

International Civil Aviation Organization



ICAO

**Twenty Seventh Meeting of the Communications/
Navigation and Surveillance Sub-group (CNS SG/27) of
APANPIRG**

Bangkok, Thailand, 28 August – 01 September 2023

Agenda Item 6: Navigation

6.4 Other navigation related matters

BDS STANDARDIZATION STATUS IN ICAO

(Presented by China)

SUMMARY

This paper provides the status of BeiDou Navigation Satellite System (BDS) standardization in ICAO, including the BDS SARPs endorsement progress, the BDS related contents in GNSS manual revision, and BDS related requirements development and validation in ARAIM SARPs.

1. INTRODUCTION

1.1 The declaration of BDS commissioning on July the 31st, 2020 accelerated the progress of the BDS SARPs development and validation progress in ICAO Navigation Systems Panel (NSP), which was completed by NSP in November 2020. The final review of BDS SARPs was passed by the ICAO Council in March 2023.

1.2 The BDS related DFMC GNSS standardization work in ICAO NSP extended from core constellation SARPs to augmentation system SARPs development and GNSS manuals revision since 2021.

1.3 This paper presents the BDS SARPs endorsement progress and BDS related ICAO standards development status.

2. DISCUSSION

BDS SARPs Endorsement Progress

2.1 The ICAO NSP delivered the proposed amendments to Annex 10 – Volume I to include the BDS core constellation at the NSP/6 meeting in November 2020.

2.2 A state letter containing the proposed amendments to Annex 10 – Volume I was sent by ICAO to contract States in July 2021. During this process, no comment was received on BDS SARPs.

2.3 The commitment letter from China of the provision of BDS Open Service (OS) to civil aviation was accepted by ICAO council in February 2022, which contains the BDS commitment of providing BDS OS to civil aviation for the foreseeable future, on a continuous, worldwide basis and free of direct user charges. Final review of proposed amendment to Annex 10, Volume I was done at Air Navigation Commission 220th session in June, 2022. The proposed amendment to Annex 10, Volume I was agreed to become effective on 31 July, 2023 and applicable on 2 November 2023.

Other BDS Related ICAO Standardization Work

2.4 As the SARPS have been updated to add requirements for new core constellations, additional core constellation signals and DFMC SBAS, the ICAO NSP authorized creation of an ad hoc group to propose GNSS manual changes in support of the SARPS changes and to address significant issues in the manual. The BDS related part in GNSS Manual was updated. The final GNSS Manual redlines were submitted during NSP/7 for endorsement.

2.5 An ARAIM SARPs development ad-hoc group was set up after JWG8/7 meeting in April, 2021. Prior to that, ARAIM SARPs development took place under a cooperation between the U.S. and Europe. The ad-hoc group expended and included participation from various experts from the delegations of the U.S, the E.U, China, the Russian Federation, Spain, UK, Eurocontrol and ICCAIA. In the 2022 ARAIM ad-hoc meetings, the statistics, analysis and verification of Integrity Support Data (ISD) default arguments for BDS were completed. the relevant analysis reports were submitted. The NSP JWG8/WP37 presented the fifth draft of ARAIM Standards and Recommended Practices (SARPs), which was further updated as the validation version in subsequent meetings, including NSP JWG8/9, GSWG4, NSP7, and JWG8/10.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the BDS SARPs endorsement progress and BDS related ICAO standards development status in this paper.
