INTERNATIONAL CIVIL AVIATION ORGANIZATION SAT-14- WP/16

Fourteenth Meeting on the Improvement of Air Traffic Services over the South Atlantic SAT-14

(Montevideo, URUGAY, 7 to 9 May 2008)

(Presented by ASECNA)

SUMMARY

The present Working Paper gives a progress report on the implementation of the Aeronautical Surveillance Plan in ASECNA area. For the main components of the Surveillance Systems, SSR and ADS-C/CPDLC, are basically implemented, giving a good opportunity for a collaborative Surveillance data exchanges in SAT area particularly those from the boundaries of the FIRS. These systems complexity and cost may require an appropriate special organisation to deal usefully with the Providers, while Network and application inteconnexion open the doors for a more collaborative surveillance data exchange. This could enhance Air Navigation Safety in the Region.

(See called actions to be taken by SAT 14 in paragraph 3)

Agenda Item 3: **Communication, Navigation, Surveillance/Air Traffic Management Systems**

ASECNA on going Surveillance Plan

1. Introduction

According to ICAO Aeronautical Surveillance Plan for AFI Region, ASECNA has undertaken the implementation of en-route air traffic surveillance and automation systems based on SSR, ADS-C/ CPDLC.

In her implementation framework ASECNA has planned since year 2000 to purchase SSR and ADS-C/CPDLC equipments and systems in her main centres : Ivato, N'djamena, Niamey, Dakar, Abidjan and Brazzaville.

The main objective is to overcome the lack of air navigation surveillance in these FIRs and therefore to increase air navigation safety in the area.

In this context, the effective implementation of the Surveillance systems, couldn't be done without a co-operative/proactive approach with the airline users and a deep evaluation of the technical, operational and financial aspects of the project.

The yearly technical ASECNA/IATA panels allowed to take into account the real requirements of the users.

In the other hand cooperative approaches actions have been conducted with neighbour ANSP and state to share this new experience.

2. Discussion

- **Implementation of Secondary Surveillance Radars in ASECNA FIRs**

The implementation of the surveillance systems in ASECNA centres is one the components of an integrated CNS/ATM Plan achievement. The first centre to be equipped is N'djamena in the "Reacen" integrated project for the modernization of the whole Regional Control Centre.

The second phase is related to Niamey, Dakar, Abidjan and the third to Brazzaville.

N'Djamena and Niamey are serviceable since 10th May 2007.
During the first term of year 2008, Abidjan and Dakar are equipped with SSR, Their full operational phase is planned to begin after a complete training for Air traffic Controllers and Maintenance teams.
SSSR systems for Brazzaville are in the purchasing step; the purchasing agreement is signed with the tender.
These Radars are designed Monopulse with an S Mode Option for the potential air/ground data link.

- **Implementation of ADS-C/CPDLC in ASECNA FIRs**

Back in (1996) ASECNA undertook in Dakar and Abidjan ADS-C trials with an ACARS data link system based on a Personnel Computer (ADS-C PC). These trials were conducted with former Air Afrique Airline. By year 2004 a full ADS-C/CPDLC was purchased and installed in Antananarivo FIR.

The integrated Surveillance Plan for ASECNA includes ADS-C/CPDLC system for N'Djamena, Niamey, Dakar and Abidjan (already installed).
An ATS AIRCOM Service Agreement with SITA has been signed and the connection with SITA network is achieved for all sites accepted Brazzaville; it provides ACARS data link for ADS-C/CPDLC.

Because of the critical aspect of the data link to be performed by ACARS it was advisable for ASECNA:

- to deal with the Aircom service provider in order to set up a Service Performance Level;
- to seek for an alternate technical solution using the opportunities provided by AFISNET capability (AFS and AMS).

- **Implementation of ADS-B in ASECNA FIRs**

For ADS-B ASECNA has already conducted trials with an ADS-B test bed in Dakar.
The results plotted versus traffic occurring during theses trials were very hopeful in term of coverage range, signal, availability, integrity and reliability.
Other trials are planned to be conducted taking into account the various environmental aspects of ASECNA Airspace.

3. CONCLUSION

SSR and ADS-C/CPDLC implementation provides real opportunities for ANSP to share surveillance radar or ADS-C/CPDLC data to enhance air navigation safety particularly at FIR boundaries, pending the availability and the integrity of communication facilities.

Due to the surveillance equipments and software complexity and cost, it should be advisable for SAT:

- to look for the best way for a regional cooperation towards the vendors, through for example an User Association /Sub group of the SAT Surveillance Systems Customers;
- to enhance the programs for operational and maintenance teams exchanges.

The meeting is invited to:

- **note the in formations given above**
- ***take the appropriate guidelines actions for the enhancement of the Surveillance Systems in SAT region;***
- ***encourage surveillance technical data exchange and operational /technical teams as well.***