International Civil Aviation Organization

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

Bangkok, Thailand, 12-13 October 2010

Agenda Item 4: Review of experience gained and lessons learned in the implementation of AIDC.

LESSONS LEARNED – THE NEW ZEALAND EXPERIENCE

(Prepared by New Zealand)

SUMMARY

This paper provides a briefing on some of the main lessons learned by Airways New Zealand since the implementation of AIDC in 2000.

1. INTRODUCTION

1.1 While AIDC provides many benefits it has raised some issues. This paper looks at some of the lessons learned by Airways New Zealand since introducing AIDC.

2. DISCUSSION

2.1 ATM system software coding differences: PANS-ATM Document 4444 is open to interpretation when writing software requirements for the different items contained in an AIDC message. This leads to messages being rejected because of different software implementations in ground systems. Some examples follow:

- *Item 10 - Equipment*. Some systems have a 10 character limit in this field. More and more aircraft particularly those on long-haul operations are now filing FPL with more than 10 characters in Item 10. The Airways OCS ground system does not have a 10 character limit and will quite happily process any Item 10 with more than 10 characters. This resulted in an increasing number of LRM being received from ground systems that had this limit. A number of work rounds were trialed but we eventually removed Item 10 –Equipment from the AIDC messages being sent to the ATC unit concerned. This has required additional procedural mitigation to cover occurrences of degraded RNP after departure, but results in successful AIDC communication.
- *Item 18 – Other Equipment*. Filing multiple instances of the same indicator. The NZZO OCS system will accept multiple instances of the same indicator in Item 18, other systems will not. This is illustrated below. We see a number of Airlines filing FPL with multiple instances and duplicated NAV and RMK fields have been noted recently. In September we received 11 LRM because of a duplicated DAT field from one airline. While we do not consider it significant it does highlight the difficulties that both Airlines and ANSP face in getting it right. We are looking at mitigating the current issue through Airline education and will look at modifying our software when we upgrade to the new ICAO FPL requirements in 2012.

- DAT/SV EET/NZZO0150 NTTT0410 REG/FOHSD SEL/PSAF RMK/UPR DOF/100909 EET/NZZO0150 NTTT0410 DAT/SV RNP4 RALT)(LRM-RMK/62/7/AN INDICATOR OCCURS TWICE IN FIELD 18)

- *Item 18 – Other Equipment*. A number of airlines also file Item 19 – Supplementary Information in the FPL Item 18. Correcting these FPL continues to frustrate us as it is adds unwanted inefficiencies to our operation. It can also result in unwanted AIDC failures as illustrated below. The NZZO OCS expects the RMK indicator to be the last element in Item 18 (PANS-ATM Doc4444 recommends a certain sequence of indicators) and to facilitate processing of Item 19 data in Item18 OCS treats all data after a RMK indicator as free text. Unfortunately this logic is not shared by other systems.

  - 18/EET/NZZO0047 NTTT0304 SCIZ0725 REG/HL7799 SEL/ERCK DOF/100927 DAT/VS RMK/TCAS EQUIPPED CHILE 09 7 1 1071 NAV/RNVD1E2A1 RNP10 E/1305 P/14 D/2 20 YELLOW A/WHITE GRAY RED OPR/LG ELECTRONICS INC)

    (LRM-RMK/62/7/TEXT REQUIRED AFTER INDICATOR)

- *Item 18 – Other Equipment.* Use of indicators not promulgated for Asia/Pacific regional use. Some systems will reject indicators not yet promulgated for use in Asia/Pacific. Examples are DOF (Date of Flight) and RVR (Runway Visual Range).

2.2 Incorrect route truncation: The Asia/Pacific ICD Version 3.0 in Appendix A Paragraph 1.2 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 in New Zealand are the result of human error there have been occasions when the automation system was at fault. With the increasing use of DARP procedures and route modifications the accuracy of route handling and transmission between automated systems is of increasing importance. We have found that comprehensive training backed up by regular refresher training is required to minimize these errors.

2.3 Handling duplicate fix/airway information: A lot of the route processing errors we see are caused by duplicated fix or airway names. The NZZO ATM system can handle duplicate fixes in most cases because it uses both the fix name and associated FIR key as the key i.e. AA NZZC, AA NFFF, AA NTTT. However, because we do not operate a global data base we do strike problems where a duplicate fix name is used as the entry point to an airway. If the duplicate fix name is known in adaptation but the airway is not the route extraction will fail requiring manual intervention. In the days when most flights flew fixed routes this was not such an issue. However, with the increasing use of UPR routes we are finding we have to spend more time on database management to keep this type of error at a minimum.

2.4 Conformance monitoring by the ATM automation: Mitigating route inaccuracy caused by failures in route truncation requires ground automation conformance monitoring of received position reports against the current flight plan. This conformance checking in the Airways OCS ground system will check the reported current, next, and next+1 positions against current flight plan and we are introducing an upgrade that will also check that the next and next+1 positions are also as expected by the current flight plan. Conformance monitoring is a tool not used only to prevent against errors in AIDC exchanges. It also provides mitigation for flight plan input errors in the aircraft FMS.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the above information.

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