



**Twenty First Meeting of the Africa-Indian Ocean Planning and Implementation Regional Group  
(APIRG/21)  
(Nairobi, Kenya, 9 – 11 October 2017)**

**Agenda Item 5: Regional Air Navigation deficiencies**

**5.2. Industry initiatives and other air navigation matters**

**IMPLEMENTATION OF ATS SURVEILLANCE MEANS AND INTERCONNECTION OF  
ATM SYSTEMS**

*[Presented by ASECNA]*

<b>SUMMARY</b>	
<p>This working paper highlights the deployment programs undertaken by air navigation service providers (ANSP) in the implementation of surveillance systems, ongoing cooperative initiatives between ANSPs for data exchange data in the Gulf of Guinea, with a view to improving air navigation services.</p> <p>The working paper also refers to avionics on board, particularly aircraft equipment in ADS-B transponders in the AFI region, and proposes a regional approach consisting of issuing a mandate for the aircraft equipage with ADS B out transponders as that in force in the USA and Europe.</p> <p><b>Actions by the meeting:</b> The meeting is invited to:</p> <ul style="list-style-type: none"> <li>a) Take note of the investment efforts of ANSPs for the improvement and expansion of ATS surveillance services and deployment of ATM systems that are AIDC compatible;</li> <li>b) To take note of the initiatives undertaken by States / organizations and ANSPs involved in the project of ATS surveillance system interconnection and AIDC implementation in the Gulf of Guinea and encourage them to continue efforts to make this a tangible example of the implementation of seamless airspace through interoperable systems in the AFI Region;</li> <li>c) (c) To acknowledge the need for a regional approach for a mandate on aircraft equipage with ADS B out transponder in the AFI region</li> </ul>	
<b>Strategic Objectives</b>	This Working Paper is related to Strategic Objectives: A, B & E
<b>References:</b>	APIRG/20 report; Doc 9750(GANP) Report of the meetings on the interconnection of ATS surveillance facilities in the Gulf of Guinea 26 April 4 May 2016

**1. INTRODUCTION**

1.1. The effective provision of air navigation services in the AFI region requires reliable, available and integrated communication, navigation and surveillance (CNS) systems to support an efficient, flexible Air Traffic Management (ATM) System to respond to the growth of air traffic;

1.2. The Global Air Navigation Plan (GANP) as well as the regional plans, now mainly based on the Aviation system block upgrade (ASBU), offer to all stakeholders, the framework for harmonization and synergy in planning and implementation initiatives, particularly in the CNS and ATM fields, in order to maximize their benefits for the construction of a seamless sky;

1.3. In line with the AFI surveillance strategy and in response to user needs, States and ANSPs in the AFI region have in recent years are involved in important investment programs to deploy surveillance systems (SSR and ADS -B ) that are considered as considered safety and capacity improving enablers in air traffic management;

1.4. The APIRG20 / 26 conclusion called for "States to ensure the interconnection of their surveillance systems in order to enhance the ATS surveillance capacity along the routing areas and provide a seamless surveillance service";

1.5. As part of the extension of its surveillance program, ASECNA has deployed SSR mode S radars in the airspace of its 17 African member states and is currently implementing 70 ADS B stations. ASECNA has already implemented the interconnection of the surveillance means as well as the AIDC; for example, data from Nouakchott and Bamako SSR are available in Dakar ACC and vice versa. Data from Brazzaville SSR are available in Douala ACC and vice versa. Niamey ACC has the data of the Ouagadougou and Bamako SSR etc. The technology of data sharing is now proven by the ASECNA's engineers;

1.6. Within this framework, the Interconnection Initiative for ATS surveillance facilities of the ACCs along the Gulf of Guinea was launched in April 2016 under the auspices of the ICAO Regional Office for West and Central Africa (WACAF).

## **2. DISCUSSIONS**

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

2.1.1. Air traffic flow on the western coast of Africa, from Senegal to Gabon, including 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, in this case ASECNA, Roberts FIRs, Ghana Civil Aviation Authority (GCAA) and Nigerian Airspace Management Agency (NAMA) have implemented or have plans for the implementation of modern ATS surveillance facilities ( SSR mode S and ADS B);

2.1.3. These surveillance facilities coupled with ATM systems with AIDC capability have overlapping covers because of the proximity of the different cities, thus offering a tremendous opportunity to ensure continuity of the surveillance service, the implementation of reduce separation minima for the benefit of users;

2.1.4. The four ANSPs therefore met in Lomé under the coordination of the ICAO Regional Office from 27 to 29 April May 2016 to agree on the modalities of interconnection of their surveillance facilities and to implement AIDC followed by another meeting from 2 to 4 May 2016 which allowed, inter alia, to define the technical supports for the implementation of identified needs and to carry out a cost assessment of the project;

2.1.5. A first batch of ATS surveillance facilities to be interconnected as well as an AIDC link to be implemented before the end of 2016 has been defined;

2.1.6. A Memorandum of Cooperation (MoC) has been drawn up to guide the implementation of this project, including the possibility to purchase equipment jointly, the implementation by a joint technical teams for better synergy between the actions of the ANSPs involved, the technical characteristics and the performance framework of the systems. However, that MoC remains to be signed by the ANSPs concerned;

2.1.7. Cross-missions were initiated in mid-July 2017, following an ASECNA / GCAA meeting, between the Accra and Abidjan centers to implement an AIDC connection as a pilot project. The results are encouraging but work is still ongoing.

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

2.2.1. In line with the Global Air Navigation Plan (GANP) and the AFI surveillance strategy, ADS-B will be one of the key infrastructure for the provision of ATS surveillance service in the coming decade in the AFI region. This technology will bring operational benefits in terms of security, capacity and cost-effectiveness. Additionally, satellite based ADS-B is currently being developed by the industry to address the challenges of surveillance in remote and oceanic airspace.

2.2.2. Several ground based ADS B deployment programs have been completed or underway in the following AFI countries: Ethiopia, Reunion, Seychelles, Mauritius, Morocco, DRC, Tanzania, FIR Roberts (Guinea, Sierra Leone and Liberia), Sudan, Namibia, Kenya, Algeria, Ghana, Uganda, South Africa and 17 ASECNA member states. In addition, some States are planning to implement satellite ADS-B for 2020.

2.2.3. This initiative taken by states/ANSPs must be accompanied by the equipage of the aircraft with ADS-B transponders.

2.2.4. USA and Europe have adopted mandates on requirement to equip with ADS B transponder by January 2020 and June 2020 respectively, aircraft that need to be retrofitted. For the new aircraft, they shall already be equipped with ADS B transponders, since June 2016. **These mandates will certainly not address the issue of the retrofit of aircraft registered and operating in the AFI States.**

2.2.5. In so doing, it is necessary for the AFI region to take this issue into account through a regional approach in order to ensure harmonization and maximize the benefits of ADS-B implementation. In this context, ASECNA, within the framework of its technical panels with IATA, initiated discussions that are part of a collaborative approach of the CDM.

## 3. CONCLUSION

3.1.1. ATS surveillance systems have been deployed by various ANSPs in the Gulf of Guinea (ASECNA, GCAA and NAMA, Roberts) and offer an opportunity to achieve continuity ATS surveillance service by sharing data;

3.1.2. The parties concerned are invited to cooperate and implement the exchange of surveillance data, which is a tangible example of systems integration at the level of the AFI Region in accordance with the APIRG;

3.1.3. ADS-B deployment programs in the AFI region need to be accompanied by the retrofit of aircraft which cannot be dealt with under the mandates of the United States and Europe

**4. ACTION BY THE MEETING**

**The meeting is invited to:**

- a) take note and welcome the investment efforts of ANSPs for the enhancement and expansion of ATS surveillance systems and AIDC compatible ATM infrastructure;
- b) To take note of the initiatives undertaken by States / organizations and ANSPs involved in the project surveillance data sharing and AIDC implementation in the Gulf of Guinea and encourage them to continue efforts to make this a tangible example of the implementation of seamless airspace through interoperable systems in the AFI Region;
- c) To note of the need for coordinated action at a regional level for aircraft equipage with ADS B transponder by setting up a mandate in the AFI region, through a CDM approach with users.

**END**