



INTERNATIONAL CIVIL AVIATION ORGANIZATION
South American Regional Office

FIFTH WORKSHOP/MEETING OF THE SAM IMPLEMENTATION GROUP (SAM/IG/5)
REGIONAL PROJECT RLA/06/901

Lima, Peru, 10 - 14 May 2010

Agenda Item 6: Assessment of operational requirements for the improvement of communications, navigation, and surveillance (CNS) capabilities for en-route and terminal area operations

REAL-TIME REMOTE RADIO AID INDICATION SYSTEM THROUGH THE ATN

(Presented by Argentina)

Summary	
This working paper presents the real-time Remote Radio Aid Indication System through the Aeronautical Telecommunication Network (ATN) of Argentina.	
References:	
<ul style="list-style-type: none">• Report of the ATM/CNS CNS Committee ATN/TF/5 meeting;• Report of the GREPECAS ATM/CNS CNS Committee CNS/COMM/6 meeting;• SAM/IG/2 meeting report;• SAM/IG/3 meeting report;• Guidance for the implementation of national ATN IP networks; and• SAM/IG/4 meeting report.	
ICAO Strategic Objectives:	<i>A – Safety</i> <i>D - Efficiency</i>

1. Introduction

1.1 Our Administration, after implementing the national ATN IP in 2003, has implemented the following applications in recent years:

- a) *AMHS*
- b) *AIDC over AMHS (in test phase, until completing the operational agreements between ACCs).*
- c) *Transport of radar signals (partial).*
- d) *An operating meteorological application.*
- e) *Remote control position of the Ezeiza ACC (FDP/RDP Aircom 2100 Indra) at Aeroparque Jorge Newbery and at the San Fernando airport.*
- f) *ATS speech service (partial).*

1.2 The implementation of the Real-Time Remote Radio Aid Indication System at national level started in late 2009, as summarised below.

2. Real-Time Radio Aid Remote Indication System

2.1 This system permits the monitoring of the status of each radio aid from which data are generated for remote display using the current voice and data network as the means of transportation. Through a central information display, the status of the various associated radio aids can be monitored in an overall, individual, permanent and real-time manner.

INITIAL SYSTEM DISPLAY



Zoom and pan controls are located inside the map area.

As indicated in the reference section, indications on the map can be:

- “NO LINK”: No link between the described airport and the information centre.
- “NORMAL”: Linked, and all supervised systems have normal service.
- “WARNING”: One of the radio aids is working with the secondary equipment or a booth has the door open.
- “ALARM”: Both pieces of equipment in one of the radio aids are inoperative, primary power failure in one of the booths, door open (without having deactivated the alarm), fire in one of the booths, and no link between the flight tower and a supervised booth.
- “MAXIMUM PRIORITY”: In default status, this alarm is specific for out-of-service condition of the ILS/LOC station (original and duplicated equipment out of service). This alarm level, as well as the others, can be easily adjustable from the “ABM” option, which is accessible using the corresponding password.

2.2 When moving the cursor over the various geographical positions and approaching the various airports, the system provides audible indication of the name of the selected airport, and also displays a window with the name, abbreviation and geographical position at the bottom.

2.3 Another way of selecting airports is by clicking on the direct access list located under the “References” section.

Example: DISPLAY WHEN THE BAHIA BLANCA AIRPORT IS SELECTED WITH THE CURSOR



Airport status can be displayed at any time; the display does not need to be indicating any type of alarm.

2.4 When clicking on the selected airport, the system displays the Radio Aid Status window, which shows real-time detailed information on the status of radio aids at the airport, and the direct access to:

- a) Procedural charts of each airport.
- b) List of technical and maintenance personnel of that airport.
- c) List of maintenance companies responsible for that airport.
- d) Useful information on the airport, runways in use, operation frequencies, light signalling equipment, nearby landing runways, address of hospitals, fire and police departments, etc.
- e) Reports on status and expiration of radio aids, subdivided into:
 - Radio aid expiration date.
 - Status report.
 - Updates of that month.
 - Availability of radio aids.
- f) Technical specifications concerning the various outsourced maintenance services:
 - Technical specification for the maintenance of ILS systems.
 - Technical specification for the maintenance of VOR/DME systems.
 - Technical specification for the maintenance of DME-Wilcox systems.

- Technical specification for the maintenance of audio recording systems.
- Technical specification for the maintenance of distance-measuring and control equipment.
- g) Camera one (1) and camera two (2) are not available in this version (V0.2). Their implementation is in progress with the idea of integrating them into the system, linking them to runway and apron safety.
- h) Duplicated airport display, which is updated in real time, just like the Radio Aid Status display. The image observed is identical to the one seen by the operator of the corresponding TWR at the selected airport. This display permits a more precise diagnosis of the failure, equipment status, and the action taken by the operator through the remote control system. When pressing the “down” arrow located in the upper right corner, a list of airports is displayed, and a connection can be established between the display with the new airport selected independently from the initial airport (when returning to the previous window, the system returns to the original display).

NOTE: the record of status and action taken is only kept for 12 months at the concentrating station of each airport, and is only accessible with the corresponding password.

- i) When pressing the printing button, the system will print only current screen.

Radio Aid Status Screen

2.5 The following image corresponds to the display of the Bahía Blanca airport in the following hypothetical condition: DME associated to VOR operating with the standby equipment (which in default condition is considered as yellow alert), together with information of the time of the occurrence.

BAHIA BLANCA (BCA)

Aeropuerto Comandante Espora

Tel. Jefatura: RTI 51203/04 Tel. TWR: ---
 Tel. Operaciones: --- Tel. Meteo: ---
 Jefe de Aeropuerto: Com. Roberto Julio Marioli

ESTADO DE LAS RADIO-AYUDAS

SISTEMA	Sub-Sistema	Estado Actual de la Radio-Ayuda	Fecha y hora de la ultima falla de la Radio Ayuda	Fecha y hora de falla de Energia Comercial
ILS	LOC	NORMAL		
	GP	NORMAL		
	DME/GP	NORMAL		
	MM	NORMAL		
	OM	NO EXISTE		
VOR	VOR	NORMAL		
	DME/VOR	RESERVA	18/04/2010 03:08:31	
Radiobalizas	LI	NO EXISTE		
	LO	NORMAL		
	NDB	NO EXISTE		

Cartas de Navegacion

Empresas Relacionadas

Parte de Radio Ayudas

Personal a Cargo

Informaciones Utiles

Especificaciones Tecnicas

CAM 1

CAM 2



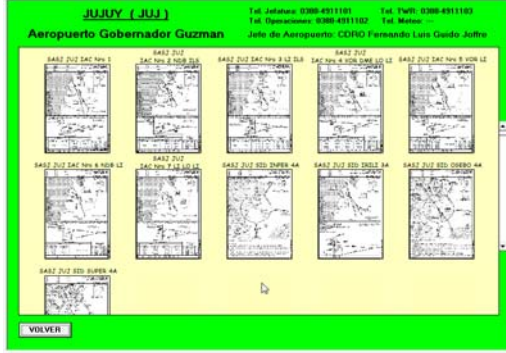


VOLVER

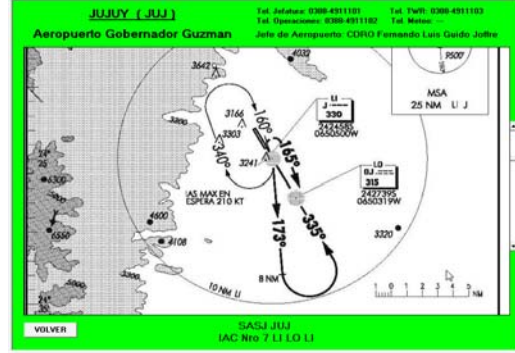
Screen easy to read to quickly identify the problem, providing the operator with supplementary information to facilitate decision-making.

Image of the direct access offered by the “Radio Aid Status” screen

Navigation and procedural charts



Selection of a specific chart



Technical personnel display



General information display



Radio aid report



Radio aid report - updates



Technical specifications



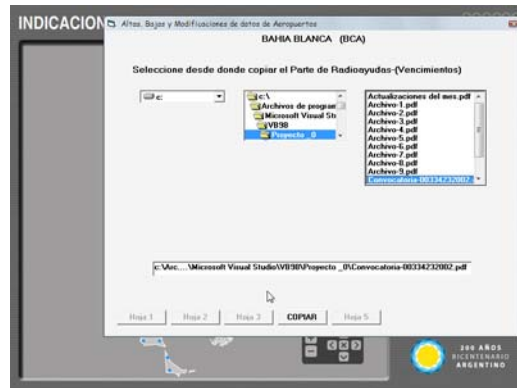
Duplicated airport screen



ABM (entries, deletions and modifications) System

2.6 The system is dynamic, and thus all data can be entered, modified or deleted easily and safely. A password is required to access the different menus that permit all types of modifications.

INITIAL ABM SCREEN

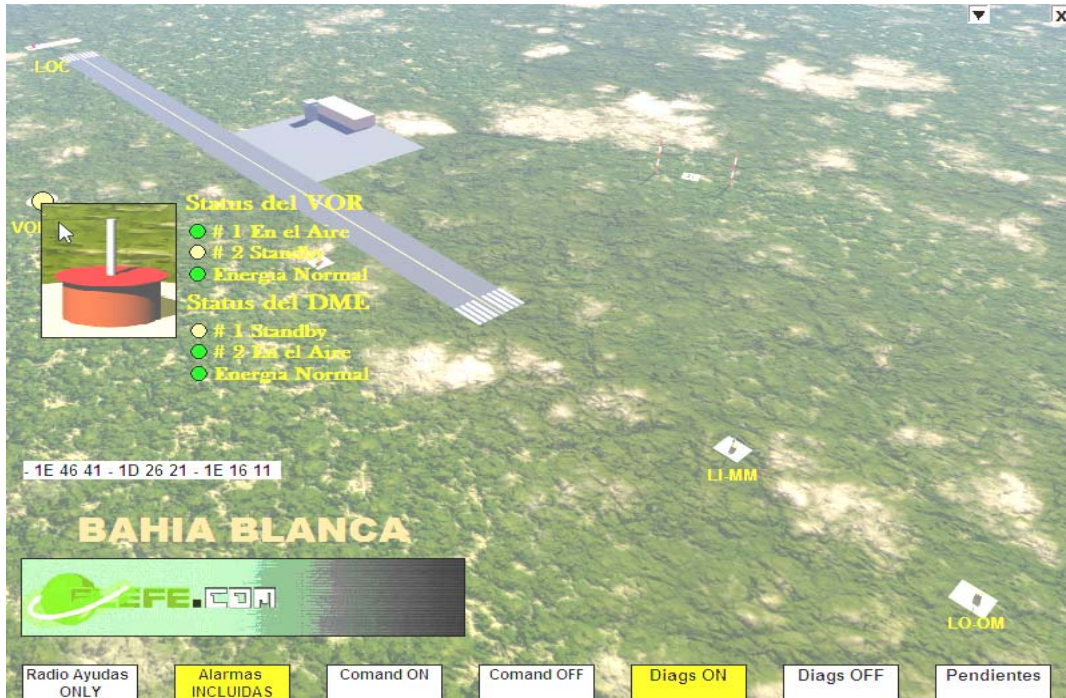


“Page 3” permits free writing with no limitations, in contrast with the others in which only the fields must be completed.



Secondary screen

2.7 The radio aid status indication central terminal has a secondary screen that is similar to the “Duplicated Airport Screen” that opens from the “Radio Aid” screen. This terminal, independently from what is seen in the central system, shows a specific airport that can be monitored more specifically.



3. **Suggested action**

3.1 The Meeting is invited to:

- a) Take note of the information provided; and
- b) If applicable, ask the States to use this experience at national level.

- END -