INTERNATIONAL CIVIL AVIATION ORGANIZATION

Twenty-Seventh Meeting of the AFI Planning and Implementation Regional Group (APIRG/27)

5 to 6 November 2024

Agenda item 3: Implementation of air navigation objectives, targets and indicators, including the priorities set out in the regional air navigation plan

PBCS implementation including satellite ADS-B

(Note submitted by Cameroon)

SUMMARY
The purpose of this paper is to encourage ICAO to amend Doc 9869 Performance-Based Surveillance and Communication (PBCS) Manual to incorporate the Required Surveillance Performance (RSP) specifications for Automatic Dependent Surveillance-Broadcast (ADS-B). To this end, the paper reviews the implementation by ASECNA of satellite-based ADS-B in its Member States, which allows the surveillance of airspace, even in oceanic areas and remote continental areas, in which ADS-C could be requested. Action by the meeting is in **paragraph 3**.

REFRENCE(S)	- Annex 10 vol IV, 5th Edition - ICAO Doc 9869, 2nd Edition - ICAO Doc 4444 PANS-ATM, 16th Edition - APIRG/24 Conclusion 24/09
Strategic Objectives	A- Safety B- Air Navigation Capability & Efficiency

1 INTRODUCTION

1.1 ICAO Doc 9869 defines the Specifications for the Required Surveillance Performance (RSP) for the implementation of Performance-Based Communication and Surveillance (PBCS). However, these specifications rely exclusively on ADS-C as the automatic periodic position reporting system in the provision of procedural control. This note aims to take into account the increasing implementation of ADS-B in the AFI region, and the possibilities of its use as an additional system for the implementation of PBCS.

2. DISCUSSION

2.1. In order to improve its surveillance capabilities, satellite ADS-B is deployed in 17 ASECNA member states, including Cameroon. ADS-B has many advantages, including:

- the improvement of surveillance and air traffic management in non-radar areas by reducing the separation minima in terminal regions, but also in ocean areas and remote continental areas, where direct controller-pilot communications by VHF are not always available;
- Cost-effective rationalization of installation and maintenance, compared to the installation of multiple terrestrial ADS-B stations.

2.2. Given the current capabilities of ADS-B, which allows for a air-ground flight data transaction time of 0.5 seconds and a sufficiently proven level of integrity, accuracy and reliability, it is foreseeable that its implementation will find an ever-increasing adoption.

2.3. PANS ATM Doc 4444 includes provisions for the application of reduced separation minima based on surveillance systems, including ADS-B, in combination with the navigation and communication specifications based on PBN (RNP2, RNP4) and PBCS (RCP240) respectively

2.4. APIRG/21 Conclusion 21/09 calls on States to develop PBCS implementation plans as part of national aviation plans. However, there is a low implementation rate of PBCS, despite the encouraging installation rates of ADS-B and ADS-C observed in the region.

2.5. ICAO Doc 9869 (2nd edition, 2017) specifies the Required Surveillance Performance (RSP) for the implementation of the PBCS. However, in the scope of the said document it is mentioned that these specifications are primarily aimed at ADS-C, and that specifications for ADS-B could be included in a future edition.

2.6. In the AFI region, RSP 180 has been adopted. This requirement is achievable by using ADS-B, which is already being implemented in at least 17 states in the region.

2.7. The definition and integration of RSP for ADS-B into Doc 9869 could strongly encourage AFI states to comply with PBCS requirements since the deployment of Space-based ADS-B for instance offers many operational and economic benefits.

3 ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Take note of the content of this working paper;

b) Encourage States to implement space-based ADS-B in order to improve safety and air traffic management in remote portions of non-radar airspace such as oceanic and continental areas; and

c) Request ICAO to consider amending Doc 9869 to incorporate RSP for ADS-B to allow more flexibility for States in defining their airspace concept.