CAARA NEWS

CAPE ANN AMATEUR RADIO ASSOCIATION
FEBRUARY 2022

PRESIDENT'S COLUMN

by Brandon- NQ1W

Dear CAARA Members,

Happy New Year! Greatest thanks to those who showed your support for CAARA by renewing your membership for another year. And a warmest welcome to those of you who are new to the club!

I'd like to start this month's letter by sharing my appreciation for the amazing work of our CAARA officers and members. So many of you have been putting in so much time keeping the clubhouse, our repeaters, and echolink running. A special callout to Jon K1TP who does this and for these monthly publications of our club newsletter. And to Tony N1JEI who is always on the nets and checking in on the clubhouse. A final thank you to Dick Ober in Maine, who takes on our accounting, bookkeeping and website. And to those who prefer to remain nameless for the maintenance and enhanced security of the clubhouse, I know and thank you sincerely. I appreciate these members and countless others for your ceaseless efforts keeping our club operating and fun for everyone.

We are preparing for a really fun 2022, even if presently we are not meeting in person. We *will* be getting out there and hosting discussions and learning events around Parks on the Air and hope to facilitate a few POTA activations locally. Another good outside event to look forward to will be our return to Hospital Hill for Field Day, which I hope will be even more fun than last year.

Another fun upcoming series of events we're planning to have at the club is "Build Night," where we gather together to breadboard, solder, and generally build cool and potentially useful stuff. We will kick off this series with a kitted electronics project to build alongside each

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The EMCOMM MINUTE

By Dean- KB1PGH

Well covid has put any emcomm meetings on hold for the time being but that`s ok so back to out topic of the month. For disasters and emergencies there are more options out there other than just amateur radio for radio communications. While amateur radio may offer the best options and power, its easy to over look some of the other options out there to those who may not have their ham licenses, or to those who want to supplement their amateur radio communication plans. The first is CB radio. Even though it may be lower in power with 4 watts and have only 40 channels CB radio is a option for local emergency communications. If you purchase a CB with SSB you can extend your range with 12 watts of power and even talk DX if the conditions are right. I used to be able to talk to people 10 miles form my location in a simple SSB CB in my car back in the day. You have to remember that there are literally millions of CB radios out there today so CB is still alive. The emergency communications channel for CB is CH 9 27.065 MHZ. Just for a bit of information the FCC is allowing the FM mode on CB radio in the near future. The next option out there for local emcomm work is the FRS and GMRS frequencies. There are millions of those Family Radio Service radios out there. You see them all the time with kids using them and families using them during camping and other events. Even though they are low power they can be used for local neighborhood emergency communications.

Gloucester's CERT Team even used them in one of their exercises years ago. I have a pair of high end FRS radios in my go kit. The emcomm channel for FRS is CH 1 462.5625 MHZ .Actually there is a "Wilderness

"Continued page 3"

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 jpcrockport@gmail.com . 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 ATT 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 located at the CAARA clubhouse.

The 443.700 repeater is now on the ATT cell tower in the Blackburn Industrial Complex with greatly enhanced performance running in fusion mode and linked to 10 other repeaters in the New England area.

The Association is one of the few amateur radio clubs that has its own clubhouse. Located at 6 Stanwood Street in Gloucester, with s variety of HF stations with beam, vertical, or G5RV Antennas.

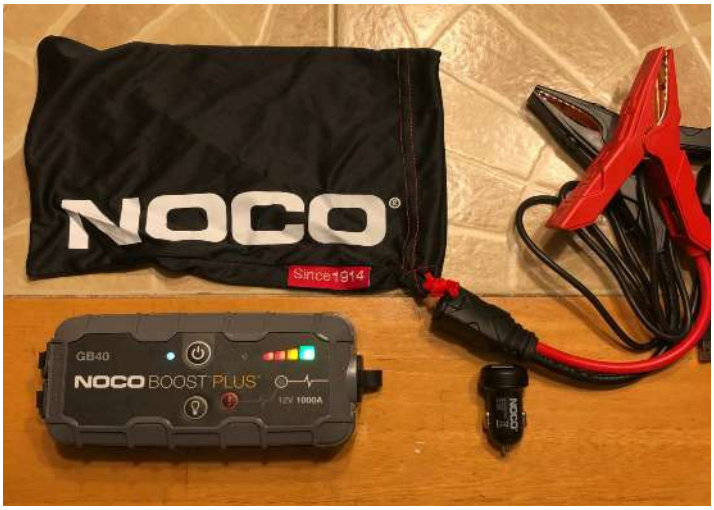
Amateur radio exams are held on the second Sunday of each month at 10:00 AM at the CAARA clubhouse. Anyone who is considering a new license or an upgrade, is welcome to test with us. Currently pre-registration is necessary. Contact the head of our VE team Bill Poulin-WZ1L if you have any questions about monthly testing.

Monthly member meetings are held on the second Saturday of each month at noon except for July and August.

Each Sunday evening at 9:00 PM, the club operates a 2 meter fm 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.

The club is open every Tuesday from 5-8PM for CAARA members to stop by and socialize, as well as use the extensive collection of ham radio gear.

Protocol" where if you are in the woods people are supposed to monitor the 2 meter simplex frequency of 146.52 MHZ and the FRS Ch 1 frequency for any distress calls. Of course being close to the water and ocean don`t forget about the Marine radios. Even though by law you can only use them on the water its still another option to use and the emergency distress frequency is CH 16 156.8 MHZ .So my main point is that it`s good to look outside the amateur radio "box" once in a while and see what other options out there to get your message out during disasters and emergencies. As you may know I like to do a little disaster prepping. No, I haven`t gone as far as to dig a bunker in my back yard yet but since I`m into emergency communications I do like to have a "Bug Out" out bag just in case of the unthinkable. One thing I would like to cover this month is where to look for back up food supplies. It is widely recommended to have a 3 day back up food supply in your home. I`ll cover different types of back up food supplies in a future article but here are the best websites I have seen and shopped at for emergency food. First we have www.thereadystore.com and then we have www.4patriots.com and then www.beprepared.com and the last is www.readywise.com. Take a look around these websites and you will get a good idea of all sorts of food supplies from a 72 hour food supply all the way to a years worth of back up food. For the equipment review of the month I`m going to cover the NOCO Boost Plus GB 40 battery jump starter. This piece of equipment should be in every preppers auto safety bag. It`s a 1000 amp battery jump starter and it also has a 100 lumen flashlight and has a USB port so it can recharge your cellphone battery as a power bank. As you can see it comes with the jumper cables and a its own storage bag. It has safety features so you can`t spark if you touch the clamps together or put them on the wrong terminals. You can start as many as 20 cars on one charge. NOCO makes different size jump starters for batteries in small cars to big trucks. This one cost $80 on Amazon. This will give you peace of mind in your car where ever you go. Each month I would like to let you know about a couple of interesting websites. The first is WWW.hfunderground.com this website covers a lot of pirate and clandestine communications. The other one is www.worldradiohistory.com, this website has a interesting feature where you can scroll through all the old time Popular Communication magazines and



other publications. It`s a real trip down memory lane.

73 and see you next month!

Dean

5 reasons to attend March 12-13 QSO Today Virtual Ham Expo

Our next QSO Today Virtual Ham Expo will be held live from March 12-13, and then on-demand for 30 days afterwards. We promise an amazing learning and networking experience to help you improve your amateur radio knowledge and get exposed to new ideas, equipment, and practical techniques. No need to travel - participate from your home or office! Information can be found at https://www.qsotodayhamexpo.com.

Here are 5 reasons why you must attend:

Listen, engage with 60+ internationally recognized ham radio luminaries. Our speakers are experts and deeply know their material. Most importantly, they've worked hard to make sure that you'll understand the material and can apply it immediately to your projects.

So, so many different topics - everybody will find something of high value. There's content for everyone whether a newly licensed ham looking for next steps to using that license or a 30+ year experienced ham looking for new projects. Some of the more interesting presentations include: Core HF Communication Concepts: Fundamentals of Shortwave Propagation; Deep Dive of An FPGA DVB-S2 Implementation; Fun With The NanoVNA; and Helically Wound Vertical for 160M.

Watch as many presentations as you want! A big limitation of in-person events is that you can't watch many of the presentations (you can only be in one room at a time). At the Expo, return anytime within 30 days to view any speakers and presentations you missed as well as explore exhibitor offerings.

Check out our live Kumospace video lounges for attendees to interact with each other and exhibitors. At the Expo weâ€™ll debut exciting but proven technology to further improve the live video interaction experience with exhibitors and fellow operators. Youâ€™ll find this is a great way to meet up with friends, talk to vendors, and network on specific subject areas.

Take advantage of our calendar technology to efficiently organize your time. Once our presentations are scheduled, you can download speaker times in your local time zone directly to your Google or Outlook calendar. Youâ€™ll then have a complete schedule of sessions to join to maximize your time during the Live period with speakers that are the most important.

ARRL, the national association for Amateur Radio, is a QSO Today Virtual Ham Expo Partner. FlexRadio is the Expo's Platinum Sponsor, Elecraft is our Gold sponsor as of this time.

Early Bird Tickets will go on sale February 1st, 2022, and are just $10 (through March 6) and then $13.50 to the end of the on-demand period. Tickets include entry for the Live 2 day period and the 30 day on-demand period. Save on gas, lodging, and transit time to attend the QSO Today Virtual Ham Expo on March 12th and 13th. For more information, go to https://www.qsotodayhamexpo.com

Foundations of Amateur Radio

Bringing an upconverter into your life

A couple of days ago, after months of anticipation, an unassuming little box arrived on my doorstep. Inside the box was a nondescript electronic device with two SMA connectors and a USB socket. Other than the branding, there were no markings on the device and it came without any instructions.

It did come with a couple of SMA adaptors, which came in handy.

A little research later determined which of the two SMA adaptors connected to an antenna and which connected to a radio.

The gadget itself is called an upconverter.

It's an interesting little device that essentially mixes two frequencies together, creating two new ones, start with say 720 kHz and mix it with 120 MHz and you end up with 120.720 MHz and 119.28 MHz. In other words, if you mix two frequencies together, you end up with both the sum and the difference of those frequencies.

If you have a radio that can listen to 120 MHz, but cannot listen to 720 kHz, then using an upconverter, you can, as it were, expand the frequency range of your radio to hear different signals.

I purchased the upconverter with the intent of connecting it to my PlutoSDR, since the lowest frequency it can do is 70 MHz. Combine the two and I should be able to listen to all of the amateur HF frequencies at once.

Given that my PlutoSDR is currently doing something else, I had a look at using the upconverter with my WSPR beacon monitor that uses an RTL-SDR dongle. Technically it's not required, since my particular dongle can be used to tune to HF frequencies, but as an experiment, it works well enough.

So, I connected the antenna to the upconverter, the upconverter to the dongle and the dongle to a Raspberry Pi, a single board computer that runs Linux. Essentially the exact same setup I've been running for years, except that I inserted the upconverter between the dongle and the antenna.

That and some power took care of the hardware.

The software initially gave me some challenges. After discovering that the tool I'm using, rtlsdr_wsprd, has an option for an upconverter, I was up and running in minutes.

So, at the moment, and for the next foreseeable little while, my WSPR monitor is using an upconverter to scan HF. Technically this should increase the sensitivity by a significant amount, since the dongle is better suited to tuning to higher frequencies than it is to lower ones, but only time will tell.

I updated my monitoring scripts to take into account if the frequency I was monitoring was out of range, so it currently won't report on anything above 60 MHz, but then that's fine for what I'm working on.

I've updated the script on github if you want to have a look. It's nothing fancy, it essentially checks to see if there's a file called upconverter and if so, it calls a slightly different monitoring script.

Given that I have existing logging data associated with this monitor, I should be able to discover if there's any significant difference between what I've been monitoring to date and what's coming in now that an upconverter is in the listening chain. Theoretically, I should be able to hear weaker signals, but time will tell.

One thing that was interesting whilst I was discovering how this all works and hangs together is that it wasn't immediately obvious how to set it all up in software. I tried several tools to make sense of the data. In the end the combination of gqrx, setting the local oscillator offset to a negative frequency, in my case 120 MHz, got me to the point where I could set the frequency to 720 kHz and hear my local broadcast station, whilst the software actually, secretly behind the scenes, added 120 MHz to that and tuned the radio to 120.720 MHz.

Once I got my head around that, things started falling into place.

The same is true for rtlsdr_wsprd, adding the upconverter flag with the value of 120MHz, got my monitoring station up and running.

This is a pretty user friendly way of getting started with frequency mixers. You might recall my exploration into components apparently made from unobtainium. The intent is to use a variable frequency to achieve a similar thing, but that's a project still on the drawing board, for now, I have a fixed frequency, 120 MHz, which is plenty to get started.

If you're curious why I'd want a stable variable frequency, consider for example, what might happen if you transmit from a HF frequency into an upconverter. Perhaps you could use your HF capable WSPR beacon to make a signal on 2m or 70cm. 120 MHz won't cut it, but perhaps you can work out what's needed to get from the 10m WSPR band to the 2m WSPR band, or the 70cm WSPR band.

I'm Onno VK6FLAB

Amateur Operation in 3.45- 3.5 GHz Segment Must Cease by April 14, 2022

The FCC has established April 14, 2022, as the date by which amateur radio transmissions must stop in the upper 3.45 - 3.5 GHz segment of the amateur secondary 9-centimeter band. Secondary operations are permitted to continue indefinitely in the remainder of the band, 3.3 - 3.45 GHz, pending future FCC proceedings.

On January 14 the FCC released DA 22-39, which announces the results of Auction 110 for the 3.45 - 3.55 GHz band. Release of this notice triggered FCC rules adopted last year requiring that amateur radio operations between 3.45 GHz and 3.5 GHz cease within 90 days of the public notice.

In October 2021, ARRL President Rick Roderick, K5UR, urged Congress to direct the FCC to preserve Amateur Radio’s secondary use of the 3 GHz band in a written statement responding to H.R. 5378, the Spectrum Innovation Act of 2021, before the US House Commerce Communications and Technology Subcommittee.Foundations of Amateur Radio
What's in a Dream?
On the 6th of June, 2004, two Brazilian amateurs Roland, PY4ZBZ and Arnaldo, PY4BL made a historic contact on 40m. The distance was not particularly significant, only 70 km, but the mode was.
Using 2.1 kHz bandwidth, so it could fit within an amateur radio SSB transmission, they used software created by Swiss amateur Francesco, HB9TLK to make the very first HamDream exchange.
This technological advancement represents the birth of what we now call HamDRM and Digital SSTV and how it came about is an adventure that needs documenting, since what we have is written in a combination of Portuguese, German and English, cobbled together from broken websites, archives, source code, commit comments and lost links.
To provide some context, there is a broadcast radio mode called DRM, or Digital Radio Mondiale. At this point I should mention that this has absolutely nothing to do with Digital Rights Management with the catchy acronym of, you guessed it, DRM. As you might expect, this acronym clash is unhelpful, to say the least, when you're trying to find information about this radio mode.

PRESIDENT'S COLUMN

other. Another night, we will build an Arduino based keyer for an opportunity to learn or demonstrate some Arduino skills. If you know what a solder iron is but don't know your Arduinos from your Raspis, this event might be for you! More to come on this event, so make sure you are subscribed to caara mail or check carra.net for more information.

I'm also excited to share with you an undertaking of the dauntless Hardware Committee. Larry AJ1Z is rolling out a remotely operable IC-7300 set up for qualified members to use via remotehams. Several of the officers got a preview, and it is quite handy! Stay tuned for the rules around the usage of this resource, similar to those we have for usage of the clubhouse radios at The Stanwood Clubhouse.

This is your CAARA. If you are interested in speaking at a members event at CAARA please let me know at president@caara.net.

2022 is going to be a great year for CAARA. Thank you all again for your support of Cape Ann Amateur Radio Association. We can't do anything without you, our members!

Your President,

Brandon Hockle NQ1W

ps - Returning members who have not sent in your dues have until the end of February to renew your membership and stay current with your support for CAARA.

QST MAGAZINE LOOKS AT DIVERSITY AND INCLUSION

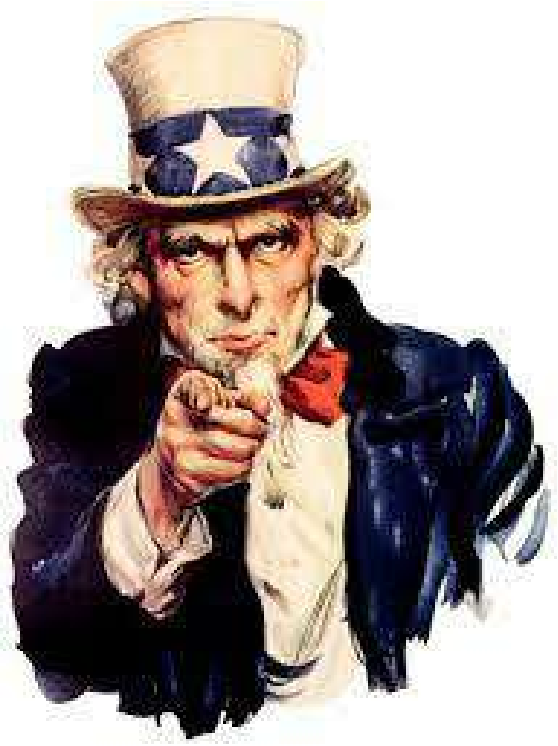
In the February 2022 issue of QST magazine the editorial by ARRL President David Minster NA2AA is titled Diversity and Inclusion: Driving Amateur Radio's Growth

He concentrates on Youth, pointing out importance of using correct Pronouns, and adds:

The second conclusion I've reached is that asking for more youth in amateur radio represents a cultural challenge: the young people today are not the young people of your youth.

Who they are as people is different. What they are looking for from our hobby is different. The time pressure of being digitally connected and always "being on" is different. The real time nature of how young people consume content is different. Even their shifting opinions and preferences relating to social media are different from just a year ago! Amateur radio must recognize and embrace these differences — and dynamically adapt to accommodate them!

I respect the wide points of view on the matter of diversity. I am very aware of how these changes will be met with discomfort in the coming years. I hope that as a member, you'll hang in there whenever and wherever they appear within the hobby — including the pages of QST and elsewhere.



Did you Pay Your Dues Yet!

THE WALL WART, REMOTES AND OLD RECORDS FESTIVAL

By Dr. Curtis Wright-*AA3JE*

Into every life, a little rain must fall. For some of us, it falls a lot. Unless you are a Maine farmer who give up farming and has a spare barn, you only have so much storage space. Sooner or later, there are boxes on every shelf, and stacks of stuff on every flat space.

Which means it's time to clean out.

Now I have no trouble with books. I can tell what books I will read again, and books that I will not. I can identify those plastic sleeves, throw-away carry bags, and all the "extras" that the packaging guys seem to think we need. Old clothes, old shoes, dishes, all those things are easy.

But I have a problem with Wall Warts and Remotes. While it seems a trivial matter to have the label maker at hand when I unpack a device, AND TO MAKE A LABEL THAT TELLS WHAT POWER SUPPLY AND REMOTE GOES WITH IT, I somehow fail to do it.

And I never, ever, have the moral courage to throw away financial records.

So when it comes time to lighten up the basement, I clean out the excess books, I throw away or recycle the toys my grandchildren are too old to use, I have no trouble with all that stuff.

Then I sit and look at boxes and boxes of old papers, wall warts, and remotes.

In the old days, it was easy. Radio Shack (now deceased), had multi-plug, multi-voltage power supplies that could handle anything. Today, you have to order on the Internet, and have no idea what you will get. Plug type, polarity, voltage, wattage?

I sit there, looking at each one. What was it for?

Old printer? Old flashlight? Old radio? Early Apple? Early IBM? Sheesh.

And the remotes. Each has a label on it. Which tells you everything but what it goes to. Turning on the TV now requires either three separate remotes or a multi-purpose remote that only Einstein could program.

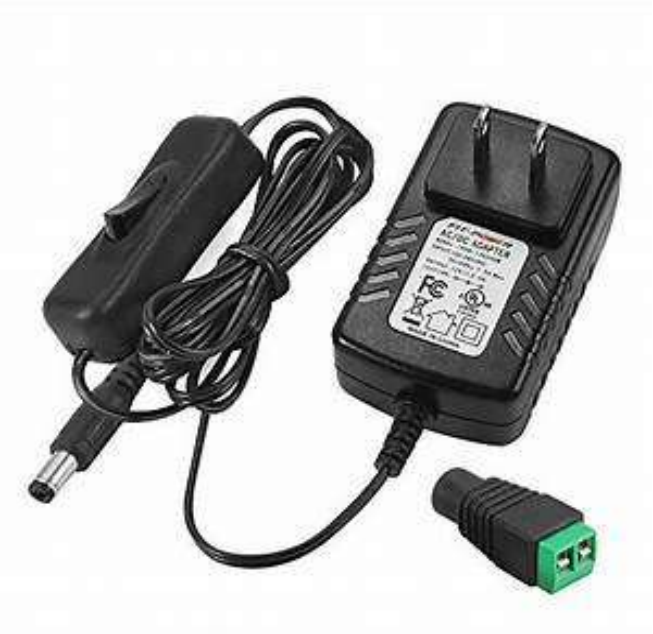
And financial papers. In the old days I discarded them after 3 years. Then I found out that the IRS can charge you with fraud 20 you supposedly did 20 years ago. Who knew?

And handheld chargers! Major brands are easy, but replacements? Whoo Hoo!

So I cheat. There is a crawl space. I put a plastic bag in the Banker's Box, fill the box with this junk, tie it up, label it "Freaking Useless Junk" and put it in the crawl space.

So when I am buried, it will take a big hole. I will be cremated, and fit in a small box, but it will take a full 2 cubic meter hole to hold the Banker's Boxes of papers, remotes, and plug in power supplies. Hopefully I will be able to take them through the Pearly Gates.

So if you need a power supply for a 1980s Hewlett Packard printer, drop me a line. I will cheerfully send



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To provide some context, there is a broadcast radio mode called DRM, or Digital Radio Mondiale. At this point I should mention that this has absolutely nothing to do with Digital Rights Management with the catchy acronym of, you guessed it, DRM. As you might expect, this acronym clash is unhelpful, to say the least, when you're trying to find information about this radio mode. Digital Radio Mondiale, or DRM, essentially defines a digital standard for radio broadcast transmissions. It can handle multiple audio streams as well as file exchange and is used by broadcasters across the globe. Mondiale, in case you're curious means worldwide in French, seems my high school language lessons have finally been put to good use, my French teacher in the Netherlands will be thrilled.

DRM is more efficient than AM and FM and as an open standard, it's gaining popularity. The first broadcast using this mode took place on the 16th of June 2003, during the World Radiocommunication Conference in Geneva.

An open source implementation of this mode is called Dream. The source code is available online and is capable of being compiled for Windows, MacOS and Linux. Dream was originally written by Volker Fischer and Alexander Kurpiers. The Dream project started in June of 2001 and today it has many contributors.

The DRM standard uses different bandwidths depending on which mode is used. The narrowest DRM mode uses 4.5 kHz, but modes using 100 kHz exist. By comparison, a typical analogue amateur radio uses 2.7 kHz for SSB. Using the source of Dream, Francesco built a modified version, called it HamDream and let it loose on the world. It was used for that very first 70 km contact between Roland and Arnaldo.

Several versions of HamDream existed. The first QSO used 2.1 kHz and the last version of HamDream used 2.5 kHz bandwidth. To fit digital audio inside that narrow bandwidth it used different audio compression techniques, called a CODEC, namely LPC10 and SPEEX.

According to Francesco, HamDream is the basis for all current amateur radio 2.5 kHz HamDRM programs. He goes on to say that it's outdated and the source and executables were removed from the net. Personally I think that's a shame, since it represents part of the history of our community and I think that putting the source online in a place like GitHub would be beneficial to the hobby.

The 2.5 kHz HamDRM mode is implemented in several places. QSSTV, EasyPal and WinDRM to name a few. No doubt it's elsewhere. Of those three, only QSSTV survives. The source code for EasyPal, written by Erik VK4AES, now SK, was lost, apparently when the computer on which it lived was sold by his estate. Ironic really, since EasyPal was written because Erik lost a previous application due to a lightning strike nearby and was forced to write a new application from scratch.

WinDRM appears even more elusive. There's a repository on the now archived Google Code site. There are derivatives that appear to use a version of WinDRM, but details are hard to find. An archive I have shows a commit by Francesco, HB9TLK from 2008. I've yet to learn how this relates to the overall picture.

In parallel, in 2005, a few enterprising students made a MATLAB implementation of DRM. Called Diorama and written by Andreas Dittrich and Torsten Schorr it forms the basis of a Linux open source HamDRM receiver written by Ties, PA0MBO, chosen because it had a better performance in marginal conditions than Dream did. It's called RXAMADRM. Ties also wrote an open source transmitter, cunningly called TXAMADRM. It was based on the source code of Dream, specifically v1.12b.

If at this point your head is exploding, I wouldn't blame you.

Let's recap.

There's an open broadcast standard called DRM. An open source, cross platform tool called Dream, in active development, implements that standard.

A special, now discontinued, version of Dream was created called HamDream. It used less bandwidth than DRM and forms the basis of a standard that we now call HamDRM, which underpins Digital SSTV.

HamDream forms the basis of the discontinued

products, EasyPal and WinDRM, and lives on in TRXAMADRM and QSSTV, both Linux open source.
In amateur radio terms HamDRM is one of the ways we can efficiently exchange digital information across long distances.
At this point you might wonder why it matters?
For starters, this is part of our history of amateur radio. The HamDRM mode is poorly documented, if at all. It forms the basis of several modes in use today and writing your own software is made all the more challenging because much of the design and development of this mode has been lost.
What's more, HamDRM is an example of "modern radio". It uses the same fundamental techniques used by the 4G and 5G mobile phone network, as well as modern Wi-Fi. Losing this is a massive step backwards for amateur radio.
This article alone represents a week of research by two people, thank you Randall VK6WR, and I won't be surprised to learn that it contains errors and omissions. It shouldn't have to be this hard to discover how a mode works, what is used to make it tick and how to write new software to implement a new application.
Gotta love open source. Speaking of which. If you have source code copies of HamDream or WinDRM, I'd love to hear from you. cq@vk6flab.com is my address. If you have documentation on the design of the HamDRM mode, I'll owe you a beer, or a glass of milk, your choice.
I'm Onno VK6FLAB

AMATEUR RADIO NEWSLINE REPORT

PROGRESS IN RESTORING TONGA'S COMMUNICATIONS

STEPHEN/ANCHOR: Our top story this week takes us to the struggling island nation of Tonga, which is still cut off from the world following back-to-back natural disasters. Hams continue to keep a watchful eye. Jim Meachen ZL2BHF picks up the story from here.

JIM: Efforts have been ongoing to restore communications to Tonga, where an undersea volcano left a vital fibre-optic cable broken beneath the ocean, isolating the island nation. According to a BBC report, 2G wireless service has been set up on the archipelago's main island with the help of a satellite dish from the University of the South Pacific. Other than the intermittent service of satellite phones, however, outside contact has been limited as the country struggles with a contaminated water supply and other concerns brought on by a subsequent tsunami.

Tonga apparently has no active amateur radio operators and hams in the immediate Pacific region have reported that the amateur HF bands are presently unusable. Some marine VHF bands are said to be active. Hayden Honeywood VK7HH is among those amateurs using YouTube and other social media channels to provide updates whenever possible. One of Hayden's most recent accounts came from Roly ZL1BQD whose friend in Tonga operates a 1-kilowatt broadcast radio station at 91.3 FM. The station was unaffected by the tsunami and is carrying public service messages.

Meanwhile, New Zealand's ministry of foreign affairs estimate it will take at least a month, if not more, before the cable can be fixed.

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FAA SETTLES INTERFERENCE ISSUE WITH MAJORITY OF AIRCRAFT

STEPHEN/ANCHOR: The US FAA has made major progress on the issue of interference between 5G transmissions and airline altimeters. Kent Peterson KCØDGY brings us this update.

KENT: For some models of Boeing, Airbus and Embraer aircraft, radio interference isn't just an annoyance; it has the potential for deadly consequences. That was at the root of the US Federal Aviation Administration's concern about 5G cell phone signals, which use the same C-band spectrum as some of the airliners' altimeters.

The FAA said planes landing in low-visibility conditions risked interference from mobile phones, naming Verizon and AT&T as two of the carriers. Now, in a dramatic turnaround of its position, the FAA has said that more than three-quarters of planes have altimeters that can filter out 5G transmissions and are in the clear. Some telecom and consumer advocates, such as attorney Harold Feld, publicly criticized the FAA for taking too long to evaluate altimeters after the FCC approved the cellular carriers' use of the C-band in 2020.

According to an article on the ArsTechnica website, the FAA only began vetting the altimeters in February 2021 once the FCC had auctioned off the spectrum to the carriers. The ArsTechnica article said that in 40 other

countries where C-band spectrum is in use for cellular service, there have been no reports of 5G causing trouble with altimeters.

In the US the FCC standards place a 200 MHz guard band between the cellular carriers and the frequencies used by the altimeters.

More approvals are expected soon.

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PORTUGAL CRACKS DOWN ON RADIO INTERFERENCE

STEPHEN/ANCHOR: Meanwhile, the Portuguese communications regulator cracked down late last year on what it called abuse and interference on a number of frequencies, including maritime mobile and amateur bands. IARU Region 1 reported that ANACOM, the Portuguese Communications Authority, in partnership with the Maritime Police, sought to verify the proper and legal use of radios by conducting inspections on vessels between the ports of Caminha and Peniche. According to the report, unauthorized use of frequencies was the most common violation. The report indicated that such practices, in addition to being illegal, can cause interference, especially to radios being used for emergency response. ANACOM noted in the report that it was leaving the matter of sanctions to the Maritime Police. (SOUTHGATE, IARU REGION 1)

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HAMS IN UK PREP FOR PLATINUM JUBILEE SPECIAL EVENT

STEPHEN/ANCHOR: There will be big celebrations everywhere in the UK this year for the queens' platinum jubilee. Jeremy Boot G4NJH tells us how ham radio is getting involved.

JEREMY: Hams in the UK who are planning to operate this June in celebration of the Queen's Platinum Jubilee should keep their eyes on the website of the Radio Society of Great Britain. Ofcom has granted permission for callsigns to include the special regional secondary locator letter Q but its use will require a Notice of Variation. The website rsgb.org will carry those details shortly. Her Majesty Queen Elizabeth II is Britain's longest reigning monarch and thus the first to celebrate a Platinum Jubilee. Special use call signs have been used by hams for previous occasions, including the Queen's Golden Jubilee in 2002 and her Diamond Jubilee in 2012.

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HAMS JOIN FCC'S TECH ADVISORY COUNCIL

STEPHEN/ANCHOR: The two newest members of the FCC's Advisory Council are radio amateurs. Sel Embee KB3 T Zed D has the details.

SEL: When the Federal Communications Commission's Technical Advisory Council holds its first meeting of the year on Feb. 28, two amateur radio operators will be part of the proceedings for the first time. Greg Lapin, N9GL, chairman of the ARRL's RF Safety Committee, and Michelle Thompson, W5NYV, CEO of the Open Research Institute, have joined the council following their appointment by FCC Chairwoman Jessica Rosenworcel. The FCC relies on the council's advice on a number of issues including artificial intelligence, emerging wireless technologies and advanced spectrum-sharing technologies.

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DEADLINE NEARS FOR SOFTWARE DEVELOPMENT NOMINATIONS

STEPHEN/ANCHOR: If you know a software innovator who's devoted to helping amateur radio operations improve, you still have a little time to submit their name for the Amateur Radio Software Award. The deadline is February 14th. The international award is given each year to developers of creative open-source programs that follow good development practices and are available free to users. Previous winners have included Jordan Sherer KN4CRD for JS8Call and Anthony Good K3NG for the K3NG Arduino CW Keyer.

For details and to find the official nomination form, visit arsaward dot com (arsaward.com). The winner will be announced in April.

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SILENT KEY: SPACE ADVOCATE CHUCK BIGGS SR., WA5GNB/KC5RG

STEPHEN/ANCHOR: A Texas amateur known for his devotion to NASA programs and to the Military Auxiliary Radio System, or MARS, has become a Silent Key. Chuck Biggs Sr., WA5GNB and KC5RG, died on January 18th in hospice care in Houston. The Arkansas native was a US Air Force veteran who took a civilian

position with NASA's then-new Manned Spacecraft Center, which was later to be renamed the Johnson Space Center. His three decades of effort with NASA led him to ultimately become vice president of the Manned Space Flight Education Foundation. Chuck had also been involved in SAREX, the Shuttle Amateur Radio Experiment and OSCAR, the Orbiting Satellite Carrying Amateur Radio programs. The Space Center named him ham radio operator of the year in 1987.
A bronze plaque hangs at the Space Center today, bearing his name and likeness. Chuck was 84.

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RESEARCHERS' TRANSISTORS OPERATE USING SOUND WAVES

STEPHEN/ANCHOR: Imagine a transistor that uses sound waves. Researchers have done more than imagine it: they've created it. Andy Morrison K9AWM explains.

ANDY: They're called acoustic topological transistors and unlike devices presently in use, they operate using sound waves, not electrons. Researchers say that one of the transistors' key assets is its ability to function with almost no dissipation of energy. The electrons are designed to flow with no resistance.

According to a January 19th post on the IEEE Spectrum website, the creation of these transistors was made possible with the use of acoustical topological insulators. This follows the development in 2007 of something related: electronic topological insulators. These insulators protect electrons' flow from any disturbances. Oxford University researcher Harris Pirie said the development of these newest transistors will find applications in such fields as one-way acoustic propagation, ultrasound imaging, acoustic noise reduction, echolocation, acoustic cloaking and acoustic communications.

He said that because the physics of sound waves and the physics of light waves are so alike, the same design principles that scientists used for creating acoustic topological transistors would be useful as well for similar devices using light.
For Amateur Radio Newsline I'm Andy Morrison K9AWM.

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CYBERATTACK HITS GERMANY RADIO CLUB WEBSITE

STEPHEN/ANCHOR: Hams in Germany are being reassured that their personal data has not been affected by a cyberattack on the DARC website. Ed Durrant DD5LP tells us more.

ED: The Deutscher Amateur Radio Club is reassuring hams in Germany that a cyberattack on the group's website, which exploited the vulnerability of a plug-in, does not appear to have compromised any members' data. The DARC said it successfully halted the January 15th attack and will not restore the full website to online status until it is convinced the site is completely secured again. A statement by the DARC board reaffirmed to members that their personal data is kept in folders that are distinct from the website and members' passwords to the website itself are stored encrypted. The board said it believed the attack was automated and was not launched specifically to collect members' data. Meanwhile, an IT company has been asked to conduct a forensic investigation.

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NORDIC RADIO SOCIETY PLANS FOR LATEST HF CONFERENCE

STEPHEN/ANCHOR: The Nordic Radio Society's HF Conference promises to be an international event as we hear from Jeremy Boot G4NJH.

JEREMY: Thirty-three years after their first HF Conference, the Nordic Radio Society is preparing to host a return to Fårö, [pronounced: Foor-ô] the small Swedish island in the Baltic Sea where all previous such events have taken place.

This year’s conference is scheduled from 15th to 17th August and should, as usual, draw a substantial international attendance; they have been held consistently every three years. Organisers note on their webpage that the popularity of the programme has grown substantially since the first in 1986, the agenda now including exhibits and talks, with participants from all around the world. The society encourages interested attendees to submit presentation papers now, the deadline being 15th February. Previous conferences have addressed such subjects as propagation, building resiliency for HF networks, achieving higher efficiency using low bandwidth links, and robust communications through HF skywave channels using a filter bank spread spectrum technique.

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WORLD OF DX

In the World of DX, from the Maldives, listen for Henry, LU4DXU, operating as 8Q7AH between February 8th and 15th. Henry will be using various HF bands. QSL direct to his home callsign.

Listen for Mathias, DL4MM, active as P4/DL4MM from Aruba until the 2nd of February. He will be on various HF bands, focusing on the lower bands and 30, 17 and 12 metres. Mathias will be using CW, SSB and FT8. QSL via DL4MM, direct or via the Bureau Club-Log or LoTW. Listen for him in the CQ 160m CW Contest on January 28th through the 30th, where he will be using the callsign P40AA.

Alex, OE3DMA, will be operating as OE19AAW from Altenburg, Austria during the 19th Antarctic Activity Week taking place between February 21st and 27th. Send QSLs to his normal callsign.

Listen for Thaire, W2APF, on the air as VP2MDX from Montserrat Island until February 18th. Listen on 80-10 metres for Thaire using CW and SSB. Send QSLs to his home callsign.

If you've been chasing operators in Italy for the WRTC Award, this scheme resets every month. With the start of February, you have a chance to work all the Italian special event WRTC stations again starting February 1st and see how far up the monthly ranking tables you can get. Full details are in the rules at WRTC2022.IT.

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KICKER: NO MORE 'PI' IN THE SKY FOR 'ED AND IZZY'

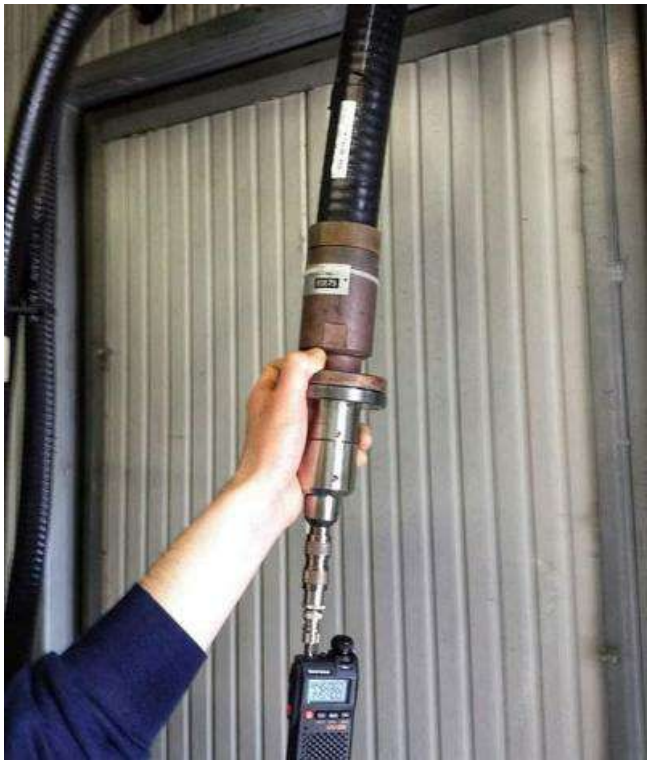
STEPHEN/ANCHOR: Our final story is about a changing of the guard, of sorts, aboard the International Space Station. Ed Durrant DD5LP tells us what's been happening up there.

ED: After nearly six years of loyal service, Ed and Izzy have been told their services are no longer needed. European Space Agency astronaut Matthias Maurer KI5KFH / DP0ISS broke the news to them recently aboard the International Space Station where the two AstroPi computers have operated for a half-dozen years. Matthias completed the installation of their replacements, which had been brought to the ISS in December on board a Falcon 9 supply rocket.

The units comprise Raspberry Pi 4 Model B hardware, a 12.3MP camera, and a range of sensors. The AstroPi units are capable of uploading code submissions from two programs: Mission Zero and Mission Space Lab, both of which are used to nurture students' coding skills. The new units have greater capacity than Ed and Izzy and are expected to outperform them dramatically.

Now, this changing-of-the-guard should have come as no surprise to Ed and Izzy, who were originally installed on the ISS by British ESA astronaut Tim Peake KG5BVI / GB0ISS. The ESA gave a very public preview of their replacements in September of last year, calling the replacements essential - adding that the original batteries were due to expire soon.

There was no word as to whether Ed and Izzy would be given a formal farewell or even offered severance pay. The names of the new AstroPis have yet to be disclosed.



Connecting your hand held at the repeater site for testing, wonder how much loss in signal from the adaptors?

Planning is well underway for the 2022 Boston Marathon!

The Boston Marathon Communications Committee writes:
The BAA opened volunteer registration continues to be open and it will close on Friday,
February 18, 2022. Returning volunteers should have received an email
from the BAA with details about how to register.

New volunteers can sign up via **http://register.hamradioboston.org/**

We have also provided a step by step guide on how to select Amateur
Radio volunteer positions during the registration process:
https://hamradioboston.freshdesk.com/support/solutions/articles/44002294773-2022-volunteer-registration-step-by-step-guide

If you have any questions about the upcoming volunteer registration
period, or the 2022 Marathon generally, please get in touch anytime via
the email address contact@hamradioboston.org.

Thank you, and 73,

Boston Marathon Communications Committee
contact@HamRadioBoston.org

Mt. Tom ARA 33rd Amateur Radio / Electronics Hamfest

The Mt. Tom Amateur Repeater Association will hold its 33rd Amateur Radio / Electronics Hamfest at the Castle of Knights, 1599 Memorial Drive, Chicopee, MA 01020. Doors open at 6:30 AM for vendors only; help will be available for loading and unloading Doors open for general admission at 8:30 AM (8:00 AM if the vendors are ready).

Admission: Adults: $5.00; Children: under age 12 are free. There will be no tailgating; handicapped parking will be available. Raffle Prizes – six (6) tickets for $5.00 VE Exam -10:30 AM FREE Exams*
Provided by PVVETCandidates must pre-register for the exam prior to the Hamfest. Visit http://pvvet.org for registration and more information.*FCC application fees may apply Additional Information:
http://www.mtara.orgTalk–In on 146.94 (127.3 PL) Table Registrations contact:
Brian Mullarney – N1FI
20 Spring Street
Easthampton, MA 01027
Tel. (860) 478-6790
N1FI@arrl.net

Elon Musk SpaceX rocket on collision course with moon

BBC News report a rocket launched by Elon Musk's space exploration company is on course to crash into the moon and explode
The Falcon 9 booster was launched in 2015 but after completing its mission, it did not have enough fuel to return towards Earth and instead remained in space.
Astronomer Jonathan McDowell told BBC News it will be the first known uncontrolled rocket collision with the moon.

But the effects will be minor, he says.
The rocket was abandoned in high orbit seven years ago after it completed a mission to send a space weather satellite on a million-mile journey.

It was part of Mr Musk's space exploration programme SpaceX, a commercial company that ultimately aims to get humans living on other planets.

Since 2015 the rocket has been pulled by different gravitational forces of the earth, moon and sun, making its path somewhat "chaotic", explains Prof McDowell from the US-based Harvard-Smithsonian Center for Astrophysics.

"It's been dead - just following the laws of gravity."
It's joined millions of other pieces of space junk - machinery discarded in space after completing missions without enough energy to return to earth.

"Over the decades there have been maybe 50 large objects that we've totally lost track of. This may have happened a bunch of times before, we just didn't notice. This would be the first confirmed case," Prof McDowell says.

Question: I have a friend who drives around with a scanner in his vehicle. He says because he has a ham radio license it's legal, is that true?

Answer: Your friend is correct. Peace officers, the State Patrol, and people with an amateur radio license issued by the Federal Communications Commission are allowed to have a scanner in their vehicle. Emergency response personnel are also allowed to use scanners if they're employed or authorized by the federal government, the state, or a political subdivision to provide fire suppression, police protection, emergency medical services, or emergency activities relating to health and safety and in compliance with the requirements of the state statute.

People not authorized to use a scanner could be found guilty of a misdemeanor. Second and subsequent offenses are gross misdemeanors.

People using such devices while committing or attempting to commit a felony could be convicted of a felony.

A PIRATE ON HF

During December of last year, and again throughout January, a pirate station transmitted on 80 and 40 meters, using USB. The strong signal was heard across Europe.

The pirate broadcasted italian and english language messages against Covid-19 measures, but the audio was frequently distorted by overmodulation.

The German DARC DF-team found an approximate location in Italy, and informed the Bundesnetzagentur who in turn contacted their Italian counterparts. The broadcasts have stopped since.

NEW ENGLAND HAMFESTS

2022 ARRL Maine State Convention and Andyfest Friday

April 1st and Saturday April 2nd, 2022.

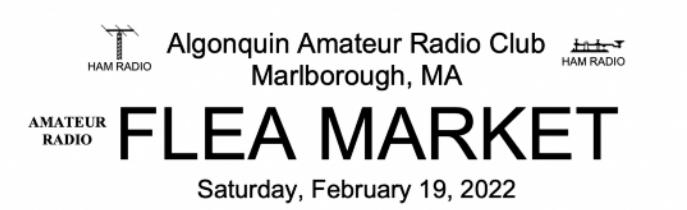
Tentative schedule Friday Night, 7 p.m. to 9 p.m. April 1st and Saturday Morning April 2, 2022 8 a.m. until 12 noon at the Ramada Inn 490 Pleasant Street Lewiston Maine. VE Exams Saturday April 2 at 12:30 p.m.

http://w1npp.org/pages/meconvention2022.html

Near-Fest XXIV

Friday April 29 0900h to Saturday April 30, 2022 1500h 2022, Deerfield, NH

http://near-fest.com/



INTERESTING LETTER TO THE CAARA BOARD

Greetings,

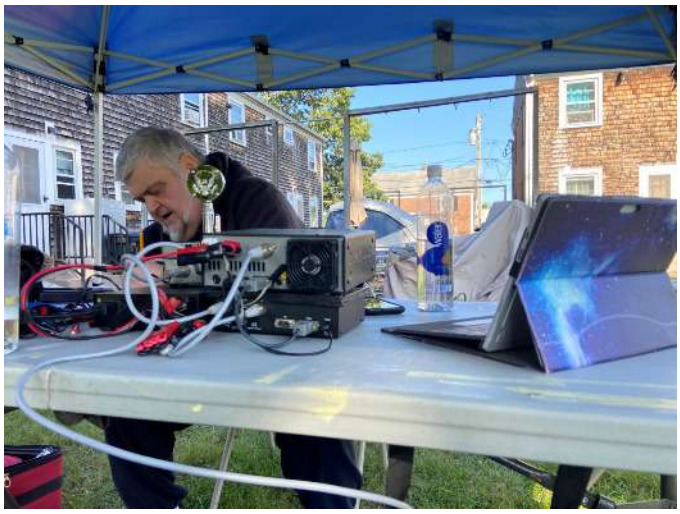
My name is Alan Lambert, KM4VTT. I am the president of the Middle Peninsula Amateur Radio Club (MPARC) in Gloucester County Virginia. In the last few months, our county has been coordinating a Gloucester Collaboration envent. Attached is an article from our local newspaper describing the event. Our county administrator, Carol Steele, contacted MPARC to ask if and encourage us to participate in the effort to support the project. As enthusiasts of radio communications, we have agreed to set up a station in the county seat to attempt to contact and communicate with the other "Gloucesters" via ham radio. Our group will be setting up our station on Sunday March 20, 2022, to help facilitate this event. We will be getting on the air from 12:00-15:00. We will have multiple rigs set up on various bands to assist us in the attempt, depending on band conditions during the day. We have already contacted the Gloucester County ARC in New Jersey, and they will be participating. We are awaiting an answer from Gloucester in Great Britain. We are inviting you to participate in the event. We hope that your club will join us in our endeavor to make this event a success. We look forward to hearing from you.

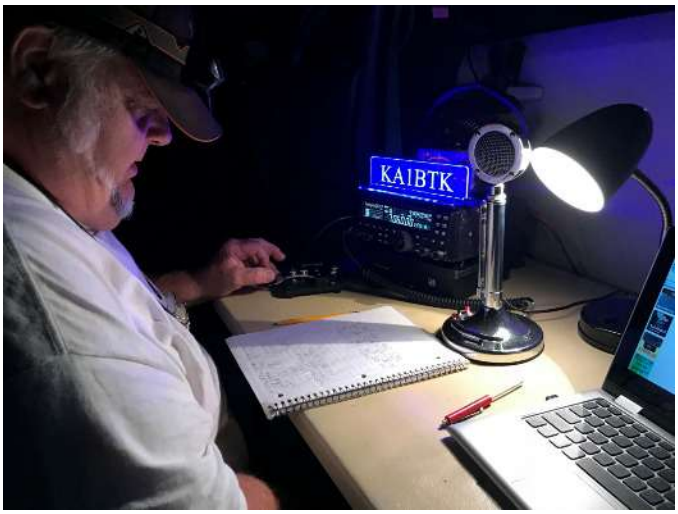
Regards,

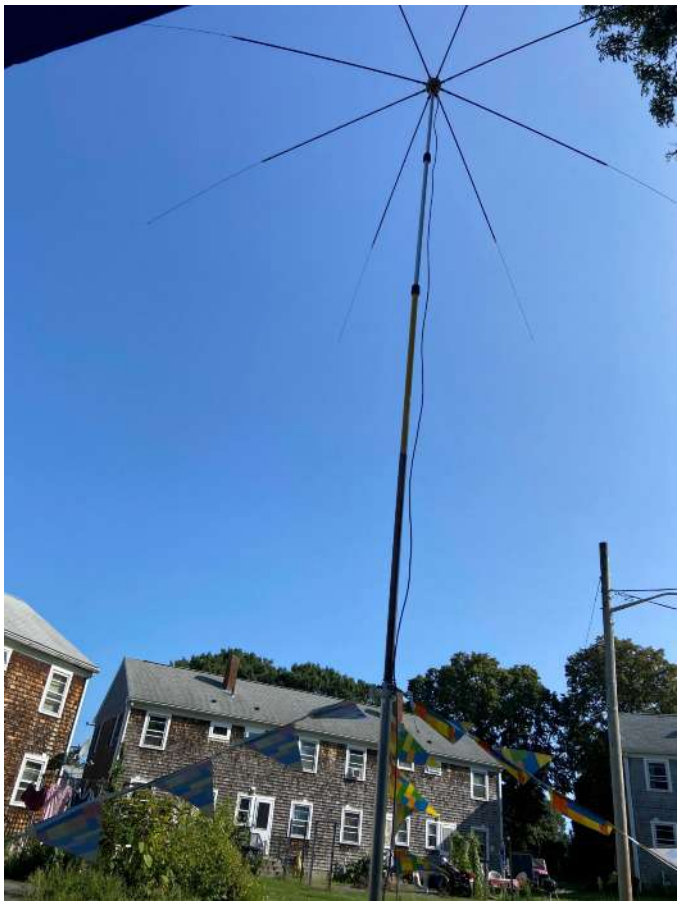
Alan Lambert

KM45VTT, President MPARC

A MEMORY OF GARDI BY HIS DAUGHTER







Gardi was an inventor. He loved building mobile antenna's for his portable operations around New England. This his "octopus" antenna for 10-40 meters

Gardner Winchester II (SK), formally KA1BTK , now held by myself, Crystal Davis-Winchester.

The photo under the blue tent was the last time dad ever set up his rig in 2020 before he could no longer make the stairs in his house.

The photo with the antenna is from the same day.

The other two are from our trip to Connecticut where he was teaching my niece (may as well of been his granddaughter as she is my brothers daughter but from a different father so no relation to dad but he accepted her as such) her name is Dakota and she is very much into HAM radio and dad was teaching her. Also Renee is in the photo as well.

Thank you!! Crystal KA1BTK