Our mission: To advance the art, science, and enjoyment of Amateur Radio.

In This Issue

October 2016  Volume 100  Number 10

Tom Gallagher, NY2RF
Publisher

Steve Ford, WB8IMY
Editor

Becky R. Schoenfeld, W1BXY
Managing Editor

Steve Sant Andrea, AG1YK
Jen Gilford
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 McCleneny, W3JR
H. Ward Silver, N0AX
Paul Wade, W1GHZ
Jon Jones, N6JK
Rick Palm, K1CE
Joel R. Hallas, W1ZQ
Barry Shackleford, W6YE
Kai Siwiak, KE4PT
Bruce Draper, AA5B
Contributing Editors

Michelle Bloom, WB1ENT
Production Supervisor

Jodi Morin, KA1JPA
Asst Production Supervisor

Maty Weinberg, KB1EIB
Production Coordinator

Sue Fagan, KB1OKW
Graphic Design Supervisor

David Pingree, N1NAS
Senior Technical Illustrator

Debra Jahnke, K1DAJ
Business Services Manager

QST Advertising

Bob Inderbitzen, N0JQ
Marketing Manager

Yvette Vinci, KC1AIM
Circulation Manager

Diane Szlachetka, KB1OKV
Advertising Graphics Designer

Steve Ewald, W9XY
Field Organization Supervisor

Gail Iannone
Convention Program Manager

Allison Barbieri, KC1ARQ
Digital QST Coordinator

Technical

The Reverse Beacon Network  30
Pete Smith, N4ZR, and Ward Silver, N0AX
A worldwide network of receivers monitors the amateur bands every day.

Near Fields of a Mobile Mounted 2 Meter Antenna  33
Keith Snyder, K6BDR
The author uses FEKO, a patch-based computational software package, to reveal EM fields around a vehicle.

Build the Infinite Looper  36
Robert Hinrichs, WM6H
Rewind and play back your live on-the-air audio traffic.

The New Sunspot Numbers  38
Carl Luetzelschwab, K9LA
The new SILSO numbers will affect many calculations using sunspot numbers.

News and Features

Second Century  9
Tom Gallagher, NY2RF
The HR 1301 Push: How to Be Heard

The 2015 G8OFQ DXpedition to HC8  66
Geoffrey Dobson, G8OFQ
Twelve weeks in the Galapagos working with giant tortoises — with a holiday-style ham radio operation on the side.

Kilo Five Papa — Dispelling the Myth of Palmyra Atoll  69
Hal Turley, W8HC
Since its discovery in 1798, this collection of 50-some coral islands has been described as “cursed” and “hostile.” The KP5 team found the propagation a little unfriendly, but came away with 75,000 contacts and wonderful memories.

TX4A: The Perilous IOTA Expedition to Matthew Island  73
Cezar Trifu, VE3LYC
A two-man team negotiated challenging terrain to activate in-demand OC-218.

T42US Joint Cuban/US DXpedition 2015  80
Jim Millner, WB2REM
A closer look at last October’s technological and cultural exchange with the Federación de Radioaficionados de Cuba.

National Parks on the Air — October 2016  83
Sean Kutzko, K5XJ
Less-than-terrific propagation didn’t stop some truly landmark activations in late summer.

ARRL Board of Directors Convenes for Mid-July Meeting  84
Board panel to study license requirements, new UHF and above contest set, award winners named.

Happenings  87
Rick Lindquist, WW1ME
A new venue for Dayton Hamvention, FCC seeks comments on its proposed changes to ARRL’s symbol rate petition, FAA rules could affect some Amateur Radio antenna support structures; more.

A Wide-Range Audio Oscillator  42
Paul Danzer, N11I
An oldie, but a goodie.

Product Review  44
Mark Wilson, K1RO
Expert Electronics SunSDR2 Pro HF/VHF Software Defined Transceiver; SSB Electronic SP-200 and SP-70; Alinco DR-735T VHF/UHF FM Transceiver

4  October 2016  ARRL, the national association for Amateur Radio®  www.arrl.org
Our mission:
To advance the art, science, and enjoyment of Amateur Radio.

Radiosport
2015 – 2016 School Club Roundup Results 93

Lew Malchick, N2RQ
Participants chose their own goals and had fun.

The 2016 ARRL November Sweepstakes 94

Columns
Amateur Radio World ...................... 103
Classic Radio ................................ 104
Correspondence ................................ 24
The Doctor is In ................................ 54
Eclectic Technology ..................... 60
Hands-On Radio ......................... 58
Hints & Kinks ......................... 63
How’s DX? ................................ 96
Member Spotlight .................. 13
Microwavelengths ..................... 56
Public Service ................................ 91
Technical Correspondence .......... 61
Up Front ................................ 20
The World Above 50 MHz ......... 98
100/50/25 Years Ago .............. 108

Departments
ARRL Member Services .................. 14
ARRL Section Managers ............. 16
Convention and Hamfest Calendar .... 106
Feedback ................................ 94
Field Organization Reports .......... 108
Ham Ads .................................. 154, 155
Index of Advertisers .................. 156, 157
New Products .......................... 35, 37
Officers, Division Directors, and Staff..... 15
QuickStats ................................ 23
Silent Keys ................................ 109
Special Event Stations .............. 101
Strays .................................. 93, 102, 105, 107
W1AW Qualifying Runs ............ 102
W1AW Schedule .................... 86

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.

Interested in Writing for QST?
www.arrl.org/qst-author-guide
e-mail: qst@arrl.org

October 2016
Volume 100 Number 10
QST (ISSN 0033-4812) is published monthly as its official journal by the American Radio Relay League, Inc., 225 Main Street, 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 490-0901437. 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 $1225. 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 USA, the following rates apply:

Canada: Membership in the ARRL, including a 1-year subscription to QST, is available at $150. Libraries and institutions, $62 per year.

All Other Countries: Membership in the ARRL, including a 1-year subscription to QST, is available at $190. 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 USA 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 © 2016 by the American Radio Relay League, Inc. Title registered at the US Patent Office. International copyright secured. All rights reserved. QST reserved todos los derechos. Printed in the USA.

QST®, DXCC®, VUCC®, DX Century Club®, ARRL®, 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/rr/

Indexed by Applied Science and Technology Index, Library of Congress Catalog Card No. 71-9421.

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/otline-privacy-policy.

Telephone: 860-594-0200
Fax: 860-594-0259

QST® – Devoted entirely to Amateur Radio www.arrl.org

October 2016

5