



International Civil Aviation Organization

**FIFTEENH MEETING OF THE ADS-B STUDY AND IMPLEMENTATION
TASK FORCE (ADS-B SITF/15)**

Bangkok, Thailand, 18 - 20 April 2016

**Agenda Item 4: Review States activities and interregional issues of ADS-B and
Multilateration**

**THE BENEFITS OF TRIALING ADS-B EQUIPMENT SUPPLIERS PRIOR
TO SIGNING A NATIONAL CONTRACT**

(Presented by New Zealand)

SUMMARY

This paper outlines the benefits of side-by-side testing of prospective ADS-B equipment (from various suppliers) prior to eventually signing an equipment supply contract with the most suitable vendor. It allows Airways to confidently state the minimum ADS-B Receiver and Processing equipment configuration and features required; both from an operational and technical standpoint.

1. INTRODUCTION

New Southern Sky (NSS) is a ten year, three stage programme, to modernise New Zealand's aviation system. Implementation of ADS-B is a central component of the future surveillance system.

1.1 The current primary and secondary radar network will reach the end of its operational life at the end of 2021. This provides an opportunity for Airways Corporation of New Zealand (ACNZ), the ANSP, to implement ADS-B in accordance with ICAO global and Asia-Pacific guidance for surveillance system improvements.

1.2 The future ADS-B surveillance network will be a national system, installed across all of New Zealand, and will be completed and operational by the end of 2020.

1.3 With a project of this magnitude, it is important to determine what would be the key equipment features that are deemed to be essential, as well as advantageous, to suit the operational environment, as well as cater to facets such as efficient and cost effective installation and maintenance.

2. DISCUSSION

Trial

2.1 A total of four different equipment suppliers took part in the month long trial of their respective ADS-B Ground station equipment.

2.2 The trial took place at the Kordia owned site at Sugarloaf, Port Hills near Christchurch.

2.3 For the time-frame of the project, two sites were considered viable for the purposes of the trial: Cass Peak (MSSR site) and Sugarloaf (Radio and TV transmitter site). Sugarloaf was chosen for reasons of having an existing suitable data-link back to the Airways NZ office, a large available equipment room, and potential lack of interference from the MSSR.

2.4 The four suppliers provided sample equipment of a typical Ground Station, together with RCMS/LCMS equipment for configuration purposes.

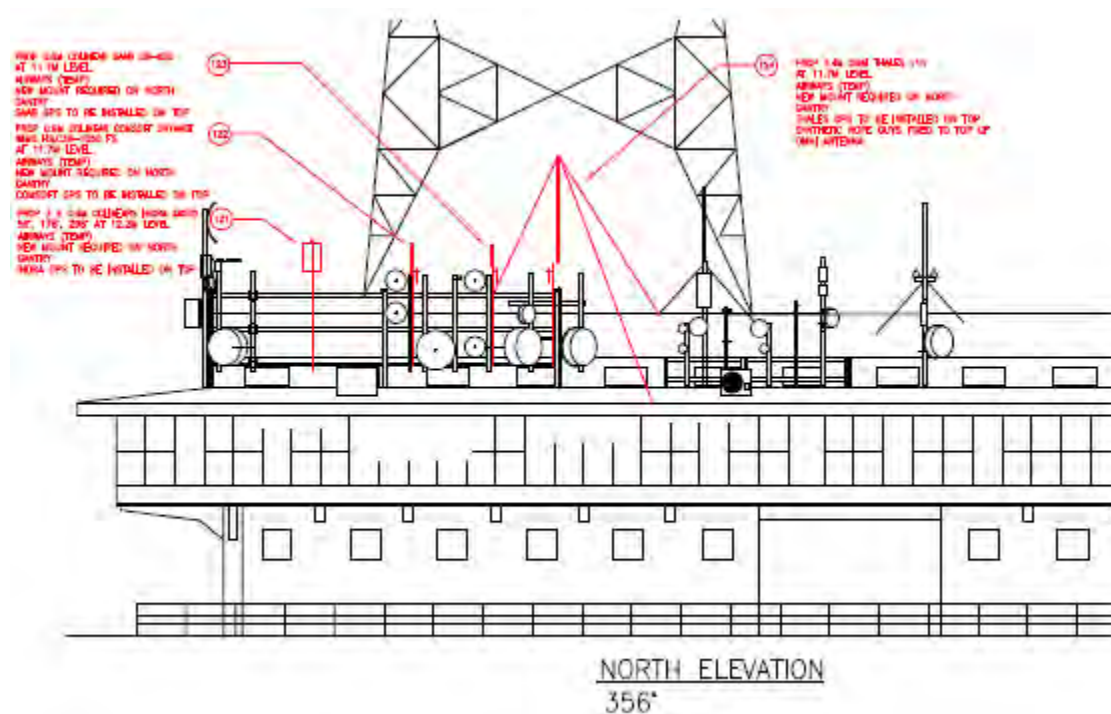


Figure 1 - Outside view of part of the Sugarloaf building with antenna locations in red

Equipment factors

From a technical viewpoint, the supplied equipment was judged on factors such as:

- receiver performance, (e.g. sensitivity, range, consistency, etc.)
- data output (e.g. Cat21, 23, 247, raw data)
- suitability of data to ATM system requirements
- straightforwardness of any installation
- ease of equipment configuration

- ease of equipment modifications
- additional features (e.g. built-in antenna monitoring, redundant data ports, etc.)
- suggested methods for fault location and trouble-shooting,
- human-machine interface (HMI) comprehensibility
- vendor backup and communication

2.5 Although all vendors, inevitably, had some issues of one sort or another, within the space of a couple of days a “best overall” performer and an order of preference did emerge. (For reasons of confidentiality it is not possible to provide the list with the equipment vendors in order of equipment performance from a technical viewpoint, i.e. leaving out such factors as pricing).

2.6 The RFI trial results allowed the ADS-B project team to tailor the subsequent proposal (RFP) so as to clearly state the minimum ADS-B Receiver and Processing equipment configuration and features required; both from an operational and technical standpoint. It also allowed the team to establish a more prudent price versus performance ratio.

2.7 The result is a potential equipment provider that is best suited to the Airways requirements and the demands of the New Zealand environment.

3. ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this papers; and
- b) discuss any relevant matters as appropriate.

Trialling ADS-B equipment vendors

ICAO SITF/16 - SURICG/1



Trial with 4 equipment vendors



Technical Verification



Sugarloaf trial site



Sugarloaf trial site



Sugarloaf equipment room



ADS-B vendor equipment



Sugarloaf surroundings



ADS-B antennas

