



**Seventh ATS Coordination Meeting of Bay of Bengal, Arabian Sea
and Indian Ocean Region (BOBASIO/7)
New Delhi, India, 18 - 19 September 2017**

AGENDA ITEM 6: ATM Coordination (Airspace Restructuring, AIDC Implementation, AIS, ATM Contingency Plan- Level 1 and Level 2 and SAR Agreements)

ADS-B IMPLEMENTATION/OPERATIONALIZATION IN INDIA

(Presented by India)

SUMMARY

This paper presents the information about the implementation of ADS-B sensors in India, data sharing and operationalization of ADS-B based surveillance services.

1. INTRODUCTION

1.1 The 12th Air Navigation Conference endorsed the Recommendation 1/7 – Automatic Dependent Surveillance — Broadcast as given below :

That States:

- a) recognize the effective use of Automatic Dependent Surveillance — Broadcast (ADS-B) and associated communication technologies in bridging surveillance gaps and its role in supporting future trajectory-based air traffic management operating concepts, noting that the full potential of ADS-B has yet to be fully realized;
- b) recognize that cooperation between States is the key towards improving flight efficiency and enhancing safety involving the use of Automatic Dependent Surveillance — Broadcast technology.

1.2 India has installed 21 ADS-B sensors out of which 20 are installed in the mainland and 1 in Port Blair Island in Bay of Bengal. These 21 ADS-B ground receivers have been installed at the following locations:

Agartala, Ahmedabad, Amritsar, Calicut, Cochin, Coimbatore, Guwahati, Jaipur, Lucknow, Mangalore, Nagpur, Port Blair, Thiruvananthapuram, Varanasi, Patna, Bhubaneswar, Dibrugarh, Mumbai, Vijayawada, Tiruchirapalli and Jaisalmer.

1.2.1 The certification process for 18 ground receivers has been completed by Airports Authority of India and work is in progress to certify the remaining 03 ground receivers.

1.3 India will be installing 10 more ADS-B ground receivers at the following locations :

Kadapa, Raipur, Pantnagar, Indore, Jabalpur, Bikaner, Goa, Aurangabad, Dhanbad and Campbell bay (Campbell bay is an island in the Bay of Bengal near the FIR boundaries of Chennai, Jakarta and Kuala Lumpur).

1.4 Five more ADS-B ground stations are also planned to be installed in the second phase at Agatti Island in Arabian sea and at the major metro airports of Bengaluru, Shamshabad, Chennai and Kolkata for three layered surveillance and redundancy.

2. DISCUSSION

2.1 ADS-B ground stations at these 36 locations will enhance surveillance coverage in existing Radar airspace and extend surveillance coverage to airports, continental and certain oceanic airspace and facilitate extension of the surveillance coverage for low altitudes (below existing radar coverage) and areas where no radar coverage currently exists, leading to more efficient use of airspace.

2.2 The AIP Supplement 18/2014 on ADS-B implementation in India has been prepared in line with the APANPIRG conclusion 19/37, 21/39, 22/8 & 22/36 and the amendment of Regional Supplementary Procedure (Doc 7030) pertaining to MID ASIA Chapter 5- Surveillance Section 5.5 which include Chennai , Kolkata, Delhi and Mumbai FIR among others.

2.3 ADS-B endorsement of radar controllers at stations where ADS-B has been installed is in progress. Safety assessment for operationalization of ADS-B for providing Surveillance based ATS was conducted at Ahmedabad, Varanasi, Nagpur and Kolkata (UAH).

2.4 ADS-B based surveillance service has been operationalized in Enroute phase at Nagpur, Varanasi & Ahmedabad ACC in RAD environment. Trial operations have also commenced at Lucknow, Kolkata ACC (UAH) and at Chennai OCC.

2.5 ADS-B based surveillance service has also been operationalized within the jurisdiction of Ahmedabad Approach Control (RAD). Trial/Training operations in Approach surveillance using ADS-B alone (NRA) has commenced at Calicut, Coimbatore, Agartala and Trichy Airports also and satisfactory reports have been obtained from pilots based on the fuel savings and on time performance.

2.6 A bilateral agreement has been signed between India and Myanmar for ADS-B data sharing in the year 2015. Myanmar will be sharing the data from the ADS-B ground station at SITTWE and COCO ISLAND. India will be sharing AGARTALA and PORT BLAIR ADS-B data. At the moment, for the ATS DSC (VoIP phone line) between Yangon ACC and Kolkata ACC, the Sea Me We-3 subsea fiber cable (2 Mbps) through the Mumbai 1Gateway is being used since 4-3-2016. The issues related to the stability of the link are being addressed by the two states. The 2 Mbps link will be used for the following functions between the two FIRs.

- ADS-B Data sharing,
- AFTN/AMHS connection
- AIDC

2.7 As per para 9.3.4, Sharing of ADS-B Data- in the Final report of SURICG/2 meeting held in Mongolia in June 2017, it was recommended that:

“Member States should consider the benefits of sharing ADS-B data received from aircraft operating in the proximity of their international airspace boundaries with adjacent States that have compatible technology in an effort to maximize the service benefits and promote operational safety. Any agreement on the sharing of surveillance data should be incorporated in Letters of Agreement between the States concerned. Such agreements may also include the sharing of VHF communication facilities.”

India will be installing an ADS-B at the Campbell bay Naval station in the South Andaman Sea for data sharing purpose. ADS-B data from ADS-B stations at Langkawi in Malaysia and Aceh in Indonesia can be shared with India. ADS-B data sharing with Malaysia and Indonesia will help to reduce the LHDs and LLDs in the FIR boundary. A letter of agreement to share the data needs to be signed.

2.8 Since India is committed to the timely implementation of APANPIRG & DGCA Conference conclusions, the regulator (DGCA, India) is considering the issuance of a regulatory instruction for mandating the carriage of ADS-B OUT equipage in Indian FIR.

2.9 India is also contemplating to utilize the modern technology of Space based ADS-B for surveillance on its vast oceanic airspace.

3. ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to:

- a) Note the information contained in this papers;
- b) Provide feedback on readiness for signing the ADS-B data sharing agreement; and
- c) Discuss any relevant matters as appropriate.

EXISTING AND PROPOSED ADS-B COVERAGE

