



JUG

Publication of the
Northern California
Contest Club

NCCC



#615 – October 2023

NCCC – 53 years of contesting excellence

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NCCC MEETING

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

Next Meeting Sun 22 Oct
1100 – 1600 PDT

N6RO Antenna Farm
5480 Sellers Ave
Oakley CA 94561

President's Report

David West, KO6M



Wow! What a great CQP! I will say that without a doubt CQP is the best QSO Party and in some ways the best Contest on the calendar. Thank ou to N6DE, NS6T, K6DGW, and K6MM as well as all the silent volunteers for all your hard work. I know it's only just begun too.

Speaking of CQP, W6JFA and I spent the weekend up in



Bear Valley and operated as an Expedition again. We opted for M/S Low Power for various reasons, and it all worked great. As so many of us have noted conditions on 10 and 15 were fantastic. Within moments of setting up our station we had DX running into the far reaches of Europe. We were so excited that our station worked so well that we forgot to spin the beam and participate in the Oceania Contest. Yes, I said beam (see photo at left). I also said Expedition earlier. This was the first year we used the antenna that W6JFA had been given by his friends at

TCARES. What a difference a beam makes during an expedition. It doesn't hurt to be at 9000' ASL with cliffs to the correct directions (all of



them due to being on the peak). It was the chefs kiss for the weekend. I could go on and on about CQP, I loved it. Instead, I'll let my pictures speak the thousand words...



At the left is W6JFA operating one of his many pileups on Saturday. The donated antenna and it's tower it did 10/15/20/40 perfectly.

I hope you all had as much fun as we did! I look forward to hearing more in person during our BBQ at N6ROs QTH on the 22nd.

(Ed. Note: One of the reasons David and John had such a good time is that the Bear Valley Ski Resort is in Alpine County and they were very likely the only, or most easily workable, ALPI station in the contest)

The Woodbug

Gary Johnson, NA6O



This may be the world's only bug built entirely from wood (except for screws and small bits of hardware). I designed this for me, with the objective of simulating the very low inertia and sensitive actuating forces of my Begali paddle. It took about four months to work out the material selections and fabrication methods. There's nothing else quite like it. [Read the full story](#). If you want to see more, [here are photos of the development and fabrication process](#). This key won the 2019 ARRL key competition and appears in the October 2019 issue of QST. In early 2018, I did a short production run of five Woodbugs with some minor changes. Proud owners are KT5X,

W9YA, NA6M, and IZ0KRC. One was also built for Summer, VE5SDH (SK), who was a blind ham, so I put her callsign on it in Braille. W4CI has this key now.





About NCCC

Officers and Directors, 2023-2024 Contest Season

President: David West, [K06M](#)
Vice-President/Contest Chairman: Chris Tate, [N6WM](#)
Secretary: Greg Alameda, [K6PXT](#)
Treasurer: Nian Li, [WU6P](#)
Past President: David Jaffe, WD6T
Director: Bob Cox, [K3EST](#)
Director: John Miller, K6MM
Director: Ed Radlo, [AJ6V](#)

Volunteers

Charter Member: Rusty Epps, [W6OAT](#)
Awards Chair: Gary Johnson, [NA6O](#)
California QSO Party Chair: Dean Wood, [N6DE](#)
QSL Mgr [\[K6ZM\]](#): vacant
QSL Mgr [\[K6CQP/N6CQP/W6CQP\]](#): Ed Muns [W0YX](#)
NAQP Teams: Fred Jensen, [K6DGW](#)
NA CW Sprint Teams: Bob Vallio, [W6RGG](#)
NCCC Email Reflector Admin: Phil Verinsky, [W6PK](#)
Worked All CA Counties Award: Fred Jensen, [K6DGW](#)

NCCC Thursday Night Contesting

NCCC Sprint: Tom Hutton, [N3ZZ](#)
NS CW Ladder: Bill Haddon, [N6ZFO](#)
NS RTTY Sprint/Ladder: Ed Radlo, [AJ6V](#)

Communications

Webmaster: John Miller, [K6MM](#)
Webinars: Bill Fehring, [W9KKN](#)
Membership: Gary Johnson, [NA6O](#)/Ian Parker, [W6TCP](#)

JUG Editor

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Home: 775.501.5488
Cell: 530.210.0778

stations to work everyone (all mults count for everyone). WAPC scoring favors 10, 40, with extra points on 80m, and inter-continent QSOs. And, of course it is less well known.

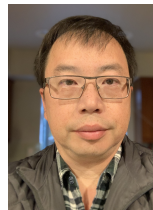
I did this year's WAPC CW contest remote through the N6RO superstation (Thanks for Ken's encouragement and support). As for any contest, I read through the rules again: no 160m; QSO points rules (10 m X2, 40 m X2; 80 m X4, and different continents X3, so one 80 m BY or JA QSO is worth 24 times the QSO points of 20m QSO with a US Q. I downloaded the WAPC contest UDC file for N1MM and the call history file from the WAPC website, using it to create my own. The WAPC team did a great job of documenting and providing what is needed on their website.

Treasurer's Report

Nian Li, WU6P

(Our VP/CC is MIA or otherwise unavailable this month, but our Treasurer, WU6P, provided a report on his experiences in a rare contest that even W6SX of Worked All Contests fame may not yet have entered)

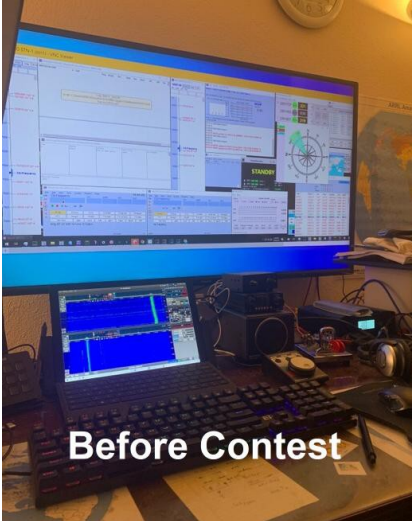
Worked All Provinces of China



In the last few weeks, I participated in Hawaii QSO Party, Worked All Provinces of China (WAPC), and the CQP, and I found that the WAPC provided some unique opportunities and challenges, plus lots of fun.

The WAPC www.mulandxc.com/index/index is a relative new contest, sponsored by Mulan DX Group., a Chinese regional club established in 2009, with initial focus chasing DX (like our brother club, NCDXC). In 2012, they did a trial run of the contest, and since then they made it an annual contest, encouraging Chinese hams to enter, and promoting DX contesting. In recent years they separated the SSB and CW sections: SSB WAPC is in the middle of April and CW is in early October. Each one is a 24-hour contest and they are separately scored.

WAPC is like NA QSO party in many ways, but with way fewer Chinese participants -- about hundred stations or so. Compared to the Hawaii QSO party, WAPC allows and encourages DX participants to work other DXCC/domestic stations, provides a shorter time (24h vs 48h), and separates SSB and CW contests into two contests. Compared to CQP, WAPC encourage all



During the contest, the propagation to Asia was reasonably good, and I soon realized that, from the N6RO station, I could work almost all of the Asian stations being spotted by W land spotters, and when in S&P mode, I could work those that have not yet been spotted as well. So I changed the settings to report spots from all stations, and in the “available multis window” to sort by call sign so all the BY's were reported together. This way, I have a good understanding of where the Chinese stations are (their band movement).

The rest is the BIC Game – “Work as much as I can, for as long as I can.” I soon also realized that, because only a few JA, YB, and RU stations outside China were in this contest, I needed to work more DX for multipliers, and I'd have to work some ragchewers and casual operators too. I sometimes ragchew myself and I understand not all of them like to participate in contests. So when rate is low, I would pick a target station, budget 5~7 mins for each one (“treat others the way you like to be treated”), and once we finished with the normal RST, OP, QTH, RIG, WX exchange, I would state

that I was in the WAPC contest now as well. People are super nice once you are friends, and normally I got things like “Happy to be nr 1”. In one case he offered to QSY to another band to give me additional points. And, of course, I ran into a ragchew with one BY station (and mult I needed) as well, who said “No contest” when I asked him if he can be in WAPC. That happens a bit too. I also ran into some other small, regional contests – a JA QSO party and a small Russian contest, so I did also get some strange exchanges. I tried my best to make my reply format match theirs. One good thing about the WAPC for us is the X3 points inter-continent rule although WAPC reports DX scores by continent, so it does not matter much at end.

I prepared some food/snack items on the side. Here is what is left over at end of the contest. My cat contributes most of the distraction during the contest (XYL is not at home).

I made about 250 QSO in the 24 hour contest. I am happy with that result. It is a fun contest, semi-relaxed, QSO rate is not high, but also not terribly low as you can always work other DX for points. I would encourage you give it a try next April and October. Hopefully with time, there will be more Chinese hams participating.

One side story: Bob, K3EST, asked what was my most westerly contact inside China during this event. I checked and it is SiChuan, the middle of China. I used to think that is because west of SiChuan, there is not much population. Later, I chatted with a new Chinese friend that I made during the contest as we worked on multiple bands, and he said there is one station operating at the extreme west part of China who apparently had a lot of fun working Europe, but was not reachable from the east part of China,.





The Thirty-Sixth NCCC Sprint Ladder Competition

Bill Haddon, N6ZFO

Director, NCCC Thursday Night Contesting.

In yet another raucous, exhilarating and entertaining NCCC Sprint Ladder Competition, the 36th biennial event in the series, an average of over forty stations per week competed in a best three out of five week competition. Sixty-one different ops entered the contest. As reported in the results table below, Mike, W9RE was, as usual, the over-all winner, with Danny, K7SS, logging with his famous, or infamous, NS #2 pencil, a close second. Winners in the other three divisions of the contest were Art, KZ5D, our own Dave, WD6T and Larry, K7SV.

The NS Ladder serves two purposes – one is a warm up to the twice per year NCJ CW Sprints and the other as an intense multi-week competition -- enjoyed on its own as a stand-alone contest. As is customary, the NS Ladder took place on five bands, 15m-160m with thirty-minute duration. Both Mike and “DanWA” occasionally scored over 3000 points, working up to sixty QSO’s in half an hour, a rate significantly exceeding that of the NCJ Sprints. The competition dates were the five consecutive Thursday nights between September 1 and September 29, 2023. Results from the previous six ladder competitions are available at <http://n3qe.org/ladder.html>

For a history of the NSL and its companion weekly NS see the article in the October issue of the CWOps Newsletter “Solid Copy” at <https://cwops.org/newsletters/>. There, you can also view our NS Cartoon -- the CW NS is perhaps the only contest with both its own reflector and its own cartoon. The NCCC Thursday Night Contesting reflector, nccc-blue, now has well over two hundred members, approaching the membership size of the main nccc reflector. To sign up visit <https://groups.io/g/nccc-blue> .

Here are two notable mentions: Kirk, K4RO is now an honored member of the CQ-Contest Hall of Fame. Kirk has participated in CW NS since the earliest days of the contest in the early 2000’s. And we have an additional QRP participant, John, N6HI, running half a watt from his QTH in AZ, joining our own K6UFO (NN7SS) and N0AC.

In the spring of 2023 Peter, VE7AB and Dennis, W1UE, asked NCCC to initiate a regular FT4-NS on Thursday night. Approval from the NCCC Board, with the efforts of Ed, AJ6V, who also runs the RTTY-NS, brought this proposal to reality in a short time. With potential QSO rates approaching 200 per hour FT4 has exciting possibilities for radio contesting. I find the FT4-NS as enjoyable and challenging as the CW contest. As many as 25 contestants have been competing weekly based on 3830scores.com reports. A stimulating article on the FT4-NS by Peter and our own Ed, W0YK appears in the Sept-Oct 2023 NCJ. For information on FT4-NS see the nccsprint.com website. We offer special thanks to John, K6MM for rapidly implementing web support for FT4-NS. Once established, ladder competitions are foreseen.

Results for NSL XXXVI follow on next page:



Results - 36th NCCC Sprint Ladder (NSL XXXVI)
Total Stations Participating: 61

Atlantic Division

<u>Call</u>	<u>Class</u>	<u>Wk1</u>	<u>Wk2</u>	<u>Wk3</u>	<u>Wk4</u>	<u>Wk5</u>	<u>Average</u>	<u>High 3</u>
K7SV	LP	2793	2352	1840	2091	2898	2394	8043
N4AF	LP	2596	2145	2310	2508	2132	2338	7414
N3QE	LP	2592	1989	2040	1776	2226	2124	6858
K3MM	LP	1452	1620	2585	2067	1540	1852	6272
W1FJ	LP	1440		1824	1344	1426	1508	4690
K4BAI	LP		1428	1015		1302	1248	3745
K8CN	LP	1008		986	399		797	2393
NO3M	LP		2340				2340	2340
NK4O	LP	713		713	528	750	676	2176
AJ1DM	LP		468	744	525		579	1737

East Central Division

<u>Call</u>	<u>Class</u>	<u>Wk1</u>	<u>Wk2</u>	<u>Wk3</u>	<u>Wk4</u>	<u>Wk5</u>	<u>Average</u>	<u>High 3</u>
W9RE	LP	3024	2394	3024	2604	3234	2856	9282
KW8N	LP	1900	2106	2236	2150	3150	2308	7536
N8EA	LP	2832		1776	1855	2200	2165	6887
W8WTS	LP	2376	2067	2000	1786		2057	6443
NA8V	LP		1900	2091	1715	2408	2028	6399
VE3YT	LP	1665	2268	1968	1800	1989	1938	6225
K9BGL	LP	1862	1536	2200			1866	5598
W1NN	LP	1271	1500	1428	1900	1911	1602	5311
N9TTK	LP		1302		1200	2009	1503	4511
N4DW	LP	1064	1200	1036	609	1353	1052	3617
K8MR	LP		1692	1530			1611	3222
K1GU	LP	1271		1518			1394	2789
N7ZZ	LP			1147	726	725	866	2598
K0EJ	LP			875	693	840	802	2408
N4OGW	LP		1452				1452	1452
N9UNX	LP			300	320	525	381	1145
W4NZ	LP	875					875	875
K9DX	LP			528		304	416	832
NF8M	LP	780					780	780
KY0Q	LP	480					480	480



NCCC in CA/NV

<u>Call</u>	<u>Class</u>	<u>Wk1</u>	<u>Wk2</u>	<u>Wk3</u>	<u>Wk4</u>	<u>Wk5</u>	<u>Average</u>	<u>High 3</u>
WD6T	LP	2508	2160		1911	2200	2194	6868
N6ZFO	LP	1700	1944	2268	1353	1620	1777	5912
N3ZZ	LP	1700	1666	2142	1680	1692	1776	5534
AJ6V	LP	1452	1350	1353		1386	1385	4191
N6TV	LP	1666	2120				1893	3786
N6TTV	LP	266	775	875	864	768	709	2514
K6NV	LP		551	580	616	609	589	1805

West

<u>Call</u>	<u>Class</u>	<u>Wk1</u>	<u>Wk2</u>	<u>Wk3</u>	<u>Wk4</u>	<u>Wk5</u>	<u>Average</u>	<u>High 3</u>
K7SS	LP	2928	2860	2604	2280	3234	2781	9022
K4XU	LP	2820	2898	1620	2928		2566	8646
N5ZO	LP	1872	2080	2700	2376	2365	2328	7393
WJ9B	LP	1890	2365		1170	1850	1818	6105
KI7Y	LP		945	500	713	1209	841	2867
NN7SS	QRP	285		858	952	858	738	2668
K0EU	LP		2120				2120	2120
AH6KO	LP					494	494	494
K7WA	LP		169				169	169
N6HI	QRP, 0.5 Watt			49			49	49

West Central Division

<u>Call</u>	<u>Class</u>	<u>Wk1</u>	<u>Wk2</u>	<u>Wk3</u>	<u>Wk4</u>	<u>Wk5</u>	<u>Average</u>	<u>High 3</u>
KZ5D	LP	2530		2236		1968	2244	6734
N3BB	LP	1632	2035	2120	1312	1551	1730	5787
WD0T	LP	2028	1938		1540		1835	5506
N0AT	LP	2009	1575	918	1400	1680	1516	5264
W0BH	LP	1302	1280	1419	1224	1240	1293	4001
K0VBU	LP	1485		1386	700		1190	3571
AI6O	LP	1200		1320	1	560	770	3080
K0TG	LP		884		1080	594	852	2558
K0AD	LP		1276		1178		1227	2454
KG5U	LP	651	832		806		763	2289
N5ZO	LP		2080				2080	2080
K9DX	LP	900			750		825	1650
N0AC	QRP		374	621	320	272	396	1315



Results
CQ WW DX RTTY World
Tom Taormina, K5RC

I think that this ranking is unprecedented. To have two of our members in the Top Ten WORLD! Ed did his usual incredible job to take the top spot. Having Jeff at our station in the #5 spot is not only a tribute to his incredible RTTY skills, but also it validated the design goals of W7RN. I am a very proud papa today and W5FU would be proud as well.

Single Op, High, All Bands

P49X (W0YK)	9,305,697
K5ZD	5,537,455
NN1SS	4,315,176
ZW2N (PY2MNL)	3,509,004
W7RN (WK6I)	3,174,003
LN8W (LB8IB)	3,051,609
ED8W (ED8DO)	2,791,649
V31MA	2,694,480
AC0C	2,161,701
OE6MDF	2,037,836

NCCC Picnic

NCCC Northern California Contest Club

NCCC Family BBQ - 22 October 2023

Sunday, October 22, 2023 at 11:00 AM to 4:00 PM (PST)
[Add to calendar »](#)

WHERE

Ken Keeler's N6RO Antenna Farm in Oakley
 5480 Sellers Avenue
 Oakley, California 94561

[Get directions »](#)

This year, we have a special added bonus treat! N6RO has generously sponsored bringing in a couple of wonderful musicians. [Meredith Axelrod and Craig Ventresco Show](#) has been airing a different show EVERY NIGHT since the start of Covid, and they've rarely played the same song twice. These two have a repertoire that is truly unbelievable, spanning numerous genres of American roots music from 1890-1940. Meredith is a real charmer and sings and plays numerous instruments from ukulele to marimba to cello. Craig is a dynamic guitar virtuoso. Put them together and you get a riveting and entertaining duo that you are sure to enjoy. And joining them on the 2nd/3rd set will be the NCCC String Band.



Tube of the Month

Norm Wilson, N6JV

(Department of Thermionic Paleontology)

Visit the Tube Museum at n6jv.com

3CX1000A7/8283



EIMAC's development of ceramic tubes in the 1950s initially resulted in the production of the 4CX1000A followed by the 4CX300A. Research on ceramic triodes was also started while the old glass triode line was still being produced. The glass tubes had their limitations because of size and inability to operate in the higher VHF frequencies. The 4-1000A was a very successful tube, so new 1000-watt ceramic and glass triodes were a natural choice for expansion.

The basic “breechlock” construction was incorporated in some [experimental triodes](#) as early as 1957. In 1962, the new zero bias ceramic tube designated the [3CX1000A7](#) was announced. The maximum plate voltage is 3500 at 1 amp. The fast-heating, thoriated-tungsten, filament is rated at 5 volts at 30.5 amps. The frequency for full power is 220 MHz and the tube has a mu of 200.



This tube was designed for grounded grid operation especially in VHF-TV service. The tube can be used at higher frequencies with reduced ratings ... EIMAC demonstrated this capability when they built a 432-amplifier using the tube and published the details in their [Amateur Service Newsletter AS-25](#). With the ability to incorporate the tube's plate structure as part of the output inductance without any lead connection, allows the use of coaxial as well as strip line construction in UHF amplifiers. EIMAC promoted this tube as a ceramic version of the [3-1000Z](#) that was developed at the same time. This tube is not to be confused to



the [3CX1000A3](#) which is a more modern tube announced in 1983 for industrial heating.

Mistake

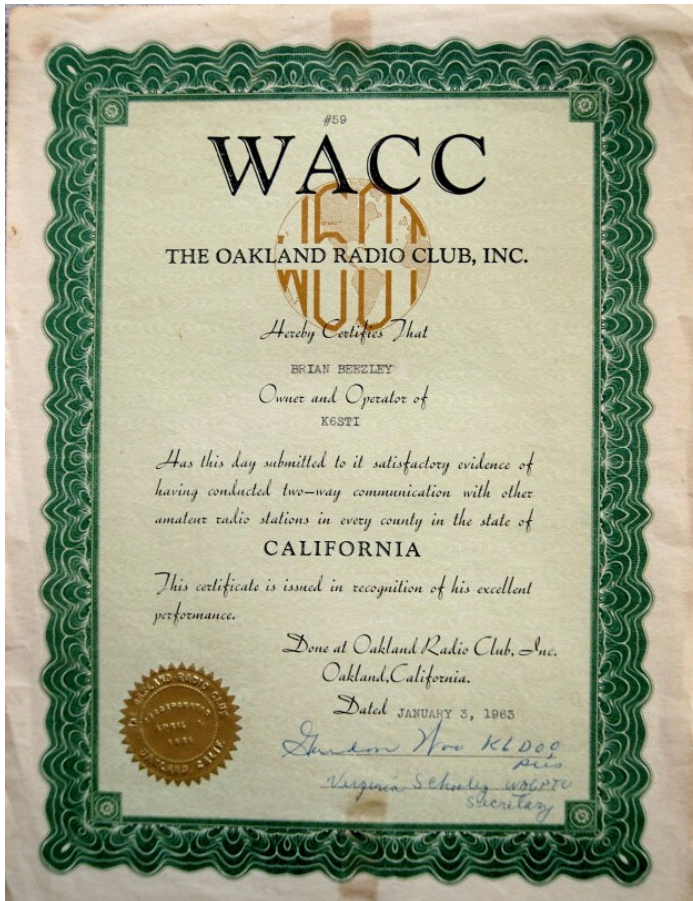
Despite all efforts to prevent them, they happen. Email address for John, NN6U, was incorrect in a previous issue -correct address is john@nn6u.net



WACC – 1965

Brian Beezley, K6STI

The origins of the Worked All California Counties Award (WACC) are vague at best. It is said to have originated in the Berkeley ARC, possibly in the late 50's and was taken over by the Oakland Radio Club in the very early 60's. Unfortunately, records from those early years are apparently in the class of elements characterized as unobtainium. NCCC assumed sponsorship of the award in Feb 1989, and with the dearth of records, began numbering the certificates at #1. Brian, K6STI, sent a photograph of his certificate, #59 Jan 1965 from the Oakland Radio Club. NCCC has issued 95 WACC awards, so it appears the total number of WACC Awards in the wild is at least around 154. Brian wrote:



I thought this might interest you. It's a photo of WACC #59 the Oakland Radio Club issued to me when I was in high school.

In those days there were no county nets. I had to find them all myself, mostly on 40 CW. Alpine was my last. According to my California map that gas stations gave out for free, Alpine had just 241 residents in the 1960 census. And no hams, at least that I ever heard of.

Our family once went on vacation to Lake Tahoe. I rigged up a 40m CW mobile station, talked my Dad into taking a detour into Alpine County, had a buddy come over to my house, and worked my station! But the Oakland Radio Club wouldn't accept the QSO. They insisted that I be the operator at home. Seemed unfair at the time, but seems perfectly reasonable now.

Some time later I ran into a CW mobile heading up 395 and convince him to detour into Alpine County. Another rule was that a QSL had to be postmarked in the county. He sent me one from Markleeville! I mailed my cards for the second time and finally got the award.

I no longer have a station, but I had a blast over the weekend following the CQP using remote internet radios. That's what made me dig out my old WACC. Hope you don't mind me wallowing in a little nostalgia.

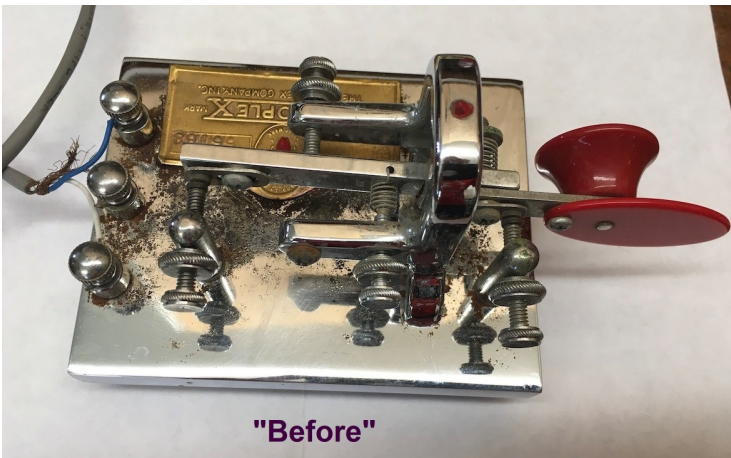


Editor Notes

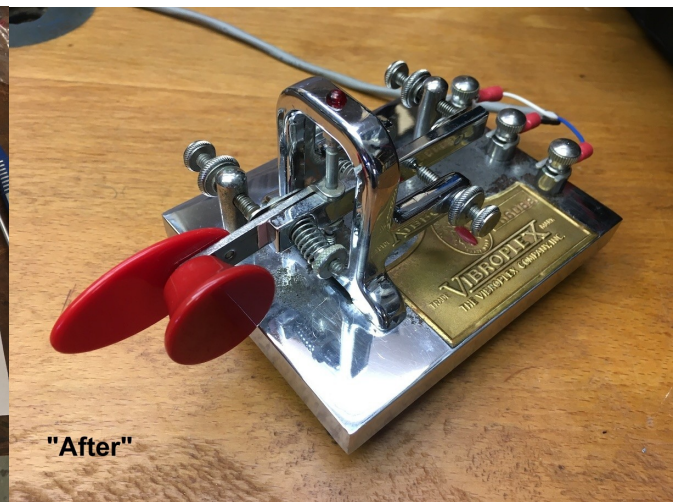


WOW! What great conditions for 2023 CQP! Working most of CA from Reno/Sparks is generally confined to 40, 80, and 160 after sunset, except for those in the Tahoe-Truckee area. This time, the entire state was strong, even on 15 and 10 midday. Alas, we had house guests over the weekend, so I was limited to about 49 QSO's followed by QRT. Now would be a good time for the expeditions to forward your stories with some photos for the November JUG. W6JTI posted a nearly unbelievable QRP score, maybe he'll share the secret.

NA60 Morse Key Service



Do you have a Morse key, bug, or paddle that's suffering from too many birthdays? Bent, broken, or missing parts? I can fix it for you and restore it to any level of perfection that you may desire. Complete machine shop and plenty of experience with many makes and models. Bugs are my specialty! As a service to NCCC members, I'll do this for the price of... well, how about lunch or a beer sometime, plus parts if I have to buy any. We can ship things back and forth if you're far from the East Bay. The photos show the process for a typical paddle in distress. Contact me at gwj@me.com





NCCC Membership Information

If you wish to join NCCC, please fill out an application for membership, which will be read and voted upon at our monthly meeting. To join, you must reside within club territory which is defined as everything in California north of the Tehachapi's up to the Oregon state line, and part of northwestern Nevada (anything within our ARRL 175-mile radius circle centered at 10 miles north of Auburn on Highway 49).

Life Memberships

Life memberships are \$250.00 Contact secretary.nccc@gmail.com. Members who have reached 80 years of age have and been an NCCC member for 20 or more years are eligible for Honorary Life Membership (“80/20 Rule”). Contact secretary.nccc@gmail.com

JUG Articles Wanted!

Your help allows us to produce a quality newsletter. Please consider submitting an article! The editor welcomes any and all relevant articles for inclusion in the JUG. The preferred format is plain, unformatted ASCII text, MS Word (.doc/.docx) are acceptable. Indicate the insertion point and title of diagrams and pictures in the text and attach photos/diagrams separately. Pictures should be as high a resolution as available. Please do not spend time formatting your submittal, the publication templates will re-format everything. Send your material to k6dgwnv@gmail.com indicating “JUG Submittal” in the subject.

Northern California Contest Club Reflector—Guidelines

The NCCC email reflector is devoted to the discussion of contesting. Topics include contests, station building, dxpeditions, technical questions, contesting questions, amateur radio equipment wants/sales, score posting, amateur radio meetings/ conventions, and membership achievements. Postings may not include personal attacks, politics, or off-subject posts. Such postings will be considered a violation of the Guidelines

Find NCCC on Social Media

Facebook: “Northern California Contest Club”

Twitter: “NCCCCKB”



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BUSINESS

Search



<https://business.landsend.com/store/nccc/>

MEN WOMEN PROMOTIONAL PRODUCTS

Welcome to the NCCC Land's End store. You can choose many different products and add a custom-embroidered NCCC logo.

If you would like to add your name and/or call sign, click the Add Personalization button when designing your garment (\$8 charge, 10 character limit).

If you have questions, contact the NCCC secretary at: secretary.nccc@gmail.com



Northern California Contest Club

[NCCC Lands' End Store](#)

We are pleased to announce that the new NCCC Land's End store is online! You can choose from an array of shirts, jackets, and hats and apply your choice of custom-embroidered NCCC logos: A plain one, or one that also says Fifty Years. And, you can personalize your item by adding your name and/or call sign. The store is open 24/7 and items are shipped directly to you. No more waiting for everyone else to make up their minds on a group purchase.

<https://business.landsend.com/store/nccc/> or from the NCCC website: <http://nccc.ccc/members/lestore.html>

Thanks to W6TCP for helping to set this up. Instructions for purchases from Lands' End NCCC Store

1. Go to <https://business.landsend.com/store/nccc/>
2. Click on Men's or Women's link, then choose item(s)
3. Pick color, inter quantity of each size you want to order.
4. Click Apply Logos and Personalizations. This will display the logo choices. Try them out. It will show you what they look like on your chosen fabric color.
5. Select a location for logo (left side, ride side, back, etc)
6. Click Apply Logo.
7. Optionally, click Add Personalization to add your name or call sign (\$8.00, 10 character limit)
8. Click Add to Bag and Continue Shopping or.



Northern California Contest Club

Excellence In Amateur Radio Contesting

K4 HIGH-PERFORMANCE DIRECT SAMPLING SDR



A direct-sampling SDR you'll love to use

Our new K4 transceiver harnesses advanced signal processing while retaining the best aspects of the K3S and P3. It features a 7" touch display, plus a rich set of dedicated controls. Per-VFO transmit metering makes split mode foolproof. Band-stacking registers and per-receiver settings are versatile and intuitive. Control usage information is just one tap away thanks to a built-in help system.

Modular, hybrid architecture adapts to your needs

The basic K4 covers 160-6 m, with dual receive on the same or different bands. The K4D adds diversity receive, with a full set of band-pass filters for the second receiver. (Thanks to direct RF sampling, there's no need for crystal filters in either the K4 or K4D.) The K4HD adds a dual superhet module for extreme-signal environments. Any K4 model can be upgraded to the next level, and future enhancements—such as a planned internal VHF/UHF module—can be added as needed.

Single or dual panadapter, plus a high-resolution tuning aid

The main panadapter can be set up as single or dual. Separate from the main panadapter is our per-receiver *mini-pan* tuning aid, with a resampled bandwidth as narrow as +/- 1 kHz. You can turn it on by tapping either receiver's S-meter or by tapping on a signal of interest, then easily auto-spot or fine tune to the signal.

Comprehensive I/O, plus full remote control

The K4's rear panel includes all the analog and digital I/O you'll ever need. All K-line accessories are supported, including amps, ATUs, and our K-Pod controller. The Video output can mirror the K4 screen or display a high-res Panadapter only screen. Via Ethernet, the K4 can be 100% remote controlled from a PC, notebook, tablet, or even another K4, with panadapter data included in all remote displays. Work the world from anywhere—in style!

K4 KEY FEATURES

Optimized for ease of use

Modular, upgradeable design

7" color screen with touch and mouse control

ATU with 10:1+ range, 3 antenna jacks

Up to 5 receive antenna sources

Full remote control via Ethernet



The K4 interfaces seamlessly with the KPA500 and KPA1500 amplifiers

'The performance of their products is only eclipsed by their service and support. Truly amazing!' Joe - W1GO



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IC-9700 | All Mode Tri-Band Transceiver

- VHF/UHF/1.2GHz • Direct Sampling Now Enters the VHF/UHF Arena • 4.3" Touch Screen Color TFT LCD • Real-Time, High-Speed Spectrum Scope & Waterfall Display • Smooth Satellite Operation



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-V3500 | 144MHz FM Mobile

- 65W of Power for Long Range Communications • 4.5 Watts Loud & Clear Audio • Modern White Display & Simple Operation • Weather Channel Receive & Alert Function



IC-7851 | HF/50MHz Transceiver

- 1.2kHz "Optimum" roofing filter • New local oscillator design • Improved phase noise • Improved spectrum scope • Dual scope function • Enhanced mouse operation for spectrum scope



IC-705 | HF/50/144/430 MHz All Mode Transceiver

- RF Direct Sampling • Real-Time Spectrum Scope and Waterfall Display • Large Color Touch Screen • Supports QRP/ORPp • Bluetooth® and Wireless LAN Built-in



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-7300 | HF/50MHz Transceiver

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



IC-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

IC-V86 | VHF 7W HT

- 7W Output Power Plus New Antenna Provides 1.5 Times More Coverage • More Audio, 1500 mW Audio Output • IP54 & MIL-STD 810G-Rugged Design Against Dust & Water • 19 Hours of Long Lasting Battery Life • 200 Memory Channels, 1 Call Channel & 6 Scan Edges



IC-7610 | HF/50 MHz All Mode Transceiver

- Large 7-inch color display with high resolution real-time spectrum scope and waterfall • Independent direct sampling receivers capable of receiving two bands/two modes simultaneously



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



IC-T10 | Rugged 144/430 MHz Dual Band

- Disaster Ready - Excellent Fit for Your Emergency Bag • Loud Audio - New Speaker Design • Long Battery Life - Up to 11 Hours • FM Broadcast & Weather Channels



IC-R8600 | Wideband SDR Receiver

- 10 kHz to 3 GHz Super Wideband Coverage • Real-time Spectrum Scope w/Waterfall Function • Remote Control Function through IP Network or USB Cable • Decodes Digital Incl P25, NXDN™, D-STAR • SD Card Slot for Receiver Recorder



ID-5100A Deluxe VHF/UHF Dual Band Digital Transceiver

- Analog FM/D-Star DV Mode • SD Card Slot for Voice & Data Storage • 50W Output on VHF/UHF Bands • Integrated GPS Receiver • AM Airband Dualwatch

ID-52A | VHF/UHF D-STAR Portable

- Bluetooth® Communication • Simultaneous Reception in VV, UV, VU and DV/DV • Enriched D-STAR® Features Including the Terminal Mode/Access Point Mode • UHF (225-374.995MHz) Air Band Reception



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FTDX101MP | 200W HF/50MHz Transceiver

- Hybrid SDR Configuration • Unparalleled 70 dB Max. Attenuation VC-Tune • New Generation Scope Display 3DSS • ABI (Active Band Indicator) & MPVD (Multi-Purpose VFO Outer Dial) • PC Remote Control Software to Expand the Operating Range • Includes External Power With Matching Front Speaker



FT-710 Aess | HF/50MHz 100W SDR Transceiver

- Unmatched SDR Receiving Performance • Band Pass Filters Dedicated for the Amateur Bands • High Res 4.3-inch TFT Color Touch Display • AESS: Acoustic Enhanced Speaker System with SP-40 For High-Fidelity Audio • Built-in High Speed Auto Antenna Tuner



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



FTDX10 | HF/50MHz 100 W SDR Transceiver

- Narrow Band and Direct Sampling SDR • Down Conversion, 9MHz IF Roofing Filters Produce Excellent Shape Factor • 5" Full-Color Touch Panel w/3D Spectrum Stream • High Speed Auto Antenna Tuner • Microphone Amplifier w/3-Stage Parametric Equalizer • Remote Operation w/optional LAN Unit (SCU-LAN10)



FT-891 | HF+50 MHz All Mode Mobile Transceiver

- Stable 100 Watt Output • 32-Bit IF DSP • Large Dot Matrix LCD Display with Quick Spectrum Scope • USB Port Allows Connection to a PC with a Single Cable • CAT Control, PTT/RTTY Control



FT-70DR C4FM/FM 144/430MHz Xcvr

- System Fusion Compatible • Large Front Speaker delivers 700 mW of Loud Audio Output • Automatic Mode Select detects C4FM or Fm Analog and Switches Accordingly • Huge 1,105 Channel Memory Capacity • External DC Jack for DC Supply and Battery Charging



FT-991A | HF/VHF/UHF All Mode Transceiver

- Real-time Spectrum Scope with Automatic Scope Control • Multi-color waterfall display • State of the art 32-bit Digital Signal Processing System • 3kHz Roofing Filter for enhanced performance • 3.5 inch Full Color TFT USB Capable • Internal Automatic Antenna Tuner • High Accuracy TCXO



FTM-300DR | C4FM/FM 144/430MHz Dual Band

- 50W Output Power • Real Dual Band Operation • Full Color TFT Display • Band Scope • Built-in Bluetooth • WIRES-X Portable Digital Node/Host Node with HRI-200



FT-5DR C4FM/FM 144/430 MHz Dual Band

- High-Res Full-Color Touch Screen TFT LCD Display • Easy Hands-Free Operation w/Built-In Bluetooth® Unit • Built-In High Precision GPS Antenna • 1200/9600bps APRS Data Communications • Supports Simultaneous C4FM Digital • Micro SD Card Slot



FT-65R | 144/430 MHz Transceiver

- Compact Commercial Grade Rugged Design • Large Front Speaker Delivers 1W of Powerful Clear Audio • 5 Watts of Reliable RF Power Within a compact Body • 3.5-Hour Rapid Charger Included • Large White LED Flashlight, Alarm and Quick Home Channel Access



FTDX101D | HF + 6M Transceiver

- Narrow Band SDR & Direct Sampling SDR • Crystal Roofing Filters Phenomenal Multi-Signal Receiving Characteristics • Unparalleled -70dB Maximum Attenuation VC-Tune • 15 Separate (HAM 10 + GEN 5) Powerful Band Pass Filters • New Generation Scope Displays 3-Dimensional Spectrum Stream



FT-2980R | Heavy-Duty 80W 2M FM Transceiver

- 80 watts of RF power • Large 6 digit backlit LCD display for excellent visibility • 200 memory channels for serious users



FTM-6000R | 50W VHF/UHF Mobile Transceiver

- All New User Operating Interface-E20-II (Easy to Operate-II) • Robust Speaker Delivers 3W of Clear, Crisp Receive Audio • Detachable Front Panel Can Be Mounted in Multiple Positions • Supports Optional Bluetooth® Wireless Operation Using the SSM-BT10 or a Commercially Available Bluetooth® Headset



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