

Deviation Request #119 for an ETSO approval for CS-ETSO applicable to Ground Based Augmentation System Positioning and Navigation Equipment (ETSO-C161a) 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](#) 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 Deviation Request

2.1 ETSO-C161a#1 - Ground Based Augmentation System Positioning and Navigation Equipment

2.1.1 Summary of Deviation

Deviate from RTCA DO-253C that refers to “Navstar GPS Space Segment / Navigation User Interfaces” document IS-GPS-200D (December 2004) with IRN-200D-001 (dated March 7, 2006) to use instead IS-GPS-200G (September 2012).

2.1.2 Original Requirement

IS-GPS-200D with IRN-200D-001 is called in the following sections of DO-253C:

§1.5.1: “It is assumed that GPS satellites transmit signals that comply with the GPS Standard Positioning Service (SPS) Performance Standard (dated September 2008) and Navstar GPS Space Segment / Navigation User Interfaces [IS-GPS-200D with IRN-200D-001] (dated March 7, 2006).”

§2.5.3.1.1: “Simulated GPS Ranging-sources shall [LAAS-212] conform with the GPS Standard Performance Standard and Navstar GPS Interface Specification (IS-GPS-200D with IRN-200D-001).”

2.1.3 Industry

Interface Specification IS-GPS-200 defines the requirements related to the interface between the space segment of the Global Positioning System and the navigation user segment of the GPS for radio frequency link 1 (L1) and link 2 (L2).

This document is published by the GPS Directorate and is regularly updated to take into account document improvements and evolutions of GNSS signals. The GPS Directorate recommends to use the latest version of IS-GPS-200.

It is proposed to use IS-GPS-200G dated September 2012 instead of IS-GPS-200D with IRN-200D-001 (dated March 7, 2006) as applicable on the entire DO-253C for a new GPS receiver design, because it reflects the up-to-date interfaces of the GNSS signals, including signals which are planned to be available to users in the coming years.

Equivalent level of safety is demonstrated since the definition and processing algorithms of the GPS L1 C/A signal are unchanged.

The main changes between issue D with IRN-200D-001 and issue G of IS-GPS-200 are related to:

- PRN codes sequences expansion (PRN 38 to 63), applicable to GPS III and subsequent blocks. In the IS-GPS-200G, these “PRNs 38-63 are required per this Table if a manufacturer chooses to include these PRNs in their receiver design”. It is not foreseen for our GPS receiver.
- Planned evolutions of the GNSS signal without impact on the current GPS L1 C/A signal (e.g. GPS IIIA and CNAV data) that are not taken into account by the GPS receiver.

2.1.4 Equivalent Level of Safety

An equivalent level of safety is provided by using the latest revision of the “Navstar GPS Space Segment / Navigation User Interfaces” document.

2.1.5 EASA position

We accept the deviation.