



**Publication of the
Northern California
Contest Club**



Issue 534

November 2016



Inside this Issue:

	Page
Presidents Report	1
Holiday Luncheon	5
DXing on the Edge	6
RFI Hunting @ N6RO	7
Member Awards—NA6O	9
Member Awards—K6KNS	10
Bits & Bobs	11
Point Generator Profile— K9YC	12
Tube Of the Month	17
Contest Calendar	19
HRO	22

President's Report

Happy Holidays, KB'ers!

I think we all know that, in the contesting world, there's a big difference between contesting from the West Coast and from the East Coast. Never was this more apparent than this past weekend's CQWW CW. I saw the reports from many of our members who went through the entire weekend without hearing a single European station. I worked several but, for all, the signal strength was just a tad above ESP, although I was able to copy them solid. I do have a pretty good location for working Europe, however.

And then there's the East Coast "Wall", where even if you can hear a station just fine, you call and call and call and can't make it through the wall of W1's, 2's, 3's etc.

There are a handful of us in the club who are fortunate enough to have operated or owned stations in the Northeast, within 75 miles or so of the Atlantic Ocean. I'm one of them. When I moved to the Boston area, having lived in California all of my life, I was mesmerized by a quintessential New England house I found, on three acres, that had a large chunk of waterfront on an old mill pond. Clearly, my head was not thinking HF propagation at the time because living on a pond meant I lived in a bowl – a low spot - surrounded by hills. This was a location that would get poor marks in N6BV's HFTA software. It was only 25 miles or so from the ocean, however.

NCCC Next Meeting



Location:
Michaels @ Shoreline, Mountain View

Saturday, December 17th
11am to 3pm

[See page 5](#)

Continued on page 3



Officers:

President	Bob Hess	W1RH	w1rh@yahoo.com
Vice President /Contest Chair	Steve Dyer	W1SRD	w1srd@arrl.net
Treasurer	Dick Wilson	K6LRN	treasurer.nccc@gmail.com
Secretary	Ian Parker	W6TCP	secretary.nccc@gmail.com
Past President	Rick Karlquist	N6RK	richard@karlquist.com
Director	Rusty Epps	W6OAT	w6oat@sbcglobal.net
Director:	Rich Cutler	WC6H	wc6h@yahoo.com
Director:	Ron Castro	N6IE	ronc@sonic.net

Volunteers:

New Member Mentor	Al Rendon	WT6K	wt6k@arrl.net
Charter Member	Rusty Epps	W6OAT	w6oat@sbcglobal.net
Awards Chair	Gary Johnson	NA6O	gwj@wb9jps.com
CQP Chair	Kevin Rowett	K6TD	k6td@arrl.net
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
Webinars	Chris Hoffman	KG6O	choffma@gmail.com
JUG Editor	Ian Parker	W6TCP	w6tcpian@gmail.com
jug@nccc.cc			



NCCC Net

Thursday 8 PM
 Freq: 3.610 +/-

NCCC

Visit the meetings page of the NCCC website [here](#) for details of the next meeting

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).

I generally did CQWW as a hired gun at a mult-op but for various reasons there were times when I would do it from my own station, by the pond and in the bowl. The only antenna I had was a full wave 80 meter rectangular loop, strung between two pine trees, fed with balanced line and tuned with an old Johnson Matchbox. I had a FT-767 and an old Collins 30S-1.

I decided to take a look at the CQWW archives to find a year when I did a part time effort from my own station. I found one in 2001. I'm not sure how many hours I operated, but I'm sure it was less than 20. It turns out that, with my lousy location, wire antenna and part time effort, I was 10th place in W1, single op / assisted, with 1,267,300 points. As a comparison, the highest W6 score in that category was from N6IG, with 3,537,512 points. The second highest W6 score was from N6CW, who came in with 1,105,315 points. According to 3830, he put in 31 hours of operation. The 10th place W6 was NC6T, who did a score of 11,557 points. I should note that 2001, was near the second peak of Cycle 23.

Can you see the magnitude of the difference between operating from W1 and W6?

The point here is that even at the peak of the solar cycle, it is virtually impossible for a West Coast contest club full of world class operators to beat a Northeast contest club. NCCC could win the CQWW Club Competition (and we did) by deploying many contest dxpeditions to more favorable areas, such as the Zone 9 part of the Caribbean but we're all growing older and the costs of fielding multiple dxpeditions keeps going up. Probably not going to happen.

All of this brings me back to last weekend's CQWW CW, with hideous conditions well down the trailing edge of Cycle 24. Imagine if some of our world class operators had done this one from the Northeast.

Just look at some of the scores from our guys who – you have got to believe – worked much harder for those numbers than our Northeast counterparts:

2,918,700 - K6XX (the Iron Man) SOAB HP

1,374,318 - W6YX (N7MH) SOAB LP

1,313,475 - W7RN (K5RC) SOAB(A) HP

1,288,736 - N6GQ @ W6JZH SOAB(A) HP

I also want to point out a couple of very fine Multi/Multi scores:

5,183,528 – Call: N6WM. Station: N6RO. Operators: K3EST, K7GK, N6BV, N6RO, N6WM, NA6O, WX5S

2,093,427 – Call: N6XI. Station: N6XI. Operators: N6XI, N6TU.

Finally, how about this fine effort, from Andy in Aruba:

4,986,246 - Call: P49Y. Operator AE6Y. SOAB HP

Now, a bit about Sweepstakes. As most of our members know, and speaking for myself and probably most of our Board, it was my feeling that declaring Sweepstakes a NCCC Focus Contest in the Unlimited Category would be a license to failure. As a contester, I want to win. I bet you do too! Sweepstakes is PVRC's big contest of the year. They have become the unbeatable behemoth in Sweepstakes.

I took a look at the ARRL's 2016 SS CW logs submitted page. PVRC had 129 logs submitted. SMC had 88. Beyond that, no other club is in the running in the Unlimited Category. For the SSB weekend, as I write this, PVRC has 116 logs submitted and SMC has 71 logs submitted.

I also took a look at the official ARRL Contest Club Eligibility Lists, as submitted by each club. The PVRC list has 839 calls. NCCC has 296 calls. SMC has 262 calls. A good percentage of NCCC's calls are club call signs, so the actual number of operators is less than 296. I'd love to see SMC give PVRC some good competition but, alas, it is really hard to beat a club that can do a brute force win based on logs submitted. Nothing against PVRC here; they're a great contest club. I'm just stating the reality.

NCCC has proven in the past, several times, that the club can win Sweepstakes in the Unlimited Club category but to do so would require a good effort from virtually every member on our eligibility list. It also wouldn't hurt if 80 and 40 were long and 10 was wide open. Is this going to happen? Probably not, at least during the down side of the solar cycle.

PL259 and MLDXCC, both clubs full of members who also belong to NCCC, have figured out how to have fun with Sweepstakes in their respective Local and Medium Club categories. The strategy is completely different in these categories. In the Unlimited Category, it's all about the number of logs and perhaps some HMO operations. In the Medium and Local club categories, the strategy is making the most out of a limited log count. For the Local category, the total number of logs spanning both CW and SSB is 10. For the Medium Category, it's 50. That can mean 25 CW logs and 25 SSB logs or whatever, but no more than 50. It's a very effective way of leveling the playing field. Strategy can include well organized Multi-Ops, something that PL259 has exploited very successfully. Both clubs won gavels last year and it's looking very good that both clubs will win them again this year.

So where does this leave NCCC? It looks like NCCC will have just about 50 logs total submitted for CW and SSB Sweepstakes. MLDXCC will have about the same number. NCCC's was an unorganized effort. MLDXCC's was highly organized. So are you thinking what I'm thinking?

NCCC can be serious about Sweepstakes in the Medium Club category, something the Southern California Contest Club figured out years ago. Think about it. NCCC vs SCCC vs MLDXCC. It's a West Coast competition where each club fields 50 logs full of multi-ops and serious single ops. I won't be the NCCC President for next year's SS, but I do think that this is something our new Board should seriously think about.

I wonder how long PVRC's members will be motivated to do SS when it finally comes to a point where they have no one to compete with?

For those who have posted scores on 3830 for SS, CQWW and the other major contests, remember that your scores are being tabulated for the NCCC Member Competition. Awards will be distributed as we have the KB awards in the past, with members awarded for achieving certain levels in the form of cumulative scores. Always remember to post your scores on 3830, so they can be counted in the competition.

I want to thank John (K6MM), Ian (W6TCP), Dick (K6LRN), and others for helping organize and bring back the NCCC holiday party. When I took over as President, I had many of you suggest that we bring it back, and we did. It's going to be a fun time, for our members and their spouses. I do hope you can attend and, if so, please help Ian and RSVP early.

73 Bob W1RH



Next NCCC Meeting

Holiday Luncheon

December 17, 2016
11:00 am to 3:00 pm

Program Highlight

Ham Radio: The Lighter Side
Why We Do.....What We Do
by John Miller, K6MM

Michael's at Shoreline,
2960 Shoreline Blvd.
Mountain View, CA 94043
(650) 962-1014
Directions: [Michael's at Shoreline](#)

Please Join Us!

The Holiday Luncheon is a great way to celebrate with other NCCC friends and family.

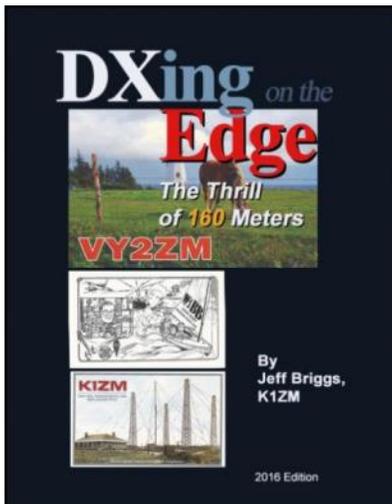
New York Steak	\$32.40
Chicken Portobello	\$22.78
Broiled Salmon	\$28.22
Grilled Vegetable Brochette + Wild Rice	\$22.46

*Prices include tax and tip

RSVP By December 9th

To RSVP, Pay and sign up please go to :-

<http://nccc.cc/meetings.html>



I am pleased to be able to announce that the 2ND EDITION of Dxing on the Edge...the Thrill of 160M! is now available for purchase.

While we had a great run with ARRL starting in 1998 (for which I am most grateful), this second edition has been self-published using BOOKBABY.com. Earlier this year some UK friends of mine asked me to put out an updated edition of the book and this summer I had the time to work with Tim Duffy of DXE and Jay Terleski of Array Solutions to do just that.

The new book contains the original manuscript from 1998 but also includes new and updated material regarding current XMIT antenna solutions for Dx'ing and contesting on Topband. Additionally,, there is a chapter specifically dedicated to Rx antennas for those with smaller lots - as Rx on Topband is the thorniest problem to resolve if one is space limited as we all are well aware.

Also included are current operating suggestions for snagging the rarest of the rare ones on 160m - which means using capabilities and techniques that did not exist in 1998.

Gone unfortunately is the CD of "Memorable Moments on 160M" as technical limitations prevented inclusion of this in the revised addition.

A couple of things I wish to make very clear:

1) I am not necessarily trying here to sell you another book....if you bought and enjoyed the first edition of my book, it is totally your call if you wish to purchase the second addition. Current successful 160M Dx'ers may already be well aware of the modern antenna choices for XMIT and RX that I talk about - so I am really aiming this book at amateurs who have always wanted to try 160M but have demurred due to smallish properties or to those who would like to learn how to operate on 160M for the first time and need to know how to become successful on Topband.

2) I owe a huge debt of gratitude to K3LR and WX0B for providing information on their fine 160M products - including elevation plots and technical data on their products. I would never have been able to release this second edition without their input and cooperation - so thanks to them both! I should note also that I did not ask for nor receive any remuneration whatsoever for highlighting their fine products in the revised version. I simply consider both guys friends, who are reputable suppliers, who market great products and they service them well. It is that simple.....I buy and use their stuff myself - so I am 100% comfortable recommending what they sell to buyers of my book.

3) The price of the 2nd edition is \$20.18 USD.

4) You may purchase it here:

- a) From DX Engineering - (it will soon be added to the DXE website in the books section)
- b) From Array Solutions - (it will soon be added to the Array Solutions website in the books section)
- c) Directly from the publisher Bookbaby - Here is the Internet Link:

<https://store.bookbaby.com/book/Dxing-On-the-Edge>

The ISBN number is: 9781483586458

Thanks for taking the time to read this message. I do hope anyone who orders the new book finds it a useful addition to their 160M operating enjoyment going forward.

73 JEFF K1ZM/VY2ZM

Hunting RFI at N6RO Gary, NA6O



Every ham station suffers from interference at some level, and even the biggest stations out in the country like N6RO are not immune. Power line noise has been raising havoc there for a couple of years, and seems to be getting worse. As a regular operator there, I can vouch for the crippling effects this noise has, especially on the low bands, so I'm motivated to fix it. Pinpointing the source(s) is challenging to say the least. We needed some help, so I invited Lee, KI6OY, and John, WB6ETY, to join me in a bit of RFI hunting. Lee and John are new NCCC members and I enjoyed operating with them during CQP as N6G up in Tuolumne county



WB6ETY at N6RO

John brought along a hand-held 2-meter Yagi and a receiver that could handle AM, which is exactly what you need for direction finding. I had a shortwave receiver and directional loop antenna. Ken had an AM radio with a loopstick, so we had all the bands covered. Lee did the note taking and drew a nice map of what we found. I'm sure that passers-by wondered what these four fellows were doing, waving their little antennas all over the place.

I had found that listening in the HF bands was often confusing due to wavelength issues. For instance when walking along near a power line, noise tends to get go through peaks and dips, leaving you with the impression that the source is "every power pole" or maybe even in the middle of a span. The VHF rig was by far the best at picking out a particular power pole, and that's consistent with the advice found in the ARRL RFI Book. After a couple hours of hiking around and driving to several suspect areas, we settled on a couple of PG&E poles that we decided were the most likely culprits, a quarter mile South of the station. But we know there are more! And worse, some of the sources are intermittent, and they also change when it rains. Ken purchased an ultrasonic listening device that we plan to try out soon to see if the most-suspect poles actually contain an arcing component. Hopefully we'll get some response from PG&E when we have enough evidence to call their RFI crew. This will be an ongoing project. Probably forever...

John and Lee also enjoyed touring the station. All that aluminum overhead and a room packed with six stations worth of radio gear is pretty cool. And it sure was nice to have some help.

Members Awards



Gary NA6O

First Place, 10 Meter Single Op, CW

7QP, First Place, Outside Area, HP CW
It was a pretty good year for my pea-shooter station

Member Awards

The logo for NCCC (National Contest Club) is displayed in white text inside a black oval on an orange background.

10 Meter Contest

In recognition of achieving a winning score by working fellow amateurs on 28 MHz during the contest period.

Presented to

K6KNS

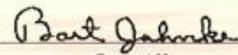
SCORE: 56,052

FIRST PLACE

SINGLE OPERATOR PHONE ONLY, HIGH POWER
SACRAMENTO VALLEY SECTION

2015

 **K5UR**
President, ARRL

 **W9JJ**
Contest Manager



ARRL The national association for
AMATEUR RADIO™

Dave K6KNS

First Place, 10 Meter Single Op, SSB

Awards Chair

Welcome Gary NA6O, NCCC Awards Chair.

Gary Johnson, NA6O has taken over the Awards Chair role from Joanna K6YL. The NCCC BOD would like to thank Joanna for all of her efforts!

Gary is working with the various NCCC members to review and go over the job requirements. If you have any suggestions for new (or old Awards), please contact Gary. See page 2 for Gary's email address.

Northern California Contest Club Reflector—Guidelines

This reflector is devoted to the discussion of contesting.

This includes contests, station building, dxpeditions, technical questions, contesting questions, amateur radio equipment wants/sales, score posting, amateur radio meetings/conventions, and membership achievements.

This does not include personal attacks, politics, or off-subject posts which will be considered a violation of the Guidelines.

Violations may result in removal of the violator from the reflector and possibly from club membership in good standing.



Member Planet

Transition to member planet is underway. If you haven't completed the sign in process please do so as soon as you can. If your unable to find the invite, please contact Ian W6TCP at w6tcpian@gmail.com

JUG Articles Wanted!

Without your help we cannot reproduce a quality newsletter so please consider submitting a suitable article!

We welcome any and all relevant articles for inclusion in the JUG.

Deadline is 7 days before month end. Preferred format is MS Word, Arial 12 point and pictures should be full resolution. Send your material to Ian, W6TCP at w6tcpian@gmail.com Don't worry

Point Generator Profile

By Bob, W1RH

Every month, I have tried to feature some of our point generators who are new to the club, have smaller stations, or are way out in hinterlands. This month, it's time to feature one of the big stations in the club, backed by one of our best contest operators.

I'm always amazed at the points Jim, K9YC, can generate as a single operator, especially in the NAQP's, but also in many other contests. In the cumulative point total for our intra club competition, Jim is way up near the top.

Jim has presented many papers for the Club, and for other venues. He's the Club's noise elimination expert and has shown (along with W6SX) that wire antennas can generate points.

Now, let's learn more about K9YC:

Name/Call Sign: K9YC

Past calls: WN8FNI, W8FNI, W9NEC

Location: Santa Cruz Mountains, 10 miles N of Santa Cruz

How much property do you have? 8.5 acres

Describe your antenna system:

Current: 3-el SteppIR at 120 ft; 40M 2-el wire Yagi at 110 ft aimed to 70 deg; monoband Yagis for 20 (3-el), 15M (4-el), and 10M (4-el) on short towers; two 80/40 fan dipoles at 140 ft at right angles, reflector on one dipole to aim it to 70 degrees; 100ft high Tee vertical for 160M with on-ground radials; two sloping wires for 160M rigged from 120 ft tower, each with 4 radials elevated 20 ft; one facing 70 degrees, the other to 270 degrees; reversible Beverages with DXEng hardware, one aimed EU/VK/ZL, the other to SA/JA.

Future: A pair of VE3DO RX loops for 160M aimed to EU.

What's in your shack? Two K3/P3/SVGA/KAT500/Titan 425 set up for SO2R with YCCC SO2R box, 5B4AGN-designed TXBPF bandpass filter sets built as kits, 4O3A 8x2 antenna switching unit, several Top Ten relay boxes for additional antenna switching and to switch stubs matching 80/40 dipoles. Spare K3/P3/Titan 425. KPA500 for "instant-on" operation during the week and 6M; potentially being replaced by Expert 1K-FL from W6GJB; one of the Titans to be replaced by 87A from W6NV when he returns from ZD8.

Test equipment includes HP signal generator and spectrum analyzer, Rigol spectrum analyzer, DG8SAQ-designed VNWA-3e network analyzer, and several SDRs that I'm evaluating as spectrum analyzers, a couple of Birds. A bunch of audio test gear.

What are your previous QTH's? WN8FNI and W8FNI in a WV city where I grew up. W8FNI/8 from my dorm room at University of Cincinnati; W9NEC from a very small lot in Chicago (1966-1986) and from a larger lot (2003-2006); received K9YC as a vanity call in 2003; moved to present QTH in 2006.

If you're working, what is your career? If not, what was your career? I gradually retired over a 3 year period after moving here. I ran my own small consulting firm designing large sound systems for public spaces – theaters, churches, stadiums, jazz clubs, outdoor concerts. Very reverberant churches and gymnasiums were a specialty. Projects included Wrigley Field, Grace Cathedral, the United Terminal at O'Hare, Nokia Center, various university fine arts centers. Prior to that I did lots of live recording for broadcast, and mixing live sound for large and small events, mostly jazz. I also worked in the civil rights movement as a photographer, taught math and electronics for 5 years at DeVry in Chicago.

Married? Kids? Grandkids? Rachelle and I met in 1989 after each raising two children in previous marriages (one marriage for each of us); we celebrated our 25th wedding anniversary this summer. She has five grandkids, I have one.

How many DXCC entities have you worked? I started over after moving to W6; 320 current entities, a few more deleted ones. 166 worked QRP. W6OAT and NI6T got me interested in CQ Fields, and I've worked about 205. I need VT, SC, and WV to finish QRP WAS on 160M. I'm closing in on 350 grids on 6M.

What's your favorite contest? NAQP, NA Sprint, RAC, state QSO parties.

Any tips for contesters? Operating with others is a great way to learn and a lot of fun – in a multiop, as a guest, hosting another operator in your own station, CQP expeditions, etc. Learn how to be competitive with a great signal, either with your own station or as a guest operator. Learn how to be effective with a weak signal. QRP or lousy antennas are a great teacher. Study propagation. SO2R has been a great “brain-stretcher.” Spend more of your radio budget on antennas. Work on hearing better, both with antennas and by killing noise. Learn as much as you can about how radio works.

What would you like to see changed in NCCC? NCCC is the best club of which I've ever been a member, so “evolution” is a better word. I'd like to see us return to monthly meetings, weekends are fine as long as we avoid conflicts with major contests, Sundays tend to do that more than Saturdays. More intra-club competitions – several years ago, we did that in a major DX contest with M2 at a half dozen or so well equipped stations. We need to figure out how to bring in more fresh blood, especially younger blood, into the club. We had a surge of this several years ago when a bunch of younger people, many of them IT professionals joined, learned CW and became quite proficient, and breathed a lot of new life into the club – N6WM, N6NUL, N6ML, AE6RF, K6GHA, K6YL, W6NN, are a few who come to mind. Encouraging car pools to meetings – our ad hoc group from around Santa Cruz typically fills two cars, and the conversations on the way generate a lot of rapport and team spirit.

Any other hobbies besides ham radio? Listening to jazz. Reading.





K9YC Shack



TUBE OF THE MONTH

Visit the museum at N6JV.com

Norm N6JV

UV202

In March of 1921, RCA announced their new line of transmitting tubes made for amateur and commercial use. This was a time when high DC voltage wasn't easy to get. Receiving sets were all run on batteries. The use of CW was proven in the war and QRP rigs were able to compete with the high power spark transmitters. The first tube that RCA had ready for sale was the UV202. It was similar to the UV201 receiving tube, but slightly larger and rated at a conservative 5 watts. This new "5 watter" operated at about 350 volts and 45 ma and was an instant hit with the hams. Each tube was made at the GE factory with close tolerances that allowed tubes to be run in parallel. An article in a QST from 1924 had 6 of them mounted in a circle. These were relatively low frequency tubes and I have never found the upper frequency of a 202. It was not uncommon to remove the base and wire the tube directly into the oscillator to minimize capacity.

During 1925, the 202 was discontinued in favor of the UX210. The "10" was also used in high power audio amplifiers.

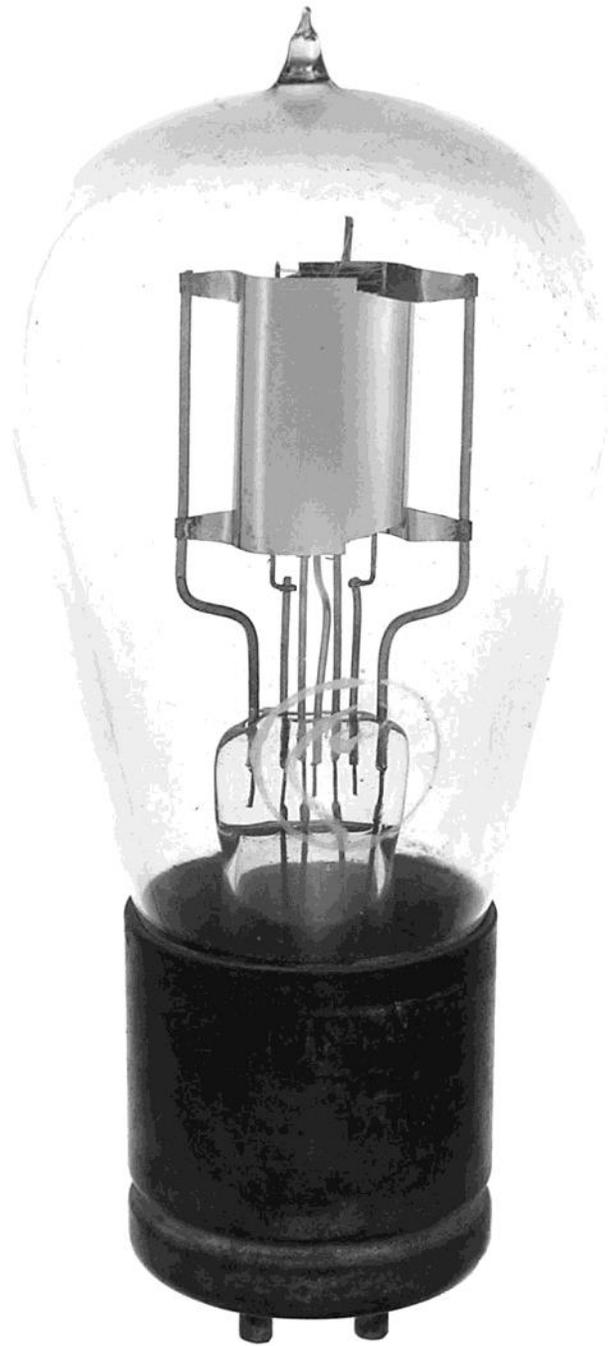
The UV202 could be purchased as the Cunningham C302. Same tube, different marking. The UV prefix indicated that the tube had short pins and required a bayonet socket. The UX prefix indicated that the pins were long and could be plugged into a flat socket. When the first tetrode tubes were made, they had 5 pins and were marked with a UY. These prefixes were discontinued in the US in the late 1920s, but were still in use into the 1940s in Japan.

TUBE OF THE MONTH

Visit the museum at N6JV.com

Norm N6JV

UV202





Contest Calendar— December page 1

NRAU 10m Activity Contest	1800Z-1900Z, Dec 1 (CW) and 1900Z-2000Z, Dec 1 (SSB) and 2000Z-2100Z, Dec 1 (FM) and 2100Z-2200Z, Dec 1 (Dig)
NCCC RTTY Sprint	0145Z-0215Z, Dec 2
QRP Fox Hunt	0200Z-0330Z, Dec 2
NCCC Sprint	0230Z-0300Z, Dec 2
ARRL 160-Meter Contest	2200Z, Dec 2 to 1600Z, Dec 4
TARA RTTY Melee	0000Z-2400Z, Dec 3
Wake-Up!QRP Sprint	0600Z-0629Z, Dec 3 and 0630Z-0659Z, Dec 3 and 0700Z-0729Z, Dec 3 and 0730Z-0800Z, Dec 3
TOPS Activity Contest	1600Z, Dec 3 to 1559Z, Dec 4
EPC Ukraine DX Contest	2000Z, Dec 3 to 1959Z, Dec 4
Ten-Meter RTTY Contest	0000Z-2400Z, Dec 4
SARL Digital Contest	1300Z-1600Z, Dec 4
ARS Spartan Sprint	0200Z-0400Z, Dec 6
QRP Fox Hunt	0200Z-0330Z, Dec 7
Phone Fray	0230Z-0300Z, Dec 7
CWops Mini-CWT Test	1300Z-1400Z, Dec 7 and 1900Z-2000Z, Dec 7 and 0300Z-0400Z, Dec 8



Contest Calendar— December page 2

NCCC RTTY Sprint	0145Z-0215Z, Dec 9
QRP Fox Hunt	0200Z-0330Z, Dec 9
NCCC Sprint	0230Z-0300Z, Dec 9
ARRL 10-Meter Contest	0000Z, Dec 10 to 2400Z, Dec 11
SKCC Weekend Sprintathon	1200Z, Dec 10 to 2400Z, Dec 11
International Naval Contest	1600Z, Dec 10 to 1559Z, Dec 11
AWA Bruce Kelley 1929 QSO Party	2300Z, Dec 10 to 2300Z, Dec 11 and 2300Z, Dec 17 to 2300Z, Dec 18
CQC Great Colorado Snowshoe Run	2100Z-2259Z, Dec 11
NAQCC CW Sprint	0130Z-0330Z, Dec 14
QRP Fox Hunt	0200Z-0330Z, Dec 14
Phone Fray	0230Z-0300Z, Dec 14
CWops Mini-CWT Test	1300Z-1400Z, Dec 14 and 1900Z-2000Z, Dec 14 and 0300Z-0400Z, Dec 15
NCCC RTTY Sprint	0145Z-0215Z, Dec 16
QRP Fox Hunt	0200Z-0330Z, Dec 16
NCCC Sprint	0230Z-0300Z, Dec 16
Russian 160-Meter Contest	2000Z, Dec 16 to 2400Z, Dec 17
AGB-Party Contest	2100Z-2400Z, Dec 16
OK DX RTTY Contest	0000Z-2400Z, Dec 17
RAC Winter Contest	0000Z-2359Z, Dec 17
Feld Hell Sprint	0000Z-2359Z, Dec 17



Contest Calendar— December page 3

Croatian CW Contest	1400Z, Dec 17 to 1400Z, Dec 18
Stew Perry Topband Challenge	1500Z, Dec 17 to 1500Z, Dec 18
ARRL Rookie Roundup, CW	1800Z-2359Z, Dec 18
Run for the Bacon QRP Contest	0200Z-0400Z, Dec 19
QRP Fox Hunt	0200Z-0330Z, Dec 21
Phone Fray	0230Z-0300Z, Dec 21
CWops Mini-CWT Test	1300Z-1400Z, Dec 21 and 1900Z-2000Z, Dec 21 and 0300Z-0400Z, Dec 22
NAQCC CW Sprint	0130Z-0330Z, Dec 22
NCCC RTTY Sprint	0145Z-0215Z, Dec 23
QRP Fox Hunt	0200Z-0330Z, Dec 23
NCCC Sprint	0230Z-0300Z, Dec 23
RAEM Contest	0000Z-1159Z, Dec 25
DARC Christmas Contest	0830Z-1059Z, Dec 26
SKCC Sprint	0000Z-0200Z, Dec 28
QRP Fox Hunt	0200Z-0330Z, Dec 28
Phone Fray	0230Z-0300Z, Dec 28
CWops Mini-CWT Test	1300Z-1400Z, Dec 28 and 1900Z-2000Z, Dec 28 and 0300Z-0400Z, Dec 29
NCCC RTTY Sprint	0145Z-0215Z, Dec 30
QRP Fox Hunt	0200Z-0330Z, Dec 30
NCCC Sprint	0230Z-0300Z, Dec 30

HAM RADIO OUTLET

14 STORE BUYING POWER!

ICOM



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-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-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 | 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 • FM Analog/DV Repeater List Function

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** • AM/FM/FM-N/WFM/DV • 1304 Alphanumeric Memory Chls • Integrated GPS • D-STAR Repeater Directory • IPX7 Submersible



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

KENWOOD



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



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



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



TM-281A | 2 Mtr Mobile

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



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

YAESU
The radio



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

- 160 M-440MHz - SSB/CW/FM/C4FM Digital/AM/RTTY/PSK • 100 W (2M/440: 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



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-450D | A100W HF + 6M Transceiver

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



FTM-400DR | 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



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

ANAHEIM, CA
(800) 854-6046

OAKLAND, CA
(877) 892-1745

SUNNYVALE, CA
(877) 892-1749

PORTLAND, OR
(800) 765-4267

PHOENIX, AZ
(800) 559-7388

WOODBRIIDGE, VA
(800) 444-4799

PLANO, TX
(877) 455-8750

BURBANK, CA
(877) 892-1748

SAN DIEGO, CA
(877) 520-9623

NEW CASTLE, DE
(800) 644-4476

DENVER, CO
(800) 444-9476

ATLANTA, GA
(800) 444-7927

SALEM, NH
(800) 444-0047

ONLINE STORE
WWW.HAMRADIO.COM

New Store!