Compliance with ICAO SARPS for RNAV GNSS Instrument Approach Procedures supporting LPV

1. Introduction

1.1 RNAV GNSS Instrument Approach Procedures supporting Localiser Performance with Vertical Guidance (LPV) requires an assessment of the compliance of the GNSS SiS with ICAO Annex 10 Volume 1 Radio Navigation Aids - SiS performance requirements detailed in table 3.7.2.4-1.

Note: LPV refers to Approach Procedure with Vertical Guidance (APV I or II) which is achieved by GPS Augmented by a Satellite Based Augmentation System (SBAS) provided in Europe by the European Geostationary Navigation Overlay Service (EGNOS).

2. Scope

2.1 This paper provides guidance on how Air Traffic Service (ATS) providers can assess the compliance of the EGNOS Augmented GPS SiS with the SARPs of ICAO Annex 10 Volume 1 Radio Navigation Aids table 3.7.2.4-1 Signal in Space Performance Requirements.

3 Requirements

3.1 Continuity - An ATS provider shall ensure that the GNSS SiS performance meets a continuity requirement of 1-8 x 10^{-6} per 15 Sec.

Note: EGNOS may not achieve the continuity requirement as defined above, this is recognised in guidance material in Annex 10 Volume 1 attachment D, which states that: 'the specific risk of loss of continuity for a given approach could exceed the average requirement without necessarily affecting the safety of the service provided or the approach.' Continuity risk should be considered in respect of air traffic management and ATC workload.

3.2 Horizontal Accuracy - An ATS provider shall ensure that the GNSS SiS Horizontal Accuracy is better than 16 m (95%)

3.3 Vertical Accuracy - An ATS provider shall ensure that the GNSS SiS Vertical Accuracy is better than 20m for APV I or 8m for APV II.

3.4 Integrity - An ATS provider shall ensure that the GNSS SiS integrity meets a probability of 1-2 x 10^{-7} in any approach.

4. Acceptable Means of demonstrating compliance with the ICAO Signal in Space Performance Requirements

4.1 The European Satellite Services Provider (ESSP) continually monitors the performance of EGNOS and publishes monthly performance reports on its website. http://www.essp-sas.eu.

4.2 These reports can be used by Air Traffic Service providers to assess the ongoing SARPs compliance.

5. References

a) ICAO Annex 10 Volume 1 Radio Navigation Aids

6. Queries

Any queries or further guidance required should be addressed to:

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