

WorldRadio

ONLINE

Year 39, Issue 4

OCTOBER 2009



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



WRC 11 Becomes WRC 12

WRC-11 is now WRC-12. The 46-nation ITU Council, which is the administrative oversight body of the International Telecommunication Union, agreed to move the next World Radiocommunication Conference to 2012.

Originally scheduled for October 24th to November 18th, 2011 in Geneva, Switzerland, the Council has proposed January 23rd to February 17th as the new dates. According to ARRL Technical Relations Manager Brennan Price, N4QX, the full ITU membership will be consulted on the change.

According to Price, the ITU Council had previously proposed dates for fall 2011, but various scheduling conflicts and the lack of available facilities made this schedule impractical (ITU)

Hamtests International To Launch In The USA

After successfully running the UK-only Hamtests.co.uk for just over three years, HamTests International is launching worldwide, starting in the US with the Technician, General and Amateur Extra license levels. Each randomly generated test will have the same question pools as real tests: 35 questions in Technician and General practice tests and 50 in amateur Extra practice tests.

HamTests International will also feature its 10 questions in 10 minutes technique. This is a quick practice designed for when you don't have the time to take a full practice test. It tests your ability to answer questions quickly and thoroughly so that you can ace the real exam on test day.

Yet another feature will allow the questions pools for US tests to be downloaded as a PDF files, which can be read by Sony eBook Readers, other ebook readers with PDF reading capability, or on a computer with any standard PDF reader.

To get an idea as to what to expect when the new HamTests International website is up and running, you can visit Hamtests.co.uk. (Southgate)

The Coldest Of The Cold

On July 2nd, the flight detectors of Planck spacecraft's High Frequency Instrument reached the amazingly low operating temperature of -273°C , and did it by radio.

The cool-down took place as the spacecraft entered its final orbit around the second LaGrange point of the Sun-Earth system. Planck is equipped with a passive cooling system that brings its temperature down to about -230°C by radiating heat into space. Three active coolers then took over to bring the temperature down further to a low of 273.05°C . That is only 0.1°C above absolute zero, which is the coldest temperature theoretically possible in our universe.

Such low temperatures are necessary for Planck's detectors to study the Cosmic Microwave Background of space. That's the so-called first light released by the universe only 380,000 years after the Big Bang that many researchers gave birth to it. It does so by measuring its temperature across the solar sky. (Space)

Thales Introduces SDR LMR Portable

The US Department of Homeland Security has picked fourteen groups from across the country to pilot an ambitious multi-band radio project in an attempt to permit all responding units to talk with one another and with incident command no matter what frequency or mode of communication they use.

Currently radios only operate within a specific frequency band. As a result, responders are often unable to communicate with other agencies and their support units that operate in different radio frequencies. Having a fully-interoperable portable that is comparable to today's single band sets was the reason that the Department of Homeland Security Science and Technology Directorate in 2008 awarded a \$6.2 million contract to Thales

Communications. Its job was to develop and demonstrate the first-ever portable radio prototype that allows emergency responders (police, firefighters, emergency medical personnel and others) communicate with partner agencies, regardless of the radio band they use.

The result of that investment by the government is the Thales Liberty software defined multi-band mobile radio, which received FCC certification in April. The prototype is capable of operating in the primary public safety bands between 136-174 MHz, 380-520 MHz as well as in the 700 MHz and 800 MHz bands. And because it is software defined, it can be reconfigured to operate in emerging spectrum that will be dedicated to emergency communications as well.

Manufactured in the United States, the Liberty radio is the first multi-band portable designed specifically for government agencies and first responders. While it can be programmed to operate across the 2 meter ham band, don't look for very many of them to show up on your local repeater. They are priced at a hefty \$4,000 to \$6,000, each. (Press release)

DX Cluster On Twitter

GB7MBC, one of Europe's busiest DX Clusters, is now on the Twitter social networking system. Postings provide such things as DX news, contests news and solar information. To follow GB7MBC on Twitter, just go to twitter.com/GB7MBC and add it to your list of 'tweets'.

With the growing popularity of ham radio on Twitter, it is very likely that many other activities like radio club bulletins will be soon showing up there as tweets as well. More information on Twitter is at www.twitter.com. (G0YLM)

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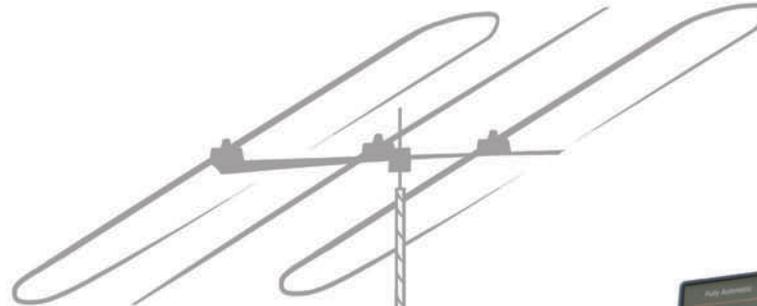
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ON THE COVER: The SeaPac convention's special event station, W1AW/7, was available for guest operators and new licensees were able to earn a certificate for operating the station.



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We need your help!

It's been nine months since *WorldRadio Online* first appeared on the internet and I am still receiving emails from people bemoaning the death of *WorldRadio*, how much they miss the columnists and the friendly tone of the magazine. When I answer their letters and explain that (to paraphrase Mark Twain) the reports of our death have been greatly exaggerated, they are surprised and said they hadn't heard. Incredibly, some of them were *WorldRadio* lifetime subscribers and now have CQ mailed to them. When I asked about that, they assumed it was just a glitch, which they weren't going to report in case it stopped – they didn't associate it with the acquisition of *WorldRadio* by CQ Publications.

Over the months, we've had notices in the news services like *Amateur Radio Newsline*® and QRZ.com, and have run full-page notices in both *WorldRadio* and CQ magazines in an attempt to get the word out.

Here is where you come in – I bet you know some hams who have just assumed that *WorldRadio* went away instead of changing into *WorldRadio Online*. At an upcoming club meeting, how about suggesting your club submit a club profile for *WorldRadio Online*? If you have a Public Information Officer, enlist their help – if not, get a group together over coffee and put together a little story about your club and its membership. Take a digital camera to a club meeting or activity and include some .jpg photographs. Not only will it give some free publicity to your club, it will help spread the word that *WorldRadio Online* is available online and best of all...free! If the club is actively participating in a special project, feature that and enter it in the Golden Megaphone Contest while you are at it. Click here to view details about the Golden Megaphone Contest (view this information anytime via the link on the *WorldRadio Online* Welcome Page).

Are you working on an antenna project, or going on a DXpedition on mini-DXpedition? Is there an Old-Timer whom you feel deserves special recognition? How about a ham who helped someone by doing an especially good deed? Did you have a tower party? Our regular readers know that people-oriented stories are our specialty. After all, it's hams who make the hobby what it is, not just contest scores or DXCC totals (although those are fun, too!).

If you are hesitant to send in an article because your writing skills are rusty, fear not. We have people who will fix it. We will spiff it up and make you sound like Hemingway. Well, maybe not Hemingway, but it won't be anything that embarrasses you. Photographs are best in digital format, but if you don't have a digital camera, send the printed photo with an SASE and we'll return it to you after we scan it.

Most importantly, please help us spread the word that *WorldRadio* is still here, just with a new name. We have the same columnists, same editor, and same friendly format. Even better, access to it is free and most of the "bugs" with the downloading and on-line reading have been fixed.

We miss our old readers whom I am sure will be happy to know we are still around. I know there many who aren't computer savvy enough to check a search engine, so if you can help spread the word at your local club meetings, on the air, or wherever hams gather, we'd appreciate it. My inbox isn't nearly as full as it was when we were a printed magazine, and I miss hearing from you guys. So please help spread the word and let's get those cards, letters, and emails flowing again!

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The #1 Line of Autotuners

NEW! Z-100Plus



Small and simple to use, the Z-100Plus sports 2000 memories that store both frequency and tuning parameters. It will run on any voltage source from 7 to 18 volts; six AA batteries will run it for a year of normal use. Current draw while tuning is less than 100ma. The Z-100Plus now includes an internal frequency counter so the operating frequency is stored with tuning parameters to make memory tunes a blazingly fast 0.1 seconds; full tunes take an average of only 6 seconds. **Suggested Price \$159.99**

NEW! Z-817



The ultimate autotuner for QRP radios including the Yaesu FT-817(D). 2000 memories cover 160 through 6 meters. The Z-817 will also function as a general purpose antenna tuner with other QRP radios. Powered by four AA internal Alkaline batteries (not included), no additional cables required. A coax jumper cable is also included for fast hook up. **Suggested Price \$129.99**

Z-11Pro



The Z-11Pro, designed from the ground up for battery operation. Only 5" x 7.7" x 1.5", and weighing only 1.5 pounds, it handles 0.1 to 125 watts, making it ideal for both QRP and standard 100 watt transceivers from 160 - 6 meters. With an optional LDG balun, it will also match longwires or antennas fed with ladder-line. All cables included. **Suggested Price \$179**

AT-100Pro



Covers all frequencies from 1.8 - 54 MHz (including 6 meters), and will automatically match your antenna in no time. It features a two-position antenna switch, allowing you to switch instantly between two antennas. The AT-100Pro requires just 1 watt for operation, but will handle up to 125 watts. All cables included. **Suggested Price \$219**



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NEW! IT-100



Matched in size to the IC-7000 and IC-706, the IT-100 sports a front panel push-button for either manual or automatic tunes, and status LEDs so you'll know what's going on inside. You can control the IT-100 and its 2000 memories from either its own button or the Tune button on your IC-7000 or other Icom rigs. It's the perfect complement to your Icom radio that is AH3 or AH-4 compatible. **Suggested Price \$179.99**

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NEW! YT-100



An autotuner for several popular Yaesu Radios. An included cable interfaces with your FT-857, FT-897 and FT-100 (and all D models) making it an integrated tuner, powered by the interface. Just press the tune button on the tuner, and everything else happens automatically: mode and power are set, a tune cycle runs, and the radio is returned to its original settings. It's the perfect complement to your Yaesu radio. **Suggested Price \$199.99**

AT-200Pro



The AT-200 features LDG's new "3-D memory system" allowing up to eight antenna settings to be stored for each frequency. Handles up to 250 watts SSB or CW on 1.8 - 30 MHz, and 100 watts on 54 MHz (including 6 meters). Rugged and easy-to-read LED bar graphs show power and SWR, and a function key on the front panel allows you to access data such as mode and status. All cables included. **Suggested Price \$249**

AT-1000Pro



The AT-1000Pro has an Automode that automatically starts a tuning cycle when the SWR exceeds a limit you set. Operates at any power level between 5 and 1,000 watts peak. RF Relay protection software prevents tuning at greater than 125 watts. Tunes from 1.8 to 54.0 MHz (inc. 6 meters), with tuning time usually under 4 seconds, transmitting near a frequency with stored tuning parameters, under 0.2 seconds. 2000 memories. 2 Antenna connections. All cables included. **Suggested Price \$599**

See
AT-1000Pro Review
in Nov. '08 CQ

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Playing New Tricks on Old Friends

By Henryk Kotowski, SM0JHF

This story is true. Its purpose is to inspire others to follow in my steps.

While visiting Poland one week before Easter 2009, I wanted to make at least a few contacts during the SP DX Contest. I always try to participate in this contest from both sides. The sponsors of this contest and the contest committee have been doing a good job in recent years.

Staying in Warszawa, the capital city of Poland and finding a place to put a temporary antenna is not easy. In fact, there are very few active amateur radio stations in Warszawa.

It was different in the 60s when I became a ham. Many young people were experimenting with antennas and the only problem was causing television and audio interference with the neighbors. Today, antenna restrictions and the unacceptable level of broad-spectrum electrical noise hamper urban hamming.

Looking for a solution, I approached my old friend, Jack. In the 60s, he held the callsign SP5AUY and was quite active. I remember how we built a multi-element wire Yagi array for 7 MHz and he contacted stations that other local ham stations could not even hear. In the middle of the 70s, he abandoned amateur radio, but in recent years he sometimes mentions that maybe one day, when he is retired, he might try for a revival.

Jack is not retired yet and now lives a few miles out of town, in a quiet suburb on a medium-sized lot. I did not hesitate to ask him if I could set up a temporary antenna for the contest weekend. After he consulted with his wife, I received an affirmative reply.

I used a fishing pole to support a length of wire, which I connected to an automatic antenna tuner lying on the ground. Due to the limited length of control cables to the antenna tuner, I placed the transceiver near the window.

The conditions were good during the contest so I managed to make a couple of hundred contacts, including some rare DX. In the evening, I drove back to town but left everything intact, with some



Some 35 years ago Jack, SP5AUY, was quite active from his apartment in town. This photo was taken around 1974 in Warszawa, Poland. (All photographs by Henryk Kotowski, SM0JHF)



A brand new radio is on the desk and the cables for the phased vertical array are prepared by Jack, SP5AUY, in his residential suburb of Warszawa, Poland.

“After 30 years of being off the air, my friend Jack, SP5AUY, is back on the air discovering the thrills of amateur radio anew.”

straightforward instructions how to use the radio and the tuner, also the DXCC list with current prefixes. “Just in case you want to listen on the bands,” I said to Jack. This was my first trick.

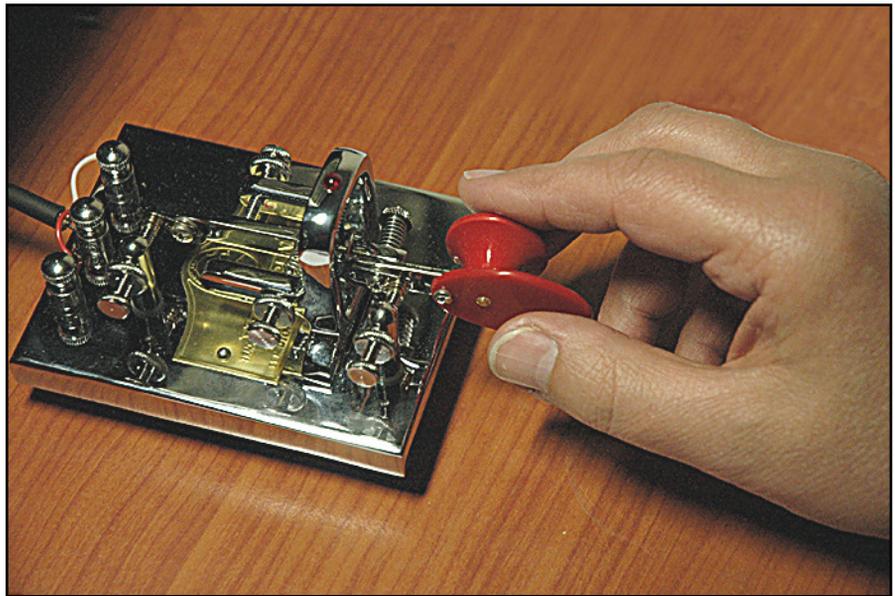
I came back on Sunday. Jack admitted that he had just spent half the night listening on 20, 40 and 80-meter bands. He was very surprised by the strength of some signals. When the contest was over on Sunday afternoon local time, I was suddenly in a hurry. “Is it OK if I come back later during the week and take down the antenna and pack my radio and accessories?” I asked Jack. This was my second trick.

During the week prior to Easter, everybody was busy. I finally called Jack on the phone and told him that I was going back to Stockholm and have to leave my belongings for a month or so. He replied, “No problem, your antenna and the radio do not disturb me.”

When I came back to Warszawa a month later, the aluminum case in which I carried my radio (Yaesu FT-450) was neatly packed. On Jack’s desk was a more impressive radio. After a couple of weeks of listening on my small FT-450, he ordered a full-size FT-950. In the meantime, he applied for a license, purchased aluminium tubing and built a quarter-wave vertical for 7 MHz in the lawn. He had a second antenna built and ready to go up. Soon, with some help, a phased-vertical array was adorning the otherwise empty lawn.

After 30 years of being off the air, my friend Jack, SP5AUY, is back on the air discovering the thrills of amateur radio anew. I don’t know whether I should have a bad conscience for tricking him into it; time will tell. Setting up a trap in the shape of an easy-to-use and modern ham radio station may not have been fair!

While it is extremely difficult to attract young people to our hobby these days, there is huge potential among the people who once were interested in amateur radio or radio in general, and now have more time to cultivate the best pastime in the world. Look around for your old friends, or see if any of your newer friends have experience of hamming in the past. They might need a helping hand to become active members of our community.



“It has been 30 years since I had a thing like this in my hand and I still know how to use it.” said Jack, SP5AUY, in 2009.

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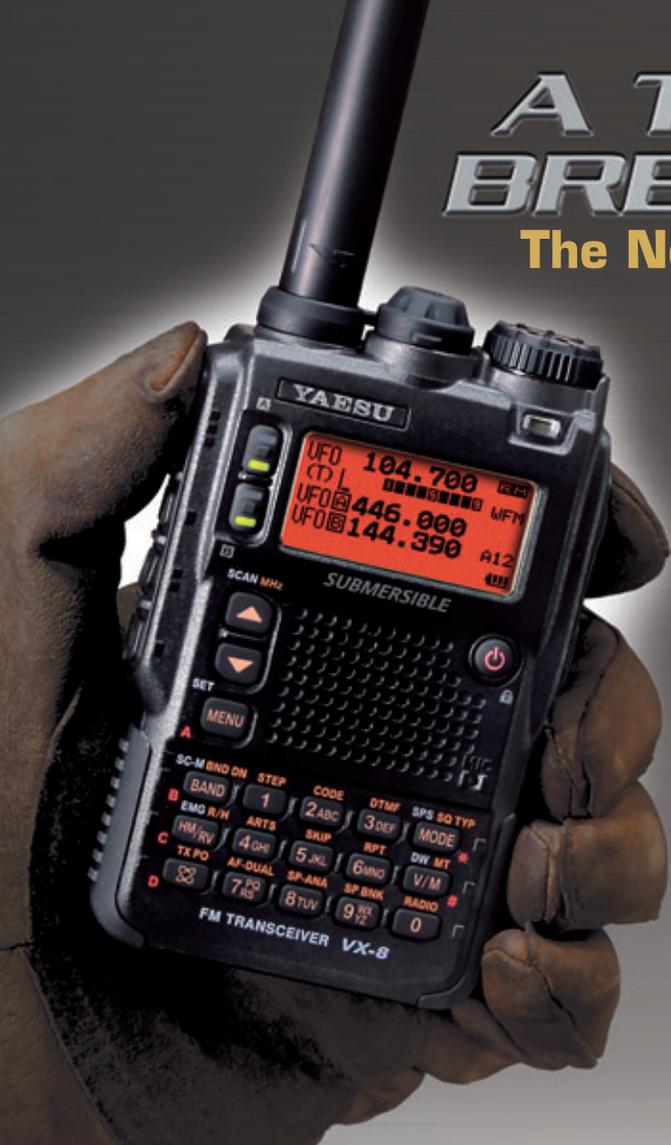
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*1 With optional accessories

*2 US Version - Cellular band blocked

*3 Assuming a duty cycle of 6-second transmit, 6-second receive, and 48-second standby (50 MHz 5 W)

* APRS® is a registered trademark of Bob Bruninga WB4APR.

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6 m/2 m/70 cm Tri-Band FM Hand held (222 MHz: 1.5 W)

VX-8R

IPX7
Submersible
3 feet (1m) for 30 min.

6 m / 2 m / 70 cm
Tri-Band

IPX7
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5 W Heavy Duty
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VX-6R 2 m / 70 cm
Dual Band

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2009 SeaPac Ham Convention

By Wayne Schuler, AI9Q

SeaPac, the northwest's largest annual ham convention, celebrated its 27th year in the beautiful Pacific coast community of Seaside, Oregon. Over 2,200 Amateur Radio operators, families and friends attended the 3-day event on June 5, 6 and 7th, 2009.

Seaside is a perfect location for a hamfest. The temperatures were in the 70s with only a little rain and wind on Friday evening. The attendance was up from previous years and the vendor and commercial spaces were sold out. Seaside has added more hotels in the last few years and fully furnished homes are available for rent. Rooms were plentiful and competitively priced.

This year in lieu of the traditional Friday workshop, an additional five free seminars were added to the schedule including "Everything you wanted to know about bats" which included a field trip to observe bats in their natural habitat. For some, this was a refreshing break from the traditional radio and electronic seminars.

Friday night, the Sunset Empire ARC and Seaside Tsunami ARS held their second annual spaghetti feed for hams and the public. SeaPac attendees received a discount to the all-you-can-eat feed. No one went away hungry. The sponsors and com-

munity provided a nice selection of door prizes. Funds generated went towards repair and upgrade of the emergency communications program in Clatsop County.

On Saturday, the convention center opened at 9 a.m. to the attendees who came to see the exhibitors, flea market arena and technical seminars. Carl Clawson, WS7L, said that the 9 a.m. VE testing was well attended and quite a few CSEs were issued for new licenses and upgrades.

Guests included the ARRL CEO, Executive Vice President and Secretary David Sumner, K1ZZ. The ARRL forum included Sumner, along with the Northwest Division Director Jim Fenstermaker, K9JF, and William Sawders, K7ZM, Northwest Division Vice Director. David Sumner is also the trustee for the League's amateur station, W1AW. SeaPac set up a special event station W1AW/7 in the lobby. New Technician licensees were invited to get the feel of HF and take home a certificate for operating the station. A display showing how HF propagation works was also at the special event station.

Throughout Saturday, fourteen seminars were presented, with topics including Antenna Modeling, D-Star and other Digital modes, DXing, Emergency Preparedness, Equipment



Special Event Station W1AW/7.



The SeaPac crowd searching out bargains and checking out the latest gear.

Building, 4-Square Antenna Construction, Ham Radio Law, Ideas for Teaching Ham Radio Classes, Portable Antennas, Software Designed Radios, Transceiver Design and many other topics of interest. Additional seminars were presented on Sunday morning.

The usual YLRL and DX buffet luncheons were held at noon Saturday in the nearby Best Western Hotel. Each luncheon had a guest speaker with a topic of interest to their group.

A contest for the design of a special commemorative souvenir SeaPac pin is held each year. This year's winner was Bill Balzarini, KL7BB. The pin he designed, along with previous year's pins, was available at the convention.

The Saturday evening no-host happy hour was followed by the annual banquet, which was emceed by Everett Curry, W6ABM. Paul VanDyck, K7VWH, and his XYL, April, provided dinner music.

After the dinner hour, which featured fresh northwest salmon or barbeque beef, ARRL guest David Sumner presented his remarks about amateur radio.

The Keynote speaker this year was veteran broadcaster Paul Linnman of Portland, Oregon's KEX radio station. Linnman is best known as the reporter who brought the world the "exploding whale" story and for featured stories on television station KATU's "Spirit of the Northwest" series. He is also a published author with two books about the exploding whale story and "Oregon Golf." Linnman presented interesting features and history of his life in the Northwest.

Carl Clawson announced that the 2008 Chuck Mickley Memorial Scholarship was awarded to Morgan Brethower,

KD7ZLL. Brethower is a freshman in Physics and Electrical Engineering at Oregon State University. He hopes to do research in optics and solid-state electronics and eventually become an astronaut.

In addition to the hourly drawings, special prize drawings were held Saturday afternoon and Sunday morning. The major prize drawings at 1 p.m. included the remaining prizes donated by area merchants and our exhibitors. Several clubs held drawings for prizes, as well. Two tri-band HTs were given during the Saturday banquet raffle. The final prizes on Sunday included early bird prizes to those who registered before the deadline, along with other major prizes, including an Icom 208H and IC-2820H dual band mobiles, Kenwood TS480SAT HF-6m radio, Yaesu FTM-10R dual band mobile, a Garmin GPS and a 42-inch LCD HDTV.

The flea market and exhibition vendors were quite pleased with the attendance. Exhibitors commented that they preferred SeaPac to other hamfests because of the personal attention given to them. SeaPac provides a crew to help unload and move equipment into the exhibition hall as well as providing an exhibitor's hospitality suite for coffee, sandwiches and snacks at no extra charge.

SeaPac is sponsored by the Oregon Tualatin Valley Amateur Radio Club and co-sponsored by the Clark County, Hoodview and Sunset Empire Amateur Radio clubs.

Next year's SeaPac convention will be held 4, 5, 6, June 2010. Information and photos of the event are on the web at www.seapac.org.



W3BE's Gettysburg Address

John B. Johnston, W3BE

This is a speech that John Johnston, W3BE, gave at the VEC Conference in Gettysburg, Pennsylvania on July 24, 2009.

Welcome to Gettysburg, volunteer-examiner coordinators. Keeping with the long-ago established protocol for an address delivered on these hallowed grounds, only this morning during the journey from Washington was this humble report jotted down on the back of an envelope.

Threescore and 15 years ago, our fathers brought forth to this continent a new Communication Act, conceived in liberty and dedicated to the proposition that our American public would benefit from the regulation of interstate and foreign communications transmitted by wire or radio. Included in that law were provisions for some very uniquely-qualified people: duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

Their purpose was to empower these amateur operators to carry out self-training, intercommunication and technical investigations. The FCC was created therewith and directed to prescribe the qualifications of radio operators, classifying them according to the duties to be performed, fixing the forms of such licenses, and issuing them to persons found to be qualified.

The FCC codified those directives into its rules: To become duly authorized, a license grant must be requested and the person must pass an examination sufficient to prove possession of the operational and technical qualifications necessary to perform properly the duties of an amateur operator.

After a half-century of preparing and administering those examinations, the FCC was further authorized to accept the voluntary and uncompensated services of amateur operators to carry out these tasks. It was directed to prescribe rules for selecting, overseeing, sanctioning and dismissing any person so accepted.

Now we are engaged in our great volunteer examiner system, testing whether our system—or any system so conceived and so dedicated—can endure. We are assembled here to confer with the FCC and to plan for the future. It is altogether fitting and proper that we should do this.

We must remember that our VEs have their unique tasks to carry out. They do a superb job.

VEs must:

- prepare each question on each pool
- prepare each question set according to instructions from their volunteer-examiner coordinator or obtain them from a supplier
- administer the examinations
- determine the correctness of the examinee's answers

We must also remember that VECs also have FCC-assigned coordination tasks to carry out.

VECs must:

- Seek a broad representation of amateur operators to be VEs
- Determine that the volunteer is competent to perform the VE functions



Representatives of our VECs meet at their annual Conference in Gettysburg, PA, on July 24, 2009.

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• Determine that no questions of the person's integrity or honesty could compromise the examinations

• Not discriminate in accrediting VEs on the basis of race, sex, religion or national origin; nor on the basis of membership in an amateur service organization; nor on the basis of the person accepting or declining to accept reimbursement

All fourteen VECs, additionally, must cooperate in maintaining one question pool for each examination element, giving assurance that there is uniformity in the questions being asked regardless of where they are administered. With these responsibilities in mind, here are my recommendations:

Make your VEC instructions to VE Teams Public

Disclose to all volunteers your conditions for VE accreditation so that they can make an informed choice when selecting the VEC to coordinate their work. Document your policies such that all VEs know what they are.

Repudiate Your Call to Make "... The Amateur Service Accessible to as Many Citizens as Possible"

Part 95 provides citizens and non-citizens alike with access to HF CB, VHF Multi-Use, and UHF Family and General Mobile Personal Radio Services. No examination is required. The license grant is usually by rule. They are domestic radio services; they are not recognized nor is spectrum allocated internationally. Experimentation is not allowed. Equipment type certification is mandatory.

Our rules Part 97, on the other hand, in addition to the Communications Act and the international Radio Regulations, say that our amateur service is for those aforementioned uniquely-qualified amateur operators. Equipment type certification is not required. Experimentation, rather, is expected and encouraged.

Do not blur the distinction between personal and amateur radio. Stand against the trivialization of our amateur service. Enable our VEs to fulfill their duties so as to allow our amateur community to achieve and uphold a reputation of high standards of legitimacy in being beneficial to the American public.

Adopt a Set of VEC Instructions to Your Question Pool Committee

You have created your QPC to carry out your obligation. Few VECS, however, have ever participated on your committee.

Become involved! Cooperate, at least, by joining with the other VECs in developing a set of instructions for your committee to follow. Because your QPC members are subject to change every year, a set of agreed-to instructions can help assure continuity and demonstrate permanence in that your considered policy is directing your question pool-maintaining process.

A noteworthy commerce has evolved for providing examination preparation services. Its practitioners, their employees and associates depend upon your question pools. It is their lifeblood. Your obligation, nevertheless, is to maintain question pools for our VEs.

Frequent revisions obviously benefit exam preparation services commerce, but the constant churning of the questions puts the examinees, VEs and instructors at a disadvantage. It renders training materials and curricula obsolete and unreasonably disrupts the distraction of exams. Do not tolerate the unnecessary revision of your question pools. Only revamp a pool when it needs updating because of rule amendments or evolving good amateur and engineering practices.

Fully Comply with the FCC Element Standards

First and foremost, a working knowledge of the pertinent FCC rules is fundamental to operating an amateur station properly. Also required is an understanding of our good amateur and good engineering practices, along with a grasp of the related technical rudiments sufficient to make those rules and practices meaningful. Keep on track! You have no rightful excuse to shape the pools to manipulate licensing trends or to facilitate commerce.

Do Not Compromise Any Question to Satisfy the Constraints of the Multiple-Choice Format

Enable our VEs to prepare, administer and grade in the format of their choice. Although it is probably the most widely administered type, that lowly-regarded multiple-choice answer format is *not an FCC rule requirement*. Unless you condition your accreditation upon the volunteer's consent to administer only multiple-choice examinations, it is not obligatory.

Heretofore, the FCC staff examiners also employed a somewhat similar no-knowledge-to-grade multiple-choice format. Holding an amateur operator license grant, however, was not in their position descriptions. The questions and answers, moreover, were not disclosed beforehand. Our

VE system cannot lay claim to any similar justification. Every VE must have passed not only the examination element that he or she is preparing or administering but also the next higher element, where there is one. Your multiple-choice format, with the exact questions and answers publicized beforehand encourages quickie short-term memorization rather than beneficial learning for the long haul.

The very first statement codified in Part 97, for example, is the basis and purpose for the rules in locations where the FCC regulates the amateur radio service. Any person seeking a license should be aware of the FCC's expectations on how he or she is to make use of the privileges conferred thereby. Your multiple-choice format question and answer character constraints, however, will not accommodate that satisfactorily. A straightforward question such as, "What is the FCC's basis and purpose for its amateur service rules?" is not answerable fully under your character constraints.

The question-preparing VE, therefore, must dumb-down the question to fit. One shortcut is to state briefly the knowledge an amateur operator needs to know and asking the examinee to identify its source. It may look like a valid question. But it falls short of being the expertise a person qualified for an FCC license must possess. That knowledge has been subjugated to the constraints of your chosen format.

Don't Take our Spectrum for Granted

We are all concerned about reports of spectrum demands for Internet services. The BPL may be only the opening shot. Congress knows of the billions that can be raised through auctions. Let's try our very best to retain our spectrum for those genuine uniquely-qualified amateur operators. If your question pools are not correct, our VEs' efforts are meaningless. Get your pools right.

The world will little note nor long remember what we say here, but it can never forget what we do here. It is for us to be dedicated to the great task remaining before us: That every person in America for whom our spectrum is allocated goes on to qualify fully for an amateur operator license and utilizes it by doing that for which it has been provided.

And our amateur radio services shall not perish from the earth.

Read the rules - Heed the rules

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

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Easy, Lightweight, Low-Impact Antenna Launching for the Field Operator

By Richard Fisher, KI6SN

Far and away, the majority of questions we get about operating in the field have to do with antennas. There are queries about which antenna to use, but lots of adventure radio enthusiasts want help on how to easily get their wires high into the trees.

Indeed, it can be a perplexing issue. After all, when you're counting ounces and square inches in the ongoing effort to keep your pack comfortable and light, there's not a lot of room for maneuvering.

As efficient as they are, slingshots, monofilament line and fishing weights can sure tip the scales – as well as adding to the backpack clutter factor.

Spud guns and bows-and-arrows of course, are pretty much out of the question. And unless you've spent a few years in the minor leagues, chances are your pitching arm might not be in quite the shape it needs to be to throw a strike over the top of that perfect pine.

Several years ago, Philip Moorey, VE3AXL, wrote to the Adventure Radio Society from Ontario, Canada that when he's heading out for some trail-friendly radio, he carries a few plastic bags used for coins or jewelry – about 2-inches by 3-inches.

When I get to my campsite, I place a handful of pebbles, or sand or even dirt into the bag. Now I tie it to my twine and sling it off to the top of the trees.

"This works well – it means I don't have to carry weights and there is always enough dirt or something that works. In winter, even a chunk of ice will work . . . I hope (this idea) makes life as easy for others as it has for me."

It's a very simple concept that – when you think about it – makes a lot of sense for the backpacker. You're hiking with a roll of twine and a collapsible bag of some kind that take up little space and add practically zilch to the total weight of your gear.

You're adding the requisite bulk and weight to the bag *after* you've arrived at your operation site. And you'll leave those pebbles or dirt or whatever at the campsite when you leave. So you're neither carrying-in the weight, nor carrying it out.

So simple, and it makes perfect sense.

The more we thought about 'AXL's idea, the more we liked it, and started thinking about refinements. There are lots of 2-inch by 3-inch bags to be found, for sure. But we wanted one that would be easy to attach to the end of our launching twine, be able to hold a variety of objects or substances for its "critical mass" and have some durability for repeated use.

The revelation came when we passed some hikers using small, canvas-style holders for their water bottles. They're common-



A bottle bag attached to the outside of your trail-friendly backpack can be used for antenna launching once you've reached your operating location in the field.

ly known as bottle bags and seemed like a good candidate for refining 'AXL's antenna launching scheme.

Slip your grocery-store-variety 16.9 fluid ounce (500 ml) plastic water bottle into the sleeve, cinch up the draw string, clip it to the outside of your backpack and you're ready to go.

Not only do you have a means for hydration during your sojourn, but at the end of the trail you've got a great vehicle for getting your antenna wires to very respectable heights – with a little practice and savvy, of course.

At KI6SN, we've used this launching method in a variety of settings and with a variety of things to create the weight and mass necessary to "tee it high and make it fly."



The plastic clip on the side of the bottle bag is an easy place to attach your antenna-launching twine – already outfitted with a non-slip bowline knot.

The bottle bag we chose was purchased at Walmart for \$2.76. But you can find similar – and perhaps even more suitable – versions at many grocery, sporting goods and outdoors stores. It's time for experimentation.

Ours is lightly insulated for keeping the water bottle cool. That extra layer adds to the bag's durability. It is about 6.75 inches long and has a diameter of about 2.75 inches.

An inch-wide, sturdily-sewn piece of fabric covers the length of the bag on one side and serves as its attachment device. Slip the bag through your belt for carrying water on your hip, or use the plastic clip and let it dangle from a loop on the outside of your backpack.

There's a nylon string threaded through the top of the bag for cinching it tightly around the top of your water bottle. It has a plastic piece that can be slid into place to keep the cinch tight.

The more we studied the bag in the aisle at Walmart, the more it seemed like a perfect candidate for 'AXL's antenna launching concept.

First, it would be a ready reminder of how important it is to carry water on trail-friendly radio excursions – no matter how unambitious they may at first seem.

Second, the bag is big enough to accommodate many different shapes and weights of objects you'll commonly find along the trail – pebbles, rocks, dirt, sticks, and so on.

Third, the stitched fabric on the side of the bag gives the field

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operator several options for attaching his launching twine: use the ready-made belt loop portion or the plastic hang clip.

Fourth, the cinch string is perfect for keeping whatever objects you've chosen inside the bag.

Fifth, you're assigning two important uses to the bag. It's the vehicle for carrying much needed water and the vehicle for getting your antenna up, up and away. This "Swiss Army knife concept" is something to keep in mind for all of your backpacking and camping gear. The more uses you can get from one item, the fewer items you'll have to carry.

So, now that we're clear on the concept, how do we make it work?

Well, after arriving at our perfect operating location and downing that delicious, sparking water, it's time to get to work. Set the empty plastic bottle aside for now.

Gather up a handful of stones or sticks or dirt or moss – whatever is most readily at hand. Now it's time to fill the bag. At KI6SN, we preemptively created a plastic sleeve to line the inner walls of the

bottle bag. It's really not necessary, but we like to keep the bag clean inside for accommodating the next water bottle. The inner liner is nothing more than a piece of bag we got at the supermarket after answering the question "paper or plastic?" and choosing the latter.

So, into the plastic sleeve go the stones, pebbles and dirt. Enough to give the bag the "oomph" necessary to fly through the air, over a branch and with enough weight to pull its attached twine to the ground.

Next, we slide the filled sleeve into the bottle bag and tightly cinch the top.

We've already tied a bowline knot loop into the end of the launching twine and simply slide that loop into the plastic clip on the bottle bag. (We could have tied the string through the belt loop portion of the bottle, bag, too. But for us, it was easier to use the clip.)

Now we've got all of the requisite parts for launching in hand: the weighted bottle bag and twine – many feet of which have been unwound from the spool so little resistance will be felt from the ground when the bag is on its trajectory.

Here's where your at-home practice sessions will have paid off. You begin swinging the bottle bag in a vertical circular motion using your "throwing arm" – using a several-foot portion of the twine as a tether. Picture one of the television cowboys spinning a lariat to his side from the top of his horse during a cattle drive and you'll get the idea.

When you've reached a suitable launching speed, release the twine after you've aimed the trajectory angle to that perfect high branch. After the bottle bag has crossed over the branch, you watch as the weight pulls the twine to the ground. You might need to employ a bit of give-and-take tugging to nurse it down.

After you've gotten the twine fully draped over the branch – with one end of the string on the ground on one side, and the other end of the string on the ground on the opposite side – it's merely a matter of detaching the bottle bag, attaching your antenna and pulling the twine back across the branch toward you. Using that lofty branch as a pulley, you hoist your wire to a most respectable height.

Oh, one note of caution: Before making your twine throw, survey the area around you and the area in which you're intending your bag to land. You don't want to hit or hurt anyone or anything around you.

After successful launch, empty the contents of your bottle bag and re-clip it to your backpack in preparation for your next excursion.

Can antenna launching get simpler than that? We don't think so, but please let us know if you've got a better idea. Write: KI6SN@aol.com

National Wildlife Refuge Week on the Trail

Brad Farrell, K4RT, writes from Alexandria, VA to say that trail-friendly radio operators might want to consider taking to the field during this month's National Wildlife Refuge Week, Oct. 12 through 18. For details, visit: <http://www.nwrweek-radio.info/>

Trail-Friendly Radio Extra on the Web

For more pictures, antenna launching tips and a link to a video on how to tie a bowline know, visit Trail-Friendly Radio Extra on the Internet: <http://www.trail-friendlyradio.blogspot.com>

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DX Potpourri

Kelly Jones, N0VD

Life on the High Bands

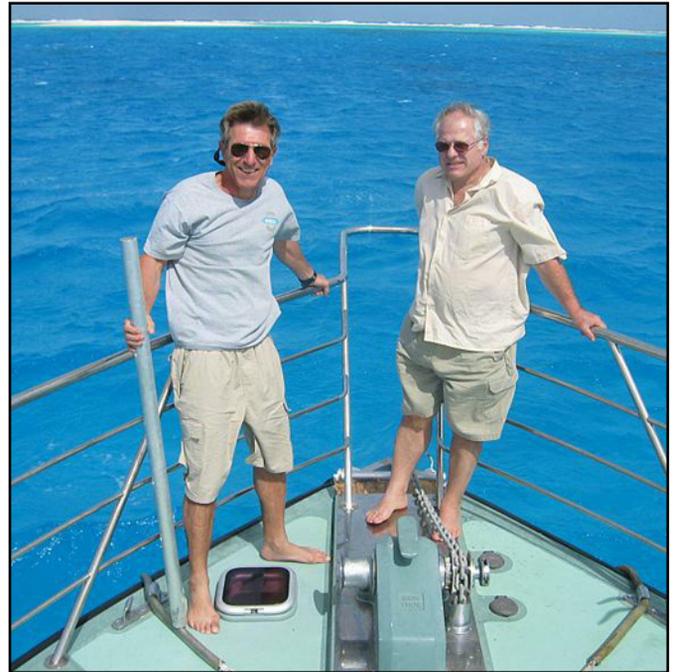
As I have mentioned in the past few months, the bands seem to be slowly waking up from the Cycle 23 doldrums and Cycle 24 appears to be rubbing its morning eyes. 20 meters has been alive with some great propagation over the pole during the local evening hours and I've even seen signs of 12 and 10 meters coming to life.

Case in point: I am regularly hearing KH6 on 12M between 02:00-04:00Z—often calling CQ with few takers. And while 10M has had plenty of E-skip over the past few months, I managed to work VK4MA one evening around 04:00Z. The interesting thing about the VK4 QSO was that he appeared to have a good signal not only at my QTH in Colorado, but he was being heard in several parts of North America. I heard a few 1s, 4s and 5s work him before I did. It was pretty amazing to see some long haul DX while at the same time copying USA stations on single and double hop E-skip. While it's possible the VK could have been a multi-hop E-skip phenomenon, it didn't feel like it—that would be a lot of hops from Colorado to VK4land. In any event, he was my first VK QSO on 10M since 12 December, 2004—that's quite a dry spell! Life is starting to pop up on the high bands, so be sure to give it a listen. And if you don't hear anybody on the band, it could be a case of everybody else listening—put out a few CQs and see what comes back. You never know what you might catch!

Who's the N0?

On occasion I'll pass along what I consider DXing tips and tricks of our trade. One of those tips is that working DX often consists of 90% listening and 10% calling. During the recent TK9X DXpedition, I found myself calling their 40M CW pile-up. While TK was not an all time new one for me on 40M CW, my logging software alerted me to the fact that I still needed a confirmation for that band/mode. So I figured I would jump in since it would likely be an easy QSL confirmation.

During the course of calling TK9X in the pileup, he began asking for "N0?" This seemed to indicate he had heard me but just needed the rest of my call—so I called again. Just as I began to call, I heard an N9 call. The DX then again sent "N0?" Again, I gave my full call and when I unkeyed I once again heard the N9 giving his call. This time TK9X sends "N0V?" Ah ha, I don't hear anybody else with that combination of letters in the pileup, so I call again—as does the N9. About this time I mumble a few words to myself, something along the lines of "N9xx he's not calling you!" However, on this over, TK9X comes back to the N9. So, now we're four exchanges in to this (non)contact and nobody has been worked yet. On top of that we've gone from "N0V?" to "N9?". I decided that I'd just let the N9 work him since this operator obviously couldn't tell the difference between "N0?" , "N0V?" and his own call. N9xx puts the QSO in the log and I manage a QSO with TK9X on the next go around.



AA7JV and HA7RY will activate Chesterfield Island in late November as TX3A.

However, this brings me to my point. If you're trying to work a DX station and he asks for a fill on a partial call, if the partial call isn't yours, DON'T CALL! This seems like it should be common sense, but calling and calling regardless of what the DX asks for (usually) won't get you in the log any faster. One thing it does for certain is lower the overall number of stations that will be worked. In my example, we had four exchanges before I decided to standby and let the N9 take the QSO. If the N9 had listened to who the DX was asking for in the first place, we could have had three other stations in the log during the same time frame. Now, I realize heated pileups can sometimes bring out the worst in all of us, but in the end, if you continue to call regardless of who the DX is asking for, you are ultimately wasting everybody's time. Therefore, remember the 90/10 rule (and know what characters are in your call)—then listen, listen, listen—and after you've listened some more, then call. Chances are you'll get in the log much quicker.

A Weekend of DX

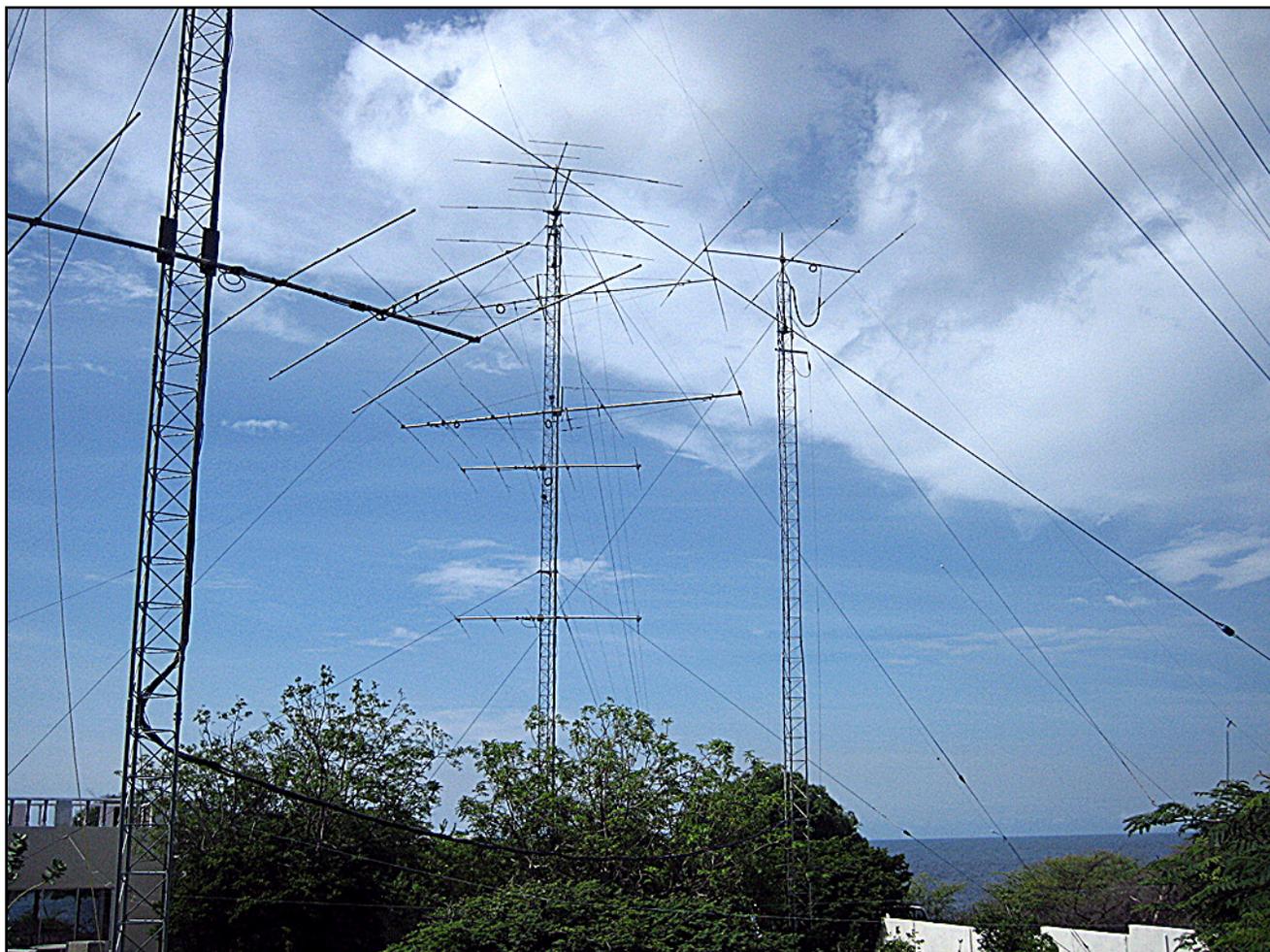
October brings cooler weather and what many consider the start of the contesting season. This is a reminder that you don't necessarily have to be a contester to work some of the great DX that shows up on the bands. In fact, the contest stations greatly appreciate the weekend DXer who is just trying to put a couple of new ones in their logs. It's actually a win-win for both sides.

You get a new country (or band country) and the contester gets a QSO point. And as a side benefit, if you're working towards DXCC, or any number of other awards, many contesters make use of Logbook of the World which typically means getting a QSL confirmation from that rare DX location is easier than traditional methods.

The "first" major DX contest of the season is the CQWW SSB which runs October 24-25 and is sure to fill the bands with exotic DX. A few DXpeditions that plan to be on the air include 6V7Q from Senegal, E20WXA from Thailand, J37K from Grenada, PZ5M from Surinam, NH0DX from the Mariana Islands and J68JA from St. Lucia. And if you happen to need the Netherland Antilles for a new one (or just to say 'hi'), I'll be part of the PJ2T team operating from the island of Curacao during the CQWW SSB contest. After the contest I'll be taking a vacation-style side trip to Bonaire where I'll operate as PJ4/N0VD until 1 November - I



J37K (AC8G) plans to be active from Grenada during the CQWW SSB contest.



The PJ2T backyard - look for them to be active during the CQWW SSB contest.

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hope to work you from both locations. So consider this your call to get on the bands and work a few of the DX stations during the upcoming contest weekends.

Chesterfield Island DXpedition

If you're a low band operator, here's a chance to put a semi-rare one in the log. George Wallner (AA7JV) and Tomi Pekarik (HA7RY) will be active as TX3A, Chesterfield Island, between 23 November and 6 December. The TX3A license is valid for only 14 days between these dates and because the actual "on-air" dates could change, they may operate as FK/AA7JV or FK/HA7RY part of the time.

These are the same operators who activated VK9GMW from Mellish Reef a few months ago. As with the Mellish operation, their plan is to focus on the low bands. Their priorities will be 160, 80 and 40 meters, in that order. However, if you are "low band challenged", they will be active on the higher bands the rest of the time. George and Tomi will use the same antenna that they used on Mellish Reef, but they have developed a new RX antenna which they hope will improve their RX capabilities.

They have set up some very specific QSL instructions, so please take note in order to ensure you receive your card.

If you are mailing direct please include \$2USD with each QSL request for up to three cards per envelope. If you send International Reply Coupons (IRCs), please make sure that they are not expired or about to expire—the expiration date can be found on the IRC. They also ask that you do not send IRCs that are valid only until end of 2009 as cards are likely to be mailed in early 2010. All QSLs are via HA7RY whose mailing address is: Tamas Pekarik, Alagi ut 15, H-2151 Fot, HUNGARY.

You may also use the "Online QSL Request Service" (OQRS) which can be found on their Web site (<http://www.TX3A.com>) once the DXpedition is over. They also state that the log will be uploaded to LoTW and eQSL after the DXpedition.

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!

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DX Predictions OCTOBER 2009

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 = 3.

Chance of contact as determined by path loss is indicated 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)	8	*14	(8)	13
12	(9)	8	*13	(7)	12
14	(18)	7	*12	15	22
16	20	9	*15	15	*26
18	22	(9)	(13)	(12)	*27
20	21	*19	19	(9)	*28
22	18	*19	24	(8)	*27
24	15	*18	26	(8)	*24
2	12	16	27	8	*20
4	11	10	*23	7	*17
6	(10)	(9)	19	*8	*15
8	(9)	8	*16	(8)	*12

CENTRAL U.S.A.

UTC	AFRI	ASIA	OCEA	EURO	SA
8	(9)	8	*14	(8)	*12
10	(9)	8	*12	(7)	*12
12	18	7	12	15	*21
14	21	8	*18	16	*24
16	22	(8)	15	15	*26
18	*22	(7)	(13)	12	*27
20	21	15	20	(9)	*28
22	18	17	24	(8)	*27
24	*12	15	26	8	*24
2	11	(10)	21	8	*20
4	10	(9)	17	7	*17
6	(9)	(8)	15	*8	*15

EAST COAST

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



W2 to ZL on 10 Meters at the End of May

By Carl Luetzelschwab, K9LA

Around the end of June I received an e-mail from Tony K2MO telling me of his QSOs around 0100 UTC on May 30 with ZL on 10m in the CQ World Wide CW WPX contest. Being at solar minimum with minimal F₂ region ionization and being near summer might lead us to believe that Es (sporadic E) had something to do with these QSOs. Let's see if we can determine if these QSOs were entirely F₂ or included some Es.

Figure 1 shows the short path from New York to New Zealand (the thick blue line) overlaid on a median MUF (maximum usable frequency) map at 0100 UTC on May 30 (from Proplab Pro V2). A review of spaceweather data for the WPX weekend indicated a quiet geomagnetic field (Ap less than 5), and a slight bump in the daily sunspot number (to about 20) and daily 10.7 cm solar flux (to about 73) due to sunspot Region 1019 (which also produced several low-level B-class flares after the WPX weekend). The median MUF contours in Figure 1 are for 3000 km F₂ hops, and assume a smoothed sunspot number of 7 (which equates to a smoothed 10.7 cm solar flux of 70).

An encouraging observation from Figure 1 is that the middle of the path is in the robust equatorial ionosphere, where the F₂ region median MUF looks like it could support 28 MHz – even at solar minimum. In fact, the signature for trans-equatorial propagation stands out clearly in Figure 1 – the areas on either side of the geomagnetic equator with high electron densities (which translate to high MUFs as seen in Figure 1).

We can see the trans-equatorial signature better in Figure 2 showing a transverse plasma frequency map (again from Proplab Pro V2) for the W2-to-ZL path. Figure 1 is looking down on the ionosphere depicting MUFs from above. Figure 2 is a side view of the ionosphere along the W2-to-ZL path and depicts plasma frequencies. To get from a plasma frequency to a MUF requires multiplying the plasma frequency by the appropriate M-Factor. For a tutorial on the

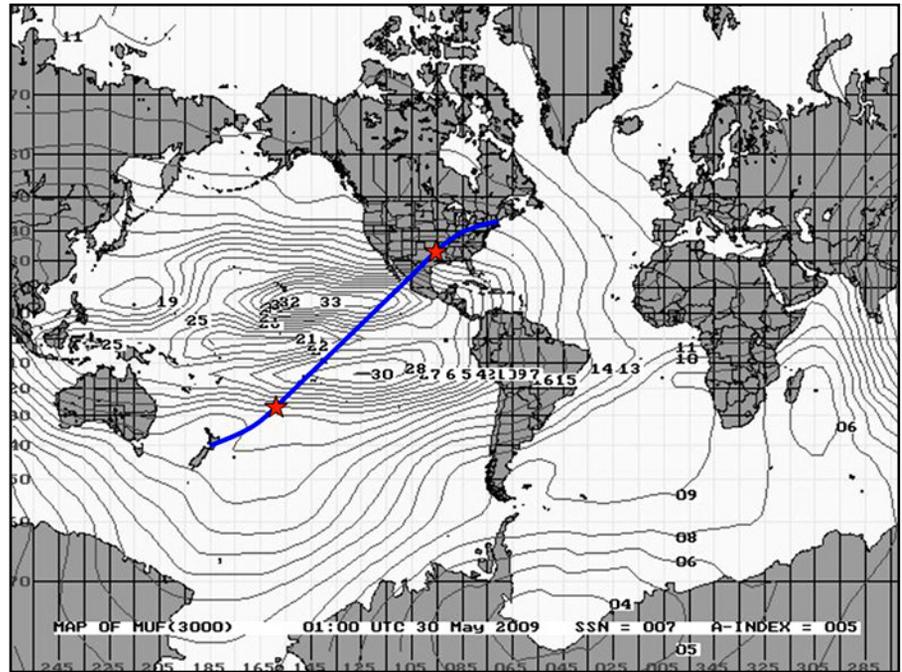


Figure 1 – Median MUF along the W2-to-ZL short path

M-Factor, visit <http://mysite.verizon.net/k9la/id10.html> and then click on the article titled The M-Factor.

Although Figure 2 is very suggestive of trans-equatorial propagation, we'll never know for sure if this QSO was helped by a long trans-equatorial hop (a chordal hop), but it is a very reasonable assumption based on the characteristics of the ionosphere seen in Figure 1 and Figure 2. Hypothetically, the chordal hop would extend from about 4000 km out of W2 to about 10,500 km out of W2, and vice versa going the other way out of ZL.

The discouraging observation from Figure 1, though, is that both ends of the path show low MUFs – these are the problem areas if we assume initial F₂ hops out of each end of the path. The F₂ region median MUFs at 2000 km from each end of the path (these are the F₂ region control points for this path – they are the red stars in Figure 1 and are annotated in Figure 2) are 21.8 MHz on the W2 end of the path and 21.7 MHz on the ZL end of the path. These values were confirmed

from VOACAP Method 1 data. Indeed, these MUFs are a problem for 28 MHz propagation.

But wait – these are monthly median MUFs centered on the May 30 date. The day-to-day variability of the F₂ region (that is, the distribution of the actual MUFs during the one-month period about the predicted median) could result in the MUF on both ends of the path being high enough to support 28 MHz on a very low number of days.

So what is the probability of the MUF at these control points being high enough for 28 MHz? That's not too difficult to determine. We can use the data in the tables of MUF variability (for example, in the International Radio Consultative Committee document titled Supplement to Report 252-2) along with the equation for determining the probability of a given MUF (also in the same document) knowing the median MUF and the variability.

Going through this exercise for our control points says the probability for the MUF being at 28.0 MHz at 0100 UTC for

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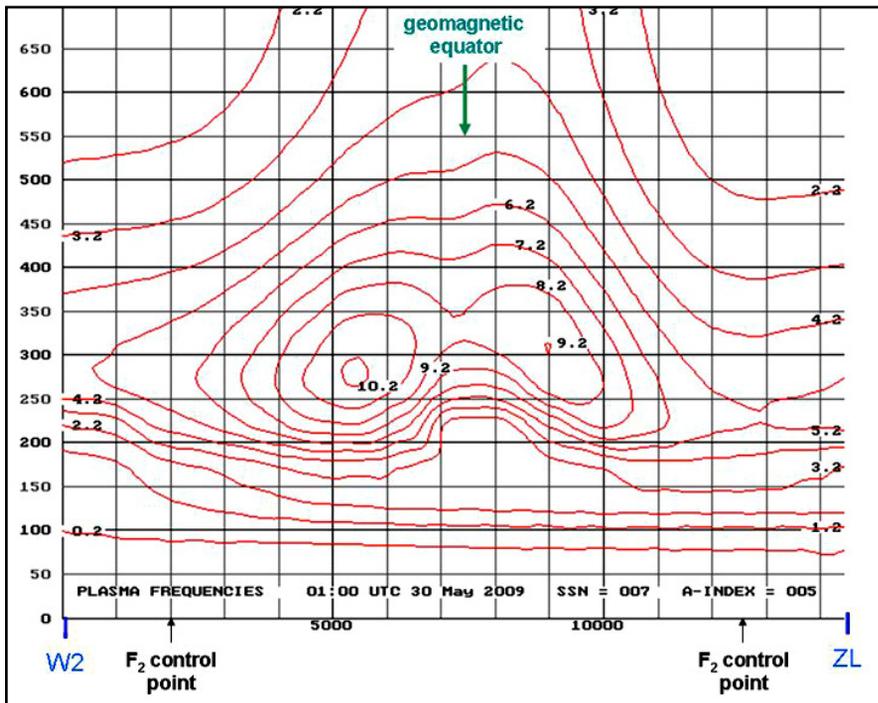


Figure 2 – Transverse plasma frequency map for the W2-to-ZL path

this path is 2.63%. That means on 2.63% of the days during the one-month period centered on May 30 the actual MUF will be as high as 28.0 MHz. Multiplying 2.63% (0.0263) times 30 days (the one-month period) gives us essentially 1 day of propagation. Thus, our understanding of the F₂ region of the ionosphere predicts that the W2-to-ZL path was open at 0100 UTC on only one day (the extremely good day) during the one-month period centered on May 30, 2009.

Note that the decimal value of 2.63% (.0263) is what is called the MUFday parameter in VOACAP.

Ok, this W2-to-ZL QSO could have happened solely due to F₂ propagation. Now let's determine if Es on both ends may have helped get to the equatorial F₂ ionosphere (we'll continue to assume that the middle of the path was via F₂). We'll review Es data from appropriate ionosondes on both ends. Ideally, we would like ionosondes at 1000 km and 3000 km from

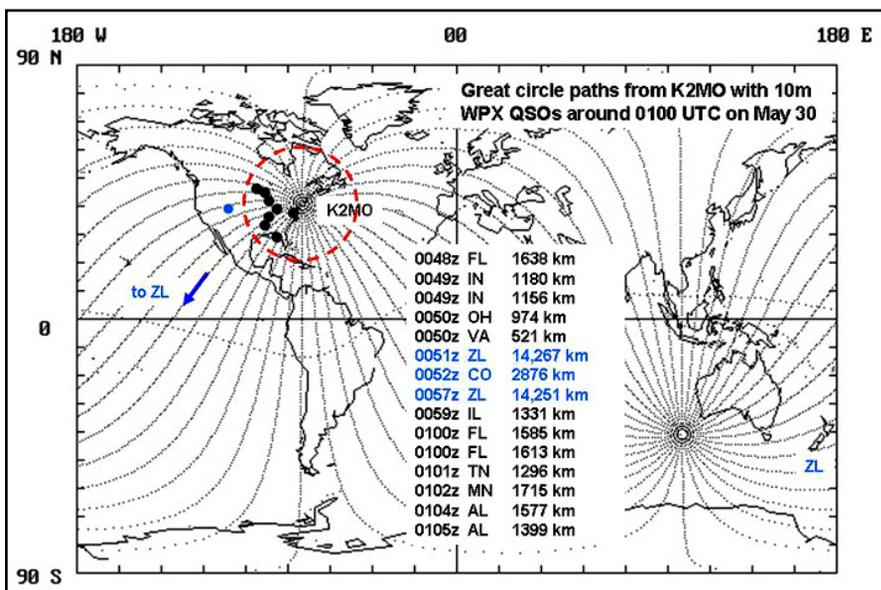


Figure 3 – K2MO 10m QSO data.

each end of the path, as this is where the midpoints of the Es hops would be to get to the F₂ region in the equatorial ionosphere. To reiterate, Es hops would be required on both ends of the path, and in fact, two Es hops would be required on each end.

Unfortunately there aren't any ionosondes exactly where we want them (this

is not too surprising), so we'll pick ionosondes that are close by these desired locations. The ionosondes at Dyess AFB in Texas, Eglin AFB in Florida, Wallops Island in Virginia, and Christchurch (New Zealand) were my first choice, but all four of these had no data for May 2009. So I settled on the following ionosondes: Boulder (Colorado), Pt. Arguello

(California), Millstone Hill (Massachusetts), and Norfolk Island (VK9N).

From plots of the ionosonde Es data, we see that the Boulder ionosonde didn't show any Es ionization at 0100 UTC plus or minus a couple hours on May 30 that was high enough for 10m propagation. The Pt. Arguello ionosonde showed a half-hour period of sufficient Es ionization a couple hours prior to 0100 UTC. The Millstone Hill ionosonde showed no sufficient Es ionization a couple hours prior to and at 0100 UTC, and had a gap in the data for a couple hours after 0100 UTC. The Norfolk Island ionosonde showed sufficient Es ionization around 0100 UTC for 10m propagation. In summary, there is a hint of Es on both ends of the path. Note that we're really strapped here by not having ionosonde data at the desired locations.

To see if we can further distinguish between F₂ and Es, let's look at K2MO's 10m log around 0100 UTC on May 30. What I'll do is plot the 10m QSOs on a great circle map centered on K2MO, along with the log data in tabular format. Figure 3 does this.

The dashed red circle centered on K2MO is a 2000 km radius, indicating the generally accepted limit of 1-hop Es. Note that all of his QSOs before the first ZL at 0051 UTC and after the second ZL at 0057 UTC (the locations of these 12 QSOs are indicated with black dots) are within this circle and suggest 1-hop Es.

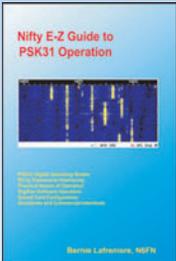
Note what is sandwiched in between the two ZL QSOs – a QSO with Colorado (the blue dot) at 2876 km. The Colorado QSO is either two-hop Es or one-hop F₂. I suspect the Colorado QSO was one-hop F₂, and that is what was needed to get to the equatorial ionosphere on K2MO's end. I suspect a similar situation existed on the ZL end of this path – one-hop F₂ to also get to the equatorial ionosphere.

So was K2MO's QSO with the ZL contesters really all F₂? Or was it Es on both ends coupled to F₂ in the middle? We have evidence that suggests either could have happened. We know an F₂ mode is a very low probability. I also believe that an Es-Es-F₂-Es-Es mode, with two Es hops required on each end, would also be a low probability – maybe even lower than the F₂ probability. Thus if I was a betting man, I'd go with the all F₂ mode for these ZL QSOs. One thing is certain here – K2MO was in the right place at the right time to take advantage of an extremely low probability propagation mode.

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Tucson Hamfest & Swap Meet - October 17th, 7 AM to noon, Kino Sports Park, 2500 E. Ajo Road (turn north at Forgeus Avenue traffic light). Sponsored by the Old Pueblo Radio Club assisted by Radio Society of Tucson. Vendors, swap meet, refreshments, VE session, ARCA meeting. TI 147.30 = (110.9 Hz).

IOWA

Southeast Iowa Hamfest October 4th, gates open 7 AM, Muscatine County Fairgrounds in West Liberty, IA. Sponsored by the Muscatine ARC and the Washington Area ARC. Indoor and outdoor vendors, license testing, door prizes, refreshments. Contact Jerry kc0wvw@arrl.net for testing information. For general hamfest/flea market space info contact Tom at n0loh@arrl.org.

NEW YORK

The Hall of Science Amateur Radio Club Hamfest - October 11th, gates open 9 AM, NY Hall of Science parking lot, Flushing Meadow Corona Park, 47011 111th Street, Queens, NY. Door prizes, drop and shop, QSL card checking, refreshments. Contact Stephen, WB2KDG 718-898-5599 (call nights only), email wb2kdg@arrl.net, www.hosarc.org.

NORTH CAROLINA

150th Anniversary Cape Lookout Lighthouse, October 10th- October 11th from 1600Z to 2200Z, the Alamance ARC will operate their club callsign K4EG from Cape Lookout Lighthouse to celebrate it's 150th Anniversary. Operation will be on 7.250, 14.265, 7.055, 14.055 MHz. QSL via Gary Hills, KA4KJI, 1931 Malone Road, Burlington, NC 27215.

Maysville Hamfest, October 11th, Community Center, Maysville, NC. Talk -in 146.685 tone 88.5. Contact K4BMH at 252-753-2895.

PENNSYLVANIA

Pittsburg Special Events Station- October 3 and 4th, 10 AM to 6 PM EST. Sponsored by Rotarians of Amateur Radio. Purpose: the public demonstration of Amateur Radio - emergency preparedness. Suggested frequencies: 7.130, 7180, 14.155, and 14.230 MHz. QSL via Bob Mente, NU3Q, 305 Ewing Road, Carnegie, PA 15106-1509, nu3q@verizon.net.

Click here for info on having your hamfest or special event listed in an upcoming issue of WRO!

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“Tweeting” About the Birds

Terry Douds, N8KI

Hi everyone! I hope you’ve all had a good summer, I certainly did! However, the amateur satellite world knows no season – it just continues orbiting – and there is lots of news as always.

The 2009 AMSAT Annual Meeting and Space Symposium will be held October 9 - 11 at the Four Points Sheraton Hotel at the Baltimore Washington Airport. Go to <http://www.amsat.org/amsat-new/symposium/2009> for more details and registration forms. This meeting is always a big one for AMSAT-NA, and is a must-attend if you can make it!

A Milestone for ARISS

Regular readers of this column know that I have a special spot in my heart for the Amateur Radio on the International Space Station program (ARISS). These contacts with schools all over the world truly demonstrate how the spirit of international cooperation can occur when everyone places importance upon exploration. The gathering of information benefits all of us.

The total number of ARISS contacts between the astronaut hams on board the orbiting outpost and schoolrooms on Earth has now reached 443. On average, 20 students are able to ask questions of an on-orbit crew during a typical ARISS contact. That means that well over 8,000 school kids worldwide have gotten a chance to visit the International Space Station vicariously via ham radio since the program began.

As space experimentation has progressed, so has amateur radio's part in it. Today, the ARISS school contact program is an important part of this ongoing work by ham radio volunteers worldwide; volunteer hams working with astronauts and cosmonauts to bring the science of spaceflight a little closer to kids. More information on the program can be found at <http://www.amsat.org/amsat/ariss/news/arissnews.rtf>

Over the past two months ARISS contacts have been made with schools in China, Italy, Belgium, Quebec, New York, Japan, Indiana, Texas, and Portugal. This is not just an American phenomenon; it is truly a worldwide endeavor.

The European Space Agency (ESA) is currently promoting their amateur radio on the International Space Station (ARISS) school contacts on their Twitter site.

See: http://twitter.com/esa_oasiss.

A U.S. ARISS member has also been posting ISS amateur radio related items to a Twitter site.

See: <http://twitter.com/RF2Space>.

Dutch journalists Govert Schilling and Jaap Meijers have built a Twitter page to let people know when a visible ISS pass is coming. To participate follow the Twitter account @twisst: <http://twitter.com/twisst>

SuitSat-2 System Engineer, Gould WA4SXM is keeping the satellite community updated on the system and its development as he reports via twitter at <http://twitter.com/GGouldSmith>.

AMSAT Forums Available on the Web

For those of you who were not able to attend Dayton this year, or for those who want to see the presentations again, videos of the six presentations at the AMSAT Forum are now on the AMSAT website. Click on this link: <http://www.amsat.org/amsat-new/information/videoNews.php>—or—go to the AMSAT website and click on the AMSAT Video News icon about halfway down the page in the left column.

While watching videos, presentations from the recent AMSAT-UK Colloquium can be viewed at: http://www.uk.amsat.org/component/option,com_wrapper/Itemid,278/

Hudson Valley Satcom Group

I’ve spoken about Echolink in these pages before – it is a service that allows hams to communicate around the world via VOIP, or voice over IP. It has enabled many people to hear satellite nets from all over the globe.

The Hudson Valley Satcom Group nets are on alternating Thursday evening at 8:00 PM EDT (UTC-4) and are simulcast on Echolink node N2EYH-L. More information at <http://www.hvsatcom.org>

SuitSat

Due to storage considerations on the International Space Station, the two surplus Orlan space suits in storage on the International Space Station were discarded via the Progress Cargo Vessel. One of these suits was to be used to house the electronics for the upcoming

SuitSat-2 mission where the batteries were to be mounted inside the suit, solar panels attached to the extremities with the electronics, video cameras and antenna mounted on the helmet by the ISS crew prior to deployment during an EVA.

The ARISS International Team has been informed that there is still space available for shipment of the SuitSat-2 electronics on the projected cargo flight to the Space Station in January 2010 and the EVA scheduled for April 2010 still has a 'SuitSat-2' deployment scheduled.

Consequently, the AMSAT team developing SuitSat-2 electronics on behalf of ARISS International is focusing on completing development in anticipation that deployment will still take place in spring 2010 using a new structure to house it. In addition, the experiment being developed by Russia's Kursk State University is still expected to be integrated into the electronics once the US-produced equipment is delivered to Russia this fall. Discussions are currently taking place between Russian ARISS members and the AMSAT project managers concerning the design of the new structure as well as where it will be constructed.

ARISS sees this mission as an important component of education outreach as it will provide an opportunity for students around the world to listen for recorded greetings from space, as well as learn about tracking spacecraft in orbit.

FUNcube

In new project news, AMSAT-UK has announced a new amateur satellite project - FUNcube. FUNcube is an educational single cubesat project with the goal of enthusing and educating young people about radio, space, physics and electronics. It will support the educational Science, Technology, Engineering, Maths (STEM) initiatives and provide an additional resource for the GB4FUN Mobile Communications Centre.

The target audience consists of primary and secondary school pupils and FUNcube will feature a 145 MHz telemetry beacon that will provide a strong signal for the pupils to receive. It is planned to develop a simple receiver board that can be connected to the USB port of a laptop to display telemetry in an interesting way. The satellite will contain a materials science experiment, from which the school students can receive telemetry data, which they can compare to the results they obtained from similar reference experiments in the classroom.

FUNcube is the first cubesat designed to benefit this group and is expected to be the first UK cubesat to reach space.

It is anticipated FUNcube will be launched into a Sun Synchronous Low Earth Orbit about 600-700km above the earth using one of the many launch opportunities that exist for Cubesat missions. In such an orbit, the satellite passes over Europe approximately three times in the morning and three times in the evening, every day, perhaps allowing the morning passes to be used for educational purposes and the evening passes for amateur radio communications.

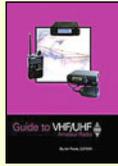
FUNcube will carry a UHF to VHF linear transponder that will have up to 1 watt and may be used by radio amateurs worldwide for SSB and CW communications. Measuring just 10 x 10 x 10 cm, and with a mass of less than 1kg, it will be the smallest satellite to carry a linear transponder. The choice of frequencies will enable radio amateurs to use their existing VO-52 or DO-64 station.

A key feature of the satellite is the absence of an on-board computer. For reliability and maximum power efficiency, the design has been kept as straightforward as possible with satellite control being achieved using simple commands. See the AMSAT-UK FUNcube webpage at: <http://www.uk.amsat.org/content/view/696/68/>

Well, that's all the room for this month - I hope to see you soon on the birds!

RSGB Books from

Guide to VHF/UHF Amateur Radio



By Ian Poole, G3YWX

RSGB 2000 Ed., 112 pgs.
Everything you will need to help you enjoy VHF/UHF to the fullest. Choosing the right transmitter, receiver, antenna, utilizing the correct part of each band and more!

Order No. RSGVUAR **\$16.00**

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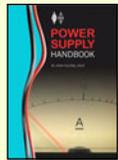


by John Clarricoats, G6CL

RSGB, 1st Ed., 1993, 307 pages
The story of amateur radio in the U.K. and a history of the Radio Society of Great Britain. Its pages and illustrations give an account of the development of a hobby that has provided technical knowledge and service to the community.

Order: RSWTF **\$16.00**

Power Supply Handbook



By John Fielding, ZS5JF

2006 Ed., 288 pages.
How power supplies work, selecting components, building and modifying supplies, measuring the finished supply, batteries, chargers, and equipment - it's all here!

Order: RSPSH **\$28.50**

Packet Radio Primer

By Dave Coomber, G8UYZ & Martin Croft, G8NZU

RSGB, 2nd Ed., 1995, 266 pages
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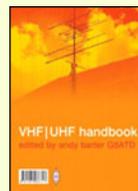


Order: RSPRP **\$16.00**

VHF/UHF Handbook

Edited by Andy Barter, G8ATD

RSGB, 2nd Ed., 320 pages.
This second edition guides you through the theory and practice of VHF/UHF operating and transmission lines. Includes info on getting started, antennas, constructing your own equipment, satellite ops, local nets and specialized modes.



Order: RXVUH **\$29.50**



HF Antenna Collection

RSGB, 2nd Ed., 2002. 252 pages.

A collection of outstanding articles and short pieces which were published in *Radio Communication* magazine. Includes single- and multi-element, horizontal and vertical antennas, extremely small transmitting and receiving antennas, feeders, tuners and much much more!

Order: RSHFAC **\$33.00**

Practical Wire Antennas 2

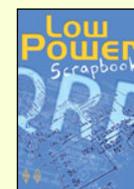


By Ian Poole, G3YWX

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Low Power Scrapbook



RSGB, 2001 Ed., 320 pages.

Choose from dozens of simple transmitter and receiver projects for the HF bands and 6m, including the tiny Oner transmitter and the White Rose Receiver. Ideal for the experimenter or anyone who likes the fun of building and operating their own radio equipment. antennas!

Order: RSLPS **\$18.00**

HF Amateur Radio

RSGB, 2007 Second Ed.

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Order: RSHFAR **\$23.00**

Technical Topics Scrapbook 1995-1999



By Pat Hawker, G3VA

RSGB, 2000 Ed., 314 pages.
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Emergency Communications

By Jerry Wellman, W7SAR

I've taken a lot of flak over the years because I advocate that my "job description" is an emergency radio operator, not an emergency amateur radio operator. The yellow vest I wear to events says "emergency radio communications" and I've yet to have any agency official ask me if I'm a ham radio operator or a CB radio operator.

Come to think of it, few officials have even asked what kind of radio I'm even using. In today's world, we need to expand our view and include any mode or means of communication available. We communicate! The mode really doesn't matter.

The question was posed by the Citizen's Emergency Response Team (CERT) in my neighborhood as to how we can coordinate communicate in an emergency, a drill or local event. Several of us have amateur radio licenses and some have a Citizens Radio Service (i.e. CB) base station.

The consensus (after a non-spirited discussion) was to use the Family Radio Service as a primary method and let Jerry (i.e. yours truly, providing I'm home) relay amongst ham radio, GMRS, CB and anything else. The group even agreed to use FRS channel 7 as the designated neighborhood emergency channel.

The group members went on their merry way, content that they could now communicate. I did some math. The CERT group comprised maybe a dozen residents of an area that has maybe 1,000 residents. That's a pretty small percentage of people who know the neighborhood communications plan. I've been listening on the FRS channels and there are a bunch of people (mostly kids) on the air. How might I let people know during an emergency what channel to use? Or, if we were using the school as a "command post," how might I communicate our very simple communications plan of "FRS 7?"

We are close to a gravel pit and have a large number of dump trucks and large transport vehicles that traverse the area.



An example of how the signage can be moved to different locations on a vehicle

Most of them are on CB channel 3, as that's where the gravel pit operations happen. What if I needed to incorporate them into an emergency event and tell this diverse group of drivers that we're on CB channel 14? With my mind in gear, I began pondering various solutions.

The first solution was to use a large paper sign on which I would just write in large letters, the FRS or CB channel in use. I would just tape the sign to a vehicle and everyone that passed by would know. Then the sprinklers came on and ruined my paper sign. So, I found a large printer and made another (and neater) sign and laminated it. It was a little more costly than I thought it should be, but it worked until a nice gust of wind sent my sign off to places still unknown. Rats. (And it didn't work well at night.)

I left the project for a month until I found a plastic A-frame "sandwich" sign

that a business was discarding. I could attach my laminated sign to this A-frame thing and set it on the sidewalk. Passing residents could read FRS 7 or CB 14 and know our emergency channel. This worked very well until someone else wanted one and I was astonished at the cost of an A-frame plastic sign holder. It's not within the average operator's budget. Back to pondering.

About a month ago I happened across a roll of a nice orange-colored magnetic material used for vehicle signs. My first effort was to put some agency decals on the magnetic stuff for use when called out for "official" duties. That worked great! And then I thought, why not put the FRS or CB channel information on a magnetic sign? With some 3-inch vinyl letters and numbers in hand, I created several signs: CB 14, FRS 1 and FRS 7. I am thinking this will be just the thing.

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While out for a test drive, I discovered the lettering is too small. The concept was great in that they are weather proof and inexpensive, but just too small to easily read as you drive past. And, they are, all but invisible in poor light or dark conditions. It was at this point I connected with a fellow who was selling some amateur radio-related signs on the Internet. I wrote and asked him if he'd consider doing a custom sign. The answer was yes, and I found the solution to communicating an "emergency channel plan" on CB or FRS radios.

The fellow I connected with is Randy George of "Randy George Woodworking Custom Signs." You can see his work and contact info at www.randygeorgewoodworking.com. I asked him to make four signs with 10-inch high lettering. Because he's very smart when it comes to signs, he asked me a number of questions leading to me having him use black AND reflective material. It sounds strange, I know, to have black also be reflective, but it does and it is. In short order I had four signs ready for me to apply to my orange magnetic material. WOW, was I impressed.

The end result is weatherproof, highly visible in the day, highly visible at night, easily applied and they're of such quality they'll last a long time! I worked out the cost analysis for you skeptics and discovered they're about the same as printing on paper and then laminating them, but the magnetic signs will last longer AND they're reflective.

So here's the deal. Regular readers of this column know that I don't recommend things I've not bought, used and/or tested. No exception here except I cannot give you a price as there are

too many variables. I already had my own magnetic material so I just had Randy make the lettering and I affixed it to the magnetic backing. Randy can make you a custom sign and I assure you his prices are very reasonable. This is his business and I'm in no way involved or connected. The lettering, the color, the style and even being reflective are all variables you can choose. If you want these to apply to metal signs for your CERT team, he can do it. He will put them on magnetic material if you desire.

I had four signs made because I wanted to experiment. You may only need one for CB and one for FRS (or even one with an amateur radio frequency). For a test, I put one of the CB channel signs on the back of my SUV and took a short road trip. Monitoring the CB channel resulted in scores of contacts as the sign was very visible.

If you live near the water and needed to note a marine channel or even wanted to use a MURS channel, these signs would work well. We are going to test the FRS sign in our upcoming neighborhood drill and I plan on parking my radio vehicle at the school parking lot entrance with my "FRS 7" sign displayed. We'll see what results we get.

So, my fellow communicators, think outside the amateur radio bands and be "radio operators" to include all modes that work for the need at hand!

Repeater Directory

Several months ago CQ editor Richard Moseson, W2VU, sent me a copy of the *ARRL Repeater Directory*. I had a good time



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looking through it. I noticed that the D-STAR listings are on the increase. But, my travels recently are local, with a quick trip to Yellowstone National Park or into northern Wyoming. While I am yearning to take a protracted trip across the country, I've not been able to find the time.

A newly-licensed ham came by to borrow one of my mobile radios for a long trip and I spotted the newly-arrived directory and tossed it to him to take along on his travels. The rig he borrowed was a dual band and rather than try to list or explain frequency use around the country, I just pointed him to the directory. I don't think I'm getting the directory back, and that's OK, it's gone to a good use and is currently on its second trip. At least now my friend has purchased his own radio!

In our quest to collect material for our emergency response gear, might I recommend you consider the *ARRL Repeater Directory*? I carry a list of repeaters and frequencies for nearby states but if I need to venture farther away, I'd need to know frequencies and access tones. With the growth of D-

STAR in some areas, a directory would be critical.

I've also included laminated summary sheets in my grab and go bags for my radios I use. These sheets show what's programmed into what memory (for the commercial radios that don't have keypad programming) and remind me what each button does and how the controls work. For some radios that I use infrequently, having a summary sheet of functions is a lifesaver. In a recent public service event the access tone for a repeater had changed and I could quickly refer to the instruction sheet and modify the radio's programming. When I loaned my friend the radio for his trip, he'd have been lost without both the directory and my summary sheet of instructions. Some years ago I loaned someone the instruction manual for a radio and never got it back. Many instruction manuals are online, some are not. I can prepare a summary sheet and print several copies so that losing one causes me no stress.

Until next month, best wishes from Salt Lake City!



10-10 Board Meeting and 12th Bi-Annual Gathering

By Gerald F. Gross, WA6POZ

The end of July proved to be very busy, with the 10-10 Board of Directors meeting on July 23 in Orlando, Florida, followed by the 12th bi-annual gathering. A Ten-Ten gathering is more of a social event than a convention. There are no forums, exhibits, flea markets or VE exams. This year over 100 members gathered from around the world, enjoying a few days getting to know each other in a relaxed and informal environment. Besides members from the continental states, we welcomed members from Hawaii, Canada, England and Germany. The opportunity was presented to make some new Ten-Ten contacts and earn points on many of the Ten-Ten chapter certificates. The weekend ended with a banquet, presentation and prizes donated or purchased from various ham radio vendors.

The Board had a rather long agenda, but again managed to complete all items in the allotted time. Here are the highlights of the meeting.

Old Business

Two important "old business" items were discussed: Ten-Ten advertisements and the Ten-Ten web site. Ten-Ten continues to advertise in *CQ*, *WorldRadio Online* and *QST*. Several changes were made to determine where members, both old and new, are learning about Ten-Ten and while the results have only been gathered for six weeks, indications are that all three sources are producing results. For 2009 and 2010, ads are being added to *The Canadian Amateur* and several banners are being placed on various radio amateur web sites. Ten-Ten web site activity was reviewed, and after discussion, it was decided to reestablish a list service. Details are being worked out and it is possible that as this is being printed, the site may be up and running.

New Business

The Board adopted a revision to section 2 of the bylaws, changing the Ten-Ten Purpose to the Ten-Ten Mission. This section of the bylaws hadn't been modified since the early 60s and was outdated. The Ten-Ten Mission Statement is:

Ten-Ten International Net, Inc. is an organization dedicated to assisting, encouraging, and promoting amateur radio activity on the 10 Meter amateur band, using all lawful modes of operation and embracing new technologies. Our aim is to assist in the growth of amateur radio around the world, to mentor new members, and enhance fellowship among radio amateurs.

A new structure for club membership was adopted. Two levels, one for clubs that wished to receive the *10-10 NEWS* and a second that allows for those clubs that did not wish to receive the *10-10 NEWS*.

A procedure written last year was revised and approved to allow other countries to have official Ten-Ten club stations. Last year, the Board approved VE9TEN as an official Ten-Ten club station from Canada. This year, the Board approved DL0X as an official club station from Germany.

A different and unique QSO Party was approved on a one-year trial. To be called the 'Spirit of 76 (7 Days 6 Modes)', this will be a week-long event with the object being to work as many stations as possible utilizing up to six different modes: CW, PSK, RTTY, SSB, AM, and FM. Dupes will be allowed but only once per mode. Complete rules and dates to be scheduled will be available on the web or in the *10-10 NEWS*.

Last year the Board revised the definition of a valid Ten-Ten contact. The change was to define and allow or limit the use of remote base stations, repeaters and wireless devices when making Ten-Ten contacts. This definition was received with mixed feelings. After a review, the Board decided that more input from the membership was required and a survey will be distributed for more member feedback.

The October *10-10 NEWS* will contain the full meeting minutes and more details on the above decisions.

10-10 Future Events

The 10-10 Sprint will be on October 10th from 0001Z to 2359Z. The Sprint is a CW/Digital/Phone party. As is the case with all 10-10 QSO parties, it is open to all; however, logs can only be submitted by active 10-10 members as of the date of the party. All other logs received will be handled as check logs. 10-10 members should exchange call, 10-10 number, name and QTH (state, province or country). Stations without a 10-10 number should use 00000. For non-10-10 members this is a good time to make those initial 10 contacts needed to get a 10-10 number. QSO Party logs must be returned to the QSO Party Manager and be postmarked not later than October 28th.

The 10-10 Fall CW/Digital QSO Parties will be held on 0001Z October 24, 2008 through 2359Z October 26, 2009. These are two separate QSO parties on the same date and time. You can enter either or both. Log submission rules are the same as the above paragraph, but postmarked no later than November 9th.

For complete details on these QSO Parties or all 10-10 QSO Parties refer to the *10-10 NEWS*, *10-10 Information Manual* or to *10-10 Party page* on the 10-10 web site, www.ten-ten.org.

Information about 10-10

The easiest way to obtain information about 10-10 is to visit the website at www.ten-ten.org. Everything you want to know about the organization is on the web, including a downloadable membership application form. You can receive a copy of the *10-10 NEWS* by writing to: 10-10 International Net, PMB 142, 643 N. 98th Street, Omaha, NE 68114-2342. Please enclose \$2.00 to cover the cost of shipping.

If you have been issued a 10-10 number and have forgotten your number, send me an e-mail and I will find your number. A 10-10 number is issued to you as an individual for life, regardless of the call(s) you may hold.

I would also appreciate any comments or suggestions. Please send to: Gerry Gross, WA6POZ, #21274, 10-10 President, 16046 Orchard Cir, Omaha NE 68135-1068 or e-mail at: wa6poz@arrl.net



Harmony and Emcomm: It's a Duet Worth Trying

Bill Sexton N1IN/AAA9PC

I can hear the objections—"What's that got to do with emergency communication, for crying out loud?"

But if you want to see a live-action model for the really super-ready Emcomm center of the future, go to a symphony concert. Seriously!

Don't worry about listening to the music. That's optional. What's required is careful *visual* observation.

Not to be missed: the thrusting bows of thirty violinists perfectly synchronizing with each other and the conductor's beat. Or the incredible unanimity with which 100-odd players may slow the pace, speed it up, hush their instruments or bombard us with a thunderous burst of sound—all at a wave or a nod from the podium. Is that unity of command or isn't it?

At most any concert hall you'll find at least one useful communication lesson hiding in plain view. It's the corps of highly-motivated individuals of varied age, background and instrumental persuasion who together produce remarkable feats of coordination and communication. If musicians can manage it, why not radio operators? Please don't scoff before you read the next sentence.

Consider how much we radio operators have in common with those audible-frequency performers. They, too, communicate via waveform; they also pursue resonance, are ruled by bandwidth (for them, musical range) and limited by propagation (acoustics). They, too, relay traffic for third parties (in from composers, out to audiences) and operate in networks (a/k/a ensembles).

In short, individual skill plus coordinated interaction are the rule in realms, theirs and ours. Except *they* make it look so easy.

Now obviously there's a world of difference between playing the piccolo at Carnegie Hall and setting up a portable rig in the middle of stricken New Orleans. But the "lines of effort"—that's a technical term military strategists like to use—bear remarkable resemblance.



Many hands, a single message: Making waves (Audio and RF)The orchestra (top photo) and the EOC (bottom photo) undertake the similar missions of sorting multiple inputs into coherent responses. Our MARS columnist argues the producers of Hertzian waves have something to learn from the more orderly methods of music's "audible wave" operators. The Boston Symphony Orchestra's James Levine conducts the Tanglewood student orchestra and Tanglewood Festival Chorus, all volunteers. (Photo: Hillary Scott, BSO) and the Arcadia, CA Emergency Operations Center during Operation Golden Garden last fall. (Photo: Jay Coote W6CJ).

Unity of Command, From the Man at the Podium

Anyone, regardless of affiliation, who works in the state EOC, works for me. Their parent organization has no operational control once they set foot in my Ops center. The parent organization has the job and the responsibility to train and provide communications personnel to the requesting served agency. That is where their job ends. This avoids any ambiguity in the chain of command.

Anyone who works in my EOC is personally approved by me based on several criteria, which include certified training, professional appearance (no holey t-shirts or camo pants), professional attitude, and ability to understand and integrate into my mission. I expect them to perform to the standard I set for my operations officer staff, and I treat them the same way, as fellow professionals.

Hank Koebler N3ORX (AAR4ET)
Chief of Operations
Tennessee Emergency Management Agency

Just don't make the mistake of thinking what musicians do is easy.

It's jumping to just such an unsound conclusion about our own profession—thinking it's easy—that could be the biggest pitfall within emergency communication these days.

The thought process goes like this: If we can only develop the right plan, then effective response will surely follow. Oh, training's important, too. So take an on-line course or two here, join a three-day COML program there; stage a cleverly-scripted exercise or two—then we'll ALL be ready for most any foreseeable calamity.

Not very likely! All too many volunteers sign up with the best of intentions yet grossly miscalculate the effort and dedication that achieving their aims will

require. In so many cases recruiters have unwittingly encouraged the false expectation.

That's my theory, anyway, after participating in an intense Army MARS re-training project for the past 10 months. The planners of the MARS 101 program (I was one of them) just didn't foresee the complexity of teaching the communicator's job as now configured. More serious, few members anticipated the rigors of learning. Just one dismaying example: it seems that digesting three or four typed pages of lesson material is simply too much to expect of trainees in one week of study.

Eight years have passed since 9/11, and four years since Hurricane Katrina. Yet overall the Holy Grail of homeland secu-



Interoperability personified: Jay Coote W6CJ (AAR9QM), running his Powerpoint slide show, teaches an Army MARS basic radio and Winlink class attended by 35 TSA, Coast Guard and California State Military Reserve personnel at Los Alamitos Joint Forces Training Base, Los Angeles. Jay is Communications Coordinator of the Arcadia Police Department. (Credit: Army MARS)



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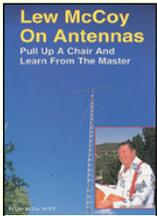
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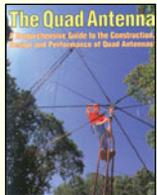


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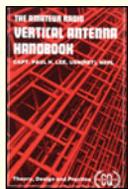


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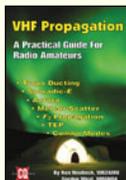


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rity—seamless interconnection for emergency operations—remains beyond reach. Some states have it in sight, the FEMA regions are questing vigorously, but knitting the entire country together still defies the information sciences.

These days it's considered a significant technological achievement when some university comes up with a system to alert its own students to trouble on campus.

By way of comparison, a symphony orchestra anywhere in the world—100 or more “operators” (instrumentalists and vocalists) controlling 20-40 different types of “rigs” (instruments) can be handed a billion-byte “message” (musical score) and transmit it



In another CA jointness project, Army MARS operator Carl Swanson K6CRS (AAR9MM) (left) works alongside Tom Morgon KB6JVE of the city's Auxiliary Communications Service in Arcadia CA. They're keeping municipal agencies linked together during a simulated breakdown of all other communications. (Photo: W6CJ)



Operating within the county EOC at Asheville, NC, Russ Oder (AAR4HV). Army MARS state emergency operations officer, maintained Winlink contact with the state capital after a simulated blackout of all other channels during an earthquake preparedness exercise. He handled 80 e-mails during the statewide exercise based on a major quake centered near Asheville. Photo: MARS

with total accuracy. That's regardless of the native language of senders or receivers. And it's no big deal whether you copy the traffic directly or via broadcast or Internet streaming. Inside Carnegie Hall or out in Siberia, reception is L&C.

Now *that* is Interoperability.

Let's speculate about how the interoperability challenge, or what the military likes to call "jointness," was solved in the musical world.

High Standards, Intense Competition

Start by asking yourself why a young person would put up with one-on-one after-school musical training from first grade through high school, compete to enter a major conservatory like Juilliard or Curtis or New England, then for the next four or five years devote 5-6 hours a day to solo practice and lots more in ensemble performance and theory classes--and finally, upon graduation, wind up teaching violin lessons to neighborhood children for a pittance (or waiting on tables) while hoping and praying for an orchestra position to open up.

Why? Because it's the only way to get an orchestra job. The standards have been set that high, the competition for employment is that intense.

And there we have the lesson for today: The orchestra approaches its mission assuming absolute compliance with membership requirements, absolute acceptance of training mandates, and absolute performance of SOP, absolutely. It never stops working at perfection.

Yet young people overflow the music schools as never before.

At this point I'd better emphasize this column represents only the writer's personal opinion and not that of Army MARS.

As our "MARS 101" training cycle comes to a close this fall, it's generally assumed the overall membership rolls will shrink, perhaps significantly. Successful completion of the intensified training is only one of several toughened requirements that will take final effect next April 1. Another is possession of at minimum an FCC General license. A lot of members stopped at Tech.

A goodly number indicate they won't bother to renew in MARS. Some complain the nature of MARS, as they perceived it when they joined, has changed too radically. Others say there simply aren't enough hours in the day to meet all the responsibilities of family and job *and* MARS. Fair points, both.

The headquarters response is that MARS never intended to cut back on numbers; rather, that leaders had no choice but to enhance the capabilities of all members given the new demands.

In the view of the new Secretary of Homeland Defense, Janet A. Napolitano, merely being ready for another 9/11-type attack no longer cuts it. "The terror threat is even more decentralized, networked and adaptive than on 9/11," she declared in her first major public review of the new administration's overall thinking July 29. Now the need is for a "more layered, networked and resilient" approach. "We are nowhere near as prepared as we need to be," she said.

All the more reason to hope the musical model holds up as Army MARS completes its retraining and begins reacting—that is, to hope that heightened standards of performance will inspire a heightened intake of vigorous new talent. Or to use a word the dictionary defines as meaning "to arrange or combine so as to achieve a desired or maximum effect," let's hope the toughened standards will *orchestrate* a new MARS.

And yes, I played in the high school band!

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TRAFFIC

The Demise of Traffic Nets

By Jim Wades, WB8SIW

Writing the traffic column for *WorldRadio* and now *WorldRadio Online* has been an interesting experience. In addition to the usual challenge of putting together something unique and interesting to the reader, your columnist also has to confront the fact that he is likely addressing a diminishing, if not dying aspect of amateur radio.

There was a time when traffic nets were a major operating activity. Traffic net activity likely reached its peak shortly before World War II. Since then, traffic net participation has been on a slow but steady decline.

The immediate post war era brought about universal telephone service and direct-dial long distance capability followed by rapid advances in telecommunications, all of which made the radiogram service provided by NTS seem less relevant as each year passed. Changes in lifestyle undoubtedly impacted traffic handling as well. The move to the suburbs with increased commute times, the popularity of television and an increased diversity of home entertainment options took significant time away from ham radio. Modern day operators simply have difficulty (or perceived difficulty) dedicating a particular time each day or week to be on a net.

Other than a few periods such as the Korean and Vietnam conflicts, which saw increased levels of traffic, the trend toward less participation has continued. The Internet and cellular mobile communications capabilities of our modern era have likely put the final nails in the coffin of the NTS (National Traffic Service) program.

Over the years of writing this column, I have tried to offer suggestions, which I felt could make NTS more relevant in the modern era. Despite suggesting new approaches and new missions for NTS, the results have been nil. Worse yet, these suggestions have not resulted in any input

from traffic handlers at large. It is extremely rare to receive a constructive suggestion for improving or revitalizing NTS from a reader.

Sadly, I have concluded that NTS suffers from two basic and perhaps irreversible pathologies. First, far too many of the loyal old-timers have fallen into the trap of resisting change. Second, too many new radio amateurs have no exposure to NTS or worse yet; they make assumptions about it that are inappropriate or inherently negative. There are days one wonders if we shouldn't take the humane approach much as one might with a beloved dog or horse at life's end. Perhaps we should administer the Sodium Pentobarbital or wield the bolt gun.

I feel a bit sorry for the future generation of radio amateurs, who will miss the sense of accomplishment that one feels after copying a string of messages on the mill, or keyboard, at 25 or 35 words per minute. They will never see a good CW operator type up a string of weather reports onto a nice professional message form in the amount of time the VHF-FM Skywarn net manages to clear less than half as many messages. They may never witness the incredible efficiency of a well run NTS area net.

Without NTS voice nets, fewer operators will develop the structured and standardized radiotelephone techniques that prove valuable on all emergency and public service nets, from assisting with the community parade to the earthquake response. For the experienced traffic handler, there is little difficulty using the correct phonetic alphabet and prowords in time of emergency, nor are there as many incidents of repeats or "thinking aloud" on the circuit!

Perhaps one of the nicest aspects of traffic work is the convenience of the public service training it offers. Sure, one had to become familiar with a standard radiogram format and the correct net pro-

“Finally, traffic handling is the last solid connection to the origins of telecommunications.”

cedures, but one can do so at his own pace, from home, and without the need to drive to a meeting or the problems that arise when one encounters the occasionally officious ham who tries to enforce their personal authority over a local EMCOMM program. Over the years, I have found NTS to be almost apolitical because an operator is judged on his skill and not his bluster or salesmanship!

Finally, traffic handling is the last solid connection to the origins of telecommunications. When a CW operator sits down in front of the mill to pick up traffic from the NTS Area Net or his Section Net, he is engaging in a practice and developing a skill that would be quite familiar to the telegrapher of 50 or 80 years ago. Some of those active on CW nets, particularly at upper echelons, are operators on a par with the professional operators of the past.

It seems to me there are many reasons to enjoy traffic handling. Sure, message content and quality has degraded in recent years, the military morale traffic has disappeared on both MARS and NTS, and the need for EMCOMM services has diminished. Yet, there is real satisfaction in traffic work. A snappy, disciplined CW net is something to behold. It is elegant in its simplicity, amazingly efficient; like any art form, it provides an opportunity for personal improvement. Voice nets may seem a bit slow and laborious to some, but the training offered is extremely beneficial and there is little doubt they certainly make better use of the spectrum and the individual's time than many of the inane conversations one encounters on 75-meter phone.

I have no idea if NTS will survive the next decade. If I were in charge of the program, however, I would probably assemble a committee of those most active in the NTS program and charge it with the responsibility to either identify ways to revitalize the program or simply sunset the program with a bit of dignity. That having been said, I sure hope NTS survives well into the 21st Century.

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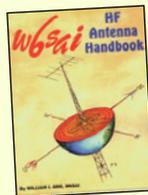
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Talk to the World—You Already Know the Language

By Randall Noon, KC0CCR

This fall is a great time to operate CW. Band noise associated with summer thunderstorms in the northern hemisphere is diminishing. This means that 160 and 80 meters are less noisy during the night. As we move day by day into sunspot cycle #24, all the high frequency bands are improving. Openings on the 15, 12, and 10-meter bands during the day are getting better and longer, and 30 and 20 meters are now sometimes open all night.

Don't forget to mark your calendars for the 6-meter openings that become more frequent two weeks after the fall equinox on September 22, 2009 at 21:18 UTC, and then again two weeks before and two weeks after the winter solstice on December 21, 2009 at 17:47 UTC. Working CW in a 6-meter opening is great fun. I am told that it is like "speed dating." An operator has to exchange contact information quickly and move on to the next potential contact before the band closes.

You may also want to try your hand at working 6 meters during the fall meteor showers and bounce signals off the short lived ionized vapor trails. Working meteor trails is like super-speed dating combined with roulette. A person has no idea where the signal will go after it bounces off the ionization trail, and there is very little time for a two-way exchange. Often it is like a message in a bottle. Most operators simply send their call sign and Maidenhead location. If you want to try your hand at this arcane mode, mark your calendars for October 7-8 when the Draconids come, October 21, 2009 when the Orionids are expected, November 5 and 12 when the South and North Taurids arrive, and especially November 17-18 when the Leonids show up. The Leonids also put on a good visual show away from city lights.

Relatively new CW operators who have had their licenses only a few years may have never experienced the heady fun of easy multi-hop, long distance contacts. Having primarily worked mostly U.S. stations during this protracted sunspot minimum, perhaps coming across a French or Danish call sign as the bands improve might be intimidating to operators who can't speak French or Danish. Don't panic.

One of the very cool things about knowing Morse code is that brasspounders do not have to know French, Spanish, German, Italian, Walloon, Romansch or even English to carry on a reasonable CW contact. All a person has to do is know is the basic Q-Signals. For example, all of the following can be communicated with the basic "QRZ?" Q-signal.

Who is calling?	English	
Qui s'appelle ?	French	
Wer ruft?	German	=> QRZ?
Quem está chamando?	Portuguese	

Quis mihi rogat?	Latin
Quién llama?	Spanish

Using the Q-signals, or Q-code as it is more often called, is easy. The basic three-letter combination beginning with a Q followed by a question mark indicates a question. For example, "QTH?" means, "What is your location?" Similarly, the same QTH without a question mark indicates a short declarative sentence that is completed by the immediately following item. E.g., QTH St. Louis = my location is St. Louis. If the question, "QRP?" (shall I reduce power?) is sent, a same Q-signal reply of "QRP" without the question mark indicates a "yes" reply (yes, reduce power).

If a person is familiar with a handful of Q-signals, she or he can carry on a reasonable QSO (another Q-signal abbreviation) with practically anyone else in the world who uses CW. A short list of the most commonly used Q-signals follows (Table 1).

Besides the preceding short list for amateur radio, there are lists of Q-codes used for aviation and the marine mobile service. The ARRL has published a special Q-code list for CW nets. There are even specific Q-code lists for use by the Russian military and the German police. For a more comprehensive list of Q-codes, check out the web site <http://www.kloth.net/radio/qcodes.php>.

If a person combines Q-codes with the usual set of internationally accepted abbreviations, such as 73 for "best wishes," DE for "this is," HR for "here, or at this end," UR for "your," 88 for "love and kisses," and so on, he can easily carry on a basic ham radio conversation with just about everyone from anywhere. So as the bands improve, and your CQ reels in a call sign that begins with an LU (Argentina), or a DL (German), don't panic. Just check your handy Q-code list with standard abbreviations and you will be understood just fine. And, if you want to show a little cosmopolitan flair, throw in a native language goodbye at the end as a salute to the other operator, such as Adios (Spanish), Auf Wiederhoren (German), Au revoir (French), or Adeus (Portuguese).

Nearly all hams in the world understand the following. As you read it, consider how many words of conversation are actually contained within the Q-coded message. To write it out would take a good paragraph. By the, the "EM29" in the message is the Maidenhead Grid location square for KC0CCR.

PY2OCM DE KC0CCR THX OM UR RST 569 569 QTH KANSAS USA, EM29 QSB 2 QSB? FISTS NR 6588 QSL? DE KC0CCR KN

If you are wondering whether some Q-codes might be confused with another country's call sign prefix, don't worry. By

Q-Signal	Plain, or followed by information.	Followed by question mark.
QRG	My frequency is _____	What is my frequency?
QRL	I am busy. This frequency is busy.	Are you busy? Is this frequency busy?
QRM	I have interference here. 1 is low, 5 is heavy.	Do you have interference? 1 is low, 5 is heavy.
QRN	I have static. 1 is low, 5 is heavy.	Do you have static? 1 is low, 5 is heavy.
QRO	I will increase power. Operating at high power, _____ watts.	Should I increase power? Are you operating at high power?
QRP	I will decrease power. Operating at low power, _____ watts.	Should I decrease power? Are you operating at low power?
QRQ	I will send faster, at _____ wpm.	Send faster, at _____ wpm.
QRS	I will send slower, at _____ wpm.	Send slower, at _____ wpm.
QRT	I will stop sending.	Should I stop sending?
QRU	I have information for you.	Do you have information for me?
QRV	I am ready.	Are you ready?
QRZ	(Usually DE is used here.)	Who is calling?
QSB	Your signals fade. 1 is little, 5 is a lot.	Are my signals fading? 1 is a little, 5 is a lot.
QSD	You keying is defective.	Is my keying defective?
QSL	I acknowledge receipt of message. Will send card or email to verify contact.	Can you verify receipt of message? Will you send card or email to verify contact?
QSO	I will call _____ Conversation, contact with _____.	Can you call _____? Did you have a contact with _____?
QSY	I will change frequency to _____.	Will you change frequency to _____?

Table 1.

agreement, there are no prefixes issued by the ITU that start with “Q.” This is in recognition of the importance of the Q-codes as an international communication aid.

How did this Ingenious Q-code Originate?

It began in 1909 in Britain as a list of abbreviations to be used by British ships and coastal stations licensed by the British Postmaster-General. Its original purpose, which has not changed, was to clarify communications between radio operators who spoke different languages. The original Q-signals included items like, QRA (name of this ship is ____), QRD (we are bound for ____), and QRC (our true bearing is ____).

Within a short time, other countries and operators picked up this excellent idea. By 1912, there were forty-five Q-signals that were officially recognized by the Third International Radiotelegraph Convention. Most, but not all, of the 1912 list of Q-signals still have the same meaning. Of course, the inter-

national amateur community picked up the Q-code habit just as fast as the list expanded. In fact, in 1915, when the American Radio Relay League began publication of QST, the QST name was a Q-signal meaning “General Message to All Stations.”

FISTS Fall Sprint

The FISTS Fall Sprint will run from 1700 UTC to 2100 UTC on October 10, the second Saturday of the month. All CW ops are welcome to participate, both FISTS and non-FISTS, regardless of license class or proficiency. FISTS Sprints are friendly operating events, not cutthroat contests. Rules are on the web page <http://www.fists.org> – click on the “Sprint Information” link.

We have a new Sprint manager, Gil Woodside, WAILAD. Paper logs go to him at 30 Hilltop Ave., West Warwick, RI 02893-2825. E-logs go to wailad@cox.net.

CW is such a cool mode!



CONTEST CORNER

CONTEST: TARA Fall Classic PSK Rumble
DATE & TIME: 0000-2359Z 3 Oct
BANDS/MODE: 160-6M PSK
POINTS: 1 Pt. per QSO
MULTIPLIERS: W/VE/JA/VK Call areas + DXCC countries, once per band
EXCHANGE: Name + State/Province/Country
ENTRY CATEGORIES: Normal - <100W; Great - <20W; Super - <5W; Novice, SWL
ENTRIES: 30 Oct. Use on-line score form at www.n2ty.org/seasons/tara_rumble_score.html Rules at: www.n2ty.org/seasons/tara_rumble_rules.html

CONTEST: Oceania DX
DATE & TIME: 0800Z 3 Oct - 0800Z 4 Oct
BANDS/MODE: 160-10M SSB
POINTS: 3 Pts. 10M; 2 Pts. 15M ; 1 Pt. 20M; 5 Pts. 40M; 10 Pts. 80M; 20 Pts. 160M
MULTIPLIERS: Prefixes, onces per band
EXCHANGE: RST + Serial #
ENTRY CATEGORIES: Single op - All bands or Single band; Multi-single - Multi-op, single XMTR; Multi - Multi - Multiple ops, XMTRS
ENTRIES: 30 Days Oceania DX Contest c/o Wellington ARC P.O. Box 6464 Wellington 6030 New Zealand Cabrillo to: phoctest@oceaniadxcontest.com
 Online log forms at: www.b4h.net/cabforms
 Web page: www.oceaniadxcontest.com
 Rules at: www.oceaniadxcontest.com/rules.pdf

CONTEST: EU Autumn Sprint
DATE & TIME: 1600-1859Z 3 Oct
BANDS/MODE: 80/40/20M SSB
POINTS: 1 Pt. per QSO
MULTIPLIERS: None
EXCHANGE: Both calls + Serial # + Name
ENTRY CATEGORIES: Single op only!
ENTRIES: 15 Days Dave Lawley, G4BUO, Carramore, Coldharbour Rd., Penshurst, Kent, TN11 8EX, England, UK.
 E-mail (ASCII) eusprint@kkn.net Web page: www.qsl.net/eusprint
 Rules at: www.eusprint.com/index.php?page=140&lang=g

Click here for information on listing your contest in the next issue of WRO!

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CONTEST: California QSO Party
DATE & TIME: 1600Z 3 Oct - 2159Z 4 Oct.
BANDS/MODE: 160-2M SSB/CW
POINTS: 2 Pts. SSB, 3 Pts. CW
MULTIPLIERS: CA sta's count States + Canadian Provinces (58 possible), all others count CA counties (58 possible)
EXCHANGE: CA sta's give serial # + County, all others give serial # + State/Province/Country
ENTRY CATEGORIES: Single op, QRP (<5W); Low (5-100W), High; Multi-Single QRP, Low, High; Multi-Multi QRP, Low, High; CA County Expedition; Mobile; School; Novice/Technician
ENTRIES: 15 November Cabrillo (preferred) to: logs@cqp.org
 Online server for log submission: <http://logs.cqp.org>
 Free logging software at: www.cqp.org/software.html
 Rules at: www.cqp.org/rules.html

CONTEST: DX/NA YLRL Anniversary Contest (combines the DX YL, North American YL & YL Anniversary Party Contest)
DATE & TIME: 1400Z 9 Oct - 0200Z 11 Oct
BANDS/MODE: All bands, all modes
POINTS: 1 Pt. ARRL section/Canadian Province QSO; 2 Pts. DX
MULTIPLIERS: Total of Sections/Provinces/Countries
EXCHANGE: Both calls + Serial # + RS(T) + ARRL Section/VE Province
ENTRY CATEGORIES: QRP (>5W), Low (50100W); High
ENTRIES: 30 Days Annette Wood, KC8SQM, 6167 Oakwood Circle, North Ridgeville, OH 44039 E-mail: annetwood@oh.rr.com
 Rules at: www.ylrl.org/ylcontests.html#DXYL

CONTEST: Oceania DX
DATE & TIME: 0800Z 10 Oct - 0800Z 11 Oct
BANDS/MODE: 160-10M CW
POINTS: 3 Pts. 10M; 2 Pts. 15M ; 1 Pt. 20M; 5 Pts. 40M; 10 Pts. 80M; 20 Pts. 160M
MULTIPLIERS: Prefixes, once per band
EXCHANGE: RST + Serial #
ENTRY CATEGORIES: Single op - All bands or Single band; Multi-single - Multi-op, single XMTR; Multi - Multi - Multiple ops, XMTRS
ENTRIES: 30 Days Oceania DX Contest c/o Wellington ARC P.O. Box 6464 Wellington 6030 New Zealand Cabrillo to: cwoctest@oceaniadxcontest.com
 Online log forms at: www.b4h.net/cabforms
 Web page: www.oceaniadxcontest.com
 Rules at: www.oceaniadxcontest.com/rules.pdf

CONTEST: EU Autumn Sprint
DATE & TIME: 1600-1859Z 10 Oct
BANDS/MODE: 80/40/20M CW
POINTS: 1 Pt. per QSO
MULTIPLIERS: None
EXCHANGE: Both calls + Serial # + Name
ENTRY CATEGORIES: Single op only!
ENTRIES: 15 Days Karel Karmasin, OK2FD Gen. Svobody 636 CZ-674 01 Trebic Czech Republic E-mail (ASCII) eusprint@kkn.net
 Web page: www.qsl.net/eusprint
 Rules at: www.eusprint.com/index.php?page=140&lang=g

CONTEST: FISTS Fall Sprint
DATE & TIME: 1700-2100Z 10 Oct
BANDS/MODE: 80 - 10M CW
POINTS: 2 Pts. non-member QSO; 5 Pts. member QSO
MULTIPLIERS: States/Provinces once; DX each QSO, once per band
EXCHANGE: Name + State/Province/DXCC Country + FISTS number (non-members give power)
ENTRY CATEGORIES: QRP (<5W); QRO (5-100W); Club (Note: 100W maximum for all!)
ENTRIES: 30 Days Gil Woodside, WA1LAD, 30 Hilltop Ave., West Warwick, RI 02893-2825 Cabrillo or ASCII logs to: wallad@cox.net
 Web page: www.fists.org Online entry form: www.fists.org/fists_entry_form.txt
 Rules at: www.fists.org/sprints.html

CONTEST: North American Sprint
DATE & TIME: 0000-0400Z 11 Oct
BANDS/MODE: 80/40/20M RTTY
POINTS: 1 Pt. per QSO
MULTIPLIERS: States (no KH6!)/CA Provinces/NA Countries (USA and Canada do not count as countries!)
EXCHANGE: Both calls + Serial # + Name + QTH
ENTRY CATEGORIES: Single op - Low or High
ENTRIES: 30 Days Ed Muns, W0YK, P.O. Box 1877 Los Gatos, CA 95031-1877 E-mail: rttysprintmgr@ncjweb.com Cabrillo logs: www.ncjweb.com/sprintlog_submit.php ASCII logs to: rttysprint@ncjweb.com
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 Rules at: www.ncjweb.com/sprinrules.php?page=1

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CONTEST: Pennsylvania QSO Party
DATE & TIME: 1600Z 10 Oct. - 0500Z 11 Oct & 1300-2200Z 12 Oct.
BANDS/MODE: 160-2M SSB/CW/PSK/FM
POINTS: CW - 2 Pts. 160 & 80M, 1.5 Pts all other bands; SSB - 1 Pt.; PSK - 2 Pts; FM - 1 Pt.; 200 Pts. QSO with W3OK
MULTIPLIERS: PA sta's - ARRL/Canadian Sections + PA Counties + 1 DX; All Others - PA Counties
EXCHANGE: Serial # + County or ARRL/Canadian Section
ENTRY CATEGORIES: Single op, QRP (<5W), Medium (6-150W), QRO; Single op, CW (<150W); Multi-single, Multi-multi; Single op, portable; Multi-multi, portable; Mobile; Rover
ENTRIES: PA QSO Party, C/O NARC, P.O. Box 614, State College, PA 16804-0614
Online submission (format not specified) paqsolg@nittany-arc.net
Rules at: www.nittany-arc.net/paqso09rules.html

CONTEST: NAQCC Sprint
DATE & TIME: 0130-0330Z 14 Oct
BANDS/MODE: 80/40/20M CW
POINTS: 1 Pt. non-member QSO; 2 Pts. member QSO
MULTIPLIERS: States/Provinces/Countries
EXCHANGE: RST + State/Province/Country + Member # (non-members give power)
ENTRY CATEGORIES: SWA (Simple Wire Antenna); Gain
ENTRIES: 7 Days John Shannon, K3WWP, 478 E. High St., Kittanning, PA 16201
E-mail: naqcc33@alltel.net (Submit log as plain text, NO attachments!)
Auto-logger: <http://naqcc.n4lcd.com/sprintlog.html>
Web page: www.arm-tek.net/~yoel/sprintrules.html
Log form available at: www.arm-tek.net/~yoel/sprint_log_form.txt
Rules at: www.arm-tek.net/~yoel/sprint_rules.html

CONTEST: Iowa QSO Party
Date & Time: 1400Z-2300Z 17 October
Rules: Not available at press time, check web page
<http://www.wa0dx.org/iaqsoparty.html> or write N0SM@arrl.net with questions.

CONTEST: Run for the Bacon
DATE & TIME: 0100-0300Z 17 Oct
BANDS/MODE: 80-10M CW
POINTS: 1 Pt. non-member QSO; 3 Pts. FP member; 5 Pts. FP member different continent
MULTIPLIERS: States/Provinces/Countries
EXCHANGE: RST + State/Province/Country + FP #; (non-members give power)
ENTRY CATEGORIES: Not specified
ENTRIES: Online log submission only: www.fpqrp.com/autolog.php
Rules at: www.fpqrp.com/fpqrpun.php

CONTEST: New York QSO Party
DATE & TIME: 1800Z 17 Oct. - 0600Z 18 Oct.
BANDS/MODE: 160-2M SSB/Phone; Use band plan for RTTY/Digital
POINTS: 1 Pt. SSB; 2 Pts. CW; 3 Pts. RTTY/Digital
MULTIPLIERS: NY Counties (62); Provinces (9); U.S. states (50) maximum multipliers = 121
EXCHANGE: NY sta's give RS(t) + County; All Others give RS(t) + State/Province or DX
ENTRY CATEGORIES: Single op; Multi-single; Multi-multi; School; Mobile - All can use QRP (<5W), Low (6-100W), High (>100W)
ENTRIES: 14 Days Cabrillo only! to: logs@nyqp.org
Online Cabrillo formatter: www.b4h.net/cabforms

CONTEST: CQ WW DX
DATE & TIME: 0000Z 24 Oct - 2359Z 25 Oct
BANDS/MODE: 160-10M SSB
POINTS: 1 Pt. Same Continent, except 2 Pts. NA to NA contacts; 3 Pts. other continents
MULTIPLIERS: Zones/Countries
EXCHANGE: RS + CQ Zone
ENTRY CATEGORIES: Single Op - Single Band; Single Op - All Band, QRP, Low, High; Multi Op; Multi Op - 2 XMTR's; Multi Op - Multi XMTR's: 'Xtreme'.
ENTRIES: 1 Dec CQ WW DX SSB Contest 25 Newbridge Road Hicksville, NY 11801 Cabrillo to: ssb@cqww.com.
Rules at <http://www.cqww.com/>
For details of "Xtreme" category see: http://www.cqww.com/CQ_WW_Xtreme_Rules.pdf.
Rules are also at <<http://www.cq-amateur-radio.com>>

CONTEST: 10-10 International Fall/CW/Digital
DATE & TIME: 0001Z 25 Oct - 2359Z 26 Oct
BANDS/MODE: 10M CW/Digital
POINTS: 1 Pt. non-member; 2 Pts. member QSO
MULTIPLIERS: None
EXCHANGE: Call + Name + QTH + 10-10 # (if any)
ENTRY CATEGORIES: Individual; Club
ENTRIES: 9 Nov Dan Morris, KZ3T, 131 Valencia Ln., Stateville, NC 28625
Rules at: www.ten-ten.org/Forms/QSOPartyRules_05312009.pdf



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	CITY	DATE	CONTACT	NOTES
ARIZONA				MISSISSIPPI			
Mesa	3rd Mon	Steve KY7W, 480-804-1469, kj7wk@cox.net	w/i	Harrison County	1st Sat	Don, W5DJW, 228-868-5670, donw5djw@bellsouth.net	w/i ok
Phoenix	4th Sat	Gary Hamman, 602-996-8148, K7GH@ar1.net		NEW JERSEY			
ARKANSAS				Bellmawr	3rd Thurs	Diane, N2LCQ, 609-227-6281	p/r
Harrison	2nd Sat	Bob, AJ5C, 870-365-3871, aj5c@cox.net		Roselle	10/24	Gerry, AA2ZJ, 732-283-2795, aa2zj@arr1.net	
Sherwood	3rd Sat	Daryl, AE5WX, 501-227-9183, ae5wx@arr1.net	w/i ok	NEW YORK			
CALIFORNIA				Canandaigua	1st Wed	Squaw Island ARC, David A. Foster, 585-398-0216, D1161F@aol.com	w/i
Highland	10/17	Ed, WU6I, 909-864-0155, wu6i@arr1.net	p/rw/I ok	Canandaigua	1st Wed	David Foster, 585-398-0216, www.siarc.us	w/i
LaVerne	Last Sat	Frank, K6FW, 909-628-8661, k6fw@arr1.net	p/r	Yonkers	10/4	Paul, AC2T, 914-237-5589, w2yrc@hotmail.com, www.yarc.org	w/i ok
Long Beach	3rd Sat	Louise, N6ELK, 562-429-1355	p/r	OHIO			
Manteca/Tracy	4th Sat	David, N5FDL, 209-835-6893, n5df1@arr1.net	p/r	Cincinnati	1st Sat	Dale, KC8HJL, 513-769-0789	p/r pref
Mission Viejo	10/19	Ernie Senser, W6ETS, 949-458-2504, w6ets@aora.org, www.soara.org	p/r pref.	Sandusky	10/20	Luther, N8HC, 419-684-7864, n8hc@arr1.net	p/r
Sacramento	Hotline!	916-492-6115, n6na@arr1.org		OREGON			
Santa Rosa	Hotline!	Hotline-Recording 707-579-9608	w/i ok	Astoria	Call!	AA7OA, 503-338-3333	p/r
Sebastopol	Hotline!	Recording 707-579-9608		Bend	Weds	Joe, K7SQ, 541-385-3152	p/r
Sunnyvale	10/10	Gordon, W6NW, Sv@amateur-radio.org, www.amateur-radio.org	w/i	Lincoln City	1st Sat	Carl, w7i@arr1.net, 503-965-7575	w/i ok
FLORIDA				McMinnville	Call!	Mark, AC7ZQ, 503-843-3580	w/i only
Melbourne	1st Sat	John, AA8IS@earthlink.net, 321-412-2779	w/i ok	Sisters	Call!	Dave, N7TYO, 541-549-7831	p/r
North Port	Call	Bill Norris, KC7TSG, 941-426-0214	w/ipref.	Tigard	Call!	John, KSOF, 503-626-7399	p/r
St. Pete	Call	Mark, NP3R, 727-528-0071	w/i pref.	PENNSYLVANIA			
GEORGIA				Erie	3rd Sat	Ron, KB3QBB, 814-833-6829, kb3qbb@arr1.com, www.wattsburg-wireless.us	p/r
Athens	Last Mon	Ed, FUQUA, 706-354-1727	w/ipref.	Pittsburgh	10/10	Bob Benna, N3LWP, 412-366-0488, n3lwp@verizon.net	
HAWAII				PUERTO RICO			
Oahu	Call	Lee, KH6BZF, 808-247-0587, 808-551-3494, leewical@aol.com	p/r	San Juan	Last Sat	Hotline: 787-789-4998, prarl@prarl.org	w/i
ILLINOIS				SOUTH CAROLINA			
Bolingbrook	3rd Sat	Dale, W9KHX, 815-723-3332	w/i ok	Charleston	3rd Wed	Robert Johnson, ae4rj@amsat.org; www.qsl.net/wa4usn/	w/i
Burr Ridge	Any Day	Argonne ARC, W9DS, 630-986-0061	p/r	Charleston	2nd Sat	Riley Stone, 843-832-9105, k4hyy@sc.r.com	w/i
Roselle	2nd Tues	Sam Baibeau, W9SFB, 630-894-0708, w9sfb@aol.com	p/r	VIRGINIA			
INDIANA				Alexandria	2nd Sat	John, WZ4A, 703-971-3905, wz4a@arr1.net	w/i
South Bend	3rd Mon	Alan, NY9A, 574-232-6883	p/r	Stafford	Sat	Bart, N3GQ, 540-373-4506, n3gq@arr1.net, www.qsl.net/semcomm	p/r
IOWA				WASHINGTON			
Vinton	10/22	Ken, N0EGV, 319-223-5739, AI K0HWE, k0hwe@inav.net	w/i ok	Tacoma	2nd Tues	Radio Club of Tacoma, 253-759-2040, www.w7dk.org	
MASSACHUSETTS				Vancouver	Hotline!	CCARC, 360-896-8909	p/r
Brookline	2nd Mon	Dick Doherty, KA1TUZ, 617-527-2968, ka1tuz@arr1.net, www.barc.org	w/i ok	WEST VIRGINIA			
MICHIGAN				Parkersburg	2nd Mon	Dana Pickens, WV8G, 304-422-6101	w/i, p/r
Corunna	4th Thur	Tom, K18AS, 517-579-0599, www.w8qqq.org	p/r pref.	WISCONSIN			
MINNESOTA				Tomahawk	Last Sat	Terry, KB9AUP, 715-453-4633, dcollins@newnorth.net	w/i ok
Apple Valley	2nd Thur	Jim, N0OA, 612-384-7709, N0OA@arr1.net	p/r pref.				

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

ARIZONA

Green Valley Amateur Radio Club. Meets 7:00 p.m., 2nd Wed. of the mo. @ SAV Building. Nets weekly on 2M, & 20M in the summer. Come join us for breakfast every Wed. 7:00 a.m. Contact Gene W0KAD, 214 N. Crocodile Rock Dr., Green Valley, AZ 85614 or 520/207-4706 or theschau@cox.net. 12/09

CALIFORNIA

Amador County ARC, P.O. Box 1094, Pine Grove, CA 95665. Regular meetings first Thursday of the month. All meeting dates and locations, with directions are posted at www.k6arc.org, as is other club info and contacts. Rptr: 146.835, PL 100 10/09

Catalina Amateur Rptr. Assn., P.O. Box 425, Garden Grove, CA 92842. Meets 2nd Sat. (even months) 8:00 a.m. Hometown Buffet, corner of 17th & Lincoln Ave., Santa Ana, CA. Rptrs: AA6DP 147.09(+), 224.42(-) PL 110.9 on Catalina Island; www.cara.nu 12/09

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.edcarrc.net. 3/10

Golden Empire Amateur Radio Society, W6RHC, meets 3rd Fri./monthly, 7:00 p.m. (rag-chew 6:30 p.m.), Search & Rescue Building, 2591 Morrow Lane (East end), Chico, CA. Visitors welcome. Net Tue, 2000 hrs, 146.850 pl 110.9; K6RSC@randallstone.net 10/09

Independent Radio Club, WA6IRC meets 7p.m., last Friday of the month, Lampighter Restaurant, 5043 Van Nuys Blvd., Van Nuys, CA. We are a family-oriented radio club whose members are interested in all aspects of Amateur Radio. Check out our weekly nets Tues. 6 p.m. & Thur. 8 p.m. on 445.340 (-)PL 103.5 & 224.480 (-)PL 110.9. More info, www.ircradio.org or 3624 Foothill Blvd., #1, La Crescenta, CA 91214. 12/09

Nevada County ARC meets 2nd Mon./monthly, 7 p.m., Salvation Army Bldg., 10725 Alta St., Grass Valley, CA. Net Tues. 7 p.m. 147.285, www.ncarc.org. For info, e-mail president@ncarc.org 12/09

River City A.R.C.S. Meets 1st Tues./monthly, 7:30 p.m., N. County Corp. Yard Facility, 5020 Don Julio at Elkhorn, Sacramento, CA. Message Phone: 916/492-6115; www.n6na.org 12/09

South Bay Amateur Radio Club. P.O. Box 536, Torrance, CA 90508. Meets 3rd Thurs./monthly, 7:30 p.m., Torrance Memorial Hosp., 3330 Lomita Blvd., Torrance, CA. Talk-in on W6SBA rpt. 224.38(-). Info: 310/328-0817; www.w6sba.org 12/09

Southern Sierra ARS meets 2nd Thurs./monthly, 7 p.m., except Jul., 600 Dennison Rd., Tehachapi, CA 93561 (The club house at Mountain Aire Estates). Info: N6MLD, 661/203-7005, 224.42(-) PL 156.7. APRS 144.390(S). ARES nets 7 p.m. 147.51(S) Mon. 1/10

Tri-County ARA (TCARA). Meets 7:30 p.m. 2nd Wed monthly, Administration Building, Brackett Field, La Verne, CA, in the Pilot's Lounge. Different guest speaker every month. Anyone may attend, Ham & non-Ham welcome! Club net Sun., 7:00 p.m., Mt Baldy Rpt. 145.440 MHz -600 PL 136.5; web site: www.tcara.org, e-mail: k6agf@arrl.net 12/09

Victor Valley ARC. P.O. Box 869, Victorville, CA 92392. Meets 2nd Tue./monthly, 7 p.m., Lewis Ctr, 17500 Mana Rd., Apple Valley, CA. Talk-in 146.94(-), PL 91.5. Net Sun. 7 p.m. 146.94(-), www.vvarc.org 01/10

COLORADO

Boulder Amateur Radio Club (BARC) Meets 3rd Tues. monthly, 7 p.m., Bld J, Boulder Municipal Airport or Valmont Community Presbyterian Church, 3262 N. 61st St., Boulder, CO. Talk-in: 146.70(-) Info: BARC70@arrl.net or www.qsl.net/w0dk/ 11/09

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

CONNECTICUT

Connecticut DX Association, (CTDXA). Meets at ARRL HQ, Newington, CT. 1st Wed. (except Summer) 7:30 p.m. Contact Dan, W1ZTQ; 860/583-1165 11/09

FLORIDA

Englewood ARS. P.O. Box 572 Englewood, FL 34295. Meets 3rd Thurs./monthly 7:30 p.m. Englewood United Methodist Church, 700 E. Dearborn St., Englewood, FL. Rm: Fellowship Hall. Info. Vic Emmelkamp, K4VHX, 941/473-5560 or www.earsradioclub.org. 11/09

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

Bolingbrook ARS meets 3rd Mon., monthly, 7:00 p.m. at Bolingbrook Fire Station Number 5 on Rodeo Dr. Talk-in is usually 147.33 MHz +0.600. ARRL affiliated club number: 1271. Club web page is www.k9bar.org. 10/09

Fox River Radio League. www.frrl.org. Open meeting 2nd Tue. 7:30 p.m. Rasmussen College, 2363 Sequoia Dr., Aurora, IL 60506; 147.21 MHz (+600 kHz, 103.5 Hz), 444.30 MHz (+5 MHz, 114.8 Hz, IRLP), 2M net Tue. 7:30 p.m., except 2nd Tue. P.O. Box 673, Batavia, IL 60510-0673. 11/09

Peoria Area ARC, (PAARC). P.O. Box 3508, Peoria, IL 61612. Meets 2nd Fri./monthly, 7 p.m., Red Cross Chapter House, 311 W. John Gwynn Jr. Ave., Peoria, IL. Superfest each Sept. Rptrs: 147.075(+), 146.85(-). D-STAR: 144.505 (+), 448.46875 (-), 1272.4000(+). Web: www.w9uvi.org; e-mail: w9uvi@arrl.net. Voice mail: 309/692-3378. 12/09

The Starved Rock RC, W9MKS. P.O. Box 198, Tabor St., Leonore, IL 61332. Meets 1st Mon./monthly, 7 p.m. Rptr. net 7 p.m. Wed./weekly, 147.12(+), PL 103.5. w9mks@qsl.net; <http://www.qsl.net/w9mks> 12/09

MASSACHUSETTS

Boston ARC meets 3rd Thurs. 7:00 p.m. (except July/Aug), Salvation Army Boston HQ, 147 Berkeley St. Boston, MA. Free parking in adjacent lot. Talk-in: 145.23MHz (-) PL 88.5, www.barc.org, email: w1bos@arrl.net. 12/09

Framingham Amateur Radio Association meets 1st Thurs., 7:30 p.m., Sept-June in the basement of the Danforth Museum, Framingham, MA. Contact Gordy, K1GB, 781/891-5572; k1gb@arrl.net 01/10

MICHIGAN

Genesee County Radio Club, Inc. Meets 3rd Tues. of the month during school year. 7:30 p.m. Davison High School, 1250 N. Oak Rd., Davison, MI 48423; www.qsl.net/w8acw/; e-mail: w8acw@arrl.net. 10/09

Hiawatha ARA of Marquette Co. P.O. Box 1183, Marquette, MI 49855. Meets 1st Thurs./monthly, 7:30 p.m. Marquette County Health Department, R. Schwenke, N8GBA, 906/249-3837; www.qsl.net/k8lod 12/0

NEW JERSEY

Gloucester County ARC meets 7:30 p.m. 1st Wed./monthly, Pfeiffer Community Center, Blue Bell Rd. & Main St., Williamstown, NJ 08094. Contact Ken Newman, N2CQ, P.O. Box 370, Pitman, NJ 08071; 856/848-4345; n2cq@comcast.net; <http://www.w2mmd.com> 10/09

NEW YORK

Hall of Science ARC. P.O. Box 150131, Kew Gardens, NY 11415. Meets 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park, 8:00 p.m. Rptr. 444.200 PL 136.5. Info: Voice mail 718/760-2022; www.hosarc.org 10/09

Orleans County ARC, (OCARC). Meets at the Orleans County EMO 14064 W. County House Rd., Albion, NY 14411, 2nd Mon./monthly 7:30 p.m. Contact: Marion Toussaint, KA2BCE, 585/798-0861. 1/10

OHIO

Clyde ARS (CARS) meets 1st Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 43410. NF8E rptr. 145.35(-) and 442.625(+) MHz. Net Sun. 9 p.m. Info: E. Remaley, KA8CAS. 10/09

OREGON

Umpqua Valley ARC, Inc. P.O. Box 925, Roseburg, OR 97470. Meets 3rd Thurs./monthly, 7:00 p.m., Douglas County Court House, #310, Roseburg, OR. Info: K7AZW 541/679-9338 or 146.90(-)(PL100), <http://www.aag7c.net/uvarc/index.html> 12/09

PENNSYLVANIA

RF Hill ARC meets 7:30 p.m. last Thurs./monthly, Perkasie Fire Company, 5th St., Perkasie, PA. Info: Jim Soete, WA3YLQ, 215/723-7294; wa3ylq@hotmail.com; www.rfhill.ampr.org 12/09

Washington Amateur Communications Radio Club (WACOM) meets 1st Thurs./monthly, 7:30 p.m., Washington Co. Bldg., 100 Beau St., Washington, PA 15301. Contact Elmer Plants, N3TIR, 724-484-0207. 145.490. www.wacomarc.org 11/09

VIRGINIA

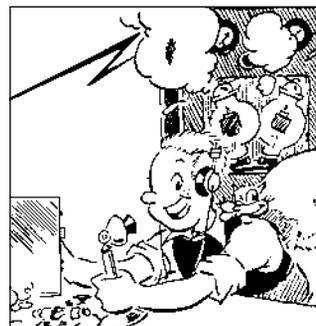
Mt. Vernon ARC, K4US (MVARC). Meets 2nd Thurs./monthly (except Jul. & Dec.), 7:30 p.m., INOVA Mt. Vernon Hospital, 2501 Parkers Ln., Alexandria, VA. Contact: Bob, KT4KS, 703/765-2313 or 146.655-. 10/09

WASHINGTON

San Juan County Amateur Radio Society meets 2nd Fri./monthly 11:30 a.m., Friday Harbor Firehouse. Serving hams throughout the San Juan Islands, Washington, we welcome members and visitors to our weekly nets, Wed. 8:00 p.m. local, through linked repeaters N7JN, 145.250MHz PL 133.8 Hz & 443.45MHz PL 103.5 Hz & CW @ 7:30 p.m. local on 3710 kHz or nearby. Contact Dan Drath, N6AU, for more information; drath.marine@rockisland.com 11/09

WYOMING

University ARC N7UW, University of Wyoming, Dept. 3625, 1000 E. University Ave., Laramie, WY 82071 meets 1st Tues./monthly in the Wyoming Student Union room 2 or 10 at 7:30 p.m. local time. All interested persons are welcome. johnmh@uwyo.edu 12/09



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Antenna Tuning

Kurt N. Sterba

In a column a little over a year ago, Kurt explained how your antenna tuner actually does tune your antenna to resonance. A faithful reader (“Keep up the great work, Kurt. It’s great to have someone like you around to keep us informed, and not fooled by those adverting tricks.”) still does not believe that your tuner tunes your antenna.

“When I asked a couple of new Generals to read your article and tell me what it said, they both replied that according to your article they only needed to put a tuner in their coax line at the rig and they could operate all bands even with their simple dipole or short vertical. That won’t work. I haven’t run a full wavelength of coax to test your statement that a tuner at the rig would tune the antenna itself, but running a full wavelength of coax on each band is a bit impractical. If the tuner actually tuned the antenna as everyone says, then all a ham needs to do is toss up a section of tubing or wire for a vertical, or a short dipole that will comply with local limits, stick in a tuner at the rig and “be on the air.” In the real world, this does not happen. I have a hard time thinking about a tuner at the rig being able to insert a reverse reactance, through a length of coax, out to the antenna that will “tune it” to resonance. At best, there might be a minor tuning but nothing major.”

Kurt does not agree, of course. However, the reader is partly right in that perfect tuning only works with lossless cable. The more loss, the ‘less good’ the tuning. Let’s look at two examples. First, we will look at lossless cable. The closest thing to this is open-wire line. Here is a simplified explanation of how the tuning works:

1. Assume that our antenna is non-resonant and looks like 50 ohms resistive and 150 ohms inductive. What we have to do to tune the antenna is give it 150 ohms capacitive reactance to cancel the 50 ohms inductive reactance. This will leave us with just 50 ohms resistive – a tuned antenna.

2. Next, let’s connect a full-wave length of cable to the antenna.

3. Now look at the transmitter end of the cable. What do we see? Since a full-wave cable repeats what it sees at the other end, we will see 50 ohms resistive and 150 ohms inductive reactance.

4. Connect this end of the cable to our tuner and adjust it to give 1:1 SWR on the cable to our transmitter. To get 1:1 SWR on this cable the tuner has to get rid of the 150-ohm inductive reactance on the antenna cable. It does this by presenting as 150 ohms capacitive to the antenna cable.

5. Note that the transmitter end of the antenna cable sees 50 ohm resistive and 150 ohms capacitive reactance from the antenna tuner output. Since what a full-wave cable sees at the transmitter end appears at the antenna end, the antenna sees 50 ohms resistive and 150 ohm capacitive. This cancels the antenna’s 150 ohms inductive and the antenna is tuned.

Kurt used a full-wave cable to make the explaining easy. But, the tuning works with any length of cable. To check this out you can use the TLW program that came with your Antenna Book. You have one, don’t you? Let’s select a good, but not great cable, from the list such as RG-8. We’ll use 30 feet of cable – a quarter wavelength on 40 meters. Using the same antenna as before, we put in 50+j150 as the load. Now we look to what we get at the input end of the cable. It is 5.14 -j13.18 ohms (5.14 ohms resistive and 13.18 ohms capacitive). Remember that to tune the system, your tuner has to put in the same reactance but of opposite sign to cancel the reactance. Therefore, we now consider this end of the cable as the load and put in 5.1+j13.18 (5.1 ohms resistive and 13.18 ohm inductive). Now look at the input end (this is the antenna end). Surprise! Unlike what Kurt told you, it does not quite tune the antenna to resonance. Why? Because of loss in the cable. What we get is 82 ohms resistive and 166 ohms inductive, not the 50 + j150 that we want.

The 166 ohms reactance is 10% different from what we would like.

Now let us try a very low-loss cable, 600 ohm open wire line. Putting in the

same antenna numbers, when we look at the transmitter end of the cable we find 1982 -j3278 (1982 ohms resistive and 3278 ohms capacitive). What a difference! When we adjust our tuner to 1982 +j3278 and look at the antenna end, we get 51.5 ohms resistive and 150 ohms capacitive. A good job of tuning!

What this tells you, is that to get your antenna tuned properly, you need to use low loss cable. Of course, you want to do this anyway to get as much signal to your antenna as possible. But what if you can’t do that? Not to worry! Your antenna will take all your power, except for cable losses, whether it is tuned or not. The most important part of the tuner’s job is to get 50 ohms at your transmitter so it will put out maximum power. That power has nowhere to go but your antenna. It will happily radiate it.

There are those who disagree and will tell you that an untuned antenna can’t radiate. Not so. There is a law of physics called “Conservation of Energy.” Energy cannot be destroyed. If you put 100 watts into that transmission line, part of it converts into heat due to the cable losses. The rest turns into radiation from the antenna. None of the 100 watts disappears.

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