

1.0 INTRODUCTION

1.1 Background

The Federal Aviation Administration (FAA), along with members of the helicopter industry, is continually searching for methods to reduce the cost and effort required for helicopter noise certification. In September 1992, the FAA adopted Appendix J of the Federal Aviation Regulation (FAR), Part 36, which simplifies the certification procedures for helicopters under 6000 lb gross weight¹. In addition, test methods have been proposed by several helicopter manufacturers which will further simplify the complex data acquisition methods required by FAR, Part 36, Appendix H². The accuracy of these simplified methods is being evaluated by reprocessing and analyzing previously collected data and comparing the results with those computed using the more complex, Appendix H procedure. Reprocessing and analysis is being conducted by the USDOT/RSPA/Volpe Center Acoustics Facility, in conjunction with the FAA, and various members of the helicopter industry. The objective of this effort is to reduce the complexity of the noise certification process without sacrificing the accuracy of the resultant noise levels.

Noise measurement flight tests were performed by the FAA and the Volpe Center at Dulles International Airport during June and July, 1983 (Dulles Tests). These tests were originally conducted to address a series of objectives including the propagation and environmental impact of helicopter noise. Detailed acoustical, position, and meteorological data were collected. These tests are

¹ "Alternative Noise Certification Procedure for Primary, Normal, Transport and Restricted Category of Helicopters Not Exceeding 6000 lbs Maximum Takeoff Weight", Federal Register, September 16, 1992.

² "Noise Standards: Aircraft Type and Airworthiness Certification," Federal Aviation Regulations, Part 36, Washington D.C.: Federal Aviation Administration, December 22, 1988.

documented in a series of reports published by the FAA Office of Environment and Energy^{3,4,5,6}. Data collected from the following four selected helicopter noise measurement tests described in these reports are the subject of the current analysis: the Aerospatiale SA365N Dauphin 2, the Boeing Vertol 234/CH47D, the Bell 222 Twin Jet, and the Sikorsky S76A. A detailed description of these helicopters, covering a range of weights from 3560 to 22000 kg, is presented in Appendix A.

1.2 Scope

The current analysis focuses on a proposed simplification of aircraft position determination. FAR 36, Appendix H, states: "The position of the aircraft must be recorded relative to the runway during the entire time period in which the recorded signal is within 10 dB of PNL_{Tm}" (H36.101(d)). Currently available means of determining exact aircraft position during this time period are as follows: radar tracking; video tape recordings of the aircraft;

³Newman, Steven J., Rickley, Edward J., Daboin, Sharon A. and Beattie, Kristy R., Noise Measurement Flight Test: Data Analyses Aerospatiale SA 365N Dauphin 2, US Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, April 1984, Report No. FAA-EE-84-2.

⁴Newman, Steven J., Rickley, Edward J., Bland, Tyrone L., and Beattie, Kristy R., Noise Measurement Flight Test: Data/Analyses Boeing Vertol 234/CH47-D Helicopter, US Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, September 1984, Report No. FAA-EE-84-7.

⁵Newman, Steven J., Rickley, Edward J., Bland, Tyrone L., and Daboin, Sharon, A., Noise Measurement Flight Test: Data/Analyses Bell 222 Twin Jet Helicopter, US Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, February 1984, Report No. FAA-EE-84-1.

⁶Newman, Steven J., Rickley, Edward J., Bland, Tyrone L., and Beattie, Kristy R., Noise Measurement Flight Test: Data/Analyses, Sikorsky S-76A Helicopter, US Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, September 1984, Report No. FAA-EE-84-6.

the use of a global positioning system. These methods can be quite costly and the data reduction unnecessarily laborious.

Below is a summary of three alternative methods for determining aircraft position which were evaluated herein:

- 'Three-Point' Position Determination: The aircraft track is determined by fitting a linear regression line through three points, as follows: (1) The position at overhead; (2) the position 150 m downrange of the centerline center microphone; (3) the position 150 m uprange of the centerline center microphone.
- 'Two-Point' Position Determination: The aircraft track is determined by drawing a line through two points, as follows: (1) the position 150 m downrange of the centerline center microphone; (2) the position 150 m uprange of the centerline center microphone.
- 'One-Point' Position Determination: The aircraft track is determined using the position at overhead. The climb/descent angles are assumed to be equal to the reference climb/descent angles in this situation.

In the above three methods, the altitude at each position is determined by photographic techniques, thus greatly reducing the cost and effort required to determine aircraft position. The photographing positions utilized in the Dulles Tests were offset from each microphone and located -183 m, -30.5 m, and +122 m from the centerline-center microphone. Acoustic data were obtained at -150 m, centerline-center (0 m), and +150 m.

Tables B-1 through B-4 in Appendix B contain the helicopter altitude at each of the three photographing positions, the calculated overhead altitude, and the calculated climb angle for each position determination method.

2.0 DATA ANALYSIS

The accuracy of the three proposed methods described in Section 1.2 was evaluated using data from four types of flight conditions: 150 m level flyover; 300 m level flyover; approach; takeoff. For each condition, the difference between the average Delta 1 and Delta 2 corrections for the baseline method and the average Delta 1 and Delta 2 corrections for each alternative method were compared.

2.1 Meteorological Data

Meteorological data from the Dulles Tests were acquired at 30 m intervals from ground level through the highest test altitude. This data was used to calculate the average atmospheric absorption over the propagation path at the time when $PNLT_{max}$ occurred.

2.2 Position Data

Using the overhead altitude and climb angles presented in Appendix B, a helicopter flight track was constructed for the three position determination methods, respectively. No information was available on the lateral deviation from the flight track; therefore it was assumed to be zero.

2.3 Acoustic Data

The original as-measured, one-half second, one-third octave-band spectral time history (with slow sound level meter characteristics) for each event was processed. "Masked" one-third octave-band data, if any, were corrected using frequency extrapolation. The corresponding tracking and meteorological data were merged with the as-measured, adjusted data. The EPNL, corrected to reference conditions, was then computed using the "simplified" correction method of FAR36. The "simplified" method uses Delta 1 and Delta 2 adjustment terms to correct for non-standard conditions. The Delta 1 correction adjusts for non-standard meteorological conditions and

deviations from the reference flight path. The Delta 2 correction adjusts for event duration differences resulting from deviation from the reference overhead altitude and the reference ground speed.

The as-measured and corrected acoustic data for each event, along with tracking data, environmental data and helicopter operating conditions, can be found in the Appendices C through F. In each Appendix, the data grouped under "sideline-left" were measured by the microphone that was located to the left side of the helicopter, and the data under "sideline-right" were measured by the microphone that was located to the right side of the helicopter. Appendix C contains data for the three-point position determination method. Appendix D contains data for the two-point position determination method. Appendix E contains data for the one-point position determination method. Appendix F contains as-measured PNL T time histories for selected events. Appendix G contains corrected one-third octave-band spectra at PNL T_{max} for selected events.

3.0 RESULTS

Tables 1 through 4 show the Delta 1 and Delta 2 correction for each event and position determination method. For comparative analysis, the three-point position determination was used as the baseline. It should be noted, however, that the three-point method is not the true baseline method. Radar tracking would be required for true baseline comparisons. The results obtained from the three-point method may differ from results obtained using actual tracking data.

The results show that the magnitude of the difference between corrections from one method to another are small (i.e., less than 0.39 dB for flyover and less than 0.56 dB for approach and takeoff). Following is a summary of the differences for each helicopter:

3.1 Aerospatiale SA365N Dauphin 2

For 150 m Level Flyover:

- The change in the average Delta 1 value ranges from $-.03$ to $+.01$ dB.
- The change in the average Delta 2 value ranges from $-.02$ to $+.01$ dB.

For 300 m Level Flyover:

- The change in the average Delta 1 value ranges from $-.12$ to $+.06$ dB.
- The change in the average Delta 2 value ranges from $-.02$ to $+.04$ dB.

For Approach:

- The change in the average Delta 1 value ranges from $-.03$ to $+.21$ dB.
- The change in the average Delta 2 value ranges from $.00$ to $+.10$ dB.

- The one-point position determination method yields results much closer to the baseline method than the two-point.

For Takeoff:

- The change in the average Delta 1 value ranges from -0.33 to $+0.42$ dB.
- The change in the average Delta 2 value ranges from -0.17 to $+0.21$ dB.

3.2 Boeing Vertol 234/CH47D

For 150 m Level Flyover:

- The change in the average Delta 1 value ranges from -0.09 to $+0.05$ dB.
- The change in the average Delta 2 value ranges from -0.01 to $+0.08$ dB.
- The one-point position determination method yields results slightly closer to the baseline method than the two-point.

For Approach:

- The change in the average Delta 1 value ranges from 0.00 to $+0.15$ dB.
- The change in the average Delta 2 value ranges from -0.06 to -0.01 dB.
- The one-point position determination method yields results slightly closer to the baseline method than the two-point.

For Takeoff:

- The change in the average Delta 1 value ranges from $+0.02$ to $+0.28$ dB.
- The change in the average Delta 2 value ranges from -0.08 to $+0.01$ dB.

3.3 Bell 222 Twin Jet

For 150 m Level Flyover:

- The changes in the average Delta 1 value range from $-.39$ to $+.17$ dB.
- The change in the average Delta 2 value ranges from $-.07$ to $+.16$ dB.
- The two-point position determination method yields results slightly closer to the baseline method than the one-point.

For 300 m Level Flyover:

- The changes in the average Delta 1 value range from $-.10$ to $+.03$ dB.
- The change in the average Delta 2 value ranges from $-.01$ to $+.03$ dB.
- The two-point position determination method yields results slightly closer to the baseline method than the one-point.

For Approach:

- The change in the average Delta 1 value ranges from $+.01$ to $+.30$ dB.
- The change in the average Delta 2 value ranges from $-.15$ to $+.03$ dB.
- The two-point position determination method yields results slightly closer to the baseline method than the one-point.

For Takeoff:

- The change in the average Delta 1 value ranges from $-.31$ to $+.56$ dB.
- The change in the average Delta 2 value ranges from $-.16$ to $+.02$ dB.
- The one-point position determination method yields results slightly closer to the baseline method than the two-point.

3.4 Sikorsky S-76A

For 150 m Level Flyover:

- The changes in the average Delta 1 value range from $-.12$ to $.00$ dB.
- The change in the average Delta 2 value ranges from $.00$ to $+.04$ dB.
- The two-point position determination method yields results slightly closer to the baseline method than the one-point.

For 300 m Level Flyover:

- The changes in the average Delta 1 value range from $-.04$ to $+.05$ dB.
- The changes in the average Delta 2 value range from $-.02$ to $+.01$ dB.

For Approach:

- The change in the average Delta 1 value ranges from $.00$ to $+.10$ dB.
- The change in the average Delta 2 value ranges from $-.02$ to $.00$ dB.
- The one-point position determination method yields results slightly closer to the baseline method than the two-point.

For Takeoff:

- The change in the average Delta 1 value ranges from $+.02$ to $+.27$ dB.
- The change in the average Delta 2 value ranges from $-.09$ to $.00$ dB.
- The one-point position determination method yields results slightly closer to the baseline method than the two-point.

Based on the above comparisons, it can be concluded that the methods evaluated herein are essentially equivalent for determining helicopter position.

Table 1a. Aerospatiale SA365N Dauphin 2
Delta 1 and Delta 2 Summary
150 m Level Flyover

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
A6	-0.27	-0.15	0.01	-0.23	-0.22	-0.18
A8	-0.39	-0.11	-0.20	-0.14	-0.36	-0.13
A10	-0.27	-0.21	0.00	-0.28	-0.22	-0.23
Average	-0.31	-0.16	-0.06	-0.22	-0.27	-0.18
Two-Point Position Determination						
A6	-0.27	-0.15	-0.00	-0.22	-0.23	-0.18
A8	-0.38	-0.11	-0.15	-0.14	-0.36	-0.14
A10	-0.30	-0.21	-0.05	-0.25	-0.25	-0.22
Average	-0.32	-0.16	-0.07	-0.22	-0.28	-0.18
One-Point Position Determination						
A6	-0.27	-0.15	0.01	-0.23	-0.23	-0.18
A8	-0.39	-0.09	-0.24	-0.11	-0.39	-0.12
A10	-0.19	-0.24	0.13	-0.33	-0.13	-0.26
Average	-0.28	-0.16	-0.03	-0.22	-0.25	-0.19

Table 1b. Aerospatiale SA365N Dauphin 2
Delta 1 and Delta 2 Summary
300 m Level Flyover

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
D22	0.11	-0.32			0.25	-0.34
D24	-0.58	-0.08			-0.52	-0.11
Average	-0.24	-0.20			-0.14	-0.23
Two-Point Position Determination						
D22	-0.02	-0.28			0.13	-0.30
D24	-0.57	-0.09			-0.48	-0.11
Average	-0.30	-0.19			-0.18	-0.21
One-Point Position Determination						
D22	0.35	-0.40			0.46	-0.42
D24	-0.59	-0.08			-0.53	-0.10
Average	-0.12	-0.24			-0.04	-0.26

**Table 1c. Aerospatiale SA365N Dauphin 2
Delta 1 and Delta 2 Summary
Approach**

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
F46	No Data		-1.08	0.47	-0.42	0.12
F47	No Data		-1.30	0.58	-0.53	0.18
F48	No Data		-0.83	0.36	-0.58	0.12
F49	No Data		-0.62	0.27	-0.35	0.09
F50	No Data		-0.68	0.28	-0.36	0.06
F51	No Data		-1.32	0.58	-0.74	0.20
Average			-0.97	0.42	-0.50	0.13
Two-Point Position Determination						
F46	No Data		-1.06	0.46	-0.45	0.13
F47	No Data		-1.36	0.62	-0.55	0.19
F48	No Data		-1.17	0.52	-0.65	0.15
F49	No Data		-1.03	0.45	-0.43	0.13
F50	No Data		-0.88	0.36	-0.45	0.08
F51	No Data		-1.57	0.70	-0.80	0.21
Average			-1.18	0.52	-0.56	0.15
One-Point Position Determination						
F46	No Data		-1.08	0.47	-0.46	0.13
F47	No Data		-1.30	0.58	-0.53	0.17
F48	No Data		-0.83	0.36	-0.51	0.10
F49	No Data		-0.62	0.27	-0.28	0.06
F50	No Data		-0.63	0.27	-0.35	0.06
F51	No Data		-1.32	0.58	-0.71	0.17
Average			-0.96	0.42	-0.47	0.12

Table 1d. Aerospatiale SA365N Dauphin 2
Delta 1 and Delta 2 Summary
Takeoff

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
E27	-0.79	0.26	-1.97	0.78	-1.17	0.33
E29	-0.88	0.31	-2.17	0.92	-1.25	0.38
E30	-0.95	0.37	-2.69	1.10	-1.42	0.44
E31	-0.88	0.29	-2.15	0.89	-1.67	0.36
E32	No Data		-2.74	1.16	-1.45	0.44
E33	No Data		-3.16	1.35	-1.71	0.51
Average 0.41	-0.88	0.31	-2.48	1.03	-1.45	
Two-Point Position Determination						
E27	-0.96	0.29	-2.40	0.94	-1.33	0.37
E29	-1.01	0.35	-2.60	1.08	-1.37	0.42
E30	-1.07	0.41	-3.16	1.30	-1.57	0.48
E31	-1.08	0.35	-2.61	1.09	-1.87	0.42
E32	No Data		-3.14	1.31	-1.57	0.48
E33	No Data		-3.47	1.48	-1.77	0.53
Average	-1.03	0.35	-2.90	1.20	-1.58	0.45
One-Point Position Determination						
E27	-0.67	0.16	-1.70	0.59	-1.03	0.23
E29	-0.75	0.19	-1.85	0.69	-1.09	0.27
E30	-0.74	0.23	-2.18	0.81	-1.21	0.30
E31	-0.75	0.17	-1.72	0.63	-1.41	0.25
E32	No Data		-2.47	0.96	-1.32	0.35
E33	No Data		-2.95	1.18	-1.59	0.42
Average	-0.73	0.19	-2.15	0.81	-1.28	0.30

Table 2a. Boeing Vertol 234/CH47D
Delta 1 and Delta 2 Summary
150 m Level Flyover

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
A1	0.36	-0.13	0.66	-0.28	0.37	-0.16
A2	0.52	-0.37	0.84	-0.54	0.56	-0.34
A3	0.28	-0.09	0.43	-0.20	0.37	-0.12
A4	0.32	-0.13	0.51	-0.21	0.33	-0.10
A5	0.46	-0.15	0.72	-0.32	0.48	-0.18
A6	0.97	-0.36	1.51	-0.64	1.00	-0.33
Average	0.49	-0.18	0.78	-0.37	0.52	-0.21
Two-Point Position Determination						
A1	0.41	-0.15	0.75	-0.32	0.42	-0.18
A2	0.33	-0.30	0.52	-0.40	0.34	-0.27
A3	0.28	-0.09	0.44	-0.20	0.37	-0.12
A4	0.34	-0.13	0.53	-0.23	0.33	-0.10
A5	0.45	-0.15	0.70	-0.32	0.48	-0.18
A6	0.94	-0.34	1.46	-0.62	0.96	-0.32
Average	0.46	-0.19	0.73	-0.35	0.48	-0.20
One-Point Position Determination						
A1	0.19	-0.07	0.36	-0.15	0.21	-0.09
A2	0.89	-0.51	1.43	-0.79	0.94	-0.48
A3	0.34	-0.11	0.53	-0.24	0.43	-0.14
A4	0.35	-0.14	0.55	-0.23	0.36	-0.11
A5	0.51	-0.17	0.80	-0.36	0.53	-0.20
A6	1.01	-0.37	1.57	-0.66	1.04	-0.34
Average	0.55	-0.23	0.87	-0.41	0.59	-0.23

Table 2b. Boeing Vertol 234/CH47D
Delta 1 and Delta 2 Summary
Approach

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
H30	0.44	-0.42	0.92	-0.65	0.49	-0.47
H31	0.64	-0.48	1.19	-0.80	0.69	-0.53
H32	0.38	-0.38	0.77	-0.57	0.40	-0.43
H33	0.57	-0.46	1.08	-0.74	0.61	-0.50
H34	0.19	-0.38	0.38	-0.48	0.28	-0.45
H35	0.52	0.06	0.98	-0.23	0.61	0.01
Average	0.46	-0.34	0.89	-0.58	0.51	-0.40
Two-Point Position Determination						
H30	0.37	-0.40	0.77	-0.60	0.43	-0.45
H31	0.55	-0.45	0.99	-0.73	0.61	-0.50
H32	0.31	-0.35	0.62	-0.51	0.34	-0.40
H33	0.45	-0.42	0.87	-0.65	0.51	-0.46
H34	0.16	-0.39	0.29	-0.46	0.27	-0.44
H35	0.51	0.06	0.87	-0.19	0.59	-0.02
Average	0.39	-0.33	0.74	-0.52	0.46	-0.37
One-Point Position Determination						
H30	0.42	-0.39	0.88	-0.62	0.48	-0.44
H31	0.69	-0.49	1.27	-0.83	0.75	-0.53
H32	0.38	-0.37	0.76	-0.56	0.40	-0.42
H33	0.62	-0.45	1.15	-0.76	0.67	-0.50
H34	0.07	-0.31	0.09	-0.34	0.18	-0.36
H35	0.49	0.08	0.85	-0.16	0.58	0.05
Average	0.45	-0.32	0.83	-0.55	0.51	-0.37

Table 2c. Boeing Vertol 234/CH47D
Delta 1 and Delta 2 Summary
Takeoff

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
G41	1.23	-0.67	2.83	-1.45	1.18	-0.61
G42	0.53	-0.46	0.95	-0.68	0.45	-0.41
G43	1.16	-0.18	2.92	-0.98	1.16	-0.13
G44	0.14	-0.21	-0.95	0.19	0.01	-0.17
G45	0.11	-0.42	-0.38	-0.21	0.06	-0.37
Average	0.63	-0.39	1.07	-0.63	0.57	-0.34
Two-Point Position Determination						
G41	1.12	-0.65	2.55	-1.35	1.07	-0.59
G42	0.41	-0.43	0.61	-0.55	0.34	-0.38
G43	1.08	-0.16	2.59	-0.86	1.04	-0.11
G44	0.06	-0.20	-1.20	-0.29	-0.04	-0.16
G45	0.06	-0.41	-0.59	-0.13	0.02	-0.36
Average	0.55	-0.37	0.79	-0.64	0.49	-0.32
One-Point Position Determination						
G41	1.19	-0.62	2.69	-1.36	1.16	-0.50
G42	0.54	-0.46	1.02	-0.70	0.48	-0.41
G43	1.16	-0.11	2.79	-0.87	1.11	-0.06
G44	0.07	-0.17	-1.20	0.32	-0.03	-0.13
G45	0.09	-0.40	-0.52	-0.15	0.04	-0.36
Average	0.61	-0.35	0.96	-0.55	0.55	-0.29

Table 3a. Bell 222 Twin Jet
Delta 1 and Delta 2 Summary
150 m Level Flyover

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three Point Position Determination						
C10	-0.96	0.44	-2.34	0.98	-0.89	0.41
C11	-0.37	0.19	-0.85	0.38	-0.29	0.16
C12	-0.98	0.45	-2.37	0.99	-0.93	0.42
C13	-1.48	0.68	-3.61	1.60	-1.45	0.66
C14	-1.08	0.49	-2.55	1.10	-1.01	0.46
C15	-0.41	0.18	-1.04	0.40	-0.36	0.16
Average	-0.88	0.41	-2.13	0.91	-0.82	0.38
Two Point Position Determination						
C10	-0.97	0.45	-2.37	0.99	-0.92	0.42
C11	-0.45	0.23	-1.06	0.47	-0.39	0.20
C12	-1.08	0.49	-2.67	1.12	-1.04	0.47
C13	-1.49	0.68	-3.71	1.64	-1.48	0.67
C14	-1.13	0.51	-2.67	1.15	-1.07	0.48
C15	-0.53	0.22	-1.31	0.50	-0.47	0.20
Average	-0.94	0.43	-2.30	0.98	-0.90	0.41
One Point Position Determination						
C10	-0.89	0.41	-2.17	0.91	-0.84	0.39
C11	-0.18	0.11	-0.44	0.21	-0.10	0.09
C12	-0.72	0.34	-1.70	0.72	-0.65	0.31
C13	-1.41	0.65	-3.40	1.52	-1.37	0.63
C14	-0.98	0.45	-2.28	0.99	-0.92	0.42
C15	-0.14	0.07	-0.44	0.15	-0.06	0.04
Average	-0.72	0.34	-1.74	0.75	-0.66	0.31

Table 3b. Bell 222 Twin Jet
Delta 1 and Delta 2 Summary
300 m Level Flyover

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
A2	0.57	-0.19	0.76	-0.25	0.60	-0.21
A3	-0.09	0.01	-0.09	0.01	-0.03	-0.02
A4	0.37	-0.17	0.49	-0.21	0.43	-0.20
A5	0.24	-0.13	0.31	-0.15	0.30	-0.15
A6	-0.78	0.34	-1.01	0.42	-0.65	0.32
Average	0.06	-0.03	0.09	-0.04	0.13	-0.05
Two-Point Position Determination						
A2	0.64	-0.22	0.85	-0.29	0.65	-0.25
A3	-0.12	0.02	-0.14	0.03	-0.05	-0.01
A4	0.39	-0.18	0.51	-0.22	0.46	-0.20
A5	0.17	-0.12	0.26	-0.14	0.26	-0.14
A6	-0.92	0.39	-1.17	0.48	-0.77	0.36
Average	0.03	-0.02	0.06	-0.03	0.11	-0.05
One-Point Position Determination						
A2	0.38	-0.11	0.54	-0.15	0.40	-0.14
A3	-0.04	-0.02	-0.02	-0.02	0.03	-0.04
A4	0.40	-0.18	0.53	-0.22	0.46	-0.21
A5	0.41	-0.19	0.53	-0.23	0.47	-0.21
A6	-0.44	0.24	-0.64	0.28	-0.37	0.21
Average	0.14	-0.05	0.19	-0.07	0.20	-0.08

**Table 3c. Bell 222 Twin Jet
Delta 1 and Delta 2 Summary
Approach**

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
L1	-0.15	0.06	-0.34	0.15	-0.04	0.01
L2	-0.03	0.20	-0.04	0.20	-0.01	0.15
L3	-0.57	0.18	-1.02	0.48	-0.31	0.14
L4	-0.31	0.20	-0.75	0.41	-0.19	0.15
L5	-0.34	0.22	-0.87	0.47	-0.23	0.17
L6	-0.23	0.08	-0.52	0.23	-0.09	0.04
Average	-0.27	0.16	-0.59	0.32	-0.15	0.11
Two-Point Position Determination						
L1	-0.20	0.08	-0.48	0.21	-0.09	0.04
L2	-0.06	0.20	-0.11	0.23	-0.04	-0.01
L3	-0.58	0.19	-1.06	0.49	-0.32	0.14
L4	-0.32	0.20	-0.78	0.42	-0.21	0.15
L5	-0.35	0.21	-0.90	0.47	-0.24	0.17
L6	-0.18	0.04	-0.39	0.15	-0.04	-0.01
Average	-0.28	0.15	-0.62	0.33	-0.16	0.08
One-Point Position Determination						
L1	-0.17	0.08	-0.40	0.19	-0.06	0.03
L2	-0.13	0.26	-0.27	0.33	-0.10	0.21
L3	-0.66	0.21	-1.19	0.55	-0.39	0.16
L4	-0.41	0.25	-1.02	0.55	-0.30	0.20
L5	-0.45	0.28	-1.18	0.62	-0.35	0.23
L6	-0.51	0.22	-1.28	0.60	-0.38	0.18
Average	-0.39	0.22	-0.89	0.47	-0.26	0.17

Table 3d. Bell 222 Twin Jet
Delta 1 and Delta 2 Summary
Takeoff

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
K21	1.74	-0.66	2.77	-1.13	1.50	-0.58
K22	2.81	-1.12	4.38	-1.84	2.57	-1.05
K23	2.80	-0.98	4.37	-1.71	2.56	-0.91
K24	2.86	-1.51	4.37	-2.23	2.45	-1.44
K25	3.91	-1.80	5.71	-2.37	3.05	-1.49
Average	2.82	-1.21	4.32	-1.86	2.43	-1.09
Two-Point Position Determination						
K21	1.41	-0.55	2.24	-0.93	1.19	-0.48
K22	2.49	-1.02	3.91	-1.68	2.26	-0.95
K23	2.33	-0.84	3.67	-1.47	2.10	-0.77
K24	2.48	-1.39	3.81	-2.03	2.08	-1.32
K25	2.95	-1.47	5.18	-2.23	2.72	-1.41
Average	2.33	-1.05	3.76	-1.67	2.07	-0.99
One-Point Position Determination						
K21	1.98	-0.77	3.18	-1.30	1.74	-0.69
K22	2.99	-1.16	4.63	-1.92	2.74	-1.09
K23	3.09	-0.89	4.81	-1.68	2.82	-0.82
K24	3.12	-1.55	4.75	-2.32	2.69	-1.48
K25	3.31	-1.38	5.78	-2.20	3.08	-1.32
Average	2.90	-1.15	4.63	-1.88	2.61	-1.08

Table 4a. Sikorsky S76A
Delta 1 and Delta 2 Summary
150 m Level Flyover

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
B7	-0.91	-0.10	-1.49	0.16	-0.65	-0.13
B8	-0.41	-0.23	-0.98	-0.06	-0.57	-0.20
B9	-0.22	-0.15	-0.19	-0.16	-0.18	-0.18
B10	-0.04	-0.04	-0.07	-0.04	-0.16	-0.01
B12	-0.15	0.01	-0.34	0.06	-0.28	0.04
B13	0.23	-0.16	0.70	-0.34	0.34	-0.19
Average	-0.25	-0.11	-0.40	-0.06	-0.25	-0.11
Two-Point Position Determination						
B7	-0.89	-0.11	-1.46	0.07	-0.63	-0.14
B8	-0.44	-0.22	-1.04	-0.04	-0.60	-0.19
B9	-0.18	-0.17	-0.12	-0.19	-0.14	-0.20
B10	-0.05	-0.03	-0.09	-0.04	-0.17	-0.01
B12	-0.15	0.01	-0.32	0.05	-0.27	0.04
B13	0.23	-0.16	0.70	-0.34	0.34	-0.19
Average	-0.25	-0.11	-0.39	-0.08	-0.25	-0.12
One-Point Position Determination						
B7	-0.85	-0.12	-1.35	0.11	-0.63	-0.15
B8	-0.38	-0.24	-0.89	-0.10	-0.53	-0.22
B9	-0.16	-0.18	-0.08	-0.21	-0.12	-0.20
B10	-0.01	-0.04	-0.04	-0.05	-0.15	-0.02
B12	-0.12	0.00	-0.27	0.03	-0.24	0.02
B13	0.29	-0.19	0.82	-0.39	0.40	-0.22
Average	-0.21	-0.13	0.30	-0.10	-0.21	-0.13

Table 4b. Sikorsky S76A
Delta 1 and Delta 2 Summary
300 m Level Flyover

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
E24	0.57	-0.10	0.73	-0.17	0.65	-0.12
E25	0.58	-0.41	0.72	-0.45	0.55	-0.38
E26	0.63	-0.26	0.86	-0.33	0.66	-0.28
E27	-0.10	0.01	-0.28	0.03	-0.18	0.04
E28	0.38	-0.17	0.55	-0.22	0.44	-0.19
Average	0.41	-0.19	0.52	-0.23	0.42	-0.19
Two-Point Position Determination						
E24	0.63	-0.12	0.81	-0.20	0.71	-0.15
E25	0.63	-0.43	0.79	-0.47	0.60	-0.40
E26	0.65	-0.26	0.89	-0.34	0.67	-0.29
E27	-0.11	0.02	-0.29	0.04	-0.19	0.04
E28	0.44	-0.19	0.61	-0.24	0.49	-0.21
Average	0.45	-0.20	0.56	-0.24	0.46	-0.20
One-Point Position Determination						
E24	0.50	-0.08	0.64	-0.14	0.57	-0.10
E25	0.48	-0.37	0.59	-0.40	0.44	-0.35
E26	0.62	-0.26	0.86	-0.33	0.65	-0.28
E27	-0.11	0.01	-0.27	0.03	-0.18	0.04
E28	0.38	-0.17	0.53	-0.22	0.43	-0.19
Average	0.37	-0.17	0.47	-0.21	0.38	-0.18

Table 4c. Sikorsky S76A
Delta 1 and Delta 2 Summary
Approach

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
I50	-0.33	0.20	-0.80	0.43		No Data
I51	-0.35	0.02	-0.75	0.23		No Data
I52	No Data		-0.98	0.33		No Data
I53	-0.35	0.11	-0.93	0.37	-0.29	0.06
I54	-0.18	0.13	-0.32	0.22	-0.02	0.08
I55	-0.47	0.20	-0.77	0.42	-0.20	0.16
Average	-0.34	0.13	-0.76	0.33	-0.17	0.10
Two-Point Position Determination						
I50	-0.34	0.20	-0.86	0.45		No Data
I51	-0.44	0.06	-0.97	0.33		No Data
I52	No Data		-0.96	0.32		No Data
I53	-0.39	0.12	-1.04	0.42	-0.33	0.08
I54	-0.22	0.14	-0.43	0.16	-0.06	0.09
I55	-0.52	0.22	-0.91	0.37	-0.25	0.18
Average	-0.38	0.15	-0.86	0.34	-0.21	0.12
One-Point Position Determination						
I50	-0.42	0.25	-1.09	0.56		No Data
I51	-0.26	-0.03	-0.50	0.10		No Data
I52	No Data		-1.17	0.40		No Data
I53	-0.38	0.12	-1.00	0.40	-0.31	0.07
I54	-0.19	0.14	-0.37	0.24	-0.04	0.09
I55	-0.46	0.20	-0.75	0.41	-0.19	0.15
Average	-0.34	0.14	-0.81	0.35	-0.18	0.10

Table 4d. Sikorsky S76A
Delta 1 and Delta 2 Summary
Takeoff

Event	Sideline Left		Centerline Center		Sideline Right	
	Delta 1	Delta 2	Delta 1	Delta 2	Delta 1	Delta 2
Three-Point Position Determination						
F29	0.66	-0.07	1.58	-0.45	0.51	-0.01
F30	0.77	-0.12	1.81	-0.56	0.62	-0.06
F31	0.84	-0.19	2.03	-0.67	0.71	-0.13
F32	0.60	-0.07	1.64	-0.46	0.55	0.00
F33	0.16	0.16	0.25	0.13	0.02	0.22
F34	0.23	0.08	0.55	-0.04	0.11	0.14
F35	-0.29	0.46	-1.36	0.81	-0.50	0.52
F36	0.00	0.21	-0.20	0.30	-0.17	0.27
Average	0.37	0.06	0.79	-0.12	0.23	0.12
Two-Point Position Determination						
F29	0.58	-0.06	1.38	-0.39	0.42	0.00
F30	0.68	-0.10	1.61	-0.49	0.54	-0.04
F31	0.72	-0.16	1.73	-0.57	0.58	-0.10
F32	0.55	-0.05	1.52	-0.41	0.50	0.01
F33	0.09	0.18	0.05	0.20	-0.05	0.24
F34	0.12	0.10	0.26	0.06	-0.01	0.16
F35	-0.37	0.47	-1.66	0.92	-0.59	0.53
F36	-0.10	0.24	-0.51	0.41	-0.28	0.30
Average	0.28	0.08	0.55	-0.03	0.14	0.14
One-Point Position Determination						
F29	0.61	-0.07	1.47	-0.42	0.46	0.00
F30	0.73	-0.11	1.71	-0.53	0.58	-0.05
F31	0.79	-0.14	1.89	-0.59	0.65	-0.07
F32	0.57	-0.08	1.57	-0.46	0.52	-0.02
F33	0.16	0.13	0.24	0.10	0.02	0.19
F34	0.18	0.10	0.44	0.02	0.06	0.17
F35	-0.26	0.42	-1.27	0.75	-0.47	0.48
F36	0.01	0.20	-0.18	0.28	-0.16	0.26
Average	0.35	0.06	0.73	-0.11	0.21	0.12

Appendix A
Test Helicopter Descriptions

THE UNIVERSITY OF CHICAGO
LIBRARY

TEST HELICOPTER DESCRIPTIONS

Aerospatiale SA365N Dauphin 2¹

The SA 365N Dauphin 2 is a twin turbine-powered transport helicopter capable of carrying eight passengers and a crew of two. The helicopter is manufactured by Aerospatiale Helicopter Corporation of Grand Prairie, TX, and was certificated by the FAA in November 1981. Standard features of the aircraft include a 177 cubic foot cabin with removable passenger seats, provision for air conditioning and soundproofing, and a baggage compartment of approximately 1.59 cubic meters. An additional feature of the aircraft is the fenestra, a tail rotor encased in a shroud or duct and mounted in line with the tailcone axis.

Selected operational characteristics, obtained from the helicopter manufacturer, are presented below in Table A-1.

**Table A-1
Helicopter Characteristics**

Helicopter Manufacturer	Aerospatiale Helicopter Corporation
Helicopter Model	SA 365N Dauphin 2
Helicopter Type	Single rotor
Test Helicopter N-Number	365 AH
Maximum Gross Takeoff Weight	3850 kg
Number and Type of Engine(s)	2 Turbomeca ARRIEL 1C
Shaft Horsepower (per engine)	710 HP
Maximum Continuous Power	594 HP
Specific Fuel Consumption at Maximum Power	85 (lb/hr/hp)
Never Exceed Speed (V_{ne})	175 kts
Max Speed in Level Flight With Max Continuous Power	150 kts tas
Speed for Best Rate of Climb	75 kts
Best Rate of Climb	8.128 m/s

Main and Tail Rotor Specifications

Rotor Speed (100%)	365 rpm	4706 rpm
Diameter	11.93 m	.9 m
Chord	385 mm	43.434 mm
Number of Blades	4	13
Peripheral Velocity	228 m/s	221.6 m/s
Disk Loading	338.5 Pa	
Fundamental Blade Passage Frequency	24 Hz	1020 Hz
Rotational Tip Mach Number (25°C)	.6587	.6402

Boeing Vertol 234/CH47D (Chinook)

The 234/CH47D is was originally designed for the Army as an all-weather medium transport helicopter by Boeing Vertol of Philadelphia, PA. It is equipped to transport two pilots, 33 to 44 troops or 24 litters and two attendants. Other features include a triple external cargo hook system, ferry fuel tanks, and a power-down ramp and water dam so that the ramp may operate on water.

Selected operational characteristics, obtained from the helicopter manufacturer, are presented below in Table A-2.

**Table A-2
Helicopter Characteristics**

Helicopter Manufacturer	Boeing Vertol
Helicopter Model	234
Helicopter Type	Tandem Rotor
Test Helicopter N-Number	N J016
Maximum Gross Takeoff Weight	21999 kg
Number and Type of Engines	2 Lycoming T55-L-712
Shaft Horse Power	4075 HP
Maximum Continuous Power	2975 HP
Specific Fuel Consumption at Maximum Power	.533 lb/hr/hp
Never Exceed Speed (V_{ne})	150 kts
Speed for Best Rate of Climb (V_y)	85 kts
Best Rate of Climb	5.7 m/s

Forward and Aft Rotor Specifications

Rotor Speed	225 rpm
Diameter	18.3 m
Chord	0.8 m
Number of Blades	3
Fundamental Blade Passage Frequency	11 Hz
Rotational Tip Mach Number (25°C)	.6349

Bell 222 Twin Jet

The Bell 222 is a twin turbine-powered transport helicopter capable of carrying eight passengers and a crew of two. The helicopter is manufactured by Bell Helicopter Textron of Ft. Worth, TX, and was certificated by the FAA in August 1979. Standard features of the aircraft include a 3.82 cubic meter passenger cabin which provides space for people over 1.8 m tall, a 226.8 kg baggage compartment, and provisions for an environmental control system and soundproofing. Selected operational characteristics, obtained from the helicopter manufacturer, are presented in Table A-3.

**Table A-3
Helicopter Characteristics**

Helicopter Manufacturer	Bell Helicopter Textron
Helicopter Model	Bell 222
Helicopter Type	Single Rotor
Test Helicopter N-Number	N2057B
Maximum Gross Takeoff Weight	3560 kg
Number and Type of Engine(s)	2 Lycoming LTS 101-650C-3
Shaft Horse Power(per engine)	575 HP
Maximum Continuous Power	1110 HP
Specific Fuel Consumption at Maximum Power	.514 lb/hr/hp
Never Exceed Speed (V_{ne})	141 kts
Max Speed in Level Flight with Max Continuous Power	141 kts
Speed for Best Rate of Climb	65 kts
Best Rate of Climb	8.128 m/s

Main and Tail Rotor Specifications

Rotor Speed (100%)	348 rpm	1881 rpm
Diameter	12.1 m	2 m
Chord	.73 m	.25 m
Number of Blades	2	2
Peripheral Velocity	220.7 m/s	195.4 m/s
Blade Load	3974 Pa	
Fundamental Blade Passage Frequency	12 Hz	63 Hz
Rotational Tip Mach Number (25°C)	.6375	.5636

Sikorsky S76A

The Sikorsky S-76A is a twin turbine, general purpose all-weather helicopter designed to meet the needs of the offshore oil support, the corporate executive, and the general utility markets. It is manufactured by Sikorsky Aircraft of Stratford, CT and can accommodate a pilot, a copilot and up to twelve passengers. Various executive/luxury layouts are available. Also available are three different medical kits to convert the S-76A to an air medical evacuation system; a single stretcher intensive care unit; or to a three stretcher ambulance. Selected operational characteristics, obtained from the helicopter manufacturer, are presented below in Table A-4.

**Table A-4
Helicopter Characteristics**

Helicopter Manufacturer	Sikorsky Aircraft
Helicopter Model	S-76A
Helicopter Type	Single Rotor
Test Helicopter N-Number	N38
Maximum Gross Takeoff Weight	4672 kg
Number and type of engine(s)	2 Detroit Diesel Allison 250-C30
Shaft Horse Power(per engine)	676 HP
Maximum Continuous Power	650 HP per engine
Specific Fuel Consumption at Maximum Power	.64 lb/hr/hp
Never Exceed Speed (V_{ne})	155 kts
Max speed in Level Flight with Max Continuous Power (V_h)	145 kts
Speed for Best Rate of Climb (V_y)	74 kts
Best rate of Climb	6.86 m/s

Main and Tail Rotor Specifications

Rotor Speed (100%)	293 rpm	1611 rpm
Diameter	13.4 m	12.4 m
Chord	.40 m	.17 m
Number of Blades	4	4
Peripheral Velocity	205.7 m/s	205.4 m/s
Blade Load	4213.4 Pa	
Fundamental Blade Passage Frequency	20 Hz	107 Hz
Rotational Tip Mach Number (25°C)	.594	.594

APPENDIX B
HELICOPTER POSITION DATA

CONTENTS

CHAPTER I. THE HISTORY OF THE UNITED STATES

Table B-4
Photo Tracking Data
Sikorsky S76A
06/13/83

Event	Altitude at Photo Position			Overhead Altitude (m)			Climb Angle (Deg)		
	-182.9 m	-30.5 m	+121.9	3 Point	2 Point	1 Point	3 Point	2 Point	1 Point

Profile Type: 150 m Level Flyover

B7	140.2	135.2	129.6	133.7	134.1	135.2	-1.7	-1.9	0.0
B8	138.4	141.6	140.6	140.5	139.7	141.6	0.4	0.4	0.0
B9	155.6	151.3	146.2	149.8	150.8	151.3	-1.5	-1.5	0.0
B10	151.2	151.9	151.4	151.5	151.2	151.9	0.0	0.0	0.0
B12	150.2	148.9	146.4	148.0	148.3	148.9	-0.5	-0.6	0.0
B13	166.1	163.9	159.2	162.2	162.3	163.9	-1.1	-1.2	0.0

Profile Type: 300 m Level Flyover

E24	327.9	320.7	322.8	323.1	325.1	320.7	-0.8	-0.9	0.0
E25	323.2	318.0	323.4	321.5	323.2	318.0	0.0	0.0	0.0
E26	326.7	323.5	322.2	323.5	324.2	323.5	-0.7	-0.8	0.0
E27	296.4	297.8	298.1	297.7	297.4	297.8	0.3	0.3	0.0
E28	325.6	315.3	311.9	315.8	317.6	315.3	-2.3	-2.5	0.0

Profile Type: Takeoff

F29	93.8	123.8	151.3	130.3	128.4	129.3	9.7	10.9	10.3
F30	96.9	127.2	154.6	133.6	131.5	132.6	9.7	10.9	10.3
F31	90.9	128.9	163.6	137.1	133.9	134.4	12.3	13.6	10.3
F32	100.7	125.1	148.0	130.6	129.3	130.5	8.0	9.0	10.3
F33	83.6	109.5	131.5	114.3	112.5	115.0	8.1	9.1	10.3
F34	76.4	111.7	142.8	118.8	116.0	117.1	11.2	12.5	10.3
F35	66.0	96.2	118.6	100.3	97.7	101.6	8.9	10.0	10.3
F36	72.9	104.8	129.7	109.8	106.9	110.3	9.6	10.7	10.3

Profile Type: Approach

I50	86.7	103.9	125.3	110.2	110.0	100.8	-6.5	-7.3	-6.0
I51	90.9	111.0	119.9	111.0	108.5	107.8	-5.0	-5.5	-6.0
I52	93.4	104.8	121.0	109.9	110.3	101.6	-4.6	-5.3	-6.0
I53	86.4	104.8	121.8	108.8	107.7	101.6	-6.0	-6.7	-6.0
I54	93.0	112.0	128.7	115.8	114.6	108.8	-6.0	-6.8	-6.0
I55	88.6	107.5	122.2	110.4	109.0	104.3	-5.7	-6.4	-6.0

Table B-1
 Photo Tracking Data
 Aerospatiale SA365N Dauphin 2
 06/06/83

Event	Altitude at Photo Position			Overhead Altitude (m)			Climb Angle (Deg)		
	-182.9 m	-30.5 m	+121.9	3 Point	2 Point	1 Point	3 Point	2 Point	1 Point

Profile Type: 150 m Level Flyover

A6	153.3	154.4	154.9	154.4	154.3	154.4	0.3	0.3	0.0
A8	149.7	150.4	152.6	151.3	151.5	150.4	0.5	0.6	0.0
A10	153.9	156.1	152.6	154.0	153.1	156.1	-0.1	-0.2	0.0

Profile Type: 300 m Level Flyover

D22	310.9	324.3	315.3	317.5	313.6	324.3	0.9	0.8	0.0
D24	298.2	296.6	296.5	296.9	297.2	296.6	-0.2	-0.3	0.0

Profile Type: Takeoff

E27	71.8	105.6	124.4	107.4	103.4	112.1	9.0	10.0	12.2
E29	72.6	103.1	118.3	104.0	100.3	109.5	7.8	8.7	12.2
E30	68.3	100.1	113.2	99.6	95.3	106.5	7.7	8.5	12.2
E31	69.0	104.5	120.8	104.8	100.1	111.0	8.9	9.8	12.2
E32	65.8	96.5	114.2	98.4	94.9	102.9	8.3	9.2	12.2
E33	64.4	91.4	109.2	94.1	91.5	97.9	7.6	8.5	12.2

Profile Type: Approach

F46	87.8	104.5	121.2	108.8	108.1	107.7	-5.6	-6.4	-6.0
F47	89.1	102.1	114.1	105.0	104.3	105.3	-4.2	-4.8	-6.0
F48	86.7	107.3	119.6	108.8	106.7	110.5	-5.6	-6.3	-6.0
F49	89.1	109.7	120.8	110.6	108.3	112.9	-5.4	-6.0	-6.0
F50	85.5	109.7	126.9	112.7	110.5	112.9	-7.0	-7.9	-6.0
F51	88.5	102.1	111.2	103.5	102.3	105.3	-3.9	-4.3	-6.0

Table B-2
 Photo Tracking Data
 Boeing Vertol 234/CH47D
 07/12/83

Event	Altitude at Photo Position			Overhead Altitude (m)			Climb Angle (Deg)		
	-182.9 m	-30.5 m	+121.9	3 Point	2 Point	1 Point	3 Point	2 Point	1 Point

Profile Type: 150 m Level Flyover

A1	152.6	155.4	167.1	160.2	161.5	155.4	2.4	2.8	0.0
A2	157.9	173.3	158.8	163.6	158.6	173.3	0.3	0.2	0.0
A3	160.3	158.6	154.5	157.0	157.1	158.6	-0.9	-1.0	0.0
A4	160.2	158.3	155.9	157.6	157.9	158.3	-0.6	-0.7	0.0
A5	161.5	162.9	160.5	161.5	161.2	162.9	0.0	-0.1	0.0
A6	169.9	174.5	174.5	173.6	172.8	174.5	0.8	0.9	0.0

Profile Type: Takeoff

G40	78.4	118.2	135.3	118.0	112.4	122.1	9.7	10.7	7.5
G41	73.6	105.9	134.1	112.3	109.7	109.9	10.2	11.4	7.5
G42	59.3	89.5	110.9	93.1	90.4	93.4	8.8	9.8	7.5
G43	71.2	106.5	136.6	113.1	110.1	110.5	11.1	12.3	7.5
G44	43.6	71.2	96.9	77.3	75.6	75.1	9.0	10.1	7.5
G45	52.2	76.5	98.5	81.6	80.1	80.5	7.8	8.8	7.5

Profile Type: Approach

H30	102.4	126.9	131.1	108.8	129.4	130.1	-7.6	-8.5	-6.0
H31	109.4	133.6	135.8	105.0	133.3	136.7	-6.8	-7.5	-6.0
H32	104.1	125.4	128.8	108.8	127.0	128.6	-6.5	-7.2	-6.0
H33	104.7	131.3	133.7	110.6	131.1	134.5	-7.4	-8.3	-6.0
H34	93.1	117.3	124.7	112.7	123.9	120.4	-8.6	-9.7	-6.0
H35	106.5	128.5	133.8	103.5	132.6	131.7	-7.3	-8.2	-6.0

Table B-3
Photo Tracking Data
Bell 222 Twin Jet
06/15/83

Event	Altitude at Photo Position			Overhead Altitude (m)			Climb Angle (Deg)		
	-182.9 m	-30.5 m	+121.9	3 Point	2 Point	1 Point	3 Point	2 Point	1 Point

Profile Type: 150 m Level Flyover

C10	125.0	122.0	116.4	120.0	119.6	122.0	-1.3	-1.7	0.0
C11	135.6	143.0	134.4	137.6	135.0	143.0	0.0	-0.2	0.0
C12	121.9	127.3	112.7	119.6	116.2	127.3	-1.3	-1.8	0.0
C13	105.2	106.9	103.0	104.8	104.0	106.9	-0.3	-0.4	0.0
C14	116.7	119.7	114.5	116.7	115.4	119.7	-0.2	-0.4	0.0
C15	137.6	144.1	129.4	136.1	132.5	144.1	-1.1	-1.6	0.0

Profile Type: 300 m Level Flyover

A2	310.6	310.8	326.1	317.7	320.2	310.8	2.5	3.0	0.0
A3	294.7	296.4	292.5	294.3	293.4	296.4	-0.2	-0.4	0.0
A4	319.5	310.8	305.4	310.1	310.9	310.8	-2.3	-2.7	0.0
A5	317.1	310.9	296.4	305.7	304.6	310.9	-3.3	-3.9	0.0
A6	276.9	283.3	267.2	274.7	270.9	283.3	-1.4	-1.9	0.0

Profile Type: Takeoff

K21	133.5	188.8	212.7	188.5	180.2	196.2	13.6	14.8	14.1
K22	161.5	218.6	251.3	222.0	214.0	226.0	15.3	16.7	14.1
K23	146.7	222.5	276.5	231.8	219.3	229.9	22.0	23.4	14.1
K24	156.6	221.2	256.0	224.0	214.1	228.6	17.0	18.3	14.1
K25	166.7	229.6	294.1	246.3	239.0	237.0	21.5	23.3	14.1

Profile Type: Approach

L1	90.2	111.9	130.4	115.9	114.4	108.7	-6.8	-7.6	-6.0
L2	92.6	113.3	139.1	119.7	119.0	110.1	-7.4	-8.3	-6.0
L3	87.5	102.6	121.9	107.6	107.3	99.4	-5.5	-6.2	-6.0
L4	86.1	104.5	128.9	110.7	110.6	101.3	-6.9	-7.7	-6.0
L5	85.0	102.6	127.2	109.4	109.5	99.4	-6.8	-7.7	-6.0
L6	85.4	101.4	136.2	114.0	115.9	98.3	-8.5	-9.6	-6.0

APPENDIX C
SUMMARY ACOUSTIC DATA
THREE-POINT POSITION DETERMINATION

THE UNIVERSITY OF CHICAGO
LIBRARY

TABLE C-1
 AEROSPATIALE SA365N DAUPHIN 2
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLtm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLtm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
A6	90.10	84.80	91.40	92.92	78.14	87.21	10.50	10.00	1.52	.00	89.88	84.61	78.18	92.93	.01	-.23	76.5	153.2	157.5	148.8	153.0	
A8	90.03	84.56	91.34	92.54	77.97	87.72	10.00	11.50	1.42	.04	89.70	84.26	77.80	92.34	-.20	-.14	82.7	150.0	151.3	148.8	150.0	
A10	89.24	84.03	90.52	91.87	77.14	86.70	10.50	10.50	1.15	.20	88.96	83.76	77.15	91.87	.00	-.28	70.2	152.8	162.4	148.8	158.1	
Sideline Left																						
A6	90.88	86.16	91.89	93.11	79.04	94.60	11.00	12.00	1.22	.00	90.46	85.83	78.86	92.84	-.27	-.15	62.9	213.8	240.2	211.3	237.4	
A8	91.14	86.30	92.21	93.41	79.39	95.04	11.00	12.50	1.08	.12	90.65	85.90	79.09	93.02	-.39	-.11	71.4	211.6	223.2	211.3	222.9	
A10	91.25	86.11	92.42	93.78	79.00	94.34	11.00	12.00	1.28	.09	90.77	85.69	78.79	93.51	-.27	-.21	67.2	213.6	231.7	211.3	229.2	
Sideline Right																						
A6	88.65	83.41	89.93	91.55	76.21	89.68	11.00	10.50	1.79	.00	88.25	83.10	76.07	91.33	-.22	-.18	55.7	215.2	260.5	211.3	255.8	
A8	88.62	83.28	89.77	91.77	76.28	89.65	11.00	11.50	2.15	.00	88.13	82.86	75.99	91.41	-.36	-.13	52.1	213.0	269.9	211.3	267.8	
A10	88.48	83.28	89.72	91.56	76.07	88.82	11.50	11.00	1.84	.00	88.03	82.87	75.90	91.34	-.22	-.23	59.5	214.9	249.6	211.3	245.3	
ENVIRONMENTAL DATA																						
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		SPEED(m/s)		ROTOR TIP		OPERATING CONDITIONS		GRND REFRND		RPM		MACH#							
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	TIP	GRND	REFGRND	RPM	MACH#										
A6	15.57	17.38	99.00	95.98	67.9	69.4	350	.6407														
A8	15.66	17.43	99.00	95.37	67.9	69.4	350	.6406														
A10	15.77	17.69	99.00	95.46	66.9	69.4	350	.6403														

TABLE C-2
 AEROSPATIALE SA365N DAUPHIN 2
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 300 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA(dB)				CORRECTED DATA (dB)				EMISSION			TRACKING DATA (M)									
	EPNL	SEL	PNLm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLm	$\Delta 1$	$\Delta 2$	CPA	SR	CPAR	SRR		
Centerline Center																					
NO DATA																					
Sideline Left																					
D22	85.18	81.22	85.02	86.48	73.07	87.99	15.50	16.50	1.63	.00	84.97	81.09	73.26	86.59	.11	-.32	73.8	349.3	363.8	334.3	348.2
D24	85.05	80.84	84.86	86.35	72.54	88.06	16.00	20.00	1.48	.00	84.39	80.30	72.08	85.77	-.58	-.08	66.4	330.8	360.8	334.3	364.7
Sideline Right																					
D22	85.10	81.02	84.50	86.70	73.97	86.53	13.50	17.00	2.28	.00	85.01	80.94	74.23	86.95	.25	-.34	79.2	351.0	357.3	334.3	340.3
D24	85.52	80.94	84.14	85.49	72.16	86.89	17.00	22.00	1.68	.04	84.89	80.49	71.82	84.97	-.52	-.11	61.4	332.5	378.8	334.3	380.8
ENVIRONMENTAL DATA																					
OPERATING CONDITIONS																					
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		SPEED(m/s)		GRND REFRGRND		ROTOR RPM		TIP MACH#										
	10 M	ALT	10 M	ALT	67.4	69.4	350	.6364													
D22	16.54	21.31	98.24	74.10	67.4	69.4	350	.6364													
D24	16.64	21.48	98.06	74.73	67.4	69.4	350	.6362													

SA365N DAUPHIN 2
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 300 M LEVEL FLYOVER

TABLE C-3
AEROSPATIALE SA365H DAUPHIN 2
SUMMARY ACOUSTIC ANALYSIS
3-POINT POSITION DETERMINATION
APPROACH

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLIm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLIm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Center-Line																						
F46	96.47	92.57	98.56	99.70	85.05	95.13	12.00	10.50	1.26	.00	95.86	92.02	84.02	98.62	-1.08	.47	98.7	105.9	107.1	118.1	119.5	
F47	96.50	92.89	98.66	99.75	85.88	95.31	12.00	11.00	1.09	.00	95.78	92.22	84.63	98.45	-1.30	.58	77.2	103.5	106.1	118.1	121.2	
F48	97.03	93.12	99.03	100.17	85.40	95.27	13.50	12.00	1.14	.00	96.56	92.68	84.60	99.34	-.83	.36	73.6	108.7	113.3	118.1	123.1	
F49	96.95	92.77	98.52	99.61	84.87	94.94	13.00	11.00	1.08	.00	96.60	92.44	84.28	98.99	-.62	.27	72.8	111.1	116.3	118.1	123.7	
F50	97.10	93.31	98.45	99.80	85.53	95.12	13.50	12.00	1.35	.00	96.70	92.95	84.89	99.12	-.68	.29	67.1	110.6	120.1	118.1	128.3	
F51	97.02	93.42	100.45	101.39	87.86	96.38	9.50	10.00	.93	.02	96.28	92.74	86.60	100.07	-1.32	.58	58.3	103.5	121.6	118.1	138.8	
Sideline Left																						
NO DATA																						
Sideline Right																						
F46	97.05	93.52	97.37	99.12	85.15	93.67	15.00	14.50	1.75	.00	96.76	93.25	84.76	98.70	-.42	.12	54.5	185.8	228.2	190.9	234.5	
F47	96.13	92.79	96.52	97.96	84.63	92.69	14.50	14.00	1.44	.00	95.78	92.48	84.14	97.43	-.53	.18	61.6	183.7	208.8	190.9	217.0	
F48	95.74	92.34	96.10	97.04	83.45	92.73	15.50	15.00	.75	.00	95.28	92.08	83.07	96.46	-.58	.12	73.8	185.8	193.5	190.9	198.9	
F49	96.15	92.67	96.18	98.28	83.91	92.09	17.00	14.00	2.10	.00	95.90	92.45	83.59	97.93	-.35	.09	57.1	186.9	222.5	190.9	227.4	
F50	94.40	91.16	95.16	96.13	82.23	91.66	19.50	15.50	.97	.00	94.10	90.93	81.94	95.77	-.36	.06	73.5	187.9	196.0	190.9	199.1	
F51	95.24	91.16	94.87	96.98	82.45	91.35	17.00	15.00	2.02	.00	94.70	90.79	81.88	96.24	-.74	.20	69.5	182.9	195.3	190.9	203.9	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS			
	TEMPERATURE(°C)	REL HUMIDITY(%)	ALT	SPEED(m/s)	GRND REFRND	TIP	
10 M	10 M	ALT	GRND	RPM	MACH#		
F46	20.54	19.29	70.09	89.27	38.4	350	.6386
F47	20.69	19.45	69.18	88.41	38.4	350	.6384
F48	20.83	19.57	68.31	87.89	38.4	350	.6383
F49	20.97	19.69	67.50	87.10	38.4	350	.6381
F50	21.11	19.82	66.68	86.14	38.3	350	.6380
F51	21.22	19.99	66.00	84.92	38.4	350	.6378

TABLE C-4
 AEROSPATIALE SA365N DAUPHIN 2
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 TAKEOFF

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)		
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR
Centerline Center																					
E27	98.34	93.04	98.33	101.44	85.96	86.15	11.50	11.00	3.30	.00	97.14	91.92	84.07	99.47	-1.97	.78	94.9	104.9	105.2	124.0	124.5
E29	97.37	92.21	96.58	99.90	85.02	85.40	12.50	13.00	3.50	.00	96.12	90.98	82.87	97.73	-2.17	.92	103.5	101.8	104.7	124.0	127.5
E30	98.72	92.84	99.31	102.67	86.41	87.97	11.50	11.00	3.45	.00	97.14	91.39	83.86	99.98	-2.69	1.10	91.3	97.5	97.6	124.0	124.0
E31	97.91	92.58	97.72	101.24	85.86	86.08	11.00	11.00	3.52	.00	96.64	91.39	83.79	99.09	-2.15	.89	99.2	102.3	103.7	124.0	125.6
E32	97.94	92.69	97.18	100.71	85.43	86.28	12.50	12.00	3.53	.00	96.36	91.20	82.78	97.97	-2.74	1.16	82.0	96.1	97.1	124.0	125.2
E33	98.32	93.00	98.22	101.26	85.69	86.61	11.50	11.00	2.98	.06	96.51	91.26	82.59	98.10	-3.16	1.35	98.2	92.1	93.0	124.0	125.3
Sideline Left																					
E27	88.00	83.69	87.24	89.04	74.54	88.24	18.50	21.00	1.80	.00	87.46	83.22	73.82	88.25	-.79	.26	80.4	185.6	188.3	194.6	197.4
E29	88.48	84.16	87.93	90.02	75.52	88.13	17.00	17.50	2.18	.00	87.90	83.66	74.71	89.14	-.88	.31	88.4	183.9	183.9	194.6	194.7
E30	88.23	83.84	87.69	89.95	75.25	87.93	15.00	16.00	3.07	.00	87.65	83.24	74.29	89.00	-.95	.37	92.5	181.4	181.6	194.6	194.8
E31	88.28	84.36	87.56	89.50	75.19	88.07	16.50	16.00	1.98	.03	87.68	83.79	74.33	88.62	-.88	.29	79.6	184.2	187.2	194.6	197.9
Sideline Right																					
E27	93.89	88.97	92.63	94.29	79.94	93.48	16.50	18.50	2.36	.00	93.04	88.31	78.96	93.12	-1.17	.33	52.7	182.5	229.6	194.6	244.7
E29	94.51	89.52	92.81	94.90	80.09	93.57	19.00	18.50	2.55	.00	93.64	88.84	79.03	93.65	-1.25	.38	56.5	180.8	216.8	194.6	233.3
E30	94.89	89.87	92.74	94.75	80.16	93.66	19.00	19.00	2.63	.00	93.91	89.13	78.98	93.33	-1.42	.44	54.7	178.5	218.6	194.6	238.4
E31	.00	89.89	93.05	96.18	79.69	93.47	19.00	.00	2.99	.13	0.00	89.19	78.63	94.51	-1.67	.36	30.5	181.1	357.1	194.6	383.7
E32	94.94	90.09	93.49	95.05	80.46	93.87	17.00	17.00	2.04	.00	93.94	89.24	79.16	93.60	-1.45	.44	54.7	177.7	217.7	194.6	238.4
E33	95.95	90.80	94.38	96.99	81.42	94.38	17.50	17.00	3.07	.00	94.75	89.89	80.00	95.28	-1.71	.51	46.8	175.6	240.8	194.6	266.9

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE(°C)	REL HUMIDITY(%)	ALT	SPEED(m/s)	GRND REFRND	TIP
	10 M	10 M	ALT	RPM	RPM	MACH#
E27	17.95	18.24	88.71	37.7	350	.6397
E29	18.19	18.21	87.00	37.7	350	.6398
E30	18.31	17.67	86.11	37.7	350	.6404
E31	18.44	18.06	85.21	37.7	350	.6399
E32	18.56	17.00	84.30	37.7	350	.6411
E33	18.68	16.97	83.42	37.7	350	.6411

TABLE C-5
BOEING VERTOL 234/CH47-D
SUMMARY ACOUSTIC ANALYSIS
3-POINT POSITION DETERMINATION
150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDSHR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
A1	91.42	86.79	94.92	95.53	80.03	95.47	9.50	9.00	.62	.00	91.79	87.11	80.64	96.19	.66	-.28	84.8	158.8	159.5	148.8	149.4	
A2	92.01	87.02	94.67	94.92	79.65	95.15	12.00	14.50	.21	.00	92.31	87.30	80.48	95.76	.84	-.54	95.2	162.4	163.1	148.8	149.4	
A3	92.48	87.25	93.53	93.80	78.58	95.62	14.00	17.50	.22	.00	92.71	87.48	79.01	94.23	.43	-.20	75.2	155.8	161.2	148.8	153.9	
A4	92.89	87.81	94.85	95.00	79.78	95.80	15.00	16.00	.15	.00	93.18	88.06	80.24	95.51	.51	-.21	75.5	156.3	161.5	148.8	153.7	
A5	91.81	86.50	93.63	93.93	78.47	95.24	14.00	14.00	.24	.00	92.20	86.89	79.19	94.65	.72	-.32	82.6	160.3	161.7	148.8	150.0	
A6	91.71	86.95	93.57	94.02	78.45	94.98	16.50	15.50	.43	.00	92.59	87.77	79.91	95.53	1.51	-.64	66.9	172.3	187.4	148.8	161.8	
Sideline Left																						
A1	92.14	86.63	93.24	94.35	77.96	98.58	19.00	19.00	1.22	.00	92.36	86.76	78.23	94.71	.36	-.13	37.4	217.9	358.8	211.3	348.0	
A2	92.31	87.11	92.48	93.67	78.44	98.77	15.00	15.50	1.18	.00	92.46	87.22	78.92	94.19	.52	-.21	64.2	221.9	246.4	211.3	334.6	
A3	92.11	86.74	92.43	93.05	77.16	98.35	19.50	18.00	1.10	.00	92.30	86.85	77.36	93.33	.28	-.09	36.0	215.7	366.6	211.3	359.1	
A4	92.39	87.09	92.54	93.54	77.91	99.07	17.50	17.50	.95	.05	92.59	87.24	78.19	93.86	.32	-.13	62.1	217.5	246.0	211.3	339.0	
A5	92.16	86.39	92.86	94.16	77.12	98.33	18.00	17.00	1.45	.00	92.47	86.58	77.46	94.62	.46	-.15	38.8	219.0	349.5	211.3	337.3	
A6	91.25	86.43	91.32	92.11	77.06	98.85	17.50	16.00	.98	.00	91.86	86.92	77.91	93.08	.97	-.36	60.6	229.3	263.1	211.3	242.4	
Sideline Right																						
A1	90.81	86.04	91.52	92.72	78.02	98.82	13.00	14.00	1.20	.00	91.02	86.23	78.37	93.09	.37	-.16	77.2	219.3	224.8	211.3	216.6	
A2	91.82	86.40	91.66	93.01	77.45	99.66	17.50	17.50	1.35	.00	92.03	86.47	77.86	93.57	.56	-.34	40.3	220.5	340.8	211.3	326.6	
A3	92.49	87.61	92.58	93.45	78.70	100.00	17.50	17.00	.87	.00	92.74	87.75	78.96	93.82	.37	-.12	31.1	217.1	419.7	211.3	408.5	
A4	92.36	86.58	92.03	93.48	78.00	100.19	16.50	17.50	1.67	.00	92.59	86.69	78.21	93.81	.33	-.10	40.4	216.1	333.6	211.3	326.3	
A5	91.58	86.52	91.68	92.50	77.80	97.90	16.50	16.50	1.28	.00	91.88	86.75	78.22	92.98	.48	-.18	71.1	220.4	232.9	211.3	223.3	
A6	91.66	86.40	92.22	92.82	77.39	97.25	16.00	17.00	.76	.00	92.33	86.87	78.19	93.82	1.00	-.33	40.2	227.9	352.8	211.3	327.1	
ENVIRONMENTAL DATA																						
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		SPEED(m/s)				ROTOR		TIP											
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	RPM	MACH#	MACH#												
A1	23.21	22.65	52.33	52.45	69.4	69.4	227.25	227.25	.6320	.6320												
A2	23.47	22.72	52.16	51.74	66.9	69.4	225.00	225.00	.6256	.6256												
A3	23.72	22.78	51.99	52.30	69.4	69.4	220.50	220.50	.6131	.6131												
A4	23.99	22.86	51.81	52.07	69.4	69.4	225.00	225.00	.6255	.6255												
A5	24.26	22.92	51.63	51.55	69.4	69.4	227.25	227.25	.6317	.6317												
A6	24.47	22.95	51.48	50.46	69.4	69.4	225.00	225.00	.6254	.6254												

TABLE C-6
BOEING VERTOL 234/GH47-D
SUMMARY ACOUSTIC ANALYSIS
3-POINT POSITION DETERMINATION
APPROACH

EVENT	AS-MEASURED DATA (dB)					CORRECTED DATA (dB)					EMISSION		TRACKING DATA (M)								
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDSHR	EPNL	SEL	ALm	PNLTm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR
Centerline Center																					
H30	101.87	97.63	104.12	104.87	90.80	102.13	11.00	11.00	.92	.00	102.14	97.80	91.62	105.79	.92	-.65	47.1	128.8	175.7	118.1	144.5
H31	101.28	97.30	103.81	104.43	90.00	102.49	13.50	11.50	.55	.00	101.67	97.66	91.16	105.62	1.19	-.80	54.8	133.6	163.5	118.1	144.5
H32	102.31	98.05	104.93	105.51	91.06	102.94	10.50	10.50	.58	.00	102.51	98.15	91.73	106.28	.77	-.57	45.1	126.7	178.8	118.1	166.7
H33	103.00	98.65	105.03	105.62	91.18	103.25	11.50	11.00	.51	.08	103.34	98.89	92.16	106.70	1.08	-.74	60.8	131.4	150.6	118.1	135.4
H34	102.74	98.44	104.75	105.47	91.29	102.93	10.00	10.00	.72	.00	102.63	98.27	91.60	105.85	.38	-.48	58.4	122.1	143.3	118.1	138.7
H35	101.20	97.27	104.54	105.15	90.97	102.50	12.50	9.00	.47	.00	101.95	98.05	91.98	106.13	.98	-.23	44.8	131.5	186.7	118.1	167.7
Sideline Left																					
H30	96.69	91.75	97.10	99.00	82.75	100.68	17.50	15.00	1.90	.00	96.72	91.69	83.11	99.44	.44	-.42	53.6	197.2	244.9	190.9	237.2
H31	95.30	90.58	94.66	96.14	80.58	100.61	20.00	17.00	1.75	.00	95.46	90.65	81.13	96.78	.64	-.48	34.6	200.3	352.9	190.9	336.4
H32	96.37	91.42	95.89	97.73	81.95	100.35	17.50	14.00	1.83	.00	96.38	91.33	82.24	98.11	.38	-.38	52.0	195.8	248.7	190.9	242.5
H33	97.36	92.56	98.21	99.87	84.21	100.23	18.50	14.50	1.67	.00	97.47	92.54	84.64	100.44	.57	-.46	52.8	198.9	249.8	190.9	239.8
H34	96.14	91.30	96.87	98.92	82.74	99.23	17.50	13.00	2.09	.00	95.94	91.06	82.89	99.11	.19	-.38	44.7	192.9	274.0	190.9	271.3
H35	95.69	91.20	96.21	98.10	81.95	100.66	18.00	15.00	1.88	.00	96.27	91.70	82.39	98.62	.52	.06	47.0	199.0	272.0	190.9	261.0
Sideline Right																					
H30	99.22	95.13	100.07	101.54	86.70	99.88	17.50	16.50	1.47	.00	99.24	95.10	87.14	102.03	.49	-.47	62.0	199.2	225.6	190.9	216.3
H31	99.38	94.95	99.18	101.06	86.25	99.94	14.00	13.50	1.88	.00	99.54	95.03	86.86	101.75	.69	-.53	40.2	202.5	313.6	190.9	295.7
H32	98.68	94.14	100.29	101.97	87.74	99.34	10.50	10.00	1.60	.00	98.65	94.09	88.12	102.37	.40	-.43	62.0	197.9	224.0	190.9	216.1
H33	99.10	94.73	101.36	102.64	87.79	100.47	12.50	11.50	1.28	.00	99.20	94.73	88.30	103.25	.61	-.50	55.7	200.9	243.3	190.9	231.2
H34	98.82	94.25	99.62	101.28	86.11	100.41	17.00	12.50	1.67	.00	98.65	94.05	86.35	101.56	.28	-.45	52.4	194.8	245.8	190.9	241.0
H35	99.35	95.03	101.27	103.25	88.32	101.09	12.00	11.00	1.98	.00	99.97	95.55	88.83	103.86	.61	.01	49.1	201.0	266.0	190.9	252.6

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE(°C)	REL HUMIDITY(%)	ALT	SPEED(m/s)	ROTOR RPM	TIP MACH#
	10 M	10 M	ALT	GRND	REFGRND	RPM
H30	32.20	26.42	36.27	40.8	43.5	220.50
H31	32.20	26.42	36.03	40.9	43.5	222.75
H32	32.20	26.46	35.89	40.8	43.5	225.00
H33	32.20	26.47	35.74	40.8	43.5	222.75
H34	32.20	26.57	35.60	40.2	43.5	222.75
H35	32.20	26.37	35.45	45.9	43.5	225.00

TABLE C-7
BOEING VERTOL 234/CH47-D
SUMMARY ACOUSTIC ANALYSIS
3-POINT POSITION DETERMINATION
TAKEOFF

EVENT	AS-MEASURED DATA(dB)										CORRECTED DATA (dB)					EMISSION				TRACKING DATA (M)		
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNSHR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
G41	94.43	89.98	96.48	97.11	83.60	97.90	10.50	12.50	.63	.00	95.81	91.16	86.23	99.94	2.83	-1.45	109.9	109.3	116.2	83.7	89.0	
G42	94.96	90.49	97.18	97.72	83.94	99.02	9.00	11.50	.53	.00	95.23	90.67	84.80	98.67	.95	-.68	98.4	90.8	91.8	83.7	84.6	
G43	94.30	90.00	96.37	96.89	82.95	98.64	11.00	11.50	.52	.00	96.24	91.74	85.67	99.81	2.92	-.98	82.9	109.8	110.6	83.7	84.3	
G44	95.80	91.27	99.31	99.94	85.84	100.36	7.50	8.50	.63	.00	95.04	90.52	84.90	98.99	-.95	-.19	83.5	75.2	75.7	83.7	84.2	
G45	96.15	91.42	99.26	99.76	85.82	100.46	7.50	9.00	.23	.26	95.55	90.80	85.42	99.38	-.38	-.21	97.2	79.6	80.3	83.7	84.4	
Sideline Left																						
G41	91.84	86.81	92.44	93.54	78.79	99.11	13.50	14.00	1.32	.00	92.40	87.13	79.79	94.77	1.23	-.67	46.3	187.3	258.9	171.8	237.5	
G42	92.73	87.64	93.38	95.14	79.89	99.25	12.50	11.50	2.20	.00	92.80	87.60	80.31	95.67	.53	-.46	59.8	176.9	204.6	171.8	198.7	
G43	91.73	86.63	92.89	93.80	78.53	99.83	13.00	12.50	1.15	.00	92.74	87.48	79.56	94.99	1.19	-.18	65.8	187.6	205.7	171.8	188.4	
G44	92.53	87.75	93.08	94.66	79.69	99.49	11.50	11.00	1.58	.00	92.46	87.49	79.64	94.80	.14	-.21	52.8	169.1	212.3	171.8	215.7	
G45	92.03	87.26	93.20	94.01	78.85	99.66	12.50	12.00	.85	.01	91.72	86.92	78.93	94.12	.11	-.42	70.3	171.2	181.9	171.8	182.5	
Sideline Right																						
G41	92.56	88.33	92.62	93.69	78.85	99.00	15.00	15.00	1.08	.01	93.12	88.58	79.72	94.87	1.18	-.61	60.6	185.1	212.5	171.8	197.2	
G42	91.51	87.55	92.51	93.59	78.55	99.30	14.00	12.50	1.07	.01	91.55	87.42	78.84	94.04	.45	-.41	61.0	174.9	199.9	171.8	196.3	
G43	92.49	88.18	93.16	94.26	79.01	99.08	13.50	12.50	1.10	.00	93.52	89.07	80.03	95.42	1.16	-.13	58.4	185.4	217.7	171.8	201.7	
G44	92.70	88.13	92.95	94.12	78.56	98.30	16.00	15.00	1.18	.00	92.54	87.91	78.51	94.13	-.01	-.17	51.6	167.4	213.7	171.8	219.3	
G45	91.85	87.65	92.52	93.50	78.38	99.16	20.00	16.00	.97	.00	91.54	87.24	78.34	93.56	.06	-.37	63.2	169.4	189.9	171.8	192.5	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS			
	TEMPERATURE(°C)	REL HUMIDITY(%)	ALT	SPEED(m/s)	GRND_REFGRND	RPM	TIP MACH#
G41	31.88	26.72	33.41	45.11	40.5	43.4	227.25
G42	31.76	27.05	33.21	44.75	40.2	43.4	227.25
G43	31.65	26.86	32.99	44.96	45.4	43.4	227.25
G44	31.53	27.21	32.79	44.47	40.7	43.4	227.25
G45	31.41	27.07	32.57	44.59	39.2	43.4	227.25

TABLE C-8
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)				EMISSION		TRACKING DATA (M)					
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SR	
Centerline Center																						
C10	91.63	87.03	93.64	94.37	79.81	94.32	11.50	12.00	.69	.00	90.27	85.80	77.61	92.03	-2.34	.98	32.3	118.8	222.6	148.8	278.8	
C11	91.51	87.01	93.64	94.26	79.73	94.17	13.00	13.50	.59	.00	91.04	86.60	78.94	93.41	-.85	.38	36.8	136.4	227.9	148.8	248.6	
C12	92.34	87.73	93.59	94.24	79.85	94.72	14.50	14.50	.58	.00	90.96	86.54	77.66	91.87	-2.37	.99	38.6	118.4	189.6	148.8	238.3	
C13	92.31	87.56	95.22	95.83	81.19	95.78	10.00	10.00	1.03	.00	90.30	85.67	77.69	92.22	-3.61	1.60	48.2	103.6	139.0	148.8	199.7	
C14	91.12	86.61	93.40	94.05	79.63	93.78	11.00	12.00	.74	.00	89.67	85.28	77.20	91.50	-2.55	1.10	46.6	115.5	159.0	148.8	204.9	
C15	90.24	85.72	92.68	93.40	78.98	93.35	11.00	11.50	.62	.00	89.59	85.22	78.08	92.36	-1.04	.40	42.7	134.9	198.7	148.8	219.2	
Sideline Left																						
C10	90.55	86.25	91.53	92.18	78.63	95.33	14.50	16.00	.65	.00	90.03	85.77	77.70	91.22	-.96	.44	83.3	190.8	192.1	211.3	212.7	
C11	90.64	86.26	90.83	91.70	78.24	94.68	19.00	19.50	1.00	.00	90.46	86.09	77.88	91.33	-.37	.19	55.1	202.2	246.5	211.3	257.6	
C12	90.88	86.35	91.29	91.81	78.56	94.60	13.50	18.50	.51	.00	90.35	85.86	77.62	90.83	-.98	.45	78.6	190.6	194.4	211.3	215.6	
C13	91.65	87.38	92.44	93.52	79.79	95.72	14.50	14.50	1.12	.00	90.85	86.66	78.38	92.04	-1.48	.68	55.1	181.8	221.7	211.3	257.6	
C14	90.28	86.29	91.67	92.23	78.91	94.73	12.50	14.00	.69	.00	89.69	85.75	77.88	91.15	-1.08	.49	60.6	188.8	216.7	211.3	242.5	
C15	90.66	86.36	90.52	91.30	78.03	94.57	16.00	17.50	.91	.00	90.43	86.13	77.62	90.89	-.41	.18	74.7	201.2	208.6	211.3	219.0	
Sideline Right																						
C10	89.30	85.43	89.55	91.17	77.68	91.25	15.50	15.50	1.68	.00	88.82	84.98	76.82	90.28	-.89	.41	69.1	192.0	205.6	211.3	226.2	
C11	88.64	85.00	89.79	91.49	77.74	90.93	13.00	12.50	1.70	.00	88.51	84.87	77.45	91.20	-.29	.16	62.7	203.5	229.0	211.3	237.8	
C12	90.16	85.87	88.89	90.11	76.86	92.21	16.50	17.00	1.37	.00	89.65	85.41	75.98	89.18	-.93	.42	60.6	191.8	220.1	211.3	242.5	
C13	88.96	85.18	88.89	89.45	77.28	91.72	14.00	15.50	.56	.00	88.18	84.49	75.93	88.00	-1.45	.66	55.4	182.9	222.3	211.3	256.7	
C14	89.63	85.55	89.92	91.74	78.06	91.26	16.00	18.50	1.82	.00	89.08	85.05	77.09	90.73	-1.01	.46	64.9	190.0	209.7	211.3	233.2	
C15	88.93	85.10	88.94	90.17	77.07	91.09	17.00	16.50	1.42	.00	88.72	84.91	76.73	89.81	-.36	.16	66.2	202.5	221.3	211.3	230.9	
ENVIRONMENTAL DATA																						
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		OPERATING CONDITIONS																	
	10 M	ALT	10 M	ALT	GRND REEGRND	SPEED(m/s)	ROTOR RPM	TIP MACH#														
C10	32.78	27.78	60.00	62.71	65.3	65.3	348	.6348														
C11	33.19	27.60	60.00	63.04	65.3	65.3	348	.6350														
C12	33.77	27.73	60.00	62.79	65.3	65.3	348	.6348														
C13	34.15	27.91	60.00	62.51	65.8	65.3	348	.6347														
C14	34.47	27.81	60.00	62.73	65.3	65.3	348	.6348														
C15	34.72	27.60	60.00	63.05	64.8	65.3	348	.6350														

TABLE C-9
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 300 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION ANGLE (°)			TRACKING DATA (M)		
	EPNL	SEL	PMLm	PMLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDSHR	EPNL	SEL	ALm	PMLTm	Δ1	Δ2	CPA	SR	CPAR	SR	
Centerline Center																					
A2	85.57	81.74	84.24	85.36	70.81	85.95	25.50	24.50	1.13	.00	86.08	82.20	71.52	86.12	.76	-.25	47.5	316.2	428.8	298.8	405.1
A3	85.65	81.76	84.87	85.91	71.47	86.31	23.00	23.50	1.06	.00	85.57	81.68	71.38	85.82	-.09	.01	46.1	293.1	406.7	298.8	414.7
A4	85.12	81.47	84.77	85.83	71.39	85.75	23.50	22.50	1.06	.00	85.40	81.73	71.86	86.32	.49	-.21	43.0	308.6	453.0	298.8	438.5
A5	85.28	81.54	84.63	85.49	70.99	85.87	27.00	25.00	.86	.00	85.44	81.69	71.29	85.80	.31	-.15	47.2	304.0	414.1	298.8	407.1
A6	.00	82.61	85.87	86.65	72.61	88.14	23.50	.00	.68	.00	.00	82.19	71.77	85.64	-1.01	.42	48.9	273.4	363.0	298.8	396.6
Sideline Left																					
A2	86.42	82.61	85.36	86.20	71.82	88.96	26.00	24.50	.80	.04	86.79	82.94	72.34	86.77	.57	-.19	91.6	349.2	349.4	334.3	334.4
A3	86.47	82.52	85.26	86.28	72.33	89.22	24.50	24.00	1.02	.00	86.38	82.44	72.24	86.19	-.09	.01	72.5	328.5	344.4	334.3	350.5
A4	85.78	82.03	84.64	85.60	71.85	88.66	26.00	27.00	1.03	.06	85.98	82.18	72.18	85.97	.37	-.17	76.6	342.4	351.9	334.3	343.6
A5	87.04	83.01	85.53	86.13	71.92	89.19	29.00	28.00	.90	.00	87.16	83.10	72.14	86.37	.24	-.13	67.9	338.2	364.9	334.3	360.7
A6	88.00	83.70	85.61	86.66	72.68	90.70	25.00	25.00	1.22	.00	87.57	83.39	72.03	85.88	-.78	.34	19.0	311.1	956.2	334.3	1027.4
Sideline Right																					
A2	85.47	81.58	83.84	84.93	71.69	86.53	21.50	24.50	1.03	.00	85.85	81.93	72.26	85.53	.60	-.21	94.3	351.0	352.0	334.3	335.2
A3	85.82	82.09	83.79	85.32	71.71	86.76	24.00	23.50	1.69	.00	85.78	82.03	71.67	85.29	-.03	-.02	86.6	330.2	330.8	334.3	334.9
A4	85.57	81.52	84.20	86.04	72.30	86.44	20.50	24.00	1.87	.00	85.81	81.70	72.68	86.47	.43	-.20	84.8	344.2	345.6	334.3	335.7
A5	85.83	81.99	83.66	85.01	71.18	86.38	27.50	27.00	1.75	.00	85.98	82.08	71.42	85.31	.30	-.15	84.0	340.0	341.8	334.3	336.2
A6	86.74	82.92	85.15	86.08	72.25	88.00	24.50	24.00	1.34	.00	86.42	82.65	71.65	85.43	-.65	.32	65.0	312.8	345.2	334.3	368.9
ENVIRONMENTAL DATA																					
EVENT	TEMPERATURE (°C)		REL HUMIDITY (%)		OPERATING CONDITIONS																
	10 M	ALT	10 M	ALT	SPEED (m/s)	GRND	REFGRND	ROTOR	TIP												
A2	30.58	26.37	60.00	65.92	65.3	65.3	348	.6363													
A3	30.82	26.41	60.00	64.98	64.3	65.3	348	.6362													
A4	31.07	26.19	60.00	66.50	64.3	65.3	348	.6365													
A5	31.32	26.22	60.00	66.49	64.2	65.3	348	.6364													
A6	31.64	26.57	60.00	64.74	65.8	65.3	348	.6361													

TABLE C-10
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 APPROACH

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(C)	CPA	SR	CPAR	SRR	
Centerline Center																						
L1	97.15	92.81	98.27	99.15	84.22	97.14	14.00	13.00	.88	.00	96.96	92.64	83.89	98.81	-.34	.15	55.7	113.9	137.9	118.1	143.0	
L2	98.25	93.86	100.18	100.81	86.05	99.18	12.00	12.00	.63	.00	98.42	94.02	86.00	100.77	-.04	.20	57.9	117.5	138.7	118.1	139.5	
L3	98.71	94.12	100.60	101.50	86.61	99.86	11.00	11.00	.90	.00	98.17	93.62	85.63	100.48	-1.02	.48	62.2	105.9	119.7	118.1	133.6	
L4	97.95	93.41	100.20	100.94	86.28	99.69	11.50	11.50	.73	.00	97.61	93.10	85.56	100.19	-.75	.41	61.0	108.9	124.6	118.1	135.1	
L5	98.10	93.69	100.34	101.13	86.22	99.52	10.50	9.50	.79	.00	97.70	93.32	85.38	100.26	-.87	.47	72.9	107.4	112.4	118.1	123.6	
L6	99.11	94.60	101.08	101.72	87.03	100.16	11.00	10.50	.68	.00	98.82	94.32	86.53	101.20	-.52	.23	60.5	111.6	128.2	118.1	135.7	
Sideline Left																						
L1	94.17	90.05	94.23	95.12	80.03	93.92	21.50	15.50	.89	.00	94.08	89.96	79.88	94.97	-.15	.06	63.8	187.9	209.4	190.9	212.9	
L2	93.18	88.75	92.33	93.26	78.81	92.91	20.50	18.00	1.85	.00	93.35	88.91	78.77	93.23	-.03	.20	42.5	190.0	281.5	190.9	282.8	
L3	92.18	87.73	92.69	93.81	80.11	93.09	16.50	16.00	.97	.00	91.80	87.52	79.72	93.24	-.57	.18	39.7	183.1	286.5	190.9	298.7	
L4	93.33	88.98	92.65	94.50	79.95	93.81	17.50	14.50	1.85	.00	93.22	88.88	79.65	94.19	-.31	.20	46.6	184.9	254.5	190.9	262.8	
L5	92.71	88.16	92.24	93.76	78.40	92.75	19.00	16.00	1.52	.00	92.59	88.06	78.07	93.42	-.34	.22	94.0	184.0	184.5	190.9	191.4	
L6	93.34	88.72	92.78	94.24	78.97	93.47	19.00	15.50	1.43	.00	93.19	88.59	78.76	94.01	-.23	.08	56.0	186.5	224.8	190.9	230.2	
Sideline Right																						
L1	89.70	85.55	88.85	90.82	75.93	90.04	22.00	18.00	2.10	.00	89.68	85.52	75.88	90.78	-.04	.01	59.0	189.9	221.4	190.9	222.6	
L2	91.28	87.17	89.56	90.72	76.77	89.91	23.50	23.50	1.18	.00	91.43	87.40	76.84	90.71	-.01	.15	74.5	192.1	199.4	190.9	198.1	
L3	91.39	87.18	89.17	91.22	77.15	90.39	28.50	28.00	2.45	.00	91.22	87.02	76.85	90.91	-.31	.14	37.7	185.1	302.8	190.9	312.4	
L4	90.21	85.67	90.19	91.69	77.08	90.75	17.00	16.00	1.50	.00	90.17	85.63	76.89	91.50	-.19	.15	51.2	186.9	239.7	190.9	244.9	
L5	90.44	86.46	88.89	91.01	76.40	90.42	26.50	19.00	2.22	.00	90.38	86.39	76.16	90.78	-.23	.17	55.9	186.0	224.6	190.9	230.5	
L6	90.75	86.46	89.39	91.45	76.11	90.31	23.00	20.00	2.08	.00	90.69	86.38	76.00	91.36	-.09	.04	67.6	188.5	203.9	190.9	206.6	
ENVIRONMENTAL DATA																						
EVENT	TEMPERATURE(C)		REL HUMIDITY(%)		OPERATING CONDITIONS																	
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	TIP														
L1	29.07	24.34	62.23	60.68	33.2	33.3	348	.6384														
L2	29.34	24.49	61.57	60.63	34.7	33.3	348	.6383														
L3	29.62	24.68	60.90	60.98	33.3	33.3	348	.6381														
L4	29.90	24.79	60.25	61.04	33.7	33.3	348	.6380														
L5	30.03	24.94	59.88	60.80	33.7	33.3	348	.6378														
L6	30.22	25.16	59.21	59.82	33.1	33.3	348	.6376														

TABLE C-12
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)		
	EPNL	SEL	PNLm	PNLIm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLIm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR
Centerline Center																					
B7	.00	85.96	92.16	93.28	79.78	94.90	8.00	.00	.97	.15	0.00	84.78	78.45	91.79	-1.49	.16	47.0	132.4	181.1	148.8	203.6
B8	90.96	88.38	93.31	94.40	81.70	94.29	9.50	9.00	1.01	.00	89.92	87.49	80.87	93.42	-.98	-.06	57.9	139.3	164.4	148.8	175.6
B9	89.24	86.35	91.73	92.72	79.57	93.09	10.00	9.00	.99	.00	88.89	86.03	79.41	92.53	-.19	-.16	58.2	148.6	174.7	148.8	175.0
B10	89.92	87.30	92.50	93.61	80.66	93.15	9.50	9.00	1.11	.00	89.81	87.22	80.63	93.54	-.07	-.04	53.7	150.3	186.7	148.8	184.7
B12	90.84	88.26	94.06	94.89	82.29	94.53	8.00	8.00	.91	.00	90.56	88.03	82.00	94.55	-.34	-.06	52.6	146.8	184.8	148.8	187.3
B13	88.39	85.46	91.09	92.05	79.01	92.92	9.00	9.00	.97	.00	88.75	85.79	79.68	92.75	.70	-.34	54.9	160.9	196.6	148.8	181.8
Sideline Left																					
B7	89.84	86.99	91.98	92.97	80.42	95.25	9.50	10.00	.92	.00	88.83	86.17	79.70	92.06	-.91	-.10	66.4	199.5	217.6	211.3	230.5
B8	89.30	87.26	91.25	92.65	80.73	95.19	9.50	9.50	1.57	.00	88.67	86.65	80.35	92.24	-.41	-.23	57.2	205.4	244.5	211.3	251.4
B9	88.75	86.17	91.11	92.02	79.34	95.13	10.00	10.00	.97	.00	88.37	85.84	79.17	91.80	-.22	-.15	75.0	210.5	217.9	211.3	218.7
B10	89.16	86.88	90.91	92.33	80.03	94.66	10.00	10.50	1.63	.00	89.08	86.82	80.01	92.29	-.04	-.04	49.3	213.2	281.1	211.3	278.6
B12	89.88	87.41	91.82	93.28	80.78	95.68	9.00	9.50	1.52	.00	89.74	87.28	80.64	93.13	-.15	-.01	48.7	210.7	280.4	211.3	281.2
B13	88.81	86.05	91.06	92.10	79.15	95.25	10.00	9.50	1.04	.00	88.88	86.13	79.40	92.33	.23	-.16	66.9	219.4	238.6	211.3	229.7
Sideline Right																					
B7	88.85	87.68	90.29	91.02	79.84	89.80	12.00	11.50	.73	.00	88.07	86.92	79.21	90.37	-.65	-.13	55.5	200.8	243.6	211.3	256.3
B8	90.87	88.96	91.82	92.73	80.82	91.70	12.00	12.00	.91	.00	90.10	88.28	80.34	92.16	-.57	-.20	76.4	204.1	210.0	211.3	217.3
B9	89.06	87.75	90.13	90.92	79.49	90.44	12.00	12.00	.74	.00	88.70	87.48	79.41	90.74	-.18	-.18	66.8	211.9	230.6	211.3	229.9
B10	90.44	88.30	91.52	92.55	80.08	91.50	13.00	12.00	1.05	.00	90.27	88.17	79.96	92.39	-.16	-.01	66.9	211.8	230.3	211.3	229.7
B12	90.78	88.66	92.03	92.99	80.74	92.90	11.50	11.50	.96	.00	90.55	88.47	80.51	92.71	-.28	-.04	70.7	209.3	221.8	211.3	223.8
B13	88.60	87.05	89.59	90.33	78.89	91.05	12.00	12.50	.91	.00	88.75	87.19	79.22	90.67	-.34	-.19	71.2	220.8	233.3	211.3	223.2

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS				
	TEMPERATURE(°C)	REL HUMIDITY(%)	ALT	SPEED(m/s)	ROTOR TIP	MACH#		
	10 M	10 M	ALT	GRND REFRND	RPM	MACH#		
B7	18.19	23.28	90.00	63.41	61.7	66.9	293	.5969
B8	17.66	23.29	90.00	63.40	61.7	66.9	293	.5969
B9	16.94	23.46	90.00	64.42	64.3	66.9	293	.5967
B10	16.78	23.44	90.00	64.65	66.9	66.9	293	.5967
B12	17.13	23.43	90.00	62.71	66.9	66.9	293	.5967
B13	17.28	23.59	90.00	63.98	66.9	66.9	293	.5966

TABLE C-13
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 300 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA(dB)				CORRECTED DATA (dB)				EMISSION			TRACKING DATA (M)							
	EPHL	SEL	PNLm	PNLIm	Dur(A)	Dur(P)	TC	BNDShR	EPHL	SEL	ALm	PNLIm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR
Centerline Center																			
E24	86.42	84.05	86.75	87.37	75.15	94.71	16.00	15.50	86.98	84.60	75.88	88.10	.73	-.17	68.1	321.8	346.8	298.8	322.0
E25	86.07	83.90	84.62	85.66	73.97	92.99	20.00	20.50	86.34	84.11	74.63	86.38	.72	-.45	86.1	320.3	321.0	298.8	299.5
E26	85.92	83.53	85.53	86.30	74.38	94.44	16.00	18.00	86.45	83.95	75.13	87.16	.86	-.33	49.9	322.3	421.2	298.8	390.4
E27	87.52	85.30	88.48	89.04	76.83	95.07	15.00	14.50	87.28	85.13	76.62	88.76	-.28	.03	46.7	296.4	407.7	298.8	410.9
E28	86.53	83.94	86.65	87.58	74.99	94.67	16.00	16.00	86.86	84.20	75.47	88.13	.55	-.22	38.7	314.3	502.5	298.8	477.7
Sideline Left																			
E24	87.83	84.75	89.28	89.80	75.88	95.86	15.00	14.00	88.30	85.18	76.41	90.37	.57	-.10	43.6	354.3	513.6	334.3	484.6
E25	.00	84.36	86.39	87.41	76.20	94.37	18.50	.00	.00	84.50	76.75	87.99	.58	-.41	74.8	354.7	367.5	334.3	346.4
E26	86.31	83.62	86.12	86.87	74.78	96.09	15.50	17.00	86.68	83.92	75.34	87.50	.63	-.26	67.9	354.8	383.0	334.3	360.9
E27	88.23	85.61	88.92	89.77	78.16	95.92	13.50	16.00	88.14	85.52	78.05	89.67	-.10	.01	78.0	333.2	340.7	334.3	341.8
E28	0.00	84.07	86.73	87.74	75.22	96.42	15.00	.00	.00	84.24	75.56	88.12	.38	-.17	71.9	347.5	365.5	334.3	351.6
Sideline Right																			
E24	87.15	84.96	86.75	87.80	75.39	93.42	16.50	16.00	87.67	85.42	75.97	88.45	.65	-.12	45.6	356.1	498.1	334.3	467.7
E25	.00	85.17	86.00	87.13	75.24	92.41	17.50	.00	.16	85.28	75.74	87.68	.55	-.38	113.3	352.9	384.4	334.3	364.1
E26	87.80	85.54	87.65	88.83	75.92	94.14	15.50	14.50	88.18	85.88	76.54	89.49	.66	-.28	46.8	356.5	488.7	334.3	458.2
E27	89.42	86.76	89.71	90.53	77.70	96.49	15.50	15.50	89.27	86.61	77.52	90.35	-.18	.04	46.0	331.5	461.1	334.3	465.0
E28	88.20	85.86	87.87	89.32	76.43	94.22	16.50	16.00	88.45	86.05	76.82	89.76	.44	-.19	40.3	349.3	539.6	334.3	516.5

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE(°C)	REL HUMIDITY(%)	ALT	SPEED(m/s)	GRND REFRGRND	TIP
E24	20.19	25.22	90.00	77.2	74.6	293
E25	20.30	25.20	90.00	72.0	74.6	293
E26	20.45	25.20	90.00	74.6	74.6	293
E27	20.57	25.29	90.00	74.6	74.6	293
E28	20.69	25.07	90.00	74.5	74.6	293

TABLE C-14
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 APPROACH

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)				EMISSION				TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
150	97.62	94.28	100.81	101.46	88.01	97.82	9.00	9.00	.65	.00	97.25	93.93	87.23	100.66	-.80	.43	66.3	108.3	118.3	118.1	129.0	
151	95.27	91.87	97.15	97.76	83.72	94.57	15.50	11.00	.58	.00	94.75	91.40	83.03	97.01	-.75	.23	86.8	109.4	109.5	118.1	118.3	
152	95.70	92.75	98.47	98.74	86.40	95.22	8.50	9.50	.11	.00	95.04	92.30	85.62	97.76	-.98	.33	57.0	108.3	129.2	118.1	140.9	
153	96.87	93.64	99.93	100.83	86.76	96.46	11.00	9.50	.88	.00	96.31	93.13	85.88	99.90	-.93	.37	63.4	107.0	119.7	118.1	132.1	
154	95.77	92.29	99.19	100.00	85.81	96.33	10.00	8.50	.81	.00	95.67	92.18	85.49	99.68	-.32	.22	60.4	113.9	131.0	118.1	135.9	
155	96.19	93.00	98.28	98.93	85.58	94.85	10.50	10.00	.65	.00	95.84	92.68	84.83	98.16	-.77	.42	59.5	108.6	126.0	118.1	137.0	
Sideline Left																						
150	93.34	90.24	92.83	93.99	81.57	88.89	16.50	17.00	1.47	.00	93.22	90.12	81.25	93.66	-.33	.20	84.0	184.5	185.6	190.9	192.0	
151	94.53	91.01	96.15	97.67	84.01	91.45	11.00	10.50	1.57	.00	94.20	90.75	83.73	97.32	-.35	.02	58.0	185.2	218.2	190.9	225.0	
153	94.58	91.67	95.45	97.36	83.38	90.58	19.00	15.00	1.92	.00	94.33	91.43	83.03	97.01	-.35	.11	63.5	183.8	205.4	190.9	213.4	
154	94.17	91.17	94.67	96.41	82.62	89.82	16.50	15.50	1.70	.00	94.12	91.17	82.49	96.23	-.18	.13	61.6	187.9	213.6	190.9	217.1	
155	93.99	90.82	94.24	95.47	81.82	89.28	15.00	14.50	1.12	.00	93.72	90.73	81.52	95.00	-.47	.20	62.0	184.7	209.2	190.9	216.2	
Sideline Right																						
153	87.56	83.79	89.90	91.25	77.04	85.69	9.00	8.50	1.32	.00	87.34	83.60	76.79	90.96	-.29	.06	93.4	185.8	186.1	190.9	191.3	
154	90.66	86.96	90.63	91.96	77.25	86.18	17.50	15.00	1.28	.05	90.72	87.01	77.22	91.94	-.02	.08	52.6	189.9	239.2	190.9	240.4	
155	89.74	85.62	89.15	90.95	76.79	85.44	16.50	14.50	1.80	.00	89.70	85.59	76.60	90.75	-.20	.16	54.7	186.7	228.8	190.9	234.0	
ENVIRONMENTAL DATA																						
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		OPERATING CONDITIONS																	
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	TIP														
150	27.85	24.65	67.51	68.91	38.3	37.9	293	.5950														
151	27.93	24.80	66.89	68.06	36.9	37.9	293	.5948														
152	28.05	24.89	66.01	67.62	37.4	37.9	293	.5947														
153	28.17	25.06	65.17	66.72	37.3	37.9	293	.5945														
154	28.34	25.19	63.94	65.88	38.4	37.9	293	.5944														
155	28.47	25.40	63.00	64.83	38.4	37.9	293	.5942														

TABLE C-15
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 3-POINT POSITION DETERMINATION
 TAKEOFF

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	IC	BNDShr	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
F29	89.65	85.76	91.02	92.81	78.63	82.00	10.50	10.00	1.93	.00	90.78	86.79	80.12	94.39	1.58	-.45	73.6	127.3	132.7	108.6	113.2	
F30	90.64	86.85	91.53	93.66	79.33	82.31	11.50	10.50	2.13	.00	91.89	88.03	81.07	95.47	1.81	-.56	87.4	130.5	130.6	108.6	108.7	
F31	91.16	87.59	92.11	94.23	79.79	82.67	11.50	10.00	2.12	.00	92.52	88.83	81.70	96.26	2.03	-.67	78.5	132.7	135.5	108.6	110.8	
F32	90.16	86.34	91.10	92.51	78.66	82.18	12.00	11.00	2.08	.00	91.34	87.45	80.23	94.15	1.64	-.46	102.5	128.2	131.3	108.6	111.2	
F33	90.46	86.56	92.26	94.15	80.01	83.16	10.00	8.50	2.43	.00	90.83	86.93	80.25	94.40	.25	.13	93.7	112.0	112.2	108.6	108.8	
F34	90.18	86.16	91.00	93.17	78.83	81.89	12.00	10.50	2.18	.00	90.69	86.65	79.36	93.72	.55	-.04	107.0	115.3	120.6	108.6	113.5	
F35	90.46	86.24	92.16	94.11	79.73	82.86	10.00	9.00	1.70	.00	89.91	85.99	78.67	92.75	-1.36	.81	99.6	97.9	99.3	108.6	110.1	
F36	90.32	86.15	91.21	93.42	78.68	82.88	11.00	9.50	2.37	.00	90.42	86.25	78.48	93.22	-.20	.30	105.3	107.0	110.9	108.6	112.5	
Sideline Left																						
F29	89.13	87.56	88.79	90.06	78.92	83.17	14.50	15.50	1.27	.00	89.71	88.12	79.55	90.72	.66	-.07	83.3	199.1	200.5	185.2	186.4	
F30	89.92	88.22	89.89	91.02	80.16	84.06	13.50	14.50	1.13	.00	90.56	88.83	80.89	91.79	.77	-.12	87.4	201.2	201.4	185.2	185.3	
F31	90.06	88.46	90.38	91.69	80.85	84.91	12.50	13.00	1.32	.00	90.71	89.07	81.66	92.53	.84	-.19	79.7	202.7	206.0	185.2	188.2	
F32	89.17	87.57	89.15	90.30	79.23	83.34	13.50	14.50	1.07	.00	89.70	88.16	79.89	90.90	.60	-.07	105.9	199.7	207.6	185.2	192.5	
F33	89.84	87.93	90.06	91.36	79.77	83.84	12.50	13.00	1.30	.00	90.16	88.25	79.93	91.52	.16	.16	95.5	189.4	190.3	185.2	186.0	
F34	88.81	86.87	88.54	89.67	78.18	82.71	14.50	15.50	1.08	.00	89.11	87.20	78.44	89.90	.23	.08	107.4	191.4	200.6	185.2	194.0	
F35	89.38	87.02	89.54	92.02	79.15	83.51	12.50	12.50	2.48	.00	89.55	87.21	78.89	91.73	-.29	.46	85.6	181.1	181.7	185.2	185.7	
F36	88.01	85.97	88.09	89.33	77.68	82.78	14.50	15.00	1.21	.07	88.22	86.19	77.69	89.33	.00	-.21	108.2	186.4	196.2	185.2	194.9	
Sideline Right																						
F29	91.44	89.29	91.92	93.55	81.81	85.74	12.00	14.00	1.63	.00	91.94	89.77	82.30	94.06	.51	-.01	80.8	196.2	198.7	185.2	187.6	
F30	91.69	89.51	91.98	93.45	81.83	85.88	13.50	14.50	1.47	.00	92.26	90.05	82.43	94.07	.62	-.06	82.9	198.3	199.8	185.2	186.6	
F31	91.97	89.58	91.72	93.36	81.22	85.56	14.00	15.00	1.71	.00	92.55	90.13	81.90	94.07	.71	-.13	94.0	199.8	200.2	185.2	185.6	
F32	90.70	88.75	90.65	91.93	80.55	84.96	16.00	18.00	1.28	.00	91.25	89.28	81.08	92.48	.55	.00	88.3	196.8	196.9	185.2	185.2	
F33	91.52	89.34	91.98	93.35	81.98	85.95	12.50	15.00	1.47	.00	91.76	89.57	81.99	93.37	.02	.22	103.1	186.7	191.7	185.2	190.1	
F34	90.53	88.28	89.83	91.15	79.53	85.03	16.00	17.50	1.31	.00	90.77	88.53	79.64	91.26	.11	-.14	102.6	188.7	193.4	185.2	189.7	
F35	91.54	88.92	91.51	93.21	81.18	86.46	13.50	14.00	2.03	.00	91.56	89.02	80.77	92.71	-.50	.52	100.8	178.7	181.9	185.2	188.5	
F36	.00	88.17	90.02	91.24	79.34	85.52	15.00	.00	1.28	.00	.10	88.30	79.20	91.07	-.17	.27	79.8	183.8	186.8	185.2	188.1	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE(°C)	REL. HUMIDITY(%)	SPEED(m/s)	GRND	REFGRND	TIP
	10 M	ALT	10 M	ALT	GRND	RPM
F29	21.09	23.20	90.00	64.06	39.6	37.4
F30	21.22	23.43	90.00	63.32	39.6	37.4
F31	21.35	23.40	90.00	62.70	39.2	37.4
F32	21.48	23.66	90.00	61.91	39.7	37.4
F33	21.61	23.34	90.00	62.80	39.7	37.4
F34	21.80	23.49	89.26	62.13	39.4	37.4
F35	22.01	23.14	88.07	64.60	40.7	37.4
F36	22.23	23.24	86.82	64.46	39.6	37.4

APPENDIX D
SUMMARY ACOUSTIC DATA
TWO-POINT POSITION DETERMINATION

THE UNIVERSITY OF CHICAGO
LIBRARY
540 EAST 57TH STREET
CHICAGO, ILLINOIS 60637

TABLE D-1
 AEROSPATIALE SA365N DAUPHIN 2
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA(dB)				CORRECTED DATA (dB)				EMISSION		TRACKING DATA (M)										
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	IC	BNDShR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	CPA	SR	CPAR	SRR	
CenterLine Center																					
A6	90.10	86.80	91.40	92.92	78.14	87.21	10.50	10.00	1.52	.00	89.88	84.61	78.17	92.92	.00	-.22	76.5	153.1	157.4	148.8	153.0
A8	90.03	84.56	91.34	92.54	77.97	87.72	10.00	11.50	1.42	.04	89.74	84.27	77.82	92.39	-.15	-.14	82.7	150.3	151.5	148.8	150.0
A10	89.24	84.03	90.52	91.87	77.14	86.70	10.50	10.50	1.15	.20	88.94	83.73	77.09	91.82	-.05	-.25	70.1	151.9	161.6	148.8	158.3
Sideline Left																					
A6	90.88	86.16	91.89	93.11	79.04	94.60	11.00	12.00	1.22	.00	90.46	85.83	78.86	92.84	-.27	-.15	62.9	213.7	240.2	211.3	237.4
A8	91.14	86.30	92.21	93.41	79.39	95.04	11.00	12.50	1.08	.12	90.65	85.90	79.10	93.03	-.38	-.11	71.5	211.7	223.3	211.3	222.8
A10	91.25	86.11	92.42	93.78	79.00	94.34	11.00	12.00	1.28	.09	90.76	85.67	78.75	93.48	-.30	-.19	67.1	212.9	231.2	211.3	229.4
Sideline Right																					
A6	88.65	83.41	89.93	91.55	76.21	89.68	11.00	10.50	1.79	.00	88.24	83.10	76.07	91.32	-.23	-.18	55.7	215.1	260.5	211.3	255.8
A8	88.62	83.28	89.77	91.77	76.28	89.65	11.00	11.50	2.15	.00	88.12	82.86	76.00	91.41	-.36	-.14	52.1	213.1	270.0	211.3	267.6
A10	88.48	83.28	89.72	91.56	76.07	88.82	11.50	11.00	1.84	.00	88.01	82.85	75.87	91.31	-.25	-.22	59.3	214.3	249.1	211.3	245.6

ENVIRONMENTAL DATA				OPERATING CONDITIONS				
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		SPEED(m/s)		TIP	
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	MACH#
A6	15.57	17.38	99.00	95.98	67.9	69.4	350	.6407
A8	15.66	17.43	99.00	95.37	67.9	69.4	350	.6406
A10	15.77	17.69	99.00	95.46	66.9	69.4	350	.6403

TABLE D-2
 AEROSPATIALE SA365N DAUPHIN 2
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 300 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)				CORRECTED DATA (dB)				EMISSION			TRACKING DATA (M)									
	EPNL	SEL	PNLm	ALm	QASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																					
NO DATA																					
Sideline Left																					
D22	85.18	81.22	85.02	86.48	73.07	87.99	15.50	16.50	1.63	.00	84.89	81.01	73.14	86.46	-0.28	73.7	345.7	360.3	334.3	348.4	
D24	85.05	80.84	84.86	86.35	72.54	88.06	16.00	20.00	1.48	.00	84.40	80.30	72.09	85.78	-0.57	66.4	331.1	361.4	334.3	364.9	
Sideline Right																					
D22	85.10	81.02	84.50	86.70	73.97	86.53	13.50	17.00	2.28	.00	84.93	80.87	74.12	86.83	-0.13	79.2	347.5	353.8	334.3	340.4	
D24	85.52	80.94	84.14	85.49	72.16	86.89	17.00	22.00	1.68	.04	84.93	80.50	71.83	85.01	-0.48	61.3	332.8	379.4	334.3	381.1	
ENVIRONMENTAL DATA																					
OPERATING CONDITIONS																					
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		SPEED(m/s)		GRND REFGND		ROTOR RPM		TIP MACH#										
	10 M	ALT	10 M	ALT																	
D22	16.54	21.31	98.24	74.10	67.4	69.4	350	.6364													
D24	16.64	21.48	98.06	74.73	67.4	69.4	350	.6362													

300 M LEVEL FLYOVER
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 AEROSPATIALE SA365N DAUPHIN 2

TABLE D-3
AEROSPATIALE SA365N DAUPHIN 2
SUMMARY ACOUSTIC ANALYSIS
2-POINT POSITION DETERMINATION
APPROACH

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE (°)	CPA	SR	CPAR	SRR	
Centerline Center																						
F46	96.47	92.57	98.56	99.70	85.05	95.13	12.00	10.50	1.26	.00	95.87	92.03	84.05	98.64	-1.06	.46	98.3	106.2	107.3	118.1	119.4	
F47	96.50	92.89	98.66	99.75	85.88	95.31	12.00	11.00	1.09	.00	95.75	92.20	84.57	98.39	-1.36	-.62	78.3	102.8	104.9	118.1	120.6	
F48	97.03	93.12	99.03	100.17	85.40	95.27	13.50	12.00	1.14	.00	96.38	92.51	84.27	99.00	-1.17	.52	73.2	104.8	109.5	118.1	123.4	
F49	96.95	92.77	98.52	99.61	84.87	94.94	13.00	11.00	1.08	.00	96.38	92.24	83.89	98.58	-1.03	.45	72.6	106.5	111.6	118.1	123.8	
F50	97.10	93.31	98.45	99.80	85.53	95.12	13.50	12.00	1.35	.00	96.58	92.84	84.69	98.92	-.88	-.36	66.1	108.2	118.4	118.1	129.2	
F51	97.02	93.42	100.45	101.39	87.86	96.38	9.50	10.00	.93	.02	96.15	92.62	86.36	99.82	-1.57	-.70	59.2	100.8	117.4	118.1	137.6	
Sideline Left																						
NO DATA																						
Sideline Right																						
F46	97.05	93.52	97.37	99.12	85.15	93.67	15.00	14.50	1.75	.00	96.72	93.23	84.73	98.67	-.45	.13	54.1	185.3	228.6	190.9	235.6	
F47	96.13	92.79	96.52	97.96	84.63	92.69	14.50	14.00	1.44	.00	95.76	92.46	84.12	97.41	-.55	.19	61.3	183.3	208.9	190.9	217.6	
F48	95.74	92.34	96.10	97.04	83.45	92.73	15.50	15.00	.75	.00	95.24	92.04	83.00	96.39	-.65	-.15	73.4	184.5	192.5	190.9	199.3	
F49	96.15	92.67	96.18	98.28	83.91	92.09	17.00	14.00	2.10	.00	95.84	92.40	83.51	97.85	-.43	.13	56.7	185.5	221.8	190.9	228.4	
F50	94.40	91.16	95.16	96.13	82.23	91.66	19.50	15.50	.97	.00	94.03	90.88	81.87	95.68	-.45	-.08	73.0	186.5	195.0	190.9	199.6	
F51	95.24	91.16	94.87	96.98	82.45	91.35	17.00	15.00	2.02	.00	94.66	90.77	81.84	96.18	-.80	-.21	69.2	182.2	194.8	190.9	204.2	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE (°C)	REL HUMIDITY (%)	ALT	SPEED (m/s)	ROTOR RPM	TIP MACH#
	10 M	10 M	ALT	GRND	REFGRND	RPM
F46	20.54	19.29	70.09	89.27	38.3	38.4
F47	20.69	19.45	69.18	88.41	38.4	38.4
F48	20.83	19.57	68.31	87.89	38.3	38.4
F49	20.97	19.69	67.50	87.10	38.4	38.4
F50	21.11	19.82	66.68	86.14	38.2	38.4
F51	21.22	19.99	66.00	84.92	38.5	38.4

TABLE D-4
AEROSPATIALE SA365N DAUPHIN 2
SUMMARY ACOUSTIC ANALYSIS
2-POINT POSITION DETERMINATION
TAKEOFF

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION		TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLtm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPHL	SEL	ALm	PNLtm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR
Centerline Center																					
E27	98.34	93.04	98.33	101.44	85.96	86.15	11.50	11.00	3.30	.00	96.88	91.68	83.66	99.04	-2.40	.94	95.9	100.6	101.2	124.0	124.7
E29	97.37	92.21	96.58	99.90	85.02	85.40	12.50	13.00	3.50	.00	95.85	90.75	82.49	97.30	-2.60	1.08	104.8	97.9	101.3	124.0	128.3
E30	98.72	92.84	99.31	102.67	86.41	87.97	11.50	11.00	3.45	.00	96.85	91.13	83.40	99.51	-3.16	1.30	92.1	93.1	93.1	124.0	124.1
E31	97.91	92.58	97.72	101.24	85.86	86.08	11.00	11.00	3.52	.00	96.39	91.11	83.31	98.63	-2.61	1.09	100.4	97.5	99.1	124.0	126.1
E32	97.94	92.69	97.18	100.71	85.43	86.28	12.50	12.00	3.53	.00	96.12	90.98	82.41	97.57	-3.14	1.31	82.5	92.5	93.3	124.0	125.1
E33	98.32	93.00	98.22	101.26	85.69	86.61	11.50	11.00	2.98	.06	96.33	91.08	82.29	97.79	-3.47	1.48	99.3	89.3	90.5	124.0	125.7
Sideline Left																					
E27	88.00	83.69	87.24	89.04	74.54	88.24	18.50	21.00	1.80	.00	87.34	83.13	73.69	88.08	-.96	.29	80.7	183.2	185.6	194.6	197.2
E29	88.48	84.16	87.93	90.02	75.52	88.13	17.00	17.50	2.18	.00	87.81	83.58	74.59	89.01	-1.01	.35	88.8	181.6	181.7	194.6	194.7
E30	88.23	83.84	87.69	89.95	75.25	87.93	15.00	16.00	3.07	.00	87.57	83.16	74.15	88.88	-1.07	.41	92.9	179.0	179.2	194.6	194.9
E31	88.28	84.36	87.56	89.50	75.19	88.07	16.50	16.00	1.98	.03	87.54	83.69	74.18	88.42	-1.08	.35	79.8	181.4	184.3	194.6	197.8
Sideline Right																					
E27	93.89	88.97	92.63	94.29	79.94	93.48	16.50	18.50	2.36	.00	92.93	88.22	78.83	92.96	-1.33	.37	52.6	180.2	226.8	194.6	245.0
E29	94.51	89.52	92.81	94.90	80.09	93.57	19.00	18.50	2.55	.00	93.56	88.76	78.91	93.53	-1.37	.42	56.5	178.7	214.3	194.6	233.4
E30	94.89	89.87	92.74	94.75	80.16	93.66	19.00	19.00	2.63	.00	93.81	89.04	78.85	93.18	-1.57	.48	54.6	176.1	216.1	194.6	238.8
E31	-00	89.89	93.05	96.18	79.69	93.47	19.00	-00	2.99	.13	0.00	89.10	78.48	94.31	-1.87	.42	30.2	178.4	354.8	194.6	387.0
E32	94.94	90.09	93.49	95.05	80.46	93.87	17.00	17.00	2.04	.00	93.86	89.17	79.05	93.48	-1.57	.48	54.7	175.8	215.5	194.6	238.6
E33	95.95	90.80	94.38	96.99	81.42	94.38	17.50	17.00	3.07	.00	94.71	89.84	79.92	95.22	-1.77	.53	46.8	174.1	238.9	194.6	267.0
ENVIRONMENTAL DATA																					
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		OPERATING CONDITIONS																
	10 M	ALT	10 M	ALT	SPEED(m/s)	GRND REFRGRD	ROTOR RPM	TIP MACH#													
E27	17.95	18.24	88.71	96.94	38.0	37.7	350	.6397													
E29	18.19	18.21	87.00	97.01	38.1	37.7	350	.6398													
E30	18.31	17.67	86.11	96.26	38.2	37.7	350	.6404													
E31	18.44	18.06	85.21	96.88	38.0	37.7	350	.6399													
E32	18.56	17.00	84.30	95.70	38.1	37.7	350	.6411													
E33	18.68	16.97	83.42	95.83	38.2	37.7	350	.6411													

TABLE D-5
BOEING VERTOL 234/CH47-D
SUMMARY ACOUSTIC ANALYSIS
2-POINT POSITION DETERMINATION
150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)		
	EPNL	SEL	PNL _m	PNL _{1m}	AL _m	OASPL _m	Dur(A)	Dur(P)	IC	BNDShr	EPNL	SEL	AL _m	PNL _{1m}	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR
Center-Line Center																					
A1	91.42	86.79	94.92	95.53	80.03	95.47	9.50	9.00	.62	.00	91.84	87.15	80.72	96.28	.75	-.32	85.2	160.1	160.7	148.8	149.3
A2	92.01	87.02	94.67	94.92	79.65	95.15	12.00	14.50	.21	.00	92.13	87.13	80.17	95.44	.52	-.40	95.6	157.3	158.1	148.8	149.5
A3	92.48	87.25	93.53	93.80	78.58	95.62	14.00	17.50	.22	.00	92.71	87.48	79.01	94.24	.44	-.20	75.1	155.9	161.3	148.8	154.0
A4	92.89	87.81	94.85	95.00	79.78	95.80	15.00	16.00	.15	.00	93.20	88.07	80.27	95.53	.53	-.23	75.4	156.7	161.9	148.8	153.7
A5	91.81	86.50	93.63	93.93	78.47	95.24	14.00	14.00	.24	.00	92.19	86.88	79.17	94.63	.70	-.32	82.5	160.0	161.4	148.8	150.1
A6	91.71	86.95	93.57	94.02	78.45	94.98	16.50	15.50	.43	.00	92.56	87.75	79.86	95.48	1.46	-.62	66.9	171.5	186.4	148.8	161.7
Sideline Left																					
A1	92.14	86.63	93.24	94.35	77.96	98.58	19.00	19.00	1.22	.00	92.39	86.79	78.27	94.76	.41	-.15	37.6	218.8	358.4	211.3	346.1
A2	92.31	87.11	92.48	93.67	78.44	98.77	15.00	15.50	1.18	.00	92.34	87.11	78.74	94.00	.33	-.30	63.9	218.2	242.9	211.3	235.2
A3	92.11	86.74	92.43	93.05	77.16	98.35	19.50	18.00	1.10	.00	92.30	86.85	77.37	93.33	.28	-.09	36.0	215.7	366.9	211.3	359.3
A4	92.39	87.09	92.54	93.54	77.91	99.07	17.50	17.50	.95	.05	92.60	87.25	78.20	93.88	.34	-.13	62.1	217.7	246.5	211.3	239.1
A5	92.16	86.39	92.86	94.16	77.12	98.33	18.00	17.00	1.45	.00	92.46	86.57	77.45	94.61	.45	-.15	38.7	218.7	349.6	211.3	337.7
A6	91.25	86.43	91.32	92.11	77.06	98.85	17.50	16.00	.98	.00	91.84	86.91	77.88	93.05	.94	-.34	60.7	228.7	262.4	211.3	242.4
Sideline Right																					
A1	90.81	86.04	91.52	92.72	78.02	98.82	13.00	14.00	1.20	.00	91.05	86.25	78.42	93.14	.42	-.18	77.5	220.2	225.6	211.3	216.4
A2	91.82	86.40	91.66	93.01	77.45	99.66	17.50	17.50	1.35	.00	91.89	86.36	77.68	93.35	.34	-.27	39.8	216.8	338.3	211.3	329.7
A3	92.49	87.61	92.58	93.45	78.70	100.00	17.50	17.00	.87	.00	92.74	87.75	78.96	93.82	.37	-.12	31.1	217.1	420.0	211.3	408.7
A4	92.36	86.58	92.03	93.48	78.00	100.19	16.50	17.50	1.67	.00	92.60	86.70	78.22	93.83	.35	-.10	40.3	216.3	334.1	211.3	326.3
A5	91.58	86.52	91.68	92.50	77.80	97.90	16.50	16.50	1.28	.00	91.88	86.75	78.21	92.98	.48	-.18	71.0	220.2	232.8	211.3	223.4
A6	91.66	86.40	92.22	92.82	77.39	97.25	16.00	17.00	.76	.00	92.31	86.85	78.16	93.78	.96	-.32	40.2	227.2	352.1	211.3	327.3

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS				
	TEMPERATURE(°C)	REL HUMIDITY(%)	ALT	SPEED(m/s)	GRND REFRND	RPM	TIP	MACH#
A1	23.21	22.65	52.33	52.45	69.4	227.25	.6320	
A2	23.47	22.72	52.16	51.74	66.9	225.00	.6256	
A3	23.72	22.78	51.99	52.30	69.4	220.50	.6131	
A4	23.99	22.86	51.81	52.07	69.4	225.00	.6255	
A5	24.26	22.92	51.63	51.55	69.4	227.25	.6317	
A6	24.47	22.95	51.48	50.46	69.4	225.00	.6254	

TABLE D-6
BOEING VERTOL 234/CH47-D
SUMMARY ACOUSTIC ANALYSIS
2-POINT POSITION DETERMINATION
APPROACH

EVENT	AS-MEASURED DATA (dB)					Dur(A)	Dur(P)	TC	BHDShR	CORRECTED DATA (dB)					Δ1	Δ2	EMISSION ANGLE(°)	TRACKING DATA (M)			
	EPNL	SEL	PNLTm	ALm	OASPLm					PNLTm	ALm	PNLTm	SEL	EPNL				SEL	ALm	PNLTm	CPA
Centerline Center																					
H30	101.87	97.63	104.12	104.87	90.80	102.13	11.00	11.00	.92	.00	102.05	97.72	91.48	105.64	.77	-.60	46.3	126.8	175.4	118.1	163.4
H31	101.28	97.30	103.81	104.43	90.00	102.49	13.50	11.50	.55	.00	101.54	97.55	90.97	105.42	.99	-.73	54.0	130.9	161.9	118.1	146.1
H32	102.31	98.05	104.93	105.51	91.06	102.94	10.50	10.50	.58	.00	102.42	98.07	91.59	106.13	.62	-.51	44.4	124.8	178.4	118.1	168.8
H33	103.00	98.65	105.03	105.62	91.18	103.25	11.50	11.00	.51	.08	103.21	98.78	91.96	106.49	.87	-.65	59.7	128.5	148.9	118.1	136.8
H34	102.74	98.44	104.75	105.47	91.29	102.93	10.00	10.00	.72	.00	102.57	98.21	91.52	105.76	.29	-.46	57.4	120.9	143.5	118.1	140.2
H35	101.20	97.27	104.54	105.15	90.97	102.50	12.50	9.00	.47	.00	101.88	97.99	91.88	106.02	.87	-.19	44.1	130.1	187.0	118.1	169.9
Sideline Left																					
H30	96.69	91.75	97.10	99.00	82.75	100.68	17.50	15.00	1.90	.00	96.66	91.65	83.05	99.37	.37	-.40	53.1	195.9	244.9	190.9	238.7
H31	95.30	90.58	94.66	96.14	80.58	100.61	20.00	17.00	1.75	.00	95.40	90.60	81.04	96.69	.55	-.45	34.2	198.6	353.0	190.9	339.5
H32	96.37	91.42	95.89	97.73	81.95	100.35	17.50	14.00	1.83	.00	96.32	91.29	82.18	98.04	.31	-.35	51.5	194.6	248.5	190.9	243.8
H33	97.36	92.56	98.21	99.87	84.21	100.23	18.50	14.50	1.67	.00	97.39	92.48	84.55	100.32	.45	-.42	52.2	197.0	249.3	190.9	241.6
H34	96.14	91.30	96.87	98.92	82.74	99.23	17.50	13.00	2.09	.00	95.92	91.03	82.85	99.08	.16	-.39	44.3	192.2	275.2	190.9	273.4
H35	95.69	91.20	96.21	98.10	81.95	100.66	18.00	15.00	1.88	.00	96.26	91.68	82.37	98.61	.51	.06	46.6	198.5	273.1	190.9	262.6
Sideline Right																					
H30	99.22	95.13	100.07	101.54	86.70	99.88	17.50	16.50	1.47	.00	99.20	95.07	87.08	101.97	.43	-.45	61.9	198.1	224.5	190.9	216.4
H31	99.38	94.95	99.18	101.06	86.25	99.94	14.00	13.50	1.88	.00	99.49	94.98	86.78	101.67	.61	-.50	40.0	200.8	312.1	190.9	296.8
H32	98.68	94.14	100.29	101.97	87.74	99.34	10.50	10.00	1.60	.00	98.62	94.06	88.06	102.31	.34	-.40	62.0	196.8	222.9	190.9	216.2
H33	99.10	94.73	101.36	102.64	87.79	100.47	12.50	11.50	1.28	.00	99.14	94.69	88.22	103.15	.51	-.46	55.6	199.2	241.6	190.9	231.5
H34	98.82	94.25	99.62	101.28	86.11	100.41	17.00	12.50	1.67	.00	98.65	94.03	86.32	101.55	.27	-.44	52.4	194.3	245.3	190.9	241.1
H35	99.35	95.03	101.27	103.25	88.32	101.09	12.00	11.00	1.98	.00	99.96	95.53	88.80	103.84	.59	.02	49.0	200.2	265.2	190.9	252.9
ENVIRONMENTAL DATA																					
EVENT	TEMPERATURE(°C)			REL HUMIDITY(%)			OPERATING CONDITIONS														
	10 M	ALT		10 M	ALT		GRND	REFGRND	RPM	SPEED(m/s)	ROTOR	TIP									
H30	32.20	26.42	36.27	46.69	40.7	43.5	220.50	.6093													
H31	32.20	26.42	36.03	46.71	40.8	43.5	222.75	.6155													
H32	32.20	26.46	35.89	46.59	40.8	43.5	225.00	.6217													
H33	32.20	26.47	35.74	46.57	40.7	43.5	222.75	.6155													
H34	32.20	26.57	35.60	46.32	40.1	43.5	222.75	.6154													
H35	32.20	26.37	35.45	46.82	45.8	43.5	225.00	.6218													

TABLE D-7
BOEING VERTOL 234/CH47-D
SUMMARY ACOUSTIC ANALYSIS
2-POINT POSITION DETERMINATION
TAKEOFF

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION ANGLE (°)			TRACKING DATA (M)		
	EPNL	SEL	PNLm	PNLIm	ALm	OASPLm	Dur(A)	Dur(P)	IC	BNDShR	EPNL	SEL	ALm	PNLIm	Δ1	Δ2	CPA	SR	CPAR	SRR	
Centerline Center																					
G41	94.43	89.98	96.48	97.11	83.60	97.90	10.50	12.50	.63	.00	95.63	91.00	85.97	99.66	2.55	-1.35	111.4	106.4	114.2	83.7	89.9
G42	94.96	90.49	97.18	97.72	83.94	99.02	9.00	11.50	.53	.00	95.02	90.48	84.48	98.33	.61	-.55	99.6	87.9	89.1	83.7	84.9
G43	94.30	90.00	96.37	96.89	82.95	98.64	11.00	11.50	.52	.00	96.03	91.56	85.36	99.48	2.59	-.86	83.9	106.4	107.0	83.7	84.2
G44	95.80	91.27	99.31	99.94	85.84	100.36	7.50	8.50	.63	.00	94.88	90.37	84.65	98.74	-1.20	-.29	84.4	73.2	73.6	83.7	84.1
G45	96.15	91.42	99.26	99.76	85.82	100.46	7.50	9.00	.23	.26	95.42	90.68	85.22	99.17	-.59	-.13	98.3	78.0	78.8	83.7	84.6
Sideline Left																					
G41	91.84	86.81	92.44	93.54	78.79	99.11	13.50	14.00	1.32	.00	92.31	87.06	79.69	94.66	1.12	-.65	46.4	185.6	256.2	171.8	237.1
G42	92.73	87.64	93.38	95.14	79.89	99.25	12.50	11.50	2.20	.00	92.71	87.54	80.22	95.55	.41	-.43	59.9	175.3	202.6	171.8	198.5
G43	91.73	86.63	92.89	93.80	78.53	99.83	13.00	12.50	1.15	.00	92.66	87.40	79.45	94.88	1.08	-.16	66.1	185.6	203.1	171.8	187.9
G44	92.53	87.75	93.08	94.66	79.69	99.49	11.50	11.00	1.58	.00	92.39	87.44	79.59	94.72	.06	-.20	53.0	168.2	210.8	171.8	215.2
G45	92.03	87.26	93.20	94.01	78.85	99.66	12.50	12.00	.85	.01	91.69	86.89	78.89	94.07	.06	-.41	70.6	170.4	180.7	171.8	182.1
Sideline Right																					
G41	92.56	88.33	92.62	93.69	78.85	99.00	15.00	15.00	1.08	.01	93.03	88.51	79.63	94.76	1.07	-.59	60.8	183.4	210.0	171.8	196.7
G42	91.51	87.55	92.51	93.59	78.55	99.30	14.00	12.50	1.07	.01	91.47	87.36	78.75	93.93	.34	-.38	61.2	173.4	198.0	171.8	196.1
G43	92.49	88.18	93.16	94.26	79.01	99.08	13.50	12.50	1.10	.00	93.43	88.98	79.91	95.30	1.04	-.11	58.6	183.4	215.0	171.8	201.3
G44	92.70	88.13	92.95	94.12	78.56	98.30	16.00	15.00	1.18	.00	92.50	87.86	78.45	94.08	-.04	-.16	51.7	166.6	212.3	171.8	218.9
G45	91.85	87.65	92.52	93.50	78.38	99.16	20.00	16.00	.97	.00	91.50	87.20	78.30	93.52	.02	-.36	63.4	168.7	188.6	171.8	192.1

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE (°C)	REL HUMIDITY (%)	ALT	SPEED (m/s)	GRND REEGRND	TIP MACH#
G41	31.88	26.72	33.41	45.11	40.3	43.4
G42	31.76	27.05	33.21	44.75	40.0	43.4
G43	31.65	26.86	32.99	44.96	45.2	43.4
G44	31.53	27.21	32.79	44.47	40.5	43.4
G45	31.41	27.07	32.57	44.59	39.1	43.4

TABLE D-8
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION ANGLE (°)			TRACKING DATA (M)		
	EPNL	SEL	PNLm	ALm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	IC	BNDShR	EPNL	SEL	ALm	PNLTm	Δ1	Δ2	CPA	SR	CPAR	SRR
Centerline Center																					
C10	91.63	87.03	93.64	94.37	79.81	94.32	11.50	12.00	.69	.00	90.25	85.79	77.58	92.00	-2.37	.99	32.1	118.5	223.1	148.8	280.2
C11	91.51	87.01	93.64	94.26	79.73	94.17	13.00	13.50	.59	.00	90.91	86.49	78.74	93.20	-1.06	.47	36.2	133.7	226.5	148.8	252.1
C12	92.34	87.73	93.59	94.24	79.85	94.72	14.50	14.50	.58	.00	90.79	86.38	77.39	91.57	-2.67	1.12	37.8	115.1	187.9	148.8	243.0
C13	92.31	87.56	93.22	95.83	81.19	95.78	10.00	10.00	1.03	.00	90.25	85.62	77.60	92.12	-3.71	1.64	47.9	102.6	138.4	148.8	200.7
C14	91.12	86.61	93.40	94.05	79.63	93.78	11.00	12.00	.74	.00	89.60	85.22	77.08	91.38	-2.67	1.15	46.1	114.1	158.2	148.8	206.4
C15	90.24	85.72	92.68	93.40	78.98	93.35	11.00	11.50	.62	.00	89.43	85.06	77.82	92.09	-1.31	.50	41.9	131.4	196.8	148.8	222.9
Sideline Left																					
C10	90.55	86.25	91.53	92.18	78.63	95.33	14.50	16.00	.65	.00	90.03	85.76	77.69	91.21	-.97	.45	83.1	190.6	192.1	211.3	212.8
C11	90.64	86.26	90.83	91.70	78.24	94.68	19.00	19.50	1.00	.00	90.42	86.04	77.79	91.25	-.45	.23	54.8	200.4	245.2	211.3	258.5
C12	90.88	86.35	91.29	91.81	78.56	94.60	13.50	18.50	.51	.00	90.29	85.80	77.52	90.73	-1.08	.49	78.3	188.6	192.5	211.3	215.7
C13	91.65	87.38	92.44	93.52	79.79	95.72	14.50	14.50	1.12	.00	90.84	86.66	78.39	92.03	-1.49	.68	55.1	182.0	222.0	211.3	257.7
C14	90.28	86.29	91.67	92.23	78.91	94.73	12.50	14.00	.69	.00	89.66	85.73	77.84	91.10	-1.13	.51	60.4	188.0	216.2	211.3	243.0
C15	90.66	86.36	90.52	91.30	78.03	94.57	16.00	17.50	.91	.00	90.36	86.07	77.51	90.77	-.53	.22	74.4	198.9	206.5	211.3	219.4
Sideline Right																					
C10	89.30	85.43	89.55	91.17	77.68	91.25	15.50	15.50	1.68	.00	88.80	84.97	76.81	90.25	-.92	.42	68.9	191.9	205.7	211.3	226.5
C11	88.64	85.00	89.79	91.49	77.74	90.93	13.00	12.50	1.70	.00	88.45	84.82	77.36	91.10	-.39	.20	62.4	201.7	227.5	211.3	238.4
C12	90.16	85.87	88.89	90.11	76.86	92.21	16.50	17.00	1.37	.00	89.58	85.35	75.87	89.07	-1.04	.47	60.2	189.7	218.6	211.3	243.5
C13	88.96	85.18	88.89	89.45	77.28	91.72	14.00	15.50	.56	.00	88.16	84.47	75.90	87.97	-1.48	.67	55.3	182.4	221.9	211.3	257.1
C14	89.63	85.55	89.92	91.74	78.06	91.26	16.00	18.50	1.82	.00	89.04	85.02	77.05	90.67	-1.07	.48	64.8	189.1	209.1	211.3	233.6
C15	88.93	85.10	88.94	90.17	77.07	91.09	17.00	16.50	1.42	.00	88.66	84.84	76.61	89.70	-.47	.20	65.8	200.1	219.4	211.3	231.6

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	10 M ALT	10 M ALT	REL HUMIDITY (%)	GRND	REFGRND	TIP
	TEMPERATURE (°C)	ALT		SPEED (m/s)	RPM	MACH#
C10	32.78	27.81	60.00	62.73	65.3	348
C11	33.19	27.61	60.00	63.02	65.3	348
C12	33.77	27.84	60.00	62.68	65.3	348
C13	34.15	27.93	60.00	62.48	65.3	348
C14	34.47	27.85	60.00	62.65	65.3	348
C15	34.72	27.69	60.00	62.88	64.8	348

TABLE D-9
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 300 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)						EMISSION			TRACKING DATA (M)		
	EPNL	SEL	PNLm	PNLIm	ALm	OASPLm	Dur(A)	Dur(P)	IC	BNDShR	EPNL	SEL	ALm	PNLIm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
A2	85.57	81.74	84.24	85.36	70.81	85.95	25.50	24.50	1.13	.00	86.14	82.24	71.59	86.21	.85	-.29	48.0	318.4	428.6	298.8	402.2	
A3	85.65	81.76	84.87	85.91	71.47	86.31	23.00	23.50	1.06	.00	85.54	81.66	71.34	85.77	-.14	.03	45.9	292.1	406.8	298.8	416.0	
A4	85.12	81.47	84.77	85.83	71.39	85.75	23.50	22.50	1.06	.00	85.41	81.74	71.89	86.34	.51	-.22	42.8	309.4	455.4	298.8	439.8	
A5	85.28	81.54	84.63	85.49	70.99	85.87	27.00	25.00	.86	.00	85.40	81.66	71.25	85.75	.26	-.14	46.8	302.8	415.5	298.8	410.0	
A6	.00	82.61	85.87	86.65	72.61	88.14	23.50	.00	.68	.00	.00	82.10	71.62	85.48	-1.17	.48	48.3	269.7	361.3	298.8	400.3	
Sideline Left																						
A2	86.42	82.61	85.36	86.20	71.82	88.96	26.00	24.50	.80	.04	86.84	82.97	72.40	86.84	.64	-.22	91.9	351.2	351.4	334.3	334.5	
A3	86.47	82.52	85.26	86.28	72.33	89.22	24.50	24.00	1.02	.00	86.37	82.43	72.22	86.16	-.12	.02	72.3	327.7	343.9	334.3	350.8	
A4	85.78	82.03	84.64	85.60	71.85	88.66	26.00	27.00	1.03	.06	85.99	82.19	72.20	85.99	.39	-.18	76.3	343.1	353.1	334.3	344.1	
A5	87.04	83.01	85.53	86.13	71.92	89.19	29.00	28.00	.90	.00	87.10	83.08	72.11	86.30	.17	-.12	67.4	337.2	365.1	334.3	362.0	
A6	88.00	83.70	85.61	86.66	72.68	90.70	25.00	25.00	1.22	.00	87.47	83.33	71.92	85.74	-.92	.39	18.8	307.9	957.2	334.3	1039.4	
Sideline Right																						
A2	85.47	81.58	83.84	84.93	71.69	86.53	21.50	24.50	1.03	.00	85.88	81.96	72.31	85.58	.65	-.25	94.6	353.0	354.1	334.3	335.4	
A3	85.82	82.09	83.79	85.32	71.71	86.76	24.00	23.50	1.69	.00	85.76	82.02	71.64	85.27	-.05	-.01	86.4	329.4	330.1	334.3	335.0	
A4	85.57	81.52	84.20	86.04	72.30	86.44	20.50	24.00	1.87	.00	85.82	81.71	72.70	86.50	.46	-.20	84.4	344.8	346.5	334.3	335.9	
A5	85.83	81.99	83.66	85.01	71.18	86.38	27.50	27.00	1.75	.00	85.95	82.06	71.39	85.27	.26	-.14	83.5	338.9	341.1	334.3	336.5	
A6	86.74	82.92	85.15	86.08	72.25	88.00	24.50	24.00	1.34	.00	86.34	82.58	71.55	85.31	-.77	.36	64.5	309.6	342.9	334.3	370.3	
ENVIRONMENTAL DATA																						
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		SPEED(m/s)			ROTOR		TIP												
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	MACH#	RPM	MACH#												
A2	30.58	26.25	60.00	66.38	65.2	65.3	348	.6363	348	.6363												
A3	30.82	26.43	60.00	64.95	64.3	65.3	348	.6362	348	.6362												
A4	31.07	26.29	60.00	66.20	64.2	65.3	348	.6365	348	.6365												
A5	31.32	26.31	60.00	66.16	64.2	65.3	348	.6364	348	.6364												
A6	31.64	26.37	60.00	65.04	65.8	65.3	348	.6361	348	.6361												

TABLE D-10
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 APPROACH

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)		
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR
Centerline Center																					
L1	97.15	92.81	98.27	99.15	84.22	97.14	14.00	13.00	.88	.00	96.88	92.56	83.76	98.67	-.48	.21	54.8	112.3	137.4	118.1	144.5
L2	98.25	93.86	100.18	100.81	86.05	99.18	12.00	12.00	.63	.00	98.37	93.98	85.94	100.70	-.11	.23	57.1	116.6	139.0	118.1	140.8
L3	98.71	94.12	100.60	101.50	86.61	99.86	11.00	11.00	.90	.00	98.14	93.60	85.59	100.44	1.06	-.49	61.5	105.4	120.0	118.1	134.4
L4	97.95	93.41	100.20	100.94	86.28	99.69	11.50	11.50	.73	.00	97.59	93.07	85.52	100.16	-.78	.42	60.3	108.5	124.9	118.1	136.1
L5	98.10	93.69	100.34	101.13	86.22	99.52	10.50	9.50	.79	.00	97.67	93.30	85.36	100.23	-.90	-.47	72.1	107.2	112.7	118.1	124.1
L6	99.11	94.60	101.08	101.72	87.03	100.16	11.00	10.50	.68	.00	98.88	94.37	86.65	101.33	-.39	.15	59.8	113.1	130.9	118.1	136.7
Sideline Left																					
L1	94.17	90.05	94.23	95.12	80.03	93.92	21.50	15.50	.89	.00	94.04	89.92	79.83	94.92	-.20	.08	63.3	186.9	209.2	190.9	213.7
L2	93.18	88.75	92.33	93.26	78.81	92.91	20.50	18.00	1.85	.00	93.33	88.89	78.74	93.20	-.06	.20	42.1	189.5	282.6	190.9	284.7
L3	92.18	87.73	92.69	93.81	80.11	93.09	16.50	16.00	.97	.00	91.78	87.51	79.71	93.23	-.58	.19	39.5	182.9	287.4	190.9	300.0
L4	93.33	88.98	92.65	94.50	79.95	93.81	17.50	14.50	1.85	.00	93.21	88.87	79.64	94.18	-.32	.20	46.3	184.6	255.4	190.9	264.1
L5	92.71	88.16	92.24	93.76	78.40	92.75	19.00	16.00	1.52	.00	92.57	88.04	78.07	93.41	-.35	.21	93.6	183.9	184.3	190.9	191.3
L6	93.34	88.72	92.78	94.24	78.97	93.47	19.00	15.50	1.43	.00	93.20	88.60	78.81	94.06	-.18	.04	55.6	187.4	227.1	190.9	231.4
Sideline Right																					
L1	89.70	85.55	88.85	90.82	75.93	90.04	22.00	18.00	2.10	.00	89.64	85.48	75.83	90.73	-.09	.04	58.6	188.9	221.3	190.9	223.7
L2	91.28	87.17	89.56	90.72	76.77	89.91	23.50	23.50	1.18	.00	91.40	87.37	76.81	90.68	-.04	-.01	73.9	191.6	199.4	190.9	198.7
L3	91.39	87.18	89.17	91.22	77.15	90.39	28.50	28.00	2.45	.00	91.21	87.01	76.84	90.90	-.32	.14	37.5	184.8	303.8	190.9	313.7
L4	90.21	85.67	90.19	91.69	77.08	90.75	17.00	16.00	1.50	.00	90.15	85.61	76.87	91.48	-.21	.15	50.9	186.6	240.5	190.9	246.1
L5	90.44	86.46	88.89	91.01	76.40	90.42	26.50	19.00	2.22	.00	90.37	86.38	76.15	90.77	-.24	.17	55.5	185.9	225.4	190.9	231.5
L6	90.75	86.46	89.39	91.45	76.11	90.31	23.00	20.00	2.08	.00	90.71	86.40	76.05	91.41	-.04	-.01	66.9	189.4	205.9	190.9	207.5
ENVIRONMENTAL DATA																					
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		SPEED(m/s)				ROTOR TIP		MACHE										
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	MACHE	GRND	TIP	RPM	MACHE									
L1	29.07	24.32	62.23	60.61	33.1	33.3	348	.6384													
L2	29.34	24.31	61.57	60.18	34.6	33.3	348	.6383													
L3	29.62	24.60	60.90	60.53	33.2	33.3	348	.6381													
L4	29.90	24.74	60.25	60.55	33.6	33.3	348	.6380													
L5	30.03	24.97	59.88	60.76	33.6	33.3	348	.6378													
L6	30.22	25.06	59.21	59.55	33.0	33.3	348	.6376													

TABLE D-11
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 TAKEOFF

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION ANGLE (°)		TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLIm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShr	EPNL	SEL	ALm	PNLIm	Δ1	Δ2	CPA	SR	CPAR	SRR	
Centerline Center																					
K21	88.95	84.72	88.38	90.70	74.85	84.65	20.50	17.50	2.32	.00	90.25	85.92	76.98	92.94	2.24	-.93	63.0	173.1	194.2	140.0	157.1
K22	87.64	83.44	86.44	88.53	72.76	83.64	27.00	22.00	2.27	.00	89.87	85.51	76.51	92.44	3.91	-1.68	68.0	203.8	219.9	140.0	151.1
K23	87.66	83.56	87.56	89.50	74.48	84.23	20.00	16.50	1.88	.00	89.86	85.70	78.09	93.17	3.67	-1.47	64.5	200.2	221.8	140.0	155.2
K24	87.94	83.95	86.63	88.82	73.47	82.59	24.00	19.00	2.25	.00	89.72	85.60	77.15	92.63	3.81	-2.03	71.0	202.1	213.8	140.0	148.1
K25	87.45	83.52	85.56	88.01	73.23	82.16	24.00	21.00	2.68	.00	90.39	85.82	77.77	93.19	5.18	-2.23	80.7	218.4	221.3	140.0	141.9
Sideline Left																					
K21	86.06	82.38	84.66	86.88	72.51	85.29	20.50	19.00	2.21	.00	86.92	83.09	73.77	88.29	1.41	-.55	84.1	232.4	233.6	205.2	206.3
K22	86.04	82.08	84.38	86.93	71.92	84.59	27.00	22.00	2.55	.00	87.51	83.31	74.18	89.42	2.49	-1.02	86.5	256.6	257.1	205.2	205.6
K23	86.34	82.33	84.24	86.64	72.23	83.54	21.00	19.50	2.41	.00	87.83	83.58	74.32	88.97	2.33	-.84	80.8	253.5	256.8	205.2	207.9
K24	86.32	82.38	84.37	86.73	72.24	83.25	24.00	22.50	2.37	.00	87.41	83.21	74.46	89.21	2.48	-1.39	89.7	255.2	255.2	205.2	205.2
K25	86.21	82.25	84.09	86.61	72.10	83.65	26.00	24.50	2.51	.01	87.69	83.47	74.79	89.56	2.95	-1.47	89.4	268.4	272.2	205.2	208.1
Sideline Right																					
K21	87.85	83.06	86.18	88.55	72.93	86.24	25.50	24.50	2.37	.00	88.56	83.68	74.03	89.74	1.19	-.48	84.0	228.4	229.7	205.2	206.3
K22	87.63	82.50	85.39	88.08	72.25	85.41	25.50	23.00	2.69	.00	88.93	83.68	74.38	90.34	2.26	-.95	84.0	252.4	253.8	205.2	206.3
K23	87.84	82.71	86.30	89.08	72.40	85.73	26.00	19.50	2.78	.00	89.17	83.88	74.34	91.18	2.10	-.77	97.0	249.5	251.4	205.2	206.7
K24	87.70	82.40	85.89	88.36	71.88	84.90	24.50	21.00	2.38	.00	88.46	83.09	73.89	90.44	2.08	-1.32	91.8	251.1	251.2	205.2	205.3
K25	87.13	81.81	85.08	87.79	71.51	84.71	27.00	22.00	2.69	.00	88.44	82.92	74.03	90.51	2.72	-1.41	91.5	264.9	265.0	205.2	205.3

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE (°C)	REL HUMIDITY (%)	SPEED (m/s)	GRND REEGRND	ROTOR RPM	TIP MACH#
K21	32.59	25.48	55.46	32.3	32.4	348
K22	32.79	25.30	55.39	32.0	32.4	348
K23	32.97	25.19	55.33	33.1	32.4	348
K24	33.18	25.22	55.25	29.3	32.4	348
K25	33.38	25.21	55.18	30.2	32.4	348

TABLE D-12
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLtm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShr	EPNL	SEL	ALm	PNLtm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SR	
Centerline Center																						
B7	.00	85.96	92.16	93.28	79.78	94.90	8.00	.00	.97	.15	00.00	84.80	78.48	91.82	-1.46	.07	46.9	132.9	181.9	148.8	203.7	
B8	90.96	88.38	93.31	94.40	81.70	94.29	9.50	9.00	1.01	.00	89.88	87.46	80.81	93.36	-1.04	-.04	57.8	138.5	163.6	148.8	175.8	
B9	89.24	86.35	91.73	92.72	79.57	93.09	10.00	9.00	.99	.00	88.93	86.07	79.48	92.60	-.12	-.19	58.3	149.5	175.7	148.8	174.8	
B10	89.92	87.30	92.50	93.61	80.66	93.15	9.50	9.00	1.11	.00	89.79	87.21	80.61	93.52	-.09	-.04	53.6	150.0	186.4	148.8	184.8	
B12	90.84	88.26	94.06	94.89	82.29	94.53	8.00	8.00	.91	.00	90.57	88.04	82.02	94.57	-.32	.05	52.6	147.1	185.2	148.8	187.4	
B13	88.39	85.46	91.09	92.05	79.01	92.92	9.00	9.00	.97	.00	88.75	85.79	79.68	92.75	.70	-.34	54.9	161.0	196.9	148.8	181.9	
Sideline Left																						
B7	89.84	86.99	91.98	92.97	80.42	95.25	9.50	10.00	.92	.00	88.84	86.17	79.71	92.08	-.89	-.11	66.3	199.8	218.1	211.3	230.6	
B8	89.30	87.26	91.25	92.65	80.73	95.19	9.50	9.50	1.57	.00	88.65	86.64	80.32	92.21	-.44	-.22	57.1	204.9	244.0	211.3	251.6	
B9	88.75	86.17	91.11	92.02	79.34	95.13	10.00	10.00	.97	.00	88.39	85.86	79.20	91.84	-.18	-.17	75.0	211.2	218.7	211.3	218.7	
B10	89.16	86.88	90.91	92.33	80.03	94.66	10.00	10.50	1.63	.00	89.08	86.81	80.00	92.28	-.05	-.03	49.3	212.9	280.9	211.3	278.7	
B12	89.88	87.41	91.82	93.28	80.78	95.68	9.00	9.50	1.52	.00	89.74	87.28	80.65	93.13	-.15	.01	48.7	210.9	280.7	211.3	281.3	
B13	88.81	86.05	91.06	92.10	79.15	95.25	10.00	9.50	1.04	.00	88.88	86.13	79.40	92.33	.23	-.16	66.8	219.4	238.8	211.3	229.9	
Sideline Right																						
B7	88.85	87.68	90.29	91.02	79.84	89.80	12.00	11.50	.73	.00	88.08	86.93	79.23	90.39	-.63	-.14	55.4	201.1	244.2	211.3	256.6	
B8	90.87	88.96	91.82	92.73	80.82	91.70	12.00	12.00	.91	.00	90.09	88.26	80.31	92.13	-.60	-.19	76.4	203.6	209.4	211.3	217.3	
B9	89.06	87.75	90.13	90.92	79.49	90.44	12.00	12.00	.74	.00	88.72	87.50	79.44	90.78	-.14	-.20	66.8	212.6	231.3	211.3	229.8	
B10	90.44	88.30	91.52	92.55	80.08	91.50	13.00	12.00	1.05	.00	90.26	88.16	79.95	92.38	-.17	-.01	66.9	211.6	230.0	211.3	229.7	
B12	90.78	88.66	92.03	92.99	80.74	92.90	11.50	11.50	.96	.00	90.55	88.48	80.52	92.72	-.27	.04	70.6	209.5	222.0	211.3	223.9	
B13	88.60	87.05	89.59	90.33	78.89	91.05	12.00	12.50	.91	.00	88.75	87.19	79.22	90.67	.34	-.19	71.1	220.9	233.5	211.3	223.3	
ENVIRONMENTAL DATA																						
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		SPEED(m/s)			ROTOR		TIP												
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	MACH#	GRND	RPM	MACH#											
B7	18.19	23.28	90.00	63.41	61.7	66.9	293	.5969	61.7	66.9	293											
B8	17.66	23.29	90.00	63.40	61.7	66.9	293	.5969	61.7	66.9	293											
B9	16.94	23.46	90.00	64.42	64.3	66.9	293	.5967	64.3	66.9	293											
B10	16.78	23.44	90.00	64.65	66.9	66.9	293	.5967	66.9	66.9	293											
B12	17.13	23.43	90.00	62.71	66.9	66.9	293	.5967	66.9	66.9	293											
B13	17.28	23.59	90.00	63.98	66.9	66.9	293	.5966	66.9	66.9	293											

TABLE D-13
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 300 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SR	
Centerline Center																						
E24	86.42	84.05	86.75	87.37	75.15	94.71	16.00	15.50	.56	.00	87.03	84.65	75.95	88.18	.81	-.20	68.1	323.8	349.1	298.8	322.1	
E25	86.07	83.90	84.62	85.66	73.97	92.99	20.00	20.50	1.15	.00	86.38	84.15	74.69	86.45	.79	-.47	86.5	322.0	322.6	298.8	299.3	
E26	85.92	83.53	85.53	86.30	74.38	94.44	16.00	18.00	1.16	.00	86.47	83.97	75.15	87.19	.89	-.34	49.9	322.9	422.2	298.8	390.6	
E27	87.52	85.30	88.48	89.04	76.83	95.07	15.00	14.50	.79	.00	87.27	85.12	76.61	88.75	-.29	.04	46.6	296.2	407.5	298.8	411.0	
E28	86.53	83.94	86.65	87.58	74.99	94.67	16.00	16.00	1.36	.00	86.89	84.24	75.54	88.19	.61	-.24	38.8	316.1	504.9	298.8	477.3	
Sideline Left																						
E24	87.83	84.75	89.28	89.80	75.88	95.86	15.00	14.00	.53	.00	88.33	85.21	76.46	90.43	.63	-.12	43.7	356.1	515.6	334.3	484.0	
E25	.00	84.36	86.39	87.41	76.20	94.37	18.50	.00	1.03	.00	.00	84.53	76.79	88.04	.63	-.43	74.8	356.2	369.1	334.3	346.4	
E26	86.31	83.62	86.12	86.87	74.78	96.09	15.50	17.00	.75	.00	86.69	83.93	75.35	87.52	.65	-.26	67.8	355.3	383.8	334.3	361.1	
E27	88.23	85.61	88.92	89.77	78.16	95.92	13.50	16.00	.95	.00	88.14	85.51	78.05	89.66	-.11	.02	78.0	333.0	340.4	334.3	341.8	
E28	.00	84.07	86.73	87.74	75.22	96.42	15.50	.00	1.01	.00	.00	84.27	75.61	88.18	.44	-.19	71.8	349.1	367.5	334.3	352.0	
Sideline Right																						
E24	87.15	84.96	86.75	87.80	75.39	93.42	16.50	16.00	1.37	.00	87.71	85.45	76.03	88.51	.71	-.15	45.7	357.9	500.1	334.3	467.2	
E25	.00	85.17	86.00	87.13	75.24	92.41	17.50	.00	1.84	.00	.00	85.31	75.79	87.73	.60	-.40	113.2	354.5	385.7	334.3	363.8	
E26	87.80	85.54	87.65	88.83	75.92	94.14	15.50	14.50	1.31	.00	88.19	85.89	76.56	89.50	.67	-.29	46.8	357.1	489.6	334.3	458.4	
E27	89.42	86.76	89.71	90.53	77.70	96.49	15.50	15.50	1.20	.00	89.27	86.61	77.51	90.34	-.19	.04	46.0	331.3	460.9	334.3	465.2	
E28	88.20	85.86	87.87	89.32	76.43	94.22	16.50	16.00	1.45	.00	88.48	86.08	76.86	89.81	.49	-.21	40.3	350.9	541.9	334.3	516.4	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE(°C)	REL HUMIDITY(%)	ALT	SPEED(m/s)	GRND REFRND	TIP
E24	20.19	25.22	90.00	77.2	74.6	293
E25	20.30	25.20	90.00	72.0	74.6	293
E26	20.45	25.20	90.00	74.6	74.6	293
E27	20.57	25.29	90.00	74.6	74.6	293
E28	20.69	25.07	90.00	74.5	74.6	293

TABLE D-14
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 APPROACH

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)				EMISSION			TRACKING DATA (M)				
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
150	97.80	94.29	100.83	101.53	88.01	97.82	9.00	9.50	.70	.00	97.38	93.90	87.18	100.67	-.86	.45	35.2	107.9	187.3	118.1	205.1	
151	95.27	91.87	97.15	97.76	83.72	94.57	15.50	11.00	.58	.00	94.62	91.29	82.81	96.79	-.97	.33	86.5	106.7	106.9	118.1	118.4	
152	95.70	92.75	98.47	98.74	86.40	95.22	8.50	9.50	.11	.00	95.05	92.30	85.64	97.78	-.96	.32	56.5	108.6	130.2	118.1	141.7	
153	96.87	93.64	99.93	100.83	86.76	96.46	11.00	9.50	.88	.00	96.24	93.07	85.77	99.79	-1.04	.42	62.7	105.8	119.1	118.1	133.0	
154	95.90	92.30	99.22	100.02	85.81	96.33	10.00	9.00	.81	.00	95.73	92.13	85.38	99.59	-.43	-.16	46.3	112.6	155.7	118.1	163.4	
155	96.19	93.00	98.28	98.93	85.58	94.85	10.50	10.00	.65	.00	95.77	92.61	84.71	98.02	-.91	.37	58.8	107.1	125.3	118.1	138.1	
Sideline Left																						
150	93.34	90.24	92.83	93.99	81.57	88.89	16.50	17.00	1.47	.00	93.20	90.11	81.23	93.65	-.34	.20	83.5	184.3	185.5	190.9	192.2	
151	94.53	91.01	96.15	97.67	84.01	91.45	11.00	10.50	1.57	.00	94.15	90.71	83.65	97.23	-.44	.06	57.7	183.6	217.2	190.9	225.9	
153	94.58	91.67	95.45	97.36	83.38	90.58	19.00	15.00	1.92	.00	94.30	91.40	82.99	96.97	-.39	-.12	63.1	183.1	205.2	190.9	214.1	
154	94.17	91.17	94.67	96.41	82.62	89.82	16.50	15.50	1.70	.00	94.09	91.14	82.45	96.19	-.22	.14	61.1	187.1	213.6	190.9	218.0	
155	93.99	90.82	94.24	95.47	81.82	89.28	15.00	14.50	1.12	.00	93.69	90.70	81.48	94.95	-.52	.22	61.6	183.8	208.9	190.9	217.0	
Sideline Right																						
153	87.56	83.79	89.90	91.25	77.04	85.69	9.00	8.50	1.32	.00	87.31	83.58	76.75	90.92	-.33	.08	93.1	185.0	185.3	190.9	191.2	
154	90.66	86.96	90.63	91.96	77.25	86.18	17.50	15.00	1.28	.05	90.69	86.98	77.18	91.90	-.06	.09	52.2	189.1	239.5	190.9	241.8	
155	89.74	85.62	89.15	90.95	76.79	85.44	16.50	14.50	1.80	.00	89.67	85.56	76.55	90.70	-.25	.18	54.3	185.8	228.8	190.9	235.1	
ENVIRONMENTAL DATA																						
EVENT	TEMPERATURE(°C)		REL HUMIDITY(%)		OPERATING CONDITIONS																	
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPH	MACH#	ROTOR	TIP												
150	27.85	24.65	67.51	68.91	38.3	37.9	293	.5950														
151	27.93	24.80	66.89	68.06	36.9	37.9	293	.5948														
152	28.05	24.89	66.01	67.62	37.4	37.9	293	.5947														
153	28.17	25.06	65.17	66.72	37.3	37.9	293	.5945														
154	28.34	25.19	63.94	65.88	38.3	37.9	293	.5944														
155	28.47	25.40	63.00	64.83	38.3	37.9	293	.5942														

TABLE D-15
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 2-POINT POSITION DETERMINATION
 TAKEOFF

EVENT	AS-MEASURED DATA (dB)										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLm	Alm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	Alm	PNLm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SR	
Centerline Center																						
F29	89.65	85.76	91.02	92.81	78.63	82.00	10.50	10.00	1.93	.00	90.65	86.67	79.93	94.19	1.38	-.39	74.4	124.9	129.7	108.6	112.7	
F30	90.64	86.85	91.53	93.66	79.33	82.31	11.50	10.50	2.13	.00	91.75	87.90	80.87	95.27	1.61	-.49	88.6	128.0	128.0	108.6	108.6	
F31	91.16	87.59	92.11	94.23	79.79	82.67	11.50	10.50	2.12	.00	92.31	88.64	81.41	95.96	1.73	-.57	79.3	129.0	131.2	108.6	110.5	
F32	90.16	86.34	91.10	92.51	78.66	82.18	12.00	11.00	2.08	.00	91.26	87.37	80.10	94.03	1.52	-.41	103.6	126.5	130.2	108.6	111.7	
F33	90.46	86.56	92.26	94.15	80.01	83.16	10.00	8.50	2.43	.00	90.71	86.81	80.07	94.20	.05	.20	94.8	109.9	110.3	108.6	108.9	
F34	90.18	86.16	91.00	93.17	78.83	81.89	12.00	10.50	2.18	.00	90.50	86.47	79.09	93.43	.26	.06	108.5	112.1	118.2	108.6	114.5	
F35	90.46	86.24	92.16	94.11	79.73	82.86	10.00	9.00	1.70	.00	89.73	85.82	78.39	92.45	-1.66	.92	100.9	95.0	96.8	108.6	110.6	
F36	90.32	86.15	91.21	93.42	78.68	82.88	11.00	9.50	2.37	.00	90.23	86.07	78.18	92.91	-.51	-.41	106.6	103.8	108.4	108.6	113.3	
Sideline Left																						
F29	89.13	87.56	88.79	90.06	78.92	83.17	14.50	15.50	1.27	.00	89.65	88.06	79.48	90.64	.58	-.06	84.0	197.5	198.6	185.2	186.2	
F30	89.92	88.22	89.89	91.02	80.16	84.06	13.50	14.50	1.13	.00	90.50	88.77	80.81	91.70	.68	-.10	88.2	199.5	199.6	185.2	185.3	
F31	90.06	88.46	90.38	91.69	80.85	84.91	12.50	13.00	1.32	.00	90.62	88.99	81.54	92.41	.72	-.16	80.3	200.2	203.1	185.2	187.8	
F32	89.17	87.57	89.15	90.30	79.23	83.34	13.50	14.50	1.07	.00	89.66	88.12	79.84	90.85	.55	-.05	106.6	198.6	207.2	185.2	193.2	
F33	89.84	87.93	90.06	91.36	79.77	83.84	12.50	13.00	1.30	.00	90.11	88.20	79.87	91.45	.09	.18	96.1	188.1	189.2	185.2	186.2	
F34	88.81	86.87	88.54	89.67	78.18	82.71	14.50	15.50	1.08	.00	89.02	87.12	78.34	89.79	.12	-.10	108.2	189.4	199.4	185.2	194.9	
F35	89.38	87.02	89.54	92.02	79.15	83.51	12.50	12.50	2.48	.00	89.48	87.15	78.80	91.65	-.37	.47	86.1	179.5	180.0	185.2	185.6	
F36	88.01	85.97	88.09	89.33	77.68	82.78	14.50	15.00	1.21	.07	88.15	86.12	77.60	89.23	-.10	.24	108.8	184.5	195.0	185.2	195.6	
Sideline Right																						
F29	91.44	89.29	91.92	93.55	81.81	85.74	12.00	14.00	1.63	.00	91.87	89.71	82.23	93.97	.42	.00	81.5	194.7	196.8	185.2	187.2	
F30	91.69	89.51	91.98	93.45	81.83	85.88	13.50	14.50	1.47	.00	92.19	89.98	82.34	93.99	.54	-.04	83.5	196.6	197.9	185.2	186.3	
F31	91.97	89.58	91.72	93.36	81.22	85.56	14.00	15.00	1.71	.00	92.45	90.04	81.78	93.94	.58	-.10	94.7	197.3	198.0	185.2	185.8	
F32	90.70	88.75	90.65	91.93	80.55	84.96	16.00	18.00	1.28	.00	91.20	89.24	81.03	92.43	.50	.01	88.9	195.7	195.8	185.2	185.2	
F33	91.52	89.34	91.98	93.35	81.98	85.95	12.50	15.00	1.47	.00	91.71	89.52	81.93	93.30	-.05	.24	103.7	185.5	190.9	185.2	190.6	
F34	90.53	88.28	89.83	91.15	79.53	85.03	16.00	17.50	1.31	.00	90.68	88.45	79.54	91.14	-.01	.16	103.4	186.8	192.0	185.2	190.3	
F35	91.54	88.92	91.51	93.21	81.18	86.46	13.50	14.00	2.03	.00	91.49	88.96	80.69	92.62	-.59	.53	101.4	177.1	180.7	185.2	188.9	
F36	.00	88.17	90.02	91.24	79.34	85.52	15.00	.00	1.28	.00	.00	88.23	79.10	90.96	-.28	.30	80.2	182.0	184.7	185.2	187.9	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE(°C)	REL HUMIDITY(%)	SPEED(m/s)	GRND REFRND	ROTOR RPM	TIP MACH#
	10 M	ALT	10 M	ALT		
F29	21.09	23.20	90.00	64.06	39.4	293
F30	21.22	23.43	90.00	63.32	39.4	293
F31	21.35	23.40	90.00	62.70	37.4	293
F32	21.48	23.66	90.00	61.91	37.4	293
F33	21.61	23.34	90.00	62.80	39.6	293
F34	21.80	23.49	89.26	62.13	37.4	293
F35	22.01	23.14	88.07	64.60	40.5	293
F36	22.23	23.24	86.82	64.46	39.4	293

APPENDIX E
SUMMARY ACOUSTIC DATA
ONE-POINT POSITION DETERMINATION

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
5708 SOUTH CAMPUS DRIVE, CHICAGO, ILL. 60637

TABLE E-1
 AEROSPATIALE SA365N DAUPHIN 2
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)				EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLtm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDSHR	EPNL	SEL	ALm	PNLtm	$\Delta 1$	$\Delta 2$	CPA	SR	CPAR	SRR	
CenterLine Center																					
A6	90.10	84.80	91.40	92.92	78.14	87.21	10.50	10.00	1.52	.00	89.88	84.61	78.18	92.93	.01	-.23	76.2	153.2	157.7	148.8	153.2
A8	90.03	84.56	91.34	92.54	77.97	87.72	10.00	11.50	1.42	.04	89.68	84.23	77.74	92.30	-.24	-.11	82.2	149.2	150.6	148.8	150.2
A10	89.24	84.03	90.52	91.87	77.14	86.70	10.50	10.50	1.15	.20	89.03	83.84	77.29	92.00	.13	-.33	70.4	154.9	164.3	148.8	157.9
Sideline Left																					
A6	90.88	86.16	91.89	93.11	79.04	94.60	11.00	12.00	1.22	.00	90.46	85.83	78.86	92.84	-.27	-.15	62.7	213.8	240.6	211.3	237.8
A8	91.14	86.30	92.21	93.41	79.39	95.04	11.00	12.50	1.08	.12	90.66	85.88	79.06	93.02	-.39	-.09	71.1	211.0	223.0	211.3	223.3
A10	91.25	86.11	92.42	93.78	79.00	94.34	11.00	12.00	1.28	.09	90.82	85.73	78.86	93.59	-.19	-.24	67.3	215.0	233.0	211.3	229.0
Sideline Right																					
A6	88.65	83.41	89.93	91.55	76.21	89.68	11.00	10.50	1.79	.00	88.25	83.10	76.07	91.32	-.23	-.18	55.5	215.2	261.0	211.3	256.3
A8	88.62	83.28	89.77	91.77	76.28	89.65	11.00	11.50	2.15	.00	88.11	82.84	75.96	91.38	-.39	-.12	51.8	212.4	270.3	211.3	268.9
A10	88.48	83.28	89.72	91.56	76.07	88.82	11.50	11.00	1.84	.00	88.08	82.92	75.97	91.43	-.13	-.26	59.6	216.4	250.8	211.3	264.9
ENVIRONMENTAL DATA																					
EVENT	TEMPERATURE			REL HUMIDITY			SPEED			ROTOR TIP											
	10 M	ALT	(°C)	10 M	ALT	(%)	GRND	REFGRND	RPM	MACH#	RPM	MACH#									
A6	15.57	17.38	99.00	95.98	67.9	69.4	350	.6407													
A8	15.66	17.43	99.00	95.37	67.9	69.4	350	.6406													
A10	15.77	17.69	99.00	95.46	66.9	69.4	350	.6403													

TABLE E-2
 AEROSPATIALE SA365N DAUPHIN 2
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 300 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA				CORRECTED DATA (dB)				EMISSION			TRACKING DATA (M)									
	EPNL	SEL	PNLm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																					
NO DATA																					
Sideline Left																					
D22	85.18	81.22	85.02	86.48	73.07	87.99	15.50	16.50	1.63	.00	85.14	81.22	73.46	86.83	.35	-.40	73.1	355.5	371.6	334.3	349.5
D24	85.05	80.84	84.86	86.35	72.54	88.06	16.00	20.00	1.48	.00	84.38	80.29	72.07	85.76	-.59	-.08	66.6	330.5	360.1	334.3	364.3
Sideline Right																					
D22	85.10	81.02	84.50	86.70	73.97	86.53	13.50	17.00	2.28	.00	85.14	81.06	74.43	87.16	.46	-.42	78.4	357.2	364.6	334.3	341.2
D24	85.52	80.94	84.14	85.49	72.16	86.89	17.00	22.00	1.68	.04	84.88	80.49	71.81	84.96	-.53	-.10	61.5	332.3	378.0	334.3	380.3

EVENT	ENVIRONMENTAL DATA				OPERATING CONDITIONS			
	TEMPERATURE 10 M (°C)	REL HUMIDITY 10 M (%)	ALT 10 M (m/s)	ALT (m/s)	SPEED GRND REFGRND (m/s)	ROTOR RPH	TIP MACH#	TIP MACH#
D22	16.54	21.31	98.24	74.10	67.4	69.4	350	.6364
D24	16.64	21.48	98.06	74.73	67.4	69.4	350	.6362

TABLE E-3
AEROSPATIALE SA365N DAUPHIN 2
SUMMARY ACOUSTIC ANALYSIS
1-POINT POSITION DETERMINATION
APPROACH

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)				EMISSION				TRACKING DATA (M)			
	EPNL	SEL	PNL _{1m}	PNL _{1m}	AL _{1m}	DASPL _{1m}	DUR(A)	DUR(P)	TC	BNDSHR	EPNL	SEL	AL _{1m}	PNL _{1m}	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
F46	96.47	92.57	98.56	99.70	85.05	95.13	12.00	10.50	1.26	.00	95.86	92.02	84.02	98.62	-1.08	.47	98.7	105.9	107.1	118.1	119.5	
F47	96.50	92.89	98.66	99.75	85.88	95.31	12.00	11.00	1.09	.00	95.78	92.22	84.63	98.45	-1.30	.58	77.2	103.5	106.1	118.1	121.2	
F48	97.03	93.12	99.03	100.17	85.40	95.27	13.50	12.00	1.14	.00	96.56	92.68	84.60	99.34	-.83	.36	73.6	108.7	113.3	118.1	123.1	
F49	96.95	92.77	98.52	99.61	84.87	94.94	13.00	11.00	1.08	.00	96.60	92.44	84.28	98.99	-.62	.27	72.8	111.1	116.3	118.1	123.7	
F50	97.10	93.31	98.45	99.80	85.53	95.12	13.50	12.00	1.35	.00	96.74	92.98	84.93	99.17	-.63	.27	68.0	111.1	119.8	118.1	127.4	
F51	97.02	93.42	100.45	101.39	87.86	96.38	9.50	10.00	.93	.02	96.28	92.74	86.60	100.07	-1.32	.58	58.3	103.5	121.6	118.1	138.8	
Sideline Left																						
NO DATA																						
Sideline Right																						
F46	97.05	93.52	97.37	99.12	85.15	93.67	15.00	14.50	1.75	.00	96.72	93.22	84.72	98.66	-.46	.13	54.3	185.1	228.0	190.9	235.2	
F47	96.13	92.79	96.52	97.96	84.63	92.69	14.50	14.00	1.44	.00	95.77	92.47	84.14	97.43	-.53	.17	60.8	183.7	210.5	190.9	218.8	
F48	95.74	92.34	96.10	97.04	83.45	92.73	15.50	15.00	.75	.00	95.33	92.11	83.12	96.53	-.51	.10	73.5	186.8	194.7	190.9	199.1	
F49	96.15	92.67	96.18	98.28	83.91	92.09	17.00	14.00	2.10	.00	95.93	92.48	83.66	98.00	-.28	.06	57.0	188.2	224.5	190.9	227.8	
F50	94.40	91.16	95.16	96.13	82.23	91.66	19.50	15.50	.97	.00	94.11	90.95	81.96	95.78	-.35	.06	74.1	188.2	195.7	190.9	198.5	
F51	95.24	91.16	94.87	96.98	82.45	91.35	17.00	15.00	2.02	.00	94.70	90.81	81.93	96.27	-.71	.17	68.4	183.7	197.6	190.9	205.3	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE 10 M (°C)	REL HUMIDITY 10 M (%)	ALT	SPEED GRND REFORMD (m/s)	ROTOR RPM	TIP MACH#
F46	20.54	19.29	70.09	38.4	350	.6386
F47	20.69	19.45	69.18	38.4	350	.6384
F48	20.83	19.57	68.31	38.4	350	.6383
F49	20.97	19.69	67.50	38.4	350	.6381
F50	21.11	19.82	66.68	38.4	350	.6380
F51	21.22	19.99	66.00	38.4	350	.6378

TABLE E-4
 AEROSPATIALE SA365N DAUPHIN 2
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 TAKEOFF

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)					EMISSION					TRACKING DATA (M)		
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR		
Centerline Center																							
E27	98.34	93.04	98.33	101.44	85.96	86.15	11.50	11.00	3.30	.00	97.22	92.02	84.35	99.74	-1.70	.59	98.0	108.4	109.4	124.0	125.2		
E29	97.37	92.21	96.58	99.90	85.02	85.40	12.50	13.00	3.50	.00	96.21	91.08	83.20	98.05	-1.85	.69	107.2	105.8	110.8	124.0	129.8		
E30	98.72	92.84	99.31	102.67	86.41	87.97	11.50	11.00	3.45	.00	97.35	91.58	84.34	100.49	-2.18	.81	95.8	102.9	103.5	124.0	124.7		
E31	97.91	92.58	97.72	101.24	85.86	86.08	11.00	11.00	3.52	.00	96.82	91.55	84.20	99.52	-1.72	.63	102.1	107.2	109.7	124.0	126.9		
E32	97.94	92.69	97.18	100.71	85.43	86.28	12.50	12.00	3.53	.00	96.43	91.28	83.06	98.24	-2.47	.96	86.3	99.4	99.6	124.0	124.3		
E33	98.32	93.00	98.22	101.26	85.69	86.61	11.50	11.00	2.98	.06	96.55	91.28	82.79	98.31	-2.95	1.18	102.5	94.5	96.8	124.0	127.0		
Sideline Left																							
E27	88.00	83.69	87.24	89.04	74.54	88.24	18.50	21.00	1.80	.00	87.49	83.24	73.93	88.37	-.67	.16	82.6	187.7	189.3	194.6	196.3		
E29	88.48	84.16	87.93	90.02	75.52	88.13	17.00	17.50	2.18	.00	87.93	83.67	74.84	89.27	-.75	.19	91.2	186.2	186.2	194.6	194.7		
E30	88.23	83.84	87.69	89.95	75.25	87.93	15.00	16.00	3.07	.00	87.72	83.28	74.46	89.21	-.74	.23	95.2	184.5	185.3	194.6	195.4		
E31	88.28	84.36	87.56	89.50	75.19	88.07	16.50	16.00	1.98	.03	87.71	83.84	74.49	88.75	-.75	.17	81.9	187.0	188.9	194.6	196.6		
Sideline Right																							
E27	93.89	88.97	92.63	94.29	79.94	93.48	16.50	18.50	2.36	.00	93.09	88.34	79.08	93.26	-1.03	.23	54.4	184.6	227.0	194.6	239.3		
E29	94.51	89.52	92.81	94.90	80.09	93.57	19.00	18.50	2.55	.00	93.69	88.86	79.17	93.81	-1.09	.27	58.9	183.1	213.8	194.6	227.2		
E30	94.89	89.87	92.74	94.75	80.16	93.66	19.00	19.00	2.63	.00	93.99	89.17	79.15	93.54	-1.21	.30	57.2	181.5	215.9	194.6	231.6		
E31	.00	89.89	93.05	96.18	79.69	93.47	19.00	.00	2.99	.13	0.00	89.24	78.80	94.77	-1.41	.25	31.5	183.9	351.9	194.6	372.4		
E32	94.94	90.09	93.49	95.05	80.46	93.87	17.00	17.00	2.04	.00	93.97	89.26	79.28	93.73	-1.32	.35	56.7	179.5	214.8	194.6	232.9		
E33	95.95	90.80	94.38	96.99	81.42	94.38	17.50	17.00	3.07	.00	94.78	89.89	80.09	95.40	-1.59	.42	48.5	176.8	235.9	194.6	259.7		

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE 10 M (°C)	REL HUMIDITY 10 M (%)	ALT (M)	SPEED GRND REFGRND (m/s)	ROTOR RPM	TIP MACH#
E27	17.95	88.71	96.94	37.7	37.7	350 .6397
E29	18.19	87.00	97.01	37.7	37.7	350 .6398
E30	18.31	86.11	96.26	37.7	37.7	350 .6404
E31	18.44	85.21	96.88	37.7	37.7	350 .6399
E32	18.56	84.30	95.70	37.7	37.7	350 .6411
E33	18.68	83.42	95.83	37.7	37.7	350 .6411

TABLE E-5
BOEING VERTOL 234/CH47-D
SUMMARY ACOUSTIC ANALYSIS
1-POINT POSITION DETERMINATION
150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA						CORRECTED DATA (dB)						EMISSION			TRACKING DATA (M)						
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	IC	BNDShr	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SR	
Centerline Center																						
A1	91.42	86.79	94.92	95.53	80.03	95.47	9.50	9.00	.62	.00	91.63	86.95	80.35	95.89	.36	-.15	82.5	154.2	155.5	148.8	150.1	
A2	92.01	87.02	94.67	94.92	79.65	95.15	12.00	14.50	.21	.00	92.65	87.62	81.05	96.35	1.43	-.79	94.0	172.1	172.5	148.8	149.1	
A3	92.48	87.25	93.53	93.80	78.58	95.62	14.00	17.50	.22	.00	92.77	87.53	79.11	94.33	.53	-.24	76.1	157.3	162.1	148.8	153.3	
A4	92.89	87.81	94.85	95.00	79.78	95.80	15.00	16.00	.15	.00	93.21	88.08	80.29	95.55	.55	-.23	76.1	157.3	162.1	148.8	153.3	
A5	91.81	86.50	93.63	93.93	78.47	95.24	14.00	14.00	.24	.00	92.25	86.94	79.27	94.73	.80	-.36	82.6	161.6	163.0	148.8	150.0	
A6	91.71	86.95	93.57	94.02	78.45	94.98	16.50	15.50	.43	.00	92.62	87.80	79.97	95.59	1.57	-.66	66.2	173.3	189.4	148.8	162.6	
Sideline Left																						
A1	92.14	86.63	93.24	94.35	77.96	98.58	19.00	19.00	1.22	.00	92.26	86.67	78.07	94.54	.19	-.07	36.3	214.5	362.8	211.3	357.3	
A2	92.31	87.11	92.48	93.67	78.44	98.77	15.00	15.50	1.18	.00	92.68	87.42	79.27	94.56	.89	-.51	64.5	229.2	254.0	211.3	234.1	
A3	92.11	86.74	92.43	93.05	77.16	98.35	19.50	18.00	1.10	.00	92.33	86.89	77.42	93.39	.34	-.11	36.4	216.8	365.0	211.3	355.7	
A4	92.39	87.09	92.54	93.54	77.91	99.07	17.50	17.50	.95	.05	92.60	87.25	78.21	93.89	.35	-.14	62.5	218.0	245.7	211.3	238.1	
A5	92.16	86.39	92.86	94.16	77.12	98.33	18.00	17.00	1.45	.00	92.50	86.60	77.51	94.67	.51	-.17	38.9	219.9	350.3	211.3	336.5	
A6	91.25	86.43	91.32	92.11	77.06	98.85	17.50	16.00	.98	.00	91.89	86.95	77.95	93.12	1.01	-.37	60.2	230.1	265.2	211.3	243.5	
Sideline Right																						
A1	90.81	86.04	91.52	92.72	78.02	98.82	13.00	14.00	1.20	.00	90.93	86.14	78.21	92.93	.21	-.09	75.4	215.9	223.1	211.3	218.3	
A2	91.82	86.40	91.66	93.01	77.45	99.66	17.50	17.50	1.35	.00	92.27	86.68	78.22	93.95	.94	-.48	41.0	227.7	347.1	211.3	322.0	
A3	92.49	87.61	92.58	93.45	78.70	100.00	17.50	17.00	.87	.00	92.78	87.78	79.01	93.88	.43	-.14	31.5	218.2	417.9	211.3	404.6	
A4	92.36	86.58	92.03	93.48	78.00	100.19	16.50	17.50	1.67	.00	92.61	86.71	78.23	93.84	.36	-.11	40.6	216.6	332.6	211.3	324.4	
A5	91.58	86.52	91.68	92.50	77.80	97.90	16.50	16.50	1.28	.00	91.91	86.78	78.26	93.03	.53	-.20	71.2	221.3	233.9	211.3	223.2	
A6	91.66	86.40	92.22	92.82	77.39	97.25	16.00	17.00	.76	.00	92.35	86.89	78.22	93.86	1.04	-.34	40.0	228.6	355.5	211.3	328.6	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE 10 M (°C)	REL HUMIDITY 10 M (%)	ALT (M)	SPEED GRND REFGRND (m/s)	ROTOR RPM	TIP MACH#
A1	23.21	52.33	52.45	69.4	227.25	.6320
A2	23.47	52.16	51.74	66.9	225.00	.6256
A3	23.72	51.99	52.30	69.4	220.50	.6131
A4	23.99	51.81	52.07	69.4	225.00	.6255
A5	24.26	51.63	51.55	69.4	227.25	.6317
A6	24.47	51.48	50.46	69.4	225.00	.6254

TABLE E-6
BOEING VERTOL 234/CH47-D
SUMMARY ACOUSTIC ANALYSIS
1-POINT POSITION DETERMINATION
APPROACH

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)				EMISSION			TRACKING DATA (M)				
	EPNL	SEL	PNL _m	PNLT _m	ALM	OASPL _m	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	AL _m	PNLT _m	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
H30	101.87	97.63	104.12	104.87	90.80	102.13	11.00	11.00	.92	.00	102.13	97.79	91.58	105.75	.88	-.62	48.0	128.2	172.5	118.1	158.9	
H31	101.28	97.30	103.81	104.43	90.00	102.49	13.50	11.50	.55	.00	101.72	97.70	91.24	105.70	1.27	-.83	55.6	134.8	163.4	118.1	143.2	
H32	102.31	98.05	104.93	105.51	91.06	102.94	10.50	10.50	.58	.00	102.51	98.15	91.72	106.27	.76	-.56	45.4	126.7	177.9	118.1	165.9	
H33	103.00	98.65	105.03	105.62	91.18	103.25	11.50	11.00	.51	.08	103.39	98.95	92.24	106.77	1.15	-.76	62.0	132.5	150.1	118.1	133.8	
H34	102.74	98.44	104.75	105.47	91.29	102.93	10.00	10.00	.72	.00	102.50	98.16	91.34	105.56	.09	-.34	60.1	118.6	136.9	118.1	136.3	
H35	101.20	97.27	104.54	105.15	90.97	102.50	12.50	9.00	.47	.00	101.89	98.00	91.86	106.00	.85	-.16	45.2	129.8	182.8	118.1	166.4	
Sideline Left																						
H30	96.69	91.75	97.10	99.00	82.75	100.68	17.50	15.00	1.90	.00	96.72	91.70	83.09	99.42	.42	-.39	54.3	196.8	242.3	190.9	235.0	
H31	95.30	90.58	94.66	96.14	80.58	100.61	20.00	17.00	1.75	.00	95.50	90.68	81.17	96.83	.69	-.49	34.9	201.1	351.8	190.9	334.0	
H32	96.37	91.42	95.89	97.73	81.95	100.35	17.50	14.00	1.83	.00	96.38	91.33	82.24	98.11	.38	-.37	52.2	195.8	247.9	190.9	241.7	
H33	97.36	92.56	98.21	99.87	84.21	100.23	18.50	14.50	1.67	.00	97.52	92.57	84.67	100.49	.62	-.45	53.5	199.6	248.4	190.9	237.6	
H34	96.14	91.30	96.87	98.92	82.74	99.23	17.50	13.00	2.09	.00	95.90	91.03	82.78	98.99	.07	-.31	45.4	190.7	267.8	190.9	268.1	
H35	95.69	91.20	96.21	98.10	81.95	100.66	18.00	15.00	1.88	.00	96.26	91.69	82.36	98.59	.49	.08	47.5	198.3	269.1	190.9	259.0	
Sideline Right																						
H30	99.22	95.13	100.07	101.54	86.70	99.88	17.50	16.50	1.47	.00	99.26	95.12	87.13	102.02	.48	-.44	63.4	199.0	222.6	190.9	213.6	
H31	99.38	94.95	99.18	101.06	86.25	99.94	14.00	13.50	1.88	.00	99.59	95.06	86.90	101.81	.75	-.53	40.8	203.4	311.3	190.9	292.2	
H32	98.68	94.14	100.29	101.97	87.74	99.34	10.50	10.00	1.60	.00	98.66	94.10	88.12	102.37	.40	-.42	62.7	198.0	222.8	190.9	214.8	
H33	99.10	94.73	101.36	102.64	87.79	100.47	12.50	11.50	1.28	.00	99.27	94.78	88.34	103.31	.67	-.50	56.9	201.9	241.0	190.9	227.9	
H34	98.82	94.25	99.62	101.28	86.11	100.41	17.00	12.50	1.67	.00	98.64	94.03	86.25	101.46	.18	-.36	53.9	192.8	238.6	190.9	236.3	
H35	99.35	95.03	101.27	103.25	88.32	101.09	12.00	11.00	1.98	.00	99.45	95.03	88.79	103.82	.57	-.46	53.2	200.1	249.9	190.9	238.5	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE 10 M (°C)	REL HUMIDITY 10 M (%)	ALT	SPEED GRND (m/s)	REFGRND RPM	TIP MACH#
H30	32.20	36.27	46.69	40.9	43.5	220.50 .6093
H31	32.20	36.42	46.71	40.9	43.5	222.75 .6155
H32	32.20	35.89	46.59	40.9	43.5	225.00 .6217
H33	32.20	35.74	46.57	40.9	43.5	222.75 .6155
H34	32.20	35.60	46.32	40.4	43.5	222.75 .6154
H35	32.20	35.45	46.82	46.0	43.5	225.00 .6218

TABLE E-7
BOEING VERTOL 234/CH47-D
SUMMARY ACOUSTIC ANALYSIS
1-POINT POSITION DETERMINATION
TAKEOFF

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)					EMISSION ANGLE(°)				TRACKING DATA (M)	
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	CPA	SR	CPAR	SR	
Centerline Center																					
G41	94.43	89.98	96.48	97.11	83.60	97.90	10.50	12.50	.63	.00	95.76	91.11	86.09	99.80	2.69	-1.36	107.8	107.8	113.1	83.7	87.9
G42	94.96	90.49	97.18	97.72	83.94	99.02	9.00	11.50	.53	.00	95.28	90.72	84.87	98.74	1.02	-.70	97.1	91.4	92.2	83.7	84.4
G43	94.30	90.00	96.37	96.89	82.95	98.64	11.00	11.50	.52	.00	96.21	91.71	85.53	99.68	2.79	-.87	79.1	108.4	110.4	83.7	85.2
G44	95.80	91.27	99.31	99.94	85.84	100.36	7.50	8.50	.63	.00	94.92	90.41	84.66	98.74	-1.20	.32	81.7	73.3	74.1	83.7	84.6
G45	96.15	91.42	99.26	99.76	85.82	100.46	7.50	9.00	.23	.26	95.48	90.73	85.29	99.24	-.52	-.15	97.0	78.6	79.2	83.7	84.3
Sideline Left																					
G41	91.84	86.81	92.44	93.54	78.79	99.11	13.50	14.00	1.32	.00	92.42	87.14	79.74	94.73	1.19	-.62	45.2	186.4	262.5	171.8	241.9
G42	92.73	87.64	93.38	95.14	79.89	99.25	12.50	11.50	2.20	.00	92.81	87.63	80.33	95.68	.54	-.46	59.3	177.2	206.1	171.8	199.7
G43	91.73	86.63	92.89	93.80	78.53	99.83	13.00	12.50	1.15	.00	92.77	87.50	79.52	94.96	1.16	-.11	63.7	186.8	208.3	171.8	191.6
G44	92.53	87.75	93.08	94.66	79.69	99.49	11.50	11.00	1.58	.00	92.42	87.47	79.59	94.73	.07	-.17	52.1	168.3	213.2	171.8	217.6
G45	92.03	87.26	93.20	94.01	78.85	99.66	12.50	12.00	.85	.01	91.72	86.91	78.90	94.10	.09	-.40	70.1	170.7	181.6	171.8	182.7
Sideline Right																					
G41	92.56	88.33	92.62	93.69	78.85	99.00	15.00	15.00	1.08	.01	93.15	88.59	79.67	94.85	1.16	-.50	59.1	184.2	214.6	171.8	200.1
G42	91.51	87.55	92.51	93.59	78.55	99.30	14.00	12.50	1.07	.01	91.58	87.45	78.85	94.07	.48	-.41	60.5	175.3	201.3	171.8	197.3
G43	92.49	88.18	93.16	94.26	79.01	99.08	13.50	12.50	1.10	.00	93.54	89.09	79.98	95.37	1.11	-.06	56.6	184.6	221.1	171.8	205.8
G44	92.70	88.13	92.95	94.12	78.56	98.30	16.00	15.00	1.18	.00	92.53	87.89	78.45	94.09	-.03	-.13	50.9	166.6	214.5	171.8	221.2
G45	91.85	87.65	92.52	93.50	78.38	99.16	20.00	16.00	.97	.00	91.54	87.23	78.31	93.54	.04	-.36	63.0	169.0	189.7	171.8	192.9

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE	REL HUMIDITY	TIP	SPEED	ROTOR	MACH#
	10 M	10 M	ALT	GRND REFGRND	RPM	
	(°C)	(%)	(M)	(m/s)		
G41	31.88	33.41	45.11	40.8	43.4	227.25
G42	31.76	33.21	44.75	40.3	43.4	227.25
G43	31.65	32.99	44.96	45.9	43.4	227.25
G44	31.53	32.79	44.47	40.8	43.4	227.25
G45	31.41	32.57	44.59	39.3	43.4	227.25

TABLE E-8
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)					EMISSION			TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLTm	ALm	QASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
C10	91.63	87.03	93.64	94.37	79.81	94.32	11.50	12.00	.69	.00	90.37	85.90	77.78	92.20	-2.17	.91	33.1	120.7	221.1	148.8	272.5	
C11	91.51	87.01	93.64	94.26	79.73	94.17	13.00	13.50	.59	.00	91.28	86.82	79.33	93.82	-.44	.21	37.7	141.8	231.8	148.8	243.2	
C12	92.34	87.73	93.59	94.24	79.85	94.72	14.50	14.50	.58	.00	91.35	86.89	78.29	92.54	-1.70	.72	40.8	126.1	192.9	148.8	227.6	
C13	92.31	87.56	95.22	95.83	81.19	95.78	10.00	10.00	1.03	.00	90.43	85.78	77.89	92.43	-3.40	1.52	48.8	105.7	140.4	148.8	197.7	
C14	91.12	86.61	93.40	94.05	79.63	93.78	11.00	12.00	.74	.00	89.83	85.42	77.45	91.77	-2.28	.99	47.3	118.4	161.2	148.8	202.5	
C15	90.24	85.72	92.68	93.40	78.98	93.35	11.00	11.50	.62	.00	89.94	85.55	78.66	92.96	-.44	.15	44.8	142.9	202.9	148.8	211.3	
Sideline Left																						
C10	90.55	86.25	91.53	92.18	78.63	95.33	14.50	16.00	.65	.00	90.07	85.80	77.77	91.29	-.89	.41	84.1	192.0	193.1	211.3	212.4	
C11	90.64	86.26	90.83	91.70	78.24	94.68	19.00	19.50	1.00	.00	90.57	86.19	78.06	91.52	-.18	.11	55.5	205.8	249.9	211.3	256.5	
C12	90.88	86.35	91.29	91.81	78.56	94.60	13.50	18.50	.51	.00	90.50	86.00	77.87	91.09	-.72	.34	79.4	195.4	198.9	211.3	215.0	
C13	91.65	87.38	92.44	93.52	79.79	95.72	14.50	14.50	1.12	.00	90.89	86.69	78.44	92.11	-1.41	.65	55.4	183.0	222.4	211.3	256.8	
C14	90.28	86.29	91.67	92.23	78.91	94.73	12.50	14.00	.69	.00	89.75	85.80	77.97	91.25	-.98	.45	60.8	190.6	218.3	211.3	241.9	
C15	90.66	86.36	90.52	91.30	78.03	94.57	16.00	17.50	.91	.00	90.58	86.28	77.89	91.16	-.14	.07	75.5	206.6	213.4	211.3	218.2	
Sideline Right																						
C10	89.30	85.43	89.55	91.17	77.68	91.25	15.50	15.50	1.68	.00	88.85	85.02	76.88	90.33	-.84	.39	69.9	193.3	205.8	211.3	225.0	
C11	88.64	85.00	89.79	91.49	77.74	90.93	13.00	12.50	1.70	.00	88.62	84.97	77.63	91.39	-.10	.09	63.0	207.2	232.6	211.3	237.2	
C12	90.16	85.87	88.89	90.11	76.86	92.21	16.50	17.00	1.37	.00	89.82	85.55	76.23	89.46	-.65	.31	61.7	196.7	223.4	211.3	240.0	
C13	88.96	85.18	88.89	89.45	77.28	91.72	14.00	15.50	.56	.00	88.22	84.53	76.00	88.08	-1.37	.63	55.7	184.2	223.1	211.3	255.9	
C14	89.63	85.55	89.92	91.74	78.06	91.26	16.00	18.50	1.82	.00	89.13	85.10	77.19	90.82	-.92	.42	65.2	191.8	211.3	211.3	232.8	
C15	88.93	85.10	88.94	90.17	77.07	91.09	17.00	16.50	1.42	.00	88.90	85.06	76.99	90.11	-.06	.04	67.2	207.9	225.5	211.3	229.2	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS		
	TEMPERATURE 10 M (°C)	REL HUMIDITY 10 M (%)	ALT (M)	SPEED GRND (m/s)	ROTOR RPM	TIP MACH#
C10	32.78	27.78	60.00	62.71	65.3	348
C11	33.19	27.65	60.00	62.95	65.3	348
C12	33.77	27.73	60.00	62.79	65.3	348
C13	34.15	27.91	60.00	62.51	65.8	348
C14	34.47	27.81	60.00	62.73	65.3	348
C15	34.72	27.60	60.00	63.05	64.8	348

TABLE E-9
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 300 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)					EMISSION				TRACKING DATA (M)		
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	IC	BNDShR	EPNL	SEL	ALm	PNLTm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
A2	85.57	81.74	84.24	85.36	70.81	85.95	25.50	24.50	1.13	.00	85.96	82.07	71.29	85.90	.54	-.15	45.5	309.6	434.1	298.8	419.0	
A3	85.65	81.76	84.87	85.91	71.47	86.31	23.00	23.50	1.06	.00	85.62	81.73	71.45	85.89	-.02	-.02	46.4	295.2	407.7	298.8	412.6	
A4	85.12	81.47	84.77	85.83	71.39	85.75	23.50	22.50	1.06	.00	85.43	81.75	71.89	86.36	.53	-.22	44.3	309.6	443.3	298.8	427.9	
A5	85.28	81.54	84.63	85.49	70.99	85.87	27.00	25.00	.86	.00	85.58	81.81	71.49	86.02	.53	-.23	49.8	309.7	405.8	298.8	391.5	
A6	.00	82.61	85.87	86.65	72.61	88.14	23.50	.00	.68	.00	0.00	82.39	72.11	86.01	-.64	-.28	50.5	282.1	365.6	298.8	387.2	
Sideline Left																						
A2	86.42	82.61	85.36	86.20	71.82	88.96	26.00	24.50	.80	.04	86.69	82.84	72.16	86.58	.38	-.11	89.5	343.2	343.3	334.3	334.3	
A3	86.47	82.52	85.26	86.28	72.33	89.22	24.50	24.00	1.02	.00	86.41	82.48	72.30	86.24	-.04	-.02	72.8	330.4	346.0	334.3	350.1	
A4	85.78	82.03	84.64	85.60	71.85	88.66	26.00	27.00	1.03	.06	86.00	82.20	72.20	86.00	.40	-.18	78.7	343.2	350.0	334.3	340.9	
A5	87.04	83.01	85.53	86.13	71.92	89.19	29.00	28.00	.90	.00	87.27	83.20	72.30	86.54	.41	-.19	70.8	343.4	363.5	334.3	353.9	
A6	88.00	83.70	85.61	86.66	72.68	90.70	25.00	25.00	1.22	.00	87.80	83.55	72.29	86.22	-.44	-.24	19.6	318.8	951.6	334.3	997.9	
Sideline Right																						
A2	85.47	81.58	83.84	84.93	71.69	86.53	21.50	24.50	1.03	.00	85.74	81.84	72.08	85.33	.40	-.14	92.2	345.0	345.3	334.3	334.6	
A3	85.82	82.09	83.79	85.32	71.71	86.76	24.00	23.50	1.69	.00	85.81	82.06	71.72	85.35	.03	-.04	86.7	332.1	332.7	334.3	334.9	
A4	85.57	81.52	84.20	86.04	72.30	86.44	20.50	24.00	1.87	.00	85.83	81.72	72.70	86.50	.46	-.21	86.9	345.0	345.5	334.3	334.8	
A5	85.83	81.99	83.66	85.01	71.18	86.38	27.50	27.00	1.75	.00	86.09	82.18	71.57	85.48	.47	-.21	86.9	345.1	345.7	334.3	334.8	
A6	86.74	82.92	85.15	86.08	72.25	88.00	24.50	24.00	1.34	.00	86.59	82.79	71.90	85.71	-.37	-.21	66.4	320.5	349.8	334.3	364.8	

EVENT	ENVIRONMENTAL DATA				OPERATING CONDITIONS			
	TEMPERATURE	REL HUMIDITY	ALT	TIP	SPEED	GRND REFGRND	ROTOR	TIP
	10 M	10 M	ALT	MACH#	(m/s)	RPM	MACH#	
A2	30.58	60.00	65.92	65.3	65.3	348	.6363	
A3	30.82	60.00	64.98	64.3	65.3	348	.6362	
A4	31.07	60.00	66.60	64.3	65.3	348	.6365	
A5	31.32	60.00	66.49	64.3	65.3	348	.6364	
A6	31.64	60.00	64.74	65.8	65.3	348	.6361	

TABLE E-10
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 APPROACH

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)				EMISSION				TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLIm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLIm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
L1	97.15	94.60	98.27	99.15	84.22	97.14	14.00	13.00	.88	.00	96.94	92.61	83.84	98.75	- .40	.19	56.2	113.2	136.3	118.1	142.2	
L2	98.25	93.86	100.18	100.81	86.05	99.18	12.00	12.00	.63	.00	98.30	93.92	85.78	100.54	- .27	.33	58.6	114.6	134.4	118.1	138.4	
L3	98.71	94.12	100.60	101.50	86.61	99.86	11.00	11.00	.90	.00	98.08	93.53	85.47	100.31	- 1.19	.55	61.5	104.0	118.4	118.1	134.4	
L4	97.95	93.41	100.20	100.94	86.28	99.69	11.50	11.50	.73	.00	97.47	92.98	85.30	99.92	- 1.02	.55	61.3	105.9	120.7	118.1	134.7	
L5	98.10	93.69	100.34	101.13	86.22	99.52	10.50	9.50	.79	.00	97.54	93.18	85.09	99.95	- 1.18	.62	73.5	104.0	108.5	118.1	123.2	
L6	99.11	94.60	101.08	101.72	87.03	100.16	11.00	10.50	.68	.00	98.43	93.97	85.80	100.44	- 1.28	.60	61.3	102.9	117.2	118.1	134.6	
Sideline Left																						
L1	94.17	90.05	94.23	95.12	80.03	93.92	21.50	15.50	.89	.00	94.08	89.96	79.85	94.95	- .17	.08	64.2	187.4	208.3	190.9	212.2	
L2	93.18	88.75	92.33	93.26	78.81	92.91	20.50	18.00	1.85	.00	93.31	88.88	78.68	93.13	- .13	.26	42.7	188.3	277.7	190.9	281.6	
L3	92.18	87.73	92.69	93.81	80.11	93.09	16.50	16.00	.97	.00	91.72	87.49	79.66	93.15	- .66	.21	39.5	182.1	286.4	190.9	300.3	
L4	93.33	88.98	92.65	94.50	79.95	93.81	17.50	14.50	1.85	.00	93.17	88.84	79.56	94.09	- .41	.25	46.7	183.1	251.6	190.9	262.3	
L5	92.71	88.16	92.24	93.76	78.40	92.75	19.00	16.00	1.52	.00	92.53	88.01	77.98	93.31	- .45	.28	94.7	182.1	182.7	190.9	191.6	
L6	93.34	88.72	92.78	94.24	78.97	93.47	19.00	15.50	1.43	.00	93.05	88.47	78.50	93.73	- .51	.22	56.8	181.4	216.9	190.9	228.3	
Sideline Right																						
L1	89.70	85.55	88.85	90.82	75.93	90.04	22.00	18.00	2.10	.00	89.67	85.51	75.86	90.76	- .06	.03	59.4	189.5	220.1	190.9	221.8	
L2	91.28	87.17	89.56	90.72	76.77	89.91	23.50	23.50	1.18	.00	91.39	87.36	76.75	90.62	- 1.10	.21	75.4	190.4	196.8	190.9	197.3	
L3	91.39	87.18	89.17	91.22	77.15	90.39	28.50	28.00	2.45	.00	91.16	86.99	76.80	90.83	- .39	.16	37.4	184.0	302.7	190.9	314.1	
L4	90.21	85.67	90.19	91.69	77.08	90.75	17.00	16.00	1.50	.00	90.12	85.59	76.80	91.39	- .30	.20	51.4	185.1	236.8	190.9	244.3	
L5	90.44	86.46	88.89	91.01	76.40	90.42	26.50	19.00	2.22	.00	90.32	86.35	76.06	90.66	- .35	.23	56.1	184.0	221.7	190.9	230.0	
L6	90.75	86.46	89.39	91.45	76.11	90.31	23.00	20.00	2.08	.00	90.55	86.26	75.74	91.07	- .38	.18	68.8	183.3	196.7	190.9	204.8	

EVENT	ENVIRONMENTAL DATA				OPERATING CONDITIONS			
	TEMPERATURE	REL HUMIDITY	SPEED		GRND	REFGRND	RPM	TIP
	10 M	ALT	10 M	ALT	(m/s)			
L1	27.07	24.34	62.23	60.68	33.3	33.3	348	.6384
L2	29.34	24.49	61.57	60.63	34.8	33.3	348	.6383
L3	29.62	24.68	60.90	60.98	33.3	33.3	348	.6381
L4	29.90	24.79	60.25	61.04	33.8	33.3	348	.6380
L5	30.03	24.94	59.88	60.80	33.8	33.3	348	.6378
L6	30.22	25.16	59.21	59.82	33.3	33.3	348	.6376

TABLE E-11
 BELL 222 TWIN JET
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 TAKEOFF

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)				EMISSION			TRACKING DATA (M)				
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SR	
Centerline Center																						
K21	88.95	84.72	88.38	90.70	74.85	84.65	20.50	17.50	2.32	.00	90.82	86.44	77.87	93.88	3.18	-1.30	65.1	189.1	208.4	140.0	154.3	
K22	87.64	83.44	86.44	88.53	72.76	83.64	27.00	22.00	2.27	.00	90.35	85.97	77.21	93.16	4.63	-1.92	67.5	218.0	236.0	140.0	151.6	
K23	87.66	83.56	87.56	89.50	74.48	84.23	20.00	16.50	1.88	.00	90.80	86.60	79.19	94.31	4.81	-1.68	59.6	221.8	257.2	140.0	162.3	
K24	87.94	83.95	86.63	88.82	73.47	82.59	24.00	19.00	2.25	.00	90.37	86.22	78.05	93.57	4.75	-2.32	69.3	220.5	235.7	140.0	149.6	
K25	87.45	83.52	85.56	88.01	73.23	82.16	24.00	21.00	2.68	.00	91.04	86.36	78.27	93.79	5.78	-2.20	72.1	228.7	240.4	140.0	147.2	
Sideline Left																						
K21	86.06	82.38	84.66	86.88	72.51	85.29	20.50	19.00	2.21	.00	87.28	83.40	74.29	88.86	1.98	-.77	84.5	244.9	246.0	205.2	206.1	
K22	86.04	82.08	84.38	86.93	71.92	84.59	27.00	22.00	2.55	.00	87.87	83.63	74.63	89.92	2.99	-1.16	85.1	268.3	269.3	205.2	206.0	
K23	86.34	82.33	84.24	86.64	72.23	83.54	21.00	19.50	2.41	.00	88.54	84.20	75.00	89.73	3.09	-.89	74.5	271.4	281.7	205.2	213.0	
K24	86.32	82.38	84.37	86.73	72.24	83.25	24.00	22.50	2.37	.00	87.89	83.65	75.05	89.85	3.12	-1.55	86.9	270.4	270.8	205.2	205.5	
K25	86.21	82.25	84.09	86.61	72.10	83.65	26.00	24.50	2.51	.01	88.14	83.90	75.13	89.92	3.31	-1.38	73.1	277.2	289.7	205.2	214.4	
Sideline Right																						
K21	87.85	83.06	86.18	88.55	72.93	86.24	25.50	24.50	2.37	.00	88.90	83.99	74.55	90.29	1.74	-.69	84.4	240.7	241.9	205.2	206.2	
K22	87.63	82.50	85.39	88.08	72.25	85.41	25.50	23.00	2.69	.00	89.28	84.00	74.85	90.82	2.74	-1.09	82.7	264.0	266.2	205.2	206.9	
K23	87.84	82.71	86.30	89.08	72.40	85.73	26.00	19.50	2.78	.00	89.84	84.50	75.02	91.90	2.82	-.82	89.6	267.1	267.1	205.2	205.2	
K24	87.70	82.40	85.89	88.36	71.88	84.90	24.50	21.00	2.58	.00	88.92	83.51	74.46	91.05	2.69	-1.48	88.9	266.0	266.1	205.2	205.2	
K25	87.13	81.81	85.08	87.79	71.51	84.71	27.00	22.00	2.69	.00	88.89	83.34	74.35	90.87	3.08	-1.32	83.6	273.5	275.2	205.2	206.5	
EVENT	ENVIRONMENTAL DATA					OPERATING CONDITIONS																
	TEMPERATURE	REL HUMIDITY	10 M	ALT	(%)	SPEED	GRND	REFGRND	RPM	TIP	MACH#											
	10 M	ALT	(°C)			(m/s)																
K21	32.59	25.87	55.46	55.66	32.4	32.4	348	.6368														
K22	32.79	25.55	55.39	56.03	32.4	32.4	348	.6371														
K23	32.97	25.87	55.33	55.67	34.9	32.4	348	.6368														
K24	33.18	25.57	55.25	56.00	29.9	32.4	348	.6371														
K25	33.38	25.46	55.18	57.09	31.9	32.4	348	.6373														

TABLE E-12
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 150 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)				EMISSION				TRACKING DATA (M)			
	EPNL	SEL	PNLm	PNLTm	ALm	OASPLm	Dur(A)	Dur(P)	IC	BNDShr	EPNL	SEL	ALm	PNLTm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
B7	.00	85.96	92.16	93.28	79.78	94.90	8.00	8.00	.00	.97	.15	00.00	84.86	78.57	91.93	-1.35	.11	48.3	134.0	179.5	148.8	199.3
B8	90.96	88.38	93.31	94.40	81.70	94.29	9.50	9.50	9.00	1.01	.00	89.97	87.54	80.95	93.51	-.89	-.10	57.8	140.4	166.0	148.8	175.9
B9	89.24	86.35	91.73	92.72	79.57	93.09	10.00	9.00	9.00	.99	.00	88.96	86.09	79.52	92.64	-.08	-.21	59.6	150.1	173.9	148.8	172.4
B10	89.92	87.30	92.50	93.61	80.66	93.15	9.50	9.00	9.00	1.11	.00	89.82	87.24	80.65	93.57	-.04	-.05	53.7	150.7	187.0	148.8	184.6
B12	90.84	88.26	94.06	94.89	82.29	94.53	8.00	8.00	8.00	.91	.00	90.60	88.06	82.06	94.62	-.27	-.03	53.1	147.7	184.7	148.8	186.1
B13	88.39	85.46	91.09	92.05	79.01	92.92	9.00	9.00	9.00	.97	.00	88.82	85.85	79.79	92.87	.82	-.39	56.0	162.6	196.3	148.8	179.5
Sideline Left																						
B7	89.84	86.99	91.98	92.97	80.42	95.25	9.50	10.00	10.00	.92	.00	88.87	86.20	79.75	92.12	-.85	-.12	67.5	200.6	217.0	211.3	228.6
B8	89.30	87.26	91.25	92.65	80.73	95.19	9.50	9.50	9.50	1.57	.00	88.68	86.67	80.38	92.27	-.38	-.24	57.0	206.2	245.8	211.3	251.8
B9	88.75	86.17	91.11	92.02	79.34	95.13	10.00	10.00	10.00	.97	.00	88.41	85.87	79.22	91.86	-.16	-.18	76.1	211.6	218.0	211.3	217.7
B10	89.16	86.88	90.91	92.33	80.03	94.66	10.00	10.50	10.50	1.63	.00	89.10	86.83	80.02	92.32	-.01	-.04	49.3	213.4	281.3	211.3	278.5
B12	89.88	87.41	91.82	93.28	80.78	95.68	9.00	9.50	9.50	1.52	.00	89.76	87.30	80.67	93.16	-.12	.00	49.0	211.3	280.0	211.3	279.9
B13	88.81	86.05	91.06	92.10	79.15	95.25	10.00	9.50	9.50	1.04	.00	88.92	86.17	79.46	92.39	.29	-.19	67.7	220.6	238.5	211.3	228.4
Sideline Right																						
B7	88.85	87.68	90.29	91.02	79.84	89.80	12.00	11.50	11.50	.73	.00	88.07	86.96	79.26	90.39	-.63	-.15	56.5	201.9	242.2	211.3	253.4
B8	90.87	88.96	91.82	92.73	80.82	91.70	12.00	12.00	12.00	.91	.00	90.13	88.30	80.37	92.20	-.53	-.22	76.2	204.9	211.0	211.3	217.6
B9	89.06	87.75	90.13	90.92	79.49	90.44	12.00	12.00	12.00	.74	.00	88.73	87.51	79.46	90.80	-.12	-.20	67.8	213.0	230.0	211.3	228.2
B10	90.44	88.30	91.52	92.55	80.08	91.50	13.00	12.00	12.00	1.05	.00	90.28	88.18	79.97	92.40	-.15	-.02	66.9	212.0	230.5	211.3	229.7
B12	90.78	88.66	92.03	92.99	80.74	92.90	11.50	11.50	11.50	.96	.00	90.56	88.49	80.54	92.75	-.24	-.03	71.1	209.9	221.9	211.3	223.4
B13	88.60	87.05	89.59	90.33	78.89	91.05	12.00	12.50	12.50	.91	.00	88.78	87.22	79.27	90.73	.40	-.22	72.0	222.1	233.5	211.3	222.2

EVENT	ENVIRONMENTAL DATA				OPERATING CONDITIONS			
	TEMPERATURE 10 M (°C)	REL HUMIDITY 10 M (%)	ALT 10 M	ALT	SPEED GRND REFGRND (m/s)	RPM	TIP	MACH#
B7	18.19	23.28	90.00	63.41	61.7	66.9	293	.5969
B8	17.66	23.29	90.00	63.40	61.7	66.9	293	.5969
B9	16.94	23.46	90.00	64.42	64.3	66.9	293	.5967
B10	16.78	23.44	90.00	64.65	66.9	66.9	293	.5967
B12	17.13	23.43	90.00	62.71	66.9	66.9	293	.5967
B13	17.28	23.59	90.00	63.98	66.9	66.9	293	.5966

TABLE E-13
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 300 M LEVEL FLYOVER

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)					EMISSION				TRACKING DATA (M)		
	EPHL	SEL	PNLm	PNLIm	ALm	OASPLm	Dur(A)	Dur(P)	IC	BNDShR	EPHL	SEL	ALm	PNLIm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
CenterLine Center																						
E24	86.42	84.05	86.75	87.37	75.15	94.71	16.00	15.50	.56	.00	86.91	84.55	75.79	88.01	.64	-.14	68.8	319.5	342.6	298.8	320.4	
E25	86.07	83.90	84.62	85.66	73.97	92.99	20.00	20.50	1.15	.00	86.25	84.04	74.51	86.25	.59	-.40	86.2	316.7	317.4	298.8	299.4	
E26	85.92	83.53	85.53	86.30	74.38	94.44	16.00	18.00	1.16	.00	86.45	83.95	75.13	87.16	.86	-.33	50.4	322.2	418.2	298.8	387.7	
E27	87.52	85.30	88.48	89.04	76.83	95.07	15.00	14.50	.79	.00	87.28	85.13	76.63	88.77	-.27	-.03	46.5	296.6	409.1	298.8	412.1	
E28	86.53	83.94	86.65	87.58	74.99	94.67	16.00	16.00	1.36	.00	86.84	84.19	75.46	88.11	.53	-.22	39.8	314.1	490.6	298.8	466.7	
Sideline Left																						
E24	87.83	84.75	89.28	89.80	75.88	95.86	15.00	14.00	.53	.00	88.26	85.14	76.35	90.30	.50	-.08	43.9	352.2	508.0	334.3	482.2	
E25	.00	84.36	86.39	87.41	76.20	94.37	18.50	.00	1.03	.00	.00	84.44	76.65	87.89	.48	-.37	74.8	351.5	364.3	334.3	346.5	
E26	86.31	83.62	86.12	86.87	74.78	96.09	15.50	17.00	.75	.00	86.68	83.92	75.33	87.49	.62	-.26	68.5	354.7	381.3	334.3	359.4	
E27	88.23	85.61	88.92	89.77	78.16	95.92	13.50	16.00	.95	.00	88.14	85.52	78.06	89.66	-.11	.01	77.8	333.4	341.1	334.3	342.1	
E28	.00	84.07	86.73	87.74	75.22	96.42	15.50	.00	1.01	.00	.00	84.24	75.55	88.12	.38	-.17	74.0	347.3	361.4	334.3	347.8	
Sideline Right																						
E24	87.15	84.96	86.75	87.80	75.39	93.42	16.50	16.00	1.37	.00	87.62	85.38	75.91	88.37	.57	-.10	45.9	353.9	492.6	334.3	465.2	
E25	.00	85.17	86.00	87.13	75.24	92.41	17.50	.00	1.84	.00	.00	85.22	75.64	87.57	.44	-.35	113.6	349.7	381.7	334.3	364.8	
E26	87.80	85.54	87.65	88.83	75.92	94.14	15.50	14.50	1.31	.00	88.17	85.88	76.54	89.48	.65	-.28	47.3	356.5	485.5	334.3	455.3	
E27	89.42	86.76	89.71	90.53	77.70	96.49	15.50	15.50	1.20	.00	89.28	86.62	77.52	90.35	-.18	.04	45.8	331.6	462.5	334.3	466.3	
E28	88.20	85.86	87.87	89.32	76.43	94.22	16.50	16.00	1.45	.00	88.44	86.05	76.81	89.75	.43	-.19	41.4	349.1	528.0	334.3	505.7	
ENVIRONMENTAL DATA																						
EVENT	TEMPERATURE		REL HUMIDITY		SPEED			ROTOR			TIP											
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	MACH#	RPM	MACH#	RPM	MACH#										
	(°C)		(%)	(m/s)																		
E24	20.19	25.22	90.00	52.17	77.2	74.6	293	.5950														
E25	20.30	25.20	90.00	52.13	72.0	74.6	293	.5950														
E26	20.45	25.20	90.00	51.60	74.6	74.6	293	.5950														
E27	20.57	25.29	90.00	51.41	74.6	74.6	293	.5949														
E28	20.69	25.07	90.00	52.10	74.6	74.6	293	.5951														

TABLE E-14
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 APPROACH

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)					EMISSION				TRACKING DATA (M)		
	EPNL	SEL	PNLm	PNLIm	ALm	OASPLm	Dur(A)	Dur(P)	TC	BNDShR	EPNL	SEL	ALm	PNLIm	Δ1	Δ2	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline Center																						
150	97.80	94.29	100.83	101.53	88.01	97.82	9.00	9.50	.70	.00	97.26	93.80	86.96	100.44	-1.09	.56	35.1	105.3	183.3	118.1	205.5	
151	95.27	91.87	97.15	97.76	83.72	94.57	15.50	11.00	.58	.00	94.87	91.52	83.27	97.26	-.50	.10	85.6	112.4	112.7	118.1	118.5	
152	95.70	92.75	98.47	98.74	86.40	95.22	8.50	9.50	.11	.00	94.93	92.19	85.44	97.57	-1.17	.40	55.6	106.2	128.8	118.1	143.2	
153	96.87	93.64	99.93	100.83	86.76	96.46	11.00	9.50	.88	.00	96.27	93.09	85.81	99.83	-1.00	.40	63.3	106.2	118.9	118.1	132.2	
154	95.90	92.30	99.22	100.02	85.81	96.33	10.00	9.00	.81	.00	95.77	92.17	85.44	99.65	-.37	.24	46.9	113.4	155.2	118.1	161.7	
155	96.19	93.00	98.28	98.93	85.58	94.85	10.50	10.00	.65	.00	95.85	92.69	84.85	98.18	-.75	.41	59.3	108.9	126.6	118.1	137.3	
Sideline Left																						
150	93.34	90.24	92.83	93.99	81.57	88.89	16.50	17.00	1.47	.00	93.17	90.08	81.16	93.57	-.42	.25	84.4	182.8	183.7	190.9	191.8	
151	94.53	91.01	96.15	97.67	84.01	91.45	11.00	10.50	1.57	.00	94.24	90.79	83.82	97.41	-.26	-.03	57.7	186.9	221.1	190.9	225.8	
153	94.58	91.67	95.45	97.36	83.38	90.58	19.00	15.00	1.92	.00	94.32	91.42	83.01	96.98	-.38	.12	63.5	183.3	204.9	190.9	213.4	
154	94.17	91.17	94.67	96.41	82.62	89.82	16.50	15.50	1.70	.00	94.11	91.16	82.47	96.22	-.19	.14	61.6	187.5	213.3	190.9	217.1	
155	93.99	90.82	94.24	95.47	81.82	89.28	15.00	14.50	1.12	.00	93.73	90.73	81.53	95.01	-.46	.20	61.9	184.9	209.6	190.9	216.5	
Sideline Right																						
153	87.56	83.79	89.90	91.25	77.04	85.69	9.00	8.50	1.32	.00	87.32	83.59	76.77	90.94	-.31	.07	93.5	185.3	185.6	190.9	191.3	
154	90.66	86.96	90.63	91.96	77.25	86.18	17.50	15.00	1.28	.05	90.71	87.00	77.20	91.92	-.04	.09	52.5	189.6	238.9	190.9	240.5	
155	89.74	85.62	89.15	90.95	76.79	85.44	16.50	14.50	1.80	.00	89.70	85.59	76.61	90.76	-.19	.15	54.6	186.9	229.3	190.9	234.3	
ENVIRONMENTAL DATA																						
EVENT	TEMPERATURE		REL HUMIDITY		OPERATING CONDITIONS			SPEED		ROTOR		TIP										
	10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	RPM	MACH#	MACH#	MACH#	MACH#										
	(°C)		(%)	(m/s)																		
150	27.85	24.65	67.51	68.91	38.4	37.9	293	293	.5950													
151	28.17	25.06	65.17	66.72	37.3	37.9	293	293	.5945													
152	27.93	24.80	66.89	68.06	36.8	37.9	293	293	.5948													
153	28.05	24.89	66.01	67.62	37.3	37.9	293	293	.5947													
154	28.34	25.19	63.00	64.83	38.4	37.9	293	293	.5942													
155					38.4	37.9	293	293														

TABLE E-15
 SIKORSKY S76A
 SUMMARY ACOUSTIC ANALYSIS
 1-POINT POSITION DETERMINATION
 TAKEOFF

EVENT	AS-MEASURED DATA										CORRECTED DATA (dB)					EMISSION				TRACKING DATA (M)		
	Centerline	SEL	PNLm	PNLIm	ALm	OASPLm	Dur(A)	Dur(P)	IC	BNDShR	EPNL	SEL	ALm	PNLIm	$\Delta 1$	$\Delta 2$	ANGLE(°)	CPA	SR	CPAR	SRR	
Centerline																						
F29	89.65	85.76	91.02	92.81	78.63	82.00	10.50	10.00	1.93	.00	90.71	86.73	80.01	94.28	1.47	-.42	74.1	126.0	131.0	108.6	112.9	
F30	90.64	86.85	91.53	93.66	79.33	82.31	11.50	10.50	2.13	.00	91.82	87.97	80.98	95.37	1.71	-.53	86.1	129.3	129.4	108.6	108.6	
F31	91.16	87.59	92.11	94.23	79.79	82.67	11.50	10.50	2.12	.00	92.47	88.78	81.57	96.12	1.89	-.59	76.3	131.0	134.8	108.6	111.7	
F32	90.16	86.34	91.10	92.51	78.66	82.18	12.00	11.00	2.08	.00	91.27	87.38	80.15	94.08	1.57	-.46	104.8	127.2	131.5	108.6	112.3	
F33	90.46	86.56	92.26	94.15	80.01	83.16	10.00	8.50	2.43	.00	90.80	86.90	80.25	94.39	.24	-.10	96.0	111.9	112.5	108.6	109.2	
F34	90.18	86.16	91.00	93.17	78.83	81.89	12.00	10.50	2.18	.00	90.63	86.60	79.25	93.61	.44	-.02	106.4	114.0	118.8	108.6	113.1	
F35	90.46	86.24	92.16	94.11	79.73	82.86	10.00	9.00	1.70	.00	89.94	86.02	78.76	92.84	-1.27	-.75	101.0	98.8	100.6	108.6	110.6	
F36	90.32	86.15	91.21	93.42	78.68	82.88	11.00	9.50	2.37	.00	90.42	86.25	78.50	93.24	-.18	-.28	106.0	107.3	111.6	108.6	112.9	
Sideline Left																						
F29	89.13	87.56	88.79	90.06	78.92	83.17	14.50	15.50	1.27	.00	89.67	88.09	79.51	90.67	.61	-.07	83.7	198.2	199.5	185.2	186.3	
F30	89.92	88.22	89.89	91.02	80.16	84.06	13.50	14.50	1.13	.00	90.53	88.80	80.85	91.75	.73	-.11	87.9	200.4	200.5	185.2	185.3	
F31	90.06	88.46	90.38	91.69	80.85	84.91	12.50	13.00	1.32	.00	90.71	89.07	81.60	92.48	.79	-.14	78.3	201.5	205.9	185.2	189.1	
F32	89.17	87.57	89.15	90.30	79.23	83.34	13.50	14.50	1.07	.00	89.65	88.12	79.86	90.87	.57	-.08	107.4	199.0	208.5	185.2	194.0	
F33	89.84	87.93	90.06	91.36	79.77	83.84	12.50	13.00	1.30	.00	90.13	88.22	79.93	91.52	.16	-.13	96.9	189.3	190.7	185.2	186.5	
F34	88.81	86.87	88.54	89.67	78.18	82.71	14.50	15.50	1.08	.00	89.09	87.19	78.40	89.85	.18	-.10	106.9	190.6	199.3	185.2	193.6	
F35	89.38	87.02	89.54	92.02	79.15	83.51	12.50	12.50	2.48	.00	89.54	87.21	78.91	91.76	-.26	-.42	86.4	181.6	182.0	185.2	185.5	
F36	88.01	85.97	88.09	89.33	77.68	82.78	14.50	15.00	1.21	.07	88.22	86.19	77.70	89.34	.01	-.20	108.6	186.5	196.8	185.2	195.4	
Sideline Right																						
F29	91.44	89.29	91.92	93.55	81.81	85.74	12.00	14.00	1.63	.00	91.90	89.74	82.26	94.01	.46	.00	81.2	195.4	197.7	185.2	187.4	
F30	91.69	89.51	91.98	93.45	81.83	85.88	13.50	14.50	1.47	.00	92.22	90.02	82.39	94.03	.58	-.05	83.3	197.5	198.9	185.2	186.4	
F31	91.97	89.58	91.72	93.36	81.22	85.56	14.00	15.00	1.71	.00	92.54	90.12	81.84	94.01	.65	-.07	92.6	198.6	198.8	185.2	185.4	
F32	90.70	88.75	90.65	91.93	80.55	84.96	16.00	18.00	1.28	.00	91.20	89.23	81.05	92.45	.52	-.02	89.8	196.1	196.1	185.2	185.2	
F33	91.52	89.34	91.98	93.35	81.98	85.95	12.50	15.00	1.47	.00	91.73	89.54	81.99	93.37	.02	-.19	104.4	186.7	192.7	185.2	191.2	
F34	90.53	88.28	89.83	91.15	79.53	85.03	16.00	17.50	1.31	.00	90.75	88.52	79.60	91.21	.06	-.17	102.1	187.9	192.2	185.2	189.4	
F35	91.54	88.92	91.51	93.21	81.18	86.46	13.50	14.00	2.03	.00	91.56	89.02	80.80	92.74	-.47	-.48	101.6	179.2	182.9	185.2	189.0	
F36	.00	88.17	90.02	91.24	79.34	85.52	15.00	.00	1.28	.00	.00	88.30	79.21	91.08	-.16	-.26	80.3	183.9	186.6	185.2	187.9	

EVENT	ENVIRONMENTAL DATA			OPERATING CONDITIONS			
	TEMPERATURE	REL HUMIDITY	TIP	SPEED	RPM	MACH#	
10 M	ALT	10 M	ALT	GRND	REFGRND	RPM	
	(°C)	(%)		(m/s)			
F29	21.09	23.20	90.00	64.06	39.5	37.4	293
F30	21.22	23.43	90.00	63.32	39.5	37.4	293
F31	21.35	23.40	90.00	62.70	39.5	37.4	293
F32	21.48	23.66	90.00	61.91	39.5	37.4	293
F33	21.61	23.34	90.00	62.80	39.5	37.4	293
F34	21.80	23.49	89.26	62.13	39.5	37.4	293
F35	22.01	23.14	88.07	64.60	40.5	37.4	293
F36	22.23	23.24	88.82	64.46	39.5	37.4	293

APPENDIX F
SAMPLE TIME HISTORIES

THE UNIVERSITY OF CHICAGO
CHICAGO, ILLINOIS

Figure F-1

Aerospatiale SA365N Dauphin 2

Run #:	A6	Profile Type:	150 m Level Flyover
Test Grnd Spd (m/s):	67.90	Blade Tip Mach #:	0.6407
OH Altitude (m):	154.41		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	12.00	10.00	10.50
EPNL (dB):	90.88	90.10	88.65
EPNLc (dB):	90.46	89.88	88.25
PNLTm (dB):	93.11	92.92	91.55
PNLTmc (dB):	92.84	92.93	91.33

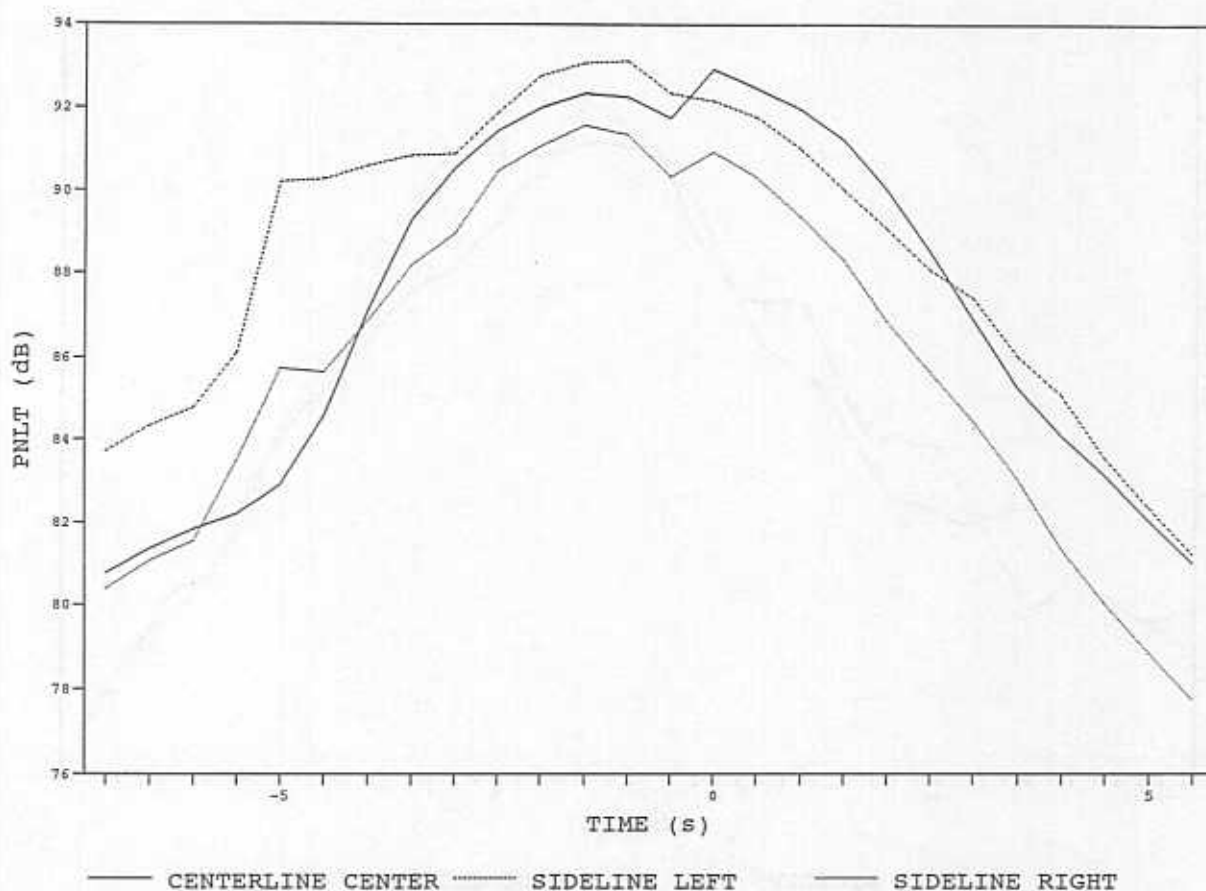


Figure F-2

AEROSPATIALE SA365N DAUPHIN 2

Run #:	D24	Profile Type:	300 m Level Flyover
Test Grnd Spd (m/s):	67.40	Blade Tip Mach #:	0.6362
OH Altitude (m):	296.90		

	Left Mic	Center Mic	Right Mic
10 dB Down Dur (s):	20.00	-	22.00
EPNL (dB):	85.05	-	85.52
EPNLc (dB):	84.39	-	84.89
PNLTm (dB):	86.35	-	85.49
PNLTmc (dB):	85.77	-	84.97

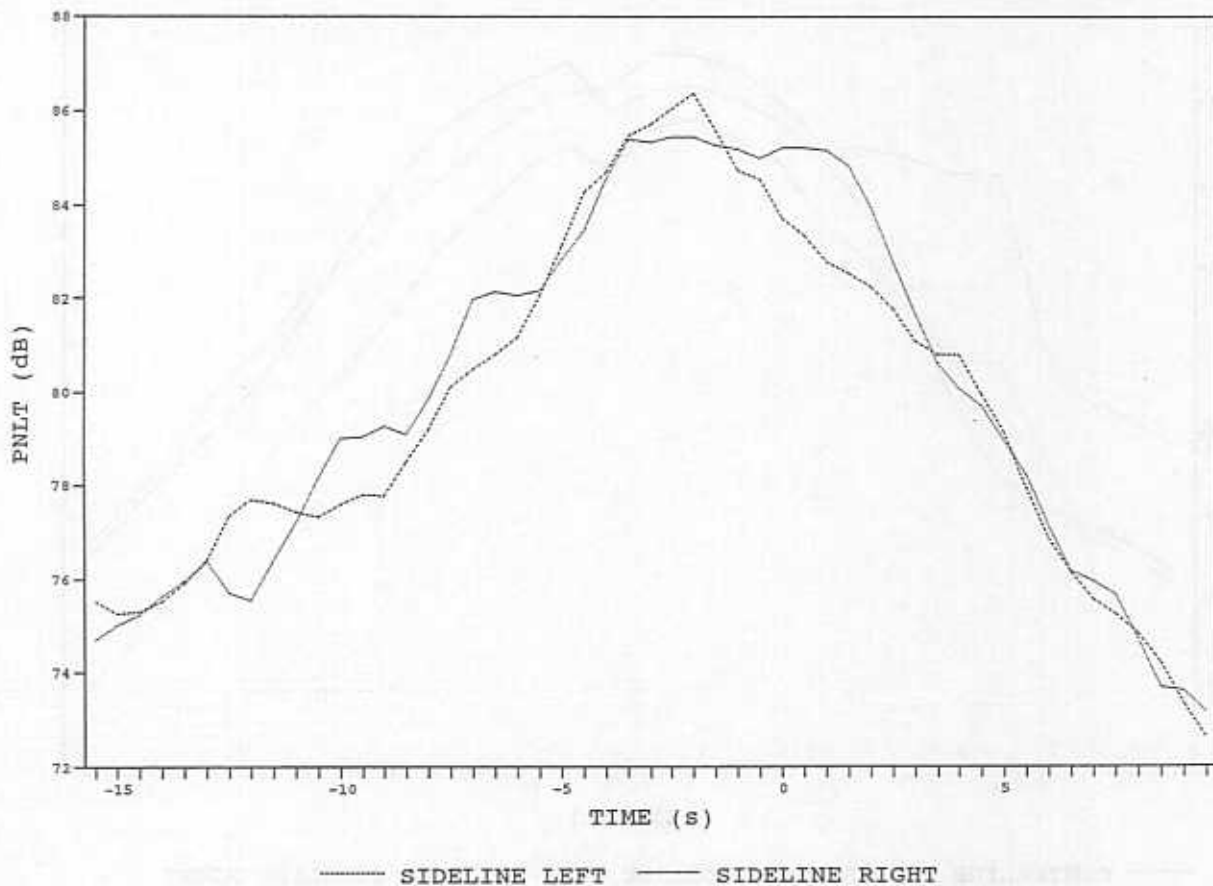


Figure F-3

AEROSPATIALE SA365N DAUPHIN 2

Run #:	F50	Profile Type:	Approach
Test Grnd Spd (m/s):	38.30	Blade Tip Mach #:	0.6380
OH Altitude (m):	112.65		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	-	12.00	15.50
EPNL (dB)	-	97.10	94.40
EPNLc (dB):	-	96.70	94.10
PNLTm (dB):	-	99.80	96.13
PNLTmc (dB):	-	99.12	95.77

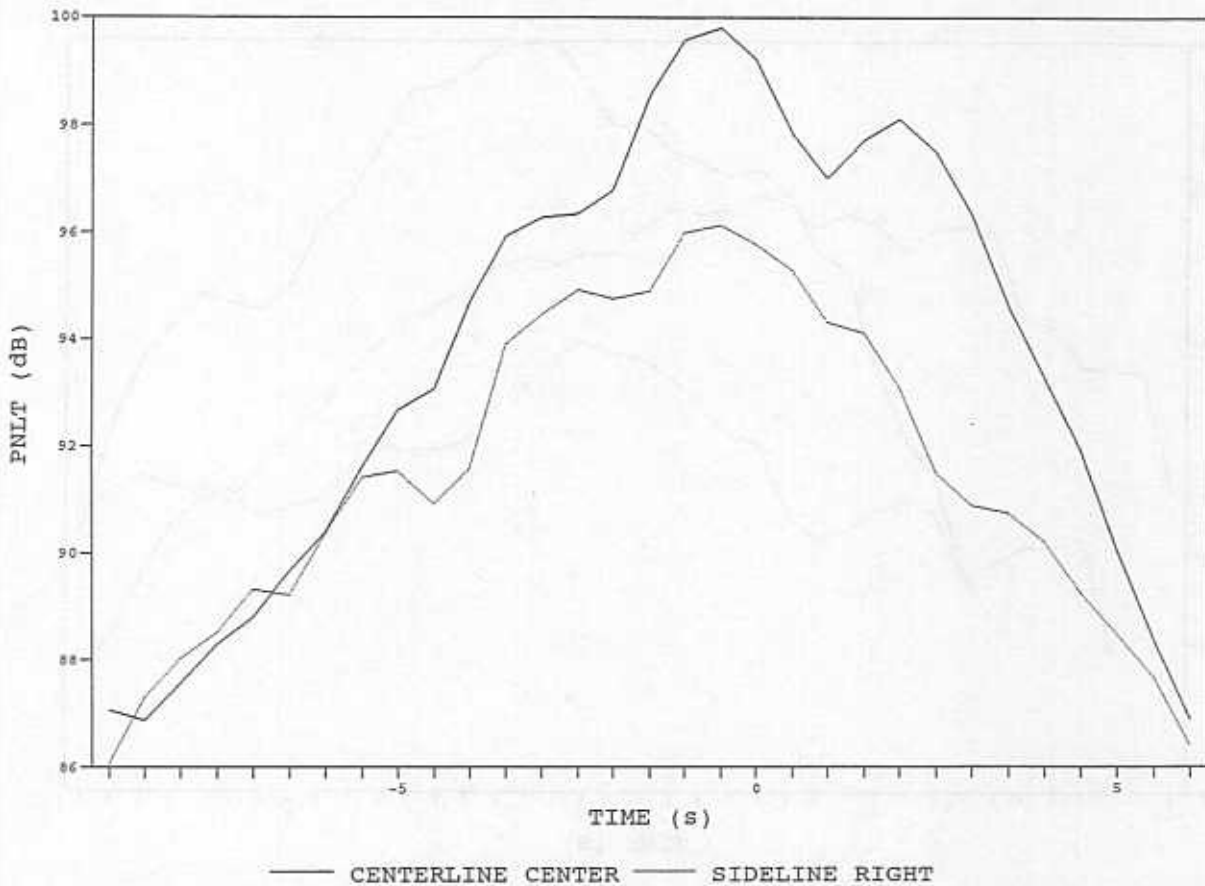


Figure F-4

AEROSPATIALE SA365N DAUPHIN 2

Run #:	E29	Profile Type:	Takeoff
Test Grnd Spd (m/s)	38.20	Blade Tip Mach #:	0.6404
OH Altitude (m):	103.97		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	17.50	13.00	18.50
EPNL (dB):	88.48	97.37	94.51
EPNLc (dB):	87.90	96.12	93.40
PNLTm (dB):	90.02	99.90	94.90
PNLTmc (dB):	89.14	97.73	93.65

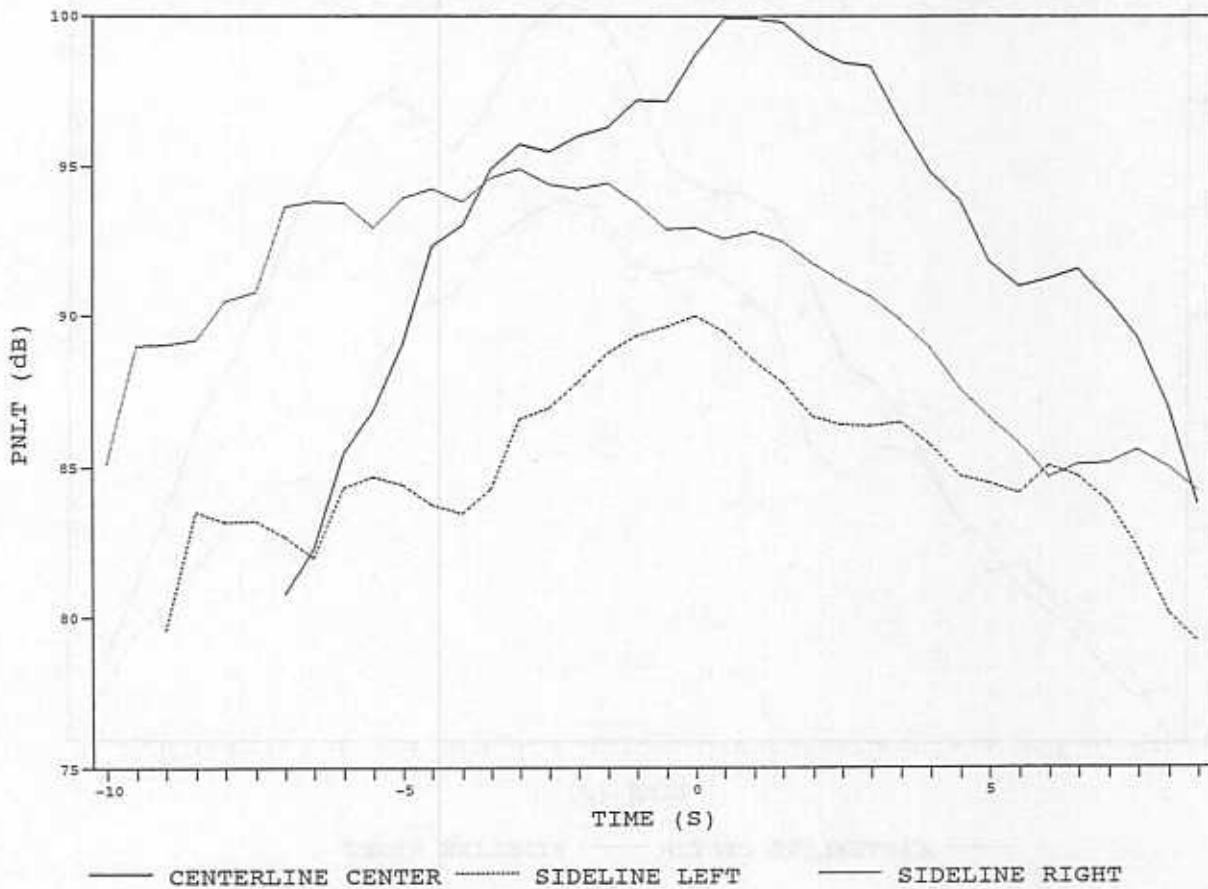


Figure F-5

BOEING VERTOL 234/CH47-D

Run#: A4 Profile Type: 150 m Level Flyover
Test Grnd Spd (m/s): 69.40 Blade Tip Mach #: 0.6255
OH Altitude (m): 157.55

	Sideline Left	Centerline Center	Sideline Right
10 dB Down Dur (s):	17.50	16.00	17.50
EPNL (dB):	92.39	92.89	92.36
EPNLc (dB):	92.59	93.22	92.59
PNLTm (dB):	93.54	95.00	93.48
PNLTmc (dB):	93.86	95.51	93.81

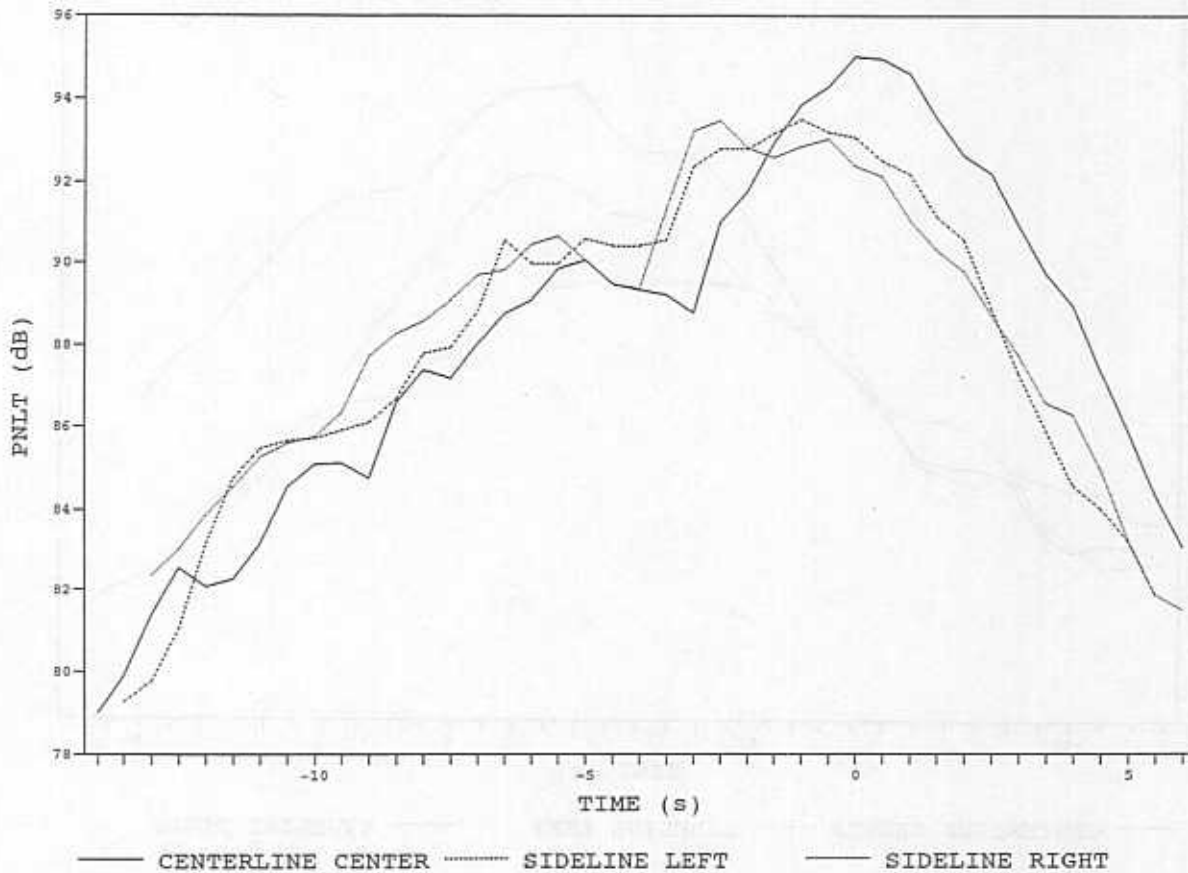


Figure F-6

BOEING VERTOL 234/CH47-D

Run #:	H32	Profile Type:	Approach
Test Grnd Spd (m/s):	40.80	Blade Tip Mach #:	0.6217
OH Altitude (m):	126.78		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	14.00	10.50	10.00
EPNL (dB):	96.37	102.31	98.68
EPNLc (dB):	96.38	102.51	98.65
PNLTm (dB):	97.73	105.51	101.97
PNLTmc (dB):	98.11	106.28	102.37

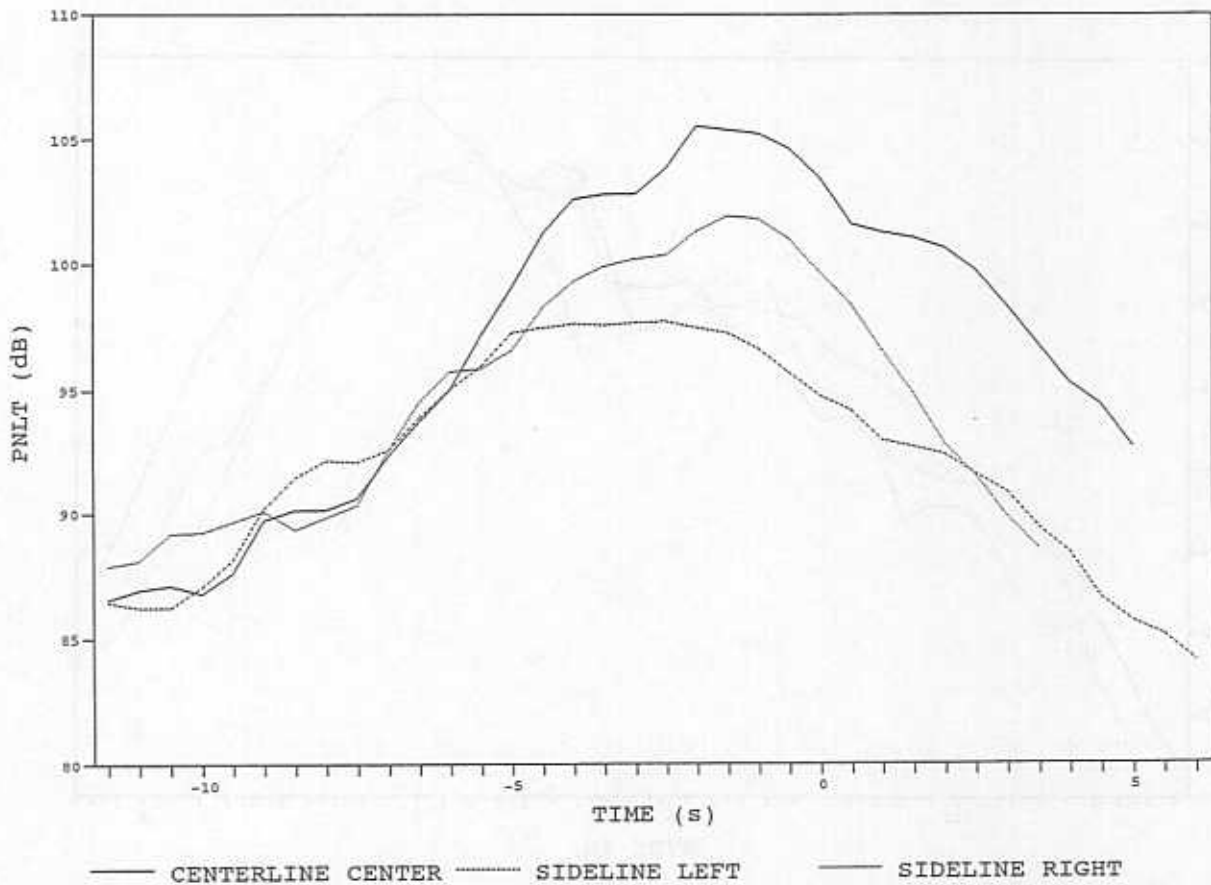


Figure F-7

BOEING VERTOL 234/CH47D

Run #:	G44	Profile Type:	Takeoff
Test Grnd Spd (m/s):	40.70	Blade Tip Mach #:	0.6272
OH Altitude (m):	77.33		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	11.00	8.50	15.00
EPNL (dB):	2.53	95.80	92.70
EPNLc (dB):	92.46	95.04	92.54
PNLTm (dB):	94.66	99.94	94.12
PNLTmc (dB):	94.80	98.99	94.13

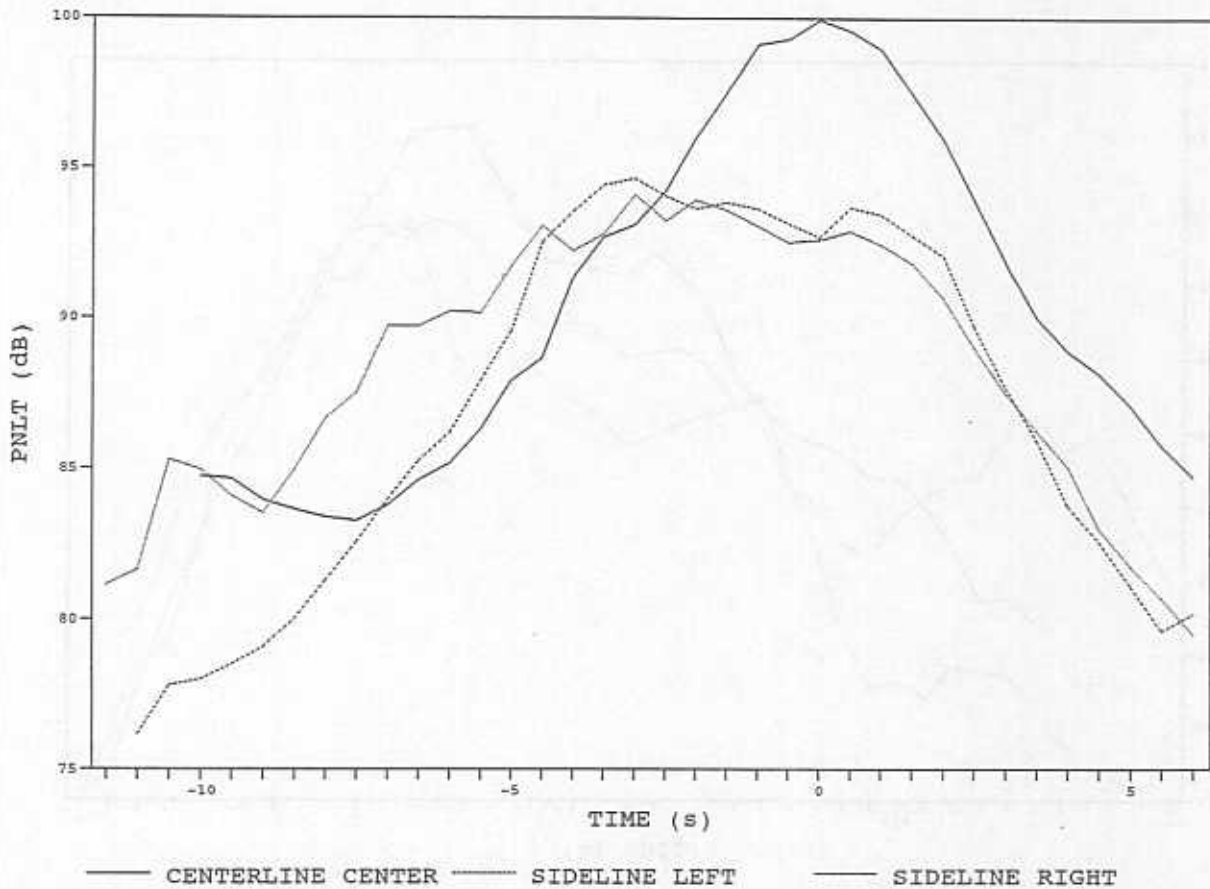


Figure F-8
BELL 222 TWIN JET

Run #:	C11	Profile Type:	150 m Level Flyover
Test Grnd Spd (m/s):	65.30	Blade Tip Mach#:	0.6350
OH Altitude (m):	137.62		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	19.50	13.50	12.50
EPNL (dB):	90.64	91.51	88.64
EPNLc (dB):	90.46	91.04	88.51
PNLTm (dB):	91.70	94.26	91.49
PNLTmc (dB):	91.33	93.41	91.20

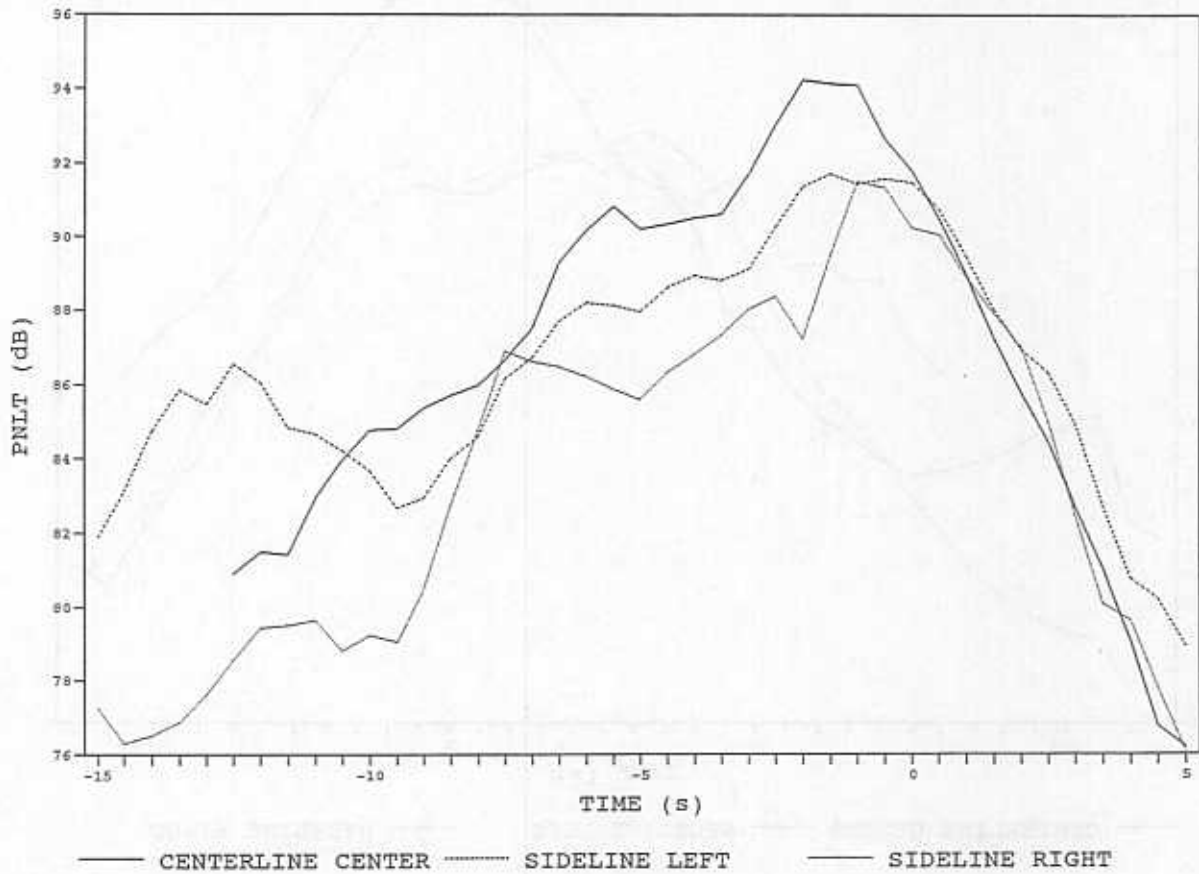


Figure F-9
BELL 222 TWIN JET

Run #: A2 Profile Type: 300 m Level Flyover
 Test Grnd Spd (m/s): 65.30 Blade Tip Mach #: 0.6363
 OH Altitude (m): 317.72

	Sideline Left	Centerline Center	Sideline Right
24.50	24.50	24.50	24.50
86.42	86.42	85.57	85.47
86.79	86.79	86.08	85.85
86.20	86.20	85.36	84.93

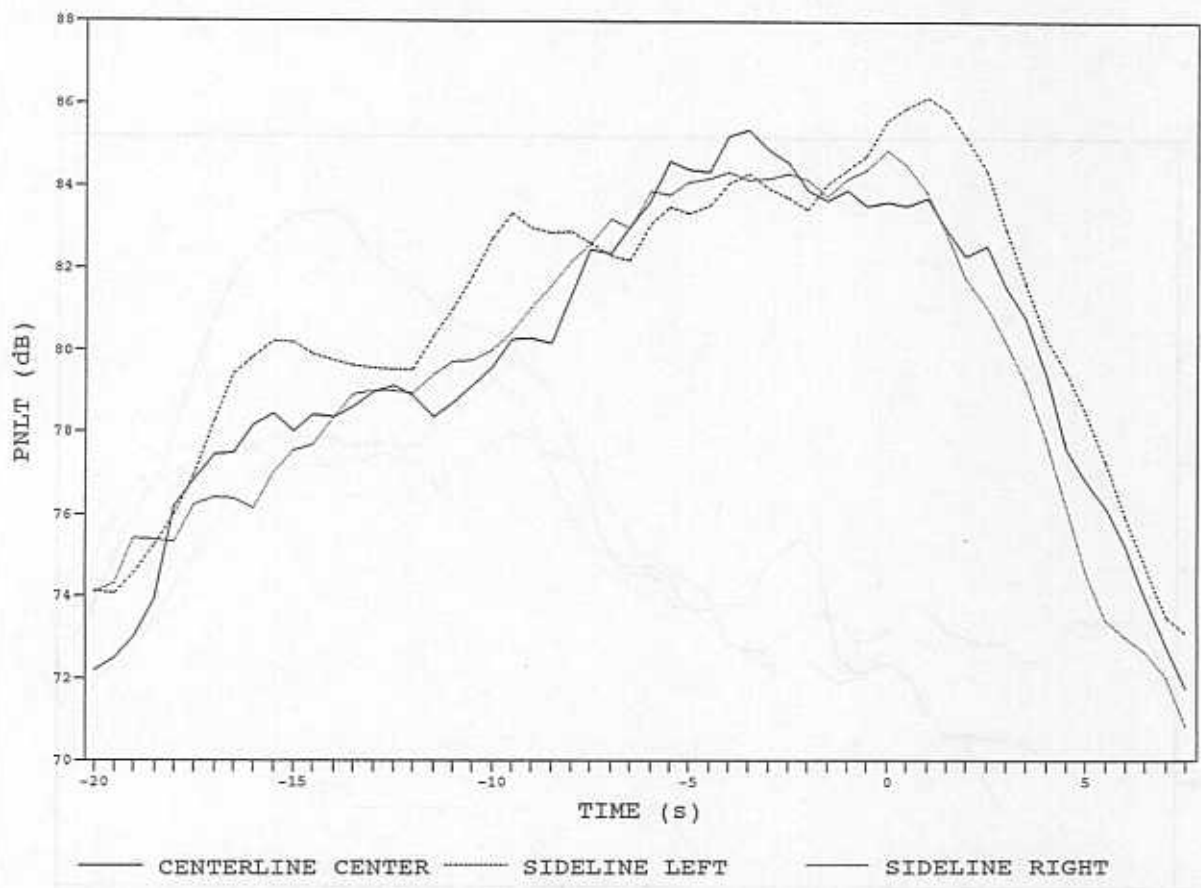


Figure F-10
BELL 222 TWIN JET

Run #:	L3	Profile Type:	Approach
Test Grnd Spd (kts):	33.30	Blade Tip Mach #:	0.6381
OH Altitude (M):	107.56		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	16.00	11.00	28.00
EPNL (dB):	92.18	98.71	91.39
EPNLc (dB):	91.80	98.17	91.22
PNLTm (dB):	93.81	101.50	91.22
PNLTmc (dB):	93.24	100.48	90.91

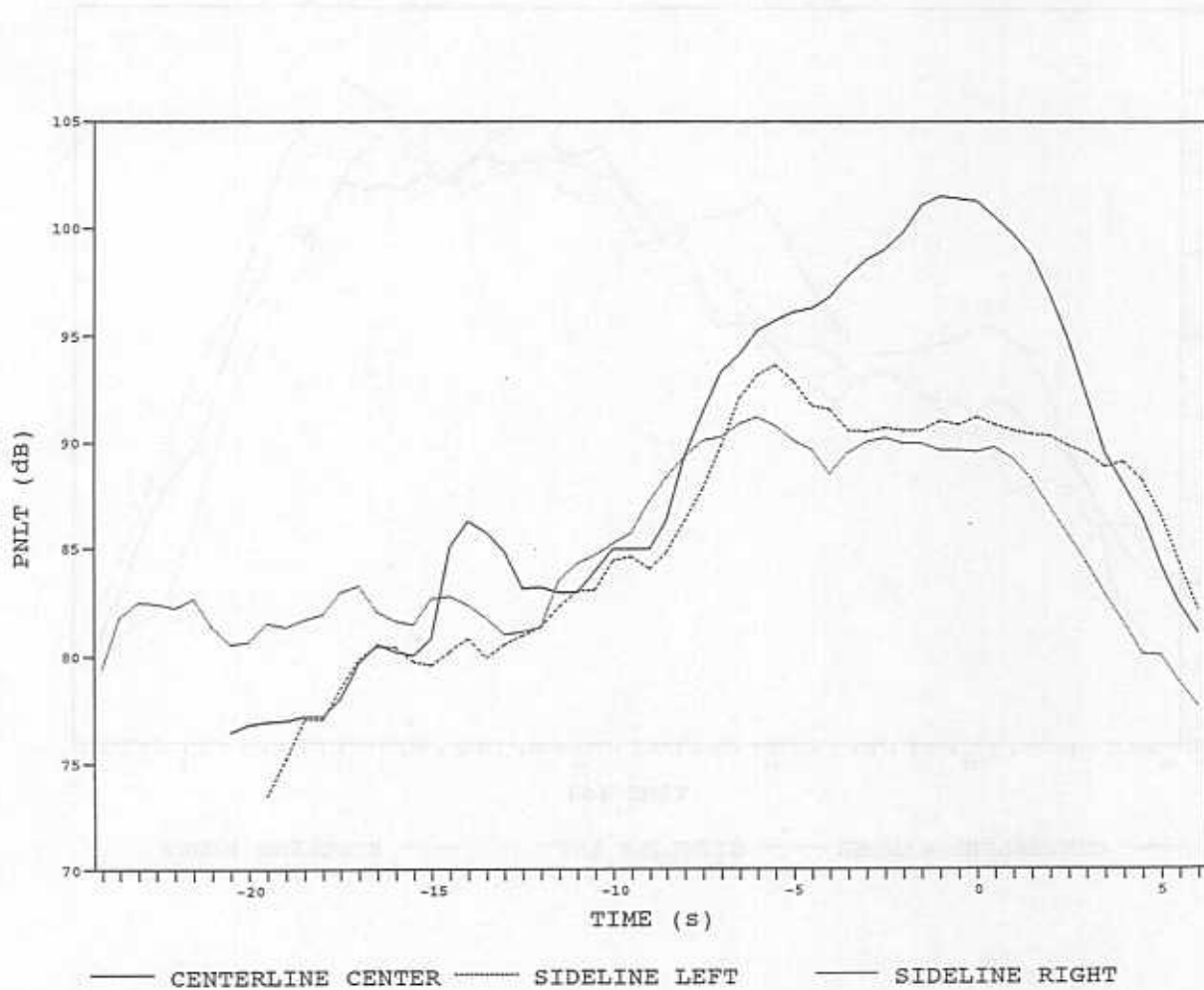


Figure F-11
BELL 222 TWIN JET

Run #:	K21	Profile Type:	Takeoff
Test Grnd Spd (m/s):	32.50	Blade Tip Mach #:	0.6368
OH Altitude (m):	188.52		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	19.00	17.50	24.50
EPNL (dB):	86.06	88.95	87.85
EPNLc (dB):	87.14	90.59	88.76
PNLTm (dB):	86.88	90.70	88.55
PNLTmc (dB):	88.62	93.47	90.05

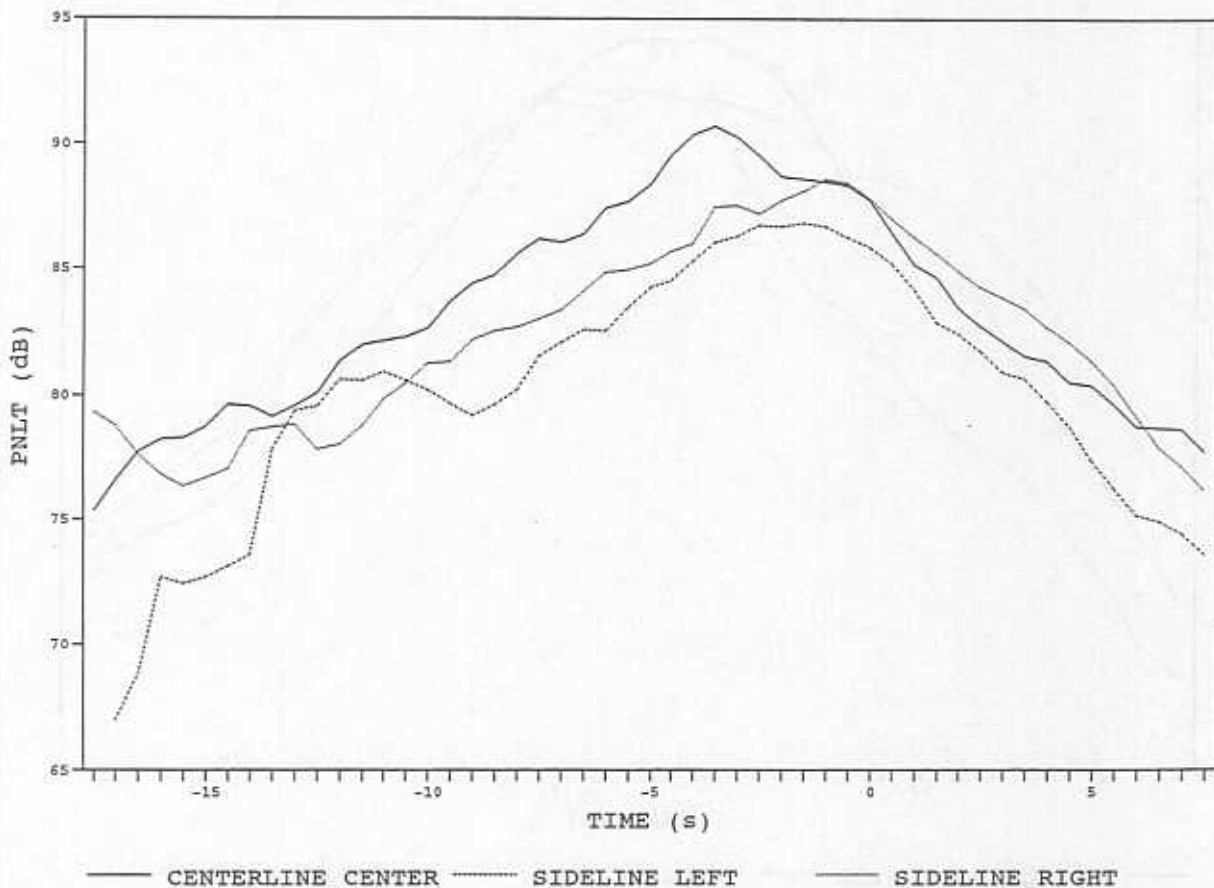


Figure F-12
SIKORSKY S76A

Run #:	B8	Profile Type:	150 m Level Flyover
Test Grnd Spd (m/s):	61.70	Blade Tip Mach #:	0.5969
OH Altitude (m):	140.48		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	9.50	9.00	12.00
EPNL (dB):	89.30	90.96	90.87
EPNLc (dB):	88.67	89.92	90.10
PNLTm (dB):	92.65	94.40	92.73
PNLTmc (dB):	92.24	93.42	92.16

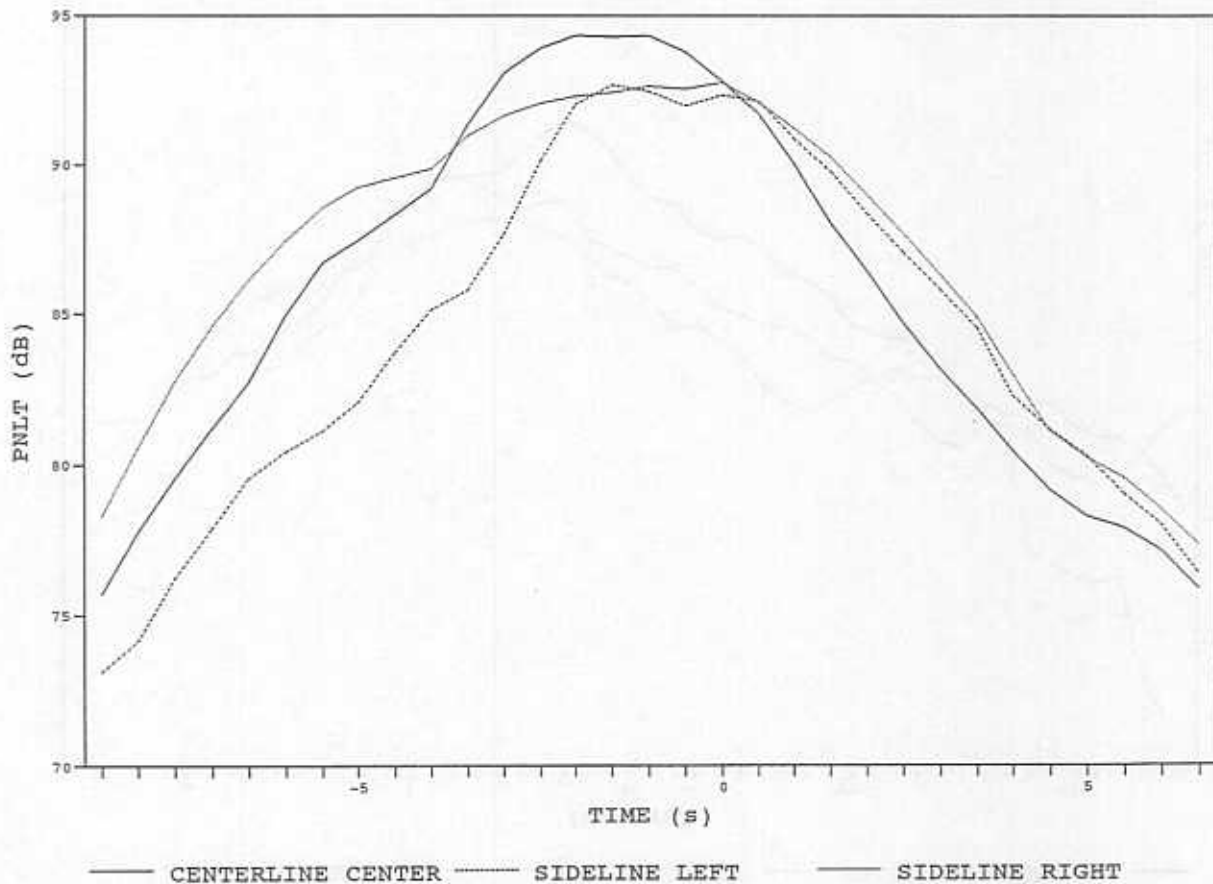


Figure D-13
SIKORSKY S76A

Run #:	E26	Profile Type:	300 m Level Flyover
Test Grnd Spd (m/s):	74.60	Blade Tip Mach #:	0.5950
OH Altitude (m):	323.55		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	17.00	18.00	14.50
EPNL (dB):	86.31	85.92	87.80
EPNLc (dB):	86.68	86.45	88.18
PNLTm (dB):	86.87	86.30	88.83
PNLTmc (dB):	87.50	87.16	89.49

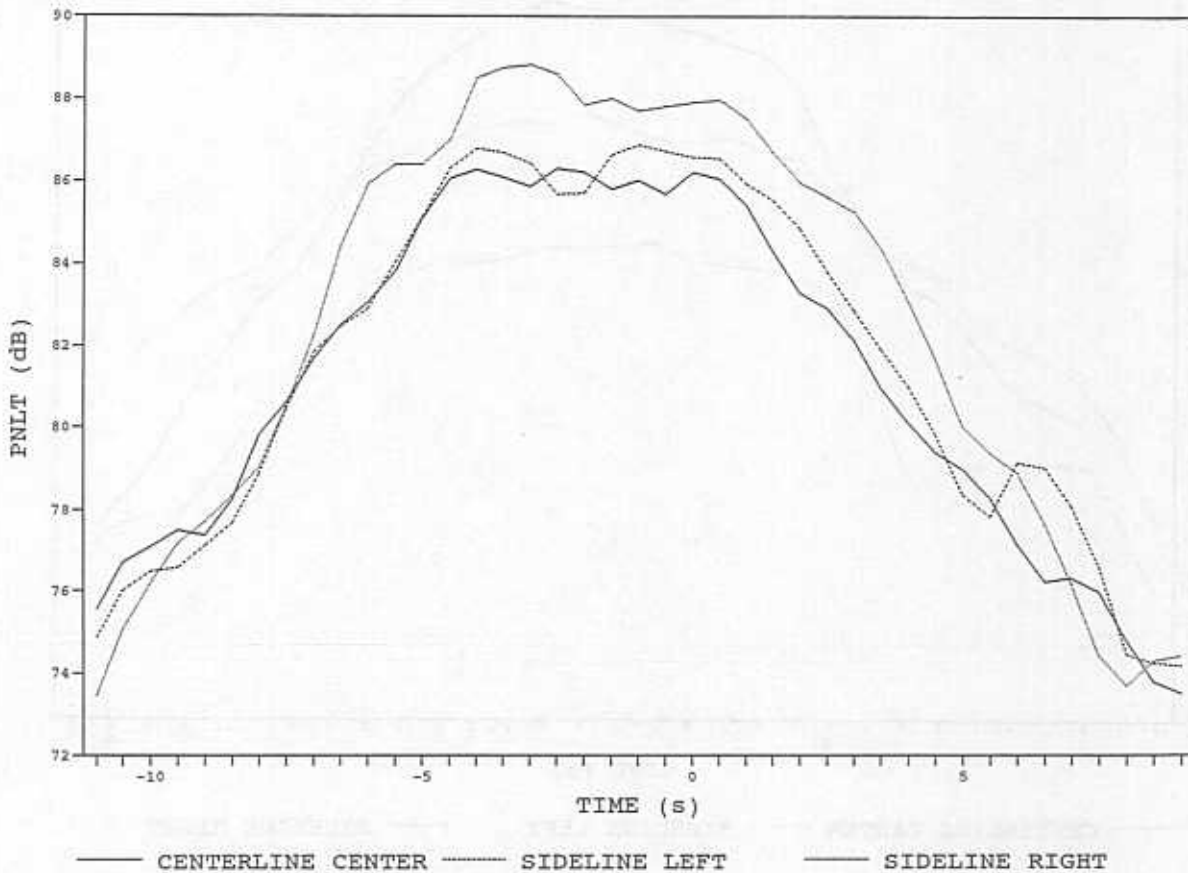


Figure F-14
SIKORSKY S76A

Run #:	155	Profile Type:	Approach
Test Grnd Spd (m/s):	38.40	Blade Tip Mach #:	0.5942
OH Altitude (m):	110.40		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	14.50	10.00	14.50
EPNL (dB):	93.99	96.19	89.74
EPNLc (dB):	93.72	95.84	89.70
PNLTm (dB):	95.47	98.93	90.95
PNLTmc (dB):	95.00	98.16	90.75

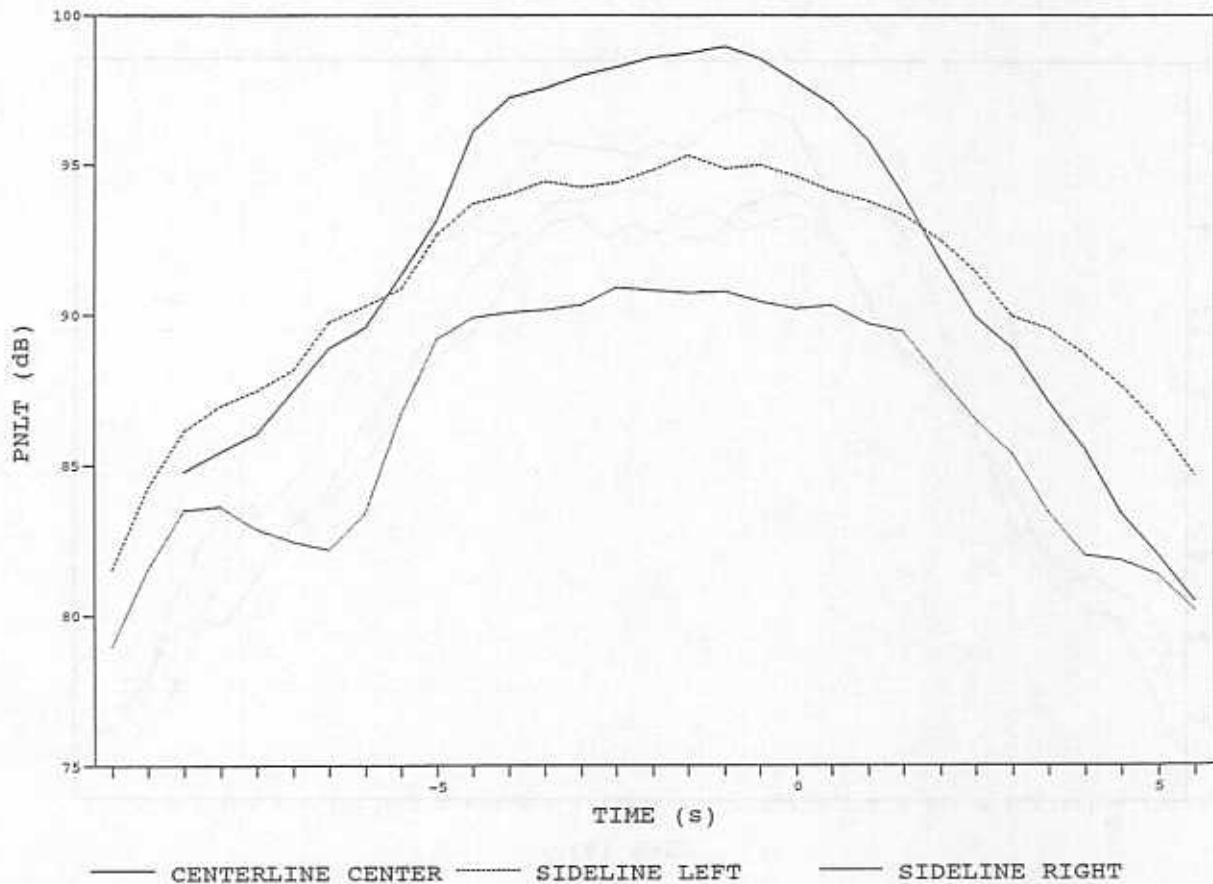


Figure F-15
SIKORSKY S76A

Run #:	F31	Profile Type:	Takeoff
Test Grnd Spd (m/s):	39.20	Blade Tip Mach #:	0.5968
OH Altitude (m):	137.07		

	<u>Sideline Left</u>	<u>Centerline Center</u>	<u>Sideline Right</u>
10 dB Down Dur (s):	13.00	10.50	15.00
EPNL (dB):	90.06	91.16	91.97
EPNLc (dB):	90.71	92.58	92.55
PNLTm (dB):	91.69	94.23	93.36
PNLTmc (dB):	92.53	96.26	94.07

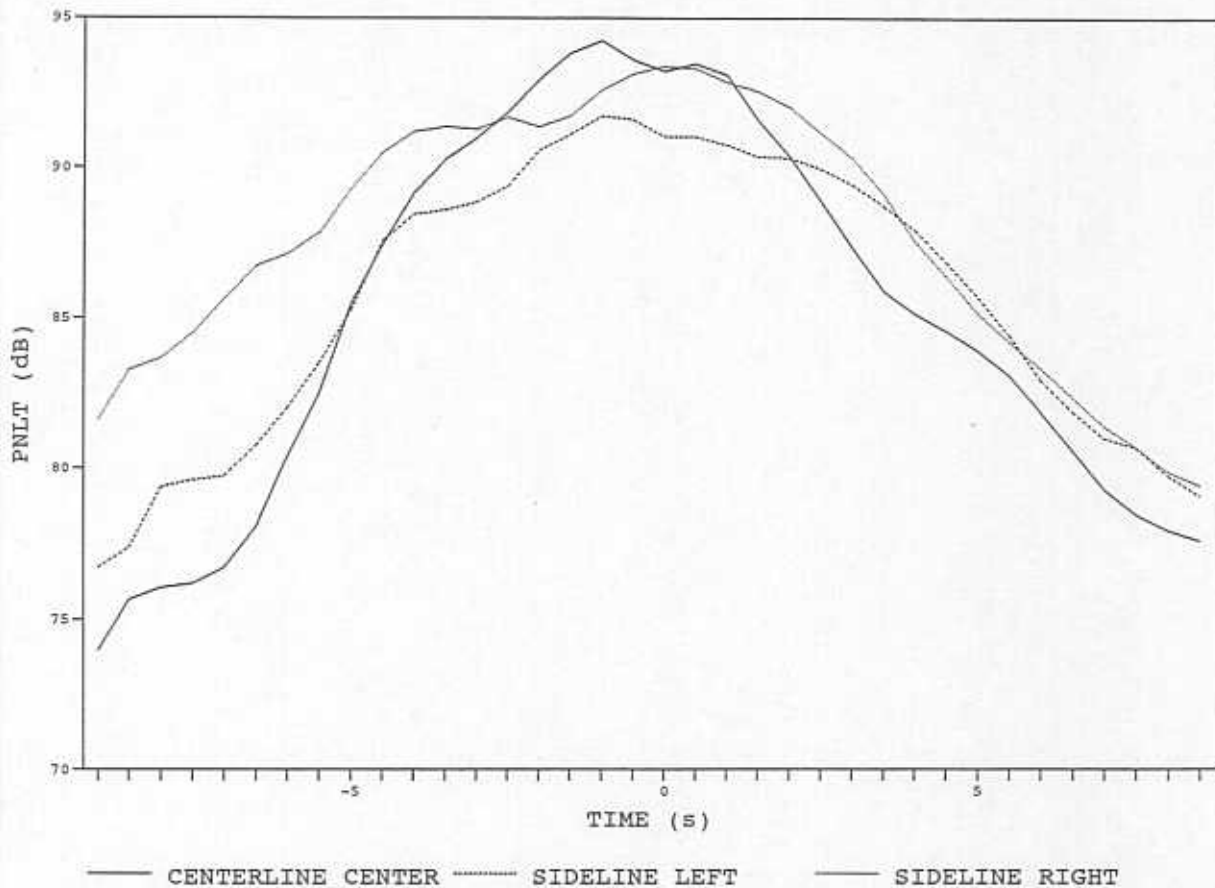


Figure 10
 Hydrograph

Time (hr)	Flow (cfs)	Stage (ft)	Time (hr)	Flow (cfs)	Stage (ft)
0	0	0	12	100	10.0
1	10	1.0	13	200	11.0
2	20	2.0	14	300	12.0
3	30	3.0	15	400	13.0
4	40	4.0	16	500	14.0
5	50	5.0	17	600	15.0
6	60	6.0	18	700	16.0
7	70	7.0	19	800	17.0
8	80	8.0	20	900	18.0
9	90	9.0	21	1000	19.0
10	100	10.0	22	900	18.0
11	80	8.0	23	700	16.0
12	60	6.0	24	500	14.0
13	40	4.0	25	300	12.0
14	20	2.0	26	100	10.0
15	10	1.0	27	50	9.0
16	5	0.5	28	20	8.0
17	2	0.2	29	10	7.5
18	1	0.1	30	5	7.0

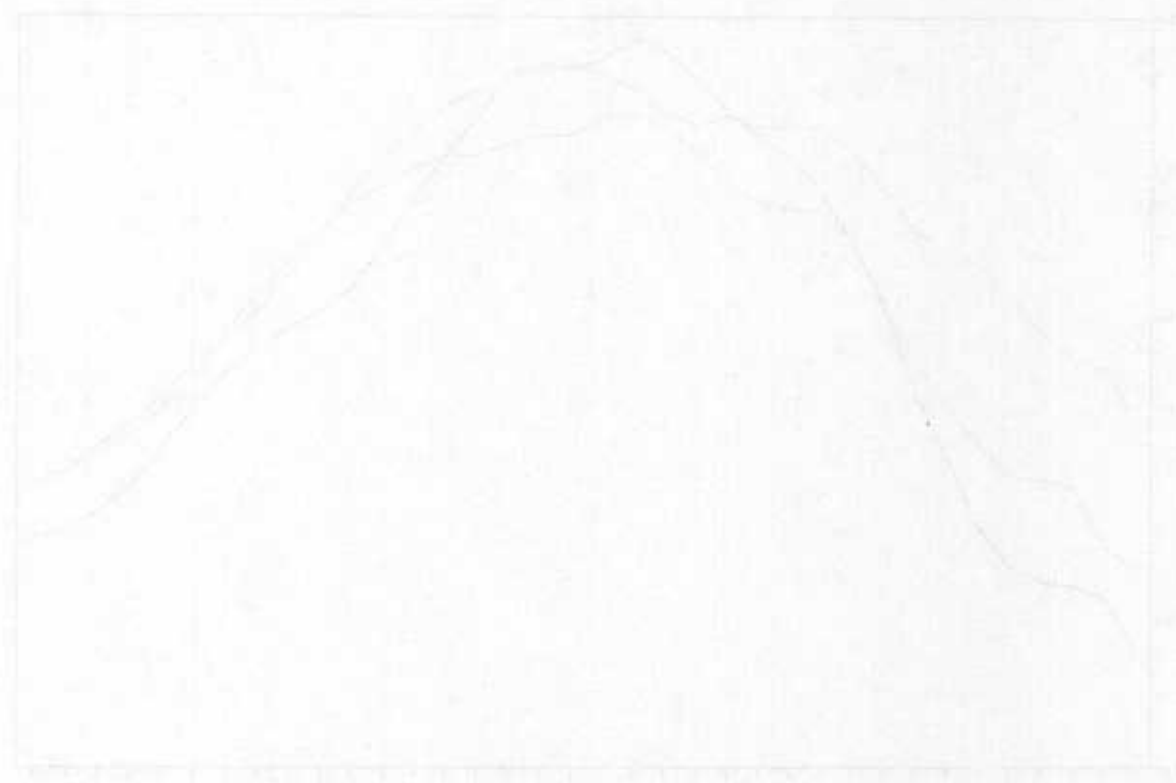


Figure 10. Hydrograph showing flow rate (cfs) versus time (hr) and stage (ft).

APPENDIX G
SAMPLE ONE-THIRD OCTAVE-BAND SPECTRA

1. *Introduction*
2. *Methodology*
3. *Results*
4. *Discussion*
5. *Conclusion*

Table G-1
 Aerospatiale SA365N Dauphin 2
 Sample Corrected One-Third Octave Band Levels AT PNLT,
 'Three-Point' Position Determination

500 ft Level Flyover - Event A6

Centerline Center										
84.25	67.35	64.05	68.15	56.05	53.74	63.24	67.04	68.64	63.63	67.93
69.22	65.31	63.10	63.08	63.16	69.94	67.61	64.48	69.63	69.28	67.40
65.01	61.78	57.28	52.85	48.44	.00	78.18	85.19	85.68	91.43	92.93
Sideline Left										
93.70	80.50	66.60	75.29	66.99	65.89	55.38	62.78	69.07	71.57	67.96
66.64	69.43	64.01	64.68	66.35	68.41	70.96	66.19	66.42	69.52	65.79
64.63	59.47	53.48	47.63	39.29	.00	78.29	85.16	94.16	91.61	92.84
Sideline Right										
87.86	72.26	64.06	82.95	71.45	68.74	57.74	57.34	63.73	68.62	67.81
63.10	66.08	62.26	62.33	60.50	64.76	69.11	62.64	63.96	66.96	62.93
61.96	58.60	54.84	47.92	40.12	.00	75.66	82.61	89.55	89.53	91.33

1000 ft Level Flyover - Event D24

Sideline Left										
83.51	67.51	60.31	64.80	53.99	54.99	59.68	63.38	64.97	61.46	61.45
65.43	60.21	60.49	58.65	61.01	64.16	65.70	58.32	60.12	61.99	57.63
54.61	49.12	41.22	32.17	25.49	.00	72.08	77.70	84.18	84.29	85.77
Sideline Right										
85.35	65.95	62.65	77.04	62.24	53.93	55.23	61.82	63.42	64.71	60.09
64.18	60.76	61.04	59.41	59.37	63.12	64.96	57.98	59.18	59.76	56.71
53.70	50.12	43.63	34.90	23.14	.00	71.24	77.12	86.28	83.49	84.97

Approach - Event F50

Centerline Center										
89.03	68.43	63.13	73.52	55.92	63.82	77.82	79.42	89.51	83.41	83.80
84.20	76.69	77.68	75.57	72.85	71.33	69.60	69.57	69.03	65.77	65.60
61.41	57.75	54.32	52.06	53.35	.00	84.68	90.82	94.48	97.77	99.12
Sideline Right										
89.36	65.06	68.76	81.76	67.35	67.55	63.95	70.15	77.04	78.44	79.74
69.33	73.62	72.91	69.50	70.88	73.16	71.63	69.00	70.85	68.70	68.83
66.14	63.27	59.70	56.44	49.98	.00	81.72	87.82	91.50	94.79	95.77

Takeoff - Event E29

Centerline Center										
70.99	56.69	59.59	67.38	51.37	51.27	59.17	64.06	66.05	62.44	69.53
70.32	66.00	63.98	64.06	66.02	78.68	70.33	67.45	74.26	70.75	70.61
67.81	65.51	62.00	57.85	54.58	.00	82.67	88.45	83.30	94.21	97.73
Sideline Left										
83.31	57.91	67.41	77.79	65.19	64.99	53.88	56.98	64.77	69.56	72.85
67.03	63.71	66.99	62.66	59.82	68.57	64.21	62.43	63.43	60.51	59.76
58.74	55.33	53.41	48.72	43.91	.00	74.71	80.35	85.46	86.94	89.14
Sideline Right										
89.26	69.36	61.76	79.45	64.84	70.74	66.93	61.22	54.91	63.30	70.29
70.87	65.34	60.71	63.67	61.12	68.66	73.18	63.38	66.45	69.70	63.30
61.65	57.53	53.39	47.60	40.77	.00	78.25	84.28	90.19	91.10	93.65

Table G-2
Aerospatiale SA365N Dauphin 2
Sample Corrected One-Third Octave Band Levels AT PNLT,
'Two-Point' Position Determination

500 ft Level Flyover - Event A6

Centerline Center										
84.25	67.35	64.05	68.14	56.04	53.74	63.24	67.03	68.63	63.62	67.92
69.21	65.30	63.09	63.08	63.16	69.94	67.61	64.47	69.62	69.27	67.40
65.00	61.77	57.26	52.83	48.42	.00	78.17	85.18	85.67	91.42	92.92
Sideline Left										
93.70	80.50	66.60	75.29	66.99	65.88	55.38	62.78	69.07	71.56	67.95
66.64	69.42	64.00	64.68	66.35	68.41	70.96	66.19	66.41	69.52	65.79
64.62	59.46	53.47	47.63	39.28	.00	78.29	85.16	94.15	91.60	92.84
Sideline Right										
87.86	72.26	64.06	82.95	71.44	68.74	57.74	57.33	63.72	68.62	67.81
63.09	66.08	62.26	62.33	60.50	64.76	69.11	62.64	63.96	66.95	62.92
61.95	58.60	54.83	47.91	40.11	.00	75.66	82.61	89.55	89.52	91.32

1000 ft Level Flyover - Event D24

Sideline Left										
83.52	67.52	60.32	64.80	54.00	55.00	59.69	63.38	64.98	61.47	61.45
65.44	60.22	60.49	58.66	61.02	64.17	65.71	58.33	60.13	62.00	57.64
54.63	49.14	41.24	32.19	25.51	.00	72.09	77.71	84.19	84.30	85.78
Sideline Right										
85.36	65.96	62.66	77.05	62.25	53.94	55.24	61.83	63.42	64.71	60.10
64.19	60.77	61.04	59.41	59.37	63.13	64.97	57.99	59.19	59.77	56.72
53.71	50.13	43.65	34.92	23.17	.00	71.25	77.13	86.29	83.50	84.98

Approach - Event F50

Centerline Center										
88.84	68.24	62.94	73.34	55.73	63.63	77.63	79.23	89.32	83.22	83.61
84.01	76.50	77.48	75.37	72.65	71.13	69.40	69.36	68.81	65.55	65.37
61.16	57.49	54.04	51.75	52.99	.00	84.48	90.63	94.29	97.57	98.92
Sideline Right										
89.30	65.00	68.70	81.69	67.29	67.49	63.88	70.08	76.98	78.37	79.67
69.26	73.55	72.84	69.43	70.81	73.08	71.56	68.92	70.77	68.61	68.74
66.04	63.17	59.58	56.30	49.82	.00	81.64	87.74	91.43	94.70	95.68

Takeoff - Event E29

Centerline Center										
70.65	56.35	59.25	67.04	51.03	50.93	58.83	63.72	65.71	62.10	69.19
69.98	65.66	63.63	63.70	65.67	78.32	69.96	67.08	73.88	70.36	70.20
67.38	65.07	61.52	57.31	53.97	.00	82.29	88.05	82.93	93.82	97.30
Sideline Left										
83.20	57.80	67.30	77.69	65.08	64.88	53.78	56.87	64.66	69.45	72.74
66.92	63.60	66.88	62.55	59.70	68.45	64.09	62.30	63.30	60.38	59.62
58.59	55.17	53.23	48.52	43.67	.00	74.59	80.23	85.35	86.81	89.01
Sideline Right										
89.16	69.26	61.66	79.34	64.74	70.63	66.83	61.12	54.81	63.20	70.18
70.76	65.23	60.60	63.56	61.01	68.55	73.07	63.26	66.33	69.57	63.16
61.49	57.36	53.19	47.35	40.44	.00	78.13	84.15	90.09	90.97	93.53

Table G-3
 Aérospatiale SA365N Dauphin 2
 Sample Corrected One-Third Octave Band Levels AT PNLT,
 'One-Point' Position Determination

500 ft Level Flyover - Event A6

Centerline Center										
84.25	67.35	64.05	68.15	56.05	53.75	63.24	67.04	68.64	63.63	67.93
69.22	65.31	63.10	63.08	63.16	69.94	67.61	64.48	69.63	69.28	67.40
65.01	61.78	57.28	52.85	48.44	.00	78.18	85.19	85.68	91.43	92.93
Sideline Left										
93.70	80.50	66.60	75.29	66.99	65.89	55.38	62.78	69.07	71.57	67.96
66.64	69.43	64.01	64.68	66.35	68.41	70.96	66.19	66.42	69.52	65.79
64.63	59.47	53.48	47.63	39.29	.00	78.29	85.16	94.16	91.61	92.84
Sideline Right										
87.86	72.26	64.06	82.95	71.45	68.74	57.74	57.34	63.73	68.62	67.81
63.10	66.08	62.26	62.33	60.50	64.76	69.11	62.64	63.96	66.96	62.93
61.96	58.60	54.83	47.92	40.12	.00	75.66	82.61	89.55	89.52	91.32

1000 ft Level Flyover - Event D24

Sideline Left										
83.50	67.50	60.30	64.79	53.99	54.98	59.68	63.37	64.96	61.45	61.44
65.42	60.20	60.48	58.65	61.00	64.16	65.69	58.31	60.11	61.98	57.62
54.60	49.11	41.20	32.15	25.46	.00	72.07	77.69	84.17	84.28	85.76
Sideline Right										
85.35	65.95	62.65	77.03	62.23	53.93	55.22	61.82	63.41	64.70	60.09
64.17	60.75	61.03	59.40	59.36	63.11	64.95	57.97	59.17	59.75	56.69
53.69	50.10	43.61	34.88	23.11	.00	71.23	77.11	86.27	83.48	84.96

Approach - Event F50

Centerline Center										
89.07	68.47	63.17	73.56	55.96	63.86	77.86	79.46	89.55	83.45	83.84
84.24	76.73	77.72	75.61	72.89	71.37	69.65	69.61	69.07	65.82	65.65
61.47	57.81	54.38	52.13	53.43	.00	84.72	90.87	94.52	97.82	99.17
Sideline Right										
89.38	65.08	68.78	81.77	67.37	67.57	63.97	70.16	77.06	78.46	79.75
69.34	73.63	72.92	69.51	70.89	73.17	71.65	69.01	70.87	68.72	68.85
66.16	63.30	59.72	56.47	50.02	.00	81.74	87.84	91.51	94.81	95.78

Takeoff - Event E29

Centerline Center										
70.72	55.92	60.22	65.01	51.81	50.80	58.80	64.09	66.69	63.08	69.27
70.75	66.83	66.81	64.58	66.64	78.09	69.64	67.75	75.06	70.64	70.99
68.43	66.08	62.42	58.21	55.28	.00	82.71	88.78	83.30	94.72	98.05
Sideline Left										
83.41	58.01	67.51	77.90	65.30	65.10	53.99	57.09	64.88	69.67	72.96
67.14	63.83	67.10	62.77	59.94	68.69	64.33	62.56	63.56	60.65	59.91
58.90	55.49	53.59	48.92	44.16	.00	74.84	80.48	85.57	87.07	89.27
Sideline Right										
89.37	69.47	61.87	79.56	64.95	70.85	67.04	61.34	55.03	63.42	70.40
70.98	65.46	60.83	63.80	61.25	68.79	73.32	63.52	66.61	69.87	63.49
61.85	57.73	53.61	47.84	41.05	.00	78.40	84.43	90.30	91.26	93.81

Table G-4
Boeing Vertol 234/CH47-D
Sample Corrected One-Third Octave Band Levels AT PNL_T,
'Three-Point' Position Determination

500 ft Level Flyover - Event A4

Centerline Center										
89.43	85.53	91.03	85.83	81.43	78.73	84.03	85.83	83.53	76.63	71.73
71.43	69.94	69.54	68.84	69.34	69.14	69.95	68.75	67.96	66.77	64.38
63.07	60.29	57.77	56.42	53.08	.00	80.21	87.93	96.14	95.36	95.51

Sideline Left										
97.85	84.25	89.85	79.75	85.15	84.25	74.95	74.35	79.05	78.95	73.65
69.45	73.55	67.95	68.65	67.35	66.54	66.64	64.34	65.44	63.74	61.93
60.75	58.51	57.75	60.52	52.35	.00	78.19	86.53	99.21	92.90	93.81

Sideline Right										
93.99	81.69	90.29	90.49	85.09	77.79	69.49	68.69	72.29	73.39	73.19
69.29	65.19	69.98	64.78	64.98	65.17	63.87	64.86	63.25	62.54	60.83
58.88	56.99	53.41	54.54	50.28	.00	75.96	84.98	97.28	92.14	93.81

Approach - Event H32

Centerline Center										
93.71	80.91	88.71	90.22	84.02	82.52	81.02	92.13	96.33	96.84	90.74
87.75	87.26	82.08	81.79	78.72	77.14	74.58	72.52	70.98	69.15	66.93
64.40	62.34	59.85	58.97	50.99	.00	91.73	98.49	102.65	105.70	106.28

Sideline Left										
96.12	81.62	87.62	89.93	83.33	83.33	77.73	73.74	75.44	84.64	85.15
81.46	72.37	73.48	68.10	68.22	65.64	64.37	64.21	63.26	61.32	59.80
59.31	57.31	57.88	61.87	44.48	.00	81.79	89.07	98.56	96.33	98.11

Sideline Right										
95.01	82.31	86.11	82.92	84.92	86.12	81.12	78.33	87.13	88.74	88.94
87.25	80.06	84.17	78.69	77.51	74.43	72.57	70.11	67.76	65.42	62.00
60.30	58.07	56.58	58.16	46.93	.00	88.12	93.73	99.03	100.77	102.37

Takeoff - Event G44

Centerline Center										
88.57	90.27	91.07	84.17	79.76	77.26	79.06	81.76	81.86	74.36	76.06
76.36	75.86	73.96	74.45	75.25	74.15	73.74	73.03	73.32	71.51	70.39
70.02	67.87	67.83	68.67	67.53	.00	84.40	90.90	96.27	98.36	98.99

Sideline Left										
92.66	79.86	87.56	81.67	84.07	83.57	78.87	75.27	71.98	66.08	65.78
69.39	68.79	69.10	65.51	65.92	66.14	71.45	67.28	68.11	66.74	65.08
64.27	62.57	61.58	63.08	56.56	.00	78.70	86.15	95.26	93.20	94.80

Sideline Right										
95.28	78.98	85.48	81.38	81.98	78.48	74.88	73.18	71.59	63.49	62.39
66.00	68.70	69.71	65.01	63.72	69.04	67.25	69.97	67.19	66.52	67.05
65.23	63.92	60.02	63.10	56.15	.00	78.51	86.13	96.35	92.96	94.13

Table G-5
Boeing Vertol 234/CH47-D
Sample Corrected One-Third Octave Band Levels AT PNLTA
'Two-Point' Position Determination

500 ft Level Flyover - Event A4

Centerline Center										
89.45	85.55	91.05	85.85	81.45	78.75	84.05	85.85	83.55	76.65	71.76
71.46	69.96	69.56	68.86	69.36	69.17	69.97	68.78	67.99	66.80	64.41
63.11	60.33	57.81	56.46	53.14	.00	80.24	87.95	96.16	95.38	95.53

Sideline Left										
97.86	84.26	89.86	79.76	85.16	84.26	74.96	74.36	79.06	78.96	73.66
69.46	73.56	67.96	68.66	67.36	66.56	66.66	64.36	65.46	63.75	61.95
60.77	58.53	57.78	60.56	52.39	.00	78.20	86.55	99.22	92.91	93.83

Sideline Right										
94.01	81.71	90.31	90.50	85.10	77.80	69.50	68.70	72.30	73.40	73.20
69.30	65.20	70.00	64.79	64.99	65.19	63.88	64.88	63.27	62.56	60.85
58.90	57.02	53.44	54.59	50.33	.00	75.97	84.99	97.29	92.16	93.83

Approach - Event H32

Centerline Center										
93.58	80.78	88.58	90.09	83.89	82.39	80.89	91.99	96.20	96.70	90.61
87.62	87.13	81.94	81.65	78.57	77.00	74.42	72.37	70.81	68.98	66.75
64.21	62.13	59.63	58.71	50.68	.00	91.59	98.36	102.52	105.55	106.13

Sideline Left										
96.07	81.57	87.57	89.87	83.27	83.28	77.68	73.68	75.38	84.59	85.09
81.40	72.31	73.42	68.04	68.15	65.58	64.30	64.14	63.19	61.25	59.71
59.22	57.21	57.77	61.74	44.32	.00	81.73	89.01	98.50	96.26	98.04

Sideline Right										
94.96	82.26	86.06	82.87	84.87	86.07	81.07	78.28	87.08	88.69	88.89
87.20	80.01	84.12	78.64	77.45	74.38	72.51	70.05	67.70	65.36	61.93
60.21	57.98	56.48	58.04	46.77	.00	88.06	93.67	98.98	100.71	102.31

Takeoff - Event G44

Centerline Center										
88.34	90.04	90.84	83.94	79.54	77.04	78.84	81.54	81.64	74.13	75.83
76.13	75.63	73.73	74.22	75.02	73.91	73.50	72.79	73.08	71.26	70.13
69.75	67.58	67.52	68.33	67.14	.00	84.15	90.65	96.05	98.10	98.74

Sideline Left										
92.62	79.82	87.52	81.62	84.02	83.52	78.83	75.23	71.93	66.03	65.74
69.34	68.75	69.05	65.46	65.87	66.08	71.40	67.22	68.05	66.68	65.01
64.19	62.48	61.48	62.96	56.40	.00	78.64	86.09	95.21	93.14	94.72

Sideline Right										
95.23	78.93	85.43	81.34	81.94	78.44	74.84	73.14	71.54	63.44	62.35
65.95	68.65	69.66	64.97	63.68	68.99	67.20	69.92	67.14	66.46	66.99
65.16	63.84	59.93	62.98	56.00	.00	78.45	86.07	96.30	92.90	94.08

Table G-6
Boeing Vertol 234/CH47-D
Sample Corrected One-Third Octave Band Levels AT PNLTL
'One-Point' Position Determination

500 ft Level Flyover - Event A4

Centerline Center										
89.47	85.57	91.07	85.87	81.47	78.77	84.07	85.87	83.57	76.67	71.78
71.48	69.98	69.58	68.88	69.39	69.19	69.99	68.80	68.01	66.82	64.43
63.13	60.35	57.84	56.50	53.18	.00	80.26	87.97	96.18	95.40	95.55
Sideline Left										
97.87	84.27	89.87	79.77	85.17	84.27	74.97	74.37	79.07	78.97	73.67
69.47	73.57	67.97	68.67	67.37	66.57	66.67	64.37	65.47	63.77	61.97
60.78	58.55	57.79	60.57	52.40	.00	78.21	86.56	99.23	92.92	93.84
Sideline Right										
94.02	81.72	90.32	90.52	85.11	77.81	69.51	68.71	72.31	73.41	73.21
69.31	65.21	70.01	64.81	65.00	65.20	63.90	64.89	63.29	62.58	60.86
58.92	57.03	53.45	54.58	50.31	.00	75.99	85.00	97.30	92.17	93.84

Approach - Event H32

Centerline Center										
93.71	80.91	88.71	90.21	84.02	82.52	81.02	92.12	96.33	96.83	90.74
87.75	87.26	82.07	81.79	78.71	77.14	74.57	72.52	70.97	69.14	66.92
64.39	62.33	59.84	58.95	50.96	.00	91.72	98.49	102.65	105.69	106.27
Sideline Left										
96.12	81.62	87.62	89.93	83.33	83.33	77.73	73.73	75.44	84.64	85.15
81.46	72.37	73.48	68.09	68.21	65.64	64.37	64.21	63.26	61.32	59.79
59.31	57.30	57.87	61.85	44.46	.00	81.79	89.07	98.56	96.33	98.11
Sideline Right										
95.02	82.32	86.12	82.92	84.92	86.13	81.13	78.33	87.14	88.74	88.95
87.25	80.07	84.18	78.69	77.51	74.44	72.57	70.11	67.76	65.43	62.00
60.30	58.07	56.58	58.16	46.91	.00	88.12	93.73	99.04	100.77	102.37

Takeoff - Event G44

Centerline Center										
88.35	90.05	90.85	83.95	79.55	77.05	78.85	81.55	81.64	74.14	75.84
76.14	75.64	73.73	74.23	75.02	73.92	73.51	72.80	73.08	71.27	70.14
69.75	67.59	67.53	68.34	67.15	.00	84.16	90.65	96.06	98.11	98.74
Sideline Left										
92.62	79.82	87.52	81.62	84.02	83.53	78.83	75.23	71.93	66.03	65.74
69.34	68.75	69.05	65.46	65.87	66.09	71.40	67.23	68.05	66.68	65.02
64.20	62.49	61.50	62.99	56.46	.00	78.65	86.09	95.22	93.14	94.73
Sideline Right										
95.23	78.93	85.43	81.34	81.94	78.44	74.84	73.14	71.54	63.45	62.35
65.95	68.66	69.66	64.97	63.68	68.99	67.20	69.92	67.14	66.46	66.99
65.16	63.85	59.94	63.01	56.05	.00	78.45	86.07	96.30	92.90	94.09

Table G-7
 Bell 222 Twin Jet
 Sample Corrected One-Third Octave Band Levels AT PNLT,
 'Three-Point' Position Determination

500 ft Level Flyover - Event C11

Centerline Center										
88.85	81.05	87.85	80.34	80.24	78.54	68.94	72.54	77.34	81.04	77.64
74.94	73.33	69.53	68.73	66.72	65.82	65.81	65.90	65.98	64.26	62.43
59.89	55.87	51.93	47.06	40.84	.00	78.77	85.61	93.32	92.82	93.41

Sideline Left										
90.92	77.32	81.12	79.32	78.82	76.72	66.82	65.72	71.92	77.83	75.53
71.83	70.53	72.54	68.54	67.45	66.15	65.76	64.57	63.88	61.80	59.72
56.34	52.55	48.00	43.05	35.81	.00	77.45	83.49	92.60	90.33	91.33

Sideline Right										
86.47	78.27	85.77	78.28	74.68	69.98	65.58	65.98	70.38	75.78	73.38
69.69	67.69	74.20	70.50	68.41	66.82	66.42	63.34	63.15	61.17	59.40
55.33	51.64	50.20	45.28	36.59	.00	77.45	82.72	90.61	89.50	91.20

1000 ft Level Flyover - Event A2

Centerline Center										
82.49	69.79	78.79	69.21	69.01	67.61	57.92	63.73	68.54	75.25	68.46
65.48	66.50	60.93	62.77	60.71	59.07	58.94	59.14	58.46	56.30	54.29
50.85	45.20	38.98	33.85	26.12	.00	71.47	77.91	85.46	85.01	86.12

Sideline Left										
75.48	65.98	66.98	73.39	64.89	62.29	71.30	77.40	77.11	73.12	66.03
69.54	63.46	65.38	64.20	61.44	58.98	59.03	57.00	55.48	54.18	52.42
49.50	45.71	42.48	39.44	33.50	.00	72.28	78.97	83.75	85.94	86.73

Sideline Right										
79.62	74.52	73.52	63.53	67.44	59.84	63.84	70.75	69.56	70.76	64.07
72.19	67.91	67.43	64.45	62.39	59.13	57.49	56.96	55.15	53.76	51.60
48.20	45.01	42.10	37.28	31.28	.00	72.26	77.59	83.51	84.49	85.53

Approach - Event L3

Centerline Center										
93.65	74.45	76.95	80.74	74.74	72.54	87.04	92.74	92.44	86.23	82.33
83.42	80.82	77.81	74.40	70.69	69.37	68.15	65.53	63.59	61.65	59.10
56.53	53.98	53.57	56.96	57.21	.00	85.61	93.04	98.89	99.58	100.48

Sideline Left										
75.84	63.84	76.14	77.43	72.73	69.03	66.53	68.03	68.73	79.33	82.52
79.22	72.31	71.11	72.60	68.19	66.48	64.36	63.44	60.62	59.49	55.84
53.28	50.54	46.40	41.95	37.33	.00	79.72	85.18	87.76	92.27	93.24

Sideline Right										
85.63	72.53	83.93	79.73	77.23	72.33	68.73	64.63	66.62	72.82	74.52
78.02	73.11	65.71	70.80	61.20	58.29	56.48	55.56	53.74	52.52	51.09
48.35	45.71	43.20	38.81	30.96	.00	76.03	81.81	89.82	88.46	90.91

Takeoff - Event K21

Centerline Center										
81.08	71.08	76.18	69.10	78.20	64.01	55.41	75.72	68.23	80.34	67.46
68.08	70.81	68.74	69.58	68.33	65.70	65.58	66.60	64.73	62.60	62.43
60.12	56.93	54.70	52.61	49.11	.00	77.49	83.50	86.81	91.15	93.47

Sideline Left										
84.14	75.94	75.84	65.65	75.55	58.96	50.76	68.87	66.28	74.39	69.00
68.51	70.84	66.96	66.39	63.14	60.69	62.15	61.34	58.95	57.48	56.16
53.29	51.26	48.99	48.21	42.18	.00	73.80	79.46	86.64	86.40	88.62

Sideline Right										
75.19	71.69	70.19	67.70	77.90	59.71	52.81	72.42	68.32	77.33	71.34
66.36	69.68	66.00	66.83	64.37	62.41	61.47	60.95	60.25	57.27	55.03
52.83	49.19	48.58	45.25	39.84	.00	74.21	80.03	83.99	87.68	90.05

Table G-8
Bell 222 Twin Jet
Sample Corrected One-Third Octave Band Levels AT PNLT,
'Two-Point' Position Determination

500 ft Level Flyover - Event C11

Centerline Center										
88.67	80.87	87.67	80.17	80.07	78.37	68.77	72.36	77.16	80.86	77.46
74.75	73.15	69.34	68.53	66.52	65.61	65.60	65.67	65.75	64.01	62.16
59.60	55.55	51.58	46.65	40.34	.00	78.57	85.41	93.15	92.61	93.20
Sideline Left										
90.84	77.24	81.04	79.24	78.74	76.64	66.74	65.64	71.84	77.74	75.45
71.75	70.45	72.45	68.45	67.36	66.06	65.67	64.47	63.78	61.69	59.59
56.20	52.41	47.84	42.86	35.58	.00	77.36	83.40	92.53	90.23	91.25
Sideline Right										
86.40	78.20	85.70	78.20	74.60	69.90	65.50	65.90	70.30	75.70	73.30
69.61	67.61	74.11	70.41	68.32	66.72	66.33	63.24	63.05	61.06	59.28
55.19	51.50	50.04	45.10	36.37	.00	77.36	82.63	90.53	89.40	91.10

1000 ft Level Flyover - Event A2

Centerline Center										
82.55	69.85	78.85	69.27	69.07	67.68	57.98	63.79	68.60	75.31	68.53
65.54	66.57	61.00	62.84	60.79	59.15	59.02	59.23	58.55	56.40	54.41
50.98	45.34	39.14	34.05	26.36	.00	71.54	77.98	85.52	85.09	86.21
Sideline Left										
75.53	66.03	67.03	73.44	64.94	62.35	71.35	77.45	77.16	73.17	66.08
69.59	63.51	65.43	64.26	61.50	59.04	59.09	57.07	55.55	54.26	52.51
49.60	45.82	42.61	39.59	33.69	.00	72.34	79.02	83.80	86.00	86.80
Sideline Right										
79.67	74.57	73.57	63.58	67.49	59.89	63.89	70.80	69.61	70.82	64.13
72.24	67.96	67.48	64.51	62.45	59.19	57.55	57.03	55.22	53.84	51.69
48.30	45.12	42.22	37.43	31.47	.00	72.31	77.64	83.56	84.56	85.58

Approach - Event L3

Centerline Center										
93.61	74.41	76.91	80.71	74.71	72.51	87.01	92.70	92.40	86.20	82.29
83.39	80.78	77.78	74.37	70.65	69.34	68.12	65.49	63.55	61.61	59.06
56.48	53.93	53.52	56.90	57.14	.00	85.57	93.01	98.86	99.54	100.44
Sideline Left										
75.83	63.83	76.13	77.42	72.72	69.02	66.52	68.02	68.72	79.31	82.51
79.21	72.30	71.10	72.59	68.18	66.47	64.35	63.43	60.60	59.47	55.82
53.26	50.51	46.37	41.93	37.30	.00	79.71	85.17	87.75	92.26	93.23
Sideline Right										
85.62	72.52	83.92	79.72	77.22	72.32	68.71	64.61	66.61	72.81	74.51
78.01	73.10	65.70	70.79	61.18	58.27	56.46	55.55	53.73	52.50	51.07
48.32	45.68	43.18	38.78	30.93	.00	76.01	81.80	89.81	88.45	90.90

Takeoff - Event K21

Centerline Center										
80.64	70.64	75.74	68.65	77.76	63.56	54.97	75.27	67.78	79.89	67.00
67.62	70.34	68.27	69.10	67.85	65.20	65.07	66.06	64.17	62.01	61.79
59.43	56.20	53.88	51.64	47.92	.00	76.98	82.97	86.36	90.62	92.94
Sideline Left										
83.88	75.68	75.58	65.39	75.29	58.70	50.50	68.61	66.01	74.12	68.73
68.25	70.56	66.68	66.11	62.85	60.39	61.84	61.02	58.61	57.12	55.77
52.86	50.80	48.46	47.58	41.39	.00	73.50	79.16	86.38	86.08	88.29
Sideline Right										
74.93	71.43	69.93	67.44	77.64	59.45	52.55	72.15	68.06	77.07	71.08
66.09	69.40	65.72	66.55	64.08	62.12	61.16	60.63	59.91	56.91	54.64
52.40	48.73	48.06	44.63	39.06	.00	73.92	79.73	83.73	87.37	89.74

Table G-9
Bell 222 Twin Jet
Sample Corrected One-Third Octave Band Levels AT PNLT,
'One-Point' Position Determination

500 ft Level Flyover - Event C11

Centerline Center										
89.18	81.38	88.18	80.68	80.58	78.88	69.28	72.88	77.68	81.39	77.99
75.29	73.69	69.89	69.10	67.10	66.21	66.21	66.32	66.43	64.74	62.95
60.46	56.47	52.61	47.85	41.80	.00	79.16	86.00	93.66	93.22	93.82
Sideline Left										
91.07	77.47	81.27	79.48	78.98	76.88	66.98	65.88	72.08	77.99	75.69
71.99	70.70	72.70	68.71	67.62	66.33	65.95	64.77	64.09	62.02	59.96
56.61	52.84	48.32	43.42	36.27	.00	77.63	83.67	92.76	90.52	91.52
Sideline Right										
86.63	78.43	85.93	78.43	74.83	70.13	65.74	66.14	70.54	75.94	73.55
69.85	67.86	74.36	70.67	68.58	67.00	66.61	63.53	63.36	61.39	59.63
55.59	51.92	50.51	45.64	37.02	.00	77.63	82.90	90.76	89.69	91.39

1000 ft Level Flyover - Event A2

Centerline Center										
82.31	69.61	78.61	69.02	68.82	67.43	57.73	63.54	68.34	75.05	68.26
65.28	66.30	60.72	62.55	60.49	58.84	58.69	58.88	58.17	55.99	53.94
50.45	44.78	38.49	33.26	25.36	.00	71.24	77.68	85.27	84.77	85.90
Sideline Left										
75.33	65.83	66.83	73.24	64.74	62.14	71.15	77.25	76.95	72.96	65.87
69.38	63.29	65.21	64.03	61.26	58.79	58.83	56.79	55.26	53.94	52.15
49.20	45.39	42.11	39.00	32.94	.00	72.11	78.80	83.59	85.74	86.54
Sideline Right										
79.47	74.37	73.37	63.38	67.28	59.69	63.69	70.59	69.40	70.61	63.92
72.03	67.74	67.26	64.28	62.21	58.95	57.29	56.75	54.92	53.52	51.33
47.89	44.69	41.73	36.83	30.72	.00	72.08	77.41	83.36	84.30	85.33

Approach - Event L3

Centerline Center										
93.50	74.30	76.80	80.59	74.59	72.39	86.89	92.59	92.28	86.08	82.18
83.27	80.66	77.65	74.24	70.53	69.21	67.99	65.36	63.42	61.47	58.91
56.32	53.76	53.34	56.70	56.91	.00	85.45	92.89	98.74	99.41	100.31
Sideline Left										
75.79	63.79	76.09	77.38	72.68	68.98	66.48	67.98	68.68	79.27	82.47
79.17	72.26	71.05	72.55	68.13	66.42	64.30	63.38	60.55	59.41	55.76
53.19	50.44	46.29	41.82	37.16	.00	79.66	85.12	87.71	92.21	93.15
Sideline Right										
85.58	72.48	83.88	79.68	77.18	72.28	68.68	64.57	66.57	72.77	74.47
77.96	73.06	65.65	70.75	61.14	58.23	56.41	55.50	53.67	52.44	51.01
48.25	45.61	43.09	38.67	30.78	.00	75.97	81.76	89.77	88.40	90.83

Takeoff - Event K21

Centerline Center										
81.41	71.41	76.51	69.43	78.53	64.34	55.75	76.05	68.57	80.68	67.80
68.42	71.15	69.09	69.94	68.70	66.07	65.96	66.99	65.15	63.04	62.90
60.63	57.46	55.30	53.31	49.96	.00	77.87	83.89	87.15	91.55	93.88
Sideline Left										
84.34	76.14	76.04	65.85	75.75	59.16	50.96	69.07	66.48	74.59	69.20
68.72	71.05	67.18	66.61	63.36	60.92	62.39	61.59	59.21	57.76	56.47
53.62	51.62	49.40	48.70	42.80	.00	74.02	79.70	86.84	86.65	88.86
Sideline Right										
75.39	71.89	70.39	67.90	78.10	59.91	53.01	72.62	68.53	77.54	71.55
66.57	69.89	66.22	67.05	64.59	62.65	61.71	61.20	60.51	57.55	55.33
53.17	49.55	48.99	45.74	40.46	.00	74.44	80.26	84.20	87.92	90.29

Table G-10
Sikorsky S76A
Sample Corrected One-Third Octave Band Levels AT PNLT,
'Three-Point' Position Determination

500 ft Level Flyover - Event B8

Centerline Center											
89.63	68.13	78.43	71.72	63.32	60.01	72.21	76.41	71.10	66.30	69.19	
67.98	70.36	71.05	71.33	72.70	73.37	71.93	70.68	68.11	67.13	65.93	
63.78	61.20	57.83	52.81	45.31	.00	80.76	85.80	90.89	92.41	93.42	
Sideline Left											
92.96	68.16	82.06	82.15	77.45	69.74	68.74	65.64	68.33	71.52	79.41	
68.50	69.89	69.17	70.35	70.62	70.38	68.44	65.58	63.41	61.32	57.30	
53.25	48.75	44.22	37.07	26.11	.00	78.38	83.67	94.09	90.67	92.24	
Sideline Right											
77.00	69.20	85.00	69.99	70.29	60.49	69.29	68.58	70.98	74.07	73.76	
68.85	74.44	69.12	71.30	73.18	72.15	71.51	69.85	67.99	65.21	62.00	
58.06	54.87	50.34	43.48	34.03	.00	80.34	84.78	87.81	91.26	92.16	

1000 ft Level Flyover - Event E26

Centerline Center											
94.86	72.96	74.56	76.26	70.56	65.96	61.57	71.47	67.47	66.17	67.58	
65.08	66.89	67.10	67.01	68.63	67.54	66.06	62.80	59.93	59.48	57.85	
55.25	49.82	41.51	33.32	26.06	.00	75.13	81.18	95.10	86.01	87.16	
Sideline Left											
84.62	71.92	88.92	76.92	69.02	65.32	69.62	72.52	70.42	67.32	65.03	
71.33	68.63	68.94	67.14	67.05	65.66	64.97	64.09	62.51	60.23	56.57	
52.42	47.65	41.33	31.88	25.16	.00	75.34	81.28	90.94	86.75	87.50	
Sideline Right											
93.76	71.76	78.66	84.76	76.96	73.06	67.76	69.07	69.07	70.97	76.17	
65.68	68.28	67.09	69.00	67.81	66.43	65.44	62.67	60.30	57.24	53.19	
48.58	41.66	32.93	24.75	16.18	.00	75.67	82.00	94.70	88.18	89.49	

Approach - Event I55

Centerline Center											
75.77	69.87	76.37	66.07	65.67	75.47	82.17	85.27	89.37	85.66	82.76	
83.46	81.95	77.75	76.24	72.74	69.63	67.21	65.00	63.68	61.85	58.62	
56.87	55.34	53.19	49.94	43.91	.00	84.83	90.96	94.11	97.51	98.16	
Sideline Left											
70.51	63.91	70.11	64.11	71.71	68.81	65.61	65.61	78.21	82.51	83.81	
79.11	76.31	76.71	70.41	70.00	68.90	65.80	63.69	62.69	61.28	59.27	
55.95	53.14	49.15	44.01	36.60	.00	81.52	87.03	88.76	93.88	95.00	
Sideline Right											
65.51	60.11	76.11	66.11	76.31	71.81	68.61	67.31	72.31	77.11	76.01	
70.51	66.11	73.01	69.11	67.81	65.61	63.41	61.01	59.01	58.91	57.31	
54.40	51.90	49.13	44.23	36.76	.00	76.60	81.77	84.59	88.95	90.75	

Takeoff - Event F31

Centerline Center											
71.05	66.75	73.45	60.85	57.55	57.45	77.26	71.66	65.46	62.56	65.77	
68.98	68.28	70.39	72.01	73.12	72.94	73.07	70.80	70.24	70.90	67.87	
66.36	64.73	62.03	58.17	51.35	.00	81.64	87.31	84.34	94.14	96.26	
Sideline Left											
67.19	64.49	72.09	63.39	66.59	58.99	60.29	61.49	64.89	78.89	77.09	
67.99	76.20	74.50	78.00	76.01	72.01	66.52	64.83	62.85	60.96	57.39	
53.72	49.75	44.65	38.86	29.37	.00	81.66	85.01	85.71	91.22	92.53	
Sideline Right											
64.66	64.56	77.66	61.36	65.86	56.96	69.76	62.06	66.66	79.16	73.76	
70.76	77.36	73.17	74.67	74.87	72.07	70.68	70.18	67.39	65.80	63.52	
60.03	56.27	51.75	46.13	37.61	.00	81.62	85.94	85.91	92.36	94.07	

Table G-11
Sikorsky S76A
Sample Corrected One-Third Octave Band Levels AT PNLT,
'Two-Point' Position Determination

500 ft Level Flyover - Event B8

Centerline Center										
89.58	68.08	78.38	71.67	63.27	59.96	72.16	76.36	71.05	66.24	69.14
67.93	70.31	71.00	71.28	72.65	73.32	71.88	70.62	68.05	67.07	65.86
63.71	61.12	57.74	52.72	45.20	.00	80.70	85.74	90.84	92.35	93.36
Sideline Left										
92.93	68.13	82.03	82.13	77.42	69.72	68.72	65.61	68.31	71.50	79.39
68.48	69.86	69.15	70.32	70.59	70.36	68.41	65.55	63.38	61.29	57.27
53.21	48.71	44.17	37.02	26.04	.00	78.35	83.65	94.07	90.65	92.21
Sideline Right										
76.98	69.18	84.98	69.97	70.27	60.47	69.26	68.56	70.95	74.05	73.74
68.83	74.41	69.10	71.28	73.15	72.12	71.48	69.82	67.96	65.18	61.97
58.02	54.84	50.29	43.43	33.96	.00	80.31	84.75	87.79	91.23	92.13

1000 ft Level Flyover - Event E26

Centerline Center										
94.88	72.98	74.58	76.28	70.58	65.98	61.58	71.49	67.49	66.19	67.60
65.10	66.91	67.12	67.03	68.65	67.56	66.09	62.82	59.96	59.51	57.88
55.29	49.86	41.56	33.39	26.15	.00	75.15	81.20	95.12	86.03	87.19
Sideline Left										
84.63	71.93	88.93	76.93	69.03	65.33	69.63	72.53	70.44	67.34	65.04
71.34	68.65	68.95	67.16	67.07	65.68	64.99	64.11	62.53	60.25	56.59
52.45	47.69	41.37	31.93	25.23	.00	75.35	81.29	90.96	86.77	87.52
Sideline Right										
93.77	71.77	78.67	84.78	76.98	73.08	67.78	69.08	69.08	70.99	76.19
65.69	68.30	67.11	69.02	67.83	66.44	65.46	62.69	60.32	57.27	53.22
48.62	41.70	32.98	24.81	16.27	.00	75.69	82.02	94.71	88.20	89.50

Approach - Event I55

Centerline Center										
75.65	69.75	76.25	65.95	65.55	75.34	82.04	85.14	89.24	85.54	82.64
83.33	81.83	77.62	76.11	72.60	69.49	67.08	64.85	63.53	61.70	58.46
56.70	55.16	53.00	49.73	43.66	.00	84.71	90.83	93.99	97.37	98.02
Sideline Left										
70.47	63.87	70.07	64.07	71.67	68.77	65.57	65.57	78.17	82.47	83.77
79.07	76.26	76.66	70.36	69.96	68.85	65.75	63.64	62.63	61.22	59.21
55.88	53.07	49.07	43.92	36.49	.00	81.48	86.99	88.72	93.83	94.95
Sideline Right										
65.46	60.06	76.06	66.06	76.26	71.76	68.56	67.26	72.26	77.06	75.96
70.46	66.06	72.96	69.06	67.76	65.56	63.36	60.95	58.95	58.85	57.24
54.33	51.83	49.05	44.13	36.64	.00	76.55	81.72	84.54	88.90	90.70

Takeoff - Event F31

Centerline Center										
70.80	66.50	73.20	60.60	57.30	57.20	77.01	71.41	65.21	62.31	65.52
68.72	68.03	70.13	71.74	72.86	72.67	72.79	70.52	69.95	70.59	67.55
66.02	64.37	61.64	57.72	50.82	.00	81.36	87.00	84.07	93.84	95.96
Sideline Left										
67.08	64.38	71.98	63.28	66.48	58.88	60.18	61.38	64.78	78.78	76.98
67.88	76.08	74.38	77.89	75.89	71.89	66.39	64.70	62.71	60.82	57.23
53.55	49.57	44.45	38.62	29.07	.00	81.54	84.89	85.60	91.09	92.41
Sideline Right										
64.55	64.45	77.55	61.25	65.75	56.85	69.65	61.95	66.55	79.05	73.65
70.65	77.25	73.05	74.55	74.75	71.95	70.55	70.05	67.26	65.66	63.36
59.86	56.09	51.55	45.89	37.31	.00	81.50	85.81	85.80	92.23	93.94

Table G-12
Sikorsky S76A
Sample Corrected One-Third Octave Band Levels AT PNLT,
'One-Point' Position Determination

500 ft Level Flyover - Event B8

Centerline Center										
89.69	68.19	78.49	71.79	63.38	60.08	72.28	76.48	71.17	66.36	69.26
68.05	70.44	71.12	71.40	72.78	73.45	72.01	70.76	68.20	67.22	66.02
63.88	61.30	57.94	52.95	45.47	.00	80.84	85.89	90.96	92.49	93.51

Sideline Left										
92.99	68.19	82.09	82.18	77.48	69.78	68.77	65.67	68.36	71.56	79.45
68.54	69.92	69.21	70.38	70.66	70.42	68.48	65.62	63.45	61.37	57.35
53.30	48.81	44.29	37.16	26.22	.00	78.41	83.71	94.12	90.71	92.27

Sideline Right										
77.03	69.23	85.03	70.03	70.32	60.52	69.32	68.61	71.01	74.10	73.80
68.89	74.47	69.16	71.34	73.21	72.18	71.54	69.89	68.03	65.25	62.05
58.11	54.93	50.40	43.55	34.12	.00	80.37	84.82	87.85	91.30	92.20

1000 ft Level Flyover - Event E26

Centerline Center										
94.86	72.96	74.56	76.26	70.56	65.96	61.56	71.47	67.47	66.17	67.58
65.08	66.89	67.10	67.01	68.62	67.54	66.06	62.79	59.93	59.48	57.84
55.24	49.80	41.48	33.28	25.97	.00	75.13	81.17	95.10	86.00	87.16

Sideline Left										
84.61	71.91	88.91	76.92	69.02	65.32	69.62	72.52	70.42	67.32	65.02
71.33	68.63	68.93	67.14	67.05	65.65	64.97	64.08	62.50	60.23	56.56
52.42	47.65	41.31	31.85	25.12	.00	75.33	81.27	90.94	86.74	87.49

Sideline Right										
93.76	71.76	78.66	84.76	76.96	73.06	67.76	69.06	69.07	70.97	76.17
65.68	68.28	67.09	69.00	67.81	66.42	65.44	62.66	60.29	57.23	53.19
48.57	41.64	32.90	24.70	16.10	.00	75.67	82.00	94.70	88.17	89.48

Approach - Event I55

Centerline Center										
75.79	69.89	76.39	66.09	65.69	75.49	82.19	85.29	89.39	85.68	82.78
83.48	81.97	77.77	76.26	72.76	69.65	67.24	65.02	63.70	61.87	58.64
56.89	55.37	53.22	49.98	43.95	.00	84.85	90.98	94.13	97.53	98.18

Sideline Left										
70.52	63.92	70.12	64.12	71.72	68.82	65.62	65.62	78.22	82.52	83.82
79.12	76.32	76.71	70.41	70.01	68.91	65.81	63.70	62.70	61.29	59.28
55.96	53.15	49.16	44.03	36.62	.00	81.53	87.04	88.77	93.89	95.01

Sideline Right										
65.51	60.11	76.11	66.11	76.31	71.81	68.61	67.31	72.31	77.11	76.01
70.51	66.11	73.01	69.12	67.82	65.62	63.42	61.02	59.02	58.92	57.32
54.41	51.91	49.14	44.24	36.78	.00	76.61	81.78	84.59	88.96	90.76

Takeoff - Event F31

Centerline Center										
70.93	66.63	73.33	60.74	57.44	57.34	77.14	71.54	65.34	62.45	65.65
68.86	68.17	70.27	71.88	73.00	72.82	72.94	70.67	70.11	70.76	67.72
66.21	64.57	61.86	57.97	51.13	.00	81.51	87.17	84.21	94.00	96.12

Sideline Left										
67.14	64.44	72.04	63.34	66.54	58.94	60.24	61.44	64.84	78.84	77.04
67.94	76.14	74.45	77.95	75.95	71.96	66.46	64.77	62.78	60.90	57.32
53.64	49.67	44.56	38.76	29.25	.00	81.60	84.95	85.66	91.16	92.48

Sideline Right										
64.61	64.51	77.61	61.31	65.81	56.91	69.71	62.01	66.61	79.11	73.71
70.71	77.31	73.11	74.61	74.82	72.02	70.62	70.12	67.33	65.74	63.45
59.95	56.18	51.65	46.01	37.46	.00	81.57	85.88	85.86	92.30	94.01