



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject:

Date: 6/13/2006

AC No: AC-93-2

Initiated by: AEE-100

Change:

**NOISE LEVELS FOR AIRCRAFT USED
FOR COMMERCIAL OPERATIONS IN
GRAND CANYON NATIONAL PARK
SPECIAL FLIGHT RULES AREA**

1. **Purpose.** This circular contains the measured or estimated noise levels for aircraft currently used for commercial sightseeing operations in the Grand Canyon National Park (GCNP) special flight rules area, ranked in alphabetical order for the conditions and assumptions described below. This information is provided both for aircraft that have been noise type certificated under 14 CFR part 36, and for aircraft for which no such requirements existed at the time of type certification. The noise level data presented in the appendices are provided for determining the GCNP quiet aircraft technology designation status for each aircraft subject to 14 CFR part 93.
2. **Cancellation.**
3. **Background.** On March 29, 2005, the Federal Aviation Administration (FAA) published a Final Rule entitled "Noise Limitations for Aircraft Operations in the Vicinity of Grand Canyon National Park". This amendment of 14 CFR part 93 is necessary to establish reasonably achievable requirements for aircraft operating in the GCNP to be considered as employing quiet aircraft technology. The standards for the GCNP quiet aircraft technology proposed in the rule will be used to assist the National Park Service (NPS) achieve its statutory mandate to provide for the substantial restoration of natural quiet and to enhance visitor' experience in the GCNP.
4. **Aircraft Noise Limits for GCNP Quiet Aircraft Technology.** Noise levels of propeller-driven small airplanes and helicopters that operate at GCNP at the time of preparation of this circular are presented in Appendices 1 and 2. The data were obtained by the methodology described in Section 5 of this circular. The sources of the data as they relate to Section 5 of this circular are designated in the "NOTES" column. The GCNP quiet aircraft technology status of each aircraft is provided in the "QUIET TECHNOLOGY" column.

Appendix 1 provides noise levels of propeller driven small airplanes that are subject to Appendix F or G of 14 CFR part 36. Appendix 1 includes maximum takeoff weights, landing weights, engine type, horsepower, propeller type and diameter.

Appendix 2 contains noise levels of helicopters that are subject to Appendix H or J of 14 CFR part 36. This appendix includes maximum takeoff weights, landing weights, engine type, rotor type and diameter.

Aircraft are listed in alphabetical order by make and model in Appendices 1 and 2. The noise levels in the appendices were obtained during the noise certification process as prescribed under 14 CFR part 36. Where no certificated noise level is available, the Administrator may approve an alternative measurement or estimation procedure.

Part 93 classifies aircraft used in commercial sightseeing flight operations over GCNP by the noise they produce. Part 93 establishes the GCNP quiet aircraft technology designation status for propeller-driven small airplanes and helicopters. The status of each aircraft was determined according to its noise nuisance at a common noise sensitive reference point in GCNP. The aircraft noise limits, based on aircraft certification noise levels are shown in Figure 1 through 4 for GCNP quiet aircraft technology.

The noise limits are expressed for propeller-driven small airplanes and helicopters as follows:

(a) For helicopters with a flyover noise level obtained in accordance with the measurement procedures prescribed in Appendix H of part 36, the limit is 80 dB for helicopters having 2 or fewer passenger seats, increasing at 3 decibels per doubling of the number of passenger seats for helicopters having 3 or more passenger seats. The limit for helicopters having 3 or more seats can be calculated using the formula:

$$\text{EPNL(H)} = 80 + 10\log(\# \text{ PAX seats}/2) \text{ dB}$$

(b) For helicopters with a flyover noise level obtained in accordance with the measurement procedures prescribed in Appendix J of part 36, the limit is 77 dB for helicopters having 2 or fewer passenger seats, increasing at 3 decibels per doubling of the number of passenger seats for helicopters having 3 or more passenger seats. The limit for helicopters having 3 or more seats can be calculated using the formula:

$$\text{SEL(J)} = 77 + 10\log(\# \text{ PAX seats}/2) \text{ dB}$$

(c) For propeller-driven airplanes with a measured flyover noise level obtained in accordance with the measurement procedures prescribed in Appendix F of part 36 without the performance correction defined in Sec. F35.201(c), the limit is 69 dB for airplanes having 2 or fewer passenger seats, increasing at 3 decibels per doubling of the number of passenger seats for airplanes having 3 or more passenger seats. The noise limit for propeller-driven airplanes having 3 or more seats can be calculated using the formula:

$$\text{LA}_{\text{max}}(\text{F}) = 69 + 10\log(\# \text{ PAX seats}/2) \text{ dB}$$

(d) In the event that a flyover noise level is not available in accordance with Appendix F of 14 CFR part 36, the noise limit for propeller-driven airplanes with a takeoff noise level obtained in accordance with the measurement procedures prescribed in Appendix G is 74 dB or 77 dB depending on 14 CFR part 36 amendment level, for airplanes having two or fewer passenger seats, increasing at 3 dB per doubling of the number of passenger seats for airplanes having three or more passenger seats. The noise limit for propeller driven airplanes having 3 or more seats can be calculated using the formula:

$$L_{\text{Amax}}(\text{G}) = 74 + 10 \log(\# \text{ PAX seats}/2) \text{ dB}$$

for aircraft certificated to 14 CFR part 36 Amendment 21 or earlier;

$$L_{\text{Amax}}(\text{G}) = 77 + 10 \log(\# \text{ PAX seats}/2) \text{ dB}$$

for aircraft certificated to 14 CFR part 36 Amendment 22 or later.

5. Methodology to Categorize Noise Efficiency. The GCNP noise incentive plan is based on certificated noise levels determined under 14 CFR part 36. These levels may be found in FAA AC 36-1H or in the aircraft flight manual. Some aircraft, depending on the date of type certification, were not subject to the noise certification provisions of 14 CFR part 36, and do not have noise certification levels. For those aircraft, either measured noise levels from tests that are not approved by the FAA as certification quality (e.g., research test data) or estimates by approved methods were used. All estimated noise certification levels provided in this circular are for the sole and specific purpose of determining compliance with GCNP noise efficiency criteria and may not be used to establish compliance under any regulation.

The following hierarchy of noise level data sources was used in establishing noise levels for aircraft listed in Appendices 1 and 2. The same hierarchy will be used for future additions to the appendices.

1. U.S. type certifications using 14 CFR part 36 with noise certification levels obtained from FAA-approved flight manuals or FAA AC 36-1.
 - a) For propeller driven small airplanes the hierarchy of regulations is:
 - 1) 14 CFR part 36 Appendix F
 - 2) 14 CFR part 36 Appendix G
 - b) For helicopters the hierarchy of regulations is:
 - 3) 14 CFR part 36 Appendix J
 - 4) 14 CFR part 36 Appendix H
2. Foreign type certifications using ICAO Annex 16, Volume I with noise certification levels obtained from approved flight manuals, data approved by the foreign civil aviation authority, or FAA AC 36-1.
 - a) For propeller driven small airplanes the applicable hierarchy of regulations is:
 - 1) ICAO Annex 16, Volume I Chapter 6
 - 2) ICAO Annex 16, Volume I Chapter 10
 - b) For helicopters the hierarchy of regulations is:
 - 3) ICAO Annex 16, Volume I Chapter 11
 - 4) ICAO Annex 16, Volume I Chapter 8
3. Research or other measurement test data obtained under controlled conditions, documented and corrected to the certification conditions of part 36 Appendix F for small propeller driven airplanes and part 36 Appendix J for helicopters. Preference would be placed on those data obtained under certification-like conditions or those data collected under an FAA-sponsored noise research test.
4. FAA approved noise estimation methods that seek to estimate part 36 Appendix F noise levels for small propeller driven airplanes or part 36 Appendix J noise levels for helicopters. Currently the following methods may be suitable for use, but are subject to FAA approval on a case-by-case basis.

- a) For propeller driven small airplanes: Method in Section 2.2 of DOT/FAA/AEE-82-1¹
- b) For helicopters: SAE/AIR 1989²

5. FAA approved noise level estimation method using FAA's Integrated Noise Model (INM) or an FAA-approved equivalent.

As one moves down in the hierarchy, the expected level of substantiation (as the representative noise certification level-estimated) by the operator or owner increases, and the level of FAA scrutiny will increase.

The resulting noise levels will vary depending upon the availability of FAA-approved data and its rank in the hierarchy. In the case of helicopters, the noise levels must be the flyover noise certification level and expressed in the noise metric of Effective Perceived Noise Level (14 CFR part 36, Appendix H) or Sound Exposure Level (14 CFR part 36, Appendix J). In the case of small propeller-driven airplanes the noise levels must be the flyover (14 CFR part 36, Appendix F) or takeoff (14 CFR part 36, Appendix G) noise certification level and expressed in the noise metric of maximum A-weighted sound level.

6. **Distribution.**

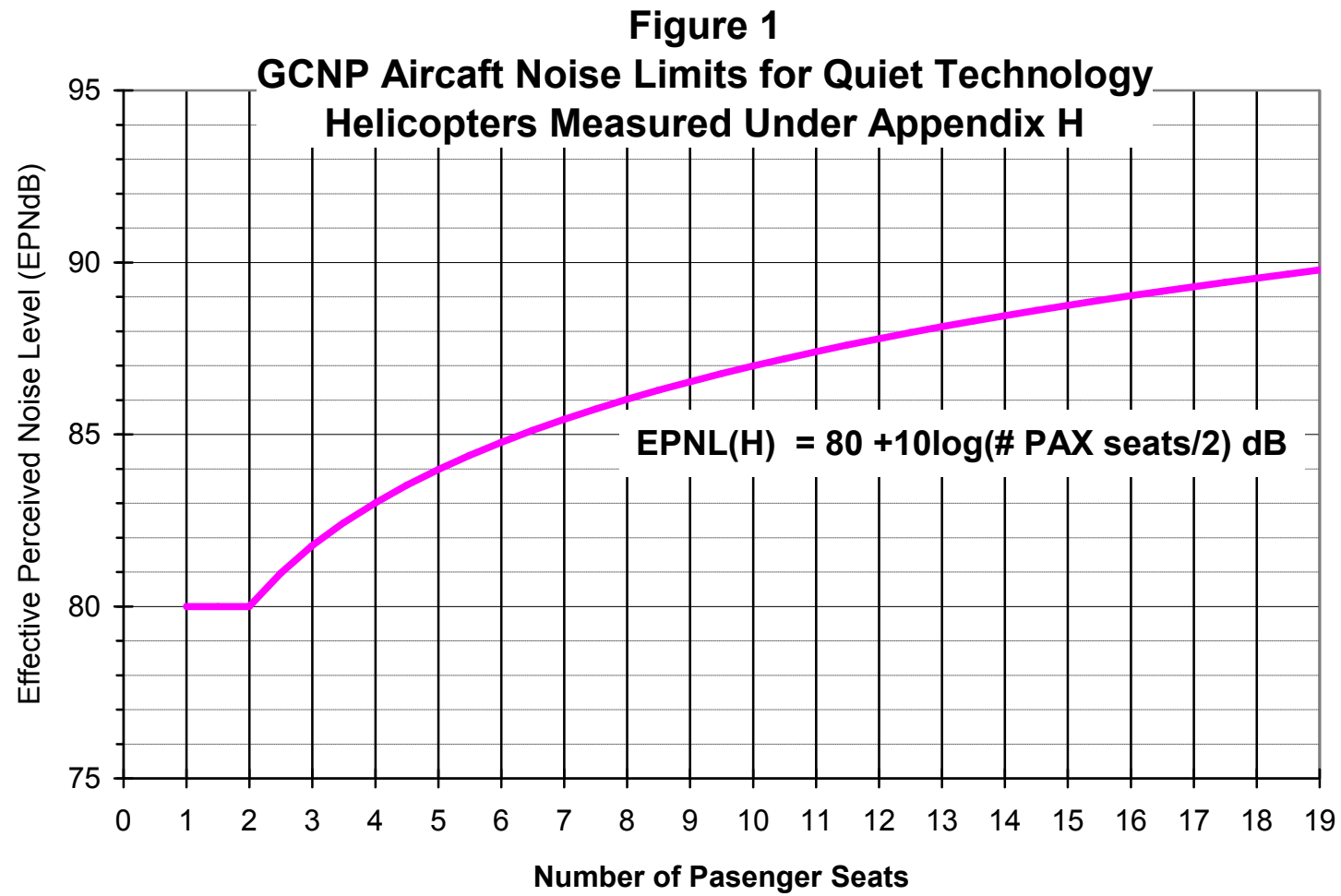
7. **Revisions.**

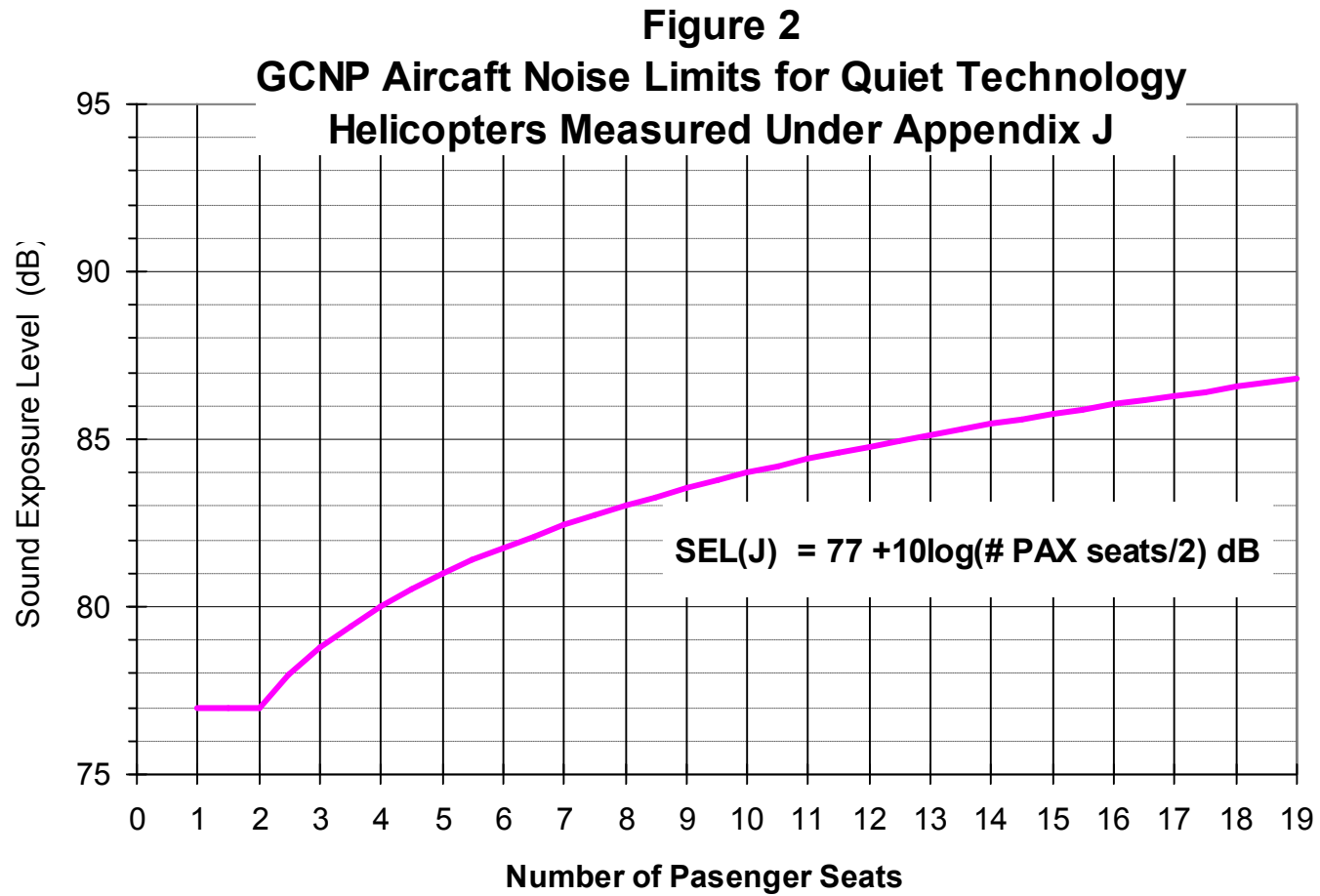
Carl E. Burlison
Director of Environment and Energy

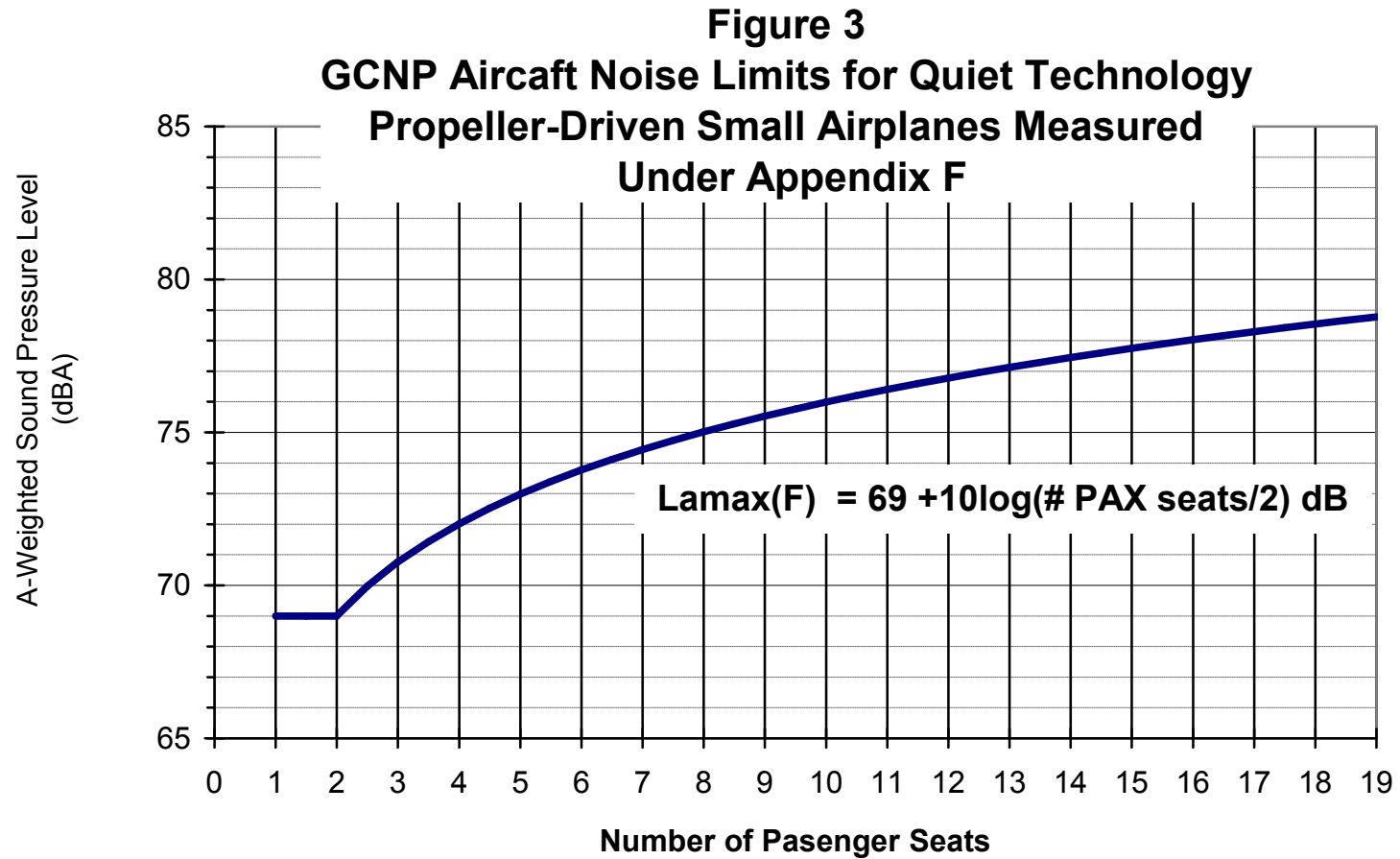
¹ DOT/FAA/AEE-82-1: "A Description of Methodologies Used in Estimation of A-Weighted Sound Levels for FAA Advisory Circular AC-36-3B", published by AEE in January 1982

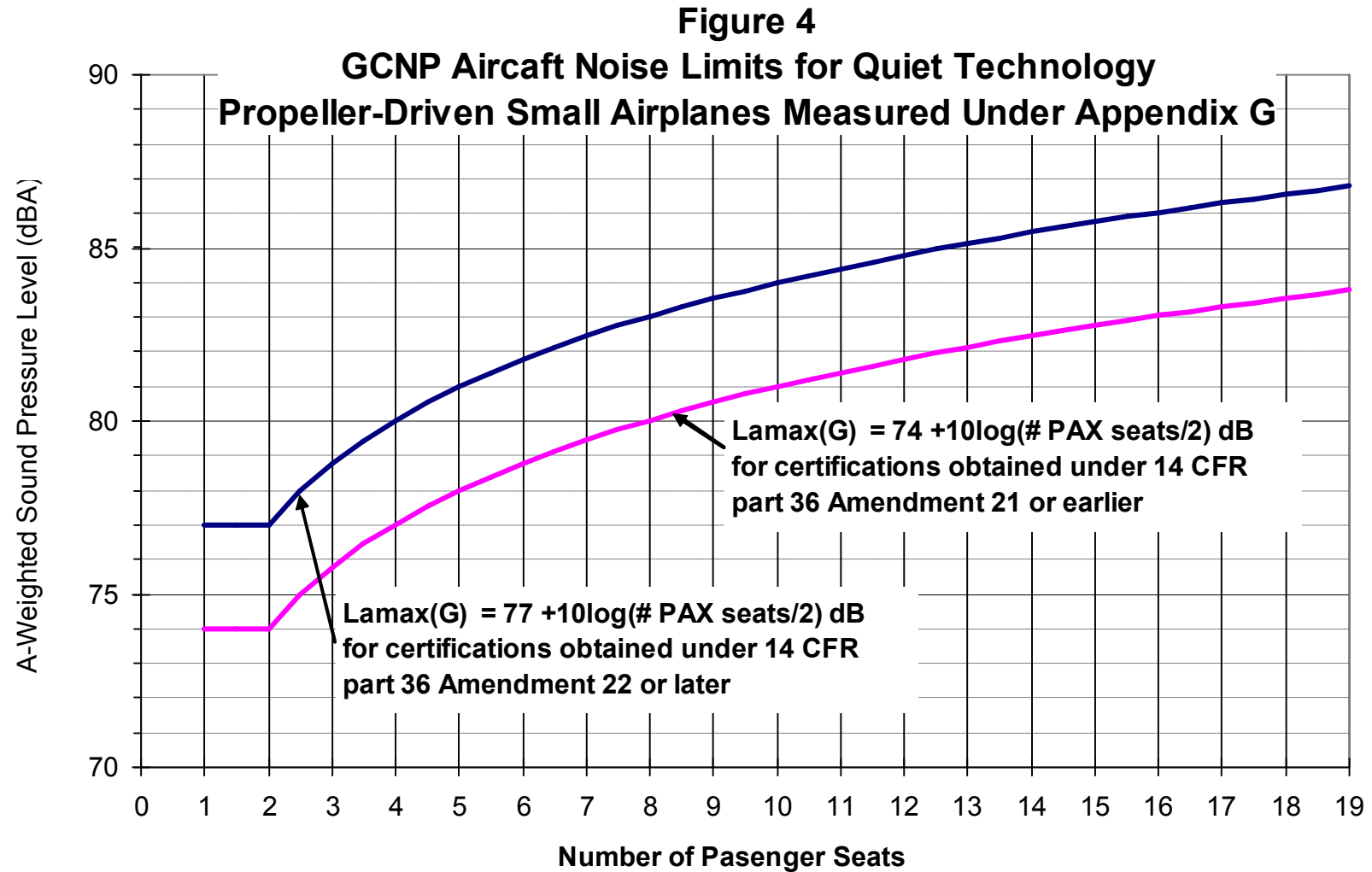
² SAE/AIR 1989: "Helicopter External Noise Estimation", published by Society of Automotive Engineering in December 1992.

LIST OF FIGURES









APPENDICES

APPENDIX I
GCNP INCENTIVE PLAN NOISE LEVELS
PROPELLER-DRIVEN SMALL AIRPLANES

Updated 12/22/2008

MAKE MODEL	MTOW MLW	# OF ENGINES MAKE MODEL	ENG. PWR RPM	EXHAUST	# OF PROP BLADES MAKE MODEL	PROP DIA RPM PITCH	NOISE LEVEL		# OF PAX	NOTES	QUIET TECHNOLOGY
							APP. F (dBA)	APP. G (dBA)			
BEECH 36, A36	3.6 3.6	1 TCM IO-520-B(A)	285 2700	5	3 MCCAULEY 3A32C76	80 2700 V	78.8		5	F	NO
BEECH 36, A36	3.6 3.6	1 TCM IO-520-BB	275 2550	5	2 MCCAULEY 2A36C23	84 2550 V	78.0		5	F	NO
BEECH 36, A36	3.65 3.7	1 TCM IO-550-B	300 2700	5	3 MCCAULEY 3A32C406	80 2700 V	78.2		5	F	NO
BEECH 65A90	9.3 8.8	2 P&W PT6A-20	500 2200	9	3 HARTZELL HC-B3TN-2B/M	93 2200 V	78.7		8	F	NO
BEECH 76	3.9 3.9	2 LYC O-360-A1G6D	165 2700	2	2 HARTZELL HC-M2YR-2CEUF	76 2700 V	80.2		5	F	NO
BEECH 76	3.98 3.98	2 LYC O-360-A1G6D	165 2700	5	2 HARTZELL HC-M2YR-2CLUF	76 2700 V	79.5		5	F	NO
BEECH C99	11.3 11.3	2 P&W PT6A-36	715 2200	9	3 HARTZELL HC-B3TN-3B/M	93 2200 V	79.3		15	F	NO
BEECH V35	3.4 3.4	1 TCM IO-520-BA	285 2700	5	3 MCCAULEY 3A32C406	78 2700 V	78.1		4	F	NO
CESSNA 172M	2.3 2.3	1 LYC O-320-E2D	150 2700	6	2 MCCAULEY 1C160/CTM/DTM	75 2700 F	74.3		3	F	NO
CESSNA 172P	2.4 2.4	1 LYC O-320-D2J	150 2700	6	2 MCCAULEY 1C160/DTM	75 2700 F	74.3		3	F	NO

APPENDIX I
GCNP INCENTIVE PLAN NOISE LEVELS
PROPELLER-DRIVEN SMALL AIRPLANES

Updated 12/22/2008

MAKE MODEL	MTOW MLW	# OF ENGINES MAKE MODEL	ENG. PWR RPM	EXHAUST	# OF PROP BLADES MAKE MODEL	PROP DIA RPM PITCH	NOISE LEVEL		# OF PAX	NOTES	QUIET TECHNOLOGY
							APP. F (dBA)	APP. G (dBA)			
CESSNA 182*	2.55 2.55	1 TCM 0-470-L	230 2600	5	2 HARTZELL HC-82XF-1	82 2600 V	72.0		3	F	NO
CESSNA 182H*	2.8 2.8	1 TCM 0-470-R	230 2600	5	2 MCCAULEY 2A34C66	82 2600 V	72.0		3	F	NO
CESSNA 182P	2.95 2.95	1 LYC 0-470-R/S	230 2600	5	2 MCCAULEY 2A34C-201/66	82 2600 V	72.0		3	F	NO
CESSNA 182R	3.1	1 TCM 0-470-V	230 2600	5	2 MCCAULEY C2A34C204	82 2400 V	72.0		3	F	NO
CESSNA 182Q	2.95 2.95	1 LYC 0-470-U	230 2400	5	2 MCCAULEY C2A34C204	82 2400 V	72.0		3	F	NO
CESSNA 206*	3.3 3.3	1 TCM IO-520-A	285 2700	5	2 MCCAULEY D2A34C58	82 2700 V	78.5		5	F	NO
CESSNA 207*	3.8 3.8	1 TCM IO-520-F	285 2700	5	3 MCCAULEY D3A32C90	80 2700 V	77.8		6	F	NO
CESSNA 207A*	3.8 3.8	1 TCM IO-520-F	285 2700	5	3 MCCAULEY D3A34C404	80 2700 V	79.0		6	F	NO
CESSNA 208 (AMPHIB)*	7.6 7.3	1 P&W PT6A-114	600	9	3 HARTZELL HC-B3MN-3	100 1900 V	72.8		9	F	YES
CESSNA 208 (LAND)*	8 7.8	1 P&W PT6A-114	600	9	3 HARTZELL HC-B3MN-3	100 1900 V	72.8		9	F	YES

APPENDIX I
GCNP INCENTIVE PLAN NOISE LEVELS
PROPELLER-DRIVEN SMALL AIRPLANES

Updated 12/22/2008

MAKE MODEL	MTOW MLW	# OF ENGINES MAKE MODEL	ENG. PWR RPM	EXHAUST	# OF PROP BLADES MAKE MODEL	PROP DIA RPM PITCH	NOISE LEVEL		# OF PAX	NOTES	QUIET TECHNOLOGY
							APP. F (dBA)	APP. G (dBA)			
CESSNA 208B*	8.75 8.5	1 PRATT+WHITNEY PT6A-114	600	8	3 HARTZELL HC-B3MN-3	100 1900 V	72.8		13	F	YES
CESSNA 402 / 402B*	6.3 6.2	2 TCM TSIO-520-E/B	300 2700	4	3 MCCAULEY 3AF32C504	76.5 2700 V	81.6		8	F	NO
CESSNA 402A*	6.3 6.2	2 TCM TSIO-520E	300 2700	4	3 MCCAULEY 3AF32C87NR	76.5 2700 V	81.6		8	F	NO
CESSNA 402C*	6.85 6.9	2 TCM TSIO-520-UB	325 2700	4	3 MCCAULEY 3AF32C92N	76 2700 V	80.8		9	F	NO
CESSNA 402C*	6.85 6.9	2 TCM TSIO-520-VB	310 2600	4	3 MCCAULEY 3AF32C93	77 2600 V	77.2		9	F	NO
CESSNA 421C	7.2 7.45	2 TCM GTSIO-520-L/N	375 2235	4	3 MCCAULEY 3FF32C501	90 2235 V	80.3		9	F	NO
CESSNA 425	8.2 8.0	2 P&W PT6A-112	500	9	3 HARTZELL HC-B3TN-3D	102 2110 V	75.7		19	F	YES
CESSNA CE-182R*	3.10	1 TCM O-470-V	230 2400	8	2 MCCAULEY D2A34C203	82 2400 V	72.0		3	F	NO
CESSNA CE-182-R182*	3.10 3.10	1 TCM O-540-J3C5D	235 2400	8	2 MCCAULEY B3D34C214	82 2400 V	72.7		3	F	NO
CESSNA CE-402-B*	6.85 6.85	2 TCM TSIO-520-E	150 2700	3	3 MCCAULEY 3AF32C87M	76 2700 V	81.6		9	F	NO

APPENDIX I
GCNP INCENTIVE PLAN NOISE LEVELS
PROPELLER-DRIVEN SMALL AIRPLANES

Updated 12/22/2008

MAKE MODEL	MTOW MLW	# OF ENGINES MAKE MODEL	ENG. PWR RPM	EXHAUST	# OF PROP BLADES MAKE MODEL	PROP DIA RPM PITCH	NOISE LEVEL		# OF PAX	NOTES	QUIET TECHNOLOGY
							APP. F (dBA)	APP. G (dBA)			
CESSNA T207*	3.8 3.8	1 TCM TSIO-520-G	285 2600	4	3 MCCAULEY D3A32C90	80 2600 V	77.9		6	F	NO
CESSNA T207A*	3.8 3.8	1 TCM TSIO-520-G-1A	285 2600	4	3 MCCAULEY 3A32C401	80 2600 V	77.9		6	F	NO
CESSNA T210L	3.8 3.8	1 TCM IO-520-L	285 2700	5	3 MCCAULEY D3A34C402-C	80 2700 V	80.2		5	F	NO
CESSNA T210M*	3.8 3.8	1 TCM IO-520-L	285 2700	5	3 MCCAULEY D3A32C88	80 2700 V	77.4		5	F	NO
CESSNA T210N	3.8 3.8	1 TCM IO-520-L	285 2700	5	3 MCCAULEY D3A34C404	80 2700 V	77.4		5	F	NO
CESSNA TR182	3.1 3.1	1 LYC O-540-L3C5D	235 2400	5	2 MCCAULEY B2D34C217	82 2400 V	73.8		3	F	NO
CESSNA TR182	3.1 3.1	1 LYC O-540-L3C5D	235 2400	5	3 MCCAULEY B3D32C407	79 2400 V	70.6		3	F	YES
CESSNA TU206C / TU206F*	3.6 3.6	1 TCM TSIO-520-C	285 2700	4	3 MCCAULEY D2A34C78	82 2700 V	78.5		5	F	NO
CESSNA TU206G*	3.6 3.6	1 TCM TSIO-520-M	285 2600	4	3 MCCAULEY D3A34C402	80 2600 V	78.5		5	F	NO
CESSNA TU206G (AMPHIB)*	3.6 3.6	1 TCM TSIO-520-M	285 2600	4	3 MCCAULEY D3A34C402	80 2600 V	78.0		5	F	NO

APPENDIX I
GCNP INCENTIVE PLAN NOISE LEVELS
PROPELLER-DRIVEN SMALL AIRPLANES

Updated 12/22/2008

MAKE MODEL	MTOW MLW	# OF ENGINES MAKE MODEL	ENG. PWR RPM	EXHAUST	# OF PROP BLADES MAKE MODEL	PROP DIA RPM PITCH	NOISE LEVEL		# OF PAX	NOTES	QUIET TECHNOLOGY
							APP. F (dBA)	APP. G (dBA)			
CESSNA U206B/D/F*	3.6 3.6	1 TCM IO-520-F	285 2700	5	3 MCCAULEY D2A34C58	82 2700 V	77.9		5	F	NO
CESSNA U206B/D/F/G*	3.6 3.6	1 TCM IO-520-F	285 2700	5	3 HARTZELL HC-C3YF-IRF	78 2700 V	77.9		5	F	NO
DE HAVILLAND DHC-6-300*	12.5 12.3	2 P&W PT6A-27	680	9	3 HARTZELL HC-B3TN-3D	102 2110 V	77.2		19	6	YES
DORNIER DO-228-202*	13.15	2 ALLIED SIGNAL TPE-331-5-252D	455 3810	1	4 HARTZELL HC-B4TN-5ML	107 V	78.3		4	6	NO
DORNIER DO-228-202*	13.15	2 ALLIED SIGNAL TPE-331-5-252D	455 3810	1	4 HARTZELL HC-B4TN-5ML	107 V	78.3		19	6	YES
FOKKER F27	45.0 42.0	2 ROLLS ROYCE DART 532-7R	2307	8	2? DOWTY ROTOL R193-4-30-4	138 V	85.0		42	I	YES
PARTENAVIA 68CTC	4.38 4.38	2 LYC TIO/T0-360-C1A6D	210 2575	4	2 HARTZELL HC-C2YK-2CUF	76 2575 V	75.4		6	F	NO
PIPER PA-18-150	17.5 17.5	1 LYC O-320-A2B	150 2700	7	2 SENSENIH M74DM6-0-56	74 2700 F	69.0		3	F	YES
PIPER 28-R200	2.65 2.65	2 TCM TSIO-360-E/EB	200 2700	5	2 HARTZELL HC-C2YK-1()/F	74 2700 V	75.5		3	F	NO
PIPER 32-300	3.4 3.4	1 LYC IO-540-K1A/G5	300 2700	5	2 HARTZELL HC-C2YK-1()/F	80 2700 V	80.5		6	F	NO

APPENDIX I
GCNP INCENTIVE PLAN NOISE LEVELS
PROPELLER-DRIVEN SMALL AIRPLANES

Updated 12/22/2008

MAKE MODEL	MTOW MLW	# OF ENGINES MAKE MODEL	ENG. PWR RPM	EXHAUST	# OF PROP BLADES MAKE MODEL	PROP DIA RPM PITCH	NOISE LEVEL		# OF PAX	NOTES	QUIET TECHNOLOGY
							APP. F (dBA)	APP. G (dBA)			
PIPER 32RT-300T	3.6 3.6	1 LYC TIO-540-S1AD	270 2575	4	2 HARTZELL HCE2YR-1()/F	80 2575 V	75.7		6	F	NO
PIPER PA-31-350	7.01 7	2 LYC TIO-540-J2BD	315 2400	4	3 HARTZELL HC-E3YR-2ATF	80 2400 V	78.0		9	F	NO
PIPER PA-31-T3	9.0	2 PWC PT6A-11	455 3810	1	3 HARTZELL HC-B3TN-3B/T	93 V	76.6		3	F	NO
PIPER PA-34-200T	4.57 4.34	2 TCM TSIO-360-E/EB	200 2575	4	2 HARTZELL BHC-C2YF-2()F/UF	76 2575 V	75.7		5	F	NO
PIPER PA-34-200T	4.57 4.34	1 LYC IO-360-C1C/6	200 2575	5	3 MCCAULEY 3AF34C502/3	76 2575 V	78.6		5	F	NO
PIPER PA-42-720	11.2 10.23	2 PRATT+WHITNEY PT6A-41	720	8	3 HARTZELL HC-B3TN-3B/T10173AB-6Q	95 2000 V	80.3		8	F	NO

* currently flying at GCNP

EXHAUST CONFIG STUB PIPES

- 1 = SMALL COLLECTOR, SHORT EXHAUST PIPE
- 2 = BAFFLES IN COLLECTOR AND/OR CONES IN EXHAUST PIPE
- 3 = TURBOCHARGER
- 4 = HEAT MUFF
- 5 = COLLECTOR WRAPAROUND MANIFOLD STRAIGHT PIPE
- 6 = MANIFOLD MUFFLER
- 7 = RESONATOR MUFFLER
- 8 = TURBINE

APPENDIX I
GCNP INCENTIVE PLAN NOISE LEVELS
PROPELLER-DRIVEN SMALL AIRPLANES

Updated 12/22/2008

MAKE MODEL	MTOW MLW	# OF ENGINES MAKE MODEL	ENG. PWR RPM	EXHAUST	# OF PROP BLADES MAKE MODEL	PROP DIA RPM PITCH	NOISE LEVEL		# OF PAX	NOTES	QUIET TECHNOLOGY
							APP. F (dBA)	APP. G (dBA)			

NOTES COLUMN INDICATE THE HIERARCHY USED IN OBTAINING THE NOISE LEVEL
FOR THE EXPLANATION OF THE HIERARCHY SEE SECTION 6.

- F = 14 CFR part 36 Appendix F measured noise levels
- G = 14 CFR part 36 Appendix G certificated noise level
- 6 = ICAO Annex 16, Volume I Chapter 6 measured noise levels
- 10 = ICAO Annex 16, Volume I Chapter 10 certificated noise level
- R = Research or other measurement test data
- E = FAA approved noise estimation method defined by fourth hierarchy in Section 5
- I = FAA approved noise estimation using the Integrated Noise Model

FOR DEFINITION OF CATEGORIES SEE SECTION 4 AND FIGURE 1.

NOMENCLATURE	#	Number
APP. F (dBA)		Measured/Estimated APP. F level in dBA by the method described in column labeled NOTES
APP. G (dBA)		Measured/Estimated APP. G level in dBA by the method described in column labeled NOTES
ENG, POWER, RPM		Engine power in HP, operational RPM
MAKE, MODEL		Manufacturer and model designation
MTOW, MLW		Maximum Takeoff Weight, Maximum Landing Weight
PAX		Passenger seats
PROP DIAM, RPM, PITCH		Propeller diameter in inches, operational RPM AND PITCH (V: Variable, F: Fix)

APPENDIX II
GCNP INCENTIVE PLAN NOISE LEVELS
HELICOPTERS

Updated 12/22/2008

HELICOPTER MAKE MODEL	MGW MLW	# OF ENGINES MAKE MODEL	MAIN ROTOR #OF BLADES MAKE MODEL	MAIN ROTOR DIA.	TAIL ROTOR #OF BLADES MAKE MODEL	TAIL ROTOR DIA	NOISE LEVEL		# OF PAX	NOTES	QUIET TECHNOLOGY
							APP. H (EPNdB)	APP. J (SEL)			
AEROSPATIALE AS-350-B ASTAR	4.63	1 Turbomeca Arriel 1B	3 AEROSPATIALE/ EUROCOPTER	35'	2 AERO/EURO	6'10"	86.8		6	H	NO
AEROSPATIALE AS-350-BA*	4.63	1 Turbomeca Arriel 1B	3 AEROSPATIALE/ EUROCOPTER	35'	2 AERO/EURO	6'10"	86.8		6	H	NO
AEROSPATIALE AS-350-B2 Ecureuil *	4.96	1 Turbomeca Arriel 1D1	3 AEROSPATIALE/ EUROCOPTER	35'	2 AERO/EURO	6'10"	87.1		6	H	NO
AEROSPATIALE AS-350-B2 Ecureuil *	4.96	1 Honeywell LTS101-700D-2	3 AEROSPATIALE/ EUROCOPTER	35'	2 AERO/EURO	6'10"		85.4	6		NO
AEROSPATIALE AS-350-B3 Ecureuil	4.96	1 Turbomeca Arriel 2B	3 AEROSPATIALE/ EUROCOPTER	35'	2 AERO/EURO	6'10"	87.3		6	H/8	NO
AEROSPATIALE AS-350-B3 Ecureuil	5.071	1 Turbomeca Arriel 2B	3 AEROSPATIALE/ EUROCOPTER	35'	2 AERO/EURO	6'10"		84.7	6	J/11	NO
BELL Jet Ranger BHT-206-B/BII*	3.2	1 Allison 250-C20	2 BHT-206	33' 4"	2 BHT-206	5' 5"	84.6		4	8	NO
BELL - Long Ranger BHT-206-L/ L1*	4.05	1 Allison 250-C28B	2 BHT-206	37'	2 BHT-206	5' 6"	85.8		6	8	NO
BELL - Long Ranger III BHT-206-L3*	4.15	1 Allison 250-C30P	2 BHT-206	37'	2 BHT-206	5' 6"	87.8		6	8	NO
BELL - Long Ranger IV BHT-206-L4*	4.45	1 Allison 250-C30P	2 BHT-206	37'	2 BHT-206	5' 6"	85.2		6	H	NO
BELL - Long Ranger BHT-206-L4*	4.55	1 Allison 250-C20R	2 BHT-206	37'	2 BHT-206	5' 6"		85.2	6	J	NO
BELL BHT-407*	5	1 Allison 250-C47	4 BHT-407	35'	2 BHT-407	5' 5"		85.1	6	J	NO
BELL BHT-407 with Quiet Cruise Kit*	5	1 Allison 250-C47	4 BHT-407	35'	2 BHT-407	5' 5"		81.3	6	J	YES

APPENDIX II
GCNP INCENTIVE PLAN NOISE LEVELS
HELICOPTERS

Updated 12/22/2008

EUROCOPTER EC-130-B4*	5.291	1 Turbomeca Arriel 2 B 1	3 EUROCOPTER	35'	10 EUROCOPTER	3'3"	84		7	H/8	YES
EUROCOPTER EC-130-B4*	5.351	1 Turbomeca Arriel 2 B 1	3 EUROCOPTER	35'	10 EUROCOPTER	3'3"	84		7	H/8	YES
MDHI MD-900 Explorer*	6.25	1 PW206A 1C	5 MDHI	33.83'	NOTAR System	-	83		8	H	YES
MDHI MD-900 Explorer*	6.25	1 PW207E	5 MDHI	33.83'	NOTAR System	-	83		8	H	YES
Whisper Jet S-55QT (Sikorsky S-55 modified)*	7.7	1 Allied Signal TSE 331-10-591 SW	5 S-55	53'	2 S-55	8' 9"	80		9	H	YES

* Currently flying at GCNP

FOR THE EXPLANATION OF THE HIERARCHY SEE SECTION 6.

H = 14 CFR part 36 Appendix H

J = 14 CFR part 36 Appendix J

8 = ICAO Annex 16, Volume I Chapter 8

11 = ICAO Annex 16, Volume I Chapter 11

R = Research or other measurement test data

E = FAA approved noise estimation method as defined in the fourth hierarchy in Section 5

I = FAA approved noise estimation using the Integrated Noise Model

FOR DEFINITION OF CATEGORIES SEE SECTION 4 AND FIGURE 1-4.

NOMENCLATURE

#	Number
APP. H NOISE LEVEL	Measured/Estimated App. H level in EPNdB by method described in column labeled NOTES
APP. J NOISE LEVEL	Measured/Estimated App. J level in SEL by method described in column labeled NOTES
DIA	Diameter in feet
MAKE, MODEL	Manufacturer and model designation
MTOW, MLW (1000 LBS)	Maximum Takeoff Weight, Maximum Landing Weight
PAX	Passenger seats