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

Agenda Item 4: Asia/Pacific AIDC implementation guidance material

DEVELOPMENT OF AIDC GUIDANCE DOCUMENT

(Presented by Malaysia)

SUMMARY

This paper presents the Contribution by Malaysia for Chapter 8 of the draft AIDC Implementation and Preparations Guidance Document.

1. INTRODUCTION

1.1 The first meeting of this Task Force agreed to develop the guidance material based on the example of AIGD for ADS-B implementation in the Asia and Pacific Regions. The meeting made Decision 1/ 4 on development of the guidance material by an Ad Hoc Working Group.

2. DISCUSSIONS

2.1 According to the tasks assigned at the second teleconference held on 1 February 2016, Malaysia provides the draft material for Chapters 8 of the GM for review by the meeting.

3. ACTION BY THE MEETING

3.1 The meeting is invited to review the Chapter 8 provided in the Attachment to this paper.

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

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.