

*International Civil Aviation Organization*



**AUTOMATIC DEPENDENT SURVEILLANCE –  
BROADCAST SEMINAR AND ELEVENTH MEETING  
OF AUTOMATIC DEPENDENT SURVEILLANCE –  
BROADCAST (ADS-B) STUDY AND  
IMPLEMENTATION TASK FORCE (ADS-B SITF/11)**



Jeju, Republic of Korea, 24-27 April 2012

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**Agenda Item 6: Review States' activities and interregional issues on trials and implementation of ADS-B and multilateralism**

**REVIEW OF PERFORMANCE FRAMEWORK FORM FOR ADS-B**

(Presented by the Secretariat)

**SUMMARY**

This paper presents the Performance Framework Form for the Implementation of ADS-B in Asia and Pacific Region updated in the last ATNIGG meeting for review. The Form was prepared in line with the guidance provided by ICAO headquarters. The form provides information on various tasks to be completed for the implementation and also provides information on the implementation schedule and status. The meeting is invited to review the form and update it wherever required.

**1. INTRODUCTION**

1.1 Aviation environment, including 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 included 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 These forms updated from time to time will be used for the assessment of progress in meeting the plan objectives and will also reflect the changing requirements.

## **2. DISCUSSION**

2.1 Performance Framework Form for the implementation of the improved situational awareness and surface surveillance-ADS-B ground based surveillance for Asia Pacific Region was developed to cater to the regional Objective 8 and was reviewed by ADS-B SITF/10 meeting. It is now proposed to review the PFF once again in light of the developments that have taken place subsequently.

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

3.1 The meeting is invited to review the information provided in the Performance Framework Form - PFF provided as Attachment to this paper and propose updates if any.

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Attachment 2 to the Report on Agenda Item 3.0

**ASIA/PACIFIC REGION  
PERFORMANCE FRAMEWORK FORM  
(REGIONAL)**

*(Amended in April 2011)*

<b>REGIONAL PERFORMANCE OBJECTIVE: <u>APAC Objective 10</u></b>					
<b>IMPROVED SITUATIONAL AWARENESS AND SURFACE SURVEILLANCE- IMPLEMENTATION OF THE ADS-B TO GROUND SURVEILLANCE</b>					
<b>Benefits</b>					
<b>Environment</b>	<ul style="list-style-type: none"> <li>• Reductions in fuel consumption and subsequent lower gas emissions</li> </ul>				
<b>Efficiency</b>	<ul style="list-style-type: none"> <li>• Increased flexibility and flow of traffic operations</li> <li>• 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</li> </ul>				
<b>Safety</b>	<ul style="list-style-type: none"> <li>• Introduction of surveillance in a non-radar environment</li> <li>• Support to search and rescue operations</li> </ul>				
<i>Strategy Medium Term (2011-2015) Short term (2010)</i>					
ATM OC COMPONENTS	TASKS	TIME FRAME STARTED	RESPONSIBILITY	STATUS	REMARKS
<b>AOM</b> <i>(Airspace Organization and Management)</i>  <b>CM</b> <i>(Conflict Management)</i>  <b>AUO</b> <i>(Airspace Users Operations)</i>	Implementation of ADS-B based surveillance service in the sub-regions.				
<b>ATM SDM ( ATM Service Delivery Management)</b>	<ul style="list-style-type: none"> <li>• 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)</li> </ul>	2009	ADS-B Study and Implementation Task Force (ADS-B SITF)	COMPLETED	Regional Guidance material on comparison of technologies developed and issued

APANPIRG/22  
Attachment 2 to the Report on Agenda Item 3.0

	<ul style="list-style-type: none"> <li>• 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"> <li>○ available equipment standards; readiness of airspace users and ATS providers;</li> <li>○ identifying sub-regional areas (FIRs) where there is a positive cost/benefit outcome expected for near-term implementation of ADS-B OUT;</li> <li>○ developing a standardized and systematic task-list approach to ADS-B OUT implementation; and</li> <li>○ holding educational seminars and provide guidance material to educate States and airspace users on what is required to implement ADS-B OUT.</li> </ul> </li> </ul>	2009-12	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 in conjunction with Task Force meetings.</p> <p>Potential sub-regions for using ADS-B identified;</p> <p>Requirements for avionics specification for the near-term application are developed based on AMC2024 and Australian CASA document.</p>
	<ul style="list-style-type: none"> <li>• Develop Guidance Material to support harmonized regulation of ADS-B systems required on board the aircraft.</li> </ul>	2010	ADS-B Study and Implementation Task Force	Completed	<p>DGCA Conf.45 through its Action Item 45/3 invited ICAO APANPIRG ADS-B SITF to develop the Guidance material. The GM was developed by Regulators Workshop and ADS-B SITF/9 held in Aug. 2010</p>

APANPIRG/22  
Attachment 2 to the Report on Agenda Item 3.0

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	<ul style="list-style-type: none"> <li>• Study and identify applicable multilateration applications in the Asia and Pacific Region considering:               <ul style="list-style-type: none"> <li>- Concept of use/operations;</li> <li>- Required site and network architecture;</li> <li>- Expected surveillance coverage;</li> <li>Cost of system;</li> <li>Recommended separation minimas; &amp;</li> <li>- If multilateration can be successfully integrated into an ADS-B OUT system for air traffic control</li> </ul> </li> </ul>	2012	ADS-B Study and Implementation Task Force	In progress	<p>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</p>
	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	2013	ADS-B Study and Implementation Task Force	On- going	<p>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</p>

APANPIRG/22  
Attachment 2 to the Report on Agenda Item 3.0

	<ul style="list-style-type: none"> <li>• Develop <b>Terms of Co-operation</b> for SEA which will include: <ul style="list-style-type: none"> <li>• Establishing model documents for possible use by States when <ul style="list-style-type: none"> <li>- 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);</li> <li>or</li> <li>- Establishing ADS-B avionics fitment mandates</li> </ul> </li> </ul> </li> <li>Identifying optimum coverage for ADS-B ground stations and associated VHF radio voice communication in the sub-regional FIR boundary areas.</li> </ul>	2012	<p style="text-align: center;">South East Asia <a href="#">and Bay of Bengal</a> (SEA/<a href="#">BOB</a>) Sub-Regional ADS-B Implementation Working Group</p>	In progress	<p>Terms of co-operation <del>updated</del><a href="#">developed</a>; sample agreement of data sharing developed further updated. Some location for ADS-B ground stations identified. CBA for SEA project has been completed; Implementation plan for Australia-Indonesia and South China Sea Data and VHF communication capacity sharing projects developed .</p>
	<ul style="list-style-type: none"> <li>• Develop an implementation plan for near- term ADS-B application in SEA which will deliver efficient airspace and increased safety on a sub-regional basis that includes: <ul style="list-style-type: none"> <li>• Schedule and priority dates to bring into effect ADS-B based services taking into account: <ul style="list-style-type: none"> <li>- Timing of any equipage mandates;</li> <li>- Timing of any ATC automation upgrades to support ADS-B;</li> <li>- Timing of commissioning of any ADS-B data sharing and associated VHF radio voice communication facilities;</li> </ul> </li> <li>• Consideration of major traffic flows.</li> </ul> </li> </ul>	2013	<p style="text-align: center;"><del>South East Asia</del> (SEA/<a href="#">BOB</a>) Sub-Regional ADS-B Implementation Working Group</p>	In progress	<p>Major traffic flow from Australia to Singapore through Indonesia and Singapore to Hong Hong along L642 and M771 in South China Sea being progressed. Milestones and timelines have been established.</p> <p><del>ADS-B SITE/40 Proposed to rename SEA-The WG was renamed into ADS-B WG</del> into SEA/BOB ADS-B WG by <a href="#">APANPIRG/22</a></p>

APANPIRG/22  
Attachment 2 to the Report on Agenda Item 3.0

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<b>linkage to GPIs</b>	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;
<b>References</b>	<ul style="list-style-type: none"><li>• <i>Report of AN CONF/11;</i></li><li>• <i>Global ATM Operational Concept (Doc 9854);</i></li><li>• <i>Global Air Navigation Plan (Doc 9750);</i></li><li>• <i>Technical Provisions for Mode S Services and Extended Squitter (Doc 9871)</i></li><li>• <i>APANPIRG/16, 17, 19, 20,21 reports on ADS-B</i></li><li>• <i>ADS-B related regional guidance materials adopted by APANPIRG</i></li></ul>