

GetYourWings

Transponder Report Application Installation Instructions

To run this application you will need a PC running Windows 7 or newer (Windows 10 preferred). You will need a generic USB RTL820T based TV tuner dongle and aerial. Although any RTL820T based dongle should work; this application has been tested with the NooElec NeSDR Nano 2.

Preparing the TV dongle for ADS-B reception:

1. Insert the TV dongle (also known as RTL-SDR dongle) to the required USB port. You should hear and see Windows detect it.
2. Download and run Zadig from <http://zadig.akeo.ie/>
3. The first screen you will see when launching Zadig is the User Account Control prompt. This is because the application needs to run with administrative privileges to be able to install a driver, you should answer **Yes**.
4. Go to Options -> List all devices and make sure it is checked.
5. In the drop down box choose Bulk-In, Interface (Interface 0). This may also sometimes show up as something prefixed with "RTL28328U". That choice is also valid.
6. Make sure that **WinUSB** is selected as the target driver and click on **Replace Driver**

Installing the Transponder Report application

1. Download the application from GetYourWings.co.uk ADS-B Project page.
2. Run the application and follow the on screen prompts

Using the Transponder Report application

The application is primarily designed to check compliance with uncertified GPS connections to Mode S transponders. It also shows many of the parameters being broadcast which are not part of the test but are good to know, such as the category.

Click start and the Green start button should turn to a Red Stop Button assuming aircraft are in range and all is well data should be seen in the trace window shown below with a red box to highlight it.



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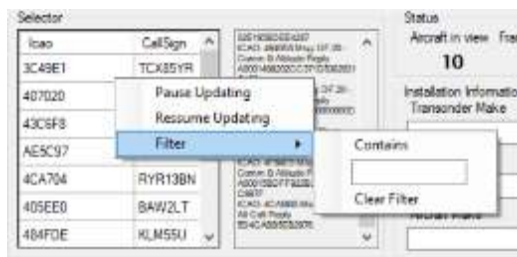
After a short time the Selector window will populate as the application receives and decodes the data whizzing past it.



To select your aircraft click on its ICAO number or type it in full in the Aircraft Under Test box



When you can remember the ICAO (hint you can get this from GINFO) or there are too many aircraft to effectively use the selector simply right click the selector panel and use the filter option.



You can type part or the whole ICAO number or registration and the list will filter making it easier to select your aircraft.

The selector panel background turns a Salmon colour to indicate a filter has been applied to the results.



Above filter is set to KLM

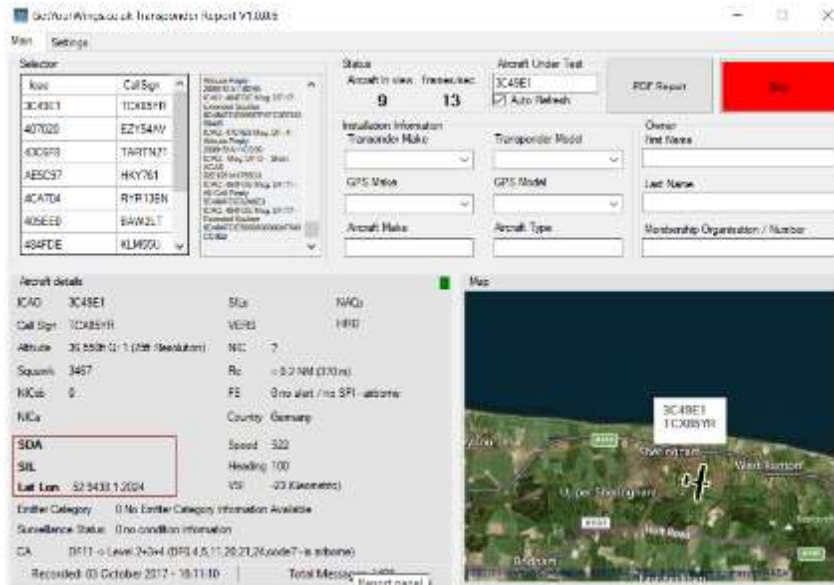
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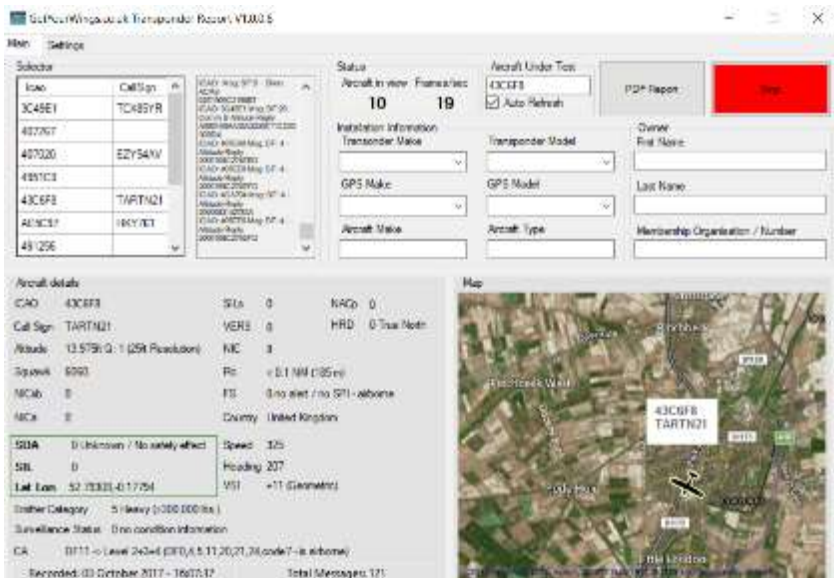
Click on your Aircraft to select it.

As data is collected the information is added to the display, it can take a full 2 mins to collect all the data and some data will only be available when in flight, however the data needed to prove the uncertified GPS is all available while the aircraft is on the ground.

If ADS-B Out solution meets the uncertified GPS criteria the red box around the SDA, SIL and Lat Lon is replaced with a green one as shown below:



Above not meeting the requirement and would fail.



Above would be a pass.

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Aircraft details					
ICAO	43C6F8	SILs	0	NACo	0
Call Sign	TARTN21	VERS	0	HRD	0 True North
Altitude	13,979ft Q: 1 (25ft Resolution)	NIC	8		
Squawk	6060	Rc	< 0.1 NM (185 m)		
NICab	0	FS	0 no alert / no SPI - airborne		
NICa	0	Country	United Kingdom		
SDA	0 Unknown / No safety effect	Speed	325		
SIL	0	Heading	207		
Lat Lon	52.79308,-0.17794	VSI	+11 (Geometric)		
Emitter Category	5 Heavy (>300,000 lbs.)				
Surveillance Status	0 no condition information				
CA	DF11 -> Level 2+3+4 (DF0,4,5,11,20,21,24,code7 - is airborne)				
Recorded: 03 October 2017 - 16:07:37		Total Messages: 121			

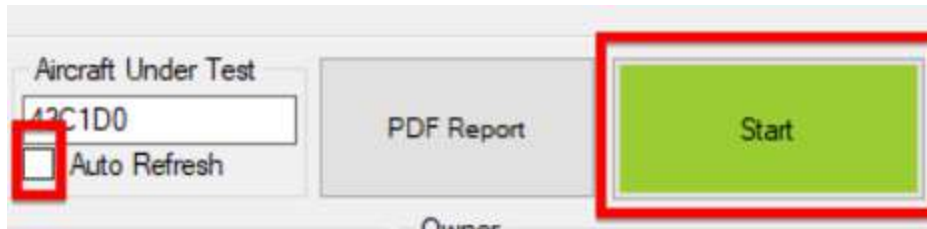
Above is the main data area, hover the mouse over each part in the application for more information.

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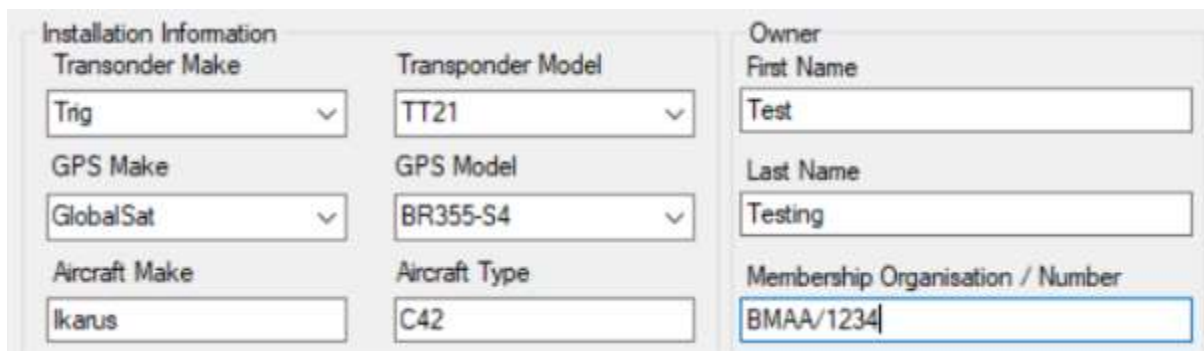
Obtaining the proof required

Click stop or uncheck the auto update field or if you really like clicking do both!



A screenshot of the application interface. It shows a text input field for 'Aircraft Under Test' containing '42C1D0'. Below it is a checkbox labeled 'Auto Refresh' which is unchecked. To the right is a grey button labeled 'PDF Report'. Further right is a green button labeled 'Start' which is highlighted with a red rectangular box.

Fill out the Installation Information Area, this can simply be typed or some common types can be selected from the dropdown lists.



A screenshot of the application's data entry section. It is divided into two main areas: 'Installation Information' and 'Owner'.
Under 'Installation Information':
- 'Transponder Make' is a dropdown menu with 'Trig' selected.
- 'Transponder Model' is a dropdown menu with 'TT21' selected.
- 'GPS Make' is a dropdown menu with 'GlobalSat' selected.
- 'GPS Model' is a dropdown menu with 'BR355-S4' selected.
- 'Aircraft Make' is a text input field with 'Ikarus' entered.
- 'Aircraft Type' is a text input field with 'C42' entered.
Under 'Owner':
- 'First Name' is a text input field with 'Test' entered.
- 'Last Name' is a text input field with 'Testing' entered.
- 'Membership Organisation / Number' is a text input field with 'BMAA/1234' entered.

Now Press the PDF Report Button and a PDF report will be generated so that it can be emailed to the appropriate approving body.

The PDFs are automatically saved to "C:\Users\XXXX\Documents\Transponder Reports" by default for your convenience.

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Frequently asked Questions (FAQ)

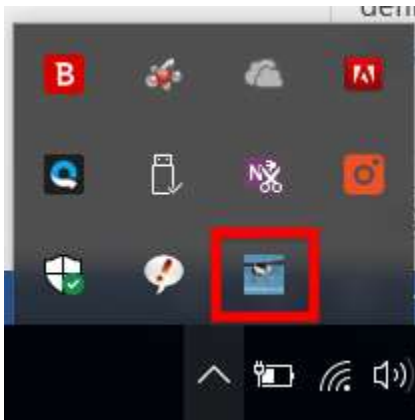
Q. The application won't run on my Windows PC

A. check you have admin rights and reinstall the driver for the TV dongle as detail at the beginning of this document.

Still not working check you have .Net4 full client installed google down load for it but ensure you only download it from the Microsoft site, for your safety.

Q. The Application was running but has disappeared!

A. it got bored and hid from you! No but it may be hiding in your system tray. The application minimises to the system tray and continues to run in the background. Simply expand your system tray and single click the icon.



Q. How can I repay you for all your hard work!??

A. Tell your flying friends, visit my web site www.GetYourWings.co.uk (maybe click on one of the adverts!) follow me on twitter @GetYourWingsUK that's it no begging for donations here, this is really a free lunch! If you have been charged for this application you have been ripped off!

Q. What's with the flashing Green, Orange, Red square?

A. It's an indication of how fresh the data is; Green data received within the last 60 seconds, Orange data received between 60 and 120 Seconds ago, Red data is older than 120 seconds.

Q. The maps aren't loading?

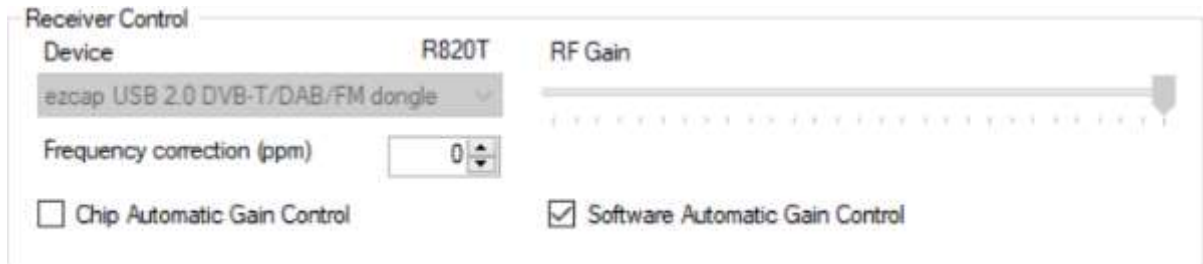
A. Is your PC connected to the internet? If not the will not load, you could if you have sufficient data allowance tether your laptop to your phone. Or try the map caching option by build the cache when connected to a fast internet connection without download limits!

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Q. What are all the options on the setting page?

A. Well most you will never need to touch.



Receiver Control

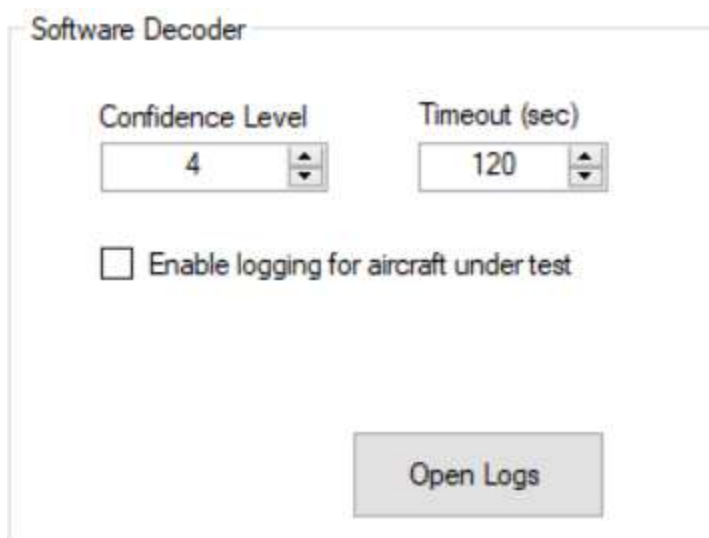
Device: R820T
ezcap USB 2.0 DVB-T/DAB/FM dongle

RF Gain: [Slider]

Frequency correction (ppm): 0

Chip Automatic Gain Control Software Automatic Gain Control

Receiver Controls alters the sensitivity of the receiver also if you have more than one dongle connected you can select which one to use, normally don't touch these settings.



Software Decoder

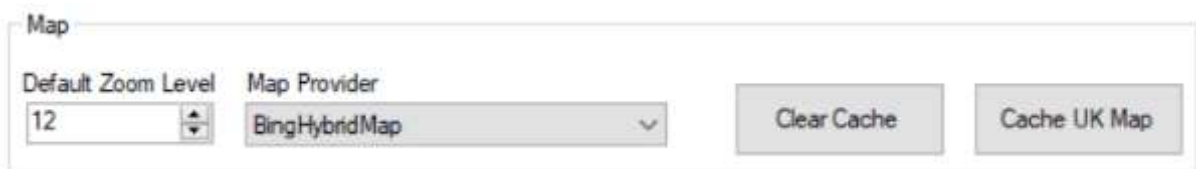
Confidence Level: 4

Timeout (sec): 120

Enable logging for aircraft under test

Open Logs

Software Decoder, Confidence level and Timeout should not need to be changed. By all means check the "Enable Logging for aircraft under test if you wish". This records all the packets for the aircraft and is handy if something is not showing correctly for me to look into the issue.



Map

Default Zoom Level: 12

Map Provider: BingHybridMap

Clear Cache

Cache UK Map

Map, changing the default zoom level will zoom in or out. Map provider will change the provider used to render the map, whichever provider you like the best and are allowed to use may be selected.

Clear the cache removes the offline cache.

Cache the UK Map (sorry if you are not in the UK) builds a cache for offline use, this can take a very long time depending on the speed of your Internet connection and the selected zoom level. It's not recommended!

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About Transponder Report



Transponder Report
Version 1.0.0.6
GetYourWings.co.uk
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Transponder test program for testing the functionality of ADS-B out with non-certified GPSs

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