International Civil Aviation Organization

MIDANPIRG Communication, Navigation and Surveillance Sub-Group

Fourteenth Meeting (CNS SG/14)
(Abu Dhabi, UAE, 19 – 23 October 2025)

Agenda Item 6: ASBU Threads/ Elements related to CNS

IMPLEMENTATION OF AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST (ADS-B)

(Presented by Saudi Arabia)

SUMMARY

This paper provides information on the deployment of ADS-B ground stations network in KSA as second layer for ATS surveillance within the **Jeddah Flight Information Region (JED FIR)**. This initiative is aiming to enhance the ATS surveillance capabilities, supporting the safety and efficiency of air traffic management, and increasing of airspace capacity.

Action by the meeting is in paragraph 5 of this WP.

REFERENCES

- ICAO Annex 10 Vol VI.
- ICAO Doc 9924 Aeronautical Surveillance Manual.
- MIDANPIRG/22 and RASG-MID/12 Report.
- ICAO Doc 4444, PANS-ATM.
- ICAO Doc 9854, Global Air Traffic Management Operational Concept.
- ICAO Doc 9750, Global Air Navigation Plan.
- ICAO Doc 9871, Technical Provisions for Mode S and ADS-B Services.
- MIDANPIRG/19 & RASG-MID/9-WP/73 14/02/2022

1. INTRODUCTION

1.1 The ADS-B stands for Automatic Dependent Surveillance Broadcast. It's a surveillance technology where an aircraft broadcasts data related to its position, altitude, speed, identification typically once per second Ground stations receive and track these broadcasts known as ADS-B Out., serving as an advanced, and efficient alternative for surveillance to traditional radar systems.

1.2 The ADS-B implementation in the Kingdom of Saudi Arabia (KSA) is aiming to provide en-route redundancy where Radar surveillance is already available, enhance the situational awareness of Air Traffic Controllers, and be used as gap-filer for the surveillance coverage within Jeddah FIR.

1.3 The Automatic Dependent Surveillance Broadcast transmissions on 1090MHz Extended Squitter data link will be used to support the provision of ATS surveillance services to eligible aircraft within KSA airspace.

1.4 The ADS-B implementation plan aims to enhance surveillance capabilities in remote areas and complement existing surveillance radar, and it is expected that the ground network will be operational by Q4/2025.

2. DISCUSSION

2.1 The ADS-B deployment in the Kingdom effectively complements existing radar infrastructure, particularly for en-route environment. This dual-surveillance design enhances safety and operational reliability by adding a redundant layer, especially critical in remote areas within the Jeddah FIR.

2.2 The ADS-B implementation in Saudi Arabia represents a comprehensive, resilient, and strategically considered under the Saudi National Air Navigation Plan (SNAP) for the modernization of ATS surveillance.

2.3 The deployment of ADS-B has been designed to cover JED FIR, by installing **14 ADS-B** ground stations, and **8** ground stations co-located with WAM Systems to enhance the surveillance performance. **One** ADS-B station is supporting the provision of Alula remote aerodrome ATS to complement the video surveillance.

2.4 Under the ADS-B project, the migration with Aeronautical Telecommunication infrastructure was successfully completed, and the integration with ATM simulator system was completed. Currently ADS-B system is under testing, and validation phase. The data collected during the conducted test phase will be analysed and evaluated compared with current conventional surveillance network.

2.5 Prior to introducing the ADS-B service with JED FIR, an AIP SUP will be issued in advance to notify the airspace user about all related requirements and procedures.

2.6 The ADS-B service will be introduced by Q4/ 2025, this will add a significant milestone in enhancing air traffic safety, situational awareness, and operational efficiency across the Jeddah FIR and the broader Saudi airspace.

3. KEY BENEFIT OF IMPLEMENTATION ADS-B:

The Key benefits of ADS-B can be summarized as follows:

A- Enhance surveillance Coverage.

B- Support Real-Time, Cooperative Surveillance.

C- Increase airspace capacity

D- Enhance the ATS surveillance resilience as the ADS-B data is used as a second layer of radar surveillance

4. CONCLUSION:

4.1 The implementation of ADS-B (Automatic Dependent Surveillance–Broadcast) in Saudi Arabia represents a transformative advancement in the modernization of ATS surveillance capabilities supporting the enhancement of safety, air traffic management efficiency, and increase of airspace capacity.

5. ACTION BY THE MEETING:

5.1 The meeting is invited to:

a) note the information in this Paper;

b) invite the ICAO MID Secretariat to update MID Region ASBU monitoring plan considering the progress described in this WP; and

c) invite the MID States to share information on the deployment of ADS-B and lessons learned.

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