JUG

Publication of the Northern California Contest Club

NCCC

CALIFORNIA REPUBLIC

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NCCC – 52 years of contesting excellence

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https://nccc.cc/meetings.html

Next Meeting

Tuesday 14 Mar
Open Chat 6 PM
Meeting: 6:30 PM – 8:30 PM

"Operating CQWW CW 2022 from Mauritius (3B8)"
Denny, KX7M / Oliver, W6NV

President's Report David, WD6T

Online Scoreboards, Yea or Nay?

A relatively recent enhancement to the contesting experience has been the creation of online scoreboards, which provide real-time updates of scores, allowing you to view how you're doing in comparison to others. You can also compare your running band totals to that of your competitors. The scoreboards also provide a way for spectators to view the contest and watch the stations fight it out. They are also great for MS, M2 and MM operators, as they allow operators to keep up the excitement while waiting for their next shift.

You can post your score even if you chose not to consult the scoreboard yourself. Loggers can be set up to do it automatically. (Note: If you are unassisted, it may be against the rules to consult the scoreboard during the contest; check the contest rules to be sure.)

The problem is that not everyone participates by posting scores. This means the scoreboard gives an incomplete picture of the contest. It is not unusual to fight it out for a particular ranking, only to find that several other non-reporting stations actually had higher scores. This undermines the value of the scoreboards.

Let us consider the various arguments that have been put forth for why not to post scores:

1. The first objection is that it gives your competitors an advantage by seeing how you are doing and on what band you are spending your time. However, the poster has several options. He can control how often his score is posted. By slowing down the posting, he controls how often his competitors can access his information. Or perhaps he is concerned that his discovery of a particular unusual band opening could advantage his competitors. In that case, he can choose to suppress band data and provide only the overall Q, mult and score totals, thus "leaking" less information.

2. It is also questionable how actionable the information really is for a competitor. Unless he is in nearly the identical QTH, with the same type of station, comparisons are like the proverbial apples and oranges. Propagation is different enough even between fairly close locations that comparisons often don't tell you much about how you could be operating differently.

3. Many contests have serial numbers, in which case there is nothing secret about your QSO count anyway, since it is part of the exchange. Contests such as WPX and NA Sprint are in that category. Even if you have worked your competitor early on, you can always hear him report his number as you tune past him.

4. A second objection to posting posting scores is that it can be de-motivating to see yourself falling behind. This seems to be a matter of personal taste. For some operators, keeping an eye on the scoreboard provides motivation to keep the butt in the chair and increase the intensity. Others feel that they don't need the added stress, and feel they're "dancing as fast as they can" as it is. Such operators are free not to look at the scoreboard; but by providing their scores, they allow spectators and other operators to see how they're doing.

5. The final objection is perhaps the most valid. When posting to the scoreboard, your category is included. This information can be used by your competitors to chose a category after the contest that allows them to win, often surpassing your score. This argument is the same one that motivates some operators not to post to "3830 scores" until after the log deadline.

This happened to me in 2021, when I operated ARRL DX CW from a DX location (remotely). I chose the category "10m HP Unlimited (i.e. assisted)." Although I didn't actually end up using the packet spots at all, I had them turned on, so was in the Unlimited category. There were two other stations that were doing HP 10m.

About NCCC

Officers and Directors, 2022-2023 Contest Season

President: David Jaffe, WD6T
Vice-President/Contest Chairman: Andy Faber, AE6Y
Secretary: Greg Alameda, KK6PXT
Treasurer: David West, KO6M
Past President: Jack Brindle, W6FB
Director: Bob Cox, K3EST
Director: Chris Tate, N6WM
Director: Ed Radlo, AJ6V

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Awards Chair: Gary Johnson, NA6O
California QSO Party Chair: Dean Wood, N6DE
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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
Wrkd All CA Counties Award: Fred Jensen, K6DGW

NCCC Thursday Night Contesting

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NS CW Ladder: Bill Haddon, N6ZFO
NS RTTY Sprint/Ladder: Ed Radlo, AJ6V

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All three of us were publishing our scores on the scoreboard. The other two stations were listed as unassisted. When the contest was over, the one who came in second in the unassisted category switched to Unlimited, thus pushing me back to 2nd place. Without the scoreboard and 3830, he would not have known that he could win by changing categories.

A simple way to address the problem would be to allow a posting option to hide your category. Of course, removing the category limits the usefulness of the scoreboard.

A more comprehensive approach would be to require competitive stations to declare their category to the contest manager up front. This could be done with a web site so that it adds no additional work for the contest manager (once the software is written to handle it.) Of course, the majority of contest participants are not serious; it's all they can do to figure out the rules, and many don't even send in logs, though perhaps pre-contest category declaration could be a prerequisite for winning qualification. This could be built into the loggers; as soon as you start the contest, it could report the category to the contest manager. Given that this is already being done for the online scoreboards, it would not be a difficult addition. (It sez here.)

A still more radical solution would be to require real-time scoring. Everyone would push his scores up to a server, log checking would be done on the fly, and the winner would be known unequivocally a minute after the contest ended. This is a dream or a nightmare, depending on your perspective. The main obstacles (other than philosophical objections) include the fact that some stations do not have reliable (or any) Internet, and that many contests come down to detailed study of logs to check for cheating. But many of the paths to cheating would be cut off or curtailed by such a mechanism, including rubber clocking, consulting public databases, listening to recordings after the fact, communicating via email to confirm QSOs, etc. Once a QSO is logged, it would be a permanent "commit," part of the public record. I'm not holding my breath, but it's an interesting scenario to imagine.

But in actuality, how much of a problem is category shopping? There are really only two likely shifts:

Unassisted-to-Assisted. If you make more points than I do and you are unassisted, you beat me, and with one hand tied behind your back.

All Band-to-Single Band. Similarly, if you beat me on 10m AND you also made Qs on other bands, more power to you.

Other shifts are extremely unlikely to offer any advantage, such as Single Band-to-All Band and Low Power-to-High Power, to say nothing of QRP-to-High Power! Again, if you can win by doing that, congratulations!

The remainder are simply illegal, such as Assisted-to-Unassisted or High Power-to-Low Power.

In conclusion, there seems to be no compelling reason not to report your score in some fashion (possibly with restrictions). Even if you chose not to access the scoreboard while operating the contest, doing so allows you to easily access post-contest analysis vis a vis your competitors, adding color and depth to the contesting experience. To enable score posting, first register with one of the online scoreboards (https://contestonlinescore.com/ or https://contest.run/.) You will need to create a username and password. If you use N1MM+ Logger, open the Configurer, click on the Score Reporting tab and provide your user name and password. Other loggers have similar functionality.

VP/CC – Andy, AE6Y

Reflections on operating from the DX side in ARRL DX Phone

This column is being written in Aruba and in transit back to SFO after a week here and operation as P49Y in the ARRL DX SSB contest from the station owned by John Fore, W6LD, and myself (P40L/P49Y). The operation was low power, the first time I have done low power in this contest after four high power entries in past years. You can see the results of all past operations (over 200 now!) from the station on our website ***www.arubaqth.com***

To set the stage, here is my writeup as reported to 3830:

"As an opening line in literature, this one from Charles Dickens remains ever appropriate: "It was the best of times, it was the worst of times..." That certainly described this weekend. When conditions are as good as this, that can disadvantage the Caribbean, as we have to battle to get noticed when the US/VE's are having so much fun working EU. In fact, there were times in this contest when I temporarily gave up, such as Saturday night a little after 0400Z (midnight in Aruba) when I could get nothing going on the low bands and 20 was still full of loud EU QRM. So I took a larger than normal sleep break of 5 1/2 hours. In fact, my total on the air time (measured by excluding any breaks greater than 10 minutes in the log) was only 37 1/2 hours, instead of the usual 42 or so."

"With the expected conditions, I decided to try low power, though all my previous entries in this contest had been high power. There is quite a difference (duh!). For one thing, you don't get instant respect when you QSY to a new band and pick a frequency that is pretty clear but not perfect. With high power and the usual instant pileup you can normally blow a hole in the band, but it's not so easy with low power. This is particularly true on the low bands."

"I did not self-spot, which I disapprove of on principle, but the influence of spots was immediately apparent when someone did spot me, so in the future if they continue to be allowed every serious competitor will have to use them."

"I was using my new K4 along with W6LD's K3S which John had left for me in between his stints in the recent ARRL DX CW and upcoming WPX SSB contests. I must say, as a satisfied K3 owner since 2007, the older radio looks positively dowdy next to a flashy new K4! The K4 performed very well, and I think Elecraft has a real winner with the new CESSB compression algorithm. I received many unsolicited 'big signal' and 'great audio' reports. Before the contest I had determined that with my Heil headset mike about 2 inches from my mouth, the TX EQ set to emphasize treble, and compression set at about 25, that combination produced very clear, strong audio without distortion. Several tests beforehand seemed to indicate that the K3 sounded very good also, but did not have quite the 'punch' of the K4."

"Thanks to many guys for moving bands (and to VO1TH for keeping a sked at the end of the contest for new mults on 40 and 80). In fact, probably one-fifth of my very meager 160 mult total is from direct moves there. Also thanks to those who tried unsuccessfully. And a big apology for my worst QLF moment of the weekend – Near the end of the contest, I was on 15 running a small pileup when VY2GF called in. I asked him to move to 10 as PEI was my last unworked 'normal' mult (i.e., excluding YT, NT, and NU, none of which I heard at any time). He did so but I didn't hear anything on 10 and couldn't make the move. He came back and said to try

again, but in my tired, befuddled, semi-hallucinatory near-the-end-of-the-contest state, I blew him off and went back to the pileup which I could handle mechanically without any thought. Sorry! -- that was not only foolish of me, but disrespectful as well. After thinking about it, I realized that I had used the K4 subRX for the move and inadvertently been listening on the beverages, with the logical negative result on 10. Of course, this was entirely human error on my part, not the K4's fault. What I should have done was just shifted focus to the K3, typed in 28800 or so into the entry box, and made an instant QSY on that radio, but at the time that was too complicated for my limited brain power to envision. I brooded on this for the rest of the contest, and am still bothered by it, hi."

"As always, thanks to co-owner John (W6LD, P40L) and supporter Ed (W0YK, P49X). By operating this contest I get the direct benefit of all sorts of house, shack, and antenna maintenance that they have carried out in the past two months, without, for example, the need to put on my hiking boots and tussle with the beverages in the cunucu (public land, full of thorny cactus and scrub vegetation) behind our house. And thanks to Cris (P43C) and Jean-Pierre (P43A) for their efforts to keep the place shipshape.""73, and thanks to everyone for the QSOs and the supportive comments during the contest, Andy, AE6Y'

"P49Y Station: K4D, K3S
Software: CQPWIN ver. 14.0
Tower 1: 65' with 2-element shorty-forty, 4-el 20m Yagi, 80m Inverted-V, 2-el SteppIR at 35' due north anddouble-L vertical for 160m
Tower 2: 55' with single boom interlaced 5-el 15m and 5-el 10m Yagi
Tower 3: 45' with JK Mid-Tri tribander
Beverages: West US, East US, Europe, East-West"

Related to my QLF with VY2GF, when to ask a station to move is always an interesting call. I went through the log, and here in order are the stations that moved for me (there are probably another six or seven or so where the moves were unsuccessful):

N2QVY 80-160 NJ
K1LZ 80-160 ME
W9RE 40-160 IN
AC5XK 20-15 DC
VY2DS 20-15 PE
WD0T 15-10 SD
K5UA 10-15 LA
VO1TX 15-20 NF
KR4NO 40-160 SC
W1XX 80-160 RI
VO1TH sked 40/80

As you can see, I had 10 successful moves, plus a sked at the end of the contest with the VO1. These moves are in three categories. The first is moves to 160. I was having so little luck on 160 with the tough conditions there and being low power, that I started asking stations with loud signals or that I knew to be big guns like W9RE and K1LZ to move, even if they were common mults. These successful moves were very helpful, as in general they ended up being uniques on 160.

The second category was moving rare-ish mults, like VY2 and DC, which also were quick and probably worth doing. The third category turned out to be unnecessary, e.g., WD0T and K5UA, as later in the contest I worked several more of each mult. I think for those, I was deceived by thinking of Sprint and NAQP, where, for example, WD0T is often the only SD station in the contest. I probably should have had more patience and just assumed that with conditions so good, there would be more.

Of course, you never know what you'll miss in a contest. This time, for example, DC and DE were plentiful. And, I worked scores of SC stations, though in my mind I still think of Sprints where a Q with W4OC was always unique. Usually in past years VY2 has been easy with both VY2TT and VY2ZM active. This year I never heard TT (though he made over 3k contacts), while ZM has closed his station. This does illustrate one difference between phone and CW. On CW, I can recall tuning around on the second radio while running on the first radio, and thus finding a few loud mults like those VY2s. On phone, although I had my second radio set up and did use it for various purposes, I find it much harder to actually listen to it while talking and running a phone pileup, so successfully finding mults on it is almost impossible.

Finally, a brief discussion of pileup management. Since starting DX contesting, like other devotees I've definitely become a rate junkie. It is really fun to have a pileup that you can run at high rates. The best pileup, of course is one where just as you finish a QSO you get one new clear, crisp, and loud caller. With such pileups, phone rates over 300 per hour are manageable. This weekend, I had moments like that, but more common was the feast or famine scenario: either no callers or a raging, packet pileup. My top rate was a 297 clock hour on 15 Saturday afternoon.

I find such pileups easier to deal with on phone than cw. On CW, if you just catch one letter, say "X" there isn't much you can do except send "X" back and hope it narrows down the responses. On phone you can say "last letter X-ray" and hopefully narrow the field. If some stations come back that don't meet the criterion, then simply repeating it usually works. If no one responds, you can say "station with X-ray", and so forth. Even if all you hear is a first letter whiskey, if you say "beginning whiskey only," usually that will work If you think there are several 9's but you aren't sure of the calls, you can say "the 9 only", then "another 9" and so forth. Of course, some moments of confusion are inevitable, as when N4SS and N6SS were both calling or when W3MLJ and W3MLK both called at the same time.

What do you do when a loud multi jumps the line when you are trying to work someone else? You can say "lima papa lima" stand by, but I've found it's better just to work them. They are loud and the QSO will be quick. But as a matter of contest etiquette, I always then go back to the station I was trying to work. I don't want guys to think I'll give up on them just because they got bulldozed.

My other point of contest etiquette is to give my call frequently, and generally after each contact. There are two reasons for this. One is the general belief that it's polite to do so, and I dislike when trying to work a station myself and having to wait a long time for him to identify. The second reason is that you need a crisp routine to control the pileup and prevent out of sequence callers. Probably more than 95% of the time I would finish the contact by saying: "Thanks. Pee Four Nine Wye." That's five syllables, but barely more than a QRZ. Sometimes, I would omit the "thanks" and just say my callsign. I used to think this approach, which was pioneered by our predecessor Carl Cook, P49V, and which I used to think was a bit rude and abrupt, I now appreciate its benefits. By giving that response, the pileup knows exactly when to call, and very rarely did anyone ask for my call.

In that regard, one tip is that sometimes when the DX station is operating at high rates and everyone gives their call exactly once, the DX can't make out anything and pauses. If you hear such a pause, drop your call in quickly. WD6T did that this weekend and got through easily. The DX won't be mad that you called twice, he just wants to get a QSO, and unless he's calling someone specific, he doesn't care who it is.

A contest like this is frustrating. On the one hand, it is a real privilege and a thrill to work thousands of contacts, particularly low power. On the other, when conditions are so good that the US is having a grand old time working EU and around the world all day and all night, they can start to take us SA and Caribbean stations for granted and there can be times where the rate just plummets. As a result, I definitely got more sleep than usual. But it would be churlish to complain. Overall, it was a great contest weekend all around the world. And special thanks to the many Club members who called in and often dropped a quick greeting or a "KB."

73, and happy contesting,

Andy, AE6Y VP/CC

Morse in Cyrillic

Tom, NW6P

Mike WA6O (SK) was a fabulous person and great CW operator. I met him several years ago at an NCCC meeting. He had a Russian accent so I greeted him in Russian. I knew some Russian from high school. I had a copy of the Cyrillic code and I wanted to speak to Russians in their language using CW. Mike came to my station one day and I demonstrated my Cyrillic CW. he was impressed.

One night somebody called me who was speaking Russian. I responded in English and said I don't speak Russian. He said, "Who is operating NW6P?" I said that was me. He said, "But your Russian is very good." I said, "I only know Russian in Cyrillic code." I told him I've been doing it for 40 years but only using the code.

I was called because someone was on 20 m phone looking for a station near Palo Alto. That person was a Russian operator, RA3MI, whose daughter was coming to Stanford and he was trying to find somebody in Silicon Valley who could pick her up at the airport and get her to her dorm. I did that and got to see her several times while she was at school.

10 years years later I was in Moscow with nephew, my sister-in-law, and her husband and we met Alex, RA3MI, the operator that I met on 20 m phone that night. My nephew Ian was studying Russian at Moscow University. Alex didn't speak very much English so my nephew translated. It was a wonderful visit, especially meeting a fellow ham operator in person.

Silent Key

Mitch Wolfsson, DJ0QN / K7DX

DARC has received the sad news that fellow member Mitch Wolfsson, DJØQN/K7DX, has passed away at the age of 67. Before OM Mitch enjoyed his retirement in Florida/USA, he was a member of the board of DARC eV from 2009 to 2011.

As an American who has found his home in Bavaria, not only did the English-Bavarian accent always get through to him, but he also always looked to the USA to check which American amateur radio projects of the ARRL were also here in Germany could bear fruit. During his time on the DARC board, he was particularly concerned with the networks at home and abroad, modern technologies and association communication. DX was his great passion. His voluntary commitment went far beyond the DARC and he was a member of ARRL, the GDXF, the NCDXF and the BCC, among others.

From 1977 to 2015 Mitch lived in Munich and was active in DL under his call DJØQN. For the time of his retirement he moved back to the USA with his XYL Antonia, DO9IM/K7DXD. Until the very end, DJØQN was involved in the foreign department, which he headed in 2009, as webmaster and coordinator for English countries. At the Hamvention in Dayton he presented the DARC eV with its own stand.

With Mitch, the DARC loses a dedicated member who lived between worlds but knew how to further develop the international character of amateur radio in a unique way. The DARC will honor his memory and expresses sincere condolences to his bereaved.

Thanks to DARC, DK3HV, and N6TV. Known to many, Mitch will be missed – RIP

From the mail: Very sad indeed. Mitch gave us a warm welcome at the Hamburg airport for an AES Convention, taking us to dinner and dropping us at our hotel. I listened to the Scarborough Reef expedition from his shack (and didn't return home in time to work them). Mitch took one listen to my Thinkpad and said "I don't like the sound of that fan!" He was right -- that was a chronic problem with them for several generations. We always tried to spend time together at Dayton, and had a nice dinner together when he and Antonia visited Santa Cruz. RIP Mitch

DE ***Jim K9YC***

News Flashes!

N6JSO will henceforth be identifying as **NN6U**
(who also operated NAQP RTTY as NN6U/MM!)

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"Our Editor is really stretching with his attempts to make our beloved JUG more 'family friendly,' hence his recent arm-twisting, resulting in this non-contest related submission. Here I present **Damien H. Malcolm**. The dumb look on his face screams out his lineage. Born to the Original K1D (Sarah) on 17 Feb 23; 6 lb 8 oz, 20 in."

Photo & announcement credit: Proud Grandpa Bob, K6XX

New Rules

Gary NA6O

Announcing the 9th season of the annual NCCC KB Competition, where your scores posted to 3830 accumulate to almost astronomical numbers! This year, a few changes were made; we try to change something every year. First, there is now a required minimum of 25 QSOs in any contest in order for it to count as a multiplier. The weekly NCCC Sprints are exempted from this. Second, the weekly NCCC RTTY Sprint is now included in with their CW/Ladder brethren. (All your NCCC sprint points accumulate as if they were one year-long contest, with a single multiplier.) Third, we reduced the number of eligible contests from 33 to 28. This was a popular request. It's difficult to decide what's in or out, and of course we can't please everyone. So please don't kill the contest manager (that would be me), but do send me your comments and recommendations.

The new season begins March 1 and ARRL DX SSB is the first contest on our list. Full rules appear below. You can see these rules and the current standings on the NCCC website at: https://nccc.cc/awards.html

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

NCCC Annual KB Competition Rules

Revised March 2, 2023

Purpose: To provide a means of rewarding NCCC members who are DX contesters, sprinters, VHFers, and especially active contesters in all modes.

Time period: The contest year restarts 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 28 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, and;*
>
> *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 weekly NCCC sprints (CW, CW Ladder, and RTTY) will not be counted for the KB competition, either as scores or as contest multipliers. **A minimum of 25 QSOs** are required in all contests, except for the NCCC Sprints. 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 KB Awards Manager, gwj@me.com

NCCC Annual KB Competition Table

Contest	Date	Mult
ARRL DX Contest SSB	March 4	9
CQ WPX SSB	March 25	2
7QP	May 6	20
CQ WPX CW	May 27	1
ARRL DX Contest DIGI	June 3	250
ARRL June VHF	June 10	200
IARU HF World Championships	July 8	4
NAQP Summer RTTY	July 15	25
NAQP Summer CW	August 5	25
NAQP Summer SSB	August 19	50
NA Sprint Fall CW	September 11	150
CQWW RTTY	September 23	1
CQP	October 7	10
CQWW SSB	October 28	1
ARRL Sweepstakes CW	November 4	15
ARRL Sweepstakes SSB	November 18	15
CQWW CW	November 25	1
ARRL 160 Meter Contest	December 1	100
ARRL 10 Meter Contest	December 9	4
RAC Winter	December 30	20
ARRL RTTY Roundup	January 7	50
NAQP Winter CW	January 13	15
NAQP Winter SSB	January 20	15
NA Sprint Winter CW	February 4	150
CQ WPX RTTY	February 10	2
ARRL DX Contest CW	February 18	1
NAQP Winter RTTY	February 25	15
NCCC Sprints: CW, Ladder, RTTY	Weekly	100

KB Award Brackets – Current Standings

There are four independent brackets for the purpose of issuing awards: 1- Platinum, 2- Gold, 3-Silver, and 4-Bronze. Your bracket is assigned automatically at the beginning of the contest year according to your final position in the previous year's standings. New members or those who have never posted a score to 3830 default to the Bronze level.

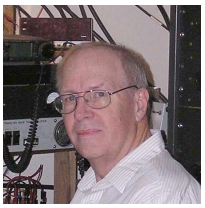
Platinum	Gold	Silver
KA6BIM	N3ZZ	NF6R
WD6T	WB6JJJ	K6JS
AJ6V	K6RIM	WU6X
N6ZFO	OH1VR	KW6S
K6XX	K6NV	W6FB
N6RO	KK6PXT	N6GEO
N6KT	K6OK	NC6R
N6WM	N3RC	KF6NCX
W0YK	KX7M	N6YEU
N6TV	W6OAT	KE6QR
W9KKN	N6TTV	AF6SA
AD6E	K6TQ	K6TD
W6LD	W6JTI	WX6V
K5RC	W2SC	ND2T
WX5S	N6XI	WA6O
W6NV	K6SRZ	K7GK
W6SX	KE6GLA	K6LRN
K6MM	W1SRD	W6SR
KH6LC	W6IA	AJ6T
K6EI	K9YC	N6RK
K6KM	N0KQ	KH2TJ
N7MH	W6EU	W6DER
N6GQ	K6UFO	K2RD
KO6M	K6DGW	N6JV
WK6I	N5KO	KI6OY
W1RH	NW6P	W6BG
K3EST	W6TCP	K6RB

K6GHA	N6EE	W6SC
W7IV	N6PN	W6FA
N6IE	KE8FT	K6CSL
WC6H	K6MI	NR6Q
K6AW	WE6Z	K6KLY
WU6P	K6XV	VY1JA
AE6Y	N6DW	NN6U
KH7Y	WU7W	K6GFJ
		K0JP
		AF6GA
		KA6W
		KG7QXE
		K6CTA

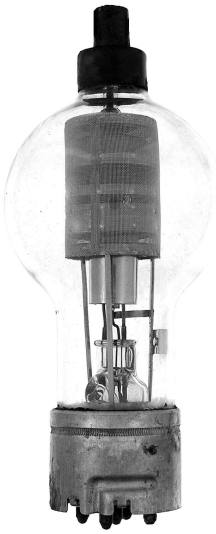
Tube of the Month

Norm N6JV

Visit the Tube Museum n6jv.com



Early in WWII, the German military had fielded several good operating RADAR systems. What they didn't have and wanted was to equip aircraft. Land based RADARs were very heavy and bulky. The RF section of the RADAR wasn't very large or heavy, but the conventional pulse modulators were a real problem. The Hohentwiel RADAR transmitter was intended for aircraft use but a new system of pulse modulator was needed. Many types of modulators were tried including thyratrons, but were unsuccessful. Early tubes were intended to be detectors. Attempts were made to make them more sensitive by adding different gasses. When too much gas was inserted, it became a switch and the thyratron was born. Adding mercury, argon or neon would make a tube that could be used as an industrial switch or as a power supply rectifier.



These tubes were not fast enough to be used in pulse. The German firm AEG (Allgemeine Elektricitäts-Gesellschaft) was contracted to develop a thyratron that contained helium as that gas had showed promise to be useful in high-speed switching. The S1/3iII thyratron had a large anode and a barium-strontium-oxide cathode to handle high current in 2 µs pulses. The tube was designed to handle 500 amps at up to 1000 pulsed volts. The filament was rated at 8 volts at 7 amps. Useful life was 1000 hours. The tube was so successful that it remained in production after the war.

The modulator was driven by an AC voltage of about 1000 volts AC at 500 Hz. This voltage was sent through a diode to produce DC pulses at 500 Hz. The DC pulses charged a capacitor through an RC circuit that was set to accumulate enough voltage to trip the thyratron after 10 pulses. The discharge was in line with a pulse transformer that increased the voltage on the transmitter to about 10,000 volts at a 2 µs pulse rate. This simple thyratron system was much lighter and the principle of modulation is still commonly used today with helium and hydrogen tubes.

The Hohentwiel system, which operated up to 600 MHz, was first installed in the Junker JU-88 Schnellbomber. It was as fast as many of the early fighters. The JU-88 with the RADAR was intended for use as a night fighter. The RADAR's antennas varied with frequency and continuous refinements. The photo is of an early version with a Christmas tree of elements in 3 groups. The top bay was for transmit and the other bays for receiving. The receiving antennas are pointed slightly outward so the pilot could turn the plane from side to side for the best signal. The antennas did slow the plane a bit. This RADAR system was code-named Lichtenstein.

WRTC Chronicles

The World Radio Team Championships is a unique event held every four years concurrently with the IARU Contest, this year 8-9 July, postponed from 2022 due to the COVID-19 pandemic. Each is led by a national committee. Operators qualify with their scores in various contests leading up to the event. The committees provide as identical as possible sites for each team of two operators – tents, generators, identical antennas, an on-site referee, power monitor [it's a low power event], and a small support crew. Teams bring their own radios. It's the most successful of many attempts at a competition on a "level playing field" and can realistically be termed, "The Amateur Radio Contesting Olympics."

NCCC has a long history with WRTC, beginning with WRTC-I in 1990 in Seattle. San Francisco hosted the WRTC-II in San Francisco with NCCC playing a major role. The event has moved to Slovenia, Finland, Brazil, Russia, USA (again, this time the Northeast), and Germany in 2018. This year, WRTC will be held in N. Italy and NCCC will again be represented by Alan, AD6E/KH6TU and Bob, K6XX.

Given NCCC's involvement over the years, and the 5 year gap because of the postponement, WRTC might be somewhat unknown to our newer members hence "WRTC Chronicles," drawn each month from our members' experiences and in their own words.

We begin with the trip notes from Andy, AE6Y, from his 2018 event held in Germany. Rick, N6XI, was the team captain.

Part 1
2018 – Germany
Andy Faber, AE6Y

Our esteemed JUG editor, K6DGW, thought that some WRTC articles might get guys fired up about the Italian WRTC that is going to take place this summer. In that spirit, I offer these trip notes from the experience Rick, N6XI, and I had in Germany in 2018. I hope by describing the environment and the social interactions with the other participants to encourage anyone who might be able to do so to consider making a visit in future years. It really is an unparalleled opportunity to chat, quaff a beer, enjoy local cuisine, and visit cultural sites with our fellow competitors. And it's all in an extremely friendly and supportive environment where pretty much everyone speaks English and is delighted to talk to you.

This Article is Part One, covering arrival and the events up to the start of the competition itself. Part Two will cover the contest and post-contest events. Part Three would be a travelog of our delightful week in Denmark, in the company of my daughter and son-in-law as well as Rick – but that will only be published in the JUG if Skip is truly desperate for material and/or there is overwhelming public demand!

Tuesday, July 10 - Wednesday, July 11, 2018. The flight on Delta to JFK was uneventful, as was the flight to Berlin TXL after a several-hour layover. I had two suitcases, each weighing 37-38 pounds. The smaller one was heavy because it held the 16-pound TS-590S, which I was bringing as a spare radio. The larger one had the Astron 30 amp power supply, the SixPak and most of the tools and cables. In the backpack, I had my K3 with enough cables to hook it up, and my Koss headphones. The computer bag held the laptop and also K3 accessories, the K-Pod, Winkeyer, paddle, and some cables. Also miscellaneous travel stuff. I'm flying light on

clothes; for example, taking only running shoes, and no spare footwear at all (I think for the first time ever). Altogether a lot of stuff, but not overwhelming; I'm sure some of the teams were bringing much more. Although I was flying something called Comfort+ on Delta (as a sort of mild upgrade over plain economy), the second bag cost me $100 – the good news is that I could check them all the way to Berlin.

Both planes were right on time, and I even managed to get some sleep on the second flight. There was no customs inspection at all at the airport, so all the previous WRTC reflector chatter about carnets and letters of invitation from the organizers fortunately turned out to be irrelevant.

My Team Leader, Rick Tavan, N6XI, had arrived at the airport an hour earlier from Boston, and we found each other due to the magic of cell phones. We picked up our Hertz rental car, a very expensive Ford Galaxy diesel van. It's a five-passenger vehicle (i.e., it has two seats up front, and a bench in the back, with a large luggage space, into which all of our luggage actually did fit). It's a modern car with 42k km on the clock and has a nav system, which we used in tandem with my Garmin to find the hotel. They occasionally disagreed, but generally provided good guidance. Strangely for us Americans, it's a 6-speed stick shift, though quite easy to drive. I did all the driving on the trip, and Rick was a very good navigator, even consulting the actual paper Michelin maps of Germany and Denmark that I had brought. When my daughter Robin and her husband Steve joined us, they had lots of room in back, with their large rolling suitcase on the middle seat.

We were there to compete in the World Radiosport Team Championship (WRTC), the "Olympics of Amateur Radio." This event takes place every four years, the last two being in Moscow and Boston, and this year pits 63 two-person teams of operators from around the world against each other in the IARU HF contest. The organizers will attempt to have a literally level playing field by finding 63 sites in proximity to the HQ city, and setting up 63 equal operating locations. The competitors bring their own radios and computers, but the rest is supplied. Rick had participated in WRTC 2010 in Moscow, but this was my first time.

[Jumping ahead a bit, we ended up finishing disappointingly in the bottom half, not the top half as we had hoped, primarily due to making a bunch of rookie errors in operating strategy, not to mention a generator failure Sunday morning for 40 minutes or so. I feel after the fact like the new kid who goes to the Olympics for the first time and has a wonderful experience, but doesn't do so well in the competition.]

The competition was headquartered at the Hotel Luther in the city of Lutherstadt Wittenberg. We are about 110 km by road southwest of Berlin, about 60% of the way to Leipzig, in the state of Sachsen-Anhalt on the River Elbe. They added the Lutherstadt moniker both to honor the city's most famous citizen, and also because there are two other cities in Germany, Wittenberge and Wittenburg, with confusingly similar names.

Arriving at the hotel, which is on the corner of Judenstrasse and Neustrasse, my check-in was uneventful, though Rick had a problem in that someone had been assigned as his roommate. We parked in the small hotel garage, unloaded our suitcases, and after about an hour and a beer in the bar, Rick's room got shifted to a single thanks to the diligent WRTC staff. The rooms are clean, but old fashioned: no a/c, and a CRT TV.

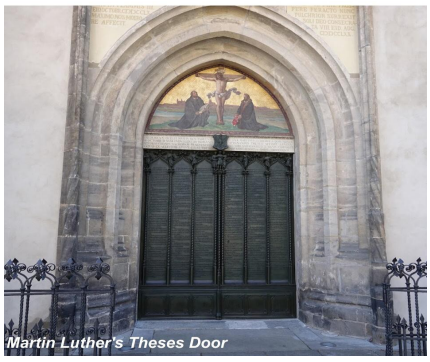
There were lots of people milling about downstairs, and more kept arriving. I got an immediate beer, next to Sandy, DL1QQ, and Tim, K3LR, then registered for WRTC. That went smoothly, and the packet includes two shirts, a polo shirt and a t-shirt, both bearing my name and callsign. Also a very nice souvenir booklet about WRTC, with lots of interesting material including write-ups of all the competitors and referees and organizers. It

shows, BTW, that I am the fifth oldest competitor of the 126 (and Rick and I were the third oldest team). No monitors, however; they said that Frank Dathe had been there but had left and they couldn't reach him. We had ordered and paid for two 25-inch monitors to be delivered by him at registration, so I hoped they would turn up eventually. There was lots of drinking and chatting all afternoon.

Typical German Architecture

The only other off-note was that due to a mix-up caused mainly by the poor design of the website and by the refusal of the WRTC travel agency, Dalichow, to answer emails, I ended up with one extra ticket for each of the Opening Event Friday night and the Closing Event on Monday. They refused to take back the extra tickets or give me a refund, so I later sent out an email to the reflector offering to sell the extras for half price. Dinner was at six in the hotel dining room and was a nice German cold cut buffet with some warm wurst as well. In the afternoon, Rick and I strolled down to the Martin Luther church. It's about a half mile away or less, and the area is a pedestrian zone, so very pleasant for strolling. We ran into Tom, W2SC, and Dave, N2NL, and together explored a mall that featured a supermarket for food purchases and a big computer/electronics shop. At the table, I sat with Bud, AA3B, and wife Debbie, his teammate John, W2GD, and wife Elaine, KB2ERI, Rick, and Alex and Tasha, KU1CW and KU1YL. After dinner at one point I went outside for cooler air and ended up walking around with David, N6AN, to find a restaurant for him. I lent him 50 Euros for spot cash (I had brought 1500). Also had nice chats with many people, including David K3ZJ, who is the official chronicler of the event, and whose wife is Danish, so he was offering her service for advice. Later Ken, OZ1KZP also gave me his phone number in Copenhagen and told us to call him there [thanks, Ken, but we never got the chance to get in touch].

As an example of the kind of random interactions one has at this event, on the way back from the restaurant, I stopped to read a plaque at the Stadtkirche around the corner from our hotel. It explained a stone frieze about 30 feet up on the corner of the church that showed a rabbi and several people in "unclean" contact with a sow. I later found out that this was a famous example of a "Judensau," an anti-Semitic warning from the year 1305 to tell Jews they weren't welcome, and that there was a major controversy about this particular example last year on the 500th anniversary of the start of the Reformation – particularly because Martin Luther had preached at this very church (though it's not the one where he nailed up his 95 Theses)


Martin Luther's Theses Door

Croatia Wins 2018 World Cup

There had been a big debate in Germany after World War II about such memorabilia of the country's past, and here it was decided to leave it in place but install the explanatory plaque. George, N2GA, a referee, stopped by and we ended up walking back and chatting, then hanging out on the corner near our hotel for a longer chat with Jacques, F6BEE, a competitor, and Ed, W0YK, a referee. I eventually went back in and ended up with many others watching the end of the Croatia-England semi-final World Cup match. There was great jubilation from the Croatian contingent (about a half dozen guys) when they won.

The party was still in full swing at about 11:15 when I decided it was time for bed. Fortunately, it wasn't hot, as I couldn't open my window since my room is on the second floor right over the entrance, and there were many loud drinkers and talkers below on the outside area of the hotel at the entrance. When I woke up at 3:30 to go to the bathroom, amazingly there was still loud talk going on out there (sounded like fewer individuals, but louder), so I had to put my earplugs back in.

Thursday, July 12, 2018. I had set my alarm for six to go jogging, but upon awakening I saw that it was actually raining out, so canceled that plan. I might have done it anyway, but due to packing very light, I only have my one pair of New Balances, and no other shoes, so I didn't want to get them soaked. My wife Sandy had wisely insisted that I take an umbrella, so I should be ok on our sightseeing trip to Leipzig.

The breakfast buffet was very good, better than the dinner buffet last night. Then a competitors' meeting from eight to nine. It was a little hard to understand some of the information, including discussion of some arcane minutiae of zone logging. The only interesting part involved some demands from Ranko, 4O3A, and one of his team (they have several support people) questioning an answer in the most recent FAQ issued by the organizers a few days ago. Their issue is whether they will be allowed to receive two audio streams from two frequencies without using a subreceiver. They claim to have been working for four years on this problem, and have come up with some very clever way to skirt the rules that basically require that you receive on only one frequency at a time. It's not clear exactly what their proposal is, other than their attempt to employ some sort of technological edge over the other teams. I didn't get the impression that anyone else that I talked to either (a) understood exactly what they proposed, or (b) was sympathetic. I understand that the organizers eventually compromised by putting them in a special category, but since they ended up well down on the ladder it ultimately didn't matter.

We had signed up for a sightseeing trip to Leipzig, some 70 km to the southwest, to leave at about 10 a.m. We were in bus 2 with 21 others, and I gathered bus 1 was full. The trip there was boring, through flat, rainy countryside, with no guide on the bus and a bus driver who spoke no English (another flop by Dalichow, which arranged the trip). However, once arrived we had a very informative English-speaking guide and had an interesting time learning some of the history. The Zentrum area is a large pedestrian zone with lots of shopping and eating choices, as well as a number of historical sites. These included the church where J.S. Bach was choirmaster for 27 years and is buried, and the square where the 1989 revolt against the DDR's Communist regime got started. There is a plaque honoring a peaceful march on October 9, 1989, which was said to be the

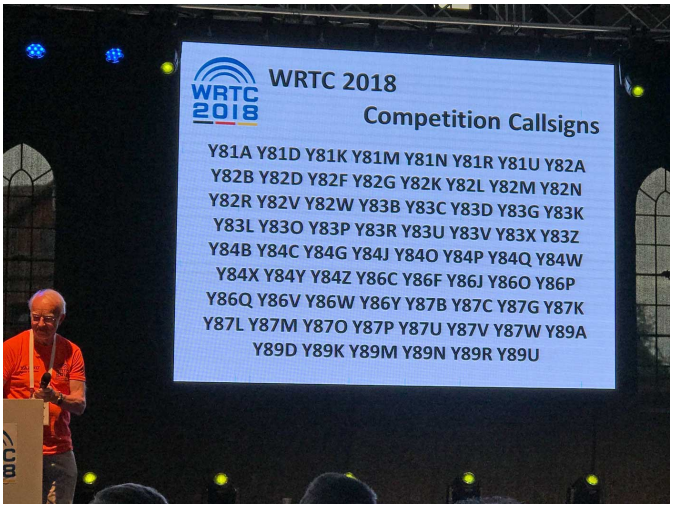
start of the end. The tour finished at two, and we had two hours free.

N6XI, AE6Y, Bill Vinci Enjoying Leipzig

A group of us: Rick, Bill Vinci, Pat N9RV and his wife, and I, opted to eat at an Italian restaurant and had an excellent outdoor meal followed by a cup of coffee (an Einspanner – espresso and thick whipped cream), then back to the bus to return at about 5:30. John Fore and Toni had arrived from Warsaw a little earlier, so I gave them their Opening Event tickets, and we chatted a bit.

Opening Ceremonies

The Opening Event was lots of fun. The first part was a parade of the countries into a large Hall. We competitors wore our yellow polo shirts, and the referees wore their green ones. We all marched in, emulating Olympic athletes, to cheers, cameras flashing, handshakes, etc. Just like being a real celebrity. We took an oath of integrity and sportsmanship, then there were several speeches, including a welcoming address by the Mayor of the City. Referees are Introduced.



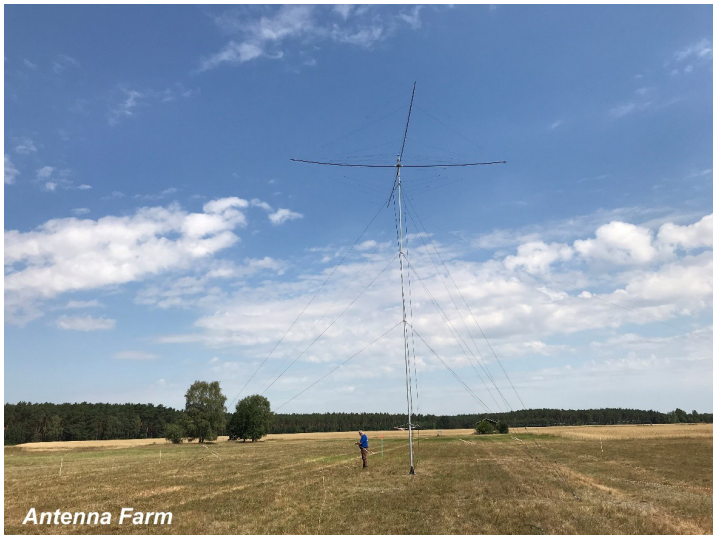
They finally announced the callsign block assigned to the contest, which consisted of various calls like Y81A, etc. This had been a closely guarded secret for a year (Andy, K2LE, thought that was to prevent piracy). Then a short walk to the Stadthaus for a buffet dinner. I didn't eat very much, though I did have one glass of beer at each venue. John and I talked at some length with Martin, OL5Y, and Petr, OK1CZ, about Martin's company, Mastrant, which offers various tower guying materials that could be useful for our next antenna/tower refit at P40L/P49Y. I ran into Frank Dathe, from whom we had purchased the two monitors (excellent Dell units, by the way), and he agreed to buy them back for half price when we were done with them. I also ended up selling my extra

tickets for half price following an email I had sent out the previous night: one to Mike, OE6MBG, for his wife Ceci, and one to Ralf, DK1KSA, who needed it for a friend.

Ed, W0YK and OM Crew

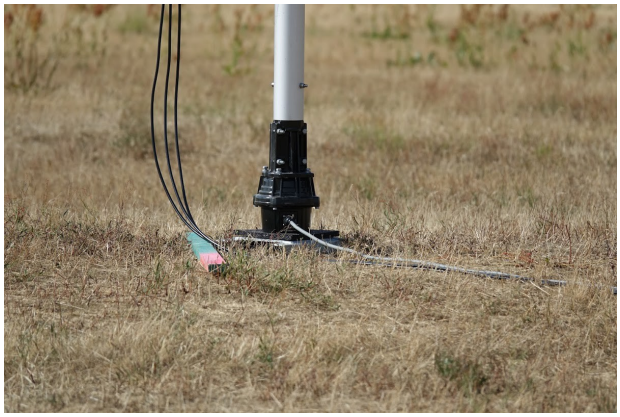
Our Site w/W6LD and Toni
N6XI, AE6Y, and G4BUO [Referee]

Back at the hotel at about ten, Rick and I planned to load our gear into the car tomorrow after breakfast, and that I'd leave the TS-590 in the hotel until Saturday, just to cut down on the baggage for Friday. I now have to pack up the monitor back in its box (since I've agreed to sell it, we have to be careful with it), and get the gear ready to go.Friday, July 13, 2018. A nice breakfast, then the rather chaotic station draw; we were 30th or so, and ended up in OEH-4, one of a cluster of sites east of LW. It's about 40 km away. We had loaded all our stuff in our van, which was still parked in the hotel garage. We pulled out on the street, then followed our site manager, Stefan, who drove up in an older Ford Galaxy like ours. It's near a town called Linda, in a field with the nearest house about 200 meters away. A very lovely site.The tent was a large camping tent, perhaps 7 by 12 feet, with a wooden floor and headroom over six feet in the middle. Inside were two tables, three chairs, and a light and small fan on each table, along with two power strips fed by the generator. The power strips featured European two-prong outlets, but we had brought American power strips to plug into them with adaptors, and had verified that all of our equipment worked on 220 volts. The site also contained a Honda 2000 generator 50 meters away, the porta-potty another 50 meters away, and the manager and his helpers, Tobias, Bernd, and Aro, staying in a small caravan and large brown tent with a covered shade area where they have a table and chairs set up. And, of course, a beautiful a 14-meter rotating tubular mast, sitting on top of a Yaesu ground-mounted rotor. The mast was guyed at three points with slip rings to allow rotation.


Antenna Farm

The Spiderbeam effectively had three wire elements on 20 and 15 and four on 10, along with a 40-meter shortened dipole mounted along the boom (and thus at right angles to the other antennas). There was also an 80-meter inverted vee suspended from the top of the mast. It had power pole connectors at the ends to lengthen or shorten each end by two feet or so (we just left them in the long position, and the antenna had SWR under two to one over the range from 3.5 to 3.7 MHz). The 40 also had a two to one SWR bandwidth from 7.0 to 7.2 MHz, a surprising large range for a shortened design.

Beam & Inv V Feedpoint



It was all very civilized, but hot in our tent. We got there before noon and immediately started to set up our radio gear at two tables at right angles to each other. We used the new Dell monitors that I had bought, but there was an immediate problem in that it was so bright in the tent that the monitors washed out. The guys rigged up a tarp that they had been provided with, using duct tape to fasten it to the guy lines to darken it a bit at my end (which faced east), and that helped somewhat, though Rick, facing north at the west end had a similar problem later, so they moved the tarp to his end.

Everything seemed to work ok, and we found absolutely no interstation interference. This had been a problem during testing at Rick's Truckee location, but not here. This is consistent with the wisdom from W2SC that interstation interference is never a filter problem. Dave, G4BUO, our referee, was great. After we networked our computers successfully, he set up his "score reporting computer" a black box prepared by Ben, DL6RAI, with its own cell antennas built in to allow real-time score reporting. Also the power monitors, which were two cubes about three inches on a side, one for each radio, attached to a small readout box placed on top of the SixPak controller. The box had green, yellow, and red lights, calibrated for 100 watts. It was very sensitive and would react to a one watt change in the K3 knob. We generally had to be in the green with some yellow flickering allowed.

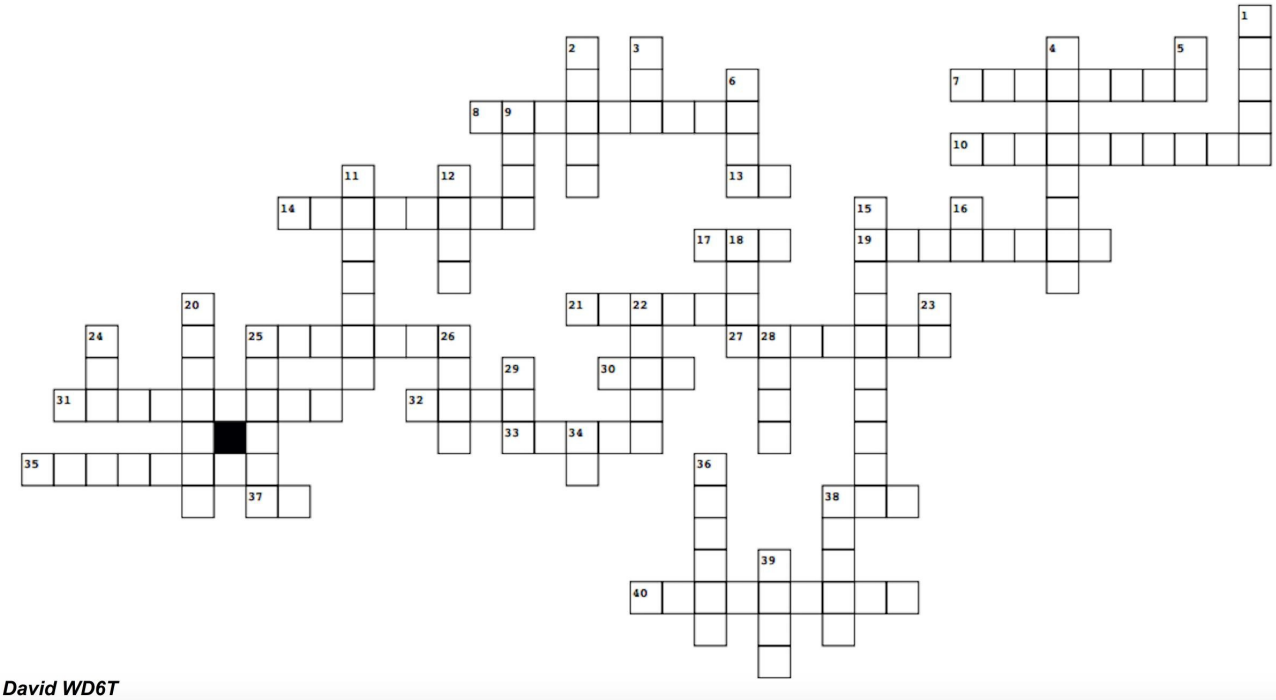
The guys barbecued some lunch for us, but unfortunately the main item was pork steak, which Rick can't eat. It took a while to explain why to them. They all speak English, some better than others.

We worked some guys using temporary callsigns DL/AE6Y and DL/N6XI and verified that everything seemed to be functioning properly. John and Toni visited the site and posed for pictures with us, and the official photographer, Katherina, came by also. There are posts and tape around the tented area to keep other visitors away. We left at about six and drove ourselves back to the hotel, having set the destination into both my Garmin

and the car's internal nav system. Since John and Toni didn't have ticket for Dinner 2 tonight, they and Rick and I went off to a restaurant called the Brauhaus, for a very nice, leisurely, outside German meal. Toni, a native German speaker, helped us understand the menu selections.

[This is the end of Part One. Part Two will pick up the story starting on Saturday, July 14, 2018, the day the competition began.]

NCCC X-QSO



David WD6T

Across

7. Friends of high bands
8. Helps you shout
10. Punchy
13. Better tasting and less filling than spark
14. Key to contesting
17. Wednesday contest
19. Venerable band
21. Hang it on the wall
25. Division
27. Biggest contest
30. Mouse that roared
31. Hard to predict
32. Dipole array
33. The number of major contest modes, at least as of the 21st c.
35. Fastest contest
37. NCCC often won it
38. Best band in 2023
40. NCCC needs one by April

Down

1. Turn turn turn
2. Shiny objects in a contest
3. Flub
4. State festivity
5. More is better
6. Next stop, Bologne
9. Repeater made of green cheese
11. Easy win
12. Easy win
15. Vertical array
16. Shortest contest
18. Mamma don't allow no contestin' 'round here
20. Easy win
22. Sammie's mode
23. NCCC motto
24. Best state festivity
25. The goal
26. Convince someone, or deliver power
28. Loop array
29. Clarifier
34. NCCC often won it
36. Enemy of low bands
38. Every ham needs at least one
39. SHF hams need at least one

Editor Notes

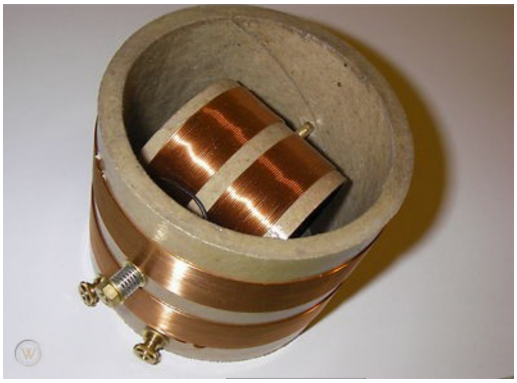
As usual, many thanks to our contributors. WRTC runs concurrently with the IARU contest, 7-8 Jul in 2023, and the teams really do want to work you! You may not be in Italy, but you can still be part of the fun.

My TACAN maintenance troop at Galena (took photo at left) was A1C Terry Bailey. Our TACAN was very reliable, he had extra time, so he ran the MARS and AF SSB station for me. Note radios in front.

The KWM-2A and S-Line had rapidly increasing roles in military HF SSB communications in the early 60's so the DoD established a 2nd source. The S-119 (R-104 RX and T-102 TX) was a clone of the S-line, even using the same crystals. Many found their way into ham shacks, cheaper than Collins – not quite the same quality. That's an R-104 at left.

Who made us?

I'm a Variometer



A variometer is a device for obtaining a wide range of continuously variable inductance values without tapped coils or sliding contacts. A two-part nested inductor, the inner one is on a shaft such that it can be rotated within the outer one.

When the windings are in the same direction, the magnetic fields support each other and the pair exhibit maximum inductance. As the inner one continues to rotate, the coupling between them decreases. The photo shows a variometer at roughly ½ inductance. Rotating the inner coil further lowers the total inductance until the coils are again parallel but with opposing magnetic fields and the inductance is at minimum.

Variometers were also used for variable coupling between two circuits [e.g. power amplifier – antenna]. They're not found in radios today but at the antenna of an AM broadcast station, open the enclosure, blow out the weeds, cobwebs, rat's nests, and other detritus, and you might see a variometer. Pilots [NCCC has at least one that I know of] will also recognize "variometer" as an older name for a much different device found on the instrument panel of airplanes. That kind exhibits zero inductance.

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. Send your material to *k6dgwnv@gmail.com* indicating "JUG Submittal" in the subject.

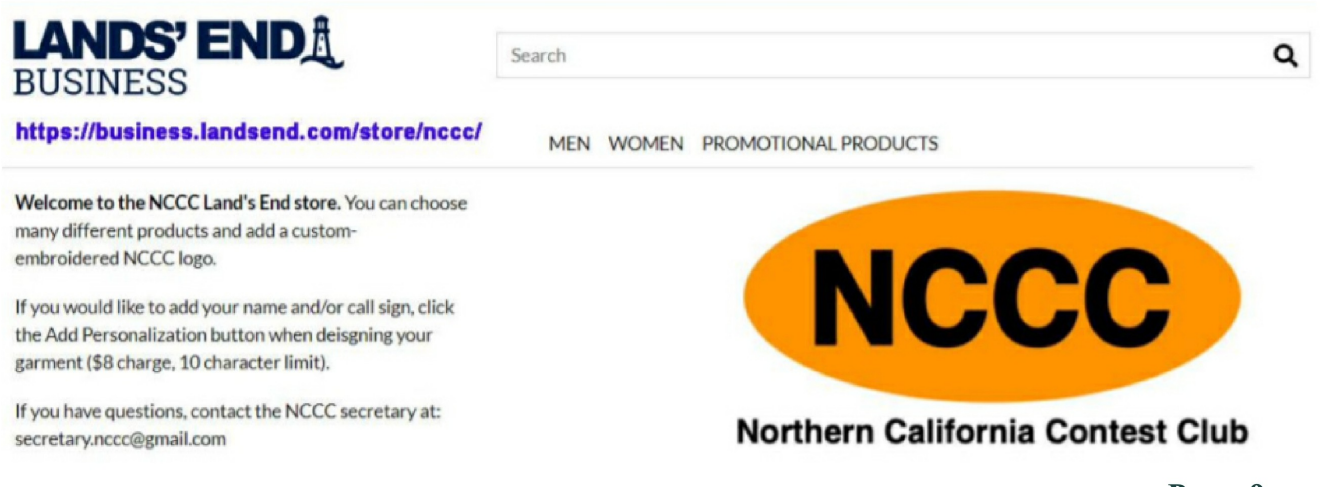
Northern California Contest Club Reflector—Guidelines

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: "NCCCKB"



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.
9. Start Secure Check out. Account creation and credit card required.

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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***Free Shipping and Fast Delivery!**

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-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-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-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-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

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-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/QRPp • Bluetooth® and Wireless LAN Built-in

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-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

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

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-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-V86 | *VHF 7W HT*

• 7W OutputPower 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-T10 | *Rugged 144/430 MHz Dual Band*

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

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

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

- **RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday**
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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

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-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

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-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

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

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/Fixed Node with HRI-200

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-200DR | *C4FM/FM 144/430MHz Dual Band*

• 1200/9600bps APRS® Data Communications • 2" High-Res Full-Color TFT Display • High-Speed Band Scope • Advanced C4FM Digital Mode • Voice Recording Function for TX/RX

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

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-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

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

• All New User Operating Interface-E2O-III (Easy to Operate-III) • 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

5 Ways to Shop!

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