



*International Civil Aviation Organization*

**MIDANPIRG Communication Navigation and Surveillance  
Sub-Group (CNS SG)**

**Sixth Meeting**  
**(Tehran, Iran, 9 – 11 September 2014)**

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**Agenda Item 3: Global and Regional Developments related to CNS**

**GNSS NOTAMS**

*(Presented by the Secretariat)*

<b>SUMMARY</b>
The aim of this paper is to provide an update on GNSS NOTAM.  Action by the meeting is at paragraph 3.
<b>REFERENCES</b>
<ul style="list-style-type: none"><li>- Eurocontrol AIM/SWIM TEAM-6/AP5</li><li>- ICAO DOC 9613, Performance Based Navigation (PBN) Manual</li><li>- ICAO DOC 9849, Global Navigation Satellite System (GNSS) Manual</li><li>- PBN SG/1 Report</li><li>- The European Concept for GNSS NOTAM</li></ul>



**1. INTRODUCTION**

1.1 One of the specificities of Area Navigation (RNAV) is that the availability of service is highly dependent on the airborne capability. However, in order to allow aircrew to decide whether the approach can be planned, GNSS NOTAM has been proposed to indicate whether the minimum navigation system or function which allows an RNAV GNSS approach to be conducted is predicted to be available.

**2. DISCUSSION**

2.1 The European concept for GNSS NOTAM identifies two types of GNSS NOTAM:

- a) GPS RAIM NOTAM will indicate periods of time at an airport when RAIM is predicted not to be available to support RNAV (GNSS) approach to LNAV minima: “GPS RAIM IS NOT AVAILABLE FOR LNAV”.
- b) EGNOS NOTAM will indicate periods of time at an airport when EGNOS is predicted not to be available to support RNAV (GNSS) approach to LPV minima: “EGNOS IS NOT AVAILABLE FOR LPV”.

2.2 It is to be noted that, issuance of GNSS NOTAM has not been considered mandatory by ICAO. Indeed, ICAO DOC 9613 States that *“operators using GNSS equipment should confirm the availability of RAIM by using RAIM availability prediction software taking account of the latest GNSS NOTAMs. Operators using SBAS augmentation should also check the relevant SBAS NOTAMs to determine the availability of SBAS. Notwithstanding preflight analysis results, because of unplanned failure of some GNSS or DME elements (or local interference), pilots must realize that integrity availability (or GNSS/DME navigation altogether) may be lost while airborne which may require reversion to an alternate means of navigation. Therefore, pilots should assess their capability to navigate in case of failure of the primary sensor or the RNP system.”*

2.3 Experience with the implementation of RNAV (GNSS) approach operations in both Europe and the US indicates that traditional methods for providing navigation aid status information and NOTAMs cannot be directly applied to satellite navigation services. The prediction of the impact of a particular service degradation is very difficult and can vary depending on the user so one model is not suitable for all. The provision of NOTAMs indicating predicted GNSS unavailability has been abandoned by the FAA and is under discussion in Europe.

2.4 The meeting may wish to note that although more than 10 ECAC States have issued NOTAM on RAIM prediction outage, however Eurocontrol AI Operations SG/9 (Brussels, 27-28 November 2013) was in general not favoring to issue warnings by NOTAM on an event which may not happen and concluded that an EGNOS Warning NOTAM is not seen necessary as the information is regarded as having no operational impact.

2.5 It is to be highlighted that the necessity and harmonized format of GNSS NOTAM have been under discussion by the European States.

2.6 The meeting may wish to note that the PBN SG/1 (Cairo, Egypt, 1-4 April 2014) was apprised of the above-mentioned update on the GNSS NOTAM and noted that the traditional methods for providing navigation aid status information and NOTAMs cannot be directly applied to satellite navigation services. Furthermore, and in accordance with GNSS Manual (Doc 9849) it was highlighted that the issuance of GNSS NOTAM has not been mandated by ICAO. Accordingly, the PBN SG/1 meeting agreed that necessary follow-up on the developments of the GNSS NOTAM be carried out by the AIM SG, as deemed necessary.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to note the information contained in this information paper.