



International Civil Aviation Organization

**THE EIGHTH MEETING OF THE ASIA/PACIFIC GBAS/SBAS
IMPLEMENTATION TASK FORCE (GBAS/SBAS ITF/8)**

(Melbourne, Australia, 12-14 May 2026)

Agenda Item 4: Updates on GBAS/SBAS system and States' implementation status

GBAS Certification in China

(Presented by China)

SUMMARY

This paper presents the certification of the GBAS ground subsystem in China, including type certification, factory type testing, operational environment testing, flight testing.

1. INTRODUCTION

1.1 Guidance for Procurement and certification of CNS/ATM Services and Systems by ICAO APAC was published in 2019. The certification mechanic of CNS/ATM equipment and systems by CAAC. is very similar to ICAO APAC.

1.2 CNS Units in China are prohibited from using uncertificated equipment to put into operation. GBAS ground equipment must be tested, validated and certificated before commission.

1.3 Two Types of GBAS were certificated to meet the performance requirements of GBAS Approach Service Type C (GAST-C), and the provisional certification of approval were issued by CAAC.

2. Discussion

2.1 The certification of GBAS ground subsystem is divided into provisional certificate of approval and certificate of approval.

2.1.1 Before a certificate of approval for the operation of GBAS in civil aviation is issued by CAAC, a provisional certificate of approval to verify the performance, function, safety and reliability of the GBAS ground subsystem should be completed.

2.1.2 If a GBAS ground subsystem with a provisional certificate of approval was put into operation and the reliability verification was passed, a certificate of approval will be available, and the certificated type of GBAS ground subsystem can be put into operation in the next 5 years.

2.2 The Workflow of Certification is illustrated in Figure 1.



Figure 1 the Workflow of Certification for GBAS

2.2.1 The Workflow of type certification is illustrated in Figure 2.

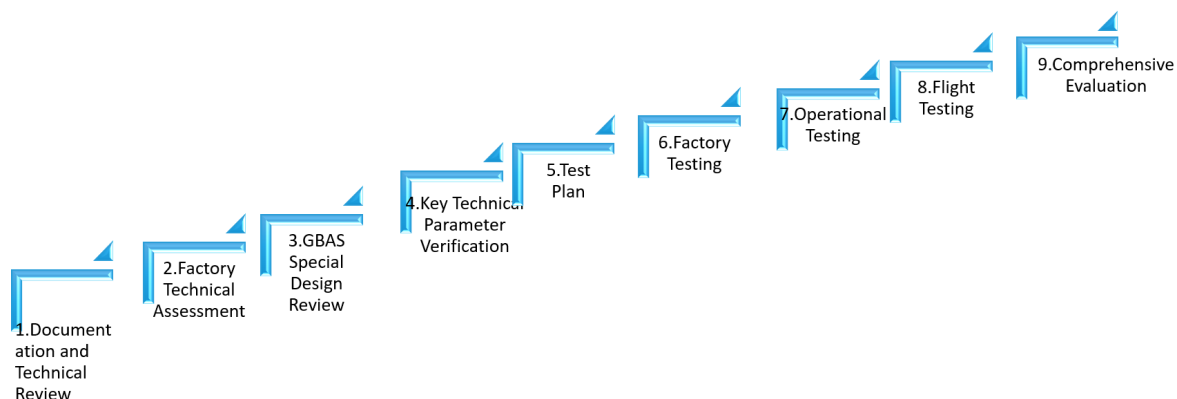
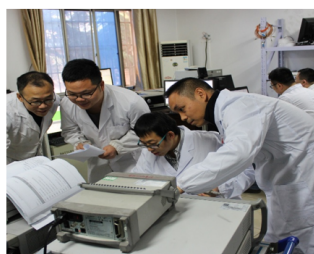


Figure 2 the Workflow of Type Certification for GBAS

2.2.2 Factory Type Testing refers to system-level, configuration item-level, and component unit-level tests conducted on the GBAS ground subsystem. It includes the following testing:



Factory Type Testing in Xian



Factory Type Testing in Xian



Factory Type Testing in TianJin

Figure 3 Factory Type Testing for GBAS

2.2.2.1 Hardware testing, such as reference receivers, VDB transmitters, VDB receivers, antennas, processing subsystems, monitoring and maintenance subsystems, tower control and display unit.

2.2.2.2 Software testing, such as processing subsystems, the capability of processing, the parameters of data, data broadcasting, functional testing.

2.2.2.3 Free testing to find the flaws and potential hazards on system design.

2.2.3 The period for GBAS operational environment testing is typically no less than 8 months, to test the accuracy, availability, continuity and integrity of GBAS GAST C.



Figure 4 Operational Testing in Tianjin Airport

2.2.4 Flight tests should be conducted no less than twice, once before the operational environment testing period begins and once after the accuracy, availability, continuity and integrity test were completed.

2.2.4.1 Orbit is to fly at height of 1,500 m and 3,000 m with a radius of 20 NM to check VDB signal coverage and interference.

2.2.4.2 Level arc is to fly arcs with a radius of 15/20 NM and a 35° left/right arc.

2.2.4.3 Level run is to fly along the runway centerline beginning at 10 NM (600 m height), 15 NM (900 m height), and 20 NM (1,200 m height) from LTP/FTP, ending at 2.5 NM from the opposite side of the runway.

2.2.4.4 Approach is to fly from at 20 NM, 15 NM, and 10 NM (or the farthest point of the approach procedure), along the approach path to LTP/FTP.

2.3 If the type certification is meeting the regulator and SARPs of ICAO, the type of provisional certificate of approval will be available and can be put into operation on one site within 2 years for reliability confirmation.

2.4 The equipment reliability confirmation period is 12 months. Data records of operational maintenance during the reliability confirmation period, as required by the reliability confirmation plan. Reports of downtime, fault reports, log analysis reports, flight inspection reports, update and upgrade reports (if any) during the reliability confirmation period.

2.5 If the followings are satisfied, a certificate of approval for the type can be approached.

- (a) The provisional certification of approval is not expired;
- (b) ISO 9001 is not expired;

- (c) Radio transmission equipment type approval certificate is not expired;
- (d) Reliability confirmation has been passed;
- (e) Technical support and after-sales service are satisfactory.

2.6 Two types of GBAS ground subsystem were certificated to meet the performance requirements of GBAS Approach Service Type C (GAST-C), and the provisional certification of approval were issued by CAAC.

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.
