



International Civil Aviation Organization

NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN OFFICE

Twenty-Eighth Eastern Caribbean Working Group Meeting (28 E/CAR WG)

Montserrat, 26 to 30 April 2004

28 E/CAR WG – WP/24

06/04/04

Agenda Item 3: Specific Air Navigation Activities and Developments
3.7 Communications, Navigation and Surveillance (CNS)

DESIGN DESCRIPTION OF THE UPGRADED E/CAR AFS NETWORK

(Presented by InterCaribbean Aeronautical Communications Limited [IACL])

SUMMARY

This Working Paper outlines the design description of the upgraded E/CAR AFS Network operating on a Frame Relay platform and the additional data services it will provide

1. Introduction

1.1 The E/CAR Digital AFS Network has been plagued by a multitude of faults both on the Voice Network and AFTN from its inception in year 2000. While there has been considerable improvement generally in recent times, the time taken for fault response and resolution is totally unacceptable in an aviation environment. A decision was taken to engage Cable and Wireless (West Indies) Limited (C&W) to provide and manage the Network as one of the main advantages is that this company has a presence in all of the E/CAR territories and can provide first line maintenance at very short notice.

1.2 Migration to Frame Relay is due to the fact that C&W has a modern Network Management System based on this platform which can transport and effectively manage a broad range of data protocols and voice.

2. The Voice Network

2.1 A number of ATS units have installed their own Voice Switches in their Control Towers and Approach Centres. There is no necessity to change this equipment as the units will interface with the new network via the present Nautel Option 11 PBXs. Other ATS units without Voice Switches will continue to use the digital phones provided with the Option II PBXs. Speed dialling and call conferencing facilities will be available and present numbering system will prevail.

3. AFTN

3.1 The AFTN transport protocol will be TCP/IP which can be transported over Frame Relay. Adopting this protocol supports the easy establishment of Local Area Networks at any airport where at some airports there has been a growing need of more than one AFTN terminal especially where the AIS is at a different location to the Control Tower.

3.2 Requests have also been received from MET Services for AFTN drops. However, these requests cannot be accommodated at this time as there are no vacant ports remaining on the AFTN Switch in Trinidad. The Trinidad and Tobago Civil Aviation Authority has indicated that a new AFTN Switch with adequate capacity will be commissioned in the fourth quarter of 2004 and this equipment will support a number of protocols including X.25 and TCP/IP.

3.3 X.25 connectivity will be provided between the Trinidad AFTN Switch and adjacent Switching Centres in accordance with ICAO recommendations.

4. RADAR Data

4.1 With the proposed establishment of RADAR Data sharing in the E/CAR, two Frame Relay circuits out of Martinique to Hewannora and George Charles Airports in St. Lucia will be built to provide the sharing of radar images from the radar head in Martinique in the first instance. IACL expects to receive a detailed description of the proposed sub-network from the States involved in the E/CAR project so that C&W may design a sub-network best suited to the needs of the islands involved.

5. E/CAR Frame Network

5.1 In the basic topology of the E/CAR AFS Frame Network each island is connected to two hubs, the one in Trinidad being the primary hub and the other in Barbados being the back-up with the hubs connected to each other by a 512 kbits IPLC. This arrangement provides the necessary diversity.

5.2 Depending on the basic network requirements requested by the States in the Region involved in RADAR Data Sharing Scheme there may be a need to modify this basic topology and place a hub in Martinique.

6. Discussion

6.1 The meeting is invited to review the needs for present and near future AFTN and also give some thought to the basic connectivity requirements of the sub-network for Radar Data Sharing. With the advent of Radar Data sharing the States should review the type of voice connectivity needed at the Radar Display positions in the Approach and Area Control Centres.