

Barry J. Shelley, N1VXY Publisher

Steve Ford, WB8IMY Editor

Becky R. Schoenfeld, W1BXY Managing Editor

Jen Glifort 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, NØAX Paul Wade, W1GHZ Jon Jones, NØJK Rick Palm, K1CE Joel R. Hallas, W1ZR Barry Shackleford, 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, KB10KW Graphic Design Supervisor

David Pingree, N1NAS Senior Technical Illustrator

Debra Jahnke, K1DAJ, SK Business Services Manager *QST* Advertising

Bob Inderbitzen, NQ1R Marketing Manager

Yvette Vinci, KC1AIM Circulation Manager

Diane Szlachetka, KB1OKV Advertising Graphics Designer

Steve Ewald, WV1X Field Organization Supervisor

Gail lannone Convention Program Manager

# Contents

August 2018 • Volume 102 • Number 8

9 Second Century Reflections on Hamvention®



Versatile Transmit/Receive Switch and Active Antenna John Hurst, KU6X

An In-Line Spectrum Analyzer Station Interface Phil Salas, AD5X

38 A Two-Element Yagi for 18 MHz Martin Hedman, SMØDTK

4 A Novel Approach to Using Window Line John Portune, W6NBC

## Product Review Mark Wilson, K1RO HF Signals BITX40 40-Meter SSB

HE Signals B1740 40-Meter SSB Transceiver Kit; RigExpert AA-30.ZERO Antenna Analyzer Board; Lights for the Workbench; NTE Electronics Heat-Shrink Self-Solder Butt Splice Connectors

Decoding Symbolism in the FCC Seal Dave Casler, KEØOG

- 66 "Time and Distance Annihilated" Allison McLellan
- 69 QST Honored with E.T. Krenkel Medal
  - Hamvention 2018 in Pictures
- 75 From the Archives: Ameco Classics
  - ARRL International Grid Chase Update
- 2018 ARRL RTTY Roundup Results
  - 2018 ARRL International DX CW Contest Results
  - The 2018 ARRL International EME Competition
  - The 2018 ARRL 10 GHz and Up Contest
  - C The 2018 ARRL September VHF Contest



44

- ------

BITX

## Columns

Classic Radio	83
Contest Corral	86
Correspondence	24
The Doctor is In	57
Eclectic Technology	60
Happenings	76
Hints & Hacks	
How's DX?	94
Member Spotlight	13
Public Service	81
Up Front	20
The World Above 50 MHz	96
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**

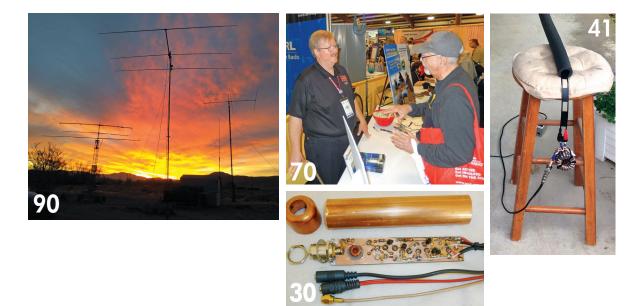
Amateur Radio Band Chart	85
ARRL Member Services	14
ARRL Section Managers	16
Convention and Hamfest Calendar	100
Feedback	89
Field Organization Reports	102
Ham Ads	140
Index of Advertisers14	2, 143
New Products 40,	56, 65
Officers, Division Directors, and Staff	15
QuickStats	132
Silent Keys	
Special Event Stations	98
Strays	.56, 97
W1AW Qualifying Runs	99
W1AW Schedule	93

#### Interested in Writing for QST? www.arrl.org/qst-author-guide email: gst@arrl.org



### Our Cover

Hamvention 2018 is in the books, and what a great time it was. The smile on the face of Alain De Carolis, K1FM, is the proof! Read more about this year's event on page 70. [Bob Inderbitzen, NQ1R, photo]



QST (ISSN:0033-4812) is published American Radio Relay League, Inc, 225 Main St., Newington, CT 06111-1494, USA. Periodicals postage paid at Hartford, CT, USA and at additional mailing offices.

POSTMASTER: Send address changes to: QST, 225 Main St., Newington, CT 06111-1494, 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 interna-

tional 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 © 2018 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

(GST<sup>®</sup>, DXCC<sup>®</sup>, VUCC<sup>®</sup>, DX Century Club<sup>®</sup>, ARES<sup>®</sup>, Amateur Radio Emergency Service<sup>®</sup>, Logbook of The World<sup>®</sup>, LoTW<sup>®</sup>, and ARRL, the national association for Amateur Radio<sup>®</sup> 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