



#621 – April 2024



JUG

Publication of the
Northern California
Contest Club

NCCC

**NCCC – 53 years
of contesting
excellence**

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

Next Meeting
Sat 20 Apr 2024 1130 PDT
Cattlemen's – Livermore

Annual Awards and Elections

President's Report **David West, KO6M**



My Fellow KBers,

It has been a wonderful year. I feel as though we had a productive contest season. I would like to thank Bob Cox (K3EST) for his support and time as Director on the Board of Directors. He started and we will continue the “Champion of Asia-Oceania” Challenge and he has a wonderful idea about an on air event that while we didn’t get to implement it this year, I hope we can put on the calendar for next year. Stay tuned for that info.

It wasn’t just Bob that I should say thank you to, I appreciate the hard work that the entire Board and the other volunteers have put in. We couldn’t have done it without each other. Thank you to Chris for his hard work as VP and Contest Chair, to Nian for his keeping us on track economically, Greg for his keeping us together and informed, to John and Ed as the other Directors for their advice and guidance as well as support, and to Dave J. for his keeping me on track with what I should be doing and his stepping in as needed for Chris. I also would like to extend a heartfelt thank you to all of you that have helped in any way over the last year.

This year of course was my first year as President and boy was I a little enthusiastic. I had ideas that we may not have been able to put forward, but it takes more than a year sometimes to get things rolling. So, with that I’ll say, if you’ll have be, I’ll run



again this year. I plan on continuing the enthusiasm and look forward to the possibilities.

In the next week, we will have our Awards and Elections Meeting. I cannot wait to hear Dean's presentation of the CQP Awards. I expect Gary to hit it out of the park with the KB contest awards and of course the extra awards like "Iron Butt", "Maximum Smoke", and "Rookie of the Year". Somewhere in there I'll present at least one award but probably a couple others as well.

Since it is an Election as well, I would like to present the Proposed Slate for the 2024/2025 year:

President: David, KO6M (Continuing)

Vice President/Contest Chair: Chris, N6WM (Continuing)

Secretary: Greg, KK6PXT (Continuing)

Treasurer: Nian, WU6P (Continuing)

Director: Contested, Ed- AJ6V, John-K6MM, Barry-K6ST, & Jim-K9YC

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Past President: Dave, WD6T

Note, it is an election, you may throw your hat in the ring or the hat of someone else. Please let me know if you would like to make a nomination.

As you can see, we will have an election for the Director spots. All Full Members present in person or on Zoom will be able to vote. Per our By-Laws "Only Full members have voting privileges". Voting link will be provided during the zoom meeting.

As Dave Jaffe said last year at this time "it's full steam ahead for NCCC".

Sincerely,

David West

KO6M

NCCC President 2023/2024



About NCCC

Officers and Directors, 2023-2024 Contest Season

President: David West, [KO6M](#)
Vice-President/Contest Chairman: Chris Tate, [N6WM](#)
Secretary: Greg Alameda, [KK6PXT](#)
Treasurer: Nian Li, [WU6P](#)
Past President: David Jaffe, WD6T
Director: Bob Cox, [K3EST](#)
Director: John Miller, K6MM
Director: Ed Radlo, [AJ6V](#)

Volunteers

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

NCCC Thursday Night Contesting

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

Communications

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

JUG Editor

Fred Jensen, [K6DGW](#): k6dgwv@gmail.com
Home: 775.501.5488
Cell: 530.210.0778

happy to have him along as a friend and an officer, but also a bit dissatisfied that no-one was sitting there with him most of the time. I will leave it to you the general membership to ask yourself the question, is that ok? It takes so little time to pick a small item or offer some time to help.. are you really ok with letting our club officers do this themselves?

Thank you Greg for everything you did to maintain the NCCC's commitment to presence at this well known event and making our club members and contesters from around the country and world comfortable. And to the rest of our membership, please think about ways you may be able to help in a situation like this. Your NCCC officers are tasked with running the day to day operations of the club and spend countless hours doing so. I would suggest that the expectation that the club officers handle all volunteer duties as somewhat off frequency. I hope you all agree and think about what you can do and take the steps to help the club.

VP/CC Report **Chris Tate, N6WM**



Greetings Kbers!

It's the Day after my return from Visalia as I write this, and I have been spending the morning reflecting on the event.

Attendance was down significantly, however it was great to see a good number of NCCC members down having wonderful eyeball qsos, and enjoying the fellowship we as contesters and dxers have. Part of that process is the NCCC sponsored hospitality suite.. it's a venue where contesters new old and prespective get together and ragchew over a beverage or a snack, pland contestpeditions and share stories of prior ones.

This year, the heavily attended hospitality suite would not have been possible had it not been for the hard work, and dedication of Greg KK6PXT. Greg selflessly volunteered to go down to Visalia, went to purchase beverage and snacks for the hospitality suite. In addition to that, he setup and staffed the NCCC table to establish a presence for our club and get the word out for membership. Greg is really owed a debt of gratitude from our membership for all this work.

Now, this brings me back to the subject of volunteering to help your club. Seeing Greg sit at the NCCC table and later at the hospitality suite both made me proud and



While on the subject of Visalia, I wanted to thank our faculty of presenters, Tom ND2T, Bob N6TV, Hank W6SX, Rusty W6OAT and Mark K6UFO for their engaging, interesting and on point material that made Contest Academy a bit success. This is the kind of volunteer work that I am talking about. Thanks to all of you for your contribution and presenting such a great program.

In closing, this was a great and interesting contest season. With one more big one at the end of may (CQ WPX CW) we will reset with a partially new board and slate of officers. We find ourselved in Solar peak conditions, hopefully for the next couple of years. As we await the results of our club contest pursuits, I want to say how proud I am to serve as your contest chairman and your contest contributions. We had a great year, with great contest conditions, and next year is lining up to provide more of the same. For those traveling to Dayton Hamvention this year, have a safe trip and great fun. For the rest of us, lets look forward to WPX and start planning our program for the 2024-2025 contest season.

73 and seeya next edition

Chris N6WM, VP/CC

Upcoming State/Province QSO Parties

CONTEST	DATE(S)/TIME(S)
Nebraska	4/20 1100Z – 4/22 0059Z
Michigan	4/20 1600Z – 4/21 0400Z
Ontario	4/20 1800Z – 4/21 0500Z 4/21 1200Z – 1800Z
Quebec	4/21 1200Z – 2200Z
Florida	4/27 1600Z – 4/28 0159Z 4/28 1200Z – 2159Z
7th Call Area [7QP]	5/4 1300Z – 5/5 0700Z
Indiana	5/4 1500Z – 5/5 0300Z
Delaware	5/4 1700Z – 5/5 2359Z
New England [NEQP]	5/4 2000Z – 5/5 0500Z 5/5 1300Z – 2400Z



Awards and Elections Meeting

Saturday, 20 April 2024

11:30 – 15:00 PDT

Cattlemens Restaurant

2882 Kitty Hawk Road

Livermore CA 94551

Click [HERE](#) for map and food choices

President: David, KO6M (incumbent)

Vice President/Contest Chair: N6WM (incumbent)

Treasurer: WU6P (incumbent)

Secretary: KK6PXT (incumbent)

3 Directors: We have four nominations:

Jim Brown, K9YC



Jim's holds a BSEE, and he retired from a long career in pro audio around 2009. He's been contesting since 1957 during high school days in WV, later for 42 years in Chicago, on postage-stamp lots and running barefoot.

Moving to the Santa Cruz Mountains in 2006, he joined NCCC and started building a station in 8 acres of redwoods that included his first aluminum. For about ten years, he's been part of teams with W6GJB, W6JTI, N3ZZ, K6EU, K6SRZ, K6MI, NI6T, and N6RNO to activate rare counties for CQP and 7QP.

Jim was appointed as our representative to ARRL's Contest Advisory council a few years ago. His fingerprints are on the scoring rules for the new ARRL Digital contest, and on the new Limited Antenna Category.

At 82, and with health vulnerabilities, he and his XYL of 35 years no longer attend in-person events. We miss both -- hanging out with friends and listening to live jazz are what Jim enjoys most at these gatherings.

Ed Radlo, AJ6V (incumbent)



Ed Radlo AJ6V is an incumbent member of the NCCC Board of Directors, and is a candidate for re-election in April 2024. Ed first joined the NCCC in 1979, and received the Rookie of the Year Award that year. Ed served as NCCC President in 1984-1985, then on the Board in 1985-1986, and has been a current Board member since 2022. Professionally, Ed is a registered patent attorney and a member of the California Bar. His law practice comprises patents, trademarks, export control, licensing, litigation support, and government contracts.

John Miller, K6MM (incumbent)

Stealth candidate

JUG did not receive biography in time but everybody knows John.



Barry Bettman K6ST



Hello NCCC Members, I am Barry, K6ST, running for Director to help the NCCC Board bring more hams into contesting. As the current President of the Sierra

Nevada Amateur Radio Society and the ARRL Nevada Section Youth Coordinator, I will bring ham radio contesting and youth activities together for the future generations to the NCCC.

First licensed in 1973 as a novice and upgraded through General, Advanced, to Extra class licenses, I am an avid ham radio operator of 51 years. I am active in contesting on HF, VHF, UHF, Phone CW, Digital, Expeditions, and mentoring others to excel in contesting. Having fun with ham radio and making long-lasting relationships with diverse ham radio operators worldwide in contesting is my quest.

I will be my pleasure to serve as an NCCC Director in the coming term.



Results - The Thirty-Seventh NCCC Sprint Ladder Competition Four of Six Weeks, Winter 2024, Jan 25-Feb 29 Bill Haddon, N6ZFO Director, NCCC Thursday Night Contesting

As COVID restrictions diminished the expectation was that many NS regulars would be out vigorously celebrating their regained freedom, perhaps leaving less time for the NCCC Sprint. That was not what happened. The 37th Sprint Ladder remained an amazingly popular Thursday night entertainment, with a total of seventy stations participating and twelve showing up for all six weeks of the competition. And setting new low power standard for the event was John, N6HI, running 0.25 watts to a simple dipole antenna in Arizona. Congratulations, John. And KM9R has been providing the much-needed NV section.

Our NCCC Ladder and NS team has benefited from the weekly NS, and often NSL, announcements from Tom, N3ZZ for many years. Now Tom is taking a pause, hopefully temporary, while he and his XYL relocate to a new call area. Tom, from all of us, a hearty thank you!

From NY Times, March 8 2024 Page 1

No More No. 2 Pencils: The NS Goes Fully Digital

The new format cuts nearly an hour out of the NS

4 MIN READ



There was bad news from DanWa, K7SS after the announcement, in the New York Times, that Dan's favorite logging tool, the #2 pencil, was henceforth banned. OK. . technically, that was for the Scholastic Aptitude Tests (SAT's) but the prohibition *could* extend to the NS and NS Ladder. Some will think this information is fake news, but that *is* the era we're in currently.

NSL 37 Scores: For NSL divisions, the winners of NSL 37 were Lar, K7SV, Greg, NA8V (Narrowly beating W9RE, who got side-tracked with a Caribbean radio expedition), WD6T, K7SS and KZ5D. Congratulations! In an amazing close competition in the Atlantic Division N4AF bested N3QE by just four points out of 9,400.

In many contests there are complaints about regional score differences. In our five geographically diverse divisions, the leading scores were: 10,236 (K7SV, Atlantic); 10,506 for Greg, NA8V (East Central); 9,608 for WD6T in the NCCC

division; 10,412 for K7SS in the West Division and 9394 for Art, KZ5D in the West Central division, a spread of about four percent.

The return of the Locust, K6VVA, a co-founder of the NCCC, provided notable discussion of the Locust's favorite topic, namely our failure to "spread out" in frequency. ">OMG...especially on 40m... S-P--R---E---A-----D O-U--T!!!!!!!" There is probably no way to enforce "spreading out." The NS has been dubbed, by the NCCC Web guru John, K6MM, as "contesting on the edge." The crowding emphasizes that aspect, a reality of competitive contesting. The consensus is that the crowding mirrors the reality of high intensity contesting, making the NS an exceptionally good high-rate preparation for contesting in general.

Results - 37th NCCC Sprint Ladder - Jan 26-March 1, 2024

Atlantic Division

Call	Class	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Ave	High 4
K7SV	LP	2100	1786	2806	2420	2296	2714	2353	10236
N4AF	LP	2223	2280	2320	2262	2080	2585	2291	9447
N3QE	LP	2142	2160	2160	2268	2173	2842	2290	9443
W2RQ	LP		1900	1855	1989	2106	2310	2032	8305
K8MR	LP	1408	1530		1131	1240	1634	1388	5812
W1FJ	LP	888		1496	1271		1794	1362	5449
K8CN	LP	800	1147	1073	775	918	1287	1000	4425
N03M	LP		1862			1271		1566	3133
K3MM	LP	1280					1786	1533	3066
K4BAI	LP	588		460	945	56	896	589	2889
KY4ID	LP	504	744	775				674	2023
N3SD	LP			510	294		667	490	1471
AJ1DM	LP	468		418	437			441	1323
NK40	LP					380	644	512	1024
W1UJ	LP		962					962	962
PJ2/W8WTS	LP	805						805	805
N4NTO	LP					255		255	255

East Central

Call	Class	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Ave	High 4
NA8V	LP	2520	2520	2530	2891	2160	2565	2531	10506
W9RE	LP	1700	2914	2378		2280	2835	2421	10407
N8EA	LP	2668	2365	2898	2337			2567	10268
W8WTS	LP		2376	1800		2279	2310	2191	8765
KW8N	LP	2072	2173	2014	2365	1540		2032	8624
W1NN	LP	1428	1911	1920	1824	1748	2156	1831	7811
VE3YT	LP	1750	1204	1961	1428		1950	1658	7089
K1GU	LP	1504	1452	1053	1204	1728	1435	1396	6119
K9BGL	LP		1512	1924	1408	1271		1528	6115
W4NZ	LP		1813	1470	1344	1170		1449	5797
N4DW	LP	1102	1170	1312	1504	1092	1344	1254	5330
N9LQ	LP		858	972	800	1080	1131	968	4041
N7ZZ	LP	748	945	836	682			802	3211
KY0Q	LP			754	560		891	735	2205
K0EJ	LP			1131	918			1024	2049
NF8M	LP	504			616			560	1120
JU N9UNX	LP			621				621	621
AA9RK	LP		72		16	156	49	73	293
KP2/W9RE	LP				192			192	192
KB9S	LP		24					24	24



NCCC in CA/NV

Call	Class	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Ave	High 4
WD6T	LP	2508	2537	2337	2120	2226	1656	2230	9608
N3ZZ	LP	1680	1598	1976		1728	1739	1744	7123
K6VVA	LP	1305			1656	1485	1645	1522	6091
N6ZFO	LP	1116	1440	900	1887	1178	360	1146	5621
AJ6V	LP	1276	1044	1419	1353	1408	1092	1265	5456
N6TTV	LP	759	551	696	713	594	690	667	2858
K6NV	LP	390	775	726	450			585	2341
N6TV	LP	2214						2214	2214
KM9R	LP					558	696	627	1254
W1RH	LP			320			456	388	776

West

Call	Class	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Ave	High 4
K7SS	LP	2580	2337	2508	2772	2301	2552	2508	10412
N5ZO	LP	2530	2255	2322	2255	2484	2107	2325	9591
N0TA	LP		1260	1739	1748	1610	1840	1639	6937
KI7Y	LP	874	850	851	999	925		899	3649
NN7SS	QRP	651		792		936	744	780	3123
K4XU	LP				1764			1764	1764
WJ9B	LP		396				1353	874	1749
AA7V	LP				1628			1628	1628
N7VS	LP		418		418	240	456	383	1532
WA8ZNC	LP		221					221	221
N6HI	QRP	28	40	48	49	24	54	40	191
WU8T	LP					135		135	135



West Central

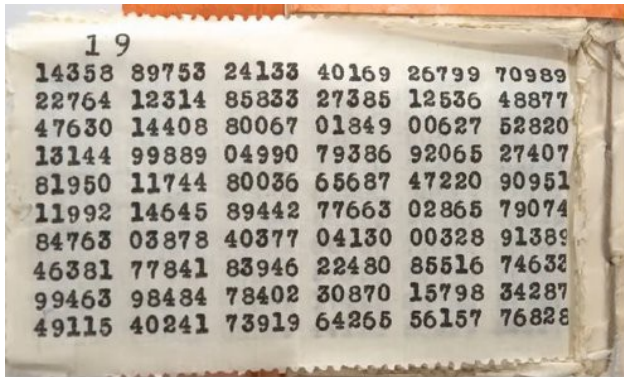
Call	Class	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Ave.	High 4
KZ5D	LP		1950		2464	2244	2736	2348	9394
K0VBU	LP	1350	1457	1344	2040	1656	1840	1614	6993
W0BH	LP		1938	1419	1584	868		1452	5809
N0AT	LP	1470	2184	2091				1915	5745
K0TG	LP	1050	1053	1845	1672	1008		1325	5620
AI60	LP	945		957	924	713	1116	931	3942
KG5U	LP	972	1200	484		525	986	833	3683
N0AC	QRP	320	560	560	572	418		486	2110
K0AD	LP		1419					1419	1419
N3BB	LP		1408					1408	1408
K9BGL	LP	891						891	891
N5FZ	LP			16	42	42	42	42	126



The Great KPH Crypto Test

“Message to Agent 447”

The first two KPH Crypto Tests utilized the WW2 German “Enigma” machine. Some of these machines do still exist, primarily in museums and with collectors, and there are a number of emulations available on the Internet. The third KPH Crypto Test in early January 2024 explored another, older cryptosystem called a “One-Time Pad” [OTP]. It requires no equipment making it particularly useful for communicating with agents [e.g. spies] where possession of an encryption device would almost certainly lead to undesirable consequences. OTP's were very prevalent in diplomatic communications with embassies in foreign countries in the 20th century..



The One-Time Pad [OTP]: One-Time Pads are symmetric cryptosystems ... the key that encrypts also decrypts. An OTP consists of a pad of paper filled with a very very long string of random characters . That long string of characters is the “key.” The pad is printed in duplicate, and each end of a communications circuit has one copy. There is generally space between the lines for hand printing the characters to be encrypted or decrypted.. Since there are only two copies of a given pad, only the appropriate sender can encrypt and the intended recipient can decrypt an OTP-encrypted message.

To encrypt a message, the sender writes the message on the line immediately below the key characters, beginning where the previous message ended, or at designated starting group. Then, using an agreed upon method, each message character is combined with the key character above it yielding an enciphered character which is written below the plaintext character. Decryption is the exact inverse. The received ciphertext is written below the key, the key and received character are each combined using the same agreed rules, and the plaintext of the message is printed below. Once used, both ends of the circuit destroy the page(s).

Encrypted communications with secret agents is almost always one-way. Agents have a “cover” and possession of a radio transmitter would very likely blow that cover. Receivers are not nearly as dangerous. As a result, the messages are sent in the blind, usually on a pre-arranged schedule and frequencies.

The KPH Crypto Test: KPH conducted the test just like the previous two ... after an announcement at 2200Z, they sent the encoded message twice at 15 WPM on their normal working frequencies. I copied it on ITU Ch3 on 6 Mcs. The message was:

```

CQ CQ CQ DE KPH KPH KPH
NUMBERS MESSAGE FOLLOWS BT
447 447 447
14408 22398 89277 37674 58289 07722 15378 84975 30552 61128 69986 02108
68467 10079 92331 32982 54092 37446 22905 15340 17229 81152 39418 67073
25414 81456 43361 BT
  
```



The initial 447 three times is the addressee, presumably the secret agent. Both the plaintext and ciphertext for this test are all digits.

The One-Time Pad [above] was provided ahead of the test on the KPH website. Note the first group of the encrypted message, “14408:” This is a marker that indicates where to start the decryption. It’s in the third row, second column. The second received group, “22398”, aligns under the “80067” where the decryption starts.

I expanded the OTP into a worksheet [rows in black marked “K” for key], and wrote the ciphertext I copied into the rows marked “C” in red under it. Then, the plaintext in the rows marked “P” in blue is formed by adding each key digit to the corresponding ciphertext digit modulo 10.¹ That’s the encipher/decipher function in decimal, equivalent to the Boolean XOR operation in binary, and is the first part of the “agreed upon method” mentioned above.

K	47630	14408	80067	01849	00627	52820	13144	99889	04990	79386	92065	27407
C		14408	22398	89277	37674	58289	07722	15378	84975	30552	61128	69986
P			02355	80016	37291	00009	10866	04157	88865	09838	53183	86383
K	81950	11744	80036	65687	47220	90951	11992	14645	89442	77663	02865	79074
C	02108	68467	10079	92331	32982	54092	37446	22905	15340	17229	81152	39418
P	83058	79101	90005	57918	79102	44943	48338	36540	94782	84882	83917	08482
K	84763	03878	40377	04130								
C	67073	25414	81456	43361								
P	41736	28282	21723	47491								

Conversion of Numeric Codes to Plaintext: All that’s left is some method for turning those plaintext digits into letters. For that, the KPH test used two additional items, a conversion table and a code book of common words. The chart at the left is the conversion table. The rules are:

CODE	A	E	I	N	O	T	Conversion Chart № 03086					
0	1	2	3	4	5	6	K	L	M			
70	71	72	73	74	75	76	77	78	79			
P	Q	R	S	U	V	W	X	Y	Z			
80	81	82	83	84	85	86	87	88	89			
FIG	(.)	(:)	(')	(.)	(+)	(-)	(=)	REQ	SPC			
90	91	92	93	94	95	96	97	98	99			
0	1	2	3	4	5	6	7	8	9			
000	111	222	333	444	555	666	777	888	999			

1: If the decrypted digit is between 1 and 6, the top row indicates the appropriate letter.

2: If the decrypted digit is between 7 and 9, it and the next digit form the entry into rows 2, 3, or 4.

3: If the decrypted digit is 0, the next 3 digits, taken together are the index into an entry in the codebook (see below).

Numbers will begin with “90” [FIG] followed by one or more 3-digit groups followed by [FIG] again. Row 5 decodes the 3-digit codes although it’s not very hard to just do it yourself. A sequence of numbers is ended with another “90” – kind of like FIGS/LTRS in Baudot RTTY.

Note that, unlike Enigma, this cryptosystem includes both numbers, space, and some punctuation. Space was typically used only when necessary to prevent confusion.

¹ Add the corresponding key and ciphertext digits and discard all but the lowest significant digit



Codebook #733: This is the codebook we were given ... a decrypted “0” denoted that the next three decrypted digits were the key into it.

CODE BOOK #733			
000 ABORT	253 DECODE	505 MILITARY	758 STREET
019 ACCEPT	262 DELAY	514 MONEY	767 SUBWAY
028 ACCESS	271 DIFFICULT	523 MONTH	776 SUCCESS
037 ADDRESS	280 DOCUMENT	532 MORNING	785 SUPPLY
046 AFFIRMATIVE	299 ENCODE	541 MORSE	794 SUPPORT
055 AGENT	307 EVENING	550 NEGATIVE	802 TELEPHONE
064 AIRPLANE	316 EXECUTE	569 NIGHT	811 TODAY
073 AIRPORT	325 FACTORY	578 OBSERVATION	820 TOMORROW
082 ANSWER	334 FAILED	587 PASSPORT	839 TRAIN
091 AUTHORITY	343 FERRY	596 PERSON	848 TRANSPER
109 BETWEEN	352 FLIGHT	604 PHOTOGRAPH	857 TRANSMIT
118 BORDER	361 FREQUENCY	613 POSITIVE	866 TRAVEL
127 BUILDING	370 HARBOUR	622 POSSIBLE	875 TRUCK
136 CANCEL	389 HELICOPTER	631 POWER	884 UNABLE TO
145 CHANGE	398 HIGHWAY	640 PRIORITY	893 URGENT
154 CIVILIAN	406 IDENTITY	659 PROBLEM	901 VERIFY
163 COMPROMISE	415 IMMEDIATE	668 QUESTION	910 WEEK
172 COMPUTER	424 IMPOSSIBLE	677 RADIO	929 WITHIN
181 CONFIRM	433 INFORMATION	686 RECEIVE	938 YESTERDAY
190 CONTACT	442 INSTRUCTIONS	695 RENDEZVOUS	947 MOSCOW
208 COORDINATE	451 LOCATE	703 REPEAT	956 BERLIN
217 COUNTRY	460 LOCATION	712 RESERVATION	965 PARIS
226 COVERT	479 MAIL	721 ROUTINE	974 LONDON
235 CURRENT	488 MEETING	730 SATELLITE	983 ISTANBUL
244 DANGER	497 MESSAGE	749 SHIP	992 PRAGUE

Decrypting the Message: Here's the first few groups of digits in the message with their decoding to plaintext shown below:

0235 5 80 0163 72 91 0000 91 0866
 CURRENT O P COMPROMISE D . ABORT . TRAVEL

and you probably get the idea. The entire message to Agent 447 is:

CURRENT OP COMPROMIZED. ABORT. TRAVEL IMMEDIATELY TO ISTANBUL VIA SWISS PASSPORT. CONTACT AGENT MAX. DANGER, INSIST ON MOSCOW RULES. BURN AFTER READING.

One of the more creative “Agents” submitted his decryption with a photo of the OTP page burning in an

empty paint can. ☺

Every one-time-pad I've ever seen had blank lines under each key line so one could write directly on it for decryption. Copying the OTP onto a separate page as I did would be undesirable since it increases the number of items containing the key and message, and increases the probability that something might not get destroyed.

Security: The security of an OTP lies in the key being random, possessed by only two people on the planet, that it is longer than the message, and that once used, the key is immediately destroyed. If these conditions are true, it is essentially unbreakable. It's also very slow. In the 60's and 70's, devices were used to encrypt/decrypt standard 5-level Baudot teletype. They created a hugely long random string of characters which were mixed with the plaintext message traffic effectively automating a one-time-pad. They were initialized, nominally once per day at 0000Z, from a punched card [UNIVAC-style w/round holes] in a clamp-on card reader which, when closed, cut the card in half to prevent re-use.

Because the key stream was continuous, it sent continuous random Baudot even if the TTY was idle ... one could not tell from the ciphertext stream when an actual message was being sent. This thwarts attempts at “traffic analysis” – often, traffic would spike just before something important, such as D-Day ... and traffic analysis is a very useful codebreaking tool. For awhile after we first got 30 meters, there was a continuous, 45 baud, 850 Hz shift RTTY signal at about 10.145 MHz. It was printable but was just a continuous string of random characters, no doubt encrypted with some similar device.

Numbers Stations: There used to be many “Numbers Stations,” both on AM and CW, that sent groups of numbers seemingly continuously. Some still exist ... it's a little eerie to listen to them and know that Agent 447 is out there somewhere looking for his message. “Numbers stations” fed to Google will find more information about them that you could possibly ever want to know.



Tube of the Month

Norm Wilson, N6JV

Visit the Tube Museum at n6jv.com

4CX300A



In the 1950's, EIMAC developed their first ceramic tube the [4CX1000A](#). Different construction techniques were tried which resulted in a very strong and reliable tube. With this success, the Air Force wanted them to develop a smaller ruggedized tetrode for use in the new high performance jet aircraft where it would be subjected to much higher vibration and g load. EIMAC downsized the 1000A into a 300-watt tube with a breechblock socket system. After testing over 100 experimental tubes, they tried to determine how close they were to the special contract specifications. Eventually the tube was perfected to pass testing, but there were several failures. At an electronics show in August, 1956, EIMAC presented a paper titled *A New 300 Watt Stacked Ceramic Tetrode of High Reliability* to introduce the new tube. From this paper we can learn of the problems they had and the solutions they found.

The design parameters for the 300A were very challenging:

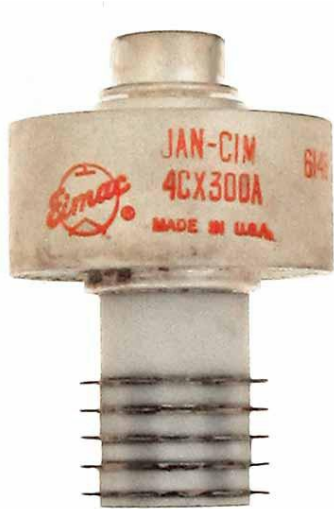
1. *Survive a 50g shock for 11 ms.*
2. *Survive vibration at 20g over 30 to 2000 cps at low noise.*
3. *Continuous operation at 250 degrees C.*
4. *Full rating to 500 MHz.*
5. *Simplified construction for "unskilled" labor.*

The new tube worked great at 500 MHz and could tolerate operation at 350 degrees C. The construction allowed the ceramic sections to fit like "Legos" so production was simplified. The problems started when the 50g shock caused the seals with the anode to fail. That shock is like being hit with a hammer and the tube would become bent in the middle. Making a stronger seal fixed this problem and it required no extra anode support. The vibration test was another issue. The tops of the screen and control grids weren't supported and rang like tuning forks at 700 and 1200 cps as shown in the graph that EIMAC supplied in their paper. A brazed ceramic pin was introduced to stabilize the grids and this was partially successful. Brazing both ends solved the problem and the result is seen as the small peak on the graph.

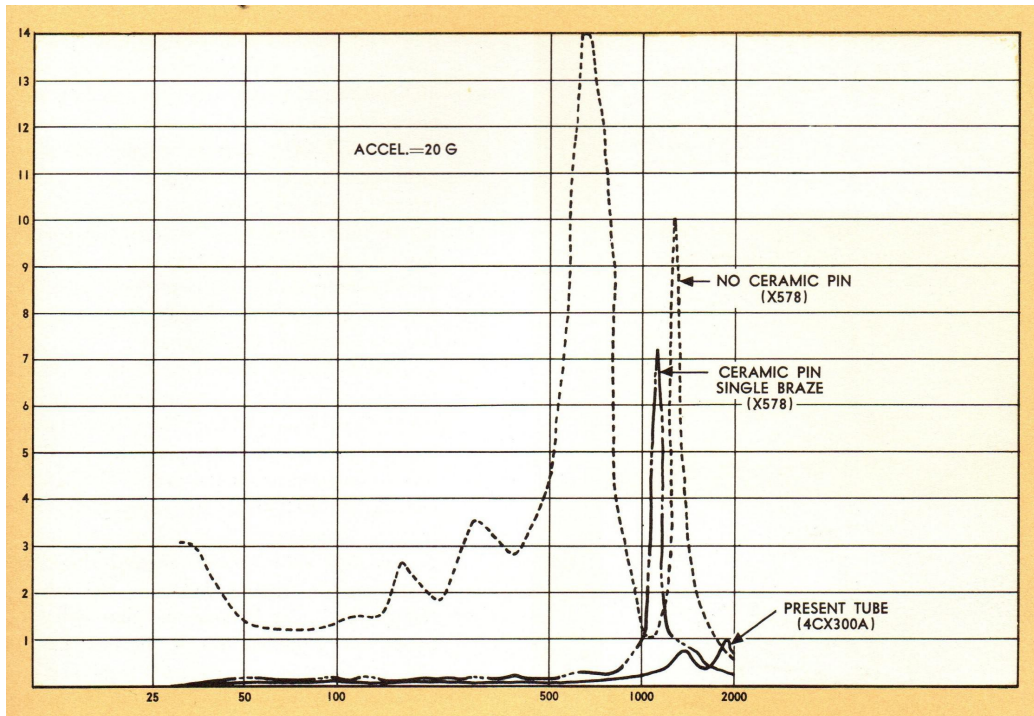
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The new [4CX300A](#) or 8167, operated with up to 2500 volts at .25 amps for 300 watts dissipation. The heater ran on 6 volts at 3 amps. EIMAC made a similar tube, the [4CX300Y](#) or 8561, that was a 400-watt tube but had 1



lower frequency limit.





Editor Notes



The Annual Awards and Elections meeting comes up on Saturday, 20 Apr, 11:30 – 15:00 at Cattlemen's in Livermore. It's a great review of the last contest year and “who did what where,” as well as our annual awards and elections.

The backlog of material for the JUG was still empty this month so there's another KPH Crypto Test spilling some ink and filling up a couple pages of whitespace. Next month, we should have the Awards recap and introductions for our new officers, but we seriously need to hear from our members. No need to fool around with formatting, plain ASCII text in an email ... in fact, preferred. Just attach photos and diagrams to the email as .jpg, .png, or other photo format files. Embedded photos/graphics sometimes do not extract well ... or at all. Please include a selfie if you haven't already provided one.

Addendum to Norm's “Tube of the Month”

Norm's graph of the vibration/acceleration tests run by Eimac reminds me of a problem we had with a truck mounted mobile digital control unit in the early 80's. It involved a single board using thru-hole construction [surface-mount was just beginning to appear]. The customer was Bonneville Power Administration, in WA/OR and the trucks spent a lot of their time on very rough, unpaved roads along transmission line routes. We were having problems some of the epoxy capacitors [the ones with the small “kink” in the leads for auto-insertion] fatiguing from the vibration and popping off the board.

While our Mechanical Engineer had a “Shake and Bake” test machine, we had no acceleration templates for the typical use profiles. Fortunately, our parent company owned an automobile parts manufacturer in Minneapolis who did have such templates and agreed to subject one of our units to them. As with Eimac's vibrating grid structure problem, they were able to duplicate conditions, even to blowing the same capacitors off the board that we were finding loose in the case.

We received our unit back along with the 3-axis acceleration/vibration results. They had painted a small white “X” on the PCB about a quarter of the way from the center toward one corner, and a note that said, “Place support post at the X, Sincerely, Acme Analysis Co.” We did that [we only had a small beta-group in the field at that point so it was a field retrofit] and never lost another capacitor.



NCCC Membership Information

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

Life Memberships

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

JUG Articles Wanted!

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

Northern California Contest Club Reflector—Guidelines

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

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

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



Northern California Contest Club

[NCCC Lands' End Store](#)

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

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

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

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

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Up to 5 receive antenna sources

Full remote control via Ethernet



The K4 interfaces seamlessly with the KPA500 and KPA1500 amplifiers

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