WorldRadio ONLINE

Year 39, Issue 9 MARCH 2010

Seasoned Hams Help a Friend in Need

Next Summer's 6-Meter DX Season - Part 1

Avoiding Entanglements: A No Nonsense 20-Meter Folded Dipole

NEWS • FCC • DX • QRP • QCWA • CONTESTS • HAMFESTS • YL • AMSAT • CW

CQ Columnist Dave Ingram, K4TWJ, SK

It is with great sadness that we report that our friend and longtime colleague, Dave Ingram, K4TWJ, became a Silent Key January 20, as a result of complications from a massive heart attack he suffered on New Year's Eve, 2009.

Dave has been writing for *CQ* at least since 1981 and has been a *CQ* columnist since 1982, starting with an amateur television column called World of Video. That column eventually broadened its outlook and became *World of Ideas*, Dave's signature monthly column in *CQ*.

Regular topics included code keys, stealth antennas, building "new vintage" tube gear and mobiling. In addition, for the past decade, Dave has been CQ's QRP (low power) Editor and "How it Works" columnist. His enthusiasm for whatever caught his interest was contagious and spread widely through his informal yet educational writing style.

Condolence cards may be sent to Dave's wife, Sandy, WB4OEE, at their Callbook address. Sandy, WB4OEE, has also asked that contributions in Dave's memory be made to the American Heart Association.

(W2VU CQ Magazine)

Nebraska May Keep Ham Weather Spotter's Emergency Lights

Several of Nebraska's Emergency Coordinators and others involved in crisis communications raised concerns last year about a new law prohibiting distinctive lighting on the vehicles of storm and severe-weather spotters. Many weather spotters felt that these lights protected them while parked in isolated areas where occasional high speed traffic presented a danger.

Thanks to James R. Reider, K0JWR, a bill was introduced on January 6th by District 28 Senator Bill Avery to amend the law on vehicle lighting to allow use of distinctive amber lights by storm-spotters.

In part, the measure states that rotating or flashing amber lights can be displayed by any motor vehicle being operated by or on behalf of a weather spotter. The spotter must hold an unrevoked and unexpired amateur radio station license issued by the Federal Communications Commission. It also applies to emergency management workers while they are engaged in responding to an emergency.

The measure has been designated as Nebraska is LB 719. Nebraska hams are being asked to take a moment and send an email or letter to their respective State Legislators in support of this bill. You download the .pdf of the bill at http://nebraskalegislature.gov/FloorDocs/Current/PDF/Intro/LB719.pdf

(K0AIZ)

Sweden Withdraws Some BPL/PLT Modems From Market

Score one in the BPL war for ham radio. The January 5 issue of the *EUROCOM* newsletter has a welcome item on the withdrawal by Sweden of polluting power line adapters.

The edition notes that Sweden has withdrawn some Broadband over Powerline or PLT modems of the nation's market. The Swedish administration argued that those devices did not meet the protection provided by the harmonized standard. It also noted that in many cases harmful interference could actually be measured. It said that in those cases, reception in accordance with ITU Regulation was no longer possible and therefore the essential requirements violated.

(Southgate)

Australian Radar Leaves 10 MHz Ham Band

The IARU R1 website reports that an ionosphere radar in Australia has left the amateur radio spectrum in the 10 MHz band. The report says that following complaints filed by VK4DU and DJ9KR to the La Trobe University that the Tiger Radar in Bruny, Tasmania agreed to change the frequency data bases. Also, guarantees were made that in the future no ham radio band will be interfered by this ionospheric radar system.

(IARU Region 1)

India's StudSat To Launch In March

Listen India's StudSat or Student Satellite, is slated for a March 2010 launch and will carry a camera capable of 90-meter resolution.

StudSat is described as a small cube weighing about 850 grams. The satellite is intended to be launched in 700 km sun-synchronous orbit. It will perform the function of a remote sensing satellite and take images of earth's surface with a resolution of 90 meters, the best achieved by any "PICO" category satellite in the world.

It will likely carry a 10 milliwatt UHF/CW beacon and also a half duplex FSK link with 1 watt output also on UHF. Work on StudSat started in 2007.

(ANS)

Ham Radio And The B2V Challenge Cup Relay

Hams are needed to assist in providing communications for the Santa Clarita, California contingent taking part in the upcoming Baker to Vegas Challenge Cup Relay. The race takes place April 16th to the 18th. The course begins about 12 miles west of Baker California on Highway 127, heads to the fabled city of Pahrump, Nevada, turns onto the Blue Diamond Highway towards Las Vegas.

There 250 teams each with 26 runners, 3 support vehicles with at least two support people in each vehicle divided by two shifts each supported by 12 volunteer ham radio operators. There are 20 stages to this event and they do run through the night, hot, cold, high winds and rain.

If this event interests you and you would like to volunteer, please contact KI6CCW @arrl.net. More about the Baker to Vegas Challenge Cup Relay is on-line at www.bakervegas.com.

(KI6CCW)

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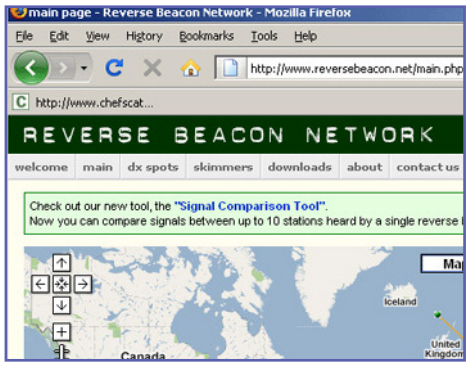

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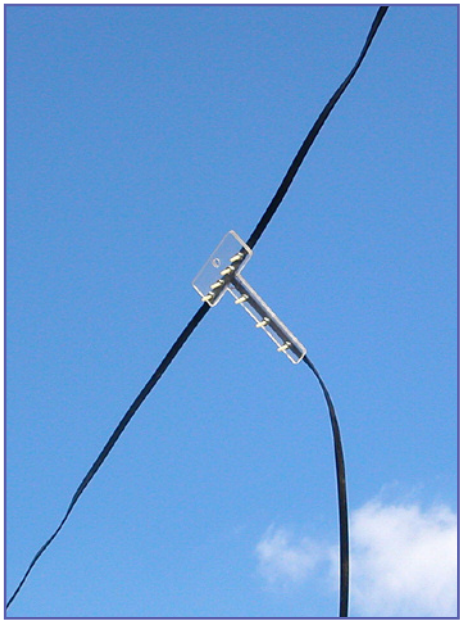

ON THE COVER: Bret Hassman's, KB8BJA, got help with cleanup from his dad (pictured) after two friends, AA9UF and N0PNQ, install a Gap Challenger DX vertical for his son.

Bottom left: the Clegg 99'er; bottom right: an easy-to-build L-C circuit.

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EDITOR'S LOG

Many *WorldRadio Online* readers know by now that I have resigned as editor. I've been dragging my feet about writing this last EdLog, thinking that it meant saying good-bye.

However, upon reflection, I realized that over the dozen or so years I have been associated with *WorldRadio* and *WorldRadio Online*, I have come to think of the readers as my friends. In the earlier years, when writing the CW column, I wrote it as if I were sharing my thoughts with friends. Considering people whom you have never met to be friends is something that is unique to hams. Sure, now there are chat rooms, but do you really know if the person you are chatting with is whom they say they are? With ham radio, if they know Morse code or can talk about antennas, you can be pretty sure they're the real thing.

As the years went on, although we didn't always agree, it was always interesting and inspiring to read your letters and comments on the internet. I wouldn't trade those days as CW columnist for anything. My readers were very special to me, and I still keep in touch with many of them.

After I became the editor, it was even more fun because I was able to talk about more topics than Morse code, and stir up some controversy! There were times when some of the posts on the internet and emails would be so hot that I discovered first-hand why they are called "flames." I don't think anyone changed anyone's mind, but it opened up dialogs and gave readers a place to vent and know that someone was listening.

Once hams become friends, their friendship can stand the test of time. Whether you see someone once a year in Dayton, or run into them on the air five years after an especially interesting QSO, it's like no time has passed, and you pick up where you left off.

I'm not going to say good-bye because you'll be seeing me around. I'll be at various hamfests, or on a DXpedition (we're planning one for September)…and of course, on the air—I'll have more time now! Thank you for your encouragement and support, it helped me to have the courage of my convictions and do the right thing even when it wasn't always the easiest choice.

Many of you are FISTS members, so we'll connect through the FISTS Keynote newsletter. If you're not a FISTS member, drop me a note occasionally at nancy@tir.com, or my PO Box 47, Hadley MI 48440. If you're interested in what I'm up to, but don't want to write, check out my web page http://home.tir.com/~nancy. Or "friend" me on Facebook.

I'd like to wrap it up by thanking Rich Moseson, W2VU, for his infinite patience, expertise and tact, and Dottie and Liz in the Production Department for helping me get the hang of what it takes to get a magazine on-line. How everyone on the staff is able to juggle getting four magazines to completion is an amazing feat!

Therefore, I leave you, my friends, in the capable hands of Richard Fisher, KI6SN. Richard is a good guy and my first choice for the next editor. I'm sure he'll do a terrific job.

CU on the air and in the words of Jean Shepherd, K2ORS, SK, "Keep a clean fist" – 73 88 33, Nancy Kott WZ8C

WorldRadio Online

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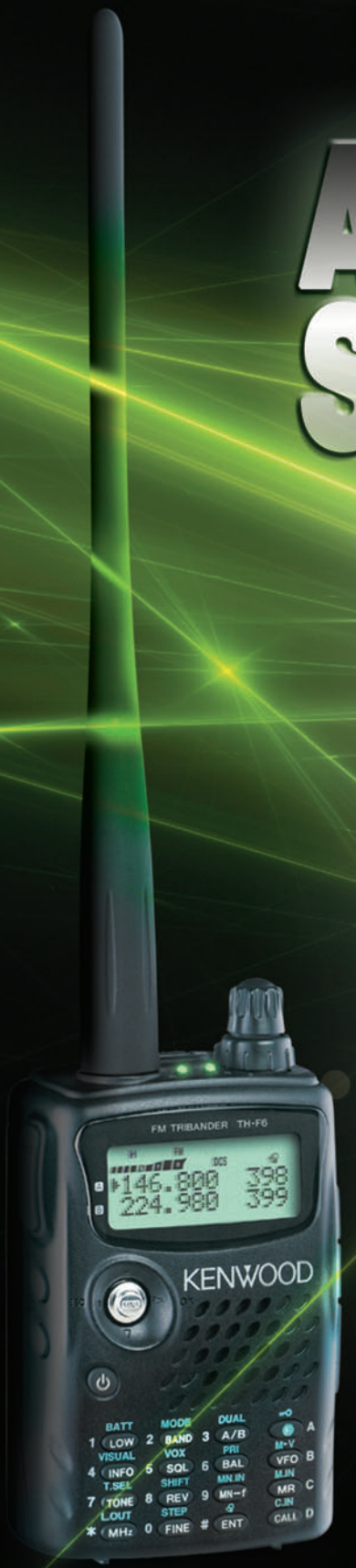
[1]Note that certain frequencies are unavailable. [2]5W output



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ADS#25309

Two Seasoned Hams Help a Friend in Need

By John E. Gercken, AA9UF

My close friend of 36 years, Bret Hassman, KB8BJA, is disabled due to a severe heart attack, type II diabetes and kidney failure. He goes for dialysis three days a week. His physical abilities are severely limited by his illnesses to the point that he could no longer work. Being disabled at the age of 50 is frustrating and certainly not the way he wanted to live, but he had to make the best of a bad situation. He lives with his 77 year old father in a double-wide mobile home in Cincinnati, Ohio.

Bret had not been active in ham radio for about 15 years and wanted to get back into it. His father has problems maintaining his balance, and with Bret's disability, any ladder work was out of the question, so they didn't dare to try to put up an antenna.

Bret bought a Gap Challenger DX vertical and I sold Bret an Alpha-Delta DX-CC dipole and 53 ft. of coax, and told him that I would come to his house and put up his antennas. He was flabbergasted that I would do such a thing, but he had been my friend for over 35 years, and that's what friends do.

I thought it would be good to have my brother, Glenn, N0PNQ, come along with me since he is pretty handy with tools and such. He lives in St. Charles, Missouri. I asked him if he would be up for it and he jumped at the opportunity.

I wanted to see if I could find a used computer CPU for Bret's ham shack. My wife said she had one at the school where she teaches that nobody used anymore, so she brought it home. I checked it out and it was toast. The dust on the processor was thick enough to plant a row of potatoes. It wouldn't even boot up. It was now time for plan B. I called Glenn again and he said he would see if EPC Computers had something. Three days later he called me to say that he found a really nice one with Windows XP already loaded, Pentium IV processor, 512 RAM, CD ROM and a new keyboard with an optical mouse thrown in for $102! I was indeed surprised and elated at this news. All Bret will need is an LCD flat screen monitor, and those can be had for cheap.

AA9UF (left) and N0PNQ (right) getting the guy ropes ready to put on the Gap Challenger DX vertical.

Glenn came to my house on Thursday evening August 27th. I had pretty much everything packed in the van as I had worked at it through the week after work. I took along a wheelbarrow, shovel, spade, two post-hole diggers, a Workmate portable workbench, numerous hand tools, a hammer drill, cordless drill, etc.

Glenn and I left my house in Bellflower, Illinois on Friday August 28th during pouring rain and it rained until we got pretty close to Crawfordsville, Indiana. At one point, between Champaign and Covington, Indiana, it was raining so hard that visibility was becoming an issue with the trucks kicking up mist in front of us. We finally got into sunny conditions on the east side of Indy and on into Cincinnati.

We arrived at our motel, got checked in and stowed our luggage in the room. Then we went on to Bret's place, which was about 13 miles from the motel. As we pulled up to the house, Bret's dad, George, came out to greet us. He was about to leave to pick Bret up from his dialysis session, so he invited us to have some iced tea, and showed us where he wanted to plant the vertical. The spot he chose would not work because of the close proximity to the metal siding and awnings of adjacent mobile homes. We persuaded him to put it in the front yard where it would be in the clear. After a quick drink, we started unloading our tools to finish assembling the Gap vertical, which was in partially assembled sections on the front porch.

After we got the antenna assembled, we broke for supper, visited for a bit, and then headed back to the motel for the night. We thought we were tired enough to sleep like logs, but neither of us slept worth a darn. Glenn got up at around 2 a.m. and sat in the recliner, hoping to be able to doze off there, but no luck. We both finally fell somewhat asleep after about 2 hours of making small talk and I checked my e-mail on the laptop.

We got up at around 7 a.m. and went

Bret's Dad, George Hassman, helping put tools away and cleaning up.

downstairs for breakfast then headed over to the Home Depot store to buy concrete mix, eye bolts and some rope, and then we headed on to Bret's house. It was going to be a BIG day!

Glenn and I unloaded our tools for the concrete project. I was glad that I had brought all the implements that I did; we used everything I brought, even the 5 gallon bucket with gravel for the bottom of the hole. In an hour, we had the hole dug to a depth of 38" and 12" across. We set the pipe in the hole and guyed it with some rope and 3 stakes then we mixed two 80 lb bags of concrete and dumped it in.

While the concrete was setting up, I dug a little trench from the vertical mast pipe to the house with a spade for the coax and installed electrical PVC at each end. At the vertical mast pipe, I installed a weatherhead on the end of two 90 degree curves and about 3 feet of pipe. On the house end, I installed a piece of PVC with a 90 degree elbow, fastening it to the foundation with a two-hole clamp and concrete anchors. Then Glenn and I worked on getting the coax up through the floor and terminated with a PL-259. Once that was done, we started work on the Alpha-Delta DX-CC dipole installation.

I used an Army surplus mast kit made up of 2" aluminum pipe sections 4 feet long. I used 9 sections which made a length of 36 feet We installed a good heavy house bracket on the back side of the house and I had a base plate made up of a slab of concrete and a 2" x 6" board bolted to it. The board was also coated with Thompson's Waterseal. At the top of the mast, I put a sidearm so we could use to raise and lower the dipole with a pulley on the end. We had the mast guyed three ways, two to the ends of the house and one off the back side of the mast to a big steel stake in the ground. I was a bit worried that the dipole was too long, but it just fit.

We broke for supper after the dipole was up. When we got back, we put the vertical up.

When we were all done, we hooked up each antenna in turn and checked for flat tuning with Bret's radio and both tuned

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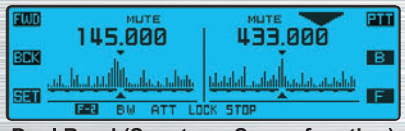
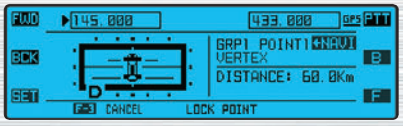


Dual Band (Spectrum Scope function)



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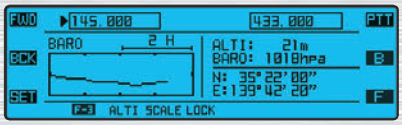

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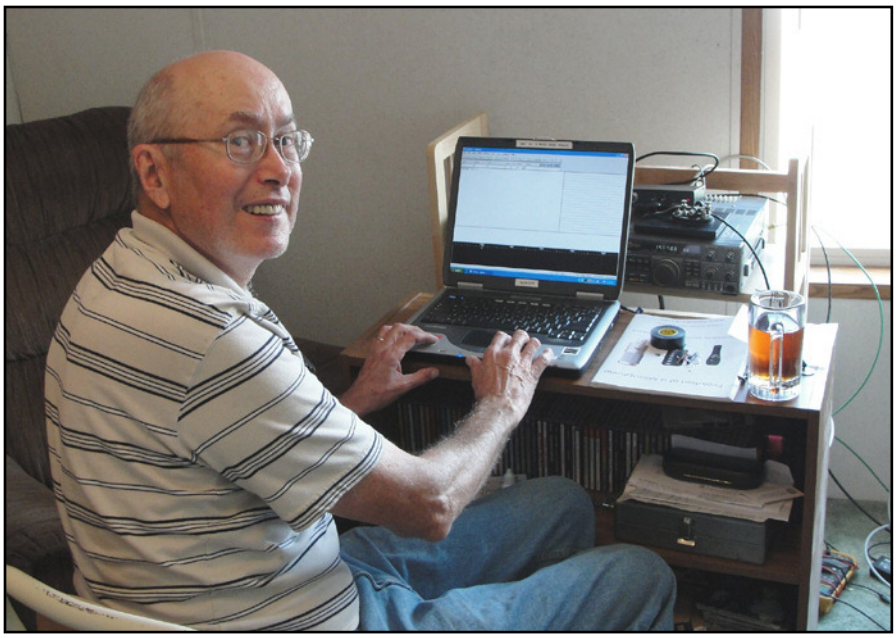

N0PNQ with his laptop demonstrating PSK31 mode for Bret.

down flat on all bands! Bret had a hard time keeping tears back at finally being able to get on the air. We let Bret do the honors of keying up to check the SWR, then Glenn got out his laptop and hooked up his SignaLink USB interface to show Bret what PSK31 is like. Bret made a PSK contact with me acting as control operator. His CQ message read that he was operating under supervision of AA9UF. He managed a contact with a station in Arizona.

Bret knew I was looking for a computer for him, but he did not know that we actually found one or what was in it. His eyes got big and he hardly knew what to say because he was so surprised at the deal Glenn had pulled off.

It took us a good hour to get everything packed up into the van again. We thought we were tired enough this time to finally get some good rest, but we were up at 3:30 a.m., wide awake. I guess we were still pretty "wired" over the whole project. We decided that there was no sense in hanging around, so we checked out and were on the road home by 5:15 a.m. and home by 9:20 a.m. We called Bret to let him know that we were home safely and he said he had just made a contact on 40M CW. He said he was very rusty at copy, but he got enough of the message to call it a QSO. He said "I'm Ba-a-a-ack!" That was indeed music to this Elmer's ears! Now we enjoy a sked on 40M CW on Saturday nights at 0000Z.

The last time I spoke to him on the phone, he sounded much more upbeat and more like his old self. Few things in ham radio are more rewarding than being an Elmer. I hope this inspires more "seasoned hams" to help a new ham or someone who needs assistance get on the air.

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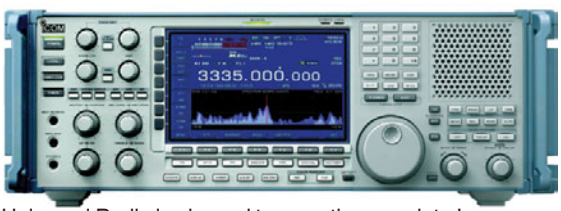

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FAR Scholarships

The Foundation for Amateur Radio, Inc., a non-profit organization with headquarters in Washington, D.C., plans to administer 48 scholarships for the academic year 2010 – 2011 to assist licensed radio amateurs in the pursuit of higher education. The Foundation fully funds two of these scholarships. The remainder are administered by the Foundation, without cost, for various donors.

Licensed radio amateurs may compete for these awards. They must be planning to pursue a full-time course of studies beyond high school and be enrolled, or have been accepted for enrollment, at an accredited university, college or technical school.

Clubs are encouraged to announce these opportunities at their meetings, in their newsletters, during training classes, on their nets and on their clubs' web pages.

Applications are available for download from the Foundation's web site: **http://www.farweb.org/**.

The Foundation for Amateur Radio, incorporated in the District of Columbia, is an exempt organization under Section 501(C)(3) of the Internal Revenue Code of 1954. It is devoted exclusively to promoting the interests of amateur radio and those scientific, literary and educational pursuits that advance the purposes of the Amateur Radio Service.

The cut–off date for applications is March 31, 2009. Please note that this is a month earlier than in prior years!

1. The four **10-10 International Net, Inc. Scholarships** pay $1,500 each.
a. There is no restriction on the course of study.
b. Applicants must seek an Associate, Bachelor or Graduate degree.
c. Non-US amateurs are eligible.
d. Applicants must be a 10-10 member or provide a recommendation from a member of the 10-10 International Net.

2. There are five **Baltimore Amateur Radio Club Scholarships**; 4 pay $1,000 and 1 pays $1,500.
a. Applicants must be Maryland residents.
b. For three of the four $1,000-award scholarships, preference is given to those who have successfully completed one year of college.
c. The fourth $1,000 award is reserved for an entering first year student.
d. The fifth award, paying $1,500, has been designated as the Ernie Dobos Memorial Scholarship, with preference given to a Baltimore City resident.
e. Applicants must be pursuing a Bachelor's degree.

3. The **Columbia Amateur Radio Association, Inc. Scholarship** pays $1,500.
a. It is available to Maryland residents pursuing a Bachelor's degree in any course of study.

4. **The Frederick Amateur Radio Club Scholarship** pays $1,000.
a. There is no restriction on the course of study.
b. Applicants must reside within 150 miles of Frederick, Maryland.
c. Preference will be given to qualified applicants from Frederick County, Maryland.
d. Applicant must be pursuing a Bachelor's degree.

5. **The Free State Amateur Radio Club Scholarship** pays $500.
a. Applicants must be U.S. citizens residing in MD, DE, PA, VA or WV and must be enrolled, or accepted for, a course in technical studies.
b. Applicants must seek an Associate, Bachelor or Graduate degree from a college or university in the United States.

6. The **Frank Scott, K3HDM, Memorial Scholarship**, sponsored by the Laurel Amateur Radio Club, pays $1,200.

7. The **Kevin and Kelly Perdue Memorial Scholarship**, sponsored by Kay Craigie, N3KN, and Carter Craigie, N3AO, pays $2,000.
a. Applicants must pursue a Bachelor's degree with a course of study in the liberal arts, humanities, or social sciences from a U.S. college or university.

8. **The Murgas Amateur Radio Club Scholarship** pays $500.
a. Applicants must be residents of the Commonwealth of Pennsylvania, and seek a Bachelor's degree from a U.S. college or university.
b. There is no restriction on the course of study.

9. **The Nanticoke Amateur Radio Club Scholarship** pays $1,000.
a. Preference will be given to those studying architecture, engineering, electronics, science or a related field at an institution of higher learning in the U.S.
b. Applicants must pursue a Bachelor's degree.
c.Residence requirement: Delaware, DC, Maryland, or Virginia.

10. **The Lawrence E. and Thelma J. Norrie Memorial Scholarship** pays $2,500.
a. Applicant must be a U.S. resident.
b. Preference will be given to Juniors, Seniors and Graduate students who are pursuing a Bachelor's or higher degree in science or engineering with an academic grade point average of 3.0 or higher.

11. **The Old Old Timers Club Scholarship** pays $1,000.
a. There are no restrictions as to residence, license class, or course of study.
b. The applicant must intend to seek at least an Associate Degree and be recommended by an OOTC member.
(To locate an OOTC member near you, contact: Bert Wells, W5JNK, ootc@ootc.com, (214) 352-4743.)

12. **The OZAUKEE Radio Club Scholarship** pays $1,000.
a. It is available to Wisconsin residents pursing a Bachelor's or Graduate degree in any course of study.
13.**The Claude H. Haring, Jr., W3IIM, Memorial Scholar-**

ship sponsored by the Phil-Mont Mobile Radio Club, Inc. pays $2,000.
a. There is no restriction on the course of study.
b. Applicants must intend to seek a Bachelor's or Graduate degree, and reside in the Eastern Pennsylvania or Southern New Jersey ARRL Sections.

14. There are twelve **Quarter Century Wireless Association Scholarships**. These include eight **Memorial Scholarships** at $1,000 each, plus the **Robert Cresap** at $1,000, the Alfred Burke at $1,000, the **Ralph Hasslinger** at $1,000, and the **Leland Smith** at $1,000.
a. There are no restrictions on the course of study.
b. Applicants must intend to seek an Associate, Bachelor's or Graduate degree.
c. There is no residence area preference.
d. Applicants must be recommended by a member of QCWA, but may not themselves be members of QCWA.
f. Non-US Amateurs are eligible.
(To locate a QCWA member near you, contact: Buddy Smith, W4YE, W4YE@aol.com, (540) 721-4684.)

15. There are three **Radio Club of America Scholarships**, which pay $1,000 each.
a. Preference will be given to applicants pursuing studies in electrical engineering toward a Bachelor's degree and to applicants taking courses in Wireless Communications.
b. U.S. citizens.
c. Applicants must be in their Junior or Senior year of studies.
d. Minimum license requirement - General Class.

16. **The Ralph V. "Andy" Anderson- KØNL Scholarship** pays $1,000.
a. There is no restriction on the course of study, but
b. Preference will be given to applicants pursuing a degree in Journalism.
c. Applicants must be residents of the U.S. or its territories.
d. Applicants must be seeking a Bachelor's degree.
e. Minimum license requirement - General Class.

17. **The Chuck Reville, K3FT, Memorial Scholarship**, sponsored by Phillip Karn, KA9Q, pays $1,000.
a. Applicants must intend to seek a Bachelor's degree in any branch of the engineering or physical sciences.
b. There is no residence requirement.

18. T**he Richard G. Chichester Memorial Scholarship** pays $2,000.
a. Applicants must be members of the ARRL and be recommended by an ARRL-affiliated club (they need not be a member of the club).
b. There is no restriction on the course of study.
c. Applicant must be pursuing a Bachelor's degree.
d. Preference will be given to Texas residents living in the metropolitan areas of Austin, Kerrville or San Antonio.
e. Minimum license requirement - General Class.
(To find an ARRL affiliated club near you, go to http://www.arrl.org/FandES/field/club/clubsearch.phtml.)

19. **The Robert E. True Memorial Scholarship** pays $1,000.
a. Applicants must be residents of the state of Ohio seeking a Bachelor's degree at a US college or university.
b. Preference will be given to those pursuing courses in electrical engineering or electronic/computer technology.

20. **The Rose Ellen Bills Memorial Scholarship** pays $2,000.
a. There is no restriction on the course of study.
b. Applicants must be a resident of the U.S. or its territories
c. Pursuing a Bachelor's degree
d. Minimum license requirement - General Class

21. There are two **Silent Key Memorial Scholarships**, which pay $5,000 each, available to U.S. residents pursing any course of study leading to a Bachelor's degree.

22. **The Ernest L. Walker, WB3DVL, Memorial Scholarship** sponsored by the Baltimore Radio Amateur Television Society pays $1,000.
a. There is no restriction on the course of study.
b. Applicants must pursue a Bachelor's degree.
c. Applicants must reside within 150 miles of Baltimore, Maryland.
d. Preference will be given to Maryland residents.

23. **The Tulare County Memorial Scholarship** pays $1,000.
a. Applicants must be working towards a Bachelors or higher degree in engineering or computer science, and be residents of the State of California.
b. Preference will be given to applicants who are living in Tulare County, California and who have not previously received a FAR scholarship.

24. The Dwight Weller, KB3LA, Memorial Scholarship sponsored by Phillip Karn, KA9Q, pays $1,000.
a. Applicants must intend to seek a Bachelor's degree in any branch of the engineering or physical sciences.
c. There is no residence requirement.

25. The WARAC Memorial Scholarship, sponsored by the West Allis Radio Amateur Radio Club, Inc. in Milwaukee, Wisconsin, pays $1,500.
a. Applicants must be Wisconsin residents, pursuing an Associate, Bachelor's or Graduate degree in any course of study.

26. **The Young Ladies' Radio League Ethel Smith, K4LMB, Memorial Scholarship** pays $1,500.
a. Applicants must be female and hold at least an FCC Technician Class or equivalent foreign authorization and intend to seek a Bachelor's or Graduate degree from a U.S. college or university.
b. There are no residence restrictions
c. Preference will be give students studying communications, electronics, or related arts and sciences.
d. Non-US amateurs are eligible.

27. **The Young Ladies' Radio League Mary Lou Brown, NM7N, Memorial Scholarship** pays $1,500.
a. Applicants must be female and hold at least an FCC Technician Class or equivalent foreign authorization and intend to seek a Bachelor's or Graduate degree from a U.S. college or university.
b. There are no residence restrictions
c. Preference will be give students studying communications, electronics, or related arts and sciences.
d. Non-US amateurs are eligible.

FOXHUNTING

John B. Johnston, W3BE

Q Doesn't a hidden foxhunt transmitter have to have a photocopy of the station license and a label with the name, address, and telephone number of the station licensee and at least one designated station control operator attached?

A. No, it doesn't. There are no special FCC rules for amateur station "foxhunts." The only such posting requirement is in Section 97.213(d). But it applies just to telecommand when there is a control link between the control point and the station sufficient for the control operator to perform his/her duties.

Q. What is the rule that authorizes our foxhunt transmitters to operate unattended?

A. There is no such rule. Section 97.7 says that when transmitting, each amateur station must have a control operator. That includes stations engaged in secreted transmitter activities.

Q. How do repeaters get away with transmitting without a control operator?

A. No repeater is exempt. Our amateur service community was successful in convincing the FCC that, in many instances, a repeater could achieve compliance with the FCC rules through the use of devices and procedures such that it was not necessary for the control operator to be at the control point. Section 97.3(a)(6) defines this as automatic control. In Section 97.205(d), repeaters are authorized for automatic control.

Q. How do we go about obtaining automatic control authorization for foxhunt transmitters?

A. File a petition for rulemaking. The better answer is to convince our amateur service community, before filing, that what you want to do will not cause interference to their other intercommunications. The FCC will likely want to know about that and will eventually ask for public comments if it decides that your request is at least worth proposing.

Q. Besides repeaters, which other amateur stations are authorized for automatic control?

A. They are: An auxiliary station (Section 97.201(d)), a beacon station transmitting on certain band segments (Section 97.203(d)), a station transmitting a RTTY or data emission on certain band segments (Section 97.221(b)) or responding to interrogation by a station under local or remote control that does not occupy a bandwidth of more than 500 Hz (Section 97.221(c)).

Q. What are the requirements for automatic control?

A. Your devices and procedures must work such that while your repeater is transmitting, compliance with the FCC rules is achieved without the control operator being present at a control point. See Section 97.3(a)(6). It is up to the station licensee to assess the circumstances that the repeater is likely to encounter, determine threats that might cause it to transmit improperly; then decide whether automatic control would be appropriate and the form it should take.

Q. For two identical transmissions from the same station on the same channel within the same band, with both being fed to the same antenna, what would be the maximum power limit?

A. Section 97.313(a) says an amateur station must use the minimum transmitter power necessary to carry out the desired communications. It comes from the Communications Act SEC. 324 [47 U.S.C. 324]. It is widely viewed as an admirable guideline – at least for everyone else to observe. Within that constraint, there are more limits:

Sections 97.313(b) through (h) say that no station may transmit with a transmitter power exceeding a specified PEP in watts for the band or segment.

Section 97.13(c) says that before causing or allowing an amateur station to transmit from any place where the operation of the station could cause human exposure to RF electromagnetic field levels in excess of those allowed under Section 1.1310, the licensee is required to take certain actions. This requirement comes from the National Environmental Policy Act of 1969, as amended [42 U.S.C. 4321–4335].

Section 97.101(a) says that in all respects not specifically covered by FCC Rules each amateur station must be operated in accordance with good engineering and good amateur practice.

For most stations making power amplitude emission transmissions, however, the practical limit is probably determined by the licensee's personal agenda, budget and engineering resources, and contest entry rules.

Q. What is "PEP?"

A. PEP is short for peak envelope power. It is an expression of RF power, in watts, that applies well to practically all emission types and for which reasonably accurate measuring instrumentation is widely available to amateur stations. Section 97.3(b)(6) defines peak envelope power as the average power supplied to the antenna transmission line by a transmitter during one RF cycle at the crest of the modulation envelope taken under normal operating conditions.

Q. Once you share a common exciter, or even a common oscillator, or somehow phase-lock two oscillators together, you have one transmitter. What, then, is a transmitter in the context of Section 97.313(b) where it says that no station may transmit with a transmitter power exceeding 1.5 kW PEP?

A. There is no definition for the term "transmitter" in Part 97, which is where such would be expected to be located if it was being used uniquely therein. Neither is there a definition for it in Part 2, where it would be expected if it was being used uniquely throughout the FCC rules.

W3BE-O-GRAM: How about: In an amateur station, a transmitter is the apparatus that produces an RF signal for con-

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veyance to the antenna system? See BE Informed No. 30 GEPs and GAPS.

Q. When there is a transmitter driving a linear, which is considered the transmitter?

A. When it is the apparatus producing RF power to the antenna feed line, it is the transmitter in the context of the above-proposed GAP. In which case, the device driving the amplifier - although widely known as a "transmitter" at a station without a linear - is often referred to as the "exciter" at those stations that have.

Q. What is a "linear?"

A. It is an RF amplifier that increases its instantaneous power output level proportional to its signal input without introducing unacceptable distortion. See BE Informed No. 31 HAMSLANGUAGE.

Q. If the output of one transmitter is split between two linear amplifiers feeding separate antennas, is that one transmitter or two?

A. For an isolated reading of Section 97.313(b) through (h), it would appear to be two separate transmitters. The transmitter power standards, therefore, would apply to each linear. That is likely to fail the good engineering practice test, however, unless the two signals are phase locked exactly and the two amplifiers are precisely equal in performance. Even then, there could be power fluctuations and distortion as the phases of the two transmitters drifted around.

Under the above-proposed definition for "transmitter," however, the two antennas would comprise the antenna system and the two amplifiers would be considered as one transmitter and the transmitter power standards would apply to the pair combined.

Q. Don't many of the restrictions in Section 97.313 specify the maximum power in a band or frequency segment, so even though the station is transmitting simultaneously on more than one frequency in a band, the rule limits the station's power to a maximum power for that band?

A. The several paragraphs in Section 97.313 say that no station may transmit with a transmitter power exceeding a specified PEP under various conditions. While they are usually read as to be based upon one transmitter on one channel at one station at one location with one antenna, they don't really say that specifically.

W3BE-O-GRAM: Entrusting to our amateur service community the determination of the power limit for those situations is appropriate because even 1.5 kW, is far beyond our norm. It is probably closer to 100-200W at MF/HF stations, 25-50W at VHF stations, and 10-20W at UHF stations. Although they can raise the receiving noise level significantly, the relatively few high power stations seem to be tolerated widely by our amateur service community, for those short-lived contest periods at least.

At the other end of these power issues are our QRP enthusiasts. They prove repeatedly how skill, patience, perseverance and know-how can achieve amazing communications with but a few transmitter watts.

Q. There is no way that these things are legal in a contest. Contests inevitably limit the contestants to one transmitter in a single band/mode at a time, and they require operation within the FCC rules. The contest people have already done all they need to do to control attempts to skirt the spirit of the rules.

A. Thanks for that assurance.

Q. Would you support a return to a 5-year license term, now that applications are automated and not so labor intensive?

A. Certainly. Five-year terms facilitated the analysis of what was happening; renewal dropouts, upgrades, etc. The 10-year license brought a halt to that.

Read the rules - Heed the rules

Visit http://www.w3BEInformed.org for links to rules and information sites. E-mail your questions about the amateur service rules to john@johnston.net.

APPRECIATION

THE PHOTO shows the traveling contingent of Johnson, Johnson, Johnston & Richey, whose last name similarity continues to confound hamfest motel desk clerks.

(l to r) Ray, Dave, John and Jim. Thanks, guys, for being the World's happiest hamfesters.

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2010

Avoiding Entanglements: A No Nonsense 20-Meter Folded Dipole

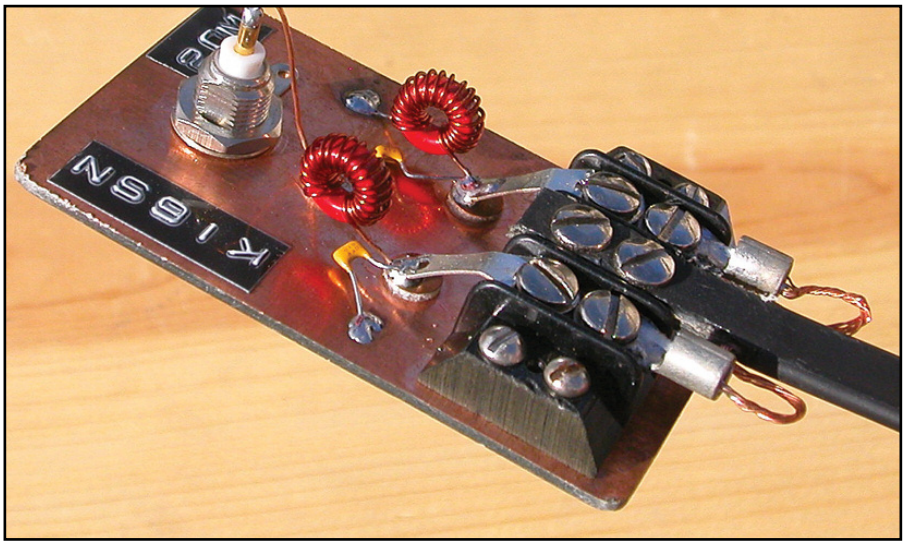
By Richard Fisher, KI6SN

An article by Dave Benson, K1SWL, in the fall 2001 edition of The Northern California QRP Club's QRPp magazine headlined "Twin-lead Dipole for Portable Operation" inspired this latest T-FR project at KI6SN

You might recognize 'SWL's name and callsign from his highly regarded Small Wonder Labs, the New Hampshire-based radio kits and accessories company.

In his '01 article he expressed the desire for a portable wire antenna you can stuff into a backpack without coming out a tangled mess, at the same time lamenting in-the-field feedline losses using RG-174 coaxial cable.

At KI6SN, we often thought about the time and energy it takes to keep wire antennas properly coiled and neatly organized during transit to and from a field location. And, of course, minimizing feedline loss is a never-ending campaign.



An easy-to-build L-C circuit functions as both a balun conversion and impedance-matching network for this trail-friendly 20-meter folded dipole using 300-ohm twinlead.

'SWL's folded dipole for 20 meters is almost impossible to get into a tangled mess – no matter how hard you try. As a bonus, it uses low-loss 300-ohm twinlead for both the antenna and the feedline. Bingo.

Wad it up, stuff it in your backpack and it takes only seconds to unravel when you're ready to set up. It's a very trail-friendly skywire.

The key ingredient of 'SWL's twinlead folded dipole is an L-C circuit that serves both as a balun conversion and impedance-matching network. With just two simply-wound toroids and two NP0 capacitors, it provides a nice path for RF from the 50-ohm output of your transceiver to the 300-ohm impedance of the antenna.

"Each L-C pair in this bridge is calculated as an L-network," 'SWL wrote in 2001, "I take no credit for this circuit – it was described to me by Wade Holcomb, W1HGU. He noted that it had appeared in the amateur literature in the late 1950s, but the specific reference was unknown."

Intrigued by its non-entanglement and low loss characteristics, we were eager to try it here.

A graphic on the Trail-Friendly Radio Extra Web site – http://www.TrailFriendlyRadio.blogspot.com – shows the L-C circuit's schematic and implementation. There you'll also find more photographs of the antenna, L-C circuit and hardware.

The L-C circuit was built at KI6SN on a piece of double-sided printed circuit board – approximately 2-inches by 3-inches – and employs Manhattan-style construction.

L1 and L2 are garden-variety T37-2 toroids with 18 turns of No. 24 enameled wire on each. C1 and C2 are common 82pF NP0 capacitors. We used a BNC-style coaxial connector on the transceiver input-end of the circuit. A three-position, dual-row barrier strip was used as the connection point and stress restraint for the 300-ohm twinlead feedline.

Without employing heftier matching network components, it's best to keep power output into this antenna at 5-watts-or-less levels.

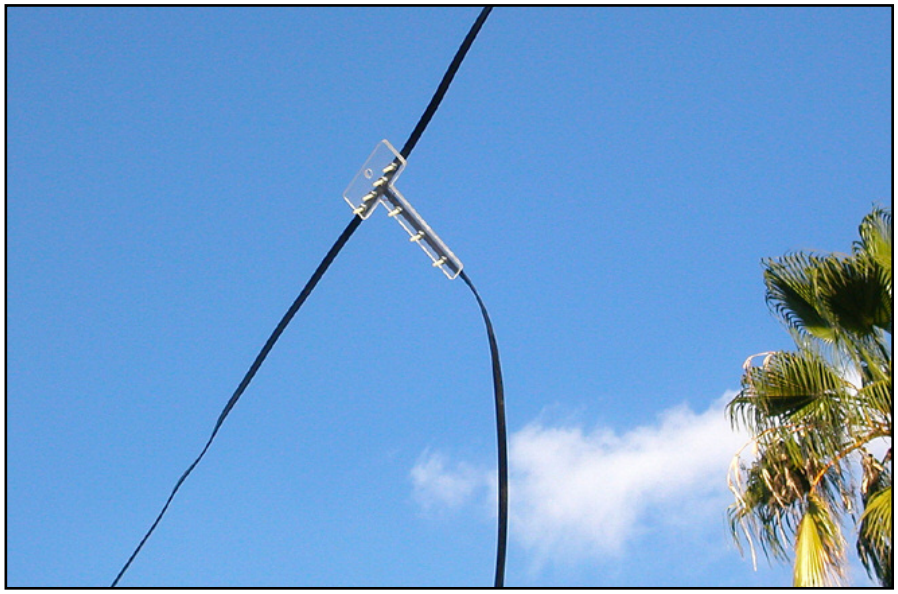
A 50-foot roll of twinlead from Radio Shack (RS No. 15-1174) provided enough wire for both the antenna and feedline. In its on-line catalog, the company shows a 100-foot roll (RS 15-1175) which will provide even more flexibility in feedline length.

As you can imagine, construction is straight-forward and lends itself to all sorts of physical modification to suit the operator's situation.

The feedline can be any length, so if more twinlead needs to be added at your station's location, by all means do so. We used a three-foot length of 50-ohm coaxial cable to couple our 20-meter transceiver to the L-C network. From there, it was 300-ohm twinlead from the feedline all the way to the ends of the antenna.

At KI6SN, 33-feet, 4-inches was chosen for the full length of the 20-meter antenna element. That left about 16-feet of twinlead for the feedline – a decent and easily attainable antenna height in the field.

If you'd like to calculate antenna specifications for a particular 20-meter frequency, use the formula: Length = 468 / frequency in MHz. We were able to achieve a 1:1 SWR across the entire 14 MHz amateur band using a tuner.



A T-shaped plastic center piece provides the feedline-to-antenna connection point and strain relief for the twinlead dipole described in an article almost a decade ago by Dave Benson, K1SWL.

After completing construction of the L-C circuit, we cut the antenna element and soldered together the twinlead wires at each end – thus making the folded dipole. Next, we fashioned a center support piece using quarter-inch plastic as a strain-relief point for connecting the feedline to the antenna.

Exact dimensions of the plastic T-section are shown on the T-FR Extra website. Just to be safe, non-conductive nylon bolts – to avoid possibly introducing a short between the twinlead wires – were used to secure the antenna and feedline.

From start to finish, we had the antenna and matching network completed and ready for testing in about two hours.

Applying a small amount of power, we were able to achieve a 1:1 match in the snap of the fingers. Nice.

The CW portion of 20-meters was pretty quiet, so we QSY'd to SSB. As it happens, across town was Riverside, CA operator John Webster, N6JW, working a succession of stations. We had the antenna dangling from the rafters in the garage, only a couple of feet off the floor. Not expecting much, we gave 'JW a call and he replied with a 5-5 signal report. Eureka.

We thanked John for his report, told him we were testing a new antenna and running 5 watts. To our surprise, Gerry Linton, VE6PL, near Calgary, AB, Canada, jumped in to say he was reading us loud and clear. Holy cow!

'PL and I QSY'd off 'JW's frequency and had a 15-minute, solid copy QSO. At 5 watts, with the folded dipole slumping inside the garage, how can this be? We were really impressed.

Later that afternoon, with the antenna still garage-bound and power still at QRP level, we QSO'd Taka Sakai, JA1KIH, in Chiba, Japan. Wow.

After moving the antenna outdoors between a tree and the roof of our house, we had solid contacts with West Coast, Midwest and East Coast U.S. stations and Hawaii.

It had been many years since a folded dipole was employed at KI6SN. To say we were impressed with the K1SWL-inspired configuration would be an understatement.

At the moment, we're using it as a fixed location 20-meter antenna that can easily be dropped and bundled for portable field operation in minutes.

The twinlead radiating element and feedline and L-C matching section are as rugged as they are efficient.

After completion and testing, I dropped K1SWL an e-mail to say how much I appreciated his QRPp article.

" . . . I don't usually have to wait nearly a decade to get feedback on (an) article I wrote," he responded. "Glad it's worked out so well."

When considering designing this antenna for other bands, 'SWL wrote that "each L-C pair is an L-network for a conversion from 50 to 300 ohms. To change bands (simply) scale both the capacitors and inductors to keep the same value of reactance." Will do.

If you're looking for a nicely-performing portable 20-meter antenna that avoids the troublesome entanglements of other trail-friendly skywires, try this folded dipole – and while you're at it, drop an e-mail to let us know how you like it: KI6SN@aol.com

Meantime, please keep an ear out for us on 20 meters so you can hear this antenna's performance for yourself.

CW Skimmer and the Reverse Beacon Network

Kelly Jones, N0VD

A few couple of years ago an interesting advancement began to surface. The ability to monitor large swatches of bandwidth on a scope has been around for some time, but with the advent of the software-defined radios and the processing power of modern computers, the ability to apply "intelligence" to the "fish finders" began to take off.

This was due to a very interesting piece of software that found its way into the DXing and contesting communities. Alex Shovkoplyas, VE3NEA, most noted for his DX Atlas and Morse Runner programs, released a new program called CW Skimmer. In a nutshell, CW Skimmer can take wide segments of the band and "decode" all of the callsigns it is able to hear. It then presents the callsigns in a visual form much like the bandmaps you find in most logging programs (figure 1).

CW Skimmer quickly became a very controversial piece of software in the contesting world, but also became an interesting tool for average the DXer. Jerry Volpe, KG6TT, explains how he uses CW Skimmer to increase his chances of breaking the pileups.

"With a less than average antenna farm and a very tired old [amplifier], it is almost impossible for me to generate the commanding signal that pushes holes through pileups. After many, many frustrating hours of waiting or not getting through, I realized that I needed to work smarter and not harder. That was when I began to learn what tools I could employ (under the roof) to provide that edge to work the needed DX station before it became a DX spot statistic, or worse yet, became history.

"[With] CW Skimmer, my transceiver's main receiver remains on the DX station with its filters locked down as tight as necessary to pull it from the surrounding noise. CW Skimmer's lower decode window provides a steady, reasonably verified (through redundancy and probability), decoded stream of the key info the DX station is sending.

"The actual decoding is better than any software decoder I have tested and works as a great assistant jotting down calls. At the same time, CW Skimmer's main window displays a waterfall that is quickly filling with replying signals. The replying stations create an easily recognizable 'dit/dah' stream for easy mouse positioning in the waterfall, but better yet, Skimmer performs user selectable levels of decoding and verification immediately to the right of the waterfall. I set mine to only display highlight details such as '5nn', '599', 'TU', 'QSL, 'QRZ', 'de' and their callsigns. I also ask mine to compare each decoded callsigns a couple of times before displaying the result to eliminate many decoding errors. [In addition] I also use the 'check partial' option so that Skimmer compares the incoming decoded calls to a known database of anticipated callsigns. CW Skimmer also has a cool optional window to list out the received calls for quick identification and easy selection. It can also output via

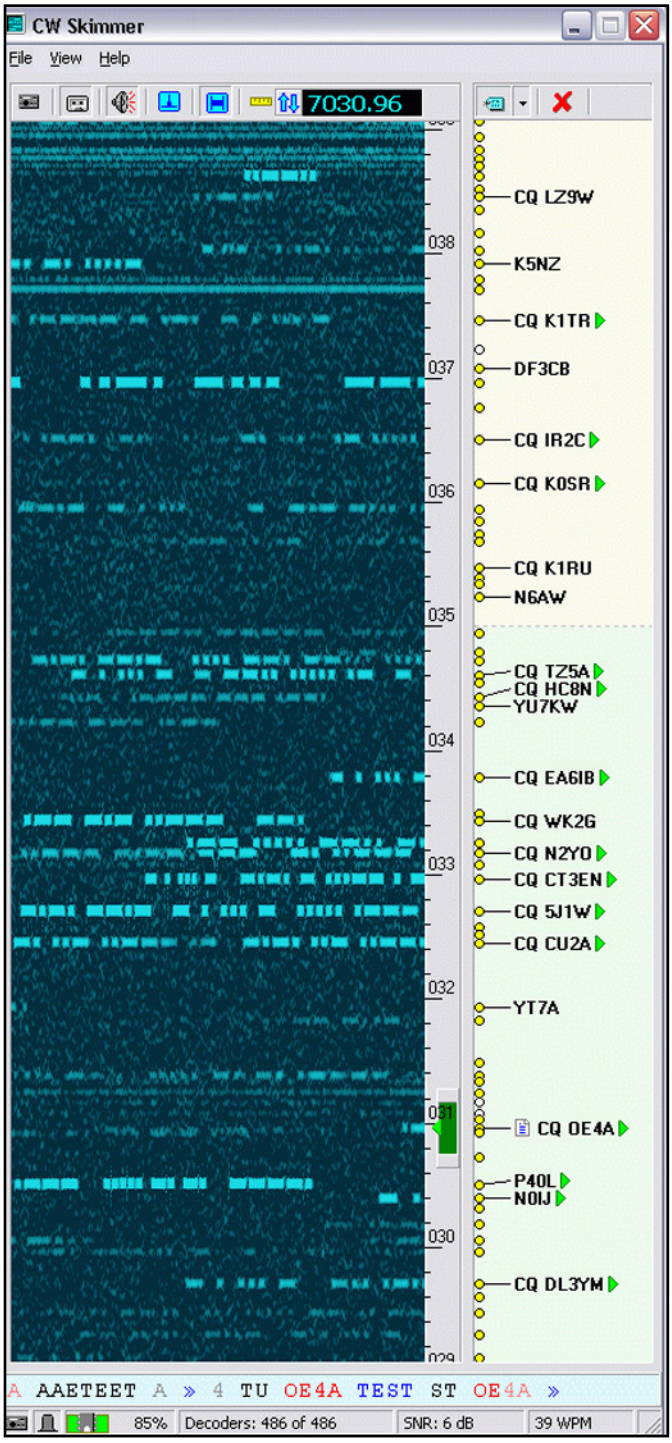


Figure 1.

its own Telnet server localized spots that you can pick up in your own spotting program [which is] very useful when you are away from the rig.

"At this point I see the DXer's sending below and the respondents to the right. I hear who the DXer is responding to and then quickly look at the growing list of respondents (figure 2). As soon as I see the respondent's call (remember they are calling and calling and calling - few get through the very first time so the current respondent is most likely already in the list) I click on it and CW Skimmer quickly moves my transceivers SUB receiver and transmitter to that exact frequency. A moment later I toss out my callsign zero-beat to the station the DX just said 'TU' to. I now have a far greater chance of getting through than if I just sat on what I thought was an open frequency or if I madly tuned around with the XIT or second VFO hoping to find and tail end the responded to station's frequency in time.

"There is far more to CW Skimmer's abilities, especially if you have a wide-band capable SDR or perhaps a SoftRock receiver tied to your transceiver's IF, in which cases you can 'skim' as much audio bandwidth as your soundcard can support and your computer has the processing power to decode. However, according to CW Skimmer's choices, I was forced to set decoding to the standard 3 kHz audio produced by most transceivers, while my SUB receiver can do a very good job producing up to 8 kHz of bandwidth."

This is certainly interesting from the standpoint of what your station might be hearing on a band at any given time. However, CW Skimmer really gets interesting when many receivers begin aggregating their "spots" into a single source that can both be seen in real time and as historic data that can be queried.

Much like the DX Cluster®, which has evolved from the early days when a node or two were connected together to what is today a worldwide network, CW Skimmer is evolving into something similar. I recently stumbled across a website called "The Reverse Beacon Network Project" (http://www.reversebeacon.net). This is a very interesting project

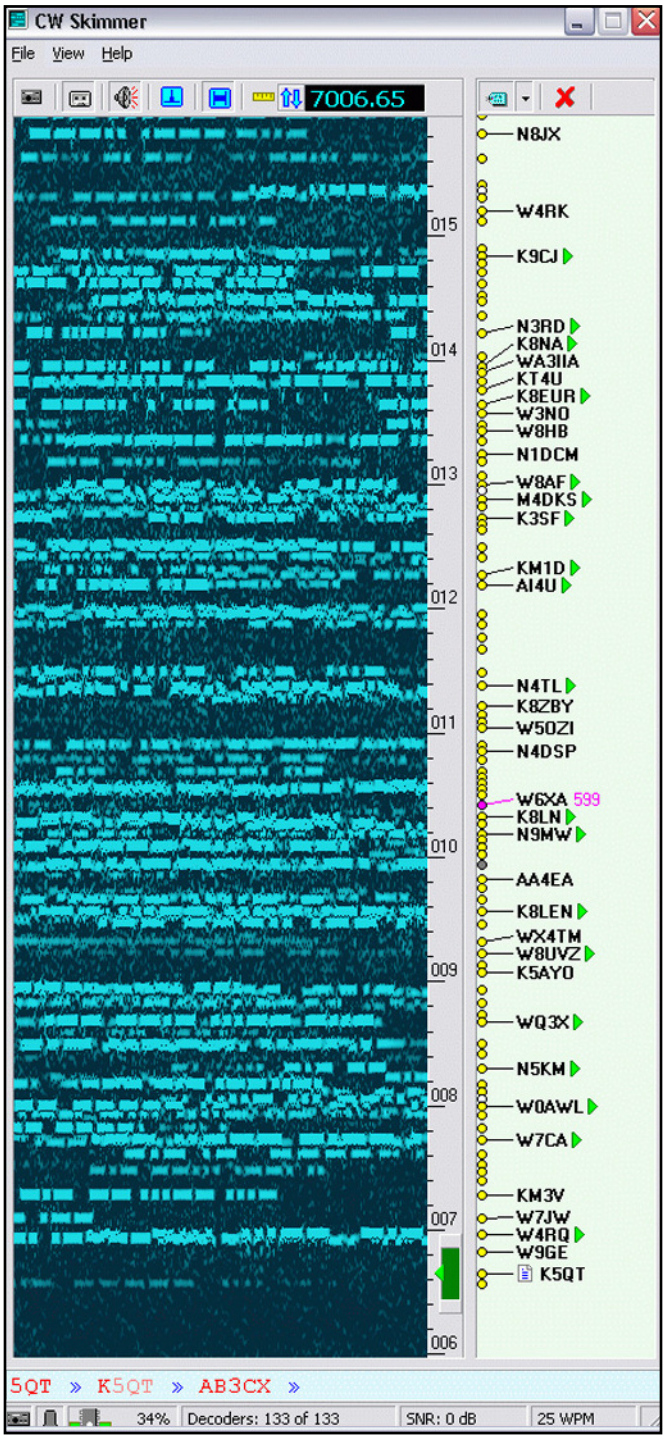


Figure 2.

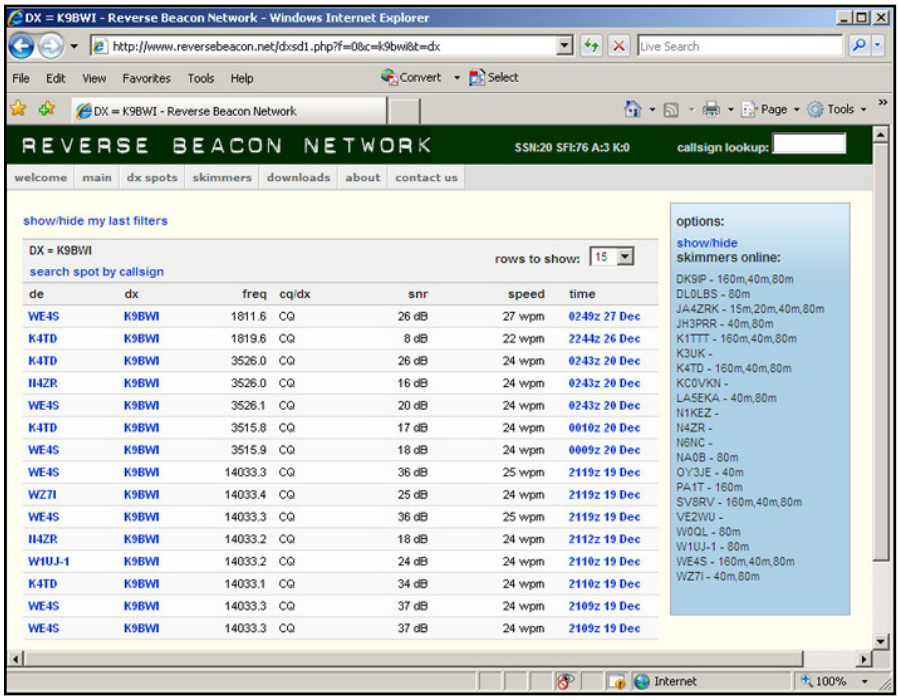


Figure 3.

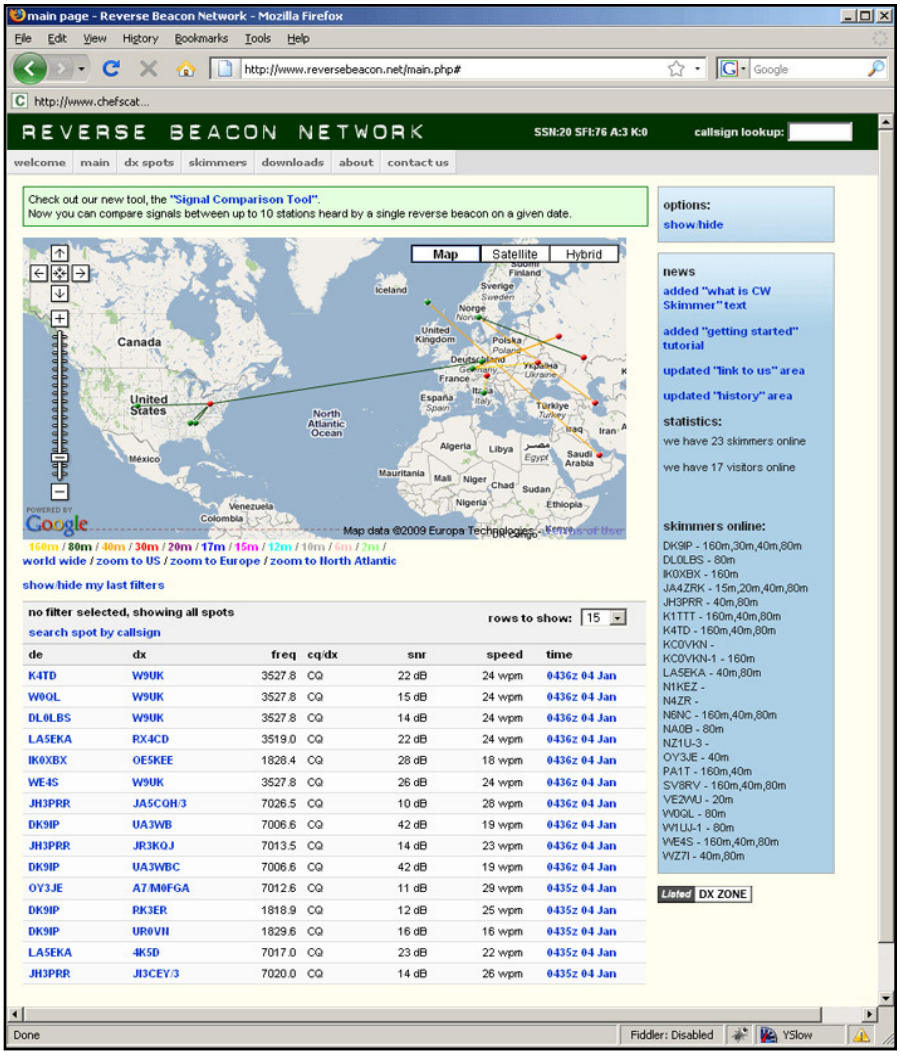


Figure 4.

and website hatched by Filipe Ceglia, PY1NB, and Pete Smith, N4ZR which "aggregates" various CW Skimmers located around the world into a single source of data.

A short description from the website describes the Reverse Beacon Network (RBN) as "… a revolutionary new idea. Instead of beacons actively transmitting signals, the RBN is a network of stations listening to the bands and reporting what stations they hear, when and how well." As a DXer, this is very useful in determining how your signal fares in other parts of the world.

The website further states, "Now, for the first time, you can compare your signal with those of your friends and competitors, in near real time or historically. If you wonder how your signal stacked up during last weekend's contests, the Signal Comparison Tool will give you real, quantitative data. Tell it what stations you want to compare, based on signals heard by a given reverse beacon on a certain band at a certain time, and there you'll have it."

Since the RBN keep statistics on what it's heard in the past (in addition to real time, of course), I was curious to see how my local DXer friend K9BWI would fare at the various CW Skimmer locations. By simply searching for his callsign in the "history database", I can see which Skimmers were hearing him and how loud he was at that given time (figure 3). Of course, this can also be done in real time (figure 4) and you could have what I'd call a "horse race". The loudest one wins!

I found the whole idea of CW Skimmer and the Reverse Beacon Network is very intriguing. The RBN currently depends on volunteer stations. Many of the stations are "listening" 24/7 and are located throughout North American and Europe. However, the network could always use your help. If you run CW Skimmer, it is very easy to feed your "spots" into the aggregator of the RBN. A simple download which integrates into CW Skimmer is all it takes to become a "listening post."

That's it for this month's column. I look forward to hearing your comments, complaints or whatever is on your mind. If you have a story or opinion you would like to share, please send it to me at n0vd@dxcentral.com. I'll do my best to include it in and upcoming column. Until next time, see you in pileups - and now on Twitter as N0VD!

Next Summer's 6-Meter DX Season - Part 1

Bill Pasternak, WA6ITF

It's the not-so-merry month of March. Unless you live in southern "Kaliforniaaa" as I do, or southern Florida, it's pretty cold outside. But, it is time to plan for next summer's VHF DX season. In the next two installments of this column, I want to urge those who have never experienced the thrill of low power non-FM summertime DXing to try operating on what many hams call "The Magic Band" — 6 meters.

Yes, I know that times are tough and that gear for 6 meters can be relatively expensive. My primary station radio these days is a decade-old Yaesu FT-847 HF through UHF transceiver that still brings close to $1000 on eBay. That's quite a lot of money when you consider that its smaller and newer sibling, the FT-857 carries a manufacturer's suggested retail price of about $800. But I'm not going to spend a lot of space on new vs. used all-mode transceivers. Instead, how about getting onto 6 meters for about $150 or so with a simple station that's powerful enough to work just about anything you can hear? Interested? Read on.

A 6-meter radio is expensive because very little brand new gear is specifically made for those who want to use Morse, SSB and the emerging digital modes. True, most of the newer HF transceivers do include 6-meter CW and SSB, but you are looking at $700 and upward to buy one.

For about $280 plus shipping, MFJ makes a delightful little analog tuning 10-watt PEP 6-meter SSB transceiver, model 9406. It covers only 50.0 - 50.3 MHz, but that's where one finds the action on 6 meters, with most voice operators always listening on 50.125. It can also operate Morse by installing an optional MFJ-416 CW board. That costs about $89, so the two units together will set you back $370, plus shipping. Both my buddy Dave Booth, KC6WFS, and I own them and we have worked our share of SSB DX using relatively simple antennas. In my case, I have Hawaii confirmed using the 9406 and a ground-mounted AEA "halo" fed by 100' of "lossy" RG-58U.

A very popular and affordable 6 meter radio of the 1960s was the Clegg 99'er.

How was this accomplished, you ask? Well, I always say that there are three factors involved in operating on the Magic Band. First is to have a dedicated station — any form of station — ready to go at a moments notice. Second is to be lucky enough to be near the radio gear when 6 meters opens up to E, F2 or other DX conditions. Most importantly, develop the "skill" needed to make the contacts you seek. All this, coupled with a 9206 and simple antenna can do this for you, too.

Back in the late 1950s and early 1960s it was not uncommon for a new ham to come to 6 meters with relatively simple low power equipment, call CQ, and have his or her first contact be a DX station. Maybe that DX was only 500 or so miles away, but it was still quite a thrill, and the kind of experience that excels making a contact with an HT into a repeater by miles. Kind of like comparing the "thrill of the chase" to making a call with a cellphone.

My first CQ was in the fall of 1959, from New York City. The first station to answer that CQ was W4OEH in Florida. That's when I realized that 6 meters was indeed magic.

Solar cycle to solar cycle, 6 meters has not changed its propagation characteristics. Mother Nature tends to be fairly stable with its highs and lows of solar activity. Right now we should be coming out of a low and headed toward a new high, possibly like the one I experienced when I was first licensed. What has changed is the way hams approach 6-meter operation. The advancements in technology over the past 50 years have made generations of radio gear obsolete to those who have to be at the leading edge of technology; but not obsolete as far as making fun local and DX contacts. And therein lives the secret to cheap access to 6 meters, which we will describe in our May column. (To be continued)

Putting up a Repeater in the UK

The world-wide spectrum crunch is becoming a major concern to hams in the United Kingdom. An item posted on the

website of the RSGB Emerging Technology Co-ordination Committee indicates that the criteria for processing repeater applications will be tightened. It could also impact negatively on both the owners and users of current UK systems on 70 centimeters and above.

Published on January 3, the article titled Taking Stock says that it is likely that strict criteria will be applied for new United Kingdom repeater applications. It says that against the backdrop of low activity levels, and poorly performing repeaters, the need to justify new applications is likely to be enforced to a far greater extent.

The article also includes a warning to those system operators whose current repeaters have failed to meet the current criteria. It says that long-term non-operational repeaters, repeaters licensed but failing to ever begin service and repeaters nominally operational, but widely reported as being either deaf or inaccessible for other reasons has become all too prevalent. "Use it or lose it" would likely be apropos.

The article notes that challenges to amateur use of bands above 2 meters is likely to require even greater proof that hams need and value these bands to support the Society in fending off commercial interest at 70 centimeters and above.

The article ends by noting that the focus on radio spectrum in the UK is going to intensify in the coming decade. Radio amateurs in that nation have to be seen as having their house in order and make good use of the valuable spectrum at their disposal in the so called "sweet-spot" of the radio bands. (From http://www.ukrepeater.net/ via Southgate)

Guest Writer Les Rayburn, N1LF: Fuses for your Mobile Installation

Many VHF operators, especially rovers, have learned the wisdom of fusing the power leads that run to those pricey transverters, pre-amps, and VHF/UHF rigs. For rovers, this usually means fusing both the positive and negative leads as close to the radio as possible.

But as any rover can tell you, troubleshooting equipment in the dark on some lonely hilltop can be an exercise in frustration. Especially in the heat of a contest. During the CQ VHF contest while operating at night in North Florida, I had a fuse blow on my Yaesu FT-857D. Since I had not brought along the "rover rack" it was literally the only radio available, leaving me dead in the water.

Luckily, I use Smart Glow Fuses which light up when they're blown. I also use clear fuse holders which are made just for these fuses. Tracing the problem was as simple as lifting the back seat and looking at the custom power distribution center. I replaced the glowing 20-amp fuse with a new one from my bag of spares and was back on the air in less than 30 seconds.

Smart Glow Fuses are sold at most automotive parts stores, and can also be found at Ace Hardware, Wal-Mart, and other retailers. They're available in a variety of sizes from 1 amp all the way up to 40 amps. They're a bit more expensive than standard blade-type fuses, but worth every penny if you're on that dark, lonely hilltop.

They also work great in the Anderson PowerPole distribution. And they're perfect for fixed stations too, not just rovers.

Guest Writer Jim Davis, W2JKD: The Ham who put Fun into the "Fun Mode"

The median age of amateur operators is getting older, so it is no surprise that the monthly list of Silent Keys continues to grow. Each of those hams undoubtedly deserves a special note. However, it is with a lot of personal sorrow that I tell you of the passing of one of ham radio's legendary repeater pioneers, George LeDoux, K1TKJ of Modesto, California.

In the late 1960s, George became transmitter supervisor for the New York City Spanish language TV station WXTV with its tower located atop the 55-story City Service building. George was an early adopter of 2-meter FM and viewed the opportunity to build a repeater atop that building as irresistible. And so, the WA2SUR repeater became a reality.

George didn't invent repeaters. That was accomplished by the late Arthur M. Gentry, W6MEP almost a decade earlier. What George did was to bring them from mere signal repeating devices to the level of an early ham radio social networking spot on 2 meter FM. He created a place where a ham could go to forget life's day-to-day drudgery for a while. And his WA2SUR repeater was among the first, if not the very first, to adopt this "let's have fun attitude." Soon, the "Sewer" as it became known, had over 500 active amateurs and wide coverage throughout

New York, Connecticut and New Jersey. However, it was affable George LeDoux's personality that spearheaded a social group of repeater users rarely paralleled before or since.

If you ventured onto 2 meters in the late 1960s and lived anywhere within 100 miles or so of Manhattan, you quickly found WA2SUR. While most other systems prided themselves on emergency preparedness or the distance they could cover, the pride for K1TKJ was in knowing he had created a place in ham radio for folks to just have fun.

Not only were their multiple layers of conversations 24 hours a day, but also picnics, parties, dinner gatherings and the like. And George oversaw it all. His voice could be heard daily, usually laughingly saying his well-known signature line: "Shut up. Shut up. Get off my frequency." If George hurled that barb your way, you knew that you had been accepted as a member of the WA2SUR family.

After leaving WXTV, George moved to California where he became the Chief Engineer of another television station. In April of 1984 he began an in-house manufacturing operation for the station to supply its own needs for a new UHF transmitter.

It was a good design and word spread. After satisfying their own needs and the needs of the other stations, George's employer decided to get out of the manufacturing business. A deal was struck in which the assets were transferred and Astre Systems Inc. was formed in July of 1986 with George LeDoux, K1TKJ, as its president.

On Sunday morning, December 28th, 2009, he was about to board a plane in San Francisco to Salt Lake City to investigate delays from one of his suppliers. He was in the waiting area at the airport when he suffered shortness of breath. Others in the waiting area tried to calm him, but he fell into unconsciousness and was not able to be revived.

George LeDoux, K1TKJ, is survived by his wife Cindy and 5 grown children. His son, George, is a partner in the Astre Systems business.

Ironically, George's daughter Christine LeDoux, a world-renowned country folk singer, had written several songs about her dad, including a somewhat prophetic one about his failing heart called *Angel you've come too soon.*

George LeDoux, K1TKJ will be missed by many, such as WA6ITF and W2JKD. "73, old friend."

HAMFESTS & SPECIAL EVENTS

INDIANA - 27th Annual Columbus, IN Amateur Radio Club Hamfest, Saturday, March 27, 8 AM - 2 PM. Bartholomew County 4H Fairgrounds, 750 West County Rd. 200S in the Community Building. Talk-in: 146.790/146.190 Contact Marion, WD9HTN at 812-342.4670.

IOWA - SWIARC Hamfest, Sat., March 6, 8 AM. McClelland Hall, 170 Mai Street, McClelland. Contact Greg, N0GR, email n0gr@arrl.net. Talk-in: 146.820-(no tone). www.k0swi.org

NEW HAMPSHIRE - Contoocook Valley Radio Club 2010 Hamfest, March 21st, 8 AM - 2 PM at the Henniker Community School, 51 Western Ave, Henniker. Talk-in 146.895-600kHz, PL:100Hz. Contact Don, N1ZIH at 603-717-2086, www.k1bke.org

TENNESSEE - 2010 Middle Tennessee Amateur Radio Society Hamfest, March 20, 8 AM - 2 PM, First Methodist Church Center, Tullahoma. Talk-In: 146.10/70. Contact KR4OJ@bellsouth.net or KE4KMG@edge.net. www.qsl.net/mtars/.

CANADA - Special Event Station VE3XR will be operating from Brampton, Ontario, Canada on March 27, from the Peel & mississauga ARC's Ham-Ex Annual Hamfest. 1300-1600z, 3.750, 7.260, 14.265 MHz, QSL direct or bureau to Jeff Richardson, VA3WSL, 36 Crawley Drive, Brampton, Ontario, Canada L6T2S1. www.ham-ex.org.

Click here to have your hamfest or special event listed!

15m Long Path to Japan During the 2009 CQ World Wide CW Contest

By Carl Luetzelschwab, K9LA

Although we're at solar minimum, the higher bands can sometimes surprise us with some interesting openings. For example, during last November's CQ World Wide CW contest (November 28 and 29), the W3LPL Multi-Multi team reported a 15m long path opening on Saturday night between midnight and 1AM (0500 to 0600 UTC Sunday morning) to JA, HL, and Southeast Asia. Let's take an in-depth look at this opening to see why it happened.

If we run VOACAP from W3LPL to Japan for 15m long path at a smoothed sunspot number of 15 (which appears to be where November 2009 will end up with the recent Cycle 24 activity), we end up with the MUF (maximum usable frequency) predictions in Table 1.

The median MUF in the second column maximizes at 0600 UTC, and that's a good indicator that something could happen

Time (UTC)	Median MUF (MHz)	MUF on 1 day of the month
0200	11.5	less than 21.0 MHz
0300	11.9	less than 21.0 MHz
0400	12.6	less than 21.0 MHz
0500	13.9	less than 21.0 MHz
0600	14.8	22.0 MHz
0700	14.3	21.2 MHz
0800	12.6	less than 21.0 MHz
0900	11.5	less than 21.0 MHz

Table 1 – W3LPL to Japan on 15m Long Path

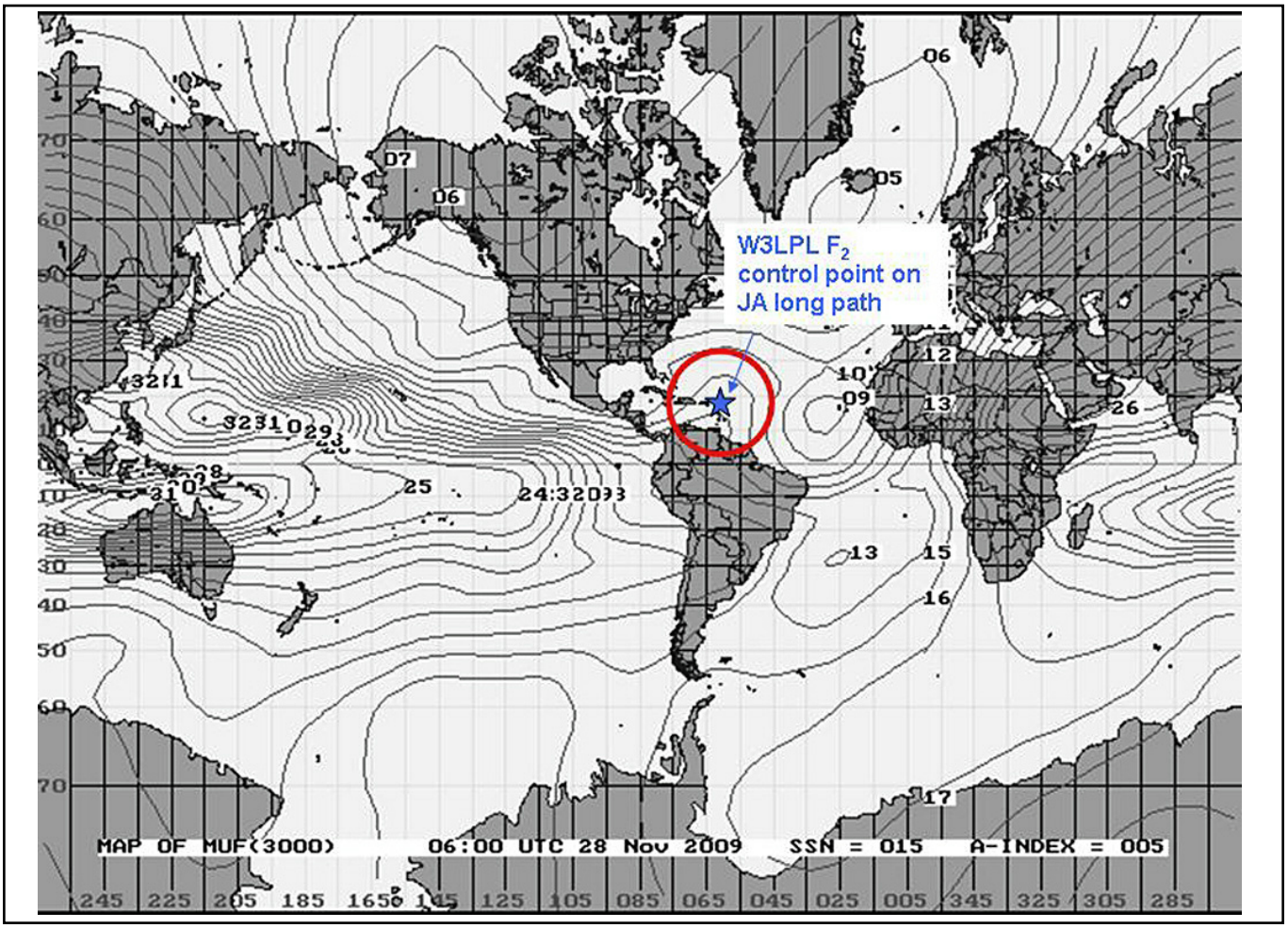


Figure 1 – F2 MUF Map with the Control Point on the W3LPL End

on this path. Since 14.8 MHz is the median MUF (implying the MUF is at least 14.8 MHz on half the days of the month), we need to estimate how high the MUF could be on just one day. We can do this by using the appropriate data in the tables of MUF variability in our ionospheric references.

This is what the third column estimates – the MUF on the "best" day of the month, which is necessarily an extremely low probability. Thus around 0600 UTC, the MUF on just one day of the month along the long path from W3LPL to JA is predicted to be as high as 22.0 MHz, which means there should be a 15m opening. Due to the day-to-day variation of the ionosphere not being well correlated to a daily solar index, we can't predict which day of the month is the "best" one. Thus it's a hit-and-miss prospect if the "best" day falls on the contest weekend. It apparently did this year for CQ World Wide CW.

To understand why this short duration and extremely low probability opening exists, we need to determine which end of the path is the critical end. Knowing that VOACAP uses the concept of a control point to predict the F2 region MUF for long distance paths (with the lowest MUF of the two control points being the path MUF), we can then look at the appropriate end of the path on our monthly median F2 region maps to see what happened. As a refresher, the control point method relies on the fact that long distance ionospheric propagation appears to be supported if propagation at the two control points is supported. For F2 propagation, these control points are 2000 km from each end of the path.

From the data in Method 1 in VOACAP, we determine that the control point on the W3LPL end (at 23.5 North latitude and 66.6 West longitude, which is in the eastern Caribbean) has the lowest MUF, which makes it the critical control point. The Median MUF data in Table 1 is for this control point. Let's look at this area on an F2 map at 0600 UTC in November at a smoothed sunspot number of 15. Figure 1 shows this map.

In Figure 1, the control point on the W3LPL end of the path is the blue star within the big red circle. With a bit of mental manipulation, we can see what's happening. There's a northeastward extension of higher MUFs that moves over the control point on the W3LPL end of the long path to Japan at 0600 UTC. It's well to the east of this control point at times significantly before 0600 UTC, and well to the west of this control point at later times.

What about the fact that W3LPL took advantage of this path earlier than 0600 UTC? That's not hard to explain, as the map of Figure 1 is a monthly median map. In other words, it's essentially an average over the month, and the day-to-day variability of the ionosphere could easily have put this northeastward extension of higher MUFs over the W3LPL control point somewhat earlier than 0600 UTC. The interesting fact to note is this northeastward extension of higher MUFs is in our monthly median maps, and thus it predicts this short duration and extremely low probability opening.

I think the most important take-away from this month's column is the understanding that there are a lot of similar short duration and extremely low probability openings waiting for us. But to take advantage of them, we need to be in the right place at the right time.

A Tale of Two Schools

By Carole Perry WB2MGP

In the past two months I've had the distinct pleasure of giving radio talks and demonstrations to two completely different types of schools, each with different demographics and unique goals.

The first school was an elementary school in Staten Island, New York; P.S. 69. I did two demonstrations there. The first group was fourth graders who were eager to try their hands at my little codekey devices. Codekeys are code practice oscillators designed for use with my "Introduction to Amateur Radio" class, which I taught full time to 6th, 7th, and 8th graders at Intermediate School 72 until my retirement five years ago.

After a demonstration of 2-meter contacts, we spoke about different modes of communications available to ham radio operators. It's always been my experience that youngsters absolutely love the Morse code part of my demos. These fourth graders were really excited about learning the letters of their names in "code." They especially liked it when I assured them that their parents and teachers, as well as their other classmates, probably did not know about this special code that they were learning. The exclusivity aspect counted for a lot.

I had to promise to come back again in order to get the codekeys back from their reluctant hands. Next in my bag of surprises was the unveiling of a 5-foot tall poster of a fully-suited astronaut with all the parts labeled. The students were so excited to hear about the astronaut/space shuttle contacts that my classes had made during the years. We spoke about space travel and communications, zero gravity, and the fun of speaking with the astronauts while they were in orbit.*

My next presentation was to a group comprised of fifth graders. These students really surprised the science coordinator, Ms. Sorrentino, and me with their intuitive remarks and questions about space travel and the use of the radio. I actually left out part of my prepared demo so that I could spend time answering the questions that interested them. I showed them a DVD of the astronauts having fun

Carole Perry with the group of P.S. 69 5th graders.

The group of AP students who responded so well to learning about careers in radio and communications.

* Links to the news coverage of the space shuttle contacts made by my classes can be found at the end of a YouTube video "Carole Perry RCA" or by going directly to:
http://www.youtube.com/watch?v=Hf839lfdO90,
http://www.youtube.com/watch?v=rHvRDLq-swk or
http://www.youtube.com/watch?v=xeU13Iv4nYM.

on board the space shuttle; playing with toys and performing tasks in zero gravity. When the bell rang, signaling the end of the period, there was a collective groan of disappointment. This, of course, was very gratifying to me, as the teacher.

I promised to come back again in a few more months to do the next level of demos to the same groups. With this level of interest and excitement, I regret there is no longer a ham radio program at the school I taught in, right across the street, to pick up all these eager students in the 6th grade. One of my goals is to get teachers in the schools I visit interested in getting their FCC licenses.

Several weeks later, I participated in a career event at Neptune High School in Neptune Township, New Jersey. Dru Reynolds from Reynolds Recruiters, along with guidance counselor, Sue Harms, sponsored the morning of introducing different specialties to the kids to get them excited about, and to consider, engineering in the future. Also sponsoring the event was the Women in Engineering group, which is part of the IEEE New Jersey Coast Section.

At this school the goal was to introduce interested high school seniors to different kinds of engineering possibilities, including careers in radio and communications. I had done a presentation at this particular high school before. Many of the seniors, along with the principal have expressed a desire to have a ham radio station set up at the school. We are working together to make sure that it becomes a reality this year.

I introduced my group to the basic electronics and technology involved with amateur radio. I gave them charts of the different class frequency privileges, along with a chart of some popular ham radio web sites to get more information. I told them about various career choices that were made by some of my former students. Many of my former students have contacted me years later to tell me of the influence that being in the ham radio program had on them.

Students in the ham radio program get exposed to a great variety of topics and situations that the average student in a classroom usually doesn't. They learn about a myriad of career and job opportunities that they might otherwise never hear about.

I was able to speak to the group about the relationship between the space program and amateur radio and provided them with lots of fact sheets and diagrams of the role of the radio in contacting the space shuttles and the International Space Station. We even had time to introduce Morse code on my code practice oscillators and to send out a group "SOS' message. What fun!

Programs like this one at Neptune High School allow the students to encounter people in different professions and to broaden their choices about future education and career opportunities.

These were two different schools with totally different agendas. They had one thing in common though; the goal of exposing youngsters to a positive, fun, and interesting experience, in this case; through ham radio.

Are You Keeping Your Resolutions?

Cheryl Muhr, NØWBV

Now that the new year is under way, how go the radio resolutions? Have you contacted the last one needed for a certain certificate? Did you upgrade after telling yourself "someday"? Have you sent out all your QSL cards so you can get some back? Hopefully the resolutions are working and you are where you want to be!

Anne Manna, WB1ARU, is one of those who took the challenge to upgrade to Extra. She has been licensed quite a while and decided it was time to move things along. Congratulations, Anne!

Ladies in the Pink!

Betty Jo Byrd, K5CSQ, writes, "I have been on HF working on the YLRL Continents, the YLRL WAS and also the YLRL DXCC awards. Nope, it is not easy, but it is a lot of fun hunting for YLs on the air. We need more of you on the air!

My OM and I purchased an IC 7600 at Dayton Hamfest. We also attended Huntsville Hamfest with our friend George Bethea, K5JZ, where I purchased a pink Heil microphone - pink for breast cancer awareness. The Southern Mississippi YLs (SMYL) participated in the CQWW from my station using the club call, KB5MZ. George, K5JZ,

set up the spectrum scope trace to the color pink and with the pink Heil mic, we were ready.

Since then, another friend, Chris, K5MOZ, dropped off pink computer interface cables. K5JZ gave me a pink Diawa SWR meter for Christmas. You can say the color pink has taken over our ham shack, which has the OM concerned! He won't talk on the pink microphone."

Thanks for the update, Betty Jo. I hope she will send photos so we can see it in full color! And don't worry Betty Jo, it might not be the pink color on the mic; my OM, John, never even owned a microphone before I got on and started stirring things up with the female voice. HI HI

Contesting, Cards and Awards

Elizabeth Anderson, VE7YL, writes, "Picked up two new countries CW just before the CQWW CW contest and received the paperwork to prove I have worked all countries, mixed. I think, maybe, I will frame this one! The bands were open during the contest, even some 10m signals - wonderful to hear. My New Year's resolution will be to learn how to contest log on the computer. If I can do it on Field Day, there isn't any reason that I can't do it at home."

Way to go, Elizabeth! Contests can be a great way to hunt and peck for special countries you need for awards. Speaking of awards and proof of contact, I am behind in my cards and need to apologize to some who are waiting for my JW cards, as I am still finishing the printing process.

Don't forget to check out the YLRL YL award for 2010. This one should be fairly quick to earn, as you just need 12 YLs: one YL with a birthday in each month. Good luck to all you contesters and paper chasers.

Don't Forget the YL Nets

There is a host of YL nets, but the band conditions may have made them hard to recognize. The YLs are still getting on both 40 and 20 meters in the General voice portions of the bands on Thursday nights 1:00 UTC or 2:00 depending on Daylight Savings Time. Check out www.ylrl.org for more nets around the world. The Canadian ladies are still listening for you on Monday nights with the CLARA net as well. Hopefully the band conditions will come back so we can actually hear each other again.

Weather and Antennas

Jacqueline Gosselin, N3ZEL, brings up a great point for many of us living with changing seasons. She says, "This is the weather that wreaks havoc on antennas. My OM has been checking on the dipole, making sure that it is still up there and not tangled in the branches of the pine trees. So far, so good, and we're hoping it hangs on until warmer weather to have maintenance done. Of course, the rule of thumb is that antenna work will be required on the coldest iciest possible day, usually in February. Let's hope that none of us will be victims of that form of Murphy's Law."

Jacque is so right. In Colorado, we get extreme seasons and almost every year we have to take down the verticals and dipoles to fix them. The metal wears and don't even get me started on the thin air and what it does to coax cables! Here's hoping you all got new antennas for the holidays and that they stay solid at least until summer.

Silent Key

Dorothy (Peggy) Stone, KB7SBK, became a Silent Key on November 3, 2009. Ty Kearney, W7WPF/SK, interested Peggy in ham radio. She soon got her license, upgrading to General class. She became very active in amateur radio and worked many stations, including DX. She often checked into the YL Nets.

Future Activities?

What are your radio plans for the summer? We have contests, awards/certificates to chase, the Dayton Hamvention ®, Field Day and many possible DXpeditions to hunt down or be a part of, plus the YL International Meet in Germany. Let me know what YOU are up to and as always, I hope to see you on the bands!

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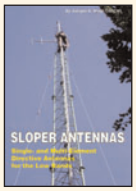
Back by Popular Demand! Some of CQ's favorite books.



Sloper Antennas

Juergen A. Weigl, OE5CWL

Shows which basic concepts have to be considered for sloper antennas for low bands. All the info needed for successful home building of these antennas!

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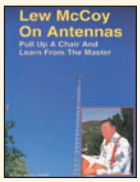

McCoy on Antennas

by Lew McCoy, W1ICP

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by Dave Ingram, K4TWJ

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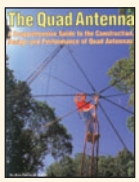

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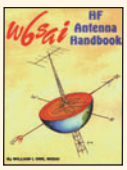

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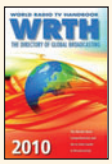

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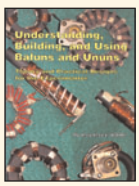

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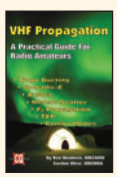

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QCWA's M.I.P.

by Dave Hayes VE3JX

This article is primarily for QCWA members, but provides information for those who want to know about QCWA's structure. This year, QCWA members vote to decide who will fill the necessary organizational positions within their association. Up for grabs bi-annually are all the elected Executive Offices and Directorships. The elected executives consist of President, Vice President, Secretary and Treasurer. Also chosen are eight non-geographically based directors. Therefore, each member will choose from the slate of candidates presented; up to twelve persons to take the lead in looking after QCWA's interests.

Identifying the MIP (Most Important Person) in QCWA

A question that might be asked at this juncture is: Which position is the most important for the success of our Association? By reviewing the major assignments, we will identify the MIP. We'll use the masculine pronoun for simplicity's sake. Please understand that it also includes ladies. Material from QCWA's Constitution & By-Laws is used.

The first MIP we might think of is the **General Manager**. This position is not an elected one, nor does he have a board vote. He is more of an employee or contractor looking after all the day-to-day operational and administrative functions of QCWA; a full-time, paid position for running the headquarters office. The necessary tasks include processing membership applications, verifying new applicant eligibility, filling member supply requests, producing milestone recognition certificates, collecting and banking revenues received from new and renewal memberships and supplies orders, keeping all records, performing duties associated with the QCWA Journal and its distribution, ballot mailing, etc. Would this be the MIP we're looking for?

Our QCWA **President** is the most visible of all positions. He is not just a figurehead, but has a myriad of functions to perform. He presides at all membership meetings, as well as board meetings, possessing a vote on the board (as do all executive members). He oversees the carrying out of all mandates and directives established by the Board of Directors, and he is also the one who appoints the various committees needed for the smooth running of QCWA, as per the board's authorization. He calls special meetings as required, and he sits on some of the Standing Committees as an advisor. Is he perhaps QCWA's Most Important Position?

Then there is the **Vice President**. The VP has various duties associated with positions on committees as assigned. He also has to be ready and able to seamlessly take over the President's job if that person is no longer able to continue in that capacity, temporarily or permanently. Could he be our MIP?

Every organization needs someone to record all proceedings of the board, i.e. the minutes of board meetings. *("If it's not written down, it didn't happen.")* That is the job of the **Secretary**. He is also responsible for distributing those minutes to all board members, as well as to the membership by way of a summary posted in the *QCWA Journal*. He also maintains and updates the *Director's Guide*, and he maintains the corporate status of the association by filing all necessary reports and documents with the proper authorities. Very important functions these, but is he our MIP?

An association needs money to function; the QCWA is no different. The **Treasurer** is the position in charge of the responsible handling of QCWA's financial assets. Like all executive positions, he falls under the collective authority of the Board of Directors. He is the one who prepares the proposed operating budget for submission to the Finance Committee, and to the board itself, prior to the annual board meeting. In short, he tries to ensure the financial good health of QCWA. MIP?

Notwithstanding the importance of each of the above, the **Directors**, as a group, determine how things are run in QCWA, i.e. the policies of the organization. The Executives carry out the policies established by the Directors. It is the current policy of QCWA that all Standing Committees be chaired by a Director, and that all Directors must participate in the committee governance of QCWA. Theirs is not an idle position, and since policies are conceived and overseen at the committee level, subject to board approval, they have a very important role to play. Could the standing of Most Important Position belong to them?

The answer, of course, is "No." None of the above can be considered the MIP of QCWA. The MIP's identification lies in the direction of all the work and volunteer service provided by the above positions, and by all volunteers within our organization. All these tasks are done for . . . you, the **QCWA Member**. In fact, all those people who have devoted their time and energy to the furtherance of our association would readily admit that they do it for you, the members. It is also the individual members who select the individuals that they want to be in the various positions of responsibility and service. And finally, it is the QCWA Membership who finances our organization through

their dues. You, as a **QCWA Member**, hold the **Most Important Position** in QCWA.

Responsibilities of MIP

We've identified many of the duties and requirements of the Executive and Directors. What about the member? Does he or she have any responsibilities towards the smooth functioning and operation of QCWA? The answer is: Yes.

While the performance or non-performance of Members is not policed as it is for the above positions of oversight, there are important things that a member can do to ensure that QCWA is the organization that he or she wants it to be.

First are the bi-annual choices that each member gets to make with respect to the filling of the Executive and Director positions. This spring is the time that each member will get a ballot on which to indicate his choices for the next two-year's governance. It is a simple matter to tick off your selections and mail your ballot back. The cost is only a postage stamp. However, in order to make intelligent choices, one has to become familiar with the candidates by carefully reading their provided biosketches in the *QCWA Journal* and/or in the "Our Living Heritage" section of QCWA's website. One can also examine their past records by reading the annual Board meeting minutes, as well as the reports made by them at the annual membership meeting. Both sets of minutes are also on QCWA's website. Then, choose the candidate(s) whom you think will do the best job with the given position(s). That is what a democratic structure is all about: making intelligent choices.

You may already be doing that and sending in your filled-out card. If you are, then you are in the minority. Last election, approximately 30% of members returned their ballots. Can we do better? Of course, we can! It is important that **all** those holding the Most Important Position take part in this basic privilege. What else can members do?

Support those chosen by this democratic process. Perhaps "your" candidate didn't win. Don't get your nose out of joint. The reality is that there is never just one person who can properly fulfill a given assignment or position. At any rate, those who take office have been chosen according to the fairest process possible. Their mandate is for two years and they need our cooperation and encouragement to make their service beneficial for us, and enjoyable for them. We need to honor and thank all our volunteers, including those elected. Anything more?

The executives and board are only part of the smooth operation of QCWA. Our association runs on volunteers. Do you have a skill, perhaps from your vocation, which would benefit QCWA? Consider volunteering some of your time and talents towards the health and prosperity of QCWA. One can start at the chapter level, helping create a healthy local group presence. The prosperity of QCWA depends upon the health and vitality of its individual chapters; they are the building blocks of our Association.

From there, one might offer assistance to the national organization, perhaps helping one of the several Standing Committees. (One example is that of Vic Culver, W4VIC, who helps oversee the production of audiotapes of the *QCWA Journal* contents for our blind members.) One's talents, when used, do not go unnoticed in a volunteer organization such as ours; they are appreciated by all of us.

Bottom line: This is a membership-driven organization, dedicated to providing a venue for enjoying one's senior (in experience) years as a radio amateur. The more each of us feels part of the process by having a share in it, the more we will all see QCWA as our "home."

Not a member yet? If you were first licensed 25 or more years ago, why not join the QCWA and fill the Most Important Position we have - a **Member** of this great group of "the Proud, the Elite and the Many.

CONTEST CORNER

CONTEST: North Carolina QSO Party
DATE & TIME: 1700Z 28 Feb - 0300Z 1 Mar
BANDS/MODE: 80-10M CW & SSB
POINTS: 2 Pts. Phone, 3 Pts. CW; 3 Pts. QSO with NC mobiles, once per County
MULTIPLIERS: NC sta's Counties/States/Provinces/DXCC; All others - NC Counties (100) + 50 pt. bonus for Cherokee or Dare Counties - 100 pt. bonus for working both!)
EXCHANGE: Call + QTH (NC stations will give County)
ENTRY CATEGORIES: Single Op; Mobile; Club (Note: All categories limited to no more than 100W; All categories subdivided by out-of-state or in-state – suggest you see the complete rules)
ENTRIES: 1 Apr NC QSO Party c/o Henry Heidtmann, W2DZO, 8812 Merry Hill Court, Lewisville, NC 27023
Logs via e-mail to: ncqp@windstream.net (most formats accepted);
Rules at: www.w4nc.com/2010ncqsoparty.html

CONTEST: Idaho QSO Party
DATE & TIME: 1900Z 1 Mar - 1900Z 2 Mar
BANDS/MODE: 40-10M CW/SSB/Digi
POINTS: 1 Pt. SSB; 2 Pts. CW/Digi;
MULTIPLIERS: ID sta's States/Provinces/DXCC; All Others - ID Counties
EXCHANGE: ID sta's give RST + County; All others give RST + State/Province/Country
ENTRY CATEGORIES: Single Op; Multi Op; Multi-Multi; Rover (includes out-of-state); School; All categories - QRP <5W, Low 5-150W, High >150W;
ENTRIES: 30 days Cabrillo to: idqplogs@msn.com
(example is at: www.kkn.net/~trey/cabrillo/neqp.txt
Rules at: www.nx7tt.com/main_page_link/rules.htm

CONTEST: ARRL International DX
DATE & TIME: 0000Z 6 Mar - 2359Z 7 Mar
BANDS/MODE: 160-10M SSB
POINTS: 3 Pts. W/VE sta's to DX; 3 Pts. DX to W/VE sta's
MULTIPLIERS: W/VE sta's = DXCC per band; DX = states + DC + CA Provinces/Territories
EXCHANGE: W/VE sta's give RST + State/Province/Territory; DX gives RST + power
ENTRY CATEGORIES: Single Op - Single Band, All Band, Unlimited; QRP, Low, High; Assisted; Multi Op - Single XMTR, Two XMTRs, multi XMTRs
ENTRIES: 5 Apr. ARRL 225 Main St., Newington, CT 06111
Cabrillo (preferred) to: dxphone@arrl.org
Web page: www.arrl.org/contests
Rules at: www.arrl.org/contests/rules/2010/intldx.html

CONTEST: Wake-Up! QRP Sprint
DATE & TIME: 0400-0600Z 6 Mar.
BANDS/MODE: 40 & 20M CW
POINTS: 1 Pt. each kilometer between sta's
MULTIPLIERS: Each band, each sta. - 2 Pts. per sta. maximum!
EXCHANGE: RST + Serial #
ENTRY CATEGORIES: Single Op only, QRP!
ENTRIES: 7 Days Cabrillo to ru-qrp-club@mail.ru
Rules at: http://lists.stevens.com/pipermail/hqrp/2009/001491.html

CONTEST: AGCW QRP
DATE & TIME: 1400-20000Z 13 Mar
BANDS/MODE: 80-10M CW
POINTS: 0 Pts. QRO-QRO; QRP-QRP, 2 Pts. All other QSO's; 3 Pts. QRP-VLP, VLP-QRP, VLP-VLP;
MULTIPLIERS: 1 per AGCW member QSO per band
EXCHANGE: RST + Serial # + category + AGCW member number (non-members give "NM")
ENTRY CATEGORIES: Single Op only! VLP = <1W; QRP = >5W; MP = <25W; QRO = >25W
ENTRIES: 31 Mar. Edmund Ramm, DK3UZ Anderheitsallee 24, Bramfeld, D-22175 Hamburg, Germany
E-mail: (ASCII) qrp-test@agcw.de

CONTEST: HF Gridsquare Sprint
DATE & TIME: 1501800Z 13 Mar
BANDS/MODE: 160-10M CW
POINTS: 2 Pts. Non-Member, Same Continent: 4 Pts., Non-Member, Different Continent; 5 Pts. Member QSO
MULTIPLIERS: <55mW X20; 55-250mW X 15; 250mW - 1W X 10; 1-5W X 7; >5W X 1
EXCHANGE: RST + Gridsquare (4-digit) + ARCI member # (non-members give power output)
ENTRY CATEGORIES: Single Op – All Band, Single Band, High Bands (20/15/10M), Low Bands (160/40/80M)
ENTRIES: 13 April Jeff Hetherington, VA3JFF, 139 Elizabeth St. W., Welland, Ontario, Canada L3C 4M3
E-mail (Plain text with summary): contest@qrparci.org
Rules at: www.qrparci.org/content/view/8346/118/

CONTEST: North American Sprint
DATE & TIME: 0000-0400Z 14 Mar
BANDS/MODE: 80/40/20M RTTY
POINTS: 1 Pt.
MULTIPLIERS: States/CA Provinces/NA Countries (Countries outside NA count QSO points only!)
EXCHANGE: Both calls + serial # + name + state/province/country
ENTRY CATEGORIES: Single Op - High; Single Op - Low <100W; QRP <5W
ENTRIES: 7 Days! Ed Muns, WØYK P.O. Box 1877, Los Gatos, CA 95031-1877.
E-mail (Cabrillo prefered): rttysprintmgr@ncjweb.com; Rules at: www.ncjweb.com/sprintrules.php

CONTEST: Wisconsin QSO Party
DATE & TIME: 1800Z 14 Mar - 0100Z 15 Mar
BANDS/MODE: All bands 80M and up, CW & SSB
POINTS: 1 Pt. SSB, 2 Pts. CW (Note: power level multiplier to get contact points - X 2, QRP; x 1.5, Low; X 1.0 High)
MULTIPLIERS: WI sta's = Counties (72 possible)/States/Provinces (Note: DXCC count for QSO points only, not multiplier!); All Others = Counties
EXCHANGE: WI sta's give County; All others give State/Province/Country
ENTRY CATEGORIES: single Op - Fixed, Mobile, Tech or Novice; Multi Op - Fixed, Mobile, Tech; Multi XMTR fixed, Multi XMTR Mobile; All categories: QRP <5W, Low 5-150W, High >150W
ENTRIES: 17 Apr Wisconsin QSO Party, West Allis RAC, P.O. Box 1072 Milwaukee, WI 53201
Electronic logs to: n9kr@tds.net
Rules: www.warac.org/wqp/wqp.htm

CONTEST: 10-10 International Mobile
DATE & TIME: 0000-2359Z 20 Mar.
BANDS/MODE: 10M SSB/CW
POINTS: 1 Pt. per QSO (non-member); 2 Pts. per QSO (Member), (2 Pts. if you are on a county line!)
MULTIPLIERS: Fixed sta's - X counties contacted; Mobile sta's - X different counties + number of counties worked from!
EXCHANGE: Name + State + 10-10 # + county (Non-members welcome, too!)
ENTRY CATEGORIES: Single Op only
ENTRIES: 3 April Dan Morris, KZ3T, 131 Valencia Ln., Statesville, NC 28625
Rules at: www.ten-ten.org/Forms/QSOPartyRulesRevised.pdf

CONTEST: Virginia QSO Party
DATE & TIME: 1800Z 20 Mar - 0100Z 22 Mar
BANDS/MODE: 160M - 440 MHz
POINTS: 1 Pt. SSB, 2 Pts. CW & Digi; 3 pts. VA mobile; 500 Pts. QSO with K4NVA
MULTIPLIERS: VA's sta's Counties(95)/Independent Cities (39)/States/Provinces/Countries; All others = VA Counties/Independent Cities + 100 Pt. bonus for working K4NVA

EXCHANGE: VA sta's give County or Independent City; All others give State/Province/Country
ENTRY CATEGORIES: Single Op; Multi Op, Single XMTR; Multi Op, Multi XMTR's; All Categories - QRP <5@; Low 5-150W; High >150W
ENTRIES: 15 Apr VA QSO Party, Call Box 599, Sterling, VA 20167
Electronic logs to: vqp@verizon.net. Rules at: www.qsl.net/sterling/VA_QSO_Party/2010_VQP/2010_VQP_Rules.html

CONTEST: Run for the Bacon
DATE & TIME: 0100-0300Z 21 Mar
BANDS/MODE: 80-10M CW
POINTS: 1 Pt. non-member QSO; 3 Pts. FP member; 5 Pts. FP DX member
MULTIPLIERS: States/Provinces/Countries
(X 2 if more than 50 members worked)
EXCHANGE: RST + State/Province/Country + FP #;
(non-members give power)
ENTRY CATEGORIES: Single band; All band
ENTRIES: Logs submitted by online "AUTOLOG link, only!
See web page: www.fpqrp.com/fpqrprun.php

Contest: SKCC Straight Key Sprint
Date & Time: 0000-0200Z 24 Mar
Bands/Mode: 160-6M CW
Points: 1 Pt per QSO, per band
Multipliers: States/Provinces/DXCC
Exchange: RST + QTH + Name + SKCC # (if a member of SKCC)
Entry Categories: Not given
Entries: 3 Days - Online submission via score sheet at:
www.skccgroup.com/sprint/sks/sks-submit.html
Rules at: http://www.skccgroup.com/sprint/sks/

CONTEST: CQ WW WPX
DATE & TIME: 0000Z 27 Mar - 2359Z 28 Mar
BANDS/MODE: 160-10M SSB
POINTS: 1 Pt. QSO same country; 1 Pt. Different Country, Same Continent, 20/15/10M; 2 Pts. Different Country, Same Continent, 160/80/40M; 3 Pts. Other continents 20/15/10M; 6 Pts. Other Continents, 160/80/40M; 2 Pts. NA sta's (same continent), 20/15/10M; NA sta's (same continent), 4 Pts. 160/80/40M
MULTIPLIERS: Prefixes
EXCHANGE: RS + serial #
ENTRY CATEGORIES: Rookie; Single Op - Single Band, QRP (<5W), Low (<100W), High, Triband/Single Element; Single Op - All Band, QRP, Low, High, Triband/Single Element; Multi Op; Single-op, assisted; Multi Op, Single XMTR; Multi Op - 2 XMTR's; Multi Op - Multi XMTR's
ENTRIES: 25 April CQ WPX Contest 25 Newbridge Road Hicksville, NY 11801 Cabrillo (preferred) to: ssb@cqwpx.com;
Forms and rules at: www.cqwpx.com

DX Predictions

MARCH 2010

Maximum usable frequency from West Coast, Central U.S. and East Coast (courtesy of Engineering Systems Inc., Box 1934, Middleburg, VA 20118). The numbers listed in each section are the average maximum usable frequencies (MUF) in MHz for contacting five major areas of the world centered on Africa-Kenya/Nairobi, Asia-Japan/Toyko, Oceania-Australia/Melbourne, Europe-Germany/Frankfurt, and South America-Brazil/Rio de Janerio. Smoothed sunspot number = 6.

*Chance of contact as determined by path loss is i ndicated as bold ***MUF** for good, plain MUF for fair, and in (parenthesis) for poor. UTC is hours.*

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SA
10	(9)	9	***16**	(8)	***14**
12	(14)	8	***14**	(8)	(12)
14	20	8	***12**	15	21
16	22	11	***15**	17	***26**
18	***23**	(10)	(12)	16	***28**
20	22	***18**	20	(13)	***28**
22	19	***20**	25	(9)	***28**
24	16	***19**	***28**	(9)	***27**
2	***14**	***18**	***29**	8	***22**
4	11	15	26	8	***19**
6	(10)	11	***23**	***9**	***16**
8	(10)	***10**	***19**	(8)	***14**

CENTRAL U.S.A.

UTC	AFRI	ASIA	OCEA	EURO	SA
8	(10)	***8**	***17**	(8)	***14**
10	(12)	8	***15**	(8)	***14**
12	20	8	***13**	15	17
14	22	9	***17**	***17**	***24**
16	23	(8)	15	***17**	***26**
18	***24**	(8)	(12)	16	***28**
20	***22**	(15)	21	13	***28**
22	18	18	26	(9)	***28**
24	***15**	18	29	9	***27**
2	***13**	15	27	8	***22**
4	11	(10)	***24**	8	***19**
6	(10)	(9)	20	***8**	***16**

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SA
7	13	(8)	***16**	***8**	***15**
9	(13)	***8**	***14**	(11)	***12**
11	***24**	9	***13**	***16**	***16**
13	***28**	(9)	***18**	***18**	***22**
15	***28**	(8)	(16)	***18**	***25**
17	***30**	(8)	(14)	***17**	***27**
19	***24**	(11)	(18)	15	***28**
21	***20**	16	24	(10)	***28**
23	***17**	16	28	9	***27**
1	***15**	(12)	26	8	***24**
3	***13**	(9)	23	8	***20**
5	***14**	(9)	19	8	***17**

VE EXAMS

As a service to our readers, WorldRadio Online presents a feature listing of those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is two months in advance. For example, if your group is scheduling an exam for December, please have the information to us by October 1st. *World Radio Online*, VE Exams, 25 Newbridge Road, Hicksville, NY 11801. List the location (city and state), any information examinees should have (advance registration, etc.) and the name of the person to contact for further information. Examinees should bring their original license (along with a photo copy), two forms of identification (at least one should be a photo), and required fee.

p/r pref. = pre-register preferred but w/i OK
p/r = pre-registration only-no w/i
w/i = walk-in only
w/i pref. = w/i preferred to p/r

CITY	DATE	CONTACT	NOTES
ARIZONA			
Mesa	3rd Mon	Steve KY7W, 480-804-1469, kj7wk@cox.net	w/i
Phoenix	4th Sat	Gary Hamman, 602-996-8148, K7GH@arrl.net	
ARKANSAS			
Cabot	3rd Sun	Daryl Stout, AE5WX, 501-681-1551, ae5wx@arrl.net	
Harrison	2nd Sat	Bob, AJ5C, 870-365-3871, aj5c@cox.net	
CALIFORNIA			
Highland	3/20	Ed , WU6I, 909-864-0155, wu6i@arrl.net	p/rw/I ok
LaVerne	Last Sat	Frank, K6FW, 909-628-8661, k6fw@arrl.net	p/r
Long Beach	3rd Sat	Louise, N6ELK, 562-429-1355	p/r
Manteca/Tracy	4th Sat	David, N5FDL, 209-835-6893, n5dfl@arrl.net	p/r
Redwood City	Call	Al, WB6IMX@arrl.net, www.amateur-radio.org	w/i
Sacramento	Hotline!	916-492-6115, n6na@arrl.org	
Santa Rosa	Hotline!	Hotline-Recording 707-579-9608	w/i ok
Sebastopol	Hotline!	Recording 707-579-9608	
Sunnyvale	Visit Site	Gordon, W6NW, Sv@amateur-radio.org, www.amateur-radio.org	w/i
FLORIDA			
Longwood	4th Sat	James, N4ZKT, 407-333-4245, N4zkt@bellsouth.net	
Melbourne	1st Sat	John, AA8IS@earthlink.net, 321-412-2779	w/i ok
North Port	Call	Bill Norris, KC7TSG, 941-426-0214	w/ipref.
St. Pete	Call	Mark, NP3R, 727-528-0071	w/i pref.
HAWAII			
Oahu Is.	Call	Lee, KH6BZF, 808-247-0587	p/r
IOWA			
Benton Cty	3/25	Kenneth, N0EGV, 319-223-5739, n0egv@southslope.net	w/i ok
ILLINOIS			
Bolingbrook	3rd Sat	Dale, W9KHX, 815-723-3332	w/i ok
Burr Ridge	Any Day	Argonne ARC, W9DS, 630-986-0061	p/r
Lake in the Hills	4th Sat	Jeffrey Dubin, N9MXT, 847-815-9407	
Roselle	2nd Tues	Sam, W9SFB, 630-894-0708, w9sfb@aol.com	p/r
INDIANA			
Richmond	Call	Mike, 765-439-4230, w1idx@arrl.net	w/i
South Bend	3rd Mon	Alan, NY9A, 574-232-6883	p/r
MASSACHUSETTS			
Boston	3/8	Jim Clogher, N1ICN, 617-364-4658, nlicn@arrl.net	p/r
MICHIGAN			
Garden City	Call	Ken Wardell, AB8ZD, 734-421-7730, gsnapshot@att.net	w/i ok
MINNESOTA			
Apple Valley	2nd Thur	Jim, N0OA, 612-384-7709, N0OA@arrl.net	p/r pref.
MISSISSIPPI			
Harrison Cty	1st Sat	Don, W5DJW, 228-868-5670, donw5djw@bellsouth.net	w/i ok
NEVADA			
Stagecoach	2nd Sat	Jack, AC6FU, 775-577-2637 ac6fu@arrl.net	
NORTH CAROLINA			
Fayetteville	3/20	Patricia, N4UGH, n4ughpat@aol.com, 910-584-1801	w/i
NEW JERSEY			
Bellmawr	3rd Thurs	Diane, N2LCQ, 609-227-6281	p/r
Pennington	3/20	Don, AA2F @ 609-737-1723. aa2f@arrl.net	w/i ok
Roselle	4th Sat	Gerry, AA2ZJ, 732-283-2795, aa2zj@arrl.net	
NEW YORK			
Bethpage	2nd Tues	Bob, 631-499-2214, w2ilp@optonline.net	p/r
Canandaigua	1st Wed	Squaw Island ARC, David A. Foster, 585-398-0216, D1161F@aol.com	w/i
Canandaigua	1st Wed	David Foster, 585-398-0216, www.siarc.us	w/i
Yonkers	Call	Paul, AC2T, 914-237-5589, w2yrc@hotmail.com, www.yarc.org	w/i ok
OHIO			
Cincinnati	1st Sat	Dale, KC8HJL, 513-769-0789	p/r pref
Sandusky	Call	Luther, N8HC, 419-684-7864, n8hc@arrl.net	p/r
OREGON			
Astoria	Call	AA7OA, 503-338-3333	p/r
Bend	Weds	Joe, K7SQ, 541-385-3152	p/r
Lincoln City	1st Sat	Carl, w7ii@arrl.net, 503-965-7575	w/i ok
McMinnville	Call	Mark, AC7ZQ, 503-843-3580	w/i only
Pacific City	1st Sat	Carl, W7LI@arrl.net, 503-965-7575	
Sisters	Call	Dave, N7TYO, 541-549-7831	p/r
Tigard	Call	John, KS0F, 503-626-7399	p/r
PENNSYLVANIA			
Erie	3rd Sat	Ron, KB3QBB, 814-833-6829, kb3qbb@arrl.com, www.wattsburg-wireless.us	p/r
Pittsburgh	3/13	Bob, N3LWP, 412-366-0488, n3lwp@verizon.net	w/i ok
PUERTO RICO			
San Juan	Last Sat	Hotline: 787-789-4998, prarl@prarl.org	w/i
SOUTH CAROLINA			
Charleston	3rd Wed	Robert Johnson, ae4rj@amsat.org; www.qsl.net/wa4usn/	w/i
Charleston	2nd Sat	Riley Stone, 843-832-9105, k4hyy@sc.rr.com	w/i
VIRGINIA			
Alexandria	2nd Sat	John, WZ4A, 703-971-3905, wz4a@arrl.net	w/i
Stafford	Sat	Bart, N3GQ, 540-373-4506, n3gq@arrl.net, www.qsl.net/semcomm	p/r
WASHINGTON			
Tacoma	2nd Tues	Radio Club of Tacoma, 253-759-2040, www.w7dk.org	
Vancouver	Hotline!	CCARC, 360-896-8909	p/r
Vancouver	Call	Vancouver ARC-Clark County, 360-892-5580 C. Wayne Schuler, AI9Q ai9q@arrl.net	w/i ok
WEST VIRGINIA			
Parkersburg	2nd Mon	Dana Pickens, WV8G, 304-422-6101	w/i, p/r
WISCONSIN			
Racine	1st Sat	Robert, W0WLN, 262-886-8551	w/i pref.

Add your local VE Exam information to this FREE monthly listing!
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Visit Your Local RADIO CLUB

CALIFORNIA

Fresno Amateur Radio Club - Meets 2nd Friday/monthly, 7 PM at Cedar Lanes bowling alley, Cedar and Shields in Fresno. Net Sunday at 7 PM on W6TO/R, 146.94 (-) PL 141.3hz. Tech net Wed 7 PM on W6TO/R *www.W6TO.com; W6TO@ARRL.net.* Contact Ken, WA6OIB @559-323-6753 12/10

El Dorado County Amateur Radio Club, Meets 4th Thursday/monthly, 7:15 p.m., Federated Church, Thompson Way, Placerville, CA. Net 8p.m. Tuesday 147.825-PL82.5Hz, POB 451, Placerville, CA 95667, *www.edcarc.net.* 3/10

COLORADO

Denver Radio Club (DRC) meets 3rd Wed, 7:30 p.m., St. Joseph Episcopal Church, 11202 West Jewell, Lakewood, CO. Learning/Tech sessions 6:30 p.m. Oldest club in Colorado (1917). Net Sun 8:30 p.m. 145.490 rptr.; *w0tx@arrl.net; www.w0tx.org* 4/10

HAWAII

Honolulu ARC meeting 0900 for breakfast in Jan, Mar, May, Jul, Sep and Nov at the Sizzler Restaurant at Pearl Ridge. Contact John, K1ER, 808/484-9748. 4/10

ILLINOIS

North Shore RC, *www.ns9rc.org.*, is one of Chicago's largest and most active radio clubs. Monthly meetings feature a wide variety of topies relating to amateur radio and are normally held on the second Tuesday of each month at 7:30 PM, the Heller Nature Center, 2821 Ridge Rd., Highland Park, IL. Regular weekly net is held on Thursday night at 8:00 PM on the 147.345+ (107.2) and 442.725+ (114.8) repeaters. Club's other repeaters include: 224.32- (110.9), D-Star 442.09375+ and 1292.20- voice and 1242.20 data. Club also provides licensing classes, exams and help to new hams. 11/10

VIRGINIA

Williamsburg Area Amateur Rdio Club (WAARC) meets on 2nd Tuesday of each month at 7PM at James City County Library, 7700 Croarer Rd., Williamsburg, VA. Talk-in on 146.76 (~). Contact Ken, NO4I at 757-564-7731 or *nu4i@arrl.net.* Website *www.k4rc.net* 02/11

Kurt Answers Your Questions:
1/4 vs. 1/2-Wave Vertical

Kurt N. Sterba

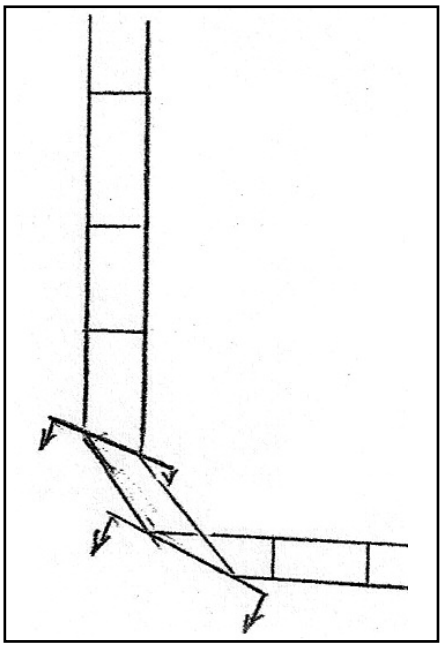
A reader asks, "I would like to know the comparative performance of a 1/4-wave vertical with reasonable radials and a 1/2-wave vertical dipole (center-fed) when the earth end of the 1/2-wave vertical is only a few feet from the earth.

Krusty Olde Kurt's opinion is that the half-wave dipole is best for DX because it has a lower radiation angle than the quarter-wave vertical, approximately 21 degrees vs. 26 degrees for the quarter-wave. On top of that, it has a narrower lobe so more of the radiated power goes out at low angles. On the minus side, you need longer radials to get this gain because the ground reflection is further out.

As a practical matter, you have to consider the frequency of operation. On 160-meters, a half-wave is about 270 feet. Putting up something that tall is not feasible for most of us. Instead, we usually use abbreviated verticals like Kurt's forty footer. It is positioned so that whatever happens, it will not fall on the nearby power lines. Top loading or "Inverted L" construction can make it electrically longer. However, by the time you get up to 40-meters the half-wave at 60 feet becomes more practical although a quarter-wave vertical is still easier to put up.

At higher frequencies both quarter-wave and half-wave verticals are easier to put up. At the same time, horizontal antennas can be erected at increasing heights (measured in wavelengths). Moreover, high dipoles can be better performers than verticals. If you are going to use verticals, it is best to live in an area with good ground conductivity.

In practice, you will find verticals best for DX at the lower frequencies and horizontal dipoles taking over at higher frequencies. There is no firm dividing line because many factors determine the best choice. Among these are ground conductivity, space available for horizontal dipoles and for the vertical's ground radials, proximity of trees and power lines, HOA restrictions, and the XYL's opinion of the looks of the installation.



Figue 1.

Short Dipole

"I have a question for the Krusty One. What is the best way to feed and match a pair of Hy-Gain 18V vertical antennas mounted horizontally like a rotatable dipole? I want to use them on 75-meters."

What you will have here is a short dipole, 36 feet long instead of a 132-foot half-wave. This means that the feed-point impedance will be lower than that of the full-size dipole. How much lower depends a lot on its height above ground. You really need to put it up and measure the SWR to find the feed-point impedance if you want to match it correctly. If you find the SWR less than 2:1 or so Kurt wouldn't worry about the match. Just put

ferrite beads over the coax at the feed point to form a balun and go with it. The transmission line loss will be negligible on 75-meters. If the SWR is high, meaning low impedance, or if you are a purist who wants 1:1 SWR on the cable, wind a Unun transformer of proper ratio to get the output impedance up to 50 ohms. See the designs in Jerry Sevick's book, *Transmission Line Transformers* (Barnes & Noble) or his *Understanding, Building & Using Baluns & Ununs* (CQ Communications). Again, use a bead balun on the coax or put a transformer balun between the Unun and the coax. This should make a good compact antenna for 75-meters.

Ladder Line

"In reference to ladder line, please advise how far the ladder line must be spaced from metal objects. And what about curves in the ladder line? Sure, they should be gradual, but what is gradual? Under 45 degrees?"

The rule of thumb for spacing is to keep the line away from conducting objects by twice the line spacing. Curves should no sharper than 45 degrees. When the transmission line comes straight down from a horizontal antenna (the preferred way), it is often necessary to turn it at right angles to enter the station. Do this as shown in the figure. This gives two 45-degree bends to add up to the desired 90 degrees, so guy wires must anchor the two long supports. The top support also holds the ladder line under light tension so it does not twist or sway in the wind.

Cobra

Earl, N7NZ, recalls seeing a description of an antenna called the "Cobra" because of its resemblance to a snake. A single length of feedline was both feedline and antenna. The coax was coiled at the bottom, then a half-wave of line stood erect at the top of which was an insulator, the "head." The coax shield was broken at the center of the vertical and the top part of the shield was connected to the center conductor.

This is identical to Krusty Olde Kurt's Resonant Feedline Dipole. The RF feeds up through the coax to the center split. There it comes out and sees a half-wave dipole formed by the two halves of the coax shield. The bottom half is ended electrically by the high impedance of the coil at the bottom. It is not easy to get a high enough impedance with the coil unless you resonate it with a capacitor so Kurt used a coil wrapped through a large ferrite toroid.

N7NZ modified the antenna by adding three lengths of twinlead connected in parallel with the two pieces of coax shield. Each twinlead had two lengths of conductor of the proper length for two amateur bands, thus adding six more resonant amateur bands to the dipole. The twinleads were wrapped loosely around the coax.

This is similar to N7JTE's horizontal 7-bander that Kurt described in a recent issue. The problems will also be the same: Difficulty getting resonance on the higher frequency bands. The close proximity of the lowest frequency dipole changes the resonant frequencies of the higher frequency dipoles. However, it can be overcome by some pruning and measuring. This also sounds like a neat multi-band antenna that truly does not need a tuner.

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