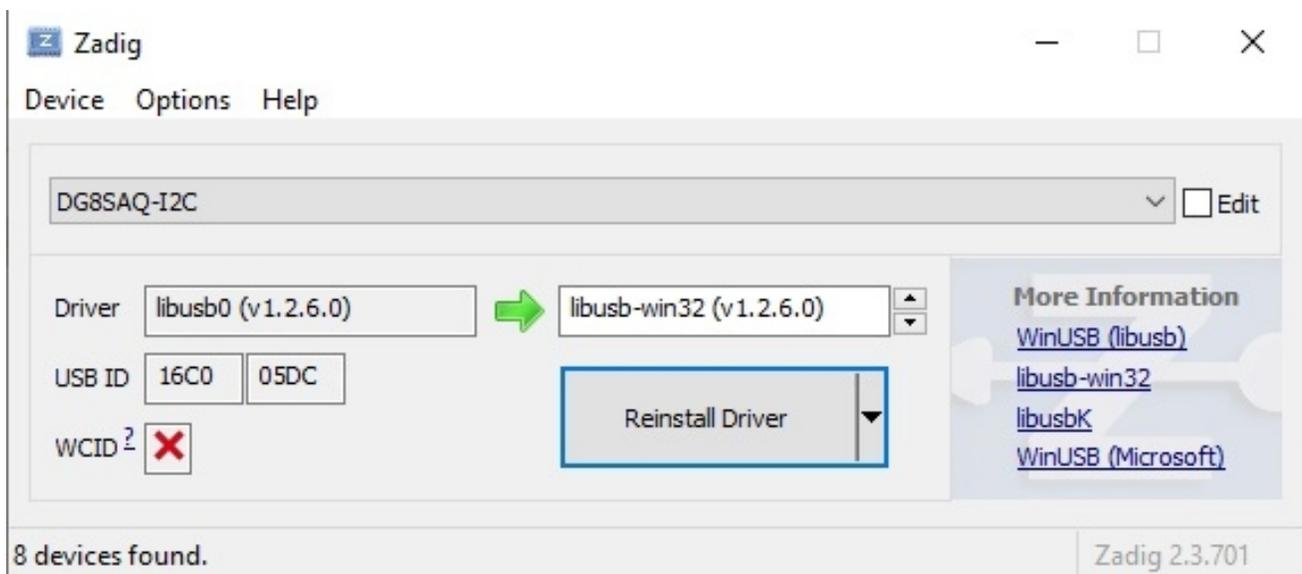


Software Setup and Calibration Guide

Section 1: Initial RX Setup

At this point you need to choose a software Program and install drivers for the USB. If you ever had a Softrock type radio connected to your computer then all you need to do is connect USB to computer and it should find drivers and connect OK. In device manager it should show up as softrock(I don't remember exactly). If not and to avoid issue with other radios like Peaberry/Omnia/Multus radio then you should use Zadig.



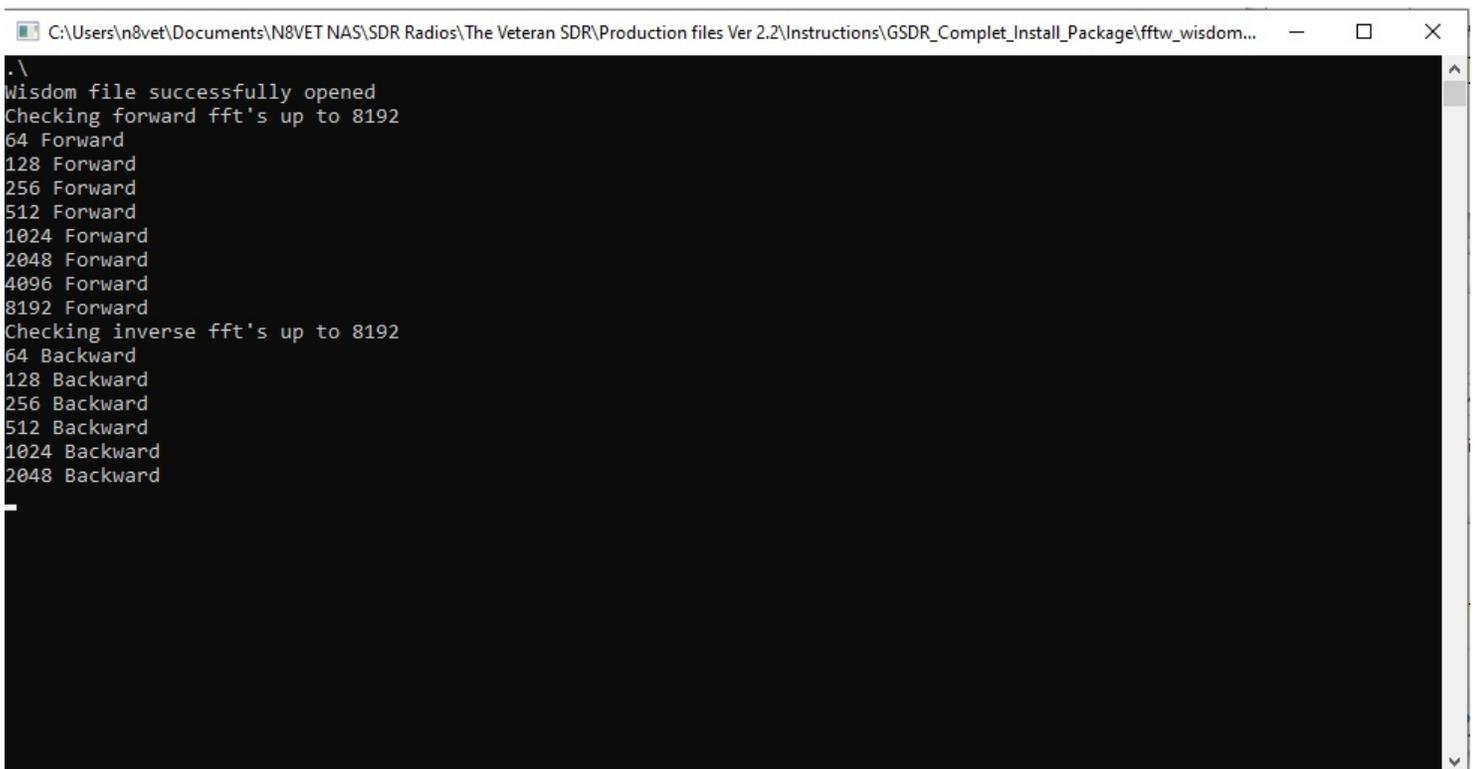
When you first open without any drivers the left window near "Driver" will show something else. My computer already has the correct driver. In the right window choose libusb-win32(v1.2.6.0) and click install driver(again mine shows reinstall driver). In device manager it should show up as DG8SAQ-I2C.

Connect a stereo input cable to P2 jack. I will be using GSDR which works pretty well.

Go here [GSDR Down load](#) and download the file GSDR_Complete_install_package.zip. Extract this to your computer.

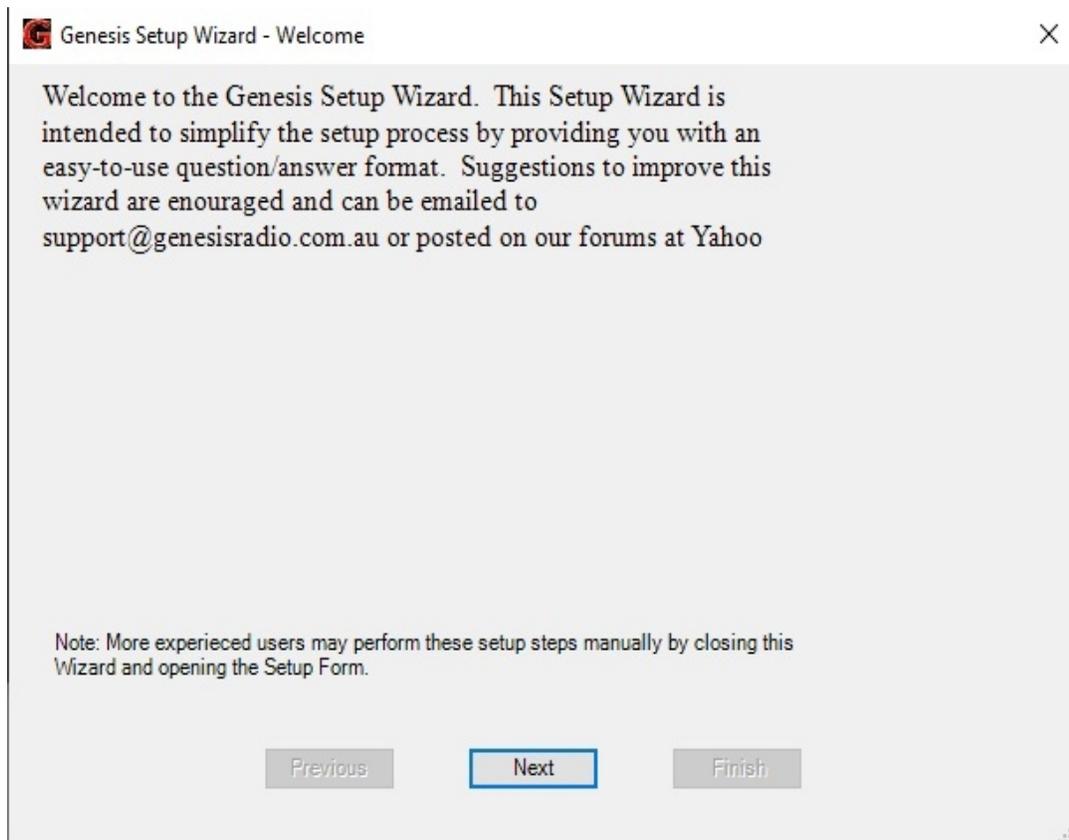
Now double click on Genesis.exe. Don't use GenesisDX.exe.

The first window will be a DOS windows to check FFT speeds. Just click OK and let it run.

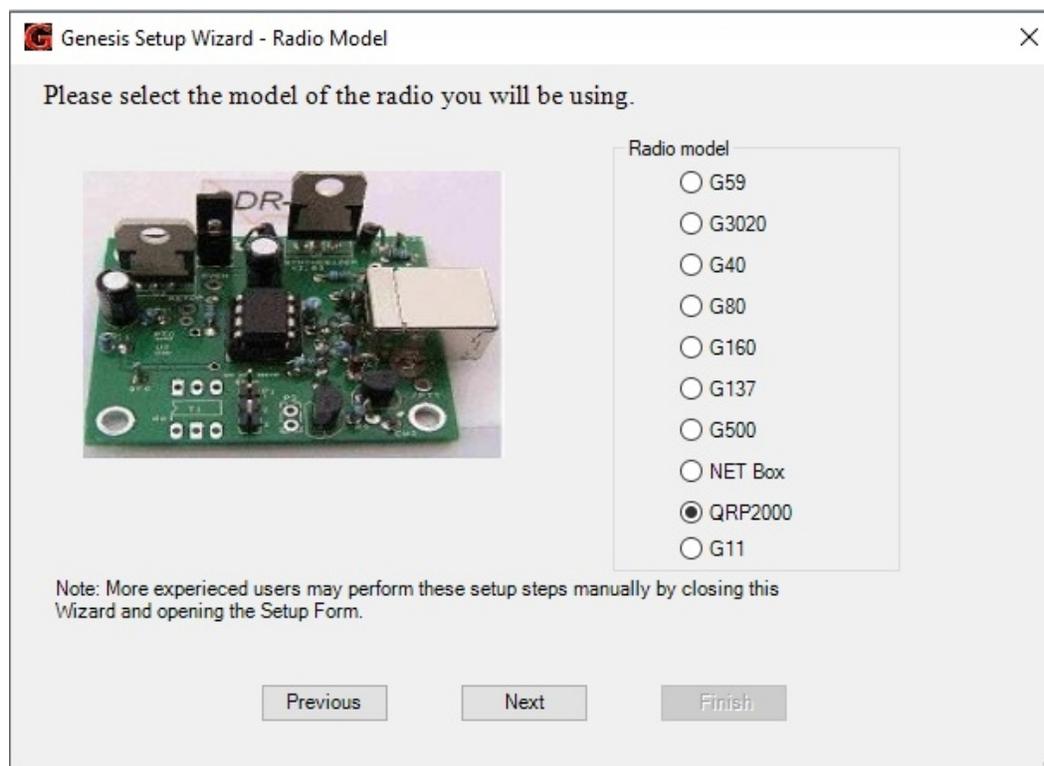
A screenshot of a DOS window titled "C:\Users\n8vet\Documents\N8VET NAS\SDR Radios\The Veteran SDR\Production files Ver 2.2\Instructions\GSDR_Complet_Install_Package\fftw_wisdom...". The window displays the following text:

```
.\  
Wisdom file successfully opened  
Checking forward fft's up to 8192  
64 Forward  
128 Forward  
256 Forward  
512 Forward  
1024 Forward  
2048 Forward  
4096 Forward  
8192 Forward  
Checking inverse fft's up to 8192  
64 Backward  
128 Backward  
256 Backward  
512 Backward  
1024 Backward  
2048 Backward
```

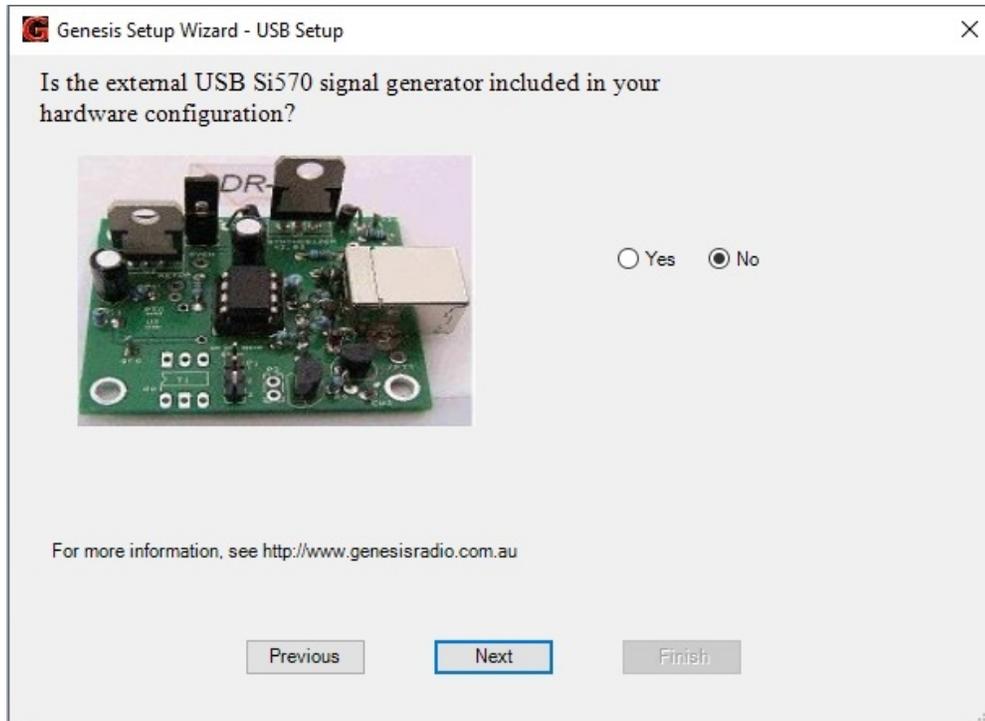
This will be the next window. Click next



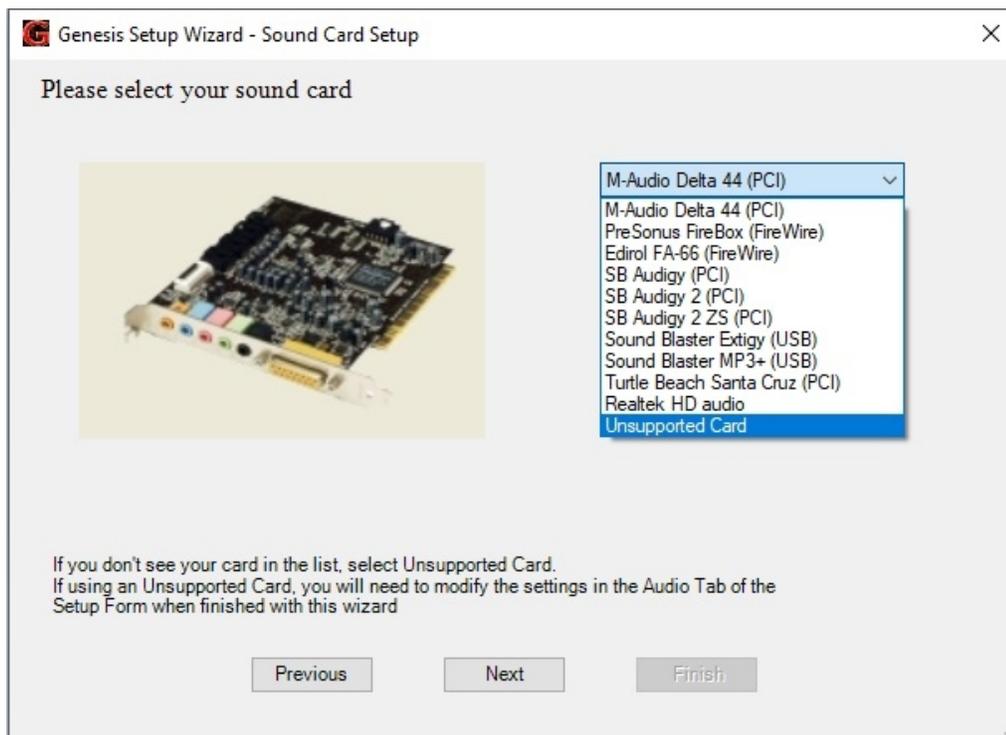
Click QRP2000 Next



Select No
Click Next

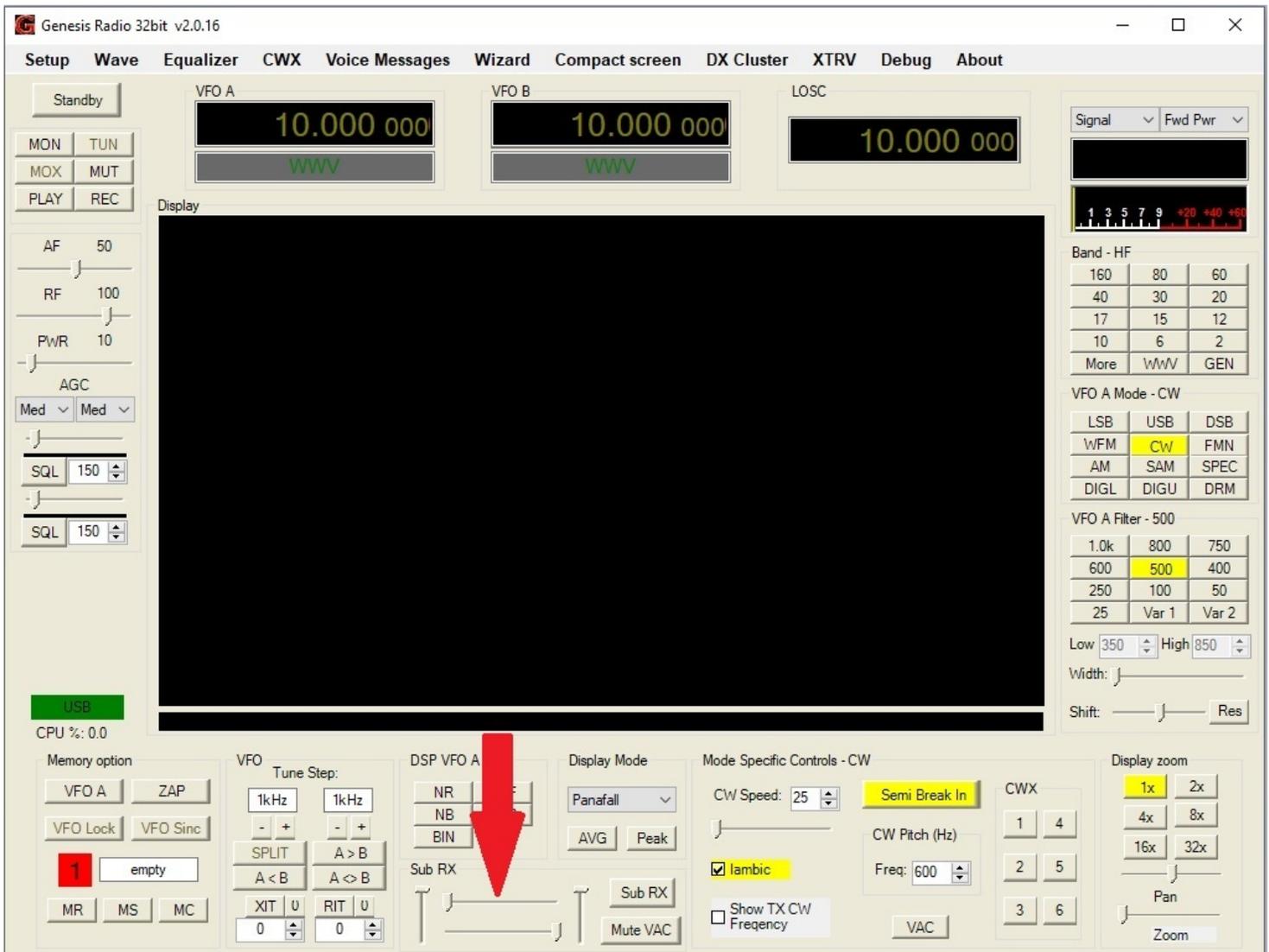


Unless you have one of these legacy sound cards, select “Unsupported Card”
Next

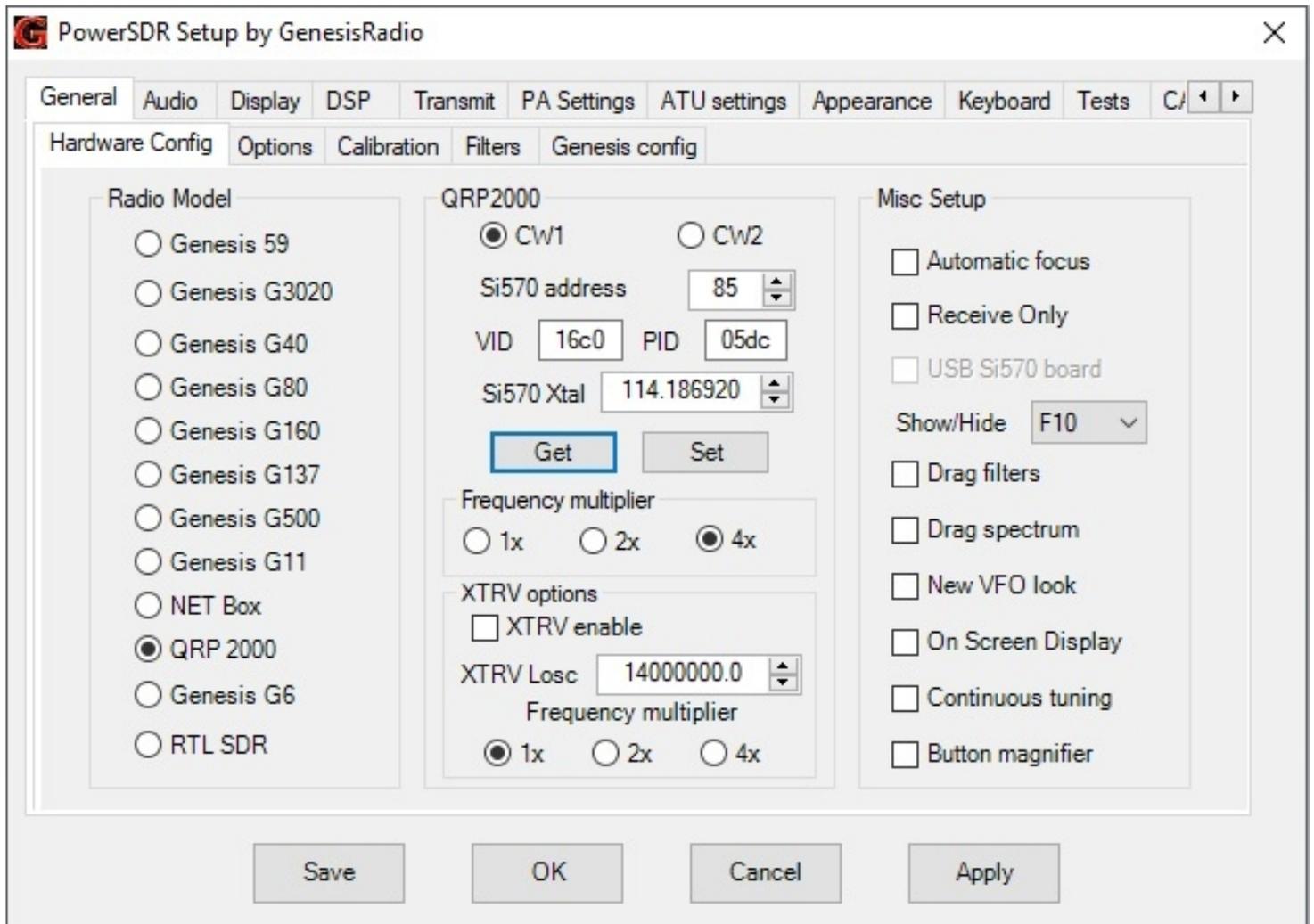


You should now see this with a green USB Button. **Make sure you center the horizontal sliders below the red arrow.** The picture shows the default setting and will mess things up down the line.

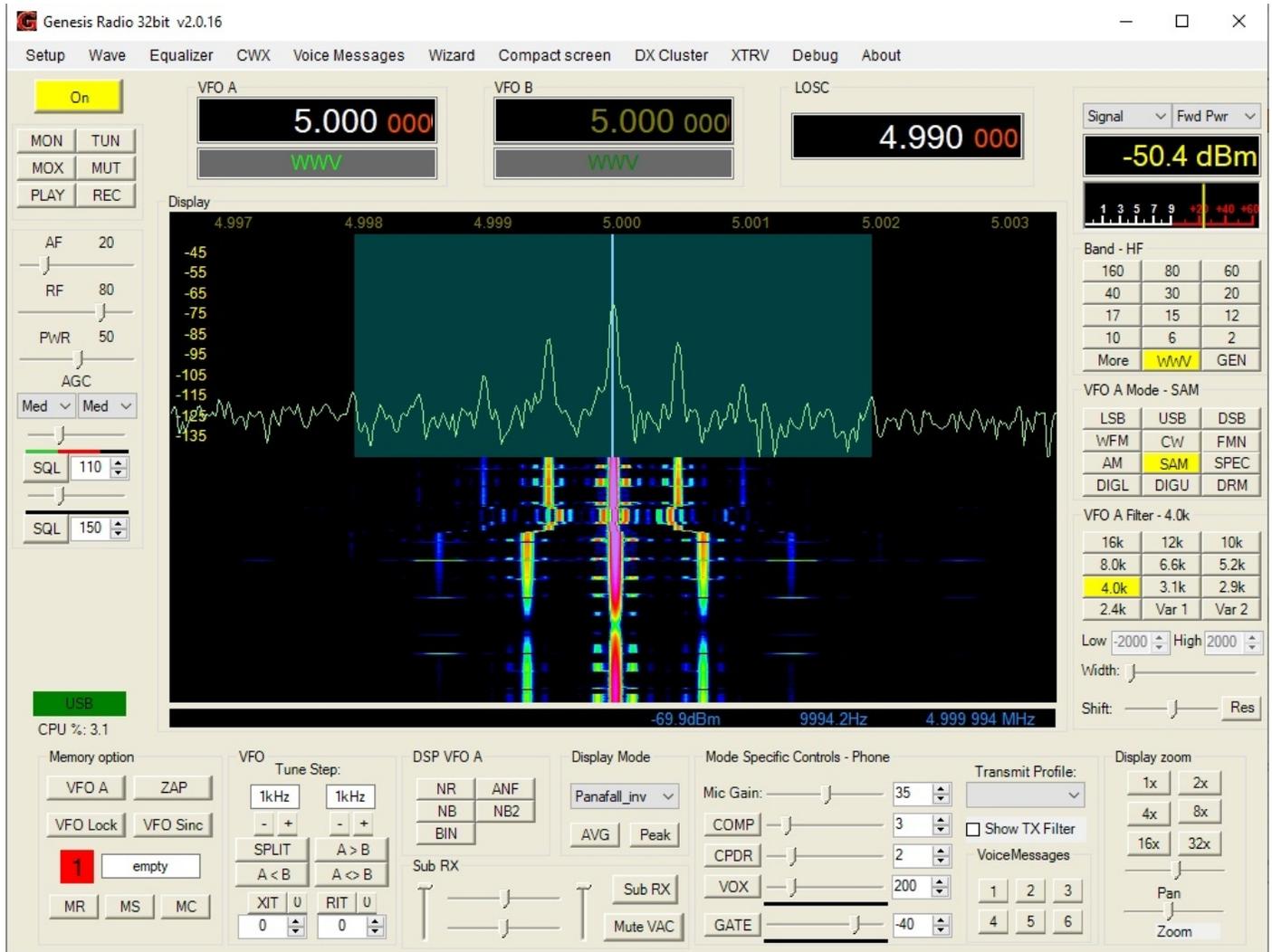
Click on Setup in upper left corner.



General---Hardware Tab. Yours should look like this. In the QRP2000 box you will see CW1 and CW2. Sometime you may have to select the non default CW2 to make it work. I rarely see this but it does happen. Click on GET and you should see the number change to the stored value in the firmware. You can change the decimal numbers to calibrate the frequency.



Tune up to WWV and you should be able to get it pretty close like this. The up/down arrows might be too course so you'll have to manually enter numbers for the last 3 digits or so.



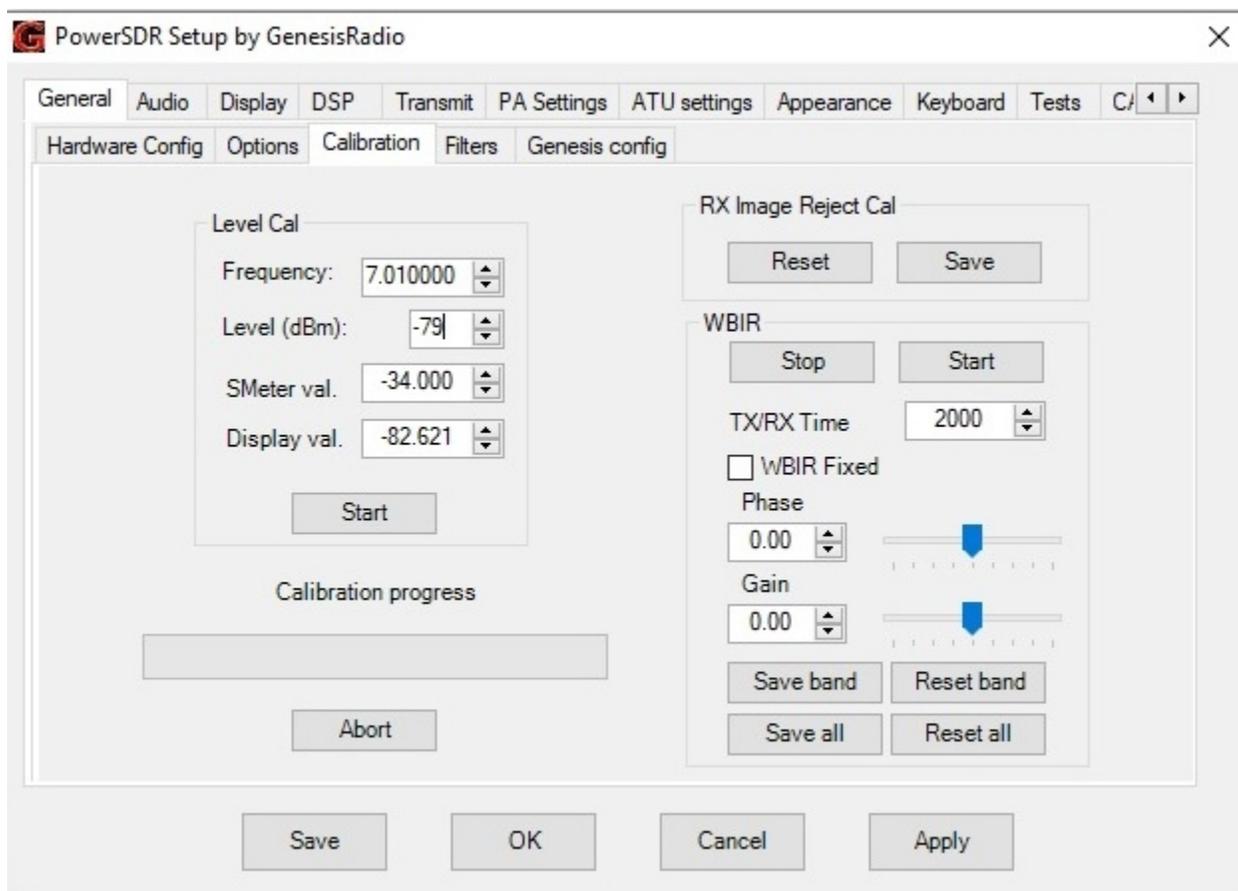
Enjoy RX for a while then on to more building :)

If your still building the radio return to section 7 Filter switching Circuits of the Assembly Instructions

Section 2: RX Calibration

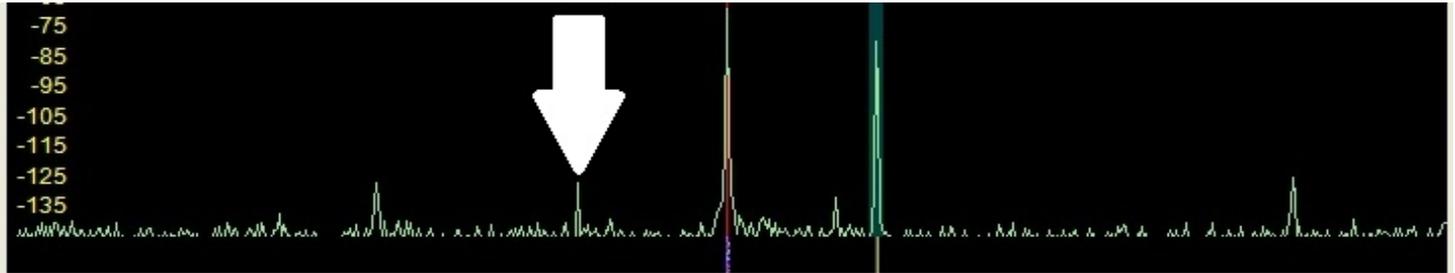
Frequency calibration has already been done. The next step is signal level and RX image adjustment.

For level adjustment you need a signal source of a known output. Mine is a -79dbm signal at 7.01mhz. Tune radio to that frequency and select Start in Level Cal box. Or you can manually do it by changing Smeter val and Display val numbers.



RX image adjustment is next. I have found that a fixed value works the best. Once you set one band you can use the same values for all bands.

The image is located under white arrow and completely suppressed after adjustment.



Genesis Radio 32bit v2.0.16

Setup Wave Equalizer CWX Voice Messages Wizard Compact screen DX Cluster XTRV Debug About

On

MON TUN
MOX MUT
PLAY REC

AF 20
RF 80
PWR 50
AGC
Med Med
SQL 110
SQL 150

VFO A 7.010 000
40M Extra CW

VFO B 7.010 000
40M Extra CW

LOSC 7.000 000

Signal Fwd Pwr
-76.0 dBm

Band - HF
160 80 60
40 30 20
17 15 12
10 6 2
More WWV GEN

VFO A Mode - CW
LSB USB DSB
wFM CW FMN
AM SAM SPEC
DIGL DIGU DRM

VFO A Filter - 1.0k
1.0k 800 750
600 500 400
250 100 50
25 Var 1 Var 2
Low 100 High 1100
Width:
Shift: Res

USB
CPU %: 3.7

Display
6.960 6.970 6.980 6.990 7.000 7.010 7.020 7.030 7.040
-45
-55
-65
-75
-85
-95
-105
-115
-125
-135
-71.3dBm -67.1Hz 6.999 933 MHz

Memory option
VFO A ZAP
VFO Lock VFO Sinc
1 empty
MR MS MC

VFO Tune Step:
1kHz 1kHz
- + - +
SPLIT A > B
A < B A < > B
XIT 0 RIT 0

DSP VFO A
NR ANF
NB NB2
BIN
Sub RX
Mute VAC

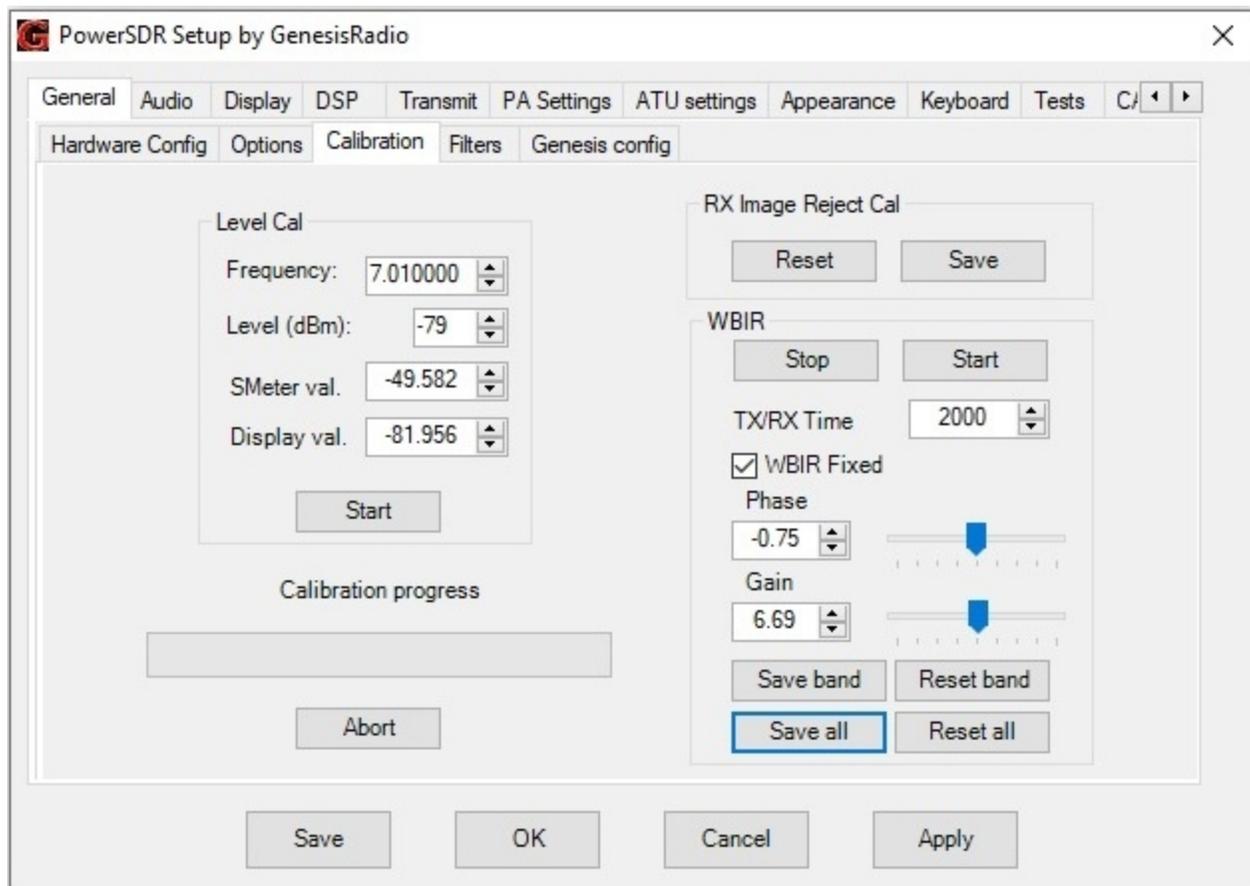
Display Mode
Panafall_inv
AVG Peak

Mode Specific Controls - CW
CW Speed: 25
Semi Break In
CW Pitch (Hz)
Freq: 600
VAC
Show TX CW Frequency

CWX
1 4
2 5
3 6

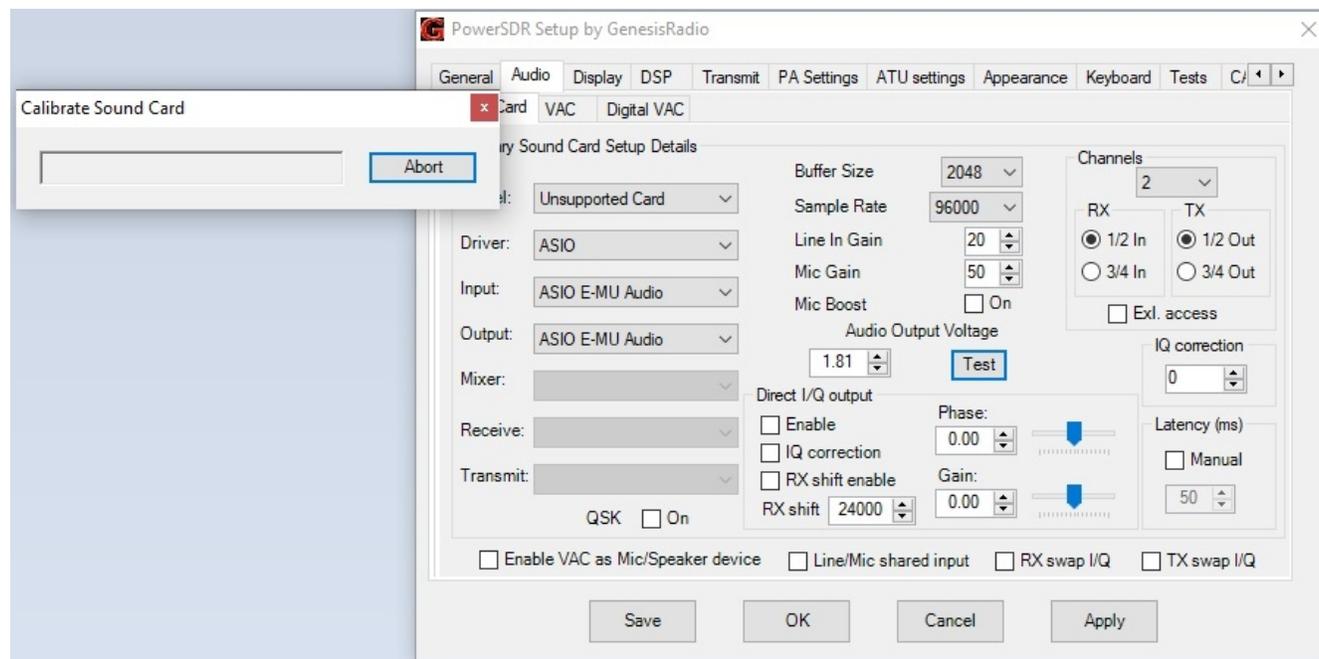
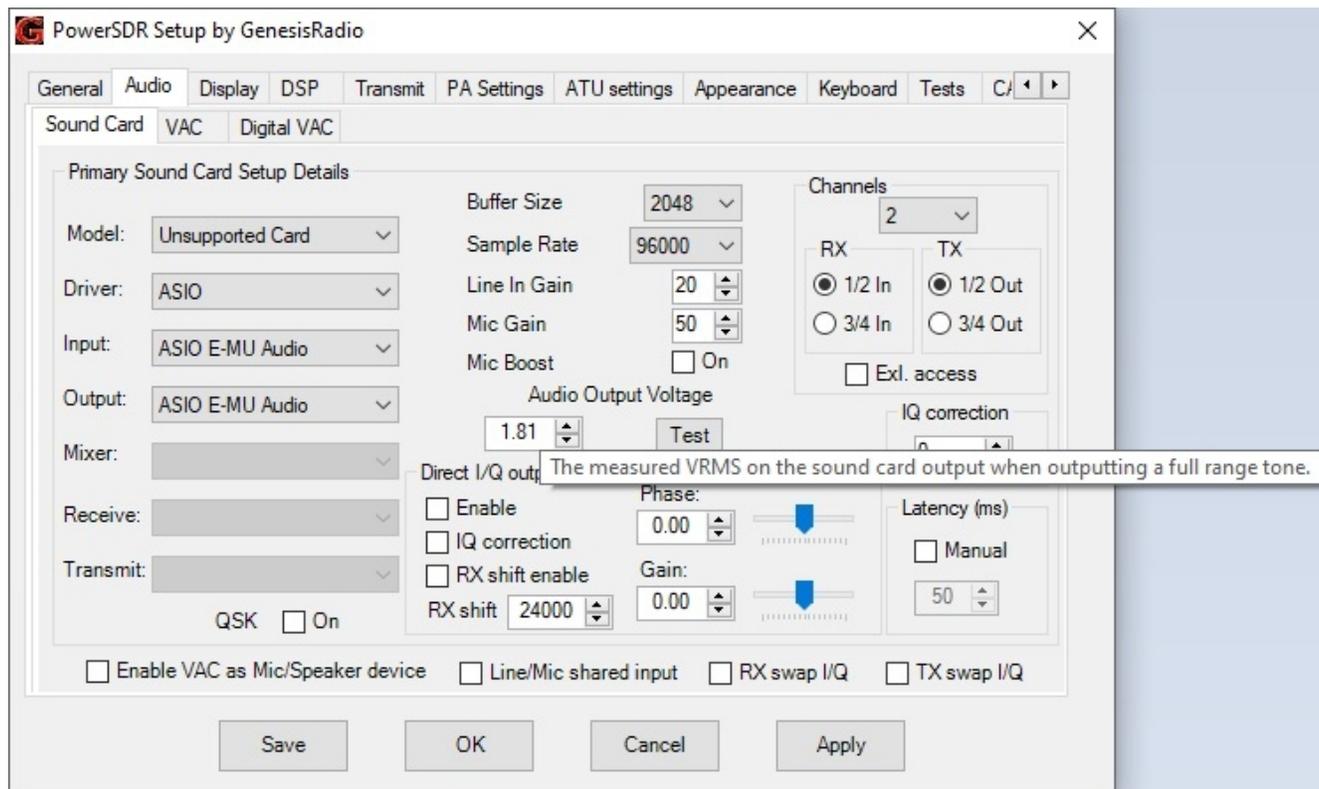
Display zoom
1x 2x
4x 8x
16x 32x
Pan
Zoom

In the WBIR box select Start button, check WBIR Fixed. Then adjust phase and gain as needed. Press Save all button to save settings to all bands.

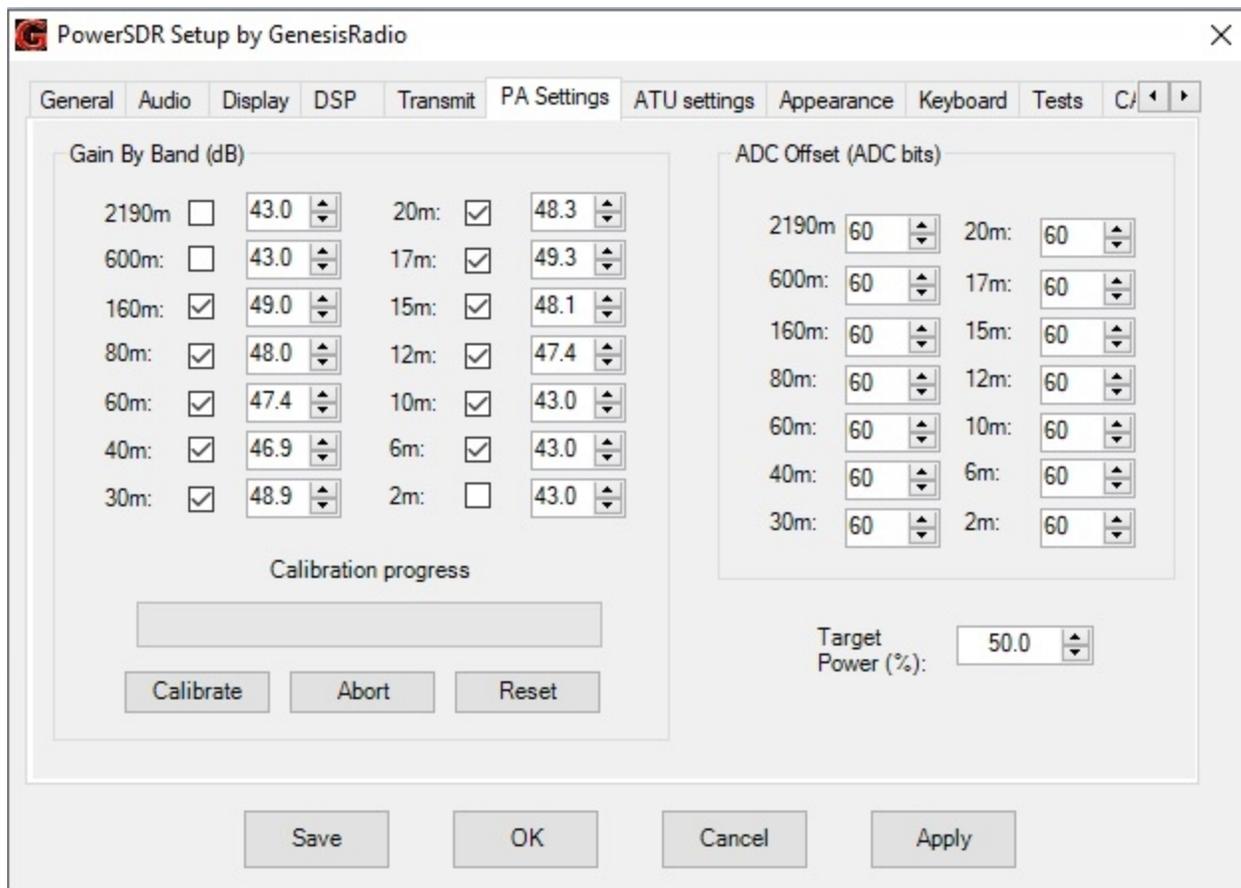


Section 3: TX Calibration

The first step is setting the your sound card Audio Output voltage. Connect a Volt meter using AC scale to sound card output cable. Tip or ring and shield. Press the test button



Record the voltage and press the abort button on pop up. Enter that voltage into the Audio Output Voltage window. This will ensure you have the proper range when adjusting the Power output on the PA tab.



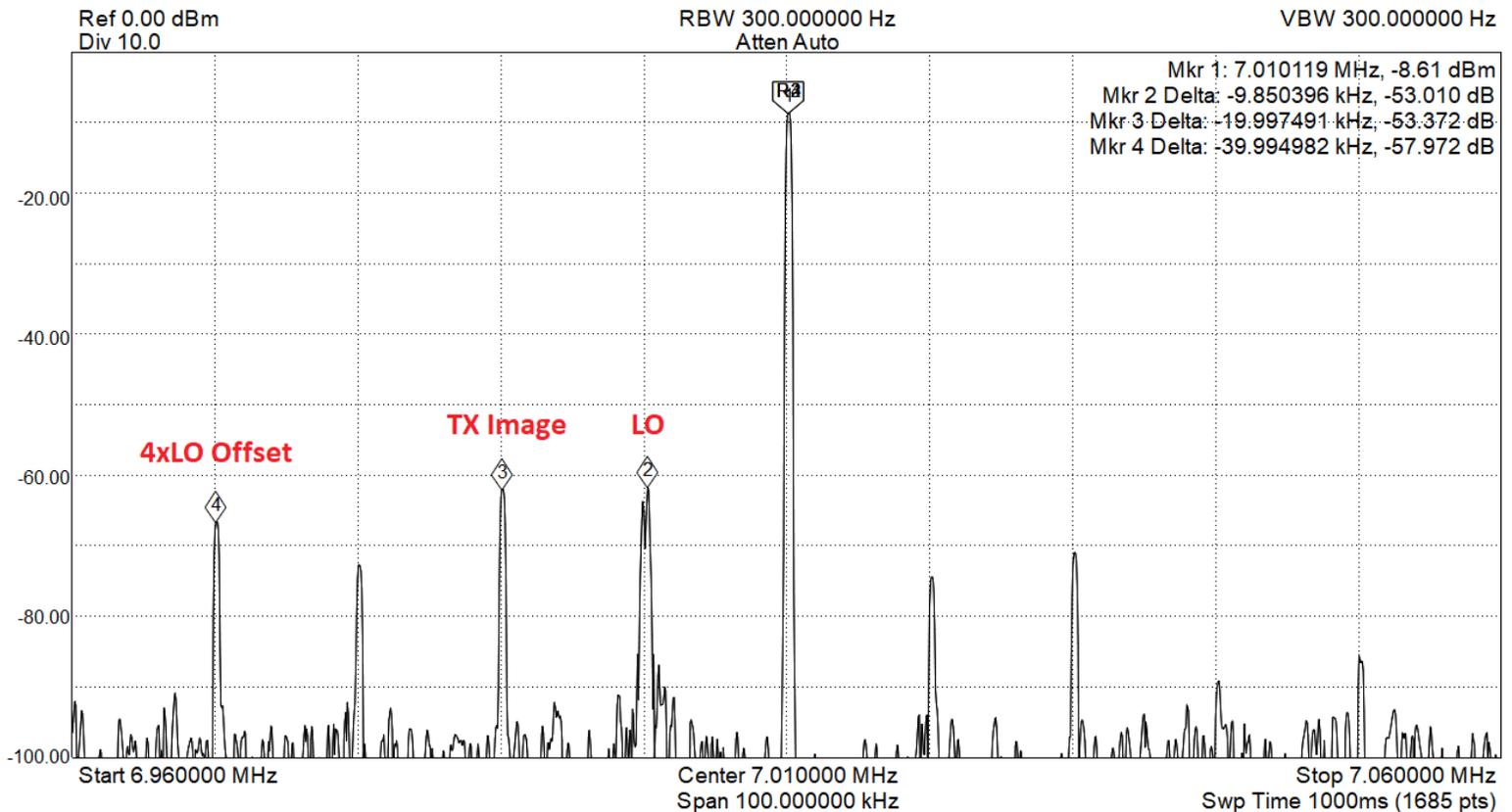
Reconnect sound card output cable to radio. Connect SWR meter and dummy load to antenna jack.

Before you make any power, adjust all the gain by band numbers to 54 or higher to prevent over driving radio. The Amp will put out well over 10W.

Select TUN on the main page and set PWR slider to 100%. Adjust gain by band numbers for 10W output on each band. Lower numbers will result in more output power. Once this is complete we will move onto the TX image adjustment.

There are a couple of ways of determining the TX image. By using a second receiver, Spectrum analyzer or a device by Multus SDR called IQ Balance detector, IQBD.

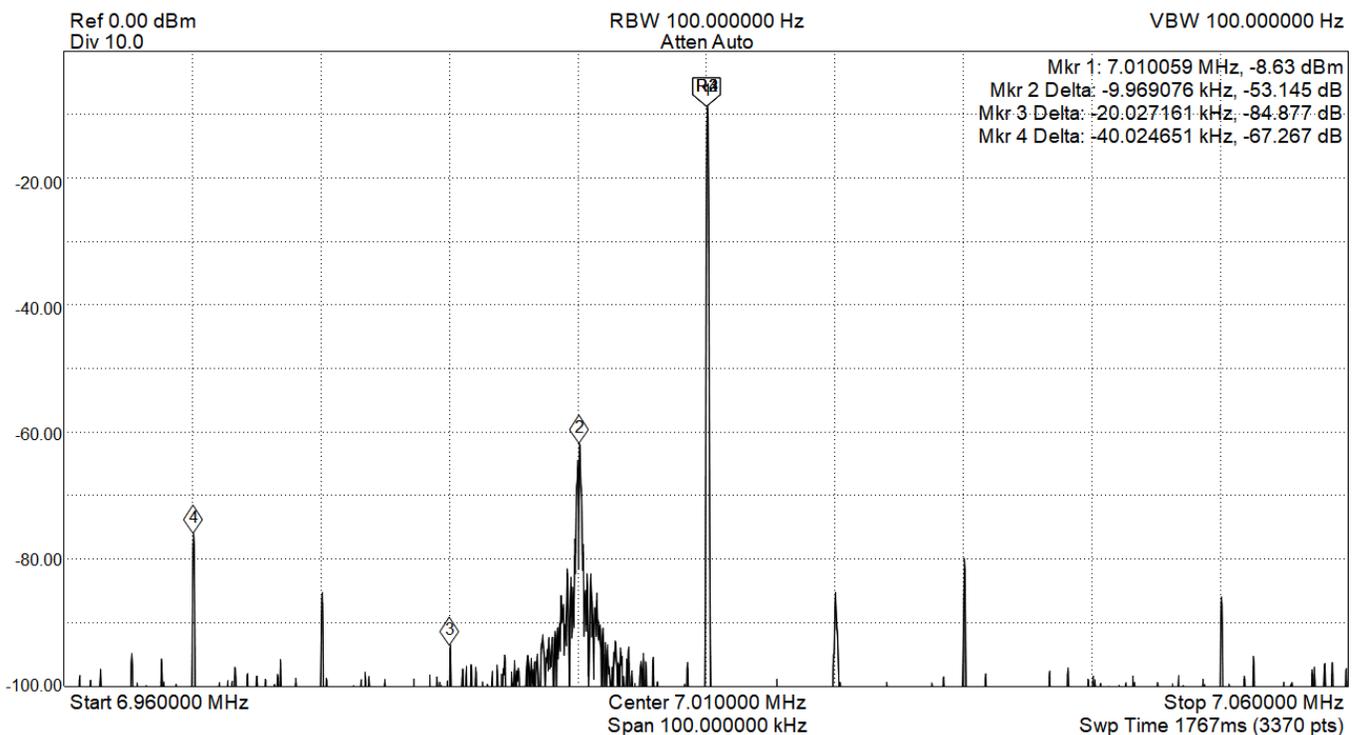
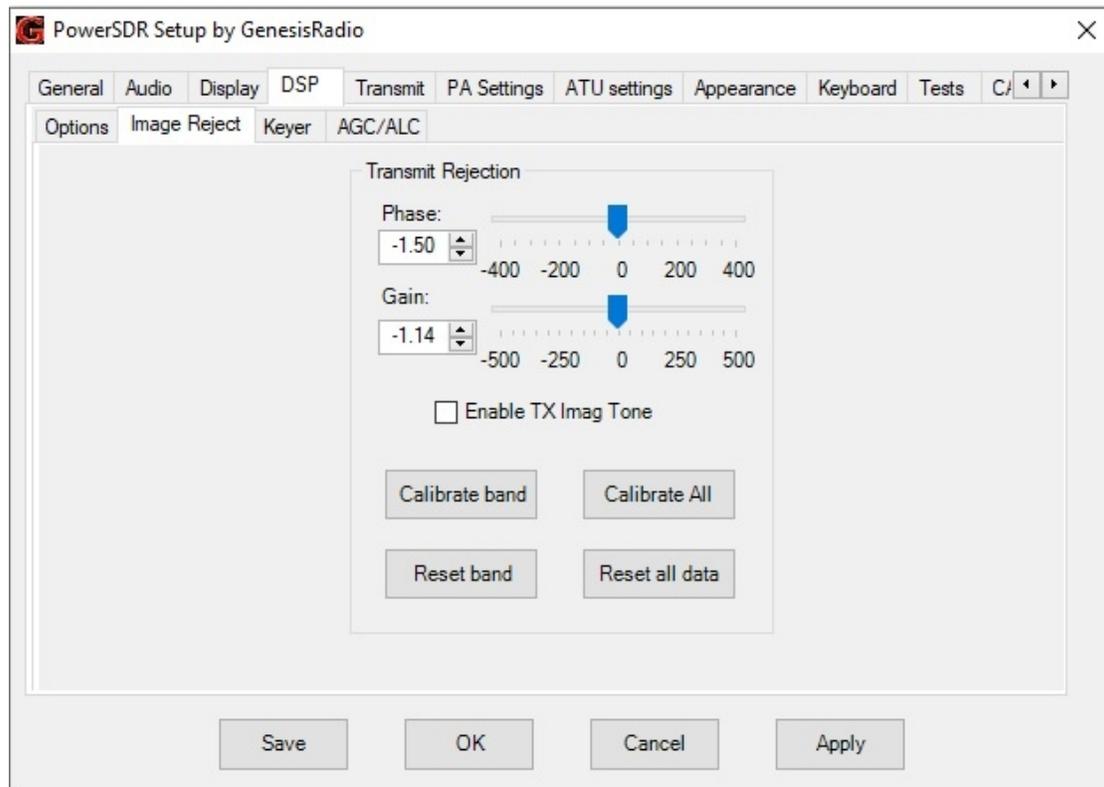
Tune the radio to a frequency, lets use 7.01mhz. Make sure the LO is tuned 10khz away to 7.0mhz. This will place the TX image to a known point of 6.90mhz.



The TX circuit is well balanced and from the many builds I have completed TX image doesn't need adjustment right out of the box to meet FCC regulations. As you can see in the above picture the spurious signals meet FCC limits at 10W.

Lets go ahead and see how well we can suppress the TX Image.

While transmitting adjust Phase and gain to get the best rejection. As you can see very little adjustment was necessary.



This completes the calibration.