International Civil Aviation Organization

Ninth Meeting of the Surveillance Implementation Coordination Group (SURICG/9)

Bangkok, Thailand, 07 - 10 May 2024

Agenda Item 7: Update on surveillance activities and explore potential cooperation opportunity**.**

UPDATE ON ATC SURVEILLANCE ACTIVITIES IN AUSTRALIA

(Presented by Australia)

SUMMARY

This paper provides information on air traffic control surveillance activities in Australia. The paper is an update of the reports previously provided.

1. INTRODUCTION

1.1 This paper provides information on air traffic management surveillance activities in Australia.

2. DISCUSSION

2.1 Australia operates a network of civil radars, including Mode S Enroute Secondary Surveillance Radar (SSR) and Mode S Terminal Area Radar (Primary + Secondary), which has continued to be reliable and stable with no major programs of works planned at this time.

2.2 The Australian Department of Defense are progressing through a replacement program for ATC Surveillance radars, with both Primary and Mode S Secondary capabilities. As with the existing radars, the data from these radars will be shared with the civil ANSP, Airservices Australia, to augment surveillance coverage used for air traffic separation services. Full project completion expected by the end of 2025.

2.3 As part of the significant network uplift under the Enterprise Network Modernisation Program (ENMP), data transport from surveillance sensor sites to ATC centers will be migrated to Internet Protocol (IP) based network design.

2.4 Australia operates two WAM systems in Tasmania and Sydney. Sydney WAM supports Parallel Runway Monitor (PRM) operations (Asterix CAT020), provides high-update “pseudo” radar input (Asterix CAT048) for Terminal Approach service, and ADS-B input (Asterix CAT021) for Enroute service. Tasmania WAM supports Enroute and Approach surveillance services with “pseudo” radar (Asterix CAT048) and ADS-B data (Asterix CAT021). Both WAM systems are expected to reach the end of their useful operational life around 2026/27, with consideration for extending the life of these assets by another 2 years to transition to ADS-B as the main surveillance technology.

2.5 A-SMGCS systems continue to be operational at the four major airports around Australia. A-SMGCS sensor data (Surface Movement Radar, MLAT, and ADS-B) is integrated into the tower automation system and operates as a "fused display" system. A sensors technology refresh program is planned for Melbourne and Sydney in 2026/27, and progressively for Brisbane and Perth by 2030. A-SMGCS will be deployed at the new Western Sydney International Airport (WSIA) in 2026, with A-SMGCS sensors feeding a new "fused display" Digital Aerodrome System (DAS).

2.6 Australia's network of over 50 ADS-B installations will be replaced over the next 3-4 years with the latest generation ground stations. The network of ADS-B installations will be replaced under the Enterprise Network Modernisation Program (ENMP).

2.7 ADS-B continues to be the preferred surveillance technique for new service demands and the need for additional lower level coverage in some areas to support operational requirements and improve safety and efficiency. A number of priority ADS-B new sites is being considered for implementation, with priority assessed against a combination of the operational requirements, Safety and cost/benefits of each location.

2.8 Australia's ADS-B data sharing with Indonesia continues with benefits for both states. A total of 10 sites are currently shared between the 2 countries – 6 sites in Indonesia and 4 sites in Australia.

Other projects

2.9 The Enterprise Network Modernisation Program (ENMP) will modernise network and communications infrastructures and services. The scope of ENMP includes Network and communications, VHF radio systems, and ADS-B ground systems. It is noted that ENMP will be delivered as a Managed Service for the above-mentioned Network, VHF, and ADS-B systems.

2.10 Australia is exploring the benefits of implementing space-based surveillance (ADS-B), initially focused on oceanic airspace where ADS-C is currently the only form of surveillance for suitably-equipped aircraft. A Request for Information was issued in 2023 to gain an appreciation of market developments and is a key input into Airservices' considerations, acknowledging that communications capabilities are also an integral component to the use of surveillance in an overall service context.

2.11 Separately, Australia continues to support the development of space-based ATM applications via a Collaboration Agreement with Skykraft, an Australian space-based company. Collaborative support is provided through ATM-related subject matter expertise and supporting operational trials. Such trials to date have not interfaced with any extant operational systems.

2.12 The future national joint Civilian/Military Air Traffic Management System (CMATS), being delivered under the OneSKY Australia program led by Airservices Australia, will provide a "Multi Sensor" surveillance tracking function, incorporating ADS-B, radar and WAM inputs, and will make greater use of Mode S DAPs for safety net alerting and for display to the controller. Implementation of this new system continues with the selected vendor (Thales).

2.13 Following on from the initial trial of an Integrated Drone Surveillance System (IDSS) Trial at Sydney Airport, Australia is continuing to develop a drone surveillance strategy, and will progressively implement IDSS for Airspace Surveillance.

Conclusion

2.13 Australia continues to make greater use of ADS-B and Mode S following investment by airspace users and the air navigation service providers. Australia will continue to assess the viability of new surveillance technologies and innovations as they approach maturity.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matter as appropriate.

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