



PVRC Newsletter

February 2019

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Website: <http://www.pvrc.org>

Meeting Info: <http://www.pvrc.org/chapters.htm>

Facebook: <https://www.facebook.com/groups/PotomacValleyRadioClub/>

President's Letter – Tom K3AJ

PVRC Priorities 2019

Your 2019 officers have had a chance to talk about some priorities that we will be pursuing. Here is what we will be working on in the coming months. These are just a start, and we welcome your ideas about what else we can do to make PVRC better:

By-laws amendments – This subject has been hanging fire for a couple of years now. While the by-laws are likely not high on most members' list of priorities, they are nevertheless important. By-laws provide a set of guard rails to keep an organization from running off the road. PVRC's by-laws have some well-known issues. A member team to consider the issues involved, define a process for working through the amendment process and then propose specific provisions will be formed. The officers are working towards forming the team and providing it with guidance. Naturally, the Trustees will be consulted. We are committed to doing this work in an open manner and providing plenty of opportunities for those who want to have input into by-laws amendments to be heard.

Improving new member recruitment – One of the elements of PVRC's mission is: "Attracting, mentoring and supporting new contesters." Because PVRC is a decentralized organization that operates through local chapters, that's where new members are recruited and mentored. Our goal is to do a better job of supporting the chapter chairs in this work by sharing best practices and providing tools and materials for them to use. We will ensure that that prospective members get connected with a local chapter if that hasn't already occurred when we learn of their interest. We will also be looking at identifying prospective members and reaching out to them even if they haven't found us yet. I am pleased to announce that Doug Hart, AA3S, the chair of the Laurel Chapter, has volunteered to coordinate this effort.

Strengthening chapters – Each PVRC chapter has its own life. Over time, members and leaders come and go as their interests and priorities change, so PVRC chapters are always evolving. In recent years, a few new chapters have been formed or re-started, and chapter leaders have changed in some places. Chapters have been retired where it made sense. At present, there are many strong PVRC chapters with great leadership and very active members. However, there are also a few that have fallen into inactivity. We will be working with the members in those areas to see what we can do to

encourage a re-start or activity. With the geography of the club being so huge, starting new chapters in those areas not currently served by an active chapter will be entertained.

We are in the middle of a busy time in PVRC – right in the heart of the winter contest season. As I write this, it looks like PVRC made a strong showing in the January NAQP CW and SSB contests, positioning us well to regain the NAQP Club Challenge Cup in 2019. It is great to see all the pre-contest and post-contest chatter on the reflector, as our members encourage each other and share their triumphs and woes. That chatter is important towards fostering the “spirit of camaraderie and fun” that our mission statement speaks of.

Finally, this edition of the PVRC Newsletter is appearing right before our annual activities around Frost Fest in Richmond. Be sure to stop by the PVRC table at Frost Fest to say hello and help the club to spread the word about contesting and PVRC. I am looking forward to seeing many of you at the Galactic Lunch at 1PM on that Saturday.

73 Tom K3AJ

<u>PVRC Officers:</u>		<u>Trustees:</u>	
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See the Green Heron Engineering ad at the end of the newsletter!

FREE Shipping for PVRC Members
At Checkout Enter Coupon Code "PVRC"

Evaluating RX Antennas using FT8 - Mark N2QT

After installing a new receive antenna, the first thing we want to know is “How well does it work?” This can take quite a bit of time, as there aren’t always enough DX stations on to get a good evaluation. Normally we just listen to a few local stations and try to judge the directivity by switching directions (if the antenna allows that) or swapping back to the TX antenna to listen.

In the Contest University presentation *Easy to Build Low Band Receiving Antennas for Small and Large Lots*, author W3LPL suggests using two instances of WSPR or FT8 to compare the performance. Here’s my experience doing this.

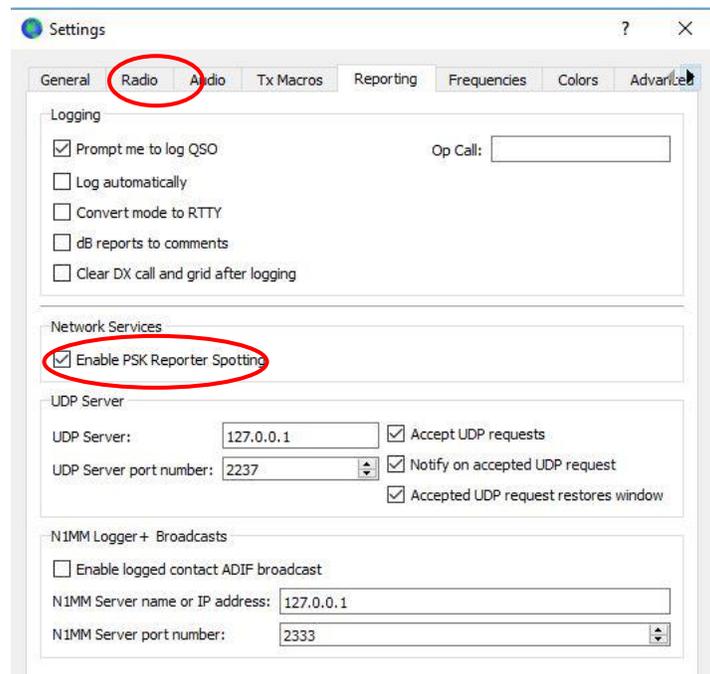
FT8 Stations Make Great Beacons!

For a good evaluation, we need lots of signals. Luckily there is a lot of FT8 activity on top band, and a lot of it is from DX stations all over the world. For this application, think of all the FT8 users as serving as beacons, like normally used on the VHF bands. It’s not unusual to hear close to 50 countries in a given night. Making our evaluation easier, FT8 provides generally error free decoding, so you can trust what is reported. Not so trustworthy, in my opinion is the SN reported with each spot, but there is a way to cope with that. (From my observations, the SN reported can change drastically from cycle to cycle and I wasn’t comfortable with that as the only metric.)

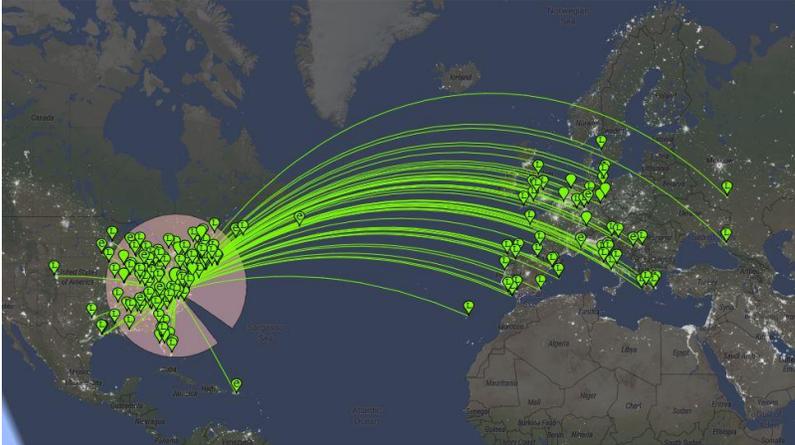
There are Great Tools

For those of us not wanting to write code, there are some great tools that can be used for our purpose. The first of these is the PSKReporter [website](#).

First be sure WSJT-X is configured to send its reports to this site.



Then the spots are displayed on a world map as shown here.



In addition, it is possible to download an ADIF file containing all the spots from a given station. (use the show logbook tool and then download)

On show rcvd by

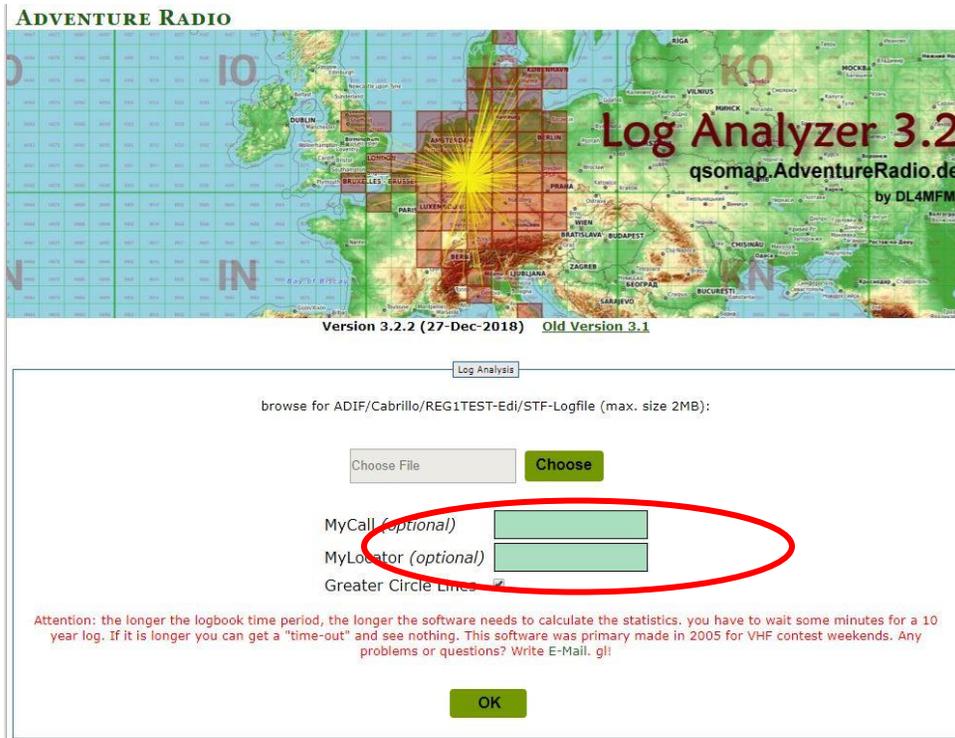
Automatic refresh in 5 minutes. Small markers are the 169 transmitters [\(show logbook\)](#) heard
 There are 222 active monitors on 160m. [Show all on all bands.](#) [Legend](#)

[Download \(ADIF\) last 24 hours](#) [last week](#)

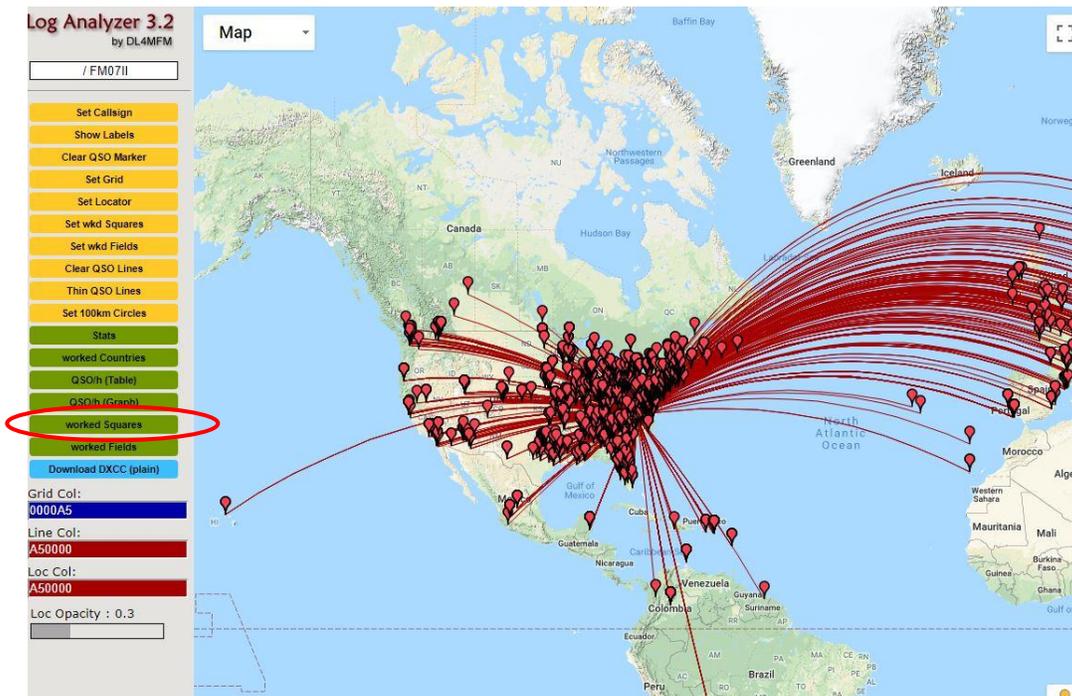
Txmtr	Band	Mode	Distance	Time (UTC)
W4UEF	160m	FT8	158 miles	00:47:29
K4RK	160m	FT8	690 miles	00:47:14

KC4QX	160m	FT8	6
NA2R	160m	FT8	3
AB1HL	160m	FT8	5
W8RKO	160m	FT8	3

This ADIF file can then be loaded into your choice of log analysis programs. I found one on line that was designed for VHF contest log analysis that seemed to work well. Log Analyzer 3.2 found [here](#). On the welcome screen there is a place to specify the ADIF file you wish to analyze.



Enter the file downloaded from PSKReporter and hit OK. After the software thinks for a while, a world map showing all the heard stations, and menu of selections is displayed. The tool that I found worked best was **Worked Countries** (although some may like the qso/h and worked squares.)



What I found most useful about this tool was that it did not reject dupes. I found that the number of times stations were decoded from a given country was a great way to compare various antennas. There are a few caveats though. The country is based on the prefix, not the reported grid square or the country in the ADIF file. So, in the example K9FD who is in Hawaii is reported as being in the US, and some other station that I haven't figured out is reported as being on Baker-Howland Island. As long as there aren't many of these, they can be manually added or deleted from the results without a lot of work.

Using this methodology, it is relatively easy to get several ADIF files downloaded from PSKReporter and create a DXCC listing for each one. By using a different callsign for each test case to keep them separate it is easy to produce files showing what is being heard on your various antennas. You can also download files from other stations for comparison.

- FM07II

1	OE		Austria	9
2	W		USA	2153
3	ON		Belgium	13
4	VE		Canada	96
5	DT3		Madeira	1
6	F		France	45
7	OT		Portugal	28
8	OZ		Denmark	2
9	DL		Deutschland	61
10	I		Italy	21
11	UA		Russia EU	7
12	KH1		Baker Howland	6
13	G		England	16
14	TA		Turkey AS	1
15	HK		Colombia	19
16	S5		Slovenia	7
17	KP2		Virgin Islands	5
18	EU		Belarus	26
19	UR		Ukraine	8
20	PA		Netherlands	1
21	OU		Azores	2
22	GM		Scotland	1
23	XE		Mexico	20
24	E7		Bosnia and Herzegovina	17
25	V3		Belize	12
26	PZ		Suriname	1
27	LU		Argentina	6
28	OK		Czech Rep.	24
29	KH6		Hawaii	3
30	J7		Dominica	3
31	P4		Aruba	6
32	GI		Northern Ireland	7
33	EA8		Canary Islands	2
34	KL7		Alaska	1
35	SM		Sweden	8
36	HB9		Switzerland	8
37	KP4		Puerto Rico	3
38	SV9		Crete	2
39	EA		Spain	22
40	SP		Poland	7
41	ER		Moldova	2
42	9A		Croatia	5
43	LX		Luxembourg	8
44	HA		Hungary	2
45	EI		Ireland	6
46	LA		Norway	2
47	HB0		Liechtenstein	1
48	HH		Haiti	1

Watch for errors in prefix

More Analysis

The charts and maps might suffice for your analysis, but it's easy to take it an extra step. Highlight and copy the entire Countries Worked chart from the Log Analyzer and by **using Paste Special – Text**, you can load the table into Excel or another spreadsheet program. This allows the data to be sorted to highlight the differences in the antennas evaluated. Here is a sample output showing the spots received at N2QT over the night of Jan 2, 2019.

01/02/2019 160M

WE4M

N2QT

shuntfed
tower
9 circ to
NE



Be sure to record what antennas were in use! WE4M is the call used to report spots from N2QT's transmit antenna.

	<i>N2QT</i>	<i>WE4M</i>	<i>Difference</i>
Deutschland	85	57	28
Italy	96	70	26
Russia EU	57	35	22
Norway	15	2	13
England	33	23	10
France	53	43	10
Finland	10	2	8
Austria	16	9	7
Poland	21	14	7
Spain	21	14	7
Czech Rep.	19	13	6
Netherlands	12	7	5
Greece	13	9	4
Portugal	19	15	4
Ukraine	11	7	4
Belarus	28	25	3
Belgium	30	27	3
Croatia	11	8	3
Romania	3	0	3
Slovakia	8	5	3
Turkey AS	3	0	3
Azores	4	2	2
Canary Islands	5	3	2
Iceland	6	4	2
Moldova	2	0	2
Sweden	5	3	2
Alaska	4	3	1
Liechtenstein	13	12	1

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Lithuania	3	2	1
Montenegro	1	0	1
Uzbekistan	1	0	1
Aruba	10	10	0
Australia	3	3	0
Bermuda	1	1	0
Colombia	11	11	0
Crete	4	4	0
Denmark	5	5	0
Fernando de Noronha	3	3	0
Greenland	1	1	0
Haiti	3	3	0
Ireland	10	10	0
Luxembourg	0	0	0
Madeira	6	6	0
Puerto Rico	6	6	0
Russia AS	0	0	0
Slovenia	8	8	0
Switzerland	4	4	0
Argentina	1	2	-1
Baleares	2	3	-1
Guatemala	0	1	-1
Mexico	1	2	-1
Oman	0	1	-1
Virgin Islands	5	6	-1
Belize	10	12	-2
Canada	149	151	-2
Dominica	1	3	-2
USA	2088	2191	-103
total	2940	2861	
US/VE	2237	2342	
DX	703	519	

Once the data is in Excel, it's easy to create comparisons of the stations received. Here I compare total spots, US/VA and DX spots. As expected the directional antenna wins for DX.

Caveats and Lessons Learned

The ADIF file downloaded from PSKReporter will include all spots made by a given station on **all bands**. If you want to evaluate performance on only one band, you will need to edit the file if multiple bands were used during the reporting period.

Weed out the bad spots! There may be one or two caused by improper prefix lookup, or the occasional bad decode. Look for obvious errors on the map or in the country table.

This is a great way to see something is wrong. If you do an antenna shootout with other local hams you can quickly see if something doesn't measure up. Antennas with similar RDF should give similar results. With Excel you can show the difference in the number of spots and highlight this. When you do a shootout, be sure everyone starts at the same time and only reports on the band in play. This will save any need for ADIF editing.

Comparing to your own TX antenna allows an easy way to evaluate any changes. For example, I'm currently checking if adding RF Chokes on the feedlines for the YCCC 9 Circle Array will help. (The manual says it's mandatory, but I was lazy).

If you have a rig with a subreceiver with a separate antenna input, you can use it along with the rig's main receiver for two tests. Often this allows using the same sound card for the two instances of WSJT-X (Left or Right Channel Stereo), eliminating a possible difference in test setups.

In case you need an antenna for comparison, a great resource is W3LPL's **Easy to Build Low Band Receiving Antennas for Small and Large Lots** available [here](#).

Bob ND3D at W3LL for Stew Perry Topband Contest – Bud W3LL



RS-232 to IP Rotor Control – Brian N3OC

The recent 6 meter FT8 craze has started moving me slowly in the direction of remoting my station. FT8 is very simple to remote because you don't need to worry about any audio and all you really need is remote desktop and a secure way to access your home network.

One thing that became immediately apparent is I needed a way to turn the antennas remotely. With my older analog style control boxes, this wasn't possible. Also, since my station can be set up for Single Op, SO2R, M/S, M/2 and VHF contests, those rotor control boxes really needed to be in multiple places at once and moving them around the room was becoming a pain.

This was really screaming for a networked solution, where the rotor boxes never would have to move again and could be accessed over my LAN. I had previously ordered (and never installed) some Idiom Press Rotor-EZ RS-232 conversion kits for the HyGain control boxes. So, my first step was to get those installed finally, and ponder the rest while that was in progress. While I was at it, I retired the old tired 24v lamp and socket and replaced it with a strip of LEDs taped above the meter and a small 12vdc regulator circuit to run them.

Those worked extremely well, giving point-and-shoot ability to the control box in the manual mode, as well as RS-232 remote possibilities. I do however note that what was a very simple and therefore very reliable control box is now at the mercy of the lightning gods with a completely computerized circuit required to move the antennas. For this reason, I doubt I will ever implement this at V26B, but you never know.



Rotor-EZ board installed behind meter and regulator board for LED lighting.

The next step was to find acceptable RS-232 to IP converters to make the RS-232 interfaces available on the network and hopefully to any PC in my shack. This would involve some hardware, a virtual RS-232 port driver on each PC, and some application to use to turn the rotors from the PC.

There are many types of RS-232 to IP converters available out there. Some dirt cheap, some very expensive. Some do only one port, some do many. A quick search on eBay revealed several candidates. My shack PCs are still XP (save your comments) but my other machines are Windows 10, so my desire was to make sure the port drivers and application software would work on XP through Windows 10.

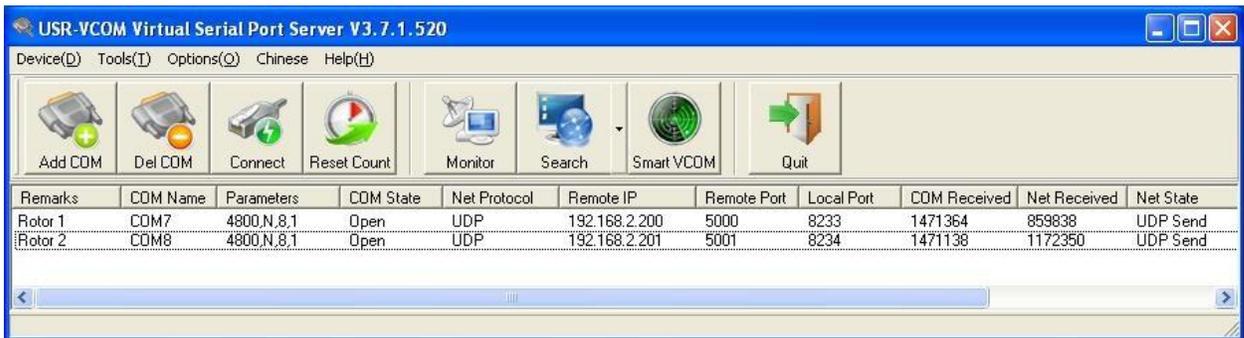
After borrowing some to try from WA3KOK, and doing some research, I decided to try the USR-TCP232-302 converter, which was available for \$25. These only do a single port, so you may need more than one and each takes an IP address and a unique set of ports on your network. I liked this unit because the virtual port driver software was well-behaved, worked on both XP and Windows 10, and had both TCP and UDP modes. UDP is important if you want to try to share the rotors with multiple PCs at once.



Converters connected to Rotor-EZ and to my LAN switch.

The boxes are programmed using a web browser on your PC. You will need to set them on an available IP address on your network, as well as pick communication ports that the units will use. The ports you pick are not too important unless you plan on using port forwarding on your router from the outside internet, which is unlikely.

Once the boxes are configured and are on your network, you will need to install and run the virtual com port software on each PC. I chose COM7 for Tower #1 top rotor, and COM8 for Tower #2 top rotor. You need to specify the baud rate the rotor uses, which is 4800 N,8,1 in this case for Rotor-EZ. Other rotors may use different settings.

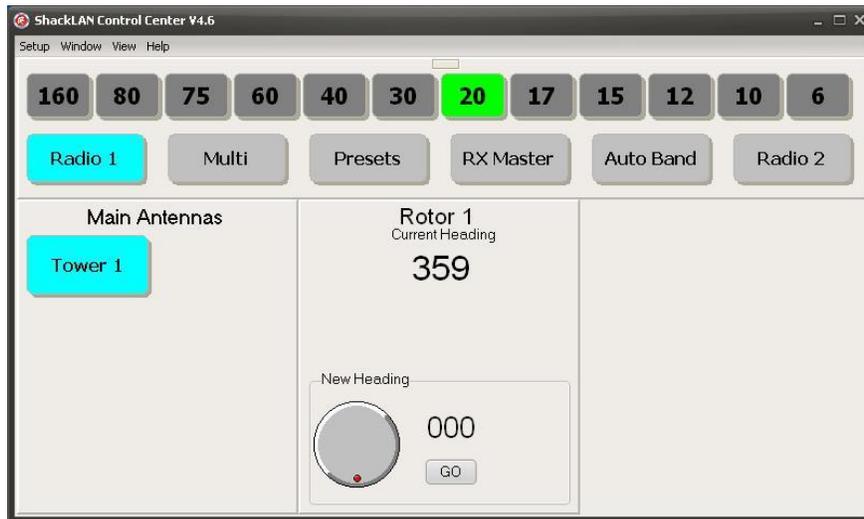


Virtual Serial Port Server Software Application

I mentioned before you have a choice of TCP or UDP. UDP offers the possibility of connecting more than one PC to the RS-232 device. However, TCP offers guaranteed delivery of the packets. Most cabled network connections are reliable enough to get by with UDP so this is what I chose, in the hopes of connecting multiple computers at once. In theory this is possible, and the serial to IP converters say this is supported, but I have had some mixed results having to reset a lot of things to get everything to settle down enough to allow multiple devices access at the same time. This part of my setup is still a work in progress. But it works well enough after some fiddling.

And finally, what application software to use on the desktop to work the rotors? There are several choices here, including the little N1MM+ rotor widget app that comes as part of N1MM+. It works but isn't very exciting to use. Since this project may extend further in to remoting antenna switches and stack match boxes, I discovered that the ShackLAN people have a free software control center that can integrate all these devices in to one screen, even as a touch screen on a tablet.

I configured it just to control my rotors for now, and it seems to work well. I plan on looking in to the ShackLAN devices for other functions, but they are pricey.



ShackLAN Control Center Operating the HyGain Rotors via IP

Now some words on reliability. I have found some bugs along the way here and operating the rotors via IP converters has been prone to some lockups. The frustrating part is sometimes I have to reset the RotorEZ box, sometimes I have to reset the IP to serial converter boxes, and sometimes I have to reset the application. There seems to be no logical pattern when things do lock up. The good news is once it settles down and you get everything working among multiple computers, it does seem to keep working as long as you don't disturb anything. Perhaps someone reading this will have some better answers to this. But for now, it works just good enough to put in to use.

Using FT8 In Contests – Bill N3XL

After a little encouragement from Doug Hart, the Laurel Chapter Chair, I decided to give FT8 and its integration with N1MM+ a try in the ARRL RTTY Roundup. It turned out to be a rewarding learning experience. After I shared some of my findings on the PVRC reflector, Tom K3AJ asked me to prepare some instructions based on my experience for this newsletter. So, here goes. Barring any fubars, this document is intended to be useful in setting up for Field Day or any supported contest.

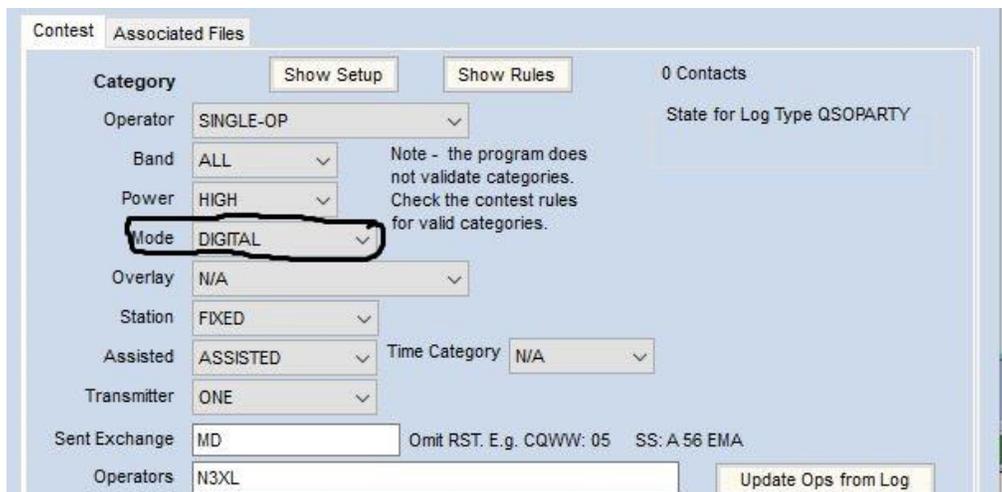
I took a cautious approach to the contest, doing FT8 only the first day and RTTY on the second day. I didn't understand how logging was going to work or how multipliers and dupes would be handled. I was worried that if ADIF logs ended up needing to be merged, etc. this approach would keep things simpler. Thankfully, the bottom line was that all my worries had been addressed by the N1MM+ integration team. I don't know who they were, but my hats are off to them for a job well done. Below, the instructions that I provide are pretty much what you will find on the N1MM+ web site, less some of the "extra" verbiage that sometimes cloud the issue, and a few tips that should help a newbie. Actually, you will probably want to read the web page at some point to get a better understanding of how it all works, but this is the meat.

Getting Set Up

1. Make sure that you have up to date versions of both N1MM+ and WSJT-X software.
2. **Open N1MM+** and enable the connection settings in Configurer >Broadcast Data page:



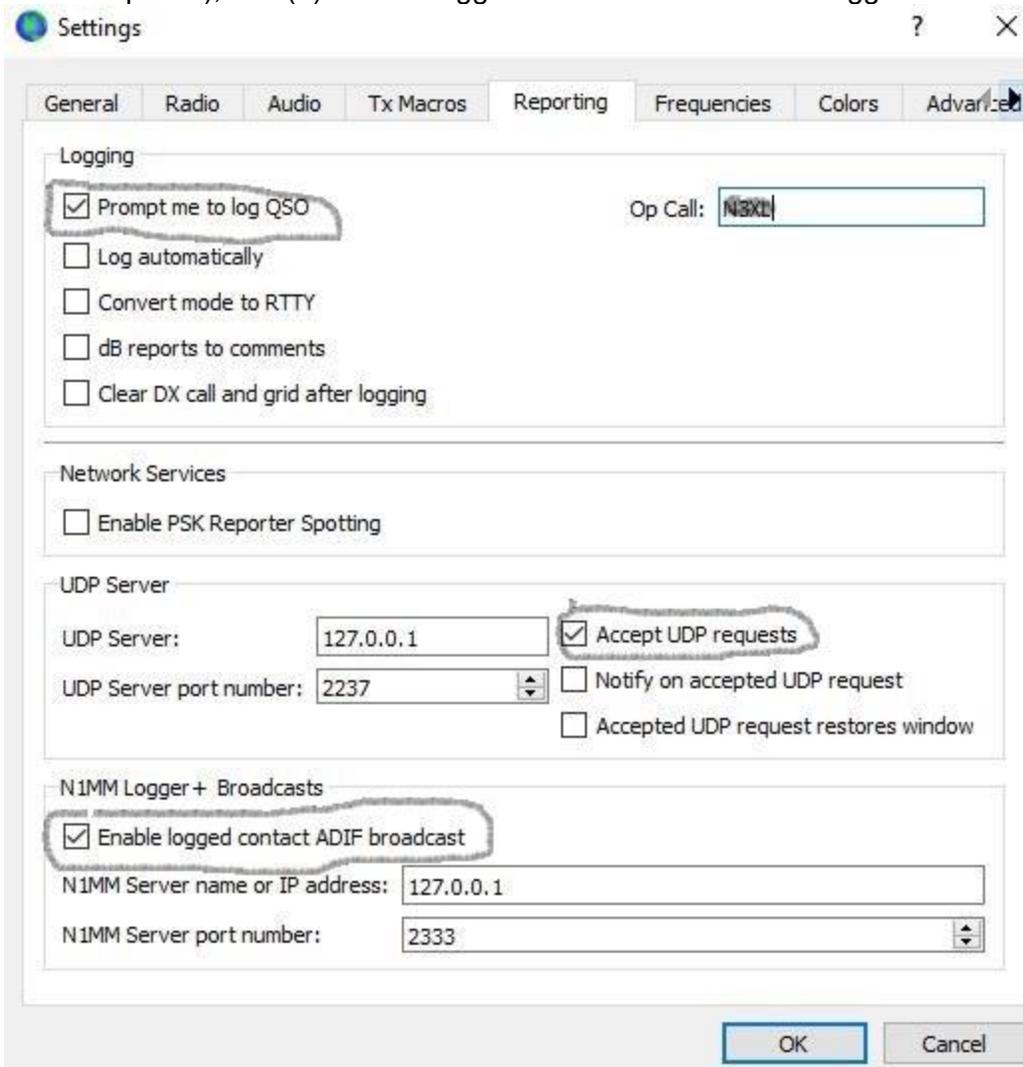
3. Ensure DIGITAL mode is included in the N1MM+ contest setup window (alternatively, type PSK31 in the call sign box in the Entry window and press <Enter> when switching to FT8). This is necessary for proper scoring of FT8 QSOs. The contest can be rescored afterwards, if you forget this during the contest.



4. In Configurer >Hardware change radio port to 'None'.



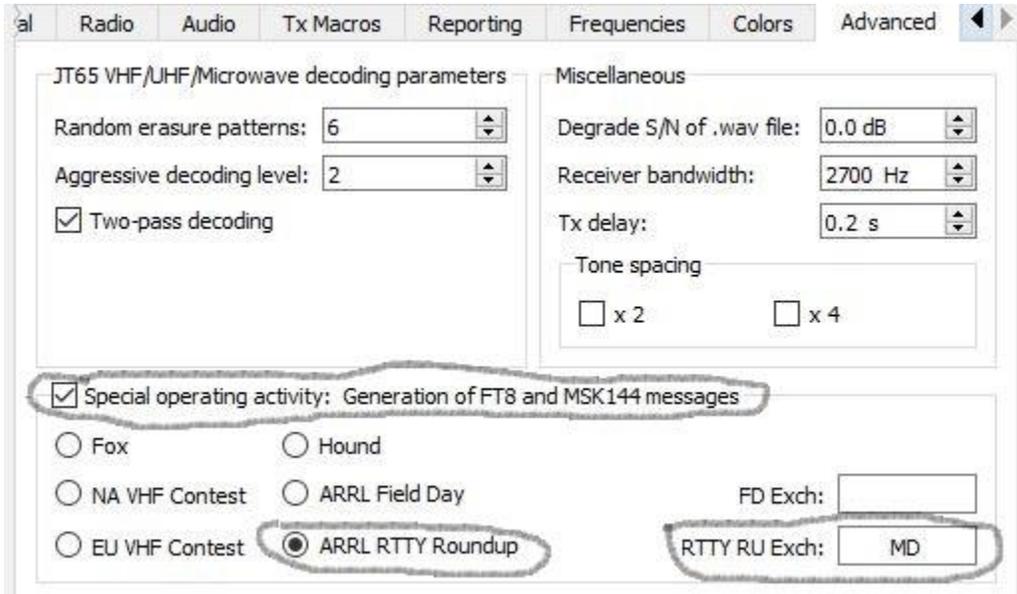
5. **Open WSJT-X** and go to File >Settings >Reporting page, check the (1) Logging > 'Prompt me ...', (2) UDP Server> 'Accept UDP requests' (IP address and port number are as depicted), and (3) N1MM Logger+ Broadcasts > 'Enable logged contact...'.



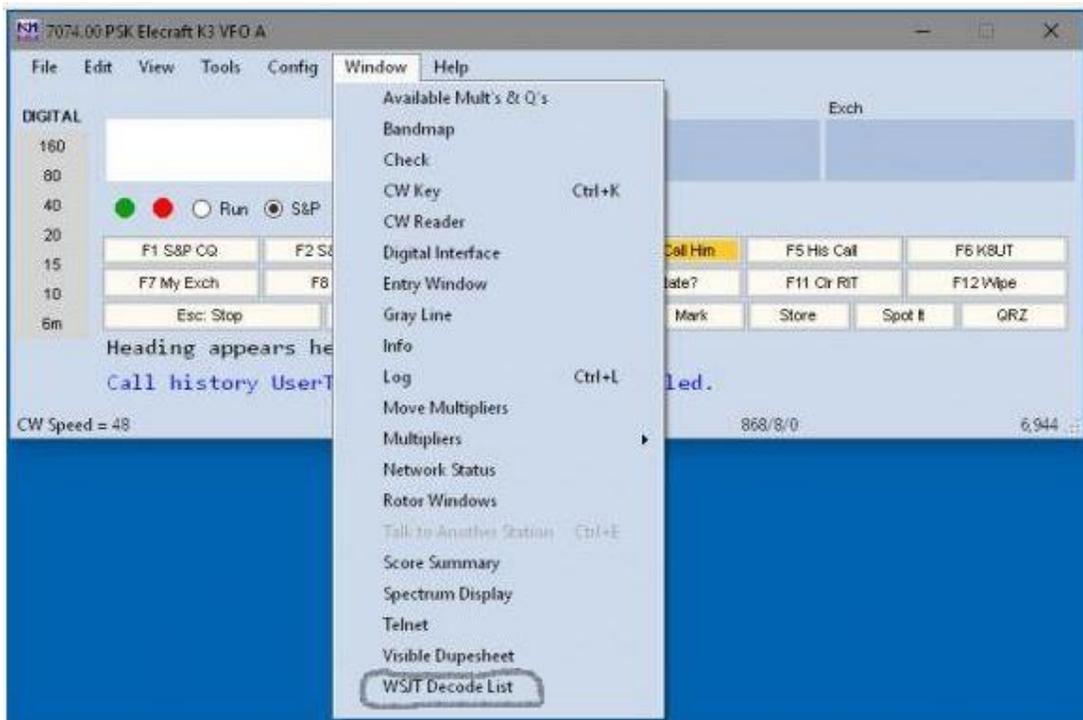
I had the 'Notify on accepted UDP request', and 'Accepted UDP request restores window' boxes checked on my Field Day dry run (just 1 QSO) and didn't notice any negative affect. I routinely use those features and they provide a pop up during routine

QSOs to confirm successful transfer to the logging program or warn of a problem. It's probably OK to check these but not necessary.

6. Go to File >Settings >Advanced tab and check (1) 'Special operating activity ...' box, (2) the contest radio button, and (3) the Exchange. Other entries should be left alone:



7. In N1MM+, open the WSJT-X Decode List by checking Windows tab >'WSJT Decode List' menu choice at the bottom of the list:



- The Decode list window that is created is redundant and it can be minimized. The entries in the main Band Activity window have the same color codes (Blue for regular, Red for multipliers, and Gray or Dupes) and QSOs can be selected from there:

WSJT Decode... - □ ×

Clear Max Lines

Call	Freq	Msg
WO8L	928	CQ WO8L EM96
WB5BUL	816	CQ WB5BUL DM9!
K9IG	1054	CQ K9IG EM69
K1BZ	2370	CQ K1BZ FM19
KC9LFD	2642	CQ KC9LFD EN35
W4UDH	582	CQ W4UDH EM52
N7AMA	1182	CQ N7AMA DM33
KN4KWA	1469	CQ KN4KWA EM8!
WN2E	1522	CQ WN2E EM50
KM4UJI	1922	CQ KM4UJI EL96
KQ4LA	2292	CQ KQ4LA FM16
KA1AQP	1036	CQ KA1AQP FN42
VA3FF	1866	CQ VA3FF FN03

- The Contest Log that is created is also redundant and can be minimized:

Contest Log - □ ×

	Band	Freq(kHz)	Date & Time(UTC)	Call	Sent	Rcvd
1	80m	3573	1/6/2019 06:37:36	K3FHP	539 MD	559 FL
2	80m	3575	1/6/2019 06:30:30	K2KJ	549 MD	559 NY
3	80m	3574	1/6/2019 06:16:45	DG00BU	529 MD	539 001
4	80m	3574	1/6/2019 06:13:45	K0VG	539 MD	549 MN
5	80m	3574	1/6/2019 06:11:45	KA2ENE	529 MD	569 NY
6	80m	3574	1/6/2019 06:08:15	9A7Y	539 MD	539 0007
7	80m	3574	1/6/2019 06:07:15	W4GRV	569 MD	579 TN
8	80m	3574	1/6/2019 06:05:15	VE2GT	559 MD	569 QC
9	80m	3574	1/6/2019 06:00:15	K0NLE	539 MD	559 SD
10	80m	3573	1/6/2019 05:52:30	W4TM	569 MD	559 GA
11	80m	3574	1/6/2019 05:50:33	W9GVW	539 MD	549 TX
12	80m	3574	1/6/2019 05:42:45	KN4BNX	529 MD	559 GA

Operating

Since you probably have some familiarity with FT8 and N1MM+ operating procedures, this part will be easy. You will be using (1) your WSJT-X operating window and (2) N1MM+ log to monitor your log entries. In normal operations, I occasionally move around the transmit frequency in the waterfall away from pileups, but I didn't use the waterfall much, if at all, in the contest. I wouldn't minimize it though, it may prove useful.

To initiate a QSO just click on the call sign (red ones are multipliers) and make sure 'Enable Tx' is on. There is no need to run JTAAlert, so it can be minimized or turned off. If you have JTAAlert set up to go to a 3rd party logging program (Log4OM, in my case), I recommend turning them off - I had to.

WSJT-X v2.0.0 by K1JT

File Configurations View Mode Decode Save Tools Help

Band Activity					Rx Frequency				
UTC	dB	DT	Freq	Message	UTC	dB	DT	Freq	Message
025200	-19	0.1	2745	~ CQ K1BZ FM19	022930	-20	0.2	2051	~ CQ WD5EED EM44
025200	-17	0.1	2051	~ CQ WD5EED EM44	023130	-22	0.1	2051	~ CQ WD5EED EM44
025215	-1	0.2	338	~ A41ZZ K9RX -24	023200	-20	0.1	2051	~ CQ WD5EED EM44
025215	-12	-0.6	531	~ VE3BI WP4AZT 73	023430	-20	0.1	2051	~ CQ WD5EED EM44
025215	-9	-0.4	785	~ VE6EI W7AMC R-21	023445	-16	-0.3	2043	~ CQ N3ITT FN20
025215	-8	0.1	1104	~ N9XG CM2RSV R-04	023500	-12	0.1	2042	~ N3ITT N4VUG FM06
025215	-1	0.3	1739	~ CQ KE4BKL FM06	023600	-12	0.1	2042	~ N3ITT N4VUG FM06
025215	-3	0.6	1817	~ 9A4T K5HTE EM12	023630	-6	0.1	2042	~ N3ITT N4VUG R-07
025215	1	0.2	1943	~ CQ KY6G EL99	023700	0	0.1	2042	~ N3ITT N4VUG 73
025215	-3	0.1	2011	~ CU2JX AG4QD R-14	023930	-22	0.1	2051	~ CQ WD5EED EM44
025215	-15	0.5	2219	~ CQ VA3FF FN03	024000	-22	0.3	2050	~ CQ WD5EED EM44
025215	-15	0.1	1330	~ CQ W1UL FM29	024030	-24	0.1	2051	~ CQ WD5EED EM44
025230	-16	0.1	2051	~ CQ WD5EED EM44	024100	-24	0.1	2051	~ CQ WD5EED EM44
025230	-14	0.1	581	~ <...> N6RV	024130	-24	0.1	2051	~ CQ WD5EED EM44
025230	-14	0.4	727	~ K3LUE VA3VD RR73	024530	-20	0.1	2051	~ CQ WD5EED EM44
025230	-21	0.1	777	~ W7AMC K9IJ -17	024900	-18	0.2	2051	~ CQ WD5EED EM44
025230	5	-1.3	1135	~ W2MKM K4DBZ -06	024930	-19	0.1	2050	~ CQ WD5EED EM44
025230	-24	0.1	1493	~ CQ N6AD CM88	025000	-15	0.1	2051	~ CQ WD5EED EM44
025230	-16	0.3	1625	~ WB3V W1HS -10	025115	-8	-0.2	2036	~ PY5OD W9RN -24
025230	12	-0.2	1788	~ AB8KN KC1BUF -05	025145	-8	-0.2	2037	~ PY5OD W9RN -24
025230	-23	0.1	2533	~ HC5F HI8PIZ FK58	025200	-17	0.1	2051	~ CQ WD5EED EM44
025230	-21	0.1	2679	~ CQ K1BZ FM19	025230	-16	0.1	2051	~ CQ WD5EED EM44

CQ only Log QSO Stop Monitor Erase Decode **Enable Tx** Halt Tx Tur

40m **S** **7.074 000** Tx even/1st Tx 2044 Hz Hold Tx Freq

DX Call: WB5ZGA DX Grid: EL98 Rx 2044 Hz Report -15

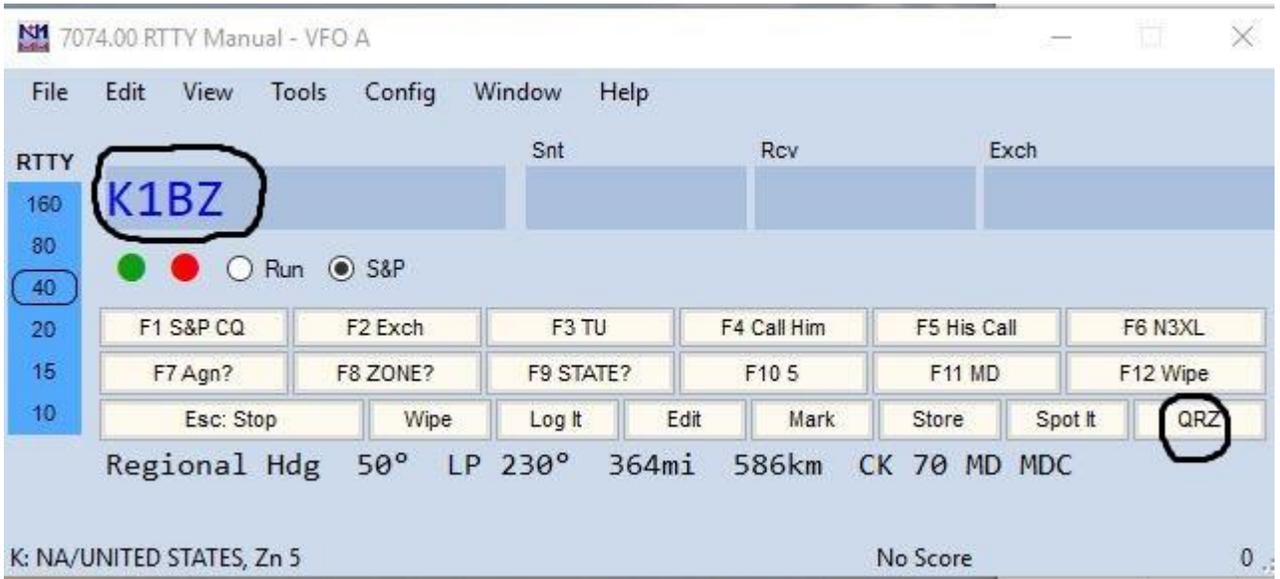
Az: 200 1222 km Auto Seq Call 1st

2019 Jan 08 02:52:49 **RTTY**

Generate Std Msgs Next

- WB5ZGA N3XL FM18
- WB5ZGA N3XL 539 MD
- WB5ZGA N3XL R. 539 MD
- WB5ZGA N3XL RR73
- WB5ZGA N3XL 73
- CQ RU N3XL FM18

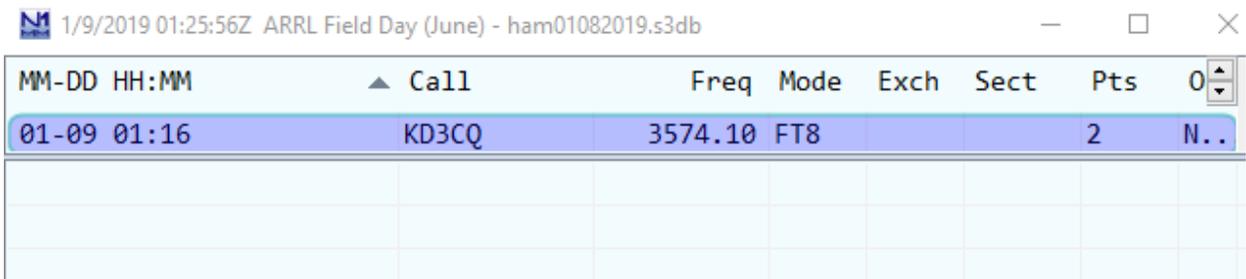
Do not actively use the N1MM+ QSO entry window while operating FT8. However, after operating awhile, my preference was to have the QSO entry window, multipliers window, and N1MM+ log open. I liked having the contacts call sign more visible in the N1MM+ entry window and was pleasantly surprised to see it there. Occasionally, I like to use QRZ to check out a bio during the contest. At times, the slower pace of FT8 permits this without breaking your rhythm.



Don't forget that before you switch back to RTTY, PSK, SSB, etc. in N1MM+, you will need to close WSJT-X. Then you can enable Radio control in N1MM+.

Before you switch back to WSJT-X you will need to turn off the Radio control port in N1MM+. You will leave N1MM+ on throughout the contest (unless you turn it off, hihi).

Looks like it will work for Field Day!



Take the "FT8 in Future Contesting" survey [here](#).

For Sale By PVRCer

DX Doubler DXD SO2R Controller by Top Ten Devices for Elecraft K3 K3S

This unit has the cables for 2 K3s – device info [here](#). Asking \$195.



Contact Alan N3ALN [here](#).

Retired OMs Eating Out (ROMEOs)



At the usual Friday lunch get together at Dempseys in Ashton MD, clockwise from front left: Bill W3MSH, Joel W3ZRW, Brian N3OC, Frank W3LPL, Tony K3WX – photo by K3TN XYL Carole.

KA9FOX Ham-Friendly Real Estate Sales Website – via ARRL Letter

Scott KA9FOX has set up a website where for a flat fee of \$99 you can list your “ham friendly property” and have it advertised across his QTH.com sites. If you are looking to sell without taking down towers, etc, or are looking to buy, check it out [here](#).

Membership News – Tim N3QE

In January 2019, PVRC has added 4 new members:

Ray KC3RW, Kerri KB3WAV, and Ed N8EME in the Northwest Chapter.

Kerry NH2A in the Colonial Capital Chapter.

Chapter leaders please remember to complete the [Meeting Attendance Report](#).

Members can check and update their roster details via the [Roster Lookup](#).

Upcoming Contests and Log Due Dates

Contests This Month

- Feb 3 - NA Sprint CW
- Feb 9 - CQ WW RTTY WPX
- Feb 9 - PACC
- Feb 16 – ARRL DX CW
- Feb 22 – CQ WW 160 SSB
- Feb 23 – NAQP RTTY

Logs Due This Month

- Jan 31 – ARRL VHF
- Jan 31 – RAC Winter
- Feb 1 – CQ WW 160 CW
- Feb 4 – HA DX

See WA7BNM’s [Contest Calendar](#) for more detail and the latest information.

Editor’s Last Word – John K3TN

Thanks to Mark N2QT, Bud W3LL, Brian N3OC and Bill N3XL for contributions to the newsletter this month – a lot of great material making this probably the longest PVRC newsletter ever. Lots of good and timely material on FT8 after the last few events.

If you didn’t see my email to the newsletter about participating in a short “FT8 in Contesting” survey for my presentation at the Dayton/Xenia Hamvention, please take a few minutes to fill out the survey [here](#).

The quality and usefulness of the PVRC newsletter depends on contributions from members. If you have photos from club meetings, screen shots of new contest software, or brief writeups on station improvements or contest war stories, send them in any format to [jpecatore at aol dot com](mailto:jpecatore@aol.com).

From the PVRC Treasurer – Dan K2YWE

PVRC has chosen not to implement an annual dues requirement. We depend on the generosity of all our club members to finance our annual budget. In addition, active PVRC members are expected to participate and submit logs for at least two PVRC Club Competition contests per year.

When contemplating your donation to PVRC, each member should consider the benefit you are receiving from PVRC and its many opportunities for your personal growth in our wonderful hobby, then donate accordingly.

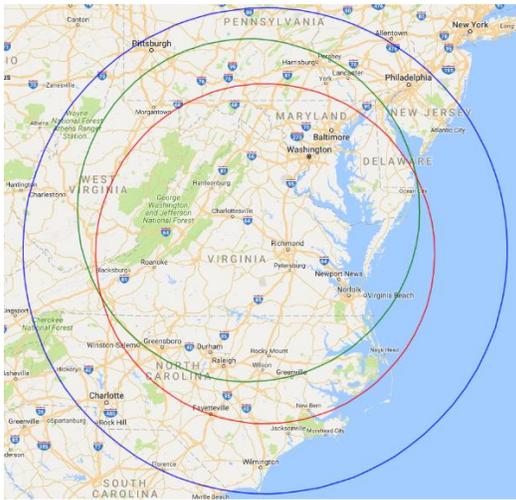
Direct donations to PVRC via Credit Card or PayPal may be made by clicking this "Donate" button and clicking the next Donate button that appears on your screen:



Donations to PVRC are not tax deductible

Eyeball QSO Directions

The latest info on local club meetings and get togethers will always be sent out on the [PVRC reflector](#) and posted on the PVRC [web site](#).



Green: ARRL VHF Circle
175 mile radius
Around 38.075N,
78.171W

Red: ARRL HF Circle
175 mile radius
Around 37.43168N,
77.858482W

Blue: CQ HF Circle
250 mile radius
Around 37.43168N,
77.858482W



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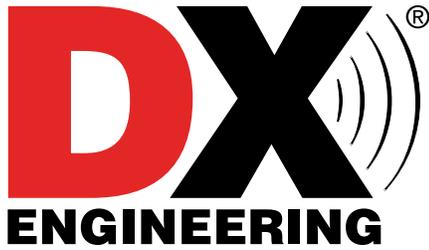


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MZZ-BABY



MZZ-MIDI

Loop Antennas

DX Engineering carries well-known Loop Antennas by I3VHF, manufactured by Italy's Ciro Mazzoni. The 78" diameter MIDI Loop covers 80 through 20 meters. The popular 39.8" diameter BABY Loop and the new Stealth Loop are perfect for working the 40 to 10 meter bands when you have limited space and don't want to bother your neighbors or HOA. The low-profile Stealth Loop features a typical SWR of 1.3:1 and requires no pole or installation. It measures 54" x 19.6" x 10.2", making it easy to hide on the ground or place on a balcony. Enter "MZZ" at DXEngineering.com for more information.



MZZ-STEALTH...\$1,799.99

MZZ-BABY...\$2,097.99

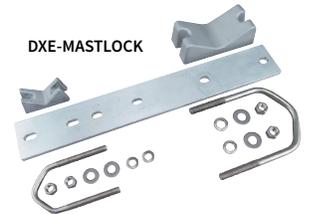
MZZ-MIDI...\$2,479.99



DXE-TB-400



DXE-AS25G



DXE-MASTLOCK



Tower Accessories

Upgrade your towers with DX Engineering designed and manufactured accessories. These include Advanced Design Thrust Bearings (for 2" and 3" O.D. masts) that ensure smooth rotation and a reduced load on the rotator motor; Tower Accessory Shelves that take the hassle out of mounting rotators and thrust bearings; the Mastlock Tower Accessory, which locks your tower mast in position for simple rotator removal and worry-free antenna maintenance; and stainless steel Genius Clamps for mounting round tubing and pipe members perpendicular or parallel to each other. Enter "Tower Accessories" at DXEngineering.com for complete details.



DXE-SSGC-2P



Towers and Antennas

DX Engineering carries more than 60 elite directional Yagi and log cell Yagi antennas from OptiBeam, including the latest model—the OB10-5M-P. This 20/17/15/12/10 meter, 10-element Yagi has been extensively tested to deliver the highest possible gain and cleanest radiation patterns. System package includes balun, shipped separately.

DBO-OB10-5M-P...\$1,615.98

Hummelmasten's 29 foot Mini XL tower and antenna mast system features an ingenious crank-up two-tier carriage that mounts both a rotator and a mast bearing, or a stationary mast. Made from high-strength square tubular aluminum, the Mini XL is built to handle tough weather conditions and is a good choice for small- to medium-sized beams and VHF antenna use.

Mini XL Tower Packages...from \$2,385.00



Gator Rack Cases

Gator Cases makes virtually indestructible rack cases that are ideal for housing radios, power supplies, antenna tuners and more—whatever you need in your emergency go-kit. Made from sturdy roto-molded or lightweight molded polyethylene, these cases come in rack heights of four or six units and are built tough to secure every element in your portable setup. Racks come in depths of 14.25 or 19 inches, with or without wheels. Enter "Gator" at DXEngineering.com to view all your options.

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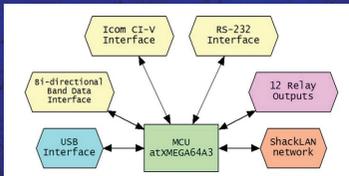
Announcing the new BM-5 BandMaster V

The next generation of the popular BM-3 with direct USB support for FLEX Radios

NEW!



The BM-5 BandMaster V is a full featured unit that contains a universal band decoder and antenna switch controller. It features five communication channels. All channels are active simultaneously and provide data translation for your station accessories. In other words, if you are using an Icom radio on the CI/V interface the BandMaster V will output 4-bit band data as well as RS-232 data in Yaesu or Kenwood format. In reverse, when using a radio on the RS-232 interface the BandMaster V will output 4-bit band data as well as an Icom CI/V data stream. The USB interface may be connected to your PC for radio control. **The USB interface may be connected directly to a Flex SDR with no additional cables or interfaces required.**



RatPack Remote Antenna Switch

Six antenna remote switch with rotary switch controller. Push button controllers available. HF and 50 MHz. Power rating is 5 kW CW.



StackMatch

The original, not the imitations. For phasing 2, 3, 4 and even 6 antennas. Also it can be used to combine vertical and horizontal polarized antennas to diminish fading.



TwoPak

Two antenna switch, 12V DC via wires or optional via coax cable. DC to 150 MHz. HF 5 kW rating. Metal box.

Off-Center Fed Dipole Antenna

AS-OCF-2K, AS-OCF-5K Seven bands antenna (80 to 6 m). Heavy duty materials. 4:1 balun included. Ratings: 2 or 5 kW or higher available.



PowerMaster II



RF Power and SWR meter. Couplers for 3 kW, 10 kW or higher available for HF/6 m. VHF and UHF couplers for 1.5 kW. You can connect up to 5 couplers to the display to monitor RF power on different TX lines.



OM Power Amplifiers, The New RF Power Benchmark!



OM Power Amplifier Sales Program

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OM4000HF	Manual 160-10 m 4 kW
OM4000A	Automatic 160-10 m 4 kW
OM2500HF	Manual 160-10 m 2.5 kW
OM2500A	Automatic 160-10 m 2.5 kW
OM2000+	Manual 160-6 m 2 kW
OM2000A+	Automatic 160-6 m 2 kW

OM Power was founded in 2004 as an initiative of two enthusiastic Slovak ham operators. Since that time OM Power has become a successful and well established company in the production of amplifiers. OM Power amplifiers can be found on all continents and in almost every country of the world. All of the amplifiers have state of the art design, and are solidly built.

The automatic amps can drive an antenna switch of up to 10 antennas and select up to ten bandpass filters applies to all automatic models

OM4000A - OM4000HF OM2500A - OM2500HF

The A-series are automatic band change amplifiers.

The HF-series are manual band change and tuning amplifiers.

OM4000: 4 kW SSB and CW, 3 kW RTTY, AM and FM

OM2500: 2.5 kW SSB and CW, 2 kW RTTY, AM and FM

OM2000A+ - OM2000+

The **OM2000A+** is the lightest and smallest 2000 W fully automatic HF/6 m power amplifier in the market. Its manual tuning version, the **OM2000+**, is our affordable unmatched best-seller.

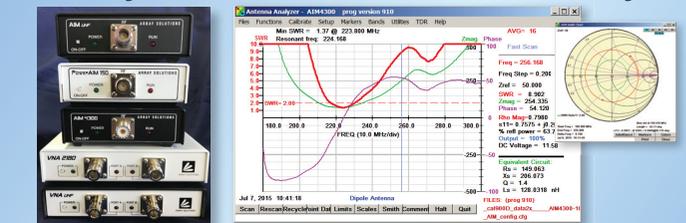
Frequency coverage:

Amateur bands 1.8 - 29.7 MHz including WARC + 50 MHz

Power output: 2000+ W in SSB/CW on HF bands, 1500 W in RTTY
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AS-302, AS-303 Coaxial cable arrestors. DC to 500 MHz. N-type or SO-239 connectors. **AS-300SB** Stacking fixture available. **AS-309H**, ladder line arrestor. All have static bleed function. **AS-8SP, AS-12SP** and **AS-16SP** control cable arrestors. Protect your rotator's and other control cables.



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- 1.2kHz "Optimum" roofing filter • New local oscillator design • Improved phase noise • Improved spectrum scope • Dual scope function • Enhanced mouse operation for spectrum scope



IC-7100 | All Mode Transceiver

- HF/50/144/430/440 MHz Multi-band, Multi-mode, IF DSP • D-STAR DV Mode (Digital Voice + Data) • Intuitive Touch Screen Interface • Built-in RTTY Functions



ID-5100A Deluxe VHF/UHF Dual Band Digital Transceiver

- Analog FM/D-Star DV Mode • SD Card Slot for Voice & Data Storage • 50W Output on VHF/UHF Bands • Integrated GPS Receiver • AM Airband Dualwatch



IC-7700 | HF/50MHz Transceiver

- The Contester's Rig • HF + 6m operation • +40dBm ultra high intercept point • IF DSP, user defined filters • 200W output power full duty cycle • Digital voice recorder



IC-718 | HF Transceiver

- 160-10M** • 100W • 12V operation • Simple to use • CW Keyer Built-in • One touch band switching • Direct frequency input • VOX Built-in • Band stacking register • IF shift • 101 memories



ID-4100A | VHF/UHF Dual Band Digital Xcvr

- Compact, Detachable Controller for Flexible Installation • DV/FM Near Repeater Search Function • Apps for iOS™ and Android™ devices • Wireless Operation with VS-3 & UT-137 Bluetooth® Headset & Module • MicroSD Card Slot



IC-7610 | HF/50 MHz All Mode Transceiver

- Large 7-inch color display with high resolution real-time spectrum scope and waterfall • Independent direct sampling receivers capable of receiving two bands/two modes simultaneously



IC-2300H | VHF FM Transceiver

- 65W RF Output Power • 4.5W Audio Output • MIL-STD 810 G Specifications • 207 alphanumeric Memory Channels • Built-in CTCSS/DTCS Encode/Decode • DMS



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- Super Sharp "Roofing" Filters • High Performance Yaesu Custom- designed 32-bit Floating Point DSP • True Analog Meter Precision



FTDX3000 | 100W HF + 6M Transceiver

- 100 Watt HF/6 Meters • Large and wide color LCD display • High Speed Spectrum Scope built-in • 32 bit high speed DSP /Down Conversion 1st IF



FT-991A | HF/VHF/UHF All Mode Transceiver

- Real-time Spectrum Scope with Automatic Scope Control • Multi-color waterfall display • State of the art 32-bit Digital Signal Processing System • 3kHz Roofing Filter for enhanced performance • 3.5 Inch Full Color TFT USB Capable • Internal Automatic Antenna Tuner • High Accuracy TCXO



FTDX1200 | 100W HF + 6M Transceiver

- Triple Conversion Receiver With 32-bit Floating Point DSP • 40 MHz 1st IF with selectable 3 kHz, 6kHz & 15 kHz Roofing Filters • Optional FFT-1 Supports AF-FFT Scope, RTTY/PSK31 Encode/Decode, CW Decode/Auto Zero-In • Full Color 4.3" TFT Display



FT-891 | HF+50 MHz All Mode Mobile Transceiver

- Rugged Construction in an Ultra Compact Body • Stable 100 Watt Output with Efficient Dual Internal Fans • 32-Bit IF DSP Provides Effective and Optimized QRM Rejection • Large Dot Matrix LCD Display with Quick Spectrum Scope • USB Port Allows Connection to a PC with a Single Cable • CAT Control, PTT/RTTY Control



FT-857D | Ultra Compact HF/VHF/UHF

- 100w HF/6M, 50W 2M, 20W UHF • DSP included • 32 color display • 200 mems • Detachable front panel (YSK-857 required)



FT-2980R | Heavy-Duty 80W 2M FM Transceiver

- Massive heatsink guarantees 80 watts of solid RF power • Loud 3 watts of audio output for noisy environments • Large 6 digit backlit LCD display for excellent visibility • 200 memory channels for serious users



FTM-100DR | C4FM FDMA/FM 144/430 MHz Xcvr

- Power Packed System Fusion Transceiver • High Audio Output Power • Rugged Powerful Transmitter • Integrated 66ch High Sensitivity GPS • 1200/9600 APRS Data Communications



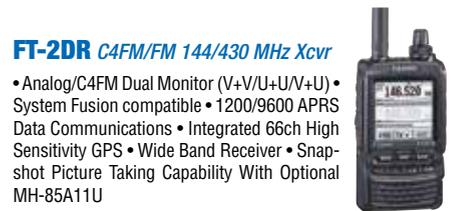
FTM-400XD | 2M/440 Mobile

- Color display-green, blue, orange, purple, gray • GPS/APRS • Packet 1200/9600 bd ready • Spectrum scope • Bluetooth • MicroSD slot • 500 memory per band



FT-70DR C4FM/FM 144/430MHz Xcvr

- System Fusion Compatible • Large Front Speaker delivers 700 mW of Loud Audio Output • Automatic Mode Select detects C4FM or Fm Analog and Switches Accordingly • Huge 1,105 Channel Memory Capacity • External DC Jack for DC Supply and Battery Charging



FT-2DR C4FM/FM 144/430 MHz Xcvr

- Analog/C4FM Dual Monitor (V+U/U+U+U) • System Fusion compatible • 1200/9600 APRS Data Communications • Integrated 66ch High Sensitivity GPS • Wide Band Receiver • Snapshot Picture Taking Capability With Optional MH-85A11U



FT-65R | 144/430 MHz Transceiver

- Compact Commercial Grade Rugged Design • Large Front Speaker Delivers 1W of Powerful Clear Audio • 5 Watts of Reliable RF Power Within a compact Body • 3.5-Hour Rapid Charger Included • Large White LED Flash-light, Alarm and Quick Home Channel Access



FT-60R | 2M/440 5W HT

- Wide receiver coverage • AM air band receive • 1000 memory channels w/alpha labels • Huge LCD display • Rugged die-cast, water resistant case • NOAA severe weather alert with alert scan



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TS-990S | 200W HF + 6M Transceiver

- World's first dual TFT display • 200W output on all bands
- ± 0.1 ppm TCXO ensures both high stability and reduced power consumption • Triple 32-bit DSP's dedicated to main/sub receivers and band scope • Main receiver employs full down conversion, new mixer & narrow band roofing filters • Third order intercept point (IP3) +40dBm for highest level of RX performance (main receiver)

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TM-D710G | 2M/440 Dualband

- V+V/V+U/U+U operation • Built-in GPS • Built-in TNC for APRS & DX-Cluster operation • 50W 2M & UHF • 1,000 memories • Dual receive • Green or amber backlight colors • Latest APRS firmware w/new features • Sky Command II remote functions

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TS-480SAT/HX | HF + 6M Transceiver

- 480HX 200W HF & 100W 6M (no tuner) • 480SAT 100W HF & 6M w/AT • Remotable w/front panel/speaker • DSP built-in

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TS-590SG | HF/50MHz Transceiver

- Equipped with 500 Hz/2.7 kHz roofing filter as standard • ALC derived from TS-990S eliminating spike issues • Antenna output function (shared with DRV connector) • CW - morse code decoder function • Improved 1st mixer • New PFB key with multi-function knob • New split function enabling quick setting • LED backlight with selectable color tone



TM-V71A | 2M/440 DualBand

- High RF output (50W) • Multiple Scan • Dual receive on same band (VxV, UxU) • Echolink® memory (auto dialer) • Echolink® Sysop mode for node terminal ops • Invertible front panel • Choice of green/amber for LCD panel • 104 code digital code squelch • "Five in One" programmable memory • 1000 multifunction memory

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TH-D72A

2M/440 HT w/extended RX

- 5W TX, RX 118-524 MHz, VxU, VxV, UxU
- APRS w/built-in 1200/9600 TNC • Built-in GPS, Built-in USB, digipeater • Echolink® compatible, • Mil-Spec STD810

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TS-2000/2000X | HF/VHF/UHF Transceiver

- 100W HF, 6M, 2M • 50W 70CM • TS-2000X 10W 1.2GHz
- Built-in TNC, DX packet cluster • IF Stage DSP • Backlit front key panel

Call For Special Price!



TM-281A | 2 Mtr Mobile

- 65 Watt • 200 Memories • CTCSS/DCS • Mil-Std specs • Hi-quality audio

Call For Special Low Price!



TH-D74A

2M/220/440 HT w/D-STAR!

- D-STAR compatible • APRS ready w/built in GPS • Color weather station information • Built-in KISS mode TNC • High-performance DSP voice processing • Standard compatibility for Bluetooth

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TH-K20A | 2M Handheld

- 2M 5.5W • VOX • CTCSS/DCS/1750 Burst built-in • Weather alert

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ACOM-1000

- HF and 6 Meter 1KW Amplifier • Match 3:1 SWR with No Tuner • User Friendly QSK Operation • LCD Message Display
- Single 4CX800a Tube • Vacuum Antenna Relays

Call For Additional ACOM Products!



218XATC-PL-(length) RG8x (240UF) w/PL259 Connectors Each End. Weather-Proof Heat Shrink Tubing.

- Stranded Center Conductor.
- 95% TC Braid + bonded 100% Foil Shield.
- Very Flexible, Light Weight, and Smaller than RG8 sizes.
- Non-Contaminating-UV Resistant-Direct Burial-Black Jacket.



233/2-G4-(length).

- Unique design (Nickel Grommets 4" Spacing) allows for easy attachment to a vehicle's body or truck bed to create a "ground-plane".
- Good option as a "buss-bar" in the shack.
- 1/2" wide tinned copper 38x48x8/384 10ga 53 Amps.
- Stocked in 1.5', 3', 5', and 10' foot lengths.



The SDRplay RSP FAMILY

THE WORLD'S FAVORITE SDR RECEIVERS

- Continuous SDR coverage from 1kHz to 2GHz (NO GAPS!)
- Now includes the new RSPduo 14-bit Dual-Tuner SDR
- RSPduo can simultaneously receive on 2 totally independent 2MHz spectrum windows, anywhere between 1kHz & 2GHz
- All RSPs can receive, monitor and record up to 10MHz spectrum at a time
- Visualise all the signals in multiple bands simultaneously
- S/W pre-sets for all the bands from the new LF2200m to 23cm
- Excellent dynamic range for challenging reception conditions
- Built-in High performance Front-end Filters
- Use as a stand-alone general coverage receiver, or as a high resolution Panadapter
- SDRuno Windows SDR software provided free-of-charge
- Also works with other platforms and popular SDR Software
- The perfect gift for newcomers & returners to the radio hobby
- Calibrated S meter/RF power & SNR measurement with SDRuno
- Only needs a computer and an antenna
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TX-455

- 55' freestanding crank-up • Handles 18 sq. ft. @ 50 mph • No guying required • Extra-strength construction • Can add raising and motor drive accessory • Towers rated to EIA specifications • Other models available at great prices!



MA-40

- 40' Tubular Tower

Call For Latest Pricing!

MA-550

- 55' Tubular Tower • Handles 10 sq. ft. at 50 mph • Pleases neighbors with tubular streamlined look

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REMOTE RIG



RRC-1258 MkII-S-Set

This set of interfaces allows remote control of your Amateur Radio Station via Internet in a user-friendly and cost effective way! RemoteRig gives you control of the radio coupled with crystal clear TX & RX audio and sending CW with your own Paddle!

New! Now Stereo Version for Dual Receiver radios.

Works with all Computer-controllable radios from: **Alinco - Elecraft - ICOM - Kenwood - Yaesu**

For radios with detachable front panels no PC is required for: TS-480HX/SAT; TS-2000 (RC-2000 req'd); IC-703/Plus; IC-706 series; DX-SR8T; IC-2820H; IC-R2500

Just simply insert your control box in place of your front panel interconnect cable, place the body of the radio on the remote end and you are on the air as if you are there! Extra Controller and Remote interface units sold individually for multiple sites/users.

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