



International Civil Aviation Organization

**FIFTH MEETING OF THE SOUTHEAST ASIA
SUB-REGIONAL ADS-B IMPLEMENTATION
WORKING GROUP (SEA ADS-B WG/5)**



Jakarta, Indonesia, 21 – 22 January 2010

Agenda Item 6: Any other Business

REVIEW REGIONAL PERFORMANCE OBJECTIVE ON ADS-B

(Presented by the Secretariat)

SUMMARY

This paper presented adopted Performance Framework Form (PFF) related to implementation on ADS-B for update and review.

1. INTRODUCTION

1.1 Over last couple of years, ICAO, industry and the States have been steadily moving towards a performance based approach to planning. In this approach, planning is expected to be directed towards one or more of the eleven ATM Community Expectations identified in the *Global ATM Operational Concept* (Doc 9854). These expectations are also referred to as Key Performance Areas (KPAs). To support this approach, *Manual on Global Performance of the Air Navigation System* (Doc 9883) has been developed, which provides a step by step approach to performance based planning on the basis of the KPAs identified in the operational concept.

1.2 Noting that the ICAO planning objective is to achieve a performance based global air traffic management system through the implementation of air navigation systems and procedures in a progressive, cost-effective and cooperative manner, the APANPIRG/20 meeting held in Bangkok from 7 to 11 September 2009 adopted Conclusion 20/2 – Asia Pacific Regional Performance Objectives.

Conclusion 20/2 – Asia Pacific Regional performance Objectives

That, the Asia Pacific Regional Performance Objectives and associated Performance Framework Forms (PFFs) as contained in Appendix A to the APANPIRG/20 Report on Agenda Item 3.0 be adopted.

2. DISCUSSION

2.1 The APAC Objective 10 in the adopted Performance Framework Forms (PFF) relates to Implementation of the ADS-B Air to Ground Surveillance which is provided in the **Attachment** to this paper.

3. ACTION BY THE MEETING

3.1 The meeting is invited to review and update the information provided in the attached Performance Framework Form.

| REGIONAL PERFORMANCE OBJECTIVE: <u>APAC Objective 10</u> | | | | | |
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| IMPROVED SITUATIONAL AWARENESS AND SURFACE SURVEILLANCE- IMPLEMENTATION OF THE ADS-B TO GROUND SURVEILLANCE | | | | | |
| Benefits | | | | | |
| Environment | <ul style="list-style-type: none"> • Reductions in fuel consumption and subsequent lower gas emissions | | | | |
| Efficiency | <ul style="list-style-type: none"> • Increased flexibility and flow of traffic operations • Ultimately, when performing <i>radar-like</i> control, potential redesign of airspace taking into account the application of reduced separation minima, integrate use of aircraft navigation and surveillance capability | | | | |
| Safety | <ul style="list-style-type: none"> • Introduction of surveillance in a non-radar environment • Support to search and rescue operations | | | | |
| Strategy | | | | | |
| Medium Term (2011-2015) | | | | | |
| Short term (2010) | | | | | |
| ATM OC COMPONENTS | TASKS | TIME FRAME STARTED | RESPONSIBILITY | STATUS | REMARKS |
| AOM <i>(Airspace Organisation and Management)</i> CM <i>(Conflict Management)</i> AUO <i>(Airspace Users Operations)</i> | Implementation of ADS-B based surveillance service in the sub-regions. | | | | |
| ATM SDM (ATM Service Delivery Management) | <ul style="list-style-type: none"> • Compare current technologies with respect to concept of operations, relative costing, technical and operational performance and maturity of alternative technology/solutions (primary, secondary radar including Mode-S, ADS-B, multilateration, ADS-C) | 2009 | ADS-B Study and Implementation Task Force (ADS-B SITF) | In progress | Regional Guidance material on comparison of technologies issued |

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| | <ul style="list-style-type: none"> • Develop an implementation plan for near term ADS-B applications in the Asia Pacific Region including implementation target dates taking into account: <ul style="list-style-type: none"> ○ available equipment standards; readiness of airspace users and ATS providers; ○ identifying sub-regional areas (FIRs) where there is a positive cost/benefit outcome expected for near-term implementation of ADS-B OUT; ○ developing a standardized and systematic task-list approach to ADS-B OUT implementation; and ○ holding educational seminars and provide guidance material to educate States and airspace users on what is required to implement ADS-B OUT | 2009-10 | ADS-B Study and Implementation Task Force | In progress | <p>The FASID Table CNS 4A and 4B – surveillance and ATM automation being updated; ADS-B Seminar conducted annually; potential sub-regions for using ADS-B identified; Requirement for avionics specification for the near term application are being developed based on AMC2024 and Australian CASA document.</p> |
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| | <ul style="list-style-type: none"> • Develop Guidance Material to support harmonized regulation of ADS-B systems required on board the aircraft. | 2010 | ADS-B Study and Implementation Task Force | To be started | Forty Fifth DGCA Conference, through its Action Item 45/3 invited ICAO APANPIRG ADS-B Study and Implementation Task Force (ADS-B SITF) to develop the guidance material. |
| | <ul style="list-style-type: none"> • Study and identify applicable multilateration applications in the Asia and Pacific Region considering: <ul style="list-style-type: none"> - Concept of use/operations; - Required site and network architecture; - Expected surveillance coverage; Cost of system; Recommended separation minimas; and - If multilateration can be successfully integrated into an ADS-B OUT system for air traffic control | 2011 | ADS-B Study and Implementation Task Force | In progress | Concept of using multilateration has been developed; Some states have plan in place to introduce multilateration in particular & integrate it with A-SMGCS and Terminal area and en-route surveillance application |

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| | <ul style="list-style-type: none"> • Coordinate ADS-B implementation plan and concept of operations with other ICAO regions where ADS-B implementation is going on and with relevant external bodies such as EUROCONTROL, EUROCAE, RTCA and Industry. | 2013 | ADS-B Study and Implementation Task Force | In progress | Updated information on ADS-B in Europe and North American Regions is provided to Task Force Meeting annually; Some Industry representatives provide input at ADS-B Seminar and meetings |
| | <ul style="list-style-type: none"> • Develop Terms of Co-operation for SEA which will include: <ul style="list-style-type: none"> • Establishing model documents for possible use by States when <ul style="list-style-type: none"> - Agreeing to share ADS-B data and DCPC (such as VHF radio voice communication) capability between adjoining States for various ADS-B applications (including a sample letter of agreement); or - Establishing ADS-B avionics fitment mandates • Identifying optimum coverage for ADS-B ground stations and associated VHF radio voice communication in the sub-regional FIR | 2011 | South East Asia (SEA) Sub-Regional ADS-B Implementation Working Group | In progress | Terms of co-operation developed; sample agreement of data sharing developed; Some location for ADS-B ground stations identified. CBA for SEA project being progressed; Implementation plan being developed. |

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| | boundary areas. | | | | |
| | <p>Develop an implementation plan for near term ADS-B application in SEA which will deliver efficient airspace and increased safety on a regional basis that includes:</p> <ul style="list-style-type: none"> • Schedule and priority dates to bring into effect ADS-B based services taking into account: <ul style="list-style-type: none"> - Timing of any equipage mandates; - Timing of any ATC automation upgrades to support ADS-B; - Timing of commissioning of any ADS-B data sharing and associated VHF radio voice communication facilities • Consideration of major traffic flows: | | | | <p>Major traffic flow from Australia to Singapore through Indonesia and L642 and M771 in SEA being considered</p> |
| linkage to GPIs | GSI-12 Use of Technology to Enhance Safety; GPI/9 Situational Awareness; GPI/5: RNAV and RNP, GPI/7: dynamic and flexible ATS route management, GPI/17: data link applications and GPI/22: Communication Infrastructure; | | | | |
| References | <ul style="list-style-type: none"> • <i>Report of AN CONF/11;</i> • <i>Global ATM Operational Concept (Doc9854);</i> • <i>Global Air Navigation Plan (Doc9750);</i> • <i>Technical Provisions for Mode S Services and Extended Squitter (Deco9871)</i> • <i>APANPIRG/16/17/19/20 report on ADS-B</i> • <i>ADS-B related regional guidance materials adopted by APANPIRG</i> | | | | |