



*International Civil Aviation Organization*

**THE TENTH MEETING OF AUTOMATIC  
DEPENDENT SURVEILLANCE –  
BROADCAST (ADS-B) STUDY AND  
IMPLEMENTATION TASK FORCE  
(ADS-B SITF/10)**



Singapore, 26 -29 April 2011

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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**

1.1 Nothing 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 APANPIRG20 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 based Surveillance.

2.2 The Fourteenth Meeting of CNS/MET Sub-group of APANPIRG and ADS-B SITF/9 in 2010 reviewed and updated the PFFs. The updated Performance Framework Forms of CNS and MET fields including Objective No.10 were adopted by APANPIRG/21 under Decision 21/51.

2.3 The Sixth Meeting of the South East Asia ADS-B Implementation Working Group reviewed and updated the PFF on implementation of ADS-B.

**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 February 2011)

REGIONAL PERFORMANCE OBJECTIVE: <u>APAC Objective 10</u>					
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)					
ATM OC COMPONENTS	TASKS	TIME FRAME STARTED	RESPONSIBILITY	STATUS	REMARKS
<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	<b>COMPLETED</b>  Regional Guidance material on comparison of technologies developed and issued

	<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	In progress	<p>Forty Fifth DGCA Conference, through its Action Item 45/3 invited ICAO APANPIRG ADS-B SITF to develop the. <a href="#">The Guidance material has been developed by Regulators Workshop and ADS-B SITF/9 held in Aug. 10.</a></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:</li> <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> <li>• Identifying optimum coverage for ADS-B ground stations and associated VHF radio voice communication in the sub-regional FIR boundary areas.</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 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>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:</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> </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 Hong along L642 and M771 in South China Sea being progressed. Milestones and timelines have been established.

	<ul style="list-style-type: none"> <li>• Consideration of major traffic flows.</li> </ul>				
<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 report on ADS-B</i></li> <li>• <i>ADS-B related regional guidance materials adopted by APANPIRG</i></li> </ul>				