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President's Report

Hi KB'ers,

Well, this is the next to the last President's article from W1RH. Next month, I'll write a bit about the past three years but this month I'm going to say a few more words about the North American QSO Party and the NAQP 4-Club Challenge.

First, I want to congratulate the members of NCCC Team #1 in the February NAQP RTTY contest. These guys absolutely kicked butt, despite conditions.

179,228 – W7RN (WK6I)

132,240 - W6YX (N7MH)

129,750 - N6WM

128,960 – K6MR

94,224 – K9YC

Jeff (WK6I), Mike (N7MH), Chris (N6WM), and Ken (K6MR) made the top ten, in the preliminary results and Jim (K9YC) was not far behind them.

Ron, N6IE, actually came in ahead of Jim, with 103,950 points that went to NCCC Team #2. Nevertheless, Team #1 walked away with the first-place honors.

NCCC Awards Meeting Saturday 7th April



See [Page 7](#) for Details



Northern California Contest Club

Excellence In Amateur Radio Contesting

Officers:

President	Bob Hess	W1RH	w1rh@yahoo.com
Vice President /Contest Chair	Chris Tate	N6WM	ctate@ewnetinc.com
Treasurer	Dick Wilson	K6LRN	treasurer.nccc@gmail.com
Secretary	Ian Parker	W6TCP	secretary.nccc@gmail.com
Past President	<open>		
Director	Rusty Epps	W6OAT	w6oat@sbcglobal.net
Director:	Rich Cutler	WC6H	wc6h@yahoo.com
Director:	Ron Castro	N6IE	ronc@sonic.net

Volunteers:

New Member Mentor	Al Rendon	WT6K	wt6k@arrl.net
Charter Member	Rusty Epps	W6OAT	w6oat@sbcglobal.net
Awards Chair	Gary Johnson	NA6O	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-w6tqg@verinsky.com
Webmaster	John Miller	K6MM	k6mm@arrl.net
Webinars	Bill Fehring	W9KKN	bill+nccc@w9kkn.net
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

We really should be proud of these guys. They crushed the Mid-West and East Coast competition and were also responsible for making NCCC come in #2 in the February RTTY 4-Club Challenge. So, that's the good news, but again you're going to hear me rant about our Club's participation in the NAQP's.

2018 NAQP Challenge Results

Event	DFWCG				NCCC				PVRC				SMC			
	Sum of NAQP Logs	Partici-pants	NAQPC Score	NAQPC Points	Sum of NAQP Logs	Partici-pants	NAQPC Score	NAQPC Points	Sum of NAQP Logs	Partici-pants	NAQPC Score	NAQPC Points	Sum of NAQP Logs	Partici-pants	NAQPC Score	NAQPC Points
January CW	3,813,373	42	160,161,666	55	3,129,801	63	195,612,562	65	5,943,718	113	673,762,087	100	5,008,115	103	515,835,845	75
January SSB	1,168,680	24	28,048,320	55	1,980,847	70	138,659,290	65	1,986,796	120	237,918,821	100	2,351,572	99	232,805,628	75
February RTTY	342,607	13	4,453,891	55	1,648,331	66	108,789,846	75	1,183,272	88	103,536,300	65	1,613,307	91	146,004,283	100
July RTTY																
August CW																
August SSB																
Total			192,663,877	165			443,061,698	205			1,015,217,208	265			894,645,756	250

Note: numbers may reflect minor differences due to rounding

From the terrific NAQP 4-Team Scorekeeper, Tim, K9WX:

SMC had the most participants at 91 so it comes as no surprise that they took first place since participation usually counts for the most. What makes these results different from other recent Challenge events is that PVRC had the second most participants (88) to NCCC's third most total (66). Typically, this result should have put PVRC into second place. However, NCCC had HUGE logs from their top 5 scorers (WK6I, N7MH, N6WM, K6MR, N6IE), four of which were joined by K9YC as NCCC Team #1 to take first place in the team competition. The top 5 scorers from NCCC were all bigger than the top scorer from the other 3 clubs. As a result, NCCC pushed past PVRC to take second place and the February RTTY contest becomes one of those rare occasions where big logs trumped high participation. Not surprisingly, NCCC also wins the All Star Overlay, their second Overlay win of the year.

Now, at first glance, this seems like great news, but I really feel like our club lets down the guys who put their hearts into the NAQP contests. The Society of Midwest Contesters is a club with about the same membership size as NCCC, yet they were able to find 91 members with some willing to make just one Q in the February RTTY contest. I'm sure PVRC's president has similar thoughts relating to their participation in the February NAQP RTTY contest.

2018 NAQP Challenge Summary Statistics

	DFWCG	NCCC	PVRC	SMC
Unique Members Participating	54	105	191	141
Percent of Members Participating	23%	33%	16%	44%
Members Participating in 1 Contest	33	23	82	44
Members Participating in 2 Contests	15	49	62	39
Members Participating in 3 Contests	6	33	47	58
Members Participating in 4 Contests				
Members Participating in 5 Contests				
Members Participating in 6 Contests				

We'll have a new president for the summer NAQP's and if he is who I think he is, I know he has a plan to bring in new contesters to our club. It's a good idea and NAQP is really a good way for new contesters to get their feet wet, helping the club without the pressure of scoring big.

I'm looking forward to seeing many of you in Visalia this year at the International DX Convention. We have some really good stuff to give away at the Contest Dinner, sponsored by the Mother Lode DX/Contest Club and organized by Jeff, WK6I. As of this writing the prizes include an Icom 7300 transceiver, a CrankIR from SteppIR, and four \$100 gift certificates from DX Engineering. Get your tickets early, because the Contest Dinner always sells out.

NCCC will be hosting our annual Friday and Saturday night hospitality suite, from around 9:30 – 11:30 PM. The guys from The Intrepid DX Group will be joining us this year so we can all hoist a pint for David Collingham, K3LP, who passed away in January.

We're still looking for someone to manage our table in Visalia this year. If you are new to the club, there's no better way to meet your fellow contesters and DX'ers. Managing the table means keeping a list of volunteers and what times they are available to sit at the table.

Dayton is rapidly approaching. This year will be my third trip to this monster hamfest. For me, it's a way to see my East Coast and Midwest contesting friends. If you haven't gone to Dayton, it's not too late to consider it.

I'll be seeing many of you at my favorite NCCC meeting of the year, the annual Awards Banquet. Gary, NA6O, has been working hard to make this one the best ever. Get your RSVP's in now because we are expecting a big crowd. See you at the Tide House!

Bob, W1RH

2018/2019 Board of Directors - Officer Candidates

This is the list of candidates for the NCCC BoD 2018/2019 term that will be voted on at the Awards meeting on April 7th 2018

President	Jack Brindle, W6FB
VP/CC	Chris Tate N6WM
Secretary	Ian Parker W6TCP
Treasure	Tom Carney, K6EU



N6WM/ZF2CT as ZF1A on Grand Cayman

VP/CC's Corner - March

Its time to celebrate a great contest season!

I'll keep this kind of short this go round. March is a rough time for me at work, as the responsibilities I have in my day job require nearly all my clock cycles.

I hope everyone had an enjoyable time in WPX SSB, despite the notably poor conditions that were experienced. It seems QSO counts were down across the board, so the competition itself should be consistent if folks were able to stay on the air and push through. Thanks to all the KB'ers who participated, and I am sure we can all look forward to the CW contest, this is one of my all-time favorites.

I would like to ask all of you to ponder the possibility of traveling outside the US for one of our WPX efforts in the future. The CW test is 60 days away, and there is the next run a year from now. WPX should always be part of our NCCC focus, and our ability to compete as a club at the top level. I realize for many, particularly newer contesters this type of "contest-pedition" travel may seem out of reach, but there are several great destinations that are not that terribly expensive to get to, and don't require an extensive time commitment. Operating the WPX contest from outside the US is a wonderful experience, producing unbelievable run rates, and generates big club score. There are also some additional benefits as displayed in the following photo. Give it some thought.



Showing the world how ham radio operators do their thing after the contest. Cheers!

Moving on.....

Our annual awards meeting is a special time for us in the NCCC. We have the opportunity to be recognized by our peers and our elected leadership, enjoy our triumphs with each other and have a great time.

This meeting is always one of my favorites. its particularly gratifying when an award is a surprise to the recipient, and the great atmosphere and positive attitude is a traditionally great aspect of the meeting. I hope to see as many of you possible at this years awards meeting, where we can celebrate contesting excellence together!

73 es KB

Chris

N6WM
VP/CC

NCCC Annual Awards Meeting and Elections



Tied House Brewery & Cafe

954 Villa Street

Mountain View, CA 94041

(650) 965-2739

CQP, Operating & KB Awards

Saturday 7th April

Time: 11:30am Social hour; 12:00 pm Lunch, 12:30 pm program (approx)

Location: Tied House Brewery 954 Villa Street, Mountain View, CA 94041, (650) 965-2739

Lunch selections for this meeting are:

- Traditional Fish and Chips \$25 ~ Cascade Amber batter, fries, slaw, tartar
- Veggie Pasta \$25 ~ Veggies, sun-dried tomato, fresh grated Parmesan in Alfredo sauce
- Cheddar Burger \$25 ~ Ground in-house, top sirloin. Topped with cheddar and served with fries
- Jerk Chicken Sandwich \$25 ~ Crisp veggie salad, with fries
- Jambalaya \$28 ~ Tiger prawns, andouille sausage, smoked chicken, grated parmesan (\$28.00)

Prices include salad, soft beverage of your choice, tax, and tip. Of course, this is the Tied House, so an excellent selection of beers and alcoholic beverages are also available!



Sign up using this link:

<https://www.memberplanet.com/events/ncccckb/aprilawards>

Phone Contesting Tips For DX Contests

Andy Faber, AE6Y

3/29/18

This article is prompted by the recent WPX SSB contest, in which I worked thousands of guys from Aruba as P49Y, which engendered much reflection (and teeth-gnashing, to be sure) about how U.S. hams can be best understood from the DX end. I'm not addressing this to relatively clear-channel domestic contests but to the situation where you are trying to get through to a DX station that may be hearing a pileup, plus noise, ear-splitting splatter from adjacent stations and all of the other sonic annoyances that make many contesters prefer CW.

If there is no pileup and you know the DX station can hear you completely clearly, then you'll get through regardless, but if not, here are some suggestions:

First, be sure you are calling on his exact frequency. In CW contests, it can be helpful to separate yourself from the pack by calling off frequency, but that's not true in SSB. Off-frequency stations sound distorted and are hard to understand. The DX station may well come back to a weaker, but more intelligible station that is on frequency, even if you are louder. In order to work you, he has to figure out which way to adjust the RIT, and then go ahead and do it. A tired operator on the other end may just not bother, until he has worked everyone else.

Second, make sure your audio is clean. It's so much easier to understand clear audio, even if it is weaker than a louder, distorted signal. KH7XS mentioned in his 3830 posting that this year there particularly seemed to be over-processed signals coming from South America, and I noticed the same thing. It used to be that the Italians who were the worst offenders, but they seem to be better now. This weekend, the Cubans were particularly hard to understand. The prize for the easiest audio to understand goes each contest to the hams from the British Isles. The G's, M's and their derivatives invariably have very clean (and usually nicely treble) audio that can be understood even when the signal doesn't budge the S-meter. On several occasions I chose a weak but clear Brit over a loud, but distorted, competitor.

Ok, so you have a clean signal and are calling on frequency, now how do you get the information through, both your callsign and your contact number (for WPX)?

Here are some tips:

If you are loud enough and have an easily recognizable call, you can skip phonetics. So this weekend, when K1AR called, he was easy to pick out, same for K3UA, K3ZO, N6AA, and a few others. But for most guys, and when in doubt, use phonetics. Endless bandwidth has been expended on the subject of phonetics, and people have differing opinions on the topic, but here are my thoughts from being on the DX end:

The first thing to understand is that the standard, "recommended" international alphabet works dismally in marginal conditions. The words are too short, and some don't have unique sounds. Generally speaking, the one-syllable words just get lost, while the two syllable words are better, and the longer ones are even better.

Thus, one-syllable words like “Fox”, “Golf” and “Mike” are horrible. Some of the two syllable ones are OK (e.g., “Hotel” and “Quebec”), but others, such as “Alpha” and “Delta”, or “X-ray” and “Echo”, “Kilo” and “Tango” sound very similar, so are easily confused. I worked a guy with the suffix XXE, and had to get a number of repeats until he finally said “X-Ray X-ray Ecuador,” which did the trick.

There are two basic cures for these problems. The first is only to use these crummy phonetics the first time as a trial. If the DX station asks for a repeat, say your call twice, once with the standard phonetics and once with different ones. Don’t just keep repeating your call the same way. Something in either the way you say it or the way the DX hears it is creating ambiguity. If you keep repeating the call the same way it may well be that part of it is just hard to decipher, and it may not get any easier.

If the DX station is a good English speaker then custom phonetics may work, such as “King George Six...” In fact when I thought a KK4 station was a K4, he used a very effective phonetic, “King Kong Four...” WA2JQK uses “Jack Queen King” in domestic contests, but that won’t work well for non-native speakers. The Wyoming station N7MZW uses “Many Zebras Walking” sometimes domestically, but I noticed he was using normal phonetics in WPX.

The second approach is to switch to the geographical phonetic alphabet. This features longer and more distinctive-sounding words, which are much easier to understand. For example if your suffix is , say, HLF, then you can say “Hotel Lima Fox,” then try “Honolulu London Florida.” When I give my call with last letter “Yankee” and get asked for a repeat it works much better to say “Last letter Yankee”, last letter Yokohama.” Many of the geographic phonetics work particularly well for speakers of Romance languages like Spanish and Italian (e.g., terms like “Guatemala”, “Nicaragua”, and “Santiago”). There are a few letters for which there are not good geographic equivalents. Obviously, “X-ray” is one of them. For “Echo”, “England” is sometimes used, but “Ecuador” is better. Although “London” and “Lima” are both geographic terms, “London” is much better. And “Denmark Mexico” is many times superior to “Delta Mike.”

Numbers in the callsign can also cause trouble. What if the station comes back to “K3” instead of “K6”? In general, just try to repeat the number, but if he still doesn’t get it, you can try counting, e.g. “Kilo Six, 1, 2, 3, 4, 5, 6.” Or for us West Coasters, “Kilo Six in California, West Coast” can be useful.

Which brings me to the subject of numbers in exchanges like WPX. I commented in a 3830 post a few years ago that the English numbers that everyone uses are just too ambiguous, most of them being plain too short. I recommended using some Spanish numbers, like “cuatro” and “ocho”, but that suggestion went nowhere, so I hereby drop it, unless you are trying to get through to a native Spanish or Italian speaker. In fact, In WPX, I just couldn’t understand a number from a CO8 station with terrible audio. I kept asking, “your number 424?”, “your number 242?”, “your number 224”, etc. Normally, one doesn’t confuse “two” and “four,” but this guy’s audio was driving me crazy and I wasn’t sure how well he was understanding me either. Finally I had the presence of mind to ask in Spanish, and when he said “dos cuatro cuatro,” he was in the log. If he had said that in the beginning I would have understood him in spite of his maladjusted audio.

One source of confusion for the DX station is not knowing how many digits there are, particularly later in the contest when a number can have 1, 2, 3, or 4 digits. There are a couple of ways to help. For example: suppose the DX station thinks he hears “[garble] six six” and he asks: “your number

six six?” If your number is just 6, you can say to be helpful “Negative. My number zero zero six, number six.” Adding the word “number” in front of the digit indicates there are no missing digits. If your number is 66, just say “Roger, roger.” If it’s 56, say “Negative, number five six, fifty–six.” If it’s 256, say, “Negative. Number two five six, two fifty-six (or even “two hundred and fifty-six”). I know we were taught that it is incorrect to say “two hundred and fifty-six,” and we should just say “two hundred fifty-six,” but using the “and” makes it more intelligible.

In general, it’s usually best to say your number twice, in two different ways. For example it’s often hard to discern, “two three” from “three three”. So you can say: “five nine, two three, twenty-three,” since “twenty” and thirty” sound very different. Similarly if your number is 15 and you say “one five”, that might be confused with “one nine”, so say “one five, fifteen.” If it’s late in the contest and you might be expected to have a three-digit number you can say “zero two three, only twenty-three” And if you have a one digit number late in the contest, it’s best to add zeros, saying, e.g., “zero zero nine, number nine”, not just “nine.”

I hope these tips from the DX end are helpful. They should be even more useful in the next few years, as declining sunspots forcing us increasingly into the QRM alleys of 20 and 40 meters.

NCCC Store



NCCC Members badge \$20

Order on line at:

<https://www.memberplanet.com/s/nccckb/namebadge>

Note: Members only



NCCC Coffee (or Tea) Mug (Qty 1) \$15

Contact Ian W6TCP



NCCC Pint Glass \$15

Contact Ian W6TCP

More Items available soon !

Point Generator Profile Bob, W1RH

There are many KB'ers I respect and look up to in our club, but there are just a few elite at the top of my list. One of those is John, K6MM. We are so fortunate to have John in our club for so many reasons, not the least of which are his great attention to the NCCC and CQP websites.

It was John who twisted my arm to run for President of this club three years ago. I agreed on the condition that he be around as an advisor and mentor for me. As a result, I have often relied on John's opinion, as a longtime member of this club, when making decisions as the President of this club. Although not an official Board member in the past three years John, at my request, has been a participant in nearly every NCCC Board conference call in the past three years.

John is also a DXer's DX'er, having made Honor Roll and also having been on the other end of the pileups many times.....something that is still on my own bucket list.

Now....more from John:

Name/Call Sign: John Miller, K6MM

Past calls: WV2BQJ, WA2BQJ, WB8CHZ, WA3VTM, WA6OMA, KE6MI

Location: West San Jose; CM87xh

How much property do you have? 7500 sq. ft. city lot

Describe your antenna system:

Current:

SteppIR 3-Element with 30/40 Dipole; Cushcraft R-7 Vertical; G5RV (75/80); 160M Helically Wound Vertical (Homebrew); Inverted-L more like a Lazy-U; Yaesu G-1000DXA Rotor; Ameritron RCS-8V remote coax switch; Diamond 2000 VHF

Future: RX loop for 160M.

What's in your shack?

Elecraft K-Line: K3 Transceiver + P3 Panadapter + KPA500 Amplifier

KAT500 Autotuner

ACOM 1000 as 2nd amp

Yaesu FT-7100M VHF

Microham MicroKeyer II (multi-mode USB interface and sound card w/ K1EL WinKey chip)

Handmade brass/wood paddle by K8RA (now a SK) and a vintage Ham-Key Iambic paddle.

Yamaha CM-500 headset and Sony MDR-V6 headphones

Station computer is a Dell 760 desktop, running Windows 10

Apple wireless keyboard. Small footprint. Big, fat keys = faster typing, fewer errors

DXLab Suite, N1MM Logger+, WSJT-X, LoTW, ClubLog, RBN, SH5

Power distribution using Anderson Powerpoles

What are your previous QTH's?

Syracuse, NY (home and college at SU)
Cleveland, OH (Grad. School at Case Western Reserve U)
Lansdale, PA (3 years at pharmaceutical company)
Moved to Silicon Valley in 1976.

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

I retired after satisfying careers in research, marketing, and sales in the pharmaceutical, medical diagnostics, and human resources industry.

Leadership?

President, Northern California DX Foundation (NCDXF)
Past-President of the Northern California Contest Club (NCCC) (2008-2009)
Chairman, California QSO Party
Founding member of the CW Operators' Club (CWops #11)
Former Director of the Northern California DX Club (NCDXC) (2012-2015)
Co-Chairman, International DX Convention, Visalia, CA: 2011, 2013, 2015, 2017, 2019
Contributing Editor, National Contest Journal

Married? Kids? Grandkids?

Celestine and I celebrated our 50th wedding anniversary last year. Two sons. One daughter. Four Grandkids.

How many DXCC entities have you worked?

I am on the DXCC Honor Roll, having confirmed 331 DXCC entities. Total confirmed including deleted entities is 340. I hold 8-Band DXCC and 5-Band WAS.

Any DXpedition Experience?

PJ7E Sint Maarten (operator & webmaster) (2010)
NH8S Swains Island (pilot & webmaster) (2012)
C82DX Mozambique (pilot & webmaster) (2013)
K9W Wake Atoll (operator & webmaster) (2013)
FT4TA Tromelin Island DXpedition (pilot) (2014)
K1N Navassa Island DXpedition (operator) (2015)
3GØZC Juan Fernandez (pilot) (2015)
K5P Palmyra Atoll (operator & webmaster) (2016)
VKØEK Heard Island (pilot) (2016)
KH1 Baker Island (operator & webmaster) (coming up soon: June/July 2018)

What's your favorite contest?

The **California QSO Party**, of course. Also enjoy all NAQP contests, ARRL RTTY RU, ARRL Sweepstakes, CQ WPX (especially CW), and most other state QSO parties. Field Day is also a favorite, primarily because it is less of a contest and more of an opportunity to showcase our great hobby. I am tri-lingual: CW, SSB, Digital. Enjoying FT8 lately as the hot new digital mode.

Any tips for contesters?

Read the rules. Then read them again.
Set some stretch goals
Listen carefully – then copy what you hear
Use waterfall displays
Join a multi-op team to learn from others
Have Fun!

What would you like to see changed in NCCC?

Focus on recruiting new members

Offer more training (live and online) for all members

Recognize individual contest achievements (big and small) at every meeting

Any other hobbies besides ham radio?

My Grandkids

Piano music composition. I have a small studio at home.

Exploring the back roads of the Bay Area on my Harley Davidson Heritage Softail.

I designed and manage these 14 amateur radio websites:

Oranizations	DXpeditions
California QSO Party	Baker/Howland (KH1/KH7Z)
CW Operators' Club	Mozambique (C82DX)
International DX Convention	Palmyra Atoll (K5P)
Northern California Contest Club	Sint Maarten (PJ7E)
Northern California DX Club	Swains Island (NH8S)
Northern California DX Foundation	Wake Atoll (K9W)
NS Sprint	
Palo Alto Amateur Radio Association	

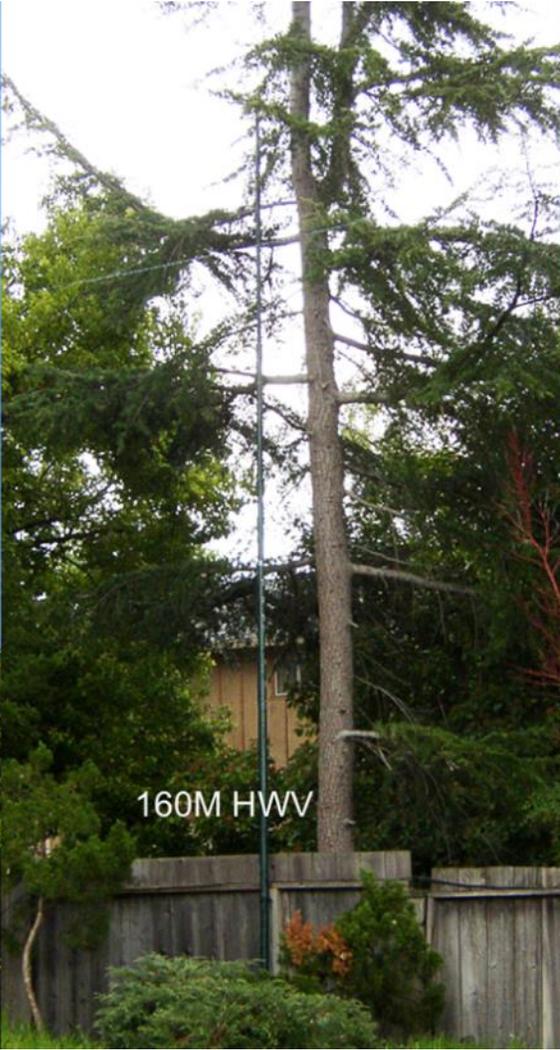




3-Element SteppIR + 40/30 Trombone



Cushcraft R-7



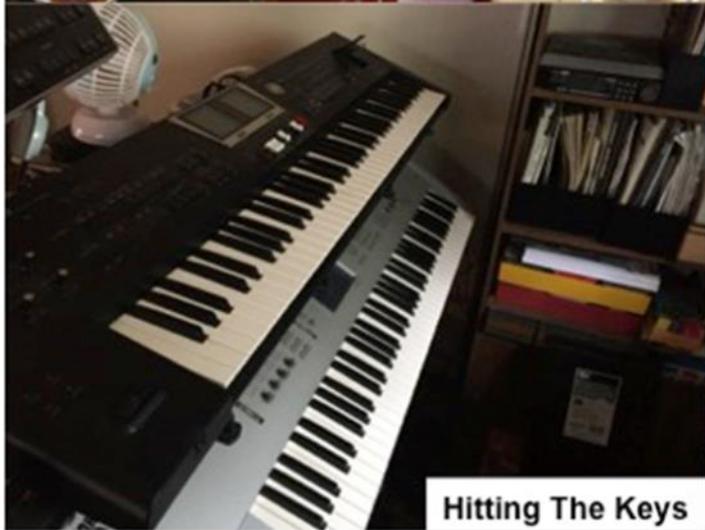
160M HWV



Diamond 2000



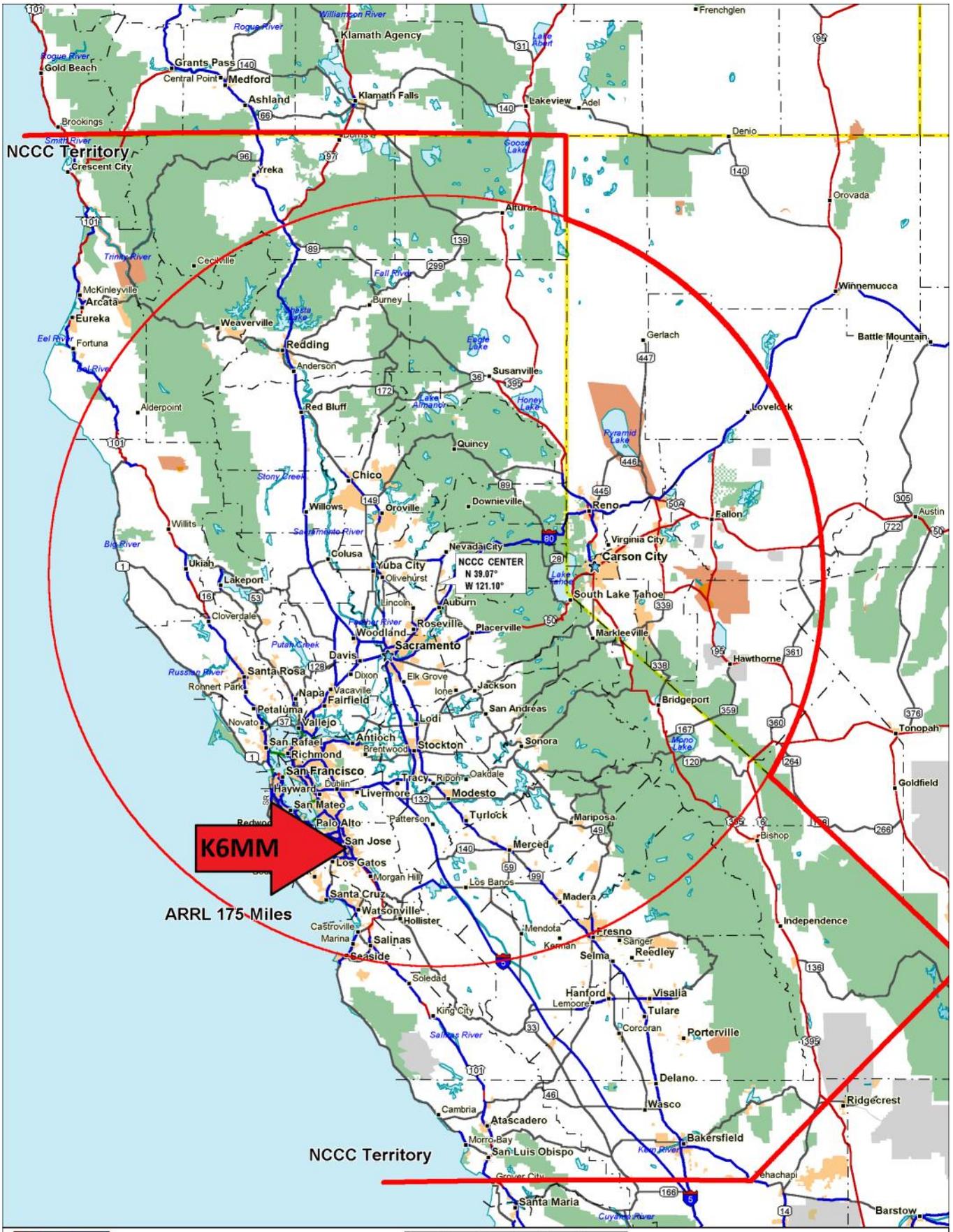
Hitting The Road



Hitting The Keys



Hitting The Sauce



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www.delorme.com



Members Corner

Bill W9KKN



Bill, W9KKN, joined us at Radio Oakley to operate CQ WPX SSB as NR60.

He's a really good operator and a huge asset to NCCC for so many reasons. Welcome aboard, Bill. - Gary NA60

NCCC Annual KB Competition Rules

Revised February 25, 2018



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

Time period: The contest year starts at 0000 March 1 UTC. ARRL DX SSB is the first contest of the year. NAQP RTTY is the last.

Eligible contests: Currently, points from 38 contests are counted. See the table on 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.

Valid scores: Only scores posted to 3830scores.com are counted.

Brackets: There are four independent brackets for the purpose of awards: 1-Platinum, 2-Gold, 3-Silver, and 4-Bronze. Brackets are assigned at the beginning of the contest year according to your final position in the previous year's standings.

Awards: Paid NCCC members may receive awards.

Contact: Gary, NA6O. gwj@wb9jps.com

NCCC Annual KB Competition Table (Updated 2/25/18)

Contest	Month	Multiplier
ARRL DX Contest SSB	March	5
CQ WPX SSB	March	1
NA Sprint Spring SSB	April	100
JIDX CW	April	10
Florida QSO Party	April	20
7th Area QSO Party	May	20
New England QSO Party	May	30
CQ WPX CW	May	1
ARRL June VHF	June	200
All Asian CW	June	10
RAC Canada Day	July	10
IARU HF World Championships	July	5
NAQP Summer RTTY	July	50
NAQP Summer CW	August	50
NAQP Summer SSB	August	50
Kansas QSO Party	August	20
NA Sprint Fall CW	September	100
CQWW RTTY	September	2
NA Sprint Fall SSB	September	100
CQP	October	20
<u>Makrothen</u> RTTY Contest	October	10
JARTS RTTY Contest	October	5
CQWW SSB	October	1
ARRL Sweepstakes CW	November	15
JIDX SSB	November	20
ARRL Sweepstakes SSB	November	15
CQWW CW	November	1
ARRL 160 Meter Contest	December	50
RAC Winter	December	10
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	1
ARRL DX Contest CW	February	5
NAQP Winter RTTY	February	50
NCCC Sprint CW	Weekly	50
NCCC Sprint RTTY	Weekly	100



March NCCC meeting

The March meeting took place on Tuesday 13th of March at Sansar Indian Cuisine (formally Sneha) 1214 Apollo Way, Sunnyvale, CA 94085. In attendance (34) Alan AD6E, Andy AE6Y, Tom K6EU, Don K6GHA. George K6GT, John K6MM, Bob K6XX, Joanna K6YL, Harris K9RJ, Jim K9YC, Joe KE8FT, Tom N3ZZ, Rick N6AJS, Dean N6DE, Dave N6NZ, Rick N6RK, Rick N6XI, Mike N7MH, Gary NA6O, Tom NS6T, Tom NW6P, Tom W2SC, Scott W6CT, Jack W6FB, Glen W6GJB, Ian W6TCP, Bill W9KKN, Mike WA6O, Matt WX5S, Don AA6W, Bruce N6TU, Dave K6ZD, Rafael KG6DQL with Chris N6WM presiding over the meeting.





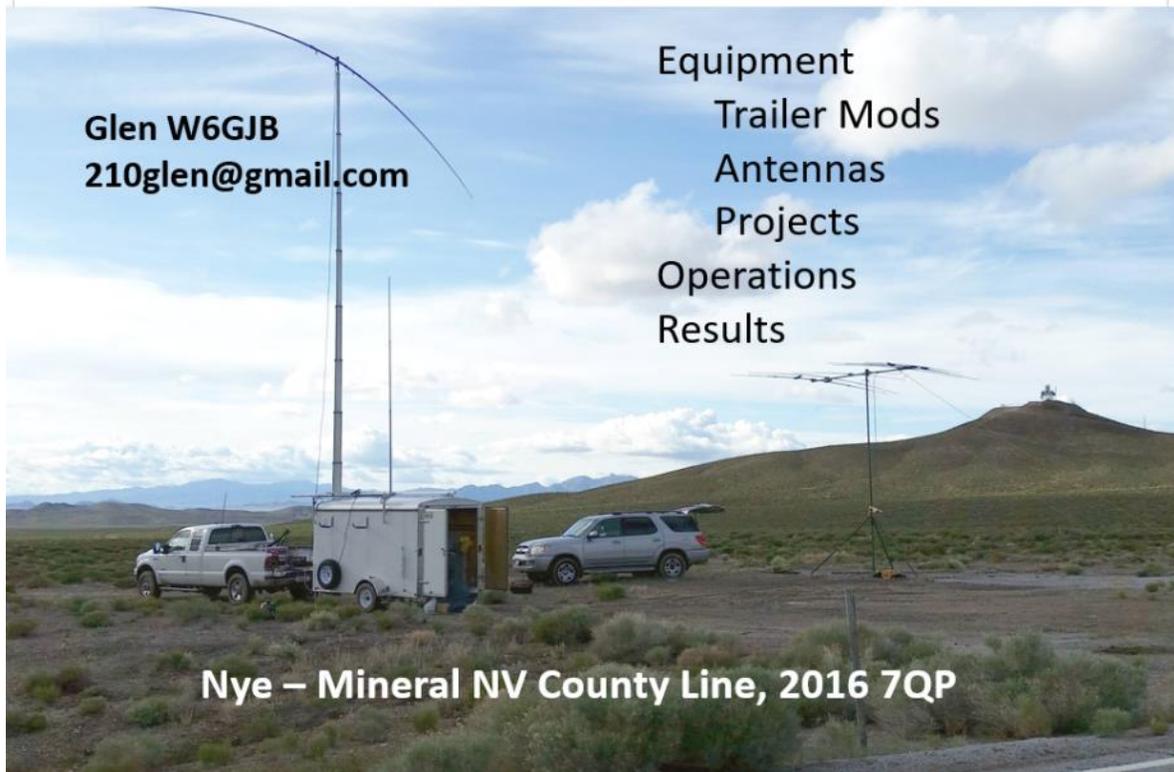


The following slides were presented at the meeting by Glen W6GJB and are being reproduced in the JUG with Glen's permission. For information, contact Glen directly!

County Expedition Strategies and Equipment

Glen W6GJB
210glen@gmail.com

Equipment
Trailer Mods
Antennas
Projects
Operations
Results



Original Goals

- Driven by CQP single-county expedition
- Safety – Old men putting up large antennas.
- Reliability – Test everything before driving away.
- Effort – Trade time at home for reduced setup time.
- Weather – Operate comfortably in wind and rain.
- Experiment with antennas and portable systems.
- Have fun with friends!

Evolved Goals

- Driven by 7QP multi-county-line strategy
- Self-contained HP-M2 operation
- Time – Minimize total setup/takedown time
- Footprint – Assume no trees and minimize footprint

Choosing a Trailer

- **How Big?**
- **Axles – one or two?**
- **Wheels**
- **Brakes**
- **Doors – ramp or doors?**

Just Right



- **6X12 with 6+ ft interior**
- **Single Axle**
- **15 inch wheels**
- **1,000 lb (empty)**
- **Aft doors (not ramp)**
- **Plywood interior**

**If towing with an SUV...
Get electric brakes.**

Trailer Mods and Additions

- Spare tire and mount (sold separately)
- Ladder hooks
- Roof rack
- Pneumatic Mast
- Outriggers with leveling jacks
- AC wiring, outlets, metering
- DC PS, battery, wiring, distribution, metering
- DC #2 for Field Day solar power (1AB)
- Sound attenuation
- Cargo rails
- LED lighting
- Coax feed-throughs
- Operating bench

Trailer Levelling Outrigger Jacks



- Level trailer with respect to mast-vertical before extending mast!
- Even on level ground, get the trailer off its springs.
- Greatly increases max wind capability.



Trailer Levelling Outrigger Jacks



- Level trailer with respect to mast-vertical before extending mast!
- Even on level ground, get the trailer off its springs.
- Greatly increases max wind capability.



Pneumatic Mast



- Available used on eBay
- Base and brace are Will-Burt parts (May be hard to find used.)
- Requires extensive trailer frame reinforcement for upper clamp.
- Add Army mast adapter to top section.



Will-Burt Pneumatic Masts

Heavy duty non-locking

If you can find a used locking mast, grab it!

Heavy Duty Models	6-25	7-30	7-42	8.5-48	8.5-52	9.5-56	9-58
Payload Capacity	200 lb / 91 kg	200 lb / 91 kg	200 lb / 91 kg	300 lb / 136 kg	200 lb / 91 kg	300 lb / 136 kg	200 lb / 91 kg
Extended Height	25 ft. / 7.6 m	29 ft. / 8.9 m	41ft.2 in./12.5m	48 ft. / 14.63 m	52 ft. / 15.8 m	56 ft. 2 in./17 m	58 ft. / 17.7 m
Nested Height	5 ft.10 in./1.8 m	6 ft. 8 in. / 2 m	7 ft. 1 in./ 2.1 m	8 ft. 6 in./ 2.6 m	8 ft. 4 in. / 2.5m	9 ft. 6 in./ 2.9 m	9 ft. / 2.7 m
Approximate Weight	110 lb. / 50 kg	125 lb. / 57 kg	235 lb. / 107 kg	275 lb. / 125 kg	266 lb. / 121 kg	296 lb. / 135 kg	290 lb. / 132 kg
Number of Sections	6	6	9	8	9	8	9
Tube Diameter	6.75 in. - 3 in. / 171-76 mm	6.75 in. - 3 in. / 171-76 mm	9 in. - 3 in. / 229-76 mm	9 in. - 3.75 in. / 229-95 mm	9 in. - 3 in. / 229-76mm	9 in. - 3.75 in. / 229-95 mm	9 in. - 3 in. / 229-76 mm
Collar Type	Non-Locking	Non-Locking	Non-Locking	Non-Locking	Non-Locking	Non-Locking	Non-Locking
Maximum Operating Pressure	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)	35 PSIG (2.4 bar)

DC Power System



- Provides uninterrupted DC power.
- Charges from AC mains or generator.
- Peak power demand is shared between PS and battery.

Cargo Rails

“Logistic Tracks” by KINEDYNE

Many useful hooks, rings, rafter hangers, etc.



Roof Rack

- 2" schedule 40 Aluminum Pipe
- Speed-Rail Fittings
- Secure to trailer frame



Generators

- Honda EU2000i inverter-generator is popular for portable ops.
- One gen runs two stations at 300W each or one at 500W.
- Take at least two for M2 ops.
- Propane conversion is recommended...
 - Runs 20+ hours without refueling.
 - Fuel does not go bad if gen sits for long periods.
 - Exhaust is less unpleasant .
 - <http://www.centralmainedi.esel.com/>



Radio Box

- Minimize footprint
- Reduce clutter
- Protect equipment in transit

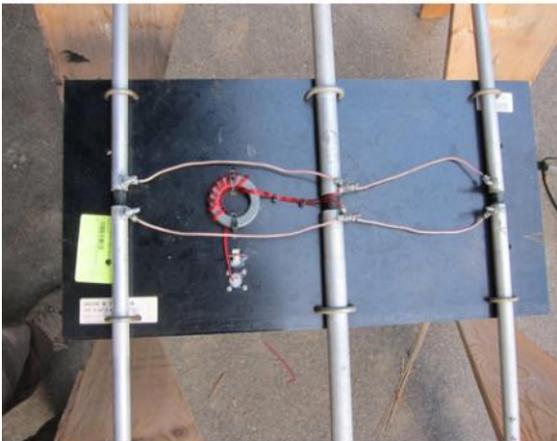


Antenna Inventory

- Light Tribander – modified C3-SS (3 ea.)
- Tripod mast system (4 ea.)
- 40m rotatable dipole
- 80m inverted V
- 80m Vertical
- 20m folding 2 element monoband

Force 12 C3-SS modified for fast deployment

- No U-Bolts
- Prewired Driven Elements
- Toggle-Clamped Parasitic Elements



40m Dipole

2X 31 ft Jacklite Telescoping Fiberglass Poles

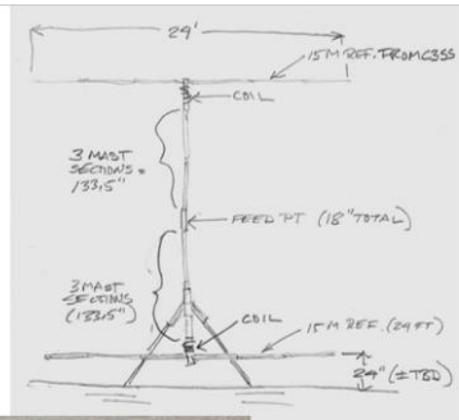
Delrin rod center support

TX choke - 14 bifilar turns #12 THHN on 2.4 inch type 31 core

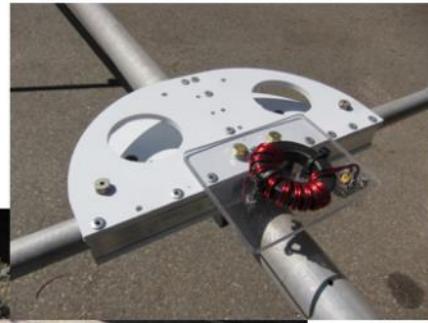
Radiator - 2X 33 ft of #12 THHN



80m T-vertical



20m 2-Element Folding Monoband Yagi



Army Mast System

Each section net length 44 inches.

Tripod base is available from goverticalusa.com.

Aluminum is easily cut with carbide blade in a miter saw.

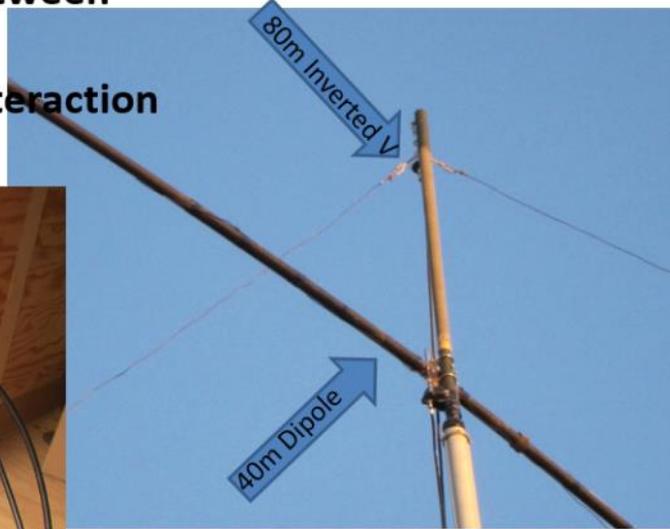
Fasten a short section to every antenna boom.



40-80 Stubs

Stubs allow simultaneous operation on 40 and 80 with less than 4 ft separation between feedpoints.

40m stub eliminates interaction with tribander on 20.



Road-Ready for 2017 CQP

2X C3SS + 40m dipole on roof rack, 80m vertical + inverted V inside, and All radios, amps, computers connected and tested



More details on trailer mods and
component sources at:

K9YC.com/trailer.pdf

Operations to Date:

CQP

2014 NI6T Tehama MM-HP

2015 K6MI Tehama MM-HP

2016 W6BX Trinity and
KU6W Colusa MM-HP

2017 W6BX Tuolumne MM-HP

FD

2015 SAC from Berryessa Peak 1AB

2016 SAC from Berryessa Peak

2017 SCV from Wilder Ranch SP

7QP

2016 Seven NV Counties "Unlimited"

2017 Five UT Counties

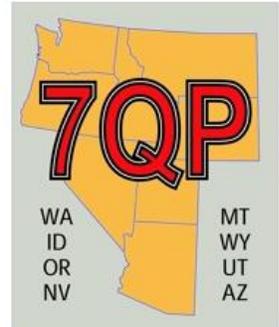
Meteor Scatter

2014 Perseids from CM86





Rules Comparison



CQP

CW-3pts, Ph-2pts, no Digi
 58 states/province mults
 30 hours
 11 op categories
 20 award categories + county awards

County Expedition

Temporary Antenna Supports
 1 week setup
 If co line, one exchange per co
 No co line definition

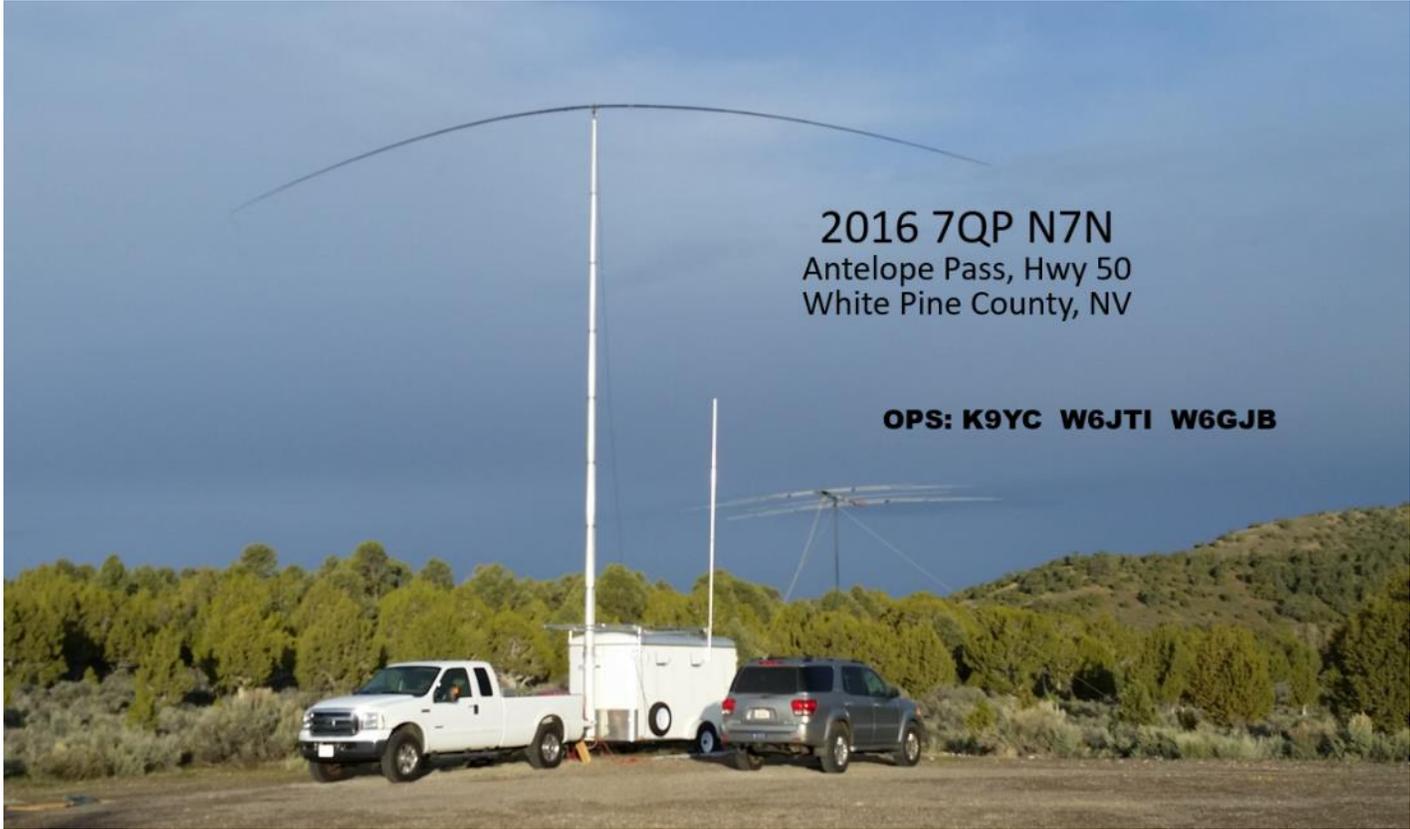
7QP

CW-3pts, Ph-2pts, Digi-3pts
 73 mults (50 states, 13 prov, 10 dx)
 18 hours
 259 counties – 190 activated in 2016
 34 op categories
 Records tracked in 12 categories
 Same weekend as IN, De and New
 England QSO parties. Log all in N1MM.

7QP County Expedition

Temporary Antenna Supports
 1 week setup
 If co line, one exch for both counties.
 500 ft co line definition

7QP can never cover all 259 counties. Rules are adapted to encourage expeditions and especially multi-county operations.



2016 7QP N7N
Antelope Pass, Hwy 50
White Pine County, NV

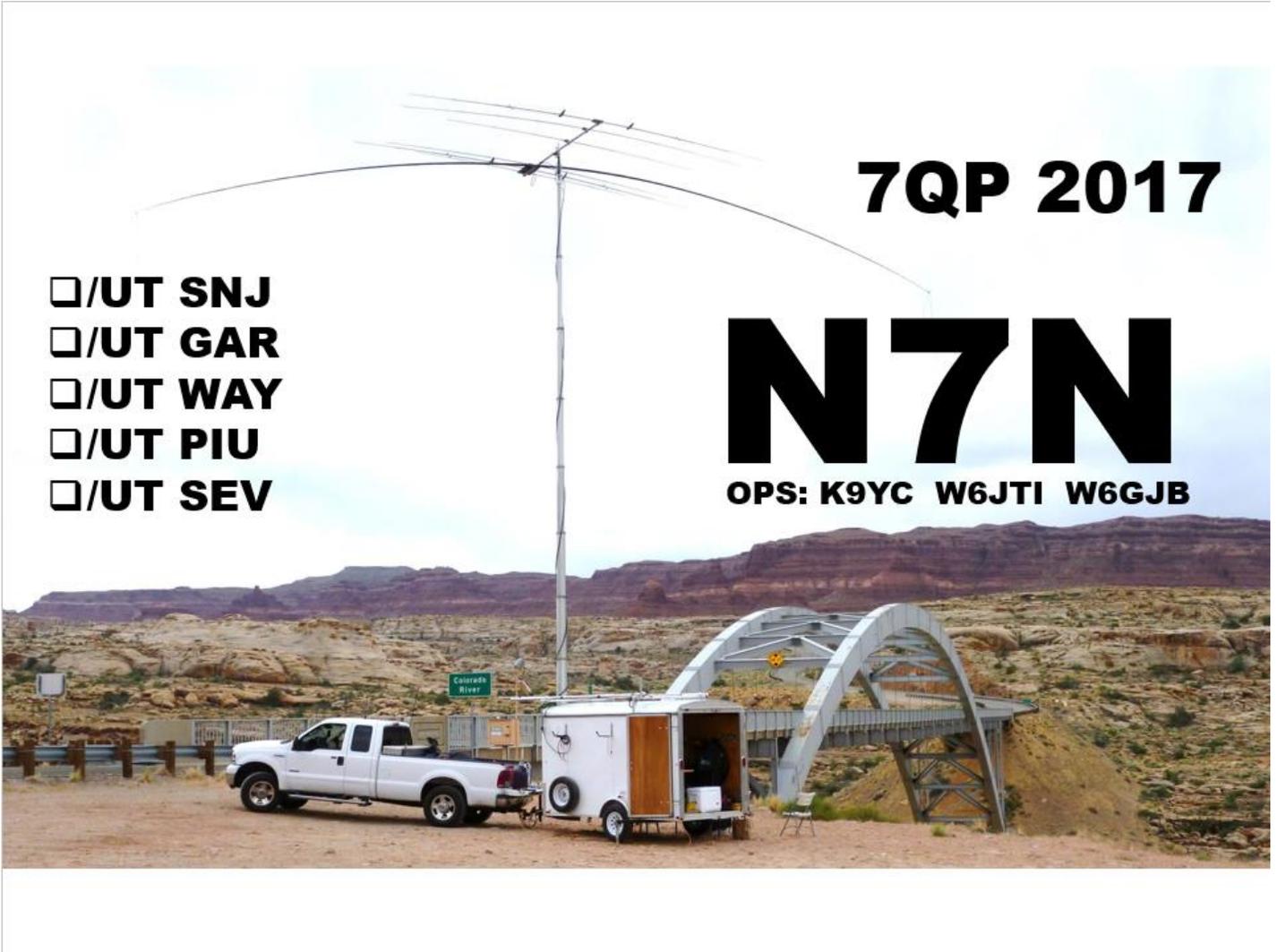
OPS: K9YC W6JTI W6GJB

7QP 2017

- /UT SNJ
- /UT GAR
- /UT WAY
- /UT PIU
- /UT SEV

N7N

OPS: K9YC W6JTI W6GJB



Having Fun with Friends



Members Corner

Jeff WK6I

CQ WW RTTY

North America Winner. Single Op All Band HP



TUBE OF THE MONTH

Visit the museum at N6JV.com

Norm N6JV

Visit the Museum: www.n6jv.com

212D

When I was a kid about 60 years ago, I was messing around a shed in my back yard. We were always afraid of going inside as it looked like a hotel for black widow spiders. The walls were falling in and there was a deep pile of trash all over the floor. Through a crack in the wall I saw something interesting and had to have it. After I braved the spiders and hauled it off, it turned out to be a Western Electric 212D tube. My father told me that it came from radio KMJ in Fresno. He had acquired it before WWII and has considering making an amplifier with it. The tube was over a foot in length and had 4 pins arranged in an odd pattern. About ten years later when I became a ham the tube has always been displayed in my shack.

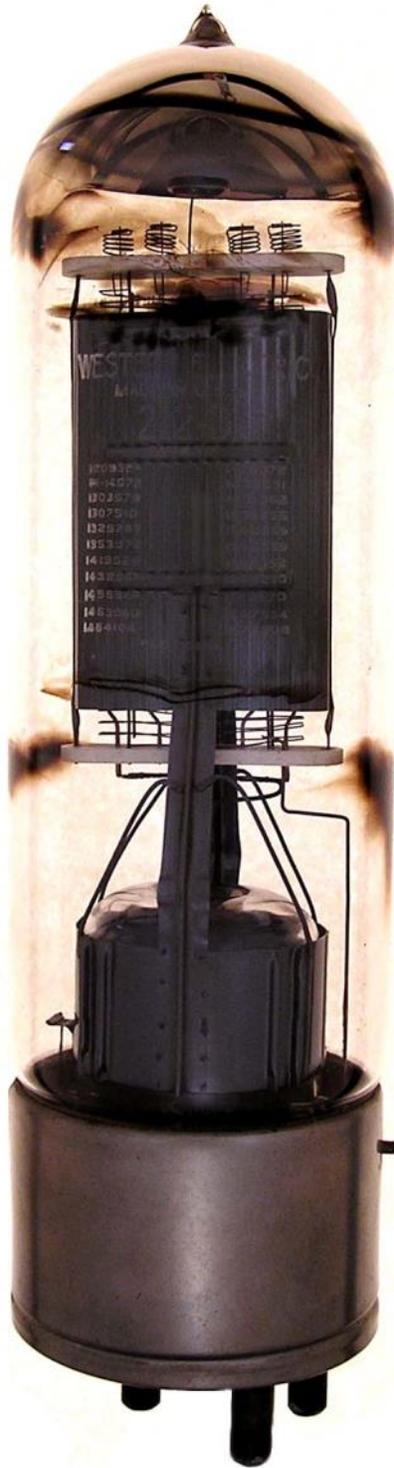
I eventually learned more about these tubes and the history of this one. The McClatchy Company, who owned the Sacramento and Fresno Bee newspapers, also owned the AM radio stations KFBK and KMJ. In 1928 they upgraded their transmitters to larger units made by Western Electric. Previous equipment was mostly "homebrew". A Sacramento ham was in charge of installing the new rigs that used the 212D tubes as amplifiers. The 212D was an excellent audio amplifier and could be used in the RF section, but only to 1.5 MHz. Each tube had a number on the glass that indicated the range of impedance. Tubes could be matched to evenly share the load. By 1936 they were considered obsolete although the 212E was used through the 1940s.

Like the old 211 tubes, the audio capabilities and the 250 watts of power made them highly desirable to audio amplifier builders. They quickly went from junk to gold. Recent prices for a good working 212D or E have risen to over \$1000. I'm glad I was able to find all my 212s when they were still considered junk. My 212D now has many friends, but it was the first.

TUBE OF THE MONTH

Visit the museum at N6JV.com

Norm N6JV



NCCC Life Membership!

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

80/20 Rule:

Members who have reached 80 years young and been a NCCC Member for 20 years are eligible for Honorary life membership. 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

Contact Ian W6TCP at w6tcpian@gmail.com for details

BoD meeting minutes

The monthly minutes from the NCCC BoD meetings are available in the members only section of the NCCC website. See <http://nccc.cc/members/minutes.html>

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 Ian, W6TCP at w6tcpian@gmail.com Don't worry about the formatting, we can take care of that if necessary !



Contest Calendar— April page 1

RSGB RoLo SSB	1900Z-2030Z, Apr 1
IQRP Quarterly Marathon	0800Z, Apr 2 to 2000Z, Apr 8
RSGB 80m Club Championship, CW	1900Z-2030Z, Apr 2
ARS Spartan Sprint	0200Z-0400Z, Apr 3
Phone Fray	0230Z-0300Z, Apr 4
CWops Mini-CWT Test	1300Z-1400Z, Apr 4 and 1900Z-2000Z, Apr 4 and 0300Z-0400Z, Apr 4
UKEICC 80m Contest	1900Z-2000Z, Apr 4
NRAU 10m Activity Contest	1700Z-1800Z, Apr 5 (CW) and 1800Z-1900Z, Apr 5 (SSB) and 1900Z-2000Z, Apr 5 (FM) and 2000Z-2100Z, Apr 5 (Dig)
SARL 80m QSO Party	1700Z-2000Z, Apr 5
NCCC RTTY Sprint	0145Z-0215Z, Apr 6
NCCC Sprint	0230Z-0300Z, Apr 6
LZ Open 40m Sprint Contest	0400Z-0800Z, Apr 7
SARL VHF/UHF Digital Contest	1000Z, Apr 7 to 1000Z, Apr 8
PODXS 070 Club PSK 31 Flavors Contest	1000Z, Apr 7 to 0400Z, Apr 8
SKCC Weekend Sprintathon	1200Z, Apr 7 to 2400Z, Apr 8
Florida State Parks on the Air	1400Z-2200Z, Apr 7 and 1400Z-2200Z, Apr 8
Texas State Parks on the Air	1400Z, Apr 7 to 0200Z, Apr 8 and 1400Z-2000Z, Apr 8
Mississippi QSO Party	1400Z, Apr 7 to 0200Z, Apr 8
Missouri QSO Party	1400Z, Apr 7 to 0400Z, Apr 8 and 1400Z-2000Z, Apr 8
SP DX Contest	1500Z, Apr 7 to 1500Z, Apr 8
EA RTTY Contest	1600Z, Apr 7 to 1600Z, Apr 8
North American SSB Sprint Contest	0000Z-0400Z, Apr 8



Contest Calendar— April page 2

4 States QRP Group Second Sunday Sprint	0000Z-0200Z, Apr 9
144 MHz Spring Sprint	1900 local - 2300 local, Apr 9
NAQCC CW Sprint	0030Z-0230Z, Apr 11
Phone Fray	0230Z-0300Z, Apr 11
CWops Mini-CWT Test	1300Z-1400Z, Apr 11 and 1900Z-2000Z, Apr 11 and 0300Z-0400Z, Apr 12
RSGB 80m Club Championship, SSB	1900Z-2030Z, Apr 11
NCCC RTTY Sprint	0145Z-0215Z, Apr 13
NCCC Sprint	0230Z-0300Z, Apr 13
QRP ARCI Spring QSO Party	0000Z-2359Z, Apr 14
JIDX CW Contest	0700Z, Apr 14 to 1300Z, Apr 15
OK/OM DX Contest, SSB	1200Z, Apr 14 to 1200Z, Apr 15
F9AA Cup, PSK	1200Z, Apr 14 to 1200Z, Apr 15
New Mexico QSO Party	1400Z, Apr 14 to 0200Z, Apr 15
North Dakota QSO Party	1800Z, Apr 15 to 1800Z, Apr 16
Georgia QSO Party	1800Z, Apr 14 to 0359Z, Apr 15 and 1400Z-2359Z, Apr 15
Yuri Gagarin International DX Contest	2100Z, Apr 14 to 2100Z, Apr 15
WAB 3.5/7/14 MHz Data Modes	1200Z-1400Z, Apr 15 (RTTY) and 1400Z-1600Z, Apr 15 (PSK) and 1800Z-2000Z, Apr 15 (RTTY) and 2000Z-2200Z, Apr 15 (PSK)
International Vintage Contest HF	1200Z-1800Z, Apr 15
Hungarian Straight Key Contest	1500Z-1700Z, Apr 15
ARRL Rookie Roundup, SSB	1800Z-2359Z, Apr 15
Run for the Bacon QRP Contest	0100Z-0300Z, Apr 16
222 MHz Spring Sprint	1900 local - 2300 local, Apr 17
Phone Fray	0230Z-0300Z, Apr 18
CWops Mini-CWT Test	1300Z-1400Z, Apr 18 and 1900Z-2000Z, Apr 18 and 0300Z-0400Z, Apr 19



Contest Calendar— April page 3

NCCC RTTY Sprint	0145Z-0215Z, Apr 20
NCCC Sprint	0230Z-0300Z, Apr 20
Holyland DX Contest	2100Z, Apr 20 to 2100Z, Apr 21
ES Open HF Championship	0500Z-0559Z, Apr 21 and 0600Z-0659Z, Apr 21 and 0700Z-0759Z, Apr 21 and 0800Z-0859Z, Apr 21
Worked All Provinces of China DX Contest	0600Z, Apr 21 to 0559Z, Apr 22
QRP to the Field	0800-1800 local, Apr 21
YU DX Contest	1200Z, Apr 21 to 1159Z, Apr 22
CQMM DX Contest	1200Z, Apr 21 to 2359Z, Apr 22
Nebraska QSO Party	1300Z, Apr 21 to 0200Z, Apr 22 and 1300Z-2200Z, Apr 22
Michigan QSO Party	1600Z, Apr 21 to 0400Z, Apr 22
EA-QRP CW Contest	1700Z-2000Z, Apr 21 (10-20m) and 2000Z-2300Z, Apr 21 (40-80m) and 0700Z-0900Z, Apr 22 (40m) and 0900Z-1200Z, Apr 22 (20-10m)
Ontario QSO Party	1800Z, Apr 21 to 0500Z, Apr 22 and 1200Z-1800Z, Apr 22
Feld Hell Sprint	1800Z-2159Z, Apr 21
SKCC Sprint	0000Z-0200Z, Apr 25
Phone Fray	0230Z-0300Z, Apr 25
CWops Mini-CWT Test	1300Z-1400Z, Apr 25 and 1900Z-2000Z, Apr 25 and 0300Z-0400Z, Apr 26
UKEICC 80m Contest	1900Z-2000Z, Apr 25
432 MHz Spring Sprint	1900 local - 2300 local, Apr 25
RSGB 80m Club Championship, Data	1900Z-2030Z, Apr 26
NCCC RTTY Sprint	0145Z-0215Z, Apr 27
NCCC Sprint	0230Z-0300Z, Apr 27
10-10 Int. Spring Contest, Digital	0001Z, Apr 28 to 2359Z, Apr 29
SP DX RTTY Contest	1200Z, Apr 28 to 1200Z, Apr 29
Helvetia Contest	1300Z, Apr 28 to 1259Z, Apr 29
Florida QSO Party	1600Z, Apr 28 to 0159Z, Apr 29 and 1200Z-2159Z, Apr 29
BARTG Sprint 75	1700Z-2059Z, Apr 29



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.

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).

JUG Articles Wanted!

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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

NCCCKB



HAM RADIO OUTLET

14 STORE BUYING POWER!

ICOM



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 RTTY Functions



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 Chis • Integrated GPS • D-STAR Repeater Directory • IPX7 Submersible



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

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 function



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



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

YAESU
The radio



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

- 160 M-440MHz - SSB/CW/FM/C4FM Digital/AM/RTTY/PSK • 100 W (2M/440: 50 Watts) • 3.5" TFT full-color touch panel operation • High speed spectrum scope • Roofing filters: 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



5 Ways to Shop!

- RETAIL LOCATIONS – Store hours 10:00AM - 5:30PM - Closed Sunday
- PHONE – Toll-free phone hours 9:30AM - 5:30PM
- ONLINE – WWW.HAMRADIO.COM
- FAX – All store locations
- MAIL – All store locations

ANAHEIM, CA
(800) 854-6046

OAKLAND, CA
(877) 892-1745

OAKLAND, CA
(877) 892-1745

PORTLAND, OR
(800) 765-4267

PHOENIX, AZ
(800) 559-7388

WOODBRIIDGE, VA
(800) 444-4799

PLANO, TX
(877) 455-8750

BURBANK, CA
(877) 892-1748

SAN DIEGO, CA
(877) 520-9623

NEW CASTLE, DE
(800) 644-4476

DENVER, CO
(800) 444-9476

ATLANTA, GA
(800) 444-7927

SALEM, NH
(800) 444-0047

ONLINE STORE
WWW.HAMRADIO.COM

Contact HRO for promotion details. Toll-free including Hawaii, Alaska and Canada. Call will be routed to the nearest store. All HRO 800-lines can assist you. If the first line you call is busy, you may call another. AZ, CA, CO, GA, VA residents add sales tax. Prices, specifications and descriptions subject to change without notice.

New Store!