International Civil Aviation Organization

**AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP**
**SIXTEENTH MEETING (APIRG/16)**
(Kigali, Rwanda 19-23 November 2007)

**Agenda Item 4: AFI Regional Air Navigation Planning and Implementation Issues**

**4.2: Communication, Navigation, Surveillance**

# ASECNA ONGOING SURVEILLANCE PLAN

*(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 three 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 AFI 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 AFI Region.

***(See called actions to be taken by APIRG is in paragraph 3)***

## 1. Introduction

According to ICAO Aeronautical Surveillance Plan for AFI Region, ASECNA has undertaken the implementation of en-route aitraffic surveillance and automation systems based on SSR, ADS-C/ CPDLC et de l'affichage électronique de la situation aérienne sur la base FPASD.

In hers implementation framework ASECNA 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 theses 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 is fully operating since 10th May 2007; Niamey, Abidjan and Dakar are on trials.
Their full operational phase is planned to begin after a complete training for Air traffic Controllers and maintenance teams.
Brazzaville SSSR equipments are in the purchasing step; the purchasing agreement is signed with the tender.
These Radars are designed Monopulse with a S Mode Option for the data link.

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

Far in the past (1996) ASECNA has been making 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 include ADS-C/CPDLC system for N'Djamena, Niamey, Dakar, Abidjan (already installed).
An ATS AIRCOM Service Agreement with SITA is signed; connection with SITA network is at its end of steps and will provide ACARS data link for ADS-C/CPDLC in these centres likely before the end of this year.

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 ADSB 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 planted 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 datas to enhance air navigation safety particularly at FIR boundaries , pending the availability and the integrity of communication facilities.

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

- to look for the best way for a regional cooperative relationships towards the vendors, through for example an User Association /Sub group of the AFI 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 AF I region;
- encourage surveillance technical data exchange and operational /technical teams as well**.**