

International Civil Aviation Organization



**ELEVENTH MEETING OF THE SOUTHEAST
ASIA AND BAY OF BENGAL SUB-REGIONAL
ADS-B IMPLEMENTATION WORKING GROUP
(SEA/BOB ADS-B WG/11)**



New Delhi, India 17 – 19 November 2015

Agenda Item 3: Review implementation and co-ordination activities and sub-regional implementation plans

3.1 Progress on deployment and implementation planning – Bay of Bengal

IMPLEMENTATION OF ADS-B SENSORS AT CHNNAI AIRPORT, INDIA

(Presented by Airports Authority of India)

SUMMARY

This paper presents information about the implementation and integration of various ADS-B sensors in Chennai Automation System. It also presents the issues and challenges encountered in implementation and future action plan.

1. INTRODUCTION

1.1 State of the art Automation System is installed and operational in Chennai. Besides the radar sensors, various ADS-B sensors have been integrated with the Automation System in Chennai.

1.2 This paper presents the case about implementation and integration of ADS-B sensors from various geographical locations into Chennai Automation system and the related technical issues involved in the project.

2. DISCUSSION

2.1 ADS-B operational trials with integration of ADS-B sensor data of Port Blair with Chennai Automation started from 30th June 2015 daily from 0430 to 1130 UTC.

2.2 ADS-B sensors from Trivandrum, Cochin, Trichy and Mangalore Airports have already been integrated with Chennai Automation Backup system and tested.

2.3 Chennai Automation System supports ADS-B ASTERIX Category 21 Version 0.23 format in MULTICAST addressing and is configured to process the ADS-B messages where the value of NUCp ≥ 5 is accepted and displayed on the Controller Work Stations.

2.4 ADS-B sensor installed at Port Blair has the following capability

- i) Redundant sensors and site Monitor;
- ii) Provides data output in UNICAST or MULTICAST; and
- iii) Supports the ASTERIX Category 21 Version 2.1 format.

2.5 Following were the technical issues and challenges overcome during integration.

2.5.1 Transportation of ADS-B data from Port Blair to Chennai:

2.5.1.1 Only one service provider was locally available at Port Blair to transport the data. Exclusive VSAT equipment was installed by the local service provider BSNL at ADS-B site, Port Blair for transportation of data to VSAT Bangalore and Chennai through VPN network.

2.5.1.2 Local service provider was unable to support data transportation in MULTICAST format and the issue was mitigated by bringing the data in UNICAST format and converting the data to MULTICAST through in-house developed software module and then feeding to the Automation system at Chennai.

2.5.2 Support of unique SIC codes of dual sensors of ADS-B equipment:

2.5.2.1 Suitable modifications were made in the Automation system to support unique SIC codes from dual sensors of each ADS-B equipment (main and standby)

2.5.3 Track correlation with FPL data:

2.5.3.1 Suitable application modification was carried out in Automation system to enable association of ADS-B tracks and FPL data with Call sign / 24 bit aircraft address in Non-Radar region,

2.5.4 Operational difficulties in provision of redundant media from Port Blair:

2.5.4.1 Availability of single media through VSAT is generally not reliable during rainy season and the continuity of data is interrupted.

2.5.4.2 Therefore, alternatives to transport the data through DSCN (Dedicated Satellite Communication Network of AAI) or through any other service provider were explored.

2.5.4.3 In yet another effort, methods to establish RF link between ADS-B site at Port Blair to Port Blair Airport and to Chennai were also explored.

2.6 Following are the future plans for integration, implementation and operationalization of ADS-B sensor data from various stations in Chennai Automation System.

2.6.1 ADS-B sensors data from Calicut, Coimbatore and Vijayawada Airports is to be transported to Chennai and integrated with ATM Automation System for operationalization.

2.6.2 Provision of redundant media for transportation of ADS-B sensors data from various stations to Chennai ATM Automation system.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matter as appropriate.
