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.
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

<table>
<thead>
<tr>
<th>Display Feature</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warnings</td>
<td>Red</td>
</tr>
<tr>
<td>Flight envelope and system limits</td>
<td>Red&lt;sup&gt;Note 1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Cautions, non-normal sources</td>
<td>Amber/Yellow</td>
</tr>
<tr>
<td>Scales and associated figures</td>
<td>White&lt;sup&gt;Note 2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Earth</td>
<td>Tan/Brown</td>
</tr>
<tr>
<td>Sky</td>
<td>Cyan/Blue</td>
</tr>
<tr>
<td>Engaged Modes/normal conditions/safe operation</td>
<td>Green</td>
</tr>
</tbody>
</table>

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

<sup>Note 2</sup>: 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

<table>
<thead>
<tr>
<th>Precipitation and Turbulence</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precipitation up to 4 millimeters per hour (mm/hr)</td>
<td>Green</td>
</tr>
<tr>
<td>Precipitation 4–12 mm/hr</td>
<td>Amber/Yellow</td>
</tr>
<tr>
<td>Precipitation 12–50 mm/hr</td>
<td>Red</td>
</tr>
<tr>
<td>Precipitation Above 50 mm/hr</td>
<td>Magenta</td>
</tr>
<tr>
<td>Turbulence</td>
<td>White or Magenta</td>
</tr>
</tbody>
</table>

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.