

#### International Civil Aviation Organization

# THE SECOND MEETING OF ASIA/PACIFIC ATS INTER-FACILITY DATA COMMUNICATION (AIDC) IMPLEMENTATIONTASK FORCE (APA TF/2) OF APANPIRG

Bangkok, Thailand, 16 - 18 March 2016

#### **Agenda Item 2:** Review of outcomes of relevant meetings

#### OUTCOME OF APANPIRG/26 AND CNS SG/19 ON AIDC

(Presented by the Secretariat)

#### **SUMMARY**

This paper presents AIDC related outcome of APANPIRG/26 and CNS SG/19 meetings for review by the meeting.

#### 1. INTRODUCTION

- 1.1 The Ninteenth Meeting of the CNS SG of APANPIRG held in Bangkok in July 2015 reviewed the report of the first meeting of Asia and Pacific AIDC Task Force (APA TF/1, June 2015) and took necessary actions and endorsed Draft Conclusions for consideration by APANPIRG.
- 1.2 The Twenty Sixth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/26) held in September 2015 under agenda item 3.4 took actions on the report of CNS SG/19 including those AIDC related discussions and recommendations.

#### 2. DISCUSSIONS

2.1 APANPIRG/26 noted the recommendations consolidated by the AIDC Task Force (APA TF/1) which provide implementation guidance to States/Administrations and adopted the following Conclusion:

#### Conclusion APANPIRG/26/33 – Recommendations for AIDC Implementation

That, a list of recommendations provided in **Appendix E** to WP/9 is adopted and distributed to States/Administrations for AIDC Implementation guidance.

2.2 Considering that the Pan Regional ICD for AIDC had been adopted by APANPIRG/25 meeting, the meeting adopted the following Conclusion which was endorsed by CNS SG.

## Conclusion APANPIRG/26/34 – Use of Pan Regional ICD for AIDC

That, States/Administrations in the Asia/Pacific Regions are encouraged to use the Pan Regional ICD for AIDC for any planned new ATM automated system or updating ATM automated systems for AIDC function.

- 2.3 The meeting recalled safety issues related to human errors during ATS transfer human errors which had been identified by RASMAG/18 and RASMAG/20 meetings. Considering that ATS Inter-facility Data Communications (AIDC) is an important means of minimizing Large Height Deviations (LHD), States/Administrations concerned were urged to support the expedition of AIDC through collaborative projects at the following significant LHD interface areas:
  - a) Indonesia: between Jakarta and Chennai/Ujung Pandang/Brisbane/Melbourne FIRs;
  - b) India: between Chennai and Kuala Lumpur FIRs;
  - c) Philippines: between Manila and Fukuoka/ Taibei /Hong Kong/Ho Chi Minh/ Singapore/ Kota Kinabalu /Ujung Pandang FIRs; and
  - d) China: between
    - i. Urumqi and Lahore FIRs; and
    - ii. Beijing and Ulaan Baatar FIRs.
- 2.4 The meeting noted issue/problems report form developed by the APATF for use by States/Administrations which is provided in the Appendix B to the Task Force meeting report. States/Administrations had been urged to submit the identified issues using the form to the ICAO Regional Office (A State Letter Ref.: T 8/3.5:AP097/15 (CNS) dated 07 July 2015 refers).

# Sharing of experience on AIDC implementation including training and implementation packages

2.5 The meeting noted that a number of papers presented to APA TF/1 meeting by Indonesia, Singapore, Malaysia, Sri Lanka and USA on the AIDC implementation status. The meeting congratulated all States for having achieved the successful conduct of trials and/or implementation of AIDC. The meeting noted with appreciation the AIDC and ATN/AMHS implementation status in the APAC Region provided in **Appendix F** to WP/9. The meeting is expected to further update this Appendix at this meeting.

#### **Benefits of AIDC Implementation**

2.6 The first meeting of the APA Task Force reconfirmed the benefits brought about by introduction of AIDC such as reduction of controller workload, increasing efficiency and capacity for operators, and enhancing safety to stakeholders. Errors such as large height deviations are eliminated as human errors are minimized with the automated coordination process. Although, some States only use a small message set currently, the benefits of AIDC operations have reap substantial benefits to States as voice coordination is reduced drastically.

#### **Progress of AIDC Implementation in Singapore**

2.7 Singapore presented the progress of AIDC Implementation with ATS units of its adjacent States. States concerned were urged to implement AIDC early in view of its benefits. The detailed implementation was provided to the meeting in a table form.

#### Review of regional specific requirements for APAC e-ANP (Table CNS 1E)

2.8 The APANPIRG/26 meeting endorsed the recommendation to keep AIDC planning table into the regional air navigation plan (new e-ANP) as regional specific requirement. The planning/implementation table as part new e-ANP for APAC Region was approved by ICAO Council recently.

#### **Development of APAC AIDC Implementation Guidance Material**

2.8 The CNS SG/19 meeting noted that the APA Task Force was tasked to develop additional AIDC implementation guidance material as mandated in the TOR Task C of Task Force.

#### 3. ACTION BY THE MEETING

- 3.1 The meeting is invited to:
  - Note the actions taken by CNS SG/19 and APANPIRG/26 on the outcome of the report of APA TF/1 meeting;
  - Discuss how to progress implementation of the identified AIDC circuits/communications as listed in the paragraph 2.3 and other relevant connections;
  - Review and update the AIDC and ATN/AMHS implementation status in the APAC Region provided in Appendix to this paper.

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# 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	ATN tests were conducted. BIS Router and Backbone BIS Router and AMHS implemented.  64 kbps IPLC established with Fiji. Basic AMHS circuit will be commissioned in September 2014;  Another basic AMHS circuit planned for operational in Feb. 2015. The connectivity will be provided by CAAS's VPN.	COMSOFT	AFTN based AIDC Implemented between Brisbane and Melbourne, Oakland, Nadi and Auckland; Implemented between Melbourne and Johannesburg; AIDC is also in use between Melbourne and Mauritius; Operational trial between Brisbane and Ujung Pandang since May 2013.		

CNS SG/19 Appendix F to the Report

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
BANGLADESH	Bangladesh installed ATN/AMHS at Dhaka (with User Agents at Chittagong (VGEG) and Sylhet (VGSY).  BIS Router and AMHS installed in Q1/2013 at Dhaka (VGHS).  System Commissioning & SAT completed in March 2013.	COMSOFT	Tentative date of implementation of AIDC is Q1 of 2018 with Kolkata and Myanmar.		AMHS connectivity between Dhaka & Chittagong and Dhaka & Sylhet are already established.  Dhaka-Mumbai AMHS connectivity is commissioned on 23 March 2015 and the circuit is operational. Dhaka-BKK AMHS connectivity is expected to be commissioned by the end of May2015 and TMC will be signed accordingly.  ATC Center upgradation of Dhaka is expected to be completed by December 2017. As soon as the ATC up-gradation is completed hopefully Bangladesh will be able to implement AIDC with Kolkata and Myanmar (Q1/2018)

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
BHUTAN	ATN BIS Router and UA service planned for 2015.				
BRUNEI DARUSSALAM	ATN BIS Router planned for 2015 and AMHS planned for 2015				
CAMBODIA	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.	THALES which supports AIDC ICD Version 1.	
CHINA	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.  Tripartite BBIS trial completed with Bangkok and Hong Kong, China in Jan. 2003.  ATN trial with Hong Kong using XOT over internet conducted in 2006, Further trials conducted in 2009.  Plan for ATN/AMHS implementation with Hong Kong, China (2016).	IN-HOUSE (Aero-Info Technologies Co., Ltd)	AIDC between some of ACCs within China has been implemented. AIDC between several other ACCs are being implemented.  AIDC between Sanya and Hong Kong put in to operational use since 8 Feb 2007.  AIDC between Qingdao and Incheon planned for 2015; Implemented between: Guangzhou with Nanning/Zhanjiang/Zhuhai;		

CNS SG/19 Appendix F to the Report

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
	AMHS/ATN technical tests with Macau completed in 2009. Plan for ATN/AMHS implementation with Macau, China (2016).  ATN/AMHS circuit with ROK put into operational use since June 2011.  ATN/AMHS tests with India started from March 2011 using 64 Kbps landline.  ATN and AMHS technical trial with Mongolia is TBD.  Connection tests with Thailand is TBD  Connection tests with Nepal is TBD		Nanning and Kunming/Guiyang/Zhanjian g in 2011; Zhanjiang/Haikou; Chengdu and Chongqing/Guiyang in 2011; Guiyang and Chongqing/Kunming in 2011; Started negotiation for implementation between Dalian and Incheon and Shanghai/Fukuoka.		
HONG KONG, CHINA	Preliminary ATN/AMHS technical trials with China (Beijing) using VPN over Internet connection in 2006. Operational AMHS and BIS router accepted in July2009.  ATN/AMHS circuit with Macao put into operation use in Dec. 2009.  ATN/AMHS circuit with Bangkok put into operation use in Sept. 2014  ATN/AMHS interoperability tests with other adjacent communications centres commenced in late 2009, viz Taibei (2009), Japan (Planned Q4/2017), Philippines (Planned Q2/2016) and Viet Nam (Planned 2016)	COMSOFT	AFTN-based AIDC with Sanya put into operational use in Feb 2007. AIDC trial with other adjacent ATS authorities for new ATC system to be commissioned by mid-2016.  AIDC technical trial with Taibei conducted in 2010 and completed in 2012 and put into operational use in Nov. 2012	Raytheon ATM system Support AIDC ICD Version 3 from mid 2016	

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	Plan for ATN/AMHS implementation with China (Beijing) (2016).				
MACAO, CHINA	ATN/AMHS interoperability test with Beijing commenced in March 2009.  ATN/AMHS circuit with Hong Kong put into operational use in end Dec. 2009.	COMSOFT	(Not applicable for using AIDC, looking into the possible application (some way) between TWR and ACC/APP).		
COOK ISLANDS					
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	The ATN BIS Router and AMHS planned for in 2011.		With neighboring ACCs to be implemented		
FIJI ISLANDS	ATN BIS Router and AMHS implemented	COMSOFT	AFTN based AIDC implemented between Nadi/ Brisbane, Auckland and Oakland.	- Support and implemented AIDC messaging: ABI, EST, CPL, CDN, ACP, TOC, AOC with all three centers - AIDC ICD version 2.0 implemented with Auckland and Oakland AIDC ICD Version 1.0 implemented with Brisbane	

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
FRANCE (French Polynesia Tahiti)			Implementation of AIDC (based on Version 3) with adjacent centres (Oakland and Auckland) since 2009		
INDIA	Dual stack ATN/lp router and AMHS implemented at Mumbai in 2011	COMSOFT	AIDC planned with Bangladesh, Myanmar, Thailand, Pakistan, Nepal, Seychelles, Malaysia, Indonesia, Sri Lanka, Kenya, Oman and Maldives Mauritius and Somalia. Successful AIDC trials done between Chennai-Kuala Lumpur, Chennai-Male, Ahmedabad-Karachi, Delhi- Karachi (One way towards Delhi)	Raytheon at New Delhi, Mumbai and Chennai     Selex at Hyderabad and Bengaluru.     INDRA at 39 locations	1) Major Indian airports and ATC centres have integrated ATS Automation Systems having AIDC capability. Successful AIDC trials have been carried out amongst major ATSUs within India. 2) AIDC implemented between Chennai and Mumbai. 3) AMHS implemented and working between A. BBIS: Mumbai-Singapore, Bangkok B: BIS: Mumbai, Kathmandu, Dhaka

CNS SG/19 Appendix F to the Report

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INDONESIA	ATN BIS Router and AMHS planned for trial in 2009.  Trial with Singapore planned.  ATNBIS Router and AMHS are still ongoing trial with Singapore planned to complete by 2012. (Part D: AMHS Commission)	ELSA	Makasar and Brisbane has been on-going trial AIDC since 2013.  Plan for its implementation with Brisbane 4Q2015;	Thales in Makasar which is able to support ICD Version 2.	
JAPAN	ATN BBIS router and AMHS installed at 2000. Connection tests with USA 2000 - 2004 and put into operational use in 2005.  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.	NEC	AIDC implemented between Fukuoka ATMC and Oakland ARTCC in 1998.  AIDC implemented between Fukuoka ATMC and Anchorage ARTCC in 2005.  AIDC implemented between Tokyo ACC/Fukuoka ACC and Incheon ACC in 2010.  Implemented between Fukuoka and Incheon since June 2009.  AIDC implemented between Fukuoka ACC/Naha ACC and Taibei ACC implemented .		

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
			AIDC between Fukuoka ACC and Shanghai ACC under negotiation (2014)		
KIRIBATI					
LAO PDR	ATN BIS Router and AMHS completed, put into operation with Bangkok since 2Q 2015.	THALES	AIDC with Bangkok planned for 2016.  Testing with Ha Noi for 2017, with Ho Chi Minh2017, With Cambodia for 2016	THALES which is able support ICD Version 2.	
MALAYSIA	ATN BIS Router completed 2007. AMHS planned for 2015.	FREQUENTIS	AFTN AIDC planned with Bangkok ACC – Middle 2Q2016.  AIDC between Kuching and KK FIR already implemented in 2014 via AFTN.  Between Kuala Lumpur and Chennai trial successful scheduled for operation from 1Q2016.  Plan for trial with Singapore from Mid. November 1Q 2016.	SELEX which is able to support ICD Version 3.	

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
			Plan for trial with Ho Chi Minh from 1Q 2016 Between Kota Kinabalu and Singapore 4Q2015 Kuching and Singapore for 1Q2016 Kota Kinabalu and Makassar 4Q2015		
MALDIVES	Planned for 2016 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. Implementation with ACC's (Chennai, Colombo, Mumbai, Melbourne and Mauritius) plan for 2017.	SELEX which is able to support ICD Version 3.	
MARSHALL ISLANDS					
MICRONESIA (EDERATED STATES OF)					
Chuuk					
Kosrae					
Pohnpei					

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Yap					
MONGOLIA	AMHS/AFTN gateway implemented 2012.  ATNBIS router implemented in 2014.  Coordinating with China using ATN/AMHS connection technical trials conducted in 2014.	COMSOFT	ATM automation system supports both AIDC and OLDI.  Coordinating with Russia on OLDI connection in target date 2016.  Coordinating with China on AIDC connection technical trial in progress.	INDRA Aircon 2100 supporting AIDC ICD Version 2.	
MYANMAR	AMHS including ATFTN/AMHS gateway implemented in Nov. 2011	THALES	ATM automation system capable to support AIDC in end of 2015.  Plan for with Bangkok with target for implementation in 2016.	THALES	
NAURU					
NEPAL	BIS Router and AMHS commissioned with Kathmandu Mumbai circuit on 2 June 2014.	COMSOFT	AIDC between Kathmandu and Beijing and KTM-BBN and KTM-CCU planned for 2016		
NEW CALEDONIA	New router and AMHS planned at the end of 2013 with Nadi				

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
NEW ZEALAND	Some external AMHS connections 2014.	COMSOFT	AIDC implemented between New Zealand, Australia, Fiji, Tahiti, Chile and USA.		
PAKISTAN	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.
PAPUA NEW GUINEA	Plans to create a newly duplicated digital communications line connecting with existing and new sites and AMHS system implemented in 4Q2014	COMSOFT	Plan to implement with all neighboring FIRs in 3Q 2016	COMSOFT which is able to support ICD Version 3	
PHILIPPINES	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 implementation with Singapore 4Q2015; 2Q2016 with Taibei, 4Q2016 Hong Kong and 2Q2016Kota Kinabalu; 2017 with Oakland.	THALES which is able to support ICD Version 2.	

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
REPUBLIC OF KOREA	ATN/AMHS circuit with China put into operational use in June 2011.  ATN/AMHS test with Japan to be conducted	SAMSUNG	AFTN based AIDC implemented between ACC and Fukuoka ATMC.  AIDC between Incheon and Dalian under negotiation (2014)		
SINGAPORE	AMHS implemented.  ATN/AMHS circuit with India put into operational use in March 2011.  ATN/AMHS circuit with UK put into operational use in March 2012.  ATN/AMHS circuit with Thailand put into operational use in December 2014.  On-going ATN/AMHS trial with Indonesia and Malaysia.  Coordinating with Australia and Viet Nam to start ATN/AMHS trial in Q3 2015.	COMSOFT	Operational with Ho Chi Minh implemented July 2014.  Technical trials with Malaysia (Kota Kinabalu, Kuching and Kuala Lumpur ATCCs) on going since Dec. 2014. Planned operational implementation from Dec. 2015.  Technical trials with Manila ACC ongoing since Dec. 2014. Planned operational implementation in Nov. 2015. Planned technical trial with Indonesia plan from Dec. 2015.	THALES currently support s ICD Version 1 and to be upgraded to Version 3 in 2016	

CNS SG/19 Appendix F to the Report

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SRI LANKA	ATN BIS Router Planned for 2013. AMHS (Domestic) and AMHS/AFTN Gateway implemented by Oct. 2011.  - Mumbai testing during Q3/Q4 2014 operational in Nov. 2014;  - Singapore testing in Q4 214 operational in Dec. 2014;  - Male testing in Q2 2015 operational date TBD.	IDS	Trials with Male' planned for in 2017.  Trial with Chennai ongoing. Plan for implementation in 3Q2016 and with Melbourne plan for 3Q2015 and implementation for 1Q2017.	INTELCAN which is able to support ICD Version 3.	
THAILAND	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.	AEROTHAI's AMHS System / Ubitech System	Plan for coordination with neighboring ACCs from 2015.  Plan for implementation starting from 2016.	THALES which is being implemented with planned completion in November 2015.  AIDC feature is based on APAC AIDC ICD V.3	

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
TONGA	AMHS planned for 2008.  The provider is linked to the New Zealand AFTN				CPDLC and ADS-C is not considered for lower airspace
UNITED STATES	AMHS implemented. (Salt Lake City & Atlanta). Transition using AMHS when counter parts ready	IN-HOUSE	AFTN based AIDC implemented.	IN-HOUSE which is able to support APAC and NAT ICDs currently Version 2.	
VANUATU					
VIET NAM	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.		