The American Radio Relay League

The American Radio Relay League, Inc., is a noncommercial association of radio amateurs, organized for the promotion of interest in Amateur Radio communication and experimentation, for the establishment of networks to provide communications in the event of disasters or other emergencies, for the advancement of the radio art and of the public welfare, for the representation of the radio amateur in legislative matters, and for the maintenance of fraternalism and a high standard of conduct.

ARRL is an incorporated association without capital stock chartered under the laws of the state of Connecticut, and is an exempt organization under Section 501(c)(3) of the Internal Revenue Code of 1986. Its affairs are governed by a Board of Directors, whose voting members are elected every three years by the general membership. The officers are elected or appointed by the Directors. The League is noncommercial, and no one who could gain financially from the shaping of its affairs is eligible for membership on its Board.

"Of, by, and for the radio amateur," ARRL numbers within its ranks the vast majority of active amateurs in the nation and has a proud history of achievement as the standard-bearer in amateur affairs.

A *bona fide* interest in Amateur Radio is the only essential qualification of membership; an Amateur Radio license is not a prerequisite, although full voting membership is granted only to licensed amateurs in the US.

Membership inquiries and general correspondence should be addressed to the administrative headquarters:

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The purpose of *QEX* is to:

1) provide a medium for the exchange of ideas and information among Amateur Radio experimenters,

2) document advanced technical work in the Amateur Radio field, and

3) support efforts to advance the state of the Amateur Radio art.

All correspondence concerning *QEX* should be addressed to the American Radio Relay League, 225 Main St., Newington, CT 06111 USA. Envelopes containing manuscripts and letters for publication in *QEX* should be marked Editor, *QEX*.

Both theoretical and practical technical articles are welcomed. Manuscripts should be submitted in word-processor format, if possible. We can redraw any figures as long as their content is clear. Photos should be glossy, color or black-and-white prints of at least the size they are to appear in *QEX* or high-resolution digital images (300 dots per inch or higher at the printed size). Further information for authors can be found on the web at **www.arrl.org/qex** or by email to **qex@arrl.org**.

Any opinions expressed in *QEX* are those of the authors, not necessarily those of the Editor or the League. While we strive to ensure all material is technically correct, authors are expected to defend their own assertions. Products mentioned are included for your information only; no endorsement is implied. Readers are cautioned to verify the availability of products before sending money to vendors.

Ron Diehl, NQ8W

Perspectives

I had the pleasure of attending this year's Dayton Hamvention, and I came away with a renewed sense that amateur radio experimentation is not only alive and well but accelerating. Everywhere I turned, I saw hams building, measuring, coding, testing, comparing notes, and rethinking what is possible. The energy was unmistakable, and it was a powerful reminder that experimentation remains at the heart of amateur radio.

I picked up Glen Popiel's, KW5GP, new book, *Digital Networking for Ham Radio*, and I have been reading it cover to cover. I caught up on the remarkable work AMSAT continues to move forward. I looked at new radios that depend on sophisticated digital technology, talked with hardware and software experimenters, and met dozens of amateurs who are helping create the next generation of radio systems, just as amateurs have done since the days of Hiram Percy Maxim.

What feels different now is the accessibility of the tools. Affordable SDRs, VNAs, spectrum analyzers, microcontrollers, digital test equipment, open-source software, simulation packages, 3D printing, and now the powerful use of AI are giving amateurs capabilities once limited to professional laboratories. Less than a generation ago, much of this would have been out of reach for most home experimenters. Today, these tools are on our benches, in our shacks, in our go-kits, and often even in our backpacks.

That same spirit runs through this issue of *QEX*. We see it in a modest 23 cm EME station, where careful simulation, feed geometry, sidelobe control, and real-world measurements challenge assumptions about how large an effective moonbounce antenna must be. We see it in RF fundamentals, where magnetic coupling, coil polarity, and transformer behavior are treated with the rigor needed for practical circuit design. We see it in the measurement lab, where stray capacitance can mislead common-mode choke tests unless the method is improved. And we see it in digital experimentation, where neural networks are applied to RTTY decoding and point toward the future of AI-assisted receivers.

These are not separate stories. They are parts of the same larger movement: theory, construction, measurement, software, and operating experience converging in the hands of amateurs. A ham today can model an antenna, build the hardware, measure the result with affordable instruments, revise the design, document the data, publish the source code, and share the lessons with others around the world. That combination is extraordinarily powerful.

That is what *QEX* is for. It is where the pieces come together, where experimenters document what they have learned, and where promising ideas can be tested, challenged, improved, and extended by others. The articles in these pages are not simply records of completed projects. They are invitations to think, build, measure, question assumptions, and try again.

Amateur radio has always advanced when curious people have access to good tools and the freedom to experiment. We are living in one of those moments now. Don't let this revolution pass you by.