

# Publication of the Northern California Contest Club



Issue <u>544</u> September 2017



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# **Tuesday, October 10th**

6:00 pm, Social Hour, 6:30 pm Dinner, Program 7:00 pm

Sneha 1214 Apollo Way, Ste 404B, Sunnyvale, CA 94085



## **President's Report**

Page

Shame on me!!! Well...sort of.

In last month's President's article, I mentioned that CQP is the official start of the contest season. And, just what did many of us do last weekend? CQWW RTTY.....two weeks prior to CQP.

NCCC is a REALLY good RTTY contest club and we proved it again last weekend with a pretty darn good turnout for a summer contest. Looking at the numbers, I do want to point out some of the huge scores.

The team of N6WM, N5KO, W6OTC, and K6AW, generated 7,189,614 claimed points from ZF1A. This was a Multi-Two operation, from Grand Cayman Island, which has an excellent chance of making 1st Place North America and perhaps, after log checking, 1st Place World. Great job guys!

Other noteworthy claimed scores include:

K3EST - 2,592,051 – M/M – Operators: Al6JZ, K3EST, N6RO, NA6O, NH6V

W7RN – 2,116,920 – SOAB HP – Operator: WK6I

N6IE - 1,136,172 - SO(A)AB HP

KA6BIM – 1,002,690 - SO(A)AB HP

Continued on page 3



# **Officers:**

President W1RH **Bob Hess** w1rh@yahoo.com Vice President / Contest Chair Chris Tate ctate@ewnetinc.com N6WM Dick Wilson treasurer.nccc@gmail.com Treasurer K6LRN Secretary Ian Parker W6TCP secretary.nccc@gmail.com Past President <open>

DirectorRusty EppsW6OATw6oat@sbcglobal.netDirector:Rich CutlerWC6Hwc6h@yahoo.comDirector:Ron CastroN6IEronc@sonic.net

# Volunteers:

New Member Mentor Al Rendon WT6K wt6k@arrl.net Charter Member **Rusty Epps** W60AT w6oat@sbcglobal.net Awards Chair Gary Johnson NA60 gwj@wb9jps.com CQP Chair John Miller K6MM k6mm@arrl.net K6ZM QSL Manager **George Daughters** K6GT k6gt@arrl.net K6CQP,N6CQP,W6CQP QSL Mgr Ed Muns W0YK w0yk@arrl.net NCCC Email reflector Admin Phil Verinsky W6PK kb-w6tgg@verinsky.com Webmaster John Miller K6MM k6mm@arrl.net

Webinars <open>
JUG Editor Ian Parker W6TCP w6tcpian@gmail.com

# Thursday Night Sprint:

The Northern California Contest Club sponsors Thursday evening (NA local time) contest practice sessions of 30 minute duration.

On the Thursday (and, sometimes Friday also) prior to a major contest weekend, the practice format follows the upcoming contest.

Generally, on other Thursday evenings, a special format is followed, called NS or "NCCC Sprint". The NS began in the summer of 2004 as a snappy, concise contest occurring most Thursday nights, North American time. The power limit is 100 watts.

Thursday Night Contesting Director and Founder Bill, N6ZFO

NCCC CW Sprint Tom, N3ZZ (initially, Ken N6RO )

NCCC RTTY Sprint Ken, K6MR
NCCC Sprint Ladder Bill, N6ZFO
Sprint Web master www.ncccsprint.com John, K6MM.

non-NCCC: Tim N3QE (Ladder Scores manager )

Thursday night Contesting Advisory Group: N6ZFO, Bill (Chair)

Mark K6UFO, (with W4NZ, N4AF, W9RE, K4BAI, N3BB and W0BH).

The Thursday night NCCC Net Ken, N6RO

K6MR - 828,412 - SOAB HP

N6ZFO - 729,298 - M/S HP - Operators: N0KQ, N6ZFO

I was able to get on for a few hours on Saturday and conditions were not bad. I worked a bunch of Europeans on 40, 20 and 15 meters. Tyler, K6TLR, operated my station on Sunday and mentioned that he also worked a many Europeans on 15 and 20 well into the afternoon hours. Not bad for this point in the sunspot cycle.

With that said, contests like CQWW RTTY and the CQWW WPX contests, which allow for world-wide and domestic Q's, would seem to be the type of contests that our club members favor. It seems like we have those who like the international contests (CQWW, ARRL DX, etc.) and we have members who favor the domestic contests (SS, NAQP, etc.). Those contests that support both domestic and international contacts may just be the contests our club should focus on. I'll leave that decision to our VPCC.

CQP is rapidly approaching and I can't wait to see the log count this year. John, K6MM has done a wonderful job this year coordinating the contest. I really hope to see our total log count exceed 1,000 this year and, if we do, I'm sure it will be due to the revamped CQP Club Competition Rules.

Bringing SCCC into the contest is huge. This, alone, should generate more logs submitted but it should also bring new life to the Club Competition, which has been dominated by MLDXCC year after year. John has also spent countless hours of his time to insure that most, if not all, of the local clubs in California have been notified of the new CQP Club Competition rules.

The Mother Lode DX/Contest Club, by the way, is looking forward to this year's CQP. As a MLDXCC member, I sense renewed excitement and energy within the club as a result of the new CQP Club Competition Rules. Dennis, NJ6G and the MLDXCC President, has been rallying the troops and understands that if his club gets a win this year, it will be a hard-earned win.

I'm really hoping to see a bunch of local clubs enter the contest. This is good for not only CQP, but also for contesting in general. I can see many local clubs, especially California clubs, establish CQP as a second "Field Day" type of event. We all know that Field Day has generated many new contesters over the years. Now, I can see CQP doing the same.

Let's also remember that John, along with Rusty, W6OAT, and the CQP team, have also implemented the new Club Competition rules not only for in-state clubs, but also for out-of-state clubs. I've been a big proponent for a re-write of the CQP rules as long as I've been President of this great club. Multiple categories along with opening up the Club Competition to SCCC have been high on my list. There are a few items that didn't go my way in the re-write, but I'll go with the flow and, overall, I am absolutely ecstatic with the changes. I can't wait to see the results and the turnout from the regional and local clubs inside and outside of California.

## **VP/CC Report**

Christopher Tate, N6WM N6WM@largeradio.org



Chris ZF2CT on the Caribbean beach in Grand Cayman

# Putting a big score on the board – Contesting abroad for the overall experience and to benefit the NCCC

Last year I made my first visit to ZF with my wife on holiday. As I had mentioned in my NCJ profile this year, I also took the time to scout out the ZF1A contest station, and operate there for a bit. It is a thrilling experience to be DX with great antenna systems. I had a great time.

A few months ago, Ed W0YK emailed me for information on my experience at ZF1A. I gave him all the info I had, but also let him know that if they had an operator staffing issue to let me know, and I would possibly be able to join. It was thrilling to hear back from Ed immediately that they desired a fourth op, and asked me if I could join the team.

After securing plane tickets (some of these locations are not as expensive as you might think!) and working to ensure my call would remain active, and a green light from my wife Veronica as well as my work, I humbly accepted the invitation and preparations begun to operate CQWW RTTY as ZF1A with some of the best operators in the world, the vastly experienced and well-oiled contest team W0YK, W6OTC and K6AW formerly known to all of us as HC8N!

#### Preparing a Micro Dxpedition.. A contest-pedition!

As with all contests, particularly RTTY contests, advance preparations are key to success. Everyone on the team has jobs and responsibilities. Ensuring that you deliver on commitments is absolutely critical and if you can't deliver on a request you MUST let everyone know so someone else can pick up the slack. Ensuring that you have a good working relationship and establishing expectations with everyone is also critical. Each member of the team counts on each other to deliver. Many aspects are discussed, including radio platforms/hardware, Computing and Information technology, loggers, transport, pelican cases, who brings what, etc all vetted to the finest detail to ensure the success of the deployment.

#### Always be prepared for the unexpected.

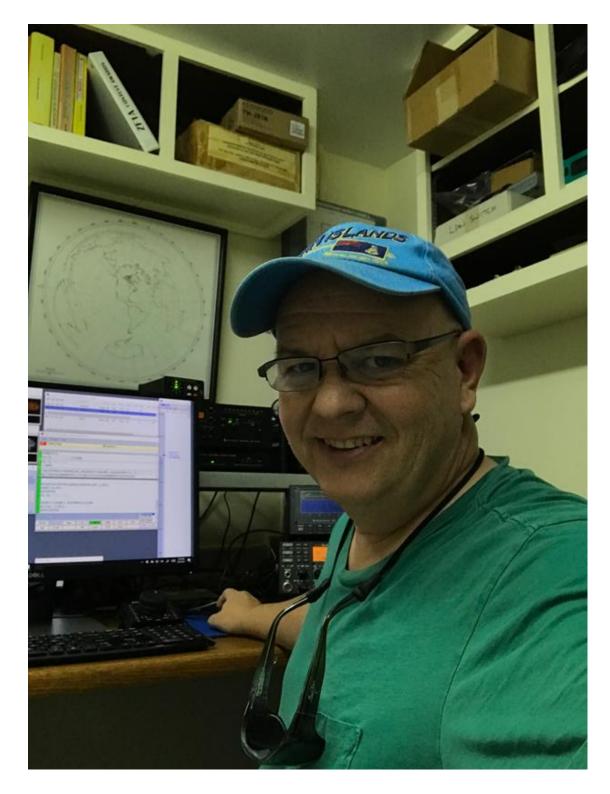
All was going pretty well until 2 days prior to departing for the Caymans, we encountered a very unfortunate situation. Our RTTY point man and a critical cog of the 4 man team, Ed W0YK had an accident that caused a severe injury. Although Ed pulled through OK (thank goodness), advanced preparation and working with a seasoned team paid off big time. Ed valiantly remained part of the operation through its completion. Hours after his surgery, he was assisting in putting the operation back on track. I had great admiration for Ed prior to this, and having experienced this level of commitment from him, I am simply without words. With that in mind, we needed to fill some important gaps.

Ed was going to spearhead the use of WriteLog. No others on the team were very experienced with this application particularly with RTTY setup. I accepted the role of converting the team and providing IT support using N1MM logger + in a RTTY contest environment – problem 1 solved. (keep in mind, when you accept a commitment, you MUST deliver).

Ed could not travel. Fortunately, the experienced HC8N team was able to bring in another trusted member to fill the gap. With one CQC hall of fame member incapacitated, another stepped into the role, Trey N5KO was now a green light to fill the position. We were good to go.

Milestone 1 (preparation) complete – now a 3 wave operator and equipment arrival at ZF. Glenn W6OTC and Steve K6AW arrived on the Monday preceding the contest. Despite some delays of some of the cargo, almost everything arrived intact. Splitting arrival like this proved useful, as Glenn and Steve were able to relay back any concerns and equipment deficiencies. In fact steve had a computer that would not work in the shack, so I went and purchased another laptop at the last minute, and configured everything 24 hours in advance.

I departed for ZF on the Wednesday prior to contest start, arriving in the late afternoon. We went directly to the shack with my equipment, and started setup and the contest configuration of N1MM. A bit tired, and with W0YK in a skype window we for the most part got all the tranceivers, amplifiers, switching, and computer systems ready to go.



Chris ZF2CT operating the Thursday practice session..

Trey N5KO arrived the next day, and we had out full team compliment in time to do some of the practice runs for the contest, a combination of testing systems and getting everyone comfortable with the logging environment.



W6OTC, N5KO and K6AW surveying antennas at ZF1A

#### Milestone 2 (arrival and setup) complete, - contest time!

At 23:59 our complete M/2 setup was ready to go, each system with multiple decoders in use including an additional MMTTY instance installed for the sub receiver. At the starting bell, the first shift went to work and we were underway. Glenn and Steve kicked off, and Trey and I stood by to take over as shift 2.

The experience and professionalism of Glenn, Steve and Trey, all seasoned contest dxpeditioneers was astounding. I did my best to hold up my end as well as absorb as much as possible from these guys, this was an amazing opportunity to level up. I cant tell you how grateful I was, and I committed to take full advantage of this learning experience.

During the contest, for the most part it was smooth operating. Aside for a brief power interruption and a minor equipment failure, that were both calmly and quickly recovered from, the qso producing machine of this group of experienced operators calmly racked up thousands of RTTY qso's over the 48 hour contest period. The team managed to work well together and produce a score that is claimed to be among the top in the world! We pulled it off. 7,2 million points produced for the NCCC club competition in CQWW RTTY.



Trey N5KO looking very relaxed as he devastates on any band he operates. An amazing op.

Final thoughts and relevance to you as an operator, and the club overall.

My fellow NCCC members, each and every VP/CC write-up this leadership cycle has been included for a greater purpose. As we work toward our goals for the year, a theme is emerging, a theme that will help us meet our objectives. The information I am trying to convey could become extremely useful to many of you as we work together to establish our contributions as a group toward our final goal. So please take time to reference the articles as needed during the year.

I want to take a moment to thank our team including Glenn W6OTC, a truly great guy whom I was grateful to have met and operated with, Steve K6AW whom I have been operating with for years, Trey N5KO who is as amazing an operator as there can be, and lastly Ed W0YK who selflessly continued to assist and was in fact a member of this operation the entire time. Also to K6AM and N6MJ for their help and assistance in making this possible. These ops are the best of the best, and the wisdom and experience learned was invaluable to this enthusiastic newcomer to this kind of environment. I would operate with each and any one of these gents anytime and anywhere without hesitation.

Enjoy the contest season my friends, and good luck to everyone in CQP. An amazing season is beginning to materialize, and a great time to enjoy membership in the NCCC.

73 and KB
Chris – N6WM
Vice President and Contest Chairman

# **NCCC** and Hurricane Relief

Greetings Fellow Contesters,

As many of you know, the Caribbean, and particularly KP4, KP2 and J7, has been hit with the devastating effects of severe hurricanes, and is now suffering from the aftermath that includes power problems and destroyed telecommunication infrastructure. As these problems persist, the situation continues to deteriorate.

Ham radio is rising to the occasion, and is in fact playing a big relief role on these islands, but with limited resources it is proving to be a challenge.

The NCCC BOD has voted to approve a donation of \$1,000 to the ARRL's Ham Aid fund that is helping provide amateur radio telecommunication relief for these stricken islands. But our limited club resources can only go so far, and we wanted to reach out to the greater membership for additional funds.

The IRS recently determined that NCCC qualifies as a 501(c)(3) organization and can provide a tax deduction for donated funds. Thus, the BOD wanted to reach out to the greater membership to see if we can raise a more substantial contribution to assist in this true disaster. Your contributions WILL be tax deductible to the extent permitted by law, and will go specifically to this effort.

Hurricane relief for Caribbean entities is extremely relevant to us as Ham Radio operators, contesters and, most importantly, as human beings. The NCCC leadership would like to invite our membership to augment our club contribution with any personal contribution you may wish to add.

If you'd like to join in our effort, please make your donation via NCCC's Paypal account, and specify "Caribbean Hurricane Relief Donation" so we can allocate funds appropriately. To make your donation use the NCCC PayPal address, paypal@nccc.cc, and specify that you're sending money as a "gift/family" to bypass any fees. Also, because time is of the essence, please make your donation prior to October 5th, if at all possible.

Let's show the world the generous side of the NCCC. Please contribute today.

I want to thank the Board, and especially Dick (K6LRN), Chris (N6WM), and Ian (W6TCP) for making this happen. This is an excellent opportunity for all of us to take advantage of our club's new non-profit status.....a way to give back to those who are in need right now. Note that Rusty (W6OAT), has confirmed that our non-profit status qualifies our members to make tax-deductible contributions on behalf of the Northern California Contest Club.

Bob W1RH President, Northern California Contest Club

# K6MR Visits W7RN



K6MR becoming the proud owner of the W7RN Bone Pile of aluminum. Notice the Twisted Oak Winery Rubber Chicken keeping a watchful eye on him.

Photo: Tom Taormina, K5RC

# **NA Club Competition Plaque**

Hi Bob,

On behalf of the members of PVRC I would like to thank NCCC for sponsoring the beautiful plaque received in the mail.

The CQWW RTTY DX Contest 2016 NA Club Competition Plaque will be awarded to Jim AB3CV for his contribution to winning this award.

We appreciate NCCC sponsoring this club competition contest plaque.

73,

Bud W3LL President, PVRC

# AF6SA / KK6VIX ARRL VHF Contest

Operated with my son Alex / KK6VIX from Leek Springs lookout



7600ft ASL in Two Operators Single Station (Dad/Son) mode.

Started Saturday at noon. Site has some RFI (birdies/hash) on 6M from Solar power. WX changed quickly from sunny to heavy rain/thunderstorm, forcing us to operate inside the car and we left at 5:30.

Score: 1,216

KK6VIX made 33 Q's.

Thanks to all for the Q's

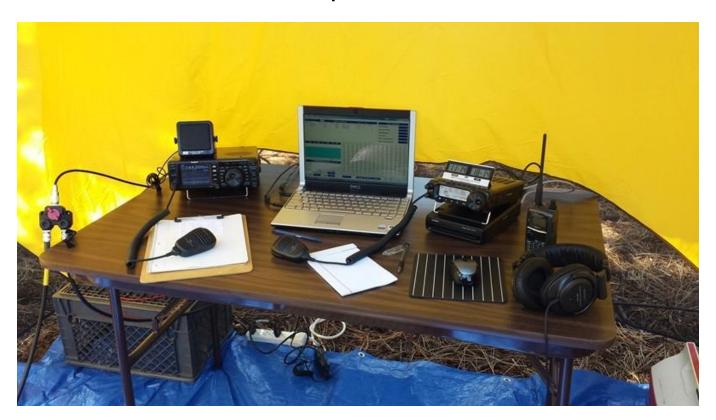
# K6KNS ARRL September VHF Contest



This was my first time working a VHF contest with more effort. I set up in the EI Dorado National Forest at 6600 feet, just off the Mormon Emigrant Trail (about 6 miles west of HWY 88). I used 2 radios with 3 antennas for 3 bands. For the first three hours it was beautiful weather: clear skies and 70°. Then came clouds, lightning and thunder, rain, and hail. I was drenched when I left. Other than the downpour, it was an enjoyable contest.

Yaesu FT-990 and FT-891 / Jetstream JTBM270 / M2 6M HO Loop / Elk 2M/440L5

# K6KNS ARRL September VHF Contest





# K6KNS ARRL September VHF Contest





# FrankenBeam

Gary NA6O

Just one more antenna, that's all we need. In the ongoing quest to cover all bands and modes in CQP with minimal inter-station interference at N6RO, we put up a simple Yagi for 15 meters. It's currently set up with vertical polarization for best isolation but could be rotated to horizontal which may be better when it comes to high-angle radiation for short-haul work. Built entirely of random parts from the boneyard, this is truly a FrankenBeam. (Considering the corroded condition of most of the hardware, this thing did in fact rise from the dead!) I assembled it with dimensions from an old 3-element Hy-Gain design, and it has a gamma match of unknown origin. A robust K9YC-style choke is strapped on near the feed point.

One thing I splurged on was the mast. Since we wanted the vertical polarization option, the mast should be non-metallic, so I ordered telescoping fiberglass tubing from DX Engineering. This is really nice stuff: Very smooth finish. Very accurate dimensions, inside and out. Walls are 1/8-inch and the tubes are quite stiff. Also, you can intermix it with their aluminum tubing, with good fits for both inner and outer diameters. Shooting for about 20-foot elevation, I went with three 8-foot lengths, with 2-inch diameter at the top. For longer life, it got a coat of white paint.

Ken and I tried walking the mast and antenna up with the aid of a pullrope but it was getting away from us; just a little to heavy and ungainly. So I fabricated a tip/tilt/rotate base and added a pulley arrangement with a 2:1 mechanical advantage that pulls the mast toward its final location when erected. This worked great, and the two of us can easily raise and lower it safely. The pole is bracketed to a 4x4 set in concrete. Three rope guys seem to be sufficient.

Feedlines are 75 ohms (about 380 feet) except for the last half wavelength at the antenna, which is 50 ohms. That let me check the antenna impedance without significant effects from the feedline. Ken had some nice 75:50 ohm transformers that I tested and found that they had vanishingly low loss. Total system loss is about 2.2 dB. The most interesting part was making fittings for the 7/8-inch TV hardline. I used brass compression fittings, double-female SO239 connectors, and some adapter rings made on the lathe, all soldered together for a nice fit.

With band conditions the way they are, there's no way of telling how well the FrankenBeam will play until CQP gets underway. But it's always good to have options.



# **NCCC Meeting Dates ~ 2017**

- Tuesday, October 10th Sneha 1214 Apollo Way, Ste 404B, Sunnyvale, CA 94085 Program, TBD
- Tuesday, November 14th, 6PM, Tied House 954 Villa St, Mountain View, CA 94041 Program, TBD
- Saturday, December 16th, 11am, 2960 Shoreline Boulevard, Mountain View, CA 94043 NCCC Holiday Party (Michaels at Shoreline

# For Sale Al6V's estate

I am helping Sue Al6YL sell the remaining equipment from Al6V's estate. Carl was a past president of the NCCC.

For Sale Yaesu FT1000D loaded with 4khz roofing filter and TCXO-1 oscillator. Looks like brand new out of the box. Comes with manual, but no

mic or box. This is from the estate of Al6V. The radio is now in Los Vegas, but will be delivered to the Bay Area in early November. Asking price is \$1500, or best offer, this includes delivery with in 100 miles of San Francisco, as needed.

Interested parties should contact Russ K6KLY at 510-852-0002 or Email k6kly@sbcglobal.net

Thank you Russ K6KLY

# **NCCC Annual KB Competition Rules**



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

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

Eligible contests: Currently, points from 35 contests are counted. See the table no the next page

Scoring: Score = number of contests in which you participated \* sum of (points for each contest \* each contest's multiplier).

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.

Only scores posted to 3830scores.com are counted.

Paid NCCC members may receive awards.

# NCCC Annual KB Competition Table (Updated 9/30/2017)

Contest	Month	Multiplier
ARRL RTTY Roundup	January	50
NAQP Winter CW	January	50
NAQP Winter SSB	January	50
NA Sprint Winter CW	February	100
CQ WPX RTTY	February	2
ARRL DX Contest CW	February	5
NAQP Winter RTTY	February	50
ARRL DX Contest SSB	March	5
CQ WPX SSB	March	2
NA Sprint Spring SSB	April	100
JIDX CW	April	20
7th Area QSO Party	May	10
New England QSO Party	May	10
CQ WPX CW	May	2
ARRL June VHF	June	200
All Asian CW	June	10
IARU HF World Championships	July	5
NAQP Summer RTTY	July	50
NAQP Summer CW	August	50
NAQP Summer SSB	August	50
NA Sprint Fall CW	September	100
CQWW RTTY	September	1
CQP	October	20
JARTS RTTY Contest	October	5
CQWW SSB	October	1
ARRL Sweepstakes CW	November	20
NA Sprint Fall SSB	November	100
ARRL Sweepstakes SSB	November	20
CQWW CW	November	1
ARRL 160 Meter Contest	December	50
10 Meter RTTY Contest	December	100
ARRL 10 Meter Contest	December	10
NCCC Sprint CW	Weekly	100
NCCC Sprint RTTY	Weekly	100

# NCCC Annual KB Competition Leader Board (Updated 9/30/2017)

RANK	CALL	CONTESTS	KB SCORE
1	W2SC	3	344,710,179
2	NA6O	17	304,943,717
3	N6RO	15	235,071,731
4	N6ZFO	13	196,378,403
5	KA6BIM	10	174,346,830
6	K6SRZ	11	171,027,351
7	N7MH	7	154,640,059
8	N6WM	9	140,732,699
9	K6MR	8	137,520,096
10	W6SX	12	119,467,392
11	K3EST	7	112,803,458
12	N6TV	5	107,378,290
13	K6XX	6	94,627,554
14	K9YC	6	90,065,868
15	K7XC	12	89,575,992
16	AE6Y	2	80,544,880
17	K6LRN	9	78,504,354
18	K5RC	9	74,917,800
19	W1SRD	9	74,908,611
20	W1RH	9	56,411,847
21	AD6E	5	56,349,440
22	WX5S	6	54,762,225
23	N0KQ	11	51,225,999
24	N6IE	7	43,215,942
25	AF6SA	11	42,802,056
26	WK6I	3	41,289,660
27	K2RD	9	36,640,116
28	K6GHA	6	32,413,848
29	W6FA	10	24,979,750
30	N6JV	3	21,303,444
31	ND2T	8	21,546,400
32	AJ6V	3	19,327,200
33	K6MM	8	19,183,824
34	KR6N	7	19,142,592
35	N2NS	12	18,617,304
36	K6AW	3	16,643,705
37	W6JTI	4	16,292,080
38	WB6JJJ	4	15,341,700
39	KH2TJ	9	14,807,088
40	N6EE	5	14,786,870
41	WC6H	3	14,782,626
42	W6NV	3	14,655,540
43	W6OAT	5	13,308,380
44	K6SCA	4	10,609,664
45	N6PN	3	9,293,745
46	N6AJS	6	8,478,480
47	KX7M	2	8,115,960
48	W6EU	2	8,014,260
49	KM6I	8	7,858,048
50	W6TCP	4	7,191,560
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RANK	CALL	CONTESTS	KB SCORE
51	N3ZZ	3	6,838,500
52	K7GK	1	6,565,104
53	K6KNS	5	6,458,970
54	N5KO	2	6,174,807
55	W6GJB	2	5,515,596
56	K6YK	4	5,416,164
57	K6RIM	4	4,107,960
58	W6SR	3	4,052,118
59	KE8FT	5	3,730,530
60	K6XN	4	3,610,308
61	K6AAM	1	3,498,756
62	K6ST	1	3,389,802
63	NW6P	3	3,288,954
64	WA6O	1	3,237,633
65	W6SFK	2	3,038,100
66	K6RB	1	3,019,200
67	KM9R	2	2,419,120
68	NJ6G	5	2,347,900
69	K6XV	3	2,226,075
70	KA6W	3	2,093,100
71	W6RGG	3	2,039,982
72	WU6X	4	1,845,944
73	W6OTC	1	1,797,404
74	OH1VR	1	1,763,755
75	W6LD	1	1,763,755
76	K6CSL	6	1,691,916
77	NR6Q	1	1,552,320
78	N6NU	1	1,483,943
79	NQ6N	1	1,483,943
80	K6ELE	2	1,453,800
81	K6UFO	3	1,323,750
82	K6GFJ	2	1,192,764
83	K6IJ	1	1,168,400
84	AE6YB	4	1,140,968
85	K6DGW	2	1,035,180
86	N6GQ	1	1,033,180
87		2	866,436
	N6GEO	2	
88 89	W6FB K6NV		835,200
		2	1,443,300
90	WU6W	3 1	610,224
91	NH6V	1	518,410
92	AI6JZ		518,410
93	K7XE	3	511,290
94	N6SPP	1	456,000
95	K6EU	1	417,000
96	W6RD	1	337,845
97	KK6DF	1	326,400
98	N3RC	2	325,872
99	W6NL	1	322,500
100	KI6OY	5	313,750

# **Honorary Life Membership (80/20)**

The BOD met and discussed having an Honorary Life Membership.

Rusty W6OAT made a proposal to make NCCC members who reach 80 years young and 20 year's membership to the NCCC will <u>upon receipt of a request for Life membership request</u> be awarded Honorary Life Membership to the NCCC after review by the BOD.

This was discussed by the BOD and the motion passed.

# **AV Support**

We are looking for a AV / Webex volunteers to help run the AV and webex for the meetings.

Please contact Bob W1RH if you are interested....

# **NCCC Life Membership**

NCCC Life Membership is available for a one-off payment of \$250.00

If you would like to apply for life membership, please submit your request using this link <a href="here">here</a>
Each request will be reviewed by the NCCC BOD at the regular monthly BOD meeting.

For further information, contact Ian W6TCP

# WORLD RADIOSPORT TEAM CHAMPIONSHIP JULY 12-16, 2018





Having been elected to host the
WRTC 2018 in Germany is a great
honor, a thrill, and a big challenge
for us. The critical tasks have
been clearly defined.
Dedicated and highly
motivated teams are
addressing the challenges.
For the competition itself we
have chosen the Jessen area south
of Berlin for its flatness providing

level playing fields for all competitors. Jessen is strategically situated between the German capital of Berlin and such fascinating historic cities like Dresden and Leipzig.

Nearby you find important cultural attractions, e.g. the historic city of Wittenberg where Martin Luther launched the Protestant Reformation in 1517. Additionally, the scenic countryside and a lot of entertainment will make the WRTC



\* Source: Lutherstadt Wittenberg Marketing GmbH ©

#### We need your support!

You need deep pockets to finance such a huge event. Our preliminary cost estimates add up to close to half a million US Dollars and cannot be shouldered by the German contesting fraternity alone. We need substantial financial support of contesters from all over the world, from contest clubs, individuals and business. Any amount is welcome! We will do our level best to translate this support into an event that is wort to take part in - be it as a competitor or spectator, either on the spot or remotely via Internet. You are welcome to donate via PavPal to:

spende@wrtc2018.de
or to use wire transfer (see Web Page for details).

#### For US taxpayers

The World Wide Radio Operators Foundation (WWROF) is recognized by the IRS as a tax-exempt public charity. In order to be eligible for Income Tax treatment of your donation to WRTC 2018 just contribute to WRTC2018 in one of the following ways, either via PayPal to:

WRTC2018@wwrof.org

or by check - remit and mail to:

WWROF Inc. - WRTC2018 Fund P O Box 10424 Midland, TX 79702

Note: It is important that mailed contributions include notification that the donation is specifically for WRTC2018.

#### Contact the WRTC Team

www.wrtc2018.de contact@wrtc2018.de

E-Mail:contact@wrtc2018.de | Web: www.wrtc2018.de | Facebook: wrtc2018 | Twitter: wrtc2018



# Welcome to Germany!



Proud bronze medalists at WRTC 2014 - Manfred Wolf, DJ5MW and Stefan von Baltz, DL1IAO (Foto: DK9IP)

Competition with Friends

Lifetime Experience

Make it happen!

Contesters' Olympics

# WORLD RADIOSPORT TEAM CHAMPIONSHIP JULY 12-16, 2018



#### Welcome to Germany

Germany has been awarded to stage the WRTC 2018. The Federal Republic is subdivided into sixteen federal states such as Bavaria or Saxony. Some 80 million inhabitants share a plot of less than 140 thousand square miles, about the size of the US state of Montana.

Sometimes the German language is criticized for its harshness; however, a countless number of students around the world start learning German every year as it offers an insight into a fascinating culture and a world ranked economy.

## Radiocommunications in Germany



Here the fundamentals of wireless communication have been developed as young Heinrich Hertz has proved the existence of electromagnetic waves and Nobel Price Winner Ferdinand Braunintroduced the closed tuned circuit as part of the radio transmitter. The German Hams were late bloomers after all, as only after

WWII a more liberal legislation made a wide ham culture possible. Today Germany is the home base of the world's second largest contest community hosted by two notable clubs: the Bavarian Contest Club (BCC) and the Rhein Ruhr DX Association (RRDXA). That is why you will find such a great number of German call signs in your log as well as multipliers from German radio activities like CR3L or VK9LM.





#### WRTC 2018 in Germany

World Radiosport Team Championships (WRTC) are being held every four years. More than 60 of the best 2-OP-teams from all over the world meet for a competition. Quite different from other radiosport contests, competitors in WRTCs operate with identical power and antennas on level playing fields from the same geographical region eliminating all variables except their own operational skill. Previous WRTCs were held at Seattle/USA (1990), San Francisco/USA (1996), Slovenia (2000), Finland (2002), Brazil (2006), Russia (2010), and New England (2014).

To participate in WRTC 2018 teams have to qualify in up to 28 different HF contests during 2015 and 2016. Qualification started with the ARRL-DX-CW contest 2015.

To watch your own qualification standings and those of all of your competitors or friends at any time, have a look at our website www.wrtc2018.de. The standings are regularly updated after receiving the results from the contest organizers of each qualification contest.



### WRTC - Fieldday Style



#### Catch the organizers

The members of the WRTC 2018 Organizing Committee are active in many contests using special event call signs like "DLØWRTC" or "DKØWRTC". They are active on all bands from 160m up to 3 cm from various locations in Germany. They hand out the special DOK "WRTC" for DARC awards.

#### Enjoy the award program

WRTC 2018 sponsors the "Worked WRTC Qualification Regions" award. You can apply online for the WWQR Award via dcl.darc.de. It can be worked on an annual basis in 3 classes, in different modes and on different bands. It shows European radio pioneers on a background in black, red and gold representing the colours of the German flag. Your application will support WRTC 2018 with a small donation.



**Germany calling!** 

Competition with Friends

Join the Fun

## **Point Generator Profile**

By Bob, W1RH

Alan, K6SRZ and a former NCCC President, is our featured point generator this month.

A quick look at 3830 shows that Alan is truly a major point generator for the world's best contest club.

In 2017, Alan participated in the following contests:

CQWW RTTY, 7QP, All Asian CW, ARRL June VHF, ARRL DX CW, ARRL DX SSB, CQ 160 CW, IARU, JIDX, NA Sprint CW, NA Sprint RTTY, NAQP CW January, NAQP CW August, NAQP RTTY February, NAQP RTTY July, NAQP SSB January, NCCC RY Sprint, New England QSO Party, RAC Day, RTTY Roundup, RTTY WPX, TBDC Spring, WPX CW

Of those contests, Alan contributed huge scores to NCCC in CQWW RTTY, both NAQP CW's, one NAQP SSB, and WPX CW. He was a member of NCCC's Team #1, the winning team in the NAQP January SSB.

Last, but not least, Alan is in the NCCC history book as the winner of the first annual KB Competition.

Now, more from Alan:

Name/Call Sign: Alan Eshleman, K6SRZ

Past calls: I've had 'SRZ since 1956 when I started as KN6SRZ. I've also held T30CK, T32CK, T33CA, and 3D2CK. I'm the trustee for W6PZ, a very good call for phone contests.

Location: I'm in Penngrove, very close to Petaluma, in southern Sonoma County (grid CM88).

How much property do you have? The deed says "1.01 acres". I'm fortunate to have lots of open, surrounding vineyard and pasture land so TVI is not a consideration.

Describe your antenna system: Currently I have:

SteppIR DB18 on a recently installed 52 foot Tashjian tower [photo] 5-element M2 6 meter yagi on a military surplus AB 577 ("rocket launcher") tower Inverted L s with buried radials for 80 and 160 K9AY RX loops

2M ground plane for communicating with my fellow REDXA members

In the Future: I'd like to run some beverages, but this would require a change of neighbors in one direction.

What's in your shack? [photo]:

Radios YAESU FTDX5000, FT1000MP [previously owned by N6TV and with the INRAD key click mod], YAESU 2900

Amplifiers: Alpha 99, Elecraft KPA500

Computers: iMac [for graphics], PC with solid state hard drive [for logging]. I use WriteLog.

What are your previous QTH's?

Born in San Francisco and grew up in Petaluma and Mill Valley

Licensed as KN6SRZ in 1956 and upgraded to general a few months later [pictured license is from my first renewal]

Left for college in 1961 and operated from the Dartmouth College club station W1ET Inactive from 1962 to 1996 while living in Hawaii, North Carolina, Florida, and Illinois Back on the air from Berkeley in 1996

If you're working, what is your career? If not, what was your career?

I'm a semi-retired physician, board certified in internal medicine. I spent much of my professional life with the Kaiser-Permanente Medical Group until retirement. After retirement from Kaiser, I did urgent care work in Santa Rosa. Today my work includes volunteering at the Jewish Community Center Free Clinic in Santa Rosa and occasional case reviews for the Medical Board of California. I've been the expedition doctor on DXpeditions to T33, KH7, KH8S, ZK2, and 3D2C.

Married? Kids?

Married 50 years as of this coming November. A son, Jason, and daughter-in-law Elisabeth. My young niece and nephew in Seattle are my grandchild equivalents.

How many DXCC entities have you worked?

All of the current entities339 [348 total]. Heard Island was the last one I needed for #1 Honor Roll. I got back on the air just about the time the VK0IR expedition was winding down so I had to wait 19 years until some of the same folks returned to Heard. I have 9B DXCC with 331 CW, 311 SSB, and 185 RTTY. I'm proudest of having worked 172 current entities on Top Band.

What's your favorite contest?

Tough question. I Guess I'd say CQP for the fun of it, NAQP (CW) because it's fast and spans only one day, and WPX (especially CW) because it's the only DX flavored contest that isn't completely biased against the West Coast.

Any tips for contesters?

Prepare, prepare, prepare. Make sure everything works before the opening bell. Remind family members (repeatedly if necessary) that such-and-such weekend is a big deal to you and that you'll be occupied from whenever to whenever. Read the rules. If you can, observe a seasoned contester in action and learn from it. If possible, take part in a multi- operation (CQP would be a good place to start). And, of course, the old cliché: "If you only have a dollar to spend on ham radio, spend 98 cents on antennas." Finally, to get the most out of radio sport, learn CW.

What would you like to see changed in NCCC?

I like some of the recent changes, including fewer in-person meetings and an attempt at geographical distribution. When someone posts a good score (for them) I'd suggest a little more public praise

and encouragement on the reflector. The Big Guns with their various guest operators are always going to be on the top but a good finish from a modest station is a real accomplishment to be celebrated. I could always profit from a hands-on session—not a general meeting--devoted to the widely used logging programs.

Any other hobbies besides ham radio?

I ride a road bike for exercise. I used to compete in age group running events and ran three marathons but my left knee finally convinced me to give up running. I play guitar and clawhammer banjo. I do some woodworking. The XYL and I raise puppies for Guide Dogs for the Blind. Two Guide Dogs retirees—Annie and Usher the Dogs—live with us.



The operating position at K6SRZ



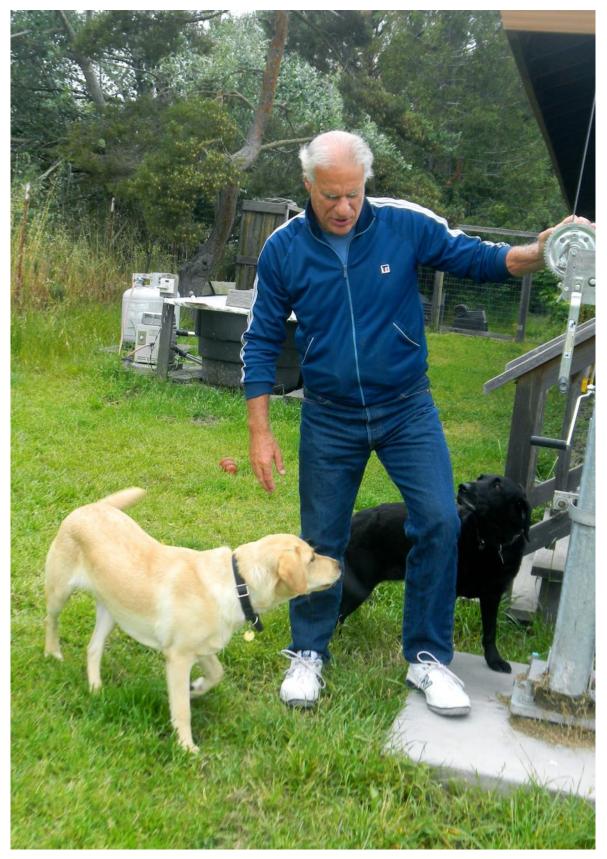
Tower and Steppers DB18

STA	TION CALL SIGN FEDER	WASHINGTON, D. C. AMATEUR RADIO LICENSE	1-10-6	7 5
NOT TRANSFERABLE	SAME AS BE Licensee and P. O. Address: ALAN MICHA 100 REED S MILL VALLE	EL ESHLEMAN TREET	Acting exetary	New My El Bus
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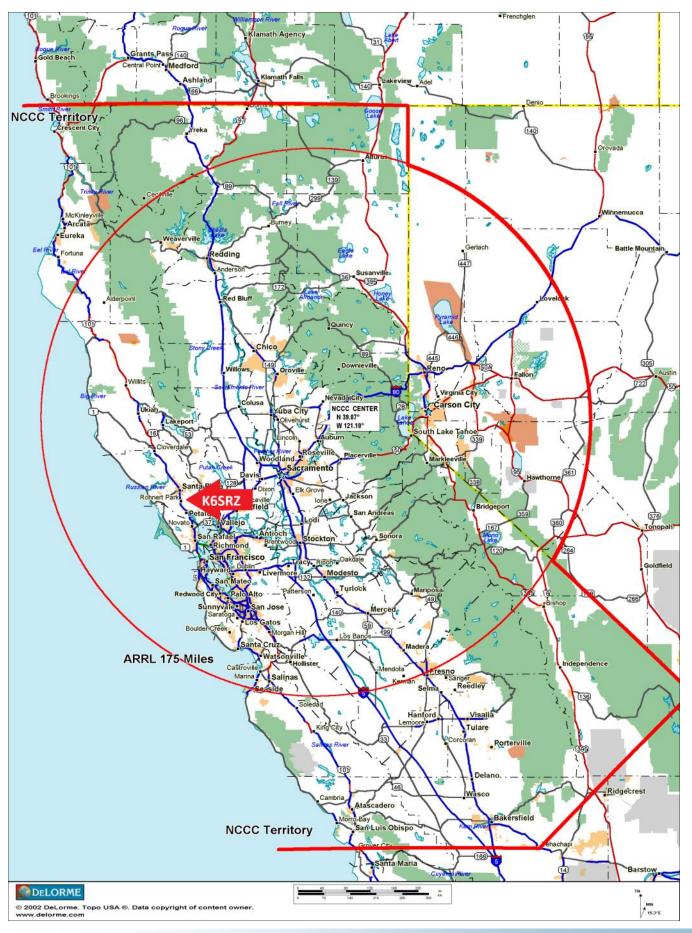
First renewal of K6SRZ 1962



The Goodyear Blimp visits K6SRZ



Buttercup (yellow) and Annie (black) helping with antenna work. Buttercup is a guide dog in training. Annie is a retired Guide Dog breeder. The tower pictured here is now off to N6GEO's QTH in Twain Harte.



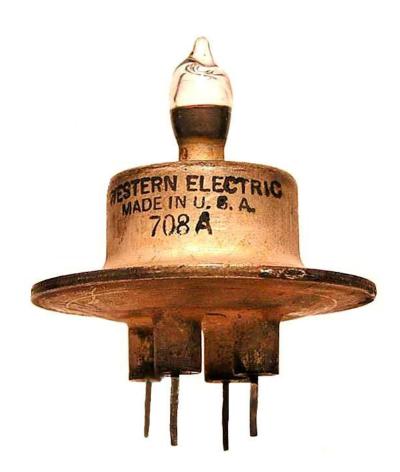
# TUBE OF THE MONTH

# Visit the museum at N6JV.com Norm N6JV

## WE 708A

Science fiction writers started featuring "Flying Saucers" especially after WWII. To me a saucer isn't an ideal shape for space travel. I wonder if Western Electric's WE708A from 1942 was their inspiration. It was certainly "alien" looking. This tube resulted from the need for SHF amplifiers and mixers running grounded grid for stability. The grid needed to provide isolation between the tuned circuits. Western Electric solved this by making the entire case the grid, which could be bolted down to the chassis. To isolate the filament and plate, the leads were small coaxial lines. The body was made of steel and the tube was evacuated from the glass tip out the top.

The 708A was used in the Navy's ASC aircraft radars and the SE, SG and SJ shipboard systems.



# **NCCC Life Membership!**

The NCCC Life member program was introduced last year for a flat fee of \$250. If you are interested in becoming an NCCC Life member, please contact Ian W6TCP at w6tcpian@gmail.com

## **CQP T-Shirts**

We have a small number of T-Shirts left for anyone that wants one. They are \$15 each, available on a first come first served basis.

Available sizes:

2XL

XL

M

## **JUG Articles Wanted!**

Without your help we cannot reproduce a quality newsletter so please consider submitting a suitable article!

We welcome any and all relevant articles for inclusion in the JUG.

Deadline is 7 days before month end. Preferred format is MS Word, Arial 12 point and pictures should be full resolution. Send your material to lan, W6TCP at w6tcpian@gmail.com Don't worry about the formatting, we can take care of that if necessary!



# Contest Calendar – October page 1

UBA ON Contest, SSB 0600Z-0900Z, Oct 1

Classic Exchange, Phone 1300Z, Oct 1 to 0800Z, Oct 2 and

1300Z, Oct 3 to 0800Z, Oct 4

Peanut Power QRP Sprint 2000Z-2200Z, Oct 1

IQRP Quarterly Marathon 0800Z, Oct 2 to 2000Z, Oct 8

ARS Spartan Sprint 0100Z-0300Z, Oct 3

German Telegraphy Contest 0700Z-1000Z, Oct 3

Phone Fray 0230Z-0300Z, Oct 4

CWops Mini-CWT Test 1300Z-1400Z, Oct 4 and

1900Z-2000Z, Oct 4 and

0300Z-0400Z, Oct 5

432 MHz Fall Sprint 1900 local - 2300 local, Oct 4

UKEICC 80m Contest 2000Z-2100Z, Oct 4

SARL 80m QSO Party 1700Z-2000Z, Oct 5

NRAU 10m Activity Contest 1700Z-1800Z, Oct 5 (CW) and

1800Z-1900Z, Oct 5 (SSB) and

1900Z-2000Z, Oct 5 (FM) and

2000Z-2100Z, Oct 5 (Dig)

NCCC RTTY Sprint 0145Z-0215Z, Oct 6

NCCC Sprint 0230Z-0300Z, Oct 6

YLRL DX/NA YL Anniversary Contest 1400Z, Oct 6 to 0200Z, Oct 8

ARRL EME Contest 0000Z, Oct 7 to 2359Z, Oct 8

GTC CW Cup 0600Z-1200Z, Oct 7 and 1200Z-1800Z, Oct 8

TRC DX Contest 0600Z, Oct 7 to 1800Z, Oct 8

Microwave Fall Sprint 0800 local - 1400 local, Oct 7

Oceania DX Contest, Phone 0800Z, Oct 7 to 0800Z, Oct 8

Russian WW Digital Contest 1200Z, Oct 7 to 1159Z, Oct 8

SKCC Weekend Sprintathon 1200Z, Oct 7 to 2400Z, Oct 8

International HELL-Contest 1600Z-1800Z, Oct 7 (80m) and

0900Z-1100Z, Oct 8 (40m)

California QSO Party 1600Z, Oct 7 to 2200Z, Oct 8



# Contest Calendar – October page 2

FISTS Fall Slow Speed Sprint 1700Z-2100Z, Oct 7 **WAB HF Phone** 1900Z, Oct 7 to 1900Z, Oct 8 **RSGB DX Contest** 0500Z-2300Z, Oct 8 **UBA ON Contest, CW** 0530Z-0800Z, Oct 8 UBA ON Contest, 6m 0800Z-1000Z, Oct 8 4 States QRP Group Second Sunday Sprint 0000Z-0200Z, Oct 9 RSGB 80m Autumn Series, CW 1900Z-2030Z, Oct 9 10-10 Int. 10-10 Day Sprint 0001Z-2359Z, Oct 10 **NAQCC CW Sprint** 0030Z-0230Z, Oct 11 **Phone Fray** 0230Z-0300Z, Oct 11 **CWops Mini-CWT Test** 1300Z-1400Z, Oct 11 and 1900Z-2000Z, Oct 11 and 0300Z-0400Z, Oct 12 0145Z-0215Z, Oct 13 NCCC RTTY Sprint **NCCC Sprint** 0230Z-0300Z, Oct 13 Makrothen RTTY Contest 0000Z-0759Z, Oct 14 and 1600Z-2359Z, Oct 14 and 0800Z-1559Z, Oct 15 Oceania DX Contest, CW 0800Z, Oct 14 to 0800Z, Oct 15 **QRP ARCI Fall QSO Party** 1200Z, Oct 14 to 2359Z, Oct 15 Scandinavian Activity Contest, SSB 1200Z, Oct 14 to 1200Z, Oct 15 1600Z, Oct 14 to 0600Z, Oct 15 and Arizona QSO Party 1400Z-2359Z, Oct 15 Pennsylvania QSO Party 1600Z, Oct 14 to 0500Z, Oct 15 and 1300Z-2200Z, Oct 15 1700Z-2100Z, Oct 14 FISTS Fall Unlimited Sprint PODXS 070 Club 160m Great Pumpkin Sprint 2000Z, Oct 14 to 2000Z, Oct 15 Asia-Pacific Fall Sprint, CW 0000Z-0200Z, Oct 15

Asia-Pacific Fall Sprint, CW 0000Z-0200Z, Oct 15
UBA ON Contest, 2m 0700Z-1000Z, Oct 15
Run for the Bacon QRP Contest 0100Z-0300Z, Oct 16

ARRL School Club Roundup 1300Z, Oct 16 to 2359Z, Oct 20 Telephone Pioneers QSO Party 1900Z, Oct 16 to 0300Z, Oct 17

 Phone Fray
 0230Z-0300Z, Oct 18

 CWops Mini-CWT Test
 1300Z-1400Z, Oct 18 and

 1900Z-2000Z, Oct 18 and

0300Z-0400Z, Oct 19



# Contest Calendar – October page 3

RSGB 80m Autumn Series, Data 1900Z-2030Z, Oct 18

NCCC RTTY Sprint 0145Z-0215Z, Oct 20

NCCC Sprint 0230Z-0300Z, Oct 20

MCG Autumn Sprint 1600Z-2000Z, Oct 20

Araucaria World Wide VHF Contest 0000Z, Oct 21 to 1600Z, Oct 22

JARTS WW RTTY Contest 0000Z, Oct 21 to 2400Z, Oct 22

10-10 Int. Fall Contest, CW 0001Z, Oct 21 to 2359Z, Oct 22

RCB XYL Test 0700Z-2159Z, Oct 21

New York QSO Party 1400Z, Oct 21 to 0200Z, Oct 22

Stew Perry Topband Challenge 1500Z, Oct 21 to 1500Z, Oct 22

Worked All Germany Contest 1500Z, Oct 21 to 1459Z, Oct 22

South Dakota QSO Party 1800Z, Oct 21 to 1800Z, Oct 22

Feld HELL Sprint 2000Z-2359Z, Oct 21

Illinois QSO Party 1700Z, Oct 22 to 0100Z, Oct 23

RSGB RoLo CW 1900Z-2030Z, Oct 22

SKCC Sprint 0000Z-0200Z, Oct 25

Phone Fray 0230Z-0300Z, Oct 25

CWops Mini-CWT Test 1300Z-1400Z, Oct 25 and

1900Z-2000Z, Oct 25 and

0300Z-0400Z, Oct 26

UKEICC 80m Contest 2000Z-2100Z, Oct 25

RSGB 80m Autumn Series, SSB 1900Z-2030Z, Oct 26

NCCC RTTY Sprint 0145Z-0215Z, Oct 27

NCCC Sprint 0230Z-0300Z, Oct 27

CQ Worldwide DX Contest, SSB 0000Z, Oct 28 to 2400Z, Oct 29



## **NCCC Membership Information**

If you wish to join NCCC, you must fill out an <u>application for membership</u>, which will be read and voted upon at the next monthly meeting.

To join, you must reside within <u>club territory</u> which is defined as the maximum of:

- Northern California, anything north of the Tehachapi's up to the Oregon border, and
- A part of north-western Nevada (anything within our ARRL 175-mile radius circle centered at 10 miles North of Auburn on Highway 49).

#### JUG Articles Wanted!

Without your help we cannot reproduce a quality newsletter so please consider submitting a suitable article!

We welcome any and all relevant articles for inclusion in the JUG.

Deadline is 7 days before month end. Preferred format is MS Word, Arial 12 point and pictures should be full resolution. Send your material to lan, W6TCP at w6tcpian@gmail.com Don't worry about the formatting, we can take care of that if necessary!

#### Northern California Contest Club Reflector—Guidelines

This reflector is devoted to the discussion of contesting.

This includes contests, station building, dxpeditions, technical questions, contesting questions, amateur radio equipment wants/sales, score posting, amateur radio meetings/conventions, and membership achievements.

This does not include personal attacks, politics, or off-subject posts which will be considered a violation of the Guidelines.

Violations may result in removal of the violator from the reflector and possibly from club membership in good standing.



Find us on Social Media



# HAM RADIO OUTLET

## 14 STORE BUYING POWER!



#### IC-7600 | All Mode Transceiver

• 100W HF/6m Transceiver, gen cov. receiver • Dual DSP 32 bit • Three roofing filters- 3, 6, 15khz . 5.8 in WQVGA TFT display . Hi-res real time spectrum scope



#### IC-7200 | HF Transceiver

- 160-10M 100W Simple & tough with IF DSP AGC Loop Management • Digital IF Filter • Digital Twin PBT • Digital Noise Reduction
- Digital Noise Blanker USB Port for PC Control



#### 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



#### ID-5100A | 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 • FM Analog/DV Repeater List Function

#### ID-51A | VHF/UHF Dual Band Transceiver

• 5/2.5/1.0/0.5/0.1W Output • RX: 0.52-1.71, 88-174, 380-479 MHz\*\* • AM/FM/FM-N/WFM/DV • 1304 Alphanumeric Memory Chls . Integrated GPS . D-STAR Repeater Directory . IPX7 Submersible



ONLINE – WWW.HAMRADIO.COM

# KENWOOD



#### TS-590SG | HF/50MHz Transceiver

• Equipped with 500 Hz/2.7 kHz roofing filter as standard • ALC derived from TS-990S eliminating spike issues . Antenna output function (shared with DRV connector) • CW - morse code decoder



#### TM-D710G | 2M/440 Dualband

• V+V/V+U/U+U operation • Built-in GPS • Built-in TNC for APRS & DX-Cluster operation • 50W 2M & UHF • 1,000 memories • Dual receive • Green or amber backlight colors • Latest APRS firmware w/new features . Sky Command II remote functions



#### TM-V71A | 2M/440 DualBand

• High RF output (50W) • Multiple Scan • Dual receive on same band (VxV, UxU) . Echolink® memory (auto dialer) . Echolink® Sysop mode for node terminal ops . Invertible front panel . Choice of green/amber for LCD panel • 104 code digital code squelch



#### TM-281A | 2 Mtr Mobile

. 65 Watt . 200 Memories . CTCSS/DCS . Mil-Std specs . Hi-quality audio

#### TH-F6A | 2M/220/440

• Dual channel receive • .1 - 1300 MHz (cell blocked) RX • FM, AM, SSB • 5W 2M/220/440 TX, FM • 435 Memories • Li-Ion Battery



# $oldsymbol{YAESU}$



#### FT-991 | HF/50MHz/2M/440 Transceiver

• 160 M-440MHz - SSB/CW/FM/C4FM Digital/AM/RTTY/PSK • 100 W (2M/4440: 50 Watts) • 3.5" TFT full-color touch panel operation • High speed spectrum scope . Roofing filers: 3kHz & 15kHz . 32-bit high speed floating point IF DSP



#### FTDX1200 | 100W HF + 6M Transceiver

• Triple Conversion Receiver With 32-bit Floating Point DSP • 40 MHz 1st IF with selectable 3 kHz, 6kHz & 15 kHz Roofing Filters Optional FFT-1 Supports AF-FFT Scope, RTTY/PSK31 Encode/ Decode, CW Decode/Auto Zero-In • Full Color 4.3" TFT Display



#### FT-450D | A100W HF + 6M Transceiver

- 100W HF/6M Auto tuner built-in DSP built-in 500 memories
- . DNR, IF Notch, IF Shift



#### FTM-400DR | 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-60R | 2M/440 5W HT

- Wide receiver coverage AM air band receive
- 1000 memory channels w/alpha labels Huge LCD display . Rugged die-cast, water resistant case . NOAA severe weather alert with alert scan





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- PHONE Toll-free phone hours 9:30AM 5:30PM
  - MAIL All store locations

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- SAN DIEGO, CA (877) 520-9623
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PLANO, TX (877) 455-8750

