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)

भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA

New Delhi, India 17 – 19 November 2015

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

3.6 Harmonization of ADS-B regulations, rules and procedures

ADS-B INTEGRATION FUNCTIONAL REQUIREMENTS

(Presented by Airports Authority of India)

SUMMARY

This paper presents the consideration for ADS-B integration with the ATM Automation System and lists additional functional requirements that need to be implemented for improved user interface and data integrity.

1. INTRODUCTION

1.1 "Guidance Material on issues to be considered in ATC Multi-sensor fusion processing including the integration of ADS-B Data" is adopted by APANPIRG/19 in September 2008.

1.2 As per the "ADS-B Implementation Operations Guidance Document" 8th Edition (para 5.1.4 Integration), special planning should be considered for the integration of ADS-B into the existing and foreseen CNS/ATM system.

2. DISCUSSION

2.1 While planning integration of ADS-B sensor data with ATS Automation System at Mumbai airport, integration functional requirements have been finalized in accordance with the "Guidance material on Generation, Processing & Sharing of ASTERIX Category 21 ADS-B messages" adopted by APANPIRG/23.

2.2 Besides the provisions of integration requirements as mentioned above, following functional requirements have been included from HMI point of view.

2.2.1 The priority of ADS-B sensor data vs RADAR data shall be adaptable

2.2.2 For ADS-B aircraft, receipt of the Mode S conspicuity code shall trigger use of the Target ID / Target Address for flight plan correlation

2.2.3 If, due to sensor or aircraft capability limitation, no SSR code is received for an aircraft, the system shall use Target ID/ Target Address for track correlation.

2.2.4 For correlation based on Target ID, the received ID must exactly match the ACID of the flight plan.

2.2.5 For correlation based on Target Address, the received address must match the address entered in the flight plan field 18 CODE/ keyword.

2.2.6 The system shall generate an alert for a correlated flight for which the Target ID from the track does not match the flight plan ACID and/or the Target Address from the track does not match the code given in the flight plan field 18 CODE/ keyword.

2.2.7 The system shall allow the setting of ADS-B above or below the RADAR sources within the SDP Tile Set on a per-tile basis

- Priority shall only apply to data received at or above the adapted NUCp, NACp, NIC, and/or SIL thresholds.

2.2.8 The system shall be configurable to either discard ADS-B data or display the track with an indication of ADS-B degradation if the received NUCp, NACp, NIC, or SIL is below an adapted threshold.

- If the system is configured to display the degraded track, the degraded position and status shall only be displayed if there are no other surveillance sources available

2.2.9 The system shall allow the adaptation of ADS-B emergency codes to map to SPC Mnemonics

2.2.10 The system shall include an adaptable Downlinked Aircraft Parameters (DAP) field that invokes a popup with the following information from Mode-S and ADS-B aircraft

- Magnetic Heading
- True Track Angle
- Indicated Airspeed/Mach Number
- Groundspeed
- Track Angle Rate
- True Airspeed
- Roll Angle
- Selected Altitude
- Vertical Rate

2.2.11 The system shall generate a conformance alert if the Selected Altitude and the CFL do not match.

2.2.12 The system shall be capable of using Selected Altitude to filter STCAs

2.2.13 The use of Selected Altitude for STCA processing shall be controlled by a variable site parameter (VSP)

2.2.14 When enabled by VSP, the system shall not raise an STCA alert for climbing or descending aircraft if the conflict occurs beyond the selected altitude.

2.2.15 The system shall be capable of using Selected Altitude to filter MSAWs

2.2.16 The use of Selected Altitude for MSAW processing shall be controlled by a VSP

2.2.17 When enabled by a VSP, the system shall not raise an MSAW alert for a descending aircraft if the maximum altitude of the MSAW area is below the Selected Altitude

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

3.2

a) discuss the issue on functional requirements of integration of ADS-B sensor with ATM Automation System as appropriate; and

b) discuss any other related issues.

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