



ICAO

*International Civil Aviation Organization*

**ELEVENTH MEETING OF THE SURVEILLANCE  
IMPLEMENTATION COORDINATION GROUP  
(SURICG/11)**

*Bangkok, Thailand, 25-27 MARCH 2026*

Agenda Item 7: Report on surveillance ground system and avionics performance monitoring and improvement in compliance

**UPDATE ON IP/07 SURICG/10 CHALLENGES FINDING THE CAUSE OF  
NON-COMPLIANT ADS-B DATA AND GPS INTERFERENCE**

(Presented by New Zealand)

**SUMMARY**

This paper presents a brief update on the challenges in finding the causes of Non-Compliant ADS-B data and GPS interference in New Zealand.

**1. INTRODUCTION**

1.1. In 2025 Airways presented a paper that identified several issues in finding the cause of non-compliant ADS-B data and GPS interference and resolving these issues. This paper provides an update on the progress to resolve those issues, and identifies any further issues found from late July 2025 until mid-Jan 2026.

**2. DISCUSSION**

2.1. ADS-B transponder type “Y” has been detected outputting NACp, NIC and NACv ZERO with a SIL of THREE. This is non-compliant ADSB data under NZCAA rule 91 and cannot be used for a Surveillance Separation service. When the non-compliant ADS-B data occurs an A-DSB alert is generated to controllers as either a yellow starfish RPS (for targets in ADS-B only airspace), or a Degraded A-DSB Data (DAD) alert (for aircraft in airspace covered by both ADS-B and either MLAT, or MSSR).



Example of a degraded alert on ADS-B only target



Example of a DAD alert on a non-correlated target.

2.2. Transponder type “Y” makes up approximately 12.5% (410 units) of the identified transponders equipping New Zealand registered aircraft. Of these units, approximately 321 (78%), have shown this issue at least once, 231 (56 %) twice, and 162 (39%) multiple times. These figures have all increased since the report in 2025. The issue is not seen on other transponder types.

- 2.2.1. Airways informed both the FAA and Air Services Australia of the type Y issue. In the fourth quarter of 2024, the FAA advised they had found the same issue in the USA and advised the Original Equipment Manufacturer (OEM) of transponder type “Y”. The OEM has acknowledged the detected issue, however as of March 10<sup>th</sup>, 2026, no resolution has occurred.
  - 2.2.2. The OEM reported in Oct 2025, that a review of NZ data showed no obvious pattern. However, from the data provided by Airways to the OEM, their analysis indicates there appears to be no GPS lock for part of, or all the flight.
  - 2.2.3. The OEM also advised there was a software update available for which an optional Service Bulletin (SB) has been out for some time. However, the OEM only highlights the bulletin when in contact with an operator. To Airways knowledge, no New Zealand wide advisory has been issued by the OEM, and feedback from the OEM has stated that until a definitive cause can be ascertained, their certification team will not be issuing any further guidance at this time.
- 2.3. In late July 2025, a new issue began to be seen at Auckland (NZAA) airport with some ground vehicle ADS-B emitters (Squids). The vehicles started to disappear from the controller’s situational display in areas where maintenance work was occurring. Checking the ADS-B data sent from the vehicles showed no degradation in the quality of the data, just a complete loss of data. The vehicle operators confirmed that the units were switched on and indicated operational.
- 2.3.1. Some form of GPS interference was initially suspected from a GPS jammer on a non-airport work vehicle working onsite. Not long after this, a commercial airspace user also reported a loss of GPS data in the same area as the maintenance work was occurring.
- 2.4. Airways reported the issue to the Ministry of Business, Innovation and Employment (MBIE), Radio Spectrum Division as per NZCAA reporting requirements. MBIE conducted investigations on 26/27 August and again on 3 September 2025, and found no interference emission or transmission detectable on 1575 MHZ + 15 MHZ. The issue continued to be reported on a random basis and Auckland International Airport Ltd (AIAL) issued a NOTAM advising of this issue.
- 2.5. Airways also informed the Squid OEM of the issues regarding the loss of ADS-B data. On Oct 17, 2025, the OEM advised they had identified a problem affecting the GPS positioning performance of the Squid, which is observed as a reduced number of visible satellites or intermittent loss of position. The Squid units in question had a GNSS chipset manufactured in 2014 installed and, while the manufacturer was aware of the issue, no official fix was provided for the legacy hardware.
- 2.6. On Nov 5, 2025, the Squid OEM advised their software department had developed and prepared a solution. The solution was purchased by Airways and rolled out across the affected vehicles, resolving the issue.
- 2.7. As the New Zealand summer holiday season approached more reports of a loss of GPS data were received from the same commercial airspace user in the vicinity of NZAA taxiways A7 to A9, with interference now being seen on the taxi, take off roll, and touchdown phase. MBIE was again brought in to see if they could identify the issue. To attempt to lessen the impact on crew, the commercial operator restricted use of A9 holding point for departures until the issue was resolved. This immediately impacted ATC traffic sequencing.
- 2.8. During this period Airways ran daily analysis of all ADS-B data for NZAA airport and plotted the data using Google Earth to show where the interference was detected. Analysis showed a wider issue than initially thought, with several different airlines and aircraft types subject to

interference – this was later confirmed by another commercial airspace user after enquiries by Airways.

2.9. Due to the summer holiday no maintenance work was conducted from Dec 20th, 2025, to Jan 13th, 2026, which saw the issue disappear. However, a resumption of airfield maintenance work on Jan 13th, 2026, around A3, saw the issue reappear between A2 and A4.



Example of where GPS interference occurred to airline traffic.

2.10. MBIE was called onsite again and found a contractor vehicle emitting a signal level likely to cause potential GPS interference. The vehicle was kept offsite while checks occurred around A3 to confirm no GPS interference was occurring. During this time, the vehicle left the airfield. It returned later and was checked again. No potential GPS interference was detected.

2.11. It was determined later that the vehicle’s company was using a GPS tracker to ensure they were always aware of the position and speed of its vehicles. The company was asked to disconnect the GPS tracker of any vehicles operating at NZAA and, since this has occurred, the issue has stabilized.

2.12. While the MBIE analysis pointed to the GPS tracker as being the issue, it has yet to be positively proven that it was the actual source of interference. It is not unheard of for vehicle operators to jam GPS tracking to mitigate company monitoring. States should consider the potential of such activity when encountering interference events.

2.13. Both AIAL and Airways continue to monitor the situation to ensure no further issues are detected. Contact is also being made with the GPS tracker manufacturer to see what testing they have done around impact to aviation GPS systems.

## SUMMARY

2.14. The detection of ADS-B issues such as GPS interference or jamming is often easy to detect, but difficult to determine/resolve.

2.15. Airways has found that there remains reluctance by some OEMs to acknowledge issues with their equipment and to work speedily to resolve these issues.

2.16. Government level organizations can struggle to effectively support the resolution of such specific technical issues as they are often more tailored to support a wider public need. This can hinder the quick resolution of such issues in the safety critical aviation environment and lead to restrictions in operational procedure and efficiency.

**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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