

Comments on Draft ETSO-C161, as contained in EASA NPA 2007-14

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These comments are personal comments only, as private issues have prevented me from completing them in time to follow the internal consultation procedures of my employer and still provide comments on time. They do not represent the opinion of EUROCONTROL and not bind EUROCONTROL in any way.

The comments are made from a user perspective and may not be in line with other EASA processes or usage of references. They also focus on potential conflict with a future community specification to be developed under Mandate M/408 by ETSI and may thus not always result in differences to current standards.

1) There are indications that the FAA plans a new TSO based on DO-253B, while the existing TSO-161 is based on DO 253A. Is there an advantage to copy TSO-161 into an ETSO if it is preferred that new approvals are performed to a different MOPS version?

2) The RTCA document DO253A referenced does not contain the term GBAS - only LAAS . While similar, LAAS is subject to additional specifications, notably those in DO-245 and FAA-E-AJW44-2937A (Nonfed. Spec. for a LAAS ground facility).

See section 1.1 from DO-253A:

“This document contains minimum operational performance standards (MOPS) for airborne navigation equipment using the Global Positioning System (GPS) augmented by the Local Area Augmentation System (LAAS). These standards are derived from the requirements specified in RTCA DO-245(), *Minimum Aviation System Performance Standards (MASPS) for the Local Area Augmentation System (LAAS)*. Throughout this document, the term “LAAS” is used as a generic reference to ground-based augmentation systems (GBAS) as defined by the International Civil Aviation Organization (ICAO), as the requirements in this standard are intended to comply with the ICAO Standards and Recommended Practices (SARPs) for the GBAS aircraft element.”

The requirements are compatible, but in some instances higher than the minima required in EUROCAE ED-114, which is likely referred to in the future GBAS CS.

One example is that LAAS requires the capability to transmit signals with elliptical polarisation, while only horizontal polarisation is foreseen to be used in Europe.

The ETSO should make reference to the fact that LAAS in referred documents should be interpreted equal to GBAS as defined in ICAO Annex 10.

3) DO-253A, Section 2.1.4 (and 2.2.1.1, and ff) make reference to many FAA specific standards (FAA-AC 25-11, 14 CFR part 25.1322, AC 23.1309-1(), AC 25.1309-1(), ...). Is there a need to provide European equivalences?

4) DO-253A Section 2.2.10.2.2 covers vertically polarized antennas. ED-114 however specifies in section 3.6.3.4.1 that the GBAS VDB shall have horizontal polarization and Note 2 of the same paragraph states the incompatibility with vertically polarised aircraft antennas. This note should be reflected in the ETSO.

5) DO-253A Section 2.3.6.4 makes direct reference to the GPS interface specification rather than the ICAO SARPs for GPS, which should be the document referenced to in an international context.

6) In DO253A there are multiple references to DO-229(), DO-245() and 246() - I assume these to always refer to the current version, which may cause discrepancies if those documents are updated, but some of their contents are subsequently not internationally standardised.

A good example is DO253A section 2.5.3.1.1 (Precision Approach Navigator Testing). It references the GPS-ICD directly, WAAS signals according to FAA-E-2892 and LAAS signals according to DO-246().

However, DO-246C contains (section 2.4.6.4) requirements for Terminal Area Paths in the VDB transmission. These requirements are not in ED-114, nor in any ICAO document and current official FAA positions is to not standardize this function on an international basis.

Is the intent of the E-TSO to require testing with such signals?

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