



# *PVRC Newsletter*

## *February 2018*

### **President's Letter – Bud W3LL**

**H**ello, PVRC - January was the saddest month that I can recall in PVRC history.

On 1 January we lost our former PVRC president Jack Hammett, K4VV. A Celebration of Life service was held on the 20th. A tragic loss was that of PVRC member and past NCDXA president David Collingham on 06 January. Celebration of K3LP David Collingham's Life was held on 15 January.

On 9 January I learned in email correspondence with long time PVRC member Bob W4MYA that he was in home hospice care with untreatable lung cancer. On the morning of 14 January, I received a call from PVRC and NCDXA member Bill Dobson N3WD that his wife Sharon K3DUH, President of the Baltimore Amateur Radio Club and a member of PVRC, had just passed away.

More sad January news: Marty K2PLF lost his brother, Alan WA3EKL lost his mother, and my Kayren lost her brother.

To add to the January misery, we are dealing with ARRL BOD and By-Law concerns. If the sky should suddenly fall I won't be here to report it. On 20 January Kayren and I leave on our annual Baltimore seagoing voyage to the southern Caribbean. I'm biting my nails that we return in time to make some Bouvet Q's.

We'll be back just in time for the 03 February PVRC Circle Wide Galactic Event held in the Center of the PVRC circle in Richmond VA. Thanks goes to Ted W3TB and the Williamsburg PVRC Chapter for again making this event a reality. We'll be manning a PVRC table inside Frostfest then relocating at 1 PM to the Galactic Event restaurant. The purpose of the table is to attract those to the world of contesting and a secondary objective is to organize a PVRC chapter in the center of the circle. The event location is Roma Ristorante Italiano, 7240 Bell Creek Road, Mechanicsville, VA. That's about 5 miles from the Frostfest and convenient to I-295. A private dining room and convenient overflow space is provided. An opportunity to meet personally with

PVRC members from all over the regions – a chance to make acquaintances rather than just Q's. We'll have awards to present and maybe some gavels.

One week after the Galactic Event is the Orlando Hamfest. I've never been; but after driving **down** to Richmond why not continue **down** to Orlando. Maybe? In case you're wondering I'm writing this column in mid-January before leaving for vacation and projecting the future to the end of the month.

NAQP CW finished up for W3LL a few days ago. Cheerleader Lar K7SV did a masterful job in rallying the troops while Tim N3QE reported on its success. The hard parts are yet to come. NAQP SSB is/was next followed at the end of the month by NAQP RTTY.

PVRC's 70th anniversary special event program ended on 31 December. To say it was a success would be an understatement. Program manager and VP Jay W3MMM reports: "I've gathered all the logs for the callsigns except W3GRF, and there are over 10,000 Q's in there. Roughly 2000 per callsign and spread amazingly evenly, given that we didn't make an active effort to ensure an even number of Q's by callsign. The final number will be about 12 or 13,000-ish. I should have the full stats in another few weeks."

Now let's turn to the **Sports Page** and see what you did during the month.

The new year got off with the ARRL RTTY Roundup, which N3QE says (and he knows these things) there was an all-time high number of PVRC entries. There were several multiops from PVRC. W4RM put up an impressive top 10 world finish with 1417 QSO/170K in M/S HP. Team K3AJ included two RTTY first timers W3GXP and KB3VQC, among others, coming in with a respectable 1067/110K. Dueling OM and XYL multiops by WA3EKL and N3DPB seem to be a regular happening now. Team WA3EKL edged out the XYL's team this time around. And although a limited time entry, the W3DQ multiop was notable for providing the venue to NN3W's first attempt at a RTTY contest. It is reported that Rich was pretty much in the groove quickly. The W4AAW remote superstation was limited by electrical problems and some antennas down, but team W6IHG from there managed 550/575K in M/S LP. KA4RRU has an apparent #3 world finish in SO LP with 1318/143K. KU4V put up a good score in that category as well with 847/76K. K3ZU and N4DXS broke 500 QSO for almost 54K and 47K, respectively.

SO U HP featured a horse race between RTTY mavens W3LL and N3QE both finishing in the top 10. Eyeing each other all the way on cqcontest live scoring, W3LL pulled ahead to finish with 1600 for 198K to N3QE's 1558/190K. Despite a frozen rotator and SteppIR troubles, AB3CV put in the #3 PVRC score in this category with 948 for 115K. Other in this category north of 500 QSO included W4MYA (803/93K), KB1RI (652/59K), K4XL (516/51K) and W1IE (614/50K). K4GMH took the #2 spot in SO U LP with 1200 QSO for 121K. N4NQY braved the ether with QRP in this one. Congrats to K3IRV for giving this a go as his first time ever RTTY contest, making over 200 QSO. WG4M reports this as his first contest in a while and using only attic antennas.

And here we go – welcome to the 2018 running of the NAQP Club Challenge! We are going to try our best to recapture the cup after last year's well-deserved victory by SMC. This year, it is going to be a four-way race with the Dallas-Fort Worth Contest Group joining in. PVRC got off to a good start.

Conditions were great for the NAQP CW – 160, 80 and 40 were exceptional. There was tons of activity. More than a few of the more than 100 PVRC'ers who played reported personal bests. Several PVRC teams memorialized K3LP by using David as their name. Of the “real” M/2 teams, congrats to team NC4KW (at N1LN) who took the #6 spot in the increasingly competitive category (and in NAQP the stations in the middle of the US seem to have a big advantage), followed immediately by team KE3X (KE3X and KD4D are working on their teamwork for WRTC) who came in at #7. Team WA3EKL was there as always, and team W4AAW played on 80 and 20 only as the station undergoes work. K3CCR put up a good M/2 with 767 QSO.

A real trend in NAQP is the number of stations playing as “fake” M/2 (not to be confused with “fake news”). These are really SO with assistance. This time, 15 PVRC entrants played that way to maximize the PVRC score. W3LL made the top ten of all M/2 this way making 889 QSO. K3AU (K2YWE wasn't far behind with 837 QSO. W4MYA put up over 700 QSO. AA3S, N4CF (with only a wire) and AB3CV all put up over 500 QSO in “fake” M/2. Recalling that there is no circle in NAQP, PVRC member from the west WJ9B was #9 overall in SO LP making over 1200 QSO. N4AF and N4YDU scored over 1100 QSO. K7SV broke the 1000 QSO mark. N8II and N3QE came in north of 900 QSO, and N9NB (despite a number of antenna problems), K3TN (with just an OCF dipole), K3AJ and K0ZR all made over 800 QSO. W1IE, K4YCR and AH7U all gave it a go in QRP.

Congratulations to KK4R who has just started his Morse academy L3 course and gave it a go running on CW – successfully! He made 299 QSO. K8GU wasted no time in his short effort putting up over 200 QSO in two hours. We always like to acknowledge those who carry on despite having only very limited antennas. WC4J and his mighty tank antenna and NI1N with a low 40M “FD” dipole had fun. W6IHG tried a few QSO from home using a Tarheel whip. W4GG was not quite QRP, running 10W to indoor antennas, proving that you can always get on no matter what.

Conditions in NAQP SSB were not nearly as good, but PVRC still had a good turnout with 88 logs in as of this writing. It looks like stations to our west experienced better conditions. No PVRC SO scored higher than 35th place – very unusual! There was titanic struggle in progress between team N3QE (at N3HBX) and team WX3B in M/2. N3QE prevailed, taking #3 overall in this very competitive category with 1773 QSO for 369K. WX3 B followed in the #5 spot with 1459/298K. There were three other strong M/2 teams from PVRC: KE3X at #11 with 710 QSO, WA3EKL at #14 with 576 QSO and K3CCR at #18 with 492 QSO. The word from team KE3X, handing out the DC mult while developing teamwork between KE3X and KD4D for WRTC competition, was that KD4D really enjoyed his first exposure to inner city LP SSB contesting (“Gee Toto, I don't think we're in Glenwood anymore”).

Among the “fake” M/2 ops (aka – SO assisted), W4MYA ran 'em for the #10 spot, beating a bunch of “real” M/2's with 722 QSO for 19K. In SO LP, K7SV had the top PVRC score with 619 QSO for 102K. Other good efforts in this category yielded QSO counts north of 600 for N1LN (using two keyboards with SO2R and extensive voice recordings) and NA3D, above 500 for KB1RI and KU4V, and above 400 for K4XL, N4CW and K3WI (handing out the DE mult in only 4 hours of operation.

QRP'ers K4YCR, K000 (at W3RFC) and AH7U answered the call as well. K3WI and W3FA played as PVRC Eastern Shore Team 1 – a first from the Eastern Shore, we think. W3UL did his first ever remote operation from CA with a simple set up using

remote access to his shack computer and Skype. Congrats to W3RCO on his second ever contest!

That's it for another month. 73, Bud W3LL

<b><u>PVRC Officers:</u></b>		<b><u>Trustees:</u></b>
President:	W3LL Bud Governale	K3MM, N3OC, WX3B, W4ZYT, N4NW, K2AV, K4ZA, W3TB, K3ZO, K2PLF, W3LPL, N4MM, N4ZR, W3MSH, N4NQY, W2RU, K3WRY
Vice President:	K2YWE Dan Zeitlin	
Vice President:	W3MMM Jay Horman	<b><u>PVRC Charter Members (all SK):</u></b> W3GRF, W4AAV, W4KFC, N0FFZ, W4LUE, W7YS, VP2VI/W0DX, W3IKN, W4KFT
Secretary:	N3QE Tim Shoppa	
Treasurer:	K3AJ Tom Valenti	
PVRC Website: <a href="http://www.pvrc.org">http://www.pvrc.org</a>		





## Silent Keys Jack K4VV and David K3LP



**From Mike W4AAW:** Jack retired from the Army Signal Corps with the rank of Colonel. He specialized in noise research and held a PhD in Physics. Jack was a past president of PVRC and an active DXer and contester (both HF and VHF). He was a longtime member of the W3SO VHF contesting group in PA and a Life Member of ARRL.

Jack & Sharon purchased a large tract of land atop Catoclin Ridge near Paeonian Springs, VA and moved there (as near as I can remember,) 17 years ago. The land was formerly part of the Arthur Godfrey, (K4LIB) (SK) estate called Beacon Hill.

Shortly after moving to La Belle Vie, Jack began construction of his dream multi-position contesting station. The physical layout included a custom build cabin/shack and a superbly engineered antenna farm with two Telrex Big Berta rotating poles, a 106' monopole and a 120' Pierod self-supporting tower.

About the time Jack's ridgetop station was completed, Jack was diagnosed with Alzheimer's Disease. He and Sharon very graciously allowed a group of Jack's Amateur Radio friends to continue to operate Jack's dream station so Jack could visit and see his dream being fulfilled. His station was for several years, at the forefront of multi-multi remote radio contesting. The station was closed three years ago. The four towers and huge OWA yagis now stand silent on Beacon Hill.

Jack was a kind, happy, brilliant, highly accomplished and generous man.





David K3LP, Fred K3ZO and Alex KU1CW (via W4AAW)

**From Jim WX3B:** It is with a heavy heart and tremendous sadness that I report one of my closest friends, David Collingham, K3LP has died. I received the news via Facebook from his Wife Rebecca this morning, and confirmed it when I talked with her. David was a great man, larger than life, with a big heart. He loved his wife and his children very much.

David, thank you for taking me on my first DX-pedition, and for educating me and encouraging me to finally find a good YL!! You will be sorely missed. RIP, OM.

Via K3ZO, a video tribute to David K3LP is [here](#)

*(Editor's note: Rebecca's email address is [rcollingham@yahoo.com](mailto:rcollingham@yahoo.com) You can email Rebecca to express your sympathy and you can also use that email address to make PayPal contributions for the scholarship fund set up for David and Rebecca's children.)*

### **Antenna Info – Don N4DJ**

I frequently get questions on antennas and Beverages/ BOGs, in particular. I have taken some of my club presentations and uploaded them to YouTube. I have added an Antenna playlist to my YouTube channel and I plan on adding more.

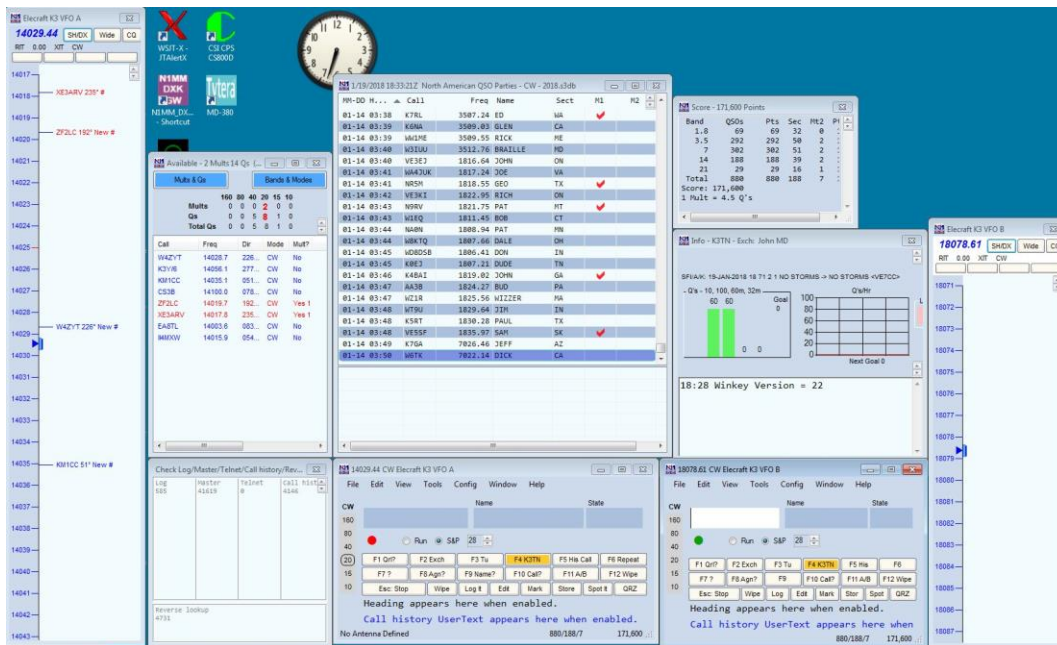
Looking back, I find I have given quite a lot of club presentations in the Hampton/Norfolk/ Williamsburg area so I thought I would post the link that would go to my Antenna playlist on YouTube. I presently have info on 80 meter half square, Beverages and BOGs as well as basic dipole configurations. One series I am working on started as a Blog called Antenna Ramblings. It started as a result of Antenna questions and impromptu talks I tend to give at the drop of a hat. Some people think I talk too much, but maybe that's because I spend most of my operating time on CW?

My YouTube channel can be found [here](#).

## Maximizing Multipliers Without Cluster Spotting or SO2R – John K3TN

The recent NAQPs and the Stew Perry 160 contest are examples of contests that don't have a Single Op Assisted category – if you use spotting, you are competing with the multi-op stations. I often enjoy operating Sweepstakes in “classic” mode, as well, and I've evolved my own personal strategy for maximizing multipliers at my home single op, 1 radio/1 antenna station.

My rig is an Elecraft K3 with the **second receiver installed**, so I usually set up N1MM for SO2V (Single Op 2 VFO) operation, with 2 entry screens and ability to have VFO A in left ear and VFO B in right ear and bandmaps on both sides of my screen.



I have the F11 key set up as a SWAP VFO macro and I have the Elecraft KPOD remote knob thing. There are keys N1MM has set up for this "swap focus" kind of thing (like PAUSE and \) as well as other 2 key combinations, like ALT-F10. They may have advantages for SO2R, but for SO2V using the F11 macro seems to have less delay and is just easier for me.

1. At the start of the contest, as well as for every band change and after every rest period, I spin the knob to S&P up to the top of the band and down back down once. Any station ready to be worked, I work. If I hear the exchange, and it is a mult but not ready to be worked I'll hit A=B (VFO) to have that freq in VFO B. If the mult is ready to be worked before I've started calling some other station, I hit F11 (SWAP) work them or not (only 1 try), hit F11 to go back to calling CQ with one hand turning VFO A knob with the other. If I don't work them on first try I'll enter the call before hitting SWAP - they are now on the band map and I can start using the CTRL Up and Down arrows later to quickly look in on them.

I do that once up, come back down - then find a freq and start running.

2. Once running, I start with only VFO A in both ears, concentrating on owning the frequency and getting the rate up (and dealing with the RBN/cluster induced starting spike that usually hits), then I'll go to stereo mode and start tuning between CQs looking for mults on the same band. In domestic contests where the mults are states, I usually don't listen for the exchange from 2/3/6/8/9 call districts or VE3 – sooner or later going to get them no matter what. But in tests where mults are sections, have to listen through on 3s if need DE, 6s, etc.

Then I pretty much do (1) above on VFO B while CQing on VFO A. If the rate on VFO A gets really low, I'll start working Qs (vs. only mults) on VFO B to boost the rate. If the rate gets really high (which usually means someone/something spotted you) I turn stereo off and focus on working out the spurt.

Later in the contest, I'll change the strategy a bit - many of the rare states/sections will show up way high in the band, so will just sweep back in forth up there on VFO B. In NAQP, found VY1AAA on several bands that way.

I almost never try more than twice on a new mult - even in NAQP, a new mult is only worth 4-6 Qs. For either (1) or (2) scenario above, I'll just wait until the timing is right to hit F11 and come back.

Occasionally, I get discombobulated (usually when trying to fight off a frequency raider on VFO A while trying to work a mult on VFO B) and honk up both VFOs so that neither one is on my run frequency anymore. Usually ALT Q will get me back - if not, I look up at the log see my run freq and enter the last 3 digits (045) in the callsign box, hit enter and adjust from there.

Notes:

1. In N1MM, SO2V is selected in the Configurer Menu, Hardware tab.
2. The K3 macro for SWAP A/B is {CAT1ASC SWT11;}
3. The stereo receive toggle in N1MM is the accent or ` key, usually under ESC
4. The K3 has options in the CONFIG menu for how you control VFO A/B relative AF gains. I set L-MIX-R to "A b" and SUB AF to "Balance"

**Here's the approach Tom KG3V uses for single radio S&Ping:**

- Start at the top (or bottom, if you prefer) of the Band with BANDMAP displayed
- Work my way down, listening for any CQ or QSO
- If CQ - try to work 'em
- If **not** CQ, or I failed to get response from the CQ-er
  - See if I can quickly tell who owns the freq, and enter that call into the ENTRY WINDOW, then move on (this will put the call of the RUN Station on the BANDMAP and it will be RED if it is a new MULT)
- Keep moving down the Band
- If I find a nice clear freq, may switch to RUN Mode
- if I get to the end of the Band, either try working the BANDMAP spots (all of which I created - no external assistance) - new MULTS first
- Do it again, and again....





CX1EK: Good morning from the Southern Hemisphere - I congratulated to all the operators that took the time to be on the bands celebrating the 70th anniversary. This morning I have pleasure to exchange reports with W3AU on 14047.1. Was emotional for me to be able to contact Ed's call and thinking good memories from the middle 70's at that great station. Hope to work more stations on 14 MHz before the 31st.

W3MMM: Getting a call from KW2FLY/AM was really cool, that's only happened to me a few times before. He was 37,000 feet in the air over Lincoln Nebraska and heading to Newark Airport. He had it on autopilot ("hands free") and was just scanning the bands.

W3IUU: Lenny came up with the plans and permits, and did much of the building of my 60-foot tower in 1982, on a 55 x 100-foot lot. K4FJ, my father KØDYK and my brother W6PR did parts of the construction.

N3QE's "best of":

1. You're the last one I needed, now I have all 6 special event calls worked! (Dozens of these).
2. You're the last one I needed to get a sweep on phone, or CW, or band-mode, or whatever! (A few of those). This is a challenge created by the searcher themselves :-)
3. I just got my license and you are my first QSO! (Two of those).
4. I just got a new rig for Christmas, and you're my first QSO on my new rig! (A dozen of these).
5. I just got my old Swan rig out of the garage after 25 years, you're my first QSO in 25 years! (A couple like this. The Swan must've been old when it got relegated to the garage in the first place!).
6. I'm an out-of-circle PVRC member, great to hear you guys on! And then I tell them how they can find our website and earn PVRC 5M points in 13 contests every year: <http://www.pvrc.org/5M/5milrules.pdf> (At least a dozen of these).
7. I'm a member of SMC, or FCG, or CCO, or DFW, thanks for helping promote contest activity, see you in the NAQP's! (At least a dozen of these)
8. Boy is it cold here! (Hundreds and hundreds of these!) I have a very distinct feeling that folks deciding to play with the radio indoors rather than go out in the cold, in the midwest, were a big boost in our activity.
9. Congratulations on the 70th Anniversary! A thousand plus of these!!!!

A handful of videos were recorded:

N3QE as N4C, as recorded by an SWL [here](#).

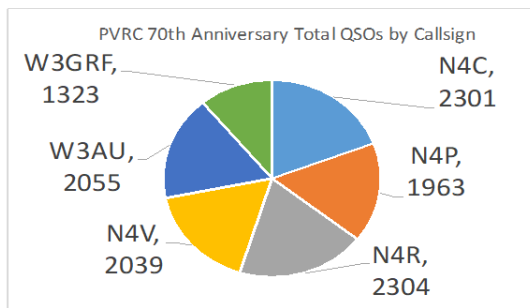
Daniel G3VM records WX3B operating as N4V [here](#). More N4V [here](#).

Thanks to all the ops and other help: AC8Y, K2YWE, K3AJ, K3EW, K3KU, K3RV, K4SO, K7SV, KG4USN, KK4ODQ, KK4R, KK4RWB, N3QE, N4RV, N4YDU, N8II, N9NB, ND3D, NN3W, NR4M, W1IE, W2CDO, W3IUU, W3LL, W3LPL, W3MMM, W3TB, W3XOX, W4JAM, W4MYA, W4VIC, WA3RWP, WB4FDT, WF3C and WX3B.

John, W4JAM, wins the “hardest working man in show biz” award with 1551 QSOs in the logs - but make no mistake, everyone able put in a heck of an effort, individually and collectively. Thank you ALL for the work!

Thanks to N4KW (W3AU trustee) and W3LPL (W3GRF trustee) for permissions and participation. And thanks to Nick KK4ODQ for the primary assist, Uli K3LU for the QSL duties, and all the advice from folks like WX3B, K3AJ, N3QE and others.

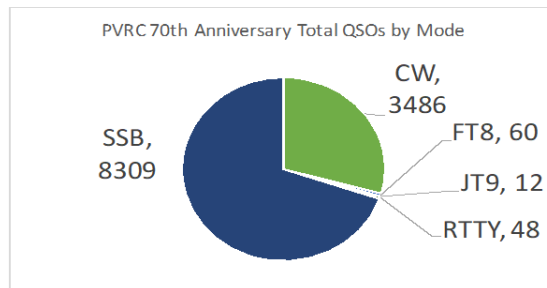
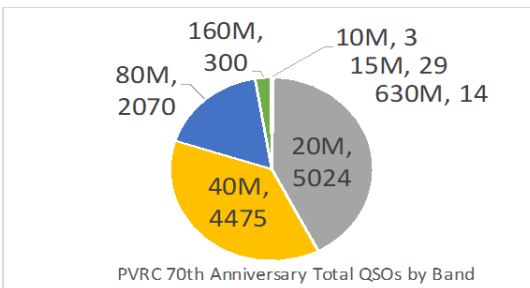
Now the stats:



**Total QSOs:** 11,985  
**Total Unique Callsigns Worked:** 6,415  
**Total Known Sweeps:** 229

**States Worked:** 50  
**DXCC Entities Worked:** 91

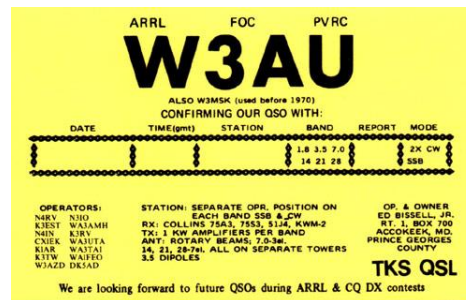
**Most entries in all logs:**  
**US:** W4MYA - 50 entries. Dude!! Way to go, Bob!  
**VE:** VE1AOE - 23 entries  
**DX:** XE2AU - 12 entries



QSL Envelopes received so far: Over 200 and counting

Now on to getting QSLs printed and out the door! We will take the opportunity to identify non-members (particularly in-circle) and promote PVRC and the fun we have.

As Bob Hope would say – thanks for the memories!





## Blue Ridge Chapter Meeting – Mike W4AAW

The Blue Ridge Chapter had a big turnout at the January lunch at the newly refurbished Smokin' Willy in Purcellville VA. Stuart WB3FDL is a prospective member from Shepardstown WV who discovered PVRC and the meeting from the PVRC Facebook page.



Clockwise from lower left: Paul N4PD, Mike W3IP, Dick W2YE, Steve NR4M, Jerry W6IHG, Dave KE4S, John W5ODJ, John N4MM, Dick N4RA, Pete N4ZR, Robert W8ZA, Barry WR3Z, Stuart WB3FBL, Rick N1RM, Mike W4AAW (K3TN photo)

## February Is **Real**™ Contest Month – John K3TN

Two of my favorite contests are in February:

- **Feb 4<sup>th</sup>, 0000 – 0400Z NA Sprint CW:** The [Sprints](#) are not everyone's cup of tea but I think it is the most fun you can pack into four hours. **Note: DC has been added as multiplier to the CW Sprint!**
- **Feb 17th/18th – ARRL DX CW:** 20M will be a zoo but the low bands will likely be in great shape. You can download the PVRC ARRL DX Contest Cookbook [here](#)

The NAQP RTTY also falls in February – details [here](#).



## Membership News – Tim N3QE

PVRC did not add any new members in the latest reporting period.

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 4 - NA Sprint CW**
- Feb 10 - CQ WW RTTY WPX
- Feb 10 - PACC
- **Feb 17 – ARRL DX CW**
- Feb 23 – CQ WW 160 SSB
- **Feb 24 – NAQP RTTY**

### Logs Due This Month

- Feb 1 – ARRL VHF
- Feb 2 – CQ WW 160 CW
- Feb 4 – HA DX
- 

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

## From the PVRC Treasurer – Tom K3AJ

PVRC has chosen not to implement an annual Dues requirement. We depend on the generosity of all of 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 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: [Chef Lin](#), 417 S Jefferson St. Frederick, MD 21701 Phone #: 301-620-0664(2675)  
The meeting begins at 7:00 PM.

Contact: Jim [WX3B](#)

**DC Metro:** 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 6:00. 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 meets the 3rd Monday of each month (except December) at about 7:00 PM at Hams Restaurant, 414 S. Stratford Rd., Winston-Salem on the south end of the Thruway Shopping Center. We meet in the front meeting room of the restaurant. A wide variety of cold 801s and Sports bar menu available. Contact Henry Heidtmann [W2DZO](#), full info at <http://www.w4nc.com>

**Over the Hill Bunch:** The group meets for lunch at noon alternately in Maryland at the Sir Walter Raleigh Inn 6323 Greenbelt Rd, Berwyn Heights, MD or in Virginia at Anthony's restaurant in Falls Church. Meetings generally are held on the last Wednesday of the month and are subject to change. Meetings are announced by email.

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 DC Lunch Group**

**Meets:** At 12 o'clock noon on the first Wednesday of every month in Downtown Washington. Our meeting location rotates monthly within the Gallery Place (Green Line) METRO station area. Check the PVRC website or Facebook page for details.

PVRC'ers, contesters, DX'ers, and others coming through this area are welcome at our monthly gathering in downtown Washington, DC. Feel free to join us every month for good food, good company, and good conversation. If you have any questions feel free to email or call W3DQ or our co-conveners, Rich (NN3W) and Tim (N3QE). Hope you can join us!

**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

**Eastern Shore Chapter:** Meets every three months, on the second Saturday of April, July, October and January at noon. In keeping with the tradition established by SK Dallas W3PP we will also meet at the contest station of Eric WG3J one hour before the start of most major contests. Contact Eric Hudson [WG3J](#)

Location: Delmar Pizza, north west corner of the intersection of highways 13 and 54 in Delmar, DE

**Southern Maryland Chapter:** Currently on hiatus, if interested in meeting contact the Chapter Chair, Tom Shelton, [ND3N](#) via email or (240) 434-3811

**Colonial Capital Chapter:** Meets the 2nd Thursday of each month at 8:30 am  
Location: Hot Stacks Restaurant, 6495 Richmond Rd, Williamsburg, VA 23188  
757-565-1105 Contact: Bill Conkling [NR4C](#)

**The Tidewater Chapter meets** the 3rd Tuesday of every month at Frankie's Place for Ribs located in the Fairfield Shopping Center on the corner of Kempsville Road and Providence Road in Virginia Beach. The meeting starts at 7:00 PM. All amateurs are invited.

Contact either Chapter Chair: Don Lynch, [W4YZT](#), or Ron Young, [W8RJL](#)

**Blue Ridge Chapter of PVRC** will welcome members and visitors. Always 1st Thursday at noon.

**Place:** Smokin Willy BBQ, 201 N. Maple Avenue, Purcellville, VA

Contact: Mike [W4AAW](#) - [571-510-2535](tel:571-510-2535)

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. You can also support the Club by buying from the firms listed who advertise in the newsletter!*



**Your source for DX News!**

Get a free two week trial of The Daily DX and The Weekly DX by sending a request to [bernie@dailydx.com](mailto:bernie@dailydx.com).

The Daily DX  
3025 Hobbs Road  
Glenwood, Maryland 21738  
Phone: 410-489-651

**QSL CARDS by LZ1JZ**  
**WWW.LZ1JZ.COM**



## GREEN HERON ENGINEERING LLC

(585) 217-9093  
[www.greenheronengineering.com](http://www.greenheronengineering.com)

---

**RT-21 DIGITAL ROTATOR CONTROLLERS**  
*Unmatched Performance for any Rotator*

**RT-21**



**RT-21D**



**RT-21 AZ/EL**



**GH EVERYWARE WIRELESS CONTROLS**

- Internet access for switches and rotators
- Eliminate cables and tethered control boxes
- Create customized on-screen controls
- Great circle maps

---

**GH Everyware Base and Remote**

- USB and wireless relay controls
- Utilizes your existing antenna switches

**Rotator Packages**



- RT-21 with Yaesu, M2 Orion, and Alfa-Spid Rotators



**Wi-Fi Option**

- Control your rotator from any web browser device

**Now Available**

- Heavy Duty Custom Mast Clamps for G-2800 and Orion



**Select-8 Wireless Remote Coax Switch**

- Built-in GHE Wireless
- Powered through the coax
- Tower leg Mount
- Amphenol RF connectors









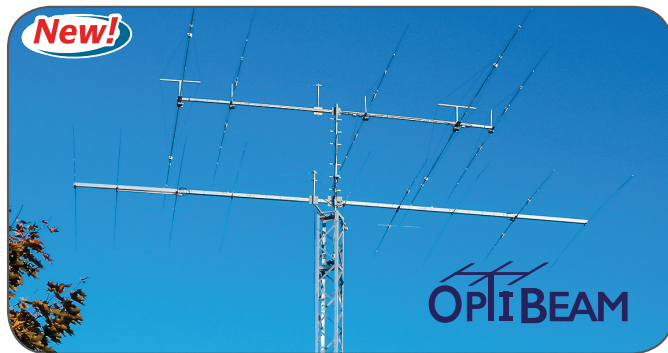
**Showroom Staffing Hours:**  
9 am to 5 pm ET, Monday-Saturday

**Ordering (via phone):**  
8:30 am to midnight ET, Monday-Friday  
8:30 am to 5 pm ET, Weekends

**Phone or e-mail Tech Support: 330-572-3200**  
8:30 am to 7 pm ET, Monday-Friday  
9:00 am to 5 pm ET, Saturday  
All Times Eastern | Country Code: +1  
DXEngineering@DXEngineering.com

**800-777-0703 | DXEngineering.com**

**Get the Best Antennas Fast and for Less at DX Engineering!**



**OptiBeam Antennas**

DX Engineering is now the exclusive North American retailer of HF directional antennas from OptiBeam. Proven in stations around the globe, OptiBeam's German-engineered, handcrafted directional mono-band and multiband Yagi and log cell Yagi antennas deliver the highest possible gain, cleanest radiation patterns, optimum band coverage, and power handling without compromise. DX Engineering offers all OptiBeam Amateur Radio antennas. Popular models are in stock and ready for fast shipment. Order today!



**EAntenna**

Exclusively offered in North America by DX Engineering, EAntenna boasts an exciting lineup of rugged HF and VHF antennas, including Yagi, log periodic, rotatable dipole and vertical models. These antennas combine cutting-edge computer modeling optimization with robust mechanical and electrical designs to deliver high performance at a budget-friendly price. Choose from mono-band and multiband beams, low-noise loop fed arrays, optimized wideband arrays, and many more used by some of the world's most competitive contesters.



**Ciro Mazzone Baby and Midi Loop Antennas**

Founded in Verona, Italy, **Ciro Mazzone Radiocomunicazioni** has been a trusted supplier of professional-quality radio communications equipment for more than 40 years. DX Engineering is pleased to offer **Ciro Mazzone's** popular magnetic Baby Loop and Midi Loop antennas. Compact, quiet and easy to install, the sturdy Baby Loop (6.6-29.8 MHz) and Midi Loop (3.5-14.5 MHz) are designed and manufactured to meet the highest standards for performance and reliability. Look for them at DXEngineering.com.



MZZ-BABY

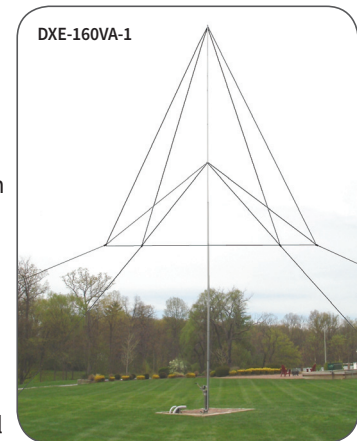
MZZ-BABY \$2,097.99

MZZ-MIDI \$2,479.99



**DX Engineering Antennas**

When you demand durability, superior construction and proven performance, DX Engineering antennas rank high on all fronts. Select from the Skyhawk™ Tri-Band Yagi and Skylark Dual-Band Yagi; the Active Magnetic Loop MF/HF receiving antenna; 75/80 meter monoband verticals; 160 meter monoband vertical; 2-, 6- and 9-band vertical Butternut HF verticals now made by DX Engineering; the THUNDERBOLT® 80/40 meter high-performance vertical; low-SWR, wide-bandwidth HEXX beams, and others. Plus, get every accessory you'll ever need at one convenient place.



DXE-160VA-1

**YAESU**



**ICOM**

**KENWOOD**

**ALINCO**

**Free Standard Shipping for Orders Over \$99\*** If your order, before tax, is over 99 bucks, then you won't spend a dime on shipping. (Additional special handling fees may be incurred for Hazardous Materials, Truck Freight, International Orders, Next Day Air, Oversize Shipments, etc.).



Email Support 24/7/365 at [DXEngineering@DXEngineering.com](mailto:DXEngineering@DXEngineering.com) Stay connected:



# Array Solutions Your Source for Outstanding Radio Products

## Professional Grade Equipment from Array Solutions



### JK Antennas Are Now Sold by Array Solutions

**NEW!**

High Quality HF Antennas for the Contester and DXER. We Focus on Quality and it Shows in Everything We Do. Call or email for antenna systems.



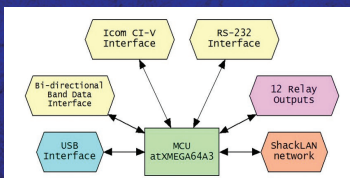
### Announcing the new BM-5 BandMaster V

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

Lower prices than the competition's equivalents, most modern design, and strongest warranty in the market!

<b>OM4000HF</b>	Manual 160-10 m 4 kW
<b>OM4000A</b>	Automatic 160-10 m 4 kW
<b>OM2500HF</b>	Manual 160-10 m 2.5 kW
<b>OM2500A</b>	Automatic 160-10 m 2.5 kW
<b>OM2000+</b>	Manual 160-6 m 2 kW
<b>OM2000A+</b>	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.

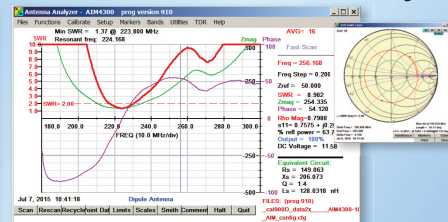


### Frequency coverage:

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  
1500 W CW/SSB on 50 MHz

### Laboratory Grade Antenna and Vector Network Analyzers



- One Port Analyzers and Two Port Vector Network Analyzers ranging from 5 kHz up to 1 GHz
- AIM 4300** ..... \$495
- AIM UHF** ..... \$695
- VNA 2180** ..... \$995
- VNA UHF** ..... \$1,295
- PowerAim 150** Broadcasting Engineers Choice. 150 V peak RF capable ..... \$2,495

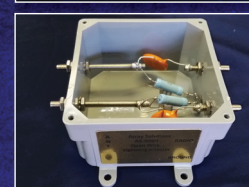
### Surge Arrestors

**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.



### Baluns & RF Transformers

Ratios 1:1, 1:2, 2:1, 4:1 and more. RF line isolators. Ratings 3, 5, 10 kW+. Get the most out of your antenna by stopping the coaxial cable from becoming part of it.



**www.arrayolutions.com**

2611 North Beltline Rd., Suite 109  
Sunnyvale, Texas 75182 USA  
sales@arrayolutions.com  
Phone 214-954-7140 Fax 214-954-7142

**Check our Website for more new products!**

Array Solutions' products are in use at top DX and Contest stations worldwide as well as commercial and governmental installations. We provide RF solutions to the DoD, FEMA, Emcomm, UN, WFO, FAA and the State Dept. for products and installation of antennas systems, antenna selection, filtering, switching and grounding. We also offer RF engineering and PE consulting services.



# HAM RADIO OUTLET

WWW.HAMRADIO.COM

**\*FREE 1 OR 2 DAY DELIVERY TO MOST OF US!**



## IC-9100 | The All-Round Transceiver

- HF/50MHz 144/43vuv0 (440) MHz and 1200MHz\*1 coverage
- 100W on HF/50/144MHz, 75W on 430 (440) MHz, 10W on 1200MHz\*1 • Double superheterodyne with image rejection mixer



## IC-7200 | HF Transceiver

- 160-10M • 100W • Simple & tough with IF DSP • AGC Loop Management • Digital IF Filter • Digital Twin PBT • Digital Noise Reduction • Digital Noise Blanker • USB Port for PC Control



## IC-PW1 | HF/50 MHz Amplifier

- Wide freq. coverage - 1 kW from 1.8 MHz to 50 MHz (amateur bands only) • Wide ALC adjustable range • Full duty cycle • Auto antenna tuner built-in • Auto AC input voltage selector is employed



## IC-7851 | HF/50MHz Transceiver

- 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

**NEW**



## 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



## IC-V80 | HD 2 Meter FM Transceiver

- Tough construction • 750mW loud audio • Powerful 5.5W of output power • IP54 and MIL-STD-810 rugged construction • Built-in CTCSS/DTCS • WX channel & weather alert function



## IC-7300 | HF/50MHz Transceiver

- RF Direct Sampling System • New "IP+" Function • Class Leading RMDR and Phase Noise Characteristics • 15 Discrete Band-Pass Filters • Built-In Automatic Antenna Tuner



## IC-2730A | VHF/UHF Dual Band Transceiver

- VHF/VHF, UHF/UHF simultaneous receive • 50 watts of output on VHF and UHF • Optional VS-3 Bluetooth® headset • Easy-to-See large white backlight LCD • Controller attachment to the main Unit

## ID-51A PLUS2

### VHF/UHF D-STAR Portable

- RS-MS1A, free download Android™ application
- New modes for extended D-STAR coverage • Terminal Mode & Access Point Mode allow D-STAR operation through Internet • DV & FM repeater search function • Dplus reflector link commands



- **RETAIL LOCATIONS** – Store hours 10:00AM - 5:30PM - Closed Sunday
- **PHONE** – Toll-free phone hours 9:30AM - 5:30PM
- **ONLINE** – WWW.HAMRADIO.COM
- **FAX** – All store locations
- **MAIL** – All store locations



ANAHEIM, CA  
(800) 854-6046

OAKLAND, CA  
(877) 892-1745

PORTLAND, OR  
(800) 765-4267

PHOENIX, AZ  
(800) 559-7388

MILWAUKEE, WI  
(800) 558-0411

WOODBIDGE, VA  
(800) 444-4799

PLANO, TX  
(877) 455-8750

BURBANK, CA  
(877) 892-1748

SAN DIEGO, CA  
(877) 520-9623

DENVER, CO  
(800) 444-9476

ATLANTA, GA  
(800) 444-7927

NEW CASTLE, DE  
(800) 644-4476

SALEM, NH  
(800) 444-0047

ONLINE STORE  
WWW.HAMRADIO.COM

\*On most orders over \$100 in the continental US. (Rural locations excluded.) \*\*Except 60M Band. \*\*\*Frequency coverage may vary. Refer to owner's manual for exact specs. \*1 Optional UX-9100 required. QST FEB 2018. The Icom logo is a registered trademark of Icom Inc. Toll-free including Hawaii, Alaska and Canada. Call will be routed to the nearest store. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. AZ, CA, CO, GA, TX, VA, WI residents add sales tax. Prices, specifications and descriptions subject to change without notice.

# HAM RADIO OUTLET

WWW.HAMRADIO.COM

**\*FREE 1 OR 2 DAY DELIVERY TO MOST OF US!**



## FTDX5000MP Limited | 200W HF + 6M Xcvr

- Internal Power Supply • Two Totally Independent Receivers
- 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+V/U+U/V+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



**NEW**

## FT-65R | 144 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



**5 Ways to Shop!**

- **RETAIL LOCATIONS** – Store hours 10:00AM - 5:30PM - Closed Sunday
- **PHONE** – Toll-free phone hours 9:30AM - 5:30PM
- **ONLINE** – WWW.HAMRADIO.COM
- **FAX** – All store locations
- **MAIL** – All store locations

**YAESU**  
The radio

ANAHEIM, CA  
(800) 854-6046

OAKLAND, CA  
(877) 892-1745

PORTLAND, OR  
(800) 765-4267

PHOENIX, AZ  
(800) 559-7388

MILWAUKEE, WI  
(800) 558-0411

WOODBIDGE, VA  
(800) 444-4799

PLANO, TX  
(877) 455-8750

BURBANK, CA  
(877) 892-1748

SAN DIEGO, CA  
(877) 520-9623

DENVER, CO  
(800) 444-9476

ATLANTA, GA  
(800) 444-7927

NEW CASTLE, DE  
(800) 644-4476

SALEM, NH  
(800) 444-0047

ONLINE STORE  
WWW.HAMRADIO.COM

\*On most orders over \$100 in the continental US. (Rural locations excluded.) Contact HRO for promotion details. Toll-free including Hawaii, Alaska and Canada. Call will be routed to the nearest store. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. AZ, CA, CO, GA, TX, VA, WI residents add sales tax. Prices, specifications and descriptions subject to change without notice.



# HAM RADIO OUTLET

WWW.HAMRADIO.COM

**\*FREE 1 OR 2 DAY DELIVERY TO MOST OF US!**



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

- World's first dual TFT display • 200W output on all bands
- $\pm 0.1$ 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)

**Call For Special Price!**



## 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

**Call For Special Price!**



## 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

**Call Now For Low Price!**



## 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

**Call Now For Your Low Price!**



## 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

**Call For Special Low Price!**

## TH-D74A M/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

**Call For Low Price!**



## 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-K20A | 2M Handheld

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

**Call For Special Low Price!**



- RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE – Toll-free phone hours 9:30AM - 5:30PM
- ONLINE – WWW.HAMRADIO.COM
- FAX – All store locations
- MAIL – All store locations

# KENWOOD

ANAHEIM, CA  
(800) 854-6046

OAKLAND, CA  
(877) 892-1745

PORTLAND, OR  
(800) 765-4267

PHOENIX, AZ  
(800) 559-7388

MILWAUKEE, WI  
(800) 558-0411

WOODBIDGE, VA  
(800) 444-4799

PLANO, TX  
(877) 455-8750

BURBANK, CA  
(877) 892-1748

SAN DIEGO, CA  
(877) 520-9623

DENVER, CO  
(800) 444-9476

ATLANTA, GA  
(800) 444-7927

NEW CASTLE, DE  
(800) 644-4476

SALEM, NH  
(800) 444-0047

ONLINE STORE  
WWW.HAMRADIO.COM

\*On most orders over \$100 in the continental US. (Rural locations excluded.) Contact HRO for promotion details. Toll-free including Hawaii, Alaska and Canada. Call will be routed to the nearest store. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. AZ, CA, CO, GA, TX, VA, WI residents add sales tax. Prices, specifications and descriptions subject to change without notice.

# HAM RADIO OUTLET

WWW.HAMRADIO.COM

**\*FREE 1 OR 2 DAY DELIVERY TO MOST OF US!**



## 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!**



## The SDRplay RSP FAMILY

### THE WORLD'S FAVORITE SDR RECEIVERS

- Continuous SDR receiver coverage from 1 kHz to 2 GHz
- Now includes the new improved RSP1A entry-level SDR
- 14-bit ADC Technology (not an 8-bit dongle!)
- Only needs a PC and an antenna
- Visualize all the signals in multiple bands simultaneously
- See up to 10 MHz spectrum in one go
- Use as a stand-alone Receiver or high-resolution Panadapter
- Built-in High performance Front-end Filters
- SDRUno Windows SDR software provided free-of-charge
- Also works with other platforms and popular SDR software
- Raspberry Pi3 supported with SD Card Image
- Superb review of RSP2pro in October 2017 QST magazine
- Backed by the biggest and best SDR support community
- Excellent value starting at \$99.95



## 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

**Call For Latest Pricing!**

*All US Towers shipped by truck; freight charges additional.*



## 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!



## 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.

## 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.

Now includes 12V power supply, \$12.95 value!

**Available exclusively from all HRO locations!**

**5 Ways to Shop!**

- **RETAIL LOCATIONS** – Store hours 10:00AM - 5:30PM - Closed Sunday
- **PHONE** – Toll-free phone hours 9:30AM - 5:30PM
- **ONLINE** – WWW.HAMRADIO.COM
- **FAX** – All store locations
- **MAIL** – All store locations

**HRO is family owned and operated by active hams!**

ANAHEIM, CA  
(800) 854-6046

OAKLAND, CA  
(877) 892-1745

PORTLAND, OR  
(800) 765-4267

PHOENIX, AZ  
(800) 559-7388

MILWAUKEE, WI  
(800) 558-0411

WOODBIDGE, VA  
(800) 444-4799

PLANO, TX  
(877) 455-8750

BURBANK, CA  
(877) 892-1748

SAN DIEGO, CA  
(877) 520-9623

DENVER, CO  
(800) 444-9476

ATLANTA, GA  
(800) 444-7927

NEW CASTLE, DE  
(800) 644-4476

SALEM, NH  
(800) 444-0047

ONLINE STORE  
WWW.HAMRADIO.COM

\*On most orders over \$100 in the continental US. (Rural locations excluded.) Contact HRO for promotion details. Toll-free including Hawaii, Alaska and Canada. Call will be routed to the nearest store. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. AZ, CA, CO, GA, TX, VA, WI residents add sales tax. Prices, specifications and descriptions subject to change without notice.