



# Easy Access Rules for Aircraft Engine Emissions and Fuel Venting (CS-34) (Amendment 2)

## **EASA eRules: aviation rules for the 21st century**

Rules and regulations are the core of the European Union civil aviation system. The aim of the **EASA eRules** project is to make them **accessible** in an efficient and reliable way to stakeholders.

**EASA eRules** will be a comprehensive, single system for the drafting, sharing and storing of rules. It will be the single source for all aviation safety rules applicable to European airspace users. It will offer easy (online) access to all rules and regulations as well as new and innovative applications such as rulemaking process automation, stakeholder consultation, cross-referencing, and comparison with ICAO and third countries' standards.

To achieve these ambitious objectives, the **EASA eRules** project is structured in ten modules to cover all aviation rules and innovative functionalities.

The **EASA eRules** system is developed and implemented in close cooperation with Member States and aviation industry to ensure that all its capabilities are relevant and effective.

Published June 2018<sup>1</sup>

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<sup>1</sup> The published date represents the date when the consolidated version of the document was generated.

## **DISCLAIMER**

This version is issued by the European Aviation Safety Agency (EASA) in order to provide its stakeholders with an updated and easy-to-read publication. It has been prepared by putting together the certification specifications with the related acceptable means of compliance and guidance material. However, this is not an official publication and EASA accepts no liability for damage of any kind resulting from the risks inherent in the use of this document.

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## NOTE FROM THE EDITOR

The content of this document is arranged as follows: the certification specifications (CS) are followed by the related acceptable means of compliance (AMC) and guidance material (GM) paragraph(s).

All elements (i.e. CS, AMC and GM) are colour-coded and can be identified according to the illustration below. The EASA Executive Director (ED) decision through which the point or paragraph was introduced or last amended is indicated below the paragraph title(s) *in italics*.

<b>Certification specification</b>	<i>ED decision</i>
<b>Acceptable means of compliance</b>	<i>ED decision</i>
<b>Guidance material</b>	<i>ED decision</i>

The format of this document has been adjusted to make it user-friendly and for reference purposes. Any comments should be sent to [erules@easa.europa.eu](mailto:erules@easa.europa.eu).

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## INCORPORATED AMENDMENTS

### CS/AMC/GM (ED DECISIONS)

Incorporated ED Decision	CS/AMC/GM Issue No, Amendment No	Applicability date
<a href="#">ED Decision 2003/3/RM</a>	CS-34/ Initial issue	17/10/2003
<a href="#">ED Decision 2013/002/R</a>	CS-34/ Amendment 1	29/1/2013
<a href="#">ED Decision 2016/001/R</a>	CS-34/ Amendment 2	26/1/2016

*Note: To access the official versions, please click on the hyperlinks provided above.*

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## PREAMBLE

*ED Decision 2016/001/R*

### CS-34 Amendment 2

The following is a list of paragraphs affected by this amendment:

CS 34.1	Amended
CS 34.2	Amended
AMC 34.2(a) to (f)	Amended
GM 34.2(a) and (b)	Amended
GM 34.2(f) to (i)	Amended
GM 34.2(j) to (p)	Added
GM 34.2 final section	Amended

*ED Decision 2013/002/R*

### CS-34 Amendment 1

The following is a list of paragraphs affected by this amendment:

Preamble	Preamble page added
GM 34.2(c) to (i)	Added
GM 34.2 final section	Added

# CS & AMC/GM FOR AIRCRAFT ENGINE EMISSIONS AND FUEL VENTING

## CS 34.1 Fuel venting

ED Decision 2016/001/R

The aircraft must be designed to comply with the applicable fuel venting requirements defined under 21.A.18(b)(1).

[Amdt 34/2]

## CS 34.2 Aircraft engine emissions

ED Decision 2016/001/R

(See [AMC 34.2](#) and [GM 34.2](#))

The aircraft engine must be designed to comply with the applicable emission requirements defined under 21.A.18(b)(2) and (3).

[Amdt 34/2]

## AMC 34.2 Aircraft engine emissions

ED Decision 2016/001/R

The acceptable means of compliance for aircraft engine emissions are presented in:

- (a) for measurement of reference pressure ratio, Appendix 1 to ICAO Annex 16, Volume II;
- (b) for smoke emission evaluation, Appendix 2 to ICAO Annex 16, Volume II;
- (c) for instrumentation and measurement techniques for gaseous emissions, Appendix 3, except for its attachments, to ICAO Annex 16, Volume II;
- (d) for specification for fuel to be used in aircraft turbine engine emission testing, Appendix 4 to ICAO Annex 16, Volume II;
- (e) for instrumentation and measurement techniques for gaseous emissions from afterburning gas turbine engines, Appendix 5, except for its attachments, to ICAO Annex 16, Volume II; and
- (f) for compliance procedure for gaseous emissions and smoke, Appendix 6 to ICAO Annex 16, Volume II.

[Amdt 34/2]

## GM 34.2 Aircraft engine emissions

ED Decision 2016/001/R

Guidance material for the application of the certification specifications for aircraft engine emissions is presented in:

- (a) for instrumentation and measurement techniques for gaseous emissions, the attachments to Appendix 3 to ICAO Annex 16, Volume II;
- (b) for instrumentation and measurement techniques for gaseous emissions from afterburning gas turbine engines, the attachments to Appendix 5 to ICAO Annex 16, Volume II;

- (c) for definitions and symbols, Part I of the ICAO Environmental Technical Manual, Volume II;
- (d) for emissions certification of turbojet and turbofan engines intended for propulsion only at subsonic speeds, Part III, Chapter 2 of the ICAO Environmental Technical Manual, Volume II; except for the exemption process from the NO<sub>x</sub> emissions production cut-off requirements;
- (e) for turbojet and turbofan engines intended for propulsion at supersonic speeds, Part III, Chapter 3 of the ICAO Environmental Technical Manual, Volume II;
- (f) for smoke emission evaluation, Appendix 2 to the ICAO Environmental Technical Manual, Volume II;
- (g) for instrumentation and measurement techniques for gaseous emissions, Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (h) for specification for HC analyser, Attachment A to Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (i) for specification for fuel to be used in aircraft turbine engine emission testing, Appendix 4 to the ICAO Environmental Technical Manual, Volume II;
- (j) for measurement of reference pressure ratio, Appendix 1 to the ICAO Environmental Technical Manual, Volume II;
- (k) for specification for CO and CO<sub>2</sub> analysers, Attachment B to Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (l) for specification for NO<sub>x</sub> analyser, Attachment C to Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (m) for calibration and test gases, Attachment D to Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (n) for calculation of the emissions' parameters, Attachment E to Appendix 3 to the ICAO Environmental Technical Manual, Volume II;
- (o) for specification for additional data, Attachment F to Appendix 3 to the ICAO Environmental Technical Manual, Volume II; and
- (p) for compliance procedure for gaseous emissions and smoke, Appendix 6 to the ICAO Environmental Technical Manual, Volume II.

References throughout these certification specifications to the ICAO Environmental Technical Manual, Volume II, refer to ICAO Doc 9501 — Environmental Technical Manual, Volume II — Procedures for the Emissions Certification of Aircraft Engines, Second Edition 2014.

[Amdt 34/1]

[Amdt 34/2]