European Aviation Safety Agency

Deviations request #102 for an ETSO approval for CS-ETSO applicable to ETSO-C113 AIRBORNE MULTIPURPOSE ELECTRONIC DISPLAYS
Consultation Paper

1. Introductory note

The hereby presented deviation requests shall be subject to public consultation, in accordance with EASA Management Board Decision No 7-2004 as amended by EASA Management Board Decision No 12-2007[1] products certification procedure dated 11th September 2007, Article 3 (2.) of which states:

"2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency."

2. ETSO-C113#6 Airborne Multipurpose Electronic Displays

Deviate from ETSO-C113 3.1.1 and use SAE AS 8034 Rev. A instead of AS 8034 as the minimum requirement standard, except for section 4.5.7. where the required response time of 60 msec is increased to 160 msec for menu-driven control display only, with the exclusion of dynamic data display..

Requirement:

AS8034 revision A
4.5.7 Response time: The display response time shall meet the following requirements.

- ≤ 60 msec for total range, i.e., sum of full-off to full-on plus full-on to full-off (as measured from 10% maximum gray level to 90% maximum gray level plus 90% max to 10% max).
- (…)

Industry:

SAE AS 8034 had been updated to provide guidance adapted to LCD/plasma technology and not only requirements for CRT displays. SAE AS 8034A is a more recent release of the standard. The principles of the previous standard are kept but some testing is adapted to pixel matrix technology.
However, the considered display nominal performance is ≤ 80msec with a total worst-case per the component datasheet of ≤ 160msec.

Equivalent level of safety:
The display considered here is limited to the control of another equipment supporting a major function. The equipment therefore only displays menus which are activated through control keys. As a result, the equipment does not display dynamic graphic symbols computed from aircraft position or attitude (such as a PFD or as identified in AMC 25-11 §31.d.) which require the rapid refresh rate described in AS8034 revision A

[1] Cf. EASA Web: http://easa.europa.eu/management-board/docs/management-board-meetings/2007/04/MB%20Decision%2012-2007%20amending%20the%20certification%20procedure.pdf

§4.5.7. The achieved performance remains compatible of this type of menu-driven interface.
The equivalent level of safety is therefore provided by the limitation to use the equipment for menu-driven controls, with the exclusion of dynamic graphics symbols related to aircraft attitude or position.

The display, when used as a menu-driven controller, showed no adverse effects when tested during aircraft integration and flight test. The display met all operational and performance requirements with no visual artefacts that affected the flight crew's ability to read the displayed menus.

EASA:

As the deviation provides an Equivalent Level of Safety through the limitation to use for menu-driven control only, and as the applicant has demonstrated that the achieved performance is not detrimental to the display operation, we accept the deviation.