



*International Civil Aviation Organization*

**The Sixth Meeting of the APANPIRG ATM Sub-Group  
(ATM/SG/6)**

Hong Kong, China, 30 July – 03 August 2018

---

**Agenda Item 4: ATM Systems (Modernisation, Seamless ATM, CNS, ATFM)**

**IMPLEMENTATION AND OPERATIONALIZATION OF ADS-B IN INDIA**

(Presented by India)

**SUMMARY**

This paper presents a brief overview of the implementation of ADS-B in India and the operationalization of ADS-B based surveillance services.

**1. INTRODUCTION**

1.1 The 12th Air Navigation Conference (Recommendation 1/7) advised the States:

- to 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;
- recognize that cooperation between States is key towards improving flight efficiency and enhancing safety involving the use of Automatic Dependent Surveillance — Broadcast technology.

Based on the above recommendation, India has installed and commissioned 21 ADS-B sensors out of which 20 are installed in the mainland and one in Port Blair Island in Bay of Bengal.

1.2 India is now installing 10 more ADS-B ground receivers at Kadapa, Shamshabad, Mithapur, Indore, Jabalpur, Bikaner, Goa, Aurangabad and Dhanbad to cover the surveillance gaps in continental airspace and at Campbell bay (Campbell bay is an island in the Bay of Bengal near the FIR boundaries of Chennai, Jakarta and Kuala Lumpur) for data sharing with neighboring States.

1.3 Five more ADS-B ground stations are planned to be installed in the second stage at the Agatti Island in the Arabian Sea, Raipur & Pantnagar for Enroute surveillance and also at the major metro airports of Bengaluru, Chennai and Kolkata for three-layer surveillance / redundancy.

**2. DISCUSSION**

2.1 ADS-B ground stations at these 36 locations will enhance surveillance coverage in addition to the existing Radars (PSR/MSSR) providing redundant surveillance coverage. It will also facilitate the 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 proposal for amendment of Regional Supplementary Procedure (Doc 7030) pertaining to amendment of Chapter 5- Surveillance Section 5.5 which include Chennai , Kolkata, Delhi and Mumbai FIR among others.

2.3 ADS-B training, assessment & endorsement of Air Traffic Controllers holding surveillance rating at stations where ADS-B data is integrated with ATS Automation system has been completed.

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

2.5 ADS-B based surveillance service has also been operationalized within the jurisdiction of Ahmedabad and Calicut Terminal Approach Control. Trial operations in Approach surveillance using ADS-B are being done at Coimbatore, Agartala, Patna and Trichy.

2.6 Radar data feed from adjacent stations are integrated into the automation systems of the ADS-B alone stations for integrity checks and to create an awareness of incoming non ADS-B equipped aircraft to ATCOs.

2.7 A bilateral agreement has been signed between India and Myanmar for ADS-B data sharing in the year 2015. Myanmar is now sharing the data from the ADS-B ground station at SITTWE and COCO ISLAND. India is sharing AGARTALA and PORT BLAIR ADS-B data. The 2 Mbps under sea link available between Mumbai and Yangon is being used for the data sharing.

2.8 India is installing an ADS-B at the Campbell Bay Naval station in the South Andaman Sea for data sharing purpose. India has proposed for ADS-B data sharing with Indonesia and Malaysia. which will help to reduce the LHDs and LLDs in the FIR boundary. A draft letter of agreement to share the data has been prepared and sent to Malaysia and Indonesia for scrutiny and approval.

2.9 India is committed to the timely implementation of APANPIRG & DGCA Conference conclusions. The regulator (DGCA, India) is planning for the issuance of a regulatory instruction, mandating the carriage of on board ADS-B OUT equipage in all aircraft within Indian FIR. A Draft AIP SUP has been prepared and sent to the DGCA for mandating ADS-B equipage with specific timelines for different Flight level bands, starting with FL 290 and above in continental airspace.

2.10 India is preparing to utilize the modern technology of Space based ADS-B for surveillance on its vast oceanic airspace. The EOI (Expression of Interest) has been uploaded by AAI for Space Based ADS-B.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to note the information contained in this paper.

.....