



**Publication of the  
Northern California  
Contest Club**



Issue 510

November 2014

**Inside this issue:**

On DX'ing	5
VP/CC Corner	6
Contest Corner	8

Guests are always welcome at the NCCC!  
Please join us.

**NCCC Meeting**

**Monday, November 10th**

**Time:**

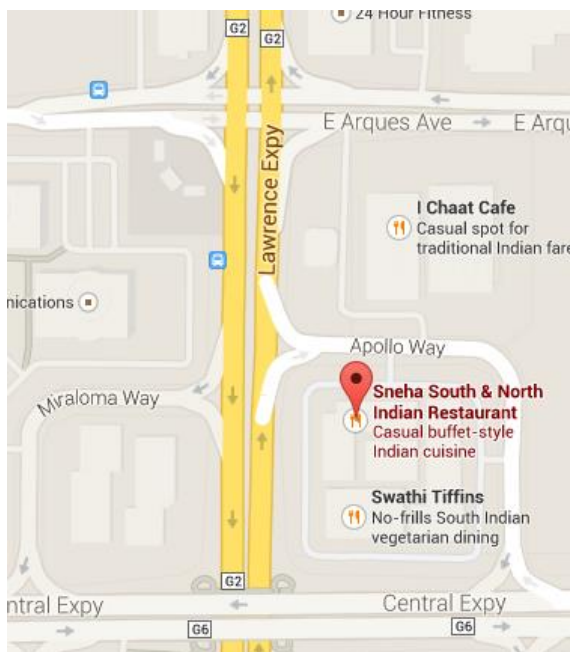
6:00pm Schmooz, 6:30pm Dinner,  
7:00pm Program

**Program:**

- Antenna Planning for small HF Stations  
K9YC & Sweepstakes update N6NUL

**Location:**

Sneha Restaurant, 1214 Apollo Way, Suite  
404 B, Sunnyvale, CA 94085



**President's Report**

Sweepstakes present:

At this writing we have completed the CW portion of the SS. Many thanks to Byron N6NUL for being SS chairman, and of course thanks to all of you who participated. Lets keep up the momentum and put in a good effort on phone. If you are an operator in search of a station to operate, or a station owner in search of a guest op, get in touch with Byron and let him act as a matchmaker. I recommend reading the PVRC SS strategy that was posted to the reflector. Their plan is to overwhelm us with a large number of logs.

I think that our big guns can compete against their big guns, especially with N6TV winning overall, but where we fall short are in the sheer number of logs. Going forward, in the long run, our SS strategy may need to have recruitment added as a tool in addition to what we have traditionally done. As you may know, PVRC is actually an umbrella organization consisting of chapters that operate fairly autonomously except for SS and FD, where PVRC fields the famous W3AO operation with something like 27 transmitters. I suspect this is used as a recruiting tool to get new operators interested in contesting. It is probably fair to say that most of us caught the contest bug doing FD. One good thing about the W3AO operation is that large numbers of operators can get exposure regardless of contest proficiency.

Continued page 3



# Northern California Contest Club

*Excellence In Amateur Radio Contesting*

## Officers:

President	Rick Karlquist,	N6RK	richard@karlquist.com
Vice President /Contest Chair	Byron Servies,	N6NUL	byron@n6nul.org
Secretary/Treasurer	Tom Carney	K6EU	k6eu@arrl.net
Past President	Alan Eshleman	K6SRZ	doctore@well.com
Director	Tom Hutton	N3ZZ	n3zz.tom@gmail.com
Director:	Ron Castro	N6IE	ronc@sonic.net
Director:	Don Taylor	K6GHA	k6gha@sbcglobal.net

## Volunteers:

New Member Mentor	Al Rendon	WT6K	wt6k@arrl.net
Charter Member	Rusty Epps	W6OAT	w6oat@sbcglobal.net
Awards Chair	Joanna Dilley	K6YL	joanna.k6yl@gmail.com
CQP Chair	Chris Tate	N6WM	ctate@ewnetinc.com
CQP Certificates	John Miller	K6MM	k6mm@arrl.net
K6ZM QSL Manager	George Daughters	K6GT	k6gt@arrl.net
K6CQP,N6CQP,W6CQP QSL Mgr	Ed Muns	W0YK	w0yk@arrl.net
NCCC Email reflector Admin	Phil Verinsky	W6PK	kb-w6tqg@verinsky.com
Webmaster	John Miller	K6MM	k6mm@arrl.net
JUG Editor	Ian Parker	W6TCP	w6tcpian@gmail.com



# Northern California Contest Club

*Excellence In Amateur Radio Contesting*

### NCCC Net

Thursday 8 PM

Freq: 3.610 +/-

### NCCC

Monthly meetings take place on the second Monday of each month !

## NCCC Membership Information

If you wish to join NCCC, you must fill out an [application for membership](#), which will be read and voted upon at the next monthly meeting. ([PDF application form](#))

To join, you must reside within [club territory](#) which is defined as the maximum of:

- Northern California, anything north of the Tehachapi's up to the Oregon border, and
- A part of north-western Nevada (anything within our ARRL 175-mile radius circle centered at 10 miles North of Auburn on Highway 49).

Sweepstakes future:

The closest approximation to this organization that is realistic for us is the paradigm suggested by Bob W1RH, where MLDXCC will recruit members from general interest clubs and develop talent that way, which will eventually find their way to NCCC. NCCC hasn't done a Field Day operation for many years and the MLDXCC Field Day operation faded out a few years ago. These operations were focused on getting top operators to run up high scores. In contrast, the general interest clubs allow new operators to gain experience. It might be useful for NCCC'ers to infiltrate their local general interest club that is doing FD and provide some elmering to get some operators to make the transition from FD to general contesting. Judging by the large amount of poor operating practice I hear on the air every year on FD, there is a general need for some adult supervision. This may be our best chance to increase the number of active contests to address the issue of log quantity. I think we already have some good resources in place for increasing the ability of operators once we get them motivated. I would also like to encourage owners of "big" stations to invite new operators coming up to operate in non-focus contests, such as All Asian. Let them attempt to manage a JA pileup. No pressure to run up a big score, just some exposure to what its like in the big leagues. Of course, they should be coached, rather than learning by the sink or swim method.

Jug:

We are still looking for a Jug editor. I thought I had a possible recruit, but he decided he was not able to take on the job. BTW, this is good job for a "remote" member who is unable to attend meetings in person. The board of directors had a discussion about the Jug and arrived at the following mission. The Jug will chronicle the latest news covering topics such as Sweepstakes, CQP, awards, Visalia, WRTC, etc and include columns by the officers, or at least the president and vice president. The editor will also collect the best of articles in other club newsletters and other web sources and republish them (with permission of course) along with a brief "review" of the article by the editor.

This might be something along the lines of the ARRL Contest Update. There was some discussion of the idea that in this age of the internet, we need merely include a URL pointing to the original article. However, as we all know, broken links are a fact of life on the web, and it would be worth archiving articles with full text in the Jug so they are always available. The current monthly schedule was originally dictated by the month meetings, both announcing them in advance and review what happened. Now a days, meetings are announced on the reflector. I hope to soon post recordings of the meetings on the NCCC web site. Thus the Jug is freed from the demands of the meetings, and could possibly be published fewer times a year, and at times that correspond to contest, such as a CQP or SS wrap up edition. Why fix the schedule if it isn't broken? Well, it is broken in terms of recruiting a Jug editor.

We need to reduce the work load. If you want a monthly Jug, find me an editor who will put one out every month.

Continued page 4

Meetings, Webex, multimedia, etc:

I plan to organize a kick off meeting covering “multimedia” at meetings, ie audio, video, Webex, etc. My vision for doing this is as follows:

1. At the meeting venue itself, there will be one and only one computer which will be used to project slides. The slides will NOT be transmitted over Webex. Instead, they will be pre-posted to the NCCC web site as a single Powerpoint file with numbered slides. Remote attendees, whether live, or time shifted, will download the slides from the web site and view them on their own computer. It is not necessary to buy Microsoft Office to view the slides because the free Libre Office suite can be used to view them. The person speaking will announce that we are now viewing slide #N so that remote viewers can follow along.
2. At the meeting, an audio mixer will have two microphones, one for the person conducting the meeting, and another (wireless) microphone for questions from the audience. The audio mixer will drive speakers in the meeting room and also feed the microphone jack of an ordinary cell phone. The speaker jack of the phone will in turn drive the audio mixer that will drive the in-room speakers.
3. The cell phone will be connected via the Public Switched Telephone Network (PSTN) to an audio conferencing service, which could be Webex, but will probably be some cheaper alternative.
4. The audio mixer will have a third output that will drive the line input of the meeting room computer, which will record an audio .mp3 file. This file will be subsequently posted to the NCCC web site for time shifting.

So there is my vision. I welcome your comments, and the comments of the multimedia team. My instructions to the team are going to be that I want to have a multimedia solution that is as easy as possible to operate, while meeting our needs. It serves no one to have an “elegant” approach that only a few experts can implement, making it impossible to find replacements for current multimedia team members when they eventually find it necessary to resign their positions. Also, a simpler system will ensure that the meeting starting time is not delayed on account of “computer problems.” We will still have to deal with delays due to the restaurant, hi. With the meetings recorded and archived, there will be no need for meeting minutes. I am hoping that meeting “attendance” will increase. Perhaps we can set up the web site to count the number of times the slide deck has been downloaded, to use as a measure of delayed meeting attendance.

Awards committee:

We still need an awards committee chairman. This is a position that has well defined boundaries requiring a finite, measurable commitment of time. I hope we can find someone to take on this important, but limited task.

Rick N6RK

## On DX'ing

The bands seem to be full of operators, some new, some old, who don't understand or follow the "DX Code of Conduct". Some truly don't know. Some truly don't care. They belong to the "me first" mentality. There is and always has been, huge competition in pile ups. There are ways of getting through them. There are timing and frequency techniques THAT WORK. (You don't need 2000k).

Along with the unwillingness to "hang in there", and try and try, comes the frustration factor. Unfortunately many of my generation want the instant gratification. DQRM (Deliberate interference) is on the rise. Some are delighted by the attention they get by the "band cops" and others. I call THEM the pigs. You never engage with a pig. He enjoys the attention, and you both wallow in the mud. The second group feel if they can't get through, they are somewhat inadequate. So if they can't get through, they won't let anyone else.

Others are enjoying a nice rag chew, when a DX station shows up on the frequency they are talking on. So they get mad, and rather than move, they get "even". (Remember when we were taught to announce "is the frequency in use" and then LISTEN CAREFULLY? Then repeat twice more?) Other DX stations sometimes can't hear the domestic QSO in progress. Because of LOCATION and ANTENNAS, we all don't hear equally.

The "HAM CRAM" One Day Wonders don't help. Once you get your license you need to practice and continue to learn. The license just opens the door. It doesn't prepare you to operate. I had one "One Day Wonder" (Actually "3 days"-Technician-General-Extra) tell me he had the PERFECT ANTENNA. When I asked him how he knew it was perfect, he said the SWR was 1:1! I asked him if he had ever heard of a dummy load? He admitted he didn't. I told him it too had a SWR of 1:1, but didn't radiate past his front door. This also means WE need to Mentor. I have 2 hams I am mentoring now, and in turn, I am asking questions of some of the more experienced people. It is, and should be a continuing learning experience.

Sometimes the DX station causes the problem. Since they set the rules, they MUST follow them! Whether they are running split, working continents, working "by the numbers", they must follow the pattern they set, or else announce the change. You can't be working 5's in USA, and take a Europe call, just because they are loud. On splits: SSB 5-10 up (or down) is fine. I found one yahoo working SSB up 5-25, effectively tying up 20khz of spectrum + the 3kz he was calling on???

Please occasionally announce you're call. AND PLEASE say QRZ after EACH successful QSO. Or else we don't know if we should call, and risk QRM'ing the reporting station.

Finally, I want to thank the hams that have helped me. I am sorry for all the hair you pulled out while helping me. Red KF6D(sk), Gary W6GWJ (sk), Hank W6DTV(sk), Bob W6BNB(sk), Chuck N6OJ, Ron N6IE, Al K6RIM, and Len K6ANP (who taught me to LISTEN, LISTEN, then LISTEN SOME MORE!)





## VP/CC Corner

### Sweepstakes!

We are half way through our Top Priority Contest for the 2014-2015 season and we need all hands on deck for Sweepstakes Phone on the 15th if we are going to win this year. Don't forget to turn in your logs for SS CW, and get ready to KB on Phone!

The reflector is providing a wealth of motivation for the entire club in the form of 2013 awards arriving from the ARRL.

Here is just a sample:

Call	Ops	Category	Modes	Award
W7RN	N6TV	SO-U(HP)	CW	1 <sup>st</sup> Place Overall
K6SRZ	K6SRZ	SO-U(HP)	CW	1 <sup>st</sup> Place SF Section
K3FIV	K3FIV	SO-U(LP)	CW, SSB	1 <sup>st</sup> Place SF Section
W6K	N6GEO WQ6X	Multi-U(LP)	CW, SSB	1 <sup>st</sup> Place EB Section
N6ZFO	N6ZFO	SO-B(LP)	SSB	All-Time High Score, 1 <sup>st</sup> Place SF Section, High Score Pacific Division
N6XI	N6XI	SO-A(HP)	CW	1 <sup>st</sup> Place SCV Section
NS6T	NS6T	SO-U(HP)	CW	1 <sup>st</sup> Place EB Section
N6RK	N6RK	SO-U(HP)	SSB	1 <sup>st</sup> Place SV Section
ND2T	ND2T	SO-U(HP)	CW	1 <sup>st</sup> Place SCV Section
KU7Y	KU7Y N6NF	Multi-U(LP)	CW	1 <sup>st</sup> Place NV Section, 10 <sup>th</sup> Overall
W1SRD	W1SRD	SO-U	CW	1 <sup>st</sup> Place SV Section

Continued on next page

Oh, and there are more! Plenty of awards to go around, especially on the SSB weekend. See what I did there? Get out there and bring home the lumber!

Of course, there is a lot more going on as well. The CQ WW SSB contest was just a few weeks ago and lots of NCCers participated in that contest. And, the season is just getting going! See the Contest Corner for upcoming events.

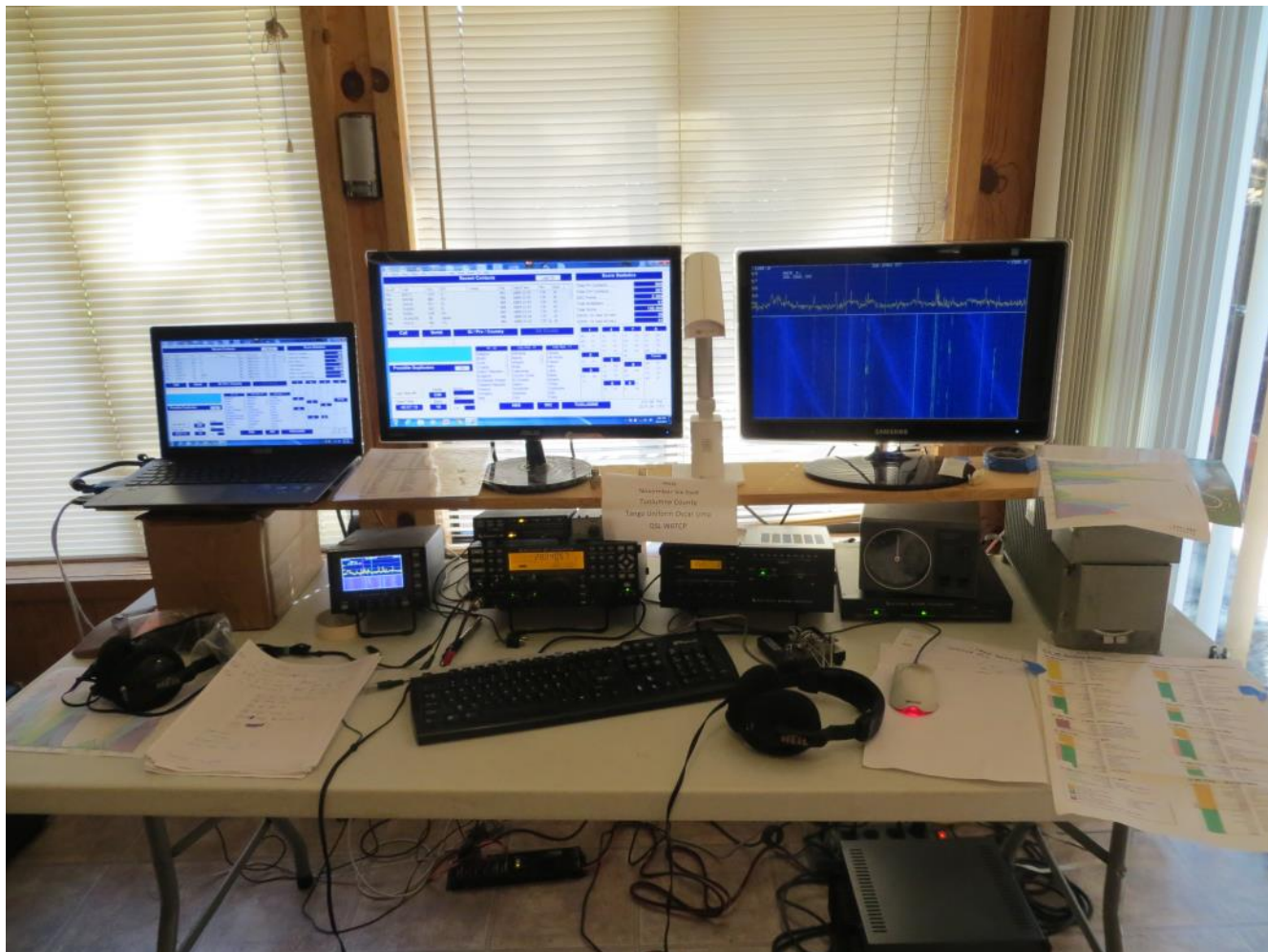
Our next Focus Contest is the NAQP Club Challenge. Of course, we will be fielding teams for a number of contests between now and then as well, so mind the reflector for announcements from the log floggers!

More on that next month.

73, Byron N6NUL  
VP/CC 2014-2015

---

## 2014 CQP—N6G Tuolumne County





# Contest Calendar—November page 1

IPARC Contest, CW	0600Z-1000Z, Nov 1 and 1400Z-1800Z, Nov 2
Ukrainian DX Contest	1200Z, Nov 1 to 1200Z, Nov 2 1200Z, Nov 1 to 1200Z, Nov 2
NA Collegiate ARC Championship, CW	2100Z, Nov 1 to 0300Z, Nov 3
ARRL Sweepstakes Contest, CW	2100Z, Nov 1 to 0300Z, Nov 3
IPARC Contest, SSB	0600Z-1000Z, Nov 2 and 1400Z-1800Z, Nov 3
High Speed Club CW Contest	0900Z-1100Z, Nov 2 and 1500Z-1700Z, Nov 3
DARC 10-Meter Digital Contest	1100Z-1700Z, Nov 2
ARS Spartan Sprint	0200Z-0400Z, Nov 4
CWops Mini-CWT Test	1300Z-1400Z, Nov 5 and 1900Z-2000Z, Nov 5 and 0300Z-0400Z, Nov 7
NRAU 10m Activity Contest	1800Z-1900Z, Nov 6 (CW) and 1900Z-2000Z, Nov 6 (SSB) and 2000Z-2100Z, Nov 6 (FM) and 2100Z-2200Z, Nov 6 (Dig)
NCCC RTTY Sprint	0145Z-0215Z, Nov 7
NCCC Sprint	0230Z-0300Z, Nov 7
WAE DX Contest, RTTY	0000Z, Nov 8 to 2359Z, Nov 9





# Contest Calendar—November page 2

ARRL EME Contest	0000Z, Nov 8 to 2359Z, Nov 9
10-10 Int. Fall Contest, Digital	0001Z, Nov 8 to 2359Z, Nov 9
JIDX Phone Contest	0700Z, Nov 8 to 1300Z, Nov 9
SKCC Weekend Sprintathon	1200Z, Nov 8 to 2400Z, Nov 9
OK/OM DX Contest, CW	1200Z, Nov 8 to 1200Z, Nov 9
Kentucky QSO Party	1400Z, Nov 8 to 0200Z, Nov 9
CQ-WE Contest	1900Z-2300Z, Nov 8 (CW/Digital) and 0100Z-0500Z, Nov 9 (Phone) and 1900Z-2300Z, Nov 9 (Phone) and 0100Z-0500Z, Nov 10 (CW/Digital)
EANET Sprint	0800Z-1200Z, Nov 9
QRP Fox Hunt	0200Z-0330Z, Nov 12
CWops Mini-CWT Test (20 wpm)	1300Z-1400Z, Nov 12 and 1900Z-2000Z, Nov 12 and 0300Z-0400Z, Nov 14
RSGB 80m Club Sprint, SSB	2000Z-2100Z, Nov 12
NCCC RTTY Sprint	0145Z-0215Z, Nov 14
QRP Fox Hunt	0200Z-0330Z, Nov 14
NCCC Sprint	0230Z-0300Z, Nov 14
SARL Field Day Contest	1000Z, Nov 15 to 1000Z, Nov 16
Russian WW MultiMode Contest	1200Z, Nov 15 to 1200Z, Nov 16
Feld Hell Sprint	1600Z-1800Z, Nov 15
+ All Austrian 160-Meter Contest	1600Z, Nov 15 to 0700Z, Nov 16



# Contest Calendar— November page 3

NA Collegiate ARC Championship, SSB	2100Z, Nov 15 to 0300Z, Nov 17
RSGB 2nd 1.8 MHz Contest, CW	2100Z, Nov 15 to 0100Z, Nov 16
ARRL Sweepstakes Contest, SSB	2100Z, Nov 15 to 0300Z, Nov 17
Homebrew and Oldtime Equipment Party	1300-1500Z, Nov 16 (40m) and 1500-1700Z, Nov 16 (80m)
Run for the Bacon QRP Contest	0200Z-0400Z, Nov 17
QRP Fox Hunt	0200Z-0330Z, Nov 19
CWops Mini-CWT Test	1300Z-1400Z, Nov 19 and 1900Z-2000Z, Nov 19 and 0300Z-0400Z, Nov 21
NAQCC CW Sprint	0130Z-0330Z, Nov 20
NCCC RTTY Sprint	0145Z-0215Z, Nov 21
QRP Fox Hunt	0200Z-0330Z, Nov 21
NCCC Sprint	0230Z-0300Z, Nov 21
YO International PSK31 Contest	1600Z-2200Z, Nov 21
LZ DX Contest	1200Z, Nov 22 to 1200Z, Nov 23
SKCC Sprint	0000Z-0200Z, Nov 26
CWops Mini-CWT Test	1300Z-1400Z, Nov 26 and 1900Z-2000Z, Nov 26 and 0300Z-0400Z, Nov 28
QRP ARCI Topband Sprint	0000Z-0600Z, Nov 27
+ RSGB 80m Club Sprint, CW	2000Z-2100Z, Nov 27
NCCC RTTY Sprint	0145Z-0215Z, Nov 28
NCCC Sprint	0230Z-0300Z, Nov 28
CQ Worldwide DX Contest, CW	0000Z, Nov 29 to 2400Z, Nov 30

12 STORE BUYING POWER

**ANAHEIM, CA**  
(Near Disneyland)  
933 N. Euclid St., 92801  
(714) 638-7373  
**(800) 854-6046**  
Janet, KL7MF, Mgr.  
anaheim@hamradio.com

**BURBANK, CA**  
1525 W. Magnolia Bl., 91506  
(818) 842-1786  
**(877) 892-1748**  
Eric, K6EJC, Mgr.  
Magnolia between  
S. Victory & Buena Vista  
burbank@hamradio.com

**OAKLAND, CA**  
2210 Livingston St., 94606  
(510) 534-5757  
**(877) 892-1745**  
Nick, AN6DX, Mgr.  
I-880 at 23rd Ave. ramp  
oakland@hamradio.com

**SAN DIEGO, CA**  
5375 Kearny Villa Rd., 92123  
(858) 560-4900  
**(877) 520-9623**  
Jerry, N5MCJ, Mgr.  
Hwy. 163 & Claremont Mesa  
sandiego@hamradio.com

**SUNNYVALE, CA**  
510 Lawrence Exp. #102  
94085  
(408) 736-9496  
**(877) 892-1749**  
Jon, K6WV, Mgr.  
So. from Hwy. 101  
sunnyvale@hamradio.com

**NEW CASTLE, DE**  
(Near Philadelphia)  
1509 N. Dupont Hwy., 19720  
(302) 322-7092  
**(800) 644-4476**  
Ken, W2OHD, Mgr.  
RT.13 1/4 ml. So. I-295  
delaware@hamradio.com

**PORTLAND, OR**  
11705 S.W. Pacific Hwy.  
97223  
(503) 598-0655  
**(800) 765-4267**  
Leon, W7AD, Mgr.  
Tigard-99W exit  
from Hwy. 5 & 217  
portland@hamradio.com

**DENVER, CO**  
8400 E. IIRF Ave. #9, 80231  
(303) 745-7373  
**(800) 444-9476**  
John, W0IG, Mgr.  
denver@hamradio.com

**PHOENIX, AZ**  
10613 N. 43rd Ave., 85029  
(602) 242-3515  
**(800) 559-7388**  
Gary, N7GJ, Mgr.  
Corner of 43rd Ave. & Peoria  
phoenix@hamradio.com

**ATLANTA, GA**  
6071 Buford Hwy., 30340  
(770) 263-0700  
**(800) 444-7927**  
Mark, KJ4VO, Mgr.  
Doraville, 1 ml. no. of I-285  
atlanta@hamradio.com

**WOODBRIIDGE, VA**  
(Near Washington D.C.)  
14803 Build America Dr.  
22191  
(703) 643-1062  
**(800) 444-4799**  
Steve, W4SHS, Mgr.  
Exit 161, I-95, So. to US 1  
virginia@hamradio.com

**SALEM, NH**  
(Near Boston)  
224 N. Broadway, 03079  
(603) 898-3750  
**(800) 444-0047**  
Dave, N1EDU, Mgr.  
Exit 1, I-93,  
28 ml. No. of Boston  
salem@hamradio.com



**HAM  
RADIO  
OUTLET**  
WORLDWIDE DISTRIBUTION

World's  
LARGEST HAM  
RADIO INVENTORY  
in stock for quick  
delivery

**KENWOOD**



**TS-2000** HF/VHF/UHF TCVR

- 100W HF, 6M, 2M • 50W 70CM • 10W 1.2GHz w/ opt UT-20 module • Built-in TNC, DX packet cluster
- IF Stage DSP • Backlit front key panel



**TM-281A** 2 Mtr Mobile

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



**TS-590S** HF + 6M Transceiver

- 100W HF + 6M • 500 Hz & 2.7 KHz roofing filter
- Built-in auto tuner • Best dynamic range in class
- 32 bit DSP

**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



**TM-V71A** 2M/440 Dual Band

- High RF output (50W) • Multiple Scan • Dual receive on same band (VxV, UxU) • Echolink® memory (auto dialer) • Echolink® Sysop mode for node terminal ops

**ICOM**

**IC-7000** All Mode Transceiver

- 160-10M/6M/2M/70CM
- 2x DSP • Digital IF filters
- Digital voice recorder
- 2.5" color TFT display



**ID-51A** VHF/UHF Dual Band Transceiver

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



**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-V8000** 2M Mobile Transceiver

- 75 watts • Dynamic Memory Scan (DMS)
- CTCSS/DCS encode/decode w/ tone scan • Weather alert • Weather channel scan • 200 alphanumeric memories

**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



**YAESU**  
The radio



**FTDX-3000** 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-7900R** 2M/440 Mobile

- 50W 2M, 45W on 440MHz • Weather Alert • 1000+ Memories • WIRES capability • Wideband receiver (cell blocked)

**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



**FT-450D** 100W HF + 6M Transceiver

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



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

- 100W HF/6M, 50W 2M, 20W UHF • DSP included
- 32 color display • 200 mems • Detachable front panel (5K-877 required)

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

Come visit us  
online via  
the Internet at  
<http://www.hamradio.com>

#1  
in Customer  
Service

**COAST TO COAST  
FREE SHIPPING**  
UPS • Most Items Over \$100  
Rapid Deliveries From  
The Store Nearest to You!

