

International Civil Aviation Organization

ICAO

**Twenty Ninth Meeting of the Communications/  
Navigation and Surveillance Sub-group (CNS SG/29)  
of APANPIRG**

Bangkok, Thailand, 16-20 June 2025

**Agenda Item 7:** Navigation

## 7.4 Other navigation-related matters

**GBAS STATUS UPDATE in CHINA**

(Presented by China)

**SUMMARY**

This document introduces the deployment and test evaluation progress of the GBAS Ground Station in China. A GBAS ground station has been deployed at Zhoushan Putuoshan Airport to meet the performance requirements for GAST-C, and flight tests have been carried out for verification. In addition, a DFMC GBAS Ground Station has been deployed at Dongying Shengli Airport, and the accuracy performance evaluation of the GBAS ground station for BDS B1C and B2a frequency has been carried out.

**1. INTRODUCTION**

1.1 The GBAS ground station is deployed at Zhoushan Putuoshan Airport, meeting the performance requirements of GBAS Approach Service Type C (GAST-C). Additionally, a Dual-Frequency Multi-Constellation (DFMC) GBAS ground station has been installed at Dongying Shengli Airport in Shandong Province for GAST-E technology validation.

**2. DISCUSSION**

2.1 In 2022, the GBAS ground station had been deployed at Zhoushan Putuoshan Airport, which meets the performance requirements of GAST-C shown in Figure 1. Multiple interference monitoring and ionospheric monitoring stations have been installed around the airport. From December 2022 to October 2023, on-site operational performance tests were conducted, and there were no continuity or integrity risks.



Figure 1. Outdoor equipment of GBAS ground station

2.2 In June and September 2023, the inspection aircraft of the Civil Aviation Flight Inspection Center of China was used to conduct two CAT I GLS flight tests on the GBAS ground station at Zhoushan Putuoshan Airport.

2.3 In December 2023 and April 2024, at Zhoushan Putuoshan Airport, two flight tests were conducted on the GBAS ground station using a Boeing 737-800 commercial aircraft, shown in Figure 2. Both tests completed ground checks, runway taxiing tests, and five GLS approach flight tests. During the approach flight tests, GBAS signal reception and tuning were normal, the localizer display was consistent with ILS, the glide slope display was consistent with ILS, the subjective flight experience was better than that of ILS, and the overall stability was satisfactory.



Figure 2. Flight test using Boeing 737-800 in Zhoushan Putuoshan Airport

2.4 In 2023, the DFMC GBAS had been installed in Dongying Airport for GAST-E technology validation related data collection and flight testing. In June 2023, the Unmanned Aerial Vehicle (UAV) flight test was completed, shown in Figure 3. In November 2023, the manned aircraft inspection flight test was completed using the B-9300 inspection aircraft, and the approach guidance accuracy met the requirements of CAT II/III approach.



Figure 3. Flight test in Dongying Shengli Airport

2.5 To evaluate the GBAS Ground Station Accuracy Performance for BDS B1C, BDS B2a, and GPS L1 C/A single frequency, we have collected three consecutive days (May 9–11, 2024) of data from GBAS ground station at Dongying Airport, China. The Ground Accuracy Designator (GAD) evaluation method is based on Section 5.4, EUROCAE ED-114B, utilizing a high-resolution B-value ( $10^{-6}$ ) and a 24-hour GAD statistical period. The results indicate that the GBAS accuracy performance of BDS B1C and B2a frequency is comparable to GPS L1 C/A, with both generally enclosed by the GAD-C standard curve. BDS B1C and B2a frequency can utilize GAD-C accuracy class parameters.

### 3. ACTION BY THE MEETING

- a) Note the information contained in this paper; and
- b) Discuss any relevant matter as appropriate

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