



Agenda Item 3: Air Navigation Matters

3.2 Follow-up to the implementation of the NAM/CAR RPBANIP in Eastern Caribbean

RPO 4: IMPROVE ATM SITUATIONAL AWARENESS

Radar Data Sharing Ad-hoc Group (CNS Committee)

(Presented by the CNS Committee Rapporteur)

SUMMARY	
This paper presents the discussions carried out by the Radar Sharing Ad-hoc group of the CNS Committee	
References	
• Piarco FIR Policy Group (PIARCO/FIR/PG/1), Port of Spain, Trinidad and Tobago (20 January 2011) • E/CAR/NTG/3 Meeting, Christ Church, Barbados (5-6 June 2012)	
Strategic Objectives	<i>This working paper is related to Strategic Objectives A and C.</i>

1. Introduction

1.1 Radar Data Sharing in the E/CAR Region has been discussed since the first E/CAR/WG Meetings, with little progress in its implementation up to date. During the E/CAR/WG/32 Meeting and with the segregation of tasks between the CNS Committee and the E/CAR Network Technical Group (E/CAR/NTG) as requested by the DCAs, the assignment of the radar data sharing tasks to the CNS Committee was made.

1.2 The Fourth Meeting of the PIARCO FIR Policy Group (PIARCO/FIR/PG/4) in response to ICAO letter dated 6 January 2011 (Ref.: N1-3.10 – EMX0014), for the need for a State or organization to host the radar data server in the Eastern Caribbean, agreed to accept Trinidad and Tobago's offer to provide the radar data server and so formulated conclusion:

CONCLUSION PIARCO/FIR/PG/1/2 - E/CAR RADAR DATA SERVER

That Trinidad and Tobago will provide and host the radar data server for the sharing/exchange/remoting of radar data in the Eastern Caribbean.

1.3 The E/CAR/WG/33 in consideration of the CNS Committee activities proposed the formation of an ad-hoc group to examine the activities of the radar sharing project in respect to the conclusion from the PIARCO FIR Policy Group.

1.4 The Ad-hoc group counted with the assistance of seven (8) E/CAR States/Territories (Antigua and Barbuda, Barbados, France, Grenada, Montserrat, Saint Lucia, Trinidad & Tobago, United States), ECCAA in representation of the OECS States, ICAO and IFATCA making a total of 24 participants. The list of participants is attached in the Appendix to this paper.

2. Discussion

2.1 In its deliberations and discussions the Meeting reviewed the following working papers:
 E/CAR/NTG/3-WP/11 – presented by France
 E/CAR/NTG/3-WP/4 – presented by Trinidad & Tobago
 E/CAR/NTG/3-WP/05 – presented by ICAO

2.2 Trinidad and Tobago expressed that Radar data sharing will bring to the air traffic environment benefits such as increased surveillance coverage which directly impacts on airspace utilization and efficiency by permitting a reduction in aircraft separation and improve safety of operations. It will provide redundancy within areas where nearby Radar systems overlap, cost benefits to airline operators due to improved service and optimum flight performance. It will also reduce traffic congestion or efficiency manages traffic in busy ATC environments and homogeneity in ATC operations between neighbouring states.

2.3 Trinidad and Tobago explained that the radar system tracks (radar feeds) from the Martinique/Guadeloupe radars (DACOTA multiradar data and two monoradar data) was presently available at the Piarco ACC in addition to the system tracks of the Trinidad and Tobago radar. It is expected that the radars in the Regions (Barbados, Antigua, Sint Maarten and Venezuela) will be added in due time. Trinidad and Tobago intends to process this information via multi sensor fusion on the Piarco Air Traffic Management (ATM) system and then disseminate the data to the E/CAR states on the new E/CAR AFS network via a Cadmos ST media switch unit. The media switch is specifically designed to act as a router, performing switching and tunneling functions between serial ports and/or Ethernet ports. It can:

- Manage up to 24 serial ports (synchronous or asynchronous) and up to 12 Ethernet ports
- Operate with different serial protocols (HDLC, HDLC LAP-B, AIRCAT500, TVT2, CD2, etc.)
- Integrate advanced remote control functions by FTP, WEB server, SNMP or proprietary NMS.

2.4 The Multi Sensor Fusion equipment in the ATM system in Trinidad has the capacity to process up to a maximum of thirty-two (32) sensors and be able to provide a maximum of twenty-four (24) (serial) outputs or multiple outputs via LAN with IP addresses. The data will be provided as System Track (ASTERIX Category 62 standard) data format. For this purpose, a gateway which comprises of dual servers was integrated into the system. The surveillance data output will be centred on the same system centre of the Piarco ATM system. Trinidad and Tobago confirmed that ID correlation information will not be sent with the system tracks.

2.5 France shared their experience with the radar export from Martinique to Saint Lucia. IRMA2000 traffic displays were supplied to Saint Lucia. These displays are fed by DACOTA RDPS (radar data processing system, from Thales). The DACOTA RDPS is fed by two (2) monopulse radar (Thales RSM970): one located in Guadeloupe Chazeau and the other in Martinique Morne-Vent. Saint Lucia is also fed by DACOTA multiradar data and two monoradar data, the same as that exported to Trinidad.

2.6 When the Trinidad and Tobago RDPS becomes operational, all available radars will be processed and available to E/ECAR. The French West Indies (FWI) can provide to any E/CAR State the two (2) monoradar data as backup to the Trinidad and Tobago RDPS. All data provided complies with Asterix Eurocontrol format (the monoradar data are categories 1 and 2). The only requirements to display the provided data is that each receiving data States should ensure that their radar/traffic displays are capable of processing this type of data, the telecommunication medium through E/CAR AFS Network is available and the corresponding letter of agreement (LOA) is formalized by FWI and the State.

2.7 France further informed the meeting on what is being done in Europe and noted that the Asterix format is an Eurocontrol standard and that correlation of information from the various radar heads is done in compliance with the Eurocontrol Surveillance Standard.

2.8 Barbados expressed their interest to have in a short term radar hand-over with Piarco ACC and FWI TMA.

2.9 The Trinidad and Tobago radar has a rate of 15s and the French radars are approach radars (250 NM and a period of 4s). The information exported to States will be processed by the RDPS therefore the different rates will be transparent and only the rate of the RDPS shall be visible. The meeting requested the commitment from States to conduct actual coverage tests in addition to Antigua, Barbados, Trinidad and Tobago and FWI providing the theoretical coverage information. This information and the ATS service area would identify the percentage of radar coverage available by each radar.

2.10 The United States shared their experience in providing radar with other States and informed that their radar displays were supported by ATM systems.

2.11 Most States expressed interest in receiving the radar data but expressed their concern on the cost that will be incurred in providing the end-user processing and display equipment. There was much discussion on how States will budget for this expenditure and formulate timelines to implement the required user equipment. On this matter the Meeting reminded the States that the procurement procedures would need to conform to each State's tendering process and that the timeline would match that of their national air navigation plan. States may consider a joint regional work to procure this equipment as for example as an IACO Regional Procurement Process. The matter of providing the necessary equipage is solely the State's responsibility. In this regard Trinidad and Tobago informed that an interconnection document (ICD) will be available to States by October 31st 2012.

2.12 The matter of an RFI (Request for Information) was discussed in regard to obtaining information on costs for the end-user equipment. The MEVA TMG Coordinator and ICAO pointed out that for the RFI the end-user requirements also need to be defined and included in the RFI. In this regard, the Meeting noted that States that wish to benefit from the radar sharing need to clearly identify their operational requirements: as a sole ATM Situational Awareness improvement and/or full radar control (one step implementation or a phased implementation.)

2.13 They also need to examine all the aspects that are required to provide a radar service or to use the display for monitoring. Some of the aspects shall include training for ATC and maintenance, revising ATC procedures and accuracy/integrity of data. The total cost of the project needs to factor all aspects in determining the cost to provide radar separation (Radar Control).

2.14 The meeting agreed on the following actions:

- States interested in receiving radar to provide Point of Contact information by 30th June 2012;
- States to advise the CNS Committee Rapporteur of their operational requirements by 31st August 2012.
- Trinidad and Tobago to make available to States the radar sharing ICD by 31st October 2012
- To dissolve the radar sharing ad-hoc group and refer this matter back to the CNS Committee.
- Trinidad and Tobago will confirm that ID correlation information could be sent with the system tracks.

2.15 In order to continue the evaluation and definition of the activities for the radar data sharing, the Meeting agreed to carry out a teleconference by 18 July 2012, with all the Radar Data Interested States Points of Contacts. This teleconference will be hosted by ICAO.

3. Suggested Action

3.1 The Meeting is invited to:

- a) Take note of the information presented in this paper; and
- b) Take any other action that the meeting considers appropriate.

APPENDIX

List of Participants

Antigua and Barbuda

Shenneth Phillips
Lorraine Davis

Barbados

Karen Walkes
Suzanne Griffith
Richard Odle
Alvin Hall
Ferninand O’Neal

France

Jean-Jacques Deschamps

Grenada

Earl Philip Charles
Willard R. De Allie

Montserrat

Zhuan Sweeney

Saint Lucia

Michael Lee
Errol Cherubin
Eustace Cherry

Trinidad and Tobago

Pamela Williams
Gunness Sonnilal
Veronica Ramdath
Francisca Moses
Dayanand Rajnath

United States

Michael Polchert
Dulce M. Rosés

ECCAA

Rudyard Ashe

ICAO

Julio Siu

IFATCA

Alexis Braitwaithe

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