International Civil Aviation Organization

AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST SEMINAR AND FOURTEENTH MEETING OF AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B) STUDY AND IMPLEMENTATION TASK FORCE (ADS-B SITF/14)

Christchurch, New Zealand, 14 – 17 April 2015

Agenda Item 5: Development of Asia/Pacific Regional ADS-B implementation plan and Sub-regional ADS-B implementation plan

REVIEW PLANNING AND IMPLEMENTATON INFORMATION CONTAINED IN THE FASID TABLES CNS 4A & 4B

(Presented by Secretariat)

SUMMARY

This paper presents the surveillance related planning/implementation information for the Asia and Pacific Regions including ADS-B contained in the Regional Air Navigation Plan Vol. II - the Facilities and Services Implementation Document (FASID) i.e. Table CNS 4A – Surveillance Systems and Table CNS 4B - ATS Automation Systems in Part IV of the ASIA/PAC FASID (Doc.9673) for review by the meeting.

1. Introduction

1.1 The based on input by ADS-B Study and Implementation Task Force and CNS/MET Sub-group, APANPIRG/20 meeting through Conclusion 20/52 adopted updated FASID Tables CNS 4A and CNS 4B of the Asia and Pacific Air Navigation Plan, Volume II, FASID, Doc 9673.

1.2 In following up Conclusion 20/52, ICAO Regional Office processed amendment proposals (PfA) in accordance with the established procedure. The proposals for both Tables were approved on 25 August 2010 with (Ref.: APAC 10/11: AP132/10 (CNS) and APAC 10/12: AP133/10 (CNS). The approved tables are provided in the **Appendix A** and **Appendix B** to this paper for review by the meeting.

1.3 The 12th Air Navigation Conference (AN-Conf/12) agreed to Recommendation 6/1 - Regional Performance Framework – Planning Methodologies and Tools, regarding the alignment of regional Air Navigation Plans (ANP) with the Fourth Edition of the Global Air Navigation Plan (GANP) (Doc 9750).

1.4 As one of the follow-up actions and part of global efforts, an ANP working group had been set up by ICAO HQ with an objective to harmonize FASID Tables and relevant procedures. The common templates developed by the working group have been reviewed by Air Navigation Commission and approved by the ICAO Council in 2014.

2. Discussion

2.1 The objective and purpose of the regional ANPs are as follows:

a) the ANPs provide for the planning and implementation of air navigation systems within a specified region(s), in accordance with the agreed global and regional planning framework. They are developed to meet those needs of specific areas not covered in the worldwide provisions. The development and maintenance of the ANPs is undertaken by ICAO PIRGs with the assistance of the ICAO Secretariat;

b) the ANPs are used as a repository document for the assignment of responsibilities to States for the provision of air navigation facilities and services within a specified area in accordance with Article 28 of the Convention on International Civil Aviation (Doc 7300);

c) the ANPs contain requirements related to the facilities and services to be implemented by States in accordance with regional air navigation agreements. The ANPs contain provisions that States can follow in planning the provision of their air navigation facilities and services, with the assurance that facilities and services furnished in accordance with the plan will harmonise with those of other States for an integrated system adequate for the foreseeable future. The procedural parts of ANPs are published in the ICAO Regional Supplementary Procedures (SUPPs) (Doc 7030);

d) the ANPs may serve as a basis for air navigation service charges which are levied for services provided or made available to users, in accordance with ICAO's Policies on Charges for Airports and Air Navigation Services (Doc 9082) and ICAO Manual on Air Navigation Services Economics (Doc 9161); and

e) the ANPs support the performance-based approach to planning adopted by ICAO to measure the efforts made by States in implementing the agreed requirements.

2.2 The 25th meeting of APANPIRG made Decision D 25/1 regarding Development of the new APAC eANP: That, in support to the ICAO efforts to align the regional Air Navigation Plans (ANP) with the Fourth Edition of the Global Air Navigation Plan (GANP) (Doc 9750) , APANPIRG and its sub groups be invited to:

a) include the development of the APAC eANP based on the Council approved ANP template and action plan, in the work programmes of the related APANPIRG contributory bodies; and

b) present the relevant Parts of the APAC eANP to APANPIRG/26 for endorsement. APANPIRG and its sub groups Work programmes of the related APANPIRG contributory bodies updated

Development of the eANP on a web based platform

2.3 In view of the agreed format of the eANP, it was recommended that the current ANP application under SPACE (iSTARS 2.0 website) could be used as the basis for the development of the eANP web-based platform with some improvements.

2.4 Regarding maintenance of e-ANP, the focal points designated by States and in4ternational organizations would be given access to the ANP web-based platform to develop and submit proposals for amendments (PfAs) to the ANP of each region concerned as per corresponding procedures for amendment and the public would be given read-only access to the ANPs.

2.5 The access to eANP through the web based platform would facilitate the consultation of the ANPs of all regions, thus providing a global view of air navigation planning. The new approach in Volumes II and III of the eANP would allow significant flexibility to States to plan while increasing the possibility to enhance coordination, particularly for States in the interface area with adjacent regions.

Action Plan for further development of the ANP/ eANP

2.6 The Air Navigation Commission reviewed on 14 May 2014 (196th session) the draft report to Council with the new ANP template and amendment procedures and the action plan for its electronic availability. With corresponding changes to the draft report, the ANC agreed that the proposed ANP template and procedure for amendment be presented to the Council for its approval.

2.7 The Council approved the new ANP template (Volumes I, II and III) and corresponding procedure for amendment with some changes to those applicable to Volume I, on 18 June 2014 (202nd session, Fourth meeting).

2.8 It should be noted that the existing ANPs remain the only official version until such time the new e-ANPs have been approved, and the current procedure for amendment to the ANPs remains applicable for amending the existing ANPs. New ANPs should be developed by extracting from the dada/information contained in the existing ANPs.

2.9 With the approval by the Council of the ANP Template, the development/approval of the new ANP/eANP would be in accordance with the following action plan:

ANP Volume	eANP Activitiy/task	Responsible	Date
Vol I, II & III	Agreement on the content of new ANPs/eANPs	PIRGs/States	Mid 2015
Vol I	Approval of Volume I of new ANPs/eANPs by the Council	Regional Offices/ANB	End 2015
Vol II	Approval of Volume II of new ANPs/eANPs by regional agreement involving the relevant PIRG	Regional Offices/PIRGs	End 2015

ANP Volume	eANP Activitiy/task	Responsible	Date
Vol III	Development and approval of Part II of Volume III by PIRG. Inclusion of Volume III on web-based platform.	Regional Offices/ PIRGs/ANB	End 2015
Consequential amendments	Amendments to existing ICAO documentation related to ANPs to ensure harmonization including the Regional Office Manual, and review of the applicability of the Uniform Methodology for the identification, assessment and reporting of air navigation deficiencies to the new ANP.	ANB	Mid 2015

2.10 It is proposed that the development of new APAC ANP/eANP (CNS Part) based on the Council-approved ANP Template to be presented to APANPIRG/26 in 2015 for endorsement.

New Regional Air Navigation Plan (ANP) Template and Procedure for Amendment

2.11 The meeting noted the information related to the review by the ANC and the approval by the Council of the new regional ANP template (Volumes I, II and III), its procedure for amendment and the action plan for its electronic availability and maintenance online. Moreover it noted the work for developing a new APAC Regional Air Navigation Plan document that should obtain agreement by mid-2015, and endorsed the proposal to develop a new APAC ANP/eANP (CNS Part) based on the Council-approved ANP Template as part of the work programme of the APANPIRG CNS Sub-group. The APAC ANP/eANP (CNS Part) would be expected to be presented to APANPIRG/26 in 2015 for endorsement.

Ad Hoc Working Group on eANP CNS Related Parts of eANP (WP/36)

2.12 CNS SG/18 meeting discussed about the transition from the current regional ANP to the new eANP and endorsed the need to establish a small working group (working via teleconferences and reporting to the CNS SG) through the following Decision:

Decision 18/23 - Development of the CNS part of future eANP in the CNS fields and associated proposals for amendments (PfAs)

That, a small working group under the CNS Sub-group be formed to:

a) conduct a gap analysis between current RANP provisions and future eANP expected provisions;

b) based on the outcome of (a), populate the template eANP in the CNS fields; and

c) develop proposals for amendments (PfAs) as deemed necessary for submission to the CNS SG/19 for consideration.

2.13 The attached CNS Tables 4A and 4B are not included in the new harmonized ANP template for Vol. II.

2.14 The meeting is also invited to consider the need to keep and further update the information in these Tables.

2.15 If the information or part of the information contained in these Tables is considered useful for the national planning purpose and/or serving as a basis for air navigation service charges, some specific requirement for APAC region would be required for development and included in the Vol. II as regional specific requirements.

2.16 In the Seamless ATM Plan adopted by APANPIRG/24 in 2013, some seamless items/elements may require updates by States/Administration on a regular basis, in addition to the high-level information collected through the seamless ATM reporting process. These items are highlighted in yellow in **Appendix C** to this paper. If this is the case, then these Tables or one of these Tables could be used for such purpose.

3. Action by the meeting

3.1 The meeting is invited to note the information contained in this paper; and

3.2 Discuss whether the planning/implementation information contained in the Table CNS 4A and 4B are useful and make an appropriate recommendation for consideration by the Ad Hoc Working Group on CNS Part of eANP.

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TABLE CNS 4A

SURVEILLANCE SYSTEMS

EXPLANATION OF THE TABLE

Column

1	Name of country and location of the facility or FIR
2	Air Traffic Services Unit served by the facility
3	PSR – Primary Surveillance Radar
4	Coverage of Primary Surveillance Radar in nautical miles
5	SSR – Secondary Surveillance Radar and Modes implemented will be indicated within Brackets, namely Mode A, C & S
6	Coverage of Secondary Surveillance Radar and/or ADS-B in nautical miles
7	ADS-B Automatic Dependent Surveillance Broadcast
8	ADS-C Automatic Dependent Surveillance Contract
9	SMR – Surface Movement Radar
10	A-SMGCS – Advanced Surface Movement Guidance and Control System
11	PAR – Precision Approach Radar
12	Remarks

Note:

The following codes are used in columns 3, 5, 7, 8, 9, 10, 11 and 12

I - required and implemented
for column 5, I - stands for implementation using conventional SSR while
MI - stands for implementation using Monopulse SSR
X - required but not implemented status not determined
N - required but not implemented
A - existing facility provided to supplement or substitute the requirement
F - future Plan
< - year planned commissioning year to be used as appropriate in conjunction with 'F' & 'N'
> - year planned decommissioning year to be used as appropriate in conjunction with 'A' & 'I'

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
AFGHANISTAN											
AUSTRALIA											
Hans Tableland	Cairns TUC Brisbane EC			MI(A/C)>14 MI (ACS) F<14	250	250 F<10					
Redden Creek	CairnsACC Cairns APP Cairns TWR	I	50	MI(A/C)>08 MF(A/C/S)F<10	250	250F<12					
Tabletop	Brisbane ACC			MI(A/C)>14 MI(ACS)F<14	250	250 F<10					
Swampy Ridge	Brisbane ACC			MI(A/C)>14 MI(ACS)F<14	250	250 F<10					
Mount Alma	Brisbane ACC			MI(A/C)>14 MI(ACS)F<14	250	250 F<10					
Mount Hardgrave	Brisbane ACC Coolangatta APP Coolangatta TWR			MI(A/C)>14 MI(ACS)F<14	250	250 F<10					
Brisbane Airport	Brisbane APP Brisbane TWR	I	50	MI(A/C)>08 MF(A/C/S)<10	250	250 F<12					
Mount Sommerville	Coolangatta APP Coolangatta TWR	I	50	MI(A/C/S	250	250 F<12					
Round Mountain	Brisbane ACC Sydney APP			MI(A/C)>14 MI(ACS)F<14	250	250 F<10					
Mount Boyce	Melbourne ACC Sydney APP Brisbane ACC Melbourne ACC			MI(A/C)>14 MI(ACS)F<14	250	250 F<10					
Sydney Airport	Sydney APP Sydney TWR	I	50	MI(A/C)>08 MF(A/C/S)<10	250	250F<12		I			

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Mount Majura	Canberra APP Canberra TWR	I	50	MI(A/C)>08 MF(A/C/S)F<10	250	250F<12					in Melbourne
Mount Bobbara	Melbourne ACC (in Melbourne) Canberra APP Canberra TWR			MI(A/C)>14 MI(ACS)F<14	250	250 F<10					
Mount Macedon	Melbourne ACC Melbourne APP Melbourne TWR			MI(A/C)>14 MI(ACS)F<14	250	250 F<10					
Gellibrand Hill	Melbourne ACC Melbourne APP Melbourne TWR	I	50	MI(A/C/S)	250	250F<12					
Summertown	Adelaide ACC Adelaide APP Adelaide TWR Melbourne ACC			MI(A/C)>14 MI(ACS)F<14	250	250 F<10					
Adelaide Airport	Adelaide ACC Adelaide APP Adelaide TWR	I	50	MI(A/C)>08 MF(A/C/S)F<10	250	250 F<12					
Kalamunda	Perth ACC Perth APP Perth TWR			MI(A/C)>14 MI(ACS)F<14	250	250 F<10					
Perth Airport	Perth ACC Perth APP Perth TWR	I	50	MI(A/C)>08 MF(A/C/S)F<10	250	250F<12					
Darwin (military ATC facility)	Brisbane ACC			MI(A/C)	160						SSR data only
Tindal (military ATC facility)	Brisbane ACC			MI(A/C)	250						SSR data only

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Oakey (military ATC facility)	Brisbane ACC			MI(A/C)	250						SSR data only
East sale (military ATC facility)	Melbourne ACC			MI(A/C)	250						SSR data only
Darwin	Brisbane ACC			MI(A/C)>14 MI(ACS) F<14	250	250 F<10					
Bundaberg	Brisbane ACC				250	I					
Balgo Hill	Brisbane ACC				250	FF<2009					
Caiguna	Melbourne ACC				250	I					
Doongan	Brisbane ACC				250	FF<2009					
Esperance	Melbourne ACC				250	I					
Jackson	Brisbane ACC				250	FF<2009					
Thursday Island	Brisbane ACC				250	I					
Ayers Rock AP	Melbourne ACC				250	FF<2009					
Birdsville	Melbourne ACC				250	FF<2009					
Broken Hill	Melbourne ACC				250	I					
Mornington Island	Brisbane ACC				250	FF<2009					
West Gap (Alice Springs)	Brisbane ACC				250	I					
Warburton	Melbourne ACC				250	FF<2009					
Broome	Brisbane ACC				250	FF<2009					
Leonora	Brisbane ACC				250	I					
Longreach	Brisbane ACC				250	I					
Telfer	Brisbane ACC				250	I					
Meekatharra	Brisbane ACC				250	I					

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Mount Isa (DCA Hill)	Brisbane ACC				250	FF<2009					
Newman	Brisbane ACC				250	I					
Oodnadatta	Brisbane ACC				250	FF<2009					
Tennant Creek	Brisbane ACC				250	I					
Karratha	Brisbane ACC				250	I					
Billabong	Melbourne ACC				250	I					
Gove	Melbourne ACC				250	FF<2009					
Bourke	Melbourne ACC				250	I					
Nullabor	Melbourne ACC				250	FF<2009					
Woomera	Melbourne ACC				250	I					
TAS WAM Multilat	Melbourne ACC				100	FF<2009					MLAT F<2010
Sydney Airport	Sydney TCU				40	F<2010				I	MLAT F<2010
BANGLADESH											
Dhaka	Dhaka APP			I(A/C)	200						
BHUTAN											
BRUNEI DARUSALAM											
Brunei Airport	Brunei APP	I	70	MI(A/C)	250						
CAMBODIA				I(A/C)	250						VDPP 2011, VDSV 2010
CHINA											
Beijing-1	Beijing TWR Beijing APP			MI(A/C)	200						Mode S when required

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Beijing-2	Beijing ACC Beijing TWR Beijing APP Beijing ACC	I	60	MI(A/C)	200						
Beijing-3	Beijing TWR Beijing APP Beijing ACC	I	200	MI(A/C)	250						
Tianjin	Tianjin TWR			MI(A/C)	200						
Shijiazhuang	Shijiazhuang TWR Beijing ACC			MI(A/C)	200						
Taiyuan	Taiyuan TWR Taiyuan ACC	I	60	MI(A/C)	200						
Hohhot	Hohhot TWR, ACC			MI(A/C)	200						
Manbanshan	Hohhot ACC			MI(A/C)	200						
Sunite	Hohhot ACC			MI(A/C)	200						
Guangzhou-1	Guangzhou TWR Guangzhou APP Guangzhou ACC	I	60	MI(A/C)	200						
Guangzhou-2	Guangzhou TWR Guangzhou APP Guangzhou ACC	I	60	MI(A/C)	200						
Guangzhou-3	Guangzhou TWR Guangzhou APP Guangzhou ACC			MI(A/C)	200						
Shenzhen	Shenzhen TWR Guangzhou APP Guangzhou ACC	I	60	MI(A/C)	200						
Shaoguan	Guangzhou ACC			MI(A/C)	200						
Zhuhai	Zhuhai TWR Zhuhai APP Zhuhai ACC	I	60	MI(A/C)	200						

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Sanya	Sanya TWR Sanya APP Sanya ACC	I	150	MI(A/C)	250						
Sanya-2	Sanya TWR,APP,ACC			MI(A/C)	250						
Haikou	Haikou TWR Haikou ACC	I	60	MI(A/C)	200						
Changsha	Changsha TWR Changsha ACC	I	60	MI(A/C)	200						
Changsha-2	Changsha TWR, ACC			MI(A/C)	200						
Enshi	Enshi TWR Wuhan ACC			MI(A/C)	200						
Wuhan	Wuhan TWR Wuhan ACC	I	60	MI(A/C)	200						
Wuhan-2	Wuhan TWR , ACC			MI(A/C)	200						
Zhengzhou-1	Zhengzhou TWR Zhengzhou ACC	I	60	I(A/C)	200						
Zhengzhou-2	Zhengzhou TWR Zhengzhou ACC	I	60	MI(A/C)	200						
Zhoukou	Zhengzhou ACC			MI(A/C)	200						
Guilin -1	Guilin TWR Guilin ACC			I(A/C)	200						
Guilin - 2	Guilin TWR Guilin ACC	I	60	MI(A/C)	200						
Nanning	Nanning TWR Nanning ACC			MI(A/C)	200						
Zhanjiang	Zhanjiang TWR Zhanjiang ACC			I (A/C)	200						
Shantou	Shantou TWR Shantou ACC	I	60	MI(A/C)	200						

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Jieyang	Shantou TWR Shantou ACC			MI(A/C)	200						
Kunming	Kunming TWR Kunming ACC	I	60	I(A/C)	200		 I				
Chengdu	Chengdu TWR Chengdu ACC	I	60	I(A/C)	200		 I				
Guiyang - 1	Guiyang TWR Guiyang ACC			I(A/C)	200						
Guiyang - 2	Guiyang TWR Guiyang ACC	I	60	MI(A/C)	200						
Chongqing	Chongqing TWR Chongqing ACC	I	60	MI(A/C)	200						
Shanghai-1	Shanghai TWR Shanghai APP Shanghai ACC	I	60	MI(A/C)	200						
Shanghai-2	Shanghai TWR Shanghai APP Shanghai ACC	I	60	I(A/C)	200						
Jinan	Jinan TWR, ACC			MI(A/C)	200						
Jinan-2	Jinan TWR, ACC			MI(A/C)	200						
Qingdao	Qingdao TWR Qingdao ACC			MI(A/C)	200						
Hefei	Hefei TWR Hefei ACC	I	60	MI(A/C)	200						
Nanjing	Nanjing TWR Nanjing ACC	I	60	MI(A/C)	200						
Lianyungang	Lianyungang TWR Lianyungang ACC			MI(A/C)	200						
Xuzhou	Xuzhou TWR			MI(A/C)	200						
Hangzhou	Hangzhou TWR Hangzhou ACC	I	60	MI(A/C)	200						

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Nanchang	Nanchang TWR Nanchang ACC	I	60	I(A/C)	200						
Nanchang-2	Nanchang TWR, ACC			I(A/C)	200						
Ganzhou	Nanchang ACC			MI(A/C)	200						
Shangrao	Nanchang ACC			MI(A/C)	200						
Fuzhou	Fuzhou TWR Fuzhou ACC	I	60	MI(A/C)	200						
Wenzhou	Wenzou TWR			MI(A/C)	200						
Xiamen	Xiamen TWR Xiamen ACC	I	60	MI(A/C)	200						
Xiamen	Xiamen TWR, ACC			MI(A/C)	200						
Shenyang	Shenyang TWR Shenyang ACC	I	60	MI(A/C)	200						
Shenyang-2	Shenyang TWR Shenyang ACC	I	60	MI(A/C)	200						
Dalian	Dalian TWR Dalian ACC	I	60	I(A/C)	200						
Dalian-2	Dalian TWR, ACC			MI(A/C)	200						
Harbin	Harbin TWR Harbin ACC	I	60	MI(A/C)	200						
Xi'an	Xi'an TWR Xi'an ACC	F<2000	60	I(A/C)	200						
Lanzhou	Lanzhou TWR Lanzhou ACC			MI(A/C)	200		I				
Urumqi	Urumqi TWR Urumqi ACC	I	60	MI(A/C)	200		I				
HONG KONG, CHINA Beacon Hill	Hong Kong ACC Hong Kong APP			MI(A/C)	250						

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
	Hong Kong TWR										
Mount Parker	Hong Kong ACC Hong Kong APP Hong Kong TWR	I	200	MI(A/C)	250						
Tai Mo Shan	Hong Kong ACC Hong Kong APP Hong Kong TWR	I	140	MI(A/C)	250						
Sha Chau	Hong Kong APP Hong Kong TWR	I	80	MI(A/C)	250						
Hong Kong Int'l Airport	Hong Kong APP Hong Kong ACC Hong Kong TWR					F<2013		I	I		PRM I in 2000
MACAO, CHINA Macao	Macao TWR			MI(A/C)	200			F<2010			
COOK ISLANDS											
DPR KOREA **Pyongyang**	Pyongyang ACC Pyongyang APP Pyongyang TWR	I	60	MI(A/C) MI(A/C)	200 200					I	
FIJI	Naid ACC Nadi APP					F<2010 F<2010	I				
FRENCH POLYNESIA	Tahiti ACC Tahiti APP			N<2008(A/C) N<2008(A/C)	250	F<2012	I				
INDIA Ahmadabad		I	60	MI	256						
Trivandrum		I	60	MI	256						
Shamshabad (HIAL)		I	60	MI	256				I		
Guwahati		I	60	MI	256						
Kolkata		I	60	MI	256		I		F<2011		

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Bangalore (BIAL)		I	60	MI	256				I		
Bellary				F<2013	256						
Bhopal				F<2013	256						
Jharsuguda				F<2013	256						
Jodhpur				F<2013	256						
Raiganj				F<2013	256						
Vizag				F<2013	256						
Porbandar				F<2013	256						
Amritsar		F<2013	60	F<2013	256						
Chennai		I	60	MI	256		I		F<2011		
Cohin		F<2013	60	F<2013	256						
Delhi		I	60/220	MI	256		I		I		RSR=220NM
Mumbai		I	60/220	MI	256		I		F<2011		"
Mangalore				MI	256						
Berhampur				MI	256						
Varanasi				MI	256						
Nagpur				MI	256						
INDONESIA											
Banda Aceh	Medan ACC Jakarta ACC			I(A/C) MI (A/C)	240 240	I 2008					
Medan	Medan APP	I	90			I <2008					
	Jakarta ACC			MI(A/C)	240						Pre-operation, ADS-B not integrated to ATC system
Natuna	Jakarta ACC			I(A/C)	240						

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Tanjung Pinang	Tanjung Pinang APP			I(A/C)	240	I<2008					
	Jakarta ACC	I	90								
Pontianak	Pontianak APP					I<2008					
	Jakarta ACC	I	90	I(A/C)	240						
Pekanbaru	Pekanbaru APP										
	Medan ACC	I	90	I(A/C)	240	I<2008					
	Jakarta ACC										
Palembang	Palembang APP	I	90	MI(A/C)	240	I 2008					
	Jakarta ACC										
Jakarta/Cengkareng	Jakarta APP	I	90	I(A/C)	240	I 2008			F 2010		ADS-C Trial
	Jakarta ACC			MI(A/C)	240						
	Jakarta FIR					F<2007	X				ADS-B Trial
Jakarta/Halim	Jakarta ACC					F<2007					
Semarang	Ujung Pandang ACC			I(A/C)	240	I<2009					
	Jarkata ACC										
Banjarmasin	Banjarmasin APP			MI (A/C)	240	I<2009					
	Ujung Pandang ACC										
Balikpapan	Balikpapan APP	I	90	MI(A/C)	240	I<2009					
	Ujung Pandang ACC										
Yogyakarta	Yogyakarta APP	I	90								
	Ujung Pandang ACC			MI(A/C)	240						
	Jakarta ACC										
Surabaya	Surabaya APP	I	90								
	Ujung Pandang ACC			MI(A/C)	240	I<2009			F 2011		
	Jakarta ACC										
Bali	Bali APP					I<2009			F 2011		
	Ujung Pandang ACC	I	90	MI(A/C)	240						
Waingapu	Ujung Pandang ACC			I(A/C)	240	I<2008					
Ujung Pandang	Ujung Pandang APP	I	90	I(A/C)	240	I<2008			F 2011		ADS-C Trial
	Ujung Pandang ACC			I(A/C)	240						
	Ujung Pandang FIR					F<2007	X				ADS-B Trial
Manado	Ujung Pandang ACC			I(A/C)	240	I<2010					
Ambon	Ujung Pandang ACC			I(A/C)	240	I<2008					
Kendari	Ujung Pandang ACC			I(A/C)	240	I<2010					

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Biak	Biak APP			I(A/C)		I<2010					
	Ujung Pandang ACC				240						
Jayapura	APP	2009									
	ACC										
Kupang	APP					I<2010					
	ACC										
Tarakan	ACC	F<2010				I<2009					
Batam	APP				F(S)<2009	I<2009					
	ACC				F(S)<2009						
Sorong	ACC				F(S)<2009	I<2008					
JAPAN											
Fukuoka OCA	Fukuoka ATMC						I				
Narita Airport - 1	Narita TWR							I			
Narita Airport - 2	Narita TWR							I			
Haneda Airport - 1	Haneda TWR							I			
Haneda Airport - 2	Haneda TWR							I			
Chubu Airport	Chubu TWR							I			
Osaka Airport	Osaka TWR							I			
Kansai Airport	Kansai TWR							I			
Fukuoka Airport	Fukuoka TWR							I			
Naha Airport	Naha TWR							I			
Hakodate Airport	Hakodate APP	I	60	I(A/C)	60						
Sendai Airport	Sendai APP	I	60	I(A/C)	60						
Narita Airport - 1	Tokyo APP	I	80	MI(A/C/S)	100						
Narita Airport - 2	Tokyo APP	I	80	MI(A/C/S)	100						
Handeda Airport - 1	Tokyo APP	I	80	MI(A/C/S)	100						
Handeda Airport - 2	Tokyo APP	I	80	MI(A/C/S)	100						
Niigata Airport	Niigata APP	I	60	I(A/C)	60						

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Nagoya Airport	Chubu APP	I	60	I(A/C)	60						
Chubu Airport - 1	Chubu APP	I	80	MI(A/C/S)	100						
Chubu Airport - 2	Chubu APP	I	80	MI(A/C/S)	100						
Osaka Airport - 1	Osaka APP	I	80	MI(A/C/S)	100						
Osaka Airport - 2	Osaka APP	I	80	MI(A/C/S)	100						
Kansai Airport - 1	Kansai APP	I	80	MI(A/C/S)	100						
Kansai Airport - 2	Kansai APP	I	80	MI(A/C/S)	100						
Hiroshima Airport	Hiroshima APP	I	60	I(A/C)	60						
Takamatsu Airport	Takamatsu APP	I	60	I(A/C)	60						
Kochi Airport	Kochi APP	I	60	I(A/C)	60						
Matsuyama Airport	Matsuyama TWR			I(A/C)	60						
Fukuoka Airport - 1	Fukuoka APP	I	60	MI(A/C/S)	60						
Fukuoka Airport - 2	Fukuoka APP	I	60	MI(A/C/S)	60						
Kitakyusyu Airport	Kitakyusyu TWR			I(A/C)	60						
Nagasaki Airport	Nagasaki APP	I	60	MI(A/C)	60						
Oita Airport	Oita APP	I	60	I(A/C)	60						
Kumamoto Airport	Kumamoto APP	I	60	I(A/C)	60						
Miyazaki Airprot - 1	Miyazaki APP	I	60	MI(A/C)	60						
Miyazaki Airport - 2	Miyazaki APP	I		I(A/C)	60						
Kagoshima Airport - 1	Kagoshima APP	I	60	I(A/C)	60						
Kagoshima Airport - 2	Kagoshima APP	I	60	MI(A/C)	60						
Naha Airport - 1	Naha APP	I	60	MI(A/C/S)	60						
Naha Airport - 2	Naha APP	I	60	MI(A/C/S)	60						
Shimojishima Airport	Shimojishima APP	I	60	I(A/C)	60						
Kushiro	Sapporo ACC	I	200	MI(A/C)	250						

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Yokotsudake	Sapporo ACC	I		MI(A/C/S)	250						
Hachinohe	Sapporo ACC	I		MI(A/C/S)	250						
Jobonzan	Sapporo ACC Tokyo ACC	I		MI(A/C/S)	250						
Oginojo	Sapporo ACC Tokyo ACC	I	200	I(A/C)	250						
Yamada	Tokyo ACC	I		MI(A/C/S)	250						
Hakone	Tokyo ACC	I	200	I(A/C)	200						
Mikawa	Tokyo ACC	I	200	I(A/C)	200						
Mikuniyama	Tokyo ACC	I		MI(A/C/S)	250						
Hirata	Tokyo ACC Fukuoka ACC	I	200	MI(A/C/S)	250						
Imanoyama	Tokyo ACC Fukuoka ACC	I	200	I(A/C)	250						
Kaseda	Fukuoka ACC Naha ACC	I		MI(A/C/S)	250						
Sangunzan	Fukuoka ACC	I	200	I(A/C)	200						
Amami	Fukuoka ACC Naha ACC	I	200	I(A/C)	250						
Miyakojima	Naha ACC	I	200	I(A/C)	250						
Yaedake	Naha ACC	I	200	I(A/C)	250						
Iwaki	Tokyo ACC			MI(A/C/S)	250						
Hachijo	Tokyo ACC			MI(A/C/S)	250						
Fukue	Fukuoka ACC			MI(A/C/S)	250						
Oga	Sapporo ACC Tokyo ACC			MI(A/C)	250						
Memanbetsu	Sapporo ACC			MI(A/C)	60						
Asahikawa	Sapporo ACC			MI(A/C)	150						

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Aomori	Sapporo ACC			MI(A/C)	60						
Akita	Sapporo ACC			MI(A/C)	60						
KIRIBATI											
LAO PDR											
Vientiane	Vientiane APP	I	80								
Vientiane	Vientiane ACC			MI(A/C)	250						
Savannakhet	Vientiane ACC			MI(A/C)	250						
Xieng Kuang	Vientiane ACC			MI(A/C/S)	250	F<2015					
MALAYSIA											
Langkawi	Langkawi APP Kuala Lumpur ACC	I	60	MI (A/C)	200						
Subang	Lumpur APP Kuala Lumpur ACC	I	60	MI (A/C)	200		F<2007				
Genting Highlands	Kuala Lumpur ACC			MI(A/C)	200						
Kulala Lumpur (KLIA)	Lumpur APP Kuala Lumpur ACC	I	60	MI(A/C)	200			I			
Johor	Johor Bharu APP Kuala Lumpur ACC	I	60	MI (S)	200						
Kota Bharu	Kota Bharu APP Kuala Lumpur ACC	I I	60 60	MI (S)	200						
Kota Kinabalu	K. Kinabalu APP K. Kinabalu ACC	I	60	MI(A/C)	200						
Kuching	Kuching APP K. Kinabalu ACC	I	60	MI(A/C)	200						
Miri	Miri APP K. Kinabalu ACC Kuching ACC	I	60	MI (A/C)	200						
MALDIVES											
MARSHALL ISLANDS											

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
MICRONESIA (FEDERATED STATE OF)											
MONGOLIA	Ulaanbaatar ACC Ulaanbaatar APP					<2008 <2008	I I				
MYANMAR											
Yangon	Yangon APP Yangon ACC			MI(A/C/S)	200		I				
Mandalay	Mandalay APP	I	60	MI(A/C/S)	200						
Myeik	Yangon ACC			MI(A/C/S)	200						
NAURU											
NEPAL											
Kathmandu	Kathmandu APP	I	60	I (A/C)	200						
NEW CALEDONIA	Tontouta ACC Tontouta APP					TBD TBD					
NEW ZEALAND											
Auckland	Chrischurch ACC	I	80								
Auckland OCA	Auckland ACC						I				
	Auckland TWR								I		Auckland A-SMGCS has no SMR
Auckland TWR											
Ballance	Chrischurch ACC			MI/A/C/S	250						
Cass Peak	Chrischurch ACC			MI/A/C/S	250						
Chrischurch	Chrischurch ACC	I	80								
Hawkins Hill	Chrischurch ACC	I	80	MI/A/C/S	250						
Mount Robertson	Chrischurch ACC			MI/A/C/S	250						
Queenstown	Chrischurch ACC Queenstown TWR										Wide Area MDS planned for Queenstown in 2010
Ruaotewhenua	Auckland ACC Chrischurch ACC			MI/A/C/S	250						

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Teweraiti	Chrischurch ACC			MI/A/C/S	250						
PAKISTAN											
Karachi Airport	Karachi ACC Karachi APP Karachi TWR	I	98	MI(A/C)	200						
Pasni	Karachi ACC			MI(A/C)	200						
Lak Pass	Karachi ACC Lahore ACC			MI(A/C)	200						
Rojhan	Karachi ACC Lahore ACC			MI(A/C)	200						
Lahore Airport	Lahore ACC Lahore APP Lahore TWR	I	98	MI(A/C)	200						
Islamabad Airport	Lahore ACC Islamabad APP Islamabad TWR	I	98	MI(A/C)	200						
PAPUA NEW GUINEA											
Jacksons airport	Jacksons APP Moresby ACC	I	60	I(A/C)	200						
PHILIPPINES											
Manila	Manila APP	I F<2012	60	I(A/C) M(A/C/S) F<2012	90						
Tagaytay	Manila ACC			MI(A/C/S)	250						
Clark	Clark APP	I	70	MI(A/C)	70						
Mactan	Mactan APP	I F<2012	70	I(A/C)	70						
Kalibo	Kalibo/Caticlan APP	F<2012		M(A/C/S) F<2012							
Bacolod	Bacolod APP	F<2012		M(A/C/S) F<2012							
Davao	Davao APP	F<2012		M(A/C/S) F<2012							
Subic	Subic APP	I	70	I(A/C)	70						
Laoag	Manila ACC Manila ATM Center			MI(A/C) M(A/C/S) F<2012	250 250						

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Aparri	Manila ATM Center			M(A/C/S) F<2012							
Mount Majic	Manila ACC Manila ATM Center			MI(A/C) M(A/C/S) F<2012	250						
Palawan RCAG	Manila ATM Center			M(A/C/S) F<2012							
Zamboanga	Manila ATM Center			M(A/C/S) F<2012							
Manila ATM Center	Manila ATM Center					F<2012					
Puerto Princesa	Manila ATM Center					F<2012					
REPUBLIC OF KOREA											
Jeju	Jeju TWR Jeju APP	I	60	I(A/C)	200			I			
Cheongju	CheongjuTWR										
Incheon-1	Incheon TWR Seoul APP, ACC	I	60	MI(A/C)	200	F<2008		I	I		
Incheon-2	Incheon TWR Seoul APP, ACC	I	60	MI(A/C)	200						
Yangyang	Yangyang TWR										
Gimhae	Gimhae TWR Gimhae APP	I	60	I(A/C)	200			I			
Daegu	Daegu APP	I	60	MI(A/C)	200						
Cheongju	Jungwon APP	I	60	MI(A/C)	200						
Gimpo	Gimpo TWR Gimpo APP, ACC	I	60	MI(A/C)	200			I I	F<2006		
SINGAPORE											
Singapore	Singapore ACC Singapore APP Singapore TWR Singapore APP	I I I	220 70 70	MI(A/C) MI(A/C) MI(A/C)	250 200 200	F<2011	I	 I	 I		
SOLOMON ISLANDS											

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
SRI LANKA											
Bandaranaike Airport	Colombo APP	I	90								
Mount Piduruthalagala	Colombo ACC			MI(A/C)	200	F<2010	I				ADS-C trial
THAILAND											
Bangkok	Bangkok APP Bangkok ACC Bangkok TWR	I	80	MI(A/C)>2011 F(A/C/S)<2011	250 250	F<2010					
Bangkok/ Suvarnabhumi AP	Bangkok APP Bangkok ACC Bangkok/SVB TWR	I	80	MI(A/C/S)	250			I	I		A-SMGCSLevel2
Chiang Mai	Chiang Mai APP Bangkok ACC	I>2010	60	MI(A/C)>2010 F(A/C/S)<2010	250 250						
Ubon Rachathani	Bangkok ACC			MI(A/C/S)	250 250						
Surat Thani	Bangkok ACC Hat Yai APP Phuket APP			MI(A/C/S)	250 250						
Hat Yai	Hat Yai APP Bangkok ACC	I>2010	60	F(A/C/S)<2010	250						
Phuket	Phuket APP Bangkok ACC			MI(A/C/S)	250						
Phitsanulok	Phitsanulok APP	I	60								
Hua Hin	Hua Hin APP	I	60								
U Taphao (Military Installation)	U Taphao			I(A/C)	200						
TONGA						F<2010					

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
UNITED STATES											
Alaska	ACC					2003	I<2006				
Hilo, Hawaii	ACC APP TWR	I	60	I(A/C)	200						
Honolulu, Hawaii	ACC APP TWR	I	60	I(S)							
Kahului, Hawaii	APP TWR	I	60	I(A/C)							
Kokee, Hawaii	ACC	I	200								
Lihue, Hawaii	APP TWR	I	60	I(A/C)							
Mount Kaala, Hawaii	ACC	I	200	I(A/C)							
Pahoa, Hawaii	ACC			I(A/C)							
Kunianiau, Hawaii	ACC			I(A/C)							
Guam	ACC	I	200	I(A/C)							
Mount Santa Rosa, Guam	APP TWR	I	60	I(A/C)							
Mount Santa Rosa, Guam	ACC	I									
Kona, Hawaii	ACC			F(A/C)	200						
Mount Kaala, Hawaii	ACC	F	250								
Mount Santa Rosa, Guam	ACC	F<2000	250	F(S)<2000	250						
VANUATU											
VIET NAM											
Hanoi/Noibai	Hanoi ACC Noibai APP Noibai TWR	I	80	MI(A/C) MI (A/C)	200 250	F<2013		F<2011	F<2011		

Country/Location	ATS Units Served	PSR	Coverage of PSR (NM)	SSR(A/C/S)	Coverage of SSR/ADS-B (NM)	ADS-B	ADS-C	SMR	A-SMGCS	PAR	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Danang/Sontra	Ho Chi Minh ACC Danang APP Honoi ACC	I I	80 80	MI (A/C)	250						
Qui Nhon	Ho Chi Minh ACC Danang APP Hanoi ACC			MI (A/C)	250						
Ca Mau	Ho Chi Minh ACC			MI (A/C)	250						
Nghe An/Vinh	Hanoi ACC			MI (A/C)	250						
Tansan Nhat	Tansan Nhat APP Ho Chi Minh ACC Tansan Nhat TWR	I F	80	MI (A/C)	250	F<2011	I (2006)	F<2012	F<2012		F<2010

TABLE CNS 4B

ATS AUTOMATION SYSTEMS

EXPLANATION OF THE TABLE

Column

1 Name of State/Territory and location of ATS automation systems within the State

2 Air traffic services unit served by the ATS automation systems

AACC — Area approach control centre
ACC — Area control
APP — Approach control
EC — En-route centre
FIS — Flight information service
SMC — Surface movement control
TCU — Terminal control unit
TMA — Terminal control area
TWR — Tower control

3 Surveillance sensor linked to the ATS automation systems. Four-letter FIR identifier, enclosed in parenthesis, shown for surveillance sensors outside the FIR.

4 Radar data processing system

5 Flight data processing system

6 Minimum safe altitude warning system

7 Automatic dependent surveillance

ADS B — Automatic dependent surveillance broadcast
ADS C — Automatic dependent surveillance contract

8 Controller-pilot data link communications

9 ATS interfacility data link communications

10 Processing area of the radar data processing system in nautical miles

11 Number of ATS positions

12 Remarks

Note.— The following codes are used in columns 4 to 11:

I —Required and implemented

X — Required but implementation status not determined

N — Required but not implemented

A — Existing facility provided to supplement or substitute the requirement

F — Future plan
< Year - Planned commissioning year, to be used as appropriate in conjunction with “F” and “N”
> Year - Planned decommissioning year, to be used as appropriate in conjunction with “A” and “I

State/Territory Location	ATS unit served	Data source	RDP	FDP	MSAW	ADS	CPDLC	AIDC	Processing area (NM)	Operator positions	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
AFGHANISTAN											
AUSTRALIA											
Adelaide	TCU TWR	Adelaide PSR/SSR Summertown SSR	I	I	I	**	**	F<2011	Maximum 2600x3000	5	** Available – not used
Brisbane	EC	Brisbane PSR/SSR Darwin SSR Tindal SSR Mt. Alma SSR Mt. Boyce SSR Mt. Hardgrave SSR Mt. Somerville SSR Oakey SSR Sydney PSR/SSR Tabletop Mt. SSR The Round Mountain SSR	I	I	I				Maximum 2600x3000 2600x3000	47	
Brisbane	Brisbane and Coolangatta TMAs TWR	Brisbane PSR/SSR Mt. Boyce SSR Mt. Hardgrave SSR Mt. Somerville SSR Oakey SSR	I	I	I	**	**	F<2011	Maximum 2600x3000	8	
Cairns	TCU TWR	Hanns Tableland SSR Redden Creek PSR/SSR	I	I	I	**	**	F<2011	Maximum 2600x3000	5	
Melbourne	EC	Brisbane PSR/SSR Darwin SSR Tindal SSR Mt. Alma SSR Mt Boyce SSR Mt. Hardgrave SSR Mt. Somerville SSR Oakey SSR Sydney PSR/SSR Tabletop Mt. SSR The Round Mountain SSR	I	I	I				Maximum 2600x3000	45	
Melbourne	Melbourne and Canberra TMAs TWRs	Gellibrand Hill PSR/SSR Adelaide SSR East Sale SSR Mt. Bobbara SSR Mt. Boyce SSR Mt. Macedon SSR Mt Majura SSR Sydney SSR Summer town SSR	I	I	I	**	**	F<2011	Maximum 2600x3000	10	
Perth	TCU	Perth PSR/SSR Kalmunda SSR	I	I	I	**	**	F<2011	Maximum 2600x3000	I	

State/Territory Location	ATS unit served	Data source	RDP	FDP	MSAW	ADS	CPDLC	AIDC	Processing area (NM)	Operator positions	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
	TWR										
Sydney	TCU TWR	Sydney PSR/SSR Mt. Boyce SSR Mt. Bobbara	I	I	I	**	**	F<2011	Maximum 2600x3000	6	
Sydney	TWR	Sydney surface movement radar	I						Aerodrome precincts	5	
Sydney	TCU	Parallel approach runway monitor	I						Sydney 34L & R and 16L & R approaches	2	
BANGLADESH											
BHUTAN											
BRUNEI DARUSSALAM											
~~Berakas~~ Brunei Airport	 APP TWR		~~<1997~~ 1	~~<1997~~ 1	1				~~512x512~~ 2K x 2K	9	
~~Brunei~~	~~APP~~		~~2~~						~~150x150~~		
CAMBODIA											
CHINA											
Beijing	APP ACC		2						1024x1024		
Changchun	APP		2						1024x1024		
Changsha	APP		2						1024x1024		
Chengdu	APP ACC		2						1024x1024		
Chongqing	APP		2						1024x1024		
	ACC										
Dalian	APP ACC		2						1024x1024		
Fuzhou	APP		2						1024x1024		
	ACC										
Guangzhou	APP ACC		2						1024x1024		
Guilin	APP		2						1024x1024		
	ACC										
Guiyang	APP ACC		2						1024x1024		
Haikou	APP		2						1024x1024		
Hangzhou	APP		2						1024x1024		
	ACC										

State/Territory Location	ATS unit served	Data source	RDP	FDP	MSAW	ADS	CPDLC	AIDC	Processing area (NM)	Operator positions	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Harbin	APP		2						512x512		
	ACC										
Hefei	APP		2						1024x1024		
	ACC										
Hohhot	APP		2						1024x1024		
	ACC										
Jinan	APP		2						1024x1024		
	ACC										
Kunming	APP ACC		2						1024x1024		
Lanzhou	APP		2						1024x1024		
	ACC										
Lianyungang	APP		2						512x512		
Nanchang	APP ACC		2						1024x1024		
Nanjing	APP		2						512x512		
	ACC										
Qingdao	APP		2						1024x1024		
	ACC										
Sanya	APP		2						512x512		
	ACC										
Shanghai	APP ACC		2						1024x1024		
Shantou	APP		2						1024x1024		
	ACC										
Shenzhen	Shenzen APP ACC Guangzhou APP ACC		2						1024x1024		
Shenyang	APP		2						1024x1024		
	ACC										
Shijiazhuang	APP		2						1024x1024		
Tianjin	APP		2						1024x1024		
Taiyuan	APP		2						1024x1024		
	ACC										
Urumqi	APP		2						1024x1024		
	ACC										
Wenzhou	APP		2						512x512		
	ACC										
Wuhan	APP ACC		2						1024x1024		

State/Territory Location	ATS unit served	Data source	RDP	FDP	MSAW	ADS	CPDLC	AIDC	Processing area (NM)	Operator positions	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Xi'an	APP ACC		2						1024x1024		
Xiamen	APP		2						1024x1024		
	ACC										
Zhanjiang	APP		2						1024x1024		
Zhengzhou	APP ACC		2						1024x1024		
Zhuhai	APP		2						1024x1024		
COOK IS.											
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA											
	APP ACC		1						Radius 200	6	
FIJI											
Nadi	ACC			I		ADSC-I ADSB-F<2010	I	I	250		
Suva/Nausori	APP/TWR					ADSB-F<2010					
FRENCH POLYNESIA (France)											
Tahiti	TWR APP ACC			2							
Tahiti	ACC					ADS-C <1998					
GUAM (United States)											
Anderson	ACC		2						200x200		
HONG KONG, China											
Hong Kong	APP ACC TWR		2	2		ADS-B<2013		I	250x250		AIDC in operational use with Sanya since Feb. 2007
INDIA											
Chennai	TWR APP ACC	Chennai PSR/MSSR	2	2	I	I	I			17	
Delhi	TWR APP ACC	Delhi PSR/MSSR	2	2	I	I	I			24	
Kolkata	TWR APP ACC	Kolkata PSR/MSSR	4	4	I	I	I			5	
Mumbai	TWR	Mumbai	2	2	I	I	I			21	

State/Territory Location	ATS unit served	Data source	RDP	FDP	MSAW	ADS	CPDLC	AIDC	Processing area (NM)	Operator positions	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
	APP ACC	PSR/MSSR									
Bangalore	TWR APP	Bangalore PSR/MSSR	3	2	I					14	
Shamshabad (HIAL)	TWR APP ACC	Mumbai PSR/MSSR	2	2	1					20	
INDONESIA											
Bali	Bali ACC APP	N<2003	2						1024x1024	4	
Jakarta	Jakarta ACC APP Soekamo-Hatta TWR Jakarta FIC	1	2	2	I	I	I	N<2002	2048x2048	40	SSR (Banda Aceh/ Medan/Pekanbaru/ Tanjung Pinang/ Benjarmasin/ Yogyakarta/ Surabaya) Cengkareng MSSR will be connected to RDP F<2000
Medan	Medan ACC	F<2003	2								
Ujung Pandang	Ujung Pandang ACC APP	N<2003	2					N<2003	4036x4036	20	SSR(Balikpupen, Banjanhasin, Maiden, Surabaya, Bali, Waingapu, Kendar, Biak)
JAPAN											
Chubu	APP		2	2					70x70		
Fukuoka	APP		2	2					70x70		
Fukuoka	ACC		2	2					500x800		
Haneda	Tokyo APP		2	2					70x70		
Narita	APP		2	2					70x70		
Okinawa	Naha APP		2	2					360x700		
Osaka	APP		2	2					80x80		
Sapporo	ACC		2	2					500x700		
Tokyo	ACC		2	2					500x875		
KIRIBATI											
LAO PEOPLE'S DEMOCRATIC REPUBLIC											

State/Territory Location	ATS unit served	Data source	RDP	FDP	MSAW	ADS	CPDLC	AIDC	Processing area (NM)	Operator positions	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
MACAO, China											
Colanne	Macao TWR		2	2<2010					500x500	3	
MALAYSIA											
Kinabalu	ACC APP TWR		I	I	I				20 000x20 000	3	
Kuching	APP ACC TWR		I	I	I				20 00x20 00	3	
Langkawi	APP		I	I	I				20 00x20 00	1	
Subang	Kuala Lumpur ACC APP TWR		I	I	I	F<2002	F<2002		20 00x20 00	11	
MALDIVES											
MARSHALL IS.											
MICRONESIA (FEDERATED STATES OF)											
MONGOLIA											
MYANMAR											
Yangon	APP ACC		I	I	X				600x250	1 2	
NAURU											
NEPAL											
Kathmandu	APP		2<1997			ADS-C <2000					
NEW ZEALAND											
Auckland	Auckland ACC TWR		I	I	I	ADS-C I	I	I	5500x2500	3 3	
Christchurch	Christchurch ACC TWR Wellington TWR		I	I	I				1024x1024	22 3 3	
PAPUA NEW GUINEA											

State/Territory Location	ATS unit served	Data source	RDP	FDP	MSAW	ADS	CPDLC	AIDC	Processing area (NM)	Operator positions	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Port Moresby	ACC		2	2<1999		ADS-C <2000			200 Radius		
PHILIPPINES											
Laoag	Manila ACC		2	2		ADS-C <TBA			1024x1024		
Mactan	APP		2								
Manila	APP		2			ADS-C <TBA			200x200		
Mt. Majic	Manila ACC		2	2		ADS-C <TBA			1024x1024		
Subic	APP		2			ADS-C <TBA			200x200		
Tagaytay	Manila ACC		2	2		ADS-C <TBA			1024x1024		
REPUBLIC OF KOREA											
Daegu or Incheon	ACC	8 PSRs/SSRs	3 <2001	3 <2001					Radius 200	6	
Gimhae	APP		2	2	1 (low altitude alert)				60x60	3	
Incheon	APP	2 PSRs/SSRs in Incheon 1 PSR/SSR in Gimpo	2	2	1				60x60	8	
Jeju	APP	PSR/SSR	2	2	1 (low altitude alert)				60x60	3	
SINGAPORE											
Singapore	ACC APP TWR		I	I	I	ADS-C - I	I	F<2012	1024x1024		
SOLOMON IS.											
SRI LANKA											
Colombo	ACC		2	2<TBA		ADS-C & B TBA			200 Radius		
THAILAND											
Bangkok	APP ACC	Bangkok SSR, Chiang Mai SSR, Ubon Ratchathani SSR, Surat Thani SSR, Phuket SSR, Suvarnbhumi SSR	2	2					1024x1024	4 9	Providing approach control services for airports at Samui, Ubon Ratchathani, Chiang Rai and Khon Kaen

State/Territory Location	ATS unit served	Data source	RDP	FDP	MSAW	ADS	CPDLC	AIDC	Processing area (NM)	Operator positions	Remarks
1	2	3	4	5	6	7	8	9	10	11	12
Samut Prakan	Suvarnabhumi APP TWR Donmueang APP DonmueangTWR	Suvarnbhumi PSR/SSR	2	2					1024 X 1024	7 5 2 3	
Chiang Mai	APP TWR	Chiang Mai PSR/SSR	2	2					1024x1024	2 1	
Phuket	APP TWR	Phuket SSR	2	2					1024x1024	2 1	
Hat Yai	APP TWR	Hat Yai PSR>2010 Hat Yai SSR<2010	2	2					1024x1024	2 1	
Phitsanulok	APP TWR	Phitsanulok PSR	2	2					256 X256	2 1	
Hua Hin	APP TWR	Hua Hin PSR	2	0					256 X256	2 1	
TONGA											
UNITED STATES											
Hilo	APP TWR		2						60x60		
Honolulu	ACC		2	2					500x500		
Honolulu	APP TWR		2						60x60		
VANUATU											
VIET NAM											
Ho Chi Minh	ACC		2	2	I	ADS-C I	I		1024x1024	16	
Hanoi	ACC		2	2	I				1024x1024	8	

Seamless Item No.	Paragraph no. in the plan	Item title	ASBU Relevant	Specification/ requirement	Indicator 1st phase	Indicator 2nd phase	Remarks
180	7.6 ; 7.23; 7.24	ATS Surveillance	B0-ASUR	All Category S upper controlled airspace and Category T airspace supporting high density aerodromes should be designated as non-exclusive or exclusive as appropriate ADS-B airspace requiring operation of ADS-B	Number of of FIRs where Category S airspace and Category T airspace supporting high density aerodromes are designated as ADS-B airspace?	All Category S upper controlled airspace and Category T airspace should be designated as non-exclusive or exclusive as appropriate ADS-B airspace requiring operation of ADS-B using 1090ES with DO-260/260A and 260B capability. In areas where ADS-B based separation service is provided, the mandatory carriage of ADS-B OUT using 1090ES with DO260/60A and 260B should be prescribed	(same metric)
240	7.34 ; 7.48	ATS Surveillance data sharing	Regional	Subject to appropriate filtering, ATS surveillance data, particularly from ADS-B, should be shared with neighbouring ATC units within high density FIRs	% of ACCs within high density FIRs (as per the Seamless ATM Plan) sharing ATS surveillance data	Subject to appropriate filtering, ATS surveillance data, particularly from ADS-B, should be shared with all neighbouring ATC units	% of ACCs sharing ATS surveillance data

Seamless Item No.	Paragraph no. in the plan	Item title	ASBU Relevant	Specification/ requirement	Indicator 1st phase	Indicator 2nd phase	Remarks
270	7.32	ATS surveillance with data integrated	B0-ASUR	ADS-B or MLAT or radar surveillance systems should be used to provide coverage of all Category S-capable airspace as far as practicable, with data integrated into operational ATC aircraft situation displays	% of ACCs with ATS Surveillance using ADS-B, MLAT or radar in Category S airspace, and having data integrated into the ATC system situation display		
280	7.33	ADS-C and CPDLC	B0-TBO	Within Category R airspace (remote en-route airspace within ATS communications and surveillance coverage dependent on a third-party CSP), ADS-C surveillance and CPDLC should be enabled to support PBN-based separations	Number of FIRs utilising data link en-route in applicable airspace		

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