



Publication of the
Northern California
Contest Club



Issue 584

March 2021



JUG Editor: Bill, N6ZFO n6zfo@arrl.net 415 209-3084

NCCC - 50 years of Contesting Excellence

Inside this Issue:

	Page
President's Report: Life Begins at 50— WD6T	1
About the NCCC	2
Annual KB Competition Rules	4
Connector Waterproofing.— Everyone has an Opinion. Gary, NA6O	7
The NCCC Lands End Store—Now Open	9
Point Generator Profile, N6YEU, by W1RH	10
Tube of the Month, 5762/7C24, N6JV	13
NCCC Information	15
ELECRAFT Display Ad	16
HRO Display Ad	17

NCCC March ZOOM Meeting
Tuesday March 16, 2021
1830-2030

"CQ-WPX SSB Techniques."

Rich Smith N6KT

How to KB in a big way in the CQ WPX SSB contest, coming up on the weekend of March 26-28.

For details: See

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

Archival information on Rich's talk:

Members-only section of nccc.cc

<http://nccc.cc/members/index.html>

President's Report - WD6T

Life Begins at 50

As we, in our 50th anniversary year, reflect on our past accomplishments, an important open question is the vision for the future. The world is not standing still, and neither should we. What's more, we never have. We started as a small club and grew in size to be one of the largest in the country. We created new contests, won contests, put on a WRTC, learned from each other, had a lot of fun, and drank straight from the JUG without a straw.

Contesting is both broad and deep. It is broad in the sense that there are a wide variety of contests, each with its own operating style and strategy and station requirements. It is deep in the sense that it is easy to learn, but difficult to master. The more you contest, the more nuance you discover and the more avenues you want to explore. We are part of NCCC because we share a common fascination and passion for Radiosport.

Contesting is also a paradoxical activity, in that you make contact with hundreds of people in a weekend, but you are doing it as a solitary person. Even if you operate a multi, you may be sitting right next to someone for hours without ever saying a word. Another paradox is that we are competing against each other, but we need one another; otherwise, we would have nobody to work. NCCC allows us to come together and share our contesting experiences, learn from one another, challenge each other and inspire one another.

NCCC actually serves a number of different roles. It is. . .

An educational resource for new contesters and station builders

A recruiting and cheer-leading vehicle for new contesters

An inclusive forum for sharing our common passion, making new friends and keeping in touch with old



Officers:

President	David Jaffe	WD6T	k6daj@arrl.net
Vice President /Contest Chair	Bill Fehring	W9KKN	bill+nccc@w9kkn.net
Treasurer	Tom Carney	K6EU	treasurer.nccc@gmail.com
Secretary	Gary Johnson	NA6O	secretary.nccc@gmail.com
Past President	Jack Brindle	W6FB	jackbrindle@me.com
Director	Bob Wolbert	K6XX	K6XX@arrl.net
Director:	Bob Cox	K3EST	bobk3est@gmail.com
Director:	Rich Smith	N6KT	n6kt1@sbcglobal.net

Volunteers:

Charter Member	Rusty Epps	W6OAT	w6oat@sbcglobal.net
Awards Chair	Gary Johnson	NA6O	gwj@wb9jps.com
CQP Chair	Glen Brown	W6GJB	210glen@gmail.com
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	Bill Fehring	W9KKN	bill+nccc@w9kkn.net
JUG Editor	Bill Haddon	N6ZFO	n6zfo@arrl.net

Thursday Night Sprint:

The Northern California Contest Club sponsors a Thursday Night Contesting session of thirty minutes duration.

Often, on Fridays prior to a major contest weekend, a special practice session is held.

Generally, on Thursday evenings, a special format is followed, called NS or "NCCC Sprint". The NS began in the summer of 2004 as a snappy, concise contest occurring most Thursday nights, North American time. The power limit is 100 watts. Occasionally multi-week ladder competitions are held. See www.ncccsprint.com for details.

Thursday Night Contesting Director and Founder	Bill, N6ZFO
NCCC CW Sprint	Tom, N3ZZ (initially, Ken N6RO)
NCCC RTTY Sprint	Ken, K6MR
NCCC Sprint Ladder	Bill, N6ZFO
Sprint Web master www.ncccsprint.com	John, K6MM
Ladder Scores Manager	Tim N3QE
Thursday night Contesting Advisory Group:	N6ZFO, Bill (Chair)
	Mark K6UFO, (with W4NZ, N4AF, W9RE, K4BAI, N3BB, VE3YT and W0BH).
	Ken, N6RO
The Thursday night NCCC Net	



ones

An advocate for West Coast contesting interests

A place to celebrate and commiserate contesting conditions from Northern California

A sponsor of contests and awards

A source of motivation to continue improving individual participation and contesting skills (e.g. the intra-club KB contest)

A way to compete as a group, even while competing as individuals

Moving forward, we should consider how we can manage the various tradeoffs and maximize the effectiveness of the club in serving its members.

All eight roles are important, but various members will likely weigh the importance of each differently. Similarly, different members have different contesting goals. For some, it is sufficient to get on the air for a few hours and make a few contacts, work some DX, try out a new antenna, or experiment with a new mode or band; while others enjoy constantly pushing the boundaries of themselves and their station. Such differences are part of being a large diverse club and it may sometimes seem that several of the above roles have conflicts of interest with one another. For example, we could probably win more club competitions if we limited the number of logs we submit to put us in a "medium club" category. But that would be a huge mistake, as it is directly at odds with the essential goal of inclusivity.

Other tradeoffs are less clear cut. For example, our bylaws restrict membership to those who live within a certain area of California and Nevada. From one perspective, this makes sense, as contesting in N. California has a distinct character and set of challenges. On the other hand, it does affect our log count in contests where there is no geographical limit to participation.

Another tradeoff (although it is temporarily not an issue to Covid-19) is between on-line meetings, which have the advantage of allowing everyone to attend without a long drive, versus in-person meetings, which have the advantage of being able to see one another face-to-face. One well-known club (which will remain nameless) addressed this issue by instituting "local chapters."

In software engineering you always want to measure before you start optimizing, otherwise you could end up focusing your attention in the wrong place. In this case, the data we need is member sentiment...i.e. feedback from the members. Four possible ways to reach members include (in order from easy to difficult): the reflector, individual email, US mail, and telephone.

The simplest method would be to send a survey to the reflector. However, past experience has shown this typically does not produce a huge response. In addition, the members who have been less active may not be reading the reflector or may be less inclined to fill out a survey. This may mean that we have to go to the more time-consuming methods. We'll have to see.

One thing is clear: if you have feelings about where you want NCCC to go, the best way to maximize the probability of it going in that direction is to make your feelings known, via the reflector or by contacting the board members. Let's bring the same creativity that we use to build stations and win contests to envisioning the future of NCCC.

73, Dave WD6T



NCCC Annual KB Competition Rules

Revised March 3, 2021



Current rules and standings are always available at <http://nccc.cc/awards.html>.

Purpose: The KB Competition rewards NCCC members who are DX contesters, sprinters, VHFers, and, especially, active contesters in all modes.

Time period: The contest year starts at 0000 March 1 UTC. ARRL DX SSB is the first contest of the year. NAQP RTTY is the last.

Eligible contests: Currently, points from 30 contests are counted. See the table on the next page.

Scoring: Score = N_Contests * sum of (points for each contest * each contest's multiplier).

Where N_Contests is the number of contests in which you participated.

NCCC weekly sprints are special. Points for the entire year are added up, but it is only counted as a single contest.

Multi-ops: Points = total score divided by the number of operators.

Station owners: A station owner who *does not participate* in a particular contest receives 25% of the points.

Valid scores: Only scores posted to 3830scores.com are counted. Scores obtained by use of High Power in the 6 NAQP competitions and the NS CW/NS CW Ladder series will not be counted for the KB competition, either as scores or as contest multipliers. Scores are counted regardless of which club received the contest points (NCCC, MLDXCC, REDXA, PL259, etc.). The only requirement is that you **MUST** be an NCCC member to receive credit for the contest, and to be eligible for an award.

Brackets: There are four independent brackets for the purpose of awards: 1-Platinum, 2-Gold, 3-Silver, and 4-Bronze. Brackets are assigned at the beginning of the contest year according to your final position in the previous year's standings.

Awards: Paid NCCC members may receive awards.

How to Improve Your Standing

- Post all your scores on 3830. Those are the only ones that count.
- Participate! Even the smallest score has value. Every contest on the list is a multiplier.
- Try a new mode or a new band (VHF, 10, 160).
- Try the sprints. Small score, big multiplier.
- Go for a big score in WPX: Exponential score growth.
- Join a multi-op: The score is split among ops.
- Let someone else use your station: You get 25%.

Comments are welcome, as always. I log and track every comment and suggestion and try to improve the KB Competition each year. The one thing I can guarantee is that each year will be different!

Contact: Gary NA6O, NCCC Awards Manager, gwj@wb9jps.com

Qualifying Contests for the NCCC 2021-22 KB Competition

Contest	Date	Multiplier
ARRL DX Contest SSB	March 6	8
CQ WPX SSB	March 27	3
7QP	May 1	25
NEQP	May 1	100
CQ WPX CW	May 29	1
ARRL June VHF	June 12	200
RAC Canada Day	July 1	15
IARU HF World Champ	July 10	10
NAQP Summer RTTY	July 17	25
NAQP Summer CW	August 7	25
NAQP Summer SSB	August 21	25
WW Digi	August 28	20
CQWW RTTY	September 25	5
NA Sprint Fall CW	September 12	150
CQP	October 2	10
Makrothen RTTY Contest	October 9	1
CQWW SSB	October 30	6
ARRL Sweepstakes CW	November 6	15
ARRL Sweepstakes SSB	November 20	15
CQWW CW	November 27	3
ARRL 160 Meter Contest	December 3	30
ARRL 10 Meter Contest	December 11	15
ARRL RTTY Roundup	January 8	50
NAQP Winter CW	January 8*	25
NAQP Winter SSB	January 15	25
CQ WPX RTTY	February 12	2
ARRL DX Contest CW	February 19	4
NA Sprint Winter CW	February 5	150
NAQP Winter RTTY	February 26	25
NCCC Sprint CW	Weekly	50

* Date will be adjusted per contest manager.

Connector Weatherproofing: Everyone Has an Opinion

Gary, NA6O

As a regular reader of Tower-Talk and a few other online ham radio groups, I have watched in wonder as dozens of fellows expounded on their favored method of weatherproofing coaxial connectors. As they say about opinions, everybody has one... and everyone else's stinks. There were some really amusing methods, but eventually I detected a consensus that also aligned with some published recommendations.

The table below summarizes what I found. Column headers are the various materials, and in each cell is the sequence in which they might be applied, starting with number one as the base layer.

Source	Vinyl tape, Scotch 33/88	Scotch 33/88, sticky side out	Silicone tape (e.g. Rescue; Scotch 70)	Self-fusing tape 3M 2155, 2242, 130	Liquid Elec Tape	Heat-shrink	Double-wall Heat-shrink	Skotch-kote	Coax Seal	PTFE Tape
DXE TechTip, NK7Z, W0QT, WJ4X, W9FX	2			1						
K2ASP				1						
W6SX			1							
ARRL, K4IA	1, 3			2						
K4ZA	3			2						1
W6XU	3	1		2				4		
W2IRT				1		2				
W3LPL	3	1		2						
K6EWN	2		1					3		
K9YC, NA6O, KL7UW, NF4L	2		1							
N4XY	2			1	3					
KL7UW				1			2			
NM5G	1, 3							2		
WW5L	1							2		
NI1N	1								2	
AC0H	1,4			3				5	2	
VE7RF	1,3						2			

The wackiest one starts with a coating of silicone grease, wrap with a trash bag, then apply vinyl tape but NEVER use 3M tape because that's no good. And by golly, it's the BEST way and I've been using it for 40 years and no other way will ever suffice. I left that one off the chart...

Most of us in NorCal have it easy with our mild weather, and more than a few get away with nary so much as a quick wrap of electrical tape. Still, some kind of weatherproofing on your connections will likely improve long-term reliability and make those connections easier to maintain. And if you're setting up shop in the Caribbean, you really need to get this right.

Three Layers

The consensus points to a three-layer system. First is typically vinyl tape, acting as a release layer or courtesy wrap, which aids you when it comes time to remove the tougher upper layers. (Some skip that one.) Second is a self-vulcanizing, sealing layer. This is the critical one that provides the primary moisture seal. Finally, an outer layer of vinyl tape protects the more vulnerable sealing layer from the sun and abrasion.

Everyone recommends 3M Scotch Super 33 or the heavier 88 vinyl tape, those being known quality products. Not much more to say about that choice. A double wrap is usually applied as the final layer and it has a very long service life. *Tip:* Cut it, don't tear it, and it's less likely to "flag" in the wind.

As for the self-vulcanizing layer, there are several popular choices. First are the various self-fusing rubber tapes, also known as splicing tape. 3M makes several types (such as 2155, 2242, 130C). All of these are available at Home Depot and are perfectly acceptable for our purpose. Note that two of these actually have a UV resistance specification and it's possible to use them without an overwrap.

2155: 30 mil. Has a clear liner strip.

2242: Premium grade. UV-resistant, 30 mil. No liner strip. Easier to use!

130C: Similar to 2242 but additionally rated for high-voltage applications.

The second choice is silicone rubber tape. Examples are Rescue Tape, F4 Tape, and countless others, available everywhere. This material doesn't really stick to the substrate, but bonds well to itself. Like the rubber tapes, it's very stretchy and provides an excellent moisture seal. Also it comes off very easily when touched by a knife. Because of its poor cut resistance, it really needs an overwrapping.

The third choice for a sealing layer is what the commercial boys often use, butyl rubber mastic. It comes as a rolled-up sheet on a removable liner. You basically mold it around the connector. Examples are 3M 2212 (available from DXE and online suppliers), and Andrew (Commscope) 42615-4 as part of their weatherproofing kit p/n 221213. Note that this material does not turn to permanent disgusting slime like CoaxSeal!

Dielectric Grease

Another enhancement that you'll see on commercial connectors that I learned about while dealing with all sorts of military stuff is a careful application of silicone dielectric grease. The material I'm talking about is Dow Corning 4 Electrical Insulating Compound. Get it at Amazon. You apply a tiny amount to connector threads—just a film—and also to the male and female contact areas. The less you use, the better it works. It is highly water repellent, and that's the reason for its use here. Any moisture vapor that makes its way through to the connector will stop when it hits this material. Also it acts as a lubricant for the threads and does not break down in the presence of high voltage. And no, it does not effect electrical conductivity in properly-assembled connectors.

Tighten Up

Before mummifying your connection, be sure those connectors are truly tight. PL259s have a couple of little bumps on their faces. Those mate with small notches in the SO239 sockets. Make sure those are engaged, then spin the shell on. Those faces are where the shield connection is actually made, not through the threaded shell. Then use pliers to snug it up a bit beyond hand-tight. (But please go easy and don't chew up or crush the shell.) The last thing you want is a deeply-hidden intermittent connection. 7/16 DIN and N connectors don't have any funny notches to deal with, but they do have torque specifications for installation, in case anyone wondered.

Do Something!

Whether you choose to apply the full multilayer treatment or not, please do *something* to protect your connectors. Even a quick wrap of vinyl tape will help to shed the rain and keep out the grit. You'll appreciate that later when you need to service them.

References

Commscope weatherproofing accessories:

<https://www.commscope.com/product-type/structural-support-tools-accessories/weatherproofing-accessories/>

Commscope weatherproofing kit installation procedure:

<https://www.commscope.com/globalassets/digizuite/57909-sp50375-b.pdf?r=1>

DX Engineering, "Weatherproofing Coaxial Cable Connections"

<https://static.dxengineering.com/global/images/instructions/weatherproofingtectip-rev2a.pdf>

ARRL Antenna Book.

NCCC Lands' End Store is Now Open!

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.

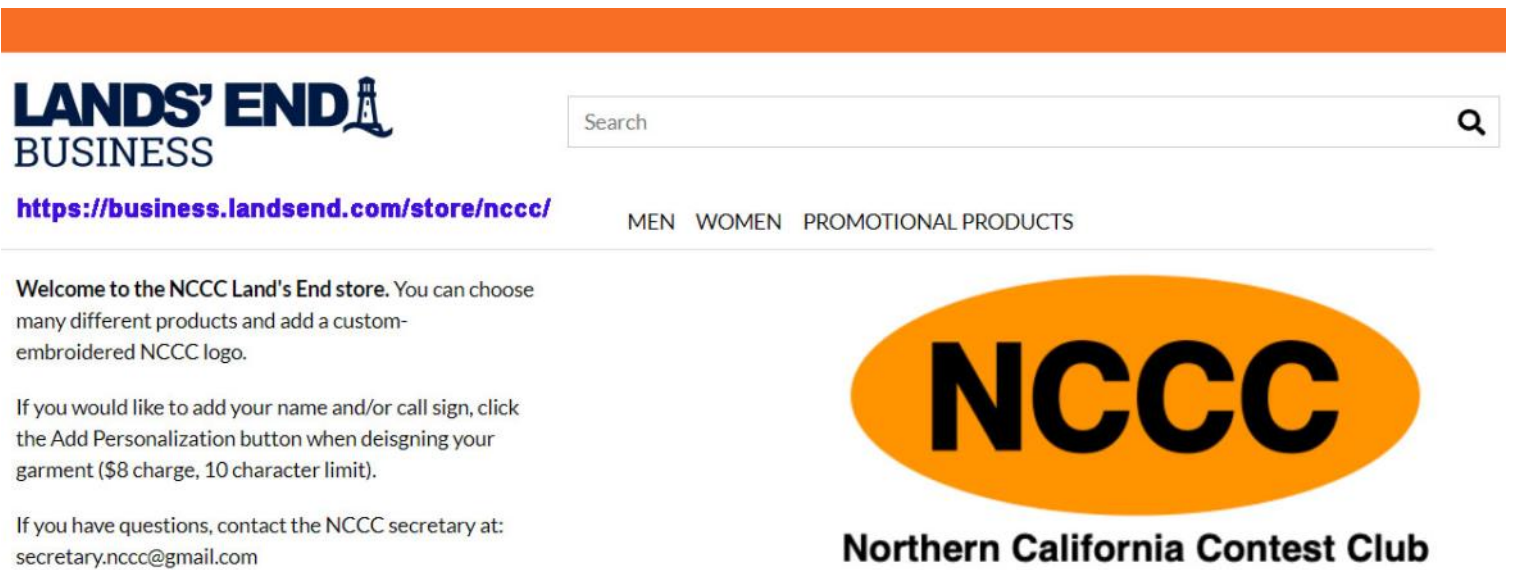
And, you can personalize your item by adding your name and/or call sign. The store is open 24/7 and items are shipped directly to you. No more waiting for everyone else to make up their minds on a group purchase.

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

It's easy to use.

From nccc.cc: <http://nccc.cc/members/lestore.html>

Thanks to W6TCP for helping to set this up.



LANDS' END
BUSINESS

<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

NCCC
Northern California Contest Club

Instructions for purchases from the Lands' End NCCC Store:

1. Go to <https://business.landsend.com/store/nccc/>
2. Click on the Men's or Women's link, and then choose an item.
3. Pick a color, then enter the 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. On shirts, for instance, you can place the logo in one of several locations.
6. Click Apply Logo.
7. Optionally, click Add Personalization to add your name and/or callsign (\$8 charge, 10 character limit)
8. Click Add to Bag. Keep shopping, if you like.
9. Click Start Secure Checkout. Account creation and credit card required.

Point Generator Profile

Fred Leoni, N6YEU

Interviewed by Bob, W1RH

Each time I do a profile of one our KB'ers there is often a "key word" or two that immediately pops into my head. In the case of Fred, N6YEU, "CQP" and "REDXA" jumped out at me.

Regarding the Redwood Empire DX Association: I have fond memories of breaking bread with this group at several of their "pre-COVID" meetings. They love good food and wine and always have interesting presenters. At the core of a healthy club is always good leadership and, in the case of REDXA, that includes Fred and many others over the years. Fred, the current REDXA Treasurer, has held an officer position in this club for years, including the position of President in 2014 and 2015.

When it comes to the California QSO Party, I associate Fred with county expeditions....21 years of county expeditions, beginning with Yuba County in 1997. Other counties Fred has operated from over the years have been Modoc, Lake, Glenn, Del Norte, Mendocino, Colusa, Sierra, Trinity, Lassen, Sonoma, and Madera. Some of his operations have resulted in county records. Suffice it to say, CQP can't exist without those like Fred who are willing to activate those rare counties.

Beyond CQP, you'll often find Fred in the DX contests, NAQP, and even CW Ops.

With that said, let's hear from Fred:

Name/Call Sign: Fred Leoni-N6YEU

Past calls: KC6BJP, PJ5/N6YEU

Location: Healdsburg,CA

How much property do you have? 2 acres

Describe your antenna system:

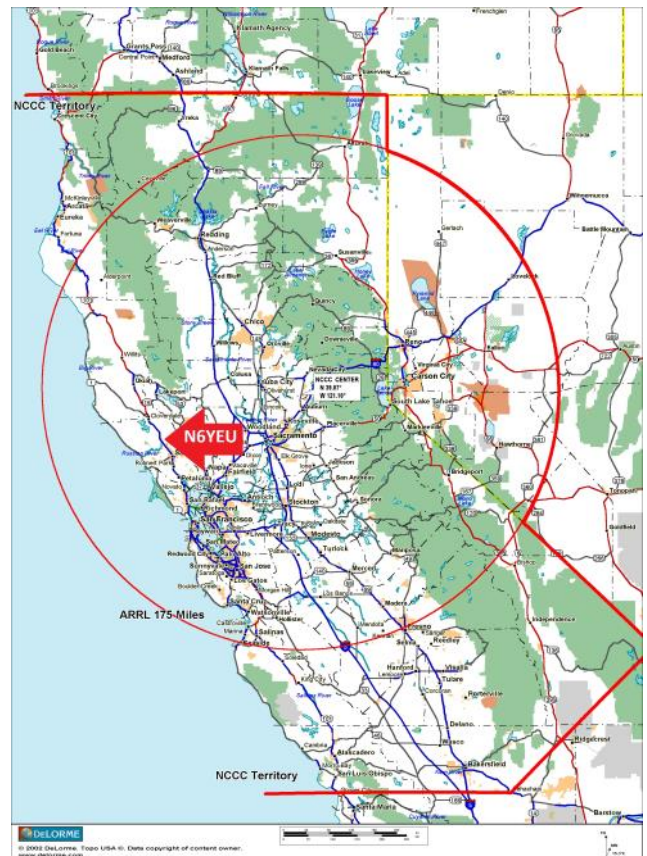
Current: 3 element SteppIR @50 ft. and Inverted vees for 30-40-80 off tower.

Future: No major changes. XYL is ok with what is here but the multiple towers and stacked Yagis is NOT going to happen,hi!

What's in your shack? Main rig: IC-7610 (won at Visalia DX 2019!) Backups IC-7300 and Yeasu FT-950 I'm a bit embarrassed but I don't have an amplifier (never have) There have been many times I wish I did! I kind of go by the motto "skill over power".

What are your previous QTH's? I have operated here since first licensed in 1988 but have operated portable from WV, a couple VE provinces and several QTH's in the west for National Parks on the Air in 2016. I have also operated portable Field Day style in quite a few Nor-Cal counties for CQP just about every year since 1998. Some multiple times. I do hold a few county records in the low power class for CQP.

If you're working, what is your career? If not, what was your career? I am retired after working mostly in the printing industry.



Married? Kids? Grandkids? I am married to wife Debbie and will celebrate 47 years this August. We have one daughter Melissa who is an optometrist living in West Virginia. We have two granddaughters Madison 17 and Sydney 11.

How many DXCC entities have you worked? I have worked all current except: SV2/A Mt. Athos,3Y0/Bouvet,YK/Syria,ZS8/Prince Edward-Marion and FR5/G- Glorioso and a few deleted

What's your favorite contest?
California QSO Party for sure!

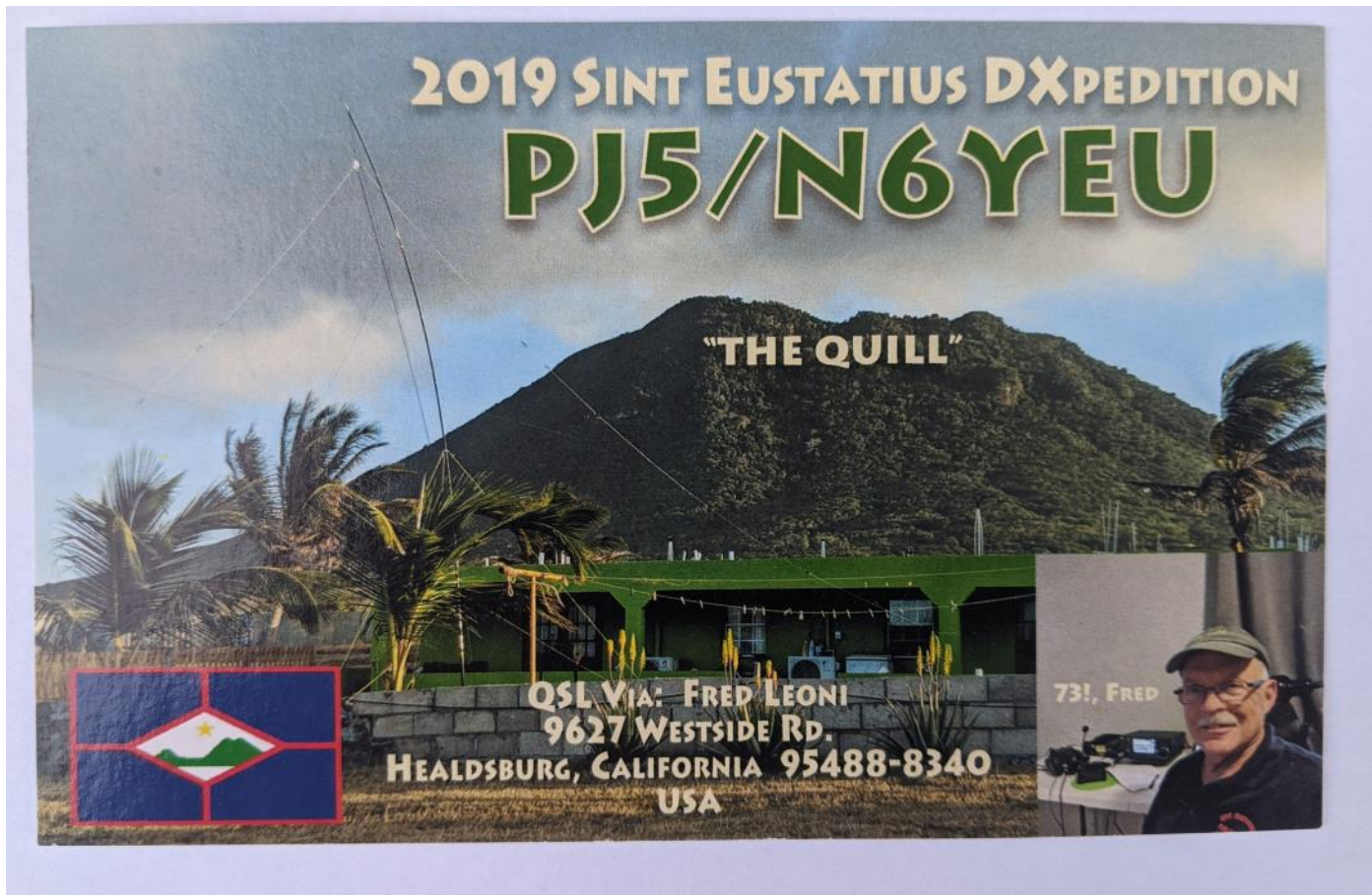
Any tips for contesters?

For the new contesters just jump in and have fun! I dabble in lots of contests and figure I'm helping the cause even if I don't have a big score.

What would you like to see changed in NCCC? I'm happy with the way NCCC is.

Any other hobbies besides ham radio?

I am an avid bicycle rider having ridden over 47,000 miles over the last 16 years. I also enjoy languages and have been concentrating on Italian. While not fluent I can understand and be understood pretty well and enjoy having qsos with Italian stations when the opportunity arises.





When N6YEU is not on the expeditioning road, this is where the action takes place. (Ed)



Where Fred, N6YEU gets sent when he's done insufficient honey-do's. . .oh wait, it's a ham shack in disguise! But as you can see from the previous photo, it is the dog house as well, as seen in the striking pictures of Fred's pets. (Ed).

Tube Of The Month

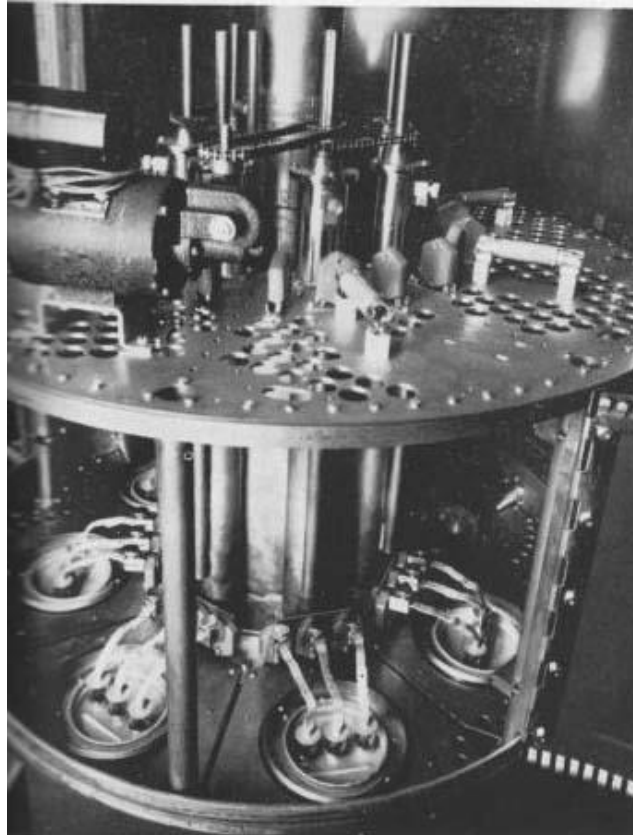
5762/7C24

Norm, N6JV

Back in the 1970s when I was living in Woodland, California I discovered that a new startup company called ECONCO had begun operations in Woodland. ECONCO occupied an old rug store on Dead Cat Alley. When I came in the first thing I saw was a tube that had been placed anode down in a water tank with its leads running to a power supply. They were obviously re-carburizing the filament on what, I later learned, was a 5762/7C24.

The 5762/7C24 is a 2000-watt dissipation triode with a center tapped filament. It started life in 1946 as the 7C24. A version with a more efficient anode was the 5762. These tubes were designed to work as grounded grid amplifiers. In 1953, RCA combined the two and incorporated the better radiator and named it the 5762/7C24. Eventually, the 5762A replaced the older tubes. It had higher ratings, but was still interchangeable with the older versions. The tube was used in several transmitters in the HF range, but its ability to operate above 200 MHz in TV service at reduced ratings led it to being incorporated in RCA's new line of VHF television amplifiers. The RCA TT-25AH and AL amplifiers used seven tubes in parallel in the RF amplifier and an additional seven tubes in the aural amplifier. The output was 25 KW and could be driven by the RCA TT-5A transmitter. The photos, from Broadcast News January 1952, show the RF amplifier with the tubes in a ring. The lead to the center point of the filament, acted as an inductor in the tuned input circuit. The input and output tanks were quarter wave co-axial sections. The high output capacity of the combined tubes made it impossible to make a quarter wave tank circuit actually tune in the high frequency TT-25AH. An additional tank section was placed in parallel and this made the tanks appear to be lower in inductance than did a single line. The parallel combination would tune and the amplifier was very stable.

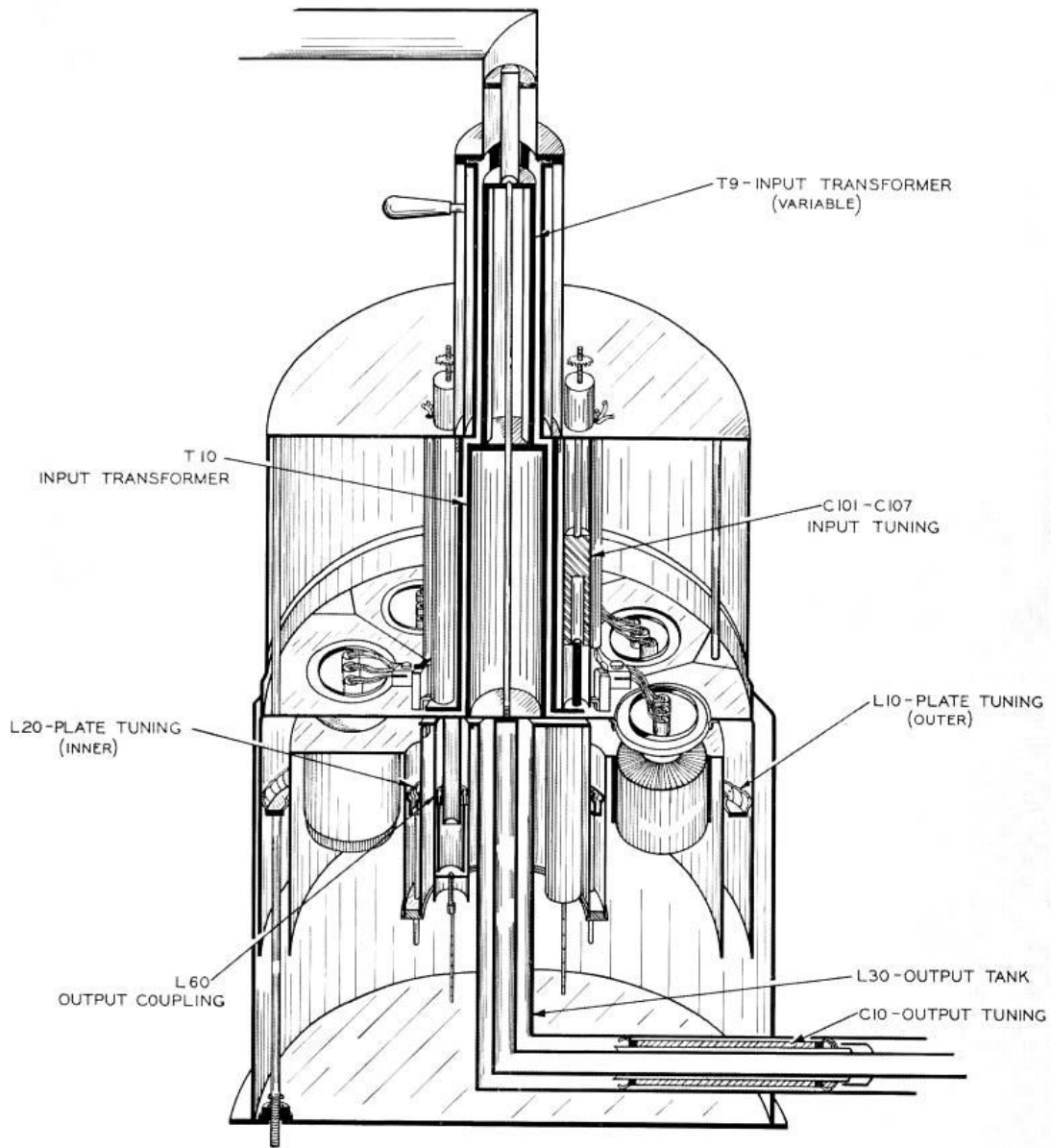
After 70 years, this tube is still being rebuilt and available.



Tube Of The Month

UX-280-80

Norm, N6JV



Visit the museum at
<http://n6jv.com>

Norm, N6JV



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 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).

Life Memberships.— \$250.00 Contact secretary.nccc@gmail.com. The 80/20 Rule: Members who have reached 80 years of age have and been a NCCC Member for 20 years are eligible for Honorary life membership. 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 MS Word (.doc or .docx), Arial 11 point. Indicate the insertion point and title of diagrams and pictures in the text and attach photos separately. Pictures should be full resolution. Avoid PDF files and email text. Please contact us if that's your only format.

Send material to Bill, N6ZFO at n6zfo@arrl.net 415 209-3084

Northern California Contest Club Reflector—Guidelines

The NCCC reflector is devoted to the discussion of contesting.

Topics include, for example, contests, station building, dx-peditions, 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: "NCCCKB"



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 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



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



For complete features and specifications visit elecraft.com • 831-763-4211

HAM RADIO OUTLET

MULTI-STORE BUYING POWER!

ICOM



IC-9700
All Mode Tri-Band Transceiver



IC-7300
HF Transceiver



IC-7100
All Mode Transceiver



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



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

KENWOOD



TS-590SG
HF/50MHz Transceiver



TM-D710G
2M/440 Dualband



TM-V71A
2M/440 DualBand



TM-281A
2 Mtr Mobile



TH-D74A
2M/220/440 HT

YAESU
The radio



FT-991A
HF/VHF/UHF Transceiver



FT-891
HF+50 MHz All Mode Transceiver



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



FTM-400XD
2M/440 Mobile



FT-70DR
C4FM/FM 144/430 Xcvr

5 Ways to Shop!

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

HRO is family owned and operated by active hams!

ANAHEIM, CA
(800) 854-6046
PLANO, TX
(877) 455-8750

OAKLAND, CA
(877) 892-1745
SAN DIEGO, CA
(877) 520-9623

PORTLAND, OR
(800) 765-4267
DENVER, CO
(800) 444-9476

PHOENIX, AZ
(800) 559-7388
ATLANTA, GA
(800) 444-7927

MILWAUKEE, WI
(800) 558-0411
NEW CASTLE, DE
(800) 644-4476

WOODBIDGE, VA
(800) 444-4799
SALEM, NH
(800) 444-0047

Shop Anytime From Anywhere
with Our Online Superstore
WWW.HAMRADIO.COM

Contact HRO for promotion details. Toll Free including KL7, VE and KH6. Call will be routed to nearest store. All 800-HRO-lines can assist you. If Busy, you may call another number. Prices, specifications and descriptions subject to change without notice.