

Aircraft Overflight Noise Levels

Ground-based noise levels resulting from aircraft overflights can vary greatly, not only by aircraft type, but also by type of operation for individual aircraft. Table 7-1 presents both the SEL and L_{max} for a single overflight of various operation types conducted by the F-35C, FA-18C/D, FA-18E/F, F-5, P-8, and P-3C as modeled for this noise study. It should be noted that while all departures in Table 7-1 are compared at 1,000 feet AGL, typical departure altitude profiles at any single point around the NAS vary greatly from aircraft type to aircraft type because the variability in aircraft performance.

Table 7-1. Comparison of Aircraft Overflight Noise Levels

Flight Condition	Altitude (ft AGL)	F-35A				F-35B*				F-35C*			
		SEL (dB)	Lmax (dB)	Power (%ETR)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (%ETR)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (%ETR)	Speed (kts)
Departure ¹	1,000	119	115	100	250	119	115	100	255	119	115	100	255
Non-Break Arrival ²	1,000	99	95	40	180	99	95	40	180	102	97	45	145
Touch & Go / 1,000ft VFR Pattern ²	1,000	98	95	40	210	107	102	55	145	105	99	50	145
FCLP / 600ft VFR Pattern ²	600	N/A	N/A	N/A	N/A	111	107	55	145	108	104	50	145
GCA Box / IFR Pattern ¹	1,600	86	81	30	250	86	81	30	250	88	83	34	250
Flight Condition	Altitude (ft AGL)	FA-18E/F				FA-18C/D				F-22A			
		SEL (dB)	Lmax (dB)	Power (%NC)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (%NC)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (%ETR)	Speed (kts)
Departure ¹	1,000	115	111	95	280	117	108	96.5	255	120	116	150	300
Non-Break Arrival ²	1,000	113	108	85	130	109	103	88	140	98	87	27	215
Touch & Go / 1,000ft VFR Pattern ²	1,000	115	110	87	140	107	101	87	140	113	108	70	215
FCLP / 600ft VFR Pattern ²	600	119	115	87	140	111	107	87	140	N/A	N/A	N/A	N/A
GCA Box / IFR Pattern ¹	1,600	98	91	82	250	89	83	82	220	109	102	70	240
Flight Condition	Altitude (ft AGL)	F-5E				P-8A**				P-3C			
		SEL (dB)	Lmax (dB)	Power (%RPM)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (lbs)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (ESHP)	Speed (kts)
Departure ¹	1,000	108	101	100	315	96	No Data	19513	150	91	85	3500	195
Non-Break Arrival ²	1,000	92	85	82	175	87	No Data	5530	140	84	81	800	140
Touch & Go / 1,000ft VFR Pattern ²	1,000	92	85	82	180	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FCLP / 600ft VFR Pattern ²	600	96	91	82	180	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GCA Box / IFR Pattern ¹	1,600	94	87	93	300	90	No Data	17760	200	80	75	1200	220
Flight Condition	Altitude (ft AGL)	F-15A (F100-PW-100)				F-16C (F110-GE-100)				AV-8B			
		SEL (dB)	Lmax (dB)	Power (%NC)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (%NC)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (%RPM)	Speed (kts)
Departure ¹	1,000	111	104	90	315	96	90	93	350	110	105	111	275
Non-Break Arrival ²	1,000	97	89	80	165	84	77	85	160	96	88	70	150
Touch & Go / 1,000ft VFR Pattern ²	1,000	97	89	80	160	85	77	85	150	96	88	70	150
FCLP / 600ft VFR Pattern ²	600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GCA Box / IFR Pattern ¹	1,600	93	84	80	180	83	76	87	250	96	91	93	250

Table 7-1. Comparison of Aircraft Overflight Noise Levels (Concluded)

Flight Condition	Altitude (ft AGL)	EA-6B				E-2C				KC-135R			
		SEL (dB)	Lmax (dB)	Power (%RPM)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (ISHP)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (%NF)	Speed (kts)
Departure ¹	1,000	121	113	91.5	230	95	88	5100	155	92	86	85	205
Non-Break Arrival ²	1,000	114	107	85	130	81	75	1150	120	91	83	66.5	145
Touch & Go / 1,000ft VFR Pattern ²	1,000	111	105	83	140	90	82	2500	150	N/A	N/A	N/A	N/A
FCLP / 600ft VFR Pattern ²	600	115	111	83	140	93	87	2500	150	N/A	N/A	N/A	N/A
GCA Box / IFR Pattern ¹	1,600	110	98	83	250	86	80	3500	250	89	81	85	185

Flight Condition	Altitude (ft AGL)	T-45				C-21A				C-9A			
		SEL (dB)	Lmax (dB)	Power (%RPM)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (%NC)	Speed (kts)	SEL (dB)	Lmax (dB)	Power (EPR)	Speed (kts)
Departure ¹	1,000	106	97	100	215	93	84	96	160	98	91	1.7	185
Non-Break Arrival ²	1,000	96	86	89	120	78	69	65	125	93	87	1.35	160
Touch & Go / 1,000ft VFR Pattern ²	1,000	97	87	90	130	78	70	68	140	N/A	N/A	N/A	N/A
FCLP / 600ft VFR Pattern ²	600	100	92	90	130	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GCA Box / IFR Pattern ¹	1,600	77	68	84	165	N/A	N/A	N/A	N/A	94	86	1.7	185

Notes:

- SEL = Sound Exposure Level; Lmax = Maximum (instantaneous) Sound Level; both are A-weighted decibels (dB)
- SEL and Lmax values based on modeled weather conditions of: 77.9° F, 68.1% relative humidity, and 30.02 in HG atmospheric pressure
- SEL and Lmax noise levels are for flights passing directly overhead at the given altitude
- ETR = Engine Thrust Request
- NC = Compressor Stage RPM
- ESHP = Equivalent Shaft Horsepower
- N/A = Operation not applicable to aircraft type
- 1 Aircraft in 'clean' configuration, i.e., gear and flaps up
- 2 Aircraft in 'dirty' configuration, i.e., gear and flaps down.
- * Based on F-35A noise data measured Oct 22 2008 at Edwards Airforce Base
- ** Based on B737-700 noise data
- Currently the NOISEMAP 7 noise database contains no Lmax data for the B737-700

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