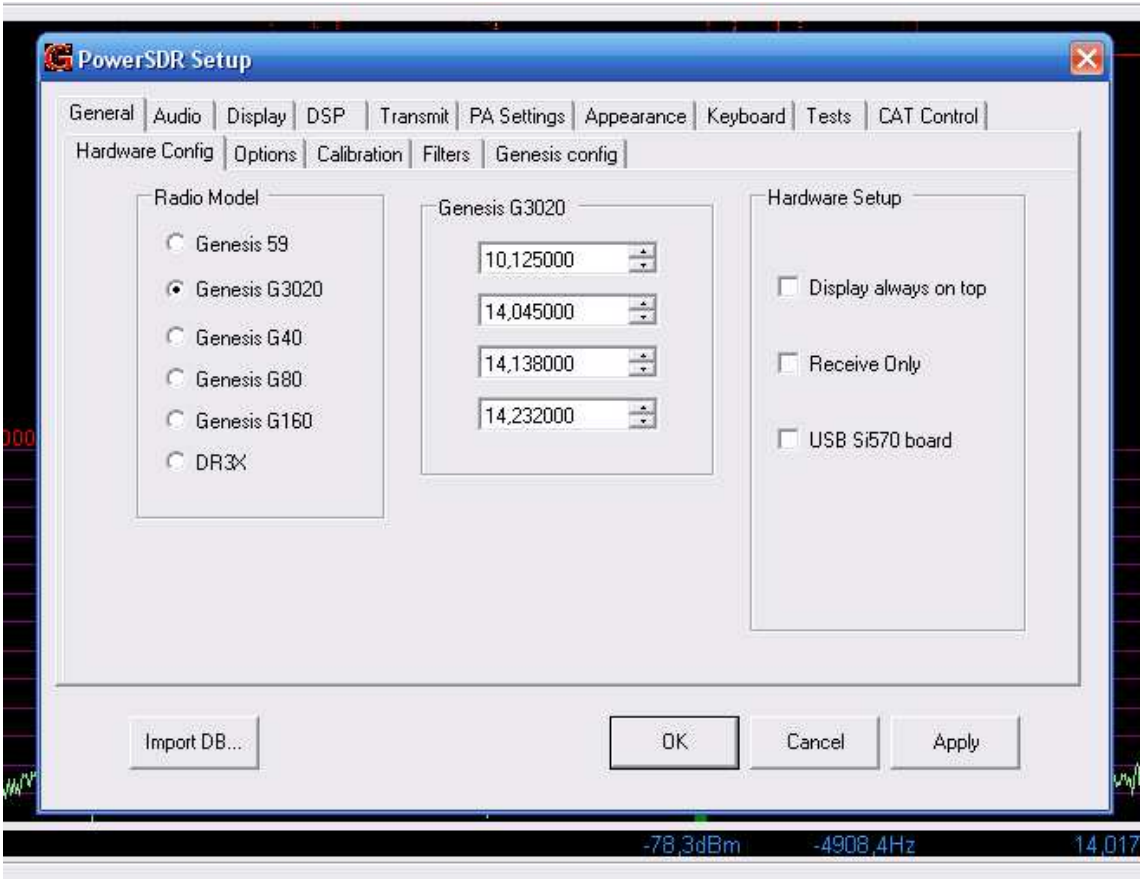
GSDR-G3020 Setup settings helpfile (with EMU-0202 external sound card)

Version 1.0 *-By Hans, LA2MOA*

These are the basic settings I use for running GSDR together with my G3020 (and EMU-0202 sound card) in CW-mode. It all works fine. I'm sure the settings presented here also works with the G40. The tags in the index below that are containing the minimum number of parameters that you MUST set, in order to make the G3020 to play with the software, is marked with an asterisc (*). ALL other settings are PERSONAL (or maybe for working SSB and/or other modes), and can be set by the user for convenience or amusement ;). Anyone may correct me if any detail or setting is wrong here. This document will be revised frequently.

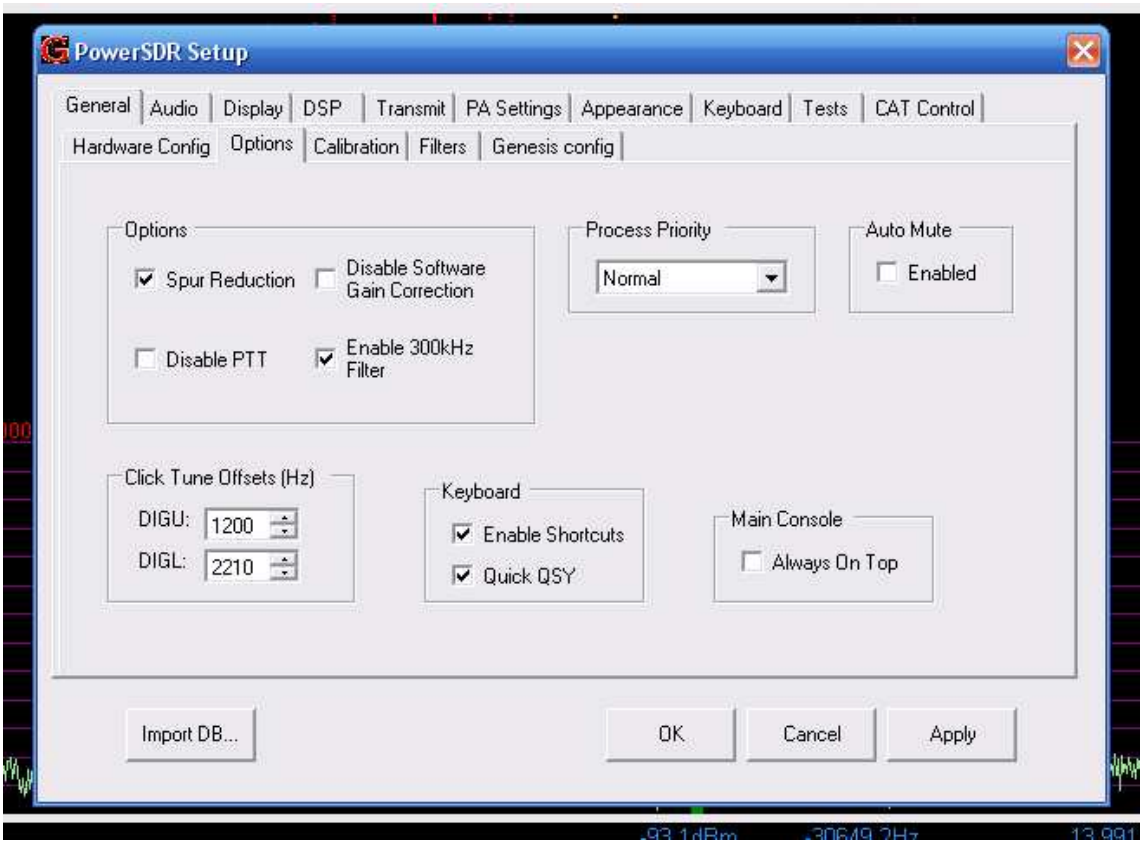
Index:

Main tag: General*
Sub tag: Hardware Config*



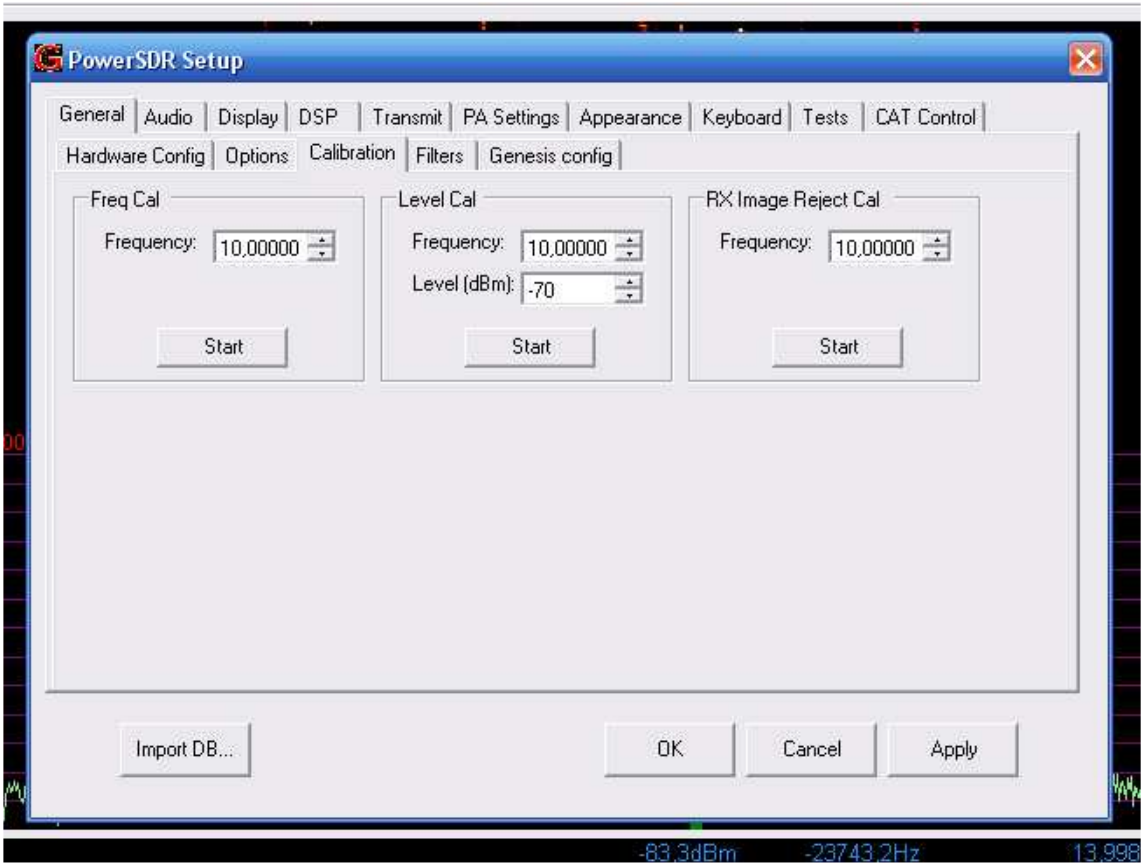
This window is pretty obvious. Select the radio model that you want to use. If you will use the G3020, enter the 4 LO-frequencys in the middle of the window. In the Hardware Setup section, confirm that Receive Only is disabled if you want to do more than just listen with your radio.

Main tag: General
Sub tag: Options



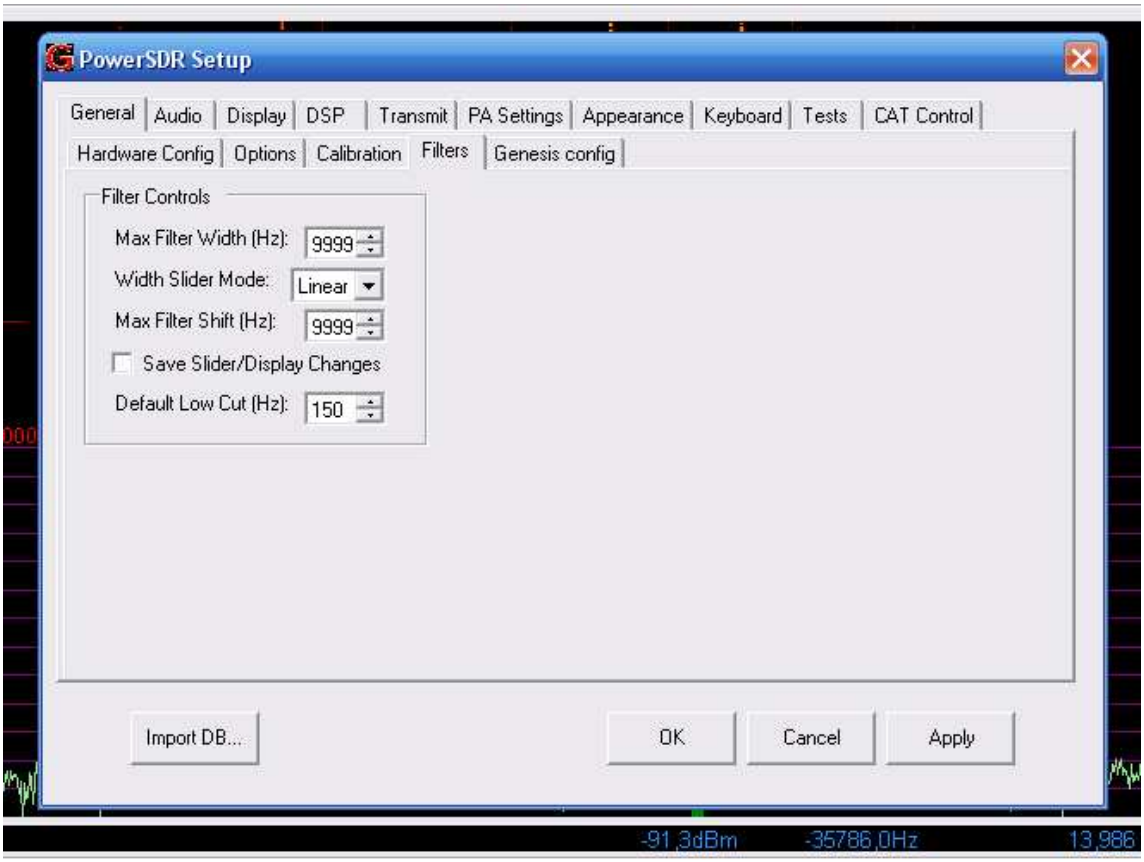
This window you can leave as it is...

Main tag: General
Sub tag: Calibration



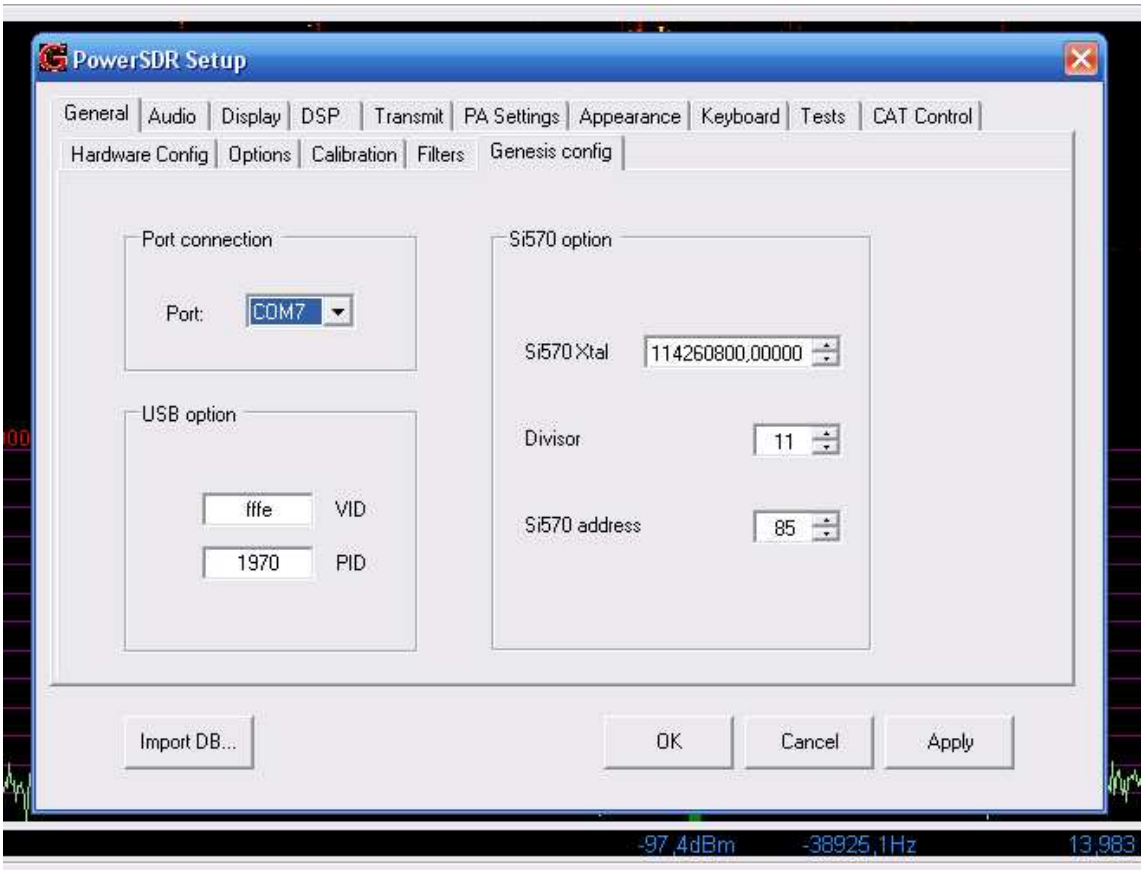
I haven't touched anything in this window, because I'm not really sure about what may be the result of "experimenting". If you don't know what you're doing, leave it!

Main tag: General
Sub tag: Filters



In this window you can set the maximum filter widths and slider modes. I'm quite happy with the "factory settings" so I didn't do anything in this window.

Main tag: General*
Sub tag: Genesis Config*

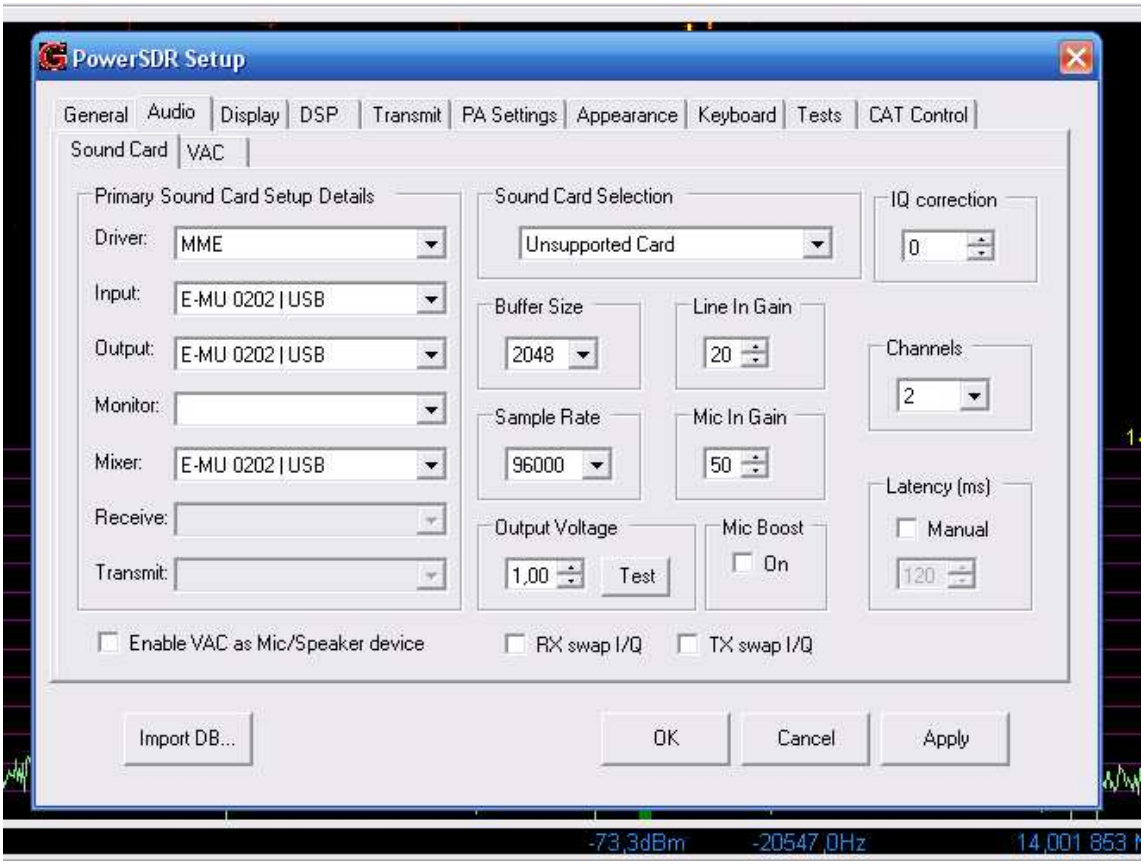


In the section named “Port Connection”, you must select the number of the COM port for your USB/Serial adapter. This is the COM port that was generated when you installed the USB/Serial adapter, if you’re not sure – go to the Windows control panel, select System > Device Manager > Ports. You will find the number of the COM port assigned for your USB/Serial adapter there.

Don’t touch anything in the USB option section. Don’t touch anything in the Si570 option section, unless you are using a Si570 together with your rig.

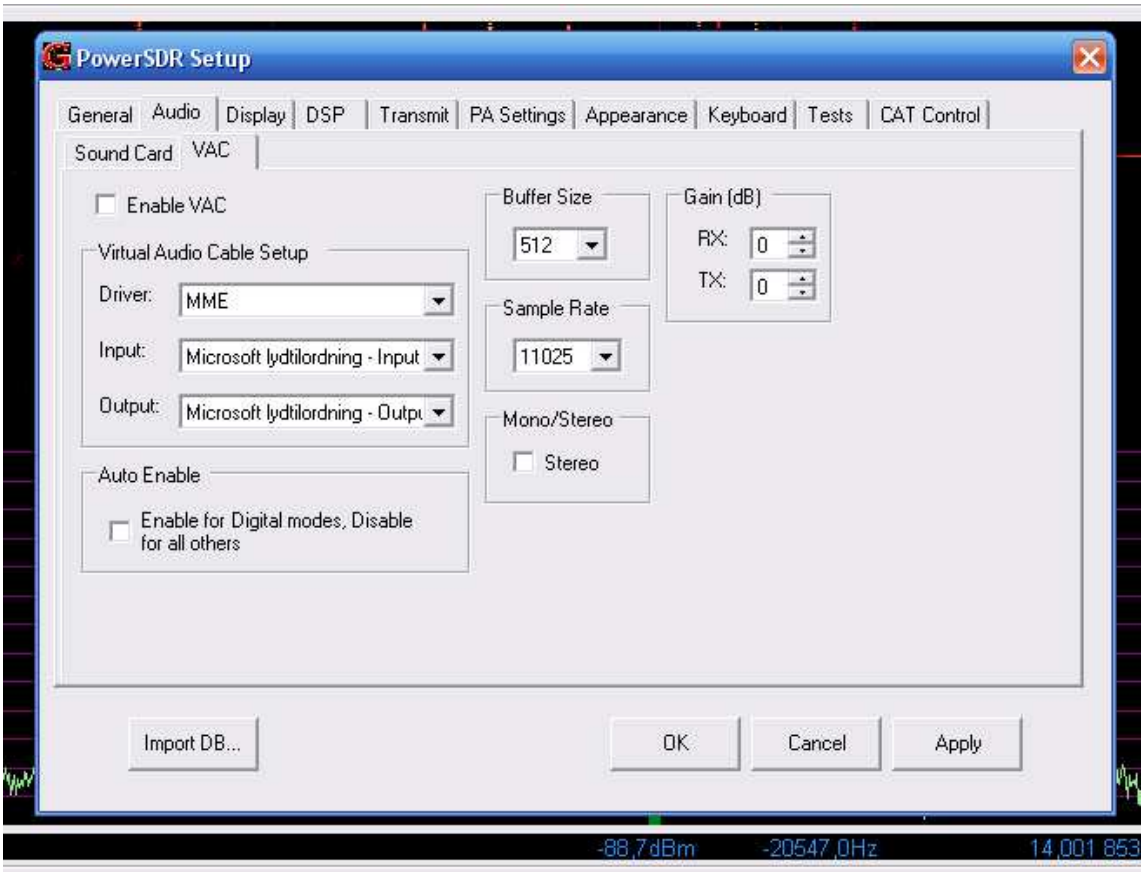
2.

Main tag: Audio*
Sub tag: Sound Card*



The settings in this window are essential. If you're using the EMU-0202, you can "copy" the settings from the picture above. Sample rate is a matter of taste and I'm quite happy with 96 KHz, even if the 0202-card is capable of 192 KHz.

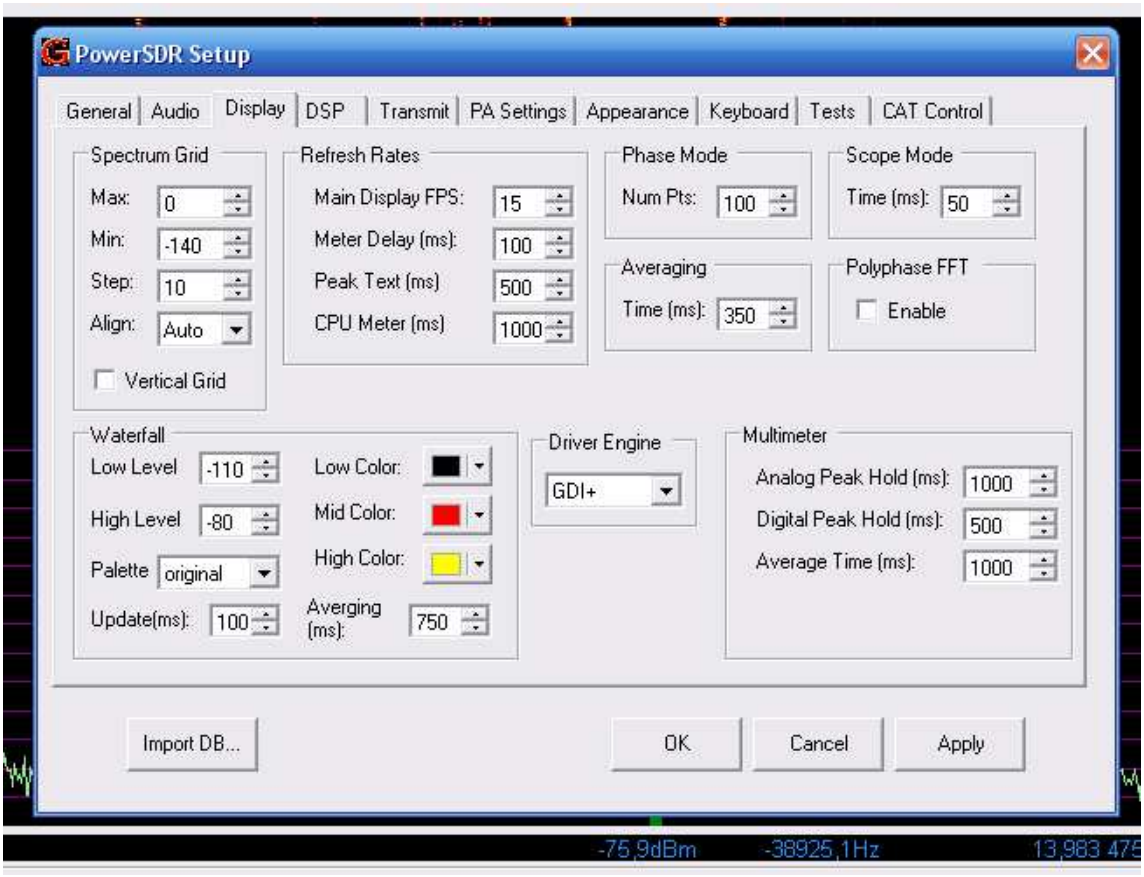
Main tag: Audio
Sub tag: VAC



Don’t touch! You should keep VAC disabled.

3.

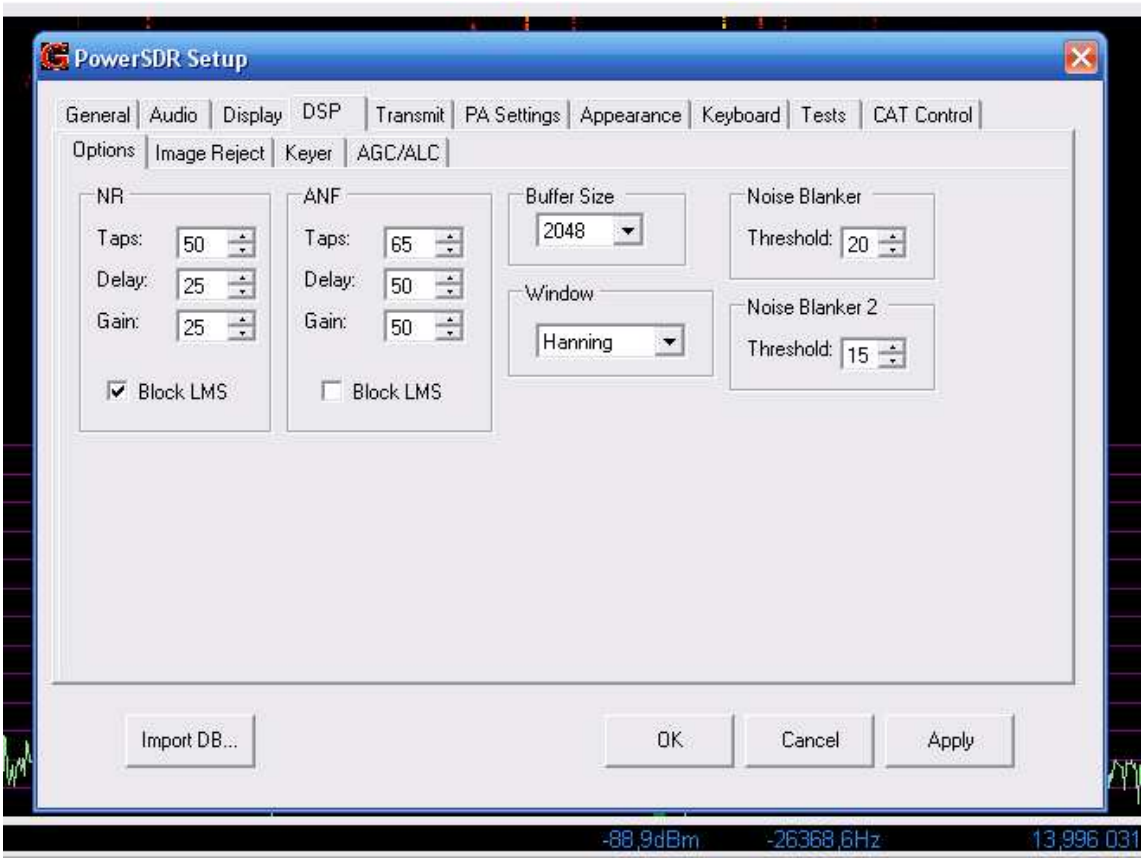
Main tag: Display
Sub tag: N/A



In this window you can play with a number of parameters regarding presentation in the display. Before experimenting with the settings, it may be a good idea to make a notation of the "factory settings".

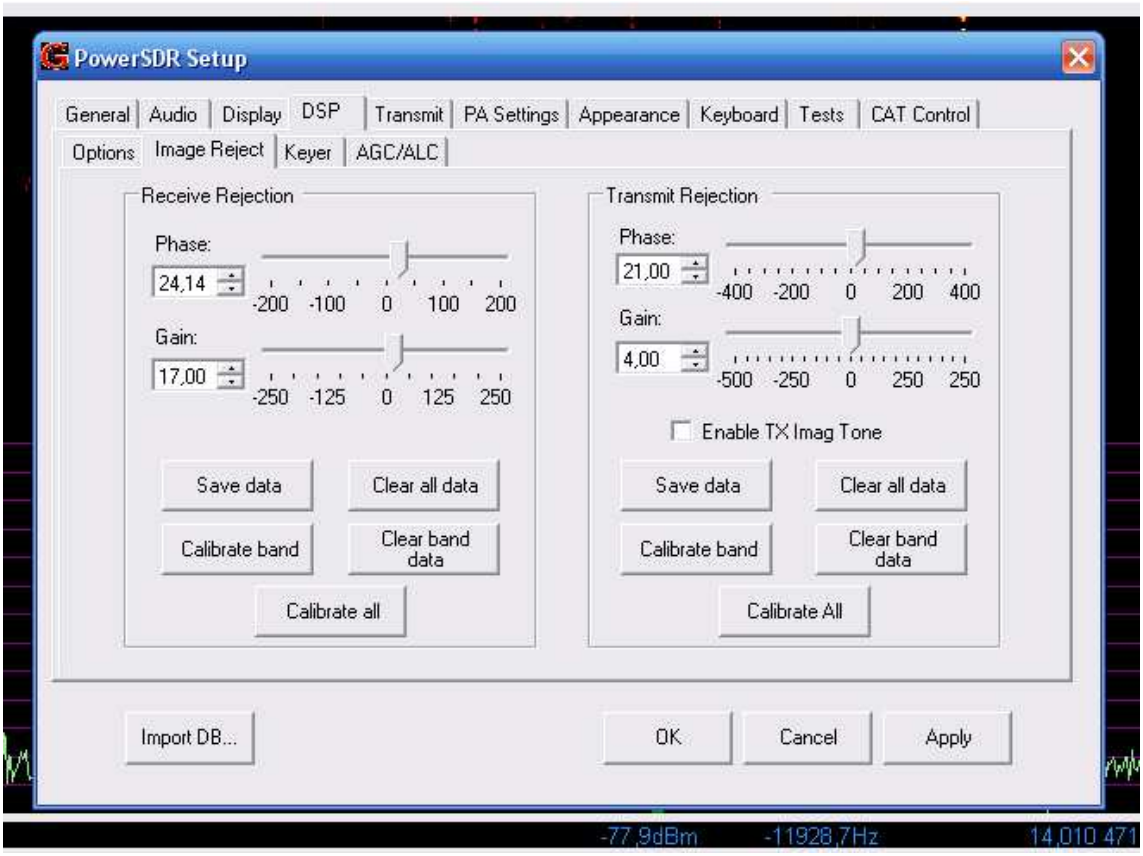
4.

Main tag: DSP
Sub tag: Options



...and here you have possibility to optimize Noise Reduction and the Automatic Notch Filter.

Main tag: DSP
Sub tag: Image Reject



This window is containing two VERY useful functions in GSDR; Image Rejection Optimization in both RX and TX mode.

Very important: Before andjusting anything in the software; make sure that you have done the image rejection adjustment on your G3020/G40 properly. The procedure for this is described in the G40 pages on the Genesis site. If you are using the EMU-0202 sound card, it also a good idea to find the positions of the L and R knobs on the 0202 front panel which gives the best image rejection. On my EMU-0202, I find the best image rejection when the R-knob is 100% CCW and the L-knob is somewhere between 0930 and 10 o'clock...

Now, you are ready to optimize the image rejection in the software. Start with **receive**:

If you are using the G3020, start with 10 MHz. For receive rejection optimization, tune your "big radio" to 10.117,0 MHz, transmit a carrier into your dummy load and look at the spectrum in GSDR. If you have done image rejection adjustment properly when you assembled your G3020 you should see a small image on 10.133,0 MHz (typical 40dB lower, or better, than the desired signal on 10.117). Now move the Receive Phase slider until you find a "dip" of the image signal. Move the Receive Gain slider until you find the deepest dip. Continue with both sliders in smaller and smaller increments until the image signal has completely dissapeared into the noise. Then click the "Calibrate band" button, which saves the settings for 10 MHz. Then click "Apply" and "OK".CONTINUED ON NEXT PAGE >>>

Now continue with doing the same on 20 meters. Set your G3020 to the 20-meter LO of your choise. Set the correct LO and band in the GSDR software, click “Setup”, “DSP” and “Image Reject” You only need to choose one of the LO frequencys, as your settings will affect the whole band. I work mostly CW, so I choosed the 14.045,0 LO. Don’t forget to click “Calibrate band”, “Apply” and “OK” when you’re done!

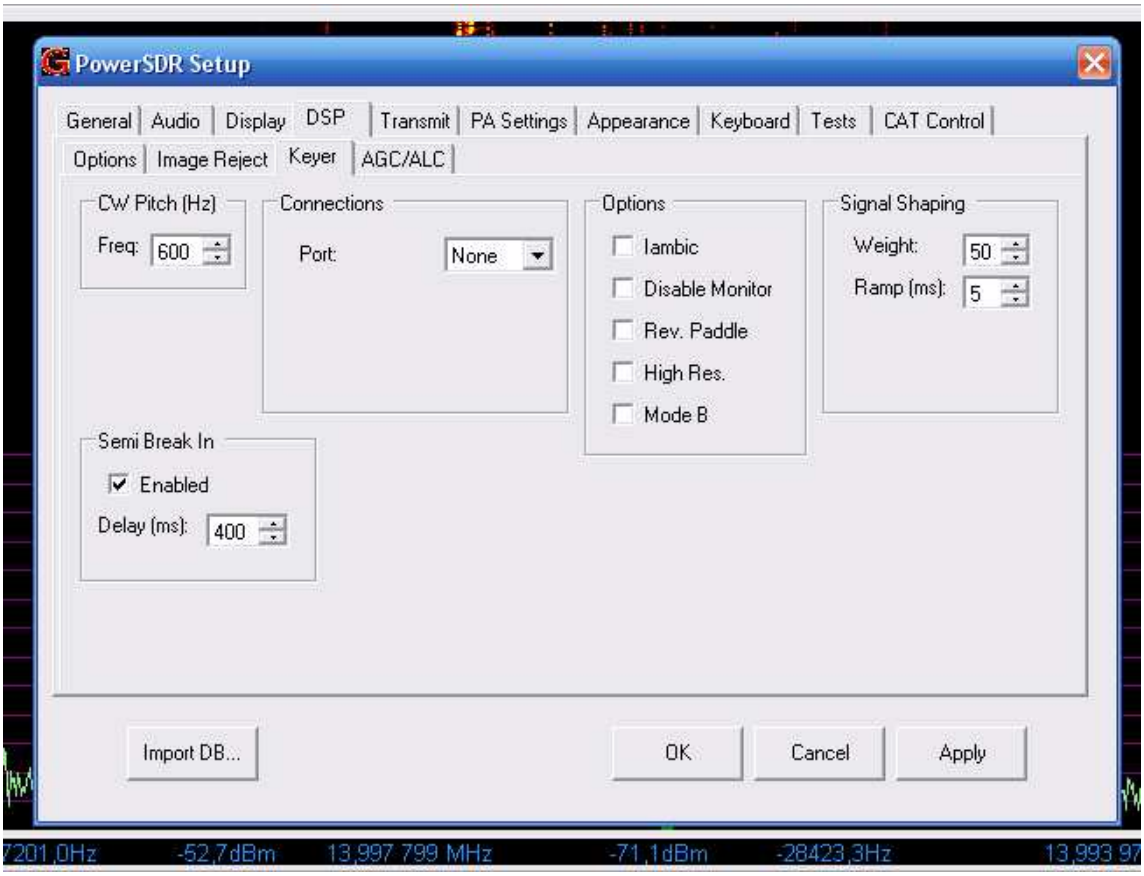
Now, we’re ready to optimize the **transmit** image rejection. Also in this case it’s mandatory that you have done a proper adjustment in the hardware before start playing with the software.

Connect a dummy load to your G3020 and tune it to 10.117,0 MHz. Tune yout “big radio” to 10.133,0 MHz and click the “TUN” button in GSDR (located just below the “On” button). You will notice a weak transmit image when you listen on 10.133,0 MHz. In the same manner as we did in the receive image rejection, move the Transmit Phase and Gain sliders in GSDR in smaller and smaller increments, until you find the point were the transmit image is weakest. Click “Calibrate band”, “Apply” and “OK” when you’re done. Continue with doing the same on one of the LO’s of 20 meters.

VERY IMPORTANT:
If you for whatever reason, needs to realign the image rejection in your hardware (i.e. the G3020 or G40), it’s a good idea to reset all the image rejection values in GSDR to ZERO, before start adjusting it in the hardware. This cane be done by resetting the sliders to zero by hand, or by clicking the “Clear band data” button for each band, or clicking the “Clear all data” button once in GSDR/Setup/DSP/Image Rejection.

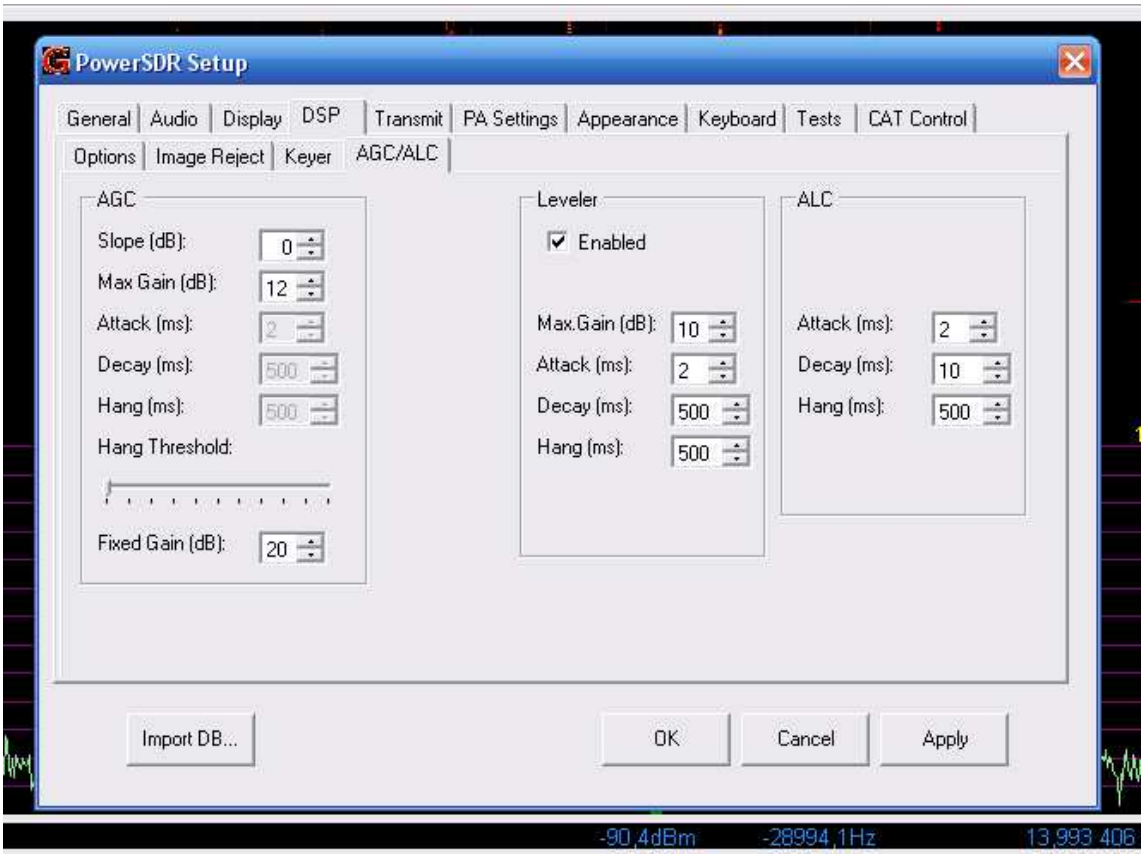
It’s quite fun to play with these functions in GSDR, and you have the opportunity to experiment a lot. Remember, that you can’t distroy anything by playing with the functions in the software. If you can’t get back to proper adjustment values, just reset them in the software to zero. A proper image rejection adjustment made in the hardware is good enough in most cases.

Main tag: DSP
Sub tag: Keyer



I haven't done anything in this tag...

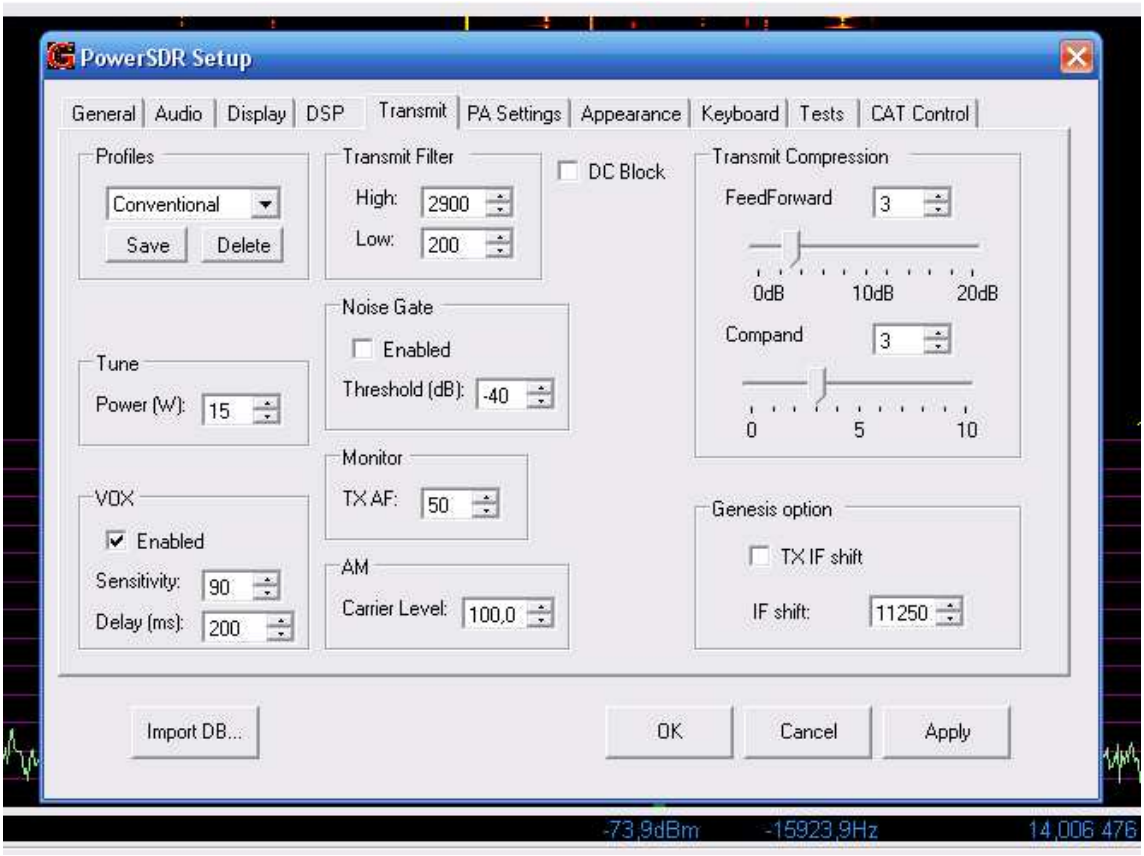
Main tag: DSP
Sub tag: AGC/ALC



Here you can optimize your AGC-settings. I haven't done anything here, as I'm quite happy with the "factory settings"...

5.

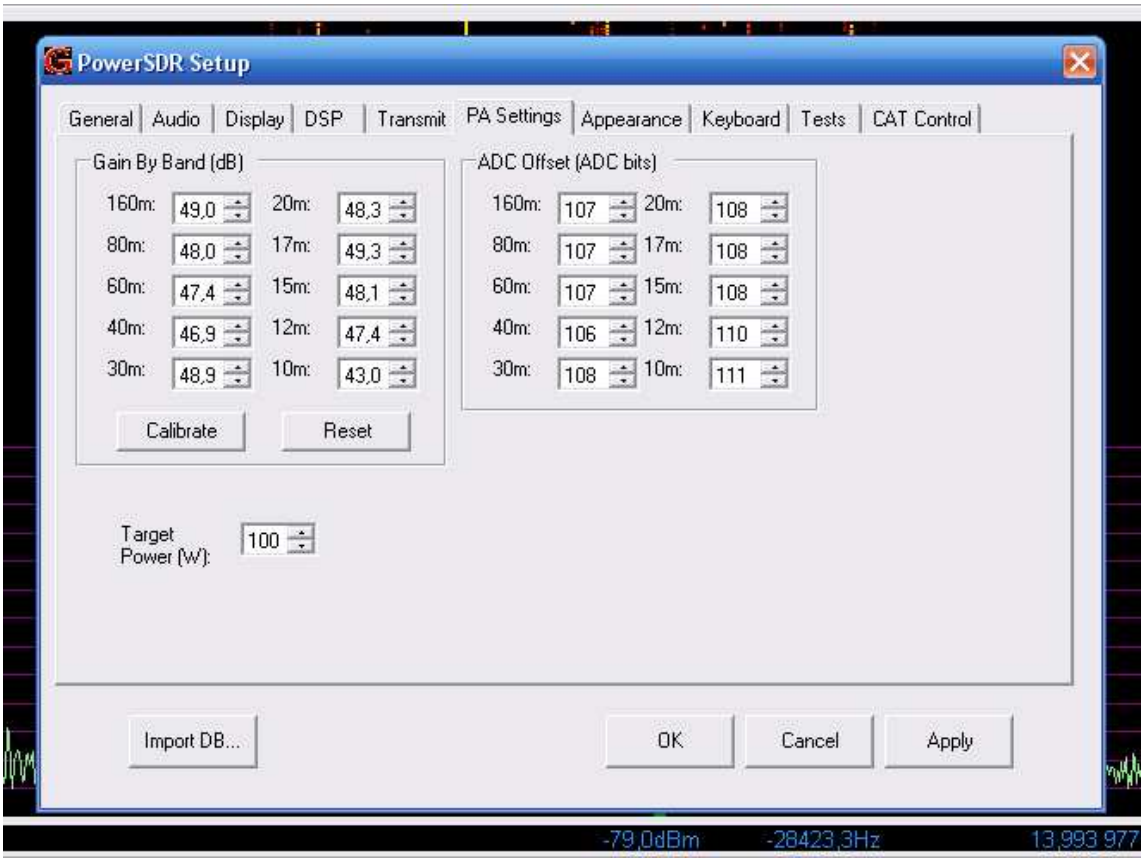
Main tag: Transmit
Sub tag: N/A



The settings here mostly affect SSB, which I haven't tried yet...

6.

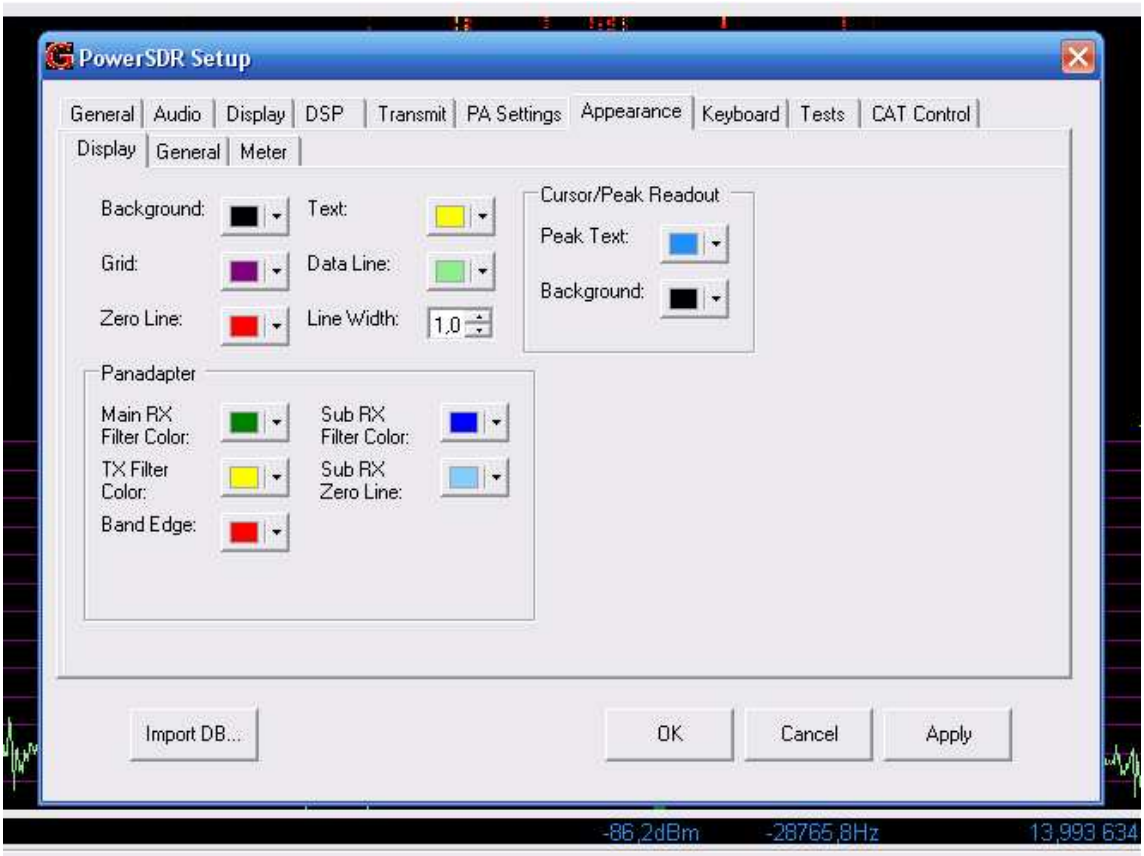
Main tag: PA Settings
Sub tag: N/A



No, I haven't touched anything here...

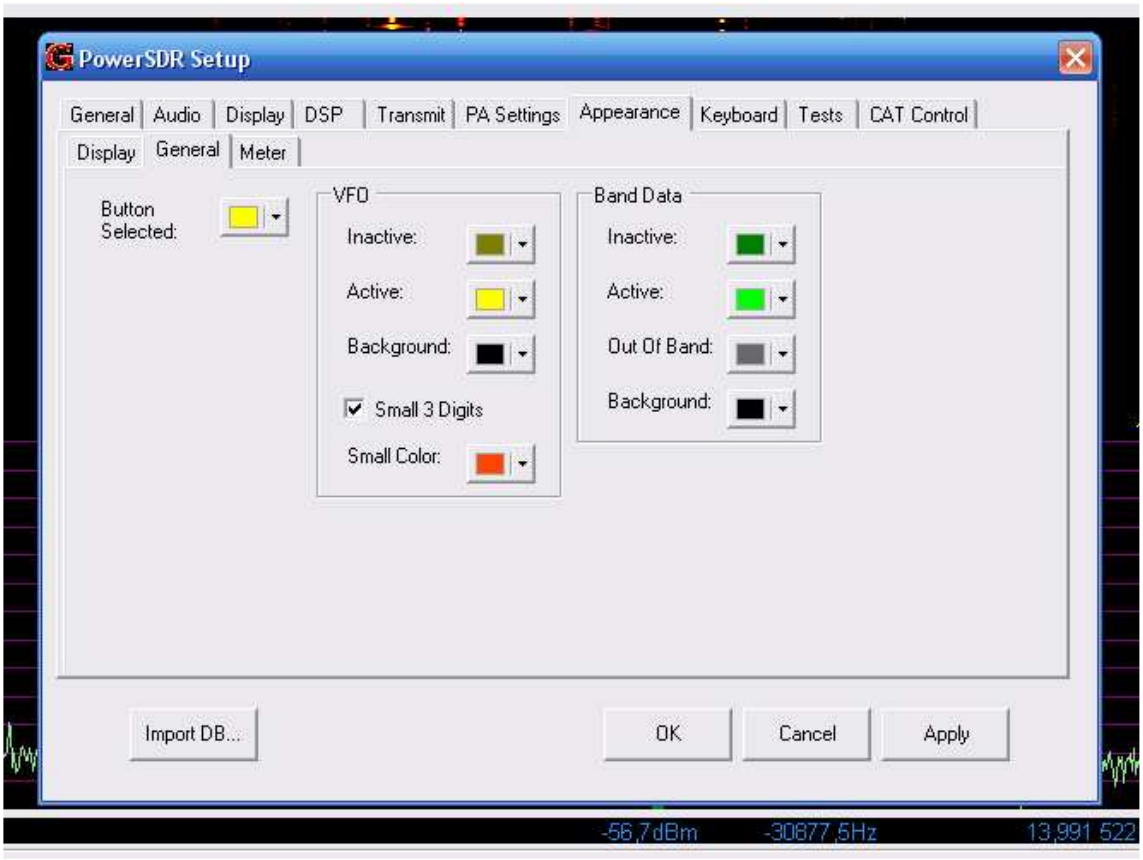
7.

Main tag: Appearance
Sub tag: Display

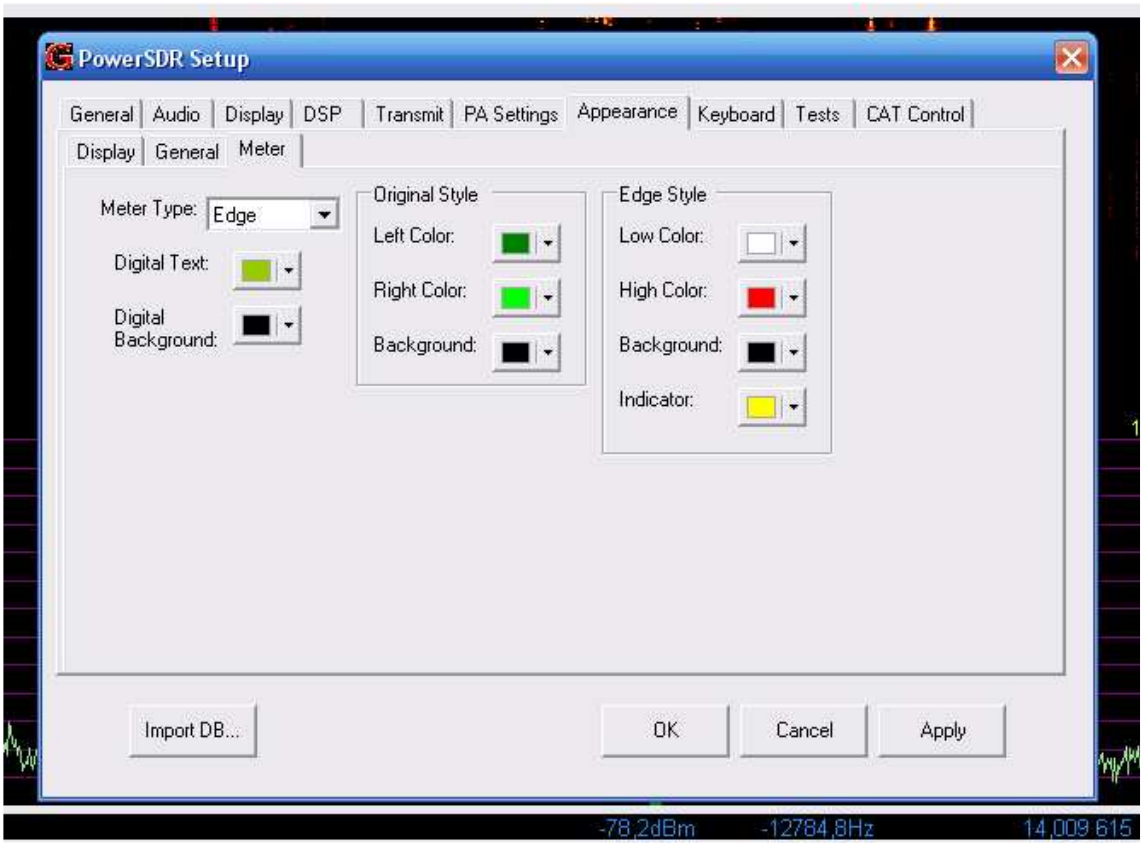


Here you can play with the colours in the software. Quite self-explaining...

Main tag: Appearance
Sub tag: General

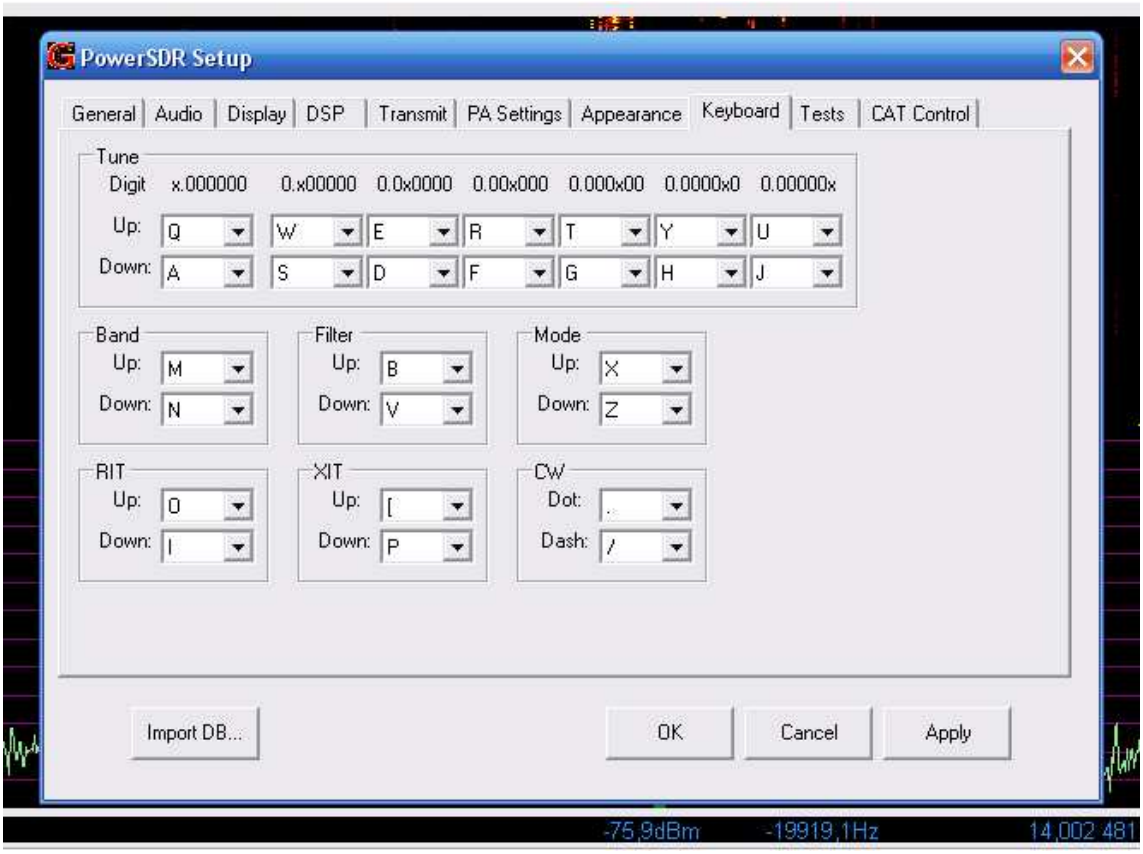


Main tag: Appearance
Sub tag: Meter



8.

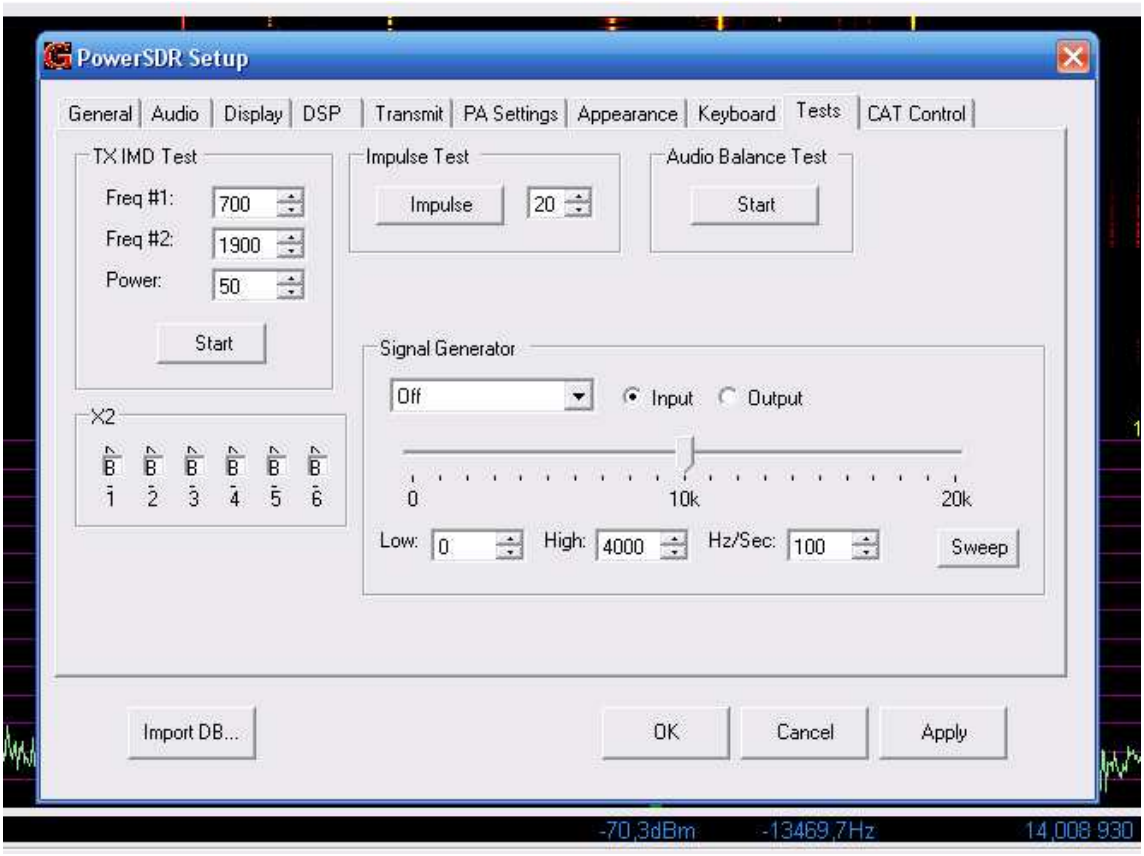
Main tag: Keyboard
Sub tag: N/A



No, I haven't touched this... yet... ;)

9.

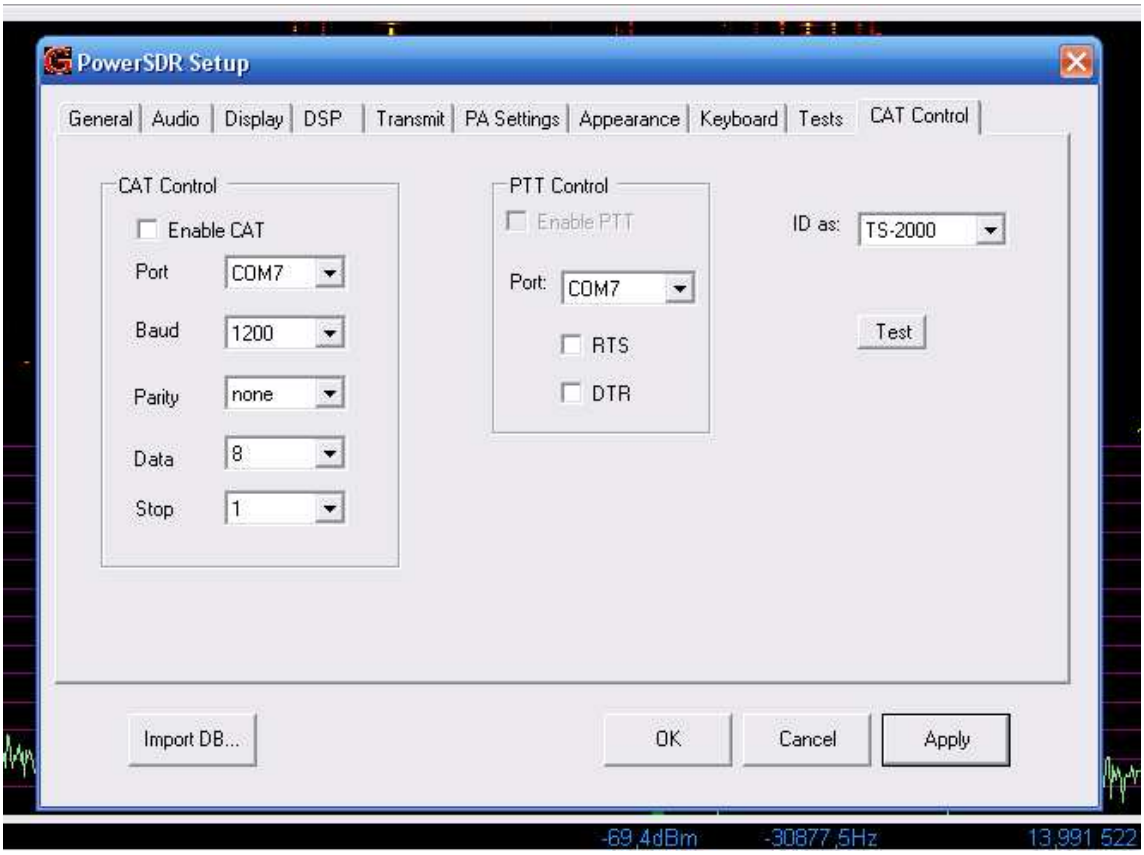
Main tag: Tests
Sub tag: N/A



Like I wrote on an earlier page; if you don't know what you're doing – don't do it...

10.

Main tag: CAT Control
Sub tag: N/A



You don't need to do anything in this window in order to get your G3020 to work properly. Leave it...