



**INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE**

**REPORT OF THE
COM CO-ORDINATION MEETING**

Shenyang, China, 3 -5 June 2009

The views expressed in this Report should be taken as those of the COM Coordination Meeting and not of the Organization.

Approved by the Meeting
and published by the ICAO Asia and Pacific Office

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1. Introduction

1.1 A COM Co-ordination Meeting between the People's Republic of China, the Democratic People's Republic of Korea and the Republic of Korea was held at Marvelot Hotel, Shenyang, China from 3 to 5 June 2009. The meeting was hosted by the Air Traffic Management Bureau of CAAC, China.

1.2 The objectives of the meeting were to review status of implementation of the required Aeronautical Fixed Service including AFTN/ATS direct speech circuits and to develop coordinated Action Plans for implementing and improving the performance of some concerned circuits to satisfy the established operational requirements.

2. Attendance

2.1 The meeting was attended by 21 participants representing China, the Democratic People's Republic of Korea and the Republic of Korea. A list of participants is at **Attachment 1**.

3. Officers and Secretariat

3.1 Mr. Li Peng, Regional Officer Communication, Navigation and Surveillance (CNS) of the ICAO Asia and Pacific Office served the meeting as Moderator and the Secretary.

4. Opening of the meeting

4.1 Ms. Lu Xiaoping, Deputy Director General of the Air Traffic Management Bureau of the Civil Aviation Administration of China opened the meeting. In her opening address, she emphasized the importance of cooperation between States on Aeronautical Fixed Service for the safety and regularity of air navigation and hoped that the outcome of the meeting would facilitate the implementation and improvement of AFS in the Sub-region. She also highlighted recent development in the CNS fields in China. On behalf of ICAO Regional Director, Mr. Li Peng highlighted the objective of the meeting and emphasized the need to develop a well co-ordinated and practical Action Plan. Mr. Zhao Fan, Deputy Director General of North East Regional ATMB also extended a warm welcome to all the participants to Shenyang.

5. Organization, Working Arrangements and Language

5.1 The meeting was held as a single body throughout the meeting. The working language was English inclusive of all documentation and this report. Chinese was also used with interpretation to/from Korean. A list of Working Papers, Information Papers and Presentations reviewed and discussed by the meeting are at **Attachment 2**.

Agenda Item 1: Adoption of the Agenda

1.1 The agenda adopted by the meeting was as follows:

- Agenda Item 1: Adoption of the Agenda
- Agenda Item 2: Review of AFS requirements in the Sub-region of North Asia including FASID Tables CNS 1A – AFTN Plan, CNS 1B – ATN Router Plan, CNS 1C – AMHS Plan, CNS 1D - ATS Direct Speech Circuits Plan and CNS 1E - ATS Inter-Facility Data Communication (AIDC) Implementation Plan
- Agenda Item 3: Review the current implementation and operational status of AFS communications between States
- Agenda Item 4: Develop Action Plan for establishment alternate AFTN circuit between Beijing and Pyongyang
- Agenda Item 5: Discuss implementation plan of ATN/AMHS between States
- Agenda Item 6: Develop proposal for improvement of ATS direct speech circuits between States
- Agenda Item 7: Discuss implementation plan of AIDC between States
- Agenda Item 8: Any Other Business
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Agenda Item 2: Review of AFS requirements in the Sub-region of North Asia including FASID Tables CNS 1A – AFTN Plan, CNS 1B – ATN Router Plan, CNS 1C – AMHS Plan, CNS 1D - ATS Direct Speech Circuits Plan and CNS 1E - ATS Inter-Facility Data Communication (AIDC) Implementation Plan

Review of AFS requirements

1.1 Under this agenda item, the meeting reviewed the requirements of AFTN and ATS direct speech circuit plans. The related information on the development and amendment procedure for regional air navigation plan was introduced by the Secretariat. The guidance and conclusion adopted by Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) were also noted by the meeting.

1.2 The meeting reviewed the AFS requirements for the area under the consideration by this meeting as contained in the Table CNS 1A – AFTN Plan, Table CNS 1B ATN Router Plan, Table CNS 1C - AMHS Plan, Table CNS 1D ATS Direct Speech Circuits Plan and Table CNS 1E – AIDC Implementation plan. States were requested to implement the relevant requirements of FASID without undue delay.

1.3 The meeting reviewed the guidance and principles as provided in the Recommendations and Conclusions adopted by the ASIA/PAC/3 RAN meeting regarding AFTN performance management.

1.4 The meeting updated the information as contained in these tables based on the operational requirements and development. The updated planning Tables are placed in the **Appendices A, B, C, D and E** to this Report. The Secretariat was requested to process updates to the planning and implementation in accordance with the established procedure as early as possible or in the next consolidated amendment to the plans.

1.5 The meeting noted that the requirement for AFS circuit performance is greater than 97% of service availability. The meeting also noted the following two categories of performance requirements for ATS direct speech circuits which are specified in the planning table for ATS direct speech circuits:

Type A — indicates ATS requirement for the establishment of voice communication within 15 seconds.

Type D — indicates requirements for instantaneous communications

Agenda Item 3: Review the current implementation and operational status of AFS communications between States

Update to CNS/ATM Matrix

3.1 The meeting reviewed and updated the CNS/ATM Implementation Matrix presented by the Secretariat. The meeting noted that the Matrix had been recently updated by the ATNICG/4 meeting and ADS-B Study and Implementation Task Force held in May 2009. The Matrix further updated by the meeting is placed in **Appendix F** this Report.

Planning and Implementation Status in DPR Korea

3.2 DPR Korea informed the meeting that ATMB of DPR Korea has prepared the detailed plan for improvement of AFS communication with neighboring States. GACA approved the implementation plan for those requirements as specified in the FASID Tables CNS-1A, CNS-1B, CNS -1C and CNS-1D. The implementation of AIDC is still under consideration.

3.2.1 It was noted that DPR Korea is using SINO SAT of China for the AFTN connection with Beijing main AFTN Centre and ATS Direct Speech Circuits with Shenyang and Dalian ACCs. SITA terminal co-located in the ATS building is being used as back-up for AFTN circuit. IDD serves as the alternate means for ATS speech circuit with Shenyang and Dalian ACCs.

3.2.2 For the ATS Direct Speech circuit between Pyongyang and Incheon, both fiber optical cable and VSAT link (ASIA SAT-2) are deployed. It was informed that there were some technical improvements recently for the fiber optical link with Incheon ACC and the performance of ASIA SAT-2 as backup is shown satisfactory.

3.2.3 The ATS voice channel with Vladivostok Area Control Centre was established through VSAT link. The service provided by Telecom Sat has been remarkably improved recently.

History and Current Operational Status of AFTN in the Republic Korea

3.3 Rep. of Korea made a presentation on introduction to the history and current status of AFS communication in the Rep. of Korea.

3.3.1 The international AFTN connection with Japan started operation in 1958. The AFTN link between Seoul and Beijing has been established since 2011. The ATN/AMHS connection with China and Japan is planned for 2011.

3.3.2 The presentation highlighted the hardware and software configuration for the AFTN facilities in the Rep. of Korea. It also identified the possibility for alternate routing for AFS traffic between China, Japan and Rep. of Korea.

Agenda Item 4: Develop Action Plan for establishment alternate AFTN circuit between Beijing and Pyongyang

4.1 The meeting recalled (WP05) that the need for an alternate AFS data connection for the existing Pyongyang-Beijing circuit was identified by APANPIRG/17 meeting in 2006. Both China and Rep. of Korea supported the proposal of establishment of an alternate circuit between Pyongyang and Seoul. Since DPR Korea did not attend that meeting, ICAO Regional Office was requested to coordinate with DPR Korea. A COM coordination meeting was proposed in 2008 to progress the proposal.

4.2 DPR Korea informed the meeting that several AFTN interruption incidents were observed between January and June 2008. It was also informed that SINO SAT became out of order on 25 February 2009 for duration of 22 hours. China confirmed that the incident on that day was caused by the satellite transponder provider due to technical reasons. The need for an alternate circuit was reconfirmed. In order to improve the circuit performance, DPR Korea proposed to lease a 64 Kbps fiber optical link with either X.25 or TCP/IP protocol as the primary means between Pyongyang and Beijing. The current VSAT link will be kept for secondary use. This was considered as the first practical step for improvement of the performance of the circuit for the time being. The proposal was supported by China. Accordingly the meeting developed the following Action Plan:

ACTION AGREED NO. 1 - LONG TERM, CHINA, DPR KOREA

That, to improve the performance of AFS data circuit between Beijing and Pyongyang, China and DPR Korea agreed to implement LDD/d 64 Kbps circuit using either X.25 protocol or TCP/IP protocol with a target date of 2010.

4.3 The meeting also discussed the need for the alternate circuit between Pyongyang and Seoul as identified by the CNS/MET SG of APANPIRG. The Rep. of Korea informed the meeting that there is no technical difficulty to establish AFTN connection between Seoul/Gimpo and Pyongyang. As the long term requirement, the meeting encouraged both DPR Korea and Rep. of Korea to conduct necessary study and coordinate with ICAO APAC Office for result of the study. In view of the foregoing, the meeting formulated the following Action Plan:

**ACTION AGREED NO. 2 - LONG TERM, DPR KOREA AND
REP. OF KOREA**

That, in order to provide alternate routing for AFS data circuit between Beijing and Pyongyang, DPR Korea and Rep. of Korea are requested to conduct study of the possibility for establishment of an alternate circuit between Pyongyang and Seoul. The result of study will be coordinated with ICAO APAC Office by the end of 2010.

Agenda Item 5: Discuss implementation plan of ATN/AMHS between States

Regional planning and guidance for ATN/AMHS transition

5.1 The Secretariat made a presentation on the introduction of regional planning body and guidance materials adopted by APANPIRG as developed by the ATN Transition Task Force and ATN Implementation Coordination Group. The regional implementation status was also highlighted. States were encouraged to coordinate for implementation of ATN/AMHS according to the regional implementation plan as specified in the FASID.

5.2 The meeting agreed to implement ATN/AMHS by 2011 as proposed in the updates to the planning tables discussed under agenda item 2.

ATN/AMHS Implementation Activity in China

5.3 China provided a brief introduction to the ATN/AMHS implementation project in China. The meeting noted that ATN/AMHS system was installed in Beijing main communication centre in 2008. The final site acceptance and contract signoff is expected by July 2009 after several trials conducted with States concerned. It was informed that the AMHS system deployed in China supports both CAAS and XF address scheme and it is able to provide AFTN/AMHS gateway function during the transition period. The ATN router and AMHS support dual stacks i.e. ATN/OSI and IPv4 protocol. To provide redundancy and to enhance system reliability, China will deploy ATN/AMHS system in Guangzhou as backup system for Beijing ATN/AMHS in 2009. The information of focal contact point for interconnection was also provided to the meeting.

Planning and implementation activities in Republic of Korea

5.4 Rep. of Korea made a presentation on the planning and implementation activities of ATN/AMHS and ATS direct speech circuits. The meeting noted that coordination was carried out with China in 2007 and target date for implementation was agreed for 2010. Technical Memorandum of Cooperation (TMC) with China was signed in December 2008.

5.4.1 The ATN/AMHS project in Rep. of Korea and the time schedule of the project was also introduced. The presentation highlighted the planning for implementation and improvement of ATS direct speech circuits.

5.4.2 The meeting also noted the recent organizational changes in the Rep. of Korea. The KCASA has been changed to the Office of Aviation Policy and CNS Division has been renamed as Air Navigation Facilities Division under the Office of Aviation Policy.

Agenda Item 6: Develop proposal for improvement of ATS direct speech circuits between States

6.1 Under this agenda item, the meeting reviewed and updated the information as contained in the ANP/FASID Table CNS 1D and the following Action Plan was agreed by the meeting for implementation within the established time frame.

6.2 Rep. of Korea proposed to make global changes to the name of Taegu ACC in the Table CNS 1D to Incheon ACC as the ACC has been relocated in Incheon and Taegu ACC is no longer exists.

6.3 Both China and Rep. of Korea agreed to propose to delete the Dalian/Taegu (Incheon) circuit from the Table as no operational requirement exists for ATS coordination between the two ACCs.

6.4 The meeting noted that most of the circuits specified in the planning documents are implemented and operational satisfactorily.

6.5 The meeting was informed that China and Rep. of Korea has initiated action for improvement of the performance of the direct speech circuit between Inchoen and Qingdao. The meeting reconfirmed the need for improvement and an alternate arrangement for the circuit. Accordingly the meeting developed the following Action Plan.

ACTION AGREED NO. 3 - IMMEDIATE CHINA, REP. OF KOREA

That, to improve the circuit performance, China and Rep. of Korea agreed to implement Incheon/Qingdao ATS direct speech circuit using digital landline by the end of July 2009. The VSAT link will be kept as backup.

6.6 The meeting reviewed the requirement for the ATS direct speech circuit between Incheon and Shanghai as listed in the planning document. China and the Rep. of Korea confirmed the need for the circuit as ATC contingency requirement to enhance the flight safety. The meeting further discussed the target date for implementation and the appropriate technical means for the circuit. China proposed to use International Direct Dial (IDD hotline) link to the VCCS at each sector of the ATM system which would be more reliable and could meet the requirement of 15 seconds. It was stated that IDD hotline is the primary means in most cases for ATS coordination between ACCs in China including major ACCs like Shenyang with Satellite link as backup.

6.7 The Rep. of Korea proposed to change to type D of the requirements for instantaneous communications; however, it was not agreed by the meeting. The Secretariat recommended to conduct necessary trial to confirm whether the IDD (hotline) could meet the specified operational requirements as many existing ATS direct speech circuit in the APAC region are satisfied by using such public toll arrangement. Therefore, the meeting developed the following Action Plan.

ACTION AGREED NO. 4 - MID TERM CHINA, REP. OF KOREA

That, to meet ATC contingency requirement, a direct ATS speech circuit will be established between Incheon and Shanghai ACCs in accordance with the FASID Table CNS 1D by the end of July 2009. China and Rep. of Korea agreed to conduct necessary trials to identify appropriate communication means for the ATS direct speech circuit including IDD hotline to meet the specified requirements of establishing voice communication within 15 seconds.

Agenda Item 7: Discuss implementation plan of AIDC between States

7.1 Rep. of Korea informed the meeting of the progress of AIDC implementation between Rep. of Korea and Japan. The initial research phase for using AIDC was conducted from 2003 to 2005. It was installed and tested in the period between 2006 and 2008. The protocol converter was introduced between Incheon ACC and Fukuoka ATMC in October 2007. Seven AIDC message set will be used including: CPL, EST, ACP, TOC, AOC, LAM and LRM. The operational trial and the operational use of AIDC between the Japan and Rep. of Korea are expected to commence in the third quarter of 2009.

7.2 China informed the meeting that AIDC has been used between Sanya and Hong Kong ACCs. Some AIDC functions have been used between the major ACCs in China.

7.3 DPR Korea has no plan to introduce AIDC at this stage.

7.4 The Secretariat informed the meeting that APANPIRG/19 adopted Conclusion to urge States to expedite implementation of AIDC between neighboring ATS facilities in accordance with the Regional Air Navigation Plan and the Asia/Pacific AIDC ICD. Considering that introduction of AIDC between ATM systems would significantly reduce the coordination errors observed in controller to controller verbal communication across FIR boundaries, States were encouraged to implement AIDC through coordination.

7.5 The meeting reviewed and updated the information as contained in the planning documents. It was proposed to change the requirement for Beijing/Incheon AIDC to Qingdao/Incheon AIDC. The meeting further discussed and agreed on a target date - 2013 for implementation of AIDC between Qingdao ACC and Incheon ACC. Accordingly the meeting formulated the following Action Plan:

ACTION AGREED NO. 5 - LONG TERM CHINA, REP. OF KOREA

That, China and Rep. of Korea agreed to further coordinate to conduct necessary trials to expedite implementation of AIDC between Qingdao and Incheon ACCs with a target date of implementation in 2013.

Agenda Item 8: Any other business**Note of appreciation**

8.1 The meeting expressed its appreciation and gratitude to the Air Traffic Management Bureau of CAAC in particular, the North East Regional Administration of ATMB for hosting the COM Coordination Meeting, for the wonderful arrangement made and for all activities arranged including technical visit to the ATC, AFS and AMS facilities in Shenyang and a culture tour organized during the meeting.

8.2 On behalf of the participants, Mr. Pak from Democratic People's Republic of Korea and Mr. Lee from Republic of Korea thanked Air Traffic Management Bureau, for the warm hospitality extended to their delegations.

8.3 The Moderator thanked the participants of the meeting for their active participation and valuable inputs and expressed the hope that the Action Plan developed by the meeting would be implemented in a timely manner with the spirit of cooperation demonstrated at the meeting.

Other presentations

8.4 Brief introduction on the development of E-ANP demonstration of functions of database developed by the Secretariat was presented to the meeting by the Secretariat.

8.5 A presentation on solution to ATN/AMHS implementation was made by Aeroinfo. Demonstration for the AFTN/AMHS system was made available for the participants during the meeting.

8.6 A brief introduction was also provided on the Voice Communication Control System (VCCS) developed by the Aero Tech. Co. Ltd., a subsidiary to the North East Regional ATMB of China.

8.7 The meeting noted the recent developments in the CNS fields in APAC Region presented by the Secretariat.

Time Frame

8.8 The definition of time frame indicated in the Action Plan agreed by the meeting is as follows:

IMMEDIATE: Action to be taken immediately after the conclusion of the meeting

MID TERM: Action to be taken within six months

LONG TERM: Action to be taken within two years

State/Station	Cat.	CURRENT				PLANNED				Target date of implementation	Remarks
		Type	Signalling Speed	Protocol	Code	Type	Signalling Speed	Protocol	Code		
1	2	3	4	5	6	7	8	9	10	11	12
CHINA											
BEIJING - M/ZBBB	M	LDD/d	9600 bps	X.25	IA-5						
Guangzhou/ZGGG	M	LDD/d	2400 bps	None	IA-5						
Karachi/OPKC	M	LDD/d	2400 bps	None	IA-5						
Kathmandu/VNKT	S	SAT/d	300 baud	None	IA-5						
Russian Fedration/UHHH	M	SAT/d	2400 bps	None	IA-5						
Pyongyang/ZKKK	S	SAT/d	9600 bps	None	IA-5	LDD/d	64 kbps	X.25 or IP	IA-5	2010	(Khabarovsk)
Seoul/RKSS	S	SAT/d	9600 bps	X.25	IA-5						
Tokyo/RJAA	M	LDD/d	9600 bps	X.25	IA-5						
Ulaan Baatar/ZMUB	S	SAT/d	300 baud	None	IA-5	SAT/a	9600 bps	None	IA-5	12/05	Note 2
Yangon/VYYY	S	SAT/d	300 baud	None	IA-5						
GUANGZHOU-M/ZGGG											
Beijing/ZBBB	M	LDD/d	9600 bps	X.25	IA-5						
Hanoi/VVNB	S	SAT/d	2400 bps	None	IA-5						
Hong Kong/VHHH	M	LDD/d	2400 bps	None	IA-5						Note 1
Macau/VMMC	S	LDD/d	2400 bps	None	IA-5						
Sanya/ZJSY	S	LDD/d	2400 bps	None	IA-5						
SANYA-S/ZJSY											
Guangzhou/ZGGG	S	LDD/d	2400 bps	None	IA-5						
Hong Kong/VHHH	S	LDD/d	2400 bps	None	IA-5						
TAIBEI - S/RCTP											
Hong Kong/VHHH	S	LDD/d	4800 bps	X.25	IA-5						
Manila/RPLL	S	LDD/d	300 bps	None	ITA-2						Note 1, 2
Naha/ROAH	S	LDD/d	4800 bps	X.25	IA-5						
HONG KONG, CHINA											
HONG KONG-M/VHHH											
Bangkok/VTBB	M	LDD/d	64 Kbps	X.25	IA-5						ATN link carrying AFTN Traffic
Guangzhou/ZGGG	M	LDD/d	2400 bps	None	IA-5						Note 1
Ho-Chi-Minh/VVTS	S	SAT/d	2400 bps	None	IA-5						
Macau/VMMC	S	LDD/d	2400 bps	None	IA-5						
Manila/RPLL	S	LDD/d	300 baud	None	ITA-2						
Sanya/ZJSY	S	LDD/d	2400 bps	None	IA-5						Note 1
Taipei/RCTP	S	LDD/d	4800 bps	X.25	IA-5						
Tokyo/RJAA	M	LDD/d	9600 bps	X.25	IA-5						
MACAU, CHINA											
MACAU - S/VMMC											
Hong Kong/VHHH	S	LDD/d	2400 bps	None	IA-5						
Guangzhou/ZGGG	S	LDD/d	2400 bps	None	IA-5						
DPR KOREA											
PYONGYANG-S/ZKKK											
Beijing/ZBBB	S	SAT/d	9600 bps	None	IA-5	LDD/d	64 kbps	X.25 or IP	IA-5	2010	
JAPAN											
TOKYO - M/RJAA											
Beijing/ZBBB	M	LDD/d	9600 bps	X.25	IA-5						
Hong Kong/VHHH	M	LDD/d	9600 bps	X.25	IA-5						
Russian Federation/UHHH	M	LTT	2400 bps	None	IA-5						(Khabarovsk)
Russian Federation/UUUU	M	LTT	200 baud	None	IA-5	LDD	2400 bps	None	IA-5		Coordination with Russian Federation in progress
Naha/ROAH	S	LDD/d	9600 bps	X.25	IA-5						
Seoul/RKSS	S	LDD/d	9600 bps	X.25	IA-5						Note 2
Singapore/WSSS	M	LDD/d	9600 bps	X.25	IA-5						
United States/KSLC	M	LDD/d	9600 bps	X.25	IA-5						Traffic exchange via AMHS

State/Station	Cat.	CURRENT				PLANNED				Target date of implementation	Remarks
		Type	Signalling Speed	Protocol	Code	Type	Signalling Speed	Protocol	Code		
1	2	3	4	5	6	7	8	9	10	11	12
NAHA - S/ROAH											
Taipei/RCTP	S	LDD/d	4800 bps	X.25	IA-5						
Tokyo/RJAA	S	LDD/d	9600 bps	X.25	IA-5						
MONGOLIA											
ULAANBAATAR-S/ZMUE	S	SAT/d	300 baud	None	IA-5	SAT/a	9600 bps	None	IA-5	12/05	Note 2
Beijing/ZBBB	S	LTT	50 baud	None	ITA-2	LDD/d	9600 bps	X.25	IA-5	12/05	(Irkutsk)
Russian Federation/UIII											
MYANMAR											
YANGON - S/VYYY	S	SAT/d	300 baud	COP-B	IA-5						Note 2
Bangkok/VTBB	S	SAT/d	300 baud	None	IA-5						Note 1,2
Beijing/ZBBB											
NEPAL											
KATHMANDU - S/VNKT	S	SAT/d	300 baud	None	IA-5						
Beijing/ZBBB	S	SAT/a	50 baud	None	ITA-2						
Mumbai/VABB											
PAKISTAN											
KARACHI - M/OPKC	M	LDD/d	2400 bps	None	IA-5						
Beijing/ZBBB	M	SAT/d	2400 bps	None	IA-5						Note 2
Mumbai/VABB	S	SAT/d	2400 bps	None	IA-5						Note 2
Kabul/OAKB	M	LDD/d	2400 bps	None	IA-5						
Kuwait/OKBK											
PHILIPPINES											
MANILA - S/RPLL	S	LDD/d	300 baud	None	ITA-2						
Hong Kong/VHHH	S	LDD/d	300 baud	None	ITA-2						
Singapore/WSSS	S	LDD/d	300 baud	None	ITA-2						
Taipei/RCTP											
REPUBLIC OF KOREA											
SEOUL - S/RKSS	S	SAT/d	9600 bps	X.25	IA-5						
Beijing/ZBBB	S	LDD/d	9600 bps	X.25	IA-5						Note 2
Tokyo/RJAA											

COM Coordination Meeting
Appendix B to the Report

Administration	Location of Router	Type of Router	Type of Interconnection	Interconnection, Connected to router of:	Link Speed	Link Protocol	Target date of Implementation	Remarks
1	2	3	4	5	6	7	8	9
American Samoa	Pago Pago			United States				Intra-domain
Australia	Brisbane			Timor Leste				Intra-domain
		BBIS	Sub-Regional	Fiji	64000 bps	TDB	2010	Not Implemented
		BIS	Sub-Regional	Indonesia	TDB	TDB	TDB	Not Implemented
		BBIS	Intra-Regional	Japan	64000 bps	TDB	2010	Not implemented
				Nauru				Intra-domain
		BIS	Sub-Regional	New Zealand	TDB	TDB	TDB	Not implemented
				Papua New Guinea				Intra-domain
		BBIS	Inter-Regional	South Africa	TDB	TDB	TBD	Not implemented
				Solomon Islands				Intra-domain
			Vanuatu				Intra-domain	
	Melbourne	BBIS	Intra-Regional	Singapore	64000 bps	IP SNCDF	2009	Not implemented
		BBIS	Inter-Regional	United States	64000 bps	TDB	2010	Not implemented
Bangladesh	Dhaka	BIS	Sub-Regional	India	9600 bps	X.25	2010-2011	(India)
		BIS	Sub-Regional	Thailand	9600 bps	X.25	2010-2011	(Thailand)
Bhutan	Paro	BIS	Sub-Regional	India	9600 bps	X.25	TBD	(India)
Brunei Darussalam	Brunei	BIS	Sub-Regional	Malaysia	64000 bps	X.25	2010	(Malaysia)
		BIS	Sub-Regional	Singapore	9600 bps	X.25	2010	(Singapore)
Cambodia	Phnom Penh	BIS	Sub-Regional	Thailand	9600 bps	X.25	2009-2010	(Thailand)

Administration	Location of Router	Type of Router	Type of Interconnection	Interconnection, Connected to router of:	Link Speed	Link Protocol	Target date of Implementation	Remarks
1	2	3	4	5	6	7	8	9
China	Beijing	BIS	Sub-Regional	DPR Korea	9600 bps	X.25	2010	ATN Router Implemented
		BBIS	Intra-Regional	Hong Kong, China	64000 bps	X.25	2009	ATN Router Implemented
		BBIS	Intra-Regional	India	64000 bps	X.25	2009	ATM Router Implemented
		BBIS	Intra-Regional	Japan	64000 bps	X.25	2010	ATN Router Implemented
		BBIS	Inter-Regional	Kuwait	64000 bps	X.25	TBD	ATN Router Implemented
		BIS	Sub-Regional	Macau, China	9600 bps	X.25	2009	ATN Router Implemented
		BIS	Sub-Regional	Mongolia	9600 bps	X.25	2010	ATN Router Implemented
		BIS	Sub-Regional	Myanmar	9600 bps	X.25	2010	ATN Router Implemented
		BIS	Sub-Regional	Nepal	9600 bps	X.25	2010	ATN Router Implemented
		BIS	Sub-Regional	Pakistan	9600 bps	X.25	2010	ATN Router Implemented
		BIS	Sub-Regional	Republic of Korea	64000 bps	X.25	2011	ATN Router Implemented
		BBIS	Inter-Regional	Russian Federation	19200 bps	X.25	TBD	ATN Router Implemented
		BBIS	Intra-Regional	Thailand	64000 bps	X.25	2009	ATN Router Implemented
		BIS	Sub-Regional	Vietnam				TBD
		Taibei	BIS	Sub-Regional	Hong Kong, China	9600 bps	X.25	2009
		BIS	Sub-Regional	Japan	9600 bps	X.25	2009	
Hong Kong, China	Hong Kong	BBIS	Intra-Regional	China	64000 bps	X.25	2009	
		BIS	Sub-Regional	Macau, China	9600 bps	X.25	2009	
		BBIS	Intra-Regional	Japan	64000 bps	X.25	2010	
		BIS	Sub-Regional	Philippines	9600 bps	X.25	2009	
		BIS	Sub-Regional	Taibei	9600 bps	X.25	2009	
		BBIS	Intra-Regional	Thailand	64000 bps	X.25	Implemented	

Administration	Location of Router	Type of Router	Type of Interconnection	Interconnection, Connected to router of:	Link Speed	Link Protocol	Target date of Implementation	Remarks
1	2	3	4	5	6	7	8	9
		BIS	Sub-Regional	Viet Nam	9600 bps	X.25	2010	
Macau, China	Macau	BIS	Sub-Regional	China	9600 bps	X.25	2009	
		BIS	Sub-Regional	Hong Kong, China	9600 bps	X.25	2009	
Cook Islands	Rarotonga			New Zealand	9600 bps	X.25		Intra-domain
DPR Korea	Pyongyang	BIS	Sub-Regional	China	9600 bps	X.25	2010	
Fiji	Nadi	BBIS	Intra-Regional	Australia	64000 bps	X.25	2010	Circuit implemented
				Kiribati		VPN	2011	Intra-domain
		BIS	Sub-Regional	New Caledonia		TBD	TBD	Intra-domain
				Tuvalu		VPN	2011	Intra-domain
		BBIS	Inter-Regional	United States	64000 bps	X.25	2010	Circuit implemented
				Wallis Islands		TBD	TBD	Intra-domain
French Polynesia	Papeete			New Zealand			TBD	Intra-domain
India	Mumbai	BIS	Sub-Regional	Bangladesh	9600 bps	X.25	TBD	
		BIS	Sub-Regional	Bhutan	9600 bps	X.25	TBD	
		BBIS	Intra-Regional	China	64000 bps	X.25	2010	
		BIS	Inter-Regional	Kenya	19200 bps	X.25	TBD	
		BIS	Sub-Regional	Nepal	9600 bps	X.25	TBD	
		BIS	Inter-Regional	Oman	19200 bps	X.25	TBD	
		BIS	Sub-Regional	Pakistan	9600 bps	X.25	TBD	

Administration	Location of Router	Type of Router	Type of Interconnection	Interconnection, Connected to router of:	Link Speed	Link Protocol	Target date of Implementation	Remarks
1	2	3	4	5	6	7	8	9
		BBIS	Intra-Regional	Singapore	64000 bps	X.25	2010	
		BIS	Sub-Regional	Sri Lanka	9600 bps	X.25	TBD	
		BBIS	Intra-Regional	Thailand	64000 bps	X.25	2010	
Indonesia	Jakarta	BIS	Sub-Regional	Australia	9600 bps	X.25	2010	
		BIS	Sub-Regional	Singapore	9600 bps	X.25	2009	
Japan	Tokyo	BBIS	Intra-Regional	Australia	64000 bps	X.25	2010	
		BBIS	Intra-Regional	China	64000 bps	X.25	2010	
		BBIS	Intra-Regional	Hong Kong, China	64000 bps	X.25	2010	
		BBIS	Inter-Regional	Europe	64000 bps	X.25	TBD	
		BIS	Sub-Regional	Republic of Korea	64000 bps	X.25	2011	
		BBIS	Inter-Regional	Russia Federation	64000 bps	X.25	TBD	
		BBIS	Intra-Regional	Singapore	64000 bps	X.25	2010	
		BIS	Sub-Regional	Taipei	64000 bps	X.25	2008	Circuit Implemented
		BBIS	Inter-Regional	United States	64000 bps	X.25	Implemented	
Kiribati	Tarawa	BIS	Sub-Regional	Fiji	9600 bps	X.25	TBD	Intra-domain
Lao PDR	Vientiane	BIS	Sub-Regional	Thailand	9600 bps	X.25	2009-2010	(Thailand)
		BIS	Sub-Regional	Viet Nam	9600 bps	X.25	2010	(Vietnam)
Malaysia	Kuala Lumpur	BIS	Sub-Regional	Brunei	64000 bps	X.25	TBD	
		BIS	Sub-Regional	Singapore	64000 bps	X.25	2007	Implemented
		BIS	Sub-Regional	Thailand	64000 bps	X.25	2009	

Administration	Location of Router	Type of Router	Type of Interconnection	Interconnection, Connected to router of:	Link Speed	Link Protocol	Target date of Implementation	Remarks
1	2	3	4	5	6	7	8	9
Micronesia Federated State of	Chuuk			United States				Intra-domain
	Kosrae			United States				Intra-domain
	Ponapei			United States				Intra-domain
	Yap			United States				Intra-domain
Mongolia	Ulaanbaatar	BIS	Sub-Regional	China	9600 bps	X.25	2010	(China)
Myanmar	Yangon	BIS	Sub-Regional	China	9600 bps	X.25	2010	(China)
		BIS	Sub-Regional	Thailand	9600 bps	X.25	2009-2010	(Thailand)
Nauru	Nauru			Australia				Intra-domain
Nepal	Kathmandu	BIS	Sub-Regional	China	9600bps	X.25	2010	(China)
		BIS	Sub-Regional	India	9600bps	X.25	TBD	(India)
New Caledonia	Noumea			Fiji			TBD	Intra-domain
New Zealand	Christchurch	BIS	Sub-Regional	Australia	9600 bps	X.25	2011	
				Cook Is				Intra-domain
				French Polynesia	9600 bps	X.25	TBD	Intra-domain
				Niue	9600 bps	X.25		Intra-domain
				Samoa	9600 bps	X.25		Intra-domain
				Tonga	9600 bps	X.25		Intra-domain
		BIS	Inter-Regional	USA	9600 bps	X.25	2011	
Niue Islands	Niue			New Zealand	9600 bps	X.25		Intra-domain

Administration	Location of Router	Type of Router	Type of Interconnection	Interconnection, Connected to router of:	Link Speed	Link Protocol	Target date of Implementation	Remarks
1	2	3	4	5	6	7	8	9
Pakistan	Karachi	BIS	Sub-Regional	China	9600 bps	X.25	2010	(China)
		BIS	Sub-Regional	India	9600 bps	X.25	TBD	(India)
Papua New Guinea	Port Moresby			Australia				Intra-domain
Philippines	Manila	BIS	Sub-Regional	Hong Kong, China	9600 bps	X.25	2009	Circuit Implemented
		BIS	Sub-Regional	Singapore	32000 bps	X.25	2009	Circuit Implemented
Republic of Korea	Seoul	BIS	Sub-Regional	China	64000 bps	X.25	2011	
		BIS	Sub-Regional	Japan	64000 bps	X.25	2011	
Samoa	Faleolo			New Zealand				Intra-domain
Singapore	Singapore	BBIS	Intra-Regional	Australia	64000 bps	X.25	2009	Circuit Implemented
		BIS	Inter-Regional	Bahrain	64000 bps	X.25	TBD	Circuit Implemented
		BIS	Sub-Regional	Brunei	9600 bps	X.25	TBD	Circuit Implemented
		BBIS	Intra-Regional	India	64000 bps	X.25	2009	Circuit being implemented
		BIS	Sub-Regional	Indonesia	9600 bps	X.25	2008-2009	Circuit Implemented
		BBIS	Intra-Regional	Japan	64000 bps	X.25	2010	Circuit Implemented
		BIS	Sub-Regional	Malaysia	64000 bps	X.25	2007	Circuit Implemented
		BIS	Sub-Regional	Philippines	32000 bps	X.25	2009-1010	Circuit Implemented
		BIS	Sub-Regional	Sri Lanka	64000 bps	X.25	2010	Circuit Implemented
		BBIS	Intra-Regional	Thailand	64000 bps	X.25	2009-2010	Circuit Implemented
		BBIS	Inter-Regional	United Kingdom	64000 bps	X.25	2009	Circuit Implemented
BIS	Sub-Regional	Viet Nam	9600 bps	X.25	2010-2011	Circuit Implemented		

Administration	Location of Router	Type of Router	Type of Interconnection	Interconnection, Connected to router of:	Link Speed	Link Protocol	Target date of Implementation	Remarks
1	2	3	4	5	6	7	8	9
Solomon Islands	Honiara			Australia	VPN		2008	(Australia) Intra-Domain
Sri Lanka	Colombo	BIS	Sub-Regional	India	64000 bps	X.25	2010	
		BIS	Sub-Regional	Maldives	64000bps	X.25	2010	
		BIS	Sub-Regional	Singapore	64000 bps	X.25	2010	
Thailand	Bangkok	BIS	Sub-Regional	Bangladesh	9600 bps	X.25	2009-2010	
		BIS	Sub-Regional	Cambodia	9600 bps	X.25	2009-2010	
		BBIS	Intra-Regional	China	64000 bps	X.25	2009	
		BBIS	Intra-Regional	Hong Kong, China	64000 bps	X.25	Implemented	
		BBIS	Intra-Regional	India	64000 bps	X.25	2009-2010	Circuit Implemented
		BBIS	Inter-Regional	Italy	64000 bps	X.25	TBD	Circuit Implemented
		BIS	Sub-Regional	Lao PDR	9600 bps	X.25	2009-2010	
		BIS	Sub-Regional	Malaysia	64000 bps	X.25	2009-2010	
		BIS	Sub-Regional	Myanmar	9600 bps	X.25	2009-2010	
		BBIS	Intra-Regional	Singapore	64000 bps	X.25	2009-2010	Circuit Implemented
BIS	Sub-Regional	Viet Nam	9600 bps	X.25	2009-2010			
Timor Leste	Dili			Australia				Intra-domain
Tonga	Tongatapu			New Zealand	9600 bps	X.25		Intra-domain
Tuvalu	Funafuti			Fiji			TBD	Intra-domain
United States	Salt Lake City	BBIS	Inter-Regional	Australia	64000 bps	X.25	2010	Circuit Implemented
				American Samoa				Intra-domain

Administration	Location of Router	Type of Router	Type of Interconnection	Interconnection, Connected to router of:	Link Speed	Link Protocol	Target date of Implementation	Remarks
1	2	3	4	5	6	7	8	9
		BBIS	Inter-Regional	Fiji	19200 bps	X.25	2010	Circuit Implemented
		BBIS	Inter-Regional	Japan	64000 bps	X.25	2006	Circuit Implemented
				Marshall Islands				Intra-domain
				Micronesia, Federated State of				Intra-domain
		BIS	Inter-Regional	New Zealand	9600 bps	X.25	2010	Circuit Implemented
				Palau	9600 bps	X.25	2010	Intra-domain
Vanuatu	Port Vila			Australia	VPN		2008	Intra-domain (Australia)
Viet Nam	Ho Chin Minh/Hanoi	BIS	Sub-Regional	China			TBD	
		BIS	Sub-Regional	Hong Kong, China	9600bps	X.25	2010	
		BIS	Sub-Regional	Lao PDR	9600bps	X.25	2010	
		BIS	Sub-Regional	Singapore	9600bps	X.25	2010	
		BIS	Sub-Regional	Thailand	9600bps	X.25	2010	
Wallis Islands	Wallis			Fiji		X.25	TBD	Intra-domain

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Administration	Location of Facility	Facility Type	Target Date of Implementation	Remarks
American Samoa	Pago Pago	UA (Salt Lake City)	2010	
Australia	Brisbane	AMHS	2006	
Bangladesh	Dhaka	AMHS	2011	
Bhutan	Paro	UA (Mumbai)	2010	
Brunei Darussalam	Brunei	AMHS	2010	
Cambodia	Phnom Penh	AMHS	2010	
China	Beijing	AMHS	2010	Implemented
	Taibei	AMHS	2010	
Hong Kong, China	Hong Kong	AMHS	2009	
Macau, China	Macau	AMHS	2009	Implemented
Cook Island	Rarotonga	UA (Christchurch)	2010	
DPR Korea	Pyongyang	AMHS	2011	
Fiji	Nadi	AMHS	2010	
French Polynesia	Papeete	AMHS	TBD	
India	Mumbai	AMHS	2010	
Indonesia	Jakarta	AMHS	2009	
	Ujung Pandang	AMHS	2010	
Japan	Fukoka	AMHS	Implemented	
Kiribati	Tarawa	UA (Nadi)	2011	
Lao PDR	Vientiane	AMHS	2010	
Malaysia	Kuala Lumpur	AMHS	2011	
Maldives	Male	AMHS	2010	

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Administration	Location of Facility	Facility Type	Target Date of Implementation	Remarks
Marshall Island	Majuro	UA (Salt Lake City)	2010	
Micronesia Federated State of	Chuuk	UA (Salt Lake City)	2010	
	Kosrai	UA (Salt Lake City)	2010	
	Ponapei	UA (Salt Lake City)	2010	
	Yap	UA (Salt Lake City)	2010	
Mongolia	Ulaanbaatar	AMHS	2010	
Myanmar	Yangon	AMHS	2010	
Nauru	Nauru	UA (Brisbane)	2010	
Nepal	Kathmandu	AMHS	2010	
New Caledonia	Noumea	AMHS	TBD	
New Zealand	Christchurch	AMHS	2011	
Niue Is	Niue	UA (Christchurch)	2010	
Pakistan	Karachi	AMHS	2010	
Palau	Koror	UA (Salt Lake City)	2010	
Papua New Guinea	Port Moresby	UA (Brisbane)	2010	
Philippines	Manila	AMHS	2010	Implemented
Republic of Korea	Seoul	AMHS	2011	
Samoa	Faleolo	UA (Christchurch)	2010	
Singapore	Singapore	AMHS	2010	Implemented
Solomon Is	Honiara	UA (Brisbane)	2010	
Sri Lanka	Colombo	AMHS	2010	
Thailand	Bangkok	AMHS	2010	
Timor Leste	Dili	UA (Brisbane)	2010	

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Administration	Location of Facility	Facility Type	Target Date of Implementation	Remarks
Tonga	Tongatapu	UA (Christchurch)	2010	
Tuvalu	Funafuti	UA (Nadi)	2011	
United States	Salt Lake City	AMHS	Implemented	
Vanuatu	Port Vila	UA (Brisbane)	2010	
Viet Nam	Ho Chi Minh	AMHS	2012	2010 for Test, 2012 for deployment
Wallis Is.	Wallis	AMHS	TBD	

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ATS requirements for speech communications						Circuit		Status of implementation	Remarks
Terminal I	Terminal II	Type	Service	D/S	To be switched via				
1	2	3	4	5	6	7		8	
CHINA									
BEIJING ACC	DALIAN	A	LTF	DIR				I	
	HOHHOT	A	LTF	DIR				I	
	JINAN	A	LTF	DIR				I	
	SHENYANG	A	LTF	DIR				I	
	TAIYUAN	A	LTF	DIR				I	
	ULAANBAATAR	A	LTF	DIR				I	
	ZHENGZHOU	A	LTF	DIR				I	
CHANGSHA ACC	GUANGZHOU	A	LTF	DIR				I	
	GUILIN	A	LTF	DIR				I	
	GUIYANG	A	LTF	DIR				I	
	WUHAN	A	LTF	DIR				I	
	NANCHANG	A	LTF	DIR				I	
CHENGDU ACC	GUIYANG	A	LTF	DIR				I	
	KUNMING	A	LTF	DIR				I	
	LANZHOU	A	LTF	DIR				I	
	LHASA	A	LTF	DIR				I	
	WUHAN	A	LTF	DIR				I	
	XI'AN	A	LTF	DIR				I	
DALIAN ACC	BEIJING	A	LTF	DIR				I	
	PYONGYANG	A	LTF	DIR				I	
	QINGDAO	A	LTF	DIR				I	
	SHENYANG	A	LTF	DIR				I	
GUANGZHOU ACC	CHANGSHA	A	LTF	DIR				I	
	GUILIN	A	LTF	DIR				I	
	HAIKOU	A	LTF	DIR				I	
	HONG KONG	D	LTF	DIR				I	
	MACAO	A	LTF	DIR				I	
	NANCHANG	A	LTF	DIR				I	
	NANNING	A	LTF	DIR				I	
	SANYA	A	LTF	DIR				I	
	TAIBEI	A	LTF	DIR				X	
	XIAMEN	A	LTF	DIR				I	
GUILIN ACC	CHANGSHA	A	LTF	DIR				I	
	GUANGZHOU	A	LTF	DIR				I	
	GUIYANG	A	LTF	DIR				I	
	NANNING	A	LTF	DIR				I	
GUIYANG ACC	CHANGSHA	A	LTF	DIR				I	
	CHENGDU	A	LTF	DIR				I	
	GUILIN	A	LTF	DIR				I	
	KUNMING	A	LTF	DIR				I	
	NANNING	A	LTF	DIR				I	
HAIKOU ACC	GUANGZHOU	A	LTF	DIR				I	
	HA NOI	A	LTF	DIR				X	
	HONG KONG	A	LTF	DIR				I	
	NANNING	A	LTF	DIR				X	
	SANYA	A	LTF	DIR				I	
HAILAR ACC	CHITA	A	LTF	DIR				I	
	HARBIN	A	LTF	DIR				I	
	SHENYANG	A	LTF	DIR				I	
HARBIN ACC	KHABAROVSK	A	LTF	DIR				I	

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ATS requirements for speech communications						Circuit	Status of implementation	Remarks
Terminal I	Terminal II	Type	Service	D/S	To be switched via	7	8	
1	2	3	4	5	6	7	8	
	HAILAR	A	LTF	DIR		I		
	SHENYANG	A	LTF	DIR		I		
	VLADIVOSTOK	A	LTF	DIR		I		
HEFEI ACC	JINAN	A	LTF	DIR		I		
	NANCHANG	A	LTF	DIR		I		
	SHANGHAI	A	LTF	DIR		I		
	ZHENGZHOU	A	LTF	DIR		I		
	WUHAN	A	LTF	DIR		I		
HOHHOT ACC	BEIJING	A	LTF	DIR		I		
	LANZHOU	A	LTF	DIR		I		
	TAIYUAN	A	LTF	DIR		I		
	ULAANBAATAR	A	LTF	DIR		I		
JINAN ACC	BEIJING	A	LTF	DIR		I		
	HEFEI	A	LTF	DIR		I		
	QINGDAO	A	LTF	DIR		I		
	SHANGHAI	A	LTF	DIR		I		
	TAIYUAN	A	LTF	DIR		I		
	ZHENGZHOU	A	LTF	DIR		I		
KUNMING ACC	CHENGDU	A	LTF	DIR		I		
	GUIYANG	A	LTF	DIR		I		
	HA NOI	A	LTF	DIR		X		
	NANNING	A	LTF	DIR		I		
	VIENTIANE	A	LTF	DIR		I		
	YANGON	A	LTF	DIR		I		
LANZHOU ACC	CHENGDU	A	LTF	DIR		I		
	HOHHOT	A	LTF	DIR		I		
	LHASA	A	LTF	DIR		I		
	ULAANBAATAR	A	LTF	DIR		I		
	URUMQI	A	LTF	DIR		I		
	XI'AN	A	LTF	DIR		I		
LHASA	CHENGDU	A	LTF	DIR		I		
	KATHMANDU	A	LTF	DIR		I		
	LANZHOU	A	LTF	DIR		I		
	URUMQI	A	LTF	DIR		I		
NANCHANG ACC	CHANGSHA	A	LTF	DIR		I		
	GUANGZHOU	A	LTF	DIR		I		
	HEFEI	A	LTF	DIR		I		
	WUHAN	A	LTF	DIR		I		
	XIAMEN	A	LTF	DIR		I		
NANNING	GUANGZHOU	A	LTF	DIR		I		
	GUILIN	A	LTF	DIR		I		
	GUIYANG	A	LTF	DIR		I		
	HAIKOU	A	LTF	DIR		I		
	HA NOI	A	LTF	DIR		X		
	KUNMING	A	LTF	DIR		I	Note 3	
QINGDAO ACC	DALIAN	A	LTF	DIR		I		
	JINAN	A	LTF	DIR		I		
	SHANGHAI	A	LTF	DIR		I		
	INCHEON	D	LTF	DIR		I		
SANYA ACC	GUANGZHOU	A	LTF	DIR		I		
	HAIKOU	A	LTF	DIR		I		
	HA NOI	A	LTF	DIR		10/01		
	HO CHI MINH	A	LTF	DIR		10/01		
	HONG KONG	A	LTF	DIR		10/01		

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ATS requirements for speech communications						Circuit	Status of implementation	Remarks
Terminal I	Terminal II	Type	Service	D/S	To be switched via			
1	2	3	4	5	6		7	8
	MANILA	A	LTF	DIR			10/01	
SHANGHAI ACC	FUKUOKA	A	LTF	DIR			I	
	HEFEI	A	LTF	DIR			I	
	JINAN	A	LTF	DIR			I	
	NANCHANG	A	LTF	DIR			I	
	NAHA	A	LTF	DIR			X	Note 2, 4
	QINGDAO	A	LTF	DIR			I	
	INCHEON	A	LTF	DIR			X	
	TAIBEI	A	LTF	DIR			X	
	XIAMEN	A	LTF	DIR			I	
SHENYANG ACC	BEIJING	A	LTF	DIR			I	
	DALIAN	A	LTF	DIR			I	
	HAILAR	A	LTF	DIR			I	
	HARBIN	A	LTF	DIR			I	
	PYONGYANG	A	LTF	DIR			I	
	VLADIVOSTOK	A	LTF	DIR			I	
SHENZHEN	HONGKONG	A	LTF	DIR			I	
	MACAO	A	LTF	DIR			I	
TAIBEI ACC	GUANGZHOU	A	LTF	DIR			X	
	HONG KONG	D	LTF	DIR			I	
	MANILA	A	LTF	DIR			I	
	NAHA	D	LTF	DIR			I	
	SHANGHAI	A	LTF	DIR			X	
	INCHEON	A	LTF	DIR			I	
	XIAMEN	A	LTF	DIR			X	
TAIYUAN ACC	BEIJING	A	LTF	DIR			I	
	HOHHOT	A	LTF	DIR			I	
	JINAN	A	LTF	DIR			I	
	XI'AN	A	LTF	DIR			I	
	ZHENGZHOU	A	LTF	DIR			I	
URUMQI ACC	ALMA-ATA	A	RTF	DIR			I	
	BARNUAL	A	RTF	DIR			I	
	BISHEKEK	A	RTF	DIR			I	
	KHOVD	A	RTF	DIR			I	
	LAHORE	A	LTF	DIR			I	
	LANZHOU	A	LTF	DIR			I	
	RAWALPIND	A	LTF	DIR			I	
	ULAANBAATAR	A	LTF	DIR			X	
WUHAN ACC	CHANGSHA	A	LTF	DIR			I	
	CHENGDU	A	LTF	DIR			I	
	HEFEI	A	LTF	DIR			I	
	NANCHANG	A	LTF	DIR			I	
	ZHENGZHOU	A	LTF	DIR			I	
XIAMEN ACC	GUANGZHOU	A	LTF	DIR			I	
	NANCHANG	A	LTF	DIR			I	
	SHANGHAI	A	LTF	DIR			I	
	TAIBEI	A	LTF	DIR			X	
XI'AN ACC	CHENGDU	A	LTF	DIR			I	
	LANZHOU	A	LTF	DIR			I	
	TAIYUAN	A	LTF	DIR			I	
	ZHENGZHOU	A	LTF	DIR			I	
ZHENGZHOU ACC	BEIJING	A	LTF	DIR			I	
	JINAN	A	LTF	DIR			I	

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ATS requirements for speech communications						Circuit		Status of implementation	Remarks
Terminal I	Terminal II	Type	Service	D/S	To be switched via				
1	2	3	4	5	6	7	8		
	TAIYUAN	A	LTF	DIR					
	WUHAN	A	LTF	DIR					
	XI'AN	A	LTF	DIR					
ZHUHAI APP	HONG KONG	A	LTF	DIR					
	MACAO	A	LTF	DIR					
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA									
	DALIAN	A	LTF	DIR					
	SHENYANG	A	LTF	DIR					
	INCHEON	A	LTF	DIR					
	VLADIVOSTOK	A	LTF	DIR					
HONG KONG, China									
HONG KONG ACC	GUANGZHOU	D	LTF	DIR					
	MACAO	D	LTF	DIR					
	MANILA	A	LTF	DIR					
	SANYA	A	LTF	DIR			10/01		
	SHANTOU	A	LTF	DIR					
	SHENZHEN	A	LTF	DIR					
	TAIBEI	D	LTF	DIR					
	ZHUHAI	A	LTF	DIR					
JAPAN									
FUKUOKA ACC	INCHEON	D	LTF	DIR					
	SHANGHAI	A	LTF	DIR					
NAHA ACC	MANILA	A	LTF	DIR					
	OAKLAND	A	LTF	DIR					
	SHANGHAI	A	LTF	DIR				Note 2, 4	
	INCHEON	D	LTF	DIR					
	TAIBEI	A	LTF	DIR					
SAPPORO ACC	KHABAROVSK	D	LTF	DIR					
	VLADIVOSTOK	A	LTF	DIR				Note 2	
	YUZHNO	A	LTF	DIR					
	SAKHALINSK								
TOKYO ACC	ANCHORAGE	A	LTF	SW	OAKLAND				
	ANCHORAGE	D	LTF	DIR					
	OAKLAND	A	LTF	DIR					
	INCHEON	D	LTF	DIR					
LAO PEOPLE'S DEMOCRATIC REPUBLIC									
VIENTIANE FIC	BANGKOK	A	LTF	DIR					
	HA NOI	A	LTF	DIR					
	HO CHI MINH	A	LTF	DIR					
	KUNMING	A	LTF	DIR					
	PHNOM PENH	A	LTF	SW	BANGKOK				
	YANGON	A	LTF	SW	BANGKOK				
MACAO, CHINA									
MACAO	SHENZHEN	A	LTF	DIR					
	HONG KONG	D	LTF	DIR					
	ZHUHAI	A	LTF	DIR					

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CNS

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ATS requirements for speech communications						Circuit		Status of implementation	Remarks
Terminal I	Terminal II	Type	Service	D/S	To be switched via				
1	2	3	4	5	6	7		8	
MONGOLIA									
ULAANBAATAR ACC	ABAKAN	A	LTF	DIR				I	
	BARNAUL	A	LTF	DIR				I	
	BEIJING	A	LTF	DIR				I	
	HUHHOT	A	LTF	DIR				I	
	IRKUTSK	A	LTF	DIR				I	
	KYZYL	A	LTF	DIR				I	
	LANZHOU	A	LTF	DIR				I	
	MUREN	A	LTF	DIR				I	
	URUMQI	A	LTF	DIR				I	
MYANMAR									
YANGON ACC	BANGKOK	A	LTF	DIR					
	KOLKATA	A	LTF	DIR					
	DHAKA	A	LTF	DIR					
	KUNMING	A	LTF	DIR					
	CHENNAI	A	TOLL					I	
	VIENTIANE	A	LTF	SW	BANGKOK				
NEPAL									
KATHMANDU	KOLKATA	A	LTF	DIR					Note 3
	DELHI	A	TOLL					I	
	LASHA	A	LTF	DIR					
	VARANASI	A	LTF	DIR					Note 3
PAKISTAN									
KARACHI ACC	AHMEDABAD	A	LTF	SW	MUMBAI				Note 3
	MUMBAI	A	LTF	DIR					Note 3
	DELHI	A	LTF	DIR				I	
	KABUL	A	LTF	DIR					
	MUSCAT	A	LTF	DIR					Note 3
	TEHRAN	A	LTF	DIR					Note 3
LAHORE ACC	AMRITSAR	A	LTF	DIR					Note 3
	DELHI	A	LTF	DIR					Note 3
	DUSHANBE	A	LTF	DIR					Note 3
	KABUL	A	LTF	DIR				12/2000	
	URUMQI	A	LTF	DIR					Note 2
PHILIPPINES									
DAVAO APP	MACTAN	A	LTF	DIR				I	
	MANILA	A	LTF	DIR				I	
LAOAG APP	MANILA	A	LTF	DIR				I	
MACTAN APP	DAVAO	A	LTF	DIR				I	
	MANILA	A	LTF	DIR				I	
	ZAMBOANGA	A	LTF	DIR				I	

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ASIA/PAC FASID

ATS requirements for speech communications						Circuit	Status of implementation	Remarks
Terminal I	Terminal II	Type	Service	D/S	To be switched via	7	8	
1	2	3	4	5	6	7	8	
MANILA ACC	BIAK	A	LTF	SW	JAKARTA	X	Note 2	
	DAVAO	A	LTF	DIR		I		
	HO CHI MINH	A	LTF	DIR		I		
	HONG KONG	A	LTF	DIR		I		
	KOTA KINABALU	A	LTF	DIR		I	Note 2	
	JAKARTA	A	LTF	DIR		X	Note 2	
	LAOAG	A	LTF	DIR		I		
	MACTAN	A	LTF	DIR		I		
	NAHA	A	LTF	DIR		I		
	OAKLAND	A	LTF	DIR		I		
	SANYA	A	LTF	DIR		10/01		
	SINGAPORE	A	LTF	DIR		I		
	SUBIC BAY	A	LTF	DIR		I		
	TAIBEI	A	LTF	DIR		I		
UJUNG PANDANG	A	LTF	SW	JAKARTA		I		
SUBIC BAY APP	MANILA	A	LTF	DIR		I		
REPUBLIC OF KOREA								
GIMHAE APP	INCHEON	D	LTF	DIR				
INCHEON ACC	FUKUOKA	D	LTF	DIR				
	NAHA	D	LTF	DIR				
	PYONGYANG	D	LTF	DIR				
	QINGDAO	D	LTF	DIR				
	SHANGHAI	A	LTF	DIR				
	TOKYO	D	LTF	DIR				
JEJU APP	DAEGU	D	LTF	DIR			Note 3	
VIET NAM								
HA NOI ACC	BANGKOK	A	LTF	DIR		I		
	NANNING	A	LTF	DIR		X	Note 3	
	HO CHI MINH	A	LTF	DIR		I		
	KUNMING	A	LTF	DIR		X		
	SANYA	A	LTF	DIR		10/01		
	VIENTIANE	A	LTF	DIR		I		
HO CHI MINH ACC	BANGKOK	A	LTF	DIR		I		
	HA NOI	A	LTF	DIR		I		
	HONG KONG	A	LTF	DIR		I		
	KUALA LUMPUR	A	LTF	DIR		12/00	VSAT	
	MANILA	A	LTF	DIR		I		
	PHNOM PENH	A	LTF	DIR		I		
	SANYA	A	LTF	DIR		10/01		
	SINGAPORE	A	LTF	DIR		I		
	VIENTIANE	A	LTF	DIR		I		

TABLE CNS 1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

4-1E-1

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
AUSTRALIA	Brisbane ACC	Oakland ARTCC	USA	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	TBD	
		Auckland ACC	New Zealand	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	TBD	
		Melbourne	Australia	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	TBD	
	Makassar ACC	Indonesia	AFTN	2010	ICD V.1.0	
			AFTN/AMHS	TBD		
	Nadi ACC	Fiji	AFTN	Implemented	ICD V.1.0	
			AFTN/AMHS	2010		
	Melbourne ACC	Brisbane ACC	Australia	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	TBD	
		Jakarta ACC	Indonesia	AFTN	2010	ICD V.1.0
				AFTN/AMHS	TBD	
Mauritius ACC	Mauritius	AFTN	Implemented	ICD V.1.0		
		AFTN/AMHS				
BANGLADESH	Dhaka ACC	Kolkata ACC	India	AFTN/AMHS	TBD	
		Yangon ACC	Myanmar	AFTN/AMHS	2014	Subject to concurrence with Myanmar
BHUTAN						
BRUNEI DARUSSALAM			Not Required			
CAMBODIA	Phnom Penh ACC	Bangkok ACC	Thailand	AFTN	2010	
CHINA	Qingdao ACC	Incheon ACC	Republic of Korea	AFTN	2013	
	Sanya ACC	Hong Kong ACC	Hong Kong, China	AFTN	Implemented	
		Ho Chi Minh ACC	Vietnam	AFTN	TBD	
	Guangzhou ACC	Hong Kong ACC	Hong Kong, China	AFTN	TBD	
	Taibei ACC	Hong Kong ACC	China	TBD	2012	
	Taibei ACC	Fukuoka ATMC	China	AFTN	2012	

TABLE CNS 1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

4-1E-2

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
	Shanghai ACC	Fukuoka ATMC	Japan	TBD	TBD	
HONG KONG, CHINA	Hong Kong ACC	Guangzhou ACC	China	AFTN	TBD	
		Sanya ACC	China	AFTN	Implemented	
		Manila ACC	Philippines	AMHS	TBD	
		Taipei ACC	China	TBD	2012	
MACAO, CHINA						
COOK ISLANDS						
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA						
FIJI	Nadi ACC	Auckland ACC	New Zealand	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2010	
		Brisbane ACC	Australia	AFTN	Implemented	ICD V. 1.0
				AFTN/AMHS	2010	
Oakland ARTCC	USA	AFTN	Implemented	ICD V.1.0		
		AFTN/AMHS	2010			
FRANCE						
<i>French Polynesia</i>	Papeete ACC	Auckland ACC	New Zealand	AFTN	Implemented	ICD V. 2.0
<i>New Caledonia</i>						
INDIA	Kolkata ACC	Dhaka ACC	Bangladesh	AFTN	TBD	Subject to co-ordination between Administrations
	Mumbai ACC	Karachi ACC	Pakistan	AFTN	TBD	
				AFTN/AMHS	TBD	
INDONESIA	Jakarta ACC	Melbourne	Australia	AFTN/AMHS	TBD	ICD V.1.0
	Makassar ACC	Brisbane ACC	Australia	AFTN	2010	
				AFTN/AMHS	TBD	
JAPAN	Fukuoka ATMC	Anchorage ACC	USA	AFTN	Implemented	ICD V.1.0
		Incheon ACC	Republic of Korea	AFTN	2009	

TABLE CNS 1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

4-1E-3

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
		Oakland ARTCC	USA	AFTN	Implemented	
		Taibei ACC	Taibei, China	AFTN	2012	ICD V.3.0
KIRIBATI						
LAO PEOPLE'S DEMOCRATIC	Vientiane ACC	Bangkok ACC	Thailand	AFTN	2010	
MALAYSIA	Kuala Lumpur ACC	Bangkok ACC	Thailand	AFTN	2010	TBD
		Singapore	Singapore	AFTN	2011	
		Kota Kinabalu	Manila	AFTN	2011	
		Kota Kinabalu	Ujung Padang	AFTN	2011	
MALDIVES	Male ACC	Colombo ACC	Sri Lanka	AFTN	2010	
MARSHALL ISLANDS						
MICRONESIA (FEDERATED STATE OF)						
MONGOLIA						
MYANMAR	Yangon ACC	Bangkok ACC	Thailand	AFTN	2010	ICD V.1.0
		Dhaka ACC	Bangladesh	AFTN	2011	
NEPAL	Kathmandu ACC	Kolkata ACC	India	AFTN	2010	
				AFTN/AMHS		
		Banaras ACC	India	AFTN	2010	
				AFTN/AMHS		
		Lhasa ACC	China	AFTN	2010	
				AFTN/AMHS		

TABLE CNS 1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

4-1E-4

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
NAURU	Brisbane ACC	Oakland ARTCC	USA	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	TBD	
		Nadi ACC	Fiji	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2010	
NEW ZEALAND	Auckland ACC	Brisbane ACC	Australia	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	TBD	
		Nadi ACC	Fiji	AFTN	Implemented	ICD V.1.0
				AFTN/AMHS	2010	
		Oakland ARTCC	USA	AFTN	Implemented	ICD V.2.0
				AFTN/AMHS	TBD	
		Papeete ACC	French Polynesia	AFTN	Implemented	ICD V.2.0
		PAKISTAN	Karachi	Kuwait	Kuwait	AFTN
AFTN/AMHS	TBD					
Mumbai	India			AFTN	TBD	
				AFTN/AMHS	TBD	
PALAU						
PAPUA NEW GUINEA						
PHILIPPINES	Manila ACC	Hong Kong ACC	Hong Kong, China	AMHS	TBD	
		Singapore ACC	Singapore	AMHS	2011	
		Taibei	Taibei, China	AMHS	2011	
		Makassar A CC	Indonesia	TBD	2011	
		Ho Chi Minh ACC	Viet Nam	TBD	2011	

TABLE CNS 1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

4-1E-5

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
		Oakland ARTCC	USA	TBD	2011	
REPUBLIC OF KOREA	Incheon ACC	Fukoka ATMC	Japan	AFTN	2009	ICD V.1.0
		Qingdao ACC	China	AFTN	2013	
SAMOA						
SINGAPORE	Singapore ACC	Ho Chi Minh ACC	Vietnam	AFTN/AMHS	2011	ICD Version 3.0 Subject to concurrence from States
				ATN	2012	
		Manila ACC	Philippines	AFTN/AMHS	2011	
				ATN	2012	
		Jakarta ACC	Indonesia	AFTN/AMHS	2011	
				ATN	2012	
		Kuala Lumpur ACC	Malaysia	AFTN/AMHS	2011	
				ATN	2012	
Kota Kinabalu ACC	Malaysia	AFTN/AMHS	2011			
				ATN	2012	
SOLOM ISLANDS						
SRI LANKA	Colombo ACC	Male ACC	Maldives	AFTN	2010	
TIMOR LASTE						
THAILAND	Bangkok ACC	Hochiminh ACC	Viet Nam	AFTN	2010	
		Kuala Lumpur ACC	Malaysia	AFTN	2010	
		Phnom Penh ACC	Cambodia	AFTN	2010	
		Vientiane ACC	Lao PDR	AFTN	2010	

TABLE CNS 1E
ATS INTERFACILITY DATA COMMUNICATION (AIDC) ROUTING PLAN

4-1E-6

State/Administration	Location of AIDC end system	AIDC Pair		AIDC standard used	Target date of Implementation	Remarks
		Correspondent location	Correspondent State/Administration			
1	2	3		4	5	6
		Yangon ACC	Myanmar	AFTN	2010	
TONGA						
UNITED STATES	Oakland ARTCC	Auckland ACC	New Zealand	AFTN	Implemented	ICD V.2.0
		Fukuoka ATMC	Japan	AFTN	Implemented	ICD V.1.0
		Nadi ACC	Fiji	AFTN	Implemented	ICD V.1.0
		Brisbane ACC	Australia	AFTN	Implemented	ICD V.1.0
	Anchorage ARTCC	Fukuoka ATMC	Japan	AFTN	Implemented	ICD V.1.0
VIET NAM	Ho Chi Minh ACC	Sanya ACC	China	AFTN/AMHS	TBD	
		Pnom Penh ACC	Cambodia	AFTN/AMHS	TBD	Subject to Concurrence from Cambodia
		Vientiane ACC	Lao PDR	AFTN/AMHS	TBD	Subject to Concurrence from Lao PDR
	Ho Chi Minh ACC	Singapore ACC	Singapore	AFTN/AMHS	2011	Subject to concurrence from Singapore
		Manila	Philippines	TBD	2011	Subject to concurrence from Philippines
		Bangkok ACC	Thailand	AFTN	2010	

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
AUSTRALIA	ATN tests were conducted. BIS Router and Backbone BIS Router and AMHS implemented.	AFTN based AIDC Implemented between Brisbane and Melbourne, Auckland, Nadi and Auckland. AIDC is also in use between Melbourne and Mauritius.	Implemented and integrated with ATM systems to support FANS1/A equipped aircraft.	Implemented.	Implemented.	16 ADS-B sites are operational. A total of 28 UAP ground stations are expected to become operational throughout 2009. Additional 20 stations have been delivered in 2007 for installation at enroute radar sit and other sites. 5 NM Separation service has been introduced. NFRM on the carriage and use of ADS-B avionics has been issued.	FANS 1/A ADS-C implemented.	

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
						<p>WAM installed in Tasmania commissioning expected 2009. Provides radar like WAM data and ADS-B data.</p> <p>ASMGCS with multilateration being installed at Melbourne, Sydney, Brisbane and Perth. Operational between 2009 -2010.</p> <p>Multilateration based precision runway monitor to be commissioned in 2010.</p>		
BANGLADESH	BIS Router and AMHS planned for 2011.	AIDC between Dhaka and CTG, Dhaka and Sylhet planned for 2011		Not yet planned	Not yet planned	Not yet planned	Not yet planned	

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
BHUTAN	ATN BIS Router and UA service 2008.			Procedures developed for NPA.				
BRUNEI DARUSSALAM	ATN BIS Router planned for Sept 2008 and AMHS planned for 2008-2011							
CAMBODIA	BIS Router and AMHS planned for 2007	Planned 2009	Planned 2009	Procedure developed for NPA				

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
CHINA	<p>ATN Router and AMHS deployed in 2008.</p> <p>- Tripartite BBIS trial completed with Bangkok and Hong Kong, China in Jan. 2003.</p> <p>- ATN/AMHS trial with Hong Kong using XOT over internet conducted in 2006. Further trials planned in 2009</p> <p>- ATN/AMHS test with Macau is ongoing.</p>	<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 into operational use in Feb 2007.</p> <p>AIDC between Qingdao and Incheon planned for 2013</p>	<p>Implemented to ATS route:</p> <p>- L888 route.</p> <p>- Trial on HF data link conducted for use in western China.</p>	<p>RNAV (GNSS) implemented in certain airports.</p> <p>- Beijing, Guangzhou, Tianjin, Lhasa, Ali and Linzhi airports.</p>	<p>Implemented in certain airspace.</p> <p>- L888, Y1 and Y2 routes.</p>	<p>An ADS-B trial conducted in 2006. 5 UAT ADS-B sites are operational and used for flight training of CAFUC. Another ADS-B project for ATS route between Chengdu and Jiuzhai using 1090ES conducted since 2008 will be followed by Chengdu- Lhasa and B215 ATS routes.</p>	<p>FANS 1/A based ADS-C implemented.</p> <p>- L888 route.</p>	

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
HONG KONG, CHINA	<p>-ATN and AMHS technical trial with Japan conducted in 2003.</p> <p>-64 Kbps ATN Link with Bangkok put into operational use in June 2004.</p> <p>-ATN/AMHS technical trials with China (Beijing) using VPN over Internet connection conducted in September, 2006</p> <p>-Further ATN/AMHS technical trials with Thailand and China planned for 2007</p> <p>-ATN/AMHS trials with Philippines planned for end 2009.</p> <p>-Further ATN/AMHS technical trials with China planned for late 2009.</p> <p>-Operational system to be available 2009.</p>	<p>AFTN-based AIDC with Sanya put into operational use in Feb 2007.</p> <p>AIDC with Guangzhou planned for late 2009.</p>	<p>FANS 1/A based CPDLC conducted.</p> <p>VDL Mode-2 technical trial conducted.</p> <p>D-ATIS D-VOLMET and PDC implemented.</p>	<p>RNAV (GNSS) departure procedures implemented in July 2005.</p> <p>Flight check for RNAV NPA Procedures was conducted in Apr 2008. 6-month operational trial commenced in February 2009.</p>	Implemented in certain airspace.	<p>A-SMGCS trial using ADS-B/ Multilateration technology on the prime airport surveillance area completed in 2006.</p> <p>A larger-scale A-SMGCS covering the whole Hong Kong International Airport put into operational use in April 2009.</p> <p>Data collection/ analysis on aircraft ADS-B equipage in Hong Kong airspace conducted on quarterly basis.</p> <p>ADS-B trial using a dedicated ADS-B system was conducted in Apr 2007. Planning on further trial is in progress.</p>	FANS 1/A trials for ADS-C conducted.	<p>AFTN-based AIDC with Sanya put into operational use in Feb 2007.</p> <p>Ready to conduct trials on AFTN-based AIDC with Zhanjiang/ Guangzhou, China.</p>

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
	<p>-ATN/AMHS interoperability trials with Macau, China planned during May-August 2009 and operational test during Sept-Oct 2009.</p> <p>-ATN/AMHS trials with Thailand, Japan planned for 2010.</p>							
MACAO, CHINA	<p>ATN AMHS interoperability with China started 25 March with planned duration of 2 months</p> <p>Interoperability ATN & AMHS tests with Hong Kong planned during May-Aug 2009 to be followed with operational test in Sept-Oct 2009</p>							<p>ATZ within Hong Kong and Guangzhou FIRs. In ATZ full VHF coverage exist. Radar coverage for monitoring purposes.</p>

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
COOK ISLANDS								
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	The ATN BIS Router and AMHS to be implemented by 2011	With neighboring ACCs to be implemented Target date TBD		RNAV(GNSS) Non-precision approach to be implemented in 2011	Implemented in certain ATS routes G711, A475	ADS-B has been used as backup surveillance of SSR for partial airspace of Pyongyang FIR since 2008		
FIJI	ATN BIS Router and AMHS implementation by 4 th quarter 2010.	AFTN based AIDC implemented between Nadi, Brisbane, Auckland and Oakland.	Implemented and integrated with ATM systems to support FANS1/A equipped aircraft.	Implemented	Implemented	ADS-B implementation in 2009/2010.	FANS 1/A ADS-C implemented.	
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.	

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
INDIA	ATN BBIS router and AMHS Physical installation over. SAT in May 2008, coordinating with China, Thailand and Singapore for conduct of test.	AFTN Based AIDC Coordniating with Bngladesh and Pakistan and, we are ready	FANS-1 implemented at Kolkata, Chennai, Mumbai and Delhi.		SBAS - Technical developments in 2007. - Implementation planed for 2009.	Trial completed in 2006. ASMGCS Implemented at IGI Airport New Delhi.	FANS 1/A ADS-C implemented at Kolkata, Chennai, Delhi and Mumbai.	
INDONESIA	ATN BIS Router and AMHS planned for trial in 2009. Trial with Singapore planned.	Brisbane and Makassar in planned in June 2009.	FANS-1/A. CPDLC in Ujung Pandang FIRs already trial start from 2008 and will be implemented in 2009.	Procedure to be completed in 2006 for NPA.		22 ADS-B ground stations have been installed in 2009. Upgrading ATC automation at Makasar for ADS-B application capabilities in 2009.	FANS 1/A ADS-C trial planned at Jakarta and Ujung Pandang ACC in 2009.	MATSC new version with capability for ADS-B and Mode-S will be operated in 2009.

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
JAPAN	ATN BBIS already implemented. AMHS implemented between Japan and USA in 2005 and between Japan and Hong Kong, China, ROK, Singapore, Australia planned for 2009-2011. Connection test between Taipei 2008 – ongoing	AIDC based. AFTN procedure implemented with Oakland and Anchorage. Planned between Incheon ACC and Fukuoka ATMC 2009. Between Fukoka,ATMC and Taipei ACC 2012	FANS1/A system Implemented in Fukuoka FIR	NPA implemented at 4 aerodromes.	SBAS Operational In 2007	Amendment work to be radio law regulations for using ADS-B out (1090 MHz ES) is under way.	FANS 1/A. ADS-C implemented in Fukuoka FIR	
KIRIBATI								
LAO PDR	ATN BIS Router and AMHS completed planned for implementation with Bangkok in 2009.	AIDC with Bangkok planned for 2010	FANS-1/A Planned for Bay of Bengal and South China Sea areas. Equipment is under test operation. Bay of Bengal this year		Implemented.		FANS-1/A. ADS-C planned for Bay of Bengal and South China Sea areas. Equipment under test operation.	

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
MALAYSIA	ATN BIS Router completed 2007. AMHS planned in 2011	AFTN AIDC planned with Bangkok ACC in 2011.	Planned for Bay of Bengal and South China Sea areas in 2006.	NPA at KLIA implemented.		Implementation of ADS-B proposed in 2008-2010.	FANS 1/A ADS-C planned for Bay of Bengal and South China Sea areas in 2006.	
MALDIVES	ATN BIS Router/AMHS planned for implementation in the 2008.	Planned for 2008.	FANS1/A installed Trials planned in last quarter of 2007		Trials planned for 2005-2008. Implementation in late 2008.	Trials planned for 2007-2008. Implementation in late 2008.		
MARSHALL ISLANDS				NPA implemented at Majuro Atoll.				
MICRONESIA FEDERATED STATES OF								
Chuuk				Implemented				
Kosrae				Implemented				
Pohnpei				Implemented				
Yap				Implemented				

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
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.	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 2006. Test with China planned for 2006.		Implemented since August 1998				Implemented since August 1998	
NAURU								
NEPAL	BIS Router and AMHS planned for 2010.	AFTN/AMHS based AIDC between KTM-CAL, KTM-BAN, KTM-LHASA planned for 2010.		GPS departure and approach has been developed for 8 airports and planned for implementation in 2008.	Will be implemented as required.	ADS-B feasibility study planned for 2007		
NEW CALEDONIA						Tontouta ACC 2009 Tontouta APP 2009		

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Appendix F to the Report

CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
NEW ZEALAND	BIS Router and AMHS implementation planned for 2011.	AFTN based AIDC implemented between New Zealand, Australia, Fiji, Tahiti, Chile and USA.	FANS-1/A. Implemented	Implemented.	Will be implemented as required.	Domestic trial was conducted in 2005. Use will be re-evaluated in 2008. Trial of Area MLAT conducted in 2006. ADS-B planned as an element of MLAT at specific sites for domestic use.*	FANS 1/A Implemented.	*MLAT being implemented in Auckland (Surface Movement) and Queenstown
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 are being developed.	Planned for 2005-2010.	Feasibility study for using ADS-B is in hand. One station was installed at ACC Karachi and evaluation is in progress.	Planned for 2005-2010	Existing Radar system being upgraded.
PAPUA NEW GUINEA				Implemented at certain aerodromes.	Implemented.			

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
PHILIPPINES	ATN G/G BIS Router/AMHS implemented in 2006 AMHS trials with Singapore by end 2008 and Hong Kong planned in 2009.	Planned for 2011.	CPDLC Planned for 2011.			Included in CNS/ATM Project and scheduled for implementation in 2011.	FANS 1/A ADS-C planned for 2011.	
REPUBLIC OF KOREA	ATN BIS Router/AMHS planned for 2010.	AFTN based AIDC planned for 2009 between Incheon ACC and Fukuoka ATMC AIDC between Incheon and Qingdao planned for 2013	PDC & D-ATIS implemented 2003.	NPA procedure developed at Incheon International Airport in 2008.		ADS-B trials planned for 2008-2009 at Incheon International Airport.	FANS 1/A based ADS-C implemented since 2003 for contingency purpose.	

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Appendix F to the Report

CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
SINGAPORE	AMHS implemented. ATN BIS Router trial with Malaysia commenced in 2007 and with Indonesia in 2009. ATN/AMHS trial planned with Australia, India, Thailand, UK and Philippines	ATN based AIDC to be implemented in 2010.	Implemented since 1997. Integrated in the ATC system in 1999.	NPA Procedure implemented in 2005. RNAV (SID/STAR) implemented in 2006.	Implemented.	Trial commenced in 2006. Operational in 2010. 2007 for ASMGCS	FANS 1/A ADS-C implemented since 1997. Integrated with ATC system in 1999.	
SRI LANKA	ATN BIS Router Planned for 2009. AMHS planned along with BIS in 2009.		PDLC in trial operation since November 2000.			ADS-B Trials planned for 2010 and implementation in 2011.	FANS 1 /A ADS-C trial since November 2000.	GPS based domestic route structure being developed.
THAILAND	BBIS/BIS Routers already implemented. Target date for AMHS in 2008.	AFTN based AIDC planned for 2010.	FANS-1/A Implemented .		Implemented.	Multilateration implemented in 2006 at Suvarnbhumi Intl. Airport. 22 ADS-B ground Stations will be implemented in 2008	FANS 1/A ADS-C Implemented.	
TONGA	AMHS planned for 2008.			NPA planned for 2007.		Trial planned for 2010		CPDLC and ADS-C is not considered for lower airspace

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CNS/ATM Implementation Planning Matrix								
State/ Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AIDC	CPDLC	GNSS		ADS-B/ Multilateration	ADS-C	Remarks
				RNAV (GNSS)	En-route			
United States	AMHS implemented AMHS Atlanta Sept 2009 to serve CAR/SAM,/ North Atlantic/Europe	AFTN based AIDC implemented	FANS-1/A based CPDLC implemented	Implemented	Implemented	Implemented	Implemented	
VANUATU								
VIET NAM	BIS Routers planned for 2009. ATN/AMHS trial in 2010 and operation in 2012	AFTN based AIDC implemented in 20069 Trial for ATN based AIDC planned in 2010.	CPDLC operational trial conducted in early 2007.	RNAV	For en-route TBD.	TBD	FANS 1/A ADS-C operational trial conducted for oceanic area of Ho Chi Minh FIR since March 2002.	

**INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE**

COM CO-ORDINATION MEETING

**PEOPLE'S REPUBLIC OF CHINA
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA (DPRK)
AND REPUBLIC OF KOREA (ROK)**

(Shenyang, China, 3-5 June 2009)

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ATTACHMENT 2

**LIST OF WORKING PAPERS (WPs),
INFORMATION PAPER (IPs) AND PRESENTATIONS (SPs)**

COM Coordination Meeting

Shenyang 3-5 June 2009

WP/No. IP/No.	Agenda Item	Subject	Presented by
WP/1	-	Provisional Agenda	Secretariat
WP/2	2	Review of AFS Requirements and Planning Tables	Secretariat
WP/3	2	Review of ATS Direct Speech Circuit and AIDC Plan	Secretariat
WP/4	3	Update to CNS/ATM Matrix in Asia and Pacific Regions	Secretariat
WP/5	4	The issues relates to alternate AFTN Circuit Between Pyongyang and Beijing	Secretariat
WP/6	4,5,6	Review of Guidelines and Requirements for AFS	Secretariat
IP/1	-	Meeting Bulletin	Secretariat
IP/2	5	ATN /AMHS Implementation Activity in CHINA	China
IP/3	3	AFS Activities in Rep.of Korea	Rep.of Korea
IP/4	3	Review the current implementation and operational status of AFS communications between States	DPR. Korea
SP/1	8	Introduction to ICAO Regional Planning Structure	Secretariat
SP/2	8	Transition to an electronic Air Navigation Plan (eANP)	Secretariat

WP/No. IP/No.	Agenda Item	Subject	Presented by
SP/3	3	Regional ATN/AMHS Planning and Panning and Implementation	Secretariat
SP/4	8	Primary activities in the CNS fields in APAC	Secretariat
SP/5	3	History and Current Status of ROK AFTN	Rep.of Korea
SP/6	5	AIT ATN/AMHS Solution DMHS - g	Aero. Info Co. Ltd.
SP/7	8	AT-VCS0422 Voice Communication System	Aero Tech Co. Ltd
