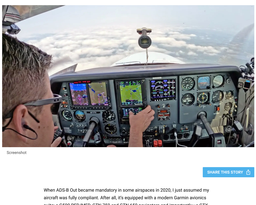
FEATURES

ADS-B Enforcement: Avoid It With A PAPR

An FAA Public ADS-B Performance Report is an easy way to know if your system is airspace compliant. This article originally appeared in Aviation Consumer Magazine.

BY PINKERT · Updated Apr 23, 2025 5:54 AM EDT



Screenshot

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When ADS-B Out became mandatory in some airspaces in 2020, I just assumed my aircraft was fully compliant. After all, it's equipped with a modern Garmin avionics suite: a G500 PFD/MFD, GTN 750 and GTN 650 navigators and importantly—a GTX 335D remote ADS-B transponder. Good to go, right? Apparently not.

A single radio call from Denver Center telling me they weren't receiving my ADS-B Out data sent me spiraling down a rabbit hole of research, phone calls and unexpected lessons. Spoiler alert: Even the most advanced setups can fail compliance.

The Aviation Consumer

This article originally appeared in The Aviation Consumer.

PAPR—What I Learned

After flying in ADS-B airspace, I pulled a Public ADS-B Performance Report (PAPR) from the FAA website, and sure enough, my aircraft was failing the Source Integrity Level (SIL). To make things more complicated, there was a red notice on the first page indicating that the aircraft was listed on the *No Services Aircraft List* (NSAL). This meant the FAA had attempted to notify me about the issue, but the letter either never reached me or got overlooked. I filed a NASA report and reached out to the FAA for clarification.

As it turns out, air traffic controllers don't always display ADS-B data on their screens. Many toggle it off to reduce clutter, meaning you could be flying noncompliant for months without knowing it. The only reliable way to verify compliance (other than testing at a qualified shop) is to pull a PAPR. The FAA makes it easy and I recommend doing it quarterly if the technical jargon feels overwhelming, your avionics shop can interpret the data and pinpoint any issues. See a primer in the sidebar on the following page.

The FAA provides an easy to navigate website which allows anyone to validate the performance of aircraft ADS-B Out equipment. A PAPR is typically available one hour after flight termination; however, the FAA says the availability of a PAPR may be delayed during periods of maintenance or unexpected outages. You will need to know whether the system in your aircraft operates on 1090ES or UAT and the manufacturer/model. You also need to know the specifics of the interfaced WAAS GPS. Shortly after the flight, a report that for many looks like gibberish is emailed to the registered owner. A qualified avionics technician can use it to pinpoint exactly where things are going wrong—if anything is actually wrong.

Operators using aircraft unequipped with ADS-B should only use ADAPT to submit requests for rare, non-routine, non-scheduled events.

Pilot-in-Command (PIC):	
PIC Telephone Number:	
PIC Email Address:	
Aircraft Identification:	US Tail Number
Reason for Request:	NSAL: Not Found on Flight Plan
Flight Classification:	Part 91
ADS-B Equipment Status:	Inoperative
Operational Transponder with Altitude Encoding: (Note: Any request without a working transponder will be DENIED)	Yes

Comments (required when "Reason for Request" is "Other"):

I hereby certify that all information entered on this form is true and accurate.

You don't want to be RTF in ADS-B airspace with faulty equipment. If the FAA notifies you of the violation, you can use the agency's online ADAPT deviation request form, bottom photo, to fly to the shop for repair.

Transponder Issues

An FAA representative said that some Garmin transponder users should be aware that there could be issues. The default settings do not meet the ADS-B Out compliance requirements. If the transponder is ever sent out for repair, it will likely be reset to the default settings, so be sure to ask the avionics shop to check the settings before you take the aircraft back. After the repair and a 30-minute flight, I recommend pulling a PAPR report to ensure everything is correct.

Another issue, I was told, is that sometimes the ADS-B Out settings might reset to default when the aircraft's battery is disconnected—perhaps during annual inspections for the battery capacity check—or when replacing the battery. If this is true, it can cause a compliance failure. We asked Garmin about this and was told it shouldn't happen because the configuration is stored in the unit's EEPROM, unaffected by voltage. Regardless, the best practice is to double-check the settings after any such event and pull a PAPR after the first flight. Buying an airplane? Pull a PAPR report so you don't inherit someone else's noncompliance issues.

Dealing With It

If you discover your ADS-B Out system is noncompliant, your aircraft isn't automatically grounded. However, you do need to obtain authorization to fly in airspace that requires ADS-B Out. The process is straightforward and takes just a few minutes:

Go to the FAA's ADAPT website and fill out the flight entry form. In Box 11, select "Inoperative" for the first two options and "N/A" for the last. In the "Reason for Request" section, choose "NSAL: verification flight." Once submitted, the request will usually be automatically approved.

The FAA ADS-B team is incredibly helpful, and you can always reach out to them at adsbforcesweb@faa.gov or adsbhelp@faa.gov. They'll provide guidance and support, whether it's via email or a phone call.

If your aircraft ends up on the NSAL list, don't panic—it's simple to get it removed. Send your avionics shop a PAPR report. File a deviation flight request and get approval on the FAA ADAPT website and then fly for 30 minutes in ADS-B airspace. Pull another PAPR to confirm the ADS-B system is now compliant and send it to the FAA's ADS-B team. Once they receive the updated report, they'll remove you from the NSAL list. It may take some time (they meet once a month), but keep filing the deviation requests until you're removed from the list.

Regular PAPR checks and communication with your avionics shop can keep you clear of surprises. I was hesitant to approach the agency after my ADS-B situation; however, the FAA's ADS-B team has been one of the most responsive and helpful resources I've worked with in aviation. If you run into trouble, don't hesitate to reach out.

Troubleshooting With Your PAPR

You went flying and got an FAA Public ADS-B Performance Report (PAPR) and it shows the system in your aircraft has one or more faults. In other words, it failed. In most cases, you'll need to visit a qualified shop to sort it out, but a good place to start the troubleshooting is with the FAA's PAPR User's Guide.

Airborne 1090 Analysis Summary

Start Time: 11.26.2015 20:25:19 **End Time:** 11.26.2015 22:06:55
Duration(s): 01:41:37 **Mod:** 01:24:47 **Processed Reports:** 13444 **Total Reports:** 13491

Link Version: 2 **Out Capability:** 1090 **In Capability:** UAT
Emitter Category: 1 - Light (<15,500lbs) **Antenna(s):** 1 - Single
Last Flight Id: NZZZZ
Last Mode-3A: 4011
Exceptions:

NIC	NACp	NACv	SIL	SDA
Yes	Yes	Yes	Yes	No

This guide is especially helpful because it describes—in plain language—what some of the fault codes might be that show up on a flight test report. The screen grab below is one analysis summary table of a 1090 ADS-B Out transponder. The Start Time, End Time and Duration fields obviously refer to the time of the flight as observed by ground monitoring. Processed Reports are the number of reports that were received by the ADS-B ground station. Link Version indicates which standard (1090 MHz or 978 UAT) the installed equipment complies with, plus any ADS-B In capability. It even knows how many antennas are installed on the aircraft.

The Exceptions field from the example below shows four specific failures in attention-getting red shaded boxes—essentially indicating that the aircraft's ADS-B out data failed to meet performance requirements. In these reports the FAA assesses equipment performance in four major categories, including any missing elements that are required in the ADS-B Out broadcast, integrity and accuracy (NIC/NACp/NACv/SIL/SDA), kinematics (the aircraft's changes in lat/long, alt, velocity and horizontal position), plus other checks that include the proper formatted 24-bit ICAO address and other configuration settings.

Remember that while the physical installation of any ADS-B system is integral to performance (including antenna placement and proper input of a compatible external WAAS GPS, if it's not self-contained in the ADS-B system), performance relies heavily on the installer getting the configuration correct. That doesn't always happen and might generally result in a NIC, NACP, NACv, SIL or SDA failure. But the same is true for loss of GPS position, which can be a symptom of antenna shadowing caused by maneuvering. An altitude encoder (Mode C) problem could fail the baro altitude data, while loss of geometric altitude data from the GPS will fail the geo altitude data.

The point is to work closely with your shop by presenting them with the last PAPR report, while also working with the FAA representative identified in the NPE (Non-Performing Equipment) letter if you get one. Once you get the system fixed, they will remove the aircraft from the NSAL.

--Larry Anglisano

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- If it saves money.
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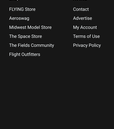

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