

QEX

QEX (ISSN: 0886-8093) is published bimonthly in January, March, May, July, September, and November by the American Radio Relay League, 225 Main Street, Newington, CT 06111-1494. Periodicals postage paid at Hartford, CT and at additional mailing offices.

POSTMASTER: Send address changes to: QEX, 225 Main St, Newington, CT 06111-1494 Issue No 243

Harold Kramer, WJ1B
Publisher

Doug Smith, KF6DX
Editor

Larry Wolfgang, WR1B
Managing Editor

Lori Weinberg, KB1EIB
Assistant Editor

L. B. Cebik, W4RNL
Zack Lau, W1VT
Ray Mack, W5IFS
Contributing Editors

Production Department
Steve Ford, WB8IMY
Publications Manager

Michelle Bloom, WB1ENT
Production Supervisor

Sue Fagan, KB1OKW
Graphic Design Supervisor

Devon Neal, KB1NSR
Technical Illustrator

Joe Shea
Production Assistant

Advertising Information Contact:

Janet L. Rocco, W1JLR
Business Services
860-594-0203 direct
800-243-7768 ARRL
860-594-4285 fax

Circulation Department

Cathy Stepina, QEX Circulation

Offices

225 Main St, Newington, CT 06111-1494 USA
Telephone: 860-594-0200
Fax: 860-594-0259 (24 hour direct line)
e-mail: qex@arrl.org

Subscription rate for 6 issues:

In the US: ARRL Member \$24,
nonmember \$36;

US by First Class Mail:
ARRL member \$37, nonmember \$49;

Elsewhere by Surface Mail (4-8 week delivery):
ARRL member \$31, nonmember \$43;

Canada by Airmail: ARRL member \$40,
nonmember \$52;

Elsewhere by Airmail: ARRL member \$59,
nonmember \$71.

Members are asked to include their membership control number or a label from their QST when applying.

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 immediately. Thank you for your assistance.

Copyright ©2007 by the American Radio Relay League Inc. For permission to quote or reprint material from QEX or any ARRL publication, send a written request including the issue date (or book title), article, page numbers and a description of where you intend to use the reprinted material. Send the request to the office of the Publications Manager (permission@arrl.org).



About the Cover

Fritz Raab, W1FR, is the project coordinator for "The ARRL 500-kHz Experiment." The article in this issue describes the work done so far, and describes some of the equipment and antennas used by participating stations, such as this Mackay 2017 transmitter used by W4DEX.



Features

3 The ARRL 500-kHz Experiment: WD2XSH

By Frederick H. "Fritz" Raab, W1FR

12 Voltage-Magnitude Impedance Measurement

By F. N. Eddy

20 Introduction to Class D Tuned RF Amplification

By Jukka Vermasvuori, OH2GF

31 High-Performance Audio Speech Low-Pass and CW Band-Pass Filters in SVL Design

By Werner Rahe, DC8NR

40 Transmission Line Paradigm

By Richard F. Thompson, W3ODJ

45 Microsoft Excel for Antenna Modeling

By Brian B. Turner, K2SJM

Columns

52 Antenna Options

By L. B. Cebik, W4RNL

58 Upcoming Conferences

59 Letters

62 Next Issue

Jul/Aug 2007 QEX Advertising Index

American Radio Relay League: 44, 62, 64
Array Solutions: 39, Cov III
Atomic Time: 44
Communications Specialists, Inc: 19
Down East Microwave Inc: 11
Elkins Marine Training International: 57
Kenwood Communications: Cov IV

National RF, Inc: 39
Naval Explosive Ordnance Disposal
Tech Div.: 63
Nemal Electronics International, Inc: 39
Teri Software: 39
Tokyo Hy-Power Labs, Inc: Cov II
Tucson Amateur Packet Radio: 30