



*International Civil Aviation Organization*

**THE FIFTH MEETING OF THE ASIA/PACIFIC GBAS/SBAS IMPLEMENTATION TASK FORCE (APAC GBAS/SBAS ITF/5)**

*(Tokyo, Japan, 21- 23 June 2023)*

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**Agenda Item 3:** Updates from States/Administrations about GBAS/SBAS Implementation

**SouthPAN in Australia and New Zealand**

(Presented by Australia)

**SUMMARY**

This paper presents a brief summary of the SouthPAN program, which will provide a SBAS aeronautical radio navigation service to Australia and New Zealand by 2028.

1. INTRODUCTION

1.1 Australia and New Zealand have established a joint project to deliver the Southern Positioning Augmentation Network (SouthPAN), a Satellite-Based Augmentation System (SBAS) capability that will be used by aviation and a number of other industry sectors—for example, agriculture, transport, and resources.

2. DISCUSSION

2.1 SouthPAN commenced service delivery on 26 September 2022 and provides a number of Early Open Services:

- a) L1 SBAS Open Service (on the L1 navigation signal), augmenting the L1 C/A GPS signal;
- b) DFMC SBAS Open Service (on the L5 navigation signal), augmenting the L1 C/A and L5 GPS signals, and the E1 and E5a Galileo signals; and
- c) Precise Point Positioning (PPP) Via SouthPAN (PVS) (on the L5 navigation signal), augmenting the L1 C/A and L5 GPS signals, and the E1 and E5a Galileo signals.

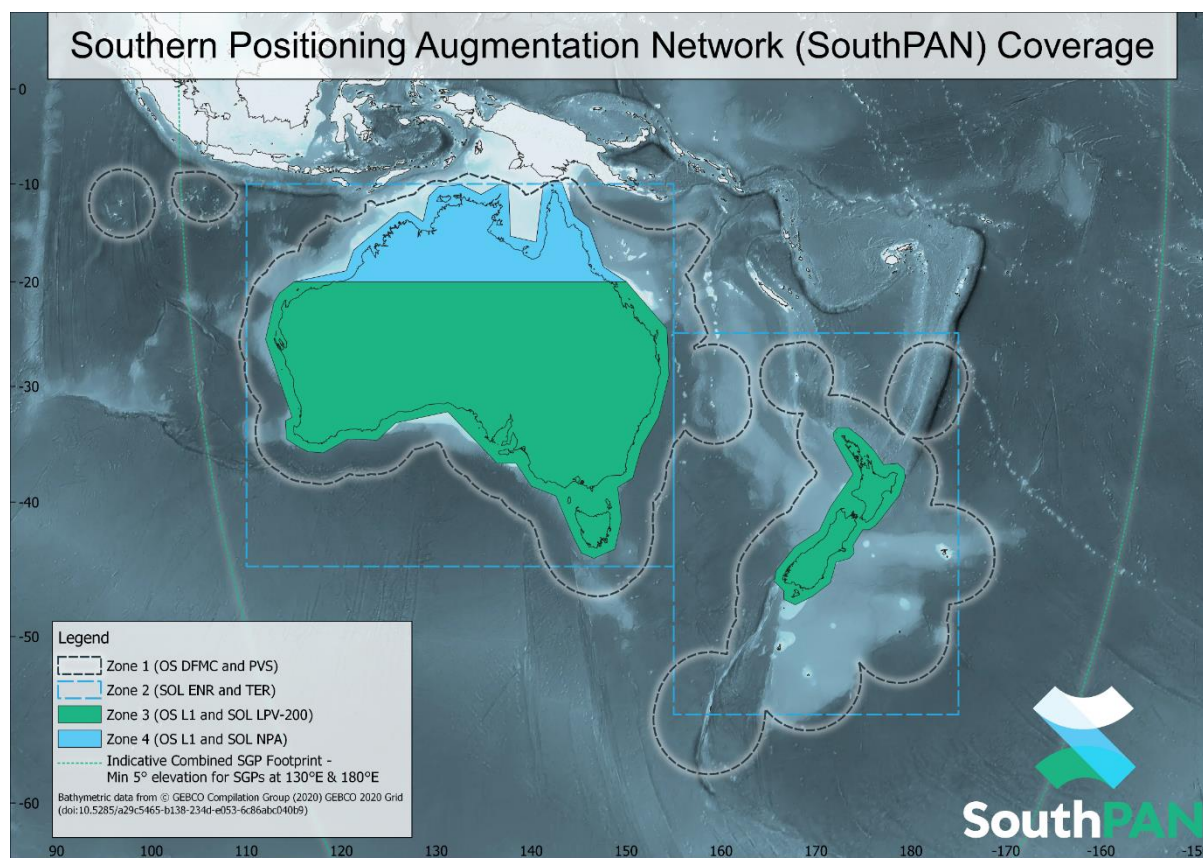
2.2 The L1 SBAS and DFMC SBAS Open Services are marked as not-for-use by aviation, through the use of Message Type 0. This prevents aircraft from using the SBAS navigation signals.

2.3 The quality of the Early Open Services will be improved in the coming years through to 2028, when SouthPAN deployment will be complete. The L1 SBAS navigation signal will be certified to provide a Safety-of-Life Service; however, there are currently

no plans to certify SouthPAN for DFMC SBAS. An Open Service will continue to be provided.

2.4 Early Open Services are currently provided using the Inmarsat 4F1 satellite located in Geostationary Earth Orbit (GEO) at 143.5° East. A contract for the first new satellite— SouthPAN GEO Payload – 01 (SGP-01)—was awarded to Inmarsat in May 2023 for the 8F1 satellite to be located at 178° East by 2027. A new procurement activity for the second new satellite, SGP-02, was commenced in May 2023. These activities ensure SouthPAN navigation services will continue to be provided for the foreseeable future, and demonstrate Australia’s and New Zealand’s commitment to SBAS and the safety of air navigation.

2.5 The target Service Area is shown in the following figure. SouthPAN will support Vertical Protection Levels of less than 35 metres within the green area, South of 20° S. North of 20° S is observed to be problematic due to scintillation and the presence of plasma bubbles, however the Service Area will be maximized during the design process.



2.6 Further information about SouthPAN’s services can be found in the Service Definition Document available on Geoscience Australia’s website: <https://www.ga.gov.au/southpan-sdd-os>.

2.7 Achieving VAL=35m will allow Localized Performance with Vertical guidance (LPV) Instrument Flight Procedures to be published with a Decision Height as low as 200 feet. Locations where LPV-200, LPV-250, and LNAV/VNAV (SBAS) instrument flight

procedures are published will depend on a number of factors including runway lighting, approach lighting, traffic rates, aircraft types, and other extant navigation services.

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.

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