

SOSIALISASI PERUBAHAN CASR PART 36 NOISE STANDARDS : AIRCRAFT TYPE AND AIRWORTHINESS CERTIFICATION

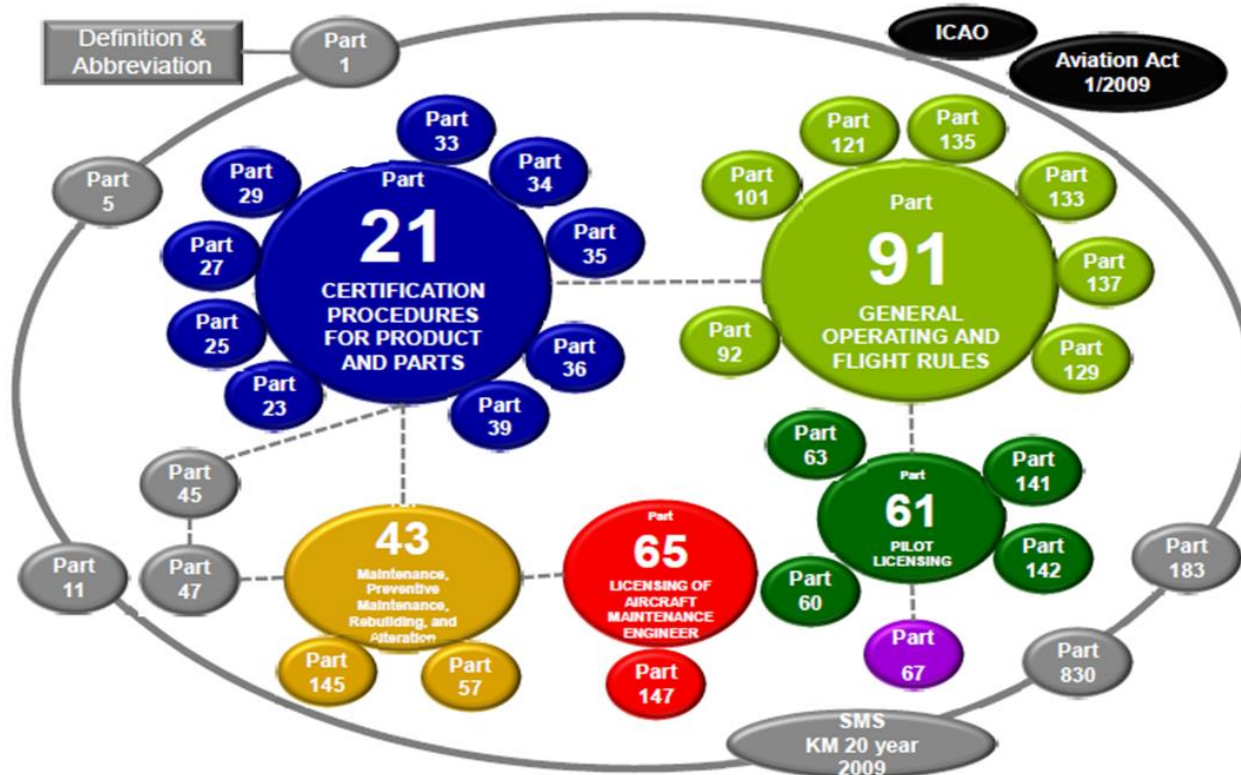


**Direktorat Kelaikudaraan dan Pengoperasian Pesawat Udara (DKPPU)
15 Desember 2021**



CASR Structure

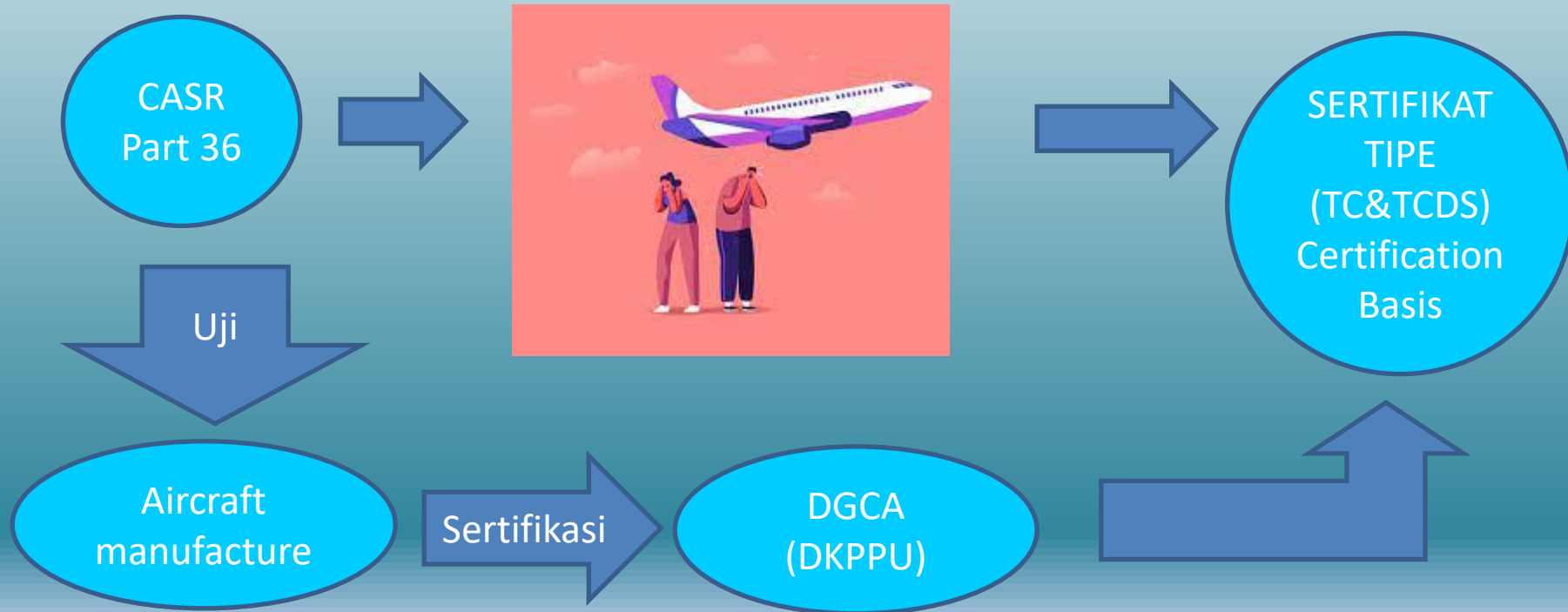
Civil Aviation Safety Regulatory Structure





CASR 36

- Standar Kebisingan Pesawat Udara





CASR 36

EFFECTIVITY:



Pesawat transport kategori



Pesawat normal kategori



Propeller Driven



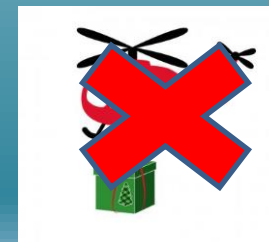
helicopter



Agriculture



Fire Fighting



Carrying external load

BAGIAN-BAGIAN CASR PART 36

Subpart A

- General

Subpart B

- Transport Category Large Airplanes and Jet Airplanes

Subpart C

- Reserved

Subpart D

- Noise Limits for Supersonic Transport Category Airplanes

Subpart E

- Reserved

Subpart F

- Propeller Driven Small Airplanes and Propeller Driven Commuter Category Airplanes

BAGIAN-BAGIAN CASR PART 36

Subpart G

- Reserved

Subpart H

- Helicopters

Subpart I,J

- Reserved

Subpart K

- Tiltrotors

Subpart L,M,N

- Reserved

Subpart O

- Documentation, Operating Limitation and Information

BAGIAN-BAGIAN CASR PART 36

Appendix A

- Aircraft Noise Measurement And Evaluation

Appendix B

- Noise Levels For Transport Category And Jet Airplanes

Appendix C-
D-E

- Reserved

Appendix F

- Flyover Noise Requirements For Propeller - Driven Small Airplane And Propeller- Driven Commuter Category Airplane Certification Tests Prior To December 22, 1988.

Appendix G

- Takeoff Noise Requirements For Propeller - Driven Small Airplane And Propeller-driven Commuter Category Airplane Certification Tests On Or After December 22, 1988.

Appendix H

- Noise Requirements For Helicopters Under Subpart H.

Appendix J

- Alternative Noise Certification Procedure For Helicopters Under Subpart H Having A Maximum Certificated Takeoff Weight Of Not More Than 7,000 Pounds.

Appendix K

- Noise Requirements for Tilt rotors under subpart K

Contoh Prosedur Sertifikasi Kebisingan untuk pesawat dengan propeller driven mengacu Appendix G

G36.101 General Test Condition

- Lokasi relative datar dan tidak memiliki karakteristik penyerapan suara yang berlebihan seperti area pepohonan dan semak-semak yang rimbun.
- Kondisi atmosfer yaitu tidak ada curah hujan, suhu antara 2,2 °C - 35°C, kelembapan relative antara 20% - 95% dengan kecepatan rata-rata angin tidak lebih dari 10 Knot (19 km/jam) dan kecepatan crosswind tidak lebih dari 5 knot (9km/jam) untuk rata-rata 30 detik
- Pengukuran Meteorologi harus dibuat antara 4 ft. (1,2m) dan 33 ft. (10m) di atas permukaan tanah

G36.103 Acoustical Measurement System

- Microphone system
- Tripod atau mounting mikrofon
- Recording and reproducing equipment
- Kalibrator Akustik

G36.105 Sensing, Recording and Reproducing equipment

- Kebisingan pesawat dapat direkam dengan magnetic tape recorder, graphic level recorder atau dengan menggunakan sound level meter yang comply dengan persyaratan type 1 sound level meters sesuai IEC Publication No. 651.
- Peralatan yang digunakan harus dikalibrasi secara akustikal dengan menggunakan fasilitas untuk free-field calibration.

G36.107 Prosedur Pengukuran Kebisingan

- Karakteristik Microphone
- Ambient noise termasuk acoustic background dan electrical system noise yang harus direkam dan ditentukan pada test area.

G36.109 Data Recording, Reporting dan Approval

- Pencatatan data pengukuran
- Koreksi Sound pressure level yang diukur harus dilaporkan
- Tipe peralatan yang digunakan untuk pengukuran dan analisis dari keseluruhan akustikal, airplane performance dan data meteorologi, kondisi atmosfer dan topografi, informasi pesawat juga dilaporkan

G36.111 Flight Procedures

- Titik pengukuran kebisingan pada extended centerline dari landas pacu pada jarak 8200 ft (2500 m) dari awal takeoff roll. Pesawat harus melewati titik pengukuran dalam ± 10 derajat dari vertikal dan 20% (dua puluh persen) dari ketinggian referensi. Dihitung pada kondisi pada tekanan atmosfer pada sea level 1013.25 mb (1013.25 hpa), dsb.

ACOUSTICAL CHANGE

Section
36.7
Transport
Category

Section
36.9
Propeller
Driven

Section
36.11
Helicopters

Section
36.13
Tiltrotors

Perubahan Type
Design Terkait
Perubahan Akustik
Yang Dapat
Mempengaruhi
Perubahan Noise
Characteristic mengacu
pada bagian 21.93(b)
dari CASR Part 21.

1. Such as an increased take-off mass, an increased engine thrust, changes to the powerplant or propeller or rotor types.
2. where several similar changes are being made, such as the introduction of engines from different manufacturers, the procedures used to obtain the noise certification levels of each derivative aircraft should be followed in identical fashion (SI36-01)



CASR 36

DASAR PERUBAHAN CASR 36 AMENDMENT 3 KE AMENDMENT 4:

Indonesia as a member
of ICAO

ICAO STATE
Letter AN 1/17.14-17/48 tanggal 21
April 2017 tentang amandemen 12
Annex 16 Volume I



LAMPIRAN KEPUTUSAN MENTERI PERHUBUNGAN
NOMOR : PM 58 Tahun 2017
TANGGAL : 04 April 2017

CIVIL AVIATION SAFETY REGULATIONS (C.A.S.R.)

PART 36 Amendment 3

NOISE STANDARDS:
AIRCRAFT TYPE AND AIRWORTHINESS CERTIFICATIONS

REPUBLIC OF INDONESIA
MINISTRY OF TRANSPORTATION



International
Civil Aviation
Organization

Organisation
de l'aviation civile
internationale

Organización
de Aviación Civil
Internacional

Международная
организация
гражданской
авиации

منظمة الطيران
المدني الدولي

国际民用
航空组织

Tel: +1 (514) 954-8219 ext. 6726

Ref: AN 1/17.14 – 17/48

21 April 2017

Subject: Adoption of Amendment 12 to Annex 16,
Volume I

Action Required: a) Notify any disapproval before
21 July 2017; b) Notify any differences and compliance
before 1 December 2017; c) Consider the use of the
Electronic Filing of Differences System (EFOD) for
notification of differences and compliance

Sir/Madam,

1. I have the honour to inform you that Amendment 12 to the *International Standards and Recommended Practices, Environmental Protection — Aircraft Noise* (Annex 16, Volume I to the Convention on International Civil Aviation) was adopted by the Council at the seventh meeting of its 210th Session on 3 March 2017. Copies of the Amendment and the Resolution of Adoption are available as attachments to the electronic version of this State letter on the ICAO-NET (<http://portal.icao.int>).



CASR 36 (ref. Annex 16 Vol I)

ATTACHMENT A to State letter AN 1/17.14 – 17/48

AMENDMENT TO THE FOREWORD OF ANNEX 16, VOLUME I

Add the following at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
12	Tenth meeting of the Committee on Aviation Environmental Protection (CAEP/10)	a) harmonization of language used to define the reference atmosphere; b) removal of references to outdated flight path measurement techniques; c) corrections to guidelines for noise certification of tilt-rotors; and d) correction of miscellaneous technical editorial issues and an amalgamation of all symbols and units into one section.	3 March 2017 21 July 2017 1 January 2018

August 2017

CASR 36 Amdt. 3

SUMMARY OF AMENDMENT

Amendment No	Sources	Subject/s	Approved
Original	27 December 1993		Ministry Decree No. 90 Year 1993, Dated 27 December 1993, Attachment X
Amendment 1	USA FAR Part 36 Amdt. 28, dated 03 February 2006	1. Introduction of Requirements Noise Stage 4. 2. Introduction Of requirement as of date of application about Noise limits. 3. Introduction an acceptable alternative for Noise Measurement and Evaluation and Evaluation of stage 4	
Amendment 2	1. USA FAR Part 36 Amendment 30, 05, May 2014. 2. Annex 16 Vol. 1 Amdt. 10 & State Letter No. AN1/17.14-14/24, 10 Apr 2014.	1. Supersonic provision is deleted. 2. Introduction primary category. 3. Introduction of Stage 3 for helicopter	KM 50 Tahun 2015 tanggal 20 Februari 2015
Amendment 3	1. Annex 16, Volume I, Aircraft Noise", 7 th Edition, Amendment 11-B, effective 1 January 2015.	1. Noise requirements for tiltrotors under Subpart K 2. Introduction of noise certification requirements for tilt-rotors	



CASR 36

PERUBAHAN CASR BAGIAN 36 AMENDMENT 3 KE AMENDMENT 4 YAITU:

1. Harmonisasi bahasa yang digunakan untuk menentukan atmosfer referensi;
2. Penghapusan referensi untuk teknik pengukuran jalur penerbangan yang sudah tidak dipakai;
3. Koreksi pedoman untuk sertifikasi kebisingan untuk *Tiltrotors*; dan
4. Koreksi berbagai isu editorial teknis dan merupakan penggabungan semua simbol dan unit menjadi satu bagian.



TERIMA KASIH



Safety, security and services