International Civil Aviation Organization

Fifth Meeting of the Asia/Pacific Air Traffic Management Automation System Task Force (APAC ATMAS TF/5)

Chengdu, China, 5 - 7 June 2024

Agenda Item 5: Review ATMAS Implementation Status in APAC

REPOSITORY OF THE ATMAS IN APAC

(Presented by the Secretariat)

SUMMARY

This paper presents the updated table of the ATMAS Status in APAC region and invites States/Administrations to review and take necessary actions to make the regional repository.

1. INTRODUCTION

1.1 The ICAO Asia Pacific Regional ATM Automation System Symposium (APAC RATMS) was held in Nanjing, China, from *22 to 23 November 2018*. The symposium recognized a need for States/Administrations to take stock of fallback systems available for all of their ATM automation systems and for the ICAO to conduct a survey on States regarding their provisions of main and fallback ATM automation systems, their functionality/capability/capacity, and any future resilience improvement plan.

1.2 The First Meeting of the Asia/Pacific Air Traffic Management Automation System Task Force (ATMAS TF/1) was held from *27 to 30 October 2020*. In this meeting, Indonesia presented IP/03: *ATM Automation System in Indonesia* and introduced the phased approach in ATMAS implementation from System Plan and Design System, Installation and Commissioning to Operational Transition. The meeting recalled the proposal by ATM Automation System Symposium held in 2018 to establish a repository of the ATM automation systems implemented by States, which was adopted as **ACTION ITEM 1-1:** *Develop a table to list the current ATMAS status for all states* for this task force.

1.3 This paper presents the updated table of the ATMAS Status in APAC region and invites States/Administrations to review and take necessary actions to make the regional repository.

2. DISCUSSION

2.1 In order to follow up the **ACTION ITEM 1-1** of ATMAS TF/1, Indonesia has worked on the table design and proposed a draft Table of Current ATMAS Status in ATMAS TF/2 meeting held from *14-16 September 2021*, which is based on the Appendix A (Recommended Functions and Performances of Air Traffic Management Automation System) of the ATMAS TF/1 report. The ATMAS TF/2 meeting further discussed the draft table and agreed to create an ad-hoc group led by Indonesia, including China, Hong Kong China, the Republic of Korea, and Singapore with the support

of the ICAO Secretariat to consider the States' suggestions and work out a revised version of the survey which resulted into Action Item 2-2 of ATMAS TF/2.

2.2 To follow up the Action Item 2-2 of ATMAS TF/2 to work out a revised repository of ATMAS implementation status in APAC, based on the draft table designed by Indonesia, the suggestions from ATMAS TF/2 and the latest version of the ATMAS IGD, the table of ATMAS status in APAC region re-designed and re-formatted by the ad-hoc group has been reviewed and adopted by the ATMAS TF/3 meeting *held from 8 to 10 June 2022*.

2.3 It was noted that the table can be easily filled in by selecting the choice from the drop-down list and the available options will support data statistics and analysis in the future. While filling the table, the Member States are recommended to refer to the explanation of the table, and the corresponding chapter of ATMAS IGD to get further information. The ICAO Secretariat is requested to issue a State Letter in due course to circulate the table to collect information in order to build the repository of the ATM automation systems for APAC Region as Action Item 3-1.

2.4 As a follow up on the Action Item 3-1 of ATMAS TF/3, the skeleton ATMAS repository has been circulated through State Letter **Ref.:** T 8/12.18: AP139/22 (CNS) with Subject – *Publication of ATM Automation System Implementation and Operations Guidance Document (ATMAS IGD Edition 1.0) and Establish the Air Traffic Management Automation System (ATMAS) Repository for APAC Region* on 21 October 2022.

2.5 Total 12 updates have been received from States/Administrations, namely Cambodia, Hong Kong China, Fiji, Lao PDR, Malaysia, New Zealand, Pakistan, Philippines, Republic of Korea, Singapore, Sir Lanka, and Thailand. The updated ATMAS Repository is provided in **Appendix A** to this paper for reference and update by the meeting.

2.6 The ATM automation system is a bridge which connects the new technologies with the controllers, and it is expected that at some point most ATM tasks will be done by automated systems with controller interventions being an exception. The ATM automation systems may need to be upgraded continuously to follow the guidance and requirements listed in the GANP ASBU and ICAO APAC Seamless ANS Plan to keep abreast of the latest developments, provide integrated information to air traffic controllers, and enhance the safe, harmonized, and continuous ATM operation. Member States/Administrations are encouraged to update the ATM automation systems information to ICAO Secretariat to further refine the ATMAS Repository.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) review and update the information contained in the ATMAS Repository in **Appendix A**; and

c) discuss any relevant matter as appropriate.

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Explanation of the Table of ATMAS Status in APAC Region

Note: If the ATM Automation System has the capability on certain function listed below but not implement yet, please marked in red ; if the ATM Automation System has already implemented certain function listed below, please keep it in black.

Column	Element	Explanation	Reference Chapter in ATMAS IGD	Relevant ASBU Block
1.	State/Administration	Name of the State/Administration		
2.	FIR	Name of the Flight Information Region (FIR)		
3.	ATS Unit / Location	Location of the ATM Automation System		
4.	Number of ATS positions	Number of ATS positions in this ATM Automation System (to evaluate the system workload)		
5.	Manufacturer / Brand / Version	Manufacturer / Brand / Version of the system		
6.	System Status	the system is used as Main, Backup, or Emergency		
7.	Surveillance Data Processing Function (SDP)	Surveillance data can be processed by the system, including PSR, Mode A/C, Mode S, ADS-B, WAM, or others	Chapter 3.1.1 & 3.2.1	ASUR B0/1, ASUR B0/2
8.	Bypass Surveillance Data Processing（BSDP）	BSDP is a redundancy module of SDP, which can independently receive, process and distribute surveillance data independently to SDP. When the SDPs fail, the system will switch to BSDP automatically. When the system switches to bypass mode, the HMI should clearly indicate if controller is working in BSDP mode.	Chapter 3.1.3	
9.	Flight Data Communication Network	Type of Flight Data Communication Network used by the system (AFTN, AMHS, or both)		COMI B0/7
10.	Flight Data Processing Function (FDP)	The system can support flight data processing, including Flight Message Processing, Life Cycle Management, 4D Profile Trajectory Caculation, SSR Code Management, Sector Management and Posting Computation	Chapter 3.1.2	
11.	Flight Strip	The system can support print Paper Flight Progress Strip, display Electronic Flight Strip, or both		
12.	Mode S conspicuity code Identification	The flight plan with A1000 will use a 24-bit address or ACID to correlate with system tracks, and warnings/alerts should not be generated when SSR duplication occurs due to Mode S conspicuity code.	Chapter 3.1.2.4	
13.	Correlation of surveillance and flight data	The system can perform an automatic correlation between the flight plan and the system track based on the SSR code, aircraft 24-bit address, or Aircraft Identification (ACID)	Chapter 3.1.4 & 3.2.2	ASUR-B0/3
	Safety Net Function	Essential alerts or warnings can be generated automatically		
14.	Emergency code warning (7500,7600,7700)	Once the emergency codes were received, the system is suggested to process it and display the Emergency on the concerned positions.	Chapter 3.1.5.2	
15.	Short Term Conflict Alert (STCA)	The system will provide a separation alert for a potential or actual infringement of separation minima between aircraft as basic STCA, using aircraft intent parameters (Selected Flight Level), considering ATC practices (level-off prediction test and turn prediction test).	Chapter 3.1.5.3	SNET-B0/1 & SNET-B1/1 & SNET-B1/2
16.	Minimum Safe Altitude Warning (MSAW)	The system will assist controllers with alerts of the potential risk of an aircraft infringing a defined minimum safe altitude over a concerned region.	Chapter 3.1.5.4	SNET-B0/2
17.	Area Proximity Warning (APW)	The system will alert controllers of any potential or actual unauthorized penetration of aircraft into Special Use Airspaces (SUA).	Chapter 3.1.5.5	SNET-B0/3
18.	Approach Path Monitoring (APM) Warning	The system will monitor the aircraft’s vertical and lateral deviation from the final approach profile in ATMAS, and generate visual and/or aural alerts when an aircraft exceeds or is predicted to exceed the defined tolerance of deviation.	Chapter 3.1.5.6	SNET-B0/4
19.	Route Adherence Monitoring (RAM)	The system will monitor if an aircraft (i.e., surveillance track) is following the planned route, as stated in the associate flight plan.	Chapter 3.2.3.4	FRTO B0/4
20.	Cleared Level Adherence Monitoring (CLAM)	The system will monitor the conformance of the Actual Flight Level (AFL) of an aircraft to the Cleared Flight Level (CFL) issued by the air traffic controller and provide warnings if the deviation between the two levels (i.e. Level Bust) was found after the aircraft has been level-off.	Chapter 3.2.3.5	FRTO B0/4
21.	Meteorological Information Processing	The system is capable of receiving, processing, and displaying meteorological information, including GRIB, QNH, and weather data derived from mono-radar, or other	Chapter 3.1.6	AMET
22.	Air Ground Data Link Function (AGDL)	The AGDL function mainly processes the information based on the data link communication, including ADS-C (Automatic Dependent Surveillance-Contract), CPDLC (Controller-Pilot Data Link Communication), and DCL (Departure Clearance).	Chapter 3.1.7	COMS
23.	System Parameter Management Function	The system is capable of managing the variable system parameters through a user/ops orientated adaptation interface used by trained adaptors.	Chapter 3.1.8	

Column	Element	Explanation	Reference Chapter in ATMAS IGD	Relevant ASBU Block
24.	ATS Inter-facility Data Communication Function (AIDC)	The system can support ATS-related information exchanges within the ATMAS of adjacent Control Units and Flight Information Regions adopted in the Asia-Pacific region, including Handover and Coordination	Chapter 3.1.9	FICE B0/1
25.	Human Machine Interface Function (HMI)	Operational users can monitor air traffic situations and modify flight plans and other relevant information through physical peripherals and/or onscreen control interfaces.	Chapter 3.1.10	
26.	Recording and Playback Function	The system has the basic, enhancement, none, or both recording and playback function.	Chapter 3.1.11 & 3.2.8	
27.	System Monitoring and Control Function	The system can provide the monitoring and controlling function, and the failure of the monitoring and controlling function should not affect the operation of other modules.	Chapter 3.1.12	
28.	GNSS Time Synchronization	The system can synchronize with the external GNSS signals or not	Chapter 3.1.13	
	Extended Alerts and Warning			
29.	Departure No Transgression Zone (DTZ)	The DTZ function informs the controller if a track is predicted to infringe a Departure No Transgression Zone area within a predefined time interval, or has already infringed a Departure No Transgression Zone area. The DTZ function also may suppress improper STCA generate between two normal flights in DMA (Departure Monitoring Area).	Chapter 3.2.3.1	
30.	No Transgression Zone (NTZ)	The system will warn controllers of a predicted or actual unauthorized penetration of NTZ by aircraft during final approach.	Chapter 3.2.3.2	
31.	Medium Term Conflict Detection Warning (MTCD)	The system will provide warnings to controllers for potential conflict for “aircraft-to aircraft” or “aircraft-to-airspace” encounters up to a looking ahead time.	Chapter 3.2.3.3	FRTO B0/4
32.	Similar Callsign Advisory (SCA)	The system will provide advisory to alert controllers when an aircraft carries a similar callsign with another one in the same jurisdiction controlled by a controller.	Chapter 3.2.3.6	
33.	Reduce Vertical Separation Minimum (RVSM) Warning	The system will provide alerts to controllers when a non-RVSM approved/compliant aircraft is within or is predicted to enter RVSM airspace.	Chapter 3.2.3.7	
34.	Position Report Monitoring (PMON)	The system will monitor ATO/ETO and provide warnings to controllers accordingly.	Chapter 3.2.3.8	
35.	Last Known Position Display	Last Known Position Display occurs when correlated tracks, uncorrelated, or ADS-C tracks with critical alerts are lost.	Chapter 3.2.3.9	
36.	SSR Inconsistency Warning	For correlated flight plan tracks, when the Mode 3/A code in the surveillance data is inconsistent with the SSR code in the flight plan, the system is suggested to raise ASSR Inconsistency Warning.	Chapter 3.2.3.10	
37	PBN Capability Indication	The system will provide PBN indicator and/or PBN route mismatch indication for controllers in order to indicate whether the aircraft match the RNAV/RNP Route or Arrival.	Chapter 3.2.3.11	APTA
38	Downlink Aircraft Parameters Processing and Display	The system have the capability to process and display aircraft downlink aircraft parameters (DAPs) in Track Fusion, Related Warnings, or Downlink Data Window	Chapter 3.2.4	ASUR-B0/3
39	Integrated Technology	the system has integrated some new technologies, including Arrival Manager (AMAN), Departure Manager (DMAN), or Enhanced Wake Turbulence Separation and Pairwise Separation Tools, or None	Chapter 3.2.5 & 3.2.6 & 3.2.9	RSEQ, WAKE
40	System Log Management	The system is able to collect and manage operational logs and error messages.	Chapter 3.2.7	
41	Interoperability	The system supports exchange messages with other external systems, including Integrated Tower System, A-SMGCS, Tower Electronic Strip System, Others, or None, to implement information sharing		SURF, SWIM
42	Operational Data Synchronization	The system can synchronize operational data to the backup system when in master mode, including flight data, operational setting data.	Chapter 3.2.10	
43	Statistics and Analysis Function	The system can generate reports on the surveillance data, flight plan, alarm information and traffic flow data.	Chapter 3.2.11	
44	Remarks	Any other need to be mentioned		

ATM Automation System Repository in APAC Region

State/Administration	FIR	ATS Unit / Location	Number of ATS positions	Manufacturer / Brand / Version	System Status	Surveillance Data Processing Function (SDP)	Bypass Surveillance Data Processing (BSDP)	Flight Data Communication Network	Flight Data Processing Function (FDP)	Flight Strip	Mode S conspicuity code Identification	Correlation of surveillance and flight data	Safety Net Function: Emergency code warning (7500,7600,7700)	Safety Net Function: Short Term Conflict Alert (STCA)	Safety Net Function: Minimum Safe Altitude Warning (MSAW)	Safety Net Function: Area Proximity Warning (APW)	Safety Net Function: Approach Path Monatoring (APM) Warning	Safety Net Function: Route Adherence Monitoring (RAM)	Safety Net Function: Cleared Level Adherence Monitoring (CLAM)	Meteorological Information Processing	Air Ground Data Link Function (AGDL)	System Parameter Management Function	ATS Inter-facility Data Communication Function (AIDC)	Human Machine Interface Function (HMI)	Recording and Playback Function	System Monatoring and Control Function	GNSS Time Synchronization	Extended Alerts and Warning: Departure No TRANSGRESSION Zone (DTZ)	Extended Alerts and Warning: No Transgression Zone (NTZ)	Extended Alerts and Warning: Medium Term Conflict Detection Warning (MTCD)	Extended Alerts and Warning: Similar Callsign Advisory (SCA)	Extended Alerts and Warning: Reduce Vertical Separation Minimum (RVSM) Warning	Extended Alerts and Warning: Position Report Monitoring (PMON) Warning	Extended Alerts and Warning: Last Known Position Display	Extended Alerts and Warning: SSR Inconsistency Warning	Extended Alerts and Warning: PBN Capability Indication	Downlink Aircraft Parameters Processing and Display	Integrated Technology	System Log Management	Interoperability	Operational Data Synchronization Function	Statistics and Analysis Function	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
AFGHANISTAN																																											
AUSTRALIA																																											
BANGLADESH																																											
BHUTAN																																											
BRUNEI DARUSSALAM																																											
CAMBODIA	Phnom Penh FIR	ACC, APP/ Phnom Penh	14	THALES / TopSky-ATC	Main	PSR+Mode A/C+Mode S+ADS-B+WAM	No	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code	Paper	No	SSR code+24-bit Address+ACID	Yes	Basic+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH	None	Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	None	Yes	None	operational setting data	Yes	Statistic - only Flight statistic is available
		ACC, APP/ Phnom Penh TWR	4	THALES / TopSky-ATC	Emergency	PSR+Mode A/C+Mode S+ADS-B+WAM	No	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code	Paper	No	SSR code+24-bit Address+ACID	Yes	Basic+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH	None	Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	None	Yes	None	operational setting data	Yes	Statistic - only Flight statistic is available
CHINA																																										
HONG KONG, CHINA	Hong Kong FIR	Hong Kong	113	Raytheon	Main+Backup+Ultimate backup	PSR+Mode A/C+Mode S+ADS-B+WAM	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Electronic	Yes	SSR code+24-bit Address+ACID	Yes	Basic+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar	ADS-C+CPDLC+DCL	Online+Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN	Yes	Tower Electronic Strip System	flight data	Yes	
MACAO, CHINA																																										
COOK ISLANDS																																										
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA																																										
FIJI	NFFF	ACC/NADI	8	ADACEL Aurora Alpha	Main	PSR+Mode A/C+Mode S+ADS-B	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR code+24-bit Address+ACID	Yes	Basic+Aircraft Intention+ATC practices	Yes	Yes	No	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC	Online+Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	None	Yes	Tower Electronic Strip System	flight data+operational setting data	No	
FRANCE FRENCH POLYNESIA NEW CALEDONIA																																										
INDIA																																										
INDONESIA																																										
JAPAN																																										
KIRIBATI																																										
LAO PEOPLE'S DEMOCRATIC REPUBLIC	Vientiane FIR	Vientiane ACC	25	Thales Topsky (EUROCAT-C)	Main	PSR+Mode A/C+Mode S+ADS-B	No	AFTN+AMHS	SSR Code Management	Paper	Yes	SSR code+24-bit Address	Yes	Basic	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC	Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings	None	Yes	Integated Tower System	flight data+operational setting data	Yes	
	Vientiane FIR	Vientiane ACC	25	Thales Topsky (EUROCAT-C)	Backup	PSR+Mode A/C+Mode S+ADS-B	No	AFTN+AMHS	SSR Code Management	Paper	Yes	SSR code+24-bit Address	Yes	Basic	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC	Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings	None	Yes	Integated Tower System	flight data+operational setting data	Yes	
MALAYSIA	KLFIR	KL ACC/Kuala Lumpur	50	Leonardo SpA	Main	PSR+Mode A/C+Mode S+ADS-B+WAM	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR code+24-bit Address+ACID	Yes	Basic+Aircraft Intention+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC+DCL	Online+Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN	Yes	Integated Tower System+A-SMGCS+ Tower Electronic Strip System	flight data+operational setting data	Yes	
	KLFIR	KL ACC/Kuala Lumpur	34	Leonardo SpA	Backup	PSR+Mode A/C+Mode S+ADS-B+WAM	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR code+24-bit Address+ACID	Yes	Basic+Aircraft Intention+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC+DCL	Online+Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN	Yes	Integated Tower System+A-SMGCS+ Tower Electronic Strip System	flight data+operational setting data	Yes	
	KLFIR	KL ACC/Kuala Lumpur	29	Leonardo SpA	Emergency	PSR+Mode A/C+Mode S+ADS-B+WAM	Yes	None	None	Paper+Electronic	No	SSR code+24-bit Address+ACID	Yes	NO	No	No	No	No	No	mono-radar	None	Online+Offline	None	Yes	Basic+Enhancement	Monitor+Control	Yes	No	No	No	No	No	No	No	No	No	None	None	Yes	Integated Tower System	flight data+operational setting data	Yes	
	KKFIR	KK ACC/ Kota Kinabalu	63	THALES	Main	PSR+Mode A/C+Mode S+ADS-B	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR Code+24-bit Address+ACID	Yes	Basic+Aircraft Intention+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC+DCL	Online + Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor + Control	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN	Yes	Integated Tower System+A-SMGCS+ Tower Electronic Strip System	flight data+operational setting data	Yes	
	KKFIR	KCH ACC/ Kuching	47	THALES	Backup	PSR+Mode A/C+Mode S+ADS-B	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR Code+24-bit Address+ACID	Yes	Basic+Aircraft Intention+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC+DCL	Online + Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor + Control	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN	Yes	Integated Tower System+A-SMGCS+ Tower Electronic Strip System	flight data+operational setting data	Yes	
MALDIVES																																										
MARSHALL ISLANDS																																										
MICRONESIA (FEDERATED STATE OF)																																										
MONGOLIA																																										
MYANMAR																																										
NAURU																																										
NEPAL																																										
New Zealand	NZZC	Akl/Christchurch+ Auckland	132	Leidos Sky-X	Main	PSR+Mode A/C+Mode S+ADS-B+WAM	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR code+24-bit Address+ACID	Yes	Basic+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	CPDLC+DCL	Online+Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	Yes	No	No	Yes	Yes	No	Yes	Yes	Track Fusion+Related Warnings	AMAN	Yes	Tower Electronic Strip System	flight data+operational setting data	Yes	Current ATMS Live Nov 2023
	NZZO	AKL Oceanic ACC/ Auckland	2	Adacel OCS	Main		No	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Electronic	No	Yes	Yes	No	No	No	No	No	No	GRIB	FANS1/A CPDLC + ADS-C		Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes	No	Yes	Yes	OCS is an automated procedural Oceanic system with appropriate functionality for this function. Functionality includes: Long Term Conflict Detection (LTCD), Procedural Conformance Monitoring (Route, Level, and time), display and correlation of pre-processed PSR,SSR, ADS-B, WAM track data, 4D profile calculation appropriate to a procedural environment including upper lower level, and lateral deviation protection. The new Asia/Pac ATMAS IGD and this document does not adequately cover the requirements for procedural based oceanic control ATM.

ATM Automation System Repository in APAC Region

State/Administration	FIR	ATS Unit / Location	Number of ATS positions	Manufacturer / Brand / Version	System Status	Surveillance Data Processing Function (SDP)	Bypass Surveillance Data Processing (BSDP)	Flight Data Communication Network	Flight Data Processing Function (FDP)	Flight Strip	Mode S conspicuity code Identification	Correlation of surveillance and flight data	Safety Net Function						Meteorological Information Processing	Air Ground Data Link Function (AGDL)	System Parameter Management Function	ATS Inter-facility Data Communication Function (AIDC)	Human Machine Interface Function (HMI)	Recording and Playback Function	System Monitoring and Control Function	GNSS Time Synchronization	Extended Alerts and Warning								Downlink Aircraft Parameters Processing and Display	Integrated Technology	System Log Management	Interoperability	Operational Data Synchronization Function	Statistics and Analysis Function	Remarks
													Emergency code warning (7500,7600,7700)	Short Term Conflict Alert (STCA)	Minimum Safe Altitude Warning (MSAW)	Area Proximity Warning (APW)	Approach Path Monatoring (APM) Warning	Route Adherence Monitoring (RAM)	Cleared Level Adherence Monitoring (CLAM)								Departure No TRANSGRESSION Zone (DTZ)	No Transgression Zone (NTZ)	Medium Term Conflict Detection Warning (MTCD)	Similar Callsign Advisory (SCA)	Reduce Vertical Separation Minimum (RVSM) Warning	Position Report Monitoring (PMON) Warning	Last Known Position Display	SSR Inconsistency Warning	PBN Capability Indication							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
PAKISTAN	OPKR	ACC/KARACHI	18 SDD	INDRA Aircon 2100	Main	PSR+Mode A/C+Mode S	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	No	SSR code+ACID	Yes	Basic+ATC practices	Yes	Yes	No	Yes	Yes	QNH+mono-radar	None	Online+Offline	Basic+Handover+Coordination	Yes	Basic	Monitor+Control	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	Track Fusion+Related Warnings+Downlink Data Window	None	Yes	None	None	No	7 - ADS-B data could not be integrated with ATM in Asterix Category-21. MLAT is not available at ACC JIAP. 8 - No safety alerts in Bypass SDP 21 - Auto GRIB support n/a 22- ADS-C and CPDLC are not available at ACC JIAP 26 - Synchoronized Replay of multiple CWP is not available. Screen capture file format is not supported by non-proprietary softwares. The video recording data is NOT available common video formats. Synchronized replay mode does not support change in replay speed, forward, etc. 27 - Export of logs by time on USB or on any other media is not available , however, print option is available. 38 - Resolution Advisory (RA) alert indication NOT AVAILABLE
	OPLR	ACC Lahore	21	INDRA Aircon 2100	Main	PSR+Mode A/C+Mode S	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	No	SSR code+ACID	Yes	Basic+ATC practices	Yes	Yes	No	Yes	Yes	QNH+mono-radar	None	Online+Offline	Basic+Handover+Coordination	Yes	Basic	Monitor+Control	Yes	No	No	Yes	No	Yes	No	No	Yes	No	Track Fusion+Related Warnings+Downlink Data Window	None	Yes	None	None	No	For Downlink Aircraft Parameters Processing and Display Limited DAP Related Warnings capability exist i.e. 24 Bit Code and Call Sign Mismatch Warnings
		ACC IIAP	21	SIATM	Main	PSR+Mode A/C+Mode S+ADS-B	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR code+ACID	Yes	Basic+Aircraft Intention+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar	CPDLC	Online+Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	No	Yes	No	Yes	No	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AODB / ACDM	Yes	Integated Tower System+Tower Electronic Strip System	None	No	MSAW is not implemented due operational limitation.
PALAU																																										
PAPUA NEW GUINEA																																										
Philippines	Manila FIR	ACC/APP/Manila	38	Thales/TopSky ATC/HE	Main	PSR+Mode A/C+Mode S+ADS-B+WAM	Yes	AFTN	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	None	Yes	SSR code+24-bit Address+ACID	Yes	Basic	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC	Offline	Basic+Handover+Coordination	Yes	Basic	Monitor+Control	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Track Fusion	AMAN	Yes	Integated Tower System	flight data+operational setting data	Yes	Initial Assesment
REPUBLIC OF KOREA	INCHEON FIR	Seoul APP/Incheon Incheon TWR/Incheon Gimpo TWR/Gimpo	41	INDRA Aircon 2100	Main	PSR+Mode A/C+Mode S+ADS-B	Yes	AFTN	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Electronic	No	SSR code+ACID	Yes	Basic+Aircraft Intention	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	None	Online+Offline	Basic+Handover	Yes	Basic+Enhancement	Monitor+Control	Yes	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN	Yes	Tower Electronic Strip System	flight data+operational setting data	Yes	
	INCHEON FIR	Seoul APP/Incheon Incheon TWR/Incheon Gimpo TWR/Gimpo	41	INDRA Aircon 2100	Backup	PSR+Mode A/C+Mode S+ADS-B	No	AFTN	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Electronic	No	SSR code+ACID	Yes	Basic+Aircraft Intention	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	None	Online+Offline	None	Yes	Basic+Enhancement	Monitor+Control	Yes	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN	Yes	Tower Electronic Strip System	flight data+operational setting data	Yes	
	INCHEON FIR	DAEGU ACC/ DAEGU	70	Leidos/SKYLINE/V 6.0	Main	PSR+Mode A/C+Mode S+ADS-B	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR code+24-bit Address	Yes	Basic	Yes	No	No	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC+DCL	Online+Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	No	No	Yes	No	Yes	Yes	No	Track Fusion	None	Yes	None	flight data+operational setting data	Yes	
	INCHEON FIR	INCHEON ACC/INCHEON	70	Leidos/SKYLINE/V 6.0	Main	PSR+Mode A/C+Mode S+ADS-B	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting	Paper+Electronic	Yes	SSR code+24-bit Address	Yes	Basic	Yes	No	No	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC+DCL	Online+Offline	Basic+Handover+Coordination	Yes	Enhancement	Monitor+Control	Yes	No	No	Yes	No	Yes	No	Yes	Yes	No	Track Fusion	None	Yes	None	flight data+operational setting data	Yes	
	INCHEON FIR	BUSAN	18	SKYCONTOL ATM	Main	PSR+Mode A/C+Mode S	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code	Paper+Electronic	Yes	SSR code+24-bit Address+ACID	Yes	Basic+Aircraft Intention+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar	None	Offline	None	Yes	Basic+Enhancement	Monitor+Control	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	None	Yes	Integated Tower System+A-SMGCS+ Tower Electronic Strip System	flight data+operational setting data	Yes	
	INCHEON FIR	JEJU	4	TERN TAATAS-2010	Main	PSR+Mode A/C+Mode S	Yes	AFTN+AMHS	Flight Message Processing	Paper	Yes	SSR code+24-bit Address	Yes	Basic	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar	None	Online+Offline	None	Yes	Basic	Monitor+Control	Yes	No	No	No	No	No	No	No	No	No	None	None	Yes	None	None	No	
	INCHEON FIR	JEJU	3	TERN MTAATAS-2010	Backup	PSR+Mode A/C+Mode S	Yes	AFTN+AMHS	Flight Message Processing	Paper	Yes	SSR code+24-bit Address	Yes	Basic	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar	None	Online+Offline	None	Yes	Basic	Monitor+Control	Yes	No	No	No	No	No	No	No	No	No	None	None	Yes	None	None	No	
SAMOA																																										
SINGAPORE	WSJC	Singapore	60	THALES LORADS III	Main+Backup	PSR+Mode A/C+Mode S+ADS-B+WAM	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR code+24-bit Address+ACID	Yes	Basic+Aircraft Intention+ATC practices	Yes	Yes	No	Yes	Yes	QNH+mono-radar	ADS-C+CPDLC+DCL	Online+Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN+AST	Yes	Integated Tower System+A-SMGCS+ Tower Electronic Strip System	flight data+operational setting data	Yes	
SOLOMON ISLANDS																																										
SRI LANKA	VCCF	ACC/Colombo	17	INTELCAN SKYCONTROL	Main	PSR+Mode A/C+Mode S+ADS-B	No	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR code+24-bit Address+ACID	Yes	Basic+Aircraft Intention+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH	ADS-C+CPDLC	Online+Offline	Basic	Yes	Basic+Enhancement	Monitor+Control	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Track Fusion+Related Warnings+Downlink Data Window	AMAN	Yes	Integated Tower System	flight data+operational setting data	Yes	
	VCCF	Approach Control Center / BIA	14	Thales Topsky	Backup	PSR+Mode A/C+Mode S+ADS-B+WAM	Yes	AFTN+AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Paper+Electronic	Yes	SSR code+24-bit Address+ACID	Yes	Basic+Aircraft Intention+ATC practices	Yes	Yes	Yes	Yes	Yes	QNH+mono-radar+GRIB	ADS-C+CPDLC+DCL	Online+Offline	Basic+Handover+Coordination	Yes	Basic+Enhancement	Monitor+Control	Yes	Yes	No	No	Yes	No	Yes	No	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN	Yes	Tower Electronic Strip System	flight data+operational setting data	Yes	This ATM system is currently available under Trial Operations.
	VCCF	Approach Control Center / BIA	6	Selex TRDP	Main	PSR+Mode A/C	Yes	AFTN	Flight Message Processing	Paper+Electronic	No	SSR code	Yes	Basic	Yes	Yes	Yes	No	No	QNH	None	Online+Offline	None	Yes	Basic	Monitor+Control	Yes	Yes	No	No	No	No	Yes	No	Yes	Yes	No	None	None	Yes	Integated Tower System	flight data+operational setting data	No	This system is to be decommissioned in 3 months, after completing trial operations of Thales Topsky system.
THAILAND	BANGKOK	BACC / Bangkok		Thales / TopSky-ATC / V 20.2.9.0	Main	PSR+Mode A/C+Mode S+ADS-B+WAM	Yes	AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	None	No	SSR code+24-bit Address+ACID	Yes	Basic	Yes	Yes	Yes	Yes	Yes	QNH	None	Online+Offline	Basic	Yes	Enhancement	Monitor+Control	Yes	Yes		No	Yes		Yes	Yes	Yes	Yes		Track Fusion+Related Warnings+Downlink Data Window	AMAN	Yes	None	None	Yes	Mode A/C+Mode S+ADS-B
	BANGKOK	BACC / Bangkok		Thales / TopSky-ATC / V 20.2.9.0	Emergency	PSR+Mode A/C+Mode S+ADS-B+WAM	Yes	AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	Electronic	No	SSR code+24-bit Address+ACID	Yes	Basic	Yes	Yes	Yes	Yes	Yes	QNH	None	Online+Offline	Basic	Yes	Enhancement	Monitor+Control	Yes	Yes		No	Yes		Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN	Yes	None	None	No	Mode A/C+Mode S+ADS-B
	BANGKOK	BAPP / Suvarnabhumi		Thales / TopSky-ATC / V 20.2.9.0	Main		Yes	AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	None	No	SSR code+24-bit Address+ACID	Yes		Yes	Yes		Yes		QNH		Online+Offline	Basic	Yes	Enhancement	Monitor+Control	Yes	Yes		No	Yes		Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN+PST	Yes	Integated Tower System	None	Yes	PSR+Mode A/C+Mode S+ADS-B
	BANGKOK	BAPP / Suvarnabhumi		Thales / TopSky-ATC / V 20.2.9.0	Main		Yes	AMHS	Flight Message Processing+ Life Cycle Management+ 4D Profile Trajectory+ SSR Code Management+Sec Manage&Posting Comput	None	No	SSR code+24-bit Address+ACID	Yes							QNH		Online+Offline	Basic	Yes	Enhancement	Monitor+Control	Yes	Yes		No	Yes		Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN+PST	Yes	Integated Tower System	None	Yes	PSR+Mode A/C+Mode S+ADS-B
	BANGKOK	CMAP / Chiangmai		Thales / TopSky-Tower	Main					Electronic				Basic									Basic	Yes						Yes				Yes				Tower Electronic Strip System					
	BANGKOK	CMAP / Chiangmai		Thales / TopSky-Tower	Emergency					Electronic													Basic	Yes						Yes				Yes				Tower Electronic Strip System					
	BANGKOK	PUAP / Phuket		Thales / TopSky-Tower	Main					Electronic													Basic	Yes						Yes				Yes				Tower Electronic Strip System					
	BANGKOK	PUAP / Phuket		Thales / TopSky-Tower	Emergency					Electronic													Basic	Yes						Yes				Yes				Tower Electronic Strip System					

ATM Automation System Repository in APAC Region

State/Administration	FIR	ATS Unit / Location	Number of ATS positions	Manufacturer / Brand / Version	System Status	Surveillance Data Processing Function (SDP)	Bypass Surveillance Data Processing (BSDP)	Flight Data Communication Network	Flight Data Processing Function (FDP)	Flight Strip	Safety Net Function							Meteorological Information Processing	Air Ground Data Link Function (AGDL)	System Parameter Management Function	ATS Inter-facility Data Communication Function (AIDC)	Human Machine Interface Function (HMI)	Extended Alerts and Warning										Downlink Aircraft Parameters Processing and Display	Integrated Technology	System Log Management	Interoperability	Operational Data Synchronization Function	Statistics and Analysis Function	Remarks
											Mode S conspicuity code Identification	Correlation of surveillance and flight data	Emergency code warning (7500,7600,7700)	Short Term Conflict Alert (STCA)	Minimum Safe Altitude Warning (MSAW)	Area Proximity Warning (APW)	Approach Path Monatoring (APM) Warning	Route Adherence Monitoring (RAM)	Cleared Level Adherence Monitoring (CLAM)						Recording and Playback Function	System Monatoring and Control Function	GNSS Time Synchronization	Departure No TRANSGRESSION Zone (DTZ)	No Transgression Zone (NTZ)	Medium Term Conflict Detection Warning (MTCD)	Similar Callsign Advisory (SCA)	Reduce Vertical Separation Minimum (RVSM) Warning	Position Report Monitoring (PMON) Warning	Last Known Position Display	SSR Inconsistency Warning	PBN Capability Indication							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	BANGKOK	HYAP / HatYai		Thales / TopSky-Tower	Emergency					Electronic												Basic										Yes				Yes			None		Tower Electronic Strip System			
	BANGKOK	HYAP / HatYai		Thales / TopSky-Tower	Emergency					Electronic												Basic	Yes									Yes				Yes			None		Tower Electronic Strip System			
	BANGKOK	STRT / Suratthanee		Thales / TopSky-Tower	Main					Electronic												Basic	Yes									Yes				Yes			None		Integated Tower System+A-SMGCS			
	BANGKOK	KSRT / Koh Samui		Thales / TopSky-Tower	Main					Electronic												Basic	Yes									Yes				Yes					Integated Tower System+A-SMGCS			
	BANGKOK	UDRT / Udonrathanee		Thales / TopSky-Tower	Main					Electronic	No											Basic	Yes	Enhancemen								Yes				Yes					Integated Tower System+A-SMGCS			
	BANGKOK	DMRT / Donmuang		Thales / TopSky-Tower	Main					Electronic												Basic	Yes		Monitor+Control	Yes		No	Yes		Yes	Yes	Yes	Yes		Track Fusion+Related Warnings+Downlink Data Window		Yes	Integated Tower System+A-SMGCS	None	Yes	Mode A/C+Mode S+ADS-B
	BANGKOK	BAPP / Suvarnabhumi		Thales / TopSky-Tower	Main					Electronic												Basic	Yes					No	Yes		Yes	Yes	Yes	Yes	Yes	Track Fusion+Related Warnings+Downlink Data Window	AMAN+DMAN+PST	Yes	Integated Tower System			
	BANGKOK	BAPP / Suvarnabhumi		Thales / TopSky-Tower	Emergency					Electronic												Basic	Yes					No	Yes		Yes	Yes	Yes	Yes		Track Fusion+Related Warnings+Downlink Data Window		Yes	Integated Tower System+A-SMGCS+ Tower Electronic Strip System			
TIMOR LESTE																																										
TONGA																																										
TUVALU																																										
VANUATU																																										
UNITED STATES																																										
VIET NAM																																										

State/Administration	Last updated	Meeting	History
Afghanistan			
Australia			
Bangladesh			
Brunei Darussalam			
Bhutan			
Cambodia	6/29/2023	ATMAS TF/4	
China			
Hong Kong, China	6/9/2022	ATMAS TF/3	
Macau China			
Cook Islands			
Democratic People's Republic of Korea			
France (New Caledonia, French Polynesia, and Wallis & Futuna)			
Fiji	12/16/2022	AP139/22 (CNS)	
India			
Indonesia			
Lao PDR	3/7/2023	AP139/22 (CNS)	
Japan			
Kiribati			
Malaysia	4/3/2023	AP139/22 (CNS)	
Maldives			
Marshall Islands			
Micronesia (Federated States of)			
Mongolia			
Myanmar			
Nauru			
Nepal			
New Zealand	2/28/2024		2/22/2023
Pakistan	11/29/2022	AP139/22 (CNS)	
Papua New Guinea			
Palau			
Philippines	6/29/2023	ATMAS TF/4	
Republic of Korea	1/19/2023	AP139/22 (CNS)	
Samoa			
Solomon Islands			
Singapore	6/2/2022	ATMAS TF/3	
Sri Lanka	2/28/2023	AP139/22 (CNS)	
Tonga			
Thailand	5/31/2023	AP139/22 (CNS)	3/3/2023
Tuvalu			
Timor LESTE			
United States			
Vanuatu			
Viet Nam			