

Civil Aircraft Noise Control Standards

Full text in 8 articles jointly promulgated in Environmental Protection Administration Order (77) Huan-Shu-Kung-Tzu No.08563 and Ministry of Transportation and Communications Order Chiao-Hang (77) No. 09477 on May 4, 1988.

Revisions to Articles 1 and 8 promulgated in Environmental Protection Administration Order (89) Huan-Shu-Kung-Tzu No. 0056631 on October 11, 2000.

Revisions to full text in 9 articles jointly promulgated in Environmental Protection Administration Order Huan-Shu-Kung-Tzu No.0930083349 and Ministry of Transportation and Communications Order Chiao-Hang-Fa-Tzu No. 093B000080 on November 24,2004.

Revision jointly promulgated in Environmental Protection Administration Order Huan-Shu-Kung-Tzu No. 0980061237D and Ministry of Transportation and Communications Order Chiao-Hang-Tzu No 0980085036 on July 16, 2009.

Article 1

These standards are determined pursuant to Article 11, Paragraph 1 of the Noise Control Act

Article 2

Testing of civil aircraft noise levels shall be performed in accordance with effective perceived noise (EPN), A-weighting maximum noise level, or sound exposure level (SEL) regulations in ISO-3891. The units employed are EPN dB, LAmax dB, and SEL dB, respectively.

Article 3

Noise control standards for subsonic jet aircraft for which a prototype airworthiness certificate application was made by October 5, 1977 are shown in the following table:

Test points	Weight greater than or equal to 272,000 kg	Weight less than or equal to 34,000 kg	Weight between 34,000 kg and 272,000 kg
Approach noise level	108	102	$91.83+6.64 \log M$
Transverse noise level	108	102	$91.83+6.64 \log M$
Take-off noise	108	93	$67.56+16.61 \log M$

level			
Remarks	<ol style="list-style-type: none"> 1. Approach noise level measurement points: starting from a point 300 meters inward from the head of the runway (the touchdown point), follow the three dimensional glide angle and locate the point where the descent path has a vertical elevation of 120 meters (394 feet), which will be 2,000 meters beyond the head of the runway. 2. Transverse noise level measurement point: Along the lateral face of the aircraft take-off point, the location parallel to and 650 meters from the center line of the runway (or an extension of the center line of the runway) at which noise is greatest during the take-off process. 3. Take-off noise level measurement point: a location 6.5 kilometers away from the central line of the runway starting from the point at which an aircraft begins taxiing. 4. Measurement units are EPN dB; M represents the maximum take-off weight (1,000 kg). 		

Article 4

Noise control standards for subsonic jet aircraft for which a prototype airworthiness certificate application was made by October 5, 1977 and where the aircraft design was modified after November 26, 1981 are shown in the following table:

Test points	Number of engines	Maximum take-off weight (kg)	Noise control standards when the take-off weight is greater than or equal to the upper	Minimum take-off weight (kg)	Noise control standards when the take-off weight is less than or equal to the lower	Noise control standards when the take-off weight is between the upper and lower limits

			limit		limit	
Approach noise level		280,000	108	35,000	101	$89.03 + 7.75 \log M$
Transverse noise level		400,000	106	35,000	97	$83.87 + 8.51 \log M$
Take-off noise level	Two or less	325,000	104	48,300	93	$70.62 + 13.29 \log M$
	Three	325,000	107	34,000	93	The standard is $67.56 + 16.61 \log M$ when the weight is between 34,000 kg and 66,720 kg, and $73.62 + 13.29 \log M$ when between 66,720 kg and 325,000 kg
	Four or more	325,000	108	34,000	93	The standard is $67.56 + 16.61 \log M$ when the weight is between 34,000 kg and 133,450 kg, and $74.62 + 13.29 \log M$ when between

						133,450 kg and 325,000 kg
Remarks	1. All noise level measurement points are the same as in Remarks 1, 2, and 3 in the foregoing article. 2. Measurement units are EPN dB; M represents the maximum take-off weight (1,000 kg).					

Article 5

Noise control standards for subsonic jet aircraft for which a prototype airworthiness certificate application was made after October 6, 1977 are shown in the following table:

Test points	Number of engines	Maximum take-off weight (kg)	Noise control standards when the take-off weight is greater than or equal to the upper limit	Minimum take-off weight (kg)	Noise control standards when the take-off weight is less than or equal to the lower limit	Noise control standards when the take-off weight is between the upper and lower limits
Approach noise level		280,000	105	35,000	98	$86.03 + 7.75 \log M$
Transverse noise level		400,000	103	35,000	94	$80.87 + 8.51 \log M$
Take-off noise	Two or less	385,000	101	48,100	89	$66.65 + 13.29 \log M$

level	Three	385,000	104	28,600	89	69.65+13.29 log M
	Four or more	385,000	106	20,200	89	71.65+13.29 log M
Remarks	1. Apart from the transverse parallel distance of 450 meters, all noise level measurement points are the same as in Remarks 1, 2, and 3 in Article 3. 2. Measurement units are EPN dB; M represents the maximum take-off weight (1,000 kg).					

Article 6

Noise control standards for propeller aircraft are shown in the following tables in accordance with their maximum take-off weight and date of application for a prototype airworthiness certificate.

I . Noise control standards for propeller aircraft with a maximum take-off weight greater than 5,700 kg for which a prototype airworthiness certificate application was made by December 31, 1984 are shown in the following table:

Test points	Take-off weight greater than or equal to 384,700 kg	Take-off weight less than or equal to 34,000 kg	Take-off weight between 34,000 kg and 384,700 kg
Approach noise level	105	98	87.83+6.64 log M
Transverse noise level	103	96	85.83+6.64 log M
Take-off noise level	Take-off weight greater than or equal to 384,700 kg	Take-off weight less than or equal to 34,000 kg	Take-off weight between 34,000 kg and 384,700 kg
	106	89	63.56+16.61 log M
Remarks	A. Apart from the transverse parallel distance of 450 meters, all noise level measurement points are the same as in Remarks 1, 2, and 3 in Article 3. B. Measurement units are EPN dB; M represents the maximum take-off weight (1,000 kg).		

II . Noise control standards for propeller aircraft with a maximum take-off weight in excess of 5,700 kg for which a prototype airworthiness certificate application was made after January 1, 1985 but before November 16, 1988 are shown in the following table:

Test points	Number of engines	Maximum take-off weight (kg)	Noise control standards when the take-off weight is greater than or equal to the upper limit	Minimum take-off weight (kg)	Noise control standards when the take-off weight is less than or equal to the lower limit	Noise control standards when the take-off weight is between the upper and lower limits
Approach noise level		280,000	105	35,000	98	$86.03 + 7.75 \log M$
Transverse noise level		400,000	103	35,000	94	$80.87 + 8.51 \log M$
Take-off noise level	Two or less	385,000	101	48,100	89	$66.65 + 13.29 \log M$
	Three	385,000	104	28,600	89	$69.65 + 13.29 \log M$
	Four or more	385,000	106	20,200	89	$71.65 + 13.29 \log M$
Remarks	<p>A. Apart from the transverse parallel distance of 450 meters, all noise level measurement points are the same as in Remarks 1, 2, and 3 in Article 3.</p> <p>B. Measurement units are EPN dB; M represents the maximum</p>					

	take-off weight (1,000 kg).
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III . Noise control standards for propeller aircraft with a maximum take-off weight of less than 8,618 kg for which a prototype airworthiness certificate application was made by November 16, 1988 are shown in the following table:

Test points	Take-off weight greater than or equal to 1,500 kg	Take-off weight less than or equal to 600 kg	Take-off weight between 600 kg and 1,500 kg
noise level	80	68	$68 + 13.33 \log M$
Remarks	<p>C. Apart from the transverse parallel distance of 450 meters, all noise level measurement points are the same as in Remarks 1, 2, and 3 in Article 3.</p> <p>D. Measurement units are EPN dB; M represents the maximum take-off weight (1,000 kg).</p>		

IV . Noise control standards for propeller aircraft with a maximum take-off weight greater than 8,618 kg for which a prototype airworthiness certificate application was made after November 17, 1988 are shown in the following table:

Test points	Number of engines	Maximum take-off weight (kg)	Noise control standards when the take-off weight is greater than or equal to the upper limit	Minimum take-off weight (kg)	Noise control standards when the take-off weight is less than or equal to the lower limit	Noise control standards when the take-off weight is between the upper and lower limits
Approach		280,000	105	35,000	98	$86.03 + 7.75 \log$

noise level						M
Transverse noise level		400,000	103	35,000	94	$80.87+8.51 \log M$
Take-off noise level	Two or less	385,000	101	48,100	89	$66.65+13.29 \log M$
	Three	385,000	104	28,600	89	$69.65+13.29 \log M$
	Four or more	385,000	106	20,200	89	$71.65+13.29 \log M$
Remarks	<p>A. Apart from the transverse parallel distance of 450 meters, all noise level measurement points are the same as in Remarks 1, 2, and 3 in Article 3.</p> <p>B. Measurement units are EPN dB; M represents the maximum take-off weight (1,000 kg).</p>					

V. Noise control standards for propeller aircraft with a maximum take-off weight of less than 8,618 kg for which a prototype airworthiness certificate application was made after November 17, 1988 are shown in the following table:

Test points	Take-off weight greater than or equal to 1,400 kg	Take-off weight less than or equal to 600 kg	Take-off weight between 600 kg and 1,400 kg
noise level	88	76	$83.23+32.67 \log M$
Test points	Take-off weight greater than or equal to 1,500 kg	Take-off weight less than or equal to 570 kg	Take-off weight between 570 kg and 1,500 kg
noise level I	85	70	$78.71+35.7 \log M$
Remarks	<p>A. Take-off noise level measurement point: a location 2,500 meters away from the central line of the runway starting from the point at which an aircraft begins taxiing to take flight.</p> <p>B. Measurement units are L_{Amax} dB; M represents the maximum take-off weight (1,000 kg).</p>		

Either standards may be applied when the situation simultaneously

conforms to the conditions in Subparagraph 1 and Subparagraph 3 of the foregoing paragraph. The same when the situation simultaneously conforms to the conditions in Subparagraph 2 and Subparagraph 3 of the foregoing paragraph.

The noise control standards in Paragraph 1 are not applicable to stunt, special event, agricultural, and fire fighting propeller aircraft.

Article 7

Noise control standards for helicopter aircraft are shown in the following table in accordance with their maximum take-off weight and date of model airworthiness certificate application:

- I. Noise control standards for helicopter aircraft with a maximum take-off weight that is less than or equal to 788 kg and for which a prototype airworthiness certificate application was made after December 31, 1984 or for which an aircraft design modification airworthiness certificate application was made after November 17, 1988 are shown in the following table:

Test points	Take-off weight greater than or equal to 1,400 kg	Take-off weight less than or equal to 600 kg	Take-off weight between 600 kg and 1,400 kg
Take-off noise level	109	89	$90.03 + 9.97 \log M$
Approach noise level	110	90	$91.03 + 9.97 \log M$
Hover noise level I	108	88	$89.03 + 9.97 \log M$
Remarks	<p>A. Take-off noise level measurement point: a point 500 meters horizontally in the direction of flight and points 0 meters on either side of the ground flight path base point.</p> <p>B. Approach noise level measurement points: when the aircraft's approach flight path has a 6° glide angle, the point beneath the aircraft when its altitude is 120 meters, which is 1,140 meters distant from the point of intersection with the ground. Points 150 meters on either side of the ground flight path base point.</p> <p>C. Hover noise level measurement points: below the flight path of the aircraft when its altitude is 0 meters.</p> <p>D. Measurement units are EPN dB ; M represents the maximum</p>		

	take-off weight (1,000 kg).
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II . Noise control standards for helicopter aircraft with a maximum take-off weight that is less than or equal to 788 kg and for which a prototype airworthiness certificate application or design modification airworthiness certificate application was made after March 21, 2002 are shown in the following table:

Test points	Take-off weight greater than or equal to 80,000 kg	Take-off weight less than or equal to 788 kg	Take-off weight between 788 kg and 80,000 kg
Take-off noise level	106	86	$87.03 + 9.97 \log M$
Approach noise level	109	89	$90.03 + 9.97 \log M$
Hover noise level I	104	84	$85.03 + 9.97 \log M$
Remarks	<p>A. The take-off, approach, and hover noise measurement points are the same as in Notes 1., 2., and 3. of the same subparagraph.</p> <p>B. Measurement units are EPN dB ; M represents the maximum take-off weight (1,000 kg).</p>		

III . Noise control standards for helicopter aircraft with a maximum take-off weight that is less than or equal to 3,175 kg and for which a prototype airworthiness certificate application or design modification airworthiness certificate application was made after November 11, 1993 are shown in the following table:

Test points	Take-off weight less than or equal to 788 kg	Take-off weight greater than or equal to 788 kg
Hover noise level I	82	$83.03 + 9.97 \log M$

Remarks	<p>A. Hover noise level measurement points: below the flight path of the aircraft when its altitude is 0 meters.</p> <p>B. Measurement units are SEL dB ' ; M represents the maximum take-off weight (1,000 kg).</p>
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IV. Noise control standards for helicopter aircraft with a maximum take-off weight that is less than or equal to 3,175 kg and for which a prototype airworthiness certificate application or design modification airworthiness certificate application was made after March 21, 2002 are shown in the following table:

Test points	Take-off weight less than or equal to 788 kg	Take-off weight greater than or equal to 788 kg
Hover noise level	82	$80.49 + 9.97 \log M$
Remarks	<p>A. Hover noise level measurement points: below the flight path of the aircraft when its altitude is 0 meters.</p> <p>B. Measurement units are SEL dB ' ; M represents the maximum take-off weight (1,000 kg).</p>	

The noise control standards in the foregoing paragraph are not applicable to stunt, special event, agricultural, and fire fighting helicopters.

Article 8

Volume testing procedures and method for measuring civil aircraft noise shall be carried out in accordance with Conventions on International Civil Aviation Annex 6.

Article 9

These Standards shall take effect on the date of promulgation.