



Publication of the  
Northern California  
Contest Club



Issue 495

August 2013

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Guests are always welcome at the NCCC!  
Please join us.

**SATURDAY, August 10, 2013**

Joint NCCC/REDXA/MLDXCC August Meeting

**Time:**

Noon-3pm

**Location:**

Rockville Grill, 4163 Suisun Valley Rd , Fairfield, CA

**Program:**

1. "Failure Is Not An Option" by Tom Taormina, K5RC
2. CW Pileup Contest

**Note:**

This meeting supersedes the normal Monday night meeting for August. Full details on page 4.

**To register:**

Please RSVP to Tom [nccc.treasurer@gmail.com](mailto:nccc.treasurer@gmail.com)

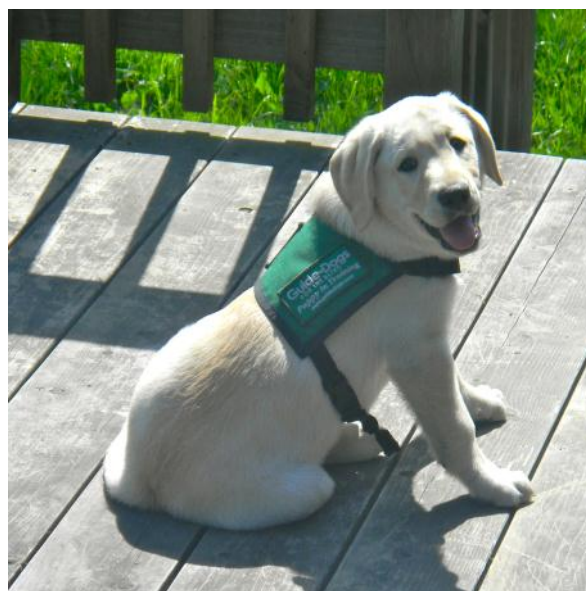


**From the President...**



**President's Report**

It was good to see so many KBers turning out for the NAQP CW contest last weekend. I was able to put in a full time effort despite the "assistance" of Dodge the Dog. Dodge is a yellow lab—a puppy we are raising and training for Guide Dogs for the Blind—age 7 months and full of energy. My XYL was out of town during the contest so I was both SO1R and puppy trainer, alternating between crating the pup and allowing him in the shack where I sent with one hand and petted with the other. A fifty-pound puppy's vigorously wagging tail is easily capable of rearranging the wiring under my operating desk.





# Northern California Contest Club

Excellence In Amateur Radio Contesting

## Officers:

President	Alan Eshleman	K6SRZ	doctore@well.com	Penngrove CA
Vice President /Contest Chair	Alan Maenchen	AD6E	ad6e@arrl.net	San Jose, CA
Secretary/Treasurer	Tom Epperly	NS6T	tepperly@gmail.com	Livermore CA
Past President	Dean Wood	N6DE	cqden6de@gmail.com	Sunnyvale CA
Director	Fred Jensen	K6DGW	k6dgw@foothill.net	Auburn CA
Director	Steve Dyer	W1SRD	w1srd@arrl.net	Redwood City CA
Director	Jim Brown	K9YC	k9yc@arrl.net	Santa Cruz CA

## Volunteers:

New Member Mentor	Al Rendon	WT6K	wt6k@arrl.net
Charter Member	Rusty Epps	W6OAT	w6oat@sbcglobal.net
Awards Chairs	Joanna Dilley	K6YL	joanna.k6yl@gmail.com
	Rebar Rebarchik	N6DB	rebar@hamilton.com
CQP Chair	Alan Eshleman	K6SRZ	doctore@well.com
CQP Certificates	Andy Faber	AE6Y	ae6y@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-w6tqg@verinsky.com
Webmaster	John Miller	K6MM	k6mm@arrl.net
JUG Editor	Ian Parker	W6TCP	w6tcpian@gmail.com

## Thursday Night Contesting:

NCCC—Sprint	Ken Keeler	N6RO	kenkeeler@jazznut.com
NS Ladder	Bill Haddon	N6ZFO	haddon.bill@gmail.com
Slow NS (SNS)	Chris Tate	N6WM	ctate@ewnetinc.com

### NCCC Net

Thursday 8 PM  
 Freq: 3.610 +/-

### NCCC

Monthly meetings  
 take place on the  
 second Monday of  
 each month !

Details in May JUG

## NCCC Membership Information

If you wish to join NCCC, you must fill out an [application for membership](#), which will be read and voted upon at the next monthly meeting. ([PDF application form](#))

To join, you must reside within [club territory](#) which is defined as the maximum of:

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

I hope to see many of you on August 10 for the joint NCCC, MLDXCC, and REDXA meeting at the Rockville Grille in Fairfield [details elsewhere in The JUG]. Last year's event was a big success and I'm hoping for a repeat.

Your Board of Directors has been holding monthly meetings via WebX. I want to take this opportunity to share some of our deliberations and decisions.

First, a big thank you to Tom Epperly, NS6T, our club Secretary-Treasurer who has been updating our dues and roster data. If you haven't replied to his recent emailing to you, please take the time to do it.

**Dues**—the subject of club dues is sure to generate controversy and this year is no exception. Ten years ago the BOD voted to reduce required NCCC dues to zero dollars per year in an effort to recruit more members and improve our chances in Sweepstakes. We are not the only contest club with a similar policy. At the same time, the Board encouraged members to continue paying dues, which are currently set at \$24 per year. Despite gloomy predictions, this policy has proven to be revenue neutral. During the last dues cycle the total number of paying NCCC members hit an all-time high.

Critics of the zero dollars required dues point out that the policy is fundamentally unfair to the paying members—that those who pay are essentially supporting those who do not. In truth, those who are not paying receive fewer benefits in the form of club awards and they do contribute logs and points to some of our focus contests. There is currently a big push for NCCC to win the club championship in this year's Sweepstakes. The results will determine whether or not the current dues policy continues to be effective. For now, a majority of the BOD voted to continue the current policy.

**The "Announce" reflector**—during the recent efforts to update dues and roster data, or Secretary-Treasurer received a few requests to be removed from the announce reflector—or at least that's what it appeared to be. The announce reflector is a rarely used email reflector for distributing important club announcements. The announce reflector is not the same as the general club reflector that most of you read on a daily basis.

The question for the BOD was "is this request tantamount to resigning from the club". If a member isn't receiving communications from the club and has no other connections to club activities, are they really a member—should they be deleted from the roster? The BOD voted to keep these members on the roster until they could be contacted and asked directly whether or not they wanted to remain members. Two out of three members who recently made the request did, in fact, submit resignations.

**The N6AUV Memorial award**—for the past several years NCCC has supported a plaque in the memory of NCCC SK N6AUV given to club champions in the CQ WW DX Contest. This year we again received a request to support the award. Critics have suggested that CQWW may not be the most appropriate recipient of contributions from NCCC because the contest is inherently unfair to West Coast stations. The BOD agreed to revisit the reasons for a K6AUV memorial being associated with CQWW and, if there is no compelling reason to continue supporting the contest, to consider moving the award to CQ WPX and to explain to the contest managers why they are doing this.

**W1AW/6**—2014 is the Centennial Year for the ARRL. During the year, the ARRL plans to support week-long operations from all fifty states. The NCCC has been awarded the use of W1AW/6 for the week of October 1-7, 2014, which brackets the 2014 California QSO Party. Contest operations by the various W1AWs will only count as check logs. How we use the call will be determined by the 2014 CQP Chair and the BOD. We will keep you all informed.

**Future Meetings**—The September meeting will be devoted to CQP. We'll probably be meeting at the Tech Shop in Menlo Park, though at the time I write this, it hasn't been confirmed. The October meeting will be devoted to Sweepstakes and be held somewhere on the Peninsula at a place yet to be determined.

**WebX for meetings**—we have yet to establish a dedicated crew to manage WebX broadcasts of our meetings.

To use a cliché, I welcome your comments and criticisms. I especially welcome offers to help with club business.

73,  
Alan/K6SRZ

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### Joint NCCC/REDXA/MLDXCC August Meeting

**SATURDAY, August 10, 2013**

Time: Noon-3pm

Location: Rockville Grill, 4163 Suisun Valley Rd , Fairfield, CA (phone: [\(707\) 864-4325](tel:7078644325))

**Meal:** Buffet with choice of beef lasagna or chicken Alfredo with rolls, butter, salad, and vegetables with a selection of desserts. Includes choice of coffee, iced tea, soda, or water. Vegetarian entrees will be available to those who request them in advance.

Cost: \$25

We would like everyone to pay in advance via Paypal to [paypal@nccc.cc](mailto:paypal@nccc.cc) or by mailing a check to Tom Epperly NS6T, 5318 Starflower Way, Livermore, CA 94551.

Program:

1. "Failure Is Not An Option"  
by Tom Taormina, K5RC
2. CW Pileup Contest

Note, this meeting supersedes the normal Monday night meeting for August.

Tom NS6T  
NCCC Sec/Treas

## **2013 W / VE Islands QSO Party Announcement**

Activate or work islands in US, US possessions, and in Canada.

16:00Z Oct 19 through 23:59 Oct 20, 160-6m, Phone, CW, Digital. Exchange is RST/SPC for non island stations and RST/USI or CISA island number for island stations.

Categories, fixed islands HP, fixed or portable islands LP, Island Rover, DX, SWL, non island.

Rules at [www.usislands.org](http://www.usislands.org)

Logs by Nov 30 to [wa4ja@arrl.net](mailto:wa4ja@arrl.net) J Almon 1411 Oak Leaf Dr., Columbia, TN 38401

John Almon, WA4JA  
US Islands Contest Manager

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## **NASA Science News for August 5, 2013**

According to data from NASA-supported observatories, the sun's global magnetic field is about to reverse polarity. This is a sign that Solar Max has arrived.

FULL STORY: [http://science.nasa.gov/science-news/science-at-nasa/2013/05aug\\_fieldflip/](http://science.nasa.gov/science-news/science-at-nasa/2013/05aug_fieldflip/)

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## **JUG September Deadline**

The last date to submit articles for the September JUG is Friday 30th August.

We would welcome articles and information from other reader ! Please submit you material to Ian W6TCP, via email at [w6tcpian@gmail.com](mailto:w6tcpian@gmail.com)

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## **California QSO Party**

The first full weekend of October (October 5<sup>th</sup> & 6<sup>th</sup> this year) sees the annual running of the California QSO Party – a great opportunity for stations in California because everyone else HAS TO WORK US!

We are the DX!

More details on page 12/13.

# Field Day with the Saratoga Amateur Radio Association

by Tom NS6T

Field Day is my favorite annual ham radio event, and it's also how I got into ham radio contesting. One of the things I like about Field Day is that it has something for everyone. It's part contest, part emergency drill, part field event, and part social event. This year, I wanted more of a contest-style Field Day, so I went to the Saratoga Amateur Radio Association's (SARA) Field Day site in the hills above Saratoga.

Dave, W6DR, is the driving force behind SARA's Field Day effort, and he posted an invitation to the NCCC reflector. Several NCCC members were involved in setup, operation, and take down including Dave (W6DR), Andy (AE6Y), Tracy (KD6VZQ), Ric (N6AJS), Yin (N9YS), Frank (W6JTI), Walt (W6WS), and I (NS6T).

SARA's Field Day setup was quite impressive. There were two HF stations (one for SSB and one for CW) each with a yagi on a portable mast. There was a GOTA station with multi-band capabilities, and there was a van with numerous VHF/UHF rigs available.

I only had time to operate for about 5 hours in the afternoon and evening of Saturday. During my operating time, I only got 2 contacts on 10m, about 100 Q's on each of 15m and 20m. Overall, propagation was disappointing; although, I still enjoyed the time operating.



Tom (NS6T) operating SSB at SARA's Field Day site.



Andy (AE6Y) operating at SARA's SSB rig.



Antenna for the CW station.



The CW station



Dave (W6DR) in the VHF/UHF van.

**Operators:**

**W6DR – David Ritchie (VHF)**  
**N9YS – Yin Shih (VHF)**  
**NS6T – Tom Epperly (HF1, VHF)**  
**KD6VZQ – Tracy Thibault (GOTA, HF1)**  
**KJ6GMT – Karen Canaan (GOTA)**  
**N3BJK - Andrew Schneider (GOTA)**  
**UNL - Mathias Ferreira (GOTA)**  
**KK6EFO – Al Leung (GOTA)**  
**W6WS – Walt Spector (HF1)**  
**N6AJS – Ric Hulett (HF1, HF2)**  
**W6JTI – Frank Letton (HF1, HF2)**  
**AE6Y – Andy Faber (HF1, HF2)**

**Helpers:**

**W6ZF – Ray Froess**  
**KC6VRI – John Terry**  
**KI6WGQ – Sammy Spector**

**Visitors:**

**N6NKT – George Williams (Red Cross)**  
**AA6FB – Ron Fischler**  
**Marcelo Ferreira**  
**Maureen Schneider**  
**Emma Schneider**  
**Aaron Schneider**



# Field Day with the Saratoga Amateur Radio Association— the results !

	CW	PHONE	DIGITAL
160m:	0	0	0
80m:	48	82	0
40m:	214	134	0
20m:	506	392	0
15m:	410	352	0
10m:	2	2	0
50MHz	2	20	0
144 MHz:	1	15	0
220 MHz:	0	2	0
432 MHz:	1	8	0
1296 MHz:	0	4	0
<b>TOTALS:</b>	<b>1184</b>	<b>1011</b>	<b>0</b>
<b>GOTA:</b>	<b>0</b>	<b>65</b>	<b>0</b>

## 12. QSO Points:

CW Points: 2 x 1184 =	2368
PHONE Points: 1 x 1076 =	1076
Digital Points: 2 x 0 =	0

Total QSO Points: 3444

### SARA FD-2005-2013 RECAP

#### QSO POINT BREAKDOWN

CLASS	2005CW 2A	2005PH 2A	2006CW 2A	2006PH 2A	2007CW 2A	2007PH 2A	2008CW 2A	2008PH 2A	2009CW 2A	2009PH 2A	2010CW 1A	2010PH 2A	2011CW 2A	2011PH 2A	2012CW 2A	2012PH 2A	2013CW 2A	2013PH 2A
160M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80M	27	52	164	56	21	96	137	155	95	93	0	0	79	55	149	78	48	82
40M	143	34	186	86	137	23	215	66	174	55	91	98	289	84	43	122	214	134
20M	435	393	450	559	545	773	688	634	668	675	507	54	541	472	351	491	506	392
15M	156	174	88	27	145	286	100	44	440	180	92	373	538	222	273	693	410	352
10M	3	108	0	0	0	0	0	0	0	0	0	0	112	5	0	0	2	2
50MHz	0	6	0	33	0	0	0	80	7	123	0	0	12	59	2	22	2	20
144MHz	0	0	0	12	0	0	6	64	5	36	0	0	4	49	1	27	1	15
220MHz	0	0	0	0	0	0	0	0	0	6	0	0	1	8	0	2	0	2
440MHz	0	0	0	0	0	0	2	20	3	13	0	0	2	13	1	10	1	8
902 MHz	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1296MHz	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
HF QSOs	764	761	888	728	848	1178	1140	899	1377	1003	690	525	1559	838	816	1384	1180	962
HF QSO Pts	1528	761	1776	728	1696	1178	2280	899	2754	1003	1380	525	3118	838	1632	1384	2360	962
VHF QSOs	0	12	0	45	0	0	8	164	15	178	0	0	19	129	4	63	4	49
VHF Pts	0	12	0	45	0	0	16	164	30	178	0	0	38	129	8	63	8	49
GOTA QSOs	0	37	0	37	0	0	0	192	0	229	0	0	0	114	0	23	0	65
GOTA Pts	0	37	0	37	0	0	0	192	0	229	0	0	0	114	0	23	0	65
QSO TOTALS	764	810	888	810	848	1178	1148	707	1414	1410	690	525	1578	1081	820	1470	1184	1076
PT TOTALS	1528	810	1776	810	1696	1178	2296	707	2828	1410	1380	525	3156	1081	1640	1470	2368	1076
Total QSO Count	1574		1698		2026		1855		2824		1215		2659		2290		2260	
Total QSO Points	2338		2586		2874		3003		4238		1905		4237		3110		3444	
Power Multiple (2x)	4676		5172		5748		6006		8476		3810		8474		6220		6888	
Bonus Points	810		930		1130		1410		1070		770		1310		950		1250	
<b>TOTAL POINTS</b>	<b>5486</b>		<b>6102</b>		<b>6878</b>		<b>7416</b>		<b>9546</b>		<b>4580</b>		<b>9784</b>		<b>7170</b>		<b>8138</b>	
Attendees	10		13		21		35		40		8		24		16		21	
Status in USA	#65/506	#51/484	#37/518	#17/487	#15/502	#10/130	#14/387	#13/6/408										
Status in CA	#8	#4	#2	#1	#2													
2A Top Score CA	12058 SF	11890 SF	7544 SJV	8512 SCV	10010 SF	10096 (1A) SDG	12212 ORG	12028 SF										
Their QSO Count	3936	3948	1994	2403	3041	3277	4158	3785										
Their Power Level	150	150	150	150	150	150	150	150										
2A Top Score USA	13154 IL	13858 CO	13595 CO	14754 VT	14306 VT	10096 SDG	16320 VT	15470 AR										
Their QSO Count	3501	4643	1351	4779	4211	3277	5467	4560										
Their Power Level	150	150	5	150	150	150	150	150										

## My Townhome Shack - Byron N6NUL

### Parts is Parts

My house is stuffed to the rafters with parts! At least, it certainly seems that way, even though when I laid it all out to take the photo below, it occupied an underwhelming portion of the garage floor. I swear, when I took it all back inside, it expanded.



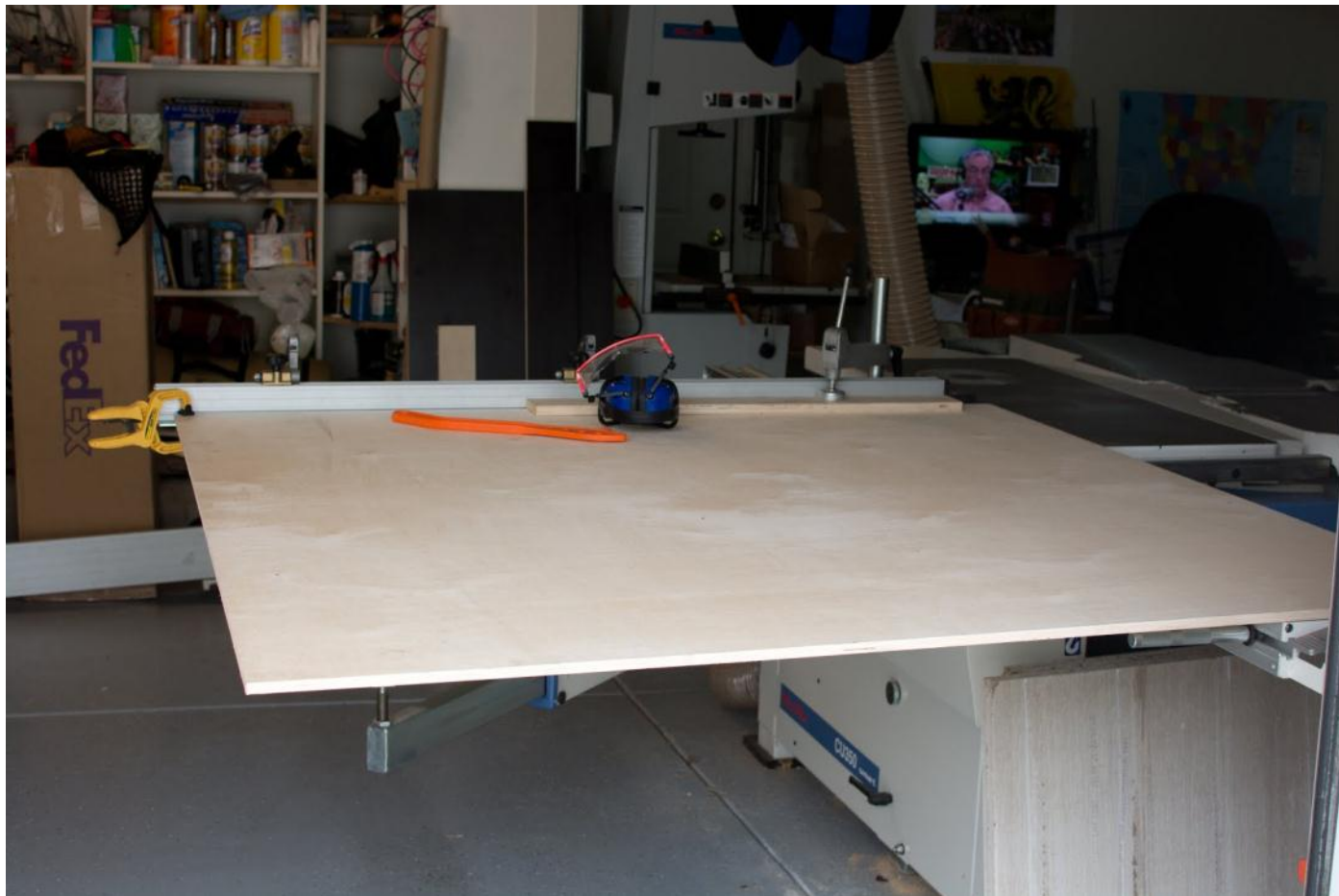
On the left is the roll of galvanized steel ground cloth that will replace my 16 extremely short radials. That roll of 4 foot by 25 foot cloth will completely cover the dirt portion of my back yard, and I will cut portions of it out for the trees, and a post to hold the new radial plate and vertical base shown.

That change will nearly double the vertical height of my inverted L to about 28' (8.5m). The first 20' (6.1m) or so will still be hidden by my trees, and a little flat grey paint to reduce the shine should help hide the rest.

Changing to tubes instead of #13 Wireman "silky" is also a big change. So much so that I am thinking about replacing the horizontal section with a caged dipole type element; I just need to consider how to support the end connected to the neighbors trees so the vertical portion is not stressed too much when the trees sway in winter storms.

continued next page

The parts in the middle of the photo are all for The Claw phased delta loop antenna I mentioned last month. Even the toaster oven, which will be used to reflow solder some of the parts in the pink bags. The tubes on the right are the Claw elements themselves.



One of the fun things about this project so far is that I move from handling parts that require strong magnification to see, all the way up to sheets of plywood, shown below.

After much thought, I am building a ramp system for the Claw antenna. The goal is to allow the antenna to be reachable when it is in the lowered position (still about 17' (5.18m) off the ground), and have the top portion of each delta loop be about 34' (10.36m) high when in the raised position.

On 20m, most of the current is in the top elements of the loop, so at that height the working portion of the antenna will be about  $\frac{1}{2}$  wavelength above the ground.

A conventional crank up tower will not fit in my location, I am instead building a ramp system to let me raise and lower the antenna with a few pulleys and some rope.

Two parallel tracks will hold slides, to which I can attach a horizontal steel mast. To the mast, I will clamp V shaped plywood boxes that will hold the antenna elements themselves. It may be a bit Rube Goldberg, but hopefully it will work. If not, expect to read about Plan B next month!

73, Byron N6NUL  
byron@n6nul.org

# California QSO Party

## CQP & improving your operating skills

Quick! Mark the weekend of October 5<sup>th</sup> and 6<sup>th</sup> on your calendar and start planning for a weekend of radio fun! The first full weekend of October marks the annual running of the California QSO Party (CQP) – the most fun you can have with a radio if you live in the Golden State! This year marks the 47<sup>th</sup> running of CQP sponsored by the Northern California Contest Club.

Why contest? From an operating point of view, most aspects of Ham Radio from Public Service, chasing DX to working contests have one thing in common – accurate and timely copying of information often under stress.

Entering a contest—either casually to or as a serious, full time effort—is a great exercise in operating “under fire”.

The first full weekend of October (October 5<sup>th</sup> & 6<sup>th</sup> this year) sees the annual running of the California QSO Party – a great opportunity for stations in California because everyone else HAS TO WORK US!

We are the DX!

Whether you’re a “Big gun” or “Little pistol”, CQP is a great opportunity for you to be on the receiving end of a pileup or to search and pounce for other states and countries. You can easily Work All States in a single weekend especially with everyone looking for you. And there’s DX to be worked: it’s possible to work all continents during CQP.

For California stations the object of the contest is to work as many stations as possible on SSB and CW. You can work the same station on each band and each mode for score credit. Every US state and Canadian province you work counts as a multiplier – 58 total for us just like the number of counties in California.

Want to be on the end of a really big pile up? Plan a County Expedition to one of the rarer California counties—the rest of the world will beat a path to YOU. Check out the counties activation planning map on the CQP web site at <http://www.cqp.org/Counties-Plan-2013.html> - you may be surprised that some of the rarest counties often lie on your doorstep.

Low Power, High Power? CW or SSB? CQP is a fun contest for all.

CQP is sponsored by the Northern California Contest Club, and organized by a group of dedicated, experienced volunteers coordinated by Chris Tate, N6WM – CQP Chair.

CQP continues to see healthy growth in submitted logs. In 2011 we had almost 1000 logs submitted! CQP rivals many national and international contests in participation and awards. Our goal is to break the 1000 log level in 2012.

Every station that submits a log is eligible for an achievement certificate and there are several operating categories where the leader receives a special CQP plaque for proud display on the shack wall. Of course, since we are in California, the top 20 scores submitted in California and Outside California qualify for a special award – a bottle of NCCC Private Reserve Wine with personalized label. The wine is graciously donated by Twisted Oak Winery and is a limited production Tempranillo crafted by wine maker and NCCC member Jeff Staj, WK6I.

Three categories are designed to encourage operation in contests:

- YL award
- Youth (< 18) award
- California New Contester

So if you've never entered a contest or have only dabbled in the past, this award category is for you!

If you work all 58 counties, you qualify for the "Worked All California Counties Award" sponsored by NCCC.

You can find the full rules and award details on the CQP web site at <http://www.cqp.org>.

Part time or full, home operator or an expedition to a new county, CQP is a blast! We hope you will join us this year and have a lot of Fun!

***Alan Eshleman, K6SRZ, NCCC President***

***Chris Tate, N6WM, CQP Chair***

# 12 STORE BUYING POWER

**ANAHEIM, CA**  
(Near Disneyland)  
933 N. Euclid St., 92801  
(714) 638-7373  
**(800) 854-6046**  
Janet, KL7MF, Mgr.  
anaheim@hamradio.com

**BURBANK, CA**  
1525 W. Magnolia Bl., 91506  
(818) 842-1786  
**(877) 892-1748**  
Eric, K6EJC, Mgr.  
Magnolia between  
S. Victory & Buena Vista  
burbank@hamradio.com

**OAKLAND, CA**  
2210 Livingston St., 94606  
(510) 534-5757  
**(877) 892-1745**  
Nick, AN6DX, Mgr.  
I-880 at 23rd Ave. ramp  
oakland@hamradio.com

**SAN DIEGO, CA**  
5375 Kearny Villa Rd., 92123  
(619) 560-4900  
**(877) 520-9623**  
Jerry, N5MCJ, Mgr.  
Hwy. 163 & Claremont Mesa  
sandiego@hamradio.com

**SUNNYVALE, CA**  
510 Lawrence Exp. #102  
94085  
(408) 736-9496  
**(877) 892-1749**  
Jon, K6WV, Mgr.  
So. from Hwy. 101  
sunnyvale@hamradio.com

**NEW CASTLE, DE**  
(Near Philadelphia)  
1509 N. Dupont Hwy., 19720  
(302) 322-7092  
**(800) 644-4476**  
Ken, W2OHD, Mgr.  
RT.13 1/4 ml. So. I-295  
delaware@hamradio.com

**PORTLAND, OR**  
11705 S.W. Pacific Hwy.  
97223  
(503) 598-0655  
**(800) 765-4267**  
Leon, W7AD, Mgr.  
Tigard-99W exit  
from Hwy. 5 & 217  
portland@hamradio.com

**DENVER, CO**  
8400 E. IIRF Ave. #9, 80231  
(303) 745-7373  
**(800) 444-9476**  
John, W0IG, Mgr.  
denver@hamradio.com

**PHOENIX, AZ**  
10613 N. 43rd Ave., 85029  
(602) 242-3515  
**(800) 559-7388**  
Gary, N7GJ, Mgr.  
Corner of 43rd Ave. & Peoria  
phoenix@hamradio.com

**ATLANTA, GA**  
6071 Buford Hwy., 30340  
(770) 263-0700  
**(800) 444-7927**  
Mark, KJ4VO, Mgr.  
Doraville, 1 ml. no. of I-285  
atlanta@hamradio.com

**WOODBRIIDGE, VA**  
(Near Washington D.C.)  
14803 Build America Dr.  
22191  
(703) 643-1062  
**(800) 444-4799**  
Steve, W4SHS, Mgr.  
Exit 161, I-95, So. to US 1  
virginia@hamradio.com

**SALEM, NH**  
(Near Boston)  
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# HAM RADIO OUTLET

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## KENWOOD



### TS-2000 HF/VHF/UHF TCVR

- 100W HF, 6M, 2M • 50W 70CM • 10W 1.2GHz w/ opt UT-20 module • Built-in TNC, DX packet cluster
- IF Stage DSP • Backlit front key panel



### TM-281A 2 Mtr Mobile

- 65 Watt • 200 Memories • CTCSS/DCS • MH-Std specs • Hi-quality audio



### TS-590S HF + 6M Transceiver

- 100W HF + 6M • 500 Hz & 2.7 KHz roofing filter
- Built-in auto tuner • Best dynamic range in class
- 32 bit DSP

### 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



### TM-V71A 2M/440 Dual Band

- High RF output (50W) • Multiple Scan • Dual receive on same band (VxV, UxU) • Echolink® memory (auto dialer) • Echolink® Sysop mode for node terminal ops

## ICOM

### IC-7000 All Mode Transceiver

- 160-10M/6M/2M/70CM
- 2x DSP • Digital IF filters
- Digital voice recorder
- 2.5" color TFT display



### 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\*\* • AMV FM/FM-N/WFM/DV • 1304 Alphanumeric Memory Chis • Integrated GPS • D-STAR Repeater Directory • IPX7 Submersible



### 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-V8000 2M Mobile Transceiver

- 75 watts • Dynamic Memory Scan (DMS)
- CTCSS/DCS encode/decode w/tone scan • Weather alert • Weather channel scan • 200 alphanumeric memories

### ID-880H Analog + Digital Dual Bander D-STAR

- D-STAR DV mode operation • DR (D-STAR repeater) mode • Free software download • GPS A mode for easy D-PRS operation • One touch reply button (DV mode) • Wideband receiver



## YAESU

The radio



### FTDX-3000 100W HF + 6M Transceiver

- 100 Watt HF/6 Meters • Large and wide color LCD display • High Speed Spectrum Scope built-in • 32 bit high speed DSP/Down Conversion 1st IF



### FT-7900R 2M/440 Mobile

- 50W 2M, 45W on 440MHz • Weather Alert • 1000+ Memories • WIRES capability • Wideband receiver (cell blocked)

### FT-60R 2M/440 5W HT

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



### FT-450D 100W HF + 6M Transceiver

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



### FT-857D Ultra Compact HF/VHF/UHF

- 100W HF/6M, 50W 2M, 20W UHF • DSP included
- 32 color display • 200 mems • Detachable front panel (5K-87 required)

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