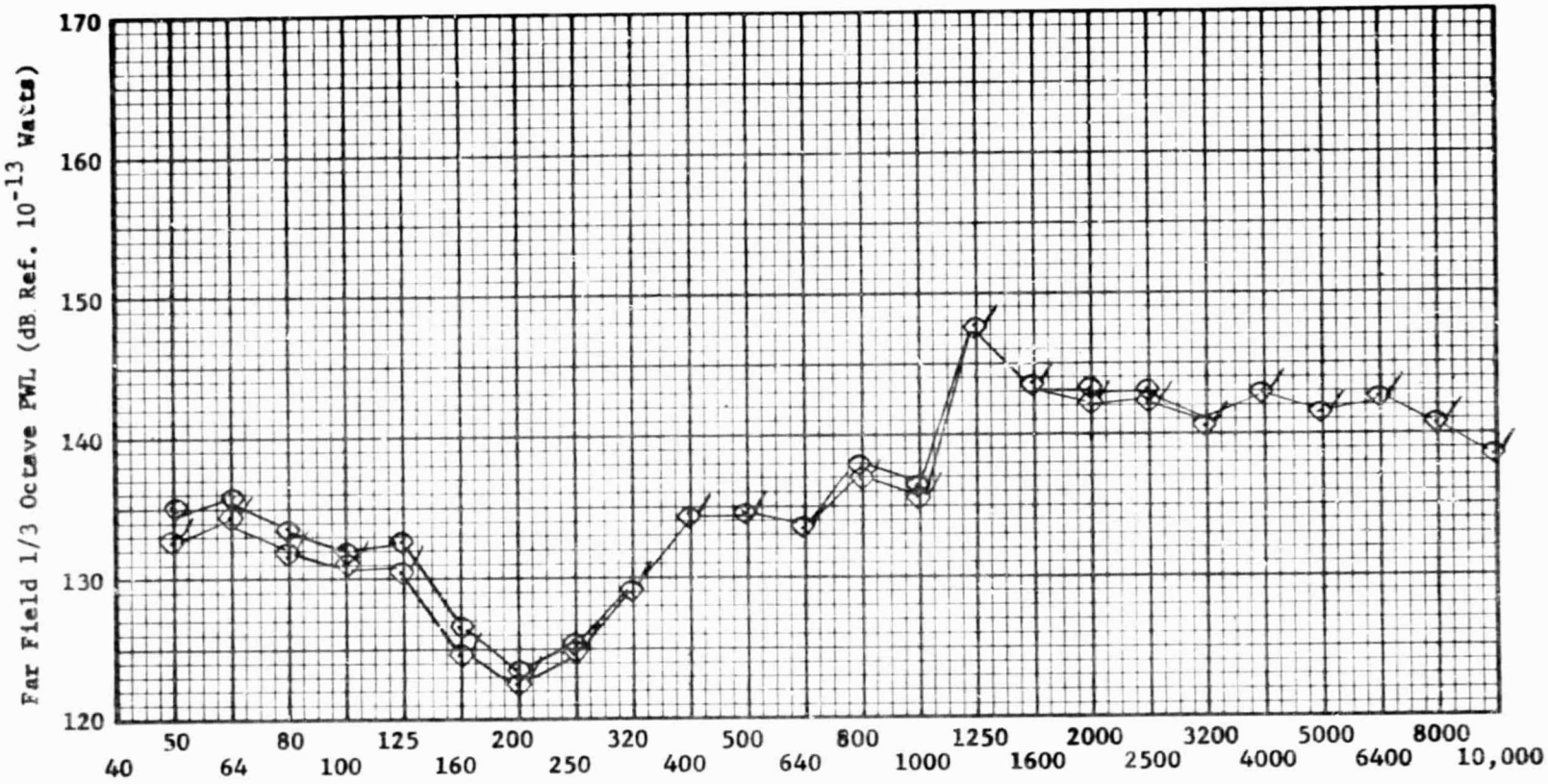
KEY		D	D		
Run No.		5-35	5-49		
Date		9/4/68	9/4/68		
Tape No.		P-625	P-629		
Physical Speed	RPM	1856	1850		
	Rad/sec	194.3	193.7		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-34

KEY		∩	D		
Corr. Speed %		52.9	52.4		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. 3



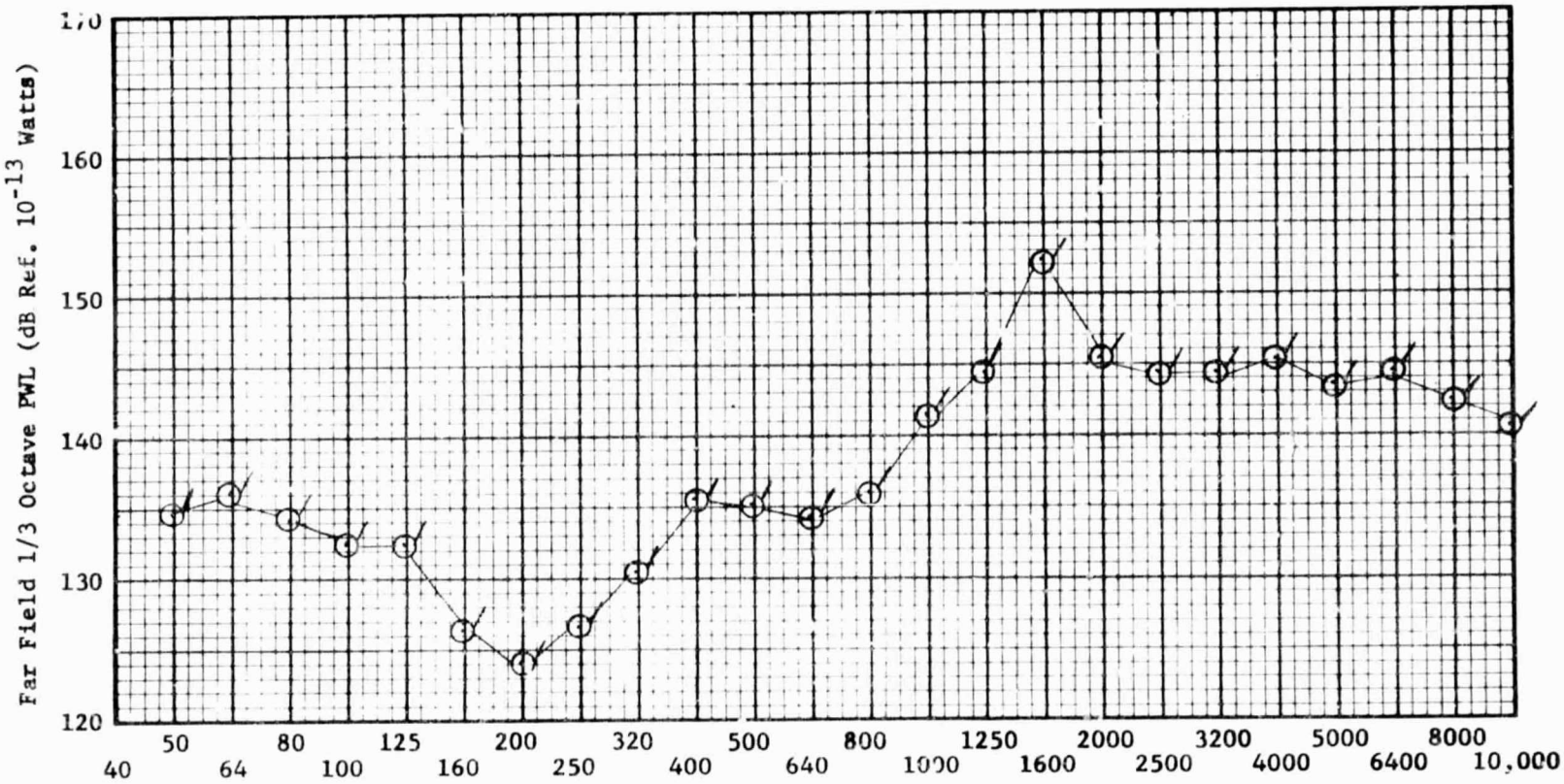
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		5-36	5-51		
Date		9/4/68	9/4/68		
Tape No.		P-625	P-630		
Physical Speed	RPM	2016	2001		
	Rad/sec	211.1	209.5		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-35

KEY		◇	◇		
Corr. Speed %		57.5	56.7		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

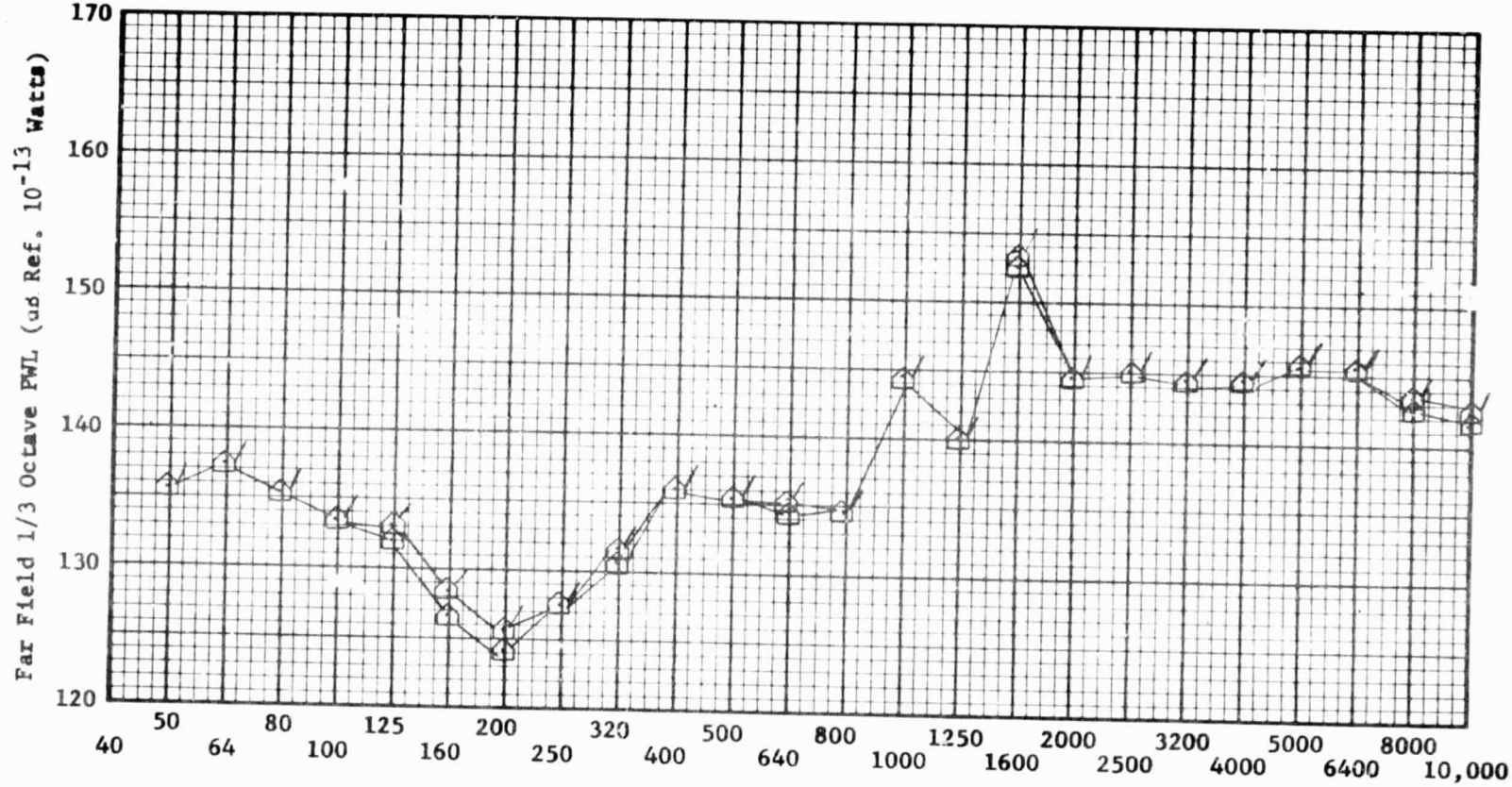
KEY		○	◇		
Run No.		5-37	5-53		
Date		9/4/68	9/4/68		
Tape No.		P-626	P-630		
Physical Speed	RPM	2148	2150		
	Rad/sec	224.9	225.1		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-36

KEY		○	◇		
Corr. Speed %		61.3	61.0		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. ?



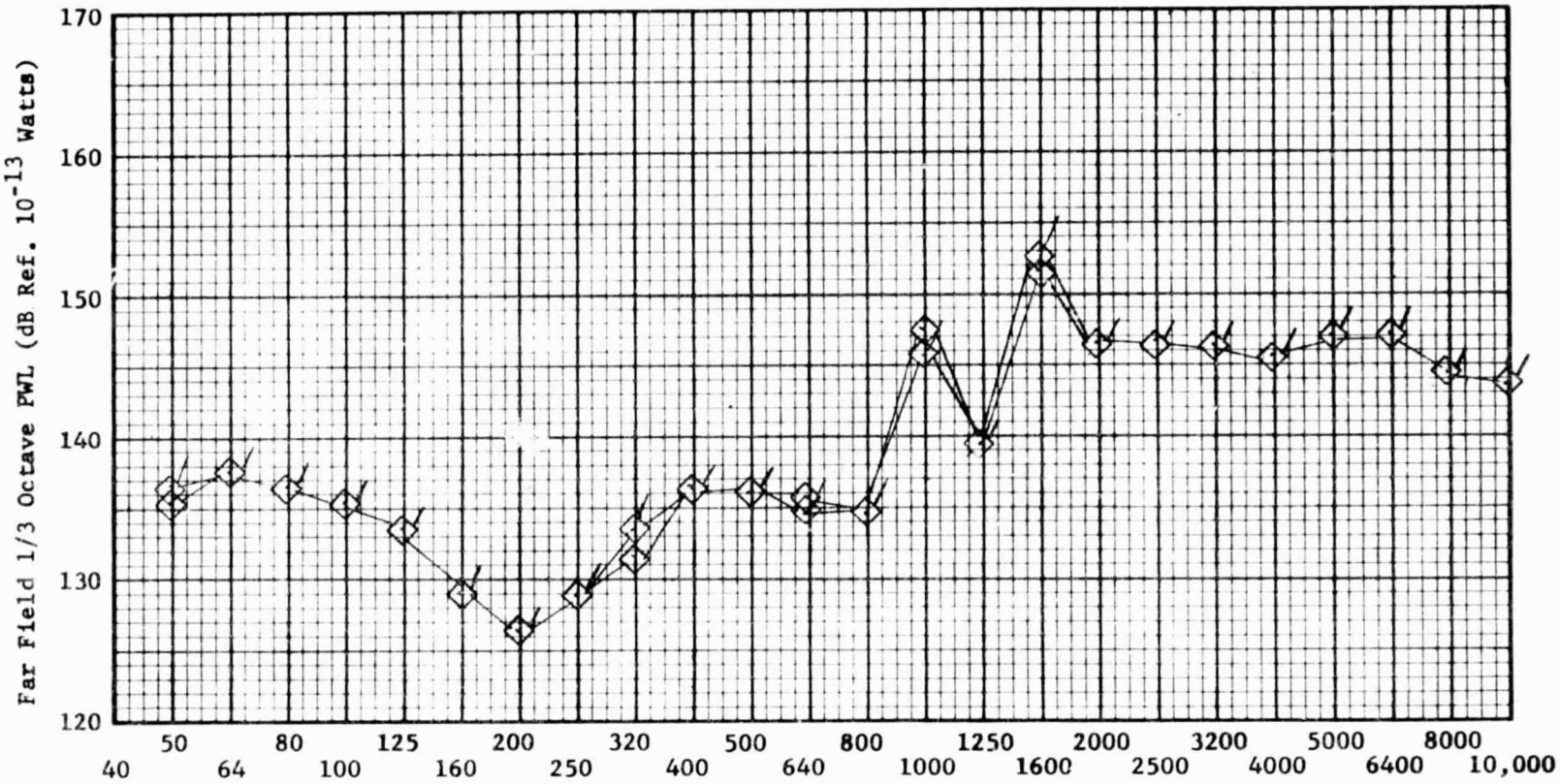
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		⌂	⌂		
Run No.		5-38	5-54		
Date		9/4/68	9/4/68		
Tape No.		P-626	P-631		
Physical Speed	RPM	2300	2316		
	Rad/sec	240.8	242.5		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-37

KEY		⌂	⌂		
Corr. Speed %		65.5	65.6		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

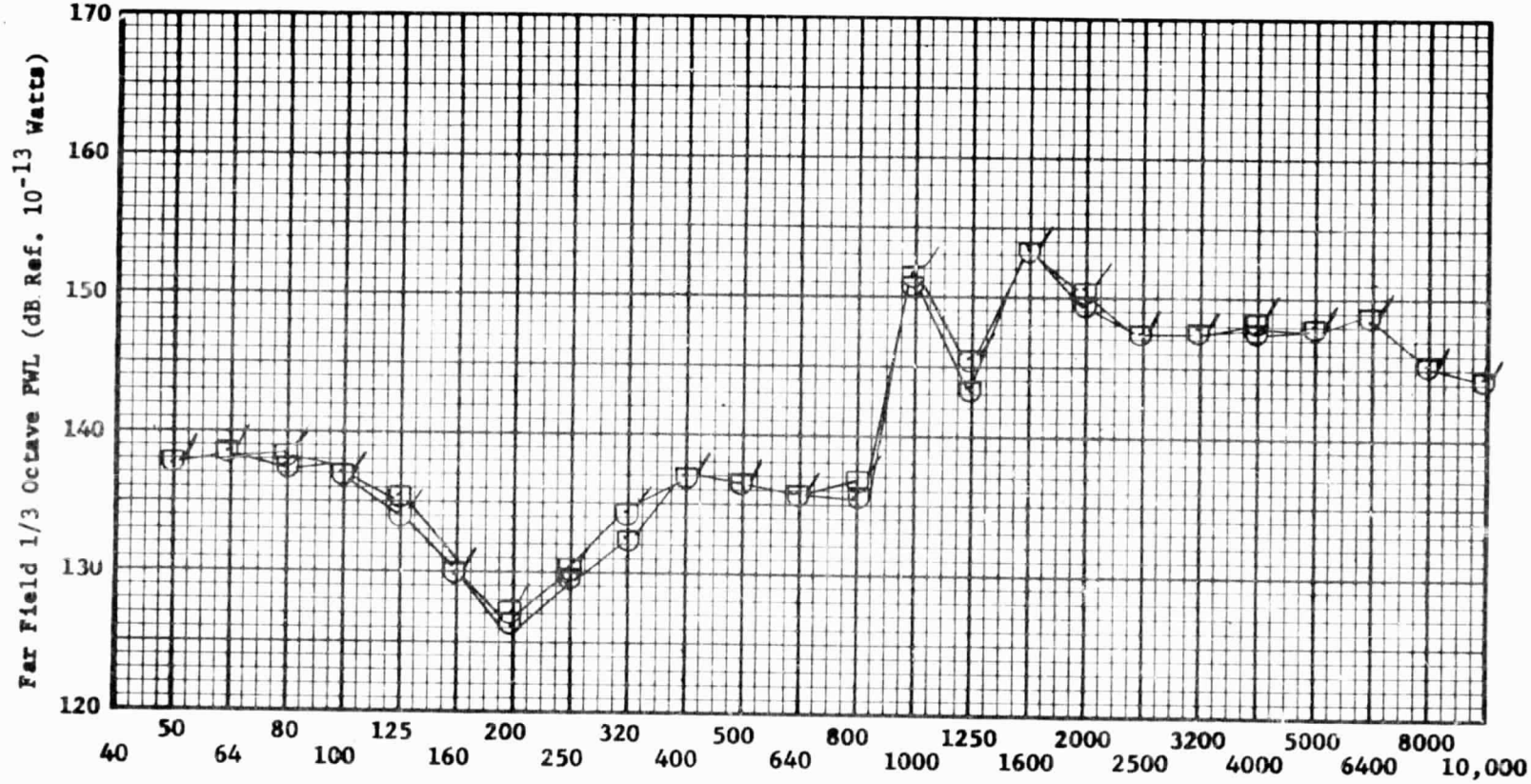
KEY		^	◇		
Run No.		5-39	5-56		
Date		9/4/68	9/4/68		
Tape No.		P-627	P-631		
Physical Speed	RPM	2467	2450		
	Rad/sec	258.3	256.5		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-38

KEY		◇	◇		
Corr. Speed %		70.3	69.7		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. [illegible] 2



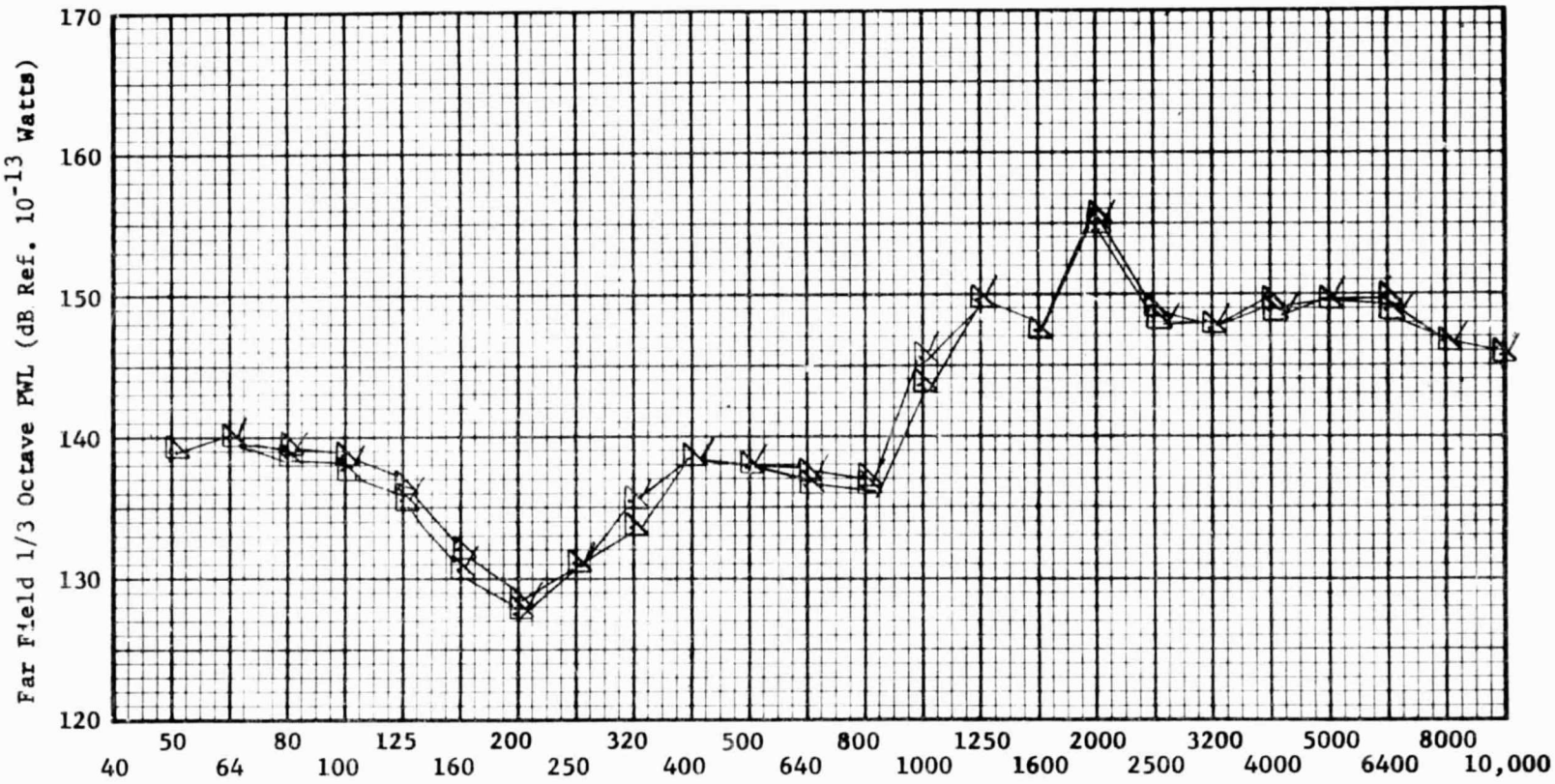
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		∪	∪′		
Run No.		5-40	5-58		
Date		9/4/68	9/4/68		
Tape No.		P627	P-632		
Physical Speed	RPM	2606	2615		
	Rad/sec	272.8	273.8		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-39

KEY		∪	∪′		
Corr. Speed %		74.1	74.4		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

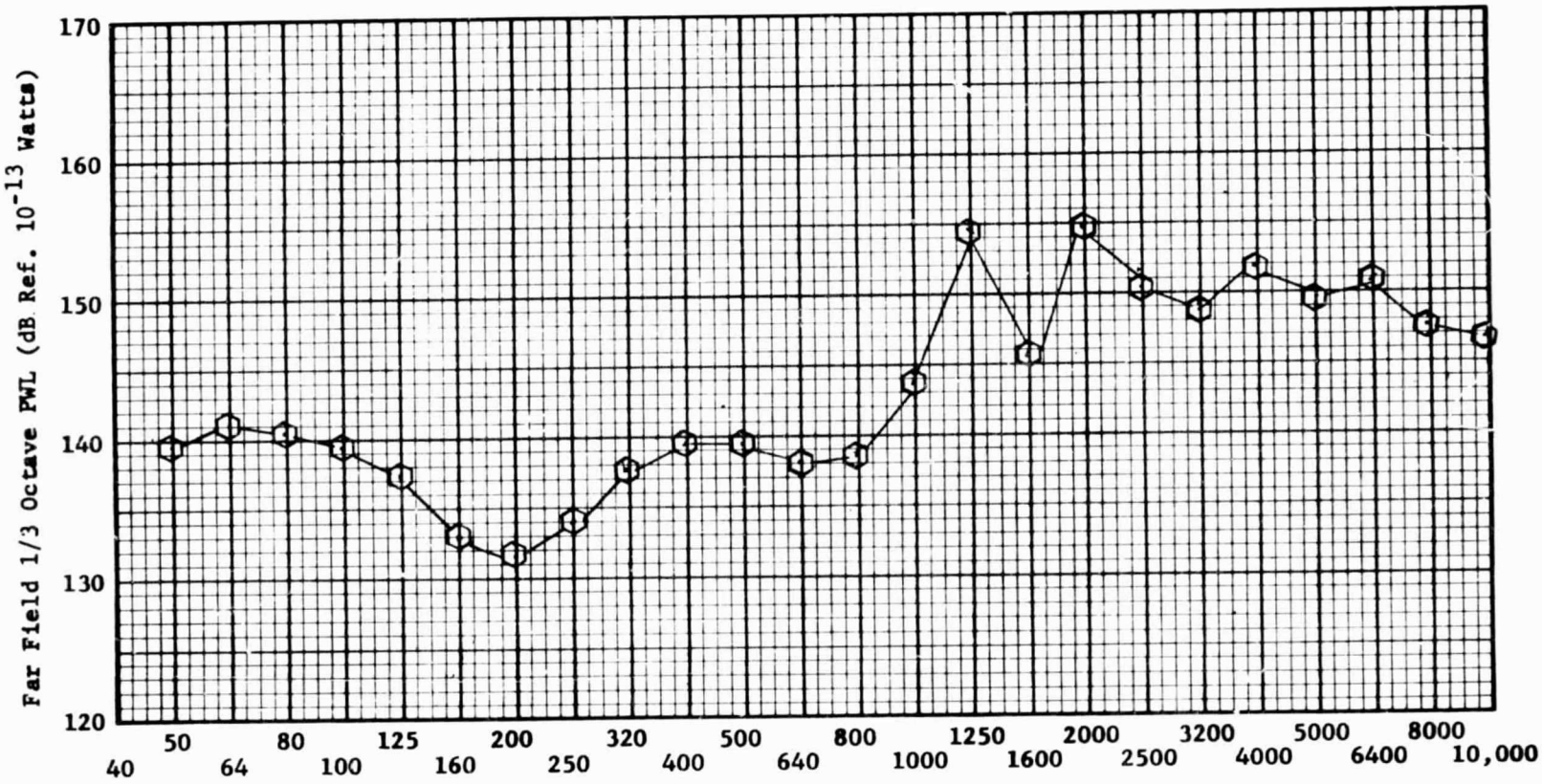
KEY		△	▽		
Run No.		5-41	5-60		
Date		9/4/68	9/4/68		
Tape No.		P-627	P-632		
Physical Speed	RPM	2766	2743		
	Rad/sec	289.6	287.2		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-40

KEY		△	▽		
Corr. Speed %		78.7	78.1		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. 2



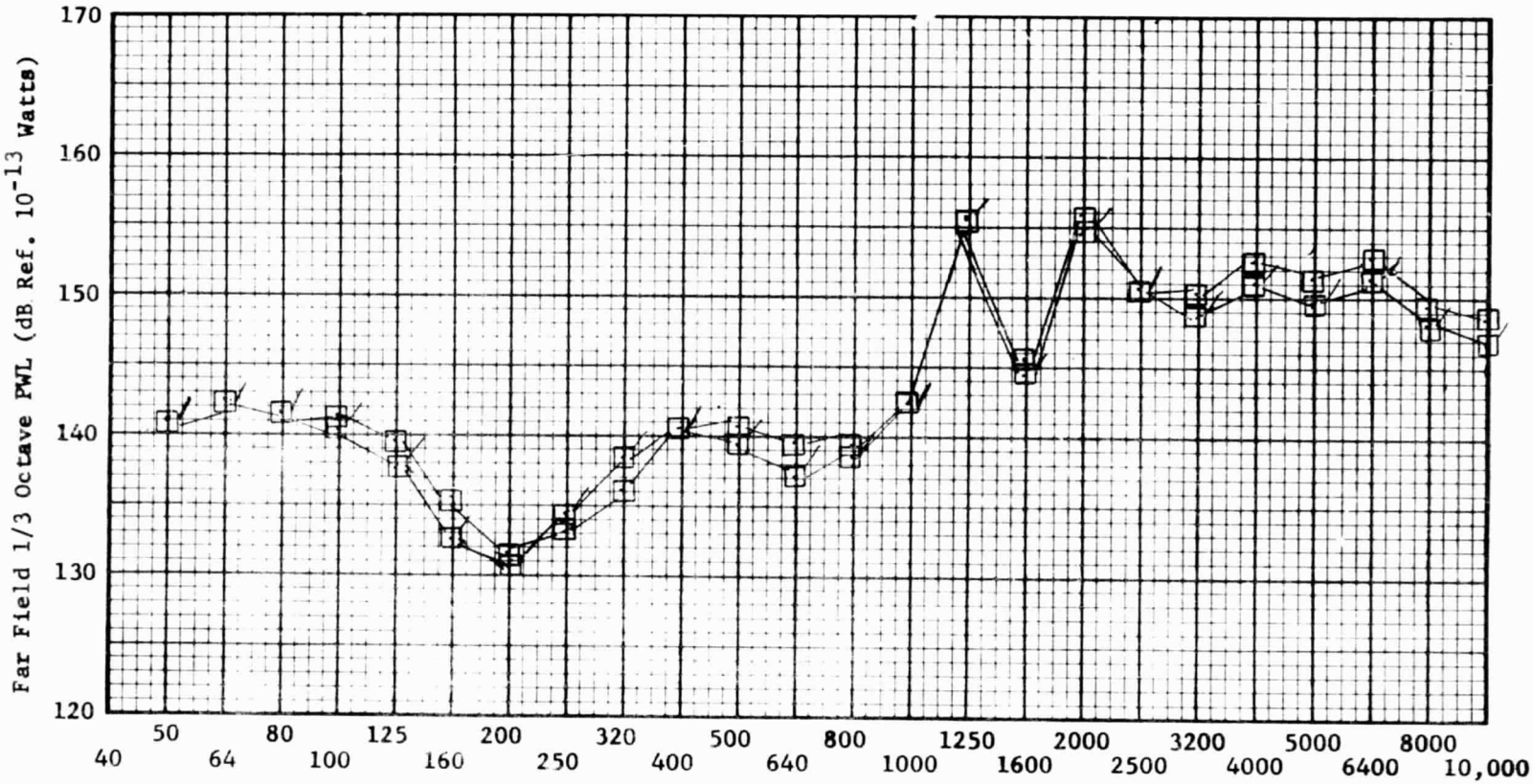
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		⬡			
Run No.		5-62			
Date		9/4/68			
Tape No.		P-633			
Physical Speed	RPM	2900			
	Rad/sec	303.6			

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-41

KEY		⬡			
Corr. Speed %		82.6			
Fan Noz. Area	In^2	1718.5			
	m^2	1.1087			
Core Noz. Area	In^2	927.7			
	m^2	.5986			



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

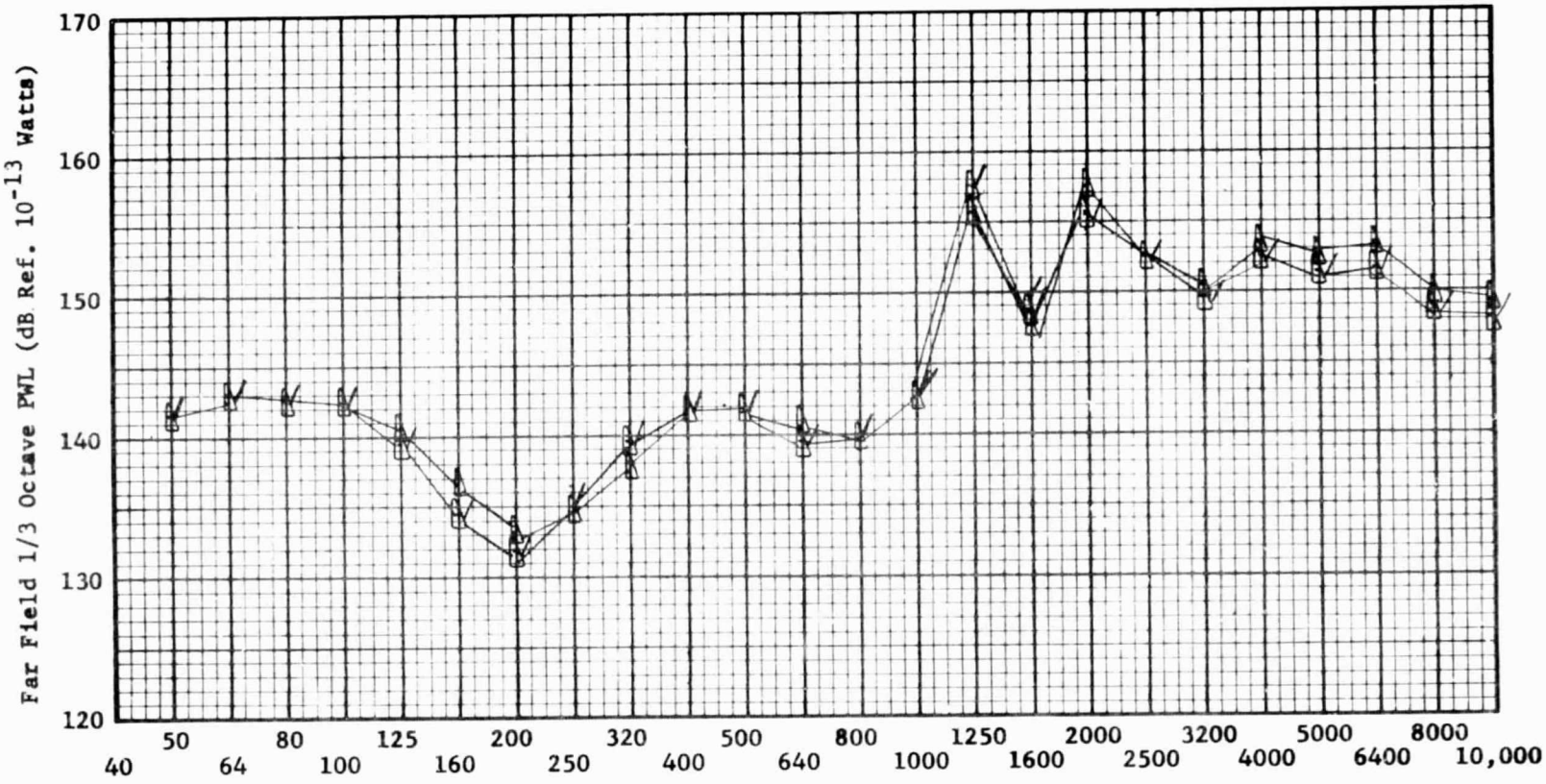
KEY		□	▱		
Run No.		5-43	5-64		
Date		9/4/68	9/4/68		
Tape No.		P-628	P-634		
Physical Speed	RPM	3054	3050		
	Rad/sec	319.8	319.4		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-42

KEY		□	▱		
Corr. Speed %		86.7	86.8		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. ?



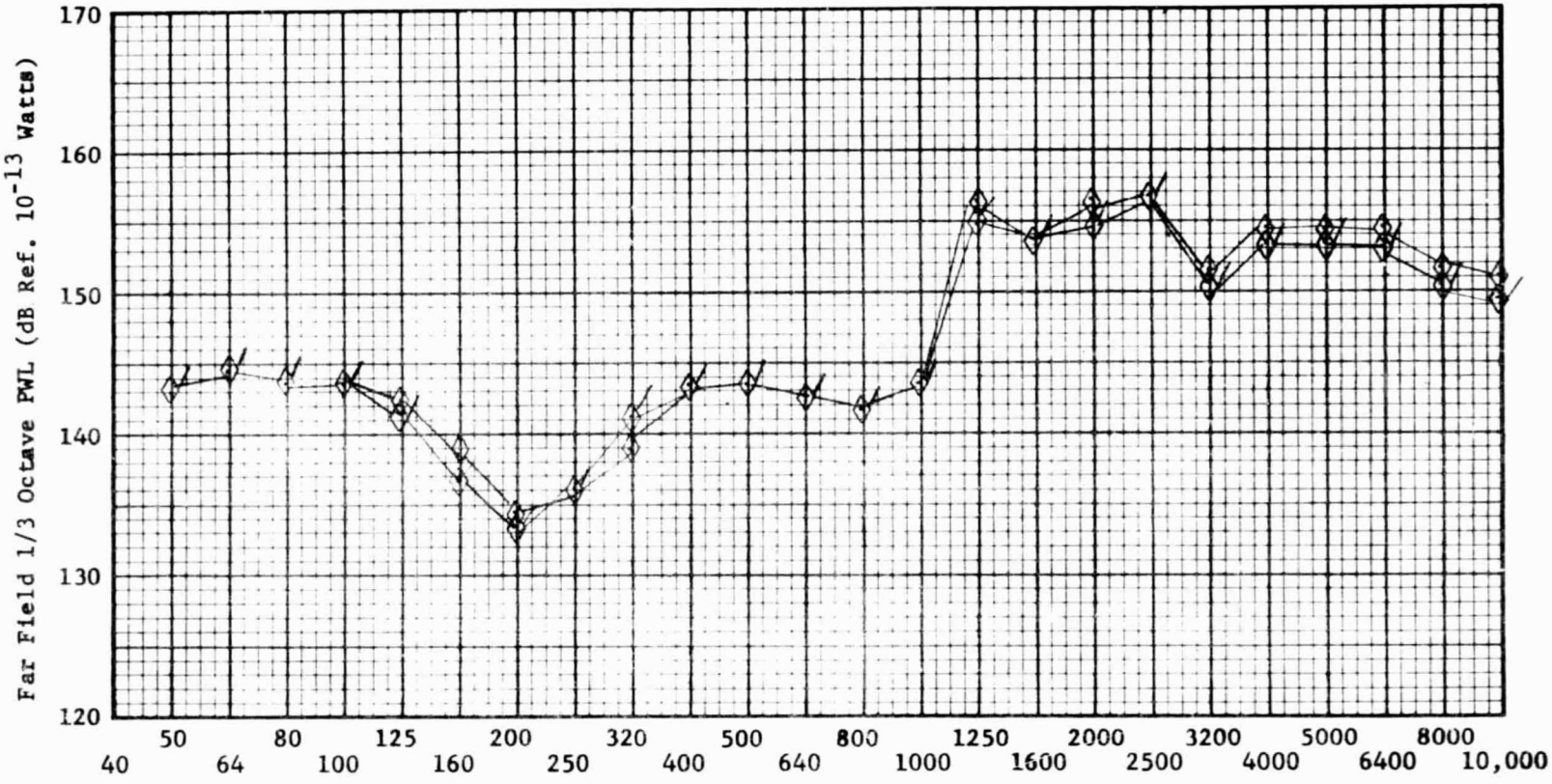
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		Δ	◇		
Run No.		5-44	5-63		
Date		9/4/68	9/4/68		
Tape No.		P-628	P-633		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-43

KEY		Δ	◇		
Corr. Speed %		90.8	91.1		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

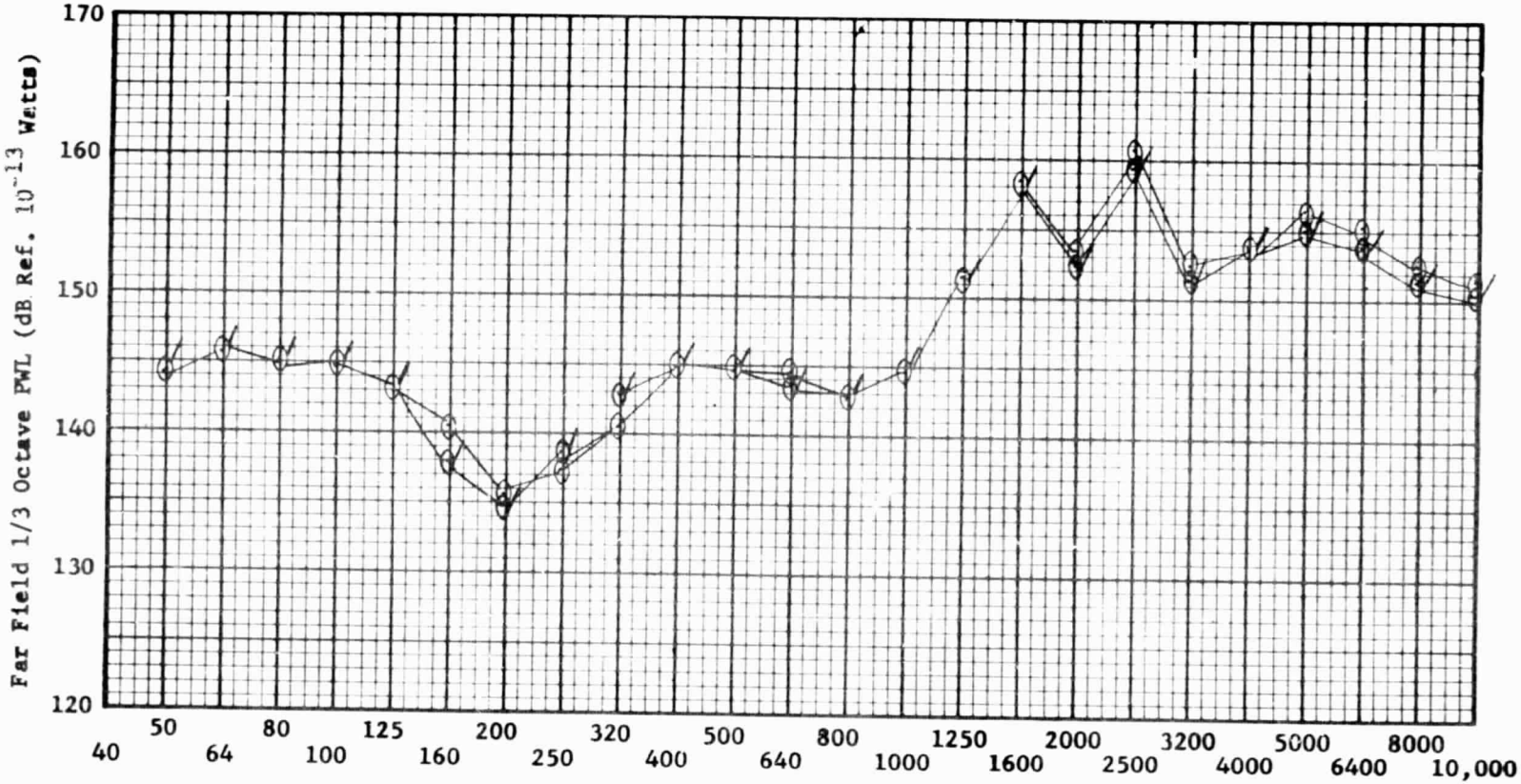
KEY		◇	◇		
Run No.		5-45	5-61		
Date		9/4/68	9/4/68		
Tape No.		P-628	P-633		
Physical Speed	RPM	3350	3350		
	Rad/sec	350.7	350.7		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-44

KEY		◇	◇		
Corr. Speed %		95.1	95.4		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No.



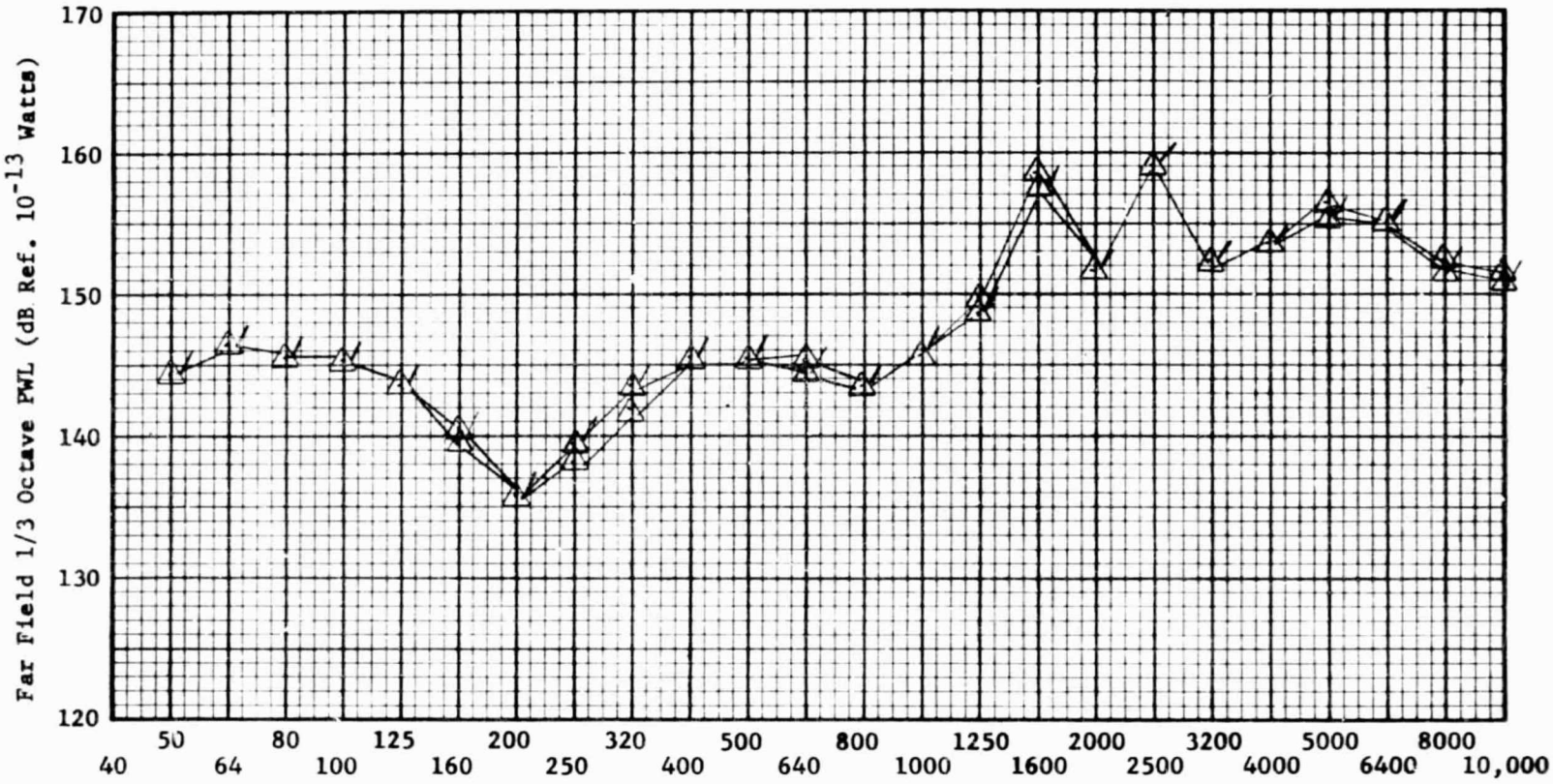
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		O	O		
Run No.		5-46	5-59		
Date		9/4/68	9/4/68		
Tape No.		P-629	P-632		
Physical Speed	RPM	3484	3468		
	Rad/sec	364.8	363.1		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-45

KEY		O	O		
Corr. Speed %		98.7	98.7		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



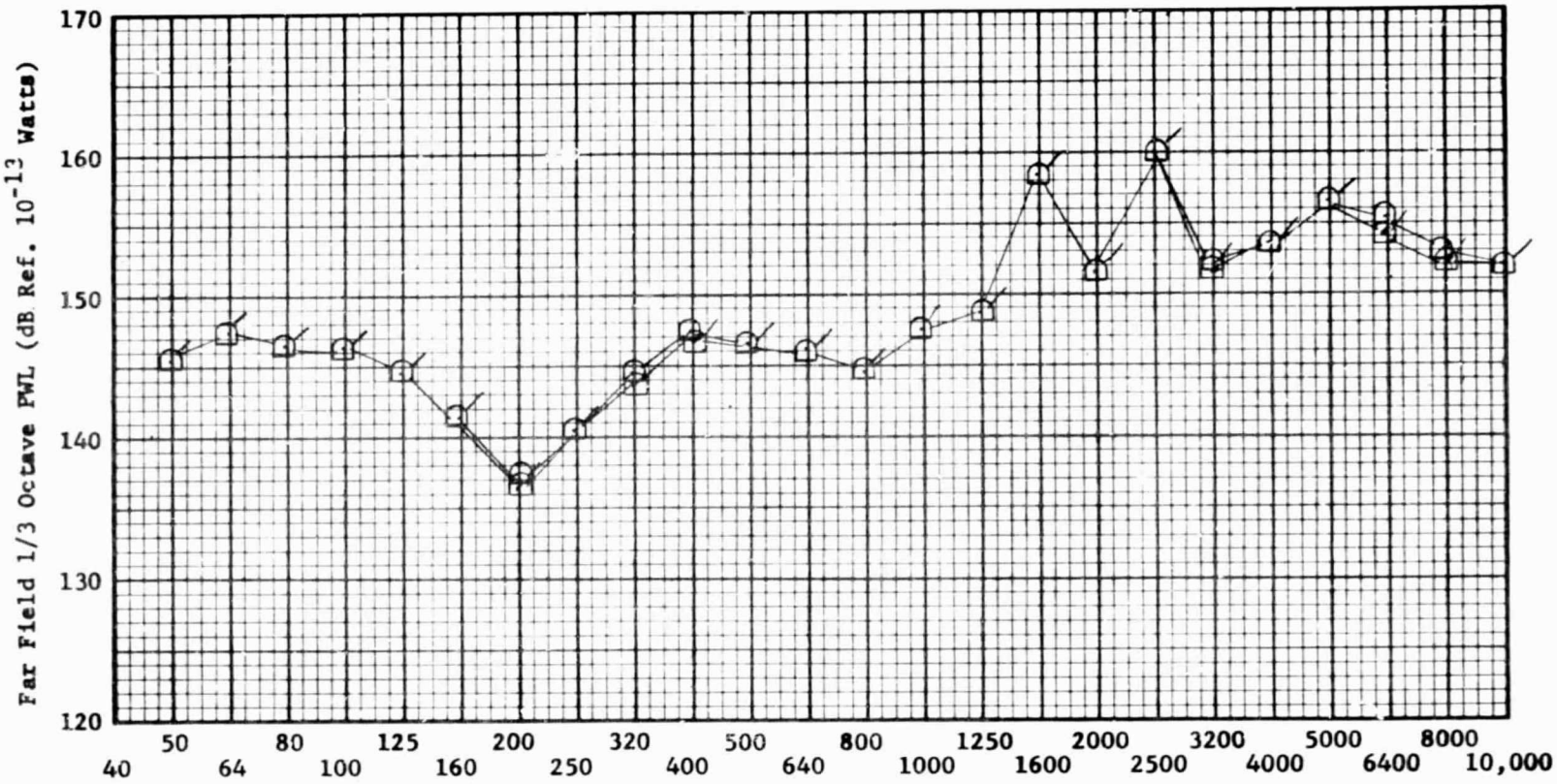
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	⍁		
Run No.		5-50	5-57		
Date		9/4/68	9/4/68		
Tape No.		P-632	P-634		
Physical Speed	RPM	3557	3562		
	Rad/sec	372.4	372.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-46

KEY		△	⍁		
Corr. Speed %		100.8	101.4		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



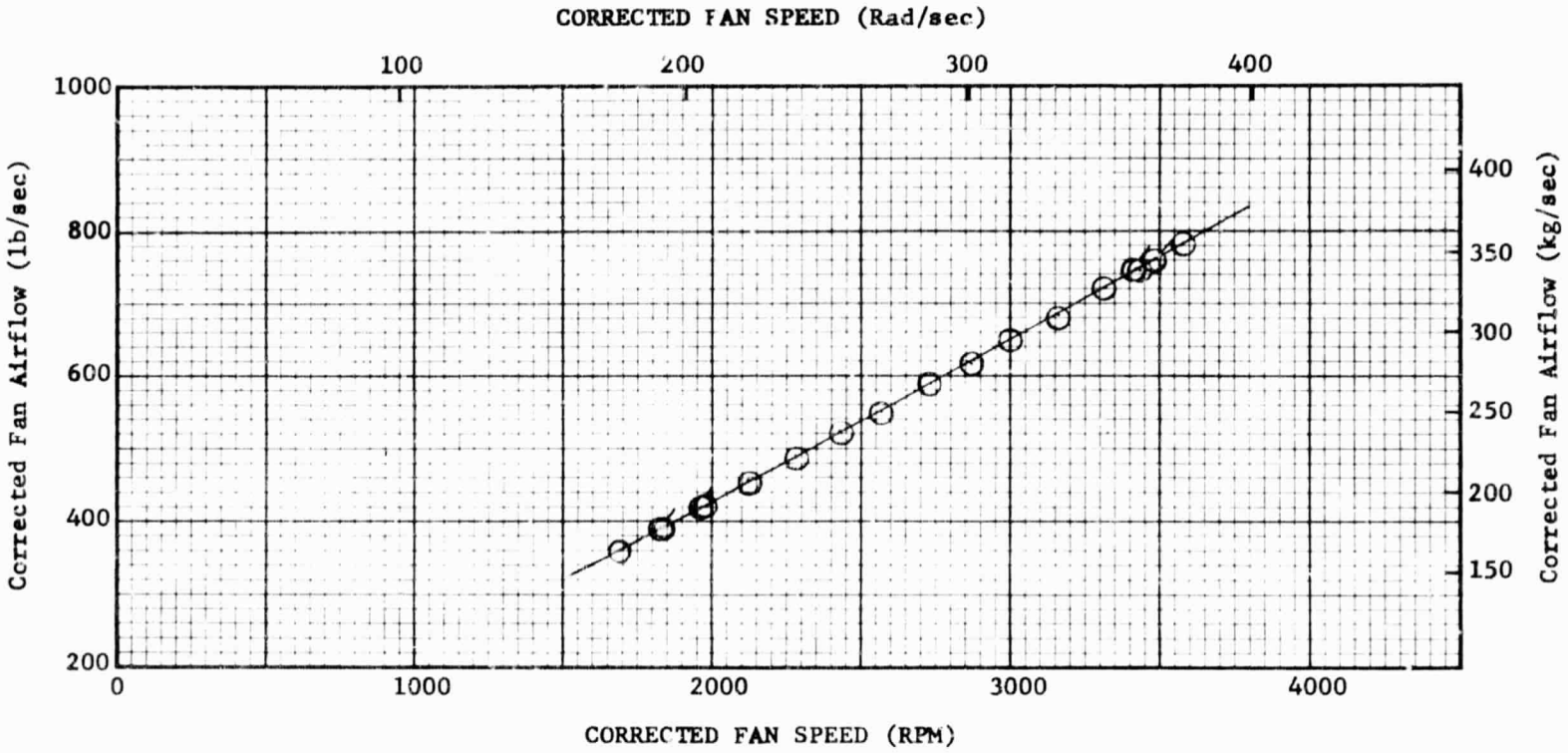
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□		
Run No.		5-52	5-55		
Date		9/4/68	9/4/68		
Tape No.		P-630	P-631		
Physical Speed	RPM	3662	3650		
	Rad/sec	383.4	382.2		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-47

KEY		○	□		
Corr. Speed %		103.9	103.8		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

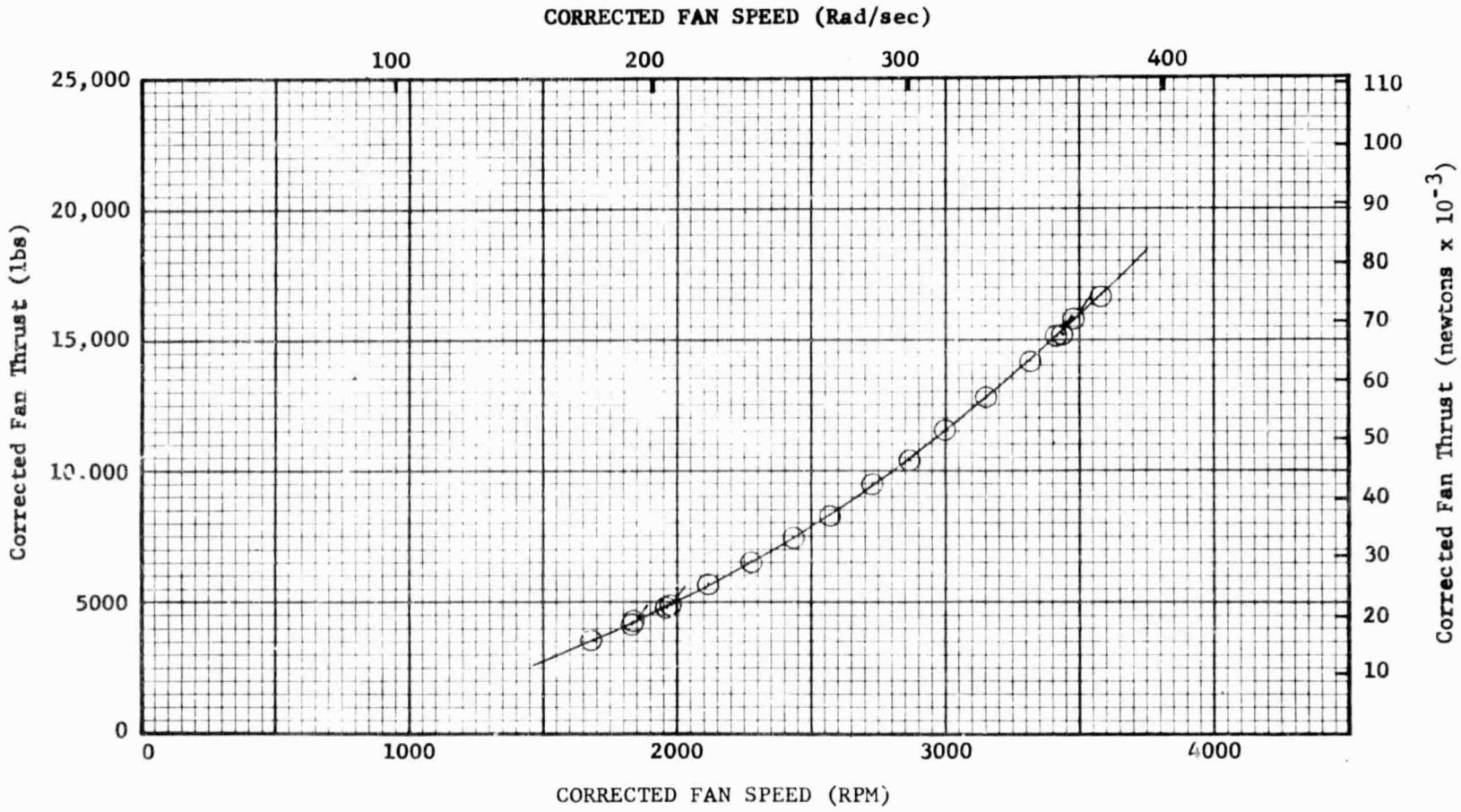
KEY		○	◇		
Run No.		5	5		
Date		9/4/68	9/4/68		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Fan Airflow Vs Corrected Fan Speed

Figure 5-48

KEY		○	◇		
P.Bar	In.Hg	28.994	28.973		
	n/m^2	97906	97836		
$T_{amb.}$	^oR	535	535		
	^oK	297	297		
% Rel.Hum.		69	72		

Form No. N-1



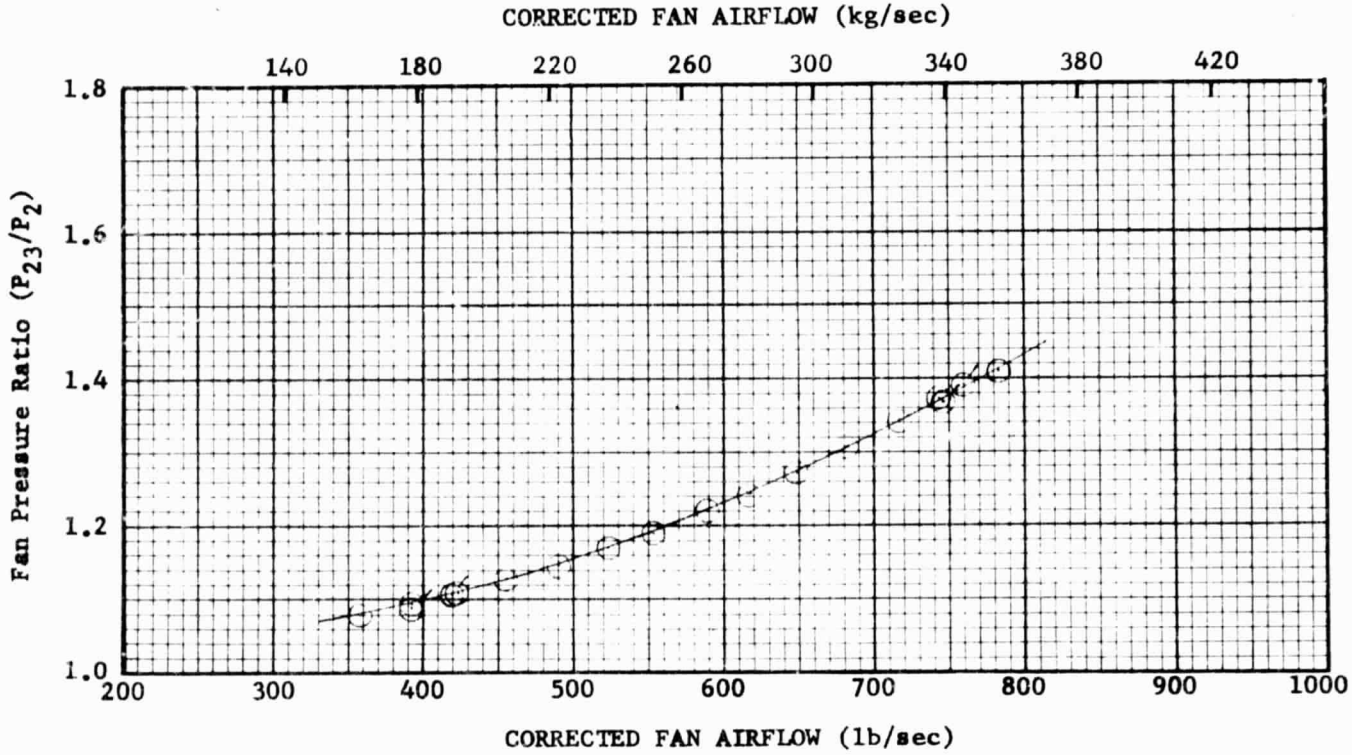
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		5	5		
Date		9/4/68	9/4/68		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Fan Thrust Vs Corrected Fan Speed

Figure B-49

KEY		○	◇		
P. Bar	In.Hg	28.994	28.973		
	n/m^2	97906	97836		
$T_{amb.}$	^oR	531	533		
	^oK	296	294		
% Rel. Hum.		69	72		



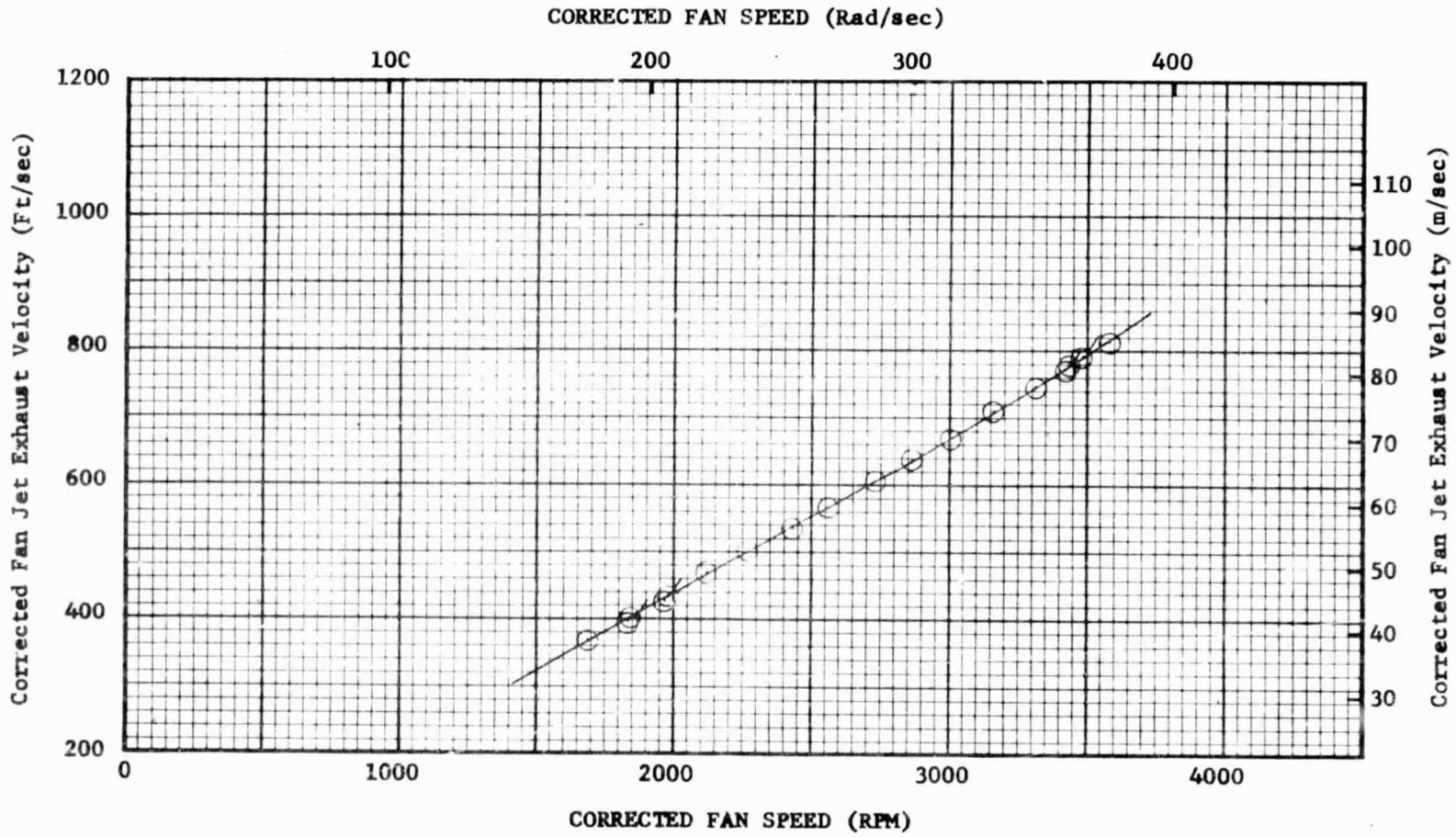
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		5	5		
Date		9/4/68	9/4/68		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Fan Pressure Ratio Vs Corrected Fan Airflow

Figure B-50

KEY		○	◇		
P.Bar	In.Hg	28.994	28.973		
	n/m^2	97906	97836		
$T_{amb.}$	^oR	531	533		
	^oK	296	294		
% Rel.Hum.		67	72		



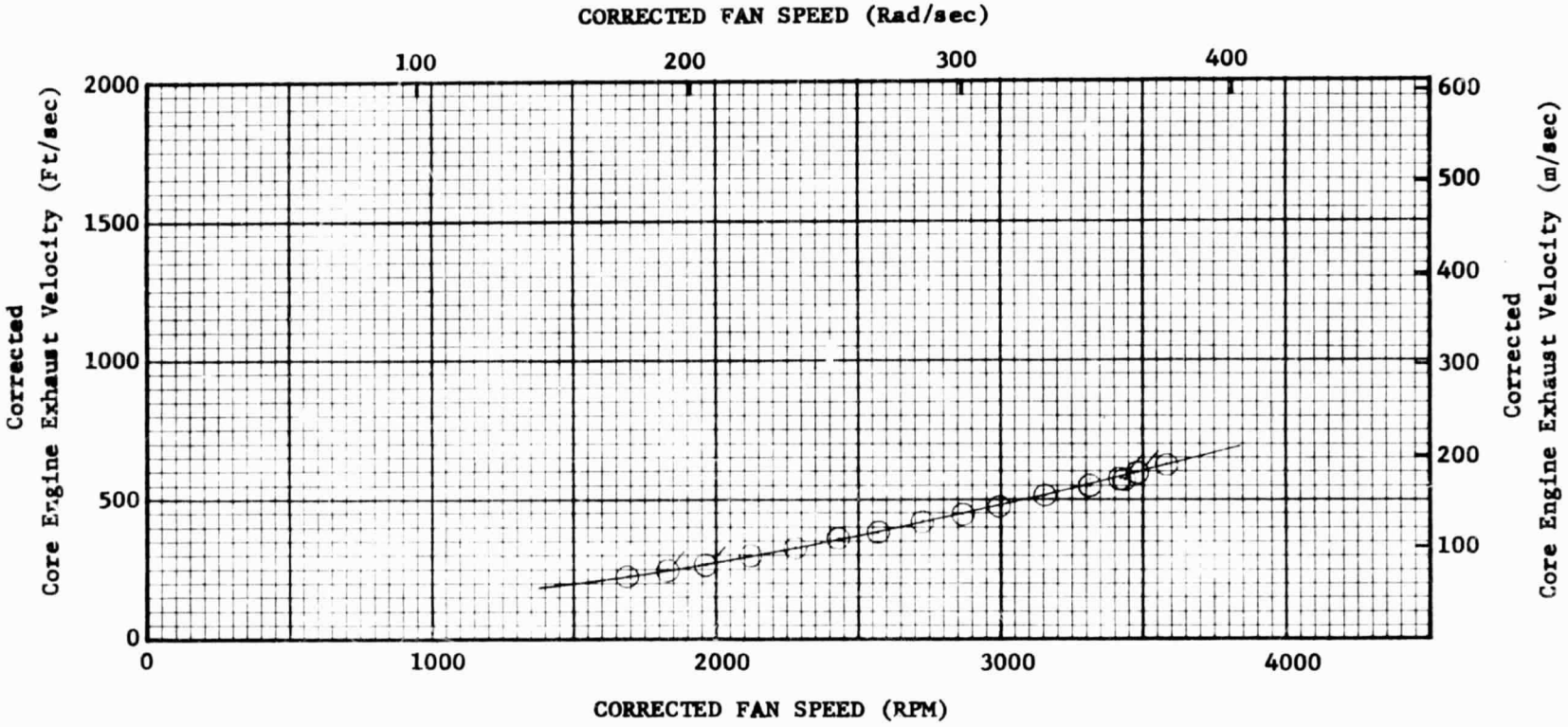
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		5	5		
Date		9/4/68	9/4/68		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Fan Jet Exhaust Velocity Vs Corrected Fan Speed

Figure B-51

KEY		○	◇		
P.Bar	In.Hg	28.994	28.973		
	n/m^2	97906	97836		
$T_{amb.}$	^oR	531	533		
	^oK	296	294		
% Rel.Hum.		69	72		



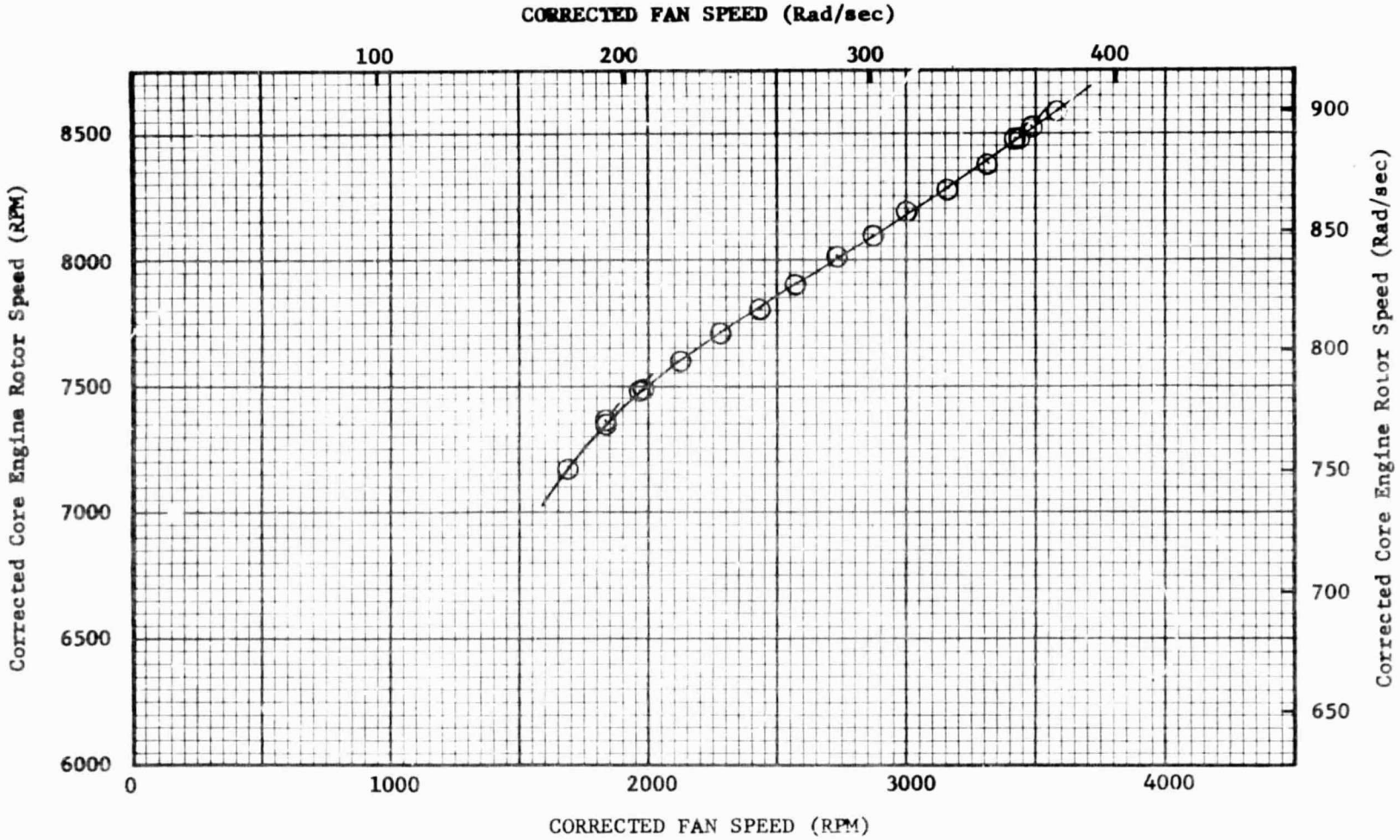
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	✓		
Run No.		5	5		
Date		9/4/68	9/4/68		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Core Engine Exhaust Velocity Vs Corrected Fan Speed

Figure B-52

KEY		○	✓		
P.Bar	In.Hg	28.994	28.973		
	n/m^2	97906	97836		
$T_{amb.}$	^oR	531	533		
	^oK	296	294		
% Rel.Hum.		69	72		



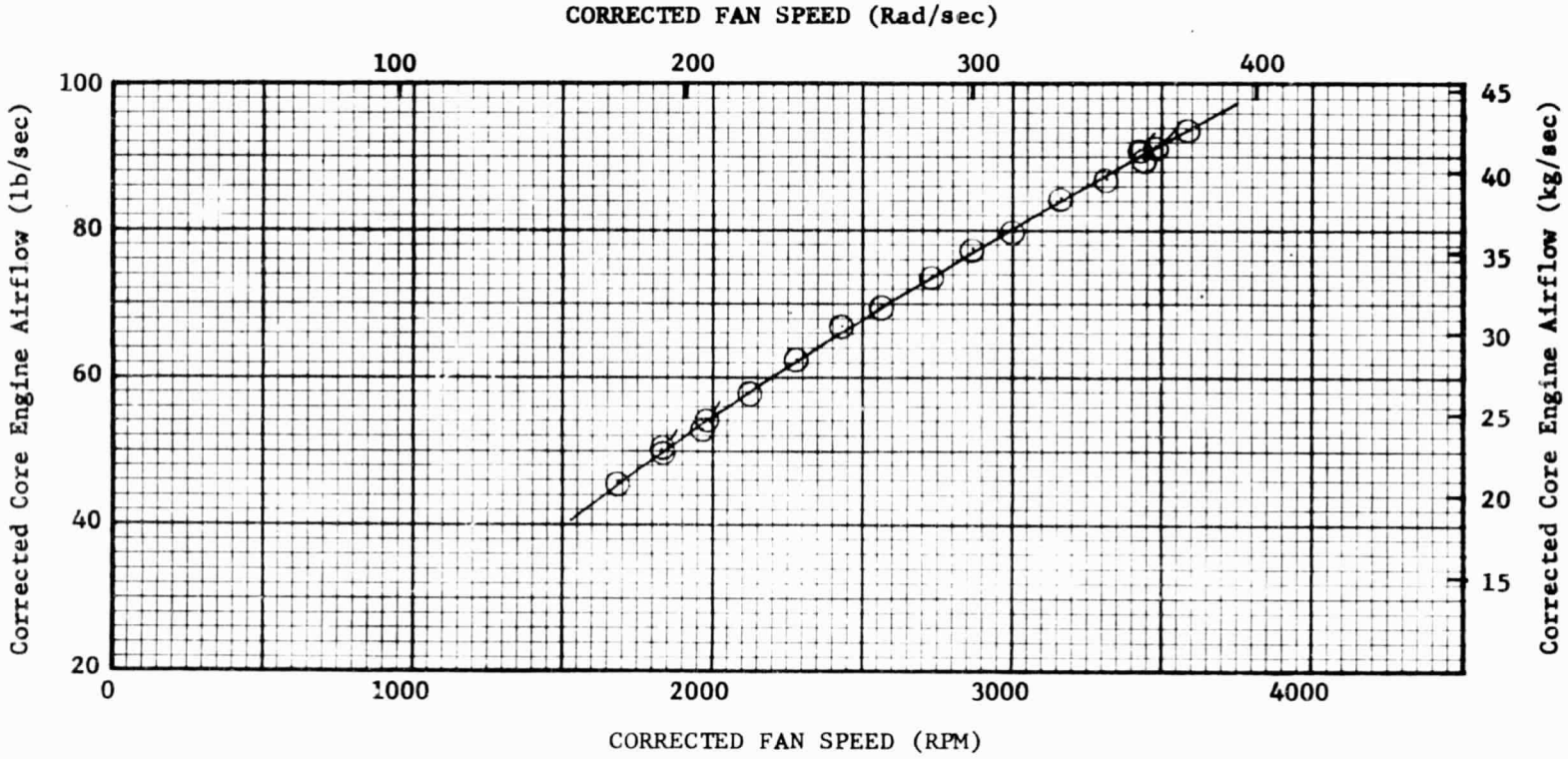
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		5	5		
Date		9/4/68	9/4/68		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Core Engine Rotor Speed Vs Corrected Fan Speed

Figure B-53

KEY		○	♂		
P.Bar	In.Hg	28.994	28.973		
	n/m^2	97906	97836		
$T_{amb.}$	^oR	531	533		
	^oK	296	294		
% Rel.Hum.		69	72		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

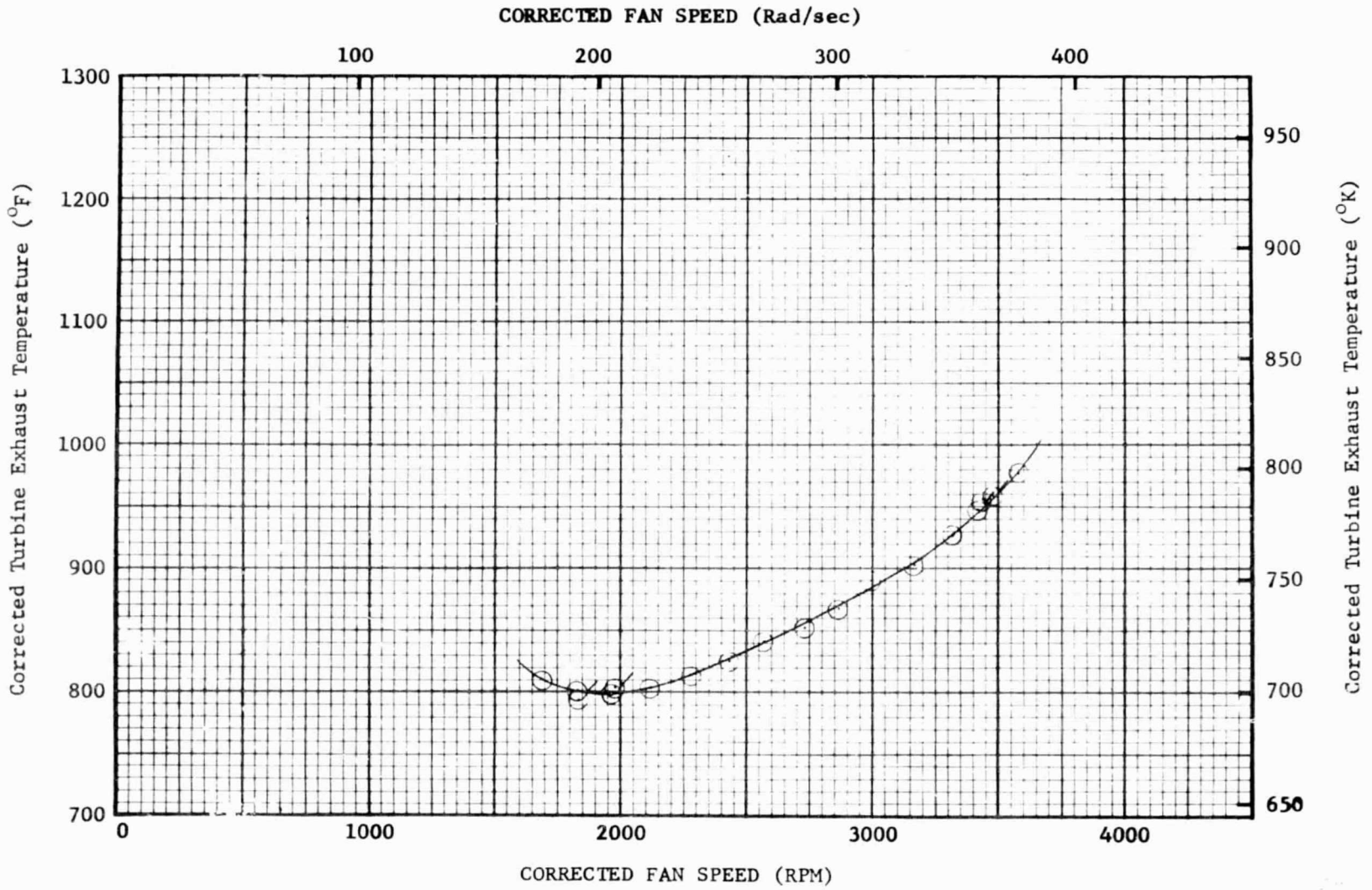
KEY		○	♂		
Run No.		5	5		
Date		9/4/68	9/4/68		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Core Engine Airflow Vs Corrected Fan Speed

Figure B-54

KEY		○	♂		
P.Bar	In.Hg	28.994	28.973		
	n/m^2	97906	97836		
$T_{amb.}$	^oR	531	533		
	^oK	296	294		
% Rel.Hum.		69	72		

Form No. N 19



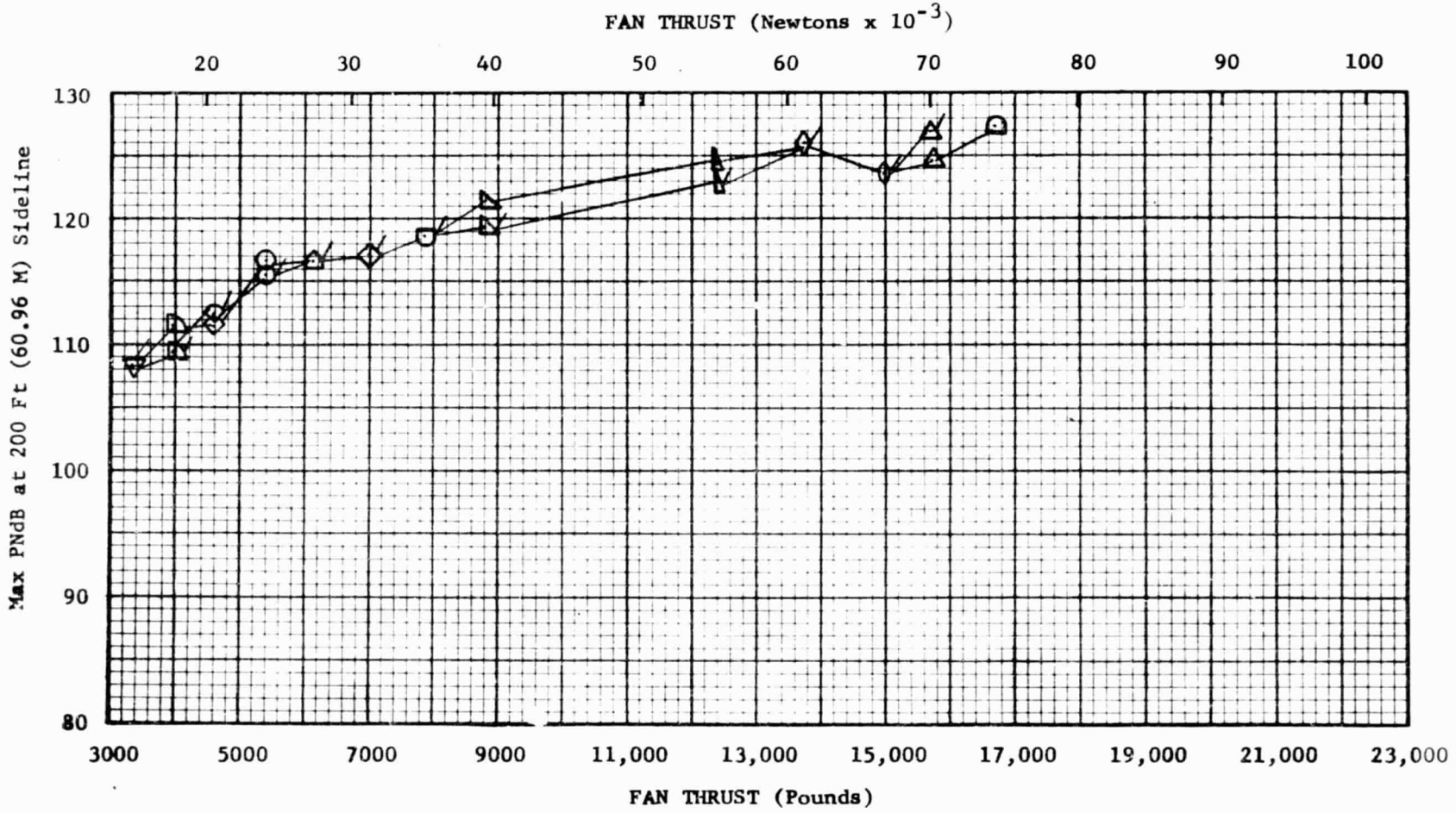
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		5	5		
Date		9/4/68	9/4/68		
Fan Noz. Area	In^2	1718.5	1718.5		
	m^2	1.1087	1.1087		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Turbine Exhaust Temperature Vs Corrected Fan Speed

Figure B-55

KEY		○	♂		
P.Bar	In.Hg	28.994	28.973		
	n/m^2	97906	97836		
$T_{amb.}$	°R	531	533		
	°K	296	294		
% Rel.Hum.		69	72		



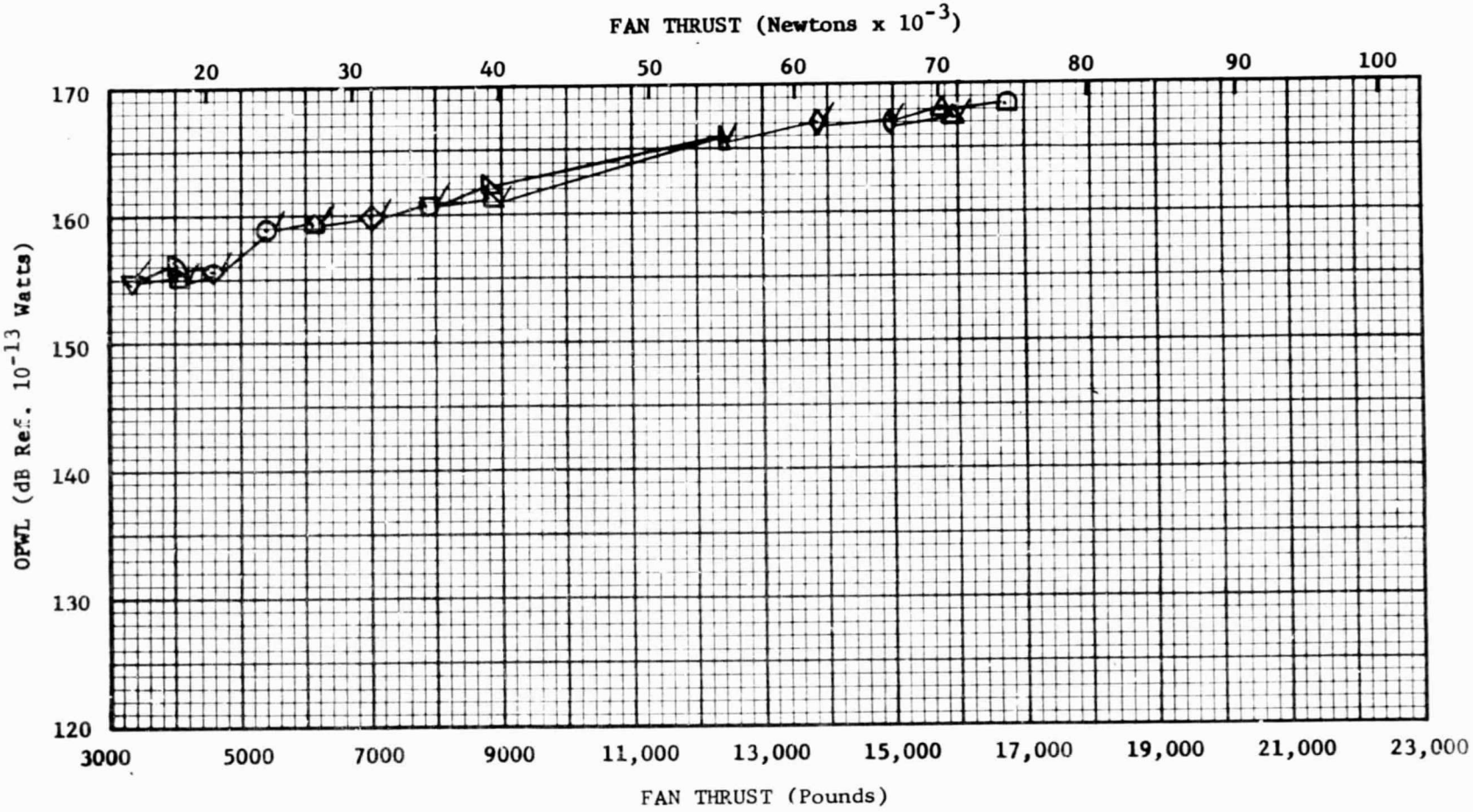
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY	O	O'		
Run No.	6	6		
Date	9/6/68	9/6/68		
Tape No.	P-635 to P-644			

200 Ft Sideline
(60.96 Meter Sideline)
Maximum PNdB
Vs.
Fan Thrust

Figure B-56

KEY		O	O'		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B57

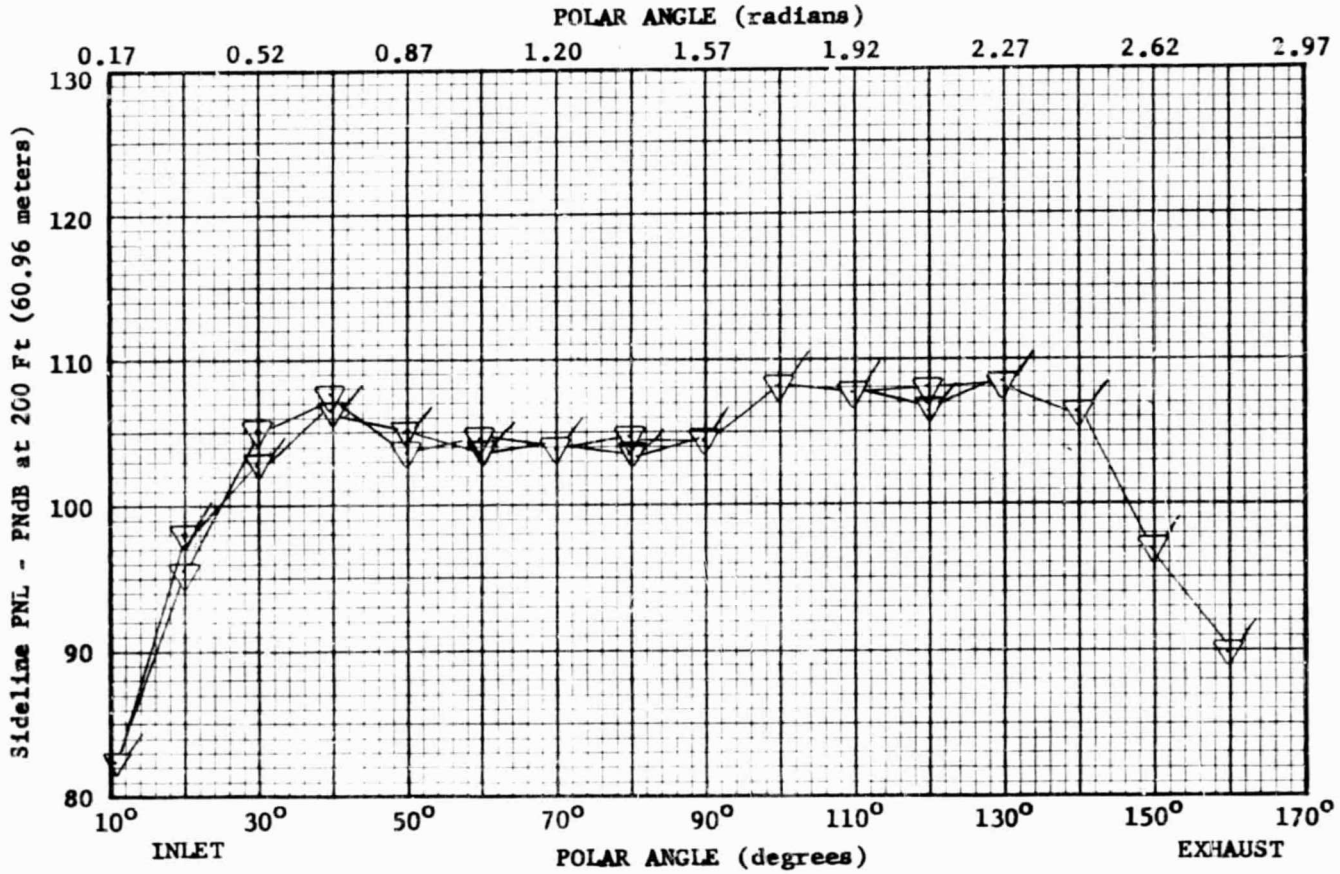
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY	O	O'		
Run No.	6	6		
Date	9/6/68	9/6/68		
Tape No.	P-635 to	P-644		

OPWL
Vs.
Fan Thrust

Figure B-57

KEY		O	O'		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

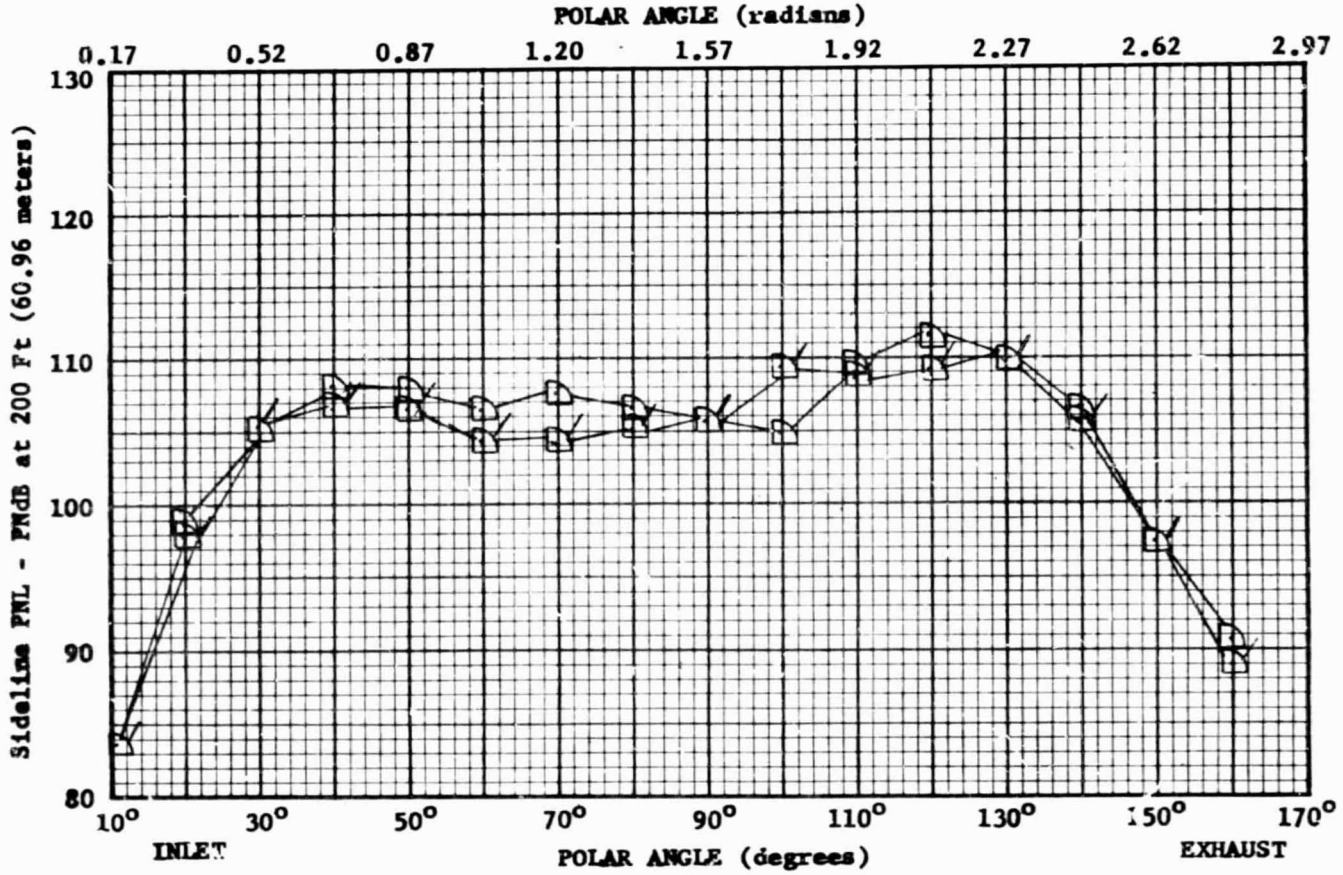
KEY		▽	▽		
Run No.		6-65	6-80		
Date		9/6/68	9/6/68		
Tape No.		P-635	P-640		
Physical Speed	RPM	1700	1700		
	Rad/sec	177.9	177.9		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-58

KEY		▽	▽		
Corr. Speed %		48.7	48.4		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

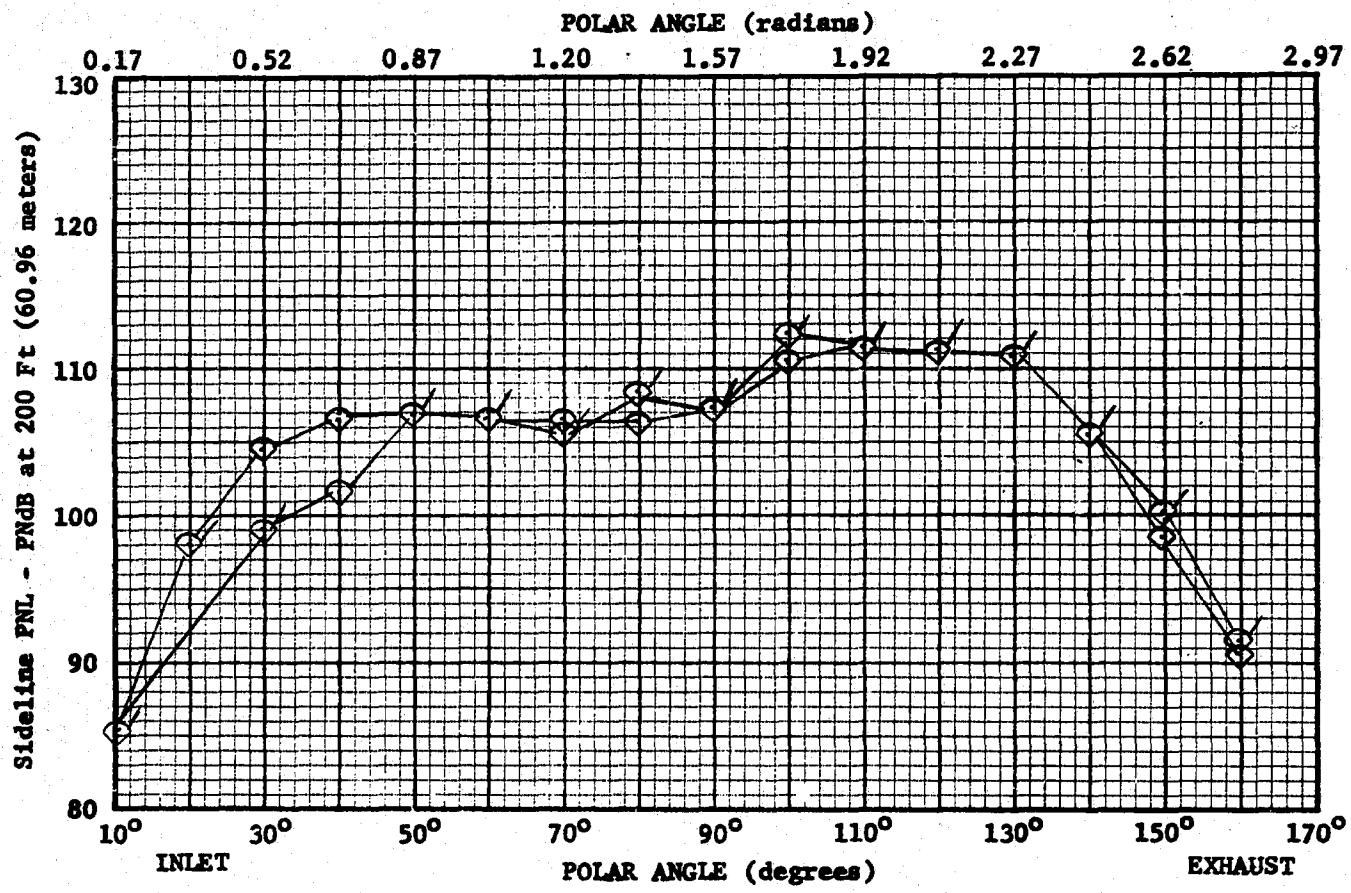
KEY		D	D'		
Run No.		6-66	6-81		
Date		9/6/68	9/6/68		
Tape No.		P-636	P-640		
Physical Speed	RPM	1850	1850		
	Rad/sec	193.7	193.7		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-59

KEY		D	D'		
Corr. Speed %		52.9	52.9		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B60

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

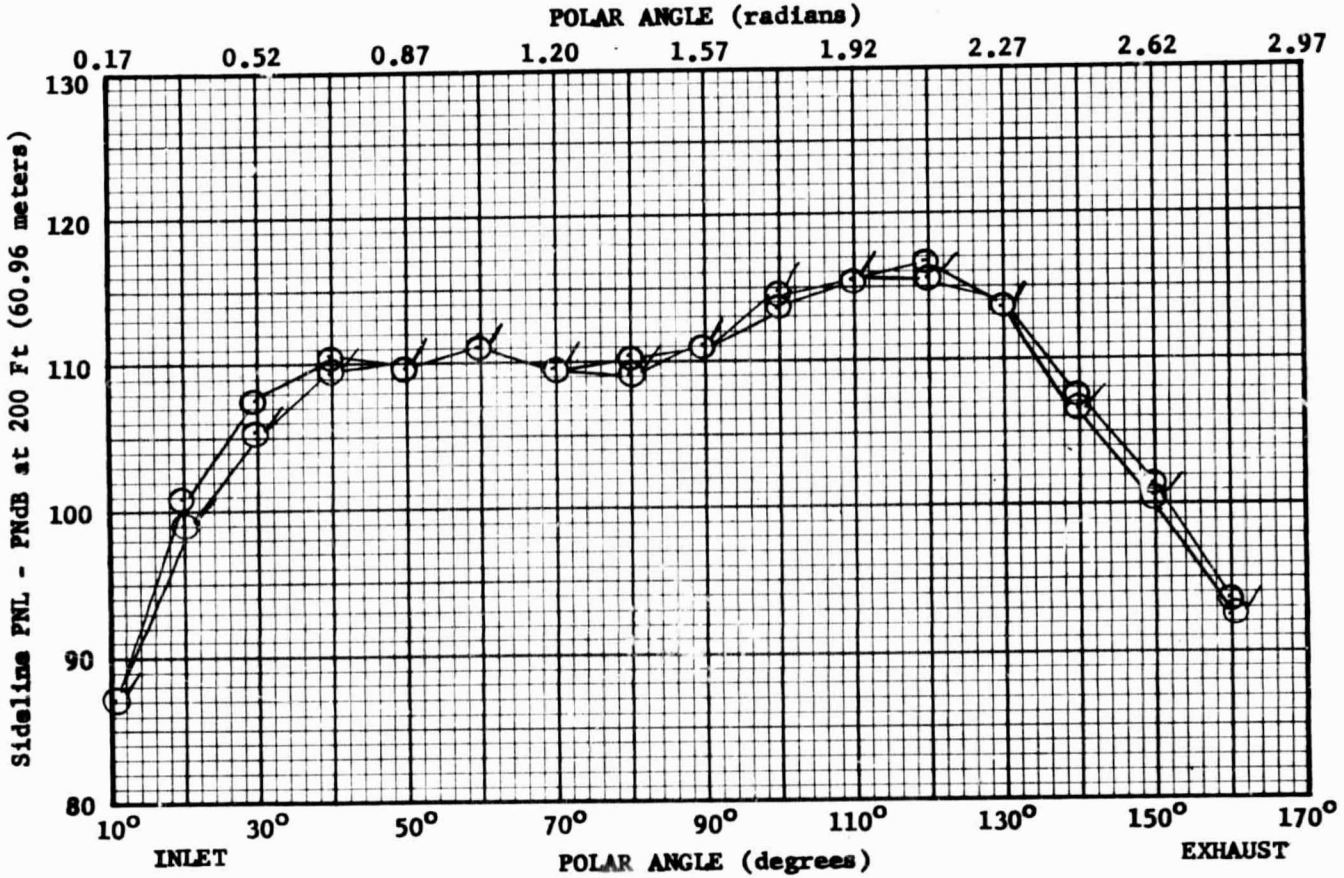
KEY		◇	◇		
Run No.		6-67	6-82		
Date		9/6/68	9/6/68		
Tape No.		P-636	P-641		
Physical Speed	RPM	2000	2000		
	Rad/sec	209.4	209.4		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-60

KEY		◇	◇		
Corr. Speed %		56.9	56.8		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N



B61

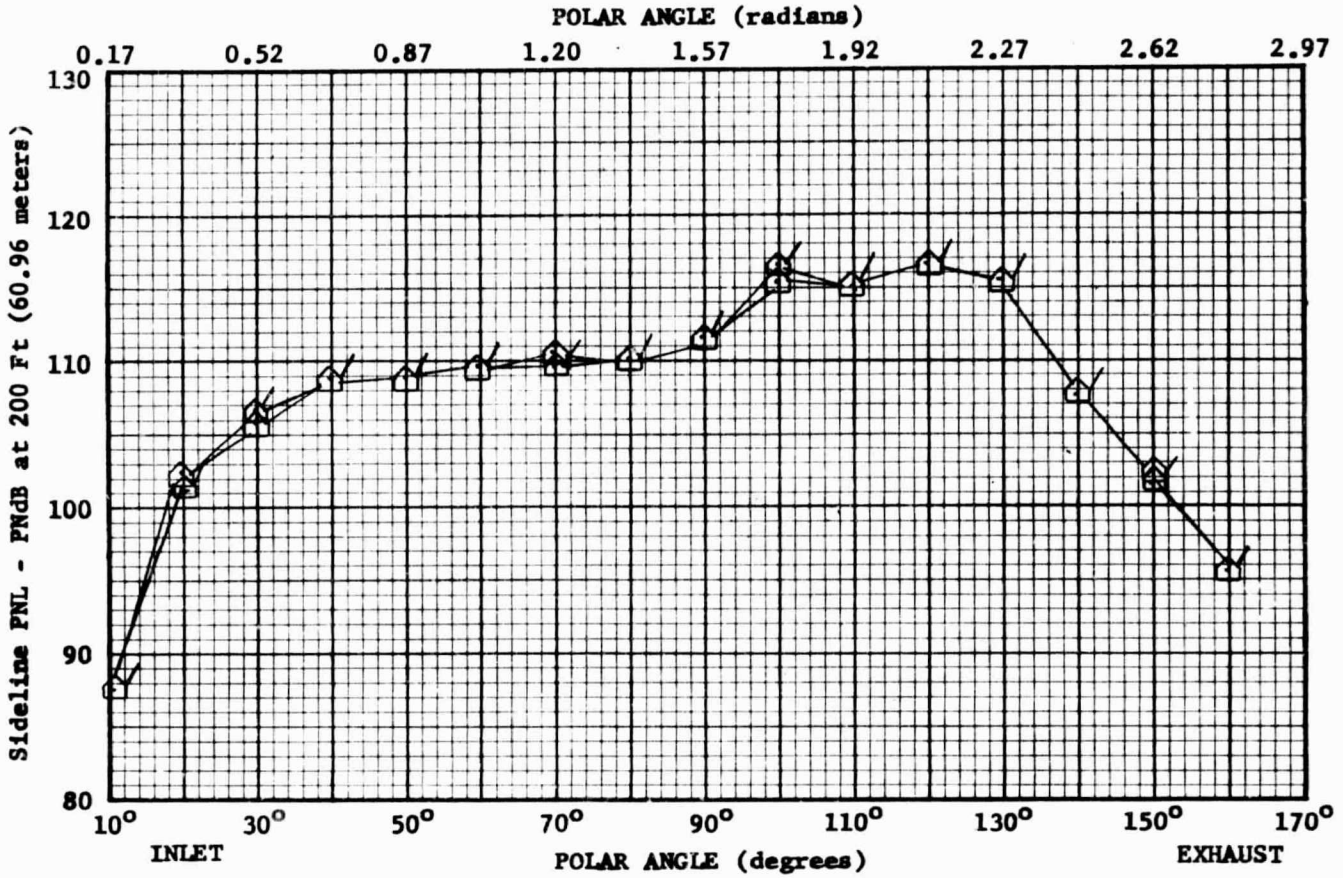
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		O	♂		
Run No.		6-68	6-83		
Date		9/6/68	9/6/68		
Tape No.		P-636	P-641		
Physical Speed	RPM	2156	2150		
	Rad/sec	225.7	225.1		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-61

KEY		O	♂		
Corr. Speed %		61.4	61.2		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



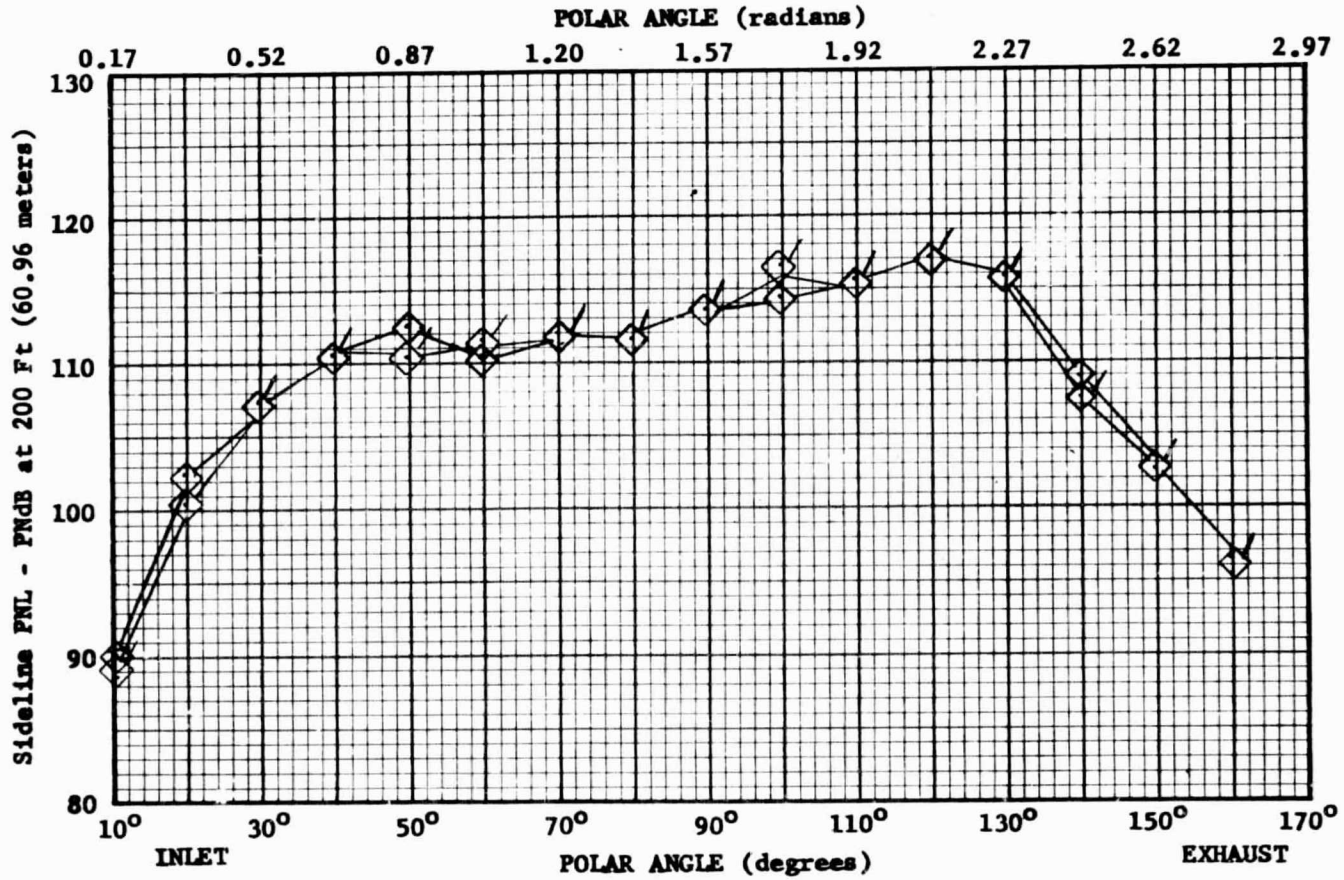
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	◸		
Run No.		6-69	6-84		
Date		9/6/68	9/6/68		
Tape No.		P-637	P-641		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.8	240.8		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-62

KEY		△	◸		
Corr. Speed %		65.5	65.4		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B63

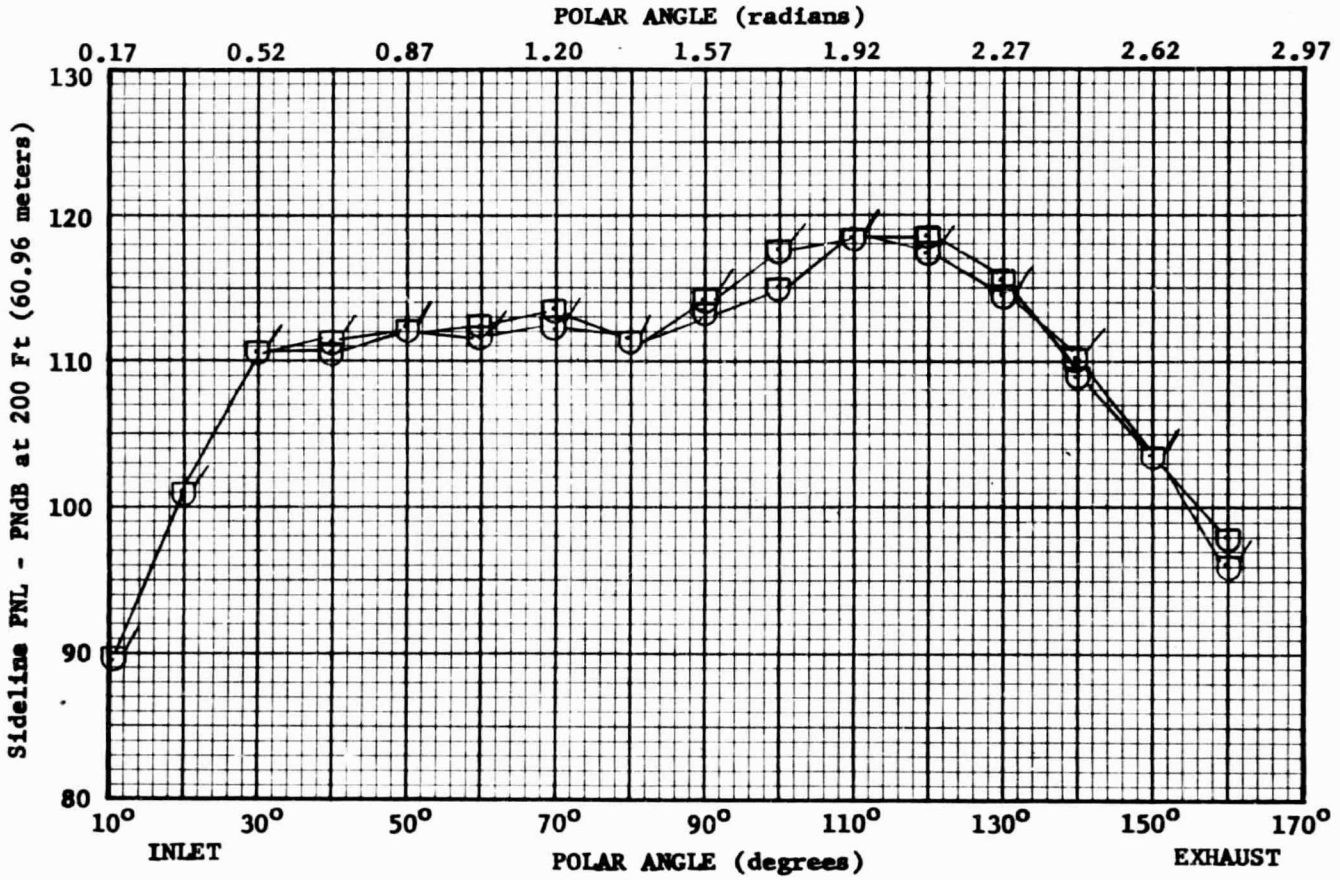
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		6-70	6-85		
Date		9/6/68	9/6/68		
Tape No.		P-637	P-642		
Physical Speed	RPM	2450	2450		
	Rad/sec	256.5	256.5		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-63

KEY		◇	◇		
Corr. Speed %		69.7	69.8		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



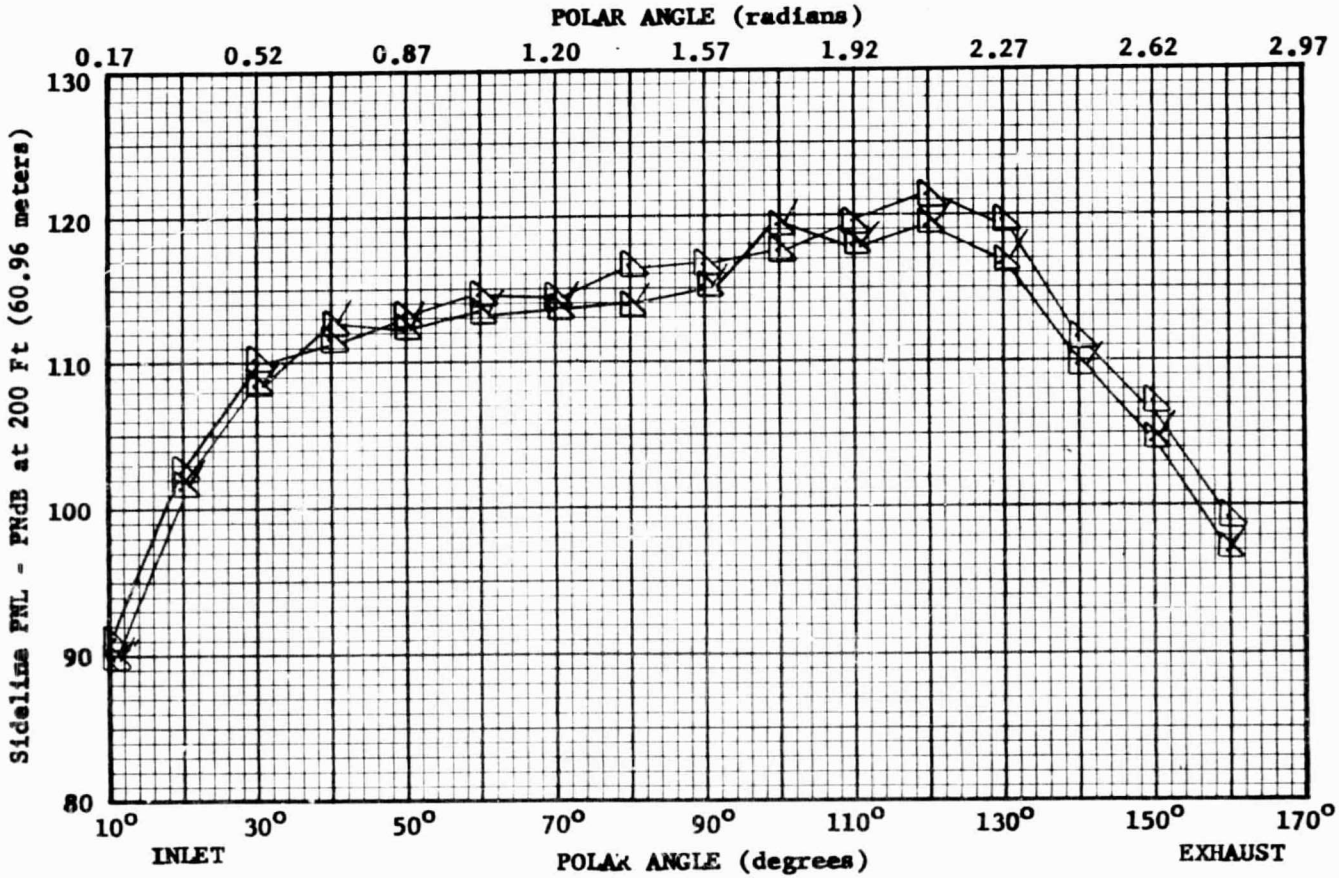
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	▽		
Run No.		6-71	6-86		
Date		9/6/68	9/6/68		
Tape No.		P-638	P-642		
Physical Speed	RPM	2618	2600		
	Rad/sec	274.1	272.2		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-64

KEY		○	▽		
Corr. Speed %		74.5	74.1		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



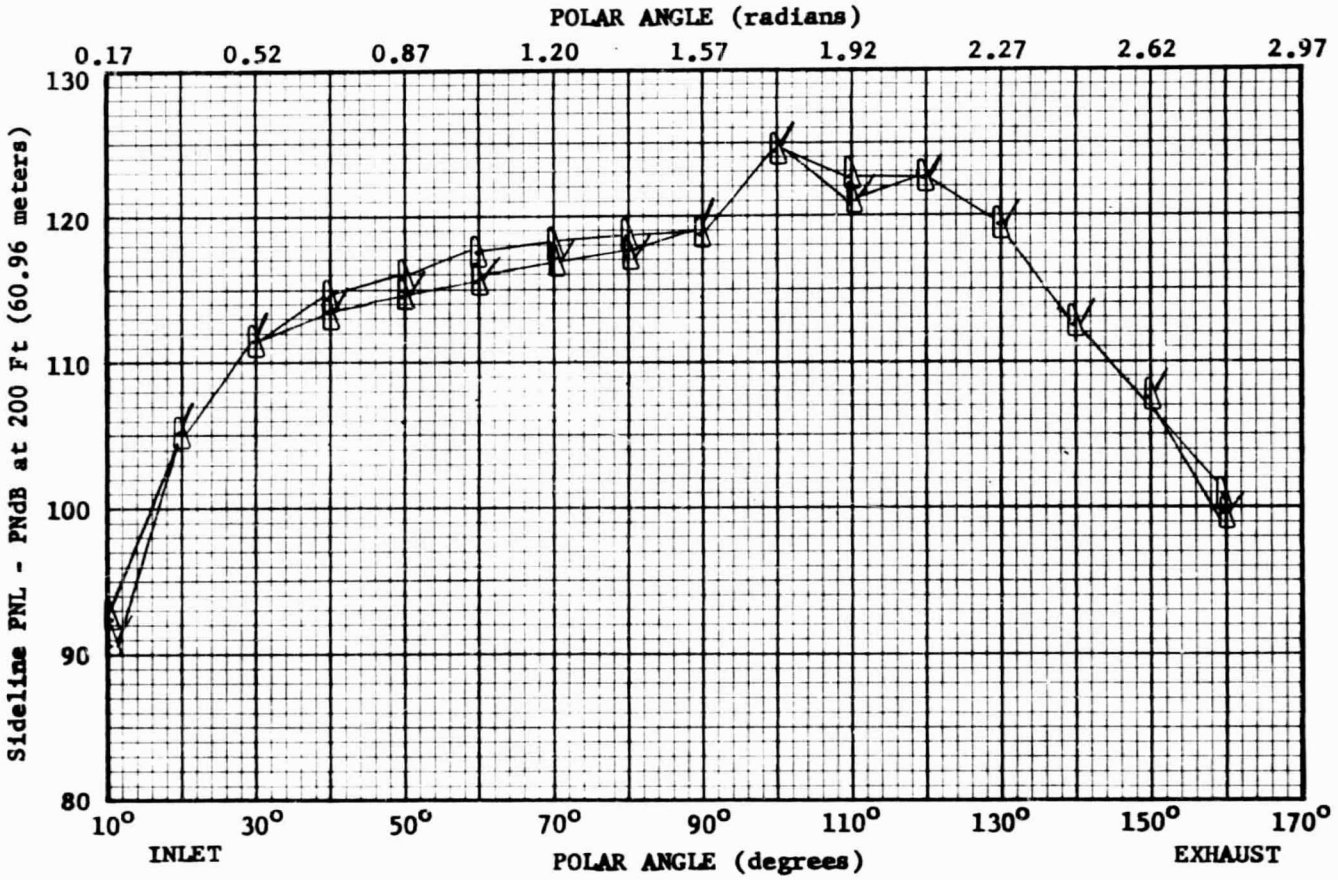
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	◸		
Run No.		6-72	6-87		
Date		9/6/68	9/6/68		
Tape No.		P-638	P-642		
Physical Speed	RPM	2753	2750		
	Rad/sec	288.2	287.9		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-65

KEY		△	◸		
Corr. Speed %		78.3	78.3		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

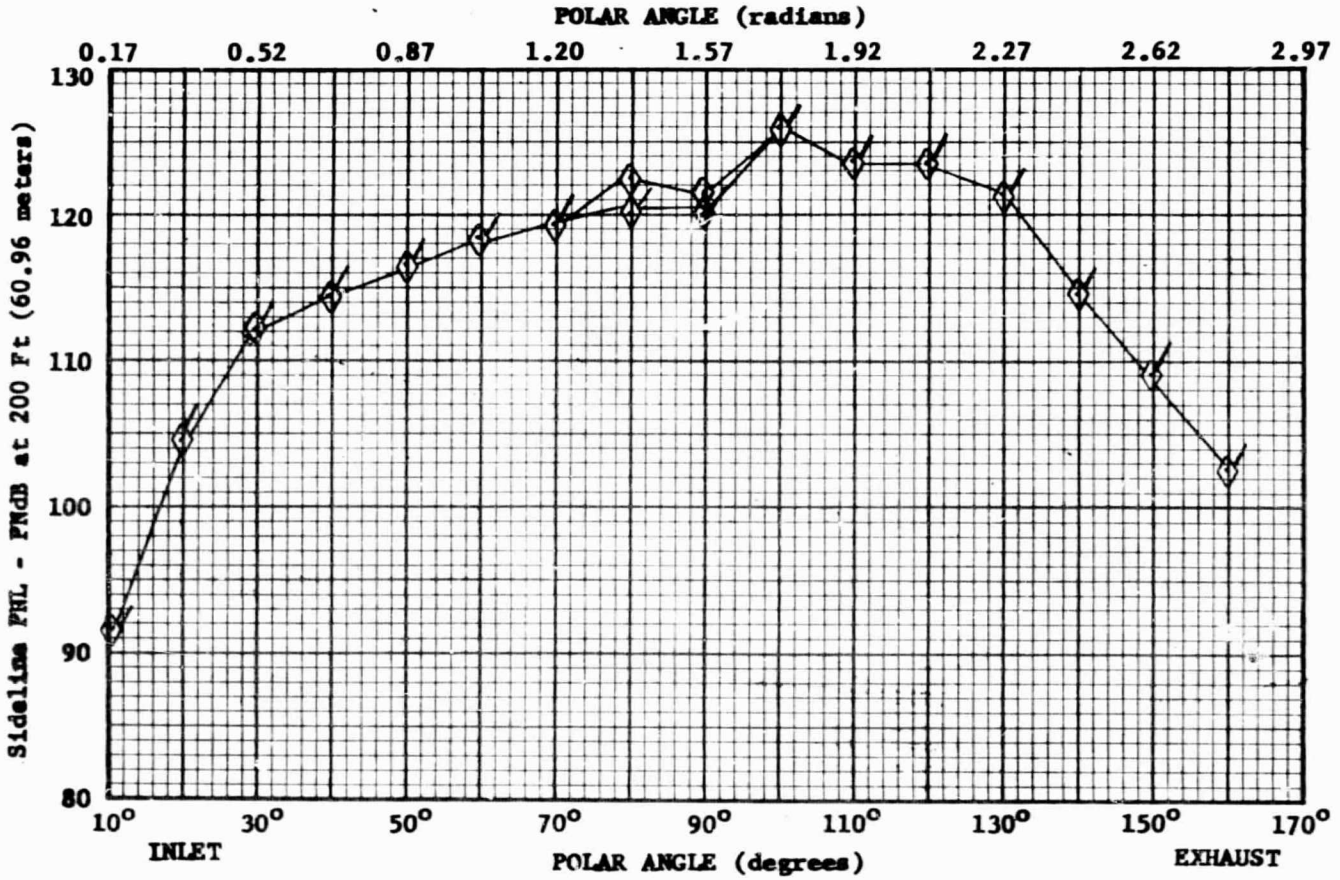
KEY		Δ	▽		
Run No.		6-75	6-88		
Date		9/6/68	9/6/68		
Tape No.		P-639	P-643		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-66

KEY		Δ	▽		
Corr. Speed %		91.2	91.2		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B67

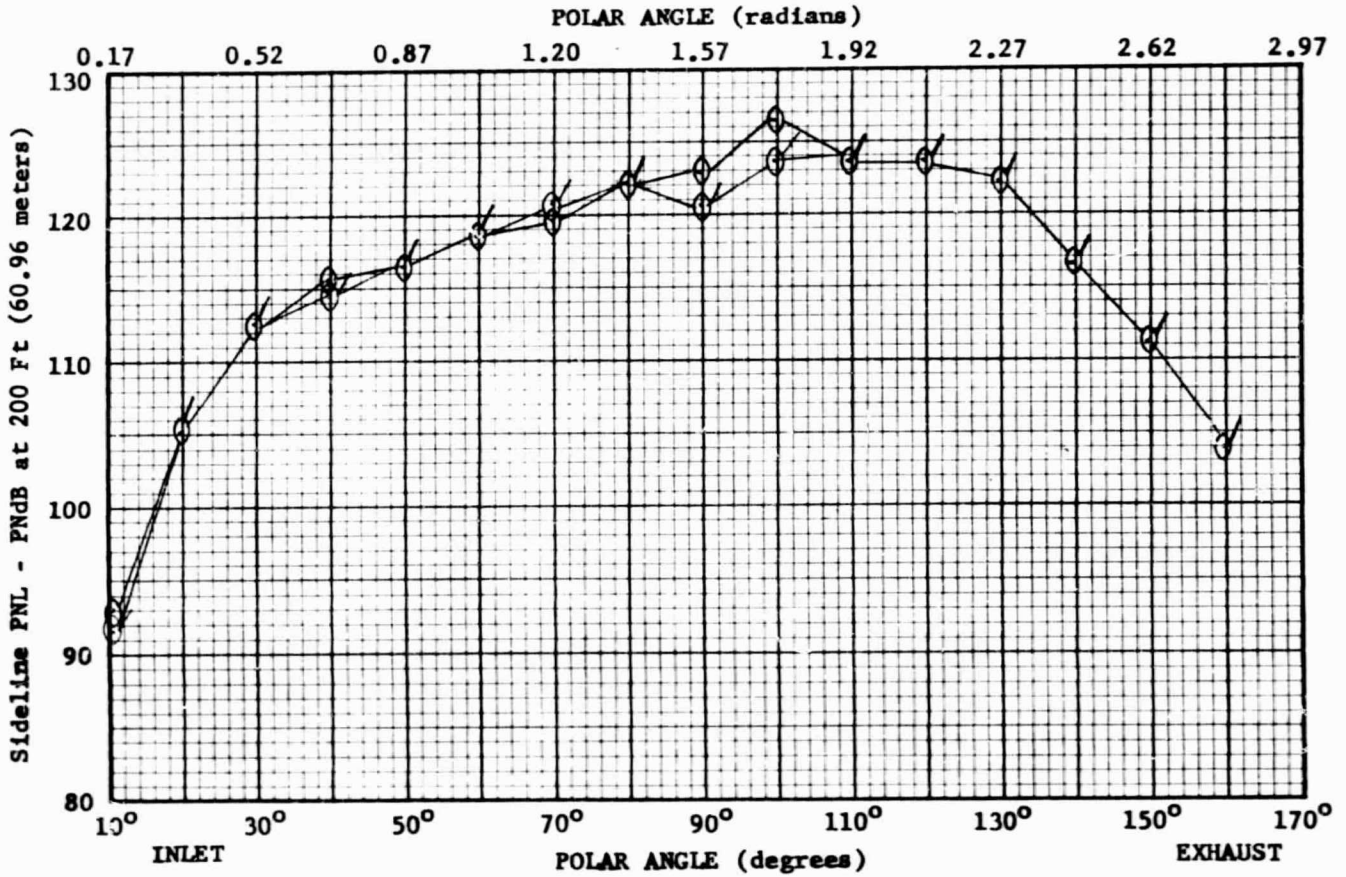
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		6-76	6-89		
Date		9/6/68	9/6/68		
Tape No.		P-639	P-643		
Physical Speed	RPM	3350	3350		
	Rad/sec	350.7	350.7		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-67

KEY		◇	◇		
Corr. Speed %		95.5	95.5		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

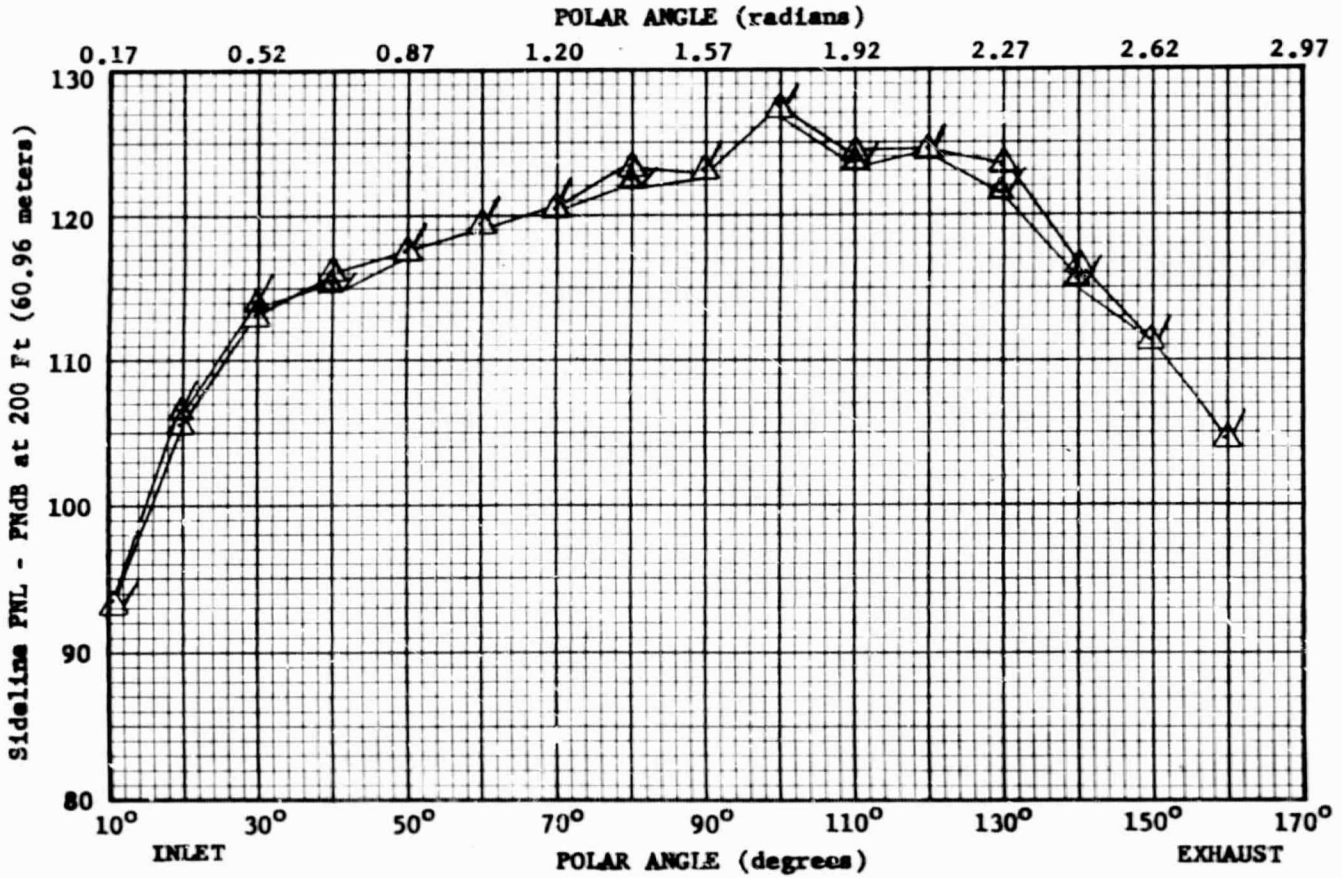
KEY		0	0		
Run No.		6-77	6-90		
Date		9/6/68	9/6/68		
Tape No.		P-639	P-644		
Physical Speed	RPM	3480	3473		
	Rad/sec	364.4	363.6		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-68

KEY		0	0		
Corr. Speed %		99.2	99.1		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B69

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

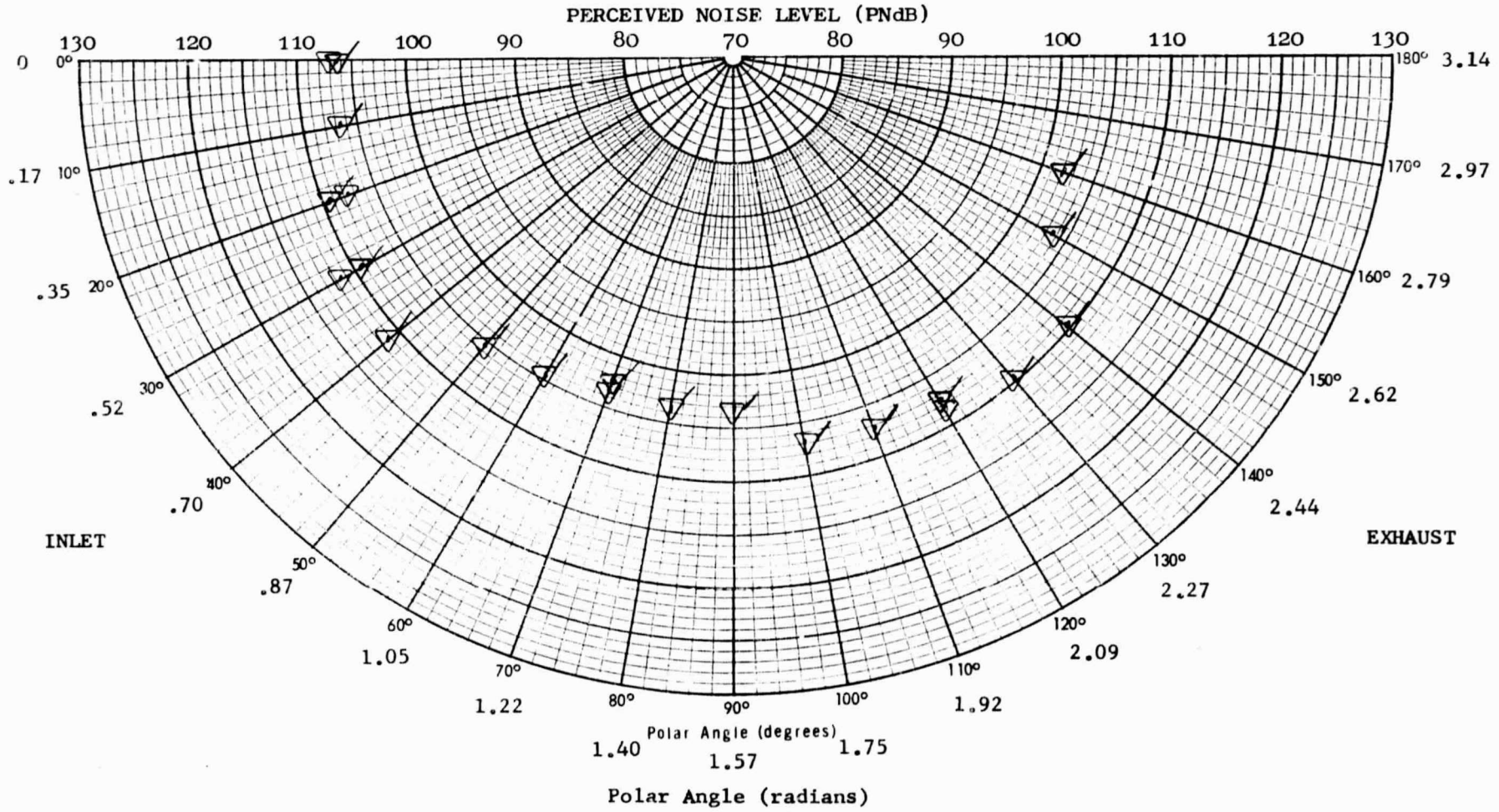
KEY		Δ	∠		
Run No.		6-78	6-91		
Date		9/6/68	9/6/68		
Tape No.		P-640	P-644		
Physical Speed	RPM	3554	3562		
	Rad/sec	372.1	372.9		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-69

KEY		Δ	∠		
Corr. Speed %		101.3	101.6		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



B70

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

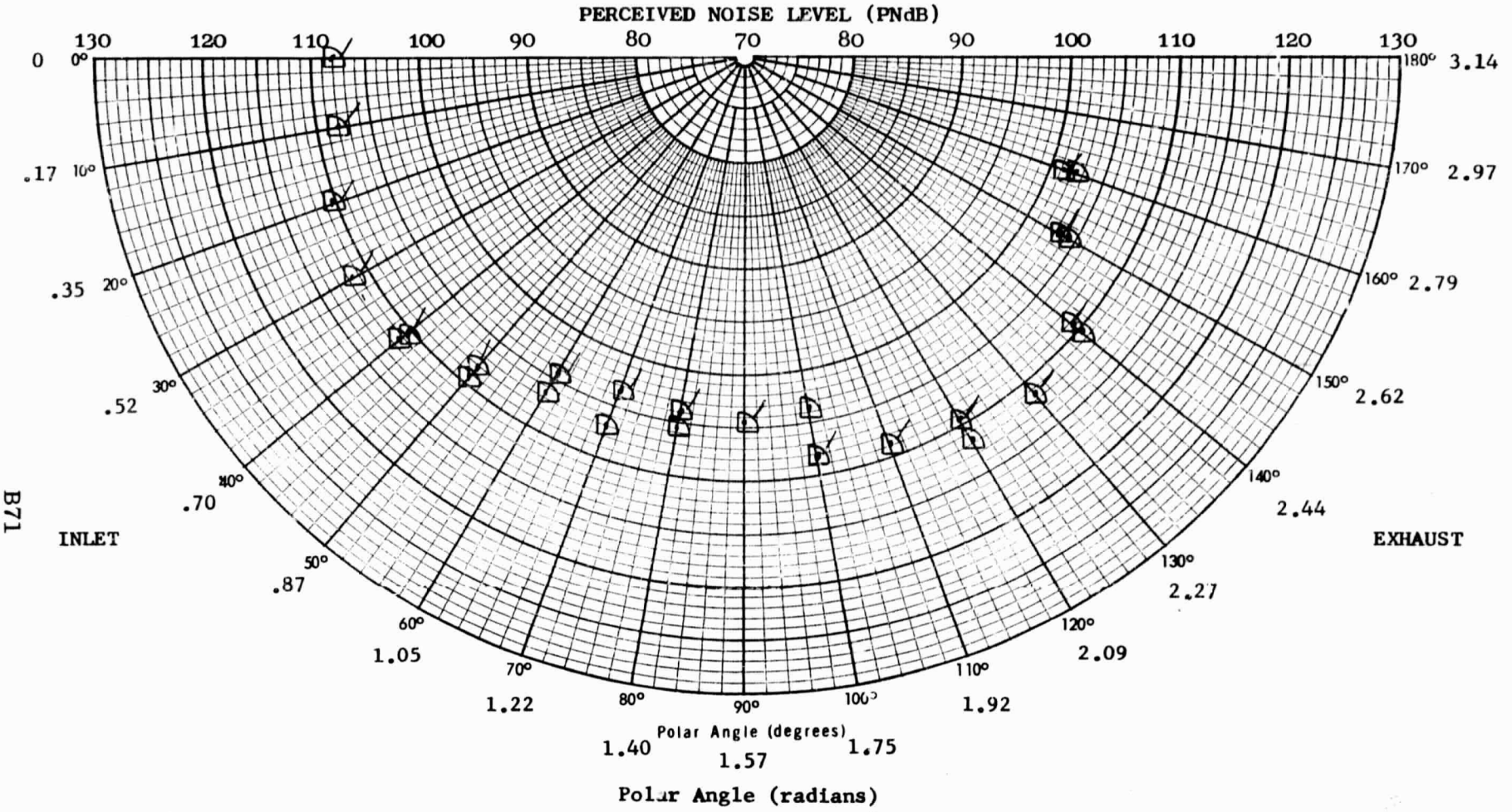
KEY		▽	▽		
Run No.		6-65	6-80		
Date		9/6/68	9/6/68		
Tape No.		P-635	P-640		
Physical Speed	RPM	1700	1700		
	Rad/sec	177.9	177.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-70

KEY		▽	▽		
Corr. Speed %		48.7	48.4		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



B71

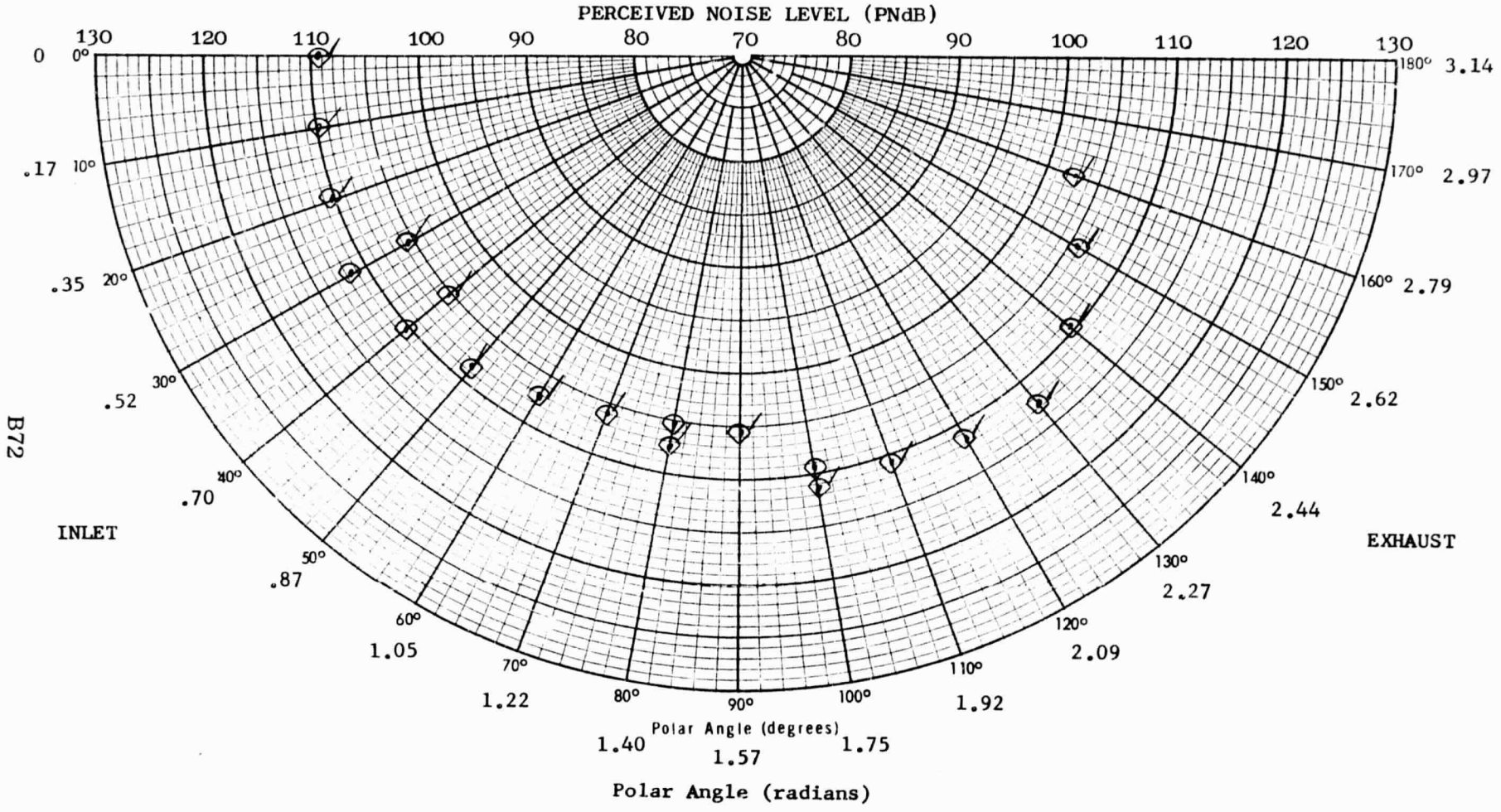
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		D	D		
Run No.		6-66	6-81		
Date		9/6/68	9/6/68		
Tape No.		P-636	P-640		
Physical Speed	RPM	1850	1850		
	Rad/sec	193.7	193.7		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-71

KEY		D	D		
Corr. Speed %		52.9	52.7		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B72

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

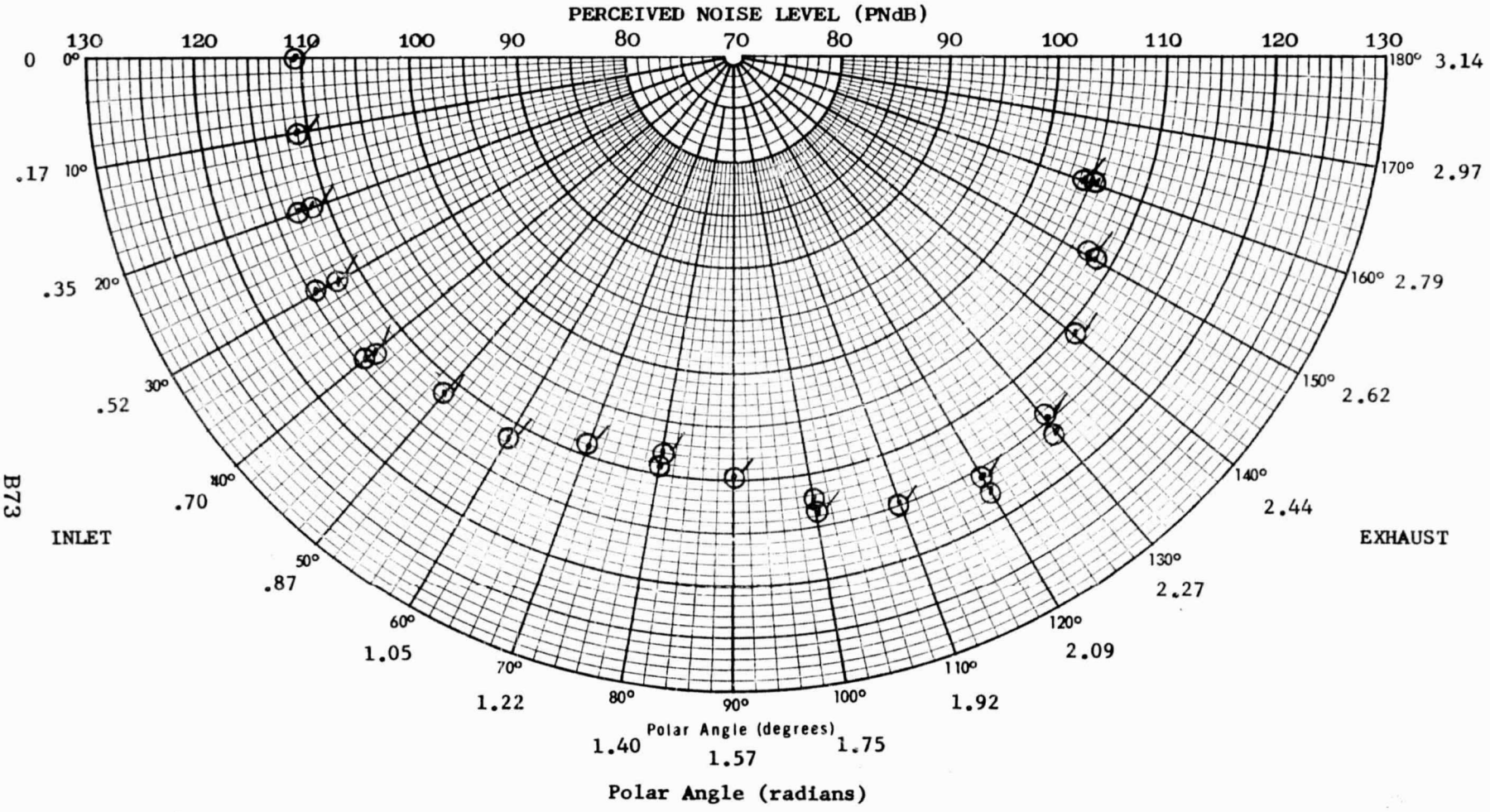
KEY		◇	◇		
Run No.		6-67	6-82		
Date		9/6/68	9/6/68		
Tape No.		P-636	P-641		
Physical Speed	RPM	2000	2000		
	Rad/sec	209.4	209.4		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-72

KEY		◇	◇		
Corr. Speed %		56.9	56.8		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



B73

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

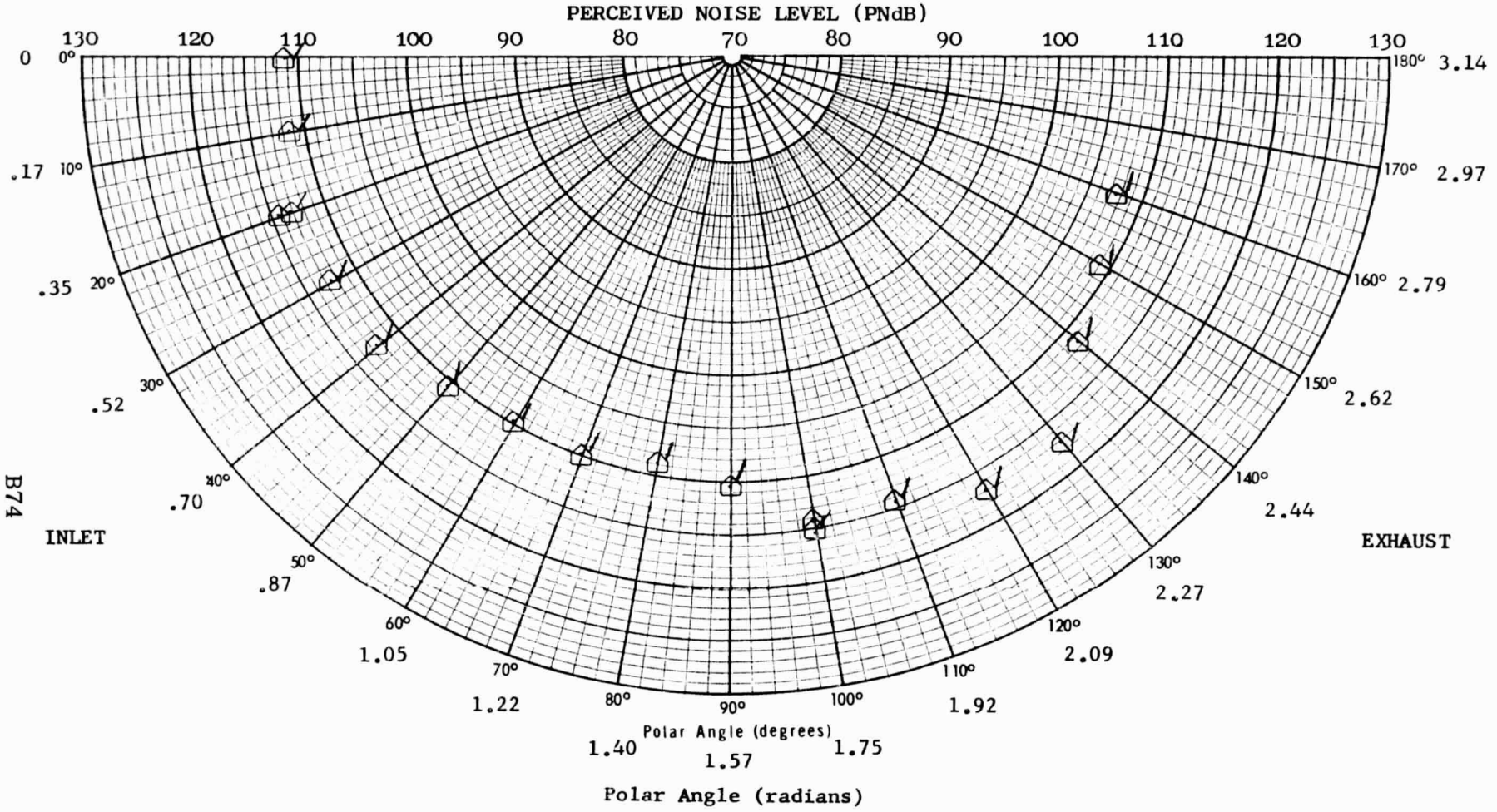
KEY		O	◇		
Run No.		6-68	6-83		
Date		9/6/68	9/6/68		
Tape No.		P-636	P-641		
Physical Speed	RPM	2156	2150		
	Rad/sec	225.7	225.1		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-73

KEY		O	◇		
Corr. Speed %		61.4	61.2		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

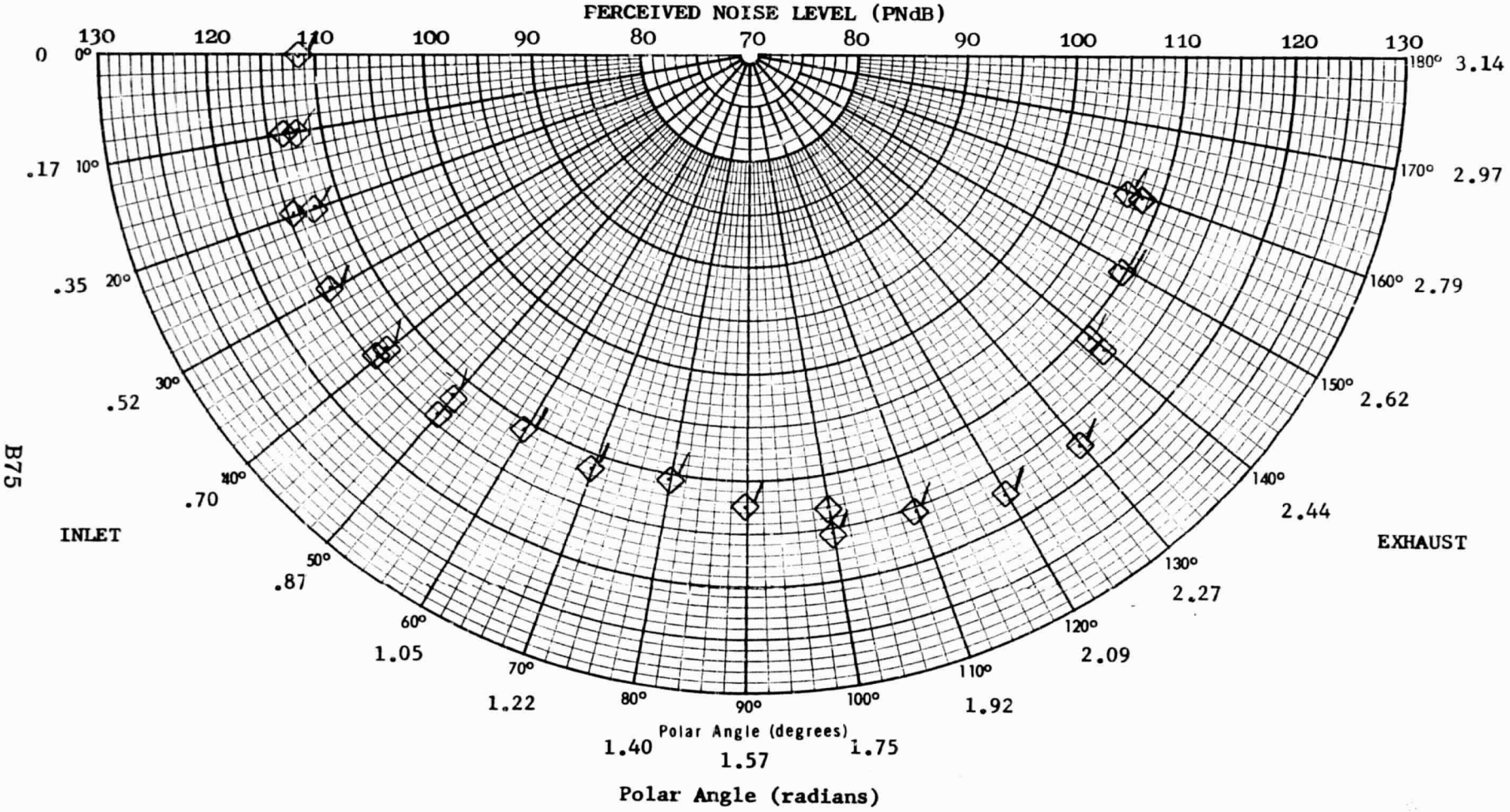
KEY		⌂	⌂		
Run No.		6-69	6-84		
Date		9/6/68	9/6/68		
Tape No.		P-637	P-641		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.8	240.8		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-74

KEY		⌂	⌂		
Corr. Speed %		65.5	65.4		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



B75

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

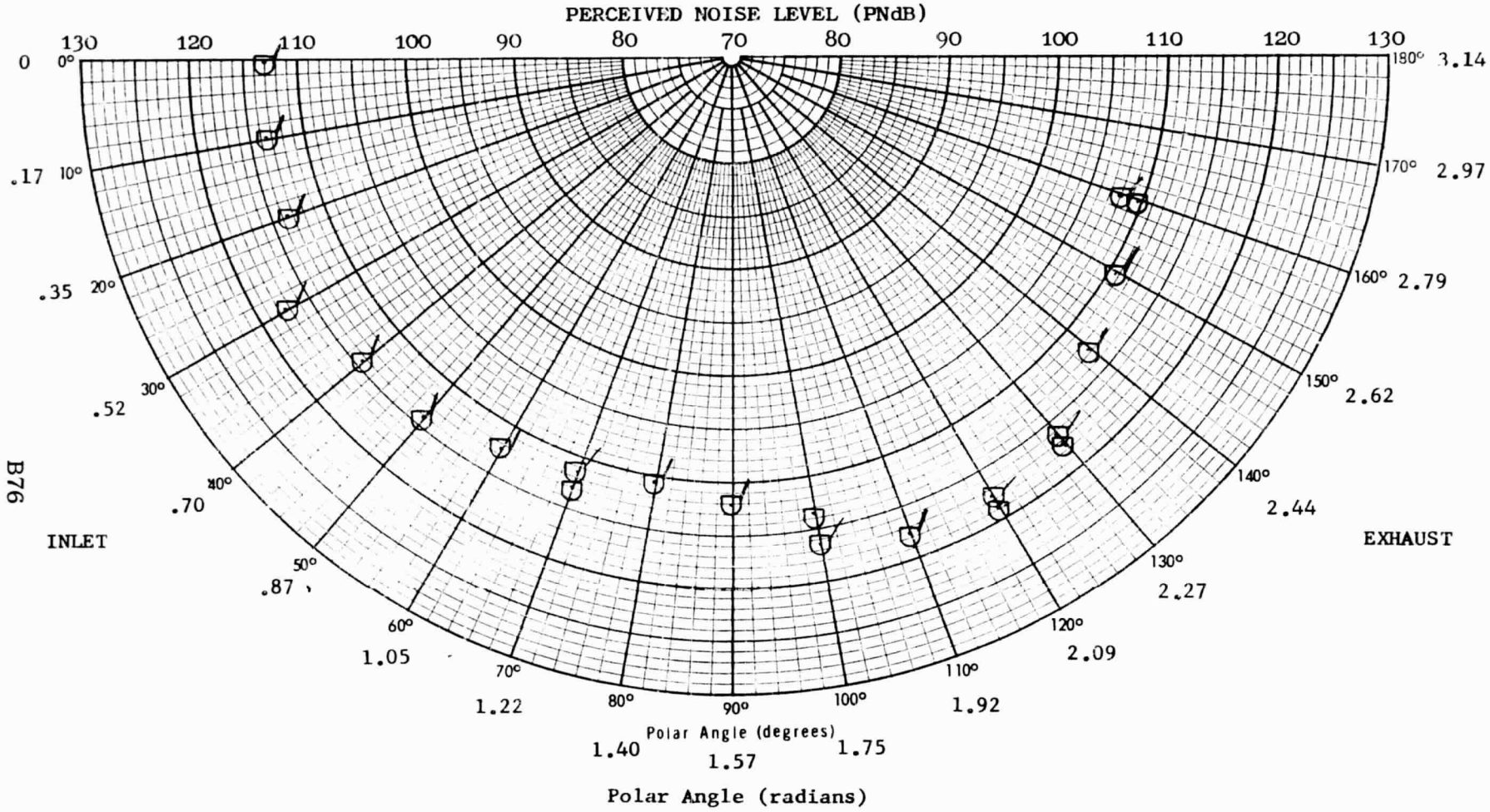
KEY		◇	◇		
Run No.		6-70	6-85		
Date		9/6/68	9/6/68		
Tape No.		P-637	P-642		
Physical Speed	RPM	2430	2450		
	Rad/sec	256.5	256.5		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-75

KEY		◇	◇		
Corr. Speed %		69.7	69.8		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



B76

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

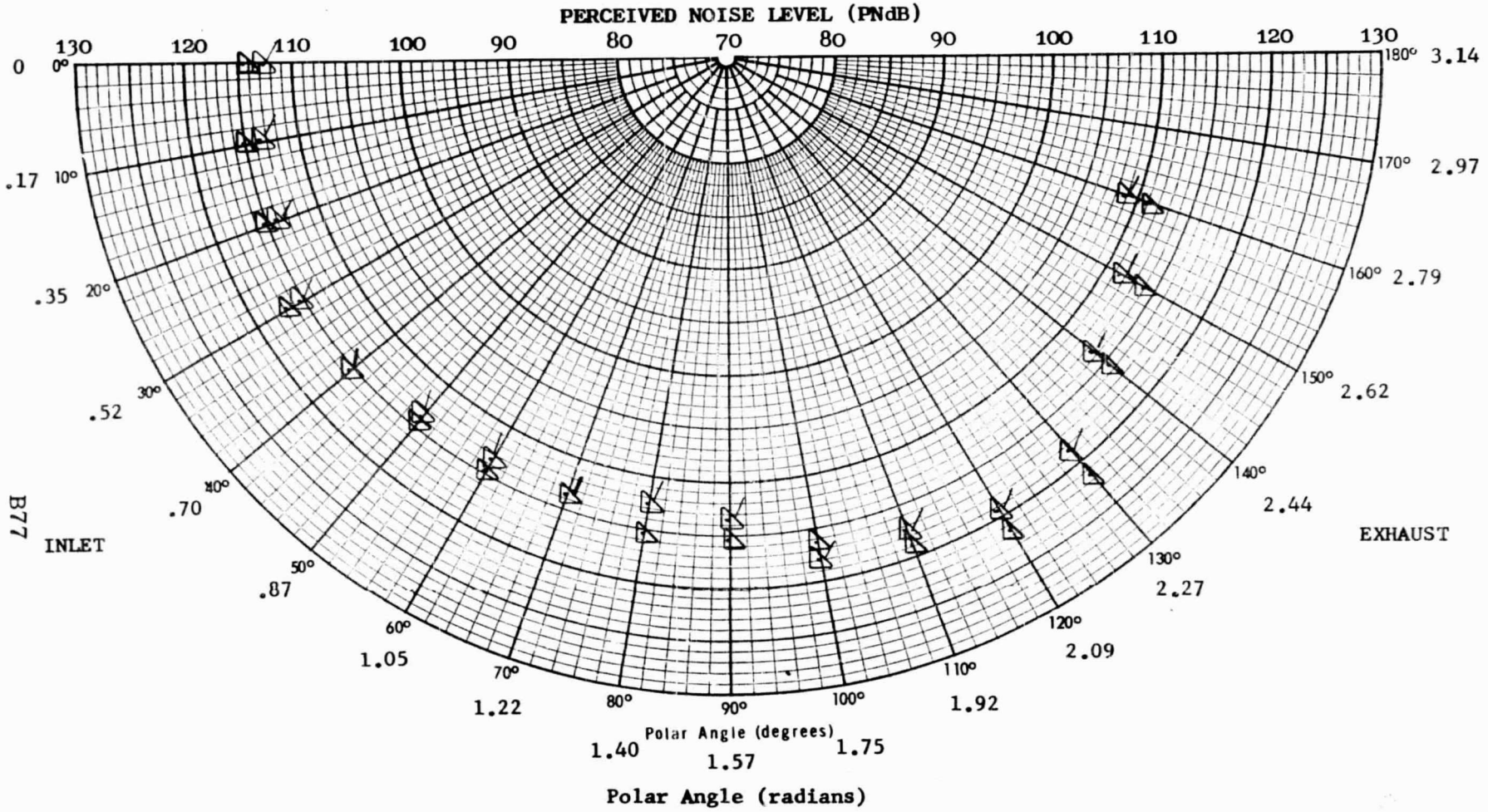
KEY		○	□		
Run No.		6-71	6-86		
Date		9/6/68	9/6/68		
Tape No.		P-638	P-642		
Physical Speed	RPM	2618	2600		
	Rad/sec	274.1	274.1		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-76

KEY		○	□		
Corr. Speed %		74.5	74.1		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



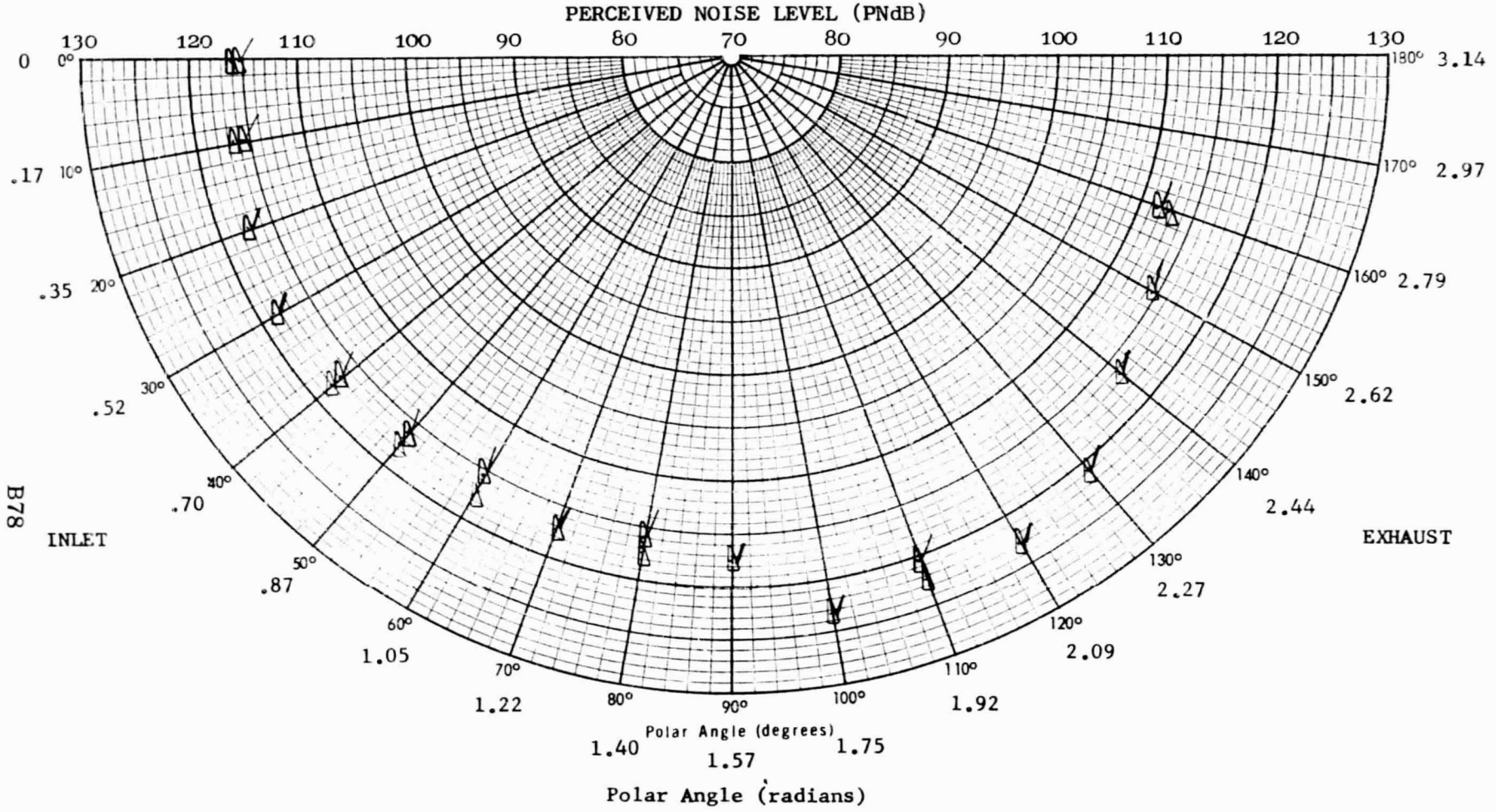
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◺	◸		
Run No.		6-72	6-87		
Date		9/6/68	9/6/68		
Tape No.		P-638	P-642		
Physical Speed	RPM	2753	2750		
	Rad/sec	288.2	287.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-77

KEY		◺	◸		
Corr. Speed %		78.3	78.3		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

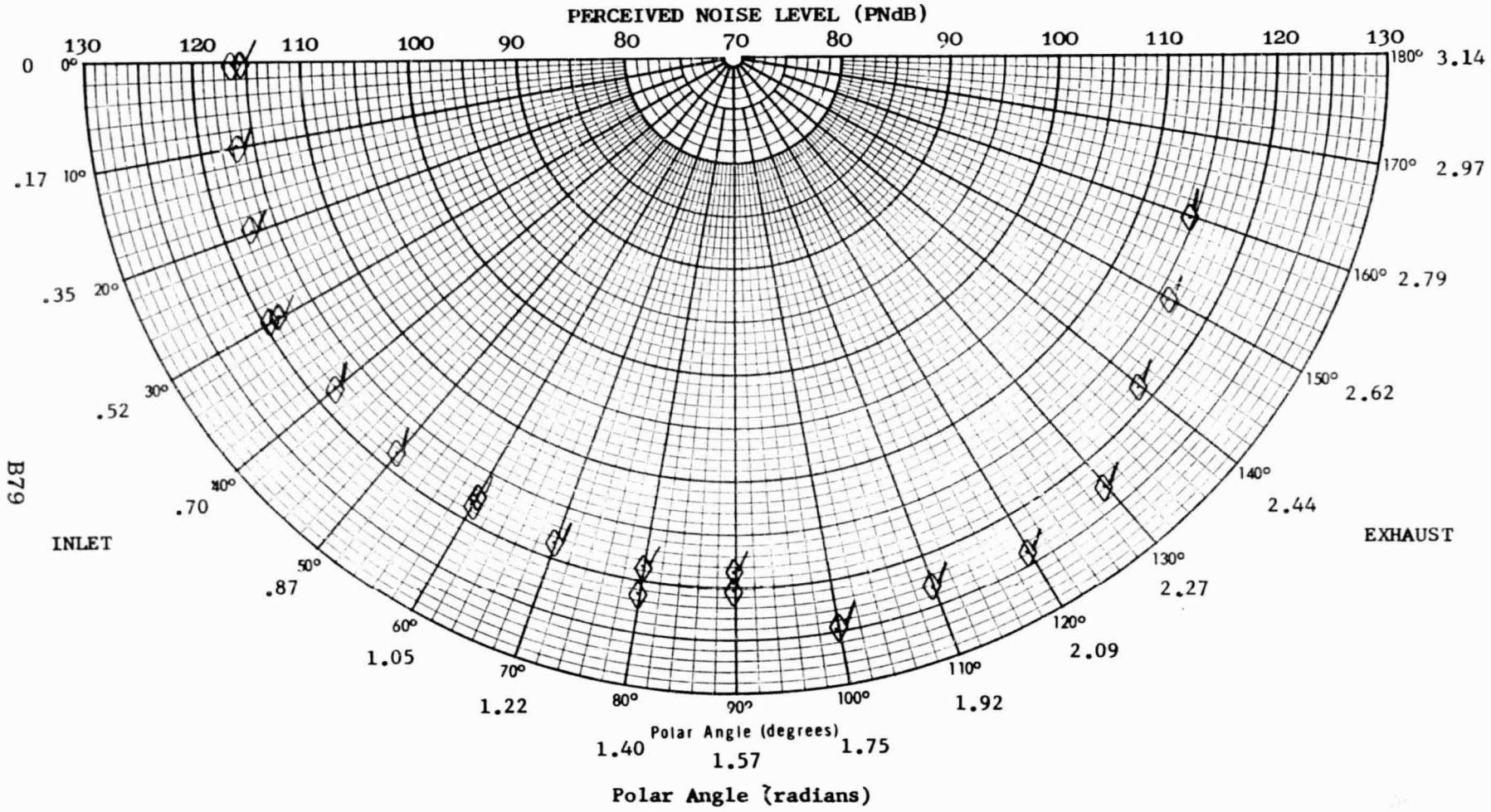
KEY		Δ	▽		
Run No.		6-75	6-88		
Date		9/6/68	9/6/68		
Tape No.		P-639	P-643		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-78

KEY		Δ	▽		
Corr. Speed %		91.2	91.2		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

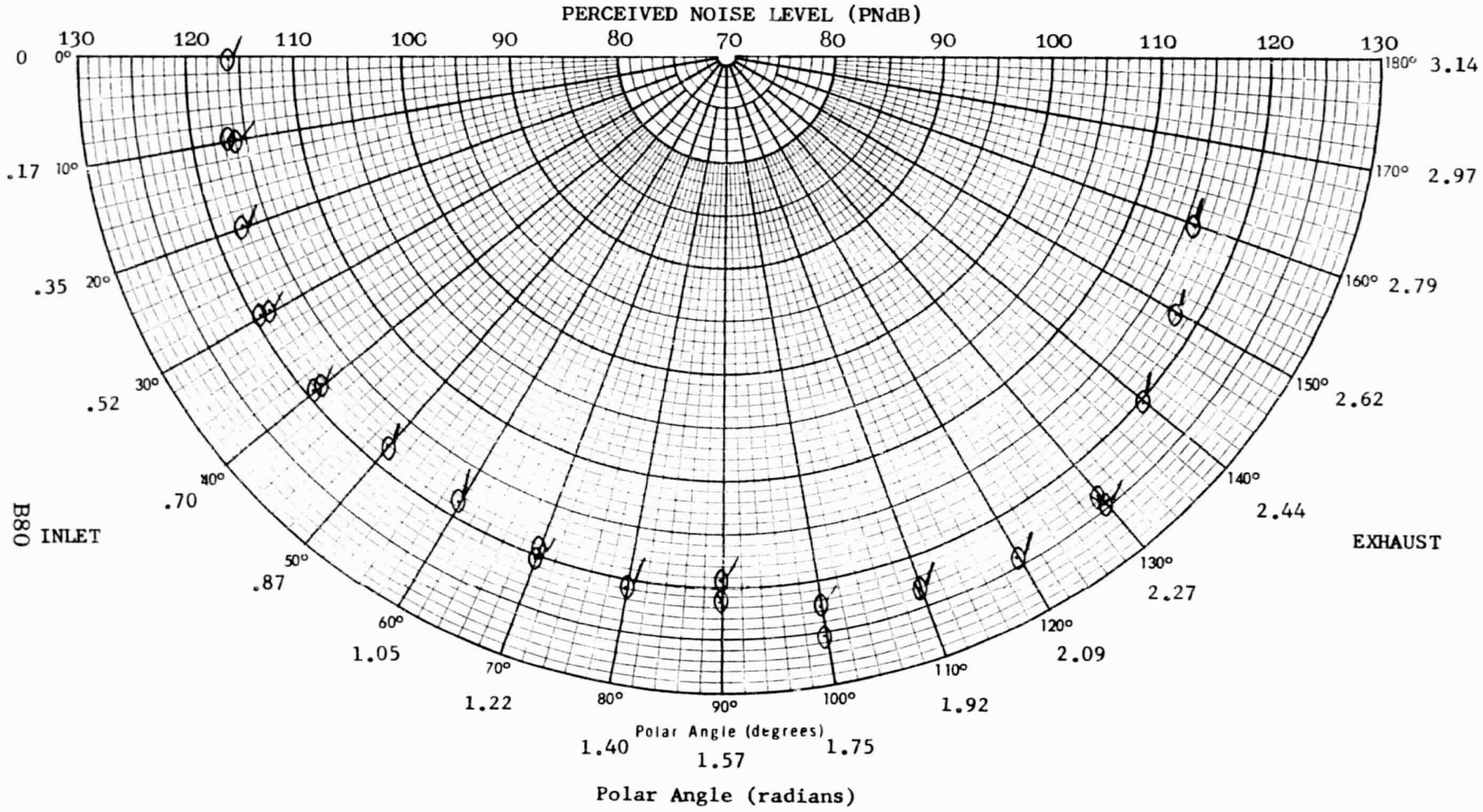
KEY		◊	◊		
Run No.		6-76	6-89		
Date		9/6/68	9/6/68		
Tape No.		P-639	P-639		
Physical Speed	RPM	3350	3350		
	Rad/sec	350.7	350.7		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-79

KEY		◊	◊		
Corr. Speed %		95.5	95.5		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

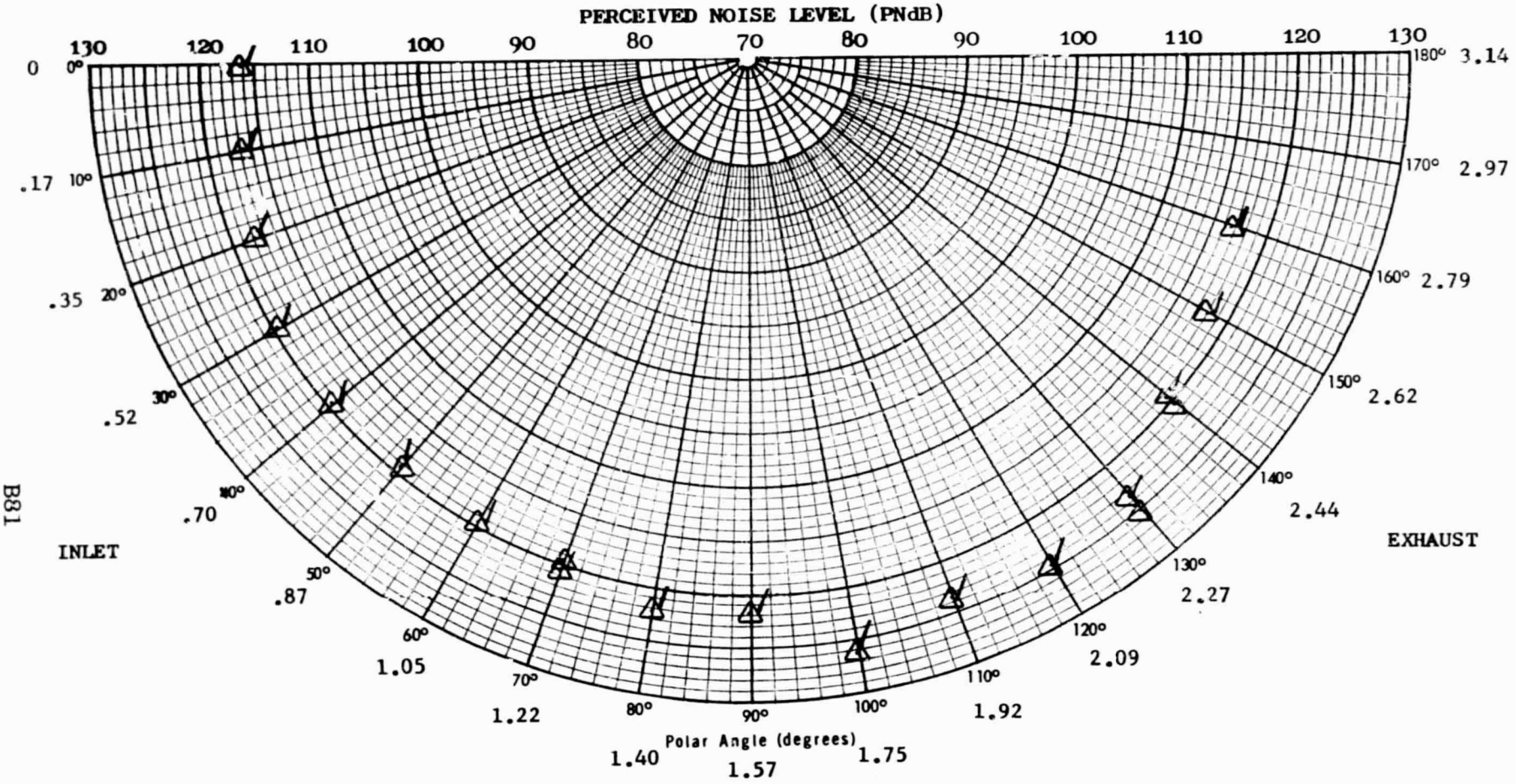
KEY		O	◇		
Run No.		6-77	6-90		
Date		9/6/68	9/6/68		
Tape No.		P-639	P-644		
Physical Speed	RPM	3480	3473		
	Rad/sec	364.4	363.6		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-80

KEY		O	◇		
Corr. Speed %		99.2	99.1		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-3



B81

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

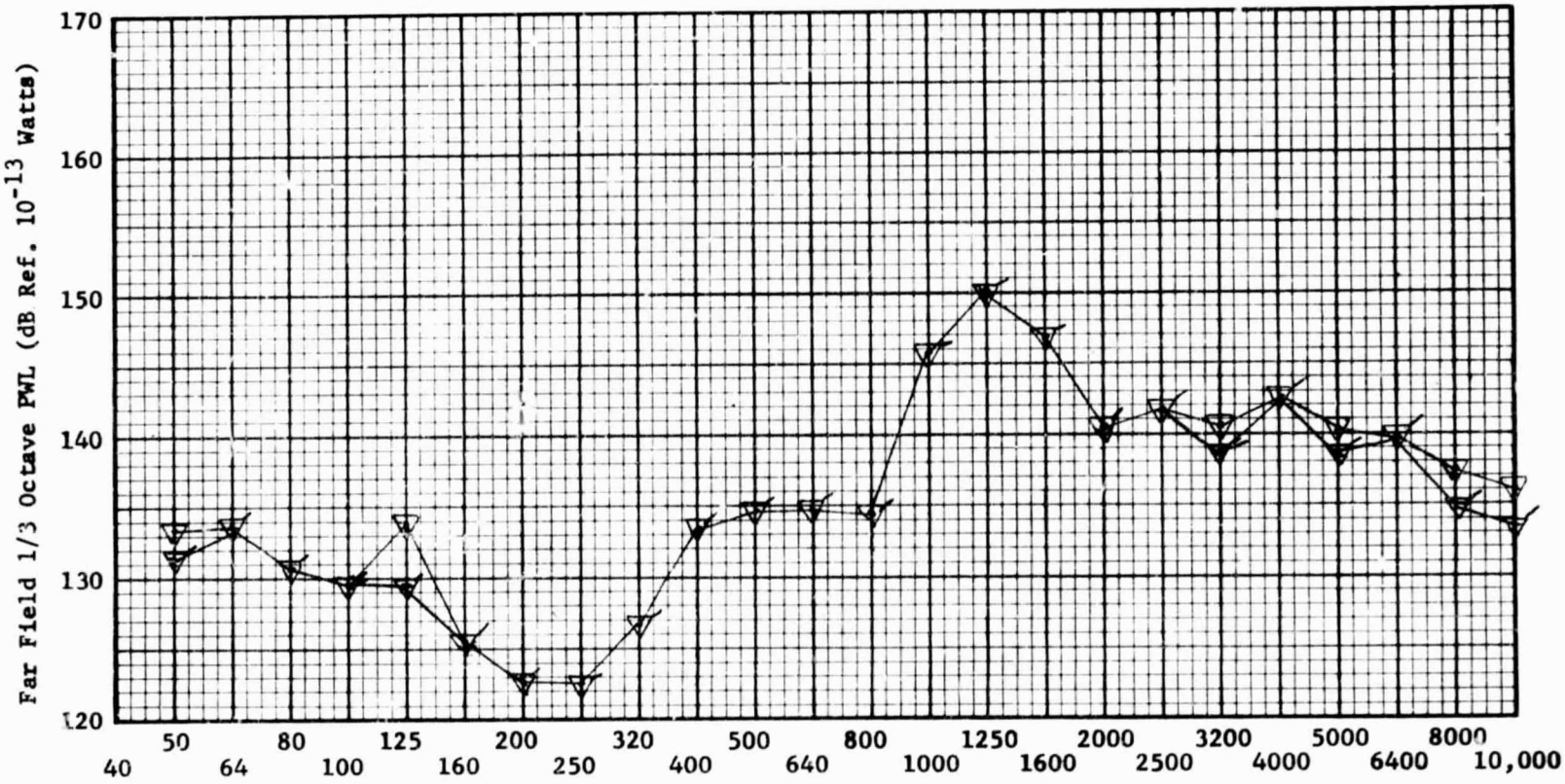
KEY		Δ	∠		
Run No.		6-78	6-91		
Date		9/6/68	9/6/68		
Tape No.		P-640	P-644		
Physical Speed	RPM	3554	3562		
	Rad/sec	372.1	372.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-81

KEY		Δ	∠		
Corr. Speed %		101.3	101.6		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. ?



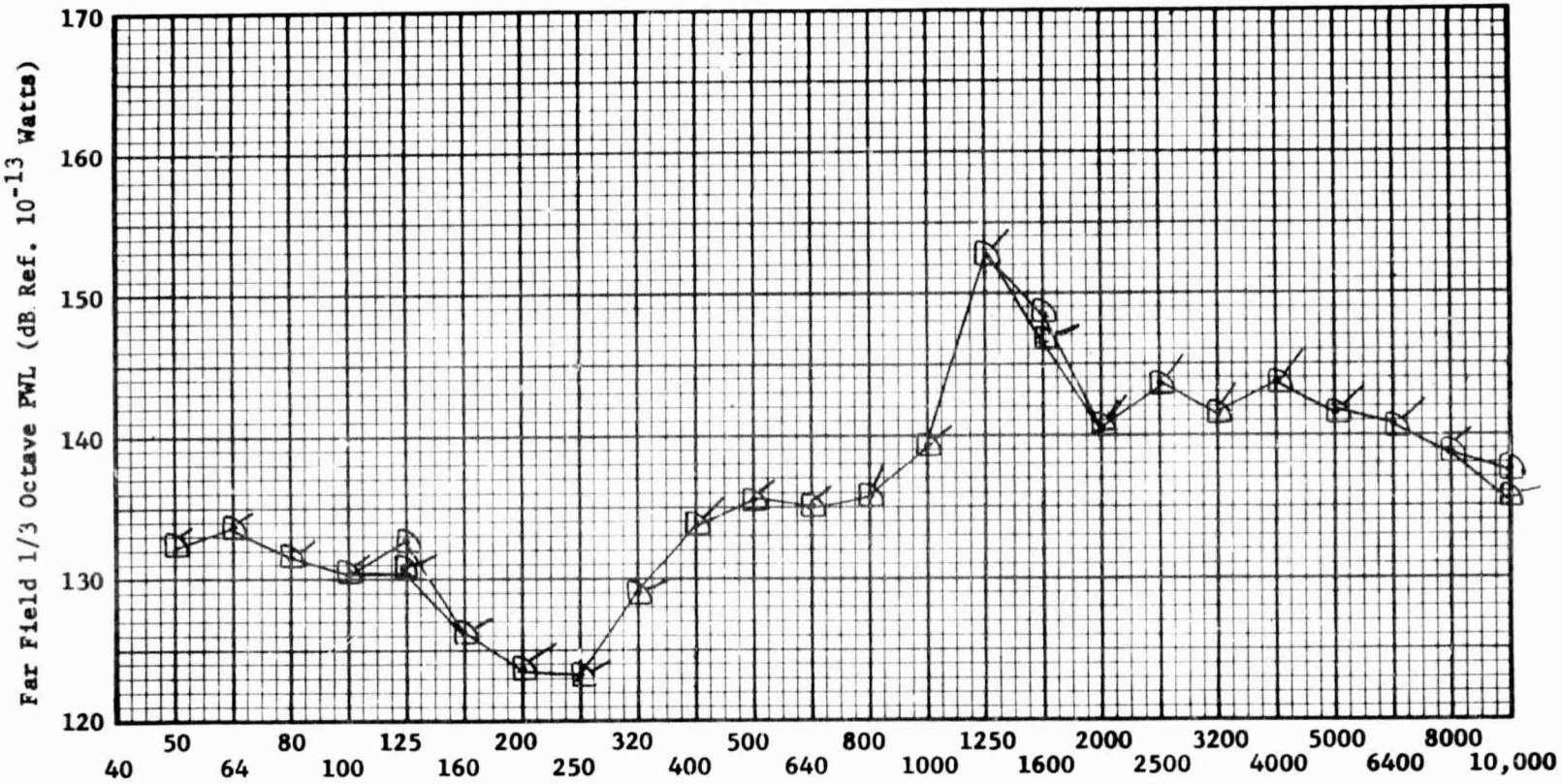
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY					
Run No.		6-65	6-80		
Date		9/6/68	9/6/68		
Tape No.		P-635	P-640		
Physical Speed	RPM	1700	1700		
	Rad/sec	177.9	177.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-82

KEY					
Corr. Speed %		48.7	48.4		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



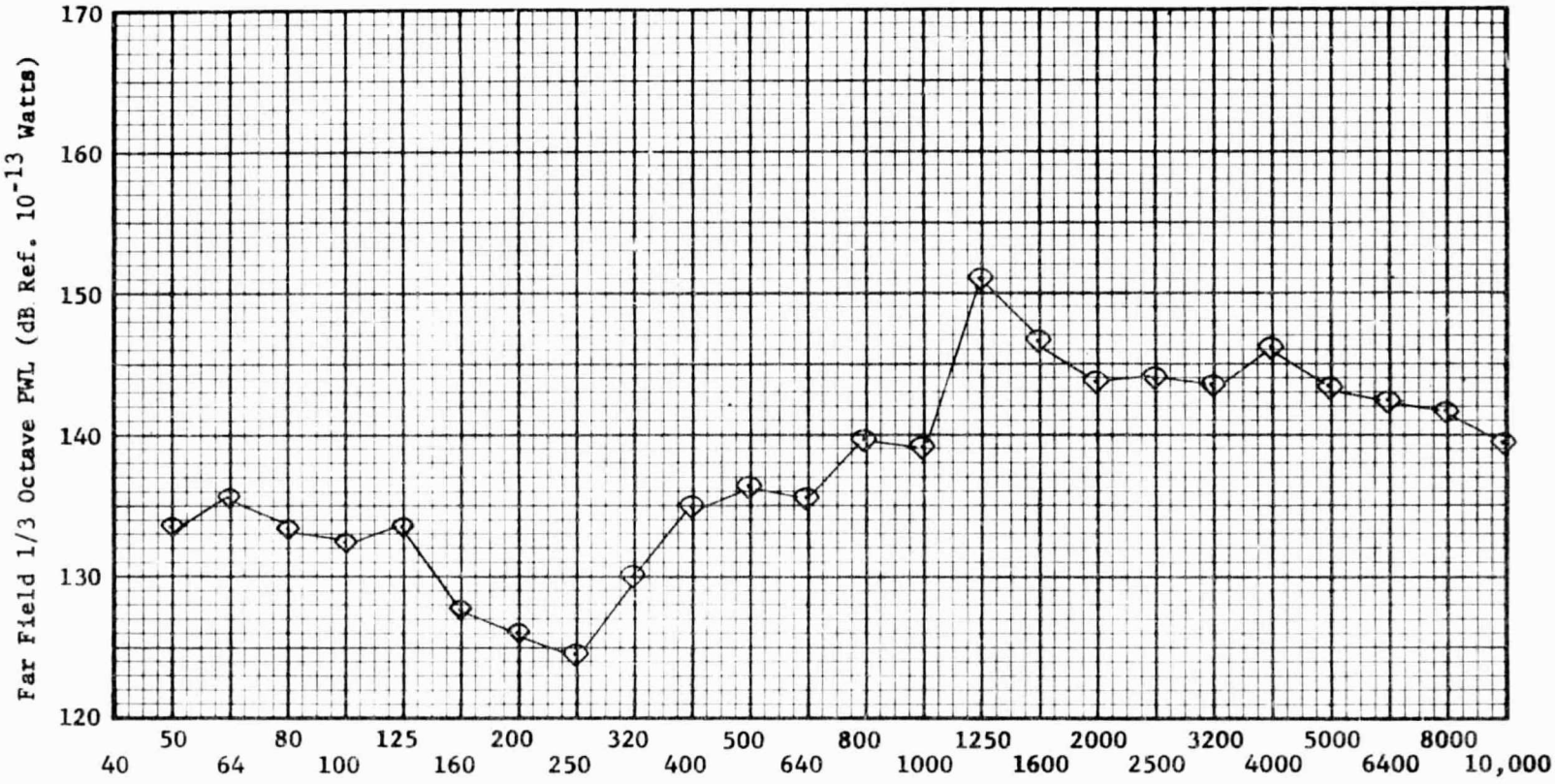
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY					
Run No.		6-66	6-81		
Date		9/6/68	9/6/68		
Tape No.		P-636	P-640		
Physical Speed	RPM	1850	1850		
	Rad/sec	193.7	193.7		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-83

KEY					
Corr. Speed %		52.9	52.7		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

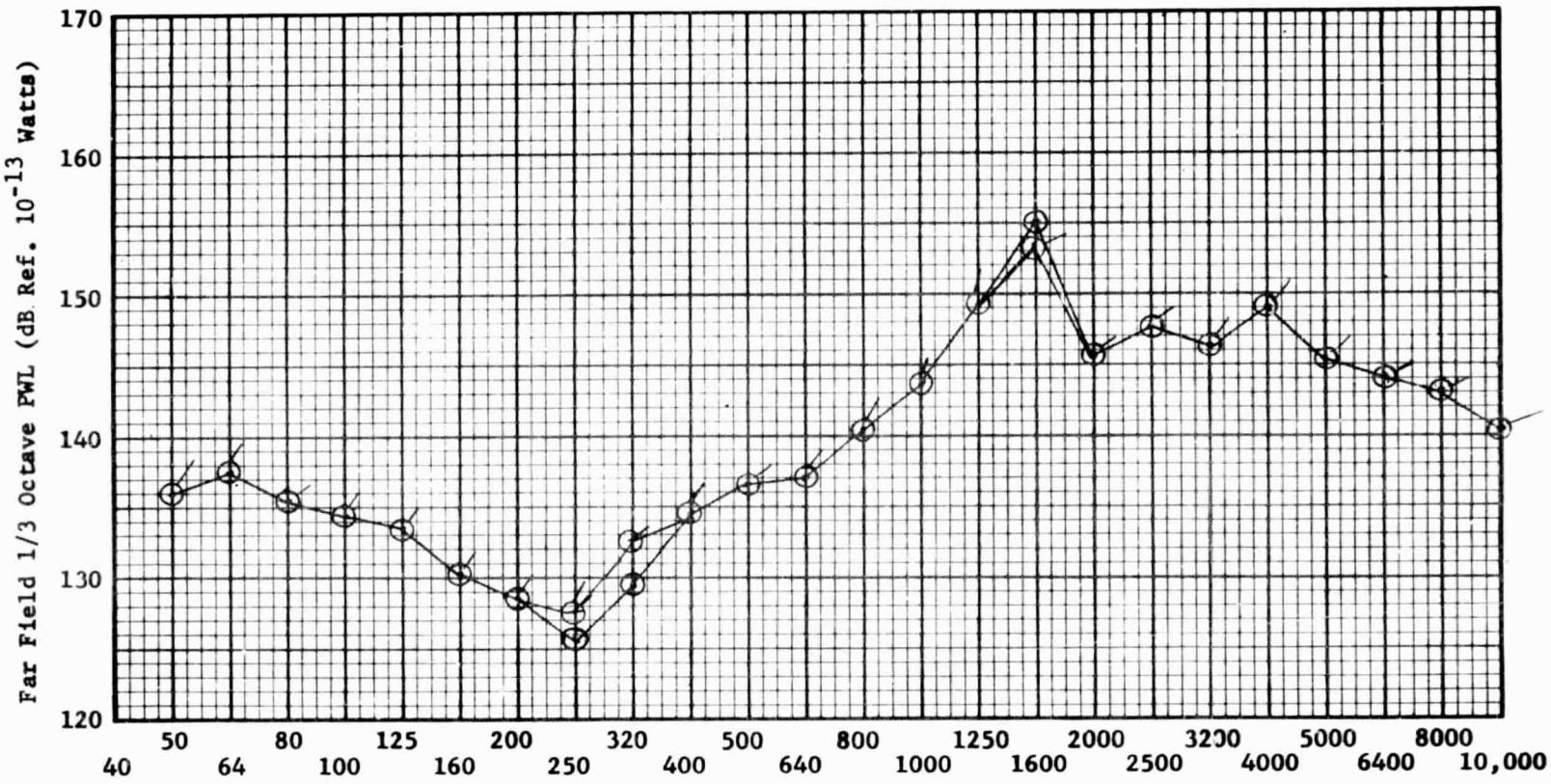
KEY					
Run No.		6-67			
Date		9/6/68			
Tape No.		P-636			
Physical Speed	RPM	2000			
	Rad/sec	209.4			

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-84

KEY					
Corr. Speed %		57.0			
Fan Noz. Area	In^2	1409.7			
	m^2	.9095			
Core Noz. Area	In^2	927.7			
	m^2	.5986			

Form No. [illegible] 2



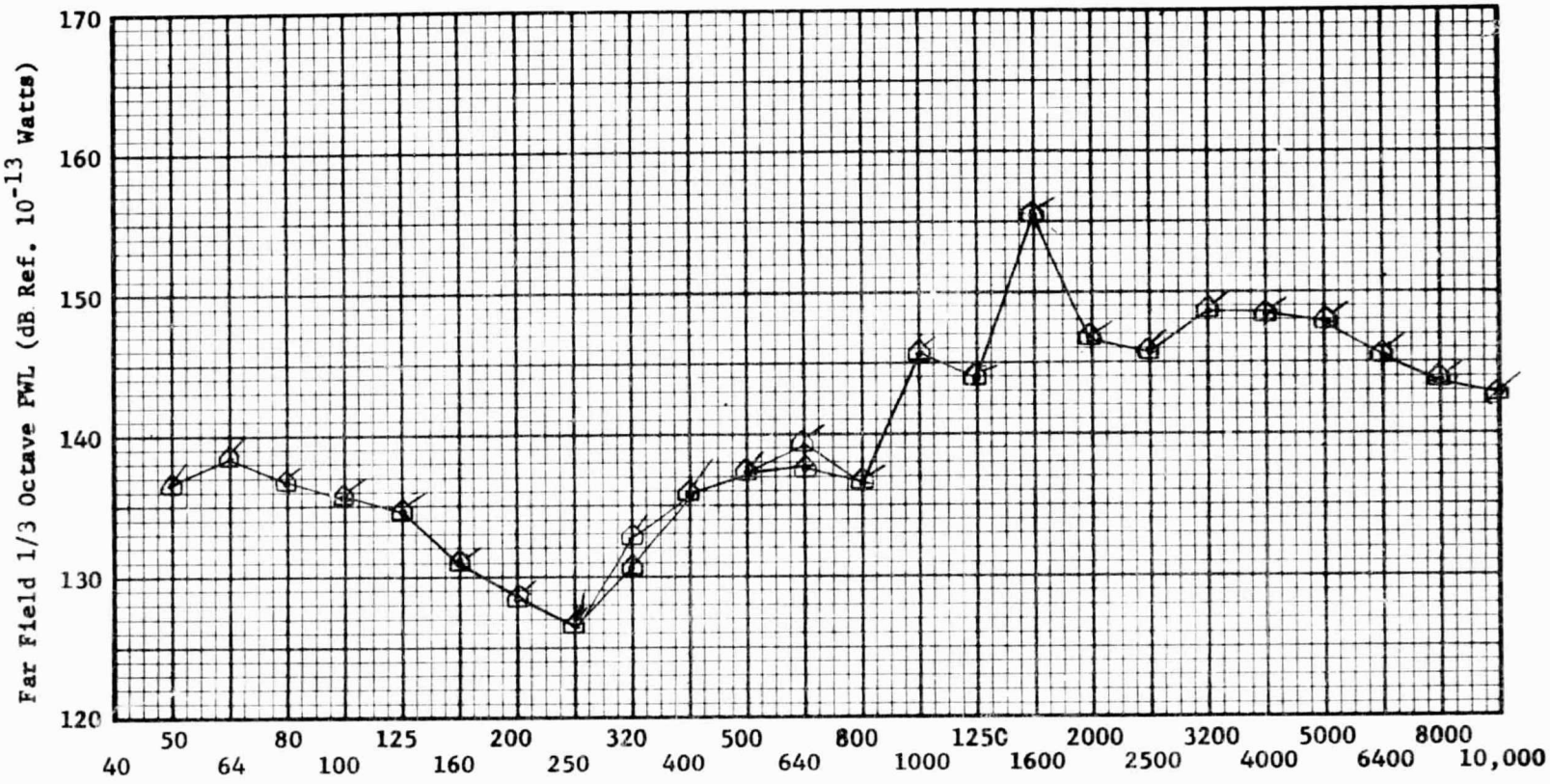
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY					
Run No.		6-68	6-83		
Date		9/6/68	9/6/68		
Tape No.		P-636	P-641		
Physical Speed	RPM	2156	2150		
	Rad/sec	225.7	225.1		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-85

KEY					
Corr. Speed %		61.4	61.1		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

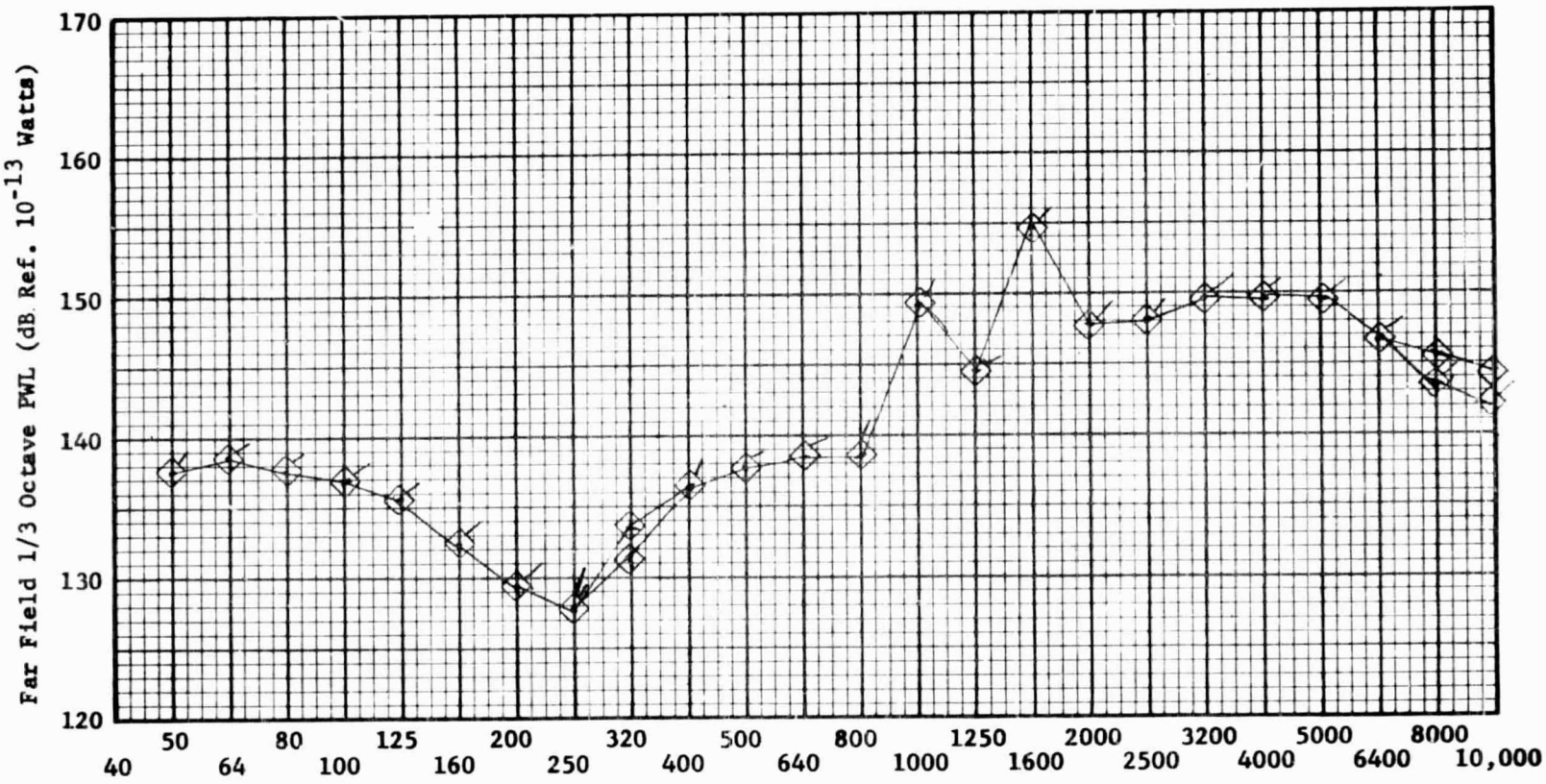
KEY		△	◸		
Run No.		6-69	6-84		
Date		9/6/68	9/6/68		
Tape No.		P-637	P-641		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.8	240.8		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-86

KEY		△	◸		
Corr. Speed %		65.5	65.4		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. ?



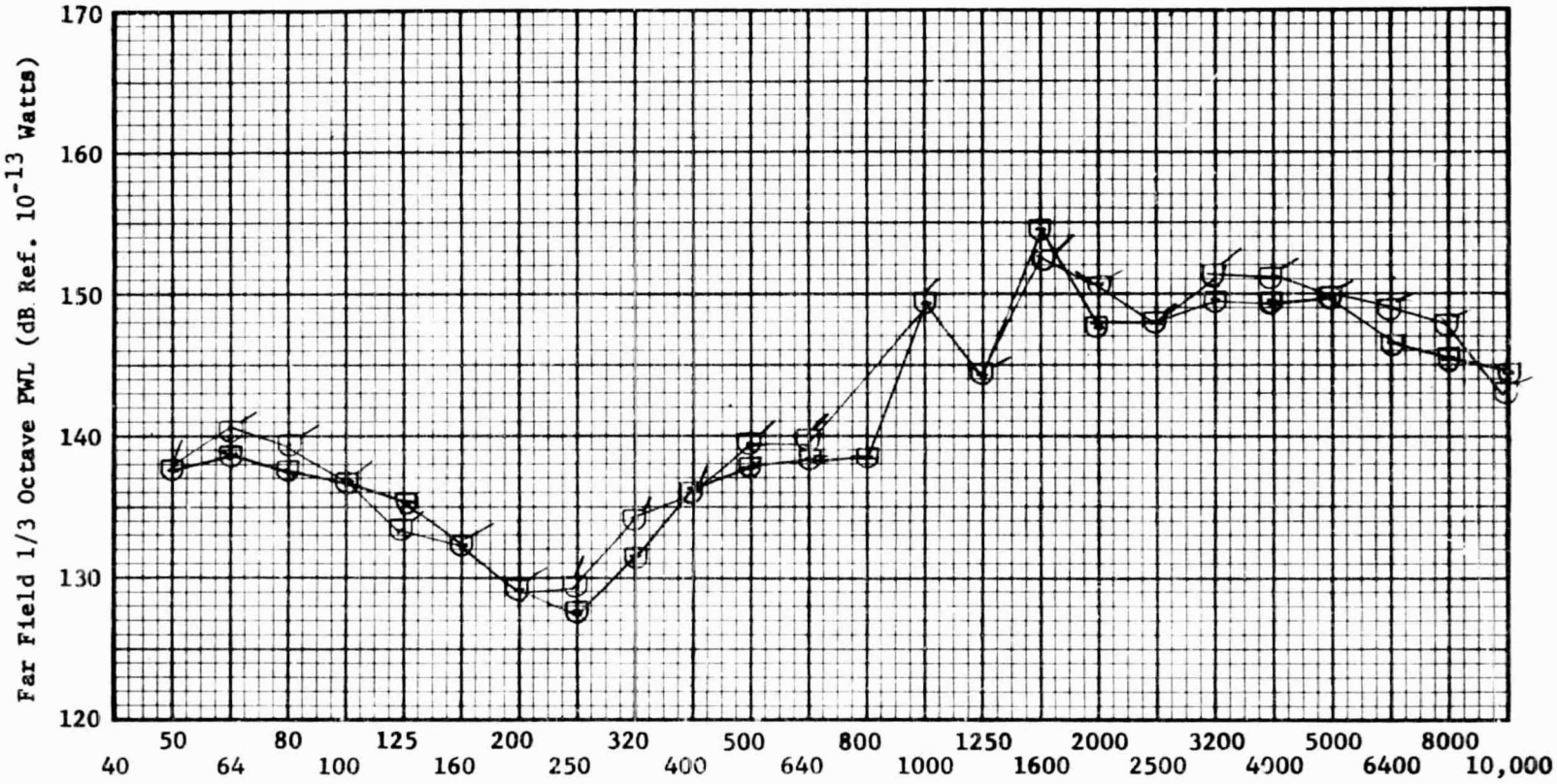
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		^	^		
Run No.		6-70	6-85		
Date		9/6/68	9/6/68		
Tape No.		P-637	P-642		
Physical Speed	RPM	2450	2450		
	Rad/sec	256.5	256.5		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-87

KEY		◇	◇		
Corr. Speed %		69.7	69.8		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



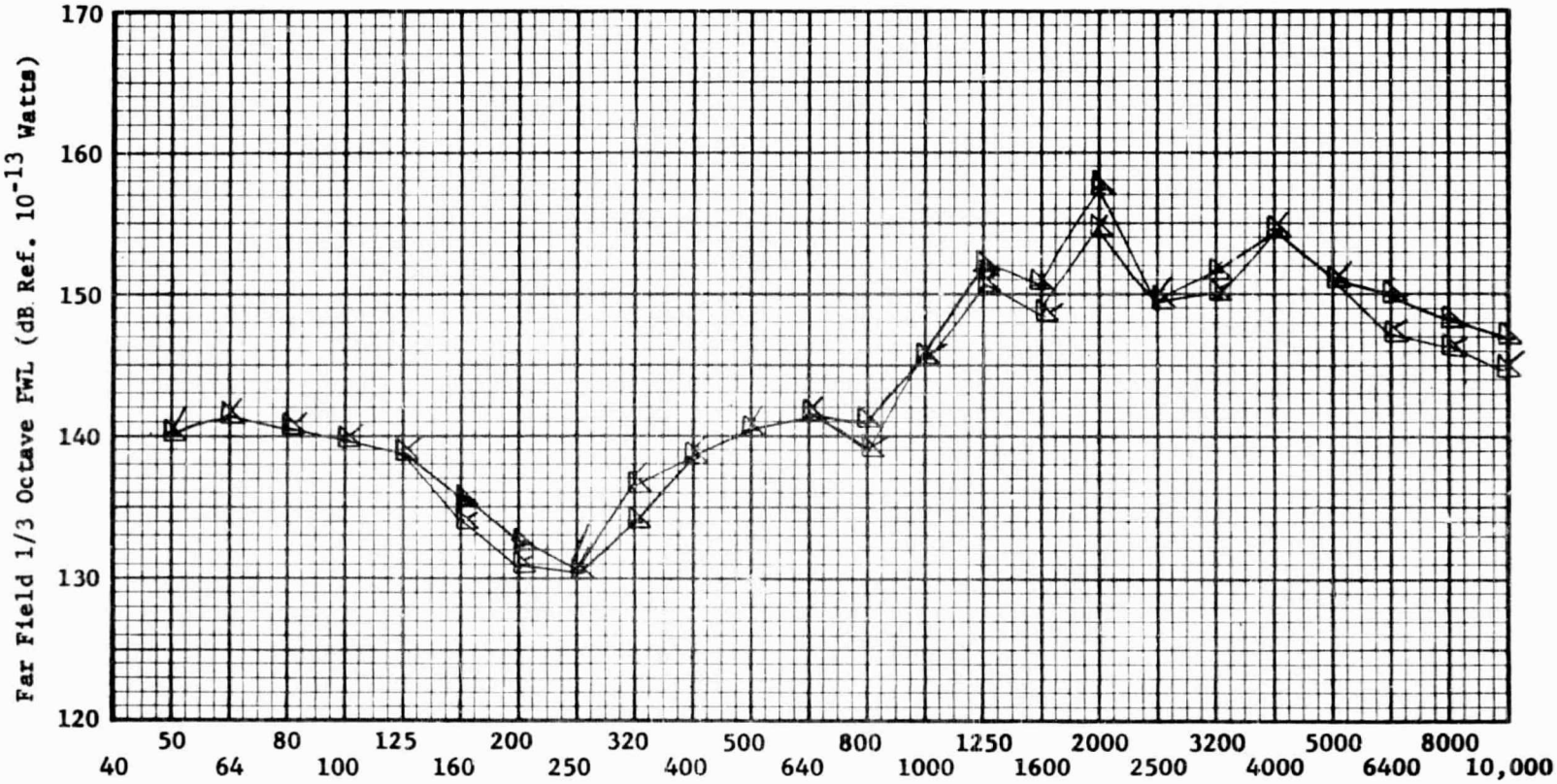
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	▽		
Run No.		6-71	6-86		
Date		9/6/68	9/6/63		
Tape No.		P-635	P-642		
Physical Speed	RPM	2618	2600		
	Rad/sec	274.1	272.2		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-88

KEY		○	▽		
Corr. Speed %		74.4	74.1		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



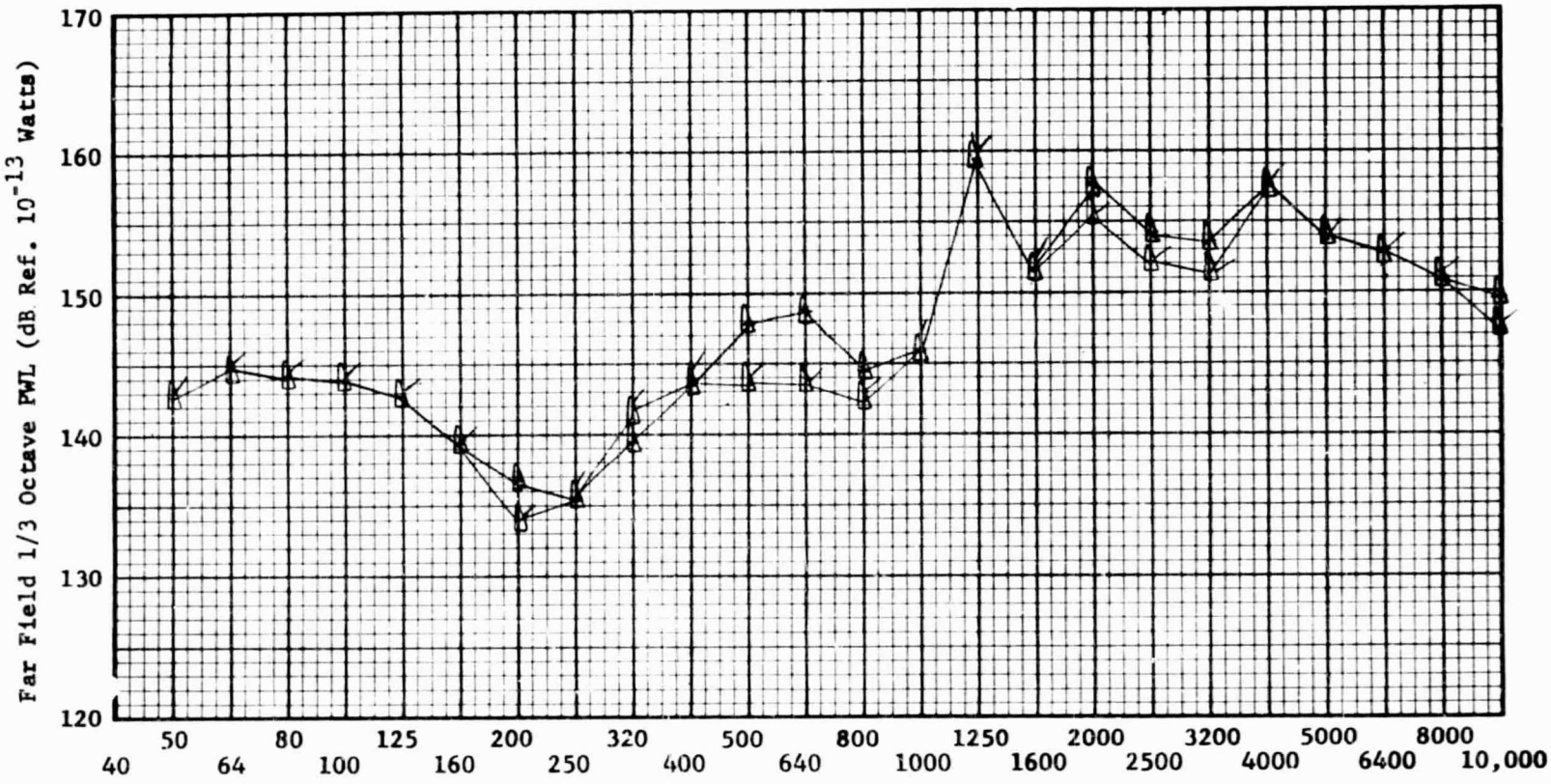
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	◸		
Run No.		6-72	6-87		
Date		9/6/68	9/6/68		
Tape No.		P-638	P-642		
Physical Speed	RPM	2753	2750		
	Rad/sec	288.2	287.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-89

KEY		△	◸		
Corr. Speed %		78.3	78.4		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

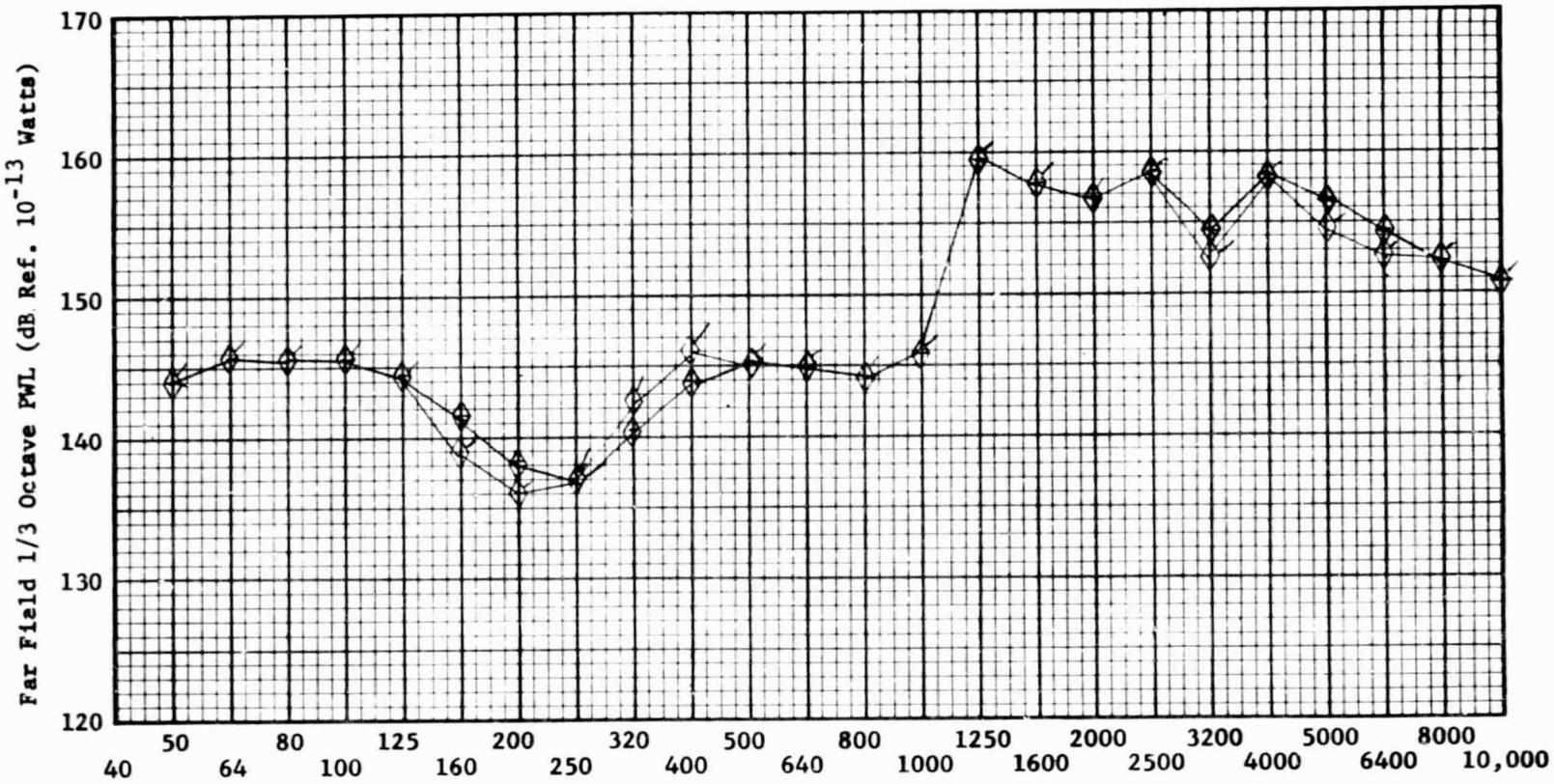
KEY		Δ	⊻		
Run No.		6-75	6-88		
Date		9/6/68	9/6/68		
Tape No.		P-639	P-643		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-90

KEY		Δ	⊻		
Corr. Speed %		91.1	91.1		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. 3



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

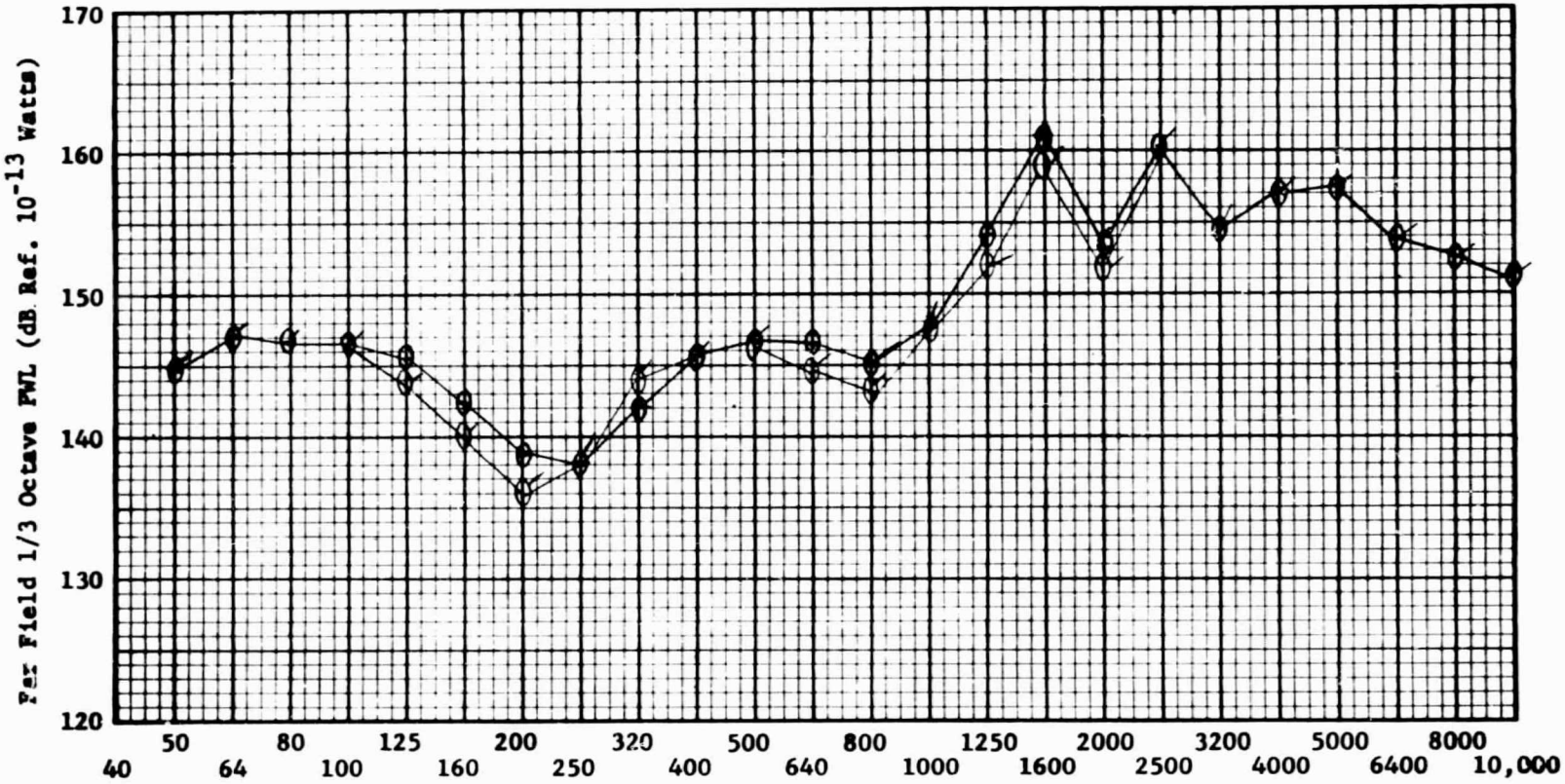
KEY		◇	◇		
Run No.		6-76	6-89		
Date		9/6/68	9/6/68		
Tape No.		P-639	P-643		
Physical Speed	RPM	3350	3350		
	Rad/sec	350.7	350.7		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-91

KEY		◇	◇		
Corr. Speed %		95.4	95.4		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. 2



B92

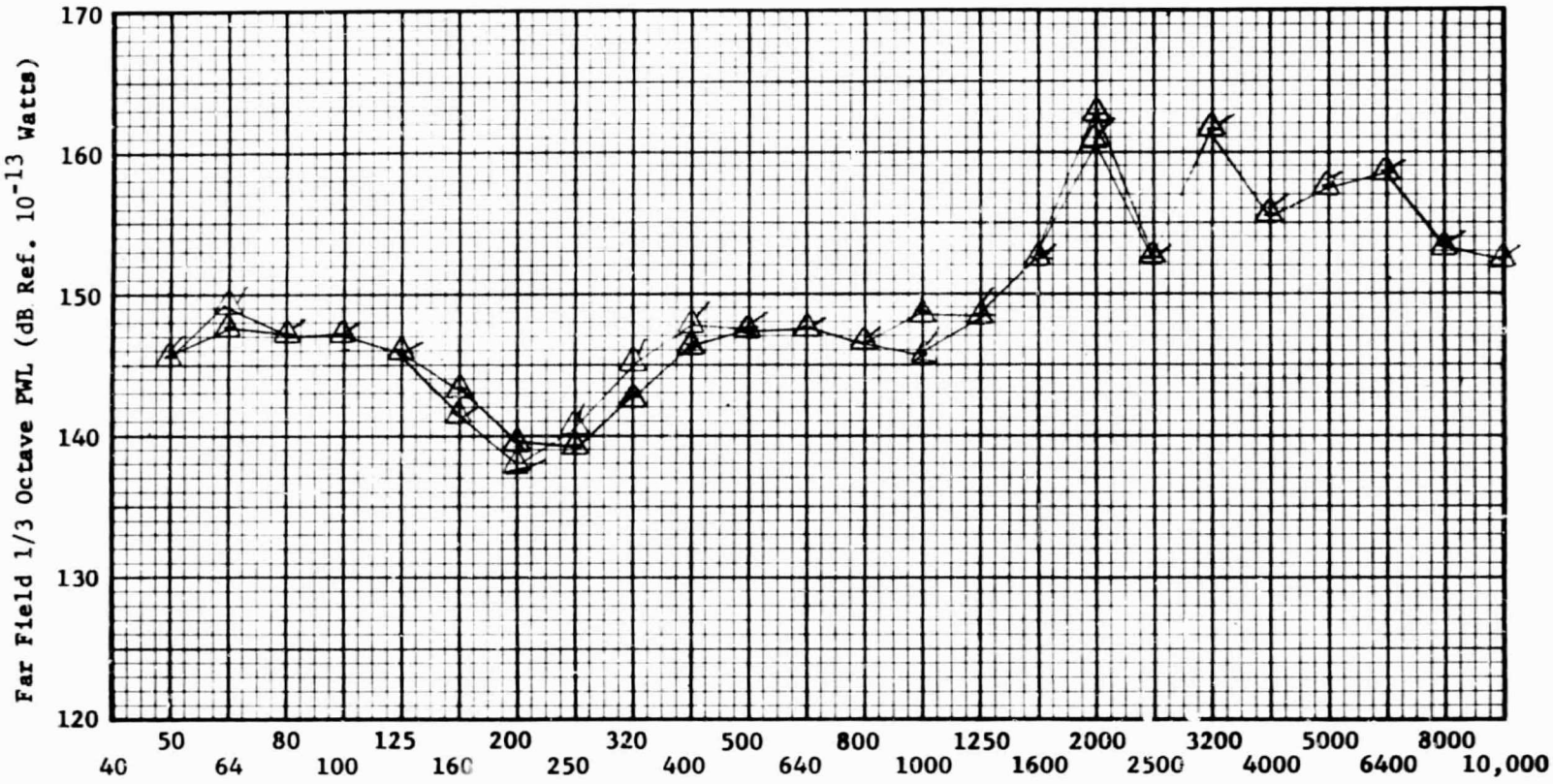
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		O	O		
Run No.		6-77	6-90		
Date		9/6/68	9/6/68		
Tape No.		P-639	P-644		
Physical Speed	RPM	3480	3473		
	Rad/sec	364.4	363.6		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-92

KEY		O	O		
Corr. Speed %		99.2	99.1		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

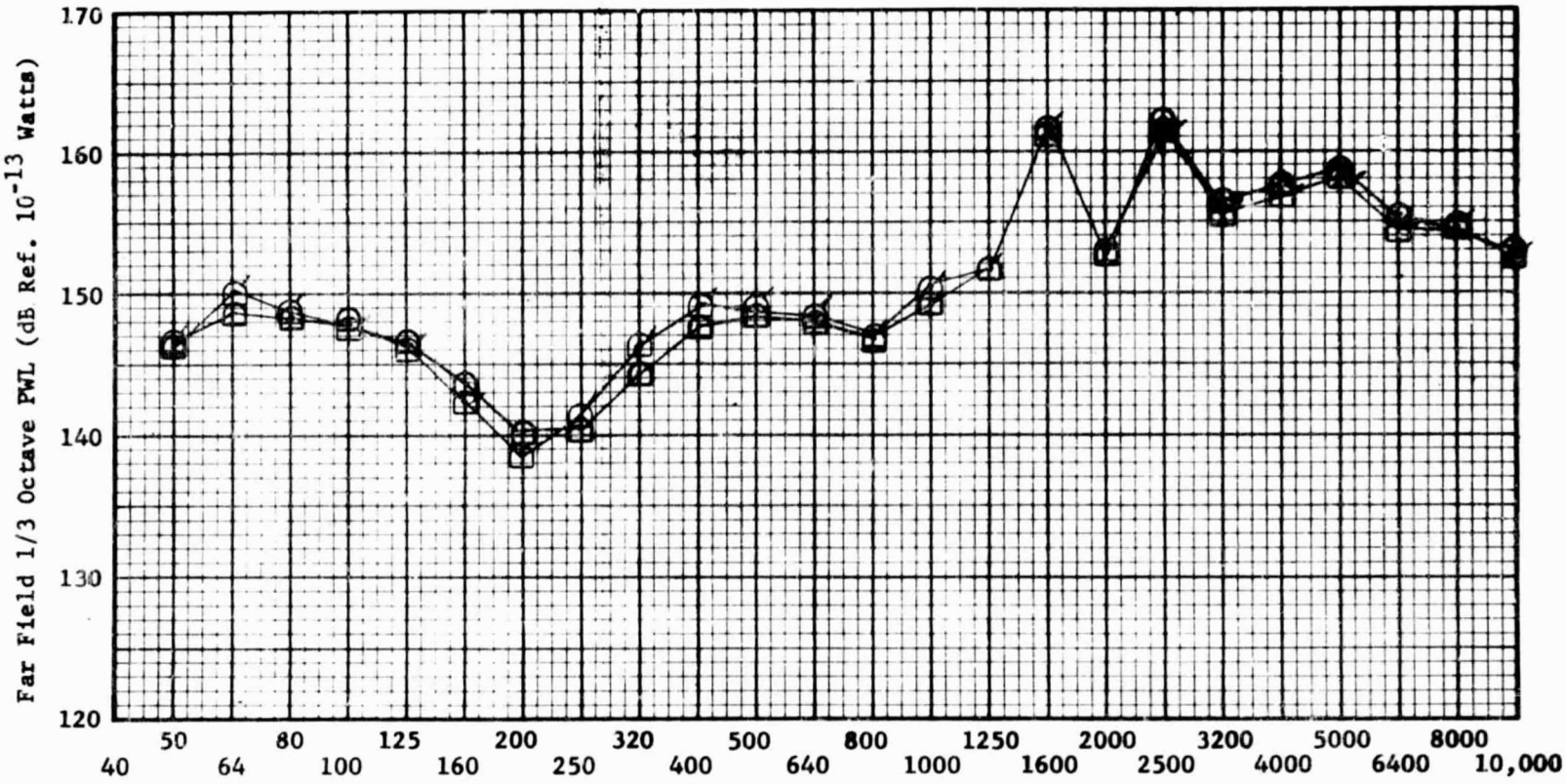
KEY		△	△		
Run No.		6-78	6-91		
Date		9/6/68	9/6/68		
Tape No.		P-640	P-644		
Physical Speed	RPM	3554	3562		
	Rad/sec	372.1	372.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-93

KEY		△	△		
Corr. Speed %		101.3	101.7		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No.



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

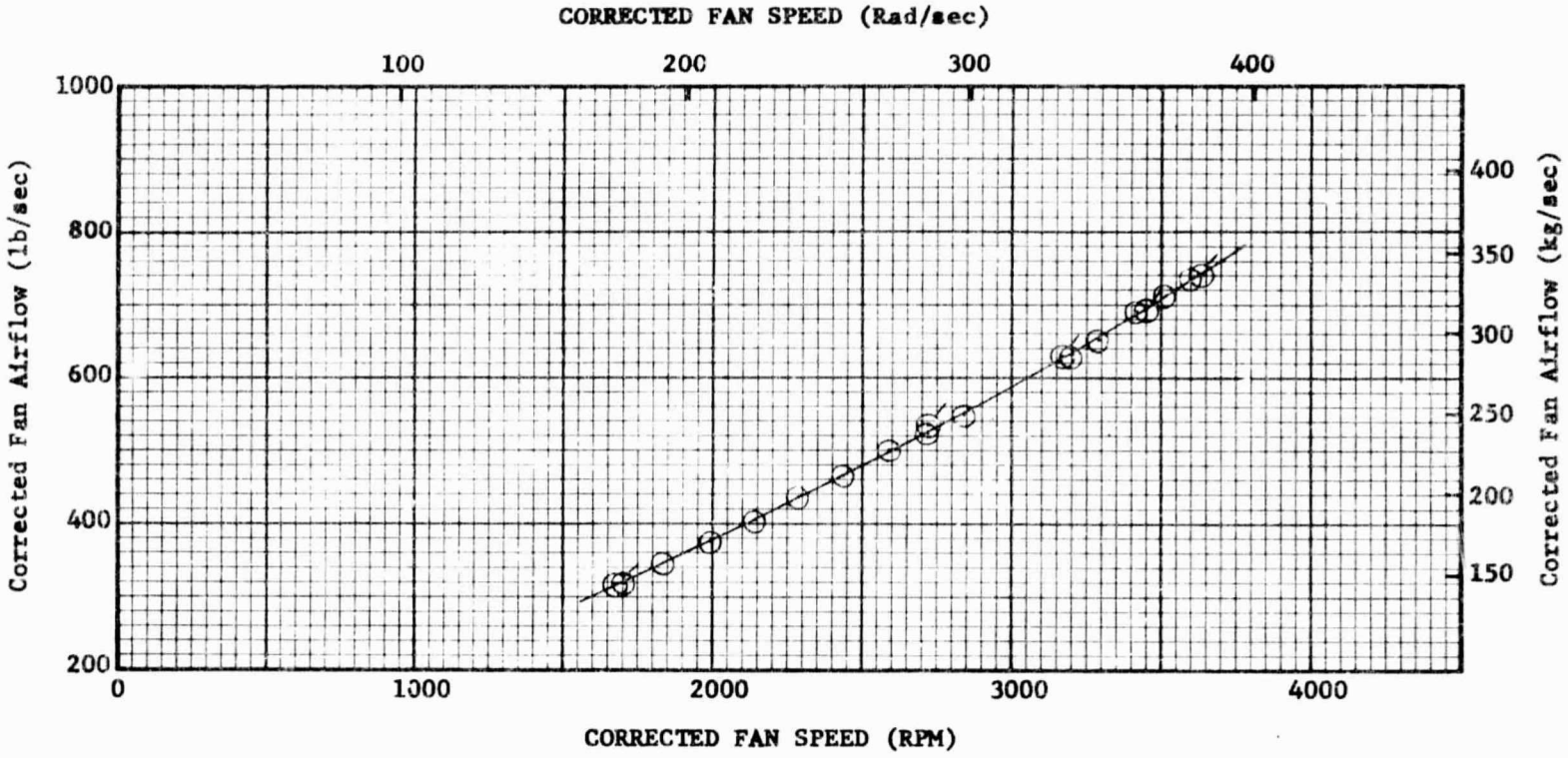
KEY		⊙	⊡		
Run No.		6-79	6-92		
Date		9/6/68	9/6/68		
Tape No.		P640	P644		
Physical Speed	RPM	3650	3650		
	Rad/sec	382.2	382.2		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-93A

KEY		⊙	⊡		
Corr. Speed %		104.2	104.2		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5968	.5968		

B93A



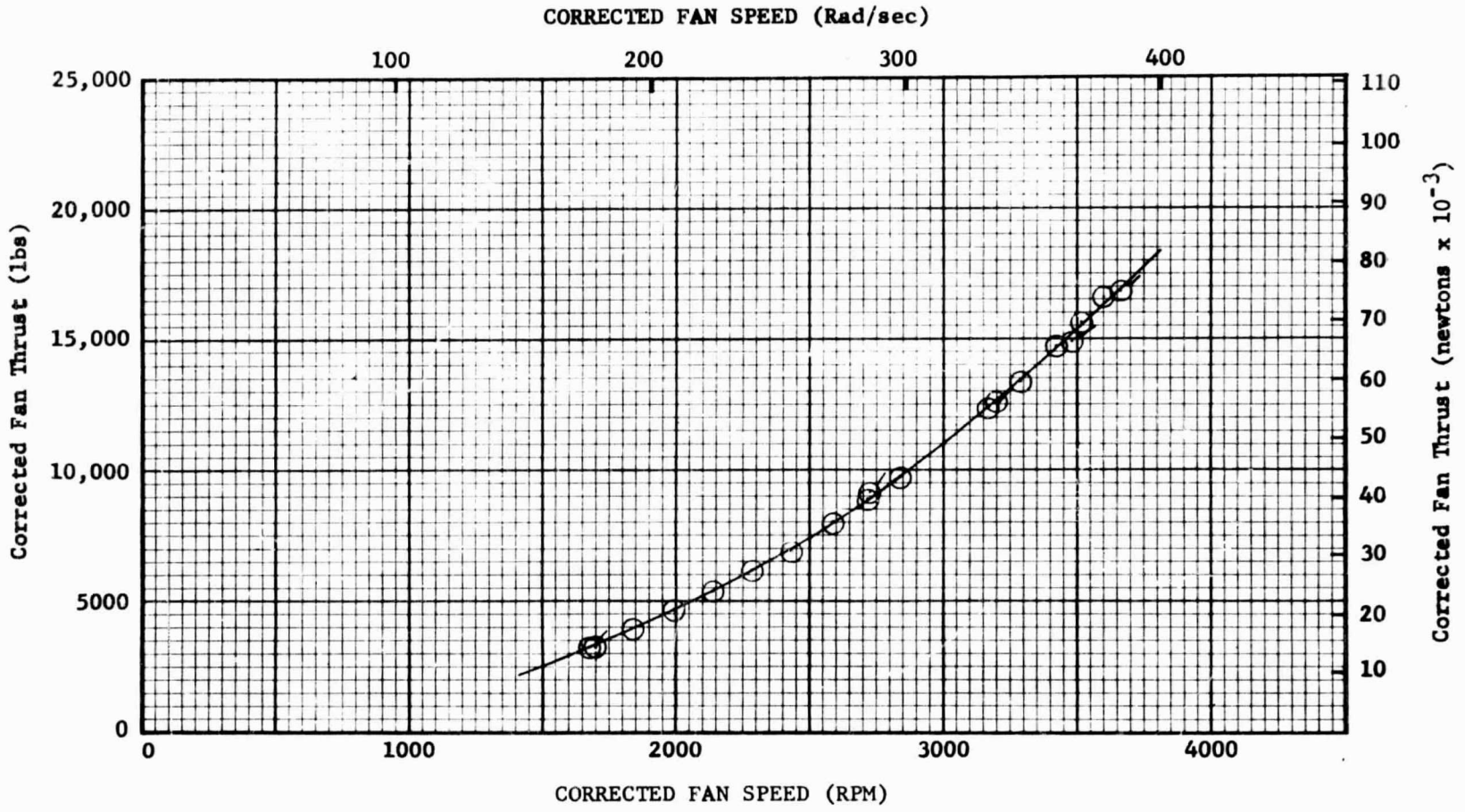
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		6	6		
Date		9/6/68	9/6/68		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Fan Airflow Vs Corrected Fan Speed

Figure B-94

KEY		○	◇		
P.Bar	In.Hg	28.969	28.945		
	n/m^2	97822	97741		
$T_{amb.}$	^oR	529	529		
	^oK	294	294		
% Rel.Hum.		63	58		



B95

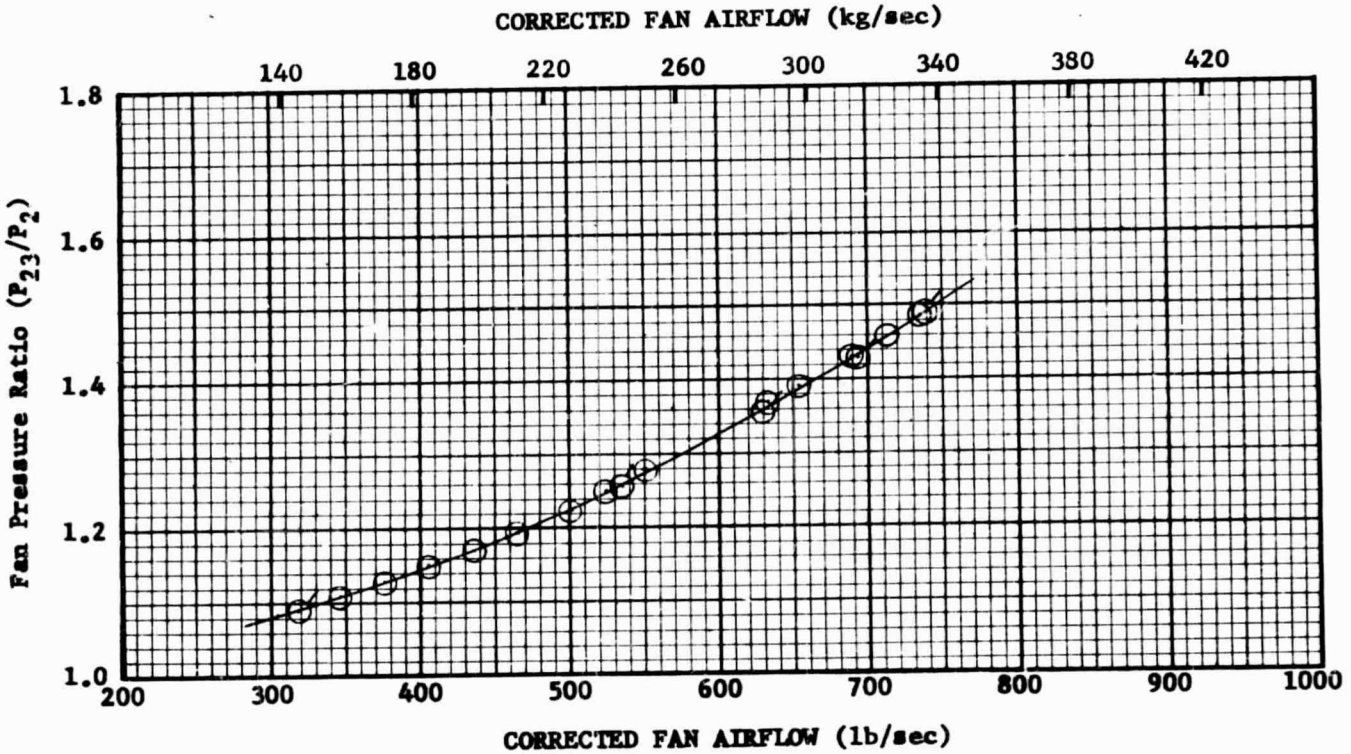
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		6	6		
Date		9/6/68	9/6/68		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Fan Thrust Vs Corrected Fan Speed

Figure B-95

KEY		○	◇		
P.Bar	In.Hg	28.969	28.945		
	n/m^2	97822	97741		
$T_{amb.}$	^oR	529	529		
	^oK	294	294		
% Rel.Hum.		63	58		



B96

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

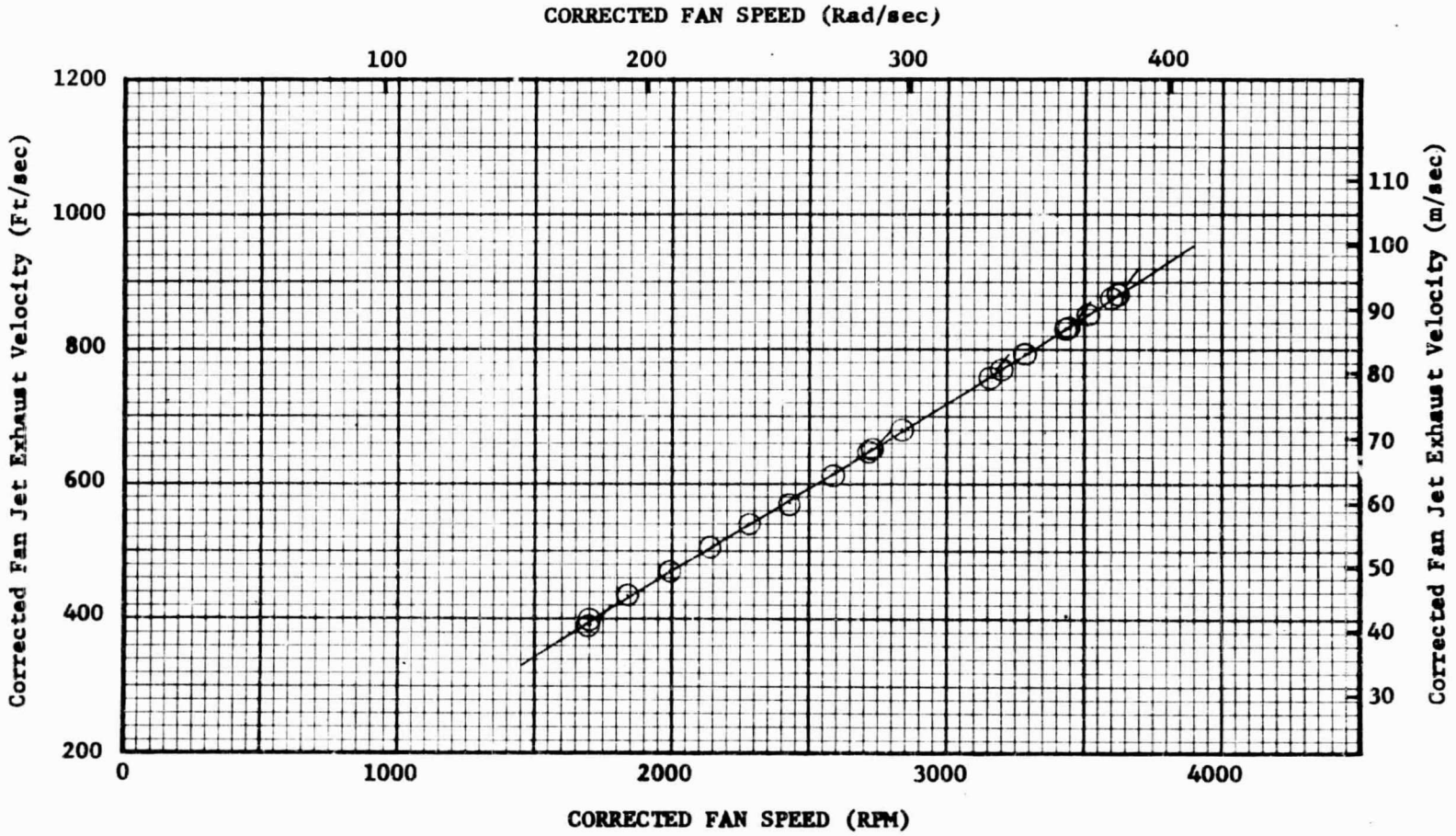
KEY		○	⊘		
Run No.		6	6		
Date		9/6/68	9/6/68		
Fan Noz.	In^2	1409.7	1409.7		
Area	m^2	.9095	.9095		
Core Noz.	In^2	927.7	927.7		
Area	m^2	.5986	.5986		

Fan Pressure Ratio Vs Corrected Fan Airflow

Figure B-96

KEY		○	⊘		
P.Bar	In.Hg	28,969	28,945		
	n/m^2	97822	97836		
$T_{amb.}$	^oR	531	533		
	^oK	296	294		
% Rel.Hum.		63	58		

Form No. N-



B97

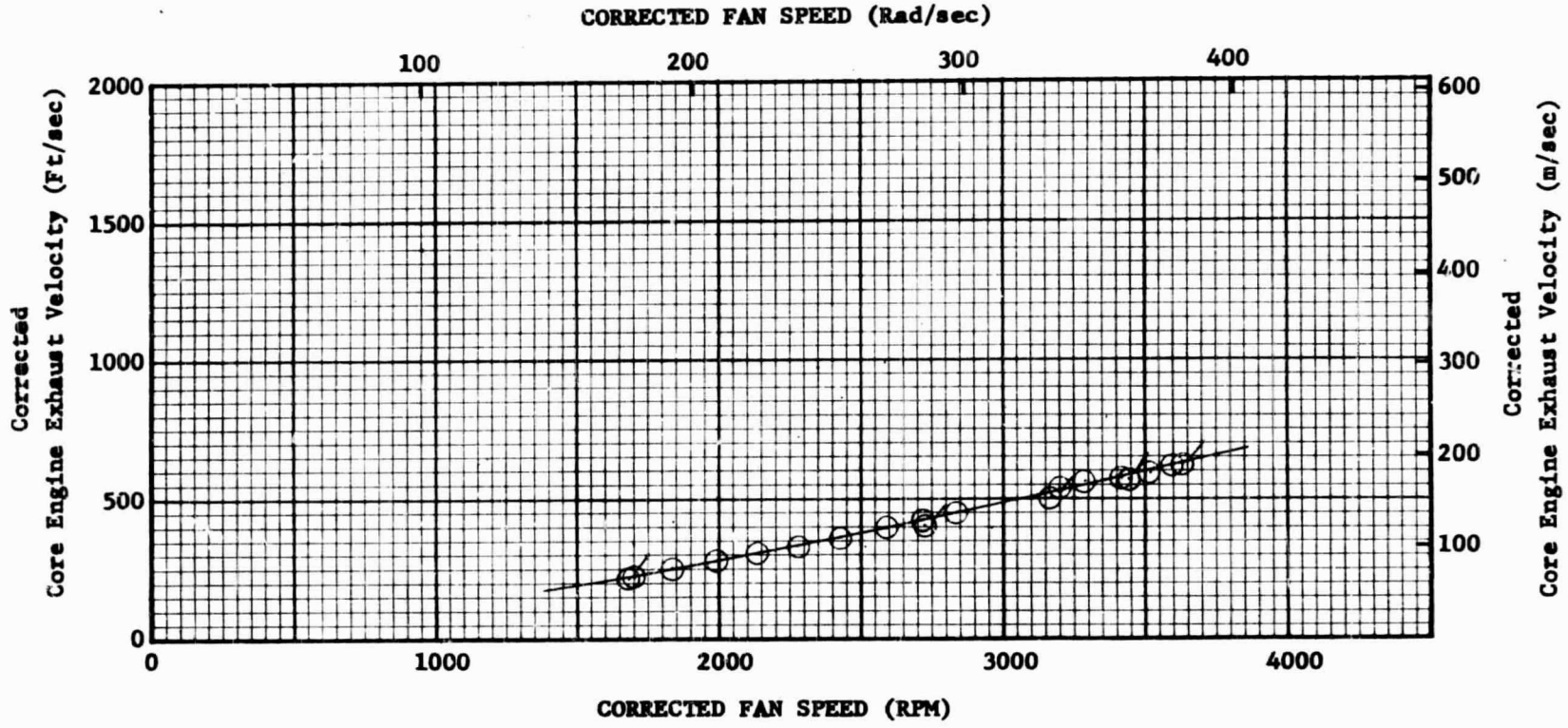
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		6	6		
Date		9/6/68	9/6/68		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Fan Jet Exhaust Velocity Vs Corrected Fan Speed

Figure B-97

KEY		○	♂		
P.Bar	In.Hg	28.969	28.945		
	n/m^2	97822	97741		
$T_{amb.}$	^oR	529	529		
	^oK	294	294		
% Rel.Hum.		63	58		



B98

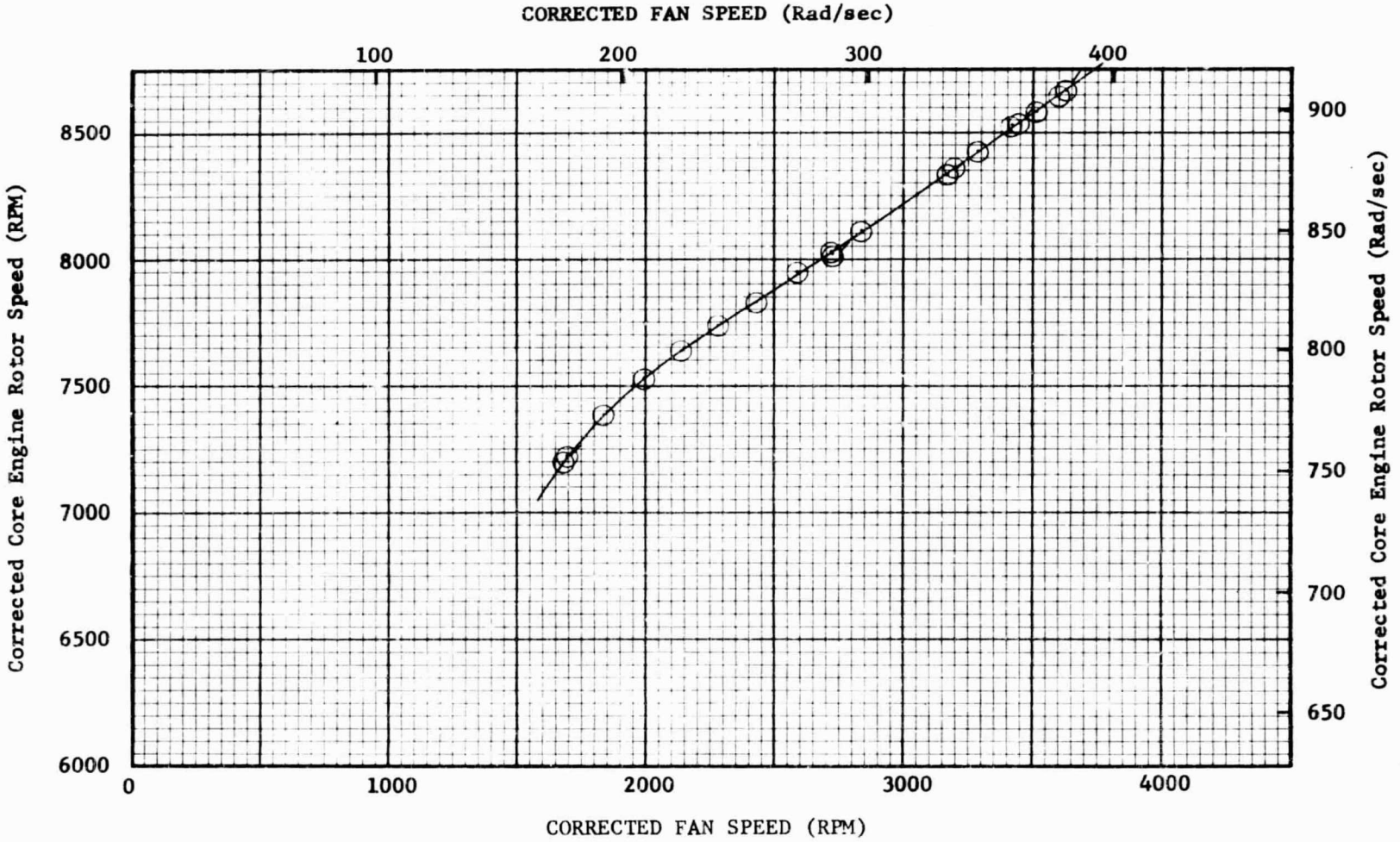
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	✓		
Run No.		6	6		
Date		9/6/68	9/6/68		
Fan Noz.	In^2	1409.7	1409.7		
Area	m^2	.9095	.9095		
Core Noz.	In^2	927.7	927.7		
Area	m^2	.5986	.5986		

Corrected Core Engine Exhaust Velocity Vs Corrected Fan Speed

Figure B-98

KEY		○	✓		
P.Bar	In.Hg	28.969	28.945		
	n/m^2	97822	97741		
$T_{amb.}$	^oR	529	529		
	^oK	294	294		
% Rel.Hum.		63	58		



B99

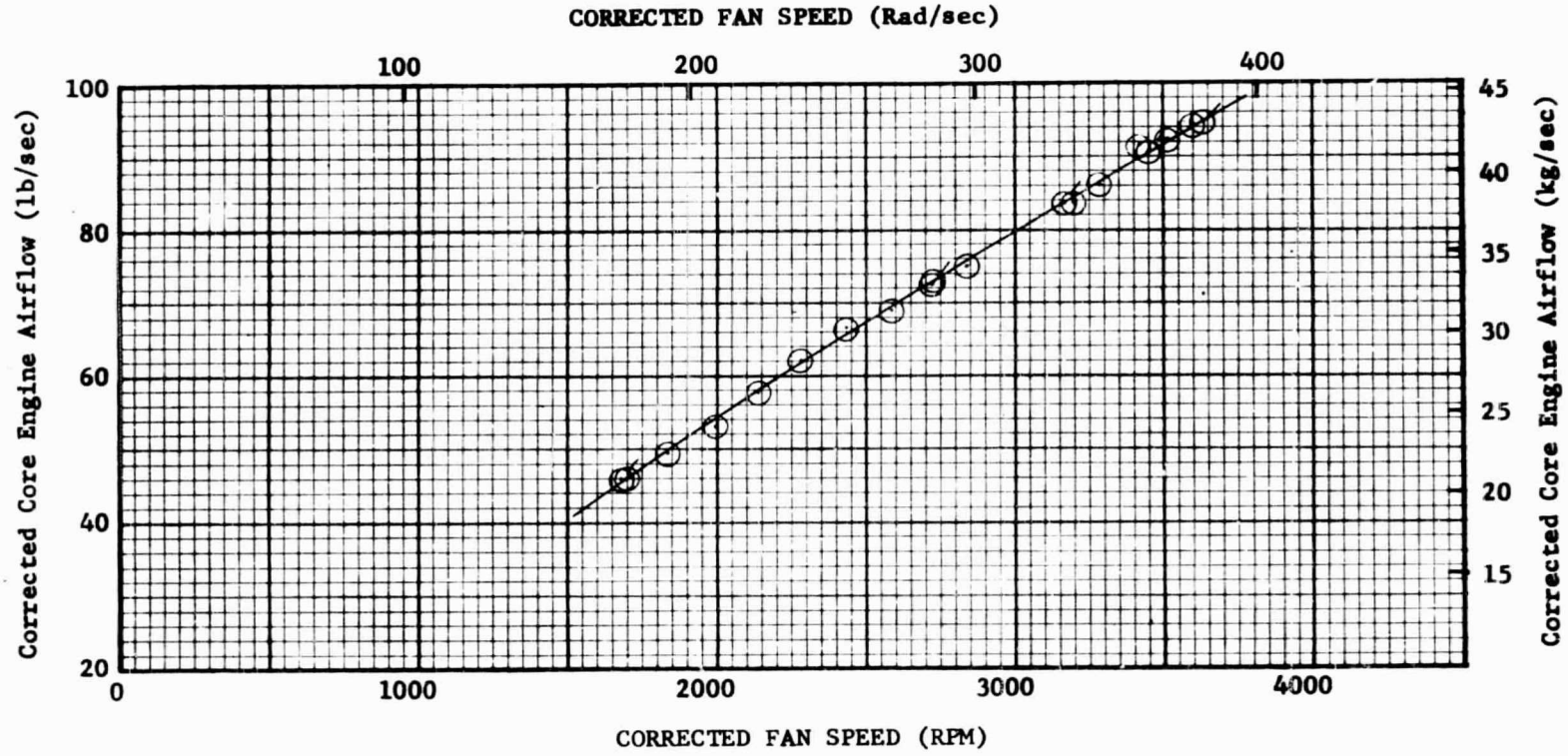
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		6	6		
Date		9/6/68	9/6/68		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Core Engine Rotor Speed Vs Corrected Fan Speed

Figure B-99

KEY		○	♂		
P.Bar	In.Hg	28.969	28.945		
	n/m^2	97822	97741		
$T_{amb.}$	^oR	529	529		
	^oK	294	294		
% Rel.Hum.		63	58		



B100

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

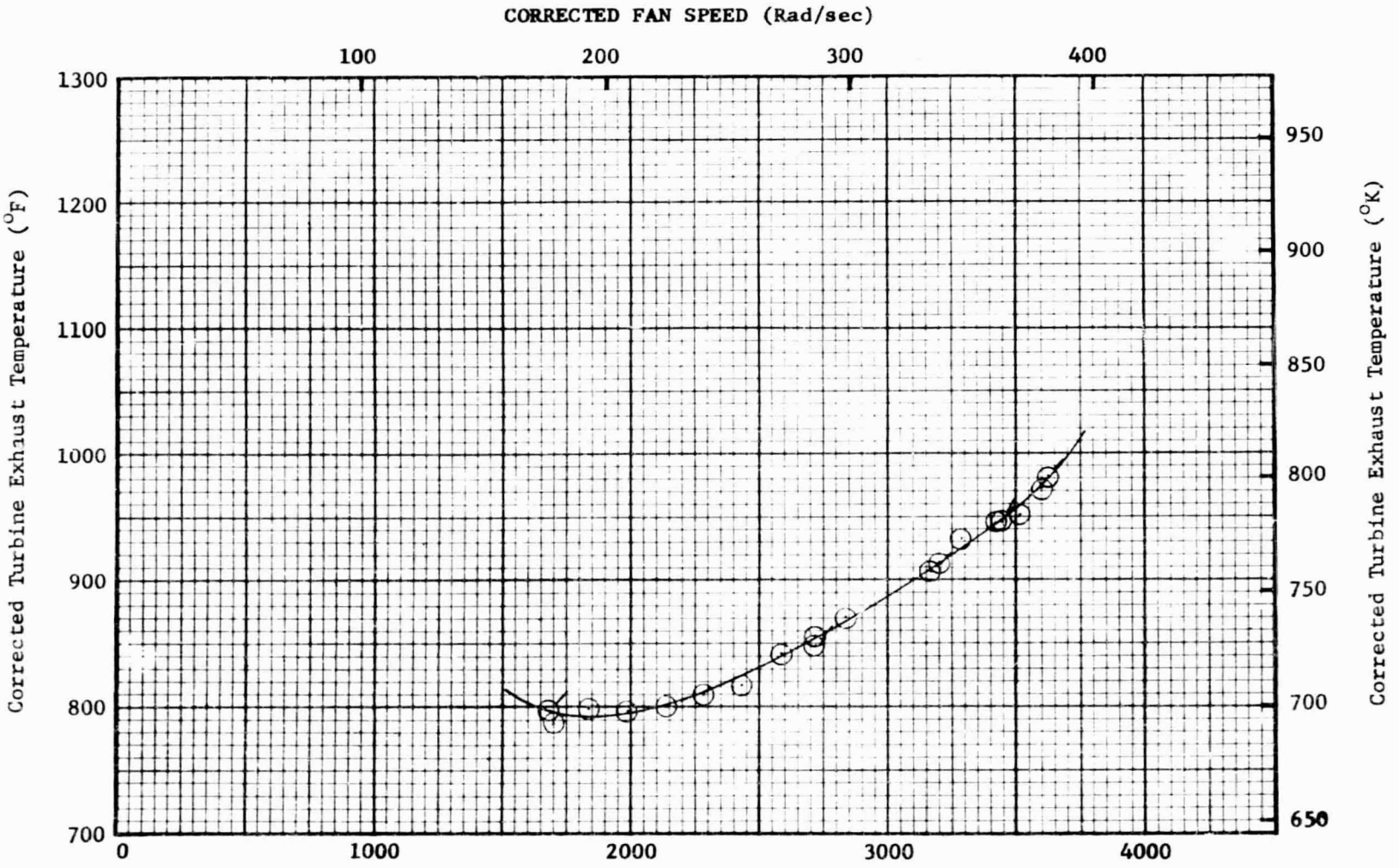
KEY		○	♂		
Run No.		6	6		
Date		9/6/68	9/6/68		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Core Engine Airflow Vs Corrected Fan Speed

Figure B-100

KEY		○	♂		
P.Bar	In.Hg	28.969	28.945		
	n/m^2	97822	97741		
$T_{amb.}$	^oR	529	529		
	^oK	295	294		
% Rel.Hum.		63	58		

Form No. N-19



B101

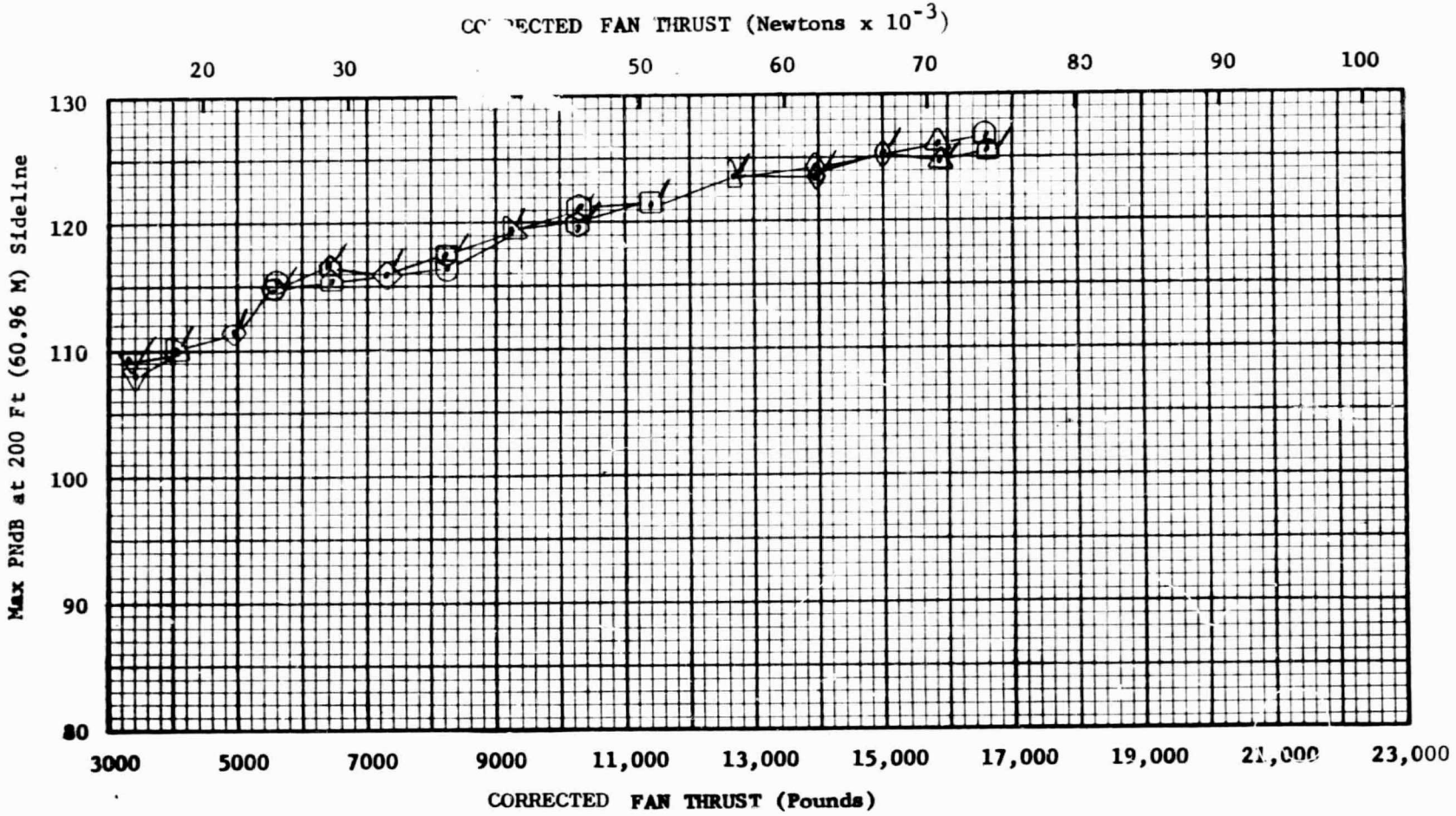
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	○′		
Run No.		6	6		
Date		9/6/68	9/6/68		
Fan Noz. Area	In^2	1409.7	1409.7		
	m^2	.9095	.9095		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Turbine Exhaust Temperature Vs Corrected Fan Speed

Figure B-101

KEY		○	○′		
P.Bar	In.Hg	28.969	28.945		
	n/m^2	97822	97741		
$T_{amb.}$	°R	529	529		
	°K	294	294		
% Rel.Hum.		63	58		



B102

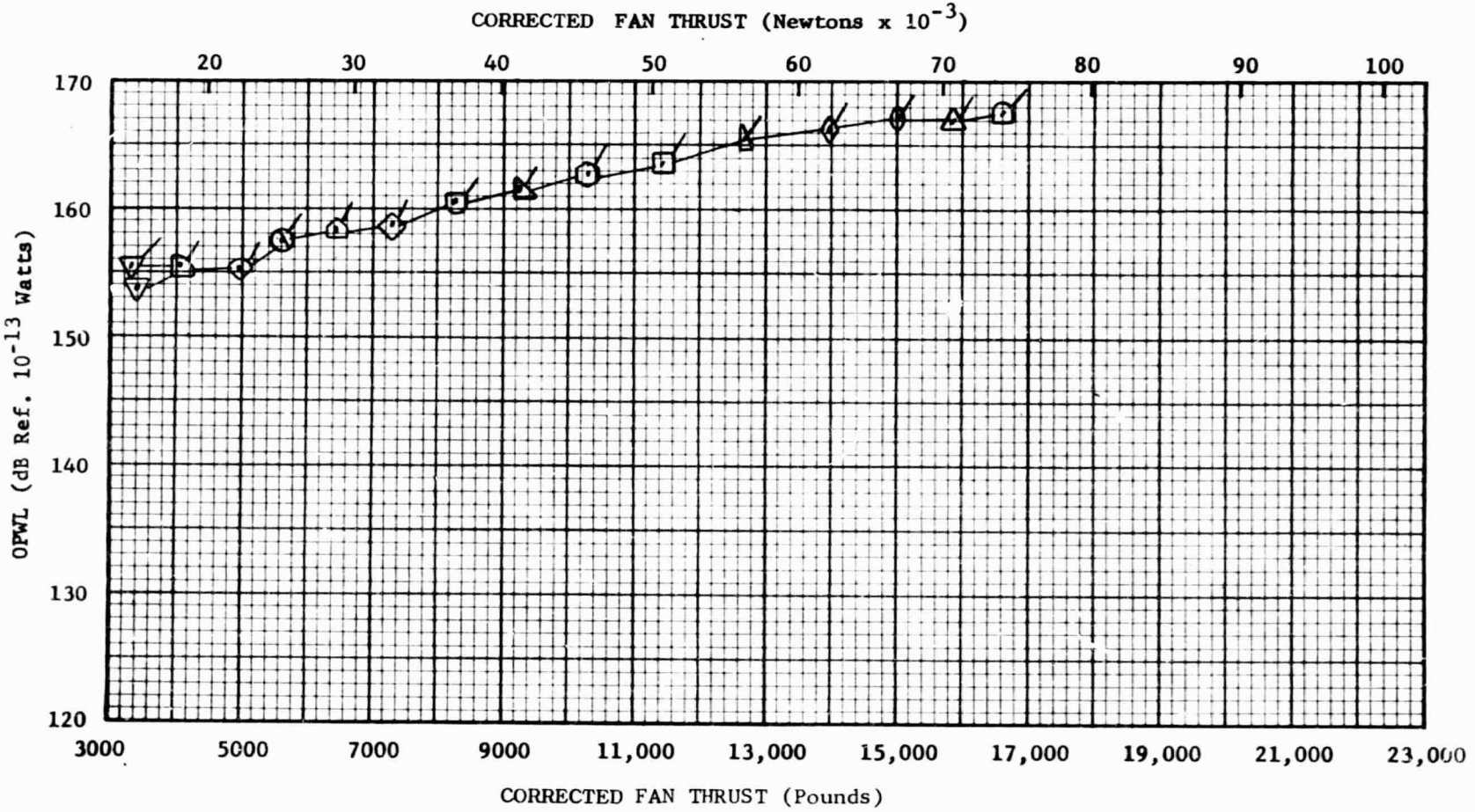
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY	○	◇		
Run No.	7	7		
Date	9/10/68	9/10/68		
Tape No.	P-646 thru P-655			

200 Ft Sideline
(60.96 Meter Sideline)
Maximum PNdB
Vs.
Fan Thrust

Figure B-102

KEY		○	◇		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B103

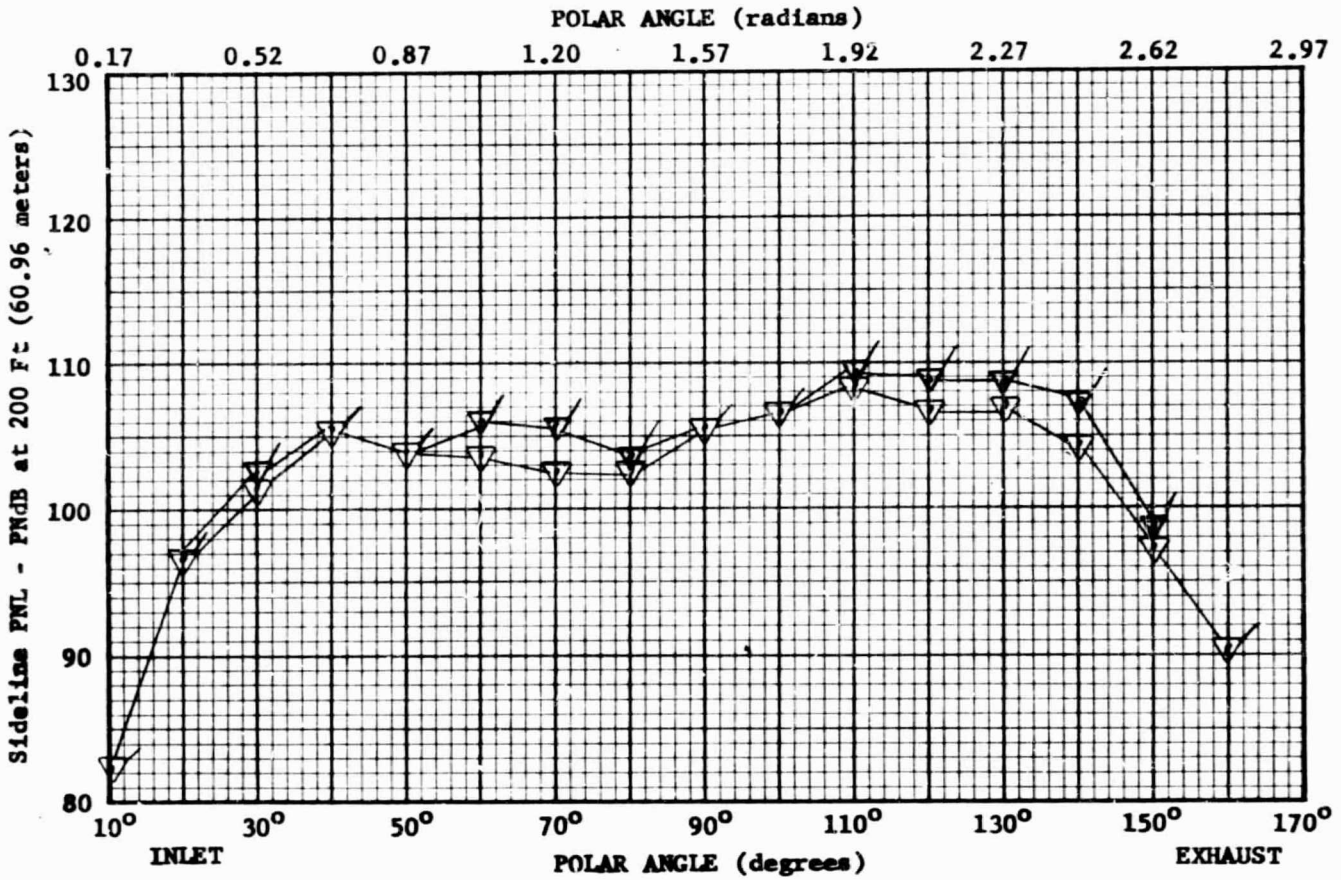
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY	○	♂		
Run No.	7	7		
Date	9/10/68	9/10/68		
Tape No.	P-646 thru P-655			

OPWL
Vs.
Fan Thrust

Figure B-103

KEY		○	♂		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

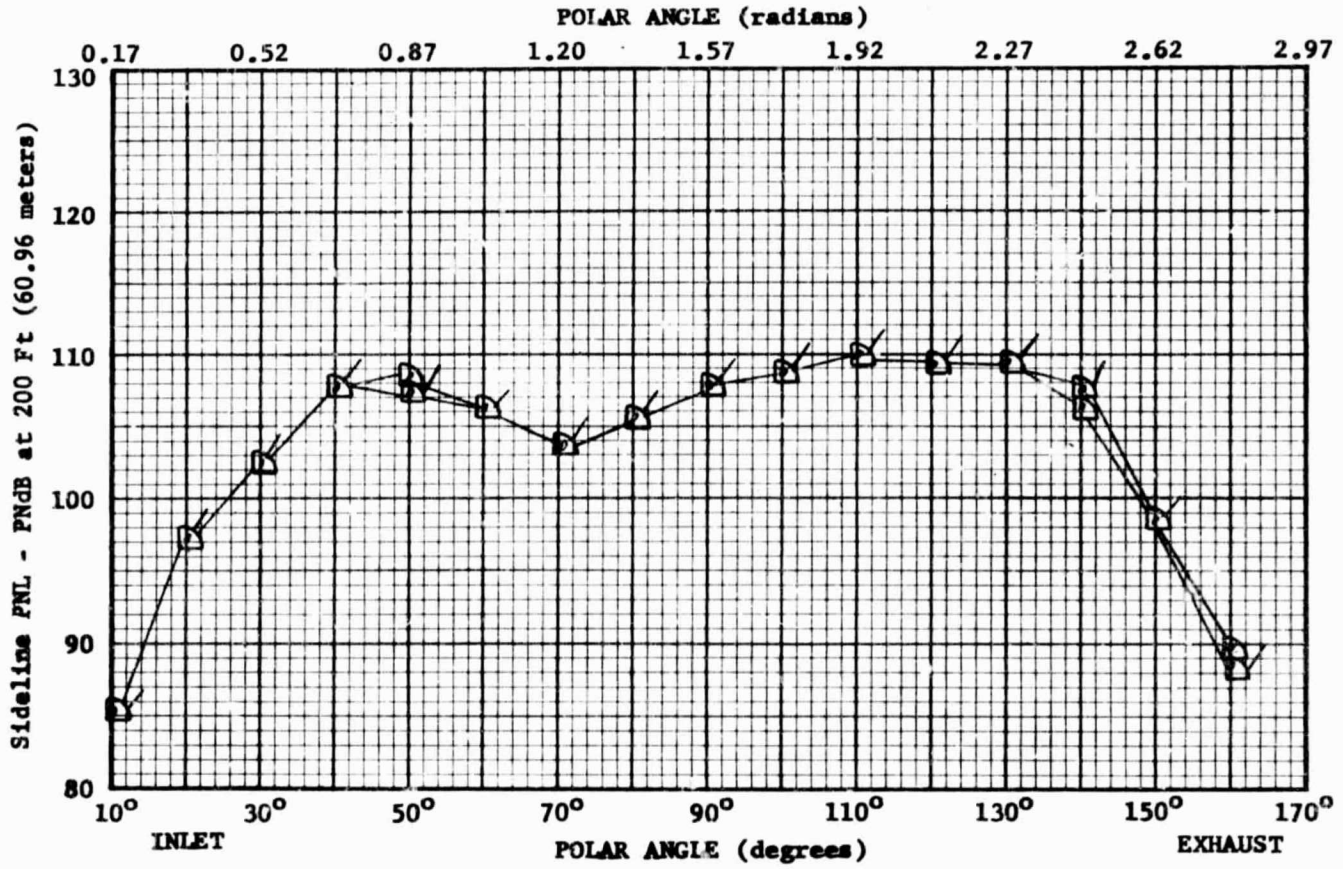
KEY		▽	▽		
Run No.		7-98	7-113		
Date		9/10/68	9/10/68		
Tape No.		P-655	P-650		
Physical Speed	RPM	1700	1700		
	Rad/sec	177.9	177.9		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-104

KEY		▽	▽		
Corr. Speed %		48.8	48.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B105

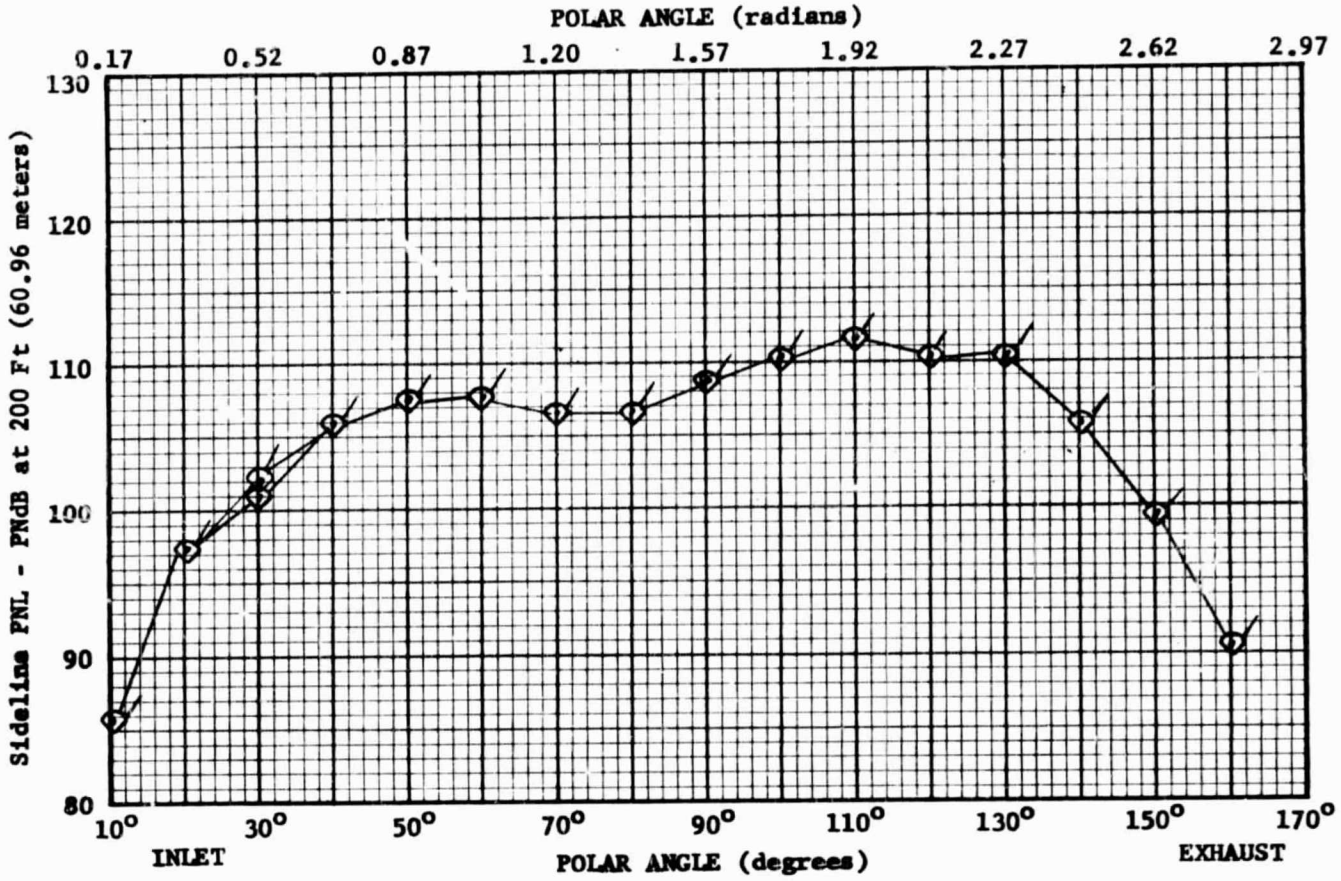
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		D	▽		
Run No.		7-99	7-114		
Date		9/10/68	9/10/68		
Tape No.		P-654	P-649		
Physical Speed	RPM	1847	1850		
	Rad/sec	193.4	193.7		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-105

KEY		D	▽		
Corr. Speed %		53.8	52.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B106

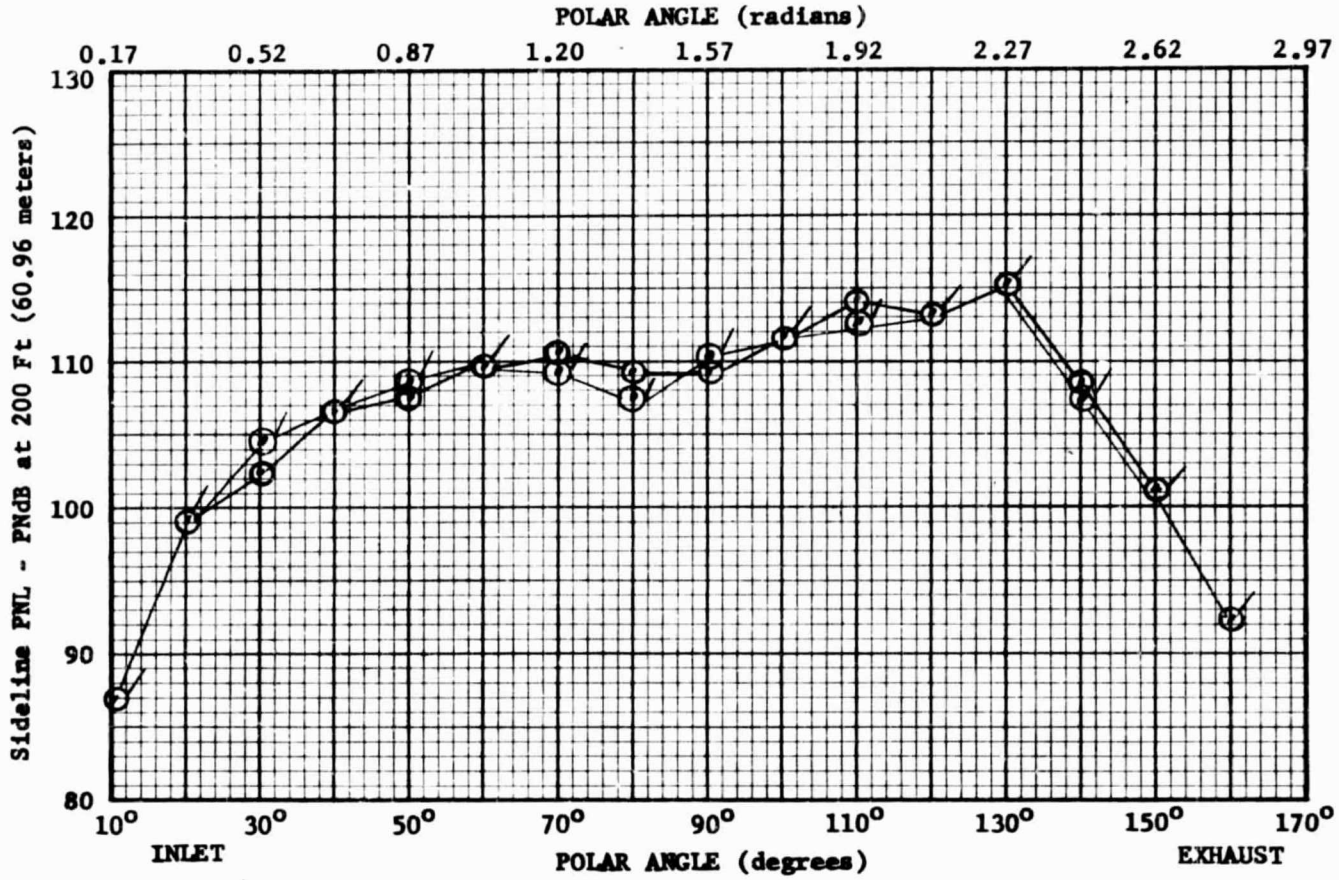
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		7-100	7-122		
Date		9/10/68	9/10/68		
Tape No.		P-654	P-647		
Physical Speed	RPM	2025	2029		
	Rad/sec	212.0	212.4		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-106

KEY		○	◇		
Corr. Speed %		58.1	58.0		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



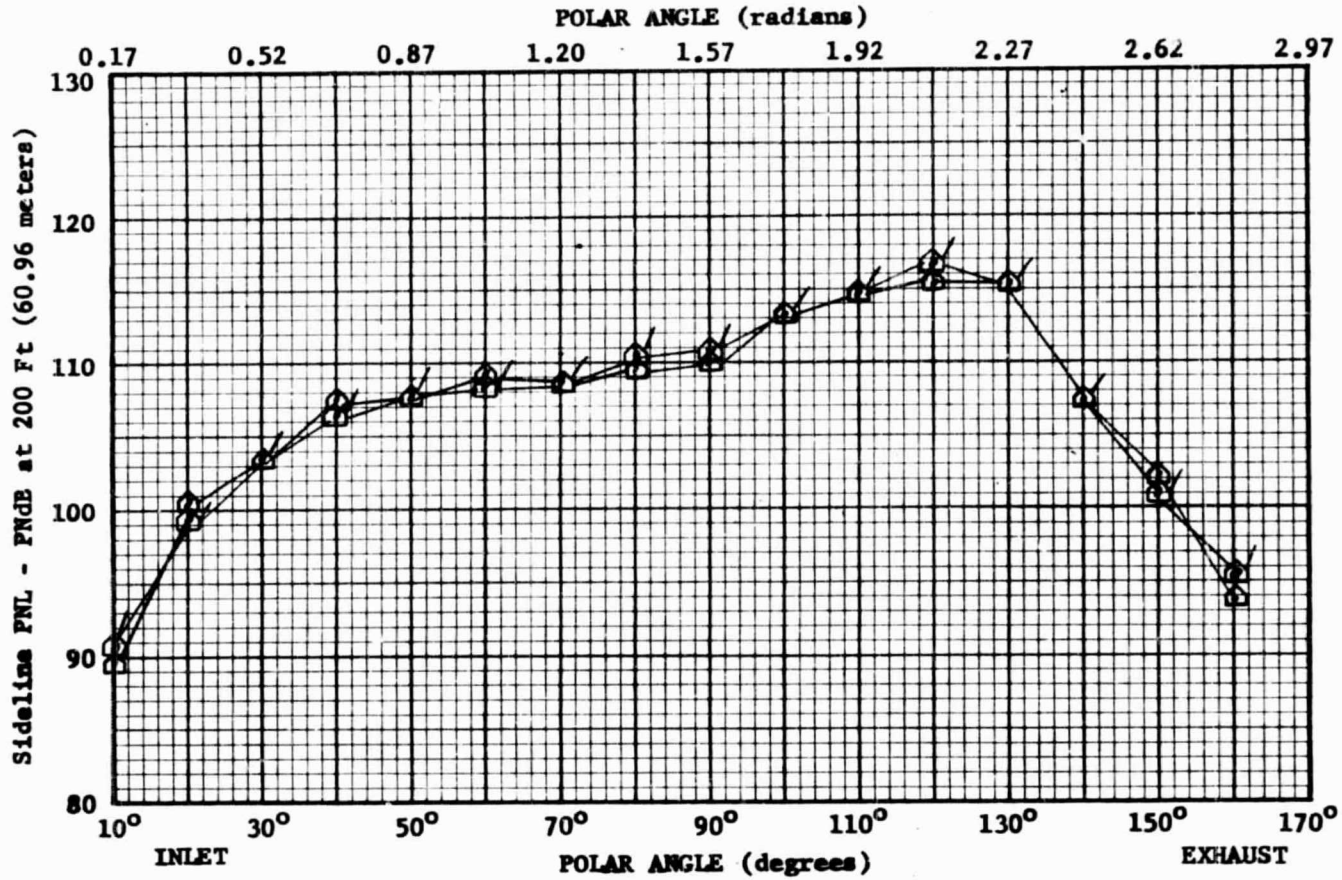
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		7-101	7-123		
Date		9/10/68	9/10/68		
Tape No.		P-654	P-647		
Physical Speed	RPM	2154	2150		
	Rad/sec	225.5	225.1		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-107

KEY		○	◇		
Corr. Speed %		61.9	61.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

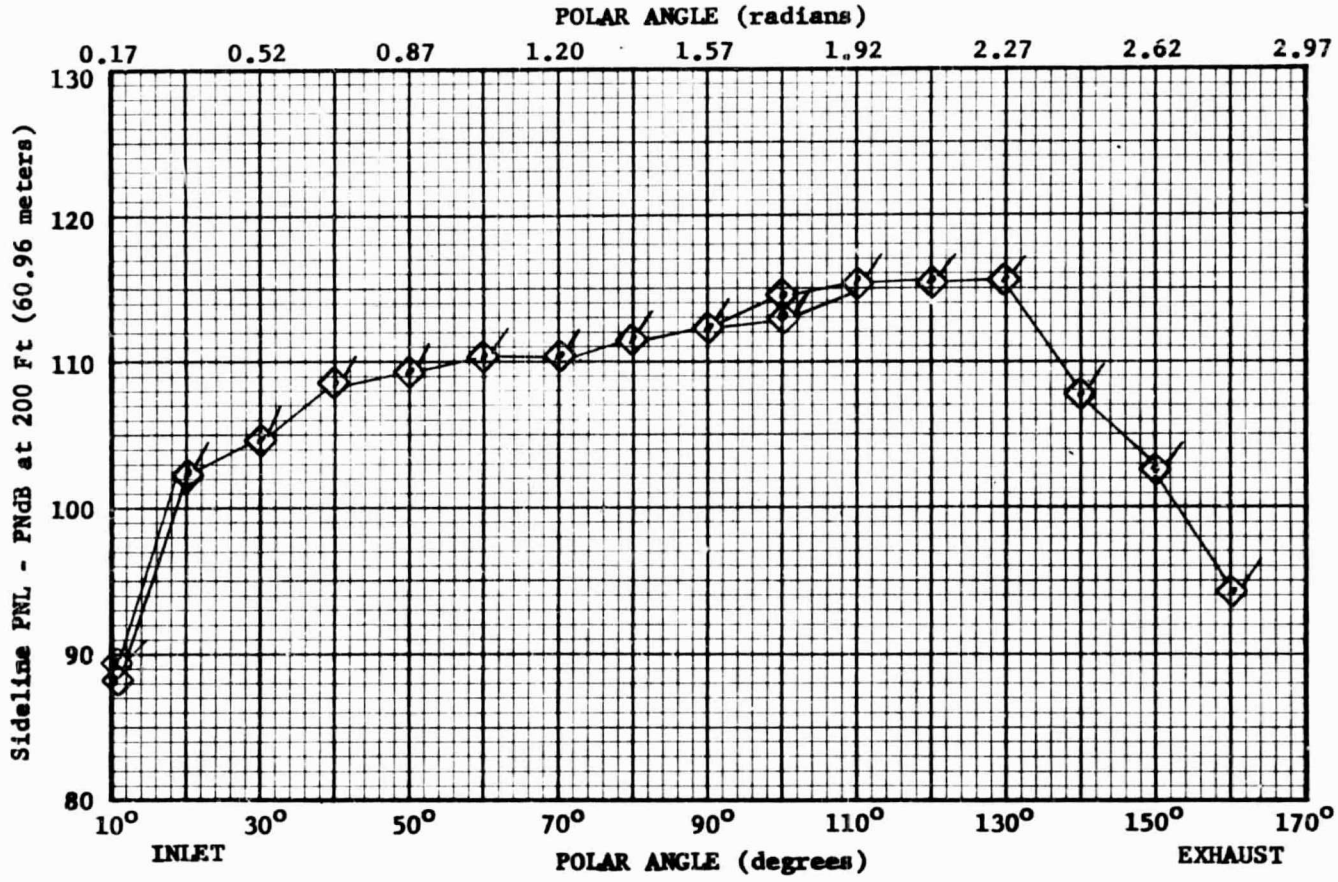
KEY		⌂	⌂		
Run No.		7-102	7-124		
Date		9/10/68	9/10/68		
Tape No.		P-653	P-647		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.8	240.8		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-108

KEY		⌂	⌂		
Corr. Speed %		66.0	65.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

R108



B109

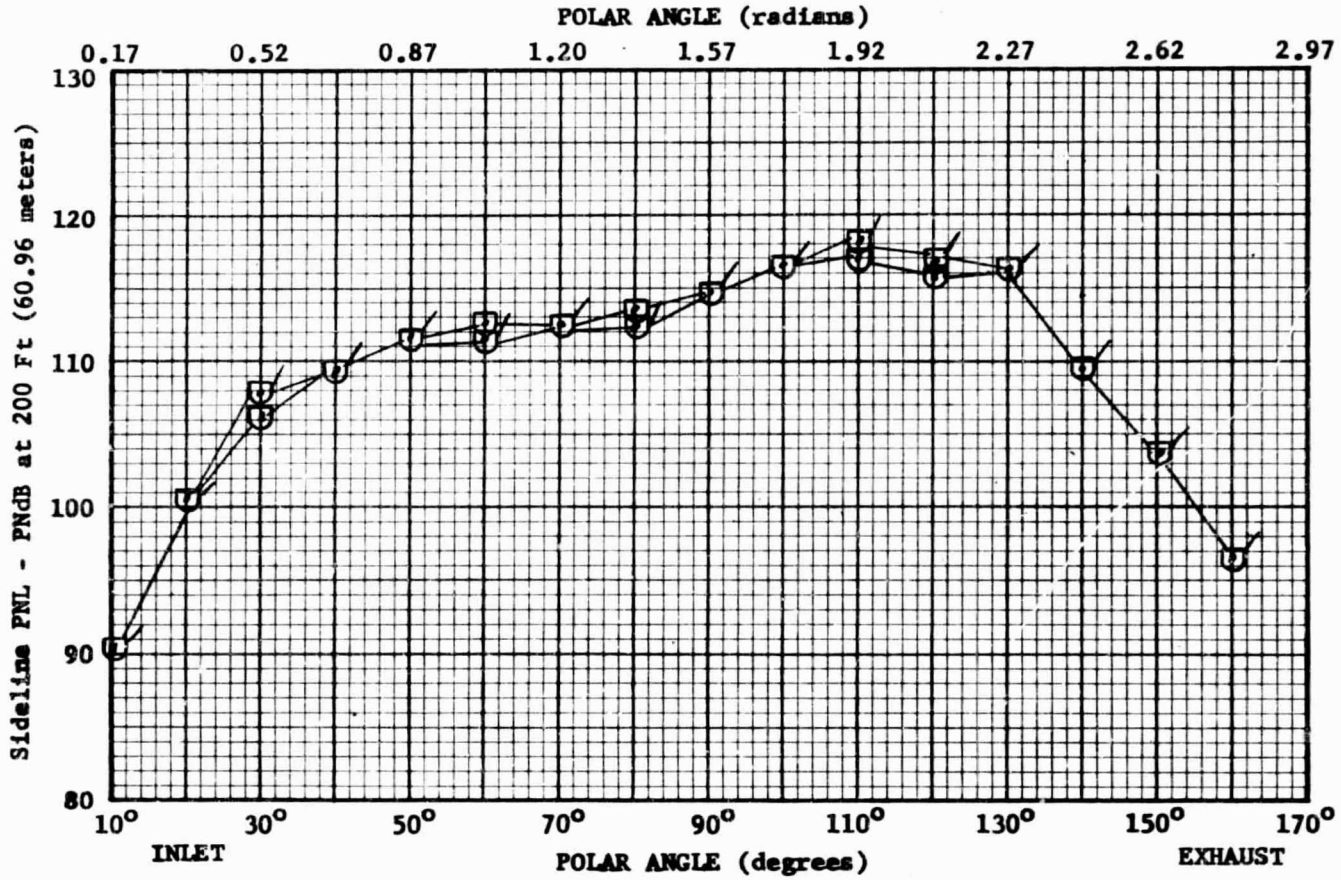
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		7-103	7-125		
Date		9/10/68	9/10/68		
Tape No.		P-653	P-646		
Physical Speed	RPM	2450	2450		
	Rad/sec	256.5	256.5		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-109

KEY		◇	◇		
Corr. Speed %		70.3	70.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B110

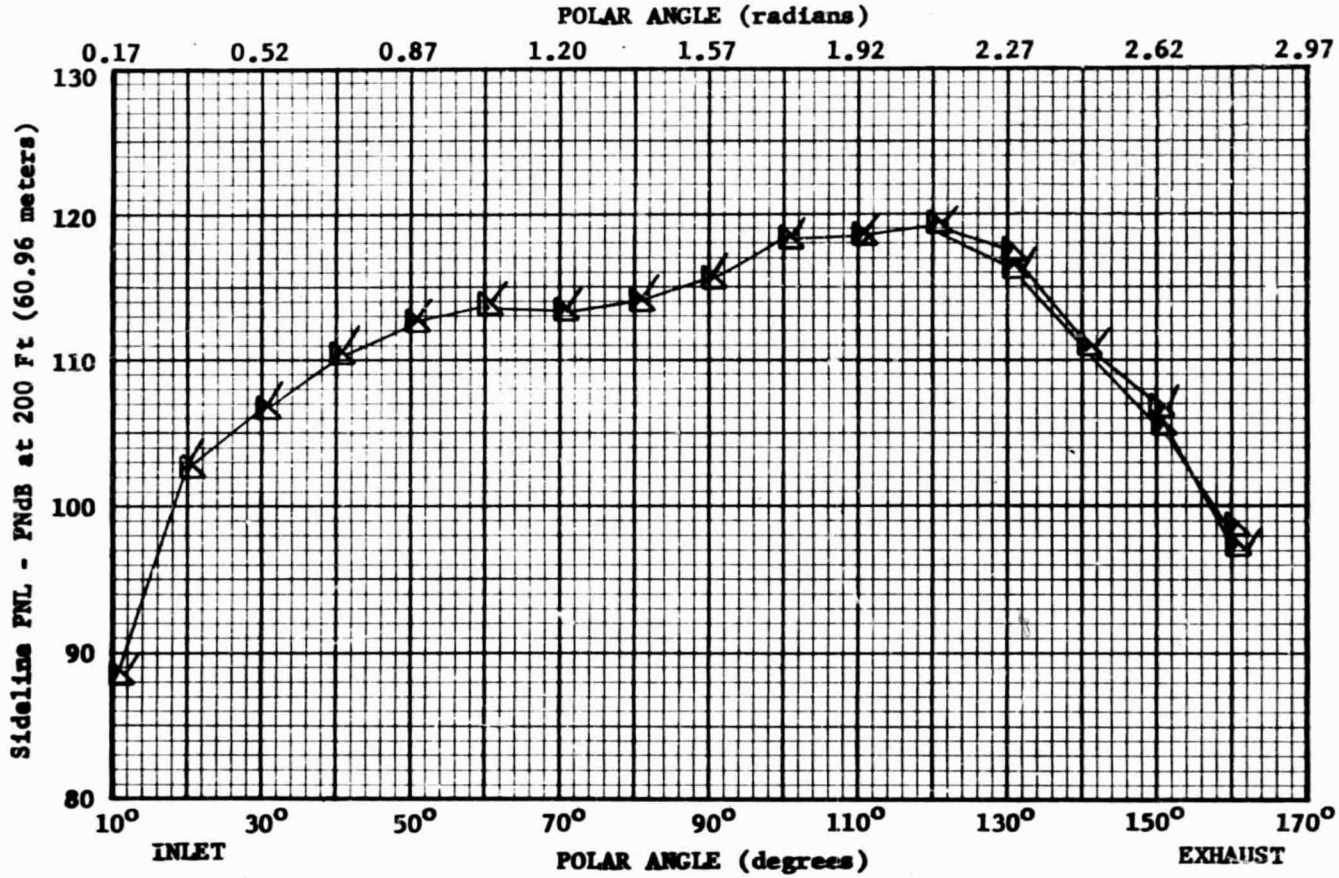
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		7-104	7-126		
Date		9/10/68	9/10/68		
Tape No.		P-653	P-646		
Physical Speed	RPM	2600	2600		
	Rad/sec	272.2	272.2		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-110

KEY		○	◇		
Corr. Speed %		74.6	74.4		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B111

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

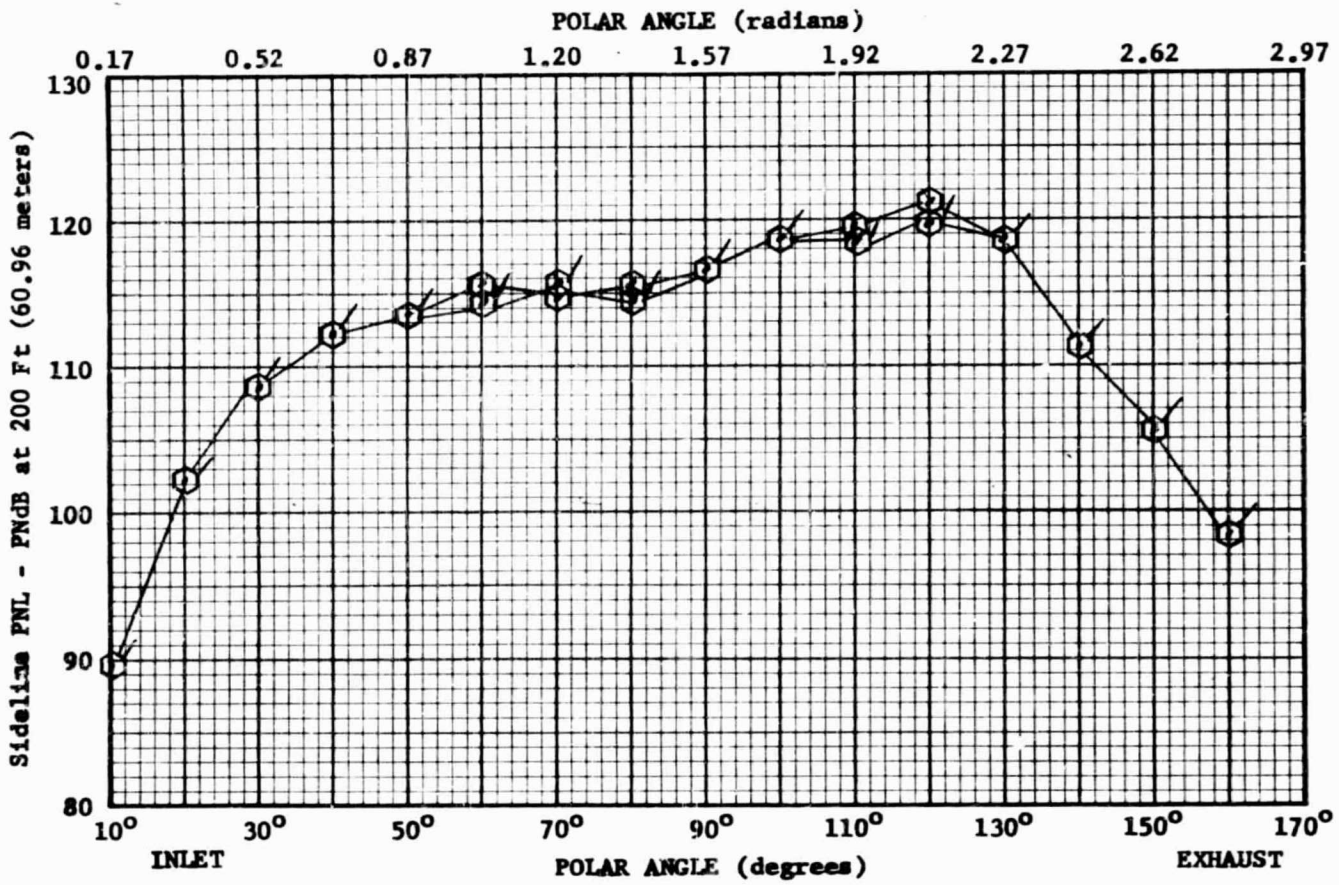
KEY		△	◺		
Run No.		7-105	7-127		
Date		9/10/68	9/10/68		
Tape No.		P-652	P-646		
Physical Speed	RPM	2750	2750		
	Rad/sec	287.9	287.9		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-111

KEY		△	◺		
Corr. Speed %		78.8	78.7		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B112

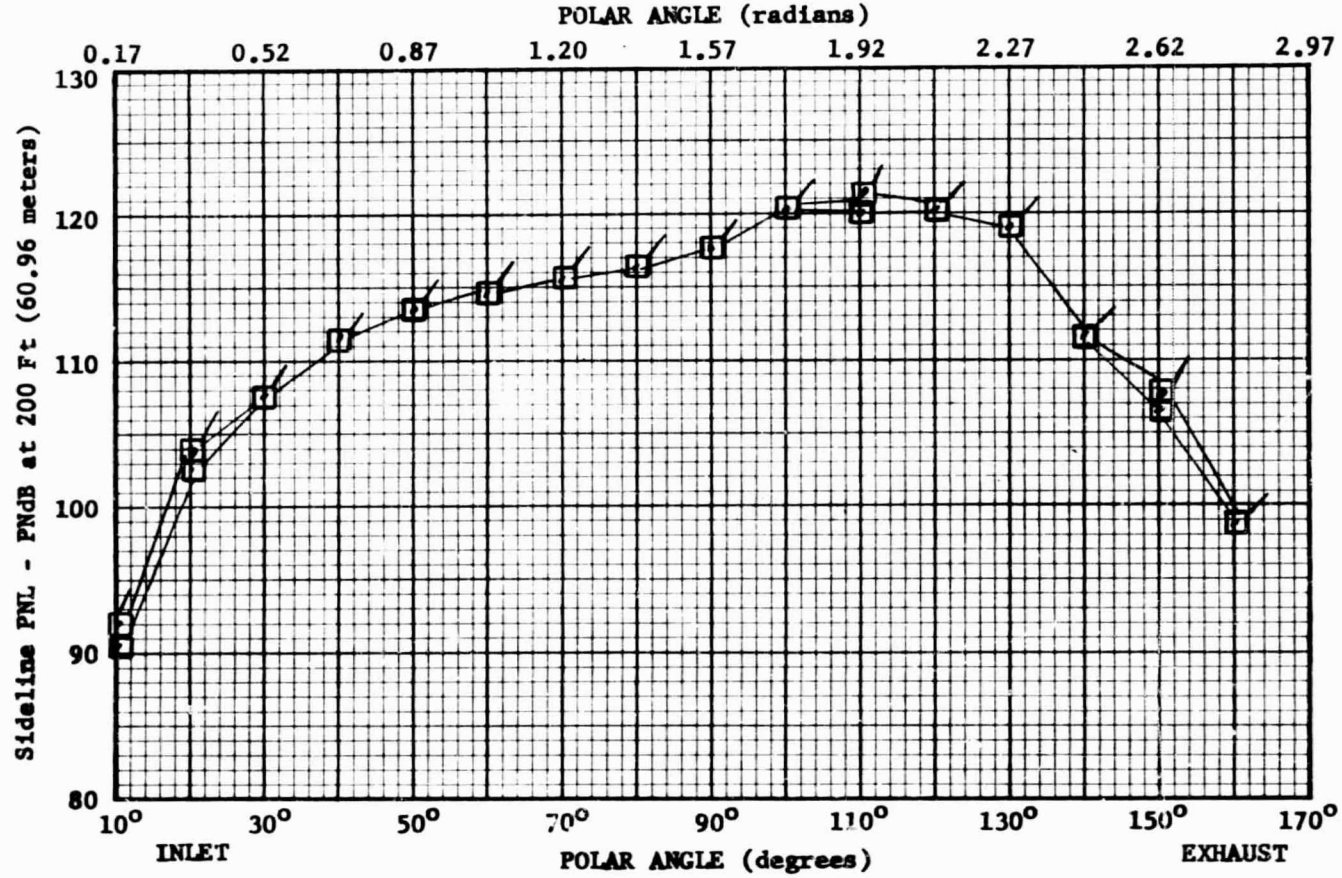
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		⬡	⬡		
Run No.		7-106	7-128		
Date		9/10/68	9/10/68		
Tape No.		P-652	P-645		
Physical Speed	RPM	2900	2900		
	Rad/sec	303.6	303.6		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-112

KEY		⬡	⬡		
Corr. Speed %		83.1	83.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



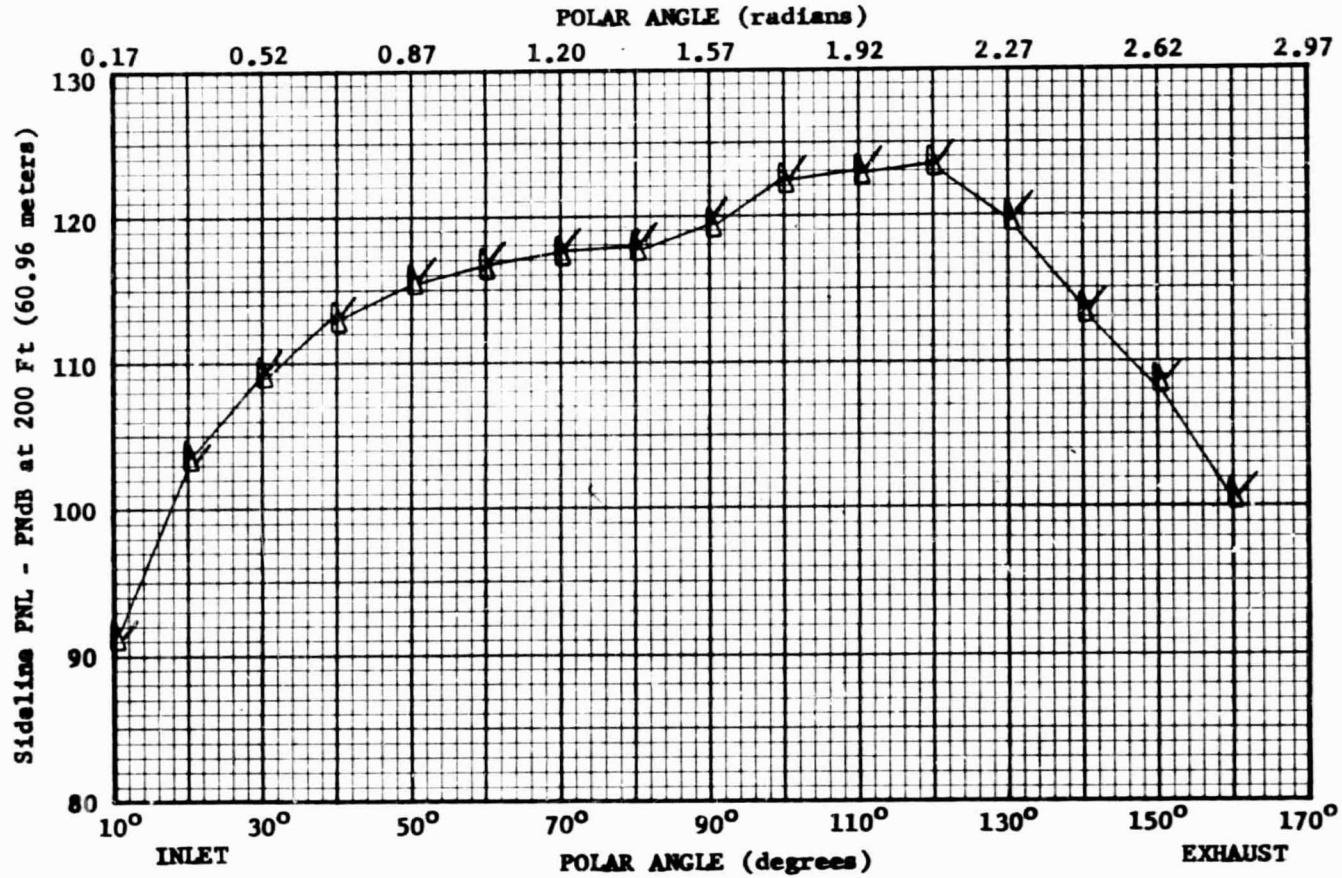
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		□	□		
Run No.		7-107	7-115		
Date		9/10/68	9/10/68		
Tape No.		P-652	P-649		
Physical Speed	RPM	3050	3050		
	Rad/sec	319.3	319.3		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-113

KEY		□	□		
Corr. Speed %		87.2	87.2		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



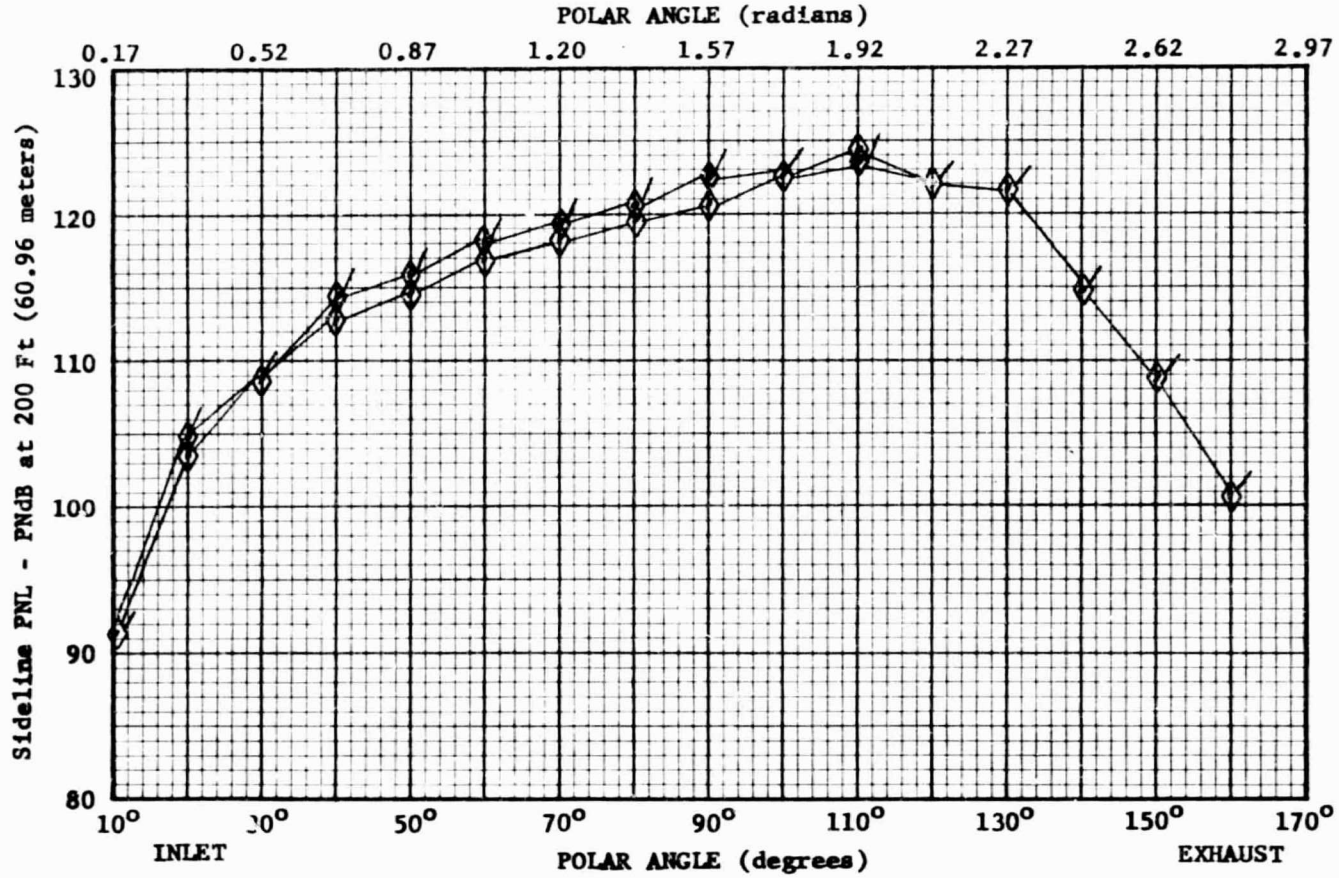
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	▽		
Run No.		7-108	7-116		
Date		9/10/68	9/10/68		
Tape No.		P-651	P-649		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-114

KEY		△	▽		
Corr. Speed %		91.5	91.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



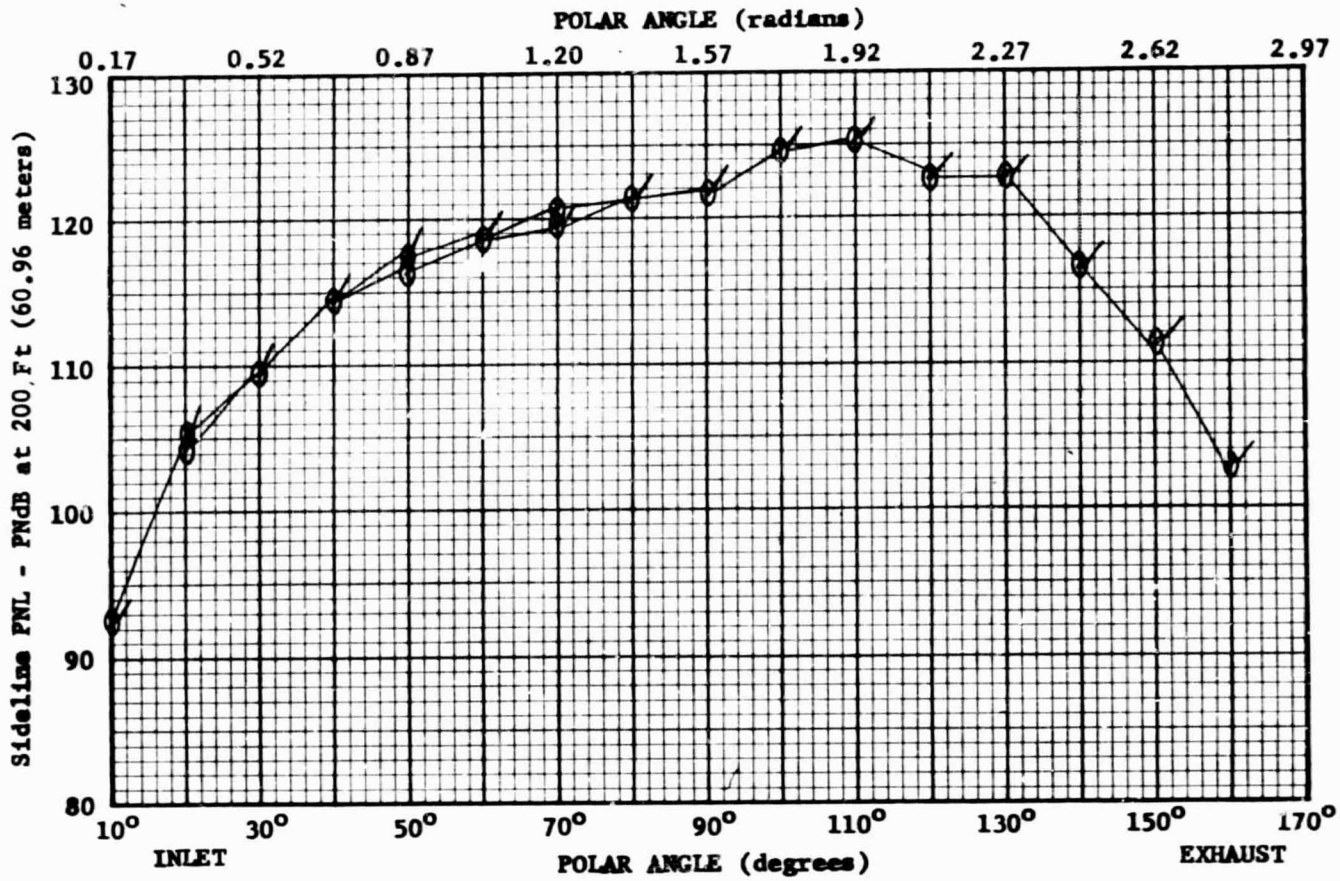
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		7-109	7-117		
Date		9/10/68	9/10/68		
Tape No.		P-651	P-648		
Physical	RPM	3350	3350		
Speed	Rad/sec	350.7	350.7		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-115

KEY		◇	◇		
Corr. Speed %		95.8	95.8		
Fan Noz.	In^2	1508.3	1508.3		
Area	m^2	.9732	.9732		
Core Noz.	In^2	927.7	927.7		
Area	m^2	.5986	.5986		



B116

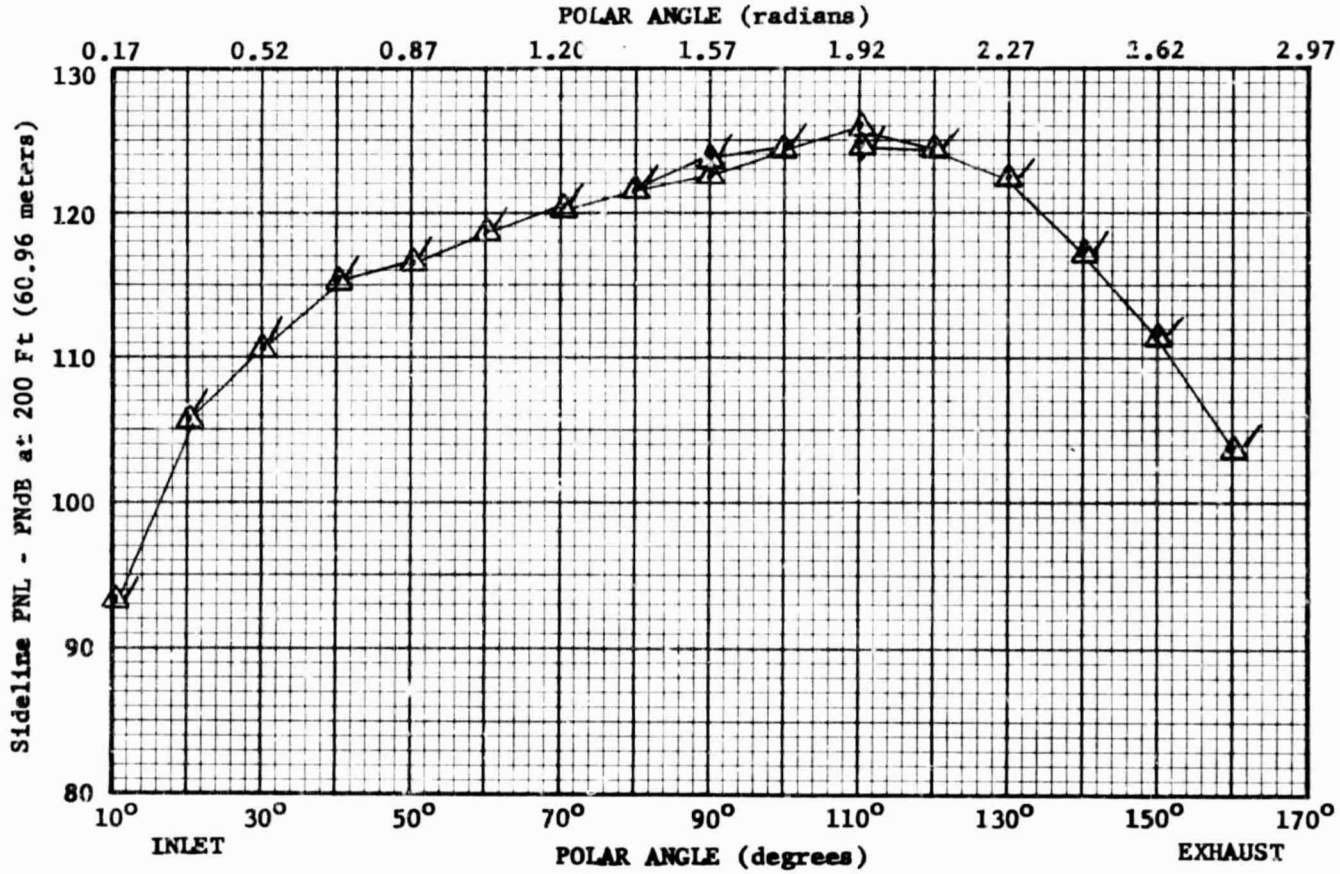
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		O	O		
Run No.		7-110	7-118		
Date		9/10/68	9/10/68		
Tape No.		P-650	P-648		
Physical	RPM	3473	3472		
Speed	Rad/sec	363.6	363.5		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-116

KEY		O	O		
Corr. Speed %		99.3	99.3		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



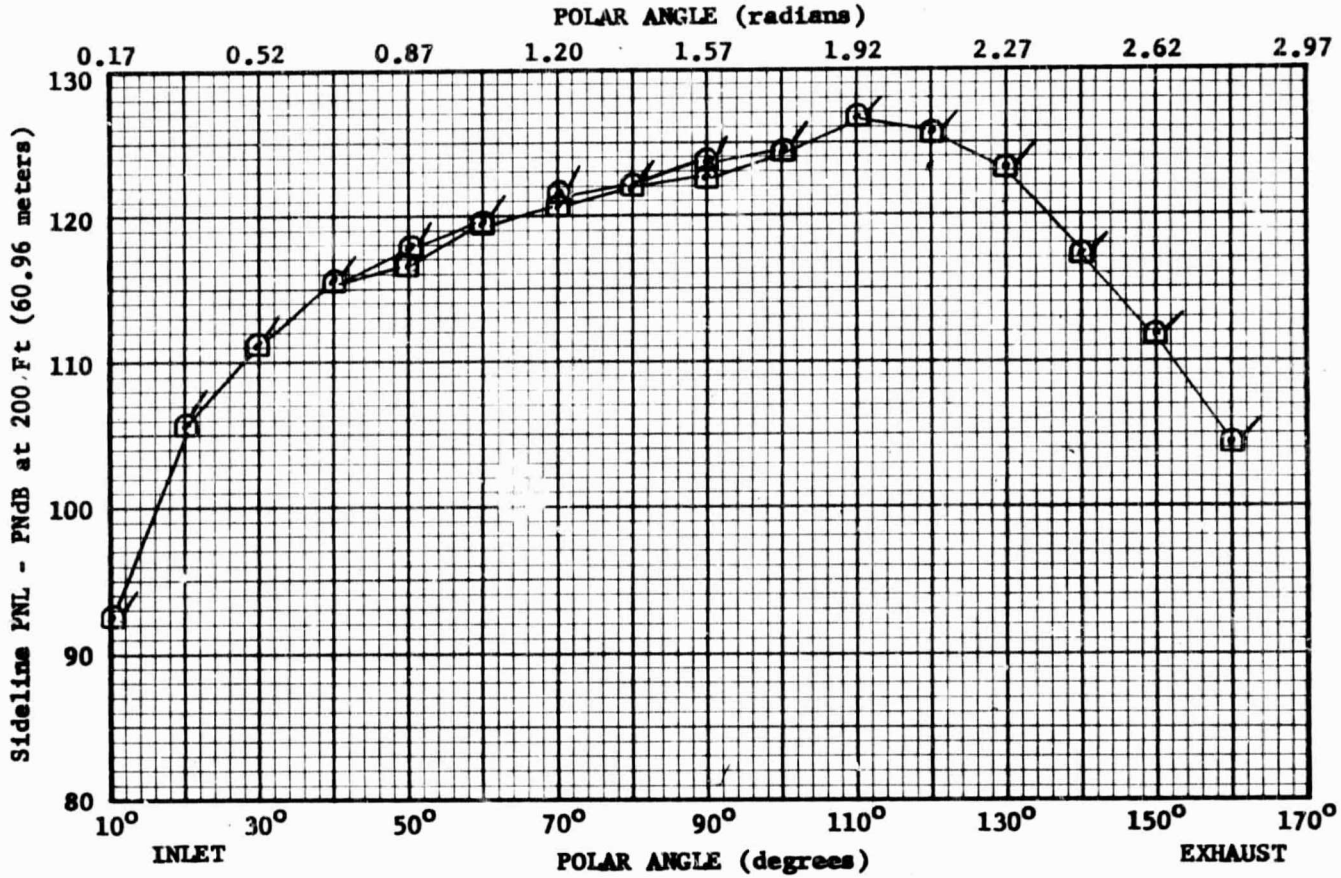
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	⧋		
Run No.		7-111	7-119		
Date		9/10/68	9/10/68		
Tape No.		P-650	P-648		
Physical Speed	RPM	3562	3562		
	Rad/sec	372.9	372.9		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-117

KEY		△	⧋		
Corr. Speed %		101.9	101.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



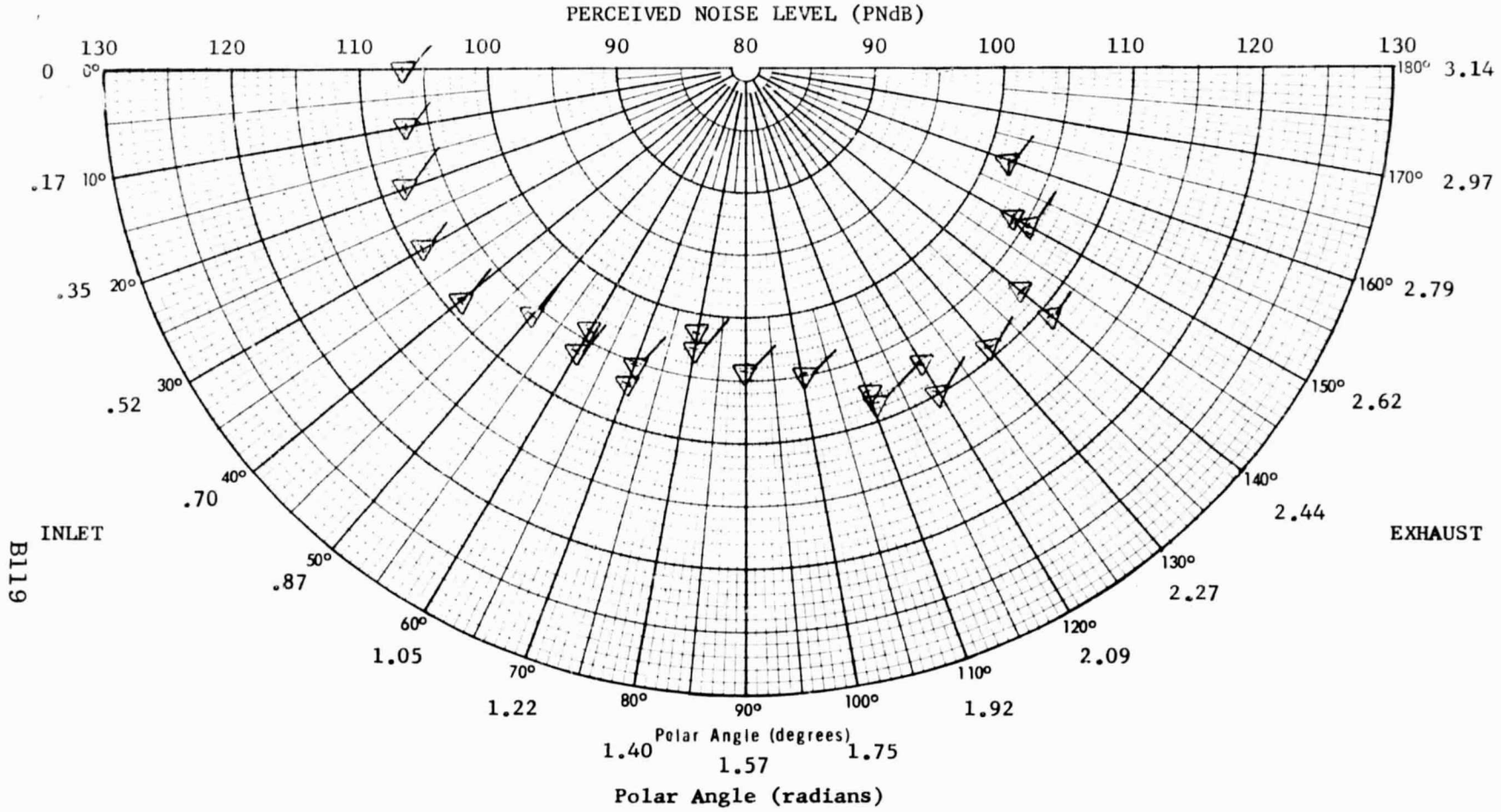
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□		
Run No.		7-112	7-120		
Date		9/10/68	9/10/68		
Tape No.		P-650	P-648		
Physical Speed	RPM	3647	3650		
	Rad/sec	381.8	382.2		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-118

KEY		○	□		
Corr. Speed %		104.3	104.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



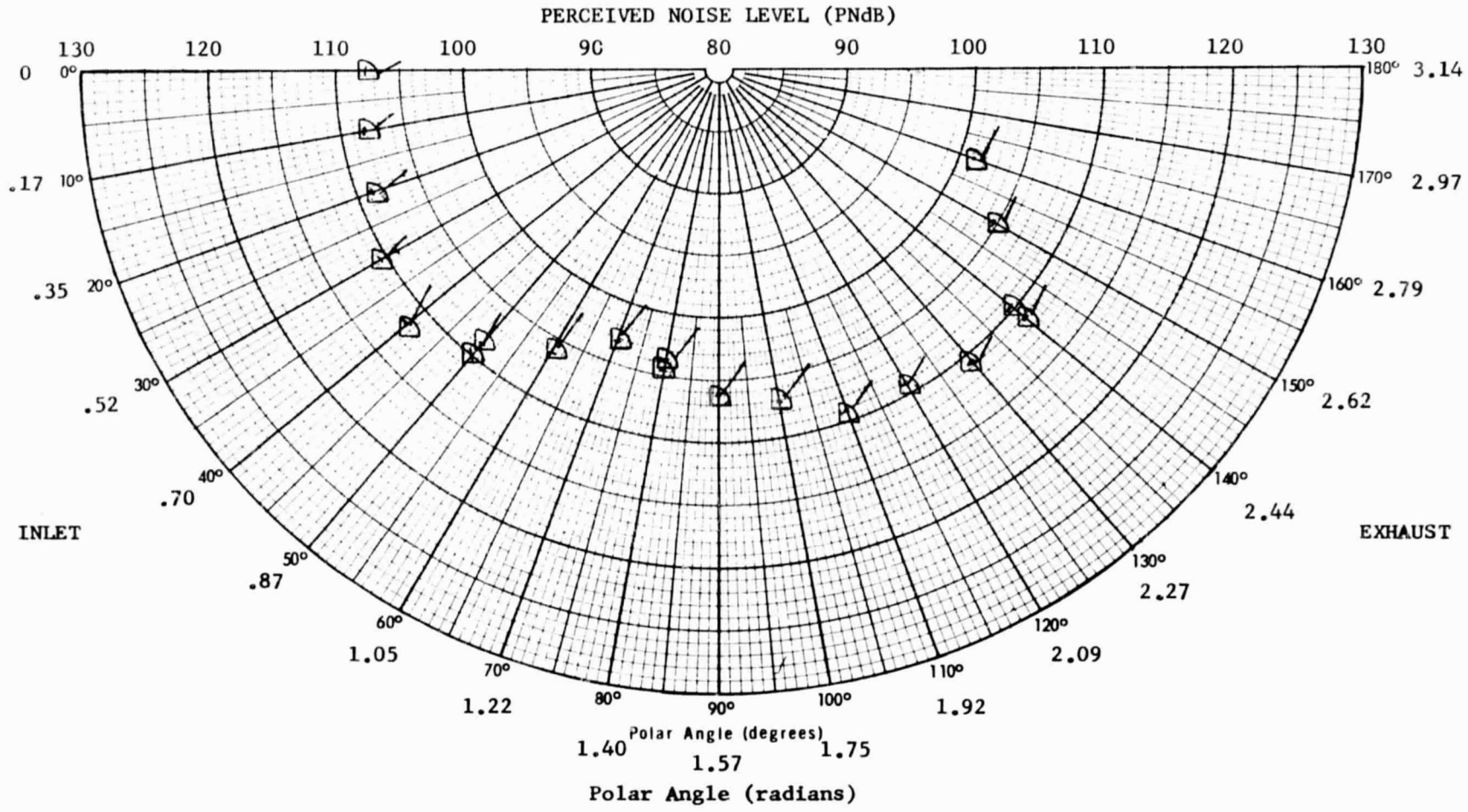
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		▽	▽		
Run No.		7-98	7-113		
Date		9/10/68	9/10/68		
Tape No.		P-655	P-650		
Physical Speed	RPM	1700	1700		
	Rad/sec	177.9	177.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-119

KEY		▽	▽		
Corr. Speed %		48.8	48.6		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B120

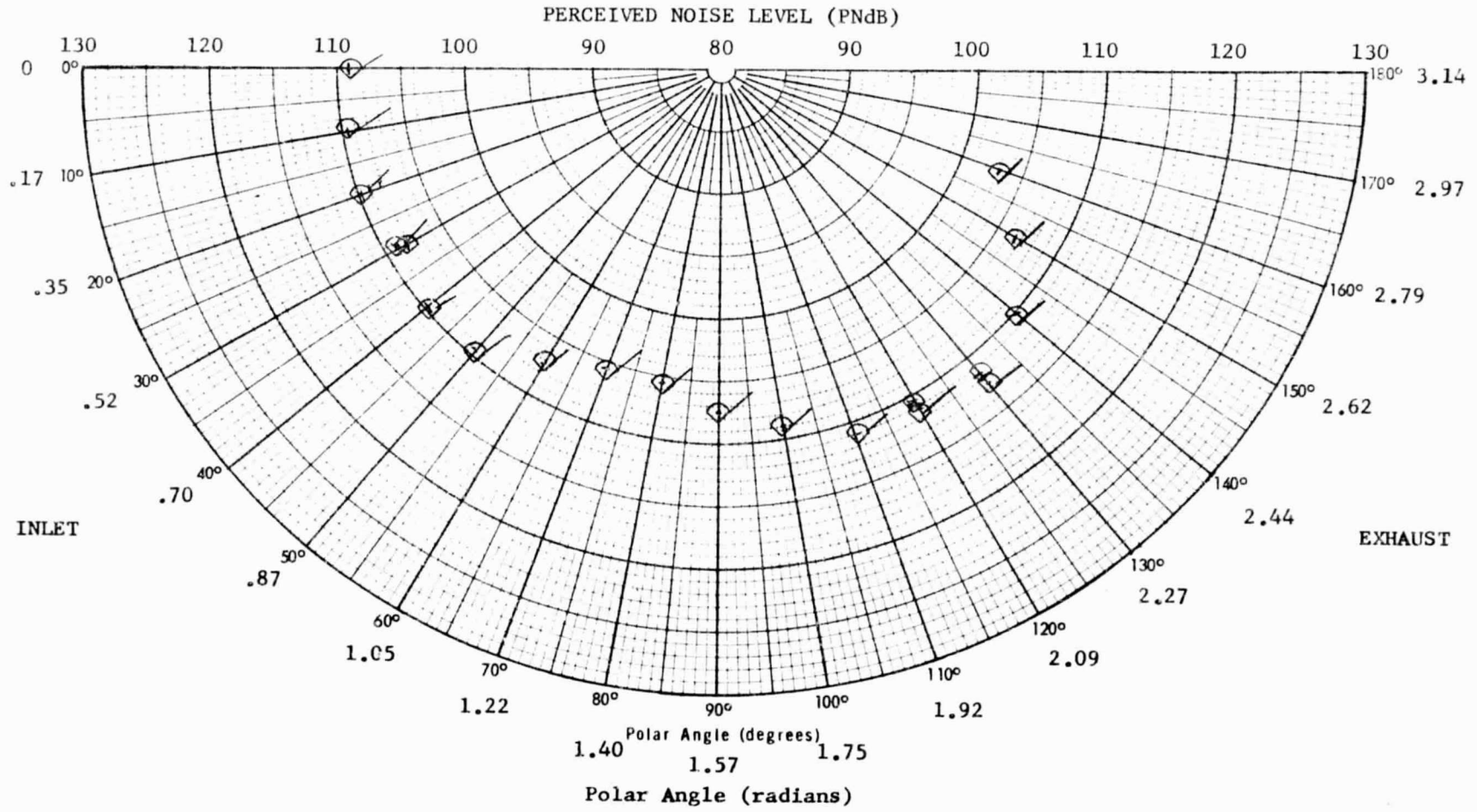
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		▱	▱		
Run No.		7-99	7-114		
Date		9/10/68	9/10/68		
Tape No.		P-654	P-649		
Physical Speed	RPM	1847	1850		
	Rad/sec	193.4	193.7		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-120

KEY		▱	▱		
Corr. Speed %		53.8	52.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B121

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

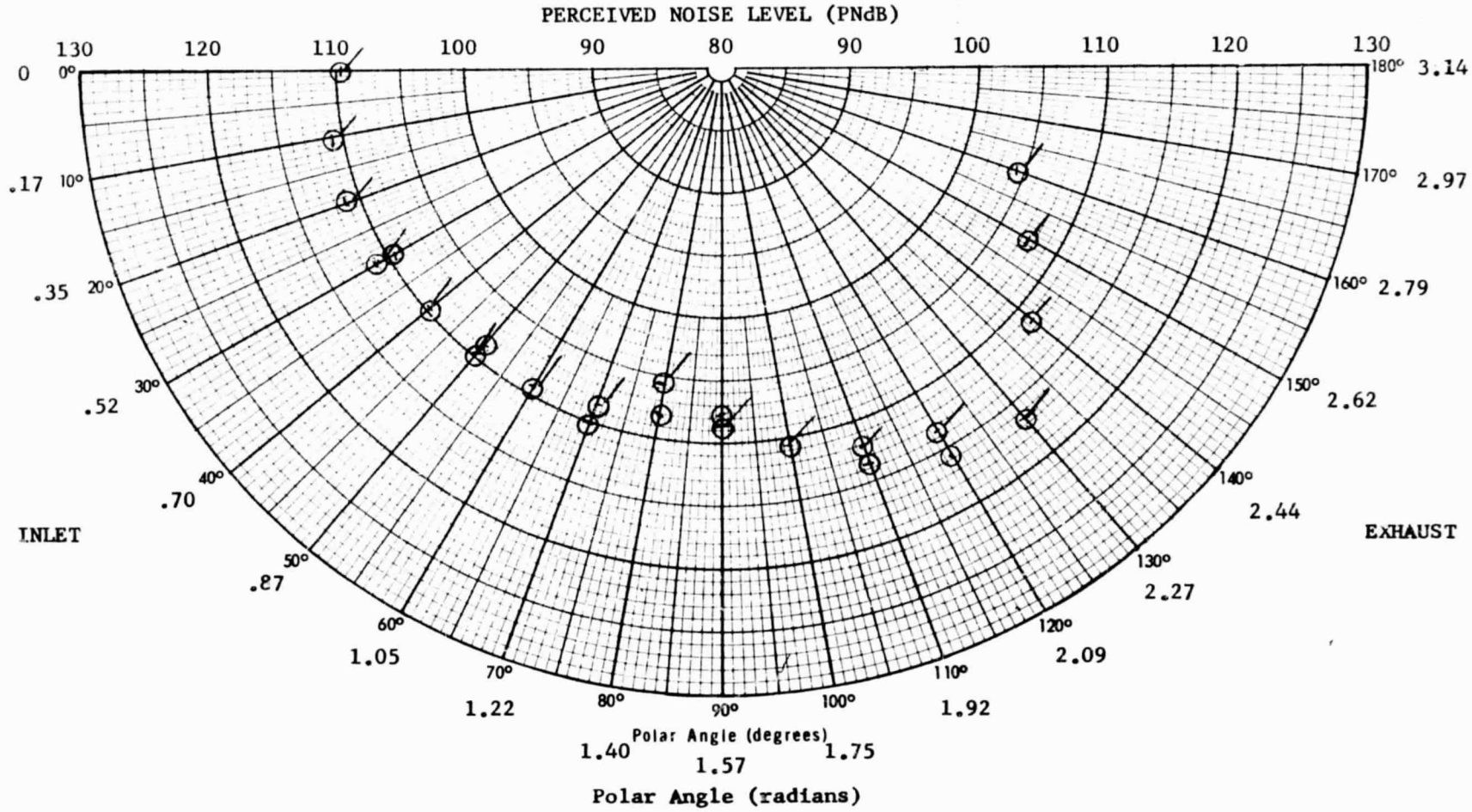
KEY		◇	◇		
Run No.		7-100	7-122		
Date		9/10/68	9/10/68		
Tape No.		P-654	P-647		
Physical Speed	RPM	2025	2029		
	Rad/sec	212.0	212.4		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-121

KEY		○	◠		
Corr. Speed %		58.1	58.0		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N



B122

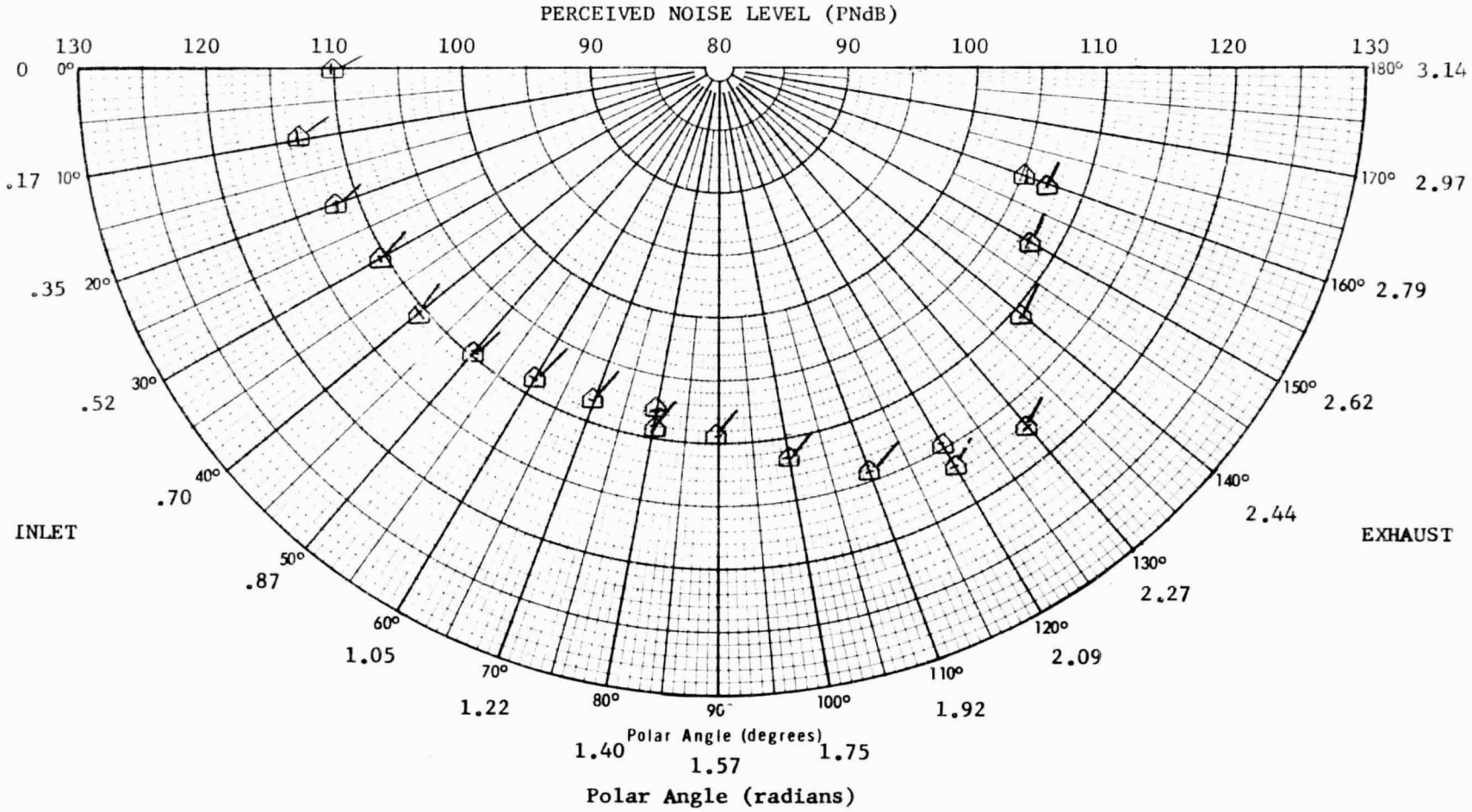
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	○/		
Run No.		7-101	7-122		
Date		9/10/68	9/10/68		
Tape No.		P-654	P-647		
Physical Speed	RPM	2154	2150		
	Rad/sec	225.5	225.1		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-122

KEY		○	○/		
Corr. Speed %		61.9	61.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

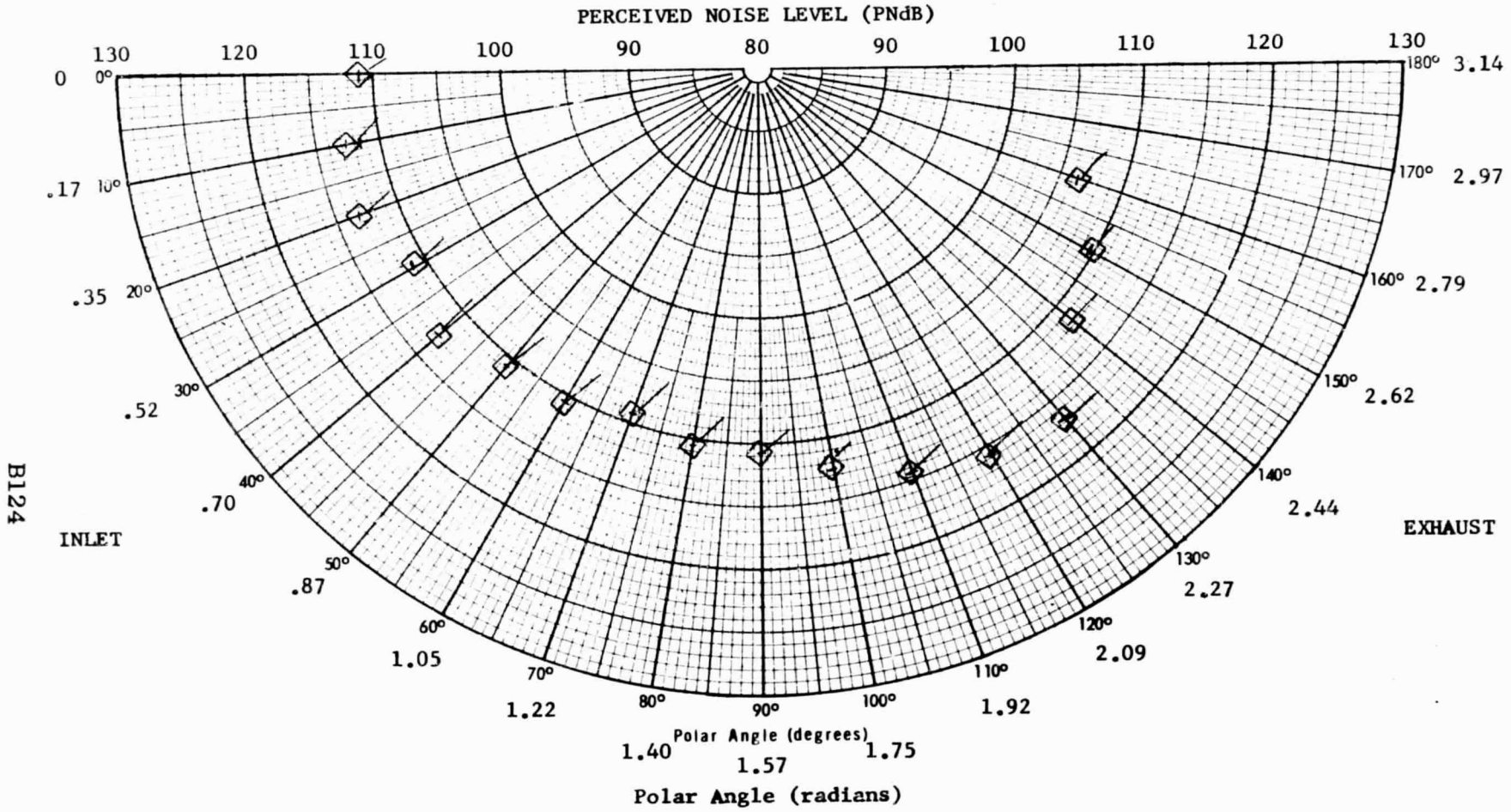
KEY		⌂	⌂		
Run No.		7-102	7-124		
Date		9/10/68	9/10/68		
Tape No.		P-653	P-647		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.8	240.8		

PNL Polar Plot At 225 Ft (68.58 M) Radius

Figure B-123

KEY		⌂	⌂		
Corr. Speed %		66.0	65.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



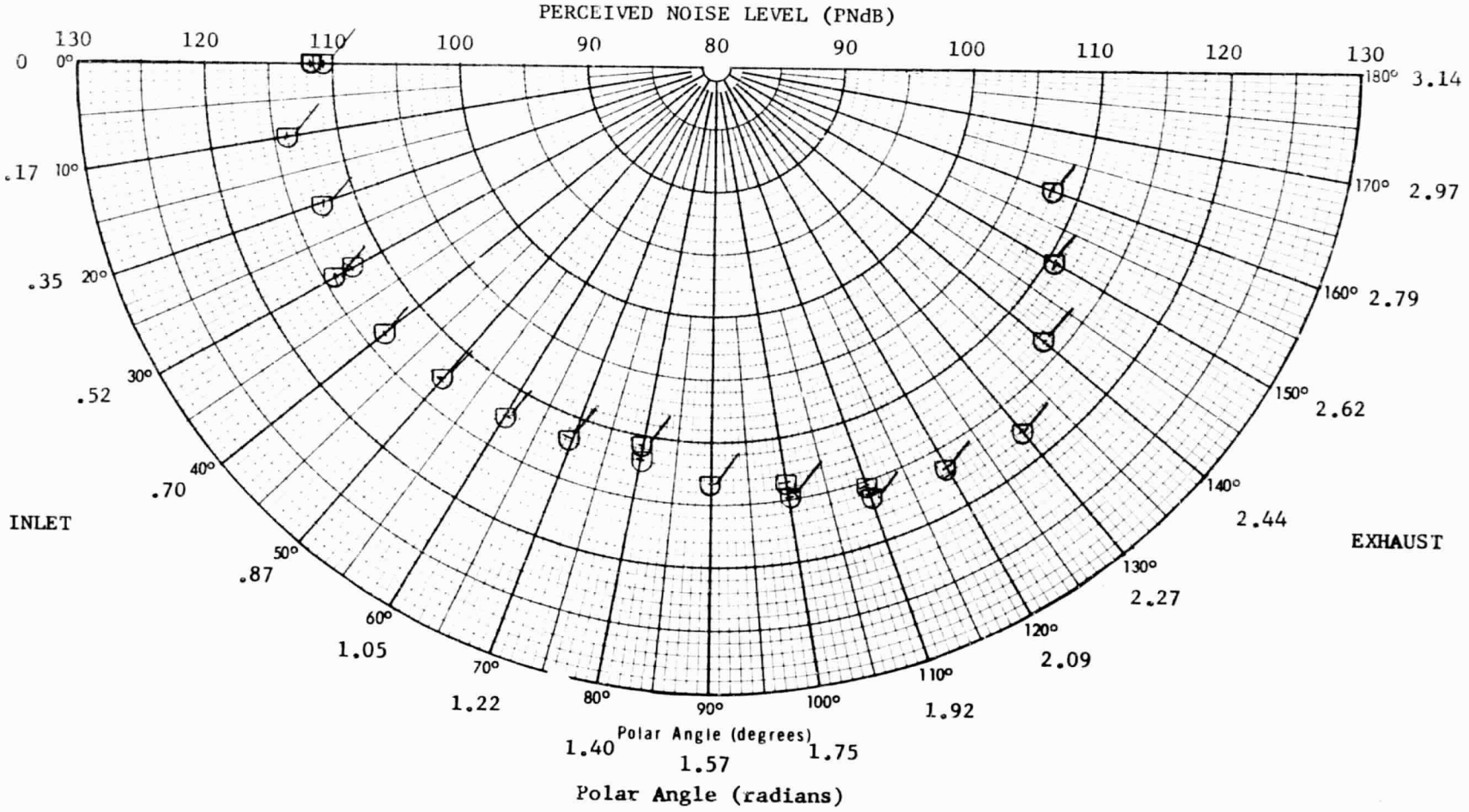
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		7-103	7-125		
Date		9/10/68	9/10/68		
Tape No.		P-653	P-646		
Physical Speed	RPM	2450	2450		
	Rad/sec	256.5	256.5		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-124

KEY		◇	◇		
Corr. Speed %		70.3	70.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B125

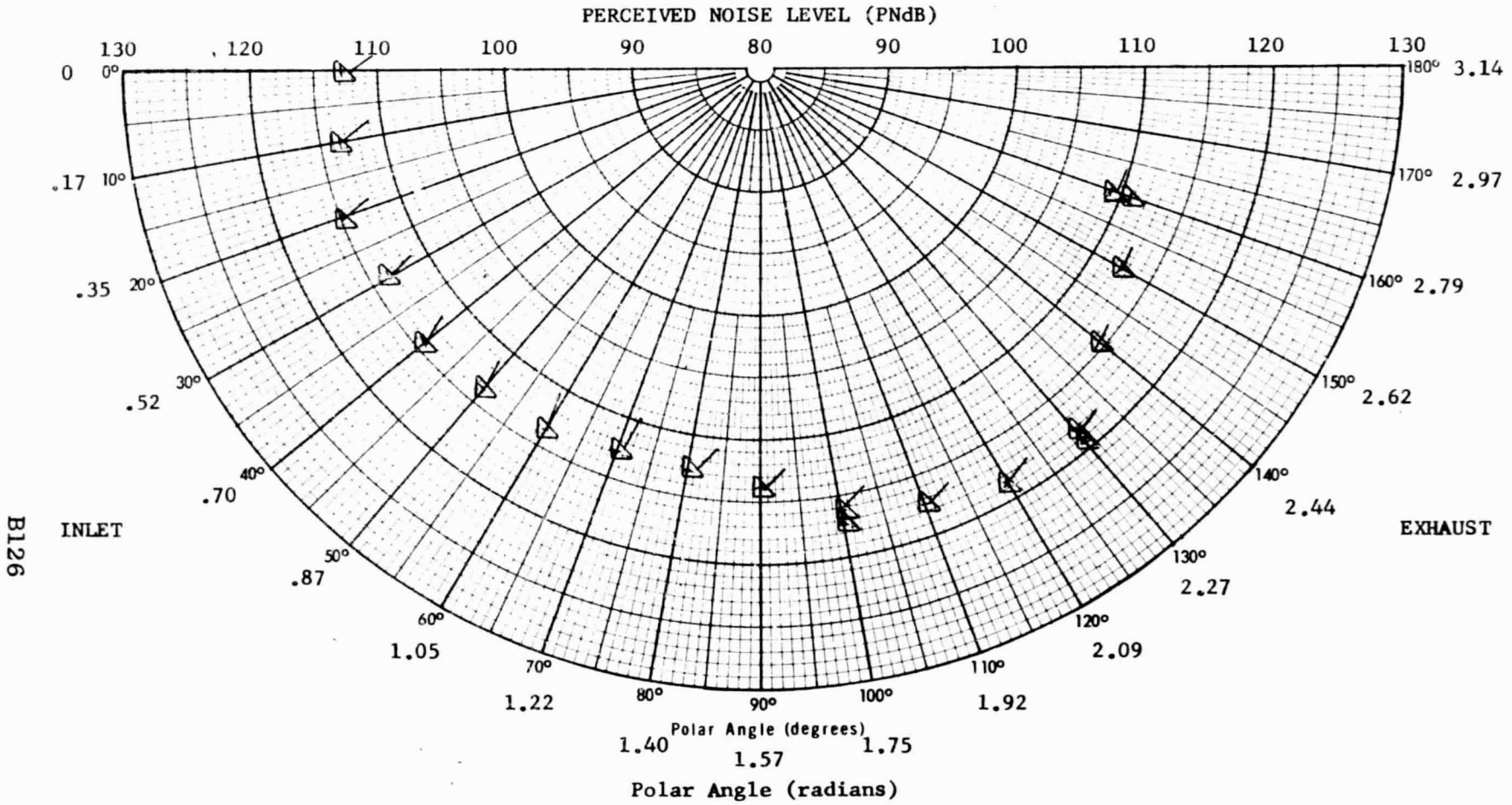
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□		
Run No.		7-104	7-126		
Date		9/10/68	9/10/68		
Tape No.		P-653	P-646		
Physical Speed	RPM	2600	2600		
	Rad/sec	272.2	272.2		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-125

KEY		○	□		
Corr. Speed %		74.6	74.4		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



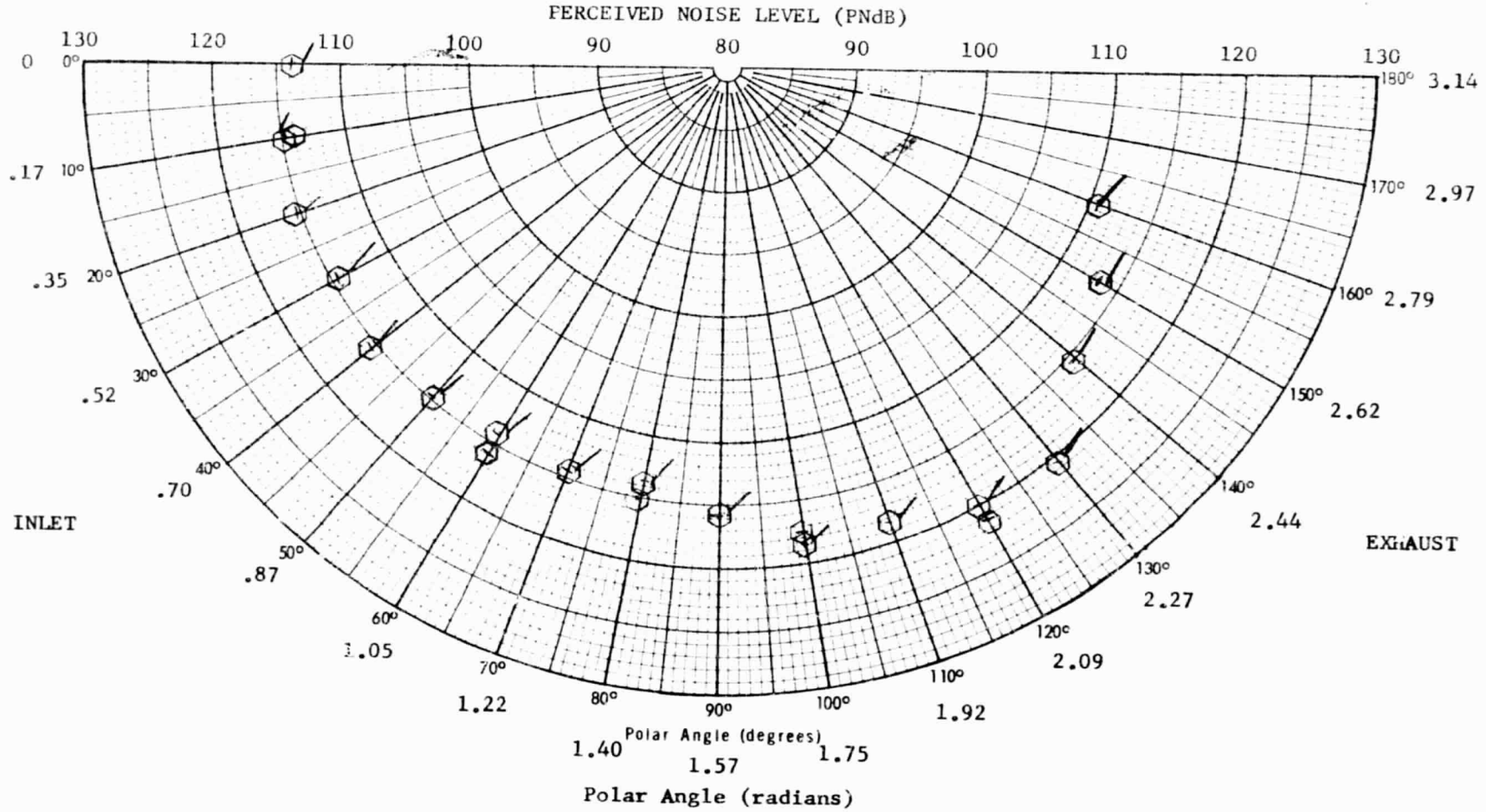
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◺	◹		
Run No.		7-105	7-127		
Date		9/10/68	9/10/68		
Tape No.		P-652	P-646		
Physical Speed	RPM	2750	2750		
	Rad/sec	287.9	287.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-126

KEY		◸	◸		
Corr. Speed %		78.8	78.7		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



B127

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

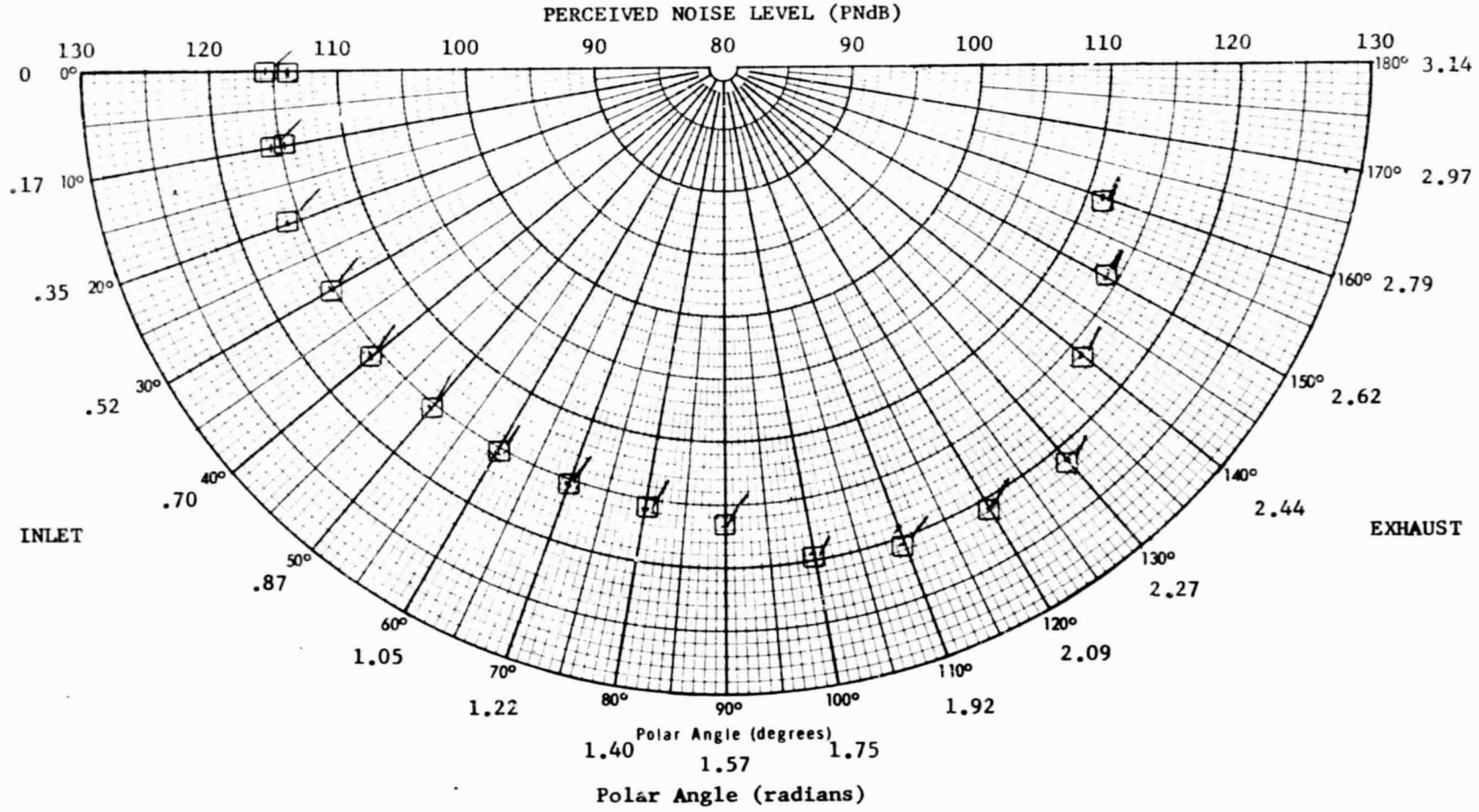
KEY		○	○		
Run No.		7-106	7-128		
Date		9/10/68	9/10/68		
Tape No.		P-652	P-645		
Physical Speed	RPM	2900	2900		
	Rad/sec	303.6	303.6		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-127

KEY		○	○		
Corr. Speed %		83.1	82.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B128

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

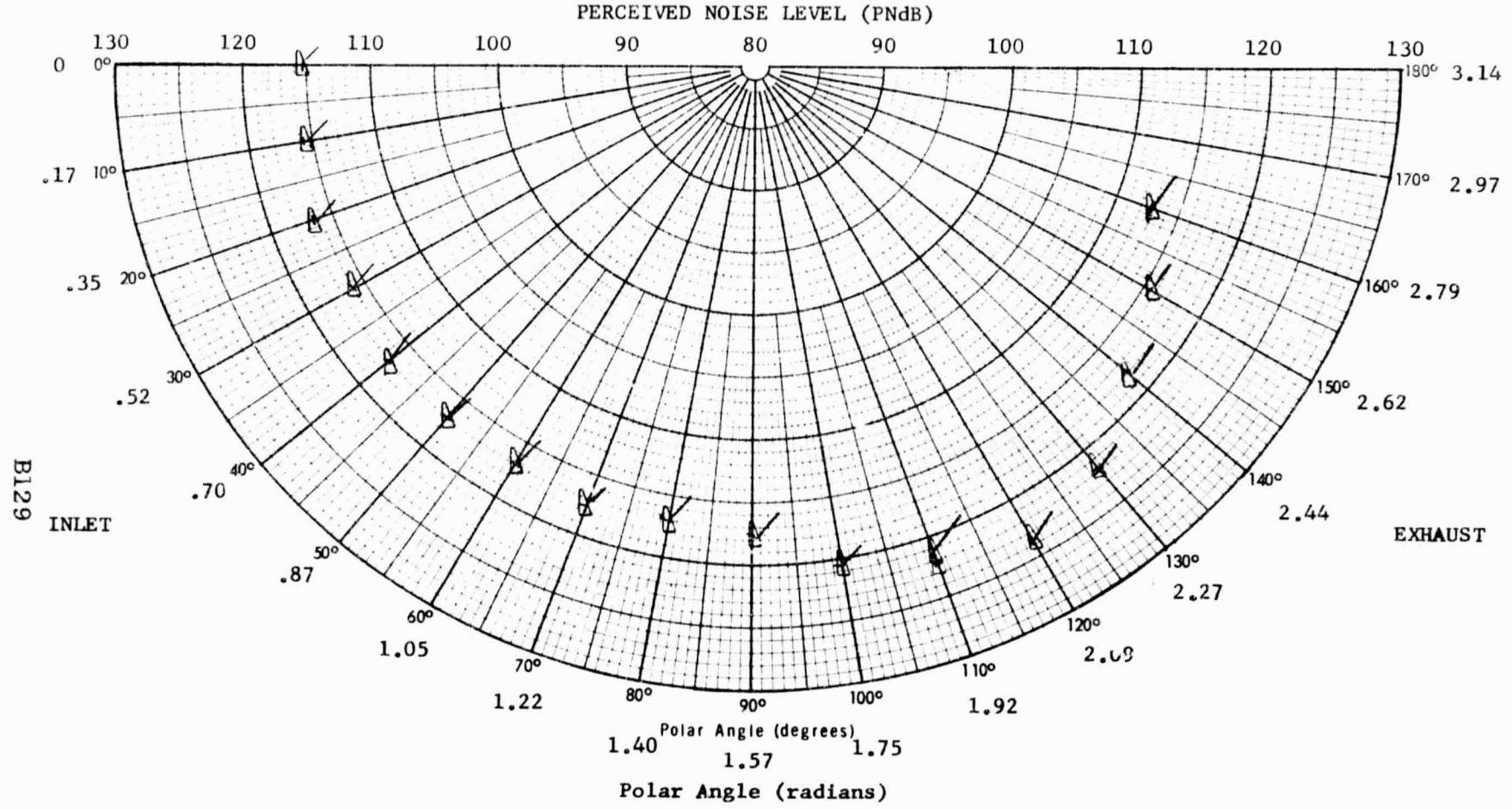
KEY		□	□		
Run No.		7-107	7-115		
Date		9/10/68	9/10/68		
Tape No.		P652	P649		
Physical Speed	RPM	3050	3050		
	Rad/sec	319.3	319.3		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-128

KEY		□	□		
Corr. Speed %		87.2	87.2		
Fan Noz. Area	In^2	1508.3	1508.2		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B129

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

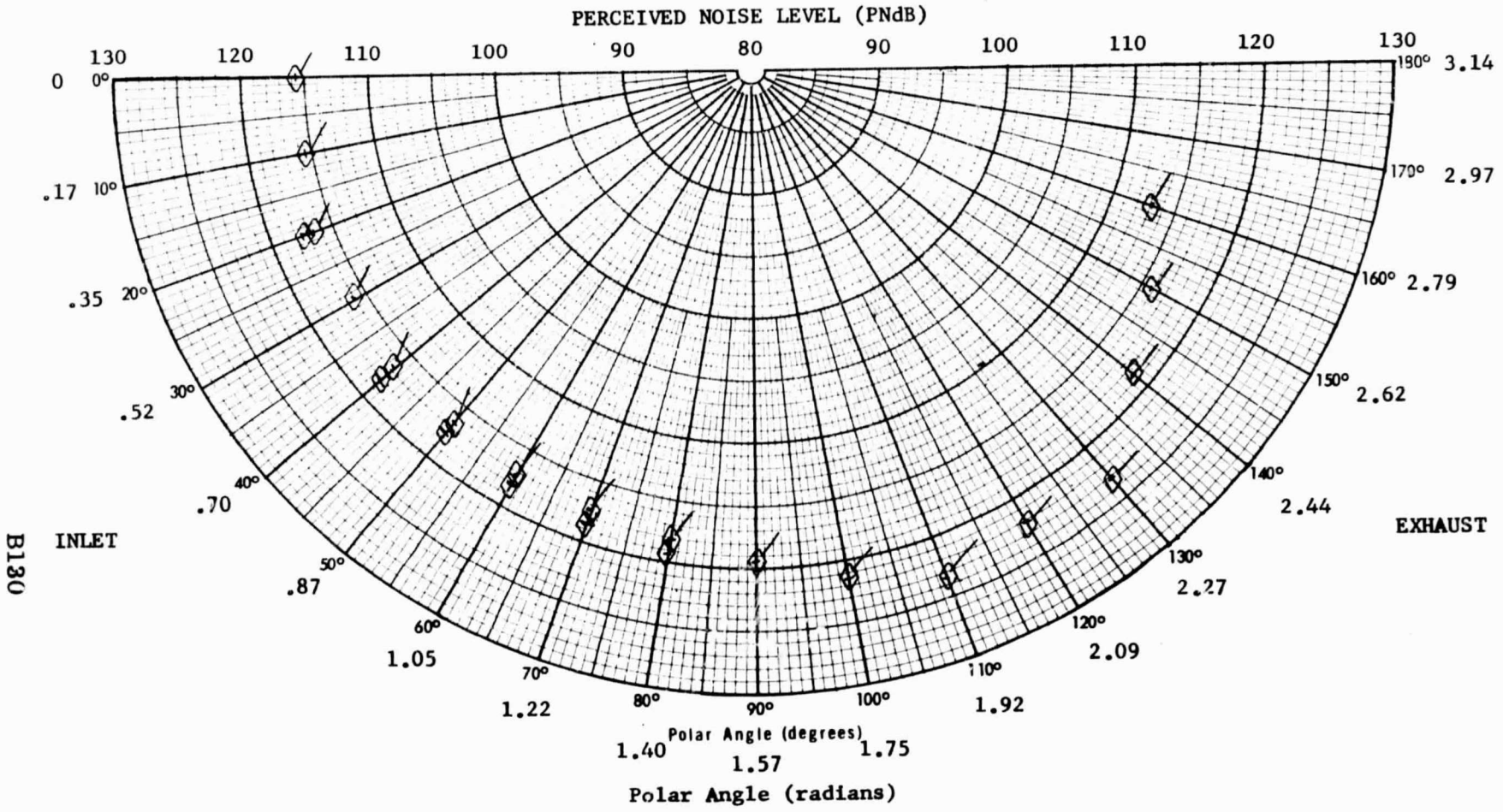
KEY		Δ	▽		
Run No.		7-108	7-116		
Date		9/10/68	9/10/68		
Tape No.		P651	P649		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-129

KEY		Δ	▽		
Corr. Speed %		91.5	91.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B130

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

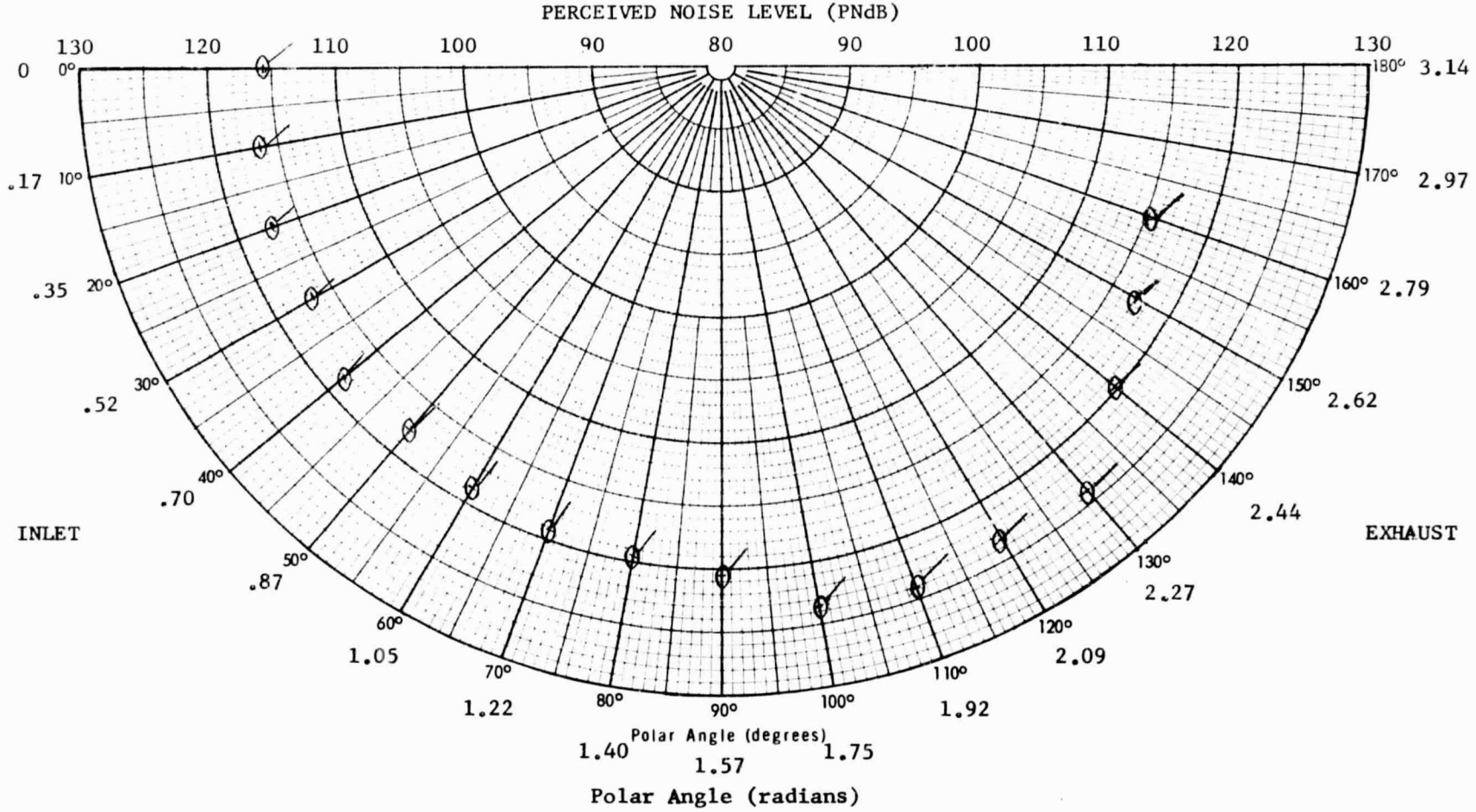
KEY		◊	◊		
Run No.		7-109	7-117		
Date		9/10/68	9/10/68		
Tape No.		P651	P648		
Physical Speed	RPM	3350	3350		
	Rad/sec	350.7	350.7		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-130

KEY		◊	◊		
Corr. Speed %		95.8	95.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B131

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

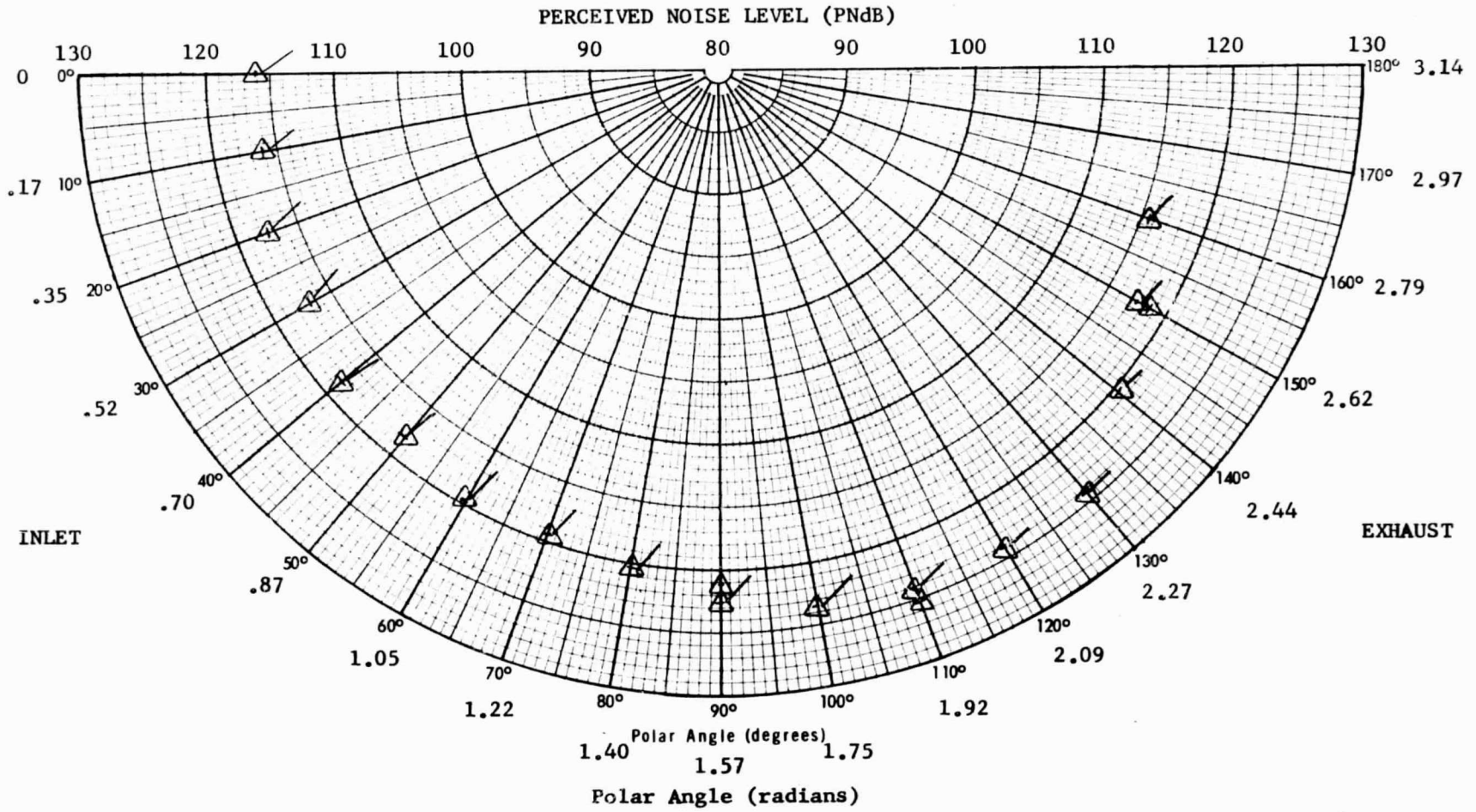
KEY		O	O		
Run No.		7-110	7-118		
Date		9/10/68	9/10/68		
Tape No.		P650	P648		
Physical Speed	RPM	3473	3472		
	Rad/sec	363.6	363.5		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-131

KEY		O	O		
Corr. Speed %		99.3	99.3		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B132

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

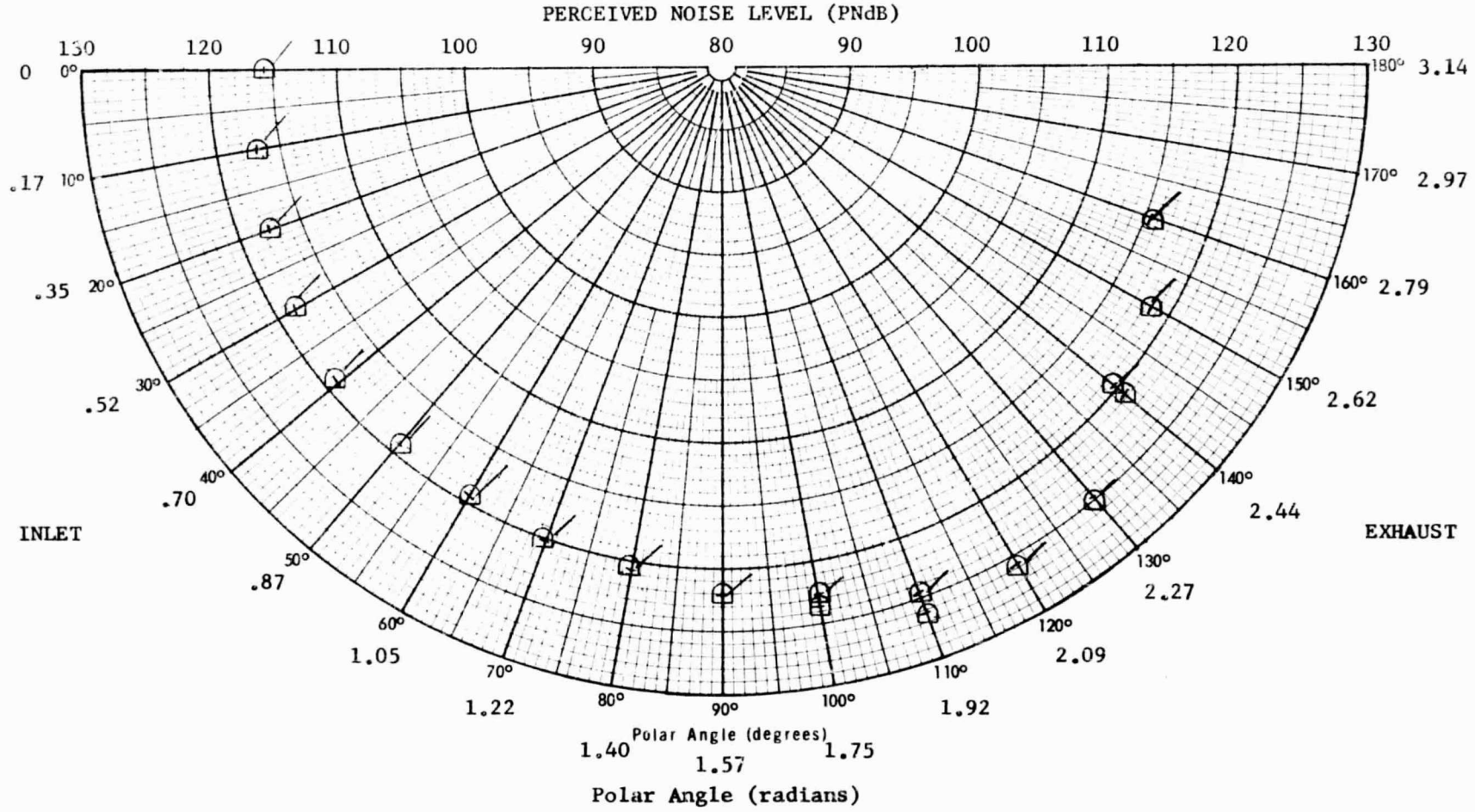
KEY		△	⊿		
Run No.		7-111	7-119		
Date		9/10/68	9/10/68		
Tape No.		P650	P648		
Physical Speed	RPM	3562	3562		
	Rad/sec	372.9	327.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-132

KEY		△	⊿		
Corr. Speed %		101.9	101.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. N-



B133

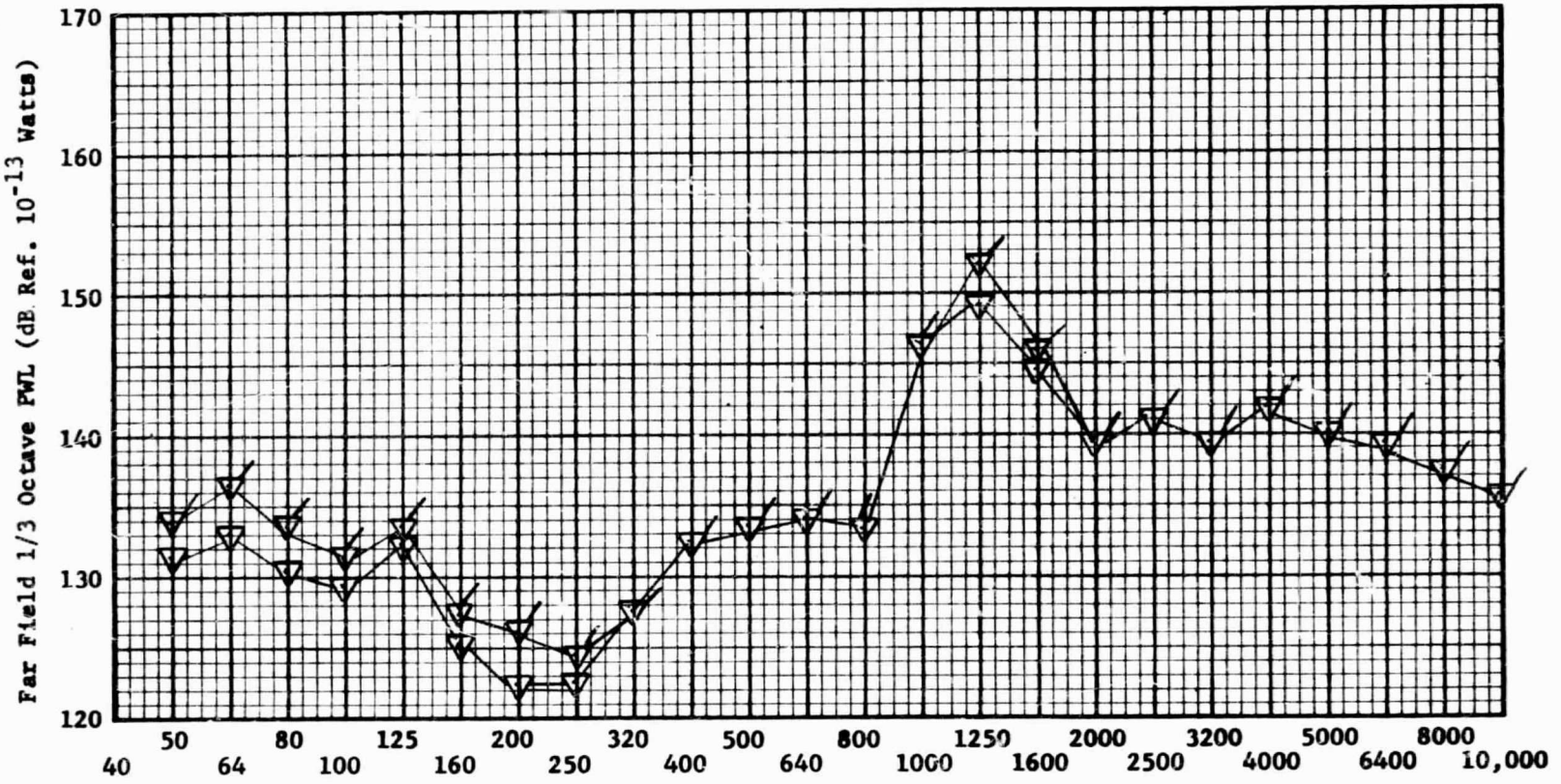
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□		
Run No.		7-112	7-120		
Date		9/10/68	9/10/68		
Tape No.		P650	P648		
Physical Speed	RPM	3647	3650		
	Rad/sec	381.8	382.2		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-133

KEY		○	□		
Corr. Speed %		104.3	104.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



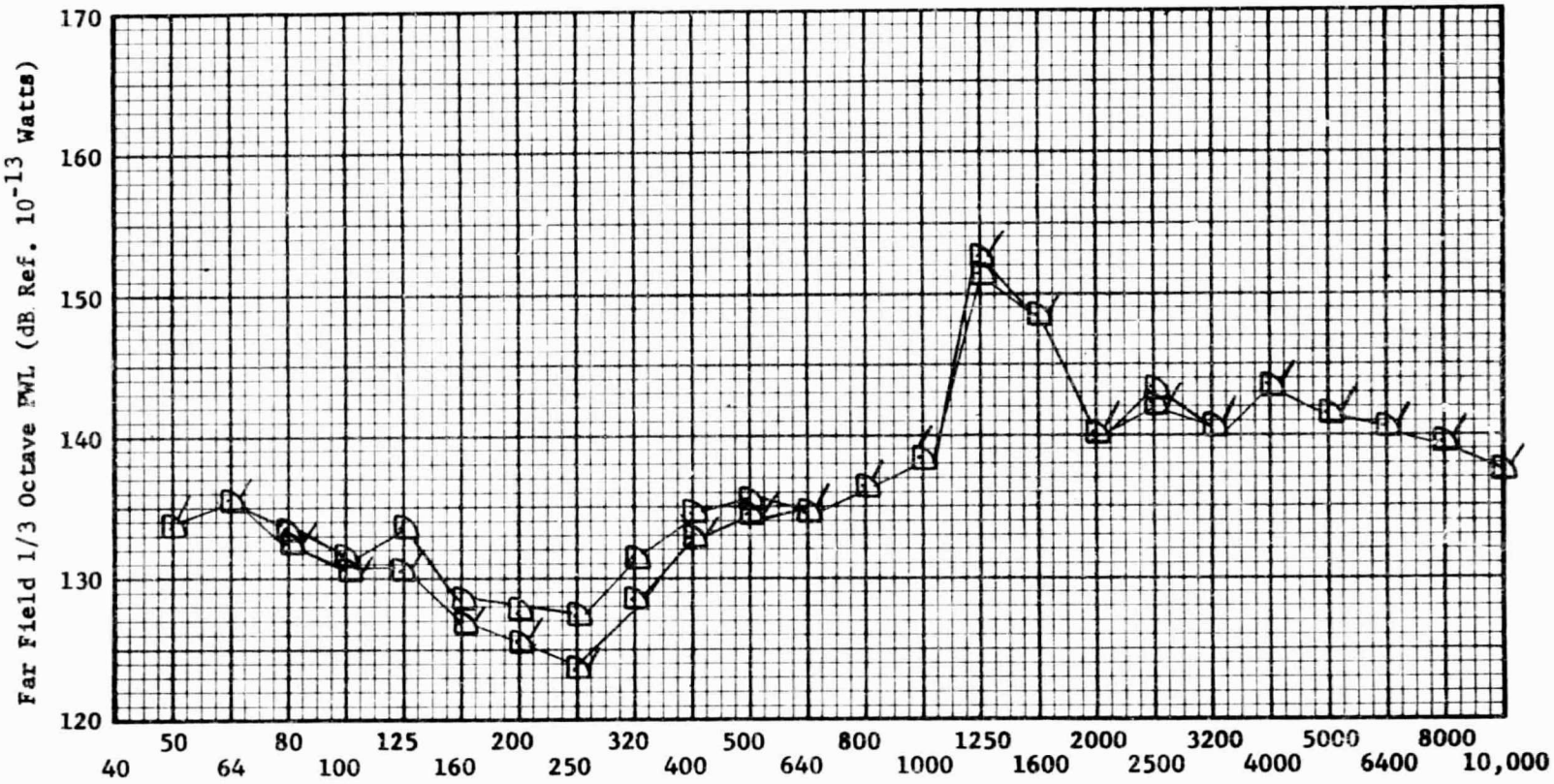
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		▽	▽		
Run No.		7-98	7-113		
Date		9/10/68	9/10/68		
Tape No.		P-655	P-650		
Physical Speed	RPM	1700	1700		
	Rad/sec	177.9	177.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-134

KEY		▽	▽		
Corr. Speed %		48.8	48.6		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



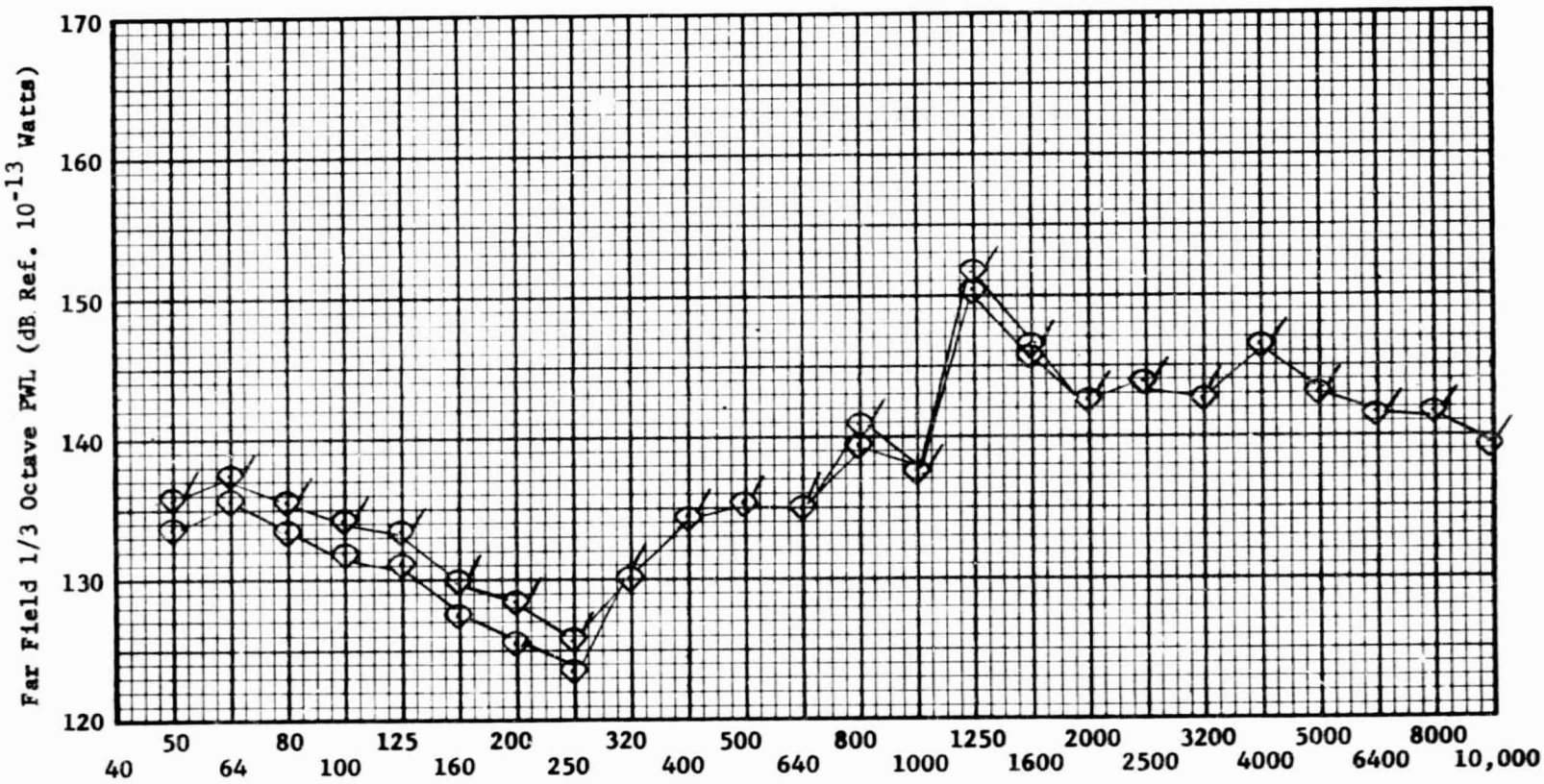
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		D	D		
Run No.		7-99	7-114		
Date		9/10/68	9/10/68		
Tape No.		P-654	P-649		
Physical Speed	RPM	1847	1850		
	Rad/sec	193.4	193.7		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-135

KEY		D	D		
Corr. Speed %		53.8	52.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



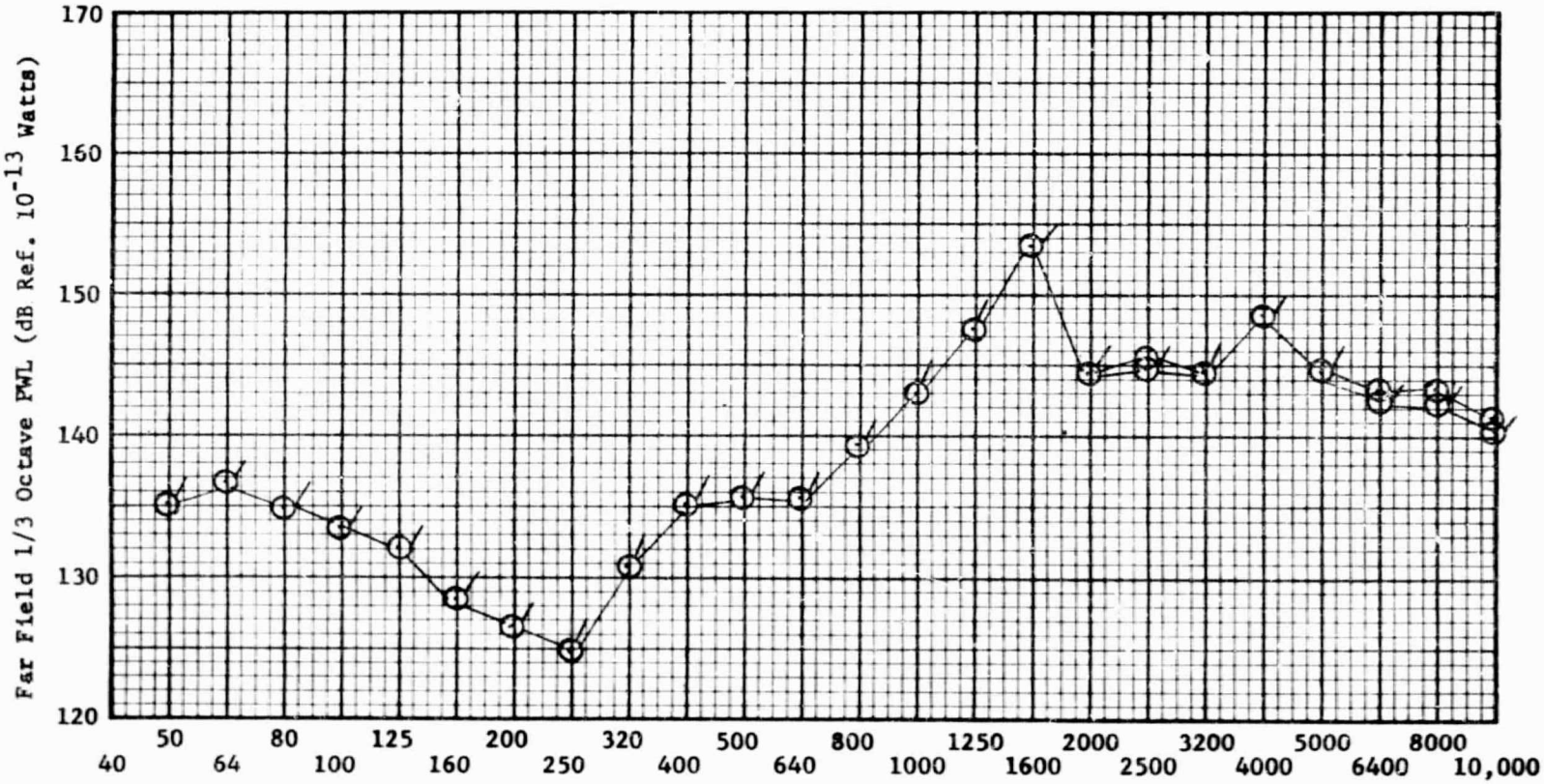
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◁		
Run No.		7-100	7-122		
Date		9/10/68	9/10/68		
Tape No.		P-654	P-647		
Physical Speed	RPM	2025	2029		
	Rad/sec	212.0	212.4		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-136

KEY		◇	◁		
Corr. Speed %		58.1	58.0		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Ncz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



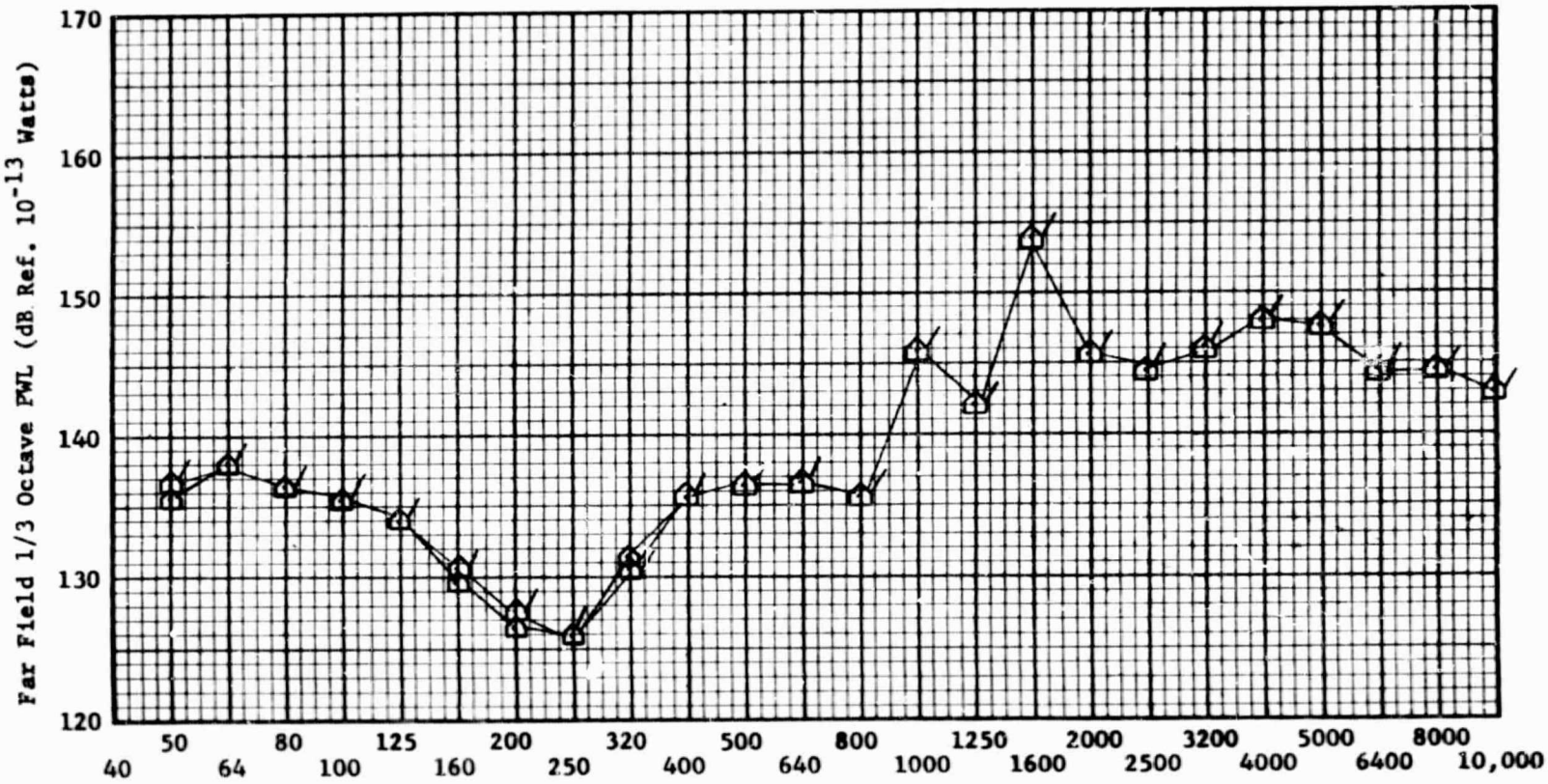
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		7-101	7-123		
Date		9/10/68	9/10/68		
Tape No.		P-654	P-647		
Physical Speed	RPM	2154	2150		
	Rad/sec	225.5	225.1		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-137

KEY		○	♂		
Corr. Speed %		61.9	61.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



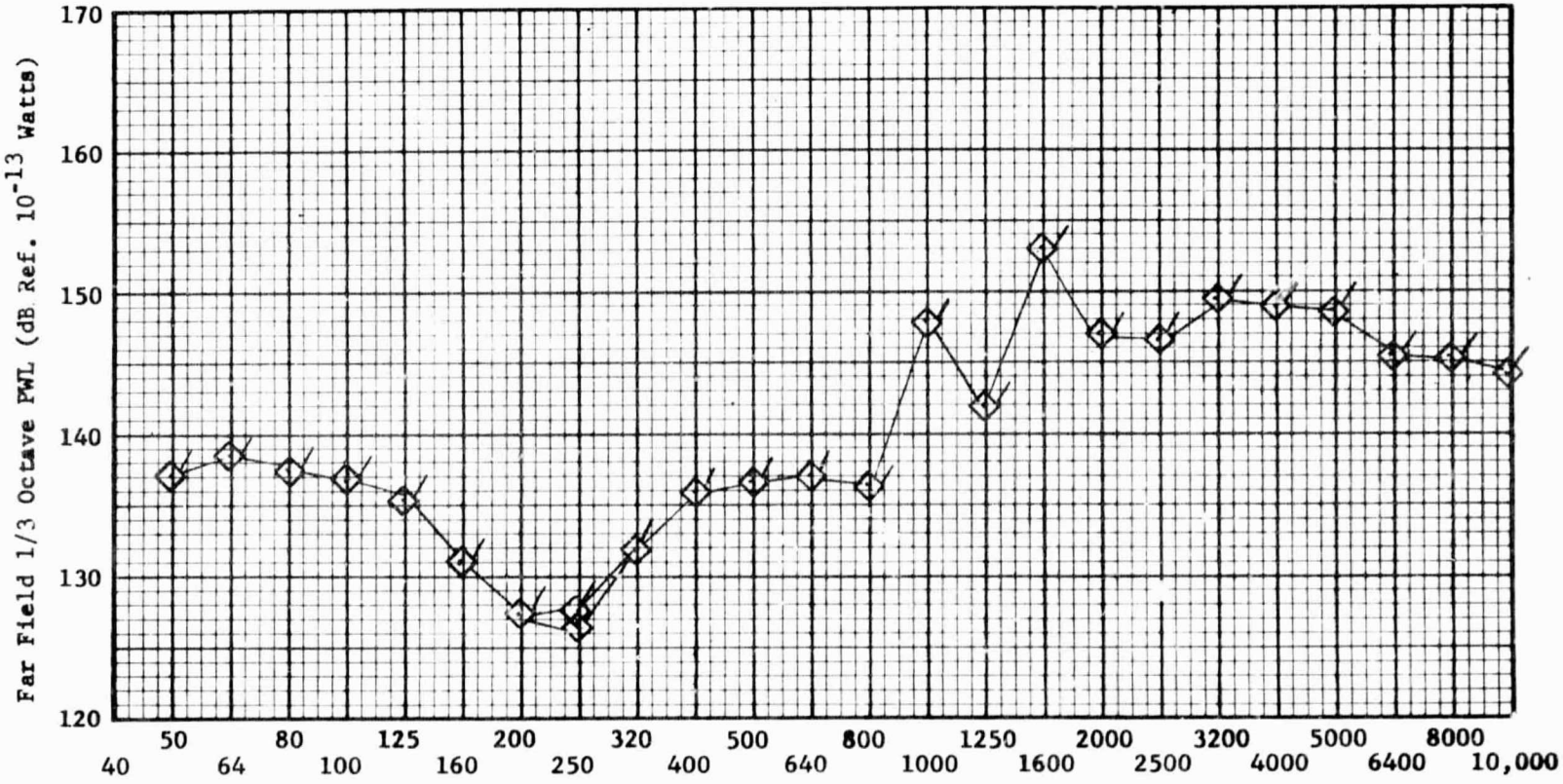
TWO-STAGE LOW TIP SPEED FAN NOISE D MONSTRATOR

KEY		△	▽		
Run No.		7-102	7-124		
Date		9/10/68	9/10/68		
Tape No.		P-653	P-647		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.8	240.8		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-138

KEY		△	▽		
Corr. Speed %		66.0	65.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



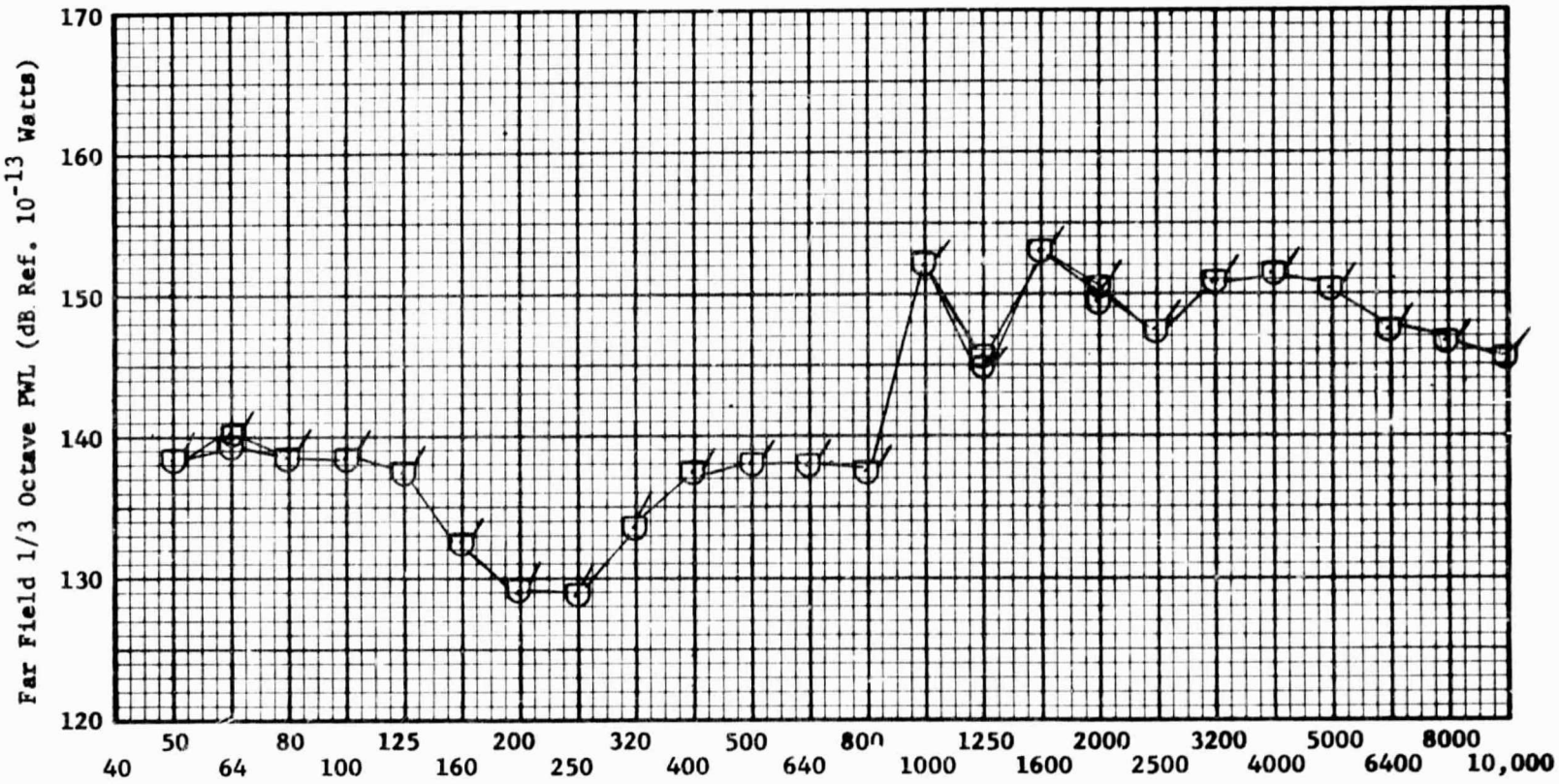
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		7-103	7-125		
Date		9/10/68	9/10/68		
Tape No.		P-653	P-646		
Physical Speed	RPM	2450	2450		
	Rad/sec	256.5	256.5		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-139

KEY		◇	◇		
Corr. Speed %		70.3	70.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



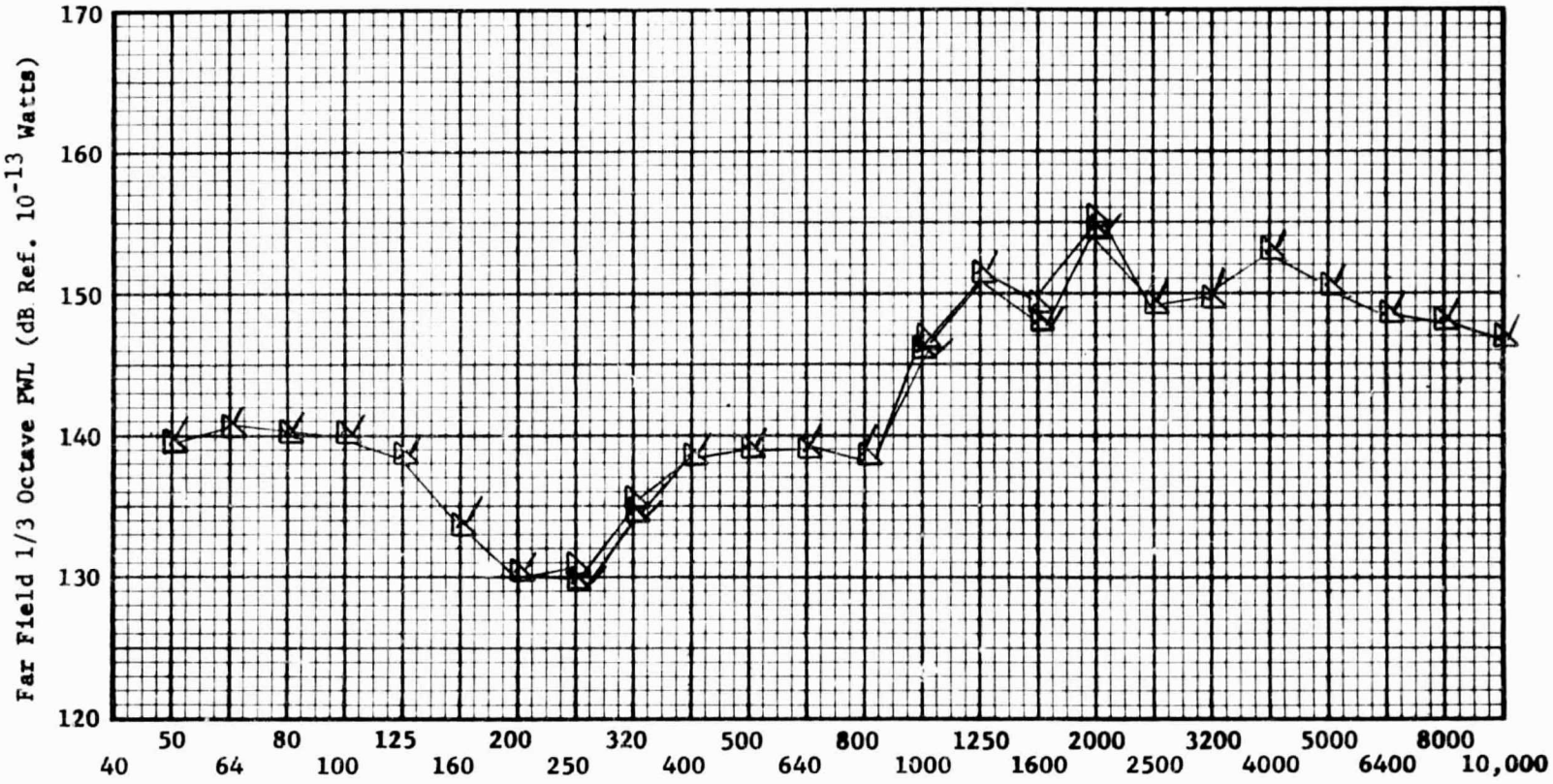
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		□	◇		
Run No.		7-104	7-126		
Date		9/10/68	9/10/68		
Tape No.		P-653	P-646		
Physical Speed	RPM	2600	2600		
	Rad/sec	272.2	272.2		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-140

KEY		○	◇		
Corr. Speed %		74.6	74.4		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



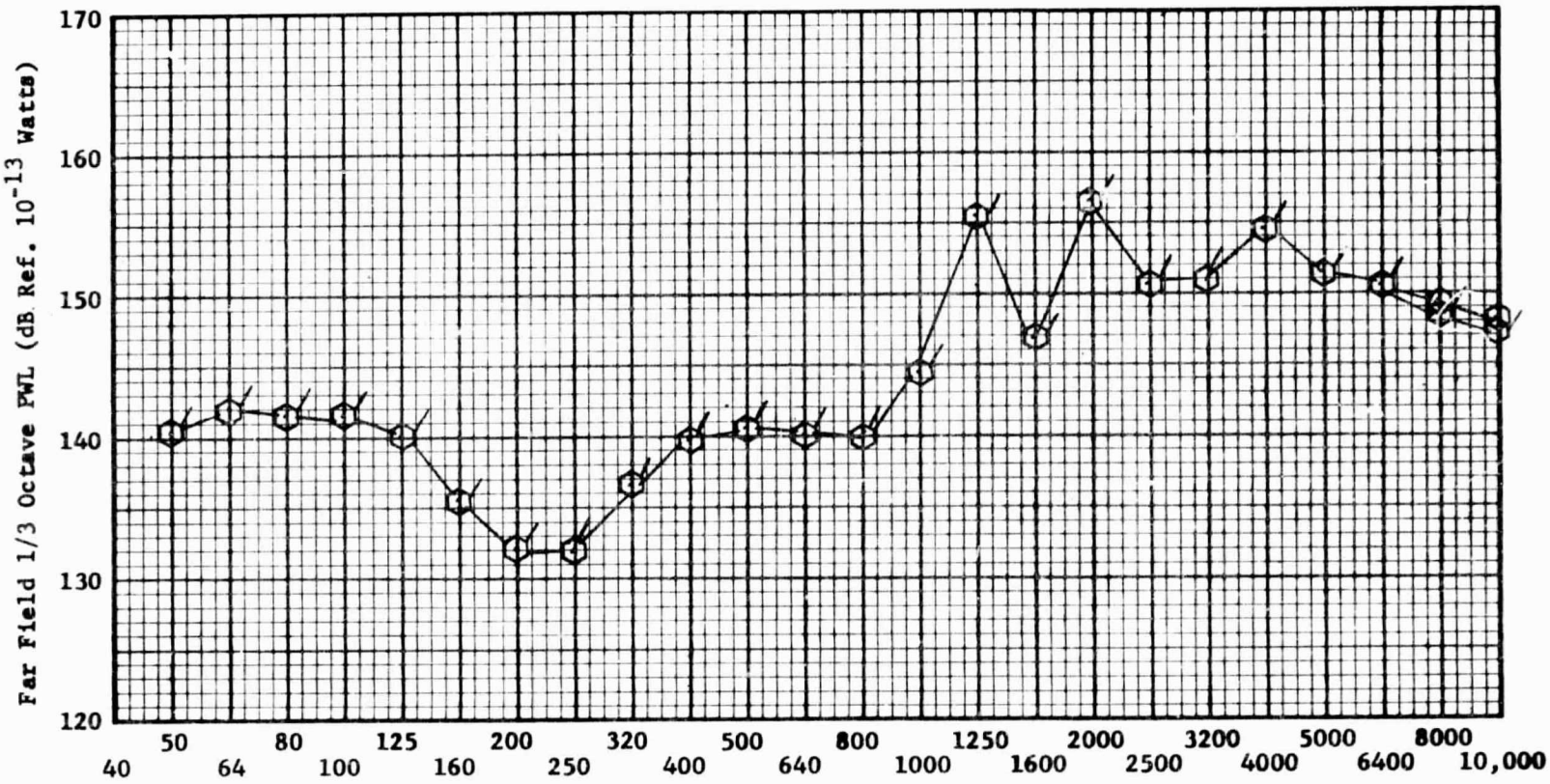
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	◸		
Run No.		7-105	7-127		
Date		9/10/68	9/10/68		
Tape No.		P-652	P-646		
Physical Speed	RPM	2750	2750		
	Rad/sec	287.9	287.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-141

KEY		◺	◸		
Corr. Speed %		78.8	78.7		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

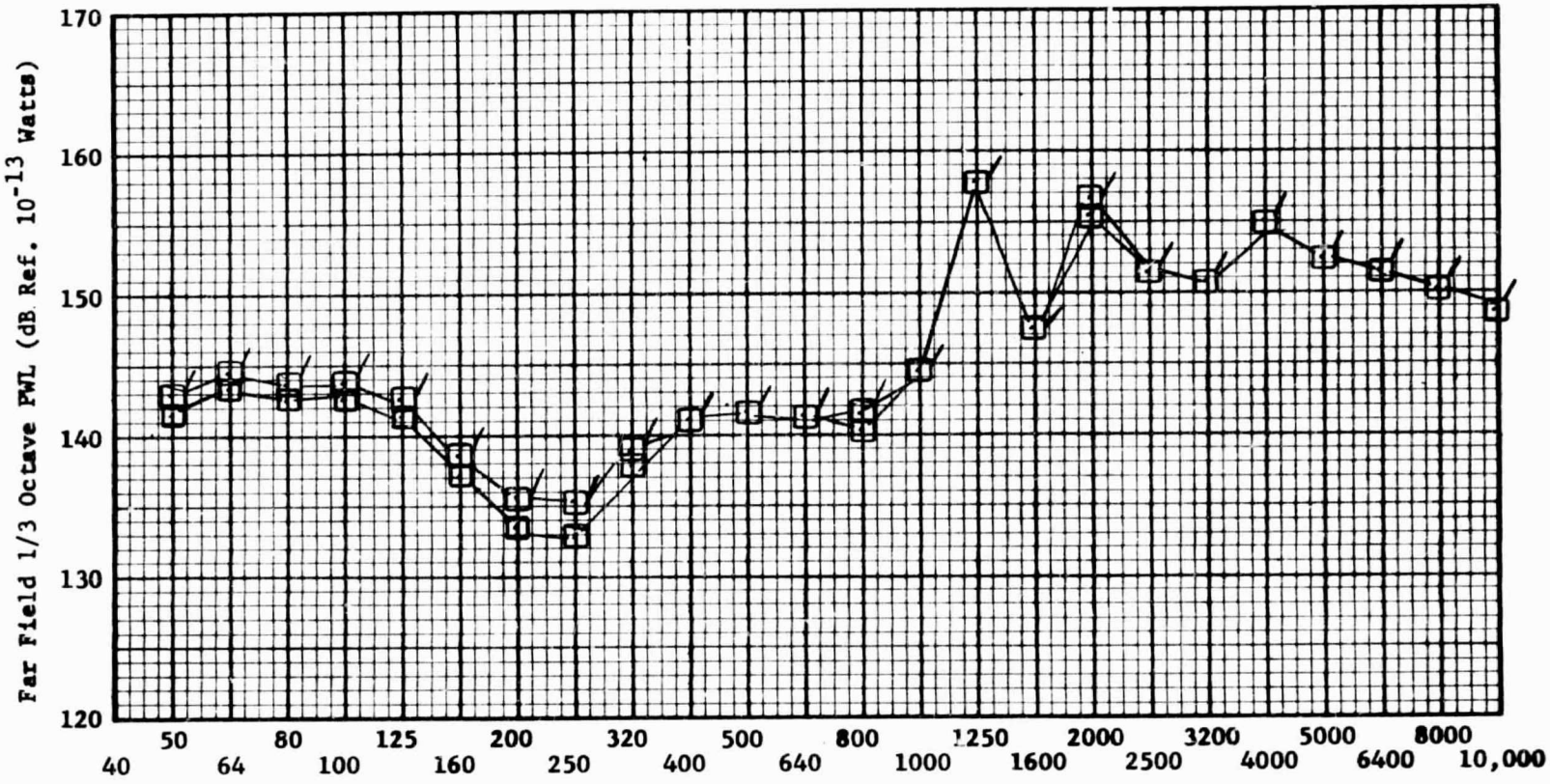
KEY		⬡	⬡		
Run No.		7-106	7-128		
Date		9/10/68	9/10/68		
Tape No.		P-652	P-645		
Physical Speed	RPM	2900	2900		
	Rad/sec	303.6	303.6		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-142

KEY		⌒	⌒		
Corr. Speed %		83.1	82.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. 2



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

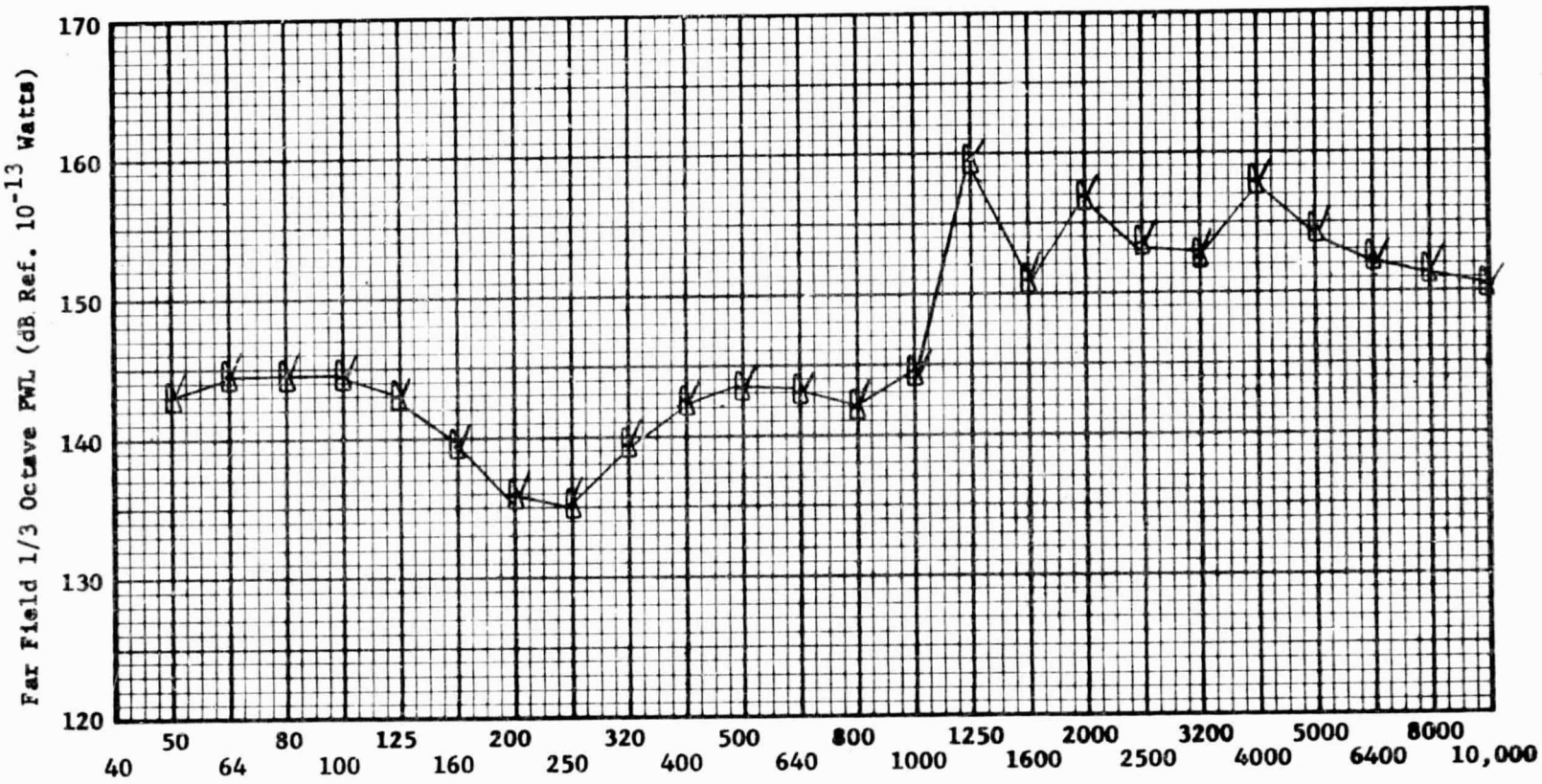
KEY		□	☑		
Run No.		7-107	7-115		
Date		9/10/68	9/10/68		
Tape No.		P-652	P-649		
Physical Speed	RPM	3050	3050		
	Rad/sec	319.3	319.3		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-143

KEY		□	☑		
Corr. Speed %		87.2	87.2		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

B143



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

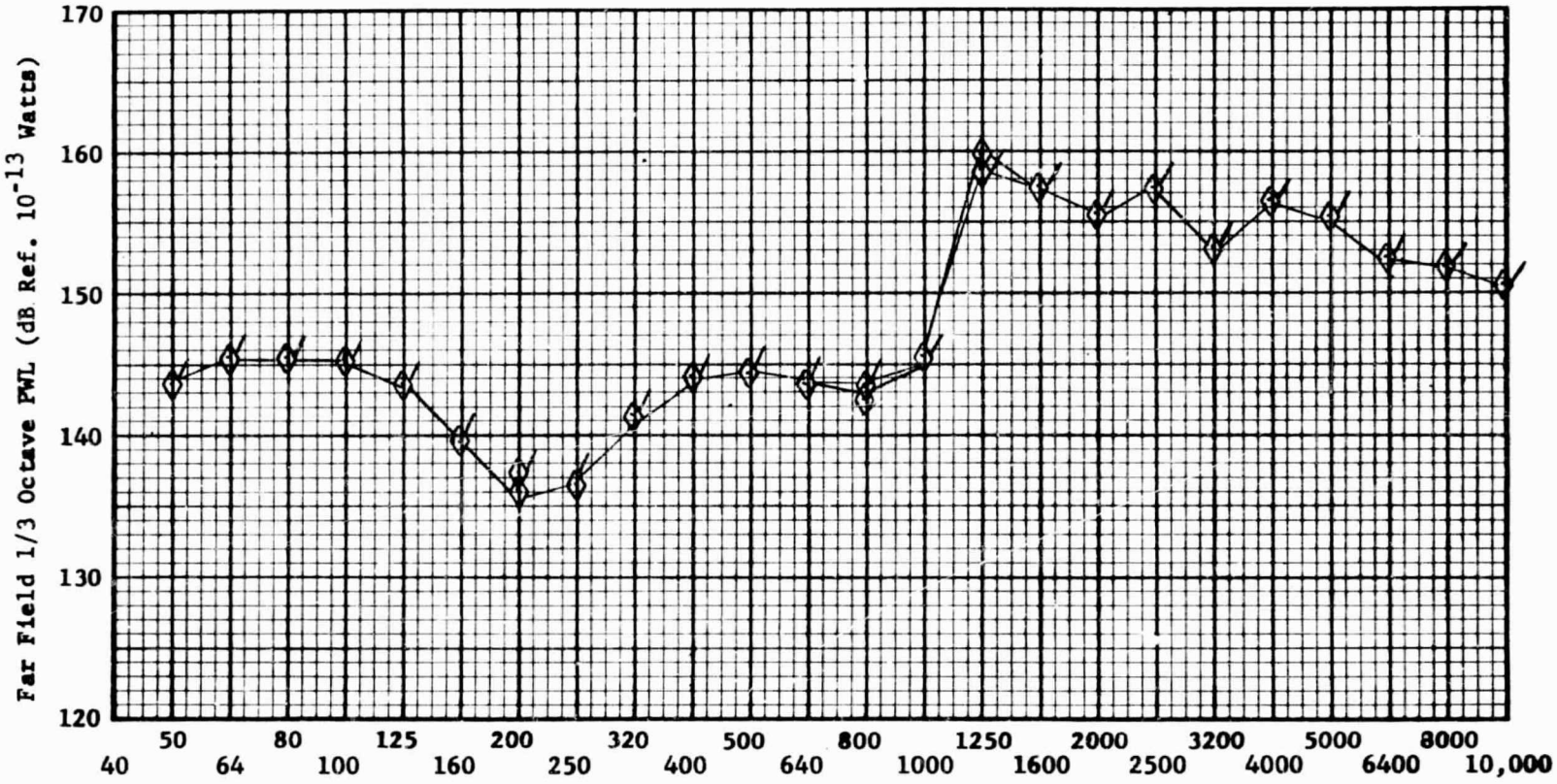
KEY		△	▽		
Run No.		7-108	7-116		
Date		9/10/68	9/10/68		
Tape No.		P-651	P-649		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-144

KEY		△	▽		
Corr. Speed %		91.5	91.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. ?



B145

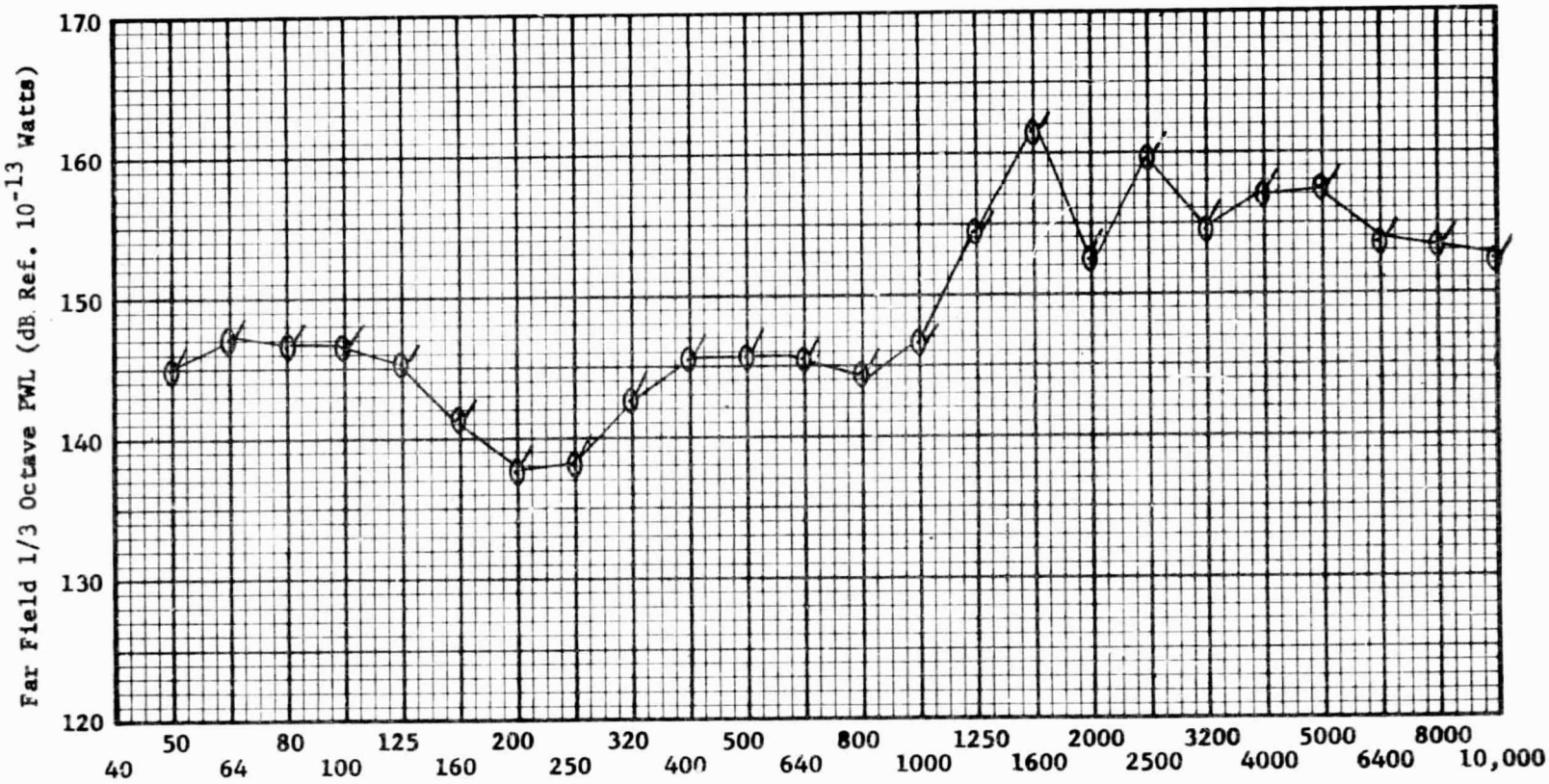
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		7-109	7-117		
Date		9/10/68	9/10/68		
Tape No.		P-651	P-648		
Physical Speed	RPM	3350	3350		
	Rad/sec	350.7	350.7		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-145

KEY		◇	◇		
Corr. Speed %		95.8	95.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



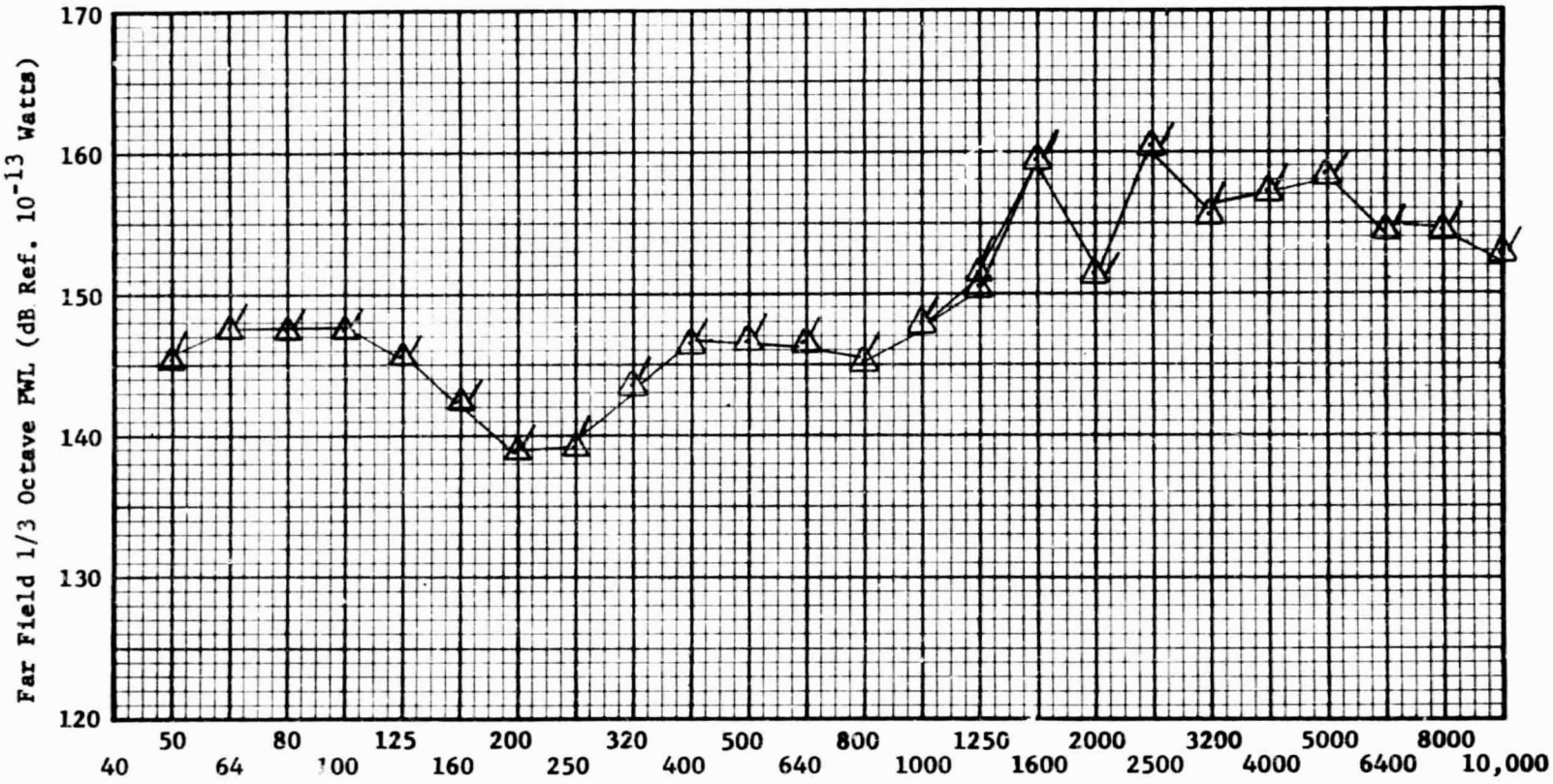
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		O	♂		
Run No.		7-110	7-118		
Date		9/10/68	9/10/68		
Tape No.		P-650	P-648		
Physical Speed	RPM	3473	3472		
	Rad/sec	363.6	363.5		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-146

KEY		O	♂		
Corr. Speed %		99.3	99.3		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



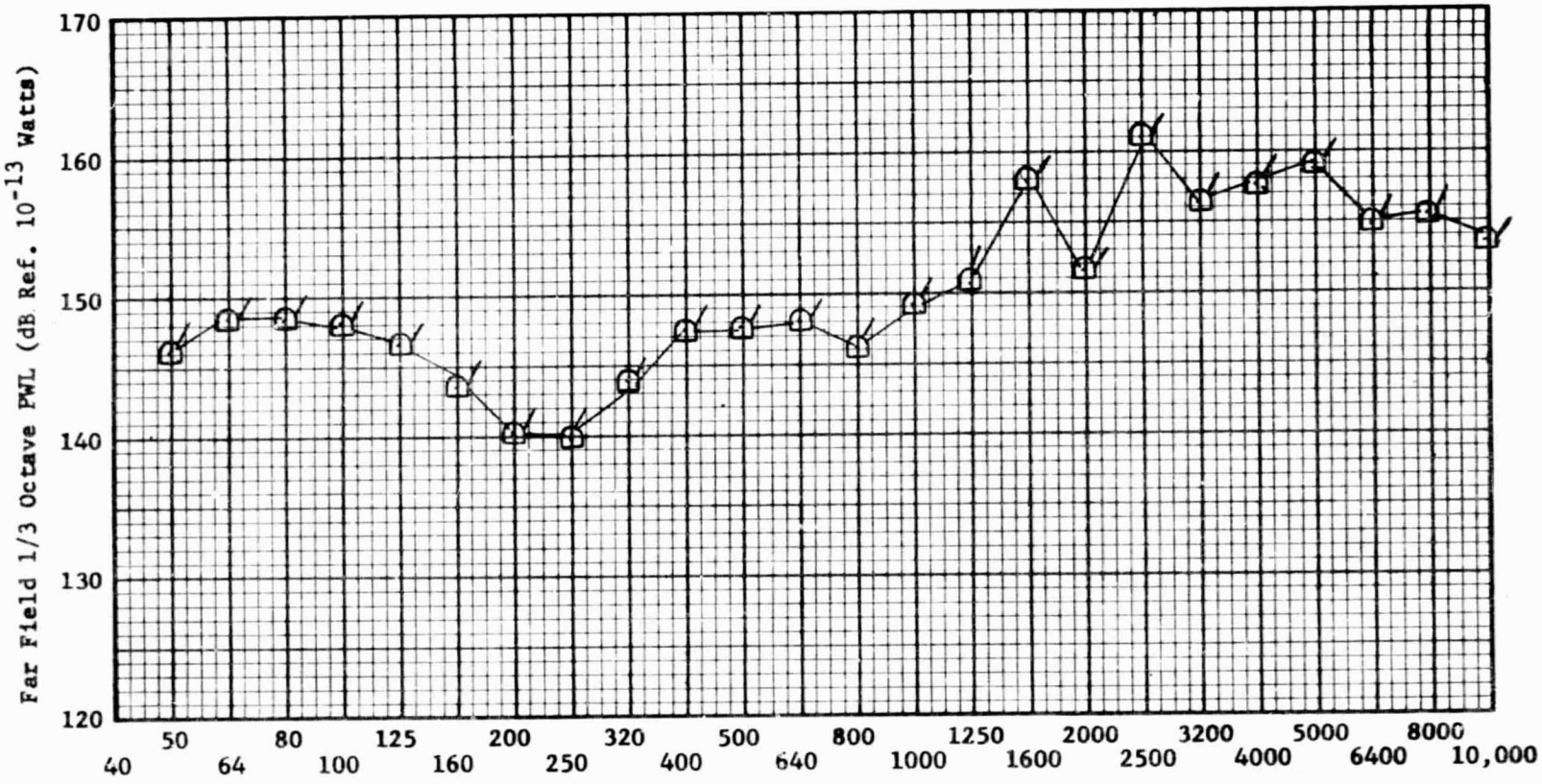
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	⧸		
Run No.		7-111	7-119		
Date		9/10/68	9/10/68		
Tape No.		P-650	P-648		
Physical Speed	RPM	3562	3562		
	Rad/sec	372.9	372.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-147

KEY		△	⧸		
Corr. Speed %		101.9	101.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

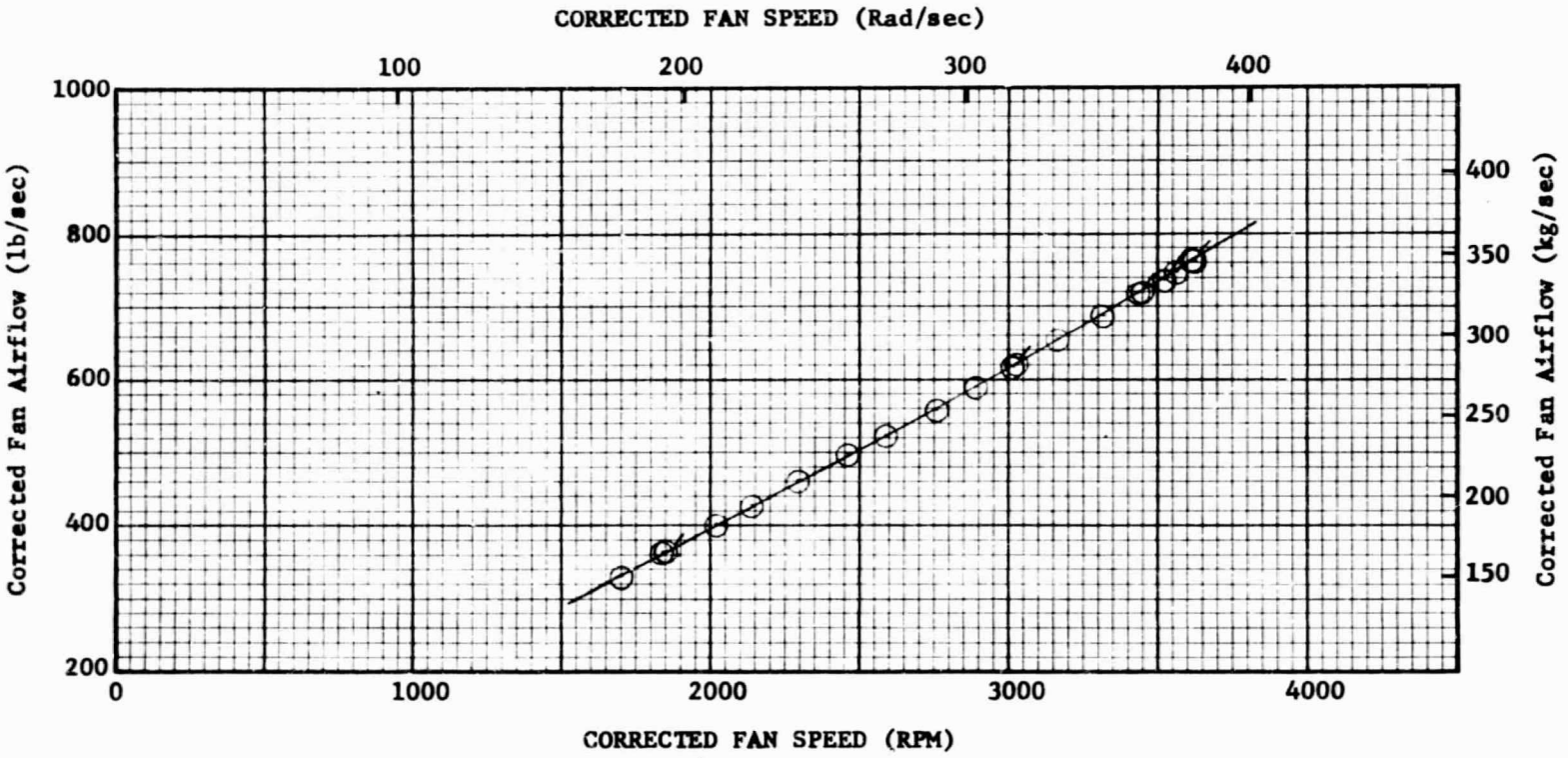
KEY		∩	∩′		
Run No.		7-112	7-120		
Date		9/10/68	9/10/68		
Tape No.		P-650	P-648		
Physical Speed	RPM	3647	3650		
	Rad/sec	381.8	382.2		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-148

KEY		∩	∩′		
Corr. Speed %		104.3	104.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Form No. 2



B149

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

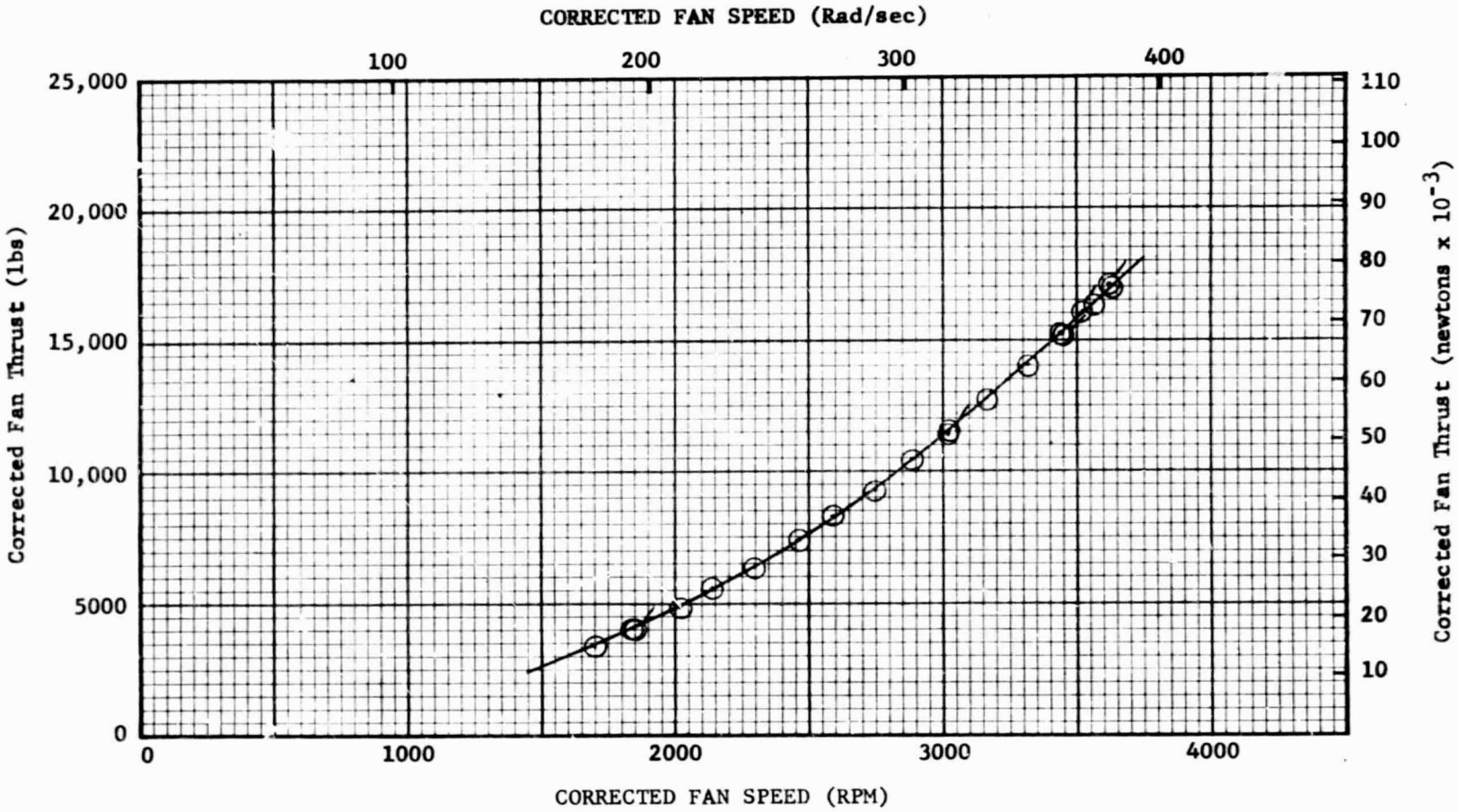
KEY		○	◇		
Run No.		7	7		
Date		9/10/68	9/10/68		
Fan Noz.	In^2	1508.3	1508.3		
Area	m^2	.9732	.9732		
Core Noz.	In^2	927.7	927.7		
Area	m^2	.5986	.5986		

Corrected Fan Airflow Vs Corrected Fan Speed

Figure B-149

KEY		○	◇		
P.Bar	In.Hg	28.792	28.770		
	n/m^2	97224	97150		
$T_{amb.}$	^oR	524	526		
	^oK	291	292		
% Rel.Hum.		82	77		

Form No. N-1



B150

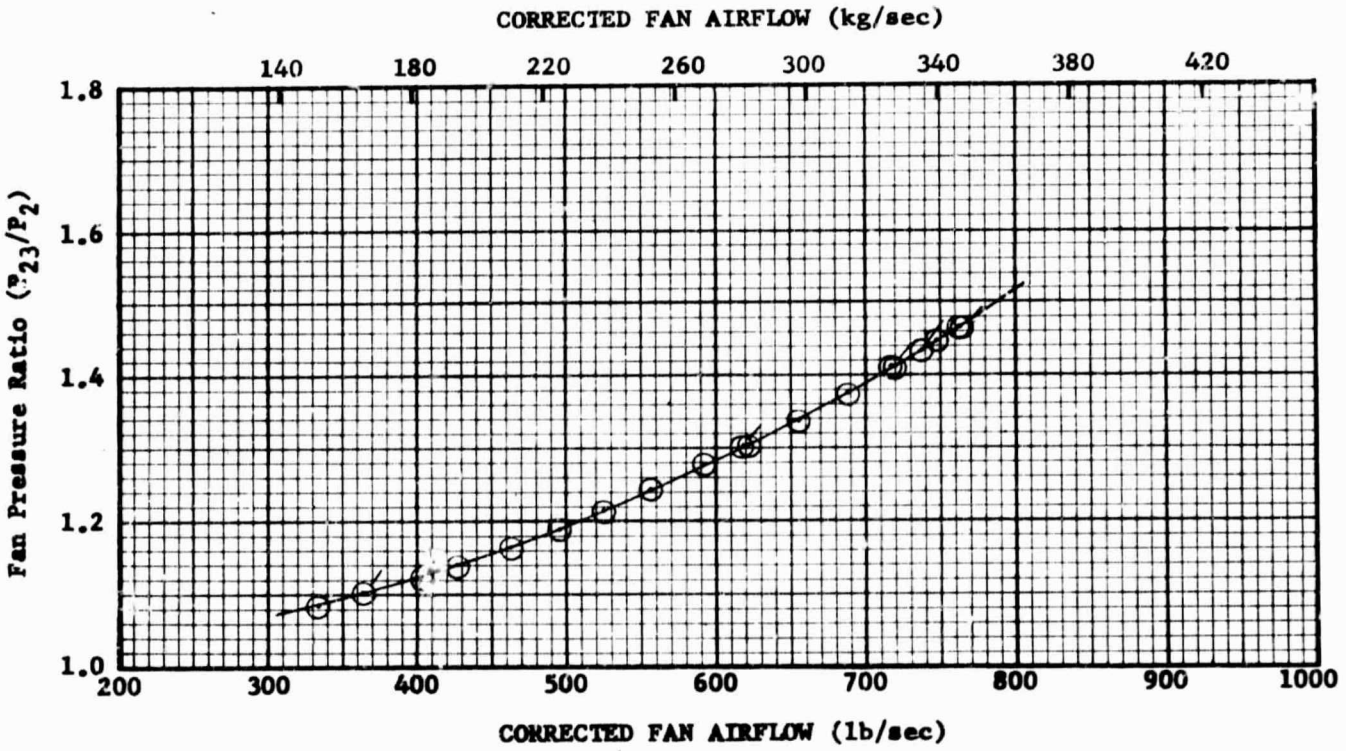
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		7	7		
Date		9/10/68	9/10/68		
Fan Noz. Area	In^2	1508	1508		
	m^2	.9729	.9729		
Core Noz. Area	In^2	927	927		
	m^2	.5981	.5981		

Corrected Fan Thrust Vs Corrected Fan Speed

Figure B-150

KEY		○	♂		
P.Bar	In.Hg	28.792	28.770		
	n/m^2	97224	97150		
$T_{amb.}$	^oR	524	526		
	^oK	291	292		
% Rel.Hum.		82	77		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

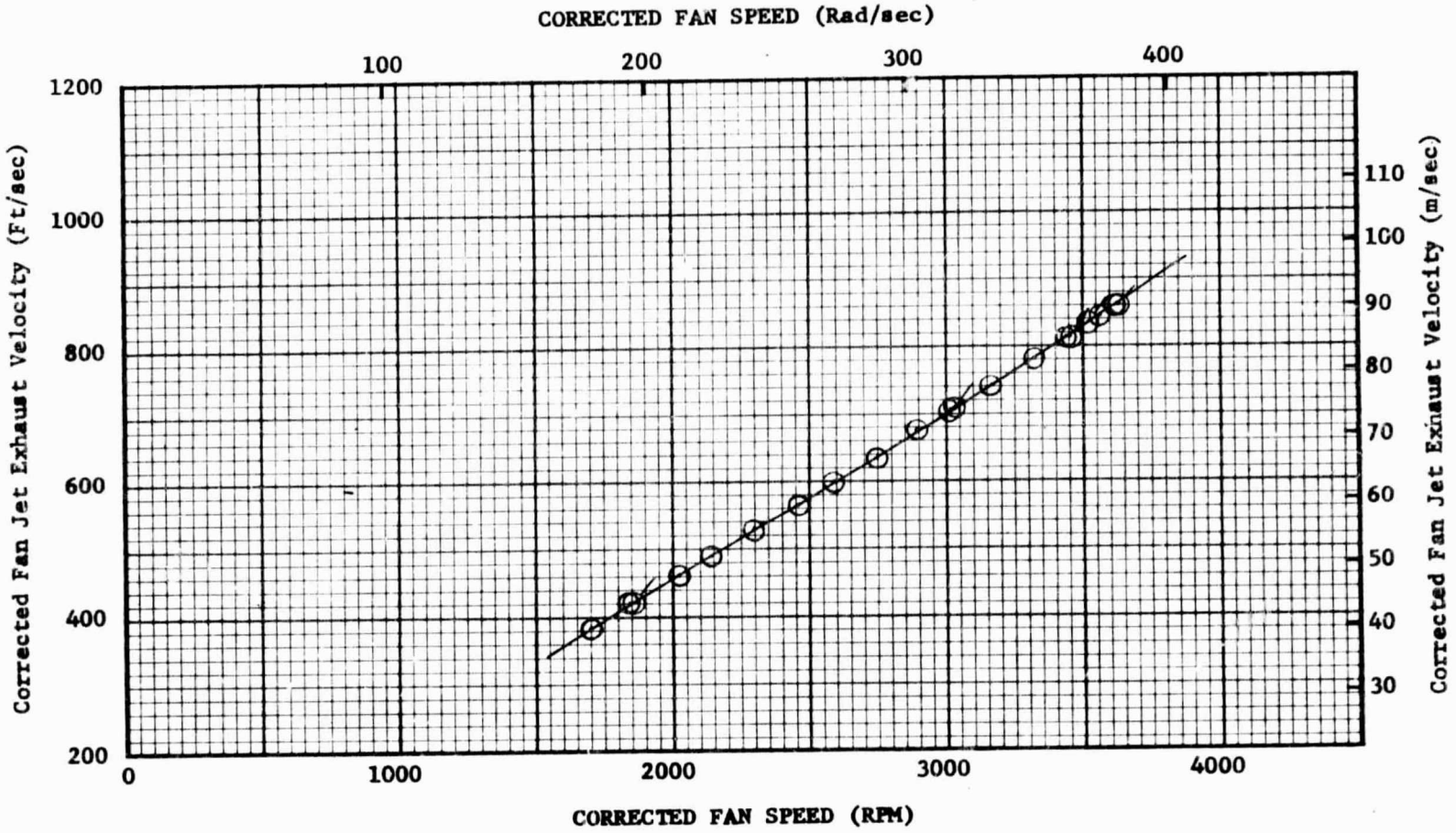
KEY		○	⊘		
Run No.		7	7		
Date		9/10/68	9/10/68		
Fan Noz. Area	In^2	1508	1508		
	m^2	.9729	.9729		
Core Noz. Area	In^2	927	927		
	m^2	.5981	.5981		

Fan Pressure Ratio Vs Corrected Fan Airflow

Figure B-151

KEY		○	⊘		
P.Bar	In.Hg	28.792	28.770		
	n/m^2	97224	97150		
$T_{amb.}$	^oR	524	526		
	^oK	291	292		
% Rel.Hum.		82	77		

Form No. N-



B152

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

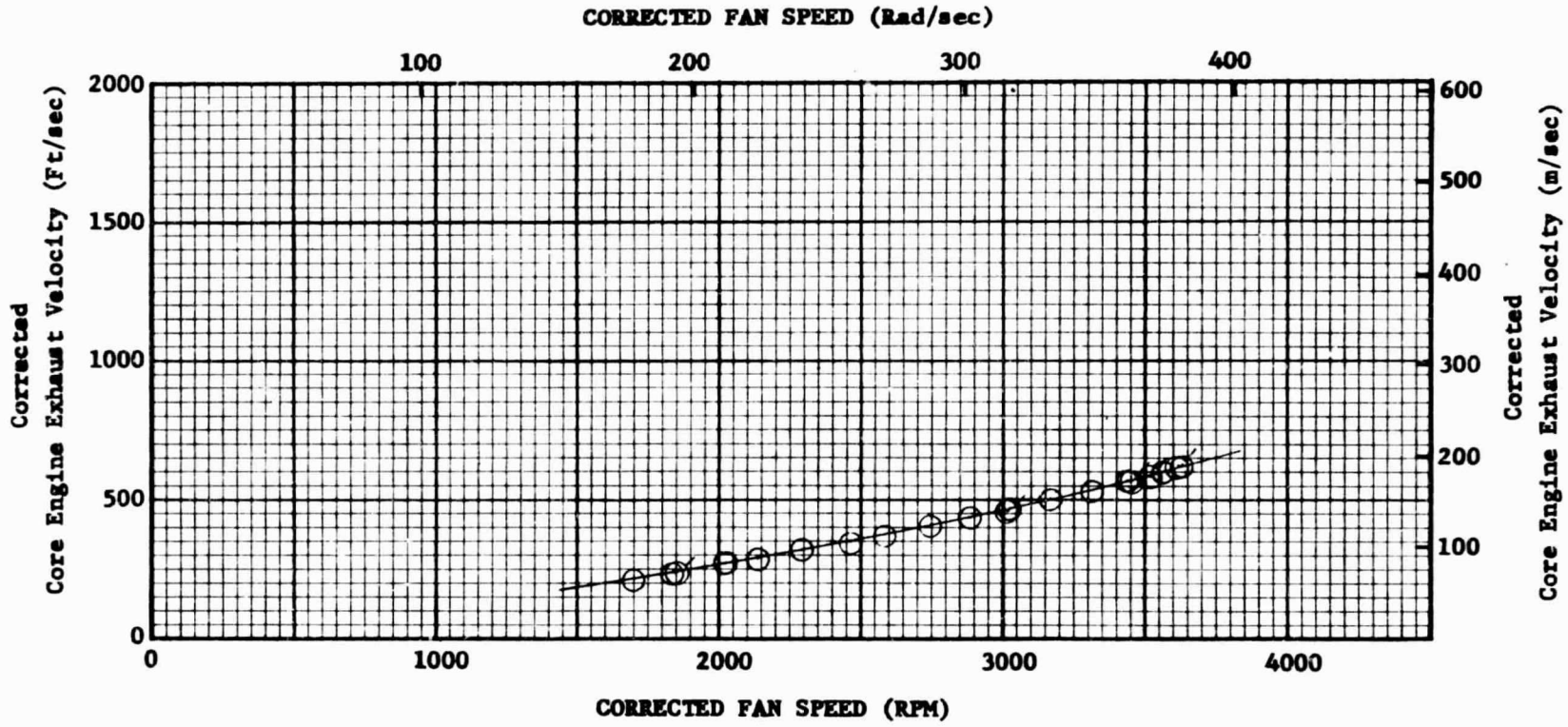
KEY		○	♂		
Run No.		7	7		
Date		9/10/68	9/10/68		
Fan Noz. Area	In^2	1508	1508		
	m^2	.9729	.9729		
Core Noz. Area	In^2	927	927		
	m^2	.5981	.5981		

Corrected Fan Jet Exhaust Velocity Vs Corrected Fan Speed

Figure B-152

KEY		○	♂		
P.Bar	In.Hg	28.792	28.770		
	n/m^2	97224	97150		
$T_{amb.}$	^oR	524	526		
	^oK	291	292		
% Rel.Hum.		82	77		

Form No. N-16



B153

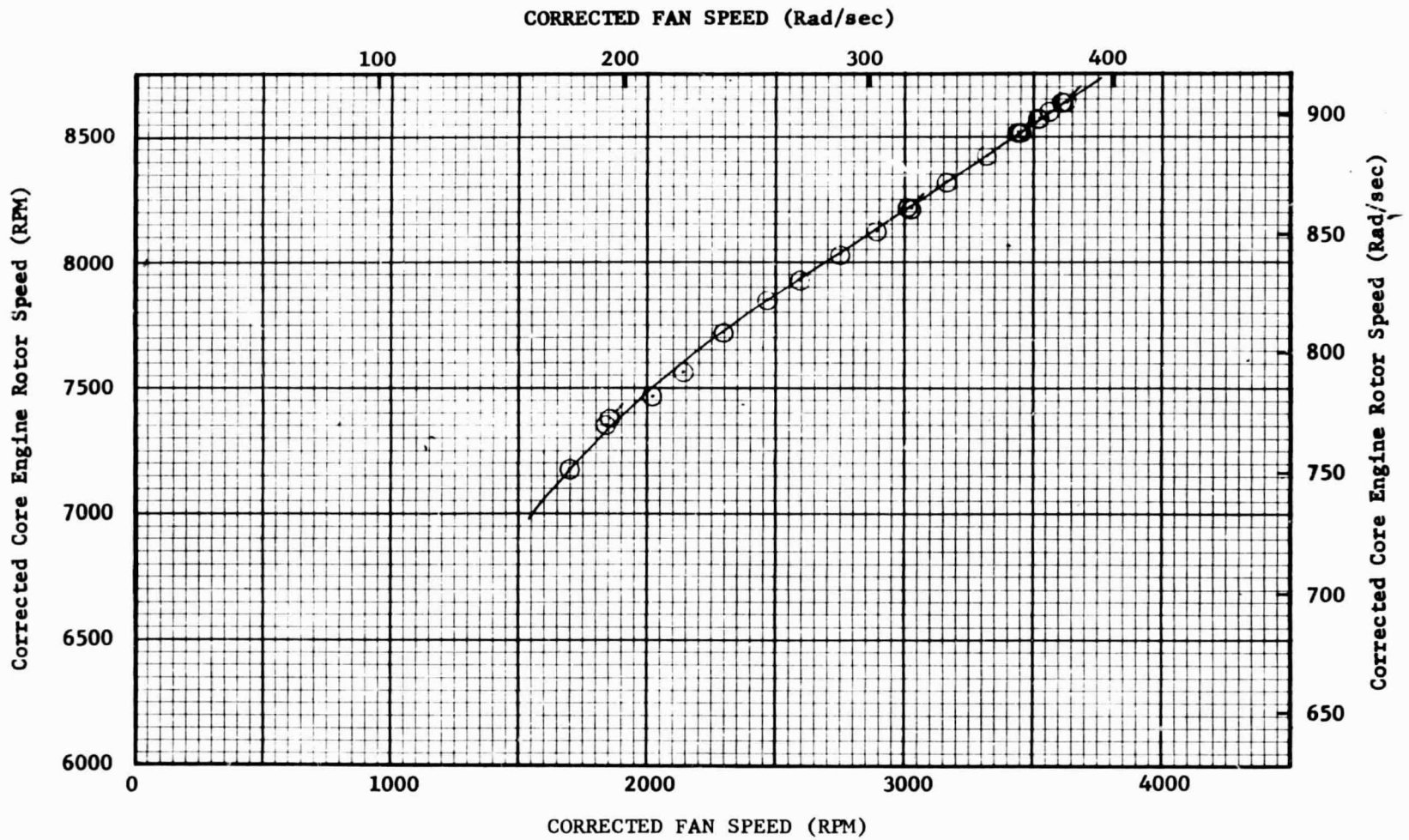
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	⊘		
Run No.		7	7		
Date		9/10/68	9/10/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Core Engine Exhaust Velocity Vs Corrected Fan Speed

Figure B-153

KEY		○	⊘		
P.Bar	In.Hg	28.792	28.770		
	n/m^2	97224	97150		
$T_{amb.}$	^oR	524	526		
	^oK	291	292		
% Rel.Hum.		82	77		



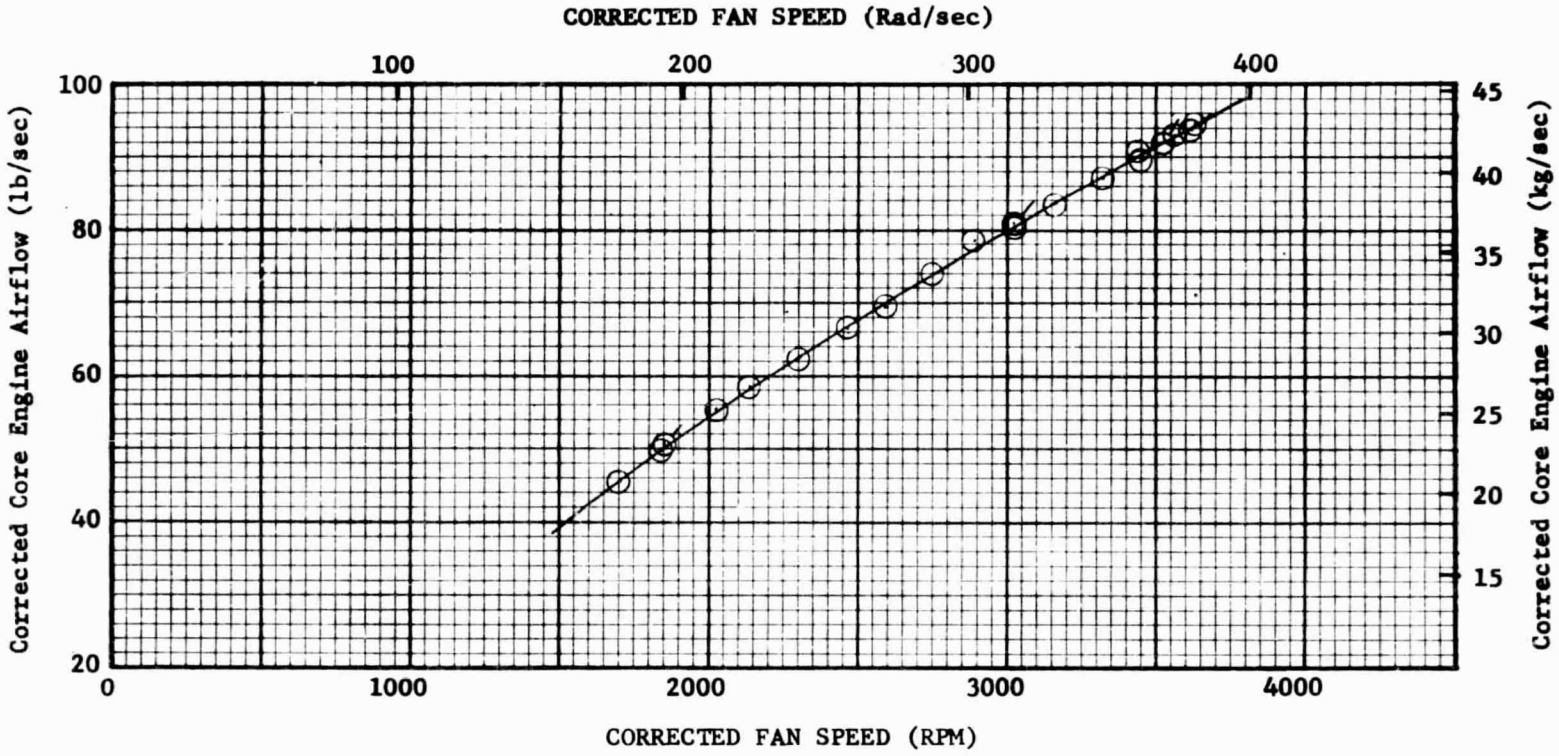
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	✓		
Run No.		7	7		
Date		9/10/68	9/10/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Core Engine Rotor Speed Vs Corrected Fan Speed

Figure B-154

KEY		○	✓		
P.Bar	In.Hg	28.792	28.770		
	n/m^2	97224	97150		
$T_{amb.}$	^oR	524	526		
	^oK	291	292		
% Rel.Hum.		82	77		



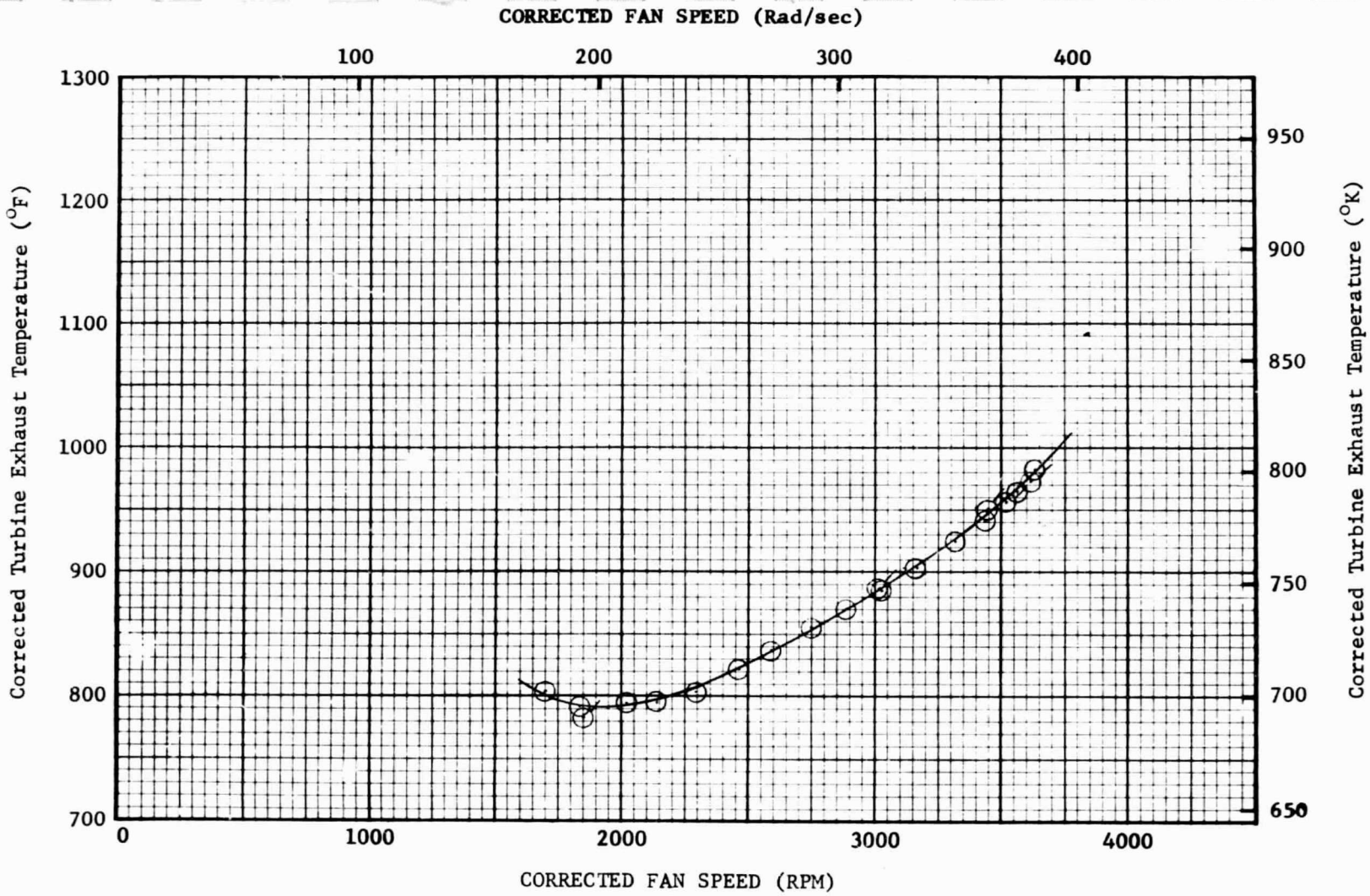
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		7	7		
Date		9/10/68	9/10/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Corrected Core Engine Airflow Vs Corrected Fan Speed

Figure B-155

KEY		○	♂		
P.Bar	In.Hg	28.792	28.770		
	n/m^2	97224	97150		
$T_{amb.}$	^oR	524	526		
	^oK	291	292		
% Rel.Hum.		82	77		



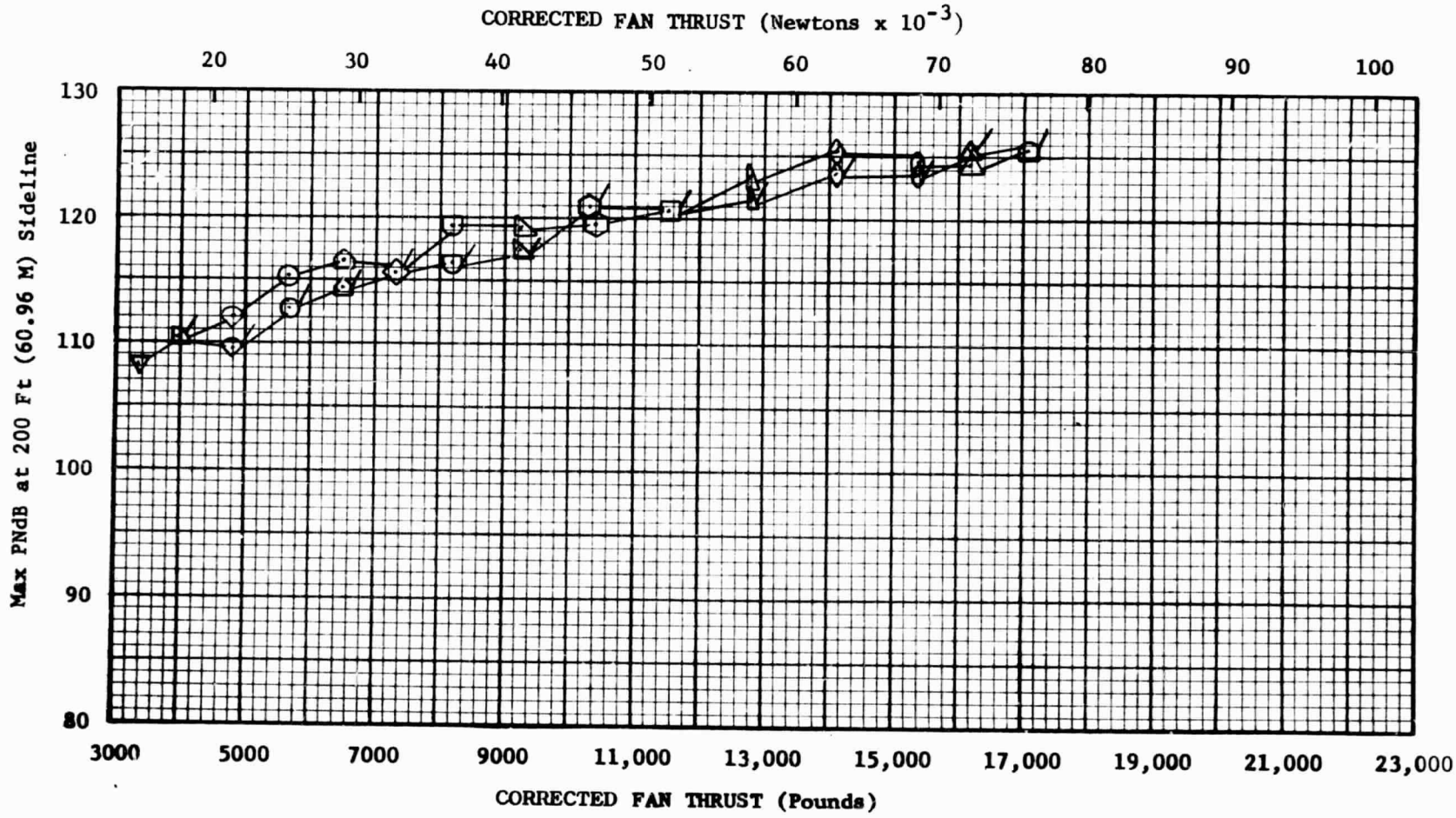
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		7	7		
Date		9/10/68	9/10/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9732	.9732		
Core Noz. Area	In^2	927.7	927.7		
	m^2	.5986	.5986		

Turbine Exhaust Temperature Vs Corrected Fan Speed

Figure B-156

KEY		○	♂		
P.Bar	In.Hg	28.792	28.770		
	n/m^2	97224	97150		
$T_{amb.}$	°R	524	526		
	°K	291	292		
% Rel.Hum.		82	77		



B157

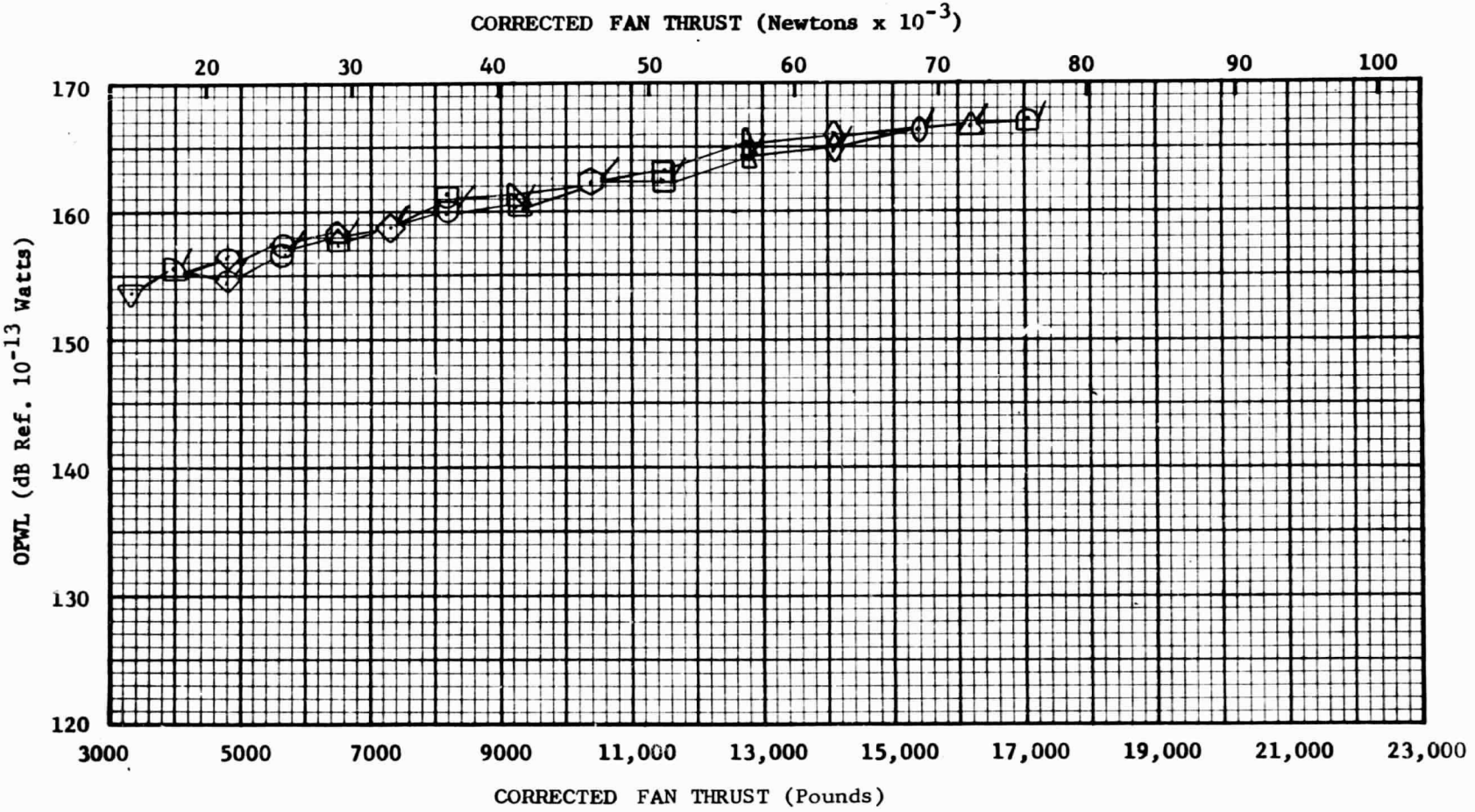
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY	○	♂		
Run No.	8	8		
Date	9/13/68	9/13/68		
Tape No.	P-658 thru P-667			

200 Ft Sideline
(60.96 Meter Sideline)
Maximum PNdB
Vs.
Fan Thrust

Figure B-157

KEY		○	♂		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



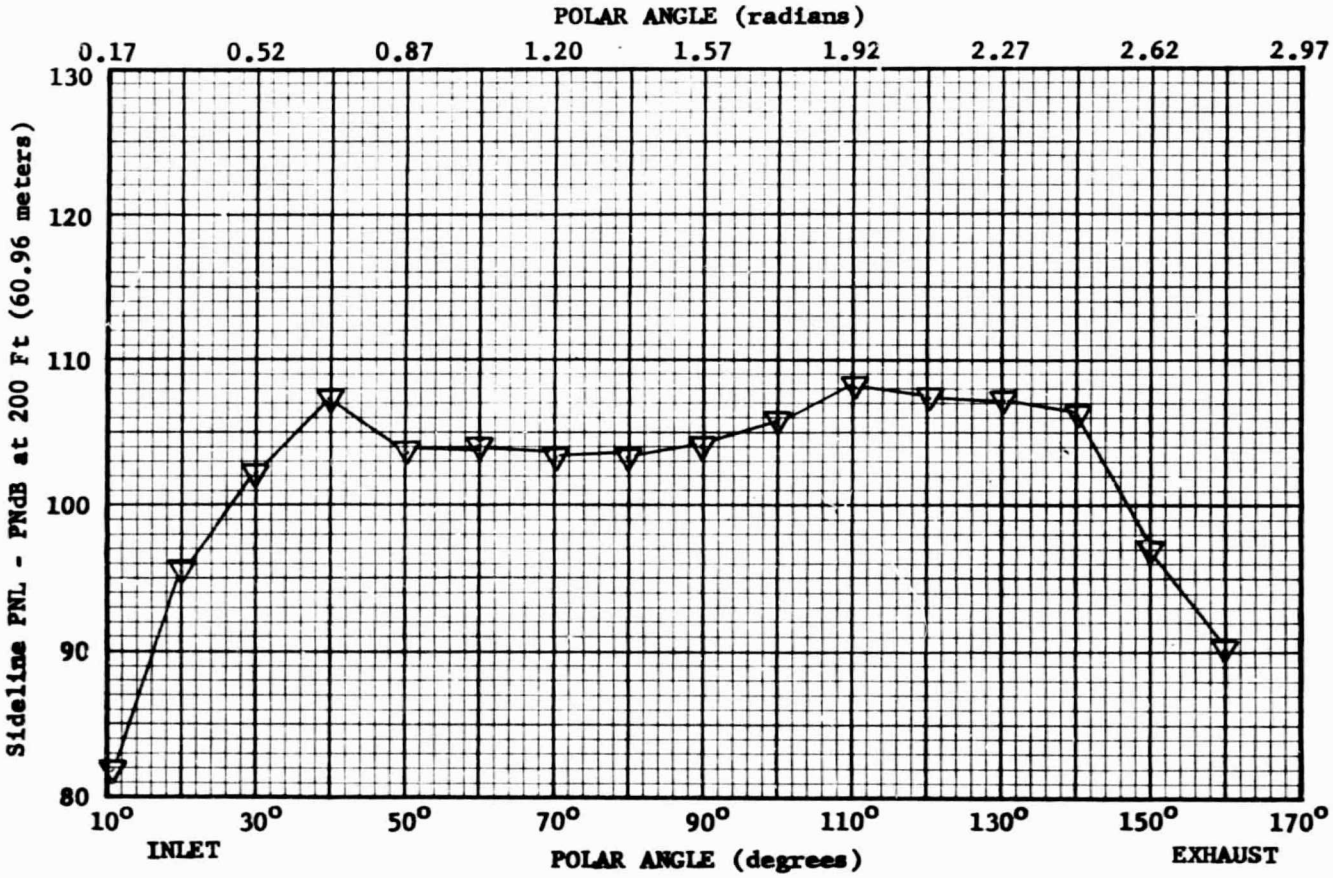
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY	○	♂		
Run No.	8	8		
Date	9/13/68	9/13/68		
Tape No.	P-658 thru P-667			

OPWL
Vs.
Fan Thrust

Figure B-158

KEY		○	♂		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

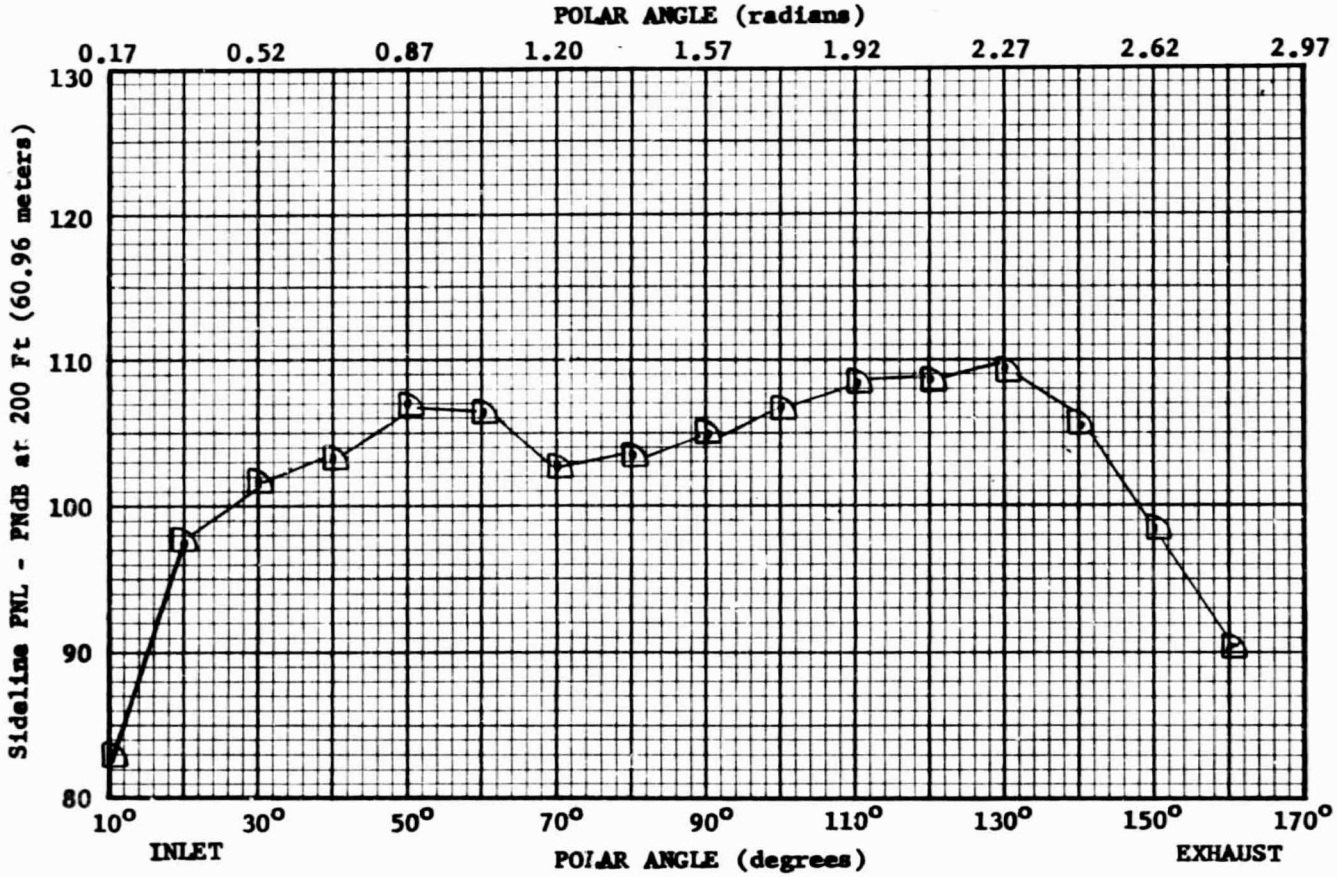
KEY		▽			
Run No.		8-129			
Date		9/13/68			
Tape No.		P-658			
Physical Speed	RPM	1700			
	Rad/sec	177.9			

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-159

KEY		▽			
Corr. Speed %		48.4			
Fan Noz. Area	In^2	1508.3			
	m^2	.9728			
Core Noz. Area	In^2	580			
	m^2	.3741			

Form No. N



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

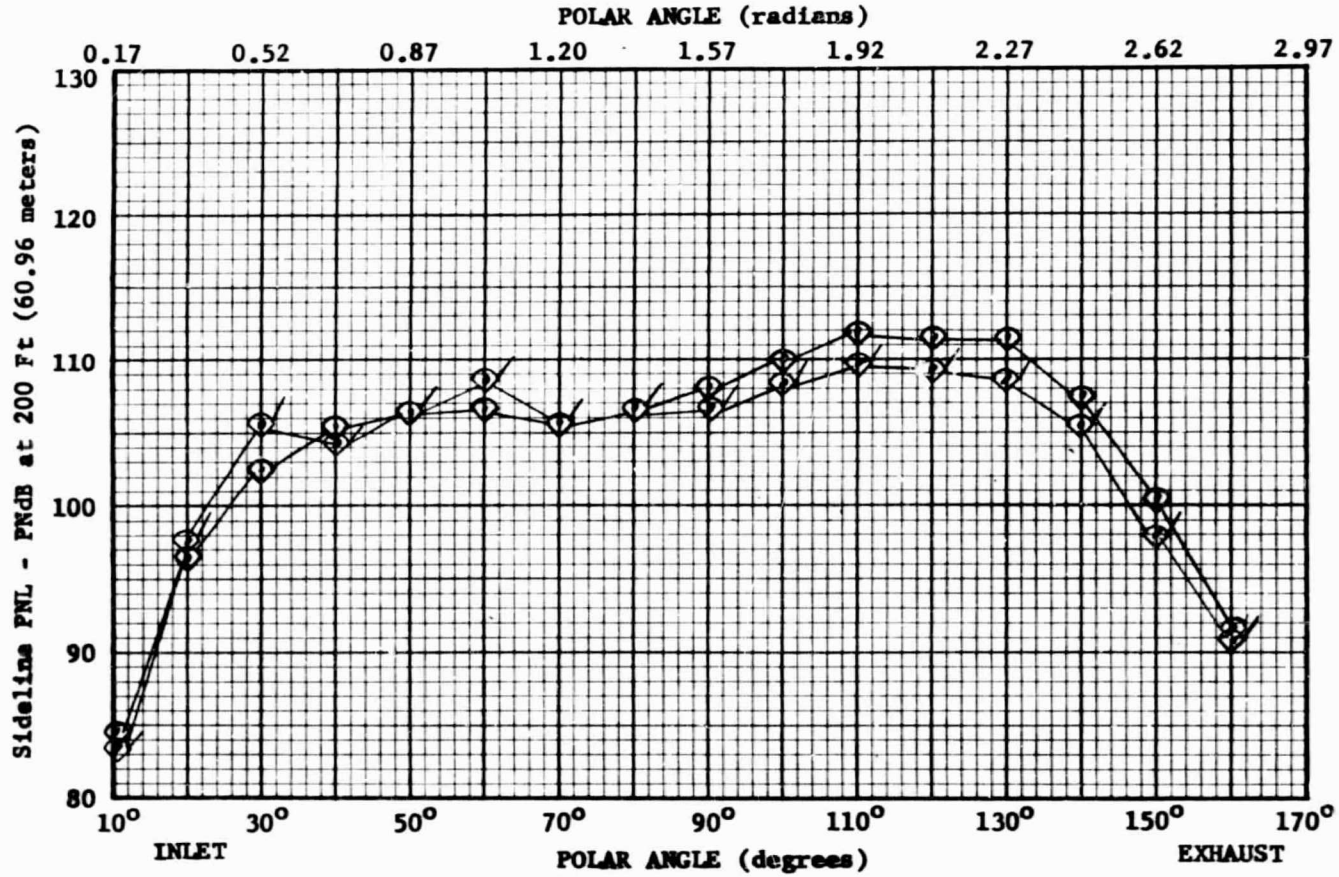
KEY		D			
Run No.		8-144			
Date		9/13/68			
Tape No.		P-663			
Physical Speed	RPM	1875			
	Rad/sec	196.3			

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-160

KEY		D			
Corr. Speed %		53.2			
Fan Noz. Area	In^2	1508.3			
	m^2	.9728			
Core Noz. Area	In^2	580			
	m^2	.3741			

B160



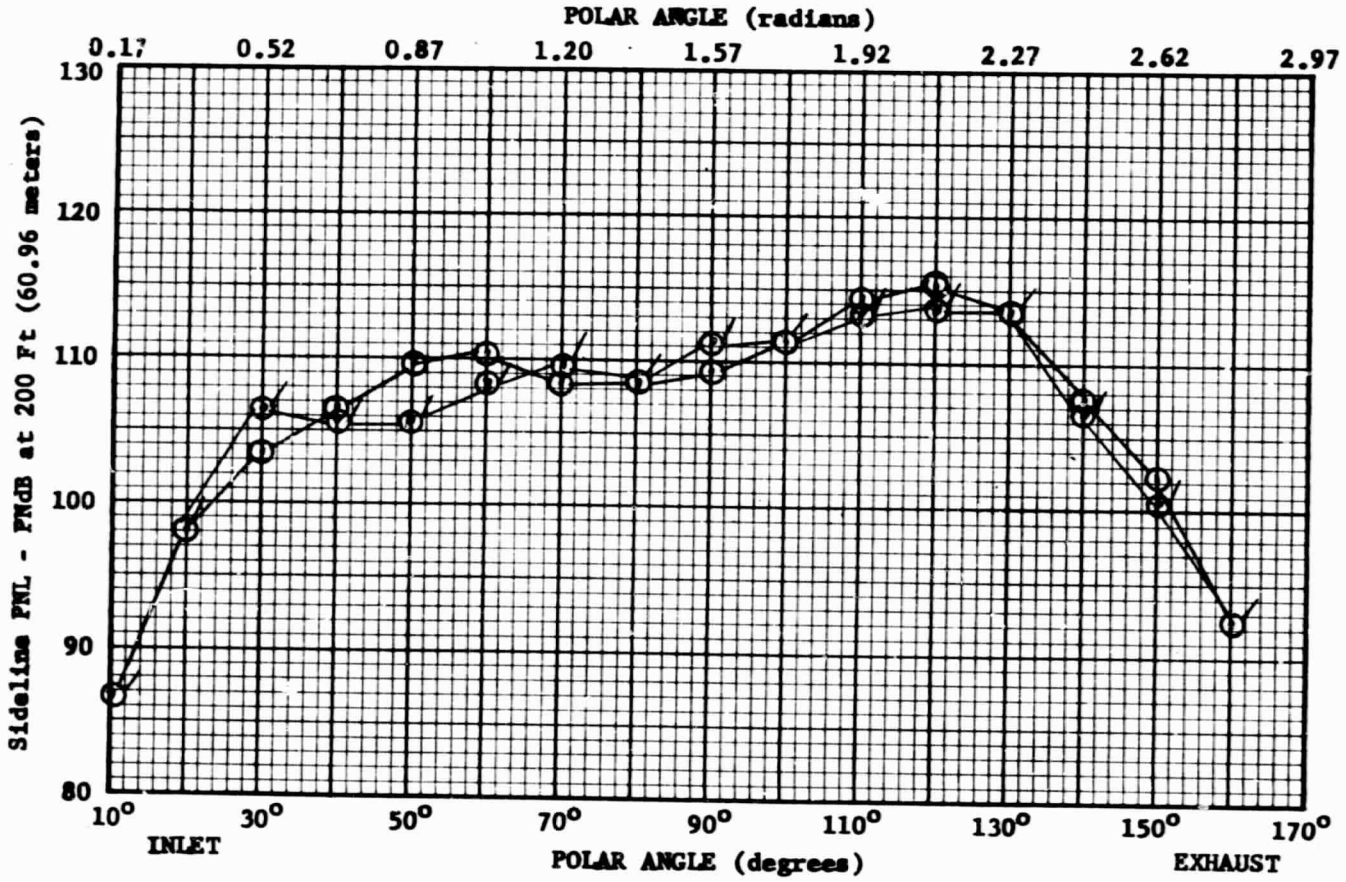
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		8-131	8-145		
Date		9/13/68	9/13/68		
Tape No.		P-659	P-663		
Physical Speed	RPM	2000	2000		
	Rad/sec	209.4	209.4		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-161

KEY		◇	◇		
Corr. Speed %		56.9	56.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



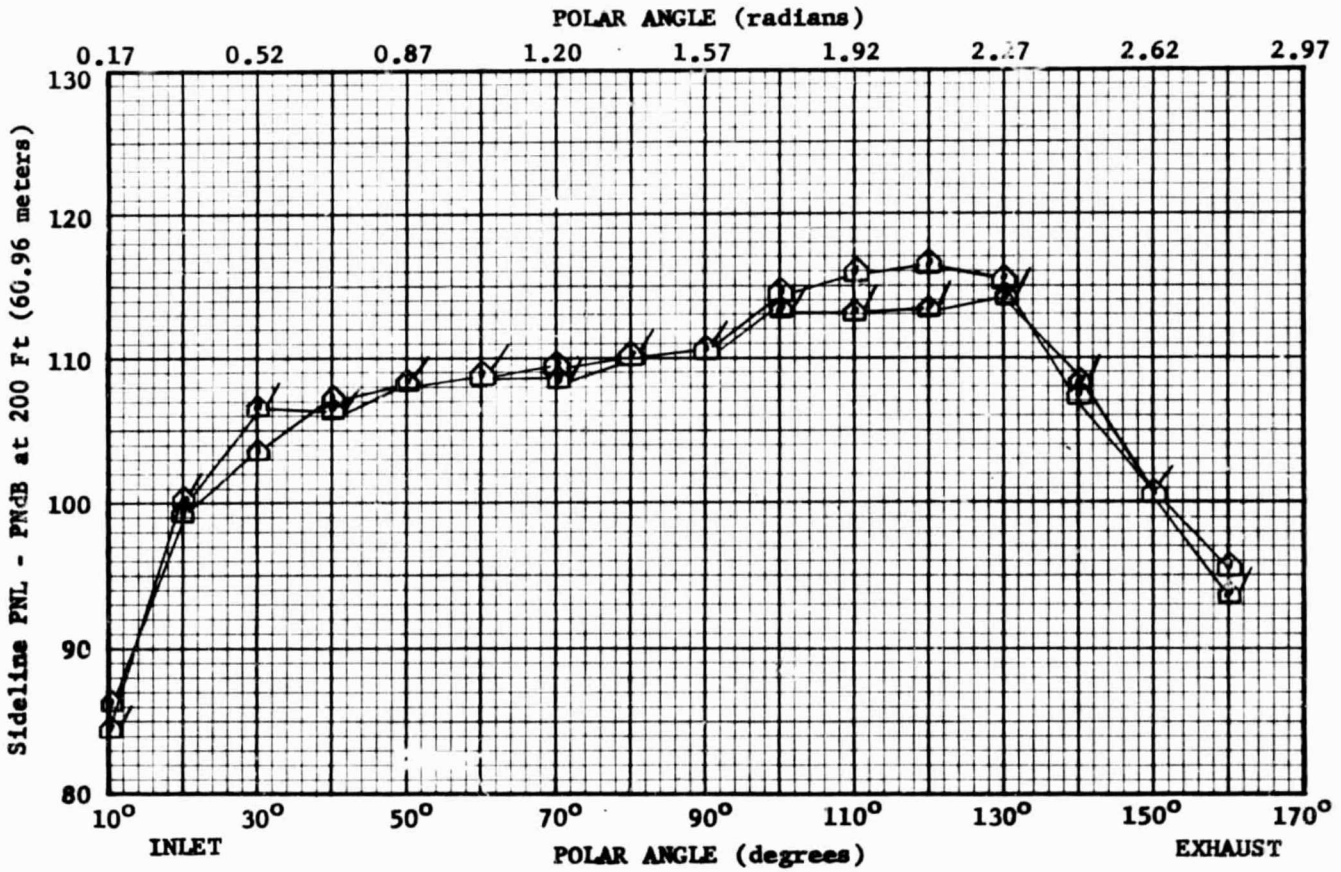
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	⊘		
Run No.		8-132	8-146		
Date		9/13/68	9/13/68		
Tape No.		P-659	P-663		
Physical Speed	RPM	2150	2150		
	Rad/sec	225.1	225.1		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-162

KEY		○	⊘		
Corr. Speed %		61.2	61.2		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



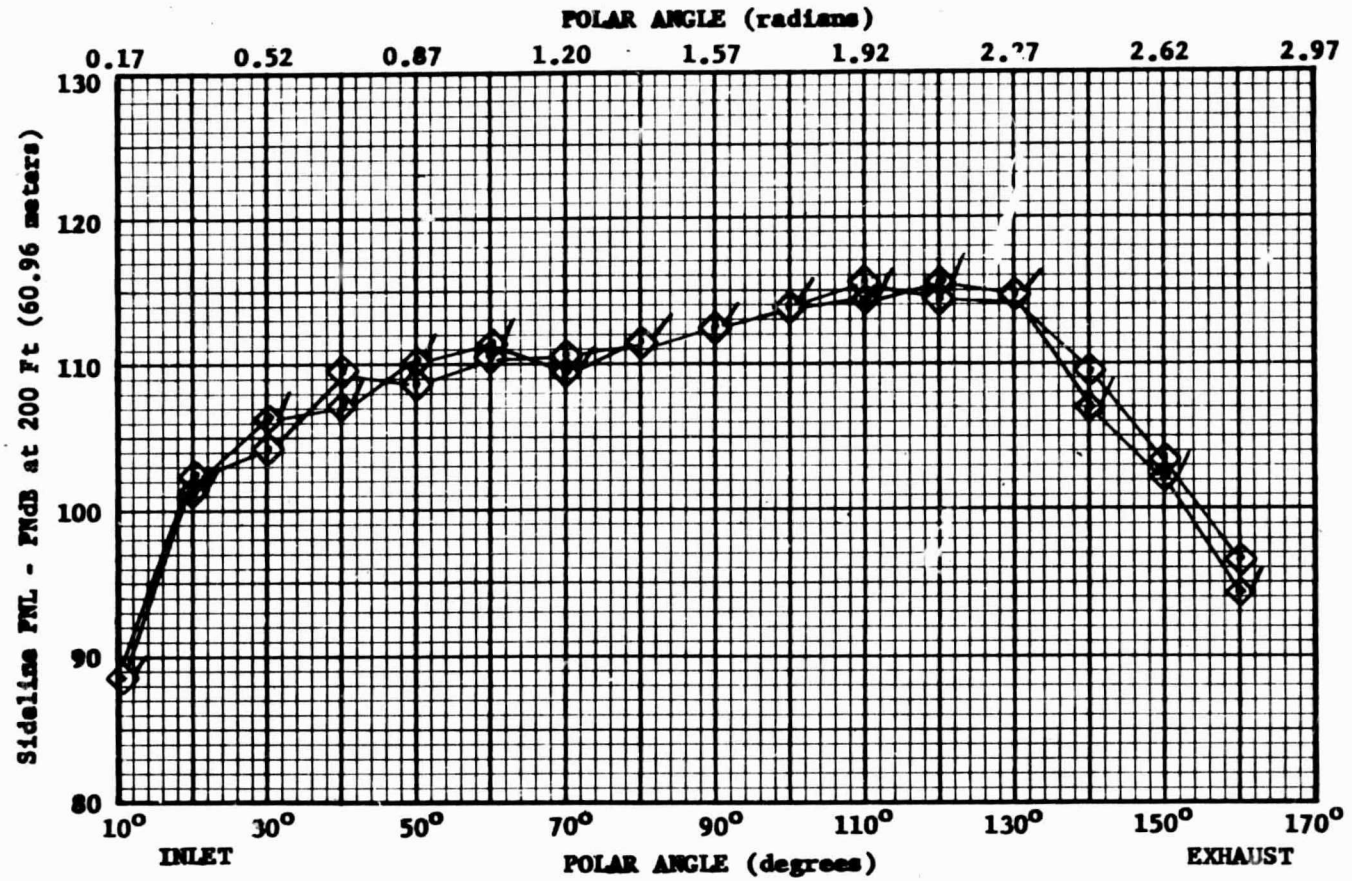
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	▽		
Run No.		8-133	8-147		
Date		9/13/68	9/13/68		
Tape No.		P-659	P-664		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.8	240.8		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-163

KEY		△	▽		
Corr. Speed %		65.5	65.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



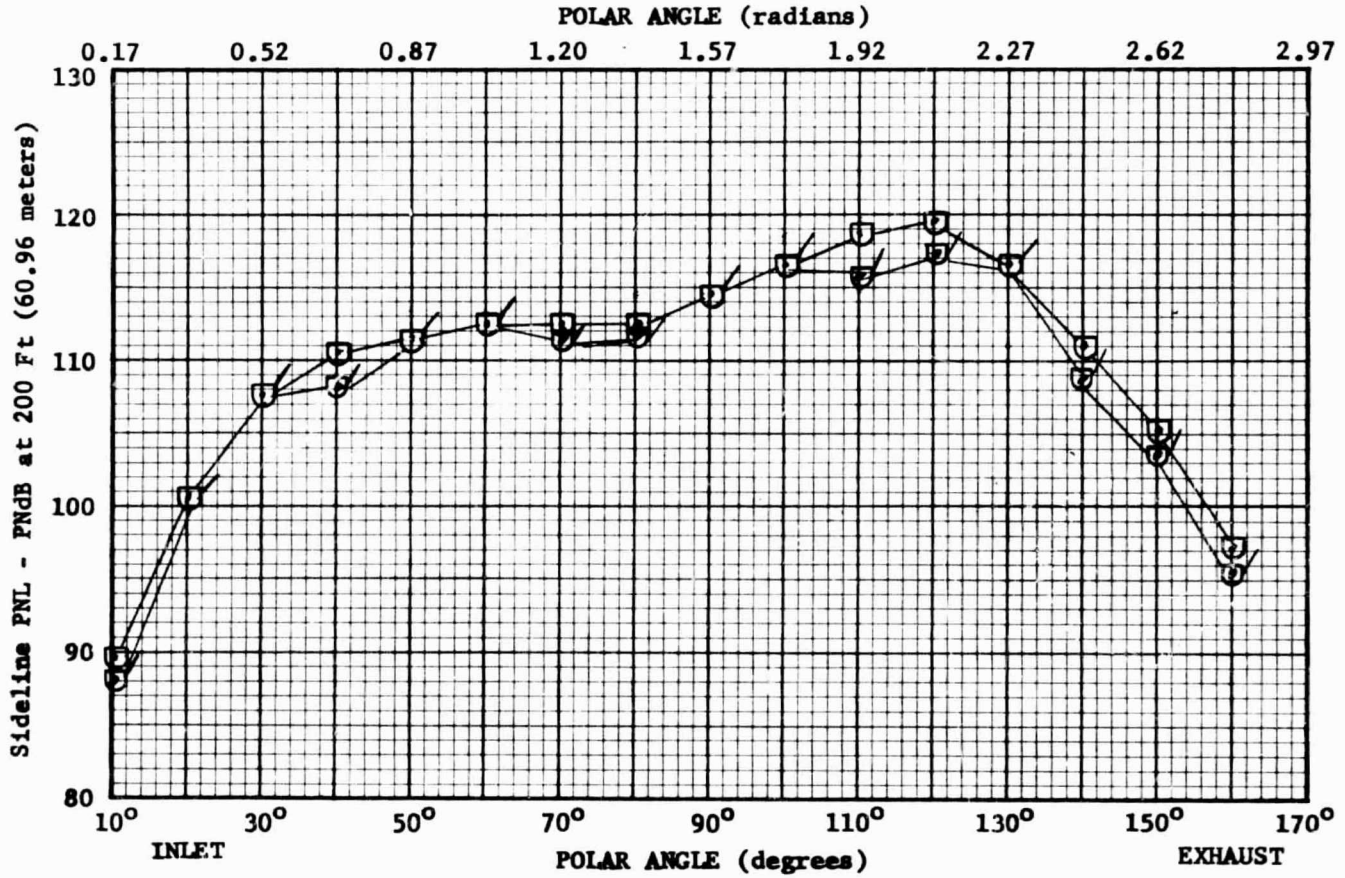
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		◇	◇		
Run No.		8-134	8-148		
Date		9/13/68	9/13/68		
Tape No.		P-660	P-664		
Physical Speed	RPM	2450	2450		
	Rad/sec	256.5	256.5		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-164

KEY		◇	◇		
Corr. Speed %		69.7	69.5		
Fan Noz. Area	in^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



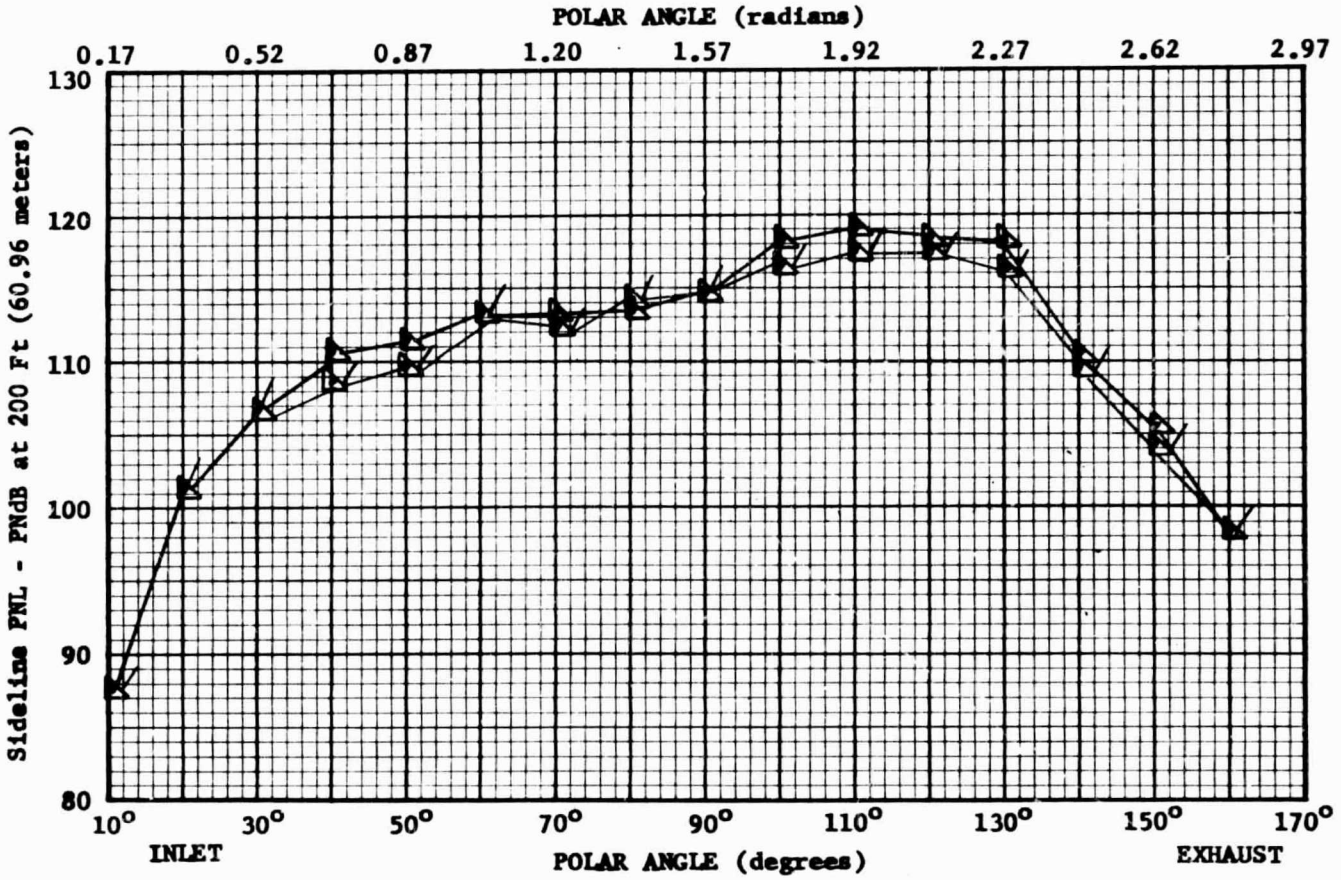
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	○		
Run No.		8-135	8-149		
Date		9/13/68	9/13/68		
Tape No.		P-660	P-663		
Physical Speed	RPM	2600	2600		
	Rad/sec	272.2	272.2		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-165

KEY		○	○		
Corr. Speed %		73.6	73.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



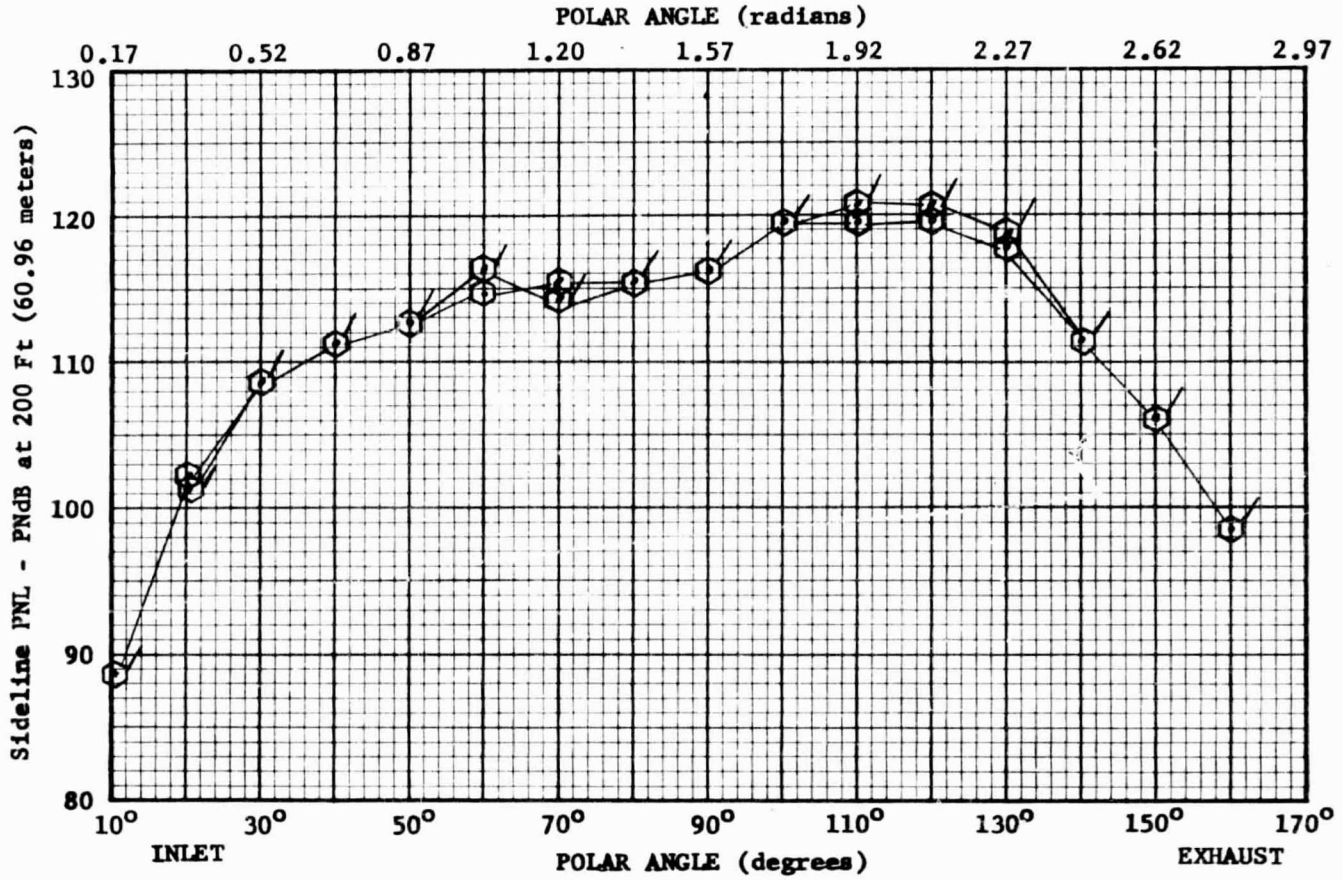
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	▽		
Run No.		8-136	8-150		
Date		9/13/68	9/13/68		
Tape No.		P-660	P-665		
Physical Speed	RPM	2750	2750		
	Rad/sec	287.9	287.9		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-166

KEY		△	▽		
Corr. Speed %		78.2	78.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



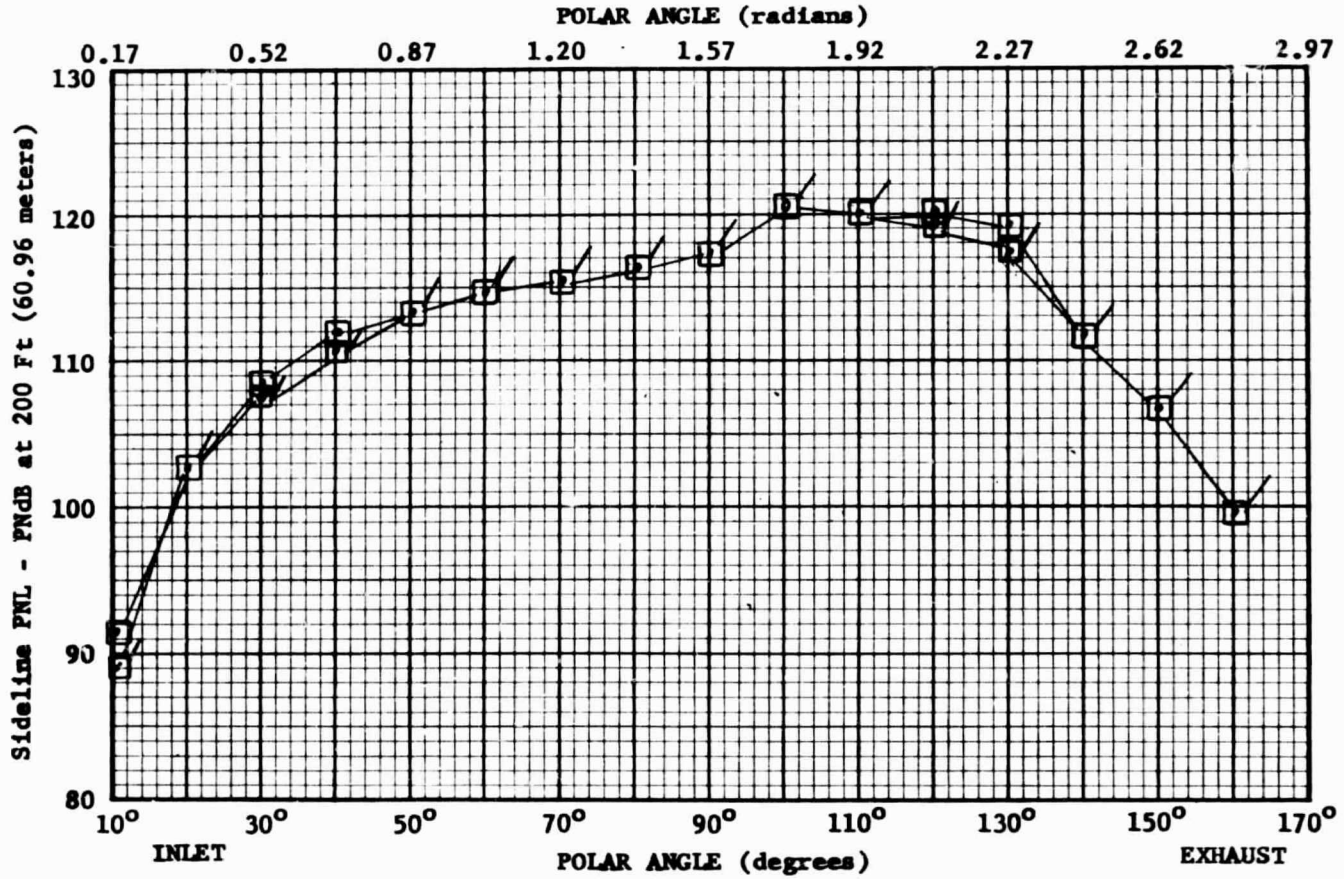
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		⬡	⬡		
Run No.		8-137	8-151		
Date		9/13/68	9/13/68		
Tape No.		P-661	P-665		
Physical Speed	RPM	2900	2900		
	Rad/sec	303.6	303.6		

200 Ft (60.96 M) Sideline PNL Vs. Polar Angle

Figure B-167

KEY		⬡	⬡		
Corr. Speed %		82.5	82.3		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

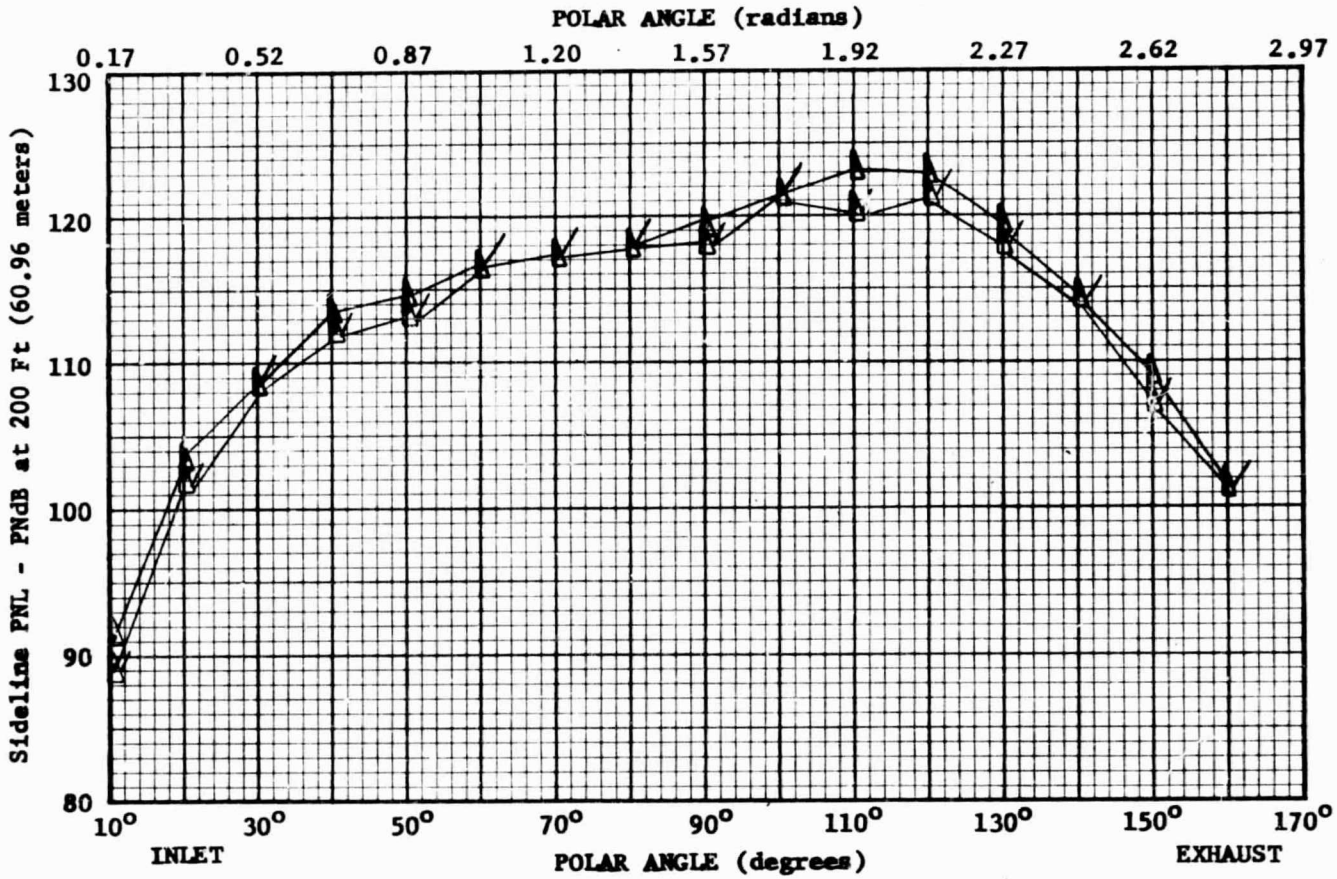
KEY		□	☐		
Run No.		8-138	8-152		
Date		9/13/68	9/13/68		
Tape No.		P-661	P-655		
Physical Speed	RPM	3045	3050		
	Rad/sec	318.8	319.3		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-168

KEY		□	☐		
Corr. Speed %		86.6	86.6		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-



B169

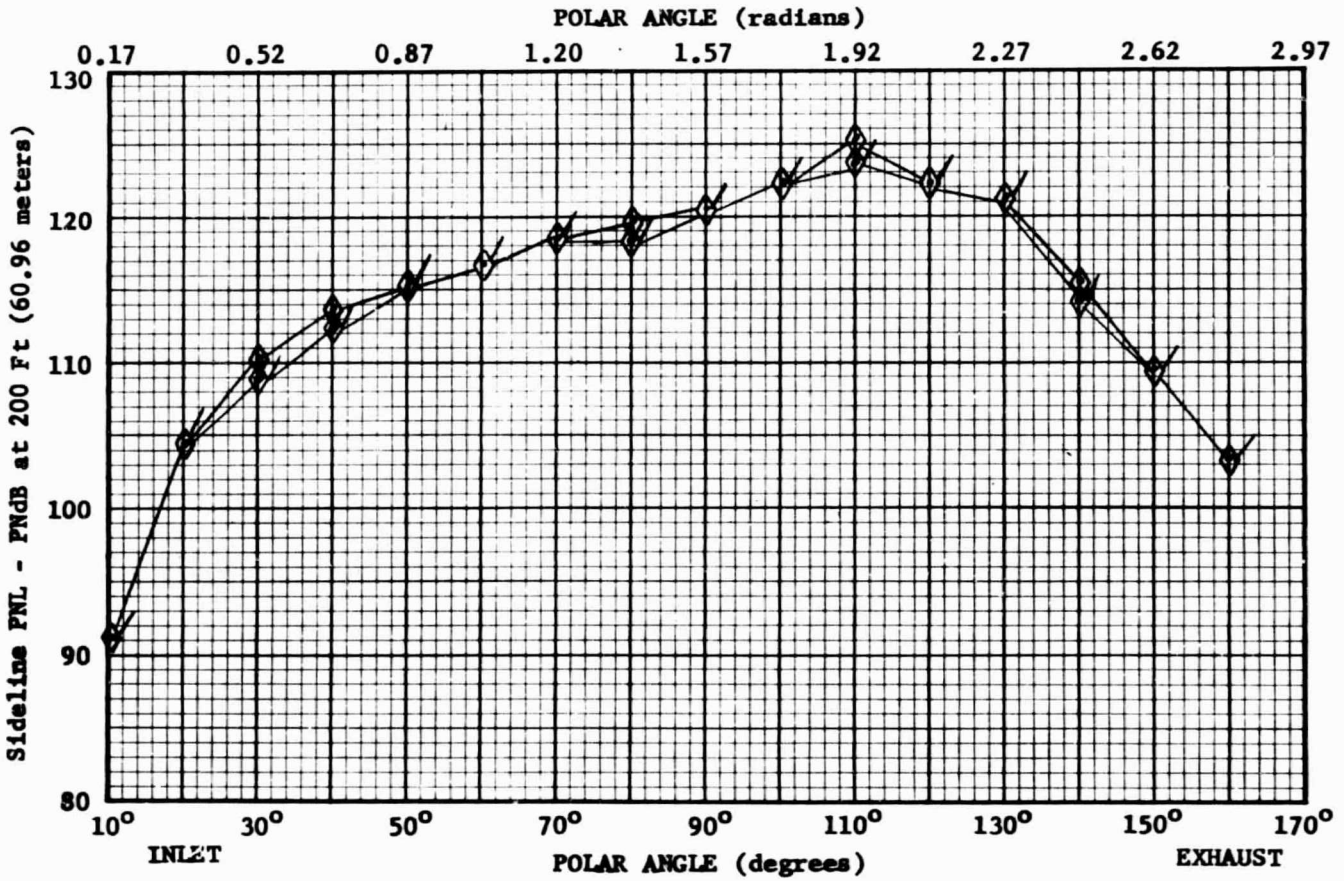
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		Δ	▽		
Run No.		8-138	8-152		
Date		9/13/68	9/13/68		
Tape No.		P-662	P-665		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-169

KEY		Δ	▽		
Corr. Speed %		90.8	90.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

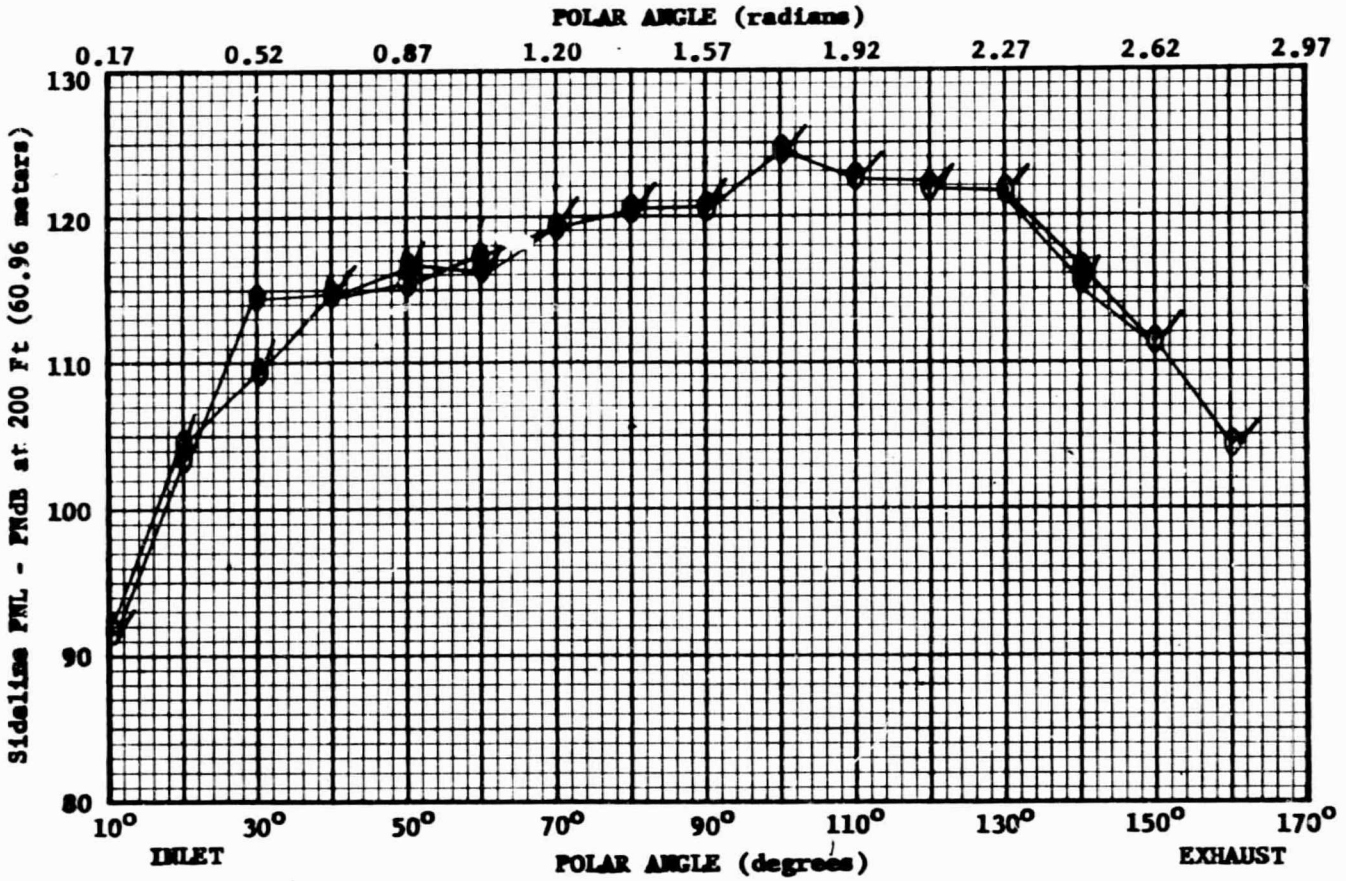
KEY		◊	◊		
Run No.		8-140	8-154		
Date		9/13/68	9/13/68		
Tape No.		P-662	P-666		
Physical Speed	RPM	3350	3350		
	Rad/sec	350.7	350.7		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-170

KEY		◊	◊		
Corr. Speed %		95.0	95.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N



B171

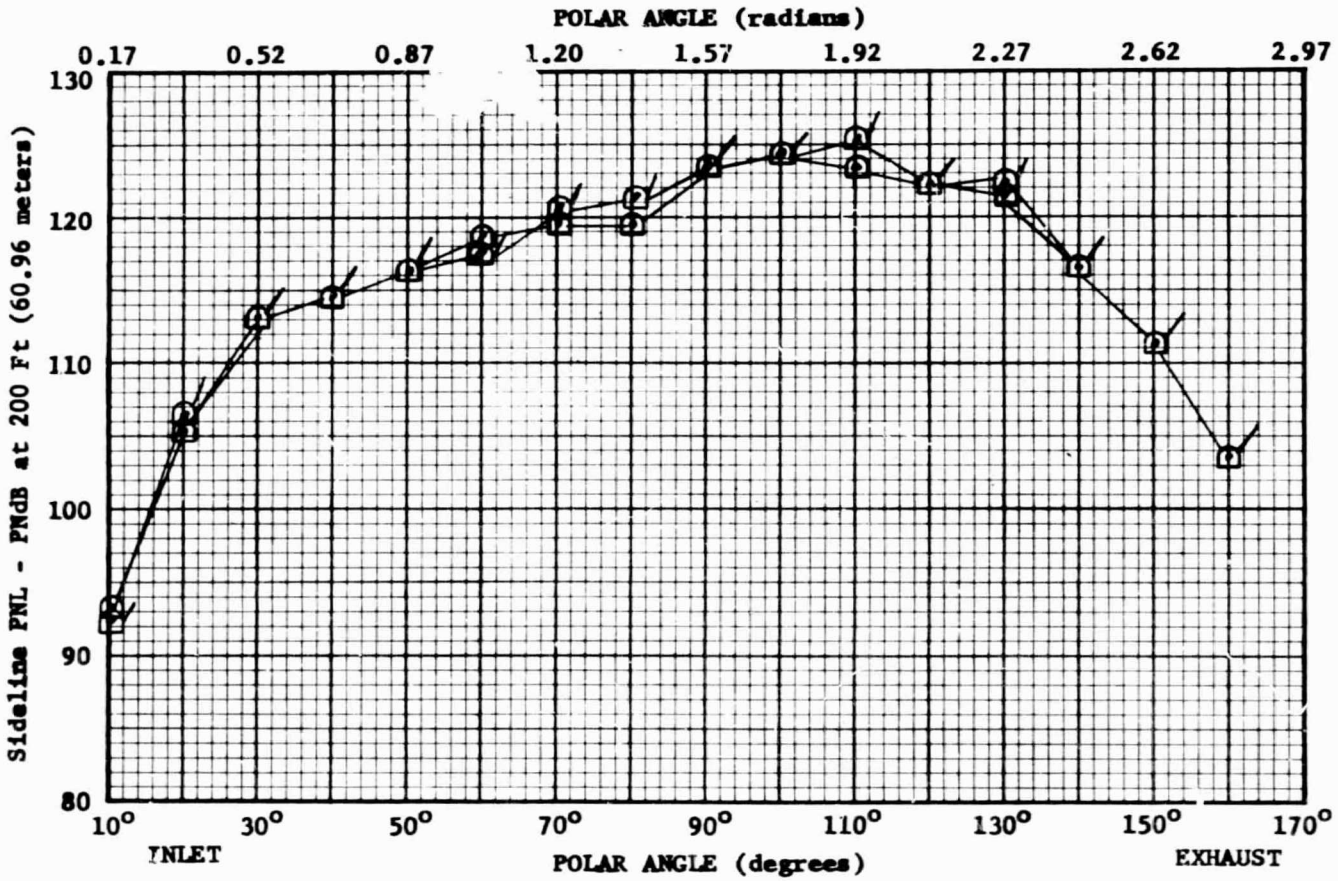
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		O	O		
Run No.		8-141	8-155		
Date		9/13/68	9/13/68		
Tape No.		P-662	P-666		
Physical Speed	RPM	3473	3473		
	Rad/sec	363.6	363.6		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-171

KEY		O	O		
Corr. Speed %		98.6	98.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



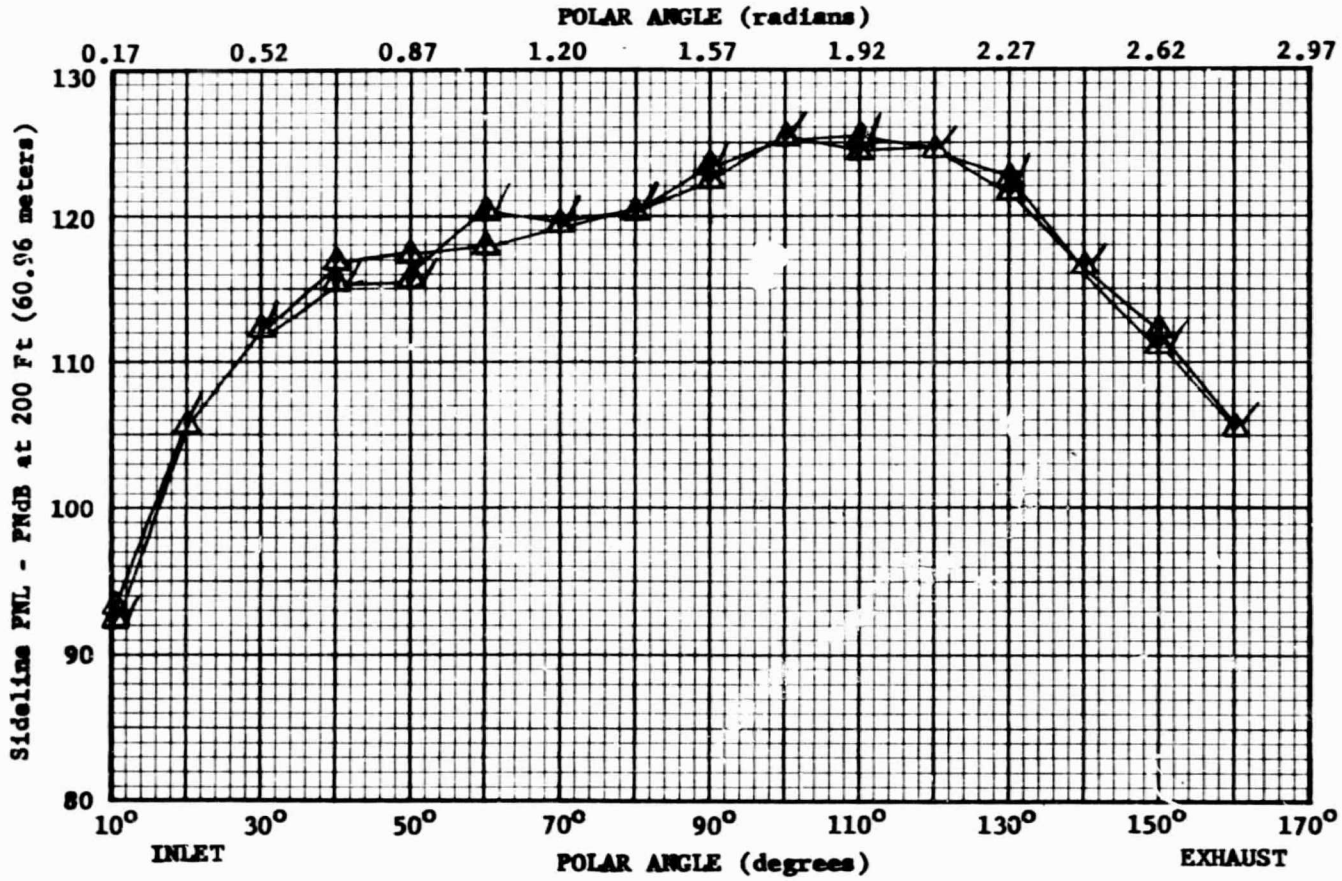
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		8-159	8-161		
Date		9/13/68	9/13/68		
Tape No.		P-667	P-667		
Physical Speed	RPM	3562	3562		
	Rad/sec	372.9	372.9		

200 Ft (60.96 M) Sideline PNL Vs. Polar Angle

Figure B-172

KEY		○	◇		
Corr. Speed %		101.1	101.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

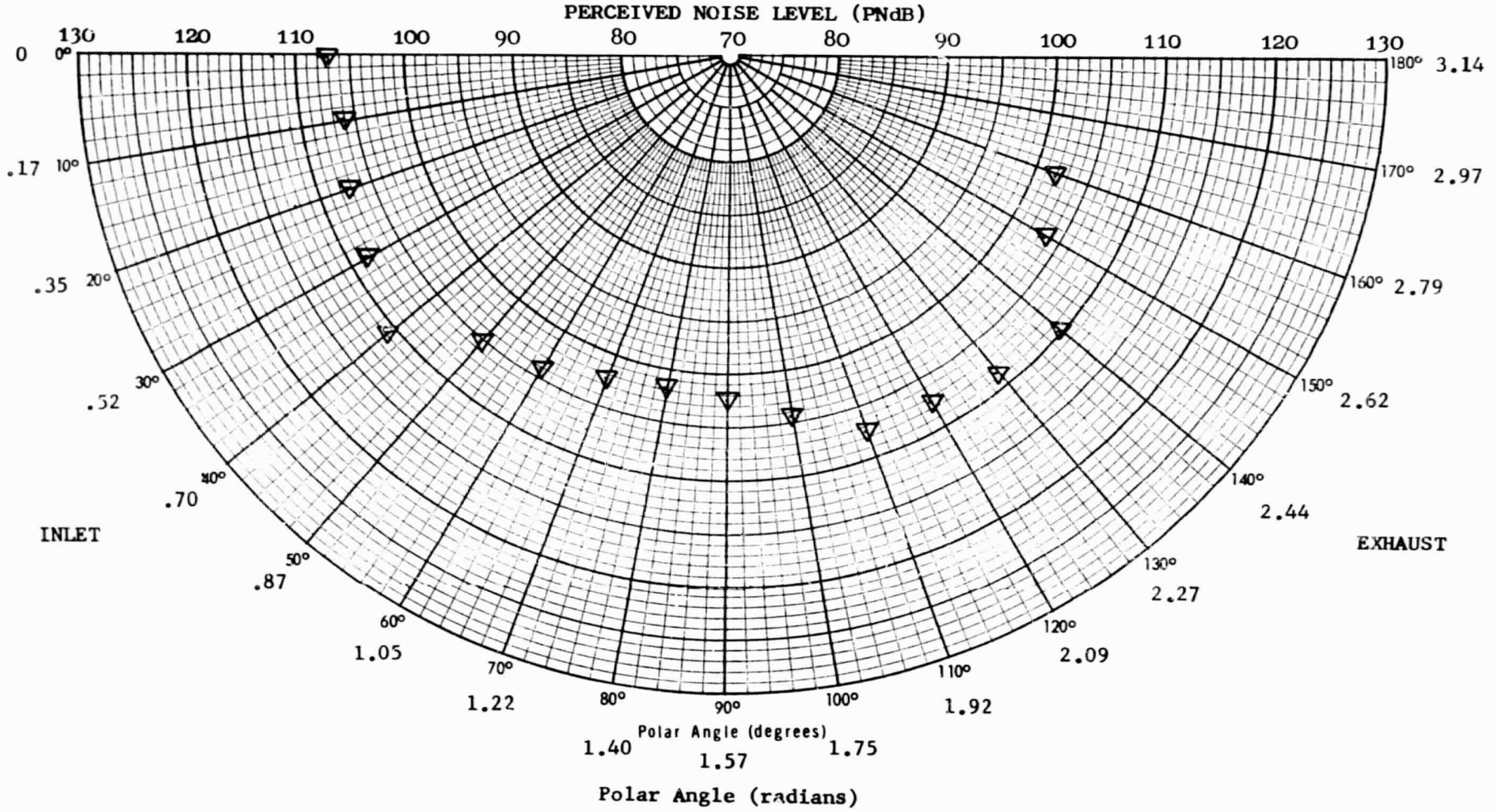
KEY		△	⍙		
Run No.		8-157	8-158		
Date		9/13/68	9/13/68		
Tape No.		P-666	P-666		
Physical Speed	RPM	3658	3650		
	Rad/sec	382.9	382.9		

200 Ft (60.96 M)
Sideline PNL
Vs.
Polar Angle

Figure B-173

KEY		△	⍙		
Corr. Speed %		103.8	103.6		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



B174

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

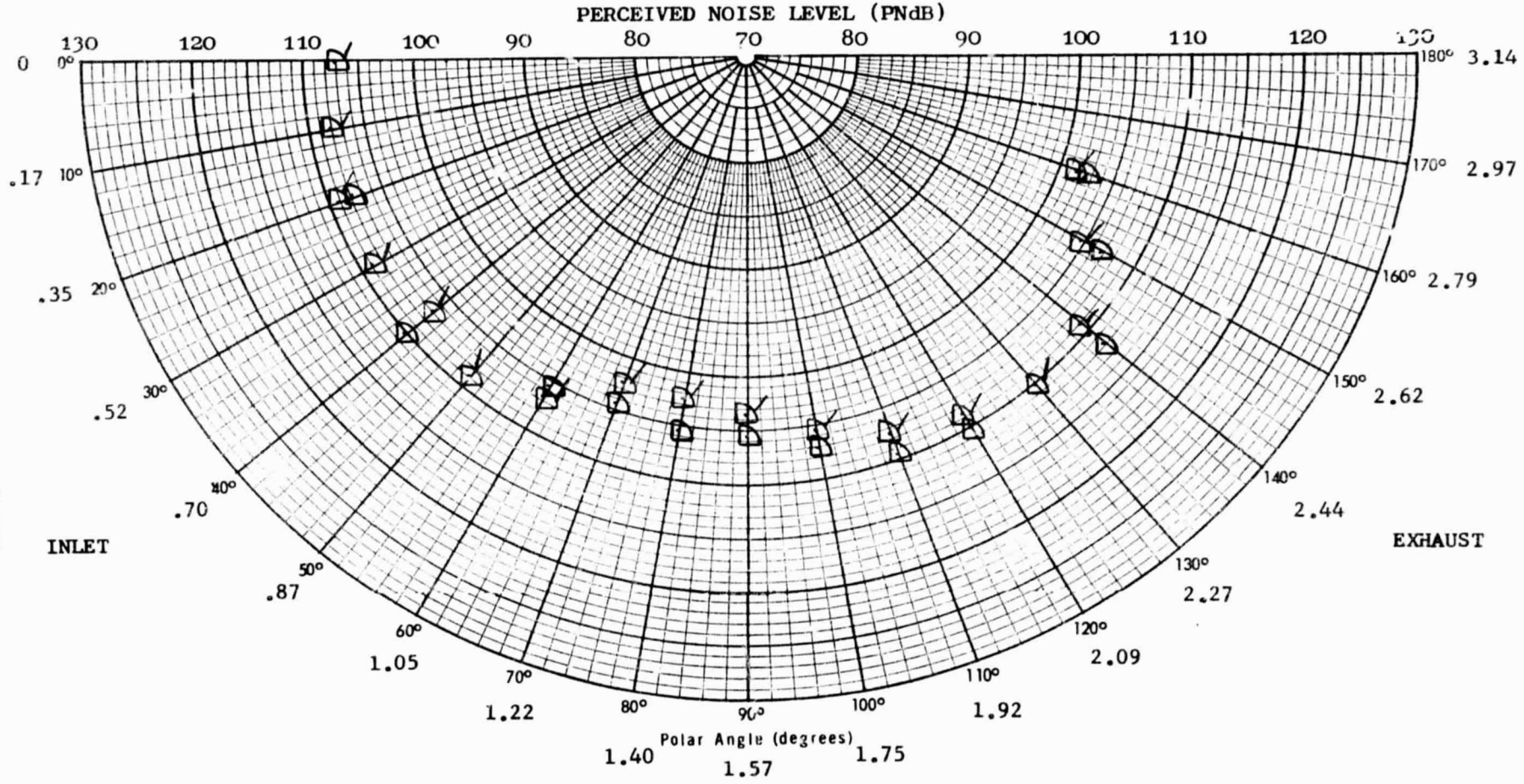
KEY		▽			
Run No.		8-129			
Date		9/13/68			
Tape No.		P-658			
Physical Speed	RPM	1700			
	Rad/sec	177.9			

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-174

KEY		▽			
Corr. Speed %		48.4			
Fan Noz. Area	In^2	1508.3			
	m^2	.9728			
Core Noz. Area	In^2	580			
	m^2	.3741			

Form No. N-3



B175

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

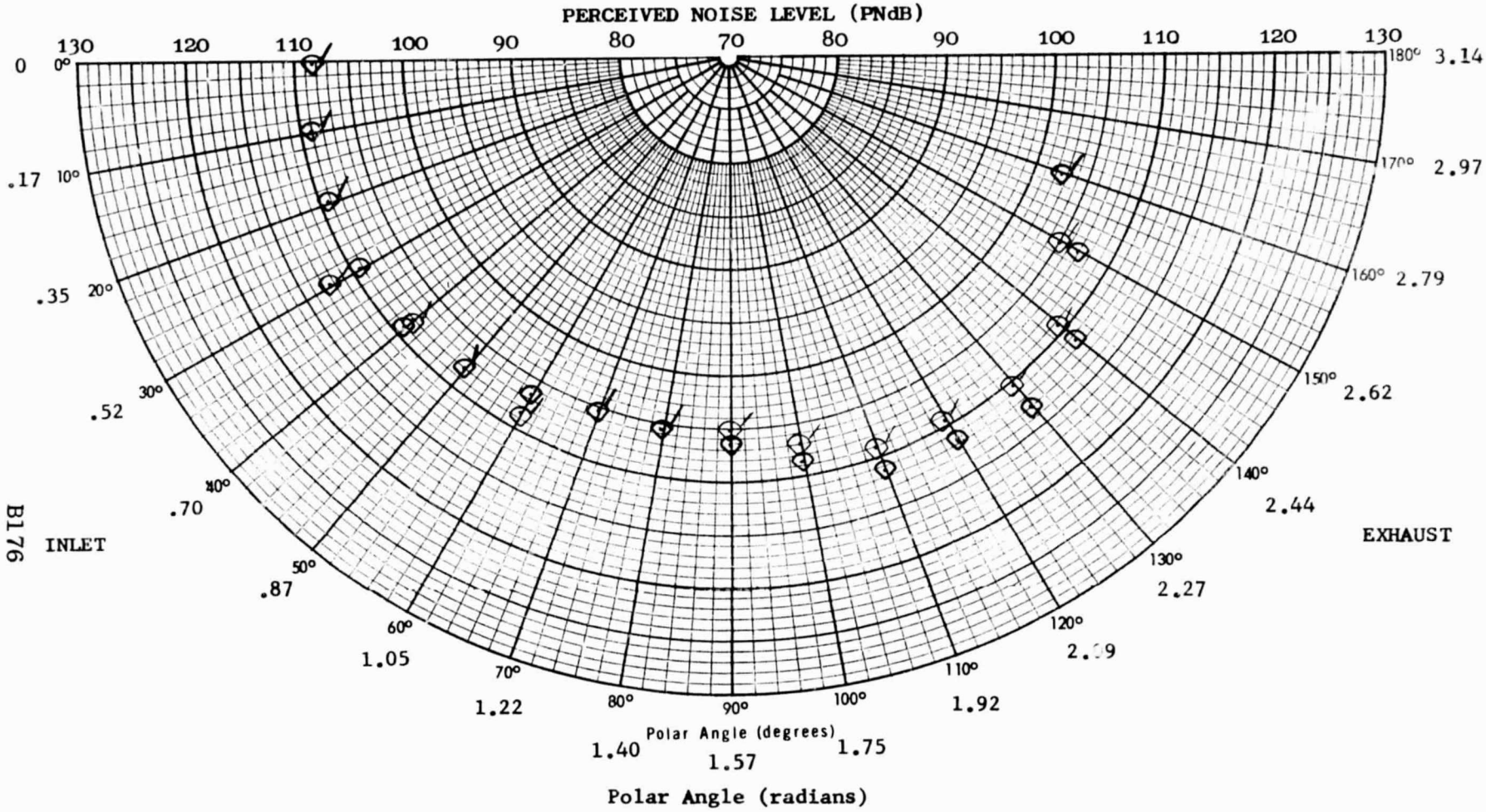
KEY		▱	▱		
Run No.		8-130	8-144		
Date		9/13/68	9/13/68		
Tape No.		P-658	P-663		
Physical Speed	RPM	1850	1875		
	Rad/sec	193.7	196.3		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-175

KEY		▱	▱		
Corr. Speed %		52.7	53.2		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

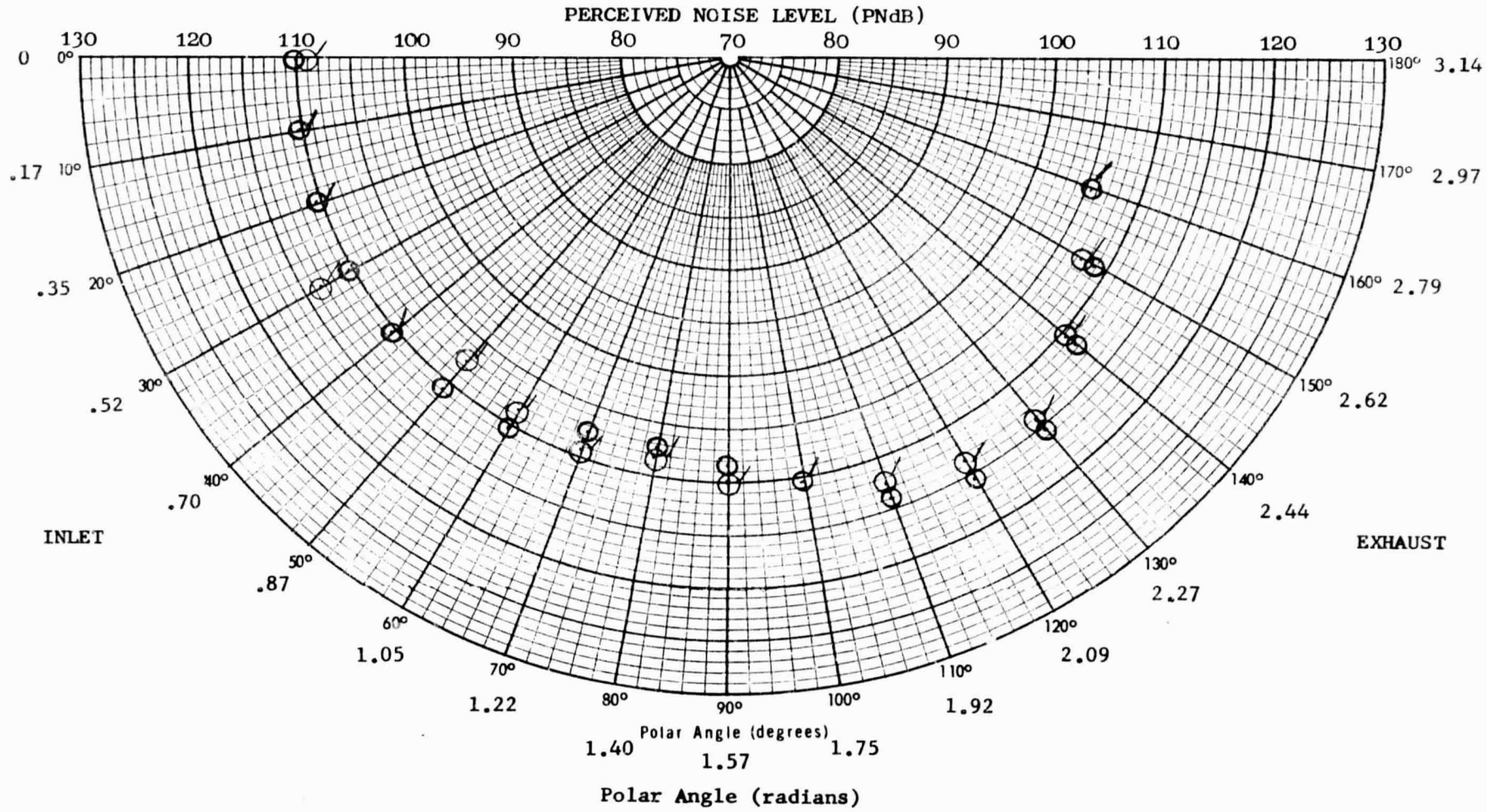
KEY		◇	◇		
Run No.		8-131	8-145		
Date		9/13/68	9/13/68		
Tape No.		P-659	P-663		
Physical Speed	RPM	2000	2000		
	Rad/sec	209.4	209.4		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-176

KEY		◇	◇		
Corr. Speed %		56.9	56.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9729	.9729		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



R177

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

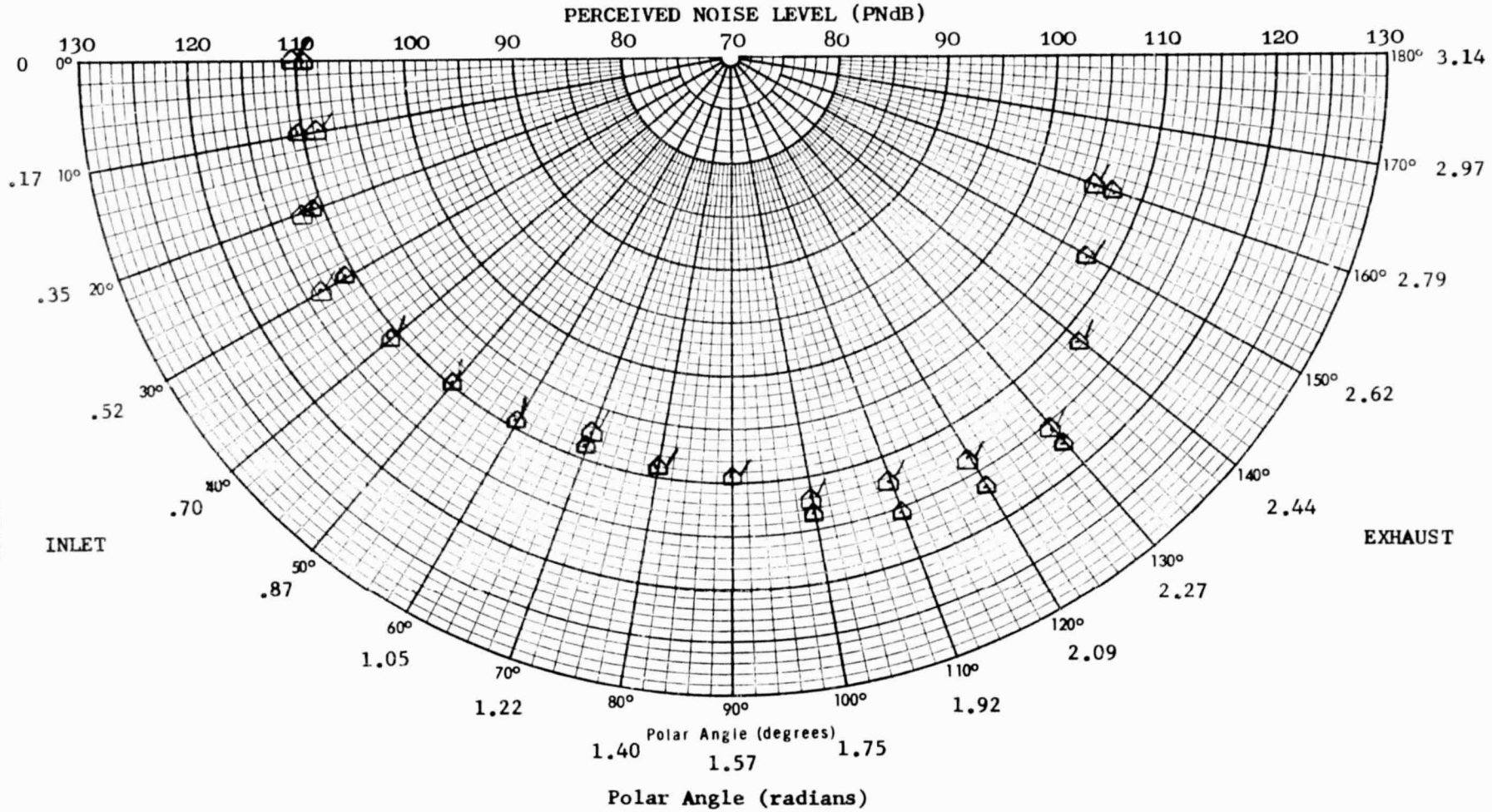
KEY		○	◇		
Run No.		8-132	8-146		
Date		9/13/68	9/13/68		
Tape No.		P-659	P-663		
Physical Speed	RPM	2150	2150		
	Rad/sec	225	225		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

KEY		○	◇		
Corr. Speed %		61.2	61.2		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Figure B-17

Form No. N-3



B178

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

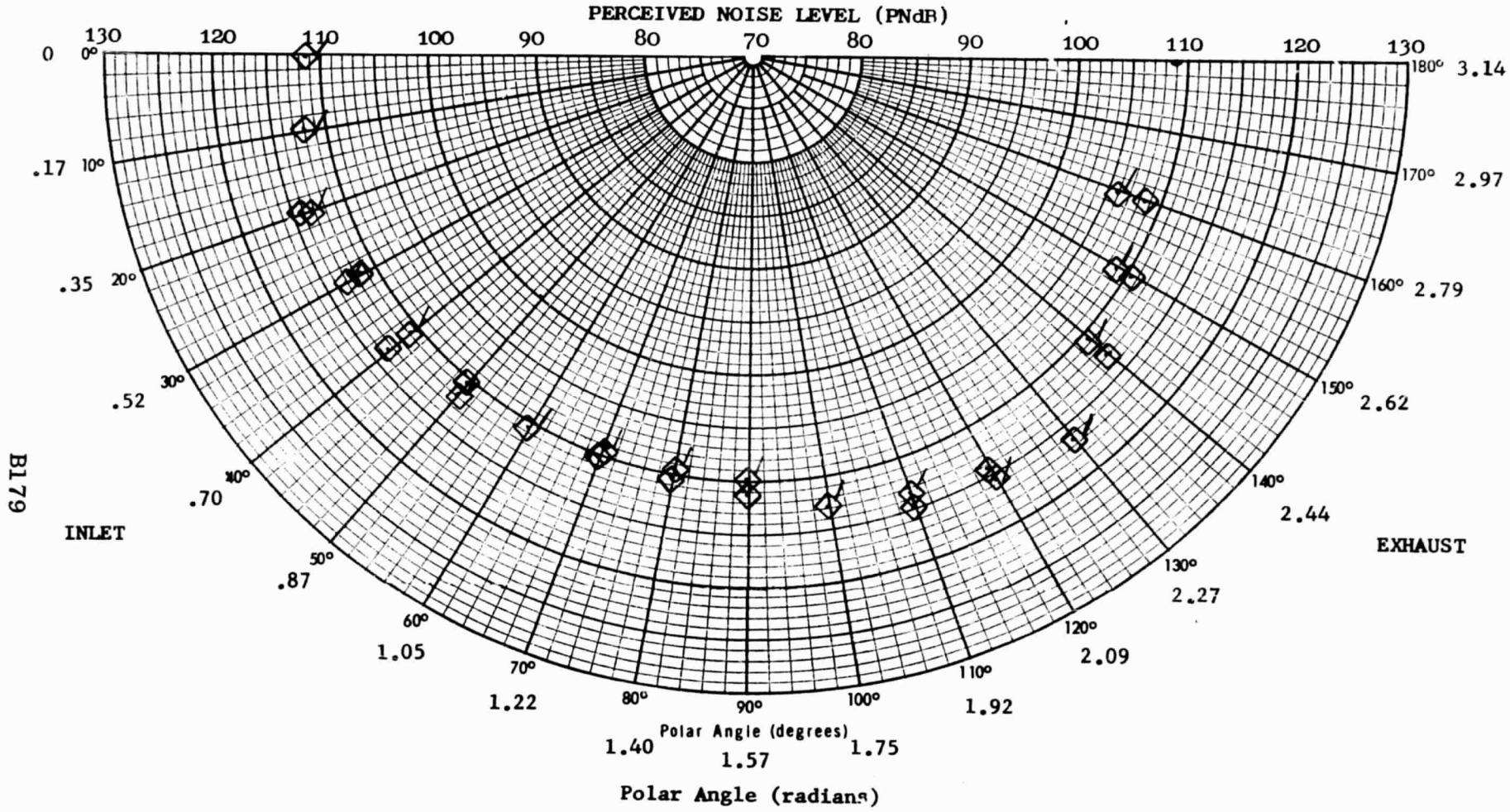
KEY		⌂	⌂		
Run No.		8-133	8-147		
Date		9/13/68	9/13/68		
Tape No.		P-659	P-664		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.8	240.8		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-178

KEY		⌂	⌂		
Corr. Speed %		65.5	65.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

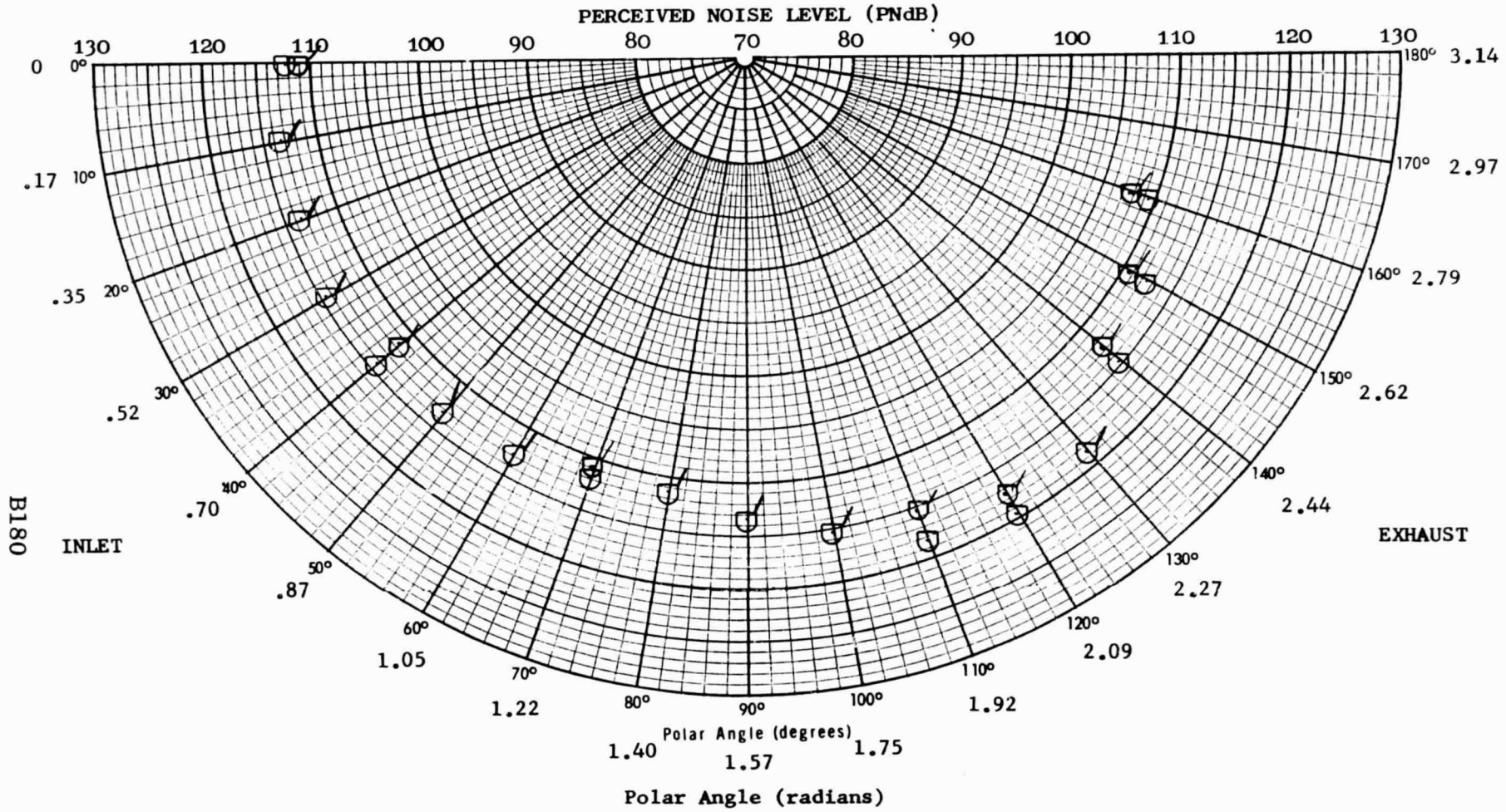
KEY		◇	◇		
Run No.		8-134	8-148		
Date		9/13/68	9/13/68		
Tape No.		P-660	P-664		
Physical Speed	RPM	2450	2450		
	Rad/sec	256.5	256.5		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

KEY		◇	◇		
Corr. Speed %		69.7	69.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Figure B-179

Form No. N-3



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

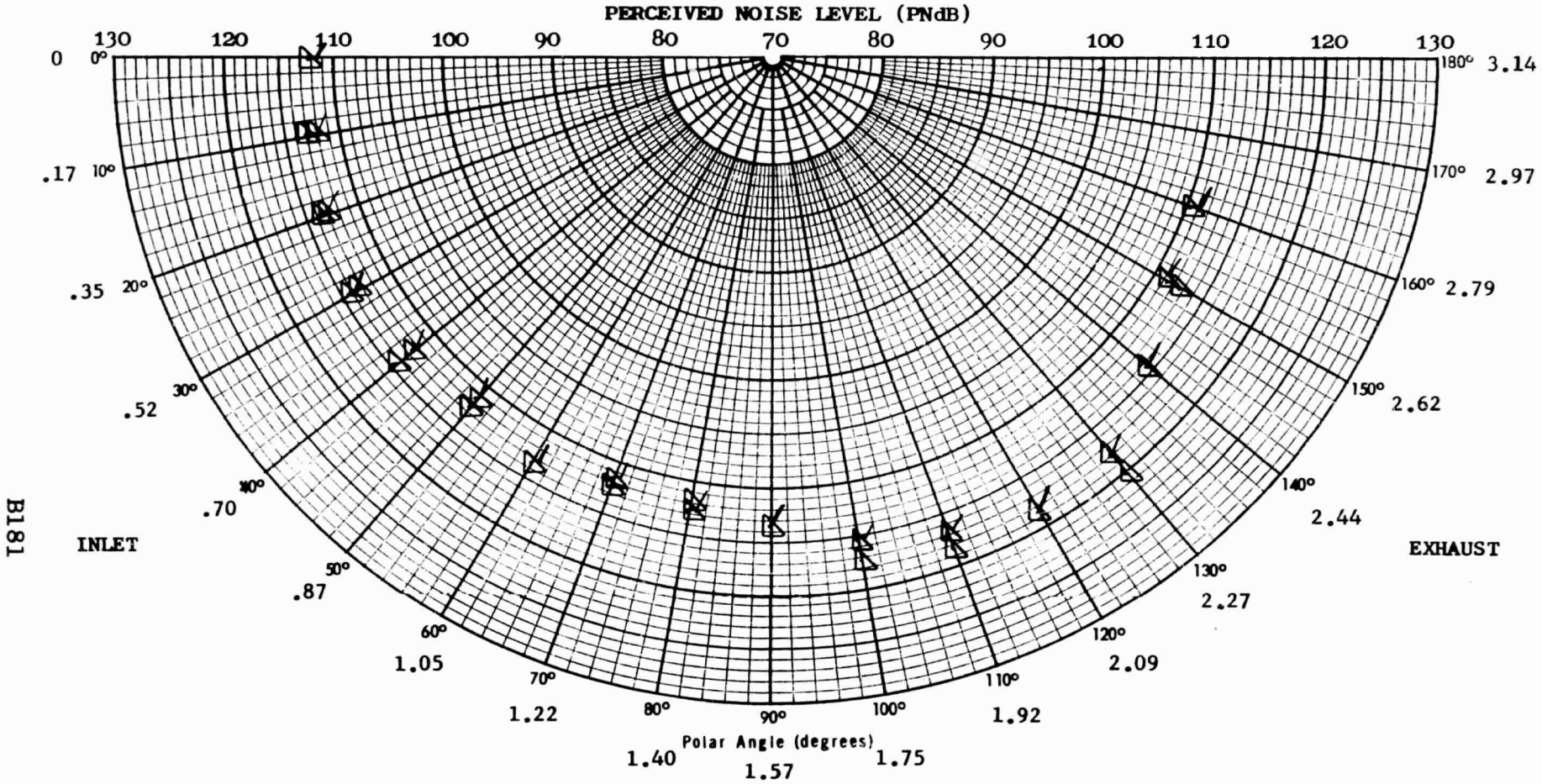
KEY		▢	▢		
Run No.		8-135	8-149		
Date		9/13/68	9/13/68		
Tape No.		P-660	P-663		
Physical Speed	RPM	2600	2600		
	Rad/sec	272.2	272.2		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-180

KEY		▢	▢		
Corr. Speed %		73.6	73.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



B181

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

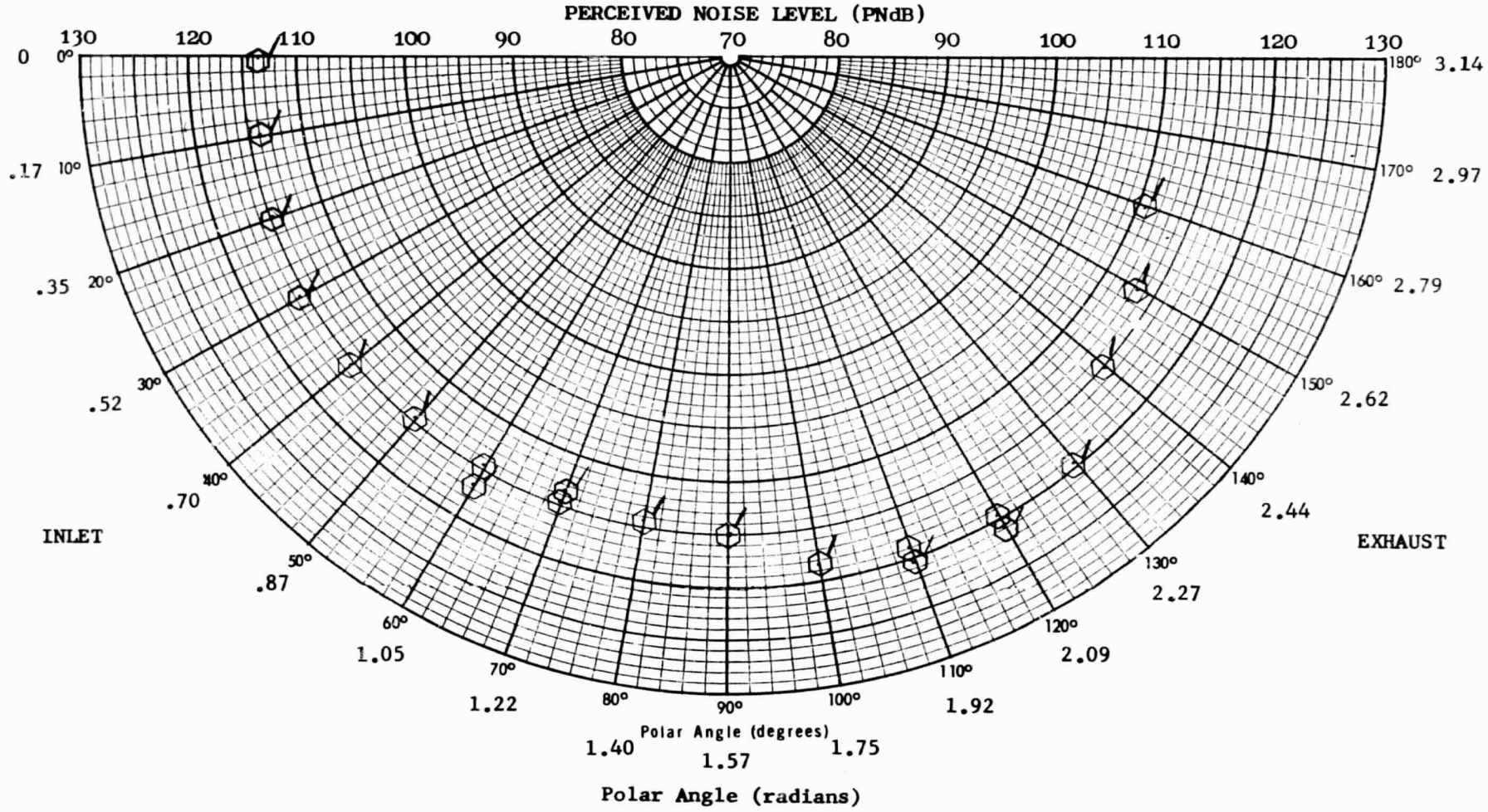
KEY		△	◺		
Run No.		8-136	8-150		
Date		9/13/68	9/13/68		
Tape No.		P-660	P-665		
Physical Speed	RPM	2750	2750		
	Rad/sec	287.9	287.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-181

KEY		△	◺		
Corr. Speed %		78.2	78.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



B182

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

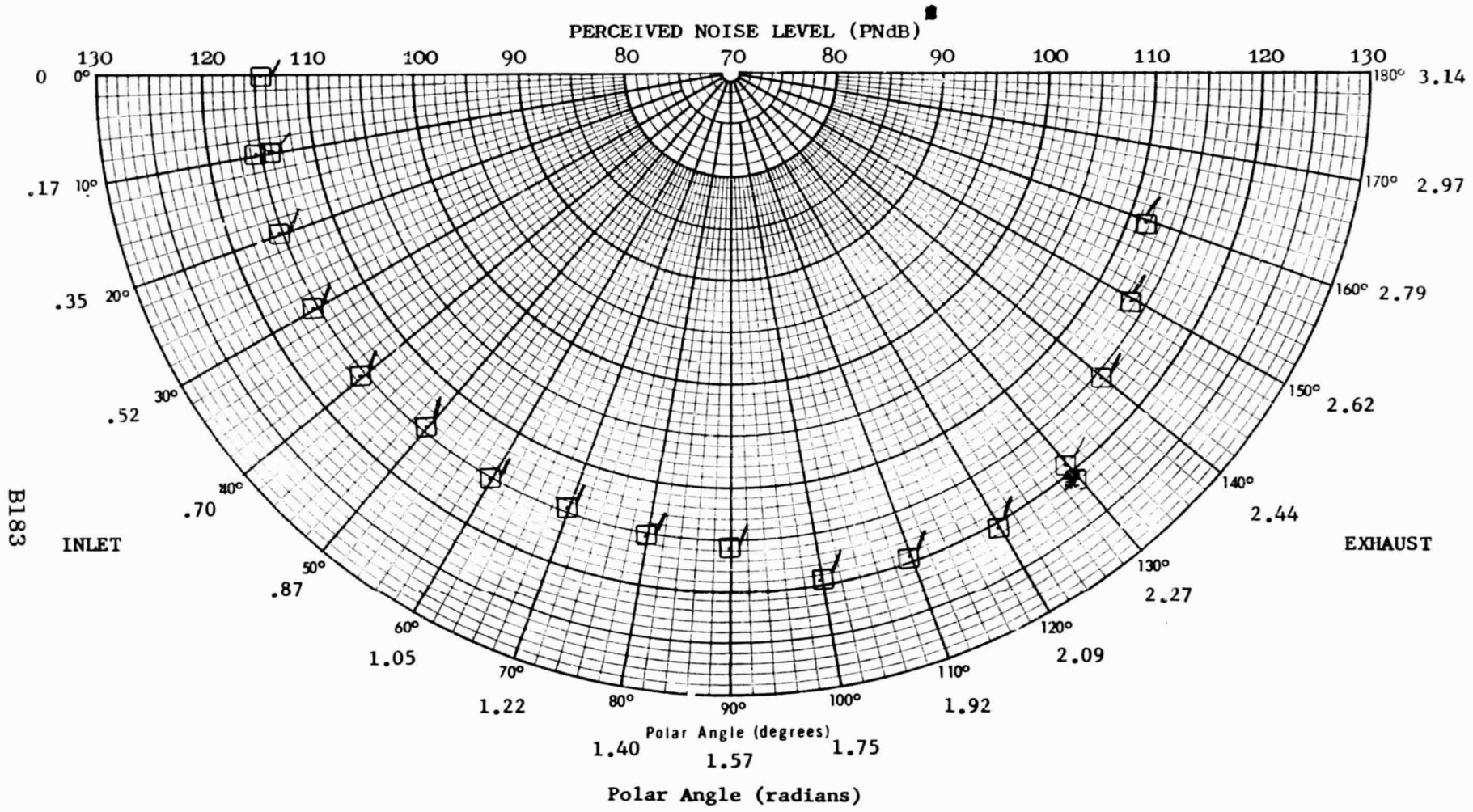
KEY		⬡	⬡		
Run No.		8-137	8-151		
Date		9/13/68	9/13/68		
Tape No.		P-661	P-665		
Physical Speed	RPM	2900	2900		
	Rad/sec	303.6	303.6		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-182

KEY		⬡	⬡		
Corr. Speed %		82.5	82.3		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



B183

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

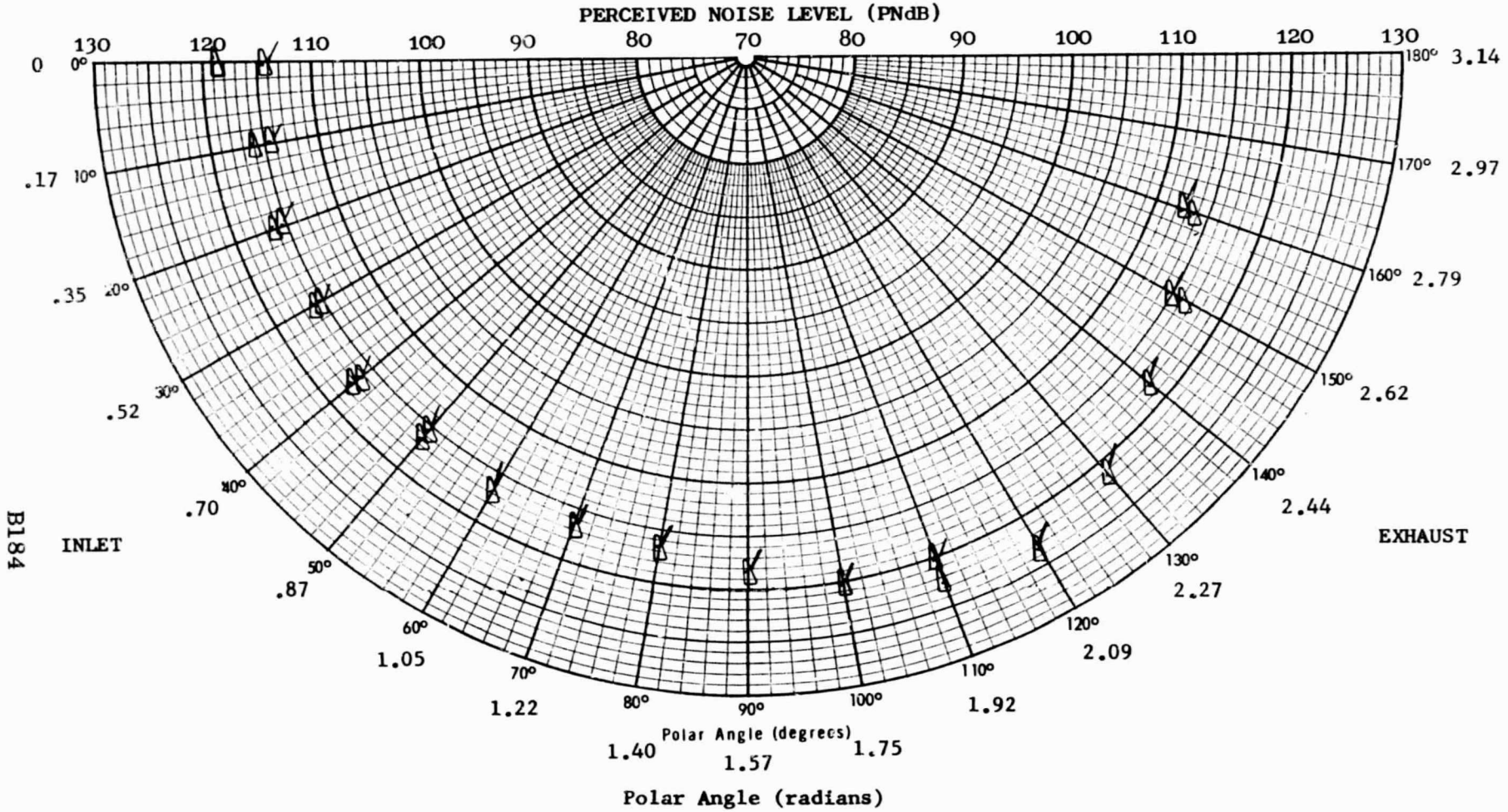
KEY		□	☑		
Run No.		8-138	8-152		
Date		9/13/68	9/13/68		
Tape No.		P-661	P-665		
Physical Speed	RPM	3045	3050		
	Rad/sec	318 8	319.3		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-183

KEY		□	☑		
Corr. Speed %		86.6	86.6		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



B184

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

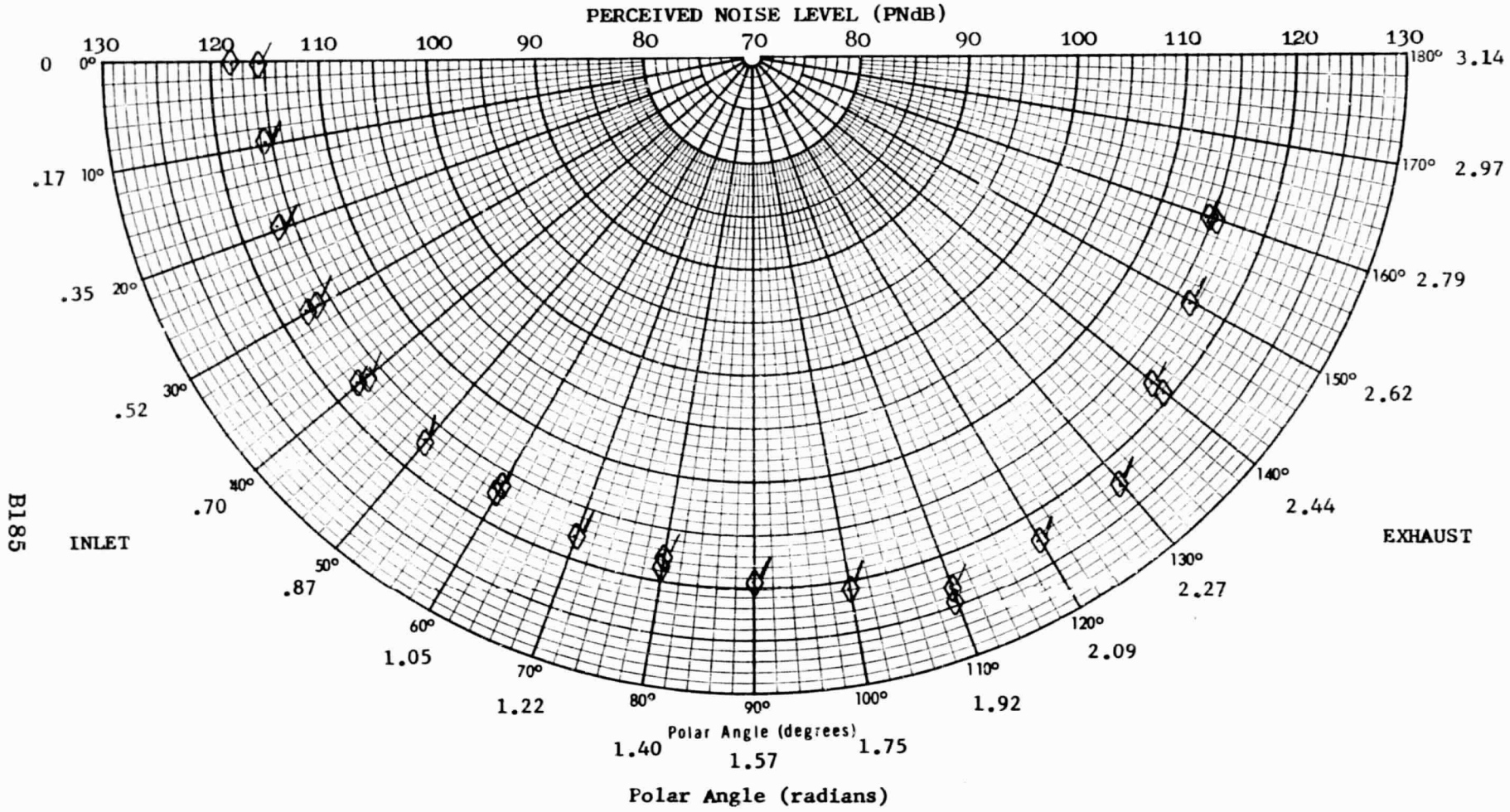
KEY		Δ	▽		
Run No.		8-139	8-153		
Date		9/13/68	9/13/68		
Tape No.		P-662	P-665		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-184

KEY		Δ	▽		
Corr. Speed %		90.8	90.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



B185

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

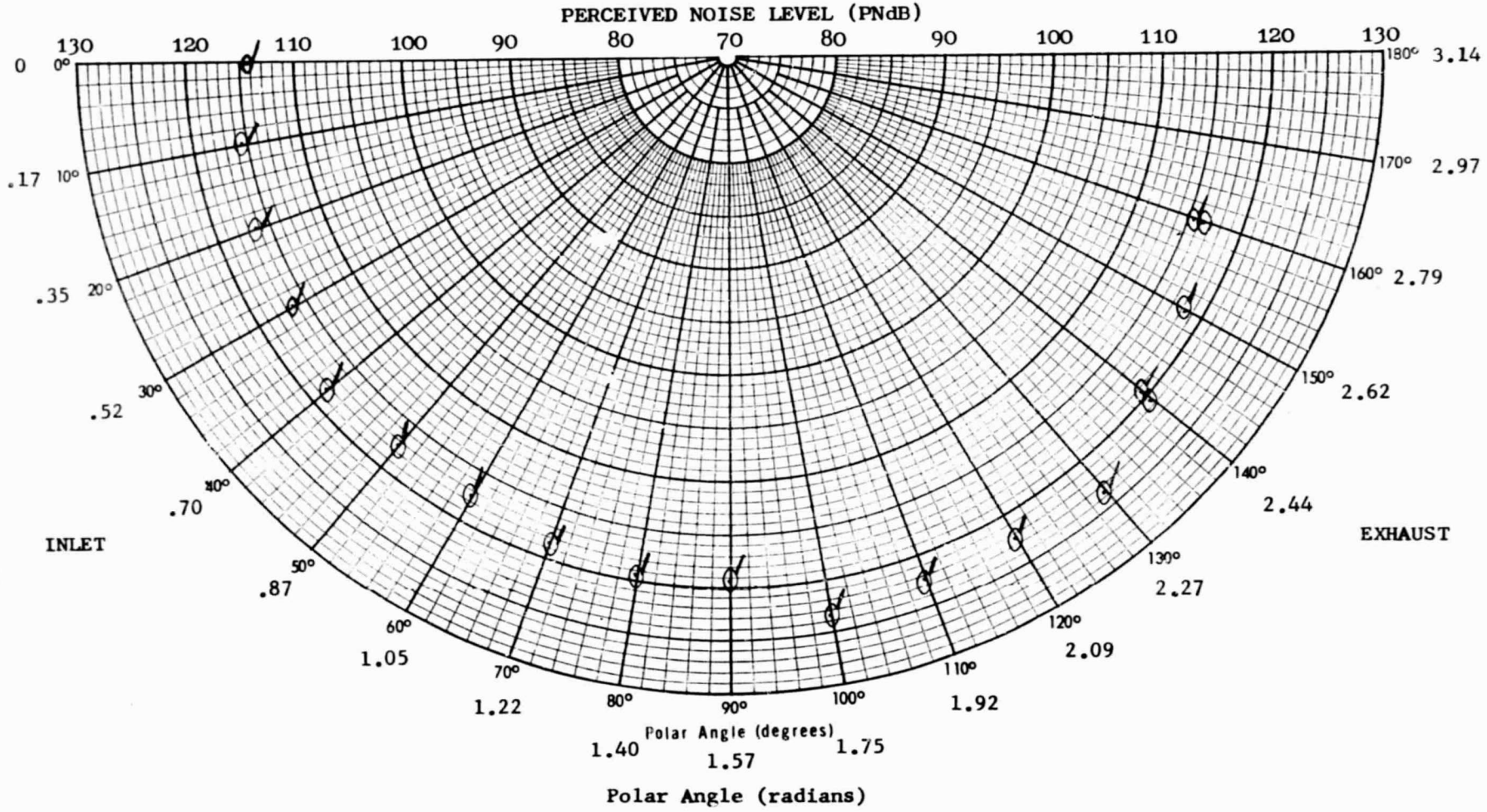
KEY		◇	◇		
Run No.		8-140	8-154		
Date		9/13/68	9/13/68		
Tape No.		P-662	P-666		
Physical Speed	RPM	3350	3350		
	Rad/sec	350.7	350.7		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-185

KEY		◇	◇		
Corr. Speed %		95.0	95.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



B186

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

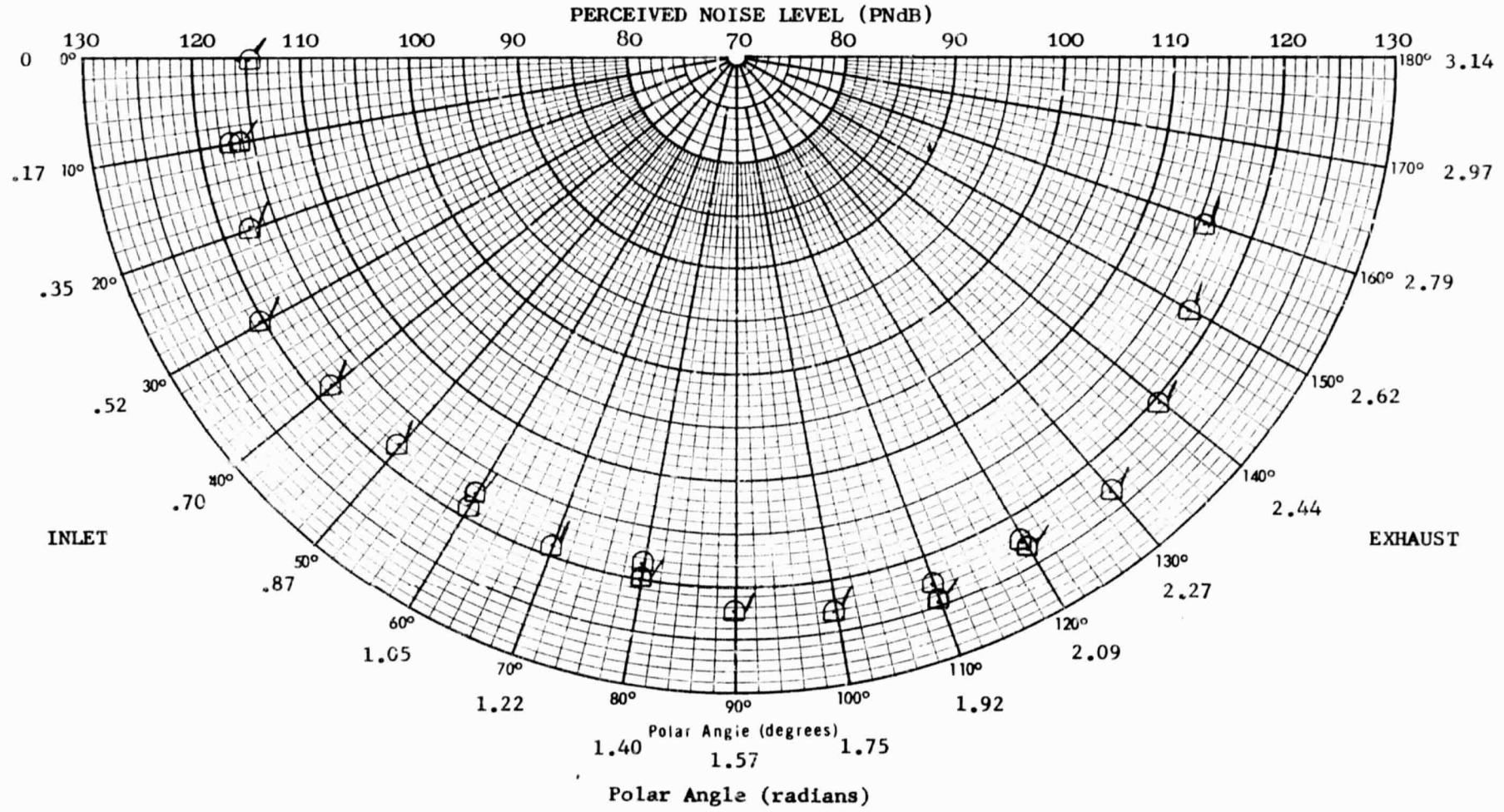
KEY		○	◇		
Run No.		8-141	8-155		
Date		9/13/68	9/13/68		
Tape No.		P-662	P-666		
Physical Speed	RPM	3473	3473		
	Rad/sec	363.6	363.6		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure _____

KEY		○	◇		
Corr. Speed %		98.6	98.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



B187

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

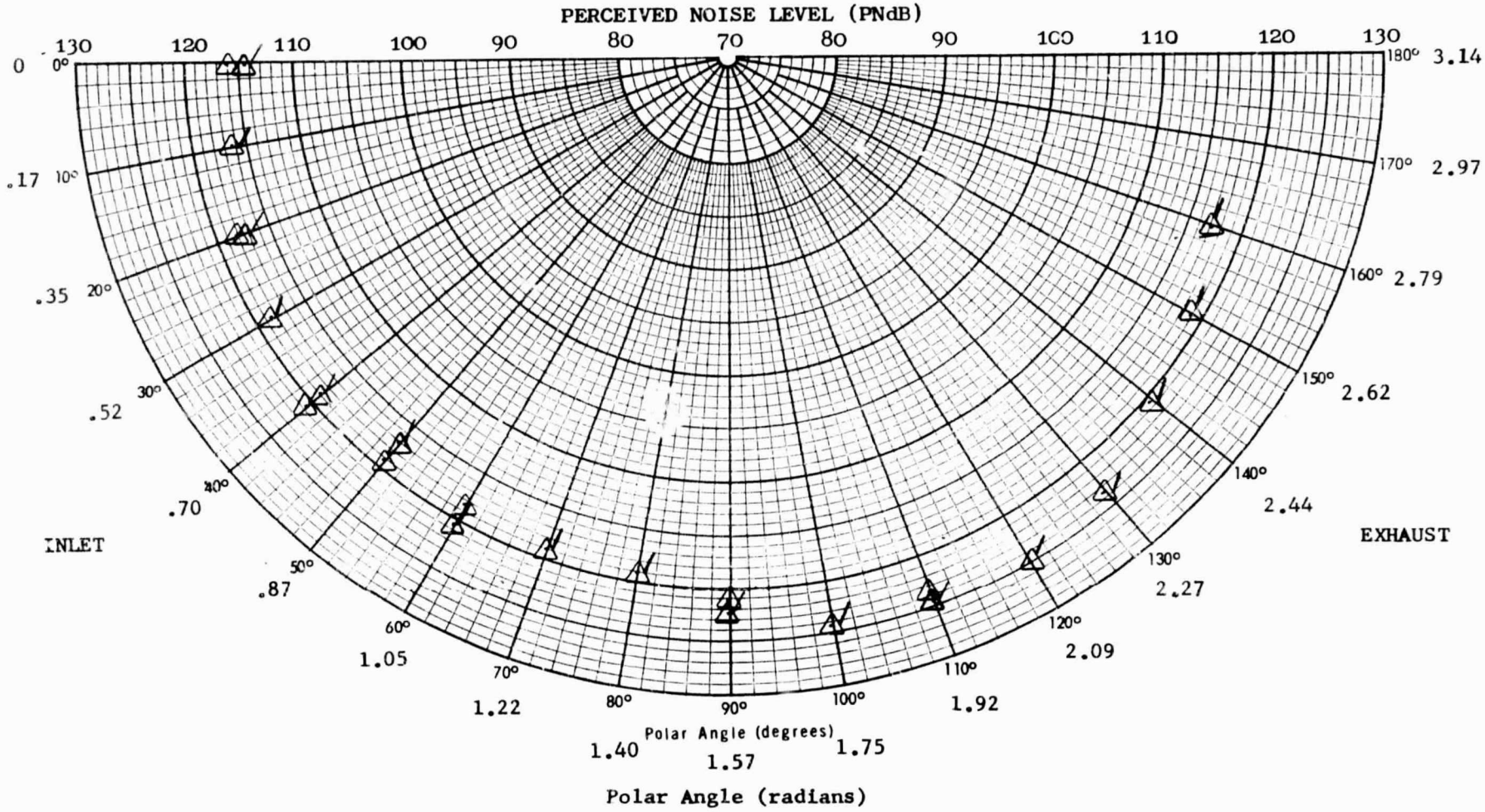
KEY		○	□		
Run No.		8-159	8-161		
Date		9/13/68	9/13/68		
Tape No.		P-667	P-667		
Physical Speed	RPM	3562	3562		
	Rad/sec	372.9	372.9		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-187

KEY		○	□		
Corr. Speed %		101.1	101.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. N-3



B188

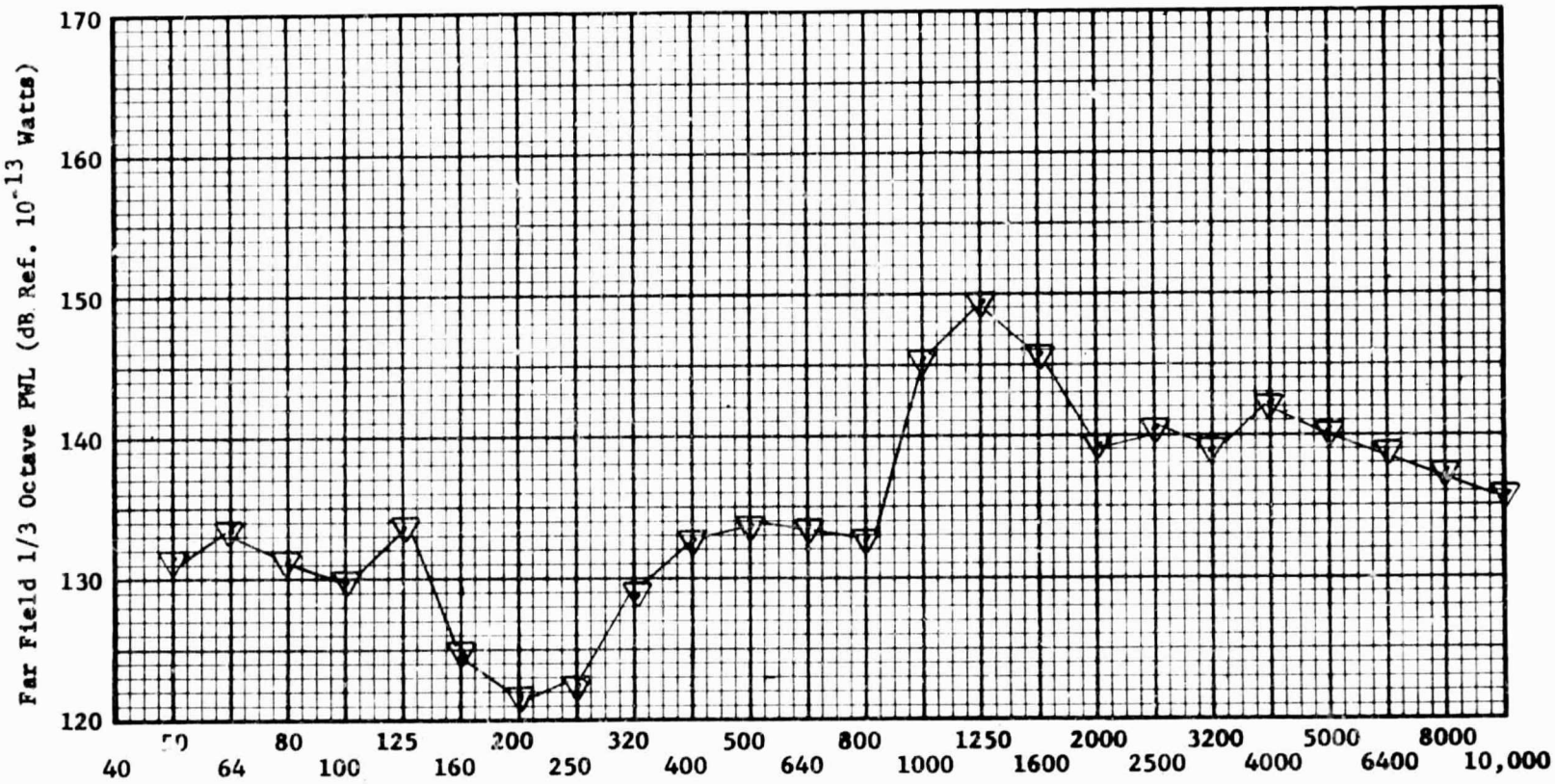
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	◸		
Run No.		8-157	8-158		
Date		9/13/68	9/13/68		
Tape No.		P-666	P-666		
Physical Speed	RPM	3658	3650		
	Rad/sec	382.9	382.2		

PNL Polar Plot
At
225 Ft (68.58 M)
Radius

Figure B-188

KEY		△	◸		
Corr. Speed %		103.8	103.6		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



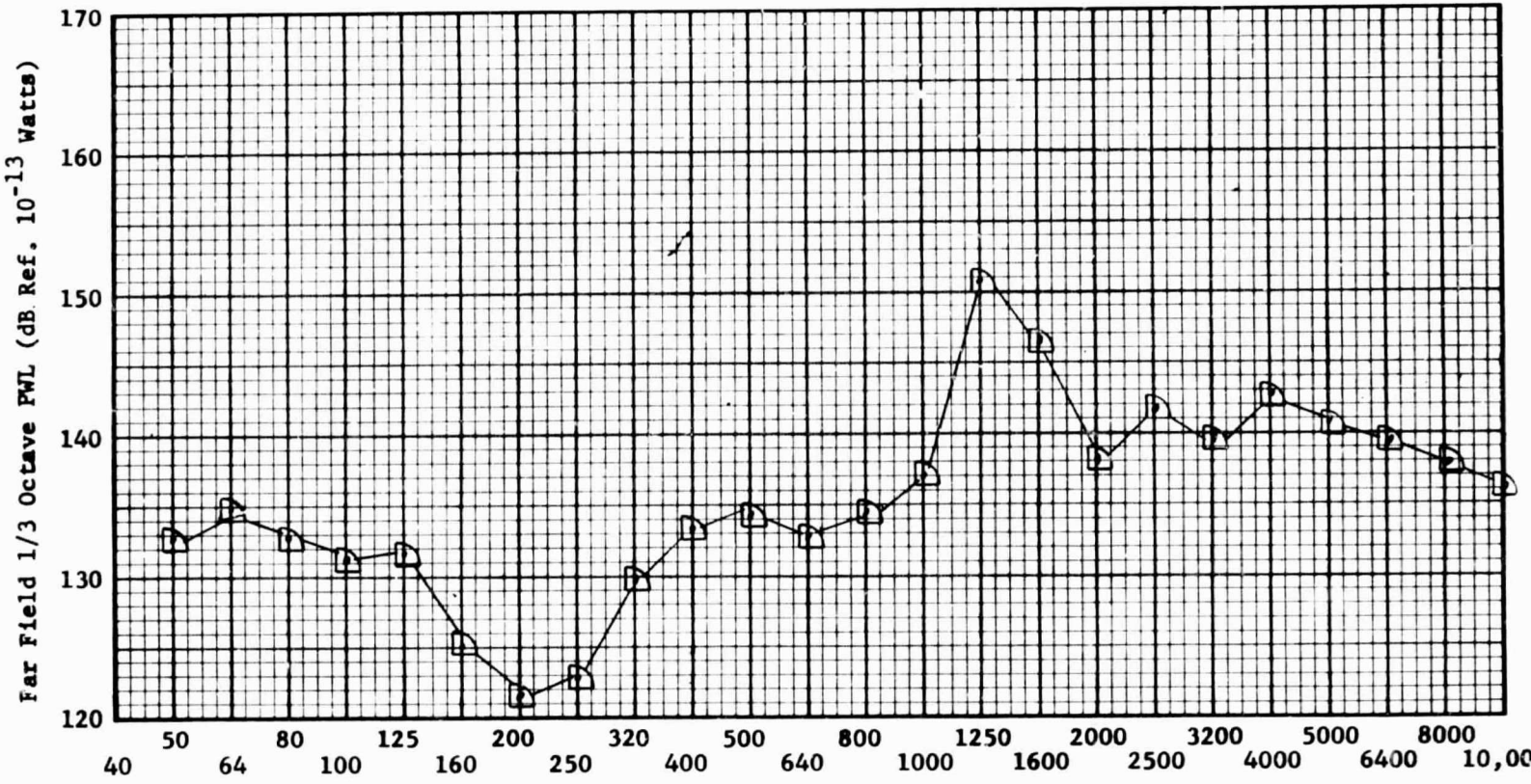
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		▽			
Rim No.		8-129			
Date		9/13/68			
Tape No.		P-658			
Physical Speed	RPM	1700			
	Rad/sec	177.9			

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure _____

KEY		▽			
Corr. Speed %		48.4			
Fan Noz. Area	In^2	1508.3			
	m^2	.9728			
Core Noz. Area	In^2	580			
	m^2	.3741			



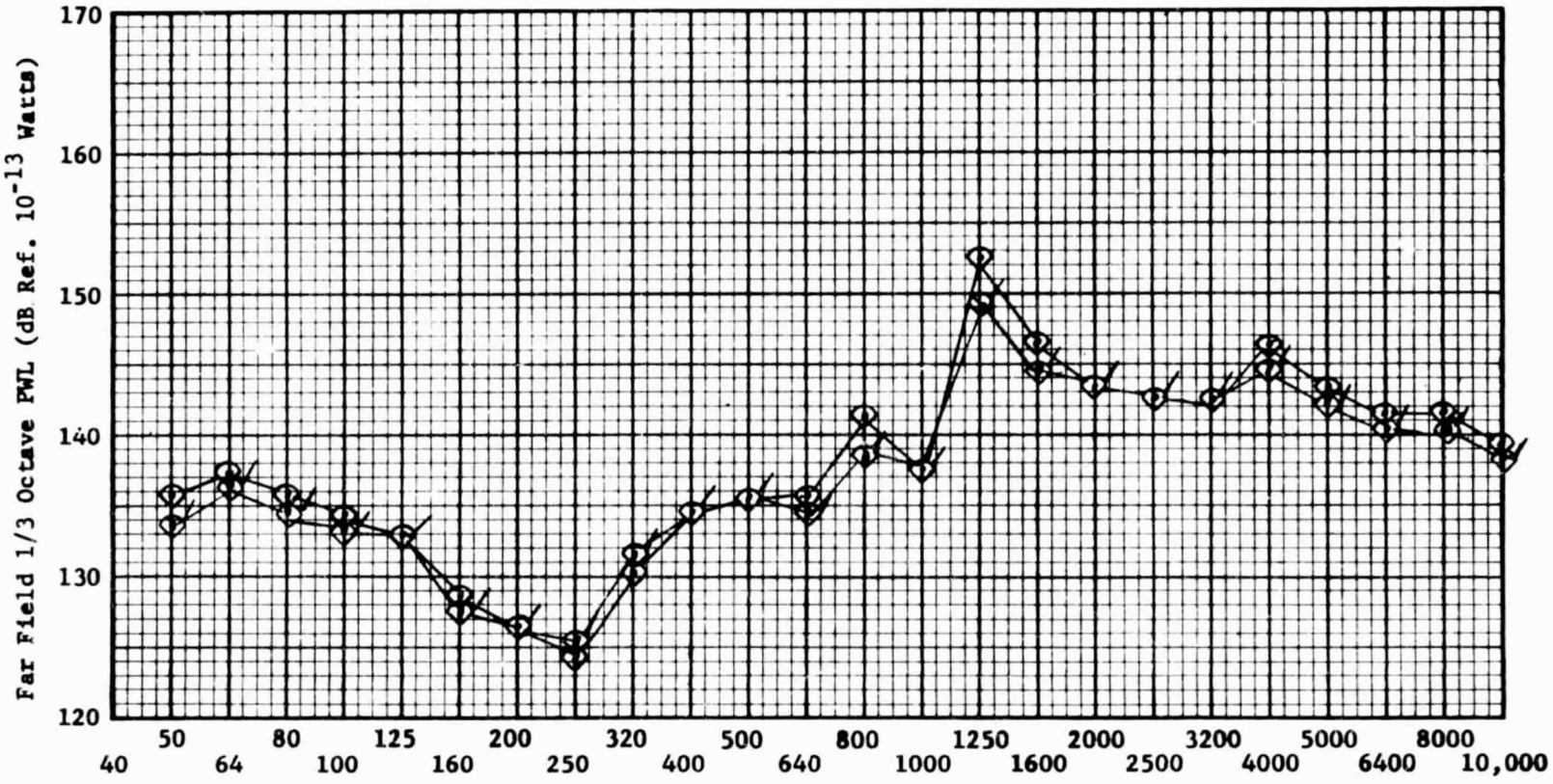
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		D			
Run No.		8-144			
Date		9/13/68			
Tape No.		P-663			
Physical Speed	RPM	1875			
	Rad/sec	196.3			

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-190

KEY		D			
Corr. Speed %		53.2			
Fan Noz. Area	In^2	1508.3			
	m^2	.9728			
Core Noz. Area	In^2	580			
	m^2	.3741			



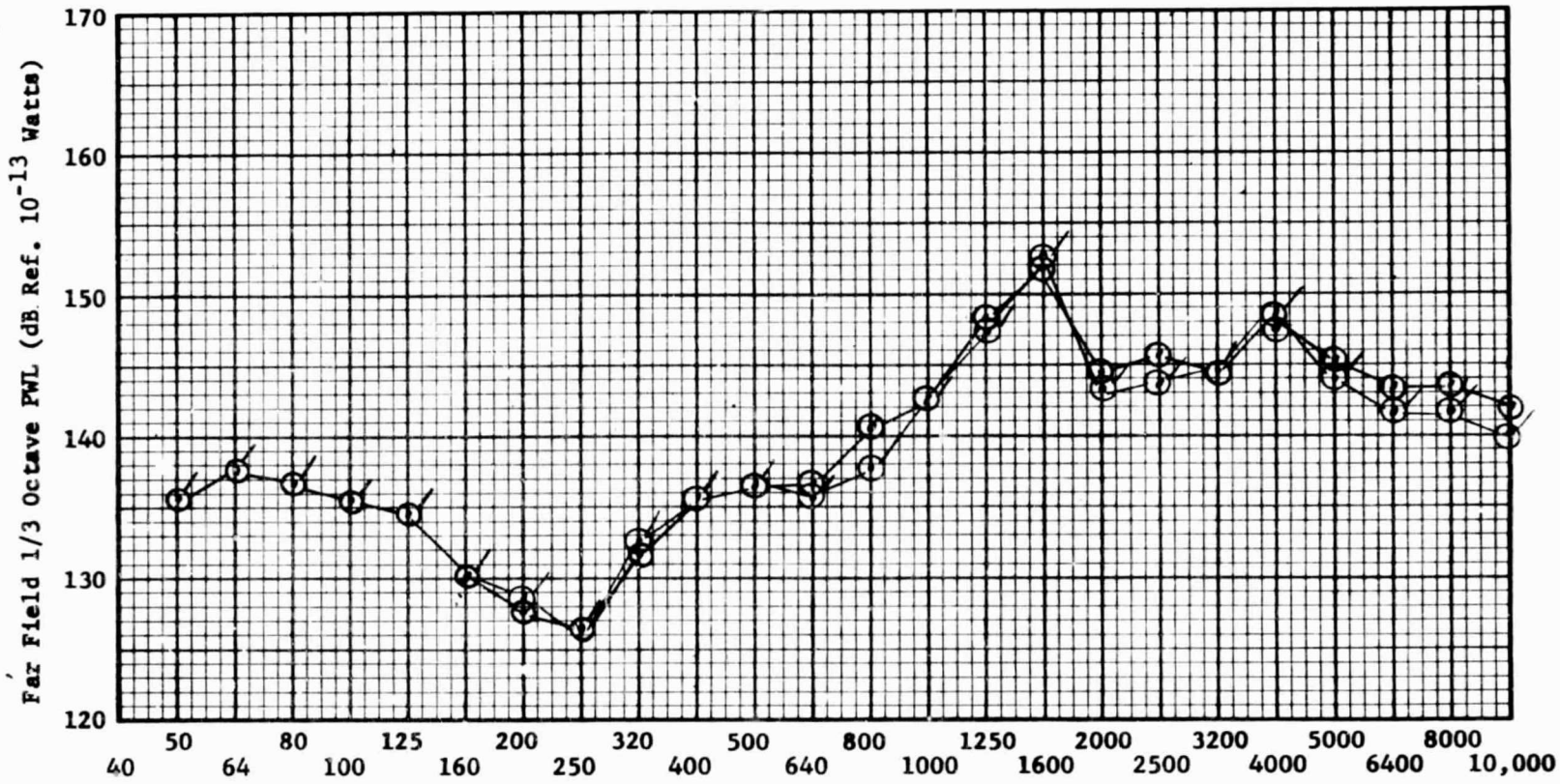
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		8-131	8-145		
Date		9/13/68	9/13/68		
Tape No.		P-659	P-663		
Physical Speed	RPM	2000	2000		
	Rad/sec	209.4	209.4		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-191

KEY		○	◇		
Corr. Speed %		56.9	56.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

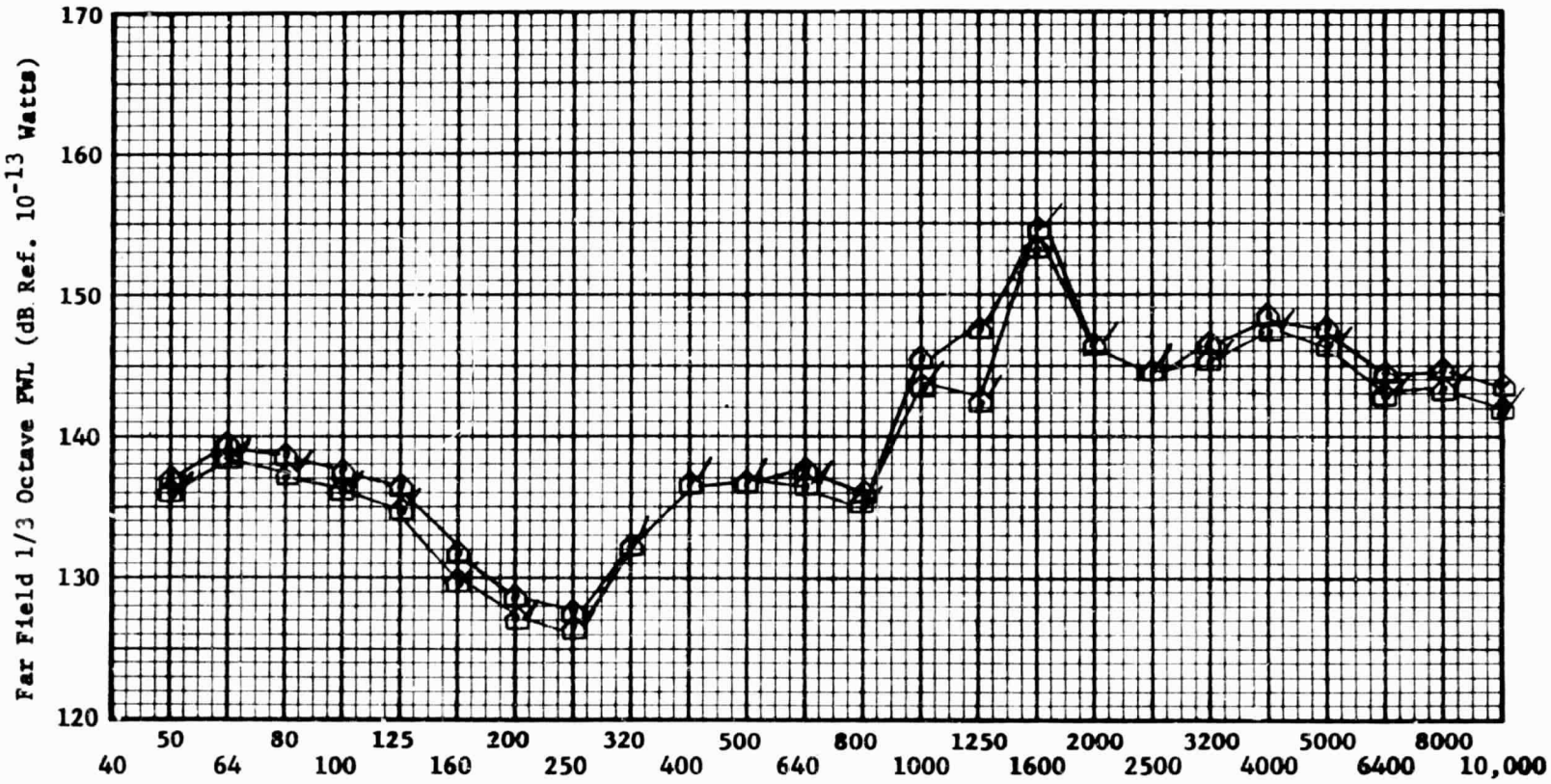
KEY		○	♂		
Run No.		8-132	8-146		
Date		9/13/68	9/13/68		
Tape No.		P-659	P-663		
Physical Speed	RPM	2150	2150		
	Rad/sec	225.1	225.1		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-192

KEY		○	♂		
Corr. Speed %		61.2	61.2		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. ' ?



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

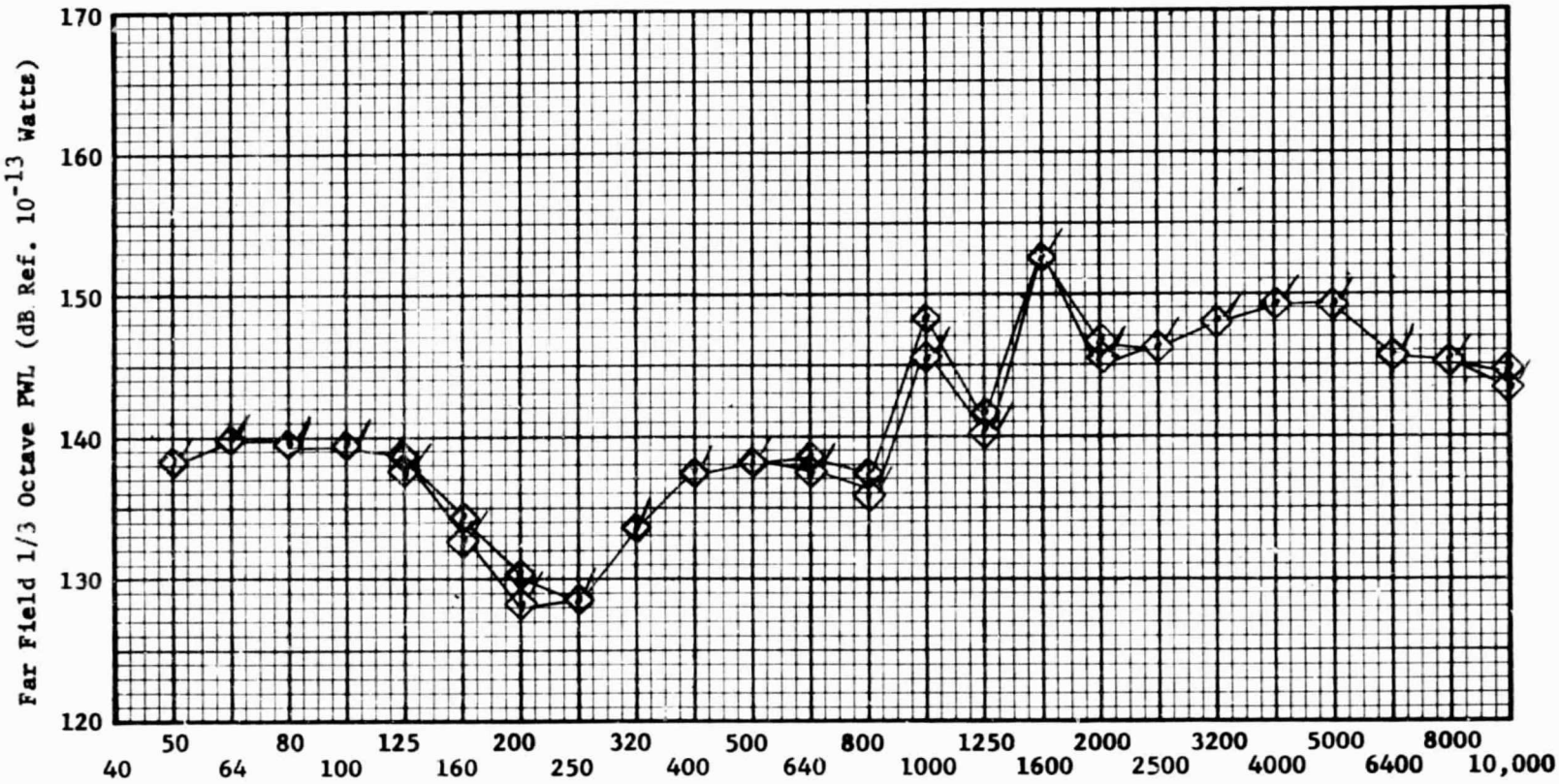
KEY		⌂	⌂		
Run No.		8-133	8-147		
Date		9/13/68	9/13/68		
Tape No.		P-659	P-664		
Physical Speed	RPM	2300	2300		
	Rad/sec	240.8	240.8		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-193

KEY		⌂	⌂		
Corr. Speed %		65.5	65.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

B193



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

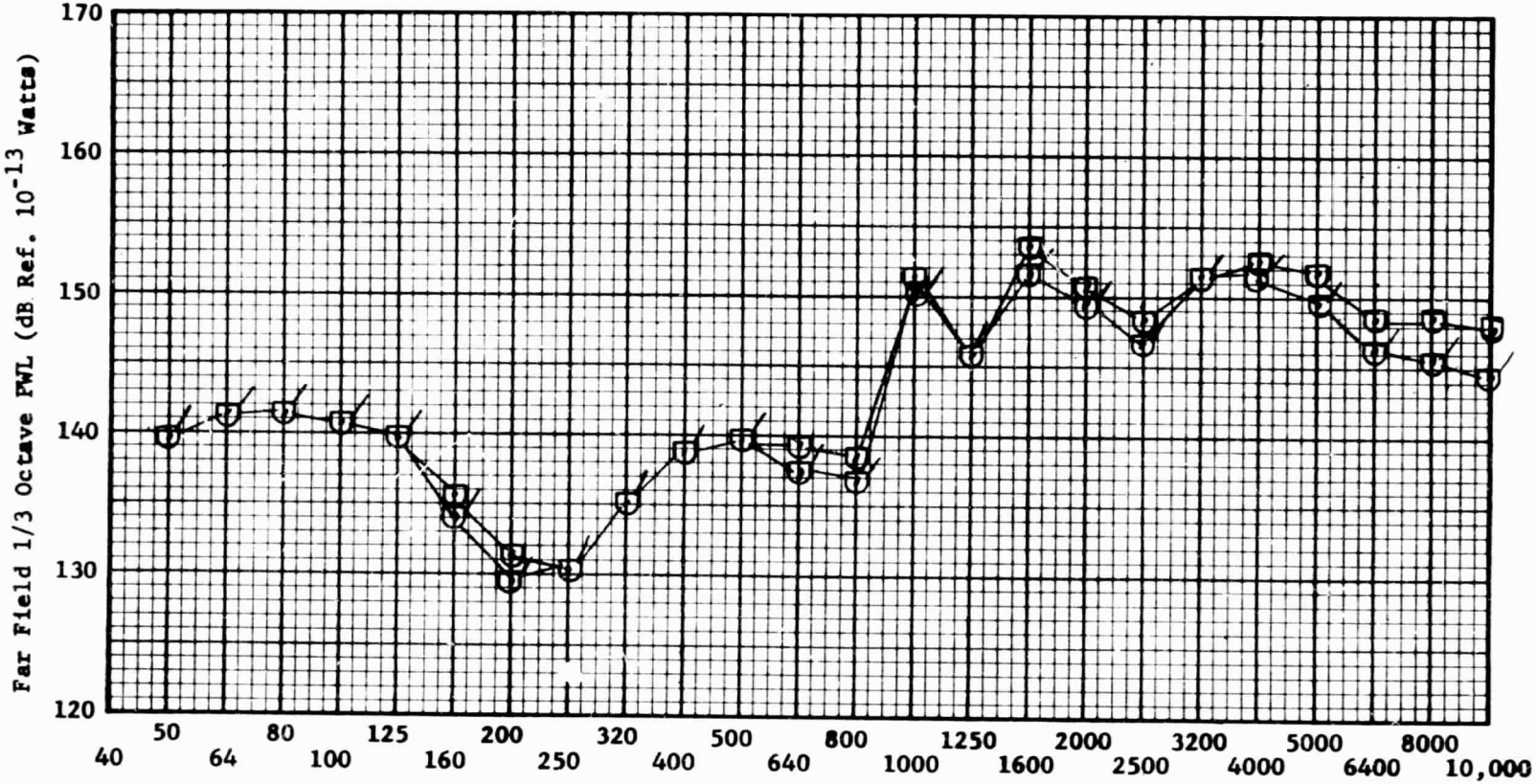
KEY		◇	◇		
Run No.		8-134	8-148		
Date		9/13/68	9/13/68		
Tape No.		P-660	P-664		
Physical Speed	RPM	2450	2450		
	Rad/sec	256.5	256.5		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-194

KEY		◇	◇		
Corr. Speed %		69.7	69.5		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. 3



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

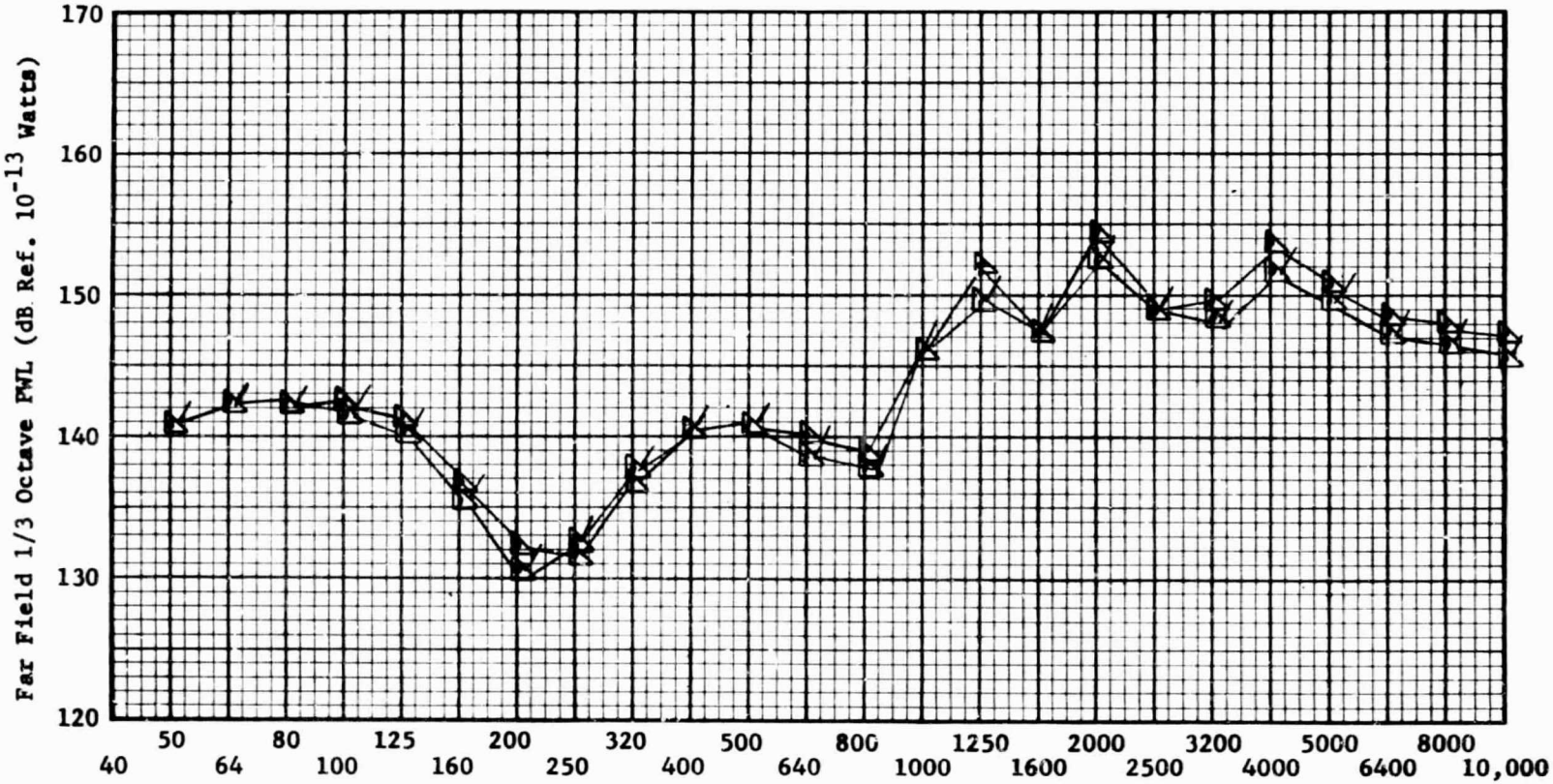
KEY		○	○		
Run No.		8-135	8-149		
Date		9/13/68	9/13/68		
Tape No.		P-660	P-663		
Physical Speed	RPM	2600	2600		
	Rad/sec	272.2	272.2		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-195

KEY		○	○		
Corr. Speed %		73.6	73.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

B195



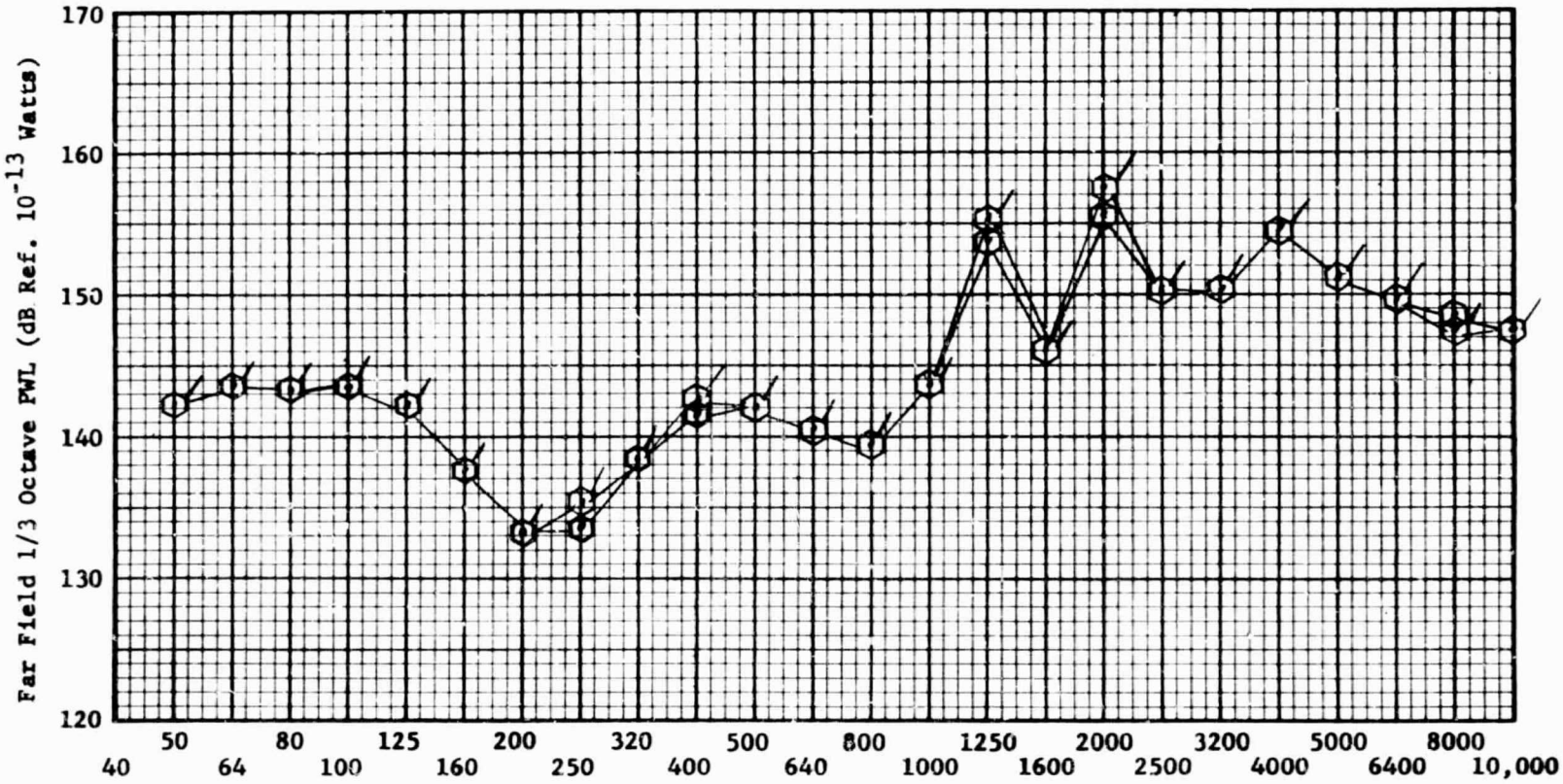
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		△	▽		
Run No.		8-136	8-150		
Date		9/13/68	9/13/68		
Tape No.		P-660	P-665		
Physical Speed	RPM	2750	2750		
	Rad/sec	287.9	287.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-196

KEY		△	▽		
Corr. Speed %		78.2	78.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



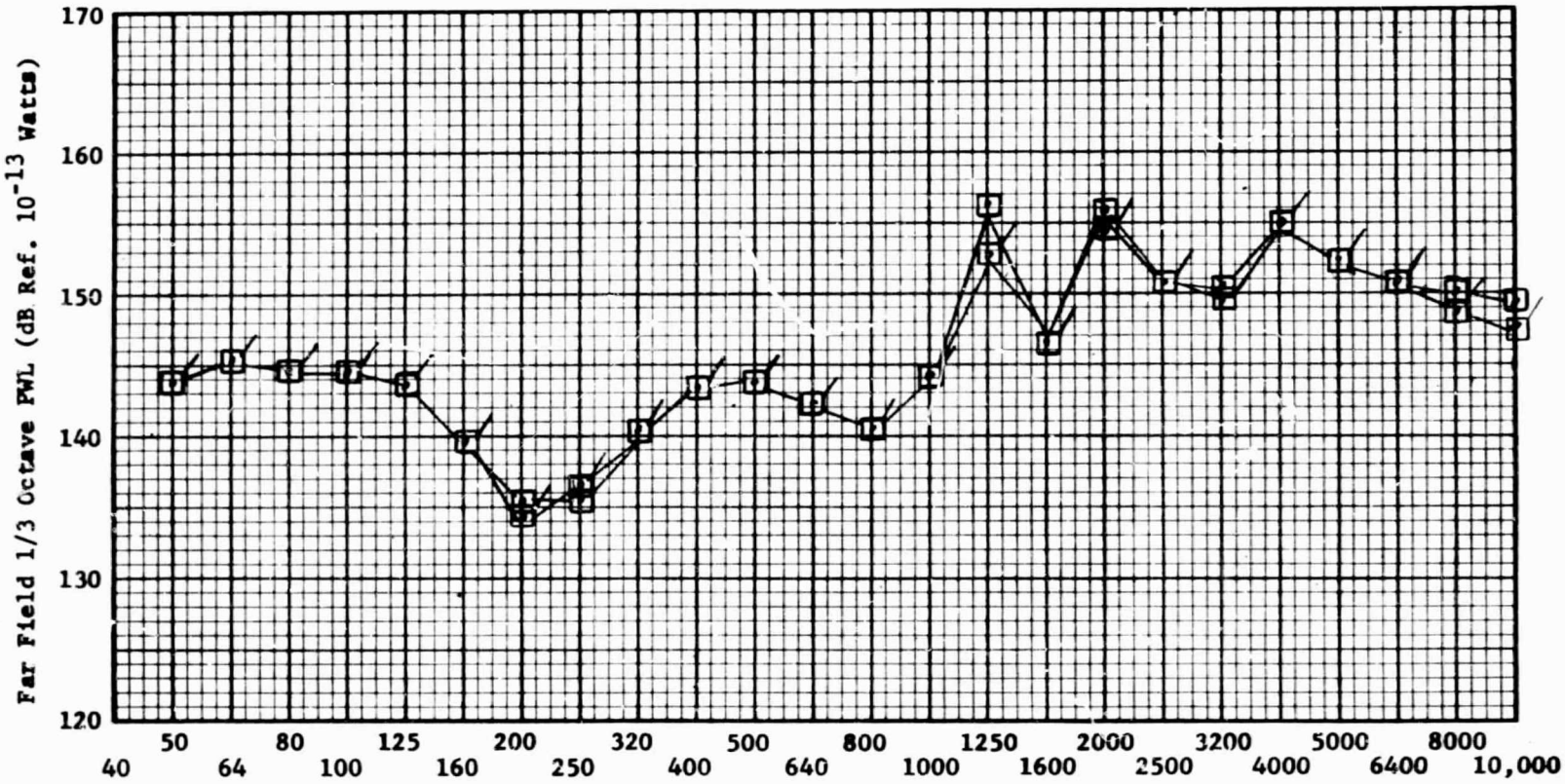
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		8-137	8-151		
Date		9/13/68	9/13/68		
Tape No.		P-661	P-665		
Physical Speed	RPM	2900	2900		
	Rad/sec	303.6	303.6		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-197

KEY		○	◇		
Corr. Speed %		82.5	82.3		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

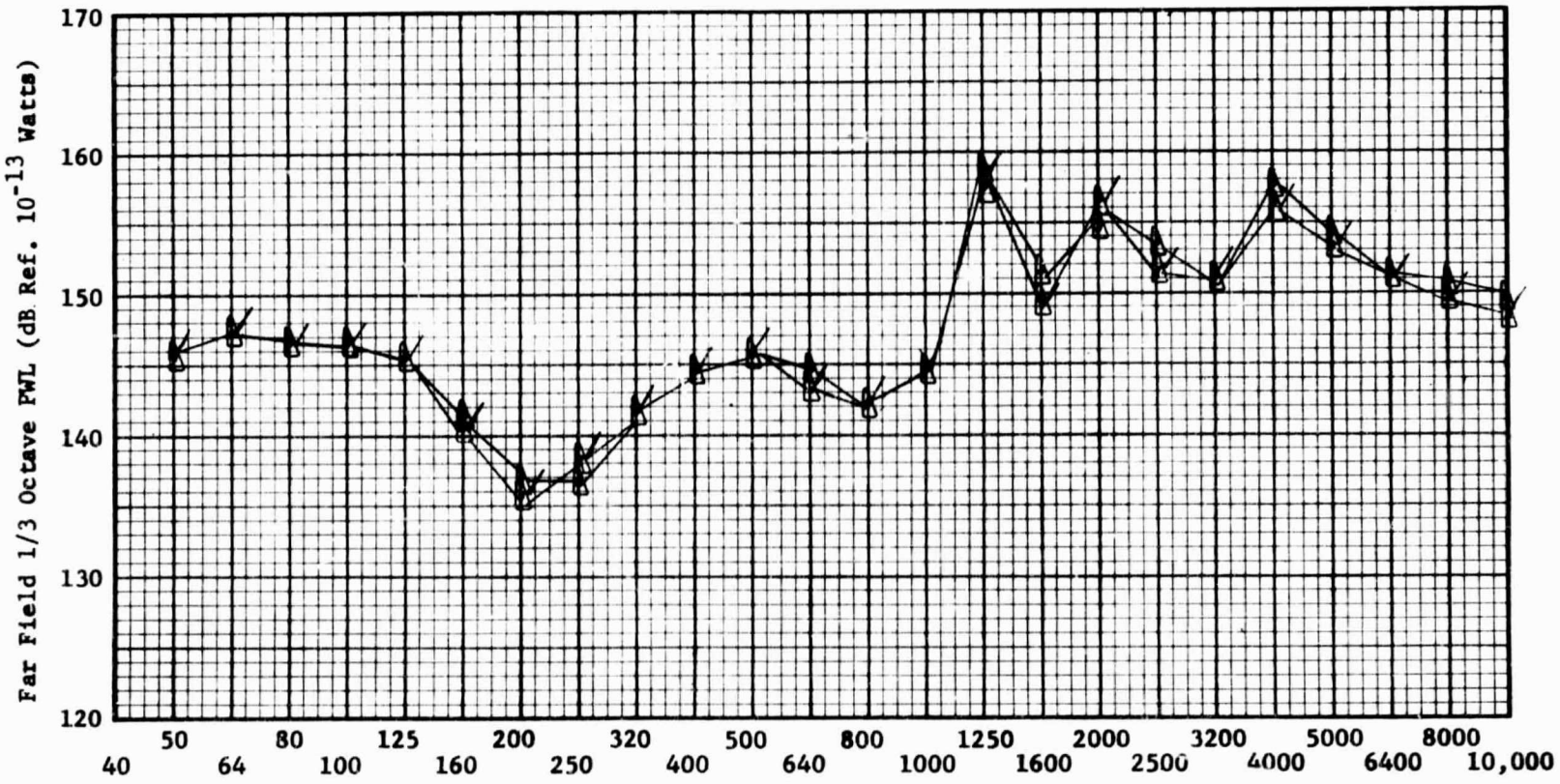
KEY		□	☑		
Run No.		8-138	8-152		
Date		9/13/68	9/13/68		
Tape No.		P-661	P-665		
Physical Speed	RPM	3045	3050		
	Rad/sec	318.8	319.3		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-198

KEY		□	☑		
Corr. Speed %		86.6	86.6		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. ?



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

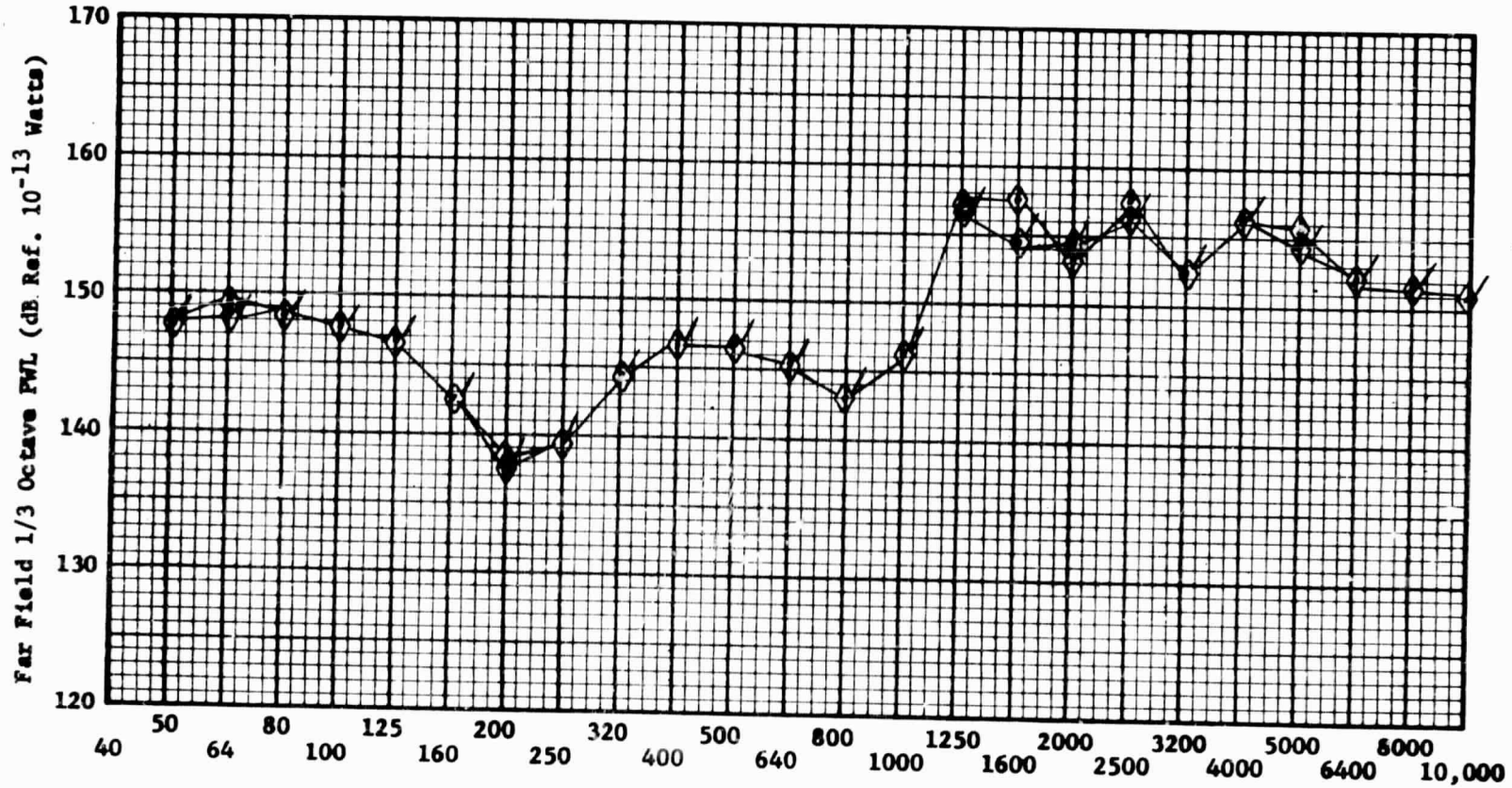
KEY		△	▽		
Run No.		8-138	8-152		
Date		9/13/68	9/13/68		
Tape No.		P-662	P-665		
Physical Speed	RPM	3200	3200		
	Rad/sec	335.0	335.0		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-199

KEY		△	▽		
Corr. Speed %		90.8	90.8		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

B199



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

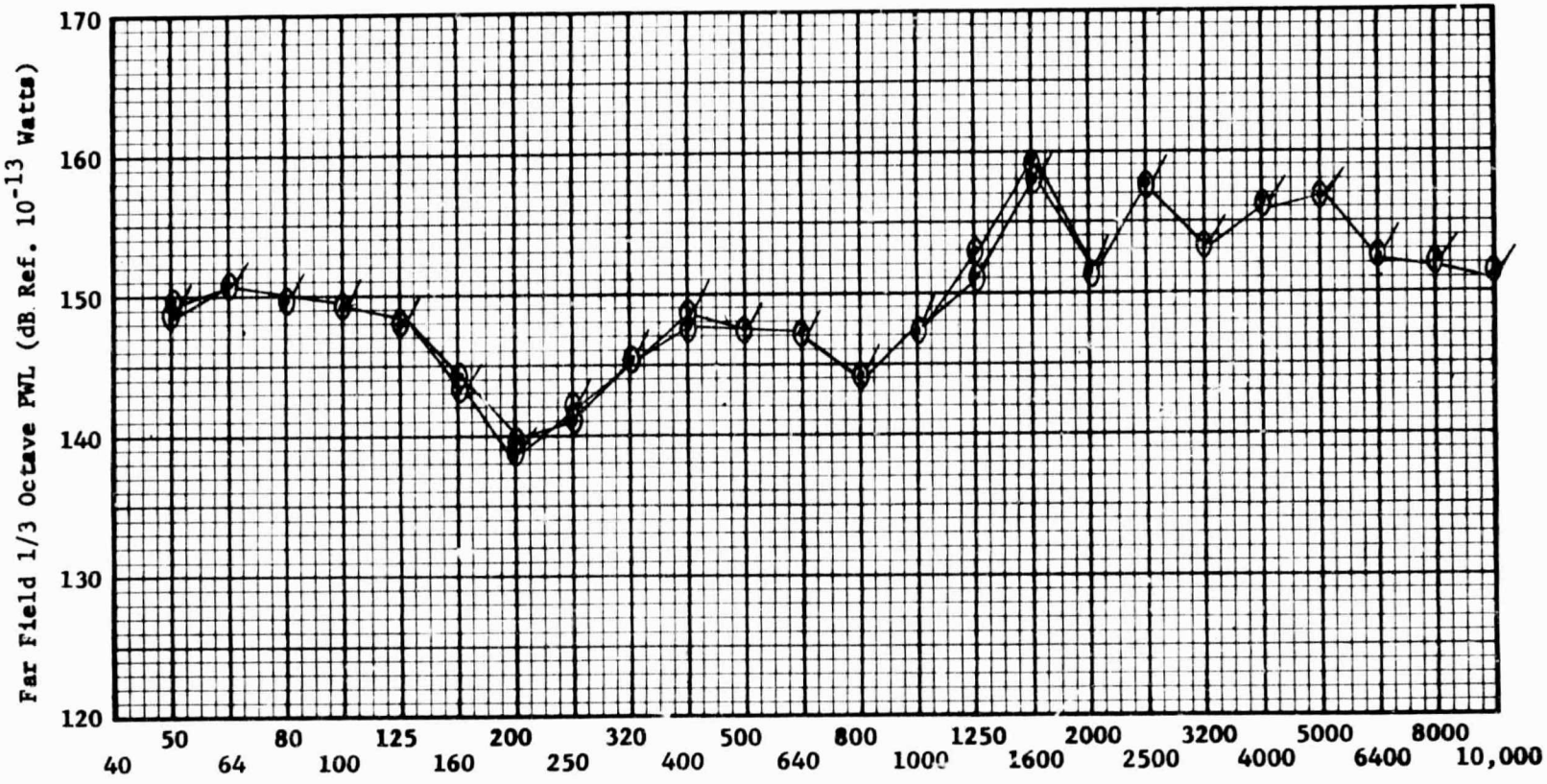
KEY		◊	◊		
Run No.		8-140	8-154		
Date		9/13/68	9/13/68		
Tape No.		P-662	P-666		
Physical Speed	RPM	3350	3350		
	Rad/sec	350.7	350.7		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-200

KEY		◊	◊		
Corr. Speed %		95.0	95.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Form No. 2



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

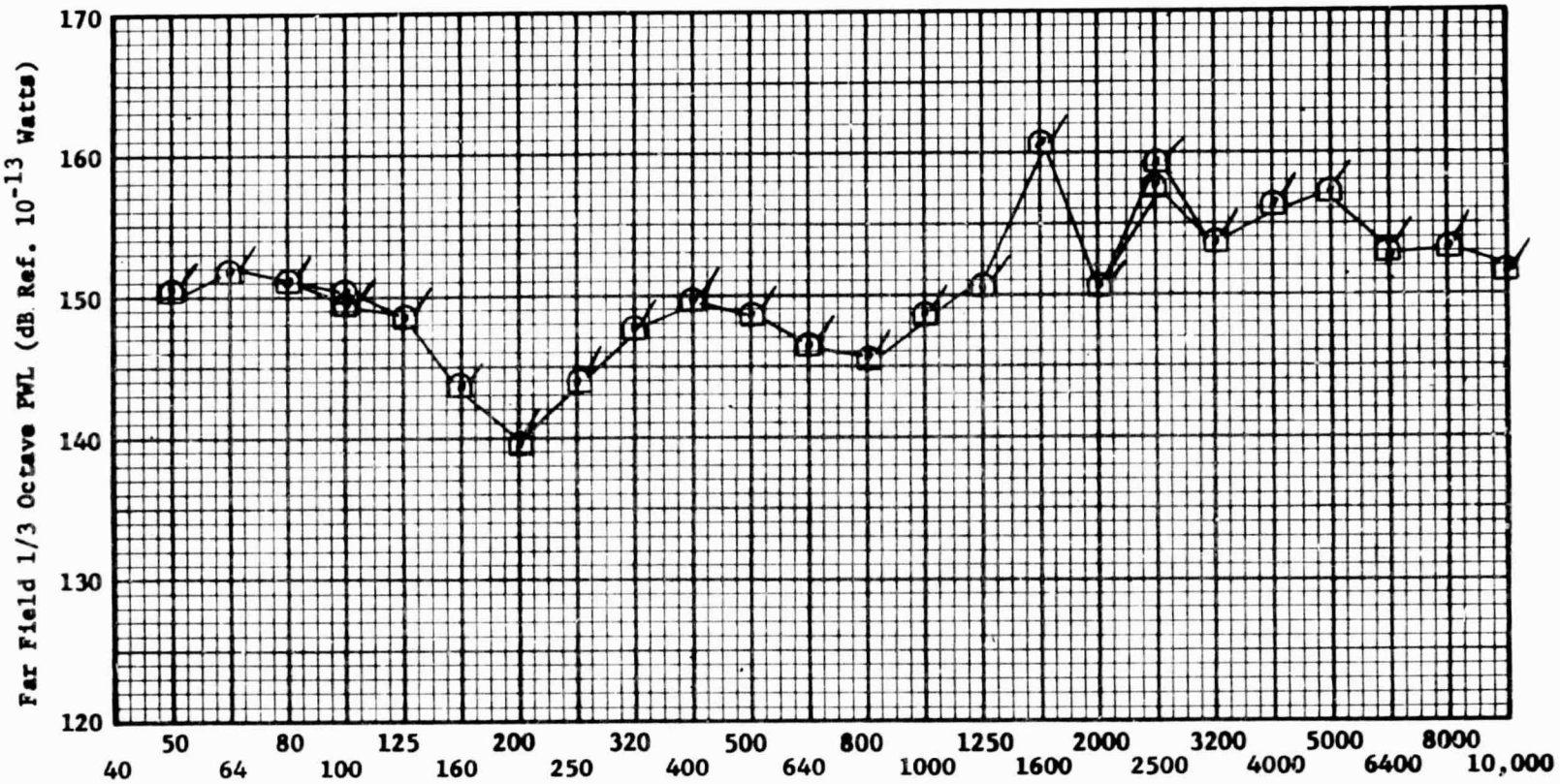
KEY		0	0′		
Run No.		8-141	8-155		
Date		9/13/68	9/13/68		
Tape No.		P-662	P-666		
Physical Speed	RPM	3473	3473		
	Rad/sec	363.6	363.6		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-201

KEY		0	0′		
Corr. Speed %		98.6	98.9		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

B201



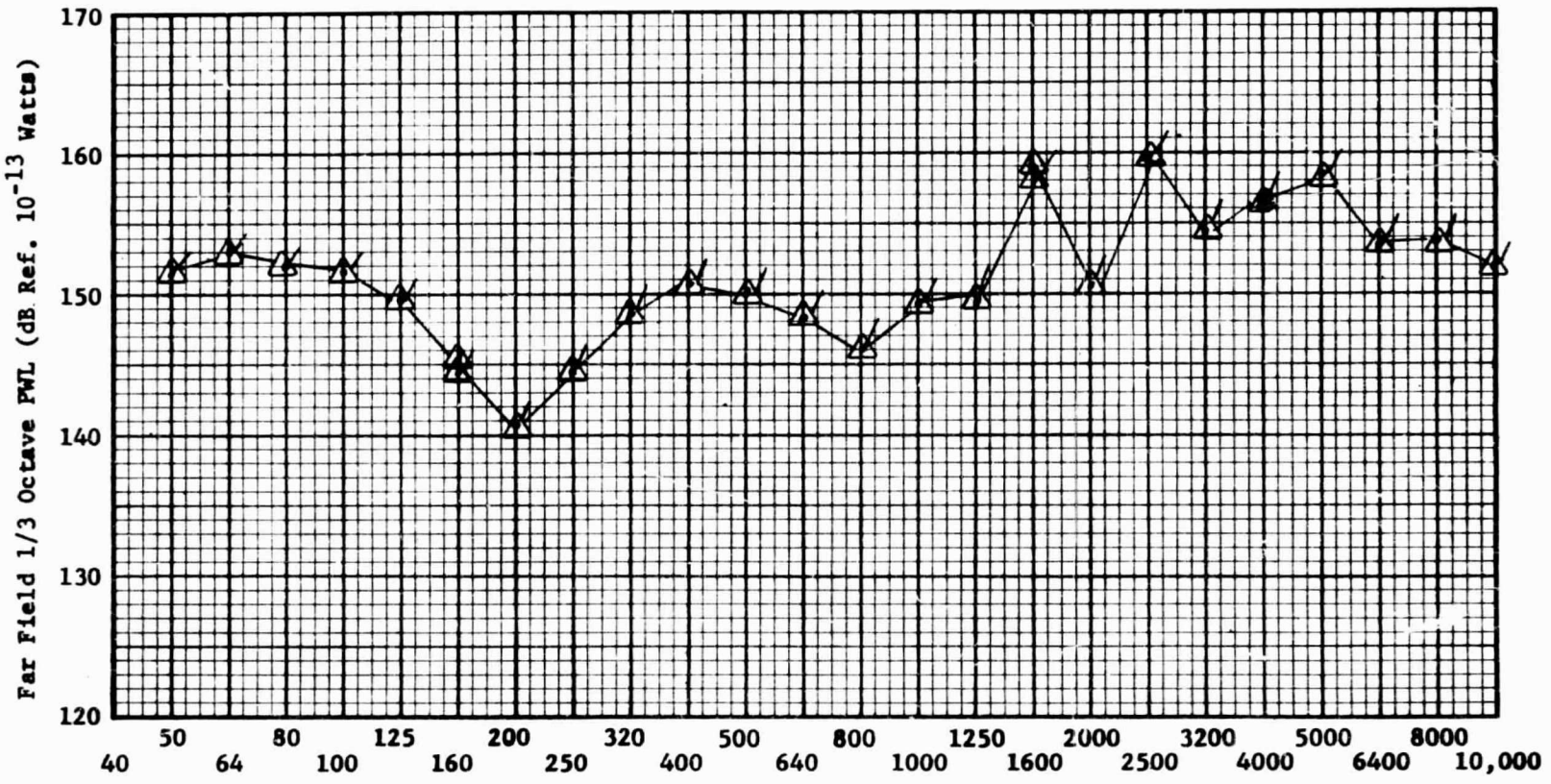
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	□		
Run No.		8-159	8-161		
Date		9/13/68	9/13/68		
Tape No.		P-667	P-667		
Physical Speed	RPM	3562	3562		
	Rad/sec	372.9	372.9		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-202

KEY		○	□		
Corr. Speed %		101.1	101.1		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



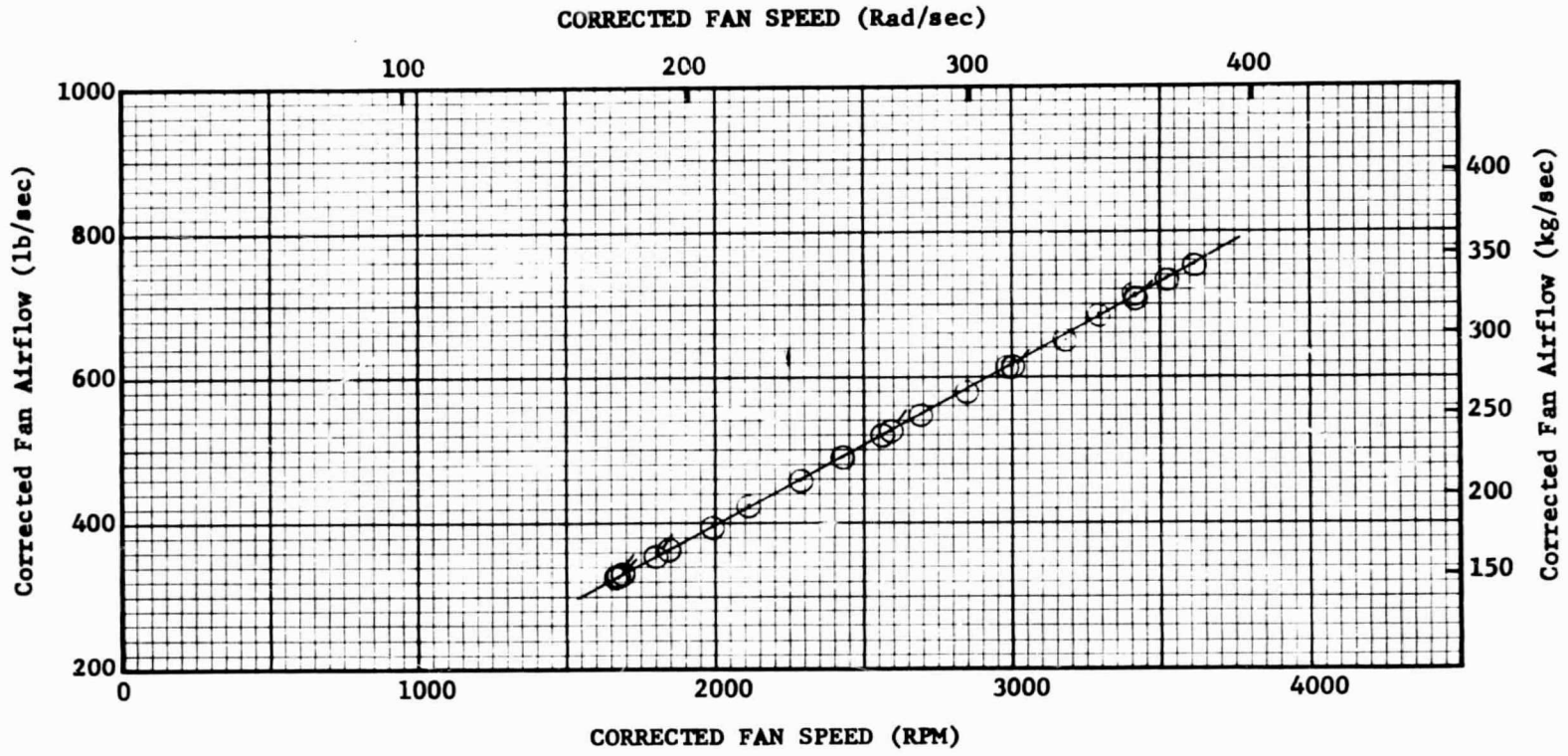
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		Δ	∠		
Run No.		8-157	8-158		
Date		9/13/68	9/13/68		
Tape No.		P-666	P-666		
Physical Speed	RPM	3658	3650		
	Rad/sec	382.9	382.2		

1/3 Octave PWL
Vs.
1/3 Octave Frequency

Figure B-203

KEY		Δ	∠		
Corr. Speed %		103.8	103.6		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		



B204

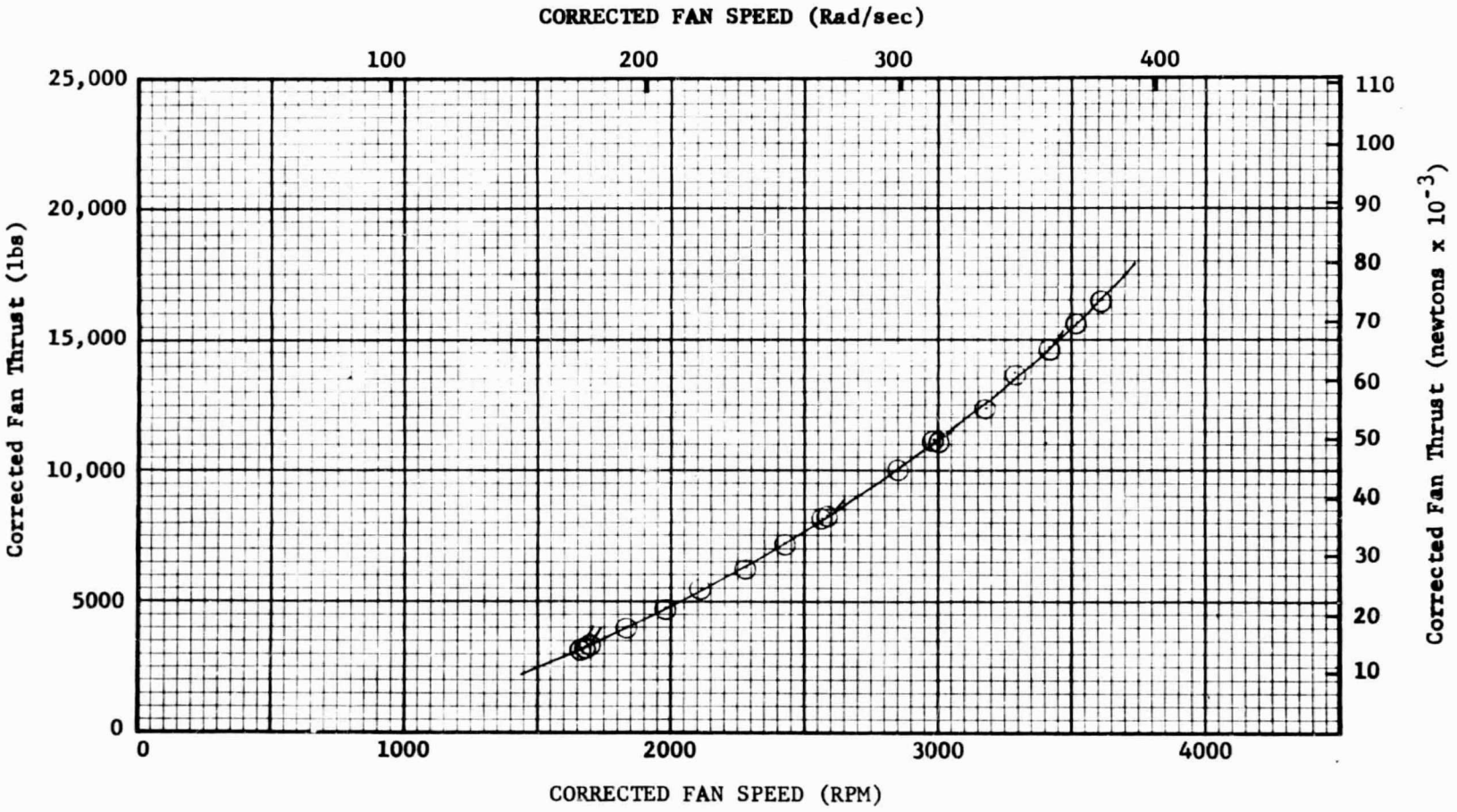
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		8	8		
Date		9/13/68	9/13/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Corrected Fan Airflow Vs Corrected Fan Speed

Figure B-204

KEY		○	◇		
P.Bar	In.Hg	28.922	28.937		
	n/m^2	97900	97714		
$T_{amb.}$	^oR	532	532		
	^oK	296	296		
% Rel.Hum.		55	57		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

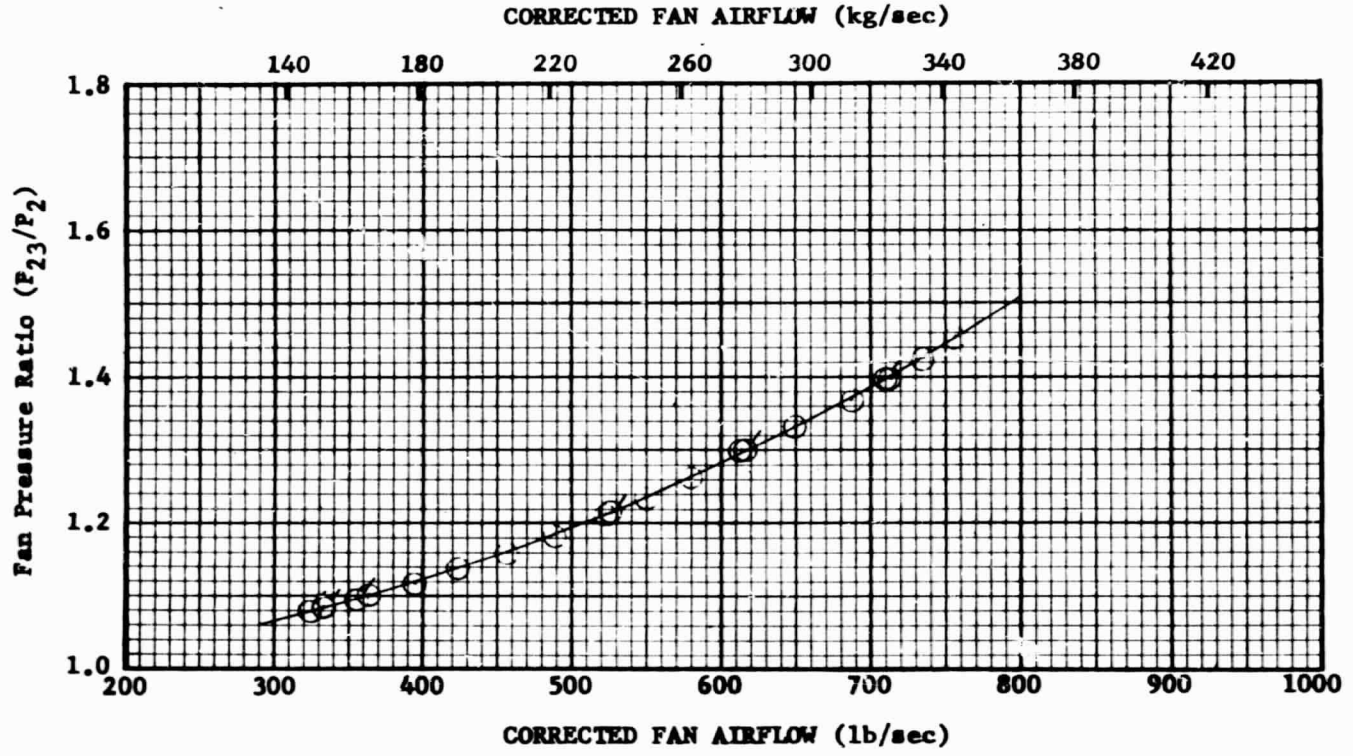
KEY		○	◇		
Run No.		8	8		
Date		9/13/68	9/13/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Corrected Fan Thrust Vs Corrected Fan Speed

Figure B-205

KEY		○	◇		
P.Bar	In.Hg	28.992	28.937		
	n/m^2	97900	97714		
$T_{amb.}$	^oR	532	532		
	^oK	296	296		
% Rel.Hum.		55	57		

Form No. N-1



B206

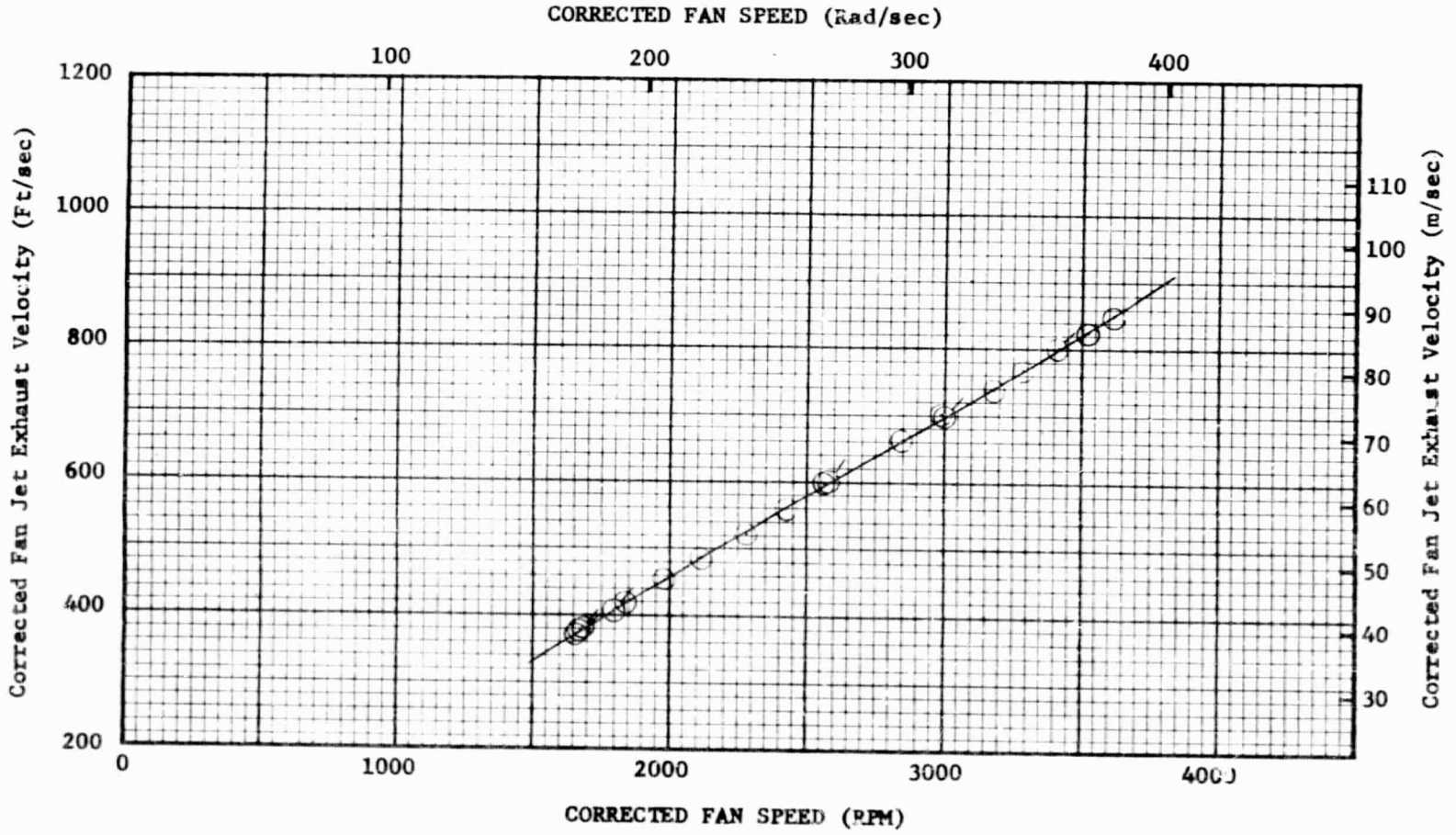
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		8	8		
Date		9/13/68	9/13/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Fan Pressure Ratio Vs Corrected Fan Airflow

Figure B-206

KEY		○	♂		
P.Bar	In.Hg	28.992	28.937		
	n/m^2	97900	97714		
$T_{amb.}$	^oR	532	532		
	^oK	296	296		
% Rel.Hum.		55	57		



B207

TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

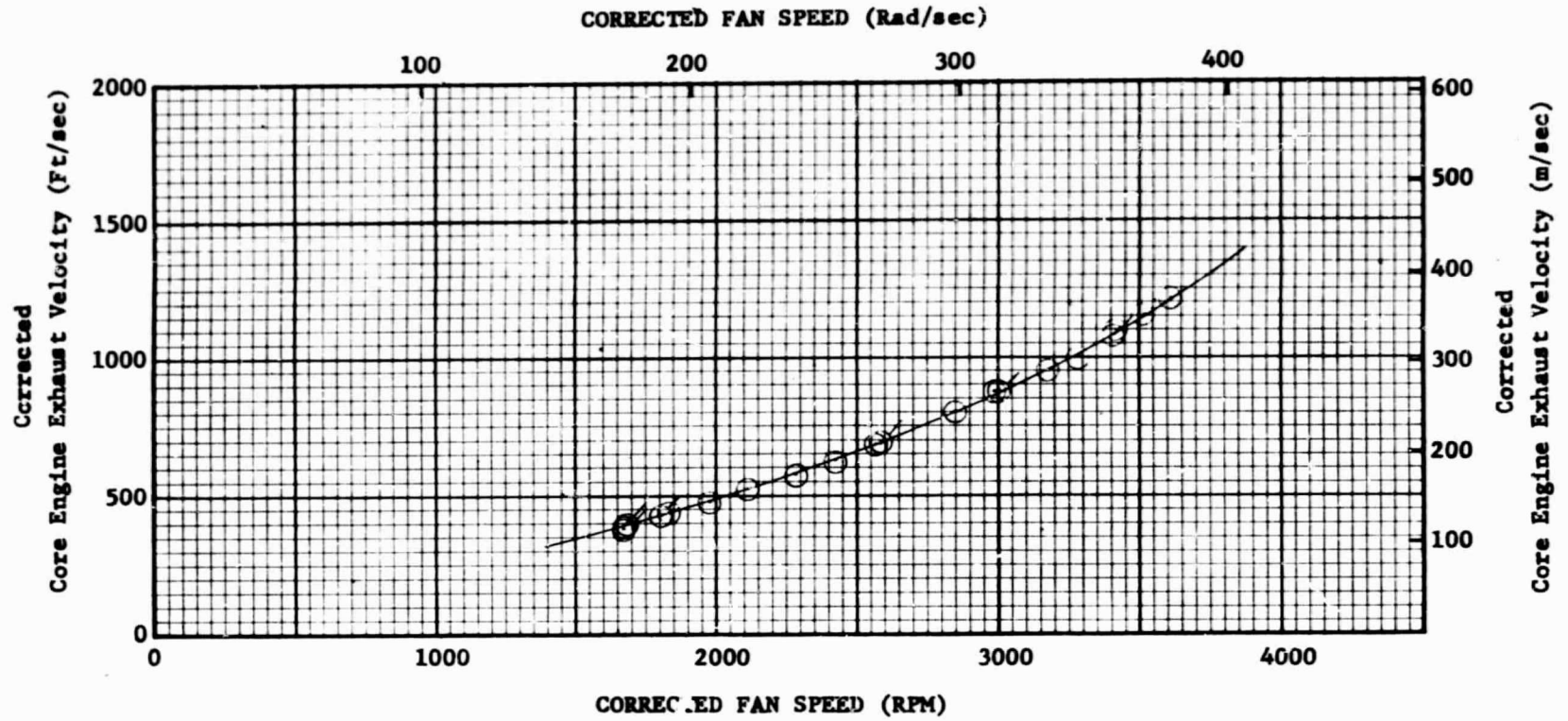
KEY		○	◇		
Run No.		8	8		
Date		9/13/68	9/13/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Corrected Fan Jet Exhaust Velocity Vs Corrected Fan Speed

Figure B-207

KEY		○	◇		
P.Bar	In.Hg	28.992	28.937		
	n/m^2	97900	97714		
$T_{amb.}$	^oR	532	532		
	^oK	296	296		
% Rel.Hum.		55	57		

Form No. N-



B208

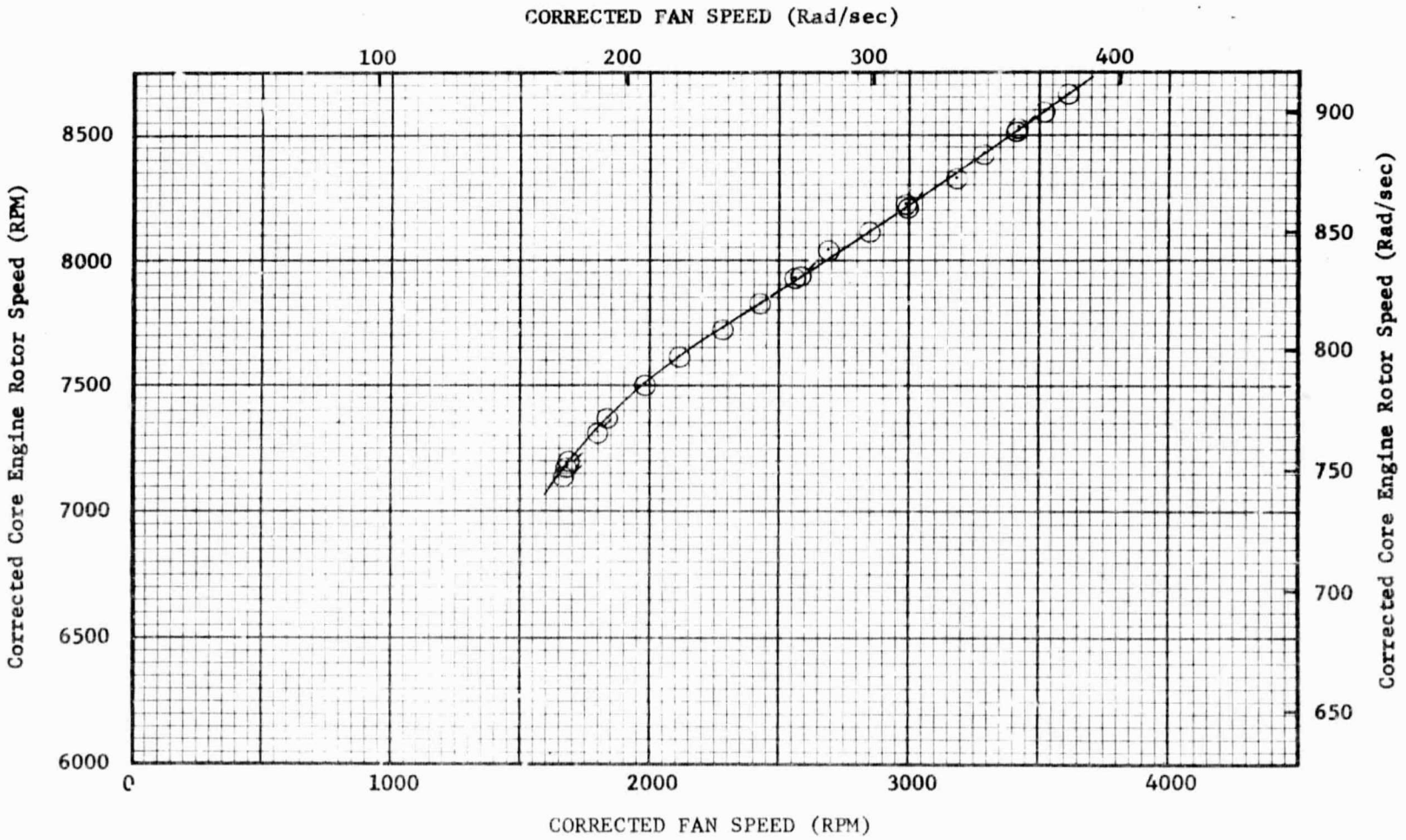
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		8	8		
Date		9/13/68	9/13/68		
Fan Noz.	In^2	1508.3	1508.3		
Area	m^2	.9728	.9728		
Core Noz.	In^2	580	580		
Area	m^2	.3741	.3741		

Corrected Core Engine Exhaust Velocity Vs Corrected Fan Speed

Figure B-208

KEY		○	♂		
P.Bar	In.Hg	28.992	28.937		
	n/m^2	97900	97714		
$T_{amb.}$	^oR	532	532		
	^oK	296	296		
% Rel.Hum.		55	57		



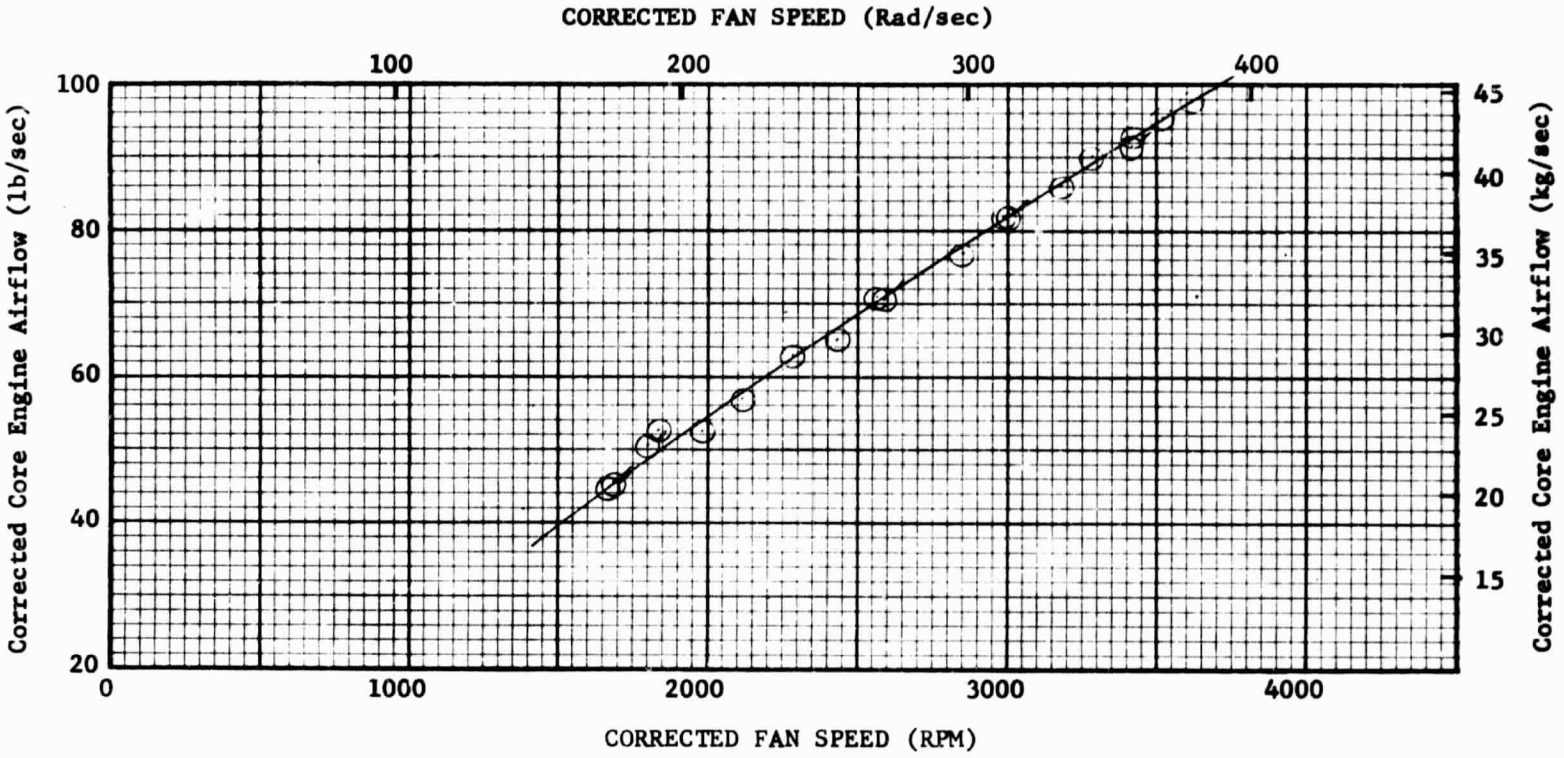
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		8	8		
Date		9/13/68	9/13/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Corrected Core Engine Rotor Speed vs Corrected Fan Speed

Figure B-209

KEY		○	◇		
P.Bar	In.Hg	28.992	28.937		
	n/m^2	97900	97714		
$T_{amb.}$	^oR	532	532		
	^oK	296	296		
% Rel.Hum.		55	57		



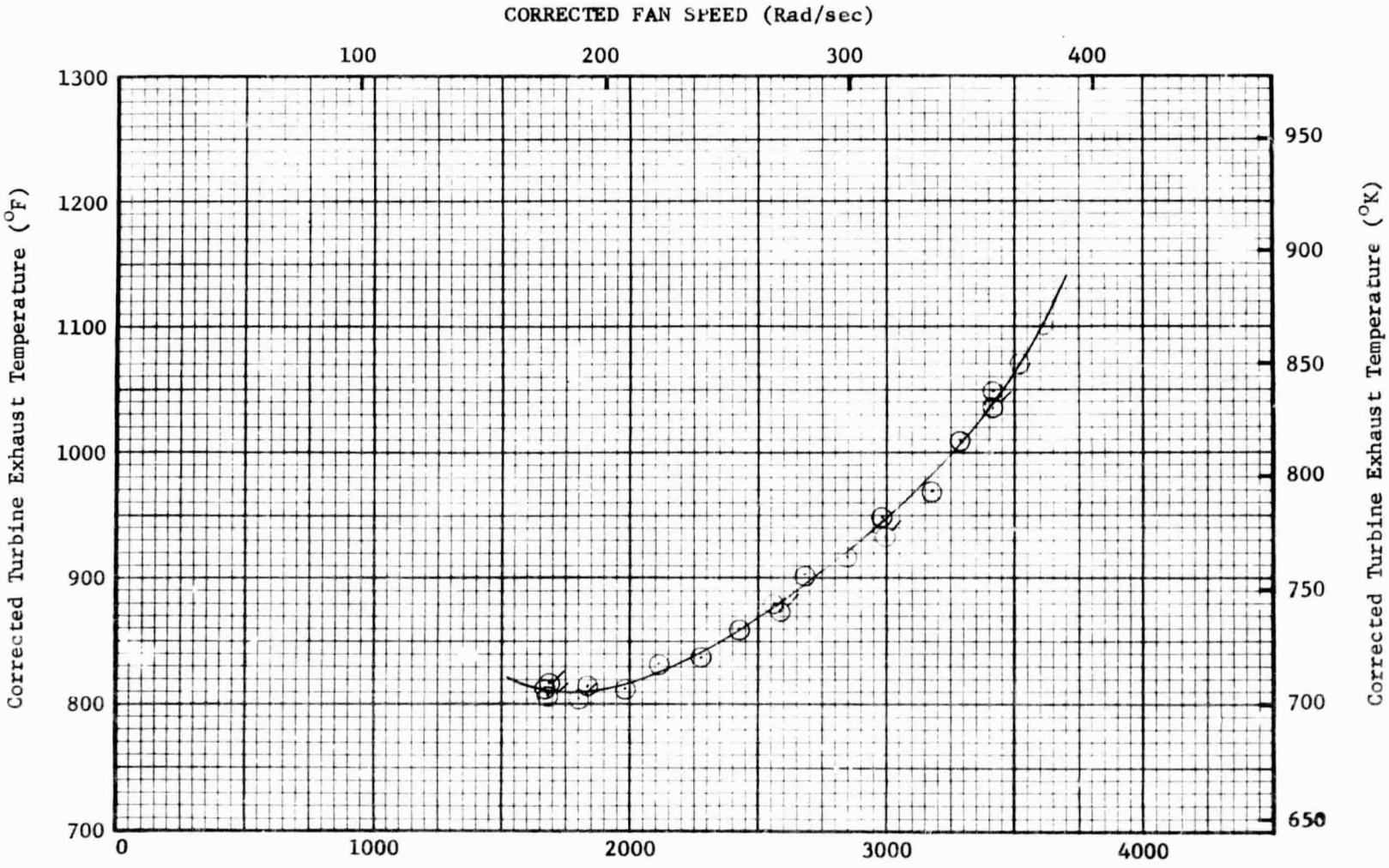
TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	♂		
Run No.		8	8		
Date		9/13/68	9/13/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Corrected Core Engine Airflow Vs Corrected Fan Speed

Figure B-210

KEY		○	♂		
P.Bar	In.Hg	29.992	28.937		
	n/m^2	97900	97714		
$T_{amb.}$	^oR	532	532		
	^oK	296	296		
% Rel.Hum.		55	57		



TWO-STAGE LOW TIP SPEED FAN NOISE DEMONSTRATOR

KEY		○	◇		
Run No.		8	8		
Date		9/13/68	9/13/68		
Fan Noz. Area	In^2	1508.3	1508.3		
	m^2	.9728	.9728		
Core Noz. Area	In^2	580	580		
	m^2	.3741	.3741		

Turbine Exhaust Temperature Vs Corrected Fan Speed

Figure B-211

KEY		○	◇		
P.Bar	In.Hg	28.992	28.937		
	n/m^2	97900	97714		
$T_{amb.}$	°R	532	532		
	°K	296	296		
% Rel.Hum.		55	57		

B211

INTRODUCTION - APPENDIX C

Appendix C contains the processed data from each test point in the form of the computer print-out sheet. The acoustic data presented on these sheets consists of 1/3 octave sound pressure level at each angle and 1/3 octave sound power level for frequencies of 50 to 10K Hz, overall sound pressure level and perceived noise level at each angle, overall sound power level, and the directivity index. A detailed explanation of the terminology is presented in the following pages. All data is at a 225 foot (68.58M) radius and has been corrected for standard day atmospheric absorption conditions.

LEGEND - APPENDIX C

The 117 Tables in Appendix C are easily interpreted with the assistance of the pertinent nomenclature explanations. Initially, a tabulation on the upper left of each Table describes the contents of that Table, as folows:

RADIAL DISTANCE (ft.)	- Arc distance in feet
(m.)	- Arc distance in meters
VEHICLE	- Engine Number
CONFIGURATION	- Engine Configuration
LOCATION	- Test Location - Peebles Proving Grounds (P.P.G.)
DATE	- Date of Test - month/day/year
RUN	- Engine Run Number & Data Point Number
BAROMETER (in Hg).	- Barometric Pressure in inches of mercury
(N/m^2).	- Barometric Pressure in Newtons/sq. meter
T AMBIENT (^oF)	- Dry Bulb Ambient Temperature - degrees Fahrenheit
(^oK)	- Dry Bulb Ambient Temperature - degrees Kelvin
T WET BULB(^oF)	- Wet Bulb Ambient Temperature, degrees Fahrenheit
(^oK)	- Wet Bulb Ambient Temperature, degrees Kelvin
ABS. HUMIDITY(gm/m^3)	- Absolute Humidity in grams per cubic meter
(kg/m^3)	- Absolute Humidity in kilograms per cubic meter
PHYS. FAN SPEED (RPM)	- Physical Fan Speed in revolutions per minute
(rad/sec)	- Physical Fan Speed in radians per second
CORR. FAN SPEED (RPM)	- Fan Speed for Standard Day Temperature of 59^o F
(rad/sec)	- Fan Speed Corrected for Standard Day Temperature of 288.15^o K
TAPE NUMBER	- Tape Reel Number on which acoustic data was recorded.

Other nomenclature on each Table is explained as follows:

FREQ	- Column heading for listing of 1/3 octave band center frequencies from 50 Hz to 10 KHz
ANGLES FROM INLET	- Fifteen columns for each of the microphone positions. Position in degrees is listed with position in radians in parenthesis.
STANDARD DAY	- All data is corrected to atmospheric absorption conditions of standard da (59°F (288.15 K)), 70% relative humidity.
PWL	- Sound power level
OASPL MEASURED	- Overall sound pressure level measured with a broadband (0 - 40 KHz) filter
OAPWL	- Overall sound power level calculated by summation of power level spectra from 50 Hz to 10 KHz
PNdB	- Perceived Noise Level (ref. SAE ARP 865)
DIRECTIVITY INDEX	- Directivity Index, defined as the sound pressure level at a particular position and frequency minus the spaced average sound pressure level at that frequency.

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 9 DAY 27 HR. 2.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F
LOCATION..... P.P.G.
DATE..... 9/4/68
RUN..... 5, Pt.34
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT... ...(°F)..... 67.0
(°K)..... 291.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.3
ABS. HUMIDITY...(gm/m³).. 13.5
(kg/m³)... .0135
PHYS. FAN SPEED (RPM).... 1707
(rad/sec) 178.7
CORR. FAN SPEED (RPM).... 1694
(rad/sec) 177.4
TAPE NUMBER..... P625

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	71.3	71.2	71.9	72.1	72.6	71.9	71.3	71.8	71.4	73.2	72.7	73.8	74.3	73.9	73.7	74.9	73.2	129.9
63	74.0	74.4	74.3	73.1	73.9	73.3	73.6	73.0	73.2	75.2	74.7	74.4	74.5	74.2	73.8	75.4	76.2	131.2
80	73.8	73.5	72.7	71.5	71.3	71.0	71.1	71.1	71.4	71.6	70.8	72.0	72.9	72.8	72.5	71.3	72.8	128.9
100	72.0	72.0	71.2	71.1	70.3	71.7	71.3	70.9	70.8	69.7	68.9	69.5	71.2	70.4	71.1	69.5	70.4	127.8
125	68.9	69.1	68.8	74.5	79.9	83.1	83.2	80.1	81.1	75.9	75.3	73.1	78.9	73.0	72.5	71.7	69.3	136.0
160	65.7	66.0	66.8	66.5	64.9	64.7	64.8	64.2	64.1	62.3	61.2	61.4	62.2	62.0	63.3	64.3	64.5	121.2
200	66.1	64.9	63.7	62.8	62.9	59.9	61.7	62.3	61.0	60.5	59.5	60.8	61.4	61.5	62.0	62.0	63.4	119.1
250	66.8	65.6	66.1	65.7	64.8	65.1	63.8	62.8	63.0	65.9	63.4	65.8	68.6	68.8	68.7	67.3	67.6	123.6
315	71.6	69.4	69.1	68.6	67.8	66.9	66.1	66.1	67.1	69.4	69.1	70.9	73.6	73.4	73.6	71.4	68.6	127.8
400	76.9	76.8	76.0	75.2	73.9	71.8	71.9	71.5	72.4	73.7	74.3	76.2	78.6	80.2	80.1	76.1	72.9	133.6
500	78.7	77.6	76.2	74.9	73.2	72.4	71.1	70.8	72.2	73.1	73.5	75.7	77.1	78.7	78.9	74.3	70.9	132.8
630	79.0	80.3	79.5	77.3	76.6	75.1	73.3	71.7	71.8	71.3	72.6	73.7	74.9	75.8	75.9	72.3	71.8	132.6
800	79.1	80.3	79.3	78.1	77.7	75.7	73.3	71.4	71.9	72.0	73.5	72.7	74.6	76.3	76.8	72.5	72.3	133.1
1000	83.9	86.7	85.3	85.8	79.7	77.7	81.7	81.3	79.0	82.9	83.4	79.2	82.0	87.3	90.8	81.0	81.9	142.2
1250	86.2	90.4	89.0	90.0	89.9	82.2	86.1	85.5	82.9	86.7	87.1	82.9	85.2	90.8	94.7	85.0	86.1	146.5
1600	81.1	82.7	85.9	87.9	92.1	83.1	83.3	80.9	78.9	77.5	78.5	83.2	83.1	82.7	84.0	77.5	79.4	142.8
2000	81.6	87.2	82.2	79.7	81.0	78.9	78.1	75.9	76.0	74.5	76.6	80.4	81.1	84.6	84.2	77.2	73.6	139.1
2500	78.0	83.7	79.3	78.0	80.3	80.3	78.7	77.1	77.4	73.3	78.0	82.3	82.8	87.5	85.9	80.0	75.7	140.6
3150	78.7	80.0	79.4	78.9	79.0	78.5	75.8	73.1	71.6	74.9	74.6	78.8	79.3	81.8	81.5	77.4	72.3	137.4
4000	81.6	77.5	82.0	80.8	80.5	76.2	76.3	75.9	74.7	78.2	77.0	78.5	80.8	79.6	82.3	74.9	75.3	138.6
5000	79.9	76.4	80.5	79.7	81.3	76.7	77.1	74.7	73.3	75.2	76.8	79.8	81.3	80.3	81.6	73.1	73.3	138.7
6300	76.4	77.5	77.2	76.7	79.9	77.5	76.1	72.3	73.5	72.2	78.0	82.0	81.6	83.5	82.7	76.5	71.1	140.2
8000	73.8	74.7	73.6	73.4	73.2	71.6	69.3	66.9	65.7	69.9	70.8	76.2	74.5	78.9	75.7	72.4	67.0	135.9
10000	70.1	70.7	71.1	69.9	71.9	66.7	66.5	64.4	63.8	66.0	69.5	70.9	72.2	73.4	72.9	68.8	64.4	134.2
OASPL MEASURED	94.1	96.1	95.4	95.7	96.8	92.5	92.8	91.3	90.4	91.5	92.3	93.4	94.5	97.1	98.8	91.7	91.2	
OASPL CALCULATED	92.5	95.1	94.1	94.5	95.7	90.9	91.6	90.2	89.0	90.5	91.2	91.6	92.8	95.9	97.9	90.2	89.9	
PNDB	105.1	106.9	105.8	105.9	108.0	103.2	102.6	101.0	100.5	101.7	102.4	104.8	105.7	108.6	108.7	102.6	100.8	
																	OAPWL	151.9

DIRECTIVITY INDEX

FREQ.																	
50	-1.7	-1.8	-1.1	-0.9	-0.4	-1.1	-1.7	-1.3	-1.6	0.2	-0.3	0.8	1.3	0.9	0.7	1.9	0.2
63	-0.3	0.2	-0.0	-1.2	-0.3	-1.0	-0.7	-1.3	-1.1	0.9	0.4	0.2	0.2	-0.1	-0.4	1.1	2.0
80	1.9	1.6	0.8	-0.4	-0.6	-0.9	-0.8	-0.8	-0.5	-0.3	-1.1	0.1	1.1	1.0	0.6	-0.5	0.9
100	1.4	1.3	0.5	0.4	-0.4	1.0	0.6	0.3	0.1	-0.9	-1.8	-1.2	0.5	-0.3	0.5	-1.2	-0.3
125	-9.9	-9.7	-10.0	-4.3	1.1	4.3	4.4	1.3	2.3	-2.9	-3.5	-5.7	0.1	-5.8	-6.3	-7.1	-9.5
160	1.8	2.1	2.9	2.6	1.0	0.8	0.9	0.3	0.2	-1.6	-2.7	-2.5	-1.7	-1.9	-0.6	0.4	0.6
200	4.4	3.2	2.0	1.1	1.2	-1.9	-0.1	0.6	-0.7	-1.2	-2.2	-0.9	-0.3	-0.2	0.3	0.2	1.7
250	0.6	-0.6	0.0	-0.5	-1.3	-1.0	-2.4	-3.3	-3.2	-0.2	-2.7	-0.3	2.5	2.7	2.5	1.1	1.5
315	1.3	-0.8	-1.2	-1.6	-2.4	-3.4	-4.1	-4.2	-3.2	-0.8	-1.2	0.6	3.3	3.2	3.4	1.1	-1.6
400	0.9	0.8	0.0	-0.8	-2.1	-4.1	-4.1	-4.5	-3.6	-2.3	-1.7	0.3	2.6	4.3	4.2	0.2	-3.1
500	3.7	2.6	1.2	-0.1	-1.9	-2.6	-3.9	-4.3	-2.8	-1.9	-1.6	0.6	2.1	3.7	3.8	-0.7	-4.2
630	4.3	5.6	4.8	2.6	1.9	0.4	-1.4	-3.0	-2.9	-3.4	-2.1	-1.0	0.2	1.1	1.2	-2.4	-2.9
800	4.1	5.3	4.3	3.1	2.7	0.7	-1.7	-3.7	-3.2	-3.1	-1.5	-2.3	-0.4	1.2	1.8	-2.5	-2.7
1000	-0.0	2.8	1.3	1.8	-4.2	-6.3	-2.3	-2.6	-5.0	-1.1	-0.6	-4.7	-1.9	3.3	6.8	-3.0	-2.1
1250	-1.9	2.3	0.9	1.9	1.8	-5.9	-2.1	-2.6	-5.3	-1.5	-1.0	-5.3	-3.0	2.7	6.6	-3.1	-2.0
1600	-3.1	-1.5	1.6	3.6	7.9	-1.1	-0.9	-3.4	-5.3	-6.7	-5.7	-1.0	-1.1	-1.5	-0.2	-6.7	-4.8
2000	1.4	6.9	2.0	-0.6	0.7	-1.4	-2.2	-4.3	-4.2	-5.8	-3.7	0.1	0.8	4.3	3.9	-3.1	-6.7
2500	-3.6	2.2	-2.3	-3.5	-1.3	-1.3	-2.8	-4.4	-4.2	-8.3	-3.5	0.8	1.3	6.0	4.4	-1.5	-5.8
3150	0.7	1.9	1.3	0.8	1.0	0.5	-2.2	-4.9	-6.4	-3.1	-3.5	0.7	1.2	3.8	3.4	-0.6	-5.7
4000	2.9	-1.3	3.3	2.1	1.8	-2.6	-2.5	-2.8	-4.0	-0.5	-1.8	-0.2	2.1	0.9	3.6	-3.8	-3.4
5000	1.3	-2.1	1.9	1.2	2.7	-1.8	-1.4	-3.9	-5.2	-3.3	-1.7	1.2	2.8	1.7	3.1	-5.5	-5.3
6300	-2.7	-1.6	-1.9	-2.5	0.8	-1.6	-3.0	-6.9	-5.6	-6.9	-1.2	2.9	2.4	4.4	3.6	-2.6	-8.0
8000	0.4	1.2	0.2	-0.0	-0.3	-1.9	-4.1	-6.5	-7.8	-3.6	-2.6	2.8	1.1	5.5	2.3	-1.0	-6.5
10000	0.2	0.8	1.3	0.1	2.1	-3.1	-3.3	-5.4	-6.1	-3.9	-0.3	1.0	2.4	3.5	3.0	-1.0	-5.4

C1

RUN 5 1707 RPM

C2

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5, Pt. 47
BAROMETER.....(in Hg).. 29.0
(N/m²).. 97928
T AMBIENT.....(°F)..... 76.0
(°K)..... 297.6
T WET BULB.....(°F)..... 68.0
(°K)..... 293.2
ABS. HUMIDITY...(gm/m³).. 14.9
(kg/m³).. 0.0149
PHYS. FAN SPEED (RPM).... 1700
(rad/sec) 177.9
CORR. FAN SPEED (RPM).... 1673
(rad/sec) 175.1
TAPE NUMBER..... P629

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																	PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	70.8	70.9	71.3	71.5	72.5	71.6	71.2	72.9	71.3	73.1	72.2	73.2	73.4	73.4	73.3	73.8	71.1	129.5
63	73.5	74.5	73.8	72.7	74.2	74.4	73.4	73.2	73.0	75.1	74.3	73.8	73.5	73.8	73.5	75.2	75.3	131.0
80	73.2	73.4	72.5	71.7	71.5	70.7	70.4	71.1	71.2	71.3	70.1	71.3	72.3	73.0	72.1	71.0	70.9	128.6
100	72.1	72.4	71.3	71.1	69.8	69.3	68.9	70.6	69.6	69.9	68.4	69.4	71.0	71.7	71.5	69.9	68.9	127.4
125	70.3	72.5	72.8	73.2	74.3	73.0	77.9	77.6	76.7	76.7	69.7	71.7	79.5	80.8	77.6	77.4	72.3	133.9
160	67.0	68.5	69.0	68.6	66.7	65.5	64.7	64.7	64.9	63.3	62.5	62.8	64.0	65.5	65.5	66.2	61.9	122.6
200	66.3	67.2	67.2	65.2	64.1	62.5	62.2	63.0	62.0	60.6	59.8	61.1	58.6	60.6	61.9	61.4	60.5	119.8
250	65.8	65.6	67.7	62.1	62.5	60.6	62.4	61.0	61.0	63.1	63.6	66.1	65.5	67.5	65.6	64.3	65.0	121.8
315	67.5	65.4	64.6	65.3	65.9	64.1	64.2	63.6	65.2	68.1	67.5	68.6	71.4	72.7	71.9	69.6	67.4	126.0
400	74.7	74.1	73.0	72.3	71.8	69.9	69.3	69.2	70.4	72.6	73.2	75.0	77.3	79.3	79.2	74.9	72.6	132.3
500	78.0	76.9	74.6	74.1	72.6	71.4	70.5	70.5	71.9	73.6	73.9	75.0	77.1	79.2	79.3	74.4	70.9	132.8
630	81.8	80.9	78.5	78.5	77.7	74.1	72.1	71.5	71.6	71.1	72.7	73.8	75.1	77.2	76.8	72.9	69.7	132.9
800	83.5	82.0	78.5	79.0	77.6	74.0	72.6	71.3	71.4	71.0	73.5	72.2	73.8	75.8	75.8	73.2	70.4	132.8
1000	81.2	80.0	91.1	91.8	80.6	76.5	76.1	81.3	83.8	78.0	83.3	84.7	85.0	87.2	93.2	84.6	81.0	144.3
1250	86.0	85.4	96.5	97.3	88.9	81.1	82.7	86.7	89.0	82.5	88.5	89.8	90.1	92.2	70.1	90.1	86.4	148.3
1600	83.0	82.0	82.3	88.7	91.7	80.9	84.0	80.5	78.2	76.6	77.3	81.4	83.5	81.9	83.0	79.8	78.3	142.4
2000	81.0	84.3	81.5	79.0	81.0	78.6	77.7	75.2	74.8	74.1	75.7	80.2	80.1	83.4	84.9	77.2	72.7	138.5
2500	78.4	82.3	80.2	77.4	80.8	81.3	81.3	76.0	75.9	72.2	77.1	82.2	81.6	87.0	85.8	81.1	75.3	140.4
3150	78.6	81.0	79.1	79.7	78.2	80.1	76.7	74.4	72.6	75.0	74.5	79.2	79.8	82.7	81.8	77.9	72.3	138.0
4000	81.8	78.1	82.5	80.9	81.1	76.7	76.8	76.4	75.4	79.1	77.3	78.7	81.4	80.9	82.6	75.4	75.0	139.2
5000	80.1	76.8	81.3	80.1	81.9	78.0	77.7	75.3	74.2	76.6	77.5	81.0	82.4	81.7	82.4	73.9	73.6	139.7
6300	76.9	77.6	78.6	77.3	81.1	78.8	77.1	74.0	74.9	73.5	79.0	84.1	82.8	85.4	83.7	77.1	71.7	141.6
8000	74.3	75.9	74.5	73.8	74.4	73.4	70.1	68.2	67.1	71.2	72.0	77.9	75.4	80.8	77.2	73.4	67.8	137.4
10000	71.3	72.3	72.8	71.0	73.3	68.5	67.6	66.3	65.0	67.8	70.6	72.9	73.7	75.6	74.0	69.9	65.8	135.8
OASPL MEASURED	94.0	93.9	98.8	99.7	96.3	91.2	91.4	91.2	92.2	89.7	92.3	94.8	95.4	97.4	101.0	93.9	90.6	
OASPL CALCULATED	92.8	92.7	98.4	99.2	95.3	89.9	90.3	90.4	91.7	88.6	91.7	93.9	94.5	96.6	96.2	93.1	89.7	
PNDB	105.4	105.3	108.6	108.8	107.8	103.3	103.1	101.4	102.3	101.7	102.8	105.7	105.9	108.8	107.8	104.1	100.7	
																	OAPWL	152.8

DIRECTIVITY INDEX

FREQ.																	
50	-1.9	-1.8	-1.4	-1.1	-0.2	-1.0	-1.4	0.2	-1.4	0.4	-0.5	0.5	0.7	0.8	0.7	1.1	-1.5
63	-0.5	0.4	-0.3	-1.4	0.1	0.3	-0.6	-0.9	-1.1	1.0	0.2	-0.3	-0.6	-0.3	-0.6	1.1	1.2
80	1.6	1.8	0.9	0.1	-0.1	-0.9	-1.2	-0.4	-0.4	-0.2	-1.5	-0.3	0.7	1.4	0.6	-0.5	-0.7
100	1.9	2.1	1.0	0.8	-0.5	-1.0	-1.4	0.3	-0.7	-0.3	-1.9	-0.9	0.7	1.4	1.2	-0.4	-1.3
125	-6.4	-4.2	-3.9	-3.5	-2.5	-3.7	1.2	0.9	-0.1	-0.0	-7.0	-5.0	2.8	4.1	0.9	0.6	-4.4
160	1.7	3.2	3.7	3.3	1.4	0.2	-0.6	-0.6	-0.4	-2.0	-2.8	-2.5	-1.3	0.1	0.2	0.9	-3.4
200	3.9	4.8	4.7	2.7	1.7	0.0	-0.2	0.5	-0.4	-1.8	-2.6	-1.3	-3.8	-1.8	-0.5	-1.0	-1.9
250	1.4	1.3	3.4	-2.2	-1.8	-3.7	-1.9	-3.3	-3.3	-1.2	-0.7	1.7	1.1	3.2	1.2	-0.0	0.7
315	-1.0	-3.0	-3.9	-3.2	-2.6	-4.4	-4.2	-4.8	-3.2	-0.3	-1.0	0.1	2.9	4.2	3.5	1.2	-1.0
400	0.0	-0.5	-1.7	-2.3	-2.9	-4.7	-5.3	-5.5	-4.2	-2.0	-1.4	0.4	2.7	4.6	4.5	0.2	-2.1
500	3.1	1.9	-0.4	-0.9	-2.4	-3.6	-4.5	-4.5	-3.1	-1.4	-1.1	0.0	2.1	4.2	4.3	-0.6	-4.1
630	6.8	5.9	3.5	3.5	2.7	-0.9	-2.9	-3.5	-3.4	-3.8	-2.2	-1.2	0.1	2.2	1.8	-2.1	-5.3
800	8.7	7.2	3.8	4.2	2.9	-0.7	-2.2	-3.4	-3.4	-3.7	-1.3	-2.6	-1.0	1.0	1.0	-1.6	-4.3
1000	-4.9	-6.1	5.0	5.7	-5.6	-9.6	-10.0	-4.8	-2.3	-8.1	-2.8	-1.5	-1.1	1.1	7.1	-1.5	-5.1
1250	-3.9	-4.6	6.5	7.3	-1.1	-8.8	-7.3	-3.3	-0.9	-7.5	-1.5	-0.1	0.1	2.3	-19.9	0.1	-3.5
1600	-0.8	-1.8	-1.5	4.9	7.9	-2.9	0.2	-3.3	-5.6	-7.1	-6.5	-2.4	-0.3	-1.9	-0.8	-4.0	-5.5
2000	1.3	4.6	1.8	-0.7	1.3	-1.1	-2.0	-4.6	-5.0	-5.6	-4.0	0.5	0.3	3.7	5.1	-2.5	-7.0
2500	-3.0	0.9	-1.3	-4.0	-0.6	-0.1	-0.1	-5.5	-5.5	-9.2	-4.3	0.8	0.2	5.6	4.3	-0.3	-6.1
3150	-0.1	2.4	0.5	1.0	-0.4	1.5	-1.9	-4.2	-6.1	-3.6	-4.1	0.5	1.1	4.1	3.1	-0.7	-4.3
4000	2.5	-1.2	3.2	1.6	1.8	-2.6	-2.5	-2.9	-3.9	-0.2	-2.0	-0.6	2.1	1.6	3.3	-3.9	-4.3
5000	0.6	-2.8	1.8	0.5	2.4	-1.5	-1.9	-4.2	-5.3	-2.9	-2.0	1.5	2.9	2.2	2.9	-5.7	-5.9
6300	-3.7	-3.0	-2.0	-3.3	0.5	-1.7	-3.4	-6.6	-5.7	-7.1	-1.6	3.5	2.2	4.8	3.1	-3.5	-8.9
8000	-0.6	1.0	-0.4	-1.1	-0.5	-1.5	-4.8	-6.7	-7.8	-3.7	-2.9	3.0	0.5	5.9	2.3	-1.5	-7.1
10000	-0.2	0.8	1.3	-0.5	1.9	-3.0	-3.9	-5.1	-6.4	-3.7	-0.9	1.5	2.3	4.1	2.5	-1.6	-5.7

RUN 5 1700 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 9 DAY 27 HR. 2.3

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F
LOCATION..... F.F.G.
DATE..... 9/4/68
RUN..... 5, Pt. 35
BAROMETER.....(in Hg)..29.0
(N/m²)...97928
T AMBIENT.....(°F).....69.0
(°R).....293.7
T WET BULB.....(°F).....62.0
(°R).....289.8
ABS. HUMIDITY...(gm/m³)..12.1
(kg/m³)..0.0121
PHYS. FAN SPEED (RPM)....1856
(rad/sec) 194.3
CORR. FAN SPEED (RPM)....1838.4
(rad/sec) 192.5
TAPE NUMBER.....P625

FREQ.	ANGLES FROM INLET 0. (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	73.3	73.2	73.8	74.2	74.2	73.4	73.3	73.8	72.9	75.1	74.6	75.9	75.9	75.7	76.0	76.8	74.2	131.7
63	75.8	76.2	76.0	75.2	75.6	75.5	75.3	75.1	75.3	77.0	75.9	75.7	75.8	75.8	75.4	77.0	77.2	132.9
80	75.6	75.1	74.5	73.1	72.8	72.5	72.6	72.7	73.3	73.4	72.3	73.4	74.5	74.8	74.0	73.0	73.3	130.5
100	73.8	73.8	72.9	72.4	70.8	71.2	70.2	71.7	71.2	71.2	70.4	71.2	72.6	72.6	73.2	71.2	71.0	128.8
125	71.9	71.6	72.1	73.9	75.9	76.6	77.6	80.3	78.7	77.9	73.2	74.6	77.4	77.1	75.1	74.0	69.7	134.1
160	68.1	68.7	69.5	69.2	67.2	66.2	65.2	65.9	66.3	64.2	63.0	62.9	63.6	64.1	65.0	66.1	63.0	123.0
200	66.6	66.5	66.5	65.4	64.4	60.8	62.6	62.7	62.7	61.2	60.3	60.9	60.8	62.6	63.2	62.7	62.0	120.1
250	67.0	65.6	65.4	64.6	64.1	62.3	64.2	62.2	62.7	66.2	63.6	66.2	69.3	69.6	70.0	68.4	68.5	123.9
315	70.3	68.2	67.9	68.4	67.8	66.7	66.3	65.8	67.4	69.6	69.1	70.6	73.1	74.1	74.2	71.5	69.0	127.9
400	77.1	76.1	74.6	75.3	74.0	72.1	71.6	71.5	72.3	73.8	74.2	76.2	78.8	80.5	80.8	76.2	73.2	133.8
500	80.0	78.4	76.8	76.7	75.0	73.4	72.4	72.3	72.8	73.7	74.5	76.0	78.4	80.2	80.1	74.8	71.4	133.9
630	78.5	78.3	78.8	77.4	75.8	73.3	71.6	71.7	71.7	71.5	72.0	74.6	76.2	76.3	76.0	72.1	70.3	132.4
800	83.8	83.0	84.2	81.1	81.3	79.0	76.2	75.9	73.1	75.5	74.9	78.0	80.0	79.9	79.9	75.6	74.3	136.7
1000	83.1	78.7	80.0	81.0	78.6	76.6	76.1	77.6	75.2	75.6	76.1	78.1	79.2	80.4	80.1	74.9	73.1	136.2
1250	89.0	86.3	87.5	89.3	86.5	85.1	89.2	94.5	89.5	89.9	89.8	92.2	90.7	87.2	91.2	87.4	87.0	148.6
1600	83.6	85.0	84.7	91.1	93.7	92.8	86.0	80.7	80.4	80.9	82.6	88.7	85.4	84.9	85.7	81.2	78.1	146.1
2000	80.9	82.8	82.9	81.1	82.7	84.8	84.5	80.6	78.6	76.2	78.1	82.1	83.1	85.3	84.0	78.3	74.0	141.0
2500	80.7	83.8	83.3	82.9	82.3	82.8	80.6	78.0	80.3	76.8	78.3	84.6	86.0	89.2	88.1	83.2	76.0	142.7
3150	81.2	81.2	80.5	81.9	80.3	78.7	76.5	75.1	73.8	76.6	75.5	80.2	81.3	84.4	82.0	78.2	73.5	139.0
4000	82.5	78.1	83.4	83.0	82.2	77.1	77.7	77.5	74.9	79.2	78.0	80.3	83.1	83.0	83.3	76.4	76.8	140.3
5000	81.1	76.0	81.6	80.9	82.7	77.7	77.7	75.5	74.1	76.9	78.4	81.0	83.2	82.1	82.6	73.6	74.2	140.0
6300	77.9	77.4	79.0	78.0	81.4	78.2	77.2	73.8	75.1	74.5	79.3	83.5	83.5	85.8	83.4	76.7	72.1	141.7
8000	76.4	75.4	75.8	75.4	75.3	73.3	70.8	69.5	68.7	72.8	73.3	78.4	77.9	82.4	78.3	74.5	69.5	138.6
10000	72.6	71.2	73.6	72.1	74.2	68.6	68.3	67.1	66.3	68.8	71.6	73.3	75.4	76.6	75.1	70.5	66.9	136.8
OASPL MEASURED	95.8	94.7	95.7	96.8	97.5	96.3	94.5	96.4	93.0	93.6	93.8	97.1	97.0	97.6	97.6	93.3	91.3	
OASPL CALCULATED	94.2	93.2	94.1	95.6	96.3	95.2	93.3	95.6	92.0	92.4	92.6	95.9	95.5	95.9	96.1	91.8	90.0	
PNDB	106.4	106.0	106.8	108.1	109.3	107.9	104.6	105.8	103.0	103.7	104.0	107.2	108.2	110.1	109.3	104.5	101.3	
																	OAPWL	153.5

DIRECTIVITY INDEX

FREQ.																	
50	-1.6	-1.7	-1.0	-0.7	-0.7	-1.5	-1.6	-1.1	-1.9	0.2	-0.3	1.0	1.1	0.8	1.2	2.0	-0.6
63	-0.2	0.2	0.0	-0.7	-0.3	-0.4	-0.6	-0.8	-0.6	1.0	-0.0	-0.2	-0.1	-0.1	-0.5	1.1	1.2
80	2.1	1.6	1.0	-0.4	-0.7	-1.0	-0.9	-0.8	-0.2	-0.1	-1.2	-0.1	1.0	1.3	0.5	-0.5	-0.2
100	2.1	2.1	1.1	0.7	-0.9	-0.5	-1.5	-0.0	-0.5	-0.6	-1.3	-0.5	0.9	0.9	1.5	-0.5	-0.7
125	-5.0	-5.3	-4.8	-3.0	-0.9	-0.3	0.7	3.4	1.8	1.0	-3.7	-2.2	0.5	0.3	-1.7	-2.9	-7.2
160	2.4	3.0	3.8	3.5	1.5	0.5	-0.5	0.2	0.6	-1.5	-2.7	-2.8	-2.1	-1.6	-0.7	0.4	-2.7
200	3.9	3.8	3.8	2.6	1.7	-1.9	-0.1	-0.0	-0.1	-1.5	-2.5	-1.8	-1.9	-0.1	0.5	0.0	-0.8
250	0.5	-0.9	-1.1	-1.8	-2.4	-4.2	-2.3	-4.3	-3.8	-0.3	-2.8	-0.3	2.9	3.1	3.5	1.9	2.0
315	-0.3	-2.2	-2.5	-1.9	-2.5	-3.6	-4.1	-4.5	-2.9	-0.8	-1.2	0.2	2.8	3.8	3.9	1.1	-1.3
400	1.0	-0.1	-1.5	-0.8	-2.2	-4.0	-4.5	-4.6	-3.8	-2.3	-1.9	0.1	2.6	4.4	4.7	0.1	-2.9
500	3.9	2.3	0.7	0.6	-1.1	-2.7	-3.7	-3.9	-3.3	-2.4	-1.7	-0.1	2.3	4.0	3.9	-1.3	-4.7
630	4.0	3.8	4.3	2.9	1.3	-1.2	-2.9	-2.8	-2.8	-3.0	-2.5	0.1	1.7	1.8	1.5	-2.4	-4.2
800	5.2	4.4	5.6	2.4	2.7	0.3	-2.5	-2.7	-5.6	-3.1	-3.8	-0.7	1.4	1.2	1.3	-3.1	-4.3
1000	5.1	0.7	2.0	3.0	0.6	-1.4	-1.9	-0.4	-2.8	-2.4	-1.9	0.1	1.2	2.4	2.1	-3.1	-4.9
1250	-1.3	-4.0	-2.7	-0.9	-3.8	-5.1	-1.1	4.3	-0.8	-0.3	-0.4	1.9	0.4	-3.0	0.9	-2.9	-3.3
1600	-3.9	-2.5	-2.8	3.6	6.2	5.3	-1.5	-6.8	-7.1	-6.6	-4.9	1.2	-2.1	-2.6	-1.8	-6.3	-9.4
2000	-1.3	0.5	0.7	-1.1	0.4	2.6	2.2	-1.6	-3.6	-6.0	-4.1	-0.1	0.9	3.1	1.8	-4.0	-8.2
2500	-3.0	0.0	-0.4	-0.8	-1.4	-0.9	-3.1	-5.8	-3.4	-6.9	-5.4	0.3	2.2	5.5	4.3	-0.5	-7.7
3150	1.6	1.6	0.9	2.3	0.7	-0.9	-3.1	-4.5	-5.8	-3.0	-4.1	0.6	1.7	4.8	2.4	-1.5	-6.1
4000	2.1	-2.3	3.0	2.5	1.8	-3.4	-2.7	-2.9	-5.6	-1.2	-2.5	-0.2	2.7	2.6	2.9	-4.1	-3.7
5000	1.2	-3.9	1.7	1.1	2.8	-2.2	-2.2	-4.4	-5.8	-3.0	-1.5	1.1	3.4	2.2	2.8	-6.3	-5.7
6300	-2.8	-3.3	-1.7	-2.6	0.7	-2.4	-3.5	-6.9	-5.6	-6.2	-1.4	2.9	2.8	5.1	2.7	-4.0	-8.6
8000	0.2	-0.7	-0.4	-0.7	-0.9	-2.9	-5.4	-6.6	-7.5	-3.4	-2.9	2.3	1.8	6.3	2.2	-1.7	-6.7
10000	0.2	-1.2	1.2	-0.2	1.8	-3.8	-4.0	-5.2	-6.0	-3.6	-0.8	0.9	3.0	4.2	2.7	-1.9	-5.5

C3

RUN 5 1856 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5, Pt. 49
BAROMETER.....(in Hg)... 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 76.0
(°K)..... 297.6
T WET BULB.....(°F)..... 68.0
(°K)..... 293.1
ABS. HUMIDITY...(gm/m3)... 14.9
(kg/m3)... 0.0149
PHYS. FAN SPEED(RPM).... 1850
(rad/sec) 193.7
CORR. FAN SPEED(RPM).... 1820
(rad/sec) 190.6
TAPE NUMBER..... P629

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	73.5	73.4	74.0	73.8	74.1	73.4	73.1	73.9	72.8	74.7	74.3	75.6	75.8	75.6	75.5	75.9	73.3	131.5
63	75.8	76.1	75.7	74.3	75.4	76.9	75.1	74.4	74.9	76.8	75.7	76.4	76.1	76.7	76.2	76.6	77.1	133.0
80	75.4	75.0	74.5	73.1	72.5	72.4	72.5	72.7	73.1	73.0	71.9	73.1	74.4	74.7	74.1	73.2	73.2	130.4
100	73.7	73.8	72.9	72.0	70.5	70.7	69.7	71.3	70.9	71.2	70.1	71.2	72.3	72.7	73.6	71.7	70.8	128.7
125	72.4	73.0	73.3	71.1	71.1	70.4	70.1	73.8	73.5	74.3	71.3	69.4	72.9	75.8	73.6	76.8	70.0	130.3
160	68.2	68.9	69.3	68.5	66.7	67.1	64.7	65.5	65.9	64.4	63.1	64.9	65.1	66.7	67.1	67.4	62.9	123.4
200	66.8	67.0	66.8	64.7	64.1	63.7	62.8	63.4	62.5	61.2	60.6	64.1	62.8	63.9	64.8	63.1	60.6	120.9
250	66.1	65.5	65.0	63.7	64.1	63.6	62.2	62.8	61.4	64.6	62.3	67.8	70.5	69.1	68.7	66.1	63.9	123.6
315	69.4	66.9	67.2	67.8	67.4	66.2	65.1	65.2	66.5	69.0	68.5	70.3	73.1	74.2	73.5	70.6	67.9	127.5
400	76.3	75.5	74.1	74.5	73.0	72.5	70.8	70.6	71.7	73.6	74.2	76.4	78.5	80.3	80.4	75.5	72.8	133.5
500	79.5	78.4	76.4	76.1	74.4	73.1	71.8	71.9	72.3	73.4	74.6	76.2	78.4	80.2	80.2	75.0	71.3	133.9
630	78.2	78.8	77.7	76.4	75.4	73.2	71.5	71.6	71.5	71.2	72.5	75.0	77.0	77.4	76.9	72.5	70.2	132.6
800	83.4	83.8	82.0	79.3	80.5	78.2	74.6	75.3	74.0	76.0	76.2	79.0	79.7	78.4	77.3	75.5	73.2	136.0
1000	82.1	78.0	80.0	80.8	78.5	76.2	75.8	74.7	76.5	75.9	75.5	78.5	79.5	81.8	82.2	75.2	71.6	136.5
1250	90.0	85.8	88.4	87.0	86.5	83.4	89.9	89.4	93.0	90.6	86.7	93.8	93.9	96.9	99.1	89.1	82.6	151.0
1600	84.2	86.2	86.9	89.1	94.2	92.9	85.1	81.4	79.1	82.2	82.3	88.1	85.0	85.3	84.9	78.8	77.0	146.0
2000	80.1	82.1	82.2	82.1	81.9	82.1	81.3	76.9	77.2	76.5	78.6	82.2	81.9	84.6	84.6	77.6	73.7	140.0
2500	79.8	82.9	82.6	82.9	82.2	84.8	81.2	78.0	79.9	77.5	79.8	86.1	84.1	91.3	84.8	81.8	77.5	143.2
3150	80.6	82.0	79.9	81.1	79.8	79.1	77.5	75.4	74.0	76.7	76.3	80.8	81.5	85.2	81.6	78.6	73.5	139.2
4000	82.3	78.3	82.7	82.4	82.1	77.4	77.7	78.1	75.4	79.9	78.8	81.5	83.2	83.3	83.3	77.0	77.0	140.6
5000	81.5	76.7	81.2	80.5	82.7	77.9	78.0	76.6	74.7	77.7	79.6	82.4	83.4	82.7	82.7	74.1	74.4	140.5
6300	78.8	78.0	78.9	77.9	81.3	78.9	77.5	74.7	75.5	74.9	80.2	85.2	83.9	86.6	83.3	77.1	72.4	142.4
8000	76.4	76.6	75.1	75.6	75.2	73.9	71.2	70.3	69.2	73.6	74.6	80.3	78.2	83.5	78.4	75.5	69.6	139.5
10000	73.1	72.8	73.3	72.4	73.8	69.2	68.6	68.0	66.9	69.9	72.9	75.1	76.0	77.7	75.1	71.4	67.0	137.5
OASPL MEASURED	95.7	94.7	95.5	95.5	97.4	96.1	94.1	92.7	94.8	93.8	92.7	97.8	97.6	100.3	101.0	93.4	89.2	
OASPL CALCULATED	94.4	93.4	94.2	94.2	96.4	95.1	93.1	91.9	94.2	93.0	91.6	96.9	96.7	99.6	100.3	92.3	88.1	
PNDB	106.3	105.9	106.5	106.9	109.3	107.9	104.2	103.1	104.6	104.2	103.5	108.3	108.2	111.7	110.9	104.1	100.6	
																	OAPWL	154.3

DIRECTIVITY INDEX

FREQ,																	
50	-1.2	-1.2	-0.6	-0.9	-0.5	-1.2	-1.5	-0.8	-1.8	0.0	-0.3	1.0	1.2	1.0	0.8	1.3	-1.4
63	-0.3	0.0	-0.4	-1.7	-0.6	0.9	-1.0	-1.6	-1.1	0.7	-0.4	0.3	0.0	0.6	0.1	0.7	1.0
80	2.0	1.6	1.1	-0.3	-0.8	-1.0	-0.9	-0.7	-0.3	-0.3	-1.5	-0.2	1.0	1.3	0.6	-0.2	-0.2
100	2.1	2.2	1.3	0.4	-1.1	-1.0	-1.9	-0.3	-0.7	-0.4	-1.5	-0.4	0.7	1.1	2.0	0.0	-0.8
125	-0.7	-0.1	0.2	-2.0	-2.0	-2.7	-3.0	0.7	0.4	1.2	-1.8	-3.7	-0.3	2.7	0.5	3.7	-3.1
160	2.0	2.7	3.1	2.4	0.6	1.0	-1.4	-0.7	-0.3	-1.8	-3.0	-1.3	-1.1	0.5	0.9	1.3	-3.3
200	3.2	3.4	3.3	1.2	0.6	0.1	-0.8	-0.1	-1.0	-2.3	-3.0	0.5	-0.7	0.4	1.3	-0.4	-2.9
250	-0.0	-0.6	-1.1	-2.4	-2.0	-2.5	-3.9	-3.3	-4.7	-1.5	-3.9	1.7	4.4	3.0	2.6	-0.0	-2.2
315	-0.5	-3.1	-2.7	-2.1	-2.6	-3.7	-4.8	-4.8	-3.4	-0.9	-1.5	0.4	3.2	4.2	3.6	0.7	-2.0
400	0.5	-0.3	-1.7	-1.4	-2.9	-3.3	-5.1	-5.2	-4.1	-2.2	-1.6	0.6	2.6	4.5	4.6	-0.3	-3.0
500	3.4	2.3	0.4	-0.0	-1.6	-3.0	-4.2	-4.2	-3.7	-2.6	-1.4	0.1	2.3	4.2	4.1	-1.1	-4.8
630	3.5	4.1	3.0	1.6	0.7	-1.6	-3.2	-3.1	-3.2	-3.5	-2.1	0.3	2.3	2.7	2.2	-2.2	-4.6
800	5.4	5.8	4.0	1.3	2.5	0.2	-3.4	-2.7	-4.0	-2.0	-1.8	1.0	1.7	0.4	-0.7	-2.5	-4.8
1000	3.7	-0.3	1.7	2.5	0.1	-2.1	-2.6	-3.7	-1.9	-2.5	-2.9	0.1	1.2	3.5	3.8	-3.1	-6.8
1250	-2.7	-6.9	-4.2	-5.7	-6.1	-9.2	-2.7	-3.3	0.4	-2.0	-5.9	1.1	1.3	4.3	6.5	-3.5	-10.0
1600	-3.2	-1.2	-0.5	1.7	6.8	5.5	-2.3	-6.0	-8.3	-5.2	-5.1	0.7	-2.4	-2.1	-2.5	-8.6	-10.4
2000	-1.2	0.9	1.0	0.9	0.7	0.8	0.0	-4.3	-4.0	-4.7	-2.7	1.0	0.7	3.4	3.4	-3.7	-7.5
2500	-4.4	-1.2	-1.6	-1.3	-2.0	0.7	-3.0	-6.2	-4.3	-6.7	-4.4	1.9	-0.1	7.1	0.6	-2.4	-6.7
3150	0.7	2.2	-0.0	1.2	-0.1	-0.8	-2.4	-4.4	-5.9	-3.2	-3.6	0.9	1.6	5.3	1.7	-1.3	-6.4
4000	1.6	-2.4	2.0	1.7	1.4	-3.3	-3.0	-2.6	-5.3	-0.8	-1.9	0.8	2.5	2.6	2.6	-3.7	-3.7
5000	1.1	-3.7	0.9	0.1	2.3	-2.4	-2.4	-3.0	-5.6	-2.6	-0.8	2.0	3.1	2.3	2.4	-6.2	-6.0
6300	-2.6	-3.4	-2.5	-3.5	-0.1	-2.5	-3.9	-6.6	-5.8	-6.5	-1.1	3.8	2.5	5.2	1.9	-4.2	-9.0
8000	-0.7	-0.5	-1.9	-1.4	-1.9	-3.1	-5.8	-6.8	-7.8	-3.4	-2.4	3.2	1.2	6.5	1.4	-1.6	-7.4
10000	-0.1	-0.3	0.1	-0.7	0.7	-4.0	-4.5	-5.2	-6.2	-3.3	-0.3	2.0	2.8	4.5	1.9	-1.7	-6.1

RUN 5 1850 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 9 DAY 27 HR. 2.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5, Pt. 36
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 69.0
(°K)..... 293.7
T WET BULB.....(°F)..... 62.0
(°K)..... 289.8
ABS. HUMIDITY...(gm/m³).. 12.1
(kg/m³).. 0.0121
PHYS. FAN SPEED (RPM).... 2016
(rad/sec) 211.1
CORR. FAN SPEED (RPM).... 1997
(rad/sec) 209.1
TAPE NUMBER..... P626

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	74.5	74.3	75.0	75.0	77.6	74.9	74.4	82.5	79.9	77.3	76.8	78.4	77.5	77.6	77.2	78.0	75.6	135.0
63	76.8	77.3	77.0	76.3	78.2	76.7	76.3	82.8	81.6	79.0	77.6	78.7	78.3	78.1	77.7	78.8	78.2	136.0
80	76.8	76.2	75.5	74.3	75.2	74.2	74.2	80.0	79.9	75.7	74.3	76.3	76.7	76.6	75.8	74.8	74.7	133.7
100	74.6	74.7	73.7	73.0	72.7	72.8	71.7	77.9	78.7	73.9	72.9	74.8	74.4	74.5	74.7	72.6	72.3	132.0
125	73.6	73.3	72.9	72.8	75.0	73.4	73.8	78.6	78.6	75.6	73.2	75.3	75.1	74.8	74.2	74.5	70.1	132.7
160	69.9	70.2	70.6	70.3	69.0	67.4	66.4	72.3	74.2	67.2	65.3	67.7	65.6	65.7	66.5	66.8	62.9	126.5
200	67.5	67.7	67.8	67.2	67.0	62.4	64.1	69.6	70.6	63.8	62.8	64.8	62.6	64.3	64.3	63.9	62.7	123.6
250	68.2	67.2	65.4	65.4	65.5	63.5	64.9	67.6	68.5	68.0	65.4	67.5	69.7	70.6	70.2	68.8	69.3	125.4
315	70.8	68.6	68.2	69.1	68.6	67.6	67.3	68.2	68.7	70.5	70.1	71.7	73.9	75.6	74.9	72.6	69.8	128.9
400	77.9	76.8	74.9	75.5	74.3	71.9	71.8	72.1	73.0	74.6	75.7	77.1	79.4	81.5	81.5	76.8	73.7	134.5
500	80.4	79.1	77.0	76.6	76.0	73.7	72.9	72.4	73.4	74.4	74.8	76.5	78.8	81.3	80.4	75.3	71.6	134.5
630	77.6	78.5	78.3	76.9	75.6	73.5	72.7	72.8	73.0	72.4	73.1	77.1	78.2	78.6	76.5	73.0	70.6	133.4
800	84.8	83.0	81.5	81.4	81.0	80.7	79.4	78.9	76.1	75.4	75.9	80.5	82.2	82.1	79.4	75.8	75.3	137.8
1000	82.5	79.9	81.1	81.6	79.3	77.1	75.8	74.6	74.3	74.6	75.9	77.8	79.4	81.5	79.4	74.6	72.2	136.2
1250	90.1	92.0	87.5	89.2	86.6	85.9	84.9	85.3	83.8	86.5	90.4	92.0	89.3	94.5	91.4	89.0	87.6	147.8
1600	83.7	86.0	84.6	88.2	87.6	87.3	86.3	81.6	79.9	81.0	83.4	84.7	86.1	88.0	85.4	81.8	80.1	143.8
2000	81.1	84.6	82.8	82.4	86.0	86.3	86.1	82.7	80.7	78.8	81.6	84.2	85.0	87.4	86.3	81.7	76.5	143.1
2500	80.8	86.1	83.1	81.7	84.3	83.7	83.0	80.3	80.1	78.4	81.0	87.5	84.9	88.1	86.3	82.5	76.0	143.1
3150	80.9	83.1	81.2	82.4	81.2	80.3	78.6	76.8	75.3	78.3	77.9	82.7	82.5	85.9	82.2	79.8	74.7	140.4
4000	83.4	81.2	84.6	84.3	83.5	79.6	80.5	80.2	77.7	82.6	81.1	82.7	86.4	85.8	85.8	79.2	79.1	142.9
5000	82.2	78.1	82.6	81.6	84.0	78.9	79.6	77.3	76.3	78.8	80.9	83.5	84.4	83.9	82.6	75.0	75.4	141.5
6300	78.2	79.4	79.4	78.2	82.2	79.5	78.7	75.3	76.4	75.4	80.8	84.8	84.2	86.5	83.0	77.6	73.1	142.6
8000	76.4	77.8	76.3	76.0	76.3	74.8	72.7	71.8	70.8	74.9	75.9	81.2	79.7	84.3	78.6	76.6	71.2	140.4
10000	72.7	73.4	73.9	72.6	75.3	70.0	70.3	69.2	68.4	71.0	74.0	75.7	77.3	78.1	75.5	72.8	68.1	138.4
OASPL MEASURED	96.3	97.2	95.8	96.3	96.6	95.2	94.5	94.4	93.2	93.2	95.0	97.7	97.4	99.9	97.6	94.2	92.0	
OASPL CALCULATED	94.9	96.0	94.2	94.9	94.9	93.8	93.1	92.6	91.5	91.8	93.9	96.4	95.9	98.7	96.4	93.1	90.9	
PNDB	107.1	108.1	107.5	107.4	107.5	106.3	105.9	104.3	103.4	105.0	105.4	109.2	109.3	110.8	109.1	105.1	102.4	
																	OAPWL	153.8

DIRECTIVITY INDEX

FREQ.																	
50	-3.7	-3.8	-3.2	-3.1	-0.6	-3.2	-3.7	4.4	1.8	-0.8	-1.4	0.3	-0.6	-0.6	-0.9	-0.1	-2.5
63	-2.3	-1.8	-2.1	-2.8	-0.9	-2.4	-2.8	3.7	2.5	-0.1	-1.5	-0.4	-0.8	-1.0	-1.4	-0.3	-0.9
80	0.0	-0.5	-1.2	-2.4	-1.6	-2.6	-2.5	3.3	3.2	-1.0	-2.4	-0.4	0.0	-0.1	-0.9	-1.9	-2.0
100	-0.3	-0.3	-1.2	-1.9	-2.3	-2.1	-3.2	2.9	3.7	-1.0	-2.1	-0.1	-0.6	-0.4	-0.2	-2.4	-2.7
125	-1.9	-2.3	-2.6	-2.7	-0.5	-2.1	-1.7	3.1	3.1	0.1	-2.3	-0.2	-0.4	-0.7	-1.3	-1.0	-5.4
160	0.6	1.0	1.3	1.1	-0.2	-1.8	-2.8	3.1	5.0	-2.1	-3.9	-1.5	-3.7	-3.5	-2.7	-2.5	-6.4
200	1.2	1.4	1.5	0.9	0.8	-3.8	-2.2	3.3	4.3	-2.4	-3.5	-1.4	-3.7	-1.9	-1.9	-2.4	-3.6
250	0.3	-0.7	-2.5	-2.6	-2.5	-4.4	-3.0	-0.3	0.6	0.1	-2.5	-0.4	1.8	2.7	2.2	0.9	1.4
315	-0.6	-2.8	-3.2	-2.3	-2.8	-3.8	-4.1	-3.2	-2.6	-0.9	-1.3	0.3	2.5	4.2	3.6	1.2	-1.5
400	1.0	-0.1	-1.9	-1.4	-2.5	-4.9	-5.1	-4.7	-3.8	-2.2	-1.2	0.2	2.6	4.6	4.6	-0.1	-3.2
500	3.8	2.5	0.3	-0.1	-0.7	-2.9	-3.7	-4.2	-3.2	-2.3	-1.9	-0.2	2.1	4.6	3.7	-1.3	-5.1
630	2.1	2.9	2.8	1.4	0.0	-2.0	-2.8	-2.8	-2.5	-3.1	-2.5	1.5	2.6	3.1	0.9	-2.6	-4.9
800	5.0	3.2	1.8	1.6	1.2	0.9	-0.4	-0.8	-3.7	-4.4	-3.8	0.7	2.4	2.4	-0.4	-3.9	-4.5
1000	4.5	1.9	3.1	3.6	1.3	-0.9	-2.2	-3.4	-3.7	-3.4	-2.1	-0.2	1.4	3.5	1.4	-3.4	-5.8
1250	0.7	2.6	-1.9	-0.2	-2.8	-3.5	-4.5	-4.1	-5.6	-2.9	0.9	2.5	-0.1	5.1	1.9	-0.4	-1.8
1600	-1.5	0.8	-0.6	3.0	2.4	2.1	1.1	-3.6	-5.3	-4.2	-1.8	-0.5	0.8	2.7	0.1	-3.4	-5.1
2000	-3.2	0.3	-1.5	-1.9	1.7	2.1	1.8	-1.6	-3.5	-5.4	-2.7	-0.1	0.7	3.1	2.0	-2.6	-7.8
2500	-3.2	2.1	-1.0	-2.3	0.3	-0.3	-1.1	-3.8	-4.0	-5.7	-3.1	3.5	0.8	4.0	2.2	-1.5	-8.0
3150	-0.2	2.1	0.1	1.4	0.1	-0.7	-2.4	-4.3	-5.7	-2.7	-3.1	1.6	1.4	4.9	1.2	-1.2	-6.4
4000	0.4	-1.8	1.6	1.3	0.5	-3.4	-2.5	-2.8	-5.3	-0.4	-1.9	-0.3	3.4	2.8	2.8	-3.8	-3.9
5000	0.8	-3.3	1.3	0.2	2.6	-2.5	-1.8	-4.1	-5.1	-2.6	-0.5	2.1	3.0	2.5	1.2	-6.4	-6.0
6300	-3.3	-2.1	-2.1	-3.3	0.7	-2.1	-2.8	-6.2	-5.1	-6.1	-0.8	3.3	2.7	4.9	1.5	-4.0	-8.5
8000	-1.6	-0.2	-1.6	-2.0	-1.7	-3.1	-5.2	-6.2	-7.2	-3.0	-2.1	3.2	1.7	6.3	0.6	-1.4	-6.8
10000	-1.3	-0.6	-0.1	-1.4	1.3	-4.0	-3.7	-4.8	-5.6	-3.0	0.0	1.7	3.2	4.1	1.5	-1.2	-5.9

RUN 5 2016 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC, DATE - MONTH 9 DAY 27 HR, 1,8

RADIAL DISTANCE (ft)..... 22.
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/4/68
RUN..... 5,Pt.51
BARO-METER.....(in Hg)... 29.0
(N/m²)... 27928
T AMBIENT.....(°F)..... 76.0
(°K)..... 297.6
T WET BULB.....(°F)..... 66.0
(°K)..... 293.1
ABS. HUMIDITY....(gm/m³)... 14.8
(kg/m³)... 0.0148
PHYS. FAN SPEED (RPM).... 2001
(rad/sec) 209.5
CORR. FAN SPEED (RPM).... 1969
(rad/sec) 206.1
TAPE NUMBER..... P630

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0. (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	73.9	74.2	74.8	74.9	75.4	75.1	74.3	74.6	74.5	76.2	75.7	76.5	76.2	76.4	76.5	77.4	74.8	132.6
63	76.9	77.2	77.3	76.2	76.8	78.8	76.1	76.4	76.8	77.8	76.8	77.4	77.7	78.6	77.0	78.0	77.9	134.4
80	76.5	76.9	75.6	74.0	73.3	73.4	73.6	74.0	74.4	74.6	73.3	74.7	75.5	75.9	75.4	74.3	74.4	131.6
100	76.2	76.8	74.6	74.2	73.7	74.2	72.4	73.6	72.7	73.2	72.7	73.8	74.5	75.0	75.1	73.0	72.5	131.0
125	73.4	73.5	72.8	72.3	74.2	73.4	71.5	74.0	72.2	71.9	69.7	72.8	73.1	73.4	73.1	75.4	71.0	130.2
160	69.7	70.5	70.7	70.0	68.0	68.0	66.4	67.1	67.6	66.0	64.6	65.2	66.4	67.1	67.4	68.1	65.0	124.6
200	68.8	68.9	68.4	66.9	65.5	66.9	65.2	64.5	65.4	63.7	62.6	63.9	63.6	65.3	63.8	64.1	63.1	122.5
250	67.6	66.2	65.1	65.0	63.3	63.2	64.8	64.1	64.8	66.4	65.6	68.0	70.3	71.0	68.8	68.9	69.3	124.8
315	69.9	68.2	69.2	69.8	69.0	68.4	68.4	67.3	68.5	71.4	70.7	72.2	75.0	75.7	74.7	73.3	71.1	129.4
400	77.2	76.4	74.5	75.2	73.0	72.4	71.9	71.4	72.4	74.8	74.8	76.6	79.2	81.0	80.4	76.2	73.9	134.0
500	79.8	78.8	76.7	75.6	74.4	72.9	72.8	72.1	72.8	74.2	74.8	76.4	78.7	81.1	80.0	74.6	71.8	134.1
630	77.1	77.8	77.5	75.8	73.8	72.2	71.9	71.7	73.0	72.4	73.3	76.7	77.3	78.3	77.1	72.9	70.7	133.0
800	83.9	82.0	80.2	81.1	80.7	79.6	78.7	74.4	73.9	76.5	75.9	81.0	81.0	80.7	76.8	74.6	73.9	136.9
1000	81.5	79.3	80.8	81.2	78.8	76.5	75.2	73.6	74.2	74.8	75.4	77.7	79.0	80.7	78.1	74.3	71.9	135.7
1250	89.3	91.5	87.4	91.6	89.0	85.8	85.4	83.0	87.0	89.4	87.0	91.5	90.2	87.2	93.3	88.8	88.5	147.3
1600	83.1	85.4	84.3	88.1	89.0	89.9	84.3	80.7	80.9	81.5	81.9	84.9	85.1	86.2	84.5	81.0	80.6	143.2
2000	80.6	87.8	82.6	81.3	84.1	84.3	86.0	80.1	80.1	78.5	80.3	83.7	84.1	86.7	83.8	79.1	76.7	142.0
2500	78.8	84.5	82.0	80.7	83.0	81.7	81.7	78.2	79.6	77.9	78.9	86.5	84.6	87.1	86.0	81.2	75.6	142.1
3150	80.7	82.3	80.8	81.5	81.0	80.5	78.2	76.6	75.3	78.5	78.0	82.7	82.6	85.6	81.6	79.6	74.7	140.2
4000	83.2	80.4	85.0	84.2	83.5	79.9	80.0	80.3	77.6	82.9	81.6	82.7	86.0	85.8	83.1	78.4	79.3	142.6
5000	82.1	77.9	83.3	81.7	85.1	79.3	79.5	77.6	76.4	79.0	80.4	83.6	84.6	83.8	81.7	74.8	75.8	141.7
6300	79.1	79.2	79.9	78.6	82.7	79.7	78.9	75.5	75.7	75.7	81.0	85.4	84.8	86.2	82.3	77.3	73.4	142.8
8000	76.7	77.8	77.0	76.7	76.7	75.3	73.1	71.8	71.2	75.5	76.2	81.6	80.0	84.1	78.2	76.5	71.2	140.6
10000	73.4	73.7	74.6	73.5	75.6	70.7	70.7	68.5	68.7	71.4	74.4	76.2	77.6	78.1	74.8	72.6	68.7	138.7
OASPL MEASURED	95.6	96.0	95.4	96.5	96.0	94.1	93.9	91.2	92.1	93.7	93.3	97.0	97.0	97.5	97.4	93.4	92.3	
OASPL CALCULATED	94.3	95.0	94.0	95.5	94.7	92.9	92.6	90.0	91.1	92.8	92.2	96.1	95.9	96.5	96.5	92.5	91.4	
PND	100.7	101.5	101.6	101.4	101.5	100.0	100.6	103.3	102.7	105.3	105.0	108.7	109.1	109.8	108.3	104.3	102.7	
																	OAPWL	153.3

DIRECTIVITY INDEX

FREQ,																	
50	-1.8	-1.6	-1.0	-0.9	-0.3	-0.7	-1.4	-1.2	-1.3	0.4	-0.1	0.7	0.5	0.7	0.8	1.6	-0.9
63	-0.6	-0.2	-0.2	-1.2	-0.7	1.3	-1.4	-1.1	-0.7	0.4	-0.7	-0.1	0.2	1.1	-0.5	0.6	0.4
80	1.9	1.9	1.0	-0.6	-1.3	-1.2	-1.0	-0.6	-0.2	0.0	-1.3	0.1	0.9	1.2	0.8	-0.3	-0.2
100	2.3	2.9	0.7	0.3	-0.2	0.5	-1.5	-0.3	-1.2	-0.7	-1.2	-0.1	0.6	1.1	1.2	-0.9	-1.3
125	0.5	0.9	-0.1	-0.7	1.2	0.4	-1.5	1.1	-0.8	-1.0	-3.2	-0.2	0.1	0.4	0.2	2.4	-2.0
160	2.4	3.2	3.3	2.6	0.7	0.0	-0.9	-0.3	0.2	-1.3	-2.8	-2.1	-1.0	-0.2	0.1	0.7	-2.4
200	3.6	3.2	1.8	0.4	1.8	0.1	-0.6	0.3	-1.4	-2.5	-1.2	-1.6	0.2	-1.3	-1.0	-2.0	
250	0.2	2.3	2.1	-2.1	-2.6	-3.2	-2.5	-1.0	-1.7	0.6	2.9	3.6	1.4	1.5	2.0		
315	1.9	2.7	2.1	2.9	-3.5	-4.5	-3.4	-0.5	-1.1	0.3	3.1	3.8	2.8	1.5	-0.7		
400	0.8	1.9	-1.2	-3.4	-4.4	-5.0	-4.0	-1.5	-1.5	0.2	2.8	4.6	4.0	0.1	-2.5		
500	3.4	2.8	0.3	-0.7	-3.9	-3.6	-4.3	-3.5	-2.1	-1.5	0.1	2.3	4.7	3.6	-1.8	-4.5	
630	2.0	2.7	2.4	0.7	-3.2	-3.2	-3.4	-2.0	-2.7	-1.8	1.7	2.2	3.2	2.9	-2.1	-4.3	
800	9.1	3.1	1.4	2.2	1.9	0.7	-0.1	-4.4	-4.9	-2.4	-3.0	2.1	2.1	1.9	-2.1	-4.2	-5.0
1000	4.0	1.8	3.3	3.7	-3.3	-4.0	-2.4	-3.9	-3.4	-2.7	-2.1	0.1	1.5	3.1	0.6	-3.2	-5.6
1250	0.3	2.4	1.6	2.6	-3.9	-3.5	-3.6	-6.0	-1.9	0.4	-2.0	2.5	1.3	-1.8	4.4	-0.2	-0.5
1600	-1.9	0.8	0.3	3.5	-0.4	-0.9	-0.4	-4.0	-3.8	-3.1	-2.8	0.3	0.4	1.5	-0.1	-3.7	-4.1
2000	-2.6	3.8	0.6	-1.9	0.9	0.1	2.8	-3.0	-3.1	-4.7	-2.9	0.5	0.9	3.5	0.6	-4.1	-6.5
2500	-4.3	1.9	-1.0	-2.4	-0.1	-1.4	-1.4	-4.9	-3.5	-5.2	-4.2	3.4	1.6	4.8	3.0	-1.9	-7.4
3150	-0.2	1.8	0.0	0.6	0.1	-0.4	-2.7	-4.3	-5.6	-2.4	-2.8	1.8	1.8	4.8	0.8	-1.3	-6.2
4000	0.5	2.3	1.5	0.7	-2.8	-2.8	-2.5	-5.2	0.2	-1.2	-0.0	3.2	3.0	0.3	-4.4	-3.5	
5000	0.5	3.7	1.8	0.2	3.5	-2.3	-2.0	-3.9	-5.1	-2.6	-1.1	2.0	3.1	2.3	0.1	-6.8	-5.8
6300	-2.6	-2.5	-1.8	-5.1	-1.0	-1.8	-2.8	-6.2	-5.1	-6.0	-0.7	3.7	3.0	4.4	0.6	-4.4	-8.3
8000	-1.5	-0.4	-1.2	-1.5	-2.9	-5.1	-6.4	-7.0	-2.7	-2.0	3.4	1.9	6.0	0.0	-1.6	-7.0	
10000	-0.9	-0.9	0.3	-0.8	-1.3	-3.0	-5.6	-4.8	-5.6	-2.9	0.1	1.9	3.3	3.8	0.5	-1.7	-5.6

C6

RUN 5 2001 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA C.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5,Pt. 37
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 69.0
(°K)..... 293.7
T WET BULB.....(°F)..... 62.0
(°K)..... 289.0
ABS. HUMIDITY...(gm/m³).. 12.1
(kg/m³).. 0.0121
PHYS. FAN SPEED (RPM).... 2148
(rad/sec) 224.9
CORR. FAN SPEED (RPM).... 2128
(rad/sec) 222.8
TAPE NUMBER..... P626

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																	PWL
	0. (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	75.6	75.7	76.5	76.5	81.1	76.1	75.3	77.4	75.8	77.9	77.0	77.8	78.8	78.8	79.1	79.7	77.2	134.8
63	78.0	78.4	78.2	77.0	81.8	77.2	78.0	79.1	78.3	79.2	78.2	78.8	79.5	80.1	79.8	80.3	79.4	136.1
80	77.8	77.5	76.6	75.5	78.8	75.8	76.2	76.9	76.7	76.7	75.6	77.0	78.3	78.4	77.6	76.0	75.9	134.1
100	75.9	75.8	74.7	74.5	76.2	75.0	73.8	75.4	74.5	75.4	74.6	75.4	76.5	76.5	76.8	74.7	74.3	132.5
125	75.1	74.6	73.7	75.5	78.3	75.5	73.6	76.2	72.6	75.8	74.5	74.9	75.3	74.5	75.0	74.4	71.3	132.4
160	71.6	72.3	72.0	71.6	71.9	69.0	68.1	69.5	69.1	67.5	66.1	66.8	67.7	67.7	68.7	69.3	65.8	126.3
200	69.4	69.6	69.9	69.0	68.7	63.7	66.2	66.6	65.8	63.9	63.2	65.5	66.6	68.9	67.3	67.0	66.4	124.1
250	67.7	67.9	66.6	66.6	67.4	64.4	65.9	66.4	65.7	69.4	66.4	68.1	72.6	73.5	72.2	70.3	68.8	126.7
315	69.7	69.0	68.7	69.6	69.3	68.0	68.6	68.1	69.5	72.3	71.6	73.5	76.4	77.3	76.1	73.8	71.5	130.4
400	77.5	76.6	75.7	75.7	75.0	73.4	72.8	73.1	74.1	75.9	76.3	78.2	80.8	82.8	82.2	77.6	74.5	135.6
500	81.2	79.4	77.7	77.2	75.8	73.6	74.0	73.3	74.5	75.4	75.8	77.3	79.7	81.7	80.6	75.4	72.1	135.1
630	78.4	78.3	78.2	77.3	75.3	72.0	73.2	73.1	74.1	73.9	76.3	77.3	79.5	79.0	77.3	74.1	72.0	134.2
800	82.9	79.3	78.8	78.6	78.6	78.8	77.1	75.9	75.9	76.5	75.3	76.1	78.7	82.3	78.7	76.3	73.9	136.0
1000	89.3	85.4	85.0	85.1	84.1	84.7	82.7	81.1	80.8	81.3	79.7	80.4	83.7	88.1	83.3	80.8	77.7	141.5
1250	86.8	85.3	85.9	83.1	82.3	81.3	81.0	84.0	80.1	83.0	83.7	87.3	89.7	92.5	86.3	80.4	78.3	144.4
1600	90.6	90.4	91.0	87.9	89.0	88.3	88.2	91.9	86.4	90.3	91.2	95.0	97.7	100.7	94.1	87.8	85.9	152.3
2000	83.0	85.5	83.7	85.3	84.2	85.6	84.1	81.7	81.9	82.8	84.7	90.0	90.7	90.8	87.2	82.3	78.2	145.4
2500	81.1	88.1	82.6	84.7	84.3	86.8	84.5	82.3	81.5	79.8	84.4	87.4	86.9	89.9	85.1	82.5	76.2	144.4
3150	82.3	85.1	84.7	85.2	82.1	82.7	80.9	79.4	79.6	82.1	84.6	85.3	85.6	92.0	86.3	84.3	78.3	144.4
4000	84.5	81.4	85.8	86.3	85.3	81.3	81.8	82.3	80.8	86.0	84.9	86.7	87.8	89.2	86.7	80.6	80.8	145.2
5000	83.1	78.8	83.6	84.1	85.3	80.9	81.5	79.7	78.9	82.0	82.8	85.4	86.3	86.4	84.4	77.4	77.9	143.6
6300	79.5	80.3	80.7	80.1	84.0	81.5	80.5	77.6	78.8	77.9	82.7	87.0	86.1	88.0	84.3	78.7	75.0	144.4
8000	77.9	79.1	77.9	78.2	78.2	76.9	74.6	74.0	73.6	78.2	77.8	83.3	81.4	85.7	79.6	77.4	73.1	142.2
10000	74.4	74.8	75.4	75.0	77.1	72.4	72.2	71.7	71.1	74.1	76.3	78.4	79.3	80.5	77.2	74.5	71.4	140.6
OASPL MEASURED	97.5	97.4	97.3	96.8	97.1	96.1	95.2	95.9	93.7	96.0	96.9	100.2	101.6	104.1	99.3	95.0	91.9	
OASPL CALCULATED	96.4	96.1	96.0	95.4	95.6	94.7	93.8	94.9	92.3	94.8	95.7	98.9	100.6	103.3	98.1	93.6	91.1	
PNDB	108.7	109.4	108.9	108.9	108.7	108.0	106.7	107.9	105.1	108.1	108.8	111.9	113.6	116.2	111.3	107.0	104.0	
																	OAPWL	156.4

DIRECTIVITY INDEX

FREQ.																	
50	-2.4	-2.2	-1.4	-1.4	3.2	-1.9	-2.6	-0.6	-2.1	-0.1	-1.0	-0.1	0.9	0.8	1.1	1.8	-0.8
63	-1.2	-0.8	-1.0	-2.2	2.6	-2.0	-1.1	-0.1	-0.9	-0.0	-1.0	-0.4	0.3	0.9	0.7	1.1	0.2
80	0.8	0.5	-0.4	-1.6	1.7	-1.3	-0.9	-0.2	-0.3	-0.4	-1.5	-0.1	1.2	1.4	0.5	-1.1	-1.1
100	0.4	0.4	-0.8	-1.0	0.8	-0.4	-1.7	-0.1	-0.9	-0.0	-0.9	-0.1	1.0	1.0	1.4	-0.7	-1.2
125	-0.1	-0.6	-1.5	0.3	3.1	0.3	-1.6	1.0	-2.5	0.6	-0.7	-0.2	0.1	-0.7	-0.2	-0.8	-3.8
160	2.6	3.3	3.0	2.6	2.9	-0.0	-0.9	0.5	0.1	-1.5	-2.9	-2.2	-1.3	-1.3	-0.3	0.2	-3.3
200	2.6	2.8	3.1	2.3	1.9	-3.1	-0.6	-0.1	-1.0	-2.8	-3.5	-1.2	-0.2	2.1	0.5	0.2	-0.3
250	-1.5	-1.3	-2.6	-2.6	-1.8	-4.8	-3.3	-2.8	-3.5	0.2	-2.8	-1.1	3.4	4.2	2.9	1.1	-0.5
315	-3.2	-3.9	-4.2	-3.2	-3.6	-4.9	-4.2	-4.8	-3.4	-0.5	-1.2	0.6	3.5	4.4	3.2	0.9	-1.4
400	-0.4	-1.3	-2.2	-2.2	-2.8	-4.5	-5.1	-4.8	-3.8	-2.0	-1.6	0.3	2.9	5.0	4.3	-0.3	-3.4
500	4.0	2.1	0.4	-0.1	-1.5	-3.6	-3.3	-3.9	-2.8	-1.8	-1.4	0.1	2.4	4.4	3.3	-1.9	-5.2
630	2.1	2.0	1.9	1.0	-1.0	-4.2	-3.1	-3.1	-2.2	-2.3	-0.0	1.1	3.2	2.7	1.1	-2.2	-4.3
800	4.9	1.4	0.9	0.6	0.6	0.8	-0.9	-2.0	-2.1	-1.4	-2.7	-1.9	0.7	4.4	0.7	-1.7	-4.0
1000	5.9	2.1	1.7	1.8	0.8	1.4	-0.6	-2.3	-2.5	-2.0	-3.6	-2.9	0.4	4.7	-0.1	-2.5	-5.6
1250	0.8	-0.8	-0.1	-2.9	-3.7	-4.8	-5.0	-2.0	-5.9	-3.1	-2.4	1.3	3.7	6.5	0.2	-5.7	-7.7
1600	-3.1	-3.3	-2.7	-5.8	-4.7	-5.4	-5.5	-1.8	-7.3	-3.4	-2.5	1.3	4.0	7.0	0.4	-5.9	-7.8
2000	-3.7	-1.1	-3.0	-1.3	-2.5	-1.0	-2.5	-5.0	-4.8	-3.8	-1.9	3.3	4.1	4.2	0.6	-4.3	-8.4
2500	-4.2	2.8	-2.7	-0.7	-1.0	1.5	-0.9	-3.0	-3.9	-5.6	-1.0	2.0	1.6	4.5	-0.2	-2.8	-9.1
3150	-2.8	0.0	-0.4	0.1	-3.0	-2.4	-4.2	-5.7	-5.5	-3.0	-0.5	0.2	0.5	6.9	1.2	-0.8	-6.8
4000	-0.8	-4.0	0.4	0.9	-0.0	-4.1	-3.6	-3.1	-4.5	0.7	-0.4	1.3	2.4	3.8	1.3	-4.8	-4.6
5000	-0.3	-4.6	0.2	0.7	1.9	-2.5	-2.0	-3.7	-4.5	-1.5	-0.6	2.0	2.9	3.0	1.0	-6.1	-5.6
6300	-3.9	-3.0	-2.7	-3.2	0.6	-1.8	-2.9	-5.7	-4.5	-5.5	-0.6	3.7	2.7	4.6	0.9	-4.6	-8.3
8000	-1.9	-0.7	-1.9	-1.6	-1.6	-2.9	-5.1	-5.7	-6.2	-1.6	-1.9	3.6	1.7	5.9	-0.2	-2.4	-6.7
10000	-1.8	-1.4	-0.8	-1.3	0.9	-3.9	-4.1	-4.6	-5.1	-2.2	0.0	2.1	3.0	4.3	0.9	-1.7	-4.8

C7

RUN 5 2148 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/4/68
RUN..... 5, Pt.33
BAROMETER.....(in Hg)... 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 68.0
(°K)..... 293.1
ABS. HUMIDITY...(gm/m3).. 15.5
(kg/m³).. 0.0155
PHYS. FAN SPEED(RPM).... 2150
(rad/sec) 225.1
CORR. FAN SPEED(RPM).... 2120
(rad/sec) 221.9
TAPE NUMBER..... P630

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	75,4	75,9	76,2	76,4	77,1	76,3	75,4	75,7	75,7	77,9	77,4	78,2	78,6	78,7	78,8	79,3	76,9	134.3
63	76,4	79,0	78,7	77,7	78,2	80,0	77,9	78,4	78,3	79,3	79,0	79,4	79,4	80,1	79,6	80,0	79,5	136.1
80	77,8	78,1	77,1	75,7	75,9	76,0	76,0	76,2	77,0	76,9	75,7	76,9	77,8	78,2	77,4	76,1	76,2	133.9
100	77,3	78,1	76,2	76,0	75,3	75,5	75,6	74,6	74,7	75,2	74,5	75,5	76,5	76,8	76,7	74,7	74,7	132.7
125	75,8	75,9	75,3	74,6	77,9	76,8	73,5	74,6	73,8	75,9	75,3	75,8	74,7	75,2	77,2	76,9	73,2	132.8
160	72,5	74,1	73,8	72,2	70,0	70,5	69,8	68,8	69,5	68,2	68,2	68,2	67,5	68,4	69,8	69,1	66,1	126.8
200	70,6	73,5	72,4	69,6	67,0	69,2	66,5	65,9	66,5	64,4	65,4	67,7	64,6	66,5	66,7	65,4	65,1	124.7
250	68,8	69,4	68,7	67,2	65,7	64,7	66,8	65,5	65,9	68,4	66,2	67,4	72,5	73,2	72,1	69,3	69,7	126.5
315	71,2	70,5	71,1	71,4	70,2	69,5	69,3	68,1	69,8	72,4	72,0	73,6	75,9	77,2	76,3	73,4	71,9	130.6
400	76,4	76,5	76,1	76,1	74,8	73,5	72,8	73,0	73,8	75,6	76,1	77,7	79,9	82,3	81,4	76,8	74,4	135.1
500	80,8	79,7	78,4	78,0	76,6	74,9	74,2	73,3	74,8	75,3	75,7	77,6	79,4	81,8	80,5	75,3	72,3	135.2
630	79,2	80,1	79,5	77,7	76,3	74,5	74,0	74,7	74,5	74,8	75,1	78,0	79,0	78,9	77,1	73,6	72,7	134.5
800	82,0	80,6	80,3	80,4	81,1	78,9	77,4	76,9	75,6	75,5	75,2	76,5	78,6	82,7	78,5	75,9	74,0	136.5
1000	87,6	84,1	85,5	86,1	86,7	84,2	82,6	82,0	79,9	79,9	79,5	80,7	83,3	88,0	82,8	80,4	77,0	141.2
1250	86,3	85,0	86,4	85,0	84,8	80,9	81,0	79,9	80,5	80,7	83,1	89,0	90,2	94,9	85,3	81,7	80,6	145.1
1600	88,3	88,2	90,5	91,1	91,8	86,7	87,5	85,8	86,5	86,4	90,0	96,5	97,8	101,8	92,7	89,0	87,9	152.6
2000	82,7	85,3	85,0	84,2	86,9	85,8	84,5	82,2	81,7	83,0	84,8	88,3	89,2	91,8	86,0	82,9	78,9	149.3
2500	81,6	86,7	84,6	83,6	85,3	86,7	86,8	83,2	82,1	80,7	83,4	88,1	87,8	90,1	84,4	83,6	77,9	144,9
3150	82,0	86,3	84,8	84,7	82,2	83,1	81,4	80,9	79,5	81,9	83,8	85,8	85,5	91,2	84,8	84,2	78,4	144.2
4000	84,8	81,5	85,8	85,6	85,3	81,7	82,3	83,0	81,2	84,9	84,3	86,1	88,0	88,7	86,2	80,4	81,3	145.0
5000	82,7	79,0	84,1	83,5	85,3	81,1	82,1	80,3	79,2	81,4	82,4	84,9	86,8	86,3	83,8	77,4	78,1	143.5
6300	79,3	80,2	81,2	79,9	83,8	81,5	81,0	77,8	79,2	78,2	82,6	86,7	86,6	86,3	83,6	78,6	75,0	144.5
8000	78,0	79,0	78,1	77,9	78,0	76,9	75,2	74,1	73,5	77,7	77,1	82,9	81,6	86,0	79,0	77,4	72,7	142.2
10000	74,8	74,8	76,1	74,7	76,7	72,2	72,6	72,1	71,2	73,7	75,7	77,9	78,7	80,5	76,3	73,9	70,4	140.5
OASPL MEASURED	96,8	97,0	97,8	97,4	98,0	95,8	95,4	94,1	93,7	94,7	96,1	100,5	101,6	104,7	98,2	95,1	93,1	
OASPL CALCULATED	95,5	95,6	96,3	96,1	96,8	94,5	94,2	92,8	92,4	93,4	95,0	99,6	100,6	104,5	97,1	94,1	92,1	
PNDB	108,2	109,1	109,3	109,0	109,7	108,1	107,9	106,0	105,2	107,2	109,0	112,6	113,7	116,9	110,3	107,0	105,1	
																	OAPWL	156.6

DIRECTIVITY INDEX

FREQ,																
50	-2,1	-1,6	-1,3	-1,1	-0,4	-1,2	-2,1	-1,7	+1,8	0,4	-0,1	0,7	1,1	1,2	1,4	1,8	-0,6
63	-0,8	-0,2	-0,5	-1,5	-1,0	0,8	-1,3	-0,8	+0,9	0,1	-0,2	0,2	0,2	0,9	0,4	0,8	0,4
80	1,0	1,1	0,2	-1,2	-1,0	-0,8	-0,8	-0,6	0,1	0,1	-1,1	0,1	1,0	1,4	0,6	-0,7	-0,6
100	1,8	2,5	0,7	0,5	-0,3	-0,1	-2,0	-0,9	+0,9	-0,3	-1,1	-0,1	0,9	1,3	1,2	-0,8	-0,9
125	0,2	0,2	-0,3	-1,0	2,2	1,1	-2,1	+1,1	+1,8	0,3	-0,8	0,2	-1,0	-0,5	1,5	1,3	-2,5
160	3,0	4,5	4,2	2,7	0,4	0,7	-0,8	-0,8	+0,0	-1,4	-1,3	-1,4	-2,0	-1,2	0,2	-0,5	-3,4
200	3,3	6,0	5,1	2,3	-0,3	1,8	-0,8	-1,4	+0,8	+2,9	-1,9	0,3	-2,7	-0,8	-0,6	-1,9	-2,2
250	-0,3	0,3	-0,4	-1,9	-3,3	-4,4	-2,3	-3,5	-3,1	-0,6	-2,9	-1,6	3,5	4,2	3,0	0,2	0,7
315	-1,9	-2,6	-2,0	-1,7	-2,8	-3,6	-0,7	-4,9	+3,2	+0,7	+1,0	0,6	2,9	4,1	3,3	0,3	-1,2
400	-1,0	-0,9	-1,3	-1,3	-2,6	-4,1	-4,6	-4,5	-3,6	-1,8	-1,3	0,3	2,5	4,9	4,0	-0,6	-3,0
500	3,3	2,2	1,0	0,5	-0,9	-2,6	-3,2	-4,1	+2,6	-2,2	+1,7	0,2	2,0	4,4	3,1	-2,2	-5,2
630	2,6	3,4	2,9	1,1	-0,3	-2,1	-2,6	+2,0	-2,2	-1,8	-1,5	1,4	2,4	2,2	0,5	-3,0	-3,9
800	3,5	2,1	1,9	2,0	2,7	0,4	-1,1	-1,6	+2,8	+2,9	-3,2	-2,0	0,1	4,2	0,0	-2,6	-4,5
1000	4,1	1,4	2,1	2,6	3,2	0,7	-0,9	-1,5	-3,5	-3,6	-4,0	-2,8	-0,1	4,5	-0,6	-3,0	+6,5
1250	-0,5	-1,8	-0,3	-1,8	-1,9	-5,9	-5,7	+6,9	+6,2	-6,0	-3,7	2,3	3,5	7,2	-1,4	-5,1	-6,2
1600	-5,8	-5,9	-3,6	-3,0	-2,3	-7,3	-6,6	+8,3	-7,6	-7,6	-4,1	2,4	3,7	7,7	-1,4	-5,1	-6,1
2000	-3,7	-1,1	-1,5	-2,3	0,5	-0,7	-1,9	-4,2	+4,7	-3,5	-1,7	1,8	2,7	5,4	-0,4	-3,6	-7,5
2500	-4,3	0,9	-1,2	-2,2	-0,5	0,9	1,0	-2,6	+3,7	-5,1	-2,5	2,3	1,9	4,2	-1,4	-2,2	-7,9
3150	-2,8	1,5	-0,0	-0,1	-2,6	-1,7	-3,4	-3,9	-5,3	-2,9	-1,0	1,0	0,7	6,4	-0,2	-0,7	-6,4
4000	-0,4	-3,6	0,7	0,5	0,2	-3,5	-2,9	-2,2	+3,9	-0,2	-0,9	1,0	2,9	3,6	1,0	-4,7	-3,8
5000	-0,6	-4,3	0,7	0,1	2,0	-2,3	-1,3	-3,1	+4,1	-1,8	-1,0	1,5	3,2	2,9	0,4	-6,0	-5,3
6300	-3,6	-3,3	-2,2	-3,5	0,4	-1,9	-2,5	-5,6	+4,3	-5,3	-0,8	3,3	3,2	4,8	0,2	-4,8	-8,4
8000	-1,7	-0,7	-1,6	-1,8	-1,8	-2,6	-4,5	-5,6	+3,2	-2,1	-2,0	3,1	1,9	6,3	-0,7	-2,3	-7,1
10000	-1,3	-1,6	-0,0	-1,4	0,6	-3,9	-3,5	-4,0	+4,9	+2,4	-0,5	1,7	3,6	4,4	0,2	-2,2	-5,8

C8

RUN 5 2150 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5,Pt. 38
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 64.0
(°K)..... 290.9
ABS. HUMIDITY...(gm/m³).. 13.4
(kg/m³).. 0.0134
PHYS. FAN SPEED (RPM).... 2300
(rad/sec) 240.8
CORR. FAN SPEED (RPM).... 2276
(rad/sec) 238.3
TAPE NUMBER..... P626

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	76.0	76.1	77.0	77.1	78.0	77.3	76.8	78.5	77.9	79.3	78.3	79.2	80.0	80.4	80.5	81.0	78.4	135.8
63	79.0	79.5	79.5	78.1	78.1	78.1	79.7	80.6	79.9	80.7	79.7	80.0	80.8	81.6	81.3	81.9	81.0	137.2
80	77.8	77.5	77.1	75.9	76.1	76.7	77.2	78.5	78.7	78.2	77.1	78.3	79.2	79.8	79.3	77.7	77.4	135.2
100	75.7	75.9	75.2	75.0	74.4	75.9	74.8	76.3	75.9	76.5	75.6	76.6	77.2	77.5	78.1	75.6	75.4	133.4
125	77.1	75.9	74.8	76.5	77.2	74.0	74.4	74.6	73.7	75.1	73.6	73.9	74.7	74.5	74.8	74.8	72.9	132.0
160	72.4	73.1	72.9	72.3	70.2	69.8	68.9	70.1	70.3	68.5	66.8	67.0	67.4	68.1	69.3	69.6	67.7	126.8
200	69.7	70.3	69.8	67.7	65.9	64.1	65.9	67.0	66.7	64.3	63.5	64.8	67.1	68.6	68.5	68.3	66.8	124.1
250	69.4	68.3	67.1	66.9	66.8	65.7	67.6	66.6	66.6	70.4	67.6	68.8	73.5	73.9	73.3	71.4	69.7	127.5
315	69.8	68.8	69.3	70.7	70.5	69.4	70.0	69.2	70.5	72.7	72.2	74.1	76.3	77.0	76.5	73.7	71.7	130.8
400	75.9	75.6	75.7	76.0	75.6	74.6	74.3	74.1	74.9	76.7	77.2	79.3	81.3	82.7	82.0	77.8	74.8	136.0
500	80.5	79.0	77.8	77.2	76.5	75.6	75.0	74.7	75.5	76.0	76.4	77.8	79.5	81.5	79.8	75.0	72.2	135.3
630	79.3	79.2	79.3	77.7	76.1	74.6	74.1	74.4	75.2	75.6	75.7	77.6	78.8	79.1	78.0	75.2	73.3	134.7
800	78.4	77.7	77.4	77.4	77.6	76.3	75.0	74.2	74.3	74.9	75.0	76.4	78.1	80.2	78.2	74.8	74.2	134.7
1000	89.7	87.4	86.9	88.2	90.0	88.1	85.7	83.8	82.5	83.2	81.8	83.4	86.1	89.2	88.7	81.1	85.4	144.5
1250	85.2	84.3	85.4	81.2	80.4	79.9	78.1	78.9	78.4	79.1	79.8	83.9	85.5	84.8	80.1	76.5	75.2	140.0
1600	89.5	96.8	97.5	90.5	86.1	92.2	84.5	91.8	86.8	90.1	91.1	64.6	101.2	98.7	92.2	87.4	87.7	152.6
2000	83.7	85.5	85.5	85.4	84.7	84.8	85.1	82.2	82.7	82.5	84.6	88.9	87.3	90.1	85.7	83.1	79.0	144.6
2500	79.6	85.8	83.4	82.3	84.5	89.6	89.5	81.7	81.3	81.0	83.3	87.5	86.3	89.3	84.8	82.6	76.7	145.0
3150	82.9	86.1	85.0	84.0	82.8	84.0	83.6	81.3	80.2	84.0	84.4	86.6	86.2	90.4	86.1	84.9	79.1	144.6
4000	85.0	81.5	86.3	85.7	86.0	81.9	82.3	82.8	80.6	85.0	84.5	86.2	87.8	86.8	83.6	80.1	80.3	144.6
5000	83.2	80.9	85.0	84.4	86.3	82.3	82.9	81.8	80.8	83.3	85.7	88.0	89.0	88.0	85.2	79.5	79.6	145.5
6300	79.8	80.8	81.8	80.8	85.0	82.6	81.7	78.8	80.2	79.0	84.7	87.8	87.1	89.1	84.7	80.3	75.8	145.5
8000	78.4	79.4	78.9	78.4	79.0	77.9	75.6	75.2	74.4	78.9	79.1	83.9	81.9	86.1	79.6	78.5	74.0	142.8
10000	74.7	75.4	76.7	75.4	78.2	73.6	73.6	73.3	72.6	75.3	78.2	79.3	81.0	81.2	78.0	75.8	72.4	141.8
OASPL MEASURED	97.3	99.8	100.5	97.4	97.4	98.0	96.3	96.2	94.3	96.1	97.2	101.8	103.5	102.8	98.5	94.9	93.5	
OASPL CALCULATED	96.0	98.9	99.5	96.0	96.0	96.9	94.9	95.1	93.0	94.9	95.9	96.9	102.7	101.8	97.4	93.9	92.8	
PNDB	108.4	111.8	112.5	108.8	109.1	110.0	109.3	108.1	105.7	108.0	109.0	110.1	115.5	114.9	110.3	107.4	105.3	
																	OAPWL	156.8

DIRECTIVITY INDEX

FREQ.																	
50	-2.9	-2.8	-1.9	-1.8	-0.9	-1.6	-2.1	-0.4	-1.0	0.3	-0.6	0.3	1.1	1.4	1.6	2.1	-0.5
63	-1.3	-0.8	-0.8	-2.2	-2.2	-2.2	-0.6	0.3	-0.4	0.4	-0.6	-0.3	0.5	1.3	1.0	1.6	0.8
80	-0.4	-0.7	-1.0	-2.3	-2.1	-1.4	-1.0	0.3	0.5	0.0	-1.1	0.1	1.0	1.6	1.1	-0.5	-0.8
100	-0.6	-0.4	-1.1	-1.3	-1.9	-0.4	-1.5	-0.0	-0.4	0.2	-0.7	0.3	0.9	1.2	1.8	-0.7	-0.9
125	2.3	1.1	-0.0	1.7	2.4	-0.8	-0.4	-0.2	-1.1	0.3	-1.2	-0.9	-0.1	-0.3	-0.1	-0.0	-1.9
160	2.9	3.6	3.4	2.8	0.7	0.3	-0.6	0.6	0.8	-1.0	-2.7	-2.5	-2.1	-1.4	-0.2	0.1	-1.8
200	2.9	3.5	3.1	0.9	-0.9	-2.7	-0.9	0.3	-0.1	-2.5	-3.3	-2.0	0.3	1.8	1.7	1.5	0.0
250	-0.6	-1.7	-2.9	-3.1	-3.2	-4.4	-2.4	-3.4	-3.5	0.4	-2.4	-1.3	3.5	3.8	3.3	1.3	-0.3
315	-3.4	-4.5	-3.9	-2.5	-2.7	-3.8	-3.2	-4.0	-2.7	-0.5	-1.0	0.9	3.0	3.8	3.3	0.5	-1.6
400	-2.4	-2.7	-2.6	-2.3	-2.6	-3.7	-3.9	-4.2	-3.4	-1.6	-1.1	1.1	3.0	4.4	3.7	-0.5	-3.5
500	3.0	1.6	0.3	-0.3	-1.0	-1.9	-2.4	-2.8	-2.0	-1.5	-1.0	0.3	2.0	4.0	2.4	-2.5	-5.3
630	2.5	2.5	2.6	0.9	-0.6	-2.1	-2.7	-2.3	-1.5	-1.2	-1.1	0.8	2.0	2.3	1.3	-1.5	-3.4
800	1.8	1.0	0.7	0.7	1.0	-0.4	-1.6	-2.5	-2.4	-1.7	-1.7	-0.3	1.4	3.5	1.6	-1.9	-2.5
1000	3.4	1.1	0.6	1.9	3.7	1.8	-0.6	-2.4	-3.8	-3.1	-4.5	-2.9	-0.2	2.9	2.5	-5.1	-0.8
1250	3.5	2.6	3.8	-0.4	-1.3	-1.8	-3.6	-2.8	-3.3	-2.5	-1.9	2.3	3.8	3.1	-1.6	-5.2	-6.5
1600	-4.6	2.7	3.5	-3.6	-7.9	-1.8	-9.6	-2.3	-7.3	-4.0	-3.0	-29.4	7.2	4.7	-1.9	-6.6	-6.4
2000	-2.1	-0.3	-0.3	-0.4	-1.1	-1.0	-0.7	-3.6	-3.1	-3.3	-1.2	3.1	1.5	4.2	-0.1	-2.7	-6.8
2500	-6.4	-0.2	-2.5	-3.6	-1.5	3.7	3.5	-4.2	-4.6	-4.9	-2.6	1.5	0.3	3.3	-1.2	-3.3	-9.3
3150	-2.3	0.9	-0.2	-1.2	-2.4	-1.2	-1.6	-3.9	-5.0	-1.2	-0.8	1.4	1.0	5.2	0.9	-0.3	-6.1
4000	0.3	-3.2	1.6	0.9	1.3	-2.9	-2.4	-2.0	-4.1	0.3	-0.2	1.4	3.1	2.1	-1.1	-4.6	-4.5
5000	-2.1	-4.4	-0.3	-0.9	1.0	-3.0	-2.4	-3.5	-4.5	-2.1	0.4	2.7	3.7	2.7	-0.1	-5.8	-5.7
6300	-4.6	-3.6	-2.6	-3.6	0.6	-1.8	-2.8	-5.6	-4.2	-5.5	0.3	3.4	2.7	4.7	0.3	-4.1	-8.6
8000	-2.0	-1.0	-1.5	-2.0	-1.4	-2.5	-4.8	-5.1	-6.0	-1.4	-1.3	3.5	1.5	5.7	-0.8	-1.9	-6.4
10000	-2.8	-2.0	-0.8	-2.0	0.8	-3.8	-3.9	-4.2	-4.9	-2.1	0.7	1.9	3.5	3.7	0.5	-1.6	-5.1

C9

RUN 5 2300 RPM

NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC, DATE - MONTH 9 DAY 27 HR, 1,8

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.P.G.
DATE..... 9/4/68
RUN..... 5,Pt. 54
BAROMETER.....(in Hg).. 29.0
(N/m²)... 27928
T AMBIENT.....(°F)..... 75.0
(°K)..... 297.0
T WET BULB.....(°F)..... 68.0
(°K)..... 293.1
ABS. HUMIDITY...(gm/m³).. 15.2
(kg/m³).. 0.0152
PRTB. FAN SPEED (RPM).... 2316
(rad/sec) 242.5
CORR. FAN SPEED (RPM).... 2281
(rad/sec) 238.8
TAPE NUMBER..... P631

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0, (0)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50,0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90,0 (1.57)	100,0 (1.74)	110,0 (1.92)	120,0 (2.09)	130,0 (2.27)	140,0 (2.44)	150,0 (2.62)	160,0 (2.79)	
50	77,1	77,0	77,0	77,1	78,2	77,0	76,4	77,3	77,1	79,2	78,1	79,7	80,5	80,7	81,0	81,6	79,5	135,9
63	80,3	80,3	80,0	78,9	79,5	80,9	80,0	79,7	79,8	81,2	79,6	80,4	80,6	81,4	80,6	81,3	81,3	137,4
80	78,9	79,1	77,1	76,3	77,2	77,4	77,7	76,1	78,7	78,6	77,8	78,9	79,5	80,0	78,9	77,4	77,6	135,5
100	76,8	76,9	75,3	75,0	75,6	75,9	74,9	76,0	75,8	77,0	75,0	76,7	77,4	77,8	77,8	75,6	75,7	133,6
125	78,0	76,8	74,7	76,5	77,4	74,9	74,3	74,3	76,4	77,4	75,4	74,9	75,4	76,7	76,6	75,3	73,6	133,1
160	75,0	75,7	74,2	73,5	72,4	71,8	71,3	69,8	71,2	71,0	68,2	69,2	68,5	70,0	70,9	70,7	68,8	128,3
200	73,2	72,8	70,8	69,3	69,7	70,2	69,2	68,7	68,1	67,2	65,4	67,2	66,4	67,9	67,2	67,3	67,4	125,8
250	71,8	71,1	68,0	68,2	69,5	66,7	69,4	67,2	67,5	71,2	68,6	69,4	73,6	73,5	71,5	70,4	69,3	127,8
315	71,7	69,9	70,0	71,5	73,3	71,5	71,7	70,1	71,6	74,5	73,8	75,1	76,9	77,7	76,3	73,9	72,7	131,8
400	75,9	75,4	75,2	76,0	76,2	74,1	73,9	74,0	75,0	77,1	77,0	79,4	81,0	82,4	81,4	76,9	74,5	135,8
500	80,1	78,5	77,1	76,7	76,8	75,4	75,4	74,4	75,8	76,3	77,8	79,4	81,7	79,9	75,1	72,1	135,2
630	79,2	79,4	78,3	77,2	76,5	75,0	74,6	74,6	75,3	75,2	75,7	78,1	79,9	80,8	79,1	75,1	73,3	135,2
800	77,8	77,7	77,1	77,6	77,1	75,4	74,9	74,1	74,3	74,9	75,4	76,7	78,1	79,3	76,7	74,4	74,2	134,4
1000	90,1	87,0	87,8	89,7	89,1	86,7	85,3	82,4	83,5	81,2	83,9	84,4	86,5	89,8	85,3	81,1	85,1	144,3
1250	84,8	84,0	84,5	81,5	80,3	79,2	78,3	78,2	78,7	78,5	79,5	82,1	84,7	86,9	80,2	76,2	75,3	139,7
1600	86,6	93,9	97,3	90,5	87,8	89,3	86,9	88,5	90,7	88,7	92,2	94,5	100,8	101,9	93,1	87,1	88,8	153,6
2000	82,5	85,8	85,3	84,6	85,6	85,9	84,3	81,8	83,1	82,4	83,8	87,4	87,6	90,2	86,3	82,3	79,2	144,5
2500	80,7	84,9	82,7	82,7	85,0	87,6	89,6	82,9	82,4	80,2	82,8	87,6	86,9	90,8	85,2	82,6	76,8	145,0
3150	82,9	85,6	84,5	84,0	82,6	85,6	84,9	81,9	81,5	83,7	83,3	87,7	86,8	91,3	85,5	84,3	79,3	145,0
4000	85,9	81,7	86,2	85,8	85,8	82,6	82,5	83,1	81,3	85,2	84,3	86,0	88,0	87,9	83,9	79,9	80,4	144,8
5000	83,4	80,8	85,4	84,6	86,6	83,3	83,4	82,4	81,8	83,8	86,3	88,2	89,3	89,1	85,8	79,5	80,0	146,0
6300	80,5	81,0	82,0	81,1	85,1	83,5	82,3	79,6	80,7	79,5	84,8	87,9	88,0	90,1	85,3	80,3	76,3	146,0
8000	78,6	79,5	79,0	79,0	79,1	78,6	76,3	75,7	75,2	79,1	79,0	84,1	82,4	87,1	80,4	78,8	73,9	143,4
10000	75,5	75,6	77,3	76,2	78,8	74,8	74,6	74,3	74,0	75,8	78,2	79,7	81,4	82,1	78,6	76,1	72,6	142,4
OASPL MEASURED	97,7	98,9	100,3	97,7	97,8	97,2	96,7	95,1	95,8	95,8	97,4	100,0	103,4	104,8	98,7	94,5	94,1	
OASPL CALCULATED	95,8	97,4	99,4	96,4	96,3	95,9	95,4	93,8	94,7	94,5	96,3	98,8	102,5	103,8	97,5	93,6	93,2	
PNDB	108,8	110,4	112,3	109,0	109,3	107,2	107,7	106,8	107,8	108,0	109,5	112,0	115,5	116,9	110,7	107,1	105,9	
																	OAPWL	157,3

DIRECTIVITY INDEX

FREQ,																	
50	-2,0	-2,1	-2,0	-1,9	-0,8	-2,1	-2,7	-1,7	-1,9	0,1	-0,9	0,7	1,5	1,6	2,0	2,6	0,5
63	-0,2	-0,2	-0,5	-1,6	-1,0	0,4	-0,5	-0,8	-0,7	0,7	-0,9	-0,1	0,1	0,9	0,1	0,8	0,8
80	0,5	0,0	-1,3	-2,2	-1,2	-1,1	-0,8	-0,3	0,2	0,2	-0,7	0,4	1,1	1,5	0,5	-1,1	-0,9
100	0,3	0,0	-1,1	-1,4	-0,9	-0,5	-1,5	-0,5	-0,7	0,6	-0,7	0,2	0,9	1,3	1,3	-0,9	-0,7
125	2,1	0,9	-1,2	0,6	1,5	-1,0	-1,7	-1,6	0,5	1,4	-0,6	-1,0	-0,5	0,8	0,7	-0,6	-2,3
160	4,0	4,6	3,1	2,4	1,3	0,8	0,2	-1,2	0,1	-0,1	-2,9	-1,9	-2,6	-1,0	-0,1	-0,4	-2,3
200	4,8	4,3	2,4	0,9	1,3	1,6	0,7	0,3	-0,4	-1,2	-3,0	-1,3	-2,0	-0,6	-1,2	-1,1	-1,0
250	1,5	0,8	-2,4	-2,1	-0,8	-3,6	-0,9	-3,1	-2,8	0,9	-1,7	-0,9	3,2	3,2	1,2	0,1	-1,0
315	-2,4	-4,3	-4,2	-2,7	-0,9	-2,7	-2,5	-4,1	-2,6	0,3	-0,6	0,9	2,7	3,5	2,2	-0,3	-1,5
400	-2,2	-2,7	-3,0	-2,1	-1,9	-4,1	-4,2	-4,1	-3,1	-1,0	-1,1	1,3	2,9	4,3	3,3	-1,2	-3,6
500	2,6	1,1	-0,4	-0,8	-0,7	-2,8	-2,0	-3,0	-2,1	-1,7	-1,2	0,3	2,0	4,2	2,4	-2,3	-5,4
630	1,9	2,1	1,0	-0,1	-0,8	-2,3	-2,7	-2,6	-1,9	-2,1	-1,6	0,8	2,6	3,5	1,8	-2,2	-4,0
800	1,4	1,3	0,7	1,3	0,7	-1,6	-1,5	-2,3	-2,1	-1,5	-1,0	0,3	1,7	2,9	0,3	-2,0	-2,2
1000	4,0	0,9	1,8	3,6	3,0	0,6	-0,8	-3,7	-2,6	-4,9	-2,2	-1,7	0,4	3,7	-0,8	-5,0	-1,0
1250	3,5	2,0	3,1	0,1	-1,1	-2,2	-3,1	-3,2	-2,7	-2,9	-1,9	0,7	3,3	4,6	-1,2	-5,2	-6,1
1600	-0,4	-1,1	-2,2	-4,6	-7,3	-5,9	-8,2	-6,6	-4,4	-6,4	-2,9	-0,6	5,8	6,8	-2,0	-8,0	-6,3
2000	-3,2	0,2	-0,3	-1,0	-0,1	-0,1	-1,3	-3,9	-2,5	-3,3	-1,9	1,8	1,9	4,6	0,7	-3,4	-6,5
2500	-5,3	-1,1	-3,3	-3,3	-1,0	1,7	3,6	-3,1	-3,6	-5,8	-3,2	1,6	0,9	4,0	-0,8	-3,3	-9,2
3150	-2,8	0,1	-1,2	-1,7	-5,1	0,1	-0,8	-3,8	-4,2	-2,0	-2,4	2,0	1,1	5,6	-0,2	-1,4	-6,4
4000	1,0	-3,1	-1,2	0,9	0,9	-2,4	-2,4	-1,9	-3,7	0,2	-0,7	1,0	3,1	2,6	-1,0	-5,0	-4,5
5000	-2,4	-5,1	-0,5	-1,2	0,8	-2,5	-2,4	-3,5	-4,0	-2,0	0,5	2,3	3,4	3,2	-0,0	-6,3	-5,8
6300	-4,5	-3,9	-2,9	-3,8	0,2	-1,5	-2,7	-5,3	-4,2	-5,5	-0,2	2,9	3,0	2,1	0,3	-4,7	-8,6
8000	-2,3	-1,4	-1,9	-1,9	-1,8	-2,3	-4,6	-5,2	-5,7	-1,8	-1,9	3,2	1,5	0,2	-0,5	-2,1	-7,0
10000	-2,5	-2,3	-0,8	-1,8	0,7	-3,3	-3,5	-3,8	-4,0	-2,2	0,1	1,6	3,3	4,0	0,5	-2,0	-5,5

C10

RUN 5 2316 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 9 DAY 27 HR. 2.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/4/68
RUN..... 5,Pt. 39
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 64.0
(°K)..... 290.9
ABS. HUMIDITY...(gm/m³).. 13.4
(kg/m³).. 0.0134
PHYS. FAN SPEED (RPM).... 2467
(rad/sec) 258.3
CORR. FAN SPEED (RPM).... 2441
(rad/sec) 255.6
TAPE NUMBER..... P627

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																	PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	76.0	76.2	77.0	77.2	77.7	77.1	76.7	77.7	77.5	79.5	78.9	80.2	81.3	81.6	81.9	83.0	80.0	136.4
63	78.6	79.2	79.2	78.4	78.9	78.7	79.6	80.2	80.3	81.5	80.2	80.8	81.8	82.2	82.0	83.0	81.7	137.8
80	77.9	77.7	77.2	76.8	77.7	78.4	78.7	79.1	79.4	79.4	78.4	79.9	81.2	81.3	80.8	80.0	79.4	136.5
100	76.8	76.9	76.2	76.0	75.8	77.5	76.4	77.4	77.6	78.6	77.7	78.6	79.7	79.9	80.0	78.2	77.6	135.3
125	76.7	76.1	75.5	76.4	75.5	75.4	75.2	76.0	75.5	76.7	75.3	76.3	77.5	77.0	77.9	77.9	76.0	133.6
160	74.0	74.6	73.8	73.8	71.2	71.0	70.1	71.8	71.8	70.8	69.2	70.4	71.5	71.6	72.9	74.5	71.8	129.1
200	71.4	71.8	70.4	69.6	67.4	66.0	67.0	68.8	68.4	67.1	65.9	67.6	69.2	70.2	70.2	72.2	69.2	126.2
250	70.2	70.0	68.2	69.2	68.5	67.8	68.2	68.8	68.5	71.8	68.4	70.2	74.5	75.2	74.3	74.1	71.0	128.9
315	70.2	68.9	68.7	71.1	71.6	70.1	70.4	70.7	72.0	74.1	73.3	74.6	77.3	77.7	76.7	75.5	72.7	131.7
400	75.2	75.0	74.9	76.3	76.6	75.1	75.0	75.7	76.1	78.0	77.7	79.6	81.5	83.2	81.5	78.8	75.7	136.4
500	78.5	77.2	76.6	76.6	76.0	75.0	74.7	75.5	76.6	77.1	77.4	79.2	80.9	82.6	79.8	77.0	73.5	136.0
630	78.3	77.6	78.1	77.0	76.7	74.7	74.8	75.4	76.3	75.9	76.2	79.8	80.9	81.5	79.0	77.4	74.4	135.8
800	77.5	76.3	76.7	76.6	76.1	75.5	74.9	74.4	75.0	75.8	75.5	77.5	79.5	79.8	76.7	76.6	74.2	134.8
1000	92.8	88.0	91.6	89.8	88.3	92.7	91.6	86.5	85.4	82.7	83.5	85.8	90.5	93.3	91.2	84.6	83.2	147.5
1250	83.6	82.4	83.6	81.1	80.7	80.5	79.7	78.8	79.1	79.1	79.3	82.2	83.2	85.2	81.0	78.4	74.9	139.5
1600	87.4	97.1	93.5	86.3	92.2	88.1	87.4	92.3	92.3	93.3	92.3	92.8	95.7	98.2	93.6	90.3	85.8	151.8
2000	83.0	87.6	86.4	87.8	87.7	86.6	87.3	84.0	83.9	83.7	85.5	89.5	89.7	93.4	87.2	84.5	79.4	146.6
2500	81.1	87.2	83.5	84.0	89.8	90.4	88.4	82.9	83.6	81.8	86.0	88.7	88.8	92.8	87.0	85.4	79.0	146.8
3150	84.3	87.4	84.3	84.9	84.4	85.9	84.4	82.1	81.7	84.3	83.7	88.4	88.1	93.5	89.5	85.5	81.2	146.4
4000	85.3	82.7	87.5	86.8	86.7	82.6	83.7	84.0	81.8	86.0	84.9	86.8	88.5	88.4	85.0	81.0	81.0	145.6
5000	83.9	81.2	86.0	85.0	87.7	84.7	84.8	83.4	82.9	85.0	86.9	89.4	90.9	89.6	86.6	80.2	80.9	147.0
6300	80.7	81.9	82.6	81.8	86.4	84.2	83.6	80.7	82.1	80.7	85.5	89.7	89.1	91.1	86.1	81.4	77.1	147.1
8000	79.3	80.5	79.5	79.8	80.1	79.4	77.5	77.2	76.2	80.9	80.1	85.6	83.5	87.9	80.9	79.5	74.7	144.4
10000	75.7	76.6	77.7	76.9	79.3	75.3	75.9	75.5	75.2	77.4	79.9	81.9	82.7	83.7	79.6	77.2	73.2	143.8
OASPL MEASURED	97.9	100.6	99.5	97.9	99.6	99.0	98.3	97.4	97.3	98.1	98.3	100.7	102.3	104.6	100.5	98.1	94.5	
OASPL CALCULATED	96.7	99.4	98.2	96.3	98.1	97.7	96.9	96.0	95.9	96.8	96.9	99.2	100.7	103.1	99.1	95.9	92.7	
PNDB	108.7	112.4	110.7	109.6	111.3	110.9	109.8	109.1	109.0	110.0	110.0	112.1	113.6	116.0	112.1	108.8	105.2	
																	OAPWL	157.7

DIRECTIVITY INDEX

FREQ.																	
50	-3.6	-3.4	-2.6	-2.4	-1.9	-2.5	-3.0	-1.9	-2.1	-0.1	-0.7	0.6	1.7	2.0	2.3	3.4	0.4
63	-2.2	-1.6	-1.7	-2.4	-1.9	-2.2	-1.3	-0.6	-0.5	0.7	-0.7	-0.0	1.0	1.3	1.2	2.2	0.9
80	-1.6	-1.9	-2.4	-2.7	-1.9	-1.1	-0.8	-0.5	-0.1	-0.2	-1.1	0.3	1.7	1.7	1.2	0.5	-0.1
100	-1.4	-1.3	-2.0	-2.2	-2.4	-0.7	-1.8	-0.8	-0.6	0.4	-0.5	0.4	1.5	1.7	1.8	0.0	-0.6
125	0.2	-0.3	-1.0	-0.0	-0.9	-1.0	-1.3	-0.4	-0.9	0.3	-1.1	-0.2	1.0	0.6	1.5	1.5	-0.4
160	2.2	2.8	2.0	2.0	-0.6	-0.8	-1.7	-0.0	-0.0	-1.0	-2.6	-1.4	-0.3	-0.2	1.1	2.7	-0.0
200	2.6	3.0	1.6	0.8	-1.4	-2.8	-1.8	0.1	-0.3	-1.7	-2.9	-1.2	0.4	1.4	1.4	3.4	0.4
250	-1.3	-1.4	-3.2	-2.2	-2.9	-3.6	-3.2	-2.7	-2.9	0.3	-3.1	-1.3	3.0	3.8	2.9	2.6	-0.4
315	-3.9	-5.2	-5.4	-3.0	-2.5	-4.0	-3.7	-3.4	-2.1	0.0	-0.8	0.5	3.2	3.6	2.6	1.4	-1.4
400	-3.6	-3.7	-3.8	-2.5	-2.2	-3.6	-3.8	-3.1	-2.6	-0.7	-1.1	0.8	2.8	4.5	2.7	0.0	-3.1
500	0.3	-1.0	-1.6	-1.6	-2.2	-3.2	-3.5	-2.7	-1.6	-1.1	-0.8	1.0	2.7	4.4	1.6	-1.1	-4.7
630	0.4	-0.3	0.1	-0.9	-1.2	-3.3	-3.1	-2.5	-1.6	-2.0	-1.7	1.8	3.0	3.5	1.1	-0.6	-3.5
800	0.7	-0.5	-0.1	-0.2	-0.7	-1.3	-1.8	-2.3	-1.8	-0.9	-1.3	0.8	2.8	3.0	-0.0	-0.2	-2.5
1000	3.5	-1.4	2.3	0.5	-1.0	3.4	2.3	-2.8	-4.0	-6.6	-5.9	-3.5	1.2	4.0	1.9	-4.8	-6.1
1250	2.4	1.2	2.4	-0.1	-0.5	-0.7	-1.5	-2.4	-2.1	-2.1	-1.9	1.0	2.0	4.0	-0.2	-2.8	-6.3
1600	-5.8	3.9	0.2	-7.0	-1.0	-5.1	-5.9	-1.0	-0.9	0.0	-1.0	-0.4	2.4	5.0	0.4	-3.0	-7.4
2000	-4.8	-0.2	-1.4	-0.0	-0.1	-1.2	-0.5	-3.9	-3.9	-4.1	-2.3	1.7	1.9	5.6	-0.6	-3.4	-8.4
2500	-6.7	-0.6	-4.3	-3.8	2.0	2.6	0.6	-4.9	-4.2	-6.0	-1.8	0.9	1.0	5.0	-0.8	-2.4	-8.8
3150	-2.7	0.4	-2.7	-2.1	-2.7	-1.1	-2.7	-5.0	-5.4	-2.7	-3.3	1.3	1.1	6.5	2.4	-1.5	-5.9
4000	-0.4	-3.0	1.7	1.1	1.0	-3.1	-2.0	-1.7	-3.9	0.3	-0.8	1.1	2.8	2.7	-0.7	-4.7	-4.7
5000	-2.9	-5.6	-0.8	-1.9	0.9	-2.2	-2.1	-3.4	-4.0	-1.8	0.0	2.5	4.0	2.8	-0.3	-6.6	-6.0
6300	-5.4	-4.2	-3.5	-4.3	0.3	-1.9	-2.5	-5.4	-4.0	-5.4	-0.6	3.6	3.0	5.0	-0.0	-4.7	-9.0
8000	-2.6	-1.5	-2.4	-2.2	-1.9	-2.6	-4.5	-4.7	-5.7	-1.1	-1.9	3.7	1.5	5.9	-1.1	-2.5	-7.2
10000	-3.7	-2.8	-1.7	-2.5	-0.1	-4.1	-3.5	-3.9	-4.2	-2.0	0.5	2.5	3.3	4.3	0.2	-2.2	-6.2

C11

RUN 5 2467 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/4/68
RUN..... 5,Pt. 56
BAROMETER.....(in Hg).. 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 65.0
(°K)..... 291.5
ABS. HUMIDITY...(gm/m3).. 13.9
(kg/m3).. 0.0139
PHYS. FAN SPEED(RPM).... 2450
(rad/sec) 256.5
CORR. FAN SPEED(RPM).... 2422
(rad/sec) 253.6
TAPE NUMBER..... P631

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	76.3	77.2	77.3	77.3	77.8	77.2	76.6	77.9	78.0	79.9	78.8	80.4	81.4	81.6	82.1	82.8	80.2	136.6
63	79.1	79.9	78.7	77.6	78.5	81.5	79.9	79.9	80.0	81.4	79.9	81.0	82.0	82.5	82.4	83.0	81.7	137.9
80	77.8	78.2	77.2	76.7	77.5	78.4	79.0	79.1	79.4	79.4	78.1	79.7	81.2	81.3	80.4	79.1	78.9	136.5
100	76.5	76.9	76.0	76.2	76.1	77.7	76.6	77.5	77.8	79.0	77.2	78.3	79.4	79.4	79.3	77.1	77.5	135.2
125	77.3	76.9	75.2	76.5	76.2	75.8	75.1	76.6	76.8	77.5	76.3	76.7	76.8	77.5	77.8	75.9	75.6	133.9
160	73.6	74.7	73.4	73.3	70.9	71.5	70.4	71.8	72.0	70.4	69.0	69.5	69.6	70.0	70.9	70.2	69.7	128.4
200	70.7	72.0	69.7	68.4	66.5	70.9	67.0	68.1	68.0	65.8	64.8	66.4	67.7	70.6	69.8	68.1	67.6	125.6
250	69.3	70.2	67.6	68.9	68.6	67.1	69.1	68.1	68.3	72.6	68.7	70.5	75.5	76.0	75.0	73.3	71.1	129.3
315	68.6	69.7	68.4	70.5	71.4	70.6	71.3	71.1	72.7	76.0	74.7	76.6	79.2	79.9	78.6	75.9	73.7	133.2
400	74.1	74.7	74.6	75.6	75.6	75.1	75.3	75.1	76.6	77.9	77.7	79.6	81.8	83.0	80.9	77.0	75.0	136.2
500	77.8	76.9	76.3	75.9	75.7	74.6	74.8	75.3	76.7	77.5	77.4	78.5	80.0	81.4	78.5	74.8	72.2	135.4
630	77.3	77.7	77.5	75.9	75.5	74.4	74.8	75.4	76.5	76.5	76.5	78.4	78.6	78.4	76.6	75.3	73.1	134.7
800	76.7	75.8	76.1	76.3	75.8	74.7	74.4	74.7	75.4	76.3	75.7	77.2	78.9	80.6	77.7	74.9	73.4	134.8
1000	92.2	88.0	91.6	90.5	89.1	89.1	88.2	85.2	83.6	84.6	86.2	88.1	86.9	88.5	87.5	85.0	81.9	145.8
1250	83.5	82.1	83.3	80.7	80.4	79.3	79.0	78.5	79.1	79.7	79.2	81.5	82.5	83.7	79.6	77.1	74.7	138.9
1600	86.9	90.7	95.5	89.0	92.0	90.0	89.2	89.0	93.2	92.4	89.8	90.7	97.9	101.2	94.6	91.4	88.6	152.9
2000	82.9	87.6	86.7	87.3	87.8	88.0	85.8	83.0	85.1	84.0	85.3	87.8	89.8	92.3	86.1	84.1	79.9	146.1
2500	81.6	87.8	84.2	84.8	88.2	89.4	89.0	83.7	84.5	82.4	85.2	89.0	89.0	92.2	86.3	85.1	79.1	146.6
3150	83.8	87.5	84.6	85.2	84.8	85.9	86.7	82.6	82.0	85.0	83.6	87.4	89.7	92.0	87.6	86.1	81.5	146.1
4000	85.6	83.6	87.0	86.6	86.9	82.8	83.8	84.0	82.7	86.8	84.7	85.8	88.7	88.0	84.2	81.1	81.2	145.5
5000	84.1	82.2	86.9	85.0	88.0	84.1	84.8	83.6	84.3	86.3	87.0	88.9	92.3	89.6	86.0	80.3	81.2	147.5
6300	82.6	82.3	83.0	81.5	86.7	84.4	83.5	80.5	83.1	81.3	85.3	88.6	88.8	90.1	85.4	81.3	77.2	146.7
8000	79.3	80.8	79.9	79.7	80.8	79.6	77.4	77.0	77.2	81.2	79.7	84.4	83.3	86.7	80.3	79.4	74.7	143.9
10000	75.9	77.0	77.9	76.6	80.1	79.2	75.7	75.2	75.7	77.9	79.2	80.3	82.3	82.5	78.7	76.9	73.0	143.3
OASPL MEASURED	97.6	100.5	100.4	98.1	99.4	98.5	97.8	96.2	97.9	98.2	97.7	99.9	102.9	104.9	99.9	97.2	94.6	
OASPL CALCULATED	96.4	99.3	99.0	96.7	98.0	97.1	96.4	94.8	96.5	96.8	96.3	98.4	101.5	103.7	98.6	96.1	93.3	
PNDB	108.7	112.9	111.7	109.6	110.6	110.9	109.9	107.6	109.7	110.0	109.4	111.5	114.7	116.9	111.7	108.9	106.2	
																	OAPWL	157.7

DIRECTIVITY INDEX

FREQ,	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)
50	-3.5	-2.5	-2.5	-2.5	-2.0	-2.6	-3.1	-1.9	+1.7	0.1	-0.9	0.7	1.6	1.9	2.4	3.1	0.5
63	-1.1	-1.1	-2.3	-3.4	-2.5	0.5	-1.1	-1.1	-1.0	0.4	-1.1	0.0	1.0	1.5	1.3	2.0	0.7
80	-1.6	-1.3	-2.3	-2.8	-2.0	-1.0	-0.5	-0.3	+0.0	-0.0	-1.3	0.2	1.7	1.8	1.0	-0.3	-0.5
100	-1.6	-1.1	-2.1	-1.9	-2.0	-0.3	-1.5	+0.5	+0.3	0.9	+0.8	0.3	1.3	1.3	1.2	-1.0	-0.6
125	0.6	0.1	-1.5	+0.2	-0.5	-0.9	-1.6	-0.1	0.1	0.8	-0.4	0.0	0.1	0.8	1.1	-0.8	-1.1
160	2.5	3.7	2.3	2.2	+0.2	0.4	-0.7	0.7	1.0	+0.6	-2.0	-1.6	-1.4	-1.0	-0.1	-0.9	-1.4
200	2.4	3.7	1.4	0.1	-1.7	2.3	-1.3	-0.2	+0.3	+2.4	-3.5	-1.8	-0.6	2.3	1.5	-0.2	-0.7
250	-2.6	-1.7	-4.2	-2.9	-3.3	+4.8	-2.7	-3.8	-3.6	0.7	+3.1	-1.4	3.7	4.1	3.1	1.5	-0.8
315	-7.1	-6.0	-7.2	-5.2	-4.2	-5.0	-4.3	-4.6	-2.9	0.4	-1.0	0.9	3.6	4.3	3.0	0.2	-1.9
400	-4.5	-3.8	-4.0	-3.0	-3.0	-3.5	-3.2	-3.4	-2.0	+0.7	+0.9	1.0	3.2	4.5	2.3	-1.5	-3.6
500	0.2	-0.7	-1.3	-1.7	-1.9	-3.6	-2.8	-2.3	+0.8	+0.1	-0.2	0.9	2.4	3.8	1.0	-2.8	-5.4
630	0.6	1.0	0.8	-0.9	-1.3	-2.3	-1.9	-1.3	+0.2	-0.2	-0.2	1.7	1.9	1.7	-0.2	-1.4	-3.7
800	-0.0	-1.0	-0.6	-0.4	-1.0	-2.1	-2.3	-2.1	-1.4	+0.5	-0.9	0.4	2.1	3.8	0.9	-1.9	-3.3
1000	4.6	0.4	4.0	2.9	1.6	1.5	0.6	-2.3	+3.9	-3.0	-1.3	0.6	-0.6	0.9	-0.0	-2.5	-5.7
1250	3.0	2.1	2.7	0.1	-0.1	-1.2	-1.6	-2.0	+1.5	+0.9	-1.4	1.0	1.9	3.1	-1.0	-3.5	-5.9
1600	-7.5	2.3	1.1	-5.4	-2.4	-4.4	-5.2	-5.3	+1.2	-1.9	-4.5	-3.7	3.6	6.9	0.3	-2.9	-5.8
2000	-4.5	0.3	-0.6	-0.1	0.5	0.7	-1.5	-4.3	+2.3	-3.3	+2.1	0.5	2.4	5.0	-1.2	-3.2	-7.4
2500	-6.0	0.3	-3.4	-2.8	0.6	1.0	1.5	-3.9	-3.1	-5.2	-2.4	1.4	1.4	4.6	-1.3	-2.4	-8.5
3150	-2.9	0.8	-2.1	-1.5	-1.9	-0.8	-2.0	-4.1	+4.7	-1.7	+3.1	0.7	3.0	5.3	0.9	-0.6	-5.2
4000	-0.1	-2.1	1.4	0.9	1.2	-2.9	-1.9	+1.7	+3.0	1.1	-1.0	0.2	3.0	2.3	-1.5	-4.6	-4.5
5000	-3.2	-5.1	-0.4	-2.3	0.7	-3.2	-2.5	+3.7	+3.0	+1.0	-0.3	1.6	5.0	2.3	-1.3	-7.0	-6.1
6300	-3.1	-3.4	-2.7	-4.2	1.0	-1.3	-2.2	-5.2	+2.6	-4.4	-0.4	2.9	3.1	4.4	-0.2	-4.4	-8.5
8000	-2.2	-0.7	-1.5	-1.7	-0.6	-2.2	-4.1	-4.5	+4.3	-0.3	-1.7	2.9	1.8	5.3	-1.2	-2.1	-6.7
10000	-3.1	-1.9	-1.1	-2.3	1.2	-3.7	-3.2	+3.7	+3.2	-1.0	0.3	1.4	3.4	3.6	-0.2	-2.0	-5.9

C12

RUN 5 2450 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 9 DAY 17 HR. 2.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... N.SA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... S.Pt. 40
BAROMETER.....(in Hg).. 29.0
(N/m²).... 97928
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 66.0
(°K)..... 292.0
ABS. HUMIDITY...(gm/m³).. 14.4
(kg/m³).. 0.0144
PHYS. FAN SPEED (RPM).... 2606
(rad/sec) 272.8
CORR. FAN SPEED (RPM).... 2574
(rad/sec) 296.5
TAPE NUMBER..... P627

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0.0 (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	76.3	76.0	76.3	76.4	77.2	77.0	77.1	79.3	78.9	80.7	80.1	81.8	82.8	83.2	83.8	84.6	81.7	137.7
63	79.0	79.0	78.9	78.1	78.9	78.9	79.9	80.9	80.6	82.0	81.1	82.2	83.1	83.3	83.2	83.9	82.3	138.5
80	78.6	78.1	77.5	77.3	78.3	79.3	79.9	80.0	80.3	80.5	79.8	81.3	82.5	82.6	81.7	80.6	79.9	137.6
100	77.6	77.4	77.1	77.6	77.7	79.1	77.8	79.2	79.6	80.9	79.7	80.6	81.5	81.5	81.2	78.9	78.8	137.0
125	78.1	77.6	76.5	77.1	77.8	78.2	76.5	76.3	78.5	79.8	77.8	77.9	77.9	78.8	80.0	78.1	77.2	135.4
160	75.2	75.3	74.6	74.3	71.9	72.4	71.3	72.3	73.2	72.4	70.9	71.8	72.1	72.1	73.5	73.2	71.5	129.9
200	72.5	72.9	70.9	69.5	67.5	66.3	67.8	68.7	69.3	67.1	67.1	68.9	68.0	69.1	68.9	69.8	69.5	126.1
250	70.4	70.6	68.6	69.3	69.1	67.9	69.0	68.9	69.1	72.4	70.1	71.3	74.9	76.0	74.3	73.0	72.2	129.4
315	69.1	68.3	68.7	71.1	71.6	70.5	71.0	71.2	72.0	74.4	74.5	76.1	78.5	79.1	77.7	74.9	73.1	132.5
400	75.0	74.4	75.1	76.6	76.6	75.5	76.1	76.0	77.2	78.4	78.7	80.7	82.4	83.6	81.3	78.1	75.8	137.0
500	78.0	76.7	76.4	77.0	76.4	75.9	75.7	76.2	77.2	78.1	78.4	79.7	81.8	82.8	79.7	76.2	73.2	136.5
630	79.3	79.0	78.2	76.7	75.6	75.5	75.6	76.4	77.3	76.8	77.0	79.1	81.3	81.0	78.0	76.2	73.9	135.9
800	77.4	77.2	76.4	76.6	76.4	75.0	74.9	75.3	75.4	76.5	76.9	78.8	82.0	80.2	77.3	75.7	75.0	135.7
1000	88.9	89.2	91.8	90.5	90.5	91.9	91.7	89.8	87.0	95.8	95.6	93.4	91.7	93.7	91.4	85.8	86.3	150.7
1250	84.6	84.8	85.4	83.8	83.7	84.4	84.1	82.7	81.3	87.2	86.9	86.0	85.9	87.5	84.4	79.8	78.9	143.5
1600	87.3	94.6	90.8	90.1	88.9	88.3	93.5	90.6	91.2	94.1	95.4	95.7	92.7	102.6	92.0	89.7	89.7	153.4
2000	85.3	90.8	88.5	90.2	88.3	88.5	89.3	86.3	87.0	88.2	89.6	92.4	91.1	96.8	88.9	87.6	84.6	149.3
2500	82.9	87.7	84.8	85.6	86.7	88.3	87.0	83.9	86.0	84.6	87.7	90.7	90.1	93.5	88.1	86.2	79.8	147.4
3150	87.3	90.0	85.6	86.4	85.6	88.6	86.8	84.8	84.4	87.2	86.9	88.6	92.9	93.4	87.3	86.4	82.2	147.9
4000	87.5	84.8	88.1	87.5	87.5	84.5	86.0	86.2	83.9	88.2	86.9	89.1	91.6	91.4	86.7	83.2	83.0	147.8
5000	85.9	82.0	86.3	86.4	88.9	84.6	86.2	84.8	83.9	87.2	88.0	89.8	91.7	90.5	86.9	80.8	81.9	148.0
6300	82.3	83.0	83.2	82.6	87.1	85.0	84.9	81.9	83.1	82.4	87.2	91.0	90.2	91.8	87.0	82.4	78.4	148.3
8000	80.4	81.5	80.1	80.5	80.9	80.1	78.6	77.9	76.8	81.5	81.1	86.4	84.7	88.4	81.8	80.0	75.4	145.2
10000	76.9	77.4	77.9	77.5	80.0	75.9	76.8	76.1	75.5	78.2	80.6	82.3	83.5	84.0	79.8	77.7	73.9	144.3
OASPL MEASURED	98.0	100.2	99.2	99.1	99.5	99.1	99.8	98.0	97.9	100.9	101.5	102.9	103.0	106.5	100.3	97.9	96.1	
OASPL CALCULATED	96.6	99.2	98.1	97.8	98.0	97.9	98.8	96.9	96.6	100.4	100.9	101.7	101.5	105.7	99.1	96.6	95.0	
PNDB	110.2	112.0	110.9	110.6	111.0	110.9	111.2	109.4	109.4	112.0	113.0	114.1	115.3	118.6	111.6	109.5	107.6	
																	OAPWL	159.3

DIRECTIVITY INDEX

FREQ.																	
50	-4.6	-4.9	-4.6	-4.5	-3.7	-3.9	-3.8	-1.6	-2.0	-0.2	-0.8	0.9	1.9	2.3	2.9	3.7	0.7
63	-2.6	-2.6	-2.7	-3.5	-2.8	-2.7	-1.8	-0.7	-1.0	0.4	-0.5	0.6	1.5	1.7	1.6	2.3	0.6
80	-2.0	-2.5	-3.2	-3.3	-2.4	-1.4	-0.8	-0.6	-0.3	-0.1	-0.8	0.7	1.9	2.0	1.0	-0.0	-0.7
100	-2.3	-2.5	-2.8	-2.3	-2.2	-0.8	-2.1	-0.7	-0.3	0.9	-0.2	0.6	1.6	1.6	1.3	-1.1	-1.1
125	-0.1	-0.6	-1.7	-1.1	-0.4	-0.0	-1.7	-1.9	0.3	1.6	-0.4	-0.3	-0.3	0.6	1.8	-0.1	-1.0
160	2.6	2.7	2.0	1.7	-0.8	-0.2	-1.3	-0.3	0.6	-0.3	-1.7	-0.8	-0.6	-0.5	0.9	0.6	-1.1
200	3.8	4.2	2.2	0.8	-1.2	-2.4	-0.9	-0.0	0.6	-1.6	-1.6	0.2	-0.7	0.4	0.2	1.1	0.8
250	-1.5	-1.3	-3.3	-2.6	-2.9	-4.0	-2.9	-3.1	-2.8	0.5	-1.8	-0.7	3.0	4.0	2.4	1.1	0.3
315	-5.9	-6.7	-6.3	-3.9	-3.4	-4.5	-4.0	-3.8	-3.0	-0.6	-0.4	1.2	3.5	4.2	2.7	-0.0	-1.8
400	-4.3	-4.9	-4.2	-2.7	-2.7	-3.8	-3.2	-3.3	-2.1	-0.9	-0.6	1.4	3.1	4.3	2.0	-1.2	-3.5
500	-0.7	-1.9	-2.3	-1.7	-2.3	-2.8	-3.0	-2.5	-1.4	-0.6	-0.3	1.0	3.1	4.1	1.0	-2.5	-5.5
630	1.3	1.0	0.2	-1.3	-2.3	-2.5	-2.4	-1.6	-0.7	-1.1	-1.0	1.1	3.3	3.0	-0.0	-1.8	-4.1
800	-0.3	-0.4	-1.3	-1.1	-1.2	-2.7	-2.7	-2.3	-2.2	-1.2	-0.7	1.1	4.4	2.6	-0.3	-2.0	-2.7
1000	-3.6	-3.3	-0.7	-2.0	-2.0	-0.6	-0.8	-2.7	-5.5	3.3	3.1	0.9	-0.8	1.2	-1.1	-6.7	-6.2
1250	-0.5	-0.3	0.3	-1.3	-1.4	-0.7	-1.1	-2.5	-3.8	2.0	1.8	0.9	0.8	2.4	-0.8	-5.4	-6.2
1600	-7.6	-0.3	-4.0	-4.8	-5.9	-6.6	-1.3	-4.3	-3.6	-0.7	0.6	0.8	-2.2	7.7	-2.9	-5.2	-5.1
2000	-5.2	0.3	-2.0	-0.3	-2.3	-2.1	-1.2	-4.2	-3.5	-2.3	-0.9	1.8	0.5	6.2	-1.6	-3.0	-6.0
2500	-5.4	-0.6	-3.5	-2.8	-1.6	0.0	-1.3	-4.5	-2.3	-3.7	-0.6	2.3	1.8	5.1	-0.2	-2.1	-8.6
3150	-1.3	1.4	-2.9	-2.2	-3.0	-0.0	-1.8	-3.8	-4.2	-1.4	-1.7	0.0	4.3	4.8	-1.3	-2.2	-6.4
4000	-0.4	-3.1	0.2	-0.4	-0.4	-3.4	-1.9	-1.7	-4.0	0.2	-1.0	1.2	3.7	3.5	-1.2	-4.7	-4.9
5000	-1.9	-5.8	-1.5	-1.4	1.1	-3.2	-1.6	-3.0	-3.9	-0.6	0.2	2.0	3.9	2.7	-0.9	-7.1	-5.9
6300	-4.9	-4.2	-4.0	-4.6	-0.1	-2.2	-2.3	-5.3	-4.1	-4.8	0.0	3.8	3.0	4.6	-0.2	-4.8	-8.8
8000	-2.4	-1.3	-2.6	-2.2	-1.9	-2.6	-4.1	-4.9	-5.9	-1.2	-1.7	3.7	1.9	5.7	-1.0	-2.8	-7.3
10000	-3.1	-2.5	-2.0	-2.5	0.1	-4.1	-3.2	-3.8	-4.5	-1.8	0.7	2.3	3.5	4.0	-0.1	-2.3	-6.0

C13

RUN 5 2606 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.,
LOCATION..... P.F.B.
DATE..... 9/4/68
RUN..... 5,Pt. 80
BAROMETER.....(in Hg)... 28.8
(N/m²)... 97580
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 65.0
(°K)..... 291.5
ABS. HUMIDITY...(gm/m³)... 13.0
(kg/m³)... 0.0130
PHYS. FAN SPEED (RPM).... 2615
(rad/sec) 273.8
CORR. FAN SPEED (RPM).... 2585
(rad/sec) 270.7
TAPE NUMBER..... P632

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	75.4	76.0	76.5	76.8	77.9	78.2	77.9	77.3	78.9	81.0	80.1	82.0	82.7	83.0	83.9	84.7	82.2	137.9
63	79.7	79.9	79.4	78.6	79.8	82.4	80.9	81.1	81.1	82.3	81.0	82.5	83.1	83.4	83.8	84.5	83.0	139.1
80	78.1	78.0	77.5	77.5	79.0	79.7	80.4	80.5	81.0	81.3	80.3	82.1	82.8	82.9	82.3	81.4	81.0	138.2
100	76.9	77.1	76.5	77.0	77.4	78.8	77.5	78.8	78.9	79.9	78.9	80.1	81.0	81.2	81.1	78.8	78.8	136.5
125	77.3	77.2	76.3	76.9	76.2	78.1	76.0	76.4	76.5	77.3	75.1	76.5	77.5	77.9	78.7	77.6	76.7	134.1
160	74.3	75.0	74.2	74.2	71.9	72.2	70.9	71.9	72.3	70.9	69.1	71.1	70.5	71.2	72.7	72.6	71.2	129.2
200	72.3	72.6	71.3	70.1	69.6	71.7	68.9	69.2	68.6	68.6	66.9	68.2	68.9	70.0	70.3	70.7	69.9	127.0
250	70.3	70.6	69.3	70.1	67.3	68.0	68.4	69.7	70.0	73.9	71.6	72.3	75.7	76.4	75.5	74.0	72.3	130.2
315	71.5	71.2	71.6	73.4	73.8	72.4	73.4	73.6	75.0	77.6	76.8	77.9	79.9	80.1	79.2	77.2	75.0	134.4
400	74.4	74.9	75.2	77.1	76.9	75.7	76.3	76.5	77.7	79.1	79.3	81.0	82.4	83.3	81.5	78.3	76.1	137.2
500	76.6	76.2	76.7	77.2	76.6	75.6	75.6	76.5	77.3	77.8	78.2	79.8	80.7	82.2	79.5	76.1	73.5	136.2
630	77.4	77.9	78.0	76.6	75.8	75.0	75.5	76.0	76.4	76.4	77.8	79.2	79.4	80.4	78.0	76.1	74.3	135.5
800	76.6	76.3	76.6	77.0	76.7	75.2	75.4	75.1	76.1	77.6	77.9	79.5	79.8	80.2	77.3	75.6	74.4	135.6
1000	89.3	89.8	91.6	91.8	90.3	92.0	90.9	89.4	93.3	97.3	94.4	96.6	89.4	94.9	90.5	88.2	86.4	151.6
1250	85.0	85.1	86.3	86.2	89.3	86.1	84.9	83.8	86.9	90.6	87.9	90.2	85.2	89.2	85.4	82.7	80.6	145.7
1600	86.2	88.0	90.9	86.8	87.9	89.0	87.8	92.2	91.5	95.7	94.3	95.0	93.4	102.3	93.4	94.3	87.0	153.3
2000	84.9	86.0	86.9	86.7	89.1	88.2	88.2	89.0	88.6	91.8	91.0	92.7	92.1	98.8	91.3	91.0	84.6	150.7
2500	81.7	87.0	84.7	85.2	87.0	86.8	86.9	83.9	85.0	83.7	87.9	90.4	89.6	93.8	87.0	85.3	80.2	146.9
3150	85.4	87.9	86.3	87.4	87.0	87.3	86.7	85.2	83.7	87.1	86.9	89.2	92.2	92.6	87.2	86.3	82.8	147.7
4000	86.7	88.8	88.6	88.3	88.1	85.0	86.5	87.1	84.0	88.4	87.5	89.0	91.9	90.2	87.2	84.1	84.0	148.0
5000	85.2	86.7	87.0	86.8	88.7	84.8	85.9	85.5	84.3	87.2	89.2	91.4	91.9	90.3	87.0	84.1	82.5	148.4
6300	81.1	82.6	83.5	82.9	87.0	85.0	84.3	82.4	83.3	82.4	87.2	91.2	90.1	91.1	86.8	82.6	79.2	148.1
8000	79.8	81.2	80.7	81.1	81.2	80.0	78.3	78.8	77.5	81.9	81.7	87.2	85.0	88.0	81.9	80.8	76.4	145.5
10000	76.1	77.1	78.3	77.7	80.3	75.8	76.4	77.0	76.0	78.5	80.9	83.0	83.7	83.1	79.5	78.3	74.7	144.5
OASPL MEASURED	97.3	98.3	99.5	98.9	99.4	99.0	98.5	98.8	99.1	102.2	101.4	103.4	102.8	106.7	100.7	99.5	95.6	
OASPL CALCULATED	96.0	97.0	98.3	97.7	98.2	97.9	97.5	97.8	98.4	101.8	100.6	102.5	101.4	105.8	99.6	98.7	94.8	
PNDB	109.4	110.3	111.2	110.9	111.3	110.5	110.1	110.3	110.0	113.1	112.7	114.4	115.0	118.4	112.2	111.4	107.5	
																	OAPWL	159.7

DIRECTIVITY INDEX

FREQ,																	
50	-5.7	-5.1	-4.6	-4.2	-3.2	-2.8	-3.2	-1.7	-2.1	-0.0	-0.9	0.9	1.6	1.9	2.8	3.7	1.1
63	-2.4	-2.7	-2.7	-3.5	-2.3	0.2	-1.3	-1.1	-1.0	0.1	-1.1	0.4	1.0	1.2	1.7	2.4	0.8
80	-3.1	-3.2	-3.6	-3.6	-2.2	-1.4	-0.8	-0.7	-0.2	0.1	-0.8	1.0	1.7	1.7	1.1	0.3	-0.1
100	-2.6	-2.3	-2.9	-2.4	-2.0	-0.6	-1.9	-0.7	-0.6	0.5	-0.6	0.7	1.5	1.8	1.6	-0.6	-0.7
125	0.3	0.2	-0.7	-0.0	-0.7	-0.9	-0.9	-0.6	-0.5	0.3	-1.8	-0.4	0.6	1.0	1.0	0.7	-0.2
160	2.4	3.1	2.3	2.3	0.0	0.6	-1.0	-0.0	0.4	-1.0	-2.8	-0.8	-1.4	-0.7	0.8	0.7	-0.7
200	2.6	2.9	1.7	0.5	-0.1	2.1	-0.7	-0.4	-1.0	-1.0	-2.8	-1.4	-0.7	0.3	0.7	1.1	0.3
250	2.4	2.2	3.5	-2.6	-3.4	-4.7	-4.3	-3.0	-2.8	1.1	-1.1	-0.4	2.9	3.6	2.8	1.2	-0.4
315	-5.4	-5.6	-5.3	-3.5	-3.0	-4.5	-3.5	-3.3	-1.9	0.7	-0.1	1.0	3.0	3.3	2.4	0.3	-1.9
400	-5.1	-4.6	-4.3	-2.4	-2.5	-3.8	-3.2	-3.0	-1.8	-0.4	-0.2	1.5	2.9	3.8	2.0	-1.2	-3.4
500	-1.8	-2.2	-1.8	-1.2	-1.8	-2.0	-2.8	-1.9	-1.1	-0.6	-0.3	1.4	2.3	3.8	1.1	-2.3	-5.0
630	-0.1	0.3	0.4	-1.0	-1.7	-2.0	-2.1	-1.6	-1.2	-1.2	0.2	1.6	1.8	2.8	0.4	-1.4	-3.3
800	-1.0	-1.3	-1.0	-0.6	-0.9	-2.4	-2.2	-2.5	-1.5	-0.0	0.3	1.9	2.2	2.6	-0.3	-2.0	-3.2
1000	-4.1	-3.8	-1.8	-1.5	-3.1	-1.3	-2.5	-4.0	-0.1	3.9	1.0	3.2	-4.0	1.5	-2.9	-5.2	-7.0
1250	-2.4	-2.2	-1.0	-1.1	-2.1	-1.2	-2.4	-3.5	-0.5	3.3	0.5	2.9	-2.1	1.9	-2.0	-4.6	-6.7
1600	-8.6	-6.1	-3.8	-7.9	-6.8	-5.7	-6.9	-2.5	-3.2	1.0	-0.4	0.3	-1.3	7.6	-1.3	-0.4	-7.8
2000	-7.0	-3.9	-3.0	-5.1	-2.8	-3.7	-3.7	-2.9	-3.3	-0.1	-0.9	0.9	0.2	6.9	-0.6	-0.9	-7.3
2500	-6.2	-0.1	-3.2	-2.7	-0.9	-1.1	-1.0	-4.0	-2.9	-4.2	0.0	2.5	1.7	5.2	-0.9	-2.6	-7.6
3150	-2.9	-0.4	-2.0	-0.9	-1.3	-1.0	-1.6	-3.1	-4.6	-1.2	-1.4	0.9	3.9	4.3	-1.1	-2.0	-5.5
4000	-1.4	-4.3	0.5	0.2	-0.0	-3.1	-1.6	-1.0	-4.1	0.3	-0.5	0.9	3.8	2.1	-0.9	-4.1	-4.2
5000	-3.0	-6.5	-1.3	-1.5	0.4	-3.4	-2.3	-2.7	-4.0	-1.1	0.9	3.2	3.7	2.1	-1.3	-7.1	-5.8
6300	-6.0	-4.5	-3.6	-4.2	-0.1	-2.1	-2.8	-4.7	-3.8	-4.7	0.1	4.2	3.0	4.0	-0.3	-4.5	-7.9
8000	-3.2	-1.9	-2.3	-1.9	-1.8	-3.0	-4.7	-4.2	-5.5	-1.1	-1.4	4.1	2.0	5.8	-1.1	-2.2	-6.7
10000	-4.0	-3.0	-1.8	-2.4	0.2	-4.3	-3.7	-3.1	-4.1	-1.5	0.8	2.9	3.6	3.8	-0.6	-1.8	-5.4

C14

RUN 5 2615 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 9 DAY 27 HR. 2.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/4/68
RUN..... 5,Pt.41
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 66.0
(°K)..... 292.0
ABS. HUMIDITY...(gm/m³).. 14.4
(kg/m³).. 0.0144
PHYS. FAN SPEED (RPM).... 2766
(rad/sec) 289.6
CORR. FAN SPEED (RPM).... 2732
(rad/sec) 286.0
TAPE NUMBER..... P627

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0, (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	76.2	76.0	76.6	77.0	78.0	78.0	78.5	82.2	80.4	81.8	81.2	82.9	83.7	84.2	84.7	86.2	83.6	139.0
63	79.2	79.2	79.1	78.4	79.6	79.6	80.8	82.6	82.2	83.4	82.3	83.9	84.6	84.9	84.9	85.8	84.3	140.0
80	79.5	79.1	78.2	78.4	79.7	80.7	81.4	81.9	82.2	82.4	81.7	83.3	84.1	84.2	83.3	83.1	81.7	139.4
100	78.6	78.3	77.6	78.6	79.0	80.6	79.7	81.3	81.8	82.9	81.4	82.4	83.1	82.9	82.7	81.7	80.2	138.8
125	78.7	78.9	78.3	77.8	78.3	79.6	77.9	78.9	79.3	80.4	78.3	79.4	79.7	80.8	81.9	80.7	77.3	136.8
160	76.5	76.7	76.0	75.9	73.9	74.2	73.5	75.1	75.6	74.6	72.8	74.3	74.0	74.2	75.4	76.0	72.3	132.0
200	74.1	74.6	73.2	71.6	69.4	68.8	70.5	72.1	71.8	69.2	69.3	71.1	69.2	71.0	71.4	72.5	71.2	128.4
250	72.1	72.0	71.5	70.7	70.1	70.1	70.5	71.1	70.3	73.6	71.3	72.6	76.4	77.7	76.4	75.6	73.7	131.0
315	70.5	69.7	70.0	71.9	72.7	71.6	71.9	72.2	72.7	76.1	75.6	76.7	79.3	80.0	78.9	77.3	75.5	133.6
400	75.4	74.7	75.4	77.4	77.7	76.7	77.1	77.3	78.0	80.1	80.5	81.9	83.6	84.5	82.5	79.7	77.2	138.2
500	77.3	76.4	76.9	77.8	77.7	77.0	77.1	77.4	78.7	80.1	80.6	81.5	83.2	83.9	80.9	77.5	74.9	137.9
630	78.4	77.3	78.0	77.3	77.1	76.9	77.1	77.6	78.7	79.0	79.8	81.5	81.8	82.1	79.2	77.0	75.3	137.3
800	77.4	76.6	76.4	76.9	77.2	76.3	76.7	76.6	77.7	78.5	79.3	81.2	82.4	80.7	78.7	77.3	75.4	137.0
1000	85.0	84.1	84.5	85.2	86.9	84.9	85.0	85.0	82.2	82.4	85.2	86.7	86.5	89.8	84.8	81.1	79.8	143.7
1250	89.3	89.6	89.4	89.3	93.5	91.1	91.2	91.8	87.4	87.3	91.0	92.8	91.4	95.9	91.2	86.2	85.7	149.8
1600	85.7	85.9	86.3	84.7	86.6	84.5	85.0	85.3	86.6	86.9	88.7	90.9	91.4	94.3	85.8	84.9	81.5	147.2
2000	87.6	92.0	93.5	90.1	95.0	90.6	91.1	91.8	93.0	93.9	96.7	98.9	99.5	103.6	94.0	93.9	89.4	155.5
2500	84.8	87.8	87.1	87.8	88.6	89.7	89.5	87.1	87.5	85.9	89.9	93.0	91.2	94.6	88.1	86.7	81.3	149.0
3150	86.1	88.5	85.8	87.6	87.5	88.1	88.1	86.4	85.3	87.3	87.1	89.1	89.1	93.1	86.0	85.1	81.0	147.5
4000	88.1	85.1	88.8	89.1	88.2	86.2	87.5	88.9	86.6	91.3	90.0	89.9	92.9	93.8	89.4	85.5	85.6	149.8
5000	85.9	82.4	87.3	87.6	89.1	85.9	88.1	87.1	86.5	88.4	90.0	92.7	92.9	92.1	87.3	81.5	82.7	149.6
6300	82.2	83.0	84.2	84.0	87.8	86.0	86.6	84.4	85.6	84.4	89.2	92.8	91.7	93.3	88.2	83.4	80.0	149.8
8000	80.4	81.4	80.6	81.4	81.4	81.1	80.6	80.3	79.3	83.2	83.4	88.2	85.8	90.3	82.5	81.1	76.7	146.8
10000	76.8	77.1	78.2	78.2	80.1	76.5	78.2	78.7	77.8	80.0	82.6	84.1	84.6	85.1	80.4	78.5	74.9	145.7
OASPL MEASURED	98.4	99.2	100.0	99.5	101.6	99.8	100.3	100.1	99.7	100.9	102.6	104.9	105.0	107.8	101.4	99.7	96.9	
OASPL CALCULATED	96.9	97.7	98.5	97.9	100.3	98.3	98.7	98.7	98.1	99.3	101.1	103.3	103.5	106.5	99.9	98.2	95.5	
PNDB	110.6	111.2	112.2	111.6	113.6	111.5	111.7	111.7	111.9	113.1	115.0	117.1	117.5	120.5	113.4	112.0	108.7	
																	OAPWL	160.4

DIRECTIVITY INDEX

FREQ.																	
50	-6.0	-6.2	-5.6	-5.2	-4.2	-4.2	-3.7	0.0	-1.7	-0.3	-1.0	0.7	1.5	2.0	2.6	4.0	1.4
63	-3.9	-3.8	-3.9	-4.6	-3.5	-3.5	-2.3	-0.5	-0.9	0.3	-0.8	0.9	1.6	1.8	1.8	2.7	1.2
80	-2.9	-3.2	-4.1	-4.0	-2.6	-1.7	-0.9	-0.5	-0.2	0.1	-0.7	1.0	1.8	1.9	1.0	0.7	-0.7
100	-3.1	-3.4	-4.1	-3.1	-2.7	-1.0	-2.0	-0.4	0.1	1.3	-0.2	0.7	1.4	1.2	1.0	0.0	-1.5
125	-0.9	-0.7	-1.3	-1.8	-1.3	0.1	-1.6	-0.7	-0.3	0.8	-1.3	-0.2	0.1	1.2	2.3	1.1	-2.3
160	1.8	2.0	1.3	1.2	-0.8	-0.5	-1.2	0.4	0.8	-0.1	-1.9	-0.4	-0.7	-0.5	0.7	1.3	-2.5
200	3.1	3.6	2.2	0.6	-1.6	-2.2	-0.5	1.1	0.8	-1.8	-1.7	0.1	-1.9	0.0	0.4	1.5	0.2
250	-1.4	-1.6	-2.1	-2.9	-3.4	-3.5	-3.0	-2.5	-3.2	-0.0	-2.3	-1.0	2.9	4.1	2.8	2.0	0.1
315	-5.6	-6.3	-6.0	-4.2	-3.3	-4.5	-4.1	-3.9	-3.3	0.1	-0.5	0.6	3.3	3.9	2.8	1.2	-0.5
400	-5.0	-5.8	-5.1	-3.1	-2.8	-3.8	-3.3	-3.2	-2.5	-0.4	-0.0	1.4	3.1	4.0	2.0	-0.8	-3.3
500	-2.9	-3.8	-3.3	-2.3	-2.4	-3.2	-3.1	-2.7	-1.5	-0.1	0.4	1.4	3.1	3.8	0.7	-2.6	-5.2
630	-1.0	-2.0	-1.3	-2.1	-2.3	-2.4	-2.3	-1.8	-0.6	-0.4	0.4	2.1	2.4	2.7	-0.1	-2.3	-4.1
800	-1.6	-2.3	-2.5	-2.1	-1.7	-2.6	-2.3	-2.3	-1.3	-0.5	0.4	2.3	3.4	1.8	-0.2	-1.7	-3.5
1000	-0.5	-1.5	-1.1	-0.3	1.4	-0.6	-0.5	-0.5	-3.4	-3.2	-0.4	1.2	1.0	4.2	-0.8	-4.5	-5.7
1250	-2.1	-1.9	-2.0	-2.1	2.0	-0.4	-0.2	0.4	-4.0	-4.2	-0.4	1.3	-0.1	4.4	-0.3	-5.2	-5.7
1600	-3.0	-2.7	-2.3	-3.9	-2.0	-4.1	-3.6	-3.3	-2.0	-1.7	0.1	2.3	2.8	5.7	-2.8	-3.7	-7.1
2000	-9.2	-4.8	-3.3	-6.6	-1.8	-6.1	-5.6	-4.9	-3.7	-2.8	-0.0	2.2	2.7	6.9	-2.7	-2.9	-7.3
2500	-5.1	-2.1	-2.8	-2.1	-1.3	-0.2	-0.5	-2.9	-2.5	-4.1	-0.0	3.1	1.2	4.6	-1.8	-3.2	-8.7
3150	-2.1	0.3	-2.4	-0.6	-0.7	-0.1	-0.1	-1.8	-2.9	-0.9	-1.1	0.9	1.0	4.9	-2.2	-3.1	-7.2
4000	-1.9	-4.8	-1.1	-0.8	-1.7	-3.7	-2.4	-1.0	-3.3	1.4	0.1	0.0	3.0	3.9	-0.5	-4.4	-4.4
5000	-3.5	-7.0	-2.1	-1.8	-0.4	-3.5	-1.3	-2.3	-3.0	-1.1	0.6	3.3	3.4	2.7	-2.1	-7.9	-6.8
6300	-6.6	-5.8	-4.6	-4.8	-1.0	-2.8	-2.2	-4.4	-3.2	-4.4	0.4	4.0	2.9	4.5	-0.6	-5.4	-8.8
8000	-3.9	-2.9	-3.8	-2.9	-3.0	-3.3	-3.8	-4.0	-5.1	-1.1	-1.0	3.8	1.4	6.0	-1.9	-3.2	-7.7
10000	-4.5	-4.2	-3.1	-3.2	-1.2	-4.8	-3.1	-2.6	-3.5	-1.3	1.3	2.8	3.3	3.8	-0.9	-2.8	-6.4

C15

RUN 5 2766 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5,Pt. 60
BAROMETER.....(in Hg).. 28.8
(N/m²).. 97590
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.9
T WET BULB.....(°F)..... 63.0
(°K)..... 291.3
ABS. HUMIDITY...(gm/m3).. 13.8
(kg/m3).. 0.0130
PHYS. FAN SPEED(RPM)..... 2743
(rad/sec) 287.2
CORR. FAN SPEED(RPM)..... 2718
(rad/sec) 283.9
TAPE NUMBER..... P638

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0. (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	75.1	75.0	76.2	76.7	77.7	78.0	78.4	79.7	79.1	81.1	80.7	82.5	83.4	83.7	84.6	85.6	82.9	138.4
63	79.5	79.4	79.5	78.9	79.6	82.9	80.8	81.3	81.5	82.7	81.8	83.4	84.3	84.6	84.8	85.3	83.9	139.7
80	79.0	78.7	78.4	78.4	79.5	80.5	81.0	80.7	81.5	81.8	81.0	82.7	83.8	83.5	83.3	81.9	81.4	138.8
100	78.3	78.4	78.0	78.4	78.4	80.2	79.1	80.1	80.2	81.3	80.2	81.2	82.4	82.2	82.3	80.4	80.2	137.8
125	78.2	78.1	77.1	77.6	77.0	77.0	77.5	77.9	78.0	78.9	76.9	78.0	79.5	79.4	80.1	78.7	78.0	135.5
160	75.7	76.3	75.5	75.1	72.6	73.0	72.5	73.3	73.8	72.1	70.6	72.4	73.0	72.7	74.1	74.0	72.7	130.5
200	73.3	73.7	72.2	70.4	68.8	72.4	68.8	69.7	69.5	68.6	67.5	69.3	69.1	71.2	71.0	70.9	70.4	127.5
250	71.6	71.6	70.3	71.3	69.6	69.7	69.6	71.4	70.8	74.6	72.2	73.1	76.2	77.4	76.6	74.5	72.7	131.1
315	72.5	72.2	72.7	75.1	74.9	74.1	74.3	75.0	76.1	78.6	77.6	78.7	80.7	81.1	80.4	77.8	75.7	135.4
400	75.3	75.2	76.0	78.3	78.0	77.0	77.5	77.6	78.9	80.3	80.1	81.7	83.1	84.4	82.5	79.3	76.8	138.1
500	77.2	76.9	77.1	78.2	77.9	76.9	77.0	77.7	78.9	79.3	79.4	81.0	82.2	83.3	80.7	77.6	74.7	137.5
630	78.7	78.2	78.4	77.3	76.7	76.0	76.8	77.9	78.9	77.9	77.9	79.6	80.6	80.8	79.4	77.6	76.1	136.5
800	77.3	77.0	77.2	77.9	78.3	78.5	78.1	76.3	77.5	78.0	78.9	79.7	80.4	80.7	78.2	76.8	75.2	136.4
1000	86.4	87.0	86.0	87.5	88.7	87.3	86.2	83.1	84.0	85.9	88.4	86.1	89.4	91.4	84.8	81.7	80.3	145.4
1250	89.5	90.9	89.0	90.7	93.1	91.6	90.1	86.3	87.6	89.9	92.9	89.0	93.6	95.8	88.8	84.9	84.3	149.6
1600	85.8	89.1	85.5	84.8	86.4	89.2	87.6	86.9	87.7	87.5	86.0	90.1	89.9	95.8	88.0	86.0	82.7	147.8
2000	88.7	95.3	89.2	88.1	92.1	96.5	94.2	92.7	93.8	93.2	90.4	95.7	95.0	103.1	95.0	93.1	89.2	154.4
2500	84.1	88.2	85.2	86.5	90.3	88.8	90.1	85.7	87.4	85.3	89.6	91.1	90.5	93.9	87.9	86.9	86.8	148.4
3150	86.0	88.0	86.3	87.9	87.7	87.9	87.6	85.9	54.6	87.0	86.0	88.8	88.4	92.7	86.1	85.7	81.1	147.2
4000	87.9	84.6	89.1	89.1	88.6	85.2	87.1	88.4	86.0	90.1	88.7	89.4	91.1	92.9	88.8	85.6	85.4	148.9
5000	85.8	82.4	87.1	87.3	89.8	85.9	87.4	86.8	86.7	88.4	90.2	93.3	92.1	91.3	87.6	81.8	82.5	149.5
6300	81.9	83.1	83.6	83.(	87.9	86.0	85.8	83.5	85.1	83.5	88.3	91.8	90.3	91.8	88.0	83.3	79.5	148.9
8000	80.6	81.8	80.8	81.4	82.0	81.3	79.9	79.8	79.2	82.5	82.8	87.3	85.0	89.3	82.8	81.4	76.4	146.2
10000	76.9	77.7	78.4	78.0	80.9	77.0	77.7	77.8	77.4	79.3	81.9	83.1	83.8	84.2	80.9	78.8	74.6	145.1
OASPL MEASURED	98.5	100.8	98.9	99.4	101.3	101.4	100.7	99.3	99.7	100.4	100.9	103.1	103.3	107.4	101.3	99.0	96.2	
OASPL CALCULATED	97.0	99.4	97.4	97.9	99.9	100.2	99.3	97.8	98.4	99.1	99.6	101.6	101.9	106.2	99.9	97.9	95.2	
PNDB	110.5	113.1	111.3	111.5	112.6	113.9	112.9	111.6	112.3	112.6	112.8	115.2	115.1	120.1	113.8	111.6	108.5	
																	OAPWL	159.9

DIRECTIVITY INDEX

FREQ,																	
50	-6.4	-6.0	-5.4	-4.8	-3.9	-3.0	-3.2	-1.9	-2.5	-0.5	-0.9	0.9	1.9	2.1	3.0	4.0	1.3
63	-3.4	-3.5	-3.3	-3.9	-3.3	0.1	-2.1	-1.5	-1.3	-0.1	-1.0	0.5	1.4	1.8	1.9	2.5	1.0
80	-2.8	-3.1	-3.4	-3.4	-2.3	-1.3	-0.9	-1.1	-0.3	-0.0	-0.8	0.9	2.0	1.7	1.4	0.1	-0.4
100	-2.4	-2.3	-2.8	-2.4	-2.4	-0.5	-1.6	-0.7	-0.5	0.6	-0.6	0.5	1.6	1.5	1.5	-0.3	-0.5
125	-0.1	-0.3	-1.3	-0.7	-1.4	-1.3	-0.8	-0.4	-0.3	0.6	-1.5	-0.3	1.1	1.0	1.7	0.4	-0.3
160	2.5	3.0	2.2	1.8	-0.6	-0.3	-0.8	0.0	0.6	-1.1	-2.6	-0.8	-0.3	-0.6	0.9	0.7	-0.6
200	3.1	3.6	2.1	0.3	-1.3	-2.3	-1.3	-0.5	-0.7	-1.5	-2.7	-0.9	-1.1	1.1	0.9	0.7	0.2
250	-2.0	-2.3	-3.3	-2.3	-4.0	-3.2	-4.0	-2.2	-2.8	1.0	-1.4	-0.4	2.6	3.8	3.0	0.9	-0.9
315	-5.3	-5.7	-5.2	-2.8	-2.9	-3.8	-3.4	-2.8	-1.7	0.7	-0.2	0.8	2.8	3.3	2.5	-0.0	-2.2
400	-5.2	-5.4	-4.5	-2.2	-2.5	-3.4	-3.0	-2.8	-1.6	-0.1	-0.4	1.2	2.7	3.9	2.0	-1.2	-3.7
500	-2.5	-3.1	-2.6	-1.5	-1.7	-2.8	-2.7	-2.0	-0.8	-0.4	-0.2	1.3	2.5	3.7	1.6	-2.1	-5.0
630	0.1	-0.4	-0.2	-1.3	-1.9	-2.6	-1.8	-0.7	0.3	-0.7	-0.6	1.0	2.0	2.2	0.8	-1.0	-2.5
800	-1.1	-1.4	-1.2	-0.5	-0.0	-1.9	-2.3	-2.1	-0.9	-0.4	0.5	1.3	2.0	2.4	-0.2	-1.6	-3.1
1000	-0.8	-0.3	-1.2	0.3	1.5	0.1	-1.0	-4.1	-3.2	-1.3	1.2	-1.1	2.2	4.2	-2.4	-5.5	-6.9
1250	-1.8	-0.3	-2.2	-0.6	1.9	0.4	-1.1	-5.0	-3.6	-1.3	1.7	-2.2	2.3	4.6	-2.5	-6.4	-7.0
1600	-3.4	-0.2	-3.7	-4.4	-2.9	-0.0	-1.6	-2.4	-1.6	-1.8	-3.2	0.8	0.7	6.6	-1.2	-3.2	-6.6
2000	-6.9	-0.3	-6.4	-7.5	-3.5	0.6	-1.5	-2.9	-1.9	-2.4	-5.3	0.0	-0.6	7.5	-0.6	-2.6	-6.4
2500	-5.2	-1.1	-4.1	-2.9	0.9	-0.6	0.7	-3.7	-1.9	-4.0	0.2	1.8	1.1	4.5	-1.4	-2.4	-8.6
3150	-1.8	0.2	-1.6	0.0	-0.1	0.0	-0.3	-2.0	-3.3	-0.8	-1.8	1.0	0.6	4.1	-1.8	-2.1	-6.8
4000	-1.2	-4.5	0.0	-0.0	-0.5	-3.9	-2.0	-0.7	-3.1	1.0	-0.4	0.3	2.0	3.6	-0.3	-3.5	-3.7
5000	-3.5	-6.9	-2.3	-1.9	0.4	-3.4	-1.9	-2.5	-2.6	-1.0	0.9	4.0	2.7	2.6	-1.8	-7.5	-6.9
6300	-5.9	-4.8	-4.3	-4.3	0.0	-1.9	-2.0	-4.4	-2.8	-4.4	0.4	3.9	2.4	4.0	0.1	-4.6	-8.4
8000	-3.1	-1.9	-2.9	-2.3	-1.7	-2.4	-3.8	-3.9	-4.5	-1.2	-1.1	3.6	1.2	5.6	-0.9	-2.3	-7.4
10000	-3.8	-3.1	-2.4	-2.7	0.2	-3.8	-3.0	-2.9	-3.3	-1.5	1.1	2.4	3.0	3.4	0.1	-2.0	-6.2

C16

RUN 5 2743 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5,Pt. 42
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 66.0
(°K)..... 292.0
ABS. HUMIDITY...(gm/m³).. 13.8
(kg/m³).. 0.0138
PHYS. FAN SPEED (RPM).... 2900
(rad/sec) 303.6
CORR. FAN SPEED (RPM).... 2859
(rad/sec) 299.3
TAPE NUMBER..... P628

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	86.3	87.4	86.1	85.1	85.2	83.7	87.5	86.4	87.6	88.3	86.5	89.9	87.9	89.3	89.0	90.3	89.3	144.8
63	88.5	89.8	88.5	86.4	88.1	85.9	88.8	87.9	90.8	89.8	87.7	91.0	89.3	89.7	89.4	90.5	89.4	146.2
80	88.2	87.8	86.9	85.6	87.1	86.0	87.9	87.5	89.5	89.0	87.5	90.0	88.5	89.4	88.6	88.2	88.1	145.4
100	88.0	87.5	87.0	85.7	87.0	85.9	86.6	88.0	89.1	89.3	88.2	89.8	87.9	89.1	89.0	88.8	87.5	145.4
125	88.4	89.6	87.3	86.2	87.2	85.4	87.3	87.2	88.8	88.4	86.7	89.1	87.3	88.7	88.4	87.7	86.6	145.0
160	87.4	87.9	86.1	84.9	84.8	83.3	85.4	85.2	87.4	86.3	84.1	86.4	84.8	86.0	85.6	85.9	85.4	143.0
200	87.0	88.0	84.6	83.8	84.6	81.0	84.7	84.8	86.3	85.2	83.8	86.3	83.3	85.1	83.0	85.9	84.5	142.3
250	85.7	86.7	82.6	82.1	83.0	80.7	82.9	83.1	84.9	84.4	82.2	84.7	83.8	85.4	84.4	85.1	84.0	141.4
315	84.9	85.6	82.5	82.2	82.7	80.6	82.4	83.3	85.0	85.8	82.5	85.0	84.2	85.8	85.2	85.0	83.8	141.8
400	86.2	86.9	84.6	84.8	84.9	83.5	85.0	85.7	87.5	87.9	85.9	88.2	87.5	88.8	87.6	86.9	85.9	144.5
500	86.2	86.9	84.1	84.5	84.7	83.0	85.0	85.1	87.1	86.7	85.4	86.8	87.0	88.6	86.0	85.7	84.3	143.9
630	86.4	87.2	84.3	84.3	84.1	82.9	85.1	84.6	87.2	86.1	85.4	86.9	86.2	87.4	85.4	85.8	84.1	143.7
800	85.3	86.3	83.5	83.6	83.3	82.1	83.5	84.5	86.1	85.2	84.5	86.4	85.5	86.5	85.1	85.1	83.7	143.1
1000	87.2	88.1	86.1	86.6	86.3	85.8	86.3	85.8	87.2	86.5	86.2	88.4	88.0	89.5	86.6	85.9	84.5	145.3
1250	92.6	93.0	91.9	93.3	93.5	93.9	93.6	91.3	93.6	94.7	93.2	96.9	97.1	97.1	94.9	93.1	90.6	153.0
1600	87.7	91.4	89.1	86.7	87.2	86.4	86.5	86.9	88.3	87.7	88.5	90.5	90.3	91.8	86.6	85.7	84.3	147.2
2000	89.9	92.6	94.2	90.4	93.9	94.5	92.6	93.8	95.1	95.4	98.4	99.1	101.3	104.8	96.0	93.1	90.8	156.8
2500	86.6	91.2	88.4	88.9	90.9	93.0	91.7	89.2	90.7	88.6	91.9	93.8	93.4	98.3	90.7	89.6	85.0	151.5
3150	88.4	90.9	89.1	90.5	90.7	91.3	89.2	88.2	88.4	90.0	90.4	91.3	91.9	95.1	88.3	88.4	84.7	150.1
4000	90.8	89.4	91.4	91.0	91.2	88.5	90.0	90.9	89.4	92.6	91.9	92.6	95.3	94.1	90.7	87.9	88.5	151.7
5000	88.0	87.1	89.0	88.9	91.2	87.8	89.0	88.5	88.4	89.7	91.2	92.7	93.7	92.4	88.6	84.5	84.8	150.6
6300	85.3	88.0	86.9	86.4	90.0	88.5	88.4	87.1	88.6	87.5	92.3	94.3	94.0	95.3	90.2	86.7	83.5	152.1
8000	83.6	86.4	84.0	83.9	84.4	83.8	82.6	82.6	82.7	85.3	85.9	90.0	87.9	91.8	84.8	84.3	80.3	148.9
10000	81.0	83.9	82.4	81.5	83.9	79.9	80.9	81.4	81.7	82.6	85.2	86.1	87.0	87.4	83.0	82.1	79.1	148.4
OASPL MEASURED	105.1	105.8	104.7	104.4	105.7	104.3	105.0	104.6	106.2	106.1	106.2	108.1	108.1	110.3	105.5	104.4	103.1	
OASPL CALCULATED	101.5	102.7	101.7	101.1	102.2	101.7	101.8	101.5	102.8	103.1	103.6	105.4	106.0	108.2	103.0	101.9	103.2	
PNDB	114.6	115.5	115.0	114.5	115.4	115.0	114.8	114.6	115.8	116.1	117.5	118.9	119.9	122.3	116.2	114.3	112.6	
																	OAPWL	162.8

DIRECTIVITY INDEX

FREQ.																
50	-1.6	-0.6	-1.8	-2.8	-2.7	-4.2	-0.4	-1.5	-0.3	0.4	-1.4	2.0	-0.0	1.3	1.1	2.4	1.4
63	-0.8	0.5	-0.8	-2.9	-1.2	-3.5	-0.5	-1.4	1.5	0.5	-1.6	1.7	-0.0	0.4	0.1	1.2	0.1
80	-0.3	-0.6	-1.5	-2.8	-1.3	-2.4	-0.5	-0.9	1.0	0.6	-0.9	1.6	0.1	1.0	0.1	-0.2	-0.4
100	-0.3	-0.9	-1.3	-2.6	-1.3	-2.5	-1.8	-0.3	0.7	1.0	-0.2	1.5	-0.5	0.8	0.7	0.4	-0.8
125	0.6	1.8	-0.5	-1.6	-0.7	-2.4	-0.6	-0.7	0.9	0.5	-1.2	1.3	-0.6	0.8	0.5	-0.1	-1.2
160	1.7	2.2	0.4	-0.8	-1.0	-2.4	-0.4	-0.6	1.7	0.5	-1.6	0.7	-1.0	0.2	-0.1	0.2	-0.3
200	2.1	3.1	-0.4	-1.1	-0.3	-3.9	-0.2	-0.1	1.4	0.3	-1.1	1.4	-1.6	0.2	-1.9	1.0	-0.4
250	1.7	2.7	-1.3	-1.9	-1.0	-3.3	-1.1	-0.8	1.0	0.5	-1.8	0.7	-0.1	1.5	0.4	1.2	0.1
315	0.7	1.4	-1.8	-2.1	-1.5	-3.6	-1.8	-0.9	0.8	1.6	-1.7	0.7	-0.0	1.6	1.0	0.8	-0.5
400	-0.7	0.1	-2.3	-2.1	-2.0	-3.3	-1.8	-1.2	0.7	1.0	-1.0	1.4	0.6	2.0	0.7	0.1	-1.0
500	0.0	0.7	-2.0	-1.7	-1.5	-3.1	-1.1	-1.0	1.0	0.5	-0.7	0.6	0.8	2.5	-0.1	-0.5	-1.9
630	0.5	1.4	-1.5	-1.6	-1.7	-2.9	-0.7	-1.2	1.4	0.3	-0.4	1.1	0.4	1.5	-0.4	0.0	-1.7
800	0.3	1.3	-1.6	-1.5	-1.8	-2.9	-1.5	-0.5	1.1	0.2	-0.6	1.4	0.4	1.4	0.0	0.1	-1.4
1000	0.1	1.0	-1.0	-0.9	-0.8	-1.3	-0.8	-1.3	0.2	-0.6	-0.9	1.3	0.9	2.4	-0.4	-1.2	-2.5
1250	-2.1	-1.7	-2.8	-1.4	-1.1	-0.8	-1.1	-3.3	-1.1	0.0	-1.5	2.3	2.4	2.4	0.3	-1.6	-4.1
1600	-0.9	2.8	0.5	-1.9	-1.4	-2.2	-2.1	-1.7	-0.3	-0.9	-0.1	1.9	1.7	3.2	-2.0	-2.9	-4.3
2000	-8.1	-5.4	-3.8	-7.6	-4.1	-3.5	-5.4	-4.2	-2.9	-2.6	0.4	1.1	3.3	6.8	-2.0	-4.9	-7.2
2500	-5.8	-1.2	-4.0	-3.6	-1.5	0.5	-0.8	-3.3	-1.7	-3.8	-0.6	1.4	1.0	5.8	-1.8	-2.9	-7.5
3150	-2.3	0.2	-1.6	-0.2	-0.0	0.6	-1.5	-2.5	-2.3	-0.7	-0.3	0.6	1.2	4.4	-2.4	-2.3	-6.0
4000	-1.0	-2.4	-0.5	-0.9	-0.6	-3.4	-1.8	-1.8	-2.4	0.8	0.1	0.7	3.4	2.3	-1.2	-3.9	-3.4
5000	-2.4	-3.3	-1.5	-1.5	0.7	-2.6	-1.5	-1.9	-2.1	-0.8	0.8	2.2	3.3	2.0	-1.8	-5.9	-5.6
6300	-5.8	-3.1	-4.2	-4.6	-1.1	-2.6	-2.6	-4.0	-2.4	-3.6	1.2	3.2	3.0	4.3	-0.9	-4.4	-7.6
8000	-2.9	-0.0	-2.5	-2.5	-2.1	-2.7	-3.9	-3.9	-3.8	-1.2	-0.5	3.5	1.4	5.3	-1.7	-2.2	-6.2
10000	-3.1	-0.1	-1.6	-2.5	-0.1	-4.1	-3.1	-2.6	-2.3	-1.4	1.2	2.1	2.9	3.3	-1.1	-2.8	-4.9

RUN 5 2900 RPM

 NASA QUIET FAN RUN 5 441-004#6 T/D 9/4/68 PROC, DATE - MONTH 9 DAY 27 HR, 1.8

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.O.
DATE..... 9/4/68
RUN..... 5,Pts. 68
BAROMETER..... (in Hg)..: 28.8
(N/m²)..: 97380
T AMBIENT..... (°F)..... 71.0
(°K)..... 294.8
T WET BULB..... (°F)..... 62.0
(°K)..... 289.8
ABS. HUMIDITY... (gm/m³)..: 12.8
(kg/m³)..: 0.0130
PROP. FAN SPEED (RPM)..... 2900
(rad/sec)..... 303.6
CORR. FAN SPEED (RPM)..... 2867
(rad/sec)..... 300.2
TAPE NUMBER..... P633

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	75.7	80.4	78.8	77.0	78.4	78.5	78.4	80.5	80.1	81.7	81.3	83.2	84.5	85.2	86.2	87.4	84.8	139.7
63	80.5	86.8	80.2	79.5	80.9	83.1	81.7	82.5	82.8	83.7	83.1	84.7	85.5	86.0	86.5	87.2	85.6	141.1
80	80.1	86.0	79.4	79.6	80.9	81.7	82.0	82.3	83.0	83.0	82.5	84.2	85.1	85.0	84.4	83.7	83.3	140.3
100	79.6	85.9	79.7	79.5	77.8	81.5	80.1	81.6	81.9	83.1	82.1	82.8	83.6	83.4	83.7	81.8	82.0	139.4
125	79.8	86.4	78.4	79.0	78.9	79.0	79.2	79.6	79.7	80.6	78.3	79.4	80.7	80.8	81.7	79.9	80.0	137.3
160	77.0	86.6	77.2	77.1	74.9	74.8	74.2	74.7	75.5	74.0	72.6	73.6	73.9	73.8	75.6	75.1	75.3	133.0
200	75.2	87.9	74.8	72.2	71.1	73.0	71.5	71.4	71.1	69.7	68.6	70.4	71.1	73.2	72.6	72.1	72.7	131.3
250	73.0	88.4	71.9	71.9	70.9	71.1	71.1	72.0	72.3	75.7	73.5	74.8	78.3	79.4	78.6	75.7	75.0	133.9
315	74.5	88.8	74.5	76.3	76.7	78.0	78.1	78.1	77.2	79.7	79.1	80.4	82.5	83.1	82.1	79.4	78.0	137.6
400	77.6	77.8	78.3	79.9	79.8	78.9	78.9	78.9	79.8	81.4	81.6	83.0	84.7	85.5	83.9	80.8	79.2	139.5
500	80.0	80.5	80.2	81.3	80.5	79.7	79.4	79.3	80.1	81.0	81.3	82.5	83.7	84.2	81.9	78.9	77.0	139.2
630	81.3	81.4	81.4	80.1	78.7	78.3	78.2	78.6	79.2	79.4	79.8	81.3	81.9	81.5	80.0	78.0	76.9	137.9
800	79.9	80.8	80.5	79.9	80.0	79.9	78.3	79.3	79.2	79.8	79.9	82.0	82.6	82.6	80.1	78.3	77.9	138.5
1000	84.6	84.0	85.6	85.9	84.1	85.0	84.9	83.4	85.0	84.1	84.1	85.9	87.9	88.1	84.2	80.2	78.8	143.5
1250	93.5	94.2	95.2	93.6	93.4	96.3	95.2	93.0	98.0	95.3	92.9	96.1	99.7	99.3	96.2	89.0	88.5	154.5
1600	84.2	88.3	88.2	85.8	86.0	85.7	85.6	85.1	85.7	85.7	86.7	88.2	88.8	89.6	85.0	82.0	80.1	145.3
2000	90.5	91.9	93.0	90.3	91.8	90.3	94.7	91.7	93.4	93.9	97.6	97.0	99.0	100.9	95.8	92.0	88.7	154.7
2500	86.3	91.1	89.8	88.4	91.3	93.5	92.3	88.1	89.1	87.0	89.7	93.2	91.9	95.5	89.7	88.1	82.6	150.3
3150	87.8	89.1	88.2	89.1	90.8	89.7	88.0	86.9	86.9	89.0	86.1	89.9	90.0	93.6	87.3	86.5	82.0	148.6
4000	90.4	87.0	91.7	91.7	91.0	88.4	89.3	89.9	87.9	91.9	91.4	92.2	94.7	92.6	90.1	86.3	87.0	151.0
5000	87.0	83.8	88.9	88.5	90.8	87.7	88.7	87.7	86.7	88.9	89.8	91.7	93.3	90.9	87.8	82.1	83.3	149.7
6300	83.3	81.7	85.9	85.2	89.5	88.0	87.7	85.6	86.7	86.3	90.8	93.0	92.6	93.7	89.1	84.6	81.6	150.8
8000	81.5	83.1	82.8	82.9	83.4	83.1	81.2	81.2	80.2	84.2	84.2	88.7	86.7	90.1	83.5	82.2	77.8	147.5
10000	77.7	78.6	80.4	79.5	82.5	78.8	79.1	79.3	78.6	80.6	83.6	84.4	85.3	85.3	81.3	79.1	76.0	146.5
OASPL MEASURED	100.5	84.8	102.4	101.3	102.2	102.3	102.4	100.8	102.3	102.2	103.3	104.6	106.3	107.8	103.1	99.5	97.8	
OASPL CALCULATED	99.0	101.3	100.7	99.8	100.7	101.0	101.0	99.3	101.3	100.9	101.9	103.3	105.0	105.8	101.8	98.4	96.5	
PNDB	112.5	113.8	114.0	113.6	114.0	114.2	113.9	112.5	113.1	114.2	115.8	116.5	117.9	119.2	114.9	111.6	109.6	
																	OAPWL	161.3

DIRECTIVITY INDEX

FREQ.																
50	-7.2	-3.5	-6.1	-5.8	-4.4	-4.3	-4.4	-2.4	-2.7	-1.1	-1.6	0.4	1.7	2.4	3.4	4.6	2.4
63	-3.7	-2.4	-4.0	-4.7	-3.3	-1.1	-2.5	-1.7	-1.4	-0.5	-1.1	0.5	1.3	1.8	2.3	3.0	1.4
80	-3.2	-2.7	-3.9	-3.7	-2.3	-1.8	-1.3	-1.0	-0.3	-0.2	-0.8	0.9	1.8	1.7	1.1	0.5	0.0
100	-2.8	-3.0	-2.6	-2.8	-2.6	-0.9	-2.3	-0.7	-0.5	0.8	-0.3	0.4	1.3	1.1	1.4	-0.5	-0.3
125	-0.3	-6.3	-1.7	-1.1	-1.2	-1.1	-1.0	-0.5	-0.4	0.4	-1.9	-0.7	0.5	0.7	1.6	-0.3	-0.2
160	1.3	10.7	1.5	1.4	0.8	-0.9	-1.5	-1.0	-0.2	-1.7	-3.1	-2.1	-1.8	-1.8	-0.1	-0.6	-0.4
200	1.3	14.1	0.9	-1.6	-2.7	-0.9	-2.4	-2.5	-2.8	-4.2	-5.3	-3.9	-2.8	-0.7	-1.3	-1.7	-1.2
250	-3.4	12.0	-4.5	-4.5	-5.5	-5.3	-5.3	-4.5	-4.1	-0.7	-2.9	-1.6	1.9	2.9	2.1	-0.7	-1.5
315	-5.5	8.8	-5.5	-3.7	-3.3	-4.0	-3.9	-4.0	-2.9	-0.4	-0.9	0.3	2.5	3.1	2.1	-0.6	-2.1
400	-4.2	-4.5	-3.5	-1.9	-2.0	-3.0	-2.9	-2.9	-2.0	-0.5	-0.3	1.1	2.8	3.7	2.0	-1.0	-2.6
500	-1.4	-0.9	-1.2	-0.0	-0.9	-1.7	-2.0	-2.1	-1.3	-0.4	-0.1	1.1	2.3	2.9	0.5	-2.5	-4.4
630	1.3	1.4	1.5	0.2	-1.3	-1.7	-1.8	-1.3	-0.8	-0.5	-0.3	1.3	1.9	1.5	0.0	-2.0	-3.0
800	-0.5	0.3	0.0	-0.6	-0.5	-1.1	-2.1	-1.2	-1.2	-0.7	-0.6	1.5	2.2	2.2	-0.3	-2.2	-2.6
1000	-0.8	-1.4	0.2	0.6	-0.3	0.2	-0.4	-1.9	-0.4	-1.3	-1.3	0.5	2.6	2.7	-1.2	-5.2	-6.5
1250	-2.7	-2.0	-1.0	-2.5	-2.8	0.2	-1.0	-3.2	1.8	-0.9	-3.3	-0.1	3.5	3.1	0.0	-7.2	-7.7
1600	-2.5	-1.6	-1.4	-1.0	-0.7	-1.0	-1.1	-1.7	-1.0	-1.0	-0.1	1.5	2.0	2.9	-1.8	-4.8	-6.6
2000	-5.4	-4.2	-2.9	-5.5	-4.0	-5.6	-4.2	-4.2	-2.5	-2.0	1.9	1.2	3.2	5.0	-0.0	-3.8	-7.2
2500	-5.0	-0.2	-1.5	-2.9	0.0	2.2	1.0	-3.1	-2.2	-4.3	-1.6	1.9	0.6	4.2	-1.6	-3.2	-8.7
3150	-1.5	-0.2	-1.1	-0.2	1.5	0.4	-1.3	-2.4	-2.4	-0.3	-1.2	0.6	0.7	4.3	-2.0	-2.8	-7.3
4000	-0.8	-4.2	-0.5	-0.5	-0.2	-2.8	-1.9	-1.2	-3.3	-0.8	-0.2	1.0	3.5	1.4	-1.1	-4.9	-4.2
5000	-2.6	-5.8	-0.6	-1.1	-1.2	-1.1	-0.9	-1.9	-2.9	-0.6	-0.2	2.1	3.7	1.3	-1.7	-7.5	-6.3
6300	-6.4	-5.0	-3.8	-4.5	-0.2	-1.8	-2.0	-4.1	-3.0	-3.4	-1.0	3.3	2.9	4.0	-0.6	-5.1	-8.2
8000	-3.5	-1.9	-2.2	-2.1	-1.6	-1.9	-3.8	-3.8	-4.8	-0.8	-0.8	3.7	1.7	5.1	-1.5	-2.8	-7.2
10000	-4.4	-3.5	-1.7	-2.6	0.4	-3.5	-3.0	-2.8	-3.5	-1.5	1.5	2.3	3.2	3.2	-0.8	-3.0	-6.1

C18

RUN 5 2900 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5,Pt. 43
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 66.0
(°K)..... 292.0
ABS. HUMIDITY...(gm/m³).. 13.8
(kg/m³).. 0.0138
PHYS. FAN SPEED (RPM).... 3054
(rad/sec) 319.8
CORR. FAN SPEED (RPM).... 3011
(rad/sec) 315.2
TAPE NUMBER..... P628

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	77.4	78.0	78.1	78.1	79.2	79.7	80.4	81.8	81.2	83.1	83.1	84.9	86.3	87.0	87.3	88.7	86.4	141.0
63	81.5	81.8	81.9	81.0	81.8	81.0	82.6	83.6	83.3	84.7	84.3	85.8	87.7	88.6	87.8	88.7	87.6	142.4
80	81.8	81.5	80.7	80.6	82.0	82.8	83.4	83.4	84.0	84.5	84.0	85.5	86.7	86.9	86.4	85.5	84.9	141.7
100	81.0	81.1	80.6	80.7	81.0	82.7	81.8	83.4	84.1	85.5	84.1	84.9	85.0	85.9	86.0	84.8	83.4	141.4
125	81.7	81.6	80.0	80.4	81.1	81.0	81.7	81.8	82.4	82.9	81.2	82.2	83.6	84.5	84.1	83.2	80.8	139.7
160	79.2	79.6	78.7	78.7	77.3	76.7	77.1	77.6	78.8	77.9	76.5	78.0	79.0	79.7	80.0	79.2	75.6	135.6
200	77.0	77.7	76.1	74.4	73.4	72.0	74.4	74.4	74.8	73.1	73.0	75.1	74.0	75.4	74.3	74.7	73.4	131.8
250	74.0	74.5	73.5	73.2	72.5	72.2	73.1	73.4	73.1	74.6	72.7	74.3	78.5	79.9	78.2	77.2	76.4	133.1
315	75.2	72.2	72.7	74.6	75.3	73.9	74.6	75.2	75.7	78.1	77.2	78.2	81.7	82.8	81.1	79.9	77.5	136.0
400	76.7	76.7	77.8	79.8	79.7	79.3	79.6	79.9	80.6	82.3	82.6	83.9	85.6	86.8	85.6	82.6	80.0	140.5
500	79.5	78.9	79.4	79.6	80.3	79.0	79.5	80.4	81.0	82.9	83.1	84.2	85.8	86.9	84.2	81.3	78.0	140.7
630	78.8	77.2	77.2	78.7	79.2	77.5	79.1	79.8	78.8	81.3	82.8	84.1	85.1	85.4	82.4	80.4	77.9	139.8
800	78.3	77.6	78.5	78.8	78.5	78.6	79.0	79.3	79.6	81.7	82.3	84.1	83.8	83.4	80.9	80.0	77.5	139.4
1000	81.8	81.1	82.8	83.9	83.1	82.2	82.4	83.4	82.1	83.9	84.6	85.3	87.2	87.4	82.6	81.2	78.6	142.4
1250	91.6	90.1	91.8	92.7	92.6	91.8	93.8	96.8	94.6	95.6	92.8	94.3	102.8	98.2	96.1	90.6	88.2	154.6
1600	83.6	84.7	85.5	85.0	85.5	85.2	85.4	86.6	86.6	86.5	86.8	88.8	89.7	90.1	85.8	83.2	80.3	145.6
2000	89.1	92.0	93.4	90.4	89.7	91.8	90.9	91.3	94.8	94.1	99.2	101.6	100.1	101.5	94.3	93.1	87.9	155.9
2500	85.4	89.8	87.8	89.2	89.8	91.2	92.1	89.4	90.2	88.6	91.8	93.3	93.5	96.8	89.9	89.1	83.0	150.8
3150	87.2	88.9	88.2	90.8	88.0	89.1	88.4	88.8	88.4	91.0	91.5	92.2	92.4	95.6	88.0	88.4	83.5	150.2
4000	90.1	86.6	90.8	90.2	91.1	88.0	89.6	91.8	89.8	93.8	95.2	93.4	97.3	93.9	90.5	87.1	87.7	152.6
5000	87.0	83.6	89.0	88.2	91.1	88.4	89.7	90.0	88.7	91.4	92.3	93.8	95.0	92.6	89.4	84.1	84.7	151.4
6300	83.8	85.1	86.1	85.2	90.3	89.4	89.4	88.6	89.2	88.9	93.3	96.2	94.8	95.2	90.5	86.7	82.7	152.9
8000	81.7	83.2	83.1	82.6	83.8	84.3	83.1	84.1	82.2	86.9	86.6	90.9	88.6	91.7	85.1	84.2	79.2	149.4
10000	78.4	79.0	80.6	79.5	82.9	79.7	81.1	82.5	80.8	83.6	85.8	86.7	87.6	87.4	82.9	81.4	77.4	148.6
OASPL MEASURED	99.9	100.1	101.6	101.2	101.9	101.5	102.0	103.0	102.8	103.8	105.5	107.2	108.6	108.1	103.7	101.4	98.8	
OASPL CALCULATED	98.2	98.5	99.6	99.5	100.1	99.7	100.3	101.3	101.0	102.1	103.8	105.5	107.1	106.5	102.1	99.9	97.2	
PNDB	112.1	111.8	113.2	113.2	113.7	113.1	113.7	114.3	114.2	115.9	117.6	119.4	119.5	120.2	114.8	113.0	110.3	
																	OAPWL	162.4

DIRECTIVITY INDEX

FREQ.																	
50	-6.7	-6.1	-6.0	-6.1	-4.9	-4.5	-3.8	-2.3	-3.0	-1.0	-1.1	0.7	2.1	2.8	3.1	4.5	2.2
63	-4.0	-3.7	-3.6	-4.5	-3.7	-4.5	-2.8	-1.9	-2.1	-0.7	-1.2	0.3	2.3	3.1	2.3	3.2	2.2
80	-2.9	-3.2	-3.9	-4.1	-2.7	-1.8	-1.3	-1.3	-0.6	-0.2	-0.6	0.8	2.0	2.2	1.7	0.8	0.2
100	-3.2	-3.2	-3.7	-3.6	-3.3	-1.6	-2.5	-0.9	-0.2	1.2	-0.2	0.6	1.5	1.6	1.7	0.5	-0.8
125	-0.7	-0.9	-2.5	-2.0	-1.4	-1.5	-0.8	-0.7	-0.1	0.4	-1.3	-0.2	1.1	2.0	1.6	0.7	-1.7
160	0.9	1.3	0.4	0.3	-1.0	-1.6	-1.2	-0.7	0.5	-0.4	-1.8	-0.3	0.6	1.4	1.6	0.8	-2.7
200	2.6	3.3	1.7	0.0	-1.0	-2.4	-0.0	0.0	0.4	-1.3	-1.4	0.7	-0.4	1.0	-0.1	0.3	-1.0
250	-1.6	-1.1	-2.1	-2.4	-3.1	-3.4	-2.5	-2.2	-2.5	-1.0	-2.9	-1.3	2.9	4.3	2.6	1.6	0.8
315	-3.3	-6.3	-5.8	-3.8	-3.1	-4.5	-3.8	-3.3	-2.7	-0.3	-1.2	-0.2	3.3	4.4	2.7	1.4	-0.9
400	-6.0	-6.1	-5.0	-3.0	-3.1	-3.5	-3.2	-2.9	-2.1	-0.5	-0.2	1.1	2.9	4.0	2.3	-0.2	-2.8
500	-3.4	-4.0	-3.5	-3.3	-2.6	-3.9	-3.4	-2.5	-1.8	-0.0	0.2	1.3	2.9	4.0	1.3	-1.5	-4.9
630	-3.1	-4.7	-4.7	-3.2	-2.7	-4.4	-2.7	-2.1	-3.1	-0.6	1.0	2.2	3.2	3.5	0.5	-1.5	-4.0
800	-3.0	-3.7	-2.9	-2.6	-2.9	-2.8	-2.4	-2.0	-1.7	0.3	1.0	2.8	2.5	2.0	-0.4	-1.3	-3.8
1000	-2.4	-3.2	-1.4	-0.3	-1.1	-2.0	-1.8	-0.9	-2.1	-0.3	0.3	1.1	3.0	3.1	-1.6	-3.1	-5.6
1250	-4.6	-6.2	-4.5	-3.5	-3.6	-4.5	-2.5	0.5	-1.7	-0.6	-3.5	-1.9	6.5	1.9	-0.1	-5.6	-8.1
1600	-3.5	-2.4	-1.6	-2.1	-1.6	-1.9	-1.7	-0.5	-0.5	-0.6	-0.3	1.7	2.6	3.0	-1.2	-3.9	-6.8
2000	-8.0	-5.1	-3.6	-6.7	-7.4	-5.3	-6.1	-5.8	-2.2	-2.9	2.1	4.5	3.1	4.5	-2.7	-3.9	-9.2
2500	-6.4	-2.0	-4.0	-2.7	-2.0	-0.6	0.3	-2.4	-1.6	-3.2	0.0	1.5	1.7	5.0	-1.9	-2.7	-8.8
3150	-3.6	-2.0	-2.6	-0.0	-2.8	-1.7	-2.4	-2.1	-2.4	0.1	0.6	1.4	1.5	4.7	-2.8	-2.4	-7.3
4000	-2.7	-6.2	-2.0	-2.6	-1.7	-4.8	-3.2	-1.0	-3.0	1.0	2.4	0.6	4.5	1.1	-2.3	-5.7	-5.1
5000	-4.2	-7.6	-2.2	-3.1	-0.1	-2.9	-1.5	-1.3	-2.5	0.2	1.0	2.5	3.7	1.3	-1.9	-7.2	-6.6
6300	-8.1	-6.8	-5.8	-6.7	-1.6	-2.5	-2.5	-3.2	-2.7	-3.0	1.4	4.3	2.9	3.3	-1.4	-5.2	-9.2
8000	-5.2	-3.7	-3.8	-4.3	-3.1	-2.6	-3.8	-2.8	-4.7	0.0	-0.3	4.0	1.7	4.8	-1.8	-2.7	-7.7
10000	-5.8	-5.2	-3.6	-4.7	-1.3	-4.5	-3.1	-1.7	-3.4	-0.6	1.7	2.5	3.4	3.2	-1.3	-2.8	-6.8

RUN 5 3054 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 10 DAY 2 HR, 13.1

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.F.C.
DATE..... 9/4/68
RUN..... 5,Pt. 04
BAROMETER.....(in Hg).. 29.8
(N/m²)... 97880
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 66.6
(°K)..... 292.5
ABS. HUMIDITY...(gm/m³).. 13.2
(kg/m³)... 0.0132
PRIM. FAN SPEED(RPM).... 3050
(rad/sec 319.4
CORR. FAN SPEED(RPM).... 3010
(rad/sec) 315.2
TAPE NUMBER..... P634

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0, (0°)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50,0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90,0 (1.57)	100,0 (1.74)	110,0 (1.92)	120,0 (2.09)	130,0 (2.27)	140,0 (2.44)	150,0 (2.62)	160,0 (2.79)	PNL
50	79,7	76,3	77,1	78,0	79,4	80,1	79,8	81,7	81,5	83,4	83,3	85,5	86,2	86,9	88,0	89,5	86,9	141,3
63	81,3	81,1	81,5	81,0	81,4	84,2	82,3	83,2	83,7	85,0	84,6	86,3	87,4	87,7	88,2	89,2	87,6	142,5
80	81,5	81,0	80,4	81,0	82,0	83,3	82,9	83,2	84,3	84,7	83,9	85,4	86,4	86,6	85,5	85,7	85,3	141,7
100	80,5	80,7	80,3	80,8	80,8	82,9	81,4	82,8	83,0	84,4	83,0	84,8	84,7	85,1	85,3	83,8	83,7	140,6
125	81,0	80,5	78,8	80,0	79,4	79,7	79,7	80,4	80,9	81,5	79,7	80,4	81,7	82,0	82,9	82,0	81,3	138,1
160	78,6	79,0	77,8	78,1	75,0	75,2	74,8	75,4	76,6	75,0	73,0	74,2	74,0	74,8	77,1	76,8	75,7	132,9
200	76,7	76,8	75,4	74,7	72,3	73,7	71,9	72,1	72,0	72,2	70,4	71,7	74,4	76,4	75,5	74,4	73,9	131,0
250	73,4	73,5	72,6	74,7	72,3	71,9	72,3	73,7	74,3	78,0	76,3	77,7	80,7	82,1	80,9	78,2	76,1	135,0
315	74,0	73,4	74,1	77,7	77,3	76,7	76,9	77,8	79,3	81,5	81,3	82,9	84,5	85,3	84,4	81,4	79,4	139,0
400	75,8	75,9	77,4	80,6	80,0	79,9	79,8	80,2	81,8	83,1	83,2	84,9	86,0	86,9	85,8	82,7	80,1	141,0
500	78,7	77,1	78,0	79,8	79,1	79,2	79,4	80,6	81,6	81,9	82,3	83,9	83,9	84,9	83,3	80,3	77,3	139,8
630	77,6	77,3	77,0	79,0	77,9	77,8	77,2	79,2	80,4	80,0	78,9	79,7	79,9	82,0	81,4	77,8	77,1	137,5
800	78,2	78,0	78,3	80,2	79,7	78,2	78,2	78,5	79,5	80,3	81,9	82,4	83,9	84,6	81,6	79,7	77,6	139,2
1000	81,6	81,3	82,3	84,4	82,7	82,1	82,4	83,6	83,5	84,0	85,8	85,8	87,8	87,1	83,1	80,7	78,6	142,8
1250	91,4	93,5	91,2	95,3	96,5	95,8	92,7	100,1	99,1	93,2	89,6	91,9	103,8	99,6	91,6	90,8	87,7	155,8
1600	83,0	85,1	84,7	85,2	85,2	85,2	84,6	86,2	86,4	85,0	85,8	87,5	89,8	89,8	85,0	82,2	79,8	145,1
2000	87,9	92,5	89,2	91,9	91,6	92,7	92,1	94,2	96,7	93,0	96,5	100,8	99,3	100,7	94,2	93,3	87,7	155,3
2500	85,4	90,7	89,0	88,6	90,8	91,6	91,8	88,9	90,3	87,9	90,6	93,7	94,5	95,6	90,2	88,7	83,4	150,7
3150	87,2	88,4	87,4	90,8	87,6	88,3	87,9	87,9	87,3	88,6	90,3	92,2	91,4	94,0	87,7	87,2	83,0	149,5
4000	90,7	86,8	90,6	91,1	90,7	87,6	88,7	90,5	89,1	92,6	94,3	93,3	96,1	92,8	90,6	86,2	87,6	151,9
5000	86,8	83,9	88,1	89,0	90,7	87,6	88,8	88,5	88,1	89,6	91,4	93,3	94,3	91,7	89,3	83,4	84,4	150,6
6300	83,2	84,9	85,0	85,6	89,6	88,2	88,0	86,5	88,3	86,2	92,0	95,4	94,1	93,8	89,9	85,4	81,9	151,9
8000	81,9	83,2	82,4	83,6	83,7	83,7	81,8	82,6	81,7	85,2	85,5	90,6	88,1	90,5	84,6	83,3	79,0	148,6
10000	78,2	78,9	79,7	80,3	82,6	79,9	79,6	80,5	80,0	81,5	84,8	86,5	86,9	86,0	82,5	80,1	76,7	147,6
OASPL MEASURED	99,8	101,0	100,3	102,3	102,8	102,1	101,4	104,0	104,2	102,4	103,8	106,3	108,4	107,4	102,7	100,8	98,3	
OASPL CALCULATED	97,9	99,3	98,6	100,6	101,1	100,7	99,8	102,8	102,8	100,7	102,2	104,8	107,1	106,0	101,2	99,7	97,1	
PNDB	112,2	112,3	112,6	113,7	113,7	113,4	113,2	114,0	115,2	114,7	116,1	118,8	118,9	119,4	114,5	112,7	110,2	
																	OAPWL	162,2

DIRECTIVITY INDEX

FREQ,																	
50	-8,7	-8,1	-7,4	-6,4	-5,1	-4,4	-4,6	-2,8	-3,0	-1,0	-1,2	1,0	1,7	2,4	3,6	3,0	2,4
63	-4,2	-4,5	-4,1	-4,0	-4,1	-1,4	-3,3	-2,4	-1,9	-0,6	-0,9	0,8	1,9	2,1	2,6	3,6	2,0
80	-3,1	-3,7	-4,2	-3,7	-2,7	-1,4	-1,7	-1,4	-0,3	0,0	-0,7	0,8	1,7	2,0	1,8	1,0	0,7
100	-3,0	-2,8	-3,2	-2,7	-2,7	-0,6	-2,1	-0,7	-0,5	0,9	-0,5	0,5	1,2	1,6	1,8	0,3	0,2
125	0,1	-0,4	-2,1	-0,9	-1,5	-1,2	-1,2	-0,5	-0,0	0,5	-1,3	-0,6	0,7	1,1	2,0	1,0	0,3
160	3,0	3,3	2,1	2,4	-0,7	-0,4	-0,9	-0,3	0,9	-0,7	-2,7	-1,5	-1,7	-0,9	1,4	1,2	0,0
200	3,1	3,2	1,8	1,1	-1,3	0,1	-1,7	-1,5	-1,6	-1,4	-3,2	-1,9	0,8	2,8	1,9	0,8	0,3
250	-4,2	-4,0	-4,9	-2,8	-5,3	-5,7	-5,3	-3,8	-3,3	0,5	-1,3	0,1	3,2	4,6	3,3	0,7	-1,5
315	-7,4	-8,0	-7,3	-3,7	-4,2	-4,8	-4,5	-3,7	-2,1	0,1	-0,1	1,4	3,1	3,9	2,9	-0,0	-2,1
400	-7,5	-7,4	-5,9	-2,7	-3,3	-3,4	-3,5	-3,1	-1,5	-0,2	-0,1	1,6	2,7	3,6	2,6	-0,6	-3,2
500	-3,3	-4,9	-4,0	-2,2	-2,9	-2,8	-2,6	-1,4	-0,4	-0,1	0,3	1,9	1,9	2,9	1,3	-1,7	-4,7
630	-2,0	-2,3	-2,6	-0,6	-1,7	-1,7	-2,3	-0,4	0,9	0,4	-0,6	0,1	0,3	2,5	1,8	-1,8	-2,5
800	-2,9	-3,1	-2,9	-1,0	-1,4	-3,0	-2,9	-2,7	-1,6	-0,9	0,8	1,3	2,8	3,5	0,4	-1,5	-3,5
1000	-3,0	-3,3	-2,3	-0,2	-1,9	-2,5	-2,2	-1,0	-1,1	-0,6	1,2	1,2	3,2	2,5	-1,5	-3,9	-6,0
1250	-6,1	-3,9	-6,3	-2,2	-0,9	-1,7	-4,8	2,7	1,6	-4,3	-7,9	-5,5	6,3	2,1	-5,9	-0,7	-9,8
1600	-3,6	-1,5	-1,9	-1,3	-1,4	-1,4	-1,9	-0,3	-0,2	-1,5	-0,7	1,0	3,3	3,2	-1,5	-4,4	-6,8
2000	-8,7	-4,1	-7,4	-4,6	-4,9	-3,8	-4,5	-2,3	0,2	-3,5	0,0	4,2	2,8	4,2	-2,3	-3,3	-8,8
2500	-6,2	-1,0	-2,6	-3,1	-0,9	-0,0	0,1	-2,8	-1,4	-3,7	-1,0	2,0	2,8	4,0	-1,5	-3,0	-8,2
3150	-2,7	-1,5	-2,5	0,9	-2,3	-1,6	-2,1	-2,1	-2,6	-0,3	0,4	2,2	1,5	4,1	-2,3	-2,7	-6,9
4000	-1,3	-5,2	-1,4	-0,9	-1,4	-4,4	-3,3	-1,5	-2,9	0,6	2,3	1,3	4,1	0,8	-1,5	-5,8	-4,4
5000	-3,7	-6,6	-2,4	-1,5	0,2	-2,9	-1,7	-2,0	-2,4	-0,9	0,9	2,8	3,8	1,2	-1,2	-7,1	-6,1
6300	-7,6	-6,0	-5,8	-5,2	-1,2	-2,6	-2,8	-4,4	-2,5	-4,6	1,2	4,6	3,3	3,0	-1,0	-5,4	-9,0
8000	-4,2	-2,9	-3,7	-2,5	-2,4	-2,4	-4,3	-3,5	-4,5	-0,9	-0,6	4,5	1,9	4,4	-1,5	-2,8	-7,2
10000	-5,1	-4,4	-3,5	-3,0	-0,7	-4,3	-3,6	-2,7	-3,3	-1,7	1,5	3,2	3,6	2,8	-0,8	-3,2	-6,6

C20

RUN 5 3050 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/4/68
RUN..... 5,Pt. 44
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 66.0
(°K)..... 292.0
ABS. HUMIDITY...(gm/m³).. 13.8
(kg/m³).. 0.0138
PHYS. FAN SPEED (RPM).... 3200
(rad/sec) 335.0
CORR. FAN SPEED (RPM).... 3155
(rad/sec) 330.1
TAPE NUMBER..... P628

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	77.4	77.5	78.1	78.8	79.6	79.9	80.2	81.7	81.3	83.9	83.4	85.8	87.1	87.7	88.5	90.3	88.0	141.8
63	81.8	81.6	82.0	81.5	82.0	81.6	82.8	83.6	84.1	85.4	85.0	86.8	88.4	89.0	88.6	89.6	88.6	143.0
80	82.5	81.8	81.2	81.6	82.6	83.8	84.0	84.0	84.8	85.3	84.8	86.3	87.4	87.9	87.3	86.9	86.7	142.6
100	82.1	81.5	80.9	81.8	82.2	83.8	83.2	84.7	85.2	86.3	84.8	85.6	86.8	87.4	87.3	85.9	85.1	142.4
125	83.0	82.0	80.2	81.6	81.9	81.5	82.4	82.8	83.1	83.4	81.9	83.1	84.9	84.8	85.4	84.3	82.8	140.5
160	80.7	80.6	80.0	79.9	78.3	77.3	78.2	78.9	79.7	78.4	77.2	78.9	80.1	80.3	80.5	80.1	77.3	136.5
200	79.7	80.0	78.6	77.6	75.3	75.3	75.6	75.9	75.7	73.6	73.7	75.5	75.0	76.0	75.1	75.7	74.7	133.1
250	75.2	75.2	74.4	73.8	73.5	73.5	74.1	74.8	74.1	76.6	74.2	75.9	80.0	81.6	80.0	78.6	77.4	134.5
315	73.8	72.9	73.3	75.5	75.7	75.1	75.9	76.1	76.9	79.8	78.8	80.1	83.0	84.0	82.8	80.9	78.7	137.3
400	78.3	77.1	78.9	80.8	81.0	80.7	81.2	81.1	81.9	84.0	84.1	85.4	87.3	88.3	86.4	84.0	81.6	141.9
500	80.1	78.7	79.2	80.1	80.9	80.3	80.9	81.2	82.7	84.2	84.6	85.3	86.7	87.8	85.3	82.5	79.4	141.8
630	79.3	78.8	79.6	79.8	79.7	80.2	79.7	80.0	82.3	82.5	83.3	85.2	85.1	85.4	83.3	81.3	78.8	140.6
800	79.1	79.2	79.0	80.0	79.7	79.8	79.7	80.3	81.3	81.6	81.9	83.3	83.7	84.7	82.2	80.9	78.8	139.8
1000	81.9	81.1	82.7	83.7	83.1	83.2	83.2	82.4	83.3	83.8	84.4	85.4	87.0	87.9	83.6	81.8	79.1	142.6
1250	93.3	94.6	94.2	93.3	96.6	100.2	97.3	95.3	94.4	98.5	98.2	97.6	99.6	99.0	95.4	90.5	93.3	155.8
1600	85.3	87.4	87.1	86.3	88.1	89.6	88.5	87.7	88.3	89.3	89.6	90.9	91.4	91.4	87.8	84.9	83.8	147.8
2000	91.3	98.9	96.3	93.4	98.1	92.1	92.6	93.8	93.8	94.2	98.2	104.7	102.4	99.8	94.3	93.9	89.0	157.3
2500	86.9	94.2	91.3	88.4	92.2	92.4	92.9	89.9	91.3	89.5	92.4	97.3	95.9	96.7	92.1	91.0	84.8	152.4
3150	87.6	89.3	87.7	89.3	88.6	89.0	88.8	89.1	89.5	92.1	91.4	93.2	92.9	94.7	88.1	88.6	84.0	150.4
4000	90.8	87.2	91.6	91.4	92.1	89.6	91.2	92.6	91.6	95.8	93.8	94.3	96.9	95.8	91.4	87.5	89.0	153.4
5000	87.3	84.1	89.0	88.6	91.8	88.8	90.8	90.3	90.0	92.1	92.8	94.8	95.6	93.7	90.8	85.2	86.0	152.2
6300	84.1	85.3	85.9	85.3	90.3	89.1	90.0	88.3	89.9	88.5	93.3	96.9	95.0	95.8	90.9	87.0	82.8	153.3
8000	82.1	83.4	83.0	82.9	84.5	84.1	83.6	84.0	83.2	87.3	86.9	91.9	89.0	92.2	85.6	84.6	79.8	149.9
10000	78.8	79.4	80.9	79.9	83.5	79.9	82.0	82.6	82.1	84.1	86.5	87.9	88.1	88.0	83.4	81.9	78.1	149.2
OASPL MEASURED	101.0	103.7	102.8	101.8	104.5	104.1	103.6	103.1	103.1	105.0	105.8	109.1	108.6	107.9	104.1	102.2	100.4	
OASPL CALCULATED	99.4	102.4	101.3	100.2	103.1	103.0	102.1	101.5	101.5	103.6	104.4	107.8	107.1	106.5	102.6	100.8	99.2	
PNDB	113.0	116.0	114.8	113.8	116.5	114.5	114.8	114.9	114.7	117.3	117.5	121.7	120.7	119.7	115.3	113.8	111.7	
																	OAPWL	163.4

DIRECTIVITY INDEX

FREQ.																	
50	-7.6	-7.5	-6.9	-6.2	-5.4	-5.1	-4.8	-3.3	-3.7	-1.1	-1.6	0.7	2.1	2.7	3.5	5.3	3.0
63	-4.3	-4.5	-4.1	-4.6	-4.1	-4.5	-3.3	-2.6	-2.1	-0.7	-1.1	0.7	2.3	2.9	2.5	3.5	2.5
80	-3.0	-3.7	-4.3	-4.0	-2.9	-1.7	-1.6	-1.5	-0.7	-0.3	-0.8	0.7	1.9	2.4	1.7	1.4	1.1
100	-3.2	-3.9	-4.4	-3.5	-3.2	-1.5	-2.2	-0.7	-0.1	0.9	-0.6	0.3	1.4	2.0	1.9	0.5	-0.2
125	-0.3	-1.3	-3.1	-1.7	-1.5	-1.9	-0.9	-0.5	-0.2	0.1	-1.4	-0.2	1.5	1.5	2.0	1.0	-0.5
160	1.4	1.4	0.8	0.7	-0.9	-1.9	-1.0	-0.3	0.5	-0.9	-2.0	-0.3	0.9	1.1	1.3	0.9	-2.0
200	3.9	4.3	2.9	1.8	-0.4	-0.5	-0.1	0.2	-0.0	-2.1	-2.1	-0.2	-0.7	0.3	-0.6	-0.1	-1.0
250	-1.8	-1.9	-2.7	-3.2	-3.6	-3.6	-3.0	-2.3	-3.0	-0.4	-2.8	-1.2	2.9	4.5	2.9	1.6	0.3
315	-5.9	-6.8	-6.5	-4.3	-4.1	-4.7	-3.9	-3.7	-2.9	0.0	-0.9	0.3	3.2	4.3	3.1	1.1	-1.1
400	-6.0	-7.1	-5.3	-3.4	-3.2	-3.6	-3.1	-3.2	-2.3	-0.2	-0.1	1.1	3.0	4.0	2.2	-0.3	-2.7
500	-3.9	-5.3	-4.8	-3.9	-3.1	-3.7	-3.1	-2.8	-1.3	0.2	0.6	1.3	2.8	3.9	1.3	-1.5	-4.6
630	-3.4	-3.9	-3.1	-2.9	-3.0	-2.5	-3.0	-2.7	-0.4	-0.2	0.6	2.5	2.4	2.7	0.6	-1.4	-3.9
800	-2.7	-2.6	-2.8	-1.8	-2.1	-2.0	-2.1	-1.5	-0.5	-0.2	0.1	1.5	1.9	2.9	0.4	-0.9	-3.0
1000	-2.5	-3.3	-1.8	-0.7	-1.4	-1.3	-1.2	-2.1	-1.1	-0.6	0.0	1.0	2.5	3.5	-0.8	-2.6	-5.3
1250	-4.1	-2.9	-3.2	-4.1	-0.8	2.7	-0.1	-2.2	-3.0	1.1	0.8	0.2	2.2	1.6	-2.0	-6.9	-4.2
1600	-4.0	-1.8	-2.2	-2.9	-1.1	0.4	-0.7	-1.5	-1.0	0.0	0.3	1.6	2.2	2.2	-1.4	-4.4	-5.4
2000	-7.2	0.4	-2.2	-5.1	-0.4	-6.3	-5.9	-4.7	-4.7	-4.3	-0.3	6.2	3.9	1.3	-4.2	-4.6	-9.5
2500	-6.5	0.8	-2.1	-5.0	-1.2	-1.0	-0.5	-3.5	-2.1	-3.9	-1.0	3.9	2.5	3.3	-1.3	-2.4	-8.6
3150	-3.4	-1.8	-3.4	-1.8	-2.5	-2.1	-2.2	-1.9	-1.6	1.1	0.4	2.2	1.9	3.7	-3.0	-2.5	-7.9
4000	-2.7	-6.3	-1.9	-2.1	-1.4	-3.9	-2.3	-0.9	-1.9	2.3	0.3	0.8	3.4	2.3	-2.1	-6.0	-4.5
5000	-4.7	-8.0	-3.0	-3.5	-0.3	-3.2	-1.3	-1.7	-2.0	0.0	0.7	2.7	3.5	1.6	-1.3	-6.8	-6.0
6300	-8.1	-7.0	-6.3	-6.9	-1.9	-3.1	-2.2	-4.0	-2.3	-3.8	1.1	4.7	2.8	3.6	-1.4	-5.2	-9.4
8000	-5.3	-4.0	-4.4	-4.5	-3.0	-3.3	-3.8	-3.5	-4.2	-0.1	-0.5	4.5	1.6	4.7	-1.8	-2.8	-7.6
10000	-6.1	-5.4	-4.0	-5.0	-1.4	-4.9	-2.9	-2.3	-2.8	-0.7	1.6	3.1	3.3	3.1	-1.4	-3.0	-6.8

C21

RUN 5 3200 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.E.
DATE..... 9/4/68
RUN..... 5,Pt. 63
BAROMETER.....(in Hg).. 29.8
(N/m²).... 97990
T AMBIENT.....(°F)..... 72.0
(°K)..... 294.8
T WET BULB.....(°F)..... 62.0
(°K)..... 289.8
ABS. HUMIDITY...(gm/m³).. 13.0
(kg/m³).. 0.0130
FNTR. FAN SPEED (RPM).... 3200
(rad/sec) 335.0
CORR. FAN SPEED (RPM).... 3164
(rad/sec) 331.3
TAPE NUMBER..... P633

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	76.5	77.0	77.8	78.5	80.0	80.7	80.8	82.6	82.1	84.2	83.9	85.9	87.2	87.8	89.3	91.0	88.0	142.3
63	81.8	81.7	81.9	81.0	81.8	84.0	83.1	84.0	84.2	85.9	85.6	87.3	88.5	88.6	89.3	91.1	89.1	143.5
80	82.7	82.3	81.7	81.7	83.0	83.8	83.9	83.9	85.0	85.6	85.2	86.9	88.1	88.0	87.8	87.8	86.8	142.9
100	81.9	82.0	81.6	82.0	82.1	83.9	82.6	84.1	84.3	85.6	84.3	85.5	86.6	86.9	87.2	85.6	85.3	142.1
125	82.6	82.2	80.3	81.4	81.0	80.9	81.4	82.3	82.5	83.2	81.2	82.7	84.0	84.0	85.0	83.7	83.6	140.0
160	80.3	80.7	79.8	79.3	76.6	76.0	76.4	77.0	78.1	76.3	75.1	76.7	77.6	77.6	79.4	79.0	78.3	134.9
200	77.6	78.2	77.0	75.0	74.1	74.1	73.0	73.8	73.5	73.6	72.2	73.4	76.5	77.6	76.4	76.6	76.0	132.4
250	74.7	74.8	74.0	74.8	74.2	73.5	74.4	75.8	76.4	79.8	77.2	78.0	82.6	83.0	81.6	80.2	78.0	136.4
315	76.0	75.5	76.2	78.7	79.5	78.7	79.5	80.0	81.0	83.5	82.6	83.9	86.2	86.4	85.4	83.4	80.7	140.5
400	79.0	78.7	79.9	81.7	82.1	81.6	82.0	82.3	83.5	85.0	85.1	86.3	88.1	88.6	87.1	84.7	82.4	142.8
500	81.0	80.8	81.5	82.3	82.2	81.2	81.3	82.0	84.0	83.9	84.3	85.8	86.5	87.6	85.8	83.2	80.9	142.1
630	81.7	81.6	82.3	81.8	80.3	80.0	80.7	81.3	82.0	82.0	82.2	82.6	84.0	84.7	82.3	80.3	80.3	140.1
800	80.1	80.1	80.5	82.1	82.4	80.7	81.1	80.8	81.7	82.0	83.2	82.9	85.2	85.5	82.8	81.2	80.4	140.7
1000	82.6	82.7	84.2	84.8	84.3	83.8	84.1	84.1	84.2	84.8	85.8	87.0	88.2	87.7	84.5	82.6	80.0	143.6
1250	93.5	94.6	95.6	97.3	98.6	100.4	99.7	97.8	98.2	95.2	101.5	96.6	102.3	100.9	99.8	93.0	89.9	157.5
1600	86.6	88.5	89.1	89.5	90.6	91.1	90.7	89.5	89.7	88.2	91.9	90.2	93.3	93.3	91.2	86.6	83.7	149.3
2000	89.1	98.7	97.8	91.1	93.3	93.5	94.2	92.1	93.9	94.3	97.3	101.5	103.5	101.6	95.3	92.6	90.2	156.8
2500	87.2	94.3	92.0	90.3	91.9	93.2	92.0	90.0	92.0	90.1	93.1	96.1	97.7	97.2	93.0	91.2	85.9	152.8
3150	87.9	89.9	88.8	88.8	88.7	89.1	88.3	88.4	88.9	91.8	91.5	92.4	93.0	94.2	88.7	89.1	84.3	150.2
4000	91.4	88.0	92.5	92.4	92.1	89.0	91.3	92.3	90.1	95.2	94.3	96.0	96.5	94.0	91.1	88.2	88.6	153.2
5000	87.5	84.6	89.6	89.3	91.9	88.5	90.3	90.0	89.2	91.7	93.1	94.5	95.6	93.3	91.1	85.8	86.4	152.1
6300	83.8	85.4	86.0	85.6	90.1	88.5	89.0	87.3	88.7	87.5	92.7	95.8	94.5	94.6	90.7	87.0	83.0	152.5
8000	82.3	83.7	83.4	83.6	84.3	83.7	82.9	83.7	82.6	86.9	87.0	91.0	88.9	91.4	85.8	85.0	80.3	149.5
10000	78.6	79.5	80.8	80.3	83.4	79.4	81.0	81.9	81.0	83.5	86.7	87.3	87.9	87.0	83.6	82.2	78.5	148.8
OASPL MEASURED	100.9	103.8	103.9	102.9	104.2	104.4	104.4	103.2	103.7	104.1	106.4	107.6	109.5	108.4	105.3	102.2	100.0	
OASPL CALCULATED	99.4	102.5	102.5	101.6	102.8	103.4	103.2	102.0	102.5	102.6	105.4	106.2	108.3	107.2	104.3	101.3	98.9	
PNDB	113.3	116.1	116.0	114.7	115.3	115.0	114.8	114.9	114.6	116.9	117.5	120.0	121.6	120.5	116.3	113.9	111.8	
																	OAPWL	163.7

DIRECTIVITY INDEX

FREQ.																	
50	-8.9	-8.5	-7.7	-6.9	-5.5	-4.7	-4.6	-2.9	-3.4	-1.2	-1.5	0.5	1.8	2.4	3.9	5.6	2.5
63	-4.8	-4.9	-4.7	-5.0	-4.8	-2.5	-3.4	-2.5	-2.4	-0.6	-0.9	0.7	1.9	2.0	2.7	4.5	2.5
80	-3.2	-3.6	-4.2	-4.2	-2.9	-2.1	-2.0	-2.0	-0.9	-0.3	-0.7	1.0	2.2	2.1	1.9	1.9	0.9
100	-3.1	-3.0	-3.4	-3.1	-2.9	-1.2	-2.4	-0.9	-0.7	0.6	-0.8	0.5	1.6	1.9	2.2	0.6	0.3
125	-0.2	-0.6	-2.5	-1.4	-1.7	-1.9	-1.4	-0.5	-0.2	0.4	-1.6	-0.1	1.2	1.2	2.2	1.0	0.8
160	2.7	3.1	2.1	1.7	-1.0	-1.7	-1.3	-0.7	0.5	-1.3	-2.5	-0.9	-0.0	-0.0	1.8	1.3	0.7
200	2.6	3.2	1.9	-0.1	-0.9	-0.9	-2.0	-1.2	-1.5	-1.4	-2.8	-1.6	1.5	2.5	1.4	1.5	1.0
250	-4.2	-4.1	-4.9	-4.1	-4.7	-5.4	-4.5	-3.1	-2.5	0.9	-1.7	-0.9	3.7	4.1	2.7	1.3	-0.9
315	-7.0	-7.5	-6.7	-4.2	-3.4	-4.3	-3.5	-2.9	-2.0	0.6	-0.4	0.9	3.3	3.4	2.5	0.4	-2.2
400	-6.1	-6.4	-5.2	-3.3	-3.0	-3.4	-3.1	-2.8	-1.6	-0.1	-0.0	1.2	3.0	3.6	2.0	-0.4	-2.7
500	-3.3	-3.5	-2.9	-2.0	-2.1	-3.2	-3.0	-2.3	-0.3	-0.4	-0.0	1.5	2.2	3.3	1.5	-1.2	-3.4
630	-0.5	-0.6	0.1	-0.4	-1.9	-2.2	-1.5	-0.8	-0.2	-0.2	-0.0	0.4	1.8	2.5	0.1	-1.9	-1.9
800	-2.6	-2.6	-2.2	-0.6	-0.3	-2.0	-1.6	-1.9	-1.0	-0.7	0.5	0.2	2.5	2.9	0.1	-1.5	-2.2
1000	-2.9	-2.7	-1.2	-0.7	-1.1	-1.7	-1.4	-1.3	-1.2	-0.6	0.4	1.6	2.8	2.3	-0.9	-2.9	-5.4
1250	-5.7	-4.6	-3.6	-1.9	-0.6	1.2	0.6	-1.4	-1.0	-4.0	2.3	-2.5	3.1	1.7	0.7	-0.2	-9.2
1600	-4.2	-2.3	-1.6	-1.3	-0.2	0.3	-0.1	-1.2	-1.0	-2.6	1.1	-0.6	2.5	2.5	0.4	-4.2	-7.1
2000	-8.9	0.7	-0.2	-0.9	-4.6	-4.4	-3.7	-5.9	-4.1	-3.7	-0.6	3.6	5.6	3.6	-2.7	-5.4	-7.8
2500	-6.5	0.6	-1.7	-3.5	-1.9	-0.5	-1.7	-3.7	-1.8	-3.7	-0.7	2.4	3.9	3.4	-0.8	-2.5	-7.8
3150	-2.9	-0.9	-2.1	-2.0	-2.1	-1.7	-2.3	-2.2	-1.9	1.0	0.7	1.6	2.2	3.4	-2.1	-1.7	-6.6
4000	-2.0	-5.4	-0.9	-1.0	-1.3	-4.4	-2.1	-1.1	-3.2	1.8	1.0	2.6	3.1	0.6	-2.3	-5.2	-4.8
5000	-4.4	-7.4	-2.3	-2.6	-0.0	-3.4	-1.6	-2.0	-2.7	-0.3	1.1	2.6	3.7	1.4	-0.8	-0.2	-5.5
6300	-7.7	-6.0	-5.4	-5.9	-1.3	-2.9	-2.4	-4.1	-2.7	-3.9	1.3	4.4	3.1	3.2	-0.8	-4.4	-8.4
8000	-4.6	-3.3	-3.6	-3.3	-2.7	-3.3	-4.1	-3.3	-4.4	-0.1	-0.8	4.0	1.9	4.4	-1.2	-2.0	-6.7
10000	-5.9	-4.9	-3.6	-4.2	-1.0	-5.1	-3.5	-2.5	-3.4	-1.0	2.3	2.9	3.4	2.5	-0.9	-2.3	-6.0

C22

RUN 5 3200 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 9 DAY 27 HR. 2.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/4/68
RUN..... 5,Pt. 45
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 66.0
(°K)..... 292.0
ABS. HUMIDITY...(gm/m³).. 13.8
(kg/m³).. 0.0138
PHYS. FAN SPEED (RPM).... 3350
(rad/sec) 350.7
CORR. FAN SPEED (RPM).... 3303
(rad/sec) 345.8
TAPE NUMBER..... P628

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

ANGLES FROM INLET

FREQ.	0. (0.0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	78.0	78.3	78.8	79.2	80.1	80.6	81.2	82.8	82.3	84.4	84.5	86.8	88.2	89.0	89.8	91.4	88.7	142.9
63	82.6	82.3	82.4	81.7	82.2	82.1	83.1	84.1	84.7	86.4	86.8	88.8	89.7	90.6	90.6	92.2	90.5	144.5
80	83.7	83.0	82.2	82.3	83.2	84.2	84.1	84.6	85.8	86.3	86.1	87.7	89.0	88.9	89.1	88.6	88.5	143.7
100	83.6	83.2	82.9	83.2	83.3	85.3	84.2	85.4	85.8	87.0	85.9	86.8	88.6	88.7	88.7	87.2	87.0	143.7
125	84.6	83.8	82.5	83.7	83.0	83.2	84.0	84.2	84.9	85.1	83.8	85.5	86.6	86.4	86.7	86.0	84.8	142.2
160	83.1	83.0	82.6	82.4	79.9	78.8	81.1	80.6	82.6	80.3	79.3	80.9	82.0	81.5	82.7	82.5	79.4	138.6
200	80.4	80.8	80.2	77.7	75.5	74.8	76.3	76.6	77.6	74.9	75.7	77.6	76.8	77.4	77.3	77.9	75.8	134.4
250	77.1	77.6	77.0	75.5	74.1	74.4	75.3	75.9	75.8	78.4	76.5	77.8	81.6	82.6	81.0	80.2	78.6	136.0
315	75.0	73.9	74.6	76.2	76.6	75.9	77.5	76.9	78.4	81.5	80.9	82.6	84.8	85.2	84.3	82.6	80.0	138.9
400	78.2	77.6	79.4	81.4	81.2	81.0	81.8	82.1	83.4	85.7	85.8	87.1	88.8	89.5	88.2	85.6	82.9	143.3
500	79.7	78.7	80.4	81.3	81.5	81.1	81.9	82.8	84.1	85.8	86.0	87.2	88.6	89.5	87.2	85.5	81.6	143.4
630	80.5	80.3	81.8	82.6	82.0	81.7	82.2	82.6	84.2	84.9	85.0	86.8	87.7	87.8	85.4	82.9	80.7	142.8
800	81.2	80.4	81.8	82.0	81.0	81.3	81.7	82.1	83.3	83.5	83.9	85.9	86.2	85.7	83.7	82.7	80.3	141.8
1000	81.2	81.5	83.5	84.5	83.7	82.5	83.9	83.1	84.2	85.5	85.8	86.6	88.0	87.8	84.9	83.4	80.8	143.5
1250	91.4	93.4	94.8	97.7	94.7	95.7	93.3	95.4	94.9	96.5	98.7	101.4	100.8	101.7	94.8	90.5	91.6	156.2
1600	89.3	91.3	92.6	94.9	92.6	93.1	91.5	92.9	92.7	94.0	95.8	98.7	98.1	98.9	93.0	89.4	89.1	153.8
2000	91.7	92.7	92.2	90.6	92.3	93.5	93.5	92.6	95.9	96.9	99.2	101.5	101.7	100.1	96.7	92.7	88.6	156.4
2500	91.5	93.7	92.6	91.5	93.4	94.3	94.0	92.0	95.6	96.4	99.0	101.4	101.6	101.5	97.8	94.5	89.1	156.8
3150	87.7	90.0	88.7	89.3	89.1	89.2	89.7	89.9	90.0	93.8	91.9	94.1	94.3	95.9	89.2	89.8	84.8	151.4
4000	91.4	87.6	92.2	92.2	92.3	88.4	91.1	93.6	91.2	97.1	95.5	96.4	99.2	94.9	90.9	88.1	88.7	154.4
5000	88.0	85.2	90.0	89.9	92.0	88.3	90.5	92.1	90.9	94.9	95.2	97.2	98.8	95.9	92.6	87.3	87.6	154.3
6300	84.7	86.0	87.2	86.6	90.7	88.6	89.8	89.3	90.6	90.5	94.7	98.8	96.9	96.8	91.5	87.9	83.7	154.6
8000	82.7	84.5	83.6	83.8	84.9	84.0	83.8	85.2	84.2	89.5	88.6	94.0	91.1	93.9	86.9	85.9	80.8	151.6
10000	79.5	80.5	81.9	81.3	84.5	79.9	81.9	84.2	83.2	86.6	88.4	90.2	90.4	89.5	84.9	83.5	79.2	151.0
OASPL MEASURED	101.8	102.4	103.3	103.9	103.8	103.4	103.4	104.0	104.7	106.8	107.8	110.3	110.6	109.9	105.9	102.8	101.2	
OASPL CALCULATED	100.1	100.9	101.6	102.5	102.1	102.0	101.8	102.5	103.2	105.2	106.4	108.9	109.1	108.7	104.6	102.2	100.1	
PNDB	113.8	114.5	115.0	115.1	115.4	115.3	115.5	116.1	116.8	119.1	120.0	122.3	122.6	122.3	118.5	115.8	112.5	
																	OAPWL	164.8

DIRECTIVITY INDEX

FREQ.																	
50	-8.0	-7.8	-7.2	-6.9	-5.9	-5.4	-4.9	-3.3	-3.7	-1.7	-1.6	0.8	2.1	2.9	3.8	5.3	2.6
63	-5.0	-5.3	-5.2	-5.9	-5.5	-5.5	-4.5	-3.5	-2.9	-1.2	-0.8	1.1	2.1	2.9	3.0	4.6	2.9
80	-3.0	-3.7	-4.5	-4.4	-3.6	-2.5	-2.7	-2.1	-0.9	-0.4	-0.6	0.9	2.2	2.2	2.4	1.8	1.8
100	-3.0	-3.4	-3.6	-3.4	-3.2	-1.3	-2.3	-1.2	-0.7	0.4	-0.6	0.2	2.0	2.1	2.1	0.6	0.5
125	-0.5	-1.2	-2.6	-1.3	-2.1	-1.8	-1.1	-0.8	-0.1	0.1	-1.2	0.5	1.5	1.4	1.7	0.9	-0.3
160	1.8	1.7	1.3	1.1	-1.4	-2.5	-0.3	-0.7	1.3	-1.1	-2.0	-0.4	0.6	0.2	1.3	1.2	-1.9
200	3.4	3.8	3.2	0.7	-1.6	-2.2	-0.7	-0.4	0.5	-2.1	-1.3	0.6	-0.3	0.4	0.3	0.9	-1.2
250	-1.4	-0.9	-1.5	-3.0	-4.4	-4.1	-3.2	-2.6	-2.7	-0.2	-2.0	-0.7	3.1	4.1	2.5	1.7	0.1
315	-6.4	-7.5	-6.8	-5.2	-4.8	-5.4	-3.9	-4.4	-2.9	0.1	-0.5	1.3	3.4	3.8	3.0	1.2	-1.4
400	-7.5	-8.1	-6.2	-4.2	-4.5	-4.7	-3.8	-3.6	-2.2	0.0	0.2	1.4	3.1	3.9	2.6	-0.1	-2.8
500	-6.0	-7.0	-5.3	-4.3	-4.2	-4.6	-3.7	-2.8	-1.5	0.2	0.3	1.6	3.0	3.8	1.6	-0.1	-4.1
630	-4.3	-4.5	-3.1	-2.3	-2.9	-3.1	-2.6	-2.3	-0.7	0.1	0.2	1.9	2.8	2.9	0.6	-2.0	-4.1
800	-2.5	-3.3	-1.9	-1.7	-2.7	-2.4	-2.1	-1.6	-0.4	-0.2	0.2	2.2	2.5	2.0	-0.0	-1.0	-3.4
1000	-4.1	-3.8	-1.8	-0.7	-1.6	-2.8	-1.4	-2.2	-1.0	0.2	0.6	1.3	2.7	2.5	-0.4	-1.9	-4.5
1250	-6.4	-4.5	-3.0	-0.2	-3.2	-2.2	-4.5	-2.5	-3.0	-1.4	0.9	3.6	2.9	3.8	-3.0	-7.3	-6.3
1600	-6.0	-3.9	-2.6	-0.3	-2.7	-2.1	-3.8	-2.4	-2.5	-1.2	0.6	3.4	2.9	3.6	-2.3	-5.9	-6.2
2000	-5.9	-4.9	-5.4	-7.0	-5.3	-4.1	-4.1	-5.0	-1.7	-0.7	1.7	3.9	4.1	2.5	-0.9	-4.9	-9.0
2500	-6.3	-4.2	-5.2	-6.4	-4.4	-4.4	-3.5	-3.8	-5.8	-2.2	-1.5	1.2	3.6	3.8	3.6	-0.0	-3.3	-8.7
3150	-4.3	-2.0	-3.3	-2.7	-2.9	-2.8	-2.3	-2.1	-2.1	1.8	-0.1	2.0	2.2	3.9	-2.8	-2.2	-7.2
4000	-3.2	-7.0	-2.3	-2.4	-2.3	-6.1	-3.5	-1.0	-3.3	2.5	1.0	1.8	4.6	0.3	-3.6	-6.4	-5.8
5000	-6.2	-8.9	-4.1	-4.2	-2.2	-5.8	-3.7	-2.1	-3.2	0.7	1.0	3.1	4.6	1.7	-1.5	-6.9	-6.5
6300	-8.8	-7.5	-6.4	-7.0	-2.9	-5.0	-3.7	-4.2	-3.0	-3.1	1.1	5.2	3.4	3.2	-2.1	-5.6	-9.9
8000	-6.4	-4.6	-5.5	-5.3	-4.2	-5.1	-5.3	-3.9	-4.9	0.4	-0.5	4.9	2.0	4.8	-2.2	-3.2	-8.3
10000	-7.1	-6.2	-4.7	-5.4	-2.1	-6.7	-4.8	-2.4	-3.4	-0.0	1.7	3.6	3.7	2.8	-1.7	-3.1	-7.4

C23

RUN 5 3350 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.F.G.
DATE..... 9/4/68
RUN..... 5,Pt. 61
BAROMETER..... (in Hg).. 28.8
(N/m²)... 97590
T AMBIENT..... (°F)..... 71.0
(°K)..... 294.8
T WET BULB..... (°F)..... 69.0
(°K)..... 293.5
ABS. HUMIDITY... (gm/m3).. 13.8
(kg/m3).. 0.0139
PHYS. FAN SPEED(RPM).... 3350
(rad/sec) 350.7
CORR. FAN SPEED(RPM).... 3313
(rad/sec) 346.8
TAPE NUMBER..... P633

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	77.7	78.4	78.8	79.4	80.4	81.1	81.2	83.0	82.7	84.9	84.6	86.6	87.8	88.5	89.9	91.6	89.0	142.9
63	82.6	82.5	82.4	82.0	82.6	84.3	83.5	84.6	85.2	86.7	86.3	88.1	89.3	89.8	91.0	92.5	91.0	144.6
80	83.8	83.5	82.9	82.8	83.9	85.1	84.9	85.5	86.3	86.7	86.3	87.9	89.0	89.2	89.5	89.3	89.2	144.2
100	83.1	83.2	82.7	83.0	83.3	85.3	84.1	85.4	85.5	86.9	85.8	86.9	88.2	88.3	88.7	87.1	87.1	143.5
125	83.5	83.2	81.6	82.6	82.2	82.2	83.2	83.9	84.1	84.5	82.9	84.1	85.3	85.3	86.4	85.0	85.1	141.4
160	82.0	82.3	81.5	81.1	78.1	77.6	79.0	79.4	80.5	78.5	76.9	78.4	79.4	79.5	81.4	80.4	79.3	136.8
200	79.3	80.0	78.7	76.6	74.8	75.4	75.0	75.4	75.2	73.8	72.8	75.1	75.2	77.5	76.8	77.0	76.7	133.2
250	76.0	76.3	75.8	76.1	74.7	74.3	75.0	75.7	75.8	79.4	77.3	78.8	82.5	83.3	82.4	80.9	79.3	136.7
315	76.3	76.0	76.4	79.2	79.5	78.8	79.6	80.2	80.8	83.8	83.2	84.6	86.7	87.2	86.7	84.3	82.1	141.1
400	78.3	78.1	79.6	81.9	82.0	81.7	82.4	82.5	83.9	85.6	85.8	87.2	88.6	89.4	88.6	85.7	83.5	143.4
500	79.6	78.8	81.1	82.0	82.3	81.6	82.3	83.6	84.4	85.1	85.3	86.8	88.0	88.7	87.0	84.0	81.3	143.1
630	79.9	79.8	81.9	81.8	81.5	81.1	82.0	83.6	83.6	83.6	83.9	85.9	86.2	85.9	84.8	82.8	81.1	141.9
800	81.2	81.0	81.6	82.5	82.1	82.6	81.6	81.6	81.9	83.0	82.9	84.6	85.5	85.5	83.9	82.3	81.0	141.3
1000	81.8	82.2	84.1	84.7	84.4	83.9	84.7	83.8	84.6	85.0	85.9	86.8	88.9	88.4	84.8	83.2	81.1	143.9
1250	93.8	92.5	92.8	94.7	96.2	95.0	94.8	92.3	96.5	98.6	98.5	99.5	97.7	96.1	94.6	91.0	88.5	154.9
1600	92.4	91.2	91.9	93.7	94.9	93.8	93.7	91.4	95.0	96.9	96.9	97.9	96.5	95.6	94.0	90.5	87.7	153.8
2000	90.7	91.1	89.9	90.4	91.3	91.6	92.1	94.0	93.5	94.1	95.5	100.2	98.5	100.5	94.3	90.9	88.3	154.7
2500	91.8	93.5	91.5	92.0	92.9	93.6	93.7	95.0	94.6	94.9	96.4	101.2	99.5	102.3	96.5	93.6	89.7	156.2
3150	87.6	90.6	88.6	89.1	89.0	89.8	89.6	89.3	89.4	92.2	91.0	93.1	93.5	94.1	88.8	88.9	84.8	150.5
4000	90.9	87.8	92.1	92.2	92.4	88.8	90.8	92.6	90.3	95.3	94.5	95.1	97.4	93.3	90.6	87.8	88.8	153.2
5000	87.5	84.9	89.7	89.9	92.0	88.6	90.6	91.2	90.2	93.2	94.4	95.8	97.4	94.1	92.3	87.0	87.8	153.3
6300	83.8	85.7	85.9	85.9	90.4	83.7	89.4	87.9	89.6	88.6	93.3	97.1	94.9	94.7	90.6	87.0	83.4	153.1
8000	82.1	84.0	83.2	83.9	84.6	84.1	83.4	84.5	83.5	87.8	87.5	92.5	89.8	91.9	86.1	85.3	81.0	152.3
10000	78.3	79.7	80.7	80.6	83.7	79.7	81.4	82.7	82.0	84.5	87.2	88.5	88.7	87.3	83.6	82.3	79.0	149.5
OASPL MEASURED	102.3	102.1	102.4	103.1	104.1	103.3	103.7	103.9	104.4	106.2	106.6	109.2	108.7	109.0	105.3	102.8	101.1	
OASPL CALCULATED	100.6	100.5	100.7	101.5	102.6	101.8	102.1	102.2	103.0	104.8	105.2	107.8	107.1	107.5	104.0	101.9	99.9	
PNDB	113.7	114.6	114.5	114.9	115.5	115.1	115.4	116.1	116.2	117.9	118.3	121.7	120.9	122.0	117.7	115.1	112.5	
																	OAPWL	163.8

DIRECTIVITY INDEX

FREQ,																	
50	-8.3	-7.6	-7.2	-6.7	-5.6	-5.0	-4.9	-3.1	•3.4	-1.1	-1.4	0.5	1.7	2.4	3.8	5.5	2.9
63	-5.0	-5.2	-5.2	-5.7	-5.1	-3.3	-4.1	-3.1	•2.4	•0.9	-1.3	0.4	1.7	2.2	3.3	4.8	3.4
80	-3.4	-3.6	-4.2	-4.3	-3.3	-2.1	-2.2	-1.7	•0.9	•0.5	-0.9	0.8	1.9	2.1	2.3	2.1	2.0
100	-3.3	-3.2	-3.7	-3.4	-3.2	-1.1	-2.3	-1.0	•1.0	0.5	-0.7	0.5	1.8	1.9	2.3	0.6	0.6
125	-0.7	-1.0	-2.6	-1.6	-2.0	-2.0	-1.0	-0.3	•0.1	0.3	-1.3	-0.2	1.1	1.1	2.1	0.8	0.9
160	2.5	2.8	2.0	1.6	-1.4	-2.0	-0.6	-0.2	1.0	-1.0	-2.7	-1.2	-0.2	-0.1	1.8	0.9	-0.2
200	3.5	4.1	2.9	0.8	-1.0	-0.4	-0.9	-0.4	•0.6	-2.1	-3.1	-0.7	-0.7	1.7	1.0	1.2	0.9
250	-3.2	-2.9	-3.4	-3.1	-4.5	-4.9	-4.2	-3.5	•3.4	0.2	-1.9	-0.4	3.3	4.1	3.2	1.7	0.1
315	-7.3	-7.6	-7.1	-4.4	-4.1	-4.8	-3.9	-3.3	•2.7	0.3	-0.3	1.0	3.1	3.7	3.1	0.7	-1.5
400	-7.5	-7.6	-6.1	-3.8	-3.7	-4.1	-3.3	-3.2	•1.9	-0.1	0.0	1.4	2.8	3.6	2.8	-0.0	•2.3
500	-5.6	-6.4	-4.2	-3.3	-3.0	-3.7	-3.0	-1.7	•0.9	-0.2	0.0	1.5	2.7	3.4	1.7	-1.2	-4.0
630	-4.1	-4.2	-2.1	•2.2	-2.5	-2.8	-1.9	-0.4	•0.4	-0.4	-0.1	1.9	2.2	1.9	0.8	-1.2	-2.9
800	-2.1	-2.3	-1.7	•0.8	-1.2	-0.8	-1.7	-1.7	-1.4	-0.3	-0.4	1.3	2.2	2.2	0.6	-1.0	-2.4
1000	-3.9	-3.5	-1.7	-1.0	-1.3	-1.8	-1.1	-1.9	•1.1	-0.7	0.2	1.1	3.2	2.7	-0.9	-2.5	-4.6
1250	-2.7	-4.3	-3.7	-1.9	-0.4	-1.5	-1.7	-4.2	-0.0	2.0	1.9	3.0	1.1	-0.4	-2.0	-5.5	-8.0
1600	-2.9	-4.0	-3.3	•1.6	-0.3	-1.5	-1.6	-3.8	-0.2	1.7	1.6	2.7	1.3	0.4	-1.3	-4.8	-7.6
2000	-5.2	-4.8	-5.9	-5.5	-4.6	-4.3	-3.7	-1.8	•2.3	-1.8	-0.4	4.4	2.6	4.6	-1.5	-5.0	-7.6
2500	-5.4	-3.7	-5.7	-5.2	-4.2	-3.6	-3.5	-2.2	•2.6	•2.3	-0.8	4.0	2.3	5.1	-0.7	-3.6	-7.5
3150	-3.5	-0.6	-2.5	-2.0	-2.1	-1.3	-1.5	-1.8	•1.7	1.1	-0.1	2.0	2.3	3.0	-2.4	-2.3	-6.4
4000	-2.5	-5.6	-1.3	-1.2	-1.0	-4.5	-2.6	-0.8	-3.1	1.9	1.1	1.7	4.1	-0.1	-2.8	-5.6	-4.5
5000	-5.6	-8.2	-3.4	-3.2	-1.1	-4.5	-2.5	-1.8	-2.9	0.1	1.3	2.7	4.3	1.0	-0.8	-6.1	-5.3
6300	-8.2	-6.3	-6.1	-6.1	-1.7	-3.3	-2.6	-4.1	•2.4	-3.4	1.3	5.1	2.8	2.7	-1.5	-5.0	-8.6
8000	-5.7	-3.8	-4.6	-3.9	-3.2	-3.7	-4.4	-3.3	•4.3	•0.0	-0.3	4.7	2.0	4.1	-1.7	-2.5	-6.8
10000	-6.8	-5.4	-4.4	-4.5	-1.4	-5.4	-3.7	-2.4	•3.1	-0.6	2.1	3.4	3.6	2.2	-1.5	-2.8	-6.1

C24

RUN 5 3350 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 9 DAY 27 HR. 2.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
GUN..... 5,Pt. 46
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 76.0
(°K)..... 297.6
T WET BULB.....(°F)..... 68.0
(°K)..... 293.1
AFS. HUMIDITY...(gm/m³).. 14.9
(kg/m³).. 0.0149
PHYS. FAN SPEED (RPM).... 3484
(rad/sec) 364.8
CORR. FAN SPEED (RPM).... 3428
(rad/sec) 358.9
TAPE NUMBER..... P629

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	78.7	78.6	79.0	79.4	81.0	81.5	82.1	83.6	83.5	86.0	85.8	87.7	88.9	90.1	91.2	93.0	89.9	144.1
63	83.4	83.3	83.5	82.9	83.7	83.3	84.8	85.5	86.2	88.1	88.2	89.7	90.6	91.5	91.7	93.8	92.3	145.8
80	84.9	84.2	83.4	83.2	84.1	85.2	85.2	85.4	86.6	87.5	87.1	88.7	90.0	90.6	90.5	90.7	90.4	145.0
100	84.5	84.1	83.5	84.0	84.5	86.6	85.6	86.4	86.7	87.8	86.9	88.6	89.4	89.8	90.1	89.1	88.4	144.8
125	85.3	84.6	82.7	84.8	84.4	84.3	85.5	85.1	85.6	86.0	84.8	86.0	87.0	87.7	88.4	87.5	86.3	143.3
160	84.0	83.9	83.0	85.1	83.6	80.6	84.6	82.5	83.9	81.4	80.9	82.6	82.6	83.3	84.4	84.3	81.1	140.4
200	81.0	81.3	80.3	78.2	77.4	76.7	77.8	77.9	78.2	75.9	78.3	78.9	77.3	78.4	79.7	80.5	77.5	135.7
250	77.7	77.7	77.2	77.2	77.0	76.7	76.4	77.1	76.9	79.8	78.5	79.3	82.8	83.7	82.3	81.8	79.4	137.3
315	76.1	75.5	76.0	78.2	78.8	77.3	77.9	78.3	79.6	83.0	82.3	83.3	86.6	86.7	85.5	84.5	81.0	140.4
400	79.9	79.3	80.7	82.8	83.1	82.9	83.4	83.2	85.3	87.3	87.5	88.4	89.9	91.1	89.8	87.5	84.4	144.9
500	80.4	79.9	81.5	82.3	83.3	82.7	83.3	83.9	85.3	87.0	87.1	88.2	89.7	90.9	88.9	86.5	83.3	144.7
630	83.0	82.1	84.0	84.6	84.8	84.4	85.6	85.3	84.9	86.3	86.2	88.2	89.0	89.3	87.2	86.2	82.9	144.5
800	82.4	81.7	82.4	83.1	83.6	82.7	82.8	83.2	83.6	85.4	84.8	86.2	86.4	86.8	85.5	84.9	82.4	142.8
1000	83.2	83.1	85.0	86.7	86.3	85.1	85.4	84.8	85.1	86.3	86.7	87.9	89.1	88.9	86.1	85.3	82.3	144.8
1250	89.5	89.9	91.0	90.6	91.6	90.6	91.0	89.7	91.6	92.8	97.3	95.1	95.1	93.7	90.1	87.7	85.2	151.5
1600	95.2	96.6	96.7	96.6	98.0	96.4	97.1	95.0	98.7	99.5	105.2	101.7	101.4	98.5	96.3	93.2	90.6	158.3
2000	86.1	91.5	89.0	88.7	90.7	90.9	92.8	92.3	93.2	93.3	96.2	96.9	97.4	99.1	91.7	89.9	85.9	153.4
2500	90.8	98.0	93.8	92.3	95.3	95.5	100.0	96.2	96.7	98.0	104.5	102.5	104.4	108.7	99.7	97.6	92.0	160.8
3150	88.8	91.1	89.4	90.6	90.4	93.1	91.0	91.3	91.1	93.8	92.2	94.4	94.8	96.8	90.6	91.0	85.9	152.3
4000	90.9	86.9	91.9	92.0	92.4	89.3	91.4	94.1	92.7	96.7	95.1	95.8	97.3	94.0	90.7	88.2	88.9	153.9
5000	88.9	86.1	91.1	90.8	93.3	90.2	92.2	94.5	94.0	96.2	96.7	99.9	100.4	97.1	94.2	89.6	90.1	156.2
6300	84.7	86.0	87.2	87.0	91.5	89.8	90.9	90.5	92.5	91.3	95.6	98.7	97.2	97.3	92.9	89.4	85.1	155.2
8000	82.6	84.3	84.0	84.5	85.3	85.3	85.1	86.4	86.1	90.1	89.6	94.3	91.9	95.1	88.5	87.6	82.1	152.5
10000	79.2	80.3	82.3	81.7	84.6	80.7	82.8	85.1	85.0	87.1	89.1	90.2	90.9	90.2	85.8	84.5	80.4	151.6
OASPL MEASURED	102.4	104.0	103.6	103.5	105.1	104.1	105.7	105.0	105.8	107.2	110.4	110.2	110.8	112.0	106.5	104.7	102.1	
OASPL CALCULATED	100.7	102.7	102.1	102.0	103.5	102.7	104.4	103.4	104.4	105.9	109.6	108.8	109.4	111.0	105.3	103.8	101.0	
PNDB	113.9	117.1	115.4	115.2	116.9	116.5	119.1	117.4	118.0	119.5	123.3	122.8	123.9	126.2	119.7	117.9	113.9	
																	OAPWL	166.1

DIRECTIVITY INDEX

FREQ.																	
50	-8.5	-8.6	-8.2	-7.8	-6.2	-5.8	-5.2	-3.7	-3.8	-1.2	-1.5	0.4	1.7	2.8	3.9	5.8	2.7
63	-5.6	-5.6	-5.4	-6.1	-5.2	-5.6	-4.1	-3.4	-2.7	-0.8	-0.7	0.8	1.7	2.5	2.8	4.9	3.4
80	-3.1	-3.8	-4.6	-4.8	-3.9	-2.8	-2.8	-2.6	-1.4	-0.5	-0.9	0.7	2.0	2.6	2.5	2.7	2.4
100	-3.2	-3.5	-4.2	-3.7	-3.2	-1.1	-2.0	-1.3	-1.0	0.1	-0.8	0.3	1.7	2.1	2.4	1.4	0.8
125	-0.8	-1.5	-3.4	-1.3	-1.7	-1.8	-0.6	-0.9	-0.5	-0.1	-1.3	-0.1	0.9	1.6	2.3	1.4	0.2
160	0.8	0.8	-0.2	2.0	0.5	-2.6	1.4	-0.7	0.7	-1.8	-2.3	-0.5	-0.6	0.1	1.2	1.2	-2.1
200	2.6	2.9	1.9	-0.2	-0.9	-1.7	-0.6	-0.4	-0.2	-2.5	-0.1	0.5	-1.0	0.0	1.4	2.1	-0.9
250	-2.2	-2.2	-2.7	-2.7	-2.8	-3.2	-3.5	-2.7	-3.0	-0.0	-1.4	-0.5	2.9	3.8	2.4	2.0	-0.5
315	-6.7	-7.3	-6.8	-4.6	-4.0	-5.5	-4.9	-4.5	-3.2	0.2	-0.5	0.5	3.8	3.9	2.7	1.7	-1.8
400	-7.3	-7.9	-6.5	-4.4	-4.1	-4.3	-3.8	-4.0	-1.9	0.1	0.3	1.2	2.7	3.9	2.6	0.3	-2.8
500	-6.5	-7.0	-5.4	-4.6	-3.6	-4.2	-3.6	-3.0	-1.6	0.1	0.2	1.3	2.8	4.0	2.0	-0.4	-3.6
630	-3.6	-4.5	-2.6	-2.0	-1.8	-2.2	-1.0	-1.4	-1.8	-0.3	-0.4	1.6	2.4	2.7	0.6	-0.4	-3.7
800	-2.4	-3.1	-2.4	-1.7	-1.2	-2.1	-2.0	-1.6	-1.2	0.7	0.0	1.4	1.6	2.1	0.7	0.1	-2.4
1000	-3.5	-3.5	-1.7	0.1	-0.3	-1.5	-1.3	-1.8	-1.6	-0.3	0.1	1.2	2.4	2.3	-0.6	-1.4	-4.3
1250	-3.6	-3.3	-2.1	-2.5	-1.5	-2.5	-2.1	-3.4	-1.5	-0.3	4.2	2.0	2.0	0.6	-3.0	-5.4	-7.9
1600	-4.6	-3.2	-3.0	-3.1	-1.7	-3.3	-2.7	-4.8	-1.1	-0.3	5.4	2.0	1.6	-1.3	-3.5	-6.5	-9.2
2000	-8.4	-3.0	-5.5	-5.9	-3.8	-3.7	-1.8	-2.2	-1.4	-1.3	1.7	2.3	2.9	4.5	-2.9	-4.7	-8.7
2500	-11.0	-3.8	-8.0	-9.5	-6.5	-6.3	-1.8	-5.6	-5.1	-3.8	2.7	0.7	2.6	6.9	-2.1	-4.2	-9.8
3150	-4.1	-1.8	-3.5	-2.3	-2.5	0.2	-1.9	-1.6	-1.8	0.9	-0.7	1.5	1.9	3.9	-2.3	-1.9	-7.0
4000	-3.1	-7.2	-2.2	-2.1	-1.7	-4.7	-2.7	0.1	-1.4	2.7	1.0	1.7	3.2	-0.1	-3.4	-5.9	-5.2
5000	-7.1	-9.9	-5.0	-5.3	-2.7	-5.9	-3.8	-1.5	-2.0	0.2	0.6	3.9	4.4	1.0	-1.8	-6.4	-5.9
6300	-9.4	-8.1	-7.0	-7.1	-2.7	-4.3	-3.3	-3.6	-1.6	-2.8	1.4	4.5	3.1	3.2	-1.3	-4.7	-9.1
8000	-7.4	-5.7	-6.0	-5.5	-4.7	-4.7	-4.9	-3.6	-3.9	0.1	-0.4	4.3	1.9	5.1	-1.5	-2.4	-7.9
10000	-8.0	-7.0	-5.0	-5.5	-2.7	-6.5	-4.5	-2.1	-2.2	-0.1	1.9	2.9	3.7	2.9	-1.4	-2.7	-6.8

C25

RUN 5 3484 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.B.
DATE..... 9/4/68
RUN..... 5,Pt. A3
BAROMETER.....(in Hg)... 28.9
(N/m²)... 97818
T AMBIENT.....(°F)..... 78.0
(°K)..... 299.6
T WET BULB.....(°F)..... 68.0
(°K)..... 293.1
ABS. HUMIDITY...(gm/m³)... 14.9
(kg/m³)... 0.0149
PHYS. FAN SPEED (RPM).... 3473
(rad/sec) 363.6
CORR. FAN SPEED (RPM).... 3417
(rad/sec) 357.8
TAPE NUMBER..... P829

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																	PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	77.5	77.5	78.2	78.7	81.0	81.1	81.6	83.4	83.0	85.3	85.5	87.4	88.7	89.6	90.8	92.5	89.7	143.7
63	82.6	82.7	82.9	82.7	83.3	83.0	84.3	85.5	86.2	87.6	88.1	89.6	90.8	91.4	92.0	93.7	92.0	145.7
80	84.9	84.4	83.7	83.5	84.5	85.5	85.5	85.9	87.0	87.6	87.2	88.9	90.0	90.4	90.4	90.3	90.2	145.1
100	84.4	84.3	83.9	84.4	84.8	86.3	85.4	86.5	86.6	87.9	86.6	87.9	89.4	89.8	89.8	88.4	88.1	144.7
125	85.3	85.4	83.5	84.8	84.8	84.3	85.1	85.1	85.9	86.0	84.8	85.8	87.3	87.6	88.1	87.0	86.0	143.2
160	83.7	84.3	83.5	84.7	83.6	79.9	83.6	81.8	83.8	81.0	80.2	81.8	81.8	82.4	83.5	83.0	80.8	139.9
200	80.9	81.5	80.9	78.7	77.5	76.5	77.1	77.2	77.6	75.7	76.5	78.9	76.8	78.4	78.9	79.3	77.5	135.5
250	77.6	78.0	77.8	77.2	77.0	76.8	76.6	77.6	77.2	79.8	78.1	79.5	83.3	84.2	83.0	81.8	80.2	137.6
315	76.6	75.7	76.4	78.7	79.4	78.3	79.0	79.8	80.4	83.5	82.9	83.9	86.4	87.6	86.0	84.1	81.3	140.8
400	80.5	80.1	81.2	83.3	83.5	83.4	83.9	83.8	86.1	87.1	87.7	88.6	89.8	90.9	89.5	87.4	84.3	144.9
500	81.5	81.2	82.0	83.2	83.3	82.7	83.3	84.1	85.1	86.6	87.1	88.1	89.5	90.6	88.8	86.0	82.8	144.5
630	85.6	84.4	85.4	87.3	85.0	85.1	84.3	85.4	84.7	85.4	86.1	87.6	88.9	89.0	86.8	85.6	82.5	144.4
800	84.3	82.9	84.2	86.0	84.4	83.3	83.5	84.0	83.5	84.4	84.6	85.8	86.4	86.4	85.2	84.4	82.4	142.9
1000	84.0	84.3	87.0	88.5	87.2	86.3	86.4	85.9	85.6	86.2	87.2	87.7	89.3	89.0	86.2	84.9	82.4	145.3
1250	93.6	92.7	94.5	94.4	93.8	93.6	93.9	92.3	90.9	91.3	96.3	93.8	95.9	95.2	92.1	88.4	88.6	152.2
1600	99.6	98.6	100.5	100.2	99.5	99.5	99.8	97.9	95.6	96.1	102.8	97.8	101.6	99.3	98.1	93.8	94.6	157.9
2000	86.8	90.8	90.0	88.9	91.7	92.4	92.9	91.0	92.2	91.9	95.8	97.2	97.0	99.2	91.8	90.2	85.5	153.2
2500	90.1	94.8	94.5	93.3	97.7	98.8	99.4	94.6	96.6	97.4	103.7	104.2	103.7	107.9	99.4	97.9	91.6	160.6
3150	90.2	93.2	91.2	91.6	92.1	93.2	91.5	91.2	91.1	93.3	92.4	94.6	94.4	96.4	90.9	91.0	85.7	152.3
4000	92.3	88.5	93.6	93.6	93.7	90.5	91.9	94.3	92.0	96.4	95.5	95.7	97.2	94.3	90.7	88.1	88.9	154.1
5000	89.9	87.1	92.0	92.0	94.1	91.2	92.6	94.2	93.0	96.2	96.5	98.8	99.5	96.6	94.1	88.9	89.8	155.7
6300	86.3	87.2	88.6	88.0	92.4	90.9	91.5	90.5	91.8	91.2	95.7	98.8	97.0	97.2	92.7	89.0	84.7	155.2
8000	84.0	85.3	84.9	85.4	86.5	86.2	85.4	86.5	85.5	89.9	89.7	94.4	91.4	94.8	88.1	87.1	82.0	152.4
10000	80.7	81.3	83.0	82.7	85.9	81.9	83.4	85.2	84.3	87.1	89.3	90.5	90.4	89.9	85.5	84.2	80.1	151.6
OASPL MEASURED	104.4	104.6	105.6	105.6	106.3	106.1	106.5	105.2	104.9	106.4	109.5	109.8	110.4	111.5	106.6	104.3	102.5	
OASPL CALCULATED	103.9	103.1	104.3	104.2	104.9	104.7	105.1	103.8	103.4	104.9	108.5	108.6	109.1	110.5	105.5	103.7	101.5	
PNDB	116.2	116.1	117.4	117.3	118.6	118.7	119.2	117.2	117.6	118.9	122.8	123.5	123.5	125.7	119.7	117.9	113.9	
																	OAPWL	165.9

DIRECTIVITY INDEX

FREQ.																	
50	-9.4	-9.3	-8.7	-8.0	-5.8	-5.8	-5.2	-3.4	-3.8	-1.6	-1.4	0.6	1.8	2.7	4.0	5.7	2.9
63	-6.2	-6.1	-5.9	-6.1	-5.6	-5.8	-4.5	-3.3	-2.7	-1.2	-0.7	0.8	1.9	2.6	3.2	4.9	3.2
80	-3.1	-3.6	-4.3	-4.6	-3.6	-2.6	-2.5	-2.1	-1.1	-0.5	-0.9	0.8	2.0	2.3	2.4	2.3	2.2
100	-3.2	-3.3	-3.7	-3.2	-2.8	-1.2	-2.2	-1.1	-1.0	0.3	-1.0	0.3	1.8	2.3	2.2	0.8	0.5
125	-0.7	-0.6	-2.6	-1.3	-1.3	-1.7	-1.0	-0.9	-0.2	-0.1	-1.3	-0.2	1.3	1.6	2.0	1.0	-0.0
160	1.1	1.7	0.9	2.1	1.0	-2.7	1.0	-0.8	1.2	-1.6	-2.4	-0.8	-0.8	-0.2	0.9	0.4	-1.8
200	2.9	3.6	3.0	0.7	-0.4	-1.5	-0.9	-0.8	-0.4	-2.2	-1.5	1.0	-1.2	0.5	0.9	1.3	-0.5
250	-2.6	-2.2	-2.4	-3.0	-3.1	-3.4	-3.5	-2.0	-3.0	-0.3	-2.1	-0.7	3.1	4.0	2.8	1.6	0.0
315	-2.6	-7.6	-6.9	-4.6	-3.9	-5.0	-4.3	-3.5	-2.9	0.2	-0.4	0.6	3.2	4.3	2.7	0.8	-2.0
400	-6.8	-7.1	-6.1	-4.0	-3.8	-3.9	-3.4	-3.5	-1.1	-0.1	0.5	1.4	2.5	3.7	2.3	0.1	-2.9
500	-5.2	-5.5	-4.8	-3.5	-3.5	-4.1	-3.4	-2.6	-1.6	-0.1	0.3	1.3	2.7	3.9	2.0	-0.8	-4.0
630	-0.8	-2.1	-1.1	0.8	-1.5	-1.4	-2.2	-1.0	-1.8	-1.1	-0.4	1.1	2.5	2.6	0.3	-0.8	-3.9
800	-0.6	-1.9	-0.6	1.2	-0.4	-1.6	-1.4	-0.9	-1.3	-0.5	-0.2	0.9	1.5	1.5	0.3	-0.5	-2.5
1000	-3.1	-2.9	-0.1	1.3	0.1	-0.8	-0.7	-1.2	-1.5	-0.9	0.0	0.6	2.1	1.9	-1.0	-2.2	-4.7
1250	-0.2	-1.1	0.7	0.6	0.0	-0.2	0.1	-1.5	-2.9	-2.5	2.5	-0.0	2.1	1.4	-1.7	-3.4	-5.2
1600	0.2	-0.8	1.1	0.9	0.2	0.1	0.4	-1.5	-3.8	-3.3	3.5	-1.5	2.3	-0.1	-1.3	-3.6	-4.7
2000	-7.6	-3.7	-4.4	-5.5	-2.7	-2.0	-1.5	-3.4	-3.2	-2.5	1.4	2.8	2.6	4.8	-2.6	-4.3	-8.9
2500	-11.4	-6.7	-7.1	-8.2	-3.8	-2.8	-2.2	-7.0	-5.0	-4.2	2.1	2.6	2.2	6.3	-2.2	-3.7	-9.9
3150	-2.7	0.2	-1.8	-1.4	-0.9	0.2	-1.5	-1.8	-1.9	0.3	-0.6	1.6	1.4	3.5	-2.1	-2.0	-7.3
4000	-2.0	-5.7	-0.6	-0.7	-0.6	-3.8	-2.4	0.0	-2.2	2.2	1.2	1.5	2.9	0.0	-3.5	-6.2	-5.3
5000	-5.6	-8.5	-3.5	-3.5	-1.5	-4.4	-2.9	-1.4	-2.6	0.6	0.9	3.2	3.9	1.1	-1.5	-6.6	-5.8
6300	-7.9	-7.0	-5.6	-6.2	-1.8	-3.3	-2.6	-3.6	-2.4	-3.0	1.6	4.6	2.8	3.0	-1.5	-5.2	-9.5
8000	-6.0	-4.6	-5.0	-4.5	-3.5	-3.7	-4.6	-3.4	-4.4	0.0	-0.2	4.5	1.5	4.9	-1.8	-2.8	-7.9
10000	-6.5	-6.0	-4.2	-4.6	-1.4	-5.4	-3.9	-2.1	-3.0	-0.2	2.0	3.3	3.2	2.6	-1.7	-3.1	-7.2

RUN 5 3473 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5,Pt. 59
BAROMETER.....(in Hg).. 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 65.0
(°K)..... 291.5
ABS. HUMIDITY....(gm/m³).. 13.9
(kg/m³).. 0.0139
PHYS. FAN SPEED (RPM).... 3468
(rad/sec) 363.1
CORR. FAN SPEED (RPM).... 3429
(rad/sec) 359.0
TAPE NUMBER..... P632

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0. (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	77.5	78.3	78.8	79.5	81.1	81.6	82.1	83.8	83.7	86.2	85.7	87.7	89.0	89.6	91.2	93.1	90.2	144.1
63	82.6	82.7	82.9	82.5	83.6	85.0	84.7	85.6	86.3	87.9	87.5	89.3	90.4	91.2	92.0	93.9	92.1	145.7
80	84.0	84.1	83.3	83.1	84.4	85.5	85.5	86.0	87.1	87.6	87.1	88.9	89.9	90.2	90.8	90.6	90.5	145.1
100	84.1	84.5	83.7	84.0	84.7	86.3	85.2	86.4	86.4	87.9	86.7	87.8	88.9	89.3	89.7	88.3	88.6	144.5
125	84.5	84.6	82.6	84.0	83.9	83.9	84.3	85.0	85.5	85.5	84.1	85.0	86.4	86.8	88.0	86.4	86.6	142.7
160	82.7	83.6	82.4	82.0	80.2	78.9	79.9	80.3	82.0	78.9	78.3	79.6	80.1	80.1	82.0	81.8	81.9	137.9
200	79.9	81.1	79.8	77.4	76.8	76.5	76.0	76.4	76.3	75.8	74.6	76.4	78.3	79.6	79.2	79.3	78.5	134.9
250	76.4	77.2	76.6	77.0	77.7	76.6	76.2	77.8	77.8	81.7	79.6	81.3	84.6	84.7	84.9	83.1	80.6	138.7
315	77.3	77.5	78.2	80.7	81.5	80.7	81.1	81.8	82.8	85.8	85.2	86.7	88.3	88.5	88.5	86.0	83.6	142.9
400	78.7	79.5	80.9	83.0	83.3	83.7	84.4	83.9	86.2	87.6	87.8	88.9	89.9	90.7	90.3	87.7	85.2	145.1
500	79.3	79.5	81.7	82.4	82.9	82.8	83.2	84.4	85.8	86.5	87.0	88.2	88.6	89.6	88.2	85.8	83.6	144.2
630	82.2	82.2	83.9	84.6	82.5	83.7	83.6	85.9	85.9	85.4	85.8	86.9	87.0	87.1	86.2	85.1	83.8	143.5
800	81.1	80.5	83.4	84.5	86.5	84.2	84.6	82.9	84.2	84.5	84.7	85.3	86.8	86.7	85.6	84.7	82.1	143.1
1000	82.0	82.8	84.9	86.1	87.1	86.2	86.3	85.5	85.9	86.8	87.9	88.1	91.1	88.6	86.7	85.1	82.3	145.5
1250	88.5	90.0	93.0	92.3	93.1	91.3	92.3	93.3	91.5	91.1	94.1	92.5	93.2	93.5	90.0	87.2	85.9	150.7
1600	94.1	96.5	100.0	98.8	99.8	98.1	98.9	100.5	97.7	97.0	101.2	96.9	98.9	100.4	96.3	93.0	91.6	157.4
2000	85.0	90.3	88.8	87.9	90.0	90.8	93.1	93.0	92.3	91.8	94.6	97.2	95.0	95.9	91.0	89.5	86.1	152.2
2500	89.4	95.6	93.1	90.9	94.8	96.2	100.6	100.6	97.1	97.3	101.3	104.9	99.6	104.1	98.3	97.3	93.0	159.3
3150	87.8	91.0	89.1	90.5	90.0	91.1	90.4	91.0	90.3	93.3	92.1	93.8	94.0	95.0	90.2	90.6	86.0	151.5
4000	90.4	87.2	92.1	92.4	92.6	89.1	90.9	93.7	91.8	96.0	94.8	94.8	96.3	92.5	90.1	87.6	89.2	153.3
5000	88.5	85.7	90.9	90.9	93.1	89.8	91.8	93.4	92.7	95.7	96.0	97.8	99.2	95.3	93.6	88.7	90.0	155.0
6300	83.4	85.7	86.6	86.3	90.6	89.2	90.2	89.4	91.2	90.0	94.5	97.7	95.6	95.3	91.9	88.2	84.8	153.9
8000	81.9	83.9	83.7	84.2	84.7	84.6	84.2	85.8	85.3	89.3	88.9	93.5	90.5	92.9	87.7	86.9	82.5	151.3
10000	77.9	79.4	81.0	80.8	83.7	79.8	82.0	84.0	83.6	86.0	88.3	89.3	88.9	87.3	84.7	83.5	80.2	150.3
OASPL MEASURED	101.2	103.3	104.6	104.1	105.4	104.5	106.3	107.0	105.3	106.3	108.2	109.8	108.7	109.5	106.0	104.3	102.5	
OASPL CALCULATED	99.7	101.9	103.3	102.7	104.0	103.1	105.0	105.8	103.9	104.9	107.0	108.5	107.1	108.3	104.8	103.5	101.4	
PNDB	113.1	115.7	116.5	115.9	117.1	116.8	117.5	118.9	117.9	118.8	121.2	123.5	121.1	123.1	119.0	117.5	114.5	
																	OAPWL	165.0

DIRECTIVITY INDEX

FREQ,																	
50	-9.7	-8.9	-8.4	-7.8	-6.1	-5.7	-5.2	-3.4	-3.5	-1.0	-1.5	0.5	1.7	2.3	3.9	5.9	2.9
63	-6.3	-6.1	-5.9	-6.3	-5.2	-3.8	-4.2	-3.2	-2.5	-0.9	-1.3	0.5	1.6	2.4	3.2	5.1	3.3
80	-4.0	-4.0	-4.7	-5.0	-3.7	-2.6	-2.6	-2.1	-1.0	-0.4	-1.0	0.8	1.8	2.1	2.7	2.6	2.4
100	-3.3	-2.9	-3.8	-3.5	-2.7	-1.1	-2.3	-1.0	-1.0	0.4	-0.7	0.3	1.5	1.9	2.3	0.9	1.2
125	-1.0	-0.9	-2.9	-1.5	-1.6	-1.6	-1.2	-0.4	0.0	0.0	-1.4	-0.5	0.9	1.3	2.5	0.9	1.1
160	2.0	2.9	1.8	1.4	-0.4	-1.7	-0.8	-0.3	1.3	-1.7	-2.4	-1.1	-0.5	-0.5	1.4	1.2	1.2
200	2.4	3.5	2.3	-0.1	-0.7	-1.0	-1.5	-1.2	-1.2	-1.7	-2.9	-1.2	0.8	2.0	1.7	1.8	0.9
250	-4.8	-4.0	-4.6	-4.2	-3.6	-4.6	-5.0	-3.5	-3.4	0.5	-1.7	0.1	3.4	3.5	3.6	1.9	-0.7
315	-8.0	-7.8	-7.1	-4.6	-3.8	-4.6	-4.2	-3.5	-2.5	0.5	-0.1	1.4	3.0	3.2	3.2	0.7	-1.7
400	-8.8	-7.9	-6.5	-4.4	-4.1	-3.6	-3.0	-3.6	-1.3	0.2	0.4	1.5	2.5	3.2	2.8	0.2	-2.3
500	-7.1	-6.9	-4.8	-4.1	-3.5	-3.6	-3.2	-2.0	-0.6	0.1	0.6	1.8	2.2	3.1	1.8	-0.6	-2.8
630	-3.4	-3.4	-1.7	-1.0	-3.1	-1.9	-2.1	0.2	0.3	-0.2	0.2	1.3	1.4	1.4	0.6	-0.5	-1.8
800	-3.9	-4.5	-1.7	-0.6	1.4	-0.8	-0.4	-2.2	-0.9	-0.6	-0.4	0.2	1.7	1.7	0.5	-0.3	-2.9
1000	-5.4	-4.6	-2.4	-1.3	-0.2	-1.1	-1.0	-1.9	-1.5	-0.6	-0.6	0.7	3.8	1.3	-0.7	-2.2	-5.0
1250	-3.8	-2.3	0.6	-0.1	0.7	-1.1	-0.1	0.9	-0.9	-1.3	1.7	0.1	0.8	1.1	-2.4	-5.2	-6.5
1600	-4.8	-2.3	1.1	-0.0	0.9	-0.7	0.1	1.6	-1.1	-1.8	2.3	-1.9	0.0	1.6	-2.5	-5.8	-7.2
2000	-8.4	-3.1	-4.6	-5.5	-3.4	-2.6	-0.3	-0.4	-1.1	-1.6	1.2	3.8	1.6	2.4	-2.4	-3.9	-7.3
2500	-10.8	-4.7	-7.1	-9.3	-5.4	-4.1	0.4	0.3	-3.1	-2.9	1.1	4.7	-0.6	3.9	-1.9	-3.0	-7.3
3150	-4.3	-0.6	-3.0	-1.6	-2.1	-1.1	-1.7	-1.1	-1.8	1.1	-0.0	1.7	1.9	2.9	-1.9	-1.5	-6.1
4000	-3.0	-6.3	-1.4	-1.0	-0.8	-4.3	-2.5	0.3	-1.6	2.6	1.4	1.4	2.9	-0.9	-3.3	-5.8	-4.3
5000	-6.4	-9.1	-4.0	-4.0	-1.8	-5.1	-3.0	-1.5	-2.2	0.9	1.1	2.9	4.3	0.5	-1.2	-6.2	-4.9
6300	-9.4	-7.2	-6.3	-6.6	-2.3	-3.7	-2.7	-3.5	-1.7	-2.9	1.6	4.8	2.7	2.4	-1.0	-4.7	-8.1
8000	-6.9	-4.9	-5.2	-4.7	-4.1	-4.3	-4.6	-3.1	-3.5	0.4	0.1	4.7	1.6	4.0	-1.1	-2.0	-6.4
10000	-8.0	-6.5	-4.9	-5.2	-2.3	-6.1	-3.9	-1.9	-2.3	0.1	2.4	3.4	3.0	1.9	-1.2	-2.4	-5.7

C27

RUN 5 3468 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 9 DAY 27 HR. 2.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/4/68
RUN..... 5,Pt. 90
BAROMETER.....(in Hg)..29.0
(N/m²)...97928
T AMBIENT.....(°F)..... 76.0
(°K)..... 297.6
T WET BULB.....(°F)..... 68.0
(°K)..... 293.1
ABS. HUMIDITY...(gm/m3)..14.8
(kg/m3)..0.0140
PHYS. FAN SPEED(RPM)....3557
(rad/sec) 372.4
CORR. FAN SPEED(RPM)....3300
(rad/sec) 346.5
TAPE NUMBER..... P630

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																	PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	77.9	78.4	79.4	79.8	81.0	81.6	81.9	83.6	83.3	85.6	85.6	88.1	89.2	90.3	91.5	93.6	90.4	144.3
63	82.5	82.7	83.3	82.6	83.5	83.9	84.6	85.7	86.3	87.9	88.3	90.5	91.2	92.5	92.4	94.1	92.5	146.3
80	84.7	84.4	83.7	83.4	84.5	85.7	85.5	86.3	87.1	87.8	87.5	89.2	90.3	91.1	91.4	91.3	91.0	145.5
100	84.5	85.0	84.4	84.7	85.3	87.1	85.7	87.0	87.1	88.3	87.2	88.3	89.6	90.4	90.4	89.3	89.3	145.2
125	85.2	85.0	83.4	84.7	84.6	84.8	85.4	85.9	86.2	86.7	85.4	86.4	87.6	88.2	88.9	87.6	87.4	143.7
160	84.2	84.4	83.4	85.1	83.1	81.8	83.6	82.9	84.3	81.8	80.9	82.7	82.3	82.9	84.5	84.0	82.7	140.
200	80.9	81.7	81.1	78.6	77.6	76.3	77.6	78.3	78.2	76.3	76.9	79.4	77.3	79.6	79.2	79.8	78.8	135.9
250	77.9	77.9	77.9	77.4	78.7	77.5	76.8	77.9	77.2	80.5	78.6	80.5	83.4	84.8	83.1	81.8	80.8	138.1
315	76.0	76.2	77.6	79.7	80.9	79.4	80.2	80.7	81.3	84.4	84.1	85.5	87.3	88.2	87.2	84.9	83.1	141.9
400	80.5	81.5	82.0	83.9	84.6	84.3	84.3	84.3	85.9	87.6	87.9	89.4	90.3	91.9	90.3	88.0	85.5	145.5
500	81.1	81.1	82.8	83.3	83.7	83.6	84.0	85.3	86.1	87.6	88.1	89.0	90.2	91.7	89.6	87.0	84.2	145.4
630	85.3	83.5	84.7	85.0	84.8	84.4	86.7	86.2	86.9	86.8	86.9	88.9	89.1	89.8	88.4	86.3	84.5	145.2
800	83.5	82.0	84.6	85.7	84.3	85.2	83.5	84.0	84.6	85.1	84.8	86.2	87.5	88.0	85.8	84.2	83.0	143.5
1000	84.5	84.8	86.1	87.5	86.7	86.9	86.6	86.2	85.8	86.7	87.1	88.7	90.2	89.9	86.5	85.5	83.6	145.7
1250	89.3	90.1	91.1	92.0	91.3	91.9	91.3	90.0	90.8	89.4	93.3	93.8	92.8	91.9	88.6	87.5	85.4	149.9
1600	97.4	98.9	99.9	101.5	99.6	101.7	100.1	98.2	100.0	94.6	103.1	102.3	99.8	97.2	96.2	95.8	93.3	158.6
2000	87.0	90.2	89.6	88.9	91.7	91.7	91.9	91.7	93.1	91.6	93.5	96.1	95.5	95.2	91.0	88.7	85.3	151.8
2500	90.0	95.2	95.9	92.6	96.6	97.3	97.9	95.0	101.0	95.8	98.9	103.6	101.8	104.5	101.0	97.5	92.7	159.0
3150	88.9	92.5	90.4	91.4	91.6	92.2	91.4	91.1	90.9	93.6	92.3	94.9	94.2	96.6	90.6	90.7	86.0	152.2
4000	91.0	87.7	92.5	92.6	92.5	89.3	91.2	94.2	92.2	96.6	95.1	95.3	96.6	93.2	90.0	87.4	88.5	153.7
5000	89.0	86.7	91.4	91.2	93.6	90.8	92.3	94.2	94.0	96.7	98.4	100.6	100.0	96.6	93.8	88.8	89.6	156.5
6300	84.9	86.5	87.6	87.1	91.7	90.4	91.2	90.6	92.2	91.0	95.8	98.8	96.5	96.8	92.6	89.0	85.2	155.1
8000	83.1	84.8	84.1	84.8	85.6	85.8	85.1	86.7	86.1	90.2	89.6	94.7	91.2	94.7	88.1	87.1	82.5	152.4
10000	79.6	80.7	82.1	81.8	84.9	81.4	83.0	85.3	84.9	87.1	89.4	90.8	90.2	89.8	85.5	84.3	81.0	151.4
OASPL MEASURED	102.8	104.1	105.1	105.5	105.7	106.2	105.9	105.3	106.9	106.1	108.4	110.4	109.5	109.5	106.6	104.6	102.3	
OASPL CALCULATED	101.4	102.9	103.8	104.4	104.4	105.1	104.6	103.9	105.8	104.6	107.5	109.3	108.1	108.5	105.7	104.0	101.7	
PNDB	114.7	116.0	116.9	117.6	117.8	118.1	118.3	117.3	120.2	118.8	120.5	123.5	122.4	123.6	120.4	117.8	114.5	
																	OAPWL	165.6

DIRECTIVITY INDEX

FREQ.																	
50	-9.6	-9.1	-8.1	-7.7	-6.5	-5.9	-5.6	-3.9	-4.2	-1.9	-1.8	0.6	1.7	2.8	4.1	6.1	3.0
63	-6.9	-6.6	-6.1	-6.7	-5.8	-5.4	-4.8	-3.7	-3.0	-1.5	-1.0	1.2	1.9	3.2	3.0	4.7	3.2
80	-3.9	-4.1	-4.8	-5.2	-4.0	-2.8	-3.0	-2.2	-1.4	-0.7	-1.0	0.7	1.8	2.5	2.9	2.8	2.5
100	-3.6	-3.1	-3.7	-3.4	-2.8	-1.0	-2.4	-1.1	-1.0	0.2	-0.9	0.2	1.5	2.3	2.3	1.2	1.1
125	-1.4	-1.5	-3.2	-1.9	-2.0	-1.7	-1.2	-0.7	-0.4	0.1	-1.2	-0.2	1.0	1.6	2.4	1.1	0.8
160	0.9	1.2	0.2	1.8	-0.1	-1.4	0.3	-0.3	1.1	-1.4	-2.3	-0.5	-0.9	-0.3	1.3	0.8	-0.5
200	2.4	3.2	2.6	0.2	-0.9	-2.0	-0.8	-0.2	-0.3	-2.2	-1.6	0.9	-1.2	1.2	0.7	1.3	0.3
250	-2.7	-2.7	-2.7	-3.2	-1.9	-3.1	-3.8	-2.7	-3.4	-0.2	-2.0	-0.1	2.8	4.2	2.5	1.2	0.2
315	-8.3	-8.1	-6.7	-4.6	-3.4	-4.9	-4.1	-3.6	-3.0	0.1	-0.2	1.2	3.0	3.9	2.9	0.6	-1.2
400	-7.3	-6.4	-5.8	-4.0	-3.3	-3.5	-3.6	-3.6	-1.9	-0.3	0.0	1.5	2.5	4.0	2.5	0.1	-2.4
500	-6.6	-6.6	-4.9	-4.4	-4.0	-4.1	-3.7	-2.4	-1.5	-0.1	0.5	1.4	2.6	4.0	1.9	-0.7	-3.4
630	-2.0	-3.8	-2.6	-2.3	-2.5	-2.8	-0.6	-1.1	-0.4	-0.5	-0.3	1.6	1.8	2.5	1.1	-1.0	-2.8
800	-2.0	-3.5	-0.9	0.2	-1.2	-0.3	-1.9	-1.5	-0.9	-0.4	-0.7	0.7	2.0	2.5	0.3	-1.3	-2.5
1000	-3.0	-2.7	-1.4	-0.1	-0.9	-0.6	-0.9	-1.3	-1.7	-0.8	-0.5	1.2	2.7	2.4	-1.0	-2.0	-3.9
1250	-2.2	-1.5	-0.5	0.5	-0.2	0.4	-0.3	-1.6	-0.7	-2.2	1.7	2.2	1.2	0.3	-2.9	-4.1	-6.1
1600	-2.7	-1.1	-0.1	1.5	-0.5	1.7	0.0	-1.9	-0.0	-5.4	3.1	2.3	-0.2	-2.8	-3.8	-4.3	-6.7
2000	-6.0	-2.9	-3.4	-4.1	-1.4	-1.4	-1.2	-1.4	0.1	-1.5	0.4	3.1	2.5	2.2	-2.0	-4.4	-7.8
2500	-10.0	-4.9	-4.2	-7.4	-3.4	-2.7	-2.1	-5.0	0.9	-4.2	-1.1	3.6	1.8	4.5	1.0	-2.6	-7.3
3150	-4.0	-0.4	-2.5	-1.4	-1.3	-0.7	-1.5	-1.7	-2.0	0.7	-0.6	2.0	1.3	3.7	-2.3	-2.2	-6.9
4000	-2.8	-6.1	-1.3	-1.3	-1.3	-4.5	-2.6	0.4	-1.6	2.7	1.3	1.5	2.8	-0.6	-3.8	-6.4	-5.3
5000	-7.4	-9.6	-4.9	-5.1	-2.7	-5.5	-4.0	-2.1	-2.3	0.4	2.1	4.3	3.7	0.3	-2.5	-7.5	-6.7
6300	-9.1	-7.5	-6.4	-6.9	-2.3	-3.6	-2.8	-3.4	-1.8	-3.0	1.8	4.8	2.5	2.8	-1.4	-5.1	-8.8
8000	-6.8	-5.2	-5.8	-5.2	-4.3	-4.1	-4.8	-3.2	-3.9	0.2	-0.2	4.7	1.2	4.7	-1.8	-2.8	-7.5
10000	-7.7	-6.5	-5.2	-5.5	-2.3	-5.8	-4.2	-2.0	-2.4	-0.1	2.2	3.6	2.9	2.5	-1.7	-2.9	-6.3

C28

RUN 5 3557 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC, DATE - MONTH 9 DAY 27 HR, 1.8

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5,Pt. 57
BAROMETER.....(in Hg) . 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 65.0
(°K)..... 291.5
ABS. HUMIDITY...(gm/m³).. 13.9
(kg/m³).. 0.0139
PHYS. FAN SPEED (RPM).... 3562
(rad/sec) 372.9
CORR. FAN SPEED (RPM).... 3521.5
(rad/sec) 368.7
TAPE NUMBER..... P631

FREQ,	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	77.8	78.7	79.2	79.8	81.2	82.3	82.6	84.2	83.7	85.7	85.6	88.1	89.4	90.3	92.1	93.9	90.9	144.6
63	83.5	83.4	83.6	82.9	83.5	85.2	84.8	[illegible]	86.6	88.1	87.7	89.7	91.3	91.7	92.5	94.5	92.8	146.2
80	85.2	84.9	84.0	83.6	84.7	86.0	85.9	86.1	87.3	88.1	87.4	89.2	90.4	90.9	91.2	91.1	91.3	145.5
100	85.0	85.0	84.3	84.9	85.3	87.1	86.2	87.3	87.4	88.5	87.3	88.7	89.9	89.9	90.3	89.4	89.4	145.3
125	85.5	85.3	84.1	84.8	84.4	86.5	85.2	85.6	86.1	86.2	84.5	85.9	87.3	87.2	88.2	87.4	87.5	143.3
160	84.5	84.6	83.3	84.5	82.7	80.2	81.7	82.5	84.2	80.8	79.4	81.3	82.0	81.6	83.1	83.4	82.2	139.6
200	80.7	81.5	80.2	78.4	77.2	76.9	77.1	78.1	77.5	76.4	75.1	77.0	78.5	80.6	80.4	79.8	78.9	135.7
250	77.0	77.7	77.1	77.7	79.0	78.6	77.3	78.3	78.3	82.2	79.5	81.8	84.6	86.2	85.4	82.8	81.3	139.3
315	78.1	78.0	79.1	81.9	82.6	82.7	82.7	82.4	83.3	86.5	85.6	87.2	88.5	89.9	89.0	86.2	84.5	143.6
400	79.8	80.2	82.3	84.4	85.2	86.9	86.0	85.3	86.5	88.2	[illegible]	89.5	90.4	91.9	90.6	88.3	85.8	145.9
500	80.8	80.6	82.4	82.7	83.3	85.2	84.4	85.9	86.6	87.4	87.6	89.1	89.9	90.5	88.5	86.7	84.2	145.1
630	85.1	84.9	85.3	83.8	83.2	84.4	84.9	85.8	86.9	86.5	86.0	88.3	88.6	87.9	87.0	86.0	85.1	144.4
800	82.7	82.6	84.2	85.4	85.4	86.5	86.8	84.3	84.9	85.5	84.5	86.5	86.3	87.8	86.1	85.1	83.3	143.9
1000	84.4	84.5	86.1	87.2	86.7	87.2	88.6	87.4	86.8	87.1	87.2	89.8	91.3	89.7	86.7	85.6	84.1	146.3
1250	87.8	88.5	90.7	90.6	90.7	90.3	90.8	89.9	89.5	89.7	90.4	91.6	92.4	90.9	87.9	86.6	84.7	148.8
1600	96.5	97.9	100.2	100.7	99.9	98.7	99.7	98.5	96.0	96.8	97.5	98.4	101.6	99.9	95.4	92.2	92.3	157.5
2000	85.6	89.8	88.3	88.2	90.2	91.5	92.1	91.8	92.6	91.1	93.2	95.2	94.6	94.0	89.4	88.6	85.3	151.2
2500	90.7	97.5	94.3	92.2	94.7	96.9	99.5	96.6	99.6	98.8	101.0	101.1	100.5	103.9	96.9	98.2	94.0	158.3
3150	88.6	91.8	89.6	90.5	90.3	91.5	91.3	90.9	91.[illegible]	93.5	91.9	94.5	94.2	95.2	89.8	90.9	86.1	151.7
4000	90.3	87.0	91.4	91.9	92.0	89.0	91.1	93.6	91.9	96.1	94.7	94.7	96.7	92.1	89.3	87.3	88.7	153.2
5000	88.6	86.8	90.9	91.1	93.2	90.6	92.6	93.9	93.4	96.3	98.2	98.7	100.3	95.8	93.3	88.9	90.0	155.9
6300	83.8	85.8	86.4	86.3	90.8	89.6	90.7	89.9	91.7	90.1	94.9	97.6	95.9	95.3	91.4	88.4	85.0	154.1
8000	82.4	84.4	83.7	84.5	85.2	85.2	85.0	[illegible]	86.0	89.6	90.0	94.0	91.1	93.4	87.1	87.2	83.0	151.8
10000	78.4	79.8	80.9	81.0	84.1	80.5	82.7	84.6	84.2	86.0	89.1	89.7	89.8	88.4	84.4	83.7	80.5	150.8
OASPL MEASURED	102.4	104.3	104.7	105.0	105.3	105.2	105.3	105.7	105.8	106.1	108.0	108.9	109.7	109.3	105.5	104.7	103.0	
OASPL CALCULATED	100.9	102.9	103.5	103.7	104.9	105.7	105.0	104.2	104.4	104.6	106.7	107.4	108.1	108.1	104.3	103.9	101.9	
PNDB	114.1	116.9	116.7	117.0	117.2	117.5	117.2	117.9	119.2	118.6	121.0	121.8	121.8	123.0	118.1	118.0	115.1	
																	OAPWL	164.9

DIRECTIVITY INDEX

FREQ,																
50	-9.9	-9.1	-8.6	-7.9	-8.6	-9.4	-9.1	-8.5	-4.1	-2.1	-2.1	0.3	1.6	2.5	4.4	6.1	3.2
63	-5.8	-5.9	-5.6	-6.4	-5.8	-4.1	-4.5	-3.1	-2.7	-1.2	-1.6	0.4	2.0	2.4	3.2	5.2	3.6
80	-3.3	-3.6	-4.5	-4.9	-3.8	-2.5	-2.7	-2.4	-1.2	-0.4	-1.1	0.6	1.9	2.4	2.6	2.6	2.7
100	-3.2	-3.2	-3.9	-3.3	-2.9	-1.1	-2.0	-0.9	-0.8	0.3	-0.9	0.5	1.7	1.7	2.1	1.2	1.2
125	-0.7	-0.9	-3.0	-1.4	-1.7	-1.7	-1.0	-0.5	-0.0	0.0	-1.6	-0.2	1.1	1.0	2.1	1.2	1.3
160	2.2	2.2	1.0	2.2	0.3	-2.1	-0.6	0.2	1.8	-1.6	-2.9	-1.0	-0.4	-1.3	0.7	1.1	-0.1
200	2.4	3.2	1.9	0.1	-1.1	-1.4	-1.2	-0.2	-0.8	-1.9	-3.2	-1.3	0.2	2.3	2.1	1.5	0.6
250	-4.9	-4.1	-4.8	-4.1	-2.3	-3.0	-4.5	-3.6	-3.6	0.3	-2.3	-0.0	2.8	4.4	3.6	1.0	-0.5
315	-7.9	-8.0	-6.9	-4.1	-3.4	-3.3	-3.3	-3.6	-2.7	0.5	-0.4	1.2	2.4	3.9	3.0	0.2	-1.6
400	-8.5	-8.0	-6.0	-3.9	-3.0	-1.3	-2.3	-3.0	-1.8	-0.1	-0.2	1.3	2.1	3.6	2.4	0.0	-2.5
500	-6.5	-6.7	-4.9	-4.6	-4.0	-3.1	-3.0	-1.4	-0.7	0.0	0.3	1.7	2.5	3.2	1.2	-0.6	-3.1
630	-1.5	-1.6	-1.2	-2.8	-3.4	-2.1	-1.7	-0.7	0.3	-0.0	-0.5	1.7	2.1	1.4	0.4	-0.5	-1.4
800	-3.1	-3.1	-1.6	-0.5	-0.4	0.4	1.0	-1.5	-1.0	-0.4	-1.2	0.7	0.5	2.0	0.3	-0.8	-2.5
1000	-3.8	-3.7	-2.1	-0.9	-1.5	-1.0	0.4	-0.8	-1.3	-1.1	-0.5	1.6	3.1	1.5	-1.4	-2.5	-4.1
1250	-2.6	-1.9	0.3	0.2	0.3	-0.1	0.4	-0.5	-0.9	-0.7	-0.0	1.2	2.0	0.5	-2.5	-4.8	-5.7
1600	-2.4	-1.0	1.3	1.8	1.0	-0.2	0.8	-0.4	-2.9	-2.1	0.6	-0.4	2.7	1.0	-3.5	-6.7	-6.6
2000	-6.8	-2.6	-4.1	-4.2	-2.2	-0.9	-0.3	-0.5	0.2	-1.3	0.8	2.9	2.2	1.6	-3.0	-3.7	-7.1
2500	-8.5	-1.0	-5.0	-7.0	-4.5	-2.4	0.2	-2.7	0.3	-4.5	1.8	1.9	1.2	4.6	-2.3	-1.1	-5.3
3150	-3.8	-0.6	-2.8	-1.9	-2.1	-0.9	-1.1	-1.5	-1.4	1.1	-0.5	2.1	1.8	2.8	-2.6	-1.5	-6.3
4000	-3.1	-0.4	-1.9	-1.5	-1.4	-4.4	-2.2	0.2	-1.4	2.7	1.4	1.3	3.3	-1.2	-4.0	-6.1	-4.6
5000	-7.2	-8.9	-4.8	-4.7	-2.6	-5.2	-3.2	-1.8	-2.3	0.5	2.4	3.0	4.5	0.0	-2.5	-6.9	-5.8
6300	-9.2	-7.2	-6.6	-6.7	-2.2	-3.4	-2.3	-3.2	-1.3	-2.9	1.9	4.6	2.9	2.2	-1.6	-4.6	-8.1
8000	-7.0	-5.0	-5.7	-4.9	-4.2	-4.2	-4.3	-2.8	-3.4	0.2	0.7	4.6	1.7	4.0	-2.3	-2.2	-6.4
10000	-8.1	-8.6	-5.5	-5.4	-2.4	-5.9	-3.7	-1.8	-2.2	-0.4	2.7	3.2	3.3	2.0	-2.1	-2.8	-5.9

C29

RUN 5 3562 RPM

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 9 DAY 27 HR. 1,8

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.B.
DATE..... 9/4/68
RUN..... 5,Pt. 8A
BAROMETER..... (in Hg)... 29.0
(N/m²)... 97858
T AMBIENT..... (°F)..... 74.0
(°K)..... 296.3
T WET BULB..... (°F)..... 68.0
(°K)..... 293.1
ABS. HUMIDITY... (gm/m³)... 13.7
(kg/m³)... 0.0183
PWTR. FAN SPEED (RPM)..... 3662
(rad/sec) 383.4
COMB. FAN SPEED (RPM)..... 3610
(rad/sec) 378.0
TAPE NUMBER..... P630

FREQ,	ANGLES FROM INLET 0, (.0)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50,0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90,0 (1.57)	100,0 (1.74)	110,0 (1.92)	120,0 (2.09)	130,0 (2.27)	140,0 (2.44)	150,0 (2.62)	160,0 (2.79)	PWL
50	78,6	79,3	80,1	80,3	81,4	81,9	82,6	84,3	84,1	86,4	86,6	88,7	90,1	91,6	93,1	94,9	91,7	145,4
63	83,2	83,4	83,7	83,1	84,2	84,7	85,2	86,5	87,0	88,6	88,6	90,8	92,1	93,1	93,9	95,7	94,2	147,2
80	85,4	85,1	84,3	83,9	85,2	86,3	86,1	86,4	87,7	88,4	88,6	90,1	91,3	92,2	92,7	92,4	92,3	146,4
100	85,5	85,7	85,1	85,4	86,1	87,8	86,7	87,6	87,7	88,9	88,2	89,6	90,9	91,6	91,3	90,5	90,8	146,2
125	86,1	86,3	84,6	85,5	85,3	85,8	86,2	86,7	87,3	87,7	86,2	87,3	88,1	89,2	89,7	88,6	88,3	144,6
160	85,0	85,3	84,4	85,2	82,9	84,8	83,4	84,0	84,6	82,7	81,5	83,9	82,9	83,9	85,6	84,4	83,4	141,2
200	81,5	82,5	81,8	79,7	79,1	77,8	78,6	79,1	79,3	77,2	78,4	80,2	79,0	82,5	81,3	81,6	81,3	137,3
250	78,1	78,9	78,6	78,9	78,4	78,6	79,9	79,8	79,5	82,0	80,5	82,0	85,6	87,7	85,8	85,0	82,8	140,3
315	77,8	77,1	78,3	80,0	81,6	82,8	81,9	82,8	83,7	86,5	86,6	87,6	90,3	91,6	90,1	88,9	85,9	144,5
400	82,3	81,1	82,4	85,1	87,0	87,4	85,7	86,6	87,8	89,3	89,6	90,7	92,0	93,6	91,7	89,6	86,7	147,2
500	81,1	81,5	82,6	83,6	84,2	84,7	84,9	86,6	87,4	88,6	88,9	90,1	91,1	92,5	90,5	88,1	85,1	146,4
630	84,0	84,1	83,7	85,5	85,7	86,1	85,8	87,1	87,9	87,8	87,6	89,6	90,3	91,0	89,8	87,6	85,1	146,1
800	83,4	83,5	85,1	85,4	86,0	85,9	86,1	85,9	85,5	85,5	85,6	86,5	88,1	89,2	87,6	86,4	84,4	144,6
1000	85,7	85,9	87,8	88,4	88,8	89,3	90,7	88,9	87,5	87,4	88,5	90,0	91,7	91,9	88,8	87,2	84,6	147,6
1250	86,8	87,3	88,9	88,5	89,5	89,1	90,4	89,6	89,5	90,0	90,2	93,2	92,3	91,6	88,9	86,4	83,9	148,7
1600	97,2	97,5	96,4	99,3	100,7	99,0	102,0	99,9	99,4	100,3	100,2	101,3	100,1	100,5	95,3	93,0	90,8	158,4
2000	86,2	89,5	88,6	88,7	90,9	91,8	92,0	91,5	92,6	91,0	93,0	95,4	95,0	94,1	89,9	88,1	85,1	151,3
2500	91,0	95,6	92,9	91,5	95,7	98,4	100,5	96,7	103,9	95,4	102,2	102,6	104,7	103,4	99,5	97,4	94,7	160,0
3150	80,8	91,2	89,4	90,3	90,5	92,1	91,3	91,8	91,7	93,7	93,0	95,4	95,7	96,2	91,3	91,6	86,6	152,5
4000	90,2	87,1	91,4	91,3	92,0	89,5	91,4	94,5	92,7	96,4	94,9	95,6	96,4	93,2	90,4	87,8	89,0	153,6
5000	89,4	85,5	90,9	91,7	93,7	91,2	93,4	94,6	94,6	97,2	97,6	100,3	100,7	97,0	94,5	89,6	90,6	156,7
6300	84,6	86,2	86,9	86,8	91,3	90,6	91,6	91,4	93,1	91,5	95,9	99,1	97,1	97,2	93,5	89,5	85,8	155,4
8000	82,8	84,6	85,6	84,3	85,5	86,3	85,8	87,5	87,1	90,8	90,3	95,6	92,0	94,8	88,6	87,7	83,0	153,0
10000	79,1	80,2	81,3	81,2	84,7	81,7	83,5	86,1	85,8	87,4	89,8	91,0	90,7	90,9	86,3	84,9	81,5	152,0
OASPL MEASURED	102,8	103,7	103,4	104,4	105,9	105,8	107,5	106,4	108,3	107,2	108,6	110,2	110,7	110,3	107,0	105,1	103,2	
OASPL CALCULATED	101,4	102,3	101,9	103,0	104,6	104,4	106,2	105,0	107,1	105,9	107,3	108,9	109,3	108,8	105,8	104,5	102,6	
PNDB	114,6	116,0	115,2	116,3	117,8	118,5	120,0	118,4	122,1	119,3	121,9	123,1	124,1	123,4	120,0	118,0	115,7	
																	OAPWL	166,0

DIRECTIVITY INDEX

FREQ,																	
50	-10,0	-9,2	-8,5	-8,2	-7,2	-6,8	-6,0	-4,3	-4,5	-2,1	-2,0	0,2	1,6	3,0	4,5	6,3	3,1
63	-7,1	-6,9	-6,6	-7,2	-6,1	-5,6	-5,1	-3,7	-3,3	-1,7	-1,6	0,6	1,8	2,8	3,6	5,4	3,9
80	-4,0	-4,3	-5,1	-5,5	-4,2	-3,2	-3,4	-3,0	-1,7	-1,0	-0,9	0,7	1,9	2,8	3,3	3,0	2,9
100	-3,6	-3,4	-4,0	-3,6	-3,0	-1,2	-2,4	-1,5	-1,4	-0,1	-0,9	0,5	1,8	2,5	2,2	1,4	1,7
125	-1,4	-1,2	-2,9	-1,9	-2,2	-1,6	-1,2	-0,8	-0,1	0,2	-1,2	-0,2	0,7	1,7	2,2	1,2	0,9
160	1,0	1,4	0,5	1,3	-1,0	0,1	-0,5	0,0	0,7	-1,2	-2,4	0,0	-1,0	-0,0	1,7	0,5	-0,5
200	1,6	2,0	1,9	-0,3	-0,8	-2,2	-1,3	-0,8	-0,6	-2,7	-1,5	0,2	-0,9	2,6	1,3	1,7	1,4
250	-4,7	-3,9	-4,2	-3,9	-4,4	-4,2	-2,9	-3,0	-3,3	-0,8	-2,3	-0,8	2,8	4,9	3,0	2,2	0,1
315	-0,2	-0,8	-0,6	-7,0	-3,3	-4,4	-3,0	-4,2	-3,3	-0,4	-0,4	0,6	3,3	4,6	3,2	1,0	-1,1
400	-7,3	-8,4	-7,1	-4,5	-2,5	-2,1	-3,9	-3,0	-1,7	-0,2	0,1	1,1	2,4	4,1	2,2	0,0	-2,8
500	-7,5	-7,0	-6,0	-4,9	-4,4	-3,9	-3,7	-2,0	-1,2	0,0	0,3	1,5	2,5	3,9	1,9	-0,5	-3,5
630	-4,3	-4,1	-2,5	-2,7	-2,5	-2,1	-2,4	-1,1	-0,3	-0,4	-0,6	1,4	2,1	2,8	1,6	-0,6	-3,1
800	-3,2	-3,1	-1,5	-1,1	-0,6	-1,0	-0,4	-0,6	-1,0	-1,0	-1,0	-0,0	1,5	2,7	1,1	-0,2	-2,2
1000	-3,7	-3,9	-1,6	-1,0	-0,6	-0,1	1,3	-0,5	-1,9	-2,0	-0,9	0,6	2,3	2,5	-0,6	-2,2	-4,8
1250	-3,6	-3,1	-1,5	-1,8	-0,8	-1,3	0,0	-0,7	-0,9	-0,4	-0,2	2,9	1,9	1,2	-1,5	-3,9	-6,5
1600	-2,7	-2,4	-3,4	-0,6	0,8	-0,8	2,2	-0,0	-0,5	0,4	0,3	1,4	0,2	0,6	-4,6	-6,9	-9,1
2000	-6,3	-3,0	-3,9	-3,8	-1,5	-0,6	-0,5	-1,0	0,1	-1,5	0,5	2,9	2,5	1,7	-2,6	-4,4	-7,4
2500	-9,9	-5,3	-8,0	-9,5	-5,3	-2,5	-0,5	-4,2	3,0	-5,5	1,2	1,6	3,7	2,4	-1,4	-3,6	-6,2
3150	-4,4	-1,9	-3,7	-2,9	-2,6	-1,1	-1,9	-1,4	-1,5	0,5	-0,2	2,2	2,3	3,0	-1,9	-1,6	-6,6
4000	-3,5	-0,6	-2,4	-2,4	-1,8	-4,3	-2,3	0,8	-1,0	2,6	1,1	1,8	2,6	-0,5	-3,4	-6,0	-4,8
5000	-7,1	-10,0	-5,6	-4,9	-2,8	-5,4	-3,1	-1,9	-0,7	1,3	3,8	4,2	0,5	-2,0	-6,9	-5,9	
6300	-9,8	-8,2	-7,4	-7,6	-3,1	-3,7	-2,8	-3,0	-1,2	-2,9	1,5	4,7	2,7	2,8	-0,9	-4,9	-8,6
8000	-7,7	-9,9	-6,9	-6,2	-5,0	-4,2	-4,7	-3,1	-3,4	0,2	-0,2	5,1	1,5	4,3	-1,9	-2,8	-7,5
10000	-8,5	-7,4	-6,3	-6,4	-2,9	-5,9	-3,1	-1,5	-1,8	-0,2	2,2	3,4	3,1	2,4	-1,3	-2,7	-6,1

C30

RUN 5 3662 RPM

NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC, DATE - MONTH 9 DAY 27 HR. 1.8

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F
LOCATION..... P.F.G.
DATE..... 9/4/68
RUN..... 5.Pt. 55
BAROMETER.....(in Hg).. 28.9
(N/m²).. 97390
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 65.0
(°K)..... 291.5
ABS. HUMIDITY...(gm/m³).. 13.9
(kg/m³).. 0.0139
PHYS. FAN SPEED (RPM).... 3650
(rad/sec) 382.2
CORR. FAN SPEED (RPM).... 3609
(rad/sec) 377.8
TAPE NUMBER..... P631

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	81.4	79.0	77.7	80.3	81.8	82.7	83.1	84.3	84.2	86.4	86.8	88.5	89.7	91.1	92.2	94.5	91.3	145.1
63	85.2	83.4	83.8	83.5	84.6	85.0	85.7	86.7	87.5	88.9	89.3	91.0	91.6	92.9	93.4	95.8	93.6	147.2
80	86.2	84.7	84.1	84.0	85.1	86.3	86.3	86.8	87.9	88.5	88.6	90.0	91.1	91.8	92.1	92.5	92.0	146.3
100	87.3	85.6	84.9	85.3	86.2	86.0	86.8	87.7	87.9	89.3	88.2	89.4	90.3	91.0	91.2	90.0	90.3	146.1
125	88.3	86.0	84.1	85.6	85.2	85.4	85.9	86.0	86.7	87.4	86.4	87.3	88.2	88.6	89.2	87.6	88.3	144.3
160	87.2	84.7	83.7	85.6	84.4	83.9	82.7	83.9	84.1	82.1	82.3	83.8	82.9	82.3	84.4	83.7	83.7	141.0
200	84.4	81.9	81.0	79.0	78.1	77.2	77.7	78.5	78.4	77.2	78.8	79.4	79.1	81.5	80.4	80.8	80.1	136.6
250	81.5	78.1	78.2	79.6	78.6	78.4	79.3	79.1	79.6	82.4	80.6	81.3	85.5	87.0	85.8	84.9	82.6	140.0
315	81.0	78.9	78.1	80.3	81.4	82.0	82.3	82.7	83.8	86.3	86.0	87.2	89.5	90.2	89.2	87.7	85.5	143.9
400	84.5	81.2	82.7	85.2	86.8	87.4	85.7	87.1	87.6	89.0	89.3	89.9	91.4	93.0	91.5	89.2	87.0	146.9
500	83.9	81.7	82.6	83.9	84.1	84.9	85.1	87.1	87.7	88.4	88.6	89.8	90.8	91.9	90.3	87.6	85.5	146.2
630	87.9	84.6	85.7	85.9	84.7	86.3	85.6	86.7	87.5	88.0	87.7	89.6	89.4	89.5	89.3	86.7	85.2	145.7
800	85.9	83.2	84.5	86.6	86.8	86.0	86.1	85.3	85.5	86.2	85.6	86.6	87.1	87.7	87.1	85.4	84.1	144.3
1000	87.3	86.1	87.8	88.7	88.6	89.2	90.6	88.2	87.6	87.7	88.5	89.7	91.2	90.6	88.2	86.6	84.4	147.3
1250	87.8	87.1	88.8	88.7	89.7	89.3	90.4	89.6	89.6	89.7	90.7	92.1	91.5	90.2	88.0	86.2	84.1	148.4
1600	96.5	96.7	97.0	99.1	99.1	98.6	101.9	100.0	98.9	96.8	103.1	99.2	99.3	99.8	94.6	94.7	90.8	158.1
2000	86.9	89.2	88.9	89.2	91.6	91.9	92.8	92.5	93.1	91.4	93.1	95.7	94.9	93.4	90.0	88.3	85.1	151.5
2500	89.7	95.7	92.4	93.5	98.5	98.7	99.0	99.0	102.5	96.0	101.1	104.4	101.6	102.8	99.3	98.2	94.8	159.5
3150	89.1	91.7	89.5	90.3	90.4	91.5	91.4	91.7	91.3	93.7	92.2	94.6	94.3	95.2	90.9	91.0	86.2	151.9
4000	90.2	86.7	91.2	91.3	91.9	88.9	91.1	94.1	92.4	96.4	94.7	94.8	95.5	91.9	89.9	87.4	88.5	153.2
5000	89.1	85.3	91.1	91.3	93.6	90.7	92.8	93.9	94.2	96.5	97.9	99.1	99.8	95.7	94.2	89.3	90.1	156.8
6300	84.5	85.6	86.6	86.4	90.9	89.9	91.0	90.6	92.5	91.1	95.5	98.0	96.2	95.6	92.8	89.1	85.6	154.6
8000	83.0	84.0	83.7	84.2	85.2	85.4	85.2	87.0	86.8	90.7	90.0	94.3	91.2	93.1	87.9	87.5	82.9	152.1
10000	79.4	79.6	81.1	81.0	84.4	81.1	83.0	85.3	85.2	87.3	89.6	90.1	89.0	88.5	85.4	84.3	80.8	151.3
OASPL MEASURED	103.3	103.9	103.7	104.6	106.0	105.7	107.0	106.7	107.6	106.7	109.1	110.0	109.4	109.8	106.6	105.3	103.3	
OASPL CALCULATED	101.8	102.0	102.0	103.1	104.6	104.4	105.8	105.4	106.3	105.1	107.8	108.7	107.9	107.9	105.4	104.6	102.4	
PNDB	114.8	115.9	115.2	116.4	118.7	118.5	119.2	119.4	121.2	119.1	121.5	123.6	122.3	122.6	119.7	118.3	115.6	
																	OAPWL	165.5

DIRECTIVITY INDEX

FREQ,																	
50	-6.9	-9.2	-8.5	-7.9	-6.5	-5.6	-5.1	-3.9	-4.1	-1.8	-1.5	0.3	1.4	2.9	4.0	6.2	3.0
63	-5.0	-6.8	-6.4	-6.7	-5.7	-5.2	-4.5	-3.5	-2.8	-1.4	-0.9	0.8	1.4	2.6	3.2	5.5	3.4
80	-3.1	-4.6	-5.2	-5.3	-4.2	-3.0	-3.0	-2.5	-1.4	-0.8	-0.7	0.7	1.8	2.5	2.8	3.2	2.7
100	-1.6	-3.0	-4.1	-3.6	-2.8	-1.8	-2.2	-1.2	-1.1	0.3	-0.6	0.6	1.3	2.0	2.3	1.1	1.4
125	-1.2	-1.1	-3.1	-1.5	-1.9	-1.7	-1.3	-1.1	-0.4	0.3	-0.7	0.1	1.1	1.5	2.1	0.4	1.2
160	0.6	1.1	0.0	1.9	0.7	0.5	-1.0	0.2	0.4	-1.0	-1.4	0.2	-0.8	-1.3	0.8	0.0	0.0
200	-5.1	-2.6	-1.7	-0.3	-1.2	-2.1	-1.6	-0.8	-0.9	-2.0	-0.5	0.1	-0.1	2.2	1.2	1.5	0.9
250	-1.0	-4.5	-6.3	-3.0	-4.0	-4.2	-3.2	-3.5	-2.9	-0.2	-1.9	-1.2	2.9	4.4	3.2	2.4	0.0
315	-5.3	-9.4	-8.2	-6.1	-4.9	-4.3	-4.0	-3.6	-2.5	-0.0	-0.3	0.9	3.2	3.9	2.9	1.4	-0.8
400	-4.7	-8.0	-6.5	-4.0	-2.4	-1.8	-3.5	-2.1	-1.6	-0.2	0.1	0.8	2.2	3.8	2.3	-0.0	-2.2
500	-4.5	-6.7	-5.8	-4.6	-4.4	-3.9	-3.4	-1.3	-0.7	0.0	0.4	1.3	2.4	3.5	1.9	-0.7	-2.9
630	0.1	-3.2	-2.1	-1.9	-0.1	-1.3	-2.2	-1.1	-0.2	0.2	-0.1	1.8	1.6	1.7	1.5	-1.0	-2.6
800	-0.4	-3.1	-1.8	0.3	0.5	-0.3	-0.2	-1.0	-0.8	-0.1	-0.7	0.3	0.8	1.4	0.8	-0.9	-2.2
1000	-1.8	-3.0	-1.3	-0.4	-0.5	0.1	1.6	-0.8	-1.5	-1.4	-0.6	0.6	2.1	1.6	-0.9	-2.5	-4.7
1250	-2.2	-2.9	-1.2	-1.3	-0.3	-0.8	0.4	-0.4	-0.4	-0.3	0.8	2.0	1.5	0.2	-2.0	-3.8	-5.9
1600	-3.0	-2.1	-2.5	-0.5	-0.4	-0.9	2.3	0.4	-0.6	-2.8	3.6	-0.4	-0.3	0.2	-4.9	-4.8	-8.7
2000	-5.8	-3.5	-6.8	-3.5	-1.2	-0.1	-0.3	0.4	-1.3	0.4	3.0	2.2	0.6	-2.7	-4.4	-4.8	-7.6
2500	-10.8	-4.8	-8.1	-7.0	-2.0	-1.8	-1.5	-1.5	2.0	-4.5	0.6	3.8	1.1	2.3	-1.2	-2.3	-5.7
3150	-3.5	-0.9	-3.0	-2.3	-2.2	-1.2	-1.2	-0.9	-1.2	1.1	-0.3	2.1	1.7	2.6	-1.7	-1.6	-6.4
4000	-3.1	-6.6	-2.2	-2.0	-1.5	-4.4	-2.2	0.8	-0.9	3.1	1.4	1.5	2.2	-1.4	-5.4	-5.9	-4.8
5000	-6.7	-9.5	-4.7	-4.5	-2.2	-5.2	-3.0	-1.9	-1.6	0.7	2.1	3.3	3.9	-0.1	-1.6	-6.5	-5.7
6300	-9.0	-7.4	-7.0	-7.1	-2.6	-3.6	-2.5	-3.0	-1.1	-2.4	2.0	4.4	2.7	2.1	-0.7	-4.4	-7.9
8000	-6.6	-5.7	-6.0	-5.5	-4.4	-4.2	-4.5	-2.7	-2.8	1.0	0.3	4.7	1.6	3.5	-1.7	-2.2	-6.8
10000	-7.5	-7.6	-5.8	-5.9	-2.5	-5.8	-3.9	-1.6	-1.7	0.4	2.7	3.2	2.9	1.6	-1.5	-2.6	-6.1

C31

RADIAL DISTANCE (ft)..... 125
(m)..... 38.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.F.O.
DATE..... 9/6/68
RUN..... 6,Pts. 88
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97988
T AMBIENT.....(°F)..... 68.0
(°K)..... 293.0
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m3).. 13.8
(kg/m3).. 0.0138
FUND. FAN SPEED(RPM).... 1700
(rad/sec) 177.9
CORR. FAN SPEED(RPM).... 1690
(rad/sec) 176.9
TAPE NUMBER..... P638

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0, (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	73.7	74.4	75.3	84.1	73.1	72.6	71.7	79.1	76.4	73.8	76.4	74.9	75.5	74.4	74.8	75.1	74.9	133.4
63	75.7	76.0	76.7	82.1	74.9	75.0	74.4	78.6	76.7	75.6	78.4	75.3	75.7	74.8	74.9	75.9	77.1	133.8
80	74.9	74.9	74.5	78.4	71.8	72.0	71.8	75.4	73.7	72.4	74.1	72.5	74.0	73.7	73.5	72.[illegible]	[illegible].2	130.9
100	73.9	74.4	73.6	77.4	71.1	71.9	70.8	74.0	72.7	70.5	72.5	71.0	72.7	71.7	72.0	70.7	69.7	129.7
125	71.4	73.8	74.4	78.9	74.4	79.1	79.2	76.5	77.9	69.1	75.9	74.2	80.3	75.5	72.4	70.6	66.7	133.9
160	69.5	70.1	70.8	74.2	69.0	68.4	67.6	69.2	67.6	65.5	66.8	64.3	68.4	65.2	66.4	66.9	62.9	125.3
200	69.3	69.2	69.8	71.3	66.7	65.0	65.3	67.6	65.8	62.3	63.4	61.0	60.3	59.9	62.5	61.7	60.6	122.7
250	67.6	68.2	68.7	67.6	64.1	64.1	64.1	65.1	64.5	62.6	64.6	62.2	65.3	67.2	65.8	64.2	63.3	122.5
315	71.2	68.6	68.5	71.3	69.2	66.4	64.6	64.8	65.2	68.7	71.3	69.4	74.1	75.1	74.7	72.1	69.5	128.4
400	76.8	75.6	75.4	76.0	74.4	70.6	68.9	69.5	70.1	72.8	76.5	75.6	78.3	79.8	79.4	75.3	73.6	133.2
500	80.5	79.2	76.1	78.9	76.2	73.8	72.5	71.4	72.2	74.9	78.9	77.5	78.9	80.2	80.3	75.7	72.4	134.8
630	83.2	81.1	79.9	81.6	79.5	76.1	75.3	73.1	72.4	72.7	75.5	75.9	77.7	77.8	77.6	73.8	72.1	134.7
800	83.5	80.1	80.1	81.4	78.3	76.3	74.7	72.8	71.7	71.6	74.4	75.0	76.5	77.2	76.6	72.9	72.6	134.2
1000	86.4	83.5	94.7	92.9	85.6	84.3	80.1	81.8	86.0	82.3	84.4	86.0	87.1	90.6	92.8	84.3	82.5	145.9
1250	92.1	87.2	70.3	97.6	94.0	88.5	86.5	87.0	90.3	86.6	88.8	89.2	91.6	94.6	99.0	88.8	86.9	150.8
1600	83.6	84.9	86.7	94.7	96.2	84.5	87.4	84.9	83.3	82.6	85.3	83.2	87.5	86.1	85.3	81.9	78.9	146.8
2000	81.7	84.1	83.1	83.6	84.0	80.3	80.5	76.2	78.5	76.1	81.7	79.3	82.4	84.6	84.4	77.5	76.8	140.3
2500	79.7	80.8	83.8	84.1	85.2	79.9	80.1	77.2	80.1	79.0	82.9	82.1	82.8	88.0	84.4	79.7	80.3	141.8
3150	81.1	81.0	84.3	84.2	83.0	81.1	77.5	78.9	73.6	79.5	80.3	84.1	82.2	81.9	81.8	76.8	[illegible].0	140.5
4000	83.5	83.4	84.8	85.8	80.3	82.0	79.4	77.9	73.8	78.2	83.9	84.6	85.3	83.7	84.6	78.9	[illegible].7	142.6
5000	80.9	80.9	80.4	82.6	80.0	79.9	78.5	72.8	72.9	73.7	81.0	78.6	82.2	84.3	81.9	76.4	72.7	140.1
6300	76.4	77.6	79.0	78.8	81.6	76.2	76.1	73.7	74.3	76.1	78.1	81.3	79.8	83.2	78.8	73.2	72.7	139.8
8000	75.7	75.4	76.8	77.6	78.3	73.3	70.4	69.4	67.0	70.8	76.2	76.6	76.7	77.3	74.7	71.3	69.9	137.3
10000	70.1	71.6	72.1	72.3	72.2	69.0	68.5	65.3	63.4	67.4	73.2	73.7	72.9	76.4	72.8	67.9	64.1	136.0
OASPL MEASURED	97.3	95.5	101.7	102.1	100.3	94.7	93.9	93.0	94.3	92.4	95.6	95.5	97.5	99.5	100.3	93.7	91.8	
OASPL CALCULATED	96.1	94.1	97.1	101.2	99.4	93.5	92.6	92.0	93.5	91.3	94.3	94.4	96.2	98.4	99.5	92.5	90.8	
PNDB	107.3	106.9	107.9	111.7	111.3	105.4	104.9	103.3	103.7	103.1	107.0	107.2	108.3	109.9	109.8	103.6	102.0	
																	OAPWL	154.7

DIRECTIVITY INDEX

FREQ,																	
50	-2.9	-2.2	-1.3	7.6	-3.5	-4.0	-4.8	2.5	-0.1	-2.8	-0.1	-1.7	-1.1	-2.2	-1.8	-1.5	-1.6
63	-1.2	-0.8	-0.2	5.2	-1.9	-1.9	-2.4	1.7	-0.1	-1.2	1.5	-1.6	-1.2	-2.0	-1.9	-1.0	0.3
80	1.0	1.0	0.6	4.5	-2.1	-1.9	-2.0	1.5	-0.1	-1.5	0.2	-1.4	0.1	-0.1	-0.3	-1.8	-0.7
100	1.3	1.8	1.1	4.9	-1.4	-0.7	-1.8	1.4	0.1	-2.1	-0.1	-1.6	0.1	-0.9	-0.6	-1.9	-2.8
125	-5.3	-2.9	-2.3	2.2	-2.3	2.4	2.5	-0.2	1.2	-7.6	-0.8	-2.5	3.6	-1.3	-4.3	-6.1	-10.0
160	1.4	2.0	2.8	6.2	1.0	0.3	-0.4	1.2	-0.4	-2.5	-1.2	-3.7	-2.7	-2.9	-1.7	-1.1	-5.5
200	4.0	3.9	4.4	5.9	1.4	-0.3	-0.0	2.2	0.4	-3.0	-1.9	-4.4	-5.0	-5.5	-2.9	-3.6	-5.4
250	2.6	3.2	1.7	2.6	-0.9	-0.9	-0.9	0.1	-0.5	-2.4	-0.4	-2.8	0.3	2.2	0.8	-0.8	-1.7
315	0.3	-2.2	-2.3	0.5	-1.6	-4.4	-6.2	-6.0	-5.6	-2.1	0.5	-1.4	3.3	4.3	3.8	1.3	-1.3
400	1.2	0.1	-0.1	0.4	-1.2	-5.8	-6.7	-6.1	-5.5	-2.8	0.9	0.1	2.7	4.2	3.8	-0.3	-1.9
500	3.5	2.1	-1.0	1.9	-0.9	-3.2	-4.6	-5.7	-4.9	-2.2	1.9	0.5	1.9	3.2	3.3	-1.3	-4.7
630	6.4	4.3	3.1	4.8	2.8	-0.6	-1.5	-3.7	-4.4	-4.1	-1.2	-0.9	0.9	1.1	0.9	-3.0	-4.7
800	7.4	4.0	3.9	5.3	2.1	0.1	-1.4	-3.3	-4.4	-4.6	-1.7	-1.1	0.4	1.1	0.9	-3.2	-3.6
1000	0.6	-4.3	7.0	5.1	-2.2	-3.4	-7.6	-5.9	-1.8	-5.4	-3.3	-2.8	-0.6	2.8	5.1	-3.4	-5.1
1250	0.4	-4.5	-21.3	5.9	2.3	-3.1	-9.2	-4.7	-1.4	-5.1	-2.9	-2.5	-0.1	2.9	5.3	-2.9	-4.7
1600	-4.6	-3.3	-1.5	6.4	7.9	-3.8	-0.8	-3.4	-4.9	-5.7	-2.9	-5.1	-0.8	-2.1	-2.6	-0.4	-9.4
2000	0.3	2.7	1.0	2.1	2.6	-1.1	-1.0	-5.2	-3.0	-5.4	0.3	-2.1	0.9	3.2	3.0	-3.9	-4.7
2500	-3.0	-2.0	1.1	1.4	2.5	-2.8	-2.7	-5.5	-2.6	-3.7	-0.2	-0.6	0.0	3.2	1.7	-3.0	-2.4
3150	-0.0	-0.1	3.2	3.0	1.9	-0.8	-3.7	-2.3	-7.5	-1.7	-0.9	2.9	1.0	0.7	0.6	-4.4	-9.1
4000	0.8	0.7	2.1	3.0	-2.4	-0.7	-3.3	-4.8	-8.9	-4.5	1.2	1.9	2.6	3.0	1.9	-3.8	-9.0
5000	1.0	1.0	0.9	2.7	0.1	-0.8	-1.4	-7.1	-7.0	-8.2	1.1	-1.3	2.3	4.4	2.8	-3.5	-7.2
6300	-2.4	-1.1	0.2	0.1	2.9	-2.6	-2.6	-5.0	-4.4	-2.6	-0.6	2.6	1.1	4.9	0.1	-5.5	-6.0
8000	0.8	0.5	2.0	2.8	3.5	-1.6	-4.5	-5.5	-7.8	-4.1	1.3	1.8	1.8	2.4	-0.1	-3.5	-8.9
10000	-1.5	0.0	0.5	0.7	0.6	-2.6	-3.1	-6.3	-8.2	-4.2	1.6	2.1	1.3	4.8	1.3	-3.7	-7.9

C32

RUN 6 1700 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC, DATE - MONTH 10 DAY 2 HR, 7.2

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/6/68
RUN..... 6,Pt. 80
BAROMETER.....(in Hg).. 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY ..(gm/m³).. 11.1
(kg/m³).. 0.0111
PHYS. FAN SPEED (RPM).... 1700
(rad/sec) 177.9
CORR. FAN SPEED (RPM).... 1682
(rad/sec) 176.1
TAPE NUMBER..... P640

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	71.4	71.7	73.2	75.2	72.8	72.4	72.0	72.7	72.8	74.8	76.7	74.6	75.1	74.7	74.9	75.7	74.0	131.2
63	73.9	74.7	77.0	76.9	74.2	74.2	74.4	74.2	74.6	76.1	80.7	75.2	75.2	75.2	75.6	77.2	76.7	133.2
80	74.1	73.9	73.3	73.9	71.3	71.8	71.7	72.3	73.0	73.0	74.4	72.6	74.0	74.3	73.4	73.0	72.3	130.2
100	72.7	73.0	72.1	73.3	69.9	70.8	69.6	70.9	72.6	71.0	72.5	70.6	72.0	72.3	72.0	71.4	69.8	128.7
125	70.1	70.6	70.6	73.3	70.5	72.4	73.6	72.6	74.6	72.6	72.2	69.3	73.2	73.3	71.8	71.9	68.4	129.8
160	68.0	69.1	70.0	71.4	67.9	67.3	66.5	67.1	68.2	65.6	66.8	64.5	65.3	66.7	67.1	68.1	63.2	124.6
200	67.9	68.0	68.9	68.1	64.7	63.1	63.4	65.2	65.8	61.9	64.8	61.3	60.9	62.6	64.2	64.6	61.0	121.9
250	66.4	67.1	65.5	64.9	62.9	61.8	63.1	62.6	64.3	61.4	64.8	62.4	64.5	67.4	65.1	64.6	62.0	121.6
315	70.8	68.2	67.6	68.6	68.4	66.0	63.3	63.6	64.8	68.0	70.5	68.3	73.2	74.2	72.7	70.3	67.8	127.3
400	76.4	75.9	74.9	75.6	73.9	71.1	69.5	70.1	70.6	72.6	76.7	75.2	77.7	79.4	78.5	75.1	73.0	133.0
500	80.3	78.9	75.9	78.1	75.1	73.7	72.6	71.5	72.5	74.2	78.2	76.4	78.3	80.2	79.7	75.4	72.1	134.3
630	83.2	81.1	80.1	81.2	78.3	76.3	75.2	73.1	73.0	72.6	74.6	74.2	77.6	78.5	77.5	74.4	71.0	134.5
800	83.4	80.4	79.8	80.5	77.4	75.9	74.6	72.1	72.0	71.4	74.9	74.4	76.2	77.5	75.7	73.6	72.3	133.8
1000	87.1	84.7	93.6	89.9	86.7	84.3	79.4	79.7	83.1	83.1	84.8	85.1	83.5	90.8	93.0	83.8	83.6	145.3
1250	90.5	86.8	97.6	94.8	94.1	90.1	85.5	85.4	87.3	87.4	88.8	89.6	88.3	94.5	97.0	88.0	87.6	149.9
1600	83.0	85.1	86.2	92.6	95.6	90.3	85.5	84.9	81.3	82.0	84.4	86.4	85.9	85.4	84.1	80.3	78.5	146.4
2000	81.4	85.0	82.2	82.3	83.1	79.8	80.3	75.6	76.8	75.6	81.4	79.0	82.0	83.8	84.7	76.8	75.3	139.8
2500	79.4	80.9	83.2	84.2	84.7	79.8	80.7	78.3	80.6	78.6	83.3	81.5	82.6	86.6	85.9	80.3	78.0	141.7
3150	80.3	80.4	82.9	82.0	80.8	79.1	76.8	77.8	72.9	78.4	80.2	83.4	80.8	81.1	80.9	75.6	71.0	139.4
4000	82.7	82.5	83.2	84.4	77.5	80.9	78.9	76.8	73.2	77.7	83.7	83.9	83.4	84.2	83.7	78.1	73.0	141.5
5000	79.6	80.1	78.5	80.6	77.1	78.3	78.3	71.7	72.0	72.7	80.8	78.0	80.6	83.0	81.4	75.5	71.7	138.9
6300	75.1	76.3	76.8	76.9	78.5	74.4	76.0	72.0	72.7	74.5	78.0	80.1	78.1	82.1	77.6	71.9	71.0	138.4
8000	73.8	73.1	74.0	74.8	74.7	71.0	68.8	67.0	64.9	69.0	74.9	75.0	74.4	75.1	72.3	69.0	63.7	135.1
10000	67.7	68.7	69.3	70.4	68.1	66.1	66.2	62.1	61.0	64.7	71.9	70.9	70.0	73.5	70.5	66.6	61.1	133.5
OASPL MEASURED	96.2	95.7	100.5	99.8	100.0	96.1	92.8	91.8	92.3	92.4	95.0	95.5	95.3	98.9	100.1	92.8	91.7	
OASPL CALCULATED	95.1	94.4	99.9	98.7	98.9	94.9	91.6	90.7	91.3	91.5	94.3	94.5	94.1	98.0	99.5	91.9	90.9	
PNDB	106.4	106.4	109.7	109.6	110.3	106.6	103.8	102.5	102.4	102.5	106.8	106.7	106.7	109.0	109.6	103.1	101.3	
																	OAPWL	134.2

DIRECTIVITY INDEX

FREQ.																	
50	-3.0	-2.7	-1.2	0.8	-1.6	-2.0	-2.4	-1.7	-1.6	0.4	2.3	0.2	0.7	0.3	0.5	1.3	-0.4
63	-2.4	-1.6	0.7	0.6	-2.1	-2.1	-1.9	-2.1	-1.7	-0.2	4.4	-1.1	-1.1	-0.7	0.9	0.9	0.4
80	0.9	0.7	0.1	0.8	-1.9	-1.4	-1.5	-0.9	-0.2	-0.2	1.2	-0.6	0.8	1.1	0.2	-0.2	-0.8
100	1.1	1.3	0.5	1.7	-1.8	-0.9	-2.1	-0.8	0.9	-0.6	0.9	-1.1	0.3	0.7	0.4	-0.3	-1.8
125	-2.5	-2.0	-1.9	0.7	-2.1	-0.1	1.0	-0.0	2.0	-0.0	-0.4	-3.3	0.6	0.7	-0.8	-0.7	-4.2
160	0.7	1.8	2.7	4.0	0.5	-0.0	-0.8	-0.3	0.8	-1.8	-0.5	-2.8	-5.0	-0.7	-0.3	0.8	-4.2
200	3.4	3.5	4.4	3.6	0.2	-1.4	-1.1	0.7	1.3	-2.6	0.2	-3.2	-3.6	-1.9	-0.3	0.1	-3.5
250	2.2	3.0	1.3	0.7	-1.3	-2.4	-1.1	-1.6	0.1	-2.8	0.6	-1.8	0.3	3.2	0.9	0.4	-2.2
315	1.1	-1.5	-2.1	-1.1	-1.4	-3.7	-6.4	-6.1	-4.9	-1.7	0.8	-1.4	3.5	4.5	3.0	0.6	-1.9
400	1.1	0.7	-0.3	0.3	-1.4	-4.2	-5.8	-5.1	-4.6	-2.7	1.4	-0.1	2.4	4.1	3.3	-0.2	-2.3
500	3.8	2.4	-0.6	1.5	-1.5	-2.9	-4.0	-5.1	-4.0	-2.4	1.6	-0.2	1.8	3.6	3.1	-1.2	-4.4
630	6.7	4.6	3.6	4.6	1.7	-0.2	-1.3	-3.5	-3.5	-3.9	-1.9	-2.4	1.0	1.9	0.9	-2.1	-5.6
800	7.6	4.6	4.0	4.7	1.6	0.1	-1.2	-3.7	-3.8	-4.4	-0.9	-1.4	0.4	1.7	-0.1	-2.2	-3.5
1000	0.1	-2.4	6.6	2.8	-0.4	-2.7	-7.6	-7.4	-4.0	-3.9	-2.2	-2.0	-3.6	3.7	5.9	-3.4	-3.5
1250	-1.1	-2.8	6.0	3.2	2.5	-1.5	-6.0	-6.2	-4.3	-4.2	-2.8	-2.0	-5.3	2.9	5.4	-3.6	-3.9
1600	-4.8	-2.7	-1.6	4.8	7.8	2.4	-2.4	-3.0	-6.6	-5.8	-3.5	-1.4	-1.9	-2.4	-3.8	-7.6	-9.3
2000	0.3	3.9	1.2	1.3	2.1	-1.2	-0.8	-5.4	-2.3	-5.4	0.3	-2.0	1.0	2.8	3.7	-4.2	-5.7
2500	-3.3	-1.7	0.5	1.6	2.1	-2.8	-1.9	-4.3	-2.1	-4.0	0.7	-1.2	-0.1	4.0	3.2	-2.3	-4.7
3150	0.3	0.3	2.9	2.0	0.7	-0.9	-3.2	-2.2	-7.1	-1.6	0.1	3.4	0.8	1.1	0.8	-4.4	-9.0
4000	1.1	0.9	1.5	2.7	-4.1	-0.7	-2.7	-4.8	-8.5	-3.9	2.1	2.3	1.8	2.5	2.1	-3.5	-8.6
5000	0.8	1.3	-0.3	1.8	-1.7	-0.5	-0.5	-7.1	-6.8	-6.1	2.0	-0.8	1.8	4.2	2.6	-3.3	-7.1
6300	-2.3	-1.0	-0.6	-0.5	1.2	-3.0	-1.4	-5.4	-4.6	-2.8	0.7	2.7	0.7	4.7	0.2	-5.5	-6.3
8000	1.2	0.4	1.3	2.2	2.1	-1.6	-3.9	-5.6	-7.7	-3.7	2.2	2.3	1.7	2.5	-0.3	-5.5	-7.8
10000	-1.3	-0.3	0.3	1.3	-1.0	-3.0	-2.8	-7.0	-8.1	-4.4	2.8	1.8	1.0	4.4	1.4	-2.5	-8.0

 NASA QUIET FAN RUN 5 441-004/6 T/D 9/4/68 PROC. DATE - MONTH 10 DAY 1 HR, 13.0

RADIAL DISTANCE (ft)..... 883
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/6/68
RUN..... 6,Pt. 66
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97918
T AMBIENT.....(°F)..... 66.0
(°K)..... 291.0
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 11.3
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 1850
(rad/sec) 193.7
CORR. FAN SPEED (RPM).... 1883
(rad/sec) 192.4
TAPE NUMBER..... P636

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0, (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	73.6	73.9	73.9	76.2	74.5	74.1	73.7	73.6	73.0	75.7	73.1	76.5	76.5	76.4	76.3	76.7	76.7	132.1
63	76.3	76.6	76.3	77.2	75.6	75.9	74.0	76.1	75.9	77.3	74.8	77.1	77.4	77.5	76.7	77.4	78.7	133.6
80	76.3	76.1	75.2	75.9	73.1	73.6	73.0	74.1	74.1	74.7	70.9	74.6	75.7	76.1	75.0	73.7	74.5	131.5
100	74.4	74.7	73.6	75.3	72.0	73.0	71.4	72.8	73.3	72.8	69.6	73.3	73.9	74.4	73.5	72.1	71.5	130.2
125	72.2	73.0	72.8	75.7	72.1	74.9	76.4	77.5	77.4	72.9	67.0	75.0	78.5	78.1	75.0	72.7	68.3	132.8
160	69.5	70.7	71.3	73.3	68.9	69.3	68.2	68.5	69.1	67.4	63.7	67.0	68.2	69.7	68.6	68.9	64.2	126.1
200	69.1	69.7	69.6	70.4	66.8	65.0	65.9	66.7	67.1	64.7	61.3	64.2	64.3	67.2	65.5	64.7	62.5	123.6
250	68.2	68.2	66.6	67.1	63.8	64.0	64.4	64.0	65.0	63.6	59.0	64.6	67.0	69.9	66.0	65.9	65.8	123.1
315	73.3	70.2	70.6	73.1	70.1	68.5	66.4	65.6	66.6	69.8	67.5	69.9	74.7	76.0	75.0	72.6	70.1	129.0
400	78.3	77.3	76.3	77.7	74.8	72.9	71.6	71.1	71.4	73.9	72.4	76.3	78.9	80.7	80.0	75.7	73.5	133.8
500	81.7	80.2	77.7	80.1	77.0	75.5	74.6	73.0	73.2	75.2	74.2	78.3	80.5	82.0	81.2	76.5	73.1	135.6
630	80.4	80.7	80.3	80.9	77.4	76.6	74.7	72.8	72.9	73.4	72.4	77.4	79.3	80.6	78.1	74.9	72.2	135.0
800	82.1	83.3	82.5	82.5	80.0	78.6	76.4	75.2	74.6	73.3	71.9	77.0	78.0	78.2	77.1	75.2	73.7	135.8
1000	85.3	82.2	84.4	86.3	81.5	79.6	78.1	79.1	77.4	77.8	76.1	80.3	83.6	83.8	82.3	76.9	74.8	139.2
1250	92.2	89.6	98.0	93.3	87.2	85.3	88.7	95.7	93.3	89.9	87.9	93.8	99.7	98.1	97.5	87.8	88.3	152.9
1600	86.4	87.2	86.7	95.9	97.7	94.5	89.2	81.9	82.1	81.8	80.6	85.6	86.5	86.6	86.4	82.8	80.2	148.5
2000	82.0	83.7	83.0	84.3	84.1	82.8	83.5	77.3	79.7	76.4	76.3	80.0	83.4	84.5	84.0	77.2	75.8	140.6
2500	81.5	82.1	86.8	84.1	86.7	81.5	83.0	80.2	80.6	79.8	77.7	83.7	86.7	88.8	86.9	80.9	80.4	143.2
3150	83.6	83.0	89.5	84.5	82.8	81.7	80.0	80.4	75.7	80.5	77.1	85.8	84.0	83.9	81.8	77.3	73.0	141.5
4000	85.0	84.9	85.8	86.2	79.9	83.5	81.1	80.2	76.8	81.0	81.3	86.7	87.5	87.0	85.0	80.7	75.5	143.8
5000	82.0	82.3	80.2	83.2	80.2	81.9	80.6	75.2	75.7	75.7	78.3	80.4	84.5	86.1	83.1	77.8	74.4	141.4
6300	78.2	78.3	79.2	79.5	81.5	77.0	77.4	75.4	76.7	77.7	75.7	82.6	81.6	85.0	79.8	74.3	73.7	141.8
8000	77.5	76.7	77.2	78.6	78.2	75.3	72.0	72.0	70.5	74.0	73.7	79.1	79.4	79.9	76.2	73.2	68.1	138.9
10000	71.9	72.7	72.5	73.2	71.8	70.9	69.9	67.4	65.7	69.8	70.4	75.5	75.3	78.4	74.2	69.2	65.3	137.3
OASPL MEASURED	97.7	96.9	100.7	100.7	100.1	97.7	95.7	97.5	95.6	94.0	92.6	98.0	102.0	101.6	100.2	93.5	92.4	
OASPL CALCULATED	96.3	95.4	99.7	99.5	99.1	96.6	94.4	96.7	94.8	93.0	91.4	96.9	101.1	100.2	99.2	92.2	91.3	
PNDB	108.3	108.1	110.5	111.9	111.8	109.5	106.6	107.0	105.5	104.5	103.8	109.0	111.8	111.5	110.2	104.3	102.4	
																	OAPWL	156.1

DIRECTIVITY INDEX

FREQ,																	
50	-1.6	-1.3	-1.3	1.0	-0.7	-1.2	-1.5	-1.7	-2.2	0.4	-2.2	1.2	1.3	1.1	1.1	1.4	1.4
63	-0.4	-0.1	-0.4	0.5	-1.1	-0.8	-0.7	-0.6	-0.8	0.6	-2.0	0.4	0.7	0.7	0.0	0.6	2.0
80	1.8	1.6	0.6	1.4	-1.4	-0.9	-0.8	-0.4	-0.4	0.2	-3.6	0.1	1.2	1.6	0.5	-0.9	-0.0
100	1.4	1.6	0.5	2.3	-1.1	-0.1	-1.7	-0.3	0.2	-0.3	-3.4	0.3	0.8	1.3	0.5	-1.0	-1.5
125	-3.5	-2.6	-2.8	0.0	-3.6	-0.7	0.8	1.9	1.8	-2.8	-8.6	-0.7	2.9	2.5	-0.7	-3.0	-7.3
160	0.7	1.9	2.5	4.5	0.1	0.4	-0.7	-0.3	0.3	-1.4	-5.1	-1.8	-0.6	0.9	-0.2	0.1	-4.6
200	2.9	3.5	3.4	4.2	0.6	-1.2	-0.3	0.5	0.9	-1.5	-4.9	-2.0	-1.9	1.0	-0.8	-1.5	-3.7
250	2.6	2.6	1.0	1.5	-1.8	-1.6	-1.2	-1.6	-0.6	-1.9	-6.6	-1.0	1.4	4.3	0.4	0.3	0.2
315	1.9	-1.2	-0.8	1.7	-1.3	-3.0	-5.1	-5.8	-4.8	-1.6	-13.9	-1.5	3.3	4.6	3.6	1.2	-1.3
400	2.1	1.1	0.2	1.6	-1.3	-3.2	-4.5	-5.1	-4.8	-2.3	-3.7	0.1	2.7	4.5	3.8	-0.4	-2.7
500	3.9	2.4	-0.2	2.3	-0.8	-2.3	-3.2	-4.8	-4.6	-2.6	-3.6	0.5	2.7	4.2	3.4	-1.3	-4.7
630	3.3	3.6	3.2	3.8	0.3	-0.5	-2.4	-4.3	-4.2	-3.7	-4.7	0.3	2.2	3.4	1.0	-2.2	-4.9
800	4.4	5.6	4.8	4.8	2.3	0.9	-1.3	-2.5	-3.1	-4.4	-5.8	-0.7	0.3	0.5	-0.6	-2.5	-4.0
1000	4.2	1.2	3.4	5.2	0.4	-1.4	-3.0	-2.0	-3.6	-3.2	-5.0	-0.8	2.5	2.8	1.2	-4.2	-6.2
1250	-2.3	-4.9	3.5	-1.3	-7.3	-9.3	-5.8	1.2	-1.2	-4.6	-6.6	-0.7	5.2	3.5	3.0	-6.7	-6.2
1600	-3.5	-2.8	-3.3	6.0	7.7	4.6	-0.8	-8.1	-7.8	-8.1	-9.3	-4.3	-3.5	-3.4	-3.6	-7.1	-9.7
2000	0.2	1.9	1.1	2.5	2.3	1.0	1.6	-4.5	-2.1	-5.4	-5.6	-1.8	1.6	2.7	2.2	-4.6	-6.0
2500	-2.7	-2.1	2.6	-0.1	2.5	-2.7	-1.2	-4.0	-3.6	-4.4	-6.5	-0.4	2.5	4.7	2.7	-3.3	-3.8
3150	1.5	0.9	3.3	2.3	0.6	-0.5	-2.2	-1.8	-6.4	-1.7	-5.1	3.6	1.8	1.8	-0.3	-4.9	-9.1
4000	1.0	1.0	1.9	2.3	-4.0	-0.5	-2.8	-3.7	-7.1	-2.9	-2.6	2.8	3.6	3.0	1.1	-3.2	-8.4
5000	0.8	1.1	-0.9	2.0	-1.0	0.7	-0.6	-6.0	-5.5	-5.5	-2.9	-0.8	3.3	4.9	1.9	-3.4	-6.8
6300	-1.6	-1.5	-0.6	-0.3	1.7	-2.8	-2.4	-4.4	-3.1	-2.1	-4.1	2.8	1.8	5.2	-0.0	-5.5	-6.1
8000	1.1	0.2	0.7	2.1	1.8	-1.2	-4.4	-4.4	-5.9	-2.4	-2.5	2.7	3.0	3.5	-0.2	-3.2	-8.4
10000	-1.0	-0.2	-0.3	0.3	-1.1	-2.8	-3.0	-5.5	-7.2	-3.1	-2.5	2.6	2.4	5.5	1.3	-3.7	-7.6

RUN 6 1850 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 9.6

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F
LOCATION..... P.P.G.
DATE..... 9/6/68
RUN..... 6,Pt. 81
BAROMETER.....(in Hg)... 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³)... 11.1
(kg/m³)... 0.0111
PHYS. FAN SPEED (RPM).... 1850
(rad/sec) 193.7
CORR. FAN SPEED (RPM).... 1831
(rad/sec) 191.7
TAPE NUMBER..... ...P640

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	74.0	73.9	74.4	76.1	73.9	73.6	72.9	76.9	75.3	75.5	78.1	75.8	76.7	76.2	76.7	77.1	75.7	132.9
63	76.7	76.6	77.8	78.3	75.6	76.2	75.6	77.4	77.2	77.1	81.0	76.6	77.5	77.0	77.2	78.4	78.1	134.6
80	76.1	76.0	75.4	75.9	73.4	73.6	73.3	75.0	74.8	74.4	76.2	74.0	75.5	75.4	75.5	74.7	74.0	132.0
100	74.6	74.7	73.7	75.0	71.9	72.6	71.2	73.8	73.6	72.4	74.3	72.3	73.7	73.6	74.3	73.6	71.1	130.5
125	72.0	72.6	73.0	74.9	71.1	72.9	74.5	75.1	74.9	72.5	72.2	71.0	75.0	75.0	74.8	73.5	68.7	131.0
160	69.8	70.7	72.1	72.5	69.2	69.7	68.3	69.6	68.6	67.1	68.2	65.7	66.8	67.7	69.5	70.8	64.6	126.3
200	69.2	69.7	71.1	69.9	66.9	65.8	65.9	67.3	66.0	63.7	66.5	62.4	64.0	65.2	67.3	67.8	63.1	123.9
250	68.0	68.3	68.0	67.0	64.0	63.9	64.1	64.9	63.7	63.2	65.7	63.9	67.4	67.4	65.9	66.1	63.9	123.0
315	72.6	69.9	71.3	72.9	70.1	68.0	65.7	65.8	66.6	69.8	73.1	71.1	75.0	75.0	74.0	72.1	69.2	129.2
400	77.5	76.8	76.0	76.8	74.6	72.0	69.5	70.7	71.1	73.4	77.1	76.4	78.7	79.5	79.0	74.8	72.6	133.5
500	81.3	80.0	77.2	79.2	76.5	74.6	73.3	73.0	73.2	74.8	79.4	78.1	80.3	80.9	80.7	75.8	72.6	135.5
630	80.3	80.6	79.9	80.6	78.4	76.4	74.4	73.0	73.2	73.4	77.3	76.7	79.0	79.6	79.6	74.6	71.5	135.2
800	82.4	83.5	82.1	81.6	80.1	79.0	77.1	74.9	74.1	73.1	76.5	75.8	76.8	77.4	77.8	75.5	72.7	135.7 ←
1000	84.5	81.6	83.3	85.8	80.9	78.6	75.9	75.6	76.4	77.0	80.6	79.4	81.4	82.8	80.7	75.8	73.5	138.4
1250	91.0	89.3	96.4	96.1	87.0	85.5	86.2	89.5	91.0	90.2	92.5	91.1	96.2	97.9	96.5	88.7	85.8	151.5 ←
1600	84.9	86.6	86.5	94.6	95.2	92.2	85.9	82.4	81.8	82.1	87.9	85.9	85.5	85.9	86.1	80.9	80.0	147.1
2000	81.3	82.8	82.5	83.6	84.1	81.9	80.7	76.3	78.2	75.7	80.9	79.2	82.0	83.6	82.5	76.2	74.6	139.8
2500	79.3	82.7	87.7	86.0	86.0	81.8	81.4	78.5	81.7	80.2	85.9	83.1	84.2	87.5	85.3	79.2	78.8	143.0
3150	82.5	81.8	84.8	83.8	83.1	81.8	79.3	79.4	74.4	79.4	80.9	84.8	82.6	82.3	81.1	76.2	72.1	140.9
4000	84.1	83.9	85.9	85.6	80.0	82.7	80.2	79.1	75.1	80.1	85.1	86.0	85.7	85.4	84.1	79.6	74.3	143.2
5000	81.0	81.2	79.8	82.1	80.3	81.3	79.5	73.5	74.0	75.3	82.3	79.6	82.9	83.8	81.9	76.7	73.0	140.6
6300	77.1	77.2	78.4	78.2	81.3	76.2	76.9	73.7	74.6	75.8	78.9	81.5	79.7	82.5	78.3	72.9	72.2	139.7
8000	75.9	74.8	76.2	76.8	78.1	73.6	70.3	70.1	68.4	72.1	76.9	77.6	77.0	76.9	74.2	71.0	66.3	137.5
10000	69.9	70.4	71.5	72.4	71.3	68.8	67.9	64.6	63.3	67.2	73.6	73.1	72.5	75.1	71.8	67.7	62.8	135.4
OASPL MEASURED	96.8	96.3	99.7	101.0	98.5	96.3	93.5	93.8	94.1	93.8	97.5	96.4	99.3	100.4	99.2	92.9	90.7	
OASPL CALCULATED	95.3	95.0	98.6	99.8	97.5	95.1	92.3	92.4	93.1	92.9	96.4	95.3	98.2	99.6	98.3	92.1	89.7	
PNDB	107.4	107.4	109.7	111.1	110.4	108.1	104.5	103.5	104.0	104.2	108.2	108.1	109.3	110.6	109.3	103.5	101.1	
																	OAPWL	155.0

DIRECTIVITY INDEX

FREQ.																	
50	-2.1	-2.1	-1.6	0.1	-2.1	-2.4	-3.1	0.9	-0.7	-0.5	2.1	-0.2	0.6	0.2	0.7	1.0	-0.3
63	-1.0	-1.1	0.1	0.6	-2.1	-1.5	-2.2	-0.3	-0.5	-0.6	3.3	-1.1	-0.2	-0.7	-0.5	0.7	0.4
80	1.2	1.0	0.5	1.0	-1.6	-1.4	-1.7	0.1	-0.1	-0.6	1.2	-1.0	0.6	0.5	0.6	-0.2	-1.0
100	1.2	1.3	0.3	1.6	-1.5	-0.8	-2.2	0.4	0.2	-1.0	0.9	-1.1	0.3	0.2	0.9	0.2	-2.3
125	-1.8	-1.3	-0.9	1.1	-2.7	-0.9	0.7	1.3	1.1	-1.3	-1.6	-2.8	1.2	1.2	1.0	-0.3	-5.1
160	0.9	1.7	3.1	3.5	0.2	0.7	-0.7	0.6	-0.4	-1.9	-0.8	-3.3	-2.2	-1.3	0.5	1.8	-4.4
200	2.7	3.1	4.6	3.3	0.4	-0.8	-0.7	0.7	-0.5	-2.9	-0.0	-4.2	-2.5	-1.4	0.7	1.3	-3.4
250	2.5	2.8	2.5	1.5	-1.5	-1.7	-1.5	-0.6	-1.8	-2.4	0.2	-1.6	1.9	1.9	0.4	0.5	-1.6
315	0.9	-1.7	-0.3	1.3	-1.5	-3.7	-6.0	-5.8	-5.0	-1.8	1.5	-0.5	3.3	3.4	2.4	0.5	-2.4
400	1.6	0.9	0.2	0.9	-1.3	-3.8	-6.4	-5.2	-4.7	-2.5	1.2	0.5	2.8	3.6	3.1	-1.1	-3.3
500	3.6	2.3	-0.6	1.5	-1.2	-3.1	-4.5	-4.8	-4.6	-2.9	1.7	0.4	2.6	3.2	3.0	-1.9	-5.1
630	3.1	3.3	2.6	3.3	1.1	-0.8	-2.9	-4.3	-4.1	-3.8	-0.0	-0.6	1.7	2.3	2.3	-2.7	-5.8
800	4.7	5.1	4.4	3.9	2.5	1.4	-0.6	-2.7	-3.5	-4.5	-1.1	-1.8	-0.9	-0.2	0.2	-2.1	-4.9
1000	4.3	1.4	3.1	5.6	0.7	-1.6	-4.3	-4.6	-3.8	-3.2	0.4	-0.8	1.2	2.6	0.5	-4.4	-6.7
1250	-2.1	-3.8	3.3	3.0	-6.1	-7.6	-6.9	-3.6	-2.1	-2.9	-0.6	-2.0	3.1	4.8	3.4	-4.4	-7.3
1600	-3.6	-2.0	-2.1	6.0	6.7	3.7	-2.7	-6.2	-6.7	-6.4	-0.6	-2.6	-3.1	-2.6	-2.4	-7.7	-8.5
2000	0.3	1.8	1.5	2.6	3.1	0.9	-0.4	-4.8	-2.8	-5.3	-0.2	-1.9	1.0	2.6	1.5	-4.9	-6.4
2500	-4.7	-1.3	3.7	2.0	2.0	-2.2	-2.6	-5.5	-2.3	-3.8	1.9	-0.9	0.2	3.5	1.3	-4.8	-5.2
3150	1.0	0.3	3.3	2.3	1.5	0.2	-2.3	-2.1	-7.1	-2.2	-0.7	3.3	1.0	0.8	-0.5	-5.4	-9.5
4000	0.8	0.5	2.6	2.3	-3.3	-0.6	-3.2	-4.2	-8.3	-3.2	1.8	2.6	2.4	2.1	0.8	-3.7	-9.0
5000	0.6	0.8	-0.6	1.7	-0.1	0.9	-0.9	-6.9	-6.4	-5.1	2.1	-0.8	2.5	3.4	1.4	-3.8	-7.4
6300	-1.5	-1.4	-0.2	-0.4	2.7	-2.5	-1.7	-4.9	-4.0	-2.8	0.3	2.9	1.1	3.9	-0.4	-5.7	-6.4
8000	0.8	-0.3	1.1	1.7	3.0	-1.4	-4.8	-4.9	-6.7	-3.0	1.8	2.5	1.9	1.8	-0.9	-4.0	-8.7
10000	-1.2	-0.6	0.5	1.3	0.2	-2.3	-3.2	-6.5	-7.7	-3.8	2.6	2.0	1.4	4.0	0.7	-3.4	-8.3

C35

RUN 6 1850 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 7.2

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.O.
DATE..... 9/6/68
RUN..... 6,Pt. 67
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 62.0
(°K)..... 289.8
ABS. HUMIDITY...(gm/m3).. 11.9
(kg/m3).. 0.0119
PHYS. FAN SPEED(RPM)..... 2000
(rad/sec) 209.4
CORR. FAN SPEED(RPM)..... 1979
(rad/sec) 207.3
TAPE NUMBER..... P636

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	76.9	76.3	76.3	77.1	75.5	74.6	74.3	75.2	74.5	76.4	77.8	78.7	77.9	77.4	77.7	78.3	78.1	133.5
63	78.8	79.2	78.8	78.9	77.4	77.2	77.5	78.1	77.4	78.6	80.6	78.6	79.0	79.1	78.6	79.3	80.4	135.7
80	77.6	77.3	76.2	76.3	74.2	74.7	75.0	75.6	75.9	75.9	76.7	76.2	77.3	77.4	76.8	75.6	76.2	133.2
100	76.1	76.0	75.3	76.8	73.4	74.3	73.3	74.8	75.0	74.8	75.8	74.9	76.2	75.8	75.7	74.5	73.9	132.3
125	75.0	75.3	75.1	77.1	74.1	75.0	75.9	78.4	76.8	72.8	74.1	76.6	78.9	77.4	75.5	74.5	71.3	133.5
160	72.3	72.9	73.8	75.2	70.9	70.8	70.0	70.5	70.2	68.7	68.8	68.8	69.3	69.7	69.7	70.6	66.8	127.8
200	71.9	71.9	72.6	73.8	70.4	67.2	68.1	68.2	68.9	65.9	67.1	67.2	65.8	66.9	67.1	67.2	65.7	126.0
250	69.8	71.3	70.2	67.8	65.4	64.7	65.7	66.0	65.4	64.4	64.4	66.6	67.4	70.1	67.9	68.1	67.2	124.5
315	71.9	70.3	70.6	72.7	69.9	68.0	66.7	66.9	67.9	70.7	72.6	71.1	75.4	76.8	76.3	73.8	71.8	130.0
400	77.7	76.4	76.2	78.1	75.2	73.4	72.0	72.0	72.8	74.7	77.3	77.1	79.6	81.5	81.1	77.0	74.7	134.9
500	81.4	80.3	77.2	80.7	77.7	76.0	75.2	73.3	74.2	75.4	78.2	77.9	80.7	82.5	81.7	77.1	73.8	136.2
630	80.9	79.8	79.3	80.7	79.3	75.4	74.8	74.8	75.2	73.2	76.0	78.0	81.3	79.7	77.7	73.9	72.9	135.5
800	83.2	82.1	82.4	83.9	81.3	80.8	79.4	78.3	76.8	81.9	80.5	84.1	84.7	84.1	79.6	77.8	77.1	139.8
1000	84.1	82.1	82.4	86.6	82.0	80.3	78.1	76.2	76.1	78.0	80.4	80.0	81.5	83.6	81.0	77.2	74.6	139.0
1250	91.1	91.9	95.2	91.3	92.6	89.5	86.4	91.7	89.6	87.4	89.3	95.2	95.9	96.0	94.1	89.2	85.8	150.9
1600	86.9	88.0	88.3	92.5	91.7	88.0	86.5	84.9	85.8	82.4	86.6	88.1	89.7	89.2	88.3	83.6	80.9	146.6
2000	83.2	85.9	84.8	87.2	88.9	86.2	86.9	81.0	83.2	79.4	83.4	82.6	86.6	87.0	84.1	79.2	78.4	143.8
2500	83.1	86.1	86.2	87.6	88.4	84.2	84.2	81.2	82.7	81.0	82.9	84.3	85.5	88.2	85.3	81.1	79.9	143.9
3150	83.9	84.2	86.9	87.9	84.9	84.1	80.4	82.1	77.6	81.9	82.6	87.0	85.2	85.7	82.4	78.7	74.6	143.3
4000	86.5	87.3	87.2	88.6	82.5	86.0	83.3	82.4	78.5	82.8	87.0	88.5	88.8	90.1	86.1	82.6	77.5	146.1
5000	83.0	83.9	82.1	85.7	83.4	83.3	82.1	76.6	77.3	77.4	84.1	82.0	85.6	87.5	83.6	78.8	75.5	143.2
6300	79.7	79.9	80.6	81.5	83.8	78.7	79.4	76.4	77.6	77.8	81.0	83.8	82.2	86.0	80.5	75.2	74.6	142.3
8000	79.0	78.3	79.1	80.5	80.6	76.5	74.3	74.6	73.4	76.2	80.7	81.8	82.0	82.2	77.7	74.9	69.8	141.6
10000	73.3	74.4	74.2	75.5	74.7	72.4	72.1	68.9	67.7	71.1	76.8	77.1	77.1	80.0	75.3	71.1	67.3	139.4
OASPL MEASURED	97.8	98.5	99.6	100.2	99.2	97.1	95.7	95.7	94.9	94.2	97.0	99.6	100.4	101.3	98.7	94.9	92.6	
OASPL CALCULATED	96.4	97.1	98.4	98.8	98.1	95.7	94.3	94.7	93.7	93.0	95.6	98.5	99.3	99.9	97.6	93.5	91.0	
PNDB	109.4	110.0	110.2	111.6	110.3	108.6	107.1	106.0	105.3	105.8	109.3	110.7	111.5	112.7	109.4	105.8	102.8	
																	OAPWL	155.8

DIRECTIVITY INDEX

FREQ.																	
50	0.2	-0.4	-0.3	0.4	-1.1	-2.0	-2.4	-1.5	-2.2	-0.3	1.1	0.0	1.2	0.7	1.0	1.7	1.5
63	-0.0	0.5	0.0	0.1	-1.4	-1.6	-1.3	-0.7	-1.3	-0.1	1.8	-0.2	0.2	0.3	-0.1	0.5	1.6
80	1.4	1.1	-0.0	0.1	-2.0	-1.5	-1.2	-0.7	-0.4	-0.3	0.5	-0.1	1.1	1.2	0.6	-0.7	0.0
100	0.9	0.8	0.1	1.6	-1.8	-0.9	-1.8	-0.4	-0.2	-0.3	0.6	-0.3	1.0	0.6	0.5	-0.7	-1.2
125	-1.3	-1.0	-1.1	0.8	-2.2	-1.2	-0.3	2.2	0.4	-3.4	-2.1	0.3	2.6	1.2	-0.8	-1.8	-5.0
160	1.8	2.3	3.2	4.7	0.3	0.2	-0.6	0.0	-0.3	-1.9	-1.8	-1.7	-1.2	-0.9	-0.8	0.1	-3.7
200	3.3	3.3	4.0	5.2	1.8	-1.4	-0.5	-0.4	0.3	-2.7	-1.5	-1.4	-2.8	-1.7	-1.5	-1.4	-2.9
250	2.8	4.3	3.2	0.8	-1.6	-2.3	-1.3	-1.0	-1.6	-2.6	-2.6	-0.4	0.3	3.1	0.9	1.1	0.2
315	-0.5	-2.2	-1.8	0.3	-2.5	-4.5	-5.8	-5.6	-4.6	-1.8	0.1	-1.4	2.9	4.4	3.8	1.3	-0.7
400	0.5	-0.8	-1.0	0.9	-2.0	-3.8	-5.2	-5.2	-4.4	-2.5	0.1	-0.1	2.4	4.3	3.9	-0.1	-2.5
500	3.0	1.9	-1.2	2.3	-0.7	-2.4	-3.2	-5.1	-4.2	-3.0	-0.2	-0.5	2.3	4.1	3.3	-1.3	-4.6
630	3.3	2.2	1.7	3.1	1.7	-2.2	-2.8	-2.8	-2.4	-4.4	-1.6	0.3	3.7	2.1	0.1	-3.8	-4.7
800	1.4	0.3	0.6	2.2	-0.5	-0.9	-2.4	-3.4	-4.9	0.1	-1.2	2.4	3.0	2.4	-2.1	-3.9	-4.7
1000	3.3	1.3	1.6	5.8	1.2	-0.5	-2.7	-4.6	-4.6	-2.7	-0.4	-0.7	0.7	2.8	0.2	-3.6	-6.2
1250	-1.4	-0.6	2.6	-1.2	0.1	-3.1	-6.1	-0.8	-3.0	-5.1	-3.2	2.7	3.4	3.4	1.6	-3.3	-6.7
1600	-1.2	-0.0	0.3	4.5	3.7	-0.1	-1.5	-3.1	-2.2	-5.6	-1.4	0.1	1.7	1.2	0.2	-4.4	-7.1
2000	-1.9	0.9	-0.2	2.2	3.8	1.2	1.9	-4.0	-1.8	-5.6	-1.6	-2.4	1.6	2.0	-0.9	-5.8	-6.6
2500	-1.8	1.2	1.3	2.7	3.6	-0.7	-0.7	-3.7	-2.2	-3.9	-2.0	-0.6	0.6	3.3	0.4	-3.7	-5.0
3150	-0.0	0.2	2.9	3.9	0.9	0.1	-3.6	-1.9	-6.4	-2.1	-1.4	3.0	1.2	1.7	-1.6	-5.3	-9.4
4000	0.3	1.1	1.0	2.3	-3.8	-0.3	-2.9	-3.8	-7.8	-3.5	0.8	2.3	2.5	3.9	-0.2	-3.6	-8.8
5000	-0.0	0.9	-1.0	2.6	0.3	0.2	-1.0	-6.5	-5.8	-5.7	1.1	-1.1	2.6	4.4	0.5	-4.2	-7.5
6300	-1.6	-1.3	-0.6	0.3	2.5	-2.6	-1.8	-4.8	-3.7	-3.4	-0.3	2.6	1.0	4.7	-0.8	-6.0	-6.7
8000	-0.1	-0.8	-0.0	1.4	1.5	-2.6	-4.8	-4.5	-5.7	-2.9	1.6	2.7	2.9	3.1	-1.4	-4.2	-9.3
10000	-1.7	-0.7	-0.8	0.5	-0.3	-2.6	-2.9	-6.1	-7.3	-3.9	1.7	2.1	2.1	4.9	0.3	-3.9	-7.8

RUN 6 2000 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 9.6

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/6/68
RUN..... 6,Pt. 82
BAROMETER.....(in Hg).. 28.9
(N/m²).... 97590
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 10.5
(kg/m³).. 0.0105
PHYS. FAN SPEED (RPM).... 2000
(rad/sec) 209.4
CORR. FAN SPEED (RPM).... 1975
(rad/sec) 206.8
TAPE NUMBER..... P641

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0, (.0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	76.4	76.3	76.5	77.5	79.9	75.5	74.9	75.4	75.4	77.2	80.1	77.4	78.6	78.9	78.1	80.0	77.7	134.7
63	79.0	78.9	78.5	79.8	81.5	77.4	77.5	78.1	78.1	79.0	83.5	79.1	80.0	80.5	79.2	81.4	79.9	136.9
80	78.3	77.8	77.0	80.2	81.6	75.6	75.8	76.1	76.5	76.7	79.1	77.0	78.7	79.3	77.2	78.2	76.1	135.1
100	76.6	76.3	75.2	80.8	81.6	74.7	73.8	74.6	75.1	75.4	78.1	75.6	76.9	77.9	76.3	77.5	73.6	134.2
125	75.0	75.1	74.8	80.8	82.6	73.5	75.3	74.9	75.0	73.8	76.5	74.5	77.1	78.0	75.8	77.9	71.6	134.2
160	72.5	73.0	73.2	81.4	82.5	71.4	71.0	71.1	71.3	70.7	72.7	69.7	71.6	74.4	71.7	75.5	67.6	132.2
200	71.1	71.3	71.2	83.2	83.7	67.8	69.3	69.5	69.7	68.4	72.6	68.5	70.0	72.8	69.9	74.2	66.3	132.6
250	70.5	70.2	68.2	83.6	83.9	65.8	66.9	67.7	66.9	66.9	70.3	68.7	71.3	74.5	70.4	74.2	68.5	132.8
315	74.8	72.2	72.0	83.0	83.1	70.5	69.2	69.2	69.2	72.0	75.6	72.4	77.2	79.1	77.0	77.7	72.2	134.3
400	79.0	78.1	76.6	80.6	81.9	74.8	73.4	73.4	73.0	75.1	79.1	77.6	80.5	82.7	81.3	79.1	74.9	136.3
500	81.8	80.8	78.5	77.0	79.8	76.7	75.9	74.4	74.6	76.2	80.3	78.4	81.5	83.6	82.3	79.0	74.2	137.0
630	80.7	81.1	80.6	78.4	81.4	77.1	76.2	74.6	74.7	74.0	80.4	80.0	81.9	82.2	79.7	77.6	73.4	137.0
800	85.6	81.1	82.5	67.8	76.8	81.6	80.1	78.2	77.2	80.7	86.1	86.7	85.3	84.7	81.4	78.2	76.3	140.7
1000	85.7	82.8	83.6	57.5	74.3	80.1	78.2	75.8	76.5	77.2	81.6	80.5	81.6	83.9	80.4	78.3	74.5	138.1
1250	91.0	91.0	95.0	84.8	84.2	87.7	89.2	89.3	94.9	91.2	95.4	97.8	96.4	97.4	95.2	92.0	88.6	152.5
1600	85.9	87.2	88.5	89.4	85.3	87.3	86.6	83.4	86.7	83.8	88.9	89.0	89.8	89.4	87.6	84.6	81.7	146.1
2000	83.1	86.2	84.1	69.7	78.6	86.2	86.8	80.7	84.3	79.2	84.9	82.4	86.0	87.1	84.0	79.7	78.6	143.0
2500	82.3	87.1	85.0	69.3	77.4	84.0	84.4	80.7	83.4	81.4	84.0	82.3	85.5	87.1	83.7	78.9	77.3	142.5
3150	83.5	83.5	86.0	45.9	28.9	83.0	79.8	81.2	77.0	81.8	83.6	87.1	85.0	85.6	82.4	78.8	74.5	142.3
4000	85.9	86.8	86.8	67.4	76.9	84.6	82.2	81.6	77.9	82.5	88.5	88.4	88.8	89.3	85.4	82.6	77.1	145.5
5000	82.4	83.0	81.2	65.4	73.8	82.8	81.0	75.8	76.6	77.2	85.3	81.8	85.4	87.0	83.0	78.7	75.0	142.4
6300	78.6	78.6	79.4	79.6	74.7	78.4	78.5	74.9	76.3	77.2	81.7	83.4	81.6	85.5	79.6	75.0	73.7	141.3
8000	77.5	76.7	77.8	79.2	78.3	75.5	72.5	73.2	71.7	75.9	80.9	81.2	81.1	81.3	76.4	74.2	69.0	140.7
10000	71.5	72.4	72.1	82.7	82.2	71.1	69.9	66.9	66.2	70.1	76.9	76.2	75.9	78.7	73.8	70.6	65.1	140.5
OASPL MEASURED	97.6	97.9	99.1	91.2	89.0	96.3	96.2	94.6	97.5	95.5	100.3	100.7	100.9	102.4	99.3	98.6	93.3	
OASPL CALCULATED	96.4	96.7	98.2	94.9	94.9	95.0	94.8	93.2	96.7	94.5	99.0	100.0	99.6	100.6	98.0	95.3	92.0	
PNDB	109.0	109.7	109.8	105.7	105.3	107.9	107.1	105.1	107.2	106.0	111.2	111.1	111.6	112.5	109.4	106.6	103.1	
																	OAPWL	150.2

DIRECTIVITY INDEX

FREQ.																	
50	-1.5	-1.5	-1.4	-0.4	2.0	-2.4	-2.9	-2.4	-2.5	-0.7	2.2	-0.5	0.7	1.1	0.2	2.2	-0.2
63	-1.0	-1.1	-1.5	-0.2	1.5	-2.6	-2.5	-1.9	-1.9	-1.0	3.5	-0.9	-0.0	0.5	-0.8	1.4	-0.1
80	0.3	-0.3	-1.0	2.1	3.5	-2.4	-2.2	-1.9	-1.6	-1.3	1.0	-1.1	0.7	1.3	-0.9	0.1	-1.9
100	-0.5	-0.8	-1.9	3.7	4.5	-2.4	-3.3	-2.5	-2.0	-1.7	1.1	-1.5	-0.2	0.8	-0.7	0.5	-3.4
125	-2.0	-1.9	-2.2	3.9	5.6	-3.5	-1.7	-2.1	-1.9	-3.2	-0.5	-2.5	0.1	1.0	-1.2	0.9	-5.4
160	-2.4	-1.9	-1.8	6.4	7.6	-3.5	-4.0	-3.9	-3.7	-4.2	-2.2	-5.3	-3.4	-0.5	-3.3	0.5	-7.4
200	-4.2	-3.9	-4.1	7.9	8.5	-7.5	-6.0	-5.7	-5.6	-6.8	-2.7	-6.7	-5.2	-2.4	-5.4	-1.1	-9.0
250	-4.8	-5.1	-7.1	8.3	8.6	-9.5	-8.4	-7.6	-8.4	-8.4	-5.0	-6.6	-4.0	-0.8	-4.9	-1.1	-6.8
315	-1.9	-4.5	-4.7	6.3	6.4	-6.2	-7.5	-7.5	-7.5	-4.7	-1.1	-4.3	0.5	2.3	0.3	0.9	-4.5
400	0.4	-0.6	-2.1	1.9	3.2	-3.9	-5.3	-5.3	-5.7	-3.5	0.4	-1.1	1.8	4.0	2.6	0.4	-3.8
500	2.6	1.5	-0.8	-2.3	0.5	-2.6	-3.4	-4.9	-4.6	-3.0	1.0	-0.9	2.2	4.4	3.1	-0.2	-5.0
630	1.6	2.0	1.4	-0.7	2.3	-2.1	-2.9	-4.5	-4.4	-2.1	1.2	0.8	2.7	3.1	0.6	-1.5	-5.7
800	2.9	-1.6	-0.2	-14.9	-5.9	-1.1	-2.7	-4.5	-5.5	-2.0	3.4	4.0	2.6	2.0	-1.3	-4.5	-6.4
1000	5.8	2.9	3.7	-22.4	-5.6	0.2	-1.7	-4.1	-3.4	-2.7	1.7	0.6	1.7	4.0	0.6	-1.6	-5.4
1250	-3.1	-3.1	0.9	-9.3	-9.9	-6.4	-4.9	-4.8	0.8	-3.0	1.3	3.7	2.3	3.3	1.1	-2.1	-5.5
1600	-1.7	-0.3	0.9	1.8	-2.3	-0.3	-1.0	-4.2	-0.9	-3.8	1.4	1.4	2.2	1.8	0.1	-3.0	-5.8
2000	-1.0	2.0	-0.0	-14.4	-5.5	2.1	2.7	-3.5	0.2	-5.0	0.7	-1.7	1.9	2.9	-0.1	-4.5	-5.5
2500	-1.2	3.6	1.6	-14.2	-6.0	0.5	0.9	-2.7	-0.1	-2.1	0.6	-1.2	2.0	3.6	0.2	-4.5	-6.2
3150	0.6	0.6	3.1	-37.0	-54.1	0.0	-3.1	-1.8	-5.9	-1.1	0.7	4.1	2.1	2.7	-0.5	-4.1	-8.4
4000	0.3	1.2	1.1	-18.2	-8.8	-1.0	-3.4	-4.0	-7.8	-3.1	2.9	2.8	3.2	3.6	-0.2	-3.0	-8.5
5000	0.2	0.7	-1.0	-16.8	-8.4	0.6	-1.2	-6.4	-5.6	-5.0	3.1	-0.4	3.2	4.8	0.8	-3.5	-7.2
6300	-1.7	-1.7	-0.9	-0.7	-5.4	-1.9	-1.8	-5.4	-4.0	-3.1	1.4	3.1	1.3	5.2	-0.7	-5.3	-6.6
8000	-0.7	-1.5	-0.5	1.0	0.0	-2.7	-5.7	-5.1	-6.5	-2.4	2.7	2.9	2.8	3.1	-1.9	-4.0	-9.3
10000	-4.6	-3.6	-4.0	6.6	6.1	-5.0	-6.2	-9.2	-9.9	-6.0	0.8	0.1	-0.2	2.6	-2.3	-5.5	-10.9

C37

RUN 6 2000 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE = MONTH 10 DAY 2 HR. 7.2

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.P.O.
DATE..... 9/6/68
RUN..... 6,Pt.60
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97818
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.8
ABS. HUMIDITY...(gm/m³).. 11.8
(kg/m³).. 0.0118
PHYS. FAN SPEED (RPM).... 2156.
(rad/sec) 225.7
CORR. FAN SPEED (RPM).... 2156.
(rad/sec) 225.6
TAPE NUMBER..... P636

FREQ.	ANGLES FROM INLET 0, (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	80.6	78.4	76.3	86.2	76.7	76.7	75.8	77.0	76.3	78.2	79.0	79.2	79.3	78.9	79.2	79.9	80.0	136.0
63	82.8	79.9	78.8	86.6	77.9	78.6	78.9	79.4	77.9	79.7	81.0	80.2	80.3	80.3	79.9	80.5	81.4	137.4
80	81.5	78.2	76.4	83.0	75.8	76.7	77.5	77.8	77.5	77.9	78.4	78.4	79.6	79.5	78.3	76.9	77.2	135.5
100	79.5	76.8	75.1	81.4	74.7	76.3	75.3	76.8	76.5	76.5	77.1	77.0	78.0	78.0	77.4	76.1	75.4	134.3
125	78.6	76.3	75.3	80.6	74.1	75.9	75.8	77.2	76.0	74.9	75.4	76.9	77.8	77.0	75.7	75.8	73.1	133.7
160	75.9	74.3	74.5	78.7	72.4	73.5	72.7	72.6	72.2	71.2	71.2	71.0	72.0	72.4	72.0	72.4	68.9	130.2
200	74.3	72.7	73.6	77.3	71.9	70.7	71.2	71.2	71.2	68.5	69.7	70.2	68.8	68.5	68.9	68.6	66.5	128.5
250	72.0	71.3	70.1	72.3	66.9	68.4	68.8	68.9	67.9	65.9	65.1	66.4	66.9	69.7	67.1	66.7	66.2	125.6
315	73.7	70.6	70.1	73.9	70.8	69.8	68.1	68.4	68.2	71.0	71.1	69.6	75.1	76.5	74.9	73.3	71.3	129.8
400	79.0	77.4	75.9	78.2	75.7	73.7	71.6	72.3	73.1	75.4	77.1	76.1	79.9	81.8	80.5	76.6	74.4	134.8
500	82.0	81.0	78.0	81.3	78.7	75.7	75.5	74.1	74.9	76.4	78.8	78.2	81.4	83.3	82.0	76.9	73.8	136.8
630	81.6	81.9	79.4	81.6	79.5	76.6	76.1	74.6	74.7	76.1	79.0	80.8	82.4	82.3	79.5	75.1	72.2	137.0
800	82.8	83.0	83.0	85.0	81.5	82.0	79.5	79.9	78.3	77.9	82.5	85.2	83.3	82.4	83.1	76.9	75.8	140.1
1000	87.6	86.4	85.7	88.1	85.1	85.5	82.9	83.4	81.8	81.6	86.5	89.2	86.7	85.8	86.8	79.5	78.3	143.8
1250	89.6	88.8	91.6	92.3	88.0	86.5	87.3	86.6	87.6	88.0	90.2	93.6	96.8	91.4	88.4	84.7	82.6	149.2
1600	90.5	92.1	96.4	97.3	92.8	91.5	93.0	92.2	93.2	93.7	95.7	99.5	102.7	96.4	93.5	90.0	88.3	155.0
2000	84.6	86.4	86.9	91.8	91.2	86.5	87.2	82.1	84.3	81.4	86.2	84.9	88.3	88.5	83.8	80.2	79.0	145.6
2500	84.5	86.1	87.1	88.6	95.1	91.3	91.4	85.1	86.0	82.6	85.7	86.6	87.6	89.9	83.8	82.4	81.9	147.7
3150	85.2	85.9	90.3	88.3	87.5	84.5	82.6	85.1	81.0	85.0	86.5	89.9	87.9	89.7	84.2	82.4	78.5	146.1
4000	87.8	88.1	88.4	90.2	85.6	87.6	86.5	85.3	82.1	85.9	90.7	90.9	92.0	93.6	88.5	86.8	80.4	149.0
5000	84.3	85.2	83.3	86.5	84.2	84.3	84.5	79.3	79.3	80.0	86.4	84.2	88.0	90.1	84.7	81.9	77.4	145.2
6300	80.0	80.8	81.7	82.4	85.9	80.0	81.5	78.4	79.3	79.8	83.0	85.3	84.5	87.9	81.0	76.5	75.8	144.0
8000	79.6	79.0	80.0	81.5	82.7	77.7	76.2	76.5	74.5	78.0	82.4	83.0	83.6	83.1	77.6	76.1	70.6	143.0
10000	73.8	74.8	75.0	76.2	76.8	73.8	74.0	71.3	69.6	73.4	79.0	78.9	79.5	81.8	75.7	72.3	68.3	141.2
OASPL MEASURED	99.2	99.3	101.3	103.0	101.2	99.1	99.2	97.4	97.6	98.0	100.8	103.1	105.6	103.1	99.3	96.3	94.0	
OASPL CALCULATED	97.7	97.9	100.0	101.7	99.9	97.7	97.9	96.3	96.4	96.9	99.7	102.3	104.7	101.5	98.0	95.0	92.9	
PNDB	110.8	111.0	112.8	114.4	114.3	111.5	111.4	109.1	109.2	109.9	112.6	114.9	117.1	115.2	110.9	108.5	105.6	
																	OAPWL	158.9

DIRECTIVITY INDEX

FREQ.																	
50	1.4	-0.8	-2.9	7.0	-2.5	-2.5	-3.4	-2.2	-2.9	-1.0	-0.2	-0.0	0.2	-0.3	-0.0	0.7	0.8
63	2.3	-0.6	-1.7	6.1	-2.6	-1.9	-1.6	-1.1	-2.6	-0.8	0.5	-0.3	-0.2	-0.2	-0.6	0.0	1.0
80	3.0	-0.3	-2.1	4.5	-2.7	-1.8	-1.0	-0.6	-1.0	-0.6	-0.1	-0.1	1.1	1.0	-0.2	-1.5	-1.2
100	2.3	-0.4	-2.0	4.3	-2.4	-0.9	-1.9	-0.4	-0.7	-0.7	-0.1	-0.1	0.9	0.9	0.2	-1.0	-1.8
125	2.1	-0.2	-1.2	4.0	-2.5	-0.7	-0.8	0.7	-0.5	-1.7	-1.1	0.3	1.3	0.4	-0.9	-0.7	-3.4
160	3.0	1.4	1.6	5.8	-0.5	0.6	-0.3	-0.3	-0.7	-1.7	-1.7	-1.9	-0.9	-0.5	-1.0	-0.6	-4.0
200	3.2	1.6	2.5	6.2	0.8	-0.4	0.1	0.1	0.1	-2.6	-1.4	-0.9	-2.3	-2.6	-2.2	-2.5	-4.6
250	3.8	3.2	1.9	4.1	-1.3	0.2	0.6	0.8	-0.3	-2.3	-3.1	-1.8	-1.2	1.5	-1.1	-1.5	-1.9
315	1.5	-1.6	-2.1	1.7	-1.4	-2.4	-4.1	-3.8	-4.0	-1.2	-1.1	-2.6	2.9	4.3	2.7	1.1	-0.9
400	1.8	0.3	-1.2	1.0	-1.5	-3.5	-5.6	-4.8	-4.1	-1.8	-0.1	-1.1	2.7	4.6	3.3	-0.6	-2.7
500	3.0	2.0	-1.0	2.3	-0.3	-3.3	-3.5	-4.9	-4.0	-2.6	-0.2	-0.8	2.5	4.3	3.0	-2.1	-5.2
630	2.5	2.7	0.3	2.5	0.3	-2.6	-3.1	-4.6	-4.4	-3.1	-0.1	1.7	3.2	3.2	0.4	-4.0	-6.9
800	0.8	1.0	1.0	3.0	-0.5	-0.0	-2.5	-2.1	-3.7	-4.1	0.5	3.2	1.3	0.4	1.1	-5.1	-6.2
1000	2.1	0.8	0.2	2.6	-0.5	-0.1	-2.6	-2.1	-3.8	-4.0	0.9	3.6	1.1	0.2	1.2	-6.0	-7.3
1250	-1.2	-2.0	0.7	1.5	-2.8	-4.3	-3.5	-4.2	-3.3	-2.9	-0.7	2.8	5.9	0.6	-2.4	-6.1	-8.3
1600	-5.9	-4.4	-0.0	0.9	-3.6	-4.9	-3.4	-4.2	-3.2	-2.7	-0.8	3.1	6.3	-0.0	-2.9	-6.4	-8.1
2000	-2.3	-0.4	0.1	5.0	4.4	-0.3	0.4	-4.7	-2.5	-5.5	-0.6	-1.9	1.5	1.7	-3.0	-6.6	-7.8
2500	-4.2	-2.6	-1.6	-0.1	6.5	2.6	2.7	-3.6	-2.7	-6.1	-3.0	-2.1	-1.1	1.3	-4.9	-6.3	-6.8
3150	-1.5	-0.8	3.5	1.6	0.8	-2.3	-4.1	-1.6	-5.7	-1.7	-0.2	3.2	1.2	3.0	-2.5	-4.4	-8.2
4000	-1.3	-1.0	-0.7	1.1	-3.5	-1.5	-2.6	-3.8	-7.0	-3.2	1.6	1.8	2.9	4.5	-0.6	-2.4	-8.7
5000	-0.8	0.1	-1.7	1.5	-0.9	-0.8	-0.6	-5.8	-5.8	-5.1	1.3	-0.9	3.0	5.1	-0.4	-3.2	-7.7
6300	-3.0	-2.2	-1.3	-0.6	2.9	-3.0	-1.5	-4.6	-3.7	-3.2	-0.0	2.3	1.5	4.9	-2.0	-6.5	-7.2
8000	-0.9	-1.4	-0.5	1.0	2.3	-2.8	-4.3	-4.0	-6.0	-2.5	2.0	2.5	3.1	2.6	-2.9	-4.4	-9.9
10000	-3.1	-2.0	-1.9	-0.6	0.0	-3.1	-2.8	-5.5	-7.2	-3.4	2.1	2.0	2.7	5.0	-1.1	-4.5	-8.6

C38

RUN 6 2156 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 9.6

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/6/68
RUN..... 6,Pt. 83
BAROMETER.....(in Hg).. 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 10.5
(kg/m³).. 0.0105
PHYS. FAN SPEED (RPM).... 2150
(rad/sec) 225.1
CORR. FAN SPEED (RPM).... 2124
(rad/sec) 222.4
TAPE NUMBER..... P641

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0.0 (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	78.1	81.6	80.0	83.1	76.3	76.4	76.8	76.0	76.1	78.1	83.2	80.7	79.9	79.5	78.9	79.9	79.3	136.5
63	80.7	83.7	81.3	82.8	78.3	78.8	79.9	79.0	79.0	80.1	86.0	81.5	80.9	81.1	79.8	80.8	80.8	138.3
80	79.6	81.8	79.1	79.8	75.7	76.9	78.0	77.6	77.3	78.1	82.5	79.7	80.0	80.0	78.3	77.9	77.5	136.2
100	77.7	79.9	77.0	78.7	74.5	76.2	76.1	76.0	76.1	76.6	81.4	78.4	78.5	78.5	77.1	76.4	74.8	134.9
125	77.0	78.9	76.7	78.3	73.9	75.7	76.7	75.7	75.1	74.7	79.9	77.2	77.4	78.1	75.8	76.1	72.6	134.1
160	74.8	76.2	74.8	76.4	72.0	73.0	73.9	72.3	72.0	70.2	76.8	72.9	72.1	73.2	71.4	72.8	67.9	130.8
200	73.4	74.3	73.6	75.1	71.1	69.7	73.2	70.7	70.9	68.1	76.8	72.4	69.6	70.6	68.1	69.5	65.6	129.6
250	71.7	72.3	70.0	70.1	67.3	67.4	71.1	68.1	67.7	66.6	74.8	69.9	70.6	72.8	69.1	69.7	67.2	127.9
315	75.3	73.2	72.5	75.2	72.5	71.1	72.8	69.4	70.1	72.4	78.4	73.9	76.8	78.7	76.7	75.3	72.3	132.5
400	79.5	78.5	77.0	79.0	76.1	75.0	74.4	73.1	73.3	75.6	80.1	78.3	80.7	82.7	81.2	77.5	74.8	136.0
500	82.6	81.4	78.9	81.3	78.5	76.9	76.9	74.5	75.1	76.7	81.2	79.3	81.9	83.5	82.0	77.5	74.0	137.4
630	82.1	81.6	80.8	81.7	79.3	77.8	76.5	75.2	75.2	75.2	80.3	80.2	82.3	82.3	80.1	76.1	73.1	137.3
800	83.3	82.3	81.9	82.8	80.7	80.1	78.3	77.6	77.5	79.2	84.7	82.4	82.4	83.6	79.0	76.3	75.3	139.2
1000	87.7	85.7	85.9	87.9	84.4	83.4	81.4	80.1	80.3	82.3	87.4	85.4	85.4	87.0	81.9	79.0	77.4	142.6
1250	89.5	89.8	89.2	90.3	86.5	84.9	85.5	88.0	86.6	87.7	90.2	93.9	95.4	92.1	88.6	84.7	81.6	148.6
1600	89.5	93.2	92.2	93.9	91.1	88.7	90.3	93.0	91.5	92.7	94.5	99.0	100.5	96.7	93.1	89.3	86.5	153.6
2000	84.5	86.3	85.3	89.1	89.7	86.2	86.0	81.2	83.4	81.6	87.3	84.4	88.2	88.3	84.0	80.2	78.4	144.9
2500	83.6	85.4	87.0	88.4	94.2	91.9	91.4	85.6	84.4	80.6	86.0	85.2	87.5	89.7	83.5	80.5	79.4	147.4
3150	85.0	85.9	89.4	87.2	85.6	84.2	81.4	83.3	80.0	84.2	86.4	90.0	88.0	89.8	84.3	81.3	77.5	145.6
4000	87.6	88.0	87.2	89.2	83.6	86.8	85.1	84.1	81.4	85.2	91.6	90.8	92.5	92.5	88.3	85.7	79.4	148.6
5000	83.4	84.5	82.4	85.6	82.3	83.3	83.3	78.0	78.5	79.0	87.0	83.8	87.9	89.1	84.5	81.0	76.4	144.7
6300	79.2	80.0	80.7	81.1	83.7	79.2	80.1	76.6	77.9	78.6	83.7	84.6	84.4	87.3	80.7	76.0	74.8	143.3
8000	78.3	77.8	78.5	79.9	80.3	76.4	74.2	74.4	72.6	76.6	82.7	82.2	83.2	81.9	76.9	75.0	69.3	142.0
10000	72.6	73.5	73.2	74.5	74.3	72.3	72.4	69.4	68.2	71.8	79.4	77.7	78.8	80.2	75.0	71.4	66.0	140.2
OASPL MEASURED	98.8	99.7	99.5	100.6	99.8	98.2	98.6	97.5	96.1	97.3	101.4	102.8	104.1	102.8	98.6	95.6	92.7	
OASPL CALCULATED	97.2	98.5	98.1	99.5	98.6	96.9	96.7	96.3	95.2	96.3	100.0	101.8	103.2	101.5	97.6	94.5	91.7	
PNDB	110.4	111.2	111.5	112.3	113.1	111.4	111.0	109.0	108.0	109.1	113.6	114.5	115.9	114.8	110.6	107.8	104.3	
																	OAPWL	158.1

DIRECTIVITY INDEX

FREQ.																	
50	-1.6	2.0	0.3	3.5	-3.3	-3.2	-2.8	-3.6	-3.5	-1.5	3.6	1.1	0.3	-0.1	-0.7	0.3	-0.3
63	-0.7	2.3	-0.1	1.3	-3.1	-2.6	-1.5	-2.4	-2.4	-1.3	4.6	0.1	-0.5	-0.3	-1.6	-0.6	-0.6
80	0.4	2.6	-0.1	0.6	-3.5	-2.3	-1.2	-1.6	-1.9	-1.0	3.3	0.5	0.8	0.9	-0.9	-1.3	-1.7
100	-0.1	2.1	-0.8	0.9	-3.3	-1.6	-1.7	-1.8	-1.7	-1.2	3.6	0.6	0.7	0.7	-0.7	-1.4	-3.0
125	0.1	2.0	-0.2	1.4	-3.0	-1.3	-0.2	-1.2	-1.8	-2.2	3.0	0.3	0.5	1.2	-1.1	-0.8	-4.3
160	1.3	2.7	1.3	2.9	-1.4	-0.4	0.4	-1.2	-1.5	-3.3	3.4	-0.6	-1.4	-0.3	-2.0	-0.7	-5.6
200	1.3	2.1	1.4	2.9	-1.1	-2.5	1.0	-1.5	-1.3	-4.1	4.6	0.2	-2.6	-1.5	-4.1	-2.7	-6.6
250	1.3	1.9	-0.5	-0.4	-3.2	-3.0	0.7	-2.3	-2.8	-3.9	4.3	-0.5	0.1	2.4	-1.4	-0.8	-3.3
315	0.4	-1.8	-2.4	0.3	-2.5	-3.9	-2.1	-5.5	-4.8	-2.5	3.5	-1.0	1.8	3.8	1.7	0.4	-2.6
400	1.2	0.1	-1.4	0.6	-2.3	-3.3	-4.0	-5.2	-5.1	-2.8	1.8	-0.1	2.4	4.3	2.8	-0.8	-3.6
500	3.0	1.8	-0.7	1.7	-1.1	-2.7	-2.7	-5.1	-4.5	-2.9	1.6	-0.4	2.3	3.9	2.4	-2.1	-5.6
630	2.7	2.2	1.4	2.3	-0.1	-1.6	-2.9	-4.2	-4.2	-4.1	0.9	0.8	2.9	3.0	0.7	-3.3	-6.3
800	2.1	1.1	0.7	1.6	-0.5	-1.1	-2.9	-3.6	-3.7	-2.0	3.5	1.2	1.2	2.4	-2.2	-4.9	-5.9
1000	3.2	1.3	1.5	3.5	-0.0	-1.1	-3.1	-4.4	-4.2	-2.1	3.0	1.0	0.9	2.6	-2.5	-5.5	-7.1
1250	-0.7	-0.5	-1.1	0.1	-3.7	-5.4	-4.7	-2.3	-3.6	-2.6	-0.1	3.6	5.1	1.9	-1.7	-5.6	-8.7
1600	-5.5	-1.8	-2.9	-1.1	-4.0	-6.3	-4.7	-2.1	-3.5	-2.3	-0.5	3.9	5.4	1.7	-1.9	-5.7	-8.5
2000	-1.6	0.2	-0.8	3.0	3.6	0.1	-0.1	-4.9	-2.7	-4.5	1.2	-1.7	2.1	2.3	-2.1	-5.9	-7.7
2500	-4.7	-2.9	-1.4	0.0	5.8	3.5	3.0	-2.8	-3.9	-7.7	-2.4	-3.2	-0.8	1.4	-4.8	-7.8	-8.9
3150	-1.3	-0.4	3.1	0.9	-0.6	-2.1	-4.9	-2.9	-6.3	-2.1	0.1	3.7	1.7	3.5	-2.0	-4.9	-8.8
4000	-1.2	-0.7	-1.6	0.4	-5.2	-2.0	-3.6	-4.7	-7.4	-3.6	2.8	2.0	3.7	3.7	-0.5	-3.1	-9.4
5000	-1.1	-0.0	-2.1	1.1	-2.2	-1.2	-1.2	-6.5	-6.1	-5.5	2.5	-0.7	3.4	4.6	-0.0	-3.5	-8.1
6300	-3.1	-2.3	-1.6	-1.2	1.4	-3.1	-2.2	-5.7	-4.4	-3.7	1.5	2.3	2.1	5.0	-1.5	-6.3	-7.5
8000	-1.2	-1.7	-1.0	0.3	0.8	-3.2	-5.4	-5.1	-7.0	-2.9	3.2	2.6	3.6	2.4	-2.6	-4.6	-10.2
10000	-3.2	-2.3	-2.6	-1.3	-1.5	-3.5	-3.4	-6.4	-7.6	-4.1	3.6	1.9	3.0	4.4	-0.8	-4.4	-9.8

RUN 6 2150 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE = MONTH 10 DAY 2 HR. 7.2

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.F.C.
DATE..... 9/6/68
MIC..... 6,Ft. 89
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 62.0
(°K)..... 289.8
ABS. HUMIDITY...(gm/m3).. 11.8
(kg/m3).. 0.0119
PWR. FAN SPEED(RPM).... 2300
(rad/sec) 240.8
COMP. FAN SPEED(RPM).... 2276
(rad/sec) 238.3
TAPE NUMBER..... P637

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	78.1	80.4	79.1	80.1	77.2	79.5	77.0	77.4	77.7	79.9	79.6	80.6	81.5	80.8	81.2	82.3	81.7	136.8
63	80.8	82.2	80.9	80.6	78.9	81.5	80.4	79.6	79.9	81.9	82.2	81.4	82.2	81.8	81.5	82.7	83.1	138.3
80	79.3	79.8	78.7	78.7	76.3	78.8	78.9	78.7	79.7	79.6	80.0	80.1	81.4	81.3	80.7	79.4	79.3	136.8
100	77.3	78.1	77.1	78.4	75.8	78.0	77.5	77.9	78.6	78.9	79.0	78.8	79.8	79.5	79.3	77.9	76.8	135.7
125	77.6	78.1	77.4	79.0	75.8	77.2	77.7	77.4	77.3	76.8	76.2	77.1	77.7	77.9	77.5	77.9	74.1	134.6
160	74.5	75.6	75.4	76.6	73.0	74.1	74.4	74.1	74.6	72.9	72.1	72.5	72.8	72.4	73.2	73.9	69.5	131.0
200	72.9	74.1	74.0	74.2	70.6	70.1	72.6	71.7	73.1	69.4	69.6	69.6	68.1	67.2	68.5	69.7	66.5	128.3
250	71.3	73.7	71.4	70.3	67.2	67.8	69.8	69.7	70.8	67.2	66.6	67.2	69.0	70.5	69.7	69.6	67.2	126.8
315	71.9	71.4	71.6	74.4	71.5	69.7	69.4	68.8	70.3	72.1	72.3	71.2	76.3	77.6	76.7	75.0	71.8	130.9
400	77.8	76.8	76.3	79.0	76.7	74.2	73.8	73.1	73.7	76.4	78.0	77.5	80.6	82.5	81.7	77.8	73.1	135.8
500	81.7	80.7	78.2	81.7	79.5	77.4	77.3	75.0	75.8	77.3	79.2	79.1	81.3	83.5	81.8	77.5	73.7	137.3
630	82.7	82.7	80.9	82.1	79.4	77.5	77.5	75.7	76.8	78.0	80.2	81.0	83.0	82.4	80.3	75.7	72.5	137.8
800	81.3	81.3	81.0	81.5	78.7	78.2	76.7	76.1	76.0	77.0	78.6	79.2	80.8	80.8	78.2	76.1	74.8	136.8
1000	89.0	87.5	87.5	90.1	89.3	88.3	87.3	81.7	82.3	87.7	87.9	89.6	88.1	89.0	84.8	82.3	85.5	145.7
1250	88.7	87.9	88.2	88.3	85.8	83.9	82.2	81.3	82.2	82.2	86.1	86.3	88.5	89.2	84.5	80.8	78.6	144.0
1600	91.9	92.5	99.0	94.5	95.5	91.3	92.2	88.3	91.7	90.4	98.5	97.8	101.9	101.1	94.3	91.9	91.4	159.2
2000	85.4	87.7	87.0	89.5	89.8	88.5	87.3	83.5	86.1	83.9	88.8	87.7	90.1	91.3	85.9	82.7	81.1	146.7
2500	84.6	85.2	86.4	87.8	91.2	87.4	85.4	83.4	84.7	83.5	85.3	86.3	88.0	90.6	84.8	82.3	80.8	145.8
3150	86.0	86.6	89.9	89.0	87.7	86.6	84.9	89.0	83.9	88.8	87.5	91.8	92.7	92.4	86.8	84.0	79.9	148.5
4000	88.4	88.5	88.5	89.5	84.4	87.8	85.5	85.3	81.8	86.4	90.2	91.5	91.4	91.6	86.4	84.3	79.2	148.4
5000	85.3	86.8	84.7	87.0	85.1	85.3	85.3	81.5	82.0	82.9	89.4	88.6	90.4	94.1	86.7	83.8	80.2	147.9
6300	81.2	81.8	82.6	82.8	86.4	81.0	81.9	79.7	81.2	81.6	84.0	87.1	85.2	89.1	82.4	77.9	77.4	145.2
8000	81.1	80.3	80.9	81.6	83.4	79.2	76.6	77.8	75.8	79.4	83.3	84.0	84.5	83.9	79.0	77.3	71.9	143.9
10000	75.4	76.3	76.0	76.4	77.3	75.1	75.0	73.1	71.8	75.9	80.6	81.0	81.1	83.3	77.7	74.0	70.0	142.8
OASPL MEASURED	99.2	99.7	102.3	101.1	100.9	98.9	98.2	96.6	97.1	97.8	102.1	102.5	105.0	105.0	99.5	97.2	95.7	
OASPL CALCULATED	98.1	98.4	101.2	99.9	99.8	97.7	97.1	95.3	95.9	96.7	101.2	101.4	104.0	104.0	98.3	96.0	94.9	
PNDB	111.2	111.5	114.2	112.7	112.6	110.7	109.9	109.9	109.0	110.5	114.3	114.4	117.0	117.1	111.5	109.0	107.5	
																	OAPWL	159.1

DIRECTIVITY INDEX

FREQ.																	
50	-1.8	0.4	-0.8	0.2	-2.7	-0.4	-2.9	-2.6	-2.2	-0.8	-0.3	0.7	1.5	0.9	1.3	2.4	1.8
63	-0.7	0.7	-0.5	-0.8	-2.5	0.1	-1.0	-1.9	-1.5	0.5	0.7	0.8	0.7	0.4	0.0	1.3	1.7
80	-0.5	-0.0	-1.1	-1.1	-3.5	-1.0	-0.9	-1.1	-0.1	-0.2	0.2	0.3	1.6	1.5	0.9	-0.4	-0.5
100	-1.3	-0.5	-1.5	-0.2	-2.8	-0.6	-1.1	-0.8	0.0	0.3	0.4	0.2	1.2	0.9	0.9	-0.7	-1.8
125	0.2	0.7	0.1	1.7	-1.6	-0.2	0.3	0.0	-0.0	-0.6	-1.1	-0.3	0.4	0.5	0.1	0.6	-3.2
160	0.8	1.9	1.7	2.9	-0.7	0.4	0.6	0.3	0.9	-0.9	-1.7	-1.3	-1.0	-1.4	-0.5	0.2	-4.3
200	1.9	3.1	3.0	3.2	-0.3	-0.9	1.6	0.7	2.1	-1.5	-1.4	-1.4	-2.9	-3.8	-2.5	-1.2	-4.9
250	2.0	4.4	2.1	1.0	-2.1	-1.5	0.5	0.4	1.6	-2.1	-2.7	-2.1	-0.3	1.2	0.5	0.3	-2.1
315	-1.4	-2.0	-1.8	1.0	-1.9	-3.7	-4.0	-4.6	-3.1	-1.3	-1.1	-2.1	2.9	4.2	3.3	1.6	-1.6
400	-0.3	-1.3	-1.8	0.9	-1.3	-3.9	-4.3	-5.0	-4.4	-1.7	-0.1	-0.6	2.5	4.5	3.6	-0.3	-3.0
500	2.2	1.3	-1.3	2.2	-0.0	-2.1	-2.1	-4.5	-3.7	-2.2	-0.2	-0.4	2.3	4.0	2.3	-2.0	-5.0
630	2.8	2.8	1.0	2.2	-0.5	-2.4	-2.4	-4.1	-3.0	-1.9	0.3	1.2	3.1	2.5	0.5	-4.2	-7.4
800	2.6	2.6	2.3	2.8	-0.0	-0.5	-2.0	-2.7	-2.7	-1.7	-0.2	0.5	2.0	2.0	-0.6	-2.7	-4.0
1000	1.5	-0.1	-0.0	2.6	1.8	0.8	-0.2	-3.9	-5.2	0.2	0.3	2.0	0.5	1.4	-2.8	-5.3	-2.0
1250	3.1	2.2	2.5	2.7	0.2	-1.7	-3.4	-4.4	-3.5	-3.4	0.4	0.7	2.9	3.6	-1.1	-4.9	-7.0
1600	-4.7	-4.2	2.3	-2.2	-1.2	-5.4	-4.5	-8.4	-4.9	-6.3	1.8	1.2	5.2	4.4	-2.4	-4.8	-5.3
2000	-2.5	-0.3	-0.9	1.6	1.9	0.5	-0.6	-4.4	-1.8	-4.1	0.9	-0.8	2.2	3.4	-2.1	-5.2	-6.9
2500	-2.3	-1.6	-0.4	1.0	4.3	0.6	-1.4	-3.4	-2.2	-3.3	-1.5	-0.5	1.2	3.8	-2.1	-4.5	-6.0
3150	-3.1	-2.5	0.8	-0.1	-1.4	-2.5	-4.2	-0.1	-5.2	-0.3	-1.6	2.7	3.6	3.3	-2.3	-5.1	-9.2
4000	-0.1	-0.0	-0.0	1.0	-4.1	-0.7	-3.0	-3.2	-6.7	-2.1	1.7	3.0	2.9	3.1	-2.1	-4.2	-9.3
5000	-2.4	-1.0	-3.1	-0.7	-2.6	-2.5	-2.5	-6.3	-5.7	-4.9	1.6	0.8	2.7	6.3	-1.0	-4.0	-7.6
6300	-3.0	-2.4	-1.5	-1.3	2.3	-3.2	-2.2	-4.4	-3.0	-2.5	-0.1	2.9	1.1	4.9	-1.8	-0.3	-6.8
8000	-0.3	-1.1	-0.5	0.2	2.0	-2.2	-4.8	-3.6	-5.6	-2.0	1.9	2.5	3.1	2.5	-2.4	-4.1	-9.5
10000	-3.0	-2.1	-2.4	-2.0	-1.1	-3.3	-3.4	-5.3	-6.6	-2.5	2.2	2.5	2.7	4.9	-0.7	-4.4	-8.4

C40

RUN 6 2300 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 9.6

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/6/68
RUN..... 6, Pt. 84
BAROMETER.....(in Hg).. 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 10.5
(kg/m³).. .0105
PHYS. FAN SPEED (RPM)..... 2300
(rad/sec) 240.8
CORR. FAN SPEED (RPM)..... 2272
(rad/sec) 237.9
TAPE NUMBER..... P641

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	78.5	78.1	79.2	82.6	78.1	77.8	76.8	77.6	77.4	80.7	82.5	80.9	81.5	80.6	80.9	83.6	81.7	137.3
63	80.9	80.8	80.9	82.8	79.9	79.9	80.2	79.9	79.9	82.4	85.3	81.9	82.1	81.8	81.4	83.6	82.6	138.9
80	79.3	78.5	77.8	80.0	77.4	78.3	78.4	78.8	79.1	80.2	82.6	80.3	81.2	81.1	80.0	80.1	78.9	137.1
100	77.5	77.2	76.2	78.7	75.1	77.8	76.3	77.5	78.4	79.0	81.6	79.4	80.4	80.0	79.5	79.1	76.6	136.1
125	77.9	77.8	77.8	79.9	76.2	77.2	76.3	77.8	77.4	77.9	79.6	77.9	78.8	79.3	77.5	78.8	74.5	135.4
160	75.0	75.3	75.3	76.9	72.4	73.9	72.5	73.4	73.8	73.6	75.3	73.6	73.4	73.6	73.0	74.8	69.6	131.3
200	73.7	73.7	73.4	74.2	71.3	69.7	70.3	70.8	71.1	69.6	72.7	71.6	68.7	69.4	68.5	71.4	66.6	128.5
250	73.3	72.6	71.1	72.0	69.7	68.0	67.7	69.0	68.8	67.6	70.6	71.0	71.0	72.7	70.4	71.5	68.1	127.7
315	75.8	74.0	73.5	76.8	75.1	72.6	69.5	69.8	70.3	72.7	76.3	75.6	77.8	78.9	77.5	76.5	73.1	132.8
400	79.5	78.3	77.1	79.7	78.3	76.1	74.4	74.7	74.4	76.5	80.9	79.6	81.6	83.1	82.1	78.8	75.5	136.9
500	82.4	81.3	78.9	82.1	80.7	78.8	78.8	76.5	76.6	77.9	82.4	80.2	82.6	84.1	82.2	78.4	74.6	138.4
630	82.6	82.4	81.8	83.1	80.7	78.0	78.1	77.1	77.4	78.6	83.3	81.7	84.0	84.3	81.9	77.9	74.7	139.1
800	81.6	81.0	80.9	82.1	79.4	78.2	77.0	76.2	76.4	78.0	81.6	80.4	81.7	81.3	78.6	76.8	74.7	137.6
1000	89.8	89.5	88.8	90.3	89.2	89.5	87.6	85.9	84.6	90.3	90.2	90.3	89.7	88.2	83.8	84.4	81.5	146.9
1250	88.4	87.2	88.2	88.8	85.1	83.4	82.1	81.7	82.1	81.7	88.1	86.3	88.6	89.5	84.3	80.6	78.8	144.2
1600	90.8	93.0	96.9	95.8	91.7	93.3	89.7	92.1	91.2	88.2	98.4	98.3	102.3	102.5	94.1	90.5	92.2	155.6
2000	85.4	86.9	87.6	89.9	90.4	86.8	87.6	83.7	87.2	83.6	91.2	87.7	90.6	91.2	85.5	82.3	81.3	147.2
2500	83.2	83.2	86.1	87.7	90.5	86.1	87.1	83.3	85.7	83.2	87.6	86.7	88.7	90.7	84.2	81.7	80.0	146.1
3150	85.8	86.0	90.0	88.9	87.3	86.5	84.7	87.2	82.7	87.5	89.5	91.7	92.8	91.5	86.3	83.9	79.5	148.2
4000	88.2	87.6	88.2	90.6	84.2	87.2	84.6	84.5	81.4	85.9	92.5	91.6	91.4	91.1	86.0	84.1	78.7	148.6
5000	84.7	85.8	84.2	87.4	84.4	84.7	84.7	80.4	81.7	83.2	91.6	87.8	90.3	93.4	86.4	83.4	79.3	147.9
6300	80.2	80.7	82.0	83.2	85.5	80.1	81.6	78.6	80.4	80.3	85.8	86.4	84.8	88.5	81.6	77.3	76.6	144.8
8000	79.6	78.8	80.0	82.2	82.5	78.0	75.8	76.2	75.0	78.1	85.0	83.3	83.8	82.9	78.0	76.3	70.9	143.5
10000	73.8	74.5	75.0	76.7	76.4	73.8	73.6	71.5	70.7	74.1	82.1	79.9	80.1	82.0	76.3	72.8	68.3	142.1
OASPL MEASURED	99.4	99.7	101.4	101.8	100.1	99.3	97.7	97.5	97.1	97.4	103.5	103.0	105.4	105.7	99.1	97.4	95.8	
OASPL CALCULATED	97.8	98.2	100.2	100.6	98.6	98.0	96.5	96.2	95.9	96.5	102.4	101.7	104.3	104.6	98.0	95.7	94.9	
PNDB	111.0	111.0	113.2	113.5	112.0	110.7	109.3	109.2	108.7	109.8	115.4	114.7	117.3	117.7	111.2	108.5	107.7	
																	OAPWL	159.3

DIRECTIVITY INDEX

FREQ.																	
50	-2.0	-2.4	-1.3	2.1	-2.4	-2.7	-3.7	-2.9	-3.1	0.2	2.0	0.4	1.0	0.1	0.4	3.1	1.2
63	-1.1	-1.2	-1.1	0.7	-2.1	-2.1	-1.8	-2.1	-2.1	0.3	3.3	-0.1	0.0	-0.3	-0.6	1.6	0.6
80	-0.8	-1.6	-2.3	-0.1	-2.7	-1.8	-1.7	-1.3	-1.0	0.1	2.5	0.2	1.1	1.0	-0.1	0.0	-1.2
100	-1.5	-1.9	-2.8	-0.4	-3.0	-1.3	-2.7	-1.6	-0.7	-0.0	2.6	0.4	1.3	1.0	0.4	0.1	-2.4
125	-0.2	-0.4	-0.4	1.7	-1.9	-1.0	-1.8	-0.3	-0.7	-0.3	1.4	-0.2	0.6	1.2	-0.7	0.6	-3.7
160	1.0	1.3	1.3	2.9	-1.6	-0.2	-1.6	-0.6	-0.2	-0.4	1.3	-0.4	-0.7	-0.4	-1.0	0.8	-4.5
200	2.6	2.6	2.3	3.1	0.2	-1.4	-0.8	-0.3	0.1	-1.5	1.6	0.5	-2.3	-1.7	-2.6	0.3	-4.5
250	3.0	2.3	0.8	1.7	-0.5	-2.2	-2.6	-1.3	-1.4	-2.7	0.4	0.7	0.7	2.4	0.1	1.2	-2.2
315	0.5	-1.3	-1.8	1.5	-0.2	-2.6	-5.8	-5.5	-4.9	-2.6	1.0	0.3	2.5	3.6	2.2	1.2	-2.2
400	0.3	-0.9	-2.2	0.5	-0.9	-3.2	-4.8	-4.6	-4.9	-2.7	1.7	0.4	2.4	3.9	2.9	-0.4	-3.7
500	1.9	0.7	-1.7	1.6	0.2	-1.8	-1.8	-4.1	-4.0	-2.7	1.8	-0.3	2.0	3.5	1.6	-2.2	-6.0
630	1.4	1.1	0.6	1.9	-0.6	-3.3	-3.1	-4.1	-3.8	-2.7	2.1	0.5	2.8	3.1	0.6	-3.3	-6.6
800	2.0	1.4	1.3	2.5	-0.2	-1.4	-2.6	-3.4	-3.2	-1.6	2.0	0.8	2.1	1.7	-1.0	-2.8	-4.8
1000	1.1	0.8	0.1	1.7	0.5	0.9	-1.0	-2.8	-4.1	1.6	1.5	1.6	1.1	-0.5	-4.9	-4.3	-7.2
1250	2.5	1.3	2.3	2.9	-0.8	-2.5	-3.8	-4.2	-3.8	-4.2	2.2	0.4	2.7	3.6	-1.6	-5.3	-7.1
1600	-6.2	-4.0	-0.1	-1.2	-5.3	-3.6	-7.3	-4.9	-5.8	-8.8	1.4	1.3	5.3	5.5	-2.9	-6.5	-4.8
2000	-3.0	-1.5	-0.7	1.5	2.0	-1.6	-0.7	-4.7	-4.2	-4.8	2.9	-0.6	2.3	2.9	-2.8	-6.1	-7.1
2500	-3.8	-3.8	-0.9	0.6	3.5	-0.9	0.1	-3.7	-1.3	-3.8	0.6	-0.4	1.6	3.6	-2.9	-5.3	-7.0
3150	-3.0	-2.9	1.1	0.1	-1.5	-2.3	-4.2	-1.7	-6.1	-1.3	0.6	2.9	3.9	2.6	-2.5	-4.9	-9.3
4000	-0.5	-1.1	-0.6	1.9	-4.6	-1.5	-4.2	-4.2	-7.4	-2.8	3.5	2.8	2.7	2.3	-2.7	-4.7	-10.1
5000	-3.1	-2.0	-3.6	-0.3	-3.4	-3.1	-3.1	-7.4	-6.1	-4.5	3.9	0.0	2.5	5.6	-1.4	-4.4	-8.4
6300	-3.5	-3.1	-1.8	-0.6	1.8	-3.7	-2.2	-5.2	-3.4	-3.5	2.0	2.6	1.0	4.7	-2.2	-6.5	-7.2
8000	-1.5	-2.3	-1.1	1.2	1.5	-3.0	-5.2	-4.9	-6.0	-2.9	4.0	2.2	2.8	1.8	-3.0	-4.7	-10.2
10000	-3.9	-3.2	-2.8	-1.0	-1.4	-4.0	-4.2	-6.2	-7.0	-3.7	4.3	2.1	2.4	4.2	-1.4	-5.0	-9.5

C41

RUN 6 2300 RPM

 NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 7.2

RADIAL DISTANCE (r)..... 225
(m)..... 68.58
VEHICLE..... 441006/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.F.C.
DATE..... 9/6/68
RUN..... 6.Pt.70
BAROMETER.....(in Hg).. 29.8
(N/m²)... 97480
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 61.0
(°K)..... 289.8
ABS. HUMIDITY...(gm/m³).. 11.6
(kg/m³).. .0116
PHYS. FAN SPEED (RPM)... 2450
(rad/sec) 256.5
CORR. FAN SPEED (RPM)... 2468
(rad/sec) 258.4
TAPE NUMBER..... P637

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	77.2	80.6	80.4	84.2	77.9	77.7	77.1	78.4	77.9	80.7	80.1	81.1	82.0	81.5	82.4	83.2	83.5	137.6
63	79.0	82.4	82.7	84.3	79.8	79.8	80.1	80.5	80.4	82.3	81.9	81.8	82.7	82.2	82.3	83.0	84.1	138.8
80	78.7	81.2	81.5	82.0	77.9	79.1	79.3	79.7	79.5	80.3	80.0	80.9	82.3	81.7	81.0	79.8	80.7	137.6
100	77.4	79.9	79.7	81.4	77.4	79.6	77.9	79.0	79.3	79.9	79.5	80.1	81.1	80.3	80.3	78.9	78.5	136.9
125	78.1	79.7	79.4	80.6	77.0	78.5	78.2	78.1	77.7	78.3	77.0	77.5	78.3	79.0	78.4	78.7	75.8	135.6
160	75.4	77.2	77.0	78.9	74.8	76.0	74.7	74.9	74.6	73.8	73.0	73.4	74.5	73.3	74.1	74.5	70.9	132.1
200	73.7	75.3	75.6	76.4	72.9	72.0	72.5	72.2	72.5	69.8	70.7	70.3	69.5	67.2	69.2	69.6	67.5	129.2
250	71.9	73.9	72.9	72.9	69.5	70.4	71.2	70.4	70.5	68.1	68.0	68.6	69.6	71.4	71.5	69.9	68.7	127.9
315	73.2	72.2	72.0	74.8	71.5	71.3	69.6	69.7	70.1	72.5	72.2	72.5	77.2	77.7	77.7	75.4	72.7	131.5
400	78.3	77.5	76.9	75.4	76.4	75.4	73.4	73.9	74.4	77.1	78.2	78.5	81.3	82.7	81.6	78.3	75.8	136.2
500	81.5	80.6	78.6	82.4	79.8	78.3	76.8	75.7	76.5	78.0	79.4	80.3	82.9	84.1	81.6	77.9	74.9	137.9
630	82.6	81.0	81.3	82.5	80.8	79.8	78.1	76.1	76.6	77.4	78.6	81.3	83.3	84.6	80.6	77.4	74.8	138.3
800	81.6	81.4	81.2	82.6	79.8	79.3	78.4	77.5	77.7	78.0	78.9	82.2	84.4	82.4	79.4	76.7	75.5	138.5
1000	90.0	89.6	92.0	91.5	89.4	90.4	89.2	89.7	87.3	86.2	90.8	95.5	95.3	88.3	85.0	83.4	85.5	149.2
1250	88.4	88.1	88.5	89.3	86.1	85.5	83.4	82.3	82.6	82.8	85.2	86.7	88.0	89.7	84.4	80.6	78.7	144.3
1600	92.2	96.4	97.8	93.8	93.1	98.3	91.1	92.9	93.2	91.2	92.3	96.2	100.4	101.3	95.6	91.8	91.8	154.8
2000	86.5	88.7	90.3	90.4	91.6	89.1	87.2	85.6	87.4	84.9	88.0	88.1	92.4	92.4	87.2	83.9	82.8	147.8
2500	85.2	86.6	87.9	90.2	94.2	88.8	89.1	86.5	87.0	85.5	88.1	88.7	90.0	91.8	85.1	83.0	82.1	148.0
3150	87.4	88.1	92.1	90.3	88.7	88.6	85.1	89.8	84.5	91.6	88.7	93.0	94.2	93.1	88.1	85.2	81.5	149.8
4000	89.0	89.8	90.6	91.7	85.7	89.7	86.9	86.6	83.4	87.8	90.5	92.9	93.2	91.9	87.3	85.4	80.4	149.6
5000	86.2	87.9	86.4	89.0	86.4	88.3	87.5	83.7	85.1	86.4	90.9	89.5	94.3	93.9	88.3	85.2	82.0	149.7
6300	82.2	83.4	84.9	85.0	87.7	84.0	84.1	81.7	83.3	83.5	84.8	88.9	87.1	89.7	83.3	79.2	79.0	146.7
8000	82.0	81.8	83.1	84.2	84.9	81.8	78.5	79.2	77.7	81.0	84.2	85.9	86.4	84.6	80.0	78.1	72.8	145.5
10000	76.4	78.0	78.4	78.9	78.9	78.2	77.3	75.7	74.6	78.1	81.6	83.3	83.1	84.3	78.9	75.1	71.2	144.6
OASPL MEASURED	99.8	101.7	103.2	102.2	101.5	102.4	98.8	99.3	98.7	99.2	100.4	103.2	105.5	105.5	100.5	97.6	96.6	
OASPL CALCULATED	98.6	100.4	101.7	101.0	100.3	101.2	97.8	98.0	97.5	98.0	99.6	102.3	104.5	104.4	99.3	96.5	95.7	
PNDB	111.8	113.5	114.6	114.4	114.3	114.3	110.9	111.4	110.5	112.5	113.1	115.2	117.3	117.5	112.6	109.5	108.3	
																	OAPWL	159.9

DIRECTIVITY INDEX

FREQ,																	
50	-3.6	-0.2	-0.4	3.4	-2.9	-3.1	-3.7	-2.4	-2.9	-0.1	-0.8	0.3	1.2	0.7	1.6	2.4	2.7
63	-2.9	0.5	0.7	2.4	-2.1	-2.1	-1.8	-1.4	-1.6	0.3	-0.0	-0.1	0.7	0.2	0.4	1.0	2.1
80	-1.9	0.6	0.9	1.4	-2.6	-1.4	-1.2	-0.9	-1.0	-0.3	-0.5	0.3	1.7	1.2	0.4	-0.8	0.1
100	-2.4	0.1	-0.1	1.7	-2.4	-0.2	-1.9	-0.8	-0.5	0.1	-0.3	0.3	1.3	0.6	0.5	-0.9	-1.3
125	-0.3	1.2	0.9	2.2	-1.5	0.1	-0.2	-0.3	-0.8	-0.1	-1.4	-0.9	0.9	0.5	0.0	0.3	-2.7
160	0.5	2.4	2.2	4.0	-0.1	1.1	-0.1	0.0	-0.3	-1.0	-1.9	-1.5	-0.4	-1.6	-0.7	-0.4	-3.9
200	1.9	3.4	3.8	4.5	1.1	0.2	0.6	0.3	0.7	-2.0	-1.2	-1.5	-2.4	-4.7	-3.6	-2.3	-4.4
250	1.4	3.4	2.4	2.4	-1.0	-0.1	0.7	-0.1	0.1	-2.3	-2.5	-1.9	-0.8	1.0	1.1	-0.5	-1.7
315	-0.7	-1.7	-1.9	0.9	-2.5	-2.6	-4.4	-4.3	-3.8	-1.4	-1.7	-1.5	3.2	3.8	3.7	1.5	-1.2
400	-0.2	-1.0	-1.6	0.6	-1.9	-3.1	-5.1	-4.5	-4.1	-1.4	-0.3	0.0	2.8	4.3	3.1	-0.1	-2.7
500	1.4	0.5	-1.4	2.3	-0.3	-1.8	-3.2	-4.4	-3.6	-2.0	-0.7	0.2	2.8	4.1	1.6	-2.2	-5.2
630	2.1	0.6	0.9	2.1	0.4	-0.7	-2.4	-4.3	-3.9	-3.1	-1.9	0.8	2.9	4.1	0.2	-3.0	-5.7
800	1.1	1.0	0.8	2.1	-0.6	-1.2	-2.0	-2.9	-2.7	-2.5	-1.5	1.8	4.0	2.0	-1.1	-3.7	-4.9
1000	-1.0	-1.4	1.0	0.5	-1.6	-0.6	-1.8	-1.3	-3.6	-4.8	-0.2	4.5	4.3	-2.7	-6.0	-7.6	-5.5
1250	2.5	2.1	2.6	3.4	0.1	-0.5	-2.6	-3.6	-3.3	-3.1	-0.7	0.7	2.1	3.8	-1.6	-5.3	-7.3
1600	-4.0	0.2	1.6	-2.4	-3.1	2.1	-5.1	-3.3	-3.0	-5.0	-3.9	-0.0	4.2	5.1	-0.6	-4.4	-4.4
2000	-2.5	-0.3	1.3	1.4	2.6	0.1	-1.8	-4.0	-1.6	-4.1	-1.0	-0.9	3.3	3.4	-1.9	-5.1	-6.3
2500	-3.8	-2.4	-1.1	1.1	5.2	-0.2	0.0	-2.6	-2.0	-3.6	-0.9	-0.3	1.0	2.8	-3.9	-6.1	-6.9
3150	-3.1	-2.4	1.7	-0.2	-1.7	-1.9	-5.4	-0.7	-5.9	1.1	-1.8	2.5	3.8	2.7	-2.3	-5.3	-8.9
4000	-0.7	0.0	0.8	2.0	-4.1	-0.1	-2.9	-3.1	-6.3	-1.9	0.7	3.1	3.5	2.1	-2.5	-4.4	-9.4
5000	-3.3	-1.6	-3.1	-0.5	-3.1	-1.2	-2.0	-5.8	-4.4	-3.1	1.4	-0.0	4.8	4.4	-1.2	-4.3	-7.5
6300	-3.5	-2.3	-0.8	-0.7	2.1	-1.7	-1.5	-4.0	-2.4	-2.2	-0.9	3.2	1.4	4.0	-2.4	-6.5	-6.7
8000	-1.0	-1.3	0.1	1.2	1.9	-1.2	-4.5	-3.8	-5.3	-2.0	1.2	2.9	3.4	1.6	-3.0	-4.9	-10.2
10000	-3.8	-2.2	-1.8	-1.3	-1.3	-2.0	-2.9	-4.5	-5.6	-2.1	1.4	3.1	2.9	4.1	-1.3	-5.1	-9.0

C42

RUN 6 2450 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 9.6

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.O.
DATE..... 9/6/68
RUN..... 6.Pt.85
BAROMETER.....(in Hg).. 28.9
(N/m²)... 97596
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T ... BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 11.1
(kg/m³).. 0.0111
PHYS. FAN SPEED (RPM).... 2450
(rad/sec) 256.5
CORR. FAN SPEED (RPM).... 2424
(rad/sec) 253.8
TAPE NUMBER..... P642

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0.0 (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	78.1	78.6	79.1	85.7	78.2	82.1	80.0	79.5	80.0	81.0	83.6	81.5	82.8	81.8	82.5	83.7	83.4	138.8
63	80.4	80.8	80.9	84.7	80.3	84.3	82.3	81.2	81.0	83.1	85.7	82.3	83.6	82.7	82.7	83.5	83.9	140.1
80	79.6	79.1	78.5	82.2	78.2	82.4	81.5	80.7	81.0	81.2	83.8	81.4	83.0	82.2	81.3	80.3	80.4	138.7
100	77.9	77.4	76.8	81.0	77.2	80.8	79.9	79.4	80.4	80.6	83.1	80.5	81.8	80.7	80.5	79.4	78.2	137.7
125	78.1	77.7	77.2	81.0	76.8	80.3	79.7	79.0	78.9	78.5	80.8	78.1	79.8	79.8	79.2	79.3	75.7	136.5
160	75.5	75.8	75.8	78.6	74.3	76.8	76.1	75.3	75.3	74.1	75.9	73.2	74.0	73.4	73.8	74.3	70.0	132.5
200	73.7	73.7	73.3	75.5	71.1	72.9	73.9	72.1	72.0	69.6	72.4	70.3	68.9	67.7	68.9	69.7	67.3	129.1
250	72.7	72.2	70.7	72.7	69.0	70.7	71.6	70.4	69.7	69.4	70.5	69.3	72.6	73.0	72.3	71.8	70.1	128.6
315	75.0	72.9	72.9	75.8	73.9	72.8	71.5	70.6	71.6	74.3	77.0	74.6	78.9	79.3	78.5	76.5	73.9	133.3
400	78.8	78.0	77.1	79.8	78.0	76.7	75.3	75.3	75.9	77.7	81.3	79.4	82.5	83.3	81.9	78.6	75.8	137.2
500	81.2	80.3	78.8	82.3	79.8	78.6	78.0	76.9	77.7	78.7	82.5	80.4	83.1	84.1	81.8	77.9	74.3	138.4
630	82.0	82.0	80.4	81.1	80.4	78.9	78.4	76.8	78.7	78.6	83.0	81.7	83.6	83.3	80.6	77.6	74.9	138.7
800	80.9	80.6	80.1	81.8	79.1	79.1	77.3	77.2	77.9	77.9	82.4	81.2	83.3	81.6	78.4	76.7	75.1	138.2
1000	90.3	88.8	91.6	91.5	89.7	92.3	88.7	88.2	89.0	87.7	94.4	91.9	91.9	91.5	85.2	84.4	82.7	148.9
1250	87.8	87.2	87.7	88.0	85.0	84.9	83.3	82.4	82.6	82.2	87.5	85.5	87.3	88.4	83.7	80.3	77.8	143.8
1600	91.2	95.1	94.8	95.7	92.6	93.9	90.4	91.3	91.7	90.7	95.8	93.7	101.5	100.5	92.8	93.0	90.2	154.2
2000	86.1	87.8	89.0	90.0	90.8	87.7	87.0	84.7	87.0	85.4	90.5	87.3	92.8	92.5	86.5	84.2	82.1	147.8
2500	84.4	85.6	87.0	89.0	92.6	88.4	91.0	87.0	86.6	84.6	89.5	88.8	90.1	91.6	83.4	80.5	79.3	147.9
3150	86.7	87.1	90.0	88.9	88.1	87.4	85.8	88.5	83.1	90.2	90.2	93.4	92.2	93.9	87.8	84.6	80.3	149.3
4000	88.1	88.3	88.8	90.4	84.6	88.5	86.2	86.0	82.3	87.3	92.8	92.0	92.0	91.4	86.6	84.8	79.3	149.2
5000	85.0	85.9	84.5	87.4	84.8	86.7	86.8	82.7	83.9	86.4	93.3	88.6	92.4	93.2	88.1	84.8	80.5	149.2
6300	80.4	81.1	82.6	83.0	85.7	81.6	83.1	80.3	81.5	82.1	86.2	87.2	85.3	88.9	82.0	78.1	77.1	145.5
8000	79.6	78.9	80.2	81.7	82.5	79.1	76.8	77.5	75.8	79.1	85.2	83.6	84.0	83.2	78.3	76.6	71.2	143.8
10000	73.6	74.5	75.1	76.1	76.2	74.7	74.6	72.9	71.5	75.5	82.0	80.3	80.0	82.0	76.4	73.1	68.6	142.5
OASPL MEASURED	99.4	100.5	101.2	102.1	100.6	100.7	99.1	98.5	98.3	98.9	103.3	102.0	105.5	105.2	99.3	98.0	95.3	
OASPL CALCULATED	98.0	97.1	99.8	100.8	99.4	99.5	98.0	97.2	97.1	97.7	102.3	100.8	104.2	104.0	98.1	96.8	94.4	
PNDB	111.0	112.1	112.5	113.6	113.1	111.9	111.8	110.6	109.6	111.7	115.4	114.9	117.3	117.1	111.0	109.8	107.0	
																	OAPWL	159.5

DIRECTIVITY INDEX

FREQ.																	
50	-3.8	-3.4	-2.9	3.7	-3.8	0.1	-1.9	-2.4	-2.0	-1.0	1.6	-0.5	0.8	-0.1	0.6	1.7	1.4
63	-2.8	-2.4	-2.3	1.5	-2.9	1.1	-0.9	-2.0	-1.4	-0.1	2.5	-0.9	0.4	-0.5	-0.5	0.3	0.7
80	-2.2	-2.6	-3.2	0.5	-3.5	0.7	-0.2	-1.0	-0.7	-0.5	2.1	-0.3	1.3	0.5	-0.4	-1.4	-1.4
100	-2.8	-3.2	-3.8	0.3	-3.4	0.2	-0.8	-1.2	-0.2	0.0	2.5	-0.1	1.1	0.1	-0.2	-1.3	-2.5
125	-1.3	-1.7	-2.2	1.6	-2.6	0.9	0.4	-0.4	-0.4	-0.9	1.4	-1.3	0.4	0.4	-0.2	-0.1	-3.7
160	0.3	0.6	0.6	3.4	-0.9	1.6	0.9	0.1	0.0	-1.1	0.7	-2.0	-1.2	-1.9	-1.4	-0.9	-5.3
200	2.0	1.9	1.6	3.8	-0.6	1.2	2.2	0.4	0.3	-2.1	0.7	-1.4	-2.8	-4.7	-2.9	-2.1	-4.4
250	1.5	1.0	-0.5	1.6	-2.2	-0.4	0.5	-0.7	-1.4	-1.8	-0.7	-1.8	1.5	1.8	1.1	0.6	-1.1
315	-0.7	-2.8	-2.8	0.1	-1.8	-3.0	-4.2	-5.1	-4.1	-1.4	1.3	-1.1	3.2	3.6	2.8	0.8	-1.8
400	-0.8	-1.5	-2.4	0.2	-1.5	-2.9	-4.3	-4.2	-3.6	-1.8	1.7	-0.2	3.0	3.8	2.3	-1.0	-3.8
500	0.6	-0.3	-1.8	1.6	-0.8	-2.1	-2.6	-3.7	-2.9	-2.0	1.9	-0.2	2.5	3.4	1.1	-2.8	-6.3
630	1.2	1.2	-0.4	0.3	-0.4	-1.9	-2.4	-4.0	-2.0	-2.1	2.2	0.9	2.8	2.5	-0.2	-3.2	-5.9
800	0.8	0.4	-0.0	1.6	-1.0	-1.0	-2.8	-2.9	-2.2	-2.2	2.3	1.1	3.1	2.5	-1.7	-3.5	-5.0
1000	-0.4	-1.8	1.0	0.8	-1.0	1.6	-2.0	-2.5	-1.7	-3.0	3.8	1.2	1.2	0.8	-5.5	-6.3	-8.0
1250	2.3	1.7	2.3	2.6	-0.4	-0.5	-2.2	-3.0	-2.9	-3.3	2.1	0.1	1.9	2.9	-1.8	-5.1	-7.7
1600	-4.5	-0.6	-0.8	0.0	-3.1	-1.8	-5.3	-4.3	-3.9	-5.0	0.1	-2.0	5.8	4.8	-2.8	-2.7	-5.5
2000	-2.9	-1.2	-0.0	1.0	1.8	-1.3	-2.0	-4.3	-2.0	-3.6	1.5	-1.7	3.8	3.5	-2.5	-4.8	-6.9
2500	-4.4	-3.3	-1.9	0.2	3.7	-0.5	2.1	-1.8	-2.3	-4.3	0.6	-0.0	1.2	2.8	-5.5	-8.4	-9.5
3150	-3.2	-2.8	0.0	-1.1	-1.9	-2.6	-4.2	-1.4	-6.9	0.2	0.3	3.5	2.2	3.9	-2.2	-5.3	-9.7
4000	-1.2	-1.0	-0.5	1.1	-4.7	-0.8	-3.1	-3.3	-7.0	-2.0	3.5	2.7	2.7	2.1	-2.7	-4.5	-10.0
5000	-4.0	-3.1	-4.5	-1.6	-4.2	-2.4	-2.2	-6.3	-5.1	-2.6	4.3	-0.4	3.4	4.2	-0.9	-4.2	-8.5
6300	-4.0	-3.4	-1.8	-1.4	1.2	-2.8	-1.3	-4.1	-3.0	-2.4	1.8	2.8	0.8	4.4	-2.4	-6.4	-7.3
8000	-1.7	-2.5	-1.1	0.4	1.2	-2.2	-4.6	-3.9	-5.6	-2.3	3.8	2.3	2.6	1.9	-3.1	-4.8	-10.2
10000	-4.4	-3.5	-2.8	-1.8	-1.7	-3.2	-3.3	-5.0	-6.4	-2.4	4.0	2.4	2.0	4.0	-1.5	-4.8	-9.4

C43

RUN 6 2450 RPM

 NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 7.2

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.F.S.
DATE..... 9/6/68
RUN..... 6,Pt.71
BAROMETER.....(in Hg).. 29.0
(N/m²).... 97918
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 69.0
(°K)..... 294.8
ABS. HUMIDITY...(gm/m3).. 11.3
(kg/m3).. 0.0113
PRIM. FAN SPEED(RPM).... 2618
(rad/sec) 274.1
COMB. FAN SPEED(RPM).... 2386
(rad/sec) 270.8
TAPE NUMBER..... P638

FREQ. (1)	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	78.5	77.6	77.0	78.8	76.9	77.3	77.4	78.9	78.5	80.3	80.1	81.3	83.0	82.7	83.4	84.5	84.4	137.8
63	80.3	80.0	79.8	80.7	79.1	79.3	80.2	81.2	81.1	82.2	82.2	82.6	83.9	83.7	83.6	84.5	85.1	139.2
80	80.3	79.6	78.2	79.8	78.2	80.1	80.4	81.0	80.6	81.4	80.9	82.2	83.9	83.5	82.4	81.5	82.2	138.6
100	78.7	78.7	77.8	80.1	77.9	80.1	79.0	80.2	80.3	81.5	80.8	81.5	83.0	82.8	82.3	80.6	80.4	138.1
125	79.8	80.4	78.4	80.9	77.5	78.3	79.1	79.4	78.8	79.5	78.1	79.2	81.3	81.5	80.7	80.1	77.8	136.9
160	77.3	78.1	77.2	79.2	75.3	75.8	75.2	75.8	74.8	74.9	73.8	75.2	76.7	76.5	76.9	76.9	73.5	133.3
200	76.3	76.7	75.8	76.2	72.6	71.5	73.3	72.6	72.2	70.2	71.0	71.2	70.8	70.5	71.8	72.4	69.7	129.8
250	73.6	75.5	72.9	72.5	69.7	70.2	71.2	71.1	69.9	70.6	69.1	69.0	71.5	73.9	71.4	70.8	69.5	128.7
315	73.1	73.0	72.0	75.7	72.4	71.3	71.4	72.2	73.0	75.2	73.4	73.6	78.9	79.6	77.9	75.5	73.3	132.9
400	77.8	76.9	76.8	80.6	78.0	76.4	76.6	77.1	77.9	78.7	78.8	79.5	82.7	84.2	81.8	78.7	76.3	137.5
500	81.0	80.2	78.7	83.6	80.9	79.4	79.2	78.2	78.6	79.4	80.0	81.4	84.3	85.5	82.5	78.7	75.6	139.1
630	83.3	83.1	82.0	83.3	82.2	80.0	79.9	77.8	78.4	78.8	79.7	81.7	84.6	85.8	80.8	77.9	75.3	139.4
800	82.4	82.1	80.8	83.3	79.7	79.7	78.0	77.6	77.4	77.5	79.3	82.8	87.2	83.4	79.6	79.0	76.5	139.5
1000	89.4	90.4	91.8	94.7	91.6	93.2	90.5	89.7	89.2	90.3	94.1	92.2	96.5	94.2	91.0	89.9	85.0	150.8
1250	88.3	88.7	89.2	91.3	87.7	88.0	85.7	85.2	84.9	85.3	88.2	88.4	91.4	91.7	86.5	84.4	80.5	146.6
1600	92.0	95.0	91.6	100.9	93.0	95.3	93.0	92.2	91.8	88.0	92.7	93.6	98.1	97.4	92.9	91.6	93.3	153.3
2000	88.7	91.5	90.0	96.4	94.8	93.0	90.5	88.3	89.8	86.4	90.2	90.4	96.0	95.6	90.5	88.5	89.0	151.0
2500	86.5	87.4	88.3	91.0	89.1	89.7	89.5	87.6	87.9	86.3	87.6	90.2	91.1	93.2	86.4	84.2	83.2	148.7
3150	89.4	89.5	91.3	92.9	92.5	90.3	89.4	91.9	86.3	89.8	88.5	97.3	97.0	93.8	88.3	86.0	82.4	151.9
4000	90.4	90.7	91.4	93.2	86.6	91.2	88.5	89.4	84.9	89.7	91.3	95.6	96.5	94.2	89.3	87.3	81.9	151.8
5000	88.0	89.0	87.3	90.5	86.9	89.3	88.0	84.0	85.3	85.9	90.1	90.2	94.6	94.9	88.6	85.4	82.2	150.1
6300	83.6	84.3	85.2	86.7	88.2	85.0	84.8	82.3	83.8	84.6	85.6	89.7	88.8	91.4	84.8	80.6	79.8	147.8
8000	83.5	82.6	83.8	85.7	85.5	83.1	79.4	79.5	77.7	81.3	84.3	86.8	87.7	85.9	80.4	78.7	73.4	146.3
10000	77.9	78.9	78.9	80.6	79.6	79.3	77.9	75.7	74.4	78.3	81.6	83.6	84.2	85.2	79.3	75.6	71.8	145.2
OASPL MEASURED	100.6	101.9	101.4	105.8	102.3	102.4	100.8	100.4	99.2	99.2	101.3	104.0	106.3	105.4	100.7	99.1	98.2	
OASPL CALCULATED	99.3	100.6	100.1	104.7	101.0	101.4	99.5	99.0	98.1	98.3	100.6	103.0	105.3	104.5	99.8	98.1	97.3	
PNDB	113.0	113.6	113.7	117.5	114.6	114.0	112.5	113.0	110.6	112.1	113.8	117.7	118.9	117.5	112.7	110.7	109.8	
																	OAPWL	160.8

DIRECTIVITY INDEX

FREQ.																	
50	-2.5	-3.4	-3.9	-2.1	-4.0	-3.6	-3.5	-2.0	-2.4	-0.6	-0.8	0.4	2.1	1.8	2.5	3.6	3.5
63	-2.0	-2.2	-2.5	-1.6	-3.2	-3.0	-2.0	-1.1	-1.2	-0.1	-0.1	0.3	1.6	1.4	1.3	2.2	2.8
80	-1.3	-2.0	-3.4	-1.8	-3.4	-1.5	-1.1	-0.6	-0.9	-0.1	-0.6	0.7	2.3	2.0	0.8	-0.0	0.6
100	-2.4	-2.3	-3.3	-0.9	-3.1	-0.9	-2.1	-0.8	-0.7	0.5	-0.2	0.5	2.0	1.8	1.2	-0.5	-0.7
125	0.1	0.7	-1.3	1.2	-2.2	-1.4	-0.6	-0.3	-0.9	-0.2	-1.6	-0.5	1.6	1.8	1.0	0.4	-1.9
160	1.3	2.0	1.2	3.2	-0.7	-0.3	-0.8	-0.2	-1.2	-1.2	-2.2	-0.8	0.7	0.5	0.8	0.9	-2.5
200	3.9	4.2	3.4	3.7	0.2	-0.9	0.8	0.2	-0.2	-2.2	-1.5	-1.2	-1.6	-1.9	-0.6	0.0	-2.8
250	2.4	4.3	1.7	1.3	-1.5	-0.9	-0.0	-0.1	-1.3	-0.6	-2.1	-2.2	0.3	2.7	0.2	-0.4	-1.7
315	-2.2	-2.3	-3.3	0.4	-2.9	-4.0	-3.9	-3.1	-2.3	-0.2	-1.9	-1.7	3.5	4.2	2.6	0.2	-2.0
400	-2.0	-2.9	-3.0	0.8	-1.8	-3.4	-3.2	-2.7	-1.9	-1.1	-1.0	-0.3	2.9	4.4	2.0	-1.1	-3.6
500	-0.3	-1.2	-2.6	2.3	-0.5	-2.0	-2.1	-3.2	-2.7	-1.9	-1.3	0.1	3.0	4.1	1.1	-2.6	-5.7
630	1.8	1.5	0.4	1.8	0.7	-1.5	-1.6	-3.7	-3.1	-2.7	-1.8	0.1	3.1	4.3	-0.7	-3.6	-6.3
800	0.9	0.7	-0.6	1.9	-1.8	-1.7	-3.4	-3.8	-4.1	-3.9	-2.1	1.3	5.8	1.9	-1.8	-2.4	-4.9
1000	-3.2	-2.2	-0.7	2.1	-1.0	0.6	-2.1	-2.9	-3.4	-2.3	1.5	-0.3	4.0	1.6	-1.6	-2.7	-7.6
1250	0.1	0.4	1.0	3.1	-0.6	-0.2	-2.5	-3.0	-3.3	-2.9	-0.0	0.1	3.1	3.4	-1.7	-3.8	-7.7
1600	-2.8	0.2	-3.1	6.1	-1.8	0.5	-1.8	-2.6	-3.0	-6.8	-2.1	-1.1	3.3	2.6	-1.9	-3.1	-1.5
2000	-3.5	-0.7	-2.2	4.3	0.7	0.8	-1.7	-3.8	-2.4	-5.8	-2.0	-1.8	3.8	3.4	-1.6	-3.6	-3.1
2500	-3.2	-2.3	-1.3	1.4	3.5	0.1	-0.1	-2.0	-1.7	-3.3	-2.0	0.5	1.4	3.6	-3.2	-5.4	-6.4
3150	-3.2	-3.0	-1.3	0.3	-0.1	-2.3	-3.1	-0.7	-6.2	-2.8	-4.0	4.8	4.5	1.3	-4.3	-6.6	-10.2
4000	-1.5	-1.3	-0.5	1.2	-5.4	-0.8	-3.5	-2.5	-7.1	-2.3	-0.6	3.6	4.6	2.3	-2.6	-4.6	-10.1
5000	-1.9	-1.0	-2.7	0.5	-3.1	-0.7	-2.0	-6.0	-4.8	-4.1	0.2	0.2	4.6	5.0	-1.4	-4.6	-7.7
6300	-3.1	-2.5	-1.6	-0.1	1.4	-1.8	-2.0	-4.5	-3.0	-2.2	-1.1	3.0	2.0	4.6	-2.0	-6.2	-6.9
8000	-0.3	-1.3	-0.0	1.8	1.7	-0.7	-4.4	-4.4	-6.1	-2.5	0.4	2.9	3.8	2.0	-3.5	-5.2	-10.4
10000	-2.9	-1.9	-1.9	-0.2	-1.2	-1.5	-2.9	-5.1	-6.4	-2.6	0.8	2.8	3.4	4.4	-1.5	-5.2	-9.0

C44

RUN 6 2618 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 9.7

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/6/68
RUN..... 6,Pt.72
BAROMETER.....(in Hg).. 29.1
(N/m²)... 9792
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 62.0
(°K)..... 289.8
ABS. HUMIDITY...(gm/m³).. 11.3
(kg/m³).. 0.0113
PHYS. FAN SPEED (RPM).... 2753
(rad/sec) 288.2
CORR. FAN SPEED (RPM).... 2719
(rad/sec) 284.5
TAPE NUMBER..... P638

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	78.3	76.7	76.8	79.3	78.0	78.5	78.5	79.5	79.4	80.9	83.8	81.8	83.3	82.8	83.6	85.0	84.9	138.6
63	80.8	80.2	80.0	81.3	80.1	80.4	81.3	81.6	81.8	82.7	85.9	83.1	84.5	84.3	84.1	85.0	85.0	140.2
80	80.0	78.8	78.0	80.1	79.0	80.5	81.1	81.3	81.3	81.7	84.6	82.3	83.9	83.3	82.7	81.6	81.6	139.2
100	78.5	77.8	77.0	79.8	78.1	80.5	79.6	80.9	81.6	81.8	84.2	81.6	82.9	82.3	82.0	80.5	79.8	138.7
125	78.7	78.5	77.4	80.1	77.8	78.8	79.3	79.9	80.1	80.3	81.6	78.8	80.7	80.4	80.7	80.4	77.2	137.2
160	76.4	76.6	76.0	78.2	74.7	75.2	75.1	76.1	76.4	75.1	76.9	74.3	75.2	75.3	76.0	76.3	71.9	135.1
200	74.7	74.5	73.6	74.2	70.9	70.6	72.4	73.1	73.7	70.1	72.9	70.6	69.4	69.4	71.0	71.4	68.4	129.3
250	74.0	72.5	70.8	72.2	70.0	69.2	70.0	70.7	71.1	70.2	70.8	69.1	73.0	74.5	73.7	72.5	71.4	129.0
315	76.0	73.9	73.5	76.9	74.9	73.3	71.6	71.6	73.1	75.5	77.7	75.2	79.7	80.1	79.3	77.4	75.0	134.1
400	78.9	77.9	77.3	80.6	79.1	77.5	76.3	76.1	77.0	78.8	81.9	79.9	82.9	83.9	82.4	79.5	76.7	137.9
500	81.0	79.9	79.3	82.7	80.4	79.3	79.3	77.7	78.9	79.9	83.5	81.3	83.7	84.8	82.5	78.9	75.7	139.2
630	82.0	82.0	82.0	82.7	80.0	80.3	79.8	79.2	80.1	79.9	84.1	82.5	83.8	84.2	81.3	78.5	76.0	139.7
800	81.0	80.6	80.0	81.8	80.1	79.0	78 4	78.3	78.4	79.1	82.5	82.2	85.8	82.6	79.3	77.8	76.7	139.2
1000	90.8	90.0	90.0	93.8	91.1	92.1	92.4	87.5	89.9	93.1	94.2	96.5	95.5	90.7	87.6	84.6	87.5	150.8
1250	88.1	88.1	88.4	89.4	86.4	86.7	86.6	85.6	84.8	86.3	89.5	89.5	89.7	89.3	84.7	81.8	81.2	145.9
1600	90.5	95.6	92.3	101.6	93.8	94.9	89.8	91.0	90.6	93.0	93.7	94.9	97.4	96.2	96.6	93.0	89.6	153.6
2000	87.9	90.9	90.1	96.2	92.9	92.1	89.9	87.3	89.3	88.7	92.6	90.9	94.4	95.2	92.1	88.8	86.0	150.8
2500	85.5	86.5	87.7	90.4	94.4	90.2	89.4	86.4	88.0	86.8	90.2	89.5	90.3	92.8	86.6	83.4	82.5	148.8
3150	88.9	88.4	90.5	91.6	93.4	90.6	88.3	89.5	85.6	90.1	90.9	97.9	95.8	92.8	88.7	87.3	82.1	151.7
4000	89.5	89.6	90.6	91.8	85.7	89.9	88.6	87.8	84.7	89.7	94.6	95.2	95.6	92.9	88.8	87.6	81.6	151.5
5000	86.9	87.6	85.9	88.6	86.5	88.0	88.4	83.5	85.0	86.0	93.5	89.5	93.5	93.5	88.0	85.1	81.8	149.8
6300	81.8	82.7	84.0	84.5	87.8	83.6	85.2	81.4	83.7	84.3	88.2	89.2	87.3	89.8	83.9	80.0	79.1	147.3
8000	81.2	80.7	81.6	83.6	84.6	81.5	79.3	78.5	77.5	81.0	86.3	85.6	85.7	84.0	79.4	78.0	72.7	145.4
10000	75.2	76.2	76.6	77.9	78.4	77.3	77.2	74.1	73.5	77.6	83.3	81.9	81.7	82.8	77.6	74.7	70.1	143.9
OASPL MEASURED	100.0	101.2	100.6	105.3	102.5	101.9	100.1	98.9	98.9	100.6	103.4	104.5	105.1	104.3	101.7	99.0	96.5	
OASPL CALCULATED	98.7	100.2	99.5	104.5	101.3	100.7	99.3	97.7	97.9	99.8	102.7	103.8	104.3	103.2	100.7	98.1	95.9	
PNDB	112.2	113.0	113.0	117.2	115.0	115.4	112.0	111.5	110.6	112.8	116.6	118.1	117.7	116.3	113.7	110.9	107.9	
																	OAPWL	160.6

DIRECTIVITY INDEX

FREQ.																	
50	-3.4	-5.1	-5.0	-2.5	-3.8	-3.2	-3.3	-2.2	-2.3	-0.8	2.1	0.1	1.5	1.1	1.9	3.2	3.2
63	-2.4	-3.1	-3.3	-1.9	-3.2	-2.8	-1.9	-1.7	-1.5	-0.6	2.7	-0.1	1.3	1.1	0.8	1.7	1.8
80	-2.1	-3.4	-4.2	-2.0	-3.1	-1.7	-1.0	-0.8	-0.8	-0.5	2.4	0.2	1.7	1.1	0.5	-0.6	-0.5
100	-3.0	-3.8	-4.6	-1.7	-3.4	-1.1	-2.0	-0.6	0.0	0.2	2.7	0.0	1.3	0.7	0.4	-1.1	-1.8
125	-1.3	-1.5	-2.6	0.1	-2.2	-1.2	-0.7	-0.1	0.1	0.3	1.6	-1.2	0.7	0.4	0.7	0.4	-2.8
160	0.5	0.8	0.1	2.3	-1.2	-0.6	-0.8	0.3	0.6	-0.7	1.0	-1.5	-0.6	-0.5	0.2	0.5	-4.0
200	2.8	2.6	1.6	2.2	-1.0	-1.3	0.4	1.1	1.7	-1.8	1.0	-1.3	-2.5	-2.5	-1.0	-0.6	-3.5
250	2.4	0.9	-0.8	0.6	-1.6	-2.4	-1.6	-0.9	-0.4	-1.4	-0.8	-2.5	1.5	2.9	2.1	0.9	-0.2
315	-0.6	-2.7	-3.0	0.4	-1.6	-3.2	-4.9	-4.9	-3.5	-1.0	1.1	-1.3	3.1	3.5	2.8	0.9	-1.5
400	-1.3	-2.3	-2.9	0.4	-1.1	-2.7	-3.9	-4.2	-3.2	-1.4	1.7	-0.3	2.7	3.7	2.2	-0.7	-3.5
500	-0.4	-1.6	-2.2	1.3	-1.1	-2.1	-2.1	-3.7	-2.5	-1.6	2.1	-0.1	2.3	3.4	1.1	-2.5	-5.7
630	0.2	0.3	0.2	1.0	-1.8	-1.5	-1.9	-2.6	-1.7	-1.8	2.3	0.7	2.0	2.5	-0.5	-3.3	-5.8
800	-0.2	-0.6	-1.2	0.7	-1.0	-2.2	-2.8	-2.8	-2.7	-2.1	1.4	1.1	4.7	1.4	-1.8	-3.3	-4.5
1000	-1.9	-2.7	-2.6	1.2	-1.6	-0.6	-0.3	-5.2	-2.7	0.4	1.6	3.8	2.8	-2.0	-5.1	-8.1	-5.2
1250	0.6	0.6	0.9	1.8	-1.2	-0.9	-1.0	-3.9	-2.7	-1.2	2.0	1.9	2.2	1.8	-2.8	-5.7	-6.3
1600	-4.5	0.6	-2.7	6.5	-1.2	-0.1	-5.2	-4.0	-4.4	-2.0	-1.3	-0.1	2.3	1.2	1.6	-2.1	-5.4
2000	-4.1	-1.1	-2.0	4.2	0.9	0.1	-2.1	-4.7	-2.8	-3.3	0.6	-1.1	2.3	3.2	0.1	-3.2	-6.0
2500	-4.3	-3.3	-2.1	0.6	4.7	0.5	-0.4	-3.3	-1.8	-3.0	0.4	-0.2	0.6	3.1	-3.2	-6.3	-7.3
3150	-3.5	-4.0	-1.8	-0.8	1.0	-1.8	-4.0	-2.8	-6.7	-2.3	-1.4	5.5	3.5	0.5	-3.6	-5.1	-10.3
4000	-2.2	-2.0	-1.0	0.1	-6.0	-1.8	-3.1	-3.9	-7.0	-2.0	2.9	3.6	3.9	1.3	-2.8	-4.1	-10.1
5000	-2.8	-2.1	-3.8	-1.1	-3.2	-1.7	-1.2	-6.2	-4.7	-3.7	3.8	-0.1	3.8	3.8	-1.7	-4.6	-7.9
6300	-4.4	-3.5	-2.2	-1.7	1.6	-2.6	-1.0	-4.8	-2.5	-2.0	2.0	3.0	1.1	3.5	-2.3	-6.2	-7.1
8000	-1.8	-2.3	-1.3	0.7	1.7	-1.5	-3.7	-4.4	-5.4	-2.0	3.4	2.6	2.7	1.0	-3.6	-5.0	-10.3
10000	-4.3	-3.2	-2.8	-1.5	-1.0	-2.2	-2.2	-5.4	-6.0	-1.9	3.9	2.4	2.2	3.3	-1.9	-4.8	-9.4

RUN 6 2600 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 7.2

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441-004/6
CONFIGURATION ..... NASA Q.F.
LOCATION..... F.P.G.
DATE..... 9/6/68
RUN..... 6,Pt.86
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97580
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 11.1
(kg/m³).. 0.0111
PHYS. FAN SPEED (RPM).... 2600
(rad/sec) 272.2
CORR. FAN SPEED (RPM).... 2573
(rad/sec) 269.4
TAPE NUMBER..... P642

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	76.2	79.5	77.6	82.0	77.6	78.4	78.6	80.4	80.9	81.8	82.8	83.6	86.3	85.8	85.5	86.7	86.3	140.1
63	79.6	81.3	80.5	82.7	80.0	80.6	81.6	82.3	82.9	83.7	84.3	85.0	86.6	86.1	85.6	86.7	86.9	141.2
80	80.3	80.2	79.1	82.1	80.0	81.3	81.5	81.9	83.0	82.9	83.1	84.0	86.1	85.7	84.3	83.6	83.4	140.4
100	79.0	79.3	79.0	81.9	79.6	81.6	80.4	81.3	82.5	83.0	82.6	83.2	84.9	85.0	84.5	83.0	82.0	139.9
125	79.4	80.3	79.1	82.0	78.5	79.7	80.3	80.4	80.9	81.3	80.6	81.4	83.4	83.7	83.4	82.1	79.7	138.7
160	77.6	78.4	77.8	80.3	76.5	76.7	76.6	76.9	78.0	77.6	77.2	77.9	79.6	79.8	80.1	79.6	75.2	135.6
200	76.0	76.5	75.9	76.8	73.2	72.5	74.6	74.2	75.7	73.4	74.6	75.5	75.6	75.1	75.7	75.7	72.1	132.4
250	74.6	74.7	73.2	74.2	71.9	71.3	72.9	72.5	73.4	71.4	71.5	72.6	73.3	75.6	73.2	72.6	72.1	130.5
315	75.3	74.7	75.0	78.0	75.7	73.4	73.3	72.2	73.2	75.5	74.4	74.7	78.9	80.7	79.2	76.9	75.3	134.0
400	79.3	78.9	78.8	82.1	80.6	78.4	78.4	77.3	77.7	79.7	79.9	80.5	83.2	84.7	82.7	79.9	77.6	138.4
500	81.6	80.8	80.7	84.5	82.2	81.4	81.1	79.1	79.8	81.0	81.6	82.6	85.0	86.7	83.3	79.9	77.1	140.3
630	82.9	83.1	82.7	83.8	82.0	83.0	81.6	80.6	81.4	81.3	82.5	83.2	86.3	87.4	83.1	80.3	77.1	141.2
800	82.3	82.0	82.1	83.7	81.5	80.2	79.8	79.4	80.2	81.4	81.9	84.7	86.9	86.8	81.1	80.8	77.9	141.0
1000	89.1	88.2	89.3	91.7	89.6	89.3	88.9	85.8	86.0	86.2	87.5	88.6	88.2	89.4	85.0	83.5	82.8	146.3
1250	91.7	92.4	93.8	95.5	93.7	94.3	94.6	91.3	92.2	91.7	93.9	95.2	93.8	96.0	91.0	88.7	89.0	152.0 ←
1600	88.5	90.9	90.2	92.0	89.8	89.2	89.2	87.1	90.7	88.8	90.5	92.3	96.3	96.8	89.7	87.8	85.3	150.4
2000	92.9	96.3	95.0	97.5	95.3	94.4	95.5	91.8	97.7	94.9	97.0	97.7	104.3	103.8	96.6	95.6	92.7	157.4 ←
2500	87.6	88.7	90.5	92.7	93.4	89.9	91.0	87.8	90.0	88.4	90.0	91.7	92.6	93.7	87.9	85.9	84.8	149.9
3150	90.7	89.7	92.9	93.6	93.3	92.0	91.2	91.9	87.4	91.8	89.3	96.0	95.0	93.6	87.2	86.1	81.7	151.7
4000	92.8	92.7	93.1	93.9	88.3	92.5	91.6	91.8	88.3	93.8	94.4	97.8	99.0	98.8	92.5	91.2	85.3	154.6
5000	88.8	89.6	87.9	90.6	88.0	89.0	89.9	85.6	87.9	88.0	92.0	90.9	94.8	95.6	89.5	87.1	83.5	151.0
6300	84.5	85.2	86.3	86.7	89.5	85.4	87.1	84.7	87.4	87.4	88.7	91.6	91.1	93.7	87.2	83.3	82.4	150.0
8000	84.3	83.4	84.5	85.7	86.5	83.2	81.6	82.1	81.2	84.7	86.7	88.7	89.7	87.6	82.0	81.5	75.8	148.1
10000	78.6	79.4	79.7	80.5	80.7	79.2	80.0	77.9	77.5	81.1	84.0	85.6	85.9	86.9	80.9	78.0	73.8	147.0
OASPL MEASURED	101.7	102.8	103.1	104.9	103.2	102.8	103.2	101.0	102.8	102.5	103.8	105.9	108.7	108.8	102.7	101.3	98.9	
OASPL CALCULATED	100.5	101.5	101.8	103.6	102.0	101.5	101.7	99.8	101.5	101.3	102.6	104.6	107.5	107.5	101.5	100.2	97.9	
PNDB	114.6	115.1	115.3	116.9	115.5	114.8	114.9	113.7	115.4	115.4	116.3	118.9	121.5	121.4	115.3	113.9	111.1	
																	OAPWL	162.7

DIRECTIVITY INDEX

FREQ.																	
50	-7.1	-3.7	-5.6	-1.2	-5.6	-4.9	-4.6	-2.9	-2.4	-1.5	-0.5	0.3	3.1	2.5	2.3	3.5	3.1
63	-4.6	-3.0	-3.8	-1.6	-4.3	-3.7	-2.6	-2.0	-1.4	-0.5	0.1	0.7	2.4	1.8	1.4	2.4	2.7
80	-3.1	-3.2	-4.3	-1.3	-3.3	-2.1	-1.8	-1.5	-0.3	-0.5	-0.3	0.6	2.7	2.3	0.9	0.2	0.1
100	-3.8	-3.5	-3.9	-0.9	-3.2	-1.3	-2.4	-1.5	-0.3	0.1	-0.3	0.4	2.1	2.1	1.7	0.2	-0.8
125	-2.1	-1.2	-2.4	0.5	-3.0	-1.8	-1.2	-1.2	-0.6	-0.2	-0.9	-0.1	1.9	2.2	1.8	0.6	-1.8
160	-0.7	0.1	-0.5	2.0	-1.8	-1.6	-1.7	-1.4	-0.3	-0.7	-1.1	-0.4	1.3	1.5	1.8	1.3	-3.1
200	1.0	1.5	0.9	1.8	-1.7	-2.5	-0.4	-0.8	0.7	-1.6	-0.4	0.5	0.6	0.1	0.7	0.7	-2.9
250	1.6	1.7	0.1	1.1	-1.2	-1.8	-0.1	-0.6	0.4	-1.6	-1.5	-0.4	0.3	2.6	0.2	-0.4	-0.9
315	-1.1	-1.7	-1.3	1.6	-0.7	-3.0	-3.1	-4.2	-3.2	-0.9	-2.0	-1.7	2.5	4.3	2.8	0.5	-1.0
400	-1.4	-1.9	-1.9	1.4	-0.1	-2.3	-2.4	-3.4	-3.0	-1.1	-0.8	-0.3	2.4	3.9	2.0	-0.9	-3.2
500	-1.0	-1.7	-1.9	1.9	-0.4	-1.1	-1.4	-3.5	-2.8	-1.6	-0.9	0.1	2.4	4.2	0.7	-2.6	-5.4
630	-0.3	-0.2	-0.6	0.5	-1.2	-0.2	-1.7	-2.6	-1.9	-2.0	-0.8	-0.1	3.0	4.1	-0.2	-3.0	-6.2
800	-0.6	-0.9	-0.8	0.7	-1.5	-2.8	-3.1	-3.5	-2.7	-1.6	-1.0	1.8	3.9	3.9	-1.9	-2.1	-5.0
1000	1.1	0.1	1.3	3.6	1.5	1.3	0.8	-2.3	-2.1	-1.9	-0.6	0.5	0.1	1.3	-3.0	-4.6	-5.3
1250	-2.0	-1.3	0.1	1.8	0.0	0.7	1.0	-2.3	-1.4	-1.9	0.3	1.6	0.1	2.3	-2.7	-5.0	-4.7
1600	-3.3	-1.0	-1.6	0.1	-2.0	-2.6	-2.7	-4.7	-1.2	-3.1	-1.3	0.5	4.5	4.9	-2.2	-4.1	-6.6
2000	-5.7	-2.4	-3.7	-1.1	-3.4	-4.2	-3.2	-6.8	-0.9	-3.7	-1.7	-0.9	5.7	5.2	-2.0	-3.0	-5.9
2500	-3.3	-2.2	-0.3	1.8	2.5	-1.0	0.1	-3.1	-0.9	-2.5	-0.8	0.9	1.8	2.8	-3.0	-4.9	-6.0
3150	-1.7	-2.7	0.6	1.3	1.0	-0.3	-1.2	-0.5	-5.0	-0.6	-3.0	3.6	2.6	1.3	-5.1	-8.3	-10.7
4000	-1.9	-2.0	-1.7	-0.8	-6.4	-2.3	-3.1	-2.9	-6.5	-0.9	-0.4	3.1	4.3	4.0	-2.3	-3.6	-9.5
5000	-2.0	-1.3	-2.9	-0.3	-2.9	-1.8	-1.0	-5.2	-3.0	-2.9	1.1	0.0	3.9	4.8	-1.3	-3.8	-7.4
6300	-4.4	-3.7	-2.7	-2.3	0.6	-3.6	-1.8	-4.2	-1.6	-1.5	-0.2	2.6	2.1	4.8	-1.7	-5.6	-6.5
8000	-1.4	-2.2	-1.2	0.0	0.0	-2.4	-4.1	-3.6	-4.5	-1.0	1.0	3.8	4.0	1.9	-3.7	-4.2	-9.9
10000	-4.0	-3.2	-2.8	-2.1	-1.9	-3.4	-2.6	-4.6	-5.0	-1.5	1.4	3.0	3.4	4.3	-1.7	-4.6	-8.8

C46

RUN 6 2753 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 9.7

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/6/68
RUN..... 6.Pt.87
BAROMETER.....(in Hg)..28.9
(N/m²)...97590
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³)..11.1
(kg/m³)..0.0111
PHYS. FAN SPEED (RPM)....2750
(rad/sec)287.9
CORR. FAN SPEED (RPM)....2721
(rad/sec)284.9
TAPE NUMBER.....P642

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	76.5	77.0	77.0	79.5	78.1	78.4	78.4	81.0	80.4	82.1	85.8	83.3	84.9	84.5	85.1	86.1	86.3	139.9
63	79.9	80.2	80.3	81.7	80.5	80.2	81.7	82.9	82.6	83.9	87.9	85.6	86.7	85.2	85.3	86.0	86.3	141.6
80	80.3	79.4	78.6	80.9	80.1	81.4	81.8	82.2	82.5	82.9	86.4	83.7	85.5	85.0	84.2	82.8	83.7	140.5
100	78.9	78.5	78.1	80.8	79.3	81.5	80.4	82.0	82.8	83.0	85.8	82.9	84.3	83.9	83.5	81.6	81.3	140.0
125	79.5	79.9	79.0	81.4	78.9	79.7	80.4	81.4	81.0	80.9	83.3	80.2	82.2	81.9	82.1	81.0	78.3	138.4
160	77.6	77.7	76.9	79.4	75.9	76.0	76.1	76.8	77.1	75.8	78.0	75.4	76.6	76.4	77.1	77.0	72.8	134.1
200	76.1	76.1	75.1	75.6	72.4	71.6	73.7	73.8	74.0	71.1	75.4	72.7	73.1	71.9	71.9	72.1	70.6	130.8
250	75.0	74.1	72.2	73.1	70.9	70.6	71.1	72.2	72.2	73.0	74.5	71.8	76.4	77.5	75.8	74.3	73.3	131.3
315	76.2	75.0	74.9	78.0	75.8	73.7	73.2	74.2	75.6	78.0	81.5	78.5	82.2	82.3	81.3	79.0	77.1	136.5
400	78.8	78.5	78.3	81.6	80.0	78.0	77.3	78.4	79.1	80.7	84.5	81.8	84.9	85.7	83.8	80.9	78.6	139.7
500	80.9	80.6	79.9	83.8	81.7	80.4	80.6	79.9	80.4	81.1	85.2	82.3	85.2	86.1	83.4	79.9	77.1	140.5
630	83.1	82.6	82.4	83.3	81.1	80.3	80.9	79.7	81.4	80.7	84.5	82.3	84.1	84.4	81.5	79.0	77.1	140.1
800	81.6	81.6	81.2	82.5	81.0	79.3	78.6	78.9	79.9	80.0	84.4	81.1	84.0	83.9	79.7	79.1	77.3	139.5
1000	88.4	86.9	87.7	90.5	88.3	88.0	87.3	84.9	85.1	87.5	93.3	90.3	90.4	91.0	84.3	83.1	80.4	147.2
1250	90.9	90.1	91.1	92.3	90.4	91.5	91.3	88.6	89.1	91.6	97.8	94.9	94.7	94.7	87.9	86.1	83.9	151.3 ←
1600	87.3	90.5	89.5	90.8	92.2	87.7	88.3	86.9	89.2	87.1	92.7	89.6	94.9	92.8	88.6	85.2	84.1	149.2
2000	89.1	94.8	92.4	93.4	98.4	91.4	93.7	90.5	93.5	90.6	97.0	92.8	101.6	97.7	94.1	90.1	89.7	154.5 ←
2500	85.2	87.7	88.7	92.5	93.2	89.1	89.3	87.4	89.5	87.4	95.1	90.1	92.0	92.7	86.7	84.4	83.0	149.5
3150	89.5	89.0	91.9	91.5	93.1	92.1	91.3	91.0	86.2	90.4	91.1	93.6	93.0	92.4	86.3	85.0	80.5	150.6
4000	90.6	91.8	91.8	93.1	87.9	90.9	89.6	90.6	87.5	91.7	95.5	96.3	95.8	96.8	90.7	89.3	82.9	153.0
5000	87.1	88.0	86.7	90.0	87.6	88.0	88.6	84.8	86.8	86.3	93.9	89.5	93.2	94.1	88.4	85.5	81.9	150.2
6300	82.6	83.1	85.0	85.4	89.0	84.0	85.8	83.4	85.3	85.4	90.0	90.0	88.8	91.7	85.0	81.2	80.1	148.6
8000	82.2	81.0	82.8	84.2	85.6	81.3	79.4	80.8	78.7	82.3	88.0	86.8	87.2	85.6	80.3	79.1	73.6	146.7
10000	76.1	76.6	77.9	78.5	79.2	77.0	77.5	76.2	75.0	78.8	84.9	83.5	83.1	84.1	78.4	75.3	71.1	145.1
OASPL MEASURED	100.3	101.6	101.5	102.9	103.8	101.1	101.2	100.1	100.5	100.8	105.6	103.3	106.6	105.6	101.0	98.5	96.9	
OASPL CALCULATED	98.8	100.3	100.1	101.7	102.6	99.9	100.1	98.8	99.2	99.7	104.7	102.8	105.5	104.4	99.9	97.7	96.0	
PNDB	112.8	113.8	114.0	115.4	116.4	113.9	113.6	112.9	112.8	113.7	118.0	117.3	119.4	118.5	113.5	111.4	108.9	
																	OAPWL	161.2

DIRECTIVITY INDEX

FREQ,																	
50	-6.5	-6.0	-6.1	-3.6	-5.0	-4.7	-4.7	-2.0	-2.7	-1.0	2.7	0.2	1.9	1.4	2.0	3.1	3.3
63	-4.8	-4.5	-4.3	-2.9	-4.1	-4.4	-2.9	-1.7	-2.0	-0.7	3.3	1.0	2.0	0.6	0.7	1.4	1.7
80	-3.2	-4.2	-5.0	-2.6	-3.5	-2.2	-1.8	-1.3	-1.0	-0.6	2.9	0.2	2.0	1.4	0.6	-0.7	0.2
100	-4.0	-4.4	-4.8	-2.1	-3.6	-1.4	-2.5	-0.9	-0.1	0.1	2.9	0.0	1.4	1.0	0.6	-1.3	-1.6
125	-1.8	-1.4	-2.3	0.2	-2.3	-1.5	-0.9	0.1	-0.3	-0.4	2.1	-1.1	0.9	0.7	0.9	-0.3	-2.9
160	0.8	0.9	0.1	2.6	-0.9	-0.8	-0.7	-0.1	0.3	-1.0	1.2	-1.4	-0.2	-0.4	0.3	0.2	-4.0
200	2.7	2.7	1.6	2.2	-1.0	-1.9	0.3	0.4	0.6	-2.3	2.0	-0.7	-0.4	-1.5	-1.5	-1.3	-2.9
250	1.1	0.2	-1.7	-0.8	-3.0	-3.3	-2.7	-1.6	-1.7	-0.8	0.6	-2.1	2.5	3.6	2.0	0.4	-0.6
315	-2.7	-3.9	-4.1	-0.9	-3.1	-5.3	-5.7	-4.7	-3.4	-1.0	2.6	-0.5	3.3	3.4	2.4	0.1	-1.8
400	-3.2	-3.5	-3.7	-0.4	-2.0	-4.0	-4.7	-3.6	-2.9	-1.3	2.5	-0.2	2.9	3.7	1.8	-1.1	-3.4
500	-1.9	-2.1	-2.8	1.1	-1.1	-2.3	-2.1	-2.9	-2.3	-1.6	2.4	-0.4	2.5	3.3	0.6	-2.8	-5.7
630	0.8	0.3	0.2	1.1	-1.1	-1.9	-1.4	-2.5	-0.8	-1.5	2.3	0.1	1.9	2.2	-0.7	-3.2	-5.1
800	0.1	0.1	-0.2	1.0	-0.5	-2.2	-2.9	-2.6	-1.6	-1.5	2.9	-0.4	2.5	2.4	-1.8	-2.4	-4.2
1000	-0.6	-2.1	-1.3	1.5	-0.7	-1.0	-1.7	-4.1	-3.9	-1.5	4.3	1.3	1.4	2.0	-4.7	-5.9	-8.5
1250	-2.1	-2.9	-1.8	-0.7	-2.6	-1.4	-1.6	-4.4	-3.8	-1.4	4.9	1.9	1.8	1.7	-5.1	-6.8	-9.1
1600	-3.3	-0.1	-1.1	0.2	1.6	-2.9	-2.3	-3.6	-1.4	-3.5	2.1	-1.0	4.4	2.2	-2.0	-5.4	-6.5
2000	-6.6	-0.8	-3.2	-2.3	2.8	-4.3	-2.0	-5.1	-2.1	-5.1	1.4	-2.9	5.9	2.0	-1.5	-5.6	-6.0
2500	-5.2	-2.7	-1.7	2.1	2.8	-1.4	-1.2	-3.1	-1.0	-3.0	2.6	-0.4	1.6	2.2	-3.7	-6.1	-7.4
3150	-1.8	-2.3	0.6	0.3	1.8	0.9	-0.0	-0.3	-5.0	-0.9	-0.1	2.4	1.7	1.1	-5.0	-6.3	-10.8
4000	-2.6	-1.3	-1.3	-0.0	-5.3	-2.3	-3.6	-2.5	-5.7	-1.4	2.3	3.1	2.6	3.7	-2.4	-5.8	-10.2
5000	-2.9	-2.1	-3.3	-0.1	-2.4	-2.0	-1.4	-5.2	-3.3	-3.8	3.8	-0.5	3.1	4.0	-1.7	-4.5	-8.2
6300	-4.9	-4.5	-2.6	-2.2	1.4	-3.6	-1.8	-4.1	-2.3	-2.2	2.4	2.5	1.3	4.1	-2.5	-6.4	-7.5
8000	-2.1	-3.2	-1.4	-0.0	1.4	-2.9	-4.8	-3.5	-5.5	-1.9	3.8	2.6	2.9	1.3	-4.0	-5.1	-10.6
10000	-4.6	-4.1	-2.8	-2.3	-1.6	-3.7	-3.3	-4.6	-5.7	-2.0	4.2	2.7	2.4	3.4	-2.3	-5.4	-9.6

C47

RUN 6 2750 RPM

 NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC, DATE - MONTH: 10 DAY 2 HR. 7.2

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.F.C.
DATE..... 9/6/68
RUN..... 6,Pt.75
BAROMETER.....(in Hg) .28.9
(N/m²)...97390
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³)...11.1
(kg/m³)...0.0111
PNTS. FAN SPEED(RPM)....3200
(rad/sec) 335.0
CORR. FAN SPEED(RPM)....3167
(rad/sec) 331.6
TAPE NUMBER..... P639

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0, (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	77.3	77.6	78.4	81.4	79.1	80.6	83.0	82.0	82.1	83.9	87.5	85.5	87.7	87.9	88.9	90.6	90.9	142.8
63	81.4	81.6	84.0	83.7	81.8	82.1	84.9	84.8	85.1	86.3	90.4	87.7	88.9	88.9	89.7	91.2	92.5	144.7
80	83.1	82.4	81.4	83.8	82.5	83.7	85.0	84.8	85.5	86.1	89.6	87.1	88.8	88.8	89.1	88.7	89.9	144.1
100	82.9	83.1	81.9	84.8	83.1	85.0	84.8	85.3	86.5	86.7	89.7	86.6	88.0	88.0	87.8	87.0	87.3	143.9
125	83.6	84.2	81.7	85.2	83.3	83.3	84.7	84.7	85.2	85.1	88.1	84.9	86.3	86.5	86.7	85.8	84.4	142.8
160	81.4	81.9	81.1	84.0	80.4	80.1	81.4	81.7	82.0	81.1	84.6	81.1	82.2	82.0	82.7	82.7	79.0	139.4
200	81.6	83.1	83.5	83.9	79.7	78.2	79.1	78.9	79.7	77.6	81.6	77.4	76.7	76.2	77.5	78.0	74.9	136.9
250	81.4	79.8	78.9	79.2	76.1	75.9	77.3	77.5	77.2	76.0	79.4	75.5	78.7	81.1	79.2	78.3	76.9	135.6
315	81.0	80.2	79.7	82.8	79.4	78.0	76.8	77.5	78.2	80.8	83.6	80.0	84.6	86.2	85.0	83.0	80.5	139.6
400	81.8	82.3	84.1	87.0	85.1	82.4	81.7	81.5	82.4	84.4	88.5	85.3	88.1	89.3	87.5	85.3	82.7	143.5
500	85.6	84.3	85.5	92.0	92.6	92.9	91.0	86.8	85.5	87.5	92.1	87.9	90.3	91.9	89.5	85.8	82.6	147.9
630	86.4	85.9	87.7	93.0	93.1	95.0	93.8	88.5	88.1	87.4	90.8	88.2	89.0	90.7	88.6	86.2	84.2	148.7
800	84.5	84.9	84.1	86.9	86.0	85.8	85.4	84.6	84.1	84.7	89.1	87.3	88.0	86.9	84.3	83.1	82.4	144.3
1000	88.4	87.4	88.2	91.1	89.5	89.0	88.5	86.2	86.3	87.4	91.3	87.8	90.3	90.0	85.7	84.8	82.5	146.9
1250	94.1	96.0	95.6	98.4	100.3	97.4	100.3	99.5	98.8	97.7	101.0	101.1	106.4	104.1	97.2	95.6	92.2	159.3 ←
1600	88.9	91.1	91.0	92.8	92.3	91.2	92.0	90.9	91.9	89.8	94.7	93.2	96.7	95.6	90.7	88.2	85.7	151.5
2000	91.9	96.0	97.7	94.7	98.1	94.6	96.1	93.5	97.9	93.9	102.6	101.3	102.4	100.1	94.8	91.9	92.9	157.5 ←
2500	89.2	91.2	93.7	93.4	96.0	93.0	94.5	93.0	95.1	92.8	97.9	96.0	97.2	96.9	91.9	89.0	88.3	154.1
3150	91.1	90.9	94.4	95.2	92.8	93.2	91.6	94.7	90.5	95.1	96.1	97.4	95.4	93.5	88.9	87.4	83.7	153.5
4000	94.3	94.4	94.7	96.1	90.4	95.0	94.3	94.9	91.5	94.8	101.8	101.3	101.4	98.2	92.4	91.0	86.4	157.4
5000	90.0	91.2	89.9	92.9	90.5	92.6	93.2	90.0	90.9	90.1	98.1	94.2	97.3	96.2	91.5	88.9	85.3	154.0
6300	85.7	86.7	88.2	88.7	91.8	88.0	90.1	89.8	91.5	90.3	94.4	95.1	93.0	93.8	88.1	84.2	84.0	152.8
8000	85.0	84.5	85.9	87.6	88.6	85.9	84.1	86.3	84.6	86.6	92.7	91.2	90.9	88.3	83.7	82.5	77.3	150.8
10000	79.1	80.2	80.9	82.1	82.2	81.7	82.6	82.0	80.7	83.3	89.9	88.4	87.6	87.3	82.2	78.9	74.9	149.6
OASPL MEASURED	103.0	104.3	105.3	106.5	106.9	105.9	106.5	105.5	105.7	105.1	110.5	109.1	111.2	109.4	104.7	102.9	101.6	
OASPL CALCULATED	101.7	103.0	103.9	105.1	105.6	104.4	105.3	104.3	104.5	103.9	109.1	108.1	110.2	108.5	103.6	102.0	100.8	
PNDB	116.1	116.6	117.3	118.8	118.1	117.6	117.6	117.4	117.4	117.5	123.2	122.2	122.9	121.0	116.3	114.5	112.8	
																	OAPWL	165.6

DIRECTIVITY INDEX

FREQ.																	
50	-8.7	-8.3	-7.6	-4.5	-6.8	-5.3	-2.9	-3.9	-3.9	-2.1	1.6	-0.5	1.7	1.9	2.9	4.6	5.0
63	-6.4	-6.1	-3.7	-4.0	-5.9	-5.6	-2.9	-3.0	-2.7	-1.4	2.7	-0.0	1.1	1.2	1.9	3.5	4.8
80	-4.0	-4.7	-5.7	-3.3	-4.6	-3.4	-2.2	-2.3	-1.6	-1.0	2.5	-0.0	1.7	1.7	2.0	1.6	2.8
100	-3.9	-3.8	-4.9	-2.0	-3.7	-1.9	-2.1	-1.5	-0.3	-0.1	2.9	-0.2	1.2	1.2	1.0	0.1	0.4
125	-2.0	-1.4	-3.9	-0.4	-2.3	-2.3	-0.9	-0.9	-0.4	-0.4	2.5	-0.7	0.7	0.9	1.1	0.3	-1.2
160	-0.7	-0.3	-1.1	1.8	-1.7	-2.1	-0.7	-0.4	-0.2	-1.0	2.5	-1.0	0.1	-0.2	0.5	0.5	-3.1
200	2.1	3.6	4.0	4.4	0.1	-1.3	-0.4	-0.6	0.2	-1.9	2.0	-2.1	-2.8	-3.3	-2.0	-1.5	-4.6
250	3.2	1.7	0.8	1.1	-2.1	-2.3	-0.8	-0.6	-0.9	-2.2	1.2	-2.7	0.5	2.9	1.1	0.2	-1.2
315	-1.0	-1.9	-2.3	0.7	-2.7	-4.0	-5.3	-4.6	-3.8	-1.2	1.6	-2.0	2.6	4.1	2.9	1.0	-1.6
400	-4.1	-3.5	-1.7	1.2	-0.8	-3.5	-4.2	-4.4	-3.5	-1.5	2.6	-0.5	3.2	3.5	1.7	-0.6	-3.1
500	-4.5	-5.7	-4.6	1.9	2.5	2.8	0.9	-3.3	-4.5	-2.6	2.1	-2.2	0.2	1.9	-0.6	-4.2	-7.5
630	-4.4	-4.9	-3.0	2.3	2.3	4.2	3.1	-2.2	-2.6	-3.3	0.0	-2.6	-1.8	-0.1	-2.1	-4.6	-6.6
800	-1.7	-1.3	-2.1	0.7	-0.2	-0.4	-0.9	-1.6	-2.2	-1.5	2.9	1.1	1.7	0.7	-1.9	-3.1	-3.9
1000	-0.3	-1.3	-0.5	2.4	0.8	0.3	-0.2	-2.5	-2.4	-1.3	2.6	-0.9	1.5	1.3	-3.0	-3.9	-6.2
1250	-6.0	-4.9	-5.3	-2.5	-0.6	-3.5	-0.6	-1.4	-2.2	-3.2	0.1	0.2	5.5	3.1	-3.7	-5.3	-8.7
1600	-4.0	-1.9	-1.9	-0.1	-0.6	-1.8	-1.0	-2.1	-1.0	-3.1	1.7	0.2	3.8	2.7	-2.2	-4.8	-7.2
2000	-6.8	-2.7	-1.0	-4.0	-0.6	-4.1	-2.6	-5.2	-0.8	-4.8	3.9	2.6	3.7	1.5	-3.9	-6.8	-5.8
2500	-5.9	-3.9	-1.4	-1.7	0.9	-2.1	-0.6	-2.1	-0.0	-2.3	2.8	0.9	2.1	1.8	-3.2	-6.1	-6.8
3150	-3.1	-3.3	0.3	1.0	-1.3	-1.0	-2.6	0.5	-3.7	0.9	1.9	3.2	1.2	-0.7	-5.3	-6.8	-10.5
4000	-3.3	-3.2	-2.9	-1.4	-7.2	-2.6	-3.3	-2.7	-6.1	-2.7	4.2	3.8	3.8	0.6	-5.1	-6.6	-11.2
5000	-3.8	-2.7	-3.9	-1.0	-3.4	-1.3	-0.6	-3.8	-2.9	-3.7	4.2	0.3	3.4	2.4	-2.3	-5.0	-8.5
6300	-6.0	-5.1	-3.5	-3.0	0.1	-3.7	-1.6	-1.9	-0.2	-1.4	2.6	3.4	1.3	2.1	-3.7	-7.5	-7.8
8000	-3.3	-3.8	-2.4	-0.8	0.2	-2.5	-4.2	-2.0	-3.7	-1.7	4.3	2.8	2.6	-0.1	-4.6	-5.9	-11.1
10000	-6.2	-5.0	-4.3	-3.2	-3.0	-3.6	-2.7	-3.2	-4.5	-1.9	4.7	3.2	2.3	2.1	-3.0	-6.3	-10.4

RUN 6 3200 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 9.7

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/6/68
RUN..... 6.Pt.88
BAROMETER.....(in Hg).. 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³)... 11.1
(kg/m³)... 0.0111
PHYS. FAN SPEED (RPM).... 3200
(rad/sec) 335.0
CORR. FAN SPEED (RPM).... 3167
(rad/sec) 331.6
TAPE NUMBER..... P643

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	77.6	78.3	78.3	80.9	79.4	80.4	80.8	83.1	82.4	84.5	88.2	86.3	88.1	88.0	88.7	90.3	90.7	145.0
63	81.9	82.6	82.5	83.5	81.9	82.2	83.8	85.2	84.8	86.2	90.7	88.6	89.5	89.4	89.7	91.0	92.6	144.8
80	83.3	82.5	81.3	83.6	82.4	84.2	84.1	85.1	85.6	86.0	89.6	87.6	89.2	89.0	88.8	88.5	89.9	144.2
100	82.5	82.2	81.6	84.3	82.7	85.3	84.5	85.9	86.8	86.8	89.4	87.0	88.1	87.8	87.7	86.8	86.8	143.9
125	83.4	83.0	81.3	84.7	82.5	83.4	83.8	84.7	84.6	84.7	87.2	84.8	86.0	85.7	85.7	85.1	83.2	142.2
160	81.9	82.1	81.1	83.3	78.8	79.3	79.5	80.8	81.0	79.9	82.2	80.4	81.0	80.7	81.5	81.7	77.3	138.2
200	80.4	81.1	79.8	80.3	75.9	75.3	76.7	77.5	77.6	74.9	78.0	76.5	75.1	76.4	76.3	77.2	74.4	134.5
250	79.0	78.4	76.6	78.2	74.9	75.2	74.7	76.4	76.1	77.6	78.2	77.5	80.7	82.6	81.2	80.0	77.9	136.0
315	79.4	78.5	78.8	82.4	80.2	79.2	78.6	79.7	80.3	82.8	85.5	83.4	86.4	87.0	86.0	84.2	81.5	141.1
400	81.4	81.6	82.4	86.3	84.1	82.8	82.9	83.3	83.5	85.1	88.7	86.6	89.0	89.6	88.0	85.7	82.8	144.0
500	83.4	83.3	83.4	87.6	85.9	86.4	85.5	84.8	84.8	85.4	89.4	86.7	89.1	90.1	87.3	84.6	81.8	144.8
630	84.5	84.7	85.4	87.9	85.6	87.4	86.5	84.8	85.1	84.7	88.3	86.5	87.1	88.1	85.5	83.8	82.2	144.5
800	83.6	84.3	83.7	86.6	84.5	83.3	82.3	82.3	82.9	83.8	88.0	85.3	86.2	86.2	83.9	82.8	81.1	142.9
1000	87.6	86.6	87.9	91.3	88.4	87.7	87.1	86.0	86.3	87.4	91.8	88.6	90.5	91.0	86.3	85.2	82.1	146.9
1250	93.8	94.4	94.9	98.2	100.0	95.1	95.4	101.0	101.1	99.4	102.5	99.9	109.6	102.6	99.2	92.4	90.5	160.4 ←
1600	88.3	90.0	90.5	93.0	92.0	89.9	90.1	91.3	92.1	90.5	94.6	91.7	98.3	94.6	90.8	87.1	84.7	151.5
2000	92.2	93.7	97.9	94.6	94.4	92.8	93.7	91.8	94.5	93.8	102.6	98.3	100.3	100.6	95.3	95.2	91.0	156.3 ←
2500	89.0	90.5	94.9	94.5	95.3	92.1	93.1	92.0	93.8	92.2	97.3	94.5	96.2	96.2	91.8	89.8	87.3	153.4
3150	90.6	89.9	93.9	95.5	91.9	93.6	90.8	93.4	88.9	94.1	94.8	96.5	94.7	93.5	88.6	86.9	85.0	152.8
4000	93.7	93.8	94.3	96.4	90.1	93.8	92.6	93.4	90.7	95.4	102.9	98.8	101.9	97.8	92.0	90.7	85.7	157.2
5000	89.3	90.3	89.5	93.1	89.8	91.2	91.9	88.5	89.7	89.7	97.6	92.6	97.1	96.4	91.1	88.7	84.9	153.4
6300	85.0	85.7	87.6	88.9	91.2	86.8	89.3	88.4	89.7	89.5	93.4	94.0	92.7	93.6	87.2	84.1	83.4	151.9
8000	84.1	83.7	85.1	87.8	87.7	84.4	83.0	84.8	82.9	85.8	92.0	89.9	91.0	88.1	83.4	82.3	76.9	150.1
10000	77.9	79.0	80.1	82.0	81.4	80.2	80.9	80.7	79.4	82.4	89.2	87.2	87.6	87.0	81.6	78.8	74.5	148.9
OASPL MEASURED	102.6	103.1	105.0	106.1	105.1	103.7	103.6	105.2	105.3	105.1	110.2	107.5	112.3	108.9	105.0	102.8	100.6	
OASPL CALCULATED	101.2	101.7	103.6	104.9	104.2	102.5	102.5	104.2	104.3	104.2	109.4	106.4	111.7	107.9	104.0	101.8	100.1	
PNDB	115.4	115.8	117.1	118.7	116.9	116.2	115.8	116.3	116.0	117.5	123.6	120.4	123.2	120.6	116.1	114.9	111.6	
																	OAPWL	165.4

DIRECTIVITY INDEX

FREQ,																	
50	-8.5	-7.9	-7.8	-5.2	-6.8	-5.7	-5.3	-3.0	-3.7	-1.6	2.0	0.2	2.0	1.9	2.6	4.2	4.6
63	-6.0	-5.4	-5.5	-4.4	-6.0	-5.7	-4.2	-2.7	-3.1	-1.7	2.8	0.6	1.6	1.4	1.8	3.1	4.7
80	-3.9	-4.6	-5.9	-3.6	-4.7	-3.0	-3.1	-2.1	-1.6	-1.2	2.5	0.4	2.0	1.8	1.6	1.3	2.7
100	-4.3	-4.6	-5.2	-2.5	-4.1	-1.5	-2.3	-0.9	-0.0	-0.1	2.6	0.2	1.2	0.9	0.9	-0.1	0.0
125	-1.6	-2.0	-3.8	-0.3	-2.5	-1.6	-1.2	-0.3	-0.4	-0.3	2.2	-0.2	1.0	0.7	0.7	0.1	-1.8
160	1.0	1.2	0.2	2.4	-2.1	-1.6	-1.4	-0.1	0.1	-1.1	1.3	-0.5	0.0	-0.2	0.6	0.8	-3.6
200	3.3	4.0	2.7	3.1	-1.3	-1.8	-0.5	0.4	0.5	-2.2	0.8	-0.6	-2.0	-0.8	-0.8	0.1	-2.7
250	0.4	-0.1	-2.0	-0.4	-3.7	-3.4	-3.8	-2.2	-2.4	-1.0	-0.4	-1.0	2.2	4.1	2.7	1.5	-0.7
315	-4.1	-5.0	-4.7	-1.1	-3.3	-4.3	-4.9	-3.8	-3.2	-0.7	2.0	-0.1	2.9	3.5	2.5	0.7	-2.0
400	-4.9	-4.7	-3.9	-0.1	-2.2	-3.5	-3.5	-3.1	-2.8	-1.2	2.4	0.3	2.7	3.2	1.6	-0.6	-3.5
500	-3.6	-3.7	-3.6	0.6	-1.1	-0.6	-1.5	-2.2	-2.2	-1.6	2.4	-0.3	2.0	3.1	0.3	-2.4	-5.2
630	-1.9	-1.8	-1.0	1.5	-0.9	0.9	0.0	-1.6	-1.3	-1.7	1.9	0.0	0.6	1.6	-0.9	-2.6	-4.3
800	-1.2	-0.9	-1.2	1.7	-0.3	-1.6	-2.6	-2.5	-1.9	-1.0	3.2	0.4	1.3	1.4	-0.9	-2.1	-3.8
1000	-1.2	-2.2	-0.8	2.6	-0.3	-1.1	-1.7	-2.7	-2.5	-1.4	3.0	-0.2	1.7	2.3	-2.4	-3.5	-6.6
1250	-8.3	-7.7	-7.1	-3.9	-2.1	-7.0	-6.7	-1.0	-1.0	-2.7	0.4	-2.2	7.6	0.5	-2.8	-9.7	-11.6
1600	-4.7	-2.9	-2.5	0.1	-1.0	-3.0	-2.9	-1.6	-0.8	-2.5	1.7	-1.3	5.3	1.7	-2.2	-5.8	-8.2
2000	-5.3	-3.8	0.4	-2.9	-3.1	-4.7	-3.9	-5.8	-3.0	-3.7	5.0	0.8	2.7	3.1	-2.3	-2.4	-6.6
2500	-5.3	-3.9	0.6	0.2	1.0	-2.2	-1.2	-2.4	-0.5	-2.1	3.0	0.2	1.9	1.8	-2.5	-4.5	-7.1
3150	-2.8	-3.5	0.4	2.1	-1.5	0.2	-2.6	-0.0	-4.5	0.6	1.4	3.1	1.2	0.1	-4.8	-6.5	-10.4
4000	-3.7	-3.6	-3.1	-1.0	-7.3	-3.6	-4.8	-4.0	-6.7	-2.0	5.5	1.4	4.5	0.4	-5.4	-6.6	-11.7
5000	-4.0	-2.9	-3.7	-0.2	-3.5	-2.1	-1.4	-4.8	-3.6	-3.6	4.3	-0.7	3.8	3.1	-2.1	-4.6	-8.3
6300	-5.9	-5.2	-3.3	-2.0	0.3	-4.1	-1.6	-2.4	-1.2	-1.4	2.5	3.1	1.8	2.8	-3.7	-6.8	-7.5
8000	-3.5	-4.0	-2.5	0.1	0.1	-3.2	-4.6	-2.8	-4.7	-1.8	4.3	2.3	3.4	0.4	-4.2	-5.4	-10.7
10000	-6.6	-5.5	-4.5	-2.5	-3.1	-4.3	-3.6	-3.8	-5.1	-2.1	4.7	2.7	3.1	2.5	-2.9	-5.7	-10.0

RUN 6 3200 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 7.2

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.O.
DATE..... 9/6/68
RUN..... 6.Pt.76
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97590
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 11.1
(kg/m³).. 0.0111
PRYS. FAN SPEED (RPM).... 3350
(rad/sec) 350.7
CORR. FAN SPEED (RPM).... 3316
(rad/sec) 347.2
TAPE NUMBER..... P639

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	78.2	79.4	78.7	83.2	79.8	81.5	82.1	83.6	83.9	87.0	88.4	87.1	88.6	89.0	90.2	91.7	92.0	144.0
63	82.3	83.1	82.7	84.6	82.5	83.4	84.5	85.5	86.5	88.9	90.7	88.8	90.4	90.8	91.1	92.5	93.5	145.8
80	84.2	83.7	82.5	84.7	83.3	85.0	85.5	86.0	87.0	88.5	90.5	88.8	90.5	90.8	90.9	90.6	91.7	145.7
100	83.9	83.9	83.0	85.7	84.4	87.0	86.1	87.1	88.0	89.2	90.4	88.1	89.7	89.5	90.0	89.3	89.3	145.6
125	85.4	85.2	83.6	86.7	84.8	85.7	86.0	86.6	87.2	88.0	89.1	86.8	88.2	88.3	88.6	88.0	86.1	144.6
160	83.3	83.7	83.4	86.0	81.9	81.6	82.7	83.4	84.5	84.3	85.5	83.5	84.8	84.6	85.4	85.1	81.1	141.5
200	81.9	82.8	82.2	82.6	78.7	78.6	80.7	81.5	82.7	80.4	82.3	79.8	79.0	79.0	80.4	80.2	76.8	138.2
250	78.5	79.4	78.6	79.2	76.8	78.3	79.4	80.4	81.1	78.5	79.6	76.9	79.2	81.4	79.7	79.5	78.2	137.0
315	77.7	77.3	77.2	80.9	78.6	79.3	78.7	79.9	80.7	82.5	83.7	80.9	85.9	86.5	85.9	84.1	81.9	140.4
400	80.6	80.3	80.6	84.7	83.4	82.3	82.0	82.4	83.2	85.8	88.7	85.9	89.2	90.1	88.6	86.8	83.8	144.0
500	82.7	82.6	82.3	86.3	84.3	83.4	83.6	83.5	85.1	86.6	90.1	87.4	90.1	91.0	88.7	86.1	83.1	145.1
630	83.9	84.7	85.1	86.7	83.6	84.9	83.9	83.1	85.0	85.8	88.9	87.7	90.2	90.7	87.8	85.4	82.7	145.0
800	83.3	83.8	84.8	86.4	83.3	84.4	83.8	84.1	85.4	86.2	89.3	86.9	88.4	87.9	85.2	84.4	81.9	144.3
1000	85.6	85.5	87.2	89.7	88.3	87.0	86.6	85.8	87.7	89.1	92.0	89.0	90.3	89.6	86.9	86.5	83.0	146.9
1250	94.0	96.8	94.5	98.5	96.4	99.1	96.4	98.7	102.0	99.5	104.7	102.5	104.7	103.5	97.3	92.7	91.3	159.5 ←
1600	92.4	95.2	93.1	96.9	94.8	97.3	95.0	96.7	100.1	97.7	102.8	100.6	102.7	101.8	96.2	91.8	90.2	157.9
2000	90.9	93.0	92.7	95.1	94.5	94.4	96.0	94.5	100.2	95.5	102.8	98.8	99.5	99.4	94.2	91.3	92.5	156.8
2500	90.9	93.6	94.5	96.4	97.2	95.7	97.5	96.3	101.3	97.4	103.7	100.4	100.1	101.6	96.4	93.3	93.9	158.4 ←
3150	90.6	90.4	93.9	94.2	93.4	92.5	91.8	95.7	92.9	97.1	97.6	99.2	96.2	94.5	89.7	88.1	84.0	154.6
4000	94.9	94.6	95.5	97.0	91.5	96.3	95.3	96.1	93.8	97.6	102.5	101.4	102.1	98.3	93.9	92.6	87.3	158.2
5000	90.6	91.4	90.5	93.8	90.6	93.1	94.1	91.7	93.7	93.6	100.8	97.6	100.8	98.9	94.7	92.1	87.8	156.6
6300	86.0	86.4	88.2	89.4	91.8	88.6	90.7	90.1	93.5	92.7	96.3	96.7	94.4	95.1	89.3	85.7	84.9	154.2
8000	84.9	84.0	86.1	87.9	88.6	86.1	84.6	87.2	86.8	88.7	94.3	92.6	92.6	89.4	85.0	84.0	78.3	152.1
10000	78.8	79.7	80.6	82.1	82.0	81.8	82.7	82.4	82.5	85.1	91.6	89.5	89.4	88.7	83.5	80.4	75.8	150.9
OASPL MEASURED	103.3	104.6	104.6	106.9	105.4	106.4	106.1	106.7	109.4	107.9	112.8	110.6	111.6	110.9	106.4	104.0	103.1	
OASPL CALCULATED	101.9	103.3	103.1	105.6	104.1	105.1	104.7	105.3	108.1	106.7	111.6	109.5	110.6	109.7	105.2	103.1	102.1	
PNDB	116.4	116.8	117.3	119.2	118.0	118.4	118.5	118.6	121.4	120.2	124.9	123.2	123.9	122.9	118.4	116.0	114.8	
																	OAPWL	167.0

DIRECTIVITY INDEX

FREQ.																	
50	-9.0	-7.8	-8.4	-4.0	-7.4	-5.7	-5.1	-3.6	-3.3	-0.2	1.2	-0.1	1.4	1.8	3.0	4.5	4.8
63	-6.6	-5.9	-6.3	-4.3	-6.4	-5.5	-4.4	-3.4	-2.5	-0.0	1.8	-0.1	1.5	1.9	2.2	3.5	4.6
80	-4.5	-5.0	-6.2	-4.0	-5.4	-3.7	-3.1	-2.7	-1.6	-0.1	1.9	0.1	1.8	2.1	2.2	1.9	3.0
100	-4.5	-4.5	-5.4	-2.8	-4.1	-1.4	-2.4	-1.4	-0.5	0.8	2.0	-0.3	1.2	1.1	1.5	0.9	0.9
125	-2.0	-2.2	-3.8	-0.7	-2.6	-1.7	-1.4	-0.8	-0.2	0.6	1.7	-0.6	0.8	0.9	1.2	0.6	-1.3
160	-0.9	-0.6	-0.9	1.8	-2.3	-2.6	-1.5	-0.9	0.3	0.1	1.3	-0.8	0.6	0.3	1.2	0.9	-3.1
200	1.0	1.9	1.3	1.8	-2.2	-2.3	-0.1	0.6	1.8	-0.4	1.4	-1.0	-1.8	-1.9	-0.4	-0.6	-4.1
250	-1.0	-0.1	-0.9	-0.3	-2.7	-1.2	-0.1	0.9	1.4	-1.0	0.1	-2.6	-0.3	1.9	0.2	-0.0	-1.3
315	-5.1	-5.6	-5.6	-1.9	-4.2	-3.6	-4.1	-3.0	-2.1	-0.3	0.9	-1.9	3.0	3.7	3.1	1.3	-0.9
400	-5.5	-6.1	-5.7	-1.7	-3.0	-4.0	-4.4	-4.0	-3.2	-0.5	2.4	-0.4	2.9	3.7	2.2	0.4	-2.6
500	-4.6	-4.8	-5.1	-1.0	-3.0	-4.0	-3.8	-3.8	-2.2	-0.7	2.7	0.1	2.8	3.6	1.4	-1.2	-4.2
630	-3.2	-2.4	-2.0	-0.4	-3.5	-2.2	-3.2	-4.0	-2.1	-1.3	1.8	0.6	3.1	3.6	0.7	-1.7	-4.4
800	-3.0	-2.5	-1.5	0.1	-3.0	-1.9	-2.5	-2.2	-0.9	-0.1	3.0	0.6	2.1	1.6	-1.1	-1.9	-4.4
1000	-3.1	-3.2	-1.5	1.0	-0.4	-1.8	-2.1	-3.0	-1.0	0.3	3.3	0.2	1.5	0.9	-1.8	-2.2	-5.7
1250	-7.2	-4.3	-6.6	-2.7	-4.8	-2.1	-4.7	-2.5	0.8	-1.6	3.5	1.4	3.6	2.4	-3.8	-8.5	-9.9
1600	-6.9	-4.1	-6.2	-2.4	-4.5	-2.0	-4.3	-2.6	0.8	-1.6	3.5	1.3	3.4	2.5	-3.2	-7.5	-9.1
2000	-7.1	-5.0	-5.3	-2.9	-3.5	-3.6	-2.0	-3.5	2.2	-2.5	4.7	0.7	1.4	1.4	-3.0	-6.7	-5.5
2500	-8.5	-5.8	-4.9	-3.0	-2.2	-3.7	-1.9	-3.1	1.9	-2.0	4.3	1.0	0.7	2.2	-3.0	-6.1	-5.5
3150	-4.7	-4.9	-1.4	-1.1	-1.9	-2.8	-3.5	0.4	-2.4	1.8	2.3	3.9	0.9	-0.8	-5.6	-7.2	-11.3
4000	-3.4	-3.8	-2.9	-1.4	-6.9	-2.1	-3.1	-2.3	-4.6	-0.8	4.1	3.0	3.8	-0.0	-4.5	-5.8	-11.1
5000	-5.9	-5.1	-6.0	-2.7	-5.9	-3.4	-2.4	-4.7	-2.7	-2.9	4.3	1.1	4.3	2.4	-1.8	-4.4	-8.7
6300	-7.1	-6.7	-4.9	-3.8	-1.3	-4.6	-2.4	-3.0	0.3	-0.4	3.2	3.6	1.3	2.0	-3.9	-7.4	-8.2
8000	-4.7	-5.7	-3.5	-1.7	-1.1	-3.5	-5.0	-2.5	-2.9	-1.0	4.6	2.9	2.9	-0.3	-4.7	-5.6	-11.4
10000	-7.7	-6.9	-6.0	-4.5	-4.5	-4.7	-3.8	-4.1	-4.1	-1.4	5.1	2.9	2.8	2.1	-3.0	-6.2	-10.8

C50

RUN 6 3350 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 9.7

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION, ... P.P.G.
DATE..... 9/6/68
RUN..... 6.Pt.89
BAROMETER.....(in Hg).. 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 11.1
(kg/m³).. 0.0111
PHYS. FAN SPEED (RPM).... 3350
(rad/sec) 350.7
CORR. FAN SPEED (RPM).... 3315
(rad/sec) 347.1
TAPE NUMBER..... P543

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	77.7	77.8	78.5	80.9	80.1	81.2	81.3	83.3	83.3	85.1	89.4	87.6	89.2	89.2	90.3	91.9	89.7	143.9
63	82.5	82.6	82.8	83.8	82.5	82.9	84.2	85.3	85.7	87.1	91.5	89.8	91.0	90.5	91.4	92.9	92.5	145.9
80	84.4	83.4	82.4	84.7	83.8	85.4	84.6	85.4	86.4	87.4	91.7	89.3	90.7	90.6	90.8	90.6	90.7	145.7
100	84.1	83.5	83.0	85.7	84.3	86.9	85.5	86.7	87.4	87.6	91.1	88.3	89.8	89.4	89.6	89.1	88.6	145.4
125	84.8	84.2	82.7	86.0	83.8	84.8	84.8	85.7	85.9	85.9	89.2	86.3	87.3	87.2	87.5	87.5	84.8	143.7
160	83.1	82.9	82.2	84.3	79.6	80.1	80.4	81.3	82.2	81.5	84.7	82.7	82.9	82.3	83.2	83.7	79.3	139.7
200	81.9	81.6	80.6	80.7	76.1	76.4	77.9	77.9	78.6	76.1	80.3	78.7	77.6	78.5	78.5	79.0	76.7	135.9
250	79.0	78.4	77.5	79.3	75.9	76.8	75.9	77.3	77.2	79.1	81.4	79.3	82.8	84.3	82.6	81.6	80.2	137.7
315	80.4	79.0	79.4	83.3	81.6	81.3	80.5	81.4	81.6	84.6	88.1	85.2	88.3	88.7	87.7	85.8	83.7	142.9
400	81.7	81.7	82.3	86.1	84.6	84.5	84.2	84.5	85.0	86.7	90.8	88.1	90.4	91.0	89.5	87.4	85.0	145.5
500	83.5	83.2	83.3	86.6	84.5	84.8	84.7	84.9	85.9	86.8	91.3	88.1	90.4	90.9	88.7	86.7	84.0	145.7
630	83.2	82.6	84.2	85.3	82.8	84.1	83.3	84.4	85.1	86.2	90.0	87.6	89.4	88.6	87.0	85.7	83.7	144.7
800	83.3	83.0	83.3	85.9	84.9	83.7	83.3	84.1	84.2	85.4	89.8	86.1	87.7	87.5	85.4	84.7	82.7	144.1
1000	87.0	86.8	88.1	91.0	88.1	88.0	86.9	86.4	86.8	88.4	92.9	89.3	91.2	90.7	87.1	86.4	84.0	147.4
1250	93.1	97.1	98.2	102.5	98.1	104.3	97.4	100.4	102.3	99.3	104.4	104.5	102.8	102.5	98.0	91.9	92.3	150.2 ←
1600	91.3	95.1	96.1	100.2	96.2	101.8	95.7	97.9	99.9	97.0	102.0	101.9	100.5	100.2	96.0	90.8	90.6	148.0 —
2000	91.8	95.1	94.1	93.5	94.6	93.1	94.5	94.5	96.6	92.9	102.0	98.6	99.1	99.6	94.3	93.2	91.9	150.0
2500	91.6	95.7	95.4	95.0	96.8	95.0	96.1	96.3	97.8	94.9	102.9	99.9	99.9	101.3	96.4	94.7	93.3	151.5 ←
3150	89.9	90.0	92.9	92.7	91.9	91.8	90.7	94.2	90.1	95.3	97.6	97.7	95.9	93.9	89.3	87.9	84.6	153.6
4000	93.8	93.8	94.7	95.6	90.3	96.0	93.8	94.6	91.6	95.9	102.8	100.3	101.7	97.0	92.6	92.0	87.3	157.5
5000	89.2	90.6	89.1	92.3	89.8	92.4	92.2	89.6	91.4	92.0	100.6	96.2	100.1	97.7	93.4	91.3	87.7	155.7
6300	84.6	85.7	87.1	87.9	91.1	88.0	89.2	88.5	90.5	91.4	95.8	95.7	93.6	94.0	88.2	85.2	85.0	153.1
8000	83.7	83.6	84.5	86.5	87.5	85.7	83.1	85.2	84.1	87.4	94.2	91.6	92.1	88.7	84.4	83.8	78.9	151.4
10000	77.5	79.0	79.4	80.9	81.2	81.4	81.0	81.3	80.4	83.9	91.1	89.0	88.9	87.7	82.7	80.2	76.5	150.2
OASPL MEASURED	102.9	105.0	105.5	107.8	105.6	108.5	105.3	106.6	107.7	106.4	112.5	110.8	110.6	110.1	106.1	104.1	102.8	
OASPL CALCULATED	101.5	103.6	104.2	106.8	104.3	107.7	104.1	105.5	106.7	105.4	111.3	109.8	109.7	109.0	105.1	103.2	101.8	
PNDB	115.7	116.9	117.1	118.6	117.7	118.9	117.4	118.0	118.8	118.7	124.9	122.6	123.5	122.4	118.2	116.5	114.7	
																	OAPWL	166.7

DIRECTIVITY INDEX

FREQ.																
50	-9.4	-9.3	-8.6	-6.2	-7.0	-5.9	-5.8	-3.8	-3.8	-2.0	2.3	0.5	2.1	2.1	3.2	4.8	2.6
63	-6.5	-6.4	-6.1	-5.1	-6.4	-6.1	-4.7	-3.7	-3.3	-1.9	2.6	0.8	2.1	1.6	2.4	3.9	3.5
80	-4.3	-5.3	-6.3	-4.0	-4.9	-3.3	-4.1	-3.3	-2.3	-1.3	3.0	0.6	2.0	1.9	2.2	1.9	2.0
100	-4.1	-4.7	-5.2	-2.6	-3.9	-1.3	-2.7	-1.6	-0.9	-0.6	2.9	0.0	1.5	1.2	1.4	0.8	0.4
125	-1.7	-2.3	-3.8	-0.5	-2.7	-1.7	-1.7	-0.8	-0.6	-0.6	2.7	-0.2	0.8	0.7	1.0	1.0	-1.7
160	0.7	0.5	-0.3	1.8	-2.8	-2.4	-2.1	-1.2	-0.3	-0.9	2.3	0.3	0.5	-0.2	0.7	1.3	-3.2
200	3.4	3.1	2.0	2.1	-2.4	-2.2	-0.6	-0.7	0.1	-2.4	1.8	0.2	-0.9	-0.1	-0.1	0.5	-1.9
250	-1.2	-1.9	-2.7	-0.9	-4.4	-3.4	-4.4	-3.0	-3.0	-1.2	1.2	-0.9	2.6	4.0	2.3	1.3	-0.1
315	-4.9	-6.3	-5.9	-2.1	-3.8	-4.0	-4.8	-4.0	-3.8	-0.7	2.7	-0.1	3.0	3.4	2.3	0.5	-1.6
400	-6.1	-6.1	-5.5	-1.7	-3.2	-3.4	-3.6	-3.3	-2.8	-1.1	3.0	0.3	2.6	3.2	1.7	-0.5	-2.8
500	-4.4	-4.7	-4.6	-1.3	-3.4	-3.1	-3.2	-3.0	-2.1	-1.1	3.4	0.2	2.4	3.0	0.8	-1.2	-3.9
630	-3.5	-4.1	-2.6	-1.4	-3.9	-2.7	-3.4	-2.4	-1.6	-0.5	3.2	0.8	2.6	1.9	0.3	-1.1	-3.1
800	-2.8	-3.0	-2.7	-0.2	-1.2	-2.3	-2.7	-2.0	-1.8	-0.6	3.8	0.1	1.7	1.5	-0.7	-1.3	-3.4
1000	-2.2	-2.5	-1.2	1.8	-1.1	-1.3	-2.4	-2.8	-2.4	-0.8	3.6	0.1	1.0	1.5	-2.1	-2.9	-5.2
1250	-8.7	-4.7	-3.6	0.7	-3.7	2.5	-4.4	-1.4	0.5	-2.5	2.6	2.7	1.0	0.6	-3.8	-9.9	-9.5
1600	-8.1	-4.4	-3.3	0.8	-3.2	2.4	-3.8	-1.5	0.5	-2.5	2.6	2.4	1.0	0.8	-3.5	-8.6	-8.8
2000	-5.3	-2.1	-3.0	-3.6	-2.5	-4.1	-2.7	-2.7	-0.6	-4.3	4.8	1.4	2.0	2.5	-2.9	-4.0	-5.2
2500	-6.8	-2.8	-3.1	-3.5	-1.7	-3.5	-2.4	-2.1	-0.7	-3.6	4.4	1.4	1.4	2.9	-2.1	-3.8	-5.1
3150	-4.4	-4.2	-1.4	-1.5	-2.4	-2.5	-3.6	-0.1	-4.2	1.1	3.4	3.5	1.7	-0.4	-5.0	-6.3	-9.7
4000	-3.9	-3.9	-3.0	-2.1	-7.4	-1.7	-3.9	-3.1	-6.1	-1.8	5.1	2.6	4.0	-0.7	-5.1	-5.7	-10.4
5000	-6.3	-4.9	-6.4	-3.3	-5.7	-3.1	-3.3	-5.9	-4.1	-3.5	5.1	0.6	4.5	2.1	-2.1	-4.2	-7.9
6300	-7.4	-6.4	-5.0	-4.2	-1.0	-4.1	-2.9	-3.5	-1.5	-0.7	3.7	3.7	1.6	2.0	-3.9	-6.8	-7.0
8000	-5.2	-5.3	-4.4	-2.4	-1.4	-3.2	-5.8	-3.7	-4.9	-1.5	5.3	2.7	3.2	-0.2	-4.5	-5.1	-10.0
10000	-8.3	-6.8	-6.4	-4.9	-4.7	-4.4	-4.8	-4.6	-5.4	-1.9	5.3	3.1	3.0	1.8	-3.2	-5.6	-9.4

C51

RUN 6 3350 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/6/68
RUN..... 6,Pt.77
BAROMETER.....(in Hg)... 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY....(gm/m3)... 11.1
(Kg/m3)... 0.0111
PHYS. FAN SPEED(RPM)..... 3480
(rad/sec) 364.4
CORR. FAN SPEED(RPM)..... 3444
(rad/sec) 360.6
TAPE NUMBER..... P639

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	78.4	79.7	80.9	90.0	81.0	82.8	82.9	83.9	83.9	85.6	88.4	87.1	89.5	90.2	91.4	92.9	93.0	144.9
63	82.8	83.3	83.9	90.4	83.3	84.6	85.3	86.2	86.3	87.8	91.3	89.6	91.4	92.1	93.0	94.5	95.3	147.0
80	84.8	84.5	83.4	88.1	84.2	85.9	85.8	86.6	87.2	88.1	91.3	89.4	91.4	91.9	92.2	92.2	93.7	146.6
100	85.0	85.0	84.3	87.9	85.2	87.5	86.7	87.6	88.1	88.5	91.0	89.0	90.8	90.8	91.1	90.9	91.5	146.4
125	86.0	85.6	84.3	88.6	85.5	86.4	86.9	87.3	87.1	87.3	89.4	87.5	89.1	89.3	89.7	89.6	87.8	145.3
160	84.4	84.7	84.5	87.6	82.6	83.2	83.7	84.5	84.7	83.7	85.7	84.4	85.5	85.5	85.6	86.5	82.6	142.2
200	83.1	83.7	83.2	84.6	80.1	80.1	82.1	81.7	81.8	79.3	81.7	79.8	79.5	79.4	80.7	81.3	78.1	138.6
250	79.4	79.8	79.6	81.5	78.2	79.5	80.6	80.8	79.5	78.5	79.4	77.7	81.9	84.0	82.0	81.1	79.8	138.1
315	79.1	77.6	78.0	82.1	79.1	79.5	79.5	80.2	80.3	83.9	85.9	83.1	87.9	88.7	87.6	86.0	83.6	142.0
400	81.1	80.7	31.2	85.3	83.8	82.3	82.1	83.1	84.1	86.7	90.1	87.9	90.7	92.0	90.2	88.2	85.5	145.4
500	83.2	82.5	82.3	87.0	84.9	83.9	84.1	84.9	86.4	87.5	91.1	89.0	91.4	92.4	90.2	88.0	84.9	146.3
630	84.6	84.6	85.6	88.1	85.6	85.9	86.2	86.5	86.9	87.7	91.0	88.8	90.9	91.7	88.4	86.9	84.5	146.4
800	83.7	84.1	85.2	87.7	85.1	85.0	85.0	85.7	85.8	87.0	89.6	87.5	88.5	88.1	86.2	85.6	83.5	145.0
1000	86.3	86.4	87.4	90.6	87.8	87.2	86.3	87.0	88.0	89.5	93.2	89.5	91.2	91.0	87.6	87.3	84.9	147.7
1250	90.5	92.5	92.6	95.9	94.6	93.9	94.9	94.0	92.9	93.6	100.1	97.3	96.8	96.6	92.2	90.0	88.4	154.0
1600	95.8	98.6	98.0	101.9	101.5	100.3	101.5	100.8	99.2	100.3	107.8	104.7	102.3	102.0	98.2	95.6	94.8	161.0
2000	88.2	90.3	90.1	91.4	92.7	91.2	92.3	91.4	95.2	93.7	97.7	94.1	96.4	96.1	91.9	89.4	87.9	153.0
2500	91.8	95.0	95.9	95.9	99.3	96.8	97.4	97.8	102.0	101.5	104.7	102.4	101.5	104.1	100.2	96.9	95.4	160.1 ←
3150	90.9	90.9	94.5	94.6	94.6	93.1	92.3	96.5	92.1	97.1	97.1	98.6	96.8	94.4	90.3	89.0	85.3	154.7
4000	94.2	94.3	95.0	96.4	90.4	94.9	94.3	96.1	92.1	97.0	101.1	99.7	100.9	96.7	92.8	92.0	86.8	157.0
5000	89.9	91.8	90.4	93.5	90.4	92.6	94.0	92.6	93.6	94.6	100.9	97.2	103.6	98.7	94.4	92.5	88.7	157.4
6300	85.1	86.3	88.0	88.8	91.5	88.0	90.5	91.1	92.2	93.0	95.8	96.5	94.2	94.7	89.6	86.6	85.8	153.9
8000	84.1	84.1	85.7	87.5	88.4	85.5	84.4	88.2	86.3	89.7	93.9	92.9	93.2	89.5	85.4	85.1	79.7	152.3
10000	78.0	79.6	80.3	81.8	81.8	81.3	82.9	83.7	82.2	86.2	91.4	89.8	90.3	88.6	83.9	81.3	77.0	151.2
OASPL MEASURED	109.3	104.8	105.2	107.6	107.0	106.2	106.9	107.1	107.5	108.3	112.8	110.4	110.9	110.5	106.9	105.3	104.1	
OASPL CALCULATED	102.0	103.6	103.9	106.4	105.8	105.0	105.7	105.9	106.3	107.2	112.0	109.6	109.9	109.2	106.0	104.5	103.3	
PNDB	116.0	116.8	117.4	119.5	119.4	118.1	118.7	119.2	121.0	121.6	125.2	123.1	124.1	123.8	120.2	117.9	115.9	
																	OAPWL	167.1

DIRECTIVITY INDEX

FREQ.																	
50	-9.7	-8.4	-7.2	1.9	-7.1	-5.3	-5.2	-4.2	-4.2	-2.5	0.3	-1.0	1.4	2.1	3.3	4.8	4.9
63	-7.3	-6.8	-6.2	0.3	-6.8	-5.5	-4.8	-3.8	-3.8	-2.3	1.2	-0.5	1.3	2.0	2.9	4.4	5.2
80	-4.8	-5.1	-6.2	-1.5	-5.4	-3.7	-3.8	-3.0	-2.4	-1.5	1.7	-0.2	1.8	2.3	2.6	2.6	4.1
100	-4.2	-4.3	-5.0	-1.3	-4.1	-1.8	-2.6	-1.6	-1.1	-0.8	1.8	-0.3	1.5	1.5	1.8	1.7	2.2
125	-2.1	-2.4	-3.8	0.5	-2.6	-1.7	-1.2	-0.7	-1.0	-0.8	1.3	-0.6	1.0	1.2	1.6	1.5	-0.3
160	-0.5	-0.3	-0.5	2.6	-2.3	-1.8	-1.2	-0.4	-0.2	-1.2	0.7	-0.5	0.5	0.5	0.7	1.5	-2.4
200	1.9	2.5	2.0	3.3	-1.1	-1.1	0.9	0.4	0.6	-2.0	0.5	-1.4	-1.7	-1.8	-0.5	0.1	-3.1
250	-1.3	-0.8	-1.0	0.9	-2.5	-1.1	-0.1	0.2	-1.1	-2.1	-1.2	-3.0	1.3	3.4	1.4	0.5	-0.8
315	-5.4	-6.9	-6.4	-2.4	-5.4	-5.0	-5.0	-4.3	-4.1	-0.5	1.4	-1.3	3.4	4.2	3.1	1.5	-0.9
400	-6.6	-7.0	-6.6	-2.4	-3.9	-3.4	-5.6	-4.6	-3.6	-1.0	2.4	0.2	3.0	4.2	2.4	0.5	-2.3
500	-5.4	-6.0	-5.8	-1.5	-3.7	-4.7	-4.5	-3.6	-2.2	-1.1	2.6	0.4	2.8	3.9	1.6	-0.5	-3.7
630	-4.0	-3.9	-2.9	-0.4	-2.9	-2.7	-2.3	-2.1	-1.6	-0.8	2.5	0.3	2.4	3.1	-0.1	-1.6	-4.0
800	-3.3	-2.9	-1.8	0.8	-1.9	-1.9	-1.9	-1.3	-1.1	0.1	2.6	0.5	1.5	1.2	-0.7	-1.4	-3.5
1000	-3.2	-3.1	-2.1	1.1	-1.7	-2.3	-3.2	-2.5	-1.5	0.1	3.7	0.1	1.7	1.5	-1.9	-2.1	-4.6
1250	-5.1	-3.2	-3.1	0.2	-1.1	-1.8	-0.8	-1.7	-2.8	-2.0	4.5	1.6	1.1	1.0	-3.5	-5.6	-7.3
1600	-6.6	-3.8	-4.4	-0.5	-0.9	-2.1	-0.9	-1.6	-3.2	-2.1	5.4	2.2	-0.1	-0.5	-4.2	-6.8	-7.6
2000	-5.9	-3.9	-4.0	-2.7	-1.4	-2.9	-1.9	-2.8	1.1	-0.5	3.6	-0.0	2.2	1.9	-2.3	-4.7	-6.3
2500	-9.3	-6.0	-5.2	-5.2	-1.8	-4.3	-3.7	-3.3	0.9	0.4	3.6	1.3	0.5	3.0	-0.9	-4.2	-5.7
3150	-4.5	-4.4	-4.0	-0.9	-0.8	-0.8	-2.3	-3.0	1.1	-3.2	1.7	1.7	3.2	1.5	-1.0	-5.1	-6.4	-10.1
4000	-3.0	-2.9	-2.2	-0.8	-6.8	-2.3	-2.9	-1.1	-3.1	-0.1	3.9	2.5	3.8	-0.5	-4.4	-5.2	-10.4
5000	-7.3	-5.4	-6.9	-3.7	-6.9	-4.6	-3.2	-4.7	-3.6	-2.6	3.6	-0.1	6.3	1.4	-2.9	-4.7	-8.5
6300	-7.8	-6.6	-4.8	-4.0	-1.3	-4.9	-2.3	-1.8	-0.6	0.1	2.9	3.6	1.3	1.8	-3.2	-6.3	-7.1
8000	-5.7	-5.8	-4.1	-2.4	-1.5	-4.3	-5.4	-1.6	-3.6	-0.1	4.1	3.1	3.4	-0.3	-4.4	-4.7	-10.2
10000	-8.8	-7.2	-6.5	-5.0	-5.0	-5.5	-3.9	-3.1	-4.6	-0.6	4.6	3.0	3.5	1.7	-2.9	-5.5	-9.8

C52

RUN 6 3480 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 9.7

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F
LOCATION..... P.F.G.
DATE..... 9/6/68
RUN..... 6.Pt 40
BAROMETER.....(in Hg)... 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 68.0
(°K)..... 293.1
T WET BULB.....(°F)..... 59.0
(°K)..... 288.2
ABS. HUMIDITY...(gm/m³)... 11.2
(kg/m³)... 0.0112
PHYS. FAN SPEED (RPM).... 3473
(rad/sec) 363.6
CORR. FAN SPEED (RPM).... 3443
(rad/sec) 360.5
TAPE NUMBER..... P644

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	86.5	78.6	78.8	81.4	80.7	81.8	81.9	83.8	83.8	86.1	85.5	87.0	89.8	89.8	91.2	93.0	91.1	144.2
63	87.3	83.3	83.6	84.4	83.0	83.5	84.8	85.9	86.4	88.2	87.8	90.2	92.3	92.2	93.0	94.1	93.8	146.5
80	87.2	84.4	82.9	85.1	84.0	85.5	85.3	86.1	87.2	87.8	87.3	89.5	91.7	91.8	92.5	92.3	92.6	146.1
100	86.9	84.6	83.5	86.2	85.2	87.7	86.3	87.5	88.2	88.5	87.1	89.3	90.8	90.6	91.2	90.5	90.8	145.9
125	87.2	85.3	83.3	86.8	84.7	85.7	85.8	86.8	86.8	86.9	85.1	87.1	88.5	88.4	88.8	88.6	86.6	144.2
160	86.0	84.6	83.1	85.1	80.9	81.1	81.3	82.7	83.6	82.3	80.8	83.4	83.6	83.3	84.2	84.7	80.7	140.3
200	84.7	83.0	81.5	81.7	77.2	77.4	79.2	79.3	79.6	77.4	76.4	79.1	78.6	80.1	79.8	80.3	78.2	136.6
250	82.1	79.5	78.4	80.3	77.6	78.2	77.5	78.6	78.4	80.6	77.4	80.6	84.8	86.4	85.3	84.0	82.1	139.2
315	82.5	79.7	79.8	84.0	82.2	81.7	82.0	82.5	83.5	85.9	84.5	86.5	89.8	90.4	89.6	87.7	85.4	143.8
400	83.6	82.3	82.5	86.5	85.2	85.2	85.9	86.0	86.5	88.0	87.4	89.2	91.8	92.4	91.2	89.1	86.6	146.2
500	84.7	83.3	83.8	87.0	84.9	85.3	86.3	86.5	87.8	88.0	87.7	89.4	91.3	92.2	90.0	87.9	85.3	146.2
630	84.8	83.3	84.5	86.2	83.8	85.0	85.4	86.1	87.2	86.8	87.1	89.4	90.2	89.8	88.1	86.7	84.8	145.4
800	84.5	83.5	84.0	86.7	85.3	84.3	84.4	84.8	85.6	86.7	86.2	87.4	88.7	88.4	86.9	86.0	83.9	144.5
1000	87.6	86.5	88.0	90.6	87.8	87.8	87.9	87.6	88.2	89.0	89.7	90.4	92.3	92.2	88.5	87.8	85.1	147.7
1250	92.5	91.0	92.1	94.6	93.7	93.4	93.7	96.3	92.9	92.1	96.3	96.3	95.7	95.9	92.8	90.7	87.1	152.9
1600	98.4	96.5	97.7	101.0	100.4	100.1	100.5	104.0	98.7	97.4	103.8	103.1	101.0	102.2	99.2	96.9	92.2	159.8
2000	88.9	89.4	89.7	90.5	91.5	90.0	92.4	91.4	94.8	91.5	94.7	93.0	96.8	96.7	91.3	88.8	88.0	152.2
2500	91.5	93.0	96.0	95.1	97.8	94.0	98.2	99.6	101.5	96.9	103.2	99.8	103.3	105.5	98.6	95.8	95.5	159.6
3150	91.0	91.0	93.3	93.7	94.1	92.1	92.9	95.5	92.4	96.8	93.5	99.0	96.5	94.0	90.5	88.7	85.8	154.1
4000	94.1	93.6	94.0	95.8	89.8	94.5	93.9	94.8	91.8	96.5	97.6	99.8	100.7	96.3	92.8	91.5	86.8	156.1
5000	90.0	90.8	89.3	93.0	90.2	91.9	93.5	91.0	93.3	93.2	97.5	96.9	103.4	98.6	94.4	91.9	88.6	156.6
6300	86.0	85.5	87.5	88.1	91.1	87.3	90.3	89.9	91.7	92.4	92.3	96.5	93.9	94.6	89.4	86.2	85.8	153.2
8000	85.2	83.5	85.0	87.0	87.8	84.9	84.5	86.8	85.8	88.9	90.8	92.8	93.3	90.0	86.1	85.1	80.3	151.0
10000	80.4	78.9	79.9	81.3	81.4	80.8	82.5	83.0	82.0	85.7	88.2	90.3	90.5	89.0	84.4	81.6	78.0	150.7
OASPL MEASURED	105.4	103.6	104.6	106.6	106.0	105.4	106.4	108.2	107.0	106.3	109.4	109.6	110.8	110.6	106.8	105.1	103.3	
OASPL CALCULATED	105.4	102.3	103.4	105.4	104.9	104.3	105.3	107.3	106.0	105.3	108.7	108.7	110.0	109.7	105.9	104.4	102.6	
PNDB	116.7	116.0	117.1	118.5	118.4	117.4	118.9	120.2	120.7	119.3	122.7	122.3	124.1	124.5	119.6	117.4	115.9	
																	OAPWL	166.3

DIRECTIVITY INDEX

FREQ.																
50	-0.9	-8.8	-8.6	-6.0	-6.7	-5.6	-5.5	-3.6	-3.6	-1.3	-1.9	0.4	2.4	2.4	3.8	3.6	3.7
63	-2.3	-6.3	-6.0	-5.2	-6.6	-6.1	-4.8	-3.7	-3.2	-1.4	-1.8	0.6	2.8	2.6	3.4	4.6	4.2
80	-1.9	-4.7	-6.2	-4.0	-5.1	-3.6	-3.8	-2.9	-1.9	-1.3	-1.8	0.4	2.6	2.7	3.4	3.2	3.5
100	-1.9	-4.2	-5.3	-2.6	-3.6	-1.1	-2.4	-1.2	-0.6	-0.2	-1.7	0.5	2.0	1.8	2.5	1.8	2.0
125	0.2	-1.7	-3.7	-0.2	-2.3	-1.3	-1.2	-0.2	-0.2	-0.1	-1.9	0.1	1.5	1.4	1.8	1.5	-0.4
160	3.0	1.6	0.1	2.1	-2.1	-1.9	-1.6	-0.3	0.6	-0.7	-2.2	0.4	0.7	0.3	1.2	1.7	-2.3
200	5.4	3.7	2.3	2.4	-2.0	-1.8	-0.0	0.0	0.3	-1.9	-2.8	-0.1	-0.7	0.9	0.5	1.1	-1.1
250	0.4	-2.3	-3.3	-1.4	-4.1	-3.5	-4.2	-3.1	-3.3	-1.1	-4.3	-1.1	3.0	4.7	3.5	2.3	0.4
315	-3.8	-6.6	-6.5	-2.3	-4.1	-4.6	-4.3	-3.8	-2.8	-0.3	-1.8	0.2	3.5	4.2	3.3	1.4	-0.9
400	-5.0	-6.3	-6.0	-2.0	-3.4	-3.4	-2.7	-2.6	-2.1	-0.6	-1.1	0.6	3.2	3.8	2.6	0.6	-2.0
500	-3.8	-5.1	-4.7	-1.4	-3.5	-3.2	-2.2	-2.0	-0.7	-0.5	-0.8	0.9	2.9	3.7	1.6	-0.6	-3.1
630	-2.6	-4.2	-2.9	-1.2	-3.6	-2.4	-2.0	-1.4	-0.3	-0.7	-0.3	1.9	2.7	2.4	0.7	-0.8	-2.7
800	-1.9	-3.0	-2.4	0.2	-1.1	-2.1	-2.0	-1.6	-0.8	0.3	-0.2	1.0	2.3	2.0	0.4	-0.4	-2.5
1000	-1.9	-3.0	-1.5	1.1	-1.7	-1.7	-1.6	-1.9	-1.3	-0.5	0.2	0.9	2.8	2.7	-1.0	-1.7	-4.4
1250	-2.1	-3.6	-2.4	0.1	-0.9	-1.2	-0.9	1.7	-1.7	-2.5	1.7	1.7	1.2	1.4	-1.7	-3.9	-7.5
1600	-2.8	-4.6	-3.5	-0.2	-0.7	-1.1	-0.7	2.8	-2.4	-3.8	2.6	1.9	-0.2	1.0	-1.9	-4.3	-9.0
2000	-4.5	-3.9	-3.7	-2.9	-1.9	-3.4	-1.0	-1.9	1.5	-1.9	1.3	-0.4	3.5	3.3	-2.1	-4.6	-5.4
2500	-9.1	-7.6	-4.6	-5.4	-2.7	-6.6	-2.3	-1.0	1.0	-3.7	2.6	-0.8	2.7	4.9	-2.0	-4.8	-5.0
3150	-3.8	-3.8	-1.5	-1.0	-0.7	-2.7	-1.9	0.7	-2.4	2.0	-1.3	4.2	1.8	-0.8	-4.3	-6.1	-9.0
4000	-2.2	-2.7	-2.3	-0.5	-6.5	-1.8	-2.4	-1.5	-4.5	0.2	1.3	3.5	4.4	0.0	-3.5	-4.8	-9.5
5000	-6.4	-5.6	-7.1	-3.4	-6.4	-4.5	-2.9	-5.4	-3.1	-3.2	1.1	0.5	7.0	2.2	-2.0	-4.5	-7.8
6300	-6.2	-6.7	-4.7	-4.0	-1.0	-4.8	-1.8	-2.2	-0.5	0.3	0.1	4.4	1.8	2.5	-2.7	-6.0	-6.3
8000	-3.9	-5.6	-4.1	-2.1	-1.3	-4.2	-4.6	-2.3	-3.3	-0.2	1.8	3.7	4.2	0.9	-3.0	-4.0	-8.8
10000	-5.8	-7.4	-6.4	-5.0	-4.9	-5.4	-3.8	-3.3	-4.2	-0.6	1.9	4.0	4.2	2.7	-1.9	-4.7	-8.3

RUN 6 3473 RPM

 NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR, 7.2

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F
LOCATION..... P.F.G.
DATE..... 9/6/68
RUN..... 6.Pt.78
BAROMETER.....(in Hg)... 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 70.7
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°C)..... 289.3
ABS. HUMIDITY....(gm/m³)... 11.1
(kg/m³)... 0.0111
PHYS. FAN SPEED (RPM).... 3554
(rad/sec) 372.1
CORR. FAN SPEED (RPM).... 3517
(rad/sec) 368.2
TAPP NUMBER..... P640

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	81.4	82.9	81.7	84.8	80.2	81.9	82.3	84.6	86.0	87.6	89.6	88.4	90.0	91.0	92.0	93.9	94.2	145.6
63	84.2	86.1	85.3	86.5	83.5	84.2	85.3	86.4	87.8	89.2	92.3	90.4	92.4	93.2	93.9	95.2	96.4	147.8
80	86.1	86.3	84.2	86.2	84.1	85.5	86.3	86.5	88.3	89.2	92.1	90.1	92.1	92.7	93.2	92.9	94.6	147.3
100	86.1	86.2	84.5	87.5	85.6	87.8	87.1	88.2	89.3	89.6	92.4	90.2	91.7	92.1	92.5	91.8	92.2	147.3
125	86.6	86.6	84.4	88.3	85.8	86.5	86.9	87.8	88.5	88.7	90.8	88.2	89.7	90.6	90.4	90.1	87.9	146.0
160	86.0	86.2	84.7	87.1	83.0	83.0	83.5	84.8	86.1	85.3	87.6	85.7	85.6	87.1	87.0	87.2	82.3	143.2
200	84.6	84.6	83.5	83.8	79.8	80.4	82.0	81.8	83.2	81.7	84.6	81.8	81.2	82.7	81.8	81.7	78.3	139.8
250	81.0	81.1	80.5	81.7	79.1	80.0	80.4	80.5	81.4	79.7	82.1	80.0	82.6	86.2	83.1	82.5	81.3	139.3
315	80.2	79.2	79.4	83.4	80.4	79.9	80.4	80.9	81.5	84.2	86.5	83.8	88.5	90.0	88.5	87.0	84.6	142.9
400	82.2	82.0	82.3	86.7	84.8	83.5	84.4	84.6	84.7	87.5	90.9	88.3	91.3	92.9	90.9	89.2	86.4	146.2
500	83.4	83.6	83.7	87.8	85.8	84.5	85.7	85.8	87.1	88.8	92.4	89.8	91.8	93.2	90.6	88.5	85.4	147.2
630	85.2	84.4	85.9	88.3	85.7	86.5	87.3	86.7	88.9	89.1	92.5	89.5	92.1	92.6	88.8	87.9	85.2	147.4
800	84.0	84.0	84.8	87.6	85.1	85.0	85.4	86.1	86.9	88.0	92.0	89.4	90.7	90.7	87.4	86.7	84.0	146.9
1000	87.0	86.6	88.3	91.1	89.0	87.5	88.0	88.7	88.6	90.0	94.5	91.5	93.1	92.4	88.7	88.3	85.4	148.9
1250	89.4	90.7	91.1	94.1	92.4	93.1	92.3	91.5	93.4	93.5	99.1	94.8	95.6	96.5	91.5	89.1	87.1	152.8
1600	96.7	99.4	98.6	102.3	101.1	103.1	100.6	99.1	103.2	103.2	109.6	104.0	102.8	105.6	99.4	96.0	95.3	162.4
2000	88.4	90.1	90.0	91.9	92.9	91.0	92.7	91.0	95.3	94.8	97.9	93.8	96.6	95.6	90.9	88.5	87.3	152.8
2500	93.6	95.3	96.1	97.3	99.9	97.3	98.9	98.7	103.2	101.1	105.3	102.8	104.3	105.4	100.0	96.6	96.4	161.0
3150	91.6	91.2	95.9	96.3	95.4	93.6	93.2	97.0	93.3	97.6	99.3	99.6	98.1	95.3	91.1	89.8	85.9	155.8
4000	93.8	93.6	94.8	96.4	90.9	94.9	94.7	96.1	93.1	98.0	102.9	99.6	100.4	97.2	92.7	92.0	86.7	157.6
5000	90.3	91.7	90.8	94.2	91.6	93.7	95.6	93.4	94.9	95.2	103.4	98.2	103.5	100.1	95.4	93.4	89.3	158.5
6300	85.1	86.1	88.3	89.6	92.3	88.4	91.6	91.4	93.4	93.6	97.6	97.0	95.[illegible]	96.1	90.5	87.2	86.1	154.9
8000	84.4	84.2	86.2	88.3	89.5	85.9	85.8	88.8	87.8	90.6	96.1	94.1	94.8	91.0	86.4	85.9	80.4	153.7
10000	78.1	79.7	80.7	82.6	82.7	81.8	83.9	84.4	83.7	87.1	93.5	90.9	91.5	90.0	84.6	82.1	77.4	152.6
OASPL MEASURED	103.9	105.1	105.6	108.1	107.2	107.4	107.0	106.9	109.3	109.3	114.3	110.7	111.7	112.3	107.5	105.7	104.8	
OASPL CALCULATED	102.6	103.8	104.3	106.7	105.9	106.3	105.8	105.7	108.1	108.2	113.4	109.7	110.7	110.9	106.5	104.9	104.1	
PNDB	116.2	116.9	117.9	119.8	119.8	119.4	119.6	119.6	122.3	121.9	126.4	123.6	124.8	125.1	120.4	118.1	116.7	
																	OAPWL	168.0

DIRECTIVITY INDEX

FREQ,																	
50	-7.4	-5.9	-7.1	-4.0	-8.6	-6.9	-6.5	-4.2	-2.8	-1.2	0.8	-0.4	1.2	2.2	3.2	5.1	5.4
63	-6.6	-4.8	-5.6	-4.3	-7.3	-6.7	-5.6	-4.4	-3.1	-1.7	1.4	-0.5	1.5	2.4	3.0	4.3	5.6
80	-4.2	-4.0	-6.1	-4.1	-6.2	-4.8	-4.0	-3.8	-2.0	-1.1	1.8	-0.2	1.8	2.4	2.9	2.6	4.3
100	-4.2	-4.0	-5.7	-2.8	-4.7	-2.4	-3.1	-2.1	-1.0	-0.6	2.2	-0.1	1.5	1.8	2.2	1.5	1.9
125	-2.2	-2.3	-4.4	-0.5	-3.1	-2.4	-2.0	-1.1	-0.3	-0.1	1.9	-0.7	0.9	1.7	1.5	1.3	-1.0
160	0.1	0.3	-1.2	1.2	-2.9	-2.9	-2.4	-1.1	0.2	-0.6	1.7	-0.2	0.7	1.2	1.1	1.3	-3.6
200	2.2	2.2	1.1	1.4	-2.6	-2.0	-0.4	-0.6	0.8	-0.7	2.2	-0.6	-1.2	0.3	-0.6	-0.6	-4.0
250	-0.8	-0.8	-1.4	-0.2	-2.8	-1.9	-1.5	-1.4	-0.5	-2.2	0.2	-1.9	0.8	4.3	1.2	0.6	-0.6
315	-5.1	-6.1	-5.9	-1.9	-5.0	-5.5	-5.0	-4.5	-3.9	-1.1	1.2	-1.6	3.2	4.7	3.1	1.7	-0.8
400	-6.4	-6.6	-6.3	-1.8	-3.7	-5.1	-4.2	-4.0	-3.8	-1.1	2.4	-0.3	2.7	4.3	2.3	0.6	-2.2
500	-5.9	-5.7	-5.7	-1.6	-3.6	-4.9	-3.7	-3.6	-2.3	-0.6	3.0	0.4	2.4	3.8	1.2	-0.9	-4.0
630	-4.3	-5.1	-3.7	-1.3	-3.8	-3.1	-2.2	-2.8	-0.7	-0.5	3.0	-0.1	2.5	3.1	-0.7	-1.7	-4.4
800	-4.4	-4.4	-3.6	-0.8	-3.3	-3.4	-3.0	-2.3	-1.5	-0.5	3.6	1.0	2.3	2.2	-1.0	-1.7	-4.4
1000	-3.7	-4.1	-2.4	0.4	-1.8	-3.2	-2.7	-2.0	-2.1	-0.7	3.8	0.8	2.4	1.6	-2.0	-2.4	-5.4
1250	-5.1	-3.7	-3.3	-0.4	-2.1	-1.3	-2.2	-2.9	-1.0	-1.0	4.6	0.4	1.1	2.0	-3.0	-5.3	-7.4
1600	-7.1	-4.4	-5.2	-1.5	-2.7	-0.7	-3.2	-4.7	-0.6	-0.8	5.8	0.2	-1.0	1.8	-4.4	-7.7	-8.5
2000	-5.7	-3.9	-4.0	-2.2	-1.1	-3.1	-1.3	-3.0	1.2	-1.3	3.8	-0.2	2.5	1.5	-3.1	-5.5	-6.7
2500	-8.3	-6.7	-5.9	-4.6	-2.1	-4.7	-3.1	-3.3	1.3	-0.9	3.3	0.8	2.3	3.4	-2.0	-5.4	-5.6
3150	-4.8	-5.3	-0.6	-0.1	-1.1	-2.8	-3.2	0.6	-3.2	1.8	2.8	3.2	1.6	-1.2	-5.3	-6.7	-10.5
4000	-3.9	-4.1	-2.9	-1.3	-6.8	-2.9	-3.0	-1.7	-4.6	0.3	5.2	1.9	2.7	-0.6	-5.0	-5.7	-11.0
5000	-8.1	-6.6	-7.5	-4.1	-6.8	-4.6	-2.8	-5.0	-3.5	-3.1	5.0	-0.2	5.2	1.8	-2.9	-5.0	-9.0
6300	-8.7	-7.7	-5.6	-4.3	-1.5	-5.4	-2.3	-2.5	-0.5	-0.3	3.8	3.1	1.3	2.2	-3.3	-6.7	-7.8
8000	-6.9	-7.1	-5.0	-3.0	-1.8	-5.4	-5.5	-2.4	-3.4	-0.7	4.9	2.9	3.5	-0.3	-4.9	-5.4	-10.9
10000	-10.1	-8.5	-7.5	-5.6	-5.4	-6.4	-4.3	-3.8	-4.5	-1.1	5.3	2.7	3.3	1.8	-3.5	-6.1	-10.7

RUN 6 3554 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE = MONTH 10 DAY 1 HR. 10.8

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/6/68
RUN..... 6,Pt.91
BAROMETER.....(in Hg).. 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 68.0
(°K)..... 293.1
T WET BULB.....(°F)..... 59.0
(°K)..... 288.2
ABS. HUMIDITY...(gm/m³).. 10.2
(kg/m³).. 0.0102
PHYS. FAN SPEED (RPM).... 3562
(rad/sec) 372.9
CORR. FAN SPEED (RPM).... 3532
(rad/sec) 369.8
TAPE NUMBER..... P644

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	79.1	79.1	79.5	82.6	82.0	82.5	83.1	84.5	83.9	85.8	90.9	88.7	90.3	90.5	92.0	94.1	92.2	145.4
63	85.1	85.0	85.3	86.8	86.6	85.7	87.9	87.4	88.2	89.3	95.2	94.0	94.5	93.4	94.0	95.2	95.0	149.0
80	85.6	84.8	83.3	85.5	84.6	86.2	86.3	86.6	87.4	88.4	93.4	90.4	92.6	92.5	92.9	93.1	93.9	147.4
100	85.8	85.3	84.5	87.4	86.4	88.6	87.7	88.3	88.8	89.1	93.1	90.1	91.5	91.7	92.5	91.9	91.9	147.4
125	86.2	85.6	83.6	87.4	85.5	86.4	86.6	87.3	87.3	87.1	90.6	87.3	88.8	89.1	90.1	89.7	87.9	145.3
160	85.2	85.2	83.6	85.8	81.6	82.1	81.9	83.4	84.1	82.8	86.6	84.3	84.7	84.1	85.6	85.4	81.5	141.5
200	84.0	83.5	82.1	82.5	78.8	78.4	80.4	80.1	80.9	78.0	82.0	80.8	80.0	80.7	80.3	80.9	78.9	138.0
250	80.2	79.5	78.9	81.3	80.5	79.6	78.2	78.9	79.0	81.6	83.7	81.3	85.5	87.0	85.7	84.4	82.8	140.3
315	80.5	79.7	79.7	84.4	83.1	82.7	82.6	83.3	84.4	86.6	90.8	87.3	90.4	90.8	90.2	88.4	86.2	145.1
400	82.3	82.3	82.6	87.4	86.5	86.3	86.9	86.3	87.4	88.7	93.4	90.2	92.5	93.5	91.9	89.9	87.5	147.7
500	83.1	83.6	83.9	87.8	86.3	86.3	87.2	87.0	88.6	88.5	93.4	89.9	92.3	93.2	91.1	88.9	86.4	147.7
630	84.5	84.3	85.9	88.0	85.7	87.0	86.9	87.0	88.9	87.8	92.5	89.7	90.9	91.4	89.5	88.1	86.2	147.1
800	84.1	84.4	84.3	87.5	86.1	85.6	85.4	85.6	87.0	86.8	91.8	87.9	89.5	88.9	87.6	86.9	84.8	145.9
1000	86.7	86.8	88.0	90.7	89.1	88.6	89.6	89.6	89.5	89.7	95.5	91.3	94.2	92.2	89.4	88.8	86.2	149.5
1250	89.9	90.0	90.5	94.1	91.5	91.9	92.8	93.7	94.4	91.3	96.9	92.6	94.9	94.1	91.7	89.9	87.4	151.9
1600	99.1	98.8	99.0	104.5	100.3	101.2	103.1	104.6	105.5	99.4	105.5	98.7	101.6	102.0	99.3	98.6	95.0	161.2 ←
2000	87.8	89.0	89.3	91.8	92.1	91.1	92.4	90.4	93.9	91.5	97.4	92.7	96.0	94.2	90.7	88.5	87.6	152.1
2500	92.7	93.9	99.6	99.5	98.4	98.8	98.1	97.9	100.0	102.3	104.8	102.7	104.9	103.0	97.4	96.4	97.1	160.5 ←
3150	91.4	91.0	94.4	95.4	94.8	94.0	92.3	96.7	92.2	96.5	99.0	99.1	97.4	94.3	91.6	89.8	86.4	155.2
4000	93.6	92.9	93.3	96.0	90.3	94.8	93.8	95.4	92.7	96.6	102.9	99.5	99.5	95.9	92.5	91.9	87.4	157.1
5000	89.8	91.4	89.1	93.4	91.3	93.6	94.6	92.9	94.0	94.3	104.3	97.7	103.5	99.3	95.4	92.9	89.8	158.5
6300	84.5	85.2	86.8	88.2	91.7	88.2	90.8	90.6	92.5	92.1	96.9	96.4	94.5	95.0	90.1	87.0	86.4	154.1
8000	83.9	83.3	84.4	87.2	88.5	86.0	85.1	87.7	86.8	89.2	96.1	93.6	94.7	90.3	86.7	85.8	81.1	153.3
10000	77.6	78.6	79.4	81.5	82.3	81.8	82.9	83.6	83.1	85.9	90.5	90.8	91.0	89.1	84.7	82.2	78.4	152.2
OASPL MEASURED	104.5	104.6	105.8	108.9	106.5	107.1	107.8	108.6	109.1	108.1	113.5	110.0	112.0	110.2	107.3	106.3	104.8	
OASPL CALCULATED	103.1	103.1	104.6	107.7	105.2	105.8	106.5	107.5	108.2	107.0	112.2	108.6	110.6	109.0	106.1	105.3	103.9	
PNDB	116.3	116.3	118.9	120.8	119.0	119.3	119.6	120.7	121.3	121.8	125.9	123.1	125.0	123.3	119.3	118.2	117.2	
																	OAPWL	167.4

DIRECTIVITY INDEX

FREQ.																
50	-9.5	-9.5	-9.1	-6.0	-6.6	-6.1	-5.5	-4.1	-4.7	-2.8	2.3	0.1	1.7	1.9	3.4	5.4	3.6
63	-7.0	-7.1	-6.8	-5.2	-5.4	-6.4	-4.2	-4.6	-3.9	-2.8	3.2	1.9	2.4	1.3	2.0	3.2	3.0
80	-4.0	-5.6	-7.1	-4.9	-5.8	-4.2	-4.1	-3.8	-3.0	-2.0	3.0	-0.0	2.2	2.1	2.5	2.7	3.5
100	-4.5	-5.0	-5.8	-2.9	-3.9	-1.7	-2.6	-2.0	-1.5	-1.2	2.8	-0.2	1.2	1.4	2.2	1.6	1.6
125	-2.0	-2.6	-4.6	-0.8	-2.6	-1.7	-1.5	-0.8	-0.9	-1.0	2.5	-0.9	0.7	1.0	1.9	1.6	-0.3
160	0.9	0.9	-0.7	1.6	-2.7	-2.2	-2.3	-0.9	-0.2	-1.5	2.4	0.1	0.4	-0.2	1.3	1.2	-2.7
200	3.4	2.9	1.5	1.9	-1.8	-2.2	-0.2	-0.5	0.3	-2.6	1.4	0.2	-0.6	0.1	-0.3	0.3	-1.7
250	-2.6	-3.3	-3.9	-1.5	-2.3	-3.2	-4.6	-3.9	-3.8	-1.2	0.9	-1.5	2.7	4.2	2.9	1.6	-0.0
315	-7.1	-7.8	-7.9	-3.2	-4.4	-4.8	-5.0	-4.2	-3.2	-1.0	3.2	-0.2	2.9	3.3	2.7	0.8	-1.4
400	-7.8	-7.8	-7.4	-2.6	-3.6	-3.8	-3.2	-3.8	-2.6	-1.3	3.3	0.1	2.4	3.5	1.8	-0.1	-2.5
500	-6.9	-6.4	-6.0	-2.1	-3.7	-3.7	-2.7	-3.0	-1.4	-1.5	3.5	-0.0	2.4	3.2	1.2	-1.1	-3.5
630	-4.7	-4.9	-3.3	-1.2	-3.5	-2.2	-2.3	-2.2	-0.3	-1.4	3.3	0.5	1.7	2.2	0.3	-1.1	-3.0
800	-3.7	-3.5	-3.6	-0.4	-1.8	-2.2	-2.5	-2.3	-0.9	-1.0	4.0	0.0	1.6	1.0	-0.3	-1.0	-3.1
1000	-4.5	-4.4	-3.3	-0.6	-2.2	-2.7	-1.7	-1.7	-1.8	-1.6	4.2	0.0	2.9	0.9	-1.9	-2.5	-5.1
1250	-3.6	-3.5	-3.0	0.6	-2.0	-1.6	-0.8	0.2	0.9	-2.2	3.4	-0.9	1.3	0.6	-1.8	-3.6	-6.1
1600	-3.5	-3.8	-3.6	1.9	-2.3	-1.4	0.5	2.0	2.9	-3.2	2.9	-3.9	-1.0	-0.6	-3.3	-4.0	-7.6
2000	-5.5	-4.3	-4.0	-1.5	-1.2	-2.2	-0.9	-2.9	0.6	-1.8	4.1	-0.6	2.7	1.0	-2.6	-4.8	-5.7
2500	-8.8	-7.6	-1.9	-1.9	-3.0	-2.6	-3.4	-3.5	-1.4	0.8	3.3	1.3	3.5	1.6	-4.1	-5.0	-4.3
3150	-4.5	-4.9	-1.5	-0.5	-1.1	-1.9	-3.6	0.8	-3.7	0.6	3.1	3.3	1.5	-1.5	-4.3	-6.0	-9.5
4000	-3.6	-4.3	-3.9	-1.3	-6.9	-2.4	-3.5	-1.9	-4.5	-0.6	5.7	2.2	2.3	-1.3	-4.7	-5.3	-9.9
5000	-8.5	-6.9	-9.3	-4.9	-7.0	-4.8	-3.8	-5.4	-4.3	-4.0	5.9	-0.6	5.2	1.0	-2.9	-6.4	-8.5
6300	-8.6	-7.8	-6.3	-4.9	-1.3	-4.9	-2.3	-2.5	-0.6	-1.0	3.9	3.3	1.4	1.9	-2.9	-6.1	-6.6
8000	-7.0	-7.5	-6.4	-3.6	-2.3	-4.9	-5.8	-3.1	-4.1	-1.7	5.3	2.7	3.8	-0.6	-4.1	-5.0	-9.8
10000	-10.2	-9.2	-8.5	-6.4	-5.6	-6.0	-4.9	-4.2	-4.7	-2.0	5.7	3.0	3.2	1.3	-3.1	-5.6	-9.4

C55

RUN 6 3562 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 2 HR. 7.2

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.I
LOCATION..... P.P.G.
DATE..... 9/6/68
RUN..... 6,Pt.79
BAROMETER.....(in Hg).. 28.9
(N/m²).... 97590
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m3).. 11.1
(kg/m3).. 0.0111
PHYS. FAN SPEED(RPM).... 3650
(rad/sec) 382.2
CORR. FAN SPEED(RPM).... 3612
(rad/sec) 378.2
TAPE NUMBER..... P640

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	78.5	78.6	79.3	83.5	81.3	83.8	83.5	85.2	86.5	86.6	90.3	88.9	90.7	91.3	92.7	94.7	95.2	146.2
63	83.0	83.4	84.6	85.8	84.4	86.0	86.1	87.3	88.8	89.0	93.0	91.2	93.6	94.6	95.2	96.1	97.3	148.7
80	85.7	85.1	83.9	86.1	84.7	86.7	86.5	87.4	88.7	89.2	92.7	90.7	93.2	93.9	94.4	94.4	95.9	148.2
100	86.3	86.0	85.0	87.9	86.7	89.3	87.8	88.7	90.0	90.0	92.8	90.4	92.1	92.7	93.5	93.1	94.0	148.1
125	87.0	86.5	85.0	89.0	86.7	87.9	88.0	88.5	88.9	88.8	91.3	88.6	90.6	91.4	91.3	91.5	89.8	146.8
160	86.1	86.0	84.7	87.5	83.2	84.8	84.9	86.1	86.3	85.5	88.0	86.0	87.0	87.8	87.9	88.1	84.1	143.8
200	84.7	84.7	84.1	84.8	80.2	81.0	82.9	82.9	83.3	81.7	84.8	81.8	81.5	82.9	82.4	83.2	79.8	140.2
250	81.2	81.2	80.9	82.2	79.8	81.2	82.5	82.0	82.4	80.9	83.0	80.2	84.1	86.8	83.7	83.6	82.0	140.3
315	79.9	79.0	79.4	84.1	81.8	82.2	81.3	82.3	83.5	86.2	88.1	85.3	89.9	90.9	89.4	88.2	85.8	144.2
400	82.8	81.9	82.6	88.2	86.3	87.9	85.2	86.8	87.5	89.3	92.2	89.7	93.1	94.1	92.1	90.4	87.7	147.8
500	83.9	83.7	84.4	88.2	86.3	86.3	86.5	87.1	88.6	89.7	93.1	90.5	93.0	94.2	92.1	90.2	87.1	148.2
630	85.4	84.8	87.0	89.6	85.8	87.1	86.8	87.0	89.1	89.9	93.1	89.7	91.3	93.2	90.1	89.3	86.9	147.9
800	84.1	84.5	85.6	89.1	86.7	86.6	86.5	87.5	87.5	88.7	91.8	88.4	90.2	90.1	88.0	87.7	85.3	146.7
1000	86.5	86.8	89.1	91.8	89.9	89.3	89.3	89.3	90.1	91.0	95.2	91.7	93.4	92.7	89.7	89.7	86.6	149.7
1250	88.9	90.3	91.4	93.2	92.1	91.2	92.1	91.9	92.5	92.1	96.6	93.4	95.9	95.1	91.5	89.7	87.3	151.7
1600	98.8	102.1	102.0	102.9	103.3	101.2	101.6	99.6	102.9	102.2	107.8	101.1	106.2	101.8	99.9	96.3	95.4	161.7 ←
2000	87.8	89.9	90.3	92.0	93.1	91.9	93.4	91.8	95.0	92.6	97.4	93.6	96.2	94.4	91.0	89.1	87.7	152.7
2500	94.0	96.2	96.3	97.9	100.5	98.1	102.9	98.4	104.5	101.5	105.4	106.3	106.5	104.0	100.1	97.9	96.7	162.2 ←
3150	92.1	91.8	95.5	96.1	95.3	94.2	93.2	98.1	93.8	98.4	99.3	99.8	98.9	95.9	92.4	91.2	87.1	156.3
4000	93.2	93.7	94.4	96.1	90.3	94.9	94.4	96.6	93.5	98.3	102.1	100.0	100.9	97.2	93.4	92.7	87.6	157.6
5000	90.9	92.1	91.3	94.8	92.3	94.9	95.7	94.3	96.4	96.5	103.4	99.7	102.8	100.8	96.7	94.6	91.0	158.8
6300	85.0	86.1	88.2	89.3	92.1	88.7	91.3	92.1	94.1	94.2	97.4	97.4	95.5	96.7	91.9	88.4	87.4	155.3
8000	84.3	84.1	86.0	88.1	89.4	86.3	85.6	89.8	88.7	92.5	96.7	96.0	95.5	91.5	87.5	87.0	81.6	154.7
10000	77.7	79.2	80.2	82.1	82.4	82.0	83.5	85.1	84.6	88.2	93.5	92.2	91.5	90.4	85.6	82.9	78.4	153.0
OASPL MEASURED	104.7	106.4	106.9	108.4	108.4	107.2	108.6	107.5	109.9	109.5	113.7	111.3	113.1	111.3	108.2	106.8	105.7	
OASPL CALCULATED	103.2	105.1	105.5	107.0	107.0	105.9	107.3	106.3	108.7	108.3	112.7	110.4	112.0	109.9	107.2	105.9	105.0	
PWL	116.4	118.3	118.7	120.2	120.4	119.3	121.8	120.2	123.2	122.3	126.2	125.4	126.3	124.3	121.0	119.2	117.4	
																	OAPWL	168.3

DIRECTIVITY INDEX

FREQ.																	
50	-10.8	-10.7	-10.1	-5.9	-8.0	-5.6	-5.9	-4.1	-2.9	-2.8	1.0	-0.4	1.4	1.9	3.4	3.3	5.8
63	-8.8	-8.4	-7.2	-6.0	-7.4	-5.8	-5.7	-4.5	-3.0	-2.8	1.2	-0.6	1.8	2.8	3.4	4.4	5.5
80	-5.5	-6.1	-7.2	-5.1	-6.5	-4.5	-4.7	-3.8	-2.4	-2.0	1.5	-0.4	2.0	2.7	3.2	3.2	4.7
100	-4.6	-4.9	-6.0	-3.0	-4.3	-1.7	-3.2	-2.2	-1.0	-1.0	1.8	-0.6	1.2	1.7	2.5	2.1	3.0
125	-2.7	-3.1	-4.6	-0.6	-3.0	-1.7	-1.6	-1.1	-0.7	-0.8	1.7	-1.0	1.0	1.8	1.7	1.8	0.2
160	-0.5	-0.5	-1.8	1.0	-3.4	-1.8	-1.7	-0.5	-0.2	-1.1	1.5	-0.5	0.5	1.3	1.4	1.5	-2.4
200	1.9	1.8	1.3	1.9	-2.7	-1.9	0.0	0.0	0.5	-1.2	1.9	-1.1	-1.4	0.0	-0.5	0.4	-3.0
250	-1.6	-1.6	-2.0	-0.7	-3.0	-1.6	-0.4	-0.8	-0.4	-2.0	0.2	-2.7	1.2	4.0	0.9	0.8	-0.8
315	-6.7	-7.7	-7.3	-2.6	-4.9	-4.4	-5.4	-4.3	-3.2	-0.5	1.5	-1.3	3.3	4.3	2.7	1.6	-0.9
400	-7.4	-8.2	-7.5	-1.9	-3.9	-2.2	-4.9	-3.4	-2.7	-0.9	2.1	-0.4	2.9	4.0	2.0	0.2	-2.4
500	-6.6	-6.7	-6.0	-2.3	-4.2	-4.1	-4.0	-3.3	-1.8	-0.8	2.6	0.1	2.6	3.8	1.7	-0.2	-3.3
630	-4.5	-5.2	-3.0	-0.4	-4.2	-2.9	-3.2	-3.0	-0.9	-0.0	3.2	-0.3	1.3	3.3	0.1	-0.6	-3.1
800	-4.6	-4.1	-3.0	0.4	-2.0	-2.0	-2.2	-1.2	-1.1	-0.0	3.1	-0.3	1.5	1.4	-0.6	-1.0	-3.3
1000	-5.0	-4.6	-2.4	0.3	-1.6	-2.2	-2.1	-2.2	-1.4	-0.4	3.7	0.2	2.0	1.2	-1.8	-1.8	-4.9
1250	-4.5	-3.1	-2.0	-0.2	-1.3	-2.2	-1.3	-1.4	-0.9	-1.2	3.2	0.0	2.5	1.7	-1.9	-3.7	-6.1
1600	-4.4	-1.0	-1.1	-0.2	0.2	-2.0	-1.6	-3.6	-0.2	-1.0	4.6	-2.1	3.0	-1.3	-3.2	-6.8	-7.7
2000	-6.0	-4.0	-3.6	-1.8	-0.8	-2.0	-0.4	-2.1	1.2	-1.3	3.5	-0.2	2.4	0.5	-2.8	-4.8	-6.2
2500	-9.1	-6.9	-6.8	-5.7	-2.6	-5.0	-0.2	-4.7	1.4	-1.6	2.3	3.1	3.4	0.9	-3.1	-5.2	-6.4
3150	-4.8	-5.1	-1.4	-0.8	-1.6	-2.7	-3.7	1.2	-3.1	1.5	2.4	2.9	2.0	-1.0	-4.5	-5.7	-9.8
4000	-4.5	-4.0	-3.3	-1.6	-7.4	-2.8	-3.3	-1.1	-4.2	0.6	4.4	2.3	3.2	-0.5	-4.3	-5.0	-10.1
5000	-7.8	-6.5	-7.3	-3.9	-6.4	-3.8	-3.0	-4.4	-2.3	-2.2	4.7	1.0	4.1	2.1	-2.0	-4.1	-7.6
6300	-9.2	-8.1	-6.0	-4.9	-2.1	-5.5	-2.9	-2.1	-0.1	0.0	3.2	3.2	1.3	2.5	-2.4	-5.8	-6.9
8000	-7.9	-8.2	-6.2	-4.1	-2.8	-5.9	-6.7	-2.5	-3.5	0.3	4.5	3.8	3.2	-0.7	-4.7	-5.2	-10.6
10000	-10.9	-9.4	-8.4	-6.6	-6.2	-6.6	-5.1	-3.5	-4.1	-0.4	4.9	3.6	2.9	1.8	-3.0	-5.7	-10.2

RUN 6 3650 RPM

NASA QUIET FAN RUN 6 441-004/6 T/D 9/6/68 PROC. DATE - MONTH 10 DAY 7 HR. 13.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/6/68
RUN..... 6.Pt.92
BAROMETER.....(in Hg).. 28.9
(N/m²)... 97590
T AMBIENT.....(°F)..... 68.0
(°K)..... 293.1
T WET BULB.....(°F)..... 59.0
(°K)..... 288.2
ABS. HUMIDITY...(gm/m³).. 10.2
(kg/m³).. 0.0102
PHYS. FAN SPEED (RPM).... 3650
(rad/sec) 382.2
CORR. FAN SPEED (RPM).... 3619
(rad/sec) 378.9
TAPE NUMBER..... P644

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	79.9	79.8	80.5	83.3	82.2	82.8	83.4	84.9	84.7	86.7	91.6	89.6	91.3	91.9	93.0	95.1	93.0	146.4
63	85.2	85.1	85.5	87.5	86.5	85.5	88.2	87.9	88.6	89.6	95.4	94.5	94.9	96.5	96.2	97.6	96.0	150.1
80	86.1	85.2	83.8	86.1	84.7	86.4	86.3	87.2	88.3	89.4	94.1	91.4	93.7	93.7	94.4	94.5	95.0	148.4
100	86.2	85.8	85.0	87.7	86.6	89.0	87.9	88.7	89.1	89.6	93.5	90.4	92.4	92.6	93.5	92.8	92.9	148.0
125	86.7	86.4	84.8	88.5	86.4	86.9	87.3	87.6	87.5	88.0	91.0	87.9	89.7	90.3	91.0	90.9	88.8	146.1
160	85.4	85.7	84.1	86.2	82.1	82.3	82.5	84.1	84.9	83.7	87.3	84.7	85.5	85.6	86.9	87.1	83.1	142.4
200	84.1	84.1	82.7	83.1	79.0	78.9	80.6	80.6	81.1	79.1	83.3	81.3	80.8	82.7	82.1	82.6	79.9	138.8
250	80.7	80.3	80.9	82.4	79.4	80.7	80.2	80.1	80.6	82.7	84.9	81.9	86.9	88.2	86.2	85.2	83.6	141.3
315	80.8	80.4	80.8	85.4	84.0	83.9	83.3	84.1	85.2	87.7	91.5	88.3	91.4	92.0	91.4	89.3	87.0	146.1
400	83.2	82.9	83.7	88.4	87.4	88.8	87.7	88.6	89.0	89.9	94.6	91.1	94.1	94.4	92.9	90.8	88.3	149.0
500	83.9	84.3	85.0	88.0	86.7	87.2	87.8	88.5	89.6	89.6	94.7	91.0	93.2	94.1	92.3	90.1	87.7	148.8
630	85.2	85.2	84.7	88.5	86.6	86.9	87.1	88.4	89.9	89.0	94.1	90.7	91.9	92.2	90.7	89.2	87.6	148.1
800	84.2	84.4	85.4	88.5	86.5	86.8	86.5	86.9	88.5	88.4	92.9	88.9	90.3	89.9	88.9	87.8	86.1	147.0
1000	86.5	87.2	89.5	91.0	88.9	89.9	89.7	89.8	90.1	90.5	97.0	92.4	95.0	92.9	90.5	89.9	87.4	150.4
1250	88.5	89.8	90.5	92.3	91.9	90.7	90.9	92.3	91.8	91.5	97.8	92.8	95.7	93.9	91.7	89.5	87.7	151.6
1600	98.0	101.2	99.4	100.6	103.7	100.1	100.4	103.2	98.8	100.9	109.7	97.2	105.5	102.0	98.9	95.5	95.5	161.8
2000	87.0	89.0	89.1	90.8	92.2	91.5	92.7	90.8	94.5	91.6	97.9	93.3	95.9	93.9	91.2	88.8	87.6	152.4
2500	92.1	97.1	94.1	99.1	99.5	100.0	98.2	98.1	103.8	101.9	105.8	106.4	106.0	103.2	98.9	96.5	95.8	161.8
3150	91.1	91.5	94.8	94.5	93.7	93.4	92.3	97.7	93.3	97.7	99.8	99.6	98.5	94.8	92.1	91.1	87.1	155.8
4000	92.0	93.5	93.3	94.7	89.6	94.4	93.7	96.2	92.8	97.3	102.8	99.4	100.3	96.4	93.0	92.4	87.7	157.2
5000	89.7	91.9	90.4	93.1	91.3	93.7	94.6	93.0	95.4	94.8	103.2	100.0	102.2	99.6	96.1	93.7	90.9	158.2
6300	84.0	85.2	87.4	87.9	91.1	88.0	90.8	91.0	93.0	92.6	97.9	97.2	94.6	95.6	91.0	87.7	87.1	154.7
8000	83.5	83.5	85.2	86.9	88.2	85.9	85.0	88.3	87.9	90.7	97.4	96.2	94.9	90.6	87.3	86.3	81.7	154.5
10000	77.1	78.8	80.0	81.2	81.9	81.6	82.8	84.3	84.0	86.5	94.0	92.7	91.0	89.5	85.4	83.2	78.8	152.9
OASPL MEASURED	103.9	106.0	105.4	107.3	107.9	107.0	107.0	108.3	108.5	108.8	114.3	111.4	112.9	110.6	108.1	106.5	105.3	
OASPL CALCULATED	102.4	104.8	103.9	105.9	106.7	105.7	105.5	107.1	107.4	107.6	113.7	110.3	111.7	109.4	107.0	105.8	104.4	
PNDB	115.6	117.8	117.2	119.8	119.8	119.9	119.2	120.3	122.5	122.0	126.9	125.4	125.9	123.7	120.4	118.5	116.9	
																	OAPWL	168.1

DIRECTIVITY INDEX

FREQ.																	
50	-9.6	-9.7	-9.1	-6.2	-7.3	-6.7	-6.1	-4.7	-4.8	-2.8	2.0	0.1	1.8	2.4	3.5	5.6	3.5
63	-8.0	-8.1	-7.7	-5.7	-6.7	-7.6	-4.9	-5.2	-4.6	-3.6	2.2	1.3	1.7	3.4	3.0	4.4	2.9
80	-5.3	-6.2	-7.6	-5.3	-6.7	-5.0	-5.1	-4.2	-3.1	-2.0	2.7	-0.0	2.3	2.3	3.1	3.1	3.6
100	-4.6	-5.1	-5.9	-3.2	-4.3	-1.9	-3.0	-2.2	-1.8	-1.3	2.7	-0.5	1.5	1.7	2.6	1.9	2.0
125	-2.1	-2.5	-4.1	-0.4	-2.5	-2.0	-1.6	-1.3	-1.3	-0.9	2.1	-1.0	0.8	1.4	2.1	2.0	-0.0
160	0.3	0.6	-1.0	1.1	-3.0	-2.8	-2.6	-1.0	-0.2	-1.4	2.2	-0.4	0.4	0.5	1.8	2.0	-2.0
200	2.6	2.6	1.3	1.6	-2.5	-2.5	-0.9	-0.8	-0.4	-2.4	1.8	-0.2	-0.7	1.2	0.6	1.1	-1.6
250	-3.2	-3.5	-3.0	-1.5	-4.4	-3.2	-3.6	-3.8	-3.3	-1.1	1.0	-2.0	3.0	4.4	2.4	1.4	-0.2
315	-7.8	-8.1	-7.7	-3.2	-4.5	-4.6	-5.2	-4.4	-3.3	-0.8	3.0	-0.3	2.8	3.5	2.9	0.8	-1.5
400	-8.1	-8.4	-7.6	-2.9	-3.9	-2.5	-3.6	-2.7	-2.3	-1.4	3.3	-0.2	2.8	3.1	1.6	-0.5	-2.9
500	-7.1	-6.7	-6.0	-3.0	-4.3	-3.8	-3.1	-2.5	-1.4	-1.4	3.7	0.0	2.2	3.1	1.3	-0.9	-3.3
630	-5.0	-5.1	-5.6	-1.7	-3.6	-3.3	-3.1	-1.8	-0.4	-1.3	3.8	0.5	1.6	1.9	0.5	-1.1	-2.6
800	-4.8	-4.6	-3.6	-0.4	-2.5	-2.2	-2.4	-2.0	-0.5	-0.6	3.9	-0.1	1.3	1.0	-0.1	-1.2	-2.9
1000	-5.7	-5.0	-2.7	-1.2	-3.3	-2.3	-2.5	-2.4	-2.1	-1.7	4.8	0.2	2.8	0.7	-1.7	-2.3	-4.8
1250	-4.7	-3.4	-2.6	-0.9	-1.3	-2.5	-2.3	-1.0	-1.5	-1.7	4.5	-0.5	2.4	0.6	-1.6	-3.7	-5.5
1600	-5.2	-2.0	-3.8	-2.6	0.4	-3.1	-2.8	-0.0	-4.4	-2.3	6.5	-6.0	2.3	-1.2	-4.3	-7.7	-7.7
2000	-6.5	-4.6	-4.4	-2.8	-1.3	-2.0	-0.9	-2.8	0.9	-2.0	4.4	-0.2	2.4	0.4	-2.3	-4.8	-6.0
2500	-10.7	-5.7	-8.7	-3.6	-3.3	-2.8	-4.5	-4.7	1.1	-0.8	3.0	3.7	3.3	0.5	-3.9	-6.3	-6.9
3150	-5.4	-5.0	-1.7	-2.0	-2.8	-3.1	-4.2	1.2	-3.2	1.2	3.3	3.1	2.0	-1.7	-4.4	-5.4	-9.4
4000	-5.4	-3.9	-4.1	-2.7	-7.8	-3.0	-3.7	-1.2	-4.6	-0.1	5.4	2.0	2.9	-1.0	-4.4	-5.0	-9.7
5000	-8.4	-6.1	-7.7	-4.9	-6.7	-4.3	-3.5	-5.1	-2.7	-3.2	5.1	1.9	4.1	1.5	-2.0	-4.3	-7.2
6300	-9.6	-8.4	-6.3	-5.7	-2.5	-5.6	-2.9	-2.7	-0.7	-1.0	4.3	3.5	1.0	2.0	-2.6	-5.9	-6.5
8000	-8.5	-8.4	-6.8	-5.1	-3.8	-6.1	-7.0	-3.7	-4.1	-1.2	5.4	4.3	2.9	-1.4	-4.7	-5.6	-10.3
10000	-11.4	-9.7	-8.5	-7.3	-6.6	-6.9	-5.7	-4.2	-4.5	-2.0	5.5	4.2	2.5	1.0	-3.1	-5.3	-9.7

RUN 6 3650 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 26 HR. 18.3

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7,Pt.98
BAROMETER.....(in Hg).. 28.8
(N/m²)... 9/252
T AMBIENT.....(°F)..... 62.0
(°K)..... 289.8
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 12.7
(kg/m³).. 0.0127
PHYS. FAN SPEED (RPM).... 1700
(rad/sec) 177.9
CORR. FAN SPEED (RPM).... 1695.1
(rad/sec) 177.5
TAPE NUMBER..... P655

FREQ.	ANGLES FROM INLET 0° (0)	10°.0 (.17)	20°.0 (.35)	30°.0 (.52)	40°.0 (.70)	50°.0 (.87)	60°.0 (1.05)	70°.0 (1.22)	80°.0 (1.40)	90°.0 (1.57)	100°.0 (1.74)	110°.0 (1.92)	120°.0 (2.09)	130°.0 (2.27)	140°.0 (2.44)	150°.0 (2.62)	160°.0 (2.79)	PWL
50	75.3	75.3	75.2	74.7	72.6	73.5	72.2	74.6	71.7	76.6	73.9	75.0	74.3	74.3	74.4	75.4	74.8	131.3
63	77.0	77.5	76.3	75.3	74.7	75.6	75.4	75.8	74.5	78.1	76.3	75.9	75.3	75.7	75.2	76.6	77.2	133.0
80	76.2	75.9	74.8	73.1	71.6	72.9	72.0	73.1	72.2	75.6	72.5	73.1	73.4	74.0	73.3	73.3	73.3	130.5
100	74.3	74.0	72.9	72.5	70.6	72.6	71.2	72.3	71.5	74.0	70.7	71.4	71.8	71.8	72.1	71.5	70.8	129.2
125	72.6	73.1	72.6	72.4	74.1	79.5	79.1	72.3	75.6	75.2	71.6	71.2	75.6	71.4	73.1	72.2	68.7	132.2
160	69.6	70.0	70.5	69.6	67.7	69.1	68.0	68.1	67.3	69.2	65.7	65.8	65.5	66.6	66.7	68.1	64.6	125.1
200	68.8	68.9	68.7	66.2	65.3	65.3	66.0	66.4	65.0	66.9	62.9	62.7	61.4	61.4	63.3	63.2	62.5	122.4
250	67.5	67.7	67.1	64.0	63.5	66.7	65.8	63.4	64.3	64.7	61.9	64.3	65.4	67.2	65.9	63.9	63.7	122.6
315	72.4	69.5	68.6	68.7	68.6	66.9	66.3	64.7	65.1	68.8	68.9	68.8	73.1	74.5	74.3	72.1	69.6	127.8
400	76.9	76.0	74.8	73.3	73.2	70.6	69.7	69.1	69.5	72.5	73.7	74.5	77.0	79.1	79.2	75.3	73.2	132.4
500	80.1	78.6	75.6	75.4	74.5	73.0	72.2	70.9	71.4	74.4	76.3	76.4	77.7	79.7	79.9	75.3	71.6	133.7
630	82.9	81.7	79.5	78.9	79.1	76.0	73.8	72.0	72.2	72.9	74.8	75.7	76.9	78.0	77.7	74.3	71.4	134.1
800	82.9	80.9	79.1	78.1	77.9	76.3	74.0	72.2	70.9	71.7	73.7	73.9	74.9	76.5	76.4	73.7	71.8	133.3
1000	85.9	84.9	91.6	88.9	85.2	85.9	80.4	81.6	82.6	87.0	87.6	88.9	86.7	90.8	95.2	85.6	84.4	146.4
1250	88.4	88.6	95.2	93.5	92.5	89.8	85.8	86.1	86.3	90.5	91.1	92.6	90.7	94.4	69.7	89.3	88.2	149.1
1600	83.1	84.3	85.6	91.1	93.2	85.4	85.8	83.3	80.2	79.2	82.6	82.9	85.8	86.3	85.0	79.9	79.4	144.6
2000	81.1	83.1	81.6	79.6	81.8	79.7	79.5	76.0	75.5	77.7	79.3	80.3	82.0	84.6	84.6	77.3	74.9	139.4
2500	78.8	79.8	81.9	81.8	81.7	80.4	79.9	76.0	77.1	79.8	81.0	81.3	83.4	87.8	84.7	79.5	78.1	141.0
3150	80.3	79.7	82.7	82.2	80.2	80.5	78.2	77.0	77.1	76.6	79.5	82.1	80.1	81.0	82.3	76.9	73.5	139.3
4000	83.0	82.1	83.8	82.3	83.2	82.3	79.7	77.6	77.1	78.8	81.8	85.0	83.3	83.4	84.9	79.6	75.7	141.9
5000	80.6	80.1	80.4	78.4	82.5	79.2	78.0	73.5	72.1	75.6	78.7	80.8	81.6	84.0	82.7	76.9	73.0	140.0
6300	76.3	76.6	77.6	76.9	79.4	75.4	74.9	71.9	72.5	73.5	76.5	78.8	81.4	84.0	79.6	73.9	70.3	139.2
8000	75.6	74.5	76.6	75.0	76.1	73.9	71.9	69.5	68.9	71.8	75.7	78.2	75.4	77.2	75.8	72.3	68.3	137.2
10000	70.5	70.9	71.3	70.2	73.7	68.8	68.7	64.2	64.2	67.1	71.0	73.1	73.6	75.7	73.9	68.5	65.0	135.7
OASPL MEASURED	95.5	95.4	98.9	98.4	98.3	95.3	93.3	91.9	91.5	94.5	95.5	96.8	96.2	99.0	101.7	93.8	92.5	
OASPL CALCULATED	94.4	94.2	98.1	97.3	97.3	94.2	92.0	90.8	90.5	93.7	94.7	96.1	95.3	98.2	97.4	93.0	91.5	
PNDB	$10^{6.6}$	$10^{6.2}$	$10^{8.6}$	$10^{8.1}$	$10^{9.3}$	$10^{5.7}$	$10^{4.2}$	$10^{2.0}$	$10^{1.5}$	$10^{4.3}$	$10^{5.5}$	$10^{7.5}$	$10^{7.1}$	$10^{9.7}$	$10^{8.0}$	$10^{3.9}$	102.1	
																	OAPWL	153.9

DIRECTIVITY INDEX

FREQ.																	
50	0.8	0.9	0.8	0.3	-1.8	-0.9	-2.2	0.2	-2.7	2.1	-0.5	0.5	-0.2	-0.1	0.0	1.0	0.4
63	0.9	1.4	0.3	-0.8	-1.4	-0.5	-0.7	-0.2	-1.6	2.0	0.3	-0.2	-0.7	-0.4	-0.8	0.5	1.1
80	2.7	2.5	1.4	-0.3	-1.9	-0.5	-1.4	-0.3	-1.3	2.1	-1.0	-0.3	-0.0	0.5	-0.1	-0.2	-0.1
100	2.2	1.9	0.8	0.4	-1.5	0.5	-0.9	0.3	-0.6	1.9	-1.4	-0.7	-0.3	-0.3	-0.0	-0.6	-1.3
125	-2.4	-2.0	-2.4	-2.6	-0.9	4.4	4.1	-2.7	0.6	0.2	-3.4	-3.8	0.6	-3.6	-1.9	-2.9	-6.3
160	1.8	2.2	2.7	1.8	-0.0	1.3	0.2	0.3	-0.5	1.4	-2.1	-2.0	-2.3	-1.2	-1.1	0.3	-3.2
200	3.7	3.8	3.6	1.1	0.3	0.2	0.9	1.3	-0.0	1.9	-2.1	-2.3	-3.7	-3.6	-1.8	-1.8	-2.5
250	2.4	2.6	2.0	-1.1	-1.6	1.6	0.7	-1.7	-0.8	-0.4	-3.2	-0.8	0.3	2.1	0.8	-1.2	-1.4
315	2.2	-0.7	-1.6	-1.5	-1.6	-3.3	-3.9	-5.5	-5.1	-1.4	-1.4	-1.5	2.8	4.3	4.1	1.9	-0.6
400	2.2	1.3	0.1	-1.4	-1.5	-4.1	-5.0	-5.6	-5.3	-2.2	-1.0	-0.2	2.3	4.4	4.5	0.6	-1.5
500	4.2	2.6	-0.4	-0.5	-1.4	-2.9	-3.8	-5.1	-4.5	-1.5	0.4	0.5	1.8	3.7	3.9	-0.7	-4.4
630	6.7	5.5	3.3	2.6	2.8	-0.2	-2.4	-4.2	-4.0	-3.3	-1.4	-0.5	0.6	1.8	1.5	-1.9	-4.8
800	7.6	5.7	3.8	2.9	2.6	1.1	-1.2	-3.1	-4.4	-3.6	-1.6	-1.4	-0.4	1.2	1.1	-1.5	-3.4
1000	-2.4	-3.3	3.4	0.6	-3.0	-2.3	-7.9	-6.6	-5.6	-1.3	-0.7	0.7	-1.5	2.5	6.9	-2.7	-3.9
1250	-2.4	-2.2	4.4	2.7	1.7	-1.0	-5.0	-4.7	-4.5	-0.3	0.3	1.8	-0.1	3.6	-21.1	-1.5	-2.5
1600	-2.9	-1.8	-0.4	5.0	7.1	-0.7	-0.2	-2.7	-5.9	-6.8	-3.5	-3.2	-0.2	0.3	-1.1	-5.1	-6.7
2000	0.4	2.5	0.9	-1.0	1.2	-1.0	-1.1	-4.6	-5.1	-2.9	-1.3	-0.4	1.4	4.0	3.9	-3.4	-5.7
2500	-3.2	-2.2	-0.1	-0.2	-0.3	-1.6	-2.1	-6.0	-5.0	-2.2	-1.0	-0.7	1.4	5.8	2.7	-2.5	-3.9
3150	0.4	-0.2	2.8	2.3	0.3	0.6	-1.8	-2.9	-2.8	-3.3	-0.4	2.1	0.2	1.0	2.4	-3.0	-6.5
4000	0.9	0.0	1.8	0.3	1.1	0.3	-2.4	-4.5	-4.9	-3.3	-0.2	2.9	1.2	1.3	2.8	-2.5	-6.4
5000	0.8	0.3	0.5	-1.4	2.6	-0.6	-1.8	-6.3	-7.7	-4.2	-1.1	1.0	1.8	4.2	2.9	-2.9	-6.8
6300	-1.9	-1.6	-0.5	-1.3	1.2	-2.7	-3.2	-6.2	-5.7	-4.6	-1.6	0.7	3.3	5.8	1.4	-4.2	-7.8
8000	0.8	-0.3	1.8	0.2	1.3	-0.9	-2.9	-5.2	-5.8	-2.9	0.9	3.4	0.6	2.5	1.0	-2.5	-6.4
10000	-0.9	-0.4	-0.0	-1.1	2.4	-2.6	-2.6	-7.1	-7.1	-4.2	-0.3	1.7	2.3	4.4	2.6	-2.8	-6.4

C58

RUN 7 1700 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 27 HR. 9.0

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7,Pt.113
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 1700
(rad/sec) 177.9
CORR. FAN SPEED (RPM).... 1688.6
(rad/sec) 176.8
TAPE NUMBER..... P65

FREQ.	ANGLES FROM INLET 0 (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	75.2	76.9	76.2	85.2	73.9	75.4	73.5	76.8	77.8	75.9	75.0	77.2	75.0	73.9	74.2	76.1	74.2	134.0
63	78.0	78.6	78.3	88.6	77.7	77.5	78.5	79.1	80.5	78.9	77.5	78.1	76.3	76.4	75.9	77.6	77.6	136.8
80	75.5	76.7	75.5	86.4	73.0	74.1	72.9	75.4	77.5	74.8	72.9	74.6	73.7	73.4	72.9	73.4	72.7	133.8
100	73.7	75.0	73.7	81.6	71.6	73.6	72.0	74.4	76.0	73.2	71.3	73.1	72.4	71.8	71.7	71.5	70.4	131.3
125	72.3	74.3	73.5	79.9	73.1	78.7	79.4	76.8	79.8	74.5	69.7	72.1	77.3	75.6	73.4	72.7	70.0	133.8
160	68.9	71.0	71.1	77.1	70.1	70.6	69.8	71.2	71.4	68.2	65.9	68.1	66.4	66.1	67.0	67.9	64.0	127.4
200	69.3	70.2	69.9	75.0	69.3	69.0	69.7	70.1	69.9	66.0	64.9	67.0	64.5	64.2	64.9	64.8	64.8	126.1
250	66.7	68.0	66.9	72.2	66.7	67.2	67.9	68.0	67.2	63.6	63.2	66.2	65.3	65.6	64.6	64.2	63.9	124.3
315	71.2	68.2	69.0	71.8	70.0	68.0	68.8	67.2	67.4	67.6	68.9	69.3	73.0	73.5	73.5	71.5	69.4	126.0
400	76.2	75.2	74.3	73.9	73.2	70.3	68.5	68.9	68.9	71.6	73.6	74.6	77.1	78.9	79.0	74.8	72.9	132.2
500	79.8	78.4	75.3	75.6	74.4	72.4	71.3	70.7	70.6	73.6	76.0	76.1	77.7	79.5	79.8	74.9	71.3	133.5
630	81.8	81.8	79.4	79.2	78.9	75.9	74.9	72.6	71.8	71.8	73.2	75.1	76.7	77.9	77.8	73.3	70.9	134.0
800	83.9	83.6	80.5	79.9	78.6	77.2	76.2	73.7	71.2	71.2	72.4	74.0	75.3	76.1	76.5	73.9	72.2	134.1
1000	84.7	83.8	88.5	88.2	83.0	82.3	77.8	82.1	79.4	85.0	83.6	89.7	89.4	91.4	92.4	85.9	81.8	145.4
1250	89.4	89.8	94.8	94.5	90.3	89.1	86.5	89.2	86.1	91.4	89.8	96.0	95.8	97.7	98.8	92.3	88.3	152.0
1600	84.3	85.8	85.9	91.0	92.7	87.4	89.9	88.9	84.7	80.8	83.1	84.6	87.8	85.2	84.5	80.9	80.2	145.9
2000	81.0	83.7	81.8	79.8	81.1	79.9	79.2	76.4	75.2	75.6	78.5	80.1	81.9	83.5	84.2	76.2	73.6	139.0
2500	78.1	82.0	81.0	80.8	82.1	80.6	79.2	77.2	74.8	76.8	77.6	80.0	83.7	87.9	83.7	78.9	77.2	140.5
3150	80.5	80.4	83.3	82.7	80.4	79.9	78.5	77.4	77.5	75.8	78.7	81.5	80.2	80.6	81.6	76.3	72.8	139.1
4000	83.2	82.9	84.2	83.1	82.9	81.8	80.3	78.8	77.1	78.2	81.5	84.5	83.9	82.9	85.4	79.1	75.2	142.0
5000	80.9	80.7	80.6	78.9	82.1	78.7	78.6	74.6	72.4	75.3	78.5	80.8	82.3	83.8	82.9	76.7	72.7	140.1
6300	76.6	77.1	77.7	77.3	79.0	74.8	75.3	73.3	73.1	73.8	76.9	79.0	82.2	84.4	79.6	73.8	69.9	139.6
8000	75.5	74.6	76.5	75.3	75.4	73.1	71.5	70.7	68.7	71.1	75.2	78.0	75.6	77.2	75.1	71.8	67.5	137.0
10000	70.9	71.6	72.0	71.0	74.1	69.0	69.5	65.8	65.6	66.9	71.1	73.1	73.8	75.6	73.3	68.6	65.0	135.9
OASPL MEASURED	95.8	96.2	98.4	100.0	97.4	95.2	94.2	94.5	92.0	93.9	94.0	98.9	99.0	100.5	101.1	95.1	91.8	
OASPL CALCULATED	94.6	95.1	97.5	98.8	96.4	94.0	93.6	93.8	91.6	93.8	93.3	98.1	98.3	99.9	100.6	94.5	91.1	
PNDB	106.7	106.9	108.4	109.1	108.9	105.7	106.3	105.3	102.9	104.3	104.8	108.7	109.1	110.5	110.7	105.2	101.8	
																	OAPWL	155.2

DIRECTIVITY INDEX

FREQ.																	
50	-1.9	-0.2	-0.9	8.0	-3.2	-1.7	-3.6	-0.3	0.7	-1.3	-2.1	0.1	-2.1	-3.2	-3.0	-1.0	-3.0
63	-1.8	-1.3	-1.5	8.7	-2.2	-2.3	-1.4	-0.8	0.6	-1.0	-2.4	-1.7	-3.6	-3.4	-3.9	-2.2	-2.2
80	-1.3	-0.0	-1.3	9.6	-3.8	-2.6	-3.9	-1.3	0.7	-1.9	-3.8	-2.1	-3.0	-3.3	-3.9	-3.3	-4.1
100	-0.5	0.7	-0.5	7.4	-2.6	-0.7	-2.3	0.2	1.7	-1.1	-2.9	-1.2	-1.9	-2.4	-2.5	-2.8	-3.9
125	-4.3	-2.3	-3.1	3.3	-3.5	2.1	2.8	0.2	3.2	-2.1	-6.9	-4.5	0.7	-1.0	-3.2	-3.9	-6.6
160	-1.2	0.9	1.0	7.0	-0.0	0.5	-0.3	1.1	1.3	-2.0	-4.2	-2.0	-3.7	-4.0	-3.2	-2.2	-6.1
200	0.6	1.6	1.2	6.4	0.6	0.3	1.0	1.4	1.2	-2.7	-3.7	-1.6	-4.1	-4.5	-3.8	-3.9	-3.8
250	-0.1	1.2	0.1	5.4	-0.1	0.4	1.1	1.2	0.4	-3.2	-3.6	-0.6	-1.5	-1.2	-2.2	-2.6	-2.9
315	0.8	-2.2	-1.4	1.4	-0.4	-2.4	-1.6	-3.2	-3.0	-2.8	-1.5	-1.1	2.6	3.1	3.1	1.1	-1.0
400	1.7	0.7	-0.2	-0.7	-1.4	-4.2	-6.0	-5.6	-5.7	-3.0	-0.9	0.1	2.6	4.3	4.5	0.3	-1.6
500	4.1	2.7	-0.4	-0.2	-1.3	-3.3	-4.4	-5.0	-5.1	-2.1	0.3	0.4	2.0	3.8	4.1	-0.8	-4.4
630	5.7	5.7	3.3	3.1	2.9	-0.2	-1.1	-3.4	-4.3	-4.3	-2.9	-0.9	0.6	1.9	1.7	-2.8	-5.2
800	7.8	7.5	4.4	3.8	2.5	1.1	0.1	-2.4	-4.9	-4.9	-3.6	-2.1	-0.8	-0.0	0.4	-2.2	-3.9
1000	-2.5	-3.4	1.3	1.0	-4.2	-4.9	-9.4	-5.1	-7.8	-2.2	-3.6	2.5	2.2	4.2	5.2	-1.3	-5.4
1250	-4.3	-3.9	1.1	0.9	-3.4	-4.5	-7.1	-4.4	-7.6	-2.2	-3.8	2.4	2.1	4.1	5.2	-1.3	-5.4
1600	-3.0	-1.5	-1.5	3.6	5.4	0.0	2.6	1.5	-2.7	-6.5	-4.2	-2.7	0.4	-2.2	-2.8	-6.4	-7.1
2000	0.8	3.5	1.5	-0.4	0.9	-0.3	-1.0	-3.8	-5.0	-4.6	-1.7	-0.1	1.7	3.3	4.0	-4.1	-6.6
2500	-3.4	0.5	-0.5	-0.7	0.6	-0.9	-2.3	-4.3	-6.7	-4.7	-3.9	-1.5	2.1	6.4	2.2	-2.6	-4.3
3150	0.7	0.6	3.5	2.9	0.7	0.1	-1.3	-2.8	-2.3	-4.0	-1.1	1.8	0.4	0.8	1.8	-3.5	-7.0
4000	1.1	0.7	2.1	0.9	0.8	-0.3	-1.8	-3.3	-5.0	-4.0	-0.6	2.4	1.8	0.8	3.3	-3.0	-6.9
5000	0.9	0.8	0.7	-1.0	2.2	-1.2	-1.3	-5.3	-7.5	-4.6	-1.4	0.9	2.4	3.9	3.0	-3.2	-7.2
6300	-1.9	-1.4	-0.8	-1.2	0.5	-3.7	-3.2	-5.2	-5.4	-4.7	-1.6	0.5	3.7	5.9	1.1	-4.7	-8.6
8000	0.9	0.1	2.0	0.7	0.8	-1.5	-3.1	-3.9	-5.9	-3.4	0.7	3.5	1.0	2.6	0.5	-2.7	-7.1
10000	-0.6	0.1	0.4	-0.5	2.6	-2.6	-2.0	-5.7	-6.0	-4.6	-0.4	1.6	2.3	4.1	1.8	-2.9	-6.5

RUN 7 1700 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 26 HR. 18.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7,Pt.99
BAROMETER.....(in Hg).. 28.8
(N/m²).. 97252
T AMBIENT.....(°F)..... 62.0
(°K)..... 289.8
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m3).. 12.7
(kg/m3).. 0.0127
PHYS. FAN SPEED(RPM).... 1847
(rad/sec) 193.4
CORR. FAN SPEED(RPM).... 1841.7
(rad/sec) 192.8
TAPE NUMBER..... P634

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0° (0)	10°0 (.17)	20°0 (.35)	30°0 (.52)	40°0 (.70)	50°0 (.87)	60°0 (1.05)	70°0 (1.22)	80°0 (1.40)	90°0 (1.57)	100°0 (1.74)	110°0 (1.92)	120°0 (2.09)	130°0 (2.27)	140°0 (2.44)	150°0 (2.62)	160°0 (2.79)	
50	76.0	74.7	75.6	75.3	75.6	74.0	73.8	73.9	73.4	77.0	79.4	79.4	78.0	76.4	76.9	77.3	77.5	133.6
63	78.1	77.4	77.9	76.3	77.2	76.0	76.4	76.3	76.3	78.9	81.6	81.5	79.6	78.6	78.5	78.0	79.1	135.7
80	77.6	76.3	76.3	74.7	74.4	73.5	73.7	74.0	74.2	76.1	78.1	79.3	77.9	76.2	75.8	74.5	75.8	133.3
100	76.1	74.9	74.8	73.9	73.0	72.6	71.5	73.1	73.2	74.7	76.3	76.8	75.9	74.6	75.1	73.5	74.4	131.7
125	74.1	73.0	74.1	73.8	72.5	77.2	76.6	76.2	78.5	74.3	76.4	77.5	79.0	77.1	77.5	73.3	72.7	133.8
160	71.4	70.9	72.3	71.4	70.7	68.7	68.3	68.8	68.9	70.2	73.7	72.9	71.9	70.5	71.3	70.2	69.2	128.3
200	70.6	69.7	70.4	68.8	68.7	65.1	66.5	67.1	66.9	67.9	74.6	74.5	71.1	68.8	70.2	66.9	68.9	127.7
250	69.1	68.2	67.4	66.0	65.4	63.9	65.1	64.2	64.2	67.3	73.2	74.3	72.1	70.7	70.3	67.4	69.9	127.2
315	73.6	69.9	70.3	71.0	70.2	67.4	65.3	65.5	66.2	71.7	76.8	75.9	76.7	76.6	76.7	73.9	73.4	131.3
400	77.4	76.3	75.7	74.9	74.4	71.3	69.8	70.4	70.4	74.5	78.6	78.6	79.7	80.7	80.8	76.4	75.4	134.6
500	80.8	79.4	76.8	76.7	76.1	74.0	72.7	72.1	71.9	75.3	78.7	79.7	80.5	81.3	81.0	78.0	74.0	135.5
630	79.0	79.7	79.6	78.2	78.1	75.3	73.9	72.4	72.2	73.9	77.4	78.1	78.8	78.8	78.1	74.2	72.9	134.7
800	82.6	83.7	82.9	79.9	79.9	78.8	77.8	75.2	73.8	74.1	77.5	78.9	79.8	79.5	77.7	75.7	74.5	138.4
1000	84.6	81.6	82.5	83.2	80.7	78.1	76.8	75.3	76.6	79.4	80.8	80.7	81.5	82.1	81.9	77.4	74.5	138.3
1250	88.5	94.0	94.6	96.3	86.6	86.5	90.0	88.5	92.0	94.4	92.0	92.4	94.9	94.6	96.1	91.0	85.3	151.3
1600	84.8	86.8	88.0	92.0	97.2	95.6	89.2	83.0	80.7	83.3	84.7	87.8	85.8	86.4	87.0	81.3	79.9	148.3
2000	80.7	82.8	82.9	81.3	82.9	83.3	81.4	77.6	76.7	77.9	79.8	80.3	82.9	84.0	83.6	76.9	74.7	140.1
2500	80.7	81.9	86.7	82.7	82.4	81.3	80.7	78.1	77.9	79.4	81.9	84.9	86.9	90.2	87.1	81.5	78.0	143.2
3150	82.7	82.2	84.9	83.6	81.3	81.5	81.1	78.3	78.1	78.2	81.2	83.4	81.8	82.8	82.1	77.7	74.8	140.7
4000	84.3	84.3	85.6	83.6	84.3	83.2	82.2	79.5	78.7	81.0	84.0	86.4	85.1	85.1	85.3	81.2	77.6	143.5
5000	81.3	81.7	81.4	79.4	84.0	81.6	80.5	75.4	73.4	78.1	80.9	82.2	83.7	85.4	83.4	78.1	74.6	141.6
6300	77.4	78.1	79.0	77.8	79.7	76.6	76.2	73.8	73.8	75.5	79.6	80.6	82.3	86.4	80.0	75.0	71.8	140.8
8000	77.1	76.4	78.1	76.4	77.0	75.8	73.8	71.7	70.7	74.6	78.3	80.3	77.5	80.0	76.9	74.2	70.5	139.3
10000	71.6	72.8	72.8	71.7	74.7	71.1	70.4	66.1	65.5	69.6	73.8	75.2	75.8	77.6	74.9	69.9	66.4	137.6
OASPL MEASURED	96.0	98.0	99.0	99.7	99.7	98.4	95.9	93.2	94.6	97.0	98.2	98.7	99.6	99.9	100.1	95.0	92.4	
OASPL CALCULATED	94.7	96.9	97.7	98.7	98.7	97.3	94.6	91.9	93.7	95.9	95.7	96.8	97.8	98.4	98.5	93.7	90.3	
PNDB	$10^{7.5}$	$10^{8.2}$	$10^{9.1}$	$10^{9.2}$	111.5	110.1	$10^{6.6}$	$10^{3.2}$	$10^{4.5}$	$10^{6.7}$	$10^{7.7}$	$10^{9.4}$	$10^{9.4}$	111.3	$10^{9.8}$	$10^{5.1}$	102.0	
																	OAPWL	155.4

DIRECTIVITY INDEX

FREQ.																
50	-0.8	-2.1	-1.0	-1.5	-1.2	-2.8	-3.0	-2.9	-3.4	0.2	2.6	2.6	1.2	-0.4	0.1	0.5	0.7
63	-0.6	-1.4	-0.9	-2.5	-1.6	-2.7	-2.3	-2.5	-2.4	0.2	2.9	2.7	0.8	-0.1	-0.3	-0.8	0.4
80	1.3	0.1	0.1	-1.5	-1.8	-2.7	-2.6	-2.3	-2.1	-0.1	1.9	3.0	1.7	0.0	-0.4	-1.8	-0.5
100	1.5	0.3	0.2	-0.8	-1.7	-2.0	-3.1	-1.6	-1.4	0.1	1.7	2.1	1.3	-0.1	0.5	-1.1	-0.3
125	-2.6	-3.6	-2.6	-2.8	-4.2	0.6	-0.0	-0.4	1.9	-2.3	-0.3	0.8	2.4	0.5	0.8	-3.4	-3.9
160	0.4	-0.1	1.2	0.4	-0.3	-2.3	-2.8	-2.2	-2.1	-0.8	2.7	1.9	0.9	-0.5	0.2	-0.8	-1.8
200	0.3	-0.6	0.1	-1.6	-1.7	-5.3	-3.9	-3.3	-3.4	-2.5	4.3	4.1	0.7	-1.5	-0.2	-3.5	-1.5
250	-0.6	-1.5	-2.3	-3.6	-4.3	-5.9	-4.6	-5.6	-5.6	-2.5	3.4	4.5	2.3	1.0	0.6	-2.3	0.1
315	-0.1	-3.8	-3.4	-2.7	-3.5	-6.3	-8.4	-8.2	-7.5	-2.0	3.1	2.2	3.0	2.9	3.0	0.2	-0.3
400	0.5	-0.7	-1.2	-2.0	-2.6	-5.7	-7.1	-6.5	-6.5	-2.4	1.7	1.6	2.8	3.8	3.8	-0.6	-1.5
500	3.1	1.7	-0.9	-1.0	-1.6	-3.7	-5.0	-5.6	-5.8	-2.5	1.0	1.9	2.8	3.6	3.3	-1.7	-3.7
630	2.3	3.0	2.8	1.4	1.4	-1.5	-2.9	-4.4	-4.6	-2.9	0.0	1.3	2.0	2.0	1.3	-2.6	-3.9
800	4.2	5.4	4.6	1.6	1.5	0.4	-0.6	-3.2	-4.5	-4.3	-0.9	0.5	1.5	1.1	-0.6	-2.7	-3.9
1000	4.5	1.5	2.4	3.1	0.6	-2.0	-3.3	-4.8	-3.5	-0.7	0.7	0.6	1.4	2.0	1.8	-2.7	-5.6
1250	-4.4	1.1	1.7	3.4	-6.3	-6.4	-2.9	-4.5	-0.9	1.5	-0.9	-0.5	2.0	1.7	3.2	-1.9	-7.6
1600	-5.0	-3.0	-1.8	2.3	7.4	5.8	-0.6	-6.8	-9.1	-6.5	-5.1	-1.9	-4.0	-3.3	-2.8	-8.5	-9.9
2000	-0.6	1.5	1.7	0.0	1.7	2.0	0.1	-3.7	-4.6	-3.4	-1.5	-1.0	1.6	2.7	2.3	-4.4	-6.6
2500	-3.5	-2.3	2.5	-1.5	-1.8	-2.9	-3.5	-6.1	-6.3	-4.8	-2.3	0.8	2.7	6.0	2.9	-2.7	-6.2
3150	1.3	0.8	3.5	2.2	-0.1	0.2	-0.3	-3.1	-3.3	-3.2	-0.2	2.1	0.5	1.5	0.8	-3.7	-6.6
4000	0.7	0.7	2.0	0.0	0.7	-0.4	-1.4	-4.1	-4.9	-2.7	0.4	2.8	1.5	1.4	1.7	-2.4	-6.0
5000	-0.1	0.3	-0.0	-2.0	2.6	0.2	-0.9	-6.0	-8.0	-3.4	-0.5	0.7	2.3	3.9	1.9	-3.3	-6.8
6300	-2.3	-1.7	-0.7	-2.0	-0.1	-3.2	-3.6	-6.0	-5.9	-4.2	-0.1	0.8	2.6	6.6	0.3	-4.8	-7.9
8000	0.3	-0.4	1.3	-0.4	0.2	-1.0	-3.0	-5.1	-6.1	-2.2	1.5	3.5	0.7	3.2	0.1	-2.6	-6.4
10000	-1.6	-0.4	-0.4	-1.5	1.5	-2.1	-2.8	-7.1	-7.8	-3.6	0.6	2.0	2.6	4.4	1.7	-3.4	-6.8

C60

RUN 7 1847 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 27 HR. 9.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7,Pt.114
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 56.0
(°K)..... 292.0
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³)... 0.0115
PHYS. FAN SPEED (RPM).... 1850
(rad/sec) 193.7
CORR. FAN SPEED (RPM).... 1837
(rad/sec) 192.4
TAPE NUMBER..... P649

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	75.7	77.4	77.2	84.3	74.8	76.1	73.5	74.1	74.3	76.9	75.9	77.3	75.7	75.0	76.2	79.0	75.5	133.9
63	78.5	80.0	78.9	84.2	77.8	78.5	78.3	77.1	77.7	79.1	78.5	78.8	77.3	77.4	77.2	79.1	78.7	135.8
80	77.2	78.0	76.4	80.5	73.8	75.3	73.0	74.0	74.5	75.4	74.4	75.6	75.5	75.5	75.1	74.9	73.8	132.5
100	75.5	76.6	74.9	78.2	71.8	73.9	71.2	72.9	73.0	73.0	72.8	74.0	73.5	73.2	73.8	73.2	70.7	130.8
125	73.7	74.9	73.9	76.9	71.3	72.8	73.1	73.4	73.4	73.3	72.4	72.6	72.3	72.8	73.9	73.4	68.6	130.5
160	71.1	72.4	72.4	75.0	70.1	70.7	69.0	69.4	69.1	68.6	67.2	68.1	67.0	67.2	69.1	69.3	64.0	126.9
200	70.7	71.2	70.9	73.2	69.6	68.2	68.6	68.2	68.8	66.3	66.4	66.8	64.5	64.9	66.7	66.2	64.5	125.5
250	68.1	68.8	67.7	69.3	66.3	66.0	65.6	65.7	66.0	64.4	63.6	65.3	65.9	66.9	66.7	65.4	64.2	123.6
315	72.1	69.6	69.4	70.8	69.8	67.2	66.7	65.9	67.4	69.0	69.6	69.5	73.6	74.4	74.9	72.7	69.4	128.4
400	76.9	76.1	74.8	74.1	73.3	70.5	69.2	69.1	70.2	73.1	74.1	75.1	77.6	79.6	80.0	75.8	72.9	132.9
500	80.6	79.4	76.4	76.4	75.5	73.1	72.4	71.2	71.8	74.4	76.1	77.1	79.2	80.6	81.2	75.8	71.8	134.5
630	79.0	79.7	79.0	78.1	78.1	74.9	73.6	72.1	72.2	73.4	74.9	76.6	77.9	78.9	78.8	73.3	70.1	134.2
800	82.9	84.3	82.1	80.4	80.0	78.8	76.9	74.7	74.2	73.9	75.5	76.5	79.1	77.7	77.0	74.7	72.6	135.9
1000	83.5	81.0	81.8	82.6	80.4	77.6	77.4	75.0	76.3	77.9	78.9	80.0	80.5	82.4	82.5	76.5	72.4	137.8
1250	91.8	92.9	94.4	95.0	87.0	87.5	92.8	88.9	92.2	94.0	94.1	96.2	95.9	97.2	98.9	90.7	84.6	152.7
1600	85.0	86.3	86.7	94.2	97.7	93.2	85.4	80.2	80.3	82.9	86.2	88.0	86.4	85.8	86.8	81.6	80.3	148.1
2000	80.8	82.8	82.5	82.3	82.8	81.2	80.7	79.3	76.8	77.5	78.7	80.2	82.8	84.0	84.3	76.5	74.3	139.9
2500	80.8	82.2	86.1	83.3	81.9	80.7	81.4	77.8	77.6	76.6	80.6	84.1	85.5	88.5	86.5	79.7	77.1	142.3
3150	83.0	81.8	84.4	83.5	82.2	83.1	79.3	78.0	78.7	77.5	80.1	83.6	81.4	82.8	82.5	77.2	74.0	140.7
4000	84.3	84.7	85.2	84.5	84.7	83.8	81.7	79.8	79.4	80.3	83.5	86.8	84.8	85.1	86.1	80.9	77.5	143.6
5000	81.9	82.3	81.3	80.5	84.3	81.3	80.5	75.5	74.4	77.4	80.5	83.0	83.6	85.2	84.3	78.0	74.3	141.7
6300	78.2	78.6	78.8	78.1	80.2	76.8	76.6	73.7	74.9	75.6	78.7	80.6	82.4	86.0	80.5	74.8	71.0	140.8
8000	77.5	76.6	78.0	76.7	77.2	75.6	73.4	71.8	72.0	74.1	77.6	80.8	77.4	80.2	77.3	73.9	69.7	139.3
10000	72.7	73.2	73.3	72.1	75.7	71.0	70.9	66.8	67.3	69.1	72.7	75.4	75.6	77.7	75.2	70.3	66.2	137.7
OASPL MEASURED	97.2	97.9	98.7	100.2	100.1	97.3	95.6	93.0	94.7	96.2	97.1	99.4	99.1	100.4	101.3	94.4	89.6	
OASPL CALCULATED	95.8	96.5	97.4	99.1	99.1	96.0	95.1	91.9	93.8	95.4	96.2	98.4	98.1	99.4	100.4	93.4	89.3	
PNDB	$10^{7.8}$	$10^{8.2}$	$10^{8.7}$	110.6	111.8	$10^{8.8}$	$10^{6.2}$	$10^{3.2}$	$10^{4.7}$	$10^{6.1}$	$10^{7.2}$	$10^{9.5}$	$10^{9.3}$	110.7	111.1	$10^{4.7}$	101.1	
																	OAPWL	155.8

DIRECTIVITY INDEX

FREQ.																
50	-1.3	0.8	0.1	7.3	-2.2	-0.9	-3.5	-2.9	-2.8	-0.1	-1.1	0.3	-1.4	-2.0	-0.9	1.9	-1.5
63	-0.4	1.1	0.0	5.3	-1.1	-0.4	-0.6	-1.8	-1.2	0.3	-0.3	-0.1	-1.5	-1.4	-1.6	0.2	-0.2
80	1.7	2.5	0.8	5.0	-1.8	-0.2	-2.5	-1.5	-1.0	-0.1	-1.1	0.1	-0.0	0.0	-0.4	-0.7	-1.7
100	1.8	2.9	1.2	4.5	-1.9	0.2	-2.5	-0.8	-0.7	-0.7	-0.9	0.3	-0.2	-0.5	0.1	-0.5	-3.0
125	0.4	1.6	0.6	3.6	-2.1	-0.6	-0.2	0.1	0.1	-0.0	-0.9	-0.6	-1.0	-0.5	0.6	0.1	-4.8
160	1.5	2.7	2.7	5.4	0.5	1.1	-0.7	-0.2	-0.6	-1.0	-2.5	-1.6	-2.7	-2.4	-0.5	-0.3	-5.6
200	2.5	3.0	2.8	5.0	1.4	0.1	0.4	0.0	0.6	-1.9	-1.8	-1.4	-3.6	-3.2	-1.5	-1.9	-3.6
250	2.0	2.7	1.5	3.2	0.2	-0.1	-0.5	-0.4	-0.2	-1.8	-2.5	-0.8	-0.2	0.8	0.6	-0.7	-1.9
315	1.3	-1.3	-1.5	0.0	-1.0	-3.7	-4.2	-4.9	-3.4	-1.8	-1.2	-1.3	2.7	3.6	4.1	1.9	-1.4
400	1.7	0.9	-0.4	-1.1	-1.9	-4.7	-6.1	-6.1	-5.0	-2.2	-1.1	-0.1	2.4	4.4	4.8	0.6	-2.3
500	3.9	2.7	-0.3	-0.3	-1.3	-3.6	-4.3	-5.5	-5.0	-2.4	-0.6	0.4	2.4	3.9	4.4	-0.9	-4.9
630	2.7	3.5	2.7	1.8	1.8	-1.4	-2.7	-4.2	-4.1	-2.9	-1.4	0.3	1.7	2.7	2.6	-3.0	-6.2
800	5.1	6.4	4.2	2.5	2.1	0.9	-0.9	-3.1	-3.6	-3.9	-2.4	0.6	1.3	-0.2	-0.9	-3.2	-5.1
1000	3.9	1.3	2.2	3.0	0.8	-2.0	-2.3	-4.6	-3.3	-1.7	-0.7	0.3	0.9	2.8	2.9	-3.1	-7.2
1250	-2.5	-1.4	0.1	0.7	-7.3	-6.9	-1.5	-5.4	-2.1	-0.3	-0.3	1.9	1.6	2.9	4.6	-3.7	-9.7
1600	-4.5	-3.1	-2.8	4.7	8.2	3.7	-4.1	-9.3	-9.2	-6.6	-3.2	-1.5	-3.1	-3.7	-2.7	-7.9	-9.2
2000	-0.4	1.7	1.4	1.2	1.6	0.0	-0.4	-1.8	-4.3	-3.6	-2.5	-0.9	1.7	2.9	3.2	-4.7	-6.8
2500	-2.4	-1.0	2.9	0.1	-1.3	-2.5	-1.9	-5.4	-5.6	-6.6	-2.6	0.9	2.3	5.3	3.3	-3.5	-6.2
3150	1.7	0.5	3.1	2.2	0.8	1.8	-2.0	-3.4	-2.7	-3.8	-1.2	2.2	0.1	1.5	1.1	-4.1	-7.3
4000	0.6	1.0	1.4	0.8	0.9	0.1	-2.1	-4.0	-4.3	-3.5	-0.3	3.0	1.0	1.4	2.3	-2.8	-6.3
5000	0.4	0.7	-0.3	-1.0	2.7	-0.3	-1.1	-6.1	-7.2	-4.2	-1.1	1.4	2.0	3.7	2.7	-3.6	-7.3
6300	-1.5	-1.1	-0.9	-1.6	0.5	-2.9	-3.1	-6.0	-4.8	-4.1	-1.1	0.9	2.6	6.2	0.8	-4.9	-8.7
8000	0.7	-0.3	1.1	-0.2	0.3	-1.3	-3.5	-5.1	-4.8	-2.7	0.7	3.9	0.5	3.3	0.4	-3.0	-7.2
10000	-0.6	-0.1	-0.0	-1.3	2.4	-2.3	-2.4	-6.6	-6.0	-4.2	-0.7	2.1	2.3	4.3	1.9	-3.1	-7.1

C61

RUN 7 1850 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 26 HR. 18.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7,Pt.100
BAROMETER.....(in.Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 62.0
(°K)..... 289.8
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 12.7
(kg/m³).. 0.0127
PHYS. FAN SPEED (RPM).... 2025
(rad/sec) 212.0
CORR. FAN SPEED (RPM).... 2019.2
(rad/sec) 211.4
TAPE NUMBER..... P654

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0° (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	77.7	75.9	75.2	75.1	75.7	78.3	75.0	75.3	75.0	77.9	77.8	77.5	77.6	77.1	77.6	78.1	77.9	133.8
63	79.2	78.8	78.1	76.8	77.6	78.4	77.7	78.0	77.6	79.4	79.9	78.9	78.5	78.8	78.7	78.8	79.8	135.6
80	78.1	77.3	76.2	74.8	74.7	76.4	75.4	75.5	75.9	76.5	76.0	76.3	77.1	77.2	77.0	75.5	75.9	133.3
100	76.0	75.4	74.5	74.1	73.0	75.1	73.1	74.1	74.6	75.3	74.8	75.0	75.5	75.2	75.7	74.5	73.4	131.9
125	74.8	74.6	74.3	74.0	72.5	73.8	73.2	74.0	74.3	73.1	72.2	73.4	74.9	75.3	75.2	74.4	70.6	131.1
160	72.0	72.3	73.4	72.2	70.6	71.5	70.1	70.5	70.2	69.5	68.3	68.4	68.4	68.4	70.0	70.0	65.3	127.4
200	70.4	70.5	71.4	70.9	69.1	66.7	68.2	68.0	69.1	66.9	67.9	67.6	66.4	65.1	67.6	66.0	63.0	125.4
250	69.9	68.7	67.1	65.9	64.2	64.7	65.0	65.1	65.3	65.0	63.6	65.7	67.7	68.3	67.6	66.6	64.5	123.5
315	74.3	71.3	71.2	71.8	70.7	68.6	66.4	66.7	68.2	71.3	72.2	71.4	75.3	76.3	76.5	73.9	70.9	130.0
400	78.8	77.8	75.9	75.7	74.9	72.3	70.9	71.5	72.1	74.5	76.0	76.6	78.9	81.0	81.0	76.6	73.8	134.3
500	81.6	80.5	77.5	77.7	76.5	74.4	73.8	72.5	73.5	74.7	76.7	77.3	79.8	81.9	81.4	76.2	72.4	135.3
630	79.2	80.1	79.5	77.8	77.5	75.7	74.7	73.4	74.3	74.7	75.4	78.6	79.8	79.9	78.7	74.2	71.2	135.0
800	85.9	82.0	82.5	80.5	81.7	82.4	78.9	79.0	78.6	82.7	79.2	83.9	83.5	81.9	78.2	75.4	73.9	139.3
1000	85.4	82.2	82.9	83.3	81.8	79.2	77.0	75.5	75.4	77.8	78.2	78.7	79.7	82.0	79.6	76.1	72.7	137.6
1250	88.9	90.0	93.9	85.8	90.0	88.5	89.7	85.2	89.3	93.2	85.9	94.3	93.9	96.7	92.9	88.9	86.0	150.2
1600	84.9	86.7	87.7	85.3	90.3	87.9	87.3	82.4	84.9	86.8	84.1	88.4	88.4	89.7	87.7	83.5	80.6	145.8
2000	82.7	86.6	84.2	81.5	85.8	86.3	86.9	80.8	79.7	80.7	81.9	83.2	84.7	86.4	84.1	78.6	76.3	142.7
2500	82.7	88.7	86.1	83.2	84.2	83.7	84.6	80.7	80.0	82.2	84.0	88.2	84.8	88.9	85.8	79.2	77.6	143.9
3150	83.7	83.4	85.3	85.1	84.3	85.4	81.8	80.7	80.8	80.3	82.6	85.3	83.0	85.1	82.6	78.8	75.9	142.6
4000	85.9	86.2	87.5	85.7	87.4	87.1	85.2	84.1	82.9	84.5	87.7	88.5	87.8	88.5	87.1	84.4	80.3	146.4
5000	82.7	82.8	82.7	80.9	85.2	82.3	82.2	78.2	76.3	79.6	82.3	83.8	85.2	87.0	83.8	78.9	75.3	143.0
6300	79.1	79.1	79.9	79.3	81.5	78.1	78.4	75.9	75.7	76.5	79.7	81.6	83.3	86.7	80.8	75.7	72.2	141.7
8000	78.9	77.9	79.4	78.2	78.8	77.7	76.3	75.5	75.0	77.4	80.9	82.8	80.0	82.6	78.6	76.2	72.1	141.7
10000	73.3	74.0	73.9	73.4	76.4	72.8	73.0	69.5	69.3	71.8	75.3	76.8	77.7	79.4	76.3	71.5	67.5	139.4
OASPL MEASURED	96.9	97.7	98.6	95.5	97.7	96.9	96.3	93.3	94.3	96.7	95.1	99.0	98.7	100.7	98.1	94.2	91.5	
OASPL CALCULATED	95.8	96.6	97.7	94.4	96.8	95.8	95.3	92.2	93.3	96.1	94.5	98.3	97.9	100.1	97.1	93.3	90.7	
PNDB	108.9	110.0	110.0	108.2	109.9	109.1	107.9	106.0	105.6	107.4	109.0	110.8	110.4	111.8	109.8	106.4	103.0	
		109.9	9.7	.1	.8		.3	5.9		.3	1.9	.7			.7	.3	2.7	OAPWL 155.3

DIRECTIVITY INDEX

FREQ.																	
50	0.7	-1.1	-1.8	-1.9	-1.3	1.3	-2.0	-1.7	-2.0	0.9	0.8	0.5	0.6	0.1	0.6	1.1	0.9
63	0.5	0.1	-0.5	-1.9	-1.0	-0.2	-0.9	-0.7	-1.1	0.7	1.2	0.3	-0.2	0.1	0.1	0.1	1.1
80	1.8	1.1	-0.1	-1.5	-1.5	0.2	-0.9	-0.8	-0.3	0.3	-0.2	0.0	0.8	0.9	0.8	-0.7	-0.3
100	1.2	0.6	-0.3	-0.7	-1.7	0.3	-1.7	-0.7	-0.2	0.5	0.0	0.3	0.7	0.5	0.9	-0.3	-1.4
125	0.9	0.7	0.4	0.1	-1.4	-0.1	-0.7	0.1	0.3	-0.9	-1.8	-0.5	0.9	1.3	1.2	0.4	-3.4
160	1.9	2.2	3.3	2.1	0.5	1.4	0.0	0.4	0.1	-0.6	-1.8	-1.7	-1.7	-1.7	-0.1	-0.1	-4.8
200	2.3	2.5	3.4	2.8	1.1	-1.3	0.1	-0.1	1.0	-1.1	-0.2	-0.4	-1.7	-3.0	-0.4	-2.1	-5.0
250	3.9	2.7	1.1	-0.1	-1.8	-1.4	-1.0	-0.9	-0.8	-1.0	-2.4	-0.3	1.7	2.3	1.6	0.6	-1.5
315	1.9	-1.2	-1.3	-0.6	-1.8	-3.8	-6.0	-5.7	-4.2	-1.1	-0.2	-1.0	2.9	3.9	4.0	1.5	-1.5
400	2.2	1.2	-0.6	-0.9	-1.7	-4.3	-5.7	-5.1	-4.5	-2.1	-0.6	0.0	2.3	4.4	4.5	0.0	-2.8
500	4.0	3.0	0.0	0.2	-1.0	-3.1	-3.7	-5.1	-4.1	-2.8	-0.8	-0.2	2.3	4.4	3.9	-1.3	-5.1
630	2.1	2.9	2.3	0.6	0.4	-1.4	-2.4	-3.7	-2.8	-2.5	-1.7	1.5	2.7	2.8	1.5	-3.0	-6.0
800	4.7	0.8	1.2	-0.8	0.5	1.1	-2.4	-2.2	-2.7	1.4	-2.1	2.7	2.3	0.7	-3.1	-5.9	-7.3
1000	6.0	2.8	3.5	3.9	2.4	-0.1	-2.4	-3.9	-4.0	-1.6	-1.2	-0.7	0.3	2.6	0.3	-3.3	-6.7
1250	-3.0	-1.9	2.1	-6.0	-1.9	-3.3	-2.2	-6.7	-2.6	1.3	-5.9	2.5	2.1	4.9	1.0	-2.9	-5.8
1600	-2.3	-0.5	0.5	-1.9	3.1	0.7	0.1	-4.8	-2.3	-0.4	-3.1	1.2	1.2	2.5	0.5	-3.7	-6.6
2000	-1.2	2.7	0.2	-2.4	1.9	2.4	3.0	-3.1	-4.2	-3.2	-2.1	-0.7	0.8	2.5	0.2	-5.3	-7.6
2500	-2.2	3.8	1.2	-1.6	-0.7	-1.2	-0.2	-4.2	-4.9	-2.6	-0.9	3.4	-0.1	4.1	0.9	-5.6	-7.2
3150	0.5	0.2	2.1	1.9	1.1	2.2	-1.4	-2.5	-2.4	-2.9	-0.6	2.1	-0.2	1.9	-0.6	-4.4	-7.4
4000	-0.7	-0.4	0.9	-0.9	0.8	0.5	-1.4	-2.5	-3.7	-2.1	1.1	1.9	1.3	2.0	0.5	-2.1	-6.3
5000	-0.1	0.0	-0.2	-1.9	2.4	-0.6	-0.6	-4.6	-6.5	-3.2	-0.5	1.0	2.3	4.2	1.0	-3.9	-7.5
6300	-1.5	-1.5	-0.8	-1.3	0.9	-2.5	-2.2	-4.8	-4.9	-4.1	-1.0	0.9	2.6	6.0	0.2	-5.0	-8.4
8000	-0.4	-1.3	0.2	-1.1	-0.4	-1.5	-2.9	-3.8	-4.3	-1.8	1.7	3.5	0.8	3.3	-0.6	-3.1	-7.1
10000	-1.7	-1.0	-1.1	-1.6	1.4	-2.2	-2.0	-5.5	-5.7	-3.2	0.3	1.8	2.7	4.4	1.3	-3.5	-7.5

C62

RUN 7 2025 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7.Pt.122
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 12.3
(Kg/m³).. 0.0123
PHYS. FAN SPEED (RPM).... 2029
(rad/sec) 212.4
CORR. FAN SPEED (RPM).... 2015.4
(rad/sec) 211.0
TAPE NUMBER..... P647

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0° (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	78.8	80.9	78.0	77.7	76.6	83.0	76.7	75.5	76.1	80.6	78.0	79.7	78.2	77.7	77.9	79.1	78.2	135.7
63	80.9	82.2	80.0	78.8	77.8	85.0	78.8	77.6	78.1	81.7	79.7	81.0	79.3	79.6	79.5	80.7	80.4	137.4
80	79.3	80.2	77.7	76.6	75.2	83.6	77.0	75.9	76.9	79.3	77.2	78.4	78.1	77.8	77.2	77.2	76.6	135.5
100	77.4	78.3	75.8	75.4	73.7	82.5	75.5	74.5	75.8	77.5	75.9	76.6	76.3	75.8	75.8	75.7	74.3	134.1
125	76.3	77.2	75.5	75.3	73.0	80.1	75.9	74.2	75.2	76.1	74.7	75.1	75.7	76.4	76.0	76.2	72.5	133.2
160	73.8	75.0	73.9	73.1	71.6	77.4	73.4	71.2	72.3	72.7	70.6	71.1	70.9	70.1	70.8	71.8	68.4	129.9
200	72.4	72.9	72.9	71.9	70.2	74.7	72.2	69.7	71.5	70.8	69.7	70.3	68.6	67.5	68.3	68.9	66.6	128.3
250	70.3	71.1	68.8	66.9	65.7	72.2	69.5	67.3	67.9	67.4	65.0	66.7	68.2	68.8	67.7	68.1	66.1	125.8
315	74.5	71.6	71.0	71.5	70.4	71.9	69.1	67.5	68.6	70.5	70.0	69.7	74.9	75.9	75.7	74.1	71.0	129.7
400	78.9	77.6	75.7	75.7	74.9	73.5	71.3	70.6	71.1	74.2	74.8	75.2	78.4	80.6	80.5	76.8	73.9	133.8
500	81.6	80.1	77.1	77.6	76.7	74.9	73.9	71.9	73.3	75.0	76.5	76.9	79.7	81.6	81.2	76.1	72.3	135.2
630	79.1	78.5	78.9	78.1	78.2	76.4	74.9	72.9	74.4	75.1	76.6	79.2	80.5	80.3	78.7	74.3	70.9	135.4
800	85.7	82.1	82.5	82.0	81.9	82.6	80.6	78.0	80.7	83.7	84.5	86.5	85.0	82.0	79.8	76.7	75.4	140.9
1000	85.2	82.1	82.7	83.4	81.5	79.4	77.7	75.6	76.1	78.7	78.9	79.4	80.6	82.5	80.0	76.1	72.7	138.0
1250	89.5	93.2	93.7	89.5	90.4	86.3	87.4	89.7	87.6	88.6	92.2	93.8	96.6	99.1	95.9	90.2	87.0	151.5
1600	85.7	87.3	88.0	87.5	90.8	87.9	85.9	84.6	83.7	84.6	87.1	87.7	90.6	91.3	88.8	84.0	81.0	146.4
2000	82.8	85.0	83.8	82.7	85.3	85.8	84.1	81.1	79.7	81.0	82.6	83.7	85.7	86.3	84.2	79.1	76.5	142.5
2500	82.7	85.6	86.6	83.6	85.0	83.7	83.1	80.2	80.1	81.3	83.3	85.9	85.5	88.4	84.9	79.2	76.5	143.2
3150	84.2	82.7	85.2	85.7	84.3	85.2	81.3	80.4	80.8	80.8	82.6	85.2	83.5	85.3	82.6	78.8	75.3	142.6
4000	86.4	86.3	86.9	86.4	86.9	86.9	84.5	83.0	83.1	84.8	87.2	89.2	88.1	88.3	87.3	84.1	80.4	146.4
5000	83.0	82.9	82.0	81.4	85.7	82.7	81.9	77.9	76.4	80.4	82.7	84.1	85.8	87.0	83.7	79.3	75.2	143.2
6300	78.9	78.9	79.3	79.5	81.7	78.5	78.2	75.1	75.4	77.2	79.8	81.7	84.1	86.6	80.8	75.9	71.9	141.9
8000	78.5	77.2	78.8	78.3	78.5	77.8	75.4	74.9	74.8	77.8	80.7	83.0	80.8	81.8	78.0	75.9	71.4	141.6
10000	73.2	73.3	73.3	73.5	76.2	72.8	72.0	68.6	68.4	72.0	75.2	76.9	78.4	78.7	75.6	71.4	67.2	139.2
OASPL MEASURED	97.5	98.4	98.7	97.2	98.3	98.0	95.6	94.8	94.1	95.6	97.6	99.3	100.6	102.1	99.5	95.2	91.8	
OASPL CALCULATED	96.2	97.3	97.6	95.8	97.0	96.4	94.2	93.5	92.9	94.5	96.5	98.1	99.6	101.4	98.6	94.1	91.2	
PNDB	$10^{9.3}$	$10^{9.5}$	$10^{9.8}$	$10^{9.1}$	$10^{9.8}$	$10^{9.6}$	$10^{7.4}$	$10^{5.7}$	$10^{5.7}$	$10^{7.4}$	$10^{9.3}$	$10^{11.1}$	$10^{11.2}$	$10^{11.6}$	$10^{11.1}$	$10^{10.5}$	$10^{10.2}$	
			7	0		5	3						1		0		OAPWL	155.9

DIRECTIVITY INDEX

FREQ.																	
50	-0.0	2.1	-0.8	-1.1	-2.3	4.2	-2.2	-3.3	-2.8	1.8	-0.8	0.9	-0.7	-1.1	-0.9	0.2	-0.6
63	0.5	1.7	-0.4	-1.6	-2.7	4.5	-1.7	-2.8	-2.4	1.2	-0.8	0.5	-1.2	-0.8	-1.0	0.3	-0.1
80	0.9	1.7	-0.7	-1.9	-3.2	5.2	-1.5	-2.5	-1.6	0.9	-1.3	-0.0	-0.4	-0.6	-1.3	-1.3	-1.8
100	0.4	1.3	-1.1	-1.6	-3.3	5.5	-1.4	-2.5	-1.2	0.6	-1.0	-0.3	-0.6	-1.2	-1.2	-1.3	-2.7
125	0.3	1.2	-0.5	-0.8	-3.0	4.1	-0.2	-1.8	-0.8	0.1	-1.4	-0.9	-0.4	0.4	0.0	0.2	-3.5
160	1.2	2.4	1.2	0.3	-1.0	4.8	0.8	-1.5	-0.3	0.1	-2.0	-1.6	-1.8	-2.6	-1.9	-0.9	-4.3
200	1.5	1.9	1.9	1.0	-0.7	3.8	1.3	-1.3	0.6	-0.1	-1.2	-0.7	-2.4	-3.4	-2.7	-2.0	-4.3
250	2.0	2.8	0.5	-1.4	-2.6	3.9	1.2	-1.0	-0.4	-0.9	-3.3	-1.6	-0.1	0.5	-0.6	-0.2	-2.2
315	2.3	-0.6	-1.1	-0.7	-1.8	-0.2	-3.0	-4.7	-3.5	-1.6	-2.2	-2.4	2.8	3.8	3.5	1.9	-1.1
400	2.7	1.5	-0.4	-0.5	-1.2	-2.6	-4.8	-5.6	-5.0	-2.0	-1.3	-0.9	2.3	4.4	4.3	0.3	-2.3
500	4.2	2.7	-0.3	0.2	-0.6	-2.5	-3.5	-5.4	-4.1	-2.4	-0.8	-0.5	2.3	4.2	3.8	-1.3	-5.1
630	1.6	1.0	1.4	0.5	0.7	-1.1	-2.7	-4.6	-3.1	-2.4	-0.9	1.7	3.0	2.8	1.2	-3.3	-6.7
800	2.9	-0.8	-0.3	-0.9	-0.9	-0.2	-2.2	-4.8	-2.2	0.9	1.7	3.7	2.1	-0.8	-3.1	-6.2	-7.4
1000	5.5	2.3	3.0	3.7	1.7	-0.4	-2.1	-4.2	-3.7	-1.1	-0.9	-0.4	0.8	2.7	0.3	-3.6	-7.0
1250	-3.6	0.1	0.5	-3.6	-2.7	-6.9	-5.7	-3.5	-5.5	-4.6	-1.0	0.7	3.5	6.0	2.8	-3.0	-6.2
1600	-2.2	-0.6	0.2	-0.4	3.0	0.1	-1.9	-3.3	-4.1	-3.2	-0.7	-0.2	2.7	3.4	0.9	-3.9	-6.8
2000	-0.9	1.3	0.1	-1.0	1.6	2.1	0.4	-2.6	-4.0	-2.8	-1.1	0.0	2.0	2.6	0.5	-4.6	-7.2
2500	-1.5	1.4	2.4	-0.6	0.7	-0.5	-1.1	-4.0	-4.1	-2.9	-0.9	1.7	1.3	4.2	0.7	-5.0	-7.7
3150	0.9	-0.6	1.9	2.5	1.1	1.9	-2.0	-2.9	-2.5	-2.4	-0.6	1.9	0.2	2.0	-0.7	-4.4	-7.9
4000	-0.2	-0.3	0.3	-0.1	0.3	0.4	-2.0	-3.5	-3.5	-1.8	0.6	2.6	1.6	1.7	0.7	-2.4	-6.2
5000	-0.0	-0.2	-1.1	-1.6	2.6	-0.3	-1.2	-5.2	-6.7	-2.7	-0.4	1.0	2.7	3.9	0.6	-3.8	-7.9
6300	-1.9	-1.9	-1.5	-1.3	0.8	-2.3	-2.6	-5.7	-5.4	-3.6	-1.0	0.9	3.3	5.8	-0.0	-5.0	-9.0
8000	-0.6	-2.0	-0.3	-0.8	-0.7	-1.3	-3.7	-4.2	-4.4	-1.3	1.6	3.9	1.6	2.7	-1.2	-3.3	-7.8
10000	-1.7	-1.6	-1.3	-1.3	1.3	-2.1	-2.9	-6.2	-6.5	-2.8	0.3	2.1	3.5	3.9	0.8	-3.4	-7.7

RUN 7 2029 RPM

C63

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.P.O.
DATE..... 9/10/68
MIC..... 7,Pt.101
BAROMETER.....(in Hg ... 28.6
(N/m²)... 97252
T AMBIENT.....(°F)..... 62.0
(°K)..... 289.8
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY....(gm/m3)... 12.7
(kg/m3)... 0.0127
PHYS. FAN SPEED(RPM)..... 2154
(rad/sec) 225.5
CORR. FAN SPEED(RPM)..... 2147
(rad/sec) 224.9
TAPE NUMBER..... P654

FREQ.	ANGLES FROM INLET 0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	76.0	76.2	76.1	76.8	76.8	78.3	75.7	76.1	76.5	78.7	78.6	78.9	79.5	78.9	79.7	80.1	80.0	135.1
63	79.8	79.5	79.4	78.6	78.7	80.1	79.4	79.1	78.7	80.1	80.4	80.2	80.2	80.0	80.2	80.5	81.4	136.8
80	78.7	78.4	77.6	76.3	76.4	77.8	76.7	77.1	77.6	78.0	78.1	78.3	79.1	78.8	78.4	77.0	77.0	134.9
100	76.0	75.9	74.8	75.0	74.3	76.8	74.5	75.5	75.9	76.6	76.6	76.8	77.5	77.3	77.6	76.9	74.6	133.4
125	75.5	75.2	75.1	75.5	74.3	75.6	74.8	74.4	74.8	73.9	73.7	74.7	75.5	75.8	75.5	75.5	71.8	132.1
160	73.6	73.6	74.4	73.6	71.9	72.4	71.2	71.3	71.4	70.4	69.4	69.3	69.4	69.8	71.1	71.5	66.8	128.5
200	71.9	71.8	72.6	72.1	71.0	69.3	70.7	69.4	70.5	67.4	68.0	67.8	66.4	65.6	68.2	67.7	65.4	126.6
250	70.0	69.0	68.1	66.5	65.9	67.0	66.8	66.0	66.3	65.4	65.8	67.0	69.6	70.0	69.1	67.9	65.4	124.9
315	74.3	71.5	71.3	72.0	71.4	69.4	69.1	67.2	69.2	71.8	73.2	73.6	76.7	77.0	76.8	74.4	71.5	130.9
400	78.9	77.8	76.0	76.0	75.0	72.4	71.3	72.1	72.6	75.1	77.1	78.3	80.2	81.8	81.5	77.1	74.6	135.1
500	81.9	80.6	77.8	78.0	76.9	74.7	74.0	73.0	74.0	75.4	77.5	78.4	80.6	82.2	81.7	76.6	72.7	135.8
630	80.2	80.3	79.3	77.8	78.0	75.7	74.8	74.3	75.4	75.1	77.2	78.6	81.5	80.2	79.1	75.1	72.1	135.7
800	84.8	80.9	81.4	80.3	82.6	81.6	77.2	78.0	79.6	77.8	78.6	82.1	83.4	85.6	82.3	77.1	75.2	139.2
1000	89.2	85.3	85.7	85.4	86.4	85.0	80.5	81.0	82.9	81.4	82.3	85.8	86.9	89.3	85.7	79.9	77.6	143.0
1250	88.4	89.0	88.4	86.4	86.3	83.2	84.9	89.4	86.1	85.0	88.0	90.8	91.4	96.2	90.5	82.2	80.6	147.8
1600	88.4	92.9	91.7	90.7	91.3	87.2	90.2	94.9	91.4	89.8	93.3	96.2	96.6	101.7	95.7	87.0	85.8	153.3
2000	83.9	85.2	84.9	85.2	87.4	84.9	86.4	82.9	81.3	83.4	84.9	85.6	87.9	88.7	84.4	80.4	78.1	144.2
2500	83.5	85.3	86.9	84.6	88.0	87.8	90.1	84.3	82.7	80.8	82.4	85.5	87.8	89.9	83.5	81.3	77.9	145.3
3150	84.1	84.0	90.0	86.5	83.3	84.1	81.8	82.8	83.5	81.4	84.6	87.2	85.5	89.2	85.0	82.1	78.8	144.5
4000	86.8	87.0	88.6	86.6	87.8	87.1	85.8	85.4	83.7	85.2	88.9	92.4	90.3	91.9	89.6	86.8	82.2	148.5
5000	84.0	84.2	83.7	82.4	86.4	83.1	83.5	79.7	77.7	81.1	83.9	86.9	87.4	89.0	85.6	81.8	77.8	144.8
6300	80.0	80.1	81.2	80.1	82.8	78.9	79.1	76.6	76.4	77.8	80.6	84.3	86.1	88.4	81.9	77.1	74.0	143.4
8000	80.2	78.9	80.6	78.6	80.0	78.4	76.8	76.5	75.6	78.3	81.9	85.7	82.2	83.5	79.5	77.5	73.7	143.2
10000	74.8	74.9	75.2	74.1	77.9	73.5	73.9	71.0	70.7	73.0	76.7	79.8	80.5	81.5	77.9	73.5	69.9	141.3
OASPL MEASURED	98.5	99.0	99.4	97.9	98.9	97.1	97.4	98.6	96.2	95.8	98.7	101.4	101.7	105.2	100.5	95.3	92.5	
OASPL CALCULATED	96.9	97.6	97.9	96.4	97.5	95.7	96.2	97.6	95.3	94.8	97.5	100.3	100.5	104.5	99.3	94.0	91.8	
PNDB	109.9	110.5	111.7	109.5	110.6	109.3	110.1	110.2	108.1	107.8	110.7	113.6	113.5	117.9	112.3	108.3	104.7	
																	OAPWL	157.9

DIRECTIVITY INDEX

FREQ.																	
50	-2.2	-2.1	-2.1	-1.5	-1.5	-0.0	-2.5	-2.1	-1.8	0.4	0.3	0.6	1.2	0.6	1.4	1.8	1.7
63	-0.1	-0.4	-0.5	-1.4	-1.2	0.2	-0.6	-0.8	-1.2	0.2	0.5	0.3	0.2	0.1	0.2	0.6	1.5
80	0.8	0.5	-0.3	-1.6	-1.5	-0.1	-1.2	-0.8	-0.4	0.1	0.2	0.4	1.2	0.9	0.5	-0.9	-0.9
100	-0.3	-0.4	-1.6	-1.3	-2.0	0.5	-1.8	-0.9	-0.5	0.3	0.2	0.4	1.2	0.9	1.3	-0.4	-1.8
125	0.6	0.3	0.1	0.6	-0.6	0.7	-0.2	-0.5	-0.1	-1.0	-1.2	-0.2	0.5	0.9	0.6	0.6	-3.2
160	2.4	2.3	3.2	2.4	0.7	1.2	0.0	0.1	0.2	-0.9	-1.8	-1.9	-1.8	-1.4	-0.1	0.3	-4.5
200	2.6	2.5	3.3	2.8	1.7	0.1	1.5	0.1	1.3	-1.9	-1.2	-1.5	-2.9	-3.6	-1.1	-1.6	-3.9
250	2.6	1.5	0.7	-1.0	-1.5	-0.5	-0.6	-1.5	-1.2	-2.1	-1.6	-0.4	2.2	2.6	1.7	0.5	-2.0
315	1.0	-1.8	-2.0	-1.3	-2.0	-3.9	-4.3	-6.1	-4.1	-1.6	-0.1	0.3	3.4	3.7	3.5	1.0	-1.8
400	1.5	0.4	-1.4	-1.3	-2.4	-4.9	-6.1	-5.3	-4.8	-2.3	-0.3	0.9	2.8	4.4	4.1	-0.3	-2.8
500	3.9	2.6	-0.2	-0.0	-1.1	-3.3	-4.0	-5.0	-4.0	-2.6	-0.5	0.4	2.6	4.2	3.7	-1.4	-5.3
630	2.4	2.6	1.6	0.1	0.2	-2.1	-3.0	-3.5	-2.3	-2.7	-0.6	0.8	3.7	2.4	1.3	-2.7	-5.7
800	3.6	-0.2	0.2	-0.9	1.4	0.5	-3.9	-3.2	-1.5	-3.4	-2.5	0.9	2.2	4.4	1.1	-4.1	-5.9
1000	4.4	0.5	0.9	0.6	1.6	0.2	-4.4	-3.8	-1.9	-3.4	-2.5	1.0	2.1	4.5	0.9	-4.9	-7.3
1250	-1.1	-0.5	-1.1	-3.1	-3.2	-6.3	-4.6	-0.1	-3.4	-4.5	-1.5	1.3	1.9	6.7	1.0	-7.3	-8.9
1600	-6.3	-1.8	-3.0	-4.1	-3.4	-7.5	-4.5	0.2	-3.4	-4.9	-1.4	1.4	1.8	6.9	1.0	-7.8	-8.9
2000	-1.5	-0.2	-0.6	-0.3	2.0	-0.6	1.0	-2.5	-4.1	-2.0	-0.5	0.2	2.5	3.3	-1.0	-5.0	-7.3
2500	-2.8	-0.5	0.6	-1.7	1.7	1.5	3.8	-2.0	-3.6	-5.1	-3.9	-0.8	1.5	3.6	-2.8	-5.0	-8.4
3150	-1.1	-1.2	4.8	1.3	-1.9	-1.1	-3.4	-2.3	-1.7	-3.8	-0.6	2.0	0.4	4.0	-0.2	-3.1	-6.4
4000	-1.8	-1.6	-0.1	-2.0	-0.8	-1.5	-2.8	-3.3	-4.9	-3.4	0.3	3.8	1.7	3.3	1.0	-1.8	-6.4
5000	-0.7	-0.5	-1.0	-2.3	1.7	-1.5	-1.2	-5.0	-7.0	-3.6	-0.8	2.2	2.7	4.3	0.9	-2.9	-6.9
6300	-2.3	-2.2	-1.2	-2.3	0.4	-3.4	-3.2	-5.8	-6.0	-4.5	-1.8	1.9	3.7	6.0	-0.4	-5.2	-8.3
8000	-0.6	-1.8	-0.1	-2.1	-0.8	-2.3	-3.9	-4.2	-5.1	-2.4	1.2	4.9	1.4	2.8	-1.2	-3.2	-7.0
10000	-2.2	-2.1	-1.8	-2.9	1.0	-3.4	-3.1	-6.0	-6.3	-4.0	-0.3	2.9	3.5	4.6	0.9	-3.5	-7.1

RUN 7 2154 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 26 HR. 18.3

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7,Pt.123
BAROMETER.....(in Hg)... 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³)... 12.3
(kg/m³)... 0.0123
PHYS. FAN SPEED (RPM).... 2150
(rad/sec) 225.1
CORR. FAN SPEED (RPM).... 2135.6
(rad/sec) 223.6
TAPE NUMBER..... P647

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	78.4	79.5	78.2	77.0	77.0	77.6	75.8	77.0	76.3	78.3	78.4	79.0	79.1	78.5	79.5	79.9	80.0	135.1
63	80.6	81.5	80.4	78.4	78.2	79.3	79.0	79.1	78.3	80.1	80.4	80.5	80.2	80.3	80.3	80.6	81.4	136.9
80	79.5	80.3	78.1	75.7	75.7	77.2	76.8	77.4	77.0	77.7	77.8	78.2	78.9	78.7	78.5	76.8	77.4	134.8
100	76.5	78.1	75.4	74.7	74.2	76.3	74.9	76.1	76.0	76.9	76.9	77.0	77.4	77.2	77.6	75.5	74.7	133.6
125	75.9	76.9	75.9	75.4	73.7	74.9	75.1	75.5	74.2	74.9	74.1	74.8	75.7	76.2	76.3	75.7	72.3	132.4
160	73.1	74.6	73.7	73.1	71.2	72.2	71.7	72.2	71.5	70.4	69.6	69.5	69.8	69.5	71.3	70.9	66.6	128.5
200	71.9	73.0	72.5	71.3	69.5	68.4	70.2	70.0	69.9	67.2	67.9	69.1	66.6	65.7	68.5	66.9	65.2	126.5
250	69.0	70.0	68.4	66.0	65.2	66.3	66.8	67.6	66.3	66.2	64.3	65.9	68.4	69.5	70.5	68.1	66.3	124.9
315	72.6	70.5	70.0	71.1	70.8	69.3	67.2	67.6	68.7	72.2	72.3	71.5	75.5	76.7	76.7	74.4	71.8	130.3
400	78.1	77.1	75.5	75.5	75.4	73.2	71.5	72.0	73.0	75.5	76.7	76.9	79.5	81.7	81.8	77.1	74.7	134.9
500	81.7	80.5	77.6	78.0	77.2	75.1	74.6	73.8	74.9	76.3	78.1	77.9	80.3	82.4	81.8	76.5	72.7	136.0
630	80.5	79.9	79.8	77.8	78.5	74.5	75.9	74.9	75.9	76.6	78.6	80.1	80.6	80.3	79.1	74.6	72.1	136.1
800	84.6	81.5	82.4	80.5	82.1	81.6	78.5	81.6	76.1	78.0	80.4	82.3	80.0	82.7	82.4	76.9	74.5	138.8
1000	89.1	84.9	86.1	85.3	86.0	85.5	82.0	85.2	79.0	81.8	84.3	85.9	83.7	87.1	86.2	80.2	76.8	142.8 ✓
1250	88.4	89.3	89.7	89.5	87.3	84.1	84.5	86.3	83.5	86.4	87.8	89.2	91.6	95.5	89.2	82.6	80.1	147.4
1600	89.1	93.3	94.0	94.7	92.4	88.8	89.8	91.8	88.4	91.9	93.3	94.4	97.1	101.4	94.6	87.9	85.6	153.1 ✓
2000	84.2	85.7	86.4	86.1	88.1	84.6	85.9	83.9	81.5	83.8	86.0	85.5	88.7	88.8	84.4	80.5	78.4	144.6
2500	83.6	84.8	85.6	85.6	87.6	88.0	88.4	83.4	81.9	80.8	83.3	85.0	88.3	89.4	82.9	80.6	77.7	144.9
3150	83.9	84.4	88.2	86.9	84.0	84.4	82.0	82.7	83.4	82.2	84.7	86.6	84.7	87.4	84.4	81.6	78.3	144.1
4000	86.4	86.8	88.0	87.5	87.8	87.7	86.1	85.1	84.1	85.6	88.5	90.4	89.5	91.7	88.8	85.6	82.1	147.9
5000	83.4	84.1	83.2	82.3	86.5	84.1	83.3	79.7	78.0	81.4	84.2	85.3	86.6	88.4	84.9	81.0	77.5	144.4
6300	79.6	81.4	80.2	80.1	83.1	79.3	79.2	76.6	76.5	77.8	81.2	82.8	84.6	87.5	81.2	76.4	73.2	142.8
8000	79.7	78.0	79.9	79.0	79.9	78.7	76.6	76.4	76.0	78.4	82.2	84.4	80.6	82.4	78.4	76.4	72.8	142.6
10000	74.2	74.2	74.1	74.2	77.6	73.7	73.4	70.3	70.1	73.0	76.9	78.7	78.9	80.0	76.5	72.5	68.9	140.4
OASPL MEASURED	98.3	99.2	99.9	99.6	99.2	97.5	97.2	97.1	95.0	97.0	98.8	100.0	101.6	104.6	99.8	95.0	92.9	
OASPL CALCULATED	97.0	97.9	98.5	98.4	97.9	96.2	95.8	96.0	93.7	95.9	97.7	98.9	100.5	103.8	98.6	93.8	91.6	
PNDB	$10^{9.7}$	$10^{10.7}$	$10^{11.3}$	$10^{11.3}$	$10^{10.7}$	$10^{9.8}$	$10^{9.3}$	$10^{8.7}$	$10^{6.7}$	$10^{8.8}$	$10^{10.7}$	$10^{11.2}$	$10^{11.4}$	$10^{11.6}$	$10^{11.5}$	$10^{10.6}$	$10^{10.5}$	
	,2	,2												,4			OAPWL	157.3

DIRECTIVITY INDEX

FREQ.																
50	0.2	1.2	-0.0	-1.2	-1.3	-0.7	-2.5	-1.3	-1.9	0.0	0.1	0.7	0.8	0.3	1.2	1.6	1.8
63	0.7	1.5	0.5	-1.5	-1.8	-0.6	-0.9	-0.8	-1.6	0.2	0.5	0.6	0.2	0.4	0.3	0.6	1.4
80	1.7	2.5	0.3	-2.1	-2.0	-0.6	-1.0	-0.4	-0.8	-0.1	0.0	0.4	1.1	0.9	0.8	-1.0	-0.4
100	-0.0	1.6	-1.1	-1.8	-2.3	-0.2	-1.6	-0.4	-0.5	0.4	0.4	0.5	1.0	0.7	1.1	-1.0	-1.8
125	0.6	1.7	0.6	0.1	-1.5	-0.4	-0.1	0.3	-1.0	-0.4	-1.2	-0.4	0.5	1.0	1.0	0.5	-3.0
160	1.9	3.3	2.5	1.8	-0.1	1.0	0.5	1.0	0.2	-0.9	-1.7	-1.8	-1.4	-1.8	0.1	-0.3	-4.6
200	2.8	3.9	3.3	2.2	0.4	-0.7	1.1	0.9	0.8	-1.9	-1.2	-0.0	-2.5	-3.4	-0.6	-2.2	-3.9
250	1.6	2.5	1.0	-1.4	-2.2	-1.1	-0.6	0.2	-1.1	-1.2	-3.1	-1.5	1.0	2.1	3.1	0.6	-1.1
315	-0.1	-2.2	-2.7	-1.6	-1.9	-3.4	-5.5	-5.1	-4.0	-0.6	-0.4	-1.2	2.8	4.0	3.9	1.7	-1.0
400	0.9	-0.1	-1.7	-1.7	-1.8	-4.0	-5.7	-5.2	-4.2	-1.7	-0.5	-0.3	2.3	4.5	4.6	-0.1	-2.5
500	3.5	2.3	-0.6	-0.2	-1.0	-3.1	-3.6	-4.4	-3.3	-1.9	-0.1	-0.3	2.1	4.2	3.6	-1.7	-5.5
630	2.4	1.7	1.6	-0.3	0.3	-3.6	-2.2	-3.2	-2.2	-1.6	0.5	2.0	2.4	2.2	0.9	-3.6	-6.1
800	3.9	0.7	1.6	-0.2	1.3	0.9	-2.2	0.9	-4.6	-2.8	-0.3	1.5	-0.8	2.0	1.7	-3.8	-6.2
1000	4.6	0.4	1.5	0.7	1.4	0.9	-2.5	0.6	-5.5	-2.8	-0.2	1.4	-0.9	2.6	1.6	-4.4	-7.8
1250	-0.6	0.3	0.6	0.5	-1.7	-4.9	-4.6	-2.7	-5.6	-2.6	-1.2	0.2	2.5	6.5	0.2	-6.4	-8.9
1600	-5.4	-1.2	-0.5	0.2	-2.1	-5.7	-4.7	-2.7	-6.1	-2.6	-1.2	-0.1	2.6	6.9	0.1	-6.6	-8.9
2000	-1.7	-0.1	0.5	0.3	2.3	-1.2	0.1	-2.0	-4.3	-2.1	0.1	-0.4	2.9	3.0	-1.4	-5.4	-7.4
2500	-2.3	-1.1	-0.3	-0.3	1.7	2.1	2.5	-2.5	-4.0	-5.1	-2.6	-0.9	2.4	3.5	-3.0	-5.3	-8.2
3150	-0.8	-0.3	3.4	2.1	-0.7	-0.4	-2.8	-2.0	-1.3	-2.5	0.0	1.8	0.0	2.6	-0.3	-3.1	-6.4
4000	-1.7	-1.3	-0.1	-0.6	-0.2	-0.4	-2.0	-3.0	-4.0	-2.4	0.4	2.3	1.4	3.6	0.7	-2.4	-6.0
5000	-0.8	-0.2	-1.1	-2.0	2.2	-0.2	-1.0	-4.5	-6.3	-2.8	-0.1	1.0	2.3	4.1	0.6	-3.2	-6.8
6300	-2.1	-0.4	-1.6	-1.6	1.3	-2.5	-2.6	-5.1	-5.2	-3.9	-0.5	1.1	2.9	5.8	-0.6	-5.3	-8.5
8000	-0.4	-2.1	-0.2	-1.1	-0.2	-1.4	-3.5	-3.7	-4.1	-1.7	2.1	4.3	0.5	2.3	-1.7	-3.7	-7.3
10000	-1.8	-1.9	-1.9	-1.9	1.5	-2.3	-2.7	-5.8	-5.9	-3.0	0.8	2.6	2.8	3.9	0.4	-3.5	-7.2

C65

RUN 7 2150 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 27 HR, 9.0

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7,Pt.102
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 63.0
(°K)..... 290.4
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 13.1
(kg/m³).. 0.0131
PHYS. FAN SPEED (RPM).... 2300
(rad/sec) 240.8
CORR. FAN SPEED (RPM).... 2291.2
(rad/sec) 239.9
TAPE NUMBER..... P653

FREQ.	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	76.9	77.1	77.6	77.6	78.2	76.8	75.7	77.0	77.1	78.8	79.2	79.3	80.5	80.0	80.7	81.4	81.7	135.8
63	80.6	80.7	80.1	78.7	79.5	79.5	80.6	80.0	80.0	81.6	81.8	80.7	81.9	81.8	81.3	81.8	83.0	138.0
80	78.5	78.2	77.2	76.5	77.2	78.0	78.3	79.1	79.0	79.2	79.9	79.9	81.2	80.8	80.3	78.7	78.5	136.4
100	76.6	76.6	75.7	76.0	75.7	77.1	76.0	77.4	77.8	78.3	79.2	78.9	79.8	79.3	79.4	77.6	76.8	135.3
125	76.4	76.6	76.6	76.7	75.6	76.8	76.2	76.5	76.5	76.1	76.3	76.4	77.3	78.1	77.7	77.1	74.2	133.9
160	73.6	74.0	74.0	73.5	71.8	71.9	71.9	73.2	73.0	72.3	71.6	71.3	72.4	72.3	72.6	72.6	68.6	129.7
200	71.7	71.6	71.6	70.1	68.2	66.7	69.4	70.3	70.9	67.6	68.7	68.3	67.5	66.6	67.8	68.3	66.2	126.3
250	70.7	69.9	69.2	68.3	67.0	65.7	66.8	68.6	68.3	66.0	66.1	65.9	70.4	71.7	70.1	69.3	67.4	125.9
315	73.3	71.7	72.8	73.4	72.7	70.1	69.6	69.2	70.1	71.9	73.0	72.4	77.0	77.8	77.2	74.9	72.1	131.3
400	77.3	76.8	76.3	76.7	76.3	74.5	73.0	73.5	73.7	75.8	77.8	78.0	80.6	82.4	81.5	77.3	74.7	135.5
500	81.0	79.8	77.6	78.3	77.5	75.7	75.7	74.6	75.3	76.3	78.4	78.7	81.3	82.7	80.7	76.2	72.7	136.2
630	80.6	80.6	80.1	78.7	77.5	74.5	76.1	75.4	74.7	75.6	77.6	80.9	82.5	82.0	79.8	76.4	72.9	136.6
800	79.9	79.5	78.5	78.6	78.2	76.9	75.8	75.7	75.2	75.6	77.8	79.1	79.9	79.5	77.2	75.6	73.5	135.7
1000	90.4	89.7	88.9	89.5	89.2	88.9	87.6	84.2	83.4	83.1	87.0	88.9	90.0	89.7	86.8	84.1	80.5	145.9/
1250	87.2	86.5	86.2	83.5	82.7	80.7	80.9	80.3	80.2	81.0	83.3	85.1	86.7	87.9	82.7	79.3	76.3	142.0
1600	88.2	97.2	96.3	90.3	94.0	87.0	91.3	88.8	89.5	89.7	92.5	97.7	99.8	101.5	94.4	91.7	88.2	153.9/
2000	84.6	86.6	86.7	85.0	87.1	87.0	87.3	83.9	82.9	83.9	86.4	88.8	89.9	89.9	85.2	82.1	79.1	145.6
2500	83.1	84.0	84.5	84.7	85.7	87.3	86.3	82.5	81.8	82.0	84.6	85.8	87.8	89.5	83.1	80.0	77.1	144.4
3150	85.6	86.1	87.8	88.0	84.8	85.6	84.6	85.3	86.4	85.0	87.7	89.8	87.1	88.8	85.3	83.5	80.4	146.1
4000	87.7	87.4	88.2	88.6	88.1	87.1	86.3	85.3	84.6	85.7	89.8	92.2	90.2	89.8	86.5	84.6	81.1	148.1
5000	85.0	86.4	84.9	84.0	87.5	84.6	85.2	82.3	81.2	84.9	88.9	90.9	89.5	92.1	87.8	84.3	80.5	147.7
6300	81.0	81.7	81.9	82.1	83.7	79.9	80.3	78.3	78.5	79.3	83.0	84.9	86.4	89.2	82.4	77.9	74.6	144.4
8000	81.1	80.3	81.6	80.9	81.0	79.9	78.3	78.1	77.7	80.4	84.6	86.4	82.5	83.9	79.8	78.2	74.3	144.4
10000	75.8	76.6	76.5	76.4	79.0	75.2	75.5	73.0	73.1	75.6	80.0	81.5	81.7	82.4	78.6	74.7	70.9	142.9
OASPL MEASURED	98.4	101.1	100.8	98.6	99.6	97.7	97.9	96.4	96.1	96.8	99.7	102.6	104.5	104.8	99.5	97.1	93.9	
OASPL CALCULATED	97.1	99.9	99.4	97.3	98.4	96.3	96.7	94.9	94.9	95.5	98.4	101.4	102.3	103.7	98.3	95.7	93.0	
PNDB	110.4	112.9	112.5	110.8	111.3	109.6	109.4	108.1	108.4	108.6	111.9	114.3	115.4	116.8	111.4	108.7	105.6	
																	OAPWL	158.1

DIRECTIVITY INDEX

FREQ.																	
50	-2.1	-1.9	-1.4	-1.4	-0.8	-2.2	-3.3	-2.0	-1.9	-0.2	0.2	0.3	1.5	1.0	1.8	2.4	2.7
63	-0.4	-0.4	-0.9	-2.3	-1.6	-1.5	-0.4	-1.0	-1.0	0.5	0.8	-0.3	0.9	0.8	0.3	0.7	1.9
80	-0.9	-1.2	-2.2	-2.8	-2.2	-1.4	-1.1	-0.3	-0.3	-0.2	0.5	0.5	1.8	1.4	0.9	-0.7	-0.9
100	-1.6	-1.6	-2.5	-2.2	-2.5	-1.0	-2.2	-0.8	-0.3	0.2	1.1	0.7	1.6	1.1	1.2	-0.6	-1.3
125	-0.4	-0.2	-0.1	-0.0	-1.1	0.0	-0.6	-0.3	-0.2	-0.6	-0.4	-0.4	0.6	1.3	0.9	0.4	-2.6
160	1.1	1.5	1.6	1.0	-0.7	-0.5	-0.6	0.7	0.6	-0.2	-0.8	-1.2	-0.1	-0.2	0.2	0.1	-3.8
200	2.8	2.7	2.6	1.1	-0.7	-2.2	0.5	1.3	2.0	-1.3	-0.3	-0.7	-1.4	-2.4	-1.2	-0.6	-2.7
250	2.2	1.5	0.7	-0.2	-1.4	-2.7	-1.6	0.2	-0.1	-2.4	-2.3	-2.5	2.0	3.2	1.7	0.9	-1.0
315	-0.5	-2.1	-1.0	-0.4	-1.0	-3.7	-4.1	-4.5	-3.6	-1.8	-0.8	-1.3	3.2	4.1	3.4	1.1	-1.7
400	-0.5	-1.1	-1.5	-1.2	-1.6	-3.4	-4.9	-4.4	-4.2	-2.1	-0.1	0.1	2.7	4.5	3.7	-0.5	-3.2
500	2.5	1.4	-0.9	-0.1	-1.0	-2.7	-2.8	-3.8	-3.2	-2.1	-0.0	0.2	2.8	4.3	2.3	-2.3	-5.7
630	1.9	1.9	1.4	0.0	-1.2	-4.2	-2.6	-3.3	-4.0	-3.1	-1.1	2.2	3.6	3.3	1.1	-2.3	-5.8
800	2.3	1.8	0.9	0.9	0.5	-0.7	-1.9	-2.0	-2.5	-2.1	0.2	1.4	2.3	1.8	-0.5	-2.0	-4.2
1000	2.7	2.1	1.3	1.8	1.5	1.2	-0.1	-3.5	-4.3	-4.6	-0.7	1.2	2.4	2.0	-0.8	-3.6	-7.2
1250	3.5	2.9	2.6	-0.1	-1.0	-3.0	-2.8	-3.4	-3.4	-2.7	-0.3	1.5	3.0	4.2	-0.9	-4.4	-7.3
1600	-7.2	1.8	1.0	-5.0	-1.3	-8.4	-4.1	-6.5	-5.9	-5.6	-2.9	2.4	4.4	6.2	-0.9	-3.7	-7.2
2000	-2.2	-0.3	-0.2	-1.8	0.2	0.2	0.4	-3.0	-4.0	-2.9	-0.4	2.0	3.1	3.1	-1.6	-4.7	-7.8
2500	-2.3	-1.4	-0.9	-0.7	0.3	1.9	0.9	-2.9	-3.6	-3.4	-0.8	0.4	2.4	4.1	-2.3	-5.4	-8.3
3150	-1.2	-0.7	1.0	1.2	-2.0	-1.2	-2.2	-1.4	-0.4	-1.8	0.9	3.0	0.3	2.0	-1.5	-3.3	-6.4
4000	-0.6	-0.8	-0.1	0.3	-0.2	-1.2	-2.0	-3.0	-3.7	-2.6	1.5	3.9	1.9	1.5	-1.8	-3.7	-7.2
5000	-2.5	-1.2	-2.7	-3.6	-0.0	-3.0	-2.4	-5.3	-6.4	-2.6	1.3	3.4	2.0	4.5	0.3	-3.2	-7.1
6300	-2.3	-1.6	-1.4	-1.2	0.4	-3.4	-3.0	-5.0	-4.8	-4.0	-0.3	1.6	3.1	5.9	-0.9	-5.4	-8.7
8000	-0.8	-1.6	-0.3	-1.0	-0.9	-2.0	-3.6	-3.8	-4.2	-1.5	2.7	4.5	0.6	2.0	-2.1	-3.7	-7.6
10000	-2.7	-2.0	-2.0	-2.2	0.5	-3.3	-3.0	-5.6	-5.5	-3.0	1.4	2.9	3.2	3.9	0.1	-3.8	-7.6

C66

RUN 7 2300 RPM

 NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 26 HR. 18.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7.Pt.124
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 12.3
(kg/s)... 0.0123
PHYS. FAN SPEED (RPM).... 2300
(rad/sec) 240.8
CORR. FAN SPEED (RPM).... 2284.6
(rad/sec) 239.2
TAPE NUMBER..... P647

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0° (0)	10°.0 (.17)	20°.0 (.35)	30°.0 (.52)	40°.0 (.70)	50°.0 (.87)	60°.0 (1.05)	70°.0 (1.22)	80°.0 (1.40)	90°.0 (1.57)	100°.0 (1.74)	110°.0 (1.92)	120°.0 (2.09)	130°.0 (2.27)	140°.0 (2.44)	150°.0 (2.62)	160°.0 (2.79)	PWL
50	77.3	77.1	77.8	78.3	78.0	81.4	78.1	77.5	77.7	80.1	79.5	81.0	80.5	80.3	81.1	81.7	81.6	136.7
63	80.8	80.4	80.3	79.6	79.7	82.4	81.7	80.1	80.2	81.9	81.5	32.0	81.7	82.2	81.6	82.4	83.0	138.5
80	79.0	78.3	77.6	76.9	76.7	79.7	79.2	78.5	78.8	79.5	79.4	80.7	80.9	80.8	80.5	79.7	79.5	136.6
100	76.8	76.1	75.3	76.2	75.4	78.2	76.6	77.1	77.9	78.9	78.7	79.4	79.4	79.1	79.4	78.0	76.8	135.4
125	76.9	76.7	76.5	77.0	75.4	77.4	76.7	76.2	76.2	77.1	76.3	77.1	77.4	77.8	77.2	77.9	74.7	134.1
160	73.8	74.0	74.3	74.8	72.4	74.1	73.1	73.2	73.2	73.1	72.4	72.7	72.5	72.5	73.2	73.6	70.3	130.5
200	71.9	71.7	72.2	71.8	70.2	70.3	71.7	70.6	71.2	69.4	70.0	70.4	68.4	68.6	69.0	70.0	68.6	127.8
250	70.1	69.4	68.6	68.4	66.6	67.4	68.6	68.0	68.5	67.6	66.7	68.2	70.0	71.2	70.4	69.5	68.6	126.3
315	72.6	70.2	70.2	71.6	70.4	69.5	69.1	68.2	70.6	72.2	72.3	72.1	76.3	77.5	76.9	74.8	72.7	130.8
400	77.9	76.4	75.2	76.0	75.1	73.7	72.6	73.0	74.5	75.8	77.1	77.4	80.1	82.3	81.6	77.4	75.1	135.3
500	81.6	79.8	77.3	78.4	77.4	75.9	75.3	74.0	75.3	76.4	78.2	78.5	80.9	82.9	81.4	76.5	73.5	136.2
630	80.7	79.2	80.1	79.6	77.2	77.3	74.6	74.8	75.7	76.5	79.4	80.7	82.3	83.0	81.0	76.5	73.8	137.1
800	79.9	79.4	79.3	79.0	77.2	77.2	76.1	74.8	75.6	76.8	77.7	79.3	80.1	80.3	78.1	75.7	74.0	136.0
1000	90.2	88.7	87.9	88.7	87.2	88.0	87.7	84.2	86.2	87.0	86.3	89.5	89.0	89.0	84.0	83.7	81.0	145.6✓
1250	87.3	86.9	86.9	84.6	82.7	81.6	80.3	80.2	80.7	81.1	83.5	85.3	87.8	88.7	82.9	78.9	77.7	142.5
1600	88.1	98.8	94.9	90.7	90.4	89.5	90.2	91.1	92.4	89.4	93.0	97.9	102.1	102.1	93.0	89.4	91.5	154.7✓
2000	84.4	86.1	86.6	87.1	87.8	86.6	84.7	83.7	82.7	85.1	86.5	87.9	90.5	90.3	85.5	81.9	80.0	145.7
2500	82.8	83.7	84.3	84.5	85.8	85.2	85.3	81.6	81.8	83.1	84.4	86.2	88.6	90.2	84.0	80.3	77.5	144.5
3150	85.3	85.4	89.0	88.3	84.2	85.5	84.7	85.3	86.3	85.9	87.7	89.5	89.2	90.3	86.2	83.8	81.3	146.7
4000	87.7	87.2	87.9	87.8	87.6	87.0	85.7	85.0	84.4	86.5	89.3	91.7	89.9	90.1	86.5	84.3	80.8	147.9
5000	85.1	86.4	84.7	83.6	87.2	84.9	85.0	81.8	80.9	85.4	88.3	90.2	90.3	92.4	87.1	83.5	79.8	147.6
6300	80.8	81.1	81.2	81.4	83.4	80.1	80.0	78.0	78.4	80.0	82.6	84.9	86.9	89.9	82.7	77.8	74.4	144.6
8000	80.6	79.5	81.0	80.2	80.2	79.6	77.6	77.9	77.8	80.4	83.8	86.1	82.7	84.2	79.8	77.9	73.9	144.1
10000	75.2	75.6	75.5	75.3	78.3	74.9	74.9	72.4	72.6	75.5	79.3	81.0	81.8	82.7	78.6	74.3	70.3	142.7
OASPL MEASURED	98.3	101.7	100.1	99.0	98.4	97.9	97.2	96.7	97.3	97.4	99.6	102.5	104.9	105.4	99.0	96.3	95.9	
OASPL CALCULATED	97.0	100.7	98.8	97.3	97.0	96.6	96.1	95.4	96.1	96.2	98.3	101.3	103.8	104.2	97.7	95.0	94.5	
PNDB	110.3	113.5	111.7	110.7	110.4	109.8	108.9	108.3	109.1	109.4	111.7	114.3	116.8	117.3	110.8	107.7	107.4	
				.5		.7	.8										OAPWL	158.4

DIRECTIVITY INDEX

FREQ.																	
50	-2.6	-2.8	-2.1	-1.6	-1.9	1.5	-1.8	-2.4	-2.2	0.2	-0.4	1.1	0.6	0.4	1.2	1.8	1.7
63	-0.8	-1.2	-1.3	-2.0	-1.8	0.9	0.2	-1.5	-1.4	0.3	-0.0	0.5	0.1	0.7	0.0	0.9	1.4
80	-0.6	-1.3	-2.0	-2.7	-2.9	0.1	-0.4	-1.1	-0.8	-0.2	-0.2	1.1	1.2	1.2	0.9	0.1	-0.2
100	-1.5	-2.2	-3.0	-2.1	-2.9	-0.0	-1.6	-1.1	-0.4	0.6	0.5	1.1	1.1	0.9	1.1	-0.3	-1.5
125	-0.1	-0.3	-0.5	0.1	-1.5	0.5	-0.7	-0.8	-0.8	0.1	-0.7	0.2	0.5	0.9	0.3	1.0	-2.3
160	0.6	0.8	1.1	1.5	-0.8	0.9	-0.1	-0.0	0.0	-0.1	-0.8	-0.5	-0.7	-0.7	-0.1	0.4	-2.9
200	1.5	1.3	1.8	1.3	-0.2	-0.1	1.3	0.2	0.8	-1.0	-0.4	0.0	-2.0	-1.9	-1.4	-0.4	-1.8
250	1.3	0.6	-0.2	-0.4	-2.2	-1.4	-0.2	-0.8	-0.3	-1.2	-2.1	-0.6	1.2	2.4	1.6	0.7	-0.2
315	-0.6	-3.1	-3.1	-1.6	-2.8	-3.8	-4.2	-5.1	-2.6	-1.0	-1.0	-1.2	3.1	4.2	3.6	1.5	-0.6
400	0.3	-1.2	-2.4	-1.6	-2.5	-3.9	-5.0	-4.6	-3.1	-1.8	-0.5	-0.2	2.5	4.7	4.0	-0.2	-2.5
500	3.1	1.4	-1.2	-0.1	-1.0	-2.6	-3.2	-4.5	-3.2	-2.1	-0.3	-0.0	2.4	4.4	3.0	-2.0	-4.9
630	1.5	-0.0	0.9	0.4	-2.0	-1.8	-4.6	-4.4	-3.5	-2.7	0.2	1.5	3.1	3.8	1.8	-2.7	-5.4
800	2.0	1.5	1.4	1.1	-0.7	-0.8	-1.9	-3.1	-2.4	-1.2	-0.2	1.3	2.2	2.3	0.2	-2.2	-3.9
1000	2.8	1.3	0.4	1.3	-0.2	0.6	0.2	-3.2	-1.2	-0.5	-1.1	2.1	1.5	1.5	-3.4	-3.7	-6.5
1250	3.1	2.7	2.7	0.4	-1.5	-2.6	-3.9	-4.0	-3.5	-3.1	-0.7	1.2	3.6	4.5	-1.2	-5.3	-6.4
1600	-8.1	2.6	-1.3	-5.5	-5.8	-6.7	-6.0	-5.1	-3.8	-6.7	-3.2	1.7	5.9	6.0	-3.2	-6.8	-4.6
2000	-2.5	-0.7	-0.3	0.2	0.9	-0.3	-2.2	-3.2	-4.2	-1.8	-0.4	1.0	3.6	3.4	-1.4	-5.0	-6.9
2500	-2.7	-1.8	-1.2	-1.0	0.3	-0.3	-0.1	-3.9	-3.7	-2.4	-1.1	0.7	3.1	4.7	-1.5	-5.2	-8.0
3150	-2.0	-1.9	1.7	1.0	-3.1	-1.8	-2.6	-2.0	-1.0	-1.4	0.4	2.2	1.9	3.0	-1.1	-3.5	-6.0
4000	-0.4	-0.9	-0.1	-0.3	-0.4	-1.1	-2.4	-3.1	-3.7	-1.6	1.3	3.7	1.9	2.0	-1.6	-3.8	-7.3
5000	-2.4	-1.1	-2.8	-3.9	-0.3	-2.6	-2.5	-5.6	-6.6	-2.1	0.8	2.7	2.8	4.9	-0.4	-4.0	-7.7
6300	-2.7	-2.4	-2.3	-2.1	-0.1	-3.4	-3.5	-5.6	-5.1	-3.5	-0.9	1.4	3.4	6.3	-0.9	-5.7	-9.2
8000	-1.0	-2.2	-0.7	-1.4	-1.5	-2.0	-4.1	-3.8	-3.8	-1.2	2.2	4.4	1.0	2.6	-1.9	-3.8	-7.8
10000	-3.1	-2.7	-2.8	-3.0	-0.0	-3.4	-3.4	-5.9	-5.7	-2.8	1.0	2.7	3.5	4.4	0.3	-4.0	-8.0

RUN 7 2300 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7,Pt.103
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 63.0
(°K)..... 290.4
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m3).. 13.1
(kg/m3).. 0.0131
PHYS. FAN SPEED(RPM) ... 2450
(rad/sec) 256.5
CORR. FAN SPEED(RPM).... 2440.6
(rad/sec) 255.5
TAPE NUMBER..... P65"

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (.79)	PWL
50	77.4	77.2	77.5	77.5	78.1	77.4	77.3	78.6	78.3	80.2	80.7	81.4	81.9	81.5	82.2	82.6	82.8	137.1
63	79.9	79.8	79.6	78.6	79.5	79.8	80.5	80.5	80.6	82.1	82.2	82.0	82.6	82.6	82.6	83.0	83.4	138.5
80	79.3	78.8	77.8	77.3	77.9	79.0	79.6	79.8	79.7	80.5	80.7	81.0	82.0	82.0	81.4	79.7	79.9	137.4
100	78.0	77.9	77.0	77.2	77.1	79.1	77.7	78.7	79.7	80.6	80.6	80.6	81.0	80.8	80.8	78.7	77.9	136.8
125	77.6	77.8	76.9	77.3	76.9	77.6	77.6	78.2	78.1	78.5	78.2	78.0	78.9	79.0	79.1	78.7	76.0	135.4
160	75.5	75.7	75.0	75.0	73.3	73.4	73.2	74.0	74.0	73.6	73.2	72.9	73.2	73.4	74.5	74.1	70.0	131.0
200	73.2	73.3	72.6	71.3	69.3	68.6	71.0	70.1	71.6	69.4	69.4	68.9	67.3	67.2	69.8	69.5	67.6	127.3
250	71.3	71.0	69.9	69.9	68.5	67.4	68.2	68.4	68.8	68.8	67.4	66.8	70.9	71.5	70.1	68.7	68.5	126.6
315	72.8	71.4	71.9	73.8	73.7	70.8	70.7	70.1	71.5	74.5	74.5	74.1	77.4	77.8	76.6	74.6	72.6	131.9
400	76.2	76.0	76.0	77.2	77.4	74.9	74.4	74.4	75.4	77.5	78.6	79.2	81.1	82.2	80.6	77.0	74.7	135.9
500	79.8	78.8	77.4	78.7	77.9	76.4	76.2	75.3	76.6	78.0	79.6	79.7	81.7	83.1	80.8	76.5	73.4	136.8
630	80.6	80.5	79.6	79.1	77.8	77.2	76.2	76.2	75.1	76.3	78.6	80.5	82.1	83.3	80.1	76.7	73.8	137.0
800	79.3	78.6	78.3	78.1	78.6	76.7	75.2	75.3	76.2	77.1	78.8	79.1	81.7	80.2	77.6	75.5	74.1	136.2
1000	91.3	88.3	92.5	90.0	89.9	92.1	88.9	86.8	83.8	86.3	90.5	89.6	90.0	93.7	89.1	83.6	83.0	147.9
1250	86.5	85.4	86.7	83.9	82.8	82.4	81.4	80.7	80.4	81.1	83.6	84.4	85.9	87.4	82.4	79.0	76.4	141.9
1600	90.7	94.1	99.4	93.8	89.1	91.9	89.5	92.2	90.3	88.9	89.0	92.3	99.5	100.5	92.4	92.1	88.1	153.1
2000	85.6	87.0	89.2	88.7	89.3	85.9	86.3	84.5	85.0	87.5	87.5	87.8	91.7	92.4	86.2	83.5	80.9	147.0
2500	83.8	85.5	86.5	86.3	90.2	88.9	88.7	84.2	84.3	83.4	86.3	87.8	89.6	91.6	85.5	82.3	79.5	146.6
3150	87.1	86.6	88.7	88.8	86.6	87.5	86.0	87.0	89.7	89.0	91.8	93.3	88.5	94.7	88.8	86.1	82.4	149.4
4000	88.1	88.7	89.4	88.8	90.2	87.6	87.5	86.0	85.7	86.6	90.3	92.4	90.9	90.6	86.8	85.2	81.8	148.9
5000	85.6	86.8	86.5	84.5	89.2	85.4	86.7	83.3	82.8	86.7	88.9	92.1	91.1	92.6	87.9	84.1	80.9	148.7
6300	82.0	82.2	83.5	82.5	85.5	81.2	81.9	79.5	79.7	80.4	83.8	85.9	87.7	90.2	83.2	79.0	75.6	145.5
8000	81.7	80.8	82.8	81.2	82.9	80.6	79.7	78.9	78.7	81.2	85.1	87.1	84.0	84.7	80.3	78.9	74.9	145.2
10000	76.6	77.2	77.7	77.0	80.9	76.2	77.0	74.1	74.5	76.6	80.5	82.2	83.1	83.9	79.3	75.5	71.5	144.0
OASPL MEASURED	99.3	100.0	103.1	100.3	100.1	99.6	98.5	98.1	97.9	98.5	100.4	102.2	103.9	105.4	99.8	97.7	94.8	
OASPL CALCULATED	97.9	98.5	101.9	98.8	98.7	98.4	97.2	96.7	96.4	96.9	99.1	100.7	102.6	104.2	98.4	96.5	93.8	
PNDB	111.0	111.6	114.7	111.6	112.5	110.8	110.4	109.6	110.7	110.9	113.3	114.8	115.8	117.1	111.6	109.5	106.2	
																	OAPWL	158.8

DIRECTIVITY INDEX

FREQ.																	
50	-2.9	-3.1	-2.8	-2.8	-2.2	-2.9	-3.0	-1.7	-2.0	-0.1	0.4	1.1	1.6	1.2	1.9	2.3	2.5
63	-1.7	-1.8	-2.1	-3.1	-2.1	-1.8	-1.1	-1.1	-1.0	0.4	0.5	0.4	1.0	1.0	1.0	1.4	1.8
80	-1.1	-1.5	-2.5	-3.1	-2.5	-1.4	-0.8	-0.5	-0.6	0.1	0.3	0.6	1.6	1.6	1.1	-0.7	-0.4
100	-1.7	-1.8	-2.7	-2.5	-2.6	-0.7	-2.0	-1.0	-0.0	0.8	0.9	0.9	1.3	1.0	1.0	-1.0	-1.8
125	-0.6	-0.5	-1.4	-0.9	-1.4	-0.6	-0.7	0.0	-0.2	0.2	-0.0	-0.2	0.7	0.8	0.9	0.5	-2.2
160	1.7	2.0	1.2	1.3	-0.4	-0.3	-0.5	0.8	0.2	-0.2	-0.6	-0.9	-0.6	-0.3	0.8	0.3	-3.7
200	3.2	3.4	2.6	1.4	-0.6	-1.3	1.0	0.2	1.7	-0.5	-0.5	-1.0	-2.6	-2.8	-0.1	-0.4	-2.3
250	2.1	1.9	0.8	0.8	-0.6	-1.8	-0.9	-0.8	-0.4	-0.4	-1.8	-2.4	1.8	2.3	1.0	-0.4	-0.7
315	-1.6	-3.0	-2.5	-0.6	-0.7	-3.5	-3.7	-4.2	-2.9	0.1	0.1	-0.2	3.0	3.4	2.2	0.2	-1.8
400	-2.1	-2.2	-2.3	-1.1	-0.9	-3.3	-3.9	-3.9	-2.9	-0.8	0.3	0.9	2.8	3.9	2.3	-1.3	-3.6
500	0.7	-0.2	-1.7	-0.4	-1.2	-2.7	-2.8	-3.7	-2.5	-1.1	0.5	0.6	2.7	4.0	1.7	-2.6	-5.6
630	1.5	1.3	0.5	-0.0	-1.3	-1.9	-2.9	-2.9	-4.1	-2.8	-0.5	1.4	3.0	4.2	1.0	-2.4	-5.3
800	1.1	0.4	0.1	-0.1	0.4	-1.5	-3.0	-2.9	-2.0	-1.1	0.6	0.9	3.5	2.0	-0.6	-2.7	-4.1
1000	1.6	-1.4	2.9	0.4	0.2	2.4	-0.8	-2.8	-5.8	-3.4	0.8	-0.0	0.4	4.0	-0.6	-6.1	-6.7
1250	3.0	1.8	3.1	0.4	-0.8	-1.1	-2.1	-2.9	-3.1	-2.4	0.0	0.9	2.4	3.9	-1.1	-4.5	-7.1
1600	-3.8	-0.5	4.9	-0.7	-5.4	-2.6	-5.0	-2.4	-4.3	-5.7	-5.6	-2.3	4.9	6.0	-2.2	-2.4	-6.4
2000	-2.6	-1.2	1.0	0.5	1.1	-2.3	-1.8	-3.7	-3.2	-0.7	-0.7	-0.4	3.5	4.2	-2.0	-4.7	-7.3
2500	-3.8	-2.1	-1.1	-1.3	2.6	1.3	1.1	-3.4	-3.3	-4.1	-1.3	0.3	2.0	4.1	-2.0	-5.3	-8.1
3150	-2.9	-3.5	-1.3	-1.2	-3.5	-2.6	-4.0	-3.0	-0.3	-1.0	1.8	3.3	-1.5	4.7	-1.3	-3.9	-7.6
4000	-0.9	-0.3	0.4	-0.2	1.2	-1.4	-1.5	-3.0	-3.3	-2.4	1.3	3.3	1.9	1.6	-2.2	-3.8	-7.2
5000	-2.9	-1.7	-2.0	-4.0	0.7	-3.1	-1.8	-5.2	-5.7	-1.9	0.3	3.6	2.6	4.1	-0.6	-4.1	-7.6
6300	-2.4	-2.2	-0.9	-1.9	1.1	-3.3	-2.5	-4.9	-4.7	-4.0	-0.6	1.5	3.3	5.8	-1.2	-5.4	-8.8
8000	-1.1	-2.0	-0.0	-1.5	0.1	-2.2	-3.1	-3.9	-4.1	-1.6	2.3	4.3	1.2	1.9	-2.4	-3.9	-7.8
10000	-3.0	-2.4	-1.9	-2.7	1.2	-3.5	-2.7	-5.6	-5.1	-3.0	0.9	2.6	3.4	4.2	-0.3	-4.1	-8.1

RUN 7 2450 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 26 HR. 18.3

RADIAL DISTANCE (ft)..... 425
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7, Pt.125
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 12.3
(kg/m³).. 0.0123
PHYS. FAN SPEED (RPM).... 2450
(rad/sec) 256.5
CORR. FAN SPEED (RPM).... 2433.6
(rad/sec) 254.8
TAPE NUMBER..... P646

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0° (0)	10°0 (.17)	20°0 (.35)	30°0 (.52)	40°0 (.70)	50°0 (.87)	60°0 (1.05)	70°0 (1.22)	80°0 (1.40)	90°0 (1.57)	100°0 (1.74)	110°0 (1.92)	120°0 (2.09)	130°0 (2.27)	140°0 (2.44)	150°0 (2.62)	160°0 (2.79)	
50	77.9	76.9	77.4	78.2	78.2	77.7	76.8	78.5	77.9	80.1	80.6	80.7	81.4	81.0	81.9	85.6	83.4	137.3
63	80.2	79.9	79.7	79.3	79.8	80.1	81.0	80.7	80.7	82.3	82.2	81.6	82.3	82.6	82.3	85.9	84.1	138.9
80	79.5	78.7	77.9	77.3	78.0	79.6	79.4	80.4	79.9	80.7	81.1	81.4	82.4	82.3	81.6	82.0	80.4	137.8
100	77.4	76.9	76.3	76.9	76.6	78.9	77.8	79.3	79.7	80.4	80.6	80.7	81.2	80.8	80.8	80.4	77.9	136.9
125	77.6	77.6	76.9	76.9	76.4	77.5	77.6	78.3	78.1	78.5	77.8	77.7	78.8	78.6	78.9	79.8	75.9	135.3
160	74.8	75.2	74.9	74.9	73.4	74.6	73.4	74.8	74.1	73.1	72.4	72.6	72.6	72.5	73.8	75.2	70.0	131.0
200	73.2	73.4	72.9	71.8	69.8	70.1	71.7	71.7	71.4	68.3	68.3	68.7	67.0	67.5	70.2	71.6	67.7	127.7
250	71.0	71.1	70.0	68.4	67.9	68.9	68.9	69.6	68.7	68.3	67.2	68.7	72.3	72.8	72.2	71.6	69.1	127.5
315	72.2	70.0	70.2	71.6	71.9	70.6	69.4	69.6	70.6	73.7	74.5	74.2	78.1	78.8	77.7	76.0	73.3	132.1
400	76.6	75.6	75.3	76.1	76.8	74.8	73.6	73.8	74.9	77.2	78.6	79.1	81.4	82.9	81.6	78.2	75.7	136.2
500	79.9	78.6	76.7	78.5	78.1	76.5	75.9	75.4	76.3	77.5	79.3	79.7	81.7	83.1	81.2	77.2	73.9	136.8
630	81.1	80.5	79.8	80.2	79.0	77.4	76.7	76.5	77.4	77.3	79.1	80.8	82.1	82.6	80.3	77.2	74.3	137.4
800	80.0	79.4	79.5	78.5	77.4	77.4	75.7	76.2	76.9	77.1	78.7	79.7	81.3	80.6	78.1	75.9	74.9	136.5
1000	92.1	89.0	94.1	89.9	89.3	90.1	87.2	89.1	88.9	85.9	89.0	90.3	90.1	91.1	86.8	84.7	83.8	147.5 ✓
1250	86.8	86.0	86.9	85.2	83.6	82.6	81.2	80.7	80.7	80.9	83.0	84.4	85.8	87.2	82.7	79.4	76.7	142.0
1600	91.1	96.3	96.8	90.4	92.5	90.3	88.7	88.8	93.4	89.7	92.0	93.0	99.7	100.1	91.6	92.1	88.2	153.0 ✓
2000	86.0	87.4	88.3	86.0	88.4	86.7	87.2	84.2	85.0	85.7	87.6	88.1	91.5	93.1	86.7	83.6	80.7	146.9
2500	83.8	84.6	86.0	86.2	89.5	87.0	89.0	85.5	83.8	83.5	86.6	88.0	90.0	92.1	86.1	82.1	79.7	146.7
3150	86.8	86.5	88.8	88.9	87.1	87.2	85.9	87.2	89.7	90.0	89.8	92.0	88.9	93.3	90.0	85.8	82.9	148.9
4000	88.4	88.3	89.3	88.7	89.4	88.1	87.3	86.1	85.8	87.0	90.2	92.5	91.1	90.5	87.6	85.7	82.2	148.9
5000	85.8	86.7	85.9	85.0	89.0	86.5	86.5	83.4	82.4	86.7	89.2	91.2	91.5	92.9	88.6	85.3	81.6	148.8
6300	82.0	82.1	82.8	82.8	85.6	81.9	82.2	79.6	79.7	80.8	83.6	86.0	87.8	90.6	83.8	79.3	76.0	145.7
8000	81.8	80.5	82.4	81.8	82.7	81.1	79.5	79.4	78.8	81.4	85.1	87.2	83.7	85.0	81.1	79.2	75.3	145.4
10000	76.5	76.9	77.0	76.9	80.9	76.6	77.1	74.1	74.4	76.7	80.7	82.4	83.1	83.8	79.9	75.9	71.9	144.1
OASPL MEASURED	99.6	100.9	102.1	99.3	100.4	99.1	98.3	97.7	99.0	98.6	100.5	102.1	104.2	105.2	99.9	98.4	95.6	
OASPL CALCULATED	98.3	99.5	100.8	97.9	99.0	97.7	97.0	96.3	97.8	97.1	99.1	100.6	102.8	103.8	98.4	97.1	94.2	
PNDB	111.2	112.6	113.3	111.3	112.2	110.9	110.5	109.6	111.0	111.4	112.7	114.5	115.9	116.9	112.3	109.8	106.4	
																	OAPWL	158.7

DIRECTIVITY INDEX

FREQ.																
50	-2.6	-3.6	-3.1	-2.3	-2.2	-2.7	-3.6	-2.0	-2.6	-0.3	0.1	0.3	1.0	0.5	1.5	5.2	2.9
63	-1.8	-2.0	-2.2	-2.6	-2.1	-1.8	-1.0	-1.2	-1.3	0.4	0.2	-0.4	0.4	0.7	0.4	4.0	2.2
80	-1.3	-2.1	-2.9	-3.5	-2.8	-1.2	-1.4	-0.4	-0.9	-0.1	0.3	0.6	1.6	1.5	0.8	1.2	-0.4
100	-2.4	-2.9	-3.5	-2.9	-3.2	-0.9	-2.0	-0.6	-0.1	0.6	0.8	0.9	1.3	1.0	1.0	0.5	-1.9
125	-0.5	-0.6	-1.3	-1.3	-1.8	-0.7	-0.5	0.2	-0.1	0.4	-0.3	-0.5	0.6	0.5	0.7	1.7	-2.3
160	1.0	1.5	1.2	1.1	-0.3	0.8	-0.3	1.1	0.4	-0.7	-1.4	-1.2	-1.2	-1.3	0.0	1.4	-3.8
200	2.9	3.1	2.6	1.5	-0.5	-0.2	1.4	1.4	1.1	-1.9	-2.0	-1.6	-3.3	-2.8	-0.1	1.3	-2.5
250	0.9	1.1	-0.1	-1.6	-2.1	-1.1	-1.1	-0.5	-1.3	-1.7	-2.8	-1.4	2.3	2.8	2.1	1.5	-0.9
315	-2.4	-4.6	-4.4	-2.9	-2.7	-3.9	-5.2	-5.0	-3.9	-0.8	-0.0	-0.4	3.5	4.2	3.2	1.5	-1.3
400	-1.9	-2.9	-3.2	-2.4	-1.7	-3.7	-4.9	-4.7	-3.6	-1.3	0.1	0.6	3.0	4.4	3.1	-0.3	-2.7
500	0.8	-0.5	-2.3	-0.6	-0.9	-2.6	-3.2	-3.6	-2.8	-1.5	0.2	0.6	2.7	4.1	2.2	-1.9	-5.2
630	1.7	1.1	0.3	0.7	-0.5	-2.0	-2.8	-3.0	-2.1	-2.2	-0.3	1.4	2.6	3.2	0.8	-2.3	-5.2
800	1.5	0.9	1.1	0.1	-1.0	-1.1	-2.8	-2.2	-1.6	-1.4	0.3	1.3	2.9	2.2	-0.4	-2.5	-3.6
1000	2.8	-0.3	4.7	0.6	-0.0	0.7	-2.1	-0.3	-0.5	-3.4	-0.4	1.0	0.8	1.7	-2.5	-4.6	-5.5
1250	3.2	2.4	3.3	1.6	0.0	-1.0	-2.4	-2.9	-2.9	-2.7	-0.6	0.7	2.2	3.6	-0.9	-4.2	-6.9
1600	-3.4	1.9	2.3	-4.0	-2.0	-4.1	-5.8	-5.6	-1.0	-4.7	-2.5	-1.5	5.2	5.6	-2.8	-2.3	-6.3
2000	-2.1	-0.7	0.2	-2.1	0.3	-1.4	-1.0	-3.9	-3.2	-2.4	-0.5	0.0	3.4	4.9	-1.4	-4.5	-7.4
2500	-3.9	-3.0	-1.6	-1.4	1.9	-0.6	1.4	-2.2	-3.8	-4.2	-1.0	0.4	2.3	4.5	-1.5	-5.6	-7.9
3150	-2.7	-3.0	-0.7	-0.6	-2.4	-2.3	-3.7	-2.4	0.2	0.5	0.2	2.4	-0.6	3.8	0.5	-3.7	-6.7
4000	-0.7	-0.8	0.2	-0.4	0.4	-0.9	-1.8	-2.9	-3.3	-2.0	1.1	3.4	2.0	1.8	-1.4	-3.4	-6.9
5000	-2.8	-1.9	-2.7	-3.6	0.4	-2.1	-2.1	-5.2	-6.2	-1.9	0.6	2.6	2.9	4.3	0.0	-3.3	-7.0
6300	-2.6	-2.6	-1.8	-1.8	0.9	-2.8	-2.4	-5.0	-5.0	-3.9	-1.0	1.4	3.2	5.9	-0.8	-5.3	-8.7
8000	-1.1	-2.4	-0.5	-1.1	-0.2	-1.8	-3.4	-3.5	-4.1	-1.5	2.2	4.3	0.8	2.1	-1.8	-3.7	-7.6
10000	-3.3	-2.9	-2.7	-2.9	1.2	-3.1	-2.7	-5.6	-5.3	-3.0	0.9	2.7	3.3	4.1	0.2	-3.9	-7.9

C69

RUN 7 2450 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC, DATE - MONTH 9 DAY 27 HR, 9.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.C.
DATE..... 9/10/68
RUN..... 7,Pt.104
BAROMETER.....(in Hg)... 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 63.0
(°K)..... 290.4
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 13.1
(kg/m³).. 0.0131
PHYS. FAN SPEED (RPM).... 2600
(rad/sec) 272.2
CORR. FAN SPEED (RPM).... 2590
(rad/sec) 271.2
TAPE NUMBER..... P653

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0, (0°)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50,0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90,0 (1.57)	100,0 (1.74)	110,0 (1.92)	120,0 (2.09)	130,0 (2.27)	140,0 (2.44)	150,0 (2.62)	160,0 (2.79)	
50	76,6	77,4	77,2	76,9	77,7	78,2	77,5	79,3	79,0	80,9	81,4	82,2	82,9	83,0	84,1	84,9	85,2	138,2
63	79,9	80,3	80,1	79,0	79,8	80,3	80,8	81,1	81,4	82,9	83,2	83,5	84,1	84,0	84,4	84,8	85,5	139,7
80	80,0	79,4	78,4	78,2	79,5	80,6	80,5	80,6	80,9	81,5	82,0	82,4	83,3	83,2	82,7	81,6	82,2	138,6
100	78,6	78,3	77,4	78,1	78,5	80,8	79,5	80,6	81,5	82,2	82,3	82,3	82,7	82,5	82,5	80,7	80,2	138,5
125	79,0	79,2	78,3	78,4	78,7	79,2	79,3	80,1	80,0	80,4	79,7	79,7	81,3	81,3	81,0	80,5	77,6	137,3
160	76,5	76,7	76,3	76,3	75,0	74,8	74,8	75,8	75,7	75,0	74,4	74,7	75,0	74,9	75,7	75,8	72,4	132,6
200	74,7	74,6	73,8	72,8	71,4	71,1	72,7	72,5	73,6	70,2	70,0	70,3	69,0	69,8	70,6	71,1	69,6	129,0
250	72,8	72,4	70,3	70,6	69,3	69,3	70,0	70,1	71,3	70,4	68,9	69,1	73,3	75,1	73,7	72,1	71,4	128,9
315	73,9	72,4	72,3	73,8	74,0	72,1	71,6	71,6	73,1	75,7	76,1	75,7	79,2	80,3	79,5	77,2	75,7	133,7
400	76,9	76,1	76,2	77,5	78,2	76,2	75,3	75,4	76,8	78,9	80,0	80,5	82,6	83,8	82,3	79,1	77,1	137,4
500	79,3	78,2	77,3	78,9	78,9	77,5	77,2	76,6	77,9	79,3	80,8	81,2	83,0	84,3	81,8	78,2	75,4	138,0
630	80,2	79,7	80,0	79,2	78,9	78,2	78,6	77,6	78,8	79,5	80,3	81,4	82,5	83,0	80,2	77,4	75,2	138,0
800	79,6	78,6	78,5	78,1	78,3	77,2	76,8	76,8	77,1	78,3	80,4	80,9	83,4	81,5	78,5	78,3	76,5	137,5
1000	91,5	89,0	91,6	92,0	90,9	92,3	92,1	89,5	89,0	92,0	96,9	94,0	91,4	99,0	96,3	91,8	85,3	152,0
1250	87,1	86,8	87,8	86,4	86,0	86,4	85,9	84,1	83,6	85,9	89,5	88,1	87,6	92,1	88,7	84,7	80,0	145,8
1600	90,1	96,6	94,0	94,7	90,9	93,4	89,4	92,8	91,7	96,2	97,2	94,5	96,0	96,6	93,5	90,1	90,1	153,0
2000	87,3	91,7	90,5	90,4	89,8	90,1	87,8	88,3	88,1	91,3	92,6	91,2	93,6	93,6	89,9	86,7	85,7	149,7
2500	84,8	85,7	87,0	87,7	89,4	88,0	87,4	86,2	86,5	86,3	88,3	89,7	90,6	92,9	86,8	83,3	80,8	147,5
3150	88,8	92,1	90,6	90,8	89,8	90,6	88,5	89,3	90,9	89,9	92,0	93,7	93,4	95,4	89,7	87,5	83,9	150,9
4000	89,0	90,5	90,8	89,6	90,3	91,7	90,9	88,9	88,8	89,6	92,5	94,5	93,2	93,9	89,7	88,0	84,7	151,3
5000	86,5	87,9	87,1	86,1	90,2	88,2	88,7	85,3	84,4	88,4	90,7	92,5	92,7	95,0	88,9	85,1	82,3	150,2
6300	82,4	83,4	84,2	84,2	86,3	83,7	84,2	81,9	82,3	83,3	85,7	88,0	89,9	91,8	84,9	80,8	77,8	147,4
8000	82,7	81,9	83,6	82,6	83,6	83,1	81,8	81,2	80,8	83,4	86,4	88,7	85,4	86,0	81,7	80,1	76,5	146,8
10000	77,3	78,3	78,4	78,2	81,7	78,7	79,1	76,4	76,9	79,0	82,2	83,9	84,7	85,0	80,6	76,8	73,2	145,6
OASPL MEASURED	99,8	102,1	101,4	101,4	101,0	101,5	100,2	99,8	99,9	101,9	103,9	103,8	104,1	105,9	102,1	99,2	97,3	
OASPL CALCULATED	98,5	100,9	100,1	100,2	99,7	100,2	99,0	98,6	98,5	100,8	103,1	102,6	102,8	105,0	101,3	98,2	96,1	
PNDB	111,8	113,9	113,2	113,1	113,2	113,6	112,7	111,7	112,5	113,6	115,3	116,4	116,2	117,9	113,4	111,0	108,3	
																	OAPWL	160,5

DIRECTIVITY INDEX

FREQ.																	
50	-4,8	-4,0	-4,2	-4,5	-3,7	-3,2	-3,9	-2,1	-2,4	-0,5	-0,0	0,8	1,5	1,6	2,7	3,5	3,8
63	-2,9	-2,5	-2,7	-3,7	-3,0	-2,4	-1,9	-1,7	-1,3	0,1	0,5	0,7	1,4	1,3	1,6	2,0	2,7
80	-1,6	-2,3	-3,2	-3,4	-2,1	-1,0	-1,1	-1,0	-0,7	-0,1	0,4	0,7	1,7	1,6	1,1	-0,0	0,6
100	-2,8	-3,2	-4,1	-3,3	-2,9	-0,7	-1,9	-0,8	0,1	0,8	0,9	0,8	1,3	1,0	1,1	-0,7	-1,2
125	-1,0	-0,9	-1,8	-1,7	-1,4	-0,9	-0,7	-0,0	-0,0	0,3	-0,4	-0,4	1,3	1,2	1,0	0,4	-2,5
160	1,2	1,4	1,0	1,0	-0,3	-0,5	-0,5	0,5	0,4	-0,3	-0,9	-0,6	-0,3	-0,4	0,4	0,5	-2,9
200	3,1	3,0	2,2	1,2	-0,2	-0,5	1,1	0,9	2,1	-1,4	-1,6	-1,3	-2,6	-1,8	-1,0	-0,4	-2,0
250	1,4	1,0	-1,2	-0,8	-2,1	-2,1	-1,5	-1,3	-0,2	-1,1	-2,6	-2,3	1,8	3,6	2,3	0,7	0,0
315	-2,3	-3,8	-3,8	-2,4	-2,2	-4,1	-4,5	-4,6	-3,1	-0,4	-0,1	-0,5	3,0	4,1	3,3	1,0	-0,5
400	-2,8	-3,5	-3,5	-2,2	-1,5	-3,5	-4,4	-4,3	-2,9	-0,8	0,3	0,8	2,9	4,2	2,6	-0,6	-2,6
500	-0,9	-2,0	-2,9	-1,3	-1,3	-2,7	-3,0	-3,6	-2,3	-0,9	0,5	0,9	2,8	4,0	1,6	-2,0	-4,8
630	0,1	-0,4	-0,1	-0,8	-1,1	-1,9	-1,5	-2,5	-1,2	-0,6	0,2	1,3	2,4	2,9	0,1	-2,7	-4,9
800	0,1	-0,8	-1,0	-1,4	-1,2	-2,3	-2,7	-2,7	-2,3	-0,9	0,9	1,5	3,9	2,1	-1,0	-1,2	-3,0
1000	-2,3	-4,8	-2,2	-1,8	-2,8	-1,5	-1,6	-4,3	-4,8	-1,8	3,1	0,2	-2,4	5,2	2,6	-2,0	-8,5
1250	-0,3	-0,7	0,3	-1,1	-1,5	-1,1	-1,6	-3,4	-3,9	-1,6	2,0	0,6	0,1	4,6	1,3	-2,7	-7,5
1600	-4,4	2,1	-0,5	0,3	-3,5	-1,1	-5,1	-1,7	-2,8	1,7	2,7	0,0	1,6	2,1	-1,0	-4,4	-4,4
2000	-3,6	0,8	-0,3	-0,4	-1,1	-0,8	-3,1	-2,5	-2,8	0,4	1,8	0,3	2,7	2,7	-1,0	-4,2	-5,2
2500	-3,7	-2,8	-1,5	-0,8	0,9	-0,5	-1,0	-2,3	-2,0	-2,2	-0,2	1,2	2,1	4,4	-1,7	-5,2	-7,7
3150	-2,8	0,5	-0,9	-0,8	-1,7	-0,9	-3,1	-2,2	-0,6	-1,6	0,5	2,2	1,9	3,8	-1,9	-4,0	-7,7
4000	-2,5	-1,0	-0,6	-1,9	-1,1	0,2	-0,6	-2,6	-2,7	-1,9	1,0	3,0	1,7	2,4	-1,7	-3,5	-6,7
5000	-3,6	-2,1	-2,9	-4,0	0,2	-1,9	-1,4	-4,8	-5,7	-1,7	0,6	2,5	2,6	4,9	-1,1	-4,9	-7,8
6300	-3,9	-2,9	-2,1	-2,1	0,0	-2,7	-2,1	-4,4	-4,0	-3,0	-0,6	1,7	3,6	5,5	-1,4	-5,5	-8,5
8000	-1,7	-2,4	-0,7	-1,8	-0,7	-1,2	-2,6	-3,1	-3,6	-0,9	2,1	4,4	1,0	1,7	-2,7	-4,3	-7,8
10000	-3,9	-3,0	-2,8	-3,0	0,5	-2,5	-2,1	-4,8	-4,3	-2,2	1,0	2,7	3,5	3,8	-0,6	-4,4	-8,0

C70

RUN 7 2600 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 27 HR, 9.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7,Pt.105
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 64.0
(°K)..... 290.9
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 12.1
(kg/m³).. 0.0121
PHYS. FAN SPEED (RPM).... 2750
(rad/sec) 287.9
CORR. FAN SPEED (RPM).... 2736.8
(rad/sec) 286.5
TAPE NUMBER..... P652

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	78.2	77.0	76.8	77.2	78.4	78.3	78.6	80.3	80.0	82.8	82.5	83.0	84.2	84.3	85.5	86.2	86.3	139.4
63	81.5	81.3	81.1	79.5	81.0	80.4	81.5	82.0	82.3	83.9	83.9	84.1	84.8	84.9	85.2	85.5	86.4	140.5
80	80.6	79.7	78.8	78.7	80.0	80.9	81.1	81.8	82.4	83.4	83.9	84.2	85.1	85.0	84.5	82.9	83.3	140.1
100	80.1	79.5	78.8	79.6	80.0	81.9	81.0	82.4	83.5	84.1	84.0	83.7	84.2	83.8	84.0	82.1	81.1	140.1
125	80.5	80.4	79.4	79.6	79.2	79.5	80.7	81.5	81.6	82.0	81.0	80.9	82.2	82.1	82.9	81.3	78.3	138.5
160	78.1	77.8	77.3	77.7	75.9	75.3	75.9	76.8	76.9	76.7	75.7	75.8	76.1	76.0	77.5	77.1	72.8	133.8
200	76.6	76.3	75.7	74.2	72.3	72.1	73.6	74.1	74.6	72.2	72.0	71.5	70.2	71.3	72.2	72.4	70.1	130.3
250	74.5	74.2	72.9	71.8	70.3	70.6	71.0	72.0	72.2	72.2	71.1	71.8	75.6	77.1	75.8	74.5	72.6	130.8
315	74.8	73.7	73.9	75.3	74.9	73.2	72.7	73.4	74.9	77.3	77.9	77.7	81.1	81.9	81.2	78.8	76.2	135.4
400	77.2	76.7	77.1	78.6	79.1	77.3	76.7	77.2	78.1	80.2	81.6	81.7	83.7	84.9	83.5	80.5	77.7	138.6
500	79.0	78.6	78.2	80.0	79.8	79.1	78.7	78.2	79.3	80.7	82.0	82.3	83.9	84.9	82.7	79.1	76.0	139.1
630	81.7	80.9	79.5	80.0	79.5	80.5	80.3	79.2	79.8	80.5	81.3	81.7	83.3	83.6	80.5	78.3	76.1	138.9
800	80.0	79.3	79.4	79.0	79.3	78.6	78.0	77.7	78.3	79.7	82.1	82.7	84.6	82.9	80.4	78.0	76.3	138.8
1000	87.5	86.7	87.1	88.3	87.1	87.7	87.8	85.8	85.1	89.0	90.9	91.3	87.7	92.0	89.2	83.7	81.1	146.9
1250	90.0	90.1	90.4	90.7	89.5	91.3	91.9	89.8	89.3	93.4	95.6	96.3	91.2	96.4	94.0	87.6	85.1	151.4 ✓
1600	86.8	88.8	90.7	87.7	88.4	89.3	89.0	86.3	87.8	88.3	90.6	92.1	95.2	93.8	88.6	86.5	85.7	149.1
2000	89.6	92.6	96.8	91.5	93.9	95.2	95.2	89.5	92.9	93.4	96.7	98.1	102.1	100.2	94.9	93.1	92.8	155.4 ✓
2500	85.6	87.0	88.2	88.7	89.0	88.5	89.9	87.6	87.5	88.7	91.6	90.0	92.4	94.9	87.7	84.5	81.8	149.1
3150	88.3	88.6	90.8	91.9	90.2	91.4	90.1	88.9	89.6	89.4	91.0	92.0	91.1	92.5	86.9	84.9	82.1	149.8
4000	90.3	91.3	91.7	91.5	91.6	91.4	91.0	90.5	90.6	91.7	95.5	96.2	94.5	95.1	92.1	89.8	86.2	152.9
5000	87.7	88.4	88.0	87.1	91.1	88.4	89.3	86.9	85.2	89.0	91.5	92.3	93.3	94.4	89.2	85.9	82.5	150.5
6300	83.4	84.2	85.0	85.2	87.7	84.3	85.0	83.6	83.4	84.8	87.3	88.8	90.6	92.9	86.4	82.0	78.7	148.4
8000	83.5	83.0	84.8	84.1	84.9	83.9	83.0	83.3	82.3	84.9	88.0	89.7	86.7	87.3	82.8	81.3	77.4	148.1
10000	78.5	79.5	79.7	79.6	83.1	79.5	80.4	78.5	78.2	80.7	84.0	85.2	85.8	86.1	81.7	77.9	74.1	146.9
OASPL MEASURED	100.3	101.0	102.7	101.4	101.8	102.1	102.2	100.0	100.7	102.1	104.6	105.4	106.6	106.7	102.6	100.0	98.3	
OASPL CALCULATED	98.6	99.5	101.2	99.8	100.5	100.7	100.8	98.6	99.2	100.8	103.3	104.1	105.3	105.4	101.4	98.7	97.3	
PNDB	112.6	113.4	115.0	113.9	114.1	114.2	114.2	112.6	112.9	114.2	117.1	117.8	119.4	119.0	114.6	112.2	110.7	
																	OAPWL	161.4

DIRECTIVITY INDEX

FREQ.																	
50	-4.4	-5.6	-5.7	-5.4	-4.2	-4.3	-3.9	-2.3	-2.6	0.3	-0.0	0.4	1.6	1.7	3.0	3.6	3.8
63	-2.1	-2.2	-2.5	-4.0	-2.5	-3.1	-2.0	-1.5	-1.2	0.4	0.3	0.5	1.3	1.3	1.6	2.0	2.9
80	-2.5	-3.4	-4.3	-4.4	-3.1	-2.2	-2.0	-1.3	-0.7	0.3	0.8	1.1	2.0	1.9	1.4	-0.2	0.2
100	-2.9	-3.5	-4.2	-3.4	-3.0	-1.1	-1.9	-0.6	0.5	1.2	1.0	0.7	1.2	0.9	1.0	-0.9	-1.9
125	-0.8	-0.9	-1.9	-1.7	-2.1	-1.8	-0.6	0.2	0.4	0.8	-0.3	-0.4	0.9	0.8	1.6	-0.0	-3.0
160	1.6	1.3	0.8	1.2	-0.6	-1.2	-0.6	0.3	0.4	0.2	-0.8	-0.7	-0.4	-0.5	1.0	0.6	-3.7
200	3.7	3.3	2.7	1.2	-0.6	-0.8	0.7	1.1	1.6	-0.8	-0.9	-1.5	-2.8	-1.6	-0.7	-0.5	-2.9
250	1.2	0.9	-0.3	-1.5	-3.0	-2.7	-2.3	-1.3	-1.1	-1.1	-2.2	-1.5	2.3	3.8	2.5	1.2	-0.7
315	-3.0	-4.1	-4.0	-2.5	-3.0	-4.7	-5.2	-4.5	-3.0	-0.5	0.1	-0.2	3.3	4.0	3.3	1.0	-1.6
400	-3.7	-4.2	-3.8	-2.3	-1.8	-3.6	-4.2	-3.7	-2.8	-0.7	0.6	0.8	2.8	4.0	2.5	-0.4	-3.2
500	-2.3	-2.7	-3.1	-1.3	-1.5	-2.2	-2.6	-3.1	-2.0	-0.6	0.8	1.0	2.7	3.6	1.4	-2.1	-5.3
630	0.7	-0.1	-1.4	-1.0	-1.4	-0.4	-0.7	-1.7	-1.1	-0.5	0.3	0.8	2.3	2.6	-0.5	-2.7	-4.9
800	-0.7	-1.5	-1.3	-1.7	-1.5	-2.2	-2.8	-3.1	-2.5	-1.1	1.3	1.9	3.8	2.1	-0.4	-2.8	-4.5
1000	-1.3	-2.0	-1.6	-0.5	-1.6	-1.0	-1.0	-2.9	-3.7	0.2	2.1	2.6	-1.0	3.2	0.5	-5.1	-7.7
1250	-3.0	-3.0	-2.7	-2.3	-3.5	-1.8	-1.1	-3.2	-3.7	0.4	2.6	3.2	-1.9	3.3	1.0	-5.4	-7.9
1600	-3.7	-1.7	0.1	-2.8	-2.1	-1.2	-1.5	-4.3	-2.8	-2.2	0.1	1.6	4.6	3.2	-2.0	-4.1	-4.8
2000	-7.1	-4.0	0.1	-5.1	-2.8	-1.5	-1.5	-7.2	-3.7	-3.3	0.0	1.4	5.4	3.5	-1.8	-3.6	-3.9
2500	-4.5	-3.1	-1.9	-1.4	-1.1	-1.6	-0.2	-2.5	-2.6	-1.4	1.5	-0.1	2.3	4.8	-2.3	-5.6	-8.2
3150	-2.1	-1.8	0.4	1.5	-0.3	1.0	-0.4	-1.6	-0.9	-1.0	0.6	1.6	0.6	2.1	-3.5	-5.6	-8.4
4000	-2.7	-1.7	-1.3	-1.5	-1.4	-1.7	-2.1	-2.5	-2.5	-1.3	2.5	3.1	1.4	2.1	-1.0	-3.2	-6.9
5000	-2.7	-2.0	-2.4	-3.2	0.8	-2.0	-1.1	-3.5	-5.1	-1.3	1.2	1.9	2.9	4.0	-1.2	-4.4	-7.9
6300	-4.0	-3.2	-2.4	-2.2	0.3	-3.1	-2.4	-3.8	-4.0	-2.6	-0.1	1.4	3.2	5.5	-1.0	-5.4	-8.7
8000	-2.1	-2.6	-0.8	-1.6	-0.7	-1.7	-2.7	-2.3	-3.3	-0.8	2.3	4.1	1.1	1.7	-2.9	-4.3	-8.2
10000	-4.1	-3.0	-2.9	-3.0	0.5	-3.0	-2.1	-4.1	-4.4	-1.8	1.4	2.7	3.3	3.6	-0.8	-4.6	-8.4

RUN 7 2750 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 26 HR. 18.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7.Pt.126
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 12.3
(kg/m³).. 0.0123
PHYS. FAN SPEED(RPM)..... 2609
(rad/sec) 27.2
CORR. FAN SPEED(RPM)..... 2582.6
(rad/sec) 270.4
TAPE NUMBER..... P646

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0° (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	77.3	77.4	77.7	80.7	77.9	77.9	78.0	79.7	78.9	81.8	81.4	83.1	82.9	82.8	84.3	85.2	85.2	138.6
63	79.9	80.1	80.3	82.0	80.0	80.0	81.3	81.8	81.8	83.9	83.6	84.0	84.2	84.0	84.4	85.0	85.5	140.1
80	79.0	78.6	78.1	80.3	78.7	80.0	80.3	81.0	80.9	82.3	82.4	83.1	83.5	83.4	82.9	81.5	82.1	138.9
100	78.0	77.9	77.3	79.6	78.3	80.5	79.7	81.0	81.7	83.1	82.6	82.8	82.7	82.4	82.3	80.5	79.8	138.8
125	78.4	78.8	78.2	79.9	78.3	79.2	80.2	80.5	79.6	81.0	80.0	80.4	80.8	80.7	80.6	80.5	77.5	137.4
160	75.8	76.5	76.3	77.3	74.8	75.1	75.3	76.3	75.5	76.0	74.9	75.5	74.8	74.4	75.2	75.0	71.6	132.8
200	73.9	74.6	74.6	74.1	71.1	70.6	72.9	73.9	73.1	72.3	71.9	72.0	69.2	69.0	70.4	70.3	69.3	129.5
250	71.9	72.0	71.5	71.6	69.3	68.8	70.5	71.7	70.4	70.4	69.3	70.6	73.3	74.7	74.2	73.4	72.2	129.2
315	72.0	70.5	71.2	73.6	73.0	70.9	71.0	71.1	71.4	74.9	75.0	75.2	79.0	79.9	79.4	77.6	75.3	133.3
400	76.0	75.5	75.9	77.4	77.9	75.9	75.2	75.0	75.8	78.8	79.7	79.9	82.4	83.7	82.3	79.2	76.7	137.1
500	78.5	77.6	76.9	79.0	78.7	77.2	77.1	76.2	77.4	79.1	80.9	80.9	82.5	83.7	81.4	77.6	74.7	137.7
630	77.3	78.2	77.8	79.1	77.7	76.3	78.6	76.3	78.0	78.5	80.2	80.6	82.3	82.2	79.4	76.7	73.8	137.3
800	78.6	78.8	78.9	78.1	77.6	76.6	76.8	76.8	76.8	78.9	80.7	81.4	83.5	82.1	78.5	77.4	75.9	137.7
1000	90.5	87.6	91.2	90.4	89.9	92.1	90.9	92.4	86.6	90.4	92.4	92.0	91.0	97.0	94.2	89.4	85.0	150.2 ✓
1250	86.7	86.4	87.7	86.1	85.5	86.4	85.5	85.9	82.4	84.8	86.9	87.1	87.3	90.8	87.5	83.3	79.7	145.0
1600	87.8	97.7	91.8	97.4	93.7	90.9	91.5	91.3	91.1	95.7	93.8	95.5	97.9	97.1	95.5	89.8	89.5	153.2 ✓
2000	85.9	92.9	89.5	92.7	90.5	88.6	88.7	88.0	87.8	91.3	90.8	91.8	94.8	94.1	91.5	87.1	85.6	150.0
2500	84.2	85.4	86.5	87.7	89.4	89.1	86.8	85.5	85.7	86.1	88.3	89.1	91.0	92.9	86.6	83.2	80.5	147.5
3150	88.1	91.1	90.0	91.0	90.4	90.9	88.3	88.4	89.3	90.6	91.7	94.1	94.2	94.8	89.3	87.7	84.3	150.9
4000	88.5	90.1	90.2	89.8	90.7	90.6	89.6	88.9	87.8	90.1	92.7	94.9	93.8	93.8	89.8	88.1	84.6	151.3
5000	86.0	87.8	86.8	86.1	90.6	87.8	88.0	85.7	84.1	88.5	91.1	92.8	93.2	94.8	88.9	85.4	82.3	150.3
6300	81.8	83.2	83.6	84.2	86.9	83.3	85.0	82.1	81.5	83.2	86.1	88.0	90.1	91.7	85.1	80.9	77.6	147.5
8000	81.8	81.5	83.1	82.8	83.8	82.7	80.7	81.6	80.1	83.2	86.6	88.7	85.6	85.9	81.6	80.0	76.2	146.7
10000	76.4	77.9	77.7	78.3	82.0	78.1	78.2	76.7	76.0	78.9	82.3	84.1	84.8	84.8	80.7	76.8	72.9	145.6
OASPL MEASURED	98.8	102.4	100.7	102.4	101.6	100.9	100.3	99.9	98.9	101.8	102.6	104.1	104.9	105.7	102.2	98.8	96.9	
OASPL CALCULATED	97.5	101.2	99.3	101.3	100.3	99.5	98.9	98.7	97.6	100.6	101.3	102.7	103.6	104.5	101.3	97.8	95.8	
PNDB	111.0	114.1	112.6	114.2	113.5	113.0	112.2	111.6	111.3	113.4	114.9	116.6	116.8	117.6	113.7	110.9	108.0	
									110.7								OAPWL	150.3

DIRECTIVITY INDEX

FREQ.																
50	-4.4	-4.3	-4.0	-1.1	-3.8	-3.8	-3.7	-2.1	-2.9	0.1	-0.3	1.3	1.1	1.1	2.5	3.4	3.5
63	-3.3	-3.1	-2.9	-1.2	-3.1	-3.1	-1.8	-1.4	-1.3	0.7	0.5	0.9	1.0	0.8	1.3	1.8	2.4
80	-2.9	-3.3	-3.8	-1.6	-3.2	-1.9	-1.5	-0.9	-1.0	0.5	0.5	1.2	1.6	1.5	1.0	-0.4	0.2
100	-3.6	-3.7	-4.4	-2.1	-3.3	-1.2	-1.9	-0.6	0.0	1.4	1.0	1.2	1.1	0.7	0.6	-1.1	-1.8
125	-1.8	-1.4	-2.0	-0.4	-1.9	-1.0	-0.0	0.3	-0.6	0.8	-0.2	0.2	0.6	0.5	0.4	0.3	-2.7
160	0.3	1.0	0.8	1.8	-0.7	-0.4	-0.2	0.7	0.0	0.5	-0.6	-0.0	-0.8	-1.2	-0.3	-0.5	-3.9
200	1.7	2.4	2.4	1.9	-1.1	-1.6	0.7	1.7	1.0	0.1	-0.3	-0.1	-3.0	-3.1	-1.8	-1.8	-2.8
250	0.1	0.2	-0.3	-0.2	-2.5	-3.0	-1.3	-0.1	-1.3	-1.4	-2.5	-1.2	1.5	2.9	2.4	1.6	0.4
315	-3.7	-5.2	-4.5	-2.1	-2.7	-4.8	-4.8	-4.6	-4.3	-0.8	-0.8	-0.5	3.2	4.2	3.7	1.9	-0.4
400	-3.4	-4.0	-3.5	-2.0	-1.5	-3.6	-4.2	-4.4	-3.6	-0.7	0.2	0.5	2.9	4.2	2.9	-0.3	-2.8
500	-1.4	-2.3	-3.0	-0.9	-1.2	-2.7	-2.8	-3.8	-2.5	-0.8	1.0	1.0	2.6	3.8	1.5	-2.3	-5.2
630	-2.1	-1.2	-1.6	-0.3	-1.6	-3.0	-0.7	-3.1	-1.4	-0.9	0.8	1.2	2.9	2.8	0.1	-2.7	-5.6
800	-1.0	-0.8	-0.7	-1.5	-2.0	-3.0	-2.8	-2.8	-2.9	-0.7	1.1	1.7	3.9	2.5	-1.1	-2.2	-3.7
1000	-1.6	-4.4	-0.8	-1.7	-2.1	0.1	-1.2	0.3	-5.4	-1.6	0.3	-0.0	-1.1	4.9	2.2	-2.7	-7.1
1250	0.0	-0.2	1.0	-0.5	-1.1	-0.2	-1.2	-0.7	-4.2	-1.8	0.2	0.5	0.7	4.2	0.8	-3.3	-6.9
1600	-6.8	3.0	-2.8	2.7	-1.0	-3.8	-3.2	-3.4	-3.6	1.0	-0.9	0.9	3.2	2.4	0.9	-4.9	-5.2
2000	-5.3	1.7	-1.7	1.5	-0.7	-2.6	-2.5	-3.2	-3.4	0.1	-0.4	0.6	3.6	2.9	0.3	-4.1	-5.6
2500	-4.3	-3.1	-1.9	-0.8	1.0	0.7	-1.7	-3.0	-2.8	-2.4	-0.1	0.7	2.5	4.5	-1.9	-5.2	-8.0
3150	-3.4	-0.4	-1.5	-0.5	-1.1	-0.6	-3.2	-3.1	-2.2	-0.9	0.2	2.6	2.7	3.3	-2.2	-3.8	-7.2
4000	-3.0	-1.4	-1.3	-1.7	-0.8	-0.9	-1.8	-2.6	-3.7	-1.4	1.2	3.4	2.3	2.3	-1.7	-3.3	-6.8
5000	-4.2	-2.4	-3.4	-4.1	0.4	-2.4	-2.2	-4.5	-6.1	-1.7	0.9	2.6	3.0	4.6	-1.3	-4.8	-7.9
6300	-4.6	-3.2	-2.9	-2.3	0.5	-3.1	-1.4	-4.3	-4.9	-3.2	-0.4	1.6	3.7	5.3	-1.3	-5.5	-8.8
8000	-2.5	-2.8	-1.2	-1.5	-0.5	-1.6	-3.6	-2.7	-4.2	-1.0	2.3	4.4	1.3	1.6	-2.7	-4.3	-8.1
10000	-4.8	-3.3	-3.5	-2.9	0.8	-3.1	-3.0	-4.4	-5.2	-2.3	1.1	2.9	3.7	3.6	-0.5	-4.4	-8.3

C71-1

RUN 7 2600 RPM

 NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 26 HR. 18.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7.Pt.127
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³)... 12.3
(kg/m³)... 0.0123
PHYS. FAN SPEED (RPM).... 2750
(rad/sec) 287.9
CORR. FAN SPEED (RPM).... 2731.6
(rad/sec) 286.0
TAPE NUMBER..... P646

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0° (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	76.4	76.5	77.9	80.1	77.7	78.2	78.6	80.0	80.1	82.0	82.4	82.7	84.0	84.0	85.4	86.4	86.5	139.3
63	80.0	80.5	81.3	81.4	80.0	80.0	81.5	81.9	82.2	83.7	83.8	83.9	84.8	84.7	85.2	85.9	86.5	140.4
80	80.3	80.0	79.5	80.5	80.0	81.6	81.9	82.2	82.9	83.7	83.9	84.0	85.0	84.7	84.3	82.8	83.4	140.3
100	78.9	78.7	78.6	79.6	79.2	81.7	80.9	81.9	83.1	83.7	83.6	83.5	84.1	83.6	83.9	82.0	81.0	139.8
125	79.4	79.4	78.8	79.5	78.4	79.4	80.2	80.8	81.5	82.0	81.1	81.0	82.7	82.2	82.2	81.1	78.7	138.3
160	77.5	77.8	77.6	78.0	75.6	75.8	76.2	76.8	77.4	76.9	76.0	75.9	76.8	76.3	77.9	77.0	73.3	134.0
200	75.6	75.8	75.2	74.3	71.7	71.4	74.0	73.9	74.7	72.5	72.5	71.9	70.8	70.5	72.8	72.5	69.7	130.4
250	73.5	73.5	72.7	72.2	69.8	70.4	71.2	71.5	72.2	71.9	70.0	69.7	74.1	75.3	74.3	72.9	71.7	129.8
315	74.0	73.0	73.4	74.7	74.1	72.7	72.1	72.2	73.6	76.6	76.5	76.1	79.9	80.6	80.0	77.6	75.4	134.3
400	76.8	76.7	77.1	78.8	78.8	77.3	76.6	76.4	77.2	80.1	80.9	81.0	83.2	84.3	82.7	79.7	77.4	138.1
500	78.7	78.6	78.7	80.7	80.3	79.7	79.0	78.2	79.2	80.8	82.0	82.1	84.0	85.0	82.8	79.0	76.3	139.2
630	81.1	79.1	80.0	81.0	79.5	80.5	80.8	79.6	80.2	81.0	82.5	82.9	84.1	84.9	82.0	78.9	76.5	139.7
800	80.1	79.7	80.3	79.6	79.1	78.8	78.4	78.2	79.5	79.8	82.1	82.6	84.5	83.3	80.9	78.6	76.4	139.1
1000	86.8	86.4	87.6	88.3	88.6	88.2	87.8	86.0	84.7	85.8	89.4	87.2	89.1	91.1	85.9	82.7	81.3	146.0
1250	90.2	91.0	92.3	92.4	93.5	93.6	93.4	91.8	89.6	90.7	95.3	92.1	94.9	97.1	91.7	87.4	86.4	151.6
1600	86.6	89.2	89.8	86.9	88.3	86.9	87.3	86.2	86.6	88.3	89.8	90.7	93.0	92.4	88.1	86.8	82.9	147.9
2000	90.6	94.7	96.4	90.3	94.6	92.4	94.0	91.8	92.4	94.9	96.7	96.7	100.2	99.1	95.4	94.9	89.8	154.7
2500	85.7	86.9	89.0	90.2	90.3	89.0	89.2	87.0	87.5	87.7	91.1	90.9	92.4	94.3	87.5	84.7	82.0	149.1
3150	88.9	88.7	91.1	91.4	90.5	90.7	89.5	88.9	90.1	88.9	90.5	91.8	90.7	91.7	86.5	84.5	81.9	149.5
4000	90.8	90.8	92.2	91.2	91.8	91.4	90.5	91.0	91.0	91.6	94.4	96.2	95.3	94.3	91.7	89.4	86.1	152.8
5000	87.6	87.8	87.9	86.5	90.8	88.1	88.6	86.3	85.2	88.4	90.8	92.5	93.1	93.8	88.9	85.4	82.2	150.2
6300	83.3	83.5	84.8	84.6	87.2	83.7	84.2	82.8	83.3	84.0	86.8	88.9	90.4	92.3	86.1	81.3	78.2	148.1
8000	83.1	81.8	84.3	83.1	84.4	83.0	81.5	82.5	82.4	84.1	87.3	89.8	86.0	86.3	82.3	80.5	77.1	147.6
10000	77.9	78.2	78.9	78.6	82.4	78.4	78.9	77.5	78.0	79.8	83.1	85.1	85.1	85.1	81.3	77.1	73.5	146.2
OASPL MEASURED	100.3	101.5	102.8	101.4	102.6	101.8	101.8	100.6	100.7	101.8	104.3	104.6	106.0	106.2	102.3	100.3	97.3	
OASPL CALCULATED	98.7	99.9	101.3	99.9	101.2	100.3	100.4	99.2	99.2	100.4	102.6	103.1	104.6	104.9	100.9	99.1	96.4	
PNDB	112.8	113.5	114.9	113.6	114.4	113.6	113.5	112.9	113.0	114.0	116.3	117.4	118.4	118.3	114.5	112.9	109.2	
																	OAPWL	161.0

DIRECTIVITY INDEX

FREQ.																
50	-6.1	-5.9	-4.5	-2.4	-4.7	-4.3	-3.9	-2.4	-2.4	-0.4	-0.1	0.2	1.5	1.5	2.9	3.9	4.0
63	-3.5	-3.0	-2.2	-2.1	-3.6	-3.5	-2.0	-1.6	-1.3	0.2	0.3	0.4	1.3	1.2	1.7	2.4	3.0
80	-3.0	-3.2	-3.7	-2.8	-3.2	-1.7	-1.3	-1.1	-0.4	0.5	0.6	0.8	1.8	1.5	1.0	-0.4	0.1
100	-3.8	-4.0	-4.1	-3.1	-3.5	-1.0	-1.8	-0.8	0.4	1.0	0.9	0.7	1.4	0.9	1.2	-0.8	-1.7
125	-1.8	-1.8	-2.4	-1.7	-2.8	-1.7	-0.9	-0.4	0.3	0.8	-0.0	-0.1	1.5	1.1	1.0	-0.0	-2.4
160	0.7	1.0	0.8	1.3	-1.2	-1.0	-0.5	-0.0	0.6	0.1	-0.7	-0.9	-0.0	-0.5	1.2	0.3	-3.4
200	2.6	2.8	2.2	1.3	-1.3	-1.5	1.0	0.9	1.7	-0.5	-0.5	-1.1	-2.2	-2.5	-0.2	-0.5	-3.3
250	1.1	1.1	0.4	-0.1	-2.6	-1.9	-1.1	-0.8	-0.1	-0.5	-2.3	-2.7	1.7	2.9	1.9	0.6	-0.7
315	-2.7	-3.7	-3.3	-2.0	-2.6	-4.0	-4.6	-4.5	-3.1	-0.1	-0.2	-0.6	3.2	3.9	3.3	0.9	-1.3
400	-3.6	-3.7	-3.3	-1.6	-1.6	-3.1	-3.8	-4.0	-3.2	-0.3	0.5	0.6	2.6	3.9	2.3	-0.7	-3.0
500	-2.7	-2.9	-2.7	-0.8	-1.1	-1.7	-2.4	-3.2	-2.2	-0.6	0.6	0.7	2.6	3.6	1.4	-2.4	-5.1
630	-0.7	-2.7	-1.8	-0.8	-2.3	-1.2	-1.0	-2.2	-1.5	-0.8	0.8	1.2	2.3	3.1	0.2	-2.8	-5.3
800	-0.9	-1.3	-0.7	-1.4	-1.9	-2.3	-2.7	-2.8	-1.5	-1.2	1.1	1.6	3.5	2.3	-0.1	-2.4	-4.6
1000	-1.0	-1.4	-0.2	0.5	0.8	0.4	-0.0	-1.8	-3.1	-2.0	1.6	-0.6	1.4	3.3	-1.9	-5.1	-6.5
1250	-3.0	-2.2	-0.9	-0.8	0.2	0.4	0.2	-1.5	-3.6	-2.5	2.1	-1.1	1.6	3.8	-1.5	-5.8	-6.8
1600	-2.7	-0.2	0.5	-2.4	-1.0	-2.4	-2.0	-3.1	-2.7	-1.0	0.5	1.3	3.7	3.1	-1.2	-2.6	-6.4
2000	-5.3	-1.2	0.5	-5.6	-1.3	-3.5	-1.9	-4.1	-3.5	-1.0	0.8	0.8	4.3	3.2	-0.5	-1.0	-6.0
2500	-4.3	-3.1	-1.1	0.2	0.3	-1.1	-0.8	-3.0	-2.5	-2.3	1.1	0.8	2.3	4.2	-2.5	-5.4	-8.1
3150	-1.3	-1.4	0.9	1.2	0.4	0.5	-0.7	-1.2	-0.0	-1.3	0.4	1.7	0.5	1.5	-3.7	-5.7	-8.3
4000	-2.1	-2.1	-0.7	-1.7	-1.1	-1.5	-2.4	-1.9	-2.0	-1.3	1.5	3.3	2.4	1.4	-1.3	-3.5	-6.8
5000	-2.4	-2.2	-2.2	-3.5	0.8	-1.9	-1.4	-3.8	-4.8	-1.6	0.8	2.4	3.1	3.8	-1.2	-4.7	-7.9
6300	-3.7	-3.5	-2.3	-2.4	0.2	-3.3	-2.8	-4.2	-3.7	-3.0	-0.3	1.9	3.4	5.3	-0.9	-5.7	-8.8
8000	-2.0	-3.3	-0.8	-2.0	-0.8	-2.1	-3.6	-2.6	-2.7	-1.0	2.2	4.7	0.9	1.2	-2.8	-4.6	-8.0
10000	-3.9	-3.7	-3.0	-3.3	0.6	-3.5	-2.9	-4.3	-3.8	-2.0	1.2	3.3	3.3	3.2	-0.6	-4.7	-8.3

RUN 7 2750 RPM

C72

 NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC, DATE - MONTH 9 DAY 27 HR, 9.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.C.
DATE..... 9/10/68
RUN..... 7,Pt.106
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 64.0
(°K)..... 290.9
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 12.1
(kg/m³).. 0.0121
PHYS. FAN SPEED (RPM).... 2900
(rad/sec) 303.6
CORR. FAN SPEED (RPM).... 2886.1
(rad/sec) 302.2
TAPE NUMBER..... P652

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	78.1	77.6	77.0	77.3	78.5	78.8	79.3	80.9	80.7	82.6	83.4	84.3	84.9	85.0	86.3	88.7	88.2	140.4
63	81.3	81.2	81.0	80.0	80.7	80.8	82.2	82.9	83.1	84.7	85.4	85.8	86.4	86.5	87.1	88.8	89.1	142.0
80	81.9	80.9	80.1	80.1	81.7	82.8	82.8	83.2	83.9	84.5	85.1	85.7	86.5	86.2	85.6	85.1	85.6	141.6
100	80.6	80.1	79.9	80.7	81.3	83.8	82.9	83.8	84.9	85.4	85.3	85.3	85.7	85.4	85.2	83.9	83.1	141.8
125	81.4	81.4	80.2	80.8	80.8	81.5	82.2	82.6	83.3	83.6	82.6	82.6	83.6	83.8	84.2	83.0	79.8	140.0
160	79.3	79.7	79.2	79.6	77.1	77.1	78.2	78.3	78.6	78.2	77.3	78.0	78.5	78.7	79.6	79.5	74.5	135.7
200	77.8	78.1	77.4	76.2	74.1	73.6	75.9	75.3	75.7	73.3	73.4	73.9	72.3	72.9	74.0	75.2	71.7	132.0
250	75.0	75.3	73.6	73.3	72.0	72.6	72.9	73.6	73.5	74.0	72.5	72.9	76.5	78.2	76.8	75.5	73.7	132.0
315	75.5	74.4	74.3	76.5	76.4	75.0	75.1	74.7	75.9	78.7	79.2	78.8	82.5	83.1	82.3	80.2	77.7	136.7
400	78.2	77.7	77.6	80.2	80.5	78.8	78.7	78.3	79.3	81.4	83.0	83.0	85.1	86.1	84.8	81.8	79.1	139.9
500	79.5	79.3	78.7	81.2	81.3	80.3	80.8	79.5	80.8	82.0	83.6	83.9	85.6	86.6	84.3	81.0	78.0	140.6
630	80.8	80.6	80.7	80.0	79.8	80.2	79.5	80.1	81.0	81.6	82.9	83.7	84.7	84.9	82.2	79.8	77.7	140.0
800	80.9	81.0	80.5	80.4	80.5	79.9	79.4	80.1	80.0	82.1	83.6	84.1	84.5	83.3	81.2	80.0	77.7	140.0
1000	85.6	84.3	84.9	86.4	86.2	85.6	86.3	83.3	83.4	85.3	87.4	87.1	88.3	89.7	83.7	81.9	79.5	144.4
1250	90.1	91.9	92.9	94.7	92.5	94.7	98.4	93.2	94.0	96.0	98.4	98.3	100.2	102.2	93.1	89.7	89.7	155.5
1600	87.2	88.7	88.4	86.7	87.5	86.6	87.2	86.3	86.2	86.6	88.6	90.3	91.8	91.4	86.0	83.1	81.0	146.9
2000	91.2	94.3	93.5	91.7	95.0	91.8	97.4	95.0	94.2	94.0	96.7	100.7	103.9	101.8	95.1	92.5	90.3	156.8
2500	86.8	88.0	90.8	89.6	91.2	92.7	91.3	89.7	89.7	89.4	92.5	92.0	94.1	96.3	89.0	86.0	83.7	150.8
3150	89.2	88.7	92.4	94.9	91.7	91.2	89.6	89.8	90.8	89.0	92.0	94.9	92.4	92.0	87.2	85.6	82.8	150.9
4000	92.2	91.8	92.8	92.3	94.1	93.9	93.1	91.9	92.4	93.4	96.0	97.8	98.4	96.1	92.6	91.0	87.4	154.6
5000	88.5	89.0	88.7	87.8	92.7	89.6	90.3	87.0	86.2	89.5	92.1	93.1	94.7	94.8	89.8	86.8	83.3	151.4
6300	84.9	85.2	86.3	86.0	89.7	85.7	86.8	84.5	84.9	86.4	89.0	91.2	93.8	95.1	87.9	83.9	80.7	150.6
8000	84.8	83.5	85.6	84.8	86.8	84.8	84.0	83.8	83.3	85.7	89.1	91.1	88.4	88.3	83.9	82.5	78.7	149.3
10000	79.6	80.0	80.4	80.0	84.9	80.2	81.5	78.8	78.8	81.2	84.8	86.4	87.6	87.3	82.7	79.0	75.0	148.1
OASPL MEASURED	101.1	101.9	102.6	103.0	103.5	103.0	104.7	102.4	102.4	103.2	105.5	107.2	109.1	108.8	102.9	100.7	98.8	
OASPL CALCULATED	99.5	100.3	101.0	101.3	102.0	101.4	103.2	100.8	100.9	101.8	104.2	105.8	107.7	107.4	101.5	99.6	97.9	
PNDB	113.9	114.0	114.8	115.7	116.0	115.4	116.0	114.1	114.4	115.3	117.7	119.3	121.3	120.4	115.0	113.1	110.2	
																	OAPWL	162.9

DIRECTIVITY INDEX

FREQ.																
50	-5.5	-5.9	-6.5	-6.3	-5.1	-4.7	-4.3	-2.7	-2.8	-0.9	-0.2	0.8	1.4	1.5	2.7	5.1	4.6
63	-3.7	-3.9	-4.1	-5.1	-4.3	-4.3	-2.9	-2.2	-1.9	-0.4	0.4	0.7	1.4	1.5	2.1	3.8	4.1
80	-2.7	-3.7	-4.4	-4.5	-2.9	-1.8	-1.7	-1.3	-0.6	-0.0	0.6	1.1	2.0	1.6	1.1	0.5	1.0
100	-3.8	-4.4	-4.6	-3.8	-3.2	-0.7	-1.6	-0.6	0.5	0.9	0.8	0.9	1.3	0.9	0.7	-0.6	-1.3
125	-1.4	-1.4	-2.6	-2.0	-2.0	-1.3	-0.5	-0.2	0.5	0.8	-0.2	-0.2	0.8	1.1	1.4	0.2	-3.0
160	0.9	1.3	0.8	1.1	-1.3	-1.3	-0.2	-0.1	0.2	-0.2	-1.1	-0.4	0.1	0.3	1.2	1.1	-3.9
200	3.1	3.4	2.7	1.6	-0.5	-1.0	1.2	0.7	1.1	-1.4	-1.3	-0.7	-2.4	-1.7	-0.6	0.5	-2.9
250	0.4	0.7	-1.0	-1.3	-2.6	-2.0	-1.7	-0.9	-1.1	-0.6	-2.1	-1.7	1.9	3.6	2.2	0.9	-0.9
315	-3.6	-4.8	-4.7	-2.7	-2.8	-4.1	-4.1	-4.4	-3.2	-0.5	0.1	-0.3	3.4	4.0	3.1	1.0	-1.4
400	-4.0	-4.6	-4.7	-2.0	-1.7	-3.4	-3.5	-3.9	-2.9	-0.8	0.8	0.7	2.8	3.9	2.6	-0.5	-3.1
500	-3.4	-3.5	-4.1	-1.6	-1.5	-2.5	-2.1	-3.3	-2.1	-0.9	0.7	1.0	2.8	3.8	1.4	-1.9	-4.9
630	-1.3	-1.3	-1.4	-2.1	-2.3	-1.9	-2.6	-2.0	-1.1	-0.5	0.8	1.6	2.6	2.9	0.1	-2.3	-4.4
800	-1.1	-0.9	-1.4	-1.5	-1.4	-2.0	-2.5	-1.8	-2.0	0.2	1.6	2.2	2.5	1.3	-0.8	-1.9	-4.2
1000	-0.7	-1.9	-1.3	0.2	0.0	-0.6	0.0	-2.9	-2.9	-0.9	1.1	0.8	2.1	3.5	-2.6	-4.4	-6.7
1250	-7.0	45.3	-4.3	-2.5	-4.7	-2.4	1.3	-4.0	-3.2	-1.2	1.2	1.1	3.1	5.1	-4.1	-7.5	-7.5
1600	-1.2	0.3	0.1	-1.7	-0.9	-1.8	-1.1	-2.1	-2.1	-1.8	0.3	1.9	3.4	3.1	-2.3	-5.3	-7.4
2000	-6.8	-3.7	-4.6	-6.3	-3.0	-6.2	-0.6	-3.0	-3.8	-4.0	-1.3	2.7	5.8	3.8	-2.9	-5.5	-7.7
2500	-5.0	-3.8	-1.0	-2.2	-0.7	0.9	-0.5	-2.1	-2.1	-2.4	0.7	0.2	2.3	4.5	-2.8	-5.8	-8.1
3150	-2.3	-2.8	0.9	3.4	0.1	-0.4	-1.9	-1.8	-0.7	-2.6	0.5	3.4	0.9	0.4	-4.4	-6.0	-8.7
4000	-2.5	-2.9	-2.0	-2.5	-0.7	-0.8	-1.7	-2.9	-2.4	-1.3	1.2	3.0	3.6	1.3	-2.2	-3.8	-7.4
5000	-2.8	-2.3	-2.5	-3.5	1.4	-1.6	-0.9	-4.2	-5.0	-1.7	0.9	1.9	3.5	3.6	-1.5	-4.5	-8.0
6300	-4.6	-4.3	-3.3	-3.5	0.2	-3.8	-2.8	-5.0	-4.6	-3.2	-0.5	1.6	4.3	5.6	-1.6	-5.7	-8.9
8000	-2.0	-3.3	-1.2	-2.0	0.0	-2.0	-2.8	-3.0	-3.5	-1.1	2.3	4.3	1.6	1.5	-2.9	-4.3	-8.1
10000	-4.1	-3.7	-3.3	-3.6	1.2	-3.5	-2.2	-4.9	-4.9	-2.5	1.1	2.7	3.9	3.6	-0.9	-4.6	-8.7

RUN 7 2900 RPM

C73

 NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 26 HR. 18.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7,Pt.128
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT .....(°F)..... 66.0
(°K)..... 292.0
. WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 12.3
(kg/m³).. 0.0123
PHYS. FAN SPEED (RPM).... 2900
(rad/sec) 303.6
CORR. FAN SPEED (RPM).... 2880.6
(rad/sec) 301.6
TAPE NUMBER..... P645

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0° (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	77.6	77.3	78.0	78.6	78.8	79.6	79.5	81.2	80.8	82.9	85.5	84.1	84.9	85.5	87.1	88.0	88.4	140.6
63	81.1	81.3	81.2	80.8	80.7	81.1	82.0	82.7	83.0	84.6	85.2	85.5	86.2	86.5	87.3	87.6	88.6	141.8
80	81.3	80.5	79.9	80.1	80.9	82.5	82.7	82.9	83.7	84.4	85.0	85.3	86.1	86.2	86.4	84.9	85.9	141.4
100	80.6	80.0	79.7	80.2	80.3	83.0	82.4	83.4	84.6	85.1	84.9	84.6	85.3	85.4	86.0	84.1	84.1	141.3
125	80.9	80.7	79.4	80.3	79.7	80.9	81.5	82.3	82.7	83.3	82.6	82.6	83.5	83.9	84.6	83.0	82.0	139.8
160	78.5	78.8	78.1	78.2	75.6	76.1	76.7	77.4	78.2	78.1	77.3	77.6	78.0	78.4	80.3	79.7	77.1	135.5
200	77.1	77.0	75.8	74.4	72.1	72.1	74.3	74.9	75.6	73.5	73.9	73.5	71.7	73.1	75.8	75.7	73.7	131.7
250	75.7	75.0	73.5	73.9	71.5	72.0	71.9	73.0	74.2	73.9	73.6	73.5	76.6	78.1	77.7	75.0	73.8	132.2
315	76.4	75.8	75.9	77.5	77.0	75.8	74.3	75.0	76.8	78.8	79.6	79.1	82.1	83.0	82.3	79.6	77.3	136.8
400	78.8	79.1	79.2	80.8	80.8	79.4	78.7	79.0	79.6	82.0	82.9	83.1	84.8	86.2	84.7	81.7	79.3	140.0
500	80.0	80.3	80.1	81.3	81.2	80.2	80.4	79.6	80.6	82.5	83.8	83.7	85.5	86.8	84.5	81.5	78.5	140.7
630	80.9	80.7	80.9	80.0	79.9	80.0	79.9	80.0	81.3	82.6	83.0	82.9	84.8	85.6	83.3	81.0	78.5	140.3
800	82.1	81.7	81.1	81.5	81.9	80.4	79.7	80.4	81.1	82.8	83.6	83.5	85.4	84.3	82.5	80.4	78.5	140.6
1000	86.2	85.8	87.2	87.3	87.1	86.2	85.2	85.0	85.2	85.8	87.6	86.4	88.8	89.3	84.8	82.5	80.3	144.8
1250	92.1	92.6	94.1	94.2	96.6	95.2	95.4	96.5	96.2	95.3	97.5	95.0	100.4	100.4	95.5	91.4	89.3	155.1
1600	88.0	89.6	89.2	86.7	87.4	86.7	85.8	86.0	85.9	87.7	89.3	89.3	91.4	92.1	86.8	83.8	81.5	147.0
2000	92.2	95.1	93.8	92.0	93.0	93.7	94.2	94.5	93.8	96.3	100.7	98.3	101.5	102.6	95.5	92.9	90.4	156.5
2500	86.8	88.4	91.9	90.2	91.5	91.7	90.9	89.0	88.8	90.0	91.2	91.0	94.0	95.9	89.3	86.6	83.7	150.5
3150	89.2	88.6	92.8	93.2	90.9	91.3	89.5	90.1	89.9	89.8	92.1	92.8	92.1	92.1	87.9	86.1	83.6	150.4
4000	91.9	92.0	93.3	92.3	93.3	93.1	92.0	92.5	91.0	93.9	95.5	96.8	97.8	96.3	92.9	91.3	87.9	154.3
5000	88.1	88.8	89.0	87.5	91.8	89.5	89.3	87.5	85.7	90.2	91.6	92.2	94.4	94.9	90.0	87.1	83.8	151.1
6300	84.2	84.9	86.3	85.7	88.5	85.1	85.5	84.7	84.5	86.7	88.2	89.7	93.0	94.8	87.6	84.0	80.8	150.0
8000	84.0	83.1	85.6	84.3	85.4	84.2	82.7	83.9	82.9	86.1	88.4	89.4	87.6	88.0	83.9	82.4	78.9	148.5
10000	78.7	79.4	80.2	79.6	83.2	79.6	79.9	78.9	78.7	81.6	83.9	84.7	86.7	87.1	82.6	79.1	75.3	147.3
OASPL MEASURED	101.7	102.4	103.4	102.5	103.6	103.1	102.8	103.0	102.7	103.9	106.3	105.7	108.2	108.6	103.7	101.2	99.0	
OASPL CALCULATED	99.8	100.7	101.7	101.0	102.1	101.5	101.2	101.5	101.1	102.4	104.9	104.1	106.7	107.2	102.2	99.9	98.1	
PNDB	113.9	114.3	115.4	114.9	115.5	115.0	114.3	114.5	113.7	115.9	118.5	118.1	119.9	120.7	115.5	113.4	110.6	
																	OAPWL	162.6

DIRECTIVITY INDEX

FREQ.																	
50	-6.1	-6.4	-5.7	-5.2	-4.9	-4.1	-4.2	-2.6	-2.9	-0.8	-0.2	0.4	1.2	1.8	3.4	4.3	4.7
63	-3.8	-3.6	-3.6	-4.1	-4.2	-3.7	-2.8	-2.2	-1.9	-0.3	0.3	0.7	1.4	1.7	2.5	2.7	3.8
80	-3.1	-3.9	-4.6	-4.4	-3.6	-1.9	-1.8	-1.5	-0.7	0.0	0.6	0.9	1.7	1.7	2.0	0.4	1.4
100	-3.6	-4.2	-4.5	-4.0	-3.9	-1.3	-1.8	-0.8	0.4	0.9	0.6	0.4	1.1	1.2	1.8	-0.1	-0.1
125	-1.7	-1.9	-3.2	-2.3	-2.9	-1.7	-1.1	-0.3	0.0	0.7	-0.1	-0.1	0.9	1.3	2.0	0.4	-0.7
160	0.5	0.8	0.1	0.2	-2.4	-1.9	-1.3	-0.6	0.2	0.1	-0.7	-0.4	-0.1	0.4	2.3	1.7	-0.9
200	2.8	2.7	1.5	0.1	-2.2	-2.2	-0.0	0.6	1.3	-0.8	-0.4	-0.8	-2.5	-1.2	1.5	1.4	-0.6
250	1.0	0.3	-1.2	-0.8	-3.2	-2.7	-2.8	-1.7	-0.5	-0.8	-1.1	-1.2	1.9	3.4	3.0	0.3	-0.9
315	-2.8	-3.4	-3.3	-1.7	-2.2	-3.4	-4.9	-4.2	-2.8	-0.4	0.4	-0.1	2.9	3.8	3.1	0.3	-2.0
400	-3.6	-3.2	-3.1	-1.6	-1.6	-3.0	-3.6	-3.4	-2.8	-0.4	0.5	0.8	2.5	3.8	2.4	-0.7	-3.1
500	-3.0	-2.7	-2.8	-1.6	-1.8	-2.7	-2.5	-3.3	-2.3	-0.4	0.8	0.8	2.5	3.8	1.6	-1.4	-4.5
630	-1.4	-1.7	-1.4	-2.3	-2.4	-2.3	-2.5	-2.3	-1.1	0.2	0.7	0.5	2.4	3.3	0.9	-1.4	-3.9
800	-0.4	-0.8	-1.4	-1.0	-0.6	-2.1	-2.8	-2.1	-1.5	0.3	1.0	1.0	2.8	1.8	-0.1	-2.1	-4.0
1000	-0.5	-0.8	0.6	0.6	0.5	-0.4	-1.4	-1.6	-1.5	-0.9	1.0	-0.3	2.2	2.7	-1.8	-4.1	-6.4
1250	-4.7	-4.2	-2.6	-2.6	-0.1	-1.5	-1.4	-0.3	-0.6	-1.5	0.7	-1.8	3.6	3.6	-1.3	-5.4	-7.5
1600	-0.4	1.2	0.8	-1.7	-1.0	-1.7	-2.6	-2.4	-2.5	-0.7	0.8	0.9	3.0	3.7	-1.6	-4.6	-6.9
2000	-5.5	-2.6	-3.9	-5.7	-4.7	-4.0	-3.5	-3.2	-3.9	-1.4	3.0	0.6	3.8	4.8	-2.2	-4.8	-7.3
2500	-4.7	-3.0	0.5	-1.2	0.1	0.2	-0.5	-2.4	-2.6	-1.4	-0.2	-0.5	2.6	4.5	-2.2	-4.8	-7.7
3150	-1.9	-2.5	1.7	2.1	-0.1	0.2	-1.5	-1.0	-1.2	-1.2	1.0	1.7	1.0	1.0	-3.2	-5.0	-7.5
4000	-2.5	-2.4	-1.1	-2.1	-1.1	-1.3	-2.4	-1.9	-3.5	-0.5	1.1	2.4	3.4	1.9	-1.5	-3.1	-6.5
5000	-2.9	-2.2	-2.0	-3.5	0.8	-1.5	-1.6	-3.5	-5.3	-0.8	0.6	1.3	3.4	3.9	-1.0	-3.9	-7.2
6300	-4.7	-4.1	-2.7	-3.2	-0.5	-3.9	-3.4	-4.2	-4.5	-2.2	-0.7	0.8	4.1	5.9	-1.3	-4.9	-8.2
8000	-2.1	-3.0	-0.5	-1.8	-0.7	-1.9	-3.4	-2.2	-3.2	0.0	2.3	3.3	1.5	1.9	-2.2	-3.7	-7.1
10000	-4.2	-3.5	-2.8	-3.4	0.3	-3.3	-3.1	-4.0	-4.3	-1.3	1.0	1.7	3.8	4.1	-0.4	-3.8	-7.6

C74

RUN 7 2900 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9'10'68
RUN..... 7.Pt.107
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 62.0
(°K)..... 289.8
ABS. HUMIDITY...(gm/m3).. 13.0
(kg/m3).. 0.0130
PHYS. FAN SPEED(RPM).... 3050
(rad/sec) 319.3
CORR. FAN SPEED(RPM).... 3029.6
(rad/sec) 317.2
TAPE NUMBER..... P652

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0, (0°)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50,0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90,0 (1.57)	100,0 (1.74)	110,0 (1.92)	120,0 (2.09)	130,0 (2.27)	140,0 (2.44)	150,0 (2.62)	160,0 (2.79)	
50	76,5	76,7	77,5	78,0	79,4	79,9	80,2	81,8	81,6	83,6	84,3	85,2	86,4	86,5	87,8	90,1	89,9	141,7
63	81,1	81,5	81,6	81,1	81,2	81,4	82,9	83,9	84,0	85,6	86,9	87,3	88,1	88,5	88,5	90,1	90,5	143,3
80	81,8	81,2	80,5	80,8	81,7	83,0	83,0	84,0	84,5	85,4	86,0	86,6	87,8	87,3	87,7	87,5	88,0	142,7
100	81,3	80,9	80,8	81,7	82,3	84,7	83,8	85,0	85,9	86,3	86,0	86,1	87,0	86,5	86,9	85,6	85,2	142,7
125	82,0	81,8	80,3	82,0	81,9	82,5	83,0	83,3	83,9	84,3	83,9	84,1	85,0	85,5	85,6	84,9	82,4	141,2
160	80,2	80,4	79,8	80,3	78,1	78,1	78,8	79,3	79,9	79,2	78,5	79,1	81,0	80,9	81,6	81,0	76,9	137,1
200	78,8	79,3	78,2	77,1	75,1	74,8	76,6	76,6	77,0	74,3	76,1	75,6	75,7	75,6	76,2	76,8	73,5	133,6
250	75,5	76,1	74,8	74,0	72,3	73,5	74,1	74,5	74,6	75,2	74,0	74,3	77,2	78,2	77,1	76,6	75,1	132,9
315	76,0	75,0	73,4	76,9	76,7	75,7	75,2	76,0	77,3	80,4	80,7	80,3	83,8	84,3	83,1	81,2	79,5	137,9
400	78,3	78,8	78,9	80,8	81,1	79,8	79,5	79,7	81,0	82,8	84,1	84,1	86,3	87,4	85,8	83,3	80,9	141,1
500	80,0	79,8	79,8	82,0	81,9	80,8	81,0	80,9	82,3	83,4	84,8	84,7	86,5	87,6	85,6	83,0	80,0	141,7
630	80,6	80,5	81,1	81,5	80,8	81,2	81,2	81,2	82,4	82,9	84,0	84,4	85,8	86,2	83,9	81,7	79,4	141,2
800	80,4	79,9	80,2	80,6	80,4	80,1	79,9	80,8	81,3	82,8	84,0	83,2	84,4	83,5	81,7	80,7	78,9	140,2
1000	84,8	83,9	85,3	86,2	86,0	85,5	85,1	84,7	84,6	87,1	88,1	87,0	88,9	88,2	84,2	83,0	81,2	144,7
1250	92,6	92,3	94,6	91,9	93,7	95,2	98,7	97,8	99,1	99,3	93,6	94,2	107,1	100,3	99,3	92,0	93,5	157,9
1600	85,0	87,6	87,7	86,5	87,0	87,0	87,2	87,4	87,4	87,8	88,5	89,2	92,3	91,4	87,3	84,3	82,3	147,2
2000	90,3	95,4	94,4	93,4	94,4	93,1	94,3	90,7	92,9	92,5	99,4	98,8	99,1	102,0	93,3	91,7	90,0	155,4
2500	86,9	88,6	91,6	90,1	91,6	90,7	92,1	90,5	90,6	90,6	93,0	92,2	94,4	96,5	89,8	87,1	84,4	151,2
3150	88,9	88,5	91,9	92,7	89,7	90,7	89,3	91,4	91,7	90,5	91,7	93,8	92,3	93,2	87,9	86,2	83,7	150,8
4000	92,5	92,9	93,6	92,9	93,1	93,1	92,3	92,9	92,5	94,5	97,9	98,2	98,4	96,4	92,4	91,1	88,1	155,1
5000	88,2	89,5	89,4	88,6	92,8	90,2	90,9	88,8	87,6	90,9	93,2	94,2	95,3	95,5	90,6	87,9	84,7	152,3
6300	84,4	85,7	86,8	86,7	89,2	86,3	87,5	86,5	86,5	87,7	90,9	92,0	93,6	96,1	88,3	84,3	81,2	151,3
8000	84,1	84,0	86,2	85,4	86,2	85,5	84,5	85,4	84,8	87,3	90,2	91,6	88,7	88,6	84,5	83,3	79,7	150,0
10000	78,6	80,1	80,7	80,6	84,0	80,9	81,8	80,2	80,4	82,6	86,0	86,9	88,0	87,7	83,4	79,8	76,3	148,7
OASPL MEASURED	101,2	102,6	103,4	102,6	103,3	103,1	104,2	103,4	104,2	104,6	106,2	106,5	110,5	108,7	104,5	101,6	100,5	
OASPL CALCULATED	99,6	100,9	101,7	101,0	101,8	101,5	102,8	102,0	102,8	103,4	104,7	105,0	109,3	107,3	103,3	100,5	99,6	
PNDB	113,9	114,7	115,5	115,0	115,5	115,1	115,1	115,1	115,1	116,5	119,0	119,4	126,5	120,7	115,6	113,7	111,2	
																	OAPWL	163,5

DIRECTIVITY INDEX

FREQ.																
50	-8,3	-8,1	-7,3	-6,9	-5,4	-5,0	-4,6	-3,0	-3,2	-1,2	-0,5	0,4	1,6	1,7	3,0	5,3	5,0
63	-5,2	-4,9	-4,8	-5,3	-5,2	-5,0	-3,5	-2,5	-2,4	-0,8	0,5	0,9	1,7	2,1	2,1	3,7	4,1
80	-3,9	-4,4	-5,1	-4,9	-3,9	-2,7	-2,6	-1,6	-1,1	-0,2	0,3	1,0	2,1	1,7	2,0	1,8	2,3
100	-4,2	-4,6	-4,8	-3,8	-3,2	-0,8	-1,7	-0,6	0,3	0,7	0,4	0,5	1,5	0,9	1,3	0,1	-0,4
125	-2,0	-2,1	-3,6	-2,0	-2,0	-1,5	-0,9	-0,7	-0,0	0,3	-0,1	0,1	1,0	1,5	1,7	0,9	-1,6
160	0,4	0,6	0,0	0,5	-1,6	-1,6	-1,0	-0,4	0,1	-0,6	-1,3	-0,6	1,2	1,2	1,8	1,2	-2,9
200	2,6	3,1	2,0	0,9	-1,1	-1,4	0,4	0,3	0,8	-2,0	-0,1	-0,6	-0,5	-0,6	-0,1	0,6	-2,7
250	0,1	0,7	-0,6	-1,4	-3,1	-1,9	-1,3	-0,9	-0,8	-0,2	-1,4	-1,1	1,8	2,8	1,7	1,2	-0,3
315	-4,4	-5,3	-4,9	-3,5	-3,6	-4,7	-5,1	-4,4	-3,0	0,1	0,4	-0,0	3,4	4,0	2,7	0,8	-0,8
400	-5,1	-6,6	-4,5	-2,6	-2,3	-3,6	-4,0	-3,8	-2,5	-0,7	0,7	0,7	2,9	4,0	2,4	-0,1	-2,5
500	-3,9	-4,1	-4,2	-1,9	-2,0	-3,1	-2,9	-3,1	-1,6	-0,6	0,9	0,8	2,6	3,7	1,7	-1,0	-3,9
630	-2,7	-2,8	-2,2	-1,8	-2,5	-2,1	-2,1	-2,1	-0,9	-0,4	0,7	1,2	2,5	2,9	0,6	-1,6	-3,9
800	-1,8	-2,3	-2,0	-1,6	-1,8	-2,1	-2,3	-1,4	-0,9	0,6	1,8	1,0	2,2	1,3	-0,5	-1,5	-3,3
1000	-1,6	-2,6	-1,1	-0,3	-0,5	-1,0	-1,3	-1,8	-1,8	0,6	1,7	0,6	2,5	1,7	-2,2	-3,5	-5,3
1250	-6,9	-7,2	-5,0	-7,6	-5,8	-4,3	-0,8	-1,7	-0,4	-0,3	-6,0	-5,3	7,5	0,7	-0,2	-7,5	-6,1
1600	-3,6	-1,0	-0,9	-2,1	-1,6	-1,6	-1,4	-1,2	-1,2	-0,8	-0,1	0,6	3,7	2,8	-1,2	-4,3	-6,3
2000	-6,3	-1,2	-2,2	-3,3	-2,2	-3,6	-2,3	-5,9	-3,8	-4,1	2,8	2,1	2,5	5,4	-3,3	-4,9	-6,6
2500	-5,2	-3,6	-0,5	-2,0	-0,6	-1,4	-0,0	-1,6	-1,6	-1,6	0,8	0,0	2,3	4,4	-2,3	-5,1	-7,7
3150	-2,5	-2,9	0,5	1,3	-1,7	-0,7	-2,1	0,0	0,3	-1,0	0,3	2,4	0,9	1,8	-3,5	-5,2	-7,7
4000	-2,7	-2,3	-1,6	-2,3	-2,1	-2,1	-2,9	-2,3	-2,7	-0,7	2,7	3,0	3,2	1,2	-2,8	-4,1	-7,1
5000	-3,9	-2,6	-2,7	-3,5	0,7	-1,9	-1,2	-3,3	-4,5	-1,2	1,1	2,1	3,2	3,4	-1,5	-4,2	-7,4
6300	-5,8	-4,6	-3,5	-3,5	-1,0	-4,0	-2,8	-3,8	-3,7	-2,5	0,6	1,7	3,3	5,8	-2,0	-6,0	-9,1
8000	-3,5	-3,6	-1,4	-2,2	-1,4	-2,0	-3,0	-2,1	-2,7	-0,2	2,7	4,0	1,2	1,1	-3,0	-4,2	-7,8
10000	-5,7	-4,2	-3,5	-3,7	-0,3	-3,4	-2,4	-4,0	-3,9	-1,7	1,7	2,6	3,7	3,4	-0,9	-4,4	-8,0

RUN 7 3050 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC, DATE - MONTH 9 DAY 27 HR, 9.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7.Pt.115
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 3050
(rad/sec) 319.3
CORR. FAN SPEED (RPM).... 3029.6
(rad/sec) 317.2
TAPE NUMBER..... P649

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.07)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	84.8	80.7	81.5	79.9	79.8	80.0	80.1	85.4	84.1	86.1	84.7	88.8	86.9	87.0	88.5	89.7	89.8	142.9
63	86.5	84.1	84.5	82.1	81.7	81.7	82.8	87.4	86.5	87.3	87.4	90.4	88.5	88.8	89.1	89.7	90.3	144.4
80	87.0	84.1	82.7	81.9	82.5	83.3	83.8	86.7	86.3	86.7	86.5	89.1	88.2	88.0	88.2	87.2	88.1	143.7
100	87.8	84.2	83.1	82.7	82.9	85.0	84.2	86.9	87.2	87.5	86.6	88.1	87.6	87.3	87.4	86.0	85.1	143.7
125	87.7	85.3	83.9	83.5	83.4	83.5	84.6	85.7	86.1	86.0	84.5	86.7	86.4	85.9	85.8	85.3	82.8	142.6
160	84.8	82.4	81.9	81.8	79.6	78.7	79.9	81.7	82.0	81.5	79.4	83.0	81.1	80.8	81.8	81.5	77.5	138.5
200	83.1	81.9	80.7	79.2	76.5	76.4	77.9	79.7	79.6	77.3	77.4	80.3	78.6	78.3	77.1	77.3	74.9	135.7
250	80.6	79.3	77.6	76.1	74.0	75.0	75.5	77.9	77.1	77.0	76.1	79.1	78.7	80.2	79.6	78.4	77.0	135.2
315	78.9	77.2	76.5	77.4	76.9	75.6	75.1	77.5	77.7	80.9	81.5	82.9	84.4	85.2	84.8	82.5	80.4	138.9
400	79.3	78.2	79.0	80.9	81.3	78.8	78.1	79.3	80.4	83.3	84.3	85.5	86.6	87.6	86.7	83.9	81.3	141.4
500	80.7	79.8	79.9	82.2	82.3	80.3	80.3	80.3	82.1	83.3	84.8	85.7	86.3	87.4	85.8	82.8	79.9	141.7
630	82.7	82.0	81.7	82.1	81.8	80.9	81.5	81.0	82.6	82.8	83.9	85.2	84.3	85.4	83.7	81.6	79.3	141.1
800	82.5	82.2	82.6	82.0	80.8	80.5	80.3	80.9	82.1	83.1	84.5	85.5	85.7	86.0	83.1	81.2	79.0	141.4
1000	84.5	84.0	85.1	86.4	86.1	84.7	84.4	83.9	85.0	86.4	88.1	88.0	89.6	89.0	85.1	83.7	80.5	144.8
1250	92.9	93.6	96.0	94.8	94.9	96.8	97.5	97.3	97.2	95.7	97.3	95.4	106.8	100.8	97.3	95.3	91.5	157.6 ✓
1600	87.0	88.9	88.6	87.2	87.4	87.0	86.9	87.0	87.5	87.6	89.3	90.7	93.0	91.9	88.0	85.2	82.2	147.7
2000	94.8	97.1	96.4	95.0	94.3	93.1	93.8	93.6	93.6	94.6	99.7	101.4	101.1	102.5	95.6	91.7	90.7	156.7 ✓
2500	88.1	89.4	91.5	90.8	91.0	91.0	92.3	90.2	91.1	91.1	93.7	93.7	95.4	96.8	90.7	87.7	84.7	151.7
3150	90.5	89.6	93.4	92.8	90.5	91.6	90.0	91.1	92.4	91.3	93.0	94.5	92.5	93.1	88.4	86.5	83.8	151.3
4000	93.6	93.7	94.7	92.8	93.3	93.4	92.9	93.2	93.5	94.7	98.3	98.8	98.8	96.3	93.0	91.4	88.3	155.5
5000	89.5	90.7	90.5	88.8	92.9	90.9	91.1	89.1	88.4	91.6	94.3	95.1	96.1	95.9	91.3	88.4	84.9	152.9
6300	85.7	86.8	87.5	86.6	89.6	87.2	88.0	86.9	87.4	88.4	91.5	92.5	94.3	95.9	89.0	84.7	81.4	151.7
8000	85.5	84.8	87.1	85.5	86.2	86.3	84.4	86.0	85.6	87.9	91.0	92.5	89.1	89.1	85.0	83.7	79.8	150.6
10000	80.3	81.3	81.5	80.4	84.4	81.8	82.1	81.0	81.1	83.2	86.7	87.9	88.4	87.9	83.9	80.2	76.3	149.2
OASPL MEASURED	103.9	104.2	104.6	103.9	103.7	103.9	104.2	104.2	104.3	104.5	107.2	108.7	110.9	109.1	104.8	102.6	100.4	
OASPL CALCULATED	101.8	102.3	102.9	101.9	102.1	102.2	102.5	102.5	102.6	102.9	105.6	106.5	109.5	107.6	103.3	101.3	99.3	
FNDB	115.7	115.9	116.3	115.4	115.8	115.5	115.4	115.6	115.9	116.8	119.7	120.4	121.0	121.1	116.2	114.2	111.4	
																	OAPWL	164.0

DIRECTIVITY INDEX

FREQ.																
50	-1.2	-5.3	-4.5	-6.1	-6.2	-6.0	-5.9	-0.6	-1.9	0.0	-1.3	2.8	0.8	1.0	2.5	3.6	3.7
63	-1.0	-3.4	-3.0	-5.4	-5.8	-5.8	-4.7	-0.1	-1.1	-0.2	-0.1	2.9	0.9	1.3	1.6	2.1	2.8
80	0.3	-2.6	-4.0	-4.8	-4.3	-3.4	-3.0	-0.0	-0.5	-0.0	-0.2	2.3	1.5	1.2	1.5	0.5	1.4
100	1.2	-2.3	-3.5	-3.8	-3.7	-1.5	-2.3	0.3	0.6	0.9	0.0	1.5	1.0	0.8	0.9	-0.5	-1.4
125	2.3	-0.1	-1.5	-1.9	-2.0	-1.9	-0.8	0.3	0.6	0.6	-1.0	1.2	1.0	0.5	0.3	-0.2	-2.6
160	3.6	1.2	0.7	0.6	-1.7	-2.5	-1.3	0.4	0.8	0.3	-1.8	1.7	-0.2	-0.5	0.6	0.3	-3.8
200	4.8	3.6	2.3	0.8	-1.8	-1.9	-0.5	1.3	1.2	-1.0	-1.0	1.9	-1.8	-2.1	-1.3	-1.0	-3.5
250	2.8	1.5	-0.2	-1.7	-3.8	-2.8	-2.3	0.1	-0.7	-0.8	-1.7	1.4	0.9	2.4	1.8	0.6	-0.7
315	-2.5	-4.2	-4.9	-3.9	-4.5	-5.8	-6.3	-3.9	-3.7	-0.4	0.1	1.5	3.1	3.8	3.4	1.2	-1.0
400	-4.4	-5.5	-4.7	-2.8	-2.5	-4.9	-5.7	-4.4	-3.3	-0.4	0.5	1.7	2.8	3.8	2.9	0.2	-2.5
500	-3.2	-4.1	-4.0	-1.7	-1.6	-3.6	-3.6	-3.6	-1.8	-0.6	0.9	1.8	2.4	3.5	1.9	-1.1	-4.0
630	-0.5	-1.2	-1.4	-1.0	-1.3	-2.3	-1.7	-2.1	-0.6	-0.3	0.7	2.1	1.2	2.2	0.5	-1.6	-3.9
800	-0.8	-1.1	-0.7	-1.4	-2.8	-2.8	-3.1	-2.4	-1.2	-0.3	1.2	2.1	2.4	2.6	-0.2	-2.1	-4.3
1000	-2.1	-2.6	-1.5	-0.2	-0.6	-1.9	-2.2	-2.7	-1.6	-0.2	1.4	1.4	2.9	2.3	-1.5	-2.9	-6.1
1250	-6.4	-5.6	-3.2	-4.5	-4.3	-2.5	-1.7	-1.9	-2.1	-3.5	-2.0	-3.8	7.5	1.5	-2.0	-3.9	-7.7
1600	-2.1	-0.2	-0.4	-1.9	-1.7	-2.1	-2.2	-2.1	-1.6	-1.5	0.2	1.6	3.9	2.9	-1.1	-3.9	-6.9
2000	-3.1	-0.8	-1.4	-2.9	-3.6	-4.8	-4.0	-4.3	-4.3	-3.2	1.8	3.5	3.2	4.7	-2.3	-6.2	-7.2
2500	-4.6	-3.3	-1.2	-1.9	-1.7	-1.6	-0.4	-2.5	-1.6	-1.6	1.0	1.0	2.7	4.1	-2.0	-5.0	-8.0
3150	-1.5	-2.4	1.1	0.9	-1.5	-0.4	-1.9	-0.9	0.4	-0.6	1.0	2.5	0.5	1.2	-3.6	-5.5	-8.2
4000	-2.0	-1.9	-1.6	-2.8	-2.3	-2.2	-2.7	-2.4	-2.1	-0.9	2.7	3.2	3.2	0.7	-2.6	-4.2	-7.4
5000	-3.2	-2.1	-2.4	-4.0	0.1	-1.9	-1.6	-3.7	-4.3	-1.2	1.5	2.4	3.3	3.1	-1.4	-4.3	-7.8
6300	-4.9	-3.9	-3.2	-4.1	-1.1	-3.5	-2.7	-3.8	-3.3	-2.3	0.9	1.8	3.6	5.3	-1.7	-5.9	-9.2
8000	-2.6	-3.3	-1.1	-2.7	-1.9	-1.8	-3.7	-2.2	-2.5	-0.3	2.8	4.3	0.9	1.0	-3.2	-4.4	-8.3
10000	-4.5	-3.6	-3.4	-4.5	-0.5	-3.1	-2.7	-3.9	-3.7	-1.7	1.9	3.0	3.6	3.1	-0.9	-4.6	-8.5

RUN 7 3050 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7, Pt.108
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 62.0
(°K)..... 289.8
ABS. HUMIDITY...(gm/m³)... 13.0
(kg/m³)... 0.0130
PHYS. FAN SPEED (RPM)... 3200
(rad/sec) 335.0
CORR. FAN SPEED (RPM)... 3178.6
(rad/sec) 332.8
TAPE NUMBER..... P651

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	77.2	77.9	80.8	85.0	80.5	83.5	81.3	82.5	82.4	84.7	85.2	87.0	87.9	88.0	89.2	90.6	91.3	143.0
63	81.9	82.4	83.2	86.4	82.2	84.9	83.7	84.5	84.8	86.6	87.4	88.5	89.0	89.7	90.2	91.3	92.7	144.6
80	83.3	82.9	82.3	85.3	83.2	85.7	85.0	85.4	86.2	87.0	87.4	88.7	89.6	89.4	89.9	89.2	90.2	144.6
100	83.3	82.8	82.9	84.8	84.3	87.1	85.7	86.4	87.3	88.0	87.7	88.3	88.8	88.4	88.9	87.4	87.7	144.5
125	84.0	83.3	82.2	85.0	84.0	84.7	84.9	85.0	85.7	86.1	85.9	86.2	86.8	86.5	87.0	86.3	84.3	143.0
160	82.3	82.4	82.3	83.4	80.8	81.1	81.1	81.5	81.9	81.8	81.2	82.2	82.7	82.6	83.6	82.8	78.9	139.4
200	80.8	81.0	80.7	80.1	77.9	78.7	79.1	78.9	78.4	77.7	78.0	78.7	77.2	76.3	77.8	77.9	74.9	135.9
250	76.6	77.5	76.6	76.7	75.5	8.0	77.5	77.5	76.6	75.9	74.9	76.2	78.6	80.2	79.6	78.8	77.5	135.1
315	76.8	76.0	76.0	77.8	76.9	76.8	77.0	76.7	77.4	80.8	80.7	81.7	85.4	85.7	85.4	83.6	81.5	139.2
400	79.2	79.0	79.6	81.5	81.5	79.9	79.7	79.7	80.9	83.8	84.9	85.5	87.7	89.1	88.0	85.5	82.9	142.4
500	81.3	80.6	80.8	83.1	82.9	81.7	81.9	81.3	83.1	84.7	86.5	86.6	88.4	89.3	87.3	84.6	81.9	143.2
630	81.9	81.7	82.2	83.2	83.3	83.4	83.0	82.1	83.7	85.0	86.1	86.6	87.6	87.9	85.6	83.5	81.0	143.0
800	82.6	81.4	82.4	83.0	82.3	83.2	82.2	82.2	83.2	85.1	84.9	85.3	85.4	85.1	83.5	82.2	80.5	142.0
1000	84.7	84.1	85.3	86.0	85.7	84.8	85.1	84.1	84.5	86.8	87.6	87.6	88.4	88.1	85.2	84.1	81.4	144.5
1250	92.4	94.4	96.3	96.4	97.7	99.6	100.0	100.2	98.0	98.5	102.8	103.2	105.8	103.0	100.8	93.5	96.9	159.5/
1600	87.4	89.1	90.0	89.4	90.3	91.0	91.1	91.0	89.6	90.5	93.4	94.3	96.1	94.8	92.0	87.4	87.4	150.9
2000	91.3	95.3	95.1	92.9	94.5	96.9	96.6	92.6	94.0	94.6	98.3	101.4	103.0	101.5	95.5	95.4	91.2	156.9/
2500	89.1	90.7	92.5	91.9	92.7	93.3	93.5	91.9	92.4	92.5	94.8	96.1	98.0	98.5	93.2	90.7	87.1	153.5
3150	90.6	90.1	93.2	93.0	91.5	92.3	90.8	92.8	93.8	93.3	95.0	95.6	93.8	93.8	89.2	87.8	85.1	152.5
4000	94.1	93.8	94.8	94.3	95.3	95.7	94.7	95.0	94.6	96.4	100.3	101.3	103.0	98.5	94.2	93.1	90.0	157.9
5000	89.4	90.3	89.9	89.2	93.3	92.0	92.5	90.4	89.4	93.2	95.6	96.3	98.4	97.5	93.4	90.4	86.9	154.4
6300	85.3	86.1	86.9	87.3	89.8	87.5	88.3	87.4	87.7	89.2	91.6	93.0	95.7	96.1	89.2	85.2	82.2	152.2
8000	84.9	84.4	86.1	85.7	86.6	86.8	85.4	86.8	86.2	89.0	91.5	93.4	90.9	90.1	85.8	84.4	80.9	151.4
10000	79.5	80.6	80.6	80.9	84.7	82.2	83.0	81.8	81.7	84.5	87.6	88.8	90.3	89.0	84.8	81.0	77.3	150.3
OASPL MEASURED	102.3	103.4	104.4	104.2	104.9	106.0	105.8	105.3	104.8	105.7	108.7	109.9	111.6	109.7	106.2	103.7	102.7	
OASPL CALCULATED	100.8	101.9	102.9	102.7	103.5	104.6	104.4	104.0	103.4	104.4	107.6	108.7	110.4	108.6	105.2	102.6	101.9	
PNDB	115.4	115.7	116.6	116.4	117.2	117.6	117.1	116.9	116.8	118.3	121.3	122.3	123.8	121.4	117.5	115.7	113.2	
																	OAPWL	165.4

DIRECTIVITY INDEX

FREQ.																
50	-9.0	-8.3	-5.4	-1.2	-5.7	-2.7	-4.9	-3.7	-3.8	-1.5	-1.0	0.8	1.7	1.8	3.0	4.4	5.1
63	-5.8	-5.3	-4.5	-1.3	-5.5	-2.8	-4.0	-3.2	-2.9	-1.1	-0.3	0.8	1.3	1.9	2.5	3.6	5.0
80	-4.3	-4.7	-5.3	-2.3	-4.4	-1.9	-2.6	-2.2	-1.4	-0.6	-0.2	1.1	2.0	1.8	2.3	1.6	2.6
100	-4.2	-4.6	-4.5	-2.6	-3.2	-0.4	-1.7	-1.0	-0.1	0.5	0.3	0.9	1.4	0.9	1.5	-0.0	0.2
125	-1.8	-2.4	-3.6	-0.7	-1.8	-1.1	-0.8	-0.8	-0.1	0.4	0.1	0.4	1.0	0.8	1.2	0.5	-1.9
160	0.2	0.3	0.2	1.3	-1.2	-1.0	-0.9	-0.6	-0.2	-0.3	-0.9	0.1	0.6	0.5	1.5	0.7	-3.2
200	2.2	2.5	2.1	1.5	-0.7	0.2	0.5	0.3	0.8	-0.8	-0.5	0.2	-1.4	-2.3	-0.7	-0.7	-3.7
250	-1.0	-0.1	-1.0	-1.0	-2.1	0.4	-0.2	-0.1	-1.1	-1.7	-2.7	-1.4	0.9	2.6	2.0	1.2	-0.1
315	-4.8	-5.6	-5.7	-3.8	-4.8	-4.9	-4.7	-5.0	-4.2	-0.8	-1.0	0.0	3.7	4.1	3.8	1.9	-0.2
400	-5.5	-5.7	-5.0	-3.2	-3.1	-4.8	-5.0	-5.0	-3.8	-0.9	0.2	0.8	3.0	4.4	3.4	0.8	-1.8
500	-4.1	-4.8	-4.6	-2.3	-2.5	-3.7	-3.5	-4.2	-2.3	-0.7	1.0	1.2	2.9	3.9	1.9	-0.8	-3.6
630	-3.2	-3.4	-2.9	-1.9	-1.8	-1.7	-2.1	-3.0	-1.4	-0.1	1.0	1.5	2.5	2.7	0.5	-1.6	-4.1
800	-1.4	-2.5	-1.5	-0.9	-1.7	-0.7	-1.7	-1.8	-0.8	1.1	1.0	1.3	1.5	1.2	-0.4	-1.7	-3.5
1000	-1.6	-2.2	-1.0	-0.3	-0.6	-1.5	-1.2	-2.2	-1.8	0.5	1.3	1.3	2.1	1.7	-1.1	-2.2	-4.9
1250	-8.7	-6.8	-4.9	-4.7	-3.5	-1.6	-1.2	-1.0	-3.2	-2.7	1.7	2.0	4.6	1.9	-0.4	-7.7	-4.3
1600	-5.0	-3.3	-2.4	-2.9	-2.1	-1.3	-1.2	-1.4	-2.8	-1.9	1.1	1.9	3.7	2.4	-0.4	-5.0	-4.9
2000	-6.8	-2.8	-3.0	-5.2	-3.6	-1.2	-1.6	-5.5	-4.1	-3.5	0.1	3.3	4.8	3.4	-2.7	-2.8	-6.9
2500	-5.4	-3.8	-2.0	-2.6	-1.8	-1.2	-1.0	-2.6	-2.1	-2.0	0.2	1.6	3.5	4.0	-1.3	-3.8	-7.4
3150	-2.6	-3.1	0.0	-0.2	-1.7	-0.9	-2.4	-0.4	0.6	0.1	1.8	2.4	0.6	0.6	-4.0	-5.4	-8.1
4000	-3.9	-4.2	-3.2	-3.8	-2.8	-2.4	-3.4	-3.0	-3.4	-1.6	2.3	3.3	5.0	0.4	-3.8	-4.9	-8.1
5000	-4.9	-4.0	-4.3	-5.1	-0.9	-2.2	-1.8	-3.8	-4.8	-1.0	1.4	2.1	4.2	3.3	-0.8	-3.8	-7.3
6300	-5.9	-5.1	-4.3	-3.9	-1.4	-3.7	-2.9	-3.8	-3.5	-2.0	0.4	1.8	4.5	4.9	-2.0	-6.0	-9.0
8000	-4.1	-4.6	-2.9	-3.3	-2.4	-2.2	-3.6	-2.2	-2.8	-0.0	2.5	4.4	1.9	1.1	-3.2	-4.6	-8.1
10000	-6.4	-5.3	-5.2	-5.0	-1.2	-3.7	-2.9	-4.1	-4.2	-1.4	1.7	2.9	4.4	3.1	-1.1	-4.9	-8.6

C77

RUN 7 3200 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 27 HR, 9,0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7,Pt.116
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 11.5
(Kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 3200
(rad/sec) 335.0
CORR. FAN SPEED (RPM).... 3178.6
(rad/sec) 332.8
TAPE NUMBER..... P649

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	78.2	78.2	78.9	80.6	80.2	80.4	81.7	82.4	82.3	84.6	85.1	86.4	87.7	88.2	89.3	90.7	91.0	142.8
63	82.5	82.7	82.7	82.5	82.3	82.1	84.4	84.6	84.8	86.6	87.8	88.2	89.1	89.7	89.9	91.2	92.3	144.4
80	83.9	83.4	82.5	83.0	83.9	84.9	85.2	85.6	86.1	87.0	87.7	88.0	89.5	89.4	89.4	88.9	89.5	144.4
100	83.6	83.4	82.8	83.7	84.0	86.1	85.3	86.4	87.2	87.6	87.2	87.2	88.4	88.4	88.7	87.5	87.0	144.1
125	84.9	85.2	83.5	84.3	84.1	84.1	84.6	85.1	85.9	85.9	85.7	85.7	86.7	86.9	86.8	86.3	84.1	142.9
160	82.4	82.4	82.0	82.5	80.4	80.0	80.5	81.2	81.9	81.4	81.1	81.6	82.6	83.3	84.0	83.4	79.1	139.2
200	80.9	81.2	80.0	79.0	77.1	76.9	78.3	78.9	79.5	77.4	78.5	76.3	77.7	78.7	78.7	78.6	75.5	135.9
250	78.0	78.0	76.1	76.2	74.9	75.6	76.3	77.2	76.8	76.2	74.9	75.9	77.9	79.8	78.4	77.9	76.8	134.5
315	78.2	77.0	76.4	78.5	78.3	77.0	76.7	77.4	78.0	80.9	81.0	80.9	84.4	85.2	84.3	82.9	80.9	138.8
400	80.2	79.7	80.3	82.4	82.8	80.9	80.3	80.7	81.2	83.7	84.7	84.8	87.1	88.3	87.0	84.9	82.4	142.0
500	81.6	81.2	81.4	83.3	83.4	82.7	82.3	82.2	83.2	84.4	86.1	85.9	87.7	89.0	87.1	84.7	81.5	143.0
630	82.0	80.6	83.0	82.9	82.5	83.8	83.6	83.4	84.1	84.4	85.8	86.3	87.5	88.7	86.3	84.0	81.2	143.2
800	83.0	81.7	82.5	82.9	82.0	82.5	82.1	82.8	83.3	84.0	84.5	85.1	86.0	86.4	84.3	82.6	80.6	142.1
1000	85.2	84.7	85.9	86.6	86.5	85.1	85.4	85.0	84.8	86.4	87.3	87.0	88.5	87.8	85.3	84.2	81.3	144.6
1250	93.8	95.2	98.6	96.1	96.5	98.6	99.2	100.7	98.1	98.1	100.9	99.6	105.7	104.1	99.5	95.1	93.5	158.9
1600	87.6	89.3	90.6	89.1	89.7	90.4	90.7	91.4	89.9	89.8	92.2	92.3	95.9	95.6	91.7	87.9	85.5	150.0
2000	93.0	95.4	93.4	91.9	94.8	96.0	94.3	95.1	96.1	95.7	98.1	100.5	100.4	102.9	96.7	94.1	92.0	156.6
2500	89.1	90.8	93.0	91.9	92.7	92.8	93.1	92.6	93.2	92.1	94.3	95.4	96.5	98.6	93.6	90.1	87.2	153.2
3150	89.9	89.9	92.9	93.1	91.1	92.5	91.0	93.2	93.9	92.0	94.2	95.3	93.3	93.3	89.4	87.5	84.7	152.2
4000	93.5	93.5	94.5	93.9	95.3	95.2	94.9	95.6	94.7	95.5	99.6	101.0	103.1	97.8	94.8	93.0	89.9	157.7
5000	89.0	89.9	89.8	89.2	93.3	91.4	92.2	91.1	89.6	92.2	95.0	96.1	98.0	97.0	93.6	90.5	86.8	154.1
6300	85.1	85.6	86.8	87.3	89.7	86.8	88.3	87.9	88.1	88.1	91.1	92.8	95.4	96.1	89.6	85.4	82.2	152.1
8000	84.6	83.9	86.0	85.8	86.6	86.1	85.7	87.3	86.5	87.7	91.1	93.1	90.4	89.6	86.0	84.5	80.8	151.1
10000	79.4	80.1	80.6	81.0	84.7	81.5	83.2	82.3	81.9	83.3	87.1	88.7	89.7	88.6	85.0	81.1	77.3	150.0
OASPL MEASURED	102.8	103.7	104.7	103.8	104.7	105.3	105.2	106.0	105.3	105.3	108.0	108.7	111.1	110.5	106.2	103.7	101.8	
OASPL CALCULATED	101.1	102.1	103.3	102.3	103.3	103.8	103.8	104.7	103.9	104.0	106.6	107.4	109.9	109.2	105.0	102.5	100.9	
PNDB	115.2	115.6	116.5	116.1	117.2	117.1	117.0	117.6	117.1	117.5	120.6	121.8	123.5	122.0	117.8	115.6	112.9	
																	OAPWL	165.1

DIRECTIVITY INDEX

FREQ.																	
50	-7.8	-7.7	-7.0	-5.4	-5.7	-5.6	-4.3	-3.5	-3.6	-1.3	-0.8	0.4	1.8	2.3	3.4	4.7	5.1
63	-5.1	-4.9	-4.8	-5.0	-5.2	-5.4	-3.1	-2.9	-2.7	-0.9	0.3	0.7	1.6	2.2	2.4	3.7	4.8
80	-3.5	-3.9	-4.9	-4.4	-3.5	-2.5	-2.2	-1.8	-1.3	-0.4	0.3	0.7	2.2	2.0	2.0	1.5	2.1
100	-3.4	-3.6	-4.3	-3.3	-3.1	-1.0	-1.7	-0.6	0.1	0.5	0.2	0.2	1.4	1.4	1.7	0.4	-0.1
125	-0.7	-0.5	-2.1	-1.3	-1.6	-1.5	-1.1	-0.6	0.2	0.2	0.0	-0.0	1.0	1.2	1.1	0.6	-1.6
160	0.4	0.5	0.1	0.6	-1.6	-1.9	-1.4	-0.7	-0.1	-0.6	-0.9	-0.3	0.7	1.3	2.1	1.5	-2.8
200	2.4	2.7	1.5	0.5	-1.4	-1.6	-0.2	0.4	1.0	-1.1	-0.0	-0.3	-0.8	0.2	0.2	0.1	-3.0
250	0.9	1.0	-0.9	-0.8	-2.2	-1.4	-0.8	0.2	-0.2	-0.8	-2.1	-1.1	0.8	2.8	1.3	0.8	-0.2
315	-3.1	-4.3	-4.8	-2.7	-3.0	-4.2	-4.5	-3.9	-3.2	-0.3	-0.2	-0.4	3.2	3.9	3.0	1.6	-0.4
400	-4.2	-4.7	-4.1	-1.9	-1.6	-3.5	-4.1	-3.7	-3.2	-0.7	0.3	0.4	2.8	3.9	2.7	0.5	-1.9
500	-3.6	-4.0	-3.9	-1.9	-1.8	-2.5	-3.0	-3.0	-2.1	-0.9	0.9	0.6	2.4	3.8	1.9	-0.5	-3.7
630	-3.3	-4.6	-2.3	-2.3	-2.8	-1.5	-1.6	-1.9	-1.2	-0.9	0.5	1.0	2.3	3.4	1.0	-1.3	-4.0
800	-1.0	-2.3	-1.5	-1.2	-2.1	-1.5	-1.9	-1.2	-0.7	-0.0	0.5	1.1	2.0	2.4	0.3	-1.4	-3.4
1000	-1.2	-1.7	-0.5	0.2	0.1	-1.2	-0.9	-1.4	-1.5	0.0	0.9	0.7	2.2	1.4	-1.1	-2.1	-5.1
1250	-6.8	-5.4	-2.0	-4.5	-4.1	-2.0	-1.4	0.1	-2.5	-2.5	0.4	-1.0	5.1	3.5	-1.1	-5.5	-7.1
1600	-4.3	-2.7	-1.4	-2.8	-2.3	-1.6	-1.3	-0.6	-2.1	-2.2	0.2	0.3	3.9	3.6	-0.3	-4.1	-6.5
2000	-4.8	-2.4	-4.4	-6.0	-3.0	-1.9	-3.5	-2.7	-1.7	-2.1	0.2	2.7	2.6	5.1	-1.1	-3.7	-5.8
2500	-5.1	-3.4	-1.2	-2.3	-1.5	-1.4	-1.1	-1.6	-1.0	-2.1	0.1	1.2	2.3	4.4	-0.6	-4.1	-7.0
3150	-3.0	-3.0	-0.0	0.2	-1.8	-0.4	-1.8	0.3	1.0	-0.8	1.3	2.4	0.4	0.4	-3.5	-5.3	-8.2
4000	-4.3	-4.3	-3.4	-3.9	-2.5	-2.7	-2.9	-2.2	-3.1	-2.3	1.8	3.2	5.3	0.0	-3.0	-4.8	-8.0
5000	-4.9	-4.0	-4.1	-4.7	-0.6	-2.6	-1.7	-2.8	-4.3	-1.8	1.1	2.2	4.1	3.1	-0.3	-3.4	-7.1
6300	-5.9	-5.4	-4.3	-3.7	-1.3	-4.2	-2.7	-3.1	-3.0	-3.0	0.1	1.8	4.4	5.0	-1.4	-5.7	-8.8
8000	-4.1	-4.8	-2.7	-2.9	-2.1	-2.6	-3.0	-1.4	-2.2	-1.0	2.4	4.4	1.8	0.9	-2.7	-4.1	-7.9
10000	-6.2	-5.4	-5.0	-4.6	-0.9	-4.1	-2.4	-3.3	-3.6	-2.3	1.5	3.1	4.2	3.0	-0.6	-4.5	-8.2

C78

RUN 7 3200 RPM

 NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC, DATE - MONTH 9 DAY 27 HR, 9.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9.10/68
RUN..... 7.Pt.109
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 62.0
(°K)..... 289.8
ABS. HUMIDITY...(gm/m3).. 13.0
(kg/m3).. 0.0130
PHYS. FAN SPEED(RPM).... 3350
(rad/sec) 350.7
CORR. FAN SPEED(RPM).... 3327
(rad/sec) 348.4
TAPE NUMBER..... P651

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	80.3	78.7	78.6	79.0	80.5	80.8	81.3	83.2	83.1	85.2	85.8	87.3	88.7	89.1	90.6	92.3	92.4	143.8
63	83.4	83.1	82.7	81.7	82.7	82.7	84.3	85.1	85.3	87.9	88.5	89.3	90.5	91.0	91.8	92.8	94.1	145.6
80	85.0	84.3	82.9	82.8	84.2	85.3	85.6	86.3	87.0	88.1	88.6	89.2	90.6	90.5	91.0	90.7	91.8	145.5
100	84.6	84.1	83.0	84.1	85.2	87.2	86.7	87.5	88.2	88.7	88.3	88.6	89.5	89.4	89.8	88.7	89.1	145.3
125	85.5	85.0	83.3	85.3	84.7	84.8	85.8	85.9	86.4	86.7	86.4	86.6	87.6	87.4	88.0	87.7	85.9	143.7
160	84.1	84.0	83.2	83.6	81.2	80.4	81.5	82.0	82.5	81.8	81.4	82.5	83.3	82.7	83.8	83.7	79.8	139.7
200	82.4	82.7	81.4	79.6	77.6	77.6	79.4	79.2	79.6	77.6	78.0	78.0	77.0	78.0	79.0	79.0	76.2	136.1
250	78.7	79.1	77.7	76.8	76.1	76.4	77.1	77.5	77.2	78.1	76.9	77.3	81.4	83.2	81.7	80.9	79.1	136.6
315	78.1	77.4	77.0	79.1	79.3	78.4	78.6	79.1	80.6	83.9	84.0	83.5	87.1	88.1	87.1	85.4	83.0	141.4
400	79.5	79.5	80.1	82.6	83.5	82.0	82.3	82.3	83.8	86.2	87.1	87.3	89.4	90.4	89.4	87.0	84.3	144.1
500	81.2	80.7	81.6	83.8	83.9	82.8	83.5	83.6	85.1	86.1	87.7	87.8	89.4	90.3	88.5	86.0	82.9	144.4
630	81.7	81.5	83.2	83.4	83.2	83.5	83.5	84.1	85.1	85.3	86.3	87.2	88.2	88.4	86.4	84.7	82.2	143.6
800	82.2	81.4	82.7	82.5	82.8	81.8	82.7	83.2	83.0	84.5	85.7	85.7	86.4	86.2	86.0	84.2	81.4	142.5
1000	84.3	84.2	85.9	86.1	86.8	85.6	86.5	85.2	85.9	87.6	88.7	88.3	89.4	89.6	86.5	85.9	82.4	145.6
1250	93.1	93.0	96.5	94.8	96.3	95.4	95.9	95.5	102.3	103.2	103.1	107.5	98.7	103.4	99.6	92.5	91.0	159.9
1600	91.2	91.5	94.3	93.0	94.3	93.7	94.1	93.5	99.6	100.4	100.3	104.7	96.5	100.9	97.3	91.1	89.2	157.5
2000	91.6	93.5	92.6	90.9	91.8	90.4	93.3	92.4	91.7	95.7	99.2	100.7	100.1	101.3	94.3	91.3	88.1	155.7
2500	91.6	94.1	93.9	93.2	93.4	92.5	95.1	94.2	94.3	97.0	100.3	101.6	101.1	102.6	96.3	93.0	89.4	157.2
3150	89.5	89.2	92.2	92.4	90.3	91.3	91.7	94.2	95.6	94.3	95.5	96.2	94.1	94.1	89.6	88.3	85.4	153.1
4000	93.7	93.2	94.6	93.8	94.3	94.6	94.9	95.4	95.2	96.4	98.5	101.1	99.4	97.1	93.3	92.3	89.2	156.7
5000	89.6	90.4	90.1	88.9	92.9	91.2	92.9	91.8	91.4	94.7	95.9	98.5	99.0	98.5	94.4	91.5	88.0	155.3
6300	85.5	86.1	87.2	86.8	89.4	86.9	88.9	88.3	89.1	90.0	92.0	94.2	95.3	96.4	89.9	86.1	82.9	152.6
8000	84.9	84.1	86.4	85.3	86.3	85.8	85.9	87.4	87.1	89.5	92.1	94.2	90.9	90.6	86.5	85.5	81.6	151.9
10000	79.6	80.4	80.9	80.5	84.3	81.3	83.6	82.4	83.0	85.2	87.9	89.8	90.0	89.4	85.3	81.8	77.9	150.7
OASPL MEASURED	103.0	103.6	104.7	103.8	104.6	104.1	105.1	105.1	107.5	108.6	109.9	112.7	109.9	111.1	106.9	104.0	102.2	
OASPL CALCULATED	101.4	101.9	103.1	102.3	103.2	102.6	103.6	103.5	106.4	107.6	108.4	109.9	108.7	111.7	108.4	103.0	101.5	
PNDB	115.6	115.6	116.7	116.1	116.8	116.5	117.3	117.5	118.4	119.6	121.6	123.5	122.2	123.3	118.5	115.8	113.1	
																	OAPWL	166.2

DIRECTIVITY INDEX

FREQ.																	
50	-6.6	-8.2	-8.3	-7.9	-6.5	-6.1	-5.6	-3.7	-3.8	-1.7	-1.2	0.4	1.7	2.2	3.7	5.4	5.5
63	-5.3	-5.6	-6.0	-7.0	-6.0	-6.0	-4.4	-3.6	-3.4	-0.8	-0.2	0.6	1.8	2.2	3.1	4.0	5.3
80	-3.5	-4.2	-5.6	-5.7	-4.3	-3.2	-2.9	-2.2	-1.5	-0.4	0.1	0.7	2.1	2.1	2.5	2.2	3.3
100	-3.6	-4.1	-5.2	-4.1	-3.0	-1.0	-1.5	-0.7	0.1	0.5	0.1	0.4	1.3	1.2	1.7	0.5	1.0
125	-1.0	-1.5	-3.2	-1.2	-1.8	-1.7	-0.7	-0.6	-0.1	0.1	-0.1	0.1	1.0	0.9	1.5	1.2	-0.6
160	1.7	1.5	0.8	1.2	-1.2	-2.0	-1.0	-0.4	0.0	-0.6	-1.1	0.0	0.8	0.3	1.4	1.3	-2.6
200	3.7	3.9	2.6	0.8	-1.2	-1.2	0.7	0.5	0.8	-1.1	-0.7	-0.7	-1.8	-0.8	0.2	0.3	-2.6
250	-0.5	-0.0	-1.5	-2.3	-3.0	-2.8	-2.0	-1.6	-1.9	-1.0	-2.2	-1.8	2.3	4.1	2.6	1.8	-0.1
315	-5.7	-6.4	-6.8	-4.7	-4.5	-5.4	-5.2	-4.7	-3.2	0.1	0.2	-0.3	3.3	4.2	3.3	1.6	-0.8
400	-7.0	-7.0	-6.4	-3.9	-3.0	-4.5	-4.1	-4.1	-2.7	-0.2	0.7	0.8	2.9	3.9	2.9	0.5	-2.2
500	-5.5	-5.9	-5.0	-2.8	-2.7	-3.8	-3.1	-3.1	-1.6	-0.5	1.0	1.2	2.8	3.6	1.8	-0.7	-3.7
630	-4.1	-4.2	-2.6	-2.3	-2.6	-2.2	-2.2	-1.6	-0.6	-0.4	0.6	1.4	2.4	2.7	0.6	-1.0	-3.5
800	-2.3	-3.1	-1.8	-2.0	-1.7	-2.7	-1.8	-1.3	-1.5	0.0	1.2	1.2	1.9	1.7	1.5	-0.3	-3.0
1000	-3.1	-3.2	-1.5	-1.2	-0.5	-1.8	-0.8	-2.2	-1.5	0.2	1.3	0.9	2.0	2.2	-0.9	-1.5	-5.0
1250	-8.4	-8.6	-5.1	-6.7	-5.2	-6.2	-5.6	-6.1	0.7	1.6	1.6	6.0	-2.9	1.9	-1.9	-9.1	-10.5
1600	-7.8	-7.4	-4.6	-6.0	-4.6	-5.2	-4.9	-5.4	0.6	1.5	1.4	5.8	-2.4	1.9	-1.7	-7.8	-9.7
2000	-5.7	-3.4	-4.3	-6.0	-5.0	-6.4	-3.6	-4.5	-5.2	-1.1	2.4	3.8	3.3	4.4	-2.6	-5.6	-8.8
2500	-6.5	-4.1	-4.3	-4.9	-4.7	-5.6	-3.0	-4.0	-3.8	-1.1	2.1	3.5	3.0	4.5	-1.9	-5.2	-8.7
3150	-4.2	-4.5	-1.5	-1.4	-3.4	-2.4	-2.0	0.5	1.8	0.6	1.8	2.4	0.4	0.3	-4.1	-5.4	-8.3
4000	-3.1	-3.7	-2.3	-3.0	-2.6	-2.3	-2.0	-1.4	-1.6	-0.4	1.7	4.2	2.6	0.2	-3.5	-4.6	-7.6
5000	-5.5	-4.7	-5.1	-6.2	-2.3	-4.0	-2.2	-3.4	-3.7	-0.5	0.8	3.3	3.8	3.3	-0.8	-3.7	-7.2
6300	-6.1	-5.5	-4.3	-4.8	-2.2	-4.7	-2.6	-3.3	-2.5	-1.6	0.4	2.7	3.7	4.8	-1.7	-5.5	-8.7
8000	-4.6	-5.3	-3.0	-4.1	-3.1	-3.7	-3.6	-2.0	-2.4	0.1	2.6	4.7	1.4	1.1	-3.0	-4.0	-7.9
10000	-6.7	-5.9	-5.4	-5.8	-2.0	-5.0	-2.6	-3.8	-3.3	-1.1	1.6	3.6	3.8	3.1	-1.0	-4.5	-8.4

RUN 7 3350 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 27 HR, 9.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7.Pt 117
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 3350
(rad/sec) 350.7
CORR. FAN SPEED (RPM).... 3327.6
(rad/sec) 348.4
TAPE NUMBER..... P648

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	81.7	85.0	81.2	81.6	80.9	82.1	81.8	83.3	83.3	86.0	85.6	87.6	88.1	88.5	90.2	92.0	92.1	143.7
63	84.8	87.4	84.5	83.9	83.4	83.7	85.1	85.6	86.2	88.0	88.8	90.4	90.8	91.5	91.9	93.2	93.9	146.1
80	85.7	87.3	83.8	84.0	84.9	86.3	86.3	86.8	87.5	88.5	88.8	90.0	90.4	90.7	91.0	90.9	91.8	145.8
100	85.5	86.8	84.4	84.8	85.4	87.7	86.9	88.1	88.8	88.8	88.4	89.7	89.6	89.7	90.2	89.3	89.3	145.7
125	86.0	86.2	83.7	85.4	85.0	85.6	86.0	86.4	86.9	87.2	86.6	87.7	87.6	88.2	88.6	88.1	86.2	144.2
160	84.4	84.6	83.2	83.5	81.1	80.9	81.6	82.7	83.0	82.8	82.5	84.5	84.0	84.0	84.9	84.9	81.1	140.6
200	82.6	83.0	81.2	79.7	78.1	77.9	79.8	80.2	80.7	78.8	79.4	81.6	78.6	79.2	79.9	80.2	77.3	137.3
250	78.8	79.4	77.7	77.4	76.5	76.9	77.6	78.5	78.3	77.7	76.4	79.1	79.2	82.2	80.4	79.6	78.5	136.3
315	79.0	78.3	77.8	80.1	80.4	79.3	78.6	79.1	80.0	83.3	82.5	83.3	85.7	87.3	86.4	84.5	82.7	140.7
400	80.4	80.1	81.2	83.3	84.3	83.0	82.5	82.3	83.1	85.7	86.4	86.7	88.4	90.4	89.0	86.7	84.1	143.8
500	82.2	81.7	82.8	84.8	84.6	83.9	83.9	84.0	85.1	86.7	87.5	88.0	89.2	90.8	88.8	86.3	83.4	144.7
630	83.0	82.8	84.3	84.2	84.1	85.2	84.9	84.9	86.2	86.7	87.2	88.0	88.8	89.9	87.3	85.1	82.6	144.7
800	83.0	82.4	83.9	83.9	84.7	83.5	83.9	84.4	84.8	85.7	85.7	86.6	86.7	86.7	86.1	84.1	81.6	143.4
1000	84.6	84.7	86.8	87.3	87.6	86.7	87.3	86.2	86.4	88.6	88.5	88.2	88.4	88.9	86.5	85.7	82.5	145.8
1250	95.0	95.3	97.9	96.3	99.3	98.0	96.9	98.1	97.4	102.8	103.9	103.3	98.9	102.0	97.7	93.3	91.2	150.8
1600	93.9	94.6	96.8	95.4	98.3	97.3	98.2	97.2	96.2	101.5	102.6	101.9	97.9	100.9	97.1	92.8	90.4	157.8
2000	90.9	92.5	92.8	90.2	93.0	91.5	94.1	94.2	95.6	98.1	97.0	98.3	98.8	99.8	94.0	90.2	88.4	155.0
2500	92.5	94.4	95.3	93.7	95.4	94.0	96.4	96.4	98.1	100.1	98.9	100.5	100.8	102.6	97.0	92.9	90.0	157.6
3150	89.8	89.6	93.1	92.9	91.5	92.4	92.2	94.9	95.9	95.6	96.0	96.1	93.7	93.8	89.9	88.0	85.3	153.5
4000	93.7	93.2	95.1	94.4	95.5	95.3	95.5	96.3	96.1	97.8	99.5	100.6	99.2	96.1	93.3	92.0	89.0	157.0
5000	89.8	90.5	90.8	89.9	93.8	92.1	93.6	92.8	92.5	95.9	97.1	98.6	99.3	98.0	94.6	91.7	88.1	155.8
6300	85.6	86.1	87.8	87.7	90.1	87.7	89.2	89.2	89.6	91.3	92.7	94.0	95.1	96.1	90.1	86.1	82.9	152.8
8000	84.9	84.1	86.9	86.2	87.1	86.8	86.3	88.4	88.1	90.9	92.6	93.9	90.4	90.4	86.8	85.5	81.6	152.2
10000	79.7	80.3	81.4	81.3	85.1	82.4	83.9	83.6	83.6	86.5	88.7	89.7	89.8	89.3	85.7	81.9	78.2	151.0
OASPL MEASURED	103.8	104.5	105.7	104.8	106.6	105.9	106.9	106.8	107.1	109.8	110.4	111.1	109.8	110.8	106.8	104.2	102.6	
OASPL CALCULATED	102.3	102.9	104.3	103.3	105.2	104.4	105.3	105.3	105.5	108.6	109.2	109.6	108.3	109.3	105.6	103.2	101.7	
PNDB	115.9	116.1	117.5	116.8	118.1	117.6	118.2	118.7	119.2	121.4	121.9	122.8	122.0	123.1	118.8	115.8	113.1	
																	OAPWL	166.2

DIRECTIVITY INDEX

FREQ.																	
50	-5.2	-1.9	-5.6	-5.2	-6.0	-4.8	-5.1	-3.6	-3.6	-0.9	-1.3	0.7	1.2	1.6	3.3	5.1	5.3
63	-4.4	-1.8	-4.7	-5.3	-5.8	-5.5	-4.0	-3.6	-3.0	-1.2	-0.4	1.2	1.7	2.3	2.7	4.0	4.8
80	-3.2	-1.5	-5.0	-4.9	-4.0	-2.5	-2.6	-2.0	-1.3	-0.4	0.0	1.2	1.6	1.8	2.2	2.0	2.9
100	-3.1	-1.8	-4.3	-3.8	-3.2	-0.9	-1.7	-0.5	0.1	0.2	-0.2	1.1	1.0	1.1	1.6	0.6	0.7
125	-1.0	-0.8	-3.3	-1.6	-2.0	-1.5	-1.1	-0.6	-0.1	0.2	-0.4	0.7	0.5	1.2	1.6	1.1	-0.8
160	1.1	1.3	-0.1	0.2	-2.2	-2.4	-1.7	-0.6	-0.3	-0.5	-0.9	1.2	0.7	0.7	1.6	1.6	-2.2
200	2.7	3.1	1.3	-0.2	-1.8	-2.0	-0.1	0.3	0.8	-1.1	-0.5	1.7	-1.3	-0.7	0.0	0.3	-2.6
250	0.0	0.6	-1.1	-1.4	-2.3	-1.9	-1.2	-0.2	-0.5	-1.0	-2.4	0.3	0.4	3.4	1.6	0.8	-0.3
315	-4.1	-4.9	-5.4	-3.0	-2.7	-3.8	-4.5	-4.0	-3.1	0.1	-0.7	0.1	2.5	4.1	3.3	1.4	-0.5
400	-5.7	-6.1	-4.9	-2.8	-1.9	-3.1	-3.6	-3.8	-3.1	-0.5	0.2	0.6	2.2	4.2	2.9	0.5	-2.0
500	-4.8	-5.2	-4.1	-2.1	-2.4	-3.0	-3.0	-3.0	-1.8	-0.3	0.6	1.1	2.2	3.9	1.9	-0.7	-3.6
630	-3.8	-4.0	-2.4	-2.6	-2.6	-1.5	-1.9	-1.8	-0.5	-0.1	0.4	1.3	2.0	3.1	0.6	-1.6	-4.1
800	-2.4	-2.9	-1.5	-1.4	-0.7	-1.9	-1.5	-0.9	-0.5	0.4	0.4	1.3	1.4	1.4	0.7	-1.2	-3.8
1000	-3.0	-2.9	-0.8	-0.3	-0.0	-0.9	-0.3	-1.3	-1.1	1.1	0.9	0.6	0.8	1.3	-1.1	-1.9	-5.1
1250	-5.5	-5.1	-2.6	-4.1	-1.1	-2.4	-1.5	-2.3	-3.0	2.4	3.5	2.9	-1.5	1.6	-2.7	-7.1	-9.2
1600	-5.3	-4.7	-2.5	-3.9	-1.0	-2.0	-1.1	-2.1	-3.1	2.2	3.3	2.6	-1.3	1.7	-2.2	-6.5	-8.8
2000	-5.3	-3.8	-3.4	-6.0	-3.2	-4.8	-2.2	-2.1	-0.7	1.9	0.7	2.0	2.6	3.6	-2.2	-6.0	-7.9
2500	-6.1	-4.1	-3.2	-4.9	-3.2	-4.5	-2.2	-2.2	-0.5	1.5	0.3	2.0	2.3	4.1	-1.6	-5.6	-8.5
3150	-4.3	-4.5	-1.1	-1.2	-2.7	-1.8	-2.0	0.8	1.7	1.4	1.9	2.0	-0.4	-0.4	-4.3	-6.1	-8.9
4000	-3.5	-3.9	-2.1	-2.8	-1.7	-1.9	-1.7	-0.9	-1.1	0.7	2.3	3.4	2.1	-1.1	-3.9	-5.2	-8.2
5000	-5.8	-5.2	-4.9	-5.8	-1.9	-3.5	-2.1	-2.8	-3.1	0.2	1.5	3.0	3.6	2.4	-1.0	-4.0	-7.5
6300	-6.2	-5.6	-4.0	-4.1	-1.7	-4.1	-2.5	-2.6	-2.2	-0.5	0.9	2.2	3.3	4.4	-1.6	-5.7	-8.9
8000	-4.9	-5.7	-2.9	-3.6	-2.7	-3.0	-3.4	-1.4	-1.7	1.1	2.8	4.2	0.6	0.6	-3.0	-4.3	-8.2
10000	-6.9	-6.3	-5.3	-5.3	-1.5	-4.2	-2.7	-3.1	-3.0	-0.1	2.1	3.1	3.2	2.7	-0.9	-4.7	-8.5

RUN 7 3350 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 27 HR. 9.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.P.G.
DATE..... 9/10/68
RUN..... 7,Pt.110
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 3473
(rad/sec) 363.6
CORR. FAN SPEED (RPM).... 3449.8
(rad/sec) 361.1
TAPE NUMBER..... P690

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0, (0°)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50,0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90,0 (1.57)	100,0 (1.74)	110,0 (1.92)	120,0 (2.09)	130,0 (2.27)	140,0 (2.44)	150,0 (2.62)	160,0 (2.79)	
50	81,2	83,4	83,5	82,6	81,1	82,6	82,1	84,5	84,5	86,4	86,7	89,1	89,4	90,0	91,4	93,1	93,7	144,9
63	85,0	86,1	85,6	84,3	83,6	84,7	85,4	86,7	87,1	89,0	89,4	91,2	91,5	92,2	93,3	94,1	95,5	147,0
80	86,4	86,2	85,0	84,3	84,7	86,5	86,2	87,2	87,8	88,6	89,3	91,0	91,4	91,6	92,3	91,6	93,3	146,6
100	85,6	85,5	84,9	85,4	86,2	88,7	87,2	88,5	88,9	89,2	89,2	90,6	90,6	90,6	91,3	90,1	90,9	146,5
125	86,2	86,2	85,0	86,1	85,9	86,9	87,0	87,6	87,6	87,9	87,8	89,0	88,7	89,2	89,3	88,7	87,4	145,2
160	85,0	85,2	84,7	84,3	82,1	82,3	83,4	83,8	84,3	83,1	82,7	85,0	84,5	84,3	85,4	85,4	81,3	141,3
200	83,4	83,8	82,8	80,8	79,0	80,3	81,3	81,1	81,0	78,8	78,9	81,6	78,6	78,9	80,1	80,0	77,3	137,8
250	79,6	79,8	79,0	78,1	77,5	79,4	79,3	79,5	79,0	79,0	78,0	81,3	82,3	83,7	82,7	81,5	79,9	138,0
315	79,0	78,5	78,6	80,4	80,4	80,5	79,8	80,6	82,0	84,7	84,9	86,1	88,2	88,9	88,3	86,4	84,1	142,6
400	80,5	80,4	81,1	83,1	84,4	83,9	83,4	83,5	85,2	86,9	88,1	89,2	90,4	91,7	90,5	88,1	85,6	145,4
500	81,3	81,6	82,8	84,3	84,9	84,2	84,6	85,0	86,5	87,3	88,4	89,8	90,5	91,5	89,9	87,7	84,6	145,7
630	83,0	83,5	84,9	85,2	84,7	85,6	86,1	86,2	86,8	87,1	87,9	89,5	90,1	90,3	88,3	86,7	84,0	145,6
800	82,9	82,6	83,3	83,9	84,0	84,4	84,3	84,7	84,9	86,0	87,8	88,7	88,1	87,3	86,0	85,1	83,0	144,2
1000	84,6	85,2	86,8	88,0	87,7	87,2	87,1	87,3	87,6	88,3	89,9	90,8	90,2	90,0	87,5	86,9	83,7	146,8
1250	91,1	92,4	92,2	92,5	94,2	92,8	93,2	96,3	94,1	94,6	100,0	100,2	94,3	98,5	92,9	89,9	87,2	154,5
1600	96,9	98,-	97,9	98,4	100,8	98,6	99,1	103,4	100,8	101,5	107,4	107,3	97,9	105,2	99,4	95,7	92,7	161,5
2000	87,7	89,8	89,1	88,1	90,2	90,7	92,1	91,4	92,2	93,0	95,1	95,8	96,5	96,6	91,4	88,9	86,1	152,2
2500	92,6	95,7	94,4	94,5	95,3	96,2	98,0	95,7	99,0	99,2	102,9	103,6	102,7	105,2	99,8	96,8	93,2	159,6
3150	89,9	90,1	93,1	94,3	92,1	94,0	93,5	96,3	97,3	95,5	97,1	98,1	95,4	94,6	90,5	89,3	86,7	154,7
4000	92,7	92,9	93,9	93,7	94,6	95,3	95,6	96,9	96,1	96,8	99,6	101,4	99,0	95,7	92,6	92,0	89,3	157,0
5000	89,6	91,3	90,7	90,2	93,8	93,2	94,6	94,2	93,5	96,4	99,6	100,0	102,2	99,3	95,0	92,8	89,4	157,4
6300	85,1	86,3	87,3	87,6	89,9	88,2	90,2	90,3	90,8	91,0	93,6	96,1	95,8	96,5	90,3	87,2	83,8	153,6
8000	84,7	84,6	86,5	86,3	87,0	87,4	87,0	89,6	89,0	90,7	93,8	96,3	91,9	91,0	87,2	86,7	83,0	153,4
10000	79,3	80,9	81,0	81,5	85,2	83,1	84,9	84,7	85,0	86,6	89,7	92,3	91,6	90,0	86,3	83,2	79,4	152,3
OASPL MEASURED	103,5	104,8	104,7	105,1	106,3	105,9	106,6	108,2	107,8	108,2	111,9	112,2	110,3	111,6	107,3	105,2	103,4	
OASPL CALCULATED	102,1	103,5	103,3	103,6	105,0	104,5	105,2	107,0	106,4	107,0	110,9	111,5	108,9	110,5	106,2	104,3	102,8	
PNDB	115,4	116,8	116,6	116,9	118,1	117,9	119,0	120,1	120,0	120,5	123,8	124,5	123,2	124,6	120,2	117,9	114,9	
																	DAPWL	167,1

DIRECTIVITY INDEX

FREQ.																	
50	-6,8	-4,6	-4,5	-5,4	-7,0	-5,4	-5,9	-3,5	-3,6	-1,7	-1,4	1,0	1,3	1,9	3,4	5,0	5,7
63	-5,1	-3,9	-4,4	-5,8	-6,5	-5,4	-4,7	-3,4	-3,0	-1,1	-0,7	1,1	1,4	2,1	3,2	4,0	5,4
80	-3,2	-3,4	-4,6	-5,2	-4,8	-3,1	-3,3	-2,3	-1,8	-0,9	-0,2	1,5	1,9	2,1	2,7	2,0	3,7
100	-3,8	-3,8	-4,5	-4,0	-3,2	-0,7	-2,2	-0,9	-0,5	-0,1	-0,1	1,3	1,2	1,3	1,9	0,7	1,6
125	-1,8	-1,7	-2,9	-1,9	-2,0	-1,0	-0,9	-0,4	-0,4	-0,1	-0,2	1,0	0,7	1,2	1,3	0,8	-0,6
160	1,0	1,2	0,6	0,3	-1,9	-1,7	-0,6	-0,2	0,2	-0,9	-1,3	0,9	0,4	0,3	1,4	1,3	-2,7
200	3,0	3,4	2,4	0,4	-1,4	-0,1	0,8	0,7	0,6	-1,6	-1,5	1,2	-1,9	-1,5	-0,3	-0,4	-3,2
250	-0,9	-0,7	-1,5	-2,4	-3,0	-1,1	-1,3	-1,0	-1,6	-1,5	-2,5	0,8	1,8	3,2	2,2	1,0	-0,6
315	-6,0	-6,5	-6,4	-4,6	-4,6	-4,5	-5,2	-4,4	-3,1	-0,3	-0,1	1,1	3,2	3,9	3,2	1,4	-0,9
400	-7,1	-7,3	-6,6	-4,6	-3,3	-3,8	-4,2	-4,2	-2,5	-0,8	0,4	1,5	2,8	4,0	2,9	0,5	-2,1
500	-6,7	-6,3	-5,2	-3,6	-3,0	-3,7	-3,3	-2,9	-1,4	-0,6	0,5	1,9	2,5	3,6	2,0	-0,3	-3,3
630	-4,7	-4,2	-2,8	-2,4	-3,0	-2,1	-1,5	-1,5	-0,8	-0,6	0,2	1,8	2,4	2,6	0,6	-1,0	-3,7
800	-3,3	-3,5	-2,9	-2,3	-2,2	-1,7	-1,9	-1,5	-1,3	-0,2	1,6	2,5	1,9	1,1	-0,2	-1,1	-3,2
1000	-4,0	-3,4	-1,8	-0,6	-0,9	-1,4	-1,5	-1,3	-1,0	-0,3	1,3	2,2	1,6	1,4	-1,1	-1,7	-4,9
1250	-5,1	-3,8	-4,0	-3,7	-2,0	-3,4	-2,9	0,1	-2,0	-1,6	3,8	4,0	-1,9	2,3	-3,2	-6,3	-9,0
1600	-6,0	-4,5	-5,1	-4,5	-2,1	-4,3	-3,9	0,5	-2,1	-1,5	4,4	4,3	-5,0	2,3	-3,6	-7,2	-10,3
2000	-5,8	-3,6	-4,4	-5,3	-3,2	-2,7	-1,3	-2,0	-1,2	-0,4	1,7	2,3	3,0	3,2	-2,0	-4,6	-7,4
2500	-8,0	-4,9	-6,2	-6,1	-5,3	-4,4	-2,5	-4,9	-1,5	-1,3	2,3	3,0	2,1	4,6	-0,8	-3,8	-7,4
3150	-5,4	-5,2	-2,2	-1,0	-3,2	-1,3	-1,9	1,0	1,9	0,2	1,7	2,7	0,0	-0,7	-4,9	-6,1	-8,7
4000	-4,5	-4,3	-3,3	-3,5	-2,6	-1,9	-1,6	-0,3	-1,1	-0,3	2,4	4,2	1,8	-1,5	-4,6	-5,2	-7,9
5000	-7,6	-5,9	-6,5	-7,1	-3,4	-4,1	-2,6	-3,1	-3,8	-0,9	2,3	2,7	4,9	2,1	-2,2	-4,5	-7,9
6300	-7,5	-6,3	-5,3	-5,0	-2,7	-4,4	-2,4	-2,3	-1,7	-1,6	1,0	3,5	3,2	3,9	-2,3	-5,4	-8,8
8000	-6,3	-6,4	-4,4	-4,7	-4,0	-3,6	-4,0	-1,4	-1,9	-0,3	2,8	5,3	0,9	0,0	-3,8	-4,3	-8,0
10000	-8,6	-7,0	-6,8	-6,4	-2,7	-4,8	-3,0	-3,2	-2,9	-1,3	1,8	4,4	3,7	2,1	-1,6	-4,7	-8,5

C81

RUN 7 3473 RPM

 NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC, DATE - MONTH 9 DAY 27 HR, 9.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7.Pt.118
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 12.3
(kg/m³).. 0.0123
PHYS. FAN SPEED (RPM).... 3472
(rad/sec) 363.5
CORR. FAN SPEED (RPM).... 3448.8
(rad/sec) 361.1
TAPE NUMBER..... P648

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

ANGLES FROM INLET

FREQ.	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	79.8	80.3	81.2	86.9	81.3	83.7	82.3	83.6	83.2	85.5	86.6	88.0	89.2	89.8	90.7	92.8	93.2	144.5
63	84.0	84.5	84.4	88.4	83.9	85.7	85.6	86.3	86.5	88.2	89.3	90.7	91.6	92.6	92.9	94.0	95.2	146.9
80	85.7	85.5	84.4	86.2	84.7	87.3	86.3	87.0	87.6	88.7	89.4	90.4	91.5	92.1	92.0	91.8	93.0	146.6
100	85.3	85.2	84.6	86.3	85.9	88.6	87.1	88.0	88.3	88.5	88.7	89.7	90.4	90.9	91.2	90.2	90.5	146.2
125	85.8	85.6	84.5	87.0	86.3	87.0	86.7	87.3	87.3	87.7	87.8	88.6	89.3	89.8	89.6	88.7	87.1	145.2
160	84.8	84.7	84.2	85.2	82.0	82.1	82.6	83.5	84.1	83.8	83.8	85.2	85.6	85.9	86.1	85.8	81.7	141.7
200	83.2	83.2	82.5	81.6	78.8	79.4	80.4	80.7	81.3	79.4	80.5	82.1	80.8	81.7	81.1	81.2	77.6	138.3
250	79.2	79.6	78.8	78.9	77.6	78.7	78.2	79.1	78.8	78.8	77.6	80.1	82.3	84.4	81.3	80.5	79.1	137.6
315	79.7	78.5	78.4	80.7	80.9	80.9	80.3	80.8	81.3	84.2	83.2	84.7	87.7	88.9	87.2	85.7	83.5	142.0
400	80.9	80.5	81.1	84.0	84.9	84.6	84.3	83.9	84.8	86.6	87.2	88.3	90.1	91.6	89.8	87.7	85.0	145.1
500	81.7	81.9	83.0	84.8	85.3	84.3	84.9	84.8	86.3	87.4	88.4	89.2	90.9	92.2	90.0	87.6	84.5	145.8
630	84.0	82.4	85.3	84.3	85.0	84.9	85.7	85.8	87.2	87.5	88.5	89.5	90.8	91.4	89.2	86.9	84.3	145.9
800	83.3	82.4	83.7	84.8	85.3	84.5	83.8	85.4	85.7	86.2	87.8	89.1	88.3	88.5	87.0	85.2	82.8	144.7
1000	85.1	85.1	86.9	88.1	88.1	86.8	87.0	86.8	87.8	88.9	89.6	89.5	90.4	90.3	37.2	86.5	84.0	146.7
1250	91.8	92.9	93.8	93.4	95.4	94.6	95.8	95.8	94.6	95.6	99.2	100.4	95.7	99.0	93.4	90.2	88.5	154.9
1600	96.7	98.2	99.0	98.5	100.8	100.1	101.7	101.6	100.0	101.4	105.3	106.5	99.4	104.5	99.1	95.1	93.7	160.9 ✓
2000	87.8	89.8	89.6	88.5	90.8	90.4	91.3	91.1	92.0	93.3	95.9	96.0	96.7	96.6	91.7	88.6	86.8	152.4
2500	92.8	94.9	94.9	94.1	95.7	96.1	96.5	96.0	98.3	99.1	103.2	103.5	102.7	104.3	99.1	95.4	93.7	159.3 ✓
3150	90.4	90.5	93.9	93.8	92.8	93.5	93.0	95.8	97.1	95.7	97.0	97.5	95.4	94.4	90.4	89.0	86.5	154.5
4000	93.1	93.4	94.7	93.8	95.4	95.1	95.3	96.7	95.9	97.2	99.5	101.2	99.4	95.8	92.7	91.8	89.1	157.1
5000	89.9	91.3	91.2	90.2	94.4	92.6	94.5	94.2	92.4	96.3	98.7	99.9	102.0	99.0	95.0	92.3	89.1	157.1
6300	85.2	86.4	87.7	87.5	90.5	87.7	89.7	90.1	90.2	91.1	93.7	95.7	95.9	96.3	90.3	86.7	83.6	153.5
8000	84.6	84.3	86.9	86.1	87.5	86.7	86.7	89.4	88.4	90.7	93.8	95.8	91.9	90.7	87.0	86.1	82.4	153.2
10000	80.7	80.5	81.1	80.9	85.5	82.2	84.2	84.3	84.1	86.4	89.8	91.3	91.5	89.5	85.8	82.5	78.9	151.9
OASPL MEASURED	103.7	104.7	105.5	105.3	106.7	106.4	107.2	107.4	107.3	108.3	111.2	112.3	110.7	111.7	107.2	104.8	103.6	
OASPL CALCULATED	102.2	103.3	104.1	103.9	105.4	104.9	105.8	106.2	105.9	107.0	110.1	111.1	109.2	110.1	106.0	103.9	102.9	
PNDB	115.6	116.4	117.3	116.9	118.4	117.9	118.8	119.2	119.5	120.5	123.5	124.3	123.4	124.2	119.9	117.1	115.2	
																	OAPWL	166.9

DIRECTIVITY INDEX

FREQ.																	
50	-7.9	-7.4	-6.5	-0.8	-6.3	-4.0	-5.4	-4.1	-4.5	-2.2	-1.1	0.4	1.5	2.1	3.1	5.1	5.5
63	-6.0	-5.5	-5.7	-1.6	-6.1	-4.3	-4.5	-3.7	-3.5	-1.8	-0.7	0.7	1.6	2.6	2.9	4.0	5.2
80	-3.9	-4.1	-5.2	-3.4	-4.9	-2.3	-3.3	-2.6	-2.0	-0.9	-0.2	0.9	1.9	2.5	2.4	2.3	3.5
100	-3.7	-3.9	-4.5	-2.7	-3.2	-0.4	-2.0	-1.1	-0.8	-0.6	-0.4	0.7	1.4	1.8	2.1	1.2	1.4
125	-2.2	-2.4	-3.5	-1.0	-1.8	-1.1	-1.4	-0.8	-0.8	-0.3	-0.3	0.5	1.3	1.8	1.6	0.7	-1.0
160	0.4	0.3	-0.3	0.8	-2.5	-2.4	-1.8	-0.9	-0.4	-0.7	-0.7	0.7	1.2	1.5	1.7	1.4	-2.8
200	2.3	2.2	1.6	0.6	-2.1	-1.5	-0.6	-0.2	0.4	-1.5	-0.4	1.2	-0.1	0.7	0.2	0.2	-3.3
250	-1.0	-0.5	-1.4	-1.2	-2.6	-1.5	-2.0	-1.1	-1.4	-1.4	-2.6	-0.0	2.1	4.2	1.2	0.3	-1.0
315	-4.8	-6.0	-6.1	-3.8	-3.5	-3.6	-4.1	-3.7	-3.2	-0.3	-1.2	0.3	3.2	4.5	2.7	1.2	-1.0
400	-6.5	-6.9	-6.3	-3.4	-2.5	-2.8	-3.1	-3.5	-2.6	-0.8	-0.2	1.0	2.8	4.2	2.4	0.3	-2.4
500	-6.3	-6.2	-5.0	-3.2	-2.8	-3.8	-3.1	-3.2	-1.7	-0.7	0.3	1.1	2.8	4.1	2.0	-0.4	-3.5
630	-4.1	-5.6	-2.7	-3.7	-3.0	-3.2	-2.3	-2.2	-0.9	-0.6	0.5	1.4	2.8	3.4	1.1	-1.2	-3.7
800	-3.3	-4.2	-2.9	-1.8	-1.4	-2.1	-2.8	-1.2	-0.9	-0.5	1.2	2.4	1.7	1.8	0.4	-1.4	-3.8
1000	-3.4	-3.3	-1.6	-0.3	-0.4	-1.7	-1.5	-1.7	-0.6	0.4	1.1	1.0	1.9	1.8	-1.3	-2.0	-4.5
1250	-4.8	-3.7	-2.8	-3.2	-1.2	-1.9	-0.8	-0.8	-2.0	-1.0	2.6	3.8	-0.9	2.4	-3.2	-6.3	-8.1
1600	-5.6	-4.0	-3.3	-3.8	-1.5	-2.2	-0.6	-0.7	-2.3	-0.9	3.0	4.3	-2.9	2.2	-3.2	-7.2	-8.5
2000	-5.8	-3.8	-4.0	-5.1	-2.8	-3.2	-2.2	-2.5	-1.6	-0.3	2.3	2.4	3.1	3.0	-1.9	-5.0	-6.8
2500	-7.5	-5.4	-5.4	-6.2	-4.6	-4.2	-3.8	-4.3	-2.0	-1.2	2.9	3.2	2.4	4.0	-1.2	-4.9	-6.5
3150	-4.8	-4.7	-1.3	-1.3	-2.3	-1.7	-2.2	0.6	1.9	0.5	1.9	2.4	0.3	-0.7	-4.8	-6.1	-8.6
4000	-4.1	-3.9	-2.5	-3.4	-1.9	-2.1	-1.9	-0.5	-1.3	0.0	2.3	4.0	2.2	-1.4	-4.5	-5.4	-8.1
5000	-7.1	-5.7	-5.8	-6.8	-2.6	-4.4	-2.5	-2.8	-4.6	-0.7	1.7	2.9	5.0	2.1	-1.9	-4.7	-7.9
6300	-7.3	-6.0	-4.8	-4.9	-1.9	-4.8	-2.8	-2.3	-2.2	-1.4	1.3	3.2	3.5	3.8	-2.1	-5.7	-8.8
8000	-6.2	-6.4	-3.9	-4.7	-3.2	-4.0	-4.0	-1.3	-2.3	-0.0	3.0	5.1	1.1	-0.0	-3.8	-4.7	-8.4
10000	-6.8	-7.0	-6.4	-6.5	-1.9	-5.2	-3.3	-3.1	-3.4	-1.1	2.4	3.8	4.0	2.0	-1.6	-5.0	-8.6

RUN 7 3472 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7,Pt.111
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m3).. 11.5
(kg/m3).. 0.0115
PHYS. FAN SPEED(RPM).... 3562
(rad/sec) 372.9
CORR. FAN SPEED(RPM).... 3538.2
(rad/sec) 370.4
TAPE NUMBER..... P650

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	79.2	79.3	80.6	84.4	81.5	82.4	82.6	84.6	84.5	86.2	87.0	88.5	89.9	90.4	92.4	94.0	94.2	145.3
63	84.0	84.3	84.7	86.2	84.1	84.8	85.5	86.8	87.2	89.3	89.9	91.1	92.3	93.3	94.3	95.7	96.8	147.8
80	86.2	85.7	84.7	85.8	85.6	87.0	87.0	87.6	88.4	89.3	90.0	90.7	92.2	92.9	93.9	93.6	95.0	147.5
100	86.2	85.9	85.3	87.1	87.1	89.2	88.4	89.1	89.6	89.8	89.9	90.6	91.7	92.2	92.9	92.2	92.8	147.5
125	86.9	86.4	85.0	87.1	86.6	87.2	87.5	87.9	88.5	88.5	88.2	88.5	89.2	89.8	90.7	90.3	89.0	145.8
160	86.1	86.0	85.3	85.5	82.7	82.9	83.2	84.8	85.6	84.3	84.2	85.0	85.3	85.5	86.9	86.7	83.0	142.3
200	84.5	84.4	84.1	82.5	80.1	80.4	81.8	82.3	82.6	80.4	81.0	80.6	79.5	80.6	81.7	81.7	78.9	138.9
250	80.7	80.6	80.5	80.1	79.0	79.7	79.9	80.7	80.4	79.4	78.5	79.3	83.8	86.0	84.2	83.0	81.4	139.1
315	79.8	79.3	79.6	81.9	81.7	81.5	80.8	80.9	82.1	85.1	85.3	85.7	89.7	90.5	89.8	87.7	85.4	143.6
400	81.3	81.3	82.5	84.8	85.6	86.0	84.5	84.1	85.2	87.6	89.0	89.3	91.9	93.2	92.0	89.9	87.0	146.5
500	82.1	83.0	83.8	85.9	85.8	84.9	85.6	85.5	87.0	88.4	89.9	90.1	91.7	93.1	91.4	89.0	86.1	146.8
630	85.6	83.9	85.2	87.8	86.5	86.3	87.3	86.5	88.5	88.7	89.9	89.9	90.7	91.4	89.9	88.1	86.0	146.8
800	84.6	83.5	84.9	85.9	86.4	85.5	85.2	86.0	86.8	86.9	87.9	87.9	88.5	89.1	87.3	86.5	84.1	145.1
1000	86.0	86.3	87.6	88.7	88.4	87.7	88.1	87.5	88.5	89.0	90.9	90.7	92.3	92.3	89.0	88.5	85.2	147.9
1250	89.2	89.9	91.5	90.5	92.1	90.9	91.0	90.8	90.6	91.3	94.2	93.8	93.6	94.1	90.8	88.4	86.0	150.5
1600	98.3	99.1	100.1	98.9	101.8	99.6	99.4	96.8	97.8	100.2	104.7	104.3	99.4	99.6	98.6	94.2	93.1	159.3
2000	86.6	88.5	89.1	88.7	91.1	90.8	91.1	91.2	91.4	92.4	93.9	94.1	95.5	94.5	90.2	87.7	85.2	151.2
2500	93.0	93.3	94.3	94.6	95.8	96.3	97.8	99.0	99.3	100.2	102.3	105.8	105.0	104.7	100.1	97.2	93.4	160.4
3150	90.6	91.0	94.6	94.5	92.7	93.7	93.5	96.5	98.9	97.1	98.4	98.4	96.5	95.6	92.0	90.6	87.7	155.6
4000	92.3	93.1	94.4	93.8	95.0	95.3	95.3	96.8	96.9	97.7	99.8	101.0	98.8	96.3	93.4	92.4	89.5	157.1
5000	90.2	92.2	91.9	91.5	95.3	94.6	95.3	94.7	95.1	97.5	99.8	102.0	102.4	100.2	96.7	94.1	91.2	158.3
6300	85.0	86.4	87.7	88.2	90.6	88.2	90.3	90.6	91.6	91.9	94.6	96.0	96.5	97.0	91.6	88.0	84.7	154.2
8000	84.7	84.7	87.2	87.0	87.9	87.6	87.4	90.2	90.3	91.9	95.2	97.5	92.8	92.1	88.4	87.8	84.0	154.5
10000	79.1	80.7	81.4	81.7	85.9	83.0	85.0	85.0	85.9	87.5	91.0	92.5	92.0	90.8	87.1	84.0	80.1	152.9
OASPL MEASURED	104.1	104.7	105.8	105.5	106.9	106.3	106.6	106.9	107.7	108.4	110.8	112.0	111.2	110.6	107.8	106.0	104.5	
OASPL CALCULATED	102.7	103.3	104.4	104.1	105.7	104.9	105.2	105.5	106.3	107.2	109.8	111.0	109.9	109.5	106.8	105.1	103.9	
PNDB	115.8	116.5	117.5	117.4	118.9	118.1	118.9	119.7	120.5	121.2	123.3	125.3	124.7	124.3	120.8	118.5	115.5	
																	OAPWL	167.0

DIRECTIVITY INDEX

FREQ.																	
50	-9.2	-9.1	-7.9	-4.1	-6.9	-6.0	-5.9	-3.9	-3.9	-2.3	-1.4	0.0	1.5	2.0	4.0	5.5	5.8
63	-6.9	-6.6	-6.1	-4.7	-6.8	-6.1	-5.4	-4.0	-3.6	-1.6	-1.0	0.2	1.5	2.5	3.4	4.9	5.9
80	-4.3	-4.9	-5.9	-4.7	-4.9	-3.5	-3.5	-2.9	-2.1	-1.2	-0.5	0.2	1.7	2.4	3.4	3.1	4.5
100	-4.2	-4.4	-5.0	-3.3	-3.2	-1.2	-2.0	-1.3	-0.8	-0.6	-0.5	0.2	1.3	1.9	2.5	1.8	2.5
125	-1.7	-2.2	-3.6	-1.5	-2.0	-1.4	-1.1	-0.7	-0.1	-0.2	-0.4	-0.1	0.6	1.2	2.1	1.7	0.3
160	1.2	1.1	0.3	0.5	-2.3	-2.0	-1.8	-0.2	0.6	-0.7	-0.8	-0.0	0.3	0.5	1.9	1.7	-2.0
200	3.0	2.9	2.6	1.1	-1.3	-1.1	0.3	0.8	1.1	-1.1	-0.5	-0.8	-2.0	-0.9	0.2	0.2	-2.6
250	-1.0	-1.0	-1.1	-1.5	-2.6	-1.9	-1.8	-0.9	-1.3	-2.2	-3.2	-2.3	2.2	4.4	2.6	1.4	-0.3
315	-6.2	-6.8	-6.4	-4.1	-4.3	-4.5	-5.2	-5.2	-3.9	-0.9	-0.8	-0.4	3.6	4.5	3.8	1.6	-0.6
400	-7.6	-7.5	-6.3	-4.0	-3.2	-2.8	-4.3	-4.7	-3.6	-1.2	0.2	0.5	3.0	4.4	3.1	1.1	-1.8
500	-7.0	-6.1	-5.3	-3.2	-3.3	-4.1	-3.4	-3.6	-2.1	-0.7	0.9	1.0	2.6	4.1	2.4	-0.0	-3.0
630	-3.3	-4.9	-3.7	-1.1	-2.4	-2.6	-1.5	-2.4	-0.3	-0.1	1.1	1.0	1.8	2.5	1.0	-0.7	-2.8
800	-2.5	-3.6	-2.2	-1.1	-0.7	-1.6	-1.9	-1.0	-0.3	-0.2	0.8	0.9	1.4	2.0	0.2	-0.6	-3.0
1000	-3.7	-3.4	-2.0	-1.0	-1.3	-1.9	-1.6	-2.2	-1.1	-0.6	1.2	1.0	2.6	2.6	-0.7	-1.1	-4.5
1250	-2.9	-2.2	-0.7	-1.6	-0.1	-1.3	-1.1	-1.4	-1.5	-0.8	2.0	1.7	1.5	1.9	-1.3	-3.7	-6.1
1600	-2.5	-1.6	-0.6	-1.9	1.0	-1.1	-1.4	-3.9	-2.9	-0.5	4.0	3.6	-1.3	-1.1	-2.2	-6.5	-7.6
2000	-5.8	-3.9	-3.3	-3.7	-1.3	-1.6	-1.3	-1.2	-1.0	-0.1	1.5	1.7	3.1	2.1	-2.2	-4.7	-7.2
2500	-8.5	-8.2	-7.1	-6.8	-5.6	-5.2	-3.7	-2.5	-2.2	-1.2	0.9	4.3	3.6	3.3	-1.3	-4.2	-8.0
3150	-5.6	-5.2	-1.7	-1.8	-3.6	-2.5	-2.7	0.3	2.6	0.9	2.2	2.2	0.2	-0.6	-4.2	-5.6	-8.5
4000	-5.0	-4.2	-2.9	-3.5	-2.2	-2.0	-2.0	-0.5	-0.4	0.4	2.5	3.7	1.5	-1.0	-3.9	-4.9	-7.8
5000	-8.0	-6.0	-6.3	-6.7	-2.9	-3.6	-2.9	-3.5	-3.1	-0.7	1.6	3.8	4.2	2.0	-1.5	-4.1	-7.0
6300	-8.1	-6.8	-5.4	-5.0	-2.6	-4.9	-2.8	-2.5	-1.5	-1.2	1.5	2.9	3.4	3.9	-1.6	-5.1	-8.4
8000	-7.4	-7.4	-4.9	-5.1	-4.2	-4.4	-4.7	-1.9	-1.8	-0.2	3.1	5.4	0.7	0.0	-3.6	-4.3	-8.1
10000	-9.4	-7.8	-7.1	-6.8	-2.6	-5.5	-3.5	-3.5	-2.5	-1.0	2.5	4.0	3.5	2.3	-1.4	-4.4	-8.4

RUN 7 3562 RPM

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC. DATE - MONTH 9 DAY 27 HR. 9.0

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7.Pt.119
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³)... 12.3
(kg/m³)... 0.0123
PHYS. FAN SPEED (RPM).... 3562
(rad/sec) 372.9
CORR. FAN SPEED (RPM).... 3538.2
(rad/sec) 370.4
TAPE NUMBER..... P648

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	83.5	82.5	79.4	80.9	80.8	81.4	81.8	85.1	84.0	86.1	86.8	88.9	89.8	90.5	91.9	94.0	94.4	145.2
63	86.1	85.4	83.6	83.7	84.0	83.9	85.2	87.4	86.9	89.0	90.2	91.3	92.4	93.1	93.7	95.6	96.4	147.6
80	87.6	86.0	84.3	84.7	85.5	86.7	86.7	87.7	88.0	89.2	89.7	91.0	92.2	92.8	93.3	93.4	94.4	147.3
100	87.1	86.1	84.9	86.0	86.9	89.0	88.0	89.1	89.3	89.8	89.4	90.4	91.3	91.8	92.3	91.8	92.3	147.1
125	87.2	86.2	84.7	86.9	87.2	87.5	87.8	88.3	88.3	88.5	87.9	88.6	89.5	89.9	90.4	90.3	88.3	145.8
160	85.8	85.7	84.7	85.2	82.7	83.0	83.4	85.0	85.3	84.3	84.1	85.1	85.3	85.8	86.9	86.8	83.0	142.3
200	84.4	84.2	83.4	82.1	80.4	80.8	82.2	82.3	82.3	79.7	81.0	81.3	80.0	81.0	81.6	82.0	79.0	138.9
250	80.6	80.5	79.8	79.1	78.9	80.5	80.2	80.9	80.1	80.2	78.7	79.9	83.3	85.3	83.3	82.8	80.9	138.9
315	79.8	78.8	78.6	80.6	81.2	80.9	80.4	81.6	82.1	85.7	85.0	85.6	89.1	90.0	89.1	87.3	84.9	143.2
400	81.3	80.7	81.6	84.0	85.2	84.8	84.4	84.7	85.4	87.9	88.3	89.0	91.3	92.8	91.5	89.3	86.5	146.1
500	82.3	82.3	83.2	85.3	85.7	84.8	85.3	85.9	87.0	88.5	89.3	89.6	91.2	92.6	91.1	88.5	85.5	146.5
630	84.4	84.1	86.0	86.4	86.5	86.6	87.4	86.9	87.8	89.0	89.4	89.3	89.9	91.2	89.9	87.8	85.1	146.5
800	83.8	83.2	85.0	85.4	85.8	85.8	85.3	85.8	86.5	87.4	88.2	88.5	88.9	88.6	87.4	86.2	83.8	145.2
1000	85.6	85.5	87.2	88.1	89.0	87.7	88.1	88.1	88.5	89.6	90.8	90.9	91.9	91.5	89.1	88.1	85.0	147.8
1250	90.0	90.3	91.6	91.1	92.4	92.0	92.9	92.5	91.4	93.5	94.5	94.0	93.9	95.2	91.6	89.0	86.4	151.4
1600	98.6	98.5	100.2	98.9	100.7	100.5	102.0	100.9	98.6	102.7	102.7	102.3	100.2	102.9	100.1	96.3	93.9	159.7
2000	86.9	88.7	89.2	88.3	90.9	90.5	91.9	91.6	91.4	93.6	94.5	94.2	95.7	94.7	90.5	87.7	85.7	151.6
2500	93.4	94.1	95.2	94.9	96.8	95.6	99.1	97.3	99.3	102.4	102.9	104.2	103.8	104.4	99.6	96.0	94.2	160.2
3150	91.0	90.9	94.1	94.3	92.9	94.1	93.9	96.7	98.3	97.6	98.4	98.0	96.7	95.6	91.7	90.3	87.8	155.6
4000	93.2	93.0	94.6	93.8	95.2	95.1	95.6	97.0	96.6	98.5	100.1	100.8	99.4	96.3	93.5	92.3	89.7	157.3
5000	90.4	91.8	91.6	90.8	95.2	93.6	95.2	94.6	93.7	97.9	100.8	101.0	102.9	100.2	96.6	94.0	90.7	158.4
6300	85.2	86.2	87.5	87.5	90.5	88.0	90.3	90.6	91.2	92.5	94.8	95.5	96.6	97.1	91.5	87.7	84.6	154.1
8000	84.8	84.3	86.9	86.2	87.6	87.0	87.2	90.0	89.7	92.5	95.2	96.3	92.8	91.9	88.2	87.2	83.6	154.1
10000	79.0	80.2	80.9	80.8	85.5	82.5	84.7	84.8	85.1	83.0	91.0	91.5	91.9	90.5	86.8	83.4	79.7	152.5
OASPL MEASURED	104.5	104.6	105.8	105.3	106.7	106.5	107.6	107.6	107.6	109.7	110.8	111.2	111.2	111.1	107.9	105.9	104.5	
OASPL CALCULATED	103.1	103.2	104.4	103.9	105.4	105.0	106.4	106.2	106.1	108.6	109.5	110.0	109.8	109.8	106.8	105.0	103.8	
PNDB	116.1	116.2	117.5	117.1	118.5	118.1	119.8	119.6	120.2	122.6	123.5	124.3	124.2	124.3	120.5	117.9	115.8	
																	OAPWL	167.0

DIRECTIVITY INDEX

FREQ.																	
50	-4.9	-5.8	-9.0	-7.4	-7.5	-6.9	-6.5	-3.2	-4.3	-2.2	-1.5	0.5	1.4	2.1	3.6	5.7	6.0
63	-4.6	-5.3	-7.1	-7.0	-6.7	-6.8	-5.5	-3.3	-3.7	-1.7	-0.5	0.6	1.7	2.4	3.0	4.9	5.7
80	-2.7	-4.3	-6.0	-5.6	-4.8	-3.6	-3.6	-2.6	-2.3	-1.1	-0.6	0.7	1.9	2.5	3.0	3.1	4.1
100	-3.0	-3.9	-5.1	-4.0	-3.1	-1.1	-2.0	-0.9	-0.8	-0.3	-0.6	0.3	1.3	1.7	2.3	1.8	2.3
125	-1.5	-2.5	-4.0	-1.7	-1.5	-1.2	-0.8	-0.3	-0.3	-0.2	-0.7	0.0	0.9	1.3	1.8	1.7	-0.3
160	0.8	0.7	-0.3	0.2	-2.3	-2.0	-1.5	-0.0	0.3	-0.7	-0.9	0.1	0.3	0.9	1.9	1.8	-2.0
200	2.9	2.6	1.9	0.6	-1.1	-0.8	0.6	0.8	0.8	-1.8	-0.6	-0.2	-1.5	-0.6	0.0	0.5	-2.5
250	-0.8	-1.0	-1.6	-2.3	-2.6	-0.9	-1.2	-0.5	-1.4	-1.3	-2.8	-1.5	1.8	3.9	1.9	1.4	-0.5
315	-5.8	-6.9	-7.0	-5.1	-4.5	-4.8	-5.3	-4.0	-3.6	-0.0	-0.7	-0.1	3.5	4.5	3.4	1.6	-0.8
400	-7.1	-7.7	-6.9	-4.4	-3.2	-3.6	-4.0	-3.8	-3.0	-0.5	-0.1	0.6	2.9	4.3	3.0	0.9	-1.9
500	-6.4	-6.4	-5.5	-3.4	-3.0	-3.9	-3.4	-2.8	-1.7	-0.2	0.6	0.9	2.5	3.8	2.4	-0.2	-3.2
630	-4.2	-4.5	-2.6	-2.2	-2.1	-2.0	-1.2	-1.7	-0.8	0.4	0.8	0.7	1.3	2.6	1.3	-0.8	-3.5
800	-3.3	-3.9	-2.2	-1.7	-1.4	-1.3	-1.9	-1.4	-0.7	0.3	1.0	1.4	1.8	1.5	0.3	-0.9	-3.4
1000	-4.0	-4.1	-2.4	-1.6	-0.6	-1.9	-1.5	-1.5	-1.1	-0.0	1.2	1.3	2.3	1.9	-0.5	-1.5	-4.6
1250	-3.1	-2.8	-1.4	-1.9	-0.6	-1.0	-0.1	-0.5	-1.6	0.4	1.5	1.0	0.9	2.2	-1.4	-4.0	-6.6
1600	-2.6	-2.7	-0.9	-2.3	-0.5	-0.7	0.8	-0.2	-2.6	1.6	1.6	1.1	-1.0	1.7	-1.1	-4.8	-7.3
2000	-5.8	-4.0	-3.5	-4.4	-1.9	-2.2	-0.8	-1.2	-1.4	0.9	1.8	1.4	3.0	2.0	-2.3	-5.0	-7.1
2500	-7.7	-7.0	-6.0	-6.2	-4.4	-5.5	-2.0	-3.8	-1.8	1.3	1.7	3.1	2.7	3.3	-1.5	-5.2	-6.9
3150	-5.2	-5.3	-2.1	-1.9	-3.3	-2.1	-2.3	0.5	2.1	1.3	2.2	1.8	0.5	-0.6	-4.5	-5.9	-8.4
4000	-4.3	-4.5	-2.9	-3.7	-2.3	-2.4	-1.9	-0.5	-0.9	1.0	2.7	3.3	1.9	-1.2	-4.0	-5.1	-7.8
5000	-7.8	-6.4	-6.6	-7.5	-3.0	-4.6	-3.0	-3.6	-4.5	-0.3	2.6	2.8	4.7	2.0	-1.7	-4.2	-7.5
6300	-7.9	-6.9	-5.6	-5.6	-2.6	-5.1	-2.8	-2.5	-1.9	-0.6	1.7	2.4	3.5	4.0	-1.6	-5.4	-8.5
8000	-6.9	-7.3	-4.8	-5.5	-4.1	-4.7	-4.4	-1.7	-2.0	0.8	3.5	4.6	1.1	0.2	-3.5	-4.5	-8.1
10000	-9.1	-7.9	-7.3	-7.4	-2.7	-5.7	-3.4	-3.4	-3.0	-0.2	2.9	3.4	3.7	2.3	-1.3	-4.8	-8.5

RUN 7 3562 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/10/68
RUN..... 7,Pt.112
BAROMETER.....(in Hg).. 28.8
(N/m²).. 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 60.0
(°K)..... 288.7
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 3647
(rad/sec) 381.8
CORR. FAN SPEED (RPM).... 3622.6
(rad/sec) 379.3
TAPE NUMBER..... P650

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	79.2	79.6	79.9	81.9	81.1	83.0	83.8	84.3	84.5	86.9	88.0	89.7	90.9	91.3	93.2	95.0	95.4	146.1
63	84.4	84.5	84.5	84.1	83.8	84.6	86.8	87.4	87.9	90.1	90.7	92.1	93.1	93.9	95.0	96.1	97.5	148.4
80	86.6	86.1	84.9	85.3	86.0	87.2	87.5	87.8	88.7	89.8	90.8	92.0	93.4	93.7	94.6	94.4	96.1	148.3
100	86.8	86.5	85.8	86.7	87.2	89.2	88.6	89.2	89.8	90.3	90.5	91.1	92.5	92.6	93.7	93.0	93.6	148.0
125	87.6	87.3	85.9	87.6	87.4	87.8	88.2	88.8	89.0	89.1	89.1	89.4	90.6	90.8	91.8	91.4	89.6	146.6
160	86.3	86.1	85.3	85.7	83.1	83.8	84.3	86.3	86.6	85.6	86.0	86.6	87.1	86.9	88.1	88.0	84.1	143.5
200	84.5	84.7	83.8	82.5	81.0	81.3	83.3	83.5	83.7	81.6	82.9	82.8	81.6	81.3	82.7	83.0	79.9	140.0
250	80.9	80.8	80.3	80.4	79.8	81.1	83.8	82.9	82.6	80.0	79.6	80.3	83.3	85.5	84.3	83.6	81.8	139.9
315	80.6	80.3	80.0	82.2	81.8	82.2	81.9	82.4	83.1	85.7	85.6	86.0	89.7	90.7	90.0	88.3	85.8	143.9
400	82.6	82.3	82.8	86.2	87.9	87.3	85.3	86.3	86.9	88.8	89.8	90.0	93.0	93.6	92.4	90.3	87.6	147.4
500	82.9	83.2	84.5	86.5	86.6	86.2	86.0	86.8	88.1	89.3	90.8	91.1	92.8	94.0	92.2	89.9	86.8	147.8
630	84.1	85.1	86.6	88.2	87.9	88.6	87.9	87.6	89.0	89.6	91.4	91.0	92.4	93.0	91.4	89.3	87.2	148.0
800	85.0	85.2	86.2	86.9	86.8	87.7	87.0	87.6	87.2	87.7	88.7	89.2	89.3	89.1	88.4	87.5	85.6	146.1
1000	86.6	88.2	89.0	90.4	89.9	89.8	91.4	89.6	88.9	90.7	92.1	91.5	92.5	92.2	89.8	89.3	86.0	149.0
1250	88.5	89.5	90.8	91.2	91.3	91.3	92.1	91.9	90.3	91.0	93.1	94.0	94.8	95.0	91.2	89.1	87.3	150.8
1600	97.1	98.0	100.4	100.4	102.5	99.7	100.6	97.4	96.6	98.8	100.9	102.1	102.4	102.3	98.4	94.7	94.3	158.9
2000	87.2	89.0	89.6	89.0	91.6	91.3	92.3	92.1	91.5	92.5	93.9	94.6	95.9	94.0	90.3	88.1	85.7	151.5
2500	93.5	95.5	94.9	94.4	97.3	96.6	98.5	98.8	97.9	100.2	101.4	107.0	106.7	104.8	99.6	96.8	94.5	161.0
3150	91.2	90.8	94.3	94.5	92.9	94.1	94.6	97.6	99.4	97.9	99.0	99.4	96.9	95.9	92.7	91.1	88.4	156.2
4000	92.5	93.1	94.1	93.6	94.8	95.2	96.0	97.8	97.5	98.4	100.4	102.0	99.2	96.4	93.7	92.7	89.7	157.7
5000	90.5	91.7	91.6	91.3	95.4	94.4	96.4	95.8	95.5	98.6	101.5	102.1	102.4	101.3	97.5	94.5	91.2	159.0
6300	85.0	86.2	87.4	87.9	90.5	88.3	90.9	91.7	92.4	92.6	95.1	96.4	97.7	98.1	92.6	88.6	85.2	154.9
8000	84.8	84.7	86.9	87.0	87.9	87.9	88.5	91.5	91.4	92.7	95.9	98.5	93.8	93.1	89.3	88.3	84.4	155.4
10000	79.1	80.6	81.1	81.7	85.8	83.2	86.0	86.3	86.6	88.2	91.6	92.9	92.9	91.7	87.9	84.5	80.5	153.6
OASPL MEASURED	104.0	104.8	106.0	106.1	107.5	106.7	107.7	107.7	107.8	108.7	110.6	112.4	112.3	111.3	108.1	106.4	105.3	
OASPL CALCULATED	102.5	103.3	104.5	104.7	106.2	105.2	106.2	106.2	106.3	107.4	109.2	111.4	111.2	110.2	107.2	105.6	104.7	
PNDB	115.6	116.8	117.7	117.9	119.5	118.5	119.8	120.2	120.9	121.4	123.0	126.2	126.0	124.7	120.9	118.6	116.4	
																	OAPWL	167.5

DIRECTIVITY INDEX

FREQ.																	
50	-10.0	-9.6	-9.4	-7.4	-8.1	-6.3	-5.5	-5.0	-4.8	-2.3	-1.3	0.5	1.6	2.0	3.9	5.7	6.1
63	-7.1	-7.0	-7.0	-7.4	-7.7	-6.9	-4.7	-4.1	-3.6	-1.4	-0.8	0.6	1.6	2.4	3.5	4.6	6.0
80	-4.7	-5.2	-6.4	-6.0	-5.3	-4.1	-3.8	-3.5	-2.5	-1.4	-0.5	0.8	2.1	2.4	3.3	3.1	4.9
100	-4.0	-4.3	-5.1	-4.1	-3.7	-1.7	-2.2	-1.7	-1.1	-0.5	-0.4	0.3	1.6	1.7	2.8	2.1	2.7
125	-1.9	-2.1	-3.6	-1.8	-2.1	-1.7	-1.3	-0.7	-0.5	-0.3	-0.3	-0.1	1.1	1.3	2.3	1.9	0.1
160	0.1	-0.1	-1.0	-0.5	-3.1	-2.4	-1.9	0.1	0.3	-0.6	-0.2	0.4	0.8	0.7	1.8	1.8	-2.1
200	1.8	2.0	1.1	-0.1	-1.7	-1.3	0.6	0.8	1.0	-1.1	0.2	0.1	-1.0	-1.4	0.0	0.4	-2.7
250	-1.6	-1.6	-2.1	-2.0	-2.7	-1.4	1.3	0.5	0.1	-2.4	-2.8	-2.2	0.8	3.1	1.9	1.1	-0.6
315	-5.8	-6.1	-6.4	-4.2	-4.6	-4.2	-4.5	-4.0	-3.3	-0.7	-0.8	-0.4	3.3	4.3	3.7	1.9	-0.6
400	-7.1	-7.4	-6.9	-3.5	-1.9	-2.4	-4.4	-3.4	-2.8	-0.9	0.1	0.2	3.3	3.9	2.7	0.6	-2.2
500	-7.1	-6.8	-5.5	-3.5	-3.4	-3.8	-4.0	-3.2	-1.9	-0.6	0.8	1.1	2.8	4.0	2.2	-0.1	-3.2
630	-6.0	-5.1	-3.5	-1.9	-2.3	-1.5	-2.2	-2.5	-1.2	-0.6	1.2	0.9	2.2	2.9	1.3	-0.8	-2.9
800	-3.0	-2.8	-1.9	-1.1	-1.2	-0.3	-1.1	-0.4	-0.8	-0.3	0.6	1.2	1.2	1.0	0.3	-0.6	-2.5
1000	-4.2	-2.6	-1.8	-0.4	-0.9	-1.0	0.7	-1.2	-1.9	-0.1	1.3	0.7	1.7	1.4	-1.0	-1.5	-4.8
1250	-3.9	-2.9	-1.6	-1.3	-1.1	-1.1	-0.4	-0.5	-2.1	-1.4	0.7	1.6	2.4	2.6	-1.2	-3.3	-5.1
1600	-3.3	-2.3	0.0	0.1	2.2	-0.6	0.2	-3.0	-3.7	-1.5	0.6	1.8	2.1	2.0	-2.0	-5.6	-6.1
2000	-5.5	-3.7	-3.1	-3.7	-1.1	-1.5	-0.4	-0.6	-1.2	-0.2	1.2	1.8	3.2	1.3	-2.4	-4.7	-7.0
2500	-8.5	-6.5	-7.1	-7.6	-4.7	-5.4	-3.6	-3.2	-4.1	-1.8	-0.6	5.0	4.7	2.8	-2.4	-5.2	-7.5
3150	-5.7	-6.0	-2.5	-2.4	-4.0	-2.8	-2.3	0.7	2.5	1.0	2.1	2.5	-0.0	-1.0	-4.2	-5.8	-8.5
4000	-5.4	-4.8	-3.8	-4.3	-3.1	-2.6	-1.9	-0.1	-0.3	0.5	2.5	4.1	1.3	-1.5	-4.2	-5.1	-8.2
5000	-8.3	-7.1	-7.2	-7.5	-3.4	-4.4	-2.4	-3.1	-3.4	-0.3	2.6	3.3	3.6	2.5	-1.3	-4.3	-7.6
6300	-8.8	-7.7	-6.5	-5.9	-3.4	-5.5	-3.0	-2.2	-1.5	-1.3	1.2	2.5	3.8	4.3	-1.3	-5.2	-8.7
8000	-8.1	-8.2	-6.0	-6.0	-5.1	-5.0	-4.5	-1.5	-1.6	-0.2	3.0	5.5	0.8	0.2	-3.6	-4.6	-8.5
10000	-10.1	-8.6	-8.0	-7.4	-3.4	-6.0	-3.2	-2.9	-2.5	-1.0	2.4	3.7	3.8	2.5	-1.3	-4.6	-8.6

RUN 7 3647 RPM

C85

NASA QUIET FAN RUN 7 441-004/6 T/D 9/10/68 PROC, DATE - MONTH 9 DAY 27 HR, 9.0

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/10/68
RUN..... 7 Pt 120
BAROMETER.....(in Hg).. 28.8
(N/m²)... 97252
T AMBIENT.....(°F)..... 66.0
(°K)..... 292.0
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 12.3
(kg/m³).. 0.0123
PHYS. FAN SPEED (RPM).... 3650
(rad/sec) 382.2
CORR. FAN SPEED (RPM).... 3625.6
(rad/sec) 379.6
TAPE NUMBER..... P648

FREQ.	ANGLES FROM INLET																	PWL
	0, (0°)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50.0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	81.4	79.4	80.5	88.2	81.9	84.3	83.1	84.6	85.1	89.0	87.7	89.5	90.6	91.2	92.9	94.5	94.7	146.1
63	85.0	84.3	84.6	88.6	84.6	85.9	86.3	87.6	88.1	90.8	90.8	91.7	93.0	93.6	94.5	96.1	97.2	148.4
80	87.0	85.8	84.7	86.7	85.8	87.6	87.2	87.6	89.0	90.5	90.7	91.6	92.8	93.5	94.7	94.5	95.9	148.2
100	87.0	86.4	85.7	87.5	87.4	90.0	88.9	89.5	90.1	90.8	90.4	91.4	92.6	92.6	93.8	93.1	93.6	148.2
125	87.6	87.0	85.7	88.2	87.6	88.6	88.5	88.7	88.9	89.9	89.1	89.4	90.2	90.6	91.4	91.1	89.2	146.7
160	86.6	86.3	85.6	86.4	83.5	84.9	84.9	86.7	86.7	86.3	85.4	86.5	86.8	86.4	87.8	87.4	83.8	143.6
200	85.1	85.0	84.5	83.7	81.9	82.6	84.1	84.4	84.4	82.9	82.7	82.5	81.5	81.5	82.6	82.6	80.1	140.5
250	81.2	81.4	81.0	81.1	81.0	82.5	84.5	83.4	83.1	81.3	79.6	80.3	84.1	86.0	85.0	84.2	82.7	140.6
315	80.3	79.8	80.1	81.9	81.3	82.7	82.2	82.4	82.8	86.1	85.8	86.0	90.0	91.0	90.4	88.6	86.5	144.2
400	82.3	82.3	82.9	85.8	87.3	87.1	84.2	85.8	86.1	88.7	89.8	89.9	92.7	93.7	92.5	90.4	87.9	147.2
500	83.3	83.4	84.5	86.5	86.7	85.9	85.3	86.3	87.4	89.3	90.6	90.6	92.5	93.6	92.2	89.7	86.7	147.5
630	85.7	86.3	87.0	89.7	88.5	88.7	87.8	87.4	89.0	89.9	91.0	90.5	91.4	92.6	91.4	89.3	87.2	147.9
800	85.3	85.0	86.2	87.0	87.1	88.1	88.2	88.0	88.4	88.4	89.0	88.7	89.3	89.6	88.5	87.5	85.4	146.4
1000	86.7	88.0	88.9	90.0	91.1	89.6	90.2	89.4	89.6	90.9	92.1	91.5	93.1	92.2	90.0	89.3	85.9	149.1
1250	88.9	89.9	91.5	92.0	92.0	91.9	92.6	91.6	91.2	91.7	92.6	93.2	94.3	94.6	91.3	88.8	86.5	150.7
1600	98.0	97.9	100.4	101.0	100.8	101.0	100.0	98.9	97.5	99.0	99.3	101.6	101.0	100.9	98.9	94.6	94.2	158.5 ✓
2000	87.5	89.6	89.5	89.6	91.8	91.7	92.5	91.7	91.6	93.1	93.8	93.7	95.8	94.0	90.5	87.9	85.6	151.5
2500	93.0	95.4	94.8	94.8	97.6	97.2	97.9	98.6	99.6	100.8	101.3	104.6	106.7	105.2	99.6	97.0	94.6	160.7 ✓
3150	91.3	91.2	94.4	94.9	93.2	94.7	94.4	97.8	99.3	98.5	98.9	99.0	97.2	95.6	92.6	91.0	88.2	156.3
4000	92.9	93.9	94.3	94.2	95.3	96.0	96.0	97.9	97.9	99.1	100.3	101.5	99.3	95.9	93.8	92.8	89.6	157.8
5000	90.7	92.1	91.7	91.7	95.8	95.0	96.4	95.7	95.5	99.8	100.3	102.1	102.3	100.9	97.3	94.5	91.1	158.9
6300	85.2	86.4	87.4	88.1	90.7	88.8	91.1	91.5	92.5	93.4	94.6	96.1	97.4	97.7	92.5	88.5	85.0	154.8
8000	84.9	84.7	86.9	87.0	87.9	88.2	87.9	91.1	91.4	93.8	95.2	97.7	93.5	92.6	89.1	88.1	84.3	155.1
10000	79.0	80.4	80.7	81.5	85.8	83.3	85.5	85.7	86.6	88.9	90.9	92.3	92.4	91.0	87.6	84.1	80.1	153.1
OASPL MEASURED	104.4	105.0	106.0	106.7	107.2	107.5	107.5	107.9	108.2	109.5	110.0	111.6	112.1	111.1	108.3	106.4	105.3	
OASPL CALCULATED	102.9	103.5	104.6	105.3	105.9	106.0	106.0	106.4	106.8	108.1	108.7	110.4	110.9	110.0	107.2	105.5	104.5	
PNDB	116.0	116.9	117.8	118.5	119.2	119.1	119.5	120.3	121.1	122.1	122.7	124.8	125.8	124.8	120.9	118.7	116.3	
																	GAPWL	167.3

DIRECTIVITY INDEX

FREQ.																	
50	-7.9	-9.9	-8.8	-1.1	-7.4	-5.0	-6.2	-4.7	-4.2	-0.3	-1.6	0.2	1.3	1.9	3.6	5.2	5.4
63	-6.5	-7.2	-6.9	-2.8	-6.9	-5.6	-5.2	-3.9	-3.4	-0.7	-0.7	0.2	1.5	2.1	3.0	4.6	5.8
80	-4.2	-5.4	-6.5	-4.5	-5.4	-3.6	-4.0	-3.6	-2.2	-0.7	-0.6	0.4	1.6	2.3	3.5	3.3	4.7
100	-4.0	-4.6	-5.4	-3.5	-3.7	-1.1	-2.1	-1.6	-0.9	-0.3	-0.6	0.3	1.5	1.5	2.7	2.1	2.5
125	-1.9	-2.5	-3.8	-1.3	-1.9	-0.9	-1.0	-0.8	-0.6	0.4	-0.4	-0.1	0.8	1.2	1.9	1.6	-0.3
160	0.3	0.1	-0.7	0.1	-2.8	-1.4	-1.4	0.4	0.4	0.1	-0.8	0.2	0.5	0.1	1.5	1.2	-2.5
200	2.0	1.8	1.4	0.5	-1.2	-0.5	1.0	1.2	1.2	-0.3	-0.5	-0.7	-1.6	-1.7	-0.6	-0.6	-3.1
250	-1.9	-1.7	-2.1	-2.1	-2.2	-0.6	1.4	0.2	0.0	-1.9	-3.5	-2.8	0.9	2.9	1.9	1.0	-0.4
315	-6.3	-6.8	-6.5	-4.8	-5.3	-4.0	-4.4	-4.3	-3.8	-0.6	-0.9	-0.7	3.4	4.3	3.8	2.0	-0.1
400	-7.2	-7.3	-6.7	-3.8	-2.3	-2.4	-5.4	-3.8	-3.5	-0.9	0.3	0.3	3.1	4.1	2.9	0.9	-1.7
500	-6.4	-6.3	-5.2	-3.3	-3.0	-3.8	-4.5	-3.4	-2.3	-0.4	0.9	0.9	2.8	3.9	2.5	0.0	-3.0
630	-4.2	-3.7	-3.0	-0.3	-1.5	-1.3	-2.2	-2.6	-1.0	-0.0	1.0	0.5	1.4	2.6	1.4	-0.7	-2.8
800	-3.1	-3.4	-2.2	-1.4	-1.2	-0.3	-0.2	-0.4	0.0	-0.0	0.6	0.3	0.9	1.2	0.2	-0.9	-3.0
1000	-4.2	-2.9	-1.9	-0.9	0.2	-1.2	-0.7	-1.4	-1.3	0.0	1.2	0.6	2.2	1.3	-0.9	-1.6	-5.0
1250	-3.5	-2.5	-0.9	-0.4	-0.4	-0.5	0.2	-0.8	-1.2	-0.7	0.2	0.8	1.9	2.2	-1.1	-3.5	-5.9
1600	-1.9	-2.0	0.4	1.1	0.9	1.1	0.1	-1.1	-2.4	-0.9	-0.6	1.7	1.1	0.9	-1.1	-5.3	-5.7
2000	-5.2	-3.1	-3.2	-3.1	-0.9	-1.0	-0.2	-1.0	-1.1	0.5	1.1	1.0	3.1	1.3	-2.2	-4.8	-7.1
2500	-8.6	-6.3	-6.8	-6.8	-4.1	-4.4	-3.7	-3.1	-2.0	-0.8	-0.3	3.0	5.0	3.6	-2.0	-4.7	-7.1
3150	-5.7	-5.7	-2.6	-2.1	-3.7	-2.2	-2.5	0.8	2.3	1.6	2.0	2.1	0.2	-1.4	-4.4	-5.9	-8.8
4000	-5.1	-4.0	-3.7	-3.8	-2.6	-1.9	-1.9	-0.0	-0.1	1.1	2.4	3.5	1.3	-2.0	-4.2	-5.2	-8.3
5000	-8.0	-6.7	-7.0	-7.0	-3.0	-3.8	-2.4	-3.1	-3.2	1.0	1.5	3.4	3.6	2.2	-1.4	-4.3	-7.6
6300	-8.5	-7.3	-6.4	-5.6	-3.0	-4.9	-2.6	-2.3	-1.2	-0.3	0.9	2.4	3.7	3.9	-1.2	-5.2	-8.7
8000	-7.7	-7.9	-5.7	-5.6	-4.7	-4.4	-4.7	-1.5	-1.2	1.2	2.6	5.1	0.9	-0.0	-3.4	-4.5	-8.3
10000	-9.8	-8.3	-8.0	-7.2	-3.0	-5.5	-3.2	-3.0	-2.1	0.2	2.1	3.5	3.6	2.2	-1.1	-4.7	-8.6

C86

RUN 7 3650 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.129
BAROMETER.....(in Hg)... 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m3).. 11.1
(kg/m3).. 0.0111
PHYS. FAN SPEED(RPM).... 1700
(rad/sec) 177.9
CORR. FAN SPEED(RPM).... 1682.3
(rad/sec) 176.1
TAPE NUMBER..... P658

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0, (0°)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	70.9	72.6	72.8	72.8	73.8	7 .9	73.1	74.2	73.5	75.0	75.5	75.7	75.9	75.3	75.5	75.5	75.9	131.6
63	76.5	75.7	75.5	74.2	75.5	75.3	76.0	75.7	75.4	77.3	77.6	77.1	76.9	76.5	76.5	76.6	78.0	133.4
80	73.8	74.2	73.6	72.4	72.6	72.8	72.8	73.4	74.1	74.3	74.2	74.4	75.1	75.1	75.0	73.7	74.4	131.1
100	73.6	72.9	72.2	72.5	71.0	71.8	70.9	72.0	72.4	72.8	72.6	72.7	73.5	73.4	74.1	73.4	72.2	129.8
125	74.0	73.4	72.4	73.4	72.2	77.7	79.1	77.8	77.0	78.8	73.7	74.8	77.7	74.7	72.3	74.5	70.3	133.6
160	68.8	69.7	70.4	69.7	68.0	67.5	66.9	67.3	67.3	66.3	65.6	65.1	65.5	66.1	67.9	68.1	64.5	124.5
200	69.0	69.6	69.3	67.4	65.3	63.6	65.0	65.5	64.9	62.8	62.3	62.7	60.2	60.6	63.1	63.3	62.1	121.8
250	68.3	69.5	66.6	63.8	62.7	64.4	64.4	63.0	63.5	63.9	62.6	63.4	66.6	67.5	65.6	64.7	64.5	122.3
315	71.6	69.4	68.1	68.1	69.6	67.1	66.0	66.2	67.4	70.7	70.7	70.4	73.7	74.6	74.3	72.1	69.8	128.4
400	76.2	74.9	74.3	73.0	73.0	70.7	69.6	70.1	71.4	73.1	74.2	75.2	77.0	78.9	78.8	75.2	73.4	132.4
500	79.5	78.1	75.3	75.3	74.2	72.8	71.7	71.1	72.9	74.3	75.8	76.0	77.2	79.3	79.8	75.4	72.1	133.5
630	80.1	81.4	78.9	78.6	77.6	74.3	72.9	71.0	72.1	72.2	73.7	75.0	74.5	77.9	77.9	74.4	72.1	133.5
800	80.2	81.2	78.0	78.0	77.0	74.7	72.2	71.2	70.9	70.6	71.5	73.2	75.0	76.6	75.6	73.9	72.3	132.7
1000	85.8	84.0	94.6	87.4	86.6	85.9	77.8	80.2	83.3	81.9	85.0	86.6	85.0	89.9	92.5	84.2	82.9	145.2
1250	88.4	87.7	69.9	92.6	94.5	90.2	85.1	85.6	87.3	86.2	89.0	90.6	89.5	93.9	96.6	88.4	87.1	149.1
1600	82.4	83.1	85.1	91.7	96.2	85.8	86.5	84.6	79.0	81.7	81.6	82.4	86.6	83.2	85.9	79.7	78.5	145.8
2000	82.8	82.6	82.8	80.6	81.5	79.0	77.6	75.0	75.3	76.4	78.9	80.5	80.8	83.3	85.1	76.7	75.0	139.0
2500	81.1	80.1	84.3	81.8	81.8	79.7	78.5	76.5	77.4	78.8	81.2	81.5	82.1	85.4	85.0	78.3	77.5	140.4
3150	81.1	81.3	82.0	82.7	79.8	78.1	77.8	77.4	76.4	76.4	77.3	81.4	81.6	81.1	82.0	76.7	73.9	139.0
4000	84.7	82.8	84.6	84.7	82.8	81.6	79.5	77.5	77.6	78.1	80.1	84.9	84.3	84.7	84.5	79.2	76.4	142.1
5000	82.4	79.6	82.2	81.2	82.3	80.0	77.8	73.0	73.3	75.5	78.8	81.4	81.0	84.7	82.2	76.3	73.5	140.3
6300	78.4	76.9	78.4	78.8	79.7	77.1	74.2	72.7	71.3	73.7	77.3	78.8	79.9	83.0	80.0	73.6	70.7	139.0
8000	76.8	75.5	77.2	78.3	74.9	72.2	71.6	69.6	69.1	71.2	73.4	78.0	77.2	77.3	74.6	71.9	68.2	137.2
10000	72.5	70.2	72.1	72.8	73.6	69.9	67.9	64.7	63.8	66.6	71.6	73.1	72.1	76.1	73.1	68.0	64.8	135.7
OASPL MEASURED	95.7	95.0	101.5	98.3	100.3	95.2	92.8	92.1	92.0	92.1	94.0	95.7	95.9	98.3	99.9	93.2	91.7	
OASPL CALCULATED	94.5	93.7	96.8	97.2	99.4	94.2	91.6	90.9	91.1	91.2	93.2	94.9	94.9	97.5	99.3	92.3	90.9	
PNDB	107.5	106.3	107.5	108.8	110.9	105.2	104.0	102.5	102.0	102.5	104.4	107.3	107.4	108.7	109.7	103.4	101.7	
																	OAPWL	153.8

DIRECTIVITY INDEX

FREQ,																	
50	-3.8	-2.1	-1.9	-2.0	-0.9	-1.8	-1.7	-0.5	-1.3	0.3	0.8	1.0	1.1	0.5	0.7	0.7	1.2
63	0.0	-0.8	-1.0	-2.3	-1.0	-1.2	-0.5	-0.8	-1.1	0.8	1.1	0.6	0.4	0.0	-0.0	0.1	1.5
80	-0.3	0.1	-0.5	-1.7	-1.5	-1.3	-1.3	-0.7	0.0	0.2	0.1	0.3	1.0	1.0	0.9	-0.4	0.3
100	0.9	0.2	-0.5	-0.2	-1.7	-0.9	-1.8	-0.7	-0.3	0.1	-0.0	0.0	0.9	0.7	1.4	0.7	-0.5
125	-2.5	-3.0	-4.0	-3.0	-4.2	1.3	2.7	1.3	0.6	2.4	-2.7	-1.6	1.3	-1.8	-4.1	-1.9	-6.1
160	1.5	2.5	3.2	2.5	0.8	0.3	-0.3	0.0	0.0	-0.9	-1.6	-2.1	-1.7	-1.1	0.7	0.9	-2.7
200	4.6	5.2	4.9	3.0	0.9	-0.8	0.6	1.1	0.5	-1.6	-2.1	-1.7	-4.2	-3.8	-1.3	-1.1	-2.3
250	3.4	4.7	1.8	-1.0	-2.1	-0.4	-0.5	-1.8	-1.4	-0.9	-2.3	-1.4	1.8	2.7	0.8	-0.1	-0.3
315	0.7	-1.4	-2.8	-2.8	-1.2	-3.8	-4.9	-4.6	-3.4	-0.1	-0.2	-0.5	2.8	3.7	3.5	1.2	-1.0
400	1.4	0.1	-0.5	-1.8	-1.7	-4.1	-5.2	-4.7	-3.4	-1.7	-0.6	0.5	2.2	4.1	4.1	0.4	-1.4
500	3.8	2.3	-0.4	-0.4	-1.6	-2.9	-4.1	-4.6	-2.8	-1.4	0.1	0.3	1.5	3.6	4.0	-0.4	-3.7
630	4.4	5.7	3.3	3.0	2.0	-1.4	-2.7	-4.6	-3.5	-3.4	-1.9	-0.6	0.9	2.3	2.2	-1.2	-3.5
800	5.6	6.6	3.4	3.4	2.4	0.1	-2.4	-3.5	-3.7	-4.0	-3.1	-1.4	0.4	1.9	1.0	-0.7	-2.3
1000	-1.2	-3.0	7.6	0.4	-0.4	-1.1	-9.2	-6.8	-3.7	-5.1	-2.0	-0.4	-2.0	2.9	5.5	-2.8	-4.1
1250	-2.4	-3.1	-20.9	1.9	3.7	-0.6	-5.7	-5.2	-3.5	-4.6	-1.8	-0.2	-1.2	3.1	5.8	-2.4	-3.7
1600	-4.8	-4.1	-2.1	4.5	9.0	-1.5	-0.8	-2.6	-8.2	-5.6	-5.7	-4.8	-0.7	-4.0	-3.3	-7.6	-8.8
2000	2.6	2.4	2.6	0.4	1.3	-1.2	-2.6	-5.2	-4.9	-3.8	-1.3	0.3	0.6	3.1	4.9	-3.5	-5.2
2500	-0.2	-1.3	2.9	0.5	0.5	-1.6	-2.9	-4.9	-4.0	-2.6	-0.2	0.1	0.7	4.0	3.6	-3.1	-3.8
3150	1.5	1.7	2.4	3.1	0.1	-1.6	-1.8	-2.2	-3.2	-3.2	-2.3	1.7	2.0	1.5	2.3	-3.0	-5.7
4000	2.4	0.6	2.3	2.4	0.5	-0.6	-2.8	-4.7	-4.7	-4.1	-2.2	2.7	2.1	2.3	2.2	-3.0	-5.9
5000	2.3	-0.5	2.1	1.1	2.2	-0.1	-2.3	-7.1	-6.8	-4.6	-1.3	1.3	0.9	4.6	2.1	-3.8	-6.6
6300	0.5	-1.1	0.4	0.8	1.7	-0.9	-3.7	-5.3	-6.7	-4.3	-0.4	0.8	1.9	5.0	2.0	-4.4	-7.3
8000	2.0	0.8	2.5	3.6	0.1	-2.5	-3.2	-5.2	-5.6	-3.5	-1.4	3.3	2.4	2.6	-0.2	-2.9	-6.6
10000	1.1	-1.2	0.7	1.5	2.3	-1.5	-3.4	-6.7	-7.6	-4.7	0.3	1.7	0.7	4.8	1.8	-3.4	-6.5

C87

RUN 8 1700 RPM

 NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC, DATE - MONTH 9 DAY 30 HR. 9.4

RADIAL DISTANCE (r)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8.Pt.143
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 75.0
(°K)..... 297.0
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³).. 11.1
(kg/m³).. 0.0111
PHYS. FAN SPEED (RPM).... 1700
(rad/sec) 177.9
CORR. FAN SPEED (RPM).... 1674.4
(rad/sec) 175.3
TAPE NUMBER..... P663

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0.0 (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	83.6	77.9	73.4	72.1	73.0	72.6	72.8	73.5	73.1	74.9	75.3	84.9	84.9	84.1	84.3	74.3	74.9	137.0
63	93.6	81.2	75.9	73.5	74.2	74.3	75.6	75.4	75.3	76.8	77.6	86.9	86.5	86.1	86.2	78.8	77.9	139.0
80	81.4	79.6	74.7	72.3	71.9	72.7	72.4	72.9	73.5	73.9	74.6	84.4	84.6	84.9	84.7	74.0	74.8	137.1
100	85.9	79.4	74.0	72.1	70.4	71.5	70.1	71.6	72.1	72.2	73.2	82.5	82.9	83.1	83.6	72.6	73.9	135.6
125	96.8	79.0	74.1	74.1	74.2	77.0	77.0	76.3	77.8	76.9	74.5	83.9	85.8	86.3	84.2	73.8	71.7	138.2
160	90.7	78.3	72.4	69.2	66.5	66.2	65.8	66.0	66.1	66.4	67.4	76.5	74.9	75.9	78.0	69.0	67.6	129.8
200	95.5	79.0	71.6	66.0	63.5	61.8	63.3	63.8	62.9	63.4	66.5	75.1	69.4	70.1	73.1	64.2	64.5	126.9
250	88.4	79.2	70.3	64.4	63.7	62.3	62.7	62.5	62.3	65.8	66.7	76.1	76.2	76.4	74.1	62.8	64.2	129.2
315	93.9	81.1	72.9	68.7	69.4	67.6	66.4	67.4	68.4	71.5	72.9	82.0	83.4	83.9	82.9	70.4	69.1	135.9
400	91.3	87.2	77.0	73.5	72.7	70.6	70.5	71.0	71.5	73.2	75.5	85.8	86.9	88.3	88.0	73.6	71.7	140.2
500	90.0	86.2	77.4	74.8	73.3	72.4	71.0	70.5	72.6	73.9	76.0	86.3	86.6	88.9	89.2	74.1	70.6	140.8
630	91.3	87.7	81.5	79.4	77.9	75.1	72.6	71.8	71.7	71.9	74.3	84.9	85.4	87.8	89.0	74.9	71.5	140.3
800	91.1	88.0	81.2	78.6	76.9	74.6	71.6	70.7	70.3	70.3	72.4	83.0	83.8	86.3	87.4	74.6	71.3	139.1
1000	92.7	91.4	94.9	88.5	84.3	82.3	81.6	82.3	84.8	82.5	81.8	95.3	92.7	106.1	101.1	82.7	80.9	154.6
1250	93.2	94.5	98.2	91.9	91.3	90.0	86.8	85.6	88.0	85.8	84.7	98.8	95.8	70.0	104.4	86.2	84.5	153.5
1600	94.4	89.9	85.3	86.5	91.8	90.8	85.8	79.0	77.9	79.2	79.7	93.8	91.4	91.9	94.0	78.5	77.7	147.9
2000	93.9	89.3	82.8	79.1	82.3	78.4	77.3	75.2	74.4	75.0	77.7	89.1	90.9	92.8	96.2	77.1	73.5	146.6
2500	95.6	88.3	84.5	79.7	85.9	78.8	77.2	76.8	76.4	75.6	79.7	91.4	91.9	95.5	98.8	80.6	76.8	149.1
3150	95.7	88.7	82.4	80.7	78.6	76.7	76.2	76.1	76.1	75.3	76.4	90.2	91.2	91.5	91.1	75.9	72.6	145.6
4000	96.1	89.9	84.2	82.4	81.8	79.1	79.0	77.0	76.7	77.3	79.5	92.9	93.0	94.9	93.1	78.4	74.2	148.5
5000	95.7	88.5	82.1	78.6	81.5	78.0	77.3	72.7	73.3	73.0	77.8	90.6	90.2	93.6	91.6	75.5	71.5	146.9
6300	96.1	88.7	78.6	75.4	78.9	74.8	73.0	71.4	71.1	73.2	76.5	87.4	87.5	92.4	89.5	72.2	68.4	145.8
8000	95.8	88.7	77.8	74.2	73.5	69.9	69.9	68.4	68.3	69.8	71.9	85.8	85.4	86.7	83.6	70.2	65.6	143.5
10000	95.9	89.1	74.0	68.3	71.8	67.2	66.1	63.1	62.9	65.1	70.0	81.4	80.3	85.3	82.1	66.7	63.2	142.9
OASPL MEASURED	76.4	102.3	101.5	96.6	97.5	95.7	92.9	91.1	92.2	91.6	92.4	105.1	103.9	112.2	109.0	92.4	90.4	
OASPL CALCULATED	107.5	101.6	100.8	95.6	96.5	94.7	91.8	90.5	91.5	90.5	91.1	103.8	102.7	107.9	108.1	91.1	89.2	
PNDB	120.7	114.4	110.8	106.3	108.4	106.5	103.5	101.1	102.1	101.7	103.5	116.1	116.0	118.1	119.7	103.1	100.1	
																	OAPWL	160.0

DIRECTIVITY INDEX

FREQ.																	
50	3.4	-2.2	-6.7	-8.0	-7.2	-7.5	-7.3	-6.7	-7.1	-5.3	-4.8	4.8	4.8	3.9	4.2	-5.9	-5.2
63	11.6	-0.9	-6.2	-8.6	-7.9	-7.7	-6.5	-6.7	-6.7	-5.3	-4.5	4.8	4.4	4.0	4.2	-5.3	-4.2
80	1.3	-0.5	-5.5	-7.9	-8.2	-7.4	-7.8	-7.2	-6.6	-6.2	-5.5	4.2	4.5	4.7	4.6	-6.2	-5.3
100	7.3	0.8	-4.5	-6.4	-8.2	-7.0	-8.5	-6.9	-6.4	-6.3	-5.3	4.0	4.3	4.6	5.1	-5.9	-4.7
125	15.8	-2.0	-6.9	-6.9	-6.8	-4.1	-4.0	-4.7	-3.2	-4.1	-6.5	2.9	4.8	5.3	3.2	-7.2	-9.3
160	18.2	5.8	-0.1	-3.3	-6.0	-6.3	-6.7	-6.5	-6.4	-6.1	-5.1	4.1	2.4	3.4	5.5	-3.5	-4.9
200	26.0	9.5	2.1	-3.5	-5.9	-7.7	-6.2	-5.7	-6.6	-6.1	-3.0	5.6	-0.1	0.6	3.6	-5.3	-5.0
250	16.6	7.5	-1.4	-7.3	-8.0	-9.4	-9.0	-9.2	-9.4	-5.9	-5.0	4.4	4.5	4.7	2.3	-8.9	-7.5
315	15.5	2.7	-5.4	-9.7	-9.0	-10.8	-11.9	-10.9	-10.0	-6.9	-5.4	3.6	5.0	5.5	4.5	-8.0	-9.2
400	8.7	4.7	-5.5	-9.0	-9.8	-11.9	-12.0	-11.5	-11.0	-9.3	-7.0	3.3	4.4	5.8	5.5	-8.9	-10.8
500	7.0	3.2	-5.6	-8.2	-9.7	-10.6	-12.0	-12.5	-10.4	-9.1	-7.0	3.3	3.6	5.9	6.2	-8.9	-12.4
630	8.8	5.3	-0.9	-3.1	-4.6	-7.3	-9.8	-10.6	-10.7	-10.5	-8.1	2.4	3.0	5.3	6.5	-7.5	-11.0
800	10.1	6.9	0.1	-2.5	-4.1	-6.4	-9.4	-10.4	-10.7	-10.7	-8.7	1.9	2.7	5.2	6.4	-6.5	-9.7
1000	-3.7	-5.0	-1.4	-7.9	-12.1	-14.0	-14.8	-14.1	-11.6	-13.9	-14.5	-1.1	-3.6	9.8	4.7	-13.7	-15.5
1250	-1.9	-0.6	3.1	-3.2	-3.8	-5.2	-8.3	-9.5	-7.1	-9.4	-10.4	3.7	0.6	-25.1	9.3	-8.9	-10.6
1600	5.1	0.6	-4.0	-2.8	2.5	1.5	-3.5	-10.3	-11.5	-10.1	-9.6	4.5	2.1	2.6	4.7	-10.8	-11.6
2000	6.1	1.5	-5.0	-8.7	-5.5	-9.4	-10.5	-12.6	-13.4	-12.8	-10.1	1.3	3.1	5.0	8.4	-10.7	-14.3
2500	5.5	-1.8	-5.5	-10.3	-4.1	-11.2	-12.9	-13.2	-13.6	-14.4	-10.4	1.3	1.8	5.4	8.7	-9.5	-13.2
3150	9.5	2.5	-3.8	-5.5	-7.6	-9.5	-10.0	-10.1	-10.1	-10.9	-9.8	4.0	5.0	5.3	4.9	-10.3	-13.6
4000	7.4	1.2	-4.5	-6.3	-6.8	-9.6	-9.7	-11.7	-12.0	-11.4	-9.2	4.2	4.3	6.2	4.4	-10.3	-14.5
5000	9.0	1.7	-4.7	-8.2	-5.3	-8.8	-9.4	-14.1	-13.5	-11.8	-8.9	3.8	3.5	6.8	4.8	-11.3	-15.3
6300	11.4	4.0	-6.1	-9.3	-5.9	-10.0	-11.8	-13.3	-13.7	-11.6	-8.3	2.6	2.7	7.7	4.8	-12.6	-16.4
8000	14.7	7.6	-3.3	-6.8	-7.5	-11.1	-11.2	-12.7	-12.8	-11.3	-9.2	4.8	4.3	5.6	2.6	-10.9	-15.5
10000	17.4	10.6	-4.5	-10.2	-6.7	-11.3	-12.4	-15.4	-15.6	-13.4	-8.5	2.9	1.8	6.8	3.6	-11.8	-15.3

RUN 8 1700 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR. 1.3

RADIAL DISTANCE (Ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.130
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 70.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 11.1
(kg/m³).. 0.0111
PHYS. FAN SPEED (RPM).... 1850
(rad/sec) 193.5
CORR. FAN SPEED (RPM).... [illegible]
(rad/sec) [illegible]
TAPE NUMBER..... P658

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	72.8	74.6	74.6	75.0	75.2	74.8	79.7	75.7	75.0	77.2	79.5	77.9	78.4	80.7	78.3	78.3	77.6	134.7
63	78.4	77.6	77.1	76.3	77.2	77.3	80.4	77.4	77.8	79.5	80.8	79.0	79.6	81.1	79.5	79.3	79.2	136.1
80	76.0	76.3	75.5	75.0	74.9	75.3	80.9	76.1	76.8	76.8	77.9	76.8	78.0	79.2	78.3	76.8	76.6	134.6
100	75.3	74.8	73.8	73.9	72.6	73.5	82.4	74.0	74.5	74.6	75.6	74.7	76.4	77.6	77.6	75.7	75.1	133.6
125	73.0	73.3	72.8	73.3	71.4	71.6	81.7	73.6	73.2	73.6	73.8	73.9	75.5	76.5	76.4	75.8	73.6	132.8
160	69.9	70.5	71.4	71.0	68.9	68.8	83.7	68.6	69.8	68.6	68.6	67.5	68.8	70.9	71.8	71.7	68.3	131.6
200	69.0	69.2	69.0	67.9	66.4	64.0	84.0	66.2	66.8	65.2	66.8	66.1	64.5	67.1	67.9	67.2	65.2	131.2
250	69.2	68.3	66.0	66.6	65.1	64.0	83.8	64.3	65.0	65.7	65.2	64.8	67.6	67.6	67.0	64.7	65.1	131.0
315	74.3	72.0	70.8	71.8	71.9	69.2	84.1	68.1	68.8	72.3	72.2	71.4	74.5	74.6	74.7	72.1	69.8	133.1
400	77.6	77.2	75.6	75.8	74.9	72.8	83.1	72.2	72.8	74.8	75.8	76.2	77.7	79.0	79.4	75.0	72.4	134.9
500	79.9	79.1	77.2	76.8	75.8	74.0	83.1	72.4	73.4	75.2	76.2	77.0	78.6	80.3	80.4	75.3	71.6	135.6
630	77.0	78.3	78.4	77.2	76.2	74.3	83.3	71.7	73.1	73.8	75.5	76.9	78.1	79.5	78.2	74.1	70.8	135.4
800	82.6	81.9	81.7	80.4	80.1	78.4	81.1	74.8	74.3	74.8	76.3	77.1	80.6	79.2	77.6	76.0	73.8	136.5
1000	84.3	81.5	82.4	83.3	80.7	78.2	81.7	75.7	76.6	77.3	78.1	79.3	80.1	80.2	82.4	77.6	73.3	137.9
1250	89.3	89.0	90.6	92.0	90.6	89.0	75.2	90.8	92.8	92.1	92.1	95.6	95.3	93.1	100.5	94.6	88.9	152.0
1600	83.8	85.7	86.5	91.6	94.2	93.6	69.5	82.3	81.8	82.5	84.8	86.6	85.5	86.9	86.3	82.0	80.1	146.4
2000	80.9	81.3	82.3	81.6	83.6	84.3	55.8	78.7	78.2	78.4	80.4	81.3	82.5	83.4	82.6	76.9	73.6	139.9
2500	80.7	81.8	83.8	83.3	83.4	81.5	77.8	78.4	79.4	79.9	83.0	85.6	84.8	87.9	86.2	79.9	76.8	142.3
3150	82.8	83.7	82.9	83.6	81.9	79.9	79.0	79.5	79.1	78.7	79.8	83.8	84.4	83.3	81.7	77.9	73.3	140.9
4000	83.5	85.6	84.8	85.5	84.2	81.6	76.2	80.7	80.8	80.7	83.8	87.6	87.6	86.8	85.5	81.9	76.5	144.2
5000	81.0	81.0	81.4	81.4	83.9	80.9	77.9	75.5	76.3	78.9	82.1	83.8	84.3	85.7	83.4	78.5	73.5	142.0
6300	77.3	78.0	77.7	78.7	80.9	77.0	81.3	74.5	74.1	76.0	79.6	80.9	81.6	84.4	80.7	75.0	70.1	140.8
8000	76.3	77.2	77.3	78.6	76.1	72.9	82.4	72.4	73.2	74.9	76.7	80.8	80.7	79.8	76.4	74.6	68.4	140.5
10000	71.6	71.6	71.8	73.3	74.6	70.5	83.1	66.8	66.8	69.9	74.7	75.6	75.8	78.2	74.9	70.0	64.6	140.1
OASPL MEASURED	95.9	96.3	96.8	98.3	98.7	97.6	70.5	94.5	95.5	95.5	96.4	99.2	99.3	98.8	102.3	97.0	92.6	
OASPL CALCULATED	94.6	94.8	95.4	96.9	97.5	96.4	95.2	93.2	94.5	94.4	95.4	98.1	98.0	97.7	101.5	96.1	91.5	
PNDB	107.1	108.1	107.9	109.0	110.1	108.9	105.6	104.4	105.5	105.7	107.1	109.8	110.0	110.1	111.8	106.8	102.3	
																	OAPWL	155.6

DIRECTIVITY INDEX

FREQ.																
50	-5.0	-3.2	-3.2	-2.9	-2.6	-3.0	1.9	-2.1	-2.8	-0.6	1.7	0.1	0.5	2.9	0.5	0.4	-0.2
63	-0.8	-1.6	-2.1	-2.9	-2.0	-1.9	1.2	-1.8	-1.4	0.3	1.6	-0.2	0.4	1.9	0.2	0.1	0.0
80	-1.5	-1.3	-2.1	-2.6	-2.7	-2.2	3.3	-1.5	-0.8	-0.7	0.3	-0.7	0.5	1.6	0.7	-0.7	-1.0
100	-1.3	-1.3	-2.8	-2.6	-4.0	-3.1	5.9	-2.5	-2.1	-1.9	-1.0	-1.8	-0.2	1.1	1.0	-0.8	-1.4
125	-2.6	-2.3	-2.8	-2.3	-4.2	-4.1	6.1	-2.0	-2.4	-2.0	-1.9	-1.7	-0.1	0.9	0.8	0.2	-2.1
160	-4.4	-3.8	-2.9	-3.3	-5.4	-5.5	9.4	-5.7	-4.6	-5.7	-5.7	-6.8	-5.6	-3.4	-2.5	-2.7	-6.0
200	-4.8	-4.5	-4.8	-5.9	-7.4	-9.8	10.2	-7.6	-7.0	-8.6	-7.0	-7.7	-9.3	-6.7	-5.9	-6.6	-8.6
250	-4.3	-5.2	-7.5	-6.9	-8.4	-9.5	10.3	-9.2	-8.5	-7.8	-8.3	-8.7	-5.9	-5.9	-6.5	-8.8	-8.4
315	-1.2	-3.5	-4.7	-3.7	-3.6	-6.3	8.6	-7.4	-6.7	-3.2	-3.3	-4.1	-1.0	-0.9	-0.8	-3.4	-5.7
400	0.4	-0.0	-1.6	-1.4	-2.3	-4.5	5.8	-5.0	-4.4	-2.4	-1.5	-1.1	0.4	1.8	2.2	-2.2	-4.8
500	2.1	1.3	-0.7	-1.0	-2.1	-3.8	5.3	-5.5	-4.5	-2.7	-1.7	-0.9	0.7	2.4	2.5	-2.5	-6.2
630	-0.5	0.8	0.9	-0.3	-1.3	-3.3	5.8	-5.9	-4.4	-3.7	-2.0	-0.6	0.6	2.0	0.7	-3.4	-6.7
800	4.2	3.5	3.3	2.0	1.7	-0.0	2.6	-3.6	-4.1	-3.7	-2.2	-1.3	2.2	0.8	-0.8	-2.5	-4.6
1000	4.5	1.7	2.7	3.5	0.9	-1.5	2.0	-4.1	-3.1	-2.4	-1.6	-0.4	0.4	0.4	2.6	-2.1	-6.4
1250	-4.4	-4.6	-3.1	-1.7	-3.0	-4.7	-18.5	-2.9	-0.9	-1.6	-1.6	1.9	1.6	-0.5	6.8	0.9	-4.8
1600	-4.0	-2.1	-1.3	3.8	6.4	5.8	-18.3	-5.5	-6.0	-5.3	-3.1	-1.2	-2.3	-1.0	-1.5	-5.9	-7.7
2000	-0.2	0.2	1.2	0.5	2.5	3.2	-25.3	-2.4	-2.9	-2.7	-0.7	0.2	1.4	2.3	1.5	-4.2	-7.5
2500	-2.6	-1.5	0.5	0.0	0.9	-1.8	-5.5	-4.9	-3.9	-3.4	-0.3	2.3	1.5	4.5	2.9	-3.4	-6.5
3150	1.3	2.2	1.4	2.1	0.4	-1.6	-2.5	-2.0	-2.4	-2.8	-1.7	2.3	2.9	1.8	0.2	-3.6	-8.2
4000	-0.8	1.2	0.4	1.1	-0.1	-2.7	-8.2	-3.7	-3.5	-2.7	-0.5	3.3	3.2	2.5	1.2	-2.5	-7.8
5000	-0.8	-0.9	-0.4	-0.4	2.1	-0.9	-3.9	-6.3	-5.5	-2.9	0.2	2.0	2.4	3.8	1.5	-3.3	-8.4
6300	-2.4	-1.7	-2.0	-1.0	1.1	-2.7	1.6	-5.3	-5.6	-3.7	-0.1	1.2	1.9	4.7	1.0	-4.7	-9.6
8000	-1.7	-0.8	-0.8	0.5	-1.9	-5.1	4.3	-5.6	-4.8	-3.1	-1.4	2.8	2.6	1.8	-1.6	-3.5	-9.6
10000	-4.2	-4.1	-4.0	-2.5	-1.1	-5.3	7.4	-8.9	-9.0	-5.9	-1.0	-0.2	-0.0	2.5	-0.9	-5.8	-11.1

C89

RUN 8 1850 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR, 1.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... 7ASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.144
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 75.0
(°K)..... 297.0
T WET BULB.....(°F)..... 63.3
(°K)..... 209.4
ABS. HUMIDITY...(gm/m³)... 11.2
(kg/m³)... 0.0112
PHYS. FAN SPEED (RPM).... 1875
(rad/sec) 196.3
CORR. FAN SPEED (RPM).... 1846.7
(rad/sec) 193.3
TAPE NUMBER..... P663

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0° (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	72.9	74.6	74.8	74.1	74.4	73.8	74.4	75.4	74.5	76.1	76.9	77.3	77.4	76.2	76.5	76.5	76.2	132.8
63	77.8	77.3	76.8	75.8	76.6	76.3	77.2	76.8	77.0	78.6	78.9	78.5	78.9	78.4	78.4	78.5	79.4	134.9
80	75.5	75.7	74.7	73.8	74.0	74.7	74.8	75.0	75.8	75.8	76.0	76.1	77.1	77.2	77.3	75.8	75.9	132.9
100	75.1	74.8	73.5	72.9	72.0	73.1	71.7	73.0	73.7	73.8	74.1	73.8	75.3	75.5	76.3	74.8	74.6	131.2
125	72.8	72.8	72.4	72.6	70.8	72.6	74.0	72.1	72.9	74.0	74.5	73.7	75.2	77.0	76.5	74.8	71.9	131.4
160	69.8	70.3	70.5	70.1	67.6	67.6	67.2	67.5	67.9	66.8	66.0	65.8	66.3	67.2	69.0	69.3	65.8	125.0
200	69.1	68.8	67.8	66.9	64.9	62.9	65.0	64.9	64.6	63.3	62.5	62.9	61.1	61.4	63.8	63.3	61.5	121.6
250	68.7	68.0	65.1	65.4	64.3	63.8	63.4	63.0	62.8	66.0	63.5	64.0	68.4	67.8	67.2	65.2	64.0	122.9
315	73.2	71.5	70.1	70.1	70.8	68.2	67.7	67.8	69.1	72.3	72.4	71.8	74.6	75.0	74.8	72.2	70.2	129.5
400	77.4	77.4	75.5	74.6	73.8	71.8	71.6	71.6	72.8	74.4	75.3	75.9	77.7	79.1	79.2	74.9	72.6	133.2
500	80.3	79.2	76.4	75.2	74.3	73.1	72.5	72.1	73.5	74.4	76.7	77.0	78.5	79.9	80.0	74.9	71.3	134.1
630	78.2	78.1	78.6	76.9	74.8	73.2	71.9	72.0	72.3	72.4	74.6	75.8	76.5	77.5	77.1	72.5	69.7	132.9
800	81.6	81.5	81.7	78.1	78.4	76.7	74.2	73.8	72.2	73.9	74.9	75.8	75.9	76.3	75.1	73.6	71.9	134.1
1000	83.9	80.7	82.7	82.3	78.9	77.0	75.2	73.4	74.6	75.6	77.3	77.5	80.3	82.8	80.8	76.6	73.4	137.0
1250	92.9	86.3	95.9	93.5	84.9	84.4	86.2	83.6	86.8	87.8	89.3	90.3	95.6	98.8	95.9	91.5	88.5	150.7
1600	84.6	86.3	85.7	88.8	88.8	94.6	91.0	82.0	82.7	81.8	85.3	84.1	83.2	84.5	86.0	80.6	77.2	146.1
2000	81.1	80.7	81.6	79.7	81.3	79.0	77.6	74.2	74.9	75.9	77.7	78.7	79.6	82.1	83.4	74.8	72.5	138.0
2500	80.8	83.8	84.4	86.6	83.6	79.0	79.4	77.0	76.8	79.6	81.9	82.9	83.8	86.1	84.9	80.3	78.4	141.6
3150	82.5	82.1	83.5	83.0	82.8	78.7	79.4	77.7	76.9	77.1	77.6	81.5	82.3	82.0	80.9	76.2	73.3	139.7
4000	83.6	84.3	85.4	84.6	83.1	80.5	81.2	79.3	79.0	80.1	82.2	85.3	85.2	85.2	84.3	80.2	76.2	142.8
5000	81.5	79.8	81.5	79.9	82.7	79.7	79.7	74.2	75.4	76.7	79.9	81.5	82.4	84.9	83.1	76.9	73.5	140.8
6300	77.9	76.7	77.9	77.5	79.9	75.9	74.6	73.0	72.7	74.2	77.8	79.0	79.4	83.6	80.3	73.4	70.2	139.1
8000	76.5	75.9	77.0	77.3	74.7	71.6	71.9	70.7	71.1	72.5	74.2	78.7	77.8	78.9	75.3	72.3	68.3	137.8
10000	71.9	70.3	71.5	71.7	73.2	69.2	68.0	64.7	65.0	67.4	71.8	73.6	72.6	76.7	73.5	67.9	64.5	136.0
OASPL MEASURED	97.2	95.3	98.8	97.9	95.2	96.9	94.9	90.8	91.8	92.6	94.4	95.6	98.4	100.9	98.9	94.5	91.9	
OASPL CALCULATED	96.0	94.0	97.9	96.8	94.0	96.0	93.9	89.7	90.9	91.7	93.5	94.6	97.5	100.1	98.0	93.6	91.0	
PNDB	107.4	107.2	109.0	108.2	106.9	108.6	106.6	102.3	102.5	103.6	105.5	107.5	108.7	111.0	109.1	104.7	101.8	
																	OAPWL	154.2

DIRECTIVITY INDEX

FREQ,																	
50	-3.1	-1.4	-1.2	-1.8	-1.6	-2.2	-1.6	-0.6	-1.5	0.2	0.9	1.3	1.4	0.3	0.5	0.5	0.3
63	-0.2	-0.8	-1.2	-2.2	-1.4	-1.8	-0.9	-1.2	-1.0	0.6	0.9	0.5	0.9	0.4	0.4	0.5	1.4
80	-0.4	-0.2	-1.2	-2.1	-1.9	-1.2	-1.1	-0.9	-0.1	-0.1	0.1	0.2	1.2	1.3	1.3	-0.2	-0.1
100	1.0	0.6	-0.7	-1.2	-2.1	-1.1	-2.4	-1.1	-0.4	-0.3	-0.0	-0.4	1.1	1.3	2.1	0.7	0.4
125	-1.4	-1.4	-1.8	-1.6	-3.3	-1.6	-0.2	-2.1	-1.3	-0.2	0.3	-0.5	1.1	2.8	2.3	0.7	-2.3
160	2.0	2.5	2.8	2.3	-0.1	-0.2	-0.6	-0.3	0.2	-1.0	-1.7	-1.9	-1.5	-0.5	1.2	1.5	-2.0
200	4.9	4.6	3.6	2.7	0.7	-1.3	0.8	0.7	0.4	-0.9	-1.7	-1.3	-3.1	-2.8	-0.4	-0.9	-2.7
250	3.3	2.6	-0.4	0.0	-1.1	-1.7	-2.0	-2.4	-2.7	0.6	-2.0	-1.4	3.0	2.3	1.8	-0.2	-1.5
315	1.2	-0.4	-1.8	-1.9	-1.1	-3.7	-4.2	-4.1	-2.8	0.3	0.4	-0.2	2.6	3.0	2.9	0.3	-1.7
400	1.8	1.8	-0.0	-1.0	-1.8	-3.7	-4.0	-3.9	-2.8	-1.1	-0.3	0.4	2.1	3.5	3.6	-0.6	-2.9
500	3.9	2.8	0.1	-1.2	-2.1	-3.3	-3.9	-4.2	-2.8	-2.0	0.4	0.7	2.1	3.5	3.6	-1.5	-5.0
630	3.2	3.0	3.6	1.9	-0.2	-1.8	-3.2	-3.0	-2.8	-2.7	-0.4	0.7	1.5	2.4	2.0	-2.5	-5.3
800	5.5	5.5	5.6	2.0	2.3	0.6	-1.9	-2.3	-3.8	-2.1	-1.2	-0.3	-0.2	0.2	-1.0	-2.5	-4.2
1000	5.1	1.9	3.9	3.5	0.2	-1.8	-3.6	-5.4	-4.2	-3.1	-1.5	-1.3	1.6	4.1	2.0	-2.2	-5.4
1250	0.5	-6.1	3.6	1.1	-7.5	-7.9	-6.2	-8.8	-5.6	-4.6	-3.1	-2.1	3.3	6.4	3.6	-0.8	-3.9
1600	-2.9	-1.2	-1.8	1.3	1.3	7.1	3.5	-5.5	-4.8	-5.7	-2.2	-3.4	-4.3	-3.0	-1.5	-6.9	-10.3
2000	1.9	1.5	2.4	0.5	2.2	-0.2	-1.5	-4.9	-4.3	-3.3	-1.4	-0.5	0.5	3.0	4.2	-4.3	-6.7
2500	-1.7	1.2	1.9	4.1	1.1	-3.6	-3.2	-5.5	-5.8	-3.0	-0.6	0.3	1.2	3.6	2.4	-2.2	-4.2
3150	2.2	1.8	3.2	2.7	2.4	-1.6	-1.0	-2.7	-3.4	-3.3	-2.8	1.2	2.0	1.7	0.6	-4.1	-7.0
4000	0.6	1.4	2.5	1.7	0.1	-2.5	-1.8	-3.7	-4.0	-2.8	-0.8	2.3	2.2	2.2	1.3	-2.8	-6.8
5000	0.9	-0.8	0.8	-0.7	2.0	-1.0	-0.9	-6.5	-5.2	-4.0	-0.7	0.9	1.7	4.2	2.5	-3.7	-7.1
6300	-0.2	-1.4	-0.2	-0.6	1.8	-2.2	-3.5	-5.1	-5.3	-3.9	-0.3	0.9	1.3	5.5	2.2	-4.7	-7.9
8000	1.1	0.5	1.6	2.0	-0.7	-3.7	-3.5	-4.6	-4.2	-2.8	-1.2	3.4	2.4	3.6	-0.1	-3.0	-7.0
10000	0.4	-1.2	-0.1	0.1	1.6	-2.4	-3.5	-6.9	-6.6	-4.1	0.3	2.0	1.0	5.2	1.9	-3.7	-7.1

C90

RUN 8 1875 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR. 1.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.131
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 10.8
(kg/m³).. 0.0108
PHYS. FAN SPEED(RPM).... 2000
(rad/sec) 209.4
CORR. FAN SPEED(RPM).... 1977.3
(rad/sec) 207.0
TAPE NUMBER..... P659

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	74.4	75.5	75.6	75.4	76.0	76.1	76.2	76.9	76.2	78.2	79.1	79.0	81.4	83.1	80.3	79.4	78.6	135.7
63	79.3	78.6	78.6	77.9	78.4	77.6	78.1	78.9	78.6	80.3	81.2	80.7	82.4	82.6	81.8	81.3	81.0	137.3
80	77.1	77.5	76.5	75.5	75.9	77.3	77.4	77.6	78.3	78.6	78.7	78.8	80.6	81.2	80.1	78.6	77.6	135.7
100	76.5	76.1	74.8	74.7	74.2	75.9	74.7	75.7	76.3	76.8	77.0	77.1	79.1	79.6	79.4	77.6	76.4	134.2
125	74.9	74.8	74.5	74.7	72.9	73.9	74.7	74.6	74.8	75.4	75.0	75.5	77.6	77.9	78.3	77.7	74.7	133.0
160	72.3	72.2	72.8	72.1	70.3	70.9	70.3	71.2	71.8	70.8	70.0	69.5	72.0	72.9	73.6	73.8	69.6	128.9
200	71.3	70.6	71.0	70.6	68.6	66.4	68.3	68.7	70.0	67.9	69.4	69.5	69.0	68.6	69.4	69.0	65.8	126.5
250	70.7	69.6	67.9	66.6	65.7	65.5	65.7	66.1	66.6	65.6	64.9	67.2	68.8	69.1	67.0	66.2	64.1	124.3
315	75.0	72.9	72.7	72.7	73.2	70.0	68.6	68.2	69.0	72.3	72.2	71.7	75.6	75.9	75.3	73.0	68.9	130.2
400	78.8	78.3	76.6	76.9	75.9	74.3	73.0	73.2	73.5	75.7	76.5	77.0	78.8	80.4	80.1	75.5	71.9	134.4
500	81.0	79.7	77.7	77.7	77.0	75.4	74.4	73.2	74.4	76.1	77.1	77.6	79.6	81.7	81.0	75.5	71.9	135.4
630	79.1	77.9	78.1	76.9	76.3	75.8	74.8	74.2	75.1	75.5	77.5	79.4	80.1	81.3	79.7	74.8	72.1	135.6
800	84.9	82.2	82.8	82.0	83.0	81.6	80.6	80.9	78.3	83.3	85.7	87.2	84.5	83.3	80.8	77.2	74.8	141.2 ✓
1000	84.2	81.9	82.5	83.9	82.1	79.7	76.9	75.6	75.4	77.0	78.3	79.4	79.8	81.7	78.9	76.2	72.7	137.6
1250	91.0	91.8	90.7	90.8	89.7	88.3	88.0	88.1	88.3	90.9	93.6	97.5	97.2	98.7	98.8	93.3	88.3	152.6 ✓
1600	85.7	86.5	87.8	91.2	90.2	86.1	84.6	82.7	83.8	84.2	86.8	89.2	90.0	90.4	89.7	85.0	81.0	146.4
2000	82.9	83.5	84.0	83.9	86.0	88.0	85.8	79.7	80.2	80.8	82.8	84.2	85.4	86.8	83.9	79.8	76.0	143.1
2500	81.9	83.6	84.8	83.3	84.7	84.8	83.0	79.2	79.7	80.5	82.2	83.9	84.6	87.1	85.0	79.9	76.2	142.5
3150	83.3	83.8	84.3	85.2	83.5	82.1	80.9	80.6	80.0	79.9	80.9	84.9	85.5	85.5	82.2	79.1	74.8	142.2
4000	85.0	86.6	86.6	86.3	85.8	84.4	83.5	82.4	82.7	83.6	85.9	89.1	89.1	90.6	86.5	83.7	78.2	146.3
5000	81.9	81.4	82.7	82.3	85.2	82.3	81.1	76.6	77.2	80.0	83.1	85.1	85.2	87.8	83.6	79.1	74.2	143.3
6300	78.0	78.4	78.9	79.3	82.2	78.9	77.3	75.1	74.3	76.5	80.4	81.9	82.0	86.1	81.4	75.5	70.8	141.5
8000	77.1	77.8	78.8	79.2	77.6	74.9	75.0	74.2	74.8	76.8	78.4	83.0	82.8	82.5	77.5	76.0	69.9	141.5
10000	72.5	72.3	73.7	74.1	76.2	72.5	71.1	68.2	68.0	71.7	76.1	77.7	77.0	80.5	76.0	71.2	65.6	139.5
OASPL MEASURED	97.4	97.6	97.6	98.1	97.9	96.6	95.3	93.9	94.1	95.6	97.8	100.7	100.8	102.2	101.1	96.6	92.5	
OASPL CALCULATED	96.0	96.3	96.3	96.9	96.7	95.2	94.1	92.8	93.0	94.8	97.0	100.0	100.0	101.4	100.5	95.8	91.7	
PNDB	108.4	109.1	109.3	109.3	109.2	108.0	106.8	105.3	105.5	106.7	108.8	111.4	111.7	113.1	111.4	106.9	102.5	
																	OAPWL	156.3

DIRECTIVITY INDEX

FREQ.																	
50	-4.5	-3.4	-3.3	-3.5	-2.9	-2.8	-2.7	-2.0	-2.7	-0.7	0.2	0.1	2.5	4.2	1.4	0.5	-0.3
63	-1.1	-1.8	-1.7	-2.5	-2.0	-2.8	-2.3	-1.5	-1.8	-0.1	0.8	0.3	2.0	2.2	1.4	1.0	0.6
80	-1.6	-1.2	-2.2	-3.3	-2.8	-1.4	-1.3	-1.1	-0.4	-0.1	-0.0	0.1	1.9	2.5	1.4	-0.1	-1.1
100	-0.6	-1.0	-2.3	-2.5	-2.9	-1.2	-2.5	-1.4	-0.8	-0.3	-0.1	-0.0	2.0	2.4	2.3	0.5	-0.7
125	-0.9	-1.0	-1.3	-1.1	-2.9	-1.9	-1.2	-1.3	-1.0	-0.4	-0.9	-0.4	1.8	2.1	2.4	1.8	-1.1
160	0.6	0.5	1.2	0.5	-1.3	-0.7	-1.3	-0.4	0.2	-0.8	-1.6	-2.1	0.4	1.3	1.9	2.2	-2.0
200	2.2	1.6	1.9	1.5	-0.5	-2.6	-0.8	-0.4	0.9	-1.2	0.3	0.5	-0.1	-0.4	0.3	-0.1	-3.3
250	3.9	2.8	1.1	-0.2	-1.2	-1.4	-1.2	-0.7	-0.3	-1.3	-2.0	0.4	2.0	2.3	0.1	-0.7	-2.8
315	2.3	0.3	-0.0	0.0	0.5	-2.7	-4.1	-4.5	-3.7	-0.4	-0.4	-0.9	2.9	3.2	2.7	0.3	-3.7
400	2.1	1.5	-0.2	0.1	-0.9	-2.5	-3.8	-3.5	-3.3	-1.0	-0.3	0.2	2.0	3.6	3.3	-1.3	-4.9
500	3.4	2.1	0.1	0.1	-0.6	-2.2	-3.3	-4.4	-3.2	-1.5	-0.5	0.0	2.0	4.0	3.4	-2.1	-5.8
630	1.4	0.2	0.5	-0.8	-1.3	-1.8	-2.9	-3.5	-2.6	-2.1	-0.2	1.7	2.5	3.6	2.0	-2.8	-5.5
800	1.7	-0.9	-0.4	-1.2	-0.2	-1.6	-2.5	-2.3	-4.9	0.1	2.5	4.0	1.3	0.2	-2.4	-6.0	-8.4
1000	4.8	2.5	3.1	4.4	2.6	0.3	-2.5	-3.9	-4.0	-2.5	-1.1	-0.1	0.4	2.2	-0.6	-3.3	-6.7
1250	-3.3	-2.5	-3.5	-3.4	-4.5	-5.9	-6.3	-6.2	-5.9	-3.4	-0.7	3.2	3.0	4.5	4.5	-1.0	-6.0
1600	-2.1	-1.3	0.0	3.4	2.4	-1.7	-3.2	-5.0	-3.9	-3.6	-1.0	1.4	2.2	2.6	1.9	-2.8	-6.8
2000	-1.4	-0.8	-0.2	-0.4	1.8	3.7	1.5	-4.6	-4.1	-3.5	-1.5	-0.1	1.2	2.5	-0.4	-4.5	-8.3
2500	-1.6	0.1	1.3	-0.2	1.3	1.3	-0.4	-4.2	-3.7	-3.0	-1.3	0.5	1.2	3.7	1.6	-3.6	-7.3
3150	0.5	0.9	1.4	2.3	0.6	-0.8	-1.9	-2.3	-2.9	-3.0	-2.0	2.1	2.6	2.6	-0.7	-3.8	-8.1
4000	-1.4	0.2	0.2	-0.2	-0.6	-2.0	-2.9	-4.1	-3.8	-2.8	-0.5	2.7	2.6	4.1	0.0	-2.7	-8.2
5000	-1.3	-1.8	-0.4	-0.9	2.0	-0.8	-2.0	-6.5	-5.9	-3.2	-0.1	1.9	2.0	4.6	0.4	-4.0	-8.9
6300	-2.4	-2.0	-1.5	-1.1	1.8	-1.6	-3.1	-5.3	-6.1	-3.9	0.0	1.5	1.6	5.7	1.0	-4.9	-9.6
8000	-1.9	-1.2	-0.2	0.1	-1.5	-4.1	-4.0	-4.8	-4.3	-2.3	-0.6	3.9	3.7	3.4	-1.6	-3.0	-9.2
10000	-2.6	-2.8	-1.5	-1.0	1.0	-2.6	-4.0	-7.0	-7.2	-3.5	0.9	2.5	1.9	5.3	0.8	-3.9	-9.5

C91

RUN 8 2000 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/13/68
RUN..... 8,Pt.145
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 10.8
(kg/m³).. 0.0108
PHYS. FAN SPEED (RPM).... 2000
(rad/sec) 209.4
CORR. FAN SPEED (RPM).... 1977.3
(rad/sec) 207.0
TAPE NUMBER..... P663

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	74.0	74.8	74.8	75.4	75.5	75.1	75.4	75.8	75.4	77.3	78.0	77.7	78.0	77.7	78.4	78.6	78.6	133.9
63	79.1	78.5	78.3	80.5	77.9	77.4	77.7	78.0	78.1	79.8	80.3	79.9	80.5	80.3	80.3	80.3	81.3	136.5
80	77.5	77.4	76.4	75.8	75.2	76.1	76.4	76.9	77.4	77.6	77.6	77.7	79.0	79.1	78.8	77.6	78.2	134.6
100	76.5	75.6	74.4	75.1	73.6	73.1	73.8	75.4	75.6	76.0	76.2	76.1	77.6	77.7	78.0	76.7	76.7	133.3
125	75.0	74.4	74.3	76.3	72.8	74.0	74.7	74.4	74.2	74.3	74.5	75.3	76.4	76.9	77.1	77.0	74.3	132.5
160	73.2	72.5	72.6	76.5	69.4	69.6	69.3	69.5	70.2	68.8	67.6	67.4	67.9	69.3	70.9	71.4	67.8	127.6
200	72.6	71.4	70.8	79.5	68.0	64.8	66.8	66.9	67.6	65.5	66.1	65.4	64.2	66.4	66.7	65.7	63.8	126.7
250	71.2	70.2	67.7	68.8	65.0	64.6	64.9	65.2	65.5	67.8	65.8	66.8	70.5	70.9	69.0	67.7	66.4	125.1
315	74.9	72.3	71.4	75.7	72.1	70.0	69.7	69.7	71.3	74.2	74.0	73.6	78.4	77.2	76.5	73.9	71.8	131.5
400	78.8	77.4	75.7	78.7	74.9	73.9	73.5	74.1	74.8	76.2	77.0	77.5	79.0	80.8	80.6	76.5	74.4	134.9
500	81.0	79.9	77.8	80.0	75.4	74.6	73.9	73.6	74.7	75.8	76.8	77.0	78.8	81.1	80.8	76.0	72.9	135.1
630	78.6	77.7	78.8	80.3	75.3	74.2	73.1	73.6	74.3	73.8	75.6	77.8	77.3	78.7	76.7	73.9	71.2	134.2
800	83.9	81.9	82.5	85.2	81.7	80.8	80.8	76.5	75.8	75.1	78.6	82.8	82.3	79.5	78.0	75.8	74.3	138.4✓
1000	84.0	80.6	81.5	85.6	80.1	77.9	76.4	74.9	75.4	75.9	77.7	77.8	79.5	81.3	79.8	75.5	72.4	137.2
1250	90.5	88.3	96.2	95.5	86.6	86.1	90.7	85.6	91.6	86.4	89.2	87.9	89.1	91.5	94.9	88.2	89.1	149.0✓
1600	85.4	86.1	88.0	94.6	88.6	84.1	84.9	81.1	82.8	81.1	85.0	83.5	85.1	87.2	86.7	81.2	80.4	144.9
2000	82.2	83.9	83.4	87.3	84.2	88.1	90.7	83.8	80.2	79.2	80.7	81.3	82.6	84.7	84.0	78.5	75.9	143.6
2500	81.9	83.3	83.4	86.6	82.8	83.7	85.3	80.9	79.2	79.1	80.9	82.1	84.2	86.7	86.2	79.9	77.0	142.4
3150	84.0	83.8	83.4	88.1	83.4	81.8	79.5	80.1	79.4	78.9	79.5	83.0	84.5	83.4	81.7	77.9	75.1	141.6
4000	85.3	86.0	87.1	88.9	84.8	83.0	82.2	81.5	81.4	82.1	83.8	87.4	87.3	87.2	84.9	82.1	78.6	144.9
5000	82.2	81.0	82.7	85.3	84.6	81.4	79.9	76.1	77.0	78.7	82.2	83.7	84.1	86.4	83.4	77.9	74.7	142.6
6300	78.8	77.7	78.8	82.0	81.3	77.7	76.0	74.2	73.9	74.9	79.3	80.0	80.5	83.9	80.5	74.1	71.1	140.2
8000	77.7	77.4	78.6	81.9	76.1	73.7	73.5	73.5	73.9	75.3	77.4	81.2	81.1	80.6	76.2	74.4	70.3	140.4
10000	73.6	72.1	73.6	76.0	74.6	71.3	69.5	67.1	67.4	69.7	74.9	75.7	75.4	78.2	74.7	69.6	65.9	138.1
OASpL MEASURED	97.7	96.8	99.4	101.4	96.4	95.4	96.9	93.2	94.9	93.1	95.0	95.9	96.9	98.3	98.5	93.7	93.0	
OASPL CALCULATED	95.8	95.1	98.5	100.4	95.1	94.2	95.9	92.0	94.1	92.1	94.2	95.0	95.8	97.2	97.7	92.7	92.2	
PNDB	108.6	108.6	109.6	112.4	108.1	107.4	108.7	104.7	105.4	105.1	107.0	109.1	109.6	110.3	109.2	105.1	103.0	
																	OAPWL	154.5

DIRECTIVITY INDEX

FREQ.																	
50	-3.0	-2.2	-2.2	-1.7	-1.6	-2.0	-1.7	-1.3	-1.6	0.3	1.0	0.7	0.9	0.7	1.4	1.6	1.5
63	-0.4	-1.1	-1.3	1.0	-1.6	-2.1	-1.8	-1.5	-1.4	0.3	0.8	0.4	0.9	0.8	0.7	0.7	1.7
80	-0.1	-0.2	-1.2	-1.8	-2.4	-1.6	-1.2	-0.7	-0.2	0.0	-0.0	0.1	1.4	1.5	1.2	-0.0	0.6
100	0.4	-0.6	-1.7	-1.0	-2.6	-1.0	-2.4	-0.8	-0.6	-0.1	0.0	-0.1	1.4	1.6	1.8	0.5	0.5
125	-0.3	-0.9	-1.0	1.0	-2.5	-1.4	-0.6	-0.9	-1.1	-1.0	-0.9	0.0	1.1	1.6	1.8	1.7	-1.0
160	3.0	2.3	2.3	6.2	-0.8	-0.7	-1.0	-0.8	-0.1	-1.5	-2.7	-2.9	-2.3	-1.0	0.6	1.2	-2.4
200	3.3	2.1	1.5	10.2	-1.3	-4.5	-2.5	-2.4	-1.7	-3.8	-3.2	-3.9	-5.1	-2.9	-2.6	-3.6	-5.6
250	3.5	2.5	0.1	1.1	-2.7	-3.0	-2.8	-2.5	-2.1	0.1	-1.8	-0.8	2.8	3.2	1.3	0.0	-1.3
315	0.9	-1.6	-2.5	1.8	-1.8	-3.9	-4.3	-4.2	-2.7	0.3	0.1	-0.3	2.5	3.3	2.6	-0.0	-2.1
400	1.5	0.2	-1.6	1.5	-2.3	-3.4	-3.8	-3.2	-2.4	-1.0	-0.2	0.2	1.8	3.6	3.3	-0.8	-2.8
500	3.6	2.5	0.5	2.6	-2.0	-2.8	-3.4	-3.8	-2.7	-1.5	-0.8	-0.3	1.3	3.8	3.4	-1.3	-4.5
630	2.3	1.5	2.5	4.0	-1.0	-2.0	-3.1	-2.6	-1.9	-2.5	-0.7	1.6	1.1	2.4	0.4	-2.3	-5.1
800	3.5	1.5	2.1	4.8	1.3	0.4	0.5	-3.9	-4.5	-5.3	-1.7	2.4	2.0	-0.8	-2.4	-4.5	-6.1
1000	4.9	1.5	2.5	6.6	1.1	-1.1	-2.7	-4.1	-3.7	-3.2	-1.4	-1.3	0.4	2.3	0.7	-3.6	-6.7
1250	-0.2	-2.4	5.5	4.8	-4.1	-4.6	0.0	-5.1	1.0	-4.3	-1.5	-2.8	-1.6	0.8	4.2	-2.5	-1.6
1600	-0.9	-0.2	1.7	8.3	2.3	-2.2	-1.4	-5.2	-3.5	-5.2	-1.3	-2.8	-1.2	0.9	0.4	-5.2	-5.9
2000	-2.6	-0.9	-1.4	2.4	-0.6	3.3	5.9	-1.0	-4.6	-5.6	-4.1	-3.5	-2.2	-0.1	-0.8	-6.3	-8.9
2500	-1.6	-0.1	0.0	3.2	-0.6	0.3	1.9	-2.5	-4.2	-4.3	-2.6	-1.3	0.7	3.3	2.8	-3.5	-6.4
3150	1.7	1.5	1.2	5.8	1.1	-0.5	-2.7	-2.2	-2.9	-3.4	-2.7	0.7	2.2	1.1	-0.6	-4.4	-7.2
4000	0.3	1.0	2.1	3.9	-0.2	-2.0	-2.8	-3.5	-3.6	-2.9	-1.2	2.4	2.3	2.2	-0.1	-2.9	-6.4
5000	-0.2	-1.4	0.3	2.9	2.2	-1.0	-2.5	-6.3	-5.4	-3.7	-0.2	1.3	1.6	4.0	1.0	-4.5	-7.7
6300	-0.3	-1.5	-0.4	2.8	2.1	-1.5	-3.2	-5.0	-5.3	-4.3	0.1	0.8	1.3	4.7	1.3	-5.1	-8.1
8000	-0.2	-0.5	0.7	4.0	-1.8	-4.2	-4.4	-4.4	-4.0	-2.6	-0.6	3.3	3.2	2.7	-1.7	-3.5	-7.6
10000	-0.1	-1.6	-0.1	2.3	0.9	-2.4	-4.2	-6.6	-6.3	-4.0	1.2	2.1	1.7	4.5	1.0	-4.1	-7.8

RUN 8 2000 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/13/68
RUN..... 8,Pt 132
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 10.8
(kg/m³).. 0.0108
PHYS. FAN SPEED (RPM).... 2150
(rad/sec) 225.1
CORR. FAN SPEED (RPM).... 2125.6
(rad/sec) 222.6
TAPE NUMBER..... P659

C93

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	74.7	75.9	76.2	76.4	76.9	76.7	76.4	76.6	77.0	78.9	79.3	79.5	80.2	79.8	80.5	81.3	81.8	135.7
63	80.0	79.2	79.3	78.2	78.8	78.1	79.3	79.6	79.6	80.7	81.7	81.9	82.1	81.9	82.1	82.2	83.0	137.8
80	77.8	78.2	77.3	76.2	76.6	77.8	78.7	78.6	79.8	79.4	80.0	80.3	81.3	81.6	81.5	80.1	80.1	136.8
100	77.7	76.9	75.7	75.6	75.1	77.0	76.2	77.0	77.9	78.2	78.8	78.8	80.1	79.9	80.5	79.3	77.8	135.4
125	76.2	76.4	76.5	77.1	74.5	75.5	75.9	76.0	76.4	75.8	76.6	77.7	78.6	79.3	79.4	79.2	75.6	134.4
160	74.5	74.6	74.4	74.3	71.0	71.6	72.1	72.0	72.5	71.2	71.3	72.1	72.3	73.3	75.2	74.9	70.6	130.0
200	73.6	73.4	73.0	72.3	70.3	68.0	70.1	69.6	69.8	68.2	69.4	71.8	67.8	67.6	70.5	69.4	67.6	127.4
250	71.5	71.4	68.8	67.1	67.1	65.7	67.9	67.5	67.0	67.9	66.5	69.7	71.3	71.0	69.7	67.3	66.9	126.1
315	73.9	72.6	72.5	73.6	73.9	70.0	69.9	69.0	71.5	74.3	74.3	73.5	77.2	77.5	76.7	73.9	72.3	131.7
400	78.6	78.4	77.1	78.1	76.6	74.9	74.3	74.3	76.4	77.2	78.2	78.4	80.4	81.5	81.1	76.4	74.4	135.7
500	81.8	80.9	78.5	79.5	77.9	76.2	76.3	74.4	76.6	77.1	78.6	78.9	80.9	82.4	81.8	76.0	73.2	136.6
630	81.1	79.8	81.1	79.7	78.1	75.6	76.5	76.1	76.6	76.0	78.0	80.3	81.6	81.8	80.6	75.6	72.9	136.7
800	83.1	82.0	84.0	83.1	82.8	81.8	81.8	77.1	79.7	77.8	82.3	86.5	86.1	82.9	81.6	78.8	76.5	140.7
1000	86.5	84.7	86.3	86.6	85.5	84.1	83.8	78.9	81.3	80.2	84.2	87.7	87.6	85.2	82.5	80.4	77.6	142.7
1250	88.9	89.4	89.4	89.1	87.0	85.3	84.5	87.5	84.1	87.2	85.8	93.5	96.0	91.6	88.2	88.3	82.0	148.3 ✓
1600	88.6	92.0	90.9	91.9	90.6	88.9	88.8	90.9	87.5	90.6	89.0	97.1	99.5	94.9	91.6	91.8	85.5	151.9 ✓
2000	84.5	84.9	85.8	85.1	87.5	86.3	86.5	80.4	81.6	82.0	85.1	86.9	87.2	88.1	85.0	80.4	78.5	144.2
2500	83.3	84.4	84.6	85.7	86.7	91.1	90.1	81.9	81.1	82.2	85.0	86.8	87.5	89.2	84.7	80.5	78.8	145.7
3150	84.7	87.1	86.8	86.3	84.1	82.8	82.2	81.7	81.7	81.5	83.7	87.6	87.9	89.0	84.8	81.5	79.1	144.4
4000	87.3	87.2	88.0	87.7	87.7	86.6	86.1	83.7	84.5	85.2	88.2	91.5	92.0	93.9	89.8	86.7	82.5	148.8
5000	84.2	82.8	84.5	83.5	86.4	84.8	83.8	78.0	79.2	81.6	85.0	87.2	87.4	89.8	85.7	81.7	78.2	145.3
6300	80.4	80.1	80.7	80.2	83.7	81.1	79.3	75.8	76.0	78.3	82.0	83.7	84.0	87.8	83.3	77.2	74.7	143.2
8000	79.7	79.7	80.6	80.2	79.1	77.0	77.3	75.3	76.6	78.3	80.5	85.5	84.8	84.2	79.4	77.7	73.7	143.5
10000	75.2	73.9	75.6	75.1	78.3	75.0	74.2	69.5	70.2	73.9	78.4	80.5	79.9	82.8	78.7	73.8	70.8	142.0
OASPL MEASURED	98.2	98.8	98.9	98.8	98.4	98.0	97.6	96.0	95.2	96.5	97.6	102.3	104.0	102.3	99.2	97.3	93.2	
OASPL CALCULATED	96.7	97.5	97.5	97.6	97.3	96.8	96.3	95.0	93.9	95.5	96.5	101.3	104.9	101.1	97.9	96.3	92.6	
PNDB	110.1	110.3	110.7	110.6	110.6	111.0	110.4	107.7	107.2	108.3	110.4	114.0	115.5	115.3	111.8	108.9	105.3	
																	OAPWL	157.4

DIRECTIVITY INDEX

FREQ,																	
50	-4.1	-2.9	-2.7	-2.5	-1.9	-2.2	-2.4	-2.2	-1.9	0.0	0.5	0.6	1.4	1.0	1.6	2.5	3.0
63	-0.9	-1.7	-1.6	-2.7	-2.1	-2.8	-1.5	-1.2	-1.3	-0.2	0.8	1.0	1.2	1.0	1.2	1.3	2.1
80	-2.0	-1.6	-2.5	-3.6	-3.2	-2.0	-1.1	-1.2	0.1	-0.3	0.2	0.5	1.6	1.8	1.7	0.4	0.3
100	-0.6	-1.4	-2.7	-2.7	-3.2	-1.3	-2.1	-1.4	-0.4	-0.2	0.4	0.5	1.7	1.5	2.2	0.9	-0.5
125	-1.0	-0.9	-0.8	-0.2	-2.8	-1.7	-1.4	-1.3	-0.8	-1.5	-0.6	0.5	1.4	2.0	2.1	1.9	-1.6
160	1.8	1.9	1.7	1.6	-1.7	-1.1	-0.6	-0.7	-0.3	-1.5	-1.5	-0.7	-0.4	0.6	2.4	2.1	-2.2
200	3.5	3.4	3.0	2.3	0.3	-2.0	0.1	-0.4	-0.2	-1.9	-0.7	1.8	-2.2	-2.4	0.5	-0.7	-2.4
250	2.8	2.8	0.2	-1.5	-1.6	-3.0	-0.8	-1.2	-1.6	-0.7	-2.1	1.1	2.7	2.3	1.1	-1.4	-1.7
315	-0.2	-1.6	-1.6	-0.5	-0.2	-4.1	-4.3	-5.1	-2.6	0.1	0.2	-0.7	3.1	3.3	2.5	-0.3	-1.8
400	0.5	0.3	-1.0	-0.0	-1.5	-3.2	-3.8	-3.8	-1.6	-0.9	0.2	0.3	2.3	3.5	3.0	-1.7	-3.7
500	3.0	2.1	-0.3	0.7	-0.9	-2.5	-2.5	-4.4	-2.1	-1.7	-0.2	0.1	2.1	3.7	3.0	-2.7	-5.6
630	2.2	1.0	2.3	0.9	-0.8	-3.2	-2.4	-2.7	-2.2	-2.8	-0.8	1.5	2.7	3.0	1.8	-3.2	-6.0
800	0.5	-0.7	1.3	0.5	0.2	-0.8	-0.8	-5.5	-3.0	-4.9	-0.3	3.8	3.4	0.3	-1.0	-3.8	-6.1
1000	2.0	0.2	1.8	2.0	1.0	-0.4	-0.7	-5.6	-3.2	-4.4	-0.4	3.2	3.0	0.7	-2.0	-4.1	-6.9
1250	-1.1	-0.6	-0.6	-0.9	-2.9	-4.7	-5.5	-2.5	-5.9	-2.8	-4.2	3.6	6.1	1.6	-1.7	-1.6	-8.0
1600	-4.7	-1.4	-2.5	-1.5	-2.8	-4.5	-4.6	-2.5	-5.9	-2.7	-4.4	3.7	6.2	1.5	-1.8	-1.6	-7.8
2000	-0.9	-0.5	0.4	-0.3	2.1	0.9	1.0	-5.0	-3.9	-3.4	-0.3	1.5	1.8	2.6	-0.4	-5.0	-6.9
2500	-3.4	-2.3	-2.1	-1.0	0.1	4.4	3.4	-4.7	-5.6	-4.5	-1.7	0.2	0.9	2.6	-1.9	-6.2	-7.9
3150	-0.4	2.0	1.7	1.2	-1.0	-2.3	-2.9	-3.4	-3.4	-3.6	-1.3	2.5	2.8	3.9	-0.3	-3.6	-5.9
4000	-1.7	-1.8	-1.0	-1.3	-1.3	-2.3	-2.8	-5.2	-4.5	-3.7	-0.8	2.5	3.1	4.9	0.8	-2.2	-6.5
5000	-0.9	-2.3	-0.7	-1.7	1.3	-0.4	-1.4	-7.1	-5.9	-3.6	-0.2	2.0	2.3	4.7	0.6	-3.5	-6.9
6300	-1.8	-2.1	-1.5	-2.0	1.5	-1.1	-2.9	-6.3	-6.2	-3.8	0.0	1.6	1.8	5.7	1.1	-4.9	-7.5
8000	-1.3	-1.4	-0.4	-0.8	-2.0	-4.0	-3.7	-5.7	-4.4	-2.7	-0.5	4.5	3.7	3.2	-1.6	-3.4	-7.3
10000	-2.5	-3.7	-2.0	-2.5	0.7	-2.6	-3.4	-8.1	-7.4	-3.7	0.8	2.9	2.3	5.2	1.1	-3.8	-6.9

RUN 8 2150 RPM

 NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR. 1.4

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8.Pt.146
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³)... 10.8
(kg/m³)... 0.0108
PHYS. FAN SPEED (RPM).... 2150
(rad/sec) 225.1
CORR. FAN SPEED (RPM).... 2125.6
(rad/sec) 222.6
TAPE NUMBER..... P663

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	74.4	75.4	76.0	78.0	76.5	76.0	76.2	77.0	76.7	78.6	79.3	79.2	79.6	79.4	80.4	81.0	80.9	135.4
63	80.6	79.2	79.7	84.6	79.2	78.4	79.4	79.6	79.3	81.0	81.6	81.4	81.7	81.7	81.8	82.2	83.2	138.1
80	77.7	77.6	76.9	77.7	76.7	77.6	78.3	78.8	79.4	79.3	79.5	79.8	81.0	80.7	80.9	79.7	79.8	136.5
100	76.9	76.2	75.3	77.5	75.2	76.9	75.8	77.2	77.5	78.1	78.6	78.5	79.7	79.4	79.9	78.5	77.9	135.2
125	75.8	75.7	76.0	78.9	74.5	75.2	75.2	76.8	75.9	75.6	76.0	76.2	77.8	78.5	78.9	78.3	75.6	134.0
160	73.9	74.0	73.9	78.8	71.2	70.5	71.1	71.6	72.1	70.5	69.7	69.8	70.4	71.0	73.2	73.7	69.5	129.6
200	72.5	72.2	72.5	81.7	70.1	66.6	68.4	68.4	69.0	67.6	67.6	68.3	65.2	66.4	67.8	68.0	66.1	128.6
250	70.2	69.5	68.0	70.4	66.7	64.8	67.3	66.3	66.6	67.9	66.6	68.3	72.5	71.7	70.8	69.4	67.5	126.4
315	73.7	71.0	71.7	77.8	73.4	70.0	70.6	71.9	72.4	74.7	75.1	74.9	77.3	78.1	77.2	74.9	72.8	132.5
400	78.5	77.4	76.0	80.5	76.2	75.2	75.0	75.6	76.4	77.6	78.6	78.9	80.5	81.9	81.5	77.3	75.2	136.2
500	81.5	80.0	78.1	81.5	76.9	75.1	75.4	74.7	76.4	76.8	78.1	78.4	80.0	81.8	81.1	76.2	73.1	136.2
630	79.9	78.2	79.2	80.1	77.1	73.2	74.5	76.7	76.3	75.9	77.3	79.2	80.0	78.8	78.5	74.5	71.8	135.5
800	83.0	80.7	82.7	84.2	80.3	77.4	79.7	75.9	80.1	77.5	76.9	78.7	80.7	83.0	78.5	77.7	73.9	137.9
1000	87.8	84.5	86.5	89.5	84.4	81.4	83.1	79.2	83.5	81.2	81.1	82.4	84.5	86.9	81.7	80.7	76.0	142.0
1250	87.9	88.3	87.8	90.0	83.8	82.8	86.0	88.6	86.5	88.9	87.0	91.0	92.7	92.7	83.8	83.4	82.2	147.2
1600	86.3	92.2	89.7	93.5	88.4	87.6	91.4	93.9	91.7	94.3	92.1	96.2	98.0	98.0	87.7	88.5	87.5	152.5
2000	83.3	84.7	84.7	87.2	86.8	83.7	83.3	81.0	80.5	82.3	85.3	85.4	85.8	87.2	83.6	80.3	76.7	143.3
2500	82.5	85.0	84.7	88.1	85.3	85.8	83.4	81.1	81.2	81.6	83.4	85.4	85.2	87.8	82.1	78.9	76.8	143.4
3150	83.5	88.5	86.7	89.7	83.1	80.8	81.1	81.7	80.9	80.9	82.8	86.0	86.1	87.0	83.5	80.6	77.1	143.7
4000	85.9	86.7	86.9	91.3	87.2	84.4	84.8	84.5	84.1	85.3	87.3	90.6	90.0	90.7	89.3	85.4	81.1	147.7
5000	83.3	82.7	83.4	86.4	85.5	82.2	82.0	78.6	78.9	81.2	84.1	85.3	85.4	87.9	84.6	80.4	76.5	144.0
6300	79.2	79.3	79.5	82.7	82.9	78.6	77.6	75.9	75.4	77.8	82.0	81.7	81.6	85.7	81.4	75.4	72.2	141.8
8000	78.3	78.7	79.3	82.4	77.4	74.4	75.5	75.2	75.6	77.3	79.6	83.6	81.8	82.0	77.0	75.5	71.5	141.8
10000	74.1	73.1	74.3	76.5	76.6	72.6	71.9	69.1	69.0	72.7	77.4	78.0	76.8	80.4	76.0	71.6	67.8	140.0
OASPL MEASURED	97.3	98.5	98.0	101.3	97.0	95.3	96.7	97.5	96.4	97.9	97.9	100.6	101.7	102.3	97.1	95.2	92.9	
OASPL CALCULATED	95.9	97.3	96.7	99.9	96.0	94.2	95.6	96.6	95.4	97.2	96.8	99.7	100.9	101.4	96.0	94.2	92.5	
PNDB	109.0	110.6	109.8	113.5	109.7	107.5	108.5	109.3	108.2	110.0	109.9	112.6	113.7	114.4	110.6	107.5	104.7	
																	OAPWL	156.8

DIRECTIVITY INDEX

FREQ.																	
50	-4.1	-3.2	-2.5	-0.6	-2.1	-2.6	-2.4	-1.6	-1.9	0.0	0.7	0.6	1.1	0.8	1.8	2.4	2.3
63	-0.6	-1.9	-1.5	3.4	-2.0	-2.7	-1.7	-1.6	-1.8	-0.2	0.5	0.3	0.6	0.5	0.6	1.0	2.1
80	-1.8	-1.9	-2.5	-1.8	-2.8	-1.8	-1.1	-0.6	-0.0	-0.2	0.1	0.4	1.5	1.3	1.5	0.3	0.3
100	-1.2	-1.9	-2.8	-0.6	-2.9	-1.2	-2.3	-0.9	-0.6	-0.0	0.5	0.4	1.6	1.3	1.7	0.4	-0.3
125	-1.1	-1.1	-0.8	2.1	-2.4	-1.7	-1.6	-0.1	-0.9	-1.2	-0.8	-0.7	1.0	1.6	2.0	1.5	-1.3
160	1.6	1.7	1.6	6.5	-1.1	-1.4	-1.2	-0.6	-0.2	-1.8	-2.5	-2.5	-1.9	-1.3	0.9	1.4	-2.8
200	1.2	1.0	1.3	10.5	-1.1	-4.6	-2.8	-2.8	-2.2	-3.6	-3.7	-2.9	-6.0	-4.9	-3.4	-3.3	-5.2
250	1.3	0.6	-0.9	1.5	-2.2	-4.1	-1.6	-2.6	-2.3	-1.0	-2.3	-0.6	3.6	2.8	1.9	0.5	-1.4
315	-1.3	-3.9	-3.3	2.8	-1.5	-5.0	-4.3	-3.0	-2.5	-0.3	0.1	-0.0	2.4	3.2	2.3	-0.0	-2.1
400	-0.0	-1.1	-2.5	2.0	-2.3	-3.3	-3.6	-2.9	-2.2	-0.9	0.0	0.4	2.0	3.4	3.0	-1.2	-3.3
500	3.1	1.7	-0.3	3.1	-1.5	-3.3	-3.0	-3.7	-2.0	-1.5	-0.3	0.0	1.6	3.5	2.7	-2.2	-5.3
630	2.3	0.6	1.6	2.5	-0.5	-4.4	-3.1	-0.9	-1.3	-1.6	-0.3	1.6	2.5	1.2	0.9	-3.1	-5.8
800	3.2	0.9	2.9	4.4	0.5	-2.4	-0.2	-3.9	0.3	-2.3	-2.9	-1.1	0.9	3.2	-1.4	-2.2	-5.9
1000	4.0	0.7	2.8	5.8	0.6	-2.3	-0.7	-4.5	-0.3	-2.6	-2.7	-1.4	0.7	3.2	-2.0	-3.0	-7.8
1250	-1.0	-0.5	-1.1	1.1	-5.0	-6.1	-2.8	-0.2	-2.3	0.1	-1.8	2.2	3.8	3.9	-5.1	-5.4	-6.7
1600	-7.6	-1.7	-4.2	-0.4	-5.5	-6.3	-2.5	0.0	-2.2	0.4	-1.8	2.3	4.1	4.1	-6.2	-5.4	-6.4
2000	-1.2	0.2	0.2	2.7	2.3	-0.8	-1.2	-3.5	-4.0	-2.2	0.8	0.9	1.4	2.7	-0.9	-4.2	-7.8
2500	-1.9	0.6	0.3	3.7	0.9	1.4	-1.0	-3.3	-3.2	-2.8	-1.0	1.0	0.8	3.4	-2.3	-5.5	-7.6
3150	-0.9	4.2	2.4	5.4	-1.2	-3.5	-3.2	-2.6	-3.4	-3.5	-1.6	1.7	1.8	2.6	-0.9	-3.7	-7.3
4000	-1.9	-1.2	-1.0	3.5	-0.7	-3.5	-3.1	-3.4	-3.8	-2.6	-0.5	2.7	2.1	2.8	1.4	-2.5	-6.7
5000	-0.6	-1.2	-0.5	2.5	1.7	-1.7	-1.9	-5.3	-5.0	-2.7	0.2	1.4	1.5	4.0	0.7	-3.5	-7.4
6300	-1.6	-1.5	-1.3	1.9	2.1	-2.2	-3.2	-4.9	-5.4	-3.0	1.2	0.9	0.8	4.9	0.6	-5.4	-8.6
8000	-1.1	-0.6	-0.1	3.1	-1.9	-4.9	-3.9	-4.1	-3.8	-2.1	0.3	4.2	2.4	2.6	-2.3	-3.9	-7.9
10000	-1.5	-2.5	-1.3	0.9	1.0	-3.0	-3.7	-6.5	-6.6	-2.9	1.8	2.4	1.2	4.8	0.4	-4.0	-7.8

RUN 8 2150 RPM

 NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR. 1.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/13/68
RUN..... 8,Pt.133
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.3
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m3).. 10.8
(kg/m3).. 0.0108
PHYS. FAN SPEED(RPM).... 2300
(rad/sec) 240.8
CORR. FAN SPEED(RPM).... 2273.8
(rad/sec) 238.1
TAPE NUMBER..... P659

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	75.8	78.1	79.5	78.7	78.1	77.3	77.0	78.4	78.4	80.1	80.4	81.4	81.2	80.9	81.7	82.6	83.2	137.0
63	81.1	80.1	80.3	79.1	79.9	79.9	80.9	80.8	80.8	82.8	83.1	83.0	83.3	83.5	83.5	83.6	84.7	139.2
80	78.3	78.8	77.9	77.7	78.3	79.4	79.9	80.7	81.6	81.9	82.1	82.5	83.5	83.7	83.8	82.1	82.0	138.8
100	78.0	77.5	76.7	77.3	77.0	78.7	77.8	78.6	79.3	80.5	81.1	81.5	82.2	82.2	82.8	81.1	79.5	137.5
125	77.8	77.9	78.6	78.5	76.5	78.6	77.0	78.0	77.0	78.2	78.7	79.0	80.7	80.5	81.0	80.9	76.6	136.2
160	76.0	76.1	76.0	75.9	73.4	74.0	73.2	73.9	73.9	73.4	73.1	73.6	74.5	75.5	77.5	76.8	71.2	131.9
200	74.2	74.6	74.8	73.3	71.2	70.0	72.1	72.0	72.1	69.7	71.0	72.0	68.8	68.4	71.4	70.9	67.9	128.8
250	72.1	72.7	71.3	68.1	67.4	68.7	70.0	69.9	69.5	68.6	68.6	69.9	71.3	71.8	70.5	68.8	68.7	127.4
315	72.3	70.5	71.2	73.2	73.3	71.4	71.2	70.8	71.7	75.3	74.9	74.3	77.6	78.2	77.3	74.9	72.9	132.3
400	77.0	75.7	75.3	77.1	77.2	75.5	74.5	75.5	76.4	79.0	79.5	79.5	80.8	82.2	81.4	77.2	75.4	136.4
500	80.7	79.4	77.1	78.6	78.0	76.9	76.3	75.4	77.2	78.7	79.5	79.8	81.2	82.9	81.4	76.2	73.1	136.9
630	80.5	79.9	79.0	78.3	76.7	76.2	76.6	75.6	76.7	78.8	80.1	81.8	83.0	83.5	81.2	76.4	73.0	137.6
800	78.7	79.2	79.2	79.0	77.7	76.7	75.7	75.1	75.2	76.5	79.4	79.3	80.1	80.0	78.2	75.6	73.1	136.0
1000	88.1	88.0	86.3	88.5	88.3	86.0	85.4	86.0	84.2	86.1	92.1	87.5	86.8	87.0	86.5	83.8	80.8	145.6
1250	87.6	86.1	87.1	85.4	83.4	82.1	80.5	79.4	80.4	82.3	84.2	85.6	87.1	88.5	83.5	78.9	77.5	142.6
1600	88.7	90.6	93.7	90.4	90.1	90.4	90.1	87.6	92.4	89.1	96.4	99.2	101.7	101.8	93.9	88.1	91.4	154.8
2000	84.3	85.4	86.6	88.2	88.7	87.6	86.3	83.4	83.2	85.1	89.5	89.2	90.9	90.4	85.9	82.1	79.7	146.5
2500	82.8	83.8	83.3	83.7	85.4	87.0	85.4	83.4	81.5	82.6	85.2	86.7	88.2	89.5	84.5	80.5	78.4	144.6
3150	84.4	87.7	87.4	87.5	85.2	85.0	84.9	86.5	84.6	84.7	86.2	89.1	91.7	90.2	85.7	83.5	81.3	146.7
4000	86.9	87.9	87.8	88.4	88.2	86.7	86.2	85.4	84.8	86.2	88.7	92.7	91.4	91.5	86.1	84.3	80.5	148.5
5000	84.5	85.2	85.5	85.0	88.2	86.3	85.4	82.0	81.8	84.7	88.0	91.1	89.5	92.8	87.0	83.3	79.8	147.9
6300	80.6	81.4	81.5	82.3	85.1	82.5	80.8	79.6	77.5	80.1	84.4	85.5	84.9	89.0	83.6	77.7	74.6	144.6
8000	79.9	81.1	81.2	82.2	80.4	78.8	78.6	78.8	78.1	80.6	82.4	86.7	85.5	84.8	79.7	78.2	74.2	144.7
10000	75.5	75.5	76.2	77.2	79.7	77.1	76.0	73.8	72.6	76.0	81.1	82.4	81.6	84.2	79.4	74.6	71.2	143.7
OASPL MEASURED	97.7	98.6	99.4	98.8	98.8	98.1	97.1	96.1	97.0	97.1	101.3	103.2	104.7	105.0	99.6	96.0	95.6	
OASPL CALCULATED	96.6	97.3	98.1	97.6	97.6	96.9	96.2	95.2	96.1	96.2	100.4	102.2	103.8	104.1	98.5	95.0	94.9	
PNDB	109.8	110.7	111.1	111.0	111.0	109.9	109.3	108.9	109.1	109.4	113.3	115.4	116.8	117.3	111.6	107.8	107.4	
																	OAPWL	158.7

DIRECTIVITY INDEX

FREQ.																	
50	-4.3	-2.1	-1.6	-1.5	-2.0	-2.9	-3.2	-1.7	-1.8	-0.1	0.3	1.3	1.1	0.7	1.5	2.5	3.0
63	-1.2	-2.2	-2.0	-3.1	-2.4	-2.4	-1.4	-1.5	-1.5	0.5	0.8	0.7	1.0	1.2	1.2	1.3	2.4
80	-3.5	-3.0	-3.9	-4.1	-3.5	-2.3	-1.9	-1.1	-0.2	0.1	0.3	0.8	1.7	1.9	2.1	0.3	0.3
100	-2.4	-2.9	-3.7	-3.2	-3.4	-1.7	-2.6	-1.8	-1.1	0.1	0.7	1.1	1.8	1.8	2.4	0.7	-0.9
125	-1.2	-1.0	-0.4	-0.5	-2.5	-0.4	-1.9	-1.0	-1.9	-0.8	-0.2	0.1	1.7	1.5	2.1	1.9	-2.2
160	1.4	1.5	1.3	1.3	-1.3	-0.6	-1.4	-0.7	-0.7	-1.2	-1.5	-1.0	-0.1	0.9	2.9	2.2	-3.4
200	2.8	3.2	3.4	1.9	-0.2	-1.5	0.7	0.6	0.7	-1.8	-0.4	0.6	-2.6	-3.0	-0.0	-0.5	-3.6
250	2.1	2.8	1.4	-1.8	-2.5	-1.2	0.1	0.0	-0.4	-1.3	-1.3	0.0	1.4	1.9	0.6	-1.1	-1.2
315	-2.5	-4.2	-3.5	-1.5	-1.4	-3.4	-3.5	-3.9	-3.0	0.5	0.2	-0.4	2.9	3.5	2.6	0.2	-1.8
400	-1.6	-3.0	-3.4	-1.6	-1.5	-3.2	-4.2	-3.2	-2.3	0.3	0.8	0.8	2.1	3.5	2.7	-1.5	-3.3
500	1.6	0.2	-2.0	-0.5	-1.2	-2.3	-2.8	-3.7	-2.0	-0.4	0.4	0.7	2.1	3.8	2.3	-2.9	-6.1
630	0.8	0.1	-0.7	-1.5	-3.1	-3.5	-3.2	-4.1	-3.0	-0.2	0.3	2.1	3.2	3.8	1.4	-3.4	-6.8
800	0.7	1.2	1.2	1.0	-0.3	-1.3	-2.3	-2.9	-2.9	-1.5	1.4	1.3	2.1	2.0	0.2	-2.4	-4.9
1000	0.7	0.5	-1.1	1.1	0.9	-1.5	-2.0	-1.4	-3.3	-1.3	4.7	0.1	-0.6	-0.4	-0.9	-3.7	-6.7
1250	3.3	1.8	2.9	1.1	-0.9	-2.1	-3.8	-4.9	-3.9	-2.0	-0.0	1.4	2.8	4.3	-0.8	-5.4	-6.7
1600	-7.5	-5.6	-2.5	-5.8	-6.1	-5.8	-6.1	-8.6	-3.8	-7.1	0.2	3.0	5.5	5.6	-2.3	-8.1	-4.8
2000	-3.4	-2.3	-1.1	0.5	1.0	-0.1	-1.5	-4.3	-4.6	-2.6	1.8	1.4	3.2	2.7	-1.8	-5.6	-8.0
2500	-2.7	-1.8	-2.3	-1.8	-0.1	1.4	-0.1	-2.1	-4.1	-2.9	-0.4	1.1	2.7	3.9	-1.1	-5.0	-7.2
3150	-2.9	0.4	0.1	0.1	-2.1	-2.4	-2.4	-0.8	-2.7	-2.7	-1.2	1.8	4.3	2.9	-1.6	-3.9	-6.0
4000	-1.8	-0.7	-0.8	-0.3	-0.4	-2.0	-2.4	-3.2	-3.8	-2.4	0.1	4.0	2.8	2.8	-2.5	-4.3	-8.1
5000	-3.2	-2.5	-2.2	-2.7	0.5	-1.4	-2.3	-5.7	-5.9	-3.0	0.3	3.4	1.8	5.1	-0.7	-4.4	-7.9
6300	-3.0	-2.2	-2.1	-1.3	1.5	-1.1	-2.8	-4.0	-6.1	-3.5	0.8	1.9	1.3	5.4	0.0	-5.9	-9.0
8000	-2.3	-1.2	-1.0	-0.0	-1.8	-3.5	-3.7	-3.4	-4.1	-1.6	0.2	4.4	3.3	2.6	-2.6	-4.1	-8.1
10000	-3.8	-3.9	-3.1	-2.2	0.4	-2.3	-3.4	-5.6	-6.8	-3.4	1.8	3.0	2.2	4.8	0.0	-4.7	-8.2

C95

RUN 8 2300 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC, DATE - MONTH 9 DAY 27 HR, 3.8

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/13/68
RUN..... 8.Pt.147
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 71.0
(°K)..... 294.8
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 10.8
(kg/m³).. 0.0108
PHYS. FAN SPEED (RPM).... 2300
(rad/sec) 240.8
CORR. FAN SPEED (RPM).... 2273.8
(rad/sec) 238.1
TAPE NUMBER..... P664

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	75.3	75.9	76.8	76.6	77.3	76.6	76.6	77.7	77.4	79.6	80.0	79.7	80.2	79.6	80.6	81.5	81.9	136.0
63	81.1	79.4	79.7	78.[illegible]	79.2	78.5	80.1	80.3	80.2	81.9	82.5	82.0	82.5	82.3	82.7	83.0	83.7	138.4
80	78.6	78.1	77.6	76.4	76.9	78.2	78.5	79.4	80.0	80.4	80.6	81.0	82.2	81.9	81.9	80.6	81.0	137.3
100	76.1	76.6	76.0	76.0	76.2	77.9	76.7	78.0	78.2	79.2	79.8	79.6	81.0	80.7	81.1	79.4	79.1	136.2
125	77.3	76.8	78.0	77.5	75.4	76.6	76.1	77.4	75.9	76.5	77.6	77.4	79.1	79.3	80.0	79.2	77.1	134.9
160	75.7	74.9	75.1	75.7	71.8	71.7	71.7	72.3	72.3	71.4	71.5	70.8	71.6	72.6	74.4	74.0	70.9	129.9
200	73.6	73.1	73.3	75.8	69.5	67.8	70.1	69.9	69.7	67.4	68.0	68.8	66.1	66.7	68.5	68.5	67.8	127.1
250	71.9	70.3	69.6	68.2	66.2	65.5	68.1	67.2	67.1	69.0	67.6	68.3	72.7	72.4	71.4	69.1	68.8	126.8
315	73.9	70.9	71.2	74.8	72.4	69.5	71.5	70.8	72.6	75.2	75.5	74.8	77.9	78.2	77.4	74.8	73.2	132.5
400	78.9	76.9	75.8	78.3	75.9	75.0	75.3	76.2	76.9	78.2	79.1	79.4	81.0	82.2	81.4	77.2	75.6	136.4
500	82.2	79.5	77.7	80.2	76.8	75.5	75.7	75.8	76.7	77.7	78.9	79.0	80.6	82.1	81.0	75.9	73.3	136.4
630	80.9	79.9	80.4	81.6	77.5	74.5	76.0	75.9	74.7	77.1	78.4	80.9	80.9	80.3	78.4	73.8	71.5	136.3
800	79.7	77.9	79.4	82.1	77.3	76.2	75.4	74.9	74.6	75.4	75.6	76.6	78.2	78.4	77.1	74.2	72.7	135.0
1000	89.2	85.5	86.1	90.0	85.5	85.4	84.1	83.5	82.4	84.2	82.1	84.3	87.0	86.8	85.4	80.5	78.1	143.3
1250	88.3	84.0	87.5	87.8	82.4	81.1	79.6	79.0	80.8	81.5	84.1	84.3	85.4	87.8	84.0	79.4	76.9	142.2
1600	90.4	89.4	96.0	96.1	91.9	91.1	88.3	86.9	92.1	92.4	96.1	94.9	96.4	100.1	95.7	91.0	88.5	153.2
2000	85.4	83.5	85.6	94.0	87.3	87.8	85.5	81.1	82.7	84.4	86.6	87.9	90.0	90.7	85.6	81.4	78.5	146.3
2500	84.5	82.2	82.7	87.6	88.2	89.9	88.1	85.7	82.0	82.7	84.3	85.5	85.5	88.2	83.9	79.7	77.9	145.1
3150	85.2	85.4	85.9	90.0	84.0	83.5	83.8	84.4	83.1	83.5	84.1	87.2	88.6	89.1	84.7	82.4	79.5	145.2
4000	87.6	85.7	87.6	90.5	86.8	85.6	84.5	83.8	83.4	85.0	87.1	90.2	90.2	90.6	85.8	83.4	80.0	147.3
5000	85.2	82.2	85.3	86.9	86.1	84.1	83.5	80.0	80.3	82.9	85.8	87.3	88.4	91.0	86.5	82.4	79.0	146.1
6300	81.1	78.6	80.7	83.6	83.3	80.5	78.7	77.1	76.2	78.6	82.3	83.1	83.1	87.3	82.2	76.5	73.6	143.0
8000	80.4	78.3	80.7	83.4	78.4	76.6	76.6	76.5	76.5	78.9	80.5	84.7	83.8	83.4	77.7	76.6	72.4	143.1
10000	76.0	73.0	75.6	77.4	77.6	74.6	73.9	71.5	71.1	74.5	78.8	80.1	79.4	82.4	77.4	73.3	69.5	141.8
OASPL MEASURED	98.9	96.9	100.1	102.2	98.4	97.9	96.4	95.2	96.2	97.1	99.7	100.3	101.5	103.6	99.8	96.1	94.0	
OASPL CALCULATED	97.5	95.5	98.9	101.0	97.2	96.8	95.3	94.1	95.4	96.3	98.8	99.2	100.3	102.7	98.7	95.1	93.1	
PNDB	110.6	108.7	112.0	113.7	110.2	110.4	109.1	107.5	108.5	109.4	112.0	112.4	113.4	115.8	111.9	108.0	105.5	
																	OAPWL	157.4

DIRECTIVITY INDEX

FREQ,																
50	-3.8	-3.3	-2.3	-2.5	-1.8	-2.5	-2.5	-1.5	-1.7	0.4	0.9	0.5	1.1	0.5	1.5	2.4	2.8
63	-0.4	-2.1	-1.7	-2.8	-2.3	-2.9	-1.4	-1.2	-1.3	0.4	1.0	0.5	1.0	0.8	1.2	1.5	2.3
80	-1.7	-2.2	-2.7	-3.9	-3.4	-2.1	-1.8	-0.9	-0.3	0.1	0.3	0.7	1.9	1.6	1.6	0.2	0.7
100	-1.0	-2.5	-3.1	-3.1	-2.9	-1.2	-2.4	-1.1	-0.9	0.1	0.7	0.5	1.9	1.6	2.0	0.3	0.0
125	-0.5	-0.9	0.3	-0.2	-2.3	-1.1	-1.6	-0.4	-1.8	-1.2	-0.1	-0.4	1.3	1.6	2.2	1.5	-0.7
160	3.0	2.3	2.5	3.0	-0.8	-0.9	-0.9	-0.4	-0.3	-1.3	-1.1	-1.8	-1.0	-0.0	1.7	1.4	-1.7
200	3.9	3.4	3.5	6.0	-0.2	-1.9	0.3	0.2	-0.0	-2.3	-1.7	-1.0	-3.6	-3.1	-1.3	-1.2	-2.0
250	2.6	1.0	0.3	-1.2	-3.1	-3.8	-1.2	-2.1	-2.2	-0.3	-1.7	-1.0	3.3	3.0	2.1	-0.2	-0.5
315	-0.9	-4.0	-3.7	-0.1	-2.5	-5.4	-3.4	-4.1	-2.3	0.3	0.6	-0.1	3.0	3.3	2.5	-0.0	-1.7
400	0.2	-1.8	-2.9	-0.4	-2.8	-3.7	-3.4	-2.5	-1.8	-0.6	0.4	0.7	2.3	3.5	2.7	-1.5	-3.1
500	3.6	0.9	-0.9	1.6	-1.8	-3.1	-2.9	-2.9	-1.9	-0.9	0.3	0.3	1.9	3.5	2.4	-2.8	-5.3
630	2.5	1.5	2.0	3.1	-0.9	-4.0	-2.5	-2.5	-3.8	-1.3	-0.0	2.4	2.5	1.8	-0.0	-4.7	-6.9
800	2.8	0.9	2.4	5.1	0.3	-0.8	-1.6	-2.1	-2.4	-1.6	-1.4	-0.3	1.2	1.4	0.1	-2.8	-4.3
1000	4.1	0.4	1.0	4.8	0.4	0.2	-1.0	-1.6	-2.7	-0.9	-3.0	-0.8	1.9	1.7	0.3	-4.6	-7.0
1250	4.5	0.2	3.6	4.0	-1.4	-2.7	-4.2	-4.8	-3.0	-2.3	0.3	0.5	1.6	3.9	0.2	-4.4	-6.9
1600	-4.2	-5.2	1.4	1.5	-2.7	-3.5	-6.3	-7.7	-2.5	-2.2	1.5	0.3	1.8	5.5	1.1	-3.6	-6.1
2000	-2.1	-4.1	-1.9	6.5	-0.3	0.3	-2.0	-6.4	-4.9	-3.2	-1.0	0.4	2.4	3.2	-1.9	-6.1	-9.0
2500	-1.5	-3.8	-3.4	1.5	2.1	3.8	2.0	-3.3	-4.0	-3.4	-1.7	-0.6	-0.8	2.2	-2.2	-6.3	-8.2
3150	-0.7	-0.4	0.1	4.2	-1.8	-2.4	-2.1	-1.4	-2.7	-2.4	-1.7	1.4	2.8	3.2	-1.1	-3.5	-6.4
4000	0.1	-1.7	0.1	3.1	-0.6	-1.9	-2.9	-3.6	-4.1	-2.4	-0.3	2.8	2.8	3.1	-1.6	-4.0	-7.4
5000	-0.8	-3.7	-0.6	1.0	0.2	-1.8	-2.5	-5.9	-5.6	-3.0	-0.1	1.4	2.5	5.1	0.6	-3.5	-6.9
6300	-0.8	-3.3	-1.2	1.6	1.4	-1.4	-3.2	-4.8	-5.8	-3.3	0.4	1.2	1.2	5.4	0.3	-5.4	-8.3
8000	-0.2	-2.3	0.1	2.8	-2.2	-4.0	-4.0	-4.1	-4.1	-1.7	-0.1	4.1	3.0	2.8	-2.9	-4.0	-8.2
10000	-1.4	-4.5	-1.9	0.0	0.2	-2.8	-3.5	-5.9	-6.4	-3.0	1.4	2.6	2.0	5.0	-0.0	-4.1	-7.9

C96

RUN 8 2300 RPM

 NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR. 1.3

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.134
BAROMETER.....(in Hg).. 29.0
(N/m²).. 97928
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 10.5
(kg/m³).. 0.0105
PHYS. FAN SPEED (RPM).... 2450
(rad/sec) 256.5
CORR. FAN SPEED (RPM).... 2419.9
(rad/sec) 253.4
TAPE NUMBER..... P660

FREQ.	ANGLES FROM INLET																PWL
	0.0 (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	76.2	77.9	77.6	77.8	78.4	77.7	77.8	79.2	79.4	81.1	81.2	81.5	82.0	82.4	83.8	85.1	86.0	138.1
63	81.2	80.1	79.9	79.0	80.1	79.9	80.9	81.1	81.7	83.1	83.7	83.5	84.1	84.5	85.0	85.5	86.7	140.0
80	79.4	79.4	78.4	78.3	79.1	80.4	81.0	81.5	82.4	82.5	82.9	83.2	84.3	85.0	85.3	83.6	84.1	139.8
100	79.5	79.1	77.8	78.7	78.6	80.6	79.5	80.7	81.7	82.6	83.0	83.1	84.1	84.6	85.2	83.5	82.1	139.6
125	79.2	79.0	78.4	79.2	77.9	79.3	79.3	79.1	79.7	80.5	80.9	80.9	82.3	83.4	83.9	83.1	79.7	138.2
160	78.0	77.8	77.3	77.6	75.1	75.7	75.2	75.4	75.8	75.2	75.4	75.2	76.4	78.8	80.7	79.4	74.7	134.1
200	76.1	76.1	75.4	74.5	71.6	71.0	73.2	72.9	73.5	71.1	72.8	72.0	69.0	72.5	75.6	73.8	71.4	130.3
250	73.2	73.8	71.8	70.0	69.1	69.8	70.8	70.6	71.3	69.9	71.0	70.5	73.1	73.9	72.2	70.4	70.5	128.8
315	73.2	71.6	72.4	74.4	73.6	72.0	72.5	72.0	73.3	76.7	76.0	75.9	78.8	79.2	78.0	75.5	74.0	133.4
400	76.5	76.1	75.9	78.1	78.4	76.6	76.9	77.4	78.3	80.3	80.6	80.8	81.8	82.6	81.8	77.8	75.9	137.4
500	79.9	78.6	77.6	79.6	78.9	77.7	77.9	77.5	79.2	80.4	81.3	81.1	81.8	83.7	81.8	76.9	74.2	138.0
630	81.1	80.6	79.4	78.7	79.7	78.0	77.3	77.2	77.8	78.3	81.6	82.1	82.4	84.8	82.1	77.6	74.8	138.4
800	79.3	79.2	79.2	78.7	77.4	76.5	75.6	75.6	77.2	77.5	80.2	81.1	81.8	82.5	80.0	76.6	74.8	137.2
1000	91.3	89.6	94.3	89.2	91.7	88.4	88.6	86.6	89.6	88.3	91.1	92.0	87.5	92.6	86.9	84.7	84.0	148.1 ✓
1250	86.9	85.7	87.3	85.4	84.2	81.7	80.9	80.4	81.1	81.6	83.7	84.8	84.6	85.6	82.1	79.7	77.3	141.7
1600	93.1	94.6	98.6	90.7	96.4	91.5	90.1	88.2	92.1	88.4	90.6	93.1	98.6	99.1	94.9	92.5	91.3	152.6 ✓
2000	85.8	86.2	88.8	86.5	89.9	86.0	86.1	83.6	84.6	85.6	88.5	88.3	90.0	91.9	88.1	83.9	82.2	146.7
2500	84.4	83.7	84.9	85.7	88.9	86.7	88.2	85.4	83.8	84.1	87.8	88.0	88.8	89.8	87.5	82.6	81.1	146.2
3150	86.4	88.2	87.9	87.6	86.3	85.3	86.3	87.7	87.6	88.6	88.0	90.9	90.2	92.0	89.4	86.4	83.7	148.0
4000	88.1	89.0	89.5	89.0	89.4	87.3	87.7	87.1	86.5	87.6	89.7	92.7	91.6	91.6	88.0	86.4	83.1	149.2
5000	85.9	85.8	87.0	85.6	89.8	86.9	87.0	83.5	83.8	87.3	90.4	92.6	90.6	93.2	89.3	86.0	82.6	149.3
6300	82.5	82.4	83.3	82.5	87.3	83.3	82.8	81.2	79.8	81.9	85.7	86.3	85.2	89.1	85.3	80.1	77.4	145.7
8000	81.7	82.2	83.2	82.4	82.5	79.5	80.4	80.1	80.2	82.3	83.9	87.3	85.6	85.0	81.2	80.0	76.2	145.6
10000	77.5	76.8	78.2	77.1	81.9	77.7	77.9	75.4	75.0	78.1	82.9	83.3	81.9	84.5	80.8	76.8	73.5	144.9
OASPL MEASURED	100.0	100.4	102.8	99.3	101.8	98.8	98.7	97.5	98.8	98.7	100.8	102.5	102.6	104.7	101.4	98.8	97.1	
OASPL CALCULATED	98.6	99.0	101.7	97.8	100.7	97.5	97.5	96.3	97.6	97.5	99.5	101.1	101.3	103.4	100.1	97.7	96.3	
PNDB	111.3	112.0	114.3	111.5	113.6	110.5	110.7	110.1	110.4	111.2	112.9	114.9	114.4	116.5	113.0	110.4	108.5	
																	OAPWL	158.8

DIRECTIVITY INDEX

FREQ.																	
50	-5.1	-3.4	-3.7	-3.5	-2.9	-3.6	-3.5	-2.1	-1.9	-0.2	-0.1	0.2	0.7	1.1	2.6	3.8	4.7
63	-1.9	-2.9	-3.2	-4.1	-3.0	-3.2	-2.1	-1.9	-1.4	0.0	0.6	0.5	1.0	1.4	1.9	2.4	3.6
80	-3.4	-3.4	-4.4	-4.5	-3.7	-2.4	-1.8	-1.3	-0.4	-0.3	0.1	0.4	1.6	2.2	2.5	0.8	1.3
100	-2.9	-3.4	-4.6	-3.8	-3.9	-1.9	-3.0	-1.7	-0.7	0.2	0.6	0.6	1.7	2.2	2.7	1.0	-0.4
125	-1.8	-2.0	-2.6	-1.8	-3.1	-1.7	-1.7	-1.9	-1.3	-0.5	-0.1	-0.1	1.3	2.4	2.9	2.1	-1.3
160	1.2	1.0	0.4	0.7	-1.8	-1.1	-1.6	-1.4	-1.0	-1.6	-1.4	-1.7	-0.4	2.0	3.9	2.5	-2.1
200	3.1	3.1	2.4	1.5	-1.3	-2.0	0.2	-0.1	0.5	-1.9	-0.2	-1.0	-4.0	-0.5	2.7	0.8	-1.6
250	1.8	2.4	0.4	-1.3	-2.2	-1.6	-0.6	-0.8	-0.1	-1.5	-0.3	-0.9	1.7	2.5	0.8	-1.0	-0.9
315	-2.6	-4.2	-3.4	-1.4	-2.2	-3.8	-3.3	-3.8	-2.5	0.9	0.2	0.1	2.8	3.4	2.2	-0.3	-1.8
400	-3.2	-3.6	-3.8	-1.7	-1.3	-3.1	-2.9	-2.3	-1.4	0.5	0.8	1.0	2.1	2.8	2.1	-1.9	-3.8
500	-0.4	-1.6	-2.7	-0.6	-1.4	-2.6	-2.4	-2.8	-1.1	0.1	1.0	0.9	1.6	3.4	1.6	-3.4	-6.1
630	0.6	0.1	-1.1	-1.8	-0.8	-2.6	-3.2	-3.3	-2.7	-2.2	1.1	1.6	1.9	4.3	1.6	-2.9	-5.7
800	0.1	-0.0	-0.0	-0.5	-1.8	-2.7	-3.6	-3.6	-2.0	-1.7	1.0	1.9	2.6	3.3	0.8	-2.6	-4.4
1000	1.3	-0.4	4.4	-0.7	1.8	-1.6	-1.4	-3.3	-0.3	-1.6	1.2	2.0	-2.4	2.7	-3.0	-5.3	-5.9
1250	3.6	2.3	3.9	2.0	0.8	-1.6	-2.5	-3.0	-2.3	-1.8	0.3	1.4	1.2	2.2	-1.3	-3.7	-6.1
1600	-1.0	0.6	4.5	-3.4	2.4	-2.5	-3.9	-5.9	-2.0	-5.6	-3.4	-0.9	2.5	5.1	0.8	-1.5	-2.8
2000	-2.1	-1.6	0.9	-1.4	2.1	-1.9	-1.8	-4.3	-3.2	-2.2	0.6	0.5	2.2	4.1	0.2	-4.0	-5.6
2500	-2.7	-3.4	-2.2	-1.5	1.8	-0.4	1.1	-1.7	-3.3	-3.0	0.7	0.8	1.7	2.7	0.4	-4.5	-6.1
3150	-2.3	-0.5	-0.7	-1.1	-2.4	-3.4	-2.4	-1.0	-1.1	-0.1	-0.7	2.2	1.5	3.3	0.7	-2.2	-5.0
4000	-1.3	-0.4	0.1	-0.4	-0.0	-2.1	-1.7	-2.3	-2.9	-1.8	0.3	3.3	2.2	2.2	-1.4	-2.9	-6.3
5000	-3.2	-3.4	-2.1	-3.6	0.7	-2.2	-2.2	-5.6	-5.3	-1.8	1.3	3.5	1.4	4.0	0.2	-3.2	-6.5
6300	-2.1	-2.3	-1.3	-2.1	2.7	-1.4	-1.9	-3.5	-4.9	-2.7	1.1	1.6	0.5	4.4	0.6	-4.5	-7.3
8000	-1.4	-1.0	0.0	-0.8	-0.7	-3.7	-2.8	-3.1	-3.0	-0.9	0.7	4.1	2.4	1.8	-2.0	-3.1	-7.0
10000	-3.0	-3.7	-2.3	-3.4	1.4	-2.8	-2.6	-5.1	-5.5	-2.4	2.4	2.8	1.4	4.0	0.3	-3.7	-7.0

C97

RUN 8 2450 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC, DATE - MONTH 9 DAY 27 HR, 3.8

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/13/68
RUN..... 8.Pt 141
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 2450
(rad/sec) 256.5
CORR. FAN SPEED (RPM).... 2415.3
(rad/sec) 252.9
TAPE NUMBER..... .... P664

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0, (0)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50,0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90,0 (1.57)	100,0 (1.74)	110,0 (1.92)	120,0 (2.09)	130,0 (2.27)	140,0 (2.44)	150,0 (2.62)	160,0 (2.79)	
50	75,7	76,7	77,3	77,2	77,8	77,4	77,9	78,9	78,7	80,8	81,0	81,2	82,2	81,9	83,2	84,0	84,0	137.6
63	81,0	80,0	79,9	79,1	80,4	80,1	81,6	81,4	81,6	83,4	84,2	83,6	84,5	84,3	84,7	84,9	85,2	140.0
80	79,4	79,2	78,6	78,2	79,1	80,5	80,8	81,3	81,8	82,3	82,8	83,0	84,3	84,4	84,7	82,9	83,0	139.5
100	78,8	78,2	77,4	78,2	78,1	79,9	78,4	79,9	80,4	81,8	82,5	82,6	84,0	83,9	84,2	82,0	81,7	138.9
125	78,7	78,1	77,8	77,7	76,7	77,9	77,5	77,9	77,9	79,3	79,4	79,9	82,2	82,4	83,2	81,7	80,0	137.1
160	76,8	76,6	76,2	76,1	73,2	73,1	73,1	73,6	73,8	73,8	73,5	74,2	75,5	76,3	78,3	78,1	75,2	132.4
200	74,8	74,6	73,3	73,3	69,7	67,8	70,6	70,4	70,7	69,5	69,4	70,3	68,2	69,4	71,7	72,4	70,8	128.0
250	72,2	72,4	70,0	69,3	69,2	67,6	68,7	68,6	68,6	70,9	69,5	70,3	74,1	74,7	72,9	69,8	68,8	128.4
315	72,7	71,3	72,6	75,1	74,5	72,3	73,3	72,8	74,0	77,1	77,1	76,6	79,3	79,6	78,4	74,6	72,6	133.9
400	76,4	76,3	76,6	78,5	78,5	77,7	77,8	78,1	78,7	80,3	80,7	80,8	82,4	83,2	81,6	77,1	75,4	137.7
500	79,6	78,5	78,1	79,5	78,1	77,2	77,4	77,7	78,8	79,8	80,5	80,5	82,0	83,1	81,0	76,4	74,0	137.6
630	80,8	80,3	80,2	79,5	76,8	76,0	74,9	75,3	77,7	78,1	,8	81,5	82,8	83,3	80,4	77,1	74,6	137.5
800	78,7	78,5	78,7	78,2	76,0	75,3	74,5	75,4	75,4	75,9	77,7	79,3	81,9	79,8	78,3	76,5	73,7	135.9
1000	93,6	87,5	92,7	90,4	87,0	87,6	86,3	83,0	87,3	84,1	87,9	87,1	87,2	87,7	84,7	82,2	82,0	145.4
1250	86,5	84,5	86,0	84,8	81,0	80,9	79,6	79,1	79,9	80,5	82,0	83,3	84,6	86,4	81,4	78,1	75,0	140.9
1600	92,6	96,3	97,0	91,8	89,9	95,9	90,3	86,4	89,9	87,7	90,0	91,4	99,3	99,9	91,4	91,2	87,5	152.7
2000	84,1	85,8	87,3	91,3	87,0	88,7	85,0	82,6	82,9	84,7	86,3	86,2	89,4	90,3	85,4	82,0	79,3	145.8
2500	82,3	83,2	84,7	87,5	86,2	87,4	91,5	84,9	82,9	83,2	85,7	85,7	87,9	89,7	84,9	80,6	78,4	145.9
3150	84,9	86,9	87,1	90,8	85,1	85,0	86,1	87,0	86,7	86,9	89,2	90,5	90,4	93,2	87,2	85,9	81,8	148.0
4000	86,1	87,8	88,4	90,6	88,3	85,9	85,4	84,8	85,1	86,3	88,5	91,4	91,6	90,9	85,5	84,5	80,5	148.3
5000	84,2	85,0	86,1	87,6	87,5	85,5	84,9	82,3	83,5	87,4	91,0	90,9	91,2	93,0	87,4	84,1	80,7	148.7
6300	80,5	81,2	82,1	84,3	84,8	81,4	80,3	78,6	78,4	80,4	84,1	84,8	85,0	88,7	83,1	77,9	74,8	144.5
8000	79,4	80,6	81,9	83,8	79,9	77,7	78,0	77,4	78,6	80,7	82,2	85,7	85,2	84,2	78,6	77,6	73,5	144.3
10000	75,0	75,1	76,8	78,.	78,8	75,7	75,2	72,7	73,0	76,3	80,8	81,6	81,0	83,5	78,0	74,3	70,7	143.2
OASPL MEASURED	99,6	100,5	101,5	101,0	98,3	100,1	98,2	96,2	97,2	97,6	99,8	100,8	103,6	104,6	99,1	97,4	94,8	
OASPL CALCULATED	98,5	99,1	100,4	99,6	97,2	98,9	97,2	94,9	96,1	96,4	98,6	99,5	102,4	103,3	97,9	96,3	94,1	
PNDB	110,5	112,3	113,1	113,1	110,9	111,9	111,4	109,0	109,3	109,9	112,4	113,5	115,6	116,5	110,8	108,9	105,9	
																	OAPWL	158,2

DIRECTIVITY INDEX

FREQ,																	
50	-5,1	-4,0	-3,5	-3,6	-3,0	-3,4	-2,9	-1,9	-2,1	0,0	0,2	0,4	1,5	1,1	2,4	3,2	3,3
63	-2,1	-3,1	-3,2	-4,0	-2,7	-3,0	-1,5	-1,6	-1,5	0,3	1,1	0,9	1,4	1,2	1,6	1,8	2,1
80	-3,0	-3,3	-3,	-4,3	-3,4	-2,0	-1,7	-1,2	-0,7	-0,2	0,3	0,5	1,8	2,0	2,2	0,4	0,6
100	-2,9	-3,5	-4,3	-3,6	-3,7	-1,9	-3,3	-1,9	-1,3	0,0	0,7	0,8	2,2	2,1	2,5	0,2	-0,1
125	-1,3	-1,9	-2,2	-2,3	-3,3	-2,0	-2,4	-2,1	-2,1	-0,7	-0,6	-0,1	2,2	2,4	3,2	1,7	0,0
160	1,7	1,4	1,0	1,0	-1,9	-2,0	-2,1	-1,5	-1,3	-1,3	-1,6	-0,9	0,3	1,2	3,2	2,9	0,0
200	4,2	4,0	2,6	2,6	-0,9	-2,8	-0,1	-0,3	0,0	-1,2	-1,2	-0,3	-2,5	-1,2	1,0	1,7	0,2
250	1,3	1,4	-1,0	-1,7	-1,7	-3,3	-2,3	-2,4	-0,0	-1,5	-0,6	3,2	3,7	1,9	-1,1	-2,2	
315	-3,6	-5,0	-3,8	-1,3	-1,8	-4,0	-3,0	-3,5	-2,3	0,7	0,8	0,2	3,0	3,3	2,1	-1,7	-3,8
400	-3,7	-3,7	-3,5	-1,6	-1,6	-2,4	-2,2	-2,0	-1,4	0,3	0,6	0,8	2,3	3,1	1,6	-2,9	-4,7
500	-0,3	-1,4	-1,8	-0,3	-1,7	-2,6	-2,4	-2,2	-1,0	-0,1	0,6	0,6	2,2	3,3	1,2	-3,4	-5,8
630	1,2	0,7	0,5	-0,2	-2,9	-3,6	-4,7	-4,3	-1,9	-1,5	0,2	1,9	3,1	3,7	0,8	-2,5	-5,0
800	0,9	0,6	0,8	0,4	-1,8	-2,6	-3,4	-2,5	-2,5	-2,0	-0,2	1,4	4,0	1,9	0,5	-1,4	-4,1
1000	6,5	0,3	5,5	3,2	-0,2	0,4	-0,8	-4,1	0,1	-3,1	0,7	-0,1	0,1	0,5	-2,5	-5,0	-5,1
1250	4,0	2,0	3,5	2,3	-1,5	-1,6	-2,9	-3,4	-2,7	-2,1	-0,5	0,8	2,1	3,9	-1,1	-4,4	-7,6
1600	-1,5	2,2	2,9	-2,3	-4,3	1,7	-3,8	-7,8	-4,2	-6,5	-4,1	-2,7	5,1	5,7	-2,8	-3,0	-6,6
2000	-2,9	-1,2	0,3	4,3	0,0	1,7	-2,0	-4,4	-4,1	-2,2	-0,7	-0,8	2,4	3,3	-1,6	-5,0	-7,6
2500	-4,5	-3,6	-2,2	0,6	-0,7	0,6	4,7	-1,9	-3,9	-3,6	-1,1	-1,1	1,1	2,9	-1,9	-6,3	-8,4
3150	-3,7	-1,8	-1,6	2,1	-3,6	-3,7	-2,6	-1,7	-2,0	-1,8	0,5	1,8	1,8	4,5	-1,5	-2,8	-6,9
4000	-2,3	-0,6	0,0	2,2	-0,1	-2,5	-3,0	-3,6	-3,3	-2,1	0,1	3,0	3,2	2,5	-2,9	-3,9	-7,9
5000	-4,4	-3,6	-2,4	-1,0	-1,1	-3,1	-3,7	-6,3	-5,1	-1,2	2,4	2,4	2,6	4,4	-1,2	-4,4	-7,9
6300	-2,9	-2,2	-1,3	0,9	1,3	-2,0	-3,1	-4,8	-5,0	-3,0	0,7	1,4	1,6	5,3	-0,3	-5,5	-8,6
8000	-2,4	-1,	0,1	1,9	-2,0	-4,2	-3,9	-4,4	-3,3	-1,2	0,3	3,9	3,3	2,4	-3,3	-4,3	-8,3
10000	-3,8	-3,7	-2,0	-0,7	-0,0	-3,1	-3,7	-6,1	-5,9	-2,5	2,0	2,8	2,2	4,7	-0,8	-4,6	-8,1

C98

RUN 8 2450 RPM

 NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR. 1.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.135
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 77.0
(°K)..... 298.2
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 9.1
(g/m³).. 0.0091
PHYS. FAN SPEED(RPM).... 2600
(rad/sec) 272.2
CORR. FAN SPEED(RPM).... 2556.0
(rad/sec) 267.6
TAPE NUMBER..... P660

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	75.5	76.9	77.3	77.3	78.2	78.3	78.7	79.7	79.4	81.3	82.6	82.9	84.0	84.0	85.8	87.3	88.0	139.5
63	80.5	79.4	79.5	79.5	80.7	80.4	81.6	82.2	82.3	83.9	84.6	84.6	85.9	86.0	86.8	87.8	88.4	141.3
80	79.0	78.9	78.7	79.1	80.2	81.5	82.0	82.4	83.0	83.4	84.2	85.0	86.5	86.6	86.7	85.3	85.7	141.2
100	80.4	79.2	78.6	79.7	80.1	82.0	80.6	81.8	82.6	83.7	84.4	84.6	85.7	85.8	86.4	84.5	83.4	140.8
125	80.3	79.7	78.9	79.6	78.7	80.2	79.8	80.4	80.9	82.1	82.5	82.8	84.3	85.3	85.6	84.6	81.1	139.7
160	79.0	78.4	77.9	78.3	75.1	75.9	75.7	76.7	77.3	77.4	77.5	78.3	79.4	80.7	82.2	80.9	76.2	135.7
200	77.0	76.7	75.6	74.5	72.0	71.6	74.2	73.6	74.3	72.8	73.8	74.9	72.7	74.0	76.9	75.8	72.7	131.6
250	73.8	73.8	71.6	70.4	70.6	70.9	71.5	71.4	71.8	71.4	71.2	73.4	75.0	76.0	74.0	72.2	72.5	130.2
315	74.3	73.4	73.7	75.6	75.5	74.0	73.8	73.2	74.6	77.7	77.1	77.0	80.7	81.4	79.7	76.9	75.8	135.0
400	77.4	77.1	77.5	79.6	79.8	78.4	78.2	78.5	79.6	81.5	81.8	82.0	83.6	84.6	82.8	78.8	77.2	138.9
500	79.5	78.9	79.0	80.7	80.5	79.5	79.3	79.1	80.7	82.1	82.8	83.0	84.2	85.2	82.4	78.1	75.5	139.6
630	80.7	80.1	80.8	80.2	80.0	79.0	77.3	78.0	79.3	81.0	82.3	83.0	84.3	84.4	81.8	78.4	76.1	139.3
800	79.7	78.9	78.7	79.1	78.7	77.5	77.0	76.7	77.7	78.7	80.1	82.8	85.9	82.5	79.8	77.7	75.9	138.6
1000	91.5	89.0	92.7	92.4	91.6	92.5	91.5	89.0	89.4	93.2	91.6	97.9	95.2	93.6	92.5	87.6	84.8	151.3✓
1250	87.5	86.2	88.2	87.3	86.5	86.3	85.3	83.6	83.8	86.3	86.6	90.6	89.6	90.2	86.8	82.6	81.3	145.7
1600	90.2	95.5	93.4	97.5	92.7	93.3	91.6	90.1	89.4	91.8	93.6	98.9	97.8	97.8	96.0	93.1	90.0	153.6✓
2000	87.4	90.8	90.6	93.0	91.4	91.0	89.2	86.8	86.5	89.2	91.1	94.7	94.8	95.1	92.2	88.9	86.2	150.6
2500	85.5	86.2	87.6	88.4	91.4	89.8	88.1	86.0	84.9	86.4	89.1	90.5	91.4	93.2	88.3	83.9	82.0	148.3
3150	88.9	90.5	89.9	90.4	91.1	90.1	89.0	89.6	88.6	89.3	90.2	94.2	98.5	94.7	90.3	88.5	85.6	151.7
4000	89.7	90.6	90.9	90.5	90.9	89.5	90.3	89.1	88.6	90.3	92.8	95.8	97.1	95.5	90.8	89.4	85.9	152.5
5000	88.1	87.5	88.4	87.3	91.2	88.9	88.8	85.3	85.3	89.0	92.6	94.6	94.3	96.9	90.4	86.9	83.6	151.7
6300	83.8	84.3	84.6	84.4	88.5	85.3	84.0	83.0	81.6	84.4	88.3	89.3	90.1	92.7	87.6	82.2	79.4	148.5
8000	83.5	84.2	84.8	84.3	84.3	81.8	82.3	82.1	81.9	84.3	86.2	90.0	90.3	88.2	83.0	81.9	77.9	148.4
10000	79.6	79.3	80.1	79.5	83.9	80.6	80.0	78.1	77.3	80.8	85.5	86.3	86.2	88.2	83.2	79.0	75.5	147.9
OASpL MEASURED	100.1	101.4	101.3	102.6	101.9	101.4	100.5	99.1	98.8	101.0	102.4	105.9	106.5	106.1	102.9	100.3	98.3	
OASPL CALCULATED	98.9	100.3	100.4	101.7	101.0	100.3	99.4	98.1	97.9	100.1	101.6	105.2	105.5	105.1	102.0	99.5	97.4	
PNDB	112.4	113.3	113.5	114.5	114.2	113.2	112.9	111.9	111.4	113.3	115.3	118.2	119.7	118.7	114.7	112.3	109.4	
																	OAPWL	161.3

DIRECTIVITY INDEX

FREQ.																	
50	-7.2	-5.8	-5.4	-5.4	-4.5	-4.4	-4.0	-3.0	-3.2	-1.4	-0.0	0.2	1.3	1.3	3.1	4.7	5.4
63	-3.9	-4.9	-4.8	-4.8	-3.6	-4.0	-2.7	-2.2	-2.0	-0.4	0.3	0.2	1.5	1.7	2.4	3.4	4.0
80	-5.1	-5.3	-5.5	-5.1	-4.0	-2.6	-2.2	-1.7	-1.2	-0.7	0.0	0.8	2.3	2.4	2.5	1.1	1.5
100	-3.3	-4.5	-5.1	-4.1	-3.6	-1.7	-3.1	-1.9	-1.2	-0.1	0.7	0.9	1.9	2.1	2.6	0.8	-0.3
125	-2.3	-2.8	-3.6	-2.9	-3.9	-2.4	-2.7	-2.1	-1.7	-0.5	-0.1	0.3	1.8	2.7	3.2	2.1	-1.4
160	0.5	-0.1	-0.5	-0.2	-3.4	-2.5	-2.7	-1.8	-1.2	-1.0	-0.9	-0.2	0.9	2.3	3.7	2.4	-2.3
200	2.7	2.4	1.4	0.3	-2.2	-2.7	-0.0	-0.6	0.0	-1.5	-0.5	0.7	-1.5	-0.2	2.7	1.6	-1.5
250	1.0	1.0	-1.2	-2.4	-2.2	-1.9	-1.3	-1.4	-1.0	-1.3	-1.6	0.6	2.2	3.2	1.2	-0.6	-0.3
315	-3.1	-4.0	-3.7	-1.8	-1.9	-3.4	-3.6	-4.2	-2.8	0.3	-0.3	-0.4	3.3	4.0	2.3	-0.5	-1.7
400	-3.8	-4.1	-3.7	-1.6	-1.4	-2.8	-3.0	-2.7	-1.6	0.3	0.6	0.8	2.4	3.4	1.6	-2.3	-4.0
500	-2.4	-3.0	-2.9	-1.1	-1.4	-2.3	-2.6	-2.8	-1.1	0.3	0.9	1.1	2.3	3.4	0.5	-3.7	-6.4
630	-0.7	-1.2	-0.5	-1.1	-1.4	-2.4	-4.0	-3.4	-2.0	-0.3	0.9	1.6	2.9	3.1	0.4	-3.0	-5.3
800	-0.9	-1.7	-1.9	-1.4	-1.9	-3.1	-3.6	-3.8	-2.9	-1.9	-0.5	2.3	5.3	2.0	-0.7	-2.9	-4.6
1000	-1.6	-4.1	-0.4	-0.7	-1.5	-0.6	-1.5	-4.1	-3.7	0.1	1.5	4.8	2.1	0.5	-0.6	-5.5	-8.3
1250	0.1	-1.1	0.8	-0.1	-0.9	-1.0	-2.1	-3.8	-3.6	-1.0	-0.8	3.3	2.3	2.9	-0.6	-4.8	-6.0
1600	-4.8	0.4	-1.7	2.5	-2.3	-1.8	-3.5	-5.0	-5.6	-3.3	-1.4	3.8	2.7	2.8	1.0	-2.0	-5.0
2000	-4.4	-1.0	-1.3	1.1	-0.4	-0.8	-2.6	-5.0	-5.4	-2.7	-0.8	2.9	3.0	3.3	0.3	-3.0	-5.6
2500	-3.7	-3.0	-1.6	-0.9	2.1	0.5	-1.2	-3.2	-4.3	-2.8	-0.1	1.3	2.2	3.9	-0.9	-5.3	-7.2
3150	-3.5	-1.9	-2.5	-2.0	-1.3	-2.2	-3.4	-2.8	-3.8	-3.1	-2.2	1.8	6.1	2.4	-2.0	-3.9	-6.8
4000	-3.0	-2.0	-1.7	-2.1	-1.8	-3.1	-2.3	-3.6	-4.0	-2.3	0.1	3.1	4.5	2.8	-1.9	-3.3	-6.8
5000	-3.4	-4.1	-3.1	-4.3	-0.4	-2.7	-2.8	-6.3	-6.3	-2.6	1.0	3.0	2.7	5.3	-1.2	-4.7	-7.9
6300	-3.7	-3.2	-2.9	-3.1	1.0	-2.1	-3.4	-4.5	-5.9	-3.1	0.9	1.9	2.7	5.2	0.1	-5.3	-8.1
8000	-2.4	-1.7	-1.1	-1.6	-1.6	-4.1	-3.6	-3.8	-4.0	-1.6	0.3	4.1	4.1	2.3	-2.9	-4.0	-8.0
10000	-3.9	-4.2	-3.4	-4.1	0.4	-2.9	-3.5	-5.4	-6.2	-2.7	1.9	2.8	2.6	4.7	-0.3	-4.6	-8.1

C99

RUN 8 2600 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR. 3.8

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8 Pt 149
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 2600
(rad/sec) 272.2
CORR. FAN SPEED (RPM).... 2563.2
(rad/sec) 264.4
TAPE NUMBER..... P664

FREQ.	ANGLES FROM INLET 0° (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	74.8	76.2	77.0	76.9	78.2	78.2	78.8	80.2	79.9	82.1	82.8	83.0	84.1	83.8	85.2	86.7	87.3	139.4
63	80.6	79.5	80.0	79.5	80.6	80.2	81.5	82.0	82.5	84.1	84.8	84.7	86.0	85.8	86.6	87.5	88.1	141.2
80	79.1	78.7	78.8	78.9	80.1	81.5	82.0	82.4	83.0	83.6	84.3	84.8	86.4	86.3	86.4	85.2	85.9	141.1
100	80.0	79.2	78.8	79.6	79.8	81.7	80.5	81.7	82.5	83.8	84.2	84.1	85.6	85.4	85.9	84.3	84.1	140.6
125	79.9	79.7	79.1	79.5	78.8	79.6	79.6	80.2	80.5	82.1	82.1	81.7	83.5	83.7	84.9	83.4	81.8	139.1
160	78.3	77.7	77.5	77.0	74.7	74.9	74.2	75.3	76.2	75.8	75.5	75.7	77.3	78.3	80.1	79.1	76.6	134.0
200	76.5	76.0	75.3	73.7	71.9	69.7	71.9	71.8	72.2	70.6	71.0	71.5	69.9	71.9	73.5	73.6	72.2	129.5
250	72.8	72.9	71.2	70.8	71.3	69.2	69.6	70.1	70.1	73.7	72.7	72.3	76.9	77.4	76.1	73.7	71.8	130.9
315	73.4	72.8	73.2	75.4	75.8	74.0	74.1	74.8	76.3	79.2	79.2	78.4	81.2	81.8	80.7	77.4	75.4	135.9
400	76.3	76.6	77.3	79.3	80.0	78.8	79.2	79.5	80.9	82.3	83.0	82.6	83.9	84.9	83.3	79.4	77.6	139.5
500	78.7	78.0	78.6	79.9	79.9	79.3	79.5	79.6	81.1	81.9	82.6	82.4	83.4	84.5	82.1	78.0	76.0	139.3
630	79.6	79.9	79.7	76.7	75.9	76.1	76.4	76.8	78.0	79.6	79.8	81.6	82.3	81.9	79.5	77.4	75.8	137.3
800	77.7	77.7	77.3	77.8	77.3	76.2	75.9	75.8	77.2	78.1	79.5	80.2	82.8	80.9	78.6	77.1	76.0	136.9
1000	90.6	87.6	89.7	90.1	90.5	90.8	87.4	85.6	91.6	95.3	92.3	91.8	91.9	95.7	91.7	87.2	84.4	150.0 ✓
1250	87.2	85.6	86.9	85.8	85.7	85.8	83.3	82.2	86.0	89.3	87.1	87.2	87.8	90.9	86.6	82.7	79.7	145.3
1600	88.7	90.6	95.5	95.4	89.2	95.8	90.7	86.9	88.2	90.2	97.6	90.8	92.5	96.4	89.7	89.0	86.9	151.7
2000	86.9	88.3	92.4	92.9	88.2	93.1	89.4	84.9	86.0	87.9	94.4	89.4	91.0	94.5	89.0	87.1	84.9	149.7
2500	83.9	85.2	85.3	88.2	86.9	89.0	87.7	84.4	83.5	85.5	88.8	89.3	88.3	91.8	86.4	82.2	80.3	146.7
3150	88.5	91.9	88.9	91.7	87.3	90.6	90.7	89.2	87.9	90.2	91.3	91.1	96.4	95.8	88.7	86.0	83.8	151.0
4000	88.2	89.6	89.6	91.6	88.6	88.4	88.6	88.3	87.7	89.5	91.3	93.1	95.7	95.6	89.2	87.7	84.2	151.2
5000	85.9	85.2	86.8	88.7	89.0	87.9	87.3	83.6	83.9	86.6	90.0	92.7	91.7	95.1	87.9	84.8	81.6	149.8
6300	81.4	81.8	82.5	85.1	85.8	84.2	82.3	80.5	79.9	82.0	85.4	86.7	87.0	90.3	84.9	80.0	77.0	146.1
8000	80.9	80.9	82.1	84.8	80.8	79.7	79.7	79.2	79.6	81.4	83.0	86.9	86.3	85.5	79.6	78.8	75.0	145.4
10000	76.1	75.5	76.7	79.2	79.7	77.7	76.4	74.4	74.5	77.3	81.5	82.7	82.1	84.5	79.1	75.5	72.0	144.2
OASPL MEASURED	99.1	99.8	101.3	102.1	99.6	101.8	99.6	97.8	98.7	101.0	103.5	102.3	104.1	105.7	100.8	98.7	97.1	
OASPL CALCULATED	97.8	98.4	100.2	101.0	98.4	100.8	98.5	96.6	97.8	100.3	102.5	101.2	102.8	104.6	99.8	97.8	96.3	
PNDB	111.2	112.9	112.9	114.1	111.7	113.3	112.5	110.9	110.8	112.9	115.2	115.2	117.4	118.1	112.7	110.6	107.9	
																	OAPWL	159.9

DIRECTIVITY INDEX

FREQ.																	
50	-7.8	-6.3	-5.5	-5.6	-4.4	-4.4	-3.8	-2.4	-2.7	-0.5	0.2	0.4	1.6	1.2	2.6	4.2	4.8
63	-3.7	-4.8	-4.3	-4.8	-3.7	-4.1	-2.8	-2.3	-1.8	-0.2	0.4	0.4	1.7	1.5	2.2	3.2	3.8
80	-4.9	-5.4	-5.3	-5.2	-4.0	-2.6	-2.0	-1.7	-1.1	-0.5	0.2	0.7	2.3	2.2	2.3	1.1	1.8
100	-3.5	-4.4	-4.7	-3.9	-3.8	-1.8	-3.1	-1.8	-1.0	0.3	0.7	0.6	2.1	1.9	2.4	0.7	0.6
125	-1.9	-2.2	-2.8	-2.4	-3.1	-2.3	-2.3	-1.6	-1.4	0.2	0.2	-0.2	1.6	1.9	3.0	1.5	-0.1
160	1.5	1.0	0.8	0.2	-2.1	-1.9	-2.6	-1.5	-0.5	-1.0	-1.2	-1.1	0.5	1.5	3.3	2.3	-0.2
200	4.3	3.9	3.1	1.5	-0.3	-2.5	-0.2	-0.3	0.1	-1.6	-1.2	-0.6	-2.3	-0.3	1.3	1.4	0.1
250	-0.7	-0.5	-2.3	-2.7	-2.1	-4.3	-3.9	-3.3	-3.3	0.3	-0.8	-1.1	3.4	4.0	2.7	0.3	-1.6
315	-4.9	-5.4	-5.1	-2.9	-2.4	-4.3	-4.1	-3.5	-2.0	0.9	0.9	0.1	2.9	3.5	2.4	-0.9	-2.9
400	-5.5	-5.2	-4.5	-2.5	-1.8	-3.0	-2.6	-2.3	-0.9	0.5	1.2	0.8	2.1	3.1	1.5	-2.4	-4.2
500	-2.8	-3.5	-2.9	-1.6	-1.7	-2.2	-2.0	-1.9	-0.4	0.3	1.0	0.9	1.9	3.0	0.6	-3.5	-5.5
630	0.2	0.5	0.3	-2.7	-3.5	-3.3	-3.0	-2.6	-1.5	0.2	0.4	2.2	2.9	2.4	0.1	-2.0	-3.6
800	-1.2	-1.1	-1.6	-1.1	-1.5	-2.6	-2.9	-3.1	-1.7	-0.8	0.7	1.3	3.9	2.0	-0.2	-1.8	-2.9
1000	-1.2	-4.2	-2.2	-1.8	-1.3	-1.0	-4.5	-6.3	-0.2	3.4	0.4	-0.1	0.1	3.8	-0.2	-4.6	-7.4
1250	0.2	-1.4	-0.0	-1.1	-1.3	-1.2	-3.6	-4.7	-1.0	2.4	0.1	0.3	0.8	4.0	-0.3	-4.3	-7.2
1600	-4.5	-2.5	2.3	2.2	-4.0	2.6	-2.4	-6.2	-5.0	-3.0	4.5	-2.3	-0.7	3.3	-3.4	-4.2	-6.2
2000	-4.0	-2.6	1.6	2.0	-2.6	2.2	-1.5	-6.0	-4.9	-3.0	3.6	-1.5	0.2	3.6	-1.9	-3.8	-6.0
2500	-3.8	-2.5	-2.4	0.5	-0.8	1.3	0.0	-3.3	-4.2	-2.2	1.1	1.5	0.6	4.1	-1.4	-5.6	-7.4
3150	-3.2	0.2	-2.7	0.1	-4.4	-1.0	-0.9	-2.4	-3.7	-1.4	-0.4	-0.6	4.8	4.2	-3.0	-5.6	-7.8
4000	-3.2	-1.8	-1.8	0.2	-2.8	-3.0	-2.8	-3.1	-3.7	-1.9	-0.1	1.7	4.3	4.2	-2.2	-3.7	-7.2
5000	-3.8	-4.5	-2.8	-1.0	-0.6	-1.7	-2.3	-6.1	-5.8	-3.0	0.4	3.1	2.1	5.4	-1.7	-4.8	-8.0
6300	-3.6	-3.3	-2.5	0.1	0.8	-0.8	-2.8	-4.5	-5.1	-3.1	0.4	1.6	2.0	5.2	-0.1	-5.1	-8.0
8000	-2.0	-2.0	-0.8	1.8	-2.1	-3.3	-3.3	-3.8	-3.4	-1.6	0.0	3.9	3.3	2.5	-3.4	-4.2	-7.9
10000	-3.7	-1.4	-3.1	-0.7	-0.2	-2.1	-3.4	-5.5	-5.4	-2.5	1.7	2.8	2.2	4.7	-0.7	-4.4	-7.9

C100

RUN 8 2600 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR, 1.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.136
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 10.5
(kg/m³)... 0.0105
PHYS. FAN SPEED (RPM).... 2750
(rad/sec) 287.9
CORR. FAN SPEED (RPM).... 2716.2
(rad/sec) 284.4
TAPE NUMBER..... P660

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	74.8	76.1	76.6	76.9	77.8	78.0	78.9	80.7	80.8	82.4	83.4	83.8	84.6	85.1	87.1	89.1	90.4	140.7
63	80.5	79.5	80.1	80.0	81.2	80.4	81.5	82.3	83.2	84.8	85.5	85.7	86.8	87.2	88.1	89.1	90.5	142.3
80	79.3	79.4	79.6	80.1	80.7	82.3	82.7	83.2	84.1	84.7	85.5	86.3	87.3	87.6	88.0	86.8	87.8	142.3
100	80.8	79.9	79.9	80.9	80.7	83.0	82.0	83.6	84.4	85.3	85.8	86.0	87.3	87.3	88.2	86.6	85.6	142.4
125	81.5	81.1	80.6	81.1	80.2	81.3	81.4	82.8	83.1	83.8	83.9	83.8	85.6	86.1	86.7	85.6	82.4	141.1
160	80.4	79.9	79.5	79.6	76.4	76.9	76.9	78.1	78.7	78.7	78.6	79.1	80.6	81.2	82.9	81.8	76.9	136.8
200	78.7	78.4	77.9	76.2	72.7	72.8	75.4	74.9	74.9	72.6	74.1	75.0	73.1	73.9	76.5	75.7	72.7	132.2
250	74.7	75.5	73.1	71.4	70.1	71.3	72.3	72.0	72.5	73.7	73.1	73.8	77.6	78.5	76.8	74.8	74.1	131.9
315	73.9	73.7	73.4	75.0	75.2	73.7	74.3	74.1	76.2	79.7	79.9	79.4	82.5	83.2	82.3	79.3	77.6	136.8
400	76.9	76.6	76.8	79.6	79.7	78.3	79.1	79.2	81.1	83.1	83.7	83.8	85.0	86.2	84.6	81.0	79.0	140.2
500	78.9	78.6	79.1	81.8	80.6	80.1	80.8	80.5	82.3	83.3	84.4	84.4	85.4	86.6	84.0	80.0	77.2	140.9
630	81.0	81.2	80.8	80.8	79.3	79.5	81.1	80.5	81.4	81.5	82.3	83.8	84.4	85.0	81.7	79.2	77.0	140.0
800	79.1	79.8	78.9	79.1	78.5	78.1	78.7	77.5	79.0	79.9	81.4	82.9	85.0	83.6	79.9	79.3	76.7	139.0
1000	85.5	84.7	85.6	87.4	86.1	86.2	85.8	82.7	83.6	86.2	89.0	90.6	88.2	93.2	87.1	82.2	80.5	146.0
1250	89.5	89.7	90.3	91.7	89.9	91.5	91.3	87.7	88.2	91.6	94.8	97.0	93.5	99.8	93.6	86.3	85.6	152.0 ✓
1600	86.1	87.1	88.4	86.3	88.8	85.4	86.5	85.7	85.5	86.0	89.2	92.1	92.0	92.4	86.5	8 1	83.4	147.3
2000	89.0	90.1	94.8	89.3	95.8	89.4	92.7	91.7	89.5	89.4	94.9	99.5	99.1	100.0	92.8	90.9	7	154.2 ✓
2500	86.0	85.7	88.4	89.0	89.6	88.7	89.4	86.7	85.7	87.5	92.6	89.6	95.7	88.1	85.0	82.9		148.8
3150	87.4	89.8	89.5	90.2	88.6	90.2	89.5	88.3	87.8	88.7	90.1	92.1	92.7	93.1	86.2	85.0	82.0	149.4
4000	90.1	91.4	91.2	91.7	90.8	90.3	91.1	90.5	89.7	91.1	95.5	96.3	96.9	98.2	91.2	90.6	86.7	153.6
5000	88.0	87.0	88.3	87.3	90.6	88.5	89.2	84.9	84.9	88.6	92.6	93.3	92.9	95.4	89.3	85.8	82.8	150.8
6300	83.6	83.6	84.4	84.2	88.1	85.2	84.5	82.7	81.6	84.7	89.1	89.3	89.0	92.8	87.3	82.1	79.1	148.4
8000	83.0	83.4	84.2	83.9	83.3	81.3	82.7	81.8	81.8	84.2	86.2	89.8	89.2	88.0	82.1	81.4	77.7	148.0
10000	78.6	77.9	79.1	78.5	82.5	79.6	79.9	77.1	76.5	80.3	85.2	85.6	85.3	87.4	82.0	78.0	74.6	147.1
OASPL MEASURED	99.7	100.2	101.5	100.8	101.9	100.4	101.1	99.7	99.3	100.8	104.2	106.0	105.9	107.7	102.3	100.1	98.9	
OASPL CALCULATED	98.2	98.8	100.1	99.5	100.8	99.2	99.9	98.4	98.1	99.7	103.0	104.9	104.5	106.5	101.3	99.2	98.3	
PNDB	112.3	113.1	113.8	113.6	114.6	112.8	113.6	112.5	112.0	113.6	117.2	118.3	118.6	120.1	114.3	112.6	110.2	
																	OAPWL	161.3

DIRECTIVITY INDEX

FREQ.																	
50	-9.0	-7.8	-7.2	-7.0	-6.1	-5.8	-4.9	-3.1	-3.1	-1.5	-0.4	-0.0	0.7	1.3	3.3	5.3	6.5
63	-4.9	-5.9	-5.2	-5.4	-4.2	-5.0	-3.9	-3.0	-2.2	-0.6	0.1	0.4	1.4	1.8	2.8	3.7	5.2
80	-6.0	-5.9	-5.7	-5.2	-4.6	-2.9	-2.6	-2.1	-1.2	-0.6	0.2	1.0	2.0	2.4	2.7	1.5	2.5
100	-4.5	-5.3	-5.4	-4.4	-4.5	-2.3	-3.3	-1.6	-0.9	-0.0	0.5	0.7	2.0	2.1	2.9	1.3	0.4
125	-2.4	-2.8	-3.2	-2.8	-3.5	-2.6	-2.4	-1.1	-0.8	-0.0	0.1	-0.1	1.7	2.3	2.9	1.8	-1.5
160	0.9	0.4	0.0	0.1	-3.1	-2.6	-2.6	-1.4	-0.8	-0.8	-0.9	-0.3	1.2	1.7	3.4	2.3	-2.6
200	3.8	3.6	3.1	1.4	-2.1	-2.0	0.6	0.1	0.1	-2.2	-0.7	0.2	-1.7	-0.9	1.6	0.8	-2.1
250	0.2	1.0	-1.4	-3.1	-4.3	-3.2	-2.2	-2.5	-2.0	-0.8	-1.4	-0.7	3.2	4.0	2.3	0.3	-0.4
315	-5.3	-5.5	-5.8	-4.2	-4.0	-5.5	-4.7	-5.1	-3.0	0.5	0.7	0.2	3.3	4.0	3.1	0.1	-1.6
400	-5.7	-6.0	-5.8	-2.9	-2.8	-4.3	-3.5	-3.3	-1.5	0.5	1.2	1.2	2.5	3.6	2.0	-1.6	-3.6
500	-4.2	-4.6	-4.0	-1.3	-2.6	-3.1	-2.3	-2.7	-0.8	0.2	1.3	1.2	2.3	3.4	0.8	-3.2	-5.9
630	-1.0	-0.9	-1.2	-1.2	-2.8	-2.6	-0.9	-1.6	-0.7	-0.6	0.3	1.7	2.4	2.9	-0.4	-2.9	-5.1
800	-1.8	-1.1	-2.0	-1.9	-2.4	-2.8	-2.2	-3.4	-1.9	-1.0	0.4	2.0	4.1	2.6	-1.0	-1.6	-4.3
1000	-2.3	-3.1	-2.2	-0.4	-1.8	-1.7	-2.0	-5.2	-4.3	-1.7	1.1	2.8	0.4	5.4	-0.7	-5.6	-7.4
1250	-4.2	-3.9	-3.4	-2.0	-3.7	-2.2	-2.4	-6.0	-5.5	-2.0	1.2	3.4	-0.2	6.1	-0.1	-7.4	-8.1
1600	-2.7	-1.7	-0.4	-2.5	-0.0	-3.4	-2.3	-3.1	-3.3	-2.8	0.4	3.3	3.2	3.6	-2.3	-4.7	-5.4
2000	-6.4	-5.3	-0.6	-6.1	0.5	-6.0	-2.7	-3.7	-5.9	-6.0	-0.5	4.2	3.7	4.6	-2.6	-4.5	-4.6
2500	-3.7	-4.0	-1.4	-0.7	-0.1	-1.0	-0.4	-3.1	-4.0	-2.2	2.9	-0.1	1.9	4.0	-1.7	-4.7	-6.8
3150	-2.7	-0.3	-0.6	0.1	-1.5	0.1	-0.6	-1.8	-2.2	-1.3	0.1	2.0	2.6	3.0	-3.9	-5.1	-8.0
4000	-3.7	-2.3	-2.5	-2.0	-2.9	-3.4	-2.6	-3.2	-4.0	-2.6	1.8	2.6	3.2	4.5	-2.5	-3.1	-7.1
5000	-2.7	-3.7	-2.4	-3.4	-0.1	-2.2	-1.5	-5.8	-5.8	-2.1	2.0	2.6	2.2	4.7	-1.4	-4.8	-7.8
6300	-3.8	-3.7	-3.0	-3.1	0.8	-2.2	-2.9	-4.6	-5.8	-2.7	1.7	1.9	1.6	5.5	-0.1	-5.3	-8.3
8000	-2.6	-2.2	-1.3	-1.6	-2.2	-4.2	-2.8	-3.7	-3.7	-1.3	0.6	4.3	3.6	2.5	-3.4	-4.1	-7.8
10000	-4.2	-4.9	-3.7	-4.3	-0.3	-3.1	-2.8	-5.7	-6.2	-2.5	2.5	2.9	2.5	4.7	-0.8	-4.8	-8.1

C101

RUN 8 2750 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC, DATE -- MONTH 9 DAY 27 HR, 3.8

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9.13.68
RUN..... 8.Pt.150
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 2750
(rad/sec) 287.9
CORR. FAN SPEED (RPM).... 2711.1
(rad/sec) 283.9
TAPE NUMBER.. ..... P665

FREQ,	ANGLES FROM INLET 0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	75.2	76.3	77.0	77.1	78.5	78.6	79.4	80.9	80.5	82.7	83.5	83.8	85.1	85.1	87.0	88.7	89.3	140.6
63	80.5	79.6	80.1	79.9	81.1	80.5	82.2	82.9	83.1	85.2	85.6	85.7	87.0	87.0	88.0	89.2	90.1	142.4
80	79.4	79.4	79.5	79.9	80.9	82.3	82.6	83.2	83.9	84.6	85.1	85.4	87.0	87.1	87.4	86.2	87.4	141.9
100	80.6	79.9	79.6	80.5	81.0	82.6	81.4	82.8	83.6	84.9	85.0	84.7	86.4	86.5	87.2	85.3	85.7	141.6
125	80.6	81.0	80.4	80.6	80.2	80.4	80.7	82.0	81.8	83.2	82.9	82.6	84.5	84.9	86.1	84.4	83.2	140.2
160	79.3	79.3	78.6	78.6	75.8	75.6	75.8	76.7	77.0	77.2	76.8	77.1	78.2	78.8	80.9	80.0	77.4	135.1
200	77.6	77.7	76.2	75.1	72.4	70.7	72.9	72.8	72.8	71.6	71.4	72.4	71.5	73.8	74.0	73.8	72.5	130.5
250	74.3	74.2	71.9	72.2	72.1	70.6	70.8	71.5	71.7	75.8	73.7	73.7	78.7	79.5	78.8	76.0	73.9	132.7
315	75.1	73.8	74.4	76.3	77.1	75.2	75.4	75.9	77.3	80.5	80.3	79.9	82.7	83.5	82.7	79.6	77.6	137.4
400	77.1	77.2	78.5	80.5	81.1	79.7	80.6	80.7	81.8	83.3	83.9	83.8	85.3	86.4	85.0	81.1	79.0	140.7
500	78.8	76.5	79.8	81.5	81.3	80.3	80.6	81.1	82.2	83.1	83.9	83.6	84.7	85.7	83.7	79.4	76.7	140.6
630	80.4	79.8	79.3	78.2	78.4	77.9	77.5	78.6	79.4	81.1	82.2	82.5	83.2	83.2	79.7	76.9	75.2	138.5
800	78.7	78.2	78.4	78.9	78.8	78.0	76.9	76.9	77.9	79.0	81.5	81.5	82.8	83.0	78.6	77.6	77.0	138.0
1000	86.6	86.0	87.3	88.4	85.5	87.4	84.0	83.5	82.2	86.0	87.8	88.8	86.8	91.5	85.9	81.2	81.3	145.1
1250	89.2	90.3	91.1	92.2	88.4	92.1	87.6	87.5	84.7	90.4	92.3	93.8	88.8	96.4	90.9	83.7	86.1	149.6
1600	86.6	86.4	88.0	87.4	85.5	85.1	87.8	85.7	87.7	86.7	89.4	91.2	92.2	90.8	86.1	83.2	83.6	147.1
2000	93.0	90.4	93.6	93.1	89.2	88.6	94.7	90.9	94.6	91.5	95.4	98.1	99.3	96.6	92.2	89.4	90.6	153.6
2500	85.3	85.5	86.8	89.8	89.5	89.0	86.8	86.2	85.6	87.3	92.2	89.0	90.0	93.1	86.8	83.4	81.2	148.1
3150	87.6	88.9	87.8	90.7	88.2	87.6	89.1	89.2	87.3	86.8	88.1	90.3	93.1	91.7	85.9	84.6	81.7	148.6
4000	88.6	89.9	90.3	91.9	89.8	88.0	89.5	88.9	89.0	89.9	92.4	94.3	95.0	95.4	90.7	89.0	85.7	151.7
5000	86.3	85.8	86.8	88.8	89.9	87.3	87.7	84.1	84.7	88.7	92.1	91.8	91.7	94.1	88.0	85.0	82.0	149.9
6300	82.2	82.0	83.0	86.1	87.2	83.9	83.3	81.6	81.1	84.2	88.0	87.5	88.1	91.1	85.9	80.8	78.4	147.3
8000	81.4	81.6	82.7	86.1	82.4	80.1	81.0	80.3	81.0	82.6	84.4	88.2	87.1	86.1	80.3	79.7	76.4	146.5
10000	76.9	75.9	77.4	80.7	81.3	78.1	77.8	75.5	75.6	78.4	83.2	83.7	83.2	85.3	79.7	76.1	73.3	145.3
OASPL MEASURED	100.0	99.7	100.8	101.7	99.9	99.8	100.6	99.3	100.0	100.6	103.0	104.2	105.0	105.5	101.4	98.9	98.6	
OASPL CALCULATED	98.5	98.3	99.4	100.6	98.0	98.6	99.4	98.0	98.9	99.4	102.0	103.2	103.8	104.3	100.3	98.1	98.0	
PNDB	112.2	112.1	112.9	114.3	112.7	111.5	113.2	111.7	112.8	112.9	115.4	116.9	117.7	117.9	113.6	111.2	109.9	
																	OAPWL	160.2

DIRECTIVITY INDEX

FREQ,																	
50	-8.6	-7.4	-6.8	-6.7	-5.2	-5.2	-4.4	-2.9	-3.3	-1.0	-0.3	0.1	1.3	1.4	3.2	5.0	5.6
63	-4.9	-5.9	-5.4	-5.5	-4.3	-4.9	-3.3	-2.6	-2.3	-0.2	0.2	0.3	1.6	1.6	2.5	3.7	4.6
80	-5.6	-5.5	-5.4	-5.1	-4.0	-2.6	-2.3	-1.6	-1.0	-0.3	0.2	0.5	2.0	2.1	2.5	1.3	2.5
100	-3.9	-4.6	-4.9	-4.0	-3.6	-1.9	-3.1	-1.8	-1.0	0.3	0.5	0.2	1.9	2.0	2.7	0.8	1.2
125	-2.4	-1.9	-2.6	-2.4	-2.8	-2.6	-2.3	-1.0	-1.2	0.2	-0.1	-0.4	1.5	1.9	3.1	1.4	0.2
160	1.5	1.5	0.8	0.8	-2.0	-2.3	-2.1	-1.1	-0.9	-0.7	-1.0	-0.7	0.4	1.0	3.0	2.2	-0.4
200	4.5	4.6	3.1	2.0	-0.7	-2.4	-0.2	-0.3	-0.3	-1.5	-1.7	-0.7	-1.6	0.7	0.9	0.7	-0.6
250	-1.0	-1.0	-3.3	-3.1	-3.2	-4.7	-4.5	-3.7	-3.5	0.5	-1.5	-1.5	3.5	4.2	3.5	0.8	-1.4
315	-4.7	-6.0	-5.4	-3.5	-2.7	-4.6	-4.4	-3.9	-2.5	0.7	0.6	0.1	3.0	3.8	2.9	-0.2	-2.2
400	-6.0	-5.9	-4.6	-2.6	-2.0	-3.3	-2.5	2.4	-1.2	0.3	0.9	0.8	2.2	3.3	2.0	-1.9	-4.1
500	-4.0	-4.3	-3.0	-1.3	-1.5	-2.5	-2.1	-1.7	-0.5	0.3	1.2	0.8	1.9	2.9	0.9	-3.3	-6.1
630	-0.2	-0.9	-1.3	-2.4	-2.2	-2.7	-3.2	-2.1	-1.2	0.4	1.5	1.9	2.5	2.6	-1.0	-3.8	-5.4
800	-1.3	-1.8	-1.6	-1.0	-1.2	-1.9	-3.1	-3.0	-2.0	-1.0	1.5	1.6	2.9	3.0	-1.4	-2.4	-2.9
1000	-0.3	-0.9	0.4	1.5	-1.4	0.5	-3.0	-3.5	-4.8	-1.0	0.9	1.9	-0.1	4.5	-1.1	-5.8	-5.6
1250	-2.1	-0.9	-0.1	1.0	-2.8	0.9	-3.7	-3.7	-6.5	-0.9	1.0	2.6	-2.5	5.2	-0.3	-7.5	-5.1
1600	-1.9	-2.2	-0.5	-1.1	-3.0	-3.5	-0.7	-2.8	-0.8	-1.9	0.8	2.6	3.6	2.2	-2.5	-5.3	-4.9
2000	-1.8	-4.4	-1.2	-1.7	-5.6	-6.2	-0.2	-4.0	-0.3	-3.4	0.6	3.3	4.5	1.8	-2.6	-5.4	-4.2
2500	-3.8	-3.7	-2.3	0.7	0.4	-0.1	-2.3	-2.9	-3.3	-1.8	3.1	-0.1	0.9	4.0	-2.3	-5.7	-7.9
3150	-1.7	-0.4	-1.5	1.5	-1.1	-1.7	-0.2	-0.1	-2.0	-2.5	-1.2	1.0	3.9	2.4	-3.4	-4.7	-7.6
4000	-3.3	-1.9	-1.5	0.1	-2.0	-3.9	-2.3	-2.9	-2.9	-1.9	0.6	2.5	3.2	3.6	-1.1	-2.6	-6.1
5000	-3.4	-3.9	-2.9	-0.9	0.2	-2.4	-2.0	-5.6	-5.0	-1.1	2.3	2.0	1.9	4.4	-1.7	-4.8	-7.7
6300	-4.0	-4.2	-3.2	-0.1	1.0	-2.3	-2.9	-4.6	-5.1	-2.0	1.8	1.3	1.9	4.9	-0.3	-5.4	-7.8
8000	-2.6	-2.6	-1.3	2.0	-1.6	-3.9	-3.1	-3.7	-3.0	-1.5	0.3	4.2	3.1	2.0	-3.8	-4.4	-7.7
10000	-4.0	-5.1	-3.5	-0.3	0.3	-2.9	-3.2	-5.5	-5.4	-2.5	2.2	2.8	2.3	4.3	-1.3	-4.9	-7.7

C102

RUN 8 2750 RPM

 NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR. 1.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8.Pt.137
BAROMETER.....(in Hg)... 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m3)... 10.5
(kg/m3)... 0.0105
PHYS. FAN SPEED(RPM).... 2900
(rad/sec) 303.6
CORR. FAN SPEED(RPM).... 2864.3
(rad/sec) 299.9
TAPE NUMBER..... P661

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	75.1	76.4	77.0	76.9	78.3	78.7	79.5	81.3	81.3	83.3	84.3	85.1	86.1	86.4	88.9	91.4	92.5	142.2
63	80.9	80.3	80.8	80.1	81.4	80.7	82.0	83.2	83.7	85.4	86.2	87.2	85.1	88.1	89.6	91.2	92.7	143.5
80	79.9	80.1	80.5	81.0	81.8	83.0	83.3	84.0	84.9	85.5	86.2	86.9	88.3	88.6	89.0	88.4	90.1	143.3
100	81.5	80.9	81.0	82.1	82.2	83.4	83.0	84.0	84.9	85.9	86.7	86.7	87.9	88.2	89.3	87.5	87.5	143.2
125	82.3	82.3	82.0	82.2	81.4	82.7	82.6	83.7	84.1	84.9	84.8	84.8	86.3	87.2	87.9	86.6	83.7	142.1
160	81.2	81.3	81.0	80.6	77.5	78.2	78.1	78.6	80.1	79.9	80.0	79.8	80.8	81.7	83.5	82.3	77.7	137.6
200	80.4	80.5	79.1	77.3	74.3	73.9	75.8	75.0	76.3	73.6	74.9	76.3	74.4	74.7	76.7	76.4	73.2	133.1
250	76.0	76.6	74.0	73.4	72.2	72.7	72.9	73.5	73.9	74.9	73.8	75.0	79.8	80.7	79.2	76.8	74.9	133.7
315	74.7	74.7	75.0	76.8	77.5	75.2	75.2	76.3	77.7	81.2	81.1	80.9	84.4	84.7	84.1	81.0	78.5	138.3
400	77.2	77.7	78.7	81.7	81.6	79.8	80.1	80.8	82.4	84.4	84.6	84.9	86.7	87.5	85.9	82.2	79.6	141.6
500	79.5	79.9	81.4	83.1	82.4	81.8	81.9	81.7	83.9	84.9	85.4	84.9	86.3	87.3	85.0	81.1	78.3	142.0
630	81.1	79.8	81.7	81.1	79.5	80.8	79.6	79.8	82.4	82.0	84.1	84.0	84.8	84.5	82.4	80.3	77.8	140.4
800	80.5	81.5	80.2	80.8	80.6	79.8	79.4	79.8	81.4	81.6	82.3	81.6	83.6	83.7	80.7	79.6	77.8	139.5
1000	84.0	83.7	85.3	86.5	85.6	84.6	84.3	83.7	85.4	84.9	85.6	85.4	88.0	89.0	84.8	81.7	78.8	143.9
1250	90.8	90.8	92.0	92.9	91.9	93.3	95.2	95.1	97.8	95.2	91.8	91.7	98.9	98.7	96.9	89.0	87.3	153.8 ✓
1600	87.6	88.0	88.3	86.9	87.0	86.3	85.3	85.5	86.2	86.4	88.8	89.3	89.5	89.9	85.4	82.9	80.9	146.0
2000	91.0	91.5	93.7	91.6	92.6	94.1	92.5	96.2	93.6	93.2	100.7	100.7	99.8	97.6	94.4	91.8	91.3	155.6 ✓
2500	85.8	87.6	89.5	89.6	92.2	93.2	92.3	88.9	88.2	89.1	92.0	91.0	91.7	94.4	88.7	85.5	83.4	150.1
3150	88.4	89.9	90.5	94.4	90.4	88.8	90.0	89.9	89.3	88.5	90.0	92.9	93.5	91.6	86.7	85.2	83.0	150.1
4000	91.9	92.6	93.2	92.9	92.8	92.2	92.5	91.8	91.5	92.5	94.2	97.5	98.4	97.8	91.9	91.0	87.4	154.4
5000	88.6	87.9	89.3	89.1	92.3	90.1	89.8	86.6	86.9	89.5	92.1	93.5	93.0	94.7	89.1	86.1	83.1	151.1
6300	84.7	84.5	85.6	86.4	89.5	86.8	85.9	84.7	84.3	87.0	90.2	91.4	90.2	94.1	88.2	82.9	80.4	149.9
8000	83.7	84.0	85.4	86.5	84.5	83.0	83.5	83.5	83.8	85.2	86.6	90.7	89.2	87.6	82.5	81.8	78.2	148.7
10000	79.6	78.5	80.4	81.6	83.7	81.3	80.4	78.8	78.3	81.0	85.5	86.8	85.4	87.1	82.1	78.3	75.0	147.7
OASPL MEASURED	100.8	101.2	102.2	102.6	102.6	102.5	102.6	102.7	103.0	102.7	105.4	106.1	107.2	106.9	103.7	101.2	100.1	
OASPL CALCULATED	99.3	99.7	100.8	101.2	101.3	101.2	101.2	101.4	101.8	101.5	104.2	105.1	105.8	105.7	102.6	100.3	99.7	
PNDB	113.6	114.1	114.9	115.7	115.2	114.6	114.7	114.8	114.2	115.0	118.4	119.0	119.7	119.6	115.1	113.2	110.8	
																	OAPWL	162.2

DIRECTIVITY INDEX

FREQ.																	
50	-10.3	-8.9	-8.4	-8.4	-7.0	-6.6	-5.8	-4.0	-4.0	-2.1	-1.0	-0.2	0.7	1.0	3.6	6.1	7.2
63	-5.7	-6.3	-5.9	-6.6	-5.2	-5.9	-4.6	-3.4	-2.9	-1.2	-0.4	0.5	1.5	1.5	3.0	4.6	6.1
80	-6.4	-6.2	-5.8	-5.3	-4.5	-3.3	-3.0	-2.2	-1.4	-0.8	-0.1	0.6	2.0	2.3	2.7	2.2	3.8
100	-4.6	-5.2	-5.2	-4.0	-3.9	-2.0	-3.2	-2.1	-1.2	-0.2	0.5	0.5	1.7	2.1	3.2	1.4	1.4
125	-2.6	-2.6	-2.9	-2.7	-3.5	-2.2	-2.3	-1.2	-0.8	-0.0	-0.1	-0.1	1.4	2.2	3.0	1.7	-1.3
160	0.8	0.9	0.7	0.2	-2.8	-2.1	-2.2	-1.8	-0.3	-0.4	-0.4	-0.5	0.4	1.3	3.1	2.0	-2.6
200	4.7	4.7	3.3	1.5	-1.5	-1.9	0.1	-0.8	0.5	-2.1	-0.9	0.5	-1.3	-1.1	1.0	0.7	-2.6
250	-0.2	0.4	-2.2	-2.8	-4.0	-3.5	-3.3	-2.7	-2.3	-1.3	-2.4	-1.2	3.6	4.4	3.0	0.6	-1.3
315	-6.1	-6.0	-5.8	-4.0	-3.3	-5.6	-5.6	-4.5	-3.1	0.4	0.3	0.1	3.6	3.9	3.3	0.2	-2.3
400	-6.7	-6.2	-5.1	-2.2	-2.3	-4.1	-3.8	-3.1	-1.5	0.5	0.7	1.0	2.8	3.6	2.0	-1.7	-4.3
500	-4.7	-4.4	-2.8	-1.1	-1.9	-2.5	-2.4	-2.5	-0.3	0.6	1.1	0.7	2.1	3.1	0.7	-3.2	-6.0
630	-1.3	-2.6	-0.7	-1.3	-3.0	-1.7	-2.8	-2.6	-0.1	-0.5	1.6	1.6	2.4	2.0	-0.1	-2.1	-4.7
800	-1.0	0.1	-1.3	-0.7	-0.8	-1.6	-2.1	-1.7	-0.1	0.1	0.8	0.2	2.1	2.2	-0.8	-1.9	-3.7
1000	-1.7	-2.0	-0.4	0.8	-0.1	-1.1	-1.4	-2.0	-0.3	-0.8	-0.1	-0.3	2.3	3.3	-0.9	-4.0	-6.9
1250	-4.7	-4.7	-3.5	-2.6	-3.5	-2.1	-0.3	-0.4	2.3	-0.2	-3.6	-3.7	3.4	3.3	1.4	-6.4	-8.2
1600	0.2	0.5	0.8	-0.6	-0.5	-1.1	-2.2	-2.0	-1.3	-1.1	1.3	1.8	2.1	2.4	-2.0	-4.5	-6.6
2000	-5.9	-5.3	-3.1	-5.3	-4.2	-2.8	-4.3	-0.7	-3.3	-3.6	3.8	3.9	3.0	0.8	-2.5	-5.0	-5.6
2500	-5.3	-3.5	-1.5	-1.4	1.2	2.1	1.2	-2.2	-2.8	-2.0	0.9	-0.0	0.7	3.3	-2.4	-5.5	-7.7
3150	-2.3	-0.8	-0.2	3.7	-0.3	-1.9	-0.7	-0.8	-1.4	-2.2	-0.7	2.2	2.8	0.9	-4.0	-5.5	-7.8
4000	-2.7	-1.9	-1.3	-1.6	-1.7	-2.3	-2.0	-2.7	-3.0	-2.1	-0.3	3.0	3.9	3.3	-2.6	-3.5	-7.1
5000	-2.4	-3.1	-1.7	-1.9	1.3	-0.9	-1.2	-4.4	-4.1	-1.5	1.1	2.5	2.0	3.7	-1.9	-4.9	-7.9
6300	-4.2	-4.3	-3.2	-2.4	0.6	-2.0	-2.9	-4.2	-4.5	-1.9	1.4	2.5	1.3	5.2	-0.7	-6.0	-8.5
8000	-2.5	-2.2	-0.9	0.3	-1.7	-3.2	-2.8	-2.7	-2.5	-1.0	0.4	4.5	2.9	1.4	-3.7	-4.5	-8.1
10000	-3.8	-4.8	-3.0	-1.8	0.4	-2.1	-3.0	-4.5	-5.0	-2.3	2.2	3.4	2.1	3.7	-1.2	-5.0	-8.4

C103

RUN 8 2900 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC, DATE - MONTH 9 DAY 27 HR, 3.8

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/13/68
RUN..... 8,Pt.151
BAROMETER.....(in Hg)... 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³)... 11.5
(kg/m³)... 0.0115
PHYS. FAN SPEED (RPM).... 2900
(rad/sec) 303.6
CORR. FAN SPEED (RPM).... 2859.0
(rad/sec) 299.3
TAPE NUMBER..... P665

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0° (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	75.9	77.2	77.7	78.2	79.6	79.7	80.6	82.0	81.6	83.4	84.7	85.5	86.7	87.0	89.3	91.7	92.4	142.6
63	81.2	80.5	81.2	81.0	81.9	81.6	83.0	83.7	84.2	85.9	86.9	87.3	88.5	88.6	90.0	91.8	93.2	144.1
80	80.4	80.3	80.7	81.2	82.2	83.7	83.9	84.6	85.4	85.9	86.7	87.3	88.9	89.0	89.4	88.9	90.7	143.8
100	82.3	81.3	81.1	82.0	82.3	84.4	83.6	84.5	85.3	86.2	86.6	86.4	87.9	88.1	89.3	87.4	88.3	143.4
125	83.1	82.5	81.6	82.1	81.8	82.7	83.2	83.9	84.2	85.1	84.7	84.7	86.6	87.2	87.9	86.8	85.4	142.3
160	81.5	80.9	80.3	80.3	77.5	77.9	78.0	79.2	79.9	79.7	79.5	79.5	80.6	81.9	83.2	82.2	79.9	137.5
200	80.3	79.8	78.3	76.7	74.5	73.2	75.6	75.5	76.0	73.6	73.7	75.3	74.0	76.5	76.4	76.4	76.3	133.0
250	75.7	75.8	73.4	74.7	74.0	73.0	73.4	73.3	74.0	77.0	75.7	76.7	81.1	82.4	80.7	78.1	77.6	135.1
315	76.1	75.4	76.3	78.1	79.2	77.7	77.7	77.8	79.0	82.1	82.5	82.6	84.9	85.7	84.7	81.6	80.1	139.5
400	78.6	78.8	79.8	82.4	82.6	81.8	82.2	82.1	83.1	84.8	85.7	85.8	87.2	88.5	86.3	83.0	81.2	142.5
500	80.4	80.6	82.0	83.1	82.6	82.4	82.6	82.9	84.4	85.0	85.9	85.9	86.7	87.9	85.4	81.5	79.4	142.6
630	80.4	78.3	79.5	79.4	79.1	80.6	80.5	82.0	83.4	82.8	83.7	84.6	85.0	85.0	82.4	80.2	78.8	140.7
800	80.0	79.8	79.6	80.5	80.8	80.0	79.0	80.4	81.5	81.1	82.3	82.8	83.4	83.1	80.5	79.8	78.1	139.5
1000	84.8	84.2	85.6	85.6	85.3	84.0	84.1	83.2	83.5	85.5	86.4	86.7	88.5	89.2	83.3	81.5	79.2	143.9
1250	91.4	94.6	93.5	92.3	96.3	91.2	95.0	93.2	90.1	98.0	94.7	97.8	101.1	102.0	94.3	90.2	85.4	155.1
1600	86.2	88.8	88.2	86.7	86.4	86.0	86.5	85.1	85.5	86.2	88.3	89.5	90.0	90.3	84.9	82.1	80.6	146.0
2000	90.0	91.5	89.4	97.1	91.0	94.6	99.0	89.5	94.8	95.3	99.9	102.9	103.4	101.8	94.9	91.2	89.9	157.5
2500	86.9	86.8	91.2	88.5	91.2	91.4	90.5	87.9	87.9	88.5	91.5	91.6	92.0	94.5	88.8	85.3	83.8	149.7
3150	87.8	89.1	89.7	92.4	89.5	88.9	91.1	89.7	88.5	87.4	88.9	92.9	94.2	91.5	86.0	84.2	83.0	149.8
4000	90.8	91.4	92.6	92.1	92.7	92.0	92.4	91.4	91.4	91.8	93.8	97.7	98.3	96.4	90.5	89.9	87.4	154.0
5000	87.4	86.5	88.3	87.4	91.3	88.8	89.2	86.4	86.8	88.7	91.9	93.2	93.0	93.9	88.3	85.5	83.1	150.6
6300	83.4	83.5	85.4	84.5	88.9	86.1	85.4	84.1	83.8	85.5	89.2	90.6	89.8	93.0	87.2	82.5	80.5	149.1
8000	82.5	82.6	84.3	83.8	83.9	82.0	82.9	83.0	83.2	84.1	86.2	89.7	88.6	87.0	81.3	80.7	77.9	147.9
10000	77.9	77.2	79.0	78.3	82.8	80.0	79.8	77.9	77.7	79.8	84.7	85.6	84.5	86.2	80.5	77.3	74.5	146.7
OASPL MEASURED	100.4	101.5	101.7	103.1	103.0	102.2	104.2	101.1	101.8	103.6	105.2	107.7	108.8	108.4	103.1	101.0	100.7	
OASPL CALCULATED	98.9	100.1	100.3	101.6	101.6	100.7	102.8	99.8	100.3	102.5	104.0	106.5	107.5	107.2	102.0	100.3	99.8	
PNDB	112.9	113.5	114.4	115.4	115.0	114.3	116.6	113.5	114.0	114.9	117.9	120.3	121.0	120.3	114.7	112.6	110.6	
																	OAPWL	162.7

DIRECTIVITY INDEX

FREQ.																
50	-9.8	-8.6	-8.0	-7.5	-6.1	-6.0	-5.1	-3.7	-4.1	+2.3	-1.0	-0.2	1.0	1.2	3.5	6.0	6.7
63	-5.9	-6.7	-6.0	-6.1	-5.2	-5.5	+4.2	-3.5	+2.9	-1.3	-0.3	0.2	1.4	1.5	2.9	4.7	6.1
80	-6.4	-6.5	-6.1	-5.5	-4.6	-3.1	-2.9	-2.2	-1.4	+0.8	-0.1	0.5	2.1	2.2	2.6	2.1	3.9
100	-3.9	+5.0	-5.2	-4.2	-3.9	+1.9	-2.7	-1.7	-0.9	+0.1	0.3	0.2	1.7	1.8	3.0	1.2	2.0
125	-2.0	+2.5	-3.4	-3.0	+3.3	-2.3	-1.9	-1.1	-0.8	0.0	-0.4	-0.3	1.5	2.2	2.8	1.7	0.4
160	1.3	0.7	0.0	0.1	+2.8	-2.4	-2.2	-1.0	+0.3	-0.6	-0.8	-0.7	0.4	1.6	2.9	2.0	-0.3
200	4.7	4.2	2.7	1.1	-1.2	-2.4	-0.0	-0.1	0.4	+2.1	-1.9	-0.3	+1.8	0.9	0.8	0.7	0.7
250	-1.9	+1.8	-4.2	-2.8	-3.6	-4.6	+4.2	-3.8	+3.6	-0.6	-1.9	-0.9	3.5	4.8	3.1	0.5	+0.0
315	-5.8	-6.5	-5.6	-3.8	-2.7	+4.2	-4.2	-4.1	+2.9	0.2	0.6	0.7	3.0	3.8	2.8	-0.3	-1.8
400	-6.2	+6.0	-5.0	+2.3	-2.2	+3.0	+2.6	-2.7	-1.6	-0.0	0.9	1.0	2.4	3.7	1.5	-1.8	-3.6
500	-4.4	-4.2	-2.8	-1.7	-2.2	+2.4	-2.2	-1.9	+0.4	0.2	1.1	1.1	1.9	3.1	0.6	-3.3	+5.4
630	-2.4	-4.5	-3.3	+3.4	-3.7	+2.2	+2.3	-0.8	0.6	0.0	0.9	1.8	2.2	2.2	-0.4	-2.6	-4.0
800	-1.4	-1.6	-1.8	-0.9	-0.7	+1.5	+2.4	-1.1	0.1	+0.4	0.8	1.4	2.0	1.6	-1.0	+1.7	-3.3
1000	-1.0	-1.6	-0.1	-0.1	-0.4	+1.8	+1.7	-2.5	-2.3	+0.3	0.7	0.9	2.7	3.5	-2.4	-4.2	-6.6
1250	-5.4	-2.2	-3.3	-4.5	+0.5	-5.6	-1.7	-3.6	-6.7	1.2	-2.1	1.0	4.3	5.3	+2.5	-6.6	-11.4
1600	-1.3	1.4	0.7	-0.8	-1.1	-1.5	-1.0	+2.4	-2.0	-1.3	0.8	2.1	2.5	2.8	-2.6	-5.4	-6.9
2000	-8.8	+7.3	-9.3	-1.6	+7.7	-4.1	0.3	-9.2	-4.0	+3.4	1.2	4.1	4.7	3.1	-3.9	-7.5	-8.8
2500	-3.8	-3.8	0.5	-2.1	0.6	0.8	-0.2	-2.7	-2.8	+2.2	0.9	0.9	1.4	3.8	+1.9	-5.3	-6.9
3150	-2.7	+1.4	-0.8	2.0	+1.0	+1.6	0.6	-0.7	+1.9	+3.0	-1.6	2.5	3.8	1.0	-4.5	-6.2	-7.5
4000	-3.3	+2.7	-1.6	-2.0	-1.4	-2.1	-1.7	-2.7	-2.7	+2.3	-0.3	3.5	4.2	2.3	-3.6	+4.2	-6.7
5000	-3.0	+3.9	-2.1	-3.1	0.8	-1.6	+1.2	-4.1	-3.7	+1.8	1.5	2.8	2.5	3.4	+2.2	+5.0	-7.4
6300	-4.7	+4.6	-2.7	-3.6	0.9	+2.0	+2.6	-4.0	+4.2	+2.5	1.2	2.6	1.8	5.0	-0.9	+5.6	-7.6
8000	-2.9	+2.8	-1.1	-1.6	-1.5	-3.5	-2.5	-2.5	+2.2	-1.3	0.8	4.3	3.2	1.6	-4.2	+4.7	-7.5
10000	-4.4	-5.2	+3.3	-4.0	0.5	+2.3	-2.5	-4.4	+4.6	-2.5	2.4	3.2	2.2	3.8	+1.8	-5.0	+7.8

C104

RUN 8 2900 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR, 1.3

RADIAL DISTANCE (ft)..... 225.
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8.Pt.138
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 72.0
(°K)..... 295.4
T WET BULB.....(°F)..... 61.0
(°K)..... 289.3
ABS. HUMIDITY...(gm/m³).. 10.5
(kg/m³).. 0.0105
PHYS. FAN SPEED (RPM).... 3045
(rad/sec) 318.8
CORR. FAN SPEED (RPM).... 3007.5
(rad/sec) 314.9
TAPE NUMBER..... P661

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	75.8	76.8	77.3	77.4	78.6	79.4	80.6	82.0	81.9	83.9	84.9	85.7	87.4	88.1	90.8	93.7	94.2	143.7
63	81.5	80.7	81.3	81.1	82.0	81.7	83.4	84.1	84.8	86.5	88.3	88.8	89.6	89.4	91.3	93.9	94.9	145.3
80	81.2	81.2	81.4	82.0	82.8	84.4	84.5	85.2	86.4	86.7	87.6	88.7	90.0	89.9	90.6	90.7	92.7	144.9
100	83.2	82.1	82.1	83.1	83.3	85.1	84.2	85.0	86.0	86.9	87.5	88.0	89.5	89.6	91.0	88.9	90.4	144.6
125	84.3	83.8	83.4	83.6	83.5	83.9	84.1	84.8	85.2	85.5	85.7	86.3	88.0	88.7	89.2	88.1	87.2	143.5
160	82.6	82.5	82.5	82.3	79.7	79.5	79.4	80.6	81.8	81.4	81.3	82.0	82.9	84.0	85.4	84.4	81.4	139.5
200	81.9	81.7	80.9	79.0	76.0	75.3	76.8	77.0	77.7	75.5	77.6	78.6	76.5	77.3	78.9	78.5	77.1	135.1
250	76.7	77.2	75.3	74.3	72.7	73.9	74.1	75.2	75.3	76.7	75.5	76.3	81.5	83.2	81.3	79.0	77.6	135.5
315	75.6	74.8	75.3	76.8	77.4	77.0	77.4	77.9	79.4	82.8	82.7	82.7	86.0	86.9	86.1	83.0	80.5	140.1
400	78.0	77.7	79.1	81.8	81.8	81.3	82.2	82.5	84.1	85.7	86.1	86.4	88.2	89.2	87.6	84.1	81.9	143.1
500	80.4	80.4	81.9	83.7	83.2	82.8	83.2	83.6	85.5	86.3	86.8	86.9	88.2	89.4	86.9	82.8	80.7	143.7
630	81.8	80.3	82.1	81.1	81.5	82.3	80.7	81.3	84.7	84.3	85.6	85.5	86.4	86.8	84.0	81.8	79.9	142.1
800	81.3	80.7	81.5	81.7	80.9	80.3	80.1	81.1	81.8	82.2	83.2	83.3	83.7	84.0	82.0	80.8	79.0	140.2
1000	82.5	82.1	84.2	85.6	85.5	84.5	83.9	83.7	84.5	85.6	87.7	87.0	88.4	88.3	84.1	82.7	80.4	144.1
1250	91.9	92.1	94.3	94.0	98.7	98.4	95.2	95.9	95.4	94.4	93.5	95.7	104.8	97.8	96.1	90.5	91.6	156.1✓
1600	85.8	86.0	87.2	86.5	87.7	87.1	86.4	86.0	86.8	87.1	88.5	88.6	91.0	90.2	86.4	83.5	81.8	146.4
2000	93.4	97.7	95.2	95.1	95.7	92.3	94.2	90.4	91.5	93.9	101.4	98.3	98.3	102.0	94.2	91.2	89.9	155.8✓
2500	87.6	88.3	89.7	90.4	91.9	90.8	90.6	89.2	89.4	90.0	93.8	91.7	94.6	95.2	90.0	87.2	84.3	150.8
3150	89.5	89.5	90.7	91.4	89.1	88.5	89.4	90.4	90.2	90.0	90.8	92.5	93.3	93.3	87.2	86.0	83.3	150.1
4000	92.9	92.4	93.3	93.2	92.6	92.2	92.8	92.5	92.9	93.6	97.3	98.0	98.7	98.0	91.7	91.0	87.9	155.0
5000	89.5	88.1	90.5	90.0	92.6	90.6	90.8	88.0	88.6	90.3	94.1	94.1	94.4	96.0	90.2	87.5	84.4	152.3
6300	85.5	85.0	86.4	87.0	90.1	87.4	87.7	87.0	86.4	87.6	92.7	91.2	90.7	94.9	88.9	83.7	81.4	150.9
8000	84.7	84.4	86.1	87.2	85.1	83.7	84.6	85.1	85.6	86.4	88.9	91.6	90.4	89.4	83.7	83.0	79.4	150.0
10000	80.3	79.0	81.0	82.1	84.4	81.7	81.9	80.6	80.2	82.4	88.4	87.6	86.6	89.0	83.3	79.7	76.3	149.2
OASPL MEASURED	102.1	103.2	103.3	103.3	104.7	103.6	103.1	102.5	102.9	103.5	106.9	106.2	109.2	108.7	104.3	102.3	102.2	
OASPL CALCULATED	100.4	101.5	101.7	101.8	103.3	102.3	101.7	101.2	101.5	102.1	105.6	105.0	108.0	107.1	103.2	101.7	101.6	
PNDB	114.6	115.5	115.4	115.5	115.7	114.8	115.1	114.7	115.2	115.9	119.6	119.4	120.5	120.9	115.5	113.8	111.6	
																	OAPWL	163.2

DIRECTIVITY INDEX

FREQ.																
50	-11.0	-10.0	-9.6	-9.4	-8.2	-7.4	-6.3	-4.8	-5.0	-3.0	-2.0	-1.2	0.6	1.3	4.0	6.9	7.4
63	-6.9	-7.7	-7.0	-7.3	-6.4	-6.6	-4.9	-4.3	-3.6	-1.8	-0.0	0.4	1.3	1.1	3.0	5.6	6.5
80	-6.7	-6.7	-6.5	-5.9	-5.1	-3.5	-3.5	-2.7	-1.5	-1.2	-0.3	0.8	2.1	2.0	2.7	2.8	4.8
100	-4.3	-5.4	-5.4	-4.4	-4.2	-2.4	-3.3	-2.5	-1.5	-0.6	0.0	0.5	2.0	2.1	3.5	1.4	2.9
125	-2.0	-2.5	-2.9	-2.7	-2.8	-2.4	-2.2	-1.5	-1.1	-0.8	-0.6	-0.0	1.7	2.4	2.9	1.8	0.9
160	0.4	0.3	0.3	0.1	-2.6	-2.7	-2.8	-1.6	-0.4	-0.8	-0.9	-0.3	0.7	1.7	3.2	2.2	-0.8
200	4.2	4.0	3.2	1.2	-1.7	-2.4	-0.9	-0.7	0.0	-2.2	-0.1	0.8	-1.2	-0.4	1.2	0.8	-0.7
250	-1.4	-0.9	-2.8	-3.8	-5.4	-4.2	-4.0	-2.9	-2.7	-1.3	-2.6	-1.8	3.5	5.1	3.3	0.9	-0.5
315	-6.9	-7.7	-7.3	-5.8	-5.1	-5.6	-5.2	-4.6	-3.1	0.3	0.1	0.1	3.5	4.4	3.5	0.4	-2.1
400	-7.5	-7.7	-6.4	-3.7	-3.6	-4.2	-3.2	-2.9	-1.3	0.3	0.7	1.0	2.8	3.8	2.2	-1.3	-3.5
500	-5.5	-5.5	-4.0	-2.2	-2.7	-3.1	-2.7	-2.3	-0.4	0.4	0.9	1.0	2.3	3.5	1.0	-3.1	-5.2
630	-2.4	-3.8	-2.0	-3.1	-2.6	-1.9	-3.4	-2.8	0.5	0.1	1.4	1.4	2.3	2.6	-0.1	-2.4	-4.3
800	-0.9	-1.5	-0.7	-0.5	-1.3	-1.9	-2.1	-1.1	-0.4	0.0	1.0	1.1	1.5	1.8	-0.2	-1.4	-3.2
1000	-3.4	-3.8	-1.7	-0.3	-0.4	-1.4	-2.0	-2.2	-1.4	-0.3	1.8	1.1	2.5	2.4	-1.8	-3.2	-5.5
1250	-5.9	-5.6	-3.4	-3.8	0.9	0.6	-2.6	-1.9	-2.4	-3.3	-4.2	-2.1	7.1	0.0	-1.6	-7.3	-6.2
1600	-2.0	-1.8	-0.7	-1.4	-0.2	-0.8	-1.5	-1.8	-1.1	-0.7	0.7	0.7	3.1	2.3	-1.4	-4.4	-6.1
2000	-3.6	0.7	-1.8	-1.9	-1.3	-4.7	-2.8	-6.6	-5.5	-3.1	4.4	1.2	1.3	5.0	-2.8	-5.8	-7.1
2500	-4.1	-3.4	-2.0	-1.3	0.1	-0.9	-1.1	-2.5	-2.3	-1.7	2.0	0.0	2.9	3.5	-1.7	-4.6	-7.4
3150	-1.3	-1.2	-0.0	0.6	-1.7	-2.3	-1.3	-0.4	-0.5	-0.8	0.0	1.7	2.5	2.5	-3.6	-4.8	-7.4
4000	-2.3	-2.7	-1.9	-2.0	-2.6	-3.0	-2.4	-2.7	-2.3	-1.6	2.1	2.8	3.5	2.8	-3.5	-4.2	-7.2
5000	-2.6	-4.0	-1.6	-2.1	0.5	-1.5	-1.3	-4.1	-3.6	-1.9	2.0	2.0	2.3	3.9	-1.9	-4.6	-7.7
6300	-4.3	-4.8	-3.5	-2.8	0.2	-2.4	-2.1	-2.9	-3.4	-2.3	2.8	1.4	0.8	5.1	-1.0	-6.2	-8.5
8000	-2.9	-3.1	-1.4	-0.4	-2.4	-3.8	-2.9	-2.4	-1.9	-1.1	1.4	4.1	2.8	1.9	-3.8	-4.5	-8.1
10000	-4.5	-5.8	-3.8	-2.7	-0.4	-3.1	-2.9	-4.3	-4.6	-2.4	3.3	2.8	1.8	4.2	-1.5	-5.2	-8.5

C105

RUN 8 3045 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC, DATE - MONTH 9 DAY 27 HR, 3.8

RADIAL DISTANCE (Ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8.Pt.152
BAROMETER.....(in Hg)... 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³)... 11.5
(kg/m³)... 0.0115
PHYS. FAN SPEED (RPM).... 3050
(rad/sec) 319.3
CORR. FAN SPEED (RPM).... 3006.8
(rad/sec) 314.8
TAPE NUMBER..... P665

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET																PWL
	0, (0)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50,0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90,0 (1.57)	100,0 (1.74)	110,0 (1.92)	120,0 (2.09)	130,0 (2.27)	140,0 (2.44)	150,0 (2.62)	160,0 (2.79)	
50	76,7	77,4	77,7	78,0	79,8	80,2	81,2	82,7	82,2	84,8	86,0	86,6	87,6	88,3	91,3	94,0	94,9	144,2
63	82,1	81,2	81,2	81,0	81,8	81,4	83,2	84,5	84,7	86,6	87,3	87,7	89,0	89,7	91,7	93,9	95,5	145,2
80	81,9	81,5	81,5	81,9	82,8	83,9	84,2	85,3	86,0	86,7	87,6	88,3	89,8	90,2	90,9	90,5	92,9	144,9
100	83,8	82,5	82,2	83,3	83,5	85,3	84,6	85,8	86,3	87,6	87,9	87,9	89,5	89,8	90,9	89,0	90,5	144,8
125	84,9	84,1	82,9	83,1	83,0	83,5	84,5	85,2	85,1	86,2	86,0	86,2	88,0	88,7	89,3	88,0	86,3	143,5
160	83,2	82,7	82,0	81,6	78,8	79,0	79,8	80,7	81,5	81,5	81,5	81,9	83,0	83,7	84,7	83,4	79,4	139,2
200	82,1	81,6	79,9	77,6	75,0	74,2	77,0	76,6	77,1	75,2	76,0	77,4	75,8	78,1	77,8	77,3	76,2	134,4
250	77,4	77,0	75,1	74,7	73,4	73,3	73,9	75,0	74,6	77,7	76,2	77,2	82,6	84,4	83,2	80,6	78,6	136,5
315	77,4	76,1	76,3	78,1	78,6	77,6	77,6	78,3	79,3	83,1	83,1	83,5	86,3	87,7	87,1	83,6	81,0	140,7
400	79,5	79,1	80,0	82,7	82,6	81,9	82,3	82,6	83,8	85,8	86,4	86,8	88,6	89,7	88,2	84,7	81,9	143,5
500	81,2	81,2	82,6	83,9	83,0	82,9	83,3	83,6	85,3	86,4	87,0	86,9	88,2	89,4	86,9	82,8	80,0	143,7
630	81,0	79,3	80,3	80,2	81,3	81,9	82,1	82,9	84,6	84,8	85,7	86,0	86,3	86,1	83,7	82,5	79,4	142,1
800	80,9	80,0	80,1	80,6	80,3	80,0	79,9	80,8	81,3	82,1	83,1	83,8	83,5	84,0	81,9	80,7	78,5	140,1
1000	84,2	83,2	84,7	85,6	84,4	84,2	84,1	83,6	83,9	86,0	87,8	87,9	89,2	88,7	84,2	82,7	79,9	144,4
1250	89,7	92,0	94,2	93,3	95,6	98,3	95,1	96,2	91,2	95,3	89,7	95,2	78,1	94,9	95,3	92,1	90,5	152,9
1600	84,7	87,0	87,4	86,1	86,6	86,9	86,2	86,2	86,2	86,9	88,2	88,8	91,9	89,7	86,1	83,5	81,4	146,4
2000	92,2	92,3	94,7	89,4	91,5	92,8	94,0	92,8	92,0	94,9	100,8	97,4	96,9	97,7	94,1	91,2	90,9	154,6
2500	86,4	87,4	90,3	88,5	92,5	91,5	91,4	89,0	88,7	89,9	92,8	91,5	91,9	94,7	89,6	86,0	84,5	150,2
3150	87,8	88,9	89,8	92,7	88,1	88,0	90,2	90,6	89,3	89,2	90,1	92,1	93,2	92,3	86,6	85,6	83,0	149,8
4000	91,9	92,1	92,4	92,5	91,1	91,2	92,4	92,6	93,1	94,5	96,2	97,6	98,6	96,3	91,3	90,3	87,5	154,5
5000	88,0	87,5	88,9	88,2	92,2	90,1	90,9	87,8	88,0	90,2	93,2	94,0	93,8	94,7	89,6	87,2	83,9	151,7
6300	84,3	84,3	85,0	84,8	89,5	86,6	86,5	86,1	84,9	87,3	93,7	91,3	89,8	93,2	88,0	83,2	80,6	150,4
8000	83,0	83,4	84,6	84,3	83,9	82,5	83,5	84,3	84,2	85,8	87,8	90,7	89,4	87,5	82,3	82,0	78,6	148,8
10000	78,6	77,9	79,4	78,6	82,8	80,4	80,8	79,3	78,8	81,6	86,6	86,5	85,6	86,6	81,6	78,6	75,2	147,7
OASPL MEASURED	101,4	101,4	102,7	101,9	102,7	103,4	103,0	102,9	102,0	103,9	106,2	106,0	110,1	106,7	104,1	102,3	102,1	
OASPL CALCULATED	99,4	99,8	101,2	100,5	101,5	102,1	101,7	101,6	100,6	102,6	104,9	104,7	104,7	105,3	103,0	101,8	101,8	
PNDB	113,7	113,9	114,7	114,6	114,6	114,3	115,0	114,9	114,9	116,4	119,0	119,0	119,5	119,1	115,2	113,4	111,4	
																	OAPWL	162,2

DIRECTIVITY INDEX

FREQ,																
50	-10,7	-10,0	-9,6	-9,4	-7,6	-7,2	-6,2	-4,6	-5,1	-2,6	-1,4	-0,8	0,2	0,9	3,9	6,6	7,5
63	-6,2	-7,1	-7,1	-7,3	-6,5	-6,9	-5,1	-3,8	-3,6	-1,7	-1,0	-0,6	0,7	1,4	3,4	5,6	7,2
80	-6,0	-6,4	-6,4	-6,0	-5,1	-4,0	-3,7	-2,6	-1,9	-1,2	-0,2	0,4	2,0	2,3	3,0	2,6	5,1
100	-4,0	-5,2	-5,5	-4,4	-4,2	-2,4	-3,1	-1,9	-1,4	-0,1	0,2	0,2	1,8	2,1	3,2	1,3	2,7
125	-1,5	-2,2	-3,5	-3,2	-3,3	-2,9	-1,9	-1,1	-1,2	-0,1	-0,3	-0,2	1,6	2,4	3,0	1,6	-0,0
160	1,3	0,8	0,1	-0,3	-3,1	-2,9	-2,2	-1,3	-0,4	-0,4	-0,5	-0,0	1,0	1,8	2,8	1,5	-2,5
200	5,1	4,6	2,9	0,6	-2,0	-2,8	-0,1	-0,4	0,1	-1,8	-1,0	0,4	-1,2	1,1	0,8	0,3	-0,8
250	-1,7	-2,0	-4,0	-4,3	-5,0	-5,7	-5,1	-4,0	-4,4	-1,4	-2,9	-1,8	3,6	5,3	4,2	1,5	-0,4
315	-5,7	-7,1	-6,9	-5,0	-4,6	-5,6	-5,5	-4,9	-3,9	-0,1	-0,1	0,3	3,2	4,5	4,0	0,5	-2,2
400	-6,3	-6,7	-5,8	-3,1	-3,2	-3,9	-3,5	-3,2	-2,0	0,0	0,6	1,0	2,8	3,9	2,5	-1,1	-3,9
500	-4,8	-4,7	-3,3	-2,1	-3,0	-3,1	-2,6	-2,3	-0,7	0,5	1,0	1,0	2,2	3,5	0,9	-3,1	-6,0
630	-3,2	-4,9	-3,9	-4,0	-2,9	-2,3	-2,1	-1,3	0,3	0,5	1,5	1,7	2,1	1,9	-0,5	-2,7	-4,9
800	-1,1	-2,0	-1,9	-1,4	-1,7	-2,0	-2,1	-1,3	-0,7	0,1	1,1	1,8	1,5	2,0	-0,1	-1,3	-3,5
1000	-1,9	-3,0	-1,5	-0,5	-1,8	-1,9	-2,1	-2,6	-2,3	-0,2	1,7	1,7	3,1	2,5	-2,0	-3,4	-6,3
1250	-4,8	-2,5	-0,4	-1,2	1,1	3,8	0,6	1,7	-3,3	0,8	-4,9	0,7	-16,4	0,4	0,8	-2,4	-4,1
1600	-3,1	-0,8	-0,4	-1,7	-1,3	-1,0	-1,6	-1,7	-1,6	-0,9	0,4	1,0	4,1	1,8	-1,8	-4,3	-6,4
2000	-3,6	-3,5	-1,0	-6,4	-4,3	-2,9	-1,8	-2,9	-3,7	-0,8	5,0	1,6	1,2	1,9	-1,6	-4,6	-4,9
2500	-4,8	-3,8	-0,9	-2,7	1,3	0,3	0,2	-2,2	-2,4	-1,3	1,6	0,4	0,8	3,5	-1,6	-5,2	-6,7
3150	-2,7	-1,6	-0,7	2,3	-2,3	-2,4	-0,2	0,2	-1,2	-1,3	-0,4	1,6	2,8	1,9	-3,9	-4,9	-7,4
4000	-2,8	-2,6	-2,3	-2,2	-3,6	-3,5	-2,3	-2,1	-1,6	-0,2	1,5	2,9	3,9	1,6	-3,4	-4,4	-7,2
5000	-3,5	-4,0	-2,6	-3,3	0,7	-1,4	-0,6	-3,7	-3,5	-1,3	1,7	2,5	2,3	3,2	-1,9	-4,4	-7,6
6300	-5,1	-5,0	-4,3	-4,6	0,2	-2,7	-2,8	-3,2	-4,4	-2,0	4,4	2,0	0,5	3,8	-1,4	-6,2	-8,7
8000	-3,3	-2,9	-1,8	-2,1	-2,5	-3,9	-2,8	-2,0	-2,2	-0,6	1,4	4,3	3,0	1,1	-4,1	-4,4	-7,8
10000	-4,7	-5,4	-3,9	-4,7	-0,5	-2,9	-2,6	-4,0	-4,5	-1,7	3,2	3,1	2,3	3,3	-1,7	-4,7	-8,1

C106

RUN 8 3050 RPM

 NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR, 1.5

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... F.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.139
BAROMETER.....(in Hg)... 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 75.0
(°K)..... 297.0
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m3)... 11.2
(kg/m3)... 0.0112
PHYS. FAN SPEED(RPM).... 3200
(rad/sec) 335.0
CORR. FAN SPEED(RPM).... 3151.8
(rad/sec) 330.0
TAPE NUMBER..... P561

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	97.5	82.6	78.6	78.9	80.4	81.0	81.9	83.5	83.3	85.2	86.2	87.2	89.1	89.9	93.4	96.2	96.9	145.8
63	98.1	85.4	82.3	81.8	82.9	82.9	84.7	85.2	85.8	87.5	89.0	90.1	91.4	91.7	93.9	96.3	97.7	147.2
80	95.9	85.6	82.4	82.9	83.9	85.2	85.4	86.1	87.5	88.1	88.9	89.7	91.5	92.2	93.4	93.3	95.6	146.8
100	95.4	86.6	83.5	84.5	84.5	86.5	85.3	86.4	87.4	88.5	89.0	89.3	91.2	91.8	93.4	91.7	93.7	146.5
125	95.8	87.6	83.9	84.9	84.7	85.0	85.4	86.3	86.7	87.3	87.5	87.9	90.2	90.9	92.0	90.9	89.9	145.5
160	95.0	86.4	83.1	82.9	80.3	80.9	81.2	82.2	83.3	83.4	83.6	84.4	85.8	86.9	88.3	86.8	83.4	141.7
200	93.7	85.4	81.4	79.2	76.0	75.9	78.3	78.4	79.1	77.4	79.4	81.1	78.8	79.7	82.5	81.3	77.6	137.0
250	90.9	81.3	75.9	76.2	75.1	75.0	75.9	76.3	76.6	78.1	77.1	78.1	82.3	83.5	82.6	80.0	78.8	136.7
315	89.1	81.1	77.6	80.6	80.7	79.5	79.4	80.0	81.1	84.3	83.9	83.5	87.5	88.2	87.7	84.4	82.4	141.7
400	87.7	82.6	81.9	84.5	84.5	83.5	83.7	84.0	85.5	87.1	87.6	87.8	90.0	90.6	90.0	86.0	83.4	142.8
500	87.2	83.9	84.3	85.2	84.5	84.7	84.8	85.1	87.1	87.8	88.8	88.8	90.3	91.1	89.3	85.0	82.1	145.5
630	86.9	83.9	82.9	82.1	83.4	82.3	82.7	84.7	86.3	86.7	88.1	88.4	89.2	89.6	87.4	84.1	81.8	144.5
800	86.1	82.7	82.3	83.0	83.5	82.6	82.6	82.2	83.0	83.9	85.2	85.7	86.3	86.0	84.3	82.7	80.7	142.2
1000	88.5	84.3	85.4	86.6	86.5	85.5	86.5	85.2	85.5	86.3	87.6	87.0	88.1	87.2	85.0	83.9	81.0	144.6
1250	96.0	94.9	96.9	97.5	100.7	101.5	98.8	95.7	99.1	98.2	102.6	99.2	104.1	104.9	98.0	92.5	92.3	158.9✓
1600	91.5	89.3	90.5	90.9	93.0	93.5	91.7	89.5	91.4	91.1	94.2	92.6	95.8	96.8	91.7	87.1	85.8	151.5
2000	95.1	94.0	94.7	94.1	95.3	96.3	95.5	91.8	93.8	95.5	99.8	101.6	98.4	101.2	97.0	95.3	90.4	156.4✓
2500	92.4	91.0	92.0	92.4	93.7	93.6	93.6	91.6	91.9	92.5	95.8	96.8	96.2	98.2	95.2	91.6	87.9	153.6
3150	91.6	90.4	90.4	91.0	89.7	89.0	90.7	92.2	91.6	91.6	91.9	93.9	94.1	92.3	86.4	87.0	84.7	151.0
4000	95.1	93.8	94.1	93.5	94.7	93.6	94.4	94.7	94.3	96.2	97.8	102.1	102.8	98.0	93.7	92.7	90.4	157.5
5000	91.6	89.0	90.1	89.1	93.2	91.2	92.1	89.6	89.9	92.8	95.1	97.0	97.6	97.0	93.3	90.3	87.4	154.1
6300	88.8	85.6	86.0	85.9	90.3	87.6	87.8	87.4	86.5	88.7	92.0	92.5	92.6	93.5	89.9	84.7	82.5	151.1
8000	87.9	84.7	85.6	85.3	85.6	83.6	85.6	85.9	86.0	88.1	89.3	92.7	92.1	88.9	84.8	84.2	81.0	150.8
10000	85.1	79.4	81.9	79.7	84.6	81.7	82.6	81.1	80.6	84.0	88.1	88.9	88.5	88.3	84.5	80.7	78.1	149.8
OASPL MEASURED	111.1	104.5	104.0	104.2	105.8	105.9	105.1	103.8	104.9	105.6	108.2	109.2	110.2	110.2	106.8	104.8	104.3	
OASPL CALCULATED	107.1	102.3	102.7	102.8	104.8	104.9	103.9	102.5	103.8	104.5	107.4	108.1	109.2	109.3	105.8	104.3	104.0	
PNDB	118.9	116.1	116.2	116.0	117.3	116.6	116.9	116.5	116.8	118.3	120.2	122.7	123.3	121.4	118.1	116.0	113.8	
																	OAPWL	165.2

DIRECTIVITY INDEX

FREQ.																
50	8.5	-6.3	-10.4	-10.0	-8.6	-8.0	-7.1	-5.4	-5.6	-3.8	-2.8	-1.8	0.1	0.9	4.4	7.2	7.9
63	7.8	-4.9	-8.0	-8.6	-7.4	-7.4	-5.6	-5.1	-4.5	-2.8	-1.3	-0.2	1.1	1.4	3.6	6.0	7.4
80	6.2	-4.2	-7.4	-6.9	-5.9	-4.6	-4.4	-3.6	-2.3	-1.6	-0.9	-0.1	1.7	2.4	3.6	3.6	5.8
100	6.0	-2.8	-5.9	-4.9	-4.9	-3.0	-4.1	-3.0	-2.0	-0.9	-0.4	-0.1	1.8	2.3	4.0	2.3	4.3
125	7.5	-0.7	-4.4	-3.4	-3.6	-3.3	-2.9	-2.0	-1.6	-1.0	-0.9	-0.4	1.9	2.6	3.6	2.6	1.6
160	10.5	2.0	-1.4	-1.5	-4.2	-3.5	-3.3	-2.2	-1.2	-1.0	-0.8	-0.1	1.4	2.5	3.8	2.4	-1.1
200	14.0	5.7	1.7	-0.4	-3.6	-3.7	-1.4	-1.3	-0.6	-2.2	-0.2	1.4	-0.8	0.1	2.8	1.7	-2.1
250	11.7	2.1	-3.3	-3.0	-4.1	-4.2	-3.3	-2.9	-2.6	-1.1	-2.1	-1.1	3.1	4.3	3.4	0.8	-0.4
315	5.0	-3.1	-6.5	-3.5	-3.4	-4.7	-4.7	-4.1	-3.0	0.2	-0.2	-0.0	3.4	4.0	3.6	0.3	-1.7
400	0.6	-4.6	-5.3	-2.6	-2.7	-3.7	-3.4	-3.2	-1.6	0.0	0.4	0.7	2.8	3.4	2.8	-1.1	-3.7
500	-0.6	-3.9	-3.5	-2.6	-3.2	-3.0	-2.9	-2.7	-0.6	0.0	1.0	1.0	2.5	3.4	1.6	-2.8	-5.6
630	0.3	-2.7	-3.7	-4.5	-3.2	-4.4	-3.9	-1.9	-0.3	0.1	1.5	1.8	2.5	3.0	0.8	-2.5	-5.1
800	1.9	-1.5	-1.9	-1.2	-0.7	-1.6	-1.6	-2.0	-1.2	-0.3	1.0	1.5	2.1	1.8	0.1	-1.5	-3.5
1000	2.1	-2.1	-1.0	0.2	0.1	-0.9	0.1	-1.2	-0.9	-0.1	1.2	0.6	1.7	0.8	-1.4	-2.5	-5.4
1250	-4.6	-5.7	-3.7	-3.1	0.1	0.9	-1.8	-4.9	-1.5	-2.4	2.0	-1.4	3.5	4.3	-2.6	-8.1	-8.3
1600	-1.4	-3.6	-2.4	-2.0	0.0	0.5	-1.3	-3.5	-1.5	-1.8	1.3	-0.3	2.9	3.9	-1.2	-5.8	-7.2
2000	-2.6	-3.6	-2.9	-3.5	-2.3	-1.3	-2.2	-5.9	-3.8	-2.1	2.2	4.0	0.8	3.6	-0.6	-2.3	-7.2
2500	-2.2	-3.6	-2.6	-2.2	-0.9	-0.9	-0.9	-3.0	-2.7	-2.1	1.2	2.2	1.6	3.6	0.6	-3.0	-6.7
3150	-0.1	-1.2	-1.2	-0.6	-2.0	-2.7	-1.0	0.5	-0.1	-0.1	0.2	2.3	2.5	0.6	-3.2	-4.6	-6.9
4000	-2.5	-3.8	-3.6	-4.1	-2.9	-4.1	-3.3	-3.0	-3.3	-1.4	0.2	4.5	5.1	0.4	-3.9	-4.9	-7.2
5000	-2.4	-5.0	-3.8	-4.8	-0.7	-2.7	-1.9	-4.4	-4.0	-1.1	1.1	3.1	3.6	3.0	-0.7	-3.7	-6.6
6300	-1.2	-4.4	-4.1	-4.2	0.2	-2.5	-2.3	-2.6	-3.6	-1.4	1.9	2.4	2.5	3.5	-0.2	-5.3	-7.5
8000	-0.5	-3.6	-2.8	-3.0	-2.8	-4.7	-2.7	-2.5	-2.3	-0.2	1.0	4.3	3.8	0.6	-3.5	-4.2	-7.3
10000	-0.3	-6.0	-3.5	-5.7	-0.8	-3.7	-2.8	-4.3	-4.8	-1.4	2.7	3.5	3.1	2.8	-0.9	-4.7	-7.3

C107

RUN 8 3200 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR. 3.8

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8.Pt.153
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³)... 11.5
(kg/m³)... 0.0115
PHYS. FAN SPEED (RPM).... 3200
(rad/sec) 3350
CORR. FAN SPEED (RPM).... 3154.7
(rad/sec) 330.3
TAPE NUMBER..... P663

FREQ,	ANGLES FROM INLET 0.0 (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	77.0	77.2	78.1	78.6	79.8	80.4	81.6	83.2	83.0	85.4	86.5	87.2	89.1	89.7	92.8	95.7	96.6	145.5
63	83.0	81.9	82.4	82.0	82.8	82.7	84.2	85.2	85.9	87.7	88.6	89.0	90.9	91.2	93.7	96.6	98.1	147.1
80	82.7	82.4	82.6	82.8	83.4	85.0	85.1	86.1	87.0	87.6	88.6	89.6	91.4	91.8	92.9	92.8	95.6	146.5
100	84.9	83.8	83.5	84.4	84.7	86.7	85.6	86.6	87.0	88.3	88.6	89.0	90.6	91.4	93.0	90.9	93.1	146.2
125	85.8	85.3	83.8	84.9	84.8	85.2	85.5	86.2	86.0	87.0	86.8	87.1	89.1	89.9	90.9	90.0	88.7	144.8
160	84.4	84.2	83.2	83.0	80.5	80.8	81.1	82.2	82.7	82.7	82.3	82.4	83.8	85.1	86.6	85.1	81.2	140.5
200	83.2	82.8	81.5	79.4	76.5	76.2	77.6	77.7	77.8	76.3	76.9	78.1	78.4	79.7	80.0	79.2	77.5	135.8
250	78.2	77.8	76.3	76.4	74.7	75.3	75.4	76.4	76.0	79.5	78.4	79.0	85.0	86.2	83.8	81.7	80.1	138.2
315	78.1	77.0	77.6	80.1	80.2	79.5	79.7	80.4	81.6	84.9	85.2	85.3	88.3	89.4	88.0	84.9	82.6	142.4
400	80.3	80.2	81.3	83.9	83.9	83.3	84.3	84.6	85.7	87.4	88.1	88.4	90.3	91.1	89.5	85.9	83.5	145.0
500	82.2	82.3	84.2	85.3	84.4	84.6	84.7	85.4	86.9	87.6	88.4	88.1	89.4	90.8	88.3	84.3	81.6	145.1
630	82.2	80.5	82.0	83.6	82.7	82.5	82.0	84.6	86.0	85.7	86.9	86.8	87.1	87.7	85.7	83.0	81.0	143.3
800	80.9	80.7	81.7	82.2	82.0	81.9	82.7	81.8	82.5	83.0	84.1	83.7	85.8	85.1	83.2	82.1	80.1	141.4
1000	84.1	83.5	85.3	86.8	85.6	85.0	85.6	85.2	85.4	86.7	88.5	88.0	89.5	89.8	84.8	83.5	81.0	145.1
1250	92.9	93.1	95.0	94.9	94.1	95.3	95.7	99.8	98.4	100.0	99.8	93.9	105.4	99.5	98.1	94.8	89.8	157.5
1600	86.2	87.5	86.8	88.2	88.6	88.5	88.7	90.1	89.4	90.6	91.0	89.4	94.8	92.4	89.6	86.6	83.5	149.0
2000	92.0	90.5	91.5	91.1	90.9	92.1	95.4	92.7	92.2	92.4	99.2	99.2	97.1	99.4	97.0	89.6	89.2	154.7
2500	88.2	88.1	91.9	90.7	91.8	91.8	92.2	91.3	91.0	91.2	94.2	93.6	93.3	95.9	92.5	87.5	84.6	151.6
3150	88.6	90.5	91.7	90.8	90.5	91.4	90.2	92.4	92.2	91.6	91.8	93.7	93.9	92.8	87.7	87.0	84.3	151.2
4000	93.3	93.4	93.2	93.0	94.2	92.9	93.8	94.6	94.0	95.0	99.0	98.9	101.3	97.3	92.8	91.6	88.9	156.3
5000	88.4	88.0	90.1	89.3	92.7	91.3	92.3	89.2	89.9	92.0	94.7	94.7	95.6	96.3	91.6	88.7	85.5	153.1
6300	84.3	84.4	85.5	85.5	89.9	87.1	87.4	87.2	86.4	88.0	91.0	90.8	91.2	93.4	88.5	83.6	81.0	150.3
8000	83.1	83.5	85.0	84.9	84.7	83.1	84.8	85.7	85.8	86.9	88.1	90.9	90.6	88.6	83.3	82.6	79.3	149.6
10000	78.6	77.9	79.8	79.2	83.6	81.0	81.8	80.8	80.7	82.6	87.0	86.9	86.6	87.8	82.8	79.3	76.0	148.5
OASPL MEASURED	102.1	101.9	103.0	102.8	103.2	103.3	104.0	104.8	104.3	105.2	107.4	106.9	109.9	108.2	106.1	103.8	103.7	
OASPL CALCULATED	100.5	100.5	101.7	101.4	102.0	102.0	102.7	103.8	103.2	104.3	106.3	105.7	108.9	107.0	105.1	103.5	103.5	
PNDB	114.8	114.8	115.5	115.3	116.2	115.5	116.2	116.7	116.4	117.4	120.3	120.1	122.2	120.3	117.3	114.8	112.5	
																	OAPWL	164.0

DIRECTIVITY INDEX

FREQ,																	
50	-11.7	-11.5	-10.6	-10.1	-8.8	-8.3	-7.1	-5.5	-5.7	-3.2	-2.2	-1.4	0.4	1.0	4.1	7.0	7.9
63	-7.2	-8.3	-7.8	-8.2	-7.4	-7.5	-6.0	-5.0	-4.3	-2.5	-1.6	-1.2	0.7	1.0	3.5	6.4	7.9
80	-6.8	-7.1	-6.9	-6.7	-6.1	-4.5	-4.4	-3.3	-2.5	-1.9	-0.9	0.1	2.0	2.4	3.5	3.3	6.1
100	-4.1	-5.3	-5.6	-4.6	-4.4	-2.4	-3.5	-2.5	-2.1	-0.8	-0.5	-0.1	1.6	2.4	3.9	1.8	4.0
125	-1.8	-2.3	-3.8	-2.7	-2.8	-2.4	-2.1	-1.4	-1.6	-0.6	-0.8	-0.5	1.5	2.3	3.3	2.4	1.1
160	1.1	1.0	-0.1	-0.2	-2.7	-2.5	-2.1	-1.0	-0.6	-0.5	-0.9	-0.8	0.6	1.8	3.4	1.9	-2.0
200	4.8	4.4	3.1	1.0	-1.9	-2.2	-0.8	-0.7	-0.6	-2.1	-1.5	-0.3	-0.0	1.3	1.6	0.8	-0.9
250	-2.5	-2.9	-4.4	-4.3	-6.0	-5.5	-5.3	-4.3	-4.7	-1.2	-2.4	-1.7	4.3	5.5	3.1	1.0	-0.6
315	-6.8	-7.9	-7.3	-4.8	-4.7	-5.4	-5.1	-4.4	-3.3	0.0	0.4	0.4	3.4	4.5	3.1	0.0	-2.3
400	-7.1	-7.2	-6.0	-3.4	-3.4	-4.1	-3.1	-2.8	-1.7	0.1	0.8	1.1	2.9	3.7	2.1	-1.5	-3.9
500	-5.1	-5.0	-3.2	-2.0	-2.9	-2.7	-2.6	-2.0	-0.5	0.3	1.1	0.8	2.1	3.5	1.0	-3.0	-5.8
630	-3.3	-5.0	-3.4	-1.9	-2.7	-3.0	-3.4	-0.8	0.6	0.3	1.5	1.4	1.7	2.3	0.3	-2.4	-4.4
800	-2.4	-2.6	-1.6	-1.2	-1.3	-1.4	-0.6	-1.5	-0.8	-0.3	0.8	0.4	2.4	1.7	-0.1	-1.3	-3.3
1000	-2.9	-3.5	-1.7	-0.1	-1.4	-1.9	-1.4	-1.8	-1.6	-0.3	1.5	1.0	2.6	2.8	-2.2	-3.5	-5.9
1250	-6.2	-6.0	-4.1	-4.3	-5.1	-3.8	-3.5	0.7	-0.8	0.8	0.6	-5.2	6.2	0.3	-1.1	-4.4	-9.4
1600	-4.3	-3.0	-1.6	-2.2	-1.8	-1.9	-1.7	-0.4	-1.0	0.1	0.5	-1.1	4.3	1.9	-0.9	-3.8	-7.0
2000	-3.8	-5.4	-4.4	-4.8	-5.0	-3.7	-0.5	-3.2	-3.7	-3.5	3.3	3.3	1.3	3.5	1.1	-6.3	-6.7
2500	-4.3	-4.5	-0.7	-1.8	-0.7	-0.7	-0.4	-1.3	-1.5	-1.4	1.7	1.0	0.8	3.3	-0.1	-5.1	-8.0
3150	-3.2	-1.4	-0.1	-1.1	-1.3	-0.4	-1.6	0.5	0.4	-0.2	0.0	1.8	2.0	1.0	-4.1	-4.8	-7.5
4000	-3.2	-3.1	-3.3	-3.5	-2.3	-3.5	-2.7	-1.9	-2.5	-1.5	2.5	2.4	4.8	0.8	-3.7	-4.9	-7.6
5000	-4.5	-5.0	-2.8	-3.6	-0.2	-1.6	-0.6	-3.7	-3.0	-1.0	1.8	1.8	2.7	3.4	-1.3	-4.3	-7.4
6300	-5.0	-4.8	-3.7	-3.8	0.7	-2.1	-1.9	-2.0	-2.9	-1.2	1.8	1.6	1.9	4.1	-0.8	-5.6	-8.2
8000	-4.1	-3.7	-2.1	-2.3	-2.5	-4.1	-2.4	-1.5	-1.4	-0.3	0.9	3.7	3.4	1.4	-3.9	-4.6	-7.9
10000	-5.6	-6.2	-4.3	-4.9	-0.6	-3.2	-2.3	-3.3	-3.5	-1.5	2.8	2.7	2.5	3.6	-1.4	-4.9	-8.1

C108

RUN 8 3200 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR. 1.3

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/13/68
RUN..... 8,Pt.140
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 75.0
(°K)..... 297.0
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³).. 11.2
(kg/m³).. 0.0112
PHYS. FAN SPEED (RPM).... 3350
(rad/sec) 350.7
CORR. FAN SPEED (RPM).... 3299.5
(rad/sec) 345.5
TAPE NUMBER..... P662

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET 0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	96.6	82.2	79.1	79.4	80.7	81.1	82.1	83.6	83.6	86.0	87.5	88.5	90.1	91.3	95.2	98.9	99.6	147.8
63	97.6	85.3	82.9	81.9	83.2	83.1	84.3	85.6	86.5	88.4	89.6	91.1	92.1	93.4	96.1	99.5	100.9	149.2
80	95.8	85.6	83.0	83.4	84.2	86.0	85.9	86.5	88.1	88.8	90.0	90.5	92.2	93.4	95.3	95.9	99.0	148.3
100	94.6	87.1	84.6	85.4	85.6	87.5	86.4	87.5	88.1	89.1	89.8	90.1	92.3	93.1	95.2	93.7	96.7	147.9
125	94.3	88.0	84.9	86.4	86.4	86.4	86.4	87.0	87.3	88.2	88.7	88.8	90.8	91.7	93.3	92.7	93.0	146.7
160	94.3	87.8	85.4	85.4	82.3	81.8	82.4	83.6	84.4	84.1	84.7	85.0	86.0	87.0	88.6	88.1	85.9	142.6
200	93.4	86.5	83.1	81.2	78.3	78.3	79.4	79.5	80.1	78.3	80.9	81.7	79.7	81.1	82.5	81.9	80.3	138.1
250	90.7	82.8	78.0	77.6	76.4	76.6	77.3	78.0	78.2	80.8	79.6	80.2	86.2	87.4	85.4	83.7	81.7	139.6
315	89.9	82.0	78.6	81.0	81.5	80.8	81.3	81.8	83.4	86.5	86.7	86.6	90.2	91.6	90.1	87.3	84.2	144.3
400	89.2	82.9	82.4	84.9	84.8	84.5	85.3	85.6	87.4	88.8	89.5	89.9	92.0	93.3	91.6	88.0	85.1	146.7
500	88.5	84.7	85.4	86.3	85.6	85.8	85.8	86.6	88.2	89.1	90.0	89.9	91.6	92.9	90.2	86.5	83.8	146.8
630	87.7	84.2	85.0	85.2	85.3	85.0	85.1	85.3	87.4	87.5	88.8	89.3	89.6	90.6	87.2	85.4	82.9	145.5
800	85.8	82.5	83.4	84.4	84.6	83.5	83.7	84.0	84.2	85.0	85.7	85.4	86.3	86.4	85.6	83.7	82.0	143.0
1000	86.8	84.2	86.1	86.8	87.4	85.9	86.1	86.3	86.8	88.0	89.6	89.0	90.7	89.7	86.5	85.3	83.0	146.1
1250	94.2	93.1	96.8	95.5	96.3	96.2	95.0	97.5	100.5	100.7	99.7	103.1	98.1	99.3	95.2	89.7	90.0	157.2
1600	94.2	93.3	97.2	95.7	96.6	96.3	95.3	97.8	100.8	101.0	100.0	103.3	96.0	99.4	95.5	90.6	90.5	157.6
2000	91.2	89.5	91.8	90.2	92.5	91.8	91.3	90.4	93.8	93.6	96.0	100.8	97.8	98.1	93.4	89.9	89.6	154.2
2500	93.8	92.4	95.1	94.4	96.0	95.3	94.5	93.8	97.1	96.8	99.1	104.5	101.2	101.4	97.4	93.7	92.6	157.9
3150	90.4	90.0	90.9	93.2	91.0	90.6	91.1	94.0	93.0	93.2	93.4	95.1	94.9	93.9	88.9	88.1	86.0	152.3
4000	94.0	93.1	94.0	95.1	94.7	93.5	94.5	95.4	94.4	95.6	97.6	100.3	99.6	97.7	92.2	91.8	89.5	156.3
5000	91.0	89.1	90.7	91.5	93.4	91.7	92.4	91.7	91.7	94.5	97.2	99.5	98.5	99.0	94.1	91.5	88.9	155.7
6300	87.5	85.5	86.5	88.6	90.6	88.2	88.3	89.1	87.6	89.9	93.4	94.0	92.8	95.1	90.1	86.0	83.7	152.2
8000	86.2	84.5	85.8	88.3	85.8	34.0	85.5	87.6	87.3	89.4	90.5	94.1	92.4	90.5	85.5	85.4	81.9	151.9
10000	82.9	79.2	80.7	83.0	84.8	82.1	82.6	82.9	82.0	85.3	89.7	90.7	88.7	90.1	85.1	82.4	79.6	151.0
OASPL MEASURED	109.8	104.4	105.1	105.0	105.6	105.0	104.8	105.9	107.5	108.0	108.8	111.8	109.8	110.1	107.2	105.8	106.7	
OASPL CALCULATED	106.5	102.0	103.8	103.7	104.2	103.6	103.3	104.6	106.4	106.9	107.6	110.8	108.5	108.9	106.4	105.8	106.6	
PNDB	118.1	115.8	116.8	117.5	117.7	116.9	117.1	117.9	118.8	119.4	121.0	124.6	122.5	122.8	119.2	116.5	115.3	
																	OAPWL	166.0

DIRECTIVITY INDEX

FREQ.																	
50	5.7	-8.7	-11.8	-11.6	-10.2	-9.8	-8.8	-7.3	-7.3	-4.9	-3.4	-2.4	-0.8	0.4	4.3	8.0	8.7
63	5.3	-7.0	-9.4	-10.4	-9.1	-9.2	-8.0	-6.7	-5.8	-3.9	-2.7	-1.2	-0.2	1.0	3.8	7.2	8.5
80	4.4	-5.7	-8.3	-7.9	-7.1	-5.3	-5.4	-4.9	-3.2	-2.5	-1.4	-0.9	0.9	2.1	4.0	4.6	7.6
100	3.8	-3.7	-6.2	-5.4	-5.2	-3.4	-4.4	-3.4	-2.7	-1.7	-1.0	-0.7	1.4	2.3	4.4	2.9	5.9
125	4.8	-1.4	-4.6	-3.1	-3.1	-3.1	-3.1	-2.5	-2.2	-1.3	-0.8	-0.6	1.3	2.2	3.9	3.2	3.5
160	9.0	2.5	0.1	0.1	-3.0	-3.6	-2.9	-1.8	-0.9	-1.3	-0.7	-0.3	0.7	1.6	3.3	2.8	0.6
200	12.7	5.7	2.3	0.4	-2.5	-2.4	-1.4	-1.3	-0.7	-2.4	0.2	0.9	-1.1	0.3	1.7	1.2	-0.4
250	8.5	0.7	-4.2	-4.6	-5.8	-5.5	-4.9	-4.1	-4.0	-1.4	-2.6	-2.0	4.1	5.3	3.2	1.5	-0.5
315	3.2	-4.7	-8.1	-5.7	-5.2	-5.9	-5.5	-4.9	-3.4	-0.2	-0.0	-0.1	3.5	4.8	3.4	0.6	-2.5
400	0.1	-6.1	-6.6	-4.1	-4.2	-4.5	-3.8	-3.4	-1.6	-0.2	0.5	0.8	3.0	4.2	2.6	-1.0	-3.9
500	-0.5	-4.3	-3.7	-2.7	-3.4	-3.3	-3.3	-2.5	-0.8	0.1	0.9	0.9	2.6	3.9	1.2	-2.6	-5.3
630	0.1	-3.4	-2.6	-2.4	-2.3	-2.6	-2.5	-2.3	-0.2	-0.0	1.2	1.7	2.0	3.0	-0.3	-2.2	-4.7
800	0.9	-2.4	-1.6	-0.5	-0.3	-1.4	-1.2	-0.9	-0.8	0.1	0.8	0.4	1.4	1.4	0.6	-1.2	-2.9
1000	-1.1	-3.7	-1.9	-1.1	-0.5	-2.1	-1.9	-1.7	-1.1	0.1	1.6	1.0	2.7	1.8	-1.5	-2.7	-5.0
1250	-4.6	-5.8	-2.0	-3.3	-2.6	-2.7	-3.9	-1.4	1.7	1.9	0.8	4.3	-0.8	0.5	-3.7	-9.2	-8.9
1600	-4.9	-5.8	-1.9	-3.4	-2.4	-2.7	-3.8	-1.3	1.7	1.9	0.9	4.2	-1.1	0.3	-3.5	-8.5	-8.6
2000	-4.2	-5.9	-3.6	-5.2	-2.9	-3.6	-4.1	-5.0	-1.6	-1.8	0.6	5.4	2.4	2.7	-2.0	-5.5	-5.8
2500	-5.0	-6.4	-3.7	-4.5	-2.9	-3.6	-4.3	-5.1	-1.8	-2.1	0.2	5.6	2.3	2.6	-1.5	-5.2	-6.3
3150	-2.6	-2.9	-2.0	0.2	-1.9	-2.4	-1.8	1.1	0.1	0.3	0.4	2.1	2.0	1.0	-4.0	-4.9	-7.0
4000	-2.5	-3.3	-2.5	-1.3	-1.8	-3.0	-2.0	-1.1	-2.0	-0.9	1.1	3.8	3.1	1.2	-4.3	-4.7	-7.0
5000	-4.6	-6.5	-4.8	-4.0	-2.1	-3.8	-3.1	-3.8	-3.8	-1.1	1.6	3.9	2.9	3.5	-1.4	-4.1	-6.7
6300	-3.6	-5.7	-4.6	-2.6	-0.5	-3.0	-2.8	-2.1	-3.6	-1.3	2.2	2.9	1.6	4.0	-1.0	-5.1	-7.5
8000	-3.2	-4.8	-3.5	-1.1	-3.6	-5.4	-3.9	-1.8	-2.1	-0.0	1.1	4.7	3.0	1.1	-3.9	-4.0	-7.5
10000	-3.8	-7.5	-6.0	-3.7	-1.9	-4.6	-4.0	-3.8	-4.7	-1.3	3.0	4.0	2.0	3.5	-1.6	-4.3	-7.1

C109

RUN 8 3350 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC, DATE - MONTH 9 DAY 27 HR, 3,8

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/13/68
RUN..... 8.Pt.154
BAROMETER.....(in Hg).. 29.6
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 3350
(rad/sec) 350.7
CORR. FAN SPEED (%PM).... 3302.6
(rad/sec) 345.8
TAPE NUMBER..... P666

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	77,5	78,8	79,1	79,3	80,2	81,0	82,4	84,2	84,0	86,4	87,4	88,3	90,1	91,3	94,7	97,9	98,4	147,1
63	83,3	82,5	82,8	82,4	82,9	83,3	84,9	85,7	86,5	88,6	89,4	90,3	92,2	93,0	95,6	98,7	100,0	148,7
80	83,2	83,6	83,6	83,7	84,2	85,7	85,9	86,7	88,0	88,9	89,8	90,9	92,6	93,4	95,1	95,3	97,7	148,1
100	85,5	84,6	84,6	85,3	85,2	87,5	86,4	87,2	87,6	88,9	89,4	89,9	91,8	92,7	94,7	92,6	95,2	147,4
125	86,7	86,1	84,9	86,6	85,7	86,2	86,7	86,9	86,9	88,0	88,0	88,2	90,3	91,2	92,6	91,9	91,8	146,1
160	85,4	85,5	85,0	84,7	81,5	81,6	82,7	83,3	83,7	83,6	83,5	83,9	85,0	86,2	87,7	87,4	85,3	141,9
200	84,2	84,2	82,8	80,7	77,0	77,5	79,4	78,8	78,8	77,0	78,2	79,6	79,6	82,3	81,8	81,3	79,8	137,3
250	78,5	78,8	77,4	77,1	75,0	76,2	76,6	76,8	77,7	81,4	80,3	81,4	86,9	88,6	87,0	84,0	81,0	140,3
315	78,6	78,5	78,4	80,2	80,5	79,9	80,4	80,9	83,4	86,7	86,9	87,2	90,3	91,6	90,6	86,9	83,6	144,3
400	80,6	81,0	82,0	84,3	84,1	83,8	84,8	85,0	87,1	88,7	89,6	90,0	92,0	93,0	91,7	87,7	85,0	146,5
500	82,2	83,1	84,7	85,2	84,7	85,0	85,6	86,2	87,9	88,7	89,6	89,6	91,3	92,5	90,0	86,3	83,8	146,4
630	81,6	81,5	82,6	82,9	84,0	84,9	84,9	86,0	86,4	87,0	88,0	88,3	88,5	89,1	87,0	84,9	82,6	144,7
800	81,1	81,7	82,5	83,1	83,1	82,6	82,5	83,3	83,6	84,7	85,8	85,2	86,4	87,0	85,3	83,9	81,0	142,6
1000	83,7	83,5	86,0	86,5	85,2	85,6	85,8	85,4	86,4	87,5	89,5	89,2	90,8	90,0	86,7	85,1	81,9	145,9
1250	93,5	93,9	95,3	96,3	96,3	97,8	94,6	98,7	98,6	96,6	97,3	97,2	101,9	100,9	91,4	92,7	92,9	156,2
1600	91,5	92,0	93,5	94,3	94,2	95,7	92,8	96,4	96,2	94,4	95,2	95,2	99,5	98,3	90,8	91,0	90,7	154,3
2000	93,6	91,9	93,2	89,9	91,4	91,8	91,9	91,6	94,0	93,0	97,2	101,4	98,5	98,1	92,2	90,5	89,6	154,6
2500	94,4	92,8	94,7	92,7	93,8	93,8	93,6	93,6	95,3	94,6	98,3	102,5	99,6	99,9	95,5	92,6	91,3	156,3
3150	88,6	89,7	91,4	91,3	89,5	89,6	90,2	92,8	92,5	92,6	93,0	95,5	94,7	93,4	89,1	87,6	85,2	151,8
4000	93,1	92,9	94,1	93,7	93,7	93,2	93,6	94,2	94,1	95,4	97,5	101,2	99,1	97,3	92,1	91,4	88,8	156,2
5000	88,9	88,5	90,4	89,6	92,4	91,3	91,9	90,2	90,4	93,5	95,9	98,7	97,6	98,0	93,6	90,7	87,7	154,8
6300	84,8	84,9	86,4	86,3	89,4	87,7	87,5	87,7	87,0	88,8	92,8	93,4	92,8	94,0	89,8	85,3	82,6	151,5
8000	83,5	83,9	85,8	85,7	84,8	83,7	85,0	85,9	86,8	88,5	89,9	93,5	92,2	89,8	85,0	84,6	81,1	151,2
10000	79,0	78,4	80,6	80,1	83,6	81,7	82,2	81,2	81,5	84,2	88,7	89,9	88,5	89,1	84,5	81,1	78,1	150,2
OASPL MEASURED	103,4	103,1	104,4	104,1	104,3	104,7	104,1	105,4	105,8	105,8	107,7	110,3	109,9	109,6	106,4	105,6	105,9	
OASPL CALCULATED	102,0	101,6	102,9	102,7	103,0	103,5	102,6	104,2	104,6	104,5	106,5	107,0	108,8	108,4	105,4	105,3	105,7	
PNDB	115,6	115,3	116,5	116,2	116,4	116,2	116,3	117,1	117,5	118,2	120,2	123,1	122,1	121,9	117,9	115,9	114,5	
																	OAPWL	165,0

DIRECTIVITY INDEX

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

C110

RUN 8 3350 RPM

C111

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.141
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 75.0
(°K)..... 297.0
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m3).. 11.2
(kg/m3).. 0.0112
PHYS. FAN SPEED(RPM).... 3473
(rad/sec) 363.6
CORR. FAN SPEED(RPM).... 3423.8
(rad/sec) 358.5
TAPE NUMBER..... P562

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0. (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	93.6	78.7	79.6	82.7	81.8	82.2	83.3	84.9	85.0	86.8	88.0	89.4	91.4	93.4	96.9	100.6	101.4	149.4
63	94.8	83.3	83.7	88.3	84.3	84.5	85.9	86.6	87.3	89.2	90.6	91.7	93.3	95.2	97.9	101.1	102.6	150.7
80	94.4	84.7	84.3	87.0	85.2	86.4	86.6	87.4	89.0	89.6	90.4	91.6	93.3	94.8	97.3	97.9	100.8	149.8
100	95.6	85.6	85.0	88.9	86.5	88.0	87.4	88.4	89.0	89.8	90.5	91.5	93.2	94.5	96.9	95.5	98.4	149.2
125	95.3	87.4	85.7	90.2	87.3	87.0	87.5	87.9	88.2	89.3	89.3	90.2	92.0	93.1	94.8	95.0	94.6	148.0
160	93.3	87.4	86.1	89.6	83.6	82.9	84.2	84.9	85.9	85.3	85.3	86.6	87.5	88.7	90.2	90.0	86.8	144.2
200	92.4	85.4	83.7	86.9	79.6	79.6	81.1	81.2	81.8	79.3	81.5	83.9	81.4	83.3	84.2	83.6	81.5	139.9
250	89.2	80.3	78.9	82.3	78.2	78.3	78.5	78.8	79.2	81.6	79.8	82.0	87.5	89.0	86.9	84.5	82.8	141.0
315	88.3	79.0	79.1	86	82.4	81.1	81.5	82.0	83.9	87.6	87.2	87.5	91.3	92.7	91.6	88.0	85.3	145.3
400	87.6	81.5	82.4	89.4	85.5	84.8	85.8	85.9	88.1	89.5	90.4	90.9	93.1	94.7	93.0	89.2	86.3	147.8
500	87.5	83.7	85.3	90.3	86.3	85.9	87.0	87.0	89.2	89.7	90.5	91.1	92.9	94.2	91.8	88.0	84.9	147.9
630	87.9	83.3	85.6	90.1	86.1	85.7	86.5	87.4	88.6	88.5	89.5	90.7	91.8	92.3	89.4	86.9	84.1	147.1
800	86.5	82.4	83.8	89.4	85.0	84.2	85.0	84.6	85.7	85.6	86.6	87.2	87.4	87.8	86.6	85.1	82.3	144.3
1000	87.5	85.0	86.3	91.6	87.7	87.2	87.2	86.3	88.1	88.6	89.9	89.8	91.2	90.6	88.1	86.6	83.4	147.1
1250	92.7	91.1	91.8	98.4	94.5	93.2	92.2	91.8	92.0	91.1	98.9	96.8	93.8	94.9	91.9	89.6	90.4	153.0
1600	97.4	96.9	97.5	104.8	101.1	99.5	98.3	97.8	97.5	95.4	106.0	103.4	97.4	98.7	97.1	94.9	97.3	159.3
2000	90.2	87.7	88.3	91.8	90.0	90.1	91.1	90.4	92.0	91.8	95.2	93.3	94.3	95.2	91.4	88.3	85.8	151.3
2500	94.6	92.8	92.4	96.1	94.7	95.6	95.7	95.8	98.2	95.7	103.2	99.3	99.7	103.1	99.4	96.2	92.6	157.9
3150	91.8	91.1	91.8	96.6	91.5	91.6	92.3	95.7	95.5	94.4	93.9	95.5	96.2	94.2	90.4	89.4	86.8	153.6
4000	94.0	92.6	93.6	97.6	94.0	93.2	94.5	96.1	96.2	96.6	97.6	99.6	99.4	96.4	92.3	91.8	89.0	156.4
5000	91.1	89.7	90.8	94.0	93.4	92.1	93.5	93.6	94.1	96.2	99.8	99.4	100.7	99.0	95.0	92.1	89.6	156.9
6300	87.8	85.2	86.1	90.1	90.3	88.4	89.0	89.4	89.3	90.5	93.8	93.9	92.9	94.7	91.1	86.6	83.9	152.5
8000	86.7	84.3	85.6	89.5	85.1	84.1	86.1	87.9	88.9	89.7	90.7	94.0	92.8	90.5	86.3	86.1	82.5	152.2
10000	83.7	78.7	80.1	83.6	84.1	82.2	83.3	82.9	83.3	85.5	89.9	90.0	89.2	89.8	85.9	83.0	79.7	151.1
OASPL MEASURED	108.6	103.6	104.1	109.5	106.2	105.4	105.5	106.0	106.6	106.4	111.0	109.9	109.7	110.1	108.4	107.5	108.4	
OASPL CALCULATED	106.1	102.3	102.8	108.3	105.0	104.2	104.2	104.7	105.4	105.1	110.2	108.9	108.4	109.1	107.6	107.5	108.3	
PNDB	118.2	115.5	116.2	121.5	118.2	117.3	117.6	118.5	119.4	119.2	123.5	122.3	122.3	123.5	120.5	118.2	116.2	
																	OAPWL	166.3

DIRECTIVITY INDEX

FREQ.																	
50	1.1	-13.8	-12.9	-9.9	-10.7	-10.3	-9.3	-7.6	-7.5	-5.7	-4.5	-3.2	-1.1	0.9	4.4	8.0	8.9
63	1.0	-10.5	-10.2	-5.5	-9.5	-9.3	-8.0	-7.2	-6.5	-4.6	-3.3	-2.1	-0.5	1.3	4.1	7.2	8.8
80	1.6	-8.1	-8.5	-5.8	-7.6	-6.4	-6.2	-5.4	-3.8	-3.2	-2.4	-1.1	0.5	2.0	4.5	5.2	8.0
100	3.5	-6.5	-7.1	-3.2	-5.6	-4.1	-4.8	-3.7	-3.2	-2.3	-1.7	-0.6	1.1	2.4	4.8	3.4	6.2
125	4.4	-3.4	-5.1	-0.7	-3.6	-3.9	-3.3	-3.0	-2.7	-1.6	-1.5	-0.7	1.2	2.3	4.0	4.1	3.8
160	6.4	0.5	-0.8	2.7	-3.3	-4.0	-2.8	-2.0	-1.0	-1.6	-1.6	-0.3	0.6	1.8	3.3	3.1	-0.1
200	9.8	2.8	1.2	4.4	-3.0	-3.0	-1.4	-1.4	-0.8	-3.2	-1.0	1.3	-1.1	0.7	1.7	1.0	-1.0
250	5.7	-3.2	-4.6	-1.2	-5.3	-5.2	-4.9	-4.7	-4.3	-1.9	-3.7	-1.5	4.0	5.5	3.4	1.0	-0.6
315	0.5	-8.7	-8.7	-1.7	-5.4	-6.7	-6.2	-5.8	-3.9	-0.2	-0.6	-0.3	3.6	5.0	3.8	0.2	-2.5
400	-2.5	-8.6	-7.8	-0.8	-4.7	-5.3	-4.4	-4.3	-2.0	-0.7	0.2	0.8	3.0	4.6	2.8	-0.9	-3.9
500	-2.7	-6.4	-4.9	0.2	-3.8	-4.2	-3.2	-3.2	-0.9	-0.5	0.3	0.9	2.8	4.0	1.7	-2.2	-5.3
630	-1.3	-5.8	-3.5	1.0	-3.0	-3.4	-2.6	-1.7	-0.6	-0.7	0.3	1.5	2.6	3.1	0.2	-2.3	-5.1
800	0.3	-3.9	-2.4	3.2	-1.3	-2.1	-1.3	-1.6	-0.6	-0.7	0.3	0.9	1.1	1.5	0.3	-1.2	-4.0
1000	-1.4	-3.9	-2.6	2.7	-1.2	-1.7	-1.7	-2.6	-0.9	-0.3	1.0	0.9	2.3	1.7	-0.9	-2.3	-5.6
1250	-1.9	-3.6	-2.8	3.7	-0.1	-1.4	-2.4	-2.8	-2.6	-3.5	4.3	2.2	-0.8	0.3	-2.8	-5.0	-4.3
1600	-3.4	-3.9	-3.3	4.0	0.3	-1.3	-2.4	-3.0	-3.3	-5.4	5.3	2.6	-3.3	-2.1	-3.7	-5.9	-3.5
2000	-2.2	-4.8	-4.2	-0.6	-2.4	-2.3	-1.4	-2.1	-0.4	-0.7	2.8	0.8	1.8	2.8	-1.0	-4.1	-6.6
2500	-4.4	-6.1	-6.5	-2.9	-4.2	-3.3	-3.2	-3.1	-0.7	-3.3	4.3	0.3	0.8	4.2	0.5	-2.8	-6.3
3150	-2.4	-3.2	-2.5	2.4	-2.7	-2.6	-2.0	.5	1.2	0.1	-0.4	1.3	2.0	-0.0	-3.8	-4.8	-7.4
4000	-2.6	-3.9	-2.9	1.0	-2.5	-3.3	-2.1	-0.5	-0.3	0.0	1.1	3.0	2.9	-0.2	-4.2	-4.8	-7.6
5000	-5.6	-7.1	-5.9	-2.7	-3.4	-4.6	-3.3	-3.2	-2.6	-0.6	3.0	2.6	3.9	2.3	-1.8	-4.7	-7.2
6300	-3.6	-6.3	-5.4	-1.4	-1.1	-3.0	-2.4	-2.0	-2.1	-0.9	2.4	2.5	1.5	3.3	-0.3	-4.8	-7.5
8000	-3.0	-5.4	-4.1	-0.2	-4.6	-5.6	-3.6	-1.8	-0.8	-0.0	1.0	4.3	3.1	0.6	-3.4	-3.6	-7.2
10000	-3.1	-8.1	-6.6	-3.1	-2.6	-4.5	-3.5	-3.8	-3.5	-1.2	3.2	3.3	2.5	3.1	-0.8	-3.8	-7.0

RUN 8 3473 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR, 3.8

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (RS)..... 225 (m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/13/68
RUN..... 8.PT.155
BAROMETER.....(in.Hg)... 29.0 (N/m^2)... 97928
T AMBIENT.....(°F)..... 74.0 (°K)..... 296.5
T WET BULB.....(°F)..... 63.0 (°K)..... 290.4
ABS. HUMIDITY...(gm/m^3)... 11.5 (kg/m^3)... 0.0115
PHYS. FAN SPEED (RPM).... 3473 (rad/sec) 363.6
CORR. FAN SPEED (RPM).... 3523.8 (rad/sec) 358.5
TAPE NUMBER..... P666

FREQ.	ANGLES FROM INLET 0° (.0)	10°0 (.17)	20°0 (.35)	30°0 (.52)	40°0 (.70)	50°0 (.87)	60°0 (1.05)	70°0 (1.22)	80°0 (1.40)	90°0 (1.57)	100°0 (1.74)	110°0 (1.92)	120°0 (2.09)	130°0 (2.27)	140°0 (2.44)	150°0 (2.62)	160°0 (2.79)	PWL
50	78,7	79,3	79,7	79,9	80,9	81,3	82,8	84,6	84,3	87,0	88,6	89,3	91,2	92,5	96,6	100,0	100,6	148,8
63	83,7	83,2	83,3	83,1	83,9	84,2	85,6	86,7	87,4	89,4	90,6	91,4	93,4	94,5	97,4	100,6	101,9	150,3
80	84,1	84,3	84,1	84,4	84,8	86,2	86,4	87,8	88,9	89,7	90,7	91,9	93,6	94,8	96,9	97,3	100,3	149,6
100	86,4	85,5	85,3	86,3	86,3	88,1	87,3	88,3	88,4	89,6	90,2	91,2	93,1	94,1	96,6	94,8	98,1	148,9
125	88,0	87,4	86,3	87,7	87,1	87,0	87,2	87,8	87,5	88,9	89,1	89,4	91,7	92,8	94,5	94,0	94,6	147,6
160	86,8	87,0	86,1	86,0	82,9	82,6	83,7	84,4	85,4	84,6	84,8	85,8	86,8	87,2	89,4	89,2	87,9	143,3
200	85,3	85,0	84,0	81,8	78,6	78,6	80,0	80,1	80,2	78,3	79,6	81,5	81,4	83,9	83,7	82,8	82,2	138,8
250	79,8	79,9	78,6	78,5	77,3	77,6	77,7	78,7	79,3	83,1	81,6	82,7	88,8	90,4	88,7	85,8	83,8	142,0
315	79,5	78,9	79,4	82,1	82,0	81,2	82,1	83,2	85,0	88,2	88,2	88,5	92,0	93,7	92,5	88,7	86,2	146,1
400	81,7	81,6	83,0	86,0	85,3	84,9	86,0	86,8	88,3	89,8	90,9	91,5	93,5	95,1	93,7	89,5	87,1	148,2
500	82,7	83,9	85,8	86,3	85,7	86,1	86,8	87,8	89,3	89,8	90,9	91,2	92,9	93,8	91,8	87,6	85,6	147,8
630	82,9	83,5	85,6	86,4	85,6	85,9	86,0	87,6	88,6	87,8	89,6	90,3	90,8	90,8	88,7	85,7	84,6	146,4
800	81,7	82,2	83,5	84,5	84,5	84,1	83,7	84,4	85,9	85,9	87,0	87,7	87,7	88,5	86,9	85,1	83,2	144,2
1000	83,4	84,1	85,9	87,5	86,4	86,8	86,4	86,5	87,9	88,5	90,6	90,3	91,6	91,0	88,0	86,4	83,9	147,0
1250	88,3	90,0	90,3	91,1	92,5	91,1	90,6	92,9	89,7	90,4	96,5	94,9	92,5	94,1	90,8	87,9	86,1	151,0
1600	94,1	96,9	96,6	98,0	99,8	97,7	97,1	100,6	93,1	95,6	104,5	101,8	95,9	100,0	96,5	93,9	91,9	158,0
2000	86,2	87,3	88,6	87,1	89,8	90,4	90,0	90,4	92,6	91,2	94,3	93,8	94,2	94,6	89,9	87,2	85,4	150,8
2500	90,6	93,2	95,6	92,4	96,8	97,8	94,2	97,6	101,9	95,3	101,6	102,1	100,8	102,8	97,1	95,4	92,7	158,5
3150	89,1	90,3	90,6	91,8	91,4	91,6	91,8	95,0	94,5	94,0	95,0	95,6	96,4	93,9	90,1	89,3	87,0	153,2
4000	91,8	92,4	92,9	93,3	93,4	92,8	93,5	95,1	95,1	95,7	97,9	100,7	99,9	96,1	91,6	91,6	89,0	156,2
5000	89,0	89,3	90,6	89,9	93,4	91,9	93,6	91,9	93,4	94,5	99,9	99,6	100,6	99,3	94,7	92,4	89,7	156,7
6300	84,2	84,7	85,6	86,0	90,0	88,0	88,0	89,0	88,3	89,7	94,5	93,7	92,7	94,4	90,5	86,4	84,1	152,1
8000	83,1	83,8	84,9	85,5	85,4	84,0	85,4	87,6	88,1	89,1	91,2	94,1	92,7	90,2	85,7	85,7	82,7	151,9
10000	78,6	78,2	79,7	79,9	84,3	82,1	82,5	82,6	83,0	85,0	90,1	90,1	89,1	89,6	85,3	82,6	79,4	150,9
OASPL MEASURED	102,2	103,5	104,0	104,2	105,7	105,0	104,6	106,5	106,7	105,9	110,2	110,0	109,6	110,0	108,0	106,9	108,1	
OASPL CALCULATED	100,8	102,1	102,7	103,0	104,5	103,9	103,4	105,5	105,7	104,7	109,3	109,0	108,4	109,0	107,1	106,9	107,6	
PNDB	114,4	115,3	116,6	116,2	118,0	118,0	116,7	118,8	120,8	118,6	122,7	123,0	122,4	123,3	119,3	117,6	115,6	
																	OAPWL	165,9

DIRECTIVITY INDEX

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

C112

RUN 8 3473 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.156
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 61.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 3570
(rad/sec) 373.8
CORR. FAN SPEED (RPM).... 3519.5
(rad/sec) 362.5
TAPE NUMBER..... P666

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	79.5	80.3	80.6	80.9	82.1	82.6	83.5	85.2	85.2	87.5	88.9	90.5	92.4	94.1	98.1	102.1	102.8	150.6
63	84.8	84.1	84.2	83.5	84.3	84.8	86.1	87.2	88.0	90.0	91.1	92.1	93.9	95.8	98.9	102.5	103.8	151.7
80	85.4	85.7	85.2	85.4	85.5	87.1	87.0	88.2	89.3	90.3	91.0	92.1	94.3	96.3	98.8	99.1	102.1	150.9
100	87.8	87.0	86.4	87.4	87.3	89.0	88.1	88.9	89.1	90.5	90.9	91.7	93.5	95.4	98.6	96.7	100.1	150.2
125	88.9	88.5	87.0	88.6	88.1	87.9	88.3	88.7	88.5	89.7	90.0	90.3	92.5	93.7	96.3	96.0	96.4	148.8
160	88.1	88.3	87.0	86.9	85.8	83.6	84.6	85.4	86.0	85.1	85.1	85.7	87.5	88.3	90.5	91.0	89.0	144.2
200	86.4	86.1	84.4	82.7	80.0	79.5	81.0	81.4	81.4	79.3	80.8	82.7	82.7	84.7	84.2	84.0	82.4	139.7
250	81.2	81.5	79.9	81.0	81.2	79.4	79.5	80.7	80.3	84.2	83.2	84.5	90.4	91.5	89.8	86.7	83.8	143.4
315	80.6	80.4	80.5	83.9	84.0	83.3	84.0	84.6	85.8	89.2	89.3	90.0	93.8	94.7	93.5	89.6	86.2	147.3
400	82.7	82.8	83.8	87.3	86.6	87.0	87.9	88.3	89.1	90.9	91.9	92.8	94.9	96.6	94.8	90.6	87.5	149.4
500	83.7	85.0	86.5	87.4	87.0	87.3	88.3	89.0	90.1	91.1	91.7	92.6	94.1	95.0	93.3	89.1	85.8	149.0
630	84.7	84.5	84.7	87.6	85.6	84.9	87.5	88.7	90.5	89.9	90.2	91.5	91.2	91.7	90.1	88.2	85.1	147.5
800	82.3	82.9	84.6	86.0	85.6	86.1	85.9	85.8	86.7	87.0	87.3	88.2	88.9	88.8	87.6	85.7	83.3	145.1
1000	85.4	84.7	86.7	88.0	87.4	87.4	88.5	88.2	88.8	90.0	90.9	91.5	93.5	92.0	88.8	87.3	84.3	148.1
1250	88.7	87.7	90.8	90.4	90.9	90.4	90.2	91.9	90.6	91.4	92.1	92.6	92.2	92.7	90.0	87.1	84.4	149.6
1600	98.6	96.1	101.3	100.1	101.1	98.7	98.9	102.5	98.0	99.8	101.2	97.9	96.1	101.4	97.5	92.6	90.8	158.2✓
2000	85.4	86.8	88.6	87.9	90.2	89.7	90.7	90.0	90.4	91.3	93.0	93.5	93.6	93.0	90.1	86.3	84.5	150.2
2500	90.8	93.3	92.9	92.8	100.1	96.2	95.0	95.7	98.1	98.2	100.3	102.9	100.9	101.3	100.8	93.8	93.3	158.2✓
3150	89.6	92.2	92.0	93.4	91.9	92.1	92.6	95.6	95.2	94.8	94.4	96.9	96.4	94.2	90.8	89.8	87.5	153.8
4000	92.5	92.4	94.0	94.0	94.4	93.0	94.6	95.7	95.5	96.3	97.5	101.5	99.4	96.4	92.2	91.7	88.8	156.6
5000	89.9	89.7	91.8	92.1	94.7	93.4	94.8	93.0	93.5	96.5	99.6	100.5	103.2	99.8	96.2	93.7	90.6	157.9
6300	84.6	85.3	86.7	87.0	90.7	88.7	89.4	90.0	89.6	91.1	94.8	94.9	93.6	94.6	91.2	86.8	84.4	153.0
8000	83.8	84.7	86.2	86.7	86.4	84.7	87.1	89.1	89.6	91.1	92.3	96.1	94.3	90.5	86.5	86.3	83.0	153.4
10000	79.2	79.0	81.0	81.1	85.3	82.9	84.1	84.2	84.2	87.0	91.0	92.0	90.5	89.6	85.8	83.3	80.2	152.1
OASPL MEASURED	104.0	103.7	105.7	105.7	107.0	105.4	105.8	107.3	106.5	107.6	109.0	110.3	110.4	110.2	109.5	108.1	109.2	
OASPL CALCULATED	102.7	102.3	104.6	104.4	106.0	104.1	104.6	106.3	105.4	106.5	108.1	109.3	109.3	109.3	108.7	108.3	109.3	
PNDB	115.8	115.5	117.9	117.6	120.0	117.7	117.9	119.6	118.4	120.1	121.8	123.7	123.8	122.9	121.5	117.4	116.2	
																	OAPWL	166.4

DIRECTIVITY INDEX

FREQ,																	
50	-14.3	-13.4	-13.1	-12.9	-11.6	-11.2	-10.2	-8.6	-8.5	-6.2	-4.8	-3.3	-1.3	0.4	4.3	8.4	9.1
63	-10.0	-10.7	-10.6	-11.3	-10.5	-10.0	-8.7	-7.6	-6.8	-4.8	-3.7	-2.7	-0.9	1.0	4.1	7.7	9.0
80	-8.5	-8.2	-8.7	-8.5	-8.4	-6.8	-6.9	-5.7	-4.6	-3.6	-2.8	-1.8	0.4	2.4	4.9	5.3	8.2
100	-5.3	-6.1	-6.7	-5.7	-5.8	-4.1	-5.0	-4.2	-4.0	-2.6	-2.2	-1.4	0.4	2.3	5.5	3.6	7.0
125	-2.7	-3.1	-4.6	-3.0	-3.5	-3.7	-3.4	-3.0	-3.1	-1.9	-1.7	-1.3	0.8	2.0	4.6	4.4	4.8
160	1.2	1.3	0.0	-0.1	-3.2	-3.4	-2.3	-1.5	-1.0	-1.9	-1.9	-1.3	0.5	1.3	3.5	4.1	2.1
200	4.0	3.8	2.1	0.4	-2.4	-2.8	-1.4	-0.9	-0.9	-3.0	-1.6	0.3	0.3	2.3	1.8	1.7	0.0
250	-4.7	-4.4	-6.0	-4.9	-4.7	-6.5	-6.4	-5.2	-5.6	-1.7	-2.7	-1.5	4.5	5.6	3.9	0.8	-2.1
315	-9.1	-9.4	-9.3	-5.9	-5.7	-6.4	-5.8	-5.2	-4.0	-0.6	-0.5	0.3	4.0	5.0	3.7	-0.1	-3.6
400	-9.0	-9.0	-7.9	-4.5	-5.2	-4.8	-3.9	-3.5	-2.7	-0.9	0.1	1.0	3.2	4.8	3.0	-1.2	-4.2
500	-7.6	-6.2	-4.7	-3.8	-4.2	-4.0	-2.9	-2.3	-1.1	-0.2	0.5	1.4	2.8	3.8	2.0	-2.1	-5.4
630	-4.8	-5.1	-4.9	-2.0	-3.9	-4.6	-2.1	-0.9	0.9	0.4	0.7	1.9	1.6	2.2	0.5	-1.3	-4.4
800	-4.8	-4.2	-2.4	-1.1	-1.4	-0.9	-1.2	-1.2	-0.3	-0.1	0.3	1.1	1.9	1.7	0.5	-1.4	-3.8
1000	-4.6	-5.2	-3.2	-1.9	-2.5	-2.6	-1.5	-1.8	-1.1	0.1	1.0	1.6	3.5	2.1	-1.2	-2.7	-5.7
1250	-2.6	-3.6	-0.5	-0.9	-0.4	-0.9	-1.1	0.6	-0.7	0.1	0.9	1.4	0.9	1.4	-1.3	-4.2	-6.9
1600	-1.1	-3.5	1.7	0.5	1.4	-1.0	-0.7	2.9	-1.7	0.2	1.5	-1.7	-3.6	1.7	-2.2	-7.1	-8.9
2000	-6.0	-4.5	-2.8	-3.5	-1.2	-1.6	-0.6	-1.4	-1.0	-0.1	1.6	2.1	2.2	1.7	-1.2	-5.1	-6.9
2500	-8.4	-5.9	-6.3	-6.4	0.9	-3.0	-4.2	-3.5	-1.1	-1.0	1.1	3.8	1.7	2.2	1.7	-5.4	-5.9
3150	-4.8	-2.2	-2.4	-1.0	-2.5	-2.3	-1.8	1.2	0.8	0.4	0.2	2.5	2.0	-0.2	-3.6	-4.6	-6.9
4000	-4.2	-4.4	-2.7	-1.9	-2.3	-3.7	-2.1	-1.0	-1.3	-0.4	0.8	4.8	2.6	-0.4	-4.6	-5.0	-7.9
5000	-7.9	-8.0	-5.9	-5.7	-3.0	-4.4	-3.0	-4.7	-4.2	-1.3	1.8	2.8	5.4	2.0	-1.6	-1.0	-7.1
6300	-7.3	-6.6	-5.3	-4.9	-1.2	-3.2	-2.5	-1.9	-2.3	-0.8	2.9	3.0	1.7	2.7	-0.7	-5.1	-7.5
8000	-7.1	-6.2	-4.7	-4.3	-4.5	-6.3	-3.8	-1.9	-1.3	0.2	1.4	5.2	3.4	-0.4	-4.4	-4.6	-8.0
10000	-8.5	-8.7	-6.7	-6.7	-2.4	-4.8	-3.6	-3.6	-3.5	-0.7	3.3	4.2	2.7	1.9	-1.9	-4.4	-7.5

C113

RUN 8 3570 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC, DATE - MONTH 9 DAY 27 HR, 3,8

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225.
(m)..... 68.58
/VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.F.
DATE..... 9-13-68
RUN..... 8 or 139
BAROMETER.....(in Hg)... 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 76.1
(°R)..... 536.5
T WET BULB.....(°F)..... 61.9
(°R)..... 521.6
ABS. HUMIDITY...(gm/m³)... 11.2
(kg/m³)... 0.01125
PHYS. FAN SPEED (RPM)..... 3562
(rad/sec) 372.9
CORR. FAN SPEED (RPM)..... 3511.6
(rad/sec) 367.5
TAPE NUMBER..... 1661

FREQ,	ANGLES FROM INLET																PWL
	0, (0)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50,0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90,0 (1.57)	100,0 (1.74)	110,0 (1.92)	120,0 (2.09)	130,0 (2.27)	140,0 (2.44)	150,0 (2.62)	160,0 (2.79)	
50	79,5	80,1	80,5	81,0	82,6	83,0	84,0	85,6	85,2	87,7	89,2	90,3	92,2	94,1	98,2	101,8	102,6	150,4
63	85,3	84,4	84,4	84,2	85,0	84,8	86,6	88,1	88,4	90,1	91,9	92,6	94,5	96,3	99,4	102,3	103,8	151,9
80	85,3	85,5	85,1	85,1	85,6	87,1	87,6	88,6	89,7	90,7	91,6	92,4	94,4	96,5	98,5	98,8	102,2	151,0
100	87,8	87,1	86,4	86,7	87,0	88,9	87,8	88,8	89,3	90,2	90,6	91,6	93,9	95,4	98,5	96,4	99,9	150,1
125	88,9	88,6	86,7	88,0	87,8	87,6	87,6	87,8	87,7	89,0	89,5	90,1	92,7	93,9	95,9	95,7	96,2	148,6
160	88,1	88,2	86,5	86,4	83,9	83,0	84,0	85,0	84,8	84,2	84,6	85,2	86,3	87,8	90,2	90,7	88,3	143,7
200	86,2	85,7	83,7	82,3	79,6	79,3	80,3	80,1	79,8	79,4	79,8	81,5	83,4	85,7	84,2	83,9	83,2	139,5
250	81,3	81,2	80,1	82,0	82,2	80,7	80,4	81,4	82,4	83,8	84,3	85,2	90,5	92,2	90,3	87,1	84,7	144,0
315	81,2	81,0	81,7	85,4	85,1	84,4	84,9	86,3	87,8	90,3	90,2	90,3	93,7	95,0	93,7	90,0	86,9	147,9
400	83,2	83,7	85,0	88,4	87,5	87,5	88,5	89,0	90,2	91,8	92,4	92,8	94,9	96,8	94,8	90,9	87,6	149,8
500	84,0	85,3	86,7	88,1	87,0	87,6	88,5	88,8	90,2	90,7	91,4	91,9	93,9	95,3	92,9	88,9	85,9	148,9
630	83,8	85,0	85,8	87,8	86,3	86,3	86,8	87,2	88,6	88,6	89,0	90,0	90,8	91,7	89,6	86,1	85,5	146,7
800	82,6	83,4	84,9	88,6	85,8	85,7	85,7	85,5	86,9	88,2	88,7	88,3	89,1	89,3	87,4	85,9	83,5	145,6
1000	84,9	85,4	87,1	90,6	87,7	88,3	88,3	88,8	89,2	90,8	91,9	91,5	93,9	92,4	88,7	87,5	84,5	148,6
1250	88,8	89,3	90,4	93,9	90,6	90,5	91,0	91,2	91,6	94,3	94,5	91,7	92,3	94,5	89,4	88,6	85,1	150,7
1600	97,0	98,7	98,9	102,4	98,1	98,9	99,5	101,3	100,1	105,8	105,2	96,3	98,4	105,3	94,9	98,2	92,6	160,4
2000	85,5	87,2	88,3	90,8	89,9	90,4	91,0	89,9	90,3	92,3	93,9	93,1	93,6	93,3	89,7	86,6	84,3	150,5
2500	88,9	96,5	96,3	98,9	97,0	96,3	97,8	94,6	94,8	98,9	101,9	102,2	99,8	100,1	98,7	94,3	91,5	157,3
3150	89,8	91,1	91,4	95,6	91,2	92,5	93,1	96,0	94,7	95,6	95,1	96,0	96,0	94,2	90,5	89,6	87,6	153,8
4000	91,7	92,1	93,0	97,0	93,9	93,3	94,6	95,8	94,9	96,8	98,3	99,8	98,9	96,8	91,8	91,4	88,8	156,3
5000	89,9	89,8	90,7	94,8	94,3	93,3	94,7	93,7	93,3	96,6	99,9	99,9	100,8	99,5	95,7	93,0	89,8	157,3
6300	84,3	85,2	85,7	89,9	90,4	88,8	89,2	90,0	89,1	91,6	95,4	94,2	93,4	94,6	90,9	86,8	84,2	152,9
8000	83,5	84,4	85,3	89,5	86,1	84,9	86,9	88,7	88,9	91,5	93,3	95,1	93,7	90,7	86,2	86,2	83,1	153,2
10000	78,4	78,8	79,9	83,6	84,7	83,0	83,8	83,7	83,2	87,2	91,7	90,8	89,9	89,7	85,5	83,1	80,2	151,9
OASPL MEASURED	103,3	104,7	104,9	108,1	105,5	105,6	106,4	107,0	106,5	109,8	110,5	109,4	109,9	111,0	108,9	108,3	109,2	
OASPL CALCULATED	101,9	103,5	103,7	106,9	104,3	104,3	105,2	105,8	105,4	108,9	109,8	108,5	108,8	110,2	108,2	108,5	109,2	
PNDB	114,9	117,1	117,3	120,2	118,2	117,9	118,9	119,0	118,5	122,2	123,1	122,9	122,6	123,2	120,3	117,8	115,5	
																	OAPWL	166,7

DIRECTIVITY INDEX

FREQ,																	
50	-14,1	-13,5	-13,1	-12,6	-11,0	-10,6	-9,6	-8,0	-8,4	-5,9	-4,4	-3,3	-1,4	0,5	4,6	8,2	9,0
63	-9,7	-10,6	-10,6	-10,8	-10,0	-10,2	-8,4	-6,9	-6,7	-4,9	-3,2	-2,4	-0,5	1,3	4,4	7,3	8,8
80	-8,6	-8,4	-8,9	-8,9	-8,4	-6,8	-6,4	-5,3	-4,3	-3,2	-2,4	-1,5	0,5	2,6	4,6	4,9	8,2
100	-5,2	-5,9	-6,6	-6,3	-6,0	-4,1	-5,2	-4,2	-3,7	-2,8	-2,4	-1,4	0,9	2,4	5,5	3,4	6,9
125	-2,5	-2,8	-4,7	-3,4	-3,6	-3,8	-3,8	-3,6	-3,7	-2,4	-1,9	-1,3	1,3	2,5	4,6	4,4	4,9
160	1,7	1,8	0,1	-0,0	-2,5	-3,4	-2,4	-1,4	-1,6	-2,2	-1,8	-1,2	-0,1	1,4	3,8	4,3	1,9
200	4,0	3,5	1,6	0,2	-2,5	-2,8	-1,9	-2,0	-2,3	-2,7	-2,3	-0,6	1,3	3,5	2,1	1,6	1,1
250	-5,3	-5,4	-6,5	-4,5	-4,4	-5,9	-6,2	-5,2	-4,2	-0,8	-2,3	-1,4	3,9	5,6	3,8	0,6	-1,9
315	-9,1	-9,3	-8,6	-4,9	-5,2	-5,9	-5,4	-4,0	-2,5	-0,0	-0,0	0,0	3,4	4,7	3,5	-0,3	-3,4
400	-8,9	-8,4	-7,1	-3,8	-4,6	-4,6	-3,6	-3,1	-2,0	-0,3	0,3	0,7	2,8	4,7	2,7	-1,2	-4,5
500	-7,1	-5,9	-4,4	-3,1	-4,1	-3,6	-2,6	-2,3	-0,9	-0,4	0,3	0,8	2,8	4,1	1,8	-2,2	-5,2
630	-5,0	-3,8	-3,1	-1,0	-2,5	-2,5	-2,0	-1,7	-0,2	-0,2	0,2	1,1	2,0	2,9	0,7	-0,7	-3,3
800	-4,9	-4,1	-2,6	1,1	-1,7	-1,8	-1,8	-2,0	-0,6	0,7	1,2	0,8	1,5	1,8	-0,2	-1,6	-4,0
1000	-5,5	-5,1	-3,4	0,2	-2,7	-2,2	-2,2	-1,7	-1,3	0,3	1,5	1,1	3,4	2,0	-1,8	-2,9	-6,0
1250	-3,6	-3,0	-1,9	1,6	-1,8	-1,8	-1,4	-0,7	-0,8	2,0	2,1	-0,6	-0,0	2,1	-2,9	-3,8	-7,3
1600	-4,8	-3,1	-2,9	0,6	-3,7	-2,9	-2,3	-0,5	-1,7	4,0	3,4	-5,5	-3,4	3,5	-6,9	-3,6	-9,3
2000	-6,1	-4,5	-3,4	-0,8	-1,8	-1,2	-0,7	-1,7	-1,4	0,6	2,3	1,5	1,9	1,6	-2,0	-5,1	-7,4
2500	-10,0	-2,4	-2,6	-0,0	-1,9	-2,6	-1,1	-4,3	-4,1	0,0	3,0	3,3	0,9	1,2	-0,2	-4,6	-7,4
3150	-4,7	-3,4	-3,1	1,2	-3,2	-2,0	-1,4	1,5	0,2	1,1	0,7	1,6	1,5	-0,2	-4,0	-4,8	-6,8
4000	-4,7	-4,3	-3,5	0,5	-2,6	-3,2	-1,9	-0,7	-1,6	0,4	1,8	3,3	2,5	0,3	-4,6	-5,0	-7,7
5000	-7,3	-7,3	-6,5	-2,3	-2,9	-3,8	-2,5	-3,5	-3,8	-0,6	2,7	2,8	3,7	2,3	-1,4	-4,1	-7,3
6300	-7,6	-6,7	-6,2	-2,0	-1,5	-3,1	-2,7	-1,9	-2,8	-0,3	3,5	2,3	1,5	2,7	-1,0	-5,1	-7,7
8000	-7,2	-6,4	-5,5	-1,3	-4,6	-5,8	-3,8	-2,1	-1,8	0,7	2,6	4,3	2,9	-0,0	-4,5	-4,6	-7,7
10000	-9,1	-8,7	-7,6	-4,0	-2,8	-4,5	-3,7	-3,8	-4,3	-0,4	4,2	3,3	2,4	2,2	-2,0	-4,4	-7,3

RUN 8 3562 RPM

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.F.G.
DATE..... 9/13/68
RUN..... 8,Pt.161
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m3).. 11.5
(kg/m3).. 0.0115
PHYS. FAN SPEED(RPM).... 3562
(rad/sec) 372.9
CORR. FAN SPEED(RPM).... 3511.6
(rad/sec) 367.7
TAPE NUMBER..... P667

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ,	ANGLES FROM INLET 0, (0)	10,0 (.17)	20,0 (.35)	30,0 (.52)	40,0 (.70)	50,0 (.87)	60,0 (1.05)	70,0 (1.22)	80,0 (1.40)	90,0 (1.57)	100,0 (1.74)	110,0 (1.92)	120,0 (2.09)	130,0 (2.27)	140,0 (2.44)	150,0 (2.62)	160,0 (2.79)	PWL
50	79,4	80,3	80,7	81,0	82,4	82,8	83,7	85,4	85,4	87,8	89,0	89,9	92,5	94,5	98,4	101,8	102,9	150,6
63	85,0	84,0	84,4	84,2	84,4	84,6	86,2	87,5	88,2	90,3	91,7	92,7	94,3	96,2	99,3	102,6	104,3	152,1
80	85,0	85,2	84,9	85,1	85,4	86,9	86,9	87,7	89,2	90,4	91,5	92,5	94,6	96,3	98,7	98,7	102,2	150,9
100	87,7	86,4	85,9	86,7	86,9	88,5	87,7	88,6	88,9	90,0	90,7	91,2	93,7	95,4	98,3	96,2	99,7	149,9
125	88,8	88,1	86,5	87,7	87,2	87,1	87,2	87,6	87,3	88,9	89,2	89,8	91,8	93,2	95,6	95,3	95,3	148,1
160	88,0	87,6	86,1	86,4	83,3	82,4	83,5	84,5	85,0	84,3	84,2	84,9	86,1	86,8	89,1	89,7	86,6	143,1
200	85,9	85,4	83,5	82,1	79,2	78,8	79,9	80,0	80,0	79,0	79,8	81,4	84,1	87,6	85,2	84,2	83,0	140,0
250	81,1	80,6	80,2	81,8	81,7	80,7	80,3	80,7	81,2	85,1	84,1	85,4	91,3	93,3	91,3	88,2	85,2	144,6
315	81,0	80,7	81,5	85,2	85,0	84,4	84,9	85,7	86,9	89,4	90,2	90,4	94,0	95,5	94,3	90,6	87,0	148,0
400	83,1	83,2	84,8	88,1	87,3	87,2	88,4	88,6	89,7	91,3	92,1	92,9	95,0	97,0	95,1	91,0	87,4	149,7
500	84,1	84,9	86,7	87,4	86,5	87,1	87,9	88,6	90,0	90,7	91,6	91,9	93,7	94,4	92,5	88,7	85,2	148,6
630	84,0	84,5	85,4	87,0	85,3	85,5	86,2	87,6	88,6	88,8	89,5	89,9	90,2	90,5	89,2	88,0	85,1	146,4
800	82,7	83,2	84,5	88,5	85,8	85,7	85,5	85,1	86,3	87,6	88,2	88,5	89,7	90,8	88,2	86,3	83,5	145,7
1000	85,1	84,8	87,0	90,6	87,2	88,1	87,9	88,3	89,1	90,2	91,5	91,8	94,2	92,9	89,5	87,5	84,3	148,6
1250	89,1	89,0	91,7	93,1	90,0	90,2	90,4	92,3	91,3	93,8	94,7	92,4	92,5	94,6	89,9	88,1	85,0	150,7
1600	96,9	97,7	101,7	99,4	96,5	97,0	97,5	102,4	99,5	104,5	105,1	98,3	98,5	105,4	96,5	95,0	91,7	160,0
2000	86,4	86,7	88,3	90,9	90,2	90,4	90,9	90,1	90,8	92,6	93,5	94,2	94,0	93,4	90,4	86,7	84,5	150,7
2500	92,7	94,0	93,3	98,9	98,7	95,5	95,7	97,2	99,2	102,5	97,7	105,3	100,8	102,3	99,5	94,6	93,0	159,3
3150	89,9	92,9	91,9	96,3	92,3	92,0	92,8	95,8	95,9	94,9	95,4	96,4	96,5	94,7	90,9	89,9	87,1	154,1
4000	92,5	92,2	93,1	97,2	94,4	93,2	94,8	95,9	95,1	96,2	98,0	100,0	100,0	96,7	92,3	92,2	88,9	156,5
5000	90,3	90,2	91,3	94,2	94,0	93,5	94,4	93,5	93,5	96,5	99,8	100,7	101,6	100,1	96,0	93,2	89,8	157,6
6300	85,1	85,7	86,2	90,5	90,3	88,5	89,2	90,0	89,1	90,8	95,1	94,7	94,3	95,1	91,7	87,4	84,4	153,2
8000	84,7	85,0	85,9	90,1	86,3	84,9	87,2	88,8	89,0	90,7	92,5	95,8	94,7	91,5	87,4	87,0	83,5	153,5
10000	79,8	79,6	80,7	84,6	85,2	83,1	84,3	84,2	83,7	86,7	91,3	91,7	91,0	90,8	86,8	83,9	80,6	152,4
OASPL MEASURED	103,7	104,1	105,7	107,3	105,6	104,9	105,5	107,4	107,0	109,5	109,9	110,5	110,4	111,5	109,2	108,1	109,2	
OASPL CALCULATED	102,3	102,9	104,7	106,1	104,4	103,6	104,3	106,4	105,9	108,8	109,2	109,8	109,3	110,7	108,5	108,3	109,3	
PNDB	115,5	116,0	118,0	120,0	119,0	117,3	117,8	119,7	120,0	122,5	122,4	124,7	123,2	123,6	120,9	117,9	116,0	
																	OAPWL	167,0

DIRECTIVITY INDEX

FREQ,																	
50	-14,3	-13,5	-13,1	-12,7	-11,4	-11,0	-10,0	-8,4	-8,3	-5,9	-4,8	-3,8	-1,3	0,8	4,6	8,1	9,2
63	-10,2	-11,1	-10,7	-11,0	-10,8	-10,5	-9,0	-7,7	-7,0	-4,8	-3,5	-2,4	-0,8	1,0	4,2	7,4	9,2
80	-8,9	-8,7	-9,0	-8,8	-8,5	-7,0	-7,0	-6,2	-4,7	-3,5	-2,4	-1,4	0,7	2,4	4,8	4,9	8,3
100	-5,2	-6,4	-6,9	-6,1	-5,9	-4,3	-5,1	-4,3	-4,0	-2,8	-2,1	-1,6	0,9	2,6	5,4	3,4	6,9
125	-2,1	-2,8	-4,3	-3,1	-3,7	-3,8	-3,7	-3,3	-3,6	-2,0	-1,7	-1,1	1,0	2,3	4,8	4,4	4,4
160	2,2	1,8	0,3	0,6	-2,5	-3,4	-2,3	-1,3	-0,8	-1,6	-1,6	-0,9	0,3	0,9	3,3	3,9	0,8
200	3,3	2,8	0,9	-0,5	-3,4	-3,8	-2,7	-2,6	-2,6	-3,6	-2,8	-1,2	1,5	5,0	2,6	1,6	0,4
250	-6,0	-6,5	-6,9	-5,3	-5,4	-6,5	-6,8	-6,4	-6,0	-2,0	-3,1	-1,7	4,2	6,2	4,1	1,1	-1,9
315	-9,4	-9,7	-8,9	-5,2	-5,5	-6,0	-5,6	-4,7	-3,6	-1,0	-0,2	-0,0	3,5	5,1	3,9	0,2	-3,4
400	-8,9	-8,9	-7,3	-4,0	-4,8	-4,8	-3,7	-3,5	-2,3	-0,7	0,0	0,9	2,9	4,9	3,0	-1,1	-4,7
500	-6,7	-5,9	-4,1	-3,4	-4,3	-3,7	-2,9	-2,2	-0,8	-0,1	0,8	1,1	2,9	3,6	1,7	-2,1	-5,6
630	-4,5	-4,0	-3,2	-1,5	-3,3	-3,0	-2,3	-1,0	0,0	0,3	1,0	1,4	1,7	2,0	0,7	-0,5	-3,4
800	-5,0	-4,5	-3,1	0,9	-1,9	-1,9	-2,1	-2,6	-1,3	-0,1	0,5	0,8	2,1	3,1	0,6	-1,3	-4,1
1000	-5,4	-5,6	-3,4	0,1	-3,3	-2,3	-2,5	-2,1	-1,4	-0,3	1,1	1,3	3,7	2,4	-1,0	-2,9	-6,2
1250	-3,3	-3,4	-0,6	0,7	-2,3	-2,2	-1,9	-0,0	-1,0	1,5	2,3	0,1	0,2	2,3	-2,4	-4,2	-7,4
1600	-4,6	-3,7	0,2	-2,0	-5,0	-4,4	-3,9	1,0	-1,9	3,1	3,7	-3,1	-2,9	4,0	-4,9	-6,4	-9,8
2000	-5,5	-5,2	-3,6	-1,1	-1,7	-1,5	-1,0	-1,8	-1,1	0,6	1,6	2,3	2,1	1,5	-1,5	-5,2	-7,4
2500	-7,5	-6,2	-7,0	-1,3	-1,5	-4,7	-4,5	-3,0	-1,0	2,3	-2,5	5,0	0,8	2,0	-0,8	-5,6	-7,3
3150	-4,8	-1,8	-2,8	1,6	-2,4	-2,8	-1,9	1,0	1,2	0,2	0,6	1,7	1,7	-0,0	-3,8	-4,8	-7,6
4000	-4,2	-4,5	-3,5	0,5	-2,2	-3,4	-1,9	-0,8	-1,6	-0,4	1,3	3,3	3,3	0,0	-4,4	-4,5	-7,7
5000	-7,2	-7,3	-6,2	-3,3	-3,4	-3,9	-3,1	-4,0	-3,9	-1,0	2,4	3,2	4,1	2,7	-1,5	-4,3	-7,7
6300	-7,0	-6,4	-5,9	-1,6	-1,8	-3,6	-2,9	-2,1	-3,0	-1,3	3,0	2,6	2,1	3,0	-0,4	-4,7	-7,7
8000	-6,4	-6,1	-5,2	-1,0	-4,7	-6,2	-3,9	-2,3	-2,0	-0,3	1,4	4,7	3,6	0,4	-3,7	-4,1	-7,5
10000	-8,3	-8,0	-7,3	-3,4	-2,0	-5,0	-3,0	-3,9	-4,3	-1,3	3,3	3,7	3,0	2,7	-1,2	-4,1	-7,5

C115

RUN 8 3562 RPM

NASA QUIET FAN RUN 8 441-004/6 T/D 9/13/68 PROC. DATE - MONTH 9 DAY 27 HR, 3.8

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.157
BAROMETER.....(in Hg).. 29.0
(N/m²)... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³).. 11.5
(kg/m³).. 0.0115
PHYS. FAN SPEED (RPM).... 3658
(rad/sec) 382.9
CORR. FAN SPEED (RPM).... 3606.2
(rad/sec) 377.6
TAPE NUMBER..... P666

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

FREQ.	ANGLES FROM INLET																PWL
	0.0 (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	
50	79,9	80,1	80,7	81,1	82,4	82,6	83,9	86,0	85,9	88,1	89,8	90,8	92,9	95,0	99,5	103,3	104,0	151,6
63	85,4	84,6	85,0	84,2	84,5	84,9	86,4	88,0	88,8	90,6	92,0	93,1	94,9	97,0	100,5	104,0	105,1	153,0
80	85,6	85,9	85,5	85,6	85,6	87,2	87,2	88,4	90,0	91,1	91,8	92,9	95,4	97,2	99,9	100,5	103,6	152,0
100	88,2	87,4	86,7	87,7	87,7	89,6	88,8	89,2	89,6	91,0	91,8	92,7	94,9	96,6	99,9	97,7	101,9	151,4
125	89,6	89,1	87,7	89,3	88,8	88,7	88,8	88,4	88,6	90,2	91,0	91,2	93,4	95,1	97,6	97,4	98,4	149,9
160	89,1	88,9	87,5	87,5	84,0	84,2	85,0	85,4	85,8	85,7	86,1	87,0	88,2	89,4	91,6	92,8	91,3	145,2
200	86,9	86,1	84,8	83,5	80,5	80,3	81,4	81,0	81,3	80,2	81,7	83,5	84,0	86,2	85,6	85,9	84,8	140,7
250	81,7	81,6	80,5	81,6	80,1	80,3	80,4	81,0	82,3	85,3	83,3	84,7	91,4	93,3	91,4	88,3	85,7	144,6
315	81,7	81,2	81,7	84,8	84,4	84,1	84,3	85,3	87,1	90,2	89,7	90,4	94,3	96,2	95,0	91,2	87,8	148,4
400	83,6	84,6	85,2	88,2	87,7	89,0	88,4	89,2	90,3	91,9	92,7	93,4	96,0	98,1	96,1	91,9	88,4	150,6
500	84,8	85,6	87,4	86,1	87,7	88,1	88,6	89,6	90,6	91,6	92,7	93,2	95,2	96,6	94,2	90,1	87,1	150,0
630	86,8	84,7	86,9	88,7	87,3	88,4	88,3	89,2	89,8	89,7	91,6	92,0	92,7	92,8	90,7	88,5	86,3	148,3
800	84,2	84,2	86,0	88,4	87,5	86,5	87,2	86,1	87,4	87,8	88,2	88,2	89,3	89,8	88,7	87,2	84,9	146,0
1000	86,5	88,4	89,9	89,7	90,2	89,2	89,5	89,5	89,7	90,4	92,3	92,2	94,4	92,9	90,2	88,9	85,4	149,3
1250	88,4	88,8	90,5	91,3	92,3	90,9	90,6	90,3	90,8	90,9	91,7	92,6	93,3	92,5	89,9	87,8	85,4	149,7
1600	96,4	98,4	99,5	102,1	104,9	101,4	99,6	99,1	100,6	101,9	101,8	96,7	100,9	96,3	96,7	94,0	94,8	159,1 ✓
2000	86,9	87,4	89,3	89,0	90,9	91,0	91,2	90,3	90,6	91,6	93,4	93,0	94,0	93,0	89,7	86,9	85,0	150,4
2500	94,1	93,9	96,5	93,3	97,6	98,3	95,4	96,1	96,5	99,6	105,0	102,4	104,7	102,1	97,8	96,4	93,7	159,6 ✓
3150	91,3	92,9	93,5	94,2	92,8	92,2	93,3	96,1	95,3	95,4	95,5	97,8	97,5	95,0	91,5	90,0	88,0	154,4
4000	92,4	92,4	93,9	93,9	94,0	93,0	94,8	96,0	95,5	96,6	98,1	100,0	99,6	96,5	92,1	91,8	89,1	156,4
5000	90,3	90,4	92,2	92,0	95,4	93,9	95,5	93,8	94,1	98,0	99,3	102,5	101,0	100,5	96,2	93,4	90,6	158,1
6300	85,0	85,5	86,9	87,5	91,1	88,9	89,7	90,2	89,3	91,2	94,6	95,0	93,9	95,8	92,0	87,5	85,3	153,2
8000	84,4	85,1	86,5	87,5	86,7	84,8	87,5	89,2	89,4	91,0	92,1	96,6	94,4	91,7	87,1	86,9	84,2	153,7
10000	79,4	79,1	81,1	81,5	85,4	82,8	84,3	84,2	83,7	86,6	90,8	91,4	90,2	90,7	86,2	83,6	81,0	152,0
OASPL MEASURED	104,1	104,8	105,9	106,8	108,6	106,9	106,5	106,7	107,1	108,6	110,4	110,4	111,5	110,6	110,0	109,6	110,8	
OASPL CALCULATED	102,7	103,4	104,5	105,5	107,5	105,7	105,1	105,4	105,9	107,6	109,6	109,4	110,5	109,7	109,2	109,6	110,7	
PNDB	116,1	116,4	118,0	118,8	120,7	119,1	118,3	119,0	119,0	121,1	124,4	123,6	125,0	123,5	120,5	118,9	117,1	
																	OAPWL	167,1

DIRECTIVITY INDEX

FREQ.																	
50	-14,9	-14,7	-14,1	-13,7	-12,4	-12,2	-10,9	-8,9	-8,9	-6,7	-5,0	-4,0	-1,9	0,2	4,7	8,5	9,2
63	-10,6	-11,5	-11,1	-11,8	-11,5	-11,2	-9,7	-8,0	-7,3	-5,5	-4,1	-2,9	-1,1	0,9	4,4	7,9	9,0
80	-9,4	-9,1	-9,5	-9,4	-9,4	-7,8	-7,8	-6,5	-5,0	-3,9	-3,2	-2,1	0,4	2,3	4,9	5,5	8,6
100	-6,1	-6,9	-7,5	-6,5	-6,5	-4,6	-5,5	-5,1	-4,6	-3,2	-2,5	-1,6	0,7	2,3	5,7	3,4	7,6
125	-3,1	-3,6	-5,1	-3,5	-4,0	-4,0	-3,9	-4,3	-4,1	-2,6	-1,8	-1,6	0,7	2,3	4,9	4,7	5,7
160	1,2	1,0	-0,4	-0,4	-3,9	-3,7	-2,9	-2,5	-2,1	-2,2	-1,8	-0,9	0,3	1,5	3,7	4,8	3,4
200	3,6	2,9	1,5	0,2	-2,8	-3,0	-1,9	-2,3	-2,0	-3,1	-1,6	0,2	0,7	2,9	2,3	2,6	1,5
250	-5,4	-5,6	-6,6	-5,6	-7,0	-6,9	-6,7	-6,2	-4,8	-1,8	-3,9	-2,5	4,3	6,1	4,3	1,2	-1,4
315	-9,1	-9,6	-9,1	-6,0	-6,4	-6,7	-6,5	-5,4	-3,6	-0,6	-1,1	-0,3	3,5	5,5	4,2	0,4	-3,0
400	-9,3	-8,3	-7,7	-4,7	-5,2	-3,9	-4,5	-3,6	-2,6	-1,0	-0,2	0,5	3,1	5,2	3,2	-1,0	-4,5
500	-7,4	-6,6	-4,7	-4,1	-4,4	-4,1	-3,6	-2,6	-1,5	-0,5	0,5	1,1	3,0	4,4	2,0	-2,1	-5,1
630	-3,5	-5,7	-3,4	-1,7	-3,1	-2,0	-2,1	-1,2	-0,6	-0,7	1,3	1,6	2,4	2,4	0,3	-1,9	-4,0
800	-3,7	-3,7	-1,9	0,5	-0,5	-1,5	-0,8	-1,8	-0,5	-0,2	0,2	0,2	1,4	1,9	0,8	-0,8	-3,0
1000	-4,6	-2,7	-1,2	-1,4	-0,9	-1,9	-1,6	-1,6	-1,4	-0,7	1,2	1,1	3,3	1,8	-0,9	-2,2	-5,7
1250	-3,0	-2,5	-0,9	-0,0	0,9	-0,5	-0,8	-1,1	-0,6	-0,5	0,3	1,2	1,9	1,1	-1,4	-3,6	-6,0
1600	-4,1	-2,1	-1,0	1,6	4,4	0,9	-0,9	-1,4	0,0	1,3	1,3	-3,8	0,4	-4,2	-3,8	-6,5	-5,7
2000	-4,7	-4,2	-2,4	-2,7	-0,7	-0,6	-0,5	-1,3	-1,1	-0,1	1,8	1,4	2,4	1,4	-2,0	-4,8	-6,6
2500	-6,4	-6,6	-4,1	-7,3	-3,0	-2,3	-5,1	-4,4	-4,1	-0,9	4,5	1,8	4,1	1,6	-2,7	-4,2	-6,8
3150	-3,8	-2,2	-1,6	-0,9	-2,3	-2,9	-1,8	1,0	0,2	0,3	0,4	2,7	2,4	-0,1	-3,6	-5,1	-7,1
4000	-4,1	-4,1	-2,7	-2,6	-2,5	-3,5	-1,7	-0,5	-1,0	0,1	1,6	3,5	3,1	-0,0	-4,4	-4,7	-7,4
5000	-7,7	-7,5	-5,8	-6,0	-2,6	-4,1	-2,5	-4,2	-3,9	0,0	1,3	4,5	3,1	2,5	-1,7	-4,6	-7,4
6300	-7,2	-6,7	-5,2	-4,7	-1,1	-3,3	-2,5	-2,0	-2,9	-1,0	2,4	2,8	1,8	3,6	-0,2	-4,7	-6,9
8000	-6,8	-6,1	-4,7	-3,7	-4,5	-6,4	-3,7	-2,0	-1,8	-0,2	0,9	5,4	3,2	0,5	-4,1	-4,3	-7,1
10000	-8,2	-8,6	-6,6	-6,1	-2,3	-4,9	-3,3	-3,5	-4,0	-1,0	3,2	3,8	2,5	3,0	-1,5	-4,0	-6,7

RUN 8 3658 RPM

SOUND PRESSURE LEVELS REDUCED AT STANDARD DAY

RADIAL DISTANCE (ft)..... 225
(m)..... 68.58
VEHICLE..... 441004/6
CONFIGURATION..... NASA Q.F.
LOCATION..... P.P.G.
DATE..... 9/13/68
RUN..... 8,Pt.158
BAROMETER.....(in Hg).. 29.0
(N/m²).... 97928
T AMBIENT.....(°F)..... 74.0
(°K)..... 296.5
T WET BULB.....(°F)..... 63.0
(°K)..... 290.4
ABS. HUMIDITY...(gm/m³)... 11.5
(kg/m³)... 0.0115
PHYS. FAN SPEED (RPM).... 3650
(rad/sec) 382.2
CORR. FAN SPEED (RPM).... 3598.3
(rad/sec) 376.7
TAPE NUMBER..... P666

FREQ,	ANGLES FROM INLET 0, (0)	10.0 (.17)	20.0 (.35)	30.0 (.52)	40.0 (.70)	50.0 (.87)	60.0 (1.05)	70.0 (1.22)	80.0 (1.40)	90.0 (1.57)	100.0 (1.74)	110.0 (1.92)	120.0 (2.09)	130.0 (2.27)	140.0 (2.44)	150.0 (2.62)	160.0 (2.79)	PWL
50	80.3	80.8	81.4	81.5	82.9	83.5	84.3	85.6	85.8	88.5	89.6	90.7	93.1	95.2	99.3	103.1	103.9	151.5
63	85.3	84.7	85.0	84.3	84.8	85.5	86.9	88.2	88.7	90.8	92.0	93.1	95.2	97.0	100.3	103.6	104.9	152.8
80	85.5	85.8	85.4	85.9	86.0	87.8	87.6	88.7	90.1	90.9	91.1	92.7	95.1	96.8	99.6	100.1	103.4	151.7
100	87.8	87.3	87.1	87.8	87.5	89.3	88.4	89.2	89.6	91.1	91.4	92.3	94.4	96.4	99.5	97.6	101.6	151.1
125	89.2	88.7	87.4	88.6	88.0	88.2	88.2	88.0	88.3	90.2	90.0	90.4	93.0	94.3	97.2	96.8	97.9	149.4
160	88.6	88.8	87.3	87.2	83.7	84.0	84.9	85.9	85.7	85.6	85.3	86.1	87.4	88.7	91.2	91.7	90.5	144.7
200	86.5	86.1	84.4	83.4	80.1	79.8	80.7	80.6	80.7	79.9	80.8	82.1	84.1	86.5	85.2	84.8	84.2	140.3
250	81.5	81.5	80.9	82.8	81.5	81.0	80.9	81.5	82.6	85.9	84.1	85.3	91.6	93.0	91.3	87.9	85.3	144.7
315	81.6	81.5	82.3	86.5	85.6	85.3	85.8	86.6	88.1	90.4	90.2	91.1	94.7	96.0	94.9	90.8	87.7	148.6
400	83.4	84.4	85.8	89.3	88.1	88.8	89.2	89.8	90.4	92.2	92.6	93.7	96.1	97.8	95.8	91.6	88.6	150.6
500	84.6	85.9	87.6	89.1	87.4	88.1	88.5	89.6	90.8	91.8	92.1	92.9	94.6	96.0	93.9	89.8	86.9	149.7
630	85.0	85.0	87.9	89.8	86.6	88.0	87.8	88.1	89.1	89.7	91.0	91.6	91.6	91.9	90.5	88.7	86.9	147.8
800	82.9	83.8	85.8	88.6	86.5	87.0	87.4	86.4	88.1	88.2	88.3	87.8	89.2	89.8	88.3	86.6	85.0	146.0
1000	85.4	88.6	88.6	91.0	88.4	88.4	89.1	89.4	90.0	90.9	92.0	92.3	94.5	92.6	89.7	88.6	85.4	149.2
1250	87.5	88.8	90.3	92.6	90.0	89.4	90.4	90.0	90.2	90.6	92.7	91.8	92.8	92.0	89.4	87.2	85.6	149.4
1600	95.0	96.9	99.8	99.5	100.6	97.6	99.0	96.6	95.1	97.5	105.4	97.2	101.2	99.7	94.2	91.7	96.2	158.3
2000	85.9	87.8	88.9	90.2	90.0	91.3	91.8	90.1	90.5	92.0	94.0	93.3	93.8	93.0	89.7	86.6	84.8	150.6
2500	90.6	94.9	93.6	96.0	98.0	94.6	100.7	96.3	95.6	102.1	105.6	104.8	103.6	104.5	98.1	94.8	92.9	160.5
3150	90.2	92.1	92.4	95.5	91.2	91.8	93.4	96.2	95.5	95.3	96.3	96.8	96.5	94.3	91.5	90.0	88.3	154.2
4000	90.7	92.6	93.5	95.2	93.7	92.9	94.6	95.8	95.4	96.8	98.5	99.5	99.5	96.2	91.8	91.7	89.3	156.3
5000	89.6	91.0	92.4	93.3	94.6	93.8	94.8	93.7	95.3	99.7	99.4	101.0	100.3	100.0	96.5	93.4	91.0	157.9
6300	84.1	85.7	86.8	88.8	90.4	88.5	89.3	89.9	89.3	91.4	94.7	94.2	93.8	95.1	91.8	87.4	85.1	153.0
8000	83.7	85.1	86.6	88.5	86.3	84.6	87.1	88.7	89.4	91.5	92.6	95.6	94.3	91.3	86.9	86.9	83.9	153.4
10000	78.4	79.5	80.9	82.6	84.8	82.5	83.9	83.9	83.8	87.1	91.2	91.5	90.0	90.2	86.2	83.6	81.1	152.0
OASPL MEASURED	103.0	104.4	105.4	106.8	106.4	105.3	107.1	106.2	106.2	108.7	111.4	110.4	111.0	111.1	109.6	108.9	110.6	
OASPL CALCULATED	101.5	103.1	104.2	105.4	105.3	103.9	105.9	105.0	104.9	107.7	110.7	109.6	110.1	110.2	108.9	109.2	110.5	
PNDB	114.4	116.6	117.4	118.7	118.9	117.1	120.5	118.9	118.7	122.3	124.9	124.5	124.3	124.5	120.4	118.1	116.8	
																	OAPWL	167.1

DIRECTIVITY INDEX

FREQ,																	
50	-14.4	-13.9	-13.3	-13.2	-11.7	-11.2	-10.4	-9.1	-8.9	-6.2	-5.1	-4.0	-1.6	0.5	4.6	8.4	9.2
63	-10.6	-11.2	-10.9	-11.6	-11.1	-10.4	-9.0	-7.8	-7.2	-5.2	-3.9	-2.8	-0.7	1.1	4.3	7.7	9.0
80	-9.2	-8.9	-9.3	-8.8	-8.7	-6.9	-7.1	-6.0	-4.6	-3.8	-3.6	-2.1	0.3	2.1	4.9	5.4	8.7
100	-6.2	-6.7	-6.9	-6.2	-6.5	-4.6	-5.6	-4.8	-4.4	-2.9	-2.6	-1.7	0.4	2.4	5.5	3.6	7.7
125	-3.0	-3.5	-4.8	-3.6	-4.2	-4.0	-4.0	-4.1	-3.9	-1.9	-2.2	-1.8	0.8	2.1	5.0	4.6	5.7
160	1.2	1.4	-0.1	-0.2	-3.7	-3.4	-2.5	-1.5	-1.7	-1.8	-2.1	-1.3	0.0	1.3	3.8	4.3	3.1
200	3.6	3.2	1.5	0.5	-2.8	-3.1	-2.2	-2.3	-2.2	-3.0	-2.1	-0.8	1.2	3.0	2.3	1.9	1.3
250	-5.7	-5.7	-6.3	-4.4	-5.7	-6.2	-6.4	-5.7	-4.6	-1.4	-3.2	-1.9	4.4	5.7	4.1	0.6	-2.0
315	-9.4	-9.5	-8.7	-4.5	-5.4	-5.7	-5.2	-4.4	-3.0	-0.6	-0.9	0.0	3.6	5.0	3.8	-0.2	-3.3
400	-9.5	-8.6	-7.1	-3.7	-4.9	-4.2	-3.7	-3.1	-2.5	-0.7	-0.4	0.7	3.2	4.9	2.9	-1.4	-4.3
500	-9.3	-6.0	-4.3	-2.8	-4.5	-3.8	-3.4	-2.3	-1.1	-0.1	0.3	1.0	2.7	4.1	2.0	-2.1	-5.0
630	-4.9	-4.9	-2.0	-0.1	-3.3	-1.9	-2.1	-1.8	-0.8	-0.2	1.1	1.7	1.7	2.0	0.6	-1.2	-3.0
800	-5.1	-4.1	-2.2	0.6	-1.5	-0.9	-0.6	-1.6	0.2	0.3	0.3	-0.2	1.2	1.9	0.3	-1.3	-2.9
1000	-5.6	-2.4	-2.4	0.0	-2.6	-2.6	-1.8	-1.6	-1.0	-0.1	1.0	1.3	3.5	1.6	-1.2	-2.4	-5.6
1250	-3.5	-2.2	-0.7	1.5	-1.0	-1.6	-0.7	-1.1	-0.8	-0.4	1.7	0.8	1.8	1.0	-1.6	-3.8	-5.4
1600	-4.7	-2.8	0.1	-0.2	0.9	-2.1	-0.7	-3.1	-4.6	-2.2	5.7	-2.5	1.5	0.0	-5.5	-8.0	-3.5
2000	-5.9	-4.0	-2.9	-1.6	-1.8	-0.5	0.0	-1.7	-1.3	0.2	2.2	1.5	2.0	1.2	-2.1	-5.2	-7.0
2500	-10.9	-6.6	-7.9	-5.5	-3.5	-6.9	-0.9	-5.2	-5.9	0.6	4.1	3.3	2.1	3.0	-3.4	-6.7	-8.6
3150	-4.7	-2.8	-2.5	0.7	-3.7	-3.0	-1.4	1.3	0.6	0.5	1.4	1.9	1.6	-0.6	-3.4	-4.8	-6.6
4000	-5.8	-3.8	-2.9	-1.2	-2.8	-3.6	-1.9	-0.6	-1.0	0.4	2.1	3.1	3.1	-0.3	-4.7	-4.7	-7.2
5000	-8.1	-6.8	-5.3	-4.4	-3.1	-3.9	-2.9	-4.0	-2.4	1.9	1.7	3.3	2.6	2.3	-1.2	-4.3	-6.7
6300	-7.8	-6.2	-5.1	-3.1	-1.6	-3.4	-2.6	-2.1	-2.6	-0.5	2.8	2.3	1.9	3.2	-0.1	-4.5	-6.8
8000	-7.3	-5.8	-4.4	-2.4	-4.7	-6.4	-3.9	-2.3	-1.6	0.5	1.6	4.6	3.3	0.4	-4.0	-4.1	-7.0
10000	-9.2	-8.1	-6.7	-5.1	-2.9	-5.2	-3.7	-3.8	-3.9	-0.5	3.6	3.8	2.3	2.6	-1.5	-4.0	-6.5

C117

RUN 8 3650 RPM

INTRODUCTION - APPENDIX D

The data presented in Appendix D are selected narrow band spectra obtained from farfield and probe measurements made during the four nozzle area variation tests in this test series. The narrow band plots are made using a filter bandwidth of 20 Hz, in conjunction with a Federal Scientific Co. analyzer and GE635 computer.

The selected narrow bands were chosen at fan speeds approximating approach and takeoff power conditions. For the configuration with nominal fan and core nozzle areas (Run 8), the farfield narrow band traces are presented for angles of 30° to 150° (.52 rad to 2.62 rad). For other configurations, the farfield narrow bands are shown for the maximum angles in the front and aft quadrants. Nearfield narrow bands from measurements at each of the five probe immersion depths in the fan inlet and discharge ducts, as well as turbine discharge narrow bands, are shown for each configuration at approach and takeoff conditions.

APPENDIX D

Table of Contents

I - FAR FIELD 20 Hz NARROWBAND SOUND PRESSURE LEVEL SPECTRA

Run No.	Nozzle Area Fan	Nozzle Area Core	Fan Speed Setting*	Far Field Location	Page No.
8	Nominal	Nominal	Approach	30° to 150°	D1 to D13
			Approach	50°**	D27
			Takeoff	30° to 150°	D14 to D26
5	Large	Large	Approach	Front Quad. Max.	D28
			Approach	Aft Quad. Max.	D29
			Approach	60°	D30
			Takeoff	Front Quad. Max.	D31
			Takeoff	Aft Quad. Max.	D32
6	Small	Large	Approach	Front Quad. Max.	D33
			Approach	Aft Quad. Max.	D34
			Takeoff	Front Quad. Max.	D35
			Takeoff	Aft Quad. Max.	D36
7	Nominal	Large	Approach	Front Quad. Max.	D37
			Approach	Aft Quad. Max.	D38
			Takeoff	Front Quad. Max.	D39
			Takeoff	Aft Quad. Max.	D40

* Nominal identification - "approach" corresponds to 2300 rpm (240.8 rad/sec), and "takeoff" corresponds to 3473 rpm (363.6 rad/sec).

** For 0 to 450 Hz.

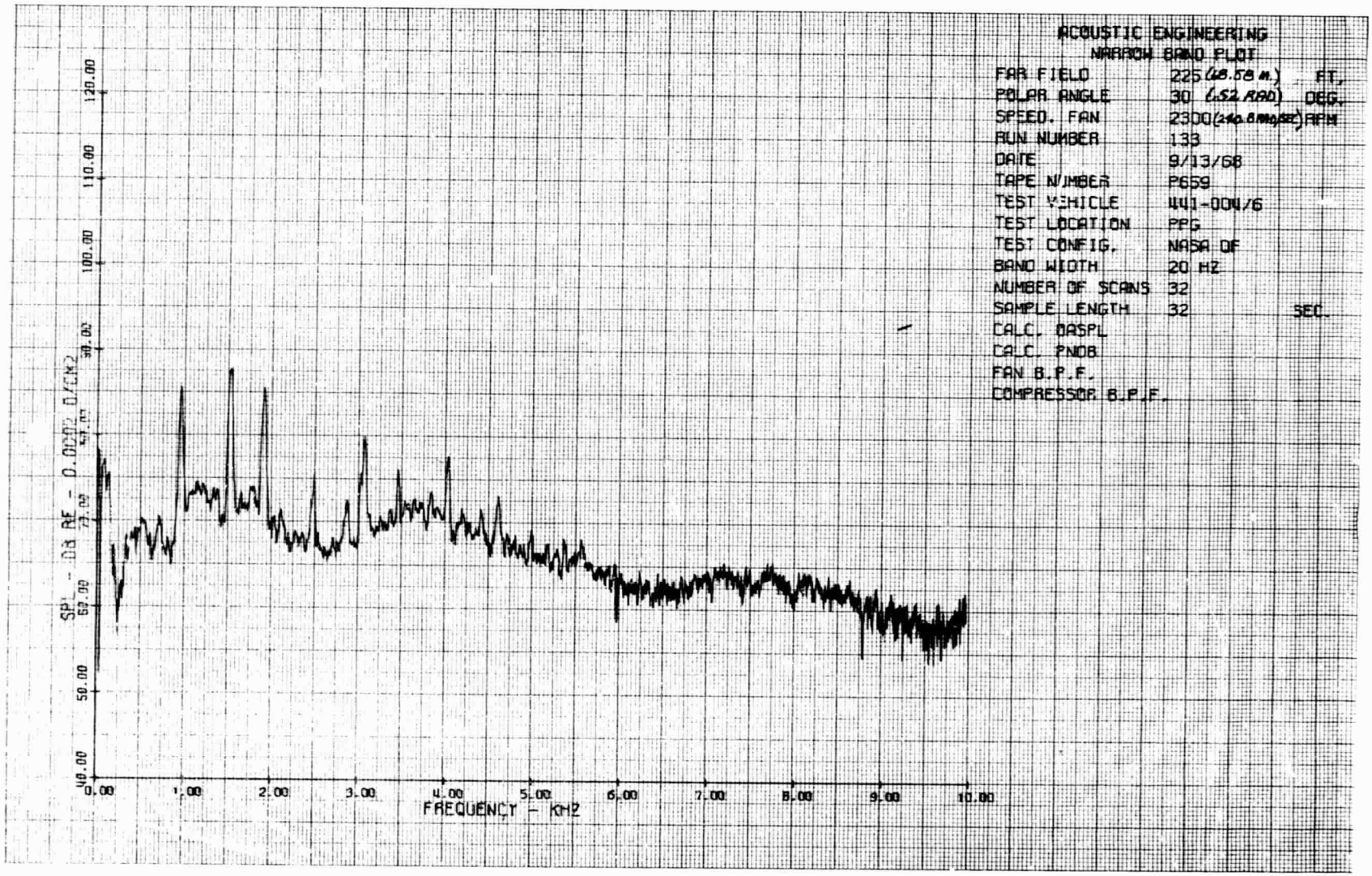
APPENDIX D

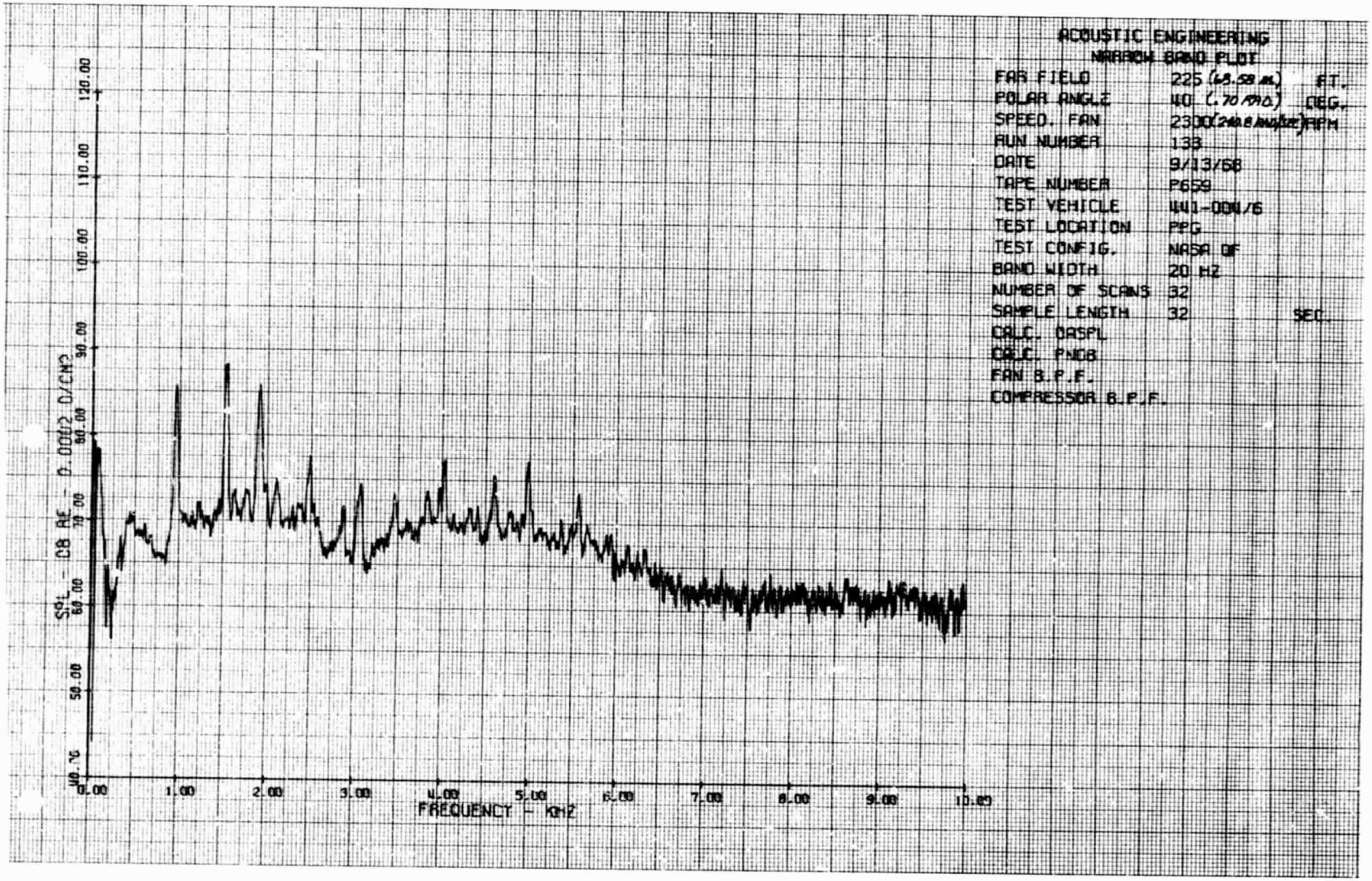
Table of Contents
(Continued)

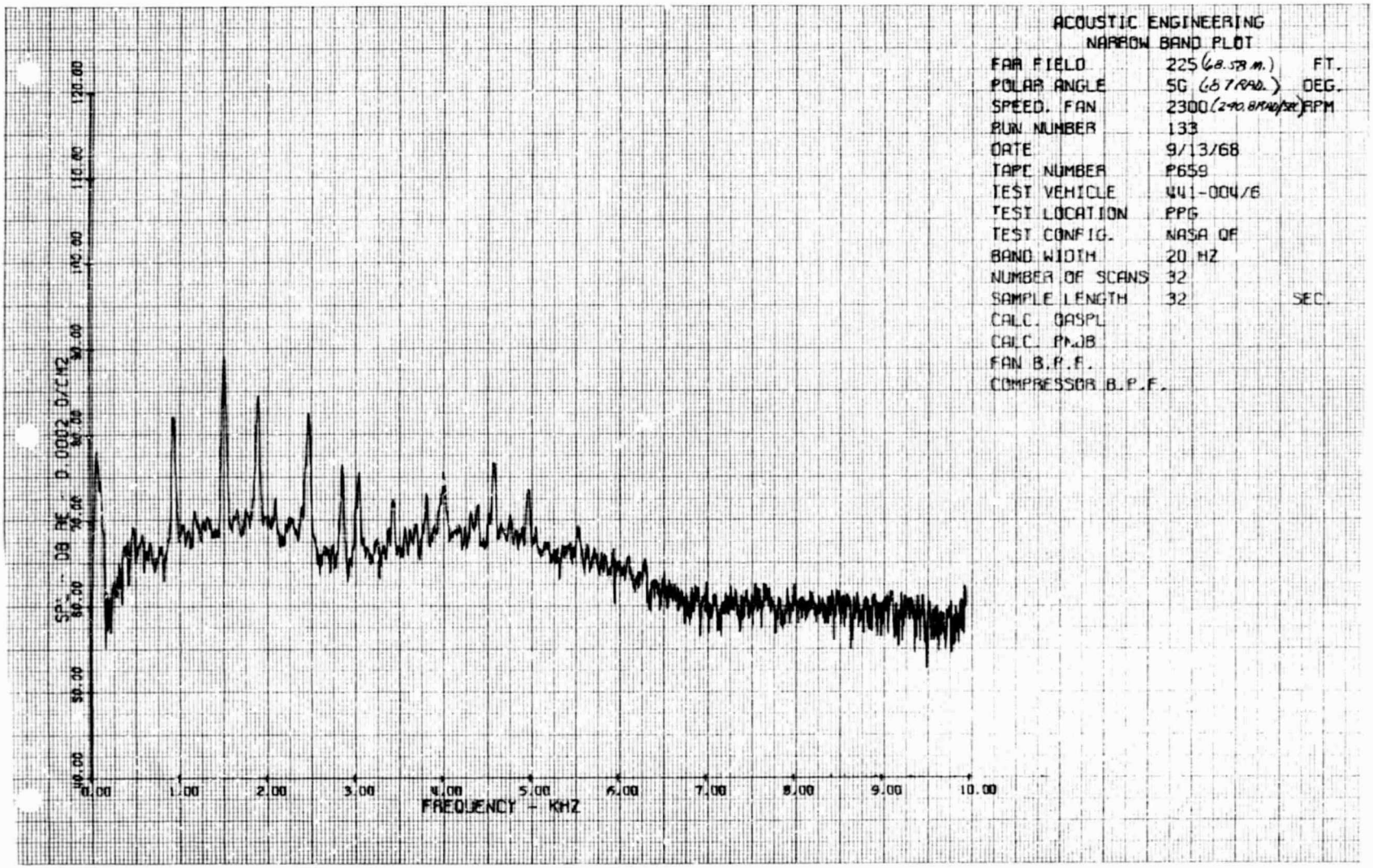
II - NEAR FIELD 20 Hz NARROWBAND SOUND PRESSURE

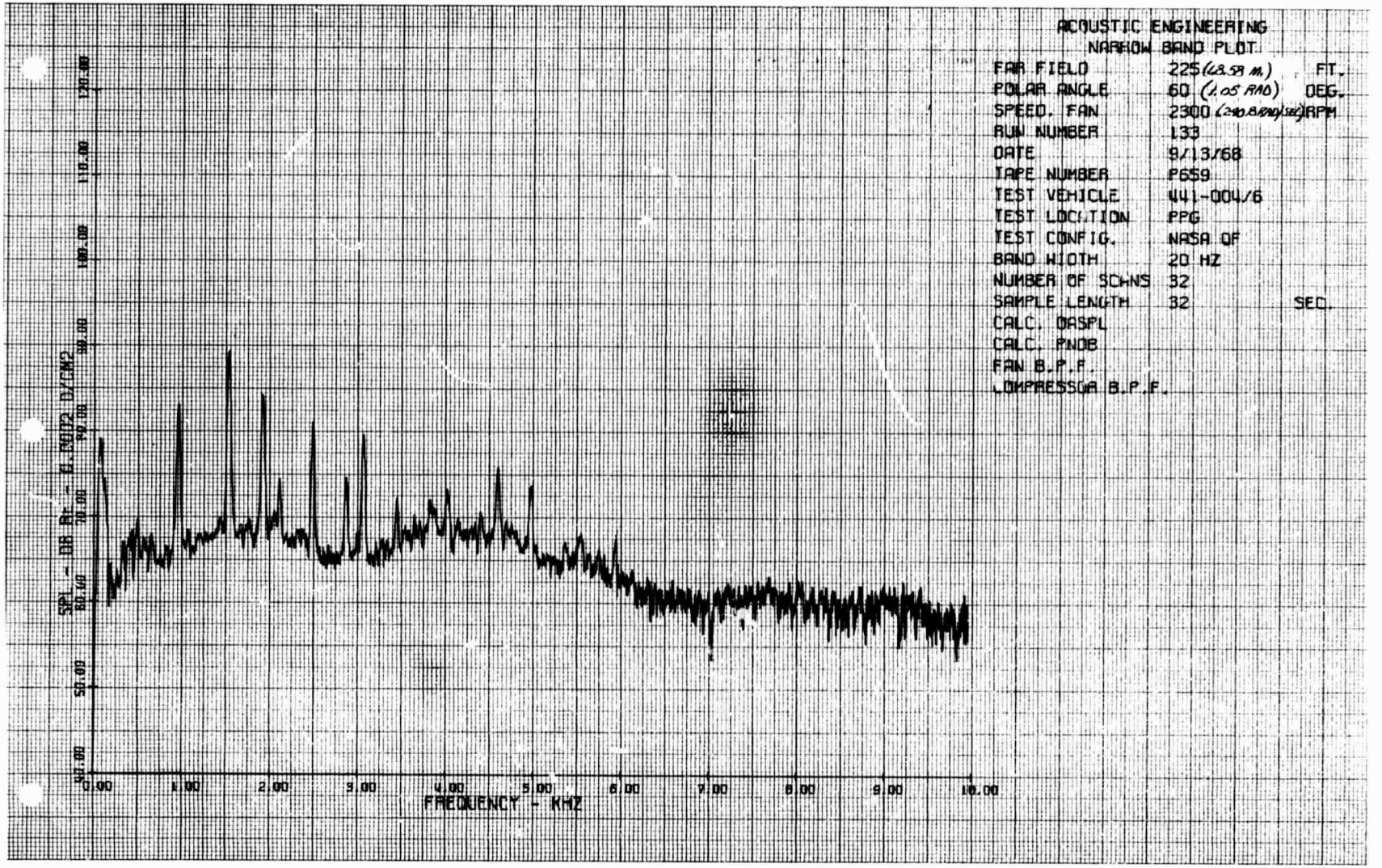
Run No.	Nozzle Area Fan	Nozzle Area Core	Fan Speed Setting*	Location (Fan Duct)	Figure No. (5 Immersions)
8	Nominal	Nominal	Approach	Inlet	D 41 - D 45
				Aft	D 46 - D 50
			Takeoff	Inlet	D 51 - D 55
				Aft	D 56 - D 60
7	Nominal	Large	Approach	Inlet	D 61 - D 65
				Aft	D 66 - D 70
			Takeoff	Inlet	D 71 - D 75
				Aft	D 76 - D 80
6	Small	Large	Approach	Inlet	D 81 - D 85
				Aft	D 86 - D 90
			Takeoff	Inlet	D 91 - D 95
				Aft	D 96 - D100
5	Large	Large	Approach	Inlet	D101 - D105
				Aft	D106 - D110
			Takeoff	Inlet	D111 - D115
				Aft	D116 - D120
5 thru 8			Approach & Takeoff	Turbine Discharge	D121 - D128

* Nominal identification:
"Approach" corresponds to 2300 rpm (240.8 rad/sec).
"Takeoff" corresponds to 3473 rpm (363.6 rad/sec).


ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 m.) FT.
POLAR ANGLE 30 (.52 RAD) DEG.
SPEED, FAN 2300 (240.8 RAD/SEC) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 DYNE/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 m.) FT.
POLAR ANGLE 40. (.70 rad.) DEG.
SPEED. FAN 2300(240.8 rad/sec) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE 441-000/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
2.00
3.00
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5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

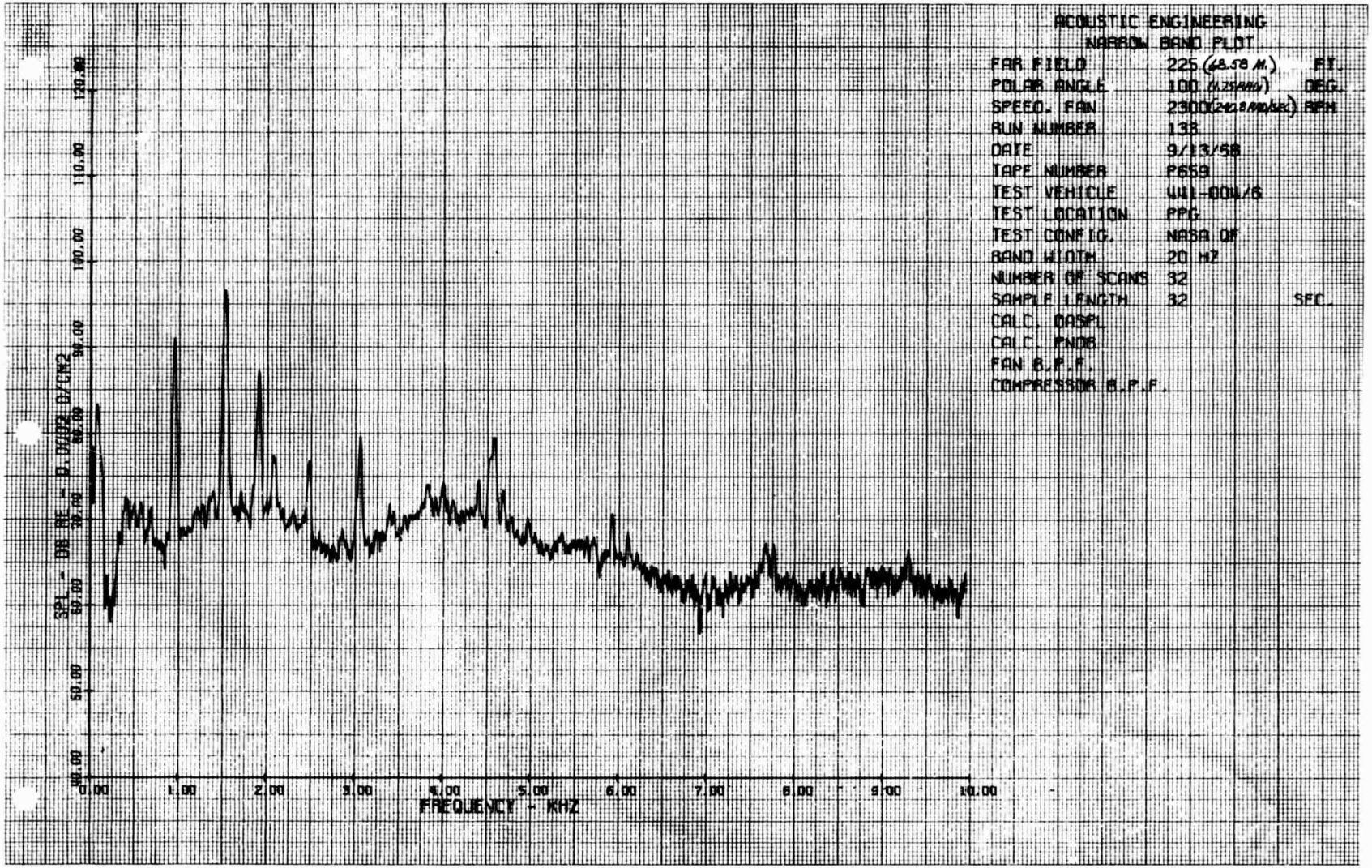

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 M.) FT.
POLAR ANGLE 56 (.97 RAD.) DEG.
SPEED, FAN 2300 (240.8 RAD/SEC) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNdB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE .0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
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1.00
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9.00
10.00
FREQUENCY - KHZ

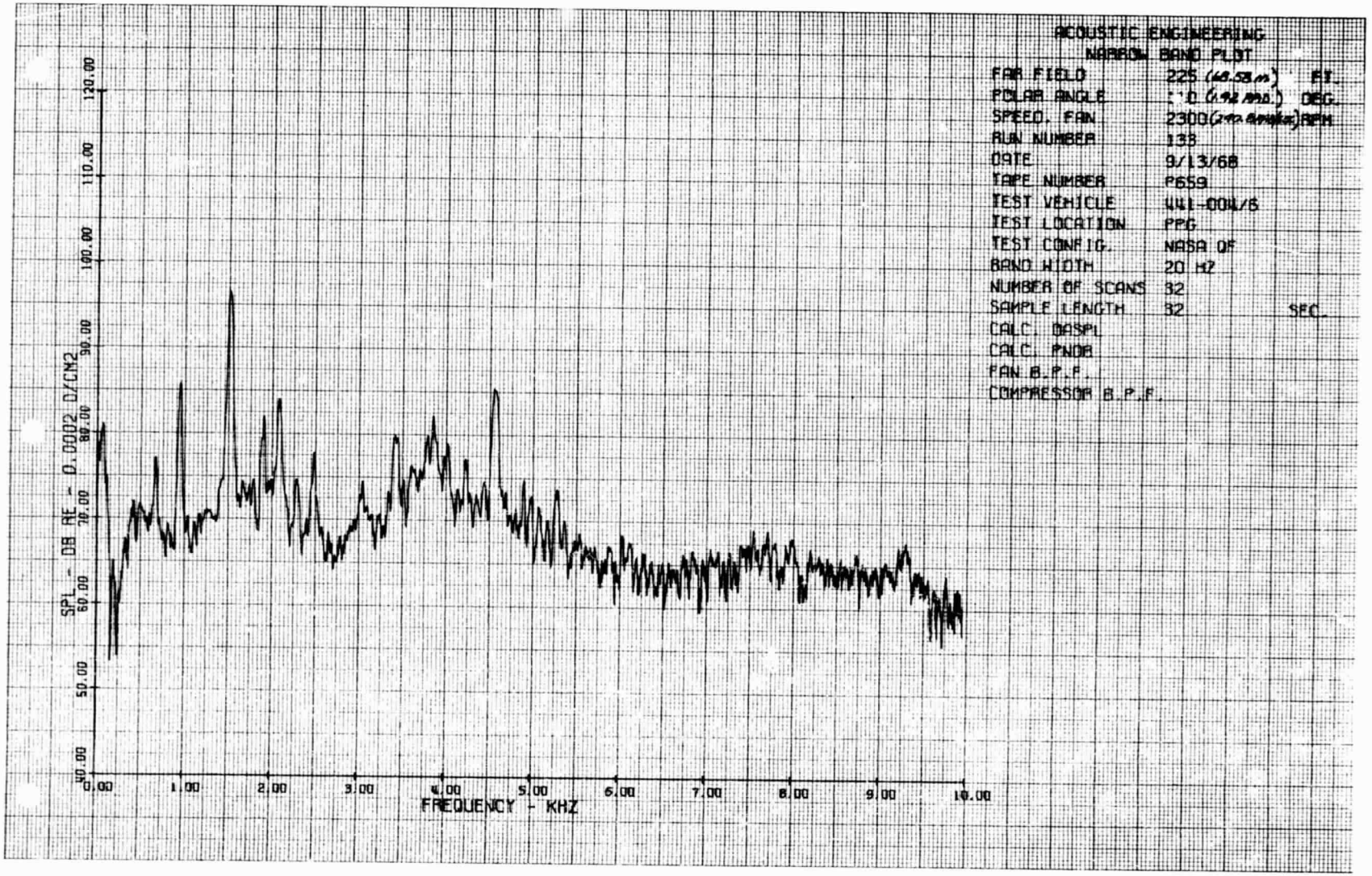

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 M.) FT.
POLAR ANGLE 60 (1.05 RAD) DEG.
SPEED, FAN 2300 (240 RAD/SEC) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE: 0.0002 DYNE/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
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6.00
7.00
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9.00
10.00
FREQUENCY - KHZ

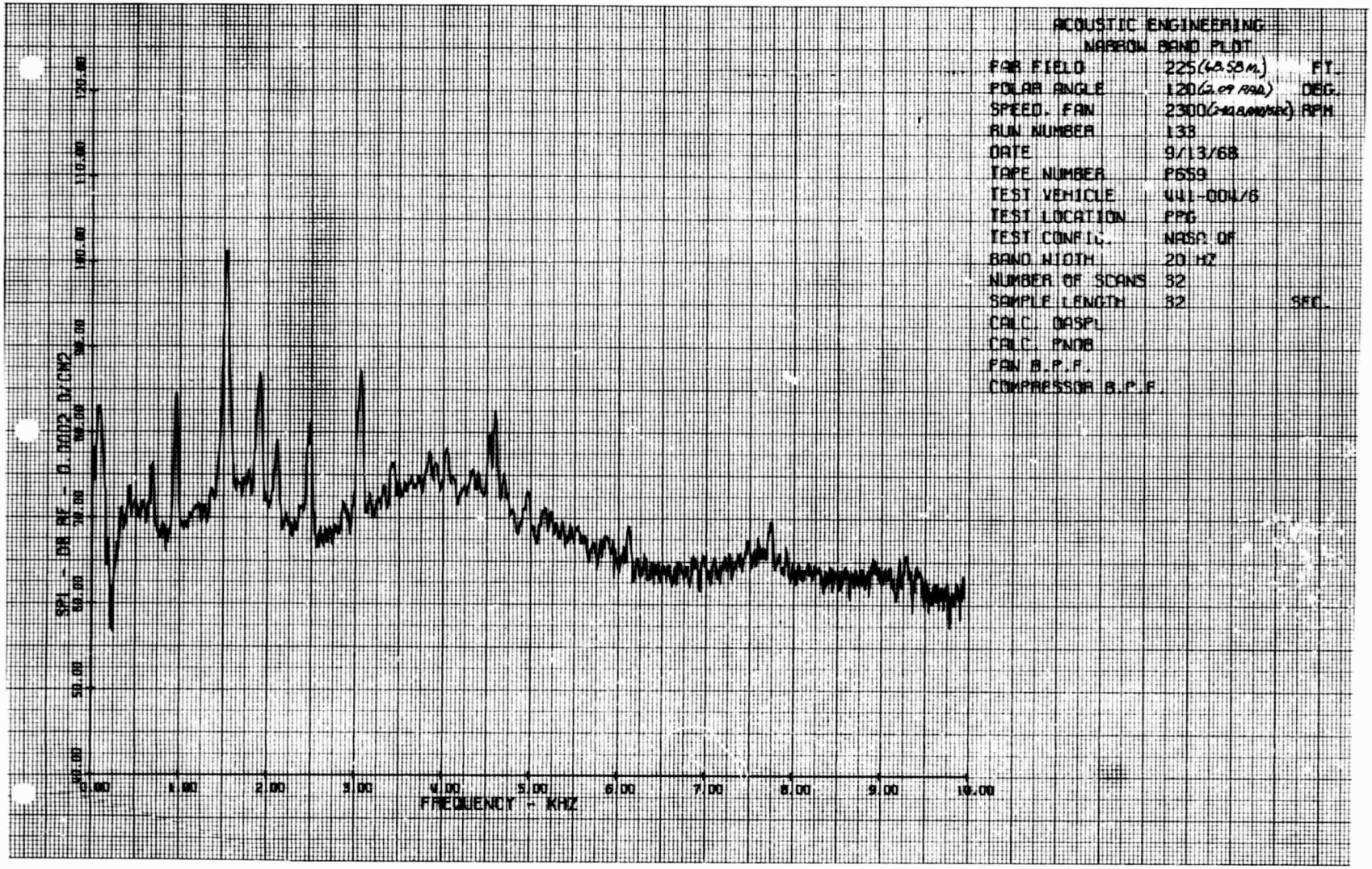
ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 m.) FT.
POLAR ANGLE 70 (122 rad.) DEG.
SPEED, FAN 23000 (241 radians) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE W/L-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 H2
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58m.) FT.
POLAR ANGLE 80 (1.40 Rad.) DEG.
SPEED, FAN 2300 (240.8 rad/sec) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER FS59
TEST VEHICLE WLT-ODL/6
TEST LOCATION PPG
TEST CONFIG. NOSE OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CAL. DISPL
CAL. AMB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
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9.00
10.00

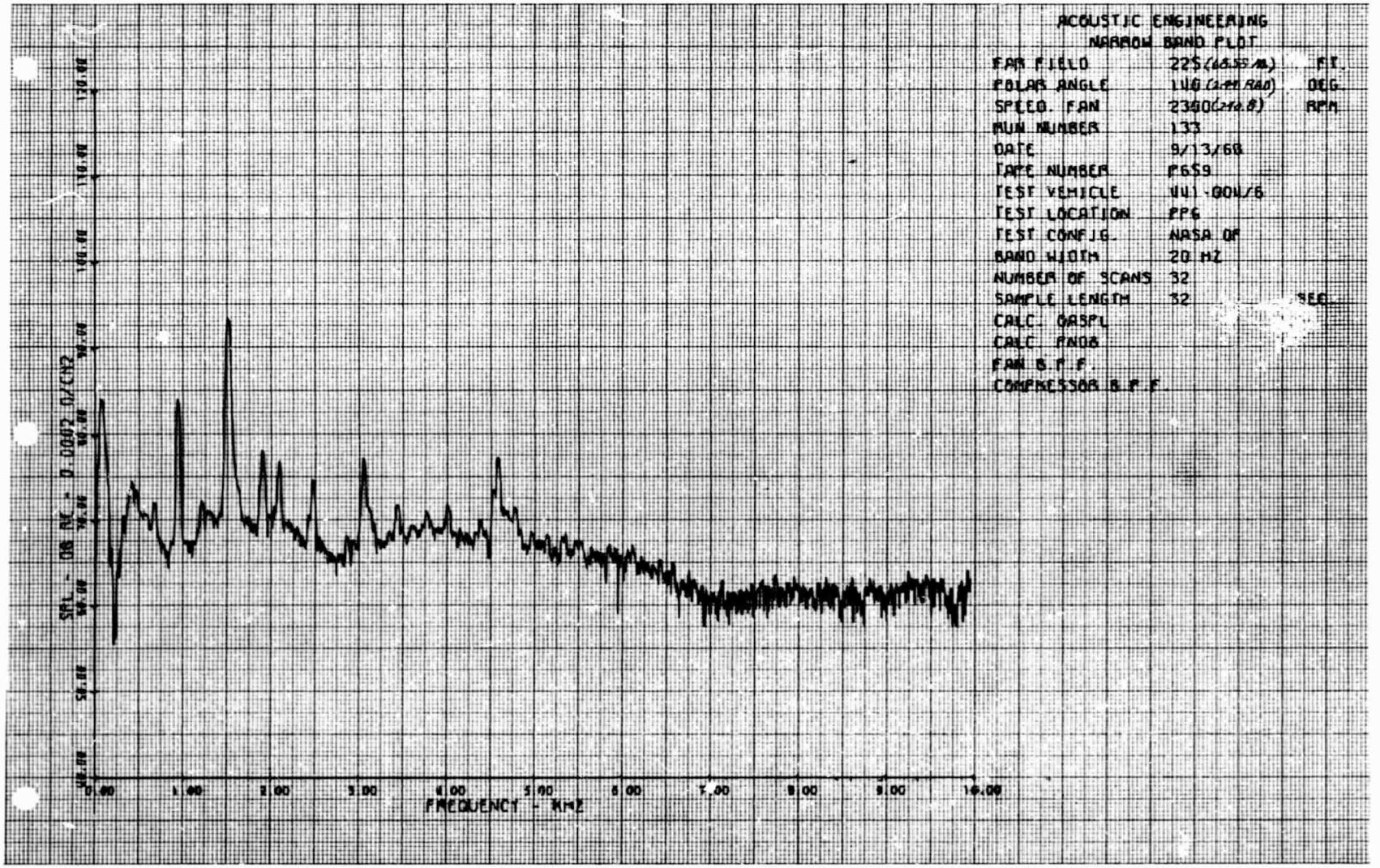
ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225(68.58M.) FT.
POLAR ANGLE 90. (1.57 RAD.) DEG.
SPEED. FAN 2300(240.0 RAD/SEC) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM²
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
0
1.00
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8.00
9.00
10.00
FREQUENCY - KHZ

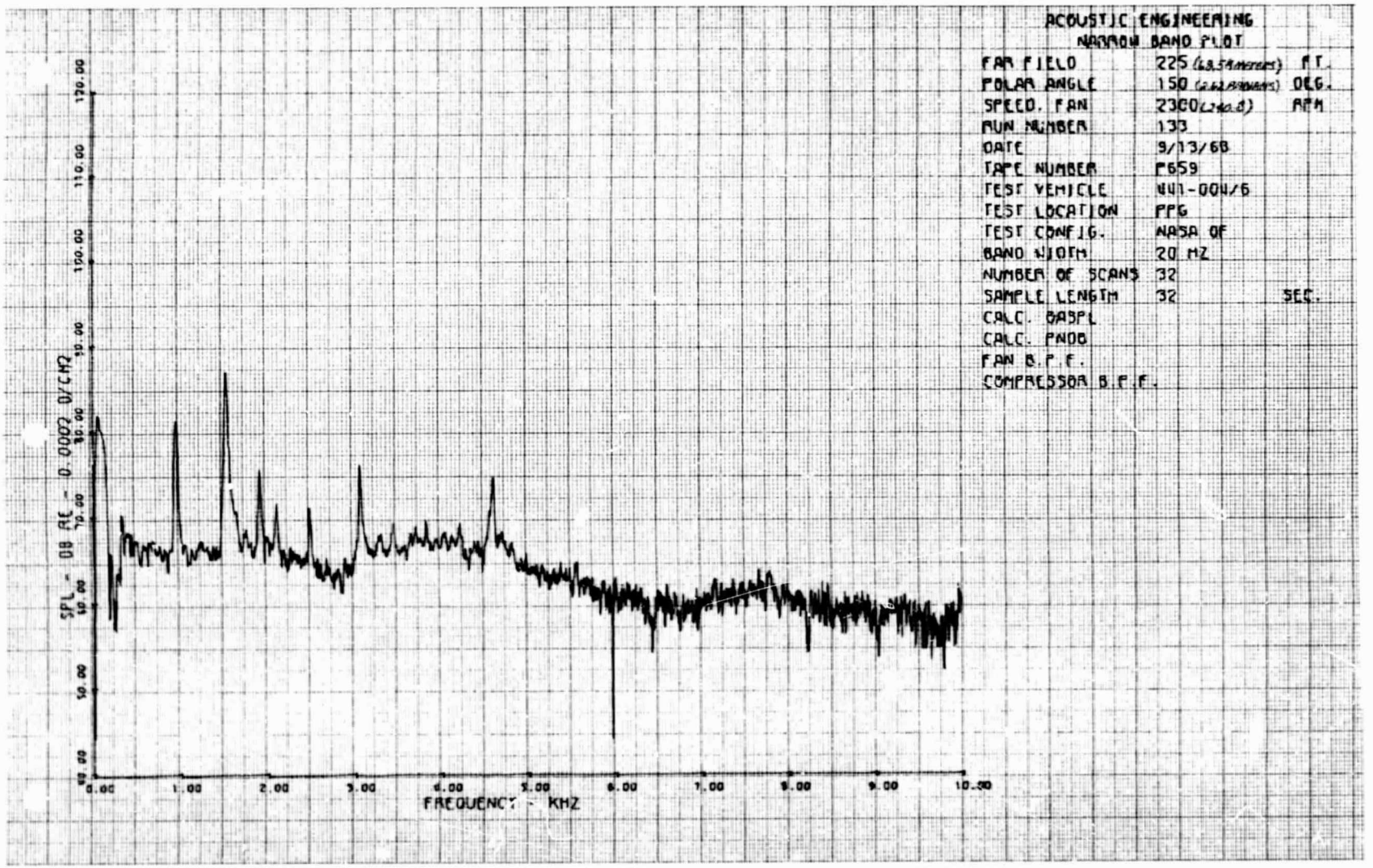

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 M.) FT.
POLAR ANGLE 100 (1.75 RAD) DEG.
SPEED, FAN 2300 (240.8 RAD/SEC) RPM
RUN NUMBER 138
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE WH-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. FNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
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9.00
10.00
FREQUENCY - KHZ

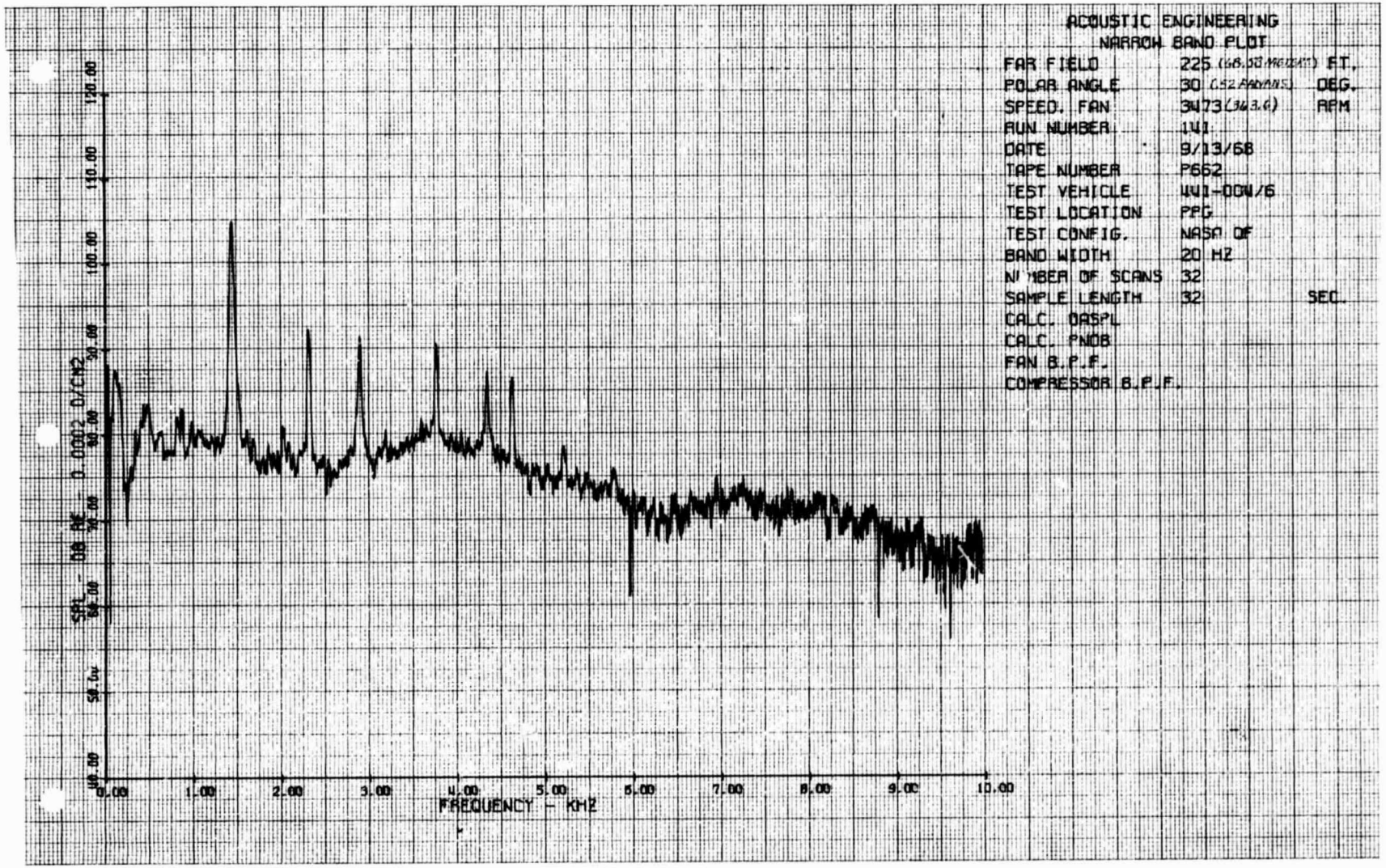

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 m) FT.
POLAR ANGLE 90 (1.92 rad.) DEG.
SPEED, FAN 2300 (241 rad/s) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
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FREQUENCY - KHZ

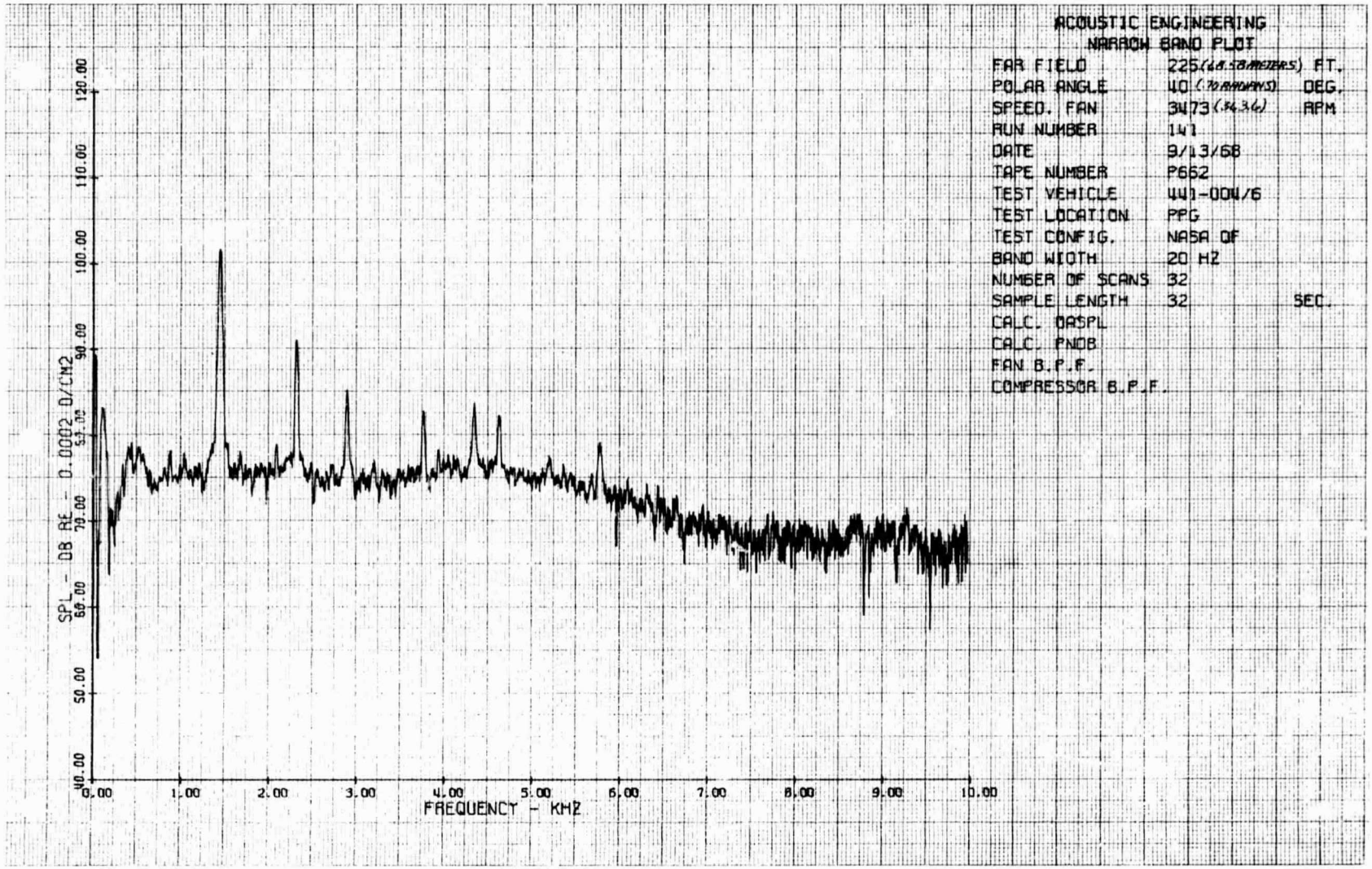

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225(68.58 M.) FT.
POLAR ANGLE 120(2.09 RAD) DEG.
SPEED, FAN 2300(GEARBOX) RPM
RUN NUMBER 138
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00

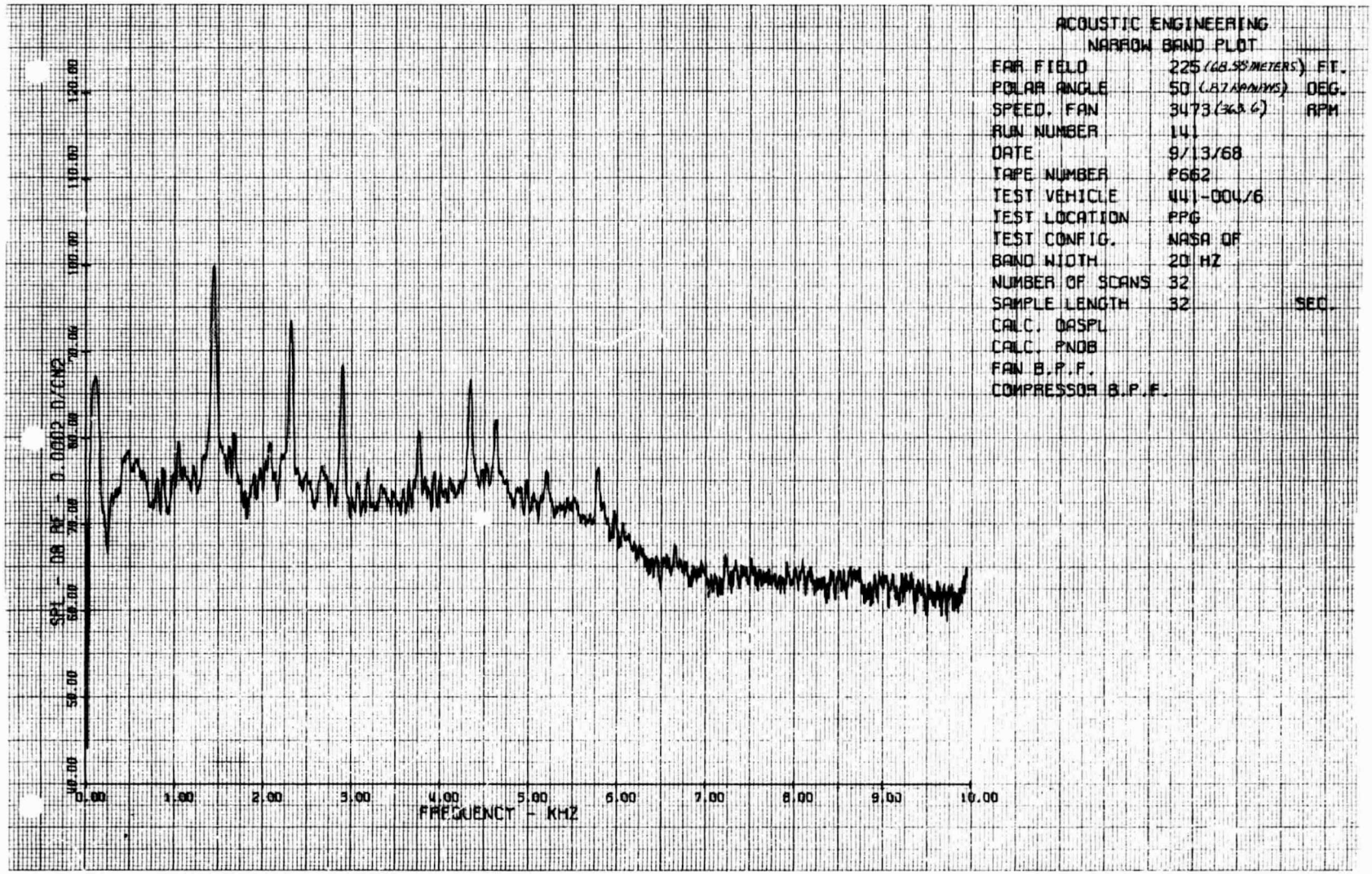
ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 m) FT.
POLAR ANGLE 130 (2.27 Rad) DEG.
SPEED- FAN 2300 (240.8 Rad/Sec) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE W1-004/6
TEST LOCATION PPG
TEST CONFIG. NASA DF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
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50.00
40.00
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9.00
10.00
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 M.) FT.
POLAR ANGLE 110 (1.92 RAD) DEG.
SPEED. FAN 2360 (246.8) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE UU1-GOU/6
TEST LOCATION PP6
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN S.F.F.
COMPRESSOR S.F.F.
SPL - DB RE 0.0002 D/CM2
FREQUENCY - KHZ
0.00
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9.00
10.00


ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (63.5 meters) FT.
POLAR ANGLE 150 (Grid Degrees) DEG.
SPEED, FAN 2300 (Load) RPM
RUN NUMBER 133
DATE 9/13/68
TAPE NUMBER F659
TEST VEHICLE NWT-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. BASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 DYNES/CM2
FREQUENCY - KHZ
0.00
1.00
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4.00
5.00
6.00
7.00
8.00
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10.00

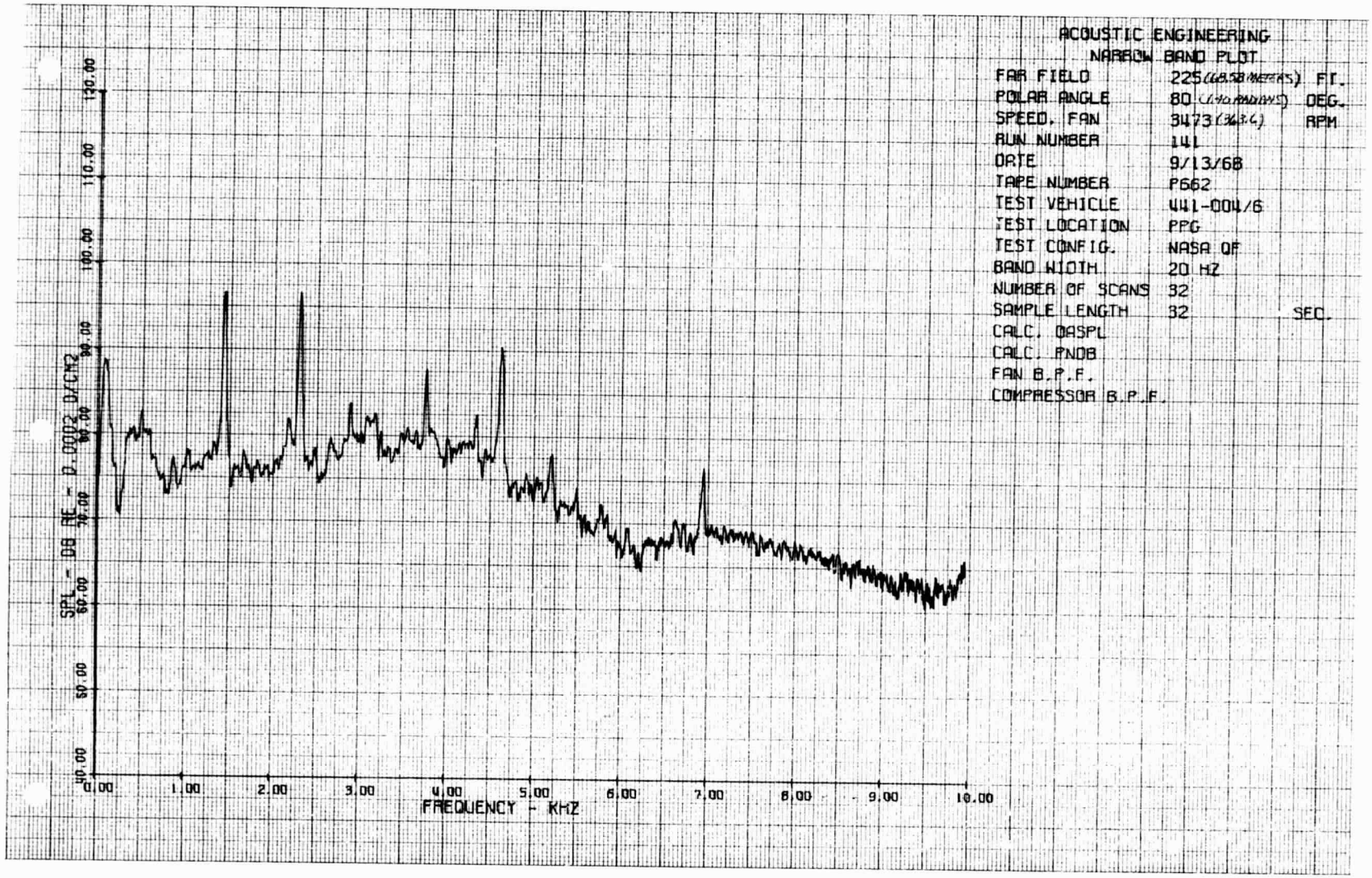

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 METERS) FT.
POLAR ANGLE 30 (.52 RADIANS) DEG.
SPEED, FAN 3473 (363.6) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
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5.00
6.00
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8.00
9.00
10.00
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 METERS) FT.
POLAR ANGLE 40 (70 RADIANS) DEG.
SPEED, FAN 3473 (54.36) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
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9.00
10.00
FREQUENCY - KHZ

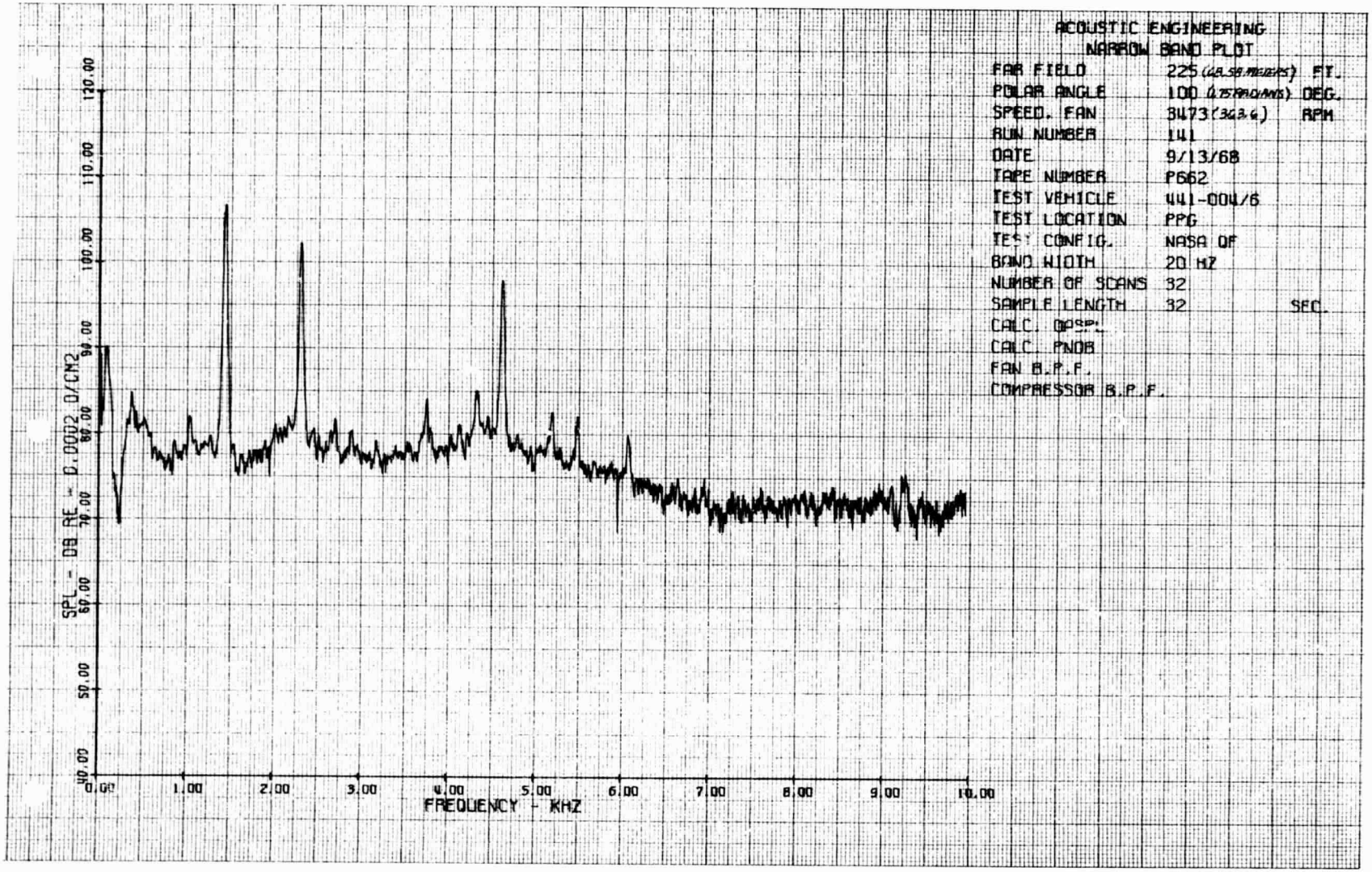

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 METERS) FT.
POLAR ANGLE 50 (0.87 RADIANS) DEG.
SPEED, FAN 3473 (363.6) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE: 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
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FREQUENCY - KHZ

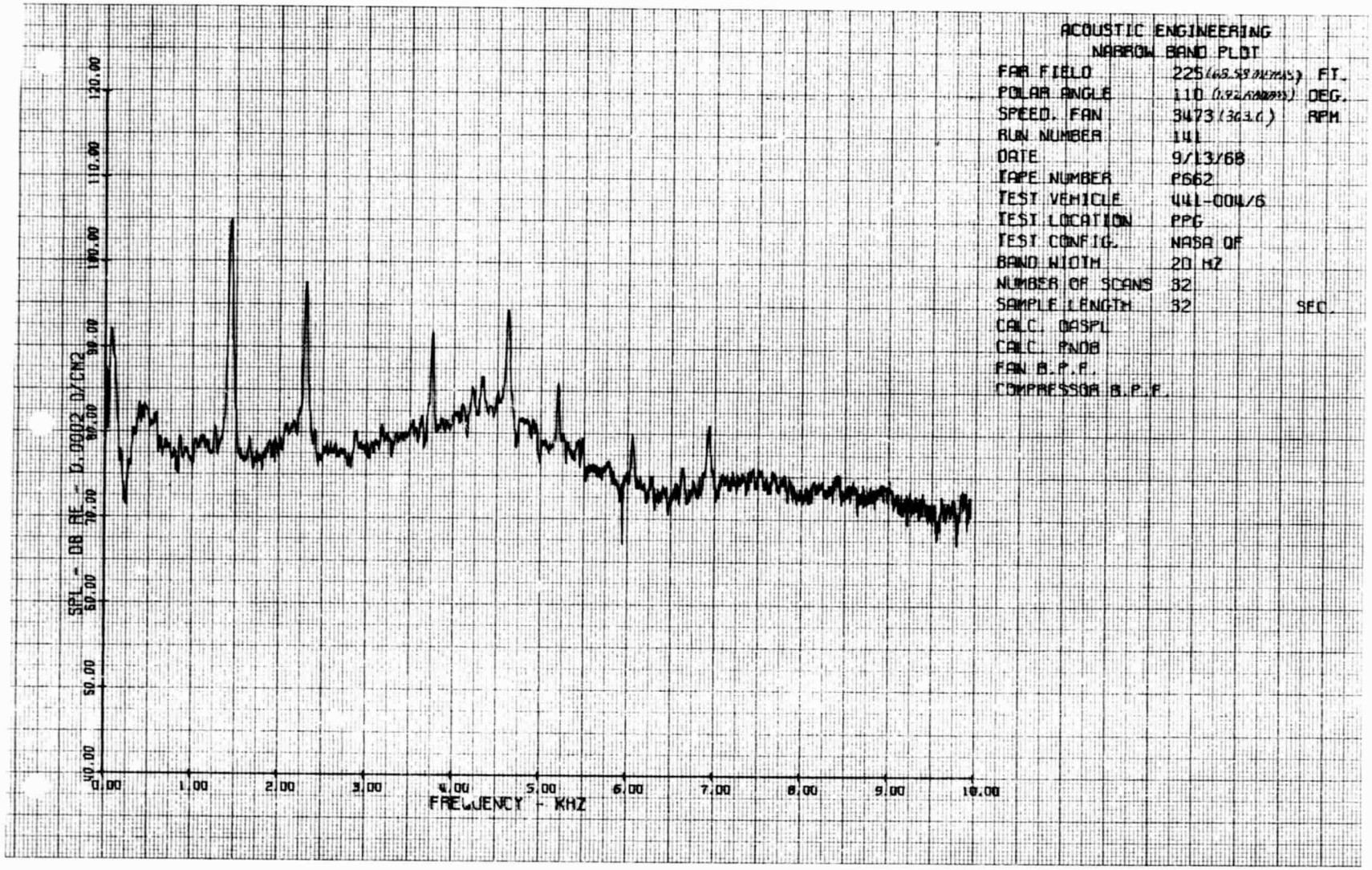
ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (685.8 METERS) FT.
POLAR ANGLE 60 (1.05 RADIANS) DEG.
SPEED, FAN 3473 (3434.) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE XV-5A-DDL/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

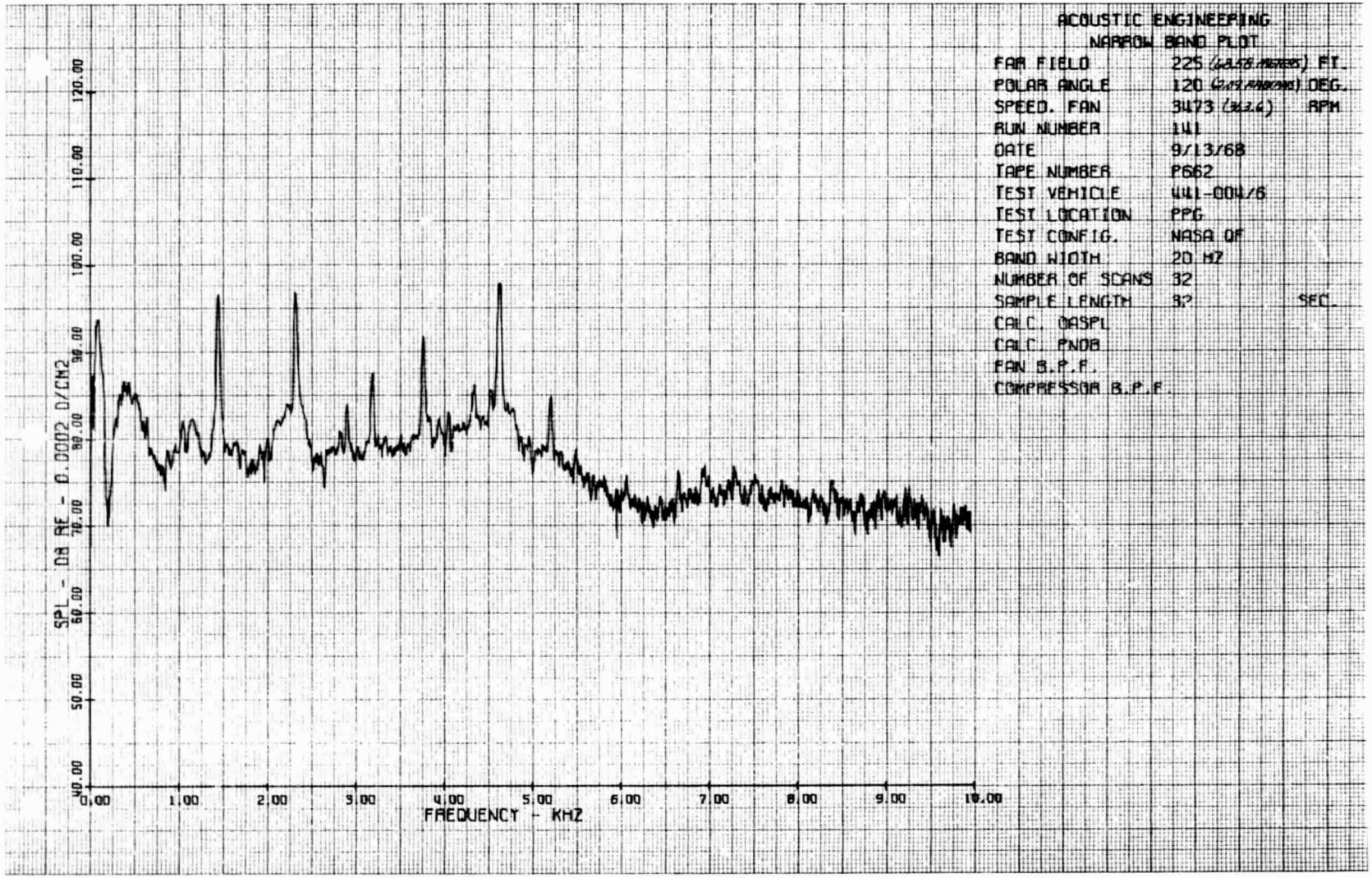
ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 FT.
POLAR ANGLE 70 DEG.
SPEED. FAN 3473 RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
130.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
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DB
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FREQUENCY - KHZ

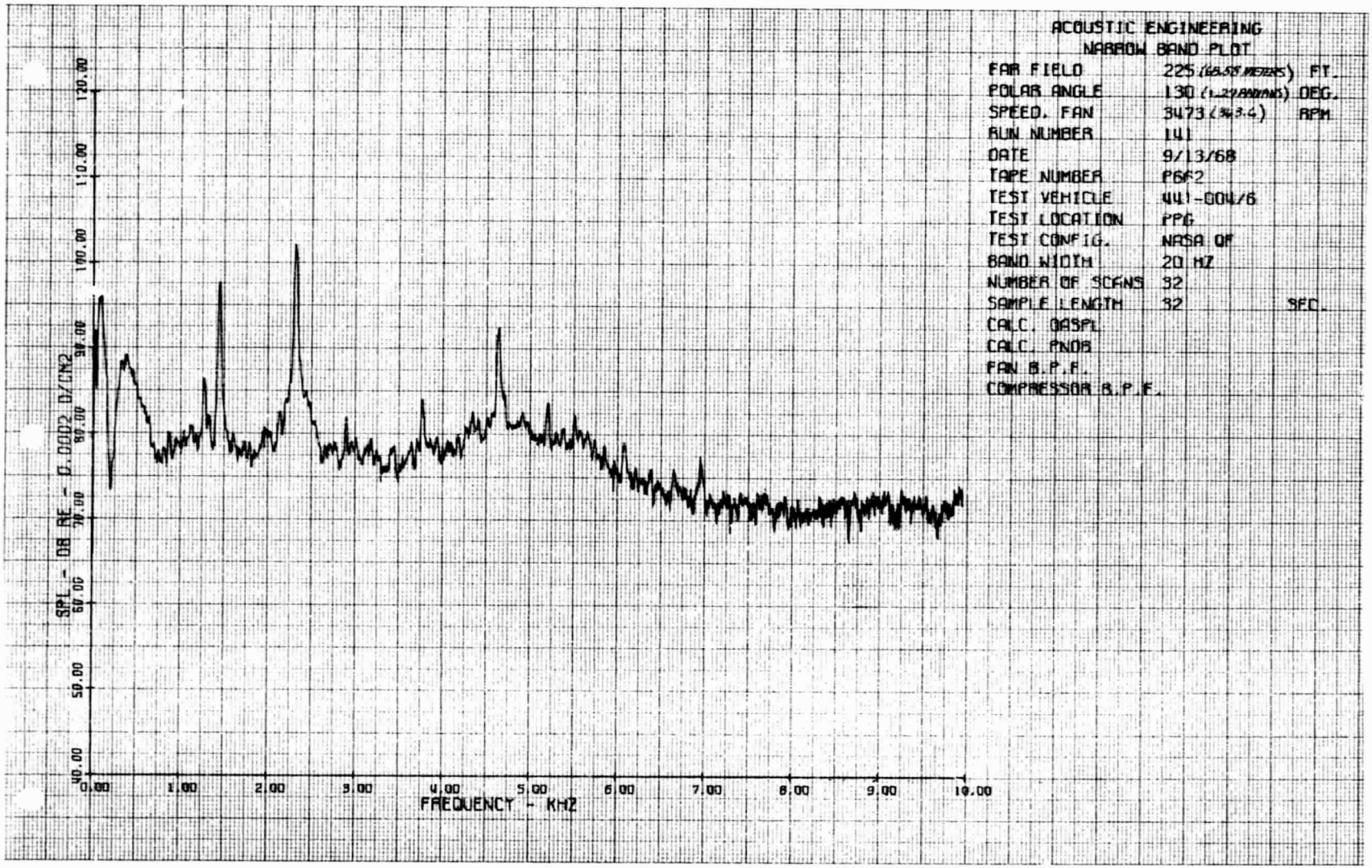

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 METERS) FT.
POLAR ANGLE 80 (1.40 RADIANS) DEG.
SPEED, FAN 3473 (34.4) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE W41-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
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FREQUENCY - KHZ

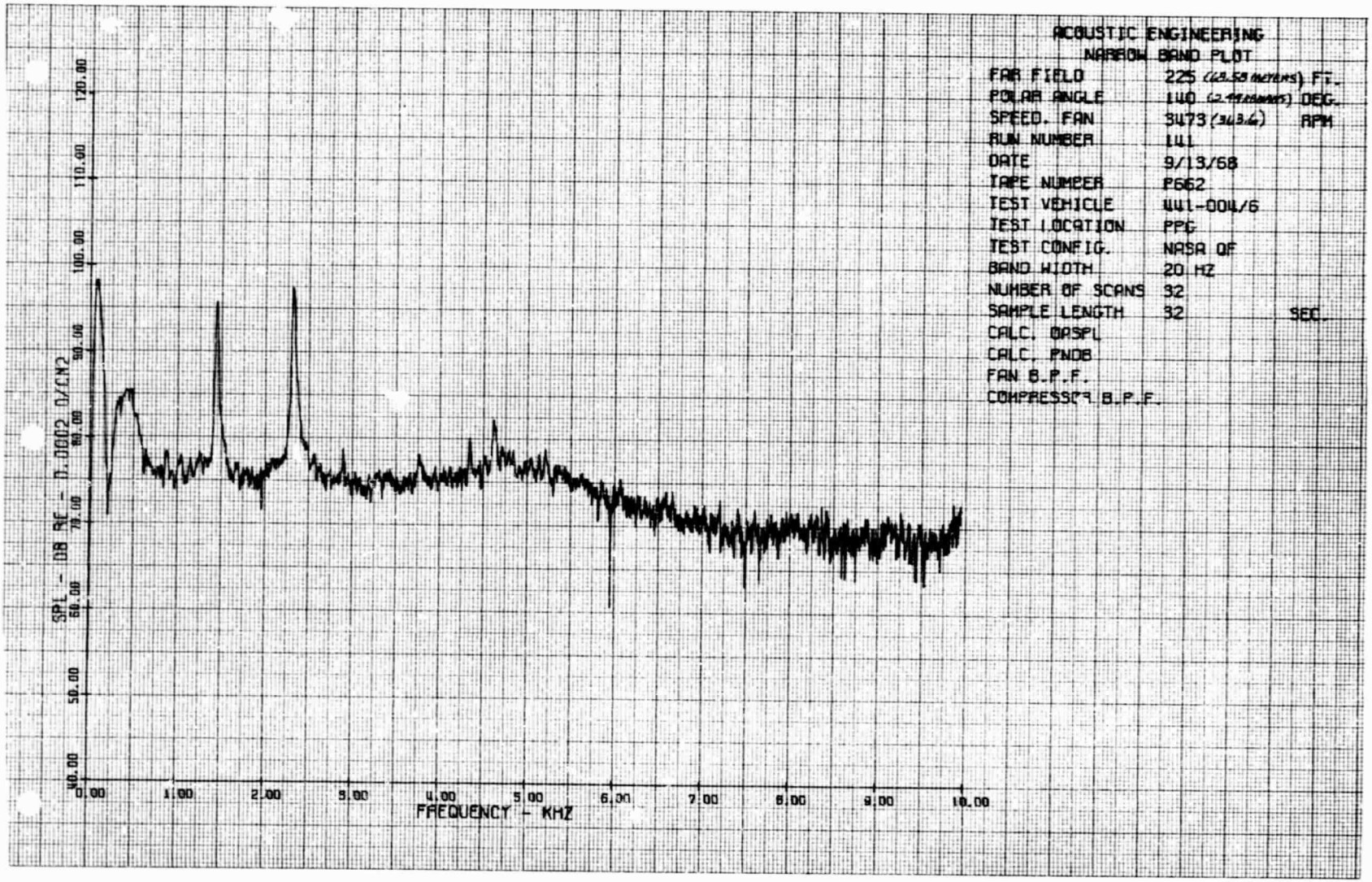
ACOUSTIC ENGINEERING
NARROW
BAND PLOT
FAR FIELD
POLAR ANGLE
SPEED, FAN
RUN NUMBER
DATE
FORE NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CAL. DISPL
CAL. PUNB
FAN B.P.F.
COMPRESSOR B.P.F.
20 HZ
32
32
SEC.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

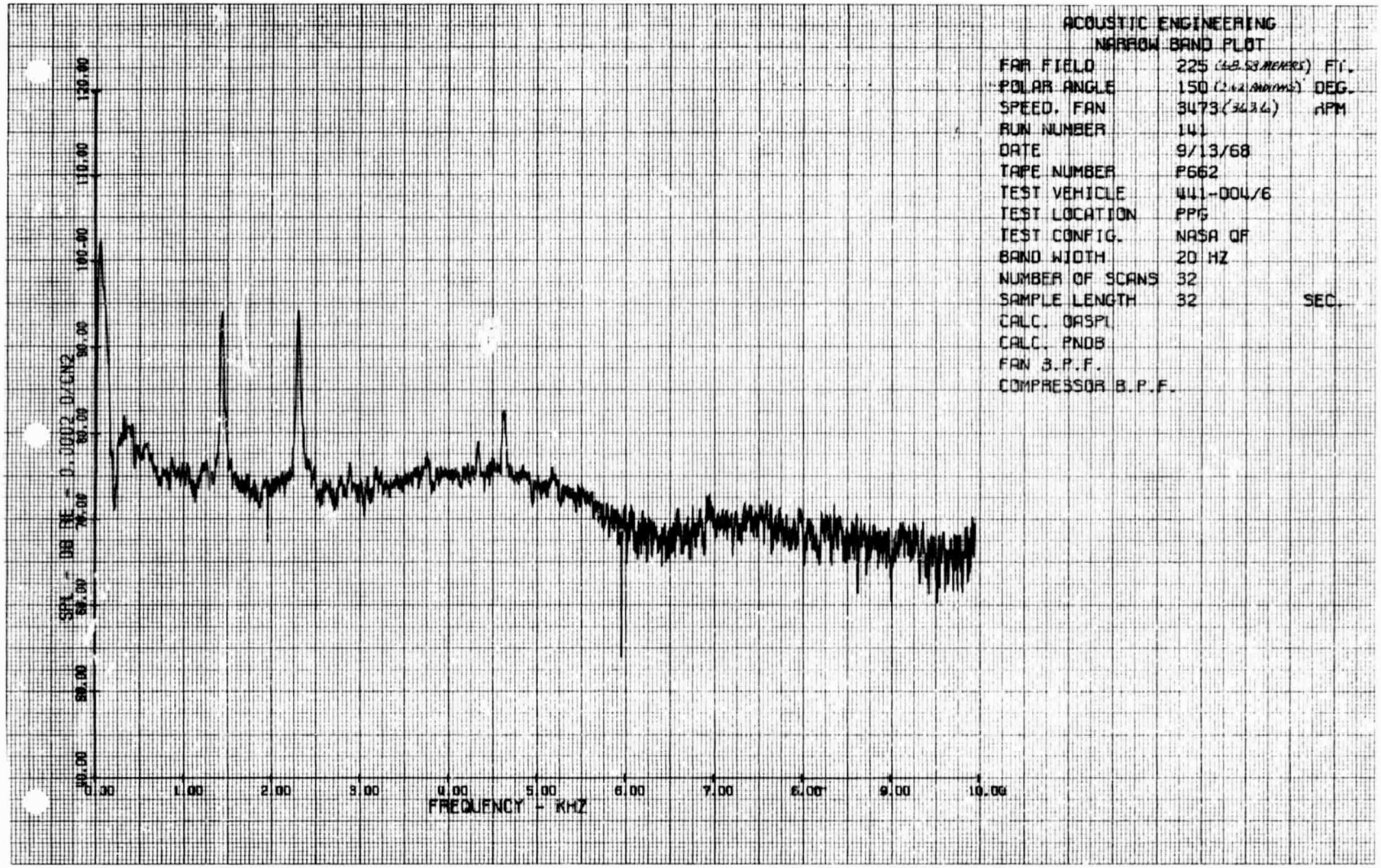

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 METERS) FT.
POLAR ANGLE 100 (1.75 RADIANS) DEG.
SPEED, FAN 3473 (363.6) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OPSP.
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE = 0.0002 D/CM2
120.00
110.00
100.00
90.00
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70.00
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50.00
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10.00
FREQUENCY - KHZ

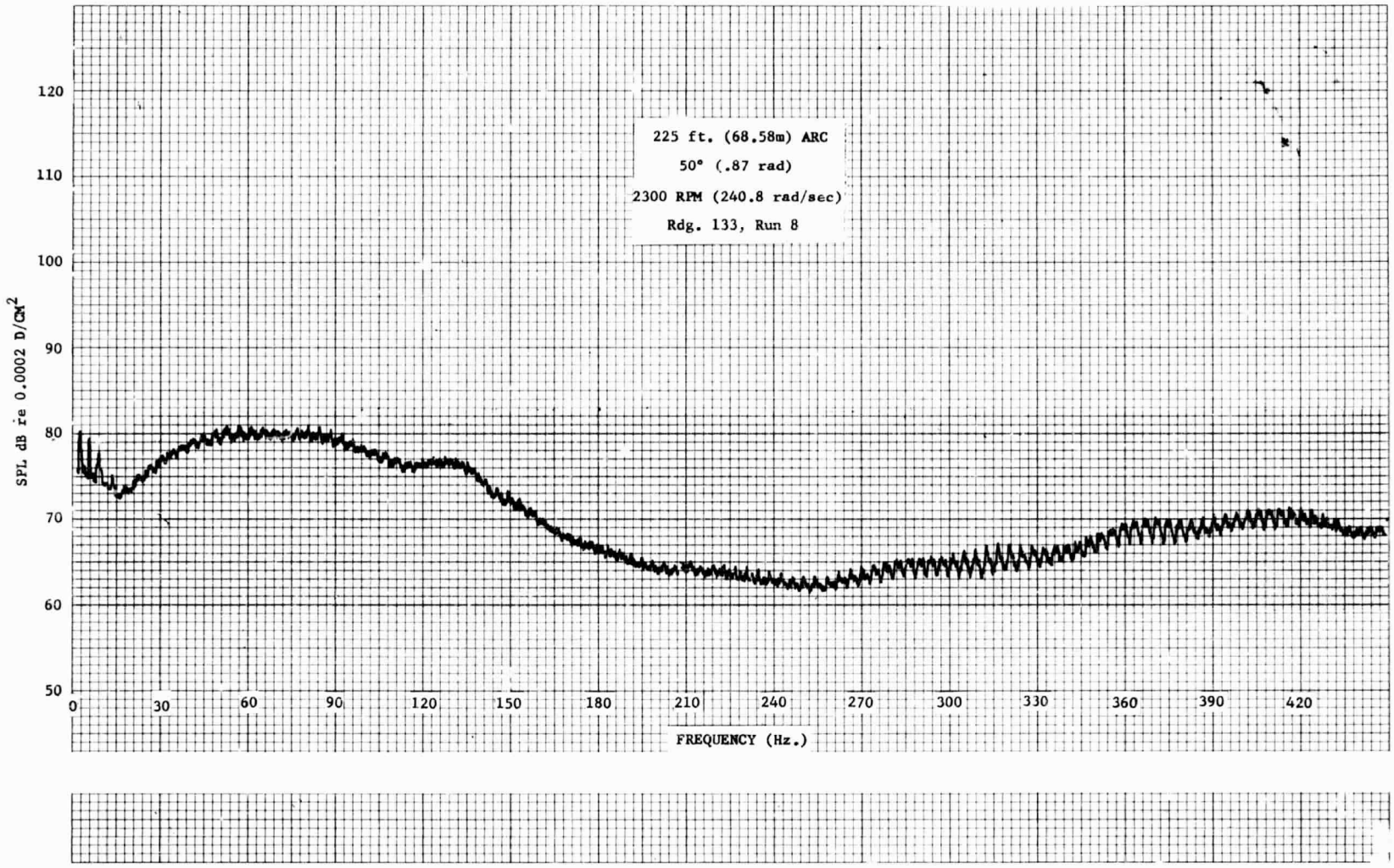

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 METERS) FT.
POLAR ANGLE 110 (1.92 RADIANS) DEG.
SPEED, FAN 3473 (363.6) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
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FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (xxxx meters) FT.
POLAR ANGLE 120 (xxxxxxxx) DEG.
SPEED. FAN 3473 (xxxx) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 3? SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

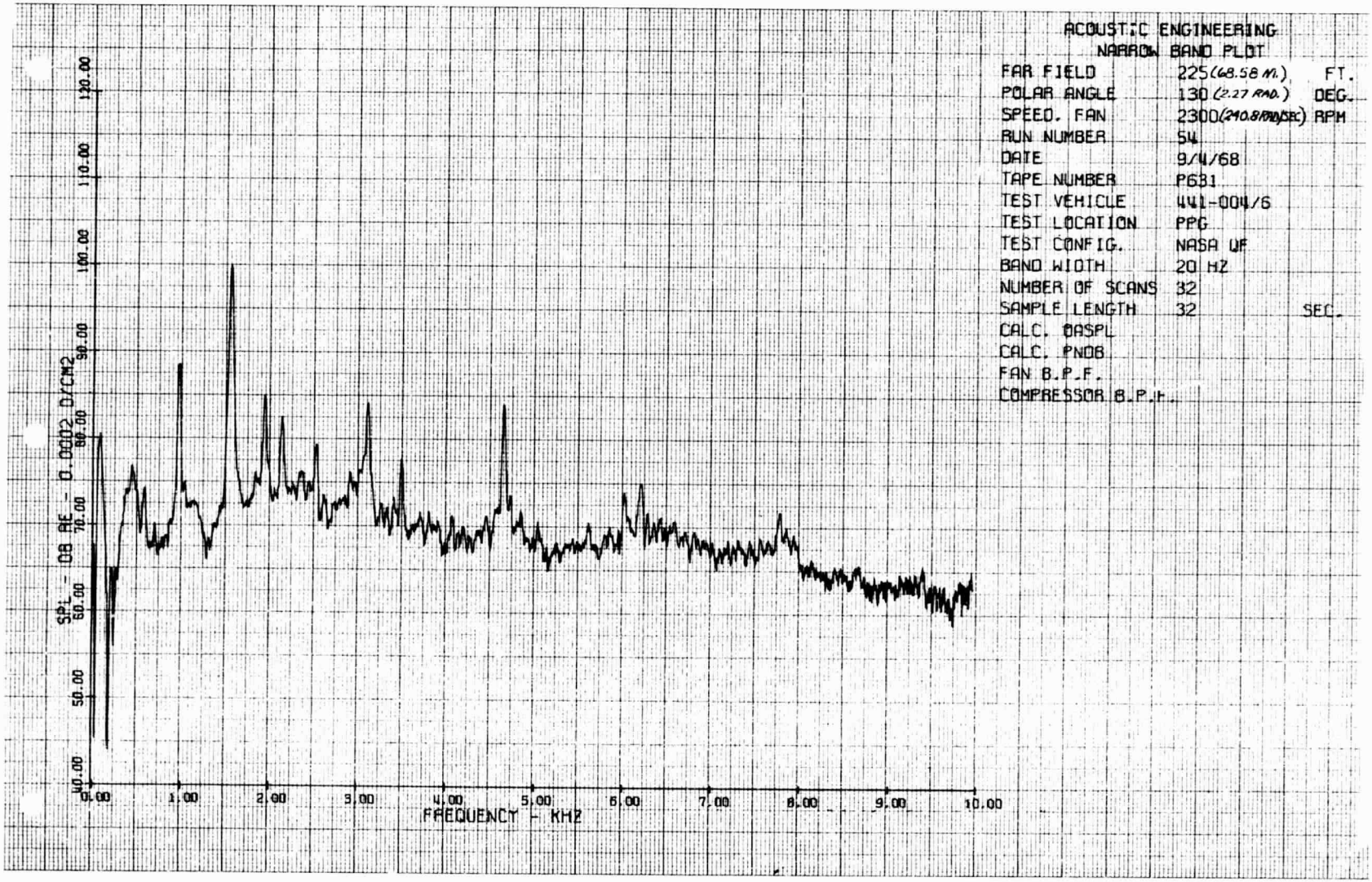

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 METERS) FT.
POLAR ANGLE 130 (1.27 RADIANS) DEG.
SPEED, FAN 3473 (363.4) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P6F2
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 meters) FT.
POLAR ANGLE 140 (2.44 radians) DEG.
SPEED. FAN 3473 (3434) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

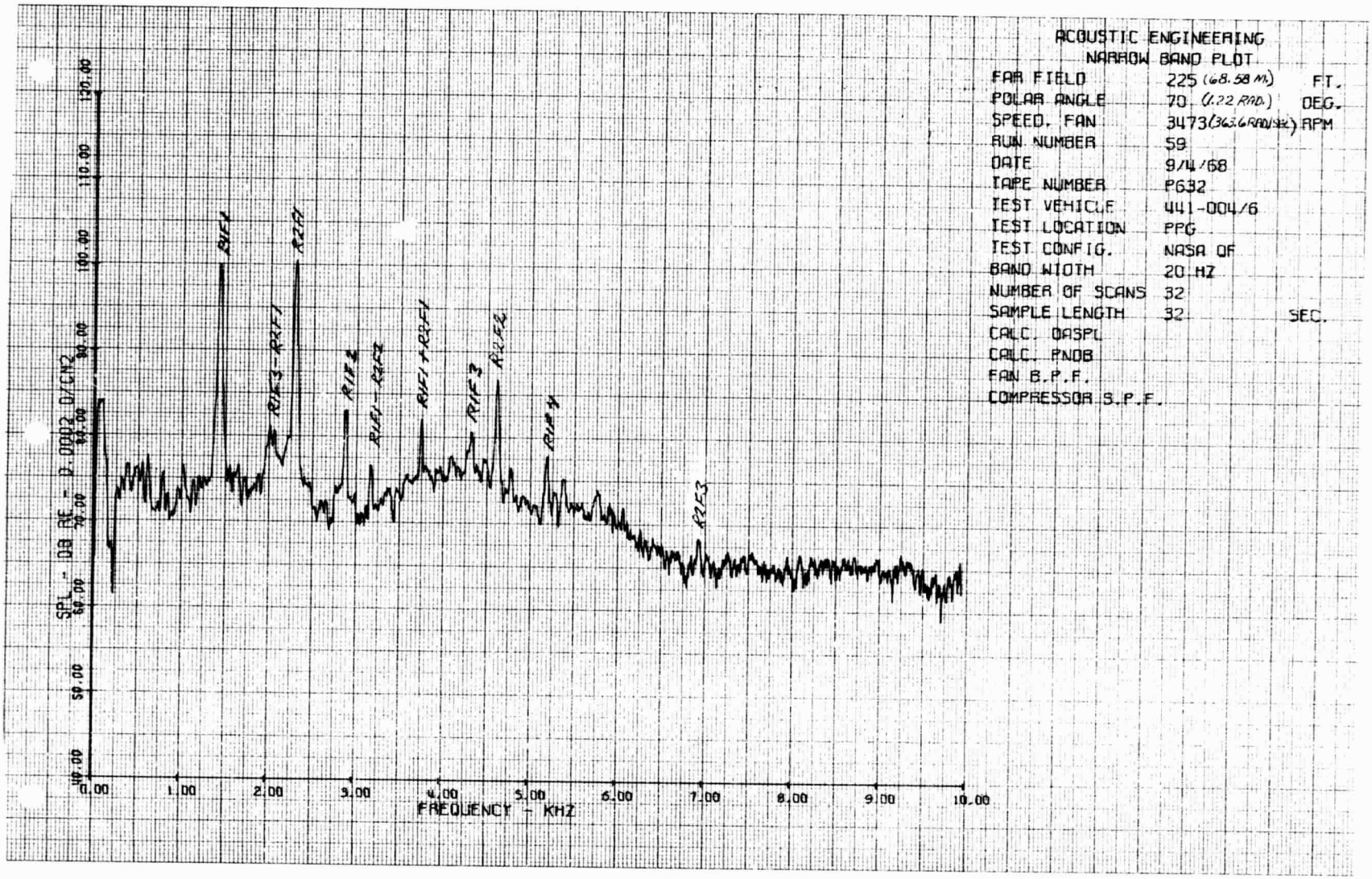

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 METERS) FT.
POLAR ANGLE 150 (DEGREES) DEG.
SPEED, FAN 3473 (3434) RPM
RUN NUMBER 141
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE .0002 DYNES/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ


225 ft. (68.58m) ARC
50° (.87 rad)
2300 RPM (240.8 rad/sec)
Rdg. 133, Run 8
SPL dB re 0.0002 D/CM²
120
110
100
90
80
70
60
50
0
30
60
90
120
150
180
210
240
270
300
330
360
390
420
FREQUENCY (Hz.)

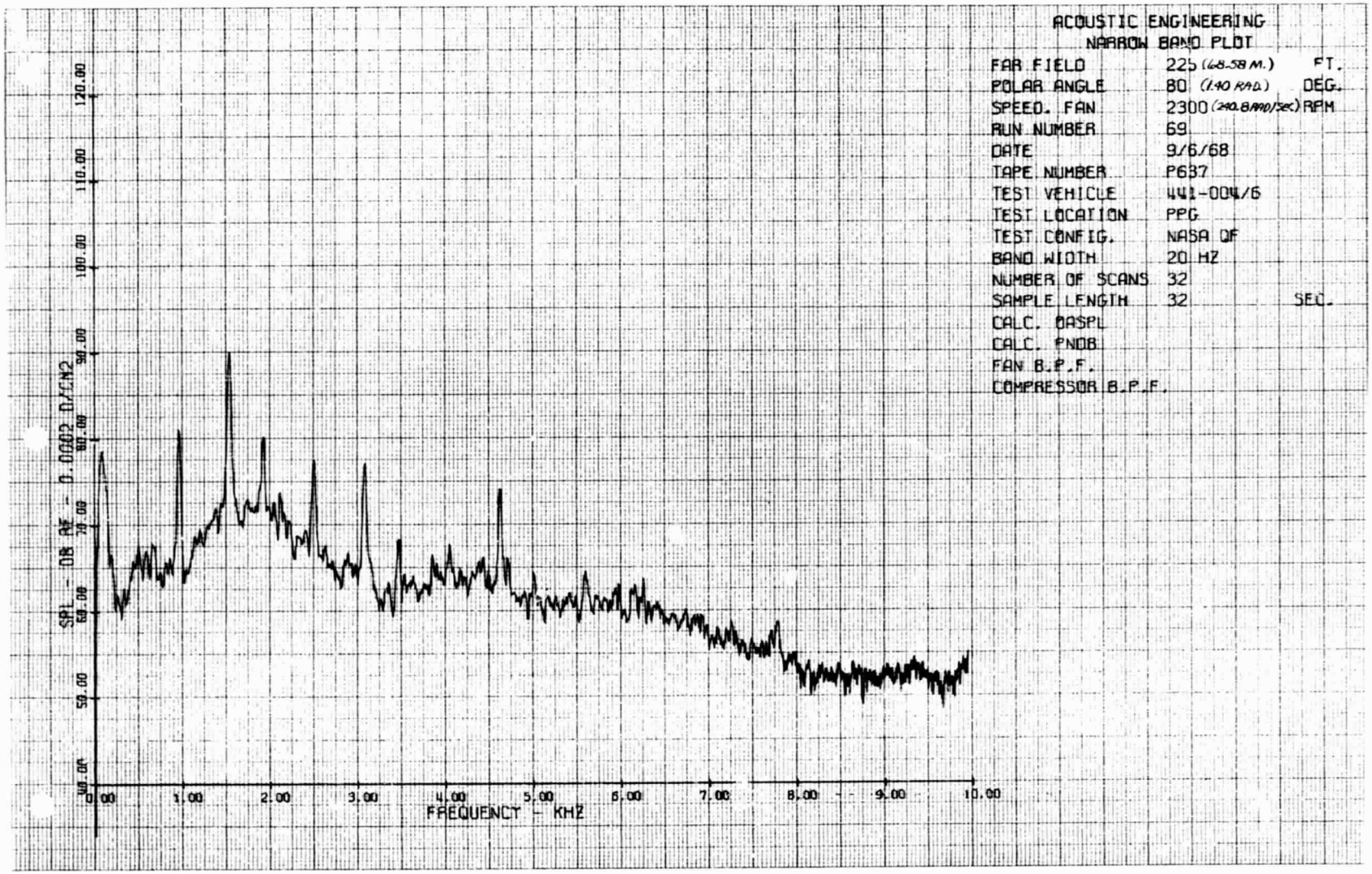
ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 FT.
POLAR ANGLE 80 DEG.
SPEED, FAN 2300
RUN NUMBER 54
DATE 9/4/68
TAPE NUMBER P631
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

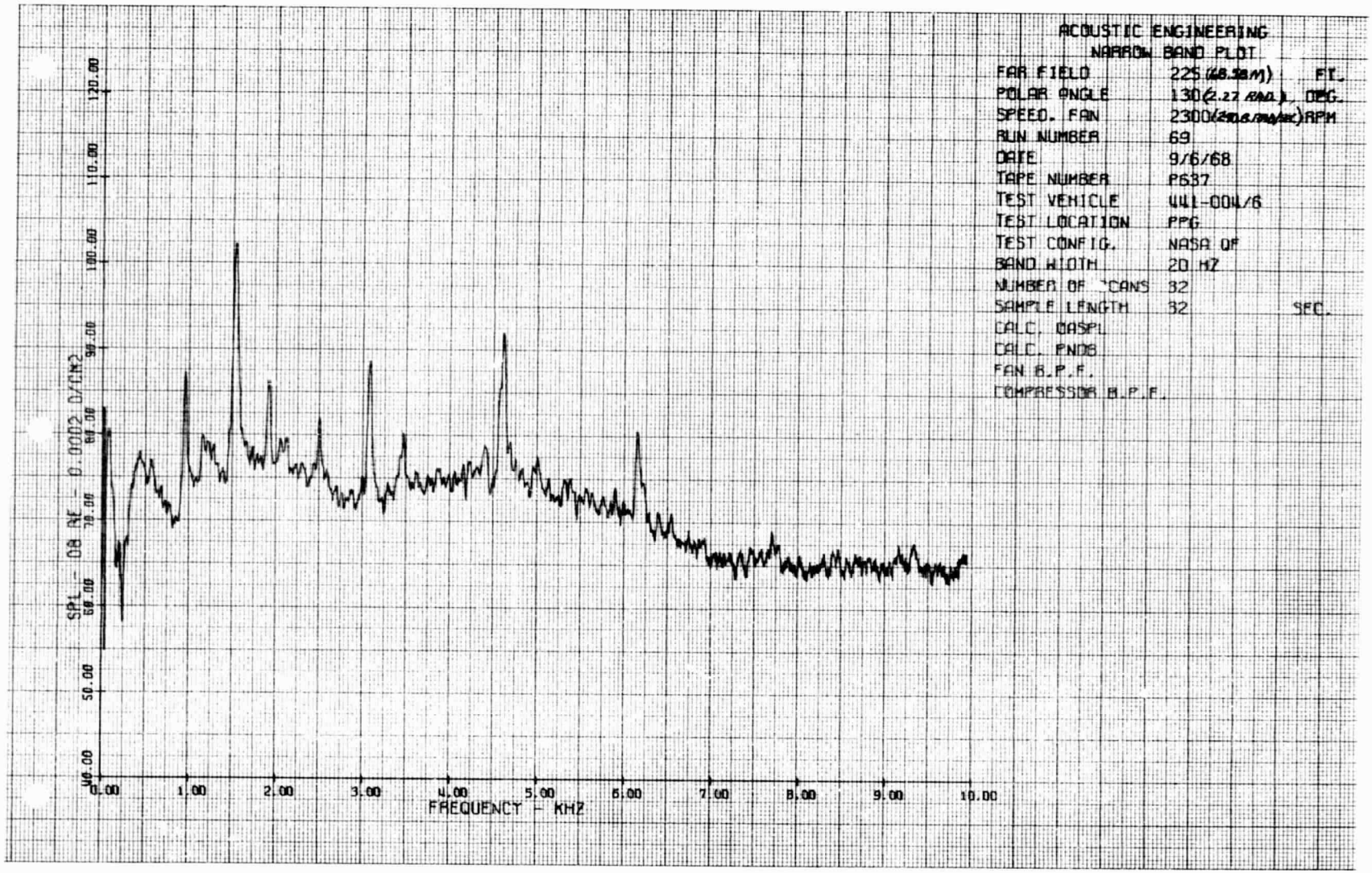

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225(68.58 M.) FT.
POLAR ANGLE 130 (2.27 RAD.) DEG.
SPEED. FAN 2300(240.8 RAD/SEC) RPM
RUN NUMBER 54
DATE 9/4/68
TAPE NUMBER P631
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA UF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

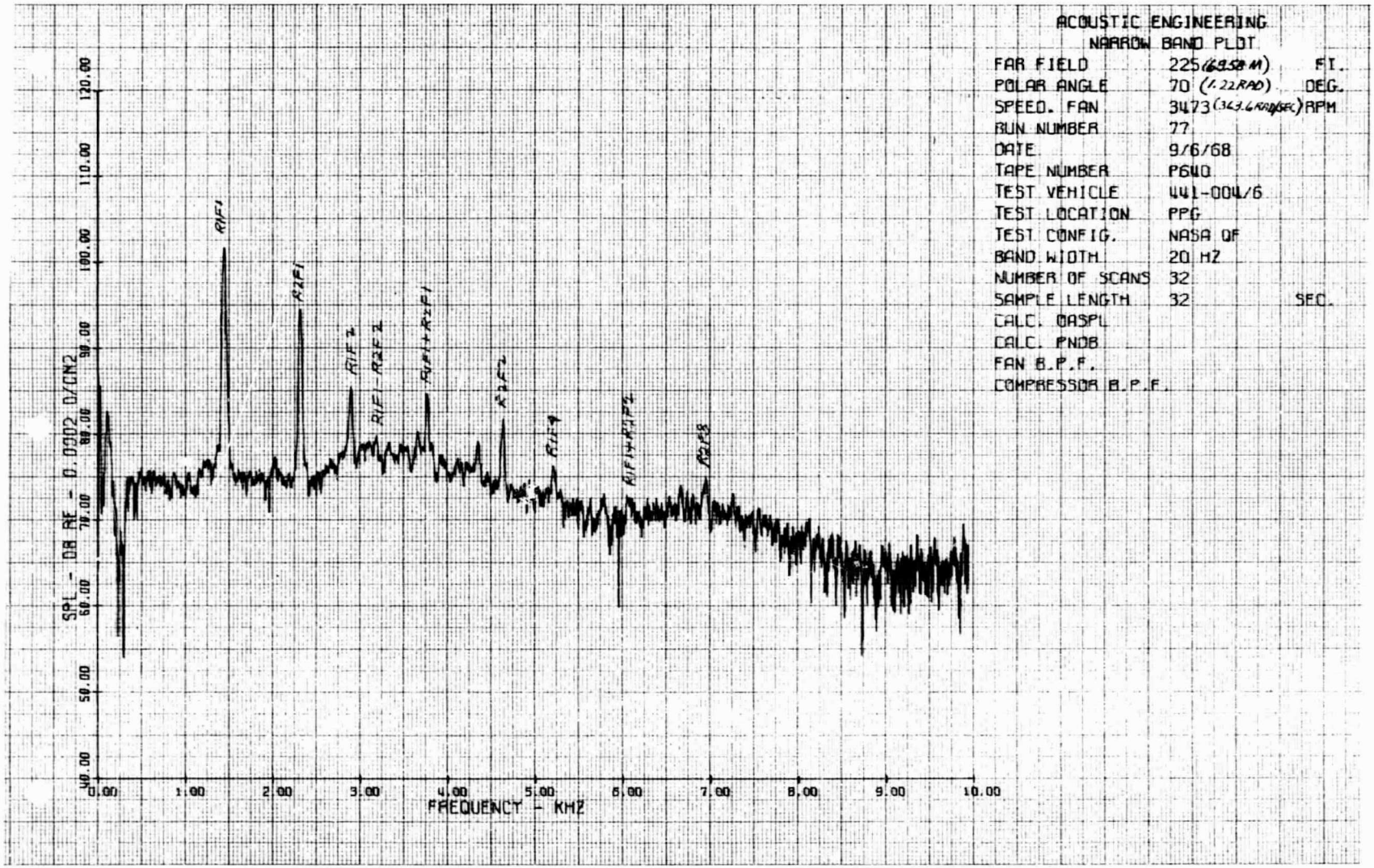
ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225(6.68 m) FT
POLAR ANGLE 60(1.05 rad) DEG
SPEED, FAN 2300(240.9 rad/sec) RPM
RUN NUMBER 54
DATE 9/11/68
TAPE NUMBER FG31
TEST VEHICLE 941-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
RIF1
R2F1
RIF2
RIF1-R2F2
RIF1+R2F1
R1F3
R2F2
R1F2+R1F1
R1F4
R1F1+R2F2
R1F3+R2F1
R2F3
R1F5
R1F2+R2F2
R1F6
R1F7


ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 M.) FT.
POLAR ANGLE 70 (1.22 RAD.) DEG.
SPEED, FAN 3473 (363.6 RAD/SEC) RPM
RUN NUMBER 59
DATE 9/4/68
TAPE NUMBER P632
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR S.P.F.
SPL - DB RE - P. 0002 D/CM2
FREQUENCY - KHZ
RIF1
RIF3-RAF1
RAF1
RIF2
RAF1-RIF2
RAF1+RBF1
RIF3
RBF2
RBF3
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00

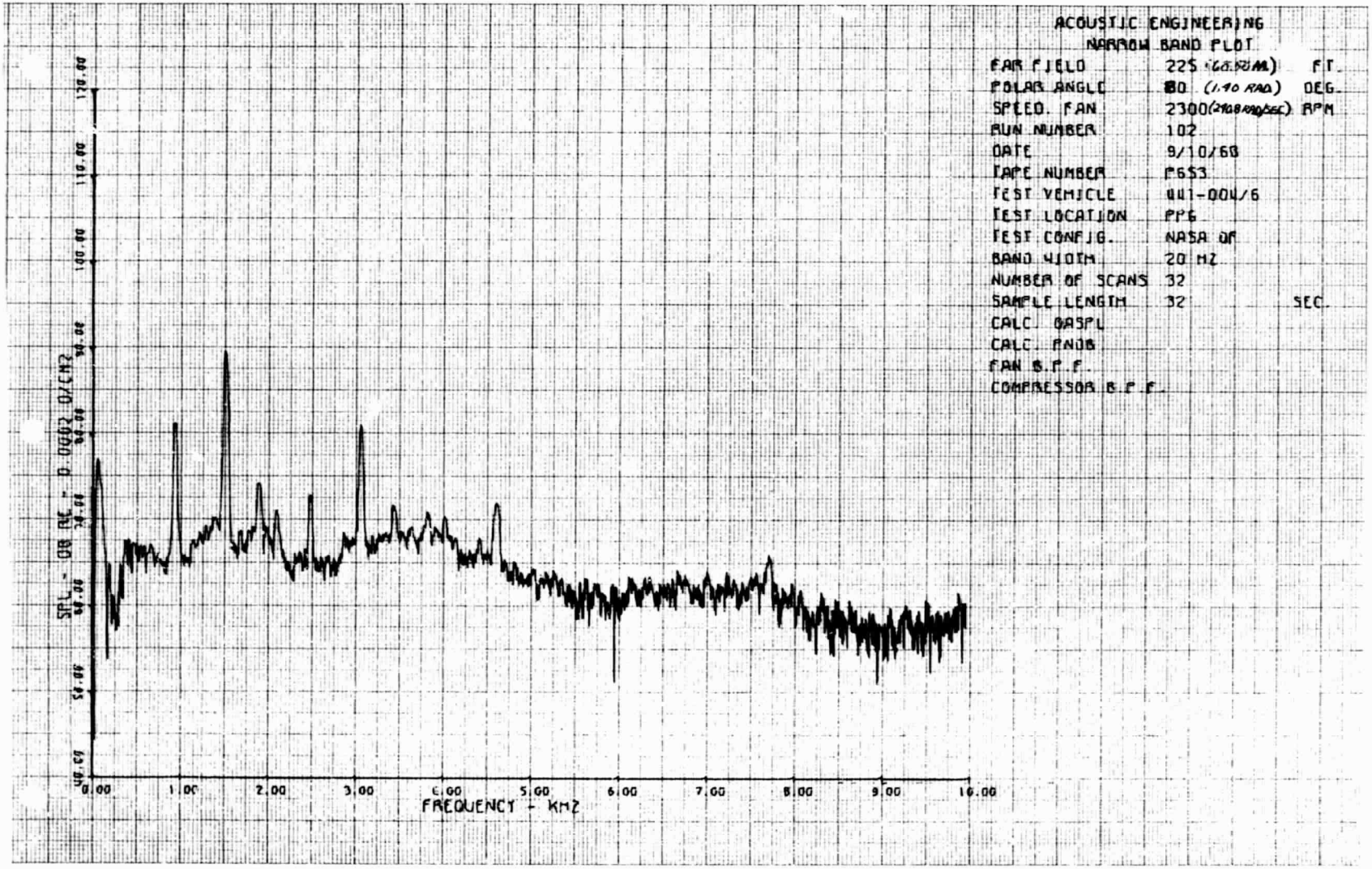
ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 M.) FT.
POLAR ANGLE 110 (1.92 RAD.) DEG.
SPEED, FAN 3473 (34.5 RAD/SEC) RPM
RUN NUMBER 59
DATE 9/4/68
TAPE NUMBER PG82
TEST VEHICLE 441-0014/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00

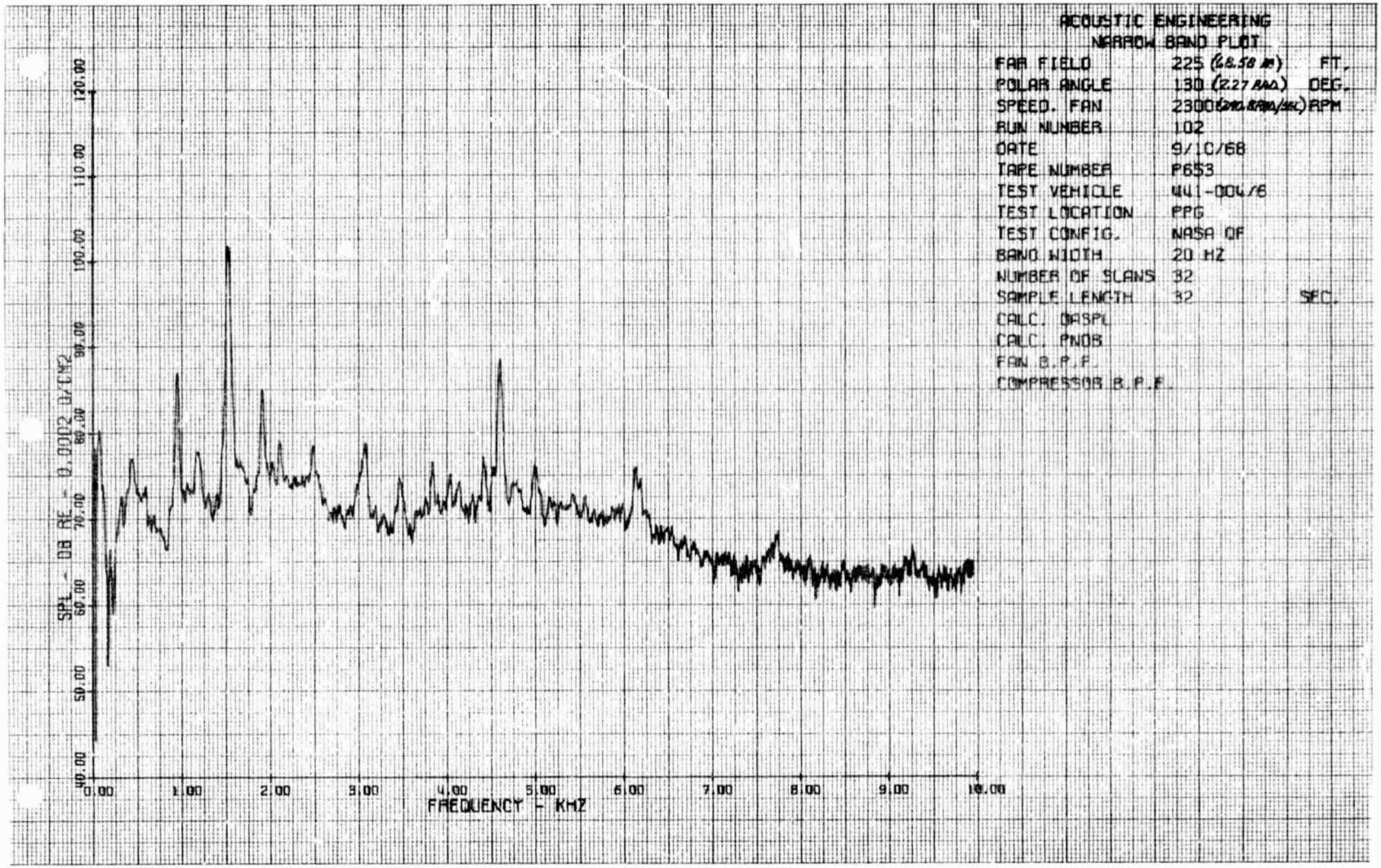

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 M.) FT.
POLAR ANGLE 80 (1.40 RAD.) DEG.
SPEED. FAN 2300 (240.8 RAD/SEC.) RPM
RUN NUMBER 69
DATE 9/6/68
TAPE NUMBER P637
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 DYNE/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

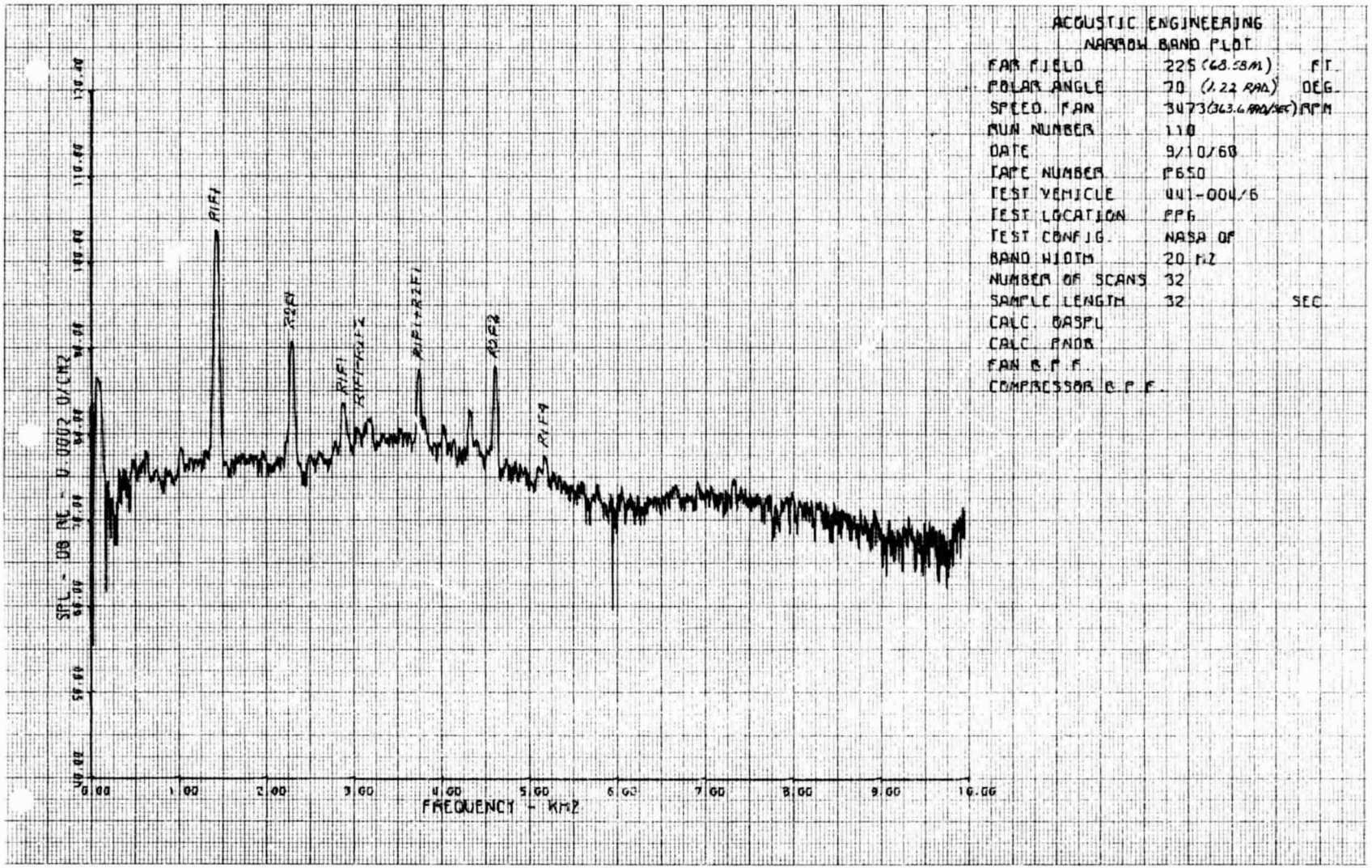

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58M) FT.
POLAR ANGLE 130 (2.27 RAD.) DEG.
SPEED. FAN 2300 (RPM) RPM
RUN NUMBER 69
DATE 9/6/68
TAPE NUMBER P637
TEST VEHICLE W11-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF CANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE .0002 DYNES/CM2
FREQUENCY - KHZ
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00

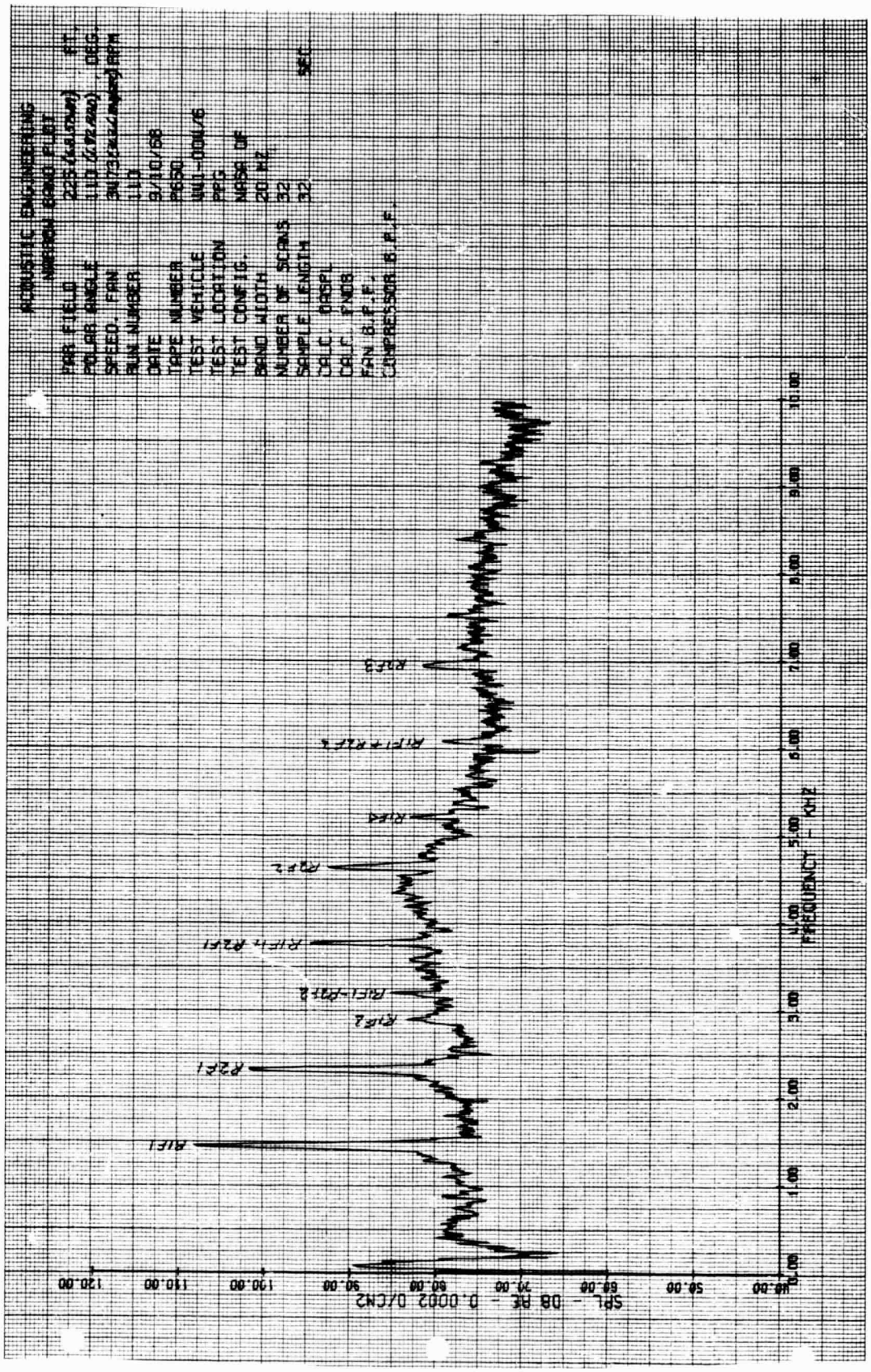

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (69.58 M) FT.
POLAR ANGLE 70 (1.22 RAD) DEG.
SPEED. FAN 3473 (363.6 RAD/SEC) RPM
RUN NUMBER 77
DATE 9/6/68
TAPE NUMBER P640
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
R1F1
R2F1
R1F2
R2F2
R1F1+R2F1
R1F3
R2F3
R1F4
R1F1+R2F2
R2F4
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

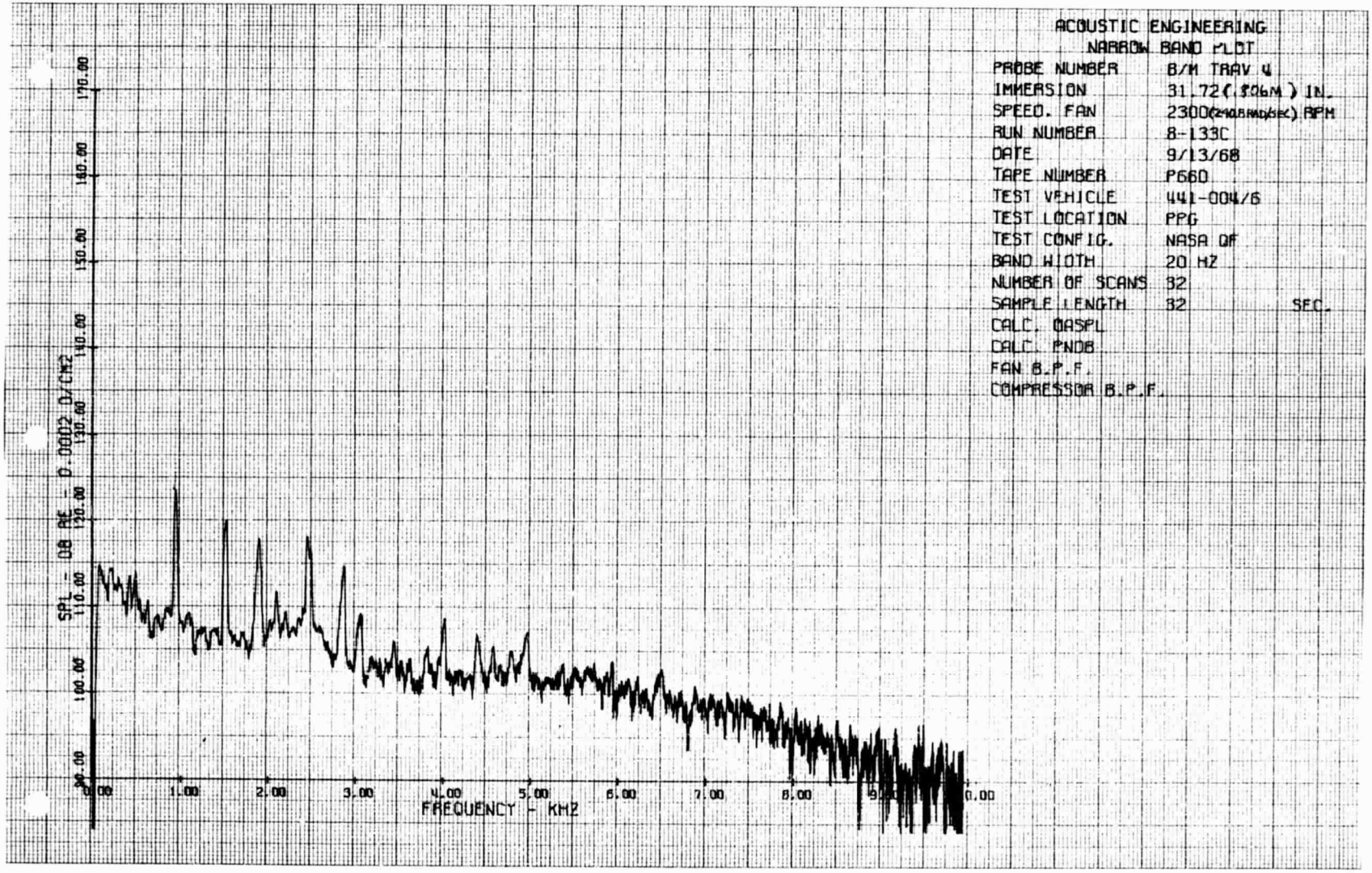
ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD
POLAR ANGLE
SPEED, FAN
RUN NUMBER
DATE
TAPE NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CAL. @3PL
CAL. @NOB
FAN B.P.F.
COMPRESSOR B.P.F.
225 (68.58 M)
110 (48.8MM)
3473853 (LBS/SEC) RPM
77
9/6/68
P&WA
441-0014/6
PFE
NASA 0°
20 HZ
32
32
FT.
DEG.
SEC.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00
R1F1
R2F1
R1F2
R1F1-R2F1
R1F1+R2F1
R2F2
R1F1-R2F2
R1F1+R2F2
R2F2

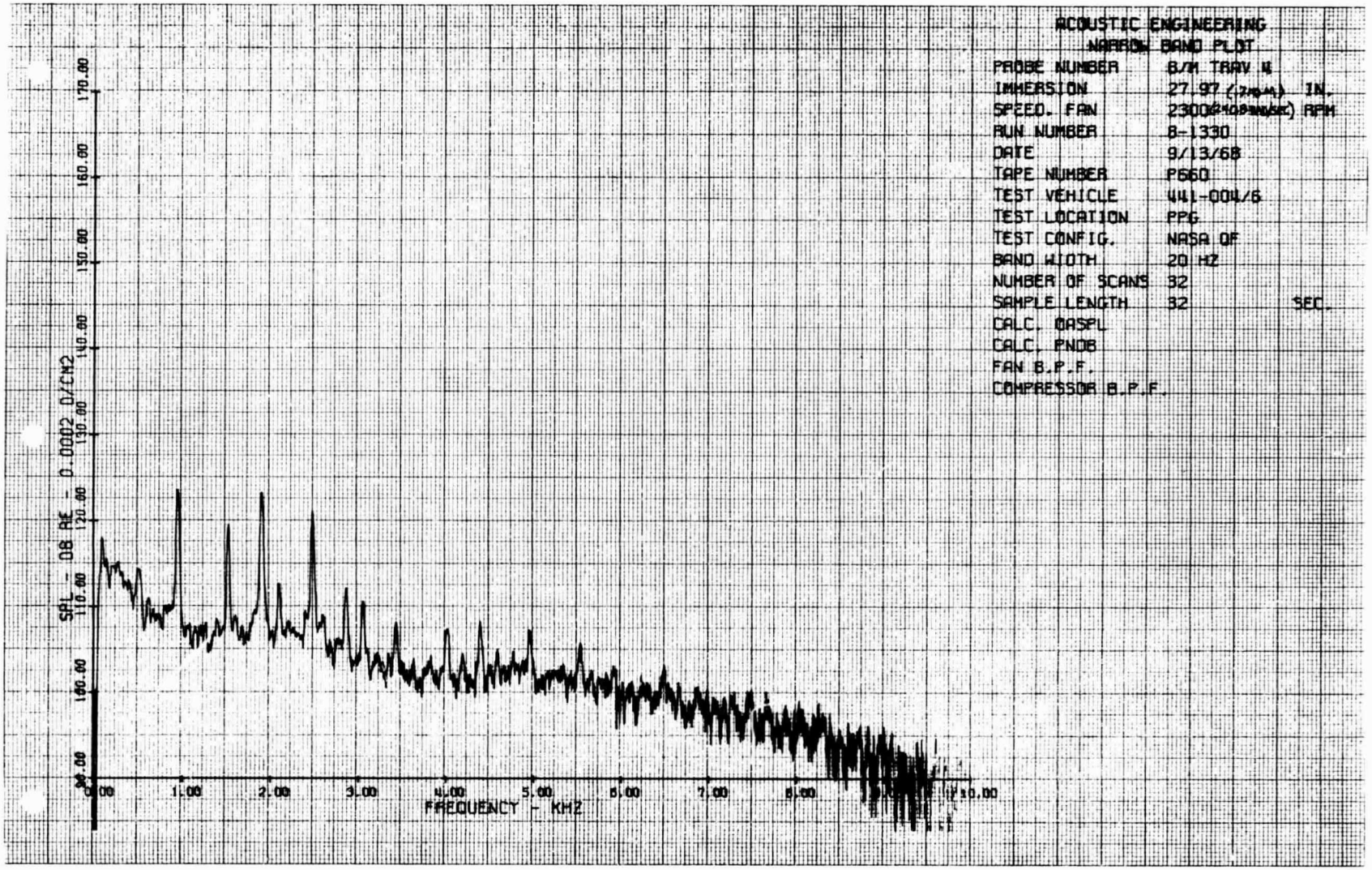

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58M) FT.
POLAR ANGLE 80 (1.40 RAD) DEG.
SPEED. FAN 2300(240.8 RAD/SEC) RPM
RUN NUMBER 102
DATE 9/10/68
TAPE NUMBER F653
TEST VEHICLE 441-004/6
TEST LOCATION PP6
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE: 0.0002 DYNES/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

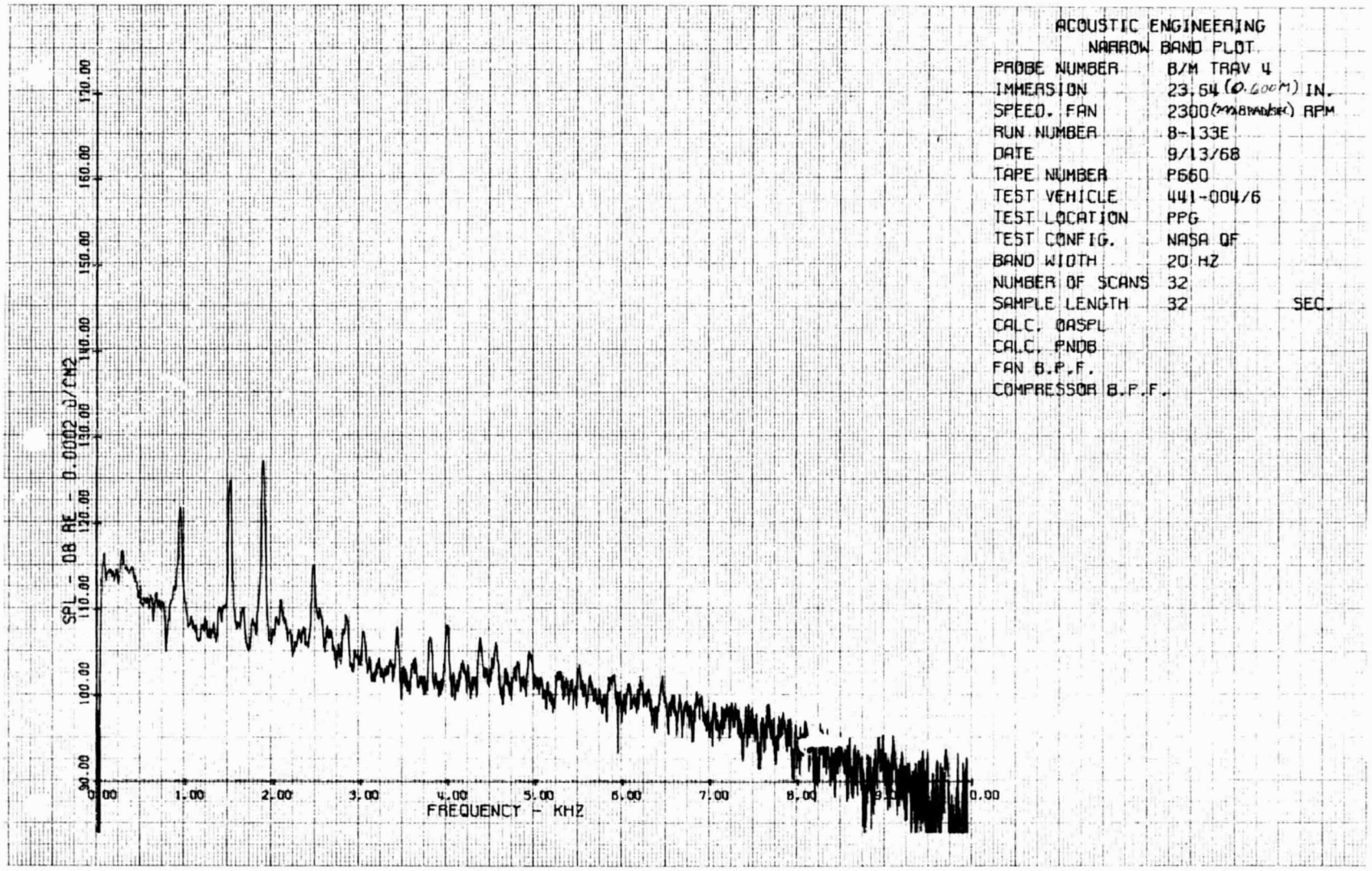

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58 m) FT.
POLAR ANGLE 130 (2.27 RAD) DEG.
SPEED, FAN 23000 (2409.8 RAD/SEC) RPM
RUN NUMBER 102
DATE 9/10/68
TAPE NUMBER P653
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE 0.0002 DYNES/CM2
120.00
110.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

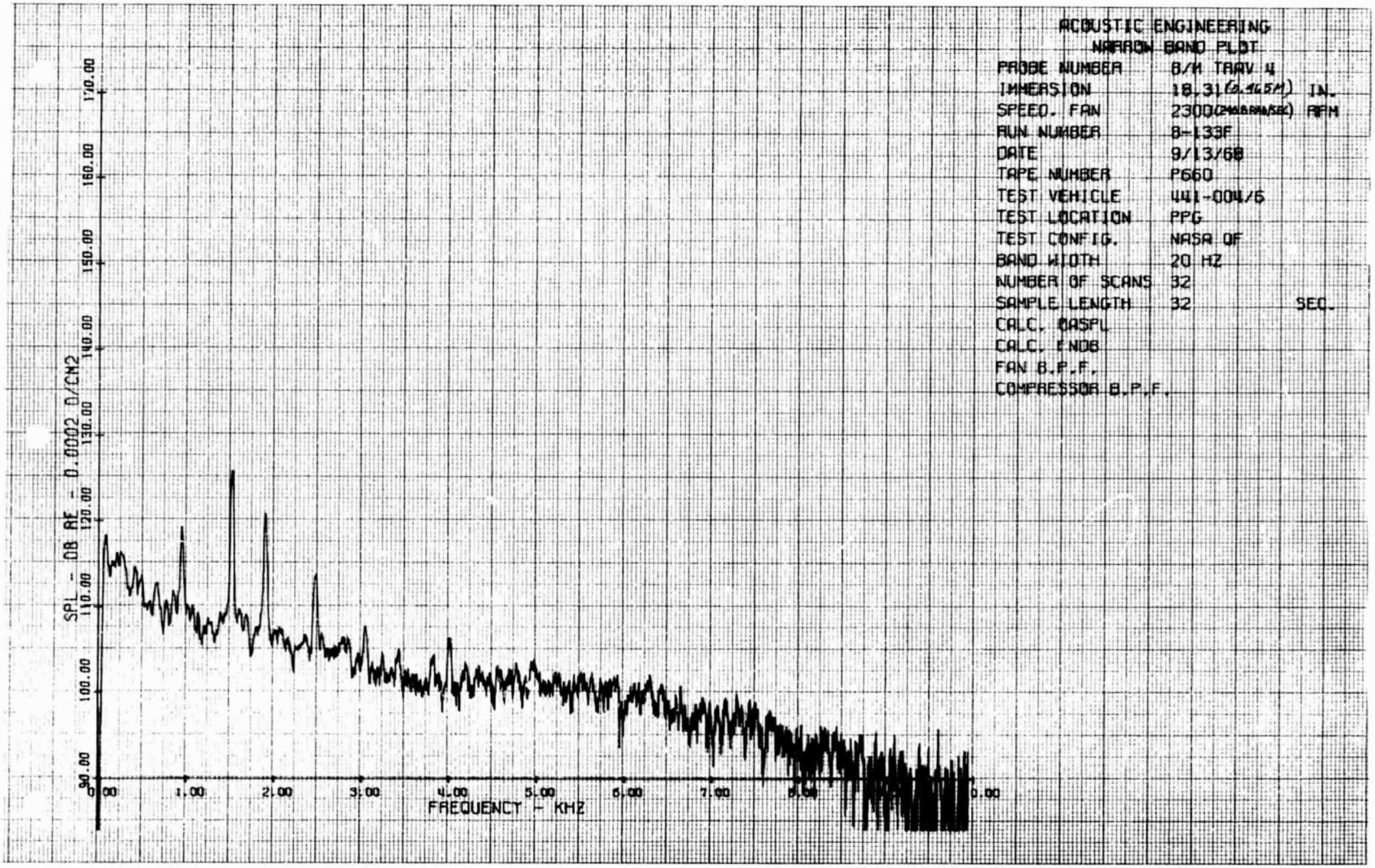

ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAR FIELD 225 (68.58M) FT.
POLAR ANGLE 70 (1.22 RAD) DEG.
SPEED. FAN 3473(363.6 RAD/SEC) RPM
RUN NUMBER 110
DATE 9/10/68
TAPE NUMBER P650
TEST VEHICLE 041-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. BASPL
CALC. FNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00

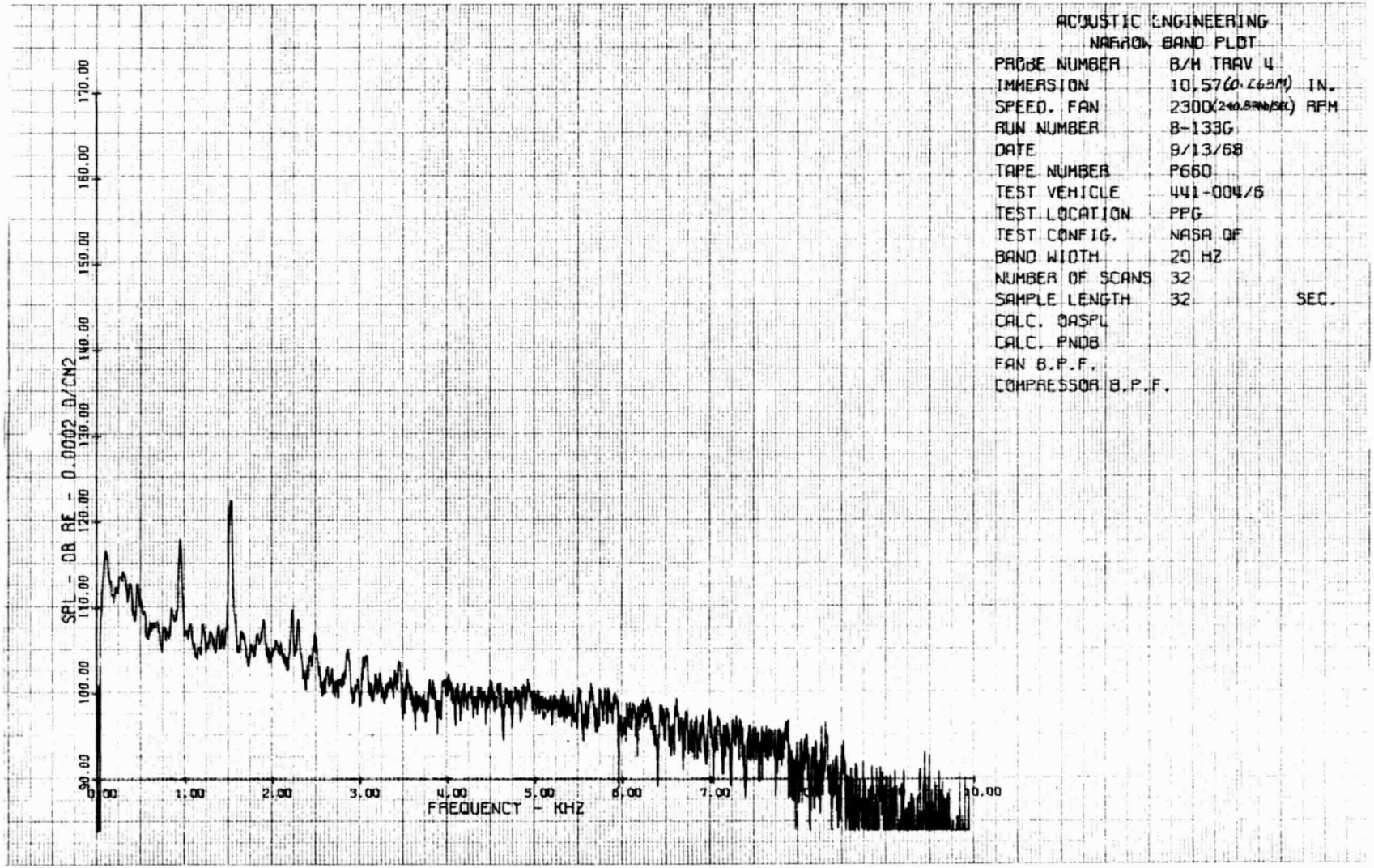

ACOUSTIC BACKGROUND NOISE
MIC. FIELD ANGLE
SPEED, RPM
RUN NUMBER
DATE
TAPE NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
CALC. CODE
FAN B.P.F.
COMPRESSOR B.P.F.
SET
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
R1F1
R2F1
R1F2
R1F1-R2F1
R2F2
R1F1+R2F1
R3F3

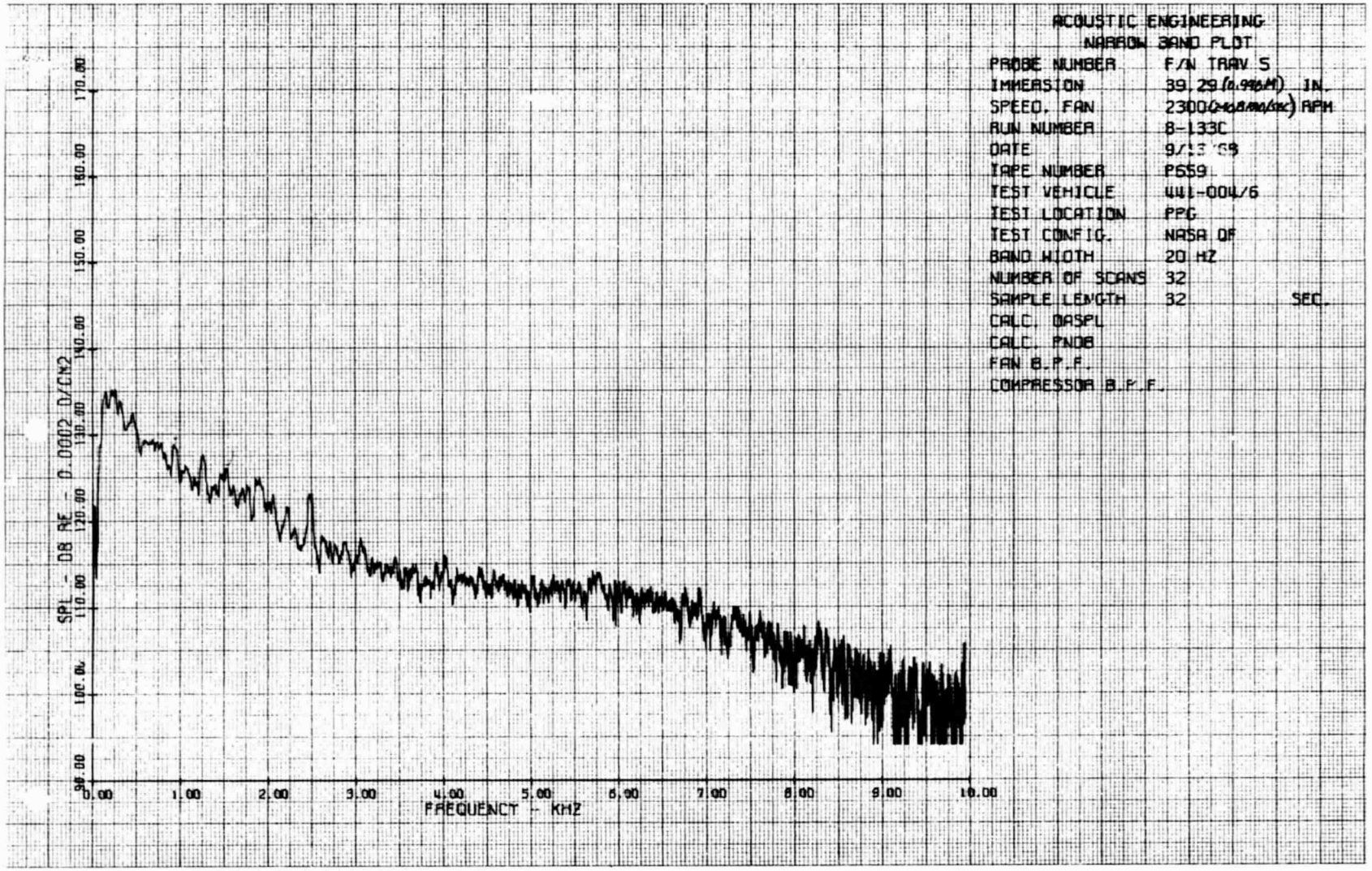

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 31.72(.806M) IN.
SPEED. FAN 2300(240.8RAD/SEC) RPM
RUN NUMBER 8-133C
DATE 9/13/68
TAPE NUMBER P660
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
FREQUENCY - KHZ

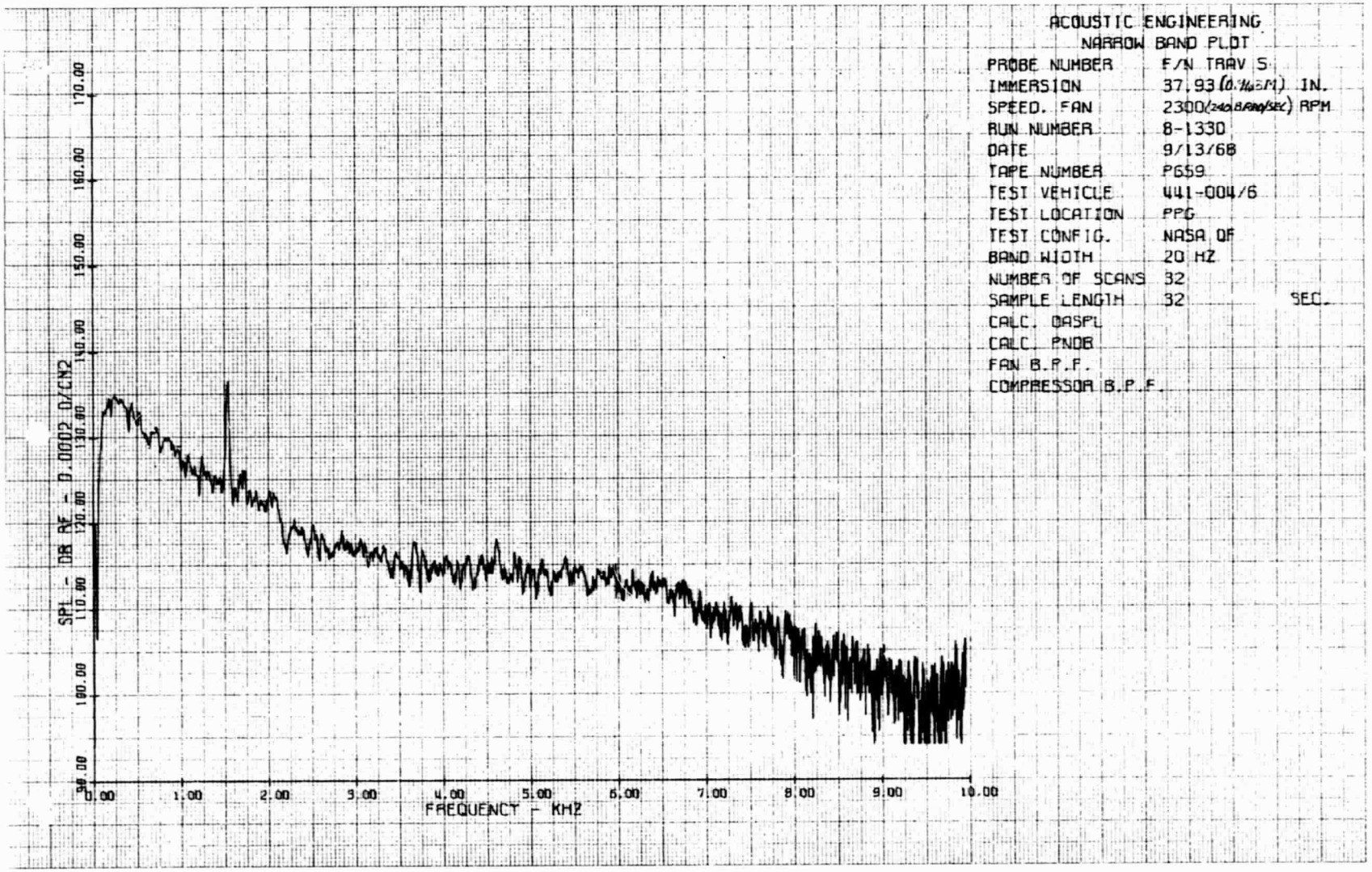

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 8/M TRAV 4
IMMERSION 27.97 (710 MM) IN.
SPEED, FAN 2300 (2409 RPM) RPM
RUN NUMBER 8-1330
DATE 9/13/68
TAPE NUMBER P660
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE 0.0002 DYNES/CM2
FREQUENCY - KHZ
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
10.00
70.00
80.00
90.00
100.00
110.00
120.00
130.00
140.00
150.00
160.00
170.00


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 23.64 (0.600M) IN.
SPEED. FAN 2300 (38.3 REVS/SEC) RPM
RUN NUMBER 8-133E
DATE 9/13/68
TAPE NUMBER P660
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 DYNES/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 8/M TRAV 4
IMMERSION 18.31(0.465M) IN.
SPEED. FAN 2300(2400MAX&BC) RPM
RUN NUMBER 8-133F
DATE 9/13/68
TAPE NUMBER P660
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. ENDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
2.00
3.00
4.00
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6.00
7.00
8.00
FREQUENCY - KHZ

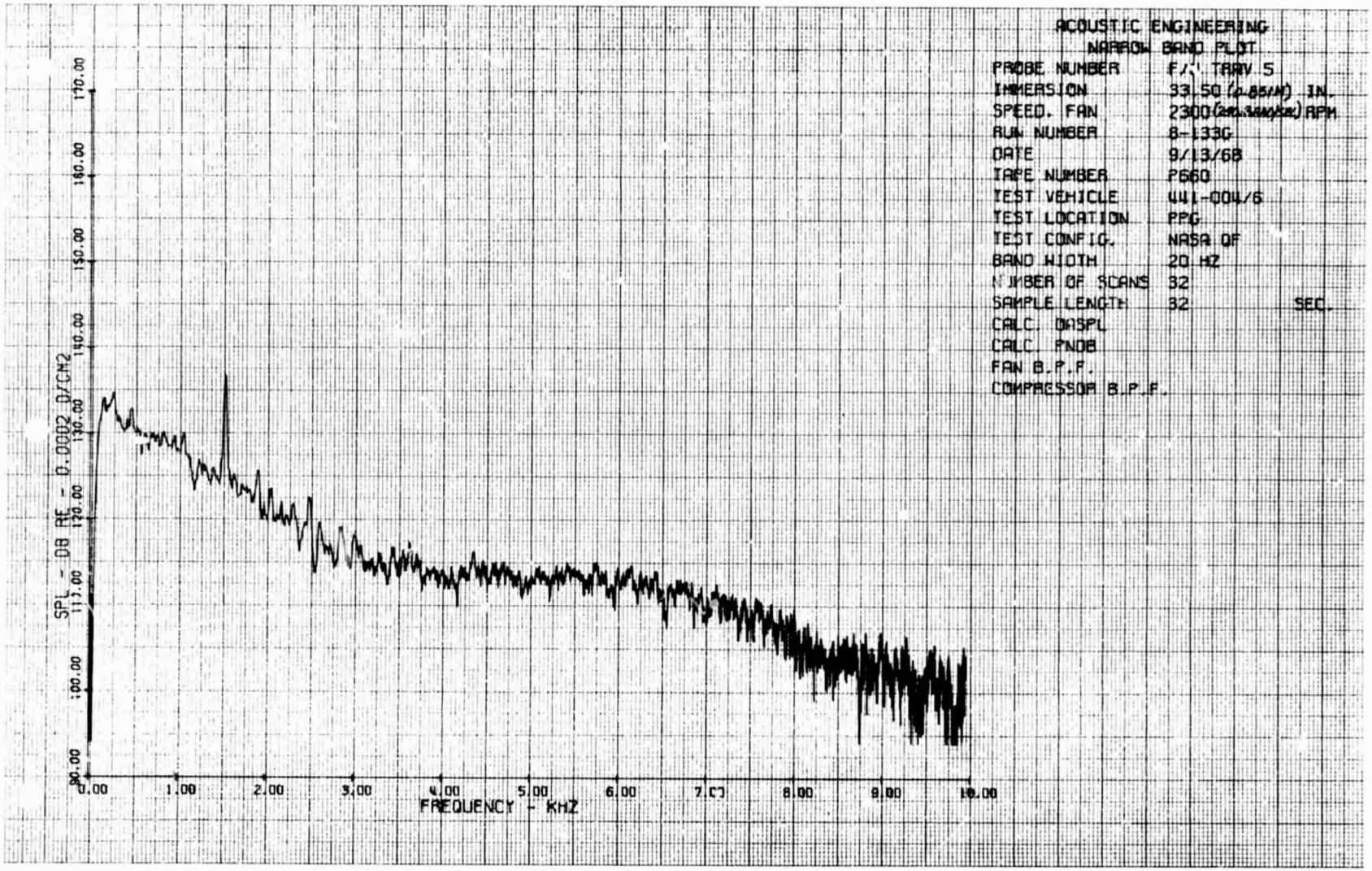

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 10.57(0.268M) IN.
SPEED. FAN 2300(240.8RAD/SEC) RPM
RUN NUMBER B-133G
DATE 9/13/68
TAPE NUMBER P660
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
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FREQUENCY - KHZ

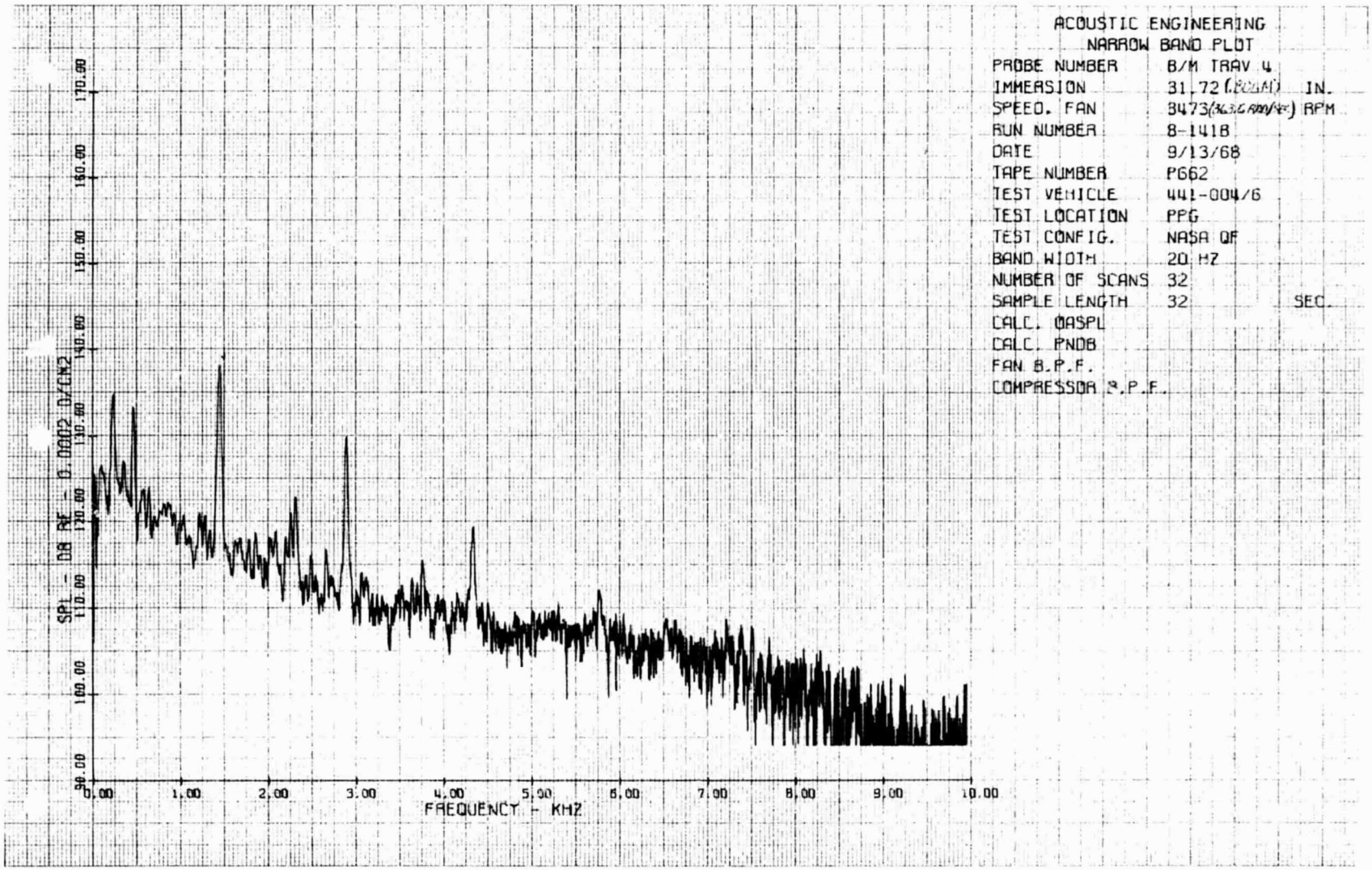

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV S
IMMERSION 39.29 (0.996M) IN.
SPEED, FAN 2300 (240.64M/SEC) RPM
RUN NUMBER 8-133C
DATE 9/13/69
TAPE NUMBER P659
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
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FREQUENCY - KHZ

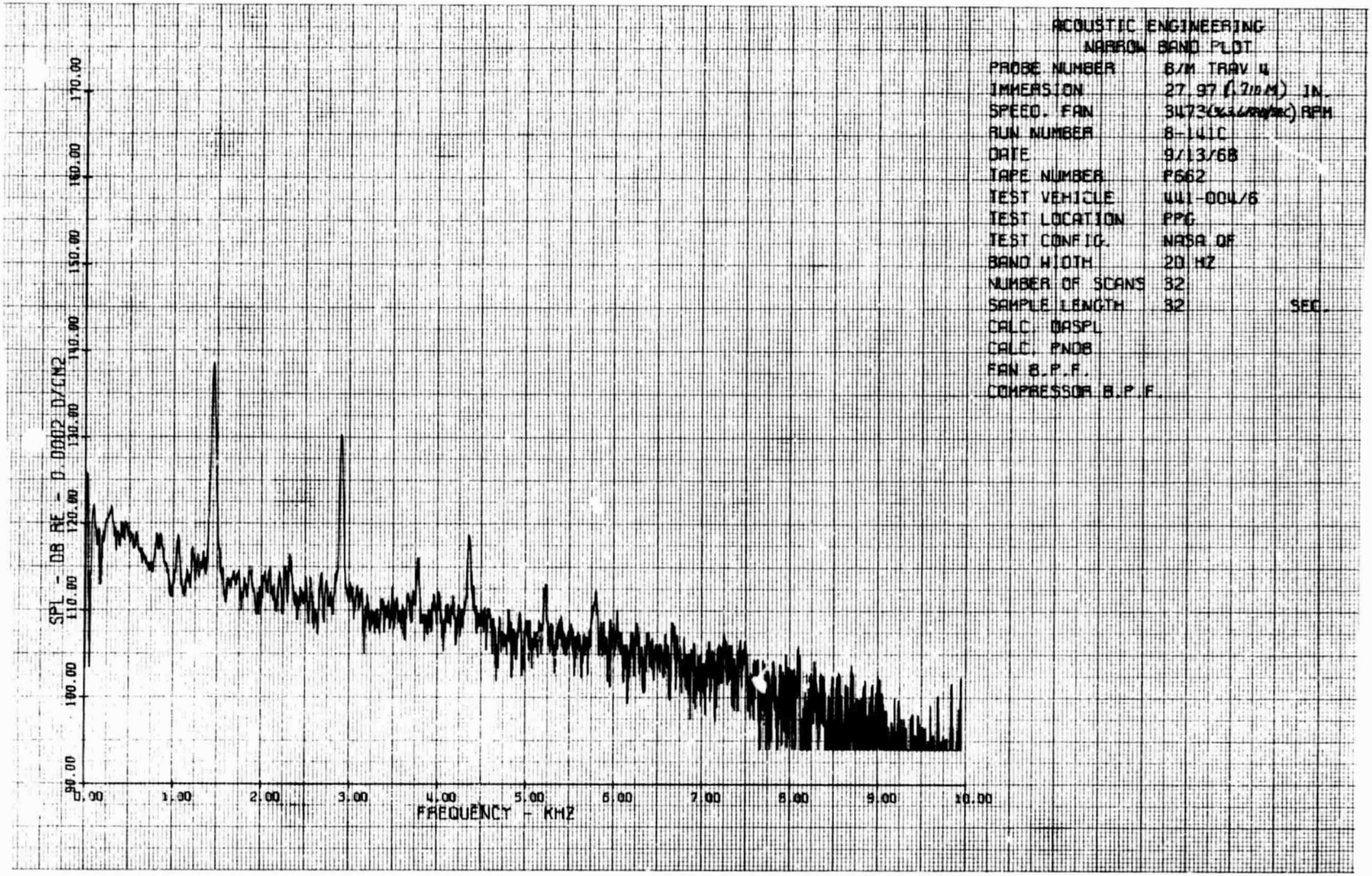

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV S
IMMERSION 37.93 (0.96M) IN.
SPEED. FAN 2300(240 RAD/SEC) RPM
RUN NUMBER 8-1330
DATE 9/13/68
TAPE NUMBER P659
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
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FREQUENCY - KHZ

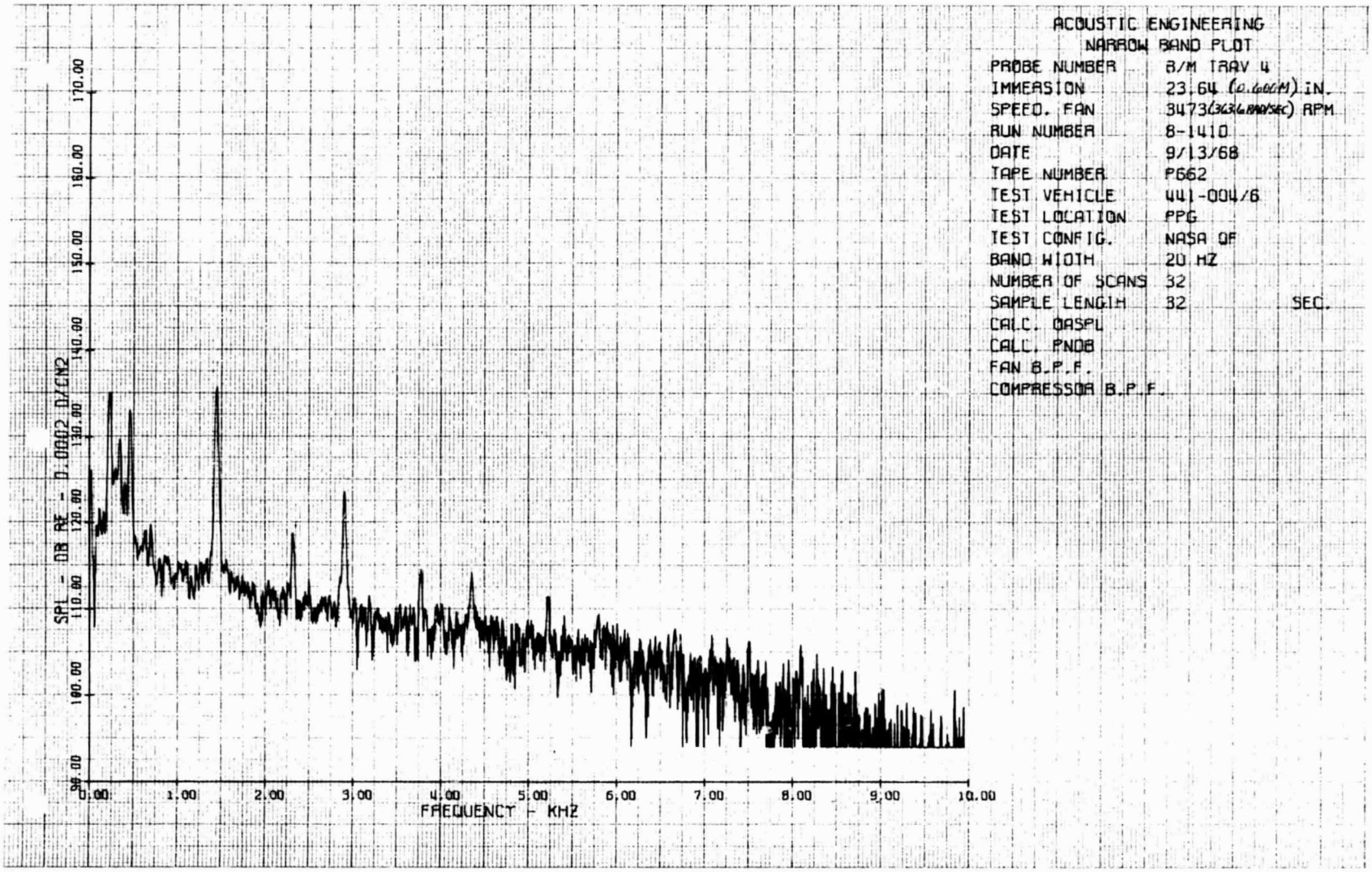
ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/A TRAV S
IMMERSION 36.51(.927M) IN.
SPEED, FAN 2300(RPM) RPM
RUN NUMBER B-133E
DATE 9/13/68
TAPE NUMBER F659
TEST VEHICLE W41-001/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
90.00
100.00
110.00
120.00
130.00
140.00
150.00
160.00
170.00
0.00
1.00
2.00
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5.00
6.00
7.00
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9.00
10.00
FREQUENCY - KHZ

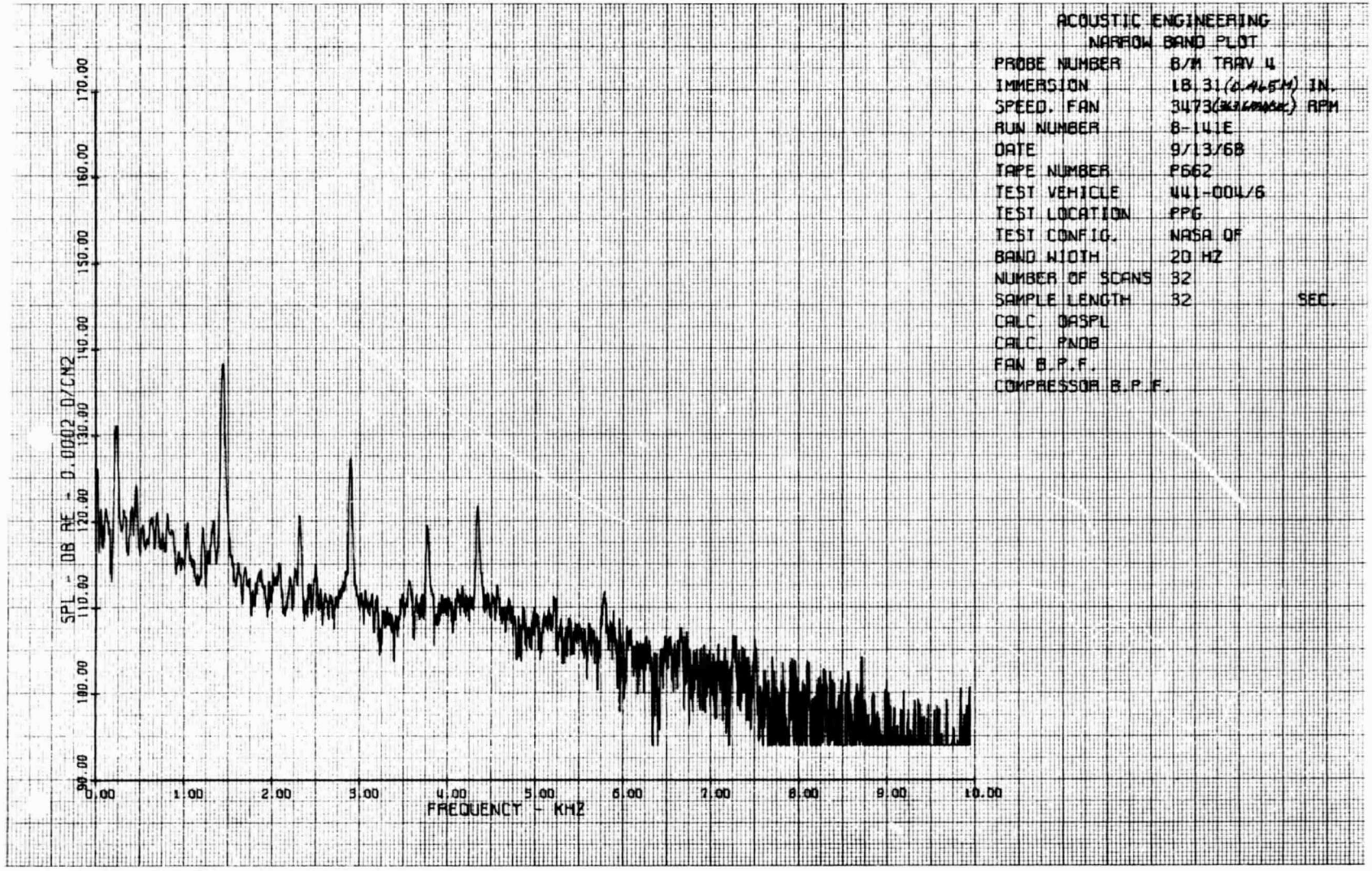
ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 35.00 (889mm) IN.
SPEED, FAN 2300 (38.33rps/sec) RPM
RUN NUMBER 8-133F
DATE 9/13/68
TAPE NUMBER P660
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
2.00
3.00
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6.00
7.00
8.00
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10.00

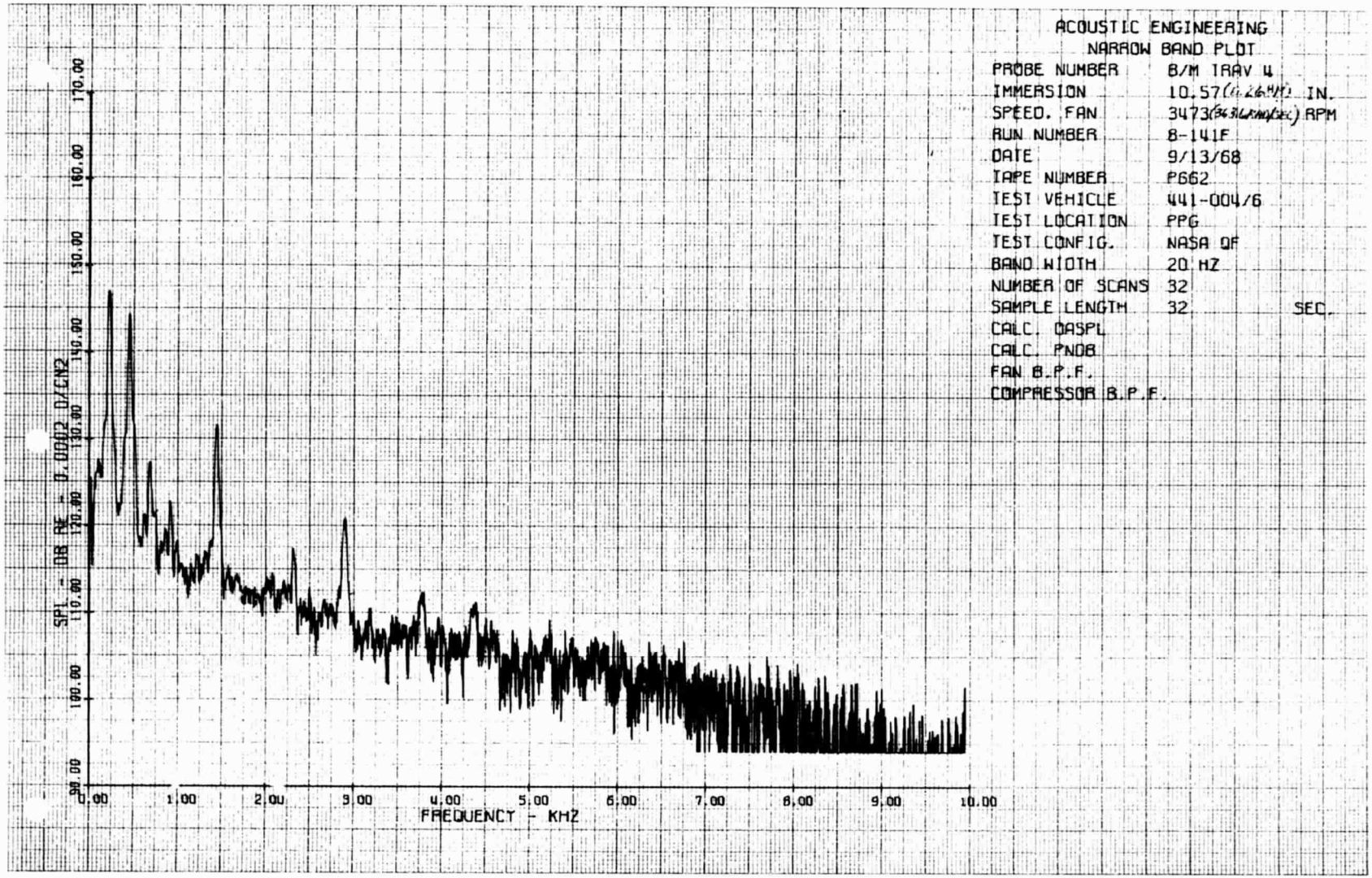

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/T TRAV 5
IMMERSION 33.50 (0.85M) IN.
SPEED, FAN 2300 (240.9 RAD/SEC) RPM
RUN NUMBER 8-1330
DATE 9/13/68
TAPE NUMBER P660
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
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5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

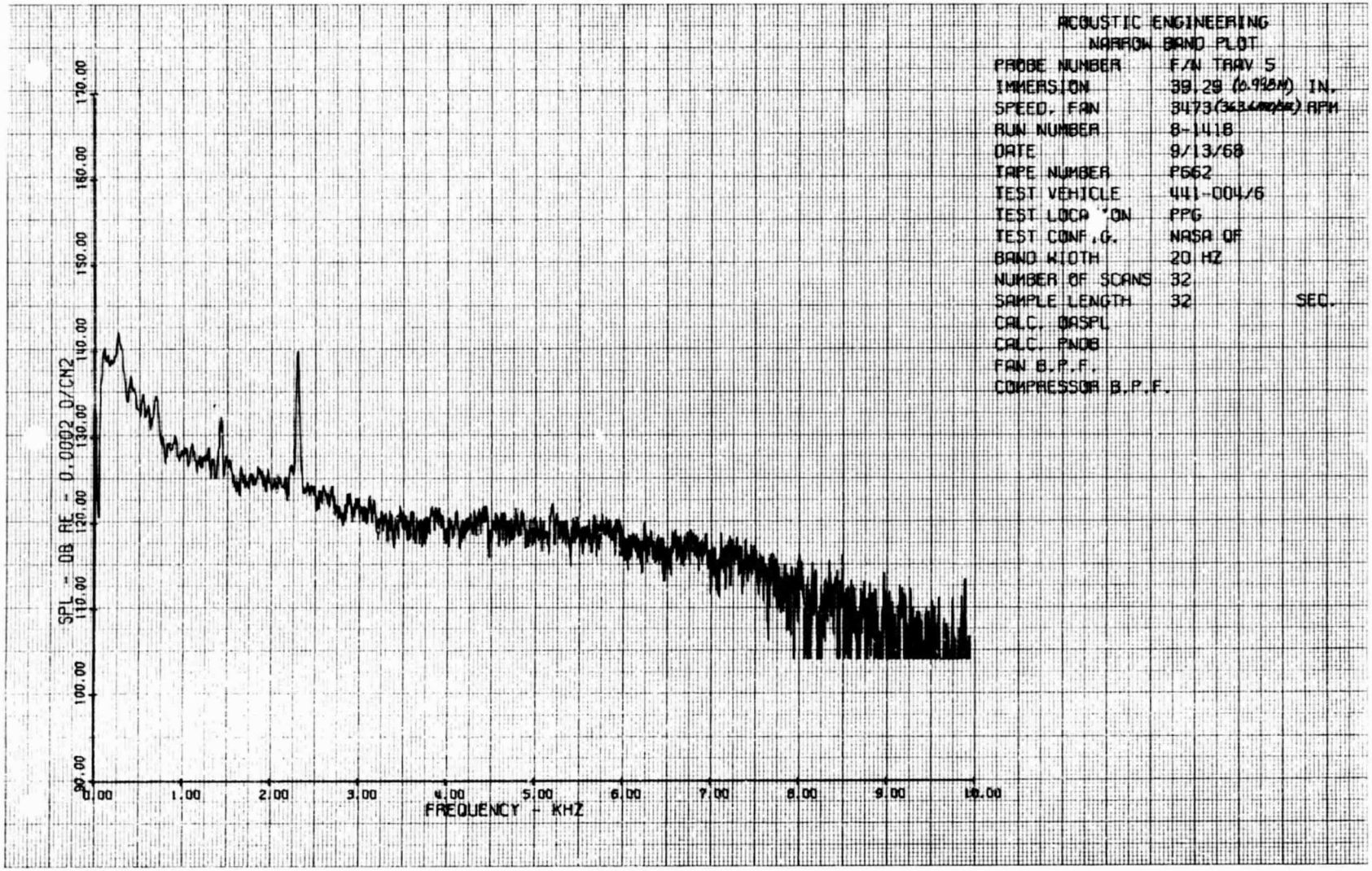

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 8/M TRAV 4
IMMERSION 31.72 (.806M) IN.
SPEED, FAN 3473(36.36 RPS) RPM
RUN NUMBER 8-1418
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
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FREQUENCY - KHZ

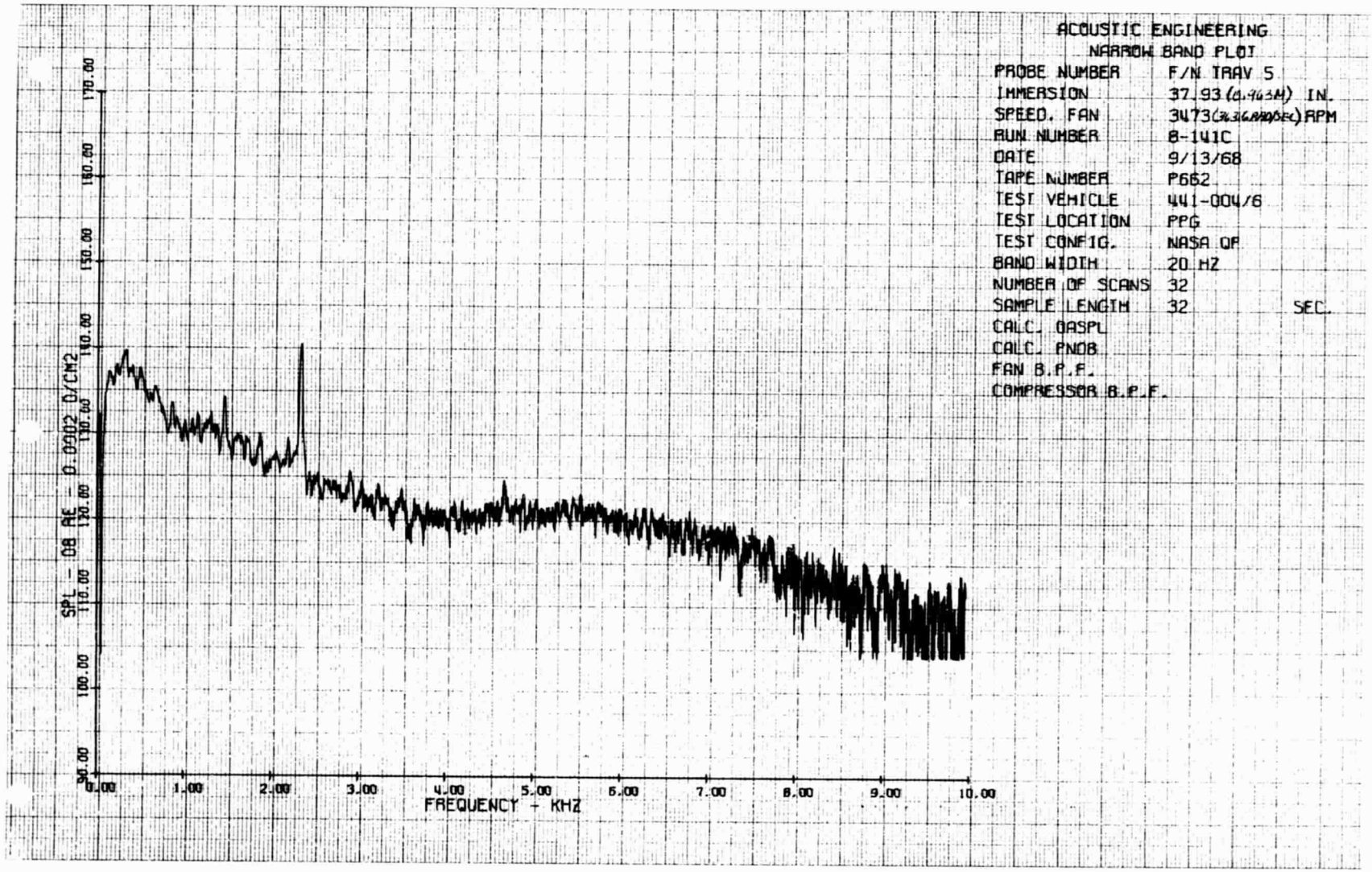

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 8/M TRAV 4
IMMERSION 27.97 (.71mM) IN.
SPEED, FAN 3473(36.4mM/sec) RPM
RUN NUMBER 8-141C
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
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9.00
10.00
FREQUENCY - KHZ

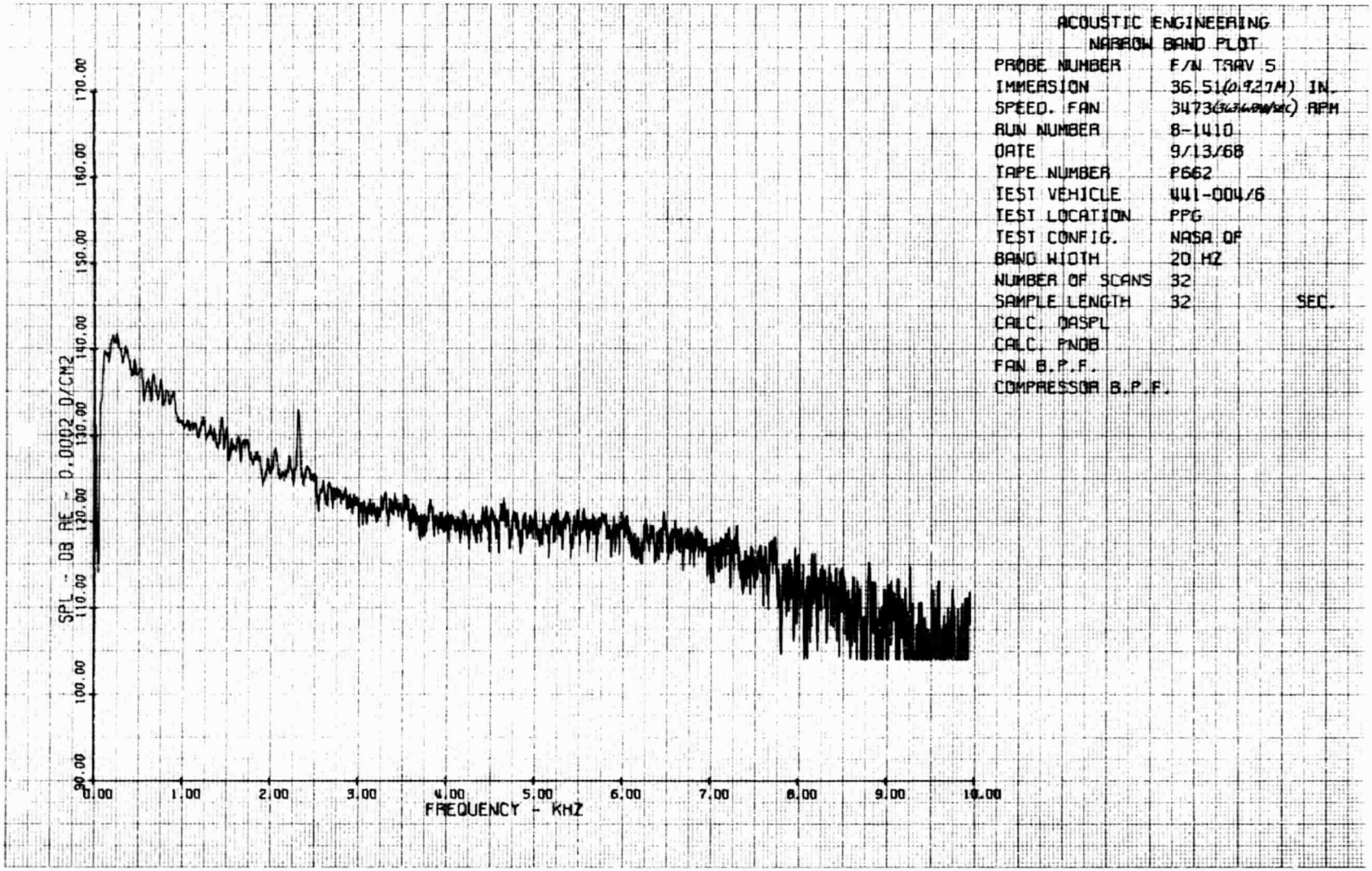

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 8/M TRAV 4
IMMERSION 23.64 (0.600M) IN.
SPEED. FAN 3473(363.6RAD/SEC) RPM
RUN NUMBER 8-1410
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 DYNE/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
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10.00
FREQUENCY - KHZ

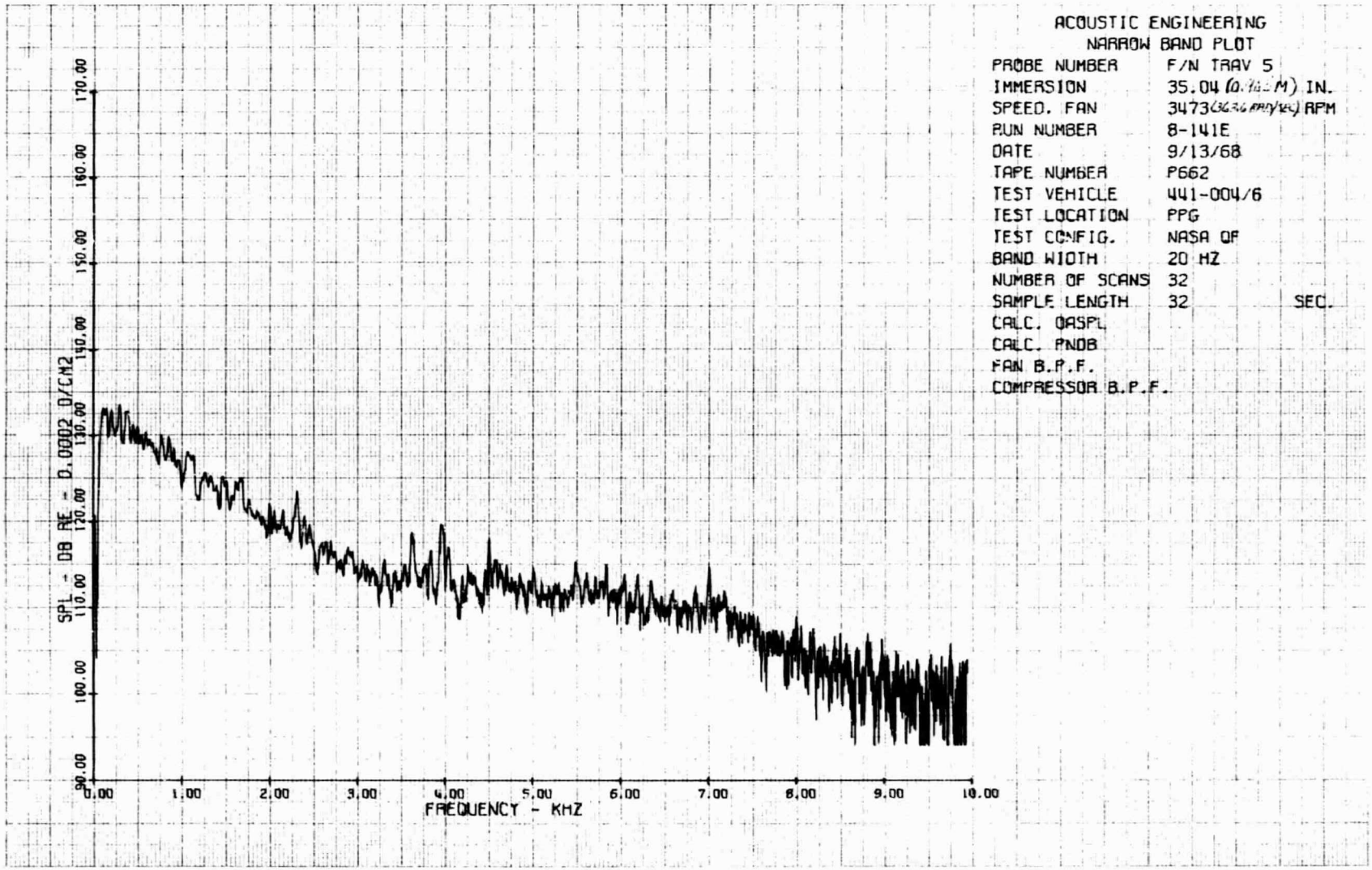

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 8/M TRAV 4
IMMERSION 18.31(0.465M) IN.
SPEED, FAN 3473(XXXXXX) RPM
RUN NUMBER 8-141E
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-0014/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
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FREQUENCY - KHZ

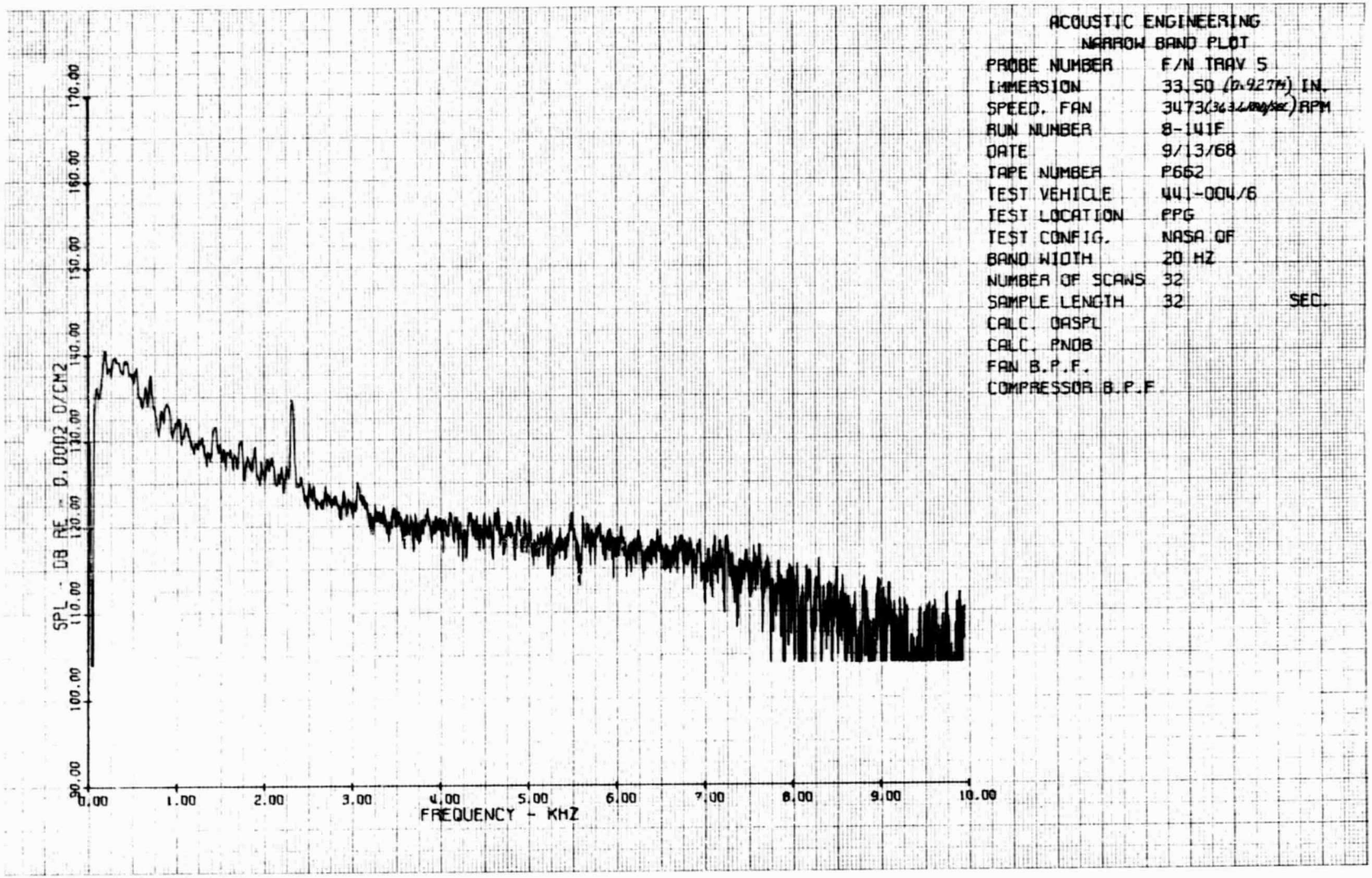

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 8/M IRAV 4
IMMERSION 10.57 IN.
SPEED, FAN 3473 RPM
RUN NUMBER 8-141F
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE = 0.0002 DYNE/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
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10.00
FREQUENCY - KHZ

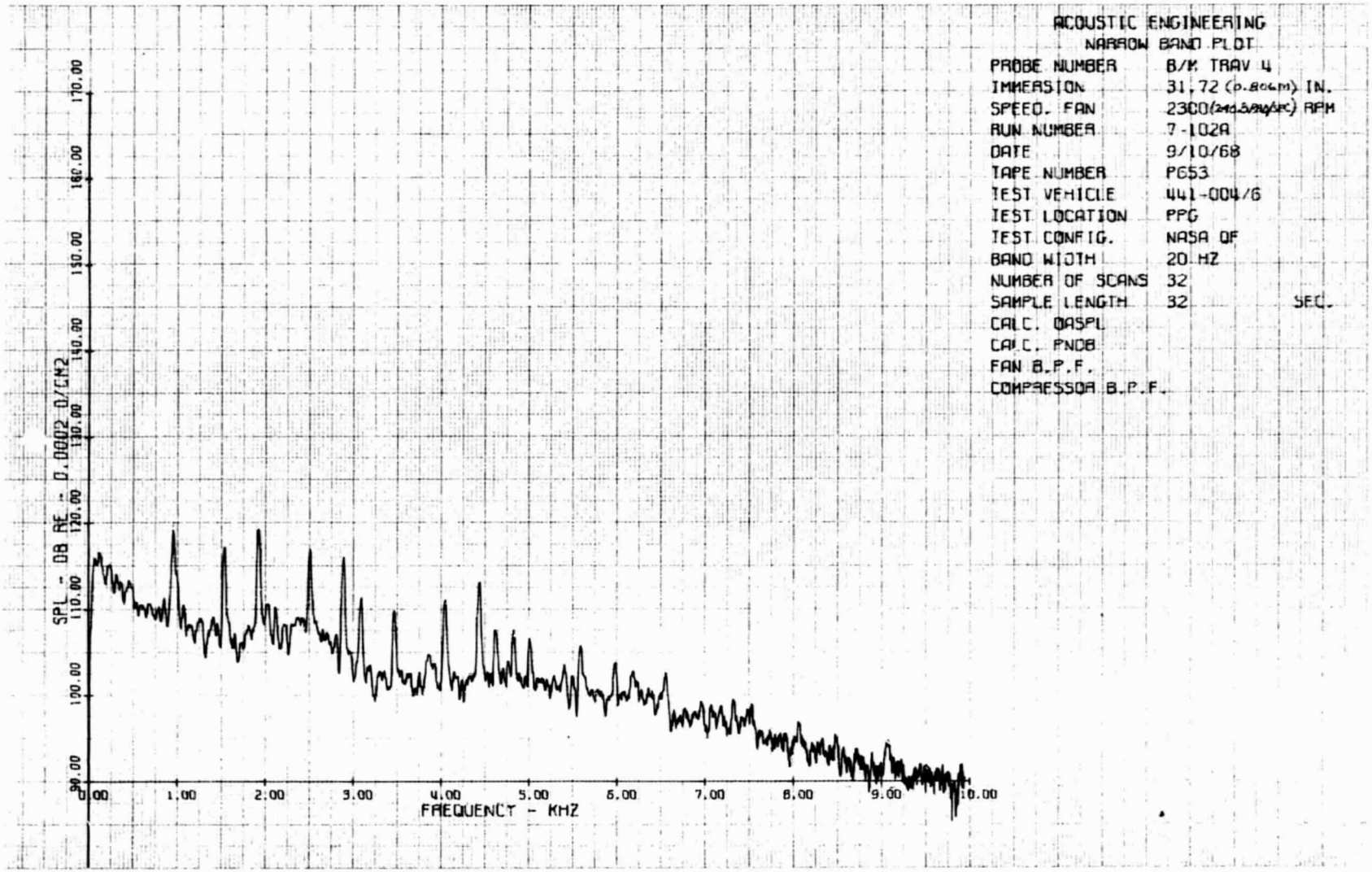

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TAAV 5
IMMERSION 39.29 (0.998M) IN.
SPEED, FAN 3473(363.6RAD/SEC) RPM
RUN NUMBER 8-1418
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONF.G. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
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FREQUENCY - KHZ

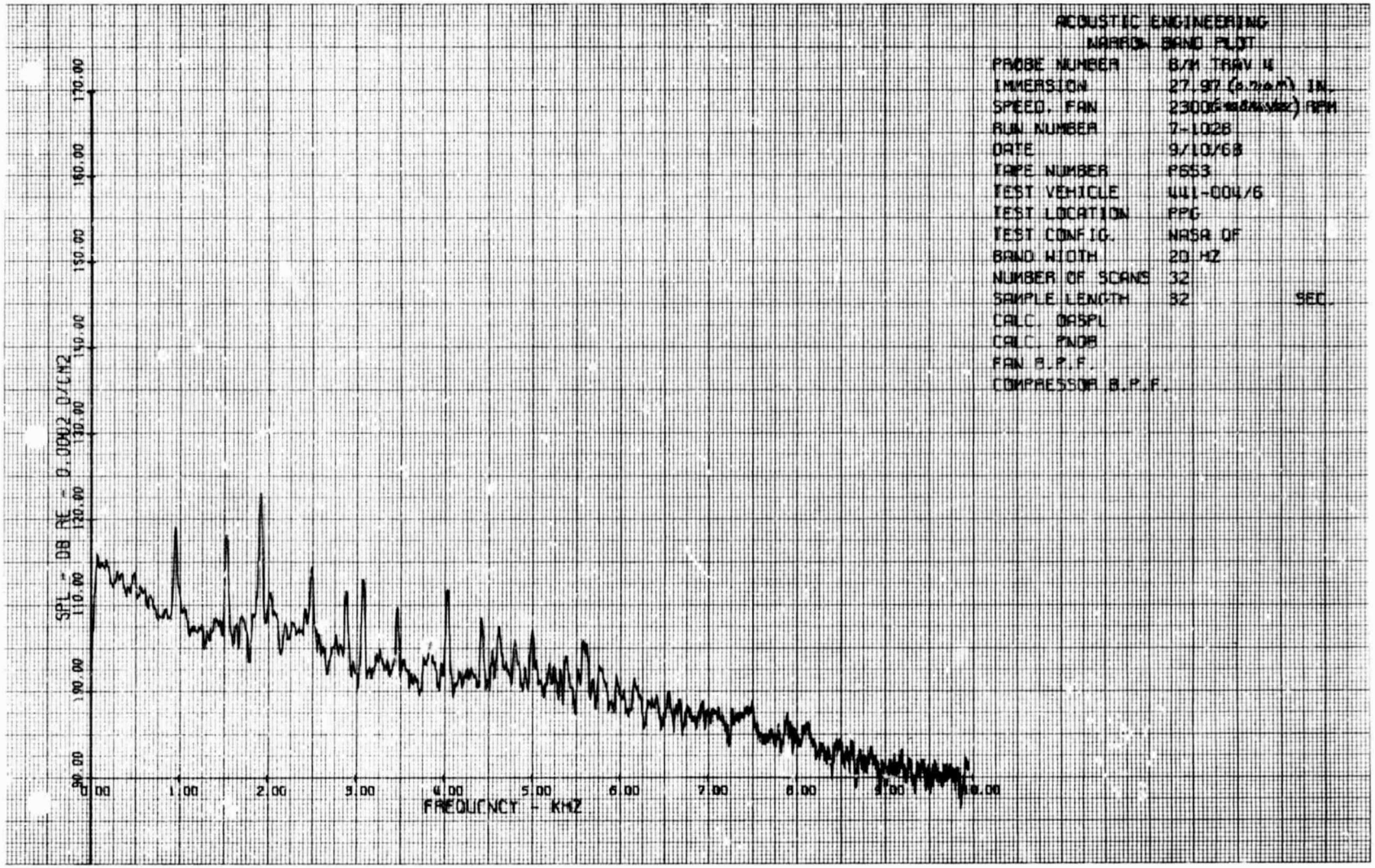

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 37.93 (0.963M) IN.
SPEED, FAN 3473(36.36 REVSEC) RPM
RUN NUMBER 8-141C
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
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9.00
10.00
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 36.51(0.927M) IN.
SPEED. FAN 3473(57.88/sec) RPM
RUN NUMBER 8-1410
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
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FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 35.04 (0.74 M) IN.
SPEED. FAN 3473 (363.6 rad/sec) RPM
RUN NUMBER 8-141E
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
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FREQUENCY - KHZ

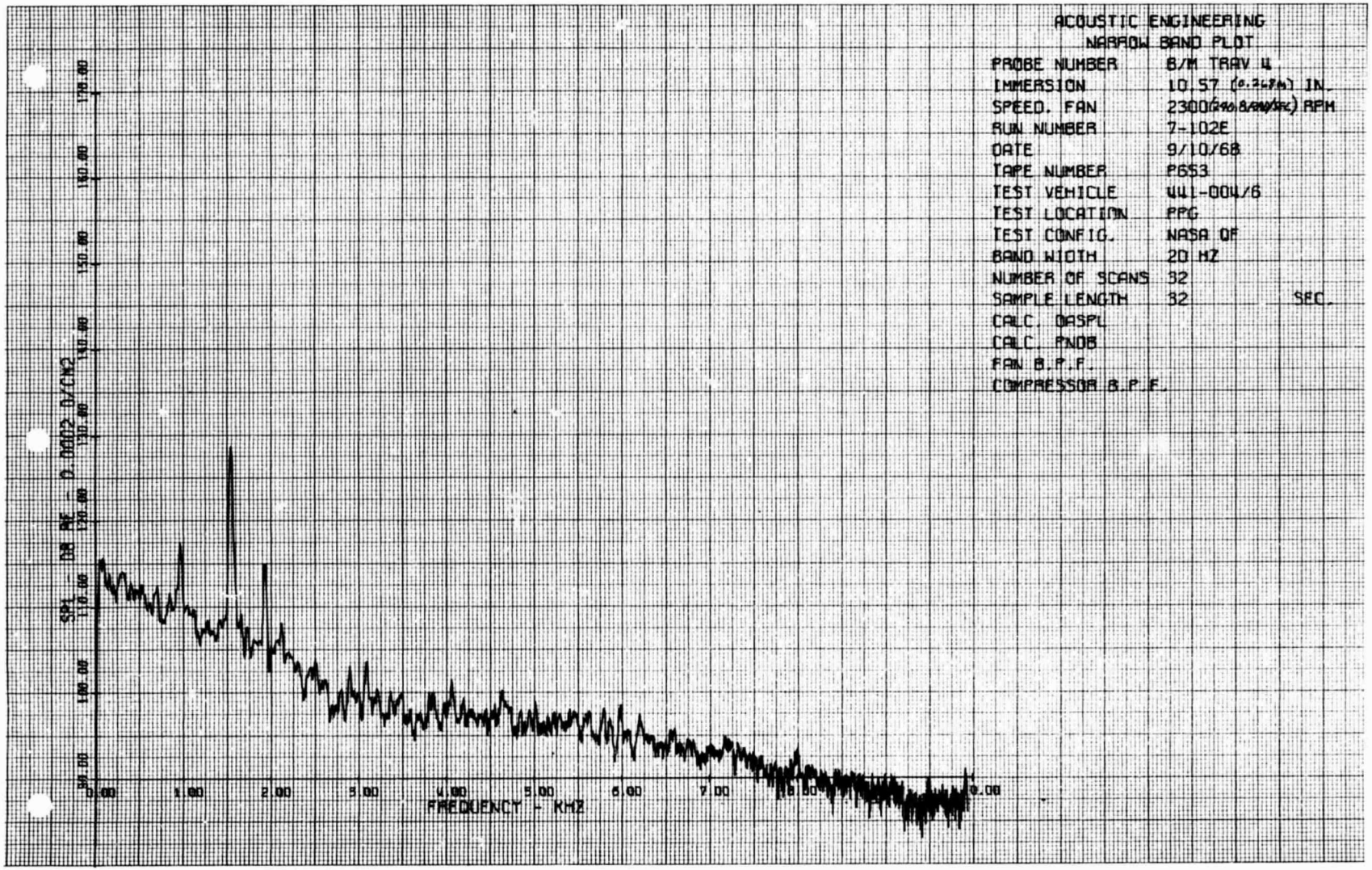

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 33.50 (0.927M) IN.
SPEED. FAN 3473(363.6 rad/sec) RPM
RUN NUMBER 8-141F
DATE 9/13/68
TAPE NUMBER P662
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE = 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
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FREQUENCY - KHZ

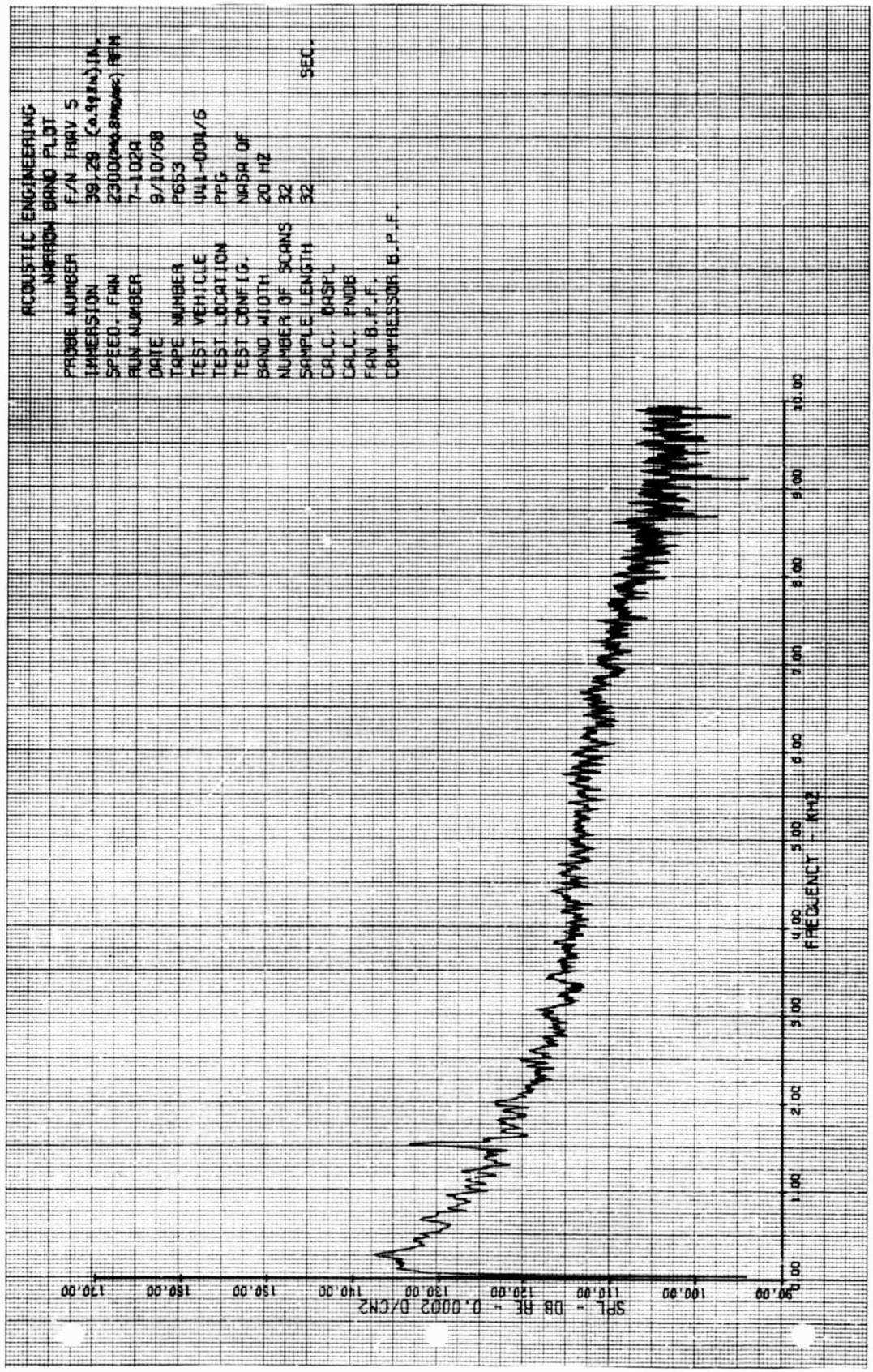

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 31.72 (0.806M) IN.
SPEED. FAN 2300(24.53%RPC) RPM
RUN NUMBER 7-102A
DATE 9/10/68
TAPE NUMBER P653
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
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6.00
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9.00
10.00
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 27.97 (6.7m/m) IN.
SPEED, FAN 2300 RPM
RUN NUMBER 7-1028
DATE 9/10/68
TAPE NUMBER P653
TEST VEHICLE WLI-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE = 0.0002 D/CM2
170.00
160.00
150.00
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120.00
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10.00
FREQUENCY - KHZ

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/H RAKV 4
IMMERSION 23.6M (.6mm) IN.
SPEED - FAN 2300(24.8mHz) RPM
RUN NUMBER 7-102C
DATE 9/10/68
TAPE NUMBER P653
TEST VEHICLE W41-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 Hz
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CAL. DBSPL
CAL. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

ACOUSTIC ENGINEERING
NORDEN SHD PLT
PROBE NUMBER
IMMERSION
SPEED, FPM
RUN NUMBER
DATE
TAPE NUMBER
TEST LOCATION
TEST CONFIG
READ HIGH
NUMBER OF SCANS
SAMPLE LENGTH
CAL. DATE
CAL. FILE
COMPRESSOR
SEE
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 8/M TRAV 4
IMMERSION 10.57 (0.268m) IN.
SPEED. FAN 2300(240.8rad/sec) RPM
RUN NUMBER 7-102E
DATE 9/10/68
TAPE NUMBER P653
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

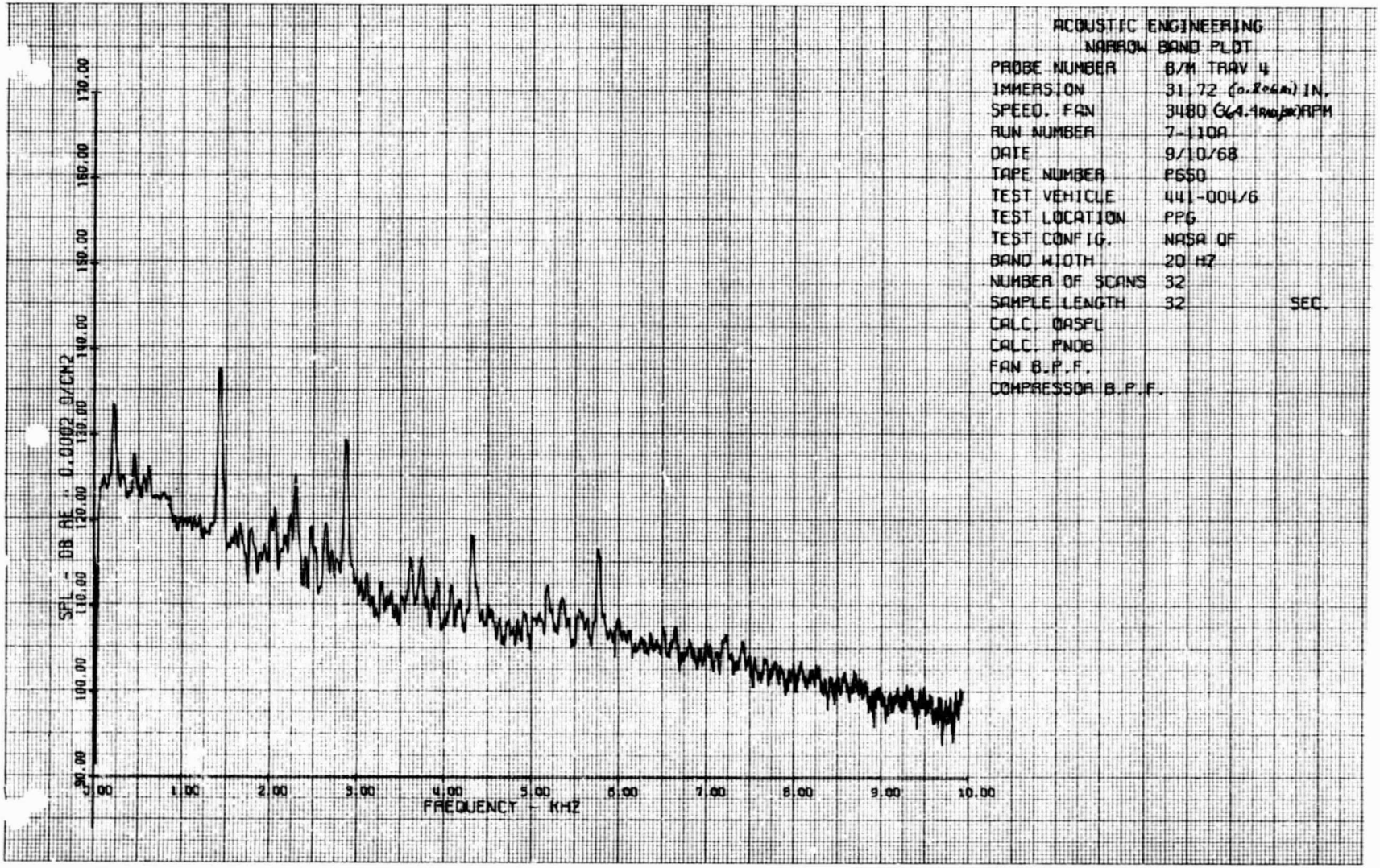

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRV 5
IMMERSION 39.28 (0.99cm)IN.
SPEED FAN 23002RPS BANDWIDTH) RPM
RUN NUMBER 7-1029
DATE 9/10/68
TAPE NUMBER P653
TEST VEHICLE U41-0016/6
TEST LOCATION PPG
TEST CONFIG. NOSE OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SEC.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

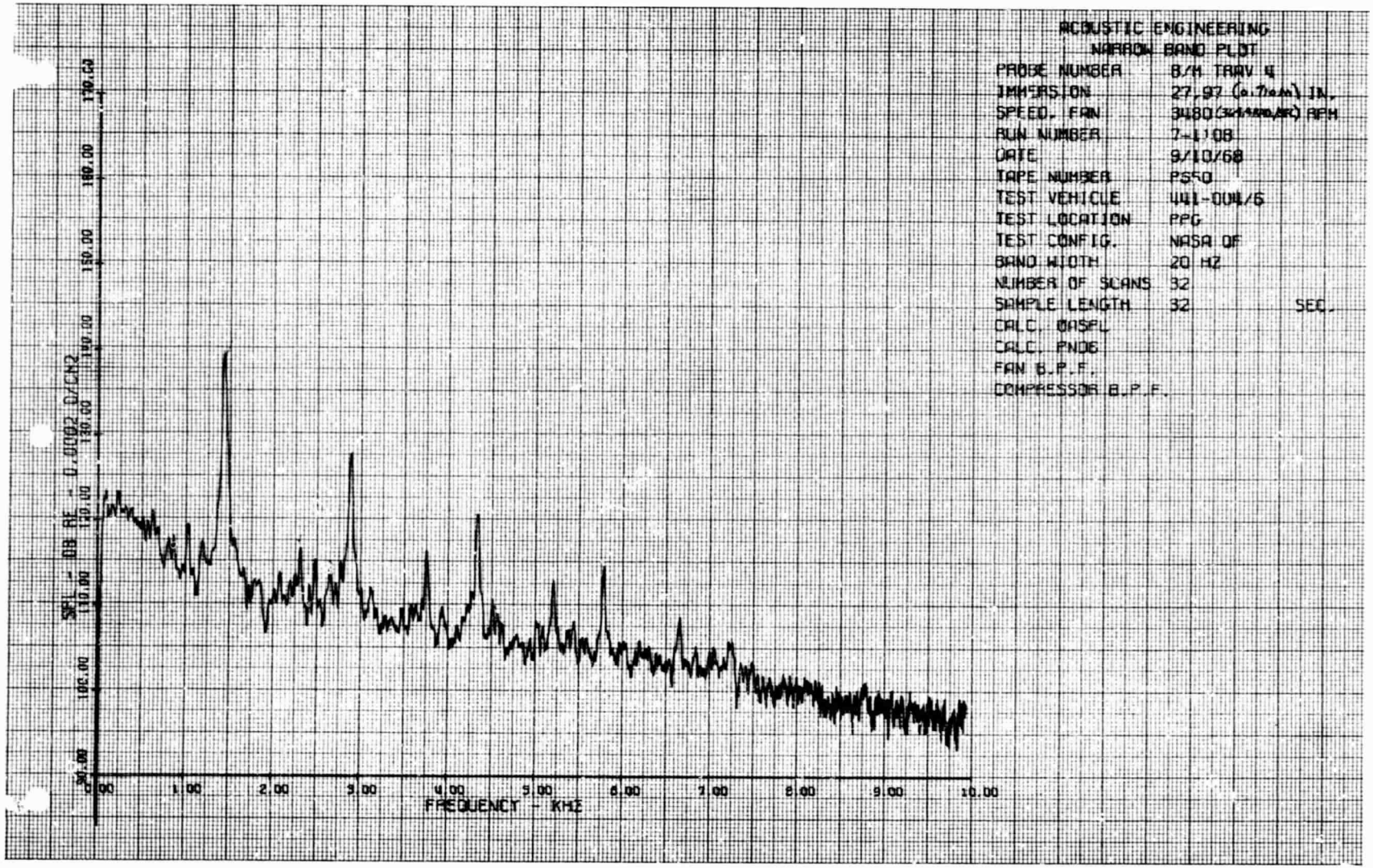
ACOUSTIC ENGINEERING
NORRIS BAND FLT!
PROBE NUMBER F/N IMPV 5
IMMERSION 37.93 (lb/sq in)
SPEED, FAN 2300 (ft/sec)
RUN NUMBER 7-102B RFM
DATE 9/10/68
TAPE NUMBER P653
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. BASEL
CALC. ENDS
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
90.00
100.00
110.00
120.00
130.00
140.00
150.00
160.00
170.00
0.00
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10.00

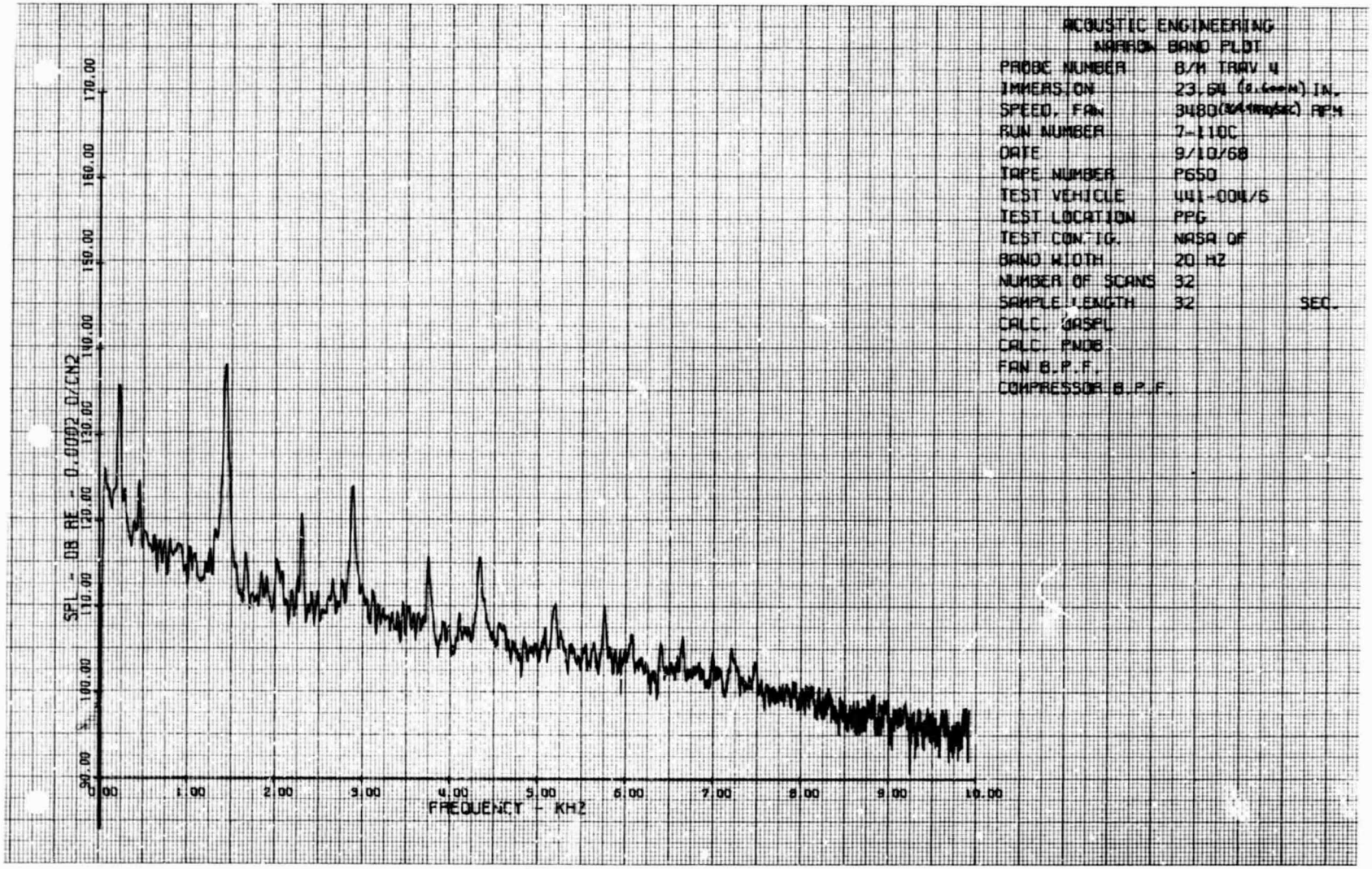
ACOUSTIC ENGINEERING
ANECHOIC BAND PLOT
PROBE NUMBER
IMMERSION
SPEED, FAN
RUN NUMBER
DATE
TAPE NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CALC. BDPL
CALC. PWR
FAN B.P.F.
COMPRESSOR B.P.F.
SEC.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 35.04 (0.89cm) IN.
SPEED, FAN 2300(24rad/sec) RPM
RUN NUMBER 7-1020
DATE 9/10/68
TAPE NUMBER FG53
TEST VEHICLE W11-001/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

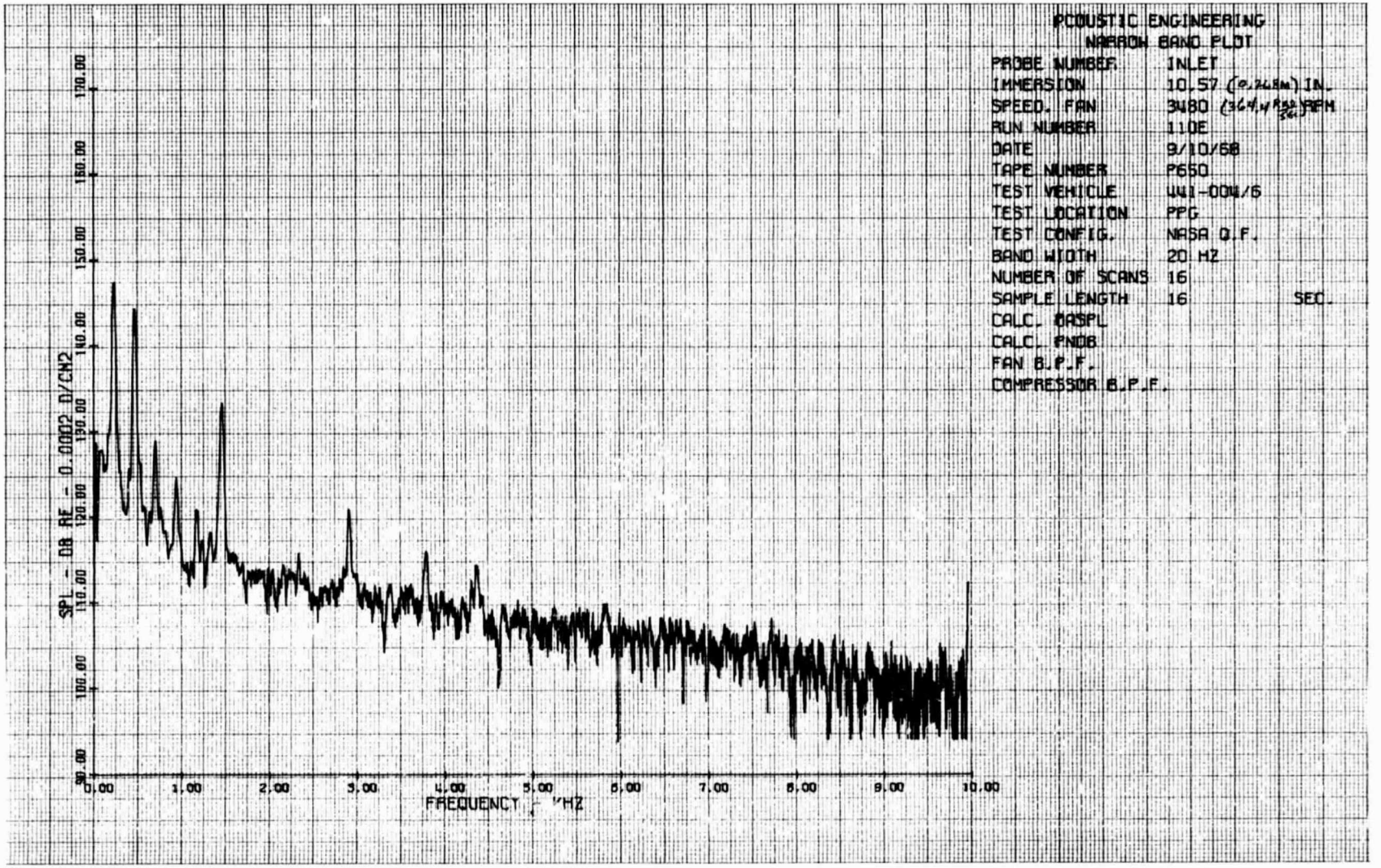
ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER
IMMERSION
SPEED FAN
RUN NUMBER
DATE
TAPE NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
FAN TRAP S
9/10/68
P653
FPG
23 HZ
32
32
SEC
FREQUENCY - KHZ
SPL - DB RE - 0.0002 DYNES/CM2


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 31.72 (0.8 cm) IN.
SPEED, FAN 3480 RPM
RUN NUMBER 7-110A
DATE 9/10/68
TAPE NUMBER P650
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

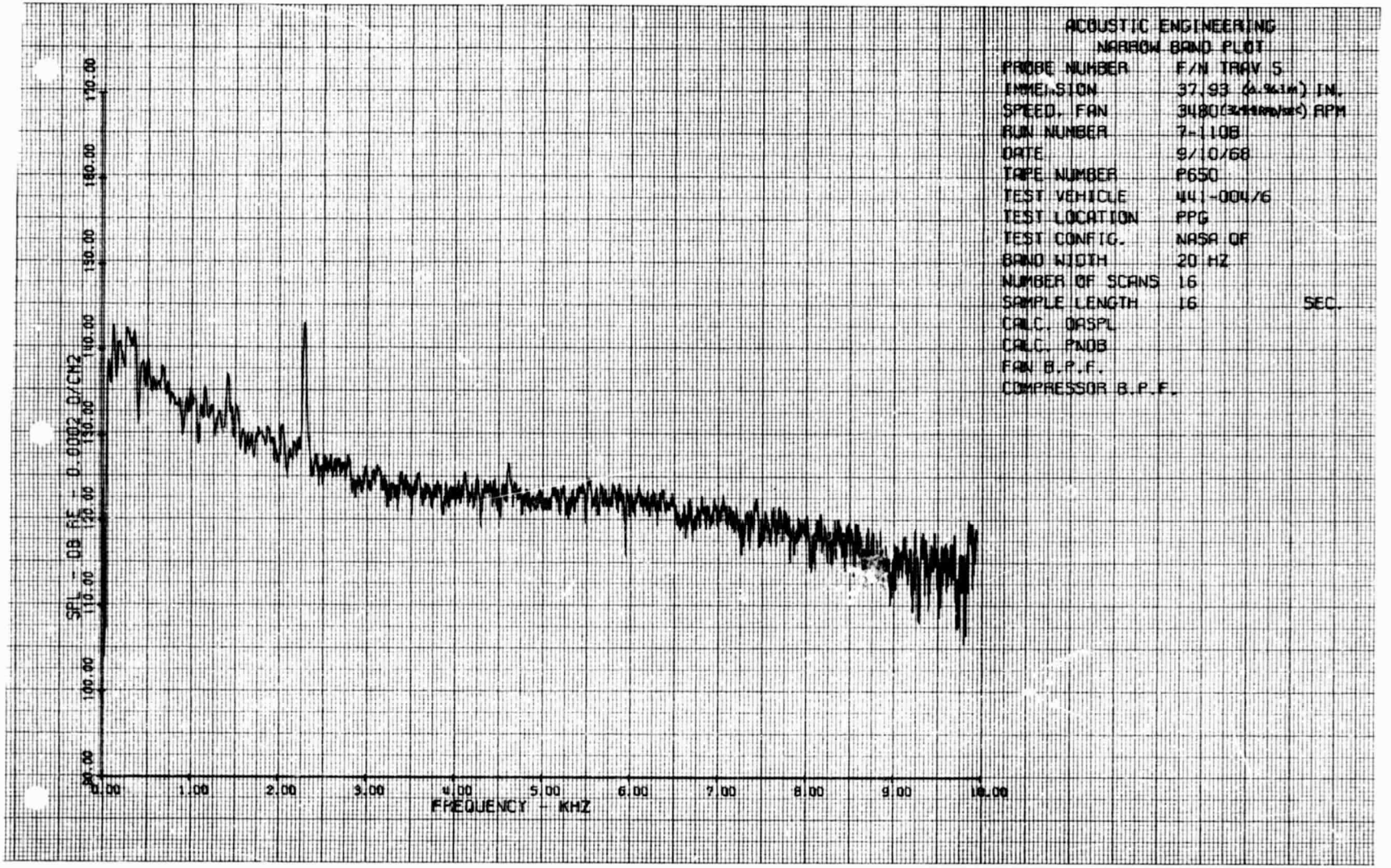

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/H TRAV 4
IMMERSION 27.97 (0.71cm) IN.
SPEED, FAN 3480(3444RPM AR) RPH
RUN NUMBER 7-1108
DATE 9/10/68
TAPE NUMBER PS50
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. BASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
1.00
2.00
3.00
4.00
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9.00
10.00


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/H TRAV 4
IMMERSION 23.64 (0.6mM) IN.
SPEED, FAN 3480(364rad/sec) RPM
RUN NUMBER 7-110C
DATE 9/10/68
TAPE NUMBER P650
TEST VEHICLE 441-0081/6
TEST LOCATION PPG
TEST CON.FIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

ACOUSTIC ENGINEERING
ANDREW BOOT-ADT
PROBE NUMBER B/N TRN 5
IMMERSION 18.3 (4.64 IN.
SPEED, FPM 5,110
RUN NUMBER 67 D58
DATE 7/10/73
TIME NUMBER 1509
TEST VEHICLE UH-40B/G
TEST LOCATION EDC
TEST CONFIG. WOSB DK
BAND WIDTH 20 KF
NUMBER OF SCANS 32
SAMPLE LENGTH 32
CAL. DATA
CAL. FILE
ENG B.F.F. 8 P.F.
COMPRESSOR
SEC.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

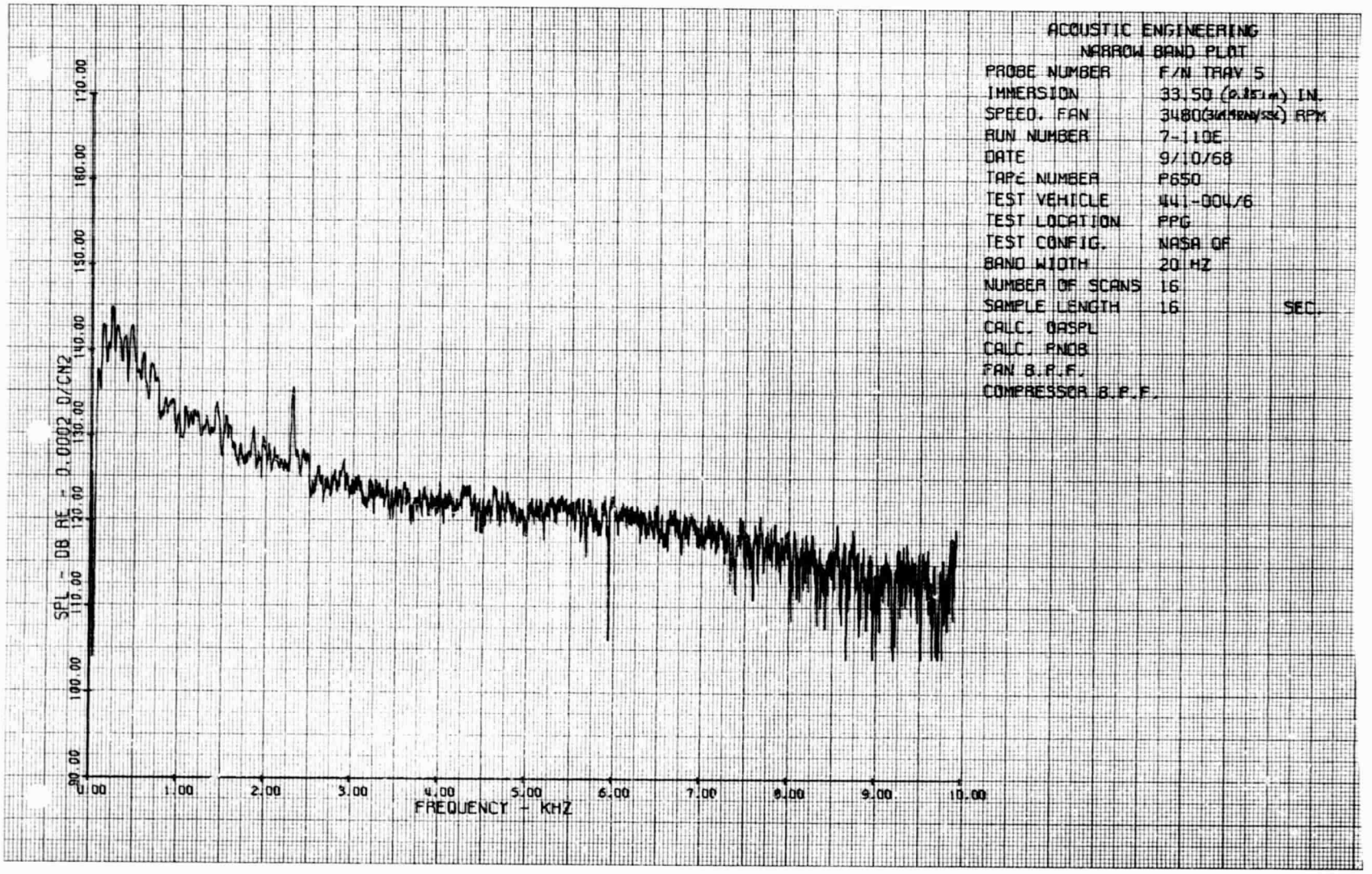

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER INLET
IMMERSION 10.57 (0.268M) IN.
SPEED, FAN 3480 (364.4 RAD/SEC) RPM
RUN NUMBER 110E
DATE 9/10/68
TAPE NUMBER P650
TEST VEHICLE W41-004/6
TEST LOCATION PPG
TEST CONFIG. NASA O.F.
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. BASPL
CALC. FNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
190.00
180.00
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
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2.00
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4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

ACOUSTIC ENGINEERING
NAVSHIPS
GRID PLOT
PROBE NUMBER F.W. #RV 5
TUNNEL DIA. 36.28 (.9 METER)
SPEED FAN (480@44MPH) RPM
RUN NUMBER 2-110
DATE 9/10/68
TEST NUMBER #20
TEST LOCATION #1, -10R/6
GRID WIDTH #5
NUMBER OF SCANS 20
SAMPLE LENGTH 16 SEC.
CAL. SPECL
CAL. END
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
90.00
100.00
110.00
120.00
130.00
140.00
150.00
160.00
170.00
0.00
1.00
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3.00
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10.00

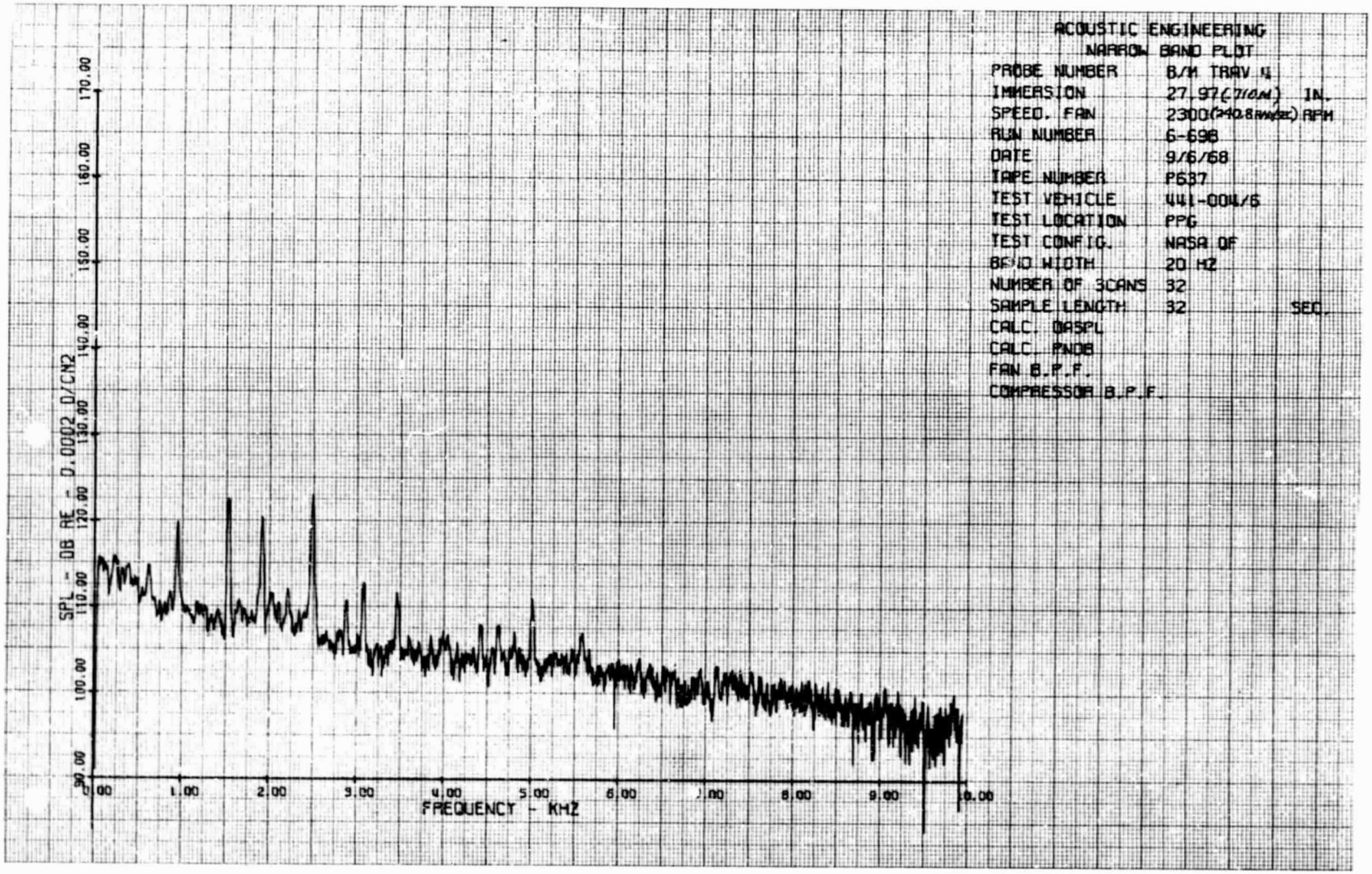

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 37.93 (4.94m) IN.
SPEED, FAN 3480(3444rpm) RPM
RUN NUMBER 7-1108
DATE 9/10/68
TAPE NUMBER P650
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
190.00
180.00
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
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7.00
8.00
9.00
10.00
FREQUENCY - KHZ

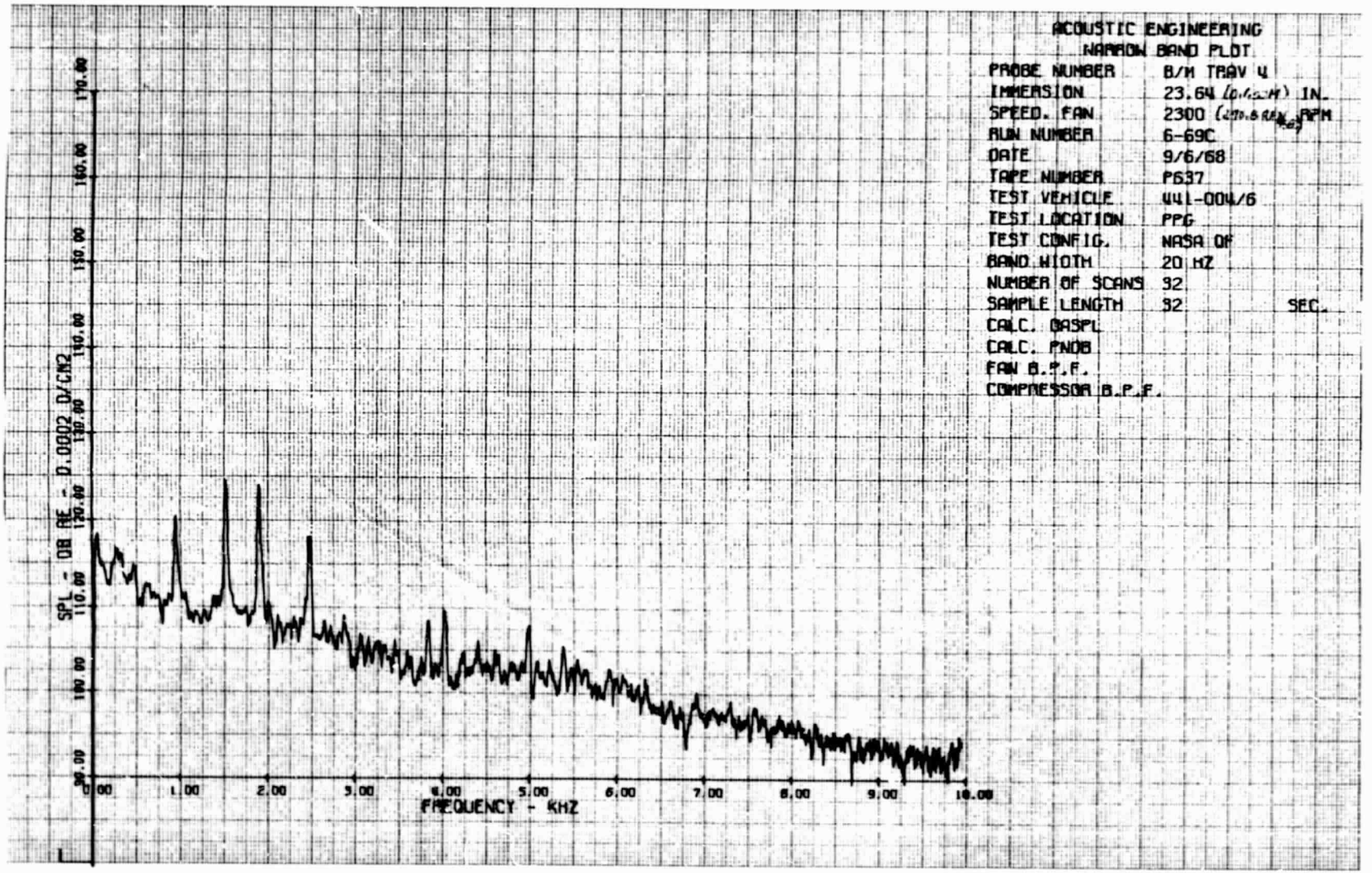
ACOUSTIC ENGINEERING
NARROW BAND PLOT
FAN RPM 5
SEC
FREQUENCY - KHZ
SPL - DB RE - 0.0002 D/CM2

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N RAW 5
DIAMETER 35.01(4.90sq) IN.
SPEED, FAN 3980(Max Rec) RPM
FAN NUMBER 2-100
DATE 9/10/68
TAPE NUMBER P650
TEST VEHICLE WU-100/6
TEST LOCATION PPG
TEST CONFIG. MRSA DF
BAND WIDTH 20 HZ
NUMBER OF SCANS 15
SAMPLE LENGTH 15 SEC.
CALC. GRSA
CALC. ENDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - 0B RE - 0.0002 D/CM2
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 33.50 (0.851m) IN.
SPEED. FAN 3480(34.8RPM/SEC) RPM
RUN NUMBER 7-11DE
DATE 9/10/68
TAPE NUMBER P650
TEST VEHICLE #41-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

ROBERTSHAW ENGINEERING
MISSION SPEC PLOT
PROBE NUMBER
IMMERSION
SPEED, FPM
RUN NUMBER
DATE
TAPE NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CALC. GOSP.
CALC. END
FAN B.P.F.
COMPRESSOR B.P.F.
SET
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 27.97(.710M) IN.
SPEED, FAN 2300(240.8 RAD/SEC) RPM
RUN NUMBER 6-696
DATE 9/6/68
TAPE NUMBER P637
TEST VEHICLE 441-0014/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
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3.00
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5.00
6.00
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9.00
10.00
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 23.64 (0.6 M) IN.
SPEED. FAN 2300 (230.8 RAD/SEC) RPM
RUN NUMBER 6-69C
DATE 9/6/68
TAPE NUMBER P637
TEST VEHICLE 44L-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

SPL - DB RE - 0.0002 D/CM2
FREQUENCY KHz

ACOUSTIC ENGINEERING
NOISE BAND PLOT
PROBE NUMBER
MICS ON
SPEC. FIN
FIN NUMBER
DATE
TIME NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CALC. MAPL
CALC. PNB
FIN B.P.F.
COMPRESSION
SEC.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

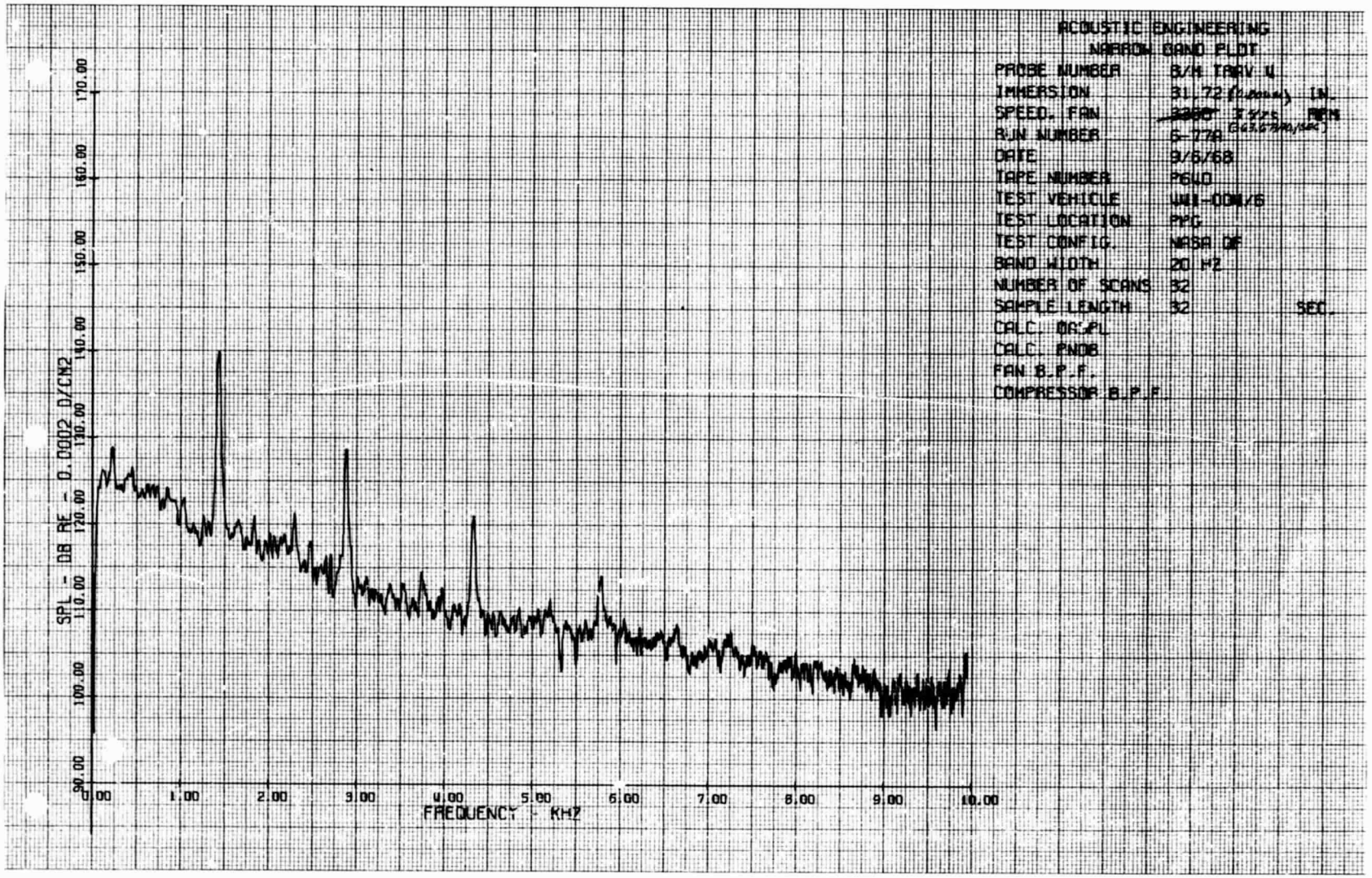
ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 38.90 (.98M) IN.
SPEED, FAN 2300 (2400 Max) RPM
RUN NUMBER 6-698
DATE 8/6/68
TAPE NUMBER 7637
TEST VEHICLE LM1-DDM/6
TEST LOCATION PPG
TEST CONFIG. NASA DF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. DDSPL
CALC. FNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

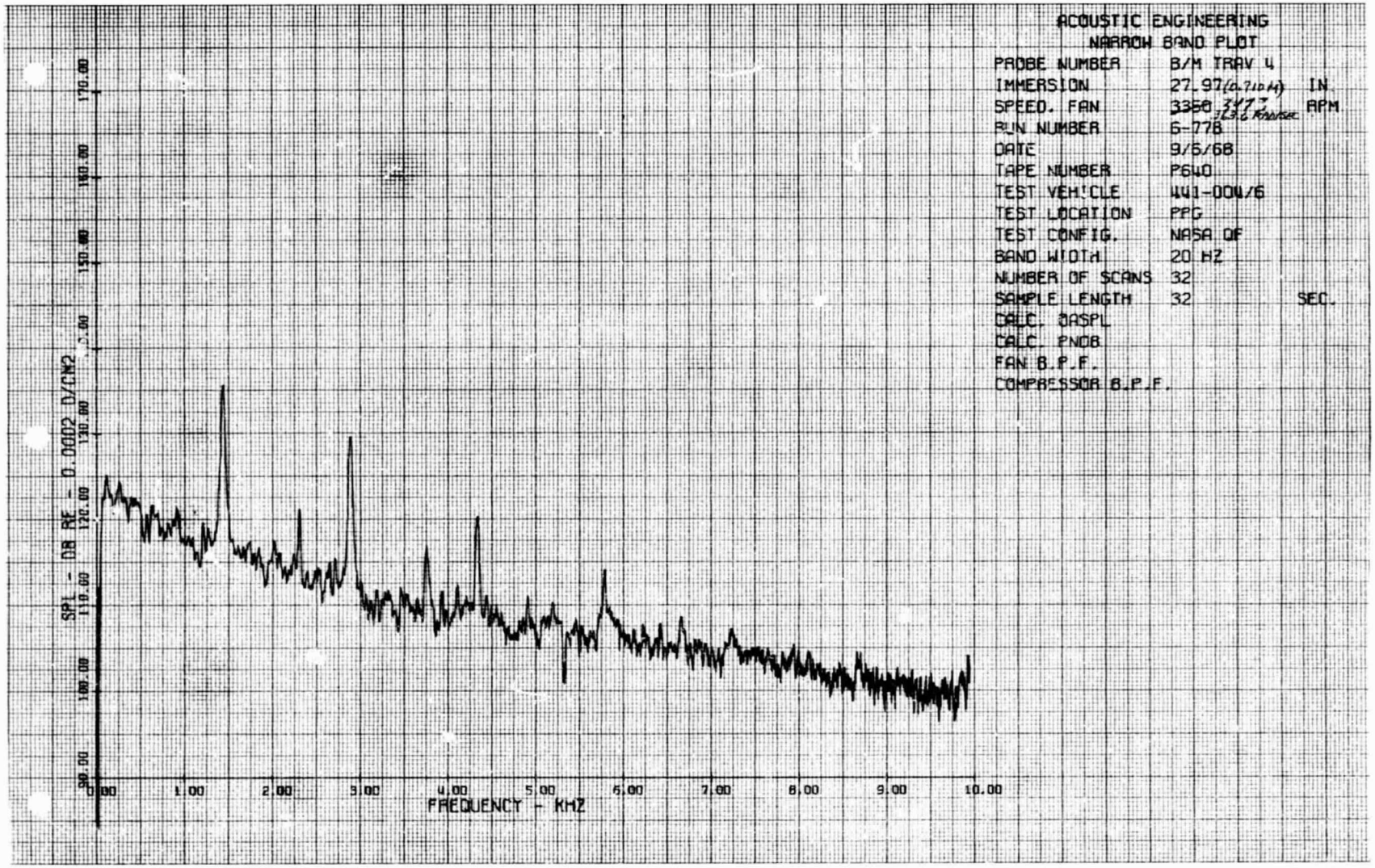
ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER
F/N TRAV S
SPEED, FAN
FAN NUMBER
DATE
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
SWEEP LENGTH
CALC. SCAL
CALC. FWD
FAN B.P.F.
COMPRESSOR B.P.F.
SEC
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

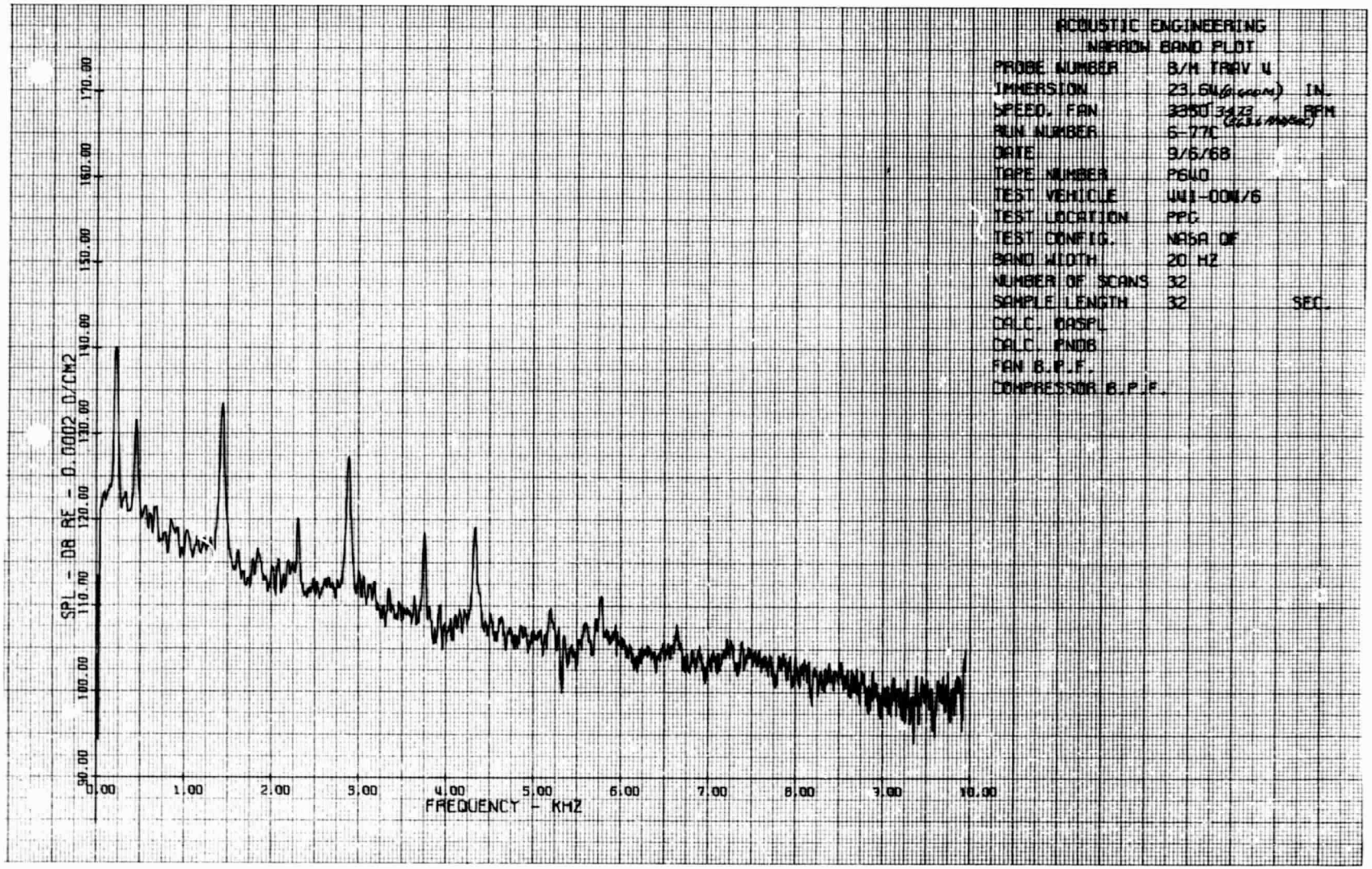
ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 36.28 (922 M) IN.
SPEED, FAN 2300 (248.8 RADS/SEC) RPM
RUN NUMBER 6-59C
DATE 9/6/68
TAPE NUMBER P637
TEST VEHICLE W41-000/6
TEST LOCATION PPG
TEST CONFIG. NASA DF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. BASIL
CALC. RADB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
0.00
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7.00
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90.00
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110.00
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140.00
150.00
160.00
170.00

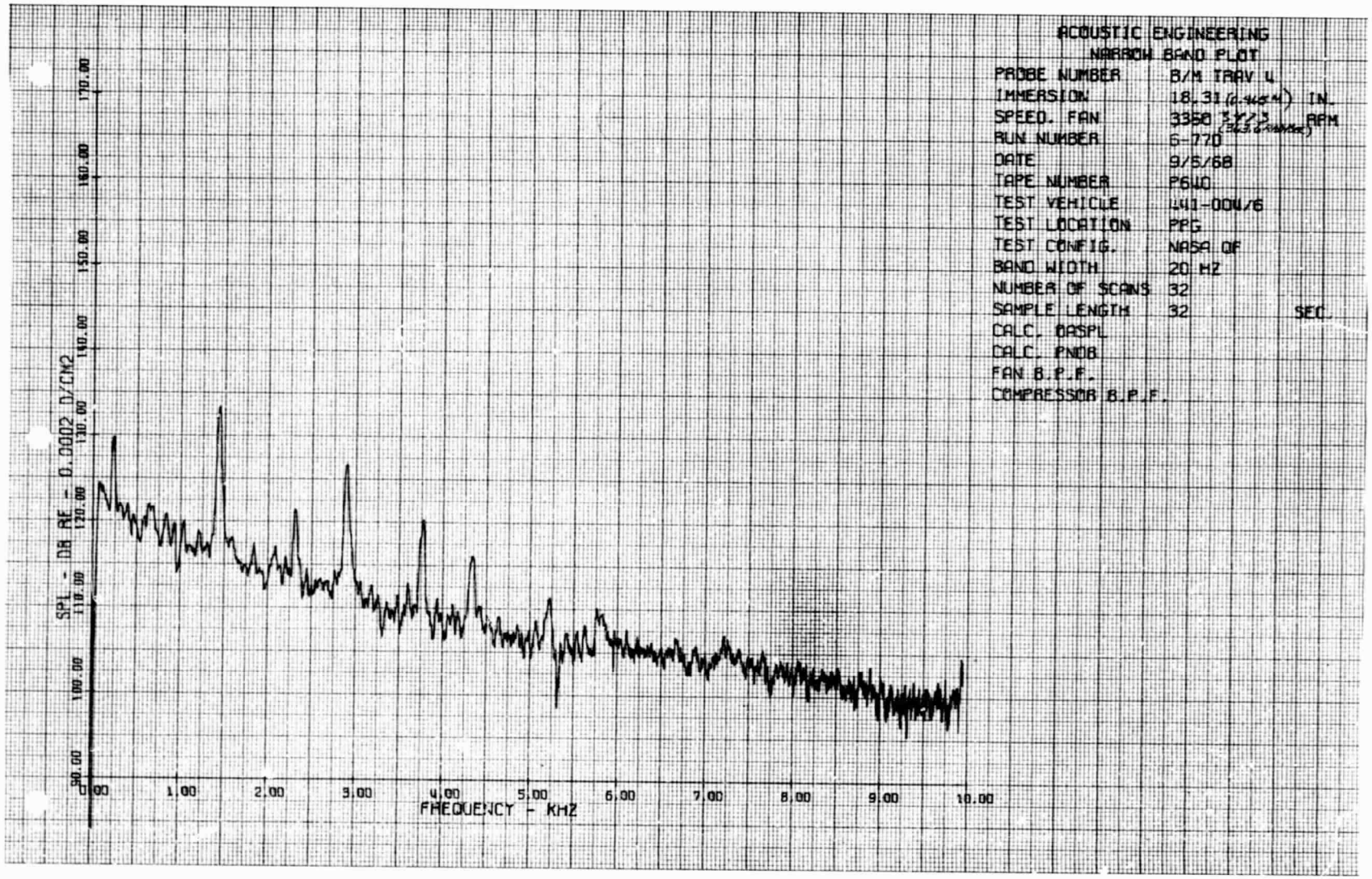
ACOUSTIC ENGINEERING
MICRON
BAND PLOT
FAN INLET S
PROBE NUMBER 6 (0.89 /Axis) IN
SPEED, FAN 2300RPM(38.3REV/SEC)
FAN NUMBER S-500
DATE 9-6-68
TAPE NUMBER 6827
TEST VOLUME MIL-DRUM
TEST LOCATION ARDC
BAND WIDTH 20 Hz
NUMBER OF SCANS 32
SAMPLE LENGTH 32
CALC. DATE
CALC. TIME
FAN BLADES 18 F.F.
COMPRESSOR BLADES
SEC
SPL - DB RE - 0.0002 D/CM2
90.00
100.00
110.00
120.00
130.00
140.00
150.00
160.00
170.00
0.00
1.00
2.00
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8.00
9.00
10.00
FREQUENCY - KHZ

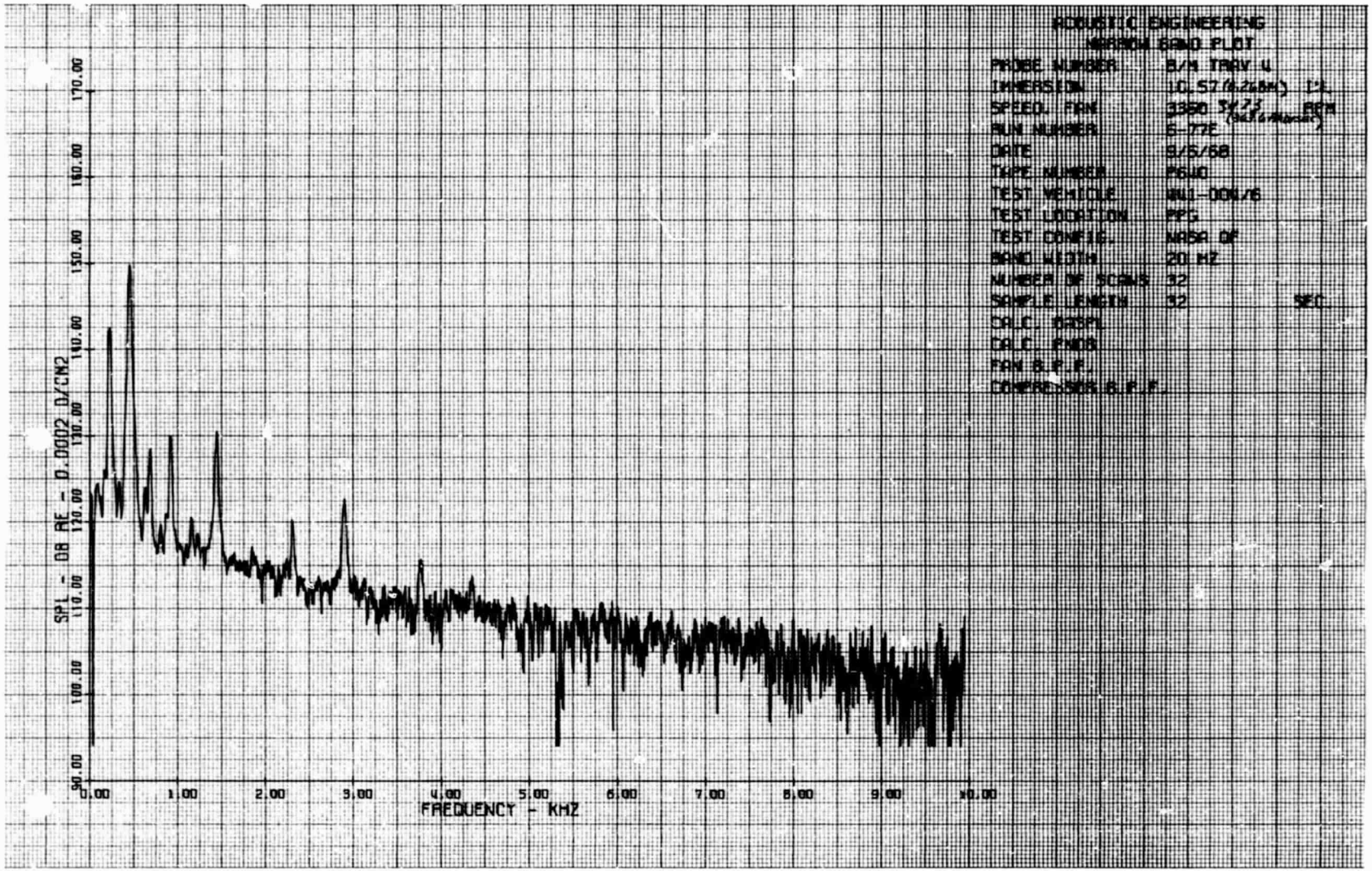
ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAY 5
IMMERSION 34.52 (.877M) IN.
SPEED. FAN 2300 (240.8RAD/SEC) RPM
RUN NUMBER 6-69E
DATE 8/5/68
TAPE NUMBER P637
TEST VEHICLE WJ-606/6
TEST LOCATION PFG
TEST CONFIG. NASA DF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SET
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
0.00
1.00
2.00
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6.00
7.00
8.00
9.00
10.00
90.00
100.00
110.00
120.00
130.00
140.00
150.00
160.00
170.00


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/H TRAV U
IMMERSION 31.72 (80.6mm) IN.
SPEED, FAN 3980T 33⅓S RPM
R.U.N NUMBER 6-77A
DATE 9/6/68
TAPE NUMBER P640
TEST VEHICLE LMI-ODM/6
TEST LOCATION PPG
TEST CONFIG. NASA DF
BAND WIDTH 20 H2
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. BG.PL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
FREQUENCY - KHZ

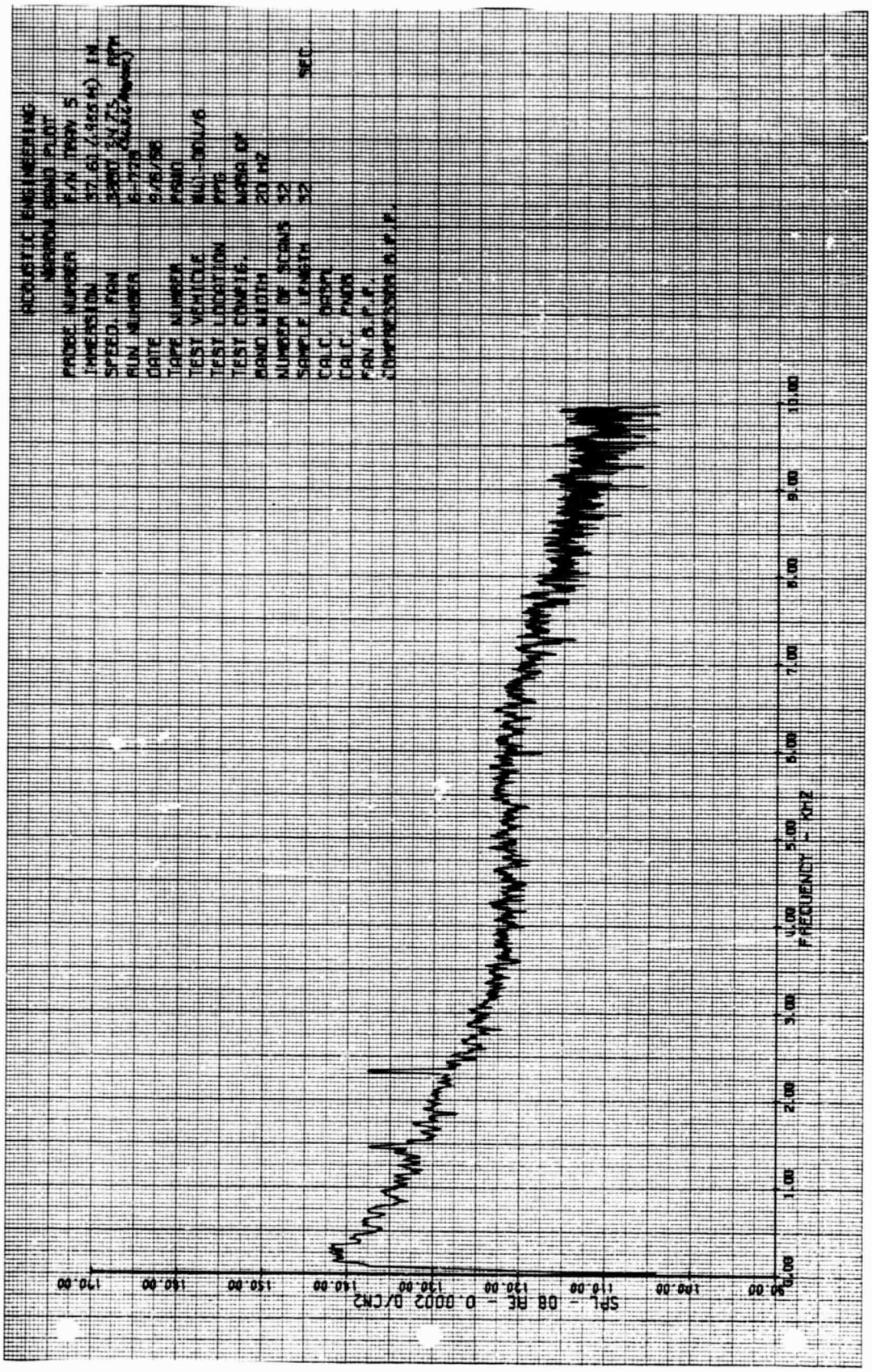

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 27.97(0.710M) IN.
SPEED. FAN 3350 3477 RPM
RUN NUMBER 6-778
DATE 9/6/68
TAPE NUMBER P640
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
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10.00
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 23.5M(Green) IN.
SPEED, FAN 3350 3423 RPM
RUN NUMBER 6-77C
DATE 9/6/68
TAPE NUMBER P6W0
TEST VEHICLE W1-0061/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
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FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 18.31 (0.4654) IN.
SPEED. FAN 3350 3373 RPM
RUN NUMBER 6-770
DATE 9/6/68
TAPE NUMBER P640
TEST VEHICLE 441-0004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
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FREQUENCY - KHZ

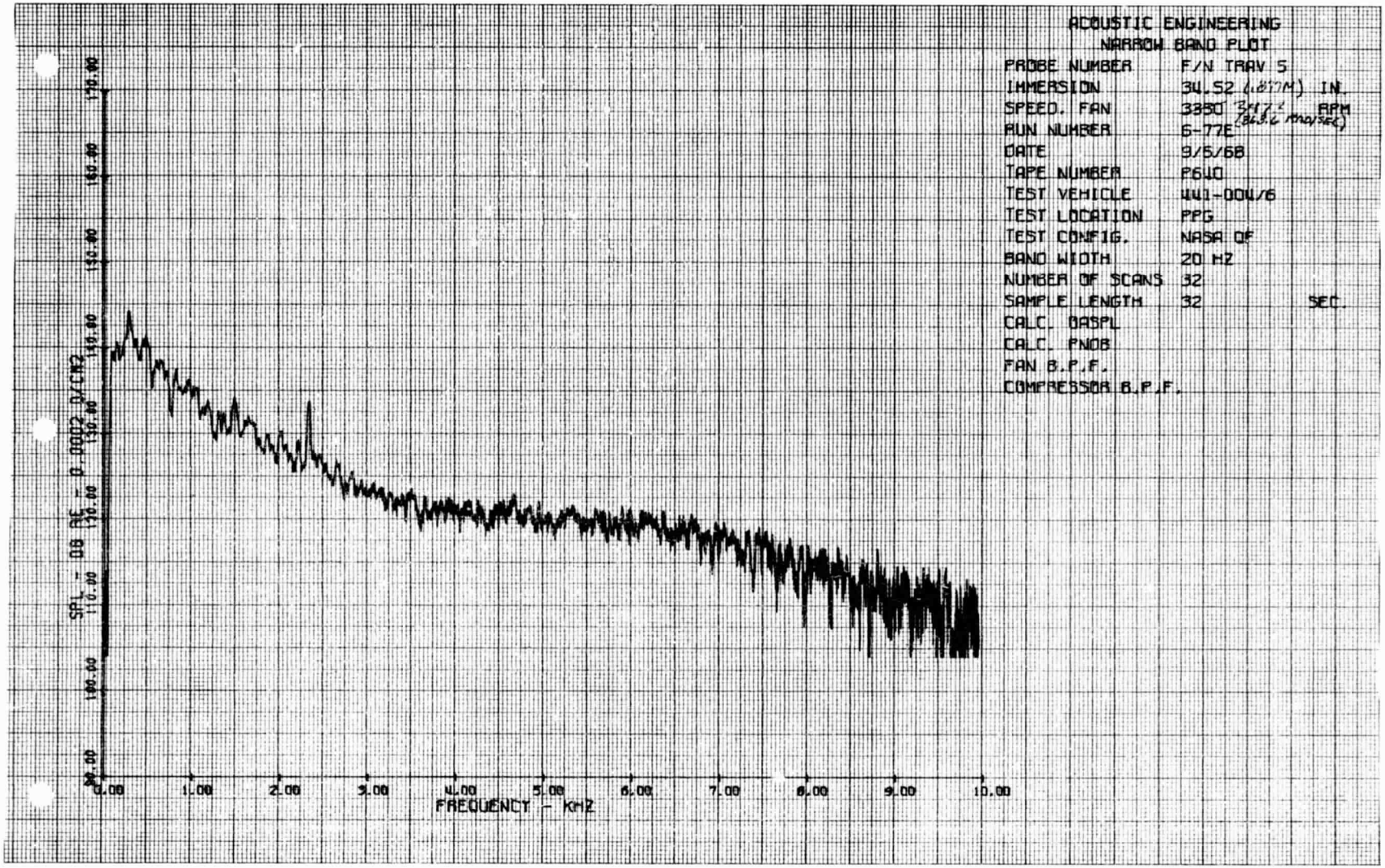

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 10.57(8.26IN) I.L.
SPEED, FAN 3350 SYZ
RUN NUMBER 6-77E
DATE 8/6/68
TAPE NUMBER P6U0
TEST VEHICLE BMI-006/6
TEST LOCATION PFS
TEST CONFIG. NOSE DF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC
CALC. RASN
CALC. FNOR
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
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FREQUENCY - KHZ

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRV 5
IMMERSION 38.90 (.988M) IN.
SPEED, FAN 3350 (54.2%) RPM
RUN NUMBER 6-77A
DATE 9/6/68
TAPE NUMBER P640
TEST VEHICLE WU1-DOU/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ


SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

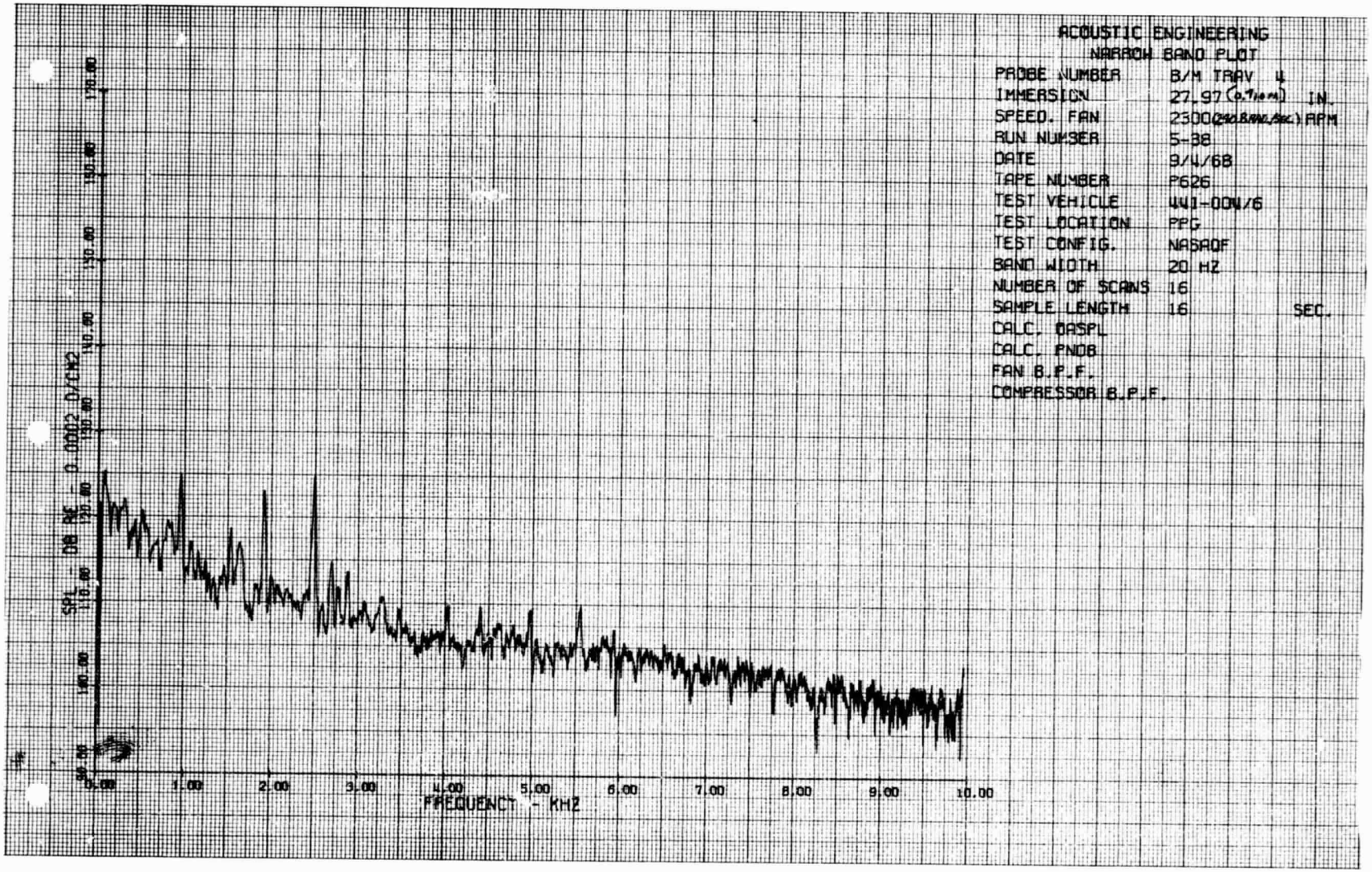
ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 36.28(922 M) IN.
SPEED, FAN 3350 (345 RPM/SEC) RPM
RUN NUMBER 6-77C
DATE 9/6/68
TAPE NUMBER P6W0
TEST VEHICLE W41-D0L/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. BASIL
CALC. ENOR
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

FREQUENCY - KHZ
SPL - 08 RE - 0.0002 D/CM2

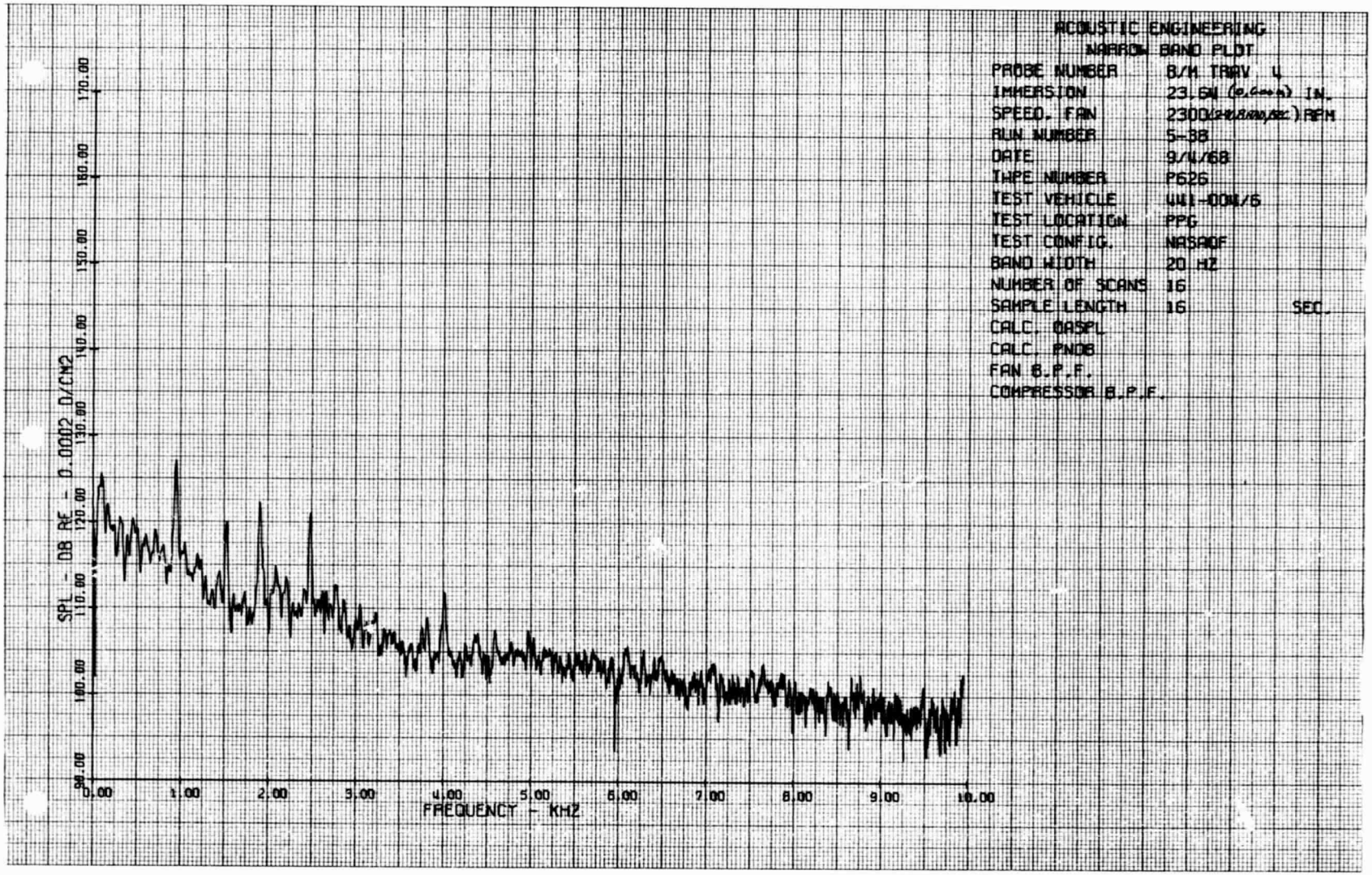

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 34.52 (.877M) IN.
SPEED. FAN 3330 RPM
RUN NUMBER 6-77E
DATE 9/6/68
TAPE NUMBER P6U0
TEST VEHICLE 441-0004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

D100

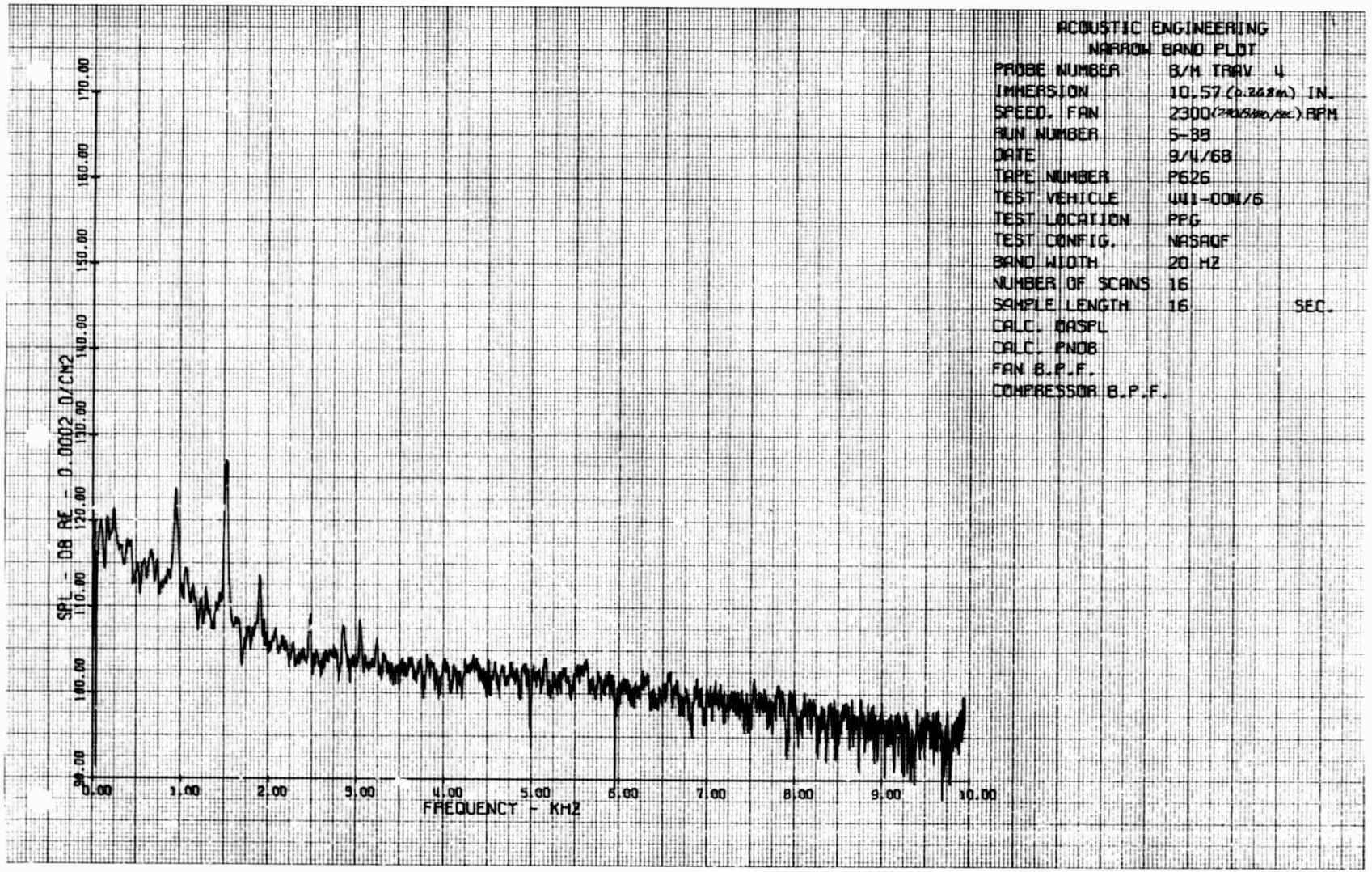
SPL - DB RE - 0.0002 D/CM2
90.00
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FREQUENCY - KHZ
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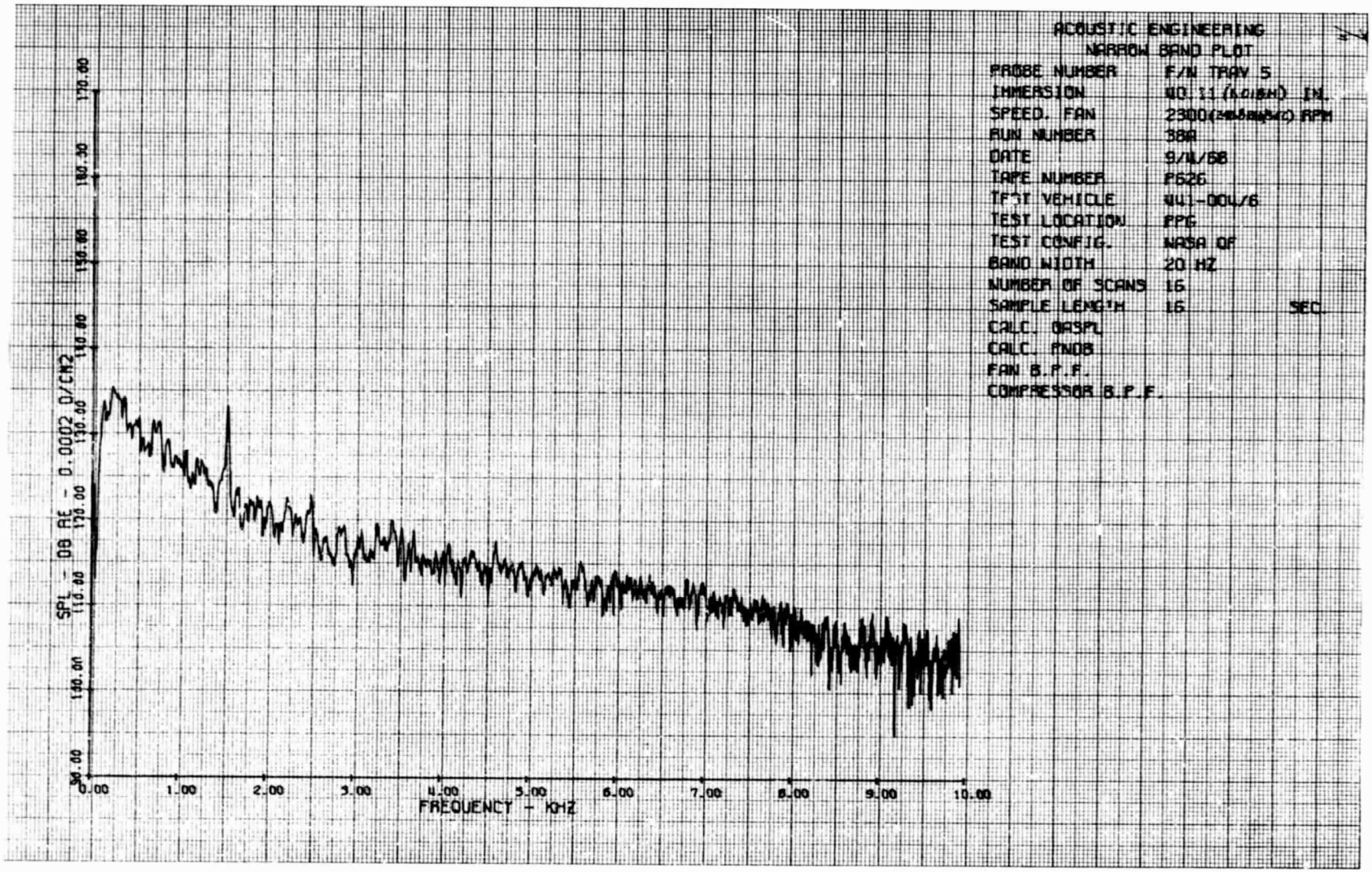

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 27.97 (0.71cm) IN.
SPEED, FAN 2300 (240.8 RAD/Sec) RPM
RUN NUMBER 5-38
DATE 9/4/68
TAPE NUMBER P626
TEST VEHICLE 441-00N/6
TEST LOCATION PPG
TEST CONFIG. NASAOF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE: 0.0002 D/CM2
FREQUENCY - KHZ
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D102


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 8/M TRAV 4
IMMERSION 23.6N (0.6m) IN.
SPEED, FAN 2300 (38.3 rev/sec) RPM
RUN NUMBER 5-38
DATE 9/4/68
TYPE NUMBER P626
TEST VEHICLE WWI-OOM/6
TEST LOCATION PPG
TEST CONFIG. NASAOF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
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FREQUENCY - KHZ

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 8/H FROV 4
IMMERSION 18.31 (6.46CM) IN.
SPEED. FAN 2300 (243.5RAD/SEC) RPM
RUN NUMBER 5-38
DATE 8/4/68
TAPE NUMBER P626
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASAQF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC OASPL
CALC PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER B/M TRAV 4
IMMERSION 10.57 (0.268m) IN.
SPEED, FAN 2300 (240.5 rad/sec) RPM
RUN NUMBER 5-38
DATE 9/4/68
TAPE NUMBER P626
TEST VEHICLE 441-0041/6
TEST LOCATION PPG
TEST CONFIG. NASAOF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
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FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 40.11 (4.018H) IN.
SPEED, FAN 2300(2868RPM40) RPM
RUN NUMBER 388
DATE 9/11/68
TAPE NUMBER P626
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
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FREQUENCY - KHZ

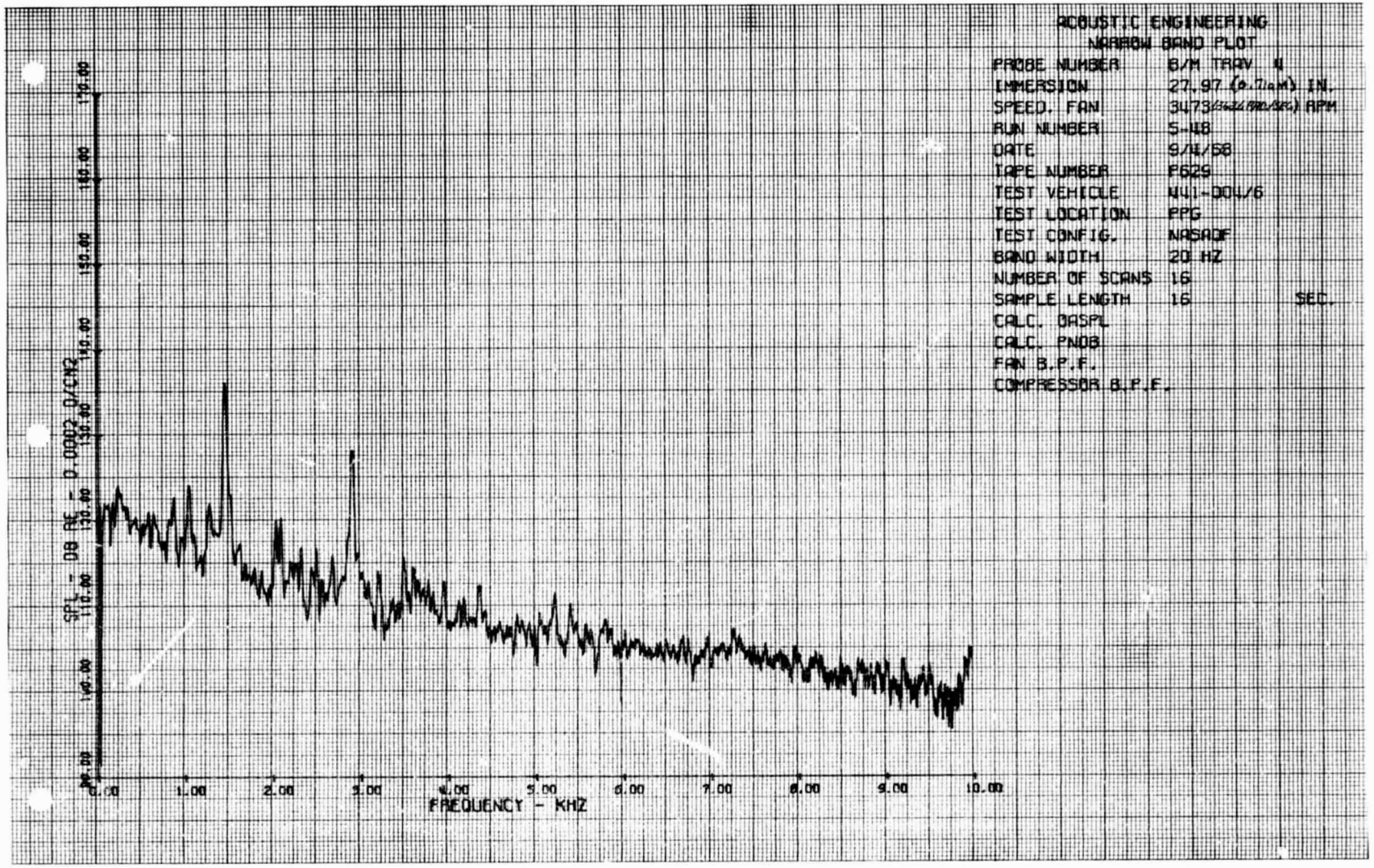
ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 38.59 (98cm) IN.
SPEED, FAN 2300 (244 Rad/sec) RPM
RUN NUMBER 388
DATE 9/15/88
TAPE NUMBER P626
TEST VEHICLE WU1-DDU/6
TEST LOCATION PPG
TEST CONFIG. NOSE OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. ORSR
CALC. FNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
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FREQUENCY - KHZ

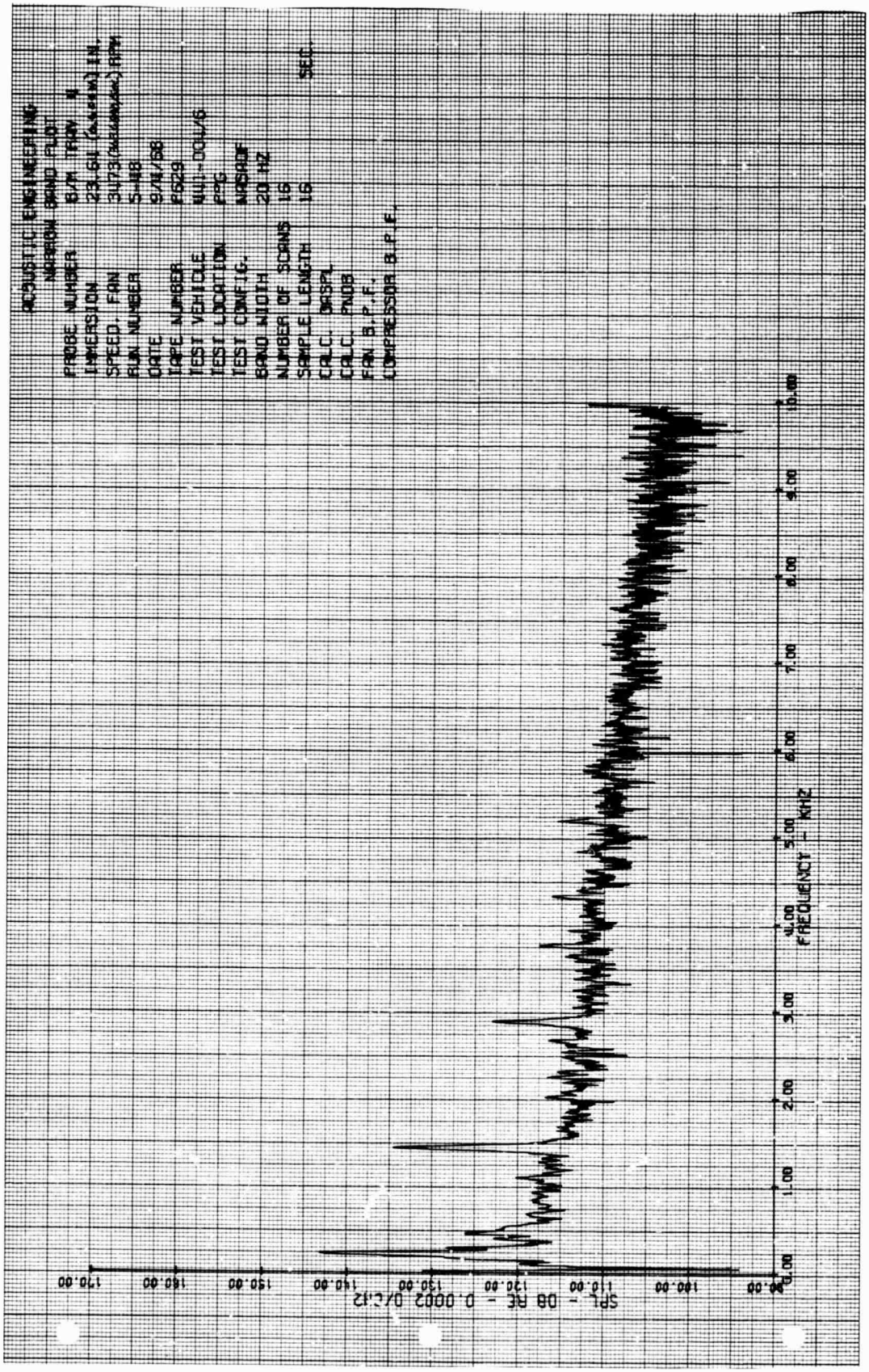
ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV S
IMMERSION 37.01 (940 M) IN.
SPEED, FAN 2300 (
FAN NUMBER 38C
DATE 9/
TAPE NUMBER F646
TEST VEHICLE MU1-DO1/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16
CALC. BPSPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SEC.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KH
0.00
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170.00

AD-A181 ENGINEERING
NARROW BAND PLOT
PROBE NUMBER
IMMERSION
SPEED, FAN
RUN NUMBER
DATE
TAPE NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CALC. BRSPL
CALC. FNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SEC
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 33.61 (.854m) IN.
SPEED, FAN 2300 (240.9m/sec) RPM
RUN NUMBER 38E
DATE 9/1/68
TAPE NUMBER P636
TEST VEHICLE NH1-004/6
TEST LOCATION PPG
TEST CONFIG NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC
CALC. GRSPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

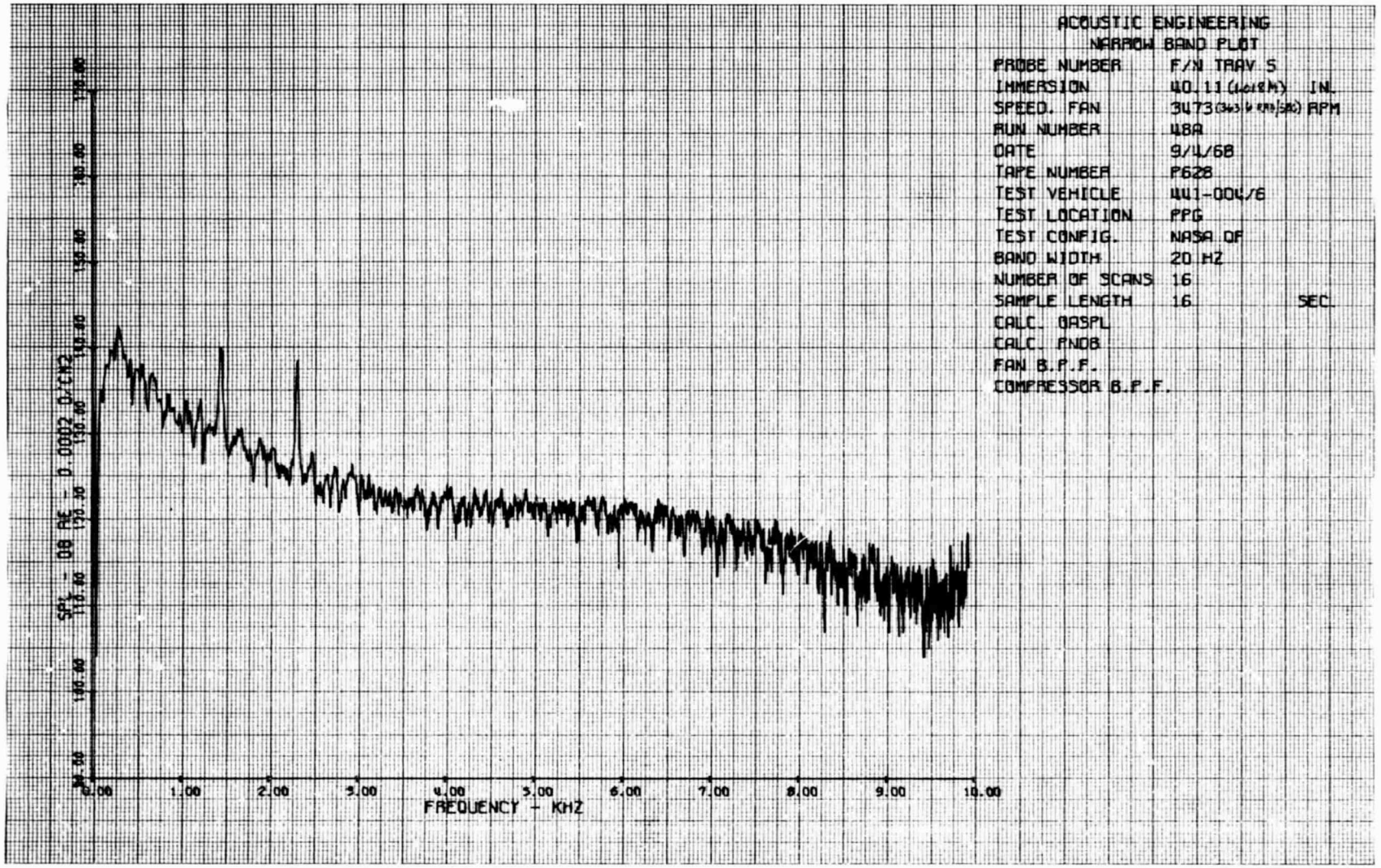
SPL - DB RE - 0.0002 D/CM2
90.00
100.00
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FREQUENCY - KHZ

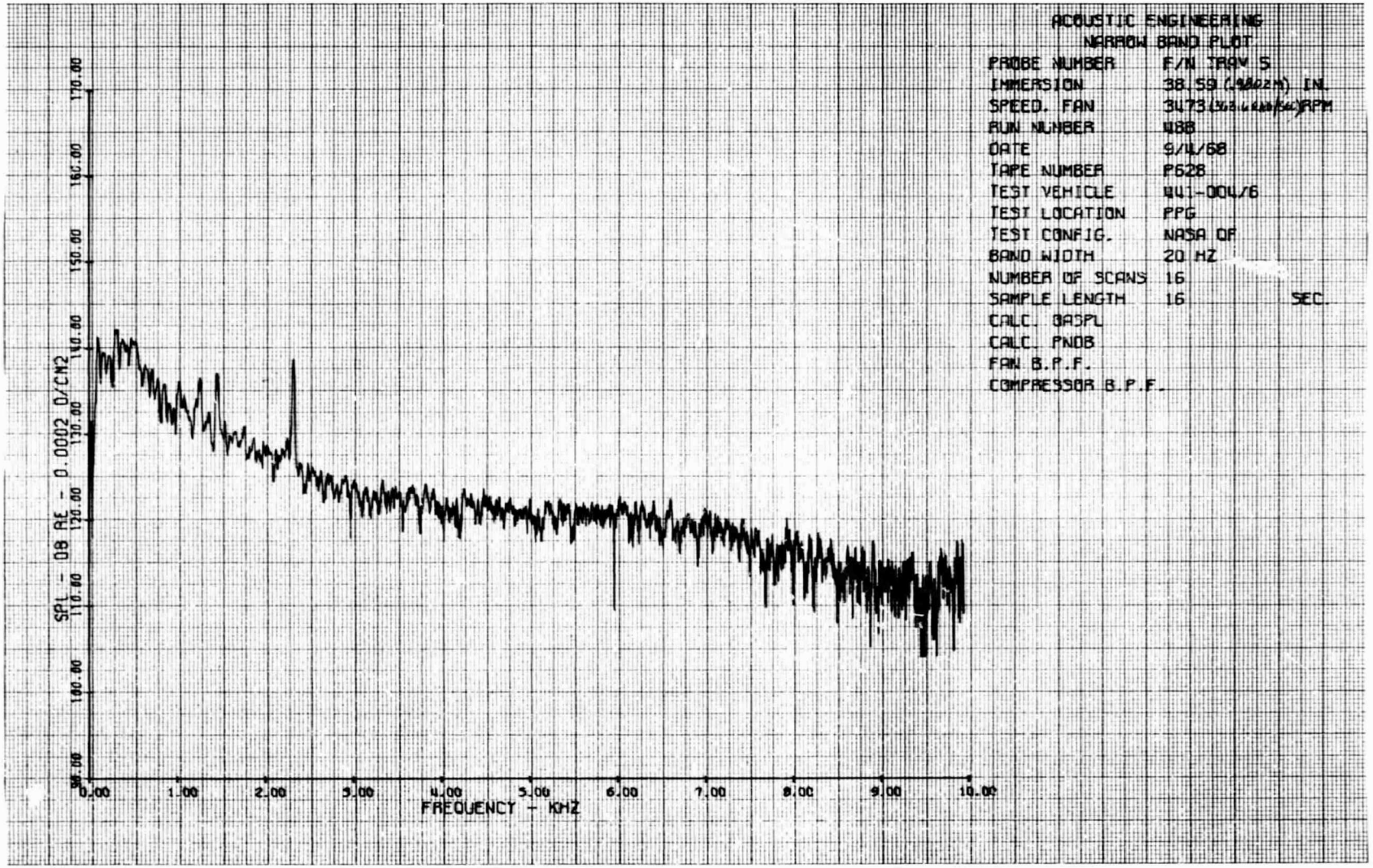

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 6/M TRAV N
IMMERSION 27.97 (0.71cM) IN.
SPEED, FAN 3473 (34.4 RPS/SEC) RPM
RUN NUMBER 5-48
DATE 9/4/68
TAPE NUMBER F629
TEST VEHICLE N41-004/6
TEST LOCATION FPG
TEST CONFIG. NASADF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
170.00
160.00
150.00
140.00
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FREQUENCY - KHZ

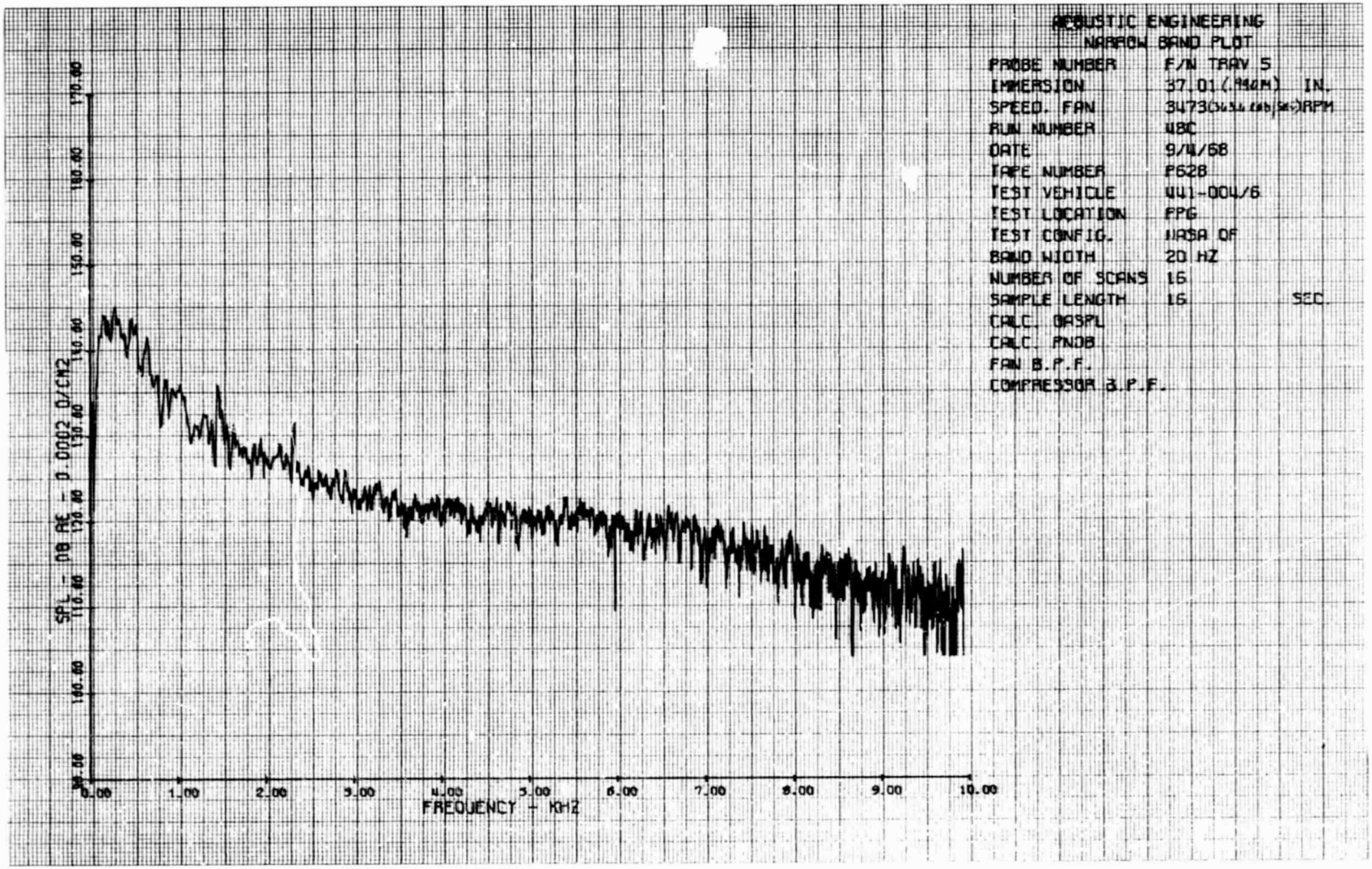

ACOUSTIC ENGINEERING
WORSOM
PROBE NUMBER
IMMERSION
SPEED, FAN
RUN NUMBER
DATE
TAPE NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CAL.
CAL. BRSPL
CAL. AMDB
FAN B.P.F.
COMPRESSOR B.P.F.
SEC.
FREQUENCY - KHz
SPL - DB RE - 0.0002 DYNES/CM2

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER 6/M TRAV 4
IMMERSION 18.31 (.46 M) IN.
SPEED, FAN 3473 (3436 REAL) RPM
RUN NUMBER 5148
DATE 9/4/68
TAPE NUMBER F629
TEST VEHICLE NUI-001/6
TEST LOCATION PPG
TEST CONFIG. NOSEOF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. SMSPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 DYNES/CM2
FREQUENCY - KHZ
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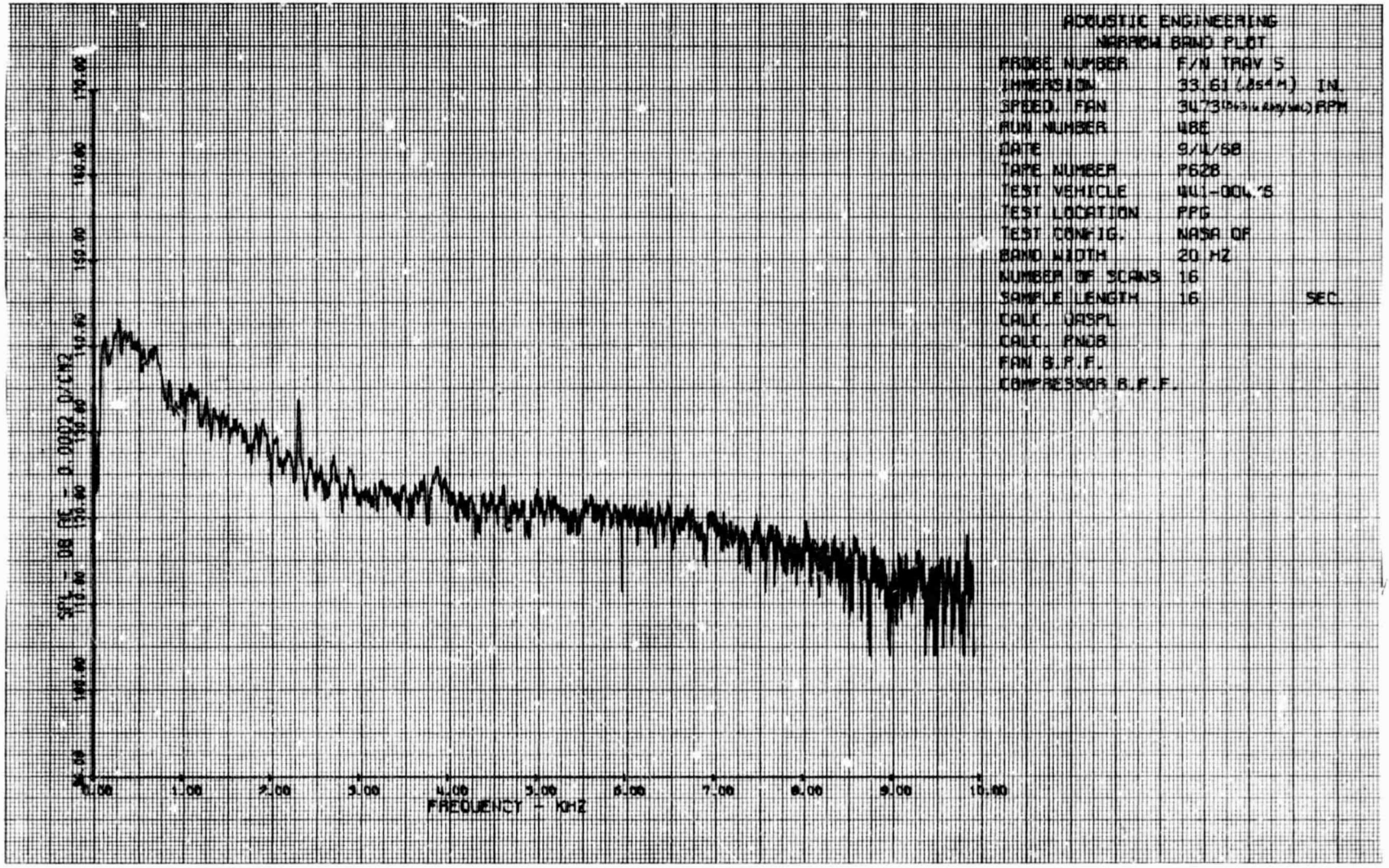
ACOUSTIC ENGINEERING
NORTON
BASE PLOT
BA TEST 4
10.57.7 (14MAY) 1M.
SPEED, RPM 3173(44 KMPH) 2MPH
RUN NUMBER 5MB
DATE 9MAY88
TIME NUMBER P029
TEST VEHICLE VN1-00L/6
TEST LOCATION FPG
TEST CONFIG. MOTOR
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CAL. 94DB
CAL. FAN
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
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ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 40.11 IN.
SPEED, FAN 3473 RPM
RUN NUMBER 48A
DATE 9/4/68
TAPE NUMBER P628
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
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ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 38.59 (980cm) IN.
SPEED, FAN 3473 (96.4 rps) RPM
RUN NUMBER 488
DATE 9/4/68
TAPE NUMBER P628
TEST VEHICLE 841-004/6
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. PNOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
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FREQUENCY - KHZ

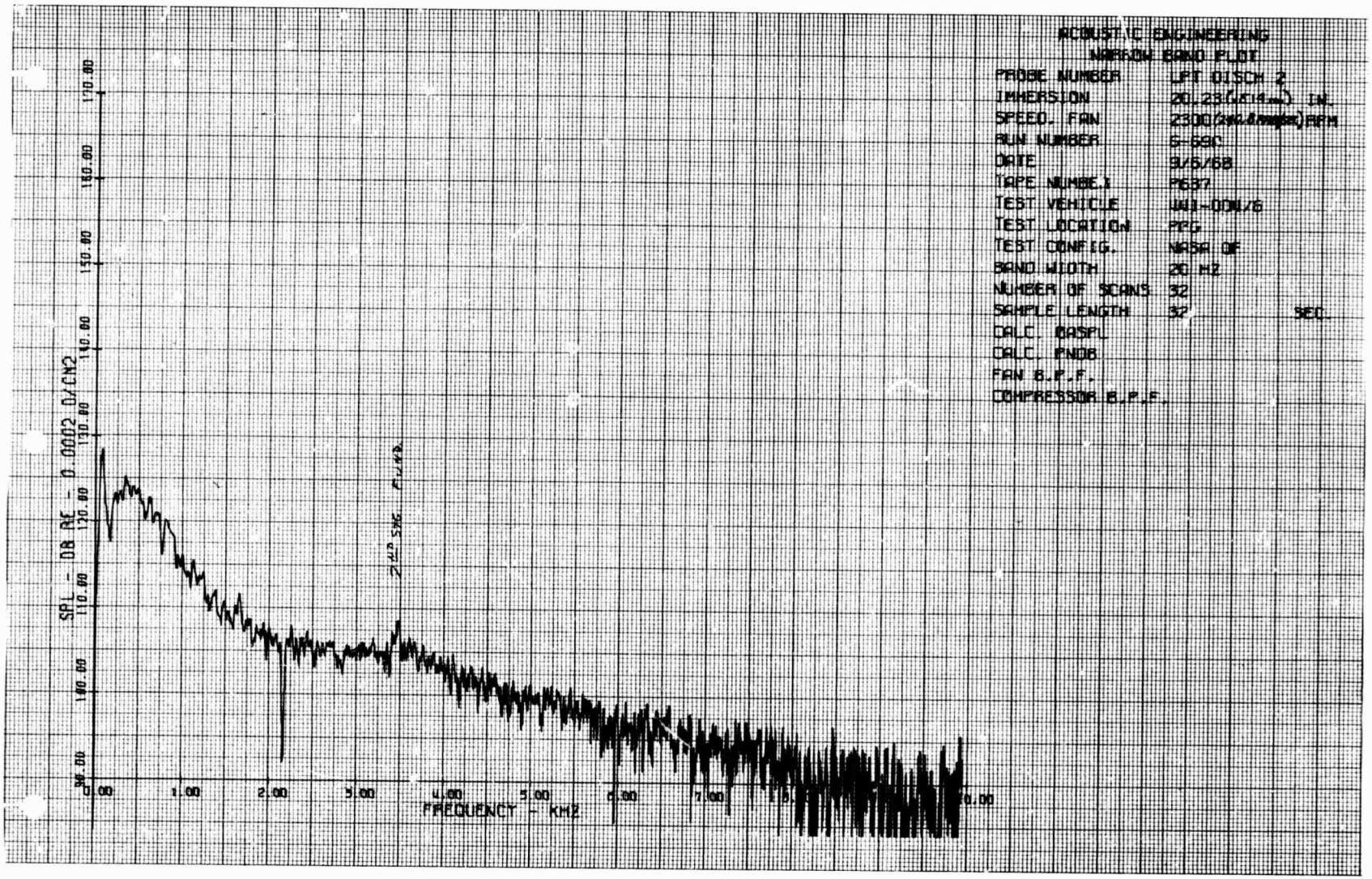

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV 5
IMMERSION 37.01 (.940M) IN.
SPEED. FAN 3473(3454 cmb/sec)RPM
RUN NUMBER 48C
DATE 9/4/68
TAPE NUMBER P628
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. ANOB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
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10.00
FREQUENCY - KHZ

SPL - 08 RE - 0.0002 D/CM2
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER F/N TRAV S
IMMERSION 33.61 (.854 M) IN.
SPEED, FAN 34,730 (11,577 RPS) RPM
RUN NUMBER 48E
DATE 9/4/68
TAPE NUMBER F628
TEST VEHICLE 441-004 S
TEST LOCATION PPG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 16
SAMPLE LENGTH 16 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE. 0.0002 DYNE/CM2
FREQUENCY - KHZ
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER LPT DISCH 2
IMMERSION 20.23 (514 mm) IN.
SPEED, FAN 23006 (4000 RPM) RPH
RUN NUMBER 5-38
DATE 8/4/68
TAPE NUMBER P625
TEST VEHICLE UA1-006/6
TEST LOCATION PPG
TEST CONFIG. NASA DF
BAND WIDTH 21 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32
CALC. OASPL
CALC. PNDL
FAN B.P.F.
COMPRESSOR B.P.F.
SEC
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ
2nd Stage Fund.
3rd Stage Fund.

ACOUSTIC LABORATORY
NAVAL RESEARCH
WASHINGTON, D.C.
PROBE NUMBER
INVESTIGATION
SPEED, FAN
FAN NUMBER
DATE
TEST CONDITION
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CALC. STOP
CALC. END
FAN B.P.F.
DISCRETE B.P.F.
SPL - DB RE - 0.0002 DYNES/CM2
FREQUENCY - KHZ

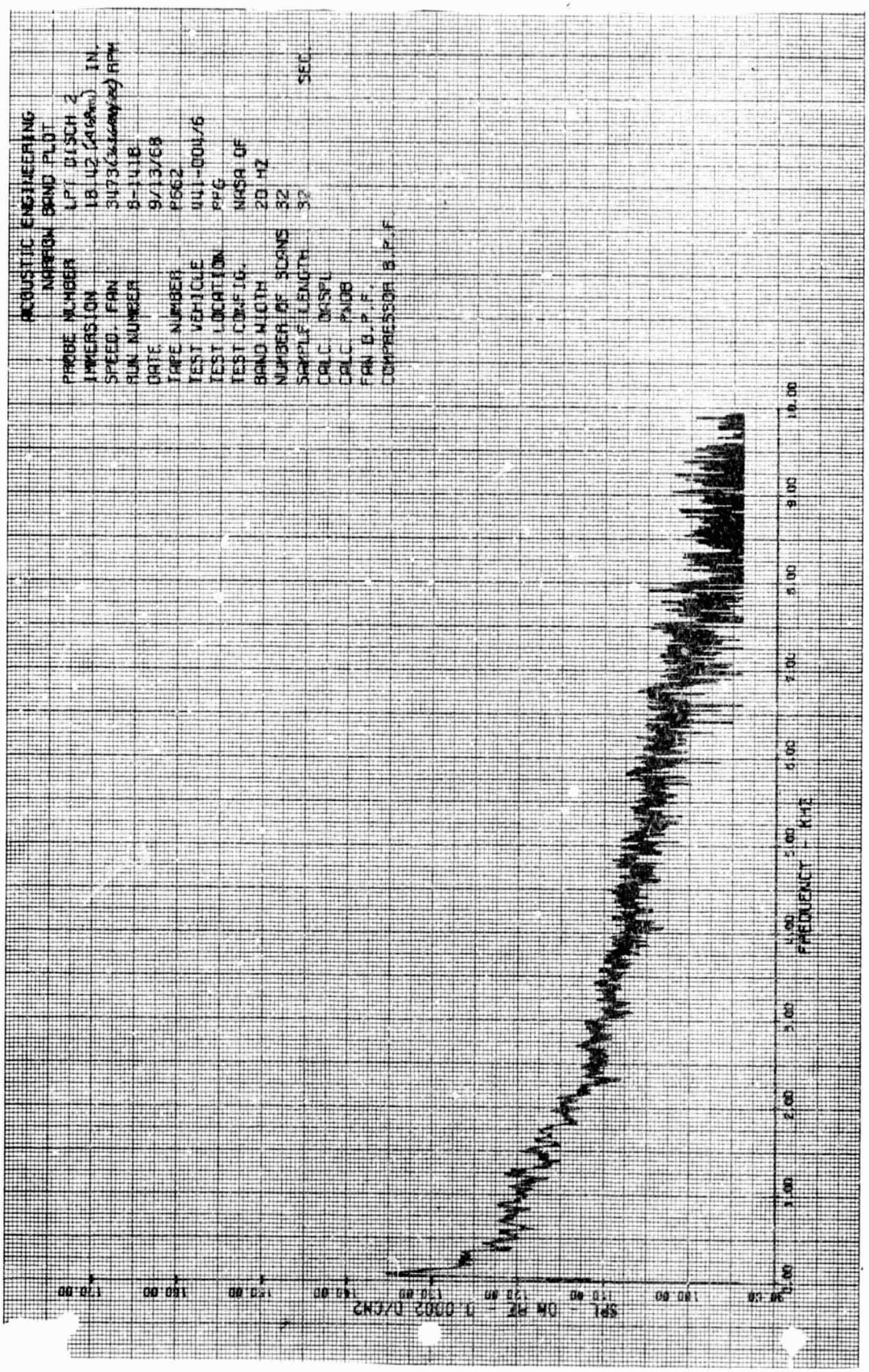

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER LPT DISCH 2
IMMERSION 20.23(
SPEED, FAN 2300(
RUN NUMBER S-69C
DATE 9/6/68
TAPE NUMBER P637
TEST VEHICLE WA1-0DW/6
TEST LOCATION PFG
TEST CONFIG. NASA QF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. BASPL
CALC. FNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 DYNE/CM2
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
90.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
FREQUENCY - KHZ

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER
IMMERSION
SPEED, FSW
RUN NUMBER
DATE
TAPE NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CALC. CORR.
CALC. FWD
FSW B.F.F.
COMPRESSOR B.F.F.
SEL
SPL - DB RE - 0.0002 DYN/CM2
FREQUENCY - KHZ

AEROTHERMODYNAMIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER UPT 0.50D 2
NUMBER OF 20.2(5.44 in.)
SPEED, FAN 2380 (Tip Mach No.) RPM
RUN NUMBER 2-1028
DATE 9/10/68
TAPE NUMBER F663
TEST VEHICLE WJ-606/6
TEST LOCATION PFS
TEST CONFIG. N654 BF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
90.00
100.00
110.00
120.00
130.00
140.00
150.00
160.00
170.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
FREQUENCY - KHZ
2 MP STG. FUSELAGE ENTRY

ACOUSTIC ENGINEERING
NARROW BAND PLOT
PROBE NUMBER LPT DISCH 2
IMMERSION 20.23(514m) IN.
SPEED, FAN 3180(3x44 RPM) RPM
RUN NUMBER 7-1.0A
DATE 9/10/68
TAPE NUMBER P650
TEST VEHICLE 441-004/6
TEST LOCATION PPG
TEST CONFIG. NASA OF
BAND WIDTH 20 HZ
NUMBER OF SCANS 32
SAMPLE LENGTH 32 SEC.
CALC. OASPL
CALC. PNDB
FAN B.P.F.
COMPRESSOR B.P.F.
SPL - DB RE - 0.0002 D/CM2
FREQUENCY - KHZ

ACOUSTIC ENGINEERING
WEBER
SPL - DB RE - 0 0002 D/CM2
FREQUENCY - KHZ


ACOUSTIC ENGINEERING
NORDEN BAND PLOT
PROBE NUMBER
IMMERSION
SPEED, FAN
RUN NUMBER
DATE
TAPE NUMBER
TEST VEHICLE
TEST LOCATION
TEST CONFIG.
BAND WIDTH
NUMBER OF SCANS
SAMPLE LENGTH
CAL DISPL
CAL FREQ
FAN B.P.F.
COMPRESSOR B.P.F.
LPF DISCH 2
18 U2
8-418
9/13/68
P562
941-0041/6
PFG
WASA OF
20 HZ
32
32
SEC
FREQUENCY - KHZ
SPL - DB RE .0002 D/CM2