Spectravue Configuration

For Use with FCD



The FCD must be connected for it to appear in the Spectravue setup.

It is suggested that the program FCHid be running. Enter a frequency of 100MHz and click on the "Defaults" button. FCHid content should appear as shown below. (FCD F/W 18c)



SoundCard Input Setup					
SoundCard	FunCube Do	ngle V0.0	(•	
Sample Rate	96000	SPS	1/Q C	Comp alpha	
BW Limit	96000	Hz		beta	
Center Freq	48000	Hz		ldc 0.dc	
✓ Stereo (Complex I=R, Q=L) ✓ Invert Spectrum			Sample O	ffset 0 C +1	
OK Cancel					

The "Center Freq" may be set to suit you. As shown it results in the scale seen in the first screenshot i.e. 0KHz - 96KHz. If you prefer to have the scale shown as +/- 48KHz of the FCD's centre frequency then enter 0 in this box.

Remember, a signal at the centre frequency of the FCD as set with the FCD control program is always displayed at the centre of the Spectravue screen.

Out of the box there are two tweaks of immediate interest. Firstly there's the DC offset which you'll find in the middle of the SDR's passband (centre hump), and secondly there's the image rejection. By adjusting these settings, you can null out the DC offset and image signals.

I dc & Q dc adjust the DC offset (centre hump).

alpha & beta adjust the image rejection.

The precise amount of DC offset and image rejection will vary from unit to unit, and is also frequency and gain specific.

See later in document.

Data Output Selection 🛛 🛛 🔀				
Wave File Capture Setup Image: Approximate in the state				
Manual Recording Mode 30 min 10000000 Hz 2011-01-04 22:32:45 UTC 10000000 Hz 2011-01-04 22:32:45 UTC 10000000 Hz 2011-01-04 22:32:45 UTC 10000000 Hz 2011-01-04 22:32:45 UTC 10000000 Hz 2011-01-04 22:32:45 UTC 10000000 Hz 2011-01-04 22:32:45 UTC 10000000 Hz 2011-01-04 22:32:45 UTC				
 FFT / Continuum File Saving No Output File Saving Screen Capture to File (JPG, PNG or BMP Format) (Timed Or Save Continuum Data to .CSV Excel Format File Save Waterfall FFT Data as 1 byte/pixel BMP Format File Use Screen Resolution Save FFT Data as CSV Excel Format File(Timed Only) Save absolute FFT Data as 2 byte Custom Binary Format File Select Out File 				
Soundcard/Demod Output Setup Single Channel Demod Output to SoundCard Output to SoundCard Output to SoundCard Output to SoundCard SoundCard OK Cancel				

"Sound Card" should contain the name of the sound card used on your system to output the demodulated audio.

General Program Setup					
FFT Window Type C Rectangle C Hamming	Waterfall Rate(0 to 60 Secs/update)	Assign Display Colors			
 Hanning Flat Top 	Select Waterfall Color Palette File	Using Default			
G Blackman G Blackman-Harris	Use Comp. 🔽 Select FFT Compensation File	Using Default			
Display Units Hz (Sec) KHz (mSec) MHz (uSec)	Memory Modes Cursor Mode Cursor Mode Cursor OFF Cursor VF Cursor VF Cursor VF Cursor VF Cursor VF Cursor OFF Cursor VF Cursor OFF Cursor Vote	3D xy Pixel Shift (1-100) 4 3 1/N 3D Plot Scale(1 to 1/10) 3 N			
C GHz (uSec) L/R Button Freq Chan Squelched Display Color 2D Graph Display Speed FFT Overlap Skips N updates ○ N N Markers Mouse Click Markers Allow Mouse Click Markers ○ Display Peak M		Auto Start Right to Left Continuum Time Stamp Display O Sec (0==AUTO) Pulse Mode Setup se Mode Enable(Pwr vs Time) Chirp Rate MHz/Sec OK Cancel			

That completes the basic configuration.

Clicking "Start-F12" in the main screen should now produce a screen similar to that shown below and noise should be heard from your soundcard.



The DC offset can be clearly seen at the centre of the screen and if you have an antenna attached you may see other signals.

If you wish to adjust the DC offset at this stage open the "SoundCard IN Setup" and whilst watching the height of the centre spike juggle the I dc & Q dc figures to minimize it. The two adjustments interact so an amount of experimentation is required. It is suggested that you make this adjustment without an antenna or with a 50R load connected.

To easily adjust the image rejection a stable signal is required. The procedure is the same as above. Whilst watching the height of the image spike juggle the alpha and beta settings in the "SoundCard IN Setup".

The following two screen shots show the before and after results of making the above adjustments. For illustration purposes the FCD was set to a centre frequency of 100MHz. The input signal is to the right of the display and was set to 100.020MHz. The input level to the FCD was -100dBm. The image is on the left hand side. Following the adjustments it can be seen that the image has disappeared and the DC offset has been significantly reduced.

Pre Adjustment.



Post Adjustment.



http://www.funcubedongle.com/

http://funcube.org.uk/