ICAO EMERGING SURVEILLANCE TECHNOLOGIES SYMPOSIUM

Hammamet, Tunisia, 5-7 September 2022

Outcome and Conclusions

Introduction

- The ICAO EUR/MID Symposium on Emerging Surveillance Symposium was held successfully in Hammamet, Tunisia, from 5 to 7 September 2022.

- The Symposium was kindly hosted by the Tunisian CNS/ATM Association (ATENA) under the auspices of the Tunisian Transport Ministry/Civil Aviation Authority and the International Federation of Air Traffic Safety Electronics Associations (IFATSEA).

- The Symposium was attended by 71 Participants from 19 States and 11 Organizations/Industry.

Objectives of the Symposium

- The objective of the ICAO Emerging Surveillance Technologies Symposium & Exhibition was to provide a forum where States and aviation stakeholders can meet to explore the state-of-the-art Surveillance technologies and the operational requirements; share best practices; identify implementation challenges; address the issues related to automatic dependent surveillance — broadcast (ADS-B) and consider the regulatory aspects, in order to promote optimized surveillance architecture.

Summary of Discussions

The Participants:

- Were apprised of the ICAO Global (including the GANP and Assembly 41 relevant WPs), as well as Regional developments (EASA, ICAO MID and EUR/NAT) in surveillance domain and the progress of implementation of surveillance systems in the MID, EUR and NAT Regions.

- Noted the impacts of Radio Frequency Interference (RFI) on surveillance systems and the need for taking mitigation measures.

- Were informed of the industry developments of the emerging surveillance systems (ADS-B, WAM, MLAT, etc.)

- Took note of the best practices and operational benefits gained from the implementation of space-based ADS-B in the NAT Region (oceanic and domestic airspaces)

Summary of Discussions

- Noted the data provided, applications, weaknesses and strengths of different emerging surveillance technologies.

- Noted concerns of the aircraft operators (IATA) on employing new surveillance systems without proper planning and consultation with users, which may have operational and financial implications on the airspace users.

- Were briefed by the aircraft manufacturers on the fleet surveillance capabilities and their future planned developments.

Summary of Discussions

- Acknowledged the important role of ATSEP personnel in maintaining and engineering the necessary ANS infrastructure.

- Noted developments and ongoing projects being conducted in some States and discussed their lessons learned and challenges.

- Were appraised of the future plans and initiatives in the SUR domain (e.g. ACAS X) by ICAO and International Organizations/Industry, including fleet developing capabilities.

- Noted the ongoing initiatives of using ADS-B to monitor the GNSS Interferences.

- Noted implementation developments of the remote ATC towers in some States.

Summary of Discussions

- Noted the potential impact of ADS-B Equipped UASs on Radio Frequency congestion

- Discussed the importance of RF spectrum monitoring and adherence to SARPs and regional agreements in this regard in order to avoid RF congestion and ensure efficient use of RF spectrum.

- Recognized that rationalization of the surveillance network is an enabler for improved airspace control and effort optimization, but requires infrastructure, coordination and management to make it feasible and effective.

Summary of Discussions

- Highlighted the role of the States' Regulatory body (i.e. CAA) in the planning and implementation of new initiatives, including the emerging surveillance technologies.

- Acknowledged the need to share Radar data among adjacent States and Military and noted associated challenges and potential solutions.

- Appreciated States' experience related to sharing Radar data with Military and neighboring States and encouraged other States to implement similar practices.

Summary of Discussions

- Noted the potential increase of safety risks due to 1090 MHz congestion; it was highlighted that States should monitor and report the performance and the use of this RF band; detect and investigate the unexpected transmissions on these frequencies; and study the interoperability impact between existing and new systems on this RF band.

- Apprised of the benefits, concerns, required equipment and regulatory perspective of the virtual tower deployment.

Recommendations

- States are encouraged to take measures to mitigate RFI on surveillance systems:
    - Use of multi constellation/multi frequency GNSS
    - Employing multiple surveillance sensors in critical areas
    - Use of monitoring and prediction tools/applications
- Cost-benefit analysis and operational needs as well as the level of vulnerability of specific systems in some airspaces should be considered when planning for new surveillance systems or removing conventional SUR systems (e.g. SSR and PSR)
- The implementation of mew surveillance systems should be done in coordination with airspace users and other relevant stakeholders, taking into consideration fleet capabilities.
- States should give high importance to human factors and training when planning/implementing new surveillance technologies (ATSEPs, ATCOs, pilots, etc.)

Recommendations

- States are urged to develop their RFI monitoring/reporting mechanisms at the national level, in coordination with the relevant ICAO Regional Offices and the Organizations (ITU-BR, EASA, IATA, EUROCONTROL). Necessary coordination may be needed at the State level with relevant entities (Telecommunication Regulatory authorities, Military, Airlines, ANSP, CAA, etc.)

- States are encouraged to promote coordination with their neighboring States for the establishment of SUR data exchange and AIDC/OLDI implementation.

- States are urged to develop their contingency plans/procedures and back-up systems, to ensure continuous surveillance services/safe operations in the event of RFI or any malfunction of the SUR systems.

- ICAO Regional Offices and States to monitor the progress of the initiatives related to the GNSS RFI monitoring (using e.g. ADS-B)`

Recommendations

- States that are planning to implement SB ADS-B are encouraged to consider the issue of suitable Aircraft antenna configuration.

- States are encouraged to consider Cyber-security at the appropriate level according to the assessment of the existing infrastructure supporting the systems.

- States' CAAs were encouraged to engage in the emerging surveillance initiatives from early stages of planning, implementation and post-implementation.

- States are encouraged to conduct feasibility study for the virtual tower deployment using the presented methodology and site selection process.

Conclusion

The Participants:

- Thanked the Tunisian CNS Association (ATENA), the Tunisian Transport Ministry/Civil Aviation Authority and the International Federation of Air Traffic Safety Electronics Associations (IFATSEA) for hosting the Symposium and for the excellent hospitality and arrangements, which contributed largely to the success of the Symposium.

- Invited States, relevant Regional Groups, Organizations and Industry to follow-up on the outcomes of the Symposium.

Action(s) by the meeting

- *The meeting is invited to review the recommendations of the ICAO Emerging Surveillance Symposium and take actions as appropriate.*

THANK YOU