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

In This Issue
April 2015 Volume 99 Number 4

Technical

Untangling Digital Voice Above 50 MHz 30
Bob DeMattia, K1IW
D-STAR, DMR, C4FM, P25...it’s an alphabet soup of choices in the VHF+ world.

Mini-CT: A Curve Tracer for the Ham Shack 34
Veikko Kanto, N7VK
A microcontroller processing module and PC-based software enable standalone or in-circuit component analysis.

Measuring Frequencies at VE3GSO 37
Dave McCarter, VE3GSO
Here’s a virtually zero-cost method of participating in the ARRL Frequency Measuring Test.

Voltage Reducer for Lithium-ion Polymer Four-Cell Batteries 39
Phil Salas, AD5X
Power your rig with LiPo batteries!

Ameritron ALS-600 Band Switch Modification 42
Monty Shultes, K2DLJ
Update this popular solid state amplifier for automatic band switching.

A Radical Approach to Single Sideband 45
Larson E. Rapp, WIOU
Our series of articles reprinted from vintage issues of QST continues, this time with an April Fool’s Day selection from the April 1955 issue.

Product Review 47
Mark Wilson, K1RO
FlexRadio Systems FLEX-6300 Transceiver, FLEX-6700 Transceiver, and SmartSDR for Windows Software.

News and Features

It Seems to Us 9
David Sumner, K1ZZ
Remote Operating

Inside HQ 13
Harold Kramer, WJ1B
The ARRL VEC Part 2 — Special Call Signs

Member Input Sought on Draft HF Band Plan Proposals 69
David Sumner, K1ZZ
Last year the ARRL HF Band Planning Committee sought suggestions on how the growing variety of HF data modes could coexist more compatibly. Review of some 400 comments resulted in a set of “strawman” proposals for updates to the ARRL HF band plans. Here they are, for another round of input from our membership.

W1AW/p — The Year in Review 72
Steve Ford, WB8IMY
The historic W1AW portable operations from every US state and territory have come to an end, but we’ll always have the memories. Here are just a few remembrances from the operators who made history.

The 500 Milliwatt Man 76
Steve Ford, WB8IMY
Here’s how “one of the weakest DXers in the world” manages to get stations into his log.

Happenings 77
Rick Lindquist, WW1ME
The FCC’s “paperless” Amateur Radio license policy is now in effect, the ARRL Library is live and accepting submissions, FCC enforcement actions; more.

World Amateur Radio Day is April 18 88
Our Cover
The latest winning photograph in the QST Centennial Photo Contest shows 13-year-old Joe Johnson, KC3CSI, and James Johnson, KC3CSH, along with Chuck Mills, W3YN, as they operate W1AW/3 from the Skyview Radio Society clubhouse, K3MJW, in New Kensington, Pennsylvania. The entire W1AW/3 Pennsylvania operation netted 61,888 QSOs. You can read more about the ARRL Centennial W1AW/p operations in this issue. [Bob Bastone, WC3O, photo]

Radiosport
Contest Corral 83
H. Ward Silver, NOAX
2014 ARRL September VHF Contest Results 84
Jeff Klein, K1TEO
2014 will go down as a good year — conditions were interesting and activity continues to head in the right direction.

2015 ARRL Straight Key Night Results 87
Sean Kutzko, KX9X
Whether you used vintage equipment or a cutting-edge key, SKN offered an enjoyable evening of hand-sent code.

The 2015 ARRL April Rookie Roundup — Phone 88

Columns
Amateur Radio World............................. 95
Correspondence ..................................... 24
The Doctor is In ..................................... 59
Eclectic Technology ............................... 61
Hands-On Radio .................................... 64
Hints & Kinks ....................................... 66
How's DX? ........................................... 89
Microwaves .......................................... 62
Public Service ....................................... 81
Up Front ............................................. 20
Vintage Radio ...................................... 96
The World Above 50 MHz ...................... 91
75/50/25 Years Ago ............................... 100

Departments
ARRL Member Services .......................... 14
ARRL Section Managers ........................ 16
Convention and Hamfest Calendar ............ 98
Feedback ............................................ 63
Field Organization Reports ..................... 100
Ham Ads ............................................ 154, 155
Index of Advertisers .............................. 156, 157
New Books ........................................... 44
Officers, Division Directors, and Staff ....... 15
QuickStats .......................................... 138
Silent Keys .......................................... 101
Special Event Stations ............................ 94
Strays ................................................ 99
W1AW Qualifying Runs .......................... 99

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

April 2015
Volume 99 Number 4
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 #409-0901437. 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 $39. Licensed radio amateurs age 21 and under and the eldest licensee in the household may qualify for the rate of $20. Life Membership, including a subscription to QST is available at $975.* Membership includes $15 per year for subscription to QST. Membership and QST cannot be separated. Libraries and institutions, $39 per year. Single copies $4.99.

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, $49, payable in US funds. Life Membership, including a subscription to QST is available at $1225.* Libraries and institutions, $49 per year.

All Other Countries: 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 $1550.* Libraries and Institutions, $62 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 $8 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.

Copyright © 2015 by the American Radio Relay League Inc. Title registered at the US Patent Office. International copyright secured. All rights reserved. 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.


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 860-594-2000 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