



International Civil Aviation Organization

**THE NINTH MEETING OF THE SOUTHEAST ASIA AND BAY OF BENGAL
SUB-REGIONAL ADS-B IMPLEMENTATION WORKING GROUP
(SEA/BOB ADS-B WG/9)**

Beijing, China, 30 October - 1 November 2013

Agenda Item 2: Review the outcome of the AN Conf/12, ADS-B SITF/12 and APANPIRG/24

OUTCOME OF ADS-B SITF/12 AND APANPIRG/24 ON ADS-B

(Presented by Secretariat)

SUMMARY

This paper reviews the outcome of APANPIRG/24 on ADS-B and works accomplished by the Twelfth Meeting of ADS-B Study and Implementation Task Force and the Seventeenth meeting of CNS Sub-group of APANPIRG.

1. INTRODUCTION

1.1 APANPIRG/24 meeting held in June 2013 in Bangkok reviewed the outcome of the Twelfth Meeting of the Automatic Dependent Surveillance – Broadcast (ADS-B) Study and Implementation Task Force (ADS-B SITF/12) and an ADS-B Seminar held from 15 to 18 April 2013 in Kolkata, India including the work accomplished by the Eighth meeting of the SEA and BOB ADS-B Working Group. The outcome of APANPIRG/24 on matters relating to ADS-B is provided at **Attachment** to this paper for review by this meeting.

1.2 The SEA/BOB ADS-B Working Group reports its outcome of discussion to APANPIRG through ADS-B Study and Implementation Task Force and CNS Sub-group of the ANPANPIRG. The complete report of the ADS-B SITF/12 meeting including review result of SEA/BOB ADS-B WG/8 meeting is posted at:
<http://www.icao.int/APAC/Meetings/Pages/2013-ADS-B-SITF12.aspx>

1.3 The reports of Twelfth Meeting of ADS-B SITF and Eighth Meeting of the SEA/BOB Working Group were also reviewed by CNS SG/17 meeting held in Bangkok, Thailand in May 2013 and noted by ATM SG/1 meeting held in the end of May 2013.

2. DISCUSSION

2.1 APANPIRG/24 meeting noted the updates of implementation activities by States and developments and some issues observed during implementation of ADS-B in the Region. The actions taken by APANPIRG/24 meeting on ADS-B related matters are highlighted below:

- Conclusion 24/42 – agreed to Timeframe for Data-sharing in the Bay of Bengal Sub-region and urged States concerned to consider for implementation.
(Follow-up State Letter T 8/10.21:AP130/13 (CNS) dated 26 August 2013)
- Conclusion 24/43 – urge States to be fully aware of the safety implementation and difference between geometric and barometric altitude. Geometric altitude information shall not be displayed for the provision of ATS.
(Follow-up State Letter sent to States T 8/10.21:AP106/13 (CNS) dated 29 July 2013)
- Conclusion 24/44 – Comprehensive Amendment to ADS-B Implementation Guidance Document (AIGD) to provide updated guidance for implementation of ADS-B.
(Follow-up State letter was distributed to States T 8/10.21:AP099/13 (CNS) dated 12 July 2013)
- Conclusion 24/45 – encourage States to exchange findings/result of their ADS-B performance monitoring including experience gained in conducting the required performance monitoring. (Follow-up letter scheduled to be issued in November)
- Conclusion 24/46 – urge States to consider making maintenance arrangements including requirements for spares pool and/or maintenance contract for all ADS-B system acquisitions and existing systems already in operation if these arrangements do not yet exist.
(Follow-up State Letter T 8/4.13:AP122/13 (CNS) dated 27 August 2013)
- Conclusion 24/47 – the revised surveillance strategy for the Asia/Pacific Region was adopted.
(Follow-up State Letter T 8/4.13:AP133/13 (CNS) dated 15 August 2013)
- The meeting noted that in addition to the existing mandate for ADS-B equipage effective on 12 December 2013, equipment mandates in Australia were established for GNSS navigation under the IFR, fitment of Mode S transponders with ADS-B OUT capability, future forward-fit and retro-fit of ADS-B OUT equipment.
- The meeting was informed that by the end of 2013, DCA Myanmar will issue a mandate for ADS-B equipage of aircraft flying above FL260 on ATS routes M770 and L759 with target date 2015.
- The meeting also noted that CANSO focus group meetings were held in Singapore in July 2012.

2.2 APANPIRG/24 meeting appreciated the efforts and progress made by the ADS-B SITF and the SEA and BOB ADS-B WG and thanked DCA Myanmar and Airports Authority of India for hosting the Eighth Meeting of the South East Asia and Bay of Bengal Sub-Regional ADS-B implementation Working Group and Twelfth Meeting of the ADS-B Study and Implementation Task Force.

3. ACTION BY THE MEETING

3.1 The meeting is invited to review the outcome of the APANPIRG/24 and take any necessary follow-up actions.

EXTRACTED FROM REPORT OF APANPIRG/24

SURVEILLANCE

Outcome of ADS-B SITF/12 Meeting

3.4.59 The meeting reviewed the report of the Twelfth Meeting of Automatic Dependent Surveillance – Broadcast (ADS-B) Study and Implementation Task Force (ADS-B SITF/12). An ADS-B Seminar and the ADS-B SITF/12 meeting, hosted by India, was held from 15 to 18 April 2013 in Kolkata India. The deliberations during the Seminar were taken into consideration at the 12th meeting of the Task Force. The complete report of the ADS-B SITF/12 meeting is posted at: http://www.bangkok.icao.int/cns/meeting.do?method=MeetingDetail&meeting_id=277

ADS-B Equipage Requirement and Required lead time for Mandate

3.4.60 The meeting was informed that by the end of 2013, DCA Myanmar will issue a mandate for ADS-B equipage of aircraft flying above FL260 on ATS routes M770 and L759 with target date 2015.

ADS-B Data Sharing in the Bay of Bengal Sub-region

3.4.61 India expressed willingness to share ADS-B data with Myanmar, Maldives, Sri Lanka, Malaysia and Indonesia. In addition to in-principle agreement on sharing data with Myanmar, India and Sri Lanka may also share the ADS-B data from Trivandrum (India) and Pidurutalagala in Sri Lanka. The Chennai Upper Airspace Harmonization had already led to significant improvement in operational efficiency and the sharing of ADS-B data with Sri Lanka would yield northbound flights from the island State significant benefits. Sharing of ADS-B data between India and Maldives – Hanimadhoo and Male ADS-B (Maldives) and Trivandrum/Cochin (India) would also result in significant improvement in service quality in the Indian Ocean region.

3.4.62 Full benefits of ADS-B would only be achieved by its harmonized implementation and seamless operations. The meeting reviewed the agreement on the timeframe for ADS-B data sharing between States in Bay of Bengal area and adopted following Conclusion:

Conclusion 24/42 – Timeframe for Data-sharing in the Bay of Bengal Sub-region

That, States concerned be urged to consider the timeframe established for data-sharing in the Bay of Bengal Sub-region as provided in **Appendix H** to the Report on Agenda Item 3.4.

3.4.63 The meeting noted the deliberations on the framework regarding avionics standards, optimal flight levels, and ATC and engineering handling procedures on routes M770, N895, P646 and L507 in the Bay of Bengal area. An harmonization Framework for ADS-B Implementation along ATS Routes M770, N895, P646 and L507 was recommended for the Bay of Bengal. States concerned were requested to work closely together to achieve an agreement as shown in the Harmonization Framework for implementation of ADS-B based service in the Bay of Bengal Sub-region.

Barometric and Geometric altitude Information in ADS-B message

3.4.64 The meeting discussed the safety implications of processing and displaying the geometric altitude information to air traffic controllers by ATM automation system. The meeting concluded that the geometric altitude information shall not be provided to air traffic controllers. It was considered important for Administrations to be fully aware of this safety issue about processing and displaying altitude information in ADS-B messages. Accordingly, the meeting adopted following Conclusion:

Conclusion 24/43 – Processing altitude information in ADS-B Message

That, States/Administrations implementing ADS-B based surveillance services be urged to be fully aware of the safety implications and difference between geometric and barometric altitude. Geometric altitude information shall not be displayed on ATC displays used for the provision of air traffic services. States may choose to use geometric altitude in ATM systems for other purposes.

Comprehensive Amendment to the ADS-B Implementation and Operation Guidance Document (AIGD)

3.4.65 The meeting reviewed and agreed to the proposed comprehensive amendments to the AIGD which contains the latest ADS-B developments and applications including:

- relevant Aviation System Block Upgrades (ASBU);
- new avionics standards;
- safety risk assessment guidance material;
- ADS-B regulations;
- safety implications of ADS-B geometric altitude;
- procedures for handling non-compliant aircraft and misleading ADS-B transmissions;
- a framework for harmonizing implementation;
- Guidance on the generation and sharing of ASTERIX Category 21 messages;
- Reference to Security considerations;
- Reference to Guidance on ATC automation functionalities to support ADS-B;
- Reference to regulatory guidance material;
- Checklist for commissioning of an airways facility;
- Spares and maintenance support; and
- Co-ordination with Military organizations about ADS-B data sharing.

3.4.66 Hong Kong China highlighted that ADS-B Out is one of the key elements for Block 0 modules of the ICAO ASBU Framework with highest implementation priority in the ASIA/PAC Region. To reap full benefits and achieve better synergy, the meeting agreed that the AIGD for ASIA/PAC Region would be shared with other Regions as guidance material to facilitate global harmonization and interoperability of seamless ATM systems. ICAO Regional Office was requested to coordinate with ICAO HQs and other Regional Offices in this respect.

3.4.67 The meeting reviewed and agreed to the proposed changes. The meeting appreciated the efforts made by Hong Kong China and Australia and adopted the following Conclusion:

Conclusion 24/44 – Amendment to ADS-B Implementation and Operation Guidance Document (AIGD)

That, the revised AIGD provided in **Appendix I** to the Report on Agenda Item 3.4 be adopted.

ADS-B performance monitoring

3.4.68 The meeting reviewed a number of working papers from Australia, India, Hong Kong China and Singapore regarding their practice and experience of ADS-B performance monitoring. It was suggested that States should include monitoring of adequate NUC/NIC availability relevant to their FIR. In view of the foregoing, the meeting adopted the following Conclusion:

Conclusion 24/45 - Exchange ADS-B performance monitoring result

That, States be encouraged to exchange findings/result of their ADS-B performance monitoring including experience gained in conducting the required performance monitoring.

3.4.69 In this connection, the meeting requested Secretariat to seek the possibility of establishing a central database for the safety data sharing at the ICAO Regional Sub-office.

Need for Adequate Logistics and Spares for ADS-B Ground Stations

3.4.70 The meeting recognized the importance of adequate support for the provision and repair of modules for the availability and reliability of ADS-B services. The meeting noted that the use of a spares pool and the module repair contract as part of the system acquisition purchase were efficient ways to ensure that adequate number of modules were always available. Such arrangements would improve certainty of funding for both supplier and ANSPs to ensure continuity of service. States were therefore advised to consider including requirements for a spares pool and maintenance support contract in all ADS-B system acquisition. Accordingly, the meeting adopted the following Conclusion:

Conclusion 24/46 - Need for adequate Logistics and Spares Support for ADS-B service

That, States consider making maintenance arrangements including requirements for spares pool and/or maintenance contract for all ADS-B system acquisitions and existing systems already in operation if these arrangements do not yet exist.

3.4.71 While supporting the adopted Conclusion, India highlighted their experience as provided in IP/17. The spare parts including hardware and software provided by Industry are subject to frequent updates according to the latest development. The design of COTS (Commercial off-the-shelf) products used for CNS/ATM systems would need to be standardized so that the same could be accommodated with and remain compatible to subsequent software/hardware upgrades done within the framework of the initial design. .

3.4.72 The meeting was informed that logistics considerations should also include supporting systems such as power and air-conditioning. The meeting discussed the inclusion of software upgrades in maintenance contracts, and the consequent difficulty involved in establishing a contract which included unknown future requirements.

Report of CANSO Focus Group meetings

3.4.73 CANSO presented reports to both the WG and TF meetings regarding the focus group meetings held in Singapore in July 2012. In following up the outcome of the ADS-B SITF/11 meeting, CANSO facilitated two focus group meetings in Singapore in July 12 for the relevant parties to focus on specific project deliverables and milestones using the framework/model developed for the initial phase of the South China Sea project. The meeting for BOB was attended by CAAs/ANSPs/organization from Singapore, India, Myanmar, CANSO and IATA. The meeting for SEA was attended by CAAS, CAAP and CANSO.

Discussion on transition to DO 260B

3.4.74 The meeting discussed whether the Task Force need to consider how to transition to RTCA DO260B recognizing that DO 260B is being adopted by ICAO as Version 2. It was decided that the regional strategy on equipage requirement for DO 260B (Version 2) should be developed. The best way would be a forward fit from a specified date. The difficulty would be in requiring those aircraft already equipped with DO-260 or -260A avionics to retrofit. The question would be when to discontinue the support for DO-260/260A. Australia, Hong Kong China and Singapore agreed to work together to develop a proposal for consideration by the ADS-B SITF.

Review of Regional Surveillance Strategy

3.4.75 The meeting reviewed and endorsed the changes to the regional Surveillance Strategy for Asia/Pacific Region proposed by the ADS-B SITF/12 meeting. As a result of the review, the meeting adopted the following Conclusion:

Conclusion 24/47 – Surveillance Strategy for the Asia/Pacific Region

That, the revised surveillance strategy for the Asia/Pacific Region provided in **Appendix J** to the Report on Agenda Item 3.4 be adopted.

Update on Australian Mandates for Aircraft GNSS and ADS-B Equipment

3.4.76 Australia informed the meeting about rulemaking undertaken in 2012 by CASA to support the future air traffic management system, establishing aircraft avionics mandates for satellite based navigation, and the interoperability with Mode S SSR and ADS-B based surveillance systems.

3.4.77 In addition to the existing mandate for ADS-B equipage effective on 12 December 2013, equipment mandates were established for GNSS navigation under the IFR, fitment of Mode S transponders with ADS-B OUT capability, future forward-fit and retro-fit of ADS-B OUT equipment.

3.4.78 As some of these mandates did not apply to foreign registered aircraft, further rulemaking would be undertaken in the next year to additionally require ADS-B fitment to IFR flights below FL290 commencing in 2017.

3.4.79 More detailed information about the Australian Mandates is available at following CASA website: http://www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_101452
