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

INFORMATION PAPER

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Automatic dependent surveillance – broadcast (ADS-B) Implementation Meeting (ADS-B/IMP)
Mexico City, Mexico, 27-29 April 2015

Agenda Item 4: Review of ADS-B Receiver Specifications and Project RLA/09/801 — *Implementation of Performance Based Air Navigation Systems for the CAR Region* assistance

PROPOSAL ON ADS-B EQUIPMENT SPECIFICATIONS

(Presented by the ANI/WG ADS-B Spec Ad-Hoc Group Rapporteur)

EXECUTIVE SUMMARY	
This discussion paper presents a proposal of ADS-B equipment **(Appendix)** prepared by the Ad-hoc- Group on Technical Specifications of the ADS-B Task Force of the ANI/WG to serve as a reference for States/ANSPs planning on acquiring this equipment and well as for the ICAO RLA/09/801 Project activities.	
Action: The Meeting is invite to review this proposal	
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Environmental Protection

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APPENDIX

TECHNICAL SPECIFICATIONS FOR ADS-B EQUIPMENT

1. Introduction

1.1 The regional office of the ICAO in the fulfillment of their main regional strategies is supporting the introduction of new systems of automatic dependent surveillance broadcast (ADS-B) as base element for the implementation of several modules of the improvement by blocks of aviation (ASBU).

2. Background

2.1 Within the framework of the first meeting of the ANIWG of was created a working group of ADS-B, which at its last meeting assumed the responsibility to deliver the technical requirements that must comply the ADS-B equipment, which will be proposed for purchase through RLA/09/801 Project to those States that do not have such equipment, with a view to joining the phase of trials in which we currently find ourselves. The proposal prepared by the task force of ADS-B is as follows:

3. Requirements

Ref.	Item	Quantity Goods
1	receiver ADS-B	2
2	antenna	2
3	wire antenna	2
4	Laptop o desktop	2
5	Software processing, representation and statistical analysis of 2 the ADS-B signals	2
6	Backup	2
7	Warranty (number of years)	5

3.1 Such equipment must be used to monitor the progress in the implementation in aircraft operating in our region, as well as the quality and reliability of the data that are transmitted by this system, which would allow a statistic of them to be sent periodically to the ICAO and IATA, for analysis and regional decision-making. ADS- receiver it will be in redundancies.

4. Specifications:

Antenna:

- Omnidirectional or antenna array.
- Coverage up to 250 NM - 360°
- Diagram the vertical 45 degrees (optional).
- Protection elements both indoor as outdoor - antenna for operation

Receiver:

- Operating Frequency 1090 MHz
- Bandwidth 3 dB: ± 10 MHz
- Sensitivity -87 dBm
- Dynamic range 70 dB
- Noise Figure <3 dB
- Availability 99.99%
- Probability of update 0.9999. by flying height
- processing capacity 0-600
- Probability of false alarms 10e - 6.
- MTBF >20000 hours
- Be capable of decoding 1090 ES (DO 260, DO 260 A and DO 260 B.)

Communications:

- Data Output Formats ASTERIX CAT021: Version .23 to the last available version from Eurocontrol. CAT23: Version 0.11 to the last available version from Eurocontrol..
- Serial Port RS-232
- TCP/IP UDP/IP Ethernet WAN
- USB ports for flexible interfaces
- Outputs data as to introduce them to an automated system
- Refresh of the information transmitted each second and regulated up to 10 seconds

Special Features:

- Tool for evaluation of the data and graphical presentation
- Licenses and software requirements

Software processing requirement for representation and statistical analysis of the ADS-B signals

The program should be able to:

1. Must be able to receive any Asterisk Cat protocol 21, 23 and 247 in different versions.
2. Log on installation and only the result of statistics (serving the result data) is transmitted.
3. Log possessing anywhere connectivity to the system.
4. Filter by time, areas, flight levels, levels of information quality, response parameters
5. Perform a statistical study including coverage analysis, analysis of positional accuracy, number of response by the various surveillance systems countries and airlines.
6. Storing and recording of all events.

Other features:

- Work interrupted with reserve battery for 30 minutes.
- Temperature of - 10 degrees to + 50.
- Meets the requirements of ICAO and EROCONTROL.
- Local and Remote Control and Supervision.
- Lightning protection system.
- Local job of setting, monitoring and control.
- Spanish language documentation or English depending on the country where the receiver is mounted.
- The processing server should be bent and his work to the reserve is configurable.
- AC 110V/220V 50Hz/60Hz
- Backup Inverter 110V/220V 50Hz/60Hz
- COTS products
- Site test.
- Basic parts stock to emergency.

Standards:

- ICAO Annex 10
- RTCA DO-260

- RTCA DO-260A
- RTCA DO-260B
- VDL 4 SARPs
- ETSI EN 301 842-1
- ETSI EN 301 842-2

5. Contractor Qualification

5.1 Specify any qualification requested to the suppliers such as pertinent experience (type and length of experience –note that Instructions to Tenderers require the supplier to submit three references), knowledge of certain fields, previous experience working with other UN organizations, availability on site, etc.

6. Implementation Schedule

6.1 Present / request a detailed schedule of the key milestones of the project and the required date for implementation of these milestones.

7. Delivery and packaging

7.1 Indicate Freight / Shipment / Delivery requirements

8. Acceptance of the goods

8.1 Indicate acceptance requirements (e.g. inspection upon delivery)

Note: The tenderer is free to offer any equipment, design or service, which in his opinion, is equal to or superior to the requirements of this specification. Any such alternative(s) or variation(s) must be fully and clearly defined and supported so that equivalence or superiority can be readily determined.

All alternative(s) or variation(s) proposed shall be described and quoted separately with an explanation of the improvement which would result from their implementation.

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