



# *PVRC Newsletter*

## *January 2017*

### **President's Letter – Bud W3LL**

I hope everyone had an enjoyable and fruitful Holiday Season. The officers, trustees and our many volunteers all look forward to serving you for another year. Last year started amidst a howling storm but ended in placid waters with today's radar screen showing a clean sweep.

Thanks to Dave K3ZJ for managing our PVRC contribution to WRTC 2018 and to Treasurer Tom K3AJ for keeping the financial score. You, our members, have stepped up and exceeded expectations with not one but two WRTC 2018 PVRC tents in honor of all our SK's. Thanks!!! PVRC's very successful club campaign raised €3000 (~ \$3,200), for WRTC 2018. The member donations will fund 2 tents in memory of all PVRC SKs, plus gold sponsorship of WRTC 2018. In addition to the club campaign, several PVRCers are funding a tent in memory of W3AU (W3MSK), W3GRF (W4RXN), and W4KFC - members who were PVRC stalwarts during the club's first three decades.

It's now time to look forward to a new year of contesting with NAQP the first item on my radar. NAQP is particularly appealing with its shorter endurance factor and three modes. Like a six game baseball World Series the six NAQP contests all tie together working toward a winning season. I've been reading the mail between our ambassador for the NAQP Ken KE3X and the clubs which form the NAQP Club Cup competition. The Cup rules have been tweaked this year to allow for a more level playing field. This means we'll need to up our anti in the competition. We took home the cup last year. Will we get to keep it this year? Look forward to rule updates from Ken or elsewhere in the newsletter.

Here's the PROPOSED NAQP Trophy CUP tour schedule:

<b>Chapter</b>	<b>Date</b>	<b>Transfer</b>
Annapolis	28 Dec16	Dan hands off to Tim for showing at Downtown DC
Downtown DC	04 JAN17	Tim shows it then takes it to DC Metro
DC Metro	10 JAN17	Tim shows it and takes it to NW
NW	18 JAN17	Tim shows it and takes it Laurel (or mails it)
Laurel	25 JAN17	Laurel shows it and mails it to NC East
NC East	02 FEB17	NC East shows it and takes to Frostfest on 04 FEB
Frostfest	04 FEB17	Ted takes it from Frostfest to Williamsburg
Williamsburg	09 FEB17	Ted mails it to SWVA
SWVA	15 FEB17	SWVA shows it and mails to NC West
NC West	20 FEB 17	NC West shows it and mails to Rappahannock
Rappahannock	07 MAR17	Rappahannock shows it and mails to Tidewater
Tidewater	21 MAR17	Tidewater shows it and mails to Lunch Bunch
Lunch Bunch	29 MAR17	Lunch Bunch shows it and returns to W3LL
W3LPL OH	17 JUNE17	W3LL shows it
W3AO FD	24 JUNE17	W3LL shows it
Fowlfest	26 Aug17	W3LL shows it

This month there's lots of contesting activity, leading off with the RTTY Roundup followed by NAQP CW, then NAQP SSB along with the ARRL VHF and lastly the CQ 160 CW contest. All four weekends are spoken for.

Up next on the radar and one month away is the only PVRC circle wide event of the year, the center of the circle Richmond Frostfest Galactic Event on Saturday 04 February. Keep following the announcements from this year's hosts Colonial Capital Williamsburg chapter chair Bill NR4C and VP Ted W3TB. I missed this event last year because of a vacation conflict. This year we will be there with plaques and awards to present. Also the NAQP Club Trophy will be on display. I hope to see everyone there.

I see many of you are having fun toward completing your three mode 20 For 20 challenge award and taking advantage of the 1M to 4M expansion to the 5M program.

Now let's again see what you've been doing in the contesting ring. Onto the Sports Page:

PVRC always seems to be everywhere in 160M contests, and the turnout in the ARRL 160M contest was huge, with 75 entries including 4 multiops. PVRC entries also ran the gamut from those operating at world-class stations to those using very modest, simple 160M antennas. The openings to EU were somewhat limited in this one, but there seemed to be good propagation to the western US and Canada, and several members reported working KL7 - a pretty good catch on 160 for sure. Among the big dogs, K3ZM took the top spot in SO HP, with KD4D (at W3LPL) and NN3W (at N3HBX) taking the second and third spots in SO HP U. The teams at NR4M and N1LN finished 4th and 6th in MS HP with a couple of big scores. Other results of note included W2RU operating at W4CB in SO HP who made over 1100 QSO's just using a simple inverted L and a couple of less than ideal beverages and N4AF who wasn't far behind with over 1,000 QSO. N8II and K3KU slugged it out in SO LP and both made over 500 QSO's - and in K3KU's case, using a very simple TX antenna and no separate RX antenna. The

competition in SO HP U is pretty stiff, and in addition to the big scores noted above, ND3D (at W3LL) and K2AV made north of 1200 QSO, and N4RV, N3HEE and N3QE broke 1,000 QSO. N3HEE has worked hard to maximize his 160M performance from a very small lot, and his new K9AY RX loop performed well for him. It looks like sanity prevailed in this one - I don't see any PVRC reported QRP scores on 3830scores.com!

So, with poor prospects for propagation, would you be thinking that PVRC'ers wouldn't bother to show up for the ARRL 10M contest? If so, you would be - **wrong!** It's been said that in radiosport, the conditions are the same for everyone, so you might as well compete even if conditions are poor. And 10M can always surprise - with enough stations on the air, the band seems to be open to somewhere. 70 PVRC entries have been reported, including 6 M/S. There are a lot of categories in this one, and top 10 SO finishes were scored by KD4D, KT3Y, WJ9B, CX1EK, K7SV, NR4M, N4YDU, W3LL and N4MM.

There were two contests on the weekend of December 17 that saw significant PVRC activity - The RAC Winter Contest and the Stew Perry Top Band Distance Challenge.

The RAC Winter contest brought out 12 members. K3ZU and N4UEZ made the top 10 in SO MIX HP. Operating assisted in this one puts you in the multiop category - with N3QE putting up almost 86K in M/S HP and K3AJ scoring almost 36K in M/S LP (and he would have done a lot better if he had read the rules and made some SSB contacts, too). K3TN and K4GM both broke 25K in SO CW HP.

There were 28 SO and 1 Multiop entry from PVRC members in the "Big Stew." Those who persevered through the static crashes experienced by many found some very good conditions to EU as the evening wore on. Several members thought this was the best running ever of this contest with plenty of activity and great conditions. K2AV was the top scorer in PVRC, just breaking 3,000 in SO HP. Other SO HP entries with >400 QSO were KU1CW (operating W4AAW remotely), N3QE, K1RZ and N3HEE. WJ9B had a top ten finish in SO LP with 2,500 points. N3AM, K4FTO and KE4S all made >100 QSO in SO LP.

73, Bud W3LL

<b><u>PVRC Officers:</u></b>		<b><u>Trustees:</u></b>	
President:	W3LL Bud Governale	K3MM, N3OC, WX3B, W4ZYT, N4NW, K2AV, KE3X, K4ZA, K3WRY	
Vice President:	K2YWE Dan Zeitlin		
Vice President:	W3TB Tom Edwards		
Secretary:	N3QE Tim Shoppa	<b><u>PVRC Charter Members (all SK):</u></b>	
Treasurer:	K3AJ Tom Valenti	W3GRF, W4AAV, W4KFC, N0FFZ, W4LUE, W7YS, VP2VI/W0DX, W3IKN, W4KFT	
PVRC Website: <a href="http://www.pvrc.org">http://www.pvrc.org</a>			

## PVRC Donations for WRTC 2018 Another Club Win- Dave K3ZJ

**Thank you!** - PVRC members exceeded all expectations, donating \$3,200 toward WRTC 2018 expenses. The donations will be used to fund 2 tents in memory of PVRC's silent keys. They also will fund a PVRC gold sponsorship of the WRTC 2018 event. In addition to the club campaign, several PVRCers joined separately to fund a tent in memory of three early PVRCers who were keys to PVRC's early successes: W3AU, W3GRF and W4KFC.

Thanks to PVRC's campaign and similar efforts of clubs and individuals around the world, the World Radio Team Competition (WRTC) will return to the airwaves during the IARU Championship in July, 2018. One hundred thirty top contesters from around the world, organized into sixty-five teams, will meet on the fields of Saxony-Anhalt, in Germany. They will compete from sixty-five identical stations in an area centered on historic Wittenberg, 60 - 80 miles southwest of Berlin, and overseen by another sixty-five top contesters acting as referees. Another 500 hams will work all week to make it happen. A review of 2016 WRTC activities is viewable [here](#).

Thank you again to PVRC WRTC2018 supporters:

K2NA	K3AJ	NR4M
KD4D	WR3R	W3MR
W3LPL	WA3AER	W3IKE
N1RM	W2YE	W3RQ
W2GPS	N2YO	K3EW
N4OC	W8RJL	K3RR
K2AV	NN4RB	W4VIC
WA2BCK	K3TD	K1EFI
N3HBX	N3ND	ND3D
W3LL	W2CS	W3DQ
WB4FDT	K3SX	W6UM
AB3CV	K3ZJ	KB3VQC
K0DQ	K3ZO	
KK4R	NA1DX	
W2CDO	K3TN	

A special thank you to Tom, K3AJ and Bud, W3LL, for working and supporting the WRTC campaign.

Two of the sixty-five teams likely will be led by PVRCers. As the grueling two-year qualification period ends and final scores are being tabulated in this fall's CQWW contests, Nate, N4YDU, appears to be a clear victor from the southeast area; and Ken, KE3X, continues to hold a slim lead in the very competitive Northeast area, which includes YCCC and FRC territory as well as PVRC. Congratulations to both!

## NAQP Adds DC As A Multiplier!!



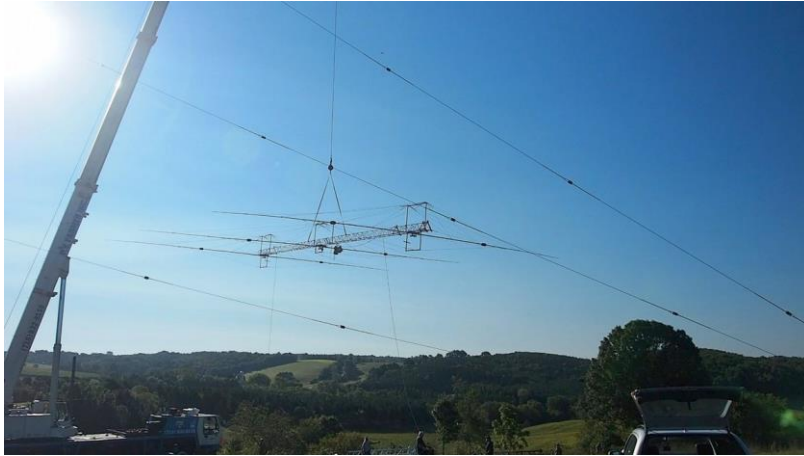
## Cranking Up Contest Caffeine Consumption – via ARRL Contest Update

The December ARRL [Contest Update](#) pointed to a Center for Science in the Public Interest [item](#) on the caffeine content of various foods and drinks. As an aid to PVRcers looking to jolt themselves into sleeplessness for those overnight shifts, I went through the list and pulled together the “biggest jolt for your buck” items on the list and the quantities you would need to ingest 400mg of caffeine, which is generally accepted at the safe level per day for the average human ([YMMV](#)). – John K3TN

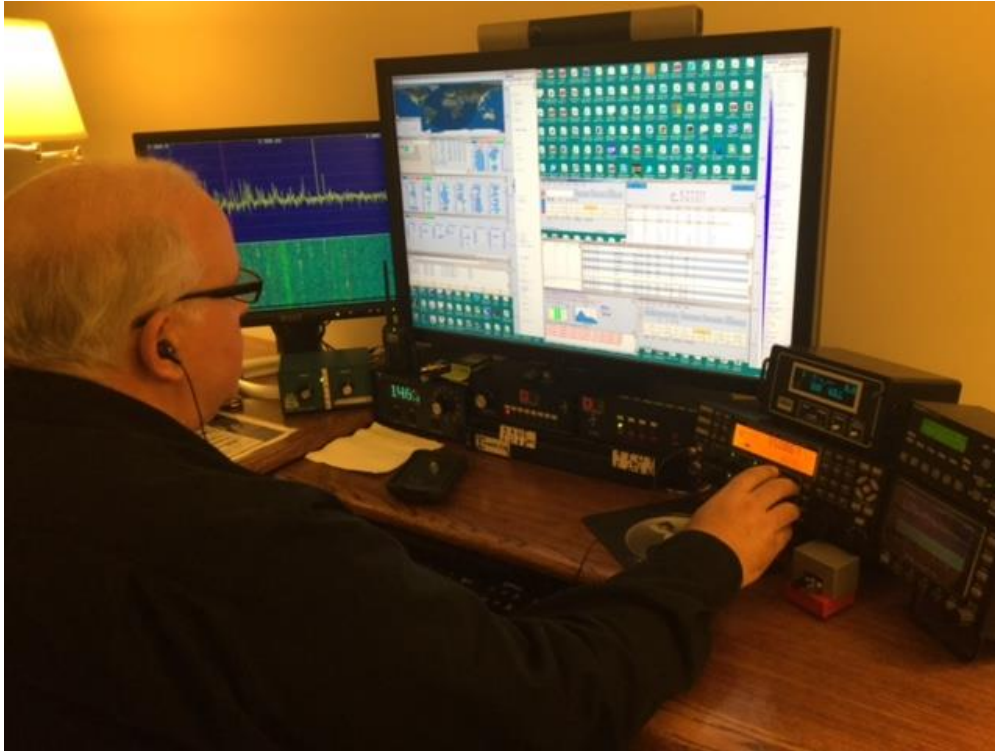
Source	Serving Size	Caffeine (mg)
Dunkin' Donuts Coffee with Turbo Shot	large, 20 fl. oz.	436
Starbucks Coffee	venti, 20 fl. oz.	415
Starbucks Tazo Awake—Brewed Tea or Tea Latte	3 grandes, 16 fl. oz. ea	405
Black tea, brewed for 3 minutes	5-14 8 fl. oz. cups	400
Snapple Lemon Tea	7 16 fl. oz. bottles	434
Green tea, brewed for 3 minutes	7-12 8 fl. oz. cups	410
FDA official limit for cola and pepper soft drinks	6 12 oz. cans	426
Bang Energy Drink	1.5 16 fl. oz. cans	535.5
Rockstar Citrus Punched	2 16 fl. oz. cans	480
5-hour Energy	2 1.9 fl. oz. packets	416
Crackheads	1 box, 40g	600
Crackheads Espresso Bean Candies, regular	2 packages, 56 pieces	400
Wired Waffles	2 waffles	400
Jelly Belly Extreme Sport Beans	8 packages, 1 oz. ea	400
Jolt Gum	9 pieces	405
Caffeine powder	1/8 tsp. (400mg)	400

## New 80M Yagi at W0AIH – Mike W4AAW

My wonderful friend, Paul Bittner, W0AIH sent me pictures of the latest addition to his sprawling M/M station. I know all PVRcErs love antennas and that you will get a honk out of these pictures.



## PVRCers In Action



Bill K3WI @W3LL in the 2016 CQ WW CW (de W3LL)



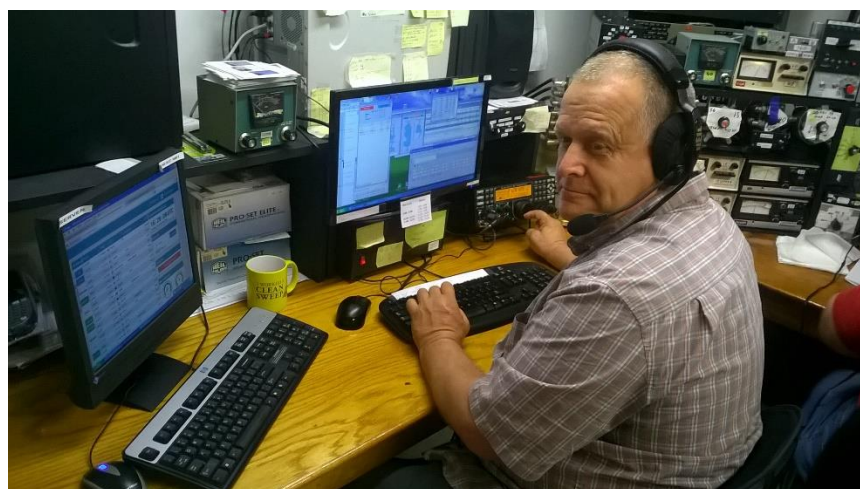
CQWW RTTY: left foreground Pat K000, left K3 Mark KD4D, right K3 Ken KG4USN  
(de Alan WA3EKL)



CQWW SSB left rig Don K6ZO, right rig Zory KB3VQC



CQWW SSB: Zory KB3VQC



CQWW SSB: Don K6ZO



**Jim and Nina Do Iceland – Jim N3JT**



A gathering of hams at the TF6IRA headquarters station in Reykjavik.



This the view outside the window of the TF3IRA headquarters station in Reykjavik.



Northern lights in Reykjavik coincided with dead HF conditions!



Nina alongside some modern sculpture in Reykjavik. Nina is KE4PSV, N3JT's other half.

## Membership News – Tim N3QE

PVRC did not add any new members in the last month.

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

- Jan 1 - SARTG RTTY
- Jan 7 - ARRL RTTY Roundup
- Jan 14 – **NAQP CW**
- Jan 21 – **NAQP SSB**
- Jan 27 – CQ WW 160 CW
- Jan 28 – REF CW

### Logs Due This Month

- Jan 3 – ARRL 160M
- Jan 10 – ARRL 10M
- Jan 31 – RAC Winter

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

## The Editor's Last Word – John K3TN

Thanks to Jim N3JT, Dave K3ZJ, Mike W4AAW and Alan WA3EKL for submissions for this month's newsletter. If you have any good Sweepstakes stories or photos, or anything else – send to [jpescatore at aol dot com](mailto:jpescatore@aol.com).

## 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 Lunch Group:** Meets: At 12 o'clock noon on the first Wednesday of every month in Downtown DC.

Location: R.F.D. Washington, 810 7th St., N.W. Washington - Metro (Green Line) at Gallery Place Station

Meeting since April 2005, PVRC'ers, contesters, DX'ers, and others coming through this area have been meeting for lunch in the Metro Center area of downtown Washington, DC. If you give him enough notice, regular attendee Fred, K3ZO, may bring you your 3-land QSL bureau cards! We invite and encourage you 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-convenor, Rich NN3W. 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](#)

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!

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By Scott KA9FOX

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## Your source for DX News!

**The Daily DX** - is a text DX bulletin that can be sent via e-mail to your home or office Monday through Friday and includes DX news, IOTA news, QSN reports, QSL information, a DX Calendar, propagation forecast and much, much more. With a subscription to The Daily DX you will also receive DX news flashes and other interesting DX tidbits. *Subscriptions are \$49.00 for one year or \$28.00 for 6 months.*

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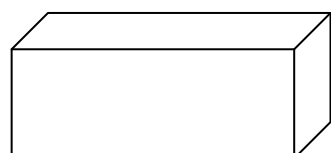
# Attention: Contesters

7 Big Problems that are Probably Affecting Your Scores Right Now!

and

How The RF Connection's Mike-Link and  
Shure® Legendary Performance™ Broadcast Headsets

Solve them ALL!



Your Radio

← Mic/PTT cable  
RX Audio: L/R cable  
From Footswitch →



The RF Connection's  
Mike-Link

← Headset cable →



Shure BRH440M  
Broadcast Headset

## Problem #1: Foot Not Near Footswitch, QSO Missed

### Solution #1

Use Your Finger Instead!

- Mike-Link finger-touch PTT
- Momentary SPST switch
- Positive tactile feel



## Problem #5: Operating CW, you have a "pain in the head" after "Y" hours on-air

### Solution #5 - Use Mike-Link

Periodically, Flip the Reverse/Inphase Audio Switch

- Reverses mono audio source for greater listening pleasure



## Problem #2: You wear eyeglasses and you have a "pain in the temple" after "X" hours on-air

## Problem #3: Brand 'Z' comfortable headset solves problem #2, BUT increases external background noise

### Solutions #2 & #3

Use Shure BRM440M  
Broadcast Headset

- External background noise isolating
- Closed back—noise isolating
- Gamer-style, circumaural (over-the-ear) ear cup pads



## Problem #6: Special microphone is needed for your ICOM radio

## Problem #7: External batteries needed when your ICOM-specific headset is used with other radio brands

### Solutions #6 & #7

Use Mike-Link & Shure BRM440M

- Built-in, user-selectable, Active ICOM pre-amp
- External power/battery NOT required
- Built-in, user-selectable mic input impedance 2.5K or 10k

## Problem #4: "RF in your mic audio OM!"

### Solution #4 - Use Mike-Link

Ferrite RF suppression chokes included on:

- microphone audio
- receiver audio
- PTT

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**NCC-2 Receive Antenna Phasing System**

The NCC-2 allows you to phase one receive antenna with a transmit antenna or two receive antennas with each other. That means you can use the NCC-2's phasing and balance controls to electronically "rotate" the receive antenna pattern, steering the pattern nulls to reduce interference.

This new unit is completely redesigned, giving you better control over the variations in signal levels from different antennas. But the really big news is the NCC-2's internal slots for installing optional DX Engineering Plug-in Modules, like the new RPA-2PM Receive Pre-amplifier, Receiver Guard 5000HD and 75 to 50 ohm Impedance Transformer.



**bhi Noise Cancellation Products**

By harnessing cutting-edge digital signal processing technology, bhi Noise Cancellation Products are able to enhance the audio quality of your incoming signals. Removing the interference and noise makes it much easier for you to discern distant and weak audio signals.

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**DX ENGINEERING®**

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Select from one of six band-pass filters with the simple push of a front-panel button. DX Engineering's Automatic Band-Pass Filter comes preloaded with filters for the 160, 80, 40, 20, 15 and 10 meter bands. With over 40 dB of stop-band rejection, each filter effectively removes unwanted and interfering noise and signals from all but the single band you have selected.

Having multiple filters in one box means you can quickly switch bands without the hassle of changing components in your signal path. That makes the DXE-419 an excellent choice for the contester who needs to move quickly across the most popular HF bands.

**DX Engineering Supports the E51AMF North Cook Islands DXpedition!**



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

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**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 • Large Touch Screen Color TFT LCD



**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 • Current (Ip), Voltage (Vp), temperature, SWR and output power protectors are available



**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



**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-7600 | All Mode Transceiver**

- 100W HF/6m Transceiver, gen cov. receiver • Dual DSP 32 bit • Three roofing filters- 3, 6, 15kHz • 5.8 in WQVGA TFT display • Hi-res real time 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-880H | Analog+Digital Dual Bander D-STAR**

- D-STAR DV mode operation • DR (D-STAR repeater) mode • Free software download • GPS A mode for easy D-PRS operation • One touch reply button (DV mode) • Wideband receiver **D-STAR ready**



**IC-9100 | The All-Round Transceiver**

- HF/50MHz 144/430 (440) MHz and 1200MHz<sup>†</sup> coverage • 100W on HF/50/144MHz, 75W on 430 (440) MHz, 10W on 1200MHz<sup>†</sup> • Double superheterodyne with image rejection mixer



**ID-5100A Deluxe | VHF/UHF Dual Band Digital Xcvr**

- 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 • FM Analog/DV Repeater List Function



**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



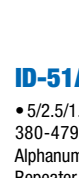
**IC-7410 | HF/50MHz Transceiver**

- 32-bit floating point DSP unit • Double Conversion Super-Het Receiver • Built-in 15kHz 1st IF Filter • Built-in Band Scope • Large, multi-function LCD • RTTY Demodulator/Decoder • USB for PC control



**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 with optional MBA-4 • Wideband receiver



**ID-51A Plus | VHF/UHF Dual Band Xcvr**

- 5/2.5/1.0/0.5/0.1W Output • RX: 0.52-1.71, 88-174, 380-479 MHz\*\* • AM/FM/FM-N/WFM/DV • 1304 Alphanumeric Memory Chls • Integrated GPS • D-STAR Repeater Directory • IPX7 Submersible **D-STAR ready**



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\*Except 60M Band. \*\*Frequency coverage may vary. Refer to owner's manual for exact specs. †Optional UX-9100 required. QST OCTOBER 2016. 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.

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**FTDX5000MP Limited | 200W HF + 6M Txcvr**

- 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



**FT-450D | A100W HF + 6M Transceiver**

- 100W HF/6M • Auto tuner built-in • DSP built-in • 500 memories • DNR, IF Notch, IF Shift **Call For Pricing!**



**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



**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 **Call For Low Pricing!**



**FREE**  
YSK-857

**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 Our Low Price!**



**FT1XD | 144/430 5W Digital Transceiver**

- C4FM/FDMA • 1200/9600bps AX.25 APRS & GPS Recvr Built-in • Dual Band Operation w/Dual Receivers (V+V/U+V/V+U) • Wideband Receive/AM Bar Antenna/Aircraft Receive • 1266 Memory Channels w/16 Char Alpha Tagging



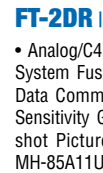
**FT-991 | HF/50MHz/2M/440 Transceiver**

- 160 M-440MHz - SSB/CW/FM/C4FM Digital/AM/RTTY/PSK • 100 W (2M/4440: 50 Watts) • 3.5" TFT full-color touch panel operation • High speed spectrum scope • Roofing filters: 3kHz & 15kHz • 32-bit high speed floating point IF DSP • 160-6 meter high speed automatic antenna tuner



**FT-2900R | Heavy-Duty 75W 2M FM Transceiver**

- Massive heatsink guarantees 75 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



**FT-2DR | C4FM/FM 144/430 MHz Txcvr**

- 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



**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



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

- Power Packed System Fusion Transceiver • High Audio Output Power • Rugged Powerful Transmitter • Integrated 66ch High Sensitivity GPS • 1200/9600 APRS Data Communications • Voice Guide and Recording Function \*Optional FVS-2 Required • Digital Group Monitor (GM) Function • Digital Clock & Timer Functions



**VX-8DR | 50/144/220/440**

- 50/144/220/440 • 5W (1W 222 MHz) • Bluetooth optional • Waterproof/ submersible (3' for 30 min) • GPS APRS operation optional • Li-ion Hi-capacity battery • Wide band Rx



**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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COUPON**

## 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!**



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COUPON**

## 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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**+\$250  
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COUPON**

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

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

**Call Now For Low Price!**



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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



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## 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!**



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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

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TS-2000X

## 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!**

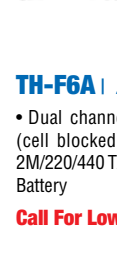


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## TM-281A | 2 Mtr Mobile

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

**Call For Special Low Price!**



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## TH-F6A | 2M/220/440

- Dual channel receive • .1 - 1300 MHz (cell blocked) RX • FM, AM, SSB • 5W 2M/220/440 TX, FM • 435 Memories • Li-Ion Battery

**Call For Low Price!**

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## TH-K20A | 2M Handheld

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

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- 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

ALL MODE SDR RECEIVER

- Continuous Coverage from 100kHz to 2GHz
- 12-bit ADC Technology (not another 8-bit dongle!)
- Built-in High performance Front-end Filters
- Works with popular SDR Software (HSDR, SDR-Console & Cubic SDR)
- Outstanding Reviews on eHam
- Call for special low price



## 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.



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The Premier Sound Card Modem!

- Quiet - hear what others miss!
- Proven USB Sound Card built-in
- Precise FSK & Winkeyer CW on board
- Complete - Six FTDI COM ports
- Universal Rig Control for every radio
- Works well with HRD, M110A, Fldigi, WSJT & many more software programs
- Front-Panel Audio & CW controls
- USB connected and powered
- Convenient - No annoying jumpers!



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