



ICAO

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WORKING PAPER

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18/10/24

**Thirteenth Eastern Caribbean Network Technical Group (E/CAR/NTG/13), Eleventh Eastern Caribbean Radar Data Sharing Ad hoc Group (E/CAR/RD/11) Meetings**  
(Miami, United States, 21 October 2024)

**Agenda Item 4: Surveillance Sharing Activities**

**UPDATE ON THE AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B)/MULTILATERATION (MLAT), AERONAUTICAL FIXED SERVICES (AFS) AND AERONAUTICAL MOBILE SERVICES (AMS) VERY HIGH FREQUENCY (VHF) COMMUNICATION NETWORK PROJECTS IN THE PIARCO FIR**

(Presented by Trinidad and Tobago)

<b>EXECUTIVE SUMMARY</b>	
This working paper presents information and update on developments the CNS project activities being undertaken by the Trinidad and Tobago Civil Aviation Authority (TTCAA) the in the Piarco Flight Information Region (FIR).	
<b>Action:</b>	Suggested actions are presented in Section 3.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"><li>• Safety</li><li>• Air Navigation Capacity and Efficiency</li><li>• Environmental Protection</li></ul>
<i>References:</i>	<ul style="list-style-type: none"><li>• Twelfth Eastern Caribbean Network Technical Group (E/CAR/NTG/12) and Tenth Eastern Caribbean Radar Data Sharing Ad hoc Group (E/CAR/RD/10) Meetings, Miami, United States, 24-25 July 2023.</li></ul>

**1. Introduction**

1.1 This Working Paper provides an update on the CNS project activities being undertaken by the Trinidad and Tobago Civil Aviation Authority (TTCAA) relating to the provision of Air Traffic Services system communications network and surveillance for the past twelve (12) months as it pertains to the Piarco Flight Information Region (FIR).

**2. Discussion**

2.1 Automatic Dependent Surveillance – Broadcast (ADS-B) Multilateration (MLAT) in the Piarco FIR.

2.1.1 The installation of the Automatic Dependent Surveillance–Broadcast/ Multilateration (ADSB/MLAT) System within the Piarco FIR has commenced. It is scheduled to be completed in two (2) phases. In first phase, the ADS-B/MLAT System has been installed at two (2) of the six (6) sites in Trinidad,

namely the Piarco Area Control Center (ACC) and the Piarco Tower. Currently, the installation of the equipment at Carlsen Field and Mt. Bleu is on-going. It is expected that the remaining sites of the first phase in Barbados, Trinidad and Tobago will be completed by March 2025.

2.1.2 The installation of the equipment for the second phase (Antigua and Barbuda and St. Lucia) is expected to be completed by July of 2025. The final testing, validation, and integration of all the sites to provide the surveillance coverage over the continental airspace is scheduled to be completed by September of 2025. This provides an economical alternative to acquire surveillance capabilities especially for areas where it is technically or commercially not feasible to install radars.

2.1.3 The Surveillance Concept for the Piarco FIR, in the future, will include the provision of ADS-B services to augment the existing Secondary surveillance radar (SSR) source of surveillance. The Piarco ACC shall be a repository for all the ADS-B/MLAT data processing, where the data will be integrated into the Piarco ATM System and the Multi Radar Tracker (MRT). Once approved, the combined data from all available surveillance sources will be available over the E/CAR AFS Network for distribution to the E/CAR States.

2.1.4 Figure 1 below provides the theoretical ADS-B derived coverage area at 10000 feet.

2.1.5 Figure 2 below provides the theoretical ADS-B derived coverage area at 30000 feet.



Figure 1 Theoretical ADS-B Coverage 10000 Feet

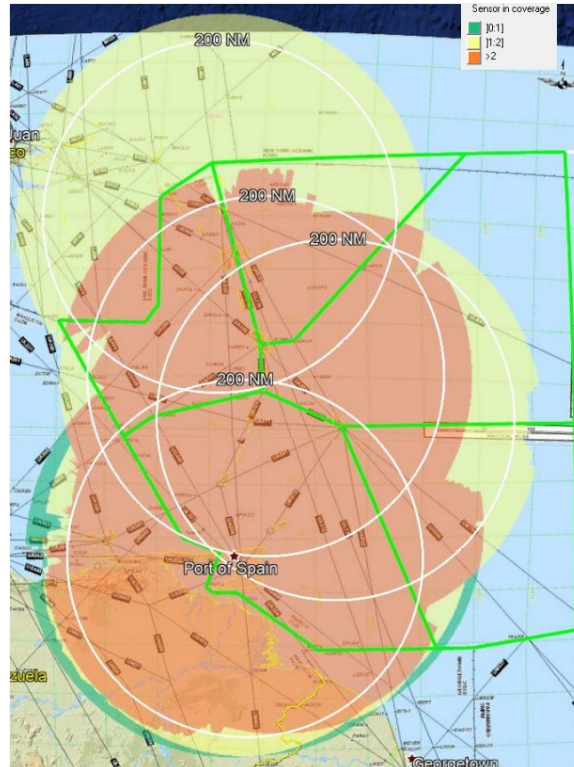


Figure 2 Theoretical ADS\_B Coverage 30000 feet

## 2.2 ECAR Communication Network

2.2.1 The Telecommunication Services of Trinidad and Tobago (TSTT) is the service provider of the E/CAR AFS MPLS Network. They manage the service capabilities and features, conduct the network performance analysis and upgrade and submit recommendations to ensure a reliable and robust network. The network is Internet Protocol (IP) circuits and was upgraded to accommodate the new technologies, due to evolving user requirements and security protocols offered by the manufacturer CISCO.

2.2.2 The installation of the new Aeronautical Fixed Services (AFS) Network commenced in May 2024. The installation of the first node was Tobago. It was successfully implemented and tested over a three (3) month period. The project implementation plan for the installation of the other nodes throughout the ECAR States were revised by the telecommunications provider (TSTT) due to the delay of the new IP circuits being installed by TSTT and approved by the Trinidad and Tobago Civil Aviation Authority (TTCAA). The new approved plan was submitted to the ECAR States during the first week of October. Currently, the AFS network equipment in Montserrat is being installed and tested.

## 2.3 Very High Frequency/Aeronautical Mobile Services (VHF/AMS)

2.3.1 The upgrade of the VHF/AMS system has been schedule to be completed in two (2) phases. Phase one (1) is the conversion of the communication link circuits from analog to Internet Protocol (IP) with Phase two (2) being the procurement of a new VHF system.

2.3.2 Phase 1 of the upgrade was scheduled to be completed in October 2024. However, during the installation of the analog to digital converters, the IP circuits were deemed to be unstable. The telecommunications provider (TSTT) of the IP circuits was informed and advised to rectify the issues before the VHF circuits are cut over to the new IP circuits and tested.

2.3.3 Phase 2 of the VHF project is the procurement of the new IP radios and the associated equipment to replace the analog radios. The procurement note is being finalized for submission to the procurement department for final approval.

### **3. Suggested actions**

3.1 The Meeting is invited to:

- a) note the progress and status of the CNS project activities;
- b) to review and agree on the activities to be carried out; and
- c) take any other action as deemed necessary.