



*International Civil Aviation Organization*

**THE SECOND MEETING OF AERONAUTICAL COMMUNICATION SERVICE (ACS) IMPLEMENTATION CO-ORDINATION GROUP OF APANPIRG (ACSICG/2)**

Bangkok, Thailand, 20 - 22 May 2015

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**Agenda Item 5: Review States' ATN/AMHS Implementation Status, Transition and Operational Issues**

**AMHS AND AIDC IMPLEMENTATION STATUS IN APAC REGION**

(Presented by the Secretariat)

**SUMMARY**

This paper presents the status of AMHS and AIDC implementation status in APAC region for review and updating.

**1. Introduction**

1.1 The First meeting of ACSICG held in May 2014 in Republic of Korea reviewed and updated the regional ATN/AMHS implementation status. The result of status was recorded in the Appendix C to the meeting report and also reflected in the updated AMHS implementation planner in Appendix D to the meeting report

1.2 It was encouraged to see AMHS implementations taking place in the last few years in the region and much more planned implementation by 2015 at the global level.

1.3 The SIP AIDC Seminar held in October 2014, took the opportunity further updated the information contained in Appendix B to the Seminar Report.

1.4 The updated status is provided in Appendix to this paper for review by the meeting.

**2. Action by the meeting**

2.1 The meeting is invited to review and update the information in the attached Appendix.

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**ATTACHMENT B**

**ATN/AMHS/AIDC Implementation Status in the APAC Region**

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
AFGHANISTAN					
AUSTRALIA	<p>ATN tests were conducted. BIS Router and Backbone BIS Router and AMHS implemented.</p> <p>64 kbps IPLC established with Fiji. Basic AMHS circuit will be commissioned in September 2014;</p> <p>Another basic AMHS circuit planned for operational in Feb. 2015. The connectivity will be provided by CAAS's VPN.</p>	COMSOFT	<p>AFTN based AIDC Implemented between Brisbane and Melbourne, Oakland, Nadi and Auckland;</p> <p>Implemented between Melbourne and Johannesburg;</p> <p>AIDC is also in use between Melbourne and Mauritius;</p> <p>Operational trial between Brisbane and Ujung Pandang since May 2013.</p>		

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<p><b>BANGLADESH</b></p>	<p>Bangladesh has already installed ATN/AMHS at Dhaka.(For also connection with Chittagong and Sylhet)</p> <p>Commissioning &amp; SAT Completed in March 2013.</p> <p>Official correspondences are going on for the ATN/AMHS link between Dhaka and Mumbai.</p> <p>BIS Router and AMHS installed in 2011.</p>	<p>COMSOFT</p>	<p><del>AIDC between Dhaka and Chittagong-Dhaka and Sylhet planned for 2013.</del></p> <p>Plan for June 2015 with neighboring with target date of implementation by end of 2016.</p>		<p><a href="#">AMHS connectivity between Dhaka &amp; Chittagong and Dhaka &amp; Sylhet are already established.</a></p> <p><a href="#">IOT of AMHS connectivity Between Dhaka &amp; Bangkok and Dhaka &amp; Mumbai are already been done. POT and TMC will be completed in November 2014.</a></p> <p><a href="#">ATC Center up-gradation of Dhaka is expected to be completed by Dec. 2016. The project will be completed under PPP for which the tender process will be launched in late November 2014. As soon as the ATC Up-gradation is completed hopefully Bangladesh will be able to implement AIDC with Kolkata and Myanmar (Q1 2017).</a></p>

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<b>BHUTAN</b>	ATN BIS Router and UA service planned for 2011.				
<b>BRUNEI DARUSSALAM</b>	ATN BIS Router planned for 2012 and AMHS planned for 2012				
<b>CAMBODIA</b>	BIS Router and AMHS installed. Cambodia (CATS) AMHS connected with Bangkok via VSAT IP link on 10 December 2013	AVITECH	AIDC function and capability made available.  Ready for testing with neighbors ATS Facilities starting from 2015-2016.		
<b>CHINA</b>	<p>ATN Router and AMHS including NCC deployed in 2008 which is being upgraded to support ATN/IPS with target date of completion in December 2013.</p> <p>Tripartite BBIS trial completed with Bangkok and Hong Kong, China in Jan. 2003.</p> <p>ATN trial with Hong Kong using XOT over internet conducted in 2006, Further trials conducted in 2009.</p> <p>Plan for ATN/AMHS implementation with Hong Kong, China (2013).</p> <p>AMHS/ATN technical tests with Macau</p>	IN-HOUSE (Aero-Info Technologies Co., Ltd)	<p>AIDC between some of ACCs within China has been implemented. AIDC between several other ACCs are being implemented.</p> <p>AIDC between Sanya and Hong Kong put in to operational use since 8 Feb 2007.</p> <p>AIDC between Qingdao and Incheon planned for 2013;</p> <p>Implemented between: Guangzhou with</p>		

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	<p>completed in 2009. Plan for ATN/AMHS implementation with Macau, China (2013).</p> <p>ATN/AMHS circuit with ROK put into operational use since June 2011.</p> <p>ATN/AMHS tests with India started from March 2011 using 64 Kbps landline.</p> <p>ATN and AMHS technical trial with Mongolia is TBD.</p> <p>Connection tests with Thailand is 2014</p> <p>Connection tests with Nepal in 2014.</p>		<p>Nanning/Zhanjiang/Zhuhai;</p> <p>Nanning and Kunming/Guiyang/Zhanjiang in 2011;</p> <p>Zhanjiang/Haikou;</p> <p>Chengdu and Chongqing/Guiyang in 2011;</p> <p>Guiyang and Chongqing/Kunming in 2011;</p> <p>Started negotiation for implementation between Dalian and Incheon and Shanghai/Fukuoka.</p>		

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<b>HONG KONG, CHINA</b>	<p>Preliminary ATN/AMHS technical trials with China (Beijing) using VPN over Internet connection in 2006.</p> <p>Operational AMHS and BIS router accepted in July 2009.</p> <p>ATN/AMHS circuit with Macao put into operation use in Dec. 2009.</p> <p>ATN/AMHS interoperability tests with other adjacent communications centres commenced in late 2009, viz Taipei (2009), Thailand (2012), Japan (Planned Q3/2016), Philippines (Planned Q2/2015) and Viet Nam (Planned Q4/2014)</p> <p>Plan for ATN/AMHS implementation with China (Beijing) (2014) and Thailand (Q2 2014).</p>	COMSOFT	<p>AFTN-based AIDC with Sanya put into operational use in Feb 2007.</p> <p>AIDC trial with other adjacent ATS authorities for new ATC system to be commissioned by 2013.</p> <p>AIDC technical trial with Taipei conducted in 2010 and completed in 2012 and put into operational use in Nov. 2012.</p>	Raytheon ATM system Support AIDC ICD Version 3 from end of 2015	
<b>MACAO, CHINA</b>	<p>ATN/AMHS interoperability test with Beijing commenced in March 2009.</p> <p>ATN/AMHS circuit with Hong Kong put into operational use in end Dec. 2009.</p>	COMSOFT	(Not applicable for using AIDC, looking into the possible application (some way) between TWR and ACC/APP).		

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<b>COOK ISLANDS</b>					
<b>DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA</b>	The ATN BIS Router and AMHS planned for in 2011.		With neighboring ACCs to be implemented TBD		
<b>FIJI ISLANDS</b>	ATN BIS Router and AMHS implemented	COMSOFT	AFTN based AIDC implemented between Nadi/ Brisbane, Auckland and Oakland.	<ul style="list-style-type: none"> <li>- Support and implemented AIDC messaging: ABI, EST, CPL, CDN, ACP, TOC, AOC with all three centers</li> <li>- AIDC ICD version 2.0 implemented with Auckland and Oakland.</li> <li>- AIDC ICD Version 1.0 implemented with Brisbane</li> </ul>	
<b>FRANCE</b> <i>(French Polynesia Tahiti)</i>			Implementation of AIDC (based on Version 3) with adjacent centres (Oakland and Auckland) since 2009		

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<b>INDIA</b>	<p>MUMBAI – SINGAPORE – BBIS – Circuit Implemented</p> <p>MUMBAI – PAKISTAN – BIS – Initial Operational Trial Completed</p> <p>MUMBAI – CHINA – Under operational trials</p> <p>MUMBAI – OMAN – BIS - Presently AFTN over TCP/IP</p> <p>MUMBAI – THAILAND – BBIS - Initial Operational Trials completed.</p> <p>MUMBAI AMHS – Commissioned in APRIL 2011</p>	COMSOFT	<p>* Major Indian airports and ATC centres have integrated ATS Automation Systems having AIDC capability. AIDC Trials are under among all Area Control Centres and other 32 Aerodromes within India.</p> <p>AIDC Trials with Malaysia (Chennai/Kuala Lumpur) and Pakistan (Ahmedabad/Karachi) successful and plan for Muscat (Oman), depending on the resolving of technical issues.</p>		
<b>INDONESIA</b>	<p>ATN BIS Router and AMHS planned for trial in 2009.</p> <p>Trial with Singapore planned.</p> <p>ATNBIS Router and AMHS are still ongoing trial with Singapore planned to complete by 2012. (Part D: AMHS Commission)</p>	ELSA	Makasar and Brisbane has been 1 ongoing trial AIDC since 2013.		



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<b>JAPAN</b>	<p>ATN BBIS router and AMHS installed at 2000. Connection tests with USA 2000 - 2004 and put into operational use in 2005.</p> <p>ATN BBIS router (to apply to Dual Stack) and AMHS (to upgrade in 2015. The connection test with each country which is not currently connecting is started after update.</p>	NEC	<p>AIDC implemented between Fukuoka ATMC and Oakland ARTCC in 1998.</p> <p>AIDC implemented between Fukuoka ATMC and Anchorage ARTCC in 2005.</p> <p>AIDC implemented between Tokyo ACC/Fukuoka ACC and Incheon ACC in 2010.</p> <p>Implemented between Fukuoka and Incheon since June 2009.</p> <p>AIDC implemented between Fukuoka ACC/Naha ACC and Taipei ACC in 2012.</p> <p>AIDC between Fukuoka ACC and Shanghai ACC under negotiation (2014)</p>		
<b>KIRIBATI</b>					
<b>LAO PDR</b>	ATN BIS Router and AMHS completed planned for implementation with Bangkok in 2010.	THALES	<p>AIDC with Bangkok planned for 2015-2016.</p> <p>Testing with Ho Chi Minh 1Q 2015</p>		

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<b>MALAYSIA</b>	ATN BIS Router completed 2007. AMHS planned in 2012.	FREQUENTIS	<p>AFTN AIDC planned with Bangkok ACC – Middle 2015.</p> <p>AIDC between Kuching and KK FIR already implemented. via TCP/IP. Planning for using AFTN from Nov. 2014.</p> <p>Between Kuala Lumpur and Chennai trial successful.</p> <p>Plan for trial with Singapore from Mid. November 2014.</p> <p>Plan for trial with Ho Chi Minh from 1Q 2015.</p>		
<b>MALDIVES</b>	Planned for 2015 as existing AFTN was upgraded recently to make it compatible with protocols of interconnected AMHS systems and the flight plan format 12.		System is AIDC ready. Trials with neighbouring ACC's 1 <sup>st</sup> half 2015.		
<b>MARSHALL ISLANDS</b>					
<b>MICRONESIA (EDERATED STATES OF)</b>					

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Chuuk					
Kosrae					
Pohnpei					
Yap					
<b>MONGOLIA</b>	<p>AMHS/AFTN gateway is implemented in first quarter of 2012.</p> <p>ATNBIS router will be implemented in 2013.</p> <p>Coordinating with China on ATN/AMHS connection technical trial target date TBD.</p>		<p>ATM automation system supports both AIDC and OLDI.</p> <p>Coordinating with Russia on OLDI connection in target date TBD.</p> <p>Coordinating with China on AIDC connection technical trial target date TBD.</p>		
<b>MYANMAR</b>	<p>AMHS including ATFTN/AMHS gateway implemented in Nov. 2011</p>	THALES	<p>ATM automation system capable to support AIDC in end of 2015.</p> <p>Plan for trial with Bangkok in 2015 with target for implementation in 2016.</p>		
<b>NAURU</b>					
<b>NEPAL</b>	BIS Router and AMHS commissioned with	COMSOFT	AIDC between Kathmandu and Beijing and KTM-BBN		

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	Kathmandu Mumbai circuit on 2 June 2014.		and KTM-CCU planned for 2015		
<b>NEW CALEDONIA</b>	New router and AMHS planned at the end of 2013 with Nadi				
<b>NEW ZEALAND</b>	Some external AMHS connections 2014.	COMSOFT	AIDC implemented between New Zealand, Australia, Fiji, Tahiti, Chile and USA.		
<b>PAKISTAN</b>	ATN/AMHS considered as Phase II implemented since 2010.	COMSOFT	Implemented between Karachi and Lahore ACCs  Plan to implement AIDC with Mumbai and Muscat for 2015		Existing Radar system being upgraded.
<b>PAPUA NEW GUINEA</b>	Plans to create a newly duplicated digital communications line connecting with existing and new sites and replacing AFTN switch with a AMHS before 2015		To be implemented with Australia in early 2016		
<b>PHILIPPINES</b>	ATN G/G BIS Router/AMHS installed in 2006. Pending AMHS Interoperability tests moved to Q3/2015 both for Singapore and Hong Kong.  AMHS trials with Singapore by end 2012 and Hong Kong planned in 2012.	COMSOFT	AFTN based AIDC system (version 2) test plan for Dec. 2014. Plan for trial with Taipei and Singapore for 2015. Plan for trials with other ACCs TBD.		

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<b>REPUBLIC OF KOREA</b>	<p>ATN/AMHS circuit with China put into operational use in June 2011.</p> <p>ATN/AMHS test with Japan to be conducted</p>	SAMSUNG	<p>AFTN based AIDC implemented between ACC and Fukuoka ATMC.</p> <p>AIDC between Incheon and Dalian under negotiation (2014)</p>		
<b>SINGAPORE</b>	<p>AMHS implemented.</p> <p>ATN/AMHS circuit with India put into operational use in March 2011.</p> <p>-ATN/AMHS circuit with UK put into operational use in March 2012.</p> <p>On-going ATN/AMHS trial with Thailand and Indonesia planned to complete by end 2014.</p>	COMSOFT	<p>Operational with Ho Chi Minh implemented <del>April</del> <a href="#">Aug.</a> 2014.</p> <p>Plan for technical trial with Malaysia (Kota Kinabalu, Kuching and KL) in the time frame Nov. 2014 to June 2015.</p> <p>Plan for operational trial with Manila June 2015.</p> <p>Technical trial with Indonesia plan for Dec. 2015.</p>	LORADS III - AIDC Full set	

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<b>SRI LANKA</b>	ATN BIS Router Planned for 2013. AMHS (Domestic) and AMHS/AFTN Gateway implemented by Oct. 2011. <ul style="list-style-type: none"> <li>- Mumbai testing during Q3/Q4 2014 operational in Nov. 2014;</li> <li>- Singapore testing in Q4 214 operational in Dec. 2014;</li> <li>- Male testing in Q2 2015 operational date TBD.</li> </ul>	IDS	Trials with Male' planned for in 2015.  Plan for trial with Chennai and Melbourne for November 2014.		
<b>THAILAND</b>	BBIS/BIS Routers already implemented. AMHS has been implemented in July 2011. Trial with other BBIS States; Singapore, India, Hong Kong China and Italy are ongoing. Pre-operational test (POT) with India and Singapore in 2013, with Hong Kong China in May 2014, with Italy in August 2014, with Laos PDR and Malaysia over VSAT IP link conducted in 2014. Inter-Operability Test (IOT) with Bangladesh in May 2014, with Beijing China planned for 2014 and with Vietnam and Myanmar planned for 2015. Connected with Cambodia (CATS) AMHS on 10 December 2013 over VSAT IP link; Established new CLNP 64 Kbps link with AAI In June 2013 following successful IOT; Established CLNP 64 Kbps link with CAAS in July 2013 following successful IOT. Operational the AMHS service with target date within Q4 2014; Established CLNP 64Kbps with Hong Kong China CAD in May 2014, POT is scheduled for Q2 2014.	Thales	Plan for trials with neighboring ACCs from 2015 to 2016.	ATM system Thales is being implemented with planned completion in November 2015. AIDC feature is based on APAC AFTN AIDC ICD v.3 and can support ABI, EST, ACP, TOC, AOC messages.	

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<b>TONGA</b>	AMHS planned for 2008.  The provider is linked to the New Zealand AFTN				CPDLC and ADS-C is not considered for lower airspace
<b>UNITED STATES</b>	AMHS implemented. (Salt Lake City & Atlanta)	IN-HOUSE	AFTN based AIDC implemented.		
<b>VANUATU</b>					
<b>VIET NAM</b>	BIS Routers planned for 2009.  ATN/AMHS trial in 2010 and operation in 2012.  ATN BIS Router AMHS in 2013	IN-HOUSE	AFTN based AIDC implemented in 2009.  Operational with Singapore in April 2014.  Plan for trials with Lao. PDR. Cambodia, Malaysia 1Q 2015.		