



International Civil Aviation Organization

**THE SEVENTH MEETING OF THE ASIA/PACIFIC GBAS/SBAS
IMPLEMENTATION TASK FORCE (GBAS/SBAS ITF/7)**

(Bangkok, 14- 16 May 2025)

Agenda Item 2: Reports of relevant meetings

**CURRENT STATUS OF NAVIGATION SYSTEMS PANEL GBAS WORKING GROUP
ACTIVITIES**

(Presented by Co-Chair)

SUMMARY

This paper presents recent activities of the ICAO Navigation Systems Panel (NSP) GBAS Working Group (GWG) as discussed in the 14th Joint Working Group Meeting (JWGs/14) of the ICAO NSP. DFMC GBAS standardization is the main topic. It is noteworthy that the GWG started working on development of GBAS Manual.

1. INTRODUCTION

1.1 ICAO Navigation Systems Panel (NSP) is working on developing standards and recommended practices (SARPs) and related documents on GNSS. The GBAS Working Group (GWG) is responsible for matters related to GBAS. The GNSS SARPs Working Group (GSWG) is responsible for matters related to GNSS core constellations and SBAS.

1.2 The 14th meeting of the ICAO NSP Joint Working Groups Meeting (NSP JWGs/14) was held from 29 April to 8 May 2025. GWG was held from 29 April to 2 May 2025. This paper reports on the status of discussion in ICAO NSP on GBAS in NSP JWGs/14.

2. DISCUSSION

2.1 The main focus of the GWG is development of the dual-frequency and multi-constellation (DFMC) GBAS standards. The main advantages of the DFMC GBAS include higher availability under severe ionospheric conditions and resilience to radio frequency interference and constellation failure.

2.2 The basic architecture has been agreed which is based on the combination of “sending measurement” concept with integrity alarming technology as previously proposed in the SESAR activity. The new service type based of the DFMC GBAS is called “GBAS Approach Service Type (GAST) E.” It is deemed to be able to provide availability even under severe ionospheric conditions. The DFMC GBAS messages are designed to have extensibility for future applications, although standardization for the future applications are out of scope of the current standard development activities.

2.3 For GAST E, two new GBAS Messages (Message Types 23 and 50) and two new additional data blocks of Message Type 2 will be introduced. The contents and formats are being

developed and validated. The DFMC GBAS SARPs Drafting Group under the ICAO NSP GWG is working hard by meeting online every two weeks.

2.4 GWG is working on it with the following timeline for DFMC GBAS development:

- Q4 2024: A high-level concept of DFMC GBAS agreed in ICAO and RTCA/EUROCAE
- Q4 2026: A detailed concept paper agreed in ICAO and RTCA
- Q4 2026: A baseline airborne MOPS and a baseline development SARPs for DFMC GBAS
- 2030*: Operationally validated SARPs proposal ready for proposal to NSP

A high-level concept of DFMC GBAS has been delivered to the 11th NSP Joint Working Groups Meeting in November 2023. A detailed concept paper of DFMC GBAS and baseline standards are being developed by GWG to be delivered by Q4 2026. The timeline of the delivery of the baseline standards is delayed by two years due to limited resources. However, the targeted timeline of the delivery of validated standards is unchanged, although the delivery date for validated DFMC GBAS SARPs (2023* in the above list) has not been agreed across all stakeholders, and it is subject to change (could be earlier or later).

2.5 To support deployment of existing GBAS (GAST C and D), GWG works on updates and maintenance of existing ICAO standards, guidance materials, and manuals. GWG started to work on a new manual on GBAS (GBAS Manual). A draft with a framework of GBAS Manual, potential sources of contents, and some guidance materials was presented at JWG/14. GBAS Manual will include contents on ionospheric anomaly mitigation. An ad hoc group on GBAS Manual development was formed. The ad hoc group will work on populating the contents of GBAS Manual and present an updated draft to the next GWG meeting.

2.6 The next meeting of the NSP is planned as the 15th Joint Working Group in November 2025. The full panel meeting of the NSP is planned in January 2026.

3. ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matters as appropriate.

Executive Summary for consideration for inclusion in the Meeting Report

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Recent activities of the ICAO Navigation Systems Panel (NSP) GBAS Working Group (GWG) as discussed in the 14th Joint Working Group Meeting (JWGs/14) of the ICAO NSP. DFMC GBAS standardization is the main topic. A detailed concept paper of DFMC GBAS and baseline standards are being developed by GWG to be delivered by Q4 2026. The timeline of the delivery of the baseline standards is delayed by two years due to limited resources. However, the targeted timeline of the delivery of validated standards is unchanged (4Q 2030*), although it is still subject to change.