

NAQCC NEWS

ISSUE 253 JULY 2019



KEY CLICKS

- **NEW WEST COAST QRS NET STARTING.** We are very pleased to announce that a new NAQCC slow-speed net is starting up this month. The net will meet on Friday evenings, beginning July 19, on 40-meters, with Mike, N6MST, serving as net control. Our QRS nets are designed to help beginners improve their CW skills and to gain confidence in their operating techniques. A complete net schedule can be found on the CW Nets page of this newsletter and additional information is available at http://www.naqcc.info/cw_nets.html.
- **ANNIVERSARY SPECIAL EVENT OPERATORS NEEDED.** This year we will be celebrating our club's 15th anniversary from October 6 through 12 (UTC) and, as in past years, we need volunteers to put our special event callsign on the air during that week. No special equipment is needed other than your regular gear, your operating schedule is completely flexible, and logging "paperwork" is kept to a minimum.

This year, because of some rule changes made by the 1x1 callsign administrators, we will only be using the N3A call and will add portable designators to indicate locations. The disadvantage to this is that our calls will be a little bit longer to send, but the advantage is that we can now easily include operators in Alaska, Hawaii, the US Virgin Islands, and Puerto Rico.

One operator from each district will be exclusively designated to use the special call in the anniversary sprint that week and that person should have some previous sprint experience. But other than that there are no other special requirements. If you are a member of the NAQCC and can operate CW QRP (any speed) on one or more HF bands you qualify. There is no limit to the number of people who participate so "the more the merrier."

If you would like to be one of our special ops, or if you just need some questions answered before making a commitment please email me at the address listed on the last page of this newsletter. And if you want to be that one designated special-call sprint operator from your district let me know that as well - first come first served. (Please be sure to include your call district and NAQCC membership number in your email.) - Paul, N8XMS

- **KE5YUM ACTIVATES 100-SPRINT LEVEL.** Last month Terry, KE5YUM, participated in his 100th regular monthly NAQCC sprint! In honor of this achievement Terry received a nice engraved key fob made by Gregg, WB8LZG.

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- **DAVE, VA3RJ, RETIRES AS MEMBERSHIP DATABASE MANAGER.** After a number of years of outstanding service as our membership database manager, Dave, VA3RJ, is stepping down to a well deserved rest. We are very pleased that Brent, WT4U, has volunteered to take over this very important work. Volunteers like Dave and Brent are the “life blood” of our club and the NAQCC literally would not exist without members like them.
- **N5DRG SILENT KEY.** Danny, N5DRG, passed away on June 25th. Danny was the leader of our NAQCC Central Texas chapter. Our condolences are certainly extended to Danny’s family and friends.
- **CHECK OUT OUR MONTHLY POLLS.** Jerry, VE6CPP, puts up an interesting poll on our club website each month. You can cast your vote in the current poll and see past poll results using the links on the main club page <http://www.naqcc.info/>. The more people that cast a vote, the more interesting the results.
- **THANK YOU FOR THE DONATIONS!** A big “THANK YOU” goes out to everyone who has made a recent donation to the NAQCC treasury. The NAQCC has no membership dues and we depend on your generous donations to cover our operating expenses. If others would like to help out with a donation there are two ways that you can do it. The first way is to use *PayPal* to electronically send your contribution to Club Vice President John, N8ZYA, using the email found on the last page of this newsletter. To avoid any additional fees please be sure to check the box that says “*I’m sending money to family or friends.*” Also please add a note indicating that this is a donation to the NAQCC and include your call sign. The second way to make a donation is to mail a check or money order made out to *The North American QRP CW Club* and send it to *John Smithson, 1529 Virginia St E, Charleston, WV 25311*. Assuming that we have your correct email address on file, your contribution will be acknowledged by email with a carbon copy sent to a second club officer as a “check and balance.”



THE BENDS AT 80 METERS

BY RICHARD, K4KRW



The July 2018 issue of CQ Magazine had an article called “The Sabertooth Wire: An Innovation in Antenna-Length Shortening”. In this article the author, Eric Knight – KBZ1EHE, explained how he shortened a dipole by bending the wire in a zigzag fashion.

In recent years I had been running a fan dipole cut for 80 meters and 40 meters. The 80 meter legs used a coil as I did not have 130 feet of room for a full size 80 meter dipole. The antenna was about 70 feet long and had worked well for me but the 80 meter part had a very narrow bandwidth. I had also been thinking about making an 80 meter doublet to replace the dipole but again needed more room. When I saw this article I thought “what the heck” and dove in (I had to tie in diving somehow).

An up-front warning to anyone else who wants to try this antenna. It requires a lot of wire. This was not made clear in the article. The article starts out with him describing building a dipole with 130 feet of wire (standard length for an 80 meter dipole) and ending up with an antenna about half that length. The only other hint in the article about the amount of wire required was the author speculating that the extra wire may improve reception. I will also warn you that making this antenna is also extremely tedious work. Also, I have to say that I learned once again that every compromise has its price.

Before I took on the task of building this antenna I had purchased 150 feet of 16 gauge copper clad steel thinking that would surely be more than enough. I wanted the steel even though it is harder to bend as I didn't want the wire to get mangled if the antenna hit a branch.

I followed the author's recommendation to start with 25 degree bends with the 'triangles' being 1.5 inches in height. According to his formula this would reduce the length of the antenna to 50% of its normal length (hopefully around 65 feet). I built a jig using a 4-foot-long 2 by 6 and about 120 6d 2 inch finishing nails. There were two rows of nails that were 1.5 inches apart. The nails in each row were 2/3 inch

apart. The nails in the two rows were offset by 1/3 inch. There were enough nails to create 3 feet of Sabertooth wire at a time. I put a few extra nails on each end of the jig to assist in starting the next series of bends and to give me a place to tie the cord to hold it in place while I was zip tying the wire to the cord. Here is the jig:



While making the jig it quickly became clear to me that 150 feet of wire was not nearly enough. After a little math it looked like I would need 307 feet of wire. So since I had 150 feet of wire, I bought another 150 feet. I would use what I had and extend it if I needed to.

Once formed, the author recommended covering the wire in heat shrink tubing to hold its shape. I really could not imagine getting that wire into a 35 foot long piece of heat shrink tubing with the correct spacing maintained. Instead, I decided to zip tie the wire to the cord that would suspend the antenna. The author had done this with his original prototype. I used Black UV resistant wire ties.

I started bending the wire and quickly decided that I could not do this by hand. I got thinking about some type of wire wrapping tool. I could not find anything suitable, so I made one myself. I bought a long 4mm, 1/4 inch drive socket. I used a Dremel tool with a cutting wheel to remove material from the end of the socket leaving a small nub to grab the wire. I also had to drill out the interior so it would fit over the nail heads. I mounted the socket to a screwdriver handle having a socket adapter. I could then just place the wire next to a nail, put the socket over the nail and the knob over the wire and then turn the socket to wrap the wire around the nail. It worked perfectly.



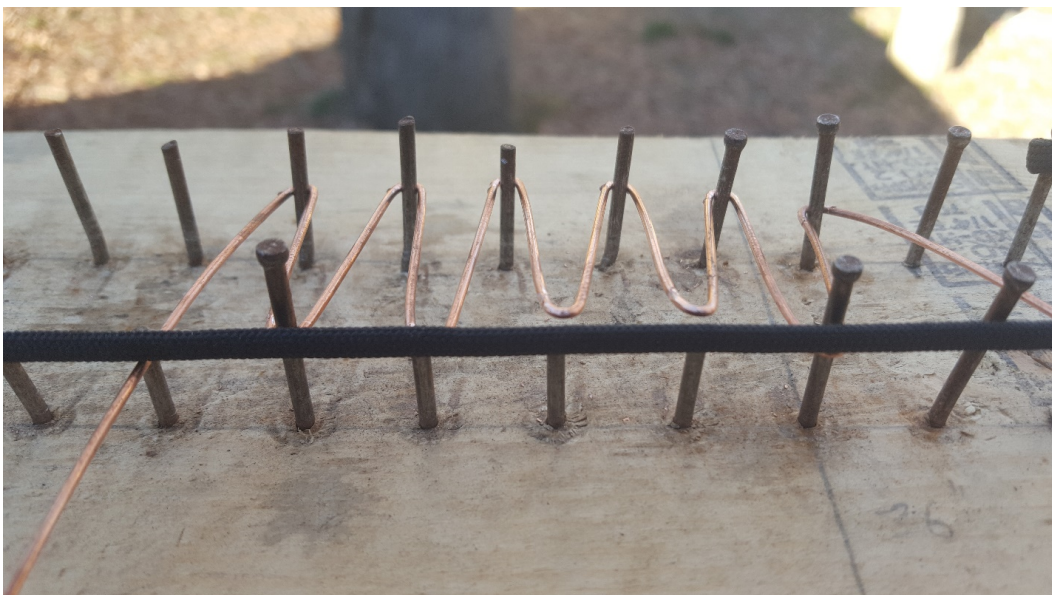
I started bending wire on a Saturday. I spent most of the morning creating the jig and then the wire wrap tool. In the afternoon I managed to create 6 feet of Sabertooth wire. Sunday I finished bending the first 150 feet of wire. This resulted in a section of Sabertooth wire 31 feet 6 inches long.

As I figured out the best way to work with the jig things went faster. I also made modifications to the jig to speed things up. Using a Dremel cutting wheel, on the row of nails away from me, I removed all of the heads. On the row of towards me I cut three out of four of the nails down to $\frac{1}{4}$ inch long. That left every 4th nail full length. I did not cut the head off of those nails as I wanted them to keep the wire in place while I zip tied the wire to the cord.

The following picture shows a short section of wire bent on the jig in its final form.



The following picture shows where I have pried the wire up using an old flat blade screw driver and the wire is ready for fastening to the cord where the short nails are. I wrapped the cord around nails at each end of the jig to hold it in place for the zip tie process.



In the following picture the wire is zip tied to the cord. Once the wire suspended over all of the short nails was zip tied, I could then pull the rest up off the jig and zip tie where the taller nails were. I used a small set of needle nose pliers to pull the zip ties tight before cutting off the waste.



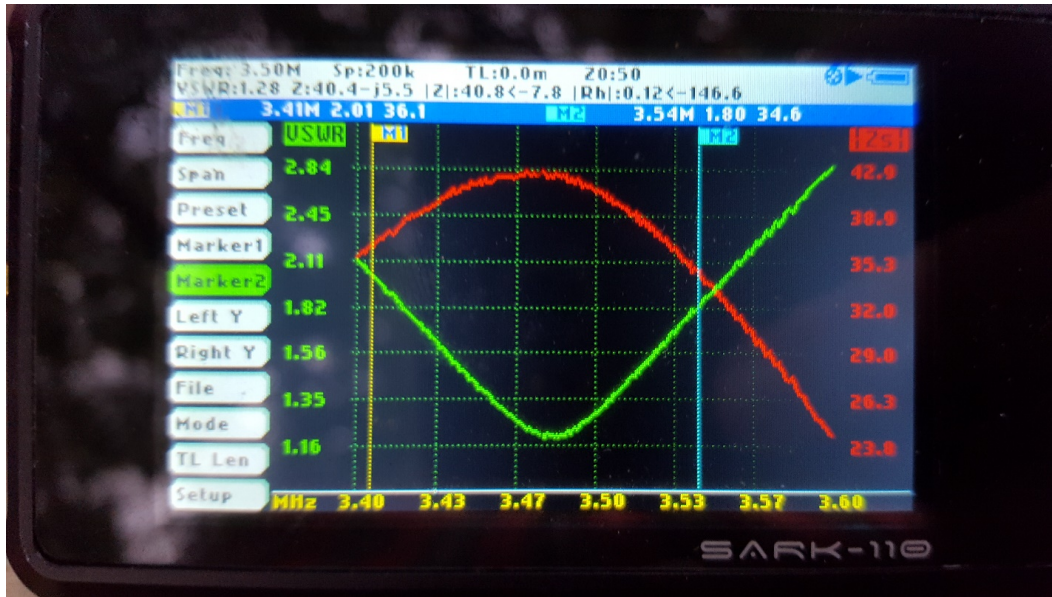
The next weekend I bent the other 150 feet. My best time for creating 3 feet of wire was 20 minutes. Normally it was more like 30 minutes.

Once I had both legs created I quickly assembled a dipole and raised it. A friend had loaned me his Sark 110 antenna analyzer. Wow! What a great tool. After all of this bending I found that the antenna tuned at 4.79 MHz. Ugh. Yes, 300 feet of wire was not enough. Actually, I thought it would be a little short. But, I thought I would be a lot closer than I was at this point.



I visited the wireman at a local hamfest the next weekend and bought another 50 feet of wire. After bending and adding that I was now up to a 72 and a half foot antenna and it now tuned to 4.07 MHz. It was at this point that I started thinking that maybe this Sabretooth Wire article was really intended for the April issue of CQ.

I truly was thinking I would call it quits. I thought the antenna was getting too long to fit where I needed it to go. But, curiosity got the best of me and I ordered another 100 feet of wire. I used 50 feet of the wire to extend the antenna once again. Now it was 84 feet long and it tuned to 3.48 MHz. Finally!



One note here. I ended up having to extend the cord that the Sabertooth wire was attached to. So, there are knots in the cord. If I ever did this again, I would start with a much longer cord to allow for this unexpected additional length.

Now that I was close to my target frequency, I cut about 6 inches off of each end of the antenna. Now the antenna was 83 feet long and tuned at 3.560. The SWR 2.0 bandwidth spanned from 3.510 to 3.650 MHz. Perfect.



So, in the end, the antenna was certainly not 65 feet long. In the end I used 400 feet of copper clad steel wire rather than 130 and I also used about 1500 wire ties. Here is a picture (next page) of the wire tie waste about half way into the antenna. That is a large Starbucks coffee cup.



But, the antenna is also not 130 feet long. The antenna just did fit where I wanted to hang it. I played with the antenna for about a week as a simple dipole. I then wanted to compare apples to apples so I added 40m legs so I could compare the Sabertooth wire to my old fan dipole.

I then spent the next two weeks playing with the antenna. I decided to use the Reverse Beacon Network to compare this new antenna to my old one. Of course, the bands had been lousy. But, I got about 2 weeks' worth of readings. I would call 'test de K4KRW' 5 times on 80m and 40m using a frequency where both antennas tuned well. I tried to do this around 6:00 am and then again around 9:00 PM each day. Work and family obligations made the mornings difficult. I did get most of my evening tests in. After two weeks I took down the Sabertooth Wire antenna and put up the old antenna and tested against the reverse beacon network for another week.

The numbers from the Reverse Beacon Network were interesting. I don't have nearly enough data to say that this is conclusive evidence. But, for stations where I had 3 or more RBN hits on 80 meters in the morning or the evening with both antennas the new antenna did have consistently better signal to noise ratios than my old one with the coils.

callsign	AmPm	ant	hitCount	AverageDB
K8ND	am	New	4	11.75
K8ND	am	Old	3	10.333333
K8ND	pm	New	6	11
K8ND	pm	Old	4	9.75
KM3T	am	New	4	15.5
KM3T	am	Old	3	10
KM3T-2	am	New	3	16.666666
KM3T-2	am	Old	3	8.333333
W1NT-2	pm	New	6	13.166666
W1NT-2	pm	Old	3	9
W2AXR	am	New	3	9.666666
W2AXR	am	Old	3	6.666666
W3OA	pm	New	4	28.5
W3OA	pm	Old	3	19.333333
W4KAZ	pm	New	6	23.166666
W4KAZ	pm	Old	5	17.4
W8WWV	am	New	5	16.2
W8WWV	am	Old	3	13.333333

Of course It is entirely possible that the bands were just better on the days I was testing the new antenna. I wish I had room to hang both antennas do direct comparisons.

Using the new antenna as a fan dipole, the new antenna didn't seem very different on the low bands from the old antenna. This is a good thing as the old antenna really had served me well. I love playing in the NAQCC sprints and I consistently get good scores. In the November sprint I hopped in late on 80 meters running 5 watts with the new antenna and had a small pileup. I got my first 7 contacts in 14 minutes. I ended up with 14 contacts over an hour's time. I played in the CQWW CW contest and managed to get into Europe pretty well on 80m (100 Watts). In the December milliwatt sprint I got my second highest score ever in that event. My score was entirely from operating on 80 meters as 40 was horrible. I was running 900 mW. Considering how bad the bands were that evening I was very pleased with my 13 contacts in 11 states.

On the 30th of December, I noticed that the jacket of my RG-8X running to the dipole was cracked near one end of the line. The coax was pretty old. I had wanted to switch to a balanced transmission line and had even already bought 300 Ohm window line and a DX Engineering 1:1 balun.

I got to work replacing the coax. I ran 64 feet (1/4 wavelength at 80 meters) of window line under the house to get to my operating station. I ran 96 feet (3/8 wavelength) of window line from the back of the house to the antenna. I did this so I could operate from my back deck with 3/8 wavelength of window line or from my main station with 5/8 wavelength of window line. The odd multiples of 1/8th wavelength minimize the chance that my tuner won't be able find a match.

I put a mild twist in the window line and made sure it was properly suspended and did not run parallel to any house wiring. I ended up with 10 feet of new coax running from the balun to my station in the house. I removed the 40 meter sections of my fan dipole and attached the window line to the Sabertooth wire.



I finished putting everything together just in time for Straight Key Night. I had 7 nice QSOs over the 24 hours.

I then did some casual operating and participated in the January NAQCC sprint. For the sprint I got 10 contacts of 40 meters and another 22 on 80 meters. It was a fun night.

While 80 meters and 40 meters seemed fine, I wasn't sure about how the antenna worked on the higher bands. Being a doublet, I was hoping it would work pretty well. With the bands being so lousy and me mostly operating at night, I really didn't yet have any way to know. I got my chance to find out during the CQ WPX RTTY contest. As I expected, 40 meters seemed to work fine. But 20 meters was another story. I was hearing S7 and S9 signals and I could not get back to them. Then I switched over to my vertical.

I have a Cushcraft MA-6VA which I won at a local hamfest. This vertical is very much a compromise antenna. It has no radials. It is only about 15 feet off the ground. It is basically a vertical off-center fed dipole except for 6m where it works as a ground plane antenna. In the past, signals were generally stronger and I could get back to stations more easily with my dipole. But, I have found the vertical useful at times when it's lower takeoff angle made it in some situations 'out do' my dipole. I once got a contact with Antarctica by transmitting on the vertical and listening on the dipole. That was fun.

So, back to 20 meters. In the RTTY contest I did make a few contacts on 20 meters with the new dipole. But with most stations I called and called in vain. I would switch to the vertical and pow, I had them on the first call. Again, this vertical antenna used to be regularly outperformed by my old dipole. So, this is where this deal with the devil fell apart. The price for getting an 80 meter doublet to fit in 83 feet by bending wire in this way was losing 20 meters and up. I don't have enough contacts on 30 meters to say whether it is impacted as well.

Friday, February 15th, I spent a couple of hours replacing the Sabertooth wire with 110 feet of insulated 16 gauge copper wire. Of course, the ends droop about 13 feet. But after operating all weekend in the ARRL DX CW contest I have determined that the more traditional doublet does work great from 80 meters up to at least 15 meters and even there sometimes the vertical wins but most times the dipole wins. Even with 13 feet of wire hanging vertically at both ends, the doublet seems to work quite well.

This exercise took a lot of time, 400 feet of wire and 1500 zip ties. Was it a total waste of time and resources? For me I'd say no just because it was a good learning experience. But I'm pretty sure I would never build one again. My 80 meter doublet made from conventional insulated wire works much better on higher bands and I built it and installed it in an hour and a half.

If you just needed a shortened antenna for 80 and maybe 40 meters, the Sabertooth wire did work. But why go through all of this? So basically, I have 'taken one for the team'. I really think the article about the Sabertooth wire left WAY too much out. Hopefully anyone tempted to try this will benefit from what I have learned.

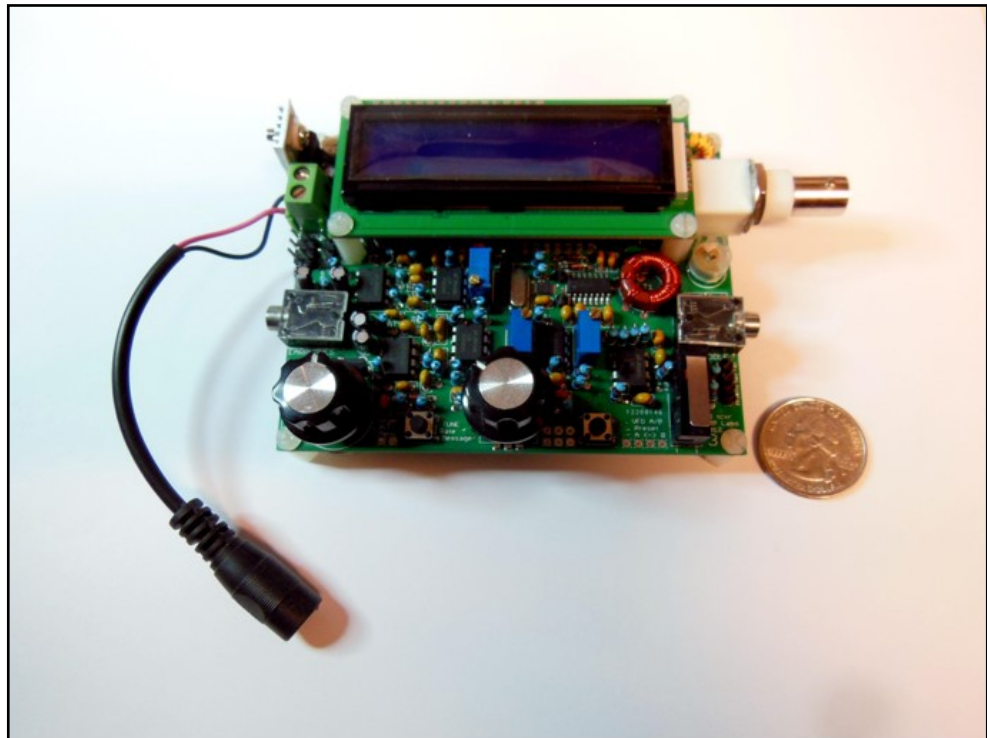
So long for now. This is Richard 'known 4 knitting radio wire' Dodd (K4KRW). 73



MEMORY LANE

BY BOB, K3CKO

I was putting the finishing touches on a QCX-20 qrp radio kit the other day and it got me thinking about the home built radios of the 1950's. When I was studying for the Novice exam back in 1957 I was working hard with my Elmer, K3ACF (SK), to learn the code and theory. I also bought an ARRL Handbook and read everything I could find in it, although I had never seen any of the hardware it talked about. There was another Ham down the road a couple miles who had a huge ham station. He was Gene W3JIO (SK).



I used to go up to Gene's place to see him operate the fabulous home built rig that he ran on the Military Affiliate Radio Service (MARS) every day. This is where I learned about the hardware for radio. Of course, these trips to Gene's had the added advantage that Gene had a good looking daughter that was two years younger than I was, but that's another story. I did pay attention to Gene's teaching though and learned a great deal about tubes, transformers, antenna loading and all the things that go with Ham Radio.

Gene didn't have a lot of money for a fancy store-bought radio which were scarce as hen's teeth in those days anyway. Gene built his own station from used tubes that he got from the Buffalo, NY TV station when they changed out their TV Transmitter tubes on a schedule. These tubes still had a lot of life in them. Gene also got a lot of military surplus stuff for his service to MARS in traffic handling. I'm going to describe Gene's station, although I'm sure most people wouldn't believe it if they hadn't seen it.

The final of Gene's transmitter was a pair of Eimac 4-1000 vacuum tubes. He didn't have sockets for them so he drilled a circle of holes through a sheet of 3/8 Teflon sheet which was mounted on standoffs on top of a three-foot tall wooden packing crate. Wires were soldered to the tube pins on the bottom of the Teflon sheet. The plate voltage was from a 6000-volt plate transformer and rectified by two 872 mercury vapor rectifier tubes glowing blue in the bottom of the packing crate.



The transformer sat on the hardwood living room floor behind the packing crate. Bias voltage for the grids of the 4-1000s was furnished by a VR105 regulator tube hanging in mid-air in the center of a three-foot wire between the amplifier and a nearby dresser with a pile of transformers, chokes and power supplies on top of it. The plates of the 4-1000s were tied to both ends of a 8-inch diameter, open-wire coil a little over a foot long. The coil was paralleled by a huge variable capacitor which resonated it on 80 meters.

The antenna was connected to an eight-inch, four-turn loop that was inserted in the middle of the large coil. In 1957, communication meant CW or AM radio. Gene's AM modulators were a pair of 304TL tubes in push-pull, driving a utility pole transformer for modulating the 4-1000 finals. The modulator setup also sat on the living room floor behind the packing crate. The tube sockets were nailed to the floor. Needless to say, Gene's wife and kids were not allowed in the living room. The driver for the final was a Military BC610 which by itself was a 1000 watt transmitter. Gene ran it barefoot when he operated on amateur bands but used the 5000 watt final on MARS frequencies. The BC610 was made to be crystal controlled but Gene had a surplus ARC5T19 100-watt aircraft transmitter that he picked a driver output from and fed it into the crystal socket of the BC610 to use as a VFO. The Modulators in the BC610 were brought out to a socket and used to drive the pair of 304TL tubes that modulated the 4-1000 finals.

Gene's receiver was a Hammerlund HQ110, the only piece of commercial equipment Gene owned. I'm not sure what he traded to get that.



It sure is a far cry from Gene's home built radio to the QCX-20 I just finished. There has been a lot of years and QSO's between then and now.



MEMBER SPOTLIGHT



Each month one of our members is randomly selected and asked to share their ham radio biography with all of us. Questions or comments should go to Paul, KD2MX.

DISCLAIMER: Any views expressed in this section are those of the submitting member and may or may not be those of the NAQCC or its officers.



JACK WELCH, AI4SV, #4838

Ham radio is the ideal hobby for me because I'm constantly moving, and wherever I go, it goes too. I'm married to a diplomat, so every few years we pull up stakes (and antennas) and set up somewhere new. We just got back from a four-year tour in Madagascar, where I operated as 5R8SV, and this August we'll be moving to Cyprus. In between these assignments, we always end up somewhere around Washington, DC; currently we're in southern Maryland. Whenever I'm back in the U.S., I do try to join an NAQCC sprint. I have tried from outside the U.S., but haven't managed a contact yet, mostly because propagation hasn't been favorable at that time of day.

My career has meshed better than I would have expected with my wife's. By background I'm a research oncologist and I've worked a lot in global health over the last few years. My job has required substantial traveling and it doesn't really matter too much where I am based as long as I have an internet connection. Wherever I go, I pack along my QRP kit as long as I'm sure that I can check all the regulatory boxes to bring the radio into the country and get permission to operate it there. By my count, I've operated from 23 DXCC entities.

In practical terms, packing along a radio has been easier than the many dire accounts I've seen in online forums. I usually toss my FT-817 in my computer bag and make a point of pulling it out for inspection when going through xray. Occasionally I get asked what it is, and the reply "a radio" has always satisfied the inspectors. I stick the rest of the equipment (my palm paddle, mike, coax, antenna) in checked luggage. The only issues I've run into have been with the TSA in the U.S.; on one occasion, they took a 12V 7Ah sealed lead acid battery from my carryon, in contradiction to their own rules. Since then, I've just stuck it in checked luggage and haven't had a problem.

I enjoy operating from the field, particularly SOTA -- you can't beat operating from a mountain top for low background noise. For those outings, my antenna of choice is the LNR end-fed 10/20/40, which has survived many years of being chucked into trees. For bald mountain tops, I bring along a 10m Sotabeams extensible fiberglass mast, which can be either put up with guys and stakes or bungeed to any convenient structure.

Most of the time when I'm at a summit, I only activate CW. Running at 2.5W or 5W, I haven't had a lot of success on phone and I feel less self-conscious twiddling on my paddle than calling CQ on a microphone when other people are milling around the summit. On the other hand, being able to operate on voice FM has saved my bacon a couple times when conditions have been poor and I needed my four contacts to validate the activation per SOTA rules.

When I move to a new country to live, I typically set up the QRP equipment first, and then the rest of the shack follows in a shipment. Four years ago, when I got to Madagascar, it took almost four months for my main equipment to arrive, so my first thousand or so contacts were all 5W CW. In fact, I had more than a few two-way QRP contacts with North American and Europe, although the station on the other end usually had a lot more metal in the air than my end-fed antenna in a tree.

When my shack-in-a-box finally catches up with me, I set up a station and throw up some fixed antennas, mostly dipoles and inverted L's, although I had a rotatable hexbeam in Madagascar. My main rig is a K3, which I run 95% of the time in CW as a matter of preference. My other rig is a TS-2000, which I use mostly for satellite contacts. I am not strictly QRP from the shack; I dial up and down the power as needed, but I do try to keep to a QRP mindset in terms of listening for weaker signals and taking time to fiddle with the knobs to pull what I can out of the ether.

I hope to work other NAQCC members in future sprints, and wherever I end up, I'd encourage you to contact me if you happen to be planning a trip or are in the neighborhood. 73 - Jack AI4SV

Lead Photo - I have managed to wind up back in Virginia on the third weekend in June most years to take part in in ARRL Field Day operations with the Vienna Wireless Society. Here's the 20m/80m CW tent from a few years back.



I can't remember a time when I wasn't listening to to shortwave. In this photo, I think I'm about five years old and listening to a crystal radio kit on the kitchen counter.



A photo of me perfecting my QLF technique in the shack.



NAQCC SPRINTS

CURRENT MONTH'S SPRINT: Our July sprint will be on the 18th from 0030-0230 UTC. That's the evening of Wednesday, July 17 here in North America. Complete information about the sprint can be found at <http://www.naqcc.info/sprint/sprint201907.html>.

Complete sprint rules and instructions on how to submit your log can be found at http://naqcc.info/sprint_rules.html. On that page you will also find information about the different computer loggers that are supported for our sprints. The membership data files for those supported loggers can be downloaded at <http://naqcc.info/contests.html>. **Please be sure to always get the latest membership data for your logger about a day before the sprint.** A complete schedule for our upcoming sprints can be found at http://naqcc.info/sprint_sked.html.

LAST MONTH'S SPRINT RESULTS: We had two sprints in June. First up was our regular monthly sprint on the 12th. Exactly 100 logs were turned in for that one. Then, just over a week later, on the 20th we had one of our special semi-annual milliwatt sprints where about 37 brave souls turned down their power to 1-watt or less and battled the challenging conditions with flea power. My soapbox comment probably sums up the evening for many: *"Well, once again available time, personal energy, and solar flux we're in short supply. But the static crashes were abundant! I managed seven 40-meter QSOs at 900 mW before my ears couldn't take it anymore."* Complete sprint results, including some great soapbox comments, can be found at <http://www.naqcc.info/sprint/sprint201906.html> and <http://www.naqcc.info/sprint/sprint201906mw.html>. High scores can be seen in the tables on the next two pages.

We would especially like to welcome our first-time regular sprint loggers and hope that they will return to participate often: KH7AL N4PIR W1NU WT8P

PARTICIPATION ELIGIBILITY: Remember that participating in a combination of sprints and challenges will make you eligible for the top-tier prizes in our anniversary drawing in October. Eligibility details can be seen on the page for last year's drawing at http://www.naqcc.info/prize_drawing_14th_anniv.html

SWA STRAIGHT KEY CATEGORY			
Division	1st	2nd	3rd
W1	KN1H	K1IEE	WB1GYZ
W2	W2SH	KA2KGP	W2JEK
W3	KE3V	AK3X	K3EMS
W4	K8LBQ	N4PIR	K4KBL
W5	N5GW	K5MBA	WB5UAA
W6	-	-	-
W7	N7KM	KC7DM	KF7WNS
W8	WB8LZG	NF8M N8XMS (tie)	KK8J
W9	WB9HFK	W9CC	K9QEW
W0	W0ITT	AA0W	N0TA
Canada	VA3NU	VE9BEL	-
DX	-	-	-

SWA BUG CATEGORY			
Division	1st	2nd	3rd
W1	-	-	-
W2	WB2LQF	-	-
W3	K3WWP	-	-
W4	KJ4R	KQ4MM	AA2MX
W5	WD5RS	WB4BIN	-
W6	-	-	-
W7	-	-	-
W8	K8NGW	-	-
W9	K9DRP	AA9L	N9SE
W0	W0KFG	-	-
Canada	-	-	-
DX	-	-	-

SWA KEYER/KEYBOARD CATEGORY			
Division	1st	2nd	3rd
W1	W1NU	KB1M	K4RHG
W2	WA1GWH	N2ESE	-
W3	KD3CA	-	-
W4	K3RLL	N4MJ	KU4A
W5	WI5H	-	-
W6	W6JIM	-	-
W7	-	-	-
W8	W8EWH	K3CTN	WA8SAN
W9	AB9CA	K9CW	AB9BZ
W0	WB4OMM	K0EW	-
Canada	VE3DQN	VE3GNU	-
DX	-	-	-

GAIN CATEGORY			
KEY	1st	2nd	3rd
SK	KF6C	-	-
BUG	-	-	-
K/K	K4BAI	-	-

FIRST TIME ENTRANT HIGH SCORE			
KEY	1st	2nd	3rd
SK	N4PIR	KH7AL	-
BUG	-	-	-
K/K	W1NU	-	-
SPRINT PRIZE DRAWING WINNER			
AA9L			

MW SPRINT SWA STRAIGHT KEY CATEGORY			
Division	1st	2nd	3rd
W1	KN1H	WB1GYZ	-
W2	KA2KGP	W2SH	WA2FBN W2JEK (TIE)
W3	WD3CA	-	-
W4	K8LBQ	WG8Y	WB4OMM
W5	N5GW	-	-
W6	-	-	-
W7	KC7DM	-	-
W8	N8XMS	NF8M	W4XX
W9	WB9HFK	-	-
W0	NN0SS	-	-
Canada	-	-	-
DX	-	-	-

MW SPRINT SWA BUG CATEGORY			
Division	1st	2nd	3rd
W1	-	-	-
W2	-	-	-
W3	-	-	-
W4	KJ4R	-	-
W5	NF5U	-	-
W6	-	-	-
W7	-	-	-
W8	-	-	-
W9	K9DRP	-	-
W0	-	-	-
Canada	-	-	-
DX	-	-	-

MW SPRINT SWA KEYER/KEYBOARD CATEGORY			
Division	1st	2nd	3rd
W1	KB1M	N2CN	-
W2	-	-	-
W3	K3RLL	-	-
W4	KI4TN	N4MJ	-
W5	-	-	-
W6	-	-	-
W7	-	-	-
W8	WB8LZG	N8VAR	-
W9	K9CW	AB9BC	-
W0	K0EW	-	-
Canada	-	-	-
DX	-	-	-

MW SPRINT GAIN CATEGORY			
KEY	1st	2nd	3rd
SK	K4BAI	-	-
BUG	-	-	-
K/K	-	-	-

MW SPRINT SPRINT PRIZE DRAWING WINNER
K0EW

	Current Month	Previous Month	All-Time Record	Record Date
Logs	100	91	217	4/17
Participants	128	134	269	2/13
Total QSOs	1000	1191	3154	4/17
Hour 1 QSOs	530	670	1704	4/17
Hour 2 QSOs	470	521	1450	4/17
20m QSOs	77	169	1232	8/13
40m QSOs	833	924	2203	4/17
80m QSOs	90	98	1417	2/13
Avg QSOs/Station	10	13.1	19.3	9/11

SPRINT HONOR ROLL: We honor the following members for their outstanding participation over the years in our regular sprints. Exact counts can be seen at http://naqcc.info/sprint_dates.html.

NUMBER OF SPRINTS	MEMBERS
50+	KC7DM WA1GWH NU7T(SK) KB8FE KQ1P NQ2W WY3H AA7CU N8QY K9OSC KB0ETU K6CSL K9EYT N5GW AK3X K2YGM KC2EGL VE5BCS(SK) N8LA KN1H K4ORD KF7WNS N4MJ WK6L KD3CA AB8FJ N2CN WI5H NF5U
75+	K4NVJ KB3AAG WB8ENE K4KRW N2ESE VE3FUJ WX4RM WA8SAN NO2D N0TA WG8Y N8BB AA9L NA4O WD0K K6MGO KA9FQG
100+	KE5YUM KD2MX NF8M K4JPN K3RLL K1IEE KD0V WA2JSG N4FI W4DUK
125+	W9CC W2SH WB8LZG N8XMS K4BAI KU4A
150+	W2JEK KA2KGP
175+	K3WWP



NAQCC CHALLENGES

CURRENT MONTH'S CHALLENGE: Our July challenge is an alphabet challenge with words that are all related to that famous icon of the United States - Uncle Sam. You can find all the details, along with some interesting historical notes, at <http://naqcc.info/challenges/challenges201907.html>.

NEXT MONTH'S CHALLENGE: WW2 was much more than something fought by the army, navy, marines, and coast guard. Civilians played important roles also and you can learn about some of that in alphabet challenge "Operation Drumbeat." Details can be found at <http://www.naqcc.info/challenges/challenges201908.html>.

Complete information about our challenges including a helpful tutorial on how to organize your work for an alphabet challenge can be found at <http://naqcc.info/challenges.html>. Detailed general rules for our challenges can be found at http://naqcc.info/challenges_rules.html.

LAST MONTH'S CHALLENGE: The deadline for submissions for our two June challenges is still a few days away but preliminary results can be seen at <http://www.naqcc.info/challenges/challenges201906.html> and <http://www.naqcc.info/challenges/challenges201906fd.html> and final results will also be available there shortly after the 10th of the month.

PARTICIPATION ELIGIBILITY: Remember that participating in a combination of sprints and challenges will make you eligible for the top-tier prizes in our anniversary drawing in October. Eligibility details can be seen on the page for last year's drawing at http://www.naqcc.info/prize_drawing_14th_anniv.html

CHALLENGE HONOR ROLL: We honor the following members for their outstanding participation over the years in our monthly challenges. Exact counts can be seen at http://www.naqcc.info/challenges_schedule.html.

NUMBER OF CHALLENGES	MEMBERS
25+	W3IQ N9SE KU4A K9OSC KD0V WA2FBN WI5H PA9CW NF1U WY3H N1JI VE3HUR G3JFS N1LU KJ4R KD2MX AK3X VE3DQN KA5PVB
50+	PA0XAW VE3FUJ NU7T(SK)
75+	K1YAN
100+	K1IEE
125+	N8XMS W2JEK
150+	K3WWP



NAQCC AWARDS

We have an extensive list of awards that you can earn. Complete details can be found at <http://naqcc.info/awards.html>.

FEATURED AWARD: 1000 MPW and KMPW 100 AWARD

Our 1000 Miles per Watt award is simple to understand and fairly easy to complete. Just make a CW QRP or QRPp QSO where the value of Distance/Watts gives an answer of greater than 1000 and you have it. If that's not enough of a challenge we also offer the KMPW 100 award that requires you to make 100 such 1000 mi/w QSOs. You can find complete details about these awards including links to useful distance calculators at http://www.naqcc.info/awards_1000mpswa.html and http://www.naqcc.info/awards_kmpwcenturyswa.html.

RECENTLY ISSUED AWARDS:

None



NAQCC QRS/QRQ NETS

We have a number of nets (QRS = slow speed, QRQ = higher speed) designed to help people build up their CW operating skills. Complete information about these nets can be found at http://naqcc.info/cw_nets.html. Questions should be directed to Net Manager Wayne, NQ0RP.

NAQCC NET SCHEDULE

Net	Local Time	UTC	Freq +/-	Primary NCS
FarnsWord QRQ Round Table Nets (FRN)	Sunday 6:00 PM PDT 8:00 PM PDT 8:30 PM PDT	Monday 0100 Z 0300 Z 0330 Z	5348 KHz ch2 3556 KHz 7046 KHz	60/40m JB, NR5NN (in CA) 60/80m Rick, N6IET (in CA)
East Texas QRS Net (ETN)	Monday 7 PM CDT	Tuesday 0000 Z	3564 KHz	Allen, KA5TJS (in TX)
Midwest QRS Net (MWN)	Monday 7:30 PM CDT	Tuesday 0030 Z	7031 KHz	Bob, W0CC (in KS)
Rocky Mtn Regional/Continental 20/40 QRS Nets (RMRc)	Tues & Thurs 4:00/4:30 PM MD	Tues & Thurs 2200/2230 Z	14060/7062.5 KHz	Dale, WC7S (in WY)
Pacific Northwest 80 m QRS Net (PNW80)	Thursday 7 PM PDT	Friday 0200 Z	3556.5 KHz	Stewart, KE7LKW (in WA)
West Coast QRS Net (WCN) Begins 7/19/19	Friday 8 PM PDT	Saturday 0300 Z	7062 KHz	Mike, N6MST (in CA)

Note: On the rare occasions that there is a conflict between one of our scheduled nets and one of our regular sprints the sprint will take precedence.

NET CONTROL STATION REPORTS

NAQCC FarnsWord QRQ Round Table Nets (FRN)

FRN/60 - Sunday evenings at 6:00 PM PDT, which is Monday 0100 UTC, on 5348 kHz (Ch 2)

FRN/80 - Sunday evenings at 8:00 PM PDT, which is Monday 0300 UTC, on 3556 kHz ±

FRN/40 - Sunday evenings at 8:30 PM PDT, which is Monday 0330 UTC, on 7046 kHz ±

60m/80m NCS - JB NR5NN (California); 80m/40m NCS - Rick N6IET (California)

Net Control Station Reports

We are always chasing NVIS conditions, which results in often monthly schedule changes. FRN/40 has been working surprisingly well at 8:30-9:00pm. Not only does everyone copy Polar Bear Rick in Libby, Montana, using his home built 40-meter mobile whip with high-Q coil, but most of us can usually copy each other, as well, either because of the NVIS rebound or because of Sporadic-E. We are hoping also to hear John at his new QTH near Salt Lake City on 40 meters with his KX3 and backyard sloper.

We moved FRN/80 to a later time, because the late sunsets and the associated D-layer was weakening our signals too much at the earlier time. The sun sets here around 8pm, so the new time should work better. Leaving FRN/60 at 6pm (0100z) has been usually working pretty well, while allowing some of us to enjoy dinner with our families between the 60- and 80-meter nets.

I continue to be plagued by plasma TVI on 7046 kHz, but there is no good alternate frequency or time, so I've asked JB to take over NCS duties, at least sometimes. We invite others to also volunteer. I might not even check in, if my TVI is too severe. That TV and its owner are slated to move out at the end of August. Keeping my fingers crossed that he doesn't sell his TV to his replacement!

Jun 3, 0100z, 5348 kHz, QNS (5/6) N6IET NCS, K6JRR, K6GVG, KE6EE, N6KIX, (NR5NN)
 Jun 3, 0200z, 3556 kHz, QNS (3) N6IET NCS, K6JJR, KE6EE
 Jun 3, 0330z, 7046 kHz, QNS (5) KE6EE NCS, N6IET co-NCS, NR5NN/7, K6GVG, AI6SL

Jun 10, 0100z, 5348 kHz, QNS (7) NR5NN NCS, K6GVG, N6IET, KE6EE, W7SAG, WI6O, AI6SL
 Jun 10, 0200z, 3556 kHz, QNS (5) N6IET, KE6EE, K6GVG, NR5NN, AI6SL
 Jun 10, 0330z, 7046 kHz, QNS (4/5) NR5NN, K6GVG, WI6O, KE6EE, (N6IET)

Jun 17, 0100z, 5348 kHz, QNS (6) NR5NN NCS, N6IET, KE6EE, K6GVG, AI6SL, K6JJR
 Jun 17, 0200z, 3555.55 kHz, QNS (3) N6IET, K6GVG, NR5NN
 Jun 17, 0330z, 7046 kHz, QNS (9) N6IET NCS, N6HRK/m, AI6SL, K0DTJ, KE6EE, K6GVG, K6TET, NR5NN, K9UIY

Jun 24, 0100z, 5348 kHz, QNS (2) N6IET, K6GVG
 Jun 24, 0200z, 3555.5 kHz, QNS (4) N6IET NCS, K6JJR, K0DTJ, K6GVG
 Jun 24, 0330z, 7046 kHz, QNS (4) N6IET NCS, K6GVG, KE6EE, WI6O

72, 73 and 77,
 Rick N6IET
 JB NR5NN

=====

NAQCC East Texas QRS Net (ETN)

Monday evenings 7:00 PM CDT, which is Tuesday 0100 UTC, on 3561 kHz +/-
 Main NCS - Allen KA5TJS (Texas)

2019/06/04 QNI(4) NCS KA5TJS KE5YGA KE5YUM N4NN

We were on 7.068khz again last night and band conditions were good but the QSB was very fast. No QRM that I could hear with narrow filters. Thanks to Allen N4NN for his first check in to the net. He was QRP and good signal from GA.

2019/06/11 QNI(3) NCS KA5TJS KE5YGA KE5YUM

Bad night! Both stations checked in and when I called I could not hear them. I tried a second call and heard them both again. Finally managed a QSO with YGA. QSB was very bad last night for sure. We were on 7.068khz again with some digital QRM.

2019/06/18 QNI(2) NCS KA5TJS N4NN

The band was very poor last night. Managed a QSO with Allen in GA. We traded 559's but the QRN and QSB was rough. Got an email from 2 other regulars and they reported nothing heard. We again were in 7.068Khz. No QRM on this frequency so far.

2019/06/25 QNI(2) NCS KA5TJS KE5YGA

Just had Andy tonight but he was 599 thru our QSO. Fb conditions to AR for sure.

Allen KA5TJS

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NAQCC Rocky Mountain Regional/Continental QRS Nets (RMRc)

Tuesday/Thursday at 4:00 PM MDT, which is Tuesday/Thursday 2300 UTC, on 14060 kHz
 Tuesday/Thursday at 4:30 PM MDT, which is Tuesday/Thursday 2330 UTC, on 7062.5 kHz.
 Main NCS - Dale WC7S (Wyoming)

No Report

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NAQCC MIDWEST QRS Net (MWN)

Monday evenings 7:30 PM CDT, which is Tuesday 01:30 UTC, on 7031 kHz +/-
 Main NCS - Bob W0CC

2019/06/02 QNI W0CC

QRN: S+ The only station that could be copied was W1AW (7.0475 MHz). Next week the bands will be better!

2019/06/10 No Report

2019/06/17 No Report

2019/06/24 No Report

2019/07/01 No Report

=====

NAQCC Pacific Northwest QRS 80 Meter Net (PNW80)

Thursday evenings 7:00 PM PDT, which is Friday 0300 UTC on 3556.5 kHz.
 Main NCS - Stewart KE7LKW (Washington State)

06-07-2019 PNW QNI (7) NCS KE7LKW, N7KC, AD7BP, WB4SPB, WB7WHG, N0DA, K7JUV.

06-14-2019 PNW QNI (6) NCS KE7LKW, N7KC, AD7BP, WB4SPB, W7ANM, N7TB.

06-21-2019 PNW QNI (7) NCS KE7LKW, KG7JEB, N7KC, AD7BP, WB4SPB, W7ANM, K7JUV.

06-28-2019 QNI (7) NCS KG7JEB, KE7LKW/7, W7ANM/7, WB4SPB, AD7BP, N7KC, N6KIX

Stewart KE7LKW, Randy WB4SPB, George WB4SPB

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HAM QUIPS



Dick Sylvan, W9CBT, #2062, has been a QRP/CW operator for a long time. He is also a very accomplished ham radio cartoonist and his work has appeared previously in the K9YA Telegraph newsletter. His book "HI HI - A Collection of Ham Radio Cartoons" is available at www.lulu.com.



NAQCC CHAPTER NEWS

The North American QRP CW Club currently has eight local chapters - Western Pennsylvania, West Virginia, West Florida, Central Texas, Illowa, Downeast Maine, Long Island, and Florida - but we would be more than happy to expand on that list. Chapters are more or less independent local gatherings organized by NAQCC members in a geographical area and subject to a list of guidelines from the NAQCC. They provide opportunities to have fun and to promote our parallel passions of QRP and CW. If you are interested in forming a local chapter please contact Club President Paul, N8XMS.

If your chapter is planning a portable operation activity and would like to have it promoted on the club email list or in the newsletter, send an email with the subject "NAQCC Portable Operation" and with the exact wording of the announcement to Vice President John, N8ZYA, at the email address listed on the last page about a week before the operation. Please be sure to include the UTC time for the event and not just the local time.

A report about your chapter activity should appear here. Please send them to KD2MX or N8XMS at the email addresses listed on the last page.

NAQCC chapters located in the United States are welcome to use the NAQCC Club call, N3AQC for their special operations. Please contact call sign trustee Paul, N8XMS, to schedule the use of N3AQC.

Chapter Reports Begin On The Next Page

NAQCC WEST FLORIDA CHAPTER



Items in this section are from the West Florida Chapter unless otherwise credited. Questions and comments should go to Ron, N9EE.

The chapter's web site is at <https://www.facebook.com/groups/967110089994401/>.

NAQCC-WFL Anclote Park Event June 15, 2019

Arrived at park at 0905 hr for setup.

Larry, KR4X Log(NAQCC #2794)

note: All QSOs were made on 20 meters CW running
5 watts from my FT-817 into a
Buddistick vertical antenna:

1103 EDT N4CD rst rcvd 459 sent 559 Bob in Texas at Park # 4423

1110 EDT N5DCC rst rcvd 449 sent 569 Doug in Pasadena, Texas (nice long QSO at 10 wpm)

1135 EDT W6ESE/Qrp no name given, this is the Westchester Warblers radio club in Los Angeles, Ca
rst rcvd 459 sent 559

1145 EDT WB9ICH rst rcvd 529 sent 579 Larry in New London, Wi (another nice long QSO)

note: propagation seemed to be up then down. I heard several Japanese stations on earlier they were weak but able to copy. The All Asian CW contest was on and almost all stations on 20 meters were chasing DX.

I am researching Upper Tampa Bay Park off of S.R. 580 in Hillsborough County just before the Pinellas County border. I will let you know what I find. TARC operated Field Day from there several years ago and thoroughly enjoyed ourselves.

Ron, N9EE log (NAQCC 17193)

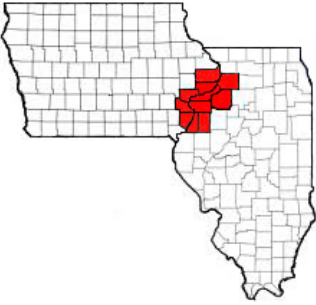
Rig FT817 w/Z817 tuner and 40m Windom at 15 ft

AD6A 1003 EDT 599 599 14.009 (All Asian Contest)

N4TY/m 1016 EDT 599 599 14.056 (mobile)



NAQCC ILLOWA CHAPTER



Items in this section are from the Illowa Chapter unless otherwise credited. Questions and comments should go to Tim, N9BIL.

The Illowa Chapter operates in the “Quad Cities” area of Davenport, IA / Moline, IL.

The Illowa Chapter website is at <https://sites.google.com/site/naqccillowa2/>.

The Illowa group had a monthly chapter meeting on June 16th at Crow Creek Park in Bettendorf, IA. In attendance were Tim - N9BIL, Matt - N9MAT, K0NIA – Mark, Tony – N9YPN and Peter - NN9K.

Brad – KC0RZP gave a demonstration of his Amateur Satellite equipment and walked us thru a few QSOs that he recorded for the presentation. We reviewed our plans to run QRP CW in the upcoming ARRL Field Day using batteries charged by solar panels. Three Elecraft KX-3s are being considered for this year’s event.

Our next meeting will be held on Thursday, July 11th at 7:00pm at the Bettendorf Village Inn.

CENTRAL TEXAS CHAPTER



Items in this section are from the Central Texas Chapter unless otherwise credited. Questions and comments should be directed to Danny, N5DRG.

The chapter is located in the Austin, TX area and maintains a website at <http://www.naqcc-centraltexas.net/index.html>.

We have received the sad news that Central Texas chapter leader Danny, N5DRG, is a Silent Key.

Danny passed away on June 25th. The Central Texas chapter will be in hiatus until such time as they can get reorganize.

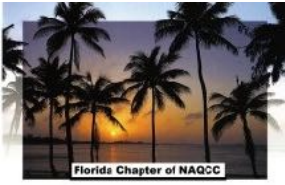
NAQCC LONG ISLAND CHAPTER



Items in this section are from the Long Island Chapter unless otherwise credited. Questions and comments should go to Howard, WB2UZE.

Taking a break until the fall.

NAQCC FLORIDA CHAPTER



Items in this section are from the Florida Chapter unless otherwise credited. Questions and comments should go to Steve, WB4OMM.

The Florida Chapter website is <http://wb40mm.com/naqcc-fl-chapter>.

Taking a break until the fall.

DOWNEAST MAINE CHAPTER



Items in this section are from the Downeast Maine Chapter unless otherwise credited. Questions and comments should be directed to Jeff, KA1DBE.

The chapter is located in the Hancock and Washington counties area of Maine.

No report available.

NAQCC WESTERN PENNSYLVANIA CHAPTER



Items in this section are from the Western Pennsylvania Chapter unless otherwise credited. Questions and comments should go to John, K3WWP.

No report available.

NAQCC WEST VIRGINIA CHAPTER



Items in this section are from the West Virginia Chapter unless otherwise credited. Questions and comments should go to John, N8ZYA.

The chapter's web site is at <http://n8zyaradioblog.blogspot.com/>.

No report available.

MEMBER SUBMISSIONS



This section is a forum for you to tell other members what you've been up to on the ham bands or to submit a short article dealing with some aspects of CW and QRP operation or equipment. Just about anything that would be of interest to our members would be welcomed. Send your items to our News Editor Paul, KD2MX.

DISCLAIMER: Any views expressed in this section are those of the submitting member and may or may not be those of the NAQCC or its officers.

From Terry, KE5YUM, #3102 —

We give an award to any member who has participated in 100 regular monthly sprints. Terry sent us this email after receiving his award for this outstanding accomplishment. - Editor

Thanks do much for the call sign keychain attachment. I plan to put it on my key ring.

Sincerely, Terry Hall
Ke5yum



NAQCC CLUB INFORMATION

STATEMENT OF PURPOSE

From NAQCC President Paul Huff, N8XMS

Amateur radio has something for everyone. SSB, FM, AM, the digital modes, and QRO power levels all have their place in this great hobby and we certainly recognize the importance of these modes as well as the enjoyment that they give to many. But for a growing number of hams the challenge of *“doing the most with the least”* makes QRP (and QRPp) CW operating the greatest thrill available in amateur radio, and the North American QRP CW Club exists to promote this exciting facet of the hobby. As part of our focus we also encourage, but do not limit operators to, the use of simple wire antennas.

The NAQCC provides numerous opportunities for hams to enjoy QRP/CW operating. For contester types we have a popular monthly 2-hour sprint that runs at relatively low CW speeds and at a fairly relaxed pace. Three special sprints also take place during the year for 160-meter and QRPp operators. For a month-long activity we offer our members a Monthly Challenge that can be anything from forming a list of words from the calls of stations worked, to making a prescribed number of contacts using home-brew gear. There is also an extensive awards program to recognize the significant QRP/CW accomplishments of our members.

We also serve as a resource for people who are just getting started in QRP and/or CW. Our slow-speed CW nets are a great place for beginners to practice Morse code under real on-air conditions. Beginners will also find a wealth of helpful information on our club website and we are more than willing to try to answer any questions about QRP and CW that you might have. An extensive monthly newsletter is filled with useful projects and news from fellow QRPers.

A number of local NAQCC Chapters offer opportunities to get together for in person socializing and QRP/CW activities. Portable operations are especially popular with the local chapters.

Whether you are a veteran ham radio operator who is looking for a new challenge in the hobby, or a beginner who is intrigued by the possibilities of QRP/CW communication, we cordially invite you to join us. Membership is free and the benefits and fun are significant.

The North American QRP CW Club was founded in 2004 by WY3H and K3WWP and now has over 9500 members world wide. Membership is free and anyone interested in CW/QRP operating is welcome. Complete information about the NAQCC, including a membership application, activities schedule, and useful resources, can be found on our website at <http://www.naqcc.info/>. Inquires can also be sent to

Club President Paul Huff, N8XMS
9928 Eckles
Livonia, MI 48150
USA



Additional contact information can be found on the next page.

NAQCC CONTACTS		
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Western Pennsylvania Chapter	John - K3WWP	jsk3wwp@windstream.net
Illowa Chapter	Tim - N9BIL	n9bil@arrl.net
West Florida Chapter	Ron - N9EE	n9ee@tampabay.rr.com
Long Island Chapter	Howard - WB2UZE	wb2uze@yahoo.com
Help For Beginners	Brion - VE3FUJ	ve3fuj@wightman.ca
Member Submissions Member Spotlight	Paul - KD2MX	kd2mx@arrl.net
Facebook Page Manager	Jerry - K4KBL	digilink@gmail.com
NAQCC CW Nets	Wayne - NQ0RP	wayne.dillon@gmail.com

NOTE: These email address are not automatic links.
They are given here in graphic form to avoid harvesting by spambots.

REPRINT POLICY

Unless otherwise stated in the article, local clubs and other ham radio organizations are free to reprint featured articles from this newsletter, provided appropriate credit is given to the North American QRP CW Club and the author of the article. If at all possible a link to the club website at <http://www.naqcc.info/> should be included.