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

ICAO

WORKING PAPER

Third NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/3)
Mexico City, Mexico, 4 to 6 April 2016

Agenda Item 4: **Follow-up, Performance Evaluation and Monitoring of the NAM/CAR Regional Performance Based Air Navigation Implementation Plan (NAM/CAR RPBANIP) Targets**

4.1   Progress Reports of the Task Forces and the ANI/WG

PROGRESS REPORT OF THE SIXTH EASTERN CARIBBEAN NETWORK TECHNICAL GROUP MEETING (E/CAR/NTG/6) AND FOURTH EASTERN CARIBBEAN SURVEILLANCE DATA SHARING GROUP MEETING (E/CAR/RD/4)

(Presented by E/CAR/NTG Rapporteur)

EXECUTIVE SUMMARY	
This working paper presents an overview of the surveillance data sharing activities achieved and the need for the update of the implementation plan on this matter to encompass all the surveillance data related actions for informing the E/CAR Directors as mandated. The paper also provides an overview of the Eastern Caribbean (E/CAR) Aeronautical Fixed Services (AFS) Network.	
Action:	The suggested actions are detailed in section 3.
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency
References:	• Sixth Eastern Caribbean Network Technical Group and Fourth Eastern Caribbean Surveillance Data Sharing Adhoc Group Meetings (E/CAR/NTG/6-E/CAR/RD/4), Miami, United States, 13 - 14 July 2015; and • Twenty-Sixth Meeting of Directors of Civil Aviation of the Eastern Caribbean (E/CAR/DCA/26), New Orleans, United States, 1 - 3 December 2015

1.   Introduction

1.1   The agreement for a Central Radar Data server and the agreement for sharing and using the radar data among the E/CAR States and Territories represent an important improvement in safety and efficiency with notable improvements in Air Traffic Control situational awareness in the region. The

radar data sharing activities represent the commitment of the region for achieving the foreseen situational awareness improvements and to promote future improvements in air traffic control services.

2.   Discussion

E/CAR Radar Data Sharing implementation activities

2.1   The French Civil Aviation has donated and installed eleven (11) computers (IRMA) as part of the Phase 1 implementation of Radar Data Display. The computers process only the French radars exported from Piarco over the E/CAR AFS Network, and are to be used by States to gain experience in a surveillance environment and for situational awareness. The following Table shows the status of the French IRMA computers and the comments made by States:

State/Territory	No. of CPUs	Installation Date	Comments
Antigua and Barbuda	2	19 March 2015	Controllers report that the performance of the system is very good. The coverage is excellent and there is no overhead drop out. As a matter of fact, traffic is observed down to 200ft from the threshold. There is improved situational awareness.
Grenada	1	17 April 2015	Display performance data is good. No coverage to the south. Coverage to the north above 5000' is good. It is a safety network. Traffic information is more accurate. It is an excellent tool for situational awareness.
Saint Vincent and the Grenadines	1	27 April 2015	It has allowed ATCO to quickly get a picture of the traffic saturation. ATCO have been able to update their work plan prior to the coordination process. During a partial radio failure we were able to establish that the aircraft was still flying. During adverse weather conditions the extent of the diversions can be seen and plan for. Phase 2 should allow better coverage in the Grenadines
Montserrat	1	18 May 2015	System performance is very good. The coverage is more than adequate. Traffic is observed down to 300ft on the eastern side of the island. Coverage affected on western side by the 3 volcanic mountain ranges along the length of the island, as expected. 1,100ft on final. Situational awareness has improved.

State/Territory	No. of CPUs	Installation Date	Comments
Dominica	1	15 June 2015	The RADAR system was successfully installed on June 15th by the French Technicians. Since the installation, the system operated fully until it was disrupted by the damaged done to the E/CAR network by the flooding of the Douglas -Charles Airport in August. The system was transferred to the Canefield Airport where it is now operational. I (Honica Lawrence) would like to take this opportunity to thank all those who were instrumental in see this project through to fruition. We are extremely grateful.
Barbados	1	18 June 2015	a) It afforded ATCOs the opportunity to observe the radar data sharing process and to compare the local and 'shared' data in real time; b) It allowed ATCOs to monitor activities beyond the scope of their operational requirements; c) It provided a back-up system for surveillance only in case of a radar outage at TBPB; d) It provided the ATC Supervisor with an additional tool to assist with the monitoring of traffic operations both within and outside of the TBPB's airspace; There has been no negative feedback and all reports indicate that the system is user friendly. Phase 2 of the project will be beneficial for the reasons listed above (a-d).
Nevis	1	26 June 2015	No comment
Saint Kitts and Nevis	1	26 June 2015	This piece of equipment helps with the day to day operation of air traffic in Saint Kitts and Nevis. Controllers are now aware of all aircraft in and out of our airspace at any given time it also aids in traffic information.
Anguilla	1	05 November 2015	No comment
Trinidad and Tobago	1	20 August 2015	Effective for data and network performance evaluation and for monitoring of the exported data.

2.2   The Implementation Plan was updated based on the recent events in Radar Data Sharing matters, such as:

• The Request for Information (RFI) Process results

- The French donated CPUs implementation - hands-on experience and practical view for using radar data displays
- Availability of the radar data within the E/CAR AFS Network
- Availability of the MRT data in each user site
- Availability of RASA guidance on OECS States
- Review of radar data coverage in the area (Antigua and Barbuda, Barbados, Guadeloupe, Martinique, Sint Maarten and Trinidad and Tobago)
- Radar Data from United States sites
- Analysis of real radar coverage in States as done for Grenada and Saint Vincent and the Grenadines

2.3   Similarly, the Implementation Plan includes the actions for radar data exchange with the adjacent FIRs as part of the process to enhance the MRT data for the E/CAR users (San Juan, Sint Maarten and Venezuela).

2.4   Due to the longer time taken for the request and installation of the displays and considering an appropriate time for the States to become familiarized with the Phase I Radar display, the original implementation plan has been updated. Similarly the E/CAR RDS participants recognized the need to confirm the commitment of the States for Phase II of the implementation for the tender and acquisition of the final Radar Displays, as reflected in the following conclusion:

**CONCLUSION
E/CAR/NTG/6-RD/4/9   NEW E/CAR RADAR DATA DISPLAY ACQUISITION RFP
                                              MILESTONES**

That, in order to allow the E/CAR States/Territories involved in the Radar Data Display RFP process to include their end-user requirements and express their formal commitment:

a)   ECCAA coordinate with their OECS States/Territories for a formal commitment and process chosen for conducting the RFP process and inform the E/CAR/RD and ICAO by **30 October 2015** of this commitment;

b)   Trinidad and Tobago conduct teleconferences with each involved OECS State/Territory for explaining the radar data display and the end user requirements to be defined starting 1 August 2015; and

c)   E/CAR States/Territories involved in the Radar Data Display RFP process to conduct the RFP process with the following new milestones:

- o   E/CAR Radar Display Tender- preparation of RFP: October 2015-January 2016
- o   E/CAR RD Tender- process: March - June 2016
- o   E/CAR RD Selection: July 2016
- o   E/CAR RD Implementation: October 2016-March 2017

2.5   In this regard, the following revised milestones are presented in the Implementation Plan as shown in the **Appendix**:

- •   Integration of Barbados Radar: January-March 2016
- •   Integration of Antigua and Barbuda Radar: June-December 2016
- •   Integration of Sint Maarten Radar: January - October 2016
- •   Evaluation of integrating United States radars: January-August 2016
- •   Other radar integration (Venezuela): December 2015 - December 2017
- •   ECAR Radar Display Acquisition Tender - preparation of RFP: February - March 2016
- •   ECAR RD Tender- process: March – April 2016
- •   ECAR RD Implementation: July-December 2016
- •   Preparation for ADS-B trials: October 2015-November 2016

2.6   From the familiarization gained with the IRMA computers, States were asked to submit to the E/CAR/RD group users' requirements in order to prepare the Request for proposal (RFP) document. Failure to provide the information in a timely manner will affect the scheduling of activities.

E/CAR AFS Network Overview

2.7   Users agreed that the network was globally compliant with consistently good performance and availability. Feedback on faults has been excellent which has provided a high level of confidence in the network. The following equipment failures are noted with concern:

- •   Saint Kitts and Nevis - One (1) of the redundantly configured Cisco routers failed in January 2013 due to damage caused by exposure to adverse environmental conditions. The router was replaced at Saint Kitts and Nevis' cost on 06 November 2015. The second router and the RPS also need replacing, having been exposed to the same conditions that caused the failure of the first router. Saint Kitts and Nevis was provided with a cost to replace the damaged equipment and advised that if environmental conditions remain unchanged, the new equipment could be similarly affected.

- •   Anguilla - The routers and the uninterruptible power supply (UPS) that were damaged as a result of unsuitable environmental conditions were replaced at Anguilla's cost on 26 July 2015. The equipment rack was relocated to another position in the same equipment room but the environmental problem still exists which may result in a similar failure in the future. The Redundant Power Supply (RPS) for the routers which was serviceable at the visit prior to the replacement has since failed. The replacement cost has been provided to Anguilla.

2.8   The new dedicated MEVA circuit for the radar exchange between San Juan and Sint Maarten, and the voice circuits to Anguilla, Antigua and Barbuda and Saint Kitts and Nevis are already installed. The configuration of the E/CAR/AFS router in San Juan, wiring, interconnection and testing for the voice circuits were successfully completed on December 2, 2015. This E/CAR AFS and MEVA interconnection permits more robust connectivity between Anguilla and Sint Maarten, Antigua and Barbuda and Saint Kitts and Nevis.
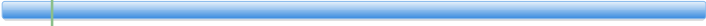
3. **Suggested Action**

3.1 The Meeting is invited to:

a) take note of the E/CAR Radar Data Sharing achieved activities and recent progress;

b) confirm commitment and approve the update to the E/CAR Radar Data Sharing Implementation Plan to reflect the future actions;

c) take note of the importance in maintaining the equipment under optimum environmental conditions; and

d) take any other action as deemed necessary.

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ID		Task Name	Start	Finish	Half 2, 2015		Half 1, 2016		Half 2, 2016	
					3Q15	4Q15	1Q16	2Q16	3Q16	4Q16
1		Integration of Barbados MLAT and ADS-B and Radar into Piarco's MRT	Mon 04/01/16	Wed 23/03/16				**Trinidad and Babados**		
2		Integration of Sint Maarten's radar	Mon 04/01/16	Thu 31/03/16				**Trinidad,United States and St Maarten**		
3		Evaluation of integrating United States radars	Mon 05/01/15	Fri 22/04/16				**United States,Trinidad,France,ICAO**		
4		Other radar integration (Venezuela, Aruba, Curacao)	Wed 09/12/15	Fri 14/10/16						**ICAO (NAC**
5		**Acquisition of new Radar Data Displays**	Wed 01/07/15	Fri 30/12/16						
6		Obtain user requirements from States	Wed 01/07/15	Mon 30/11/15		**E/CAR Members**				
7		Draft specifications for review by ICAO, ECCAA, France and Trinidad and Tobago	Mon 04/01/16	Thu 31/03/16				**E/CAR Members**		
8		Finalization of Committee members/Selection of Chairperson	Wed 01/01/14	Fri 10/01/14						
9		Finalization of complete tender documents	Thu 25/02/16	Fri 11/03/16				**Committee**		
10		Obtain quotations from selected vendorfrom RFI process for estimation	Wed 23/03/16	Fri 29/04/16				**E/CAR Members**		

Task		Inactive Task		Start-only	⊏	
Split		Inactive Milestone	◇	Finish-only	⊐	
Milestone	◆	Inactive Summary		Deadline	⬇	
Project: Apn WP12	Summary		Manual Task		Progress	
Date: Thu 19/11/15	Project Summary		Duration-only		Manual Progress	
	External Tasks		Manual Summary Rollup			
	External Milestone	◇	Manual Summary			

ID		Task Name	Start	Finish	Half 2, 2015		Half 1, 2016		Half 2, 2016	
					3Q15	4Q15	1Q16	2Q16	3Q16	4Q16
11		Start procurement process as a regional project	Mon 29/02/16	Wed 04/05/16				E/CAR Members		
12		**Delivery and Installation of equipment**								
13		Delivery	Mon 04/07/16	Fri 29/07/16					Provider	
14		Installation- with local technicians	Wed 03/08/16	Fri 23/09/16					E/CAR Memb	
15		Training	Wed 03/08/16	Fri 30/09/16					Trinidad/Pr	
16		Commissioning and operational readiness	Mon 03/10/16	Thu 15/12/16						
17		**ADS-B**	**Wed 21/10/15**	**Wed 30/11/16**						
18		Preparation for ADS-B trials	Wed 21/10/15	Wed 30/11/16						

Project: Apn WP12
Date: Thu 19/11/15

Task	▬▬▬	Inactive Task	▭	Start-only	⊏
Split	··········	Inactive Milestone	◇	Finish-only	⊐
Milestone	◆	Inactive Summary	⊏⊐	Deadline	⬇
Summary	▬▬	Manual Task	▬▬	Progress	▬▬
Project Summary	⊏⊐	Duration-only	▬▬	Manual Progress	▬▬
External Tasks	▬▬	Manual Summary Rollup	▬▬		
External Milestone	◇	Manual Summary	⊏⊐		