



INTERNATIONAL CIVIL AVIATION ORGANIZATION

Third Meeting of the FANS I/A Interoperability Team

(SAT/FIT/3)

(Montevideo, Uruguay, 5-6 May 2008)

Agenda Item 4. Review of ADS/CPLC programmes and implementation activities in SAT FIRs

SITA FANS 1/A Status Implementation for SAM Region

(Presented by SITA)

Summary

This working paper presents the status for FANS 1/A status implementation for South America States using SITA ADS CPDLC workstation system (ACW) connected to SITA AIRCOM network

References:

- SAT/13 Report

1 FANS 1/A Background

1.1 The ICAO Future Air Navigation System (FANS) Committee 1988 Report recommended a transition from conventional Air Traffic Control using analog Communications, Navigation, and Surveillance (CNS) infrastructure to an Air Traffic Management (ATM) system using a digital CNS infrastructure.

1.2 Following the adoption of the FANS report, ICAO created the Automatic Dependent Surveillance (ADS) panel tasked with the standardization of both ADS and Controller Pilot Datalink Communications (CPDLC) applications, initially designed to be implemented within an Aeronautical Telecommunication Network (ATN) environment.

1.3 As it was uncertain when ATN networks would be implemented, Boeing decided to develop a FANS-1 ADS/CPDLC package using the ACARS networks. The first FANS-1 package was certified in 1995. Airbus subsequently developed the FANS-A package. Collectively, these implementations are referred to as FANS- 1/A and support ACARS-based ADS and CPDLC.

1.4 ATN CPDLC is currently being implemented in Europe under the EUROCONTROL Link 2000+ program. ATN CPDLC has been operational in the Maastricht Upper Area Control Center since March 2004 and all remaining participating states will complete implementation by 2011

2 **SITA and FANS 1/A worldwide implementation**

2.1 SITA was the initial provider of datalink communications for FANS. Through 1994-1995, SITA worked in cooperation with Boeing, Airservices Australia, and the United States Federal Aviation Administration (FAA) to achieve Part 25 Certification of the FANS-1 package. The SITA AIRCOM service was used for the “Red Label” test flights and ultimately, the “Black Label” certification flights of the FANS package. SITA worked closely with all parties to ensure the interoperability of all system elements.

2.2 The ATS AIRCOM FANS-1/A service provided by SITA enables an Air Navigation Service Provider FANS ground system to communicate with participating aircraft via the ACARS Datalink network and via all of the other ACARS datalink service provider networks (ARINC, AEROTHAI, ADCC China, AVICOM Japan, DECEA Brazil) via ATS internetworking. The ATS AIRCOM FANS-1/A service elements include connectivity to the SITA network, ATS internetworking, and an agreed upon level of managed service, e.g. customer support, performance monitoring and reporting, 24/7 help desk, etc.

2.3 In order to enable an easy and early implementation approach by the ANSP, SITA developed an ADS CPDLC workstation system (ACW) which allows:

2.3.1 **Trial Air – Ground data link communication** performance and assess whether they are suitable with minimum requirements for en-route and/or oceanic environments.

2.3.2 **Acquire necessary experience** with ADS and CPDLC applications in order to specify appropriate requirements for such implementation in operational ATM infrastructure.

2.3.3 **Work independently** from existing ATM systems.

2.4 The ADS – CPDLC Workstation is capable to operate both applications in multiple datalink environments, in a seamless way for the controller, such as:

- FANS only environment (supporting both FANS/1 and FANS/A).
- ATN only environment (as defined per ICAO SARPS)
- Mixed FANS and ATN environments.

The use of the ADS / CPDLC Workstation (ACW) in an ATN environment would also require the implementation of an ATN Router and an ATN End System

2.5 The adoption of ADS CPDLC workstation by DGAC Chile in 2005, to monitor LAN flights over Flight Information Regions (FIR) under Chilean responsibility in the Pacific air space has been a fundamental step for that ANSP to define the requirements for their new ATM system to be deployed in the Oceanic ACC. The results of those trial has shown concrete benefits on safety issues for LAN operations and increase of datalink knowledge by DGAC Chile operational and technical staff in charge of oceanic FIR.

2.6 In Brazil, DECEA adopted same solution to cover the 12 month period before new integrated ATM system be deployed in CINDACTA 3, Recife, in support of flight operations in the ACC Atlantico. During this period, communication constrains caused by radio communication (HF and VHF) will be mitigated by the use of the system, which should be commissioned in June/2008 when DECEA will define initial steps to operate the system.

3 **Suggested action**

3.1 The FIT 3 meeting is invited to:

- a) Note the information in this working paper;
- b) Recognize that ADS CPDLC dedicate application is a valid option tool for ATC operations compared to poor / deficient HF radio communication in the remote oceanic FIR.