CAARA Newsletter

CAPE ANN AMATEUR RADIO ASSOCIATION MAY 2016

President's Desk

by Hank-W4RIG

We had a great Tech-In-A-Day session at the Lanesville Community Center (better rest room facilities than at 6 Stanwood). With Stan Stone (W4HIX) leading the way,.. . We had 21 take the exams for the Technician Class License and 20 passed. Thanks to both Bob Quinn and Bill Poulin for carrying the major load of paperwork and Bob sending the results through to ARRL. Certified VE Examiners who helped with the grading were Ron Beckley, Larry Beaulieu, Gardi Winchester, Mr. Mike, Ruth Hodsdon, and Hank McCarl. Tony Marks (N1JEI) sat in on the grading session in training for the VE exam - Ruth WW1N provided Tony with the VE manual she used to prepare for her VE certification. Coming up soon will be the Rocky Neck 5K on Sunday May 15 starting time 9:00 AM - contact Gardi (KA1BTK) if you can give us a hand with that public service event. We can train new helpers for this public service event and your participation will be considered emergency net operation training for any real emergency as well as future public service events.

Hank (W4RIG)

Information Desk

by Dean-KB1PGH

Well before I forget I would like tot remind everyone that the Annual ARRL Field Day event is coming up fast.This year Field Day will be held on Saturday June 25 through Sunday June 26th. It's easy to remember that Field day is always held on the last full weekend in June.

Every year about 35,000 amateur radio operators participate in this event.Your all the details on Field Day please go to www.arrl.org . For those who are participating in Field Day this year I would like to offer the advice of please keep Field Day simple and fun. Don't over plan and make it more like work than fun.Maybe since I have a 3 year old and have barely any time to operate I don't take for granted the extreme limited time I get to operate amateur radio.

All I can say is please enjoy just being with your friends and enjoy the magic of talking on HF during Field Day. If you feel any pressure to perform or get mad and yell during Field Day your doing it wrong.

Moving on I think I'll cover some aspects of "Emergency Communications" in amateur radio. I hope you know that the ARRL has and Emergency Communications organization called "ARES" or the Amateur Radio Emergency Services. ARES has a leadership tree on a National level all the way down to your local area.

The amateur radio operators in ARES are also trained for emergency communications by attending classes and taking online study courses.

Did you know that ARES provides emergency communications for organizations such as the American Red Cross and the Salvation Army? Most ARES members are also trained Skywarn weather spotters for the National Weather Service. ARES members also provide emergency communications for your local CERT Program. CERT or "Community Emergency Response Team" is a group of local volunteers who have taken a safety course and help your local town or city during disasters. All ARES members are also plugged into your local town or city Emergency Management organizations as well as the state level and Federal level as well with FEMA or the "Federal Emergency Management Agency".

For example the amateur radio operators in ARES have provided emergency communications during the 9/11 terrorist attack and the Hurricane Katrina disaster as well. Not to mention all the wildfires and floods and other natural disasters all over the United States. All of the services provided by ARES members have not cost the taxpayers a dime and they use all of their own equipment.

I'll get more into that in another column so we'll see you next month!

CAARA Newsletter
Cape Ann Amateur Radio Association
6 Stanwood Street
Gloucester, MA 01930

CAARA Newsletter is a monthly publication of the Cape Ann Amateur Radio Association (CAARA). It is the policy of the editor to publish all material submitted by the membership provided such material is in good taste, relevant to amateur radio and of interest to CAARA members, and space is available. Material is accepted on a first come, first serve basis. Articles and other materials may be submitted by internet to Jon at k1tp@arrl.net. If possible, material should be in Word format.Material may also be submitted as hard copy to Jon-K1TP or any Club Officer.

Jon Cunningham- K1TP Editor
Dean Burgess- KB1PGH Reporter

Welcome to CAARA:

CAARA, an ARRL affiliated club, operates the 2 meter W1GLO repeater on 145.130 MHz with antennas located on the cell tower in the Blackburn Industrial Complex in Gloucester Massachusetts. It has an average effective radius of 60 miles, and serves Eastern Massachusetts, Cape Cod, Rhode Island, Southern New Hampshire, and maritime mobile stations. CAARA also operates the W1GLO repeater on 224.900. The former W1RK 443.700 repeater in now on the cell tower in the Blackburn Industrial Complex with greatly enhanced perfrormance.

The Association is one of the few amateur radio clubs that has its own clubhouse. Located at 6 Stanwood Street in Gloucester, it includes a permanent HF station with rotating beam and vertical antenna along with a 2 meter packet station and 2 meter voice and 220 MHz transceivers.

Amateur radio exams are held on the second Sunday of each month at 10:00AM at the CAARA clubhouse. Anyone who is considering a new license or an upgrade, is welcome to test with us. There is no pre-registration necessary. Contact the head of our VE team Bob Quinn if you have any questions about monthly testing. Monthly member meetings are held on the first wednesday of each month at 7:30 PM except for July and August

Each Sunday evening at 9:00pm, the club operates a 2 meter net on 145.130. This is an open and informal net which disseminates club news and prepares operators for emergency communications work. All are invited to check into the net as club membership is not a requirement.

New! The club is open every Tuesday from 4-8PM for CAARA members to stop by and socialize, as well as use the extensive collection of ham radio gear.

Information Desk

by Dean-KB1PGH

A look at the Sunlight solar powered camping lantern

I was watching a Youtube video of a portable ARRL Field day set up where a guy set up a tent and a station.At night he lit his tent by using a small solar powered lantern by the “Sunlight” company.I did some research and found their website at www.sunlightlantern.com and actually found some of their products on Amazon as well.The product we are looking at today is the Sunlight solar powered camping lantern and mobile charger.In the first picture you can see the lantern in its closed position.You can see the solar panel on top that charges the Lithium Ion battery.In the second picture you can see the lantern in its open position and the light it emits.On the bottom of the lantern is also a flashlight.The lantern also has a hook that pops out to hang it in our tent.The lantern is about the size of a hockey puck when closed.This lantern can also charge your cellphone with it`s USB port but you have to buy your own cable.All you do is leave the lantern outside in the sun all day and bring it in to light your ten at night.You`ll get about 5 hours on its brightest setting but maybe 10 hours on it`s lower brightness setting.The light emitted from it is pretty good on both settings and the flashlight comes in handy too.You can also charge this via another USB port with it`s supplied cable if you have no sunlight.This solar powered camping lantern is perfect for any disaster kit and for everyday camping where gear is limited.Having a solar powered phone charger is a plus in any bug out kit.I would highly recommend this for any prepper out there.The price was about $20.00 on Amazon so shop around first.

WHAT'S GOING ON AT CAARA ?

A portable operations day is planned for Sunday, May 15th in Rockport on Hospital Hill. All members are welcome to bring their own stations and antennas to operate or just to stop by and say hello and check out the operation. We are located 150 plus feet above sea level and get out quite well on all the bands with minimal antennas. Dean- KB1PGH, Jon- K1TP, Ross- W1RAB, Jake- W1LDL, and Gardi- KB1BTK are coming and rumor has it we might see Rick- WZ1B as well. A cookout and lots of laughs are expected.....stop by!

CAARA FIELD DAY 2016 WILL BE DIFFERENT THIS YEAR.

We will be having Field Day at the club facility this year on a trial basis. The BOD has decided to have Field Day at the club this year due to the low levels of participation last year.

It is quite an undertaking to set up the tents and antennas, haul the trailer and gear over and back, etc. to the past Fuller School site as well as plan all the activities.

The approach this year is quite simple, utilize the CAARA clubhouse and equipment. All the stations and antennas are in place, we have a great kitchen, and bathroom facility. If an unexpected squall with rain and 50mph winds show up, it doesn't make any difference. No setup on Friday or knockdown on Sunday, KISS theory. Some say it isn't a real Field Day without being out in the field...I agree, but not enough of the membership particpated in the work it involved.

So how will it work? We will have a CW station on the second floor in the Vintage Room which will provide sound proofing from the other stations operating on the second floor. The second floor will also be operating a digital station as well as the 2 and 6 meter VHF stations utilizing the new beams on the second tower.

The first floor will be used for SSB operation with the beam available for 10-20 meters.

A few vintage radio's will be setup for your listening pleasure on the first floor. The Heathkit transceiver that was used at CAARA's first Field Day will be running!

Dean- KB1PGH will be setting up in the parking lot running a generator, new Icom 7300, and a buddipole. You are welcome to setup at the club with any station you wish to bring. We will provide cookout food all Saturday afternoon and night.

CAARA 40TH ANNIVERSARY

The club is celebrating 40 years of continuous service to hams and communities on the North Shore. We will be serving cake and ice cream at 6PM on Saturday during Field Day and we hope you can stop by and say hello, grab something to eat, and celebrate with us. There is no other club that I know of in New England that own their own building, several wide range repeaters, and thousands of dollars worth of equipment and antennas- all available for use by club members. A VE program and a Tech-in-a Day program second to none. We provide road race coverage for over a dozen races, provide scholarships to three school systems. We are indeed a special club! Celebrate with us....

Your ideas about how Field Day is being setup is not set in stone. If you would like to help out, have ideas of a better station layout for Field Day, I am all ears. This is your Field Day, everyones opinion is valuable to me. I need help and if you would like to volunteer in any way, shoot me an email to k1tp@arrl.net

Spring Clean Up

by Curtis-AA3JE

I got back from escorting "SHE WHO MUST BE OBEYED" to her favorite local restaurant, and realized that I could delay no longer. It was a sunny warm day, the grass was growing, and I HAD to start spring cleanup.

I was a few weeks late, as usual, for some reason. I always have trouble getting started, I do not know why.

So I got out the tractor, and discovered, to my horror, I needed to change the oil. This was accomplished with ease, spilling only a mere quart of dirty motor oil on the garage floor. Fortunately, I buy "OIL ABSORB" in industrial quantities, so clean up was a snap!

I was sad to discover that putting the hood shroud on a Kubota tractor is a two man job (it comes off easily enough), but was able to finally get it on by taking off my boots and using my feet AND hands. I was only to discover later that laying on the floor BEFORE you got all the oil removed is a poor idea.

So I made the first pass in the back yard, and discovered it was long past time to trim back the bordering trees. This meant I had to stop, when the bleeding from the scalp laceration (those branch ends are sharp) got into my eyes and I could no longer see.

After a trip inside to apply a pressure dressing, I went looking for the chain saw. Naturally, I found it gummed up with gasohol residue, and had to stop to spend a few minutes cursing the EPA, President Obama, and the corn lobby.

Disassembly of the carburetor cleared the blockage, but I was getting a bit tired. Important safety tip! Remove the blade guard when the saw is <u>not</u> running. It is really hard to clear a jam with one hand when the saw guard is jammed in there so tight.

And a big delay when I had to find my work gloves. Note to self. Put work gloves on hands BEFORE starting work.

After cleaning and dressing my thumb, which was still attached, and spending a few minutes cleaning up the blood trail on the downstairs rug (impossible to remove once it sets), I discovered I had no pre-mix, so made a trip to Ace for the fabulously expensive alcohol free fuel. Oh, and a new chain for the saw.

Once the saw was running, trimming the branches was a snap, but the dump was closed. So I loaded the truck for one trip in the morning. It was really two loads, but I got it all in there, but had to rope it down as it was really a bit high over the cab.

So I trimmed the branches sticking out the sides (important to do to avoid being chased by a Lexus owner with a linear scratch down the side of their car), and went for a local test run to see if the load was secure.

It was, and everything would be fine except for the local policeman who wanted to know why I was going 70 miles an hour in a 20 mile an hour zone. But the load was OK.

So I mowed the grass, cleaned up a bit more blood, put a neat new dressing on my thumb and scalp, made a careful note of my court date, and called it a day.

I don't know why I delay starting it so long. It's not that hard.

FCC and Dry Tortuga Expedition

This week's Amateur Radio Roundtable show will feature **Riley Hollingsworth, K4ZDH**, retired FCC Special Counsel for enforcement.

Riley will be answering questions that our viewers have sent in to the show.

Our next guess will be **Emmett Hohensee, W0QH**, discussing the Dry Tortuga Expedition, a celebration of the National Park Services Centennial Anniversary, which will occur May 6-9, 2016.

Watch Amateur Radio Roundtable on W5KUB.com at 8 PM Central every Tuesday night (0100 UTC Wed).

This show is also simulcast on shortwave radio station WBCQ on 5130 Khz.

How Mesh Networks Extend Military Comm

Until a few years ago, Marines operating on the front lines in Afghanistan still relied solely on line-of-sight radios and voice communications to receive critical orders and battlefield information from rear-positioned operations centers — much the same way their predecessors did during 20th century conflicts. The radios were newer, of course, and had more range, features and functionality, but they still didn't work well when blocked by the Earth's curvature, mountains, trees, buildings or other obstructions.

"Once on the move, Marine maneuver forces would outrun their communications pretty quickly," explains Basil Moncrief, product manager of technology transition for the Marine Air-Ground Task Force Command and Control of the Marine Corps Systems Command. "Typically, they'd have to operate without full situational awareness."

That's no longer the case. Like a growing number of military operations, the Marine Corps Systems Command decided to invest in a wireless mesh network to solve its communications gap. Engineers developed a solution that relies on satellite communications, secure local area networks and a point-of-presence vehicle that serves as the designated network operations center in the field to give front-line warfighters the ability to send and receive digital command and control data and digital orders — no matter how rugged or remote the terrain they're located in or how far they've traveled from their command centers.

The system, initially called Mobile Modular Command and Control, was first fielded in Afghanistan in 2009 and finally provided the beyond-line-of-sight reach that warfighters needed. The system was limited, however, in that it had to be hard-mounted onto a Mine-Resistant Ambush-Protected vehicle. The Marines have since built a newer version that provides more flexibility and additional capabilities.

Networking on the Move (NOTM), as the new system is known, modularizes the system's core technology so it can be easily moved between vehicles, and also integrates full-motion video from unmanned aerial vehicles for greater situational awareness.

"Our Marines are used to operating independently, but this system does give them more information to act upon and also allows them to have better communications with subordinate commands and higher," says Moncrief, noting that NOTM is geared toward infantry commanders and their staff but is also being fielded by the Marine Air Wing and the Marine Logistics Group. "Now, commanders in forward positions have access to the same information in terms of the common operational picture that other commanders are looking at, so they are able to operate farther forward and at greater distances without having to be tethered to their operations center."

Gaining Independence

A mesh network known as the Combat Service Support Automated Information Systems Interface (CAISI) has allowed the Army to provide high-speed, high-capacity communications capabilities to its logistics and sustainment personnel providing support to combat operations and other forward-placed units.

In the past, logisticians had to put their parts and services orders and requisitions on paper or onto a floppy disk, get in a jeep and hand-deliver those orders to units positioned in the rear, a process that was both inefficient and dangerous. "The supply units had no real visibility into the status of that order," explains Thomas Dunaway, assistant program manager for CAISI, who notes that the problem came to a head during Operation Desert Storm in the 1990s, when tons of equipment piled up in shipping yards because logisticians had no way to know if, when and where supplies would be delivered, so they simply kept ordering more.

40,000

The number of wireless devices that make up the Army's CAISI network, the largest tactical wireless network in the Defense Department

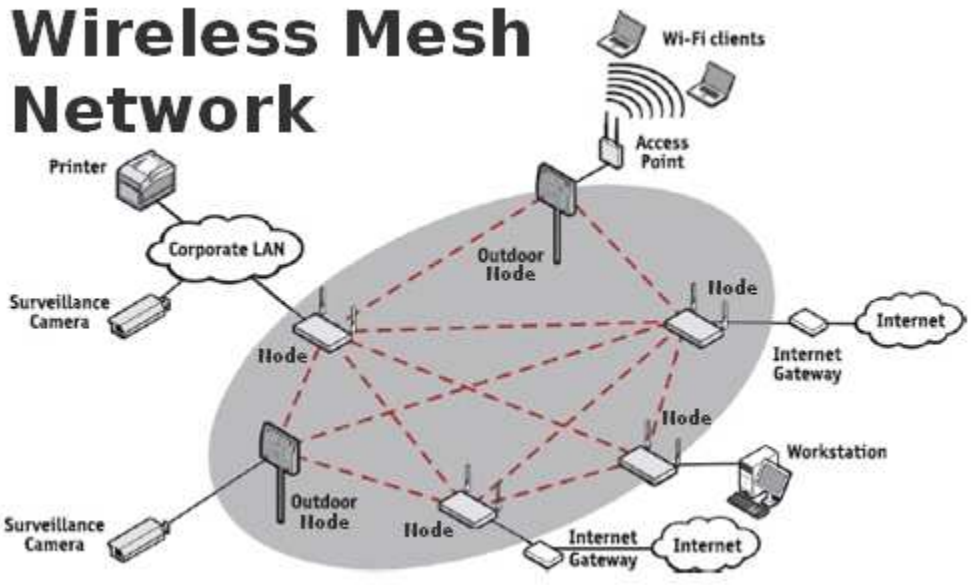
SOURCE: Fortress Technologies

In response, the Army sought a better way to communicate. After some fits and starts, Army officials began developing the first CAISI system in 2002, using Cisco Systems radios that could function as independent network nodes and relay encrypted information across classified and unclassified networks. The system, however, was less than ideal; it required a separate, expensive controller for every small network, and all data had to go through

encryption before it reached a radio.
The Army started on a technology refresh in 2008. CAISI 2.0, as the latest system is known, offers built-in encryption and doesn't require a separate controller for each LAN.
At the heart of the system's success, says Brad Amon, lead systems engineer for CAISI, is the fact that any CAISI radio can serve as the master radio in a network enclave. Soldiers need only to configure the master to suit their requirements. That radio automatically pushes the configuration out to all other radios on the network.
"That independent operation was key for us," says Amon, noting that a single radio can also act as the uplink to the Army's Combat Service Support's satellite network communications.
"Our logisticians now have connectivity from their deployed support area all the way back into the Army's network, where their servers are and where all their orders are completed," Amon explains. "And they have up-to-date visibility into the status of orders."

To the Rescue

The South Carolina National Guard is also using CAISI's meshing capability as part of a multipronged disaster communication grid to provide real-time communications to National Guard response teams.
In the past, these teams were largely limited to voice and data communications set up in the state's 71 armories, which act as forward operating bases during disasters. "Once away from the armories and out at the incident site, our personnel couldn't communicate back to the joint operations center, so they had to go back to the armories, which slowed our response times down and really hampered our situational awareness," explains Col. Ronnie Finley, deputy chief of staff for information management with the South Carolina National Guard J–6.
Now, however, the response teams can use satellite terminals and the CAISI network to connect back over satellite communications, giving them access to voice and data communications for the best and latest information available.
The CAISI works in tandem with the National Guard's Joint Incident Site Communications Capability package, which enables radio interoperability and extends both military and commercial networks into and around disaster sites.
The benefits of this meshing capability have been immediate, says Finley, who notes that the system was used last winter during hurricane exercises to provide commanders with rapidly deployable communications capability at forward command posts.
"At the end of the day, having this system in place really speeds up the decision cycle for the commanders who are making the decisions in the event, and it gives them the situational awareness that they need to more rapidly make the proper decisions," he says. "And we're much better able to collaborate with first responders and get that common operating picture so we can achieve better unity of effort and unity of command."



NEARFEST WAS A GREAT EVENT WITH PERFECT WEATHER

I made my annual trip to the largest hamfest in New England and as usual I was not disappointed. The event was well attneded and I must say I saw lots of decent gear for sale as well as the thousands of boat anchors being offered for sale.
The photo on the left is Brian- W01VES who checks in to our Sunday evening net every week and hold his own “nut net” every night at 1115pm on the North Shore repeater. He is a colorful charactor, as we all are, and sported a hat with wolf ears and a wolf tail.....

Below I am shooting the bull with Mike- N1XW, another colorful charactor from the 3864 afternoon ssb net.
I saw Gardi-KB1BTK and his daughter Crystal working the grounds as part of the Nearfest Staff. Gardi just passed his Extra Class exam and was also part of the VE team at the hamfest.

Many hams camp out and enjoy three nights of eye ball qso’s and many deals are done before the hamfest starts. There are many interesting speakers and commercial vendors in the buildings as well as the huge flea market in the open parking areas. I see license plates from all over New England, NY, NJ, and Canada.

CAARA HISTORY

Hey Guys,

I'm Dave, KB1F, originally from Fitchburg, MA — and I thought you might be amazed or amused to hear that I knew the previous owner of your repeater callsign, W1GLO! His name was Fred DiLucci, and we were both members of the Montachusett Amateur Radio Club in Central Massachusetts. This would have been in the late 1950s and very early 1960s, since I was first licensed in 1958, at age 12. Fred was most likely the SECOND owner of the W1GLO callsign, since the original callsign would have been issued back in the 1930s, or possibly the early 1940s — but Fred was only in his late 30s when I knew him. My own ham radio mentor, the late Leo Martineau, W1FOX, also had a "recycled" callsign of the same vintage, issued to him in about 1953. But by the late 1950s, the FCC had ceased reissuing these old "deceased" W1xxx callsigns, and had gone to the brand new K1xxx format. When that sequence was exhausted, they went to the WA1xxx format, and ultimately to WB1xxx, followed eventually by KA1xxx, and currently KB1xxx. Just thought you might be fascinated to know the history of your vintage callsign. The ARRL HQ in Newington has an archive of REALLY OLD callbooks — which you can examine to trace the lineage of any particular callsign.

VY 73 DE KB1F

Beautiful weather at the annual NEARFEST in Deerfield, NH

AMONG MONKS, THE SPIRIT OF HAM RADIO

The word "spirit" takes on a whole new meaning because the operators are Orthodox Christian monks. Considered one of the most sacred places on Earth for Orthodox Christians, Mount Athos in northern Greece is home to some 20 monasteries. It is also home, as it turns out, to two very busy ham radio operators: Monk Apollo, SV2ASP/A, who since 1988 enjoyed the distinction of being the only radio amateur in the community of sacred collectives. Last year, however, the brotherhood of radio amateurs grew to two when he gained a new colleague: Monk Iakovos, SV2RSG. Monk Iakovos resides in a different monastery but the two hams share the same mountain community.

In the past, Monk Apollo's busy operating schedule has included working with noted DXer Zorro, JH1AJT, on Mount Athos. He has also worked Expedition 5 commander Valery Korzun, RZ3FK, on 2 meters and ultimately enjoyed an eyeball QSO with the Russian cosmonaut on his visit to Mount Athos. In 1998, the monk became a member of the ARRL's DX Century Club and a year later got his Worked All States award - among his achievements. As for Monk Iakovos, it's only been a few months since he received his license from the Ministry of Telecommunication, but he has already been heard on 40 meters SSB, and elsewhere operating CW. He runs his rig, an IC-735, into a vertical antenna. Now, in the peaceful quiet of a landscape where other monks study, read and pray from sacred manuscripts, there are two hams who are also hard at work, copying Code. You can also find them working digital modes and logging contacts on SSB. After all, when your monastery is also your shack, that's a blessing in itself.

2016 Digital Mode Most Wanted Survey

All digital operators are invited to participate in the '**2016 Digital Mode Most Wanted Survey**'.

Previously known as the "RTTY Most Needed DXCC Entities Survey" in 2002, 2005 and 2011, the name has been changed to reflect current times and to be more in line with the Digital DXCC award.

Several entities at the top of the 2011 list have been active recently, so now is a good time to find out what's needed on the digital modes. The survey can be found here**:** **http://survey.hamdocs.com/index.php/468764**

Please be sure to read the "How to use the 2016 Digital Mode DX Most Wanted Survey" at the top of the page. The survey will only be available for two weeks and will close at 2359Z on Friday, May 13, 2016. So don'tdelay, please complete the survey before the Dayton Hamvention. It's very important that every digital operator take part in the survey in order to achieve the most accurate results possible. These surveys help DXpedition planners and are of interest to all digital operators. Feel free to forward this invitation to other groups.

A new feature has been added to this year's survey. It's now possible to work on the survey, take a break from it and resume it later. You don't have to complete the survey all at one time. There is a button at the very end of the survey that says "Resume Later". Clicking this option will bring you to a page that asks for your name, a password and email address. Email will be sent to you with a link that will bring you back to the survey you were working on. Or you can resume the survey using your password. Thank you for your participation!

Indoor Antenna Trial. Success!

AK2MA Kitchen Shack

While living in Alaska, I worked many stations all over the lower 48 with many on them East Coast using indoor antennas. Let's face it, when the propagation is favorable, you can work the world with little to nothing. I pulled my portable station equipment out of the storage container and set it up on our kitchen table over the long weekend. I set up my Buddipole antenna in the upstairs hallway (3rd floor). Indoors, this would have the antenna at around 25 feet in height above ground. After setting up the Buddipole in the hallway, I decided to try 15 meters first. Once I got the antenna tuned, I headed down to the kitchen to fire up my Yaesu FT-857D. I unpacked my J-37 Straight Key along with my

Vibroplex keyer. I turned on the rig and immediately heard my first DX using my indoor Buddipole antenna.

Buddipole antenna set up indoors

My first QSO was with Rade, E77W in Bosnia Herzegovina. I had my FT-857D output at 100 watts, so I was at full power. It was an easy QSO and it was great to get my first European DX in the logbook. I checked upstairs after the QSO to make sure I was not hurting any of the electronics and all appeared well. No clock radio explosions or unexplained toilet flushes. I decided to tune all the bands and see what I could hear. I was surprised to hear activity on all bands, 10 meters thru 40. I logged into the SKCC Sked Page and hooked up my straight key to the FT-857D. I ended up making a straight key QSO with Joel, W4JBB in Alabama. I monitored the SKCC Sked Page where online conversations led to propagational QSO's. I worked Jim, WA5KMA in Texas. I was asked to head to 40 meters for a QSO with Dan, K3DRQ in Pennsylvania. After running upstairs and setting the Buddipole up for 40 meters, I was able to snag Dan on 40, fulfilling his request. After working Dan in PA, I worked Art, WK2S in New Jersey upon his request for 40 meters as well. Art had a great signal into Eastern MA. After our QSO, I headed back upstairs and retuned the antenna for 15 meters.

Antenna Tuning Life Saver!

Thankfully, my MFJ Analyzer makes short work of getting the antenna tuned for a new band. The Buddipole is a good portable antenna but if you want a respectable SWR, you will need to take a few minutes to tweak the coils and change the element lengths. If I had to run back downstairs each time to check my SWR, it might have great physical results but not a great ham result.

After retuning my antenna for 15 meters, I worked Tony, K6ELQ in California for another SKCC QSO. It seemed my 100 watts and the Buddipole were going to work. I would obviously be roughing it, but it's better than no radio! I have no plans of drilling any holes or putting up any tower at this location for various reasons. So, a less permanent antenna will be my radiator of choice. Not that I will be doing much contesting but at least I can make an appearance in the contests making a few QSO's. Maybe chase Worked All States? When I heard Les, KL7J on 15 meter CW this past weekend, I had hopes of even landing my old state of residence, feeling the irony of ham radio role reversal.

10 Meters From Today

When I woke up this morning, I had decided to set the antenna up for 10 meters. I also decided to try making contacts at less than 100 watts. I enjoy QRP operating and the Yaesu would allow me to dial down my output power to 5 watts. For anything less, I would have to bring out the Icom IC-703Plus. But for now, 5 watts would work.

My first QSO was with a very loud Ted, CT7AEQ on 10 meter CW calling CQ. I had dialed the rig down to 50 watts for that QSO. Not far from Ted, I found Filippo, IZ1LBG calling CQ. I set the FT-857D for 5 watts and to my surprise, Filippo came back with my call. A few minutes later, I had a valid QRP QSO with a station over 3,800 miles away (using QRZ information). I also shot a short video of that QSO with my cell phone. Since I was running a full 5 watts, it only calculates to a bit over 700 miles per watt. Had I been using my IC-703Plus, there is no doubt in my mind that I could have worked Filippo with less power and achieved my first 1,000 Mile Per Watt award from the QRP ARCI Club. At least I know it will sure be doable! And to top off my afternoon, I heard a weak ZS6JBJ calling CQ on 10 meters looking for SKCC QSO's. I answered his CQ and I was extremely excited to hear John come back with my callsign. Of course, I had increased my power output to 100 watts as I felt I would need at least that to make a contact with John.

This past weekend got me reacquainted with using and tuning my Buddipole antenna system. It also allowed me to become more familiar with the menu system on the FT-857D. I hate reading manuals but I finally had to break down and read the manual to get the FT-857D to do a few things I needed for it to do. Having a few days to become familiar with this rig, I'm liking it even more. I'm actually thinking of using it as my full time portable rig as the IC-703Plus only has a high power output of 10 watts, where I can have 100 watts if needed with the

Yaesu. Also, the Yaesu is smaller so it would be pack friendly. The only difference is, I would have to haul an external tuner (I have an LDG) if I did not want to fine tune my Buddipole for a flat SWR. I plan on experimenting with a few more bands but I think for now, my activity will be on an indoor antenna.

This is something new to me as I've always used outdoor antenna's. This was a very humbling weekend experience for me. I've left behind my AL-1500 and 4 element tri-bander for low power and an indoor antenna. I'm ready to take on the challenge and join many that have, or are, currently doing the same. I plan on being more active with QRP and once I find a few good higher elevated locations to operate from, I'll be doing some winter time /p operating as well. I have to admit, winter here is a bit more balmy than I'm used to. I'm sure the locals don't feel that way but for this ex-Alaskan, I'm enjoying the many more hours of daylight and warmer

CIVIL DEFENSE IN ALBANY, NY IN BOMB PROOF SHELTER

Young Ham Wins First-Place Science Fair Trophy with Mag Loop Antenna Entry

A 10-year-old ARRL member from Snoqualmie, Washington, took first place in his grade and division for a magnetic loop antenna project he entered into the Washington State Science and Engineering Fair. Dragan Tuip, KG7OQT, was among the more than 700 presenters at the fair, held April 1-2 in Bremerton. A 5th grade student at Yellow Wood Academy in Mercer Island, his project, "Modular HF Mag Loop Antenna," stemmed from his desire for a compact antenna to use in his room with his HF transceiver — a flea market bargain. According to his dad, Martin Tuip, KG7HAX,

Dragan built the antenna himself and successfully tested by making JT65 contacts with Japan and Georgia. The 59th annual WSSEF marked Dragan's science fair debut. The magnetic loop design he entered into the science fair consists of a 10-foot circumference loop of LMR-400 coaxial cable with a 2-foot circumference loop of solid copper and a variable capacitor for tuning housed in a central enclosure. He reports the antenna is usable on 40, 30, 20, 17 and 15 meters with a low SWR. The antenna can handle up to about 10 W for 100 percent duty cycle modes, and up to 15 W PEP for SSB.

I like my hobby but don't think this is in my future.

The Joys Of ERP

by Steve VE7SL

Amateurs and and U.S. experimental licence holders operating on the LF and MF bands, are limited in the amount of power they are legally able to run. Unlike the HF bands, where maximum power limits are expressed in either DC power input or PEP output, LF and MF operators are required to observe ERP or EIRP limitations. Canadians operating on 2200m are limited to 1W EIRP and to 5W EIRP on 630m.

Although this doesn't sound like much, mustering this amount of effective power can be quite a task on either band, especially on 2200m. This is due to the very poor efficiencies encountered when using antennas that are so small in size compared with what would be considered 'normal'. For example, a typical 1/4 wave vertical used on 40m is about 33' high and with a good radial system can achieve efficiencies in the 80% range, while the equivalent antenna for 2200m would be 550m or about 1800' high ... a little large for most suburban backyards!

The equivalent of a normal 2m 'rubber-ducky' antenna when built for 2200m would be over 600' tall, while one designed for 630m would be around 170' high! A 2" stub used on your 2m hand-held would be the same as a 56' vertical on 630m. Consequently, most LF / MF backyard antennas will realize efficiencies of less than 1% and likely, quite a bit less

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In order to reach the maximum radiated power levels allowed usually requires several hundreds of watts, especially on 2200m, where near kilowatt levels are needed. These small radiated power levels might seem discouraging but they don't account for radio's great equalizer ... propagation. More than anything else, RF loves to radiate, and at times, what can be achieved on these bands with such low effective radiated powers is stunning

It would seem that Industry Canada did us no favors when they stipulated LF / MF power levels to be measured in EIRP and not the, much easier to calculate, DC power input level ... or perhaps they did. I think that, unlike on HF, imposing EIRP rather than DC input power limits puts everyone on an even playing field. Amateurs with lots of real estate and room for a larger, more efficient LF antenna, will be required to run much less power to reach the allowable EIRP and 'stay legal', compared to someone with a small backyard in the suburbs ... the latter can legally generate the higher level of DC input power required to reach the EIRP limits since their smaller antenna is operating at less efficiency. However, determining EIRP is not as cut and dried as measuring input power.

With some fairly sophisticated (ie. expensive) field strength measuring equipment, not typically found in amateur radio operations, ERP / EIRP can be readily determined. This means that for most amateurs, alternate methods must be used.

Neil, WØYSE in northern Oregon, who runs an experimental 630m station under the call of WG2XSV, has produced an excellent treatise on calculating your station's EIRP level, providing a step-by-step procedure to follow.

In order to determine your ERP / EIRP, you must first determine your antenna's radiation resistance. Two methods of calculating the antenna's radiation resistance for both verticals and top-loaded verticals (inverted L's or T's) are demonstrated, using the physical size of the antenna in relation to the frequency of operation. Once this value is known, the antenna current is measured while transmitting. These two values allow the Total Radiated Power (TRP) to be calculated. The TRP is then multiplied by 3 to yield the EIRP or by 1.82 for ERP. Roughly speaking, 5W EIRP is the equivalent of 3W ERP. Thanks to Neil for this helpful resource.

An alternate method of roughly determining ERP / EIRP values is an interesting new online 'antenna simulator' at the 472kHz.org site. Using known physical sizes along with your ground quality description, the calculator will indicate what total power output is required to produce various levels of ERP and EIRP as well as expected antenna currents, at 472kHz. It's a good starting point if you are either planning a new antenna system or perhaps, repurposing

an HF antenna such as an 80m inverted-L or an HF center-fed dipole for use on 630m.

There are also a number of online calculators, such as found here, that will indicate your ERP / EIRP value when you plug in your antenna's 'gain' figure along with your TPO value. Some of the better antenna modelling programs can produce estimates of your antenna 'gain' at 630m and from there it is a simple matter of calculating what power is needed to reach the legal level.

I'm sure there will be a lot more information and discussion about this topic once the LF and MF bands are released in the U.S.A. but in the meantime, calculating your ERP / EIRP levels is not as hard as it might initially seem ... and is likely accurate enough for most agencies overseeing amateur radio activities.

How the End-Fed antenna get's a bad reputation

I regularly use an end-fed antenna when I operate portable because it's so easy to just get one end of it up in a tree. I then only have to get some coax to the balun and attach a couple of counterpoises to the radio ground for the band I want to work and voila I have an easy setup/tear-down antenna solution. The higher the feedpoint the better the antenna will perform, and as long as I have a good tuner I can work a lot of different bands.

However when used in a shack you hear all manner of stories of how the end-fed random wire antenna absolutely reeks havoc with RF at the station. So what's the deal?

What's going on with an end-fed antenna?

I'm still learning about this stuff so here's my simple minded understanding along with some results of my own experimentation.

So when you put some fire in the wire (remember this is alternating current at a particular frequency) the RF will run down that wire and when it gets to the end it will run back. Part of the power will be radiated, the part that does not will come back and want to push against something.

In a dipole the power runs out one leg and when it runs back it has the other balanced leg of the dipole to run to and repeats the process until it's radiated either as a signal or heats up your coax. The end fed wire doesn't have that balanced leg to push against so it will flow back into your equipment and radiate from there along with anything it can find to get into that your equipment is attached to.

When your portable, operating low power, this isn't very noticeable and since I'm generally operating from a battery that returning RF isn't heading off into a power supply and into the mains, etc. But when operating from a shack and especially if I'm operating at QRO levels (gasp!) that RF can generate a hum in your equipment, distort your signal, bite you on the hand or lip depending on paths to least resistance. Worst case it can fry something in the shack or nearby sensitive electronic equipment.

Thus the bad rap.

Background

Here's my experience...

At my QTH I reconfigured my external 40m Windom (aka OCF dipole) to an 80m OCF Dipole. When I was using the 40m Windom I could tune the 30m band without difficulty but the high impedance nodes occur in different places on the 80m OCF and make 30m over 10:1 SWR. Certainly not efficient and impossible to tune

for some internal tuners. My attic doublet can tune 30m but my attic seems to be an especially noisy place for 30m and it was really limiting my ability to work 30m. I've discussed the woes of getting antennas outdoors at my QTH previously so I was looking for an easy way to get back on 30m.

I thought I'd give the much maligned end-fed a try

I cut about 150 feet of wire and attached it to the long-wire post of my trusty MFJ Deluxe Versa Tuner II and ran it up around my room and out out my 3rd story window to a tree in the front yard. It is very stealthy and doesn't raise the ire of the neighbors.

The MFJ matched the end-fed easily on 30m and reception was about 2 S-units less noise than with the attic antenna. So far so good. I made some contacts using 5w but was hearing some hum in my headphones so I knew something was rotten in Denmark (sorry Denmark).

I have some counterpoise wires running from the back of the tuner but when I took stock of what I had I realized none of them were 1/4 wavelengths for 30m. This afternoon I cut some of my surplus insulated 18 gauge wire 23ft long, insulated the end and attached it to the back of the tuner. I ran the counterpoise into the attic clear of other wiring and what do you know. No more hum.

I then tried the wattage up at QRO levels and still no hum. The RF just wanted something to push against to keep it out of the station wiring. I got good reports from RBN stations so the antenna is working for 30m.

End Fed performance on 30m

I know that a single counterpoise will likely create directivity to the signal so I'll need to add some more counterpoise wires but the moral of the story is that end-fed antennas are not evil, they are just misunderstood. Like a vertical, the RF just needs something to push against. In the case of a vertical if you have insufficient counterpoise at the feedpoint you just warm the earth. But in the case of the end-fed your equipment becomes the other side of the antenna. Not good.

End-fed antennas can be a useful solution

If you have limited options for deploying wire antennas, the end-fed is about the easiest type to deploy. I don't think it will give you the propagation of a dipole or doublet but it shouldn't be dismissed out of hand as an option. Just be sure to cut 1/4 wavelength counterpoise wires for the bands you wish to work and attach them to the ground of the tuner or ground side of the balun you are using for the long wire.

Safety considerations

Keep in mind that the entire length of the end-fed wire is radiating starting right at the point where it exits your tuner/balun so position it in such a way that you or others will not accidentally touch it during operation. Also take care in how its routed so as not to put it near or run in parallel with house wiring.

Ok so end-fed antenna's get a bad reputation for some good reasons and if you have other options use them first but don't completely put it out of the running if it can solve your antenna problem.

That's all for now

So lower your power and raise your expectations