

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 e-mail 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.

Bill Liles, NQ6Z, and Ward Silver, NØAX

Perspectives

This issue gives us good examples of the scope and breadth of ham radio technology. All of the articles describe functions and features that are in use on the ham bands today. Some are leading edge, such as W5NYV's article on advanced coding and the KE1IU/KC1LXO description of a telemetry system. Others cover more traditional topics, like a crystal-controlled 40-meter radio by ON4CAZ, and KL7AJ's accounting of the details of gain control built in to vacuum tubes.

It is not at all uncommon for one ham to have at least a passing interest in all of the articles in this issue! It wouldn't be surprising to see a station in which the main transceiver is SDR-based, driving a solid-state amplifier that is connected to a beam designed with the latest antenna modeling software. At the same time, the station's owner might also have a lightweight mini-station for activating a Summits On The Air (SOTA) peak, using a miniature analog radio and a simple dipole antenna held up with a fiberglass pole. Contacts from either station might then result in the exchange of paper QSL cards with some attractive graphics, sent by "snail mail," and the contact uploaded to the cloud-based Logbook of The World for award tracking. And we think nothing of it!

We are delighted to deliver to our readers such a wide range of articles from authors supporting *QEX* year-in and year-out. If variety is the spice of life, ham radio is a very tasty dish, indeed!

In This Issue:

- Valentino Barbi, I4BBO, shows a tracking generator to complement the tinySA spectrum analyzer.
- Michelle Thompson, W5NYV, explains the design and implementation of SFBC for an amateur radio application called *Neptune*.
- Patrick Van Torre, ON4CAZ, describes an analog transceiver based on crystal oscillators and crystal filters.
- Mark C. Noe, KE1IU, and Palmer G. Noe, KC1LXO, describe an inexpensive monitoring system using *openHAB* that can be accessed from any PC or mobile device.
- In his essay series Eric Nichols, KL7AJ, continues with the function of the vacuum tube.

Writing for *QEX*

QEX is a forum for the free exchange of ideas among communications experimenters. *QEX* is published bimonthly.

Please continue to send full-length *QEX* manuscripts, or share a Technical Note of several hundred words in length plus a figure or two, to qex@arrl.org. We pay \$50 per published page for full articles and *QEX* Technical Notes. Get more information and an Author Guide at www.arrl.org/qex-author-guide. If you prefer postal mail, send a business-size self-addressed, stamped (US postage) envelope to: *QEX* Author Guide, c/o Maty Weinberg, ARRL, 225 Main St., Newington, CT 06111.