Key Klix May 2025

The Monthly Q-S-T *de the*

MERIDEN AMATEUR RADIO CLUB & WALLINGFORD AMATEUR RADIO GROUP

"It's the Radio News that's fun to use"

MARC Members N1PHI Trish & WA1SFH Douglas are all smiles at the 2025 Cheshire Marathon on April 13, *See page 08 for more news on the event!*

INSIDE THIS *EXCITING* ISSUE:

Your 2025 Club Officers are:

President	KC1QLS	Ray Cirmo
Vice President	NZ1J	Dave Tipping
Treasurer	KC1OYN	Rick Becker
SAM	K1RCT	Rob Cichon
Secretary	AB1DQ	Jimmy Surprenant

Wallingford Amateur Radio Group
Emergency Communications

THE PRESIDENT'S POST

by Ray, KC1QLS

There are a variety of methods of transmitting data digitally over radio waves using amateur radio equipment. These methods allow for communication beyond voice, often with greater clarity and efficiency, utilizing specialized software on a computer to encode and decode signals, opening up opportunities for long-distance contacts even in challenging propagation conditions.

If you have never tried this aspect of the hobby, you might want to consider some of the advantages that digital modes offer.

Improved signal quality in weak signal conditions: Digital modes utilize error correction protocols that can recover data even when the signal is weak or distorted, allowing for reliable communication under challenging propagation conditions.

Data transmission capability: Going beyond voice communication, digital modes enable the transmission of text, images, and other data types through the radio, opening up new possibilities for information sharing.

Making efficient use of bandwidth: Digital modulation techniques like phase shift keying allow for more information to be transmitted within a given bandwidth compared to analog modes, enabling more stations to operate on the same frequency.

Reduced power requirements: Digital modes often require less power to achieve the same communication distance as analog modes, due to their efficient coding.

Automatic call sign identification: Digital modes can automatically display the call sign of a transmitting station on the receiver, eliminating the need for verbal communication.

Additional features: Some digital modes can incorporate additional features like GPS location reporting, messaging capabilities, and even digital voice communication with enhanced clarity.

Accessibility: Digital communications can provide accessibility for operators who have hearing difficulties.

(continued, next page…)

After looking at the advantages, you might be wondering, 'What is not to like?'

Spirit of the hobby: If you have been in the hobby for several years, some older hams feel that digital modes detract from the traditional aspects of the hobby, such as voice communication and technical skill.

Skill level: The ease of making contacts, even with weak signals, may be viewed by some as reducing the challenge of the hobby.

Shorter contact times: Make contacts feel rushed and/or impersonal compared to longer conversations.

The beauty of the hobby is that amateur radio offers many different avenues to pursue. Many of our club members actively use digital modes alongside traditional communication and find value in both approaches.

All of the officers are here to serve as caretakers of the club. When you see one of the club officers, make it a point to reach out and give them your comments and ideas to help focus the direction of the club. Every member has an equal say/vote in what you want the club to be.

As I like to say, this hobby is all about fun, education, and camaraderie. This is what it should be - after all, it is a hobby.

Springtime is Antenna Time!

& Key Klix wants to know...

What is your Spring Antenna Project? Are you installing a new wire antenna, putting up a tower, or just repairing what Mother Nature did to your existing antenna farm this winter?

Drop us a line and share the details & be sure to include some photos to be featured In an upcoming edition!

Minutes of the April 10 Business Meeting

THE APRIL MINUTES PRESENTED BELOW WILL BE MOVED FOR APPROVAL AT THE MAY 8TH MEETING.

Quorum Club secretary AB1DQ Jimmy confirmed a quorum:
In attendance: 024 = 20 members + 4 Officers
Officers: KC1QLS, Ray Cirmo [President]; NZ1J, Dave Tipping [Vice President]; KC1OYN, Rick Becker [Treasurer]; AB1DQ, Jimmy Surprenant [Secretary]
Members: K1LHO, Mike Ash; KB1EHE, Eric Knight; KB1IFZ, Elsie Mathews; KC1DOY, Ted Renzoni; KC1KQH, John Kasinskas; KC1SA, Steve Allen; KC1THU, Mike Zelladonis; KC1TSG, Jim Drexler; KC1TSX, Mike Barile; KC1WFB, Lloyd Saberski; KE1AU, Bob Kaczor; N1API, Al Kaiser; N1BRL, Bart Toftness; N1GNV, John Bartscherer; N1LES, Joe Murray; W1BRY, Don Chepurna; W1YSM, Ed Snyder; WB1GYZ, Bob Biancur; WJ1B, Harold Kramer; WV2LKM, Steve Waldmann;

Call to Order

The meeting was called to order at 7:00 PM EDT by club president, KC1QLS, Ray.

Secretary's Report, by AB1DQ Jimmy

- **MOTION**: AB1DQ, Jimmy, moved that the March business meeting minutes emailed to the club membership be approved without changes.
  SECONDED **DISCUSSION**: None **VOTED**: Approved.
- There are no new applicants for membership this month.
- One former member has returned to the club after an absence of less than five years. Please welcome back WA1BAR, Michael Barr, a General Class Operator from Bristol.
- Membership Report: The club now has 198 members.
- Correspondence: None.

Treasurer's Report by KC1OYN, Rick:

- MOTION: KC1OYN, Rick moved that the March Treasurer's Report emailed to the club membership be approved.
  SECONDED **DISCUSSION**: None **VOTED**: Approved.
- Highlighted items from the March Treasurer's Report:
  - The Yaseu FT-991, donated by the estate of W1DQ-SK, has been repaired. Station Activities Manager Rob had covered costs of $95.12 from his Station Manager's fund and will be reimbursed along with a $13.81 purchase that will appear in the April report.
  - MARC received several donations during March:
    - The Nutmeg Hamfest committee has donated $1,000 for MARC's annual scholarship.
    - Several donations have been received for our Tech License Manuals for Veterans program.
    - Donations were received from:
      Ken Williams, KC1TYO, $50
      Ray Irwin, WA1FFT, $50 (to be recorded in April)
      Trish Nitschke, N1PHI, $25 (to be recorded in April)
      $50 from Benevity from Microsoft per Tyler Schroder, NT1S
      Thanks to all
- Liability insurance is to be renewed.

- The Dream Host website package will renew before the next meeting autopay pre-approved through 2027

Station Manager's Report by K1RCT, Rob:

Rob was absent from the April meeting, so there was no presentation of the Station Manager's Report. KC1QLS, Ray noted that the March report had been sent along with the April meeting agenda on Monday.

Standing Committee Reports

None of the six standing committees (Technical, Community Outreach & Communications, Program & Entertainment, Repeater, Scholarship, or WARG/CERT presented an April report.

Old Business

None discussed

New Business

- **Zoom Recording & AI:**
  - Business meetings on Zoom will no longer be recorded, and AI will be turned off during the meetings. (KC1QLS, Ray)
- **Field Day:**
  - Dave Tipping has been named the 2025 Field Day captain and will be the point person for all planning and organizing for the event. (KC1QLS, Ray)
  - There are 11 weeks to Field Day, and we are making a bigger push as a club for more involvement in Field Day this year to bring in digital ops in a big way and with an increased emphasis on VHF. (NZ1J, Dave)
  - There has been a good response to the Field Day initiative thus far. Last Saturday, we drew 30 participants at the OEM, who learned about FT8 operations in the radio room. (NZ1J, Dave)
  - **MOTION:** KC1QLS, Ray moved that MARC will participate in Field Day 2025 and will support up to two locations. The main location shall be at the OEM. **SECONDED** **DISCUSSION:** None **VOTED:** Approved.
  - Field Day operations have been funded as last year, we passed a motion approving $500 in recurring costs for Field Day and Lark at the MARC through 2027. (KC1OYN, Rick)
  - We want to build enthusiasm to make this a signature event for the club this year, Members are encouraged to reach out to friends within the club to form operating teams. We aim to do "more of the same, but better" (by NZ1J, Dave)
  - A question was raised about food at Field Day. Dave guaranteed he has this covered, and plans are in the works for preparing and serving a traditional Field Day meal on Saturday and breakfast on Sunday at the OEM. (Q. by N1GNV, John)
  - A question was raised regarding whether anyone has stepped up to captain a second Field Day. Dave responded that we welcome a member to volunteer to take charge and noted that the secondary site need not be operated for 24 hours. (Q, by N1GNV, John)

- **Scholarship:**
  - We have received our first scholarship application. If you have students in your family/circle, now is the time to encourage applications (by KC1OYN, Rick)

Announcements

- The Cheshire Half Marathon is this Sunday, the 13th. We will be providing communications support as a club, and the W1NRG/R repeater will not be used for regular use during the event. (by KC1QLS, Ray)
- April 18, 2025, is World Amateur Radio Day. Ray will represent the club at Newington. The location for the Balloon Launch has not been finalized, being contingent upon weather conditions. (by KC1QLS, Ray)
- KC1NQE, Shawn, has stepped down as Key Klix editor, and AB1DQ, Jimmy, has agreed to edit the magazine on an interim basis until a new permanent editor can be appointed. This is a great opportunity to serve the club, and members are encouraged to volunteer. (by KC1QLS, Ray)
- Members are encouraged to plan to attend upcoming Activity meetings and also to volunteer to present. Bill NR1B and AB1DQ, Jimmy will be giving presentations in the months ahead. Please consider signing up (by NZ1J, Dave)
- MARCONI II is progressing very well. (by W1YSM, Ed)

Adjournment

- MOTION: KC1QLS, Ray moved that the club, now having completed our business for the month, the April 2025 business meeting be adjourned.
  SECONDED **DISCUSSION:** None **VOTED:** Approved.
- The meeting was adjourned at 7:28 PM EDT.

MARC *VE Sessions*

MARC hosts a VE License Exam Session on the second Saturday of each month, starting at 9:00 AM local time at the OEM at 143 Hope Hill Road, Wallingford, CT. Exams are now paperless and require obtaining a PIN from www.hamstudy.org before the test date.
For more information, contact Jim N1ZN at N1ZN@aol.com

Join us for the next Activity Meeting!

CIGAR BOX RADIO
Thinking INSIDE the Box!
Presented by,
AB1DQ, Jimmy Surprenant
Thursday, May 22, 7 pm - 8 pm
Live at the OEM
143 Hope Hill Road

MARC VE Goes Digital

In 2025, the ARRL VEC is moving to a completely digital program. Printed booklets and supplies shipments will be discontinued as we shift teams to the ExamTools online examination system.

The Meriden Amateur Club is an affiliate of the ARRL VEC program, and plans have been underway here to make the changes necessary to be compliant with the ARRL directive.

N1ZN, Jim Savage, NR1B, Bill Huggins, and N1BRI, Bart Toftness, have been busy making MARC ready to switch over. According to Bill, the team is targeting the regularly scheduled May VE session for MARC's first digital exam session.

As a club, we will be using the ExamTools online testing system. MARC VEs will need to create an account and register with ExamTools prior to serving at a digital VE session. The URL is www.examtools.org, and they will be required to upload an official copy of their amateur radio license for verification purposes. Official license copies can be downloaded in PDF format from the FCC Uniform Licensing Service website at https://www.fcc.gov/wireless/universal-licensing-system.

License candidates participating in a digital VE exam session will need to obtain a four-digit PIN from the ExamTools website and can then use their PIN to sign up for an exam session.

On the day of the exam, examinees will be provided with a tablet, which will be used to take their exams. When completed, the candidate will submit their exam electronically, and it will be graded online. The ExamTools service will route the license applications for successful candidates to the FCC.

The process is intended to save on using physical resources, reducing waste and costs, and should result in a quicker, more efficient process for testing and issuing amateur radio licenses.

If you're interested in becoming a VE or have further questions about MARC's implementation of the new digital VE process, please contact Jim Savage, N1ZN at N1ZN@arrl.net.

The Cheshire Half Marathon

On Sunday, April 13, MARC/WARG members volunteered to help promote public safety at the annual Cheshire Half Marathon. Volunteers staffed nine field posts along the route and were available for logistical support and for passing any medical or safety traffic. Members also assisted in directing runners in the proper direction of the course at turns in the route.

Net Control was K1LYP John, Douglas WA1SFH, and W1YSM Ed, stationed at the Cheshire High School football field.

Thanks to our members who participated, including AB1DQ, K1LHO, K1LYP, K1RCT, KB1JL, KC1ISI, KC1NQE, KC1STF, KC1TSM, KC1TSX, KC1WEX, N1AKN, N1LES, N1PHI, NZ1J, W1YSM and WA1SFH



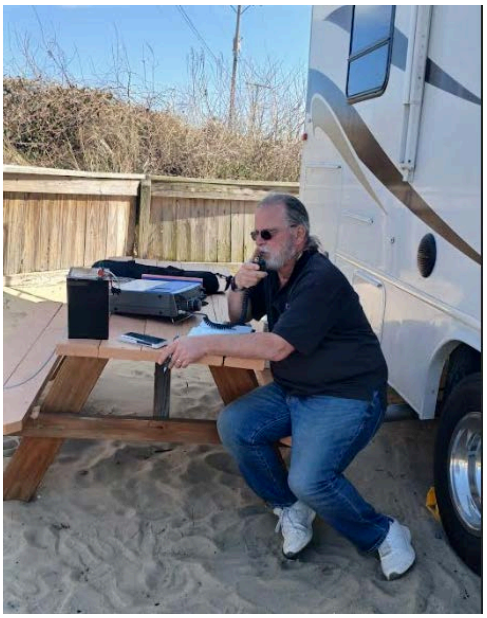
ABOVE LEFT: Ellen KC1TSM manning her post at North Brooksvale and the Trail Crossing. CENTER: Joe N1LES, Kristin KC1ISI & Mike KC1TSX pre-race at Lock 12. RIGHT: Joe points the finger while Eric KB1JL stands ready. BOTTOM LEFT: Douglas WA1SFH & Jeff N1AKN at Lock 12, pre-race. BOTTOM RIGHT: Kristin KC1ISI, Douglas WA1SFH, Ellen KC1TSM, Jimmy AB1DQ, Lenny KC1WEX, Eric KB1JL, Joe N1LES, Trish N1PHI & Mike KC1TSX ready to swerve!


The KC1SA Roving Shack

A report from the road by Steve, KC1SA

March and April marked the beginning of The Great Outdoor Adventure (TGOA) of KC1SA. My wife, Ruth, and I, along with our 3 cats and 2 dogs, travelled about 2200 miles along the east coast to Georgia and back. Along the way, when time permitted, I attempted to have some radio fun and make some QSOs. I aspired to make a lot of HF contacts, but the equipment (antenna) did not cooperate and was relegated to making mostly Echolink contacts to club members. HF was not entirely a bust, and while in Kitty Hawk, I did make 10 or so QSOs to VT, ME, OH, GA, and other areas. Signal reports were 56 to 59 while here, but moving on to SC and GA, the antenna misbehaved badly and made no contacts. In total, 56 QSOs were made.

Ruth helped out with verifying antenna performance. I hooked up my NanoVNA to our 43" TV in the coach and had Ruth radio (GMRS) to me SWR performance figures as I attempted to make small tweaks to the antenna. Ruth has no interest in getting her "ticket" but will help out with things like this and as a CERT team member the GMRS radio operation gave her some practice. We had some fun setting up and taking down the gear, and Ruth became an expert at packing the Buddipole back into its carrying case.



Leg two of TGOA starts mid-July, and I hope to have a vertical antenna built and tweaked for better performance than the Buddipole set up I brought on this last leg. Leg one was fun, and making some QSOs with club and non-club members was nice. We hope to hear more club members on the air tracking us down when the next leg starts up. At the end of our adventures (total of three legs), certificates will be emailed out to all those who tracked us down on the air.

73,
Steve,
KC1SA

2025 General License Class Graduates Eight

On April 29, eight students completed the MARC Spring General License Review Class, wrapping up ten weeks of study to prepare to sit for the Element 03 exam this Saturday, May 10, to upgrade their license from Technician Class.

This was our second year offering a class for Technicians eager to upgrade for more HF privileges, and learning from last year's inaugural class, we made several enhancements to our program to make it more engaging and to spark a deeper interest and better understanding of the technical side of the amateur radio hobby.

The most significant change this year was that we offered the class in person at the OEM, instead of on Zoom, which allowed several of our volunteer instructors to incorporate some hands-on radio into the class with the intent of moving beyond rote memorization of question answers.

- Dave, NZ1J, brought in a battery, a capacitor, resistors, and a meter to demonstrate how voltage increases as it is stored in the capacitor and then decreases as it discharges.
- Jimmy, AB1DQ, brought a simple two-stage transmitter to demonstrate how amplitude modulation of a carrier signal is achieved and the presence of odd-order harmonics when a low-pass filter is omitted.
- Bill, NR1B, brought in an Icom HF rig and connected it to a laptop and the classroom video display to demonstrate digital modes while making FT8 contacts with stations in Ohio and Spain.
- Eric, KB1EHE, and Elsie, KB1IFZ, once again gave their show-and-tell presentation on antennas and feedlines, always a popular lesson!

Please wish our General class candidates good luck in their exams, and be sure to congratulate them afterward.

CONGRATS TO OUR 2025 GENERAL CLASS GRADUATES

KC1VUL Elizabeth	KC1VUS Barry	KC1VZI Joe	KC1VUM Matt
KC1TSY Daniel	KC1VVC Joel	KC1NRD John	KC1QWH Stephen

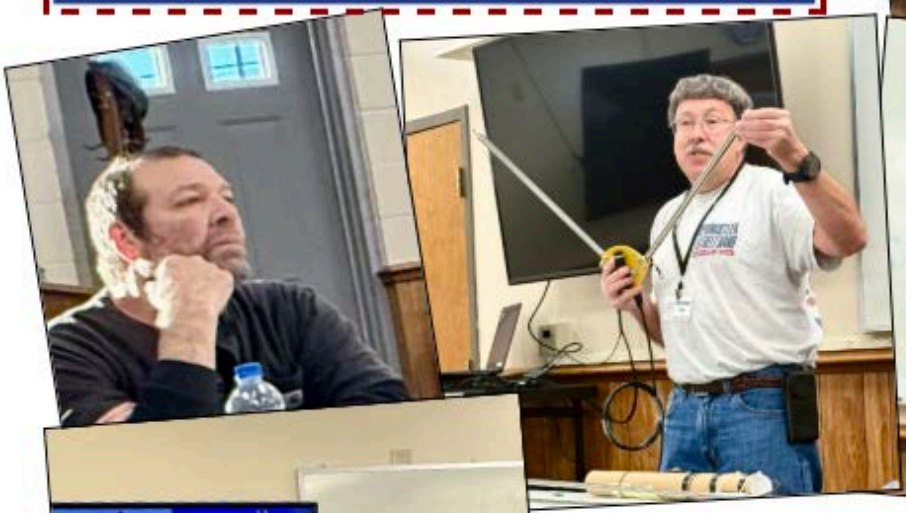
THANK YOU TO OUR 2025 INSTRUCTORS

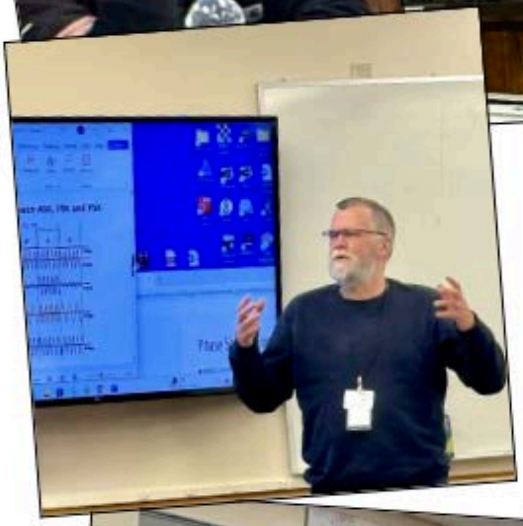
AB1DQ Jimmy	K0OZ Brian	K1LYP John	NZ1J Dave
KB1EHE Eric	KB1IFZ Elsie	NR1B Bill	

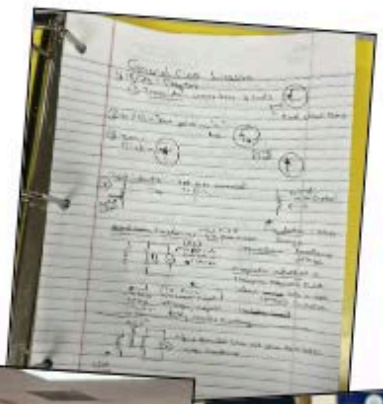
Congratulations!

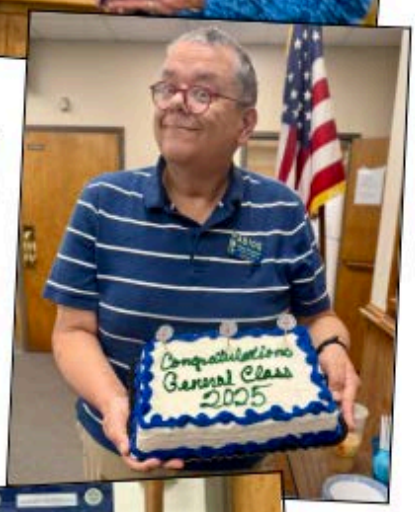
MARC-WARG
General License Review
Class of 2025

KC1NRD - KC1QWH - KC1TSY - KC1VUL
KC1VUM - KC1VUS - KC1VVC - KC1VZI









Meet Rick Becker, KC1OYN

A member profile by Railroad Bob, WB1GYZ

Rick Becker, KC1OYN (formerly KA1GSV) transitioned from CB radio to amateur radio in 1980 by taking and passing the Novice class test through self-study, after joining MARC back when meetings were held at the SCOW* building. This achievement also included passing a 5-word-per-minute code test, which permitted Novices to operate in a dedicated portion of the CW band, where they could feel more comfortable honing their code proficiency by working other Novice operators. To progress in the amateur ranks during this time required mastery of increased code speeds in addition to more in-depth technical examinations.

Rick is perpetually busy with activities, such as Free Masonry, Boy Scouts, Treasury duties for MARC, heading up MARC participation in Project Big-E, does CQ Santa for the children's Christmas party at OEM, hosts poker tournaments with friends, globe-trots with his XYL, is a videographer at his church; to name a few activities of his energetic lifestyle. His only regret about all this activity is that it cuts into his radio operating time, but he plans to change that come retirement.

Rick epitomizes a hands-on personality. His first job while still attending high school was at a local machine shop where he was tasked with fabricating rudimentary assignments. Before long, he was given more involved work and proved himself naturally inclined to CNC machining (computer numerical code) tooling, grinding, and other associated metalworking skills. He eventually became a journeyman tool and die maker and decided to strike out on his own and opened Becker Tool Manufacturing, Inc. Rick went on to CAD (computer-aided design) designing progressive tools, which was his original mainstay. He is now a design manager for Progressive Tools and a network engineer for a local company.

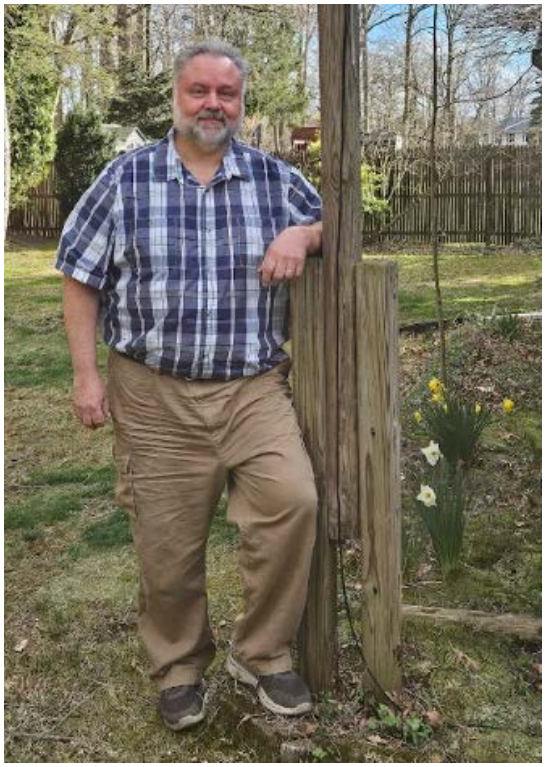
Rick's radio equipment consists of a Yaesu FT-DX 10, ARRL half-wave antenna 40 through 6 meters kit, a couple of 2-meter portables, a few GMRS radios, and a vintage Heathkit transmitter in need of a bit of restoration

from having been shelved for some years. Concerning the direction of the hobby, he feels that the average age of ham radio operators continues to increase as youth are not being attracted to the hobby. He also feels that ham radio is not being successfully promoted by failing to demonstrate how well it dovetails with so many other popular activities, such as hiking, camping, project building, and emergency preparedness.

When asked for a memorable operating event, Rick recalled a sense of accomplishment after successfully logging and confirming 15 out of 16 possible contacts during the 13 Colonies Special Event.

Rick lives in Wallingford with his wife Tracy, of 33 years, and son Ricky.

*SCOW = Spanish Community of Wallingford



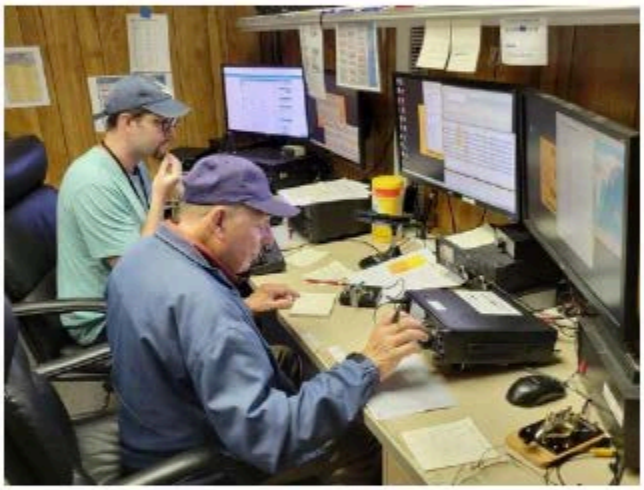
The club has gotten an early start on Field Day preparations, and so far, it seems to have been time well spent.

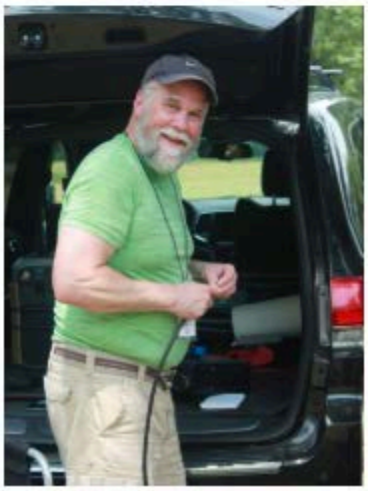
Several club members have recently purchased HF radios. Several have upgraded their licenses and have added digital capability to their station. We've had two Saturday events to build proficiency, and there's been a lot of POTA activity.

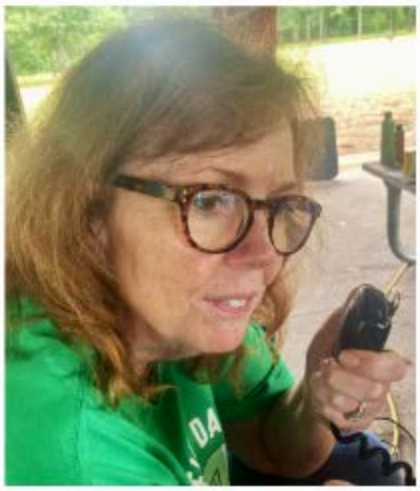
Al N1API, who is likely the most avid contester in the club, has shared some tips about operating on Field Day. If you haven't already, plan to make some time on a Saturday at the OEM or at a POTA park to fine-tune your skills. If you have an HF station at home, carve out a little extra time to get on the air.

If you have questions, just ask - the club has a lot of really good Elmers to answer those questions.

Field Day Memories







At the Clubhouse *with Ted,* KC1DOY

The month of April 2025 was a busy one at the OEM!

Saturday, April 12th, was an uncharacteristically quiet day at MARC. While some of our members spent time reviewing some electronic concepts, two people took advantage of the VE session that morning and passed their exams. These VE sessions are a regular feature at MARC and have given many people an opportunity to get their license or to upgrade to the next class.

Rich KC1WNP passed the General Class exam, and Mike KC1TSX passed the Extra Class exam. Congratulations to you both. Wishing you many fun QSOs in the future!

ABOVE LEFT: Richard KC1WNP upgraded to General Class while Mike KC1TSX earned his Amateur Extra Class privileges at the April 12th VE Session at the OEM. ABOVE RIGHT: Bill NR1B, Jules KC1STF, and Joel KC1VVC get on FT8.

The following Saturday, April 19, saw another good turnout at MARC, with the major focus on how to set up and operate FT8 mode on various radios. Although similar, each radio has its preferred settings so care must be taken to ensure proper operation.

Dave NZ1J took a lot of time assisting several club members in getting their rigs properly configured for FT8 operation. Soon, the club should see an upswing in FT8 QSOs made by MARC members both at home and on Field Day.

Many thanks also to Bob WB1GYZ for his ongoing mentoring of all those interested in learning CW and improving their operating skills. The "original digital mode" is alive and well at MARC thanks to Bob.

(continued, next page...)

A big thank you also goes out to Mike Barile, KC1TSX, for bringing in donuts. Mike passed the Amateur Extra exam the previous week, and the donuts helped us all to celebrate his achievement. Congratulations again, Mike!

ABOVE: April 19 was a busy day for learning about and getting configured for FT-8. The club is making a push to get more members proficient with digital modes as Field Day rapidly approaches!

The last Saturday of the month, April 26th, was overcast and rainy, but spirits inside were happy and high, where a crowd of dedicated hams gathered to work FT8, search for RFI, and have another morning of show and tell.

Dave NZ1J and Al N1API went over the club's FT-991, checking to make sure that it was properly running FT8 and would be ready for Field Day. After that, they went outside to track down the source of RFI that had been an annoyance at the OEM when members were working on various radio projects. Using Al's MFJ line noise detector kit, they managed to find a likely source on a utility pole just down the street from the OEM. We plan to provide additional information in the weeks ahead after confirmation by further testing.

(continued, next page...)

Ken KB1FEX brought in his Bug Detector, which drew some interest from club members. Its purpose is to detect the presence of electronic listening devices, but it can also detect other RF emission sources and test for leakage from microwave ovens. Indeed, a handy multi-purpose tool.

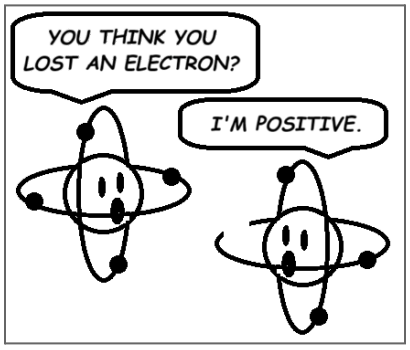
Dave NZ1J had his superheterodyne AM receiver built on display and spoke about some remarkable advances in tech that led to the development of a complete AM radio receiver on a single chip. The IC looks like a transistor with 3 leads, but it only requires a few extra parts to produce a complete working radio.
(see page 20 for more details on the superhet!)

LEFT: N1API goes RFI hunting. RIGHT: KB1FEX brings his bug catcher for Saturday Show & Tell.

Don't let a cloudy day keep you at home when there is so much happening at MARC. Plan to join the gang at the OEM at 143 Hope Hill Road on Saturday mornings - there's always something going on and it's a great fun opportunity to meet new people, socialize, and expand your practical knowledge of radio!

And, remember… Sometimes we also have donuts!

~ 73 de TED KC1DOY



A neutron walks into a bar
and asks the bartender,
"How much for a drink?"
The bartender replies,
"For you, no charge."

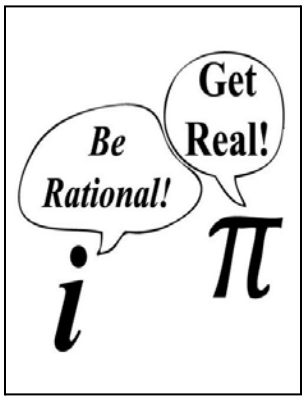
Radio Activity

What our members were up to in April...

Paul Clark WA1MAC shared…
"My 1st Novice rig circa 1969 was a single 50C5 tube from an Electronic Illustrated article, built on a pine board using finishing nails as terminal points, worked 35 states with that! The latest issue of the SPRAT has a neat bread-boarding scheme in the latest issue using brass tacks instead of finishing nails.
I gave it a shot, first building the 80m one-transistor transmitter (25mw) in the article, then I completed a 2-FET PTO also for 80, using a gluestick as the PTO. DollarTree had the brass tacks 300 for $1.25, and they take solder just great!

Jeff Katz KC1UER shared a video of his latest antenna work. Jeff writes, "They say your license is a license to learn and experiment, and I did just that. Scooped up a great deal on an LDG 4:1 BalUn, and with some thinking and experimenting, I rigged up a very unconventional OCFD in my small backyard. Using my tuner, I can run 40, 20, 15, and 10 meter bands. The tuner will even tune 80 (just below 2:1), 17, and 12 meters as well."

Jim Drexler, KC1TSG, shared, "My first POTA activation as a General using my new equipment: a 20-meter hamstick and homemade inverted-V 10-meter dipole at Wharton Brook Park."



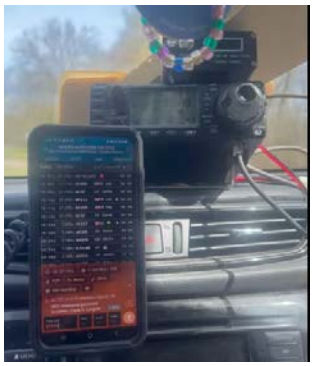
Mike Easter reports he has changed his call sign from KC1WDZ to **K1MRE** and has set up a rig at home to run WSJT-X from wherever he is.

"My FT857D is connected via Digirig to a Raspberry Pi, which is connected to my home network. The 857 is connected via FLRig, and I set the tuner before I left (the tuner has serial control, but that's another day).

All I have to do is connect to my VPN and remote in to the Raspberry Pi, and it's like I'm sitting right in front of it. … It's a great project if anyone's looking to try."

Seth William KS1WJ visited the Marconi Station Memorial while on vacation on Cape Cod in April and sent along a couple of photos of the memorial and historical marker.

Tom Petty said the waiting is the hardest part, and our own **Jeff Dwyer N1AKN** may know something about that, just receiving a QSL from CO6HLP in Cuba for a QSO that happened 22 years ago on 20m!!!



Andrew N1XXU and **Deb K1PET Purchia** sent Easter Greetings and let us know they work KC1NQE K1RCT from home while Shawn and Rob were activating, and then "they got to work us while we were out supporting our POTA parks. We had fun making a linked EFHW. Worked well."

SHARE YOUR RADIO-ACTIVE NEWS! Tell us how you are "playing radio" this month by sending an email to keyklix@w1nrg.com or by posting on the club Facebook page & ***don't forget the photographs!***

Dave NZ1J on Satellite Ops: Working the VHF/UHF Birds

A recap of the April Activity Meeting

April's Activity Meeting was held at the OEM and covered amateur radio satellite communications.

Dave NZ1J gave a very comprehensive presentation, which included a brief history of satellite communication from Sputnik to OSCAR satellites to working the International Space Station.

Of greatest interest was how satellite QSOs differ from standard repeater QSOs. Since the satellite is workable for only about 6 minutes, this limits the exchange to call sign, grid square, acknowledgment (QSL), and finally, "73." After the 6-minute window closes, it will be another 93 minutes until the satellite passes over again, but at a shifted position. No

Dave also covered different antennas and why polarization (horizontal, vertical, and circular) matters when working satellites. For example, a circularly polarized antenna, while having a 3dB loss, eliminates signal fading, thus enhancing the ability to have a good QSO.

Many software programs and websites can assist in controlling the radio and finding satellite frequencies and orbits. Other software can assist in logging QSOs. Notably, LOTW accepts satellite contacts while QRZ.com does not.

Look for MARC to have some more satellite activations as the weather warms up. Come along and learn!

USEFUL LINKS FOR FURTHER LEARNING:

- Satellite Basics (Part 1): Guide to Ham Radio Satellite Operating
  by Sean Kutzko KX9X
  https://www.onallbands.com/satellite-basics-part-1-guide-to-ham-radio-satellite-operating/
- AMSAT home page: https://www.amsat.org/

Reported by Ted KC1DOY

There are 10 types of people in the world -
those who understand binary and those who don't.

On the W1NRG Workbench

By Dave Tipping, NZ1J

MARC members have a long history of building radios. A direct conversion, 40-meter receiver, built decades ago by Bill, W1KKF/SK, is still in working order today.

More recently, some club members have been experimenting with a variety of radio circuits. WB1GYZ, KE1AU, N1BRI, and NZ1J have built vacuum tube-based CW transmitters, and a larger group of members has built amplifiers, oscillators, receivers, and transmitters using transistors.

Most recently, the club's group of makers has been building a variety of AM broadcast band receivers. Paul, WA1MAC, and George, AC1SK, have brought their years of experience with circuits to this project and we've had some very good results.

We have built some true crystal radios, as well as tuned radio frequency designs, a regenerative design, and some superheterodyne-type receivers. We have also built quite a few different loop antennas. Ted, KC1DOY, built a particularly large loop antenna that has amazing performance.

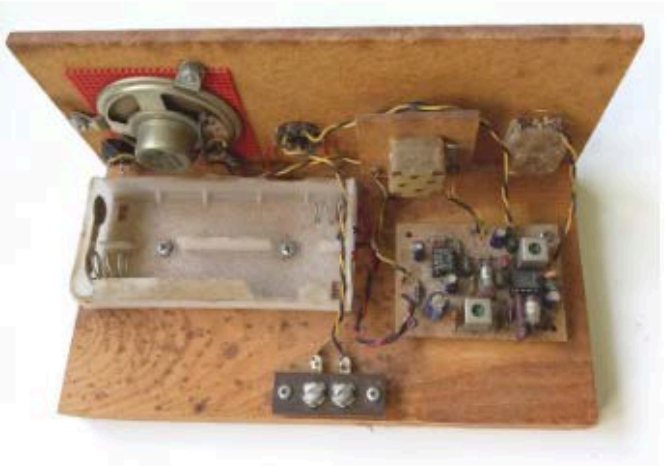
During this process, we also devoted some effort to building VFOs. The VFO is an important part of a superhet receiver, but also has applications in other receivers and transmitters. N1BRI and WA1MAC have had success pulling crystals off their nominal frequency by as much as 20 kHz. AC1SK has procured a wide range of varactor diodes that work well in many of these circuits.

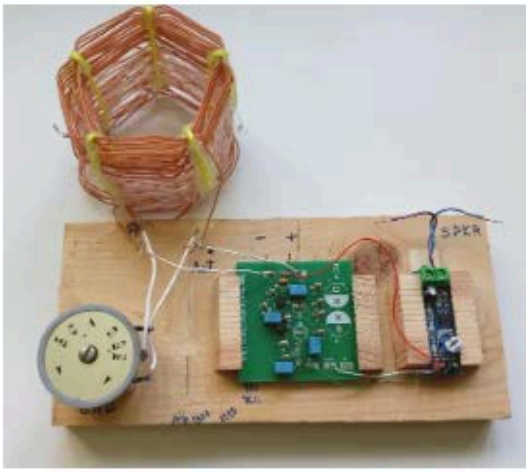
The digital VFO is perhaps the most interesting circuit. For less than $20 in parts that are available through Amazon, a digital VFO can be easily constructed. It works very well as part of a broadcast band AM receiver, but also on just about any amateur band.

The Si5351 chip that is the heart of the digital VFO is also used in the NanoVNA and the U4B balloon tracker.

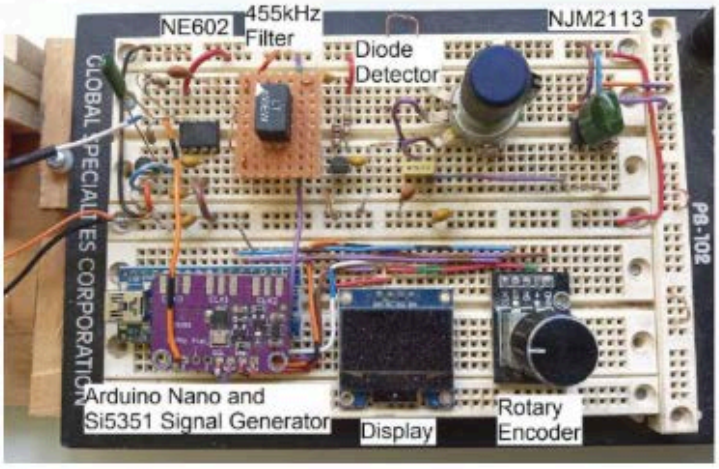
Contact Dave, NZ1J, if you'd like to get involved in some of these radio and general electronic circuit projects. We make some progress just about every Saturday morning at the OEM. We also sometimes meet on Zoom to discuss some theory and to work out some technical issues.

(continued, next page...)



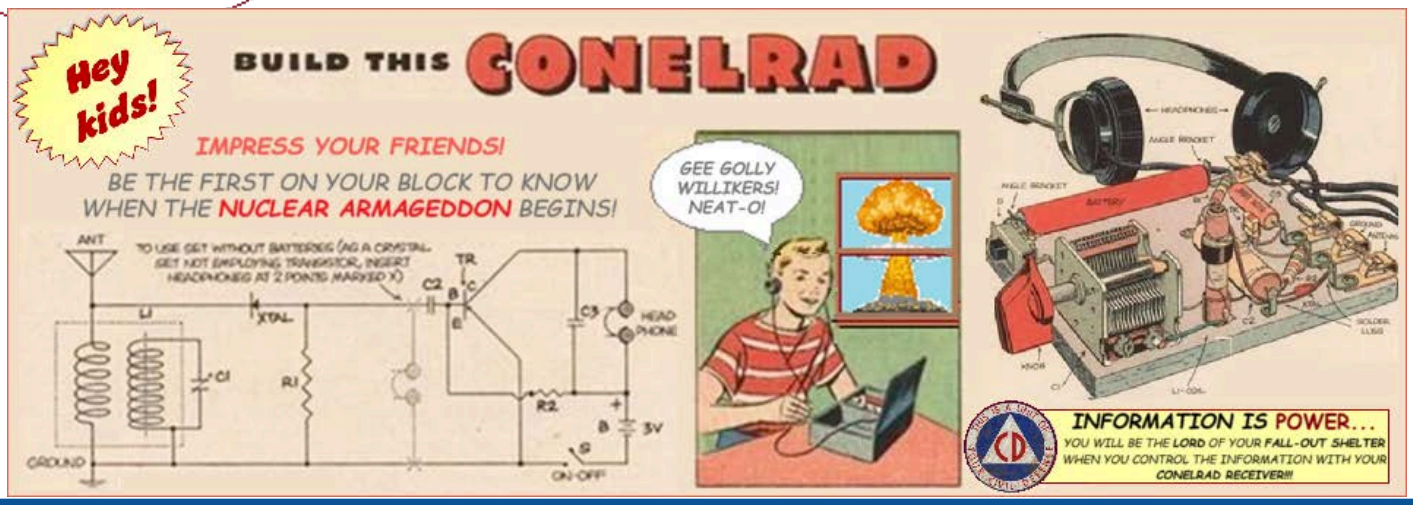


TOP LEFT: Bill, W1KKF/SK's 40M Direct Conversion receiver still running strong today.
TOP RIGHT: NZ1J's TRF receiver with distinctive hand-wound spider coil.
BELOW LEFT: The digital superhet receiver featuring modular construction
BELOW RIGHT: NZ1J & KC1DOY with the superhet.



KeyKlix *remembers...*

THE BOYHOOD EXCITEMENT OF CONSTRUCTING COLD WAR ERA D.I.Y. PROJECTS AS FOUND IN THE PAGES OF BOY'S LIFE...



Tech Talk, Part 1: What is SWR?

a KeyKlix *feature from* Quicksilver Radio

Hi friends,

This is the first installment in a series of discussions on SWR, antennas, feedlines, and related topics.

I aim to give you some solid information based on facts, and to dispel some of the myths, old wives' tales, and just plain bunkum I hear regularly on the air and at Hamfests. No heavy-duty theory, and I'll keep the math to an absolute minimum. Some of the topics we'll explore include:

- What is SWR?
- What does an antenna tuner do?
- My antenna easily tunes to a 1:1 SWR, but no one hears me!
- My SWR is high, so I have a bad antenna.
- My SWR is low, so I have a good antenna.
- What's the best feedline to use?
- Why does my SWR change when I increase/decrease power?
- What does a balun do (and how the heck do you pronounce "balun")?

I strongly encourage you to get the latest ARRL Antenna Book. It's chock-full of useful information. True, some of that information is heavy-duty theory and impenetrable math, but there's plenty in there that anyone can use. And a big plus is that it also includes a CD with (among other things) two very useful programs. EZ-NEC antenna modeling software, and TLW (Transmission Lines for Windows) can save you hours or days of "cut, try, measure, repeat". Later on in this series, I'll present some eye-opening material using both programs.

Full disclosure -- I have no formal training in Antenna Theory, RF/Electrical Engineering, or any related field. The material and ideas I'll present come from recognized experts, my experiments and experience, and plain old common sense. In case of a major error, I welcome correction. Nitpicking, whining, carping, and the like will be ignored. I don't generally have time to answer individual questions on particular installations, but if I feel a question has wide application, I may address it. So here we go...

The definition of SWR (Standing Wave Ratio) is the ratio of forward voltage to reflected voltage at a particular point on an antenna feedline. Keep "at a particular point" in mind... It's important.

OK, so where do the voltages come from? When you key your transmitter, it sends a burst of energy up the feedline at a certain voltage and current. The antenna at the other end of the feedline radiates some percentage of that energy out as a radio signal. That's what we want! And of course, the higher the percentage, the stronger our signal. But here's the catch. All of that energy burst radiates only when the characteristic impedance of the load matches that of the source (ignoring the generally small resistive losses in the wires themselves). Note that "load" and "source" can refer to any point in the signal path. In a typical Amateur Radio Station, the transmitter is designed to work into a 50-ohm load. So we often use 50-ohm coaxial cable, and feed an antenna that is also 50 Ohms. By definition, we have a 1:1 SWR, and everybody's happy.

But what happens when the antenna is not 50 Ohms? Now, some of our transmitted power is reflected back down the feedline instead of radiating out into space. That reflected power has a voltage and a current value, just like the forward power does. And the ratio of the forward voltage to the reflected voltage at a certain point on the line is the SWR at that point.

The voltages vary along the line as sine waves. Since they are out of phase (they don't cross zero volts at the same point on the line), the ratio of the two voltages changes all along the line -- that is, the SWR varies along the line. It follows, then, that we should be able to find an acceptable SWR at some point on the line. But that's a cumbersome process, and is good -- at best -- on only one band. Enter the antenna tuner! We'll talk about tuners, and their advantages and limitations, in our next installment. Until then,

73 for now,
John Bee, N1GNV

Save the date...
for the 33rd Annual

Nutmeg Hamfest *& ARRL Connecticut State Convention*

Sunday, October 12, 2025 - 8:00 AM Maloney High School, Meriden, CT

Please Support Our
MAJOR EXHIBITORS
Quicksilver Radio Products
KJI Electronics
Hamsource

New this year...
TECHNICIAN TRACK SYMPOSIUM
4 session program for new hams get the most out of their license privileges

ANSWERS TO QUIZ: 1E ALBERT EINSTEIN, **2A** IRA GLASS, **3B** MARILYN MONROE **4D** ANNE FRANK **5C** ALLISTAIR COOKE

The more you know...

IRLP: What is it?

a KeyKlix guest feature by Tom Salzer KJ7T

Reprinted, with permission, from Random Wire Review: Issue 126
Link: https://www.randomwire.us/i/160513376/irlp-what-is-it

What is IRLP, and is it still relevant?

"The Internet Radio Linking Project was started back in November of 1997 as an attempt to use the internet to link radio systems across Canada." Today, there are IRLP nodes all over the planet in frequent (sometimes constant) use.

How does it work?

The IRLP uses a Voice-Over-IP (VoIP) streaming software called Speak Freely. Speak Freely is very similar to other VoIP software packages (such as Microsoft NetMeeting and VocalTec iPhone) with one difference... It runs under Linux.

In summary, IRLP works like this (according to https://www.irlp.net/): Sample the audio using an analog to digital (A/D) converter.

1. Compress the audio by downsampling the stream and using a 4-bit ADPCM algorithm to reduce the size of the stream by a factor of four (32000 bps)
2. Split the sample into small chunks (or packets).
3. Transmit the packets to the remote host using a User Datagram Protocol (UDP) stream.
4. Receive the packets on the remote host.
5. Join the split packets back into a 4-bit ADPCM stream.
6. Uncompress the ADPCM stream back into a 16-bit raw stream of audio.
7. Play the raw audio stream through a digital to analog (D/A) converter (the output device of your sound card).

You can find a lot more information about IRLP at these links:

- https://en.wikipedia.org/wiki/Internet_Radio_Linking_Project
- https://www.amateur-radio-wiki.net/irlp/
- https://www.repeater-builder.com/irlp/irlp-index.html

How does it sound?

I listen to the W7RAT repeater frequently when I'm in the Portland, Oregon area. This is an FM repeater at 440.400 MHz, dedicated to IRLP usage. Michael Bloom W7RAT is the human behind the repeater. I've visited with him a few times on the air. Michael is a pretty interesting person, as is his company.

W7RAT operates an IRLP (Internet Radio Linking Project) repeater. Node 3039, Portland, Oregon. Frequency 440.400 P/L, +5.0MHz split, tone 123 Hz. This node is located at the 500-foot level of KOIN-TV's broadcast tower and provides wide coverage of the Portland/Vancouver metropolitan area. For node status, go to www.pdxirlp.net.

The tower location is viewable in Google Maps.

But how does it sound? I find it compares favorably with AllStar when there are radio-based elements involved. A conversation through AllStar nodes that don't have radios is often crystal clear. IRLP depends on RF so there is always a radio involved somewhere in the exchange. To me, there is a continuum of audio quality available in analog voice over the internet, with Echolink being perhaps the worst sounding, IRLP sounding better, and AllStar sounding the best. (I want to clarify that I'm not including digital voice modes like DMR, C4FM, and D-STAR in my observation.)

Echolink uses the GSM codec from the early 1990s. IRLP is focused more heavily on audio quality, but still depends on analog sound cards. AllStar uses modern audio codecs and has the advantage of being able to operate in full duplex mode so you can hear if you double with another station.

A note on checking your audio quality

Having opined here on audio quality, let me also say this: *it should be a best practice to test your audio quality.* I hear a lot of variability among AllStar nodes with overmodulated signals (too loud), undermodulated signals (too quiet), interference of some kind, speaking too close to the mic, being too far from the mic, and not keeping the transmit button firmly activated during the transmission. One way to correct these issues is to ask a friend to evaluate your signal. This works for Echolink, IRLP, and AllStar. If you are using AllStar, an easy way to check your audio is to use the Enhanced Parrot node 55553 to hear how you sound to others. (And a shout out to Patrick Purdue N2DYI, who is the amateur behind node 55553.)

...

Is IRLP still relevant?

The short answer to this question is: yes! As you can see from the listing of connected nodes at https://status.irlp.net/index.php?PSTART=2, there are many nodes active around the world. A simpler view is to look at the number of nodes by country at https://status.irlp.net/index.php?PSTART=5. Nodes are often connected to many other stations by radio, so it is clear that IRLP remains an active and worthwhile choice for many amateur radio operators.

EDITOR'S NOTE: Please use the link in the heading above to find the original article online, where you can click on an audio link to hear the sound of IRLP.

ANNOUNCEMENTS, EVENTS, & OPPORTUNITIES

Get On the Air...

CONTESTS:

SKCC Sprintathon	1200Z, May 10 to 2359Z, May 11
CQ-M International DX Contest	1200Z, May 10 to 1159Z, May 11
4SQRP 2nd Sunday Sprint	0000Z-0200Z, May 12
NTC QSO Party	1900Z-2000Z, May 15
EU PSK DX Contest	1200Z, May 17 to 1200Z, May 18
His Maj. King of Spain Contest, CW	1200Z, May 17 to 1200Z, May 18
Baltic Contest	2100Z, May 17 to 0200Z, May 18
Run for the Bacon QRP Contest	2300Z, May 18 to 0100Z, May 19
CQ WW WPX Contest, CW	0000Z, May 24 to 2359Z, May 25
QRP ARCI Hootowl Sprint	0000Z-0100Z, May 26
SKCC Sprint	0000Z-0200Z, May 28
PODXS070 Club 3Day Weekend Contest	0000Z, May 30 to 2359Z, Jun 1
ARS Spartan Sprint	0000Z-0200Z, Jun 3
10-10 Int. Open Season PSK Contest	0000Z, Jun 7 to 2359Z, Jun 8
IARU Region 1 Field Day, CW	1500Z, Jun 7 to 1459Z, Jun 8
ARRL Inter. Digital Contest	1800Z, Jun 7 to 2359Z, Jun 8

STATE QSO PARTIES:

Arkansas QSO Party	1400Z, May 17 to 0200Z, May 18
Kentucky QSO Party	1300Z, Jun 7 to 0100Z, Jun 8

SPECIAL EVENTS:

W2V: 80th Anniversary Of VE Day	1300Z-2359Z, May 18
NJ2KC: 129th Annual New Jersey State Knights of Columbus Convention	0000Z-2359Z, May 10-May 17
NI6IW: Armed Forces Day	1600Z-2300Z, May 10
W7G: Golden Spike Special Event	1500Z-2300Z, May 10
K4RC: Jamestown Special Event	1400Z-2000Z, May 10
K3S: National Maritime Day	1330Z-2100Z, May 17
W0R: Scott Joplin International Ragtime Festival	1000Z-2000Z, May 28-May 31
W2W: D-Day Commemoration	1300Z-2200Z, Jun 1-Jun 14
W4H: Hank Williams Celebration	0000Z-0000Z Jun 6-Jun 7

Hamfests...

- 48th Eastern VHF/UHF/Microwave Conference
  05/09/2025 - 05/11/2025 Windsor, CT
- Southern Berkshire ARC's 33rd Annual HamFest
  05/17/2025 Goshen, CT
- Swapfest at MIT Flea
  05/18/2025 Cambridge, MA
- New England Wireless & Steam Museumm Amateur Radio Tune-Up
  07/12/2025 East Greenwich, RI
- Northeast HamXposition, ARRL New England Division Convention
  08/21/2025 - 08/24/2025 Marlboro, MA
- Nutmeg Hamfest, ARRL Connecticut State Convention
  10/12/2025 Meriden, CT

Weekly W1NRG Nets... On the Air all week long!

ELMER NET
SUN 7:30 pm VIA ZOOM
See the MEMBERS AREA of our website for access

6 METER SSB NET
SUN 8:00 pm 50.175 MHZ USB

NEW HAVEN/MIDDLESEX SKYWARN NET
MON 7:00 pm W1NRG/R 147.360+ PL 162.2Hz

2 M FM NET
TUE 7:00 pm W1NRG/R 147.360+ PL 162.2Hz

10 M 10-10 CASTLE CRAIG NET
TUE 8:00 pm 28.375 MHZ USB

JUST PUSH THE BUTTON NET
WED 7:00 pm W1NRG/R 147.360+ PL 162.2Hz

COFFEE CUP NET
SAT 9:00 W1NRG/R 147.360+ PL 162.2Hz

OEM Saturday Open House... It's the place to be!

Come to the OEM at 143 Hope Hill Road on Saturday Mornings for the MARC Weekly Open House.

Join us starting at 9:00 AM to meet fellow club members in a social setting and participate in various radio activities.

And, remember… Sometimes we also have donuts!

QUIZ TIME: *Radio Quotes of Note*

Below are five quotes about radio made by five famous people. Match the photo of the speaker to the quote. Take 5 points for each correct match & 2 bonus points if you know their name.

THE QUOTES:

1. *"You see, wire telegraph is a kind of a very, very long cat. You pull his tail in New York, and his head is meowing in Los Angeles. Do you understand this? And radio operates exactly the same way: you send signals here, they receive them there. The only difference is that there is no cat."*
2. *"In radio, you have two tools…Sound and silence."*
3. *"It's not true I had nothing on, I had the radio on."*
4. *"Our blessed radio. It gives us eyes and ears into the world. We listen to the German station only for good music. And we listen to the BBC for hope."*
5. *"I prefer radio to TV because the pictures are better."*

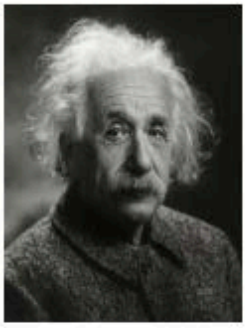
A

B

C

D

E



MY ANSWERS:

FIND THE ANSWER KEY ON PAGE 24

	LETTER	NAME
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

MY SCORE: _____

POINTS	YOUR RANK
35	RADIO ACE! *you are awarded the Brass Figlagee with Bronze Oak Leaf Palm!*
30 - 34	AMATEUR EXTRA
25 - 29	GENERAL CLASS
20 - 24	TECHNICIAN
15 - 19	NOVICE
< 15	PUBLIC DISGRACE

EDITORIAL PAGE

Letters to the Editor

Want to comment on something you read in **Key Klix**? We welcome all feedback, good, bad, and ugly (but civil). Write to keyklix@w1nrg.com with your comments with "LETTER TO THE EDITOR" in the subject line. All letters acknowledged and messages deemed to be of communal interest and that advance the conversation shall be printed in this space.

Desperately seeking an Editor

Key Klix has a long and storied history, renowned for consistently providing informative and entertaining content for the local ham radio operator for decades. Now at a crossroads, intending to keep this tradition alive, we are actively seeking the right person to take on the duties of Editor.
Are you a bona fide radio cuckoo? Do you relish MARC, and are you active in club events? Do you have a creative vision and possess the mad skills to implement your aspirations?
IF SO, WE WANT TO HEAR FROM YOU! Submit your letter of interest to president@w1nrg.com

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Key Klix belongs to all of us, and we, the editors, look to our fellow members to provide engaging and meaningful content for these pages by sharing their latest radio news. Sharing your experiences may inspire other members to try something new, and it's a great way to discover and connect with others who may share your particular areas of interest within the broader radio hobby. Drop us a line and let us know what is happening in your shack - tell us of recent DX you've worked, new modes you've tried, your POTA activity (hunting and activating), what's on your workbench, and share photos of interesting QSLs received, etc. ***Keep Key Klix Kool*** by sending your articles and photos to KeyKlix@w1nrg.com,

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Key Klix May 2025

has been brought to you by

INTERIM EDITOR	-	JIMMY SURPRENANT, AB1DQ
PHOTOGRAPHER	-	TED RENZONI, KC1DOY
BIOGRAPHER	-	BOB BIANCUR, WB1GYZ

Thank you to all of this month's contributors, including...

AB1DQ - K1MRE - K1PET - KC1DOY - KC1OYN - KC1QLS - KC1SA - KC1TSG - KC1UER
KJ7T - KS1WJ - N1AKN - N1GNV - N1XXU - NZ1J - WA1MAC - WB1GYZ

Meriden Amateur Radio Club

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AB2T	Jordan Zarembo 25	KC1PXX	Dave Alfredson 25	N1HCA	Susan South 26
AC1SK	George Bucci 25	KC1PYT	Jeff Gazso 25	N1IBE	Wade Martell 25
AC1ST	Louis Brenner 25	KC1QHO	Mike Beaudry 25	N1JEO	Joel Curneal 25
AF1X	James Elliott 25	KC1QLS	Ray Cirmo 25	N1JMX	Jeff Martin 28
K0OZ	Brian Boccuzzi 25	KC1QWH	Steve Rygiel 25	N1LES	Joe Murray 25
K1BTR	Bryan Ragaini 25	KC1RBY	Sergio Frutuosa 25	N1MOB	Dan David 25
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K1JCF	Joe Farrell 25	KC1SA	Stephen Allen 25	N1NIS	Noah Ludecke 25
K1LHO	Mike Ash 26	KC1SDA	Richard McHugh 25	N1OKF	Bob Parisi 25
K1LYP	John Yusza 29	KC1SEN	Nicholas Worroll 25	N1OKR	Frank Ciccone 27
K1MAL	Chris Altieri 26	KC1STF	Julian LoRusso 27	N1OQC	Mike Johnson 25
K1MMK	Michael MacKennedy 27	KC1SYU	Jim Cosgrove 25	N1PHI	Trish Nitshke 25
K1MRE	Mike Easter 25	KC1TAD	Tom Dipinto 26	N1PQQ	Greg Cartier 26
K1NEG	Nelson Goewey 26	KC1THU	Mike Zelladonis 26	N1QYB	Bill Wilecki Jr 25
K1PET	Debbie Purchia 25	KC1TKY	Bob Hourigan 26	N1WCL	David Blasko 25
K1RCT	Rob Cichon 25	KC1TKZ	Mark Bonitatebus 25	N1XXU	Andy Purchia 25
K1SCI	Stuart Isaac 26	KC1TOV	David Tomlinson 25	N1YLN	Edward O'Lena 25
K1SMD	Silas Moeckel 25	KC1TPN	Rick Foster 25	N1ZN	Jim Savage 25
K1STM	Anne West 25	KC1TSG	Jim Drexler 25	N2TAG	Dave Taglianetti 25
K1TDO	Todd Olsen 25	KC1TSK	Richard Pagano 25	N7VGA	Dennis Hanlon 26
K1TGX	Jerry Molaver 30	KC1TSL	Charlie Vossbrinck 27	NA1L	Dale Clift 25
K1UD	Butch Chatfield 25	KC1TSM	Ellen Cosgrove 25	NA2AA	David Minster 25
K1VDF	John Blevins 26	KC1TSN	Chuck Caron Jr. 26	NR1B	Bill Huggins 25
K1WJL	Dave Swedock 25	KC1TSP	Dale Fortin 25	NZ1J	Dave Tipping 26
K1XJ	Kevin Buchanan 25	KC1TST	Mike Boccuzzi 25	UT3UY	Anatoly Kirilenko 25
K2RPM	Bruce Torello 25	KC1TSW	Charles Caron III 25	W1AJK	Andrew Kazimer 25
K4AVM	Andrew Olsson 26	KC1TSX	Mike Barile 26	W1BJG	Judy Wilkins 25
K5ATA	Steve Goodgame 25	KC1TSY	Daniel Gessner 25	W1BRY	Donald Chepurna 27
K5CYN	Cyndi Goodgame 25	KC1TSZ	Deb Caron 26	W1EDX	Paul Stasieluk 25
KA1BED	Bill Green 26	KC1TWA	William Caron 25	W1IKW	Iain K White 29
KA1BMF	Constantino Tobio 25	KC1TYO	Ken Williams 25	W1LV	Steve Morley 26
KA1JTG	James Hartzell Jr 25	KC1UJP	Jasy Polaski 25	W1NDT	Robert Lombardo 25
KA1YZC	Paul Patnoad 25	KC1UJQ	Mark Kirschner 25	W1PRK	James Procaccini 27
KB1APO	Jim Sintay 26	KC1UJT	Michael Carfi 25	W1RCI	Ron Isaac Jr. 25
KB1CXK	Joe Clarizio 26	KC1VCU	John Mandeville 25	W1RWW	Bob Woodtke Jr. 25
KB1EHE	Eric Knight 25	KC1VJS	Anthony Lockery 25	W1TK	Ron Wakefield 25
KB1FGC	Richard Guerrera 25	KC1VQY	Michael Granoth 26	W1UFO	Mike Cei 25

(CONTINUED...)

Meriden Amateur Radio Club

MEMBERSHIP ROSTER

KB1HAX	Bill Reyor III 26	KC1VRG	Robert Shemo 25	W1UKX	Greg Gherardi 25
KB1IFZ	Elsie Mathews 25	KC1VRL	Andrew Rudczynski 25	W1YSM	Ed Snyder 25
KB1JL	Eric Olsson 25	KC1VSO	Patricia Lentz 25	W2OFR	Mark Dickson 25
KB1LWS	Jeanne Gherardi 25	KC1VUM	Matthew Erff 25	W2TT	Ross Lambert 25
KB1MFU	John Ramadei 25	KC1VVC	Joel Helfer 25	W3APC	James Cook 25
KB1RLF	Steven Chapman 25	KC1VZI	Joe DePaolo 25	WA1BAR	Michael Barr 25
KB1TBL	Dave Laliberte 25	KC1WEX	Len Guercia 25	WA1CCQ	Norman Bliss 25
KB1TGS	David Robinson 25	KC1WFB	Lloyd Saberski 25	WA1FFT	Ray Irwin 25
KB1TMC	Clare O'Lena 25	KC1WHD	Craig Scully-Clemmons 25	WA1INC	Roland Hamel 26
KB1TTV	Jonathan Martin 26	KC2MLH	Adam Castracane 25	WA1JKR	John Rogus 29
KB1YFJ	Glenn Couture 25	KC3UKG	Storm Murrell 25	WA1K	Jack Chapman 25
KC1BQP	Paul St.Amand 25	KD0BMW	Marty Crandall-Grela 25	WA1MAC	Paul Clark 25
KC1CAB	Frank DiTerlizzi 26	KE1AU	Bob Kaczor 26	WA1SFH	Douglas Sharafanowich 25
KC1DOY	Ted Renzoni 27	KE1AV	Dave Sanford 25	WA1TRY	Rich Aubin L
KC1HFO	Johannis Stodis 25	KE2ECC	Phillip Gallanti 26	WA1ZVY	Jim Martin 28
KC1IIK	Scott Mowerson 25	KF6LU	Andrew Buza 25	WB1DMK	William D'Agostino 25
KC1ISI	Kristin Olsson 25	KK7NLS	John Condon Jr 25	WB1DQT	Bill Bacon 25
KC1KQH	John Kasinskas 25	KO1J	Randy Whitehouse 25	WB1GFI	Stan Hiriak 25
KC1MJZ	Michael Berube 25	KO4EEL	Tom Williams 25	WB1GYZ	Bob Biancur 25
KC1NQE	Shawn Warren 25	KR1U	Bob Eslinger 27	WB8IMY	Steve Ford 25
KC1NRD	John Lujick 27	KS1WK	Seth Kolasinski 25	WJ1B	Harold Kramer 27
KC1NRQ	Bruce Childs 25	KX1USA	Rob Messercola 25	WV2LKM	Steve Waldmann 25
KC1OCS	Richard Dewick 26	N0HIO	David Koerner 25	WX1W	Mary Duval 25
KC1OGL	Paul Randazzo 25	N1AKN	Jeff Dwyer 26	WY1U	Tim Mik 25
KC1OWD	Kevin Van Keuron 25	N1API	Al Kaiser 30		Lucas Molloy Y
KC1OYN	Rick Becker 25	N1BRI	Brian Beegan 26		Spencer Rygiel Y
KC1OYR	Brent Moyer 25	N1FNE	Rod Lane 26		

.The pursuit of knowledge is a lifelong journey that enriches the mind and nourishes the soul.

Edwin Armstrong