

# G11 GSDR TX Calibration

## Step 1. Setting the Soundcard Output voltage.

## Step 2. Adjusting the Max Power Output.

## Step 3. Calibrate G11 Power/SWR measurement head.

## Step 4. Adjusting FWD Power meter in GSDR.

The steps outlined below assume that the G11 is complete ( all components installed), that you have the soundcard setup in GSDR properly and connected to G11. And that you have verified that there is power output etc.

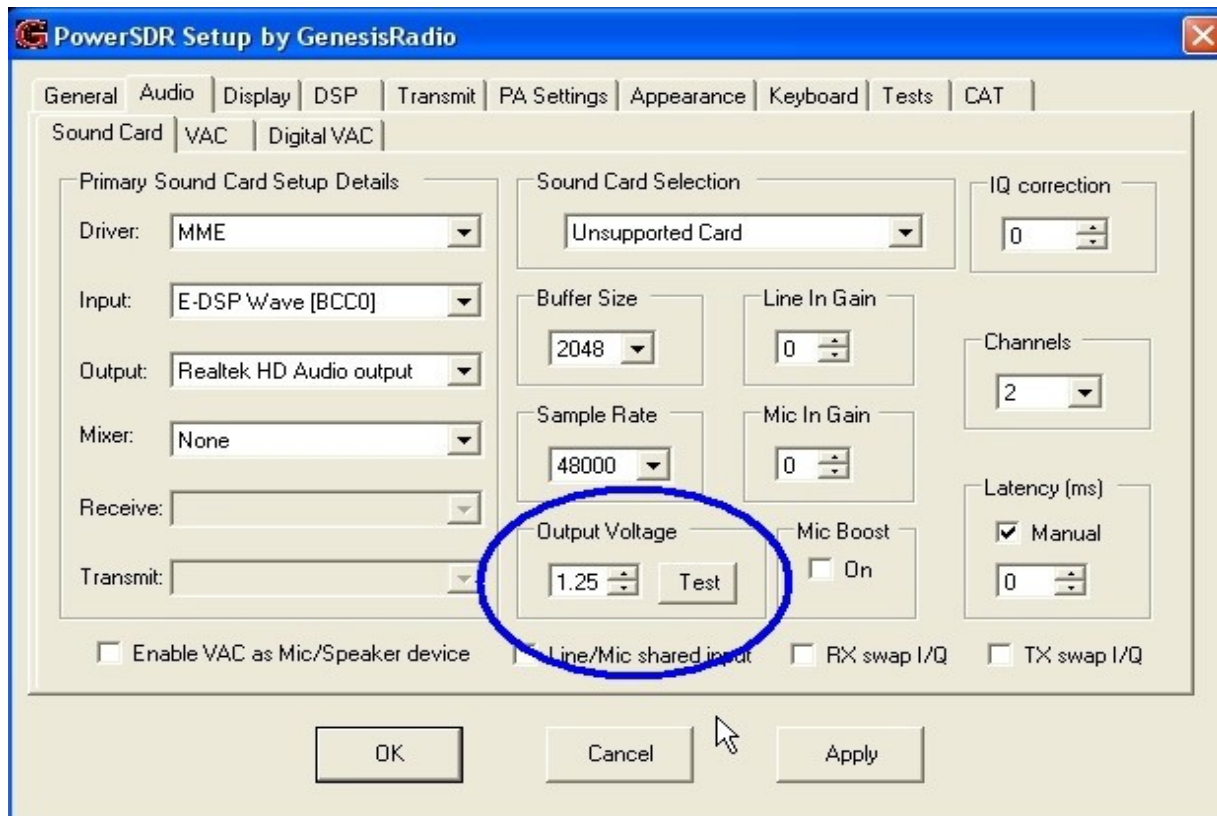
## Step 1. Setting the Soundcard Output voltage.

In GSDR go to Setup > Audio > Soundcard.

Look for the “Output Voltage” box, as shown below.

Note: If you are using a “Supported Card”, you may not have this control.

If that is the case, skip this step, and go on to Step 2.



Next, Unplug the cable coming FROM your soundcard, LINE-OUT, from G11 ( Jack 11, "FM Line Out"). Attach the leads from your Voltmeter to the SHIELD and TIP of the LINE-OUT cable.

Set your meter to read AC volts. ( 10 volt range )

Press the “TEST” button in the Output Voltage Box.

Record the AC voltage measured.

Press “Abort” in the pop-up. Then “OK” in the next pop-up.

Type the voltage you measured into the white box next to the TEST button.

Click on APPLY at the bottom of the dialog box.

Now GSDR knows the maximum output voltage of your soundcard.

Plug the LINE-Out cable back into G11.

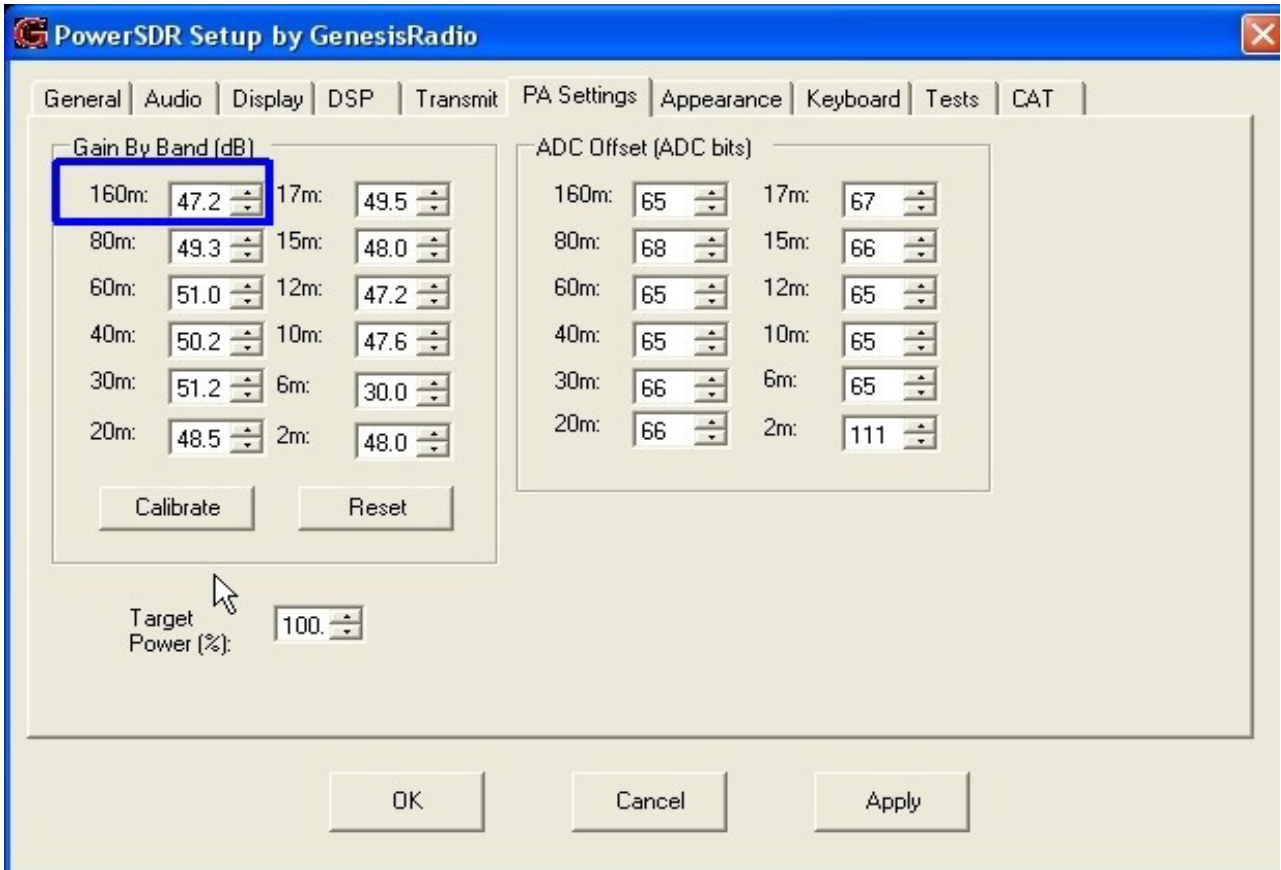
## Step 2. Adjusting the Max Power Output.

By now, you have realized that your G11 does not output the rated power on every band. It may be low, or even very high.

Now we will adjust the maximum power output on each band to the specified 10 watts. First off, make sure the G11 is connected to a 50ohm dummy load ( 20 watt minimum rating ), through an external wattmeter.  
( can also use a oscilloscope, or spectrum analyzer for this step, instead of wattmeter.)

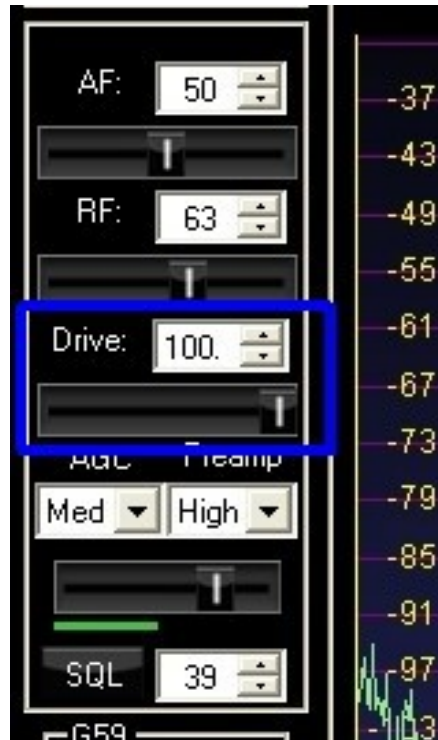
As always, try to keep these measurements and adjustments short. We will be transmitting 10 watts continuously while making adjustments, and your heatsink will get VERY warm!  
(A fan blowing on the G11 heatsink would be a good precaution.)

In GSDR go to Setup > PA Settings > Gain by Band  
You will see all the bands listed, with a settings box next to each.  
The numbers given will adjust the RF power output.  
A LOWER number, will RAISE the output.  
Default is 48.0  
DO NOT click on "CALIBRATE" !  
But DO click "RESET"



Press TUNE on the main screen.

Verify that the DRIVE slider is at 100 AFTER you press TUNE.



Look at your external power meter.

Adjust the numbers in the white box next to the designator of the band you are on... up, or down with the little arrows, until your power meter reads 10 watts.

Click APPLY.

You now need to do this for EVERY band That your G11 is set up for.

Please remember to give G11 a chance to cool down from time to time!

### Step 3. Calibrate G11 Power/SWR measurement head.

We start this step with G11 still connected to a dummy load, and wattmeter.  
Select the 20 meter band. ( or a band that is near the midrange of your G11 band filters)

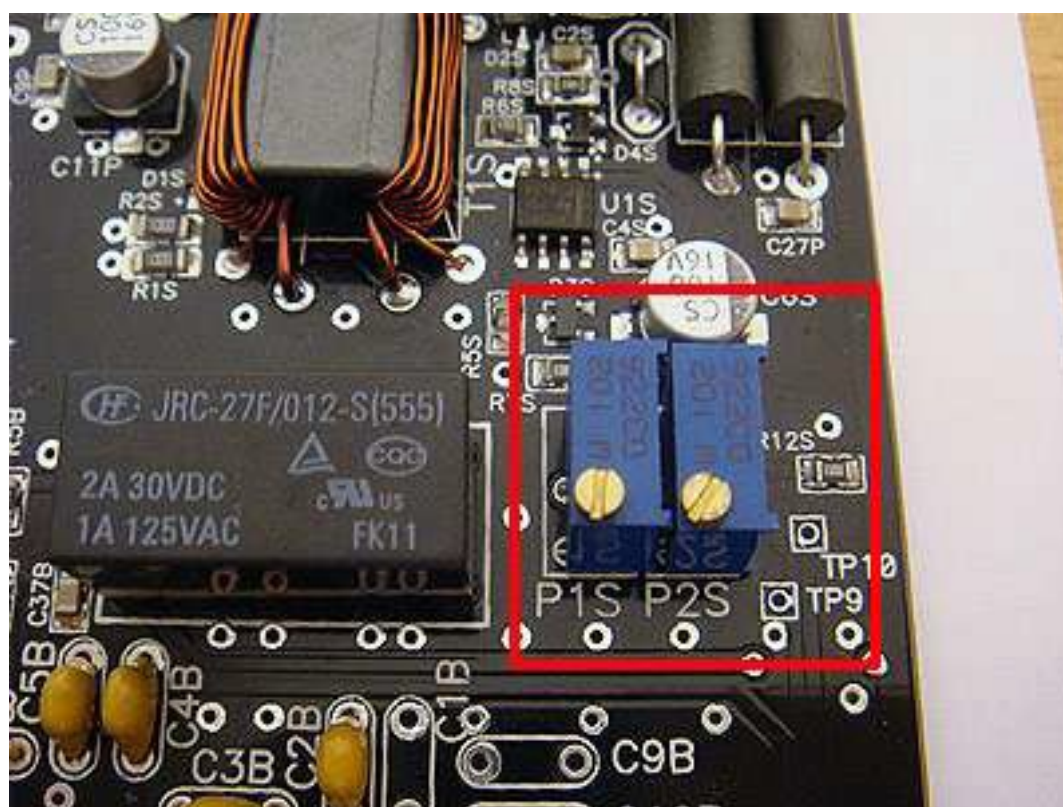
Following the test points shown in the picture below, make these adjustments as close as you can.

Press TUNE, verify the power output is 10 watts.

Adjust P2S until TP10 measures 2.0vdc .  
Press TUNE to stop TX.

Next :  
DISCONNECT the coax cable to the dummy load AT G11 BNC connector.  
( you read right, in the next step you'll be transmitting into NO LOAD, so do this FAST!)  
Again press TUNE:

With P1S, set TP9 to 2.0vdc.  
Press tune to stop TX.  
Reconnect coax cable.



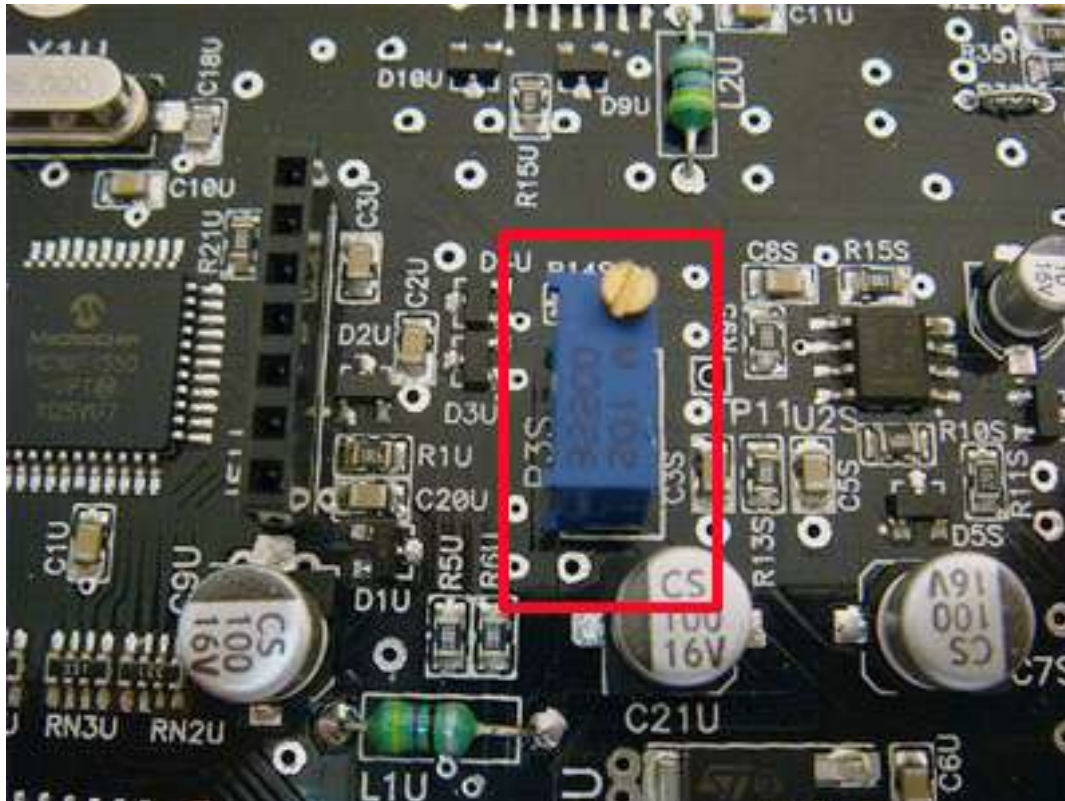


Adjust P3S so TP-11 measures between 2.0 and 2.5 vdc.

This is the set-point that G11 protection will shut off the amplifier with high VSWR.

Good place to start, I would suggest no higher than 2.20 volts at TP-11,

This should allow plenty of room to adjust an external antenna tuner, but still have adequate protection.



## Step 4. Adjusting FWD Power meter in GSDR.

Ok, now we are ready to calibrate the power meter in GSDR.

For this step, again we have G11 connected to the dummy load.  
We want the power output to be 10 watts ( DRIVE slider at 100 ).

Go to Setup > PA Settings > ADC offset box.

The screenshot displays the Genesis Radio software interface. At the top, there are menu options: Setup, Wave, Equalizer, CWX, Voice Messages, Wizard, Compact screen, and About. The main display area shows VFO A at 1.857 681 MHz and VFO B at 1.845 000 MHz. A 'Fwd Pwr' meter in the top right corner shows 10.0 W. A 'PowerSDR Setup by GenesisRadio' dialog box is open, with the 'PA Settings' tab selected. The 'ADC Offset (ADC bits)' section is highlighted with a blue box, showing values for various bands (160m, 80m, 60m, 40m, 30m, 20m) and a 'Calibrate' button. The 'Drive' slider in the left sidebar is set to 100. The bottom of the screen shows a Windows taskbar with the time 7:58 PM.

Settings here will work the same as when we set the output power in Step 2.

Press TUNE, make sure the drive slider is at 100, and your external meter should read 10 watts.

Change the number in the white box next to the band you are on, until the FWD power meter on GSDR main screen reads 10.0 watts.

Click APPLY.

Do this step for each band that your G11 is set up for.