



NOTICE OF PROPOSED AMENDMENT (NPA) No 2008-02

**DRAFT OPINION OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION SAFETY
AGENCY
AMENDING**

**REGULATION (EC) NO 1592/2002 OF THE EUROPEAN PARLIAMENT AND OF THE
COUNCIL**

of 15 July 2002

**on common rules in the field of civil aviation and establishing a European Aviation
Safety Agency
and**

**DRAFT DECISION OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION
SAFETY AGENCY**

AMENDING

**DECISION NO 2003/04/RM OF THE EXECUTIVE DIRECTOR OF THE AGENCY
of 17 October 2003**

**on certification specifications providing for acceptable means of compliance for
aircraft noise (CS-36)**

**in order to transpose Amendment 9 of Volume I and Amendment 6 of Volume II of
Annex 16 to the Convention on International Civil Aviation
and**

**to adapt CS-36 to edition of the 'Environmental Technical Manual on the Use of
Procedures in the Noise Certification of Aircraft' approved at the seventh Meeting of
the ICAO Committee on Aviation Environmental Protection (CAEP)**

'CAEP/7 Implementation'

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A. EXPLANATORY NOTE

I. General

1. The purpose of this Notice of Proposed Amendment (NPA) is to envisage amending Article 6(1) of Regulation (EC) No 1592/2002¹ (the Basic Regulation) and Decision No 2003/04/RM of the Executive Director of the Agency of 17 October 2003 on certification specifications providing for acceptable means of compliance for aircraft noise (CS-36) to transpose into Community law Amendment 9 of Annex 16, Volume I and Amendment 6 of Annex 16, Volume II to the Convention on International Civil Aviation. This rulemaking activity is described in more detail below.
2. The European Aviation Safety Agency (the Agency) is directly involved in the rule-shaping process. It assists the Commission in its executive tasks by preparing draft regulations, and amendments thereof, for the implementation of the Basic Regulation, which are adopted as "Opinions" (Article 14(1)). It also adopts Certification Specifications, including Airworthiness Codes and Acceptable Means of Compliance and Guidance Material to be used in the certification process (Article 14(2) of the Basic Regulation).
3. When developing rules, the Agency is bound to follow a structured process as required by Article 43(1) of the Basic Regulation. Such process has been adopted by the Agency's Management Board and is referred to as "The Rulemaking Procedure"².
4. This rulemaking activity is included in the Agency's Rulemaking Programme for 2008. It implements the rulemaking tasks BR.006 and 36.005.
5. The text of this NPA has been developed by the Agency. It is submitted for consultation for all interested parties in accordance with Article 43 of the Basic Regulation and Articles 5(3) and 6 of the Agency's Rulemaking Procedure.

II. Consultation

6. To achieve optimal consultation, the Agency is publishing the draft opinion and draft decision of the Executive Director on its internet site. Comments should be provided within six weeks in accordance with Article 6(5) of the Agency's Rulemaking Procedure. Comments on this proposal should be submitted by one of the following methods:

CRT: Send your comments using the Comment-Response Tool (CRT) available at <http://hub.easa.europa.eu/crt/>

E-mail: Only in case the use of CRT is prevented by technical problems comments can be submitted by email. In this case problems should be reported to the [CRT webmaster](mailto:CRT_webmaster@easa.europa.eu) and comments sent to NPA@easa.europa.eu.

¹ Regulation (EC) No 1592/2002 of the European Parliament and of the Council of 15 July 2002 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency (OJ L 240, 7.9.2002, p.1). Regulation as last amended by Regulation (EC) No 334/2007 (OJ L 88, 29.3.2007, p. 39).

² Decision of the Management Board concerning the procedure to be applied by the Agency for the issuing of opinions, certification specifications and guidance material ("rulemaking procedure"), EASA Management Board Decision 08-2007, MB meeting 03-2007 (13 June 2007).

Correspondence: If you do not have access to internet or e-mail you can send your comment by mail to:
Process Support
Rulemaking Directorate
EASA
Postfach 10 12 53
D-50452 Cologne
Germany

Comments should be received by the Agency before 1 May 2008. If received after this deadline they might not be taken into account.

III. Comment Response Document

7. All comments received in time will be responded to and incorporated in a Comment Response Document (CRD). This may contain a list of all persons and/or organisations that have provided comments. The CRD will be available on the Agency's website and in the Comment-Response Tool (CRT).

IV. Content of the Draft Opinion and Decision

Amendment 9 of Annex 16, Volume I to the Chicago Convention

8. Amendment 9 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 ICAO Council at the fourth meeting of its 183rd Session held on 7 March 2008. The ICAO Council prescribed that the amendment will become effective, except for any part for which a majority of Contracting States would have notified their disapproval. To the extent it becomes effective, Amendment 9 will be applicable on 20 November 2008. Concerning these decisions ICAO Contracting States will be notified by an ICAO State letter.
9. The purpose of Amendment 9 of Annex 16, Volume I to the Chicago Convention is to clarify administrative and technical issues arising in the application of demonstration schemes and related guidance for aircraft noise certification. In the following paragraphs some major administrative and technical issues introduced by Amendment 9 are described in more detail.

Changes to the applicability language

10. Amendment 8 of Annex 16, Volume I to the Chicago Convention replaced the previously used expression "certificate of airworthiness for the prototype" by the words "Type Certificate" in Volume I, Chapter 1 (Administration). This reflected current usage and aligned Annex 16, Volume I with other ICAO documents. Subsequently Amendment 9 aims to make the same change throughout Annex 16, Volume I to the Chicago Convention. Care had to be taken, however, to retain the notion of originality conveyed by the word "prototype" already used in that document; therefore a small change to paragraph 1.10 of Chapter 1 was introduced in Amendment 9 to restore the applicability rules to their original meaning. This change referred to the application by the State of Design and was thereby consistent with the applicability language used in Annex 8 to the Chicago Convention.
11. To be further aligned with Annex 8 to the Chicago Convention, the applicability language in Amendment 9 of Annex 16, Volume I to the Chicago Convention is now referring to the date of submittal of the application rather than the date of acceptance of the application.

Definitions relating to wind speeds

12. So far the definitions of the various wind speed limits in Annex 16, Volume I to the Chicago Convention were ambiguous and inconsistent. Clarification was particularly important, since exceeding wind speed limits is a common reason for having to suspend very expensive noise certification tests. Differences in technical implementation due to ambiguities and inconsistencies could potentially lead to big differences in costs of noise certification among different applicants and potentially in differences in repeatability and accuracy of the results. Using guidance issued by the World Meteorological Organization (WMO) and with the help of expert advice from the ICAO Meteorology Section, Amendment 9 of Annex 16, Volume I to the Chicago Convention introduces provisions that create a technically sound and well defined set of specifications.

Update of IEC references

13. Annex 16, Volume I to the Chicago Convention contains references to several International Electrotechnical Commission (IEC) standards that establish specifications for equipment used in aircraft noise certification. Over the years, these specifications had been updated by the IEC to reflect advances in electronics, manufacturing and measurement techniques. Reference to the most recent IEC standards has been introduced by Amendment 9 to Annex 16, Volume I to the Chicago Convention.

Amendment 6 of Annex 16, Volume II to the Chicago Convention

14. Amendment 6 to the International Standards and Recommended Practices, Environmental Protection - Aircraft Engine Emissions (Annex 16, Volume II to the Convention on International Civil Aviation) was adopted by the ICAO Council at the fourth meeting of its 183rd Session held on 7 March 2008. The ICAO Council prescribed that the amendment will become effective, except for any part for which a majority of Contracting States would have notified their disapproval. To the extent it becomes effective, Amendment 6 will be applicable on 20 November 2008. Concerning these decisions ICAO Contracting States will be notified by an ICAO State letter.
15. Amendment 6 of Annex 16, Volume II to the Chicago Convention addresses administrative and technical issues, mainly concerning the modernization of the demonstration schemes and guidance for engine certification. In the following paragraphs some major administrative and technical issues introduced by Amendment 6 are described in more detail.

Review of current gaseous emissions corrections to reference day conditions

16. A number of areas of concern were raised by the Committee on Aviation Environmental Protection (CAEP) in the past concerning the fact that:
 - 1) in Annex 16, Volume II to the Chicago Convention the terminology related to corrections to reference engine conditions and reference atmospheric conditions are not consistent,
 - 2) the terms used for the humidity corrections were not clear, and
 - 3) several apparently equivalent terms were used to describe thrust setting.

In order to resolve these inconsistencies Amendment 6 of Annex 16, Volume II to the Chicago Convention

- 1) contains a revised text to specify clearly the applicable corrections to the reference standard engine and to the reference atmospheric conditions,
- 2) introduces a clear distinction between the two different humidity terms used, and
- 3) uses the term "landing and take-off (LTO) operating modes" when referring to the specific LTO cycle points, while using the term "thrust setting" when referring to non-specific operating conditions.

Review of current fuel specification requirements

17. A review of the availability of fuel, meeting the specification, had indicated that generally available fuels frequently failed to meet a number of the specification limits. However, amending the specification to encompass all available fuels would have an effect on stringency. Therefore, Amendment 6 of Annex 16, Volume II to the Chicago Convention permits deviations from the fuel specifications requirements, which are subject to the application of agreed corrections. The changes made in Amendment 6 will reduce certification costs by enabling manufacturers to use fuels available locally, subject to the application of acceptable corrections to eliminate any effect on the test results. Without this change it would be very likely that CAEP would be asked to amend the fuel specification on a regular basis to take account of future variation in fuel supplies.

Amendments to permit the use of alternative sample probe materials to stainless steel

18. Sampling emissions behind modern gas turbine engines require the use of rakes fabricated of materials capable of withstanding the thermal and structural loads imposed during high power operation. Annex 16, Volume II to the Chicago Convention defines the specifications for rake fabrication, and so far the only material specified was stainless steel. Recent certification tests by some manufactures latest technology engines using the stainless steel rakes specified in Annex 16, Volume II to the Chicago Convention had resulted in sampling hardware problems, which had led to costly delays to test schedules. To alleviate this problem, rakes made of materials with stronger strength had been used in lieu of stainless steel after the manufacturers, working together with the certifying authorities, had demonstrated that the accuracy of the emissions measurements had not been compromised. Amendment 6 of Annex 16, Volume II to the Chicago Convention consequently introduces text, which enables manufacturers to make emissions measurement rakes from materials, which have adequate temperature capability, provided they are non-reactive.

Revision of the ICAO Environmental Technical Manual on the Use of Procedures in the Noise Certification of Aircraft

19. The revision of the ICAO Environmental Technical Manual on the Use of Procedures in the Noise Certification of Aircraft, ICAO Doc 9501 AN/929, Third Edition from 2004 was approved by the seventh meeting of CAEP. The amendment provides clarification on technical issues arising from the application of demonstration schemes and provides additional guidance material for aircraft noise certification. In the following paragraphs some major technical issues introduced with the revision are described.

Differential Global Positioning Systems used in certification testing

20. Differential Global Positioning Systems are widely used in aircraft noise certification tests to track flight paths. Guidance material on this subject is introduced with the revision.

Guidance Material for noise certification requirements for helicopters of "CAT A" operational mode

21. Helicopter "CAT A" procedures form part of the Airplane Flight Manual (AFM) normal procedures and are used under specific operational circumstances. There have been cases where, due to the specific design characteristics of a helicopter, the use of these operational rotor rpm³ modes could have had an impact on noise certification. Agreement was reached that clarification is needed in order to ensure that the appropriate rotor rpm is used during a noise certification test. Not doing so would create the danger of different interpretations. Therefore, explanatory text was added to the revision of the Environmental Technical Manual.

Evaluation of noise measurement to establish no-acoustical change following engine modification

22. The noise certification process for a new or derivative aircraft and/or engine is well established. However, there is often a need to assess minor modifications to an aircraft type design that results in insignificant noise changes. The Environmental Technical Manual lists some examples of types of aircraft engine changes, where component testing could provide adequate demonstration of the magnitude of small changes to the Effective Perceived Noise Level (EPNL). Various experimental arrangements have been used by manufactures to carry out such testing, including in-duct acoustic measurements, that had been used to provide information that a modification to engine design had resulted in EPNL changes that were within the limits of "no-acoustical change" as defined in the Environmental Technical Manual. However, so far no guidance material identifying acceptable measurement techniques was available. Some guidance had consequently been developed for the revision of the Environmental Technical Manual. It covers the use of acoustic measurements taken during indoor near-field and in-duct engine tests, for the purpose of assessing of small changes in EPNL due to minor engine design modifications.
23. In addition several minor revisions of no material consequence have been introduced to improve the readability of the text of the Environmental Technical Manual, clarify its meaning and to ensure consistency with text of Amendment 9 of Annex 16, Volume I to the Chicago Convention.

Impact on the Agency rules

24. The Basic Regulation defines the essential requirements for environmental protection by referring to Annex 16 to the Chicago Convention. Article 6(2) specifies that when Annex 16 to the Chicago Convention has been amended, adaptation may be carried out in accordance with the procedure laid down in Article 54(3) of the same Regulation, to align as appropriate the essential requirements for environmental protection with the related ICAO Standards.
25. While no explicit recommendations concerning the stringency of noise and emissions standards were made by Amendment 9 of Annex 16, Volume I and Amendment 6 of Annex 16, Volume II to the Chicago Convention, these amendments, as explained here above, close loopholes and help to achieve equal treatment of all applicants. As some of these changes affect the formulation of the requirements themselves there is a need to transpose these improvements of Annex 16 to the Chicago Convention into Community law. This NPA proposes such adaptation following adoption of Amendment 9 of Annex 16, Volume I and of Amendment 6 of Annex 16, Volume II to the Chicago Convention.
26. The Agency's certification specifications providing for acceptable means of compliance for aircraft noise (CS-36) contains procedures that have been accepted as technical means for demonstrating compliance with the essential requirements for environmental protection specified by Article 6(1) of the Basic Regulation. CS-36 in its Book 2 refers to the ICAO Environmental Technical Manual on the Use of Procedures in the Noise

³ rpm = revolutions per minute

Certification of Aircraft (ICAO Doc 9501 AN/929, Third Edition from 2004), which itself details the means to be used to demonstrate compliance with the certification requirements of Annex 16, Volume I. This NPA proposes to update this reference in CS-36 to the latest approved edition.

V. Regulatory Impact Assessment

1. Purpose and intended effect

a. Issue which the NPA is intended to address

27. The purpose of this NPA is to change the reference in Article 6(1) of the Basic Regulation to Amendment 9 to Annex 16, Volume I and to Amendment 6 to Annex 16, Volume II to the Chicago Convention, and to amend the certification specifications for acceptable means of compliance for aircraft noise (CS-36).

b. Scale of the issue

28. Although it is not possible to make a quantified evaluation of the volume of business and the number of persons affected, it can be assumed that Amendment 9 to Annex 16, Volume I and Amendment 6 of Annex 16, Volume II to the Chicago Convention do not lead to a major change of today's situation.

c. Brief statement of the objectives of the NPA

29. The intended effect is that the Agency's regulations will be in line with the latest ICAO Standards and Recommended Practices and associated guidelines.

2. Options

a. The options identified

30. **Option 1:** Do nothing. - This would create a misalignment with ICAO standards, recommended practices and guidelines, which are considered leading in environmental protection. It would most probably lead to disharmonisation with other standards for environmental protection and would leave some potential loopholes open.
31. **Option 2:** To implement alternative requirements that would provide for an equivalent level of environmental protection. - This would almost certainly lead to higher costs for industry and (indirectly) the public, because it would lead to additional costs to substantiate that these requirements would be met.
32. **Option 3:** To adopt the amendments as agreed in ICAO unaltered.

b. The preferred option selected

33. Option 3 is the preferred option. The current proposals are the result of an extensive debate in ICAO in which all the arguments were debated exhaustively. The current proposals must be considered as a reasonable compromise between safety, environment and economy.

3. Sectors concerned

34. The sectors concerned are mainly manufactures, owners, operators and people affected by aircraft noise and aircraft engine emissions.

4. Impacts

a. Safety

35. No safety impacts are expected from these measures for any of the options.

b. Economic

36. Economic impacts for the industry from all but the preferred option are expected to be negative. Any deviation from the measures adopted by ICAO would increase the risk of European products not being acceptable in different parts of the world, with the associated costs that this would bring. The reduction in administrative burden to the industry brought about by the preferred option is expected to have a positive economic effect.

c. Environmental

37. Option 1 (the do nothing option) would have no or a relatively small negative impact on the environment. Options 2 and 3 are expected to have a positive effect on the environment as it is believed that the changes introduced resolve ambiguities and inconsistencies; provides for clarification; update to the latest technical developments; and introduce technically sound and well defined specifications.

d. Social

38. No social impacts are expected from the options other than the indirect effect of the mitigation of negative environmental effects of aviation on the environment.

e. Global harmonisation

39. Only Option 3 ensures that Community rules are consistent with the global set of rules adopted by ICAO.

f. Other aviation requirements outside the Agency's scope

40. It is expected that the proposals will be adopted unaltered by other aviation authorities of the world.

5. Summary and Final Assessment

41. Based on the above and the decision adopted by ICAO after broad discussions it is recommended to adopt the amendments.

B. DRAFT OPINION AND DECISION**I. Draft Opinion for a Commission Regulation****COMMISSION REGULATION (EC) No <NUMBER>****of <DATE>****amending Regulation (EC) No 1592/2002 of the European Parliament and the Council on common rules in the field of civil aviation and establishing a European Aviation Safety Agency****(Text with EEA relevance)**

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Regulation (EC) No 1592/2002 of the European Parliament and of the Council of 15 July 2002 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency¹, and in particular Article 6(2) thereof,

Whereas:

(1) Article 6(1) of Regulation (EC) No 1592/2002 of the European Parliament and of the Council requires products, parts and appliances to comply with the environmental protection requirements of Annex 16 to the Convention on International Civil Aviation (hereinafter 'Chicago Convention') as issued on 24 November 2005 for Volumes I and II, except for its Appendices.

(2) The Chicago Convention and its annexes have been amended since the adoption of Regulation (EC) No 1592/2002.

(3) Therefore Regulation (EC) No 1592/2002 should be amended in accordance with the procedure laid down in Article 54(3) of the same Regulation.

(4) The measures provided for in this Regulation are in accordance with the opinion of the European Aviation Safety Agency Committee established by Article 54 of Regulation (EC) No 1592/2002,

HAS ADOPTED THIS REGULATION:

Article 1

In Article 6 of Regulation (EC) No 1592/2002, the first paragraph is replaced by the following:

'1. Products, parts and appliances shall comply with the environmental protection requirements contained in Amendment 9 of Volume I and in Amendment 6 of Volume II of Annex 16 to the Chicago Convention as applicable on 20 November 2008, except for the Appendices to Annex 16.'

Article 2

This Regulation shall enter into force on <DATE>.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, <DATE>

For the Commission
<NAME>
<FUNCTION>

¹ OJ L 240, 7.9.2002, p. 1. Regulation as last amended by Commission Regulation (EC) No 334/2007 (OJ L 88, 29.3.2007, p. 39).

II. Draft decision

The text of the amendment is arranged to show deleted text, new text or new paragraph as shown below:

- deleted text is shown with a strike through: ~~deleted~~
- new text is highlighted with grey shading: new
-

indicates that remaining text is unchanged in front of or following the reflected amendment.

Draft Decision for Amending Certification Specifications for Aircraft Noise (CS-36)**Certification Specifications
for
Aircraft Noise****CS-36
~~Amendment 1~~
Amendment 2**

....

Book 2**Acceptable Means of Compliance and
Guidance Material**

....

GM 36.1 Aircraft noise

....

- (p) for noise data corrections for tests at high altitude test sites, Appendix 6 of the ICAO Environmental Technical Manual; ~~and~~
- (q) for reassessment criteria for the re-certification of an aeroplane ~~from~~ to Annex 16 to the Chicago Convention, Volume 1, ~~Chapter 3 to~~ Chapter 4, Appendix 8 of the ICAO Environmental Technical Manual; ~~and~~
- (r) for the use of DGPS-based time space position information tracking systems, Appendix 10 of the ICAO Environmental Technical Manual.

References throughout these Certification Specifications to the ICAO Environmental Technical Manual refer to the ICAO Environmental Technical Manual on the Use of Procedures in the Noise Certification of Aircraft, ~~ICAO Doc 9501 AN/929, Third Edition — 2004~~ ICAO/CAEP approved revision, 2 April 2007.