Handleiding Instellen AIS-SDR Receiver

SDR receiver

DVB-T dongle (AIS)
DVB-T dongles based on the Realtek RTL2832U chip and the new R820T2 tuner can work as a SDR AIS receiver.
A DVB-T dongle will need more power than the Raspberry Pi USB port can provide. You need to plug the dongle into a
powered USB hub. Connecting and disconnecting can draw too much power and cause malfunction, try to do it when the
system is off.
OpenPlotter is ready to get SDR AIS signal out of the box, you just have to calibrate to find **gain** and correction (**ppm**)
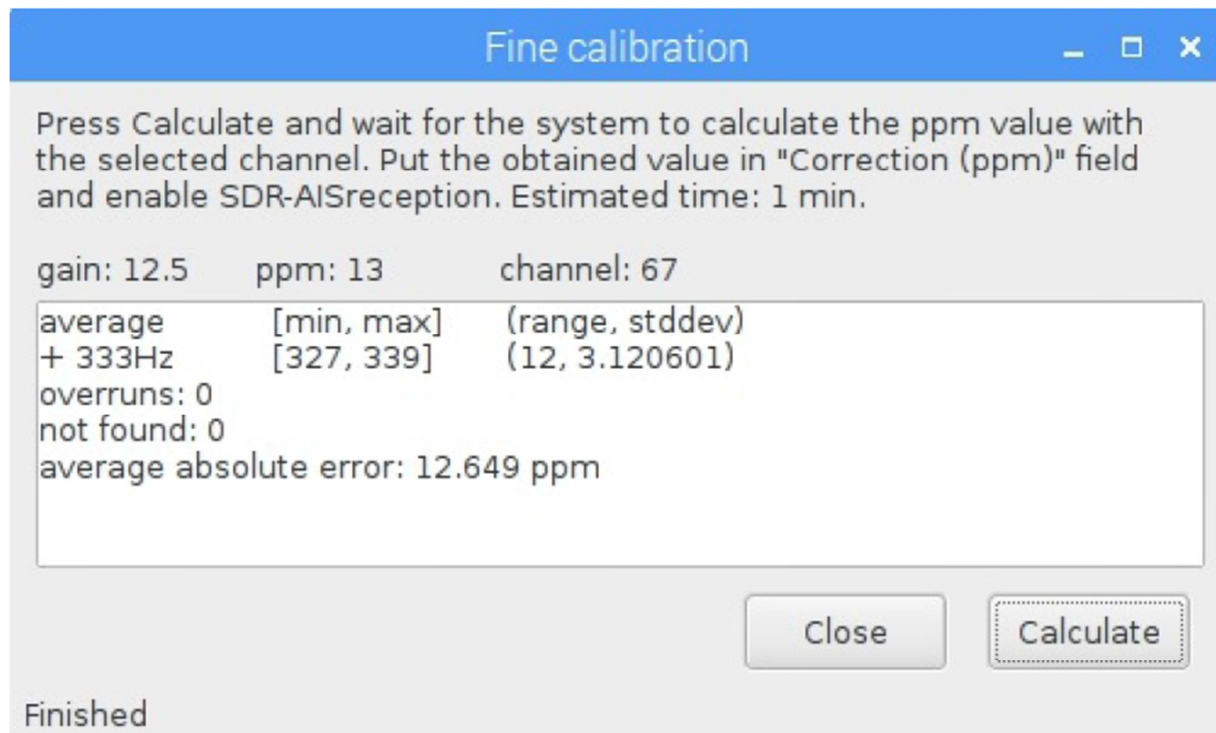values.

Fine calibration

It takes a few minutes after starting **Check band** and push **Calculate**.
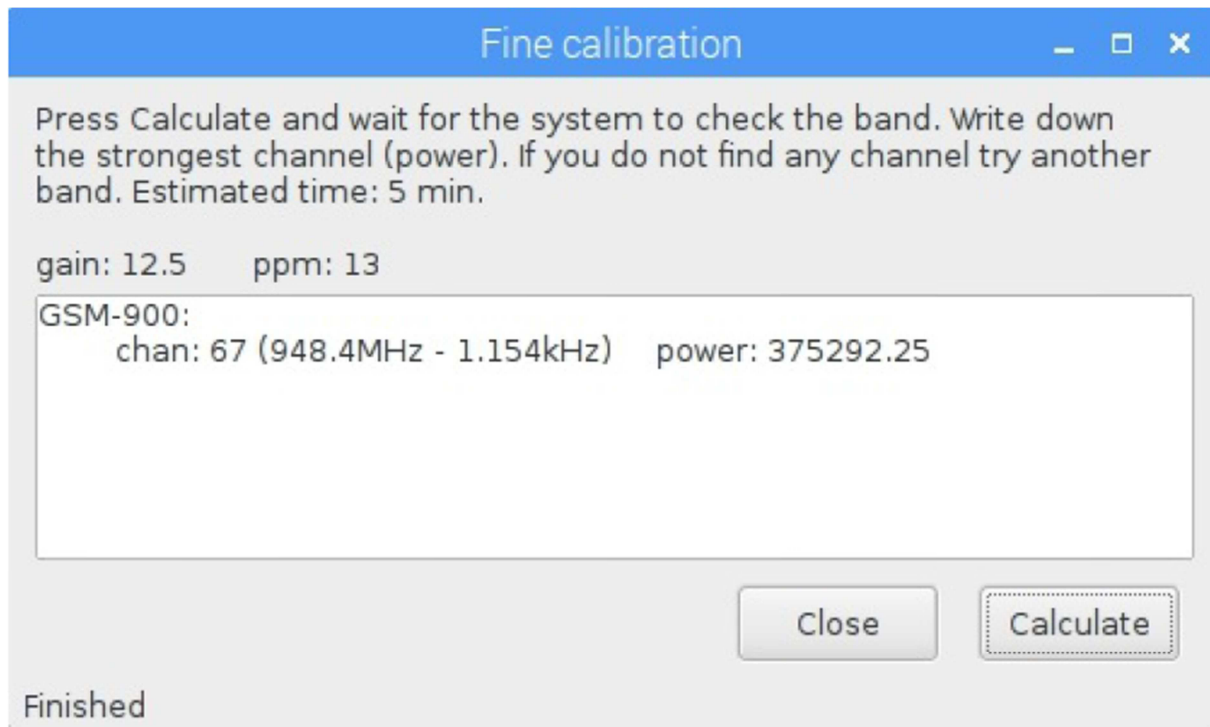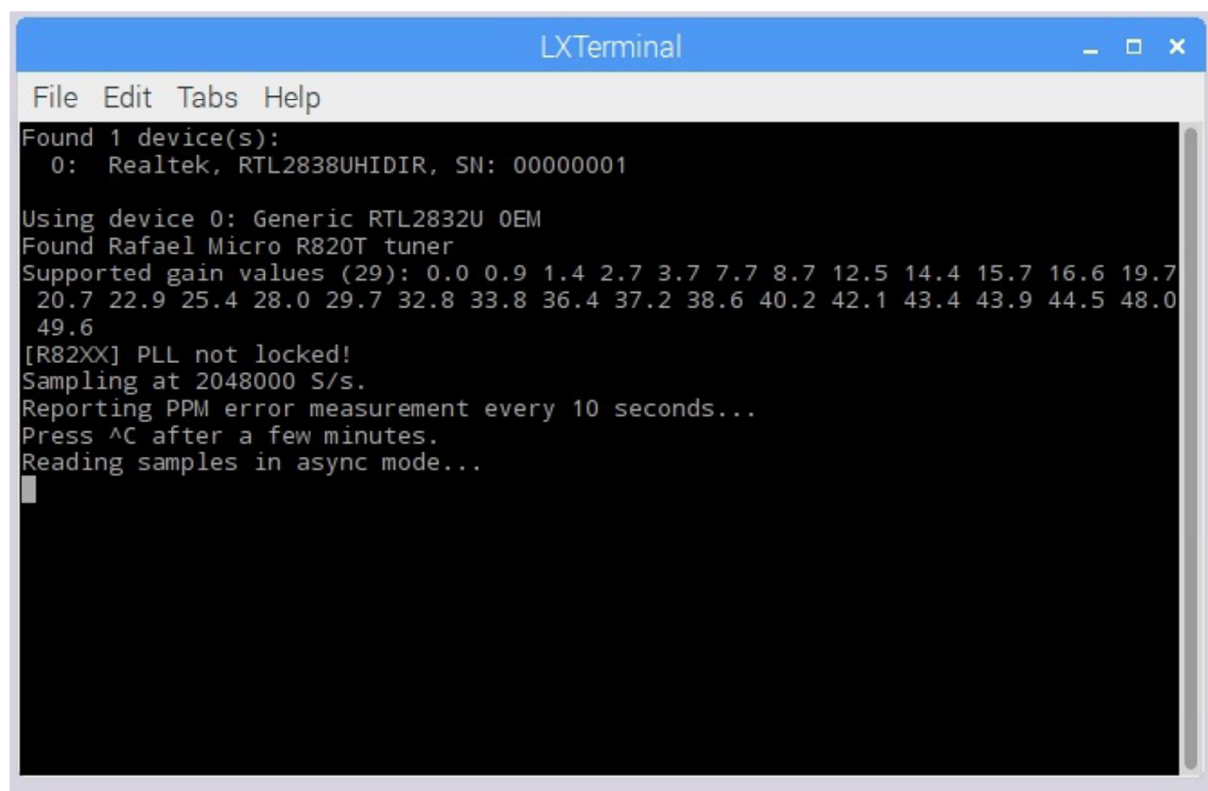

This is an example result.
If there are more "chan:" take the line with the highest power and put the "chan:" into **Channel** field and push **Fine calibration** and then **Calculate.**

Fine calibration

Press Calculate and wait for the system to calculate the ppm value with the selected channel. Put the obtained value in "Correction (ppm)" field and enable SDR-AISreception. Estimated time: 1 min.

gain: 12.5   ppm: 13   channel: 67

```
average          [min, max]      (range, stddev)
+ 333Hz          [327, 339]      (12, 3.120601)
overruns: 0
not found: 0
average absolute error: 12.649 ppm
```

Close   Calculate

Finished

For this example the field **Correction (ppm)** should be set to 13.
Now we look for the gain setting. Please push buttom **Calibration**.

LXTerminal

File Edit Tabs Help

```
Found 1 device(s):
  0:  Realtek, RTL2838UHIDIR, SN: 00000001

Using device 0: Generic RTL2832U OEM
Found Rafael Micro R820T tuner
Supported gain values (29): 0.0 0.9 1.4 2.7 3.7 7.7 8.7 12.5 14.4 15.7 16.6 19.7
 20.7 22.9 25.4 28.0 29.7 32.8 33.8 36.4 37.2 38.6 40.2 42.1 43.4 43.9 44.5 48.0
 49.6
[R82XX] PLL not locked!
Sampling at 2048000 S/s.
Reporting PPM error measurement every 10 seconds...
Press ^C after a few minutes.
Reading samples in async mode...
```

The line **Supported gain values** is interesting for us. The max gain here is 49.6. Input this into the **Gain** field.

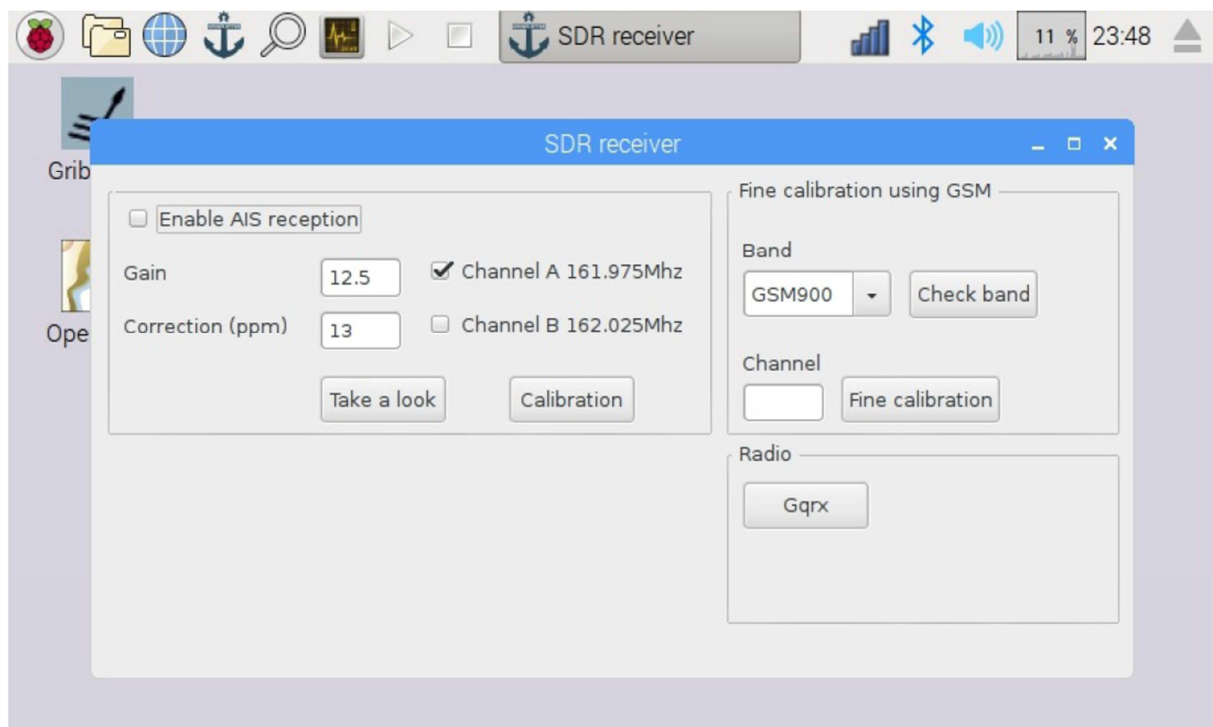You can buy our DVB-T dongle and we can calibrate it for you and include a note with the gain and ppm values:

http://shop.sailoog.com/en/4-usb-sdr-ais-receiver.html

or you can follow this detailed guide:

http://sailoog.dozuki.com/Guide/Connecting+and+calibrating+SDR-AIS+dongles/3

AIS – receiving

Once you have found your **gain** and **ppm** value, select *Enable AIS reception*.

You do not need to enable the rtlsdr plugin in OpenCPN. If you want to use that plugin you must disable SDR AIS

reception in OpenPlotter.

Antenna
Although you can get to receive some boat with the supplied mini antenna, it is not enough for optimal reception of AIS
frequencies. Any VHF antenna with the appropriate connector adapter will work fine. The antenna connector type of the
dongle is female MCX.
Some home-made antennas:
http://sdrformariners.blogspot.com.es/p/blog-page.html
http://nmearouter.com/docs/ais/aerial.html
https://www.youtube.com/watch?v=SdEglNHyHB4