

# European Aviation Safety Agency

## European Technical Standard Order

Subject: GROUND PROXIMITY WARNING -GLIDE SLOPE DEVIATION ALERTING EQUIPMENT

### 1 - Applicability

This ETSO gives the requirements which ground proximity warning-glide slope deviation alerting equipment that is 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

Applicable procedures are detailed in CS-ETSO Subpart A.

#### 2.2 - Specific

None.

### 3 - Technical Conditions

#### 3.1 - General

##### 3.1.1 - Minimum Performance Standard

Standards set forth in paragraph 2.0 of Radio Technical Commission for Aeronautics (RTCA) Document DO-161A revised May 27, 1976.

##### 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

#### 3.2 - Specific

3.2.1 - Fire Protection. All materials used except small parts (such as knobs, fasteners, seals, grommets and small electrical parts) that would not contribute significantly to the propagation of a fire, must be self-extinguishing when tested in accordance with applicable requirements of CS 25.853 and Appendix F.

3.2.2 - Aural and Visual Warnings. The required aural and visual warnings must initiate simultaneously. Each aural warning shall identify the reason for the warning such as „terrain,“ „too low,“ „glide slope,“ or other acceptable annunciation.

3.2.3 - Deactivation Control. If the equipment incorporates a deactivation control other than a circuit breaker, the control must be a switch with a protective cover. The cover must be safety wired so that the wire must be broken in order to gain access to the switch. A frangible lock or similar device may also be used to perform this function.

3.2.4 - Mode 4 Flap Warning Inhibition. A separate guarded control may be provided to inhibit Mode 4 warnings based on flaps being in other than the landing configuration.

3.2.5 - Speed shall be included in the logic that determines GPWS warning time for Modes 2 and 4 to allow additional time for the aircrew to react and take corrective action.

3.2.6 - Smart Callouts. Smart callouts of altitude above the terrain shall be provided during nonprecision approaches. These advisories are normally, but are not limited to 500 feet above the terrain or the height above airport (HAA) used in the terminal (approach) procedures.

#### 3.3 Exceptions.

3.3.1 - An alternate means, with demonstrated equal or better accuracy, may be used in lieu of barometric altitude rate (accuracy specified in ETSO-C10b, Altimeter, Pressure Actuated, Sensitive Type, or later

revisions) and/or radio altimeter altitude (accuracy specified in ETSO-2C87, Low range radio altimeters) to meet the warning requirements described in RTCA Document No. DO-161A.

3.3.2 - In RTCA Document No. DO-161A, paragraph 2.3, the complete cycle of two tone sweeps plus annunciation is extended from „1.4“ to „2“ seconds.

**4 - Marking**

4.1 - General

Marking is detailed in CS-ETSO Subpart A paragraph 1.2.

4.2 - Specific

None.

**5 - Availability of Referenced Document**

See CS-ETSO Subpart A paragraph 3.