



**Twentieth Meeting of the CAR/SAM Regional Planning and Implementation Group
 (GREPECAS/20)
 Salvador, Brazil, 16 – 18 November 2022**

Agenda Item 2: Global and Regional Developments
 2.3 Programmes and Projects Progress Report

**GUIDANCE FOR STATES ON PARAMETERS TO MONITOR THE PERFORMANCE
 OF AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST (ADS-B) SYSTEMS**

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
<p>This working paper presents the document entitled “Parameters to Monitor the Performance of ADS-B Systems”, developed in collaboration with members of the Surveillance Task Force (NACC/WG/SURV) during a meeting held in Mexico City, Mexico, from 13 to 15 July 2022 and approved by the North American, Central American and Caribbean Working Group (NACC/WG) in September 2022.</p>	
Action:	Suggested actions are presented in Section 3.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> • Air Navigation Capacity and Efficiency
<i>References:</i>	<ul style="list-style-type: none"> • Air Navigation Services (ANS) Surveillance Task Force (TF) Meeting, held in Mexico City, Mexico, from 13 to 15 July 2022. • Seventh North American, Central American and Caribbean Working Group Meeting (NACC/WG/7), held at the ICAO NACC Regional Office in Mexico City, Mexico, from 29 August to 1 September 2022: https://www.icao.int/NACC/Pages/meetings-2022-naccwg7.aspx

1. Introduction

1.1 At the Air Navigation Services (ANS) Surveillance Task Force (TF) Meeting, held in Mexico City, Mexico, from 13 to 15 July 2022, an Ad hoc group met to finalise a guidance document for ICAO Member States to use it when developing an Automatic Dependent Surveillance – Broadcast (ADS-B) analytical tool to monitor ADS-B performance and quality metrics. The Adhoc group was made up of representatives from Cuba, Mexico, United States, and the Central American Corporation for Air Navigation Services (COCESNA), all of whom have extensive experience in measuring the performance of ADS-B and the surveillance data of the different systems, and have made this knowledge available to the CAR region.

1.2 The purpose of this document is to help States with a guidance on elements to consider when developing a tool to monitor the performance of the ADS-B system in their respective airspace. The document identifies the general parameters that must be included to adequately evaluate the performance of Automatic Dependent Surveillance – Broadcast (ADS-B) OUT and perform statistical analyses of the ADS-B information received by a monitoring system.

1.3 The document was presented and analysed by the NAM/CAR States during the Seventh North American, Central American and Caribbean Working Group Meeting (NACC/WG/7) in September 2022 and approved for use in the region, not only for measuring ADS-B performance, but also for surveillance data in general, considering the following identified benefits:

1. provide knowledge based on experience,
2. help technical staff speak the same technical language,
3. support monitoring data exchange and failure analysis,
4. promote the continuous improvement of surveillance systems.

2. Practical application of the document.

2.1 The document “Parameters to Monitor the Performance of ADS-B Systems” is based on experience from the implementation of the following systems:

1. Analysis Tool for ADS-B: *SurvSENSOR* application and *SurvREPORT* application, by Cuba’s *Instituto de Aeronáutica Civil* (IACC).
2. Public ADS-B Performance Report (PAPR) User’s Guide, by United States’ Federal Aviation Administration (FAA).
3. ADS-B statistical analysis system, by COCESNA, based on its experience in managing *EUROCONTROL* applications.

2.2 In each one of the States and under the performance criteria required by the applications, the functioning of the surveillance systems and, especially, the operation of ADS-B are measured.

2.3 Recently, under a Mission of the ICAO Regional Technical Cooperation Project for the Caribbean Region – “Implementation of the Performance Based Air Navigation Systems” (RLA/09/801), the *SurvSENSOR* and *SurvREPORT* applications were implemented in Mexico, which has allowed the evaluation of 15 ADS-B sensors, as part of a project in Mexico.

2.4 In this sense, the implementation of this system based on a guide that evaluates the adequate performance criteria has allowed:

1. The storage of data for statistical analysis.
2. The standardization of the results obtained, which can be used to demonstrate the performance of the implementation of the surveillance systems and to analyse both from the side of the receivers on the ground, as well as the installed configuration of the ADS-B transponders on board the aircraft.
3. The statistics obtained of the flights detected is grouped by countries, airlines, aircraft type designator and by the ADS-B parameters of different versions.
4. The instant error identification of aircraft that had misconfigured 24-bit code encoding.

5. Above all, the experience of personnel from different States who speak the same language and interpret the same results due to the technical language that the guide establishes.

2.5 The document “Parameters to Monitor the Performance of ADS-B Systems” is attached to this working paper in the **Appendix**.

3. Suggested actions

3.1 The Meeting is invited to take advantage of the lessons learned and good practices to:

- a) adopt the document “Parameters to Monitor the Performance of ADS-B Systems” as a regional guide for NAM/CAR/SAM States;
- b) take advantage of the guide to standardize the technical parameters for evaluating surveillance systems and thereby promote the use of the same technical language;
- c) thereby, standardize the implementation of regional ADS-B monitoring tools as much as possible; and
- d) discuss any other matter deemed appropriate.
