

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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Officers

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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.

Becky Schoenfeld, W1BXY

Perspectives

A Small but Dedicated Team

Hello, *QEX* readers! You're hearing from me this month because *QEX* Editor Kazimierz "Kai" Siwiak, KE4PT is on sabbatical for the next few issues. Kai has curated material for those issues, and we are on the lookout for manuscripts for future issues. See the "Writing for *QEX*" section below for information on how you can contribute to ARRL's "Forum for Communications Experimenters."

QEX is produced by a small but dedicated team, and we were saddened to receive the news that a valued member of the *QEX* team, Ray Mack, W5IFS, became a Silent Key in March. Ray's long association with *QEX* included authoring the "Out of the Box" column, which highlighted products and resources; as well as a series on "SDR: Simplified." Ray also acted as interim *QEX* Editor at times, between editors. In recent years, Ray served as a Contributing Editor, vetting issues before they went to press. We're grateful that Ray chose to share his expertise in, and passion for, amateur radio with the *QEX* readership. We will miss him greatly.

In This Issue:

- David J. Ahlgren, K1BUK, elucidates the possibility of using standard-impedance cables to make stepped line transformers that match a wide range of impedances.
- Anthony Le Cren, F4GOH/KF4GOH, describes a method of using inexpensive modules to send SSTV images from a sounding balloon.
- Gwyn Griffiths, G3ZIL, details how spectral spread at the transmitter and receiver can be less than 30 MHz, using modestly priced equipment.
- Jacques Audet, VE2AZX, simulates and tests popular 49:1 unun designs and suggests how they may be improved.
- Eric P. Nichols, KL7AJ, in his Essay #22, discusses how the behavior of hardware demonstrates the truth of the mathematical concepts hams deal with.

Writing for *QEX*

QEX is a forum for the free exchange of ideas among communications experimenters. *QEX* is published bimonthly and is edited by Kazimierz "Kai" Siwiak, KE4PT, who is currently on sabbatical.

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.

All members can access digital editions of all four ARRL magazines: *QST*, *On the Air*, *QEX*, and *NCJ* as a member benefit. A print edition of *QEX* is available at an annual subscription rate (6 issues per year) for members and non-members; see www.arrl.org/qex.