International Civil Aviation Organization

SPECIAL IMPLMENTATION PROJECT (SIP) ON ATS INTER-FACILITY DATA COMMUNICATION IMPLEMENTATION SEMINAR

Bangkok, Thailand, 12-13 October 2010

Agenda Item 3: Review version 3 of the Asia/Pacific ICD for AIDC

AIDC IMPLEMENTATION STATUS

(Prepared by New Zealand)

SUMMARY

This paper reviews the current status of AIDC implementation in New Zealand.

1. INTRODUCTION

1.1 Airways New Zealand has implemented AIDC communication in accordance with the Asia/ Pacific ICD between our Domestic and Oceanic ATM systems and with the Brisbane (YBBB), Nadi (NFFF), Melbourne (YMMM), Oakland (KZOA), and Tahiti (NTTT) FIR ATC units.

1.2 The AIDC message subset and parameters used with each ATC unit are different and illustrate the requirement for ANSP ATM systems to be able to utilize different AIDC subsets for each adjoining ATS unit.

1.3 The current communication path used for AIDC with adjacent ATC units is the AFTN. AIDC message latency delivered via the AFTN continues to be acceptable.

2. DISCUSSION

2.1 In September 2010 Airways Oceanic ATM system (OCS) received 66276 AIDC messages. An analysis of the latency of the operational messages in this set is depicted in Table 1.

	ABI	CPL	CDN	EST	ACP	TOC/AOC
Average	3.5"	2.5"	2"	2"	2"	1.5"
Min	2"	1"	1"	1"	1"	1"
Max	113"	119"	142"	282"	484"	221"
Total #	4216	3420	5003	2095	5988	10123

Table 1: Latency of received AIDC messages NZZO September 2010

99.9% of messages were received within 20 seconds. Of the 35177 AIDC messages sent that received a LAM response only one LAM exceeded the accountability timer of 180 seconds.

2.2 Version 2.0 of the Asia/Pacific AIDC ICD introduced optional subfields in Field 14 permitting the transmission of block levels, weather deviations or offsets, and speed. All our adjacent ATC units have introduced at least some of these optional subfields. Table 2 illustrates the optional Field 14 subfields currently used with each FIR.

2.3 Table 2 also illustrates other typical differences in AIDC interchanges including different message timing, and differences in the type of route that is sent in Field 15.

	YBBB	YMMM	NFFF	NTTT	KZOA	NZZC
Notify	**ABI**	**ABI**	**ABI**	**ABI**	**ABI**	**ABI**
Coordinate Initial	**EST**	**Voice**	**CPL**	**CPL**	**CPL**	**CPL**
Coordinate Negotiate	**CDN**	**Voice**	**CDN**	**CDN**	**CDN**	**CDN**
Field 14 - Block Level	**YES ***	**YES ***	**YES**	**YES**	**YES**	**YES**
Field 14 - Wx Dev/Offset	**NO**	**NO**	**YES**	**YES**	**YES**	**YES**
Field 14 - Speed	**NO**	**NO**	**YES**	**YES**	**YES**	**NO**
Notify Time (from ACI)	**40'**	**40'**	**48'**	**60'**	**73'**	**120'**
Coordinate Initial Time (from ACI)	**30'**	**30'**	**38'**	**32'**	**27'**	**21'**
Field 15 Route type	**ALL**	**ALL**	**ALL**	**ALL**	**PRE-COP**	**PRE-COP**

Note: * YBBB and YMMM. Unable to process block levels with supplementary crossing field.

Table 2: AIDC interface differences September 2010

2.4 Airways Oceanic Control System (OCS) allows the specification of individual FIR AIDC message sets and the parameters to be used with each set in adaptation. The adaptation data for each FIR includes: the type of message to be used; the fields to be used in each message; the timings of the Notify, Coordination, and Transfer of Control messages; the route detail to be sent in Field 15; and the use of the Field 14 optional subfields. The OCS adaptation also permits the selection of the coordination point (COP) to be used in an interchange with an adjacent FIR. This may be the point at which the route crosses the FIR boundary (which may not be defined by a FPL waypoint), the FPL waypoint immediately prior to the FIR boundary, or the FPL waypoint immediately after the boundary. In our AIDC interfaces we use the FIR boundary crossing as the COP.

2.5 Some FIR prefer that the Field 15 route sent in AIDC messaging only start at the waypoint preceding the coordination point, while others expect the full FPL route to be included.

2.6 While the OCS adaptation permits selection of which individual Field 14 subfields are used by each FIR it is the controller HMI that displays this to the controller. Figure 1 provides an illustration of the OCS interface. When an adjacent ATSU is selected in the Coordination window any AIDC Version 2 fields that are not supported are given a different background colour in the window. In the Figure 1 example the ATSU selected supports no AIDC Version 2 fields. The OCS controller is taking inbound coordination verbally and has manually entered a block level of F360 and a weather deviation of 20nms left in the middle pane.

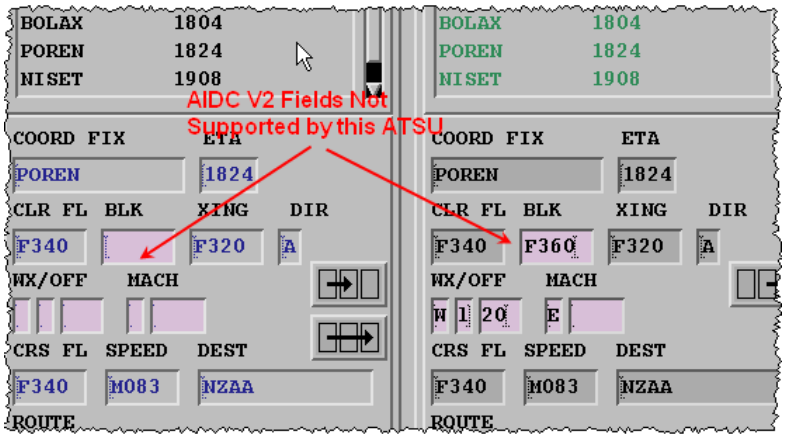

Figure 1: Identifying optional Field 14 capability

2.7 Figure 2 illustrates the HMI after an inbound CDN from a unit that processes the optional sub fields for block levels and weather deviations but not speed. In this example our domestic ATM system has sent a CDN message that has coordinated a block level F340 F350 (CLR FL = F340, BLK = F360) and a 30NM right weather deviation (W R 30 in the Wx/Off fields). The coloured Mach field background indicates that this ATC unit does not support the optional Field 14 Mach speed in AIDC exchanges.

Figure 2: Controller HMI block level and weather deviation.

2.8 Since implementing the AIDC Field 14 optional sub fields in 2005 Airways has been able to process many different AIDC message set permutations as adjacent units have upgraded their systems. It would have been impossible to implement AIDC without the flexibility provided by the OCS system. This flexibility has allowed our controllers to easily deal with the different message set permutations presented to them.

2.9 Version 3 of the Asia/Pacific ICD in 2007 introduced the FAN/FCN messages that allow the transfer of FANS1/A information between units and minimizes the number of messages that need to be sent to the aircraft. We have not yet implemented these message exchanges with any adjacent FIR.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the above information.

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