



International Civil Aviation Organization

**NINTH MEETING OF THE
COMMUNICATIONS/NAVIGATION/SURVEILLANCE AND
METEOROLOGY SUB-GROUP OF APANPIRG
(CNS/MET SG/9)**

Bangkok, Thailand, 11–15 July 2005

Agenda Item 13: Review CNS/ATM Systems Planning and Implementation

CNS/ATM IMPLEMENTATION AND PLANNING MATRIX

(Presented by the Secretariat)

SUMMARY

This paper presents the Regional CNS/ATM Implementation and Planning Matrix for review by the meeting.

1. INTRODUCTION

1.1 In order to provide implementation status of various elements of the new CNS/ATM systems for assessment by the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG) CNS/ATM Implementation Planning Matrix was developed in accordance with Conclusion 11/37 of APANPIRG. The Conclusion was adopted by APANPIRG at its eleventh meeting held from 2 to 6 October 2000 and the Matrix has since been updated regularly by each meeting of the CNS/MET Sub Group.

Conclusion 11/37- CNS/ATM Implementation Planning Matrix

That, the Secretariat be requested to develop and maintain a matrix listing all Asia/Pacific FIRs and the associated status of implementation of various major CNS/ATM elements.

2. DISCUSSION

2.1 The Matrix contains implementation status of CNS elements such as ATN, AIDC, CPDLC, GNSS and ADS. It is expected to be reviewed by APANPIRG and its Sub-Groups on a regular basis to assess progress of implementation. The Matrix would be further developed progressively to include implementation status of major CNS/ATM elements covering all ASIA/PAC FIRs.

3. ACTION BY THE MEETING

3.1 The meeting is invited to review and update the CNS/ATM Implementation and Planning Matrix provided in the Attachment.

Attachment to CNS/MET SG/9-WP/29 (CNS)

CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B	ADS-C	Remarks
				NPA Supplemental Means (S) Primary means (P)	En-route Supplemental Means (S) Primary means (P)			
AUSTRALIA	ATN tests were conducted. BIS Router and Backbone BIS Router and AMHS will be implemented by 2006.	AFTN based AIDC Implemented between Brisbane and Auckland.	Implemented and integrated with ATM systems to support FANS1/A equipped aircraft.	Implemented (S) 360 -370 GPS NPA Final 26 aerodromes completed 2004.	Developed en-route as (P) for approval to use in domestic airspace.	ADS-B trial being conducted. 27 ground stations are expected operational end of 2005 for upper air space which not cover by radar.	FANS 1/A ADS-C implemented.	
BANGLADESH	BIS Router and AMHS planned for 2005							
BHUTAN	ATN BIS Router and UA service 2008			Procedures developed for NPA as (S)				
BRUNEI DARUSSALAM	ATN BIS Router and AMSH planned 2006							
CAMBODIA	BIS Router and AMHS planned for 2005							
CHINA	ATN BIS Router AND AMHS will be implemented in 2005 and 2006.	AIDC between ACCs within China are being implemented.	Implemented to support ATS Route L888 and polar routes. Trial on HF data link conducted for use in western China.		Implemented in certain airspace as (S).	ADS-B trial will be conducted in 2004	FANS 1/A ADS-C implemented to support L888 and polar routes.	

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HONG KONG, CHINA	- Tripartite BBIS trial with Beijing and Bangkok completed in Jan 2003; -64 Kbps ATN Link with Bangkok put into operational use in June 2004. -ATN trials with China and Japan conducted in 2003/04; -AMHS trials with China and Japan planned in 2004. Implementation of AMHS with Japan in 2005. - ATN/AMHS trials with Viet Nam, Philippines, Macao China planned in late 2004/2005.	Trial on the AFTN based AIDC with Guangzhou and Sanya, China commenced. Implementation planned for 2005.	FANS 1/A based CPDLC conducted. D-ATIS D-VOLMET and PDC implemented. VDL Mode-2 technical trial completed in Dec. 2002 and planning on further trials was in progress.	Pilot Programme on RNAV (GPS) departure procedures will be conducted in 2004.	Implemented in certain airspace as (S).	ADS-B trial using “ASMGCS” trial system in 2004/2005.	FANS 1/A Trials for ADS-C conducted.	
MACAO, CHINA	ATN BIS router and AMHS planned for 2 nd half of 2005. Planning for trial with China and Hong Kong, China going on							ATZ within Hong Kong and Guangzhou FIRs. In ATZ full VHF coverage exist. Radar coverage for monitoring purposes.
COOK ISLANDS								
DEMOCRATIC PEOPLE’S REPUBLIC OF KOREA								

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FIJI	AMHS in-house trials planned for 2003. AMHS trials with USA in 2004. ATN BIS Router and AMHS will be implemented in 2005.	Implementation of AFTN based AIDC with Brisbane and Auckland in 2003.	FANS-1. Implemented since 1997.	NPA procedures for (S) completed in Dec. 2002.	Implemented as (S).	ADS-B trials planned for 2004. Implementation in 2005/2006.	ADS-C implemented in oceanic airspace using EUROCAT 2000 X.	
FRANCE French Polynesia Tahiti		Implementation of limited message sets with adjacent centres under discussion.	FANS-1. Implemented since 1996.				FANS 1/A ADS-C implemented since March 1999.	
INDIA	ATN BBIS router and AMHS planned for implementation at Mumbai in 2005 and 2006.		FANS-1 implemented at Kolkata and Chennai. Planned for Mumbai and Delhi.		SBAS (S). Planned for 2005.	Considering using ADS-B to reduce coverage holes and proposal for trial to be conducted at Chennai.	FANS 1/A ADS-C implemented at Kolkata and Chennai. Plan to implement in Delhi and Mumbai.	
INDONESIA	ATN BIS Router and AMHS planned for implementation in 2005 and 2006.	AFTN based AIDC planned for implementation between Brisbane and Jakarta in 2004.	FANS-1/A. CPDLC in Jakarta, Ujung Pandang FIRs planned for 2005.	Procedure to be completed in 2006 for NPA (S).		Planning ATS-B round stations at 5 locations in the eastern part of Indonesia as first stage of phase I.	FANS 1/A ADS-C trial conducted at Jakarta ACC in 2005.	

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JAPAN	ATN BBIS already implemented. AMHS implementation between Japan and USA in 2004 and between Japan and Hong Kong planned for 2005.	AIDC based. AFTN procedure implemented with Oakland USA.	FANS1/A system Implemented in Tokyo FIR.				FANS 1/A. ADS-C implemented in Tokyo FIR.	
KIRIBATI								
LAO PDR	ATN BIS Router and AMHS planned for implementation with Bangkok in 2005.		FANS-1/A Planned for Bay of Bengal and South China Sea areas. Equipment is under test operation.		Implemented as (S).		FANS-1/A. ADS-C planned for Bay of Bengal and South China Sea areas. Equipment under test operation.	
MALAYSIA	ATN BIS Router and AMHS planned for 2005.		Planned for Bay of Bengal and South China Sea areas.	NPA (S) at KLIA planned for 2003.			FANS 1/A ADS-C planned for Bay of Bengal and South China Sea areas.	
MALDIVES	BIS Router/AMHS planned for implementation in 2005.	Planned for 2006.	FANS1/A planned for 2006.		Trials planned for 2005-2008. Implementation in 2008.	Trials planned for 2004-2006. Implementation in 2006.		
MARSHALL ISLANDS				NPA (S) implemented at Majuro Atoll.				
MICRONESIA FEDERATED STATES OF								

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Chuuk				NPA(S) implemented				
Kosrae				NPA(S) implemented				
Pohnpei				NPA(S) implemented				
Yap				NPA(S) implemented				
MONGOLIA	ATN BIS Router and AMHS planned for 2005 and 2006. Trial with Bangkok conducted		Function available. Regular trials are conducted.	GPS procedures are being developed and implemented at 10 airports.	Implemented as (P).	ADS-B trial in progress implementation planned for 2006.	FANS 1/A ADS-C implemented since August 1998.	
MYANMAR	Trial for ATN BIS Router with Thailand planned for 2003. Test with China planned for 2005.		Implemented since August 1998				Implemented since August 1998	
NAURU								
NEPAL	BIS Router and AMHS planned for 2005.			Development of arrival procedure and NPA as (S) completed. Departure procedure is being developed.	Implemented as (S).			
NEW ZEALAND	BIS Router and AMHS implementation planned for 2006.	AFTN based AIDC implemented between New Zealand, Australia and USA. Tests with Fiji planned	FANS/1A. Implemented	42 NPA implemented presently.	will be implemented as required.	Trials planned 2005. National coverage starts 2008 to be completed by 2015.	FANS 1/A Implemented.	

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PAKISTAN	Implementation of ATN considered for Phase II (2005-2010).	Implemented between Karachi and Lahore ACCs	Implementation planned from 2005-2010.	Arrival and departure NPA procedure as (s) are being developed.	Planned for 2005-2010.	Planned for 2005 – 2010.	Planned for 2005-2010	RADAR coverage provided in Karachi and Lahore FIRs.
PAPUA NEW GUINEA								
PHILIPPINES	ATN BIS Router planned for 2005. Implementation for AMHS in April 2007.		D-ATIS and CPDLC Planned for 2008.				FANS 1/A ADS-C planned for 2008.	
REPUBLIC OF KOREA	ATN BIS Router/AMHS planned for 2005-2010.	AFTN based AIDC implemented between Incheon ACC and Seoul APP.	PDC & D-ATIS implemented 2003.			Planned for 2005-2010	Trial for FANS 1/A ADS-C implemented since 2003.	
SINGAPORE	ATN BBIS Router trial with Hong Kong conducted between April and June 2003. Trial with Thailand planned for 2004. Planned for ATN and AMHS implementation in 2005		Implemented since 1997. Integrated in the ATC system in 1999. D-ATIS implemented since February 2000.	NPA (S) procedure developed. RNAV (SID/STAR) in 2005	Implemented (S).	Trial planned for 2006.	FANS 1/A ADS-C implemented since 1997. Integrated with ATC system in 1999.	
SRI LANKA	ATN BIS Router Planned for 2005. AMHS planned along with BIS in 2005.		CPDLC implemented since November 2000.	NPA (S) planned for 2005.			FANS 1 /A ADS-C implemented since November 2000.	GPS based domestic route structure being developed.

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THAILAND	ATN G/G system implemented for domestic services. BBIS/BIS Routers already implemented. AMHS 2005.	ATN based AIDC Implemented in Domestic Sector.	FANS-1/A Implemented.		Implemented as (S).		FANS 1/A ADS-C Implemented.	
TONGA	Target date for AMHS in 2006			NPA planned for 2010		Trial planned for 2010		CPDLC and ADS-C is not considered for lower airspace
UNITED STATES								
Anchorage			FANS1/A based CPDLC implemented.	NPA(S) implemented	En-route (P) implemented	ADS-B trials continuing.	FANS/1-ADS-C 2005.	
Fairbanks				NPA(S) implemented		Trials continuing		
Oakland		AFTN based AIDC implemented. ATN AIDC planned for 2005.	FANS-1/A based CPDLC implemented.	NPA (S) implemented	En-route (P) implemented		FANS-1/A ADS-C planned for Dec. 2004.	

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Salt Lake City (Network Centre)	AMHS implementation between Japan and USA scheduled for 2004. Acceptance testing completed. USA/China and USA/Fiji AMHS testing scheduled for 2004.	AFTN based AIDC implemented. ATN AIDC planned for 2005.						
VANUATU								
VIET NAM	ATN trials with Bangkok in July 2004. Implementation of ATN BIS Router planned for 2004 and AMHS in 2006.	ATN based AIDC planned in 2005.	Planned for 2005.	Planned for NPA (S) for 2004.	Implementation as (S) planned for 2004.		FANS 1/A ADS-C planned for 2005.	Most of air space in Hanoi and Ho-Chi- Minh FIRs covered by RADAR.