



ICAO

International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

ADS-B/OUT/M — WP/12
29/07/19

**Automatic Dependent Surveillance – Broadcast OUT Implementation Meeting for the
NAM/CAR Regions (ADS-B/OUT/M)**
Ottawa, Canada, 21-23 August 2019

Agenda Item 2: Update Status ADS-B Implementation for States

REPORT ON THE DEVELOPMENTS OF THE WORK OF THE SURVEILLANCE TASK FORCE (SUR-TF)

(Presented by the Rapporteur)

EXECUTIVE SUMMARY	
This Working Paper presents the developments obtained by the ANIWG Task Force.	
Action:	Suggested actions are presented in Section 4.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency
<i>References:</i>	<ul style="list-style-type: none">• Automatic Dependent Surveillance – Broadcast (ADS-B) Implementation and Regulation Meeting for the NAM/CAR/SAM Regions (ADS-B/LEG)• Fifth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/5)• Fifth Meeting of the Programmes and Projects Review Committee (PPRC/5) of GREPECAS

1. Introduction

1.1 The Surveillance Task Force works based on its Terms of Reference (ToR) and the update of its action plan to make more efficient the implementation activities related with the new surveillance systems, combined with existent radars, to assure air navigation security in our region.

1.2 The Task Force reports the developments in the drills, regional activities for the ADS-B implementation and multilateration, and in the automatized AIDC data exchange.

1.3 The activities of the Surveillance Task Force, SUR TF, (**Appendix A**) must be compatible with GREPECAS programmes and projects, specifically with the Automatization and Situational Awareness programme, which includes de agreed activities of this group.

2 Activities carried out by the ANIWG Surveillance Task Force

2.1 The Ad Hoc group integrated by Dominican Republic, United States (leader) and COCESNA finished a regional CONOPS project for the operational implementation of the ADS-B, to serve as a guide for the member States in their individual implementation processes. The project will be presented to this Meeting for its final review and approval.

2.2 Barbados reported that has recently installed a surveillance radar system. However, they are still planning a MLAT implementation with seven MLAT stations and five stations for surface movement.

2.3 COCESNA reported on the ADS-B technology implementation system in the Central American Region, which includes de installation of four ADS-B receptors in Costa Rica, 2 in Guatemala, 3 in Honduras and 2 in Nicaragua.

2.4 Cuba will have a new automatized system for the Havana Air traffic control centre (ATCC) by 2020 that will allow the introduction of information from the ADS-B and MLAT sensors installed within the country. Cuba also maintains data exchange of the radar sensors of San Julián and Camagüey with Jamaica and COCESNA, respectively and it is planned to exchange data with Mérida.

2.5 Jamaica indicated that is finishing a renovation process of is ATS system, which includes the renovation of the surveillance systems.

2.6 Up to date, SENEAM has installed 10 ADS-B stations in the following locations:

- 5 in the Mexico City Valley (Toluca Airport, Cerro Peñón, Cerro Catedral, Cerro Gordo and ATC TWR in Mexico City);
- 1 in the radar station Cerro Los Gallos, Aguascalientes (LGS);
- 1 in the southeast of Mexico, in Ciudad del Carmen (CME);
- 2 in the northeast of Mexico, in the Monterrey Airport (MTY) and in the Cerro de Potosí (CPT) radar station;
- 1 in the Puerto Peñasco Sonora (PPE) radar station, in the northeast of Mexico, and
- currently an update project of the surveillance processing software system is being implemented in the four Area Control Centres (ACC).

2.7 Panamá reported that has installed two ADS-B stations, which are already integrated with the radar information of the Panama ACC and the acquisition and installations of two new ADS-B stations is foreseen.

2.8 Dominican Republic informed that has a project to install ground and satellite ADS-B for 2020.

2.9 Trinidad and Tobago explained that is in process to develop a project for the updating of the ATM system, which includes new characteristics, like ADS-B data management. Also indicated that Trinidad and Tobago receives surveillance data from Guadeloupe and Martinique, this fusion with Trinidad and Tobago radar data and is used to provide surveillance coverage in the continental part of the FIR. Trinidad and Tobago also distributes the received data from Guadeloupe and Martinique to the States within the FIR to enhance situational awareness.

2.10 United States has more than 600 ADS-B stations installed and will officially start its operational use in its FIR by 1 January 2020. It keeps data exchange with Bahamas through a FTI communications line with Miami. There is the intention of data sharing between Sint Maarten and San Juan using the facilities used by MEVA, but this was delayed when hurricanes destroyed Sint Maarten Systems. Additionally, USA has only some radars that are sharing data between Canada and the United States using a direct FTI telecommunications line.

2.11 It has been identified the need that, in a regional manner, a surveillance solutions is seek for the oceanic air spaces to allow obtaining operational enhances to surveillance and safety. For this issue, there is the feasibility of the proposal presented by AIREON to use the satellite ADS-B as a possible solution. The Ad Hoc group created to analyse this proposal, leaded by Dominican Republic, will present its result during this Meeting.

3 Conclusions

3.1 Up to date there is not a 100% surveillance coverage in all the FIR of the region, by which with the introduction of the new surveillance systems this goal must be reached before the ASBU Block 0 is finished.

3.2 The region will start the operational ADS-B implementation by January 2020, as a new surveillance system, which constitutes an important enhancement of the situational awareness on-board the aircrafts and in the ATCC. Because of this, is necessary that all the States in the Region have already planned is use and national proper regulations.

3.3 There are other potential possibilities of data sharing that may be used, for this to be done, the neighbouring ACC that have not done this must start the coordination in the short-term for its implementation.

3.4 The currently agreed working plan can be found in **Appendix A**.

4 Suggested actions

4.1 The Meeting is invited to:

- a) note the information provided in this Working Paper;
- b) urge States, that have not yet done so, to submit their ADS-B implementation plan to the ICAO NACC Regional Office before October 31 (**Appendix B**)

- c) carry out the actions they deem appropriate to comply with the current regional agreements on surveillance for all FIRs in the region:
- 100% achievement of surveillance coverage
 - start the ADS-B operational use
 - surveillance data sharing among neighbour States
- d) comply with the agreed dates in the regional plans and the GREPECAS programme projects for the aforementioned subsections.

APPENDIX A

TASK NAME	DELIVERABLE	DATE START	DATE END	RESPONSIBLE
Task Force Activities	ToR and Working Plan	1/8/13	31/12/20	TF Members
Revising and updating the Working plan	TF Working Plan Updated	26/5/17	21/8/19	TF Rapporteur
Collecting statistics from ADS-B Trials	Statistics of the Trials	30/10/13	31/12/19	Cuba, México, T & T and COCESNA
Review and update of the ConOps.	ConOps Updated	26/9/18	21/8/19	Adhoc Group for ConOps
Notifying the plans of Implementation.	National Plan of Implementation	21/7/19	21/8/19	TF Members
Report on the state of Advancement of the Implementations	Update RPBANIP	11/7/19	21/08/19	TF Rapporteur
Analysis of ADS-B SAT use in NAM CAR region.	Ad Hoc Group Inform	26/09/18	21/08/19	Adhoc Group for ADS-B SAT
Review Plan regional of implementation of new systems of Surveillance (ADS B, ADSC, CPDLC, MLAT and WAM)	Regional Plan of Implementation Updated	23/8/19	31/5/20	TF Members
Achieving implementation Operational of the new Surveillance systems	Publication in AIP	31/12/18	31/12/20	TF Members
Effective implementation of Data sharing	Report of the Exchange	31/12/17	31/12/23	TF Members
Achieve 100% of the Surveillance Coverage Required by the PBN in each Region FIR.	Publication in AIP	26/5/17	31/12/23	TF Members

APPENDIX B

ADS-B IMPLEMENTATION COMPLIANCE STATUS /ESTADO DE CUMPLIMIENTO DE LA IMPLEMENTACIÓN DE ADS-B

No.	State/Estado	Installed ADS-B receivers that meet the technical requirements approved regional /Receptores ADS-B Instalados que cumplen con los requerimientos técnicos regionales aprobados	Representation automated radar system ready to use ADS-B data/Sistema automatizado de representacion radar listo para usar datos ADS-B	% Coverage of ADS-B FIR installed /% de cobertura ADS-B de la FIR instalada	ADS-B deployed operationally /ADS-B implementado operacionalmente	Date to begin the ADS-B implementation/Fecha para comenzar la implementación de ADS-B	Percentage of aircraft registered with ADS-B deployed/Porcentaje de aeronaves matriculadas con ADS-B implementado	Systems planned Multilateración (P) or implemented (I)/ Sistemas de Multilateración Planeado (P) o implementado (I)	REMARKS/OBSERVACIONES
1.	Antigua and Barbuda	0	N		N	TBD			
2.	Aruba	0	N		N	TBD			
3.	Bahamas	0	N		N	TBD			
4.	Barbados	4	Y		N	TBD		P	Planned 7 MLAT stations
5.	Belize	1	Y		N	2019	~70%	N	
6.	Canada	Y (15)	Y	10% via terrestrial sites, 100% via space based SVA	Y	2009	~90% in areas where service is available	I	ADS-B operational FL290 and above since 2009. MLAT operational since 2009. Space-based ADS-B Operations implemented March 2019.
7.	Costa Rica	4 (2016)	N		N	2019	~70%	N	

8.	Cuba	6 (2010)	N	100%	N	2020	~83%	P	ADS-B Operational planned for 2020
9.	Curacao	1(Note5)	Y(Note 6)	100%	Y	Q3-2019	~65 % (based on filed flight plans)	I	Space-based ADS-B Operations planned for Q3-2019
10.	Dominican Republic	0	Y	0	N	2020		P	Planea utilización del ADS-B Satelital en 2020
11.	El Salvador	N	Y		N				
12.	Grenada	0	N		N	TBD			
13.	Guatemala	2	Y		N	2019	~70%	Y (2020)	
14.	Haiti	0	N		N	TBD			
15.	Honduras	3	Y		N	TBD	~70%	3	
16.	Jamaica	0	N		N	TBD			Not planned
17.	Mexico	10	Y			2017		I	
18.	Nicaragua	2	Y		N	2019	~70%	2	
19.	Panamá	2	Y		Y	2017		I	
20.	Saint Kitts and Nevis	0	N		N	TBD			
21.	Saint Lucia	0	N		N	TBD			

22.	Saint Vincent and the Grenadines	0	N		N	TBD			
23.	Trinidad and Tobago	0	Y	0%(note4)	N	TBD	60%	P	A full deployment of ADS-B/WAM in the continental airspace of the Piarco FIR is planned for Q4 2020
24.	United States	Over 600	Y	100% (note 3)	Y	Y	As of 1-Jul-2019, over 70% of U.S. air carrier fleet is equipped with ADS-B Version 2	P/I	ADS-B operational. Wide-Area MLAT (WAM) operational in some route locations and two terminal locations. Additional terminal WAM locations are planned.

Note 3 – this coverage percentage is applicable to all US “domestic” FIR airspace and US-managed airspace in the Gulf of Mexico – it does not include all US-managed oceanic FIR airspace

Note 4 - 1 Single installation supplied with ATM system and not operationalized.

Note5: Space-based ADS-B throws MEVA from AIREON host