

ETSO-C151d

ED Decision 2020/011/R (applicable from 25.7.2020)

TERRAIN AWARENESS AND WARNING SYSTEM (TAWS)**1 Applicability**

This ETSO provides the requirements which Terrain Awareness and Warning Systems (TAWS) intended for installation in fixed-wing aircraft that are designed and manufactured on or after the date of this ETSO must meet in order to be identified with the applicable ETSO marking.

2 Procedures

2.1 General

The applicable procedures are detailed in CS-ETSO, [Subpart A](#).

2.2 Specific

None.

3 Technical Conditions

3.1 Basic

3.1.1 Minimum Performance Standard

The applicable standards are those provided in RTCA document DO-367, Minimum Operational Performance Standard (MOPS) for Terrain Awareness and Warning Systems (TAWS) Airborne Equipment, Section 2, dated 31 May 2017. Requirements for Class A, Class B and Class C equipment are provided in RTCA document DO-367 Sections 2.2.1, 2.2.2 and 2.2.3 respectively and amended as follows:

In Section 2.2.1.1.6.3.1 Aural Alert — Caution

The sentences ‘For a caution level FLTA alert due to a predicted terrain conflict, Class A Equipment shall (TAWS_MOPS_051) be capable of generating or triggering an aural message of at least one of ‘Terrain Ahead’ and ‘Caution Terrain’. The requirement does not imply that Class A Equipment must be able to support both aural messages, although it is permissible for Class A Equipment to support both messages.’

should be replaced by

‘For a caution level FLTA alert due to a predicted terrain conflict, Class A Equipment shall (TAWS_MOPS_051) be capable of generating or triggering both types of aural messages: ~~at least one of~~ ‘Terrain Ahead’ and ‘Caution Terrain’.

The requirement does not imply that Class A Equipment must be able to support both these aural messages, although it is permissible for Class A Equipment to support both messages.

[...]

In Section 2.2.1.1.6.3.2 Aural Alert — Warning

The sentences ‘For a warning level FLTA alert due to a predicted terrain conflict, Class A Equipment shall (TAWS_MOPS_053) be capable of generating or triggering an aural message of at least one of ‘Terrain

Ahead. Pull up' and 'Terrain. Terrain, Pull up'.

'The requirement does not imply that Class A Equipment must be able to support both aural messages. although it is permissible for Class A Equipment to support both messages.'

should be replaced by

'For a warning level FLTA alert due to a predicted terrain conflict, Class A Equipment shall (TAWs_MOPS_053) be capable of generating or triggering both types of aural messages: ~~of at least one of~~ 'Terrain Ahead. Pull up' and 'Terrain. Terrain, Pull up'.

~~'The requirement does not imply that Class A Equipment must be able to support both these aural messages. although it is permissible for Class A Equipment to support both messages.'~~

3.1.2 Environmental Standard

See CS-ETSO, [Subpart A](#), paragraph 2.1.

3.1.3 Computer Software

See CS-ETSO, [Subpart A](#), paragraph 2.2.

3.1.4 Airborne Electronic Hardware

See CS-ETSO, [Subpart A](#), paragraph 2.3.

3.2 Specific

3.2.1 Failure Condition Classification

See CS-ETSO, [Subpart A](#), paragraph 2.4.

For Class A and B ETSO articles, a failure of the function defined in paragraph 3.1.1 due to a TAWs computer malfunction resulting in false terrain warnings, an unannounced loss of function, or the presentation of hazardously misleading information is a major failure condition.

For Class C ETSO articles, a failure of the function defined in paragraph 3.1.1 due to a TAWs computer malfunction resulting in false terrain warnings, an unannounced loss of function, or the presentation of hazardously misleading information is a minor failure condition.

A loss of the function defined in paragraph 3.1.1 is a minor failure condition.

Note: Hazardously misleading information is defined as an incorrect depiction of the terrain threat relative to the aeroplane during an alert condition.

3.2.2 Operating Instructions

Operating instructions and article limitations that are sufficient to describe the operational capability of the equipment, including the coverage of the database (geographical areas and airport characteristics), should be documented and made available to the user. The operating instructions must include information on the effects of a loss of GNSS on the TAWs function if the TAWs relies on the GPS. Additionally, the instructions must contain processes for updating the terrain database.

4 Marking

4.1 General

See CS-ETSO, [Subpart A](#), paragraph 1.2.

4.2 Specific

None.

5 Availability of Referenced Documents

See CS-ETSO, [Subpart A](#), paragraph 3.

[Amdt ETSO/11]

[Amdt ETSO/16]