JUG

Publication of the Northern California Contest Club

NCCC

Issue 474

November 2011

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

Monday, November 14, 2011

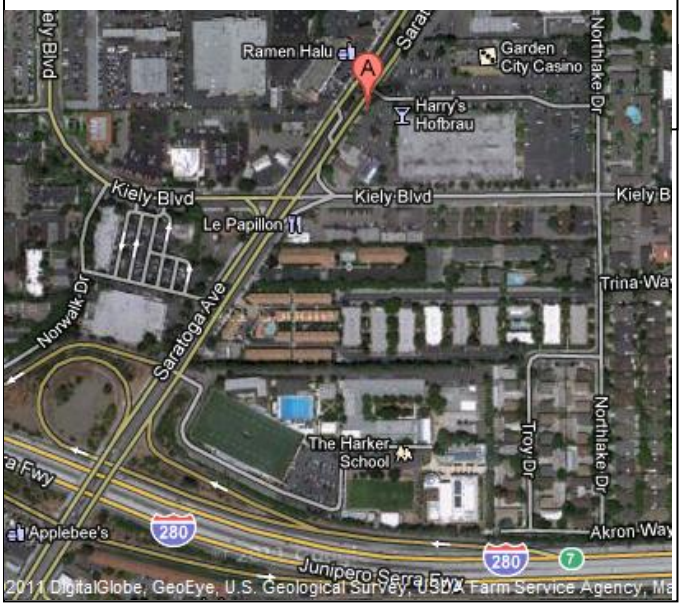
**Program**

1. Recap: Sweepstakes CW - Stu, K6TU
2. RTTY Roundup: Tips & Advice—Ed, WØYK

**Date**:
Monday, 14th November

**Time**:
6:00pm schmooze, 7:00pm dinner, 7:30pm program

Harry's Hofbrau,
390 Saratoga Avenue, San Jose, CA 95129
(408)243-0434




## From the President

### The bands are really smokin'!

Greetings KB'ers

The CQ Magazine DX SSB contest really showed the potential for global contesting, and the re-emergence of the 10 meter band as a buffer providing much needed bandwidth to reduce SSB QRM. I hope you are celebrating as I am this fantastic propagation as well as bandwidth increase. It was a great treat to see that I worked almost as many European stations as Asian stations during WW SSB.

The 2011/2012 contest season should be a great paradigm shift from the doldrums of the solar minimum that seemed to last forever. All that work improving antenna systems, mastering propagation charts, getting better radios and advancements in SDR and computer technology during the minimum should make even the most modest KB'er radio station a big signal, and efficient contesting shack.

We have had a lot of years to contemplate and even complain from time to time how frustrating the bands have been in lots of different contests, world wide and domestic. But mother nature has granted us our reprieve finally, so I hope you will all join me in enjoying amateur radio-sport while the going is good! Let's show the world all the work we have been doing out here in 6 land just to have our signals heard.. now we have the opportunity to roar!

Continued page 3

## Officers:

| | | | |
|---|---|---|---|
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| Vice President | Stu Phillips | K6TU | stu@ridgelift.com |
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| | | | |
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| Director | John Miller | K6MM | k6mm@arrl.net |
| Director | Bob Vallio | W6RGG | rbvallio@gmail.com |

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|---|---|---|---|
| New Member Mentor | Al Rendon | WT6K | wt6k@arrl.net |
| Charter Member | Rusty Epps | W6OAT | w6oat@sbcglobal.net |
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| JUG Editors | Ian Parker | W6TCP | w6tcpian@gmail.com |
| | Stu Phillips | K6TU | stu@ridgelift.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
3610+/-

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

Details here

### 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).

**VP/CC Status**

It is with great regret that I must announce that Hank W6SX has made permanent his resignation as VP/CC of the NCCC for health reasons. Therefore as per the bylaws of the club, I am appointing Stu K6TU as the permanent VP/CC of the NCCC for the 2011/2012 contest season.

I am grateful that Hank W6SX stepped up and let us know he needed some recovery time after his health challenge to recoup. Hank has done a wonderful job of motivating the club and making contesting "fun" for us all. This was very difficult for a go-getter like Hank, and I know you will all join me in wishing Hank the best of health and a speedy recovery. I am confident that his decision will help to keep him showing up in contest logs for years to come. KB Hank and thank you for your service to the club!

I am equally grateful to Stu, K6TU for stepping into the VP/CC role. Stu has established himself as a dedicated, reliable and consistent supporter of the NCCC. Going to him as an interim VP/CC was a natural choice. The aggressive, consistent, respectful and organized manner he assumed this role further solidified him as the right choice for us all, and are the hallmarks of a fantastic leader.

Let's all give Stu the support he deserves, as he leads us into contest season 2011/2012, maintaining Hank's original VP/CC message to us all. Have fun and contest exuberantly!

Super KB's go out to both Hank W6SX and Stu K6TU!
Chris
N6WM
President, NCCC

## VP/CC Corner

Well, we knew that solar cycle 24 was ramping and October certainly benefited from the increased solar activity! Contest season 2011-2012 came in with a roar!

First, thanks to everyone for participating in the California QSO Party! I hope you had as much fun as I did and worked a ton of stations. As I write this we still have a few hours to go before the log submission cut-over, there are almost 950 submitted logs – a great increase on last year!

CQP 2011 showed the activity levels on the higher HF bands – 15m and 10m were alive with plenty of activity. One phenomenon remarked by several KB'ers was the number of unique stations they worked on 10m – a large number of new operators were on the air and quickly got up to speed collecting their points.

The last weekend of October saw the annual running of CQ WW SSB. Conditions were good and again saw strong activity levels on the higher bands. Early indications from 3830 and NCCC's own posted scores show significantly increased score counts aided by better propagation. It's a good bet that many long-standing records fell this weekend.

What do better propagation; higher activity levels and falling records have in common?

## ARRL Sweepstakes!

The CW event comes this next weekend ($5^{th}$- $7th^{th}$) with the SSB event two weeks later ($19^{th}$ – $21^{st}$). Remember, the primary goal is to have FUN regardless of whether you go for an all out effort or set some personal goals to beat.

Whatever you decide to do, this year NCCC has an advantage – better propagation on 15m and 10m will land your signals loud and clear in the East Coast population centers. Better yet, if the CQP performance is repeated and we see lots of new operators ONLY on 10m, they are in the skip zone for the East Coast contest groups… and materially give us a scoring advantage! Get on the high bands early and work as many stations as you can!

So have FUN but remember that every log, no matter how large or small will help us all generate a winning score.

KB and have a LOT of FUN!

Stu K6TU
Interim VP/CC

## October NCCC Meeting Report

The October meeting was held on the 12th at the TechShop in Menlo Park and was also webcast to folks who joined up and down the West Coast.

There was a great turnout for the meeting with about 50 KB'ers joining the meeting for schmooze, pizza and a great set of presentations.

Special thanks go to John K6MM and Jim K9YC for collaborating on the webcast with audio and screen sharing of the presentations.

President Chris, N6WM kicked off the meeting with the usual introductions and welcomed a number of new members. He then handed the floor Rick "The Rhino" N6RNO our California QSO Party chair for a report on the 46th running of CQP.

Rick's report was really encouraging! This year's CQP saw a lot of increased activity on the higher bands and many KB'ers noted that they had a higher than normal number of stations they had ONLY worked on 10m. There were many Technician and other newly licensed hams out for the CQP and that really showed up in the early log analysis.

As we go to press on this edition of the JUG, the CQP Chair reported that almost 950 logs have been submitted – a healthy increase on last year's already successful event.

Next up on the agenda was a web cast presentation by Hank W6SX, NCCC Vice President and Contest Chair. Hank gave a great presentation on preparation for Sweepstakes with a host of information on how to maximize efficiency in the reception and transmission of the SS exchange.

On a trivia note, Hank reminded KB'ers that the SS exchange dates back to the early traffic nets and the Radiogram – a note of historical explanation that gave logic to an exchange that can make SS hard work if you are not well prepared!

Dean N6BV followed Hank with a presentation on the propagation forecasts for this year's SS events. The welcome increase in solar activity made this a very different presentation that in the last couple of years!

Dean emphasized the bottom line – get on the higher HF bands early! Consider putting up a second antenna for 10m even if it's just a dipole. Use a second receiver to monitor the band for activity or stations you haven't yet worked on the other bands. This can be a simple way to ease into SO2R operation and also help keep you busy during the Sunday afternoon doldrums when you think you've worked everyone!

The final presentation of the evening was by a guest speaker – Seppo OH1VR. Seppo is the President of Contest Club Finland and spoke of two unique events coming up in 2012.

Contest Club Finland is hosting the first ever World wide meeting of Contest Clubs in conjunction with their annual CCF Artic Cruise.

The meeting and artic cruise are scheduled for February 3rd through 5th 2012. You can find details about both events on the CCF web site at:

http://contestclubfinland.com/CCF/index.php

The agenda for the contest club meeting is still being prepared but includes sessions on Contest Ethics, Cloud (Internet) based stations for extreme contesting, as well as looking at developments for more openness in contesting such as on-line scoring.

It was a packed evening of great presentations and we got to welcome a number of visitors from other countries.

Special thanks to Al, AD6E for getting lots of great pictures of the evening's proceedings!

# M2 Orion Rotor Control Demystified

## Rick Tavan N6XI

I've had an M2 Orion OR2800P rotor with RC2800P-A controller for many years. The factory instructions for calibrating the thing are, to be kind, less than crystal clear. As a result, I've had several talks with M2 over the years in which they walked me through the process, but all I ever really understood was that I was a Luddite who should not only RTFM but also UTFM (understand it, which I didn't). I recently pulled the rotor for a repair (see below) and while it was on the bench realized that I would have to recalibrate it. Without a spare control cable or the fancy connector with which to make one, a dumb walk-through was impossible this time so maybe I listened better or maybe the support guy explained it better. Anyhow, I now grok Orion rotor control calibration. If anyone out there still suffers the same “comprehension gap” that dogged me for so long, here are some English language instructions. It's actually easy and makes sense. I may sound sarcastic here, but my prior confusion and current enlightenment have been genuine. After explaining the calibration procedure, I’ll mention the problem that drove me up the tower and how that is repaired.

## Orion Rotor Control Mechanism

Unlike many rotors that use a variable resistance ring to report position, the Orion system uses digital pulses to command and count position increments. The controller sends pulses to the rotor to move it clockwise or counter-clockwise. The rotor contains a rotation sensor that sends pulses back to the controller which then increments or decrements its HEADING display. The rotor also contains a limit switch that stops the motor and reports being at its limit of rotation, either North or South plus or minus some overlap. This technique is very precise but does not always remain accurate because it is possible for either device to miss pulses and get out of synchronization. It is also possible (probable) for the mast to slip in its clamp. And when you install or re-install the rotor, you will usually need to calibrate the system. In its normal, run-time modes of operation, any time you command a rotation the rotor will turn and the box will follow. But if they get out of sync there is a way to change the controller readout without actually moving the rotor. M2 affectionately calls this “Mode 3.” You use it to calibrate the controller display to the rotor, once you know for sure where it is in its 388 degrees of rotation (360 degrees plus 14 degrees of overlap at each limit). Here it is in a nutshell: First, you set the controller display to one rotation limit without moving the rotor. Then you turn the rotor and controller together until the rotor reaches the opposite limit. Finally, you set the controller display to that limit. The controller and rotor are then in agreement. You can turn the rotor and controller to any desired heading, position the mast until the antennas point that way, tighten the mast clamp and you’re done, at least until the next big wind.

## Calibration Procedure

A step by step procedure in pidgin M2ese follows. It assumes you have already set the controller to use a South stop. (That is not the factory default, even though the factory is in California where almost all hams naturally prefer a South stop.) If you want to change from a North to a South stop, see below. If you, like M2, prefer a North stop, your limit numbers will be different than those mentioned below but the instructions otherwise apply. You can do this on the ground if you have a control cable there to connect the controller to the rotor. This is typical before you first install the rotor on the tower. After initial installation, you probably won’t have a spare cable, so you’ll do this from the controller on the ground with the rotor up on the tower. I had an assistant at the bottom of the tower assuring me that the rotor was indeed moving when it was supposed to but that isn’t really necessary.

Faith is sufficient. So here, in detail, is how you do it:

1. Enter Mode 3 with a long hold of the upper MODE button. This is the “adjust the HEADING display only” mode. The left-most numeral on the display will be 3.
2. Use the CW/UP button to adjust the indicator through 180 to its clockwise limit. It will stop and display L194 meaning the 180 degree stop plus 14 degrees of overlap.
3. Save this with a long hold of the lower MODE button. This also puts you back in normal or "Run" mode. The mode numeral is 0, 1 or 2 in Run mode.
4. Use the CCW/DWN button to move the rotor to its counter-clockwise limit-switch stop. The controller will follow but its displayed HEADING will be irrelevant and probably incorrect.
5. Enter Mode 3 again with a long hold of the upper MODE button.
6. Use the CCW button to adjust the indicator through 0 (=360), down to 180 and then to its counter-clockwise limit where it will stop and display L166 meaning 180-14 degrees.
7. Save this with a long hold of the lower MODE button. This also puts you back into Run mode (0, 1 or 2). The rotor and controller are now aligned and the limits work but your antenna could be pointing anywhere.
8. Use the CW button or a preset to turn the indicator and rotor together to any heading for which you have a ground reference from the top of the tower or a clear view of the antenna for a compass assistant on the ground.
9. Up on the tower, loosen the mast clamp if necessary and twist the mast or push a boom to align the antennas to your chosen direction.

**Tighten the mast clamp using the bolt sequence in the M2 manual and pray for light winds. I forgot to use that sequence and did it slightly differently so I may have to pray a little harder.**

## Correcting for Mast Slippage

You can also use “Mode 3” to correct the displayed heading to compensate for minor mast slippage. When you do this, you will lose some overlap range at one limit and gain overlap range at the other limit. Once the mast has slipped more than 14 degrees in either direction, you can continue to fudge the controller HEADING indication this way but you will have more than 28 degrees overlap in one direction and there will be headings you cannot reach by turning in the other direction – the limit will occur before you reach the stop heading (0 or 180). That’s when it really is time to realign the controller and rotor as described above, climb the tower and re-orient the mast.

## Setting South Stop

The manual’s instructions to set the controller to observe a South stop instead of the factory default North stop are also less than transparent. I did it long ago and don’t want to risk screwing it up by experimenting enough to give guaranteed guidance. But essentially you set the controller to Mode 7 by holding the upper MODE button until a 3 appears, tap the upper MODE button until a 7 appears, and save that by holding the lower MODE button until the unit returns to its normal Run mode. There are some words in the manual about setting the controller to 180 degrees but I’m not convinced. If in doubt, just calibrate the thing as described above. It’s quick and easy.

## My Other Problem – Lying Limit Switch

The reason I had to recalibrate my Orion system was that I had to remove the rotor from the tower to install some new parts. The problem was that occasionally the rotor would turn clockwise but not counter-clockwise. M2 recognized the condition immediately as a known flaw in early units that let the main gear

slip down its spline shaft slightly, just low enough to trigger the limit switch before actually reaching the desired limit of rotation in one direction. (I purchased my Orion in 2002. The problem has long since been corrected.) M2 sold me the parts and the repair – once the rotor was on the bench a year later – was trivially simple. It took only five minutes to open the rotor housing, install a spacer on the spline shaft and put it back together.

They also provided a slightly different triangular mast spacing guide that sits on top. I might have avoided having to recalibrate the system if I had marked the exact tooth alignment of the gears, but with the surprisingly easy way the parts slid apart on the bench, this was not possible. The good news was that I finally found someone at M2 who could explain rotor calibration clearly, or maybe I finally listened well enough to understand him. If you have been frustrated by the language in the Orion controller manual, or if you have the single direction of rotation problem, I hope this write-up will be helpful. If you already understand this stuff, you're a better manual reader than I am.
Good luck!

## Tech Tips – Stu K6TU

Only one tip this month – please send your technical tips and ideas to Stu for publication in the JUG.

**Function Key Labels for Logging Programs – Tom Berman, ND2T**

Function keys and macros can be a great aid for improving operating efficiency with a logging program like WinTest, N1MM or Writelog. But how do you remember what you assigned to each key, especially in the heat of a high rate run?

3M sells a variant on the well known Post-it™ notes – Postit Labeling and Cover Up Tape. This variant comes in rolls of tape on a dispenser that are either ¼" or ¾" wide. You can find both versions at a good stationery or office supply store in the "Correcting Tape" section.

Here's a (not so hot!) picture of a length of tape on the keyboard over the function keys from the K6TU set-up from the California QSO Party.

This puts the information right where you want it and doesn't need a lookup on a crib sheet, which costs time until you have everything committed to memory.

The dispenser comes with 700 inches of tape! More than enough for a lot of contests and better still, with the peel off nature of Postit, reusable for the same contests next year!

# 2011 CQP SFRA: Chaos At Candlestick Park

It was a dark and stormy night.....

Yes, that's how this saga begins. A tale of misunderstanding and fear of the unknown – but yet another great CQP experience.

Six months before CQP 2011, Dean (N6DE), Kevin (K6TD) and I decided to put San Francisco County on the air for CQP as a Multi-Multi operation. The plan was to rent a U-Haul truck as our command center with 2 stations running full-time, using a tower trailer with a C3S tri-bander, a 4-element yagi for 15m, and inverted Vees for 40m and 80m.

Trying to find a good operating location in SFRA -- with permission to operate overnight -- is nearly impossible. One option, the parking lot at Candlestick Park, seemed like a great location just inside the SF County line for our CQP adventure. I checked the 49ers schedule for CQP weekend, and saw they were playing in Philadelphia – [ed., they won 24/23].

After networking into the SF Parks & Rec office, a nice gentleman named "Nick" informed me that, indeed, we could rent – "the entire parking lot at Candlestick" -- for the weekend. The cost: $2,500 per day. I asked if that included the 49ers Cheerleaders too, but didn't get a warm response. "Since we only need two parking spaces, Nick, couldn't you adjust the rate?" "Not possible," said Nick. At this point, the thought of having one helluva party at Candlestick Park during CQP weekend did cross my mind -- but then I took a cold shower and kept networking.

Nick suggested I contact the Candlestick Point State Recreation Area, immediately adjacent to Candlestick Park. It looked great from Google Earth, so I contacted the folks at CPSRA. Ranger "Ann" liked the idea of supporting our weekend event very much, but pointed out that the park closes at 5:00 PM, and all vehicles must exit. Unfortunately, they could not allow us to stay overnight. No exceptions. But Ann did suggest another solution: Candlestick RV Park across the street from the stadium and adjacent to the State Recreation Area near the Bay.

The RV Park has a good reputation, and again, Google Earth showed several possibilities for setting up a small tower. So, Dean, Kevin and I ran up there to survey the environment. We found an ideal location toward the back of the RV Park with a clean 60-70 degree shot northeast. Another bonus: Access to both 110v and 220v electrical panels. No need for a generator. And we could use Kevin's Alpha 87A amp at full power. After a more thorough second visit, we agreed to reserve two spaces for our adventure. During both visits, I met with the owner -- I'll call him Mr. X -- and showed him the CQP website as well as photos of previous Expeditions. I explained that we'd be bringing in a U-Haul truck + tower trailer for the weekend. Considering that most of his renters drive huge RV rigs -- he said our setup would be "No problem". We sealed the deal with a handshake and finalized our plans.

It's now the day before CQP: Friday, Sept. 30. Our gear is loaded, and we're off to the RV Park. Arrived at 12 noon, checked-in, paid in full, and headed to our reserved spaces. From 12 noon to 6:30 pm, we did what all good Expeditioners do the day before CQP -- assemble the antennas and pray that we hadn't forgotten anything. The two yagis were mounted on a 17 ft. mast and the tower raised to 55 ft. Using two pulleys at the top of the tower, the dipoles were installed as inverted Vees, and tied off at different points in the RV Park along the bordering fences.

At 7:00 PM, as darkness fell -- satisfied with our antenna farm -- we were about to leave for a dinner break, when Mr. X stopped by for a visit. He took one look at the entire setup and turned several colors in succession. Mostly red, and some blue, I recall. The thought of a 55-ft tower in his RV Park somehow translated to an alien invasion from Mars. He really didn't like the whole operation, especially those "guy wires" (i.e., dipoles) stretching over the parking lot. "Take everything down. Now. Everything. Take it all down". You

can imagine our reaction. For a split second, I wondered how fast we could hoist Mr. X to the top of that 55 ft. tower.

We proceeded to have a Calm, but Focused discussion. It didn't really matter. He wanted to refund our money and kick us out immediately. We told him that we couldn't do anything because it was too dangerous to work in the dark. Didn't matter. "Out now, or I call the police". We agreed to come back in the morning and take everything down. Not good enough. "Now or I call the Police". At this point it was a stalemate, so we just stopped talking. He left -- but in 15 minutes returned followed by a SF police car.

The two nice officers strolled up to us, looked upward, and said, “Well, what have we here?” They calmly listened to our tale of woe. We emphasized that one of the reasons for our Annual weekend exercise was to ensure that antennas and equipment are operational, since we work closely with the police, fire, and relief agencies to provide back-up communication support during emergencies. We showed our CQP T-shirts, pointing out that all 58 CA counties were on the air this weekend -- just like us – and that we had selected the RV Park to operate in San Francisco County after two prior meetings with Mr. X. From their body language, we could tell that these police officers were on our side. However, Mr. X could only repeat -- "Take It Down Now".

After checking our IDs and being convinced we weren't running an illicit or illegal operation, the police explained that it was Mr. X's property, and he had final say. I asked them specifically: "If Mr. X allows us to operate tomorrow (Saturday) and if we then break everything down Sunday, would that be OK with you". "Sure”, they said, and once again turned to Mr. X -- who could only repeat, "Take It Down Now." We agreed to remove the dipoles immediately because of good lighting in the parking lot, and said we'd do our best to remove everything else Saturday morning. I mentioned that since it took us 6-7 hours to set up, it might take us that long to remove it all -- Safely. The police thought that was reasonable, and finally Mr. X grudgingly agreed. "Take It Down, and get out tomorrow as fast as possible". We locked up everything and headed homeward in Kevin's truck -- feeling a bit like K6SRZ, AD6E and NI6T did last year when they were drop-kicked from Treasure Island the day before CQP 2010.

During dinner, we agreed on Plan B. We'll tear down in the morning and move next door to the Candlestick Park State Recreation Area -- if we can get permission. At 7:00 am Saturday morning, we walked through the SRA looking for a place to operate. As we were walking along an SRA pickup truck slowly drove by and ranger "Debbie" gave us a nice smile and waved. We all smiled, and waved for her to stop but she kept going. As she drove away, Dean, N6DE starting frantically running after her, waving a copy of his FCC license in hand – truly a CQP Kodak moment. We finally caught up with Debbie who directed us to the ranger station where her boss could help us. We split up. Kevin and Dean to the RV park to start breaking down the equipment, while I waited without results at the ranger station for an hour, then returned to the RV Park, leaving my cell phone number on a piece of paper.

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At the RV Park we decided to go into Stealth Mode. No longer Multi-Multi, but Multi-Single. One K3 operating at 1.5 KW on one of 3 bands: 20m, 15m, 10m. Two of us would take our time winding rope, cables and looking very busy, while the 3rd person operated. We figured we could get a few Qs in the log before leaving. Dean started on 15m CW and made the first QSO at 10:07 am with KE0G.

My cell phone rang. The ranger. "Sorry. I can't make a decision about your operating today – it's not my call. But Ranger-in-charge "Ann" will be in Sunday morning at 10 am. Talk with her." Since the Recreation Area was no longer a practical option for us on Saturday, we decided to stay in Stealth Mode for a bit longer at the RV Park.

At about 10:30 am, Mr. X stopped by in his pickup truck. I walked over and apologized for any misunderstanding. He asked if we would be out of the RV Park by 12 Noon. I told him that it would take longer but we'd do our best. The next five minutes of conversation between us were – Special. In the end we arrived at a gentleman's agreement. Mr. X would NOT give us permission to operate but he did agree to let us "safely" take the down equipment as soon as practically possible Saturday. For me, that meant Sunday at 12 noon. : >)

Mr. X left and we started to relax a bit. Taking turns, we operated Saturday from 10:00 am to 8:00 pm -- our last QSO Saturday evening with K1YE on 20m SSB at 8:03 pm. We were up again at 5:30 am Sunday morning and on the air at 6:32 am. Our first QSO was with W1WEF on 20m CW, and we stayed on the air until our final QSO at 10:00 am with W8IDM on 15m SSB.

At 10:00 am, we decided to call it quits. It took two hours to break everything down and pack. We left Candlestick RV Park at exactly 12:00 noon on Sunday, October 2, with 1,100 QSOs in the log. We never saw Mr. X again.

The Final Tally:

| Band | CW Qs | PH Qs |
|---|---|---|
| 20: | 254 | 182 |
| 15: | 212 | 127 |
| 10: | 84 | 241 |
| Total: | 550 CW | 550 Phone |

(An exact 50:50 split on both modes!)

Total QSOs: 1,100
Total Score = 151,250
Mults = 55 (missed ID, SD, NT)
Total Operating Time: 13.5 hours
Average # QSOs Per Hour: 82

Epilogue:

Many lessons were learned on this one. Lots of “Woulda, Coulda, Shouldas”, to reflect on. To some extent, our experience is really another study in human nature -- someone being afraid of something they just didn’t understand.

During and after CQP, we received many excellent signal reports and high fives from CQPers everywhere for putting SFRA in their log. That was our original intent and it made the whole event worthwhile.

All the drama aside, this was my favorite CQP weekend ever. My personal thanks go to Dean (N6DE) and Kevin (K6TD) for riding out the storm at Candlestick with me. Two great operators, and two great friends.

CQP is just about the most FUN you can have in a contest. For 2012, I’ll try another county expedition -- perhaps with a little less drama, but hopefully just as many thrills. J

73,
John, K6MM

# YCCC SO2R Box (plus) Product Review

## Rick Tavan N6XI

Many of you have heard chatter about the YCCC "SO2R Box (plus)" or heard me talk about it at an NCCC Show & Tell. I've been using it for most of a year now and it has been a refreshing experience. This device does everything I need for essential SO2R and very little that I don't need. It comes close to what I like to call the Einstein Medium after the great physicist's famous admonition to "make everything as simple as possible ... but not too simple." In fact, YCCC used a version of that quote as a chapter tag-line in the manual. The box is built like a tank and seems to be pretty bullet-proof. Unlike my two prior SO2R devices (MK2R+ and DX Doubler), there is no audio bleed-through between channels. It's eerie listening to two well

-matched K3s alternate message transmissions on quiet bands - you can hardly tell when one stops and the other starts thanks to the almost total absence of switching transients and bleed-through. The front panel is pure simplicity - Power switch, keyer speed knob and two Rig1-Auto-Rig2 toggle switches for Transmit and Receive rig selection. In "Auto" positions your computer controls which rig receives mic, key or FSK input and what you hear in your phones. In the Rig<n> positions, you do.

The box was a YCCC club project. Paul K1XM designed the hardware and firmware. Bruce WW1M designed the PC board. Ken WO1N and Jose N4BAA handled ESD and enclosure design, respectively, and Dennis W1UE handled parts procurement and order fulfillment. They did a good job.

**Figure 1 - SO2R Box (plus) Front Panel**

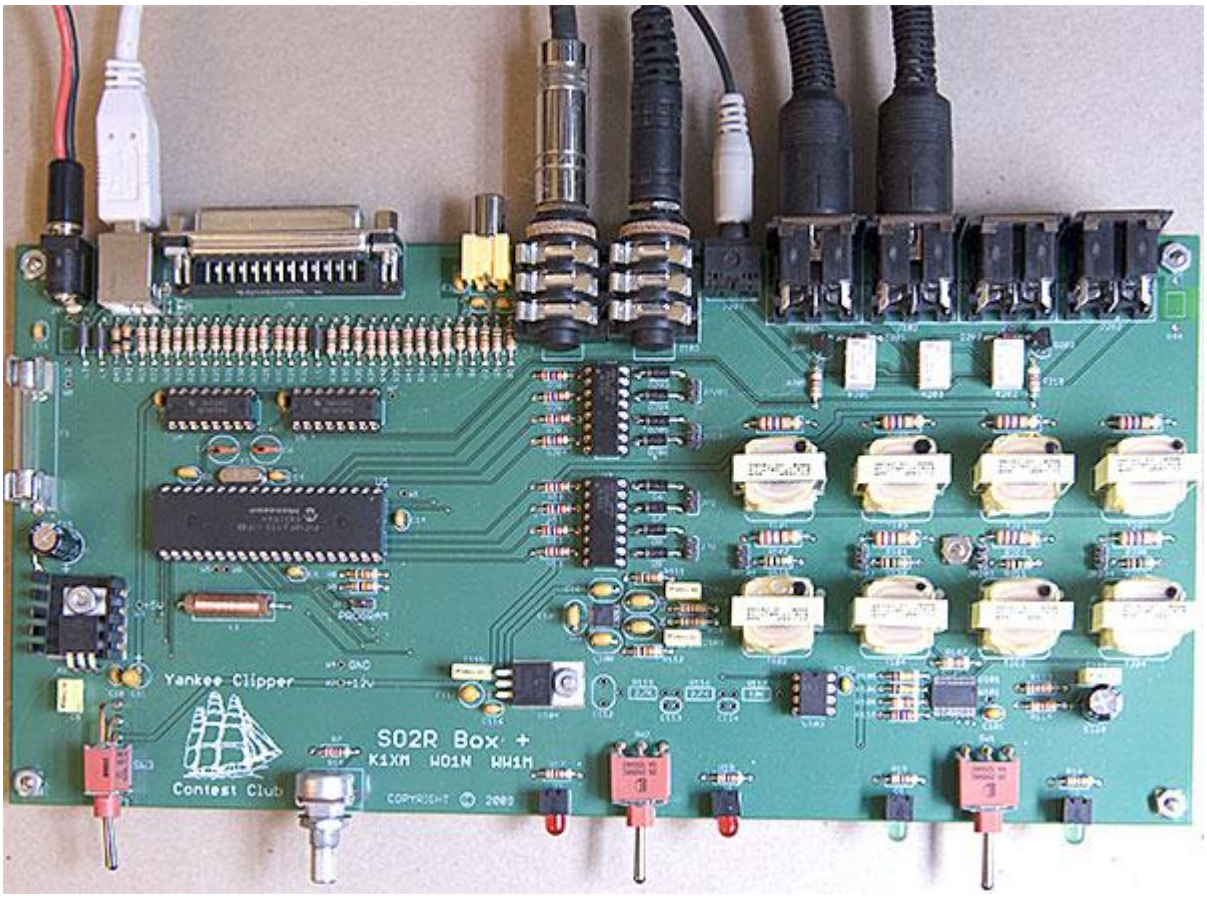


**Figure 2 - Prototype Board Showing Components, Controls and Connections**

For more information, see http://www.k1xm.org/SO2R. There was one problem with the board I received - five intended oblong holes for pins on two connectors were drilled round and too small. It took some careful drilling and filing to get things to fit but the result is secure and functional. This problem was unique to the one batch of boards that came with my kit and has been corrected.

The box deals with two of the possible four radios at a time. Software controls which of the four connectors is considered Rig 1 and Rig 2. Although I haven't connected them yet, I have some VHF and bench radios that are candidates for sockets 3 and 4. The price was right for this club project kit - $200 for the four radio version. The two radio version cost even less. Pricing is likely to change on future runs but YCCC isn't making money on this project.

The support software consists of two simple programs that work together with your logger. "SO2R Box Utility" is intended for setup functions when a logging program is not running and "SO2R Box" is for run-time control with a logger. I'm not sure about their software naming choices but the programs do the job. At present, both run as ordinary .exe programs, not denizens of the Windows System Tray. The neat thing about the software is its simplicity. There are relatively few parameters and most of their functions are pretty clear. The run-time program has ten pull-down value selectors, a dozen check boxes for yes/no options, and "radio buttons" to select two multi-choice options. Most of those controls just adjust keyer parameters. Compare this to microHam uRouter with its dozen tabs, each more complex than the entire YCCC run-time program or the similarly sized Utility. Piece o' cake!

Of course, the comparison with uRouter and MK2R is like apples and oranges because the YCCC box has far fewer functions than the microHam. It does nothing for rig control ("CAT" functionality) - you use your own USB-to-Serial converters for that. It contains no sound card(s) - you use the one in your computer or external cards. It doesn't contain recording loops, ancillary volume controls, programmable configuration buttons, message memories or four layers of configuration SAVE functions. It also has far fewer setup options for tailoring it to your own favorite definition of SO2R. It just does what I consider to be the essence of SO2R: listen to the main receiver of one radio in each ear most of the time and mute (or mix) the transmit rig when the computer is sending. Unlike computer sending, paddle sending doesn't mute the transmit rig and its monitor tone, so you can hear yourself send. And if you switch manually to one rig or the other, you get full stereo with its main receiver in both ears. Or you can put a sub-receiver in one ear if your rig has one. This setting also allows full QSK if the rig is set up for that. There are some alternatives to these behaviors - you can turn off the "Stereo" function to make it select one receiver at a time and you can defeat the "Latch" function to avoid muting the transmit radio. MicroHam offers dozens of user-programmable, alternative methods of operation, setting up each ear for many possible audio sources in each of many conceivable states of operation, but after several years of noodling all that, I never discovered any other combination that I wanted to use.

Another useful comparison is with the venerable Top Ten Devices DX Doubler. That box has similar controls to the YCCC box but a fatal flaw - without a built-in keyer, it has no way of knowing when paddle sending is in use. All it can do is look at the rigs' Key Out lines so it can mute the transmit radio unless you throw a switch before sending with the paddle. Some ops, with some logging programs, can program and remember enough function keys to accommodate most special transmissions, so they rarely have to use the paddle. But not me. I use the paddle a lot and the YCCC box aces the DXD in that respect. Perhaps in its favor, the DXD requires no support software at all; it is strictly an external switching device driven by a parallel port rig-select line. The YCCC box uses a USB connection to your computer to determine which rig is transmitting. I think the bottom-line comparison of the YCCC device with my two prior boxes is a Goldilocks story: This one (DXD) is too simple. This one (MK2R) is too complex. But this one (YCCC) is just right!"

The YCCC SO2R Box (plus) sips 12VDC from a coaxial DC power plug and connects to your computer via a USB computer-to-device cable. It requires that your logging software support the published Open Two Radio Switching Protocol (OTRSP), another K1XM production. Compatible loggers include WriteLog V10.73+, N1MM V9.8.4+ and Win-Test V4.4+. In order to facilitate adoption by logging program developers, Paul initially used a strange mechanism for inter-process communication between the YCCC run-time program and the loggers - simulated serial ports. You had to install one of two available third-party drivers to do this. The manual explains how to install N8VB's vCOM package but I had trouble getting a copy. I used Open Source GPL freeware COM0COM instead. VSP Manager from K5FR is another alternative. In any case, you use the driver to set up two pairs of virtual serial ports. I used mnemonically related ports 12-21 and 13-31. In the WriteLog Setup | Ports dialog, I specified COM13 for CW keying with WinKeyer and COM12 for SO2R protocol OTRSP. I told the YCCC software to use COM31 for its emulated WinKeyer and COM21 for SO2R control. Your port numbers may vary. There is absolutely no hardware associated with these virtual "serial ports" but the software is eagerly ignorant of that detail and it all plays nicely together. Since my first forays with the box, Paul has implemented an alternative mechanism for inter-process communication, the Windows Named Pipes facility which comes standard with the operating system. It eliminates the need for those virtual serial port drivers. So far, Writelog has adopted it and others may follow suit. I also had to set WriteLog | Radio | Headphones Split to take advantage of SO2R Box Stereo Mode. (One minor WriteLog annoyance - this setting is not persistent. It goes away any time you use (or even look at) Setup | Ports and any time you restart WriteLog. I'm trying to get this resolved with the Writelog folks but I'm not going to hold my breath waiting.) Getting the logger and logger-control links working seemed straight-forward after the fact but in the event was the most puzzling part of the project. I hope they document it better in the future. Paul has indicated some interest in developing Application Notes for the various loggers at least.

As is often the case with ham shack integration, initialization sequencing is critical. Many devices and programs insist that certain parts of their environment be ready and waiting when they start up and few can recover on the fly from a restart or setup change of any other part. Even though the SO2R Box software is more tolerant than most, configuration changes sometimes require restarting some or all components and using the right sequence helps. In my setup, it seems best to start operating system, rigs, switch box, control software and logging programs in that order, even though some variations will work some times. The virtual serial port drivers, if used, start up with the operating system, so they’re not an issue.

The kit is quite approachable by anyone with basic PC board experience. YCCC installs a few surface mount devices but everything the builder has to construct involves only through-hole components. Audio lines are isolated with transformers. The steel case is hefty and fits together nicely with the PC board and connectors. LEDs tell you which rigs are enabled for transmit and receive. Connectors are reasonably strong. You have to provide your own wire and rig-side connectors and build up cables for each radio; there are no prefabs available. YCCC supplies two or four 8-pin DIN connectors which are annoying to assemble but they do connect securely once they're done. I think I prefer the DINs to D-sub connectors operationally. Ring them out carefully after assembly to prove continuity and absence of shorts. Each connector has pins for stereo receive audio, mono mic audio, key out and PTT out. There is also a rear panel D-sub connector for external control and sensing of TX/RX selection and auxiliary lines for things like FSK and local devices.

I have not yet set up RTTY but certainly plan to do so. YCCC requires a separate instance of MMTTY for each rig when using Win-Test or N1MM. WriteLog, however, was not yet compatible with the way the YCCC box uses MMTTY on transmit the last time I looked.

YCCC is a club, not a company, so support comes from volunteers who have lives outside this project. If the right person goes on vacation, it can take a while to get an answer. But the answers do come and they respect the inquirer. They're good people who have achieved commercial quality in a club project. I've helped them to set up an email group (YCCC_SO2R@yahoogroups.com) so more people can ask questions and get and give answers more easily. It’s very low traffic but I expect that will spike the next time they produce a batch of kits.

The original plan by YCCC was to kit up a batch or two and then let other clubs run their own projects to distribute subsequent batches. So far, they have done three rounds and are planning a fourth. KBers who need a simple switching box capable of full, canonical SO2R without frills would be well advised to sign on. If YCCC retires from the effort, maybe NCCC could adopt this design for our own club project. It's a nice box.

# Contest Calendar—November 

| | |
|---|---|
| NCCC Sprint | 0230Z-0300Z, Nov 4 |
| Ukrainian DX Contest | 1200Z, Nov 5 to 1200Z, Nov 6 |
| NA Collegiate ARC Championship, CW | 2100Z, Nov 5 to 0300Z, Nov 7 |
| ARRL Sweepstakes Contest, CW | 2100Z, Nov 5 to 0300Z, Nov 7 |
| High Speed Club CW Contest | 0900Z-1100Z, Nov 6 and |
| | 1500Z-1700Z, Nov 6 |
| DARC 10-Meter Digital Contest | 1100Z-1700Z, Nov 6 |
| ARS Spartan Sprint | 0200Z-0400Z, Nov 8 |
| CWops Mini-CWT Test | 1300Z-1400Z, Nov 9 and |
| | 1900Z-2000Z, Nov 9 and |
| | 0300Z-0400Z, Nov 10 |
| RSGB 80m Club Sprint, SSB | 2000Z-2130Z, Nov 9 |
| WAE DX Contest, RTTY | 0000Z, Nov 12 to 2359Z, Nov 13 |
| 10-10 Int. Fall Contest, Digital | 0001Z, Nov 12 to 2359Z, Nov 13 |
| JIDX Phone Contest | 0700Z, Nov 12 to 1300Z, Nov 13 |
| OK/OM DX Contest, CW | 1200Z, Nov 12 to 1200Z, Nov 13 |
| CWops Mini-CWT Test | 1300Z-1400Z, Nov 12 and |
| | 1900Z-2000Z, Nov 12 and |
| | 0300Z-0400Z, Nov 13 |
| Kentucky QSO Party | 1400Z, Nov 12 to 0200Z, Nov 13 |
| CQ-WE Contest | 1900Z, Nov 12 to 0500Z, Nov 14 |

# Contest Calendar—November 

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|---|---|
| SKCC Weekend Sprint | 0000Z-2400Z, Nov 13 |
| NAQCC-EU Monthly Sprint | 1800Z-2000Z, Nov 14 |
| NAQCC Straight Key/Bug Sprint | 0130Z-0330Z, Nov 17 |
| YO International PSK31 Contest | 1600Z-2200Z, Nov 18 |
| ARRL EME Contest | 0000Z, Nov 19 to 2359Z, Nov 20 |
| SARL Field Day Contest | 1000Z, Nov 19 to 1000Z, Nov 20 |
| LZ DX Contest | 1200Z, Nov 19 to 1200Z, Nov 20 |
| All Austrian 160-Meter Contest | 1600Z, Nov 19 to 0700Z, Nov 20 |
| Feld Hell Sprint | 1600Z-1800Z, Nov 19 |
| RSGB 2nd 1.8 MHz Contest, CW | 2100Z, Nov 19 to 0100Z, Nov 20 |
| NA Collegiate ARC Championship, SSB | 2100Z, Nov 19 to 0300Z, Nov 21 |
| ARRL Sweepstakes Contest, SSB | 2100Z, Nov 19 to 0300Z, Nov 21 |
| EPC PSK63 QSO Party | 0000Z-2400Z, Nov 20 |
| Run for the Bacon QRP Contest | 0200Z-0400Z, Nov 21 |
| SKCC Sprint | 0000Z-0200Z, Nov 23 |
| CWops Mini-CWT Test | 1300Z-1400Z, Nov 23 and<br>1900Z-2000Z, Nov 23 and<br>0300Z-0400Z, Nov 24 |
| RSGB 80m Club Sprint, CW | 2000Z-2130Z, Nov 24 |
| CQ Worldwide DX Contest, CW | 0000Z, Nov 26 to 2400Z, Nov 27 |
| SARL Digital Contest | 1300Z-1600Z, Nov 27 |

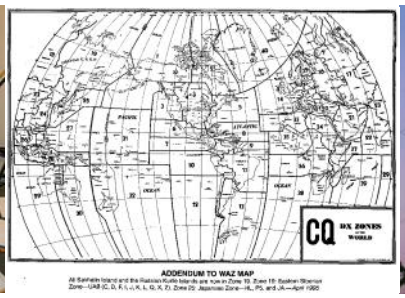
# JUG

## Please consider writing an article for JUG !

## December Newsletter Deadline—November 28th

This is your newsletter so lets make it something we are proud of. I hope you will consider writing an article for the JUG! Whether its about your station, recent contest experience or a technical article we would appreciate hearing from you.

Send your articles to Ian W6TCP w6tcp@comcast.net and Stu K6TU stu@ridgelift.com



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