THE EMCOMM TIMES
July - August 2012

Welcome to our first attempt to produce an ECOA Newsletter. We hope that the presence of the newsletter will start to help us build a better organization and bind us all together.

Of course it can only be as good as the input we get from you, the members, so please send us a note, no matter how big or small, on what you or your group have been up to. We would love to know.

From the VE3 QSL Bureau…..

Please be informed that the VE3 QSL Bureau is now under new management. Gary Westhouse, VE3NIT, manager of the VE3 QSL Bureau, has retired from the VE3 Bureau and has entrusted the QSL Bureau operation to Mike Christmas, VE3XMS/VA3FS, and the new VA3/VE3 Incoming QSL Bureau organization.
Please publish a note in your club newsletter indicating the change of the VE3 Bureau address as follows:

C/O Mike Christmas
VA3/VE3 Incoming QSL Bureau
PO Box 216
Streetsville, ON L5M 2B8
Email: qslmgr@ontarioincomingqslbureau.ca

Please also note that the VA3/VE3 Incoming QSL Bureau has thousands of unclaimed QSL cards for those hams who have not registered with the Bureau. The Incoming Bureau is a user pay service. You do not need to be a member of RAC to use the VA3/VE3 Incoming QSL Bureau. If you do not wish to receive QSL cards via the Bureau, please put a note to that affect on your QRZ.com listing. We will not be storing these unclaimed cards forever. Contact the Bureau if you are interested in obtaining your unclaimed QSL cards. Information on the QSL Bureau system can be found on the RAC web site at http://www.rac.ca/en/rac/services/qsl-bureaux/ If you have any questions on the VA3/VE3 Incoming QSL Bureau, please either contact myself or Mike Christmas, VA3/VE3 Incoming QSL Bureau Manager.

73,
Ed Spingola, VA3TPV,
Incoming Mail Manager VA3/VE3 Incoming QSL Bureau

Getting Started on 2-Meter SSB

Try the "Other Mode" on 2 Meters

Bob Witte, KØNR

In the past few years, a new breed of amateur radio transceiver has hit the marketplace --- radios that cover from HF through VHF/UHF frequencies. These radios include the ICOM IC-706, the ICOM IC-746, the Yaesu FT-100 and the Yaesu FT-847. This is not an exhaustive list since there are new radios being introduced every year with additional capability.

These radios include "all-mode capability" which means that they can operate FM, CW and SSB on the VHF bands. Clearly, FM is the most commonly used mode on VHF and UHF but having SSB opens up a whole new range of operating fun.

Why SSB?

FM is the most popular mode primarily due to the wide availability of FM repeaters. These repeaters extend the operating range on VHF and enable low power handheld transceivers to communicate over 100 miles. FM is also used on simplex to make contacts directly without repeaters. The main disadvantage of FM is relatively poor performance when signals are weak, which is where SSB really shines. A weak FM signal can disappear completely into the noise while a comparable SSB signal is still quite readable. How big of a difference does this really make? Perhaps 10 dB or more, which corresponds to one or two S-units. Put a different way, using SSB instead of FM can be equivalent to having a beam antenna with 10 dB of gain, just by changing modulation types. So this is a big deal and radio amateurs interested in serious VHF work have naturally chosen SSB as the preferred voice mode. (You will also hear them using Morse code or CW transmissions, which is even more efficient that SSB.)

Just as an example of what is possible on SSB, during one VHF contest I was operating portable on Garden of the Gods Road in Colorado Springs. I had just dismantled my 2M yagi antenna and was listening to 2M SSB on a short mobile whip antenna. Suddenly, I heard WA7KYM in Cheyenne, Wyoming calling CQ from about 160 miles away. I figured that with my puny little antenna and only 10 watts of power, there was no way he was going to hear me. But, what the heck, it was a contest and it would be more points so I gave him a call. To my surprise, WA7KYM heard me and we made the contact without much signal strength to spare. Now, to be accurate, this contact has more to do with WA7KYM's "big gun" station (linear amplifier, low noise preamp and large antenna array) than it had to do with my 10 watts and a small whip. The key point here is that this contact would not have happened using FM and was only possible because of SSB.

When and Where to Operate

The SSB portion of the band runs from 144.100 MHz to 144.275 MHz and Upper Sideband (USB) is used. The 2M SSB calling frequency is **144.200 MHz,** so that is the first place to look for activity or to call CQ. One of the realities of 2M SSB operation is that many times, no one is on the air. There is just not that much activity out there, compared to 2M FM. Some amateurs get discouraged, turn off the radio and and miss the thrill of working distant stations during a band opening. To get started on 2M SSB, the trick is to get on the air at times when you know there will be activity--- during VHF nets and VHF contests.

VHF Contests

Think of VHF contests as "VHF activity weekend" since they are a great opportunity to just get on the air and work most of the local 2M SSB enthusiasts. The main contests are the ARRL June VHF QSO Party, the ARRL January VHF Sweepstakes, the ARRL September VHF QSO Party and the CQ Worldwide VHF Contest in July. For more information, take a look at the article *How to Work a VHF Contest* at http://www.k0nr.com

Equipment

The required equipment for getting started on 2M SSB is pretty basic - a transceiver capable of 2M SSB and a 2M antenna. If you own one of the rigs mentioned above then you are probably ready to go. The 2M antenna you already have is probably *vertically polarized* since that is what we use for 2M FM, both mobile and base stations. All of the 1/4-wave and 5/8-wave antennas that are commonly used for 2M mobile work are vertically polarized. Most omni-directional base station antennas such as those made by Cushcraft, Diamond, Comet, etc. are vertical, too. These antennas will work for SSB but most of the really active 2M SSB stations use *horizontally-polarized* antennas. Vertically-polarized stations can work horizontally-polarized stations but there will be a substantial signal loss (about 20dB?). If vertical is all you have, then give it a try. If you can get a horizontal antenna, then your results will be much better.

The most common horizontally-polarized antenna on 2M is a Yagi mounted so that its elements are parallel to the ground. There are a variety of horizontally-polarized, omni-directional mobile antennas, such as the HO antenna made by M^2 (see http://www.m2inc.com).

Get on the Air

This information is intended to get your started on your way to operating 2M on the SSB portion of the band. You will learn more as you get into it and you will find that most of the people hanging out down on sideband are friendly, knowledgeable and helpful. They are always happy to see new call signs on 2M sideband.

Some resources available on the web are:

Rocky Mountain VHF Plus web page: http://www.rmvhf.org

VHF Operating articles by KØNR(similar to this one) at: http://www.k0nr.com/

North East Weak Signal Group web site at: http://www.newsvhf.com/

The Ontario Public Service Reflector

What is a Reflector?

A Reflector is a computer system that has up to 9 channels that will let many IRLP nodes connect at one time. IRLP nodes can normally only connect to another repeater which has an IRLP connected to it, so only one repeater at a time can connect to a single repeater. The reflector can take as many nodes as dial providing it has enough bandwidth to accommodate them.

History

I noticed several years ago that Ontario did not have its own Reflector. As Ontario has the most repeaters in Canada and has been using Vancouver's reflector, I looked in the possibility of having our own. I asked the Reflector guru in Vancouver if I could get one in Ontario. It took six months of be very persistent and he finally gave in.

So with the help of Dave in Vancouver and Klaus in Dorset, we put a system together in Halliburton, It was not an easy job. I had to make sure we sufficient bandwidth for various nets. After several try's we finally have it working, only to crash. I ended up ordering a newer version from Dave in Vancouver and with the help of some extra bandwidth we have it rolling along.

So we started up some nets, and others moved to the new Reflector. Again I wanted to do more for emergency communications in Ontario.

I heard that you could add Echo Link to the package and have a crossover on one channel, thus enabling other amateurs to join in during an exercise or emergency. We now have this on Channel 8 which is a feat that only 2-3 others in all of the 30 other reflectors in the world have. This means that the new Ontario Public Service Reflector can do more that others, for emergency communications.

The reflector also lets Northern repeater/nodes stay tied in together so they can communicate over a wide area without having to bring the nodes up, thus saving time and being able to find other amateurs who are active in the North.

We also have a good rapport with the Vancouver reflector 9005, if ours goes down, we just switch to it and the same applies if they have trouble with theirs.

I believe that we should be holding an ECOA EmComm net on the reflector on Channel 8 with the Echo link crossover, as sometimes amateurs are not close to a repeater that has an IRLP node, so they can check in or help out even if they are out of the area.

The new Ontario Public Service Reflector is owned by ECOA, and relies on Donations for its bandwidth as well as its maintenance. Donations are always appreciated to the www.ecoa.ca site.

Russ Hemphill VE3FI
Licensee for the Reflector

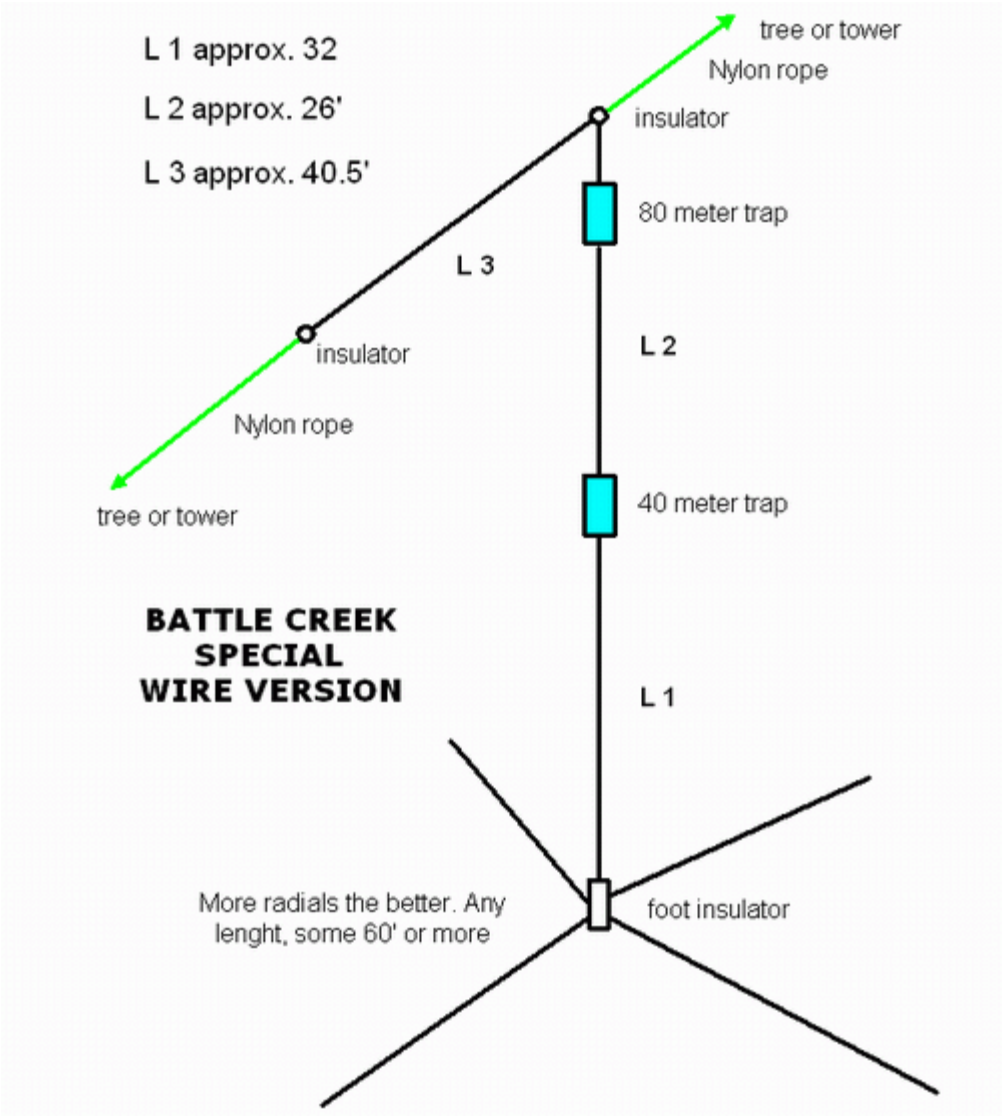
The Battle Creek Special Antenna

By OK1RR

There are 2 versions of the Battle Creek Special shown - a wire version. which will work out first. The traps are made of coax cable as described by W1FB. The second version is a'real' vertical make of tubes complete with a description of the traps... I hope to unsecret the mystery of the Battle Creek Special and the construction of it.

GENERAL

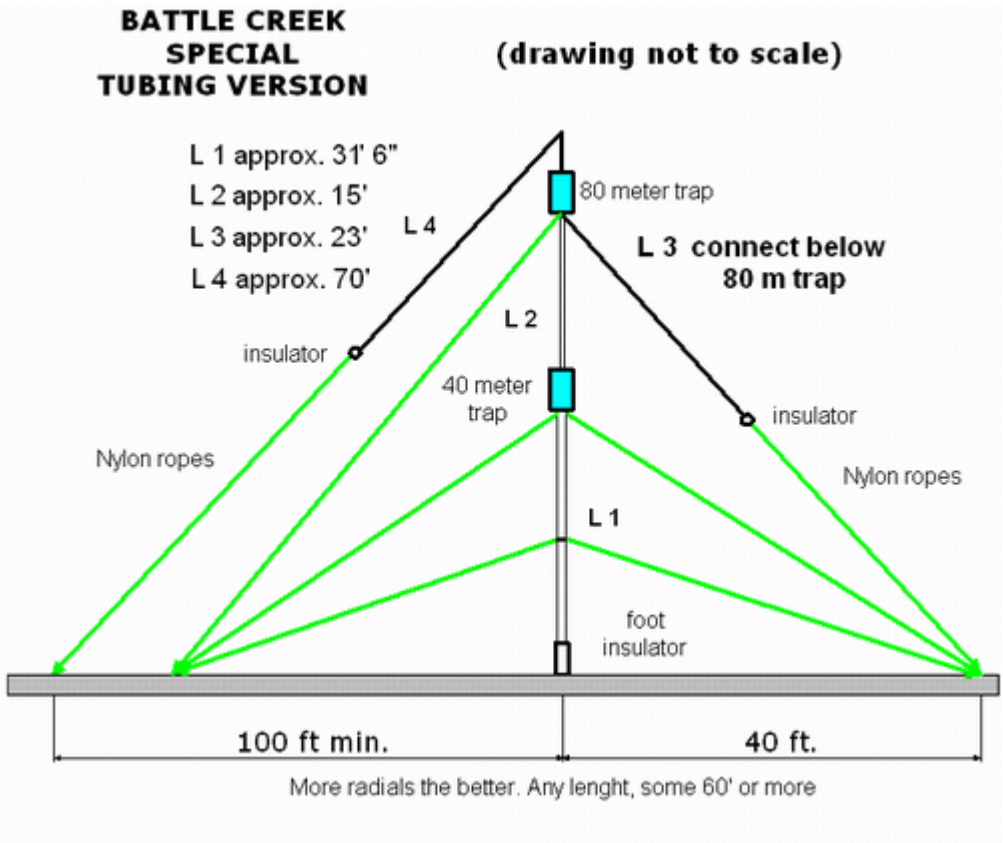
This antenna is designed for 40, 80 and 160 meters to complement a tri-band beam normally taken on DXpeditions for 10, 15 and 20 meters, so six bands can be worked with only two antennas.



CONSTRUCTION

A detailed description of a wire construction of the Battle Creek Special published *Jeff Briggs, K1ZM.*

The material used is high strength aluminum tubing, 6061-T6 alloy, in sizes ranging from 2 inches to 1 inch (5 to 2.5 cm O.D.). Guy lines are 3/32 inch (2.4 mm) dacron double braided rope with a rating of 260 pounds (118 kg) breaking strength. Wind survival rating is 100 MPH (160 km/h) assuming proper guy rope anchors.



CONFIGURATION

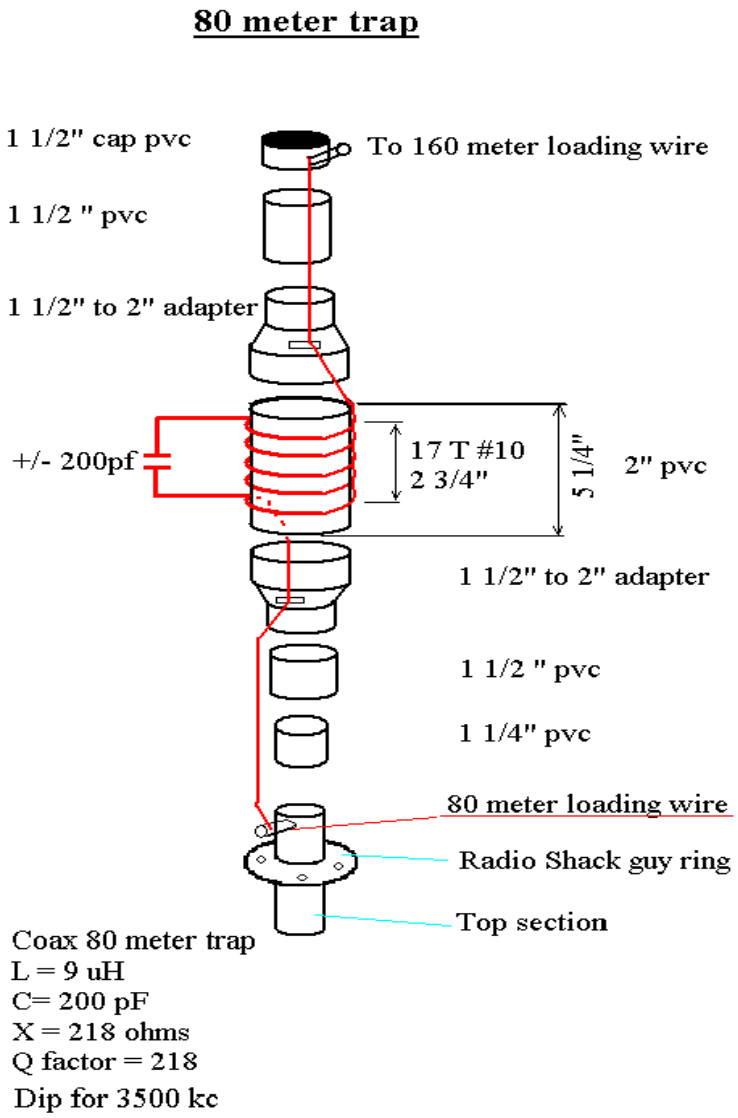
The antenna is a vertical element 48 feet (15 meters) high with traps for 40 and 80 meter operation, with a top loading guy wire connected BELOW the 80 meter trap to resonate the antenna on 80 meters and a top loading wire connected ABOVE the 80 meter trap for 160 meter operation. It is guyed four ways at three levels so the side guy ropes act as a hinge allowing it to be "walked up" by one person.

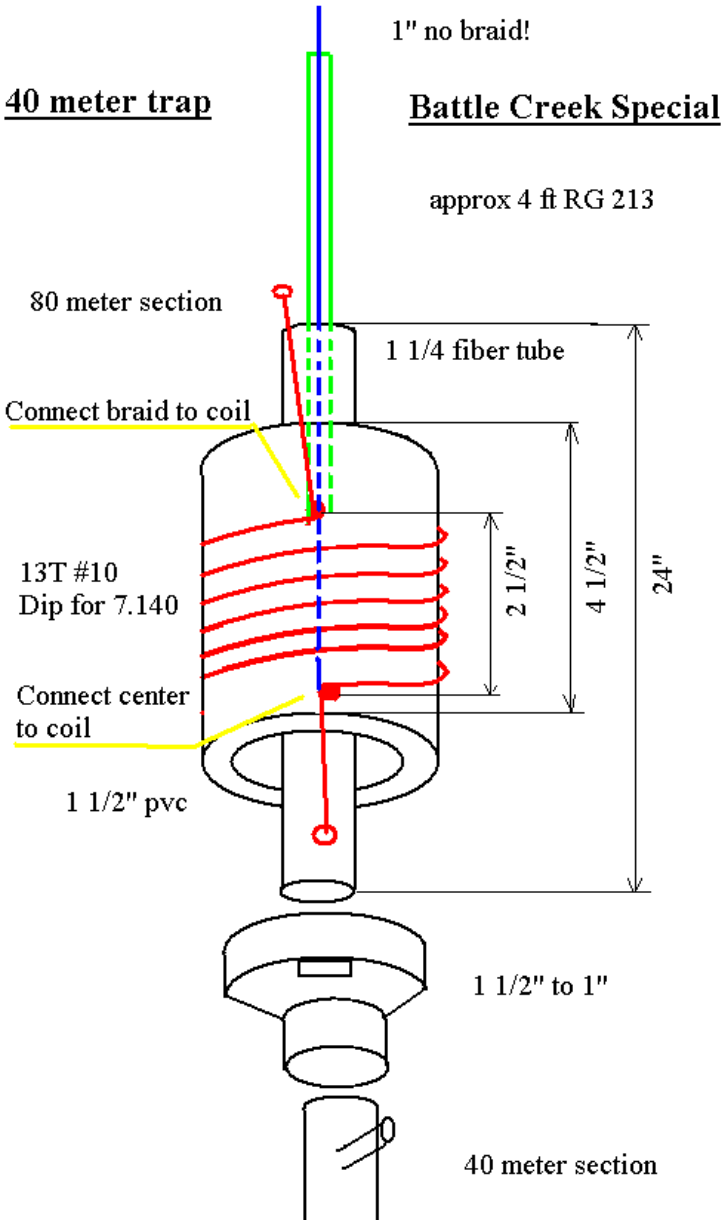
Original traps were coaxial as in Oct.'81 HAM RADIO, May'81 QST and Dec.'84 QST. These work fine at powers up to 800 watts or so, but run "hot" at "full legal power"!! The latest design uses regular L/C traps with the "L" being #10 wire and the "C" made from lengths of R/G 213U (approx 30pf/ft.) The mechanical construction is a little complicated, but not difficultly (The coax cap. fits inside of the aluminum mast sections. A single approx 3' for 40 and parallel approx 4' sections for 80) The 40 meter trap uses 13 T on 11/2 CPVC.

The Mechanics of Coaxial Traps

DOUG'S DESK BY DOUG DeMAW, W1FB

I am frequently asked, what's the best way to build an antenna trap? Certainly, the art of building these components has been covered In the amateur literature by numerous authors in the past. Early-day homemade traps consistecl of a suitable piece of B & W Miniductor stock and a parallel capacitor that could handle the RF current without overheating or changing value. Suitable capacitors were plentiful in the days when kW amplifiers were the exception rather than the rule. But now that linear amplifiers are plentiful, it becomes a challenge to build an antenna trap that won't overheat or become short-circuited. The outlook improved markedly when R. H. Johns described his coaxial traps in OST magazine. These traps rely upon the inherent capacitance in coaxial cable, along with the inductance that results when the proper number of cable turns are wound on a coil form. Therefore, the number of turns required for a particular resonant frequency is a function of the capacitance per foot of the cable used for the trap.





There is another nice tools for coax trap design. Tony Field, VE6YP, released a Windows based program producing reliable and proven results. Therefore, I will not include the design procedures for coaxial traps in this article. Instead, let's discuss trap performance and the mechanical aspects of building these devices. Coaxial traps that are wound with RG-58 cable will safely accommodate the full legal amateur power level. They may be made more compact and lightweight by using miniature RG-174 coax and smaller coil forms, but the maximum safe power level is 500 watts for the smaller coax. RG-174 coaxial traps are desirable for portable multiband antennas.

Conversely, RG58 cable requires a larger and heavier coil form, which must be a consideration if several traps are contained in one antenna. It becomes obvious that strong, thin-wall coil forms are better for these larger traps. The weight of the coax for 160 and 75 meter traps, especially, is a tad on the hefty side to begin with PVC plumbing pipe is readily available and works nicely as coil-form material. Try to select the thin-wall variety. The traps pictured in this article are wound on thick wall pipe (3/16 inch wall thickness) with a 2 3/8 inch OD, simply because that's what I had on hand. The 1.9 MHz trap weighs 14 ounces without the end caps and eye bolts installed. Fiberglass, or thin-wall cloth phenolic tubing, would reduce the weight substantially. The 3.85 MHz trap weighs 11 ounces with the 3/8 inch Delrin end plugs and other hardware in place. Wooden end plugs, boiled in canning wax, would decrease the weight by a couple of ounces.

Trap Quality

Coaxial traps have a relatively high value of Q. I observed this when using a Kenwood DM-81 dip meter to check the trap resonance. Despite the small dipper coils, a sharp indication was obtained when the dipper probe was 8 inches away from the end of the traps. This indicated high Q (preferred). Owing to this characteristic, the impedance of coaxial traps is high. The effective operating bandwidth of the traps is on par with the 2:1 SWR bandwidth of most dipoles, despite the high Q. The longevity of coaxial traps can be improved if you are lucky enough to find some Tellon-insulated RG-58 cable that has UV-resistant outer insulation. I don't know if cable of this type can be obtained but Teflon coax is available. Some form of UV protection (to prevent degradation of the traps) is desirable. If 2 3/4 inch shrink tubing were available, it would be an ideal covering for the traps. I have had good results with tool-handle dip compound for protecting coaxial traps I built in the past. Two layers of the material were used. The traps held up well during an outdoor test period of five years. Once dried, the compound had no effect on the trap resonance or Q.

Mechanical Details

A 1/2 inch by 2 inch strip of doublesided PC board material is used at each end of the trap. Each strip is held in place by means of two 6-32 flathead screws. The strips serve as conductors between the antenna and the internal junctions of the trap. Lock washers are used at all screw points to ensure long-term electrical integrity. The trap end plugs are optional. I prefer to use them because they deter wasps from building nests inside the tubing, and because they prevent internal build-up of ice or snow. The plugs are fitted with eye bolts to provide anchor points for the antenna wire. If you omit the plugs, you may drill a hole at each end of the trap for use as an antenna-wire anchor point. Two solder lugs are used on each PCboard strip. One is installed outside the trap for the antenna connection. The other one is used as a soldering terminal for the coaxial cable, inside the trap. Each end plug is held in place by three 6-32 screws.

The plastic plugs are drilled and tapped for 6-32 screws (three for each plug). If wooden plugs are used, you may use flathead wood screws to affix them. It is wise to seal the open ends of the trap cable with epoxy cement, GOOP brand sealant, or Coax Seal 9(r) putty. This will prevent moisture from migrating inside the shield braid and contaminating the RG-58 cable.

Electrical Considerations

The traps described in this article are wound with RG-58AIU. Other small 50 ohm coaxial cable is suitable. If you want to add a margin of safety for high power, you can use RG-8X coax. The Radio Works, Inc.s catalog lists their top-of-the-line RG-8X as CQ-8X M/M. It is a marine-grade cable that is high-temperature stable and contains solid dielectric crushproof insulation. Since RG-8X has a greater OD than RG-58, a longer coil form would be required. Fig. 2 shows the assembled 160 and 75 meter traps. The medium-size unit with the end plugs is for 3.85 MHz. Included in the photo is a 1 inch OD mini trap for 20 meters that was built by my son, Dave DeMaw, N8HLE, for use in his QRP trap dipole. This tiny trap is wound with RG-174 and weighs one ounce. It is coated with tool-handle dip. Some of you are probably wondering where an amateur might use a 160 meter trap. Traps for that frequency are useful in a 75 meter fullwave loop to permit 1.8 MHz operation. Half frequency loops (e.g., a 75 meter loop on 160 meters) perform miserably. They provide substantially less gain than a full-size dipole. However, if the loop is opened electrically opposite the feed point by means of a 160 meter trap, the antenna performs as a 160 meter "scrunched" dipole and works quite well. The trap effectively opens the loop at 160 meters, but closes it for the bands below 160 meters. Multiband operation assumes that tuned feeders are used with the 75 meter loop. Note that the center conductor at one end of the coil is connected to the shield braid at the opposite end of the coil. The trap turns are close-wound.

75 Meter Trap Constants

The following electrical constants are based on a coil-form diameter of 2.375 inches and RG58A/U cable for the 3.85 MHz trap described here. An effective capacitance (28.5 pF/ft.) of 241 pF and an inductance of 7.14 uH (Xc, XL = 172) results from using the required 104 inch length of coax cable. The coil length is 2.53 inches and the form factor is 0.98:1. There are 12.45 close-wound turns of cable wrapped around the 4 3/4 inch length of PVC tubing. Table I lists winding information for a variety of coaxial traps. The referenced QST article by R. Sommer. N4UU, contains charts that can be used to design traps for any HF band when using various coil form diameters. If you have an IBM-compatible computer, you can utilize the aforementioned VE3ERP software to design these traps precisely. The recommended form factor (diameter to length ratio) for these traps is from 1:1 to 2:1. This range ensures the high Q that makes the traps effective for divorcing the unwanted parts of an antenna.

MHz	Form O.D.	Form L	Turns No.	Coax L	Net C	Net L
7.15	2 3/8	4.0	11.85	66.51	152.24	3.28
3.60	2 3/8	4 1/2	13.20	110.25	255.00	4.00

Table 1.

The letter L in this table (other than the right-hand column) refers to length, which is given in inches before the shield braid is separated from the inner conductor The braid at one end of the coil must be long enough to reach to the center conductor at the opposite end of the trap. The remaining shield braid and the two center-conductor stubs are approximately 1 inch long Resonance of the completed traps may be checked with a dip meter while monitoring lhe dipper signal with a calibrated receiver.

Bob Gammon
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Dear Member,

I hope you will be renewing your membership with ECOA. The cost at this time is only $15.00 dollars and can be paid on line by PayPal or by cheque or money order to the above address.

Your membership includes liability insurance for any event that you are participating in under the umbrella of ECOA. We are at this time looking into the cost of equipment coverage and hope to have this information for you shortly.

Your board has been busy laying out how we proceed with the growth of ECOA and how we can offer our services to the municipalities that we call home.

ECOA is at this time preparing its training schedule and course layout for members to be trained under IMS (incident Management System) so as to provide emergency and auxiliary communications to any EMO or NGA that request such assistance. To facilitate this we need the following from you our members:

1. Training We have to be trained and know the system that your local EMO and NGA use, to this end we would ask that you take the online IMS 100 course a link is provide here: http://www.emergencymanagementontario.ca/english/emcommunity/professionaldevelopment/Training/ims100/ims100.html

   You must pass this on line exam to go on to the next stage

   ECOA throughout the summer will hold the IMS 200 course this has to be taken with a trainer and is a weekend course. Once you have passed the 100 course let us know and will arrange for the IMS 200 training to take place in your region.

2. Equipment. We need to know what you have and if you are mobile or base only.

3. Location. Your complete address and phone number, this should include your cell number

4. Your background: I.e. are you member or volunteer of your local fire or Ambulance service or any other emergency service, any special training, Electrician, Plumber, Nurse Etc.

Privacy Policy:

All information obtained from the above will be maintained in the strictest confidence and will only be used by ECOA to formulate a strategy to assist us in the finalization of our plan to offer the services of ECOA members to your local municipalities.

ECOA is now looking for members to apply for the following volunteer positions:

Regional commanders
Zone managers
Team captains

All of the above positions must have the following accreditation: Passed IMS 100 and 200 and hold an advance certificate of proficiency in Amateur Radio.

We like many other not for profit organizations we are realizing that the cost of running the clubs and organizations has risen, and are finding it difficult to cover the general costs. After a great deal of thought the board has agreed that the cost of membership will have to be raised, this is mainly brought about by the cost of insurance and our need to cover incidentals for the up coming training that must take place for us to be a leader in the Emergency in the communication field. The fees will be raised as of September 1st 2012 this will allow all present members to pay their dues before this time therefore not being affected until next year. As of September 1st 2012 the membership dues will be raised to $25.00.

We hope you will continue with us as we grow.

Bob Gammon
President ECOA

July - August 2012 IOTA Expeditions and other DXpeditions

TK/ON8VP CORSICA ISLAND - Peter, ON8VP, will be active holiday style from the island of Corsica (EU-014) as TK/ON8VP from 1-6 July, 2012.

E51AND SOUTH COOK ISLANDS - Andy, AB7FS (SKCC #7723), plans to be active holiday-style as E51AND from Nikao Village, island of Rarotonga (OC-013), South Cook Islands, between 2 July 2 and 25 August, 2012. Look for Andy on the ANZA net (which meets at 05:15Z daily on 14.183Mhz.). QRV also using a straight key, slow CW.

FP/KV1J MIQUELON ISLAND - Eric, KV1J, will be active from the island of Miquelon (NA-032) as FP/KV1J between 10-17 July, 2012. QRV on 160-6 metre SSB, CW, RTTY and PSK31. Primarily SSB, CW and RTTY generally on the highest frequency band open. Will try 6M if there are any indications of openings. May also operate Satellites in good weather. Eric will also participate in the IARU HF Contest (14-15 July) as a Single-Op/All-Band/Mixed-Mode/High-Power (500W) entry.

V47JA ST. KITTS - John, W5JON, will again be operating as V47JA from Calypso Bay, island of St. Kitts (NA-104) between 12 July and 2 August, 2012. QRV on 80-6 metre SSB (incl. 60m). Also operation in the RSGB IOTA Contest (28-29 July), Single-Op/All-Band SSB. Radio: Kenwood TS-590S, and SB200 Amplifier. Antennas: 10-80m Multiband Dipole, and S9, 18' and 31' Verticals; 6m - 3el Yagi. XYL Cathy (W5HAM), will also occasionally operate as V47HAM.

MMØBQI/P SHIANT ISLANDS - Jim, MM0BQI, plans to be active as MM0BQI/p from the Shiant Islands, Outer Hebrides (EU-112) from 14-22 July, 2012.

MJ/OT9Z JERSEY ISLAND - Look for Peter ON8ZZ, Dominiek ON3JA and Frederik ON3NT to be active as MJ/OT9Z from La Moye, isle of Jersey (EU-013), from 20-27 July, 2012. QRV on all HF bands, CW and SSB.

V31 CAY CAULKER - Henry W5HNS, Jay K0BCN and Marty W5MRM expects to operate from Cay Caulker (NA-073), Belize, as V31WH, V31MX and V31MO, respectively, between 23-31 July, 2012. QRV on 40-10 metre CW and SSB. Look for them as V31MX during the RSGB IOTA Contest (28-29 July).

TAØ GIRESUN ISLAND - A large group of Hungarian and Turkish amateurs will be active from Giresun Island (AS-154) between 24 July and 1 August, 2012. Operators will be Pisti HA5OJ, Ed HA5BWW, Laci HA5MA, Karl HA7PC, Feco HA8KW, Bekir TA2RX, Ali TA7EB and Ali TA7EM. The following callsigns will be used on all HF bands and modes: TA0/HA8KW, TA0/HA5BWW, TA0/HA5MA, TA0/HA7PC, TB2ZHI/0, TA2RX/0, TA7EB/0 and TA7EM/0. On 28-30 July, the team will use the callsign TC0HA and will also participate in the RSGB IOTA contest (28-29 July).

SA6G/7 VEN ISLAND - Look for Lars, SM6CUK, to be active from Ven Island (EU-137) as SA6G/7 from 25-30 July, 2012. This will include an entry in the RSGB IOTA Contest (28-29 July).

CY9M ST. PAUL ISLAND - Operators Mike AB5EB, Oscar EA1DR, George EA2TA, Christian EA3NT, Simon IZ7ATN, Col MM0NDX, Bjorn SM0MDG, Vicky SV2KBS, Steve VA3FM and Kevin VE3EN will be active as CY9M from Atlantic Cove, St. Paul Island (NA-094), Victoria County, Nova Scotia, between 26 July and 1 August, 2012. They will be QRV on 160-2 metres, all modes, with special attention on 6m and 160m if propagation allows.

VX2I ILE VERTE - Members of the 'NA-128 Contest Group' will activate the special callsign VX2I from Ile Verte [Green Island] (IOTA NA-128), Quebec, from 26-29 July, 2012. This will include a Multi-Single entry in the RSGB IOTA Contest.

GØVJG/P ST. MARY'S ISLAND - Nobby, G0VJG, will be signing G0VJG/p from Saint Mary's Island, Isles of Scilly (EU-011), from 27-30 July, 2012. He will also participate in the RSGB IOTA Contest (28-29 July) as a Single-Op/High-Power/SSB entry.

GM7A GIGHA ISLAND - Operators Graham MM0GHM, Gordon MM0GOR, Allan 2M0VNW, Peter GM7AAJ and Jason GM7VSB will once again activate the island of Gigha (EU-008) for the RSSGB IOTA Contest (28-29 July). QRV on all HF bands.

RIØK RARE IOTAs - Members of the Russian Robinson Club will be active as RI0K from Ostrov Ratmanova (AS-061, Big Diomede Island, RRA RR-11-04, RDA CK-08), Chukchi Sea, and Ostrov Alyumka (AS-092, Bering Sea, between July 15th and 28 August, 2012. Look for activity on all HF bands and modes.

ZA1TC ALBANIA - Tevfik, TA1HZ, will be flying to Albania once more on 1st August 2012 to operate as ZA1TC. He will be staying till 7th August 2012 in Durres and will participate in European HF Championship.

JW SVALBARD - Torkel, LA6VJA and Fredrik, LA6TMA plan to be active as JW6VJA and JW6TMA, respectively, from Longyearbyen, Spitsbergen Island (EU-026, WLOTA 0125), Svalbard Archipelago, from 10-12 August, 2012. JW6VJA plans to be on CW with some SSB time and JW6TMA will be mostly using the digital modes.

GB2YLS FAIR ISLE - A YL DXpedition to Fair Isle, Shetland & Fair Isle (EU-012), using the call sign GB2YLS will take place between 16-22 August, 2012. Their main goal will be the 2012 Intenational Lighthouse Lightship Weekend (18-19 August - see: illw.net/) when they will activate the Fair Isle South (Skaddan) lighthouse (ILLW UK0127). QRV on the HF bands using both CW and SSB.

VK4ILH CAPE MORETON LIGHTHOUSE - An experienced team of 8 operators will be signing VK4ILH during the International Lighthouse & Lightship Weekend on 18 & 19 Aug, 2012. Activity to take place (prior to ILLW) from the 17th of August at Cape Moreton Lighthouse (ARLHS AUS-039, ILLW AU0009) located on Moreton Island (OC-137). This expedition will mark the very 1st time Cape Moreton Lighthouse has ever been activated.

8Q7OE KUREDU ISLAND - Juergen, OE4JHW, will do a suitcase DXpedition to Kuredu Island (AS-013), on the northern reef of Lhaviyani Atoll, Republic of Maldives, as 8Q7OE between 2-14 September, 2012.

Gain

By: Dave W6OAL

We all talk of gain, of our amplifiers, of our antennas and the like, but do all of us really understand what is meant when we speak of gain of this or that or something else? Listening on many of the bands I have to wonder if the folks really do or not.Let me first delve into gain as it pertains to an amplifier. In this context gain is and of itself is how much a signal is amplified between input and output of a device or circuit. In its purest sense we are dealing with power gain, for example, as in 1 mw (milliwatt) input and 10 watts output. Pure and simple this is a gain of 10,000 or 10,000 times (10^4)1 mw yields 10 watts. Such a clumsy figure is hard to deal with in calculations so in electronics we usually express gain in decibels (tenths of a Bel). In order to convert the gain 'figure' (10,000) to decibels or dB, a capital "B" in honor of Alexander Gram Bell, the log to base 10 is taken and then multiplied by 10 so that the gain in dB is equal to 10 log of the ratio of the output to the input power levels:dB = 10 Log (P2/P1) or 10 watts/1 mw, 40 dB = 10 Log (10/0.001).

Seemingly this is a much easier expression to use in calculations and eliminates the possible confusion of zeros (place holders). So, gain expressed in dB is simply 10 times the log of the ratio of two power levels

Gain can also be expressed in minus (-) dB, generally we call this attenuation or loss, in some cases. Take for instance a resistive network that attenuates a 10 watt power level to a 1 mw power level. The ratio is simply reversed from when expressing gain as 1 mw/10 w or 0.001/10:

-40 dB = 10 log (0.001/10)

The nice thing about the expression of power levels in dB comes when a series of gains or losses are required to be calculated. Arithmetically the gain 'figures' would have to be multiplied where as dB can simply be a series of algebraic additions:

40 dB + (-40 dB) + 10 dB = 10 dB

Now, gain as referred to an antenna has somewhat of a different twist. If an antenna measured on an antenna range exhibits a gain of 15 dB over the gain of a dipole (or 15 dBd), just what is being said? If the 15 dB is reduced to a gain 'figure' by dividing the 15 by 10 and taking the antilog:

15/10 = 1.5 antilog = 31.62.

This simply means that the measured antenna has 31.62 times the 'directivity' of the dipole. In other words if 1 watt of power were to be applied to the dipole and used as a reference, then the same 1 watt applied to the measured antenna would appear as 31.62 watts at the measurement equipment.

Now, how is this possibly. Well, the term 'directivity' was used in the latest paragraph and at this point needs to be examined. What is 'directivity'? Directivity is the property of having the induced power to an antenna placed more in one direction than any other. Often for the purposes of calculation the reference is the 'isotropic' source (an assumed entity) or a source that radiates equally well in all directions. The dipole actually has a gain 'figure' of 1.64 or (2.14 dB) over an isotropic source so the dipole is not the best reference that can be used; however, in practice it is usually adequate. So let me further explain the nature of the isotropic source.

If an 'isotropic' source (a point source) were to be placed inside a 'unit' sphere that has a radius of one radian 57.3° and have a circumference of 2π radians (2 X 3.1416 X 57.3°) or 360°, and a surface area of 4πR^2 radians or 41,259 steraidian square degrees (sr), then every degree on the inside of that sphere would be illuminated. Kraus suggests rounding off to 41,000 sr degrees in his second edition of "Antennas" McGraw-Hill. If all 41,000 sr degrees are illuminated on the surface of the 41,000 sr degrees of the unit sphere the directivity of the point source becomes "1" (41,000/41,000) and therefore the gain being; A = 10 Log of directivity is then "Ø"!

So how do we know that an antenna has a specified gain (most manufacturers usually fudge on this)? Let's take an actual antenna with the specified gain figure. The M^2 2M9 Yagi antenna has a specified gain of 12 dBd or 14.14 dBi and a specified beamwith(s) of 35° E-plane and 40° H-plane; A(dBi) = 10 Log ((41,000/(ΘE X ΘH)) 14.666 dBi = 10 log ((41,000/(35 X 40))

The calculated figure of 14.666 dBi as compared to the specified figure of 14.14 dBi (12 dBd) is a lot closer than most published antenna gain figures. As a personal note I might add that having known Mike Staal (M^2) for over 35 years, he has always been quite honest with his antenna gain figures. The slight error may be attributed to the rounding off of E and H plane angles as these are difficult to measure in the first place.

I would like to think that this exercise has been useful to the reader in the understanding of how gains are arrived at and made useful.

EmComm Go-Box in action

The July & August Contesting Scene…..

Contest Calendar	
RAC Canada Day Contest	0000Z-2359Z, Jul 1
IARU HF World Championship	1200Z, Jul 14 to 1200Z, Jul 15
CQ Worldwide VHF Contest	1800Z, Jul 21 to 2100Z, Jul 22
RSGB IOTA Contest	1200Z, Jul 28 to 1200Z, Jul 29
EU HF Championships	0000Z to 2359Z, Aug 4
10m SSB Summer Contest	0000Z, Aug 4 to 2359Z, Aug 5
NA SSB QSO Party	1800Z, Aug 18 to 0600Z, Aug 19

Upcoming Events

Weekend of July 28th & 29th Islands on the Air. Sponsored by the RSGB, 2012 is the 48th year IOTA has been run. Get on the air and contact as many islands as you can….or better yet, activate a Canadian Island.

Sunday August 5th Colorado 14er's Event. Amateur Radio operators from around Colorado will be climbing many of Colorado's 14,000-foot mountains to set up amateur radio stations in an effort to communicate with other radio amateurs around the world. Join in on the fun and see how many of the mountaintop stations you can contact. The prime operating hours are from approximately 1500 to 1800 UTC, but activity may occur at other times during the day. Most mountaintop stations will be running low power portable radios.

Weekend of August 18th & 19th International Lighthouse Weekend. This annual amateur radio event was started in Scotland in 1995 by John Forsyth, GM4OOU, and the late Mike Dalrymple (GM4SUC). The basic objective of the event is to promote public awareness of lighthouses and lightships and their need for preservation and restoration, and at the same time to promote portable amateur radio use.

Weekend of September 15th & 16th QRP afield. New England QRP Club's QRP Afield contest. It's designed to get QRP buffs out of their arm chairs and into the field for a day of sun and contacts, with a hefty dose of fresh air thrown in.

NOTE: While the events above are not EmComm orientated, every one of them does have the capacity to be a valuable training venue for EmComm work. All of these events can be operated "in the field" at a deployed location, under battery or solar power.

Please remember that the more we practice our deployment skills, the better we will be when we are truly needed.