INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA AND PACIFIC OFFICE

REPORT OF

THE SECOND MEETING OF ATS INTER-FACILITY DATA COMMUNICATION TASK FORCE MEETING (APA TF/2)

16 – 18 March 2016
Bangkok, Thailand

The views expressed in this Report should be taken as those of the AIDC Task Force and not of the Organization. This Report will be presented to the APANPIRG/28 for consideration through CNS Sub-group of APANPIRG.

History of the Meeting **Page**

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1. Introduction

1.1 The Second meeting of the ATS Inter-facility Data Communication Task Force (APA TF/2) was held in Bangkok, Thailand from 16 to 18 March 2016.

2. Attendance

2.1 The meeting was attended by 38 participants from 14 States (Bangladesh, Cambodia, Hong Kong China through teleconference, India, Indonesia, Laos PDR, Maldives, Malaysia, through teleconference), Mongolia, Philippines, Republic of Korea, Singapore, Thailand, USA and Viet Nam). The list of participants is at **Attachment 1**.

3. Opening of the Meeting

3.1 On behalf of Mr. Arun Mishra, Regional Director, ICAO Asia and Pacific Regional Office, Mr. Li Peng welcomed all participants to the meeting. He thanked Administrations and members of Ad Hoc working group made progress on the development of AIDC implementation guidance materials and he also highlighted the objective of the meeting.

3.2 The co-chairs for the Task Force, Mr. Anurag Sharma, Joint General Manager (CNS) Airports Authority of India and Mr. Kwek Chin Lin, Head (Air Traffic Management Operations Systems), Civil Aviation Authority of Singapore emphasized the important tasks for the meeting and welcomed all the participants.

4. Officers and Secretariat

4.1 Mr. Anurag Sharma, Joint General Manager (CNS) Airports Authority of India and Mr. Kwek Chin Lin, Head (Air Traffic Management Operations Systems), Civil Aviation Authority of Singapore, acted as Co-chairs for the Task Force. Mr. Li Peng, Regional Officer CNS, Asia and Pacific Office acted as Secretary who was assisted by Mr. Frederic Lecat, Regional Officer CNS from the same office.

5. Organization, Working arrangement, Language and Documentation

5.1 The working language was English inclusive of all documentation and this report. A list of working and information papers presented at the meeting is at **Attachment 2.**

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Agenda Item 1: Adoption of Agenda

1.1 The agenda items presented in WP/01 were adopted as Agenda for the meeting.

Agenda Item 2: Review of outcomes of relevant meetings

Outcome of APANPIRG/26 and CNS SG/19 on AIDC (WP/02)

2.1 Under this agenda item, the meeting reviewed the outcome of APANPIRG/26 on AIDC including recommendations by CNS SG/19 meeting on the report of APA TF/1 held in June 2015.

2.2 The meeting noted that APANPIRG/26 adopted Conclusions:

- APANPIRG/26/33 regarding recommendations for AIDC Implementations for considerations by States/Administrations in the APAC Region; and

- APANPIRG/26/34 to encourage States/Administrations to use the Pan Regional ICD for AIDC for any planned new ATM automated system or updating ATM automated systems for AIDC function.

2.3 The meeting discussed how to progress the AIDC implementation for those significant LHD interface areas identified by APANPIRG. Indonesia informed the meeting that Jakarta had no AIDC communications with Brisbane; but AIDC was required between Makassar and Brisbane. The Philippines also informed the meeting that in addition to those interface AIDC circuits as identified in the paragraph 2.3 of the working paper, the need for AIDC connection between Manila and Oakland was also identified.

Update on the Seamless ATM Reporting Process and Regional Picture (WP/03)

2.4 The Secretariat presented the status of the Seamless ATM reporting process and regional picture reflecting the implementation progress of Air Navigation Improvements in APAC Region against the objectives set forth by the GANP ASBU Block 0 and Seamless ATM Plan V1. A total of 30 States/Administrations had nominated their Seamless ATM points of contact.

2.5 A total of 23 States/Administrations, i.e. 55% of the APAC States/Administrations, had submitted one or more report(s) on the ICAO Seamless ATM Reporting portal. Among those 23 States/Administrations, 10 update their progress on a regular basis, which is an excellent practice.

2.6 The meeting reviewed the regional picture, in particular the Seamless item 220 which shows the progress of AIDC implementation against the global indicator (% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC / OLDI with neighbouring ACCs). States were urged to cross check the reporting information between Seamless Points of Contact (POC) and AIDC focal points to identify and solve discrepancies.

2.7 States were urged to submit/update the information of focal points for AIDC implementation and also the information of focal points for seamless ATM plan reporting.

Review the Terms of Reference of the APA Task Force (WP/05)

2.8 In accordance with **APANPIRG/26/66** — Review Terms of Reference of Contributory Bodies under the APANPIRG Sub Groups, the meeting reviewed the TOR of the Task Force. Considering the Task Force was established very recently by APANPIRG with focused and clear tasks, the meeting did not identify the need to amend the TOR.

2.9 The meeting noted the project management principles recommended by ABSRTF and considered by APANPIRG provided in the Appendix D to the WP/05 and recognized that the project driven by the Task Force had two objectives:

- to solve all issues identified in the AIDC issue table through an action plan; and
- deliver the AIDC Implementation Guidance Material through the appropriate task.

Agenda Item 3: Review implementation issues reported

AIDC Issues observed in the Trial with Thailand's Adjacent FIRs (IP/02)

3.1 Thailand informed that meeting that Thailand had carried out the initial trial on AIDC message exchange with Cambodia and Lao PDR. Two main software defects were found during the test: CRC error and message identification number (ODF option 2) jump.

3.2 The meeting discussed the two issues observed and considered that these should be included in the Issue forms with recommended solutions. It was also understood that the specifications on CRC and ODF in a common AIDC ICD should be followed by the both ends of the AIDC connections.

3.3 Under this agenda item, the meeting also reviewed issues collected and consolidated in the AIDC Issue Form. The meeting further agreed that the issues identified should be addressed and classified into common groups. The solutions to the issues identified should be briefly recorded and shared with States/Administrations concerned. The meeting further agreed that the issue form should be updated by ICAO regional office and to be kept separatly in the AIDC folder through ICAO portal access.

Agenda Item 4: Asia/Pacific AIDC Implementation guidance material

Draft AIDC Implementation and Operations Guidance Document
(WP/04, WP/06, WP/07, WP/09 and WP/10)

4.1 The meeting noted the outcome of the teleconferences of the Ad Hoc working group on development of the AIDC Guidance Materials.

4.2 To follow up on Decision 1/4, two teleconferences were held to develop the structure and the table of contents of the AIDC Implementation Guidance Material. The first Teleconference held on 10 November 2015 and developed the initial structure of the draft Guidance Material. The second Teleconference held on 1 February 2016 refined the structure of the draft AIDC Guidance Material. The meeting also agreed to assign tasks to the working group members to develop the initial draft for the sections/parts allocated to them.

4.3 The meeting agreed to the structure of the draft AIDC Guidance Document with slight changes to the wording of Chapter 7 i.e. replacing the word – system with performance. In case the word system is used in the draft material for Chapter 7, either sub-system or appropriate alternate words may be used to replace the word system. AIDC was considered a sub-system of ATM system.

4.4 The meeting reviewed the following contributions from lead members of Ad Hoc working group on the development of AIDC Implementation Guidance Document:

- Chapter 1 presented by Aerothai, Thailand;
- Chapter 4 presented by Singapore;
- Chapter 5 presented by India;
- Chapter 6 presented by Singapore;
- Chapter 7 presented by Hong Kong China through Teleconference;
- Chapter 8 presented by Co-chair on behalf of Malaysia
- Additional appendices presented by Hong Kong China and India

4.5 The meeting discussed the format and information provided by contributors. The meeting agreed to make some changes to Chapter 7 and Chapter 5 proposed during the discussions. The meeting also agreed to relocate first two paragraphs in the draft Chapter 7 to Chapter 1. The meeting agreed to keep the five core messages and three system messages for easy reference in Chapter 4 and make reference to the Pan AIDC ICD for the rest of messages. The meeting also agreed to add additional appendices to the AIDC IGD including two presented from Hong Kong China and one presented by India.

4.6 The agreed guidance materials were consolidated into version 0.1 of the APAC AIDC Implementation and Operations Guidance Document (**Appendix A** to this Report). The meeting agreed to further polish the draft materials through emails exchange and teleconference. The final draft of the guidance document will be ready for final review at the third meeting to be held in March 2017. The document will be ready for consideration by CNS SG/21 in July 2017.

Agenda Item 5: Sharing of experience on AIDC implementation including plan for use of Pan regional ICD for AIDC and update the implementation status

Updates on AIDC implementation activities in India (WP/08)

5.1 India provided an update regarding the trials and implementation plan for AIDC between ATSUs in India and their neighbouring ATSUs. The meeting noted the issues experienced during the implementation of AIDC between Chennai and Kuala Lumpur and resolutions/work-around for the identified issues. In December 2015 AIDC Trial operations were conducted for a period of 3 weeks between Chennai and Kuala Lumpur with voice confirmation. After successful completion, AIDC trial operations without voice confirmation were commenced from 25th February 2016.

5.2 AIDC testing between Chennai-Colombo and Chennai-Male commenced in early 2015. Draft LOA was provided to Maldives. India reported that Chennai was also ready to test AIDC operations with Yangon and Jakarta as committed in BOBASIO/5 meeting.

AIDC implementation updates by Singapore (IP/03)

5.3 Singapore provided updates on the progress of AIDC implementation in Singapore with adjacent FIRs and the plan use of the Pan regional ICD for AIDC.

5.4 Singapore and Viet Nam adopted a multi-phased approach in introducing AIDC communications. Phase 1 commenced on 24 July 2014. Phase 2 Operational trial commenced on 22 June 2015. During the trial, it was found that the ABI message was not successfully processed due to pre-2012 flight plan format details captured in field 18. Singapore and Viet Nam were also exploring alternate connection links for AIDC application as the potential latency issue of existing AFTN network could cause disruption to AIDC message exchanges.

5.5 Singapore summarized the various activities conducted or planned for AIDC implementation between Singapore and the adjacent FIRs as follows:

State/ATC unit	Technical Test commencement	Implementation Date	AIDC message set	Remarks
Vietnam / Ho Chi Minh ACC	December 2013	24 July 2014	Phase 1 (24th July 2014): EST, ACP, LAM, LRM Phase 2 (3Q2015): ABI, TOC, AOC	Phase 2 operational trials started on 22 June 2015 to present.
Malaysia/ Kuala Lumpur, Kota Kinabalu and Kuching ATCCs	December 2014	December 2015: Kota Kinabalu ATCC January 2016: Kuching ATCC February 2016: Kuala Lumpur ATCC	ABI, EST, ACP, LAM, LRM, TOC, AOC	Messages for different phases and ATCCs are yet to be finalized. Coordination meeting held in Feb 2016 to set new dates for technical testing.
Philippines/ Manila ACC	December 2014	December 2015	ABI. EST. ACP, LAM, LRM, TOC, AOC	Initial testing December 2014 with interim system. Further technical testing will be scheduled for May 2016.
Indonesia/Jakarta ATSC	TBA	December 2016*	ABI. EST. ACP, LAM, LRM, TOC, AOC	Jakarta ATSC expected AIDC capability in September 2015. Discussions on AIDC implementation to commence once Jakarta is ready

Use of Pan regional ICD

5.6 It was informed that Singapore had taken a phased approach to introduce AIDC functionality into ATM system. The ATM system was commissioned with AIDC ICD version 1.0, introducing the basic set of messages available for AIDC communication. An upgrade to the software (AIDC ICD version 3.0) would be completed this year to enable the system to utilize the full message set made available in the AIDC version. Singapore would plan an upgrade to implement the Pan regional ICD for AIDC in their ATM system after the introduction of AIDC ICD version 3.0 once their ATM system is stabilised.

AIDC Tests in the Philippines with adjacent ACCs (IP/04)

5.7 The Philippines provided updates on their AIDC test plan. After the upgrade of their ATM System upgraded to support AIDC V2.0 capability, Manila ACC commenced AIDC tests with Singapore ACC in July 2015, followed by Taipei ACC in September 2015. The software correction for Manila FDP was installed on 8 March 2016 and ready for another round of validation. The tests were not successful and it was attributed to software configuration issues in the ATM System. On 10 March 2016, testing with Ujung Pandang ACC was conducted. Ujung Pandang ACC reported problems in processing the messages sent by Manila. The issue was pending analysis and discussion by both ends.

5.8 The outstanding issues are expected to be resolved and further validation conducted with Hong Kong China on 21 – 22 April 2016.

AIDC Implementation Plan in Bangladesh (IP/05)

5.9 Bangladesh informed the meeting about the plans to implement AIDC with its adjacent ATS units in India and Myanmar.
In Q1/2013, Bangladesh installed ATN/AMHS and BIS Router at Dhaka (VGHS) with User Agents at Chittagong (VGEG) and Sylhet (VGSY). ATM Upgrade Project (BATMUP) under Public Private Partnership (PPP) in Dhaka was expected to be completed by 2018. The target date of AIDC Implementation with Kolkata ACC, India and Yangon, Myanmar is 4Q2018.

5.10 The meeting congratulated States for having achieved the successful trials and/or implementation of AIDC and development of AIDC implementation plan.

Updates to the AIDC Implementation Status

5.11 The meeting reviewed and updated the AIDC and ATN/AMHS implementation status in the APAC Region. The updated information is provided in **Appendix B** to this Report.

Agenda Item 6: Development implementation Plan focusing those connections identified with priorities

6.1 The meeting recalled safety issues related to human errors during ATS transfer human errors which had been identified APANPIRG. Considering that ATS Inter-facility Data Communications (AIDC) is an important means of minimizing Large Height Deviations (LHD), States/Administrations concerned discussed and agreed to the implementation plan for the following significant LHD interface areas:

a) **Indonesia:** between Jakarta and Chennai/Ujung Pandang/Melbourne FIRs – Dec. 2018 which is the target date for ATM system at Jakarta be replaced.

aa) AIDC trials between Brisbane and Makassar ATSCs had been carried out for number of years. Currently has issue of message delay. It is expected to be implemented in December 2016.

b) **India:** between Chennai and Kuala Lumpur FIRs;
AIDC trial operations without voice confirmation were commenced from 25th February 2016. Currently both sides are working on the LOA approval. The target date of implementation by December 2016.

c) **Philippines:** between Manila and Fukuoka / Taibei /Hong Kong/Ho Chi Minh/ Singapore/ Kota Kinabalu /Ujung Pandang FIRs;

- with Fukuoka: 4Q2017;
- with Taibei: 4Q2016;
- Hong Kong: to be confirmed later with CAD Hong Kong
- Ho Chi Minh: testing by end of 2016 and implementation by 4Q2017
- Singapore: 3Q2016;
- Kota Kinabalu : to be confirmed;
- Ujung Pandang: 1Q2017

In addition to the above significant LHD interface area identified by APANPIRG, the need for AIDC connection with Oakland was also identified.

d) **China:** between –
   i) Urumqi and Lahore FIRs **(**VSAT voice communication being established**)**; and
   ii) Beijing and Ulaan Baatar FIRs. (Secretariat was requested to facilitate discussions for implementation planning between China and Mongolia)

Target date for implementation: Currently Mongolia is updating ATM system by May 2016, Chinese side updating by end of April 2016.

ACTION ITEM/ Mongolia: To provide updated information for the target date of implementation to ICAO Regional Office after coordination with China. Secretariat was also requested to facilitate coordination for the planning of the AIDC implementation between two States.

Other concerned AIDC connections/implementation:

6.2 Republic of Korea informed the meeting that they currently have AIDC connection with Japan (Incheon/Fukuoka), and they were discussing with China for AIDC implementation between Incheon, Republic of Korea and Dalian, China with target date for implementation by June 2016. Secretariat was also requested to facilitate the coordination for implementation.

6.3 In order to facilitate implementation, Thailand encouraged States/Administrations to visit the State/Administration that have implemented AIDC and having gained obvious benefits.

6.4 Indonesia suggested that ICAO to facilitate pass the concerned issues to the industry partners. ICAO Regional Office is requested to contact the representative of the Industry in ICAO Headquarter (air navigation commission) to provide them the outcome and concerns of the Task Force and States. Indonesia also suggested to group those identified deficiencies in the issue forms.

6.5 USA also recommended conducting Cost Benefit Analysis for implementation in addition to the safety benefit.

Agenda Item 7: APA/TF Action list

7.1 The meeting reviewed and updated list of tasks for the AIDC Implementation Task Force which is provided in **Appendix C** to this report.

Agenda Item 8: Next meeting

8.1 The next meeting of the Task Force is scheduled for March 2017. The Secretariat will inform the members States of the Task Force of the exact dates and venue. Teleconference for the small working group regarding the development of the guidance material and progress of issues is scheduled for June 2016. The face-face meeting for the ad hoc working group for the AIDC IGD drafting group is scheduled for 4Q 2016.

Agenda Item 9 Any other business

9.1 The meeting further discussed issues in the issue form. The reported issues should be well addressed. They should be classified into groups with common problem in nature. The successful solution should be recorded for consideration by other States/Administrations. Indonesia agreed to take the lead for analysis and grouping and Singapore/India to support this task. The meeting further agreed that the information in issue form in the Chapter 5 of the draft AIDC IGD should be relocated to the portal site of ICAO to be created. Only the format of the issue form will be attached to the AIDC IGD as an Appendix.

9.2 The Secretariat was requested to coordinate with ICAO HQ to create the dedicated AIDC Implementation portal site to keep AIDC related information and documents.

9.3 In closing the meeting, the Chairmen thanked participants for their active participation and wished all participants to have a safe and pleasant trip home.

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ATS Inter-Facility Data ~~Link~~ Communication (AIDC) IMPLEMENTATION AND OPERATIONS GUIDANCE DOCUMENT

Draft – March 2016

Version 0.1

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1. Introduction

The ATS Inter-Facility Data-Link Communication (AIDC) Implementation and Operations Guidance Document (IGD) is the result of the task entrusted to the Asia/Pacific ATS Inter-Facility Data-Link Coordination Task Force (APA/TF) by APANPIRG. This main objective of this document is to provide guidance, complementing relevant ICAO standards, on AIDC implementation within the APAC region. The ultimate goal will be that countries within APAC region are able to meet the regional AIDC targets according to APAC seamless ATM plan and continue to advance on Flight and Flow Information for a Collaborative Environment (FF-ICE) according to GANPs ASBU.

The Communications, Navigation, Surveillance and Air Traffic Management (CNS/ATM) environment is an integrated system including physical systems (hardware, software, and communication networks), human elements (pilots, controllers and engineers), and the operational procedures for its applications.

Recognized by ICAO under its Global Air Navigation Plan (GANP) and Aviation System Block Upgrades (ASBU) framework as an effective tool to reduce manual intervention and ground-ground coordination errors between adjacent ATS Units, the ATS Inter-facility Data Communications (AIDC) is a data link application that provides the capability to exchange data between air traffic service units during the notification, coordination and transfer of aircraft between flight information regions. It is an automated system that facilitates routine coordination by providing a reliable and timely data exchange between ATS units in which accurate information can be derived directly from the system, thus effectively reducing controllers' workload and hence human errors.

1.1 The arrangement of AIDC IGD
The AIDC IGD will define the following:
Chapter 2 Acronyms List and Glossary of Terms
Chapter 3 Reference Documents
Chapter 4 AIDC messages – Message sets to be used for AIDC Implementation
Chapter 5 AIDC Implementation – Information to support the implementation activities including checklist and how to handle implementation issues.
Chapter 6 Harmonization Framework for AIDC Implementation – Information on the harmonization framework on AIDC implementation activities and plan.
Chapter 7 System Integrity and Monitoring – Information on the infrastructure supporting the AIDC implementation including performance criteria, validation, monitoring, etc.
Chapter 8 AIDC regulations and procedures – Information on relevant regulations procedures such as training procedures, licensing, etc.

1.2 Document History and Management

Chapter 4 AIDC Messages

4.1 Introduction

4.1.1 This chapter describes the permitted fields and formats of AIDC messages. AIDC message fields conform to ICAO definitions contained in PANS-ATM Appendix 3 except as described below for Fields 14 and 15, as well as a "Text" field that is used in some AIDC messages.

4.1.2 ATS data in AIDC messages is enclosed between parentheses. Only one ATS message is permitted to be included in each transmission.

4.1.3 Unless specified otherwise by the ATSU, the optional elements in the AIDC message fields described in this chapter and shown in Table 4-6 should be made available in the system by the manufacturer and be user configurable.

4.2 Message Field Requirements

Fields in AIDC messages do not always require the full contents of the defined ICAO message field. This section specifies the usage of specific elements from message fields defined in the PANS-ATM as well as additional information that may be included in Fields 14 and 15.

4.2.1 Field 3 requirements.

4.2.1.1 All AIDC messages should use Field 3a (Message type) only.

4.2.1.2 Fields 3b (Message number) and 3c (Message reference data) are not used, since in AIDC messages the reference numbers contained in these fields are included in the Optional Data Field (ODF), option 2 and 3. See Chapter 3, Para 3.2.3.2.

4.2.2 Field 7 requirements.

4.2.2.1 Where Field 7 is required in an AIDC message, Field 7a (Aircraft Identification) must be included. Fields 7b (SSR Mode) and 7c (SSR Code) are optional but should be included if the information is available and applicable.

4.2.3 Field 13 requirements.

4.2.3.1 Where Field 13 is required in an AIDC message only Field 13a (Departure aerodrome), is required. Field 13b (Departure time) is not to be transmitted. The use of ZZZZ in Field 13 is supported.

4.2.4 Field 14 requirements

The following section describes the allowed contents of Field 14 (Estimate data), as well as providing examples of how Field 14 data can be incorporated in an AIDC message.

4.2.4.1 Field 14 may contain a number of mandatory and optional items. The following Table 4-1 provides an overview on the type of information that may be included in Field 14.

Table 4-1. Contents of Field 14

Data	Example	Mandatory/Optional	Comment
Position (14a)	46N150W 1545S16545E	M	Normally a waypoint or system calculated position on or near the FIR or ACI boundary as agreed to by bilateral agreement. Field 14a is followed by an oblique stroke "/"
	GOOFY		
Estimated time (14b)	2200	M	The estimate for the position in 14a
Level (14c)	A090 F330 F330F370	M	The coordinated level of the aircraft While 14c is mandatory, the support for the block level format is optional
Supplementary crossing data (14d)	A120 F350	Included when applicable	Use in conjunction with 14e to indicate that an aircraft may be on climb or descent at, or within tolerances of, the FIR boundary
Crossing condition (14e)	A B C	Included when applicable	(A) The aircraft may be on climb from the level specified in 14d (B) The aircraft may be on descent from the level specified in 14d (C) The aircraft is cruise climbing from the level specified in 14d. The support for the cruise climb format is optional
Mach Number	GM084 EM076 LM083	O	Used when a Mach Number speed restriction has been assigned to the aircraft by ATC.

Offset and weather deviation	W25R W100E O30L	O	When an offset or weather deviation is in effect, the position in 14a should be a position on the flight planned route, rather than the offset route

Note1. Each item of optional information in Field 14 is separated from the previous item by an oblique stroke "/";

Note2. The order that the item is included in Field 14 is the order in which it is listed in Table 4-1. For example, if an AIDC message were to include an assigned Mach Number as well as a weather deviation, the Mach Number information would precede the weather deviation information in Field 14.

4.2.4.2 Supplementary Crossing Data and Crossing Conditions in Field 14

4.2.4.2.1 Field 14 may contain information that an aircraft is on climb, descent or cruise climb to the specified level. This is achieved by including supplementary crossing data and crossing conditions in Field 14.

4.2.4.2.2 The inclusion of cruise climb information in AIDC messages should only be made following bilateral agreement.

Example:

Field 14	**Explanation**
DUMBO/2130F310F290A	The aircraft is estimating DUMBO at 2130, assigned F310 and is climbing from (or "above") F290.
30N160W/0215F310F330B	The aircraft is estimating 30N160W at 0215, assigned F310 and is descending from (or "below") F330.
ADSAM/1547F360F340C	The aircraft is estimating ADSAM at 1547 and is cruise climbing from F340 to F360.

4.2.4.3 Block level information in Field 14

4.2.4.3.1 Field 14 may contain information that an aircraft is operating in a block level clearance. It is permissible to include supplementary crossing data and a crossing condition with a block level, but if this occurs the supplementary information may only be a single level (i.e. it cannot be a block level).

Example:

Field 14	**Explanation**
MINNY/2125F320F340	The aircraft is estimating MINNY at 2125, and is operating in a block of levels between F320 and F340 (inclusive).
46N150W/0244F310F350F290A	The aircraft is estimating 46N150W at 0244, and has been assigned a block of levels between F310 and F350 (inclusive) and is climbing to the cleared block and will be at or above F290 at 46N150W.

4.2.4.3.2 The AIDC format does not support a cruise climb into a block clearance.

4.2.4.3.3 The inclusion of block level information in AIDC messages should only be made following bilateral agreement.

4.2.4.4 Mach Number information in Field 14

4.2.4.4.1 Field 14 may contain information that an aircraft has been assigned a speed restriction (Mach Number). When included in an AIDC message, any Mach Number information should always follow directly after the level information and be separated from the level information by an oblique stroke "/".

Example:

Field 14	**Explanation**
BUGGS/0349F350/GM085	The aircraft is estimating BUGGS at 0349 at F350 and has been instructed to maintain M0.85 or greater
4305N17510W/0215F310/EM076	The aircraft is estimating 4305N17510W at 0215 at F310 and has been instructed to maintain M0.76

4.2.4.4.2 The absence of speed information in Field 14 of an AIDC message provides advice that any previously notified speed has been cancelled.

Example:

Field 14	**Explanation**
SPEDY/1237F310F330B/LM083 Subsequently followed by: SPEDY/1238F310	The aircraft is estimating SPEDY at 1237, assigned F310 and will cross SPEDY at or below F330, maintaining M0.83 or less. The aircraft is now estimating SPEDY at 1238, is maintaining F310 (i.e. no longer on descent at SPEDY), and the Mach Number restriction has been cancelled.

4.2.4.4.3 The inclusion of Mach Number information in AIDC messages should only be made following bilateral agreement.

4.2.4.5 Offset and Weather Deviation Information in Field 14

4.2.4.5.1 Field 14 may contain information that an aircraft is subject to either a weather deviation or offset clearance. When included in an AIDC message, any offset and weather deviation information should always be the last information in Field 14, and should be separated from preceding information by an oblique stroke "/".

4.2.4.5.2 It is important that the difference between an offset and a weather deviation is correctly understood. This difference is depicted in the diagram below.

4.2.4.5.3 An offset is a flight trajectory that is parallel to the original route, offset by a specified distance and direction. Once an aircraft is established on the offset, separation may be applied solely based on the offset path.

4.2.4.5.4 A weather deviation permits an aircraft to operate anywhere between the original route and the specified distance and direction from the original route. Separation must therefore be applied to the entire airspace in which the aircraft has been cleared to operate in.

4.2.4.5.5 The following examples show various combinations of weather deviations and offsets, combined with other optional information allowed in Field 14.

Example:

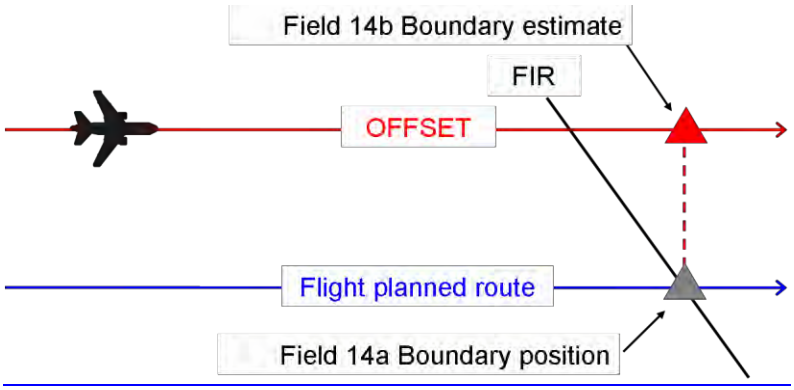
Field 14	**Explanation**
2830S16300E/0140F330/W20L	The aircraft is estimating 2830S16300E at 0140, maintaining F330, and has been cleared to deviate up to 20NM to the left of route.
GOOFY/2330F310/GM084/O30R	The aircraft is estimating GOOFY at 2330, maintaining F310, instructed to maintain M0.84 or greater, and has been cleared to offset 30NM to the right of route.
41N040W/0215F310F330/W25E	The aircraft is estimating 41N040W at 0215, is operating in a block of levels between F310 and F330 (inclusive), and has been cleared to deviate up to 25NM either side of route.
DAFFY/0215F310F350F370B/W100L	The aircraft is estimating DAFFY at 0215, and has been assigned a block of levels between F310 and F350 (inclusive), will cross DAFFY at or below F370, and has been cleared to deviate up to 100NM to the left of route.

4.2.4.5.6 The absence of offset or weather deviation in Field 14 of an AIDC message provides advice that any previously notified off-track information has been cancelled.

Example:

Field 14	**Explanation**
34N040W/1519F330/W15R	The aircraft is deviating up to 15NM right of track.
Subsequently followed by: 34N040W/1520F330	The aircraft is back on track (and one minute later than previously coordinated).

4.2.4.5.7 When an aircraft is offsetting or deviating, the coordination point included in Field 14a should be a position based on the flight planned route rather than the offset route. The estimate included in Field 14b shall be the estimate for the "abeam" position for the position included in Field 14a.



4.2.4.5.8 The inclusion of offsets and weather deviation information in AIDC messages should only be made following bilateral agreement. Depending on their operational requirements, some ATS Units may choose to only implement the weather deviation format. If applicable, this should also be specified in bilateral agreements.

4.2.5 Field 15 requirements

4.2.5.1 The following section describes the allowed contents of Field 15 (Route), as well as providing examples of how Field 15 data can be incorporated in an AIDC message.

4.2.5.2 A number of different AIDC messages (e.g. ABI, PAC, CPL, CDN and PCM) may contain Field 15 (Route) information. Depending on the AIDC message being used, this route information may be either the current cleared route of the aircraft, or a proposed amendment to it.

4.2.5.3 While Field 15 may be optional in an AIDC message (refer Table 4-6), if it is included, all Field 15 sub-fields (15a, b and c) must also be included.

Table 4-2. Contents of Field 15

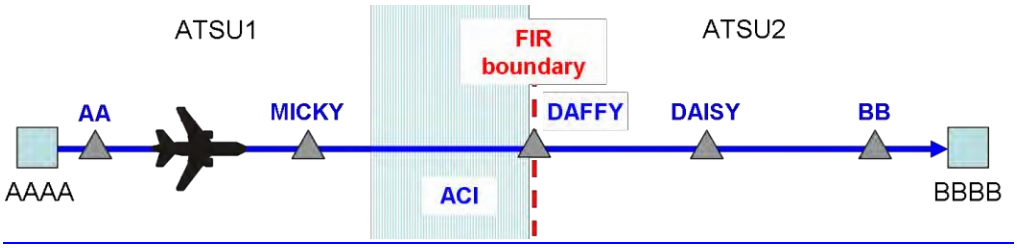
Data	**Example**	**Mandatory /Optional**	**Comment**
Speed (15a)	M084 N0488	M	(Included in a flight plan as the initial requested speed for a flight). In AIDC messaging: • if a speed has been specified in Field 14c, then the speed in Field 15a should be the same value; otherwise, • it should represent the expected speed of the aircraft at the coordination point included in Field 14a.

Level (15b)	F310	M	(Included in a flight plan as the initial requested flight level for a flight). In AIDC messaging: • if a block level has been specified in Field 14, then the level in Field 15a should be a single level within the block; otherwise, • it should be the level specified in Field 14c.
Route (15c)	• DAFFY • HNL • EGLL • 3415S16000E • 60N050W • A123, AB456 • BLI235100 • M080F350 • M084 • F370 • M084F370 • 1230 • T • DCT	M	The route (or proposed route) of flight. It may contain any or all of the following elements: • Waypoint • Navigation aid • Aerodrome • Latitude/longitude • Latitude/longitude • ATS route • Place/bearing/distance • Speed/level changes (See Note 2) • Speed restriction • Level restriction • Speed/Level restriction (See Note 2) • Time associated with a restriction. May include a suffix of "A", "B" or "L" • Truncation indicator ('T') • Direct to

Note 1: The contents of Field 15c are defined in PANS-ATM Appendix 3, with the exception of level/time/speed restrictions which are described within this document in paragraph 2.4 **Restriction Formats**. Planned speed/level changes from the filed FPL are included in some AIDC implementations although they do not reflect the current cleared profile of the aircraft.

Note 2: Flight planned speed/level changes and level/time/speed restrictions as defined in 2.4 **Restriction Formats** cannot both be included in Field 15 because in some cases they both use the same format. ATS Units should specify in bilateral agreements which group of information (if any) will be supported.

4.2.5.4 At the minimum, Field 15 in an AIDC message should commence at a position prior to the ACI associated with the adjacent FIR. Some ATS Units may include route information commencing at the Departure aerodrome.



4.2.5.5 Field 15 information transmitted by ATSU1 to ATSU2 should commence at (or before) MICKY. This permits ATSU2 to calculate the profile of the aircraft commencing at the ACI boundary.

4.2.5.6 **ATS Route**

4.2.5.6.1 An ATS route may only be preceded and followed by a waypoint that is defined to be on that ATS route.

4.2.5.7 **Latitude/Longitudes**

4.2.5.7.1 Latitude and longitude in Field 15 must either be both in whole degrees, or both in degrees and minutes.

4.2.5.8 **Flight Planned Speed/Level Changes**

4.2.5.8.1 Some ATSUs may include flight planned speed/level changes in Field 15c although they do not reflect the current cleared profile of the aircraft. An ATSU receiving Field 15c data containing planned FPL level speed changes should accept the information. However, the receiving ATS Unit may choose not to use the planned FPL level speed changes to update their flight plan, and may choose not to forward it in any subsequent AIDC messages.

4.2.5.9 **Time/Speed/Level Restrictions**

4.2.5.9.1 While the information in Field 14 defines the conditions for crossing the ACI or FIR boundary, ATSU 1 may include in Field 15 time/speed/level restrictions that have been issued in a clearance to an aircraft. These clearances may include a requirement for an aircraft to cross a position at a specific time or to change level and/or speed at or by a specific time or position.

4.2.5.10 **Truncation Indicator**

4.2.5.10.1 While it is desirable for Field 15 to describe the entire route to destination, on occasions this may not be possible. If it is not possible to define the route to destination, it is necessary to truncate (delete the remainder of the route) and insert a truncation indicator ('T').

4.2.5.10.2 Bilateral agreements should define the use and meaning of the truncation indicator. For example the truncation indicator may represent:

- the point at which the route in Field 15 rejoins the original flight planned route, or
- the end of the oceanic cleared route.

4.2.5.10.3 The truncation indicator should only follow a significant point in Field 15 and should not follow an ATS Route, or "DCT".

Note. A significant point also refers to a significant point followed or preceded by:

- A Speed/level change; or
- A speed and/or level and/or time restriction

Examples of Field 15c

SY L521 AA	Navaid, ATS Route Note that both "SY" and "AA" are defined on airway L521
SY L521 GEROS 32S160E 3425S16300E LUNBI AA	Navaid, ATS Route, waypoint, lat/long (dd), lat/long (ddmm)
SY GEROS GEROS045100 ESKEL L521 AA	Place/bearing/distance
SY L521 GEROS/M085F370 L521 AA DCT BB	Speed/level change, DCT
SY L521 LUNBI T SY L521 GEROS 32S160E 3425S16300E T SY L521 LUNBI/M085F370 T	Truncation indicator
SY L521 GEROS/F370 L521 F370/LUNBI AA SY GEROS/2245L 32S160E ESKEL/M085F390 AA SY L521 M084F350/GEROS/1230A ESKEL/M083 L521 AA	Restrictions

4.2.6 **Field 16 Requirements**

4.2.6.1 Where Field 16 is required in an AIDC message, only Field 16a (Destination aerodrome), is required. Field 16b (Total estimated elapsed time) and Field 16c (Alternate aerodrome(s)) are not to be transmitted. The use of ZZZZ in Field 16 is supported.

4.2.7 **Field 18 Requirements**

4.2.7.1 Field 18 should contain other information from the current flight plan and is used to update the flight plan at the receiving ATSU.

4.2.7.2 When transmitting Field 18 in an AIDC message, all Field 18 indicators should be included, even if the change only affects data in an individual Field 18 indicator. However, ATS Units may agree by bilateral agreement to omit specific indicators (e.g. EET/) if required. If omitting indicators, ATS Units should have due regard to the potential effect to downstream ATS Units.

4.2.7.3 The contents of Field 18 in AIDC messages should be specified in bilateral agreements between ATS Units.

Note: Some legacy implementations allowed provision for the modification of individual sub fields by communicating only that specific subfield. This is not recommended practice.

4.2.7.4 In some AIDC messages, Field 18 may contain only a RMK/ indicator which is used to convey free text data information. This applies to the MAC, EMG, LRM and MIS messages.

4.3 **AIDC message groups**

4.3.1 From a technical and operational perspective it is advantageous to standardize AIDC implementation to the full extent possible. This document identifies a group of messages as a "core" message set in Table 4-3, which is recommended to be supported by all ATSUs. This will aid standardization of system and procedure development.

4.3.2 It is nevertheless acknowledged that even a limited message set implementation, such as only CPL and ACP, can bring significant benefits to ATS units. Some ATSUs may, due to technical, financial, or operational reasons, have a need to gradually implement the AIDC message set or may even determine that not all messages in the core message set are required.

4.3.3 Unless specified otherwise by the ATSU, the non-core messages shown in Table 4-3 should be supported by the manufacturer in ground systems and their availability be configured by the ATS Unit as required.

4.3.4 The specific AIDC messages to be used between ATSUs should be included in bilateral agreements.

Table 4-3. AIDC Messages

Core	**Non-core**	**Message Class**	**Message**
X		Notification	ABI (Advance Boundary Information)
X		Coordination	CPL (Current Flight Plan)
X		Coordination	EST (Coordination Estimate)
	X	Coordination	PAC (Preliminary Activate)
X		Coordination	MAC (Coordination Cancellation)
X		Coordination	CDN (Coordination Negotiation)
X		Coordination	ACP (Acceptance)
X		Coordination	REJ (Rejection)
	X	Coordination	PCM (Profile Confirmation Message)
	X	Coordination	PCA (Profile Confirmation Acceptance)
	X	Coordination	TRU (Track Update)
X		Transfer of Control	TOC (Transfer of Control)
X		Transfer of Control	AOC (Acceptance of Control)
X		General Information	EMG (Emergency)

Core	Non-core	Message Class	Message
X		General Information	MIS (Miscellaneous)
X		Application Management	LAM (Logical Acknowledgement Message)
X		Application Management	LRM (Logical Rejection Message)
	X	Application Management	ASM (Application Status Monitor)
	X	Application Management	FAN (FANS Application Message)
	X	Application Management	FCN (FANS Completion Notification)
	X	Surveillance Data Transfer	ADS (Surveillance ADS-C)

4.4 Core AIDC messages

4.4.1 Introduction

4.4.1.1 This chapter lists down the basic core AIDC messages (ABI, EST, ACP, AOC and TOC) that are recommended to be adopted when implementing AIDC. These messages are also identified are part of the ASBU B0 recommendations pertaining to AIDC implementation.

4.4.1.2 These AIDC messages are referenced from the PAN AIDC ICD version 1.0 under Chapter 4 for AIDC messages.

4.4.2 ABI (Advance Boundary Information).

4.4.2.1 Purpose.

4.4.2.2 An ABI message is transmitted to provide information on a flight to the receiving ATSU. The purpose of the ABI is to synchronize the flight plan information held between two ATS Units.

4.4.2.3 The transmission of the initial ABI will normally be triggered at an agreed time or position prior to the common boundary or ACI, or possibly by a change in flight state. Before coordination occurs, amendments to information contained in a previously transmitted ABI should be notified by the transmission of another ABI.

4.4.2.4 Message format.

ATS Field	Description
3	Message type
7	Aircraft identification
13	Departure aerodrome
14	Estimate data

16 Destination aerodrome

22 Amendment field

Field 22 should contain as a minimum the following fields:

9 Number, type of aircraft and wake turbulence category

15 Route

Field 22 may optionally include any or all of the following fields:

8 Flight rules and type of flight

10 Equipment

18 Other information

Example

An ABI message containing the minimum contents of Field 22, with full route details to destination.

(ABI-IBE6175-LEMD-41N040W/0700F330-KMIA

-9/B744/H

-15/M084F350 41N030W 41N040W 41N050W 40N060W 38N065W DANER A699 NUCAR DCT HEATT

An ABI message containing a supplementary crossing condition and Mach Number in Field 14, a truncated Field 15 containing a level restriction, and an agreed subset of Field 18:

(ABI-ICE615-BIKF-62N030W/0700F350F310A/GM080-KJFK

-8/IS

-9/B752/M

-10/SDIJ5RXW/SD1

-15/M080F350 62N030W 60N040W/M080F370 57N050W DCT OYSTR DCT STEAM T

-18/PBN/A1L1)

An ABI containing a weather deviation in Field 14, a speed/level change in Field 15 and the entire Field 18 from the original FPL:

(ABI-ANZ716/A1565-YSSY-ESKEL/0743F370/W20R-NZAA

-8/IS

-9/A320/M

-10/SDE1E3FGHIM2RW/LB1

-15/N0448F370 EVONN L521 ESKEL/N0448F390 L521 LUNBI DCT
-18/PBN/A1C1D1O1S2T1 REG/ZKOJI EET/YBBB0009 NZZO0121 SEL/HLAM CODE/C8178C OPR/ANZ RALT/YSNF RMK/TCAS EQUIPPED)

4.4.3 **EST (Coordination Estimate)**

4.4.3.1 Purpose.

4.4.3.2 An EST message is used to initiate coordination for a flight.

4.4.3.3 The transmission of the EST message is used in conjunction with (and generally following) an ABI message and is triggered at an agreed time or position prior to the common boundary or ACI, or possibly by a change in flight state.

4.4.3.4 The only valid response to an EST message is an ACP message, which closes the coordination dialogue.

4.4.3.5 Message Format

ATS Field	Description
3	Message type
7	Aircraft identification
13	Departure aerodrome
14	Estimate data
16	Destination aerodrome

Example

(EST-DLH454-EDDF-BOPUT/1248F360/LM083-KSFO)

(EST-QFA811/A2277-WSSS-20N070E/1417F350F370/W20L-YAYT)

4.4.4 **ACP (Acceptance)**

4.4.4.1 Purpose.

4.4.4.2 An ACP message is used to confirm that the coordination proposed in a received CPL, CDN, EST or PAC message is acceptable and to close the coordination dialogue. The agreed coordination conditions are updated in accordance with the proposed coordination.

4.4.4.3 An ACP message is linked to the original AIDC message using message identifier and reference identifier information described in section 3.2 Message Headers, Timers and ATSU Indicators.

4.4.4.4 Message Format.

ATS Field	Description
3	Message type
7	Aircraft identification
13	Departure aerodrome
16	Destination aerodrome

Example
(ACP-ACA860-NZAA-KSFO)

(ACP-UAL816/A3312-YSSY-KLAX)

4.4.5 **TOC (Transfer of Control)**

4.4.5.1 Purpose.

4.4.5.2 The TOC message is sent to propose executive control of a flight to the receiving ATSU.

4.4.5.3 Message Format

ATS Field	Description
3	Message type
7	Aircraft identification
13	Departure aerodrome
16	Destination aerodrome

Example

(TOC-TAP451-LPPT-KJFK)

(TOC-QFA135/A2217-YMML-NZCH)

4.4.6 **AOC (Acceptance of Control)**

4.4.6.1 Purpose.

4.4.6.2 The AOC message is transmitted in response to a received TOC message to indicate acceptance of executive control of a flight.

4.4.6.3 Message Format.

ATS Field	Description
3	Message type
7	Aircraft identification
13	Departure aerodrome
16	Destination aerodrome

Example

(AOC-TAP451-LPPT-KJFK)

(AOC-QFA135/A2217-YMML-NZCH)

4.5 Application management messages

4.5.1 LAM (Logical Acknowledgement Message)

4.5.1.1 Purpose.

4.5.1.2 The LAM is transmitted in response to each AIDC message (except for another LAM or LRM) that has been received, and found free of syntax and semantic errors.

4.5.1.3 A LAM is linked to the original AIDC message using message identifier and reference identifier information described in Chapter 3, *Communications and Support Mechanisms*.

4.5.1.4 Non-receipt of a LAM may require local action.

4.5.1.5 Message Format.

ATS Field	Description
3	Message type*Example*
(LAM)	

For examples of the way in which the LAM is linked to the original AIDC message refer to Chapter 6, *Implementation Guidance Material*.

4.5.2 LRM (Logical Rejection Message)

4.5.2.1 Purpose.

4.5.2.2 The LRM is transmitted in response to each AIDC message not eligible for a LAM to be sent.

4.5.2.3 An LRM is linked to the original AIDC message using message identifier and reference identifier information described in Chapter 3, *Communications and Support Mechanisms*.

4.5.2.4 The LRM will identify the first message field found that contains invalid information if this field information is available.

4.5.2.5 Receipt of an LRM may require local corrective action.

4.5.2.6 Message Format.

ATS Field	Description
3	Message type
18	Other information (limited to RMK/)

4.5.2.7 Field 18 is used to convey technical information, and will only use the RMK/ sub-field. This text will comprise an error code, supporting text and the message field number in which the error occurred (where applicable).

4.5.2.8 The following format is used in the RMK/ sub-field of the LRM to report errors:

<error code>/<field number>/<invalid text>

4.5.2.9 The <error code> should contain the appropriate error code number from Chapter 5, *Error Codes*, Table 5-1. The <error code> is described using up to three numeric characters without leading zeros. When multiple errors are detected in an AIDC message, only a single LRM should be

generated in response. This LRM would usually contain the error code of the first error detected.

4.5.2.10 The <field number> will contain the field number corresponding to the error code extracted from Table 5-1. Where multiple field numbers are assigned to an error code, only the first field number containing the error will be sent. Where no field number is referenced in Table 5-1, the <field number> sub-field will be empty. The field number can be described using up to six alphanumeric characters.

Note: Some ATSUs may not support a non-numeric <field number> (e.g. "HEADER"), and will leave this sub-field blank. Whilst this is acceptable in order to preserve backwards compatibility with existing systems, the preferred implementation is for any non-numeric field numbers for Table 5-1 to be supported within the LRM.

4.5.2.11 The <invalid text> will contain the error text corresponding to the error code extracted from Table 5-1 (not including any of 'explanatory text' that may have been included in Table 5-1). If the specific error can be identified, it may optionally be appended to the Table 5-1 error text. The invalid text field can contain up to 256 characters, and may contain an oblique stroke "/".

Note: Some ATSUs may not include the error text from Table 5-1, in the <invalid text> field of transmitted LRMs, and will leave this sub-field blank. Whilst this is acceptable in order to preserve backwards compatibility with existing systems, the preferred option is for the LRM <invalid text> field to at least contain the error text from Table 5-1.

4.5.2.12 The following shows a number of LRM examples. Where more than one LRM format is shown, the format of the first one is the preferred option.

Example

(LRM-RMK/1/HEADER/INVALID SENDING UNIT)

OR

(LRM-RMK/1/ /INVALID SENDING UNIT)

(See Note following paragraph 4.8.2.2.4)

(LRM-RMK/17/16/INVALID AERODROME DESIGNATOR)

OR

(LRM-RMK/17/16/)

(See Note following paragraph 4.8.2.2.5)

(LRM-RMK/57//INVALID MESSAGE LENGTH)

(LRM-RMK/27/15/ INVALID LAT/LONG 130S165E)

(The actual error "130S165E" may be optionally appended to the error text from Table 5-1, see Para 4.8.2.2.5).

For examples of the way in which the LRM is linked to the original AIDC message refer to Chapter 6, *Implementation Guidance Material*)

4.5.3 **ASM (Application Status Monitor)**

4.5.3.1 Purpose.

4.5.3.2 The ASM message is transmitted to an adjacent ATSU to confirm that end-to-end messaging is available with that ATSU.

4.5.3.3 The transmission of an ASM message normally occurs when no AIDC messages (including Application messages) have been received from the adjacent ATSU within a specified time as defined in bilateral agreement.

4.5.3.4 Message Format.

ATS Field	Description
3	Message type

Example

(ASM)

Table 4-6. PAN AIDC Messages and their Field Composition

Message	3 a b c	7 a b c	8 a b	9 a b c	10 a b	13 a b	14 a b c d e	15 a b c	16 a b c	18	19	20	21	22						
														8 a b	9 a b c	10 a b	14 a b c d e	15 a b c	18	Text
ABI	M - -	MOO				M -	MMMOO		M - -					OO	MMM	OO		MMM	O	
CPL	M - -	MOO	MM	MM M	MM	M -	MMMOO	MMM	M - -	M										
EST	M - -	MOO				M -	MMMOO		M - -											
PAC	M - -	MOO				M -	MMMOO		M - -					OO	OOO	OO		OOO	O	
MAC	M - -	MOO				M -			M - -								OOOOO		O	
CDN	M - -	MOO				M -			M - -							OO	OOOOO	OOO	O	O
ACP	M - -	MOO				M -			M - -											
REJ	M - -	MOO				M -			M - -											
PCM	M - -	MOO				M -	MMMOO		M - -					OO	OOO	OO		OOO	O	
PCA	M - -	MOO				M -			M -											
TRU	M - -	MOO				M -			M - -											M

Message	3 a b c	7 a b c	8 a b	9 a b c	10 a b	13 a b	14 a b c d e	15 a b c	16 a b c	18	19	20	21	22							
														8 a b	9 a b c	10 a b	14 a b c d e	15 a b c	18	Text
TOC	M - -	MOO				M -			M - -											
AOC	M - -	MOO				M -			M - -											
EMG	M - -	MOO								M										
MIS	M - -	MOO								M										
LAM	M - -																			
LRM	M - -									M										
ASM	M - -																			
FAN	M - -	MOO				M -			M - -											M
FCN	M - -	MOO				M -			M - -											M
ADS	M - -	MOO				M -			M - -											M

Chapter-5: MESSAGE ERROR DESCRIPTION AND RESOLUTION

5.1 Introduction

The effectiveness of AIDC functionality depends on many factors, including ATC automation systems, manufacturer of the equipment, AFTN connectivity, weather-related factors, Controllers training, Airspace Design, Coordination procedures between different ATSU's, etc. Some problems/difficulties observed during implementation/testing of AIDC procedures are of common nature irrespective of different OEM's and different States. Such problems, their possible cause and their solution evolved over time may be of great help to States in the process of implementing AIDC.

Every effort should be made to minimize the errors ~~either~~ with the help of OEM, in coordination with neighbouring ATSU and with the help of guidance material available from the States who have successfully implemented AIDC.

All States/Administrations have been requested ~~Every State through their ANSP has~~ to designate~~d~~ Focal point (Nodal Officer) for AIDC implementation. ~~,~~ ~~the list~~ The updated list is available on ICAO APAC website. In case of any issues, support can be requested through these Focal Points. ~~Any State that has not notified AIDC Focal Point to ICAO APAC may notify the same at the earliest~~.

AIDC implementation in any State cannot happen in a day. Along with patience, it requires change of mindsets, change in the working environment, change of attitude and the will to do so.

5.2 Pre-implementation Checklist

Before AIDC is implemented, some pre-conditions have to be fulfilled. Some of the following items may need extensive testing. A quick guidance on such conditions is as follows:

S. No.	Pre-condition Description	Yes / No	Remarks, if any
i.	ATC automation systems are compliant with ICAO PAN AIDC ICD version 1.0 (For existing systems, older APAC ver 3.0 may still work).		
ii.	ATC automation systems' adaptation data have been properly configured with the pairing stations.		
iii.	ATC automation systems and and associated sub-systems ~~Media~~ are time synchronized (GPS / UTC).		
iv.	Media used (like AFTN, etc) meet the Required Network Communication Performance.		
v.	The adapted timings for AIDC messages like ABI, EST, CPL, etc. are as per the LOAs.		
vi.	Design and test relevant use cases with pairing ATSU to ensure that unexpected AIDC messages are not generated by the ATC automation system.~~AIDC functionality does not adversely affect the functioning of other sub-systems like AMAN.~~		
vii.	AIDC is ON from the ATC automation systems (some systems may not have AIDC ON / OFF feature and may		

	always remain in ON condition).		
viii.	Airspace design is such that there is no discrepancy over the jurisdiction of COPs.		
ix.	Trajectory deviations / diversions are successfully handled by ATC automation systems through AIDC.		
x.	AIDC does not create overload situation of ATC automation systems.		
xi.	AIDC does not create overload situation of AFTN / AMSS / Media.		
xii.	Concerned ACCs have proper sectorization keeping in mind the controllers workload.		
xiii.	AIDC HMI is controller friendly.		
xiv.	~~Pilots / Airlines Operators have been familiarized with the new scenario (Although AIDC is ground to ground coordination, the pilots' requests for frequent en route level changes should be kept to the minimum, to reduce load on the system).~~		
xv.	Controllers / flight data operators have been trained to handle AIDC.		
xvi.	Designated personnel have been trained to monitor / calculate media latency.		
xvii.	LOAs between the pairing stations have been signed.		
xviii.	Testing has been carried out under controlled conditions (Keep all the records of unexpected / unusual behaviour for faster troubleshooting).		
xix.	Standard Operating Procedures (SOP) have been deliberated and published.		
xx.	Cases have been identified where only Voice communication would be valid (eg. VVIP movements, activation of Danger areas).		
xxi.	In case of AIDC failures, contingency procedures have been published.		
xxii.	Number of LHDs reported before AIDC implementation have been recorded.		
xxiii.	Number of LHDs reported during AIDC testing have been recorded.		
xxiv.	Safety Assessments have been carried out. Hazards, Mitigation procedures, etc. have been identified / risk accepted.		
xxv.	The overall system has been fully checked and is ready for AIDC implementation.		

AIDC implementation would be smooth and effective if all the above checklist answers are YES. In case of any NO, analyse the reason and try to rectify the issue.

Table 5.1 Implementation Issues (for guidance only)

Issue reference	State/ Administration (AIDC Paring Stations)	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
AIDC-ISSUE-1	India/Pakistan (Delhi/Lahore)	Sep-14	Messages from Lahore to Delhi like ABI were rejected by Delhi system due to Error message61, Cyclic Redundancy Check (CRC) Error.	Technical	Delhi-AutoTrac-III (RAYTHEON) / Lahore-Aircon2100 (INDRA). **Note: Delhi is in the process of implementing new automation system from INDRA.**	HIGH	Error is perhaps because Lahore System is generating extra spaces. Action is required at Lahore to avoid generation of extra spaces (OPEN). **Note: After INDRA automation at Delhi, the issue may get resolved because of the similar automation systems from the same OEM.** Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India/Pakistan (Delhi/Karachi)	Sep-14	Messages from Karachi to Delhi like ABI were rejected by Delhi system due to Error message61, Cyclic Redundancy Check (CRC) Error. **Karachi has done changes through OEM. Re-testing is in progress.**	Technical	Delhi - AutoTrac-III (RAYTHEON) / Karachi-Aircon2100 (INDRA). **Note: Delhi is in the process of implementing new automation system from INDRA.**	HIGH	Error is perhaps because Karachi System is generating extra spaces. Action is required at Karachi to avoid generation of extra spaces (OPEN) **Note: After INDRA automation at Delhi, the issue may get resolved because of the similar automation systems from the same OEM.** Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Delhi/Varanasi)		AFTN Latency Issues observed at times.	Technical	Delhi - AutoTrac-III (RAYTHEON) / Varanasi-Aircon2100 (INDRA). **Note: Delhi is in the process of implementing new automation system**	LOW	**New AMSS installation at Delhi in progress (OPEN). Likely by December 2016.** Last updated: 30-Nov-2015.

Issue reference	State/ Administration (AIDC Paring Stations)	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
					from INDRA.		
AIDC-ISSUE-1	India (Delhi/Nagpur)		AFTN Latency Issues observed at times.	Technical	Delhi - AutoTrac-III (RAYTHEON) / Nagpur-Aircon2100 (INDRA). **Note: Delhi is in the process of implementing new automation system from INDRA.**	LOW	**New AMSS installation at Delhi in progress (OPEN). Likely by December 2016.** Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Delhi/ Ahmedabad)		AFTN Latency Issues observed at times. **Ahmedabad HMI issues for automated exchanged messages solved in-house to a great extent and are under testing.**	Technical	Delhi - AutoTrac-III (RAYTHEON) / Ahmedabad-Aircon2100 (INDRA). **Note: Delhi is in the process of implementing new automation system from INDRA.**	LOW	**New AMSS installation at Delhi in progress (OPEN). Likely by December 2016.** Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Ahmedabad/ Nagpur)		AFTN Latency Issues observed at times.		Ahmedabad-Aircon2100 (INDRA) / Nagpur-Aircon2100 (INDRA)	LOW	Last updated: 30-Nov-2015.

Issue reference	State/ Administration (AIDC Paring Stations)	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
AIDC-ISSUE-1	India/Pakistan (Ahmedabad/ Karachi)	2014/06/05	ABI messages exchanged between two system and messages were rejected due route error and mismatch in coordination timing. Modification in airways was required for Ahmedabad and Karachi DBM. On 12.06.2014 required modification were made in airways (like imaginary points) for effectively acceptance of AIDC messages. ABI messages of some of the aircrafts were not correlated with Flight plan available in ATS automation system. **Karachi has done changes through OEM. Re-testing is in progress.**	Technical/ Operational	Ahmedabad-Aircon2100 (INDRA) / Karachi-Aircon2100 (INDRA)	HIGH	Coordination protocol dialogue timeout was observed. Karachi AMSS/AFTN system time was also synchronized. Automatic time synchronization through GPS server in AMSS/AFTN system at Ahmedabad and Karachi was done for smooth exchange of AIDC messages. Rejection of AIDC messages have reduced. Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Varanasi/ Nagpur)		Some HMI issues at both the stations.		Varanasi-Aircon2100 (INDRA) / Nagpur-Aircon2100 (INDRA).	LOW	Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Kolkata/ Varanasi)		Some HMI issues at Varanasi. **AIDC being done for limited hours.**	Technical	Kolkata-Aircon Icon (INDRA) / Varanasi-Aircon2100 (INDRA).	LOW	Last updated: 30-Nov-2015.

Issue reference	State/ Administration (AIDC Paring Stations)	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
AIDC-ISSUE-1	India (Kolkata/Nagpur)		Some HMI issues at Nagpur. **AIDC being done for limited hours.**	Technical	Kolkata-Aircon Icon (INDRA) / Nagpur-Aircon2100 (INDRA).	LOW	Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Kolkata/ Chennai)		**Under trial phase.** Timely non-receipt of LAM/LRM was not received.		Kolkata-Aircon Icon (INDRA) / Chennai-AutoTrac-III Plus (RAYTHEON).		Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Chennai/ Nagpur)		Even after sending a rejection or counter coordination message by Chennai, the sending station continues to send the CDN message.		Chennai-AutoTrac-III Plus (RAYTHEON) / Nagpur-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India/Sri Lanka (Chennai/ Colombo)	2015-08-06 2015-10-06 and 2015-12-06 **2015-06-11**	Though the initial test in Nov 2014 was quite successful. The test in June 2015 were not successful, due to technical issues at Colombo. Re-testing have to be done after rectification at Colombo. **The Re-testing was done after rectification of identified technical issues at Colombo. Testing was successful. Will start trials for limited hours.**		Chennai-AutoTrac-III Plus (RAYTHEON) / Colombo-INTEL CAN		Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India/Maldives (Chennai/Male)	2014-11-25	Trials were mostly successful barring some LRMs, like reference ID in ODF 3 is not as per ICD.	Technical	Chennai-AutoTrac-III Plus (RAYTHEON) / Male-SELEX.		Message transaction rate is 100% and the message delivery was successful

Issue reference	State/ Administration (AIDC Paring Stations)	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
							(CLOSED)
AIDC-ISSUE-1	India (Chennai/ Trivandrum)		Even after sending a rejection or counter coordination message by Chennai, the sending station continues to send the CDN message.		Chennai-AutoTrac-III Plus (RAYTHEON) / Trivandrum-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Chennai/ Mangalore)		Even after sending a rejection or counter coordination message by Chennai, the sending station continues to send the CDN message.		Chennai-AutoTrac-III Plus (RAYTHEON) /Mangalore-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Chennai/Trichy)		Even after sending a rejection or counter coordination message by Chennai, the sending station continues to send the CDN message.		Chennai-AutoTrac-III Plus (RAYTHEON) / Trichy-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Chennai/ Hyderabad)	2015-03-24	The SSR Codes received through AIDC message are getting retained in Chennai FDPS for days and are not available for re-use. Controller have to use Chennai adapted pool of limited SSR codes for track correlation. As a result the adapted Chennai pool of SSR codes gets exhausted very soon. AIDC testing is temporarily suspended.		Chennai-AutoTrac-III Plus (RAYTHEON) / Hyderabad-SELEX		Last updated: 30-Nov-2015.

Issue reference	State/ Administration (AIDC Paring Stations)	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
AIDC-ISSUE-1	India (Chennai/ Bengaluru)	2015-03-24	The SSR Codes received through AIDC message are getting retained in Chennai FDPS for days and are not available for re-use. Controller have to use Chennai adapted pool of limited SSR codes for track correlation. As a result the adapted Chennai pool of SSR codes gets exhausted very soon. AIDC testing is temporarily suspended.		Chennai-AutoTrac-III Plus (RAYTHEON) / Bengaluru-SELEX		Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Mumbai/ Ahmedabad)		**Ahmedabad HMI issues for automated exchanged messages solved in-house to a great extent and are under testing.**		Mumbai-AutoTrac-III (RAYTHEON) / Ahmedabad-Aircon2100 (INDRA)	LOW	Last updated: 30-Nov-2015.
AIDC-ISSUE-1	India (Mumbai/ Nagpur)		Some HMI issues at Nagpur.		Mumbai-AutoTrac-III (RAYTHEON) / Nagpur-Aircon2100 (INDRA)	LOW	Last updated: 30-Nov-2015.
AIDC-ISSUE-1	Maldives	2014-09-17	Melbourne reported that Field 15 route information contains seconds in the LAT/LONG information generated from our system	Technical	MALDIVES/VRMM/SELEX		Vendor investigated and provided updated software /22May2015/Closed.
AIDC-ISSUE-1	Singapore	2015-11-11	Rejection of ABI message due to unknown point in route	Technical	Singapore/Singapore/THALES	HIGH	Need to update ATMS dataset to include SIDs/STARs that may be filed by operator/17 Nov 2015/Closed

Issue reference	State/ Administration (AIDC Paring Stations)	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
AIDC-ISSUE-2	India (Delhi/Varanasi)		Some HMI issues at Varanasi.	Technical	Delhi - AutoTrac-III (RAYTHEON) / Varanasi-Aircon2100 (INDRA). **Note: Delhi is in the process of implementing new automation system from INDRA.**	LOW	**New AMSS installation at Delhi in progress (OPEN). Likely by December 2016.** Last updated: 30-Nov-2015.
AIDC-ISSUE-2	India (Delhi/Nagpur)		Some HMI issues at Varanasi.	Technical	Delhi - AutoTrac-III (RAYTHEON) / Nagpur-Aircon2100 (INDRA). **Note: Delhi is in the process of implementing new automation system from INDRA.**	LOW	**New AMSS installation at Delhi in progress (OPEN). Likely by December 2016.** Last updated: 30-Nov-2015.
AIDC-ISSUE-2	India (Ahmedabad/ Nagpur		Some HMI issues at Nagpur.		Ahmedabad-Aircon2100 (INDRA) / Nagpur-Aircon2100 (INDRA)	LOW	Last updated: 30-Nov-2015.
AIDC-ISSUE-2	India (Kolkata/Chennai)		Under trial phase. The acceptance of EST message is in manual mode.		Kolkata-Aircon Icon (INDRA) / Chennai-AutoTrac-III Plus (RAYTHEON).		Last updated: 30-Nov-2015.
AIDC-ISSUE-2	India (Chennai/Nagpur)		The ICAO route truncation indicator is not supported by aircon2100 system.				
AIDC-ISSUE-2	India/Maldives (Chennai/Male)	2014-11-25	Seconds field included in Lat/Long is received which is not as per ICD. Testing planned again in presence of Male OEM.	Technical	Chennai-AutoTrac-III Plus (RAYTHEON) / Male-SELEX.		Message transaction rate is 100% and the message delivery was successful (CLOSED) Last updated: 30-Nov-2015.

Issue reference	State/ Administration (AIDC Paring Stations)	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
AIDC-ISSUE-2	India (Chennai/ Trivandrum)		The ICAO route truncation indicator is not supported by aircon2100 system.		Chennai-AutoTrac-III Plus (RAYTHEON) / Trivandrum-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.
AIDC-ISSUE-2	India (Chennai/ Mangalore)		The ICAO route truncation indicator is not supported by aircon2100 system.		Chennai-AutoTrac-III Plus (RAYTHEON) / Mangalore-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.
AIDC-ISSUE-2	India (Chennai/ Trichy)		The ICAO route truncation indicator is not supported by aircon2100 system.		Chennai-AutoTrac-III Plus (RAYTHEON) / Trichy-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.
AIDC-ISSUE-2	Maldives	2014-09-17	Melbourne reported a small number of messages contain a route designator in field 15 prior to Entry COP	Technical	MALDIVES/VRMM/SELEX		Vendor is investigating/22Jun2015/Open.
AIDC-ISSUE-2	Singapore	2015-11-11	Rejected EST message due to invalid flight plan state (coordinated) were queued in erroneous folder.	Operational	Singapore/Singapore/THALES	LOW	Air Traffic Control Support Officer would verify the information on the EST message against the coordinated flight plan. To follow up with the upstream ATSU if any discrepancies were discovered/12 Nov 2015/Closed
AIDC-ISSUE-3	India (Kolkata/Chennai)		The ICAO route truncation indicator is not supported by INDRA system.		Kolkata-Aircon Icon (INDRA) / Chennai-AutoTrac-III Plus (RAYTHEON).		Last updated: 30-Nov-2015.
AIDC-ISSUE-3	India (Chennai/Nagpur)		Airspace configuration issue.		Chennai-AutoTrac-III Plus (RAYTHEON) / Nagpur-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.

Issue reference	State/ Administration (AIDC Paring Stations)	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
AIDC-ISSUE-3	India (Chennai/ Trivandrum)		Airspace configuration issue (UTV/LTV airspace configuration)		Chennai-AutoTrac-III Plus (RAYTHEON) / Trivandrum-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.
AIDC-ISSUE-3	India (Chennai/ Mangalore)		Airspace configuration issue.		Chennai-AutoTrac-III Plus (RAYTHEON) / Mangalore-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.
AIDC-ISSUE-3	India (Chennai/Trichy)		Airspace configuration issue		Chennai-AutoTrac-III Plus (RAYTHEON) / Trichy-Aircon2100 (INDRA)		Last updated: 30-Nov-2015.
AIDC-ISSUE-3	Singapore	2015-11-11	Message time out parameter set too short whereby ACP messages from downstream ATSU were not processed. More prevailing with network was busy.	Operational	Singapore/Singapore/THALES	HIGH	Need to update ATMS dataset to increase the timeout parameter/17/Nov 2015/Closed
AIDC-ISSUE-3	Maldives	2014-03-13	Colombo reported Msg ID out to VCCC had wrong ID sent from our system	Technical	MALDIVES/VRMM/SELEX		Configuration corrected/15Mar2014/Closed
AIDC-ISSUE-4	India (Kolkata/Chennai)		AFTN Latency issues observed at times.		Kolkata-Aircon Icon (INDRA) / Chennai-AutoTrac-III Plus (RAYTHEON).		Last updated: 30-Nov-2015.
AIDC-ISSUE-4	Maldives	2014-04-06	When Male sends ABI message within Colombo domestic squawk range, it causes complication in their system	Technical	MALDIVES/VRMM/SELEX		Colombo changed their domestic SSR allocation/16Mar2015/Closed
AIDC-ISSUE-5	Maldives	2014-11-25	Reference ID of Optional Data Field 3 (ODF) is	Technical	MALDIVES/VRMM/SELEX		Reported issue to Vendor/27Nov2014/Open.

Issue reference	State/ Administration (AIDC Paring Stations)	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
			incorrect in message received by VOMM				
AIDC-ISSUE-6	Maldives	2014-11-25	Chennai automation system rejected latitude/longitude represented with seconds (041627N0733138E)	Technical	MALDIVES/VRMM/SELEX		Vendor investigated and provided updated software on /22May2015/Closed.
AIDC-ISSUE-7	Maldives	2015-11-19	Colombo reported LRM received from VRMM saying invalid SSR equipment in FPL	Technical	MALDIVES/VRMM/SELEX		Reported issue to Vendor/20Nov2015/Open
AIDC-ISSUE-8	Maldives	2015-11-19	ABI and CPL message in ICAO 2012 FPL format sent from Colombo rejected	Technical	MALDIVES/VRMM/SELEX		Reported issue to Vendor/20Nov2015/Open

5.3 Handling Implementation Issues

Over a period of time during testing and implementation of AIDC across ICAO-APAC region, several error messages were encountered by different concerned ATSU's. Some of these messages are of common nature and some of them may be unique for a particular ATSU. Such messages compiled from various ATSU's are given below with a little description of the errors contained in those messages. The list of messages is not exhaustive and different ATSU's may face similar or a new type of error messages.

1. **Error Message: Rejection of ABI messages by receiving system due to Error message61, Cyclic Redundancy Check (CRC) Error.**

Error message 61 or cyclic redundancy check (CRC) error had been experienced by almost all of the ATSU's

Cyclic redundancy check (CRC): A Cyclic redundancy check is an **error**-detecting code commonly used in digital networks and storage devices to detect accidental changes to raw data. Blocks of data entering these systems get a short *check value* attached, based on the remainder of a polynomial division of their contents. On retrieval, the calculation is repeated and, in the event the check values do not match, corrective action can be taken against data corruption.

A CRC-enabled device calculates a short, fixed-length binary sequence, known as the *check value* or *CRC*, for each block of data to be sent or stored and appends it to the data, forming a *codeword*. When a codeword is received or read, the device either compares its check value with one freshly calculated from the data block, or equivalently, performs a CRC on the whole codeword and compares the resulting check value with an expected *residue* constant. If the check values do not match, then the block contains a data error. The device may take corrective action, such as rereading the block or requesting that it be sent again

CRCs are specifically designed to protect against common types of errors on communication channels, where they can provide quick and reasonable assurance of the integrity of messages delivered. However, they are not suitable for protecting against intentional alteration of data.

Cause: Error is perhaps because sending system is generating extra spaces. Action is required by sending system to avoid generation of extra spaces.

Solution: This error can be overcome by making changes in sender ATM system to not to generate any extra spaces while transmitting AIDC messages.

2. **Error Message: AFTN Issues.**

The AFTN network was selected as the media to support the exchange of AIDC messages as the established infrastructure is already available and it has the ability to re-direct messages through alternate paths in the event of a direct connection failure. Through the various technical testing with adjacent FIRs, several issues were encountered:

a. **AFTN Latency:** Latency generally is the amount of time a message takes to traverse a system. In computer network, it is an expression of how much time it takes for a packet of data to get

from one designated point to another. It is sometimes measured as the time required for a packet to be returned to its sender.

AFTN latency in AIDC messages is not acceptable or acceptable up to a certain limit as system expects automatic system response for all AIDC messages in a time bound manner. If no automatic system response is received by the sender system in a fixed time, then the sender system generates a LTO (time out response).

b. **Message timeout errors** due to the re-routing of messages caused by the failure of the direct AFTN link.
c. **Rejected EST message** due to missing or multiple flight plans;

Solution: The probable solution may be to expand the bandwidth of existing AFTN network or increase the message time-out parameter for all messages to avoid generation of LTO messages.

3. **Error Message: Rejection of ABI messages exchanged between system due to route error and mismatch in coordination timing.**

ABI messages of some of the aircrafts are not correlated with Flight plan available in ATS automation system

Cause: This problem may be because of how common airways are defined in the pairing automation systems. Some airways may be defined up to a certain extent in next FIR, while others may be defined only up to the FIR boundary. This may cause the system to reject the incoming ABI message because of unrecognised route portion.

Solution: To overcome this problem minor modifications in the airways may be required at both the pairing Data base (DBM). Modification in airways (like imaginary points) may also be considered in airways for effectively acceptance of AIDC messages.

4. **Error Message: Coordination protocol dialogue timeout observed.**

Cause: Time not synchronised in both pairing AMSS/AFTN systems.

Solution: Automatic time synchronization through GPS server in AMSS/AFTN system at both receiving and sending system is required to be done for smooth exchange of AIDC messages.

5. **Error Message: Timely non-receipt of ACP messages results in unnecessary LRM messages.**

Cause: Messages may be accepted manually at receiving ATSU. In some of the automation system installed there is no provision of automatic acceptance of EST messages.

Solution: It is recommended that AIDC messages like EST are accepted automatically to avoid frequent LRM messages. As it is discussed earlier also that system expects response for every AIDC message in a fix time. Non receipt of response within a fix time span results in frequent LRM and LTO messages.

6. **Error Message: Truncated routes are not getting accepted by accepting unit.** Melbourne reported a small number of messages contain a route designator in field 15 prior to Entry COP.

Cause: ICAO route truncation indicator is not supported by many accepting unit.
Incorrect route truncation. The Asia/Pacific ICD clearly states the rules required for truncating a route after the last known significant route point. If these rules are not followed there are significant risks associated with the transmission of incorrect route information to the downstream ATC unit. While the majority of instances investigated are the result of human error, there have been occasions when the automation system behaved unexpectedly. With the increasing use of route modifications, the accuracy of route handling and transmission between automated systems is of great importance.

Solution: Manufacturer and States must ensure that automation system must be designed/changed as per APAC-ICD mandated by ICAO. To avoid human errors, a comprehensive training backed up by regular refresher training is required to be imparted to controllers/system operators.

7. **Error Message: Even after sending a rejection or counter coordination message by accepting unit, the sending station continues to send the CDN message.**

E.g. a CDN message is sent by sender system to an accepting system. The receiving system in response to incoming message will send either an acceptance (ACP) message, rejection message (REJ) or counter-coordination message (CDN). The sender system should wait for the above messages from receiving system and then send the appropriate message.

Cause: Unnecessary generation of CDN messages without acknowledgement.

Solution: As per PAN-ICD protocol, transmitting system must wait to receive response for a CDN message. This response may be accept, reject or counter-coordination. Multiple generation of automatic CDN messages, without waiting for an acknowledgement, might be due to system getting into some loop or may be due to some other system problem. The temporary solution may be to stop automatic generation of CDN messages by the system.

8. **Error Message:**
   a. **The SSR Codes received through AIDC message are getting retained in FDPS** for days and are not available for re-use. Controller has to use adapted pool of limited SSR codes for track correlation. As a result the adapted Station pool of SSR codes gets exhausted very soon.
   b. **Use of incorrect ORCAM SSR code** by ATSU-1 may cause complication in ATSU-2 system.

Cause: This problem may be because of wrong adaptation of SSR codes in automation system by transmitting system.

Solution: Every AIDC partner must ensure proper allocation of SSR codes in their automation system as per ICAO regional allocation of SSR codes due to availability of limited number of SSR codes.

9. **Error Message: Some automation systems rejected latitude/longitude represented upto seconds** (041627N0733138E).

Cause: As per AIDC-ICD seconds is not part of the standard LAT/LONG format.

Solution: Automation system may conform to AIDC ICD.

10. **Error Messages: ICAO FPL 2012 Format.**
    a. ABI and CPL message in ICAO 2012 FPL format were rejected, reported LRM received with invalid SSR equipment in FPL.
    b. Reference ID of Optional Data Field 3 (ODF) is incorrect in messages.

Solution: Pairing Systems may be modified to support ICAO FPL 2012 format.

11. **HMI Issues:** Some of HMI issues found in India across all of the automation systems.

a. Separate CWP is required for radar and planning controller for efficiently carrying out AIDC functionality.

   i. Multiple AIDC HMI is preferred as it may not be practicable for RADAR controller alone to handle AIDC.
   ii. Dedicated AIDC message exchange window like DLD window to display readily the current status and actual content of messages exchanged is preferred.
   iii. There should be provision for automatic as well as manual mode of message exchange.

   b. Status of AIDC coordination and provision for hand-off may be made available in Data Block.

   c. Flexible provision for automatic/manual responses for the messages like EST, CPL, PAC, CDN, etc.

d. Non provision of creation of flight plan with ABI message, if a flight is not available. Some automation system creates flight plan from incoming ABI message in case of non-availability of flight plan whereas others reject ABI message altogether in case of non- availability of flight plan.

e. The clocks of the AFTN and Automation System need regular synchronisation. This problem is frequently encountered by various automation systems that messages are getting rejected due to different time stamping at the time of receiving and sending the messages.

f. Colour combinations should facilitate easier comprehension of AIDC state.

g. Pending ACP from ATSU-2, incoming PAC is sometimes displayed in sector inbound list only. It is required that same be available in coordination list also.

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Chapter 6 HARMONIZATION FRAMEWORK FOR AIDC IMPLEMENTATION

6.1 Introduction

6.1.1 This chapter describes the steps that should be taken to harmonize AIDC implementation between ATS units. As the successful transmission and reception of AIDC messages are dependent on various external factors, the need to harmonize implementation plans and timelines if AIDC implementation is to be successful.

6.1.2 AIDC messages can be transmitted through existing AFTN networks or by the use of dedicated data channels between ATS units. There may be a need to upgrade existing infrastructure to cater for sufficient bandwidth for handling AIDC messages.

6.1.3 The framework details and template will be described in greater details in the next section

6.2 Harmonization Framework

The various items that will require harmonization between ATS units are listed below. These are the minimum required and individual ATS units may choose to include additional items as required. A coordinated approach to implementing AIDC is crucial to allow ATS units to improve on coordination efficiency and remove associated errors that could arise with manual voice coordination.

4.2.1 **Bilateral agreements**

4.2.1.1 TBN

4.2.2 **ATC procedures**

4.2.2.1 TBN

.

4.2.3 **ATS Routes**

4.2.3.1 TBN

4.2.4 **AIDC version**

4.2.4.1 TBN

4.2.5 **AIDC messages**

4.2.5.1 TBN

4.2.6 **Infrastructure**

4.2.6.1 TBN

6.2 TEMPLATE OF HARMONIZATION FRAMEWORK FOR AIDC IMPLEMENTATION

Harmonization Framework for AIDC Implementation between ~~ACC1~~ATSU1 and ATSU~~CC~~2			
No.	**Harmonization items**	**Description**	**Remarks**
1	Bilateral agreements	- Date of implementation to be stated in bilateral agreement between ATS units - AIDC messages and parameters to be implemented - ATS routes /coordination points to be determined - Agreed fallback procedures in the event of unsuccessful message exchanges - AIDC suspension conditions - data link for AIDC messaging (eg AFTN, dedicated line, etc)	Any other unique agreement details to be included based on the requirements of ATS units.
2	ATC Procedures	- AIDC message parameters and activation conditions - Fallback procedures	
3	ATS routes	- ATS routes - Coordination points	

4	AIDC version	-AIDC version to be used by ATS unit	
5	AIDC messages	-AIDC messages to be exchanged	
6	Infrastructure	-Infrastructure required - Alternate/backup links in the event of failure of primary transmission channel	

7. AIDC INTEGRITY AND PERFORMANCE MONITORING

Safety issues relating to human errors in ATS transfer were identified by the 18th and 20th Meetings of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/18 and RASMAG/20 meetings) where AIDC was considered as an important means of mitigating Large Height Deviation (LHD*Note 1). In addition, AIDC is also recognized as an effective tool to foster better collaborative air traffic management between neighboring ATS units, supporting the ICAO ASBU Module B0-FICE, identified as one of the regional priority modules under the ICAO Asia/Pacific Seamless ATM Plan.

The procedures described in this section aim to ensure system performance by validation, reporting and tracking of possible problems revealed during system monitoring with appropriate follow-up actions.

*Note 1
Large Height Deviation (LHD) means any vertical deviation of 90m/300ft or more from the flight level expected to be occupied by the flight.

7.2 AIDC PERFORMANCE CRITERIA

The efficiency gained by adopting AIDC is significant. With continued growth in ATC traffic, more efficiency gained by using AIDC is anticipated.

However, if AIDC messages are not transmitted and received in a timely manner between automation systems, aircraft can potentially 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, performance requirements need to be specified. These specified performance requirements need to be mutually agreed between neighboring ATS units implementing AIDC. The following are recommended performance parameters for - application response time and operational response time

Response Messages

a) **Application Response**

i) Every ~~ASIA/PAC~~ AIDC message received by an ATSU, except a LAM or LRM, shall be responded to with a LAM or LRM. While no LAM is generated for a valid LRM, an ATSU may choose to respond to an invalid LRM with an LRM. Such a response is termed an Application Response, and is generated automatically by the automation system. A LAM shall be transmitted when the receiving automation system found the received message to be syntactically correct and the message data was accepted for further processing or presentation. Otherwise, an LRM message shall be transmitted.

ii) The timeout value T_{alarm} associated with an application response should typically be less than 180 seconds measured from the transmission time of the original message and may be specified by bilateral agreement, corresponding to the nominal value associated with the accountability timer.

iii) The transmission of an application response should be triggered after the semantic and syntactic checks have been performed on the incoming message. This is because the purpose of an application response is to indicate that a received AIDC message has both been received and is semantically and syntactically correct. Failure to receive an expected application response (i.e. a LAM or LRM) within Tr seconds ($\leq T_{alarm}$) shall result in a re-transmission (up to a maximum number Nr) of the original message. The timeout timer Tr shall be reset upon re-transmission. Failure to receive an application response within T_{alarm} seconds from the original transmission of the message shall result in a warning being issued.

iv) The transmission of a LAM or LRM shall be triggered by the ATC application process, not the communications process. This is because an application response indicates that the received message was examined by the ATC application process(s), not just the communications functions. Note the distinction between an ATC application process, which implements a critical ATC function such as Coordination or Transfer of Control, and a communications process, which is responsible for the reliable delivery of data, but not data interpretation.

v) Receipt of an LRM should cause the ATSU to take a corrective action before re-transmitting the rejected message with a new message identification number. This corrective action may be automatic or manual.

b) **Operational Response**

i) Several ~~ASIA/PAC~~ AIDC messages require a response, in addition to the normal application response, by another AIDC message. Such a response is termed an Operational Response.

Table 1 below indicates the required response to a received message. ~~ASIA/PAC~~ AIDC messages not listed in Table 1 have no operational response.

Received Message	**Required Operational Response**
CPL	ACP or CDN[Note]
EST	ACP
PAC	ACP
CDN	ACP,CDN, or REJ[Note]
PCM	PCA
TOC	AOC

Table 1 : Required Operational Response

Note. An REJ is not available in an Initial Coordination Dialogue initiated by a CPL, EST or PAC. An REJ is only available in a CDN dialogue while an REJ is not a valid response to a CDN message within an Initial Coordination Dialogue.

ii) Failure to receive a response within an adapted operational response timeout period Top shall result in a warning being issued.

iii) The value of Top is dependent on whether manual processing is required to generate the operational response. In general, Top should be less than a value when a manual action is required to trigger the operational response.

For example, the performance requirements specified in Asia/Pacific Regional Interface Control Document (ICD) v3.0 are as follow:

T_{alarm}	180 seconds
Top	≤600 seconds

Table 2 : Performance figures

~~The performance of the AIDC will also rely on the performance of its communication link (e.g. ATN/AFTN leased circuits, Common and secure networks had successfully been deployed in some other ICAO regions. The figures in Table 3 below reflect the various levels of performance of some common IP based network CRV that may be selected for the purpose of providing data link services for AIDC. Depending on the level of service to be provided, a given ATS unit can determine what the performance needs for the transmission.~~

~~**Service**~~	~~**Maximum One-Way Latency (ms)**~~	~~**Round Trip Time (ms)**~~
~~Data1~~	~~100~~	~~200~~
~~Data2~~	~~300~~	~~600~~
~~Data3~~	~~100~~	~~200~~

~~Service~~	~~Maximum One-Way Latency (ms)~~	~~Round Trip Time (ms)~~
~~Data4~~	~~300~~	~~600~~
~~Data5~~	~~100~~	~~200~~
~~Data6~~	~~300~~	~~600~~
~~Data7~~	~~100~~	~~200~~
~~Data-BE~~	~~300~~	~~600~~

~~Table 3 : Performance level of CRV~~

The performance of the AIDC will also rely on the performance of the supporting infrastructure: AMHS/AFTN, and communication layer such as Common IP-based networks. In this connection, the following end-to-end communication requirements are recommended between any two AIDC peers:

Maximum One-Way Latency (ms): 300 ms

Maximum Round Trip Time (ms): 600 ms

Normally, the latency of the communication link (in msec) is sufficient to support to the application of AIDC (in second), for example, each AIDC message sent will result in at least one technical response (LAM or LRM), and where necessary an operational response (e.g. EST/ACP, TOC/AOC). Some AIDC application timeout with reference to the agreed ICD as mentioned above is required to be set based on performance of the communications circuit.

7.2.1 Reliability (Suggest to move under Section 7.2)

Reliability is a measure of how often a system fails and is usually measured as Mean MTBF expressed in hours. Continuity is a measure equivalent to reliability, but expressed as the probability of system failure over a defined period. In the context of this document, failure means inability to deliver AIDC messages to the adjacent ATC centres. This includes the failure of AIDC system only. For the other factors such as the failures of communication link and the counterpart AIDC systems are not counted in this document. The reliability performance requirement of AIDC is given in ICAO Doc 9694 “Manual for Air Traffic Services Data Link Applications” (99.9%).

7.2.2 Availability (Suggest to move under Section 7.2)

7.2.1 Availability is a measure of how often the system is available for operational use. It is usually expressed as a percentage of the time that the system is available.

7.2.2 Planned outages are often included as outages because the efficiencies provided to the Industry are lost, no matter what the cause of the outage. However, some organisations do not include planned outages because it is assumed that planned outages only occur when the facility is not required.

7.2.3 Availability is calculated as

Availability (Ao) = MTBF/(MTBF+MDT)

where MTBF= Mean Time Between SYSTEM Failure
MDT = Mean Down Time for the SYSTEM

The MDT includes Mean Time To Repair (MTTR), Turn Around Time (TAT) for spares, and Mean Logistic Delay Time (MLDT)
NB: This relates to the failure of the system to provide a service, rather than the time between individual equipment failures. Some organisations use Mean Time Between Outage (MTBO) rather than MTBF.

7.2.4 Availability is directly a function of how quickly the SYSTEM can be repaired. Ie: directly a function of MDT. Thus availability is highly dependent on the ability & speed of the support organisation to get the system back on-line. The availability performance requirement of AIDC is given in ICAO Doc 9694 "Manual for Air Traffic Services Data Link Applications" (99.996%).

7.3 AIDC SYSTEM VALIDATION (Suggest to rename from "ATC SYSTEM VALIDATION" to "AIDC SYSTEM VALIDATION")

7.3.1 System Validation Guidelines

ATS units should conduct a validation process before introduction of their new AIDC equipment and procedures. Such processes shall include before and during implementation:

a) A system safety assessment for new implementations is the basis for defining system performance requirements. Where existing systems are being modified to utilize additional services, the assessment shall demonstrate that the ATS Provider's system will meet safety objectives;
b) Integration test results confirming interoperability for operational use of AIDC messages; and
c) Establishment of the operational instruction (OI)/ Letter of Agreement (LoA) or Memorandum of Understanding (MoU) between ATS units and mutual agreement on the associated parameters for the set of AIDC messages to be implemented.

7.3.2 System safety assessment

In accordance with the provisions of ICAO SMS manual (Doc9859), the objective of the system safety assessment is to ensure the ATS units that the introduction and operation of AIDC is safe. The safety assessment should be conducted for initial implementation as well as any future enhancements and should include:

a) Identifying failure conditions;
b) Assigning levels of criticality;
c) Determining risks/ probabilities for occurrence;
d) Identifying mitigating measures and fallback arrangements;
e) Categorising the degree of acceptability of risks; and
f) Operational hazard ID process
g) HMI verification

Following the safety assessment, ATS units should institute measures to offset any identified failure conditions that are not already categorized as acceptable. This should be done to reduce the probability of their occurrence to a level as low as reasonably practicable. This could be accomplished through system automation or manual procedures.

During tactical AIDC operation, apart from the application messages to be sent from ATM personnel, the logical/system messages and the associated error code/messages feedback from counterparts are found necessary to be captured, e.g. through the error queue ~~Problem Message Queue (PMQ)~~ of the Flight Data Processor (FDP) of the ATM System, and the expiry of accountability timer of the system to provide each event a resolution/action. Prompt response to the counterparts or associated contingency arrangement, e.g. backup system and fallback procedures, etc. should be in place and to be agreed with between the two AIDC partners.

7.3.3 Integration test

ATS units should conduct trials (both operational and technical) with adjacent ATS units with AIDC equipment to ensure they meet the operational and technical requirements stated in the agreed test procedure. During the technical test, it is recommended to verify as much AIDC messages as possible since it could reduce safety risk associated with system testing after system commissioning. Regarding trials for operational and technical, please find examples given in Appendix B and C respectively.

7.3.4 Recommendations for AIDC Validation (before commissioning)

a) Engage both technical and operational experts in the process of AIDC implementation starting from initial stage;
b) Define the objectives for trials in the test procedure;
c) Use an appropriate communication ~~direct~~ link ~~(or test link for trial)~~ between two ATS units to conduct validation tests;
d) Conduct validation through technical tests on technical platforms including operational system ~~tests on test/development systems~~ (i.e. Prior to conducting an actual trial with neighbouring ACCs for AIDC tests, a simulator testing for mimicking virtual ACC counterpart for AIDC messages exchange should be conducted);
e) Define operational requirements and specify scope of operational improvements (determine what AIDC messages set is required to be supported) at initial planning stage of the operational trial with agreed test procedure(bilateral agreement);
f) Interoperability between ATM automated systems supporting latest version of AIDC ICDs with full/selected message sets;
g) Interoperability between ATM automated systems from different vendors;
h) Interoperability between ATM automated systems supporting different Cyclic Redundancy Check (CRC) initial values (bilateral agreement);
i) Synchronizing the system time of the communication link to common source (e.g. GPS, satellite);
j) Develop a comprehensive and detailed testing plan including testing scripts to evaluate the process of the implementation;
k) Define the contingency arrangement in the test procedure;
l) Document the test result and share the lessons learnt with the counterparts, and
m) Adopt Target of Opportunity (TOO) during testing wherever appropriate and applicable.

According to the conclusion of The First Meeting of ATS Inter-Facility Data Communication Task Force Meeting (APA TF/1), States/Administrations in the Asia/Pacific Regions is encouraged to use

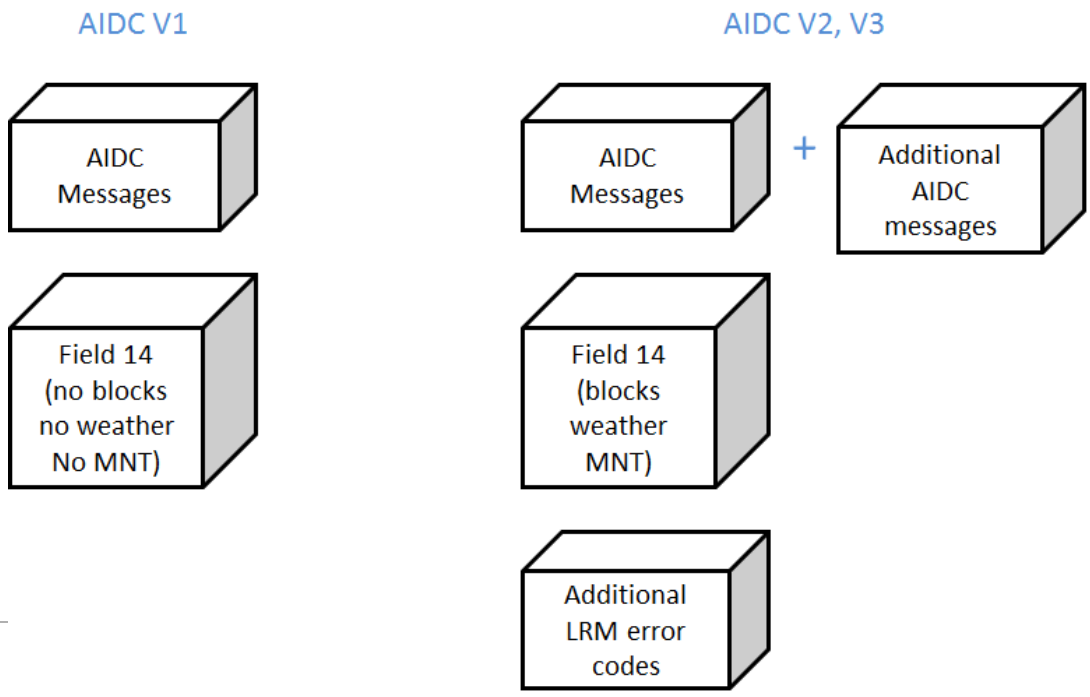
the Pan Regional ICD for AIDC for any planned new ATM automated system or updating ATM automated systems for AIDC function.

There is also an initial suite of messages proposed to allow States/Administrations to enter into the AIDC environment (ABI, EST, ACP, TOC, AOC), details of which are available in the ICAO Asia/Pacific Seamless ATM Plan.

7.3.5 Compatibility Issue between AIDC Versions 1, 2 and 3

The enhancements introduced during the development of AIDC ICD Version 2 and 3 were designed to permit continued interoperability with AIDC ICD Version 1. For example, when a block level format was defined for Field 14, it was explicitly stated that this was an optional format only to be used with agreement between the two ATS units.

The following diagram depicts the significant differences between AIDC Version 1 and the subsequent AIDC versions.



The diagram shows that AIDC messages supported in AIDC Version 1 is included in AIDC V2 and V3. As such, an AIDC V1 ATS Unit is interoperable with an AIDC V2 or 3 ATS Unit. The additional messages in AIDC V2 and V3 are not supported by AIDC V1. However, this could easily be controlled procedurally by simply not sending these messages.

The optional Field 14 formats should not be included in messages sent to an AIDC V1 ATS Unit, which makes Field 14 interoperable too.

The additional LRM error codes were designed to support the new AIDC messages and the Field 14 formats. Because an AIDC V2 or V3 ATS Unit will not be receiving these messages or formats from an AIDC V1 ATS Unit, this means that they will not send these error codes to an AIDC V1 ATS Unit. Therefore AIDC messaging is also interoperable between an AIDC V2/V3 ATS Unit and an AIDC V1 ATS Unit.

7.3.6 Agreement for Validation

States should coordinate with adjacent ATS units to confirm that their tests procedures to ensure harmonization of procedures during testing.

7.4 ~~SYSTEM~~ AIDC IMPLEMENTATION AND PERFORMANCE MONITORING

~~According to the conclusion of APA TF/1, it is considered necessary to develop a table or database for recording appropriate issues/problems reported by States/Administrations. The meeting agreed the simplified form for use by States/Administrations, as given in **Appendix A** (AIDC issues table) **of** this document.~~ States/Administrations in a position to do so ~~were~~ are encouraged to submit identified issues using the AIDC issues form to the ICAO Regional Office for consolidation and sharing by States/Administrations implementing AIDC.~~review by the APA TF. The APA TF will maintain the AIDC issues table and to follow up with the action plan to resolve the issue as one of the top priorities, while the issues/problems should also be considered and addressed prior to AIDC implementation with neighbouring ACCs.~~

In addition, States/Administrations in the APAC Region are encouraged to share their implementation plans and experiences with concerned States/ATS units for an expeditious AIDC implementation in a harmonized and timely manner.

7.4.1 The monitoring process

When problems/issues are discovered, the initial analysis should be performed by the organization(s) identifying the problem/issues. In addition, the problem/issue should be logged in the AIDC issues table. As some problems or abnormalities may involve more than one organization, the originator should be responsible for follow-up action to rectify the problem and take lead to record the information in the AIDC issues table. It is essential that all information relating to the problem/issue is documented and recorded and resolved in a timely manner.

The following groups should be involved in the monitoring process and problem/issue tracking to ensure a comprehensive review and analysis of the collected data:

a) ATS Providers;

b) Organizations responsible for ATS system maintenance (where different from the ATS provider);

c) Relevant State regulatory authorities; and

d) Communication Service Providers being used (if appropriate).

7.4.2 Distribution of information

It is important that information that may have an operational impact on other parties be shared by States/Administrations and distributed by the ICAO Regional Office ~~authorised groups that are likely to be affected~~, as soon as possible. In this way, each party is made aware of problems already encountered by others, and may be able to contribute further information to aid in the solution of these problems.

8. AIDC REGULATIONS AND PROCEDURES

8.1 Introduction

AIDC is a two way communications facility between countries by means of system interaction which using ATS Message Handling System (AMHS) and/or Aeronautical Fixed Telecommunications Network (AFTN) as a medium of exchanging data.

8.2 Regulations/Mandate for AIDC Implementation

i. ICAO encourages implementation, and proposes mandates where needed;
ii. In the Asia/Pacific Region, wide implementation is still progressing. AIDC is a priority number one in regional Seamless ATM Implementation Plan;
iii. NAT has widely implemented (AIDC rollout 2010-2013)

8.3 Personnel ~~Licensing and~~ Training

Air traffic controller training is defined with specified regulations, international and domestic, that prescribe minimum requirements for organizations certified for such a training. These requirements include creation of the Operations Manual, defining responsible personnel, programs of training with training objectives and financial plans.

In order to provide safe, orderly and efficient flow of air traffic and to ensure a harmonized training process, each state need to provide an AIDC training which is recommend by ICAO training standards, programs and learning objectives as reference. These standards should increase the availability of air traffic controllers and improve overall air traffic safety. Good quality of training procedures will create a good feed back to the training and enhance improvement of the training process.

Normally this is achieved by:

i. The conduct of appropriate Training Needs Analysis (TNA) to identify the gap between trainee skill/knowledge and the required skill/knowledge;
ii. Development and delivery of appropriate training to maintainers;
iii. Competency based testing of trainees; and
iv. Ongoing refresher training to ensure that skills are maintained even when fault rates are low

The training shall consist of:

i. Theory;
ii. Simulator; and
iii. Examination

Quick reference shall be made available at all time, at every workstation for quick guidance and references to the ATCO. As the main objective of AIDC is to replace the voice coordination and to reduce

the workload of an ATCO, therefore, all procedure shall retain as normal voice coordination and shall be operate by En-route rated ATCO without the needs to creating a licence specific for AIDC operation.

8.4 Factors to be considered when implementing AIDC

i. AFTN connection stability and speed

ATN systems (AFTN/AMHS Gateways and ATN Routers) are not required for AFTN based AIDC connectivity; that is, it is possible to make a simple connection without those systems. Complicating the AIDC connection by introducing unnecessary elements will have negative implications such as:

- The reliability and response time of the AFTN-based AIDC connection will be degraded due to communications having to pass through ATN systems unrelated to AIDC on the communication route.
- The response time of the AFTN-based AIDC connection will further be degraded because AMHS (AFTN/AMHS Gateway) uses a store-and-forward communication system, which is not amenable to the interactive nature of AIDC communications.
- Message handling will be made considerably more difficult, especially in case of trouble in the system or communication line, since the AFTN/AMHS Gateway will be handling messages of different natures.

ii. Availability of Direct Speech Circuit (DSC)

DSC should be available at all time which will be functioning as a secondary coordination method in case of AIDC failure.

iii. The capability to revert to verbal coordination, manual transfer of control and manual data link transfers (i.e. Address forwarding) should be retained. Frequent DSC connectivity check should be conducted regularly.

iv. Well trained ATCO

- Only a well trained ATCO (on AIDC) are allowed to operate with AIDC to avoid misjudgement on the approval

v. Recording facilities

- Recording facilities shall be made available and the recording shall be kept at least for 31 days

vi. Schedule maintenance and failure

- States should be aware that maintenance on AIDC and AFTN systems may have an

operational effect on other states. Such effect may for example include loss of the AIDC function due to flooding of messages or out of sequence messages following an AIDC server reboot. Any maintenance affecting the AIDC and AFTN systems should therefore be prior coordinated with the counterparts states and backup procedures shall be in placed.

8.5 Procedures to Handle Non-compliant ATMS or Erroneous AIDC Transmissions

Each state should have a system that can detect an AIDC message which coming via AFTN.

For Non-compliant ATMS, there should be a mutual agreement between states to agree which message they would like to use. Each state has to make sure that their ATM systems are capable to recognize all AIDC message.

Due to technical issues, if certain delay and issues occur in future, the respective parties will be liable for damages and delay/non functionality of the same. If Erroneous of AIDC Transmissions happens, each state shall check either the problem from their side or others. Each state shall come out with evidence showing that their transmission line is serviceable. In the meantime, AIDC operatiom shall be stop until further advised.

For the intermittent AIDC transmissions, if the delay created an error message, the ATCO (either both) shall stop the AIDC operation until the AIDC transmission connectivity are back to normal. During the AIDC operational stoppage, any coordination shall be made by voice.

If any litigation arises in respect of the agreement (s) executed with a third party for the resolution of technical issues or for the expenses pertaining to the AIDC system, the respective parties shall bear the responsibility of the cost incurred.

8.6 Emergency Recovering Procedures

Each state is required to have an AIDC recovery procedure. The procedures shall restoring the system and line to operation in the event of a system/line outage, both expected and unexpected. Identify redundant/diverse systems/line for providing service in the event of an outage and describe the process for recovery from various types of failures, the training of technical staff who will perform these tasks, the availability and back-up of software and operating systems needed to restore the system to operation, the availability of the hardware needed to restore and run the system, back-up electrical power systems, the projected time for restoring the system, the procedures for testing the process of restoring the system to operation in the event of an outage, the documentation kept on system outages and on potential system problems that could result in outages. Redundant AFTN line is mandatory; to make sure the availability of AFTN line is 99.9%.

For AIDC recovering procedure, after AIDC back to normal (including AFTN), each state should

i. Counter check with other state either their system already back to normal or not;
ii. Test message should be transmit to make sure both states establish. If yes, continue normal

AIDC; and

iii. Both states shall come out with full report as a precaution for both countries, if the same problem occurs again.

Planned outages will be subject to detailed planning and testing in a separate "staging" environment. In addition to, validating all steps to be performed during the outage, back-out plans are developed and tested. In this case, maybe we need to consider an AIDC communication using INTERIM or TEST BED environment.

Appendix A
AIDC Issue table

Issue reference	Date of First Report	Description of fault	Fault Type	State/ATSU/Vendor	Priority (assessed by TF or RO)	Actions Taken/Updated Date/Status (Open/Closed)
AIDC-ISSUE-1	yyyy/mm/dd	Brief summary of fault in not more than 20 words	Technical or Operational	STATE/ATSU/VENDOR	High or Low (depending on ops/safety impact, frequency)	Description of correction action
AIDC-ISSUE-2	2014/06/01	**Example**: Not receiving LAM, AOC messages	Technical	SRI LANKA/COLOMBO/THALES	Low	Vendor is investigating, suspect to be test platform issue/18Jun2015/Open.
AIDC-ISSUE-3						
AIDC-ISSUE-4						
AIDC-ISSUE-5						
AIDC-ISSUE-6						
AIDC-ISSUE-7						
AIDC-ISSUE-8						
AIDC-ISSUE-9						
AIDC-ISSUE-10						
AIDC-ISSUE-11						
AIDC-ISSUE-12						
AIDC-ISSUE-13						

Appendix B

See Attachment 1

Appendix C

See Attachment 2

ATN/AMHS/AIDC Implementation Status in the APAC Region

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
AFGHANISTAN					
AUSTRALIA	ATN tests were conducted. BIS Router and Backbone BIS Router and AMHS implemented. 64 kbps IPLC established with Fiji. Basic AMHS circuit will be commissioned in September 2014; Another basic AMHS circuit planned for operational in Feb. 2015. The connectivity will be provided by CAAS's VPN.	COMSOFT	AFTN based AIDC Implemented between Brisbane and Melbourne, Oakland, Nadi and Auckland; Implemented between Melbourne and Johannesburg; AIDC is also in use between Melbourne and Mauritius; Operational trial between Brisbane and Ujung Pandang since May 2013.		

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
BANGLADESH	In Q1/2013, Bangladesh installed ATN/AMHS and BIS Router at Dhaka (VGHS) with User Agents at Chittagong (VGEG) and Sylhet (VGSY).	COMSOFT	Tentative date of implementation of AIDC is Q4 of 2018 with Kolkata and Myanmar.		The Bangladesh ATM Upgrade Project (BATMUP) under Public Private Partnership (PPP) in Dhaka is expected to be completed by 2018. As soon as the ATM up-gradation is completed hopefully Bangladesh will be able to implement AIDC with Kolkata and Myanmar by the end of 2018.
BHUTAN	ATN BIS Router and UA service planned for 2015.				

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
BRUNEI DARUSSALAM	ATN BIS Router planned for 2015 and AMHS planned for 2015				
CAMBODIA	BIS Router and AMHS installed. Cambodia (CATS) AMHS connected with Bangkok via VSAT IP link on 10 December 2013	AVITECH	AIDC function and capability made available. Ready for testing with neighbors ATS Facilities starting from 2015-2016.	THALES which supports AIDC ICD Version 1.	
CHINA	ATN Router and AMHS including NCC deployed in 2008 which is being upgraded to support ATN/IPS with target date of completion in December 2013. Tripartite BBIS trial completed with Bangkok and Hong Kong, China in Jan. 2003. ATN trial with Hong Kong using XOT over internet conducted in 2006, Further trials conducted in 2009. Plan for ATN/AMHS implementation with Hong Kong, China (2016). AMHS/ATN technical tests with Macau completed in 2009. Plan for ATN/AMHS implementation with Macau, China (2016).	IN-HOUSE (Aero-Info Technologies Co., Ltd)	AIDC between some of ACCs within China has been implemented. AIDC between several other ACCs are being implemented. AIDC between Sanya and Hong Kong put in to operational use since 8 Feb 2007. AIDC between Qingdao and Incheon planned for 2015; Implemented between: Guangzhou with Nanning/Zhanjiang/Zhuhai; Nanning and Kunming/Guiyang/Zhanjiang in 2011; Zhanjiang/Haikou;		

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
	ATN/AMHS circuit with ROK put into operational use since June 2011. ATN/AMHS tests with India started from March 2011 using 64 Kbps landline. ATN and AMHS technical trial with Mongolia is TBD. Connection tests with Thailand is TBD Connection tests with Nepal is TBD		Chengdu and Chongqing/Guiyang in 2011; Guiyang and Chongqing/Kunming in 2011; Started negotiation for implementation between Dalian and Incheon and Shanghai/Fukuoka.		
HONG KONG, CHINA	Preliminary ATN/AMHS technical trials with China (Beijing) using VPN over Internet connection in 2006. Operational AMHS and BIS router accepted in July2009. ATN/AMHS circuit with Macao put into operation use in Dec. 2009. ATN/AMHS circuit with Bangkok put into operation use in Sept. 2014 ATN/AMHS interoperability tests with other adjacent communications centres commenced in late 2009, viz Taibei (2009), Japan (Planned Q4/2017), Philippines (Planned Q2/2016) and Viet Nam (Planned 2016) Plan for ATN/AMHS implementation with China (Beijing) (2016).	COMSOFT	AFTN-based AIDC with Sanya put into operational use in Feb 2007. AIDC trial with other adjacent ATS authorities for new ATC system to be commissioned by mid-2016. AIDC technical trial with Taibei conducted in 2010 and completed in 2012 and put into operational use in Nov. 2012	Raytheon ATM system Support AIDC ICD Version 3 from mid 2016	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
MACAO, CHINA	ATN/AMHS interoperability test with Beijing commenced in March 2009. ATN/AMHS circuit with Hong Kong put into operational use in end Dec. 2009.	COMSOFT	(Not applicable for using AIDC, looking into the possible application (some way) between TWR and ACC/APP).		
COOK ISLANDS					
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	The ATN BIS Router and AMHS planned for in 2011.		With neighboring ACCs to be implemented		
FIJI ISLANDS	ATN BIS Router and AMHS implemented	COMSOFT	AFTN based AIDC implemented between Nadi/ Brisbane, Auckland and Oakland.	- 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 centres (Oakland		

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
			and Auckland) since 2009		
INDIA	Dual stack ATN/lp router and AMHS implemented at Mumbai in 2011	COMSOFT	AIDC planned with Bangladesh, Myanmar, Thailand, Pakistan, Nepal, Seychelles, Malaysia, Indonesia, Sri Lanka, Kenya, Oman and Maldives Mauritius and Somalia. Successful AIDC trials done between Chennai-Kuala Lumpur, Chennai-Male, Ahmedabad-Karachi, Delhi-Karachi (One way towards Delhi)	1) Raytheon at New Delhi, Mumbai and Chennai 2) Selex at Hyderabad and Bengaluru. 3) INDRA at 39 locations	1) Major Indian airports and ATC centres have integrated ATS Automation Systems having AIDC capability. Successful AIDC trials have been carried out amongst major ATSUs within India. 2) AIDC implemented between Chennai and Mumbai. 3) AMHS implemented and working between A. BBIS: Mumbai-Singapore, Bangkok B: BIS: Mumbai, Kathmandu, Dhaka

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
INDONESIA	AMHS trial with Brisbane waiting for direct link BNE – UPG will be finished 3Q2016 ATN BIS Router and AMHS are still ongoing trial (POT) due to upgrade bandwidth with Singapore	ELSA	Implementation Chennai – Jakarta, Ujung Pandang – Jakarta, Melbourne – Jakarta; planned for its implementation in 4Q2018 Singapore – Jakarta; Testing will be conduct as soon as possible after ATM system Jakarta is ready to AIDC messaging in 4Q2018 Brisbane – Ujung Pandang; plan for its implementation with Brisbane in 4Q2016. Manila – Ujung Pandang; - Testing is still on going. - Plan for implementation with Manila 1Q2017. Kota Kinabalu – Ujung Pandang; - Testing is still on going. - Plan for implementation with Kota Kinabalu 2Q2017	Thales in Makasar able to support ICD Version 3 since December 2015	With the rest of Jakarta's adjacent ATSUs will be implement in 2019 and beyond. (Colombo, Kuala Lumpur, Kota Kinabalu) Waiting for direct link BNE – UPG will be finished 3Q2016 Between PNG – Ujung Pandang, the implementation are waiting for PNG's ATM system upgraded. Between Oakland – Ujung Pandang is not planned yet, due to traffic volume consideration (very low).

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
JAPAN	ATN BBIS router and AMHS installed at 2000. Connection tests with USA 2000 - 2004 and put into operational use in 2005. ATN BBIS router (to apply to Dual Stack) and AMHS (to upgrade in 2015. The connection test with each country which is not currently connecting is started after update.	NEC	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. Implemented between Fukuoka and Incheon since June 2009. AIDC implemented between Fukuoka ACC/Naha ACC and Taibei ACC implemented . AIDC between Fukuoka ACC and Shanghai ACC under negotiation (2014)		
KIRIBATI					
LAO PDR	ATN BIS Router and AMHS completed, put into operation with Bangkok since 2Q 2015.	THALES	AIDC with Bangkok planned for 2016. Testing with Ha Noi for 2017, with Ho Chi Minh2017, With Cambodia for 2016	THALES which is able support ICD Version 2.	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
MALAYSIA	ATN BIS Router completed 2007. AMHS planned for 2015.	FREQUENTIS	AFTN AIDC planned with Bangkok ACC – Middle 2Q2016. AIDC between Kuching and KK FIR already implemented in 2014 via AFTN. Between Kuala Lumpur and Chennai trial successful scheduled for operation from 1Q2016. Plan for trial with Singapore from Mid. November 1Q 2016. Plan for trial with Ho Chi Minh from 1Q 2016 Between Kota Kinabalu and Singapore 4Q2015 Kuching and Singapore for 1Q2016 Kota Kinabalu and Makassar 4Q2015	SELEX which is able to support ICD Version 3.	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
MALDIVES	Planned for 2016 as existing AFTN was upgraded recently to make it compatible with protocols of interconnected AMHS systems and the flight plan format 12.		System is AIDC ready. Implementation with ACC's (Chennai, Colombo, Mumbai, Melbourne and Mauritius) plan for 2017.	SELEX which is able to support ICD Version 3.	
MARSHALL ISLANDS					
MICRONESIA (EDERATED STATES OF)					
Chuuk					
Kosrae					
Pohnpei					
Yap					
MONGOLIA	AMHS/AFTN gateway implemented 2012. ATNBIS router implemented in 2014. Coordinating with China using ATN/AMHS connection technical trials conducted in 2014.	COMSOFT	ATM automation system supports both AIDC and OLDI. Coordinating with Russia on OLDI connection in target date 2016. Coordinating with China on AIDC connection technical trial in progress. New	INDRA Aircon 2100 supporting AIDC ICD Version 2.	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
			testing with China in June 2016 after upgrades of ATM system in Beijing and Ulaanbaatar in April 2016.		
MYANMAR	AMHS including ATFTN/AMHS gateway implemented in Nov. 2011	THALES	ATM automation system capable to support AIDC in end of 2015. Plan for with Bangkok with target for implementation in 2016.	THALES	
NAURU					
NEPAL	BIS Router and AMHS commissioned with Kathmandu Mumbai circuit on 2 June 2014.	COMSOFT	AIDC between Kathmandu and Beijing and KTM-BBN and KTM-CCU planned for 2016		
NEW CALEDONIA	New router and AMHS planned at the end of 2013 with Nadi				
NEW ZEALAND	Some external AMHS connections 2014.	COMSOFT	AIDC implemented between New Zealand, Australia, Fiji, Tahiti, Chile and USA.		

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
PAKISTAN	ATN/AMHS considered as Phase II implemented since 2010.	COMSOFT	Implemented between Karachi and Lahore ACCs Plan to implement AIDC with Mumbai and Muscat for 2015		Existing Radar system being upgraded.
PAPUA NEW GUINEA	Plans to create a newly duplicated digital communications line connecting with existing and new sites and AMHS system implemented in 4Q2014	COMSOFT	Plan to implement with all neighboring FIRs in 3Q 2016	COMSOFT which is able to support ICD Version 3	
PHILIPPINES	ATN G/G BIS Router/AMHS installed in 2006. Pending AMHS Interoperability tests moved to Q3/2015 both for Singapore and Hong Kong. AMHS trials with Singapore by end 2012 and Hong Kong planned in 2012.	COMSOFT	**Technical Trials:** On-going with Singapore, Ujung Pandang and Taipei ACCs; 2Q2016 – Hong Kong ACC; 1Q2017 Oakland ARTCC; 4Q2016 – Ho Chi Minh ACC **Planned Implementation:** 3Q2016 – Singapore ACC; 1Q2017 – Ujung Pandang ACC; 4Q2016 – Taipei ACC; 3Q2017 – Oakland ARTCC; 4Q2017 – Ho Chi Minh ACC	THALES which is able to support ICD Version 2.	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
REPUBLIC OF KOREA	ATN/AMHS circuit with China put into operational use in June 2011. ATN/AMHS test with Japan to be conducted	SAMSUNG	AFTN based AIDC implemented between ACC and Fukuoka ATMC. AIDC between Incheon and Dalian under negotiation (2014)		
SINGAPORE	AMHS implemented. ATN/AMHS circuit with India put into operational use in March 2011. ATN/AMHS circuit with UK put into operational use in March 2012. ATN/AMHS circuit with Thailand put into operational use in December 2014. On-going ATN/AMHS trial with Indonesia, Malaysia and Viet Nam. Planned implementation with Australia by 2Q2016.	COMSOFT	Operational with Ho Chi Minh implemented July 2014. Technical trials with Malaysia (Kota Kinabalu, Kuching and Kuala Lumpur ATCCs) on going since Dec. 2014. Further technical testing is planned for April – May 2016. Revised planned operational implementation by Dec. 2016. Technical trials with Manila ACC ongoing since Dec. 2014. Revised planned operational implementation by Sept. 2016. Technical trials with Jakarta ACC will be initiated once the Jakarta ACC ATMS renewal is.	THALES currently support s ICD Version 1 and to be upgraded to Version 3 in 2016	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
SRI LANKA	ATN BIS Router Planned for 2013. AMHS (Domestic) and AMHS/AFTN Gateway implemented by Oct. 2011. - Mumbai testing during Q3/Q4 2014 operational in Nov. 2014; - Singapore testing in Q4 214 operational in Dec. 2014; - Male testing in Q2 2015 operational date TBD.	IDS	Trials with Male' planned for in 2017. Trial with Chennai on-going. Plan for implementation in 3Q2016 and with Melbourne plan for 3Q2015 and implementation for 1Q2017.	INTELCAN which is able to support ICD Version 3.	
THAILAND	BBIS/BIS Routers already implemented. AMHS has been implemented since July 2011. Connection with Cambodia, India, Singapore, Hong Kong, China implemented. Pre-operational test (POT) with Bangladesh, Lao PDR, Malaysia completed, implementation planned for end of 2016. Interoperability Test (IOT) with Myanmar completed, pre-operational test planned for end of 2016. Interoperability Test with Beijing China, Italy and Vietnam planned for end of 2016.	AEROTHAI's AMHS System and Ubitech System	Initial Trial with Cambodia and Lao PDR underway. Coordination and initial trial with Malaysia and Myanmar by the end of 2016. Plan for implementation starting from 2017.	THALES which is being implemented with planned completion in Early 2017. AIDC feature supports APAC AIDC ICD V.3.	

State/Organization	ATN G/G Boundary Intermediate System (BIS) Router/AMHS	AMHS Vendors Selected	AIDC	ATM System selected to support AIDC and Associated ICD (Implementation Status of the Basic 5 message set supported)	Remarks
TONGA	AMHS planned for 2008. The provider is linked to the New Zealand AFTN				CPDLC and ADS-C is not considered for lower airspace
UNITED STATES	AMHS implemented. (Salt Lake City & Atlanta). Transition using AMHS when counter parts ready	IN-HOUSE	AFTN based AIDC implemented.	IN-HOUSE which is able to support APAC and NAT ICDs currently Version 2.	
VANUATU					
VIET NAM	BIS Routers planned for 2009. ATN/AMHS trial in 2010 and operation in 2012. ATN BIS Router AMHS in 2013 Plan to conduct trial with Singapore 2Q2016 and technical testing with Thailand already conducted and further tests with Thailand to be determined.	IN-HOUSE	AFTN based AIDC implemented in 2009. Operational with Singapore in April 2014. Trial with Singapore for additional messages sets in 2016. Technical testing with Cambodia already done; Plan for trials with Lao. PDR in 2016 and with Malaysia to be confirmed.		

LIST OF ACTION ITEMS FOR ASIA/PAC AIDC TASK FORCE

a) By December 2015, members States/Administrations of the Task Force to provide identified ISSUES for sharing/learning by filling in AIDC Issues Form which is attached to the meeting Report (simplified based on the one provided by Sri Lanka at AIDC Seminar);

ACTION BY: ALL Member States/Administrations and to be consolidated by ICAO Regional Office
Further action needs to be done: to continue provide issues and group the issues by analysis. Volunteers: Indonesia and supported by Singapore to group the list of issues

b) January to June 2016 for each group of common issues, identify in an ACTION **PLAN** which small working groups to be established when necessary and possible with invitation to aviation industry for input. Develop an action plan for the identified ATSUs with priorities for implementation; Go-teams to assist when required (subject to funding available and requirement in place);

ACTION BY: by the Task Force
Status: few small working group already in place to address some of the issues and established the target date of implementation. (in most case two parties).

c) By January 2016, develop the first cut of Draft AIDC Implementation Guidance Material; (follow up Decision of APA TF/1 meeting report);

ACTION BY: Small ad hoc Working Group
Status: Completed - Version 0.1 of the "AIDC IGD" – AIDC Implementation and Operations Guidance Document was developed at the second meeting of Task Force.

d) For 0.1 AIDC IGD, teleconferences in June to progress. Also need to face-face meeting in 4Q this year for small drafting group to meet to progress the readiness of the material.

This task link with item c), further work need to be done by the ad hoc WG as mentioned above and get it ready for final review at next face to face meeting scheduled in March 2017.

e) The issues collected need to be classified into groups with common problem in nature. The successful solution should be recorded for consideration by other States/Administrations. Indonesia agreed to take the lead for analysis and grouping and Singapore/India to support this task.

f) The Secretariat was requested to coordinate with ICAO HQ to create the dedicated AIDC Implementation portal site to keep AIDC related information and documents.

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SECOND MEETING OF THE ASIA/PACIFIC ATS INTER-FACILITY DATA COMMUNICATION IMPLEMENTATION TASK FORCE (APA TF/2) OF APANPIRG

(Bangkok, Thailand, from 16 - 18 March 2016)

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International Civil Aviation Organization

THE SECOND MEETING OF ASIA/PACIFIC ATS INTER-FACILITY DATA COMMUNICATION (AIDC) IMPLEMENTATIONTASK FORCE (APA TF/2) OF APANPIRG

Bangkok, Thailand, 16 - 18 March 2016

LIST OF WORKING, INFORMATION PAPERS

WP/IP/ SP No.	Agenda	Subject	Presented by
		WORKING PAPERS	
WP/1	-	Provisional Agenda	Secretariat
WP/2	2	Outcome of APANPIRG/26 and CNS SG/19 on AIDC	Secretariat
WP/3	2	Update on the Seamless ATM Reporting Process and Regional Picture	Secretariat
WP/4	4	Report of Teleconferences on Development of AIDC Guidance Materials	Secretariat
WP/5	2	Review of the Terms of Reference of APA Task Force	Secretariat
WP/6	4	Report of Teleconferences on Development of AIDC Guidance Materials	Secretariat/Airports Authority of India
WP/7	4	Development of AIDC Guidance Materials	Hong Kong, China
WP/8	5	Progress of AIDC Implementation – Chennai (India) with Kuala Lumpur, Colombo and Male	India
WP/9	4	Development of AIDC Guidance Materials	Singapore
WP/10	4	Development of AIDC Guidance Document	Malaysia
		INFORMATION PAPERS	
IP/1	-	Meeting Bulletin	Secretariat
IP/2	3	AIDC Trial with Thailand's Adjacent FIRs	Thailand
IP/3	5	Progress of AIDC Implementation	Singapore
IP/4		ATS Interfacility Data Communication (AIDC) Systems Test in the Philippines with adjacent ACCS	Philippines
IP/5	6	ATS Interfacility Data Communication (AIDC) implementation plan of Bangladesh	Bangladesh