

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

President: Rick Roderick, K5UR
P.O. Box 1463, Little Rock, AR 72203

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.

Kazimierz "Kai" Siwiak, KE4PT

Perspectives

RF Radiation Safety Awareness

We are taking this opportunity to raise awareness about RF safety and exposure to RF radiation. For US amateurs all formal license related interactions with the FCC involve FCC Form 605. This includes applying for an amateur license, changing the licensee's address, renewing an amateur license, upgrading a license, and so on. In the "General Certification Statements" section we find that by signing FCC Form 605, the "Amateur Applicant/Licensee certifies that they have READ and WILL COMPLY WITH Section 97.13(c) of the Commission's Rules (available at web site <http://wireless.fcc.gov/rules.html>) regarding RADIOFREQUENCY (RF) RADIATION SAFETY and the amateur service section of OST/OET Bulletin Number 65 (available at web site <http://www.fcc.gov/oet/info/documents/bulletins/>)." This Certification Statement is not new – it has been on Form 605 for a very long time.

What is new is that OET Bulletin Number 65, along with many ARRL publications, are currently under review to provide updated guidance regarding the rule changes of FCC 19-126 that became effective May 3, 2021. Going forward you will find gentle reminders in ARRL publications, such as:

- Stay safe around antennas and radiating systems, and, where appropriate, editor-inserted comments in articles like,
- [Be sure to perform an RF exposure assessment with this antenna. — Ed.]. Stay aware of RF radiation safety.

In This Issue:

- Kim Swedberg describes the versatility of a lock-in amplifier design.
- Bob Larkin, W7PUA, combines dipoles to produce antennas of very wide bandwidth.
- Alan Victor, W4AMV, simplifies validation of impedance transforming and matching circuits.
- Eric Nichols, KL7AJ, in his Essay Series, tackles quality factor Q.

Writing for QEX

Please continue to send in full-length *QEX* articles, or share a **Technical Note** of several hundred words in length plus a figure or two. *QEX* is edited by Kazimierz "Kai" Siwiak, KE4PT, (ksiwiak@arrl.org) and is published bimonthly. *QEX* is a forum for the free exchange of ideas among communications experimenters. All members can access digital editions of all four ARRL magazines: *QST*, *OTA*, *QEX*, and *NCJ* as a member benefit. The *QEX printed edition* is available at an annual subscription rate (6 issues per year) for members and non-members, see www.arrl.org/qex.

Would you like to write for *QEX*? 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.

Very kindest regards,
Kazimierz "Kai" Siwiak, KE4PT
QEX Editor