



Deviation request #56 for an ETSO approval for CS-ETSO applicable to Traffic Alert and Collision Avoidance System (TCAS) airborne equipment, TCAS II (ETSO- C119c) Consultation Paper

Introductory note

The hereby presented deviation requests shall be subject to public consultation, in accordance with EASA Management Board Decision No 7-2004¹ products certification procedure dated 30 March 2004, Article 3 (2.) of which states:

“2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency.”

ETSO-C119c – Traffic Alert and Collision Avoidance System (TCAS) airborne equipment, TCAS II

ETSO-C119c#1 – Traffic Alert and Collision Avoidance System (TCAS) airborne equipment, TCAS II

Deviate from ETSO-C119c paragraph 3.1.2 for the environmental standard to be unchanged from the original basis of an existing TCAS II product for a software upgrade limited to the changes introduced by EUROCAE ED-143/RTCA DO-185B (also known as “TCAS II version 7.1”).

Requirement:

ETSO-C119c paragraph 3.1.2 for the environmental standard refers to CS-ETSO Subpart A paragraph 2.1:

2.1 Environmental standards:

Unless otherwise stated in paragraph 3.1.2 of the specific ETSO, the applicable environmental standards are contained in EUROCAE/RTCA document ED-14D change 3/DO-160D change 3 “Environmental Conditions and Test Procedures for Airborne Equipment”, dated December 2002, or ED-14E/DO-160E dated March 2005 or ED-14F/DO-160F dated March 2008.

It is not permissible to mix versions within a given qualification programme.

Industry:

Equivalent level of safety is demonstrated for the current installations since the software upgrade does not impact the environmental conditions. In current installations, the upgraded units are fully interchangeable with the previously installed units. The upgraded units implement TCAS II version 7.1 as specified in EUROCAE ED-143/RTCA DO-185B.

¹ Cf. EASA Web: http://www.easa.europa.eu/ws_prod/g/doc/About_EASA/Manag_Board/2004/mb_decision_0704.pdf

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EUROCAE ED-143/RTCA DO-185B MOPS (Minimum Operational Performance Standards) were revised in order to address two safety issues in the existing TCAS version 7.0 logic as embedded in ETSO C-119b and FAA TSO TSO-C119b. EASA published ETSO C119c² in December 2009 and FAA published TSO C119c in April 2009.

On 25 March 2010, EASA published Notice of Proposed Amendment (NPA) No. 2010-03³ containing a draft opinion for a Commission Regulation for the requirements applicable to airspace usage. The purpose was to mandate the carriage of TCAS II with collision avoidance logic version 7.1 for all turbine-powered aeroplanes having a maximum certificated take-off mass exceeding 5700 kg or authorised to carry more than 19 passengers operating within European airspace. Appendix C of NPA No. 2010-03 provides the rationale for this proposal. This NPA No. 2010-03 also introduced Draft Decisions for Acceptable Means of Compliance related to the implementing rules for Airspace User and to the Airworthiness Certification Considerations for the Airborne Collision Avoidance System (ACAS II). The Comment Response Document (CRD)⁴ to the above mentioned NPA No. 2010-03 was published in September 2010. The EASA Opinion 05/2010^{5,6} for a Commission Regulation laying down common airspace usage requirements and operating procedures and the draft regulation⁷ were released in October 2010.

This NPA No. 2010-03 was part of a series of actions initiated by the Agency to address the issues associated with identified deficiencies with the ETSO C119b/TSO C119b TCAS II version 7.0 collision avoidance logic.

These actions also included:

- issue of Safety Information Bulletin (SIB) 2009/16⁸;
- issue of revised ETSO-C119c⁹.

We accept the deviation to keep the existing EUROCAE ED14/RTCA DO160 basis for the software upgrade limited to the changes introduced by EUROCAE ED-143/RTCA DO-185B (also known as “TCAS Change 7.1”). The associated Declaration of Design and Performance (DDP) will have to clearly state the EUROCAE ED14/RTCA DO160 basis and identify it as a deviation to ETSO-C119c. The ETSO authorisation will clearly state that the acceptability of the EUROCAE ED14/RTCA DO160 basis will have to be assessed for new installations. Similarly, the FAA has accepted major software modification for TCAS II Change 7.1 of TSO-C119b products as TSO-C119c with deviations without enforcing the application of RTCA DO-160F for environmental testing as required by TSO-C119c.

A summary of the background information related to TCAS II version 7.1 can be found on the Eurocontrol Web site at the following address:

http://www.eurocontrol.int/msa/public/standard_page/ACAS_Upcoming_Changes.html

²http://easa.europa.eu/ws_prod/g/doc/Agency_Mesures/Agency_Decisions/2009/cs_etso_5/Annex%20II%20-%20ETSO.pdf

³http://easa.europa.eu/ws_prod/r/doc/NPA/NPA%202010-03.pdf

⁴<http://easa.europa.eu/rulemaking/docs/crd/CRD%202010-03.pdf>

⁵<http://easa.europa.eu/agency-measures/opinions.php>

⁶<http://easa.europa.eu/agency-measures/docs/opinions/2010/05/Opinion%2005-2010.pdf>

⁷<http://easa.europa.eu/agency-measures/docs/opinions/2010/05/Draft%20Regulation%20laying%20down%20common%20airspace%20usage%20requirements%20and%20operating%20procedures.pdf>

⁸<http://ad.easa.europa.eu/ad/2009-16>

⁹http://easa.europa.eu/ws_prod/g/doc/Agency_Mesures/Agency_Decisions/2009/cs_etso_5/Annex%20II%20-%20ETSO.pdf

