International Civil Aviation Organization

Eighth Meeting of the Surveillance Implementation Coordination Group (SURICG/8)

Bangkok, Thailand, 6 – 9 June 2023

Agenda Item 8: Update on surveillance activities and explore potential cooperation opportunity

a) States/Administrations

UPDATE ON NEW ZEALAND SURVEILLANCE STATUS

(Airways New Zealand)

SUMMARY

This paper presents an update of previous reports, providing information on New Zealand's Air Traffic Management surveillance activities.

1. INTRODUCTION

1.1 This paper reflects the status of Air Traffic management surveillance activities in New Zealand.

2. DISCUSSION

2.1 As of Dec 31st, 2022, New Zealand's surveillance structure is based on ADS-B as the **PRIMARY** surveillance source, with six MSSRs, and a MLAT system providing cooperative surveillance back-up and 3 PSRs providing a non-cooperative backup where required.

2.1.1 ADS-B is New Zealand's primary surveillance source with the use of ADS-B transponder systems being mandated in all controlled airspace within the NZZC FIR. Twenty-seven sites provide country wide coverage of controlled airspace, and a significant amount of uncontrolled airspace.

2.1.1.1 As of May 15th, 2023, Mode S transponders equip 3056 New Zealand registered aircraft, of which 2864 or 93.75% are ADS-B equipped.

2.1.1.2 ADSB equipped aircraft are made up of 0.84% DO260, 0.03% DO260A and 99.13% DO260B systems.

2.1.1.3 46 aircraft have Electronic Conspicuity (EC) devices with 11 of these having MODE S transponders as well.

2.1.2 The current MSSRs and PSRs are all 30 years old and at end operational life. Purchase of spares is extremely difficult to keep these systems running.

2.1.3 The Wide Area Multilateration (WAM) system, used for approach and enroute in the lower South Island, and the Multilateration (MLAT) system used for surface movements at Auckland, are also nearing end of life, and replacement systems are being considered.

2.1.4 All data from these surveillance systems is delivered via an IP based network.

2.2 Regulatory requirements state ADS-B must be backed up by a non-GNSS contingency surveillance system covering the main trunk Jet routes between Auckland-Christchurch-Welling-Auckland. Additionally, consideration should be given to use of PSR for those airports with what is termed as "dense complex airspace" (i.e., airspace with over 100,000 RPT movements a year).

2.2.1 An RFP in 2019 resulted in INDRA winning a contract to provide Airways with three combined MSSR/PSR at NZCH, NZAA and NZWN to cover the regulatory requirement mentioned in 2.2

2.2.2 The first of the 3 INDRA MSSR/PSR's is now being installed in NZCH and is due to become operational before the end of 2023. Once operational, the existing MSSR at Cass Peak and PSR at NZCH will be withdrawn from service.

2.2.3 The other INDRA radars will be installed during 2024/2025 and once operational will allow Airways to remove the remaining older MSSRs and PSRs from service.

New INDRA MSSR/PSSR in front of old Thales PSR

2.3 As Airways MLAT systems are also nearing end of life, a project has commenced to investigate the benefits of replacing the current systems with a like-for-like system, a contingency system which may provide greater or reduced coverage, or removal of the systems from use entirely.

2.4 Airways continues to follow the use of low-cost ADS-B avionics such as EC devices. Currently these types of devices are not permitted in controlled airspace as they are not covered by regulatory rules. The effects of clutter, erroneous information on controllers' screens and the resulting inability to use EC derived data for surveillance separation, has meant that the data from such devices is filtered out from controllers displays. 46 such devices have so far been identified as being used by some operators.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matter as appropriate.

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