

Sent via email

NATS LTD

Corporate & Technical Centre
4000 Parkway
Whiteley
Fareham PO15 7FL

27th January 2015

Dear Sir/Madam,

Re: General Aviation ADS-B Trial in Southern England

As part of the development of tools to help improve flight safety by enhancing situational awareness, NATS is conducting a trial with general aviation pilots to assess the accuracy of position data from a non-certified GPS. NATS is inviting owners of suitably equipped aircraft to participate in the trial to gather sufficient data to make the study meaningful. The data can be broadcast via a Mode-S transponder with "Extended Squitter" (ES) functionality otherwise known as Automatic Dependent Surveillance- Broadcast (ADS-B).

The purpose of this trial is to assess;

- a) The typical accuracy of ADS-B reported positions from non-certified GPS sources,
- b) The impact of low integrity GPS data on ATC surveillance systems, and
- c) The interest of GA users in 'situational awareness' applications that assist a pilot to visually acquire nearby traffic.

The trial will be conducted for an 8 month period from 1st January 2015 to 31st August 2015 in airspace in southern England. Further information is included in attachment 1.

Aircraft owners will need to submit a minor modification for approval to the appropriate airworthiness authority to allow the GPS to be physically connected to the aircraft's transponder. The CAA has agreed to waive their fees for the minor modification to Annex II aircraft during the period of this trial, provided the owner registers for the trial prior to submitting the modification.

Once the modification is carried out, the participant will need to do nothing more other than fly their aircraft with the transponder and GPS turned on. Participants may be required to disconnect the GPS source at the end of the trial.

NATS will not use this data for any purpose other than the trial, such as for the provision of an ATC service. If the non-certified GPS source is used with on-board equipment that detects aircraft via ADS-B, the equipment will not be certified for collision avoidance. Pilots will continue to be responsible for maintaining an effective look out and avoiding other aircraft.



If you are willing to volunteer to modify your aircraft to connect a GPS source to your aircrafts' transponders, please would you provide details of your:

1. Aircraft type,
2. Transponder type, (Note this must provide Mode-S "Extended Squitter" function)
3. GPS equipment, and,
4. Aircraft engineer who will be conducting the minor modification (if known).

Participants are requested to respond to this invitation either in writing or by email to me at the address below.

Thanks in advance for your interest, and I look forward to working with you.

Adrian Price



Adrian Price
Technical & Strategic Research
Email: gps.trial@nats.co.uk

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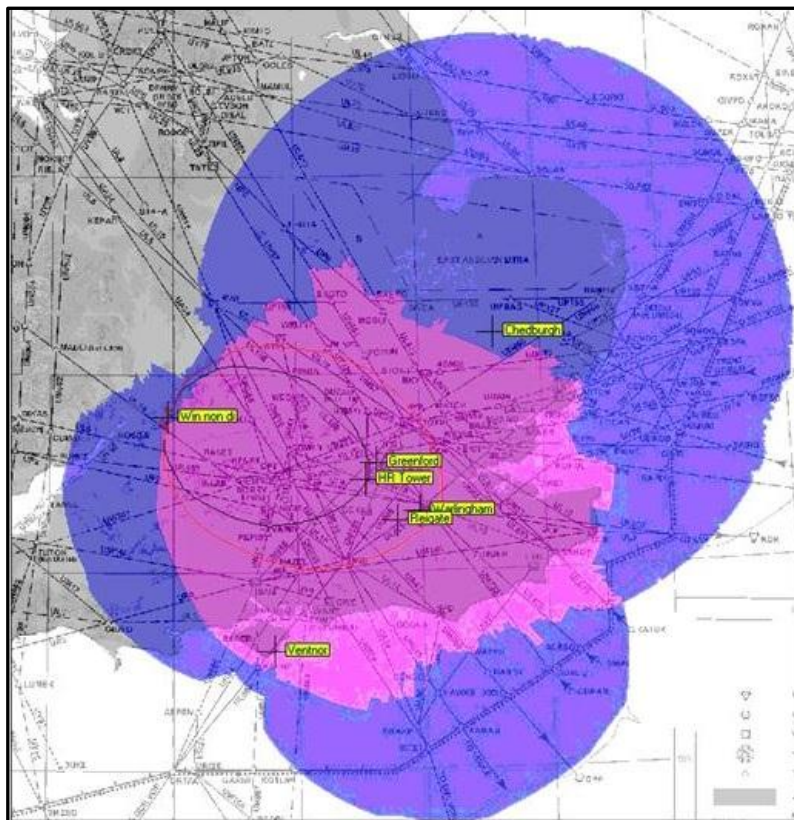
Attachment 1: General Aviation ADS-B Trial in Southern England – Trial Description

The purpose of this trial is to assess;

- a) The typical accuracy of ADS-B reported positions from non-certified GPS sources,
- b) The impact of low integrity GPS data on ATC surveillance systems,
- c) The interest of GA users in 'situational awareness' applications that assist a pilot to visually acquire nearby traffic.

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NATS low-level ADS-B coverage is centered on southern England. The diagram below is indicative of current coverage at 3500ft. An additional ADS-B receiver will supplement coverage to the north-west of this region in Spring 2015. Higher level coverage extends to most of England.



The Minimum Operational Performance Specifications¹ for ADS-B allow the provision of position information from a non-certified GPS source, provided the Surveillance Integrity Level (SIL) parameter is set to 'unknown' (zero).

¹RTCA DO-260B and ED-102A

Therefore, you may participate in this trial with a non-certified GPS source, so long as the SIL parameter in the ADS-B message is set to 'unknown'. The positions reported via ADS-B will be compared with radar track data to establish the impact of low integrity data on surveillance tracking systems.

Not all transponders are suitable for this trial and the method for connecting the devices depends on the transponder and the GPS equipment. NATS and the CAA will work with you, your engineer and the transponder manufacturer to determine whether your aircraft and equipment are suitable for this trial and how to implement the modification. The CAA will also provide guidance for how to submit the minor modification request to EASA, see also <http://www.caa.co.uk/default.aspx?catid=1458&pageid=9259>.

Owners of EASA type aircraft will need to consult with a licensed engineer to submit an EASA form 32 to request a minor modification. Under EASA rules, it is permissible to submit one modification for multiple aircraft if they are the same aircraft type and the same equipment is used. Owners of Annex II aircraft will need to request approval of a minor modification from the CAA. The CAA has agreed to waive their fees for Annex II owners during the period of this trial.

In both cases the modification will need to demonstrate:

- The installation of the GPS equipment does not affect the safe operation of the aircraft,
- The SIL is set to zero, and,
- The GPS is not be used as the primary navigational aid
- The connection between the aircraft's transponder and the GPS unit is non-permanent.

If the non-certified GPS source is used with equipment that detects proximate aircraft via ADS-B, the equipment will not be certified for collision avoidance. Pilots will continue to be responsible for maintaining an effective look out and avoiding other aircraft.