Twenty-Fourth Meeting of the AFI Planning and Implementation Regional Group (APIRG/24)
(Virtual – 2 to 4 November 2021)

Agenda Item 3 : AFI Airspace Monitoring

Implementation of ADS-B by satellite in ASECNA Member States

(Presented by lASECNA)

Summary
This working paper provides an update on the implementation of ADS-B space base in ASECNA Member States since 1st January 2020 and presents results of surveys conducted from the pre-operational phase to date. Providing global surveillance, ADS-B space base has fostered important cooperative initiatives with users and other service providers in the implementation of direct route, simplified procedures during the height level of Covid 19 outbreak . The analysis of the results of surveys conducted in the upper airspace under ASECNA's jurisdiction, shows a very encouraging level of ADS/B equipment of airlines in view of the ADS B carriage mandate decided by APIRG 22. Follow-up : a) Note the need for coordinated action in the AFI region concerning the equipment of aircraft with ADS B space base transponders; b) The necessity of setting an ad hoc task force to define the modalities of the ADS B transponder carriage requirement in the AFI region.

REFRENCE(S)	APIRG 22 et APIRG 23
Objectifs stratégiques	A: Safety - B: Air navigation capacity and efficiency - D: Economic development of air transport - E: Environmental protection

1. INTRODUCTION

1.1 In accordance with the AFI surveillance strategy and in order to meet the needs of users, the States and ANSPs in the AFI region have committed themselves in recent years to major investment programs in SSR and ADS-B radar surveillance as a means of improving safety and increasing the capacity of their airspace;

1.2 As part of its strategic orientation plan and in accordance with the decision of its Member States for the year 2032, ASECNA has implemented satellite-based ADS-B surveillance. ASECNA has now the capability to view air traffic in both land and oceanic areas.

2. DISCUSSION

2.1mplementation of ADS-B in the AFI Region

2.1.1 In accordance with the Global Air Navigation Plan (GANP) and the AFI surveillance strategy, ADS-B will be one of the key surveillance tools in the coming decade in the AFI region. This technology will bring operational benefits in terms of safety, increased capacity and cost effectiveness in the coming years. In addition, ADS/B space base developed by the industries enable ASECNA, which has implemented it, to solve the challenges of surveillance in remote and inhospitable areas.

2.1.2 Several ground ADS-B deployment programs have been completed or are underway in several states in the AFI region. Some states are in the process of planning for the implementation of satellite ADS-B by 2022.

2.1.3 The United States and Europe have adopted the requirement to carry and operate ADS-B transponders by January and June 2020 respectively.

2.1.4 ASECNA has deployed satellite ADS-B throughout its airspace since January 2020. The acquisition of this technology was carried out in 2018 and the experiments were conducted over two years. The AFISNET network is the main vector for transporting data from one site to another and fully meets the specifications and performance required for the use of this data.

2.2. Survey on the rate of aircraft equipped with ads-b compatible transponders

During the pre-operational phase of the implementation of ADS-B by satellite, all ASECNA ACCs conducted with the collaboration of pilot a survey on the carriage of transponders on board aircraft, from January 15, 2020 to April 30, 2020. A second survey was conducted on flight plan data from May 1 to June 30, 2021, extracted from ATM systems. The objective of these surveys was to establish the ADS-B equipment carriage rates in the ASECNA FIRs

The results of the survey show an increase in the rate of ADS-B carriage in 2021 compared to 2020. This rate, which varies from one FIR to another, even reaches 99% in the Dakar Oceanic FIR. (see Annex 1).

The list of aircraft not equipped with ADS-B at the end of this campaign was transmitted to the Civil Aviation authorities of the Member States for follow-up in anticipation of the carriage requirements for the AFI region in 2023 decided by APIRG 22.

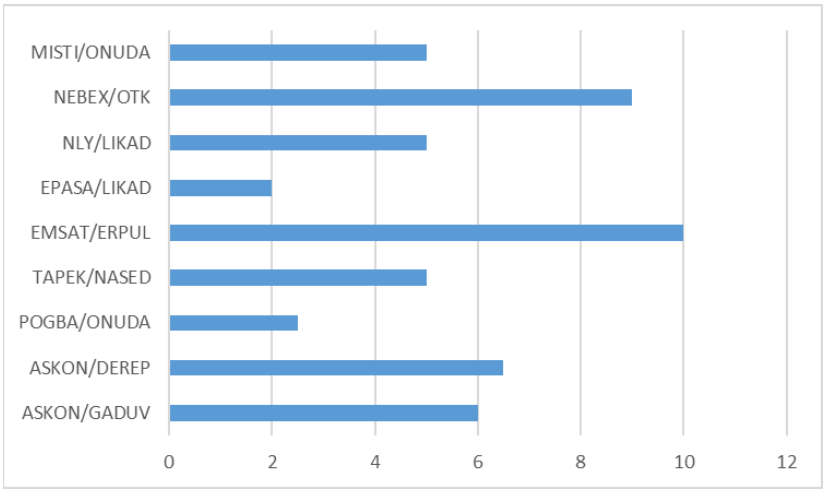
2.3 Benefits of the implementation of ADS B at ASECNA

Following the operational implementation of ADS B in January 2020, the CONOPS initially established for its use for separation reduction was suspended due to the occurrence of the COVID 19 pandemic in February 2020.
However, the above-mentioned survey has shown that more than 85% of the aircraft operating in ASECNA airspace are equipped with ADS B compatible transponders.

On this basis and with the aim of helping air users to reduce their fuel consumption in these difficult times of pandemic and subsequently to reduce CO2 pollution of the atmosphere, ASECNA in consultation with users has offered the possibility to airlines to use direct routes for aircraft suitably equipped by ADS B

Two AICs have been produced, each lasting six months, throughout the ASECNA airspace. At the request of the airlines, a new AIC has just been launched for renewal of this activity. This action is a precursor to its evolution towards the implementation of FRA

A study was conducted in September 2021 in the Brazzaville FIR to assess the gains made by airlines when using direct routes.







This graph shows the time savings achieved by the companies on the direct routes between these points;

3 ACTION BY THE MEETING

The meeting is invited to:

a) Take note of the information contained in this note;

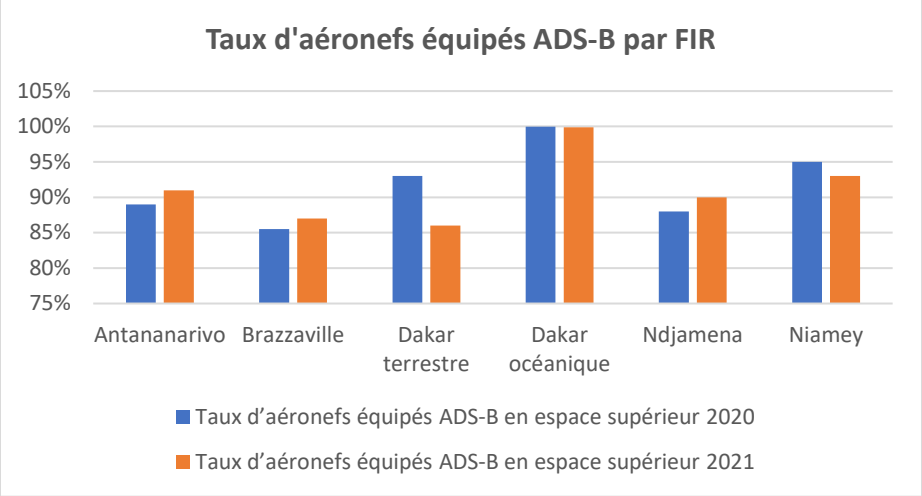
b) Note the willingness of ASECNA Member States to support the 2023 ADS-B carriage mandate for upper airspace

c) Conduct in 2022 a joint survey on the level of ADS-B carriage in the AFI region

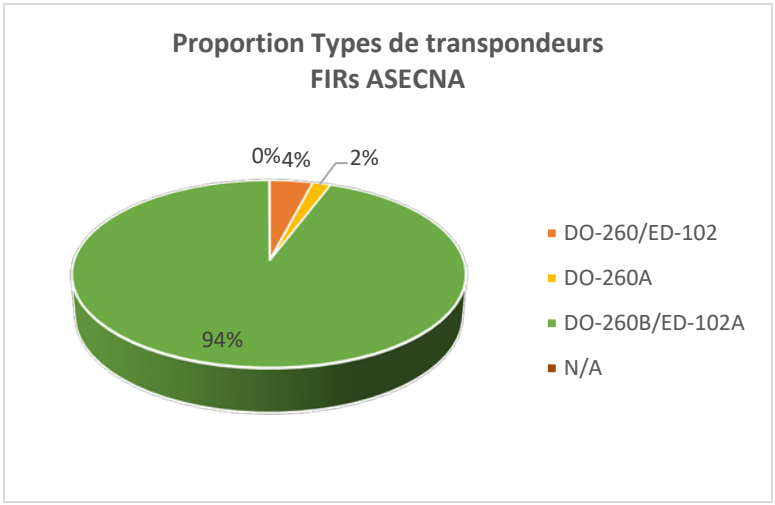
ANNEXES

Annexe 1 : Résultats des enquêtes sur l'emport de transpondeurs

Centres	Taux d'aéronefs équipés ADS-B en espace supérieur 2020	Taux d'aéronefs équipés ADS-B en espace supérieur 2021
Antananarivo	89%	91%
Brazzaville	85,50%	87%
Dakar terrestre	93%	86%
Dakar océanique	99,98%	99,90%
Ndjamena	88%	90%
Niamey	95%	93%



Centres	Types de transpondeurs		
	DO-260/ED-102	DO-260A	DO-260B/ED-102A
Antananarivo	2%	1%	97%
Brazzaville	6%	1%	93%
Dakar terrestre	6%	1%	93%
Dakar océanique	4%	1%	95%
Ndjamena	5%	1%	94%
Niamey	4%	2%	94%


Proportion Types de transpondeurs
FIRs ASECNA
0%
4%
2%
94%
DO-260/ED-102
DO-260A
DO-260B/ED-102A
N/A