



भारतीय विमानपत्तन प्राधिकरण AIRPORTS AUTHORITY OF INDIA

DIRECTORATE OF AIR TRAFFIC MANAGEMENT

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[File No. AAI/ATM/SQMS/31-16/2011]

Doc. Id: ED/ATM/2011/311606/ATMC/PROC

ATMC

AIR TRAFFIC MANAGEMENT CIRCULAR NO. 12 of 2011

ATS Interfacility Data link Communications (AIDC)

1. Introduction:

- 1.1 ATS Interfacility Data link Communications (AIDC) is a data link application that provides the capability to exchange flight data between automated ATM systems located at different ATSUs (Air Traffic Services Units).
- 1.2 The installation of new ATM automation systems supporting AIDC data link application at various airports has paved the way for implementing AIDC at these airports for automatic co-ordination and exchange of coordination messages with adjacent ATC units.
- 1.3 The implementation of AIDC application will significantly reduce the need for verbal coordination between ATS units allowing more time to controllers for resolving conflicts and processing flight crew requests.
- 1.4 Procedures in this ATMC are supplementary to the procedures described in Chapter 11 of Manual of Air Traffic Services – Part 1 (MATS-1).
- 1.5 AIDC applications, requirements, functional capabilities and message contents are provided in detail in the Asia/Pacific Regional ICD for AIDC, version 3, September 2007.

2. Purpose

- 2.1 Purpose of this ATMC is to provide guidance materials to controllers describing the AIDC message sets and procedures for data interchange between ATS units using AIDC application.

3. Scope:

- 3.1 This ATMC is applicable to all Air Traffic Controllers working at various AAI airports/ATC Centres/ATC Units wherever ATM automation system with AIDC capability is available.



4. Phases of Flight

4.1 Notification Phase

4.1.1 An ATSU receives information during the Notification phase on a flight which will at some future time enter its Area of Common Interest (ACI).

4.2 Coordination Phase

4.2.1 The transferring ATC unit coordinates the conditions of transfer of control and if necessary, the accepting ATC unit counter-coordinates the acceptance conditions for the flight to be transferred. There are several types of coordination dialogues which may occur, depending on where the aircraft is and what previous dialogues have occurred.

4.3 Transfer of Control Phase

4.3.1 This phase occurs when the Controlling ATSU relinquishes control of the flight to the receiving ATSU and the accepting ATSU accepts the control of flight.

5. AIDC Messages

5.1 **ABI (Advance Boundary Information)** is transmitted automatically by the automation system at time or position (adaptable) before the common boundary to give advance information on flights prior to coordination. Changes to a previously transmitted ABI shall be communicated by the automation system automatically by means of another ABI.

5.2 **CPL (Current Flight Plan)** is transmitted automatically by the automation system at time or position (adaptable) before the common boundary to initiate initial coordination dialogue between automated ATS systems for a specific flight.

5.3 **EST (Coordination Estimate)** is transmitted automatically by the automation system at time or position (adaptable) before the common boundary to inform the receiving centre of the crossing conditions for a flight and to indicate that the conditions are in compliance with agreements between the two ATS units. EST messages are transmitted only when the flight overflies an agreed Coordination Point (COP). In all other cases a CPL is sent.

5.4 **CDN (Coordination)** messages may be initiated by the controller to propose changes to the coordination conditions agreed to in a previously transmitted CPL, EST, PAC or CDN message. It must be noted that only one CDN dialogue can be active per flight at any given time between the same two ATSU's and CDN dialogues should be closed prior to the Transfer of Control occurring.

5.5 **PAC (Preactivation)** is transmitted to inform the receiving ATS unit of the crossing conditions for a flight which has not yet departed and to indicate that the conditions are in compliance with agreements between the two parties. Normally it is only used when the departure point is close to the common boundary and preflight coordination is required.



- 5.6 **MAC (Coordination Cancellation)** message is transmitted specifically to indicate to a receiving centre that all notification and/or coordination received for a flight is no longer relevant to that centre. This message is not to be considered as a cancellation (CNL) message of a FPL.
- 5.7 **ACP (Acceptance)** is transmitted to confirm that the contents of a received CPL, CDN, EST or PAC message are accepted. ACP may be generated automatically or manually in response to a received EST or PAC message whereas an ACP message has to be generated by the controller manually in response to CPL or CDN message.
- 5.8 **REJ (Rejection)** is manually transmitted to reject a clearance proposed by a CDN to a previously coordinated flight and terminate the coordination dialogue. When CDN is rejected the clearance remains as was previously agreed. CPL, EST or PAC messages cannot be rejected.
- 5.9 **TOC (Transfer of Control)** may be generated automatically or manually to offer the receiving ATS unit executive control of a flight.
- 5.10 **AOC (Assumption of Control)** may be generated automatically or manually in response to a TOC to indicate acceptance of executive control of a flight.
- 5.11 **Application Response Messages**
- 5.11.1 A **LAM (Logical Acknowledgement Message)** shall be transmitted automatically when the receiving automation system finds the received message to be syntactically correct and the message data is accepted for further processing or presentation. Otherwise, an LRM (Logical Rejection Message) with error code shall be transmitted by the system. Every AIDC message received by an ATSU, except a LAM or LRM, shall be responded to with a LAM or LRM.
- 5.11.2 Failure to receive an application response within the time out value (T_{alarm}) seconds from the original transmission of the message shall result in a warning **LTO (Logical Time Out)** being issued.
- 5.12 **Operational Response Messages**
- 5.12.1 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.

Received Message	Required Operational Response
CPL	ACP or CDN
EST	ACP
PAC	ACP
CDN	ACP, CDN, or REJ
TOC	AOC

Table 1



5.12.2 Failure to receive a response within an adapted operational response timeout period T_{op} shall result in a warning **CTO (Coordination Time Out)** being issued.

5.12.3 The value of T_{op} is dependent on whether manual processing is required to generate the operational response. In general, T_{op} should be less than 600 seconds when a manual action is required to trigger the operational response.

5.13 Other AIDC messages

5.13.1 The use of other AIDC messages specified in the Asia/Pacific Regional ICD for AIDC will be reviewed after resolving interoperability issues in exchange of these messages between different ATM automation systems.

6. Message Handling

6.1 The automation system receiving an ABI sets the Flight Plan State to OPERATIVE, the Aircraft State to AIRBORNE and the Clearance State to CLEARED. The Flight strips are automatically printed based on the ABI and the surveillance track is correlated. Further changes to flight profile via ABI, CPL or EST messages automatically updates the FDE, FDL and Data Tag. If adapted, automatic reprinting of strips are done by the system otherwise the controller has to manually reprint or correct the strips. CDN messages are only proposal and flight profiles are updated only after an ACP is sent by the receiving controller.

7. Adaptation

7.1 The automation system should be adapted to provide for easy handling of AIDC messages. This should usually be achieved by some form of menu access for generating messages and by pop-up windows for replying to incoming messages. Wherever feasible menu access should be provided via the track label, FDE and FDL to generate outgoing AIDC message or view and reply to incoming messages.

7.2 Receipt of an operational response (ACP or REJ) should be indicated to the controller via FDE, FDL and Data Tag.

7.3 Failure to receive an expected Application or Operational response within an adapted time T_{op} should provide an alert to the controller so that manual coordination can be performed.

8. Flight Plan Database Accuracy

8.1 The most common errors for receiving LRM (Logical Rejection Messages) from external automation systems are:

- a. Duplicate Flight Plan
- b. Erroneous Flight Plan Data
- c. Non-Availability of FPL
- d. Incorrect FPL Format
- e. Incorrect route and/or Boundary estimate

8.2 The accuracy of the flight plan database must be maintained at all times. Controllers and flight data officers must ensure that the flight plan information accurately represents the cleared route and level. It should be noted that Flight Planning



messages will continue to play an important role even after the implementation of AIDC.

9. Training

- 9.1 Considering the fact that ATS Interfacility Data Communication (AIDC) is to be introduced for the first time in India it is essential to train the ATCOs before implementing AIDC. The training may include the following:
- Basic AIDC messaging rules, messaging errors, parameters and procedures for all ATCOs.
 - Additional training dealing with message errors and flight plan database management for Operational support Specialists (OSS/FDO).
 - On the adaptation capabilities and limitations for defining AIDC messaging conditions for Adaptation Team (DMS).

10. Letter of Agreement

- 10.1 Before implementing AIDC stations should amend their Letter of Agreement (LOA) to incorporate the following:
- The routes and Coordination Points (COP)
 - Accountability and reuse Timer
 - AIDC Messages to be exchanged
 - AIDC failure and recovery procedures
 - Area of Common Interest
 - Variable System Parameters (VSP) for exchange of messages

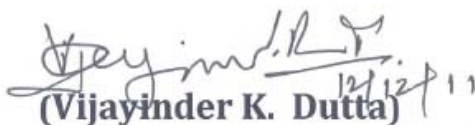
11. Queries

- 11.1 Any queries or further guidance required on the contents of this ATMC should be addressed to:

Executive Director [ATM]
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New Delhi-110003
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12. Validity

- 12.1 This ATMC will remain in force until further notice.


(Vijayinder K. Dutta) 12/12/11

EXECUTIVE DIRECTOR [ATM]
AIRPORTS AUTHORITY OF INDIA
Dated: 12-12-2011