

Howard E. Michel, WB2ITX
Publisher

Steve Ford, WB8IMY
Editor

Becky R. Schoenfeld, W1BXY
Managing Editor

Jen Glifort, KC1KNL
Caroline Kenney
Allison McLellan
Assistant Editors

Bart Jahnke, W9JJ
Contest Branch Manager

Rick Lindquist, WW1ME
Happenings

Bob Allison, WB1GCM
Product Review Lab Testing

Mark J. Wilson, K1RO
Al Brogdon, W1AB
Bernie McClenny, W3UR
H. Ward Silver, N0AX
Paul Wade, W1GHZ
Jon Jones, N0JK
Rick Palm, K1CE
Joel R. Hallas, W1ZR
Barry Shackelford, W6YE
Kai Siwiak, KE4PT
Bruce Draper, AA5B
Contributing Editors

Michelle Bloom, WB1ENT
Production Supervisor

Jodi Morin, KA1JPA
Assistant Production Supervisor

Maty Weinberg, KB1EIB
Production Coordinator

Sue Fagan, KB1OKW
Graphic Design Supervisor

David Pingree, N1NAS
Senior Technical Illustrator

Janet Rocco, W1JLR
Advertising Sales Manager

Bob Inderbitzen, NQ1R
Product Development Manager

Yvette Vinci, KC1AIM
Marketing and Sales Manager

Diane Szlachetka, KB1OKV
Advertising Graphics Designer

Steve Ewald, WV1X
Field Organization Supervisor

Eric Casey, KC1KXL
Convention and Event Coordinator

9 Second Century

The IARU and You

30 A High-Power 160- and 80-Meter Transmitting Loop Antenna

First-place winner in the 2018 *QST* Antenna Design Competition
Steve Adler, VK5SFA

37 A Reversible LF and MF EWE Receive Antenna for Small Lots

Second-place winner in the 2018 *QST* Antenna Design Competition
Michael K. Sapp, WA3TTS

44 The $\frac{3}{8}$ -Wavelength Vertical — A Hidden Gem

Third-place winner in the 2018 *QST* Antenna Design Competition
Joe Reisert, W1JR

48 Product Review

Mark Wilson, K1RO

Xiegu Communication X5105 HF/6-Meter QRP Transceiver; Antenna Disconnectors from Paradan and INRAD; Heil Parametric Receive Audio System (PRAS) and Powered Speaker; Morty Morse Code and RTTY Keying Interface Kit



69 The Joy of Soldering

Joseph L. Lynch, N6CL

72 State and Regional QSO Parties — Something for Everybody

Hal Kennedy, N4GG

75 ARRL Board of Directors Addresses Ambitious Agenda

Rick Lindquist, WW1ME

89 The 2018 ARRL International Grid Chase Wrap-Up

90 2018 September VHF Contest Results

Ralph Bowen, N5RZ

93 2019 Straight Key Night Results

Bart Jahnke, W9JJ

94 April 2019 Frequency Measuring Test



Columns

Amateur Radio World	82
Classic Radio	85
Contest Corral	87
Correspondence	24
The Doctor is In	60
Eclectic Technology	65
Happenings	78
Hints & Hacks	66
How's DX?	95
Member Spotlight	13
Microwavelengths	62
Public Service	83
Up Front	20
The World Above 50 MHz	97
75/50/25 Years Ago	102

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.

Departments

Amateur Radio Band Chart	88
ARRL Member Services	14
ARRL Section Managers	16
Convention and Hamfest Calendar	100
Feedback	47
Field Organization Reports	102
Ham Ads	140
Index of Advertisers	142, 143
Officers, Division Directors, and Staff	15
QuickStats	136
Silent Keys	103
Special Event Stations	99
Strays	43, 68
This Month in QEX	71
W1AW Qualifying Runs	99
W1AW Schedule	94

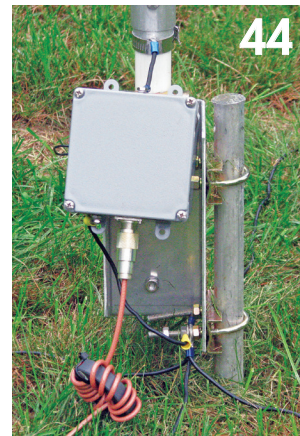
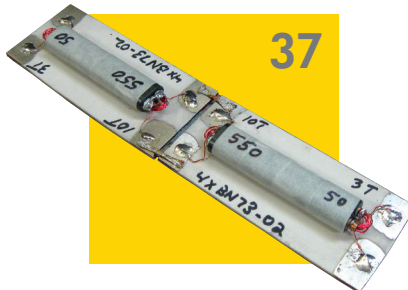
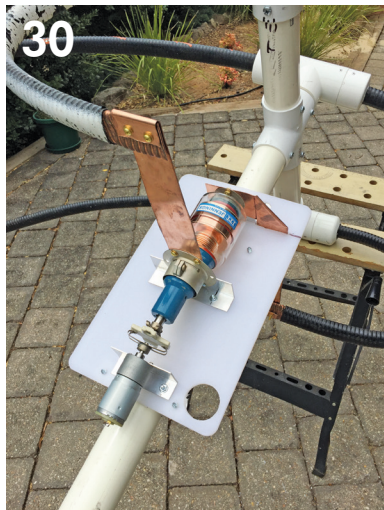
Interested in Writing for QST?

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



Our Cover

John Small, W2VP, wanted to retire with the Amateur Radio antennas of his dreams, so he installed this 150-foot rotating tower at his home in Byron, Georgia, which graces the cover of QST's annual Antenna issue. His labor of love took nearly a year to design and build. The tower supports a four-element 40-meter Yagi antenna, three triband Yagis for 20, 15, and 10 meters, two Yagis for 17/12 meters, and a 6-meter Yagi. All antennas were designed and built by JK Antennas. [John Small, W2VP, photo]



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. 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 IMEX Global Solutions, 1501 Morse Ave., Elk Grove Village, IL 60007.

US & Possessions: Membership in the ARRL, including a 1-year subscription to QST, is available to individuals at \$49. Licensed radio amateurs age 21 and under and the eldest licensee in the household may qualify for the rate of \$25. Life Membership, including a subscription to QST is available at \$1,225.* Membership includes \$21 per year for subscription to QST. Membership and QST cannot be separated. Libraries and institutions, \$49 per year. Single copies \$6.95.

International

To compensate for additional postage for mailing outside the US, the following rates apply:

Canada: Membership in the ARRL, including a 1-year subscription to QST, \$62, payable in US funds. Life Membership, including a subscription to QST is available at \$1,550.* Libraries and institutions, \$62 per year.

All Other Countries: Membership in the ARRL, including a 1-year subscription to QST, \$76, payable in US funds. Life Membership, including a subscription to QST, is available at \$1,900.* Libraries and institutions, \$76 per year.

Membership without QST is available to the immediate family of a member living at the same address, and to anyone who is legally blind, for \$10 per year.

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.

Membership in the ARRL, including a 1-year subscription to Digital QST only, is available to Canadian and International members at \$49.

Copyright © 2019 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.

The 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.

*Payment arrangements available. Please write for details.

In order to ensure prompt delivery, we ask that you periodically check the address information on your mailing label. If you find any inaccuracies, please contact the Circulation Department at circulation@arrl.org or 860-594-0200 immediately. Thank you for your assistance.

Reprints and permissions:

permission@arrl.org

Details of our Online Privacy Policy

can be found at www.arrl.org/online-privacy-policy.

Telephone: 860-594-0200

Fax: 860-594-0259