

David A. Minster, NA2AA
Publisher

Becky R. Schoenfeld, W1BXY
Editorial Director

Dana Kasowitz, KC1SEB
Managing Editor

Sam Shaner, KE1SAM
Editor

John McKenna, K3NNA
Matt Smith
Assistant Editors

Bart Jahnke, W9JJ
Radiosport & Regulatory
Information Manager

Phil Salas, AD5X
John Stanley, K4ERO
Conrad Trautmann, N2YCH
Technical Editors

Dave Casler, KE0OG
Leanna Figlewski, KC1RMP
Steve Goodgame, K5ATA
Jon Jones, N0JK
Bernie McClelly, W3UR
Rick Palm, K1CE
Pascal Villeneuve, VA2PV
Paul Wade, W1GHZ
Contributing Editors

Terese Newman, KC1YPP
Assistant Production Supervisor

Matt Ali
Layout & Production Specialist

Margie Bourgoin, W1MRG
Production Coordinator

David Pingree, N1NAS
Senior Technical Illustrator

Steve Bossert, K2GOG
Advertising Sales Manager

Bob Inderbitzen, NQ1R
Senior Director
of Marketing & Innovation

Steve Ewald, WV1X
Field Organization Supervisor



An icon next to an article means there's bonus content in the digital edition at www.arrl.org/qst.

<p>9</p> <p>Second Century A Question of Leadership</p> <p>30</p> <p>Creating Antenna Matching Networks Using a NanoVNA Michael Foerster, W0IH</p> <p>33</p> <p>IEEE Recommendations for Locating Power-Line Gap Interference Sources Mike Gruber, W1MG</p> <p>36</p> <p>A High-Selectivity CW Filter Jim Forkin, WA3TFS</p> <p>38</p> <p>The W4BOH Fox Peter Lamb, KM4DNU</p> <p>41</p> <p>Product Review Pascal Villeneuve, VA2PV KiwiSDR 2: Standalone SDR Network Receiver; COMPACtenna PERFECT 10 Antenna; N6ARA MiniSWR Indicators; Ham Radio Dude Lil Dude 6 Telescopic Mast</p> <p>55</p> <p>Understanding the FCC Exposure Rules for Handheld Radios Gregory Lapin, PhD, PE, N9GL</p> <p>58</p> <p>County Hunting and the New USA Counties Award Ron Wilcox, KF7ZN, and Kerry Long, W4SIG</p> <p>60</p> <p>Practical 630-Meter Operation for the Average Radio Amateur Paul Dobosz, K8PD</p> <p>63</p> <p>A Structured Simplex Exercise Mike Walters, W8ZY</p> <p>65</p> <p>Future-Proofing ARES: A Focus on Training Scott Yonally, N8SY</p> <p>66</p> <p>Celebrate Ham Radio Impact: Nominate for 2026 ARRL Awards</p> <p>74</p> <p>2025 ARRL 10 GHz and Up Contest Results Rus Healy, K2UA</p> <p>76</p> <p>2025 ARRL 222 MHz and Up Distance Contest Results Bart Jahnke, W9JJ</p> <p>93</p> <p>A Look Back — March 1976</p>	
---	---

Columns

Ask Dave	53
Celebrating Our Legacy	97
Classic Radio	98
Club Spotlight	13
Club Station	78
Contest Corral	73
Correspondence	24
Ham Media Playlist	80
Happenings	67
How's DX?	82
Public Service	71
The World Above 50 MHz	84
Up Front	20
100, 50, and 25 Years Ago	100

Departments

Amateur Radio Band Chart	92
ARRL Section Managers	16
Certificate of Code Proficiency Recipients	86
Convention and Hamfest Calendar	88
Field Organization Reports	87
Guide to ARRL Member Benefits	14
Ham Ads	124
Index of Advertisers	126, 127
Officers, Division Directors, and Staff	15
<i>QST</i> Cover Plaque Award	91
Silent Keys	101
Special Event Stations	90
Strays	40, 52, 87, 89
This Month in <i>QEX</i>	90
Volunteer Monitor Program Report	91
W1AW Qualifying Runs	86
W1AW Schedule	28



Our Cover

RFI from power lines is a common problem that many hams need help and guidance with. Mike Gruber, W1MG, describes how ARRL has worked with the FCC and IEEE on this matter in "IEEE Recommendations for Locating Power-Line Gap Interference Sources," and points readers to the IEEE document that can assist with RFI problems. [Conrad Trautmann, N2YCH, photo]

Digital and Mobile Editions

ARRL members can access the digital edition via a link at www.arrl.org/qst, download our iOS app from the iTunes Store, and download our Android app from the Google Play Store.

Write for *QST*

www.arrl.org/qst-author-guide
email: qst@arrl.org



NCJ, National Contest Journal, is ARRL's bimonthly magazine by and for the ham radio contesting community, presenting information and advice from top contesters, operator profiles, and scores for the North American QSO Party and North American Sprint. www.arrl.org/ncj



QEX, A Forum for Communications Experimenters, is ARRL's bimonthly forum for research, theory, and projects on the cutting edge of RF communications. www.arrl.org/qex



On the Air is ARRL's bimonthly magazine for beginner to intermediate ham radio licensees, presenting jargon-free, easy-to-understand explainers, practical information, and projects. www.arrl.org/ota

QST (ISSN:0033-4812) is published monthly as its official journal by the American Radio Relay League, Inc., 225 Main St., Newington, CT 06111-1400, USA. Volume 110, Number 2. Periodicals postage paid at Hartford, CT, USA and at additional mailing offices.

POSTMASTER: Send address changes to: QST, 225 Main St., Newington, CT 06111-1400, USA. Canada Post: Publications Mail Agreement #90-0901437. Canada returns to be sent to The Mail Group, 1501 Morse Ave., Elk Grove Village, IL 60007.

ARRL Membership and *QST* cannot be separated. All ARRL members have digital, online access to *QST*. Print subscriptions are available and sold separately. For ARRL members in the US, a subscription to *QST* via mail is

\$25 per year. For libraries and institutions, a subscription to *QST* is available for \$84 per year; single copies \$7.

ARRL Membership is available to individuals at \$59 per year. A reduced rate is available for licensed radio amateurs under 26 years old, for \$30 per year. Membership is available to the immediate family of a member living at the same address, and to anyone who is legally blind, for \$12 per year. A complete list of dues rates is available at www.arrl.org/join. Foreign remittances should be by international postal or express money order or bank draft negotiable in the US and for an equivalent amount in US funds.

Copyright © 2025 by the American Radio Relay League, Inc. Title registered at the US Patent Office. International copyright secured. All rights

reserved. Quedan reservados todos los derechos. Printed in the USA.

QST®, DXCC®, VUCC®, DX Century Club®, ARES®, Amateur Radio Emergency Service®, Logbook of The World®, LoTW®, and ARRL The National Association for Amateur Radio® are registered trademarks of the American Radio Relay League, Inc.

ARRL and *QST* in no way warrant the products described or reviewed herein. *QST* is available to blind and physically handicapped individuals from the Library of Congress, National Library Service for the Blind and Physically Handicapped. Call 1-800-424-8567 or go to www.loc.gov/nls.

Indexed by Applied Science and Technology Index, Library of Congress Catalog Card No: 21-9421.

To ensure prompt delivery, we ask that you periodically check the address information on your mailing label. If you find any inaccuracies, please contact Member Services at circulation@arrl.org or 860-594-0200.

Reprints and permissions: permission@arrl.org

Online Privacy Policy: www.arrl.org/online-privacy-policy

Telephone: 860-594-0200