International Civil Aviation Organization

The Third Meeting of the Asia/Pacific Air Traffic Management Automation System Task Force (APAC ATMAS TF/3)

Video Tele-Conference, 8 - 10 June 2022

Agenda Item 6: ATS Inter-Facility Data - Link Communication Implementation by States

6.1 AIDC implementation status update and experience

REPOSITORY OF AIDC IMPLEMENTATION STATUS IN APAC

(Presented by the Secretariat)

SUMMARY

This paper presents the draft table of AIDC Implementation Status in APAC region proposed by the Secretariat, and invites States/Administrations to review and make further amendments if necessary in order to make the regional repository of AIDC Implementation Status.

1. INTRODUCTION

1.1 The Seventh Meeting of the Asia/Pacific ATS Inter-Facility Data-Link Communication Implementation Task Force (APA TF/7) was held via video tele-conference from *07 to 09 June 2021*.

1.2 The APA TF/7 meeting reviewed and updated the ATN/AMHS/AIDC implementation table, and recommended to remove AIDC and ATM System Implementation columns from the table and format it into a separate Excel Sheet. The ICAO Secretariat agreed to take necessary action to create the new excel sheet with supports from India and Singapore, and will share with Member States focal point for future updates which resulted into **ACTION ITEM 7-1** of APA TF/7.

1.3 Based on the proposal of *Dissolution of APA TF* raised by APA TF/7, which was reviewed by ACSICG/8 and ATMAS TF/2, the CNS SG/25 held from *18 to 22 October 2021* adopted the **Decision CNS SG/25/16** - *Dissolution of APA TF*. The meeting was informed that upon the dissolution of APA TF, ATMAS TF would undertake AIDC implementation issues while ACSICG would handle communications-related issues.

1.4 This paper presents the draft table of AIDC Implementation Status in APAC region proposed by the Secretariat which is intended to maintain a common understanding between ATMAS TF and ACSICG on AIDC implementation status in the APAC region, and invites States/Administrations to review and make further amendments if necessary to make the regional repository of AIDC Implementation Status.

2. DISCUSSION

2.1 The ATS Inter-facility Data Communications (AIDC) is an effective tool which can foster better collaborative air traffic management between concerned ATSUs of adjacent FIRs, and aim to replace the voice communication between ATS units by automatic message exchange. Therefore, AIDC has been regarded as FICE-B0/1 element in the Global Air Navigation Plan (GANP Sixth edition) Aviation System Block Upgrades (ASBU) framework, which has also been identified as one of the regional priority modules of the ICAO Asia/Pacific Seamless ANS Plan V3.0.

2.2 With continued growth in ATC traffic, AIDC plays an important role in improving the efficiency of coordination and transferring of control between ATS units. If, however, AIDC messages are not transmitted and received in a timely manner between ATM automation systems, there would be potential risks if AIDC does not meet the performance criteria as aircraft might cross boundaries without coordination or transfer of control responsibility taking place. In order to effectively use the AIDC application for the interchange of ATC coordination data, specified performance requirements need to be monitored between neighbouring ATSUs implementing AIDC.

2.3 In order to follow up the **ACTION ITEM 7-1** of APA TF/7 which was undertaken by ATMAS TF through **Decision CNS SG/25/16** after APA TF dissolution, the Secretariat has worked on the table formatting and removed AIDC and ATM System Implementation columns from the ATN/AMHS/AIDC implementation table into a standalone table. The AIDC and ATM System Implementation Status table updated by ACSICG/9 meeting is provided in **Appendix A** to this paper.

2.4 However, since the table cannot support data statistics and analysis, and considering the necessity of a comprehensive repository for AIDC implementation status in the APAC region, along with modifying the formatting of the original table, the Secretariat with contributions from India has designed and drafted a table to monitor the AIDC Implementation Status. With reference to PAN Regional Interface Control Document (PAN ICD) and Asia/Pacific Seamless ANS Plan V3.0, the elements on the drafted table are based on the ICAO APAC e-ANP Volume II *Table CNS II – APAC-1 – ATS Inter-facility Data Communication (AIDC) Implementation Plan* with supplements of some AIDC elements had been discussed and concerned in the past APA TF meetings.

2.5 The table is intended to maintain a common understanding between ATMAS TF and ACSICG on AIDC implementation status and establish the repository of the AIDC Implementation Status for APAC Region, which will collect the AIDC connections statuses from States on interface attributes and progressing, average transmission delay, AIDC messages exchanges, and bilateral agreement or AIDC version, etc. The explanation of the table and the table of AIDC implementation status in APAC region are provided in **Appendix B** and **Appendix C** respectively to this paper.

2.6 The ACSICG/9 meeting has reviewed and adopted the format of AIDC repository in APAC region for ATMAS TF/3 consideration. Additionally, as suggested by ACSICG Co-Chairs, once the table is adopted by both meetings, the ICAO Secretariat will fill the table according to the latest updates from States/Administrations and share it with States/Administrations in due course to ask for supplements of the additional information and validation to build the regional AIDC repository.

2.7 According to the suggestions received from ACSICG/9, the ICAO Secretariat has incorporated the AIDC implementation status relevant information gathered from the ICAO APAC e-ANP Volume II *Table CNS II – APAC-1 – ATS Inter-facility Data Communication (AIDC) Implementation Plan* and States updates during ACSICG and APA TF meetings, and filled into the draft table. The table of AIDC Implementation Status in APAC region with current status is provided in **Appendix D** to this paper for reference by the meeting.

2.8 The APA TF/7 meeting held *from 7 to 9 June 2021* also reviewed and updated the focal point for AIDC implementation designated by States/Administrations. The list is provided in **Appendix E** to this paper for review and update by the meeting.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) review the explanation of the table in **Appendix B** and the table of AIDC Implementation Status in APAC region provided as **Appendix C** to this paper, with reference to **Appendix D**, amend if necessary;

c) review and update the information contained in the table of AIDC Implementation Status in APAC region with current status in **Appendix D**;

d) review and update the list of focal points for AIDC Implementation in the APAC Region provided in **Appendix E**; and

e) discuss any relevant matter as appropriate

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Implementation Status of AIDC in the APAC Region Extracted from ATN/AMHS/AIDC Implementation Table

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
AFGHANISTAN			
AUSTRALIA	AFTN/AMHS based AIDC Implemented between Brisbane and Melbourne. For neighbouring ANSP of Brisbane, AIDC implemented with Auckland, Nadi, Oakland, Port Moresby, Ujung Pandang For neighbouring ANSP of Melbourne, AIDC implemented with Johannesburg and Mauritius.		CPL and CDN exchange limited
BANGLADESH	Tentative date of implementation of AIDC is Q4 of 2023 with Kolkata and Yangon.		Implementation of AIDC is included in the "Modernization of CNS-ATM System of CAAB" project which is going on G2G agreement with French Government and likely to be implemented by the end of 2023.
BHUTAN	Currently not applicable. If required in the future, will decide after CRV implementation.		

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
BRUNEI DARUSSALAM			
CAMBODIA	AIDC function and capability made available. Ready for testing with neighbors ATS Facilities starting from 2017 and target date of implementation with Bangkok in 4Q2019	THALES which supports AIDC ICD Version 1.	
CHINA	AIDC between most of ACCs within China has been implemented. ——AFTN-based AIDC in Sanya and Guangzhou with Hong Kong China put into operational use in 2007 and 2013 respectively. ——AIDC in Shanghai and Guangzhou with Taipei China put in to operational use since 2013. AIDC between several adjacent FIRs in the Asia-pacific region are being implemented. Operational： ——AIDC between Dalian and Incheon put into operational use since October 2016. ——OLDI between Shenyang and Khabarovsk put into operational use since Oct.2019. Trial Operational: ——AIDC between Kunming and Vientiane put into pre-operational trails since January 2021.(interrupted for technical reasons) Test: ——AIDC technical test between Beijing ACC and Ulaanbaatar ACC was completed by the Q4 of 2021.	The Automation Systems involved all support the AIDC ICD Version 3.0 and processing the following messages: ABI, EST, ACP, TOC, AOC, LAM, and LRM. Les NUMEN-2000 system in Shenyang able to support both AIDC and OLDI since Oct.2019 and can additionally process the following OLDI-related messages: ABI, ACT, MAC, HOP, ACP, LAM, and LRM.	IN-HOUSE (Aero-Info Technologies Co., Ltd)

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
	——AIDC technical test between Lanzhou ACC and Ulaanbaatar ACC was completed by the end of 2021. ——AIDC technical test between Kunming and Yangon under test and progress since May 2017 ——AIDC technical test between Sanya ACC and Hanoi ACC conducted since 2019.		
HONG KONG, CHINA	AFTN-based AIDC with Sanya put into operational use in Feb 2007. AIDC with Taibei FIR put into operational use in Nov 2012. AIDC with Guangzhou put into operational use in May 2018. AIDC with Manila put in operational use in May 2019.	Raytheon ATM system Support AIDC ICD Version 3 commissioned in November 2016.	
MACAO, CHINA	[Not applicable for using AIDC, looking into the possible application between TWR and ACC/APP]		

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
COOK ISLANDS			
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	With neighboring ACCs to be implemented		
FIJI ISLANDS	AFTN based AIDC implemented between Nadi/ Brisbane, Auckland and Oakland.	Adacel ATM system for AIDC - Support and implemented AIDC messaging: ABI, EST, CPL, CDN, ACP, TOC, AOC with all three centers - AIDC ICD version 2.0 implemented with Auckland and Oakland. - AIDC ICD Version 1.0 implemented with Brisbane	
FRANCE *(French Polynesia Tahiti)*	Implementation of AIDC (based on Version 3) with adjacent centers (Oakland and Auckland) since 2009.	THALES EUROCAT for AIDC	

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
INDIA	Initially-15-May-2017, AIDC implemented between Chennai and Kuala Lumpur with ABI and EST messages. India is currently using APAC AIDC ICD version 3. **A. Implementation within India:** Testing & trials: I. At Delhi with: Ahmedabad, Varanasi, Nagpur II. At Chennai with: Mumbai, Kolkata, Trivandrum, Mangalore, Trichy, Hyderabad, Bengaluru III. At Kolkata with: Chennai, Nagpur, Varanasi, Guwahati IV. At Mumbai with: Chennai, Ahmedabad, Nagpur Operational: Chennai- Mumbai; Delhi-Nagpur; Delhi-Ahmedabad, Functional: Delhi-Varanasi, LOA to be signed shortly. **B: Implementation with Neighboring States:** The status on AIDC implementation with following ATSUs of neighboring FIRs is as under: I. **Chennai & Kuala Lumpur** (Malaysia) – ABI, EST successful. CDN is done with voice confirmation. TOC/AOC is implemented w.e.f. 1st Jan 2021. LOA signed	Mumbai: Raytheon Auto track-III Chennai- Raytheon Auto track-III + Delhi: INDRA Aircon Kolkata: INDRA Aircon Bengaluru: SELEX Hyderabad: SELEX Ahmedabad: INDRA Aircon 2100 Nagpur: INDRA Aircon 2100 Varanasi: INDRA Aircon 2100 Guwahati: INDRA Aircon 2100 Trivandurm: INDRA Aircon 2100 Mangalore: INDRA Aircon 2100 Trichy: INDRA Aircon 2100 All these systems follow APAC AIDC ICD Ver 3.0 of 2007	

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
	on 26th May 2021 effective from 1st June 2021. II. **Chennai & Male (Maldives)** –Trails have been successful. Safety Assessment conducted on 9th April 2021 for implementation. AIDC between Chennai & Male operational w.e.f.01.09.2021. LOA signed on 20.07.2021. III. **Chennai & Colombo** (Sri Lanka) - Colombo in process to address the syntax errors in ABI. Thereafter, trails will be conducted. LOA in progress. IV. **Chennai & Yangon** (Myanmar) – Trials commenced in January 2018. Issues of incorrect reference number in Counter CDN from Yangon persists. Yangon has intimated that, they will inform Chennai for conducting the Test, as soon as they are ready V. **Mumbai & Male (Maldives)** – Safety Assessment conducted on 9th April 2021 for implementation. AIDC between Mumbai & Male operational w.e.f. 01.11.2021. LOA signed on 13.09.2021 **VI. Mumbai & Mogadishu** - Successful trials conducted in March 2021. Minor adaptation system issues with Mogadishu automation system identified. Resolution awaited from Mogadishu. **VII Mumbai & Muscat** - Successful trials conducted in March 2021. System issues with Muscat's automation system identified. Resolution awaited from Muscat ATCAS vendor **VIII**. **Ahmedabad & Karachi (Pakistan) –** Automatic message exchange (e.g. ABI, EST) happens for most of the East bound flights between Karachi & Ahmedabad. Karachi Automation system not generating auto ACP message in response of EST messages. Pakistan is currently doing technical trials between Lahore and Delhi ACCs in		

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
	first phase. Pakistan will take up test trials between Karachi and Mumbai & Karachi and Ahmedabad in second and third phase respectively. **IX. Delhi & Lahore (Pakistan)-** Under test trails. During the first test trials during the March'2021 it was identified that Lahore Automation system not generating automatic ACP messages. Also Delhi system is rejecting the AIDC messages because of the extra space in messages from Lahore. **X. Kolkata & Yangon (Myanmar)** – Initial trials were conducted in Q4 of 2018 in which some ABI and message reference errors were encountered. Vendor at both ends modified the software and issues were mitigated. In the next trials in Q1 of 2020 most message exchanges were successful. LOA to be negotiated and signed. **C. Under Planning** I. To conduct operational trials between Kolkata-Dhaka, Mumbai-Karachi (Pakistan), Chennai-Jakarta and Varanasi-Kathmandu subject to readiness from the concerned states. D. Seychelles and Sana ATSU do not have a compatible ATM Automation system in place for AIDC coordination with Mumbai ATSU E. Delhi – Karachi: AIDC between Delhi & Karachi will not be required due to re-structuring of FIRs		

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
INDONESIA	AIDC implementation in Ujung Pandang ACC conducted as follows: 1) Ujung Pandang ACC –Brisbane ACC: Implemented since July 2017. 2) Ujung Pandang ACC – Manila ACC: Implemented since 4Q 2020; 3) Ujung Pandang ACC – Kota Kinabalu ACC: - Successfully tested and waiting for Kota Kinabalu responds 4) Ujung Pandang ACC – Oakland ARTCC: - - ready for trial, waiting for Oakland responds; 5) Ujung Pandang ACC – Port Moresby ACC: Implemented since 2Q2021. 6) Ujung Pandang ACC – Jakarta ACC; - Target date for operational trial in 3Q2021 until now. - Target date for implementation 3Q2022. AIDC implementation in Jakarta ACC will be carried out with the following priorities: 1) Jakarta – Ujung Pandang (3Q2021); 2) Jakarta – Chennai: testing (2022); 3) Jakarta – Melbourne: testing (2023); 4) Jakarta – Colombo: testing (2024); 5) Jakarta – Singapore: testing (2022); 6) Jakarta - Kuala Lumpur: testing (2024); 7) Jakarta – Kota Kinabalu: testing (2025).	Thales TopSky in Makassar able to support ICD version 3 since December 2015. AIDC JATSC Airnav Indonesia creates its own AIDC equipment. Currently, it is in the pilot phase and the results of its development will be reported to ICAO and AIDC taskforce (ATMAS)	

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
JAPAN	AIDC implemented between Fukuoka ATMC and Oakland ARTCC in 1998. AIDC implemented between Fukuoka ATMC and Anchorage ARTCC in 2005. AIDC implemented between Tokyo ACC/Fukuoka ACC and Incheon ACC in 2010. AIDC implemented between Fukuoka ACC/Naha ACC and Taibei ACC in 2012.		Japan and USA conducting testing AIDC over AMHS and cutover date is 5 May 2017.
KIRIBATI			
LAO PDR	- Vientiane ACC AIDC used for coordination between Bangkok and Phnom Penh ACCs since 2020. - Operation trials are on going with Kunming, Hanoi and Yangon ACCs.	THALES which is able to support ICD Version 2.	
MALAYSIA	**Kuala Lumpur ACC and Bangkok ACC** AIDC technical test between Kuala Lumpur ACC and Bangkok ACC conducted since November 2016 (ABI/EST/ACP/LAM/LRM/CDN/REJ/TOC/AOC). The operational trial commenced in August 2019 (EST/ACP/LAM/ LRM).	SELEX which is able to support ICD Version 3.	

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
	The operational implementation commenced on 14th March 2020 (EST/ ACP/LAM/LRM). **<u>Kuala Lumpur ACC and Chennai OCC</u>** AIDC technical test between Kuala Lumpur ACC and Chennai OCC conducted since 31st July 2013. The operational trial implemented in phases from September 2016 (ABI/EST/MAC/LAM/LRM/ACP). Review on the CDN message implementation conducted in August 2017. SOP signed 26 April, 2017. The MOU signed on March 2020. The operational implementation commenced on 1st April 2020 (ABI/EST/ ACP/LAM/LRM/CDN/REJ/MAC). The operational trial for TOC/AOC started on 1st July until 1st August 2020. The operational implementation for TOC/AOC commenced on 1st January 2021. The updated LOA signed on 26th May 2021. **<u>Kuala Lumpur ACC and Singapore ACC</u>** AIDC technical test between Kuala Lumpur ACC and Singapore ACC conducted since April 2015 (ABI/EST/ ACP/LAM/LRM/CDN/REJ). The operational trial started on September 2018 (EST/ACP/LAM/ LRM).		

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
	The operational implementation commenced on 1st November 2019 (EST/ ACP/LAM/LRM). **Kuala Lumpur ACC and Ho Chi Minh ACC** AIDC technical test between Kuala Lumpur ACC and Ho Chi Minh ACC To Be Discussed (TBD). **Kuala Lumpur ACC and Jakarta ACC** AIDC technical test between Kuala Lumpur ACC and Jakarta ACC TBD. **Kota Kinabalu ACC and Manila ACC** AIDC Technical Test 1 between Kota Kinabalu ACC and Manila ACC started on 21 – 22nd May 2019 (ABI / EST / ACP / LAM / LRM / TOC / AOC / MAC). Technical Test 2 was conducted on 21 – 22nd October 2019 (ABI / EST / ACP / LAM / LRM / TOC / AOC / MAC). Upcoming AIDC Technical Test between Kota Kinabalu ACC and Manila ACC to be conducted in Q32021 **Kota Kinabalu ACC and Ujung Pandang ACC** AIDC Technical Test 1 between Kota Kinabalu ACC and Ujung Pandang ACC started on 7 – 8th August 2019 (ABI / EST / ACP / CDN / LAM / LRM / REJ / MAC). Technical Test 2 was conducted on 23 – 24th October 2019 (ABI / EST / ACP / LAM / LRM / TOC / AOC / MAC). Technical Test 3 was conducted on 11th March 2020 (EST / ACP / LAM / LRM).		

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
	Upcoming AIDC Technical Test between Kota Kinabalu ACC and Ujung Pandang ACC to be conducted in Q32021 **<u>Kota Kinabalu ACC and Jakarta ACC</u>** AIDC Technical Test between Kota Kinabalu ACC with Jakarta ACC is to be discussed. **<u>Kota Kinabalu ACC and Singapore ACC</u>** AIDC Technical Test between Kota Kinabalu ACC and Singapore ACC started on 22nd September 2015 (ABI / EST / ACP / CDN / LAM / LRM / REJ / MAC). AIDC Technical Test 1 was conducted on 18 – 19th November 2019 (ABI / EST / ACP / CDN / LAM / LRM / REJ / MAC). Technical Test 2 was conducted on 16th January 2020 (EST / ACP / LAM / LRM). AIDC Operational Trial started since 16th November 2020 and to be extended until 30th June 2021. Agreement on Operational Implementation has been materialized on 3rd June 2021. Operational Implementation is agreed to be conducted on 1st July 2021 (EST / ACP / LAM / LRM) **<u>Kuching ACC and Singapore ACC</u>** AIDC Technical Test (First and Second) between Kuching ACC and Singapore ACC was conducted both on 11 November 2015 and 24-25 November 2015 (ABI, EST, LAM, CDN, ACP, REJ, and LRM). However, it was discontinued until November 2019.		

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
	The AIDC Technical Test (Third and Fourth) was conducted both on 20-21 November 2019 and 14 January 2020 (ABI, EST, LAM, CDN, ACP, REJ, and LRM) AIDC Operational Trial was started on 20 July until 18 October 2020. Then it was continuing until 31 January 2021. Agreement on Operational Implementation has been materialized on 12 January 2021 via videoconference. The operational implementation was on 1 February 2021. The AIDC messages included for exchange are EST, LAM, LRM and ACP. **Kuching ACC and Jakarta ACC** AIDC between Kuching ACC and Jakarta ACC TBD.		
MALDIVES	Connection established with all the adjacent ATSUs. Interoperability tests successfully completed in 2017. LOA signed for operational trials between Mumbai, Chennai, and Trivandrum. Operational trials were also successful with these ATSUs, while several issues were resolved from both ends. Ready to sign LOA with Melbourne and is expected during the 2nd quarter of 2019. Trials with Colombo had few issues, which Colombo is working to resolve it on their end with the automation system supplier. Connections between all 5 ATSUs are turned ON in the ATS automation system to conduct pre-notified operational trials.	SELEX which is able to support ICD Version 3.	

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
MARSHALL ISLANDS			
MICRONESIA (EDERATED STATES OF)			
Chuuk			
Kosrae			
Pohnpei			
Yap			
MONGOLIA	ATM automation system supports both AIDC and OLDI. Coordinating with Russia on OLDI connection in target date 2016. Coordinating with China on AIDC connection between Beijing/Ulaanbaatar technical trials completed between 2016-2021. A software update to include AIDC in the Aircon2100 automation system as a function which will be operational in the fourth quarter of 2022.	INDRA Aircon - 2100 supporting.	
MYANMAR	AIDC connection pre- operation test with Thailand conducted in 4Q2017 and Target date of implementation 4Q2020; AIDC testing with Chennai, Kolkata and Vientiane conducted in 2020. Myanmar	THALES Automation system (Topsky ATC) supports APAC AIDC ICD Ver. 2.	

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
	improved ATS Surveillance Coverage at coordination point with China and will start AIDC test again with Kunming ACC in 2020.		
NAURU			
NEPAL	Nepal uses custom built ATM system from NEC. Some issues regarding ICD need to be resolved in order to proceed ahead with AIDC testing with India and China.		
NEW CALEDONIA			
NEW ZEALAND	AIDC implemented between New Zealand, Australia, Fiji, Tahiti, Chile and USA.	Supported the Basic 5 message set. ATM systems are LEIDOS and ADACEL	
PAKISTAN	Implemented between Karachi and Lahore ACCs. Lahore/Delhi ACC AIDC trials are being carried out which started in March 2021 (Phase-1), Karachi/Mumbai & Karachi/Ahmedabad are planned in Phase-2. After modification of Lahore/Karachi FIRs boundaries, trials between Karachi/Delhi ACC are not required.	ATM system from Indra AIRCON 2100 version-2 in Lahore and Karachi ACC, Si-ATM version-3 in Islamabad ACC	Existing ATM system are likely to be upgraded in Lahore and Karachi ACC.

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
PAPUA NEW GUINEA	AIDC using AFTN operational with Australia, testing/trial with Oakland (USA) started late last year and in progress. AIDC implementation with Indonesia to happen after CRV implementation this year.	New ATM System from Thales (TopSky-ATC) implemented and operational now supports AIDC V3.	
PHILIPPINES	AIDC implementation status/update over AMHS with the following FIR's; **HONG KONG** – Implemented, May 2019 **SINGAPORE** – Implemented, December 2020 **TAIPEI** – Implemented, December 2019 **UJUNG PANDANG** – Implemented, December 2020 **HO CHI MINH** – Technical test conducted on November 2021. **KOTA KINABALU** – Technical test conducted November 2021. **OAKLAND** – 1st test to be scheduled.	THALES which is able to support ICD Version 2.	The New ATN/AMHS of Manila CNS/ATM center has been in domestic operations since March 2018. And with the implementation of CRV, AMHS connection has been implemented with the following adjacent FIR's; **-HONG KONG** **-TAIPEI** **-SINGAPORE** **-OAKLAND**

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
REPUBLIC OF KOREA	AIDC implemented between ACC and Fukuoka ATMC in 2010 AIDC between Incheon and Dalian implemented in Nov. 2016. AIDC implementation between Incheon and Shanghai will be in 2Q, 2023.	Rockheed Martin System	
SINGAPORE	1) Operational with Ho Chi Minh implemented Jul 2014. 2) Operational with Kuala Lumpur implemented Nov 2019. 3) Operational with Kuching ATCC implemented Feb 2021. 4) Operational with Kota Kinabalu ATCC implemented Jul 2021. 5) Operational with Manila implemented Nov 2019. 6) Technical trials with Jakarta ACC will be initiated once the Jakarta ACC ATMS renewal is completed.	THALES supports ICD Version 3 since December 2018	
SRI LANKA	Trials with Male planned for in 3Q2019. Trial with Chennai on-going. Plan for implementation in 2018 and with Melbourne plan for 1Q2018.	INTELCAN which is able to support ICD Version 3.	
THAILAND	The implementation with • Malaysia has done since 14th March 2020 • Lao PDR has done since 14th July 2020 • Cambodia has done on 22nd February 2021 In addition, it is planned to implement AIDC with Myanmar.	THALES which supports AIDC feature, APAC AIDC ICD V.3.	

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
TONGA			
UNITED STATES	- Fiji, Japan, New Zealand - Tahiti (via New Zealand), - Papua New Guinea via Australia - Philippines (2021) - Indonesia via Australia (Direct planned for 2023)	IN-HOUSE which is able to support APAC and NAT ICDs currently Version 2.	
VANUATU			
VIET NAM	Operational between Ho Chi Minh and Singapore since July 2014. Technical testing between Ho Chi Minh with Philippines conducted on June 15-16, 2021 and November 10, 2021. Operational trial will be done Technical testing with Cambodia conducted on October 11, 2021; Operational trial will be done	Support ICD Version 1.0 with THALES at Ho Chi Minh ATM system. Support ICD Version 3.0 with Selex at Hanoi ATM System.	

State/Organization	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
	Technical testing between Hanoi and Vientiane, Lao. PDR – already done Operation trial ongoing with Malaysia TBC Operation between Ho Chi Minh and Hanoi Plan for implementation in 2022.		
Wallis and Futuna (FRANCE)		COMSOFT	

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TABLE OF ATS INTER-FACILITY DATA COMMUNICATION (AIDC) IMPLEMENTATION STATUS IN APAC REGION

EXPLANATION OF THE TABLE

Column

1 State/Administration –Name of the State/Administration;

2 AIDC Implementation Status (Implemented or not) – AIDC has been implemented in the State/Administration or not (States have the technical capability implemented and at least one bilateral connection with adjacent ATS units in operational use will be regarded as implemented.);

3 Location of AIDC System ATSU1 – the location of the AIDC end system under the supervision of State/Administration identified in column 1;

4 ATM Automation System – Make/Model of the ATM automation system used in this ATSU;

5 ATSU2 /Correspondent State/Administration – the correspondent AIDC System;

ATSU2 – location of the correspondent AIDC end system

Correspondent State/Administration – the name of the State/Administration responsible for management of the correspondent AIDC end system

A "/" is placed between the ATSU2 and State/Administration

6 Intraregional/Interregional – the connection is intraregional (inside APAC) or interregional;

7 Transmission Means – the transmission means used for the AIDC messages exchanged between the corresponding AIDC pair, AFTN, AMHS, etc.;
(Reason: The carriage of AIDC messages is facilitated through existing communication network (e.g. AFTN, AMHS, etc.). The type of network that will be used for AIDC message exchange will need to be defined, including the appropriate recovery/ contingency actions that will be adopted in abnormal situations)

8 Frequency of Use (days in a week) – days of AIDC used in a week;
(Reason: to indicate how frequently the AIDC interface has been used)

9 Main/Backup Circuit – the circuit is main or backup AIDC connection;
(Reason: if there is two circuits between the two ATSUs, it's better to identify which is main or backup)

10 Communication Signal Speed - the communication signal speed for the AIDC messages exchanged (bps);

(Reason: According to Pan Regional Interface Control Document (PAN ICD) for ATS Inter-facility Data Communications (AIDC) chapter 3.3.2.3, the communication signal speed between ATS systems using AFTN/AMHS should be greater than 2400 bps.)

11 Average Transmission Delay (One Trip Time Seconds) – the average transmission delay for exchanging AIDC messages;
(Reason: According to Pan Regional Interface Control Document (PAN ICD) for ATS Inter-facility Data Communications (AIDC), Average Transmission Delay (seconds) will influence the AIDC performance. In order to effectively use the AIDC application for the interchange of ATC coordination data, ATSUs should monitor the performance of the communication links to ensure the required performance is achieved. This monitoring should measure the latency of the AIDC message traffic between ATS systems in terms of the time measured between message transmission at the originating ATS system and receipt of the message at the receiving ATS system. The performance of the communications links should be such that 95% of all messages should be received within 12 seconds of transmission and 99.9% of all messages should be received within 30 seconds of transmission. In bilateral agreements, ATSUs, may agree on different performance requirements.)

12 Implementation Date or Target Date - date of implementation of the AIDC end system in the form of xQyyyy(quarter year), MON yyyy (Month) or yyyy ;

13 Interface Status – the AIDC interface status, including Operational (already implemented), Testing (under progressing), Planned (under plan), No plan;

14 Interface Protocol /Version (OLDI or AIDC Version) - the AIDC service between the corresponding ATSUs.
(Reason: to show which AIDC version used and supported between two ATSUs and refer to Reason under item 14)

15 List of AIDC Messages Applicable between the Two ATSUs – the AIDC messages can be exchanged between the two ATSUs, including ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC; TRU, EMG, MIS, TDM, ASM, FAN, FCN; ADS;
*(Reason: According to Asia/Pacific Seamless ANS Plan V3.0, PASL Phase II (expected implementation by 07 November 2019) and APANPIRG/24 CONCLUSION 24/16, ATS systems should enable **AIDC (version 3 or later)**, or an alternative process that achieves at least the same level of performance as AIDC, between en-route ATC units and terminal ATC units where transfers of control are conducted consistent with FICE-B0/1, unless alternate means of automated communication of ATM system track and flight plan data are employed (Priority 1). As far as practicable, the following AIDC messages types should be implemented:*

- *Advanced Boundary Information (ABI);*
- *Coordinate Estimate (EST);*
- *Acceptance (ACP);*
- *TOC; and*
- *Assumption of Control (AOC).*

Note: States should note the necessity to utilise Logical Acknowledgement Message processing (LAM) when implementing AIDC.)

16 Coordination by CDN or Voice – the method used in coordination phase;

(Reason: to show if the AIDC process a totally automatic or not)

17 Remarks – any additional information describing the AIDC connection, including issues faced if any, mitigation, and limitation;

Other items to be considered:

1 Automatic or Manual EST – the EST is sent out automatically or manually;
(Reason: to evaluate the automatic level of AIDC)

2 A Warning Message to Controller in Case of AIDC Failure – the warning message for AIDC failure is capable or not;
(Reason: According to Pan Regional Interface Control Document (PAN ICD) for ATS Interfacility Data Communications (AIDC), failure to receive an operational response within timeout period T_{op} should result in a warning message being displayed to the controller. Non receipt of a response to an ASM may indicate either a communication link failure or an ATC system failure. If an ATSU that has sent an ASM message does not receive an application response within a specified time, a warning message should be displayed at an appropriate position so that local contingency procedures can be executed.)

Table of AIDC Implementation Status in APAC

State/Administration	AIDC Implementation Status(Implemented or not)	Location of AIDC System ATSU1	ATM Automation System (Make/Model)	ATSU2 /Correspondent State – Administration	Intraregional/Interregional	Transmission Means	Frequency of Use(days in a week)	Main/Back up Circuit	Communication Signal Speed (bps)	Average Transimission Delay (One Trip Time Seconds)	Implementation Date or Target Date as MON yyyy or xQyyyy	Interface Status (Operational, Testing, Planned, No plan)	Interface Protocol / Version (OLDI or AIDC Version)	List of AIDC Messages Applicable between the Two ATSUs (ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC; TRU, EMG, MIS, TDM, ASM, FAN, FCN; ADS)	Coordination by CDN or Voice	Automatic or Manual EST	A Warning Message to Controller in Case of AIDC Failure	Remarks
1	2	3	15	4	5	6	7	8	9	10	11	12	13	14	16	19	20	18
State/Administration A	**Implemented**	ATSU 1	Raytheon ATM system	ATSU 2 / State/Administration 2	Intraregional	AMHS	7	Main	9600	2	Nov 2020	Operational	ICD V.3.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL, REJ, MAC	CDN	Automatic	yes	
				ATSU 3 / State/Administration 3	Interregional	AFTN	2	Backup	4800	3	1Q2001	Operational	OLDI	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Manual	no	
						AMHS	5	Main	9600	2	Jan 2019	Operational	OLDI	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	no	

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1	2	3	15	4	5	6	7	8	9	10	11	12	13	14	16	19	20	18
State/Administration A	Implemented	ATSU 1	Raytheon ATM system	ATSU 2 / State/Administration 2	Intraregional	AMHS	7	Main	9600	2	Nov 2020	Operational	ICD V.3.0	ABI, EST, ACP, TOC, AOC, LAM, LRM, PAC, CDN, CPL,	CDN	Automatic	yes	
				ATSU 3 / State/Administration 3	Interregional	AFTN	2	Backup	4800	3	1Q2001	Operational	OLDI	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Manual	no	
						AMHS	5	Main	9600	2	Jan 2019	Operational	OLDI	ABI, EST, ACP, TOC, AOC, LAM, LRM	Voice	Automatic	no	
AFGHANISTAN		Kabul ACC		Kabul ACC /Afghanistan	Intraregional	AMHS												
				Karachi ACC/Pakistan	Intraregional	AFTN												
AUSTRALIA		Brisbane ACC		Oakland ARTCC /USA	Intraregional	AFTN						Operational						
					Intraregional	AMHS												
				Auckland ACC /New Zealand	Intraregional	AFTN						Operational	ICD V.1.0					
					Intraregional	AMHS												
				Melbourne ACC /Australia	Intraregional	AFTN						Operational						
				Ujung Pandang ACC /Indonesia	Intraregional	AFTN						Operational						
				Nadi ACC /Fiji	Intraregional	AFTN						Operational						
					Intraregional	AMHS						Operational						
				Port Moresby/PNG	Intraregional	AMHS					4Q2018							
		Melbourne ACC		Brisbane ACC /Australia	Intraregional	AFTN						Operational						
					Intraregional	AMHS												
				Jakarta ACC /Indonesia	Intraregional	AFTN						Operational						
					Intraregional	AMHS					4Q2019							
				Mauritius ACC /Mauritius	Interregional	AFTN						Operational						
					Interregional	AMHS												
BANGLADESH		Dhaka ACC		Kolkata ACC /India	Intraregional	AMHS					4Q2023							Implementation of AIDC is included in the "Modernization of CNS-ATM System of CAAB" project which is going on G2G agreement with French Government and likely to be implemented by the end of 2023.
				Yangon ACC /Myanmar	Intraregional	AMHS					4Q2023		ICD V.2.0					
BHUTAN												No plan						Currently not applicable. If required in the future, will decide after CRV implementation.
BRUNEI DARUSSALAM																		
CAMBODIA		Phnom Penh ACC		Bangkok ACC /Thailand	Intraregional	AMHS					4Q2019	Testing	ICD V.1.0					
				Vientiane ACC/Laos PDR	Intraregional	AFTN						Testing	ICD V.1.0					
				Ho Chi Minh ACC/Viet Nam	Intraregional	AMHS						Testing	ICD V.1.0					
CHINA		Beijing ACC		Ulaanbaatar ACC/Mongolia	Intraregional	AFTN						Testing						
		Sanya ACC		Hong Kong ACC / China	Intraregional	AFTN					Dec 2007	Operational						
				Hanoi ACC/Vietnam	Intraregional						Dec 2023	Testing						
				Ho Chi Minh ACC /Vietnam	Intraregional	AFTN					Dec 2023	Planned						
		Kunming ACC		Vientiane ACC/Laos PDR	Intraregional						Jan 2021	Operational						
				Yangon ACC /Myanmar	Intraregional	AFTN						Testing						
		Lanzhou ACC		Ulaanbaatar ACC/Mongolia	Intraregional							Planned						
		Lhasa ACC		Kathmandu ACC/Nepal	Intraregional	AFTN												
		Guangzhou ACC		Taibei ACC /China	Intraregional						Jan 2013	Operational						
				Hong Kong ACC / China	Intraregional	AFTN					May 2018	Operational						
		Taibei ACC		Hong Kong ACC /China	Intraregional	AFTN						Operational	ICD V.3.0					
				Fukuoka ATMC/Japan	Intraregional	AFTN						Operational						
				Manila ACC/Philippines	Intraregional	AFTN												
		Shenyang ACC		Khabarovsk/Russia	Interregional						Oct 2019	Operational	OLDI					
		Urumqi ACC		Lahore ACC /Pakistan	Intraregional	AMHS												
		Nanning ACC		Hanoi ACC/Vietnam	Intraregional						Dec 2023	Planned						
		Dalian ACC		Incheon ACC /Republic of Korea	Intraregional	AFTN					Oct 2016	Operational	ICD V.3.0 (trial operation)					
		Shanghai ACC		Taibei ACC /China	Intraregional						Jan 2013	Operational						
				Incheon ACC /Republic of Korea	Intraregional						Jun 2023	Planned						
				Fukuoka ATMC /Japan	Intraregional	AFTN												

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1	2	3	15	4	5	6	7	8	9	10	11	12	13	14	16	19	20	18
HONG KONG, CHINA		Hong Kong ACC	Raytheon ATM system	Guangzhou ACC /China	Intraregional	AFTN					May 2018	Operational	ICD V.3.0					
				Sanya ACC /China	Intraregional	AFTN					Feb 2007	Operational	ICD V.3.0					
				Manila ACC /Philippines	Intraregional	AFTN					May 2019	Operational	ICD V.3.0					
				Taibei ACC /China	Intraregional	AFTN					Nov 2012	Operational	ICD V.3.0					
MACAO, CHINA		Macao ATZ										No plan						[Not applicable for using AIDC, looking into the possible application between TWR and ACC/APP]
COOK ISLANDS																		
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA												Planned						With neighboring ACCs to be implemented
FIJI		Nadi ACC	Adacel ATM system	Auckland ACC /New Zealand	Intraregional	AFTN						Operational	ICD V. 2.0	ABI, EST, ACP, TOC, AOC, CDN, CPL				
				Brisbane ACC /Australia	Intraregional	AFTN						Operational	ICD V.1.0	ABI, EST, ACP, TOC, AOC, CDN, CPL				
				Oakland ARTCC /USA	Intraregional	AFTN						Operational	ICD V. 2.0	ABI, EST, ACP, TOC, AOC, CDN, CPL				
FRANCE FRENCH POLYNESIA NEW CALEDONIA		Papeete ACC	THALES EUROCAT	Auckland ACC /New Zealand	Intraregional	AFTN					2009	Operational	ICD V.3.0					
				Oakland ARTCC /USA	Intraregional	AFTN					2009	Operational	ICD V.3.0					
INDIA		Ahmedabad ACC	INDRA Aircon 2100	Karachi ACC /Pakistan	Intraregional	AFTN						Testing		ABI, EST				
		Chennai ACC	Raytheon Auto track-III +	Colombo ACC / Sri Lanka	Intraregional	AMHS					4Q2018	Planned						
				Jakarta ACC /Indonesia	Intraregional	AFTN					4Q2019	Planned						
				Kuala Lumpur ACC / Malaysia	Intraregional	AFTN					Jan 2021	Operational	ICD V.3.0	ABI, EST, TOC, AOC	Voice			
				Male ACC /Maldives	Intraregional	AFTN					Sep 2021	Operational						
				Yangon ACC /Myanmar	Intraregional	AFTN						Testing	ICD V.2.0					
		Delhi ACC	INDRA Aircon	Karachi ACC /Pakistan	Intraregional	AFTN					1Q2019	No plan						
				Lahore ACC /Pakistan	Intraregional	AFTN						Testing						
		Kolkata ACC	INDRA Aircon	Dhaka ACC /Bangladesh	Intraregional	AMHS					4Q2018	Planned						
				Yangon ACC /Myanmar	Intraregional	AFTN					4Q2018	Testing	ICD V.2.0					
				Kathmandu ACC /Nepal	Intraregional	AFTN												
		Mumbai ACC	Raytheon Auto track-III	Karachi ACC /Pakistan	Intraregional	AMHS					1Q2019	Planned						
				Male ACC /Maldives	Intraregional	AFTN					Nov 2021	Operational						
				Mogadishu ACC/Somalia	Interregional							Testing						
				Muscat ACC /Oman	Interregional	AFTN						Testing						
				Seychelles ACC / Mauritius	Interregional	AFTN												
		Trivandrum ACC	INDRA Aircon 2100	Male ACC/Maldives	Intraregional	AFTN					3Q2018							
		Varanasi ACC	INDRA Aircon 2100	Kathmandu ACC /Nepal	Intraregional	AFTN						Planned						
INDONESIA		Jakarta ACC		Melbourne /Australia	Intraregional	AFTN					2023	Testing						
				Colombo ACC / Sri Lanka	Intraregional	AFTN					2024	Testing						
				Singapore ACC /Singapore	Intraregional	AFTN					2022	Testing	ICD V.3.0					
				Kuala Lumpur ACC / Malaysia	Intraregional	AFTN					2024	Testing	ICD V.3.0					
				Kota Kinabalu ACC /Malaysia	Intraregional	AFTN					2025	Testing						
				Chennai ACC /India	Intraregional	AFTN					2022	Testing						
		Ujung Pandang ACC		Brisbane ACC /Australia	Intraregional	AFTN					July 2017	Operational						
				Oakland ARTCC /USA	Intraregional	AMHS						Planned						
				Port Moresby ACC/ PNG	Intraregional	AFTN					2Q2021	Operational						
				Kota Kinabalu ACC/Malaysia	Intraregional	AFTN						Testing						
				Jakarta ACC /Indonesia	Intraregional						3Q2022	Testing						
				Manila ACC/Philippines	Intraregional	AMHS					4Q 2020	Operational						
JAPAN		Fukuoka ATMC		Manila ACC /Philippines	Intraregional	AMHS					1Q2019							
				Anchorage ACC /USA	Intraregional	AFTN					2005	Operational	ICD V.2.0					
				Incheon ACC /Republic of Korea	Intraregional	AFTN					Jun 2009	Operational	ICD V.1.0					
				Oakland ARTCC /USA	Intraregional	AMHS					May 2017	Operational	ICD V.2.0					
				Shanghai ACC /China	Intraregional	AFTN						Planned						
				Taibei ACC / China	Intraregional	AFTN					2012	Operational	ICD V.3.0					
		Tokyo ACC		Incheon ACC /Republic of Korea	Intraregional						2010	Operational						
		Naha ACC		Taibei ACC / China	Intraregional	AFTN					2012	Operational	ICD V.3.0					
KIRIBATI																		

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1	2	3	15	4	5	6	7	8	9	10	11	12	13	14	16	19	20	18
LAO PEOPLE'S DEMOCRATIC REPUBLIC		Vientiane ACC	THALES	Bangkok ACC /Thailand	Intraregional	AMHS					2020	Operational						
				Hanoi ACC /Veitnam	Intraregional	AMHS						Testing						
				Phnom Penh ACC /Cambodia	Intraregional	AFTN					2020	Operational						
				Yangoon/ Myanmar	Intraregional	AFTN					4Q2018	Testing	ICD V.2.0					
				Kunming ACC /China	Intraregional							Testing						
				Ho Chi Minh/ Vietnam	Intraregional	AMHS												
MALAYSIA		Kuala Lumpur ACC		Bangkok ACC /Thailand	Intraregional	AFTN					Mar 2020	Operational	ICD V.3.0	EST, ACP, LAM, LRM				
				Singapore ACC /Singapore	Intraregional	AFTN					Nov 2019	Operational	ICD V.3.0	EST, ACP, LAM, LRM				
				Chennai ACC /India	Intraregional	AFTN					Apr 2020		ICD V.3.0	ABI, EST, ACP, LAM, LRM, CDN, REJ,MAC,TOC,AOC				
				Ho Chi Minh ACC /Vietnam	Intraregional	AFTN						Planned						
				Jakarta ACC /Indonesia	Intraregional	AFTN						Planned	ICD V.3.0					
		Kota Kinabalu ACC		Ujung Pandang ACC /Indonesia	Intraregional	AFTN						Testing		EST, ACP, LAM, LRM				
				Manila ACC /Philippines	Intraregional	AMHS					4Q2019	Testing		ABI, EST, ACP, LAM, LRM, TOC, AOC, MAC				
				Singapore ACC /Singapore	Intraregional	AMHS					Jul 2021	Operational	ICD V.3.0	EST, ACP, LAM, LRM				
				Jakarta ACC /Indonesia	Intraregional	AFTN						No plan		EST, LAM, LRM , ACP				
		Kuching ACC		Singapore ACC /Singapore	Intraregional	AFTN					Feb 2021	Operational	ICD V.3.0	EST, ACP, LAM, LRM				
				Jakarta ACC /Indonesia	Intraregional							Planned						
MALDIVES		Male ACC	SELEX	Mumbai ACC / India	Intraregional	AFTN					3Q2018	Testing						
				Chennai ACC /India	Intraregional	AFTN					3Q2018	Testing						
				Mauritius ACC/Mauritius	Interregional	AFTN												
				Melbourne ACC /Australia	Intraregional						2Q2019							
				Colombo ACC/Sri Lanka	Intraregional	AFTN					2018	Testing						
				Trivandrum ACC/India	Intraregional	AFTN					3Q2018	Testing						
MARSHALL ISLANDS																		
MICRONESIA (FEDERATED STATE OF)																		
MONGOLIA		Ulaanbaatar ACC	INDRA Aircon - 2100	Khabarovsk/Russia	Interregional						2016		OLDI					
				Beijing ACC/ China	Intraregional	AFTN					4Q2022	Testing						
MYANMAR		Yangon ACC	THALES Automation system (Topsky ATC)	Bangkok ACC /Thailand	Intraregional	AMHS					4Q2020	Testing	ICD V.2.0					
				Kolkata ACC /India	Intraregional	AFTN					4Q2018	Testing	ICD V.2.0					
				Chennai ACC /India	Intraregional	AFTN					4Q2018	Testing	ICD V.2.0					
				Kunming ACC /China	Intraregional	AFTN						Testing	ICD V.2.0					
				Vientianne ACC /Lao PDR	Intraregional	AFTN					4Q2018	Testing	ICD V.2.0					
				Dhaka ACC /Bangladesh	Intraregional	AFTN					4Q2018		ICD V.2.0					
NAURU																		
NEPAL		Kathmandu ACC	ATM system from NEC	Kolkata ACC /India	Intraregional	AFTN												
				Varanasi ACC/India	Intraregional	AFTN												
				Lhasa ACC /China	Intraregional	AFTN												
NEW ZEALAND		Auckland ACC	LEIDOS and ADACEL	Brisbane ACC /Australia	Intraregional	AFTN						Operational	ICD V.1.0	ABI, EST, ACP, TOC, AOC				
				Nadi ACC /Fiji	Intraregional	AFTN						Operational	ICD V.1.0					
				Oakland ARTCC /USA	Intraregional	AFTN						Operational	ICD V.2.0					
				Papeete ACC /French Polynesia	Intraregional	AFTN						Operational	ICD V.2.0					
				Chile		AMHS												
PAKISTAN		Karachi ACC	Indra AIRCON 2100 version-2	Mumbai ACC /India	Intraregional	AFTN					2018	Planned						Existing ATM system are likely to be upgraded in Lahore and Karachi ACC.
				Muscat ACC /Oman	Interregional	AFTN												
				Tehran ACC /Iran	Interregional	AFTN												
				Delhi ACC /India	Intraregional	AFTN						No plan						
				Ahmadabad ACC /India	Intraregional	AFTN					4Q2018	Planned						
				Kabul ACC /Afghanistan	Intraregional	AFTN												
		Lahore ACC	Indra AIRCON 2100 version-2	Delhi ACC /India	Intraregional	AFTN						Testing						
				Urumqui ACC /China	Intraregional	AMHS												
				Tajakistan ACC /Tajakistan	Interregional	AFTN												
PALAU																		
PAPUA NEW GUINEA		Port Moresby	Thales (TopSky-ATC)	Brisbane ACC/Australia	Intraregional	AMHS						Operational	ICD V.3.0					
				Ujung Pandang ACC/Indonesia	Intraregional	AFTN						Planned	ICD V.3.0					
				Oakland ARTCC /USA	Intraregional	AFTN						Testing	ICD V.3.0					
				Hong Kong ACC /China	Intraregional	AFTN												
					Intraregional	AMHS					May 2019	Operational						
				Singapore ACC /Singapore	Intraregional	AMHS					Dec 2020	Operational						

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1	2	3	15	4	5	6	7	8	9	10	11	12	13	14	16	19	20	18
PHILIPPINES		Manila ACC		Taibei ACC/China	Intraregional	AFTN												
					Intraregional	AMHS					Dec 2019	Operational						
				Kota Kinabalu ACC /Malaysia	Intraregional	AMHS						Testing						
				Ho Chi Minh ACC /Viet Nam	Intraregional	AMHS						Testing						
				Oakland ARTCC /USA	Intraregional	AMHS						Planned						
				Fukoka ATMC /Japan	Intraregional	AMHS					1Q2019							
			THALES	Ujung Pandang ACC /Indonesia	Intraregional	AMHS					Dec 2020	Operational						
REPUBLIC OF KOREA		Incheon ACC	Rockheed Martin System	Fukoka ATMC /Japan	Intraregional	AFTN					2010	Operational	ICD V.1.0					
				Shanghai ACC/China	Intraregional						2Q2023	Planned						
				Dalian ACC /China	Intraregional	AFTN					Nov 2016	Operational	ICD V.3.0 (Trial operation)					
SAMOA																		
SINGAPORE		Singapore ACC		Ho Chi Minh ACC /Vietnam	Intraregional	AMHS					Jul 2014	Operational						
				Manila ACC /Philippines	Intraregional	AMHS					Nov 2019	Operational	ICD V.1.0					
				Jakarta ACC /Indonesia	Intraregional	AMHS						Planned	ICD V.3.0					
				Kuala Lumpur ACC /Malaysia	Intraregional	AMHS					Nov 2019	Operational	ICD V.3.0					
				Kota Kinabalu ACC /Malaysia	Intraregional	AMHS					Jul 2021	Operational	ICD V.3.0					
			THALES	Kuching ACC /Malaysia	Intraregional	AMHS					Feb 2021	Operational	ICD V.3.0					
SOLOMON ISLANDS				Nadi ACC /Fiji	Intraregional													
				Port Moresby ACC/PNG	Intraregional													
				Brisbane ATSC /Australia	Intraregional													
SRI LANKA		Colombo ACC		Male ACC /Maldives	Intraregional	AMHS						Planned						
				Jakarta ACC / Indonesia	Intraregional	AMHS					4Q2019							
				Melbourne ACC /Australia	Intraregional							Planned						
			INTELCAN	Chennai ACC /India	Intraregional	AMHS					2018	Testing						
THAILAND		Bangkok ACC		Kuala Lumpur ACC /Malaysia	Intraregional	AFTN					Mar 2020	Operational	ICD V.3.0					
				Phnom Penh ACC /Cambodia	Intraregional	AMHS					Feb 2021	Operational						
				Vientiane ACC /Lao PDR	Intraregional	AMHS					Jul 2020	Operational						
			THALES	Yangon ACC /Myanmar	Intraregional	AMHS						Planned						
TIMOR LESTE																		
TONGA																		
TUVALU																		
VANUATU																		
UNITED STATES		Oakland ARTCC		Anchorage ARTCC /United States	Intraregional	AFTN						Operational	ICD V.2.0					
				Auckland OAC /New Zealand	Intraregional	AFTN						Operational	ICD V.2.0					
				Fukuoka ATMC /Japan	Intraregional	AFTN						Operational	ICD V.2.0					
				Nadi ATMC /Fiji	Intraregional	AFTN						Operational	ICD V.2.0					
				Brisbane ACC /Australia	Intraregional	AFTN						Operational	ICD V.2.0					
				Tahiti ACC /French Polynesia	Intraregional	AFTN						Operational	ICD V 2.0					
				Port Moresby/PNG	Intraregional	AFTN												
				Manila /Philippines	Intraregional	AMHS					1Q2019							
		Anchorage ARTCC		Ujung Padang/Indonesia	Intraregional	AMHS												
				Fukuoka ATMC /Japan	Intraregional	AFTN						Operational	ICD V.2.0					
				Oakland ARTCC /United States	Intraregional	AFTN						Operational	ICD V.2.0					
VIET NAM		Ho Chi Minh ACC		Sanya ACC /China	Intraregional	AFTN												
					Intraregional	AMHS												
				Phnom Penh ACC /Cambodia	Intraregional	AMHS						Testing						
				Vientiane ACC /Lao PDR	Intraregional	AMHS												
				Singapore ACC /Singapore	Intraregional	AMHS					Jul 2014	Operational	ICD V.1.0					
				Manila /Philippines	Intraregional	AFTN						Testing						
			THALES	Kuala Lumpur /Malaysia	Intraregional	AFTN												
		Hanoi ACC	Selex	Vientiane ACC/Lao PDR	Intraregional	AMHS						Testing						

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10	**Cook Islands**		
11	**Democratic People's Republic of Korea**		
12	**Fiji**		

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38.	**Timor Leste**		
39.	**Tonga**		
40.	**Tuvalu**		

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