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

WORKING PAPER

E/CAR/CATG/4 — WP/22
31/08/18

Fourth Eastern Caribbean Civil Aviation Technical Group (E/CAR/CATG/4) Meeting
Saint George's, Grenada, 6 - 7 September 2018

Agenda Item 3: **Air Navigation Matters**

3.2 Follow-up on the implementation of the NAM/CAR Regional Performance Based air Navigation Implementation Plan (RPBANIP) Air Navigation Targets and Block-0 status in the Eastern Caribbean

TRINIDAD AND TOBAGO PROGRESS REPORT OF PBN ACTIVITIES WITHIN THE E/CAR REGION

(Presented by Trinidad and Tobago)

EXECUTIVE SUMMARY

This working paper presents an update on the progress of PBN Activities within the E/CAR Region.The paper discusses the following:

- Implementation of Upper Level RNAV 5 routes
- Piarco TMAs PBN Redesign
- Creation of connector (feeder routes) to link TMAs with Upper level routes

Action:	The suggested action is presented in Section 3.
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Environmental Protection
References:	• Final Report of the Third ICAO/IATA/CANSO Performance-Based Navigation (PBN) Harmonization, Modernization and Implementation Meeting for the North American, Caribbean and South American (NAM/CAR/SAM) Regions, ICAO NACC Regional Office, Mexico City, Mexico, 2 to 6 July 2018. • Report of sub-project to develop and implement a Performance-Based Navigation (PBN) airspace concept document for the CAR Region, ICAO NACC Regional Office, Mexico City, May 8-11, 2018. • Report on 8th E/CAR/CATG ATM Committee Follow-up Teleconference – Reconvened – May 10th 2018. • Final report of Fifth North American, Central American and Caribbean Working Group Meeting (NACC/WG/5) Port of Spain, Trinidad and Tobago, 22 – 26 May 2017

1. Introduction

1.1 This paper discusses an update on the progress of PBN Activities within the E/CAR Region. It details the implementation of Upper Level RNAV 5 routes within the Piarco FIR. It further discusses the coordination and collaboration between Trinidad and Tobago, regional/local stakeholders and the Terminal Control Areas that are situated within the Piarco FIR, and adjacent FIRs.

2. Discussion

2.1 Four (4) Upper Level RNAV 5 routes were implemented in the TTZP FIR on August 17th 2017.The routes are UL452, UL462, UL576 and UL776. In April 2018, the FAA North Atlantic Operations inquired on any feedback on the UL576/L576 route. Trinidad and Tobago advised that the new route has been a success for normal operations, but also that its use during Hurricane Maria was paramount. Three (3) new RNAV 5 routes will be take effect on Jan 31st 2019. A map depicting these routes was presented to the 8th E/CAR/CATG ATM Committee Teleconference by Trinidad and Tobago. These three (3) new routes will be assigned a route designator name by ICAO and will be published in the Aeronautical Information Regulation and Control (AIRAC) cycle of November 8th 2018. These routes are as follows (See Appendix A) :

- TIKAL* KORTO
- GABAR DOLRO
- ILURI ETBIG TRAPP

*(*TIKAL to be changed)*

2.2 Airline operators using the four (4) upper level RNAV 5 routes implemented on August 17th 2017 are saving on track mileage as compared to flying on the conventional routes. Data collected between the period September 15th, 2017 and April 24th, 2018 showed that airlines saved approximately 1600 NM (cumulative) by using the UL452 as compared to using the conventional UG449 route. Approximately 1800 NM (cumulative) was saved by airline operators using the UL776 route for the same period. Less track miles flown equates to less fuel consumed which equates to less carbon emissions.

2.3 Proposals for new RNAV 5 routes from the New York Oceanic into the Piarco Continental Sector for flights landing/departing/overflying were also presented to the 8th E/CAR/CATG ATM Committee Teleconference by Trinidad and Tobago. These routes will eventually replace certain conventional routes within the Piarco CTA/UTA based on RNAV 5 application. A conceptual design was developed (See Appendix B).This required coordination with Venezuela (Maiquetia). Trinidad and Tobago attended the Third ICAO/IATA/CANSO Performance-Based Navigation, Harmonization, Modernization and Implementation Meeting for the North American, Caribbean and South American Regions held in Mexico City, Mexico, 2nd -6th July 2018 at the ICAO NACC Regional Office. During this meeting, discussions took place between Trinidad and Tobago and Venezuela concerning restructuring of the overflight routes.

2.4 Trinidad and Tobago is currently in the process of transitioning from 100NM lateral separation to 50NM in the Piarco Oceanic Sector. However due to the delay in the Piarco ATM upgrade, the implementation was on hold. CPDLC will be necessary for the 50NM lateral separation due to the convective weather that occurs during the hurricane season. Presently there is a four minute interval for the exchange of communication of air traffic services messages between TTZP and aircraft via NY ARINC.

2.5 Trinidad and Tobago made a request to all the TMAs to submit PBN Airspace redesign to support activities to continue the PBN Harmonization plan for the Piarco FIR. As of the end August 2018,the following States/Territories have submitted proposals on their respective E/CAR PBN airspace redesign activities to Trinidad and Tobago:

- Antigua and Barbuda
- Barbados
- French West Indies (FWI) Guadeloupe and Martinique
- Saint Lucia
- Saint Vincent and the Grenadines

2.5 From the Upper Level RNAV 5 routes established within the Piarco Continental airspace, connector (feeder) routes are to be developed to connect with the Terminal Control Areas (TMAs) within Piarco's airspace. This requires the cooperation and collaboration with the concerned States/Territories. For the continued harmonization of the Piarco FIR in terms of connectivity to the respective TMAs via feeder routes, Trinidad and Tobago has requested points on the respective TMAs boundaries where these feeder routes will join the upper level RNAV 5 routes. This notice was sent via email in July 2018. Piarco advised that the information can be submitted via a map showing the points on the TMA boundary. To date, Barbados, FWI (Guadeloupe and Martinique) and Saint Lucia have submitted their information. Trinidad and Tobago is awaiting similar information from the other States/Territories. There is a requirement for face to face airspace design meetings between:

- Antigua and Barbuda, Guadeloupe, San Juan CERAP, Sint Maarten and Trinidad and Tobago
- Barbados, Grenada, Martinique, St Lucia, St Vincent and the Grenadines and Trinidad and Tobago.

2.6 During the 8th E/CAR/CATG ATM Committee Teleconference, the ANI/WG PBN Rapporteur, Mr Riaaz Mohammed informed the participants that regional experts have been asked to assist the E/CAR Region with the development of upper and lower airspace designs. Mr Mohammed also stated that there is a project for the development of a template within this Region, which could eventually be used by concerned States/Territories to assist in the development of their PBN activities. He stated that it was therefore important for him to get feedback from the States/Territories in terms of what stage in the PBN design process they are currently and the scenarios that hinder their progress in PBN. The ANI/WG PBN Rapporteur stated it was hoped that this information can be used to help the Region move forward. At this Meeting, the ICAO NACC ATM/SAR Regional Officer (RO), Mr Eddian Mendez stated that the NACC Office is willing to support the States/Territories; however, there is a requirement for such States/Territories to provide ICAO with the relevant information and establish realistic targets.

2.7 Implementation of forty (40) NM GNSS longitudinal separation has enabled airline operators to obtain their preferred cruising levels. This initiative has provided the conditions for more flights to get optimum flight levels which will enable these flights to consume less fuel. The longitudinal separation of 40NM GNSS was implemented in the TTZP FIR on June 30th 2016. A review of this has to be done with the ATS management. After this review a decision can be made whether a further reduction to 20NM can occur. However this has to be a CDM process with all the FIRs south of Piarco. San Juan and Piarco has to discuss any further developments to implementing the longitudinal separation of 40NM GNSS. Presently this is eighty (80) NM GNSS due to VHF restrictions. A CDM meeting was held with Venezuela during the Third ICAO/IATA/CANSO PBN meeting to implement 40NM GNSS longitudinal separation. The separation is 80NM presently. Trinidad and Tobago advised that the 40NM GNSS separation should be effected by November 2018.

2.8 In line with the ICAO's Aviation Systems Block Upgrade (ASBU) methodology, specifically "Improved Operations through Enhanced En-Route Trajectories", (Block 0 Module – FRTO), the Piarco ANSP has been conducting flexible routing trials with KLM Royal Dutch Airlines. Between November 9th 2017 and February 6th 2018, KLM reported approximate savings of sixteen thousand pounds (16000 lbs) of fuel, an average of seven hundred pounds (700 lbs) of fuel per participating flight and a resultant total reduction of over forty eight thousand pounds (48,000 lbs) of harmful carbon emissions. For the period February 7th 2018 and May 15th 2018, KLM has reported 8600 lbs of fuel was saved, an average of 233 lbs per flight. This equates to 27130 lbs of harmful carbon emissions. The airline saved 18 minutes of flight time, an average of 0.5 minute per flight. KLM has also requested a "great circle" route from Amsterdam, Holland to Lima, Peru. Trinidad and Tobago is currently collaborating with all stakeholders in order to establish this new route. A conceptual design of this route was created by Piarco and sent to the KLM for analysis.

3. Suggested Action

3.1 The meeting is invited to

a) note the information contained in this paper;

b) urge States, within the Eastern Caribbean Region to participate in activities related to the PBN Harmonization plan for the Piarco FIR within the Eastern Caribbean, such as:

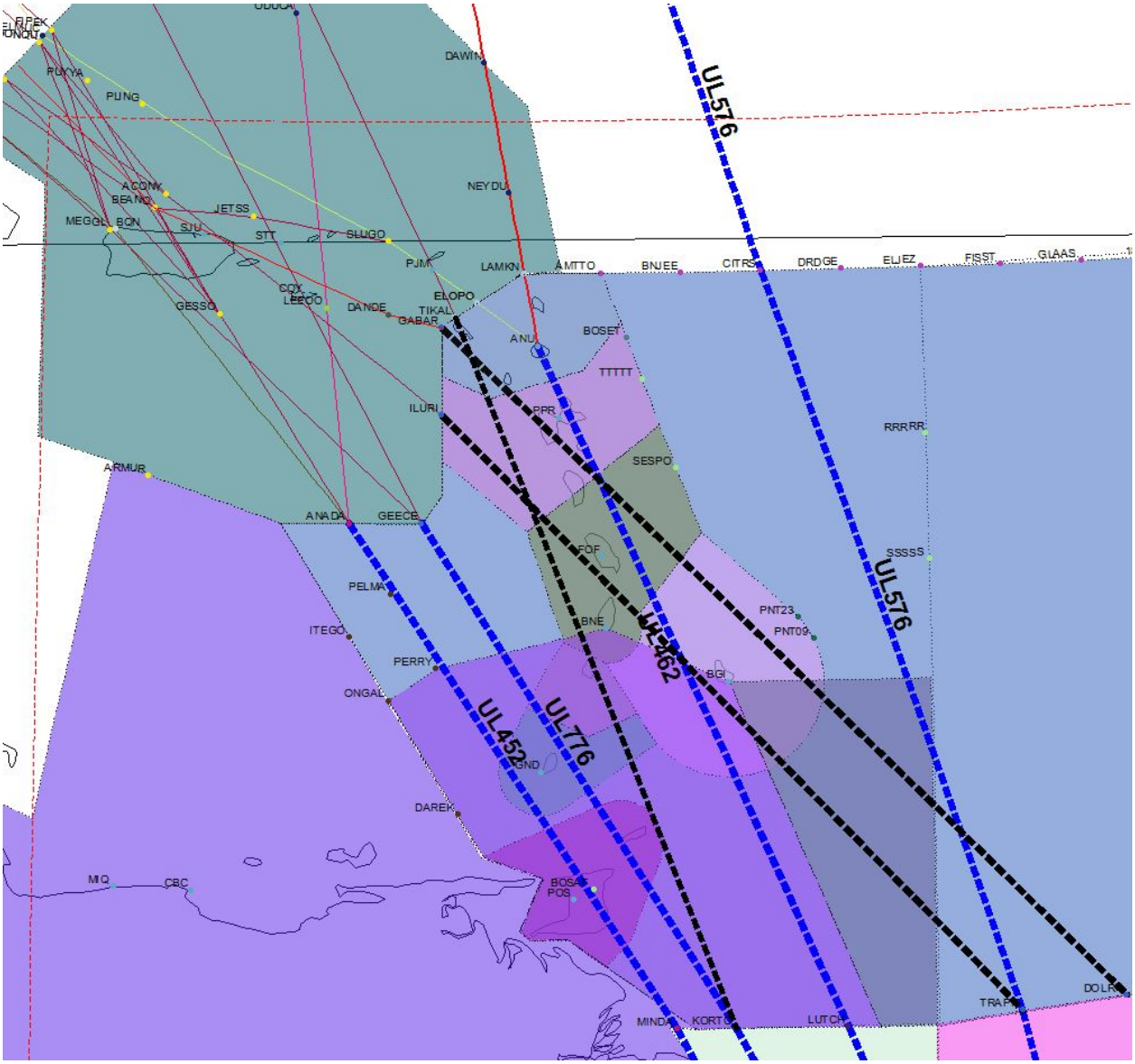
i. participation in PBN teleconferences and face to face meetings;
ii. submission of up to date PBN redesigns to Trinidad and Tobago;
iii. submission of TMA boundary points for the connectivity to upper level routes; and

c) discuss any relevant matters as appropriate.

— — — — — — — — — —

APPENDIX A

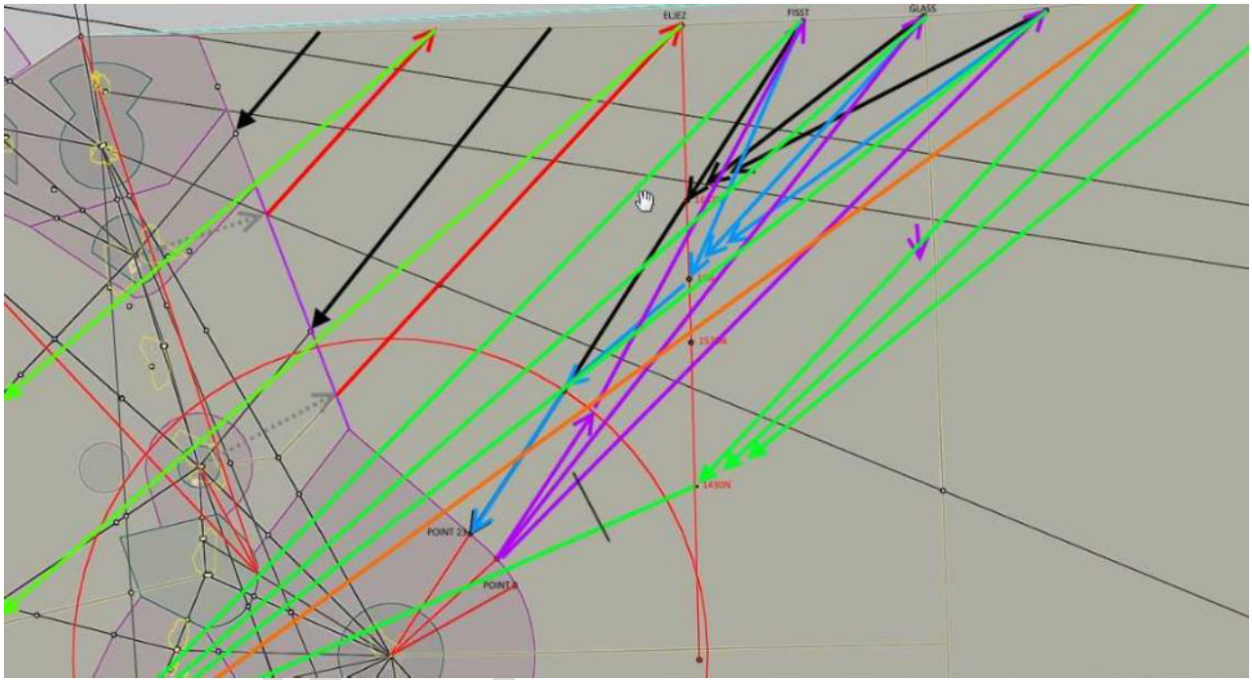
MAP DEPICTING RNAV 5 UPPER LEVEL ROUTES WITHIN PIARCO CTA/UTA



– – – – – – – – – – –

APPENDIX B

PROPOSED CONCEPT FOR OCEANIC RNAV ROUTES WITHIN THE PIARCO CONTINENTAL SECTOR FOR DEPARTING/ARRIVING/OVERFLIGHT TRAFFIC



— END —