



**Twenty Second Meeting of the Africa-Indian Ocean Planning and Implementation  
Regional Group (APIRG/22)  
(Accra, Ghana 29 July - 02 August 2019)**

**Agenda 4 : Other Air Navigation Issues**

**4.4 Initiatives by States & Industry**

**Cooperation in surveillance data sharing and AIDC implementation in the Gulf of Guinea**

*(Presented by the Agency for the Air Navigation Safety in Africa and Madagascar (ASECNA)  
on behalf of the 18 member States)*

**EXECUTIVE SUMMARY**

This paper presents the achievements by the Air Navigation Services Providers, allowing a better visualization of the air traffic in order to improve the air navigation services with the implementation of ADS-B. These surveillance systems allowed to develop cooperation initiatives including sharing and exchange of surveillance data in the Gulf of Guinea.

As a result of the implementation of ADS-B, the paper highlights the challenges of aircraft ADS-B transponders equipage in the AFI region to better benefit from this technology.

Finally, it raises the issue of ADS-B mandate for aircrafts as done in the United States and Europe and proposes a regional approach with the support of ICAO.

**Action:** the meeting is invited to:

- a) note the investment efforts from the ANSPs for the improvement and the extension of the surveillance services;
- b) take note of initiatives from the States/Organizations and ANSPs involved in the project of surveillance means interconnection and AIDC implementation and encourage them to pursue their efforts in order to make this project being a tangible example of implementation of seamless airspace through the interoperability of systems in the AFI Region;
- c) note the need of a coordinated action at the AFI region level for the aircraft ADS B transponders equipage and decide on a date for the ADS-B long SQUITTER transponder mandate for 2022.
- d) set up an ad hoc group responsible for defining the ADS-B transponders carriage modalities in the AFI region

<i>Strategic objectives</i>	Ce document concerne l'Objectif Stratégique : "Sécurité"
<i>Financial incidences :</i>	N/A
<i>Reference :</i>	<ul style="list-style-type: none"> <li>• Doc 9750, Air Navigation Plan, ;</li> <li>• Report of Surveillance means interconnexion meeting in the Gulf of Guinea, 26 April- 04 May 2016.</li> </ul>

## 1. INTRODUCTION

1.1 The effective provision of air navigation services in the AFI region requires reliable, available and secure communication, navigation and surveillance (CNS) systems capable to support an efficient, flexible ATM system taking into account the growth of air traffic;

1.2 The Global Air Navigation Plan (GANP) as well as the regional plans, based on the Aviation System Block upgrade (ASBU) offer, for all stakeholders of the international civil aviation system, the framework for harmonization and synergy of planning and implementation initiatives, particularly in the CNS and ATM area to derive the greatest benefit for building a uniform sky for Africa;

1.3 In line with the AFI surveillance strategy and in order to meet the users requirements, States and ANSPs in the AFI Region have in recent years committed themselves to important investment programs in SSR and ADS-B surveillance, considered as a means of improving safety and increasing the capacity of their airspace;

1.4 The provision of a seamless surveillance service along the routing areas will, without doubt, harmonize air traffic management procedures and considerably reduce the workload for both pilots and controllers;

1.5 As part of its 2032 program, ASECNA envisages the implementation of a uniform African sky in upper airspace. It recommends communication between controllers and pilots by data link. In terms of navigation, it is moving towards GNSS with an SBAS augmentation system. In terms of surveillance, it has an ADS B satellite based data and has now visualization of air traffic on both these terrestrial and oceanic areas only for aircraft equipped with ADS B transponders.

## 2. DISCUSSION

### 2.1. Cooperation in surveillance data sharing and AIDC implementation in the Gulf of Guinea

*2.1.1 The flow of air traffic on the west coast of Africa, from Senegal to Gabon, passing through Guinea, Sierra Leone, Liberia, Côte d'Ivoire, Ghana, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea is one of the most important;*

*2.1.2. The ANPS of these different states, namely ASECNA, Roberts FIR, Ghana Civil Aviation Authority (GCAA) and Nigerian Airspace Management Agency (NAMA) have all implemented modern surveillance means as Mode S - SSR and ADS;*

*2..1.3 These surveillance facilities associated to ATM systems with AIDC capability, have overlapping coverages due to the proximity of the different cities, providing thus a great opportunity to ensure continuity of surveillance service and the implementation of harmonized minima of separation more reduced for the benefit of users;*

*2.1.6. A Memorandum of Cooperation (MoC) has been developed to provide the framework for the implementation of this project, including the possibility of coordinated acquisition of equipment, the implementation by joint technical teams for a better synergy between the actions of the involved ANSPs, the technical characteristics and the performance framework of the systems. However, it remains to be signed by the concerned actors;*

*2.1.7 Following meetings, cross-missions have been initiated between the centers of Accra and Abidjan to implement the AIDC connection*

## **2.2 Implementation of ADS B in the AFI Region**

*2.2.1 In accordance with the Global Air Navigation Plan (GANP) and the AFI Surveillance Strategy, ADS-B will be one of the key surveillance means in the coming decade in the AFI region. This technology will bring operational benefits in the coming years in terms of safety, capacity increase and cost-benefit ratio. In addition, satellite based ADS-B under development by the industry will address the challenges of surveillance in remote areas.*

**2.2.2.** Several terrestrial ADS B deployment programs are completed or ongoing in the following AFI States: Ethiopia, Réunion, Seychelles, Mauritius, Morocco, DRC, Tanzania, Roberts FIR (Guinea, Sierra Leone and Liberia), Sudan, Namibia, Kenya and ASECNA 17 member states. Some states are planning the implementation of satellite ADS-B for 2020

**2.2.3** This initiative from the ANSPs must be accompanied by the equipment of the aircraft with ADS-B transponders.

**2.2.4** United States and Europe have adopted ADS-B transponder carrying and operating requirement for January and June 2020. As the new aircraft are already equipped since June 2016, these mandates will certainly not address issue of retrofit recorded in the AFI States

**2.2.5** In 2020, ASECNA will deploy ADS B space-based throughout its airspace. This means that all aircrafts today equipped with transponders ADS B will be visible by the controllers. The acquisition of this technology was done in 2018 and the experiments have been carried out since then and the AFISNET network perfectly meets the specifications for the use of these data. The final safety study will be conducted from August for commissioning in 2020 in terrestrial airspaces first and later in oceanic airspaces.

## **3. CONCLUSION**

Aeronautical surveillance systems have been deployed by the various ANSPs (ASECNA, GCAA and NAMA, Roberts FIR, ...) and offer an opportunity to achieve aeronautical surveillance service continuity by sharing surveillance data between them.

The Stakeholders are invited to cooperate and implement surveillance data sharing, which is a tangible example of system integration at the AFI Region level in accordance with APIRG's exhortation and supported by ICAO. The ADS-B deployment programs in the AFI region need to be accompanied by the retrofit of aircraft that could not be addressed in the framework of mandates adopted by the United States and Europe.

## **4. ACTION**

The meeting is invited to take note of the information provided in this paper and to adopt the following conclusions:

- a. note the investment efforts from the ANSPs for the improvement and the extension of the surveillance services;
- b. take note of initiatives from the States/Organizations and ANSPs involved in the project of surveillance means interconnection and AIDC implementation and encourage them to pursue their efforts in order to make this project being a tangible example of implementation of seamless airspace through the interoperability of systems in the AFI Region;

- c. note the need of a coordinated action at the AFI region level for the aircraft ADS B transponders equipage and decide on a date for the long SQUITTER ADS-B transponder mandate for 2022.
- d. set up an ad hoc group responsible for defining the ADS-B transponders carriage modalities in the AFI region