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WORKING PAPER

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Fifth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/5)
Mexico City, Mexico, 27 to 31 May, 2019

- Agenda Item 2: Review and Follow-up to Valid Conclusions/Decisions of the ANI/WG/04, NACC/WG/05 and GREPECAS/18 Meetings**
- 2.1.1 Progress reports of the Task Forces of the ANI/WG. States' implementation status**

REPORT ON THE DEVELOPMENT OF THE SURVEILLANCE TASK FORCE (SURV TF) TO THE ANI/WG

(Presented by the Rapporteur)

EXECUTIVE SUMMARY	
This working paper presents the developments obtained by the ANI/WG 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">• Report on the developments of the Surveillance Task Force (SURV TF) to the ANI/WG4

1. Introduction

1.1 The Surveillance task force, since its modification for the inclusion of all the surveillance systems in addition to the ADS-B implementation that created it, works based on its new Terms of reference (ToRs) and its updated action plan, looking to make more effective the implementation activities related with new surveillance systems combined with existent radar systems to ensure the security of air navigation in our geographic region.

1.2 The Task force supports the regional drills and activities for the ADS-B Implementation and multilateralism and the developments in the AIDC data automatized exchange foreseen to update and notify its development to the ANI/WG base in the compliance of the approved Work Plan (see **Appendix**).

2. Activities carried out by the ANI/WG Surveillance Task Force

2.1 As agreed in the last Task Force meeting, an ad hoc group was created integrated by Dominican Republic, United States (leader) and COCESNA to review, update and present a CONOPS regional project for the ADS-B operational implementation, as guidance for the Member States in their respective implementation processes, which is in final review for its presentation in the next SURV-TF Meeting in August.

2.2 Barbados informed that has recently installed a surveillance system. However, there is an on-going planning process for the MLAT implementation with 7 MLAT stations and 5 stations for ground movement.

2.3 COCESNA informed on the ADS-B technology implementation in Central America which includes the installation trial ADS-B receptors, the installation of a ADS-B station in the Coco Island for the surveillance improvement of the south part of the Central America FIR, updating of seven radars Mode 5 with digital receptor + ADS-B and the renewal of monopulse radars in the States for Mode S + ADS-B systems.

2.4 Cuba continues the development of its new automatized system for the Havana CCTA, which is expected to become operational later this year. Secondary monopulse radar will be installed with incorporated ADS-B in the Gran Piedra position in the eastern region, that will wider the coverage in the south of the country's largest mountainous region and will enhance surveillance data to the shared with the Jamaican CCTA.

2.5 Jamaica indicates that the States is finishing a renewal process of their ATS system, and within this project the renewal of the surveillance system, but the project do not includes ADS-B.

2.6 Mexico indicated that the ADS-B implementation in Mexico obeys to the necessity to increase the security and efficiency of air/ground operations, coverage redundancy and to count with surveillance in areas without radar coverage.

2.6.1 It is expected to obtain more benefits, like a more efficient air space and the application of the arrival and departure routes in the Mexico TMA for the VFR flights with helicopters; enhanced alert systems in flight and grounded, reducing runway excursions; more efficient flight trajectories, especially in the Gulf of Mexico and remote areas, as well as the reduction of CO₂ when diminishing combustible consumption.

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

- 5 in the Valley of Mexico (Toluca Airport, Cerro Peñón, Cerro Catedral, Cerro Gordo and ATC Control TWR in Mexico City)
- 1 in the radar station of 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 radar station of the Cerro de Potosí (CPT)
- 1 in the radar station of Puerto Peñasco, Sonora (PPE), in the Mexico northeast

- Currently there is an update Project on the processing surveillance system in the four Area Control Centres (ACC).

2.6.3 The ADS-B station of the FAA in Merida, (MID), Tampico (TAM) and Cancun (CUN) are working since February 2016 but without exploitation in the MID, MEX and MTY Control Centres (ACC).

2.6.4 In the Control centres ACC Mexico, ACC Monterrey and ACC Mazatlan ten ADS-B installed stations and in trial process, the collection and evaluation of data to begin data integration in ATM systems. Currently its revision and update are carried out for the publication of the standards of the ADS-B use in Mexico.

2.7 Panama informed that have installed two ADS-B stations which are already integrated with radar information in the ACC Panama and is foreseen the acquisition and installation of two new ADS-B stations.

2.8 Dominican Republic explained that is in process of developing a WAM system with Thales. Through the technical proposal provided by Thales, the Dominican Republic representative explained that the initial concept of preliminary location with respect for the WAM implementation system was integrates with the selection criteria for WAM locations; configuration technical data used for simulations; theoretical background and basic WAM design principles; modelling computer results of the proposed WAM system; a list and a view of the map of the WAM proposed locations, theoretical demonstration of WAM coverage and WAM through a series of precision coverage diagrams.

2.9 Trinidad and Tobago explained that is in process of developing a project to update de ATM system with new characteristics, including ADS-B data management. Also indicated that receives surveillance data from Martinica and Guadeloupe that is fusion with radar data of Trinidad and Tobago and is used to provide surveillance coverage in the continental part of the FIR. Trinidad and Tobago also redistributes received data from Guadeloupe and Martinica to States within de FIR to enhance situational awareness.

2.10 United States maintains data exchange with Bahamas through a FTI communications line with Miami. It is planned sharing information between San Martin and San Juan using MEVA installations, but that was delayed when hurricanes destroyed San Martin's systems. Additionally, there are only few radars sharing data between Canada and the United States, but are also using a direct FTI telecommunications line.

2.11 It is identified that, as a region, a surveillance solution for oceanic airspace is sought to obtain operational improvements to surveillance and safety. For which, there is the feasibility of usage of the satellite ADS-B proposal presented by AIREON, as a possible solution to this problem.

3. Conclusions

3.1 An important development in the region is observed for the ADS-B implementation, which makes it consider that there will be no difficulties in complying with the agreement for the regional operational implementation of the ADS-B as new surveillance system, which constitutes an important improvement in the situational awareness on board aircrafts and in the CCTA starting in 2020.

3.2 There are still potential data exchange possibilities that should be exploited for which the neighbouring ACCs should analyse the beginning of the short-term coordination.

4. Suggested actions

4.1 The Meeting is invited to:

- a) take note of this Working paper; and
- b) carry out the actions deemed appropriate for the fulfilment of the regional surveillance agreements in force and start the operational use of the ADS-B in all FIR's of the region by 2020.

**APPENDIX
SURV-TF WORKING PLAN**

TASK NAME	DELIVERABLES	STARTING DATE	ENDING DATE	COMPLETED PERCENTAGE	RESPONSIBLE
Task Force Work		1/8/13	31/12/23		
1.0 Review and update the Terms of Reference	Revised ToRs	26/11/18	29/11/18		Group Members
2.0 Review and update the TF Working Plan	Updated Working Plan	26/11/18	29/11/18		TF Members
3.0 Start ADS-B Trials in pending States	Trial statistics	30/10/14	31/12/19		Pending States/Territories of the Region
4.0 Collection of the ADS-B trial statistics	Trial statistics	30/10/13	31/12/19		Cuba, Mexico, Jamaica, Trinidad & Tobago and COCESNA
5.0 CONOPS Review and update	Updated CONOPS	26/11/18	31/01/19		AdHoc CONOPS Group
6.0 Surveillance data sharing implementation support	Summary chart of the implementation status	26/5/17	31/12/20		TF Members
6.1 Prepare a Surveillance systems acquisition planning guide	Surveillance systems acquisition planning guide	29/11/18	31/01/19		Cuba
6.2 Prepare a feasibility document for the regional use of satellite ADS-B	Feasibility study for the regional use of satellite ADS-B	29/11/18	26/5/19		Dominican Republic, Curacao and COCESNA
7.0 Support the operational implementation process kick-off of the new surveillance systems (ADS-B, ADS-C, CPDLC, MLAT and WAM)	Implementation Regional Plan	1/1/20	1/1/23		TF Members

7.1 Notify on the implementation plans	Update of the Chart on the Developments in the States of the Region	29/5/17	29/5/19		TF Members
7.2 Inform on the development status of the implementations	Update of the Chart on the Developments in the States of the Region	31/7/17	29/5/19		TF Members
7.3 Availability of the national regulations required for the implementation of the new surveillance systems	Update of the Chart on the Developments in the States of the Region	29/11/18	31/12/19		TF Members
8.0 100% achievement of the surveillance coverage required by the PBN in each FIR of the region	AIP publication	26/5/17	31/12/23		TF ;Members