



International Civil Aviation Organization

**THE EIGHTH MEETING OF AERONAUTICAL
TELECOMMUNICATION NETWORK (ATN)
IMPLEMENTATION CO-ORDINATION GROUP
OF APANPIRG (ATNICG/8)**

Jakarta, Indonesia, 18 - 21 March 2013



Ministry Of Transportation
Republic of Indonesia

Agenda Item 8: Pan Regional AIDC ICD related issues

AIDC IMPLEMENTATION ISSUES

(Presented by Hong Kong, China)

SUMMARY

This paper presents the experience of Hong Kong, China on trials and realization of the ATS Interfacility Data Communications (AIDC) in phases, using a standalone system with a subset of core messages exchanged with neighboring ACC/ATCUs and our consideration in applying adaptable parameters in AIDC capability in order to address interoperability issues, reduce ATM personnel workload, increase efficiency and capacity, and strengthen flight safety at desirable pace.

This paper relates to:

Strategic Objectives:

- A – Safety
- D – Efficiency

Global Plan Initiatives:

- GPI 22 – Communication Infrastructure

1. INTRODUCTION

1.1 Hong Kong, China has put AIDC into operational use between Hong Kong ATCC and Sanya ACC since February 2007. AIDC messages were operated on a standalone system that made use of real-time flight data captured by the ATM System. AIDC implementation has been very successful in reduction of ATM personnel workload and elimination of human errors arising from voice communications via Inter Area Speech Circuit (IASC). The ICAO Regional Office has been in great support to promote similar implementation in the Asia/Pacific Region.

1.2 Since then, further AIDC technical tests have been conducted with other ACCs such as Guangzhou, Zhangjiang, Taipei with a view to implementing AIDC on the same standalone platform. With our operational experience so gain, it expedites subsequent testing and rectification of compatibility issues and AIDC between Hong Kong ATCC and Taipei ACC commenced operation on 16 November 2012.

1.3 The two successful AIDC implementations with Sanya and Taipei ACCs are implemented using a subset of core messages, namely, EST, ACP, LAM, LRM and MAC out of the 13 core messages mutually agreed among counterparts as required by the Asia/Pacific Interface Control Document (ICD) for AIDC.

1.4 The efficiency gained by utilizing AIDC is significant. For example, in a single month of December 2012, about 29,000 transactions (HK-Sanya and HK-Taipei) were completed, representing the equivalent number of IASC calls were saved. Less than 6% of AIDC transactions were reverted to IASC due to various reasons, including missing flight plans, late/fail AFTN transmissions as well as operation needs.

2. DISCUSSION

2.1 To cater for different versions of AIDC messages and Cyclic Redundancy Check (CRC) initial values (Xmodem, Kermit, 0xffff and 0x1d0f) being utilized, AIDC partners are adapted to indicate which version and CRC initial values they are in compliant with during technical testing of the AIDC.

2.2 Due to the prevailing operational agreement and different needs between ACCs, the set of AIDC messages and ICD version to be employed will be varied, among the 13 core messages or including other optional message(s) to support notification (including pre-notification), coordination, negotiation, transferring states as depicted in the template of Letter of Agreement given in ICD version 3.0.

2.3 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 in the 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. fallback to IASC, etc. should be in place and to be agreed with between the two AIDC partners.

2.4 With the implementation of Aeronautical Telecommunication Network (ATN) in Asia/Pacific Region, the AFTN based AIDC will be either overlaid as one of payloads through AMHS/AFTN gateway in the ATN or over a dedicated AFTN connection between AIDC partners. The key consideration will be the potential problem arising from inherent network latency, circuit diversion/re-route or system maintenance of the underlying network infrastructure that will affect the response time (or accountability time, default 4 minutes) of AIDC messages, which are considered as time- and mission-critical.

2.5 It is recognized that the new Pan-regional ICD for AIDC currently being finalized would address some editorial and interoperability issues, e.g. CRC. It is opportune to include the above considerations in this latest ICAO document to facilitate AIDC implementation between member States and to reap the operational benefits therein in accordance with ICAO ASBU Module B0-25, Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) take note of the progress of AIDC implementation in Hong Kong, China
- b) enrich the new Pan-regional ICD for AIDC with considerations of :
 - use of subset of AIDC messages to reap operational benefits of notification/coordination through electronic means on a mutually agreed basis
 - proper handling of error/alert messages generated from the system or sent from counterparts by AIDC operators
 - service impact to time- and mission-critical AIDC message due to network latency and circuit diversion/re-route or system maintenance of the ATN/AFTN network infrastructure.
