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Repository of AIDC Implementation Status in APAC

WP/22 of CNS SG/27

Present by the Secretariat

RECONNECTINGTHEWORLD

Outline

01 Repository of AIDC Implementation Status in APAC

02 Preliminary Analysis of the Current Status

03 Focal Point for AIDC Implementation

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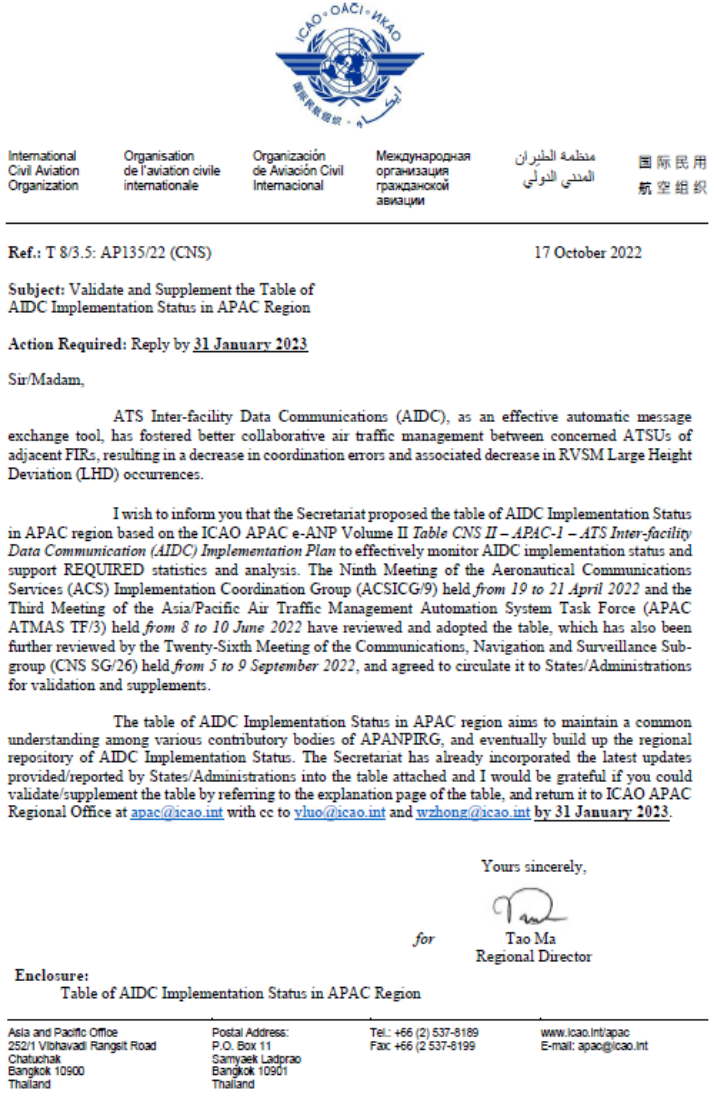
01

Latest Repository of AIDC Implementation Status in APAC

- To follow up the **ACTION ITEM 7-1** of APA TF/7 and considering the necessity of a comprehensive repository for AIDC implementation status in the APAC region, the Secretariat with contributions from India has designed and drafted a table to monitor the AIDC Implementation Status. With reference to the following materials:
  - ✓ PAN Regional Interface Control Document (PAN ICD)
  - ✓ Asia/Pacific Seamless ANS Plan V3.0
  - ✓ ICAO APAC e-ANP Volume II *Table CNS II – APAC-1 – ATS Inter-facility Data Communication (AIDC) Implementation Plan*
  - ✓ AIDC elements discussed and concerned in the past APA TF meetings.

- 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.

Paragraph 2.1 -2.6 of WP/22 in CNS SG/27



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Ref.: T 8/3.5: AP135/22 (CNS) 17 October 2022

Subject: Validate and Supplement the Table of AIDC Implementation Status in APAC Region

Action Required: Reply by **31 January 2023**

Sir/Madam,

ATS Inter-facility Data Communications (AIDC), as an effective automatic message exchange tool, has fostered better collaborative air traffic management between concerned ATSUs of adjacent FIRs, resulting in a decrease in coordination errors and associated decrease in RVSM Large Height Deviation (LHD) occurrences.

I wish to inform you that the Secretariat proposed the table of AIDC Implementation Status in APAC region based on the ICAO APAC e-ANP Volume II *Table CNS II – APAC-1 – ATS Inter-facility Data Communication (AIDC) Implementation Plan* to effectively monitor AIDC implementation status and support REQUIRED statistics and analysis. The Ninth Meeting of the Aeronautical Communications Services (ACS) Implementation Coordination Group (ACSICG/9) held *from 19 to 21 April 2022* and the Third Meeting of the Asia/Pacific Air Traffic Management Automation System Task Force (APAC ATMAS TF/3) held *from 8 to 10 June 2022* have reviewed and adopted the table, which has also been further reviewed by the Twenty-Sixth Meeting of the Communications, Navigation and Surveillance Sub-group (CNS SG/26) held *from 5 to 9 September 2022*, and agreed to circulate it to States/Administrations for validation and supplements.

The table of AIDC Implementation Status in APAC region aims to maintain a common understanding among various contributory bodies of APANPIRG, and eventually build up the regional repository of AIDC Implementation Status. The Secretariat has already incorporated the latest updates provided/reported by States/Administrations into the table attached and I would be grateful if you could validate/supplement the table by referring to the explanation page of the table, and return it to ICAO APAC Regional Office at apac@icao.int with cc to yluo@icao.int and wzhong@icao.int **by 31 January 2023**.

Yours sincerely,

for Tao Ma
Regional Director

Enclosure:
Table of AIDC Implementation Status in APAC Region

Asia and Pacific Office
252/1 Vibhavadi Rangsit Road
Chatuchak
Bangkok 10900
Thailand

Postal Address:
P.O. Box 11
Samyaek Ladprao
Bangkok 10901
Thailand

Tel.: +66 (2) 537-8189
Fax: +66 (2 537-8199

www.icao.int/apac
E-mail: apac@icao.int

Latest Repository of AIDC Implementation Status

- To follow up ACTION ITEM 3-2 of ATMAS TF/3, the table of AIDC repository with current status has been circulated through State Letter **Ref.:** T 8/3.5: AP135/22 (CNS) with Subject – *Validate and Supplement the Table of AIDC Implementation Status in APAC Region* on 17 October 2022, which is provided in **Appendix A** of this paper.

- Total 15 updates have been received from States/Administrations, namely Australia, Cambodia, China, Hong Kong China, Japan, Lao PDR, Malaysia, Maldives, New Zealand, Pakistan, Republic of Korea, Singapore, Sir Lanka, Thailand, and USA. The table of AIDC Implementation Status in APAC region with the latest status is provided in **Appendix B** to this paper for reference and update by the meeting.

Paragraph 2.7 -2.8 of WP/22 in CNS SG/27

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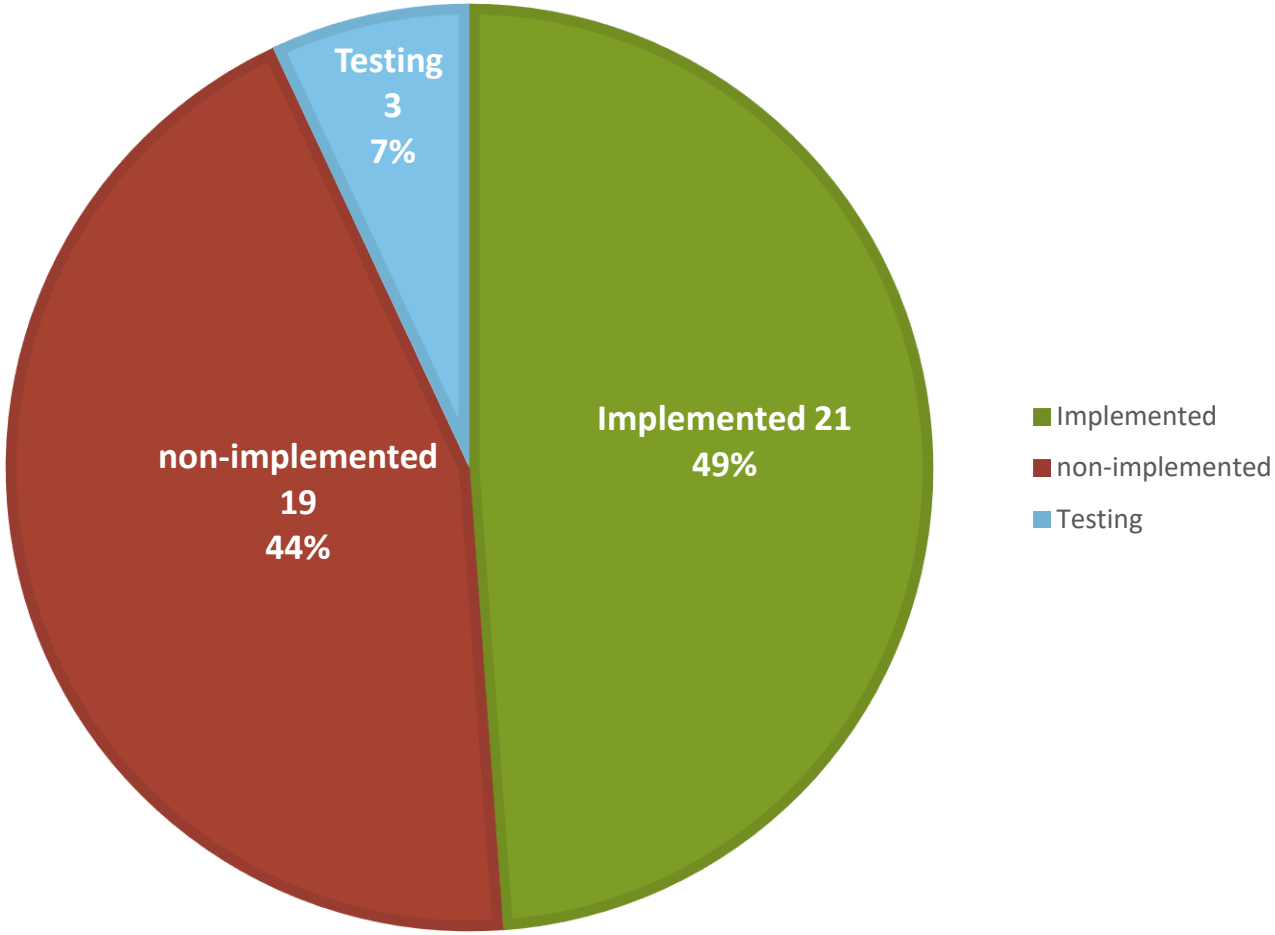
Preliminary Analysis of the Current Status

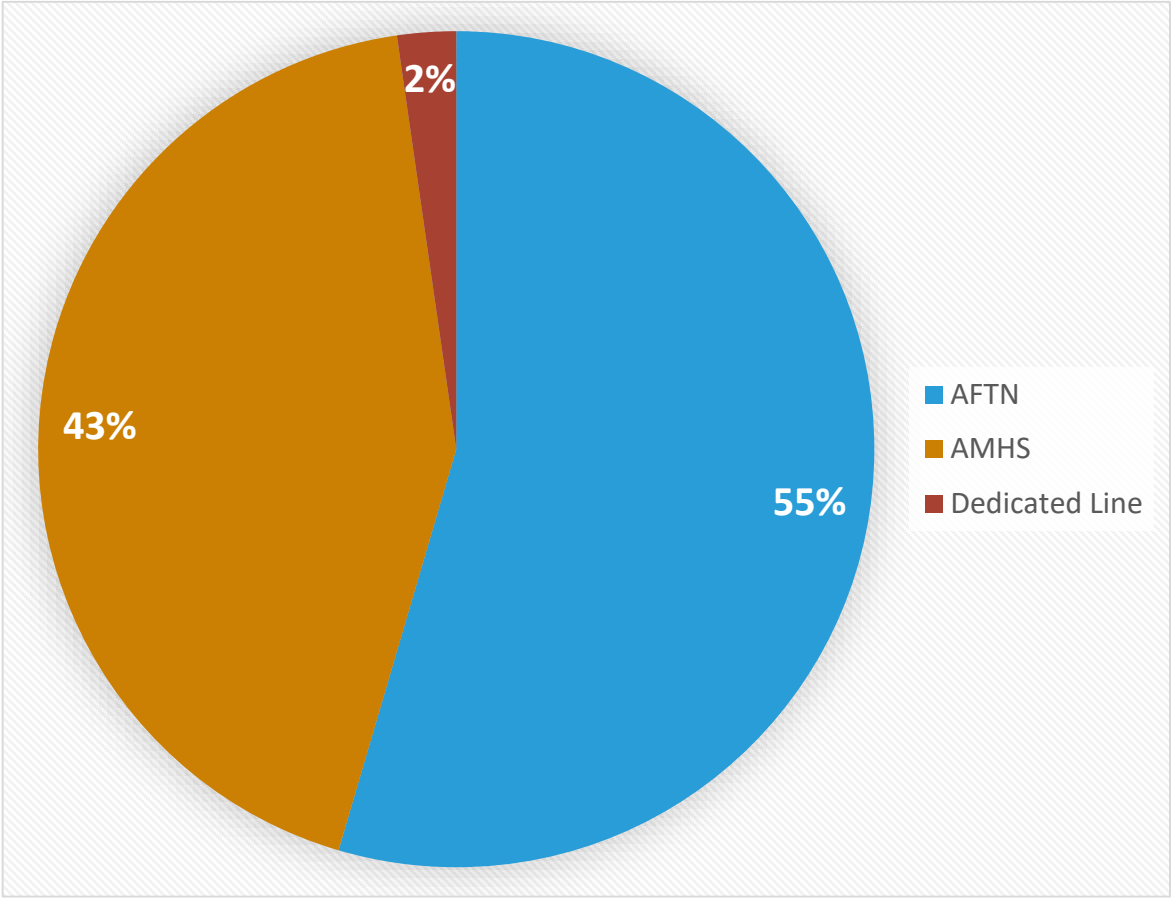
OVERVIEW - AIDC Implementation Status in APAC Region



Paragraph 2.9.1 of WP/22 in CNS SG/27

Transmission Means

The carriage of AIDC messages is facilitated through existing communication networks (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. The AIDC transmission means in APAC is presented in Figure 2.



Paragraph 2.9.2 of WP/22 in CNS SG/27

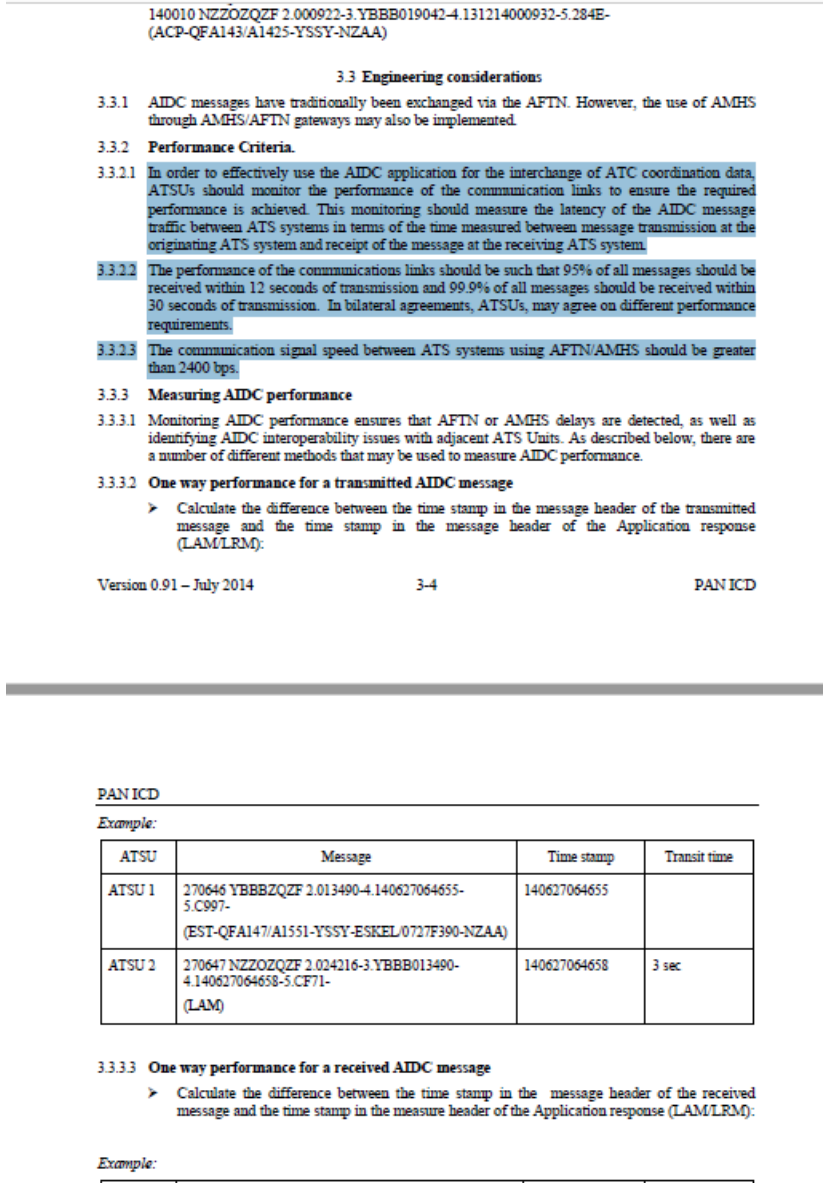
Communication Signal Speed

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.

It is noted that all the AIDC links in APAC region which provided the information about communication signal speed have met the above mentioned requirements.

Paragraph 2.9.3 of WP/22 in CNS SG/27

Average Transmission Delay (One Trip Time)



140010 NZZOZQZF 2.000922-3.YBBB019042-4.131214000932-5.284E-
(ACP-QFA143/A1425-YSSY-NZAA)

3.3 **Engineering considerations**

3.3.1 AIDC messages have traditionally been exchanged via the AFTN. However, the use of AMHS through AMHS/AFTN gateways may also be implemented.

3.3.2 **Performance Criteria.**

3.3.2.1 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.

3.3.2.2 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.

3.3.2.3 The communication signal speed between ATS systems using AFTN/AMHS should be greater than 2400 bps.

3.3.3 **Measuring AIDC performance**

3.3.3.1 Monitoring AIDC performance ensures that AFTN or AMHS delays are detected, as well as identifying AIDC interoperability issues with adjacent ATS Units. As described below, there are a number of different methods that may be used to measure AIDC performance.

3.3.3.2 **One way performance for a transmitted AIDC message**

- Calculate the difference between the time stamp in the message header of the transmitted message and the time stamp in the message header of the Application response (LAM/LRM):

Version 0.91 – July 2014 3-4 PAN ICD

PAN ICD

Example:

ATSU	Message	Time stamp	Transit time
ATSU 1	270646 YBBBZQZF 2.013490-4.140627064655-5.C997- (EST-QFA147/A1551-YSSY-ESKEL/0727F390-NZAA)	140627064655	
ATSU 2	270647 NZZOZQZF 2.024216-3.YBBB013490-4.140627064658-5.CF71- (LAM)	140627064658	3 sec

3.3.3.3 **One way performance for a received AIDC message**

- Calculate the difference between the time stamp in the message header of the received message and the time stamp in the measure header of the Application response (LAM/LRM):

Example:

From the data collected through the Column “Average Transmission Delay (One Trip Time)”, all the average transmission delays of AIDC messages are less than 10s. However, States/Administrations are reminded to check the transmission delay to meet the performance requirements of the communications links mentioned above in order not to influence the AIDC performance.

Paragraph 2.9.4 of WP/22 in CNS SG/27

List of AIDC Messages Applicable between the Two ATSUs

Among data provided by 94 AIDC links, only 40 of them implemented AIDC messages ABI, EST, ACP, TOC, AOC at the same time, which means only 42% of the links meet the requirements in Seamless ANS Plan V3.0 .

Preferred ANS Service Levels (PASL)

Note: prior to the implementation, the applicability of PASL should be verified by analysis of safety, current and forecast traffic demand, efficiency, predictability, cost effectiveness and environment to meet expectations of stakeholders.

PASL Phase II (expected implementation by 07 November 2019)

ATS Communications

7.24 All ATS sectors providing ATS surveillance in adjacent airspace should have direct speech circuits or digital voice communications, meeting pre-established safety and performance requirements, and where practicable, automated hand-off procedures that allow the TOC of aircraft without the necessity for voice communications, unless an aircraft requires special handling.

Note: this element is applicable to ATC sectors within ATS units and between ATS units providing services in adjacent airspace.

7.25 Where applicable, all ATC Sectors should be supported by VDL Mode O/A and AMHS communication systems consistent with **COMI-B0/3, 7** (Priority 1).

7.26 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 (refer to guidance in Chapter XX in PAN ICD).

ATS Surveillance

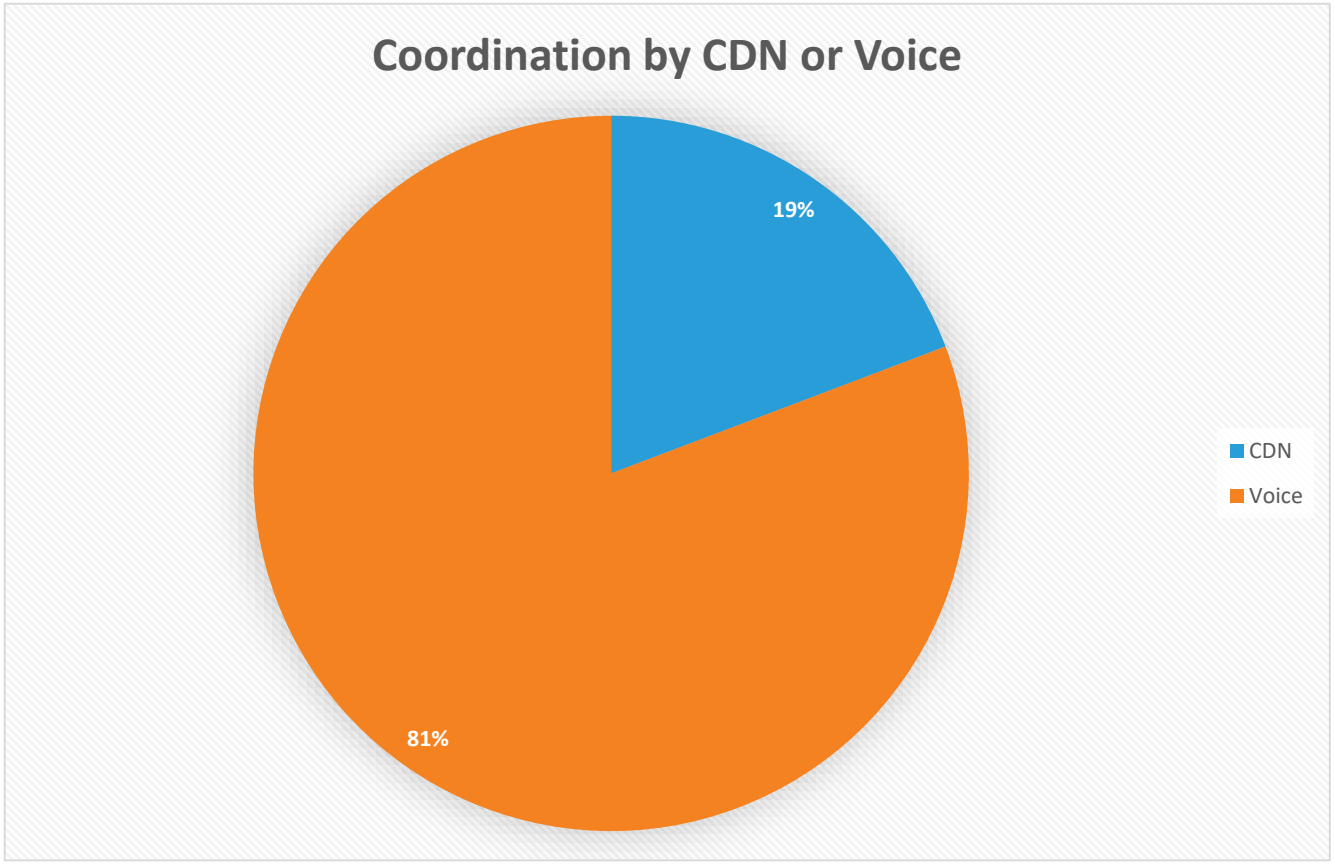
7.27 ADS-B (using 1090ES), MLAT or radar surveillance systems should be used to provide coverage of all Category S airspace as far as practicable, and Category T airspace supporting international aerodromes, consistent with **ASUR-B0/1 – 2.** Data from ATS surveillance systems should be integrated into operational ATC aircraft situation displays (standalone displays of ATS surveillance data should not be used operationally).

Note 1: ATM systems, including ATS surveillance systems and the performance of those systems, should support the capabilities of PBN navigation specifications and ATC separation standards applicable within the airspace concerned. Guidance on the performance of ATS communication and surveillance systems is available in ICAO Document Doc 10037 (Global Operational Data-link Document)

Note 2: ATC units with ADS-B where Category S and Category T airspace supporting high-density aerodromes may consider utilizing ADS-B for situational awareness and/or separation.

Paragraph 2.9.5 of WP/22 in CNS SG/27

Coordination by CDN or Voice
(Recoodination/Coordination Negotiation)



Paragraph 2.9.6 of WP/22 in CNS SG/27

AIDC Implementation Plan

2023
17 AIDC links

2024
10 AIDC links

2025
4 AIDC links

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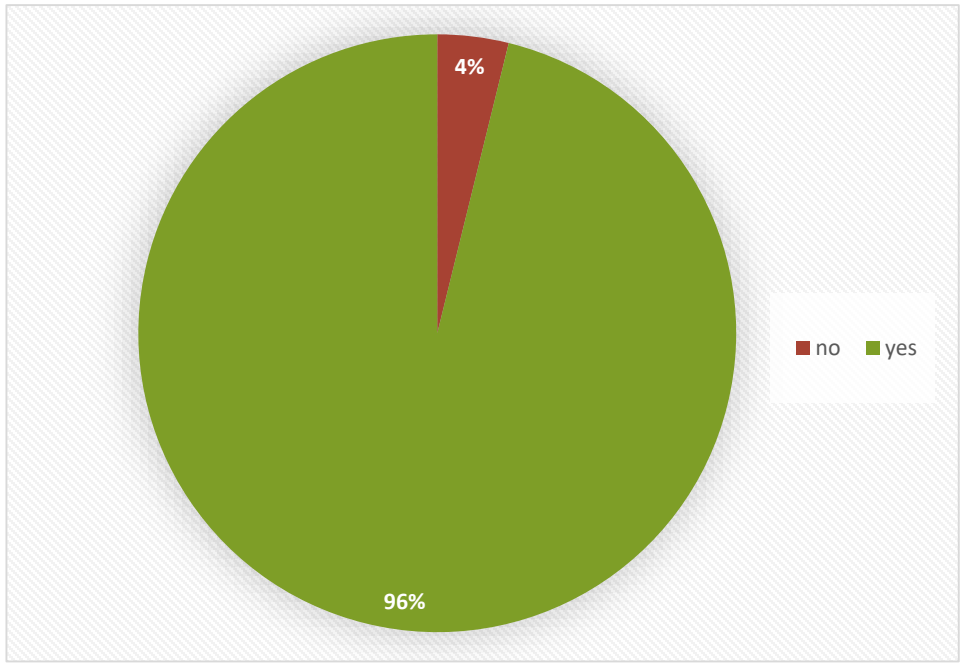
Paragraph 2.9.7 of WP/22 in CNS SG/27

A Warning Message to Controller in Case of AIDC Failure



6.2.4.3.3 The value of T_{op} may vary depending on the operational environment, and whether manual processing is required to generate the operational response. Because some operational responses should be automated (e.g. PCA message), whilst some would normally be sent manually (e.g. response to a CDN message), ground systems should have the ability to set different T_{op} values for different operational responses. As a general rule, the maximum value of T_{op} should be 600 seconds when a manual action is required to trigger the operational response.

6.2.4.3.4 Failure to receive an operational response within timeout period T_{op} should result in a warning message being displayed to the controller.

6.5.4.3 Application Status Monitor (ASM)

6.5.4.3.1 The ASM message is used to confirm that the communication link between two ATS Units is on line, as well as confirming that the AIDC application of another ATS Unit is on-line. This message is sent by one ATSU to another if, after a mutually agreed time, no AIDC messages (including Application response messages - LAM or LRM) have been received from the other

ATSU. An ATSU receiving an ASM message should respond with an appropriate application response.

6.5.4.3.2 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.

Paragraph 2.9.8 of WP/22 in CNS SG/27

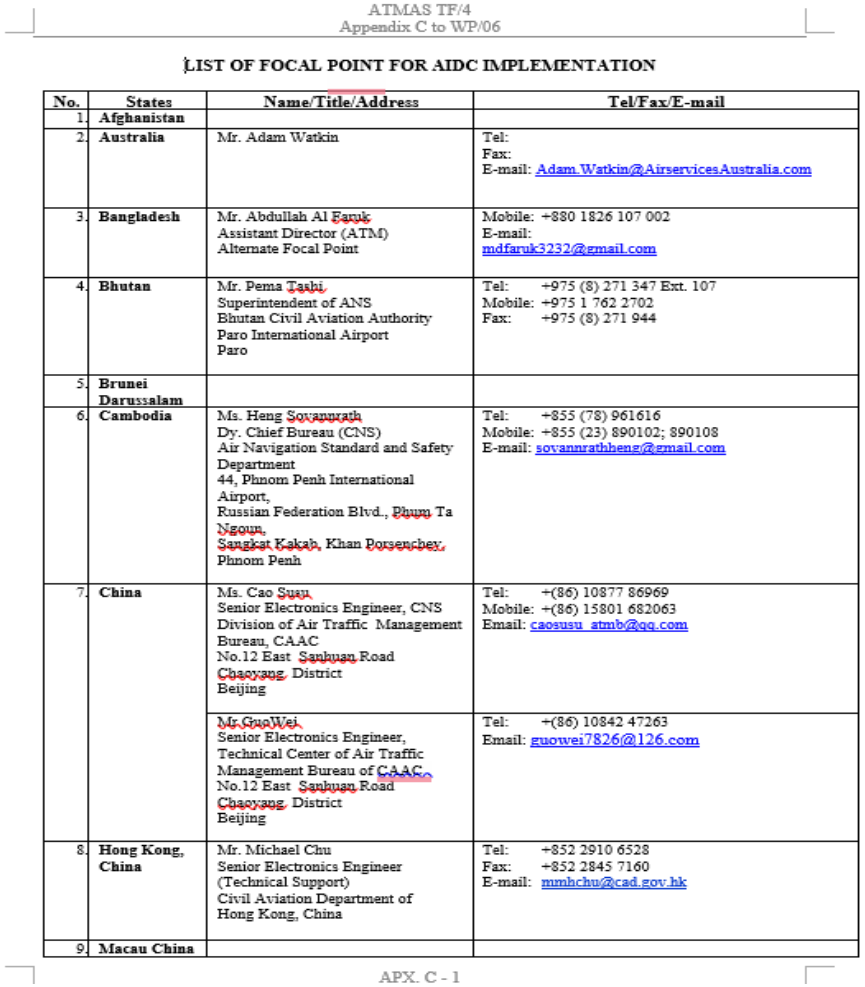
Follow up actions

- ✓ Member States/Administrations are encouraged to continue keeping the ICAO Secretariat updated on the latest AIDC implementation status/progress/plan.

Paragraph 2.10 of WP/22 in CNS SG/27

Focal Point for AIDC Implementation

ACSICG/10 meeting also reviewed and updated the focal point for AIDC implementation designated by States/Administrations. The list is provided in **Appendix C** to this paper for review and update by the meeting.



ATMAS TF/4
Appendix C to WP/06

LIST OF FOCAL POINT FOR AIDC IMPLEMENTATION

No.	States	Name/Title/Address	Tel/Fax/E-mail
1.	**Afghanistan**		
2.	**Australia**	Mr. Adam Watkin	Tel: Fax: E-mail: Adam.Watkin@AirservicesAustralia.com
3.	**Bangladesh**	Mr. Abdullah Al Faruk Assistant Director (ATM) Alternate Focal Point	Mobile: +880 1826 107 002 E-mail: mdfaruk3232@gmail.com
4.	**Bhutan**	Mr. Pema Tashi Superintendent of ANS Bhutan Civil Aviation Authority Paro International Airport Paro	Tel: +975 (8) 271 347 Ext. 107 Mobile: +975 1 762 2702 Fax: +975 (8) 271 944
5.	**Brunei Darussalam**		
6.	**Cambodia**	Ms. Heng Sovannrath Dy. Chief Bureau (CNS) Air Navigation Standard and Safety Department 44, Phnom Penh International Airport, Russian Federation Blvd., Phum Ta Ngoun, Sangkat Kakab, Khan Porsenchey, Phnom Penh	Tel: +855 (78) 961616 Mobile: +855 (23) 890102; 890108 E-mail: sovannrathheng@gmail.com
7.	**China**	Ms. Cao Suyu Senior Electronics Engineer, CNS Division of Air Traffic Management Bureau, CAAC No.12 East Sanhuan Road Chaoyang District Beijing	Tel: +(86) 10877 86969 Mobile: +(86) 15801 682063 Email: caosusu_atmb@qq.com
		Mr GuoWei Senior Electronics Engineer, Technical Center of Air Traffic Management Bureau of CAAC No.12 East Sanhuan Road Chaoyang District Beijing	Tel: +(86) 10842 47263 Email: guowei7826@126.com
8.	**Hong Kong, China**	Mr. Michael Chu Senior Electronics Engineer (Technical Support) Civil Aviation Department of Hong Kong, China	Tel: +852 2910 6528 Fax: +852 2845 7160 E-mail: mmhchu@cad.gov.hk
9.	**Macau China**		

APX. C - 1

Paragraph 2.11 of WP/22 in CNS SG/27

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ACTION BY THE MEETING

The meeting is invited to:

Note the information contained

Review and update the information contained in the table of AIDC Implementation Status in APAC region with the latest status in **Appendix B.**

Note the outcomes of the preliminary analysis of the current AIDC implementation status;

Review and update the list of focal points for AIDC Implementation in the APAC Region provided in **Appendix C**;

Discuss any relevant matter as appropriate.

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Thank You

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