

European Aviation Safety Agency

European Technical Standard Order

Subject: 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

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

Standards set forth in the SAE AS8034B, Minimum Performance Standards for Airborne Multipurpose Electronic Displays, dated 6/1/2011. 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 providing the visualisation function.

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 — Electronic Hardware Qualification

See CS-ETSO, Subpart A, paragraph 2.3.

3.2 — Specific

None.

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.

ETSO-C113a

4.2 — Specific
None.

5 — Availability of Referenced Document
See CS-ETSO, Subpart A, paragraph 3.

Appendix 1 — Colour

SAE AS8034B, Section 4.3.4, requires colour-coding requirements. This Appendix provides additional guidance on colour.

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	Red ^{Note 1}
Cautions, non-normal sources	Amber/Yellow
Scales and associated figures	White ^{Note 2}
Earth	Tan/Brown
Sky	Cyan/Blue
Engaged Modes/normal conditions/safe operation	Green

Note 1: Use of Amber/Yellow as appropriate is also acceptable.

Note 2: Use of the colour green for tape elements (for example, airspeed and altitude) has also been found acceptable if the colour green does not adversely affect flight crew alerting.

Table A2

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

2. Background colour (gray or other shade) may be used to enhance display presentation.

3. Colours should track brightness so that chrominance and relative chrominance separation are maintained as much as possible during day-night operations.