

International Civil Aviation Organization



ICAO

**Twenty Fourth Meeting of the Communications/
Navigation and Surveillance Sub-group (CNS SG/24) of
APANPIRG**

Web-conference, 30 November – 4 December 2020

Agenda Item 5: Navigation

5.5 Other navigation related issues

BDS SARPS DEVELOPMENT AND VALIDATION STATUS IN ICAO

(Presented by China)

SUMMARY

This IP provides the status of BDS Open Service Standards and Recommended Practices (SARPs) development and validation work in ICAO, which is now at the final stage of completion in ICAO Navigation System Panel (NSP).

1. INTRODUCTION

1.1 The third phase of BDS(BDS-3) construction work has been completed at the second quarter of this year, and the BDS-3 Full Operation Capability was declared on July 31st, 2020. BDS has promised to provide its Open Service for civil aviation use, which includes B1I, B1C and B2a single-frequency service and B1C, B2a dual-frequency service provided by B1I, B1C and B2a signals transmitted by BDS-3 MEOs and IGSOs.

1.2 BDS Open Service Standards and Recommended Practices (SARPs) development and validation work is now at the final stage of completion in ICAO NSP as scheduled.

2. BDS SARPS DEVELOPMENT AND VALIDATION STATUS

2.1 BDS has always been willing to serve civil aviation users, and the performance requirements in civil aviation use are always the input to our BDS system construction. Civil Aviation Administration of China (CAAC) proposed to ICAO include BDS into ICAO standards framework at the 37th ICAO Assembly in 2010, and ICAO agreed to start the standardization work for BDS at ICAO Council 192nd Session.

2.2 BDS has started Open Service SARPs development work in ICAO NSP since May 2012. At that time, BDS was still in the construction of the second phase (BDS-2), and the Open Service signal intended for aviation use was just B1I.

2.3 At the end of 2017, BDS published BDS-3 Open Service signals ICD for B1C and B2a signals, and the BDS SARPs development for B1C and B2a has started in ICAO NSP since then. After

Agenda Item 5.5

30/11/20 – 04/12/20

comprehensive evaluation, BDS decided to provide BDS Open Service provided by B1I, B1C and B2a signals transmitted by BDS-3 MEOs and IGSOs for aviation use, and the BDS OS SARPs are also for those three signals.

2.4 ICAO NSP has initiated the SARPs validation work for four core constellations including GPS, GLONASS, Galileo and BDS in April 2018. The basis for SARPs validation is GNSSs Performance Standards and ICDs. To boost the validation work, regular ICAO NSP VWG WebEx meetings haven been holding monthly since the start of 2019 to facility the SARPs validation work across the cores.

2.5 GNSS SARPs except the generic sections for all the four cores constellations including BDS have been fully validated and translated into various ICAO languages. They were the inputs to the November 2020 NSP/6 meeting to review.

2.6 After NSP JWGs/6 meeting in this June, the open requirements of BDS in GNSS generic sections pending for validation are the Radio Frequency Interference related ones. The RFI requirements validation work in GNSS SARPs for all four cores started in April 2020. Since then BDS RFI work has been discussed at 3 meetings, and BDS RFI work has been adjusted and updated following the comments and guidance from the meeting discussion. The comments on BDS RFI work includes the effective carrier-to-noise threshold for various receiver functions, the GNSS inter- and intra-interference impact evaluation, the DME/TACAN impact evaluation, MSS interference on B1I signals and B1I receiver design to mitigate the MSS interference, etc.,.

2.7 At ICAO NSP/6 meeting held from November 2nd to 13th, China has presented BDS RFI related working paper WP 25. After discussion of WP 25 in GSWG, SWG and VWG joint session, all the open requirements on RFI for BDS in GNSS SARPs generic sections were closed. This is an important milestone for BDS standardization work in ICAO and this is also a good start and guidance for future BDS MOPS development.

2.8 The next step for BDS SARPs review in ICAO is supposed to be the submission from NSP to ANC to review and the state letter process.

3. CONCLUSION

As a life-critical field, civil aviation is always the most important sector of BDS application. ICAO GNSS SARPs is the high-level standard to guide the BDS use in civil aviation. Afterwards, BDS will continue to promote the BDS MOPS development according to schedule.

4. ACTION BY THE MEETING

4.1 The meeting is invited to:

- a) note the information contained in this paper.
