



International Civil Aviation Organization

MIDANPIRG/21 & RASG-MID/11 Meetings

(Abu Dhabi, UAE, 4 – 8 March 2024)

Agenda Item 5.3: ANS (AIM, PBN, AGA-AOP, ATM-SAR, CNS and MET

ENHANCING AIRSPACE SAFETY: OMAN'S STRATEGY OF ADS-B IMPLEMENTATION

(Presented by Sultanate of Oman)

SUMMARY

This working paper provides an overview of ADS-B implementation initiatives within Muscat FIR with a focus on enhancing airspace safety within Muscat FIR.

REFERENCES

- The Aviation System Block Upgrades: The framework for global harmonization, July 2016
- Global Air Navigation Plan, 6th Edition, 2020

1. INTRODUCTION

1.1 Surveillance systems are pivotal in the modern ATM System, playing a crucial role in enhancing safety and efficiency, and among various surveillance technologies, ADS-B has emerged as a transformative and integral component, with better flexibility, accuracy, and update rates.

1.2 ICAO ASBU Block 0-1 (ASUR) recommends States implement ADS-B, which provides an economical alternative to acquiring surveillance capabilities, especially for areas where traditional Radar surveillance is not available, viable or possible.

1.3 ADS-B has the potential for use in almost all environments and operations, making it a likely backbone of the future ATM system and can be employed to supplement existing radar surveillance systems or serve as the primary means of surveillance.

1.4 In recent years, Oman has significantly prioritized strengthening the reliability of its surveillance services through the implementation of redundant systems, with a particular focus on leveraging cutting-edge ADS-B technologies.

2. DISCUSSION

2.1 Oman has deployed 8 ADS-B ground stations- 6 standalone and 2 co-located with the current Radar system in 2022-2023 to increase surveillance visibility to the ATCOs. With this, the overall airspace of Oman is expected to be under surveillance coverage with redundant systems in place, contributing to improved safety and situational awareness.

2.2 The ground station is supplemented by two Data Processing Systems- one main and one as a backup, that optimize the ADS-B data collection and analysis, and support ATCOs in making efficient decisions during the delivery of surveillance service.

2.3 The establishment of the communication networks was successful. As a result, it is anticipated that the overall ATM system capabilities will be significantly enhanced, enabling the seamless exchange of real-time and accurate data for more effective air traffic management.

2.4 The integration of ADS-B technology with the ATM system has been found feasible, as it is already verified in the Contingency Centre, and the integration process is in the planning phase.

2.5 The system will be brought into ATC surveillance service in a planned way and in a phased manner to have a better understanding of and confidence in the system.

- Phase 1. Use of ADS-B data for situational awareness
- Phase 2. Use of ADS-B data for Surveillance Monitoring Service only
- Phase 3. Use of ADS-B data for full-fledged Surveillance Service together with current Radar System

2.6 AIP SUP or AIC will be issued well in advance to notify airline operators and airspace users about airspace requirements for necessary equipage and procedures to be complied with within the designated airspace in Muscat FIR.

2.7 Stakeholders consultation will be made before issuing the AIP SUP or AIC for the implementation of ADS-B, and the safety risk assessment will be conducted in the presence of relevant stakeholders before implementation of ADS-B.

2.8 ATCO training will be arranged before the implementation of ADS-B, with a primary focus on the ADS-B system overview, ATC application, and phraseologies.

2.9 A mechanism will be set up to consistently monitor and evaluate the implementation of ADS-B which will facilitate the identification of areas that require improvement, ensuring ongoing efforts to enhance airspace safety.

3 ACTION BY THE MEETING

3.1 The Meeting is invited to:

- a) note of the information contained in this paper;
- b) acknowledge the Oman's ADS-B implementation plan within Muscat FIR, recognizing the positive impact on enhancing airspace safety and efficiency; and
- c) encourage member states to collaborate in sharing best practices, addressing challenges, and fostering a harmonized approach to ADS-B implementation.