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ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SUBJECT: AIRPLANE NOISE LEVELS

1. PURPOSE. This circular provides noise level data for turbine powered airplanes.

2. BACKGROUND.

   a. Within the agency's regulatory program for airplane noise, both adopted and proposed rulemaking require the quantification of airplane noise levels.

   b. Positive progress in the control and abatement of airplane noise has been, and will continue to be, made. A summary listing of existing airplane noise levels will provide both private and public exposure to this progress, as well as offering a common noise level reference for potential future reductions.

3. NOISE LEVELS. Airplane noise levels are presented in Appendixes 1 and 2. Appendix 1 data are based on certificated noise levels. Appendix 2 data are estimates of uncertificated noise levels, since certificated levels are not available for all airplanes.

   These noise levels are expressed in terms of Effective Perceived Noise Level (EPNdB) considering:

   a. Measurement and evaluation procedures of Federal Aviation Regulation (FAR) Part 36;

   b. Design and performance limits of each airplane; and

   c. Noise level increments ($\triangle$ dB) above or below appropriate FAR Part 36, Appendix C, noise limits for each airplane on takeoff, sideline and approach.

Initiated by: AEQ-20

4. REVISIONS. The airplane noise levels of Appendixes 1 and 2 will be subject to revisional updating periodically.

   a. Airplane certificated noise levels (Appendix 1) will be revised to include additional certification actions as they occur (on a semi-annual schedule).

   b. Airplane uncertificated noise levels (Appendix 2) were determined from the combined data sources of the airplane manufacturers, ICAO data preparation, and FAA research. These levels are estimates and will be updated through revisions as additional test-evaluation and/or other supportable noise data become available. The revisions will be issued quarterly if data source availability warrants.

   c. Revisions will be issued to holders of the initial circular. Requests for additional copies of either the initial circular or revisions should be addressed to the Department of Transportation, Distribution Unit, TAD-484.3, Washington, D. C. 20590.

R. P. Skully
Director of Environmental Quality

APPENDIX 1. AIRPLANE CERTIFICATED NOISE LEVELS (EPNdB)

Airplane	Engine	(No.)	Thrust (Lbs.)	Takeoff: Gross Weight (Lbs.)	Flap (Deg)	Existing (EPNdB)	(Δ dB)	Part 36 (EPNdB)	Sideline: Existing (EPNdB)	(Δ dB)	Part 36 (EPNdB)	Approach: Gross Weight (Lbs.)	Flap (Deg)	Existing (EPNdB)	(Δ dB)	Part 36 (EPNdB)
DC-10-10	CF6-6D	(3)	39,300	430,000	8	99.0	(-6.5)	105.5	96.0	(-11.0)	107.0	363,500	50	106.0	(-1.0)	107.0
	CF6-6D1	(3)	40,300	440,000	8	99.0	(-7.0)	106.0	96.0	(-11.0)	107.0	Same as -6D (Note: 35° flap -4.0 dB)				
DC-10-30	CF6-50A	(3)	48,400	555,000	10	104.0	(-3.5)	107.5	97.0	(-11.0)	108.0	365,500	50	107.0	(-1.0)	108.0
	CF6-50A	(3)	48,400	555,000	8	104.0	(-3.5)	107.5	96.0	(-12.0)	108.0	403,000	50	108.0	(+0.0)	108.0
DC-10-40	JT9D-20 Dry	(3)	44,500	530,000	10	101.0	(-6.0)	107.0	94.0	(-13.5)	107.5	380,000	50	105 0	(-2.5)	107.5
L-1011	RB 211-22	(3)	41,030	430,000	10	98.0	(-7.5)	105.5	95.0	(-12.0)	107.0	358,000	42(DLC on)	103.0	(-4.0)	107.0
	RB 211-22C	(3)	41,030	430,000	10	97.0	(-8.5)	105.5	95.0	(-12.0)	107.0	Same as -22 (Note: 33° flap -1.0 dB)				
B-747-100	JT9D-3 Dry	(4)	43,500	710,000	10	115.0	(+7.0)	108.0	101.9	(-6.1)	108.0	564,000	30	113.6	(+5.6)	108.0
	JT9D-3A Wet	(4)	45,000	735,000	10 C/B	112.0	(+4.0)	108.0	103.0	(-5.0)	108.0	564,000	30	114.0	(+6.0)	108.0
(-100"A")	JT9D-7 Wet	(4)	47,000	735,000	10	111.0	(+3.0)	108.0	102.0	(-6.0)	108.0	Same as -3A (Note: 25° flap -4.0 dB)				
(-100"C")	JT9D-7 Wet	(4)	47,000	735,000	10	110.0	(+2.0)	108.0	102.0	(-6.0)	108.0	564,000	30	112.0	(+4.0)	108.0
(Fixed Lip)	JT9D-3A Wet	(4)	45,000	735,000	10	108.0	(+0.0)	108.0	100.0	(-8.0)	108.0	564,000	30	107.0	(-1.0)	108.0
(Fixed Lip)	JT9D-7 Wet	(4)	47,000	735,000	10	107.0	(-1.0)	108.0	100.0	(-8.0)	108.0	Same as -3A (Note: 25° flap -2.0 dB)				
B-747-200B	JT9D-7 Wet (Treated blow-in)	(4)	47,000	775,000	10	111.0	(+3.0)	108.0	101.0	(-7.0)	108.0	564,000 (Note: 25° flap -5.0 dB)	30	112.0	(+4.0)	108.0
B-747-200B/F	JT9D-7 Wet (Fixed Lip)	(4)	47,000	775,000	10	107.0	(-1.0)	108.0	98.0	(-10.0)	108.0	(E) 564,000	30	106.0	(-2.0)	108.0
									(Note: Approach, flap 25° -2 dB) →			(F) 630,000	30	107.0	(-1.0)	108.0
	JT9D-3A Wet (Fixed Lip)	(4)	45,000	773,000	10	108.0	(+0.0)	108.0	98.0	(-10.0)	108.0	Same as -7				
B-727-200	JT8D-15	(3)	15,500	190,500	5 C/B	100.0	(+0.0)	100.0	102.0	(-3.0)	105.0	154,500	30	101.0	(-4.0)	105.0
	Quiet Nacelle			175,500	5 C/B	97.0	(-2.0)	99.0	102.0	(-2.5)	104.5	142,500	40	103.0	(-1.5)	104.5
B-737-200 Adv	JT8D-15	(2)	15,500	115,500	1 C/B	94.0	(-2.0)	96.0	103.0	(-0.5)	103.5	103,000	30	102.0	(-1.5)	103.5
Quiet Nac -15/9	JT8D-9	(2)	14,500	115,500	1 C/B	95.0	(-1.0)	96.0	101.0	(-2.5)	103.5	Same as -15				
Cessna 500	JT15D-1	(2)	2,200	11,500	15	78.0	(-15.0)	93.0	87.0	(-15.0)	102.0	11,000	40	88.0	(-14.0)	102.0
F-28 (MK1000)	Spey M555-15	(2)	9,850	65,000	6 C/B	90.0	(-3.0)	93.0	99.5	(-2.5)	102.0	59,000	42	101.2	(-0.8)	102.0
F-28 (MK2000)	Spey M555-15	(2)	9,850	65,000	6 C/B	90.0	(-3.0)	93.0	99.5	(-2.5)	102.0	59,000	42	101.8	(-0.2)	102.0
HS-748-2A	Dart MK532-2L	(2)	2,280 (ESHP)	44,495	15 C/B	92.5	(-0.5)	93.0	96.3	(-5.7)	102.0	41,500	27.5	103.8	(+1.8)	102.0

Note: (1) EPNdB values shown to nearest 0.5 dB, except original B-747-100 levels.
(2) Additional data exists for certain airplanes at lesser weights. Noise levels are proportionately lower for the lower weights.

APPENDIX 2. AIRPLANE UNCERTIFICATED NOISE LEVELS (EPNdB) - ESTIMATED VALUES

Airplane	Engine	(No.)	Thrust (lbs.)	Takeoff (With Thrust Cutback)				Sideline			Approach			
				Gross Weight (lbs.)	Exist-ing	EPNdB (ΔdB)	Part 36	Exist-ing	EPNdB (ΔdB)	Part 36	Gross Weight (lbs.)	Exist-ing	EPNdB (ΔdB)	Part 36
B-707-100B	JT3D-3B	(4)	18,000	258,000	108.0	(+6.0)	102.0	108.0	(+2.5)	105.5	190,000	118.0	(+12.5)	105.5
B-707-300B/C	JT3D-3B	(4)	18,000	332,000	114.0	(+10.5)	103.5	108.0	(+1.5)	106.5	247,000	120.0	(+13.5)	106.5
B-720B	JT3D-1	(4)	17,000	235,000	104.0	(+2.5)	101.5	108.0	(+2.5)	105.5	175,000	117.0	(+11.5)	105.5
B-727-100	JT8D-1/7	(3)	14,000	160,000	99.5	(+1.0)	98.5	100.5	(-3.5)	104.0	137,500	110.5	(+6.5)	104.0
B-727-200	JT8D-9	(3)	14,500	172,500	101.0	(+2.0)	99.0	100.5	(-4.0)	104.5	148,000	109.5	(+5.0)	104.5
B-727-200	JT8D-9	(3)	14,500	190,500	102.0	(+2.0)	100.0	102.0	(-3.0)	105.0	154,500	109.5	(+4.5)	105.0
B-737-100	JT8D-9	(2)	14,500	111,000	96.0	(+0.0)	96.0	100.0	(-3.0)	103.0	101,000	111.0	(+8.0)	103.0
B-737-200	JT8D-9	(2)	14,500	111,000	98.0	(+2.0)	96.0	101.0	(-2.0)	103.0	103,000	112.0	(+9.0)	103.0
B-737-200 Adv	JT8D-15	(2)	15,500	115,500	96.0	(+0.0)	96.0	104.0	(+0.5)	103.5	100,800	108.0	(+4.5)	103.5
DC-8-30	JT4A-9	(4)	16,800	315,000	113.0	(+9.5)	103.5	109.0	(+3.0)	106.0	207,000	111.0	(+5.0)	106.0
DC-8-50	JT3D-3B	(4)	18,000	315,000	114.0	(+10.5)	103.5	106.0	(+0.0)	106.0	240,000	118.0	(+12.0)	106.0
DC-8-61	JT3D-3B	(4)	18,000	325,000	117.0	(+13.5)	103.5	103.0	(-3.5)	106.5	245,000	117.0	(+10.5)	106.5
DC-9-10	JT8D-1	(2)	14,000	90,700	90.0	(-4.5)	94.5	102.0	(-0.5)	102.5	81,700	109.0	(+6.5)	102.5
DC-9-20	JT8D-9	(2)	14,500	98,000	90.0	(-5.0)	95.0	103.0	(+0.0)	103.0	95,300	109.0	(+6.0)	103.0
DC-9-30	JT8D-11	(2)	15,000	114,000	95.0	(-1.0)	96.0	103.0	(-0.5)	103.5	102,000	109.0	(+5.5)	103.5
CV-880	CJ805-3B	(4)	11,650	184,000	115.0	(+15.5)	99.5	109.0	(+4.5)	104.5	155,000	106.0	(+1.5)	104.5
CV-990	CJ805-23	(4)	16,100	253,000	110.0	(+8.0)	102.0	111.0	(+5.5)	105.5	202,000	112.0	(+6.5)	105.5
BAC 1-11 (500)	Spey M-512-14	(2)	12,550	100,000	103.0	(+8.0)	95.0	108.5	(+5.5)	103.0	87,000	102.5	(-0.5)	103.0
VC-10	Conway M-540	(4)	20,370	314,000	110.0	(+6.5)	103.5	113.0	(+7.0)	106.0	216,000	115.0	(+9.0)	106.0
Super VC-10	Conway M-550/B	(4)	21,800	335,000	110.0	(+6.0)	104.0	113.5	(+7.0)	106.5	237,000	115.0	(+8.5)	106.5
Caravelle 10B[3]	JT8D-9	(2)	14,500	123,500	99.0	(+2.5)	96.5	102.0	(-1.5)	103.5	109,200	107.0	(+3.5)	103.5
Concorde	0-593/M-602	(4)	38,500	385,000	114.0	(+10.0)	105.0	111.0	(+4.0)	107.0	240,000	115.0	(+7.0)	107.0
TU-144	NK-144	(4)	38,580	360,000	110.9	(+5.5)	104.5	114.0	(+7.5)	106.5	220,000	110.0	(+3.5)	106.5

NOTE: EPNdB values shown to nearest 0.5 dB