

APPENDIX C

RESULT OF THE TRIALS IN ARGENTINA

The tests in ACC Ezeiza were carried out on 5 and 6 August 2010. The Ezeiza ACC has Radiocom AMHS terminals installed. The automation system for the Ezeiza ACC is an INDRA AIRCON 2100 and was installed in 2009. The AIRCON 2100 includes flight plan processor, radar data processor, operator control positions, area situation screens, aeronautical information screens, flight strips printer, control and supervision system, and data recording system.

The tests assessed the impact on the changes to flight plan Items 7, 8, 10 15 y 18 in the AFTN, AMHS, repetitive flight plan, flight plan processing, flight progress strips automatic printing, radar data processing and flight plan presentation systems. The results obtained are shown in **Attachment A** to this Appendix B.

In addition to the results in Attachment A, the following remarks are to be noted:

- a) The repetitive flight plan (RPL) system is not used, even though the AIRCON 2100 system has the capability to process it;
- b) The AMHS is still not integrated to the AIRCON 2100, the messages go through the RADIOCOM AMHS/AFTN gateway;
- c) The AMHS has a limit of up to 14 alphabetical characters in the FPL template, Item 10;
- d) The AIRCON 2100 FDP, upon rejecting the messages with unknown contents, shows the following error message “Unknown Message Type” and does not permit carrying out any manual change to the message, which difficulties making manual corrections. Nevertheless, this guarantees that no mistaken message enters the system, with its possible consequences;
- e) The maximum characters permitted in Item 18 of the AMHS FPL system seems to be enough; nevertheless, the format should be examined, in order to take into consideration all cases of the flight plan’s NEW format;
- f) The maximum amount of characters permitted in the FDP Item 18 has yet to be determined, which should correspond to the maximum permitted by the AMS in order to avoid loss of information in said Item;
- g) The changes to Amendment 1 to Doc 4444 will affect the AMHS of Argentina; nevertheless, ANAC has started to carry out the corresponding updating; and
- h) No tests have been made to the flight progress strip automatic printing; nevertheless, it is thought it will not be affected. Also, regarding the flight plan presentation (IHM).

There are plans to also install an AIRCON 2100 in the Cordoba ACC and, eventually, at the rest of the ACCs in Argentina. The updating of the system already counts with contractual arrangements and the provider has assured that the changes required by Amendment 1 to Doc 4444 will be made by the appropriate date.

RESULT OF THE TRIALS IN BRAZIL

The tests at the ACC Brasilia were made on 17 August 2010. The Brasilia ACC manages AFTN terminals (ATECH system, installed in 1998) and RADIOCOM AMHS terminals, installed by ATECH. The Brasilia ACC automation system is the ATECH X-4000 system, installed in 2008. The system basically includes flight data processor, radar data processor, radar signal interfaces, operator control positions, area situation screens, aeronautical information screens, flight strip printer, control and supervision system and data recording system.

The tests assessed the impact of the changes on the flight plan's Items 7, 8, 10 15 and 18 pertaining to the AFTN, AMHS, repetitive flight plan, flight plan processing, flight progress strip automatic printing, radar data processing and flight plan presentation systems. The results obtained are shown in **Attachment B** to this Appendix B.

In addition to the results in Attachment B, the following is to be noted:

- a) The X-400 FDP system accepts from 1 to 26 alphabetical characters, with the exception of the letter "N", in Item 10 (Equipment);
- b) The AMHS user terminal only permits inserting in Item 10 the characters selected from a menu in the template;
- c) The X-4000 system is still pending to be integrated with the AMHS;
- d) The maximum characters permitted in the AMHS Item 18 is 1024; and
- e) The characters entered in Item 18 are automatically presented in the flight progress strip; nevertheless, limited up to a maximum of 37 characters.

RESULT OF THE TRIALS IN CHILE

The tests in ACC Santiago were carried out on 3 and 4 August 2010. The ACC Santiago has Thales AFTN and AMHS terminals installed. The AMHS was installed in 2009. The automated system implemented is the Thales AIRCAT C, installed in December 2009.

The tests evaluated the impact of the changes in the flight plan format Items 7, 8, 10 15 and 18 pertaining to the AFTN, AMHS, repetitive flight plan, flight plan processing, flight progress strips automatic printing, radar data processing and flight plan presentation systems. The results obtained are shown in **Attachment C** to this Appendix B.

In addition to the results in Attachment C, the following observations were made:

- a) The UROCAT C FPD systems accepts from 1 to 25 alphabetical characters in Item 10 (Equipment);
- b) The AMHS presents a limit of up to 19 alphabetical characters in the FPL template's Item 10;
- c) The EUROCAT C system remains to be integrated with the AMHS;
- d) The Santiago ACC is equipped with EUROCAT C; nevertheless, the APP and ACC installed in the rest of the country continue with EUROCAT 1000. The updating of these APP and ACC are scheduled for 2014. DGAC Chile will evaluate whether it will be feasible to reschedule it for 2012;

- e) The maximum number of characters permitted in the AMHS FPL template Item 18 appears to be enough; nevertheless, the format would have to be reviewed in order to take into consideration all cases of the NEW flight plan format. Observation has also been made, for example, the field “TYP/” accepts an unlimited number of characters, while “RMK/” has a limit of 51 characters;
- f) The number of maximum characters in the FDP Item 18 has not been determined yet, which should correspond to the maximum permitted by the AMHS to avoid the eventual loss of information in that Item;
- g) The changes to Amendment 1 to Doc 4444 will affect the IFIS system of Chile; and
- h) No tests have been made to the flight progress strip automatic printing; nevertheless, it is thought it will not be affected. Also, regarding the flight plan presentation (IHM).

Chile does not currently count with a contract with Thales and, to carry out the required changes, it will have to draw a new contract.

RESULTS OF THE TRIALS IN ECUADOR

QUITO APP

AFTN

Upon using the flight plan format installed in the AFTN terminal, the new values were introduced into the new flight plan format Items 10 and 18, verifying that the FPL template accepts the new values indicated in the FPL. The FPL template does not have a fixed number of characters for Items 10 and 18; this can be defined by the terminal operator.

The problem with this format is that it has no filters to avoid mistakes in the transcription of the flight plan; therefore, the AFTN terminal filters no message, all are sent. If these have errors, same are rejected by the FDPs.

The AFTN system installed in Ecuador is a Syseca installed in 1996.

Automated system

In the Quito APP, an Indra, Model 2100, ATS automated system was installed in 2009, which is composed by a FDP, RPL and RDP systems, FDP user terminals, radar data visualization screens and flight strip printers (EIR).

FDP system

To test the behaviour of the FDP before the new FPL flight plan format, FLP messages were originated from an AFTN terminal with the new values set in the FPL. From the results of the FPL message testing, the following was noted:

- a) The FDP does not accept letters E, H and L in Item 10 for the identification of equipment and surveillance capabilities; in addition, it does not accept the new alphanumeric characters to identify the new communications, navigation and surveillance equipment in Item 10;

- b) The maximum number of characters accepted in the FDPs FPL Item 10 is of 12: 10 for the characters required for the communications and navigation equipment; and 2 for the surveillance equipment; and
- c) The system accepts all the new indicative values destined for Item 18. Item 18 accepts a considerable number of alphanumeric characters. Also, the FDP accepts the changes foreseen in the remaining Items of the new flight plan format.

RDP and RPL systems, presentation screen and flight strip printers

These systems are not affected by the new FPL.

GUAYAQUIL ACC

AMHS

Guayaquil has an AMHS working locally, it only communicates via AFTN with the rest of the country through the AMHS/AFTN Gateway. The system is a Radiocom, and was installed in 2007. Guayaquil has five AMHS terminals installed, which count with the templates for FPL messages. These templates have the filters in order that the FPL information exits in accordance with the current FPL format. From the tests carried out, the template does not accept the new alphanumeric values established in the new FPL format, neither letters E, H and L in Item 10, pertaining to the equipment and surveillance capabilities. The only manner to send this new information is to send the FPL message without using the template and using free text.

Automated system

The Guayaquil ACC has an Alenia AMS ATS automated system, installed in 2004. It is composed by an FDP system, an RDP system, FDP user terminals, radar data visualization screens and flight strip printers.

FDP systems

To test the behaviour of the FDP before the new flight plan format, FPL messages were originated from an AFTN terminal, with the new values planned in the FPL. No messages could be sent from the AMHS terminal, as the FPL template does not permit the new values. The following was verified upon:

- a) The FDP does not accept letters E, H and L in Item 10 for the identification of equipment and surveillance capabilities; in addition, it does not accept the new alphanumeric characters to identify the new communications, navigation and surveillance equipment in Item 10;
- b) The maximum number of characters accepted in the FDPs FPL Item 10 is of 13: 11 for the characters required for the communications and navigation equipment; and 2 for the surveillance equipment; and
- c) The system accepts all the new indicative values destined for Item 18. Item 18 accepts a considerable number of alphanumeric characters. Also, the FDP accepts the changes foreseen in the remaining Items of the new flight plan format.

RDP and RPL systems, presentation screen and flight strip printers

These systems are not affected by the new FPL.