



International Civil Aviation Organization
NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN OFFICE (NACC)
Thirty Third Eastern Caribbean Working Group Meeting (E/CAR/WG/33)
Christ Church, Barbados, 4 to 8 June 2012
Third Meeting of the Eastern Caribbean Network Technical Group
(E/CAR/NTG/3)
Christ Church, Barbados, 5 to 6 June, 2012

E/CAR/WG Agenda Item 3

Air Navigation Matters

**3.2 Follow-up on the implementation of the NAM/CAR
Regional Performance Based Air Navigation Plan**

E/CAR/NTG Agenda Item 3

Related Additional NTG Activities

2a) Radar Sharing Ad-hoc Group

RADAR DATA SHARING INFRASTRUCTURE AND IMPLEMENTATION

(Presented by Trinidad and Tobago)

SUMMARY This paper presents the planned Radar Data Sharing infrastructure to be implemented by TTCAA as well as the telecommunication infrastructure required to support the radar data sharing service.	
References: • Conclusion PIARCO/FIR/PG/1/3 E/CAR Radar Data Server (Final Report of the PIARCO FIR Policy Group (PIARCO/FIR/PG/1), Port of Spain, Trinidad and Tobago, 20 January 2011)	
Strategic Objectives	This working paper is related to Strategic Objective C

1. Introduction

1.1 At the First Meeting of the PIARCO FIR Policy Group, Trinidad and Tobago, 20 January 2011, and further to the ICAO letter dated 6 January 2011 (Ref.: N1-3.10 – EMX0014), sent to E/CAR States in relation to the need for a State or organization to host the radar data server for radar data sharing and remoting in the Eastern Caribbean. Trinidad and Tobago offered to provide the radar data server in the absence of any other offers and the Meeting adopted conclusion PIARCO/FIR/PG/1/3 that Trinidad and Tobago will provide and host the radar data server for the sharing/exchange/remoting of radar data in the Eastern Caribbean.

1.2 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. Discussion

Equipment Description

2.1 Trinidad and Tobago is fully committed to the realization of radar sharing. Following the commitment of conclusion PIARCO/FIR/PG/1/3, Trinidad and Tobago will collect the surveillance information (radar feeds) from the Martinique and Guadeloupe radars (monoradar and multiradar), Barbados and Trinidad and Tobago, process the 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. All these radar feeds are available today at PIARCO ATM system through the E/CAR AFS Network.

2.2 The main goals achieved by Multi Sensor Fusion are:

- capacity to process up to a maximum of thirty-two (32) sensors.
- Enhanced precision and reliability in areas where targets are detected by more than one sensor.
- Availability of enhanced bypass data. In by-pass mode Air Traffic Controllers can select the presentation of local Radar heads (tracks) coming from any of the sensors connected.

2.3 The PIARCO ATM system will 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 will be integrated into the system. It will be comprised of a Dell dual server. The surveillance data output will be centred on the same system centre of the PIARCO ATM system. The gateway will provide the output through a serial line, which will be split by means of a passive data distributor.

2.4 The ST media switch, connected to a local area network, acts as a data communications server providing wide-area connectivity. It supports a wide range of Wide Area Network (WAN) protocols, allowing several different clients to access the data communication server simultaneously. It can also interface WANs which differ in protocol type, standard (V.24, V.11, V.35), baud rate and/or timing (also using the internal clock). It provides up to six (6) independent sections, each one with two 10/100 Ethernet ports and 4 high-speed WAN serial ports, thus acting as an intelligent WAN/LAN bridge, a WAN/LAN gateway device, or a remote WAN connectivity 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.

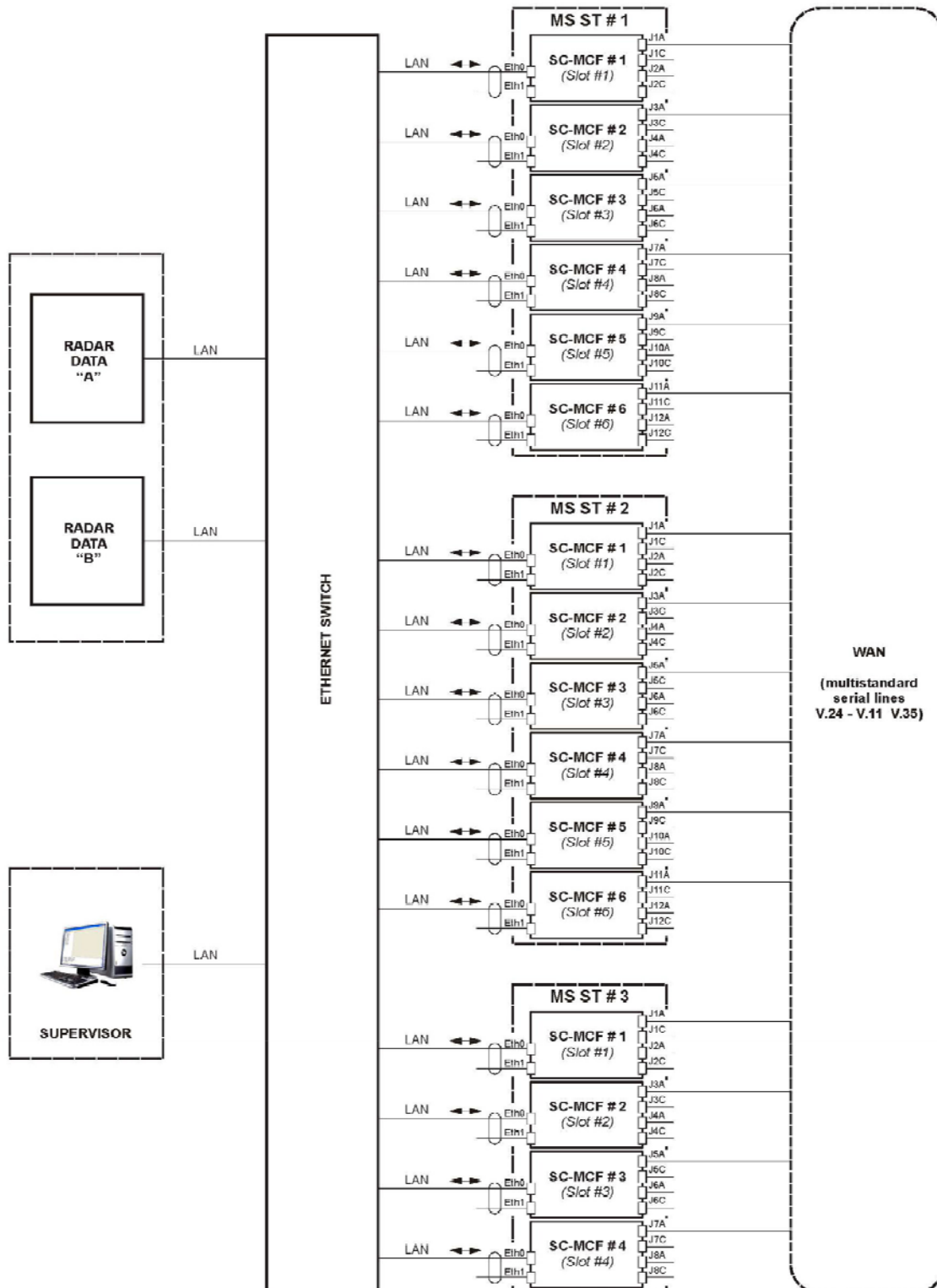
2.6 In the **Appendix** to this working paper, a general illustration of radar sharing equipment is presented.

2.5 The SNMP (Simple Network Management Protocol) server functionality of the media switch allows any workstation on the LAN to obtain detailed information from it and because of its modular design it can be easily expanded supporting additional communication protocols, thus preserving the user's investment upon technological changes.

3. Suggested Action

3.1 The Meeting is invited to:

- a) Take note of the information presented in this paper;
- b) Consider the Radar Sharing infrastructure for the implementation planning of Radar Sharing Activities ; and
- c) Take any other action that the meeting considers appropriate.



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