International Civil Aviation Organization
North American, Central American and Caribbean Office

INFORMATION PAPER

NACC/WG/4 — IP/12
12/03/14

Fourth North American, Central American and Caribbean Working Group Meeting (NACC/WG/4)
Ottawa, Canada, 24 to 28 March 2014

Agenda Item 3: **Follow-up on the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (NAM/CAR RPBANIP) Progress**
3.3 ANI/WG and other regional group progress reports

ADS-B TESTS IN THE CENTRAL AMERICA FIR

(Submitted by COCESNA)

EXECUTIVE SUMMARY

This paper presents information about the ADS-B trials done by COCESNA to obtain coverage information, aircraft usage statistics and further analysis of this system in surveillance coverage, redundancy on what currently exists in Central America.

Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Security & Facilitation
References:	• Obtained information on ADS-B reception equipment • RTCA DO 260 Document

1. Introduction

1.1 The trials made by COCESNA were performed in order to obtain coverage information and statistical data on the use of ADS-B from aircrafts using the Central American airspace under COCESNA's responsibility, to analyse future use of this system and expand or increase redundancy coverage on the existing surveillance.

2. Analysis

ADS-B Trials

2.1 An ADS-B receiver has been installed for testing, provided by INDRA Systems and installed in COCESNA's site at Cerro de Hula location near Tegucigalpa, Honduras.

Fig. No. 1.- Cerro de Hula site

Fig. 2.- ADS-B Reception equipment

2.2 All data is being transferred to CENAMER Area Control Center and integrated in a single and independent screen of the AIRCON2100.

2.3 Trials are performed in order to obtain statistical information on the ADS-B usage by aircrafts that use the airspace under COCESNA's responsibility also it will allow analyzing its potential usefulness or necessity to extend the surveillance coverage and redundancy.

Fig. 3.- Installed equipment

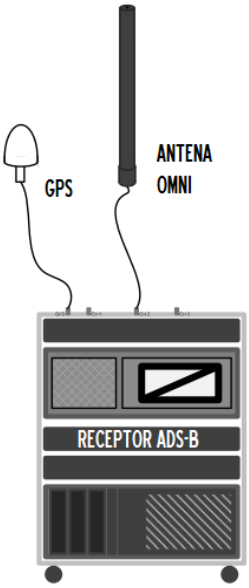

Fig. 4.- Diagram (ADS-B receptor, GPS, Antenna OMNI)

2.4 Here are some pictures of the coverage obtained with the ADS-B receiver, both real coverage and detection probability of vertical coverage.

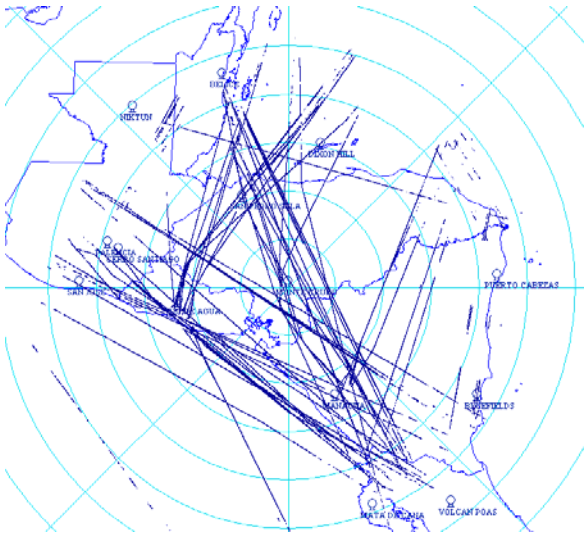

Fig. No 5.- Real ADS-B coverage, obtained

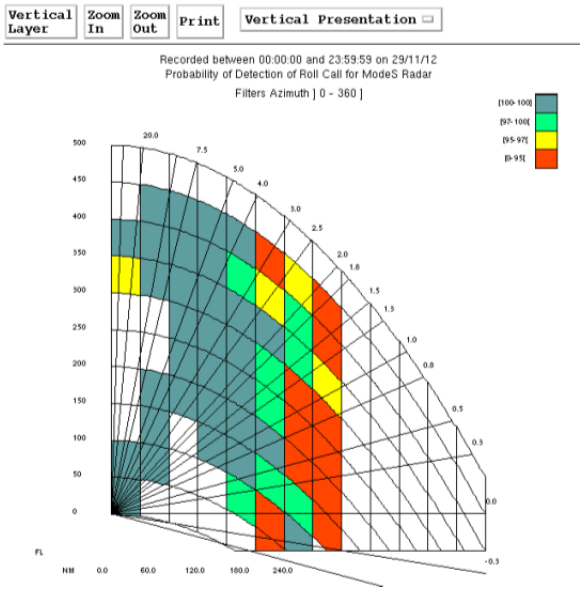

Fig. 6.- Vertical coverage (Detection probability)

2.5 In the next chart are the statistics on the number of detected aircrafts in February 2013 and a twenty three days comparison on February 2014, with the criteria of uncertainty reported in the messages of the aircraft, according to the document RTCA DO 260 (An excel file with the collected ADS-B Report is attached to this paper):

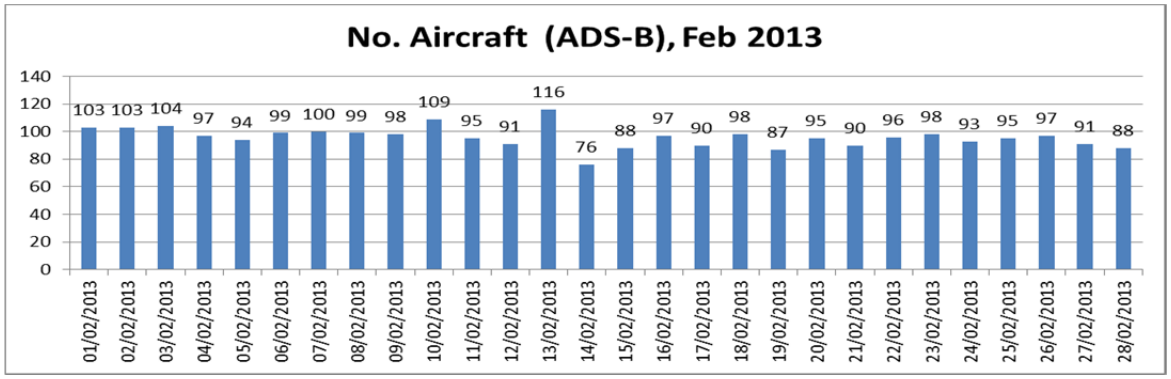

Fig. 7. - Aircrafts equipped with ADS-B, February 2013.

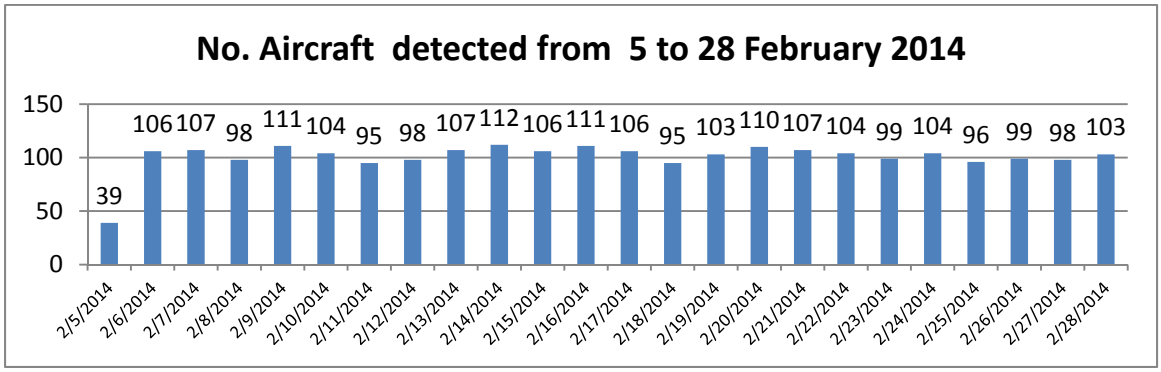

Fig. 8.- Aircrafts equipped with ADS-B, February 2014

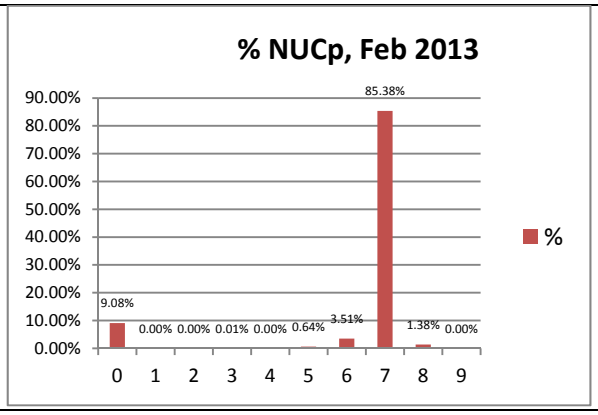

Fig.9.- NUCp Feb 2013
NAVIGATION UNCERTAINTY CATEGORY - Position

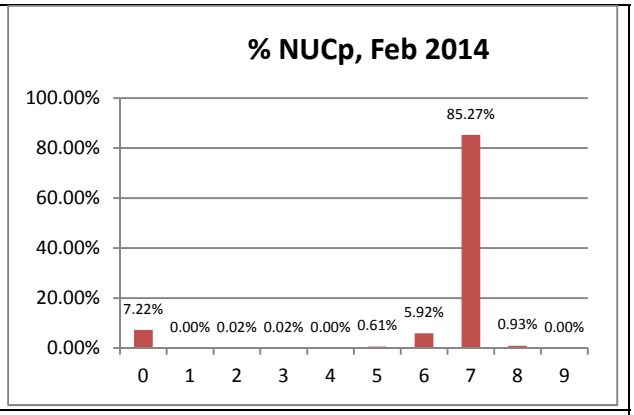

Fig.10.- NUCp Feb 2014
NAVIGATION UNCERTAINTY CATEGORY - Position

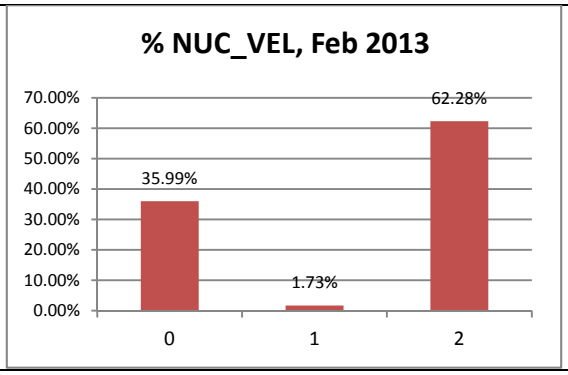

Fig.11.- NUC velocity Feb 2013
NAVIGATION UNCERTAINTY CATEGORY - Velocity

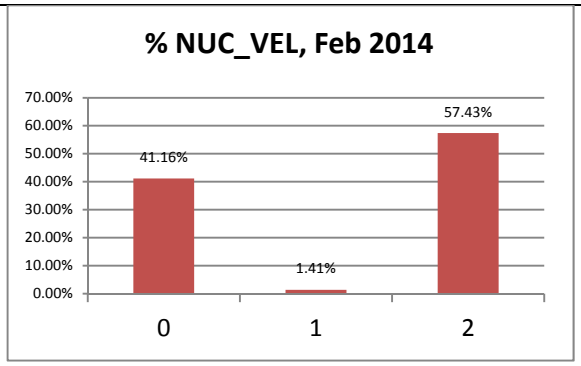

Fig.12.- NUC velocity Feb 2014
NAVIGATION UNCERTAINTY CATEGORY - Velocity

3. Future activities

3.1 The main activities COCESNA is developing in order to continue evaluating the ADS-B system are:

a) Support ICAO's regional projects and surveillance task group activities.
b) Manage improvements in ADS-B testing station and make trials in different sites;
c) Continue with regular recordings, in order to obtain statistical data; and
d) Implement software tools to evaluate the ADS-B systems performance and compare them with other systems.

4. Suggested action

4.1 We encourage the Meeting to consider the contents of this informative paper.

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