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TECHNICAL COMMISSION

Agenda Item 36: Aviation safety and air navigation implementation support

COOPERATION FOR SURVEILLANCE DATA SHARING

(Presented by the Agency for Air Navigation Safety in Africa and Madagascar (ASECNA))

EXECUTIVE SUMMARY

This paper focuses on ASECNA member states surveillance project currently on going in support to air navigation safety, as well as the opportunity to improve the air navigation service within the AFI region through surveillance data sharing, in cooperation with the neighboring ANSP.

It highlights the challenge of equipping the aircrafts with the ADS-B transponder in the AFI region in terms of operating aircraft retrofit even with the existence of mandatory regulation in the US and in the EU and proposes a regional approach with the support of ICAO.

<i>Strategic Objectives:</i>	This information paper relates to the Safety and Air Navigation Capacity and Efficiency Strategic Objectives.
<i>Financial implications:</i>	N/A
<i>References:</i>	APIRG 17, APIRG 20 SNMC/23 Doc 9750, <i>Global Air Navigation Plan</i>

¹ English and French versions provided by ASECNA

1. INTRODUCTION

1.1 The efficient provision of air navigation services in the AFI region requires reliable, available and integrated Communication, Navigation and Surveillance systems. In this regard, ASECNA continuously takes necessary actions to develop and implement CNS plans, in line with the GANP, the AFI air navigation plan and the AFI strategy to support the safe provision of the air navigation services.

1.2 The continuous growth of the air traffic requires more flexibility in Air Traffic Control operations and improved efficiency. In addition, it calls for the implementation of robust surveillance systems which will ensure flexible use of airspaces by airlines as well as the improvement of safety.

1.3 In this regard, since 2005 ASECNA has been developing and implementing surveillance plans in order to improve the surveillance services in the airspaces it manages. Currently a surveillance means extension project is ongoing and It will provide opportunities, through surveillance data sharing to reinforce the air navigation safety in the AFI region.

2. DISCUSSION

2.1 Background

2.1.1 In accordance with ICAO Aeronautical Surveillance Plan for the AFI region, ASECNA has developed and implemented a surveillance project since 2005. Thus, Abidjan, Brazzaville, Dakar, N'Djamena and Niamey centers have been equipped with secondary radars MSSR with mode S capability as well as ~~ATM~~-Automatic Flight Data Processing systems. The following functions were provided:

- Secondary Radar MSSR mode S capable, including Radar Data Processing system;
- Flight Data Processing System;
- Automatic dependence Surveillance by Contract (ADS/C);
- Controller Pilot Data Communication (CPDLC).

2.1.2 All those centers are full operational and provide satisfactory surveillance service in the coverage area. Antananarivo Center was equipped with an ATM system including ADS-C/CPDLC and FDPS.

2.2 ASECNA surveillance coverage extension

2.2.1 In order to improve the surveillance coverage, ASECNA is currently implementing surveillance with the installation of eleven (11) MSSR mode S capable and eleven (11) ATM systems in the following centers:

- Nouakchott, Bamako, Bissau, Ouagadougou, Niamtougou (for Lome ACC), Cotonou, Douala, Libreville, Bangui and Moroni (MSSR &ATM systems);
- Antananarivo (MSSR system);
- Malabo (Automatic Flight Data Processing systems)

2.2.2 The centers of Ouagadougou, Lome and Cotonou, are currently operational and radar data sharing are implemented based on the operational requirement.

2.2.3 The MSSR will be operational in Nouakchott, Bamako, Antananarivo, and Douala by the end 2016. The remaining MSRR are planned to be operational by mid-2017.

2.2.4 In addition, ASECNA successfully experimented the implementation of ADS-B systems in Antananarivo, Dakar, Nouakchott and Ndjamena centers. It also plans to complete the surveillance coverage with an ADS-B ground based and ADS-B space based sensors. The latest being planned for remote airspace both oceanic and continental.

2.3 Regional cooperation in surveillance data sharing

2.3.1 Several Air Navigation Services Providers of the AFI region have also deployed surveillance systems, mostly Radars, resulting in some overlaps of surveillance coverage areas across states and neighboring Flight Information Regions (FIR). States/Organization may take advantage from the current and the upcoming surveillance infrastructure for collaborating and sharing surveillance data with one another in order to enhance the surveillance coverage in the AFI region.

2.3.2 In the Indian Ocean region, ASECNA in cooperation with two neighboring ANSP, namely SCAA (Seychelles) and DGAC France (La Reunion), carried out some trials related to the implementation and the sharing of ADS-B data in this Ocean Indian region.

2.3.3 Within Gulf of Guinea area a technical meeting between ASECNA, Ghana Civil Aviation Authority (GCAA), Nigerian Airspace Management Agency (NAMA) and Roberts FIR under the coordination of ICAO WACAF Regional Office were held from 27 April to 4 May 2016 and allowed the stakeholders to agree on surveillance data sharing programme, including the AIDC, in order to enhance the surveillance within their airspace. The commitment of the involved ANSP and the frame of this data sharing is to be formalize through the signature of Memorandum of cooperation (MOC).

2.3.4 Some opportunities of surveillance data sharing between ASECNA centers and other neighboring FIR (Casablanca, Algiers, Sudan...) exist and ASECNA call for coordination with these ANSP in order to agree on surveillance data sharing mechanisms.

2.4 Implementation of ADS B in the AFI region

2.4.1 According to the GANP and the AFI surveillance strategy, ADS B will be one of the Key surveillance mean in the coming decade in the AF region. That technology provides operational benefits in terms of safety and capacity improvement and it is also cost effective. Furthermore, ADS B satellite based which is being developed by the industry will address the challenge of providing surveillance services in the remote airspaces.

2.4.2 Several ADS B ground - based deployment programmes are either completed or ongoing in the following States of the AFI region: Ethiopia, La Reunion Seychelles, Mauritius, Morocco, Democratic Republic of Congo, Tanzania, Roberts FIR (Guinea, Sierra-Leone and Liberia), Sudan, Namibia, Kenya, and the 17 Members States of ASECNA. And some States are planning implementation ADS-B satellite-based by 2020.

2.4.3 That initiative taken by ANSPs needs to be accompanied by equipping the aircrafts with ADS-B Transponder.

2.4.4 The US and the EU have adopted mandatory regulation for ADS-B Transponder carriage and operation by January and June 2020. The new aircrafts being already equipped since June 2016. Those mandates will obviously not address the issue for the retrofit of aircraft that are registered in AFI States.

2.4.5 Therefore there is a need for the AFI region to address this issue with a regional approach in order to guarantee harmonization and take the maximum benefit of ADS-B implementation.

3. CONCLUSION

3.1 Aeronautical surveillance systems deployed the various ANSPs, (ASECNA, GCAA and NAMA, Roberts) offer an opportunity to realize a continuity of aeronautical surveillance service by sharing surveillance data.

3.2 The entities concerned are invited to cooperate and to implement the surveillance data sharing among themselves, as part of the tangible example of integration of the systems at the regional level, in line with the commitments made by APIRG and supported by ICAO.

3.3 The ongoing ADS B programme deployments in the AFI region need to be accompanied by the retrofit of aircraft that cannot be addressed by the mandates adopted by US and the EU.

3.4 The Assembly is invited to:

- a) Note the effort made by ASECNA to extend and improve the surveillance services within the air spaces it manages;
- b) Encourage Contracting States and organisations to reinforce cooperation based on surveillance data sharing to improve safety and efficiency in Air Traffic Management;
- c) Encourage Contracting States, with the support of ICAO regional bodies, to adopt a regional approach regarding the implementation of ADS-B in the AFI region in order to enable the aviation stakeholders of this region to make better profits in terms of operational improvements from the implementation of ADS-B.