The ADS-B Webinar

ICAO MID

Summary of Discussion

CNS SG/11 Meeting

Muscat, Oman
16-19/May/2022

# History of the Webinar

- Successfully conducted 16-17 November 2021

- The Webinar Organized jointly with ICAO EUR/NAT Office and supported by ICAO HQ.

- Was attended by over than 145 Participants

# Webinar's Agenda

- ICAO Provisions related to ADS-B

- States' experience on ADS-B Implementation

- ADS-B, The needs and added value

- Spectrum consideration related to ADS-B

- GNSS interference impact

- 1030/1090 spectrum monitoring

- MID Region Surveillance Plan

- ADS-B strategy in EUROPE

# Summary of Discussion

- The Webinar noted that new capabilities are coming built on ADS-B technology

  ➢ ACAS X family of Collision Avoidance Systems (ACAS B2/1);

  ➢ ADS-B Out version 3 and associated Mode S transponder changes; to support ADS-B in Interval Management (CSEP B2/1) and RPAS operations; to fix known deficiencies or ambiguities in current standards and improve management of 1030/1090 MHz spectrum; and

  ➢ ADS-B In capabilities (Airborne Surveillance Applications) to support Interval Management

# Lessons learned from ADS-B Implementation:

➢ inform airspace users about ADS-B implementation plan and publish mandates early to give operators enough lead time;

➢ establish procedures for managing Waiver and Exemptions. Requests for temporary waivers and exemptions should be based on operational impact and hazard analyses. Waiver/ exemptions could be granted for limited time span;

➢ For planning purpose, find the ADS-B equipage rate based on Flight plan data collected and analyzed; MIDRMA would provide data regarding ADS-B equipage as well;

➢ Continuously monitor operator compliance progress, conduct monthly statistics; and

➢ Plan for non ADS-B OUT compliant operations (ex. State aircraft)

# Spaced Based ADS-B to support Search and Rescue Service

➢ The ADS-B Webinar was informed about Space based ADS-B have being used for Search and Rescue service (Aireon Alert), due to the fast position update rate (every 8 seconds) compared to position update using voice position reporting (every 30 mins) and ADS-C (every 15 mins), the potential search area would be significantly decreased if the aircraft is equipped with ADS-B (reduced from about 590,000 Km2 to 9.7 Km2 for narrow body aircraft and for wide body aircraft reduced 607,000 Km2 to 12 KM2).

➢ The Registration for Aireon Alert Service is free for ANSP, Aircraft Operator/Airline, Regulator, SAR Organization. In case of emergency, the Operator will verbally provide 4-D report that include (Latitude, Longitude, Altitude and Time).

# ADS-B as indirect monitor to the GNSS RFI

➤ The Webinar noted that ADS-B can be used to monitor the GNSS RFI, the Lack of ADS-B Position Reporting by multiple aircraft is a reliable indicator of GNSS RFI since GNSS is the primary source of position for ADS-B.

➤ Positive confirmation of RFI and source origin location essential for radio regulatory resolution procedures, ADS-B enables a rough geolocation of the RFI source, however, limitations exist depending on available ADS-B track density and geometry, yet there is a need to frame CONOPS of RFI Detection and Downlink functions.

# The Webinar was updated on the status of ADS-B implementation in the MID Region, as follow:

➢ ADS-B has been implemented at some States as backup and complementary means to the MSSR in Egypt, Iraq, Jordan, Sudan and UAE.

➢ Bahrain has implemented ADS-B for Vehicle Tracking purpose

➢ UAE issued ADS-B/Out carriage Mandate as of 01 January 2020, ADS-B IN capability shall not be carried unless approved by the GCAA.

➢ Saudi Arabia issued ADS-B/Out carriage Mandate as of 01 January 2023 for all airspace users flying in Class A, B, C, D and E

➢ Several ADS-B mandates worldwide may accelerate the ADS-B equipage. However, Regional Airline, General flights and Military aircraft impeding the ADS-B implementation in the MID Region.

➢The Webinar reviewed the CNS related parts in the MID Region Air Navigation Strategy and the MID region Surveillance Plan.

➢The Webinar was apprised of ADS-B Strategy and progress in Europe. It was noted that Improved provisions for ADS-B Out and ADS-B IN indications using item 18 SUR/ is under implementation.

➢It was noted that as of October 2021, 90% of mandated fleet and flights in Europe are equipped with ADS-B v2

➢The Webinar was apprised on 1090 Monitoring activities in Europe.

➢The Webinar recalled ICAO State Letter (SP 44/2 - 19/77) that requires consideration before accepting 1090 on UAS

- The Webinar supported EUROCONTROL following recommendations for good use of 1090:

  ➢ Decommission remaining Mode A/C interrogators

  ➢ Avoid/limit mobile interrogators using no lockout or lockout override

  ➢ Reduce all call pollution

  ➢ Avoid too many interrogators extracting transponder registers in the same area

  ➢ Use Airborne information Available in ADS-B rather than extracting using an interrogation

  ➢ Optimize system/ share data between different users

# THANK YOU