



In This Issue

July 2014

Volume 98 Number 7

Harold Kramer, WJ1B
Publisher

Steve Ford, WB8IMY
Editor

Becky R. Schoenfeld, W1BXY
Managing Editor

Larry D. Wolfgang, WR1B
Senior Assistant Technical Editor

Steve Sant Andrea, AG1YK
Assistant Editor

Rick Lindquist, WW1ME
Happenings

Bob Allison, WB1GCM
Product Review Lab Testing

Paul L. Rinaldo, W4RI
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
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

Kelsey E. Moore
Copy Editor

Debra Jahnke, K1DAJ
Business Services Manager
QST Advertising

Bob Inderbitzen, NQ1R
Marketing Manager

Yvette Vinci, KC1AIM
Circulation Manager

Diane Szlachetka, KB1OKV
Advertising Graphics Designer

Technical

Improving S-Meter Linearity for Collins S-Line Receivers 34

Don Jackson, W5QN

Op-amps buffer the AGC voltage to drive the S meter and provide linear db-per-S-unit readings.

Using Triangular Waves to Test and Tune Linear Amplifiers 38

John Stanley, K4ERO

Use your oscilloscope to measure amplifier distortions.

Build a Ribbon Microphone 42

Al Lorona, W6LX

You can homebrew this classic, once considered a broadcasting standard.

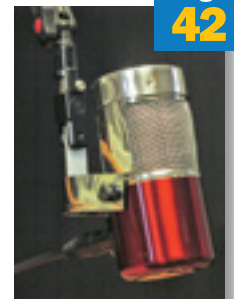
Product Review 45

Mark Wilson, K1RO

Icom IC-7100 HF/VHF/UHF Transceiver; West Mountain Radio Rigblaster Blue Interface; K4TR 30, 17, and 12 Meter G5RV Antenna.



Page
71



Page
42



Page
45

News and Features

It Seems to Us 9

David Sumner, K1ZZ

ARRL Centennial, W1AW/x, and WRTC

Inside HQ 13

Harold Kramer, WJ1B

The ARRL Centennial Convention

Clarence D. Tuska: Radio Pioneer, ARRL Founder 67

Bart Lee, K6VK

Energy, enthusiasm, and imagination defined the life of this important figure in ARRL history.

WRTC2014 70

Randy Thompson, K5ZD

World Radiosport Team Championship brings the world's best testers to the United States this summer.

2013 Simulated Emergency Test Results 71

Steve Ewald, WV1X

During 2013, Simulated Emergency Tests were conducted for a wide range of scenarios.

Happenings 74

Rick Lindquist, WW1ME

ARRL asks FCC to dismiss "fatally flawed" petition affecting 10 GHz; ARRL opposes FCC proposal to leave licensed service users open to unlicensed interference; more.



Our Cover
Hartford, Connecticut is a vibrant city with a rich history, a history that includes the birth of the ARRL in 1914. On July 17 through 19 thousands of amateurs will arrive in Hartford to celebrate at the ARRL National Centennial Convention. See page 13 for details.



July 2014
Volume 98 Number 7

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 #40612608. Canada returns to be sent to Bleuchip International, PO Box 25542, London, ON N6C 6B2.

US & Possessions: Membership in the ARRL, including a one 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 one 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 one 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 © 2014 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® 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

Radiosport

Contest Corral 79

H. Ward Silver, N0AX

2013 ARRL 10 Meter Contest Results 80

Scott Tuthill, K7ZO

"Wow! Ol' Sol is back." — Sandy, K4PZC

2014 ARRL January VHF Contest Results 84

John (JK) Kalenowsky, K9JK

Was it the P0LAR V0RTX?

The 2014 ARRL August UHF Contest 88



Page
65



Page
95

Columns

At the Foundation	101
Correspondence	24
The Doctor is In	55
Eclectic Technology	61
Exam Info	98
Hands-On Radio	59
Hints & Kinks	65
How's DX?	90
Microwavelengths	57
Personal Visions	97
Public Service	77
Technical Correspondence	62
Up Front	20
Vintage Radio	95
The World Above 50 MHz	92
75/50/25 Years Ago	102

Departments

ARRL Member Services	14
ARRL Section Managers	16
Convention and Hamfest Calendar	99
Feedback	60
Field Organization Reports	102
Ham Ads	154, 155
Index of Advertisers	156, 157
New Products	41, 69
Officers, Division Directors, and Staff	15
QuickStats	142
Silent Keys	103
Special Event Stations	88
Strays	60
W1AW Centennial Operations	87
W1AW Qualifying Runs	87

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