

**ETSO-C113b**

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

**AIRBORNE MULTIPURPOSE ELECTRONIC DISPLAYS****1 Applicability**

This ETSO provides the requirements which Airborne Multipurpose Electronic Displays 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 SAE AS8034C, Minimum Performance Standards for Airborne Multipurpose Electronic Displays, dated 30 July 2018, as modified by paragraph 3.1.1.1 of this ETSO. Additional requirements on colour can be found in [Appendix 1](#) to this document.

To be eligible to this ETSO standard, the equipment shall at least contain a display unit that provides the visualisation function.

It should be noted that this ETSO standard does not provide minimum performance standards for head-up displays or head-worn displays. ETSO-C210 provides requirements for head-up displays.

## 3.1.1.1 Modifications to AS8034C Section 5

SAE AS8034C, Section 5, second bullet, page 22, is modified as follows:

‘During the specified testing, ~~(5.5, 5.20)~~ it is up to the applicant to prove that the touchscreen functions as intended during the test and that no false positive touches are received. ~~Touch screen compliance may be demonstrated by testing during DO-160G, outside of the DO-160G testing, analysis or some combination thereof.~~ Software simulation cannot be used in lieu of physical activation.’

SAE AS8034C, Section 5.1, is amended as follows:

- Modify the text of Section 5.1 to replace ‘The following performance requirements (5.1.1 through 5.1.6)’ with ‘The following performance requirements (5.1.1 through 5.1.7)’.

- An additional section is added:

## ‘5.1.7 Touchscreen

The display system shall meet the touchscreen display

characteristics of the following paragraphs:

- a. 4.7.1 Latency
- b. 4.7.3 Touchscreen Selection Accuracy'

For SAE AS8034C, Section 5.4.4.3, Overpressure Test, the last sentence is amended as follows:

'When the equipment is subjected to the overpressure test, the requirements of 5.1 (excluding 5.1.7) shall be met.'

### 3.1.2 Environmental Standard

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

### 3.1.3 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.

## 4 Marking

### 4.1 General

Marking as detailed in 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]

## Appendix 1 to ETSO-C113b – Colour

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SAE AS8034C, Section 4.3.4, lays down colour-coding requirements. This Appendix provides additional guidance on colours.

1. Display features, precipitation, and turbulence areas should be colour-coded as depicted in Table A1 and Table A2 respectively, unless otherwise specified by the ETSO application being displayed.

**Table A1**

Display Feature	Colour
Warnings	Red
Flight envelope and system limits, non-normal sources	Red/Amber/Yellow/White as appropriate
Cautions	Amber/Yellow
Scales and associated figures	White <sup>Note</sup>
Earth	Tan/Brown
Sky	Cyan/Blue
Engaged Modes/normal conditions/safe operation	Green

**Note:** Use of the colour green for tape elements (for example, airspeed and altitude) has also been found to be acceptable if the colour green does not adversely affect flight crew alerting.

**Table A2**

Precipitation and Turbulence	Colour
Precipitation up to 4 millimetres per hour (mm/hour)	Green
Precipitation 4–12 mm/hour	Amber/Yellow
Precipitation 12–50 mm/hour	Red
Precipitation Above 50 mm/hour	Magenta
Turbulence	White or Magenta

2. Background colour (grey or other shade) may be used to enhance the display presentation. However, the colour selected should not impair the use of the overlaid information elements. Labels, display-based controls, menus, symbols, and graphics should all remain identifiable and distinguishable.
3. Colours should track the brightness so that the chrominance and the relative chrominance separation are maintained as much as possible during day-night operations.

[Amdt ETSO/11]

[Amdt ETSO/16]