



*International Civil Aviation Organization*

**THE NINTH MEETING OF AUTOMATIC  
DEPENDENT SURVEILLANCE – BROADCAST  
(ADS-B) STUDY AND IMPLEMENTATION TASK  
FORCE (ADS-B SITF/9)**



Jakarta, Indonesia, 18 -19 August 2010

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**Agenda Item 8: 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**

1.2 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 in September 2009 adopted Asia pacific Regional Performance Objectives and the associated Performance Framework Forms (PFFs) under Conclusion 20/2.

**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.

2.2 The fifth meeting of the South East Asia ADS-B Implementation Working Group reviewed and updated the PFF on implementation of ADS-B.

2.3 The fourteenth meeting of CNS/MET Sub-group of APANPIRG held in July 2010 also reviewed and updated the PFFs and noted that PFF on implementation of ADS Air to Ground Surveillance will be reviewed by ADS-B SITF/9 meeting to be held in August 2010.

**3. Action Required by the Meeting**

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

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## ASIA/PACIFIC REGION

**PERFORMANCE FRAMEWORK FORM**  
(REGIONAL)

(Amended in July 2010)

**REGIONAL PERFORMANCE OBJECTIVE: APAC Objective 10**

**IMPROVED SITUATIONAL AWARENESS AND SURFACE SURVEILLANCE-  
IMPLEMENTATION OF THE ADS-B TO GROUND SURVEILLANCE**

**Benefits**

<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>

*Strategy*  
*Medium Term (2011-2015)*  
*Short term (2010)*

<b>ATM OC COMPONENTS</b>	<b>TASKS</b>	<b>TIME FRAME STARTED</b>	<b>RESPONSIBILITY</b>	<b>STATUS</b>	<b>REMARKS</b>
<b>AOM</b> (Airspace Organization and Management)  <b>CM</b> (Conflict Management)  <b>AUO</b> (Airspace Users Operations)	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)	In progress	<p align="center"><b>COMPLETED</b></p> <p>Regional Guidance material on comparison of technologies developed and issued</p>

	<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>	2009-10	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 in conjunction with Task Force meetings.</p> <p>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>
	<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	To be started	<p>Forty Fifth DGCA Conference, through its Action Item 45/3 invited ICAO APANPIRG ADS-B SITF to develop the guidance material. Regulators Workshop is scheduled for August 2010.</p>

	<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> </ul> </li> <li>Cost of system;</li> <li>Recommended separation minima; and</li> <li>- If multilateration can be successfully integrated into an ADS-B OUT system for air traffic control</li> </ul>	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
	<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	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"> <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); or</li> <li>- Establishing ADS-B avionics fitment mandates</li> </ul> </li> </ul> </li> </ul>	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 has been completed; Implementation plan for Australia-Indonesia and South China Sea Data and VHF communication

	<ul style="list-style-type: none"> <li>Identifying optimum coverage for ADS-B ground stations and associated VHF radio voice communication in the sub-regional FIR boundary areas.</li> </ul>				capacity sharing projects are being developed by the SEA ADS-B WG.
	<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"> <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>	2013	South East Asia (SEA) Sub-Regional ADS-B Implementation Working Group	In progress	Major traffic flow from Australia to Singapore through Indonesia and Singapore to Hong Kong along L642 and M771 in South China Sea being progressed.
<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>Report of AN CONF/11;</li> <li>Global ATM Operational Concept (Doc9854);</li> <li>Global Air Navigation Plan (Doc9750);</li> <li>Technical Provisions for Mode S Services and Extended Squitter (Deco9871)</li> <li>APANPIRG/16/17/19/20 report on ADS-B</li> <li>ADS-B related regional guidance materials adopted by APANPIRG</li> </ul>				