



ICAO

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

INFORMATION PAPER

NACC/WG/6 — IP/05  
20/08/21

**Sixth North American, Central American and Caribbean Working Group Meeting (NACC/WG/6)**  
On-line, 25 to 27 August 2021, 09:00 to 13:00 (UTC-5)

**Agenda Item 2: Follow-up on Valid Conclusions and Previous Agreements of the NACC/WG, GREPECAS, NACC/DCA and Other Related Meetings**  
**2.3 Follow-up to GREPECAS improvements and AN Projects (AIM, ATM, AGA, CNS, MET and SAR).**

**UPDATE ON THE PIARCO FIR AIRSPACE CONCEPT - CDM PROCESS WITH E/CAR STATES**

(Presented by Trinidad and Tobago)

<b>EXECUTIVE SUMMARY</b>	
This information paper provides an update on the Collaborative Decision Making (CDM) process between Trinidad and Tobago and the Eastern Caribbean Region (E/CAR) States required for the implementation of the Piarco Flight Information Region (FIR) airspace concept.	
<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>• Piarco FIR Airspace Redesign Concept 2015-2020</li><li>• Report from ICAO 8<sup>th</sup> E/CAR ATM Sub-Committee Meeting on the E/CAR Airspace Design Project (October 09, 2020)</li><li>• Optimization of the CAR Region Airspace Meeting – NAM/CAR Air Navigation Implementation Working Group (ANI/WG) Performance-Based Navigation (PBN) Airspace Concept Task Force (ANI/WG/PBN/TF/OPT) (October 20-23, 2020)</li></ul>

**1. Introduction**

1.1 During the ICAO 8th E/CAR ATM Sub-Committee Meeting on the E/CAR Airspace Design Project, held on 9 October 2020, Trinidad and Tobago reiterated its commitment to lend its technical expertise to assist with challenges the other Eastern Caribbean (E/CAR) States/Territories might have with airspace design, specifically, anything above the initial approach altitude/minimum sector altitude, to the boundary positions with Piarco's airspace. For operations below these altitudes, Trinidad and Tobago would be able to assist in the required flight procedure design projects if the States could provide the necessary terrain and obstacle data. Trinidad and Tobago also stated that they could also assist with training presentations/briefings if necessary. A preliminary report, from the Trinidad and Tobago Civil Aviation Authority (TTCAA), was submitted to and reviewed by the participants of the ATM Sub-Committee meeting. The report presented specific proposals for the redesign of the respective E/CAR terminal airspaces (TMAs).

## 2. Identification of Project Areas and personnel for the CDM Process

2.1 Based on the geographical layout of the TMAs within the Piarco FIR, the complexities of traffic flows, interdependent coordination requirements, and similar operational considerations, it was decided that the airspace redesign project within the E/CAR region would be split into three (3) main project areas.

2.2 Area 1 (**Appendix A-Figure 1**) includes the following States/TMAs:

- a) Barbados (TBPB);
- b) St Vincent and the Grenadines (TVSA);
- c) Grenada (TGPY);
- d) St Lucia (TLPL); and
- e) Martinique (TFFF).

2.3 Area 2 (**Appendix A-Figure 2**) includes the following States/TMAs:

- a) Antigua (TAPA),
- b) Guadeloupe (TFFR); and
- c) Martinique (TFFF).

2.4 Area 3 (**Appendix A-Figure 3**) includes the following States/TMAs:

- a) Piarco (TTPP); and
- b) Grenada (TGPY).

2.5 The Trinidad and Tobago Airspace Design team is comprised of members of the TTCAA ANSPD department:

- a) Mr Robert Rooplal:
  - i. ANSPD Air Traffic Management Officer (ATMO);
    - Planning and Technical Evaluation Unit (PTEU)
  - ii. Air Traffic Controller (ATCO)
    - Twenty (20) + years of experience (Enroute, Approach and Aerodrome)
  - iii. TTCAA PBN SME since 2015;
  - iv. ICAO E/CAR PBN PoC since 2016;
  - v. PBN Redesign Project lead for Piarco (TTZP) FIR upper airspace routes; and
  - vi. Airspace Designer software operator.
- b) Mr Ellison Ramlogan
  - i. ANSPD Unit Chief;
    - Airspace and Procedure Design Unit (APDU)
  - ii. Air Traffic Controller (ATCO)
    - Twenty (20) + years of experience (Enroute, Approach and Aerodrome)
  - iii. TTCAA PBN SME since 2010;
  - iv. Lead Airspace and Instrument Flight Procedure Designer;
  - v. PBN Redesign Project team-member for TTZP FIR upper airspace routes;
  - vi. Airspace Designer software operator;

- vii. Flight Procedure Design and Airspace Management (FPDAM) software operator;
  - viii. Flight Procedure Satellite Analysis Tool (FPSAT) software operator; and
  - ix. Responsible for the development of procedures to facilitate continuous climb operations (CCOs) and continuous descent operations (CDOs) within the TTZP FIR;
    - RNAV Feeder Routes
    - RNAV Standard Instrument Departures (SIDs)
    - RNAV Standard Instrument Arrivals (STARs)
    - RNAV Instrument Approach Procedures (IAPs)
- c) Mr. Arion Wallen
- i. ANSPD Flight Procedure Designer;
    - Airspace and Procedure Design Unit (APDU)
  - ii. Air Traffic Controller (ATCO)
    - Ten (10) years of experience (Enroute, Approach and Aerodrome)
  - iii. PBN Redesign Project team-member for TTZP FIR upper airspace routes;
    - Airspace and Instrument Flight Procedure Designer;
  - iv. Airspace Designer software operator;
  - v. Flight Procedure Design and Airspace Management (FPDAM) software operator;
  - vi. Flight Procedure Satellite Analysis Tool (FPSAT) software operator; and
  - vii. Design support for the development of procedures to facilitate continuous climb operations (CCOs) and continuous descent operations (CDOs) within the TTZP FIR.

2.6 Having received the approval of the E/CAR ATM Sub-Committee and the Piarco ATS & ANSS department, the redesign project commenced by engaging the E/CAR States in Area 1 on the design proposals for the connectivity between the upper airspace enroute systems of the Piarco FIR/UTA with the lower airspace routes within the E/CAR TMAs.

### 3. Initial CDM Process

3.1 Trinidad & Tobago / ECAR State Collaborative Decision Making (CDM) meetings were held as follows:

- d) St Vincent and the Grenadines
  - i. CDM Meeting on October 14, 2020
  - ii. (A preliminary meeting was held with TVSA in April 2020, requested by TVSA)
- e) St Lucia
  - i. CDM Meeting on October 15, 2020
- f) Grenada
  - i. CDM Meeting on October 16, 2020
- g) Barbados
  - i. CDM Meeting on November 25, 2020
- h) St Lucia/St Vincent and the Grenadines
  - i. CDM meeting on December 09, 2020

3.2 The main purpose of these CDM meetings was to familiarize the E/CAR teams with the airspace concepts (Arrival and Departure feeder routes) and evaluate the feasibility of the various project elements (**Appendix B**).

3.3 The following are some of the major design considerations discussed:

- a) Finalization of the ARR/DEP routes and associated waypoints can only take place after further collaborations and agreements with the respective E/CAR TMAs;
- b) Establishment of Lateral separation of at least 10 NM between related ARR and DEP routes;
- c) This lateral spacing would extend up to 100 NM – 120 NM from the applicable aerodrome;
- d) In some cases, the primary upper level route may be considered part of the ARR or DEP route; and
- e) It would be expected that Air Traffic Controllers (ATCOs) may tactically issue instructions that do not follow the ARR/DEP route systems based on scenarios such as reduced traffic density or unusual weather conditions.

3.4 The following main benefits were also highlighted:

- a) Harmonized integration of traffic flows between the Upper enroute system of the Piarco FIR and the ECAR TMAs;
- b) Facilitation of Continuous Climb Operations (CCOs) for departing traffic;
- c) Facilitation of Continuous Descent Operations (CDOs) for arriving traffic;
- d) Improved airline operator fuel efficiencies;
- e) Reduced flight track mileage (where direct flight trajectories are possible);
- f) Reduced carbon emissions due to aircraft operations;
- g) Improved airspace traffic flow organization; and
- h) Reduced ATC workload related to:
  - i. Ensuring aircraft separations (surveillance may be required)
  - ii. ATCO - Pilot communications
  - iii. Coordination between ATS units

3.5 All of the participating TMAs welcomed the initiatives and have indicated general agreements with the initial proposals. However, the E/CAR teams expressed their interest in receiving various levels PBN training / briefings. The Piarco Airspace Design Team is in agreement that this would be beneficial as it would assist the E/CAR teams in developing a better understanding of the PBN airspace optimization concepts and facilitate the CDM processes.

#### **4. Proposed Training**

4.1 In June 2021, Trinidad and Tobago contacted Barbados, Grenada, St Lucia and St Vincent and the Grenadines concerning the basic PBN and airspace optimization training. The following proposal was made:

- a) Briefing No. 1 – General PBN Concepts for all interested TMAs
- b) Briefing No. 2 – Individual TMA briefings; specific to the needs of the respective TMA

4.2 Prior to the 2nd briefing, discussions will be held between Piarco and each TMA to determine their needs, and thereafter the contents of the presentation will be adjusted.

## **5. The Way Forward**

5.1 The CDM process for Area 1 States/TMAs will continue with a tripartite meeting with Martinique, St Lucia and Trinidad & Tobago tentatively being scheduled for October 2021.

5.2 The CDM process for the Area 2 States/TMAs is expected to begin in the fourth quarter of 2021 and continue into the first quarter of 2022.

5.3 The CDM process for the Area 3 States/TMAs is expected to begin in the second quarter of 2022 and continue into the third quarter of 2022. The project objectives will be closely tied to the development of the RNAV SIDs and STARs within the Piarco TMA (TTPP and TTCP aerodromes).

5.4 It should be noted that the implementation of the Arrival and Departure feeder route system, connecting the TMAs with the Piarco FIR, will be effected taking regional harmonization into consideration.

5.5 Precluding any unanticipated issues with any particular State, one (1) coordinated implementation date for the entire region is the overall objective.

## **6. Project Concerns**

6.1 Coordination with the States, the Eastern Caribbean Civil Aviation Authority (ECCAA) and ICAO is also required, to address a number of identified critical ICAO International Codes and Routes Designators (ICARD) database issues related to the TMAs' waypoint five letter name codes (5LNCs), including:

- a) Addressing 5LNCs that have not been registered on the database i.e. the non-registration of 5LNCs currently being utilized within the TMAs but having the status of being unused and available for selection by any other State within the region including Trinidad and Tobago (Piarco);
- b) Addressing 5LNCs that are currently duplicated, i.e. presently in use in other airspaces;
- c) Addressing 5LNCs that are currently registered to other States; and
- d) Updated standard proximity checks for possible conflicts with similar sounding 5LNCs that are located within the same geographical region but not identified as such within the database.

6.2 The effectiveness of the CDM process and the resultant timeline for implementation are based on the availability of Points of Contact (POCs) from all States to coordinate with the airspace design team of Trinidad and Tobago.

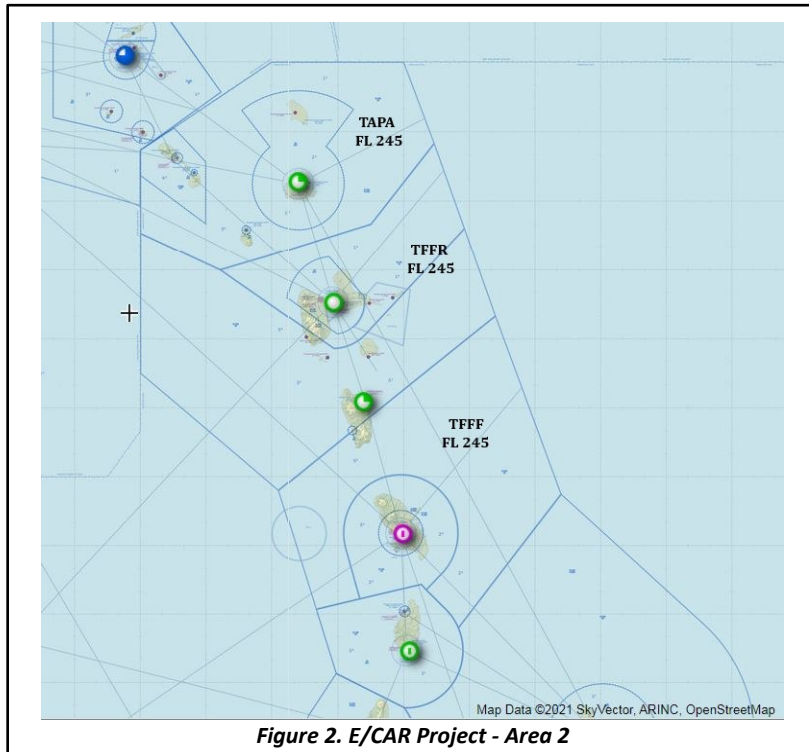
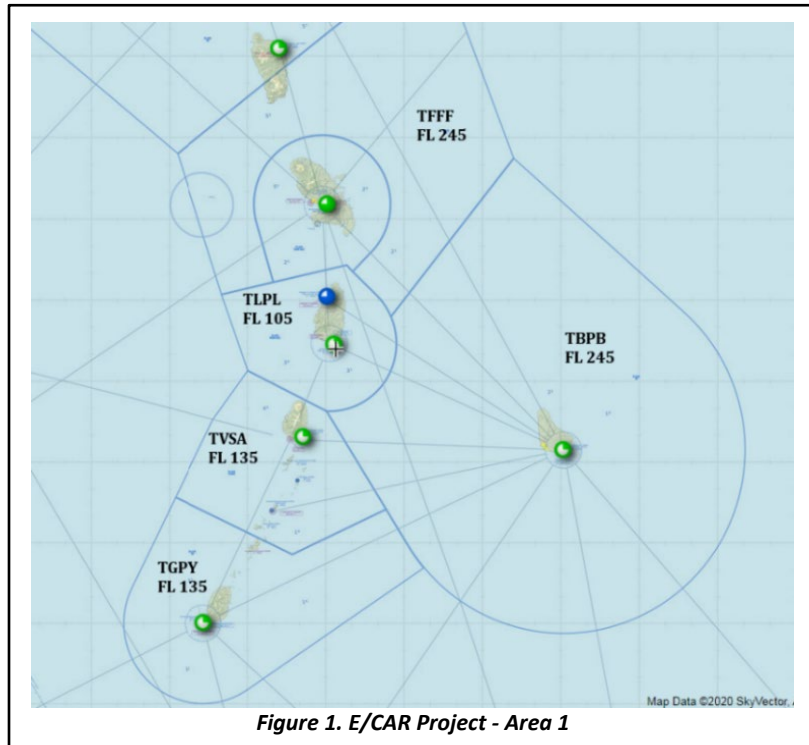
6.3 Technical assistance is required from an ICAO Separation and Airspace Safety Panel (SASP) SME regarding clarifications on the protected airspace concept and its applications.

**7. Conclusion**

7.1 The meeting is invited to take note of the information provided in this paper.

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**APPENDIX A**  
**AREAS IDENTIFIED IN THE PIARCO FIR AIRSPACE CONCEPT PROJECT**



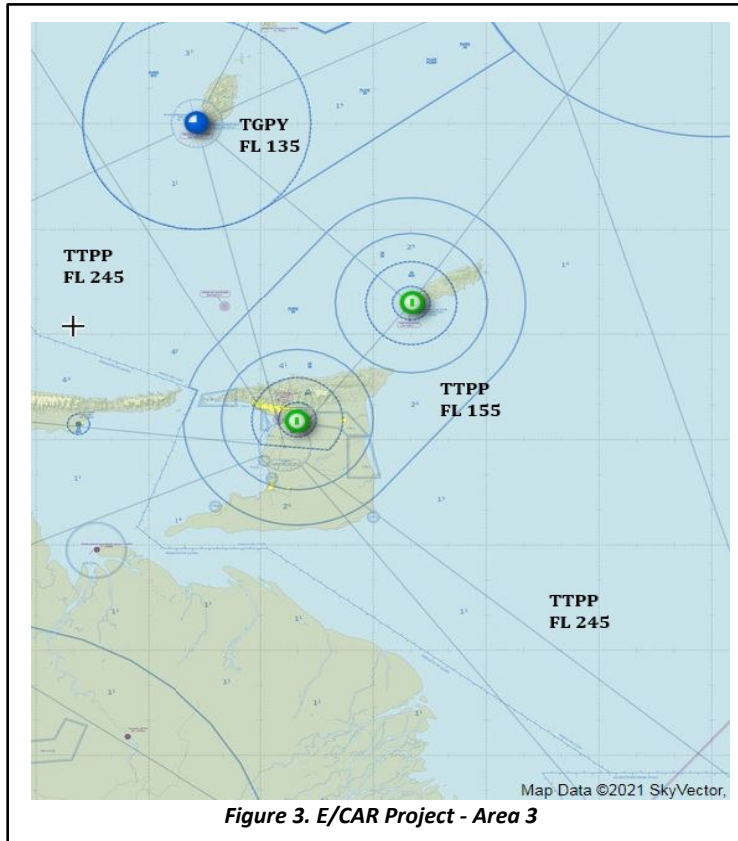


Figure 3. E/CAR Project - Area 3

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**APPENDIX B**  
**PROPOSED FEEDER ROUTES WITHIN AREA 1 OF THE PIARCO FIR**

