

PVRC Newsletter

April 2013

President's Letter – Rich NN3W

Greetings to All in PVRC land!

Life has kept me busy the past two weeks on “shuttle” trips to and from Houston for a major project – 6:00 am flight down and 7:00 pm flight back. Great on the overall frequent flier mileage account, but not so great on the body (also a bummer as I am a US Airways preferred flyer and these flights are all United flights which confer only limited benefits).

Anyhow, we'll make this issue a short “odd and ends” issue and move on to greener pastures.

First of all, last month's column really set into motion a flurry of activity – especially as it relates to the club's finances and budget. I'd like to thank all of you that have contributed to the club's coffers since the newsletter went out; the response has been tremendous and broad-based. I'll say this however - keep it coming! If you have not received a formal acknowledgement from Dave WR3L (many of you have), please accept our apologies for not responding

sooner, and our sincere thanks for having contributed. Your club officers are beginning work on an official budget for the club. My goal is to have something formalized and ready for dissemination by July 1, 2013. As always, please feel free to email me or any of the other officers if you have comments or suggestions.

Second, there has been a lot of discussion and planning behind the scenes for the upcoming IARU HF Championship that will take place on July 13 and July 14 this year. As announced at the PVRC Central dinner on December 3, PVRC has managed to snag the designation of not only the ARRL Headquarters station (W1AW), but also the designation of the IARU Headquarters station (NU1AW). It was decided that this would be a great opportunity for a little friendly intra-club competition with one team being north of the Potomac (W3s) and one team being south of the Potomac (W4s). Call it North v. South 2013; Blue state v. Red state; Orioles v. Cardinals (the birds, not the baseball teams); Smith Island cake versus Virginia BBQ; or whatever. But it should be worthy of some good ribbing and lively competition.

Your two captains for this event are Frank Donovan W3LPL and Steve Bookout NR4M. These two fine individuals were chosen as they have the ability to herd a large quantity of cats – as demonstrated in their organizational abilities at their respective multi-multi stations.

Anyhow, on December 3, these two fine leaders competed to see which group would use which callsign – NU1AW or W1AW. In a blind, non-partisan drawing (verified by the state board of Elections (I won't say which state)), Steve NR4M was awarded W1AW/4 for the weekend, and Frank W3LPL was awarded NU1AW/3 for the weekend.

Since then, both have been busy recruiting club members to serve as band captains for the weekend. We expect at least six different stations to be QRV from W3 and six different stations to be QRV from W4. Stations like N3HBX, N3RR, and W3LPL

are some of the likely operational bases for NU1AW/3, while stations like N4AF, NR4M, K4VV, and N4RV are some of the likely operational bases for W1AW/4. Many of these stations will need operators and helpers as we expect that some of the bands will be running the full 24 hours. More details will be announced as we approach the big weekend.

OK, back to work. Go work on your stations!

73, Rich NN3W

PVRC Officers:

President: NN3W Rich Didonna
Vice President: KE3X Ken Low
Vice President: K8GU Ethan Miller
Secretary: W3LL Bud Governale
Treasurer: WR3L Dave Baugher

Trustees:

K3MM, N3OC, WX3B, W4ZYT, N4NW, K2AV, K4ZA, K3WRY

PVRC Charter Members (all SK):

W3GRF, W4AAV, W4KFC, N0FFZ, W4LUE, W7YS,
VP2VI/W0DX, W3IKN, W4KFT

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

Finding the Most Exciting Contest for You – Remember, it is April

There are often comments after a contest along the lines of “That contest was no fun because...” NCJ has recently run a very interesting series of articles on applying video game design theory to contests to increase the allure but that will take time. As a public service, I offer this decision framework as a tool to help you find a fun contest:

Answer each question honestly, and circle the point value next to your answer. At the end, add up all your points.

1. What is your favorite type of contest?
 - a. DX – 0
 - b. Domestic – 1
 - c. Everyone works everyone – 2
2. What type of DX contest do you prefer?
 - a. The world has to work me – 0
 - b. I have to work a specific country – 1
3. What type of domestic contest do you prefer:
 - a. Everyone has to work me – 0
 - b. I have to work a specific state or domestic region – 1
4. What type of contest exchange do you prefer?
 - a. Long complicated – 0
 - b. Short, simple – 1
5. What type of station do you have?
 - a. Big, powerful – 0
 - b. Small, wimpy – 1
6. Do you prefer CW, Phone, Digital or Mixed?
 - a. CW – 0
 - b. SSB – 1
 - c. Digital – 2
 - d. Mixed – 3
7. Are you right handed or left handed?
 - a. Right handed – 0
 - b. Left Handed – 1
8. What is your feeling about Wayne Green, W2NSD?
 - a. Who? – 0
 - b. I still miss 73 magazine – 1
 - c. Charlatan – 2
9. Do you subscribe to NCJ?
 - a. What? – 0
 - b. No – 1
 - c. Yes – 2

10. Have you ever operated SSTV, checked into the Pig Farmers Net or said “73s” at the end of a QSO?
- a. Never – 0
 - b. OK, once – 1
 - c. Frequently, except when those stupid contests QRM the bands – 2

Add up all your points and find your score below and then click on the link in blue to find the right contest for you:

0-10 points – go [here](#)

10 – 20 points – go [here](#)

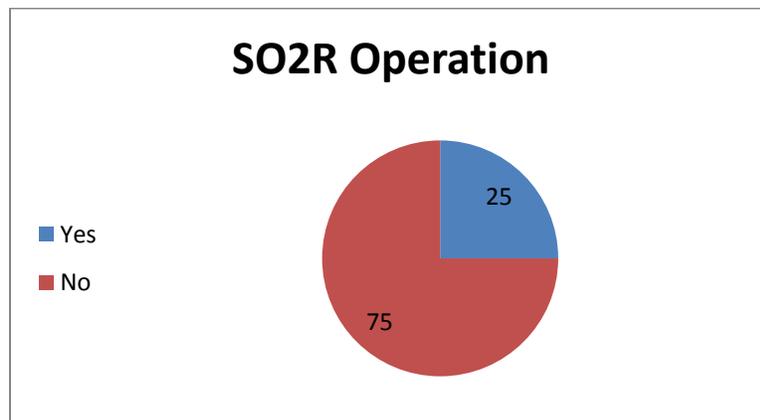
20 points or higher – go [here](#)

Valid only on 4/1/2013

Survey Says: Only 25% of PVRicers Operate SO2R

One hundred PVRicers responded to the question of the month:

Do you currently operate SO2R?



Most comments were anonymous, except for W4VIC who said “I can barely manage SO1R!! And some would say that is an overstatement!” The other comments fell into 4 major categories:

1. Yes, it makes contests much less boring.
2. No, I don't have enough antennas/radios/coordination.
3. Not yet, heading there.
4. Tried it, hated it, never going back.

I fall into (3) – just not enough antennas yet but I'm slowly getting there. I've been doing SO2V with my K3 and really enjoy it. Makes S&P much faster and fun and makes slow running more fun by letting me pick off same band multipliers or new QSOs while not losing my run frequency.

How Long Are Those Butts Really in the Chair??

Doug KR2Q posted some interesting statistics from the CQ WW SSB logs:

- 50% operate for 8 hours or less
- ~75% operate for < 15 hour.
- ~90% operate for < 24 hours
- ~95% operate for < 30 hours

Only 1.8% operate more than 40 hours, while 3% hang in there for more than 36 hours. Of course, if it wasn't for all those under 15 hour ops there wouldn't be much for the full time ops to work...

An Oldie But Goodie: “Battle of the Hams,” Sports Illustrated 1958



The CQ-CONTEST reflector is generally about 90% repetitive whining but Mark W4SVO recently posted this reminder of Bill Leonard's (W2SKE) Sports Illustrated article about radio contesting from more than 50 years ago (the article can be found [here](#)):

“I thought that this may be great to read, instead of all the complaining that is done on this reflector. I wish I had that much time. I am too busy enjoying life and ham radio. Mark W4SVO”

Backup Strategies for the Data Paranoid v2 – Larry K8UT

Pete N4ZR saw this in the [SE Michigan DX Association's Match 2013 newsletter "Long Path."](#) Reprinted here with permission.

Very few hams are still using paper logs – the computer has become an essential peripheral in the ham shack. I abandoned paper logs 13 years ago and since then have captured 40,000+ QSOs on a PC's hard drive. As you might expect, during those years I've replaced the computer a few times and suffered a few hard drive crashes. Fortunately {knock on wood} I've never lost any data nor had to manually rebuild a log file. But, I've been lucky and I know it. I needed a better backup mechanism that works automatically and stores essential files in more than one location.

My goal in designing a backup system covers worst-case scenarios that span a range of misfortunes. What if my: hard disk crashes; the lights blink; the basement floods; the house burns down?

The resulting backup solution involves a combination of hardware and software. On the hardware side, I equipped each PC in my house with a secondary hard disk and a USB thumb drive. Each PC connects to a router and through it to a Linux Ubuntu computer that functions as a web host and file server. All of those computers are networked together with a router that provides upstream Internet connectivity. On the software side, the computers are running four programs that provide varying degrees of backup capability: Microsoft *Windows*, Acronis *True Image Home*, 2BrightSparks' *SyncBack*, and a utility program I wrote called *TRNmirror*.

Backup Within each Computer – Each computer performs a local backup from its primary to its secondary disk. The built-in *Windows* backup utility runs monthly to create a full image of the primary disk on the secondary disk, while *True Image Home* runs twice a week to create incremental backups of the hard disk. Aside from whole-disk copies, scheduled *SyncBack* profiles run nightly snapshots of essential files - like My Documents, all ham radio programs, and all logs files – from the primary to the secondary disk and to the USB thumb drive. These operations happen automatically without any human intervention.

Backup to the File Server – Included in each computer's *Syncback* schedules are profiles that run nightly and transfer files between the computers' secondary hard disks and the Ubuntu server. For added data insurance, *Syncback's* profiles are configured with *VERSIONING = ON*, which examines files for changes and renames an existing backup file with a version number (myfile(001), myfile(002), myfile(003)...) before copying the current file from the PC. This technique creates generations of backup files in the event that I need to restore a version from the distant past. These operations are also automatic and require no intervention from me.

Backup to an Internet Service – My "Beginner Web Hosting Account" at www.1and1.com includes 250 GB of storage space, which serves as an off-site repository for my "if the house burns down" scenario. Nightly *Syncback* profiles connect from the PCs to 1and1.com and use the FTP protocol to copy files up into the cloud. In addition to ham radio files, I also copy other files – things like the family photo album, legal and accounting documents and important correspondence. Like the previous backups, this one is also automatic.

Real-Time File Copying – In addition to the previous traditional instances of static backups, there are also special times – like when I am running a contest – that I want the added security of instantaneous file backups. The elegant solution to this problem would be an expensive RAID disk array; my inelegant solution is a utility program that I wrote myself. *TRNmirror.exe* monitors a given disk directory and detects when a file's size or date-stamp changes, at which time it makes a copy (with versioning) of the log in a second location. If my logging software were to fail, the logfile were to become corrupted, the hard disk were to crash, or the PC's power supply were to go up in smoke, I would still have a copy of that 1000 QSO contest log file in another location. If you're interested, that log-copying utility is available [from my website](#).

Alternatives – The architecture and techniques described in this article work fine for me, but may not fit in your environment. Feel free to make substitutions. Maybe your version of Windows lacks a backup/restore program? Perhaps you only have one computer in the house, you don't have an Ubuntu server, or your computers are not networked together? No secondary hard drives? Thumb drives are cheap! Or burn the files to a DVD! No Internet connection? Snail mail a CD/DVD to a local ham for safe-keeping. The important thing is that your long-term investments in this hobby are safeguarded.

K8UT, Larry Gauthier 2013-02/08

References

Monthly full image backup – Microsoft Windows 7

Incremental backups – Acronis True Image Home, www.acronis.com

Nightly snapshots – 2BrightSparks SyncBack, www.2brightsparks.com

Off-site backup – 1and1, www.1and1.com

Real-time copy – K8UT TRNmirror.exe, www.k8ut.com

Membership News – Bud W3LL

PVRC added several new members since the last newsletter. Please welcome:

- In the Laurel chapter, Aaron KB3WNE
- In the Central chapter, John WC3Q, Dan KB3UUN

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

Upcoming Webinars – Ken K4ZW

The World Wide Radio Operators Foundation (WWROF) is pleased to announce the following Webinars:

- **April 14** - Contest University and Dayton Contester Activities - Tim Duffy K3LR
- **April 16** - Solar Topics - Carl Luetzelschwab K9LA
- **April 26** – “What I’ve Learned in Two Decades of Terrain Assessment” - Dean Straw N6BV

Details and registration links are available on the WWROF page at <http://wwrof.org/webinars/>

Upcoming Contests and Log Due Dates

Contests This Month

Apr 6 – SP DX
Apr 13 - JIDX CW
Apr 13 – Yuri Gagarin DX
Apr 19 – Holyland DX
Apr 20 – YU DX

Logs Due This Month

Apr 2 – ARRL DX
Apr 15 – VA QSO Party

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

The Editor’s Last Word – John K3TN

April is a real lull in the contest calendar, always a great time to improve the antennas and station. My project for April will likely be learning to send CW with my left hand – I’m having rotator cuff surgery early in the month and my right arm will be useless for a while.

Back in the 1980s I realized that on my job I was spending several hours each day typing and that my ham radio hobby was going in that direction, with CT for contest logging and the early days of Packet Cluster. So, I learned how to touch type and have been doing it that way for a long time now – but it will be back to hunt and peck for a while. Maybe I will stick to RTTY contesting, where you can do most everything with mouseclicks...

A couple of members are working on pieces for the newsletter but didn’t quite finish up in time for the April issues, so I just about used up my “filler” pieces. Please send any photos or contest write-ups or Visalia trip reports my way for the May issue.

73 John K3TN

Eyeball QSO Directions

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

NW Region: Meetings are generally held on the third Tuesday of each month at the City Buffet, 1306 W. Patrick Street, Frederick, MD. (301) 360-9666. It's in a small shopping center. Most arrive about 6 PM for dinner and informal discussions. The meeting begins at 7:00 PM.

From W. Patrick Street, turn up McCain Dr. (the Mountain View Diner is on the corner), then turn right into the shopping center, then turn left and search for a parking place. The City Buffet is tucked back in the left corner of the shopping center behind the Mountain View Diner. You can't see the City Buffet from W. Patrick Street. Contact: Jim [WX3B](#)

Central Region: Meets monthly the second Monday of each month, except June, July & August). The location alternates between the below MD and VA locations. Pre-meeting dinners start at 6:00 pm and meetings start at 7:30 pm.

VA LOCATION: Anita's, 521 E. Maple Ave, Vienna, VA. Tel: 703-255-1001. Meets at this location during the months of February, April and October.
Contact: Rich [NN3W](#)

MD LOCATION: Max's Café. 2319 University Blvd W, Wheaton MD 20902. Tel: 301-949-6297 People usually begin arriving at the restaurant around 6:30. Meets at this location during the months of January, March, May, September and November. Contact: Art [K3KU](#)

The Laurel, MD Region: Bill N3XL The PVRC get-together is held at the first [LARC](#) meeting each quarter at the clubhouse.

The Annapolis Crew: Dan K2YWE Meetings are held on the 4th Wednesday of each month at Broadneck Grill in Annapolis. We gather at about 5:30 PM and order dinner about 6. We break up usually before 8 PM. E-Mail [K2YWE](#) to be put on the e-mail reminder list.

PVRC-NC: The PVRC NC-East chapter meetings are held at [Manchester's Bar and Grill](#) on the 9100 block of Leesville Rd. in North Raleigh, with "QRM" beginning at 6:00pm and the dinner meeting following shortly thereafter. The meeting is held monthly on the 1st Thursday of most months, cancellations or changes usually announced on the [PVRC-NC website](#). [The PVRC NC-West Chapter](#) holds its meetings on the 4th Monday of each month at [the Mellow Mushroom](#), 314 W. 4th St., Winston-Salem, NC. Ragchew at 7:00pm, dinner meeting starts at 7:30pm. All contesters and interested guests are invited!

Central Virginia Contest Club: Ed NW4V Meets the first Tuesday of the month at St. Martins Church, 9000 St. Martin Lane, Richmond VA, (between W. Broad St. and N. Parham Road). Our meeting begins at 7PM.

Over the Hill Bunch: The group meets for lunch at noon alternately in Maryland at the College Park Holiday Hotel Route 1 and the Beltway or in Virginia at the Parkview Marriot near route 50 and the Beltway. Meetings generally are held on the last Wednesday of the month and are subject to change. Meetings are announced by E-Mail. All PVRC members, non-members interested in membership and guests are welcome. For information contact Roger Stephens, K5VRX, 703-658-3991 for Virginia meetings; or Cliff Bedore W3CB or get on 147.00 for Maryland meetings.

Downtown Lunch Group: Meets on the 3rd Wednesday or Thursday of the month in the downtown area of Washington, DC. Locations occasionally change, but are always Metro accessible. Details are sent out on the PVRC reflector. Feel free to contact Eric W3DQ or Brian WV4V for details and directions.

Southwest VA Chapter: The Southwest VA group meets each Wednesday at about 8:30 AM at Hardees at 20265 Timberlake Road in Lynchburg, VA. This is an informal gathering, but normally has about 10-12 attendees..Contact Mark Sihlanick N2QT, Tel: 434-525-2921

SOMD Region Meeting: The Southern Maryland Chapter meets at 6:30PM on the first Tuesday of even numbered months. We meet in the vicinity of Charlotte Hall, MD, with the specific location (usually a local restaurant) to be announced several weeks prior to the meeting (keep an eye on the reflector). These meetings are open to all PVRCers, guests, and those interested in joining PVRC. Contact Tom AB3IC for information: e-mail: GL1800Winger@verizon.net - cell: 240-434-3811

If you'd like to add or correct a listing, contact K3TN for inclusion in the Newsletter!

Now a Word From Our Sponsors

PVRC doesn't ask for dues, but the Club does have expenses. Please send PayPal donations via DAVE@WR3L.NET or by snail mail to Dave's address at QRZ.com. You can also support the Club by buying from the firms listed who advertise in the newsletter, or by getting your company to sponsor the newsletter!



By Scott KA9FOX

- Free Ham Radio Classifieds (most popular ham swap site)
 - Low Cost Web Hosting, Email & Domain Name Services
 - Web Design & Development
- <http://www.QTH.com>

QSL CARDS By LZ1JZ

WWW.LZ1JZ.COM

THE R. F. CONNECTION
"Specialists in RF
Connectors and Coax"

213 North Frederick Avenue
Suite 11-F
Gaithersburg, MD 20877

Tech Support:
301-840-5477

24-hour Fax:
301-869-3680

Order line:
800-783-2666

Email: rfc@therfc.com

Please visit us at:
[Http://www.therfc.com](http://www.therfc.com)

Our catalog includes:

UHF Series, N Series, BNC Series, Adapters, F Series, DIN Plugs, Portable Radio Power, DIN Plugs, Hardline Connectors, Audio Connectors, Microphone Connectors, FME Series, SMA Series, Reverse Thread SMA Connectors, MCX Series, MMCX Series, Adapter Kits, Reverse Polarity (TNC, N, SMA), 39 coax types and 5 balanced lines



6063-T832 Aluminium

O.D.	Per Foot
.375	\$.50
.5	\$.70
.625	\$.80
.75	\$.90
.875	\$.95
1	\$1.00
1.125	\$1.10
1.25	\$1.30
1.375	\$1.40
1.5	\$1.50
2.0	\$2.25



TX38 Triband Yagi Antenna
 10-15-20 Meter with Monoband Performance
 2 Elements on 15 and 20 and 4 Elements on 10
 All hardware weather resistant
 Antenna Rated for over 100 MPH

Official Antenna of WRTC 2014

U-Bolt Saddle Clamps for 1.25" Tubing – 3.5" Tubing Galvanized – Zinc Plated – Stainless Steel
Monoband Yagi Antenna Kits for 6-20 Meters Custom Built and Designed Yagi Antennas

www.cycle-24.com
sales@cycle-24.com
870-715-8228

ANAHEIM, CA
(Near Disneyland)
933 N. Euclid St., 92801
(714) 533-7373
(800) 854-6046
Janet, KL7MF, Mgr.
anaheim@hamradio.com

BURBANK, CA
1525 W. Magnolia Blvd., 91506
(818) 842-1786
(800) 854-6046
Eric, K6BHT, Mgr.
Magnolia between
S. Victory & Buena Vista
burbank@hamradio.com

OAKLAND, CA
2210 Livingston St., 94606
(510) 534-5757
(800) 854-6046
Mark, W17YN, Mgr.
I-880 at 23rd Ave. ramp
oakland@hamradio.com

SAN DIEGO, CA
5375 Kearny Villa Rd., 92123
(858) 560-4900
(800) 854-6046
Tom, KM6K, Mgr.
Hwy. 163 & Claremont Mesa
sandiego@hamradio.com

SUNNYVALE, CA
510 Lawrence Exp. #102, 94085
(408) 736-9496
(800) 854-6046
Dan K6DN, Co-Mgr.
Howard, W6HOC, Co-Mgr.
So. from Hwy. 101
sunnyvale@hamradio.com

NEW CASTLE, DE
(Near Philadelphia)
1509 N. Dupont Hwy., 19720
(302) 322-7092
(800) 644-4476
Rick, K3TL, Mgr.
RT.13 1/4 mi., So. I-295
newcastle@hamradio.com

PORTLAND, OR
11705 S.W. Pacific Hwy.
97223
(503) 598-0555
(800) 854-6046
Leon, W7AD, Mgr.
Tigard-99W exit
from Hwy. 5 & 217
portland@hamradio.com

DENVER, CO
8400 E. Iliff Ave. #9, 80231
(303) 745-7373
(800) 444-9476
John, N5EHP, Mgr.
denver@hamradio.com

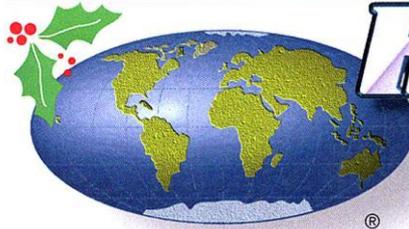
PHOENIX, AZ
1939 W. Dunlap Ave., 85021
(602) 242-3515
(800) 444-9476
Gary, N7GJ, Mgr.
1 mi. east of I-17
phoenix@hamradio.com

ATLANTA, GA
6071 Buford Hwy., 30340
(770) 263-0700
(800) 444-7927
Mark, K4JVO, Mgr.
Doraville, 1 mi. no. of I-285
atlanta@hamradio.com

WOODBRIIDGE, VA
(Near Washington D.C.)
14803 Build America Dr. 22191
(703) 643-1063
(800) 444-4799
Steve, W4SHG, Mgr.
sales@hamradio.com
Exit 161, I-95. So. to US 1
woodbridge@hamradio.com

SALEM, NH
(Near Boston)
224 N. Broadway, 03079
(603) 898-3750
(800) 444-0047
Chuck, N1UJ, Mgr.
sales@hamradio.com
Exit 1, I-93.
28 mi. No. of Boston
salem@hamradio.com

Special Holiday Discounts Off Our Already Low Prices!



HAM RADIO OUTLET

WORLDWIDE DISTRIBUTION

**GREAT YAESU
WINTER SPECIALS
Through 12/31/06**



FT-897D VHF/UHF/HF Transceiver

- HF/6M/2M/70CM • DSP Built-in
- HF 100W (20W battery)
- Optional P.S. + Tuner • TCXO Built-in



FT-817ND HF/UHF/HT TCVR

- 5W @13.8V ext DC • USB, LSB, CW, AM, FM
- Packet (1200/9600 Baud FM) • 200 mems
- built in CTCSS/DCS • TX 160-10M, 6M, 2M, 440
- Compact 5.3" x 1.5" x 6.5", 2.6 lbs
- FNB-85 NiMH battery + NC-72B included

Call Now For Low Pricing!



FT-8800R 2M/440 Mobile

- V-U/V-U/V-U-U operation
- V-U full duplex • Cross Band repeater function
- 50W 2M 35W UHF
- 1000+ Memory channels
- WIRES ready

Call Now For Low Pricing!



VX-2R 2M/440 HT

- World's smallest Dual-band HT w/ wide RX
- 1.5 W RF output
- WIRES compatible
- 1300 Memory channels

Call For Low Price!



FT-60R

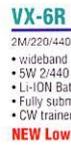
- 2m/440 HT
- 5W Wide-band receive
- CTCSS/DCS Built-in
- Emergency Auto ID

Low Price!

VX-7R/VX-7R Black

- 50/2M/220/440 HT
- Wideband RX - 900 Memories
- 5W TX (300mw 220Mhz)
- Li-Ion Battery
- Fully Submersible to 3 ft.
- Built-in CTCSS/DCS
- Internet WIRES compatible

Now available in Black!



VX-6R

- 2M/220/440HT
- wideband RX - 900 memories
- 5W 2440, 1.5W 220 MHz TX
- Li-ION Battery - EAI system
- Fully submersible to 3 ft.
- CW trainer built-in

NEW Low Price!



VX-150

- 2M Handheld
- Direct Keypad Entry
- 5w output
- 209 memories
- Ultra Rugged

Call Now For Special Pricing!



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)

Call for Low Price!



FT-7800R 2M/440 Mobile

- 50w 2m, 40w on 440mhz
- Weather Alert
- 1000+ Mems
- WIRES Capability
- Wideband Receiver (Cell Blocked)

Call Now For Your Low Price!



FT-2000 HF + 6M tcvr

- 100 W w/ auto tuner • built-in Power supply
- DSP filters / Voice memory recorder
- 3 Band Parametric Mic EQ • 3 IF roofing filters

Call Now For Low Pricing!



FT-8900R Quadband Transceiver

- 10M/6M/2M/70CM • Wires capable
- 800+ memories • Built-in CTCSS/DCS
- Remotable w/optional YSK-8900

Call Now For Special Pricing

AZ, CA, CO, GA, VA, residents add sales tax. Prices, specifications, drawings, subject to change without notice.

Look for the HRO Home Page on the World Wide Web <http://www.hamradio.com>

COAST TO COAST FREE SHIPPING
UPS - Most Items Over \$100
Rapid Deliveries From The Store Nearest To You!

