



Publication of the Northern California Contest Club



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## NCCC — 52 years of contesting excellence

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NCCC ZOOM MEETING

FOR DETAILS:

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

### President's Report - WD6T

Afterglow  
David A. Jaffe – WD6T

Several years ago, K6XX gave a talk about what to do before a contest: checking out equipment, connectivity and macros, reading the rules, reviewing last year's rate sheets, tightening connectors, etc. But what do you do *after* the contest?

I should pause here and make a distinction between DX contests, which typically require staying up all night, possibly for two days straight; versus domestic contests that last only a few hours or a single day. In the former case, the first thing you probably want to do is collapse and sleep for as long as possible. But even in that case, once you wake up again, do you find yourself with your motor still rev'ing? How do you "process" the contest in the aftermath?

Speaking personally, after many hours of unrelenting intensity, I can't just stop. I want to talk about the experience. What went right? What should I have done differently? What was the best moment? The worst? What was that crazy exchange I received? Did you work that strange guy? I thought I was doing badly but then it turned out things were ok after all. Or vice versa. Why do you think the bottom dropped out of 80 meters? Was there a solar event? Strange as it may seem, my family is not really interested in how the QSB was really bad on W1AW and I copied him as M1AW, or the fact that VO2 called me once and then disappeared for a lost multiplier.



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### Thursday Night Sprint

The Northern California Contest Club sponsors a Thursday Night Contesting session of thirty minute 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 America time. The power limit is 100 watts. Occasionally, multi-week ladder competitions are held. See [www.ncccsprint.com](http://www.ncccsprint.com) for details

Thursday Night Contesting Director and Founder	Bill, N6ZF0
NCCC CW Sprint	Tom, N3ZZ (initially Ken N6RO)
NCCC RTTY Sprint	Ken, K6MR
NCCC Sprint Ladder	Bill, N6ZF0
Sprint Web master <a href="http://www.ncccsprint.com">www.ncccsprint.com</a>	John, K6MM
Ladder Scores Manager	Tim, N3QE
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	Ken, N6RO
The Thursday Night NCCC Net	



## PRESIDENT'S REPORT (continued from page 1)

When I'm in person at Ken's place, I'll go over the contest with him for an hour or so before driving home, or call NA6O on the way home, just to blow off steam and relive the agonies and ecstasies. But what if I'm operating by myself from my home station? K3EST tells me that in the old days, immediately following the contest, everyone would call their friends and hash out what they had just been through. K3LR and W3LPL, who go head-to-head in the MM category, have a ritual of getting on the air immediately after a big contest (on 80 meters, I assume) and reading off their band and mult totals to each other. This is *\*before\** submitting to 3830, to avoid spoiling the surprise. Of course, the online scoreboard has changed the calculus somewhat.

Yes, you can dump all this into a 3830 missive, but that's akin to a note in a bottle, hurled into the vast ocean void. Reposting it to the NCCC reflector can help a bit, as you may get some replies, but often there's still a bit of a lonely feeling. 3830 was actually once an on-the-air net on 3830 kHz. Later it was moved to 3610 kHz., after the original frequency became infested with those who aspire fruitlessly to farm pigs. (I don't want to cast aspersions on any actual pig farmers.)

Computer conference applications like Zoom offer another way to interact with many people at once. Various groups meet on Zoom and reminisce about the good, the not so good and the downright horrid. But Zoom meetings are usually scheduled for some future time. And, short of having a "net control," they can get chaotic. Nothing beats getting together in person, as we could do before the pandemic, and will be able to do again sooner or later. Even then, there may be weeks between the end of a contest and the next NCCC meeting.

So what to do? Read all the 3830 comments, text with ham friends, maybe make a few phone calls. But there's still something that feels incomplete.... We've all experienced something together, but also separately. It feels like there's an unfulfilled need to come together. How does this differ from, for example, a football game like the Super Bowl? For one thing, at the end of a football game, you know who won. But in radiosport, you might not find out for six months or more. Imagine if the Super Bowl ended and everyone went home with the understanding that the actual winner would be announced next October!

What is even more fundamentally different is the very essence of radio contesting. . . we are all in separate locations, communicating via radio! We don't adjourn to the locker room and collectively celebrate our victory or mourn our defeat. So we find ourselves strangely alone after the ionospheric connection is severed.



There is, however, one analogous competitive sport: on-line gaming. How do they deal with the isolation? I am not a gamer, but I suspect it is through some combination of real-time streaming, real-time chat, and post-contest on-line banter.

There are actually many interesting parallels, as well as differences, between massive on-line gaming and contesting. Studying this further could offer insights into how we could make radiosport even more fun... or at least figure out what to do with ourselves after the squeal of five o'clock whistle (four o'clock in the winter.)

## AE6Y VP/CC JUG Column

03/01/22

Since the January, February, and March editions of the JUG are being published in close succession, thanks to heroic efforts of new JUG editor Saraj, KU6F, I thought I'd try something different for February.

For variety, below is a recycled version of a JUG column first published in the August 1997 of the newsletter, when I was the President. I hope you find it interesting. Before I do, I'd like to take the opportunity to thank Bill, N6ZFO for his valiant efforts as JUG editor. It can be a lot of work, and the general lack of feedback from Club members means that it isn't always obvious to the editor or writers for the JUG that anyone actually reads it; as a result, putting hours into its production can seem a thankless task – so here's my vote of thanks to both Bill and Saraj!

### Andy's Dandies

July Meeting [1997, that is]

The July meeting was a great success. Titled "Yen and the Art of Contest Rig Selection," it featured a rig comparo of four rigs of interest to testers: the Yaesu FT1000MP and FT920, Kenwood TS950SDX and Icom 756. Thanks to all who helped out, including N6TV, who brought one of his two new MP's, Chuck for the 920, Ken Silverman, K2KW for the 756 and yours truly who lugged the 950 to the meeting (it may qualify in terms of weight as a solid-state boat anchor, hi). Special thanks to Chuck, NF6S, who not only arranged the site in Livermore, but also ordered and bought the pizza, moved the tables around, strung the coax, brought his FT920 (which required him to make heroic efforts with Yaesu to get it back from their repair facility the afternoon of the meeting)--and at the end of the meeting while everyone else was hanging



around looking at the radios and chatting, Chuck and Don (W6OA, who also helped, and who brought the pizzas) were busy vacuuming the council chambers!

My analysis of the state of the art: it's very interesting that the manufacturers keep increasing the digital signal processing component of the radios, but don't quite have the horsepower to do it economically at reasonable IF frequencies (e.g., the MP does 4th IF filtering at a frequency in the audio range, 19kHz). It's also noteworthy that Kenwood and Icom are generally experimenting with DSP in their mid-line radios, not their top-of-the-line units. This suggests that unless you just gotta have the newest and the best, it might make sense to allow the experimentation to go on for another year or two before committing to a major purchase in an arena of such rapidly changing technology. Although there is a full write-up on the meeting elsewhere in this issue, here's my short take on the four radios.

FT1000MP. Probably the contester's best choice for a fixed station radio. After all, can VP/CC N6TV possibly be wrong in his selection? [Actually, three factors suggest that the contest guru may be losing it: first, his admission at the meeting that he overslept and missed the first hour and a half of the IARU contest. Second: the fact that he now is a full-fledged member of the "shack-on-a-belt" crowd. Last, his obsession, bordering on a neurosis, with never using a radio that lacks an instant clear function for the RIT. Nevertheless...] It has stereo dual receive, extensive filter selection (unfortunately, virtually all the filters are optional), and modern dsp noise reduction and filtering.

[2022 Comment: A very popular contest rig for many years, with many seemingly still in use. eHam shows 392 reviews for the MP, MP Mk V and MP Mk V Field, combined. I never owned one, but did own a few FT1000D's which were this rig's predecessor, though with a more old fashioned look and build quality – plus being a 200 watt rig ideal for CQP low power.]

TS950SDX. An older generation rig, but solid, reliable and with most all of the features of the MP at a considerably lower cost (in the used market), excluding only the dsp noise reduction and automatic notch. It also has true stereo dual receive, extensive filtering and many bells and whistles, plus 150 watts of output (the others are 100 watt-ers).

[2022 comment: I bought one of these in the 90s in like new condition and used it for many years. It was rock solid reliable, which was a good thing since it weighed a ton and you wouldn't want to be shipping it all over for repairs. I never quite mastered its dual vfo plus sub rx design, which seemed less intuitive than on other rigs, but I did work a lot of DX with this rig. I vowed that I wouldn't replace it until a new paradigm came along (see comment on IC-756, below). Only 59 eHam reviews, probably due to its high price as Kenwood's premium offering at the time.]



FT920. Chuck calls it one-half an MP, i.e., it has most all of the features of the MP, but no dual receive. But it has the best dsp and dsp controls yet put on a radio.

[2022 comment: I had no direct experience with this one, though I do recall seeing one at AD6E's house some time ago. Al had nice things to say about it, but my perception is that it never really took off as a contest radio, though it has 161 eHam reviews.]

IC-756. This is a fascinating new rig with a type of CRT display. Ken thinks the display is great for numeric and alpha information (e.g., menus), but that the panoramic band view feature is not helpful, because it doesn't react instantly and because it needs S-3 signals to register. But he loves it for its portability, light weight, and utility in multi-multi environments.

[2022 comment: I never had a 756, but the IC-756 Pro was the paradigm shift needed to get me to sell off my 950SDX for a new generation of radios. It was a major advance over the 756, with a color display screen, improved bandscope, and Icom's excellent front panel user interface. It suddenly made the other radios of its time seem old-fashioned due to its modern design, small size and light weight. Unfortunately, it didn't really work better than its forebears, but it sure was more fun to use. At one time I had two Pro2's in an SO2R configuration at home and another two at P40L/P49Y. They were well built, but could have display problems, including burn-in and some kind of general fatigue requiring long warm-ups. The Rx in the Pro series produces a lot of digital artifacts; when comparing it to a K3, you realize how much cleaner the K3 is and therefore how much better as a CW contest radio. I still have the Pro series successor at home, an IC-7600, which has an even nicer interface, but also is not as good a CW RX as the newer radios. The 756 has 71 eHam reviews, while the Pro, Pro2 and Pro3 combined have 525, showing the immense popularity of these game-changing designs.]

Here's a poem about these rigs:

Gotta (lotta) Yen for a New Rig?  
For the contesting season this fall  
With a new rig you'll sure have a ball.  
The Kenwood is old,  
while Yaesu is bold,  
And Icom weighs nothing at all.

73, Andy AE6Y, from 1997.



## TUBE OF THE MONTH

### 25T – 3C24

Norm, N6JV

In 1944, both EIMAC and Heintz & Kaufman came out with a small transmitting tube. H&K called it the [HK-24](#) and EIMAC named it the [25T](#). I never established which was first or who copied who. Both tubes used a filament of 6.3 volts at 3 amps and had a maximum plate voltage of 2,000 volts at 75 ma. They operated at full power up to 60 MHz. EIMAC added it to their triode series of tubes. At a bit over 4 inches tall, it was the smallest. In 1945, the tube was fitted with a grid pin out the side and this was designated the [3C24](#) by the RMA-EIA and it appeared on its list of preferred-types to be used by the military. The Signal Corps used the designation VT-204. Another variant, the 3C28, had two opposite grid pins. I don't know why these tubes were in demand, but for the next several years, many different companies were making the 3C24. Besides EIMAC and H&K, Lewis Electronics, North America Philips, General Electronics, Cascade Research and several others were producing them. I do know that a pair of them were used in the 6-foot tall, 600-pound, 50-watt, one channel, VHF AM military transmitter, the BC-340-A and in another obscure VHF amplifier.

When I was building my first transmitter back in 1959, I sure could have used some of these small tubes. I lived far from civilization in Central California and had no exposure to the surplus market. They would have been a lot easier to neutralize than those 2E26s.

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



## **Searching and Pouncing for Fun and Profit**

*David A. Jaffe – WD6T*

It is well-known that calling CQ and “running” stations in a contest will often produce the highest QSO rates. However, searching and pouncing (abbreviated “S&P”) can be equally important, and overlooking the technique can hurt your score.

The circumstances for search and pounce arise in a variety of situations:

1. When conditions are not good enough to run, propagation is not favoring you, or your station is not loud enough (due to QTH, antennas, or power.)
2. In DX contests where US stations are a dime a dozen and the DX are the ones running.
3. To get more multipliers, even when you are able to run. Some rare multipliers may never call you.
4. To make sure you don't miss stations who are only running.
5. When SO2R (single operator, two radios), to increase your rate while running.

### **Vary Your Tactics**

The best approach to searching and pouncing depends on situational awareness, as well as your contest strategy at the particular time. For example, at the start of a contest, everything is a multiplier and any QSO does double duty. The same is true when you go to a new band in a contest with per-band mults. You need to move quickly and avoid dwelling on a particular station. Later in a contest, or when an opening to a part of the world is short, your priorities may dictate spending more time to bag a mult.

### **Work the Loud Stations**

When you are trying to maximize your QSO rate, picking the loudest stations to call is a good tactic. Since propagation is two-way, if the other station is loud, there are chances that you are reasonably loud as well. Similarly, antennas are also two-way; if the other station has a great antenna for transmit, that antenna is likely great for receive as well. The exception is if he has a high noise level, or an antenna that works well for transmitting but is noisy for receiving.



In a contest like the North American QSO Party, nearly everyone is running only 100 watts, so you can assume that if you can hear the other station, he can hear you as well, at least in the absence of noise or QRM on one side or the other. If you are running QRP or are in a contest that includes high power and you are low power, that may not be the case, but it is still a better bet than going after some quiet guy. Nevertheless, it depends on circumstances. If your buddy next door has a dipole in the basement and is S2, you can bet that if you call him, you won't have to contend with a pileup.

An excellent way to find loud stations is to use a pan-adapter. You can instantly see which signals are loudest and jump to their frequency. Many pan-adapters have touch sensitive screens where it is not even necessary to tune; you just touch the screen and you're there. Most pan-adapters also include a "waterfall" history. This allows you to find traces of workable signals, even if your pan-adapter goes dead while you are transmitting. You can be queueing up the next loud station on the waterfall while you are working the previous station. The situation is even better if you have access to a second radio, where the pan-adapter remains live while you are transmitting. A pan-adapter is also useful for finding activity in marginally-active bands. Note that most pan-adapters include controls for setting the waterfall speed; setting the speed slow enough can help distinguish a running station from a loud caller.

Even if a station is loud, a number of factors can interfere with your success. If the station has a large pileup, your chances are reduced. Similarly, there may be stations calling him who have better propagation than you have. A good example is when first moving to 40 meters on the West Coast in a domestic contest. Your best chances will be to work other western stations at first. Later on, you will have more luck with stations farther east.

If you call a station and he does not answer, it is important to be ready to move on. A good rule of thumb is to call twice and then try again later. It is very easy to get emotionally attached to working a given station and beating out the others in the pileup. There is a sense of satisfaction in "winning" the pile, but meanwhile, the clock is ticking and your competitors are making QSOs. Resist the temptation to hang around too long. Many radios include a frequency stack where a single button push will save the frequency for easy recall. Use that to mark the frequency as one that is of interest. Then return to it in a few minutes; you may find that the pileup is gone. Another useful trick is to work the stations who are on the peripheries of the band. Such stations are likely to be less busy.

While DX stations may have persistent callers, pileups for common mults are often short. In these cases, waiting a few minutes can allow the flurry of callers to dissipate. Another approach is to try to arrive before the crowd. There are two ways to do this. One is to keep a sharp eye on the pan-adapter for new signals. You can often jump on them before the



reverse beacon network (in RTTY and CW) or the human spotters (SSB). The other method (when operating "Assisted/Unlimited" only) is to keep a window open that shows the latest spots in the order they are posted. In N1MM, this window is called "Available Mults and Qs." Clicking immediately will often allow you to make the QSO before the pack descends.

### **Working the Hard Ones**

If you must work a station that has a pileup, various techniques can increase your chances. For CW, try calling slightly off frequency (but not too far, or you'll be out of the other station's passband), pausing slightly before sending your call or sending at a faster or slower speed than the other stations. Using full QSK can help avoid this if your equipment is capable.

For RTTY and phone, you must call on frequency (unless the station is working split) but varying the timing of your call can make the difference between success and failure. On phone, you can say your call faster or slower, vary the phonetics, or even use a higher or lower pitched voice. Be sure to have good audio quality; we've all experienced being called by a loud station with so much compression that he is unintelligible. It is also important to concentrate your RF in the portion of the audio spectrum that is most important for speech intelligibility and avoid wasting energy on frequencies below 500 Hz.

For DX stations with big pileups, be cognizant of the propagation for both you and other stations with whom you are competing. If you are on the West Coast and call when the East Coast has lost propagation, you may have a better chance than when you both have it. Special propagation enhancement, such as sunrise on the low bands, can also be used to your benefit. Waiting until later in the contest can be effective. The DX is likely to be hungrier and the pileups thinner. As an example, working Europe on the second night of a DX contest from the West Coast may be easier than on the first night. For rare mults, you have to look at the whole picture: Is this a casual operator that happened to get on for a few minutes, in which case you may miss the opportunity if you don't work him now, or a hardcore contester who will be on for the whole contest? How long is the time window of propagation? Etc.

The relative value of multipliers versus QSOs must also be considered. In WPX, a multiplier is only worth about three QSOs. If you can work three stations faster than the mult, then he's not worth the time. Even in contests like Sweepstakes, where multipliers are valuable, you have to weigh the cost against the time it takes. Most loggers will show the mult-to-QSO ratio. Use this along with your rate to determine how long to spend trying to catch a mult.



This presents a Catch-22. Let's say the mult-to-QSO ratio is 1-to-5 and your rate is 60/hour. This implies that you can spend up to five minutes trying to work a mult before you are losing out. You try unsuccessfully for five minutes. But now what? You have already burned the five minutes; you can't go back in time and get it back. It is very easy to get so invested in the mult that you then burn another five minutes. This is similar to the trap that stock market investors fall into; the aversion to losing becomes stronger than the attraction to winning. Therefore, it may be best to bail before the full five minutes have elapsed. Every contester must use his intuition and experience to determine when the mult is worth the trouble and when it is not. SO2R or SO2V and a pan-adapter can be useful in keeping an eye on the pileup density, while you are off making other QSOs.

### **Unassisted Operating**

While pan-adapters can provide a degree of random access, the usual way of finding stations when unassisted is to sequentially tune the band. Typically, operators do this from low to high frequency. This can cause the frustrating predicament of being beaten out by the same station over and over, as he is also moving up in frequency. To avoid this, skip ahead a bit and then continue, or start high and work your way down.

Most loggers contain a band map. Even when operating unassisted, it can be of great value. If you find a station with a pile up that you can't crack, type in the call sign and then tune away. Your logger (if set up appropriately) will then populate the band map with that station, allowing you to quickly find it again. Do the same even if you have already worked the station. This allows you to mark the frequency as containing a station that is not of interest; otherwise, you may find yourself continually returning to it and re-copying the call sign, only to discover that he's a dupe. By marking worked stations, you can quickly see new stations that were not present the last time you did a sweep. Of course, stations may move, so it is worthwhile to occasionally verify that it is still the same station.

### **Assisted Operating**

Assisted operating allows you to use information from the Internet to find stations whom you haven't worked. Still, be sure to verify the call sign as bad spots are common. If you find a bad spot, it's worth taking the second or two to remove it from your band map so it doesn't keep teasing you. This can happen to you if you are running as well. A telltale sign is when you suddenly start being called by a lot of dupes. You were probably spotted incorrectly.

Loggers often have a command to jump to the next unworked spot or mult. This allows you to quickly leapfrog through the band map to find stations of interest. This is especially useful when operating SO2R, as it allows you to queue up the next station to work while you are



running on the other radio. Again, you may find yourself being beaten out by the same guy over and over; skipping a few spots or changing direction can get you out of that situation.

Another approach is to use the "Available Mults and Qs" window (or equivalent in your logger.) While most operators use it to jump to the latest station, you can also start further down the list; stations spotted longer ago may be less busy. Of course, there's always the danger that they have moved on if the spot is too old.

In N1MM, the "Available Mults and Qs" can also be sorted by azimuthal bearing. This is extremely useful in DX contests. For example, from the West Coast on the higher bands, it is common to have an opening to South America and Japan at the same time. Sorting by bearing helps you avoid wasting time and wearing out your rotor spinning the beam back and forth. Just work all the SAs, turn the beam, and then work the JAs. Even if you don't have a directional antenna you can benefit from this feature. It allows you to maximize short openings by focusing on the stations in that area.

Careful management of spots can be important. Some operators prefer to see only spots that come from stations in their area. These are the most likely to be workable. On the other hand, it can be beneficial to see spots from further afield. For example, this can alert you to the presence of a station on your run frequency whom you cannot hear.

Assisted phone operation is fundamentally different from assisted CW and RTTY operation. Nearly all CW and RTTY stations are spotted by the Reverse Beacon Network. On phone, most stations are not spotted, which blurs the difference between assisted and unassisted operating. The assisted operator must remember to tune the band and use the other "unassisted" techniques or risk missing many stations.

### **Combining S&P with Running**

If you are operating with one radio, and are not too busy, you can call CQ periodically while searching and pouncing stations with the same or another VFO. If you find a mult, you can work it, then resume your CQ. If you are assisted, you can quickly jump to a spot, work it, and return to your run frequency. You do run the risk of losing your frequency, so carefully weigh the value of the station and reserve this technique for valuable mults, or when the likelihood of losing your frequency is small. If you have a second radio, it can be used to search for stations while you are running on the first radio.

There are actually several flavors of SO2R. The most common ("vanilla") involves running on one band and searching/pouncing on another. The easiest version of this is when you are getting very few answers to your CQs. If you are a just learning SO2R, this is a good place



to start; just pause the CQ while you work an S&P on the other VFO or radio. It is also by necessity what you must do if you cannot listen while you are transmitting.

In busier times, you will want to interweave the S&P QSO with the running. There is an old joke where you ask, "what is the secret to telling a good joke?" As soon as the person begins to answer "what?" you blurt out, "Timing!" Similarly, one of the biggest challenges with this form of SO2R is being at the mercy of the timing of the station you are calling. It is very common and frustrating to have a station picked out but every time he calls CQ, you are busy transmitting on the other radio. As soon as you're ready to call him, he is working someone else again. You may have to pause your running momentarily to work the S&P, but unless he is a rare mult, it is probably better to favor the run frequency. It is also impolite to call CQ and then disappear when someone calls you. The station you are calling will probably still be there, but the one who just called you may give up and never come back. The best SO2R operators are virtuosos of timing.

Another flavor of SO2R ("strawberry") involves S&P on two bands at once. This is doubly challenging, as you don't control the timing of either QSO. It is not uncommon to find yourself in the awkward position of having to copy two call signs or exchanges at once. Here, RTTY is the easiest mode, since the computer does the copying for you.

Although this is an article on S&P, a discussion of SO2R would not be complete without mentioning the last flavor: dueling CQs ("chocolate"). In its simplest form, this is simply an alternating CQ, which continues until you get an answer. The more advanced version involves simultaneously running on two bands at once ("2BSIQ"). Despite its challenges, it has the great advantage that you control the timing of both bands, allowing for higher rates. You are dancing with two partners at once, but you are leading both.

## **S&P is Fun**

Just like running, search and pounce is an important technique to have in your toolbox. It also keeps contests interesting. SO2V can help keep you awake when the rate gets low. It can be vastly more interesting than simply calling CQ in slow times, as you are tuning and listening, i.e. doing something! SO2R is even more fun and challenging.

Disclaimer: Search and pounce, especially when mixed with SO2R, can be addictive. The author is not liable for any adverse effects on your brain chemistry, marriage or waistline as a result of following these tips.



Bill, W9KKN, having a bit of fun.



# Northern California Contest

Excellence In Amateur Radio  
Contesting

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# Northern California Contest

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## 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

**ELECRAFT**

For complete features and specifications visit [elecraft.com](http://elecraft.com) • 831-763-4211



## 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.

Go to <https://business.landsend.com/store/nccc/> It's easy to use.

From [nccc.cc](http://nccc.cc): <http://nccc.cc/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.
9. Start Secure Check out. Account creation and credit card required.

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**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](mailto:secretary.nccc@gmail.com)

**NCCC**

**Northern California Contest Club**



## 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](mailto: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](mailto: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 Mac PAGES or 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 Saraj, KU6F, [saraj@sonic.net](mailto:saraj@sonic.net), ph: 707-888-3906

PLEASE INDICATE "JUG SUBMISSION" IN EMAIL SUBJECT LINE.

## 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: "NCCCCKB"