

Excalibur Pro Review



SDRZone



G33DDC Excalibur Pro Review

October 23rd 2013

Reviewed by NI0Z

G33DDC Excalibur Pro

WiNRADiO

Retail Cost \$1795

Review Type = High-level

SDR Type = DDC SDR Receiver

Review Scope

The G33DDC Excalibur Pro is a highly capable SDR. It's worth noting that the Excalibur Pro is not really marketed as an SDR for Ham Operator use as far as I can tell. It would appear that it's primarily marketed to Shortwave Listeners and those who desire sophisticated monitoring tools for scouring the airwaves.

Due to limitations on review time with the unit the review will cover the basic capabilities of the SDR. I will also cover some relations to the ham world which will likely seem critical. For this reason it's important that the reader ultimately walk away understanding the device's true market and I will say up front the Excalibur Pro is an extremely capable device as it relates to its true target audience.

Reviewer

NI0Z, Mark Abraham - Licensed as Extra 2011. You can read more about the reviewer's background using the link at the bottom of the review.

Ordering, Shipping & Receiving

While I did not order the radio per se' as it was graciously provided by WiNRADiO for me to review, I do not believe it was shipped to me like any other customer.

I received a specialized USB Cable and Power Supply with the receiver. The USB cable has a proprietary connector on one end to mate to the radio and a standard connector on its other to plug into the computer.

I was notified by WiNRADiO and USPS the SDR had shipped. The device came in a typical shipping box well protected with molded Styrofoam insert around the radio and accessories.

No instructions were provided to me however, they are installed to the desktop in two PDF files when installing the software.



The packing box was standard issue



Box inside a box



Since I received a review unit, WiNRADiO provided this and the next two pictures so prospective buyers can see what actual packing looks like.



Picture provided by WinRADIO

G3

SOFTWARE-DEFINED COMMUNICATIONS RECEIVER

Software upgrades

Being "software-defined" means that the functionality of this receiver can be altered or improved by software. Please check our web site regularly for software updates related to this model.

Options

Additional software and hardware options may be also available for this receiver; please check our web site for more information.

WINRADIO also manufactures a full range of antennas and antenna accessories for a wide range of applications. It is likely that we have an antenna suited to your needs.

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WINRADIO®
www.winradio.com

Picture provided by WiNRADiO

Notable Specs

I believe the following specs from the WiNRADiO website are particularly noteworthy and am therefore calling them out for your attention.

- ✓ Filter bandwidth adjustable down to 1 Hz
- ✓ 4 MHz instantaneous processing bandwidth
- ✓ 0.5 ppm frequency stability
- ✓ 9 kHz to 49.995 MHz continuous frequency range
- ✓ 50 MHz-wide, real-time spectrum analyzer
- ✓ Waterfall display functions
- ✓ Audio spectrum analyzer
- ✓ Audio and IF recording and playback
- ✓ EIBI, HFCC and user frequency databases support
- ✓ Networking version of application software available
- ✓ Excellent sensitivity (0.20 μ V SSB, 0.10 μ V CW)

Radio Build

The build and finish of the SDR is very impressive and sleek. The connectors are solid and the overall finish is very professional. The case is metal and very well made and there is a plastic overlay over the metal case.

There is a power button on the front and blue indicator light. The rear sports an SMA connector, special USB cable hookup and a power jack.

As you can see the radio has a professional housing. The serial number is inscribed on the bottom of the device.

The radio was actually a little larger than I thought it would be and has more weight than I expected. It is not a brick though!



Professional Case and Labeling





Solid professional connectors

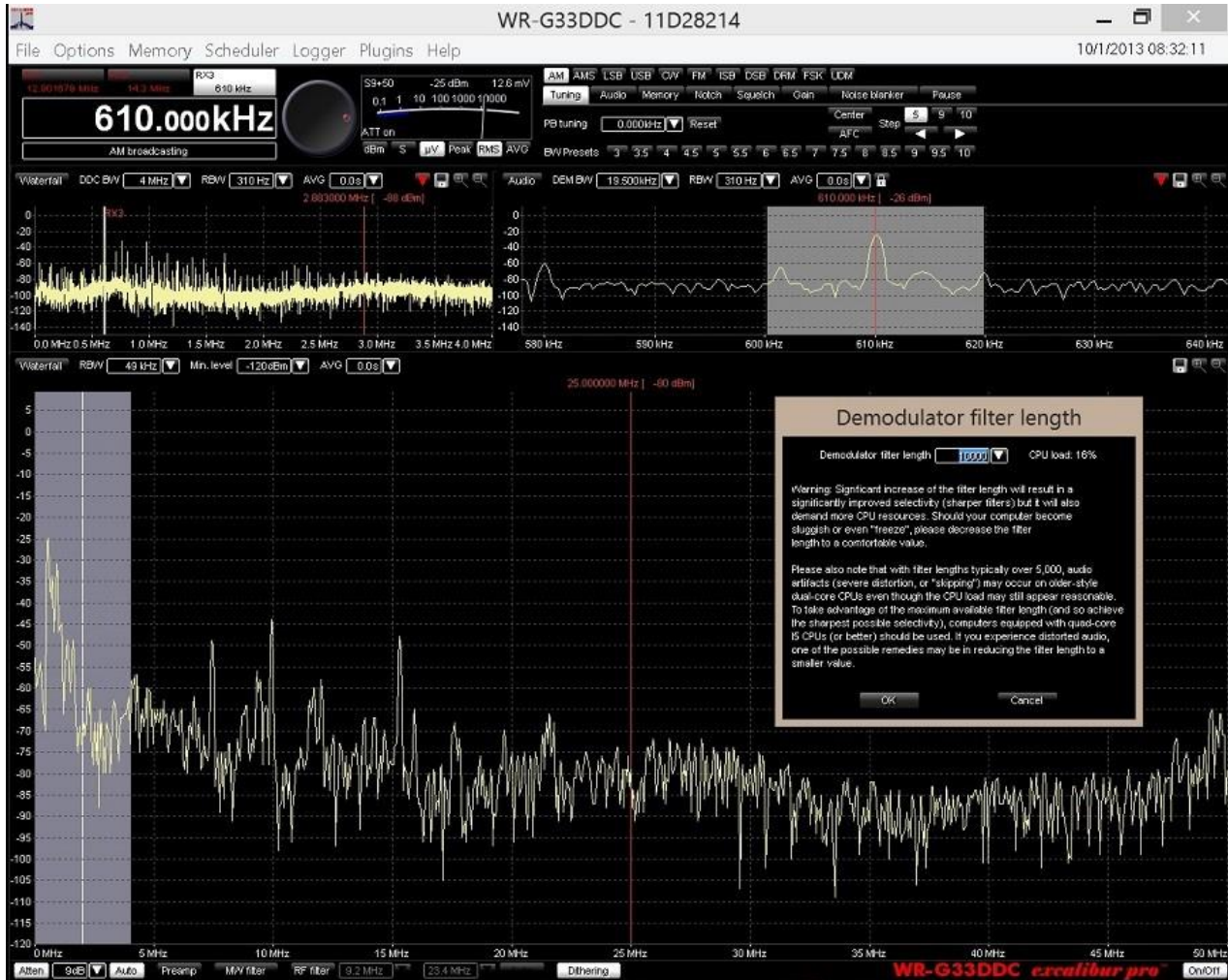
Computer Requirements

The Excalibur Pro requires a 2Ghz Dual Core Computer with 20MB HD Space and SVGA Display Adaptor and capable monitor. A USB Port is also required. The software runs on Win XP, Vista, Win 7 and this review is being run on Windows 8.

The test machines were a MS Surface Pro 128MB SSD and 4GB Memory and a mega beast machines with a 6 core I7 processor, 32GB RAM, Fast Disk and Video.

I did not see any constraints for usage on either machine.

To demonstrate this I set the Demodulator Filter to 10,000 and the Spectrum Capture to 4Mhz and the frequency range from 0-50mhz. The CPU on the MS Surface was using a whopping 16% while the Hamzilla machine barely registered 1%. See screen capture below. For reference the manual warns about CPU problems occurring at 5000 or above. There was no issue at all! For reference the manual claims greater precision with the higher settings. Results could vary on your system.

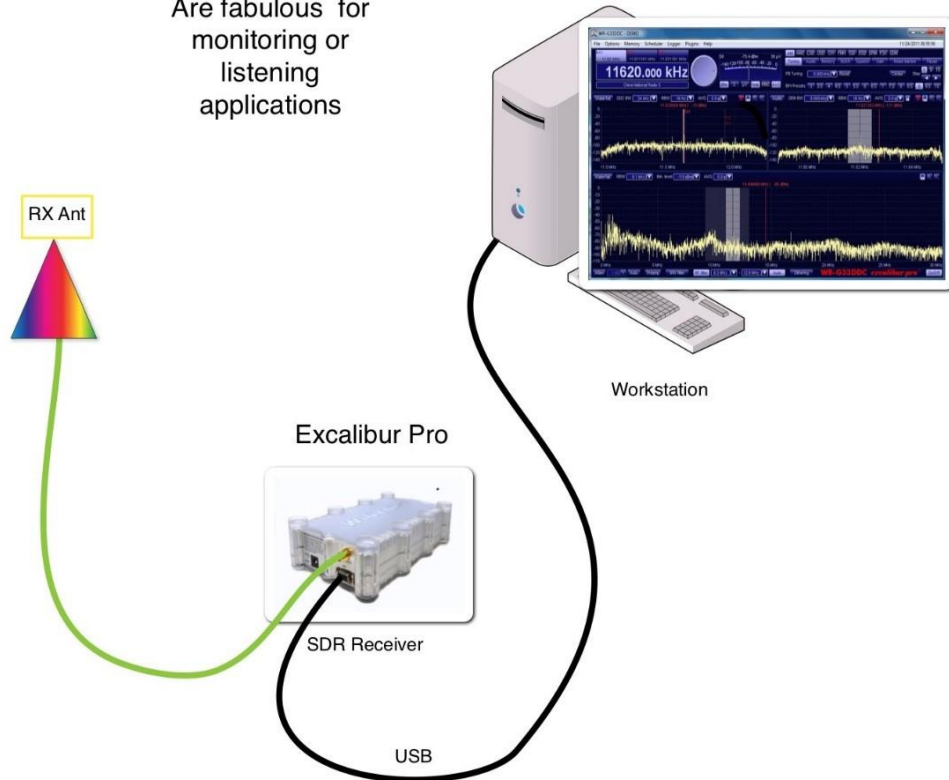


Possible Use Cases

I have already said that it would appear that the primary target use case for the Excalibur Pro is for hobbyist monitoring and shortwave listening. One could also purchase extended modules for the Excalibur Pro to support a wide and diverse set of digital modes, weather, PSK, ect. Only the VCS plugin was purchased and used in this review.

Typical WinRadio Setup

WinRadios Suite of SDRs Are fabulous for monitoring or listening applications



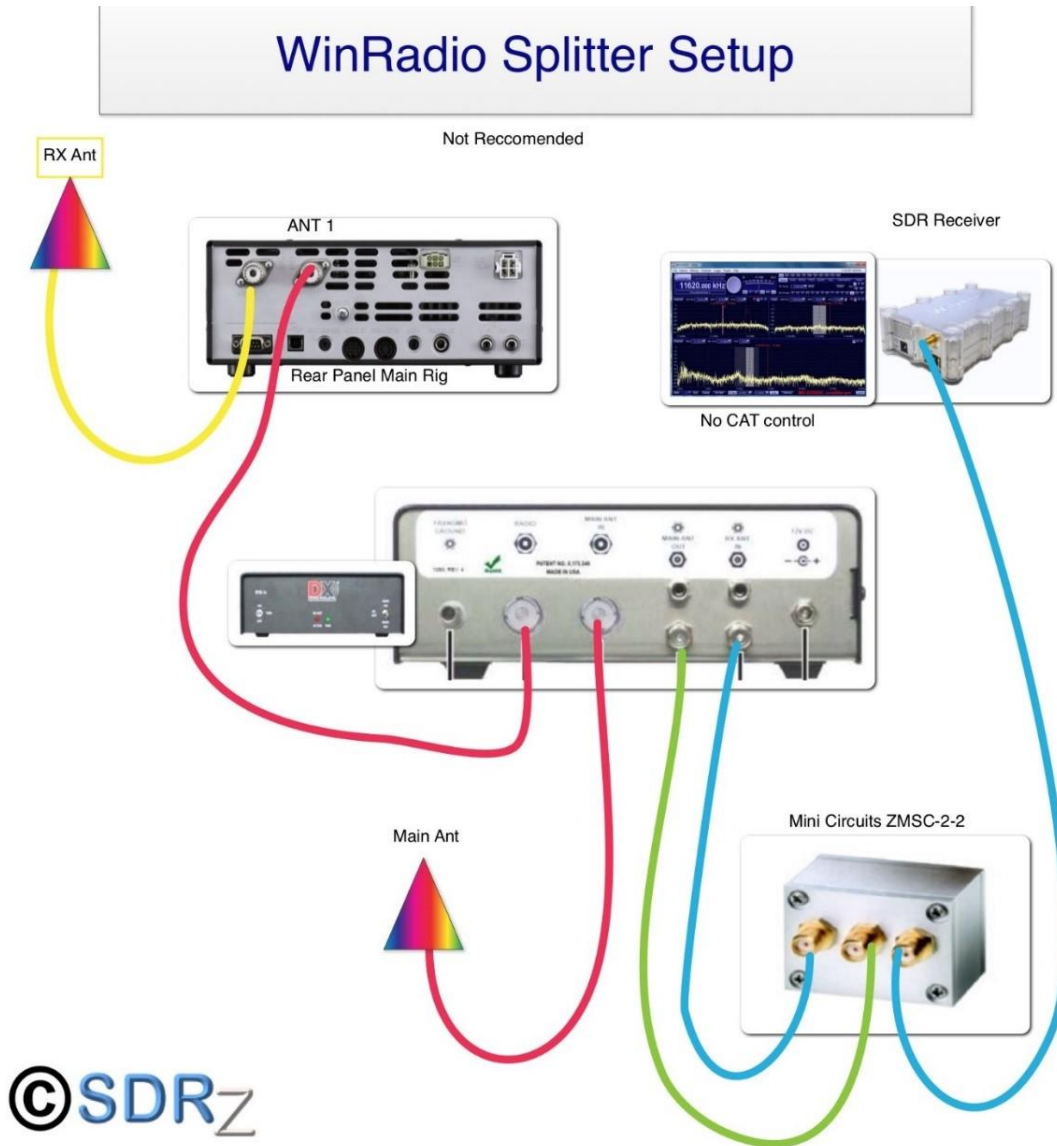
©SDRZ

One could also try to use it as a second receiver in a ham radio station, however, due to the lack of CAT control facilities this doesn't seem practical. WinRADIO makes an XRS basic interface available that clever users could program to for extended functionality, including CAT control.

When we talk about the use of this radio with Ham radio as a second receiver or panadaptor, the capabilities are limited until a readily available CAT interface becomes available to allow the SDR to track the VFO on the

main receiver. Development of such a facility looks like it will need to come from a third party developer.

The WinRADIO suite of software also supports using the device as a spectrum analyzer or in other more scientific applications. See their website for more details. In theory one could use the Excalibur with Xverters to support a wide variety of applications.



Setup

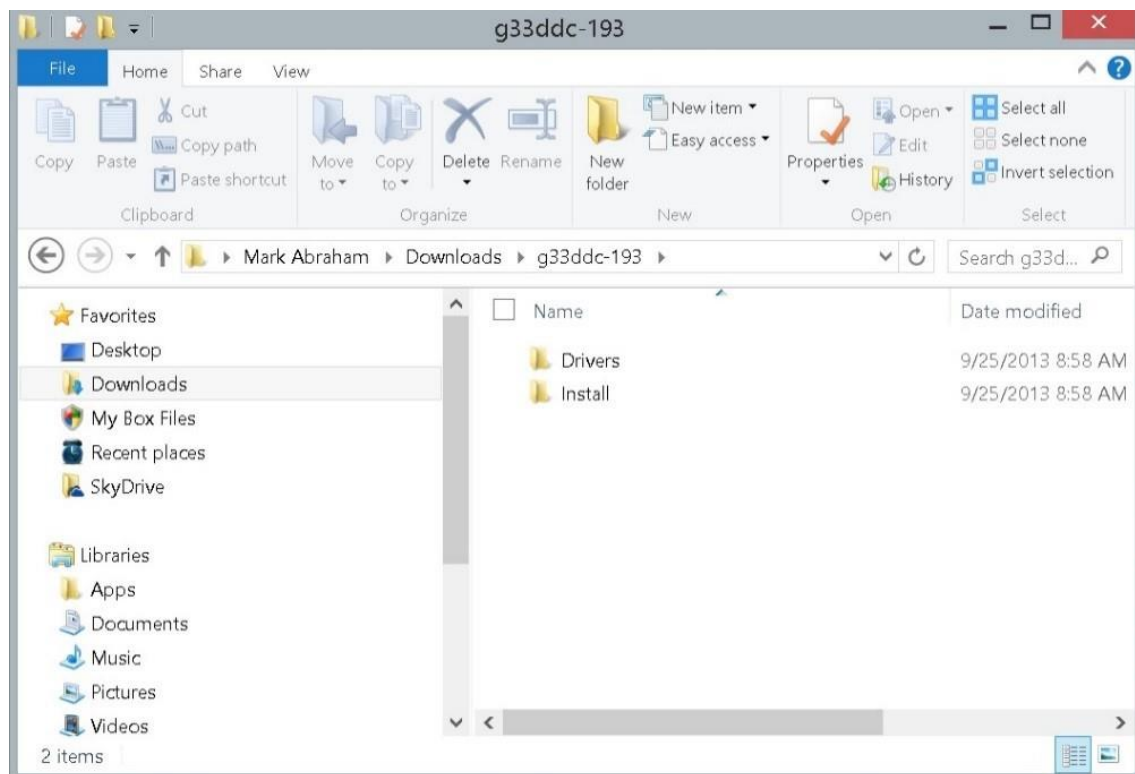
Setup was straight forward and I was able to download the software and install it, install the drivers when prompted and plug in the radio and go.

Two PDF files are installed to the desktop. One is an installation guide and the other is a user manual.

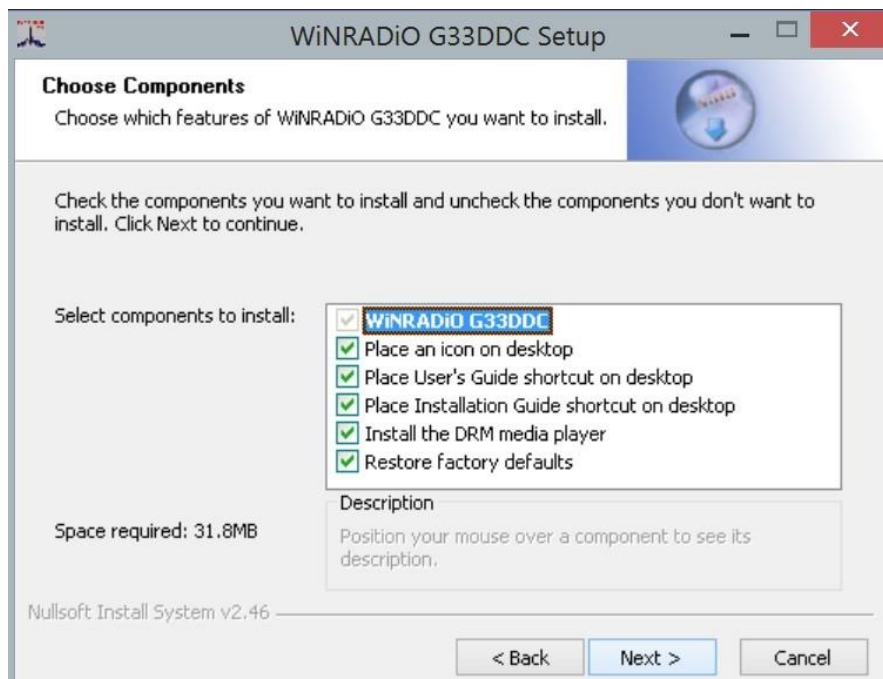
The Installation guide is straight forward, concise and well organized. Note, I really didn't even need it as this radio installs very easily.

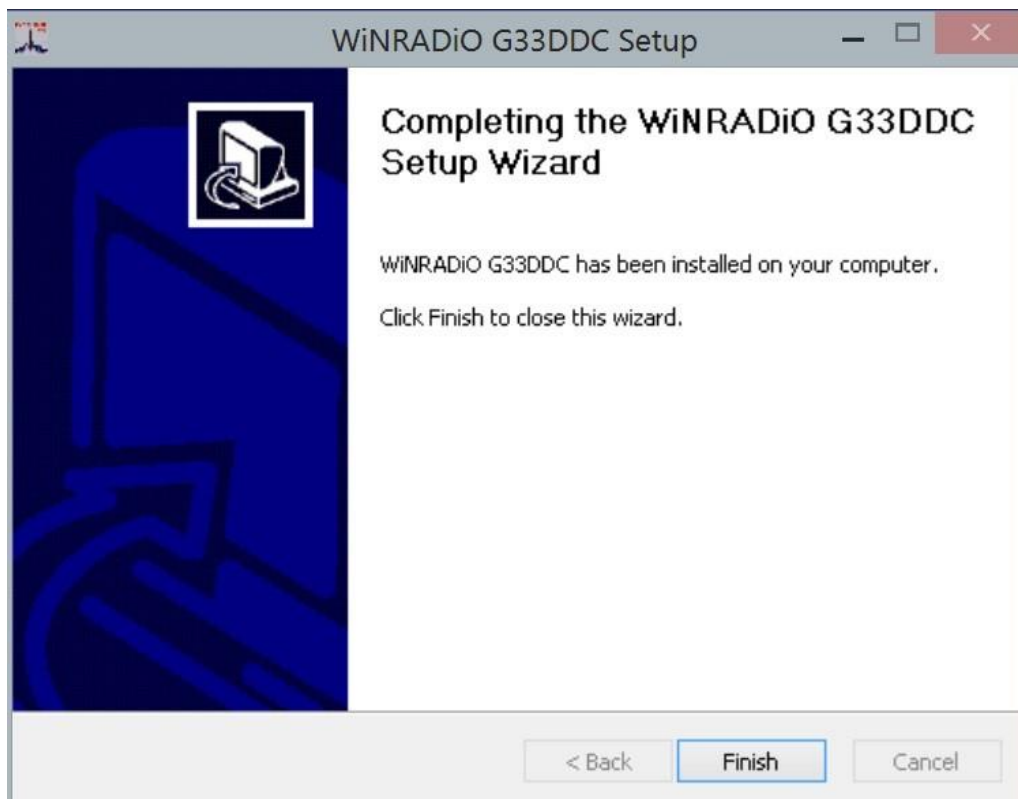
I can summarize it by saying that one can download the software, install it following the prompts, install the driver per the prompts, connect the radio, launch the software and you're done!

I noticed a tuning like sound when the software was launched, this was the typical clicking one experiences on many radios when switching bands.

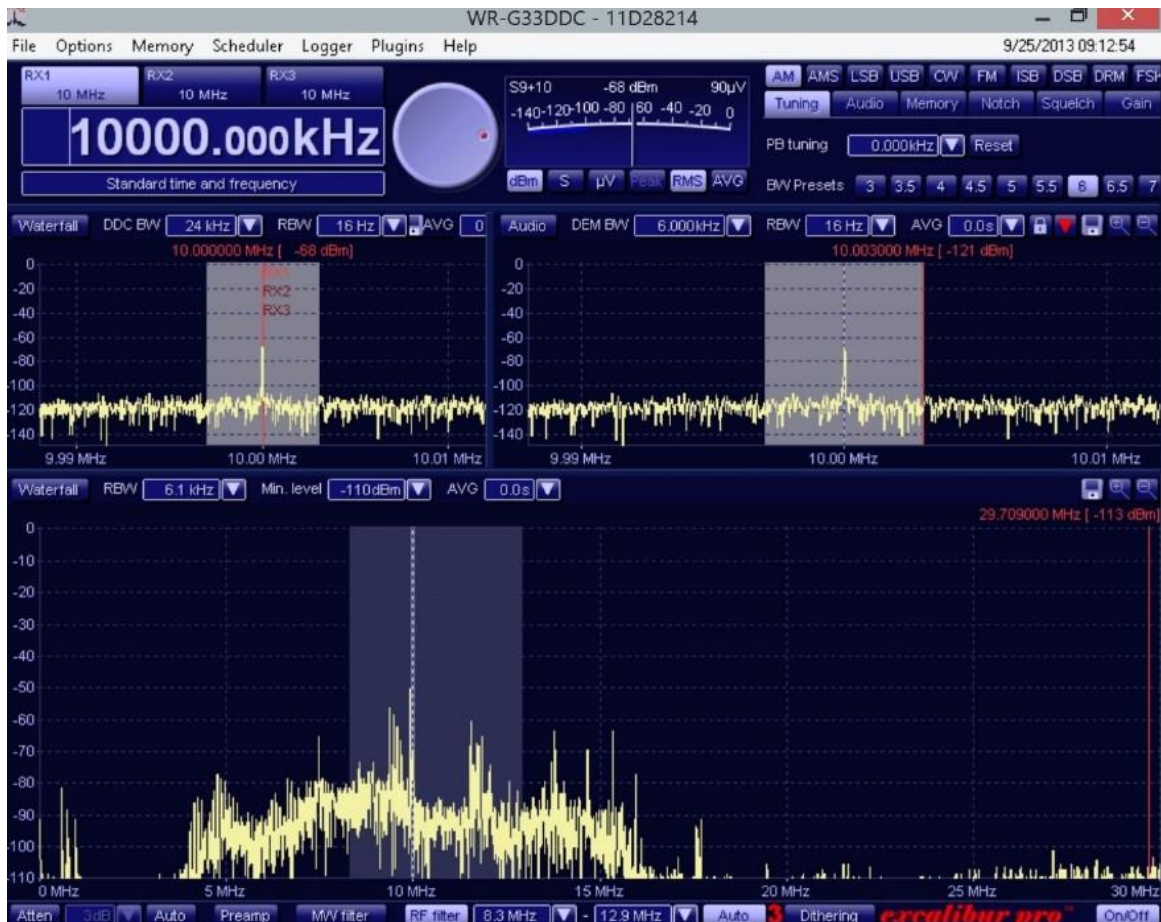


WiNRADiO G33DDC *excalibur pro*™

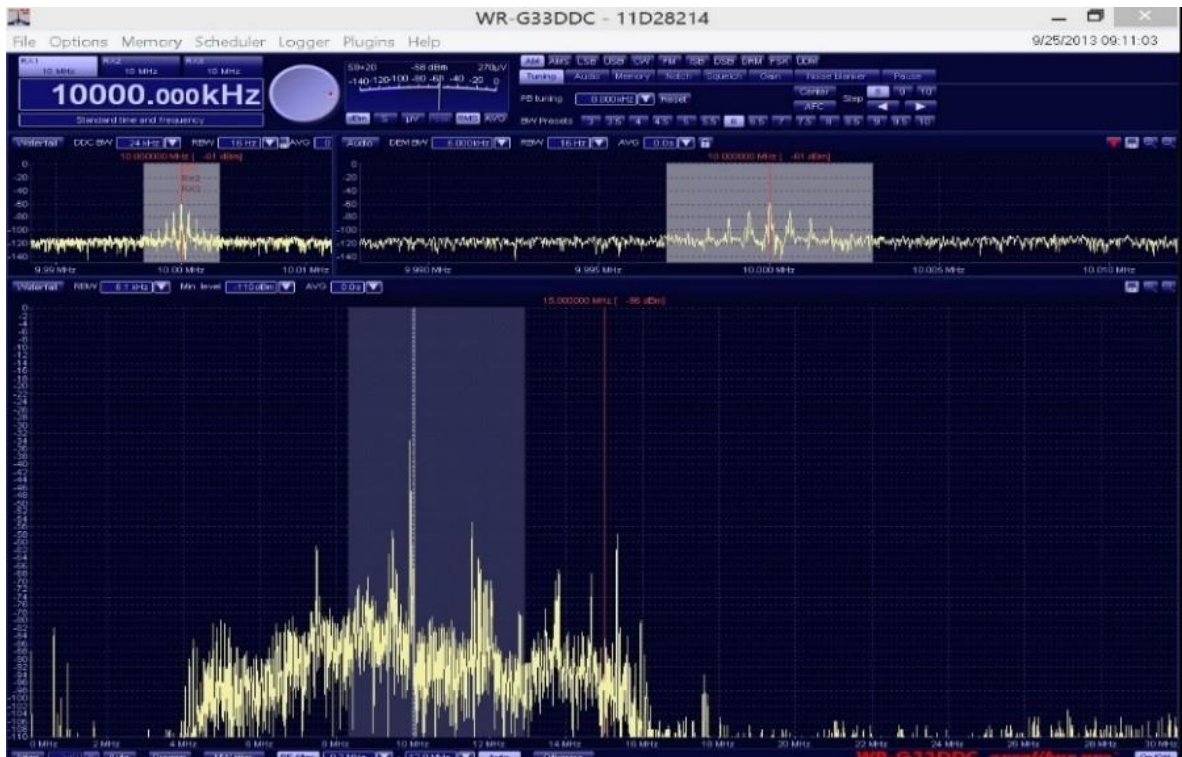




I first set this up on my Windows 8 MS Surface Pro. It would appear that the software reacts to scalable settings and the initial display was a little cramped. I turned off the software and adjusted it in the properties and launched the software again before proceeding.



Disabling the scaling seemingly produced a dramatically richer screen that leveraged the higher resolution of my Surface Pro. The radio by default was on when the software launches. This could be because it was left on when the demo unit was last used as you can turn off the radio in the bottom right corner. Keep in mind that it's not uncommon for Windows 8 users to turn off scaling on older software programs.



Overall setup is straight forward and simple per the instructions.

It's worth noting that the WinRADIo is a very nice guide, very educational as well for the first time SDR user! Worth the download and read for anyone new to SDRs.

Operation

It always takes a little bit of getting used to a new software package. WinRADIo's software was brand pretty new to me.

The controls are all laid out nicely and the user can expose band, filters, notch filters and recording controls and a full spectrum view on an as needed basis.

I think reading the manual first helps one greatly as far as understanding WinRADIo's user paradigm and the controls overall. The manual is actually very well written and presents some basic theory as well as descriptions of the software and the individual controls. I feel like WinRADIo sets a new bar in its user friendly documentation that Joe Ham would appreciate.



The SMeter, it has a very realistic liquid movement. I grew to like the versatility of the S-meter as I used the Excalibur Pro more and more.



Tuning is easy enough, you can point and click and fine tune with the mouse in the wide spectrum display, grab the dial on the screen and tune or type the frequency on the keyboard. You can also store frequencies in the memory bank and access them from there as well. It would appear if

you want to have access to bands that this might be your better bet as there are no band selections.

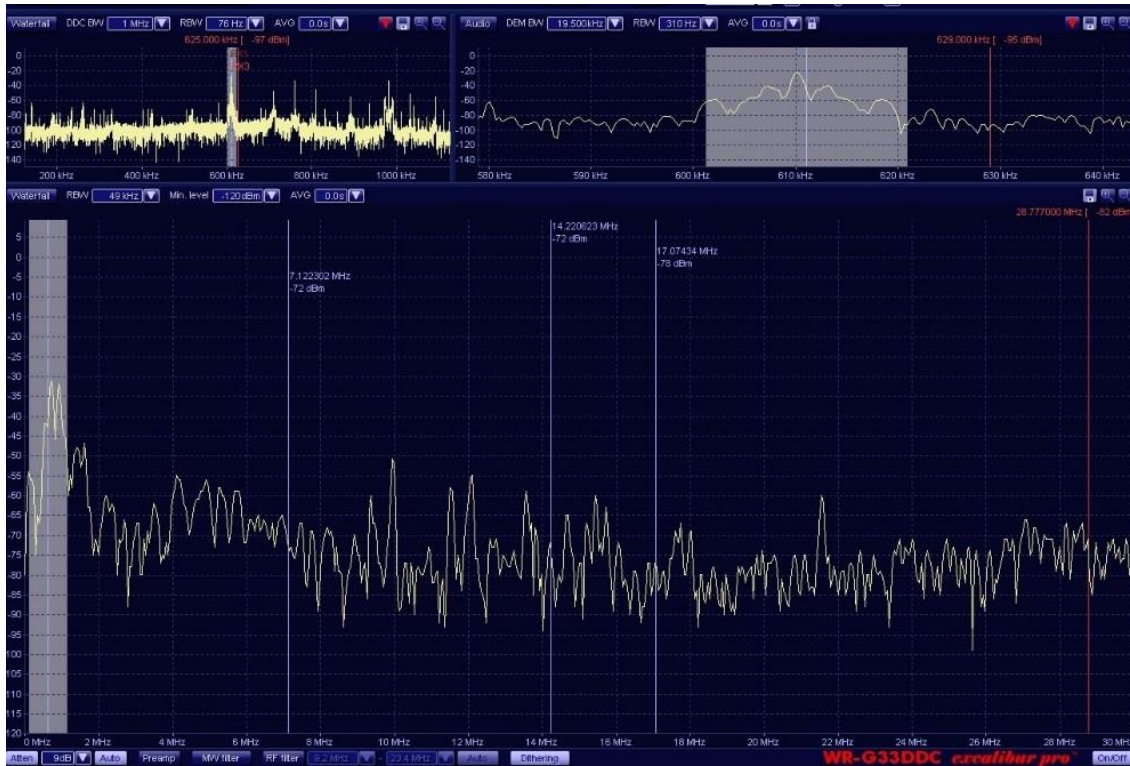
It's worth reflecting for a moment that even though WiNRADiO SDR's have been around for quite a while, the software that comes with the Excalibur Pro is quite modern. After a few weeks away from it I have grown to miss it a bit!

Use the wide spectrum display on the bottom to get to the band or general frequency with one click. Move up to the top left window to click more specifically where you desire to monitor/listen. Use the top right window to fine tune. Use the mouse wheel or the arrow keys on the keyboard to ultrafine tune. This makes it easy!

I often just found myself keying in on the keyboard the frequency I wanted. Suggestions were sent to WiNRADiO to create a band control pallet either available for display in the top right corner of the interface or along the bottom of the wide spectrum display near the bottom. This would greatly help Hams acquiesce to the software and feel more at home.



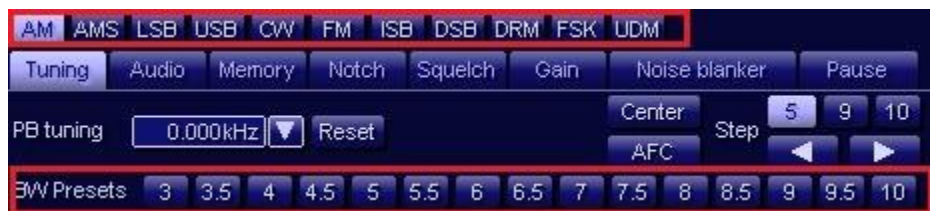
WiNRADiO's software (pretty much like all SDR Software) would greatly benefit from a knob interface for a Griffin or Tmate controller. It would be super nice for fine tuning verses the mouse wheel which pales in comparison. You can use the arrow keys on the keyboard, however, to make this a finished product there needs to be a knob option. WiNRADiO informed me that a knob by Shuttle Pro works very well with their receivers.



You can also point and click from the Wide Spectrum display to quickly hop up and down the bands. This is very handy and makes surfing the spectrum fun and very easy!

I have to confess I struggled a little bit with tuning the Excalibur. After I sent the radio back it occurred to me that I needed to think outside my own desires and experiences. So here is how I see one most effectively tuning using the mouse.

Selecting your mode is easy as you can see below. AM, AMS, LSB, USB, CW, FM, ISB, DSB, DRM, FSK, and UDM. CW, FM, ISB, DSB, DRM, FSK, and USM are available. You can also see that the bandwidth settings are easy to access as well.



You can select waterfall mode in any of the spectrum displays. You can also select the DDC Bandwidth here as well.



Clicking on Audio will get you volume controls as well as allow you to use the keyboard arrows to adjust volume.



Clicking the upside down red triangle allows you to record a DDC Wide File in the DDC Display [left] and also in the Audio Display [right].



I have made recordings available with a link in the WiNRADiO Forums Area for both types of files. A 4Mhz wide 1.2GB 1 Minute sample zipped and a smaller 1 minute .wave. You can access them and try WiNRADiO yourself! If you are interested in additional samples please contact me and we can coordinate a way to get them to you.



The Excalibur Pro includes an audio mixer. This makes it possible to combine audio outputs from the three receivers in a variety of configurations. Examples include, listening to all three signals mixed together, recording while listening, or directing output to left and right channels. I enjoyed the stereo effect I could create listening to AM!

SW AM

This radio may be the quietest yet that I have experienced. Easily the best shortwave listening experience as far as audio quality goes. If you are a Shortwave Listener and want an SDR this is quite the setup for sure!

The ability to attenuate, adjust bandwidth, Dither, Filter, Noise Reduce all allow one to get an extremely clean signal. For fun, on a local AM station I was able to get the cleanest audio I have experienced yet on any radio with the Excalibur. 19.5 khz wide on the filter which was just to the edges of the 20K wide signal before the edges dropped. Sweet sweet audio!

SSB

The SSB sound for both upper and lower sideband is quite excellent. I noticed a small difference between the QS1R and WiNRADiO g33DDC with the Excalibur seemingly a smidgen quieter as a receiver in the shortwave bands and a little noisier in the Ham Bands.

AM is exceptional on the Excalibur Pro with a wide variety of possible adjustments if you're willing to dig through all the controls.

CW

I have say between the QS1R and Excalibur overall was a tossup. There were clearly times when it received signals that the Excalibur did not seem to pick up and then visa versa. I was lucky a few times and happened to

catch some weak signals by accident that failed to be seen visually on either the panadaptor or waterfall displays. Very intelligible though on the Excalibur Pro.

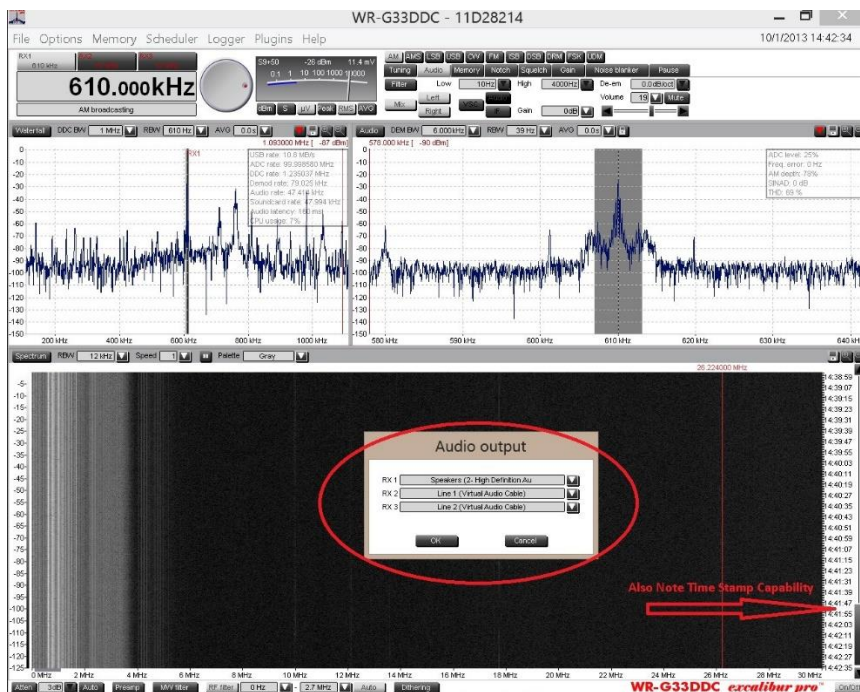
I should note this was with the PreAmp off and having a preamp built in is definitely nice and an addon for many other SDRs. When piping signals to DM780 I could see no difference and am starting to question the value of even using DM780 in tests like these where we are looking for the weakest signal.

One can use the Audio Output controls and even the mixer controls to direct output to the Virtual Audio Cables if they have them installed.

Once the shack is rebuilt later this year I will mix my own samples for left and right ear comparisons and make them available in reviews.

Note below that you can get a time scale in WiNRADiO's software for the Excalibur. The software is actually very professional and for the most part well designed.

I have suggested to WiNRADiO that they should seriously consider offering panafall displays where we can see both the waterfall and panadaptor at the same time. At minimum I think this is a must for the top right window for finer tuning.



PSK31

I did not have access nor did I feel like spending more money to get the WiNRADiO digital software suite, so I just used DM780 with VAC. The VCS software that sets up the virtual soundcard output works well with DM780 and for PSK work. I saw no difference between the addon VCS and using the audio output with VAC as described above.

Operations were very straight forward and I do not have any noteworthy observations either negative or positive. It worked as it should.

WiNRADiO Software

As far as SDR software goes, I can see why hams say the WiNRADiO software is not ham friendly. It has many of the features you would expect and can cater to both Shortwave Listeners and Hams as well as other types of users. The controls are all mostly intuitive so learning the package is not too difficult. Things like band selection controls though are missing and one has to program those into the memory banks or simply type the frequency you want.

Digital Software is all separate. Really to have the value they should be included in the software for free in this reviewer's opinion.

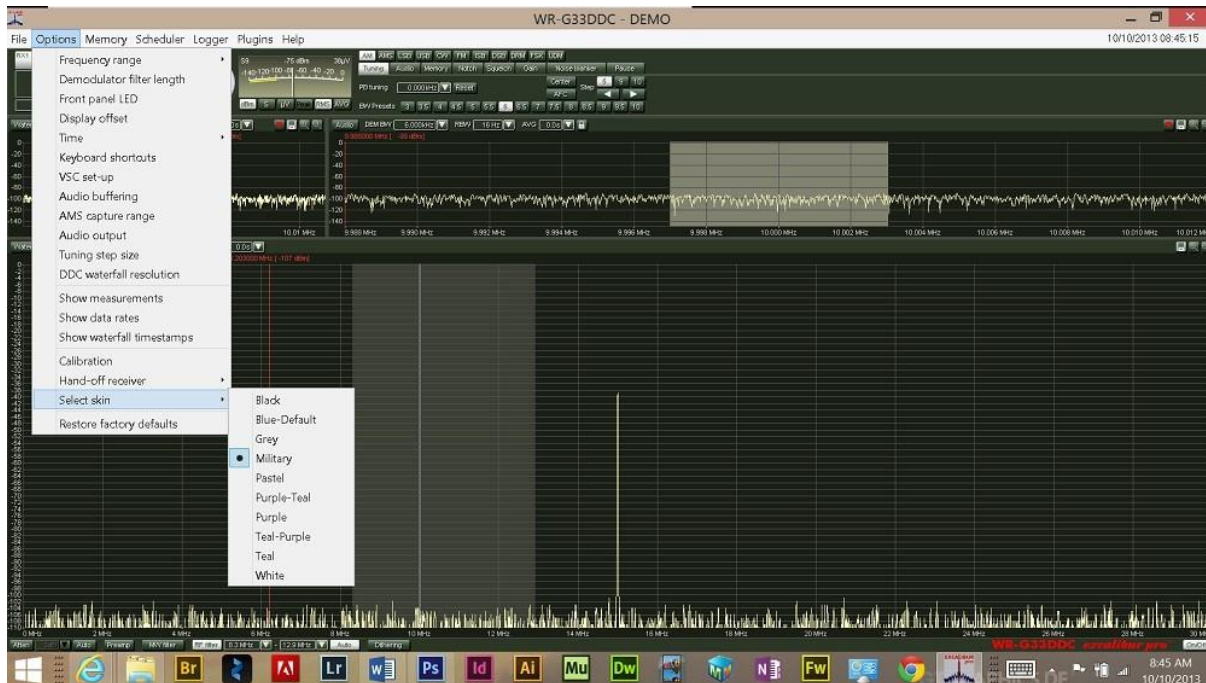
Notch Filters

I like WiNRADiOs Notch Filters. They provide 2 and if they would just offer one more things would be great!

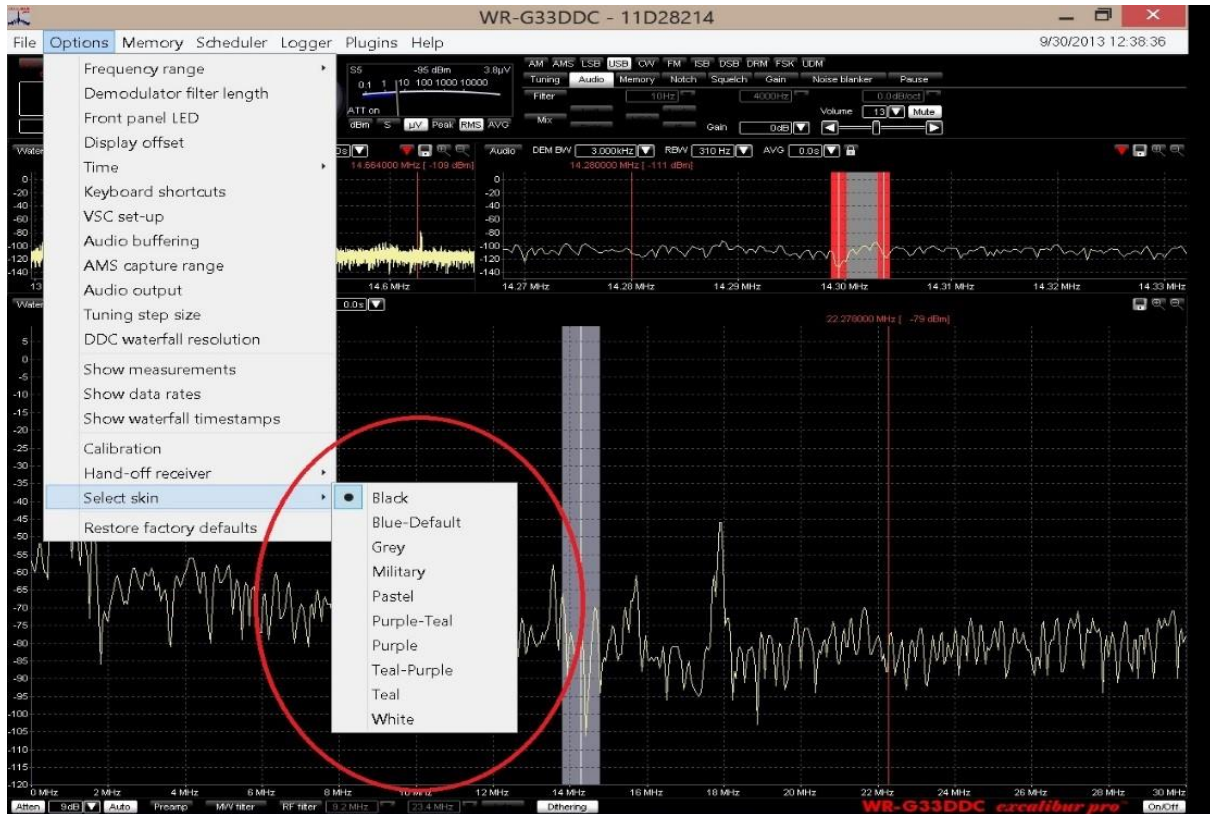
Basically once you enable a NF you use a pull down controls to adjust its location and another pull down to adjust its size. In the picture below I have walled off the Pass Band (grey) with two 1300hz Notch Filters either side (red) to provide an example. A third would be ideal for really resolving any issues one could run into. This type of use case would be to lop off signals overlapping into your desired signal in the pass band. Very effective in pulling out DX's. Again this is a comparison to the world of Ham Ops and not SW Ops which the provided filters likely more than adequately suffice or surpass a users needs.



Several themes/color pallets are offered and can be selected from the options menu. I feel like WinRADIO offers a nice variety of pallets and that one should be pleased by being able to find one they like.



You can change the color scheme as evidenced throughout this review with different skins being used in various screenshots. I was quite pleased with the options available. The black and white themes ended up being my favorite!



I did load up the HFCC and EIBI text files. At first I struggled with these. I renamed the files all lower case and reread the instructions to see where I had gone astray.

My original thought was that I could use these to navigate to frequencies like a menu. Instead what I observed is that when you land on a frequency that is in the database it will show you programming options such as language, and frequency.

I did not make it to try the scheduler software. I simply ran out of the time I was allotted. Truly a shame I did not have more time, however, I had to travel during the allowed review window and so I lost 4 working days out of the 13 I had available.

Platform Support

- • Mac Support = No
- • Linux Support = No
- • CAT Control = No

Other Software

Not Really, I was able to pump IF via the VSC add-on to studio 1 to compare it there. It's not very functional though that way. One needs to simply acknowledge that for right now you will use the WiNRADiO's software. Even the EXTIO.DLL I downloaded from Bonito did not work with Studio 1 or HDSDR. One can use the audio out to send sound to other software if they like. I do not own the Bonito software so I cannot tell you if they fully support the Excalibur Pro.

Network Access

Yes via addon software, I did not want to purchase this and thus was not able to try it since I won't own the radio long term.

Reviewer Notes

The radio is looks nice. I expected it to be smaller than it was, however, its not overly large either.

This SDR can virtually operate anywhere as far as I can see. There are no heat issues at all!

USB Connection is fast and clean! I experienced a few issues in the 10 hours of hands on operation I had with the Excalibur Pro. The mouse wheel for tuning on my shack PC would only scroll one way for tuning but scrolled both ways on other controls in the software. Very Strange!

At one point I had to reload the software, it just wouldn't launch for whatever reason.

I tried downloading the debug software and it simply locked up on Hamzilla. Probably a Hamzilla issue and not a WiNRADiO issue.

I was not too fond of the power supply. The brick is rather large making travel less desirable. The demo unit power supply already shows the telltale signs that it will need to be replaced as the cord is going to have issues on either side of the brick. It should be more than adequate though

if you plan on leaving your WinRADIO in a fixed location and don't plan to travel with it much. WinRADIO commented that the larger power supply allows for lower noise levels and I would say that is a plus.

The instructions are very well written, simple and concise. A plus for sure! The only advice I can provide WinRADIO here is to outline some more use cases in both their manual and on their website.

The fact that all the software is optional and at additional cost is rather disappointing. For the Pro model it would nice if it were bundled in for free. Of course this is merely my opinion.

The radio can be very very quiet, however, to me it seemed like when compared to other radios that when the volume was increased it simply was as noisy as the other radios or at least the QS1R.

Scoring

Criteria	*Score 1-10 - 10 is high	Weighting	Weighted Score	Notes
Order/Ship	9	0.07	0.6	Good Communication and Packaging
Build Quality	9	0.12	1.1	Very solid Professional Build
Design Quality	9	0.12	1.1	Very Clever Design, Big but low noise PowerSupply
Ease of Setup	9.5	0.06	0.6	Was very easy to setup
Documentation	9.5	0.05	0.5	Easy to locate and follow, simple effective
Expandability	8	0.10	0.8	Add on Software - \$\$\$
Operating Experience	8.5	0.10	0.9	Software is very robust and mature, minus points for lack of Panafall and CAT control.
Performance	9	0.15	1.4	Very clean receive audio, good on weak sigs
Support	10	0.08	0.8	Fast responsive support
Value	8	0.15	1.2	Cost as compared to specs and other SDRs
	89.5			
Overall Score (Average)	8.95	1.0	8.8	Good Communication and Packaging

8-10 = best in class, 5-7 Above Average, 3-4 Below Average, 2 Poor, 0-1 Unacceptable

Scoring was rather complicated as one must note that this was scored as more from a Shortwave Radio Listeners perspective as it probably would be from its intended audience. As a Ham only SDR it would score in the low 8.x range.

I will be also writing an article on SDR software and while I have picked on the software here a bit, it should be noted that minus the few things I pointed out that could easily be taking care of with a very small investment on WiNRADiO's part, they have one of the better SDR software packages available. I will include it in the article as one of the top 3.

If someone takes time to write CAT control using the XRS programming interface for WiNRADiO they could sell it for \$50 and greatly help WiNRADiO users.

Pros

- • Exceptional Receiver Performance!
- • Nice looking modern software
- • Ethernet support with add on software and a server
- • Fast Support
- • Organizational Integrity

Cons

- • Is not supported by SDR-Radio or other Software
- • Additional software required at additional cost for digital modes

Summary

I enjoyed using the Excalibur Pro, especially for shortwave reception. The receiver can be very quiet. There are quite extensive controls to tune a signal in for optimal reception. I like the built in attenuation and filters.

Additional Thoughts

The Excalibur Pro would be a stretch for Ham Operations as a second receiver. There is no CAT control and you are very much limited to the native software.

As a shortwave receiver it would be fun to compare it to the Excalibur to see whether the extra \$900 is warranted. I can't see spending \$1700 for a shortwave receiver unless it was totally my passion. In this latter scenario the SWL would be buying a Cadillac for sure and would really enjoy the power of the Excalibur Pro if money were no issue. To be fair, I don't believe WiNRADiO has every marketed to Hams and I knew that going into this, this review is really for the SWL users of my site and as I said, it's a gem for that!

I actually hope to get my hands on the G31DDC and may consider purchasing one for my personal use.

The team at WiNRADiO was friendly and professional, easy to work with and I do sincerely appreciate them accommodating me to review this exceptional SDR. I also have to say that I was impressed with their feedback on this review. It would appear to me that they have great integrity based on my interaction with them.

I wanted to keep the Excalibur Pro, perhaps if I win the lottery someday I'll have me one!

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About the Reviewer

You can learn more about Mark [N10Z] on the site at the link below.

https://sdrzone.com/index.php?option=com_content&view=category&layout=blog&id=24&Itemid=506