

Democratic Socialist Republic of Sri Lanka



Civil Aviation Authority of Sri Lanka

Implementing Standards

(Issued under Sec. 120, Civil Aviation Act No. 14 of 2010)

Title: Aircraft Noise

Reference No. : IS-16-(i)-all

SLCAIS : 081

Date: 01st January 2018

Pursuant to Sec.120 of the Civil Aviation Act No.14 of 2010 which is hereinafter referred to as the CA Act, Director General of Civil Aviation shall have the power to issue, whenever he considers it necessary or appropriate to do so, such Implementing Standards for the purpose of giving effect to any provision in the CA Act, Regulations or Rules made thereunder including the Articles of the Convention on International Civil Aviation specified in the Schedule to the CA Act.

Accordingly, I, being the Director General of Civil Aviation do hereby issue the Implementing Standards on **Aircraft Noise** as mentioned in the Attachment hereto (Ref: Attachment No. IS-16-(i)-all-Att.), elaborating the requirements to be satisfied for the effective implementation of the International Standards and Recommended Practices on 'Aircraft Noise' contained in Volume 1, of the Annex-16 to the Convention and the Air Navigation Regulations of 1955.

This Implementing Standard shall be applicable to all Aircraft Operators Approved by the Director General of Civil Aviation of Sri Lanka and shall come into effect with immediate effect and remain in force unless revoked.

The IS-081 shall be effective on 01st January 2018 and will be applicable on 01st January 2018. It will supersede the requirement in Aviation Safety Notice (ASN) 60.

H.M.C. Nimalsiri
Director General of Civil Aviation and
Chief Executive Officer

Civil Aviation Authority of Sri Lanka
04, Hunupitiya Road
Colombo 02.
Enclosure: Attachment No. IS-16(i)-all-Att.

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Implementing Standards

SLCAIS-081: Aircraft Noise

1. APPLICABILITY

Requirements contained in this document are based on the ICAO Annex-16 “Environmental Protection”. Noise certification or validation procedures apply to all such aircraft as specified in Annex 16 Volume-I and registered in Sri Lanka. These requirements are also applicable to foreign registered aircraft operated under foreign AOC issued by the Director General of Civil Aviation Sri Lanka when such aircrafts are operated in Sri Lanka airspace.

Note: Guidance material on the use of equivalent procedures address in this part is provided in the Environmental Technical Manual on the use of procedures in the Noise Certification of Aircraft ICAO DOC 9501.

PART I. DEFINITIONS

Where the following expressions are used in Noise certification of this IS they have the meanings ascribed to them below:

Aeroplane. A power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

Aircraft. Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth’s surface.

Associated aircraft systems. Those aircraft systems drawing electrical/pneumatic power from an auxiliary power unit during ground operations.

Auxiliary power-unit (APU). A self-contained power-unit on an aircraft providing electrical/pneumatic power to aircraft systems during ground operations.

Bypass ratio. The ratio of the air mass flow through the bypass ducts of a gas turbine engine to the air mass flow through the combustion chambers calculated at maximum thrust when the engine is stationary in an international standard atmosphere at sea level.

Derived version of a helicopter. A helicopter which, from the point of view of airworthiness, is similar to the noise certificated prototype but incorporates changes in type design which may affect its noise characteristics adversely.

Derived version of an aeroplane. An aeroplane which, from the point of view of airworthiness, is similar to the noise certificated prototype but incorporates changes in type design which may affect its noise characteristics adversely.

External equipment (helicopter). Any instrument, mechanism, part, apparatus, appurtenance, or accessory that is attached to or extends from the helicopter exterior but is not used nor is intended to be used for operating or controlling a helicopter in flight and is not part of an airframe or engine.

Helicopter. A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

Human performance. Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

Recertification. Certification of an aircraft with or without a revision to its certification noise levels, to a Standard different to that to which it was originally certificated.

Self-sustaining powered sailplane. A powered aeroplane with available engine power which allows it to maintain level flight but not to take off under its own power.

Subsonic aeroplane. An aeroplane incapable of sustaining level flight at speeds exceeding flight Mach number of 1.

PART II. AIRCRAFT NOISE CERTIFICATION

Chapter 1. Administration

- 1.1 The provisions of 1.2 to 1.6 shall apply to all aircraft included in the classifications defined for noise certification purposes in Chapters 2, 3, 4, 5, 6, 8, 10, 11 and 12 of this part where such aircraft are engaged in international air navigation.
- 1.2 For Sri Lanka registered aircraft noise certification shall be granted by the Director General on the basis of satisfactory evidence that the aircraft complies with requirements that are at least equal to the applicable Standards specified in this IS. For foreign registered aircraft noise certification shall have been granted by the State of Registry.
- 1.3 Subjected to para 1.2, if noise recertification is requested, it shall be granted or validated by the Director General on the basis of satisfactory evidence that the aircraft complies with requirements that are at least equal to the applicable Standards specified in this IS. The date used by a certifying authority to determine the recertification basis shall be the date of acceptance of the first application for recertification.
- 1.4 The documents attesting noise certification shall be approved by Director General and shall be carried in the aircraft during flight.
- 1.5 The documents attesting noise certification for an aircraft shall provide at least the following information:
 - 1) Name of State.
 - 2) Title of the noise document.
 - 3) Number of the document.
 - 4) Nationality or common mark and registration marks.
 - 5) Manufacturer and manufacturer's designation of aircraft.
 - 6) Aircraft serial number.
 - 7) Engine manufacturer, type and model.

- 8) Propeller type and model for propeller-driven aeroplanes.
- 9) Maximum take-off mass in kilograms.
- 10) Maximum landing mass, in kilograms, for certificates issued under Chapters 2, 3, 4, 5 and 12 of this IS.
- 11) The chapter and section of Annex 16 Volume 1 according to which the aircraft was certificated.
- 12) Additional modifications incorporated for the purpose of compliance with the applicable noise certification Standards.
- 13) The lateral/full-power noise level in the corresponding unit for documents issued under Chapters 2, 3, 4, 5 and 12 of this IS.
- 14) The approach noise level in the corresponding unit for documents issued under Chapters 2, 3, 4, 5, 8 and 12 of this IS.
- 15) The flyover noise level in the corresponding unit for documents issued under Chapters 2, 3, 4, 5 and 12 of this IS.
- 16) The overflight noise level in the corresponding unit for documents issued under Chapters 6, 8 and 11 of this IS.
- 17) The take-off noise level in the corresponding unit for documents issued under Chapters 8 and 10 of this IS.
- 18) Statement of compliance, including a reference to Annex 16, Volume I.
- 19) Date of issuance of the noise certification document.
- 20) Signature of the officer issuing it.

Note: Figure 1 shows The Noise Certificate

- 1.6 Item headings on the noise certification documents shall be uniformly numbered in Arabic numerals, the content shall be indicated as indicated in 1.5, so that on any noise certification document the number will, under any arrangement, refer to the same item heading.
- 1.7 An administrative system for implementation of noise certification documentation shall be as per the procedure approved by Director General.
- 1.8 A noise certification granted by another Contracting State may be recognized as valid, provided that the requirements under which such certification was granted are at least equal to the applicable Standards specified in Volume 1 of Annex 16.
- 1.9 A noise certification of an aircraft on its register shall be suspended or revoked if the aircraft ceases to comply with the applicable noise Standards. The suspension of a noise certification shall not be removed or a new noise certification shall not be granted unless the aircraft is found, on reassessment, to comply with the applicable noise Standards.

- 1.10 Unless otherwise specified in volume 1 of the Annex 16, the date to be used by Director General in determining the applicability of the Standards in this IS shall be the date of application submitted to the State of Design for a type certificate, or the date of application under an equivalent prescribed procedure by the certificating authority of the State of Design. The application shall be effective for a duration equal to the period applied in the designation of the airworthiness regulations appropriate to the aircraft type, except in special cases where the certificating authority accepts an extension of this period.
- 1.11 When this period of effectivity is exceeded, the date to be used in determining the applicability of the Standards in this IS shall be the date of issue of the type certificate, or the date of issue of approval under an equivalent prescribed procedure, less the duration of effectivity.
- 1.12 Aircraft operating procedures for noise abatement shall not be introduced unless the Director General, based on appropriate studies and consultation, determines that noise problems exists.

Chapter 2. Subsonic Jet Aeroplanes – Application for Type Certificate submitted before 6 October 1977

The Standards specified in the chapter 2 of the Annex-16 Volume I shall be applicable to the above stated aeroplanes.

Chapter 3

- 1. Subsonic Jet Aeroplanes – Application for Type Certificate submitted on or after 6 October 1977 and before 1 January 2006.**
- 2. Propeller-Driven Aeroplanes over 8618 kg. – Application for Type Certificate submitted on or after 1 January 1985, and before 1 January 2006.**

The Standards specified in the chapter 3 of the Annex-16 Volume I shall be applicable to the above stated aeroplanes.

Chapter 4

- 1. Subsonic Jet Aeroplanes and Propeller Driven Areoplanes with maximum certificated take off mass 55 000kg and over – Application for Type Certificate submitted on or after 1 January 2006 and before 31 December 2017.**
- 2. Subsonic Jet Aeroplanes with maximum certificated take off mass less than 55 000kg – Application for Type Certificate submitted on or after 1 January 2006 and before 31 December 2020.**
- 3. Propeller-Driven Aeroplanes with maximum certificated take off mass over 8618 kg and less than 55 000kg – Application for Type Certificate submitted on or after 1 January 2006 and before 31 December 2020.**

The Standards specified in the chapter 4 of the Annex-16 Volume I shall be applicable to the above stated aeroplanes.

Chapter 5. Propeller-Driven Aeroplanes over 8618 kg –Application for type Certificate submitted before 1 January 1985.

The Standards specified in the chapter 5 of the Annex-16 Volume I shall be applicable to the above stated aeroplanes.

Chapter 6. Propeller – Driven Aeroplanes not exceeding 8618 kg – Application for Type Certificate submitted before 17 November 1988.

The Standards specified in the chapter 6 of the Annex-16 Volume I shall be applicable to the above stated aeroplanes

Chapter 7. Propeller – Driven STOL (Short Take-Off and Landing) Aeroplanes

Guidelines provided in Attachment “B” of the Annex-16 Volume I may be used for noise certification of propeller driven STOL aeroplanes for which a Certificate of Airworthiness for the individual aeroplanes was first issued on or after 1 January 1976.

Chapter 8. Helicopters

The Standards specified in the chapter 8 of the Annex-16 Volume I shall be applicable to all helicopters except those designed exclusively for agricultural, firefighting or external load carrying purposes.

Note: The Owners/Operators of helicopters which have a maximum certified take-of mass of 3175 kg or less may alternatively elect to show compliance with Chapter 11 below.

Chapter 9. Installed Auxiliary Power Units (APU) and associated aircraft systems during ground operations.

Guidelines provided in Attachment “C” of the Annex-16 Volume I may be used for noise certification of Installed Auxiliary Power Units (APU) and associated aircraft systems during ground operations.

- (a) all aircraft for which the application for a Type Certificate was submitted, or another equivalent prescribed procedure was carried out by the certificating authority, on or after 6 October 1977; and
- (b) aircraft of existing type design for which the application for a change of type design involving the basic APU installation was submitted, or another equivalent prescribed procedure was carried out by the certificating authority, on or after 06 October 1977.

Chapter 10. Propeller-Driven Aeroplanes not exceeding 8618 kg – Application for Type Certificate or derived version submitted on or after 17 November 1988.

The Standards specified in the chapter 10 of the Annex-16 Volume I shall be applicable to the above stated aeroplanes

Chapter 11. Helicopter not exceeding 3175 kg MCTOM (Maximum Certificated Take-Off Mass)

The Standards specified in the chapter 11 of the Annex-16 Volume I shall be applicable to the above stated aeroplanes

Chapter 12. Supersonic Aeroplanes

- 1. Supersonic Aeroplanes — Application for Type Certificate submitted before 1 January 1975**
- 2. Supersonic Aeroplanes — Application for Type Certificate submitted on or after 1 January 1975**

The Standards specified in the chapter 12 of the Annex-16 Volume I shall be applicable to the above stated aeroplanes

Part III. Noise Measurement for Monitoring Purposes

Where the measurement of aircraft noise is made for monitoring purposes, the method of Annex 16 Volume I Appendix 5 shall be used.

Part IV. Assessment of Airport Noise

Where international comparison of noise assessment around airports is undertaken, the methodology described in recommended method for computing noise contours around airport (Doc 9911) shall be used.

Part V. Balanced Approach to Noise Management

The balanced approach to noise management consists of identifying the noise problem at an airport and then analyzing the various measures available to reduce noise through the exploration of four principal elements, namely reduction at source (addressed in Part II of Annex 16 Volume I), land-use planning and management, noise abatement operational procedures and operating restrictions, with the goal of addressing the noise problem in the most cost-effective manner.

All the elements of the balanced approach are addressed in the Guidance on the Balanced Approach to Aircraft Noise Management (Doc 9829).

2. NOISE STANDARDS

- 2.1 All aircraft operated under AOC issued by the Director General of Civil Aviation shall comply with noise standards of ICAO Annex 16, Volume I.
- 2.2 Noise certificates are issued on the basis of noise certificates issued by the National Aviation Authority (NAA) of ICAO Contracting States responsible for issue of Type Certificate in

compliance with ICAO Annex 16 Volume I noise standards or equivalent noise standards, information/data contained in the NAA (National Aviation Authority) approved flight manual.

3. ISSUE/ VALIDATION OF NOISE CERTIFICATE

3.1 An operator/owner is requested to submit the following documents to the CAASL requiring the issue of Noise Certificate by the Director General of Civil Aviation.

- (a) Original copy of the Noise certificate issued by the NAA responsible for issue of Type Certificate of the aircraft type;
- (b) Subsequent Noise Certificate(s) issued by the NAA(s) responsible for issue / renewal of Certificate of Airworthiness and Noise Certificate of the aircraft, if applicable;
- (c) Approved and current Flight Manual or other document / manual confirming that the aircraft complies with the noise standards in the section 3 above; and,
- (d) Verification and the statement that there has been no adverse and/or unapproved change in the acoustical design of the aircraft/engine and the current status of the aircraft and engine is in compliance with type design.

4. SUSPENSION/ CANCELLATION OF NOISE CERTIFICATE

4.1 Noise certificate of an aircraft may be suspended or revoked if the aircraft ceases to comply with the applicable noise standards. Suspension of Noise Certificate may not be removed or a new certificate may not be granted unless the aircraft is found, on reassessment, to comply with the applicable noise standards.

Registry No:



File Ref:

CIVIL AVIATION AUTHORITY OF SRI LANKA

Noise Certificate

(01) Nationality and Registration Marks;	(02) Manufacturer and Manufacturer's Designation of aircraft;	(03) Aircraft Serial No;		
(04) Engine Manufacturer Type /Model:		(05) Propeller Type/ Model;		
(06) Maximum Take-off mass;	(07) Maximum Landing mass	(08) Noise Certification Standards ICAO Annex 16 Vol 01 Chapter3		
(09) Additional modification incorporated for the purpose of compliance with the applicable noise certification standards:				
(10) Lateral/ full power noise level;	(11) Approach noise level	(12) Flyover noise level	(13) Overflight noise level	(14) Take-off noise level
(15) Remarks;				
This noise certificate is issued pursuant to volume 1 of Annex 16 to the Convention on International Civil Aviation, in respect of the above mentioned aircraft, which is considered to comply with the indicated noise standard when mentioned and operated in accordance with the relevant requirements and operating limitations.				
Date of issue :-			Director General of Civil Aviation	

Figure 1