45241

Amateur Radio

COMMUNICATIONS & TECHNOLOGY

http://www.cq-amateur-radio.com

CQ

JUNE 2009

Sweepstakes Winners! p. 38

- "This is Jordan Calling..." p. 13
- The World's Most Most Interesting Hamfest? p. 17
- Results: 2008 CQ DX Marathon, p. 27

On the Cover: Field Day afloat. Lee Brandt, KC2BRL, and members of the Radio Association of Western New York operate from the USS Little Rock museum ship in Buffalo, NY. Details on page 70.

KENWOOD

Listen to the Future

TS-480

The Perfect Remote Base Transceiver

Straight Out of the Box!

- The perfect internet base transceiver - straight out of the box!
- Easy to operate.
- The size makes it great for base, mobile or portable operation.
- Free VoIP/Control software downloads at Kenwoodusa.com.
- Incredible RX specifications.
- No expensive sound card interface needed.

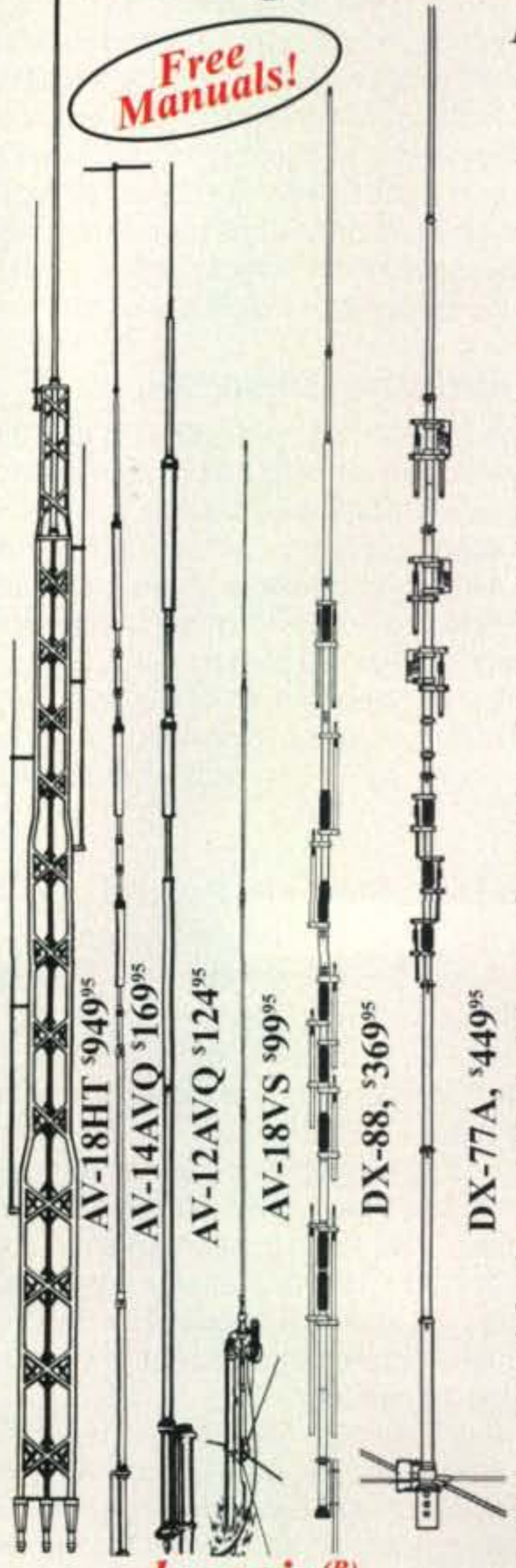
KENWOOD U.S.A. CORPORATION
Communications Sector Headquarters
3970 Johns Creek Court, Suite 100, Suwanee, GA 30024
Customer Support/Distribution
P.O. Box 22745, 2201 East Dominguez St., Long Beach, CA 90801-5745
Customer Support: (310) 639-4200 Fax: (310) 537-8235

www.kenwoodusa.com
ADS#31508

ISO9001 Registered

hy-gain® HF VERTICALS

Self-supporting -- no guys required . . . Remarkable DX performance -- low angle radiation, omnidirectional . . . Handles 1500 Watts . . . Low SWR . . . Automatic band switching . . . Aircraft quality aluminum tubing . . . Stainless steel hardware . . . Recessed SO-239 connector . . . Two year limited Warranty . . .



hy-gain(R)

Classics

All hy-gain multi-band vertical antennas are entirely self supporting -- no guys required.

They offer remarkable DX performance with their extremely low angle of radiation and omnidirectional pattern.

All handle 1500 Watts PEP SSB, have low SWR, automatic bandswitching (except AV-18VS) and include a 12-inch heavy duty mast support bracket (except AV-18HT).

Heavy duty, slotted, tapered swaged, aircraft quality aluminum tubing with full circumference compression clamps is used for radiators. Includes all stainless steel hardware. Recessed SO-239 prevents moisture damage. Hy-gain verticals go up easily with just hand tools and their cost is surprisingly low. Two year limited warranty.

AV-18HT, $949.95. (10,12,15,20,40,80 M, 160, 17 Meters optional). 53 ft., 114 lbs.

Standing 53 feet tall, the famous *Hy-Gain HyTower* is the world's best performing vertical! The AV-18HT features automatic band selection achieved through a unique stub-decoupling system which effectively isolates various sections of the antenna so that an electrical 1/4 wavelength (or odd multiple of a 1/4 wavelength) exists on all bands. Approximately 250 kHz bandwidth at 2:1 VSWR on 80 Meters. The addition of a base loading coil (**LC-160Q, $109.95**), provides exceptional 160 Meter performance. **MK-17, $89.95**. Add-on 17 Meter kit. 24 foot tower is all rugged, hot-dip galvanized steel and all hardware is iridited for corrosion resistance. Special tilt-over hinged base for easy raising & lowering.

AV-14AVQ, $169.95. (10,15,20,40 Meters). 18 ft., 9 lbs. **The** Hy-Gain AV-14AVQ uses the same trap design as the famous Hy-Gain Thunderbird beams. Three separate air dielectric Hy-Q traps with oversize coils give superb stability and 1/4 wave resonance on all bands. Roof mount with Hy-Gain AV-14RMQ kit, $89.95.

AV-12AVQ, $124.95. (10, 15, 20 Meters). 13 ft., 9 lbs. **AV-12AVQ** also uses Thunderbird beam design air dielectric traps for extremely Hy-Q performance. This is the way to go for inexpensive tri-band performance in limited space. Roof mount with AV-14RMQ kit, $89.95.

AV-18VS, $99.95. (10,12,15,17,20,30,40,80 Meters). 18 ft., 4 lbs. **High** quality construction and low cost make the AV-18VS an exceptional value. Easily tuned to any band by adjusting feed point at the base loading coil. Roof mount with Hy-Gain AV-14RMQ kit, $89.95.

DX-88, $369.95. (10, 12, 15,17,20,30,40,80 Meters, 160 Meters optional). 25 ft., 18 lbs.

All bands are *easily* tuned with the DX-88's *exclusive* adjustable capacitors. 80 and 40 Meters can even be tuned from the ground without having to lower the antenna. Super heavy-duty construction. DX-88 OPTIONS: 160 Meter add-on kit, KIT-160-88, $199.95. Ground Radial System, GRK-88, $99.95. Roof Radial System, RRK-88, $99.95.

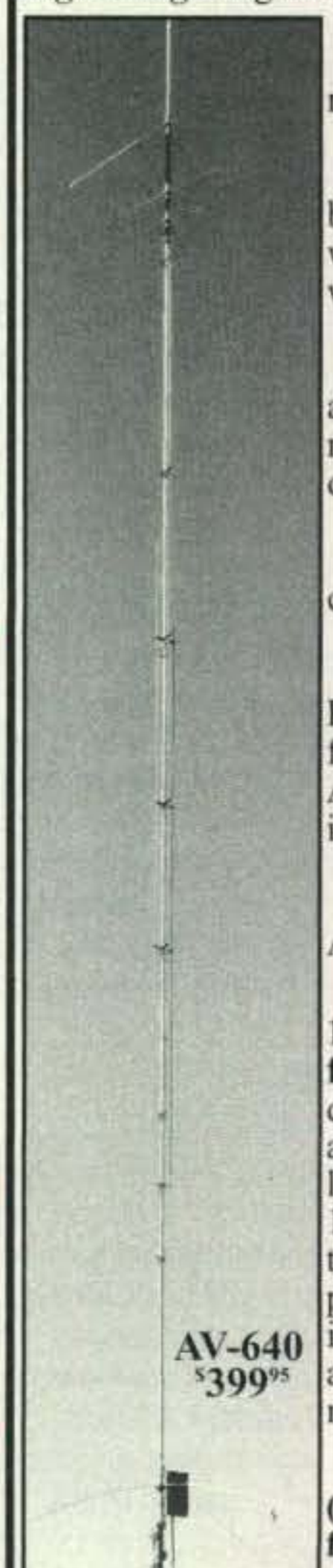
DX-77A, $449.95. (10, 12, 15, 17, 20, 30, 40 Meters). 29 ft., 25 lbs.

No ground radials required! Off-center-fed Windom has 55% greater bandwidth than competitive verticals. Heavy-duty tiltable base. Each band independently tunable.

Model #	Price	Bands	Max Power	Height	Weight	Wind Surv.	Rec. Mast
AV-18HT	$949.95	10,15,20,40,80	1500 W PEP	53 feet	114 pounds	75 MPH	------
AV-14AVQ	**$169.95**	**10,15,20,40**	**1500 W PEP**	**18 feet**	**9 pounds**	**80 MPH**	**1.5-1.625"**
AV-12AVQ	$124.95	10/15/20 M	1500 W PEP	13 feet	9 pounds	80 MPH	1.5-1.625"
AV-18VS	**$99.95**	**10 - 80 M**	**1500 W PEP**	**18 feet**	**4 pounds**	**80 MPH**	**1.5-1.625"**
DX-88	$369.95	10 - 80 M	1500 W PEP	25 feet	18 pounds	75 mph no guy	1.5-1.625"
DX-77A	**$449.95**	**10 - 40 M**	**1500 W PEP**	**29 feet**	**25 pounds**	**60 mph no guy**	**1.5-1.625"**

hy-gain® PATRIOT

Hy-Gain's new PATRIOT HF verticals are the best built, best performing and best priced multiband verticals available today. For exciting DX make full use of your sunspot cycle with the PATRIOT's *low 17 degree angle* signal.



No ground or radials needed

Effective counterpoise replaces radials and ground.

Automatic bandswitching

Single coax cable feed. Each band is individually tunable. Extra wide VSWR bandwidth. End fed with broadband matching unit.

Sleek and low-profile

Low 2.5 sq. ft. wind surface area. Small area required for mounting. Mounts easily on decks, roofs and patios.

Full legal limit

Handles 1500 Watts key down continuous for two minutes.

Built-to-last

High wind survival of 80 mph. Broadband matching unit made from all *Teflon®* insulated wire. Aircraft quality aluminum tubing, stainless steel hardware.

hy-gain® warranty

Two year limited warranty. All replacement parts in stock.

AV-640, $399.95. (6,10,12, 15,17,20,30,40 Meters). 25.5 ft., 17.5 lbs. The AV-640 uses quarter wave stubs on 6, 10, 12 and 17 meters and efficient end loading coil and capacity hats on 15, 20, 30 and 40 meters -- no traps. Resonators are placed in parallel not in series. End loading of the lower HF bands allows efficient operation with a manageable antenna height.

AV-620, $299.95. (6,10,12,15,17,20 Meters). 22.5 ft., 10.5 lbs. The AV-620 covers all bands 6 through 20 Meters with no traps, no coils, no radials yielding an uncompromised signal across all bands.

Free Hy-Gain Catalog

and Nearest Dealer . . . 800-973-6572

Call your dealer for your best price!

hy-gain®

Antennas, Rotators & Towers

308 Industrial Park Road, Starkville, MS 39759 USA

Toll-free Customer Sales Hotline: 800-973-6572

• **TECH:** 662-323-9538 • **FAX:** 662-323-6551

http://www.hy-gain.com

ham radio news

K4ITL, W5KWQ, VY2CM Share Dayton Honors

Wade D. "Danny" Hampton, K4ITL, has been named this year's Dayton Hamvention® Amateur of the Year. In addition, the Dayton Amateur Radio Association honored space traveler Richard Garriott, W5KWQ, with its Special Achievement Award and Copthorne "Cop" MacDonald, VY2CM as recipient of the 2009 Technical Excellence Award.

Hampton, from Raleigh, North Carolina, was recognized for establishing the Piedmont Coastal Repeater Network in the early 1970s. Today, the system links more than 40 repeaters in North Carolina and is heavily used for emergency and public service communications. Recently, Hampton also helped build a hospital-based emergency repeater system that ties together 10 hospitals via amateur radio.

Garriott, a well-known video game designer and son of first ham-in-space Owen Garriott, W5LFL, was the sixth private citizen to fly in space. During his stay last year on the International Space Station, Garriott made over 500 amateur radio voice contacts, including many school contacts, and transmitted over 1000 slow-scan TV images back to earth from the station.

Technical Achievement award winner VY2CM invented slow-scan TV in the 1950s and helped get the FCC to authorize hams to use it. MacDonald, a 2007 inductee into the CQ Amateur Radio Hall of Fame, is also a prolific writer and a former *CQ* columnist.

The awards were to be presented at the 2009 Dayton Hamvention.

AMSAT-DL Reports Reflections from Venus

Germany's amateur satellite organization, AMSAT-DL, reports successfully receiving echoes of signals bounced off of Venus on March 25, 2009. The group's president, Peter Guelzow, DB2OS, says the AMSAT-DL team working toward launching an amateur radio satellite to Mars used a ground station at the Bochum observatory to transmit signals—"HI" in Morse code—to our closest planetary neighbor. The tests were made in preparation for AMSAT-DL's plan to launch a ham satellite into orbit around Mars. See this month's "VHF Plus" column for more details.

Adelstein to Leave FCC for Rural Utilities Program

FCC Commissioner Jonathan Adelstein will be going back to his roots in rural America, as President Obama's choice to be the next Administrator of the U.S. Department of Agriculture's Rural Utilities Service. Adelstein is a native of South Dakota and worked for former South Dakota Senator Tom Daschle before being appointed to the FCC in 2002 by then-President Clinton.

When formally nominated and confirmed, Adelstein will assume responsibility for all of the rural utilities programs run by the USDA, including telecommunications, distance learning and telemedicine, electricity, water and environment, and will administer some $2.5 billion in economic stimulus grants designated for rural broadband development.

KA3HDO Resigns AMSAT, ARISS, Posts

Frank Bauer, KA3HDO, longtime leader of the Amateur Radio on the International Space Station (ARISS) program, resigned March 24 due to a combination of personal and professional reasons, according to the AMSAT News Service. Bauer has served as AMSAT-NA's Vice President for Human for Human Spaceflight Programs since 1991, and as international chairman of the ARISS program since its formation in 1996. Bauer currently serves as Chief Engineer for the Exploration Systems Mission Directorate at NASA Headquarters, and is working to develop the next generation of manned spacecraft.

Senators Seek "Spectrum Inventory"

Senators John Kerry (D-Mass) and Olympia Snowe (R-Maine) have introduced a bill that would require the FCC and the NTIA (National Telecommunications and Information Administration) to develop an "inventory" of every user of the spectrum between 300 MHz and 3.5 GHz within six months. They say their goal is to produce a starting point from which to assess the best future use of the radio spectrum.

According to news reports, this inventory would include data on every government user and FCC licensee, the total spectrum allocated to each user, the number and types of radiators (antennas) deployed and contour maps showing the approximate location of each fixed station and its signal strength and coverage. It has no provisions regarding amateur radio, which is both mobile and frequency-agile. As yet, there is no companion bill in the House of Representatives.

Help Wanted for Hurricane Watch Net

The Atlantic hurricane season begins on June 1, and the Hurricane Watch Net is looking for help from new stations. The net operates in association with the National Hurricane Center when a named Atlantic storm is within 300 miles of land, According to the ARRL, net manager Dave Lefavour, W7GOX, says the net is particularly looking for stations that can communicate effectively on 20 meters with Central America, the Caribbean, Mexico and South Texas, even during the current sunspot minimum. More information is on the net's membership web page at <http://www.hwn.org/home/membership-info.html>.

Possible Threat to Ham Radio in Poland

Poland's Ministry of the Environment is reportedly considering new rules on exposure to RF radiation that, according to that country's national ham radio association, the PZK, "will limit the operation of Polish amateur radio stations ... almost to nonexistence." In an open letter said to be on behalf of PZK, Wes Wysocki, SP2DX, says the proposed rules treat amateur radio stations on the same level as commercial stations, requiring field strength measurements and other measures. He says it would limit experimentation and set a maximum power level of 15 watts effective radiated power. Wysocki says the PZK was not consulted on the proposed rules, even though it represents several thousand "emitters of (electromagnetic) energy."

The letter also requestes "help from abroad, from our companion amateur radio societies, the IARU and individual hams," to write to the Ministry of the Environment on behalf of Poland's amateur radio population and explaining the differences between amateur and commercial radio operation.

CQ WW DX Contest Breaks 10,000 Log Barrier

For the first time, more than 10,000 logs have been submitted for the CQ World-Wide DX Contest, already the world's most popular ham radio contest. In addition, the number of CW logs have exceeded the number of phone logs for the first time in more than 20 years.

There were a total of 5013 SSB logs and 5272 CW logs submitted for the 2008 running of the event, for a total of 10,285 logs. It is the first time since 1986 that more CW logs have been submitted than SSB logs. The logs contained the callsigns of more than 50,000 different amateur stations making at least one contest contact. Complete results of the SSB competition will be in the August issue of *CQ*, followed by the CW results in September.

Additional and updated news is available on the Ham Radio News page of the CQ website at <http://www.cq-amateur-radio.com>. For breaking news stories, plus info on additional items of interest, sign up for CQ's free online newsletter service. Just click on "CQ Newsletter" on the home page of our website.

TOKYO HY-POWER

See us at Dayton Hamvention® Booth #407 & #408

The Biggest and Smallest Amps in the Industry!

Lightest and Most Compact 1kW HF Amplifier

HL-1.5KFX

HF/50MHz Linear Power

Outstanding for Desktop or DX-peditions!

Features

- The amplifier's decoder changes bands automatically with most ICOM, Kenwood, Yaesu.
- Solid State.
- The amp utilizes an advanced 16 bit MPU (microprocessor) to run the various high speed protection circuits such as overdrive, high antenna SWR, DC overvoltage, band miss-set etc.
- Built in power supply.
- AC (200/220/235/240V) and (100/110/115/120V) selectable.
- Equipped with a control cable connection socket, for the HC-1.5KAT, auto antenna tuner by Tokyo Hy-Power Labs.

Specifications

Frequency:
1.8 ~ 28MHz all amateur bands including WARC bands and 50MHz
Mode:
SSB, CW, RTTY
RF Drive:
85W typ. (100W max.)

Output Power:
HF 1kW PEP max.
50MHz 650W PEP max.
Circuit:
Class AB parallel push-pull
Cooling Method:
Forced Air Cooling

AC Power:
AC 240V default (200/220/235) – 10 A max.
AC 120V (100/110/115) – 20 A max.
Dimensions:
10.7 x 5.6 x 14.3 inches (WxHxD)/272 x 142 x 363 mm
Weight:
Approx. 20kgs. or 45.5lbs.

Optional Items:
Auto Antenna Tuner (HC-1.5KAT)
External Cooling Fan (HXT-1.5KF for high duty cycle RTTY)
Accessories Included:
Band Decoder Cables included for Kenwood, ICOM and some Yaesu

HL-1.1KFX

Lightweight HF Linear

NEW!

Features

- The amplifier allows operation in full break-in CW mode due to the use of the amplifier's high speed antenna relays.
- The amp utilizes a sophisticated circuit to run the various high speed protection circuits such as overdrive, high antenna SWR, DC overvoltage, band mis-set etc.
- An analog multimeter allows the operator to monitor Pf (Forward output power), Pr (Reflected power), Vd (Drain voltage of power FET), Id (Drain current) etc.

Specifications

Frequency:
1.8 ~ 28MHz all amateur bands including WARC bands
Mode:
SSB, CW, RTTY
RF Drive:
75 ~ 90W
Output Power:
SSB 600W PEP max.
CW 600W.
RTTY 500W (5 minutes)
Final Transistor:
SD 2933 x 4
(MOS FET by ST micro)
Circuit:
Class AB parallel push-pull

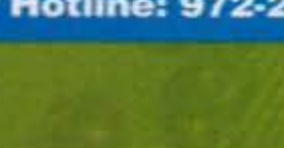
Cooling Method:
Forced Air Cooling
Multi-Meter:
Output Pf 1kW, Reflected Power 100W, Drain Voltage Vd 60V, Drain Current Id 50A
Input/Output Connectors:
Type M-J (UHF SO-239)
AC Power:
1.4kVA max. when TX
AC 100 ~ 250V (Auto Select)
Dimensions:
9.1 x 5.6 x 14.3 inches (WxHxD)
Weight:
Approx. 22.5 lbs.

More Fine Products from TOKYO HY-POWER

HC-1.5KAT
HF 1.5KW Auto Tuner

HL-2.5KFX
Legal Limit 1.5kW HF Amplifier

HL-45B
HF/50MHz 45W Linear Power Amplifier



HL-1.2KFX
750W PEP HF Desktop Linear

TOKYO HY-POWER

Visit Our NEW Website:
www.tokyohypower.com

TOKYO HY-POWER LABS., INC. – USA
6046 FM2920 Rd. Suite 133
Spring, Texas 77379-2542
USA Factory Support Tel: 713-818-4544
USA Factory Email: thpsupport@airmail.net

TOKYO HY-POWER LABS., INC. – JAPAN
1-1 Hatanaka 3chome,
Niiza Saitama 352-0012
Phone: +81 (48) 481-1211
FAX: +81 (48) 479-6949
e-mail: info@thp.co.jp

— Visit Our Tokyo Hy-Power Dealers —

HAM RADIO OUTLET

www.hamradio.com

Western US/Canada 1-800-854-6046	Mid-Atlantic 1-800-444-4799
Mountain/Central 1-800-444-9476	Northeast 1-800-644-4476
Southeast 1-800-444-7927	New England/Eastern Canada 1-800-444-0047

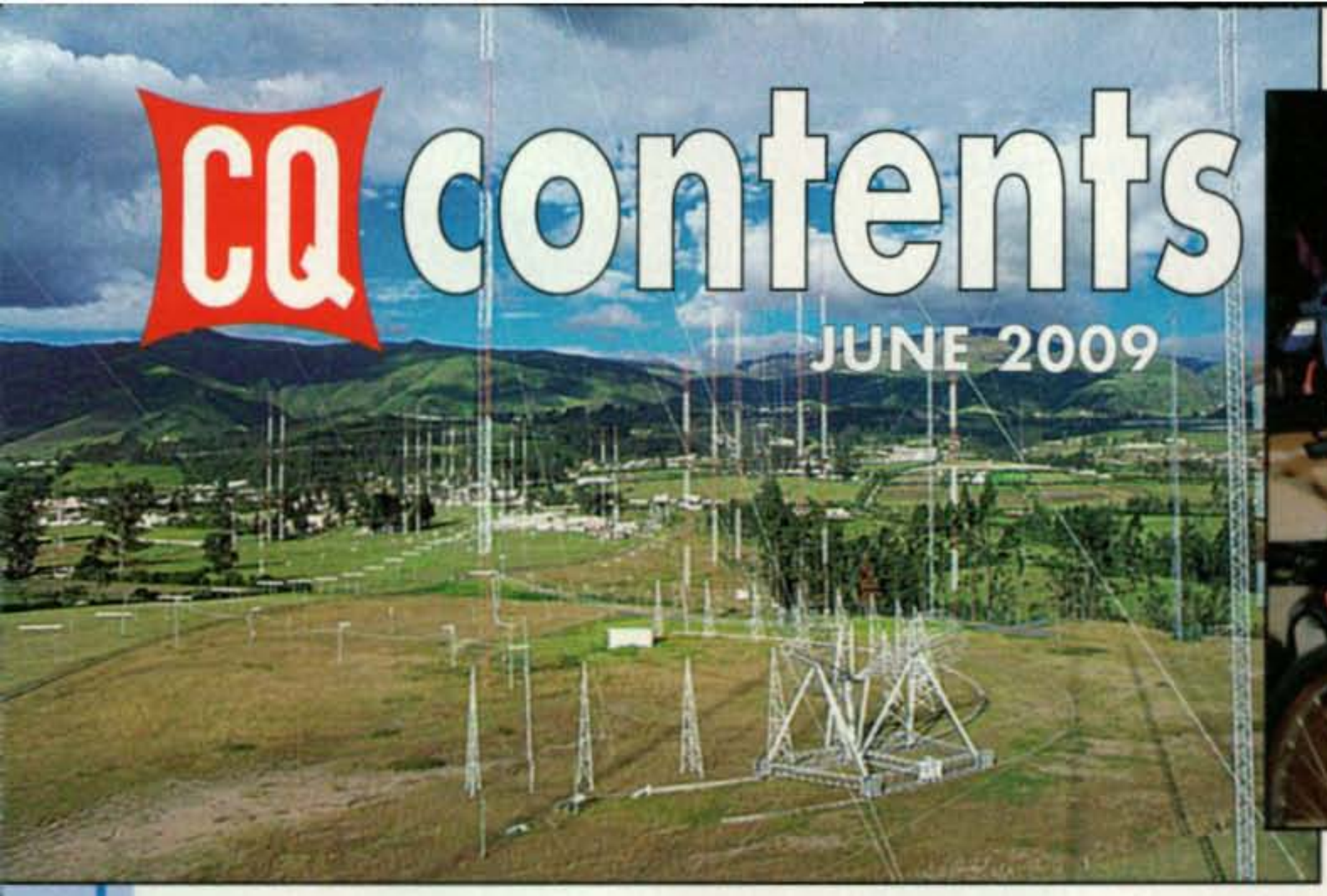
Array Solutions
WE'VE GOT YOUR STUFF

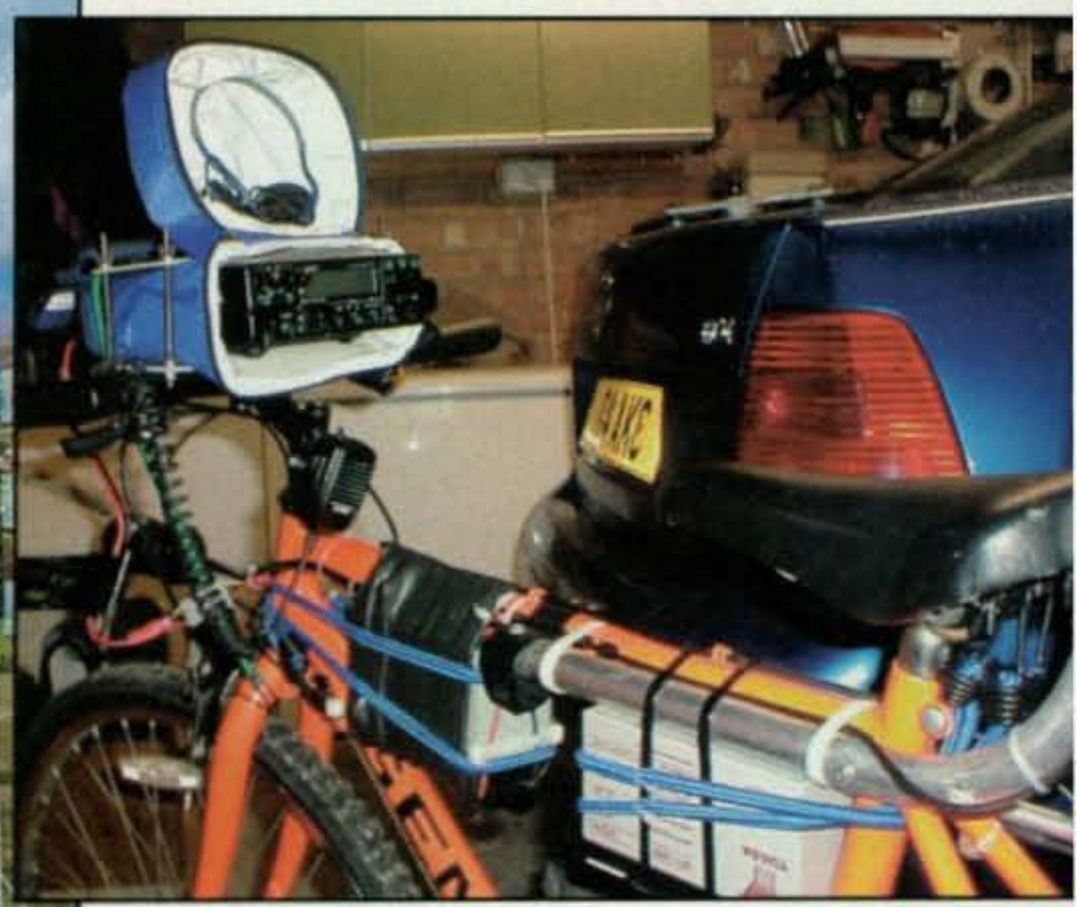
Now Available from Array Solutions
www.arraysolutions.com

Phone: 972-203-2008
sales@arraysolutions.com
Fax: 972-203-8811
THP Hotline: 972-203-2008

CQ contents

JUNE 2009





p. 62

p. 102

features

Vol. 65 No. 6

p. 17

p. 68

departments

TIMEWAVE TECHNOLOGY INC.

See us at Dayton!
Booth 108 in
The Audio Alley

Connect with HamLink™ ...

Wireless and USB Remote Control & Audio

®HamLinkBT-RC™ Rig Control

Wireless Remote Control for your radio!

Complete Bluetooth® wireless rig control for your station.

- **Rig Control, Audio and PTT!**
- **Operate from your easy chair**
- **Connect multiple radios**
- **Use with laptop & desktop PCs**
- **Use your favorite PC rig control program**

®HamLinkBT-BTH™ Headset

Wireless Audio & PTT for your radio!

Use a standard cellphone Bluetooth® headset to keep your hands free for driving and operating.

- **Audio and PTT!**
- **Great for VHF/UHF FM**
- **Built-in VOX**
- **Use your favorite Bluetooth headset**

Hamlink™ USB Rig Control & Audio

- **HamLinkUSB™ Rig Control Plus**
  Logic Level plus PTT
- **U232™ RS-232-to-USB Adapter**
  Universal Conversion Module
  Replaces PCB-mount DB-9 & DB-25
- **HLUSB-RS232x2 USB to RS-232 Dual Port**
  Adapter Cable with 1 USB to 2 RS-232 DB9
- **HamLinkUSB™ Audio Adapter**
  USB Sound Card Interface
  No software drivers! Just plug it in.

Patented - portable - battery powered

Check Antennas and Transmission Lines

Once you use the TZ-900 - you'll never want to use any other!

TZ-900 AntennaSmith™

FREE!
ARRL Antenna Book with every TZ-900

Antenna Impedance Analyzer - Built for the field - Take it up the tower!

- **Graphic display - full color in bright sunlight!**
- **Stand-alone operation - no computer required**
- **Before & After color graphic overlays - instant comparison**
- **Handheld - take it to the antenna - measure where it counts!**
- **Store complete sweeps in permanent memory - download to your PC via USB when it's convenient**
- **Hours of portable operation, fast recharging**
- **Complete with software, charger, coax adapters and more!**

Data Controllers

- **DSP-232+ Multimode Data Controller***
  Sound card interface, USB, Pactor, 9600
- **PK-232/USB Multimode Data Controller***
  Sound card interface, USB, Pactor
- **PK-96/100 TNC - 1200/9600 Packet***

Noise & QRM Control

- **DSP-599zx Audio Signal Processor***
  Noise Reduction & filtering for Audio, CW & data
- **ANC-4 Antenna Noise Canceller**
  Kill noise before it gets to your receiver!

***From the Timewave Fountain of Youth** - **Upgrades for many of our DSP & PK products. Call Us Now!**

Timewave Technology Inc.
1025 Selby Ave., Suite 101
St. Paul, MN 55104 USA

www.timewave.com
sales@timewave.com

651-489-5080
Fax 651-489-5066

Actual Size

VHF FM 5 W COMPACT HANDHELD TRANSCEIVER

FT-270R

Size: 2.4" (W) x 4.7" (H) x 1.3" (D) Weight: 13.8 oz.

NEW

2 m MONO BAND

Commercial Grade Field Radio
Submersible Construction

- Large Backlit LCD Display for easy operation
- 5 Watts of Stable RF Power with Minimum Components for Reliability
- 800 mW of Loud Audio for noisy field operations
- 200 Memory Channels for Serious users
- Commercial Grade Receivers Performance
- Submersible Construction (3 ft. for 30 min)
- Yaesu Exclusive Power Saving Circuit Design Guarantees Longer Operating time
- Hands Free Operation with Optional VC-24 VOX Headset

Wide Range of available Options includes:
- CD-26 Charger Cradle
- VAC-370B 1.5 Hour Desktop Rapid Charger
- External DC Jack for Cigarette-Lighter adapter E-DC-5B or DC Cable E-DC-6
- FBA-25A Alkaline Battery Case (for 6 X AA cells)
- FTD-7 DTMF Paging Unit

ULTRA-COMPACT 5 W 2 m FM HANDHELD TRANSCEIVER

FT-250R

Size: 2.3" (W) x 4.3" (H) x 1.0" (D) / Weight: 12.4 oz.

NEW

2 m MONO BAND

Compact Field Radio with
Top Mounted LCD and Loud Audio

- Compact Design with Top mounted LCD Display
- 5 Watts of Stable RF Power with Minimum Components for Reliability
- 700 mW of Loud Audio for outside field environments
- 200 Memory Channels for serious users
- Yaesu Exclusive Power Saving Circuit Design Guarantees Longer Operating time
- Hands Free Operation with Optional VC-25 VOX Headset

Wide Range of available Options includes:
- External DC jack for Cigarette-Lighter adapter E-DC-5B or DC cable E-DC-6
- 6 X AA size Alkaline Battery Case FBA-25A

Technical specs subject to change without notice. The FT-270R has not been approved by the FCC. This device may not be sold or leased, or offered for sale or lease, until FCC approval has been obtained.

For the latest Yaesu news, visit us on the Internet:
http://www.yaesu.com

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

YAESU

Vertex Standard
US Headquarters
10900 Walker Street
Cypress, CA 90630 (714)827-7600

The King of Mobile

- Massive Heatsink guarantees 75 Watts of Solid RF Power with No Cooling Fan Needed
- Loud 3 Watts of Audio Output for noisy environments
- Large 6 Digit Backlit LCD for excellent visibility
- 200 Memory Channels for serious users

75 WATTS

HEAVY-DUTY 75 W 2 m FM TRANSCEIVER

FT-2900R

Size: 6.3" (W) x 2.0" (H) x 7.3" (D) / Weight: 4.0 lb

NEW

2 m MONO BAND

55 WATTS

Best Selling, Reliable Mobile

- 55 Watts of Solid RF Power within a compact footprint
- Loud 3 Watts of Audio Output Power for noisy enviroments
- Large 6 Digit Backlit LCD for excellent visibility
- 200 Memory Channels for serious users

NEW

ULTRA RUGGED 55 W 2 m FM TRANSCEIVER

FT-1900R

2 m MONO BAND

Size: 5.5" (W) x 1.6" (H) x 5.8" (D) / Weight: 2.2 lb

Technical specs subject to change without notice. The FT-2900R has not been approved by the FCC. This device may not be sold or leased, or offered for sale or lease, until FCC approval has been obtained.

For the latest Yaesu news, visit us on the Internet: http://www.yaesu.com

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

YAESU
Choice of the World's top DXers™

Vertex Standard
US Headquarters
10900 Walker Street
Cypress, CA 90630 (714)827-7600

zero bias – a CQ editorial

BY RICH MOSESON,* W2VU

A Paper Tiger?

Normally, the term "paper tiger" is used to refer to someone (person or organization) who wants you to think he's a lot tougher than he really is. In this case, though, I'm referring to someone who makes you do so much paperwork that when you're done, you feel as though you've been mauled by a real tiger. That "someone," in this case, is the FCC.

In the past few weeks, I received two letters in the mail, each of which I should have been able to answer quickly and easily. But no, these letters had to do with dealing with the FCC. Between the two of them, I spent most of a full day tracking down answers, and explaining one of them was so complicated that it became the subject of W5YI's "Washington Readout" this month.

Question #1

That question, from Don Lampkin, WA2HMB, asked simply how one goes about filing a petition with the FCC. Keep in mind, as Fred points out in his column, that petitioning the government for a redress of grievances is a basic right of the American people, guaranteed by the First Amendment to the Constitution. So I was really quite surprised, in scouring the FCC website, to find *absolutely no reference* to the process of filing a petition. The Commission has an excellent online system for filing comments electronically in response to petitions that have already been filed, but there is no way to submit a petition online and there are no instructions on how to do so on paper. Apparently, the FCC wants petitions to be filed only by those people (read communications lawyers) who are already "in the know." John Q. Public may have a constitutional right to file a petition, but the FCC sure isn't going to help him! We will, though. Be sure to read Fred's column, starting on page 56, and then you'll be one of those "in the know" as well!

Question #2

The second letter came from Warren Barden, KA2WQJ, an elderly gentleman who had been inactive for some years, but recently decided he wanted to get back on the air. He asked about getting on the air from his retirement community and about the possibility of operating HF mobile. He also noted that he had lost his original license document. Even though you no longer need a paper copy of your license (as long as you're in the FCC's database, you're "legal"), most of us still like to have that piece of paper. So I printed out a "reference copy" of KA2WQJ's license to mail to him. I noticed that the FCC still had his old address in the database, and wrote that he would have to update the records with his new address, and went to print out a copy of Form 605 that he could fill out and mail in. What an incredibly complicated and confusing document!

The "package" is 11 pages long, consisting of nine pages of instructions (including one on how it is in compliance with the Paperwork Reduction Act of 1995 and another listing all of the "official" 2-letter state/territory abbreviations) and the form itself, which is two pages long. Part of the reason for so many instructions is that this "Quick-Form Application" is for use by licensees in five different FCC-licensed services, Ship, Aircraft, Amateur, Commercial Operator and GMRS, the General Mobile Radio Services. Actually, there are 13 pages altogether, since hams are also instructed to download Schedule D (one page of instructions and a one-page form), "Information and Instructions for Additional Data in the Amateur Radio Service," only to discover afterward that you only need it if you are applying to change your callsign. But if you *are* applying for a vanity call, you need to pay a fee, which requires filing Form 159 (Remittance Advice), which is another two-page form with three pages of instructions.

Now, down at the bottom of the web page from which you make these selections, you are told that for "simple purposes," "you may retrieve all the necessary forms for the purpose of AU, CA, DU, RO, or WD only with FCC 605FS." Got that? Well, I downloaded this supposedly simplified package … and it was 21 pages long! And it didn't even include Schedule D…

Granted, the FCC will allow you to file online—if you have a computer and internet access—which is not always the case; and both the ARRL and W5YI VECs will process applications for license changes using the much shorter and simpler NCVEC Form 605. W5YI-VEC charges $8 for this service; ARRL provides it free to members and charges $14 to non-members (this service is available for non-vanity renewals as well as address changes and other administrative updates; vanity renewals are also available at higher cost). Considering the complexity of the "do it yourself" approach of dealing directly with the FCC, I would say that these fees are bargains. Make use of these services. You will thank yourself for it.

But the real point here isn't to promote the services provided by our friends at W5YI and ARRL VECs. They shouldn't need to provide these services. Dealing with the FCC on such simple matters shouldn't be so complicated that you need a third party to help you do it. Making a simple change, whether it's an address change (remember, the FCC *requires* that you keep an up-to-date address on file) or a routine renewal, should be simple, whether you are submitting the information online or on paper. Likewise, making it so difficult to know how to properly file a Petition for Rule Making does not show a lot of respect for the Constitution or the people.

Acting FCC Chairman Michael Copps reminded the Commission's staff on his first day in the top spot that the FCC needs to become more responsive to its "stakeholders." One way in which the FCC can accomplish this goal is to make it easier for us stakeholders to deal with the Commission, whether we're asking for a change in the rules or just submitting a change of address. It's time to tame the paper(work) tiger.

New CQ WW Contest Category

The CQ World-Wide DX Contest Committee has decided to create a new competition category, called the Experimenter category. The goal is to encourage participation in the contest by hams who are using technologies that don't currently fit into any of the other categories—such as split-site operation with internet linking. The plaques for the two winners (one SSB, one CW) will be sponsored by Tim Duffy, K3LR, in memory of John Kanzius, K3TUP. Details of the new category can be found in this issue on page 32, and Tim's reminiscences about K3TUP can be found in this month's "Contesting" column on page 106. Thank you to the CQ WW Committee for all of your hard work in developing this new category, and to K3LR for sponsoring the K3TUP memorial plaques. 73, W2VU

*e-mail: <w2vu@cq-amateur-radio.com>

hy-gain® ROTATORS

. . . the first choice of hams around the world!

HAM-IV

The most popular rotator in the world!

HAM-IV
$649.95

For medium communications arrays up to 15 square feet wind load area. *New* 5-second brake delay! *New* Test/Calibrate function. *New* low temperature grease permits normal operation down to -30 degrees F. *New* alloy ring gear gives extra strength up to 100,000 PSI for maximum reliability. *New* indicator potentiometer. *New* ferrite beads reduce RF susceptibility. *New* Cinch plug plus 8-pin plug at control box. Dual 98 ball bearing race for load bearing strength and electric locking steel wedge brake prevents wind induced antenna movement. North or South center of rotation scale on meter, low voltage control, max mast size of $2^{1}/_{16}$ inches.

HAM IV and HAM V Rotator Specifications	
Wind Load capacity (inside tower)	15 square feet
Wind Load (w/mast adapter)	**7.5 square feet**
Turning Power	800 in.-lbs.
Brake Power	**5000 in.-lbs.**
Brake Construction	Electric Wedge
Bearing Assembly	**dual race/96 ball bearings**
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	**8**
Shipping Weight	26 lbs.
Effective Moment (in tower)	**2800 ft.-lbs.**

TAILTWISTER SERIES II

For large medium antenna arrays up to 20 sq. ft. wind load. Available with *DCU-1 Pathfinder* digital control (T2XD) or standard analog control box (T2X) with *new* 5-second brake delay and *new* Test/Calibrate function. Low temperature grease, alloy ring gear, indicator potentiometer, ferrite beads on potentiometer wires, *new* weatherproof AMP connectors plus 8-pin plug at control box, triple bearing race with 138 ball bearings for large load bearing strength, electric locking steel wedge brake, North or South center of rotation scale on meter, low voltage control, $2^{1}/_{16}$ inch max. mast.

T-2X
$799.95

T-2XD
$1229.95
with DCU-1

TAILTWISTER Rotator Specifications	
Wind load capacity (inside tower)	20 square feet
Wind Load (w/ mast adapter)	**10 square feet**
Turning Power	1000 in.-lbs.
Brake Power	**9000** in.-lbs.
Brake Construction	Electric Wedge
Bearing Assembly	**Triple race/138 ball brngs**
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	**8**
Shipping Weight	31 lbs.
Effective Moment (in tower)	**3400 ft.-lbs.**

CD-45II

CD-45II
$449.95

For antenna arrays up to 8.5 sq. feet mounted inside tower or 5 sq. ft. with mast adapter. Low temperature grease good to -30 F degrees. *New* Test/Calibrate function. Bell rotator design gives total weather protection, dual 58 ball bearing race gives proven support. Die-cast ring gear, stamped steel gear drive, heavy duty, trouble free gear train, North center scale, lighted directional indicator, 8-pin plug/socket on control unit, snap-action control switches, low voltage control, safe operation, takes maximum mast size to $2^{1}/_{16}$ inches. MSLD light duty lower mast support included.

CD-45II Rotator Specifications	
Wind load capacity (inside tower)	8.5 square feet
Wind Load (w/ mast adapter)	**5.0 square feet**
Turning Power	600 in.-lbs.
Brake Power	**800 in.-lbs.**
Brake Construction	Disc Brake
Bearing Assembly	**Dual race/48 ball brings**
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	**8**
Shipping Weight	22 lbs.
Effective Moment (in tower)	**1200 ft.-lbs.**

HAM-V

HAM-V
$1099.95
with DCU-1

For medium antenna arrays up to 15 square feet wind load area. Similar to the HAM IV, but includes *DCU-1 Pathfinder* digital control unit with gas plasma display. Provides automatic operation of brake and rotor, compatible with many logging/contest programs, 6 presets for beam headings, 1 degree accuracy, auto 8-second brake delay, 360 degree choice for center location, *more!*

ROTATOR OPTIONS

MSHD, $99.95. Heavy duty mast support for T2X, HAM-IV and HAM-V.
MSLD, $39.95. Light duty mast support for CD-45II and AR-40.
TSP-1, $34.95. Lower spacer plate for HAM-IV and HAM-V.

AR-40

AR-40
$349.95

For compact antenna arrays and large FM/TV up to 3.0 square feet wind load area. Dual 12 ball bearing race. Automatic position sensor never needs resetting. Fully automatic control -- just dial and touch for any desired location. Solid state, low voltage control, safe and silent operation. $2^{1}/_{16}$ inch maximum mast size. MSLD light duty lower mast support included.

AR-40 Rotator Specifications	
Wind load capacity (inside tower)	3.0 square feet
Wind Load (w/ mast adapter)	**1.5 square feet**
Turning Power	350 in.-lbs.
Brake Power	**450 in.-lbs.**
Brake Construction	Disc Brake
Bearing Assembly	**Dual race/12 ball bearings**
Mounting Hardware	Clamp plate/steel bolts
Control Cable Conductors	**5**
Shipping Weight	14 lbs.
Effective Moment (in tower)	**300 ft.-lbs.**

HDR-300A

HDR-300A
$1499.95

For ***king-sized*** antenna arrays up to 25 sq.ft. wind load area. Control cable connector, *new* hardened stainless steel output shaft, *new* North or South centered calibration, *new* ferrite beads on potentiometer wires reduce RF susceptibility, *new* longer output shaft keyway adds reliability. Heavy-duty self-centering steel clamp and hardware. Display accurate to 1°. Machined steel output.

HDR-300A Rotator Specifications	
Wind load capacity (inside tower)	25 square feet
Wind Load (w/ mast adapter)	**not applicable**
Turning Power	5000 in.-lbs.
Brake Power	**7500 in.-lbs.**
Brake Construction	solenoid operated locking
Bearing Assembly	**bronze sleeve w/rollers**
Mounting Hardware	stainless steel bolts
Control Cable Conductors	**7**
Shipping Weight	61 lbs.
Effective Moment (in tower)	**5000 ft.-lbs.**

Digital Automatic Controller

DCU-1
$749.95

Automatically controls T2X, HAM-IV, V rotators. 6 presets for favorite headings, 1° accuracy, 8-sec. brake delay, choice for center of rotation, crisp *plasma* display. Computer controlled with many logging/contest programs.

AR-35 Rotator/Controller

AR-35
$89.95

For UHF, VHF, 6-Meter, TV/FM antennas. Includes automatic controller, rotator, mounting clamps, mounting hardware. 110 VAC. One Year Warranty.

RBD-5
$29.95

NEW! Automatic Rotator Brake Delay

Provides automatic 5-second brake delay -- insures your rotator is fully stopped before brake is engaged. Prevents accidentally engaging brake while rotator is moving. Use with HAM II, III, IV, V, T2Xs. Easy-to-install. Includes pre-assembled PCB, hardware.

http://www.hy-gain.com
Nearest Dealer, Free catalog, To Order . . .
800-973-6572
Voice: 662-323-9538 **Fax:** 662-323-6551

hy-gain®

Antennas, Rotators & Towers
308 Industrial Park Road,Starkville, MS 39759, USA

announcements

• The following Special Event stations are planned for June:

W2CXV, from Normandy Invasion (D-Day) and Museum Ships Weekend, USAT LT-5, Oswego, NY; Fulton ARC; 1400–2100Z June 6 on SSB ± 7.265, 14.265, 18.165, 21.365, 24.965, 28.365 MHz; 147.15 FM repeater. For QSL send QSL and SASE to Redd Swindells, AI2N, 134 East Seneca St. Oswego, NY 13126. <http://wwwfultonhamradioclub.org/>

NC4ZO, from North Carolina Aviation Museum annual Fly-in and War Bird Display, Ashboro, NC; 1400–2000Z June 6 on 21.350, 14.260, 7.250 all ±QRM. For QSL send QSL and SASE (DX send QSL, SAE, and 1 IRC); for certificate send QSL and 9 × 12 SASE (DX send QSL, 9 × 12, SAE, and 2 IRCs): Butch Simpson, WS4H, 6747 King Mtn. Rd., Ashboro, NC 27205.

W5HUM, from Lum and Abner radio program commemoration, Mena, AR; Ouachita ARA; 9 AM to 6 PM June 5 & 6 on ± 3.973, 7.273, 14.273, 28.373 MHz. For certificate send QSL and SASE to Don Thomas, W5RPC, 309 First St., Mena, AR 71953.

N6R, from commemoration of the lives of President and Mrs. Ronald Reagan, grounds of the Pres. Ronald Reagan Presidential Library & Museum, Simi Valley, CA; Ventura County ARS, Simi Valley ARC, Ventura County ARC; 1800Z June 26 to 1900Z June 28 on 7.289, 14.289, 21.289, 28.369 MHz (other bands planned 3.5, 50, 144, 440 MHz and 10 GHz). Send QSL and SASE to Ventura Co. ARS, c/o Peter Heins, 1559 Norwich Ave., Thousand Oaks, CA 91360. <www.vcars.org>.

KØKBX & WØYL, celebrating 96 years on the Transcontinental Lincoln Highway; Story County ARC, Colo, IA, WØYL, and Benton County ARC, Watkins, IA, KØKBX; 1400–1800Z June 13–14 on 14.275, 7.250, 3.875. For certificate send QSL and SASE to Dave Lucas, 4264 Highway 13, Central City, IA 52214. <www.w0yl.com>

VE3MIS, from Annual Streetsville Bread & Honey Festival, Mississauga, ON, Canada; Mississauga ARC; 1400–2000Z June 6 & 7 on 28.480, 21.315, 14.240, 7.230 MHz. For certificate send QSL and $2US for postage to MARC, c/o Michael Brickell, VE3TKI, 2801 Bucklepost Cres, Mississauga, ON, Canada L5L 1M6. <http://www.marc.on.ca/>

• The following hamfests, etc., are slated for June:

June 5, 6, & 7, **SEAPAC**, ARRL Northwestern Division Convention, Seaside Convention Center, Seaside, OR. Contact Will Sheffield, N7THL, phone 503-642-7314, e-mail: <n7thl@arrl.net>; <www.seapac.org>. (Exams)

June 6, **Atlanta Hamfest**, Jim R. Miller Park, Marietta, GA. Go to: <http://www.atlantahamfest.com>. (Talk-in 146.820[–] PL 146.2 Hz; exams)

June 6, **Good Old Days Hamfest**, Hudsonville Fairgrounds, Grand Rapids, MI. Contact Don at 616-532-7769 after 4 PM EDST; e-mail: <andrews_don@juno.com>; <www.w8hvg.org>. (Exams 9 AM)

June 7, **Hall of Science ARC Hamfest**, New York Hall of Science parking lot, Flushing Meadow, Corona Park, LI, NY. Contact Stephen Greenbaum, WB2KDG, 718-898-5599 eveings only; <www.hosarc.org>. (Talk-in 444.200, PL 136.5, 145.270 –600 kHz PL 136.5; exams 10 AM)

June 13, **Knoxville Hamfest & Electronics Exposition and ARRL Tennessee State Convention**, Kerbela Temple, Knoxville, TN. Contact Lou Dreinhoefer, WB3JKQ, e-mail: <wb3jkq@arrl.net>, or David Bower, K4PZT, e-mail: <d.bower@ieee.org>; <http://www.W4BBB.org>. (Talk-in 147.300, 224.500, 444.575; exams)

June 14, **Manassas Hamfest**, Prince William County Fairgrounds, Manassas, VA. Contact Chris, KI4POT, e-mail: <KI4POT@gmail.com>; <http://www.w4voh.net>. (Talk-in 146.97–, 224.660–, 442.200+; exams contact KG4GIY at <kg4giy@arrl.net>)

June 20, **W2QW Hamfest**, Piscataway High School, Piscataway, NJ. Contact Eric, 908-251-3938; <www.w2qw.org>. (Talk-in 146.520, 146.625 PL 141.3, 442.250 PL 141.3)

June 20, **2009 Midland Hamfest**, Midland Salvation Army Bldg., Midland, MI. Contact Pat Mullet, KC8RTW, e-mail: <kc8rtw@arrl.net>, phone 989-828-6657; <http://www.qsl.net/w8kea>. (Talk-in 147.00+; exams)

June 21, **Six Meter Club of Chicago Hamfest**, DuPage County Fairgrounds, Wheaton, IL. Information: Call 708-442-4961; e-mail: <WD9GJK@arrl.net>; <www.k9ona.com>. Talk-in 146.52, 146.37/97 [107.2]; exams 9–11 AM)

June 21, **Ham Radio, Computer & Electronics Fleamarket at MIT**, Albany & Main Streets, Cambridge, MA. More information call 617-253-3776 (9–5 M–F); <www.swapfest.us>. *The event will also be held July 19, Aug. 16, Sept. 20, and Oct. 18.*

June 21, **Monroe Hamfest**, Monroe County Fairgrounds, Monroe, MI. Contact Fred VanDaele, KA8EBI, e-mail: <ka8ebi@yahoo.com>; phone 734-242-9487 after 5 PM; <www.mcrca.org/hamfest.htm>.

CQ Amateur Radio (ISSN 0007-893X) Volume 65, No. 06. Published monthly by CQ Communications, Inc., 25 Newbridge Road., Hicksville, NY 11801, Telephone 516-681-2922. E-mail: cq@cq-amateur-radio.com. Fax 516-681-2926. Web site: www.cq-amateur-radio.com. Periodicals Postage Paid at Hicksville, NY 11801 and at additional mailing offices. Subscription prices (all in U.S. dollars): Domestic-one year $36.95, two years $66.95, three years $96.95; Canada/Mexico-one year $49.95, two years $92.95, three years $135.95: Foreign Air Post-one year $61.95, two years $116.95, three years $171.95. U.S. Government Agencies: Subscriptions to CQ are available to agencies of the United States government including military services, only on a cash with order basis. Requests for quotations, bids, contracts., etc. will be refused and will not be returned or processed.

Allow six weeks for change of address.

Printed in the U.S.A.
POSTMASTER: Send address changes to:
CQ Amateur Radio, 25 Newbridge Rd., Hicksville, NY 11801

Did You See It?

Demo CD available: virginia@flex-radio.com

- **Two Displays... One Screen**
- **See the weak ones before you hear them**
- **Point click tuning (faster than tuning with a knob)**
- **Find that clear frequency during split-operation**
- **Hop on the frequency of the last station heard in a flash**
- **See who is splattering and who is not**

See it, work it, log it...
On your FlexRadio.

Tune in Excitement.™

FLEX-5000

HF-6m Transceiver

FLEX-3000

HF-6m Transceiver

Order Now!

www.flex-radio.com
sales@flex-radio.com 512-535-5266

FlexRadio Systems®
Software Defined Radios

You can't escape the magic of ham radio ... even off the air and half a world away from home. Here's W1FK's "only in ham radio" story, along with a look at the nascent rebirth of organized amateur radio in Jordan.

"This is Jordan calling, Juliet Yankee Six Zulu Zulu"

An American Ham On the Air from JY6ZZ

C. STEWART GILLMOR,* W1FK

My wife and I recently toured Egypt and Jordan. After visiting Cairo, Luxor, and the sites of the earliest Christian Coptic monasteries of St. Paul and St. Anthony, we left western Egypt on a ship and went from the Gulf of Suez across the Red Sea into the Gulf of Aqaba to St. Catherine's monastery in the Sinai, and then north to the southern border of Jordan and the port of Aqaba. This is truly an interesting spot. This Jordanian port is only a half mile from Eilat, Israel, the Egyptian Sinai, and only a few more miles from Saudi Arabia. It's less than 150 miles from Aqaba north to Amman, the capital city of Jordan. About three-million people (half the population of Jordan) live in metropolitan Amman.

As one drives north up the valley from Aqaba to the Dead Sea and Amman, one comes close to Petra, the ancient hidden city, a UNESCO World Heritage Site (photo A). Petra was first inhabited sometime between the 10th and the 6th centuries B.C. It is a fantastic collection of tombs carved into the cliff rockfaces and the tombs go on literally for miles. Petra was settled by Nabateans, and later was under Hellenistic Greek and then Roman control.

While we were having lunch at Petra with Ibrahim, our guide, I asked him if he knew that one of the world's most famous ham radio operators was the late King Hussein of Jordan (1935– 1999), whose ham call was JY1. *CQ* recently remembered King Hussein and his operating station of Drake and Heathkit gear (*CQ*, November 2008, page 84).

When I mentioned King Hussein, Ibrahim replied that he himself had wanted to become a ham for some years and that he was just about to visit the Royal Jordanian Radio Amateurs Society to begin his application for a license. In fact, he said, one of his good friends, Majdi, JY5DE, was going to be at Petra that very day. Ibrahim called Majdi on his cell phone. Unknown to us, Majdi was only 50 feet away

*29 Spencer Road, Higganum, CT 06441-4034
e-mail: <sgillmor@wesleyan.edu>

Photo A– One of the elaborate tombs carved into the face of a cliff in Petra, Jordan, a UNESCO World Heritage Site. It was during a tour stop here that W1FK got connected to ham radio in Jordan. (Photos by Rogene Gillmor)

Photo B– The author (left) with Majdi, JY5DE, whom he met on a tour in Petra.

Photo C– The author's tour guide (and prospective ham) Ibrahim at left, W1FK (center), and JY5DE outside the headquarters of the Royal Jordanian Radio Amateurs Society in the capital city of Amman.

and began jumping up and down when he heard an American ham was with Ibrahim. Majdi's English tourists wondered why he suddenly became so excited. Of course, we walked right over and met Majdi (photo B) and made plans to visit the Royal Jordanian Radio Amateurs Society when we got to Amman.

The night before we left Jordan to return to the U.S., Ibrahim drove my wife and me to the radio society building in central Amman, located adjacent to a huge sports complex with soccer stadium and athletic arenas (photos C and D). There, we were warmly greeted by Majdi and invited in for tea, coffee, cakes, and cookies. Majdi sat me down in front of an ICOM

Photo D– The Royal Jordanian Radio Amateurs Society building and antennas for club station JY6ZZ.

Photo E– The author (right) with Majdi, JY5DE, at JY6ZZ. The station saw very little activity after the death of King Hussein, JY1, in 1999, and has only recently been reactivated as Jordanian hams try to revitalize their society and amateur radio in the country.

Photo F– Additional visitors to JY6ZZ. From left: Rafiq, JY4CI; the author; Majdi, JY5DE; and visiting Saudi ham Elias, HZ1EJ.

The next best thing to a Ten-Tec transceiver...

HIGH POWER TUNER

Superior matching capability with an L-network tuner assures correct match every time. 2000 watts CW or SSB PEP power rating. ARRL rated as the lowest insertion loss tuner available, QST February 2003. 3 year parts/labor warranty. **$649**

CENTURION LINEAR AMPLIFIER

In its 20th year, this proven dual 3-500ZG design busts the pileups but won't bust your wallet. Peak reading wattmeter and QSK standard. Easy to use and tune-up. **$3195**

TAPR VECTOR NETWORK ANALYZER

Use it to test low power amplifiers, characteristics of coax cables, measure and adjust filters, check antenna impedance vs. frequency, antenna SWR, even measure the length of transmission lines using TDR feature. **$655**

715 RF SPEECH PROCESSOR

High performance true RF-type speech processor. RF speech processing is a superior system to the processor found in a typical HF transceiver for achieving the highest ratio of average-to-peak power from SSB transmitters. **$249**

963 POWER SUPPLY

Hash-free switching design. 13.8 Vdc at 25 amps continuous, 30 amps peak. Small, lightweight (4 lbs!), 90-264 VAC, 50/60 Hz input make 963 usable from just about anywhere. **$169**

307B SPEAKER

External front-firing communication speaker, black cosmetics match current Ten-Tec HF transceivers. Cabinet and large 4-inch speaker designed specifically for Amateur Radio use. **$98**

302R REMOTE ENCODER/KEYPAD

Armchair tuning and direct frequency entry for your Omni-VII, Orion/Orion II, and Jupiter HF transceiver. Function buttons allow control of some radio features. **$139**

310 FAN KIT

Hole-free allen screw attachment to transceiver heart sink. 13.8 Vdc powered. Use with Orion/Orion II, all Omni, Paragon, Jupiter, Pegasus, Corsairs, Tritons. **$39.95**

3003 ACRO-BAT ANTENNA HANGER

Unbreakable polycarbonate. Not affected by UV. Ladder line or RG58/RG8X coax fed antennas. **$9.95**. Save with a discount 4 pack for only **$32!**

...is a Ten-Tec accessory!

709/709A MICROPHONE, 711 STAND

Omni-directional dynamic microphone for Amateur Radio and other transmitting applications. Die-cast zinc shell, slider PTT switch, cable. 30 Hz to 12 kHz frequency response. **$69**. 711 stand for 709/709A, **$15**

708/708A DELUXE DESK MIC

Omni-directional dynamic microphone for Amateur Radio and other transmitting applications. 3 position PTT switch with TX, OFF, and LOCK, flexible metal gooseneck, ball-type element housing. 30 Hz to 12 kHz frequency response. **$99**

316 USB/SERIAL CONVERTER

For communicating with serial-equipped devices like Ten-Tec HF transceivers from PC's that have only USB ports. Converter and drivers included. **$19.95**

www.tentec.com

TEN-TEC

The SSB Company

1185 Dolly Parton Pkwy., Sevierville, TN 37862. Sales: 800-833-7373 M-F 8:00-5:30 (Eastern Time) sales@tentec.com. Office: (865) 453-7172. FAX: (865) 428-4483.
Service: (865) 428-0364 M-F 8:00-5:00 (Eastern Time), service@tentec.com. We accept Visa, MC, American Express and Discover.

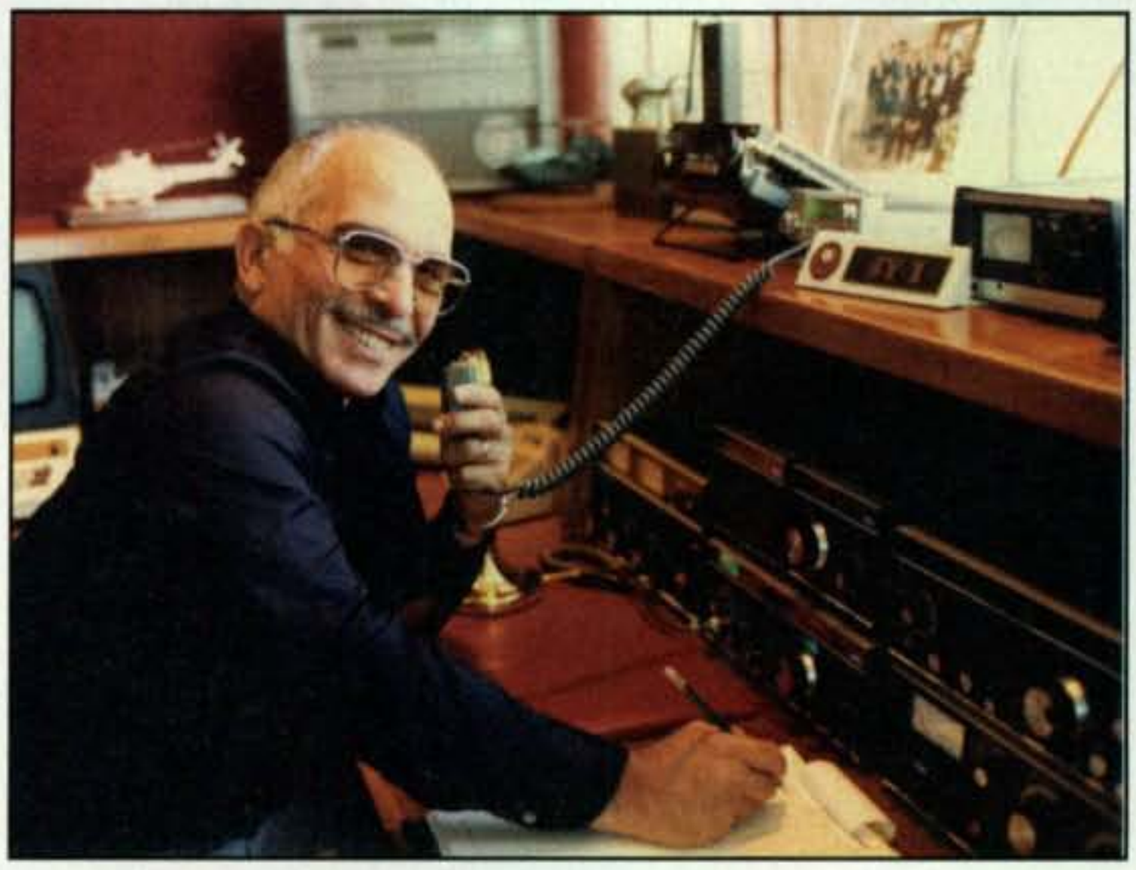


Photo G– A photograph of the late King Hussein, JY1, at the mic of his personal station. (Photo courtesy of Majdi, JY5DE)

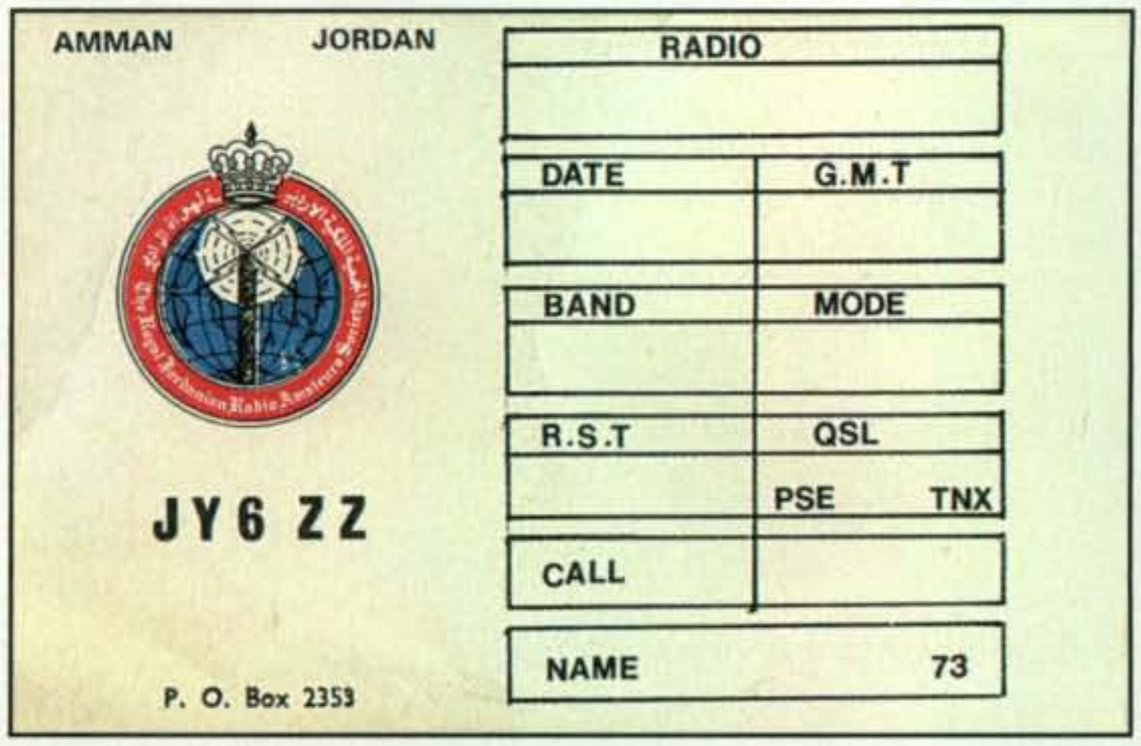


Photo H– JY6ZZ QSL card. The club station first went on the air in the 1970s and is now active again after a nearly complete absence from the ham bands for the past decade.

751 connected to a TH7 beam and said, "You're on 14.268 sideband. Call CQ from Juliet Yankee Six Zulu Zulu" (photo E). I did so and was soon in a pile-up! A little later, we were joined by Rafiq, JY4CI, and Elias, HZ1EJ, who were visiting from Saudi Arabia (photo F).

Majdi and Rafiq explained that the club became inactive after the death of King Hussein in 1999 (photo G) and is currently being re-established. Prince Ra'aid, JY2RZ, is president of the amateur radio society. There are some 250 licensed hams in Jordan, but at present only about 50 are active. Their general secretary, Mohammed Balbisi, JY4MB, passed away only three weeks before our visit, and his death will be a great loss to Jordanian ham radio, as JY4MB had been a stalwart supporter of ham radio for many years.

The club call, JY6ZZ, was issued in the early 1970s (photo H). One memorable radio event in Jordan was in 1975, on King Hussein's 40th birthday, when the special call JY40 was used. Plans for re-establishing the society aim to seek out new members, especially Jordanian youth.

It was certainly a pleasure for my wife and me to visit the Royal Jordanian Radio Amateurs Society and its club station, JY6ZZ. I was pleased to make several new ham friends. Ham radio continues to be an example for world friendship.

If you're taking advantage of bargain airfares to travel to Europe, consider visiting Friedrichshafen, Germany at the end of June for Europe's biggest hamfest.

Friedrichshafen: The World's Most Interesting Hamfest?

BY TOM PERERA,* W1TP

The Dayton Hamvention® is unquestionably the greatest of all hamfests, but after attending and selling at Dayton and at many hundreds of other hamfests during my 55 years as a ham, I finally decided to visit Europe's largest hamfest. "Ham Radio" in Friedrichshafen, Germany (photo 1), turned out to be an absolutely fascinating experience. It was unlike any hamfest that I had ever visited. Thousands of enthusiastic hams had come from all over the world and there was electricity in the air. The hundreds of flea-market tables were stacked high with a variety of radio equipment that I had never seen in all my years of hamfesting. After my first trip I was fascinated, and now I go there every year.

It is held at the end of June each year (this year it is June 26–28) in a huge complex of buildings at the airport in a lovely German town called Friedrichshafen, which is located in southern Germany on the shore of Lake Constance. Getting there is not difficult, with direct air flights, train connections, and easy rental car access.

As with most large hamfests, there is a setup day on Thursday, when dealers can prepare their tables for the huge crowds—usually numbering over 18,000. Friday is quite busy with perhaps 5000 to 7000 people attending. Saturday is the biggest day, but many of the bargains in the flea market are gone by that time. Many flea-market dealers close down early on Sunday.

The hamfest is divided into four major areas:

1. Commercial exhibits and dealers: All of the major amateur radio equipment manufacturers set up large exhibits to showcase their latest offerings (photo 2). Well-informed sales and technical staff stand by to answer questions in virtually any language. Free brochures describe the technical details of their equipment. Many European dealers and manufacturers set up displays that never appear at the American hamfests, and just spending time at their tables provides glimpses of a product assortment that is unique and fascinating.

2. Ham Radio Clubs and Organizations and Country Exhibits: All of the world's major ham radio clubs set up well-staffed tables and offer numerous handouts describing their activities and enticing passing hams to sign up. The Deutscher

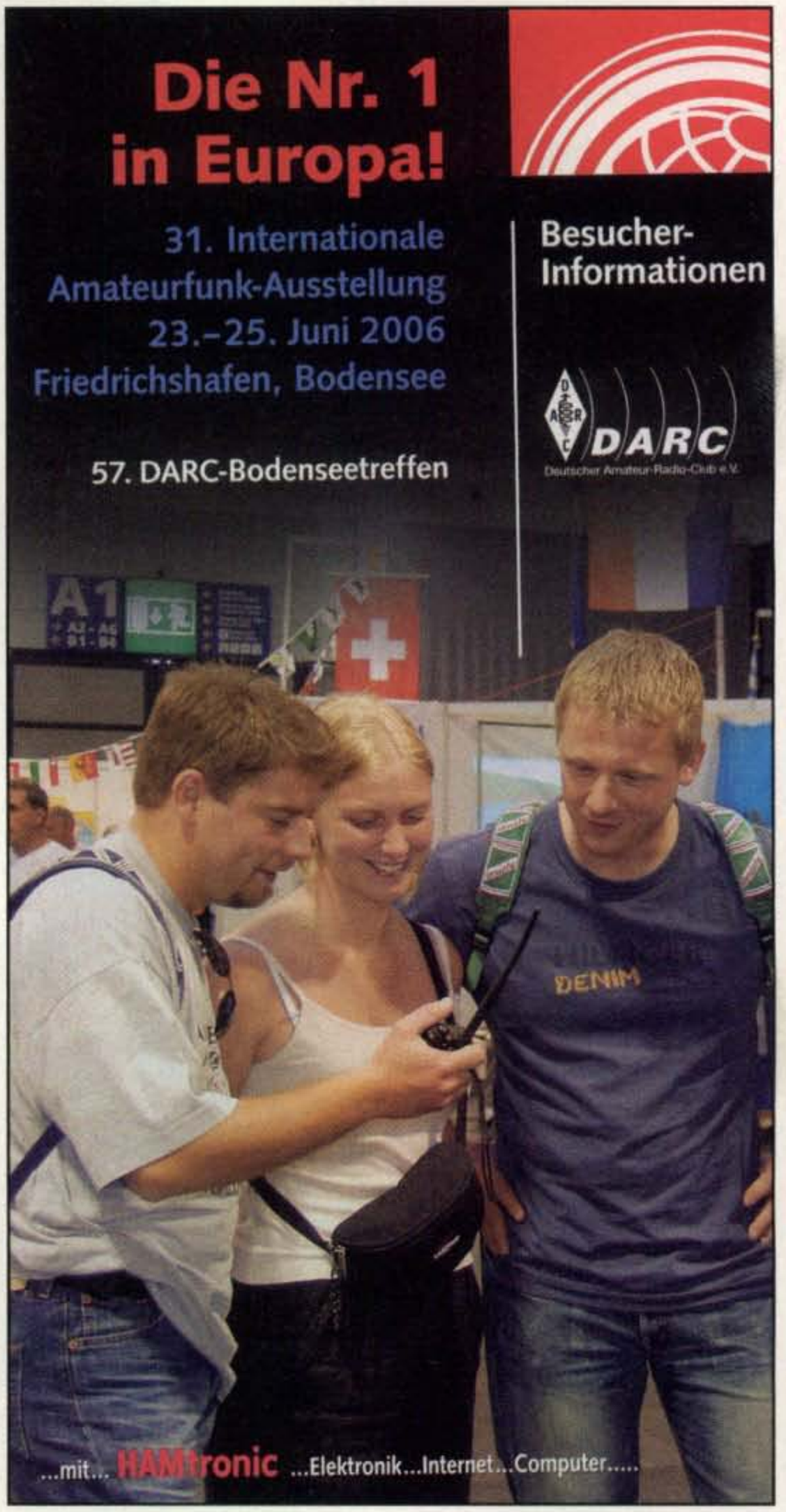


Photo 1– "Ham Radio" is Europe's biggest hamfest. The brochure (this one is from 2006) is available in German, English, and Japanese.

Amateur Radio Club (DARC), Germany's national ham radio organization, sponsors and organizes the hamfest. It is joined by other huge clubs such as the ARRL, RSGB (Radio Society of Great Britain) and the JARL (Japan Amateur Radio League). Many smaller clubs that highlight specific countries and DX destinations host tables and give away souvenirs of their countries. They all have lists of the repeater frequencies in use in

* *e-mail: <tom@w1tp.com>*

Photo 2– A view of the main commercial exhibition hall showing the numerous antennas being offered for sale. (Photos 2 through 9 by the author)

Photo 3– European hams seem to appreciate old radios nearly as much as they appreciate military and more recent electronics, so the flea market is an antique radio collector's bonanza. The rows of tables filled with old radios, speakers, microphones, and parts seemed to stretch on forever in the flea-market aisles.

their countries and will help you plan a mobile trip, a DX-pedition, or just a lovely vacation.

3. Meeting Rooms for Seminars: Just about every minute of the hamfest is filled with interesting seminars, discussions, and lectures on a wide-ranging selection of topics of interest to hams. Some are given in English and others are a great place to practice your German.

Photo 4– Virtually every German WW II radio used during the war was being offered for sale at tables in the flea market. Most were in good condition and some had original manuals.

4. The Flea Market: For most Americans, the flea market is the most interesting, dramatic, and unusual part of the hamfest. The variety of equipment offered is the best I have ever seen (photos 3 through 5). Much of the German WW II and Russian Cold War surplus equipment is worth the trip just to be able to see it and turn the dials. The prices generally are well below what you might expect given the historic value of the items.

A surprising amount of American surplus military radio equipment is also found at very reasonable prices. For example, last year a dealer was offering a 50-gallon barrel filled with PRC-6 walkie-talkies at $10 each and by the end of the hamfest they were down to $5 each. That is the same price I paid for those historic American BC-611 walkie-talkies on Radio Row in New York City in 1953! American Collins and other military and ham equipment is also well represented.

CW is extremely popular in Europe. For CW enthusiasts or people who are interested in the history of telegraphy and radio telegraphy there are always at least 200 to 300 telegraph keys offered on various tables. They range from the beautiful and very early European land-line instruments through military instruments from all wars, right up to the most modern paddles and keyers being made by artisans in various countries (photos 6 and 7). With just a few hundred dollars to spend, you could assemble a world-class historic exhibit of the evolution of telegraphy. In fact, you could do the same for the evolution of wireless and radio communications in many of the countries of the world simply by buying the offerings on various tables.

Operating Your Radios at the Hamfest

The CEPT agreement allows many U.S.-licensed hams to operate their radios with no need for additional authorization (see the article "Traveling to Europe? Don't Forget Your HT!" elsewhere in this issue). All you need to have is your original ham license and a copy of the CEPT agreement, which can be downloaded from the <www.arrl.org> website. You will find lots of hams working simplex frequencies and transmitting on the local repeaters.

Remember that the voltage in Germany is 220 volts AC and that you will need a round pin adapter in order to plug your chargers and equipment into the 220-VAC wall sockets. Check that your equipment will work on 220 volts or purchase an inexpensive converter. Much of the equipment you may buy at the hamfest is wired to accept 220 volts, but many units can be

Photo 5– The complete instrument panel from a German WW II fighter airplane was for sale on one of the tables in the flea market.

Photo 6– The author closes the deal on a very early European embossing Morse register that inscribed Morse characters on a moving paper tape.

rewired or jumpered to accept 110 volts and many have dual-voltage power supplies.

Language

The prevailing language is German, with many British, Italian, and former Soviet countries represented. Virtually every dealer and ham speaks at least some English, though, so there is never a problem being understood. However, some of the heavy accents may make it difficult to understand an exact price of an item. I always carry a pad and pencil on which to write down the prices I am willing to pay for an item. Bargaining sometimes involves the dealer crossing out my offer and writing his, which I then cross out and write mine, and so on until we meet at an agreeable price. It is just like any other flea market in this respect, and bargaining is expected and usually very successful—especially toward the end of the hamfest. A pocket-size English-German-English dictionary will probably come in handy.

Food

The food at the Friedrichshafen hamfest is extraordinary. Many strategically placed kiosks offer a wide variety of tempting

snacks, beers, pastries, and ice cream creations. In addition, chefs begin heating huge vats of *schupfnudeln* at dawn each day (photo 8). By lunchtime, this dish—dating back to the 17th century and consisting of special noodles, sauerkraut, and meat—is cooked to a fragrant and crisped perfection (photo 9). A plate of these *schupfnudeln*, a sausage or wurst, and an interesting local beer make it difficult to decide whether to curl up for a nap or run out to the next row of flea-market tables.

Money

The currency accepted by all of the dealers and concessions is the Euro, although some dealers will accept U.S. currency at an appropriate exchange rate. The value of the Euro against the U.S. dollar varies. Probably the best exchange rates are obtained by using ATM machines, which are everywhere. Banks vary greatly in the exchange rates they offer. It can take a lot of hunting to find one with a favorable rate, and even the best bank rate is usually not as good as the ATM rate.

Where to Stay

There are many options when it comes to choosing a place to stay. There is a huge camping area adjacent to the hamfest where thousands of enthusiastic ham clubs, families, and individuals from all over the world set up their tents and an incredible variety of innovative and impressive antennas. They socialize, operate on the ham bands, and cook ethnic foods throughout the meet. I camped in this area for several years, sleeping in a rented car, but when my wife surprisingly offered to accompany me to enjoy the lovely town and lakeside location, we started staying in a small local hotel, rewarding her patience by taking her climbing in the high Swiss Alps, which are only a few hours' drive from the hamfest. Links to the hamfest activities and the hotels are listed on the website: <http://www.hamradio-friedrichshafen.de/html/en/index.php>.

Photo 7– All kinds of telegraph keys were being offered for sale. Each one was hooked up to an oscillator so you could try its action.

Other Local Attractions

The beautiful town of Friedrichshafen is situated on the shore of Lake Constance. Strolling along the paths bordering the lake and stopping in the many shoreside restaurants, pizza parlors, and ice cream concessions can be very relaxing after a busy day at the hamfest. On Saturday evening there is an international food festival with food, music, and dancing from many lands. Watch out for the Brazilian punch, though, as it is made with a surprising amount of alcohol. The Zeppelin Museum traces the history of the huge lighter-than-air craft called Zeppelins, which were designed by Count Zeppelin and then made in the local factory. The museum chronicles the history of the Zeppelins right up to the present and showcases the newest airships now in production.

Summary

All in all, if you're looking for a different sort of hamfest and your budget can support a trip to Europe (there are a lot of airfare bargains out there right now), then a visit to Ham Radio in Friedrichshafen at the end of June can be a tremendously rewarding experience.

Photos 8 & 9– Schupfnudeln, a mixture of noodles, sauerkraut, and meat, is one of the specialties served at Friedrichshafen. Cooks start preparing it early each morning so it's ready to serve at lunchtime!

ALINCO

ALINCO's NEW DJ-175

BIG things in a small package!

Big Power, Big Features and Big Convenience that all fits in the palm of your hand!

Alinco's new 2 meter HT is setting new standards with it's ergonomic "user friendly" design, alphanumeric display for easy memory management, and it's 5 watt output battery as a standard feature! Be ready for virtually any selective calling situation, or repeater access with 39 CTCSS tone squelch--encode and decode, 104 DCS, Tone Bursts, and DTMF encoder all included at no additional cost.

Optional Accessories

- EBP-71 Li-ion 7.4 v 1200 mAh battery pack,
- EDC -164 Li-ion charger.
- EME-12A Speaker Headset with VOX
- EME-13A Earphone Headset with VOX
- EMS-59, EMS-47 Speaker/Microphone
- EME-15A Tie Pin Microphone with VOX
- EME-21A Heavy Duty Earphone Microphone
- EME-23A Earphone Microphone
- EME-6 Earphone
- ESC-49 Soft Case
- ERW-4C/serial Computer interface cable
- ERW-7/USB Computer interface cable.

Standard Features

- TX 144-147.995 MHz RX 136-173.995 MHz
- Rugged polycarbonate body
- Highly visable backlit display
- Direct frequency input through illuminated keypad
- 200 Memories plus 1 CALL channel
- VFO, Memory and Scan modes
- Ultra flexible SMA antenna
- Two prong mic jack
- Wire-cloning capability
- 3 Levels of output power 5 watts, 2 watts, 0.5 watts
- Clean, crisp and loud 500mW audio

Standard Accessories

- EBP-72 Ni-MH 7.2 v 700 mAh battery
- EDC-165 Trickle charger
- EA-141 Flexible whip antenna

Dimensions: 2.28"(w) x 4.23"(h) x 1.43"(d) and weighs just 8.7 oz. with standard battery and antenna attached

www.ALINCO.com

Distributed in North America by Ham Distributors, 1775 North Loop 336 East, Ste. 8, Conroe, Texas 77301 • Phone: 936-649-1497 • Fax: 800-824-3128 • email: USrep@Hamdistributors.com

One of the silver linings to the clouds of the current economy is that there are some great travel bargains available. If Europe is in your travel plans this summer, DJØQN says remember to bring a ham rig…

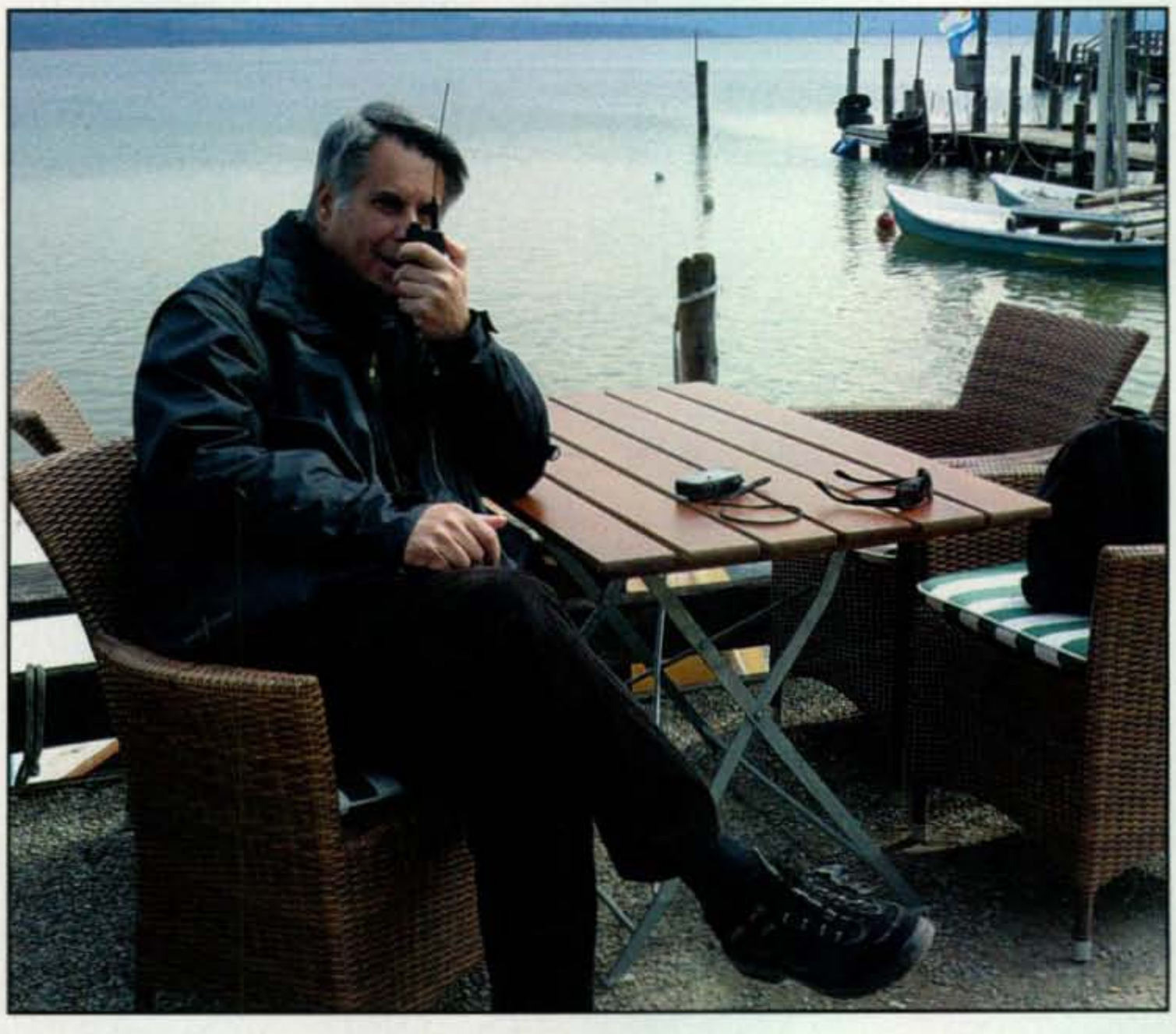
Traveling to Europe? Don't Forget Your HT!

BY MITCH WOLFSON,* DJØQN/K7DX

It has always surprised me to speak to American hams who have visited Europe but did not bring along any rigs to enjoy their hobby. When I ask them why, they usually answer that they were not aware of how the reciprocal licensing works and sometimes mention that they expected a hassle to bring their equipment. One time someone told me that he had visited several Mediterranean countries, including Greece and Turkey, on a cruise. He told me that he did not want to bother with the licensing hassle and was surprised when I told him that none of the countries he visited required extra permission to operate. This guy missed a great, once-in-a-lifetime opportunity!

I think that so many have read articles about DXpeditions and their accompanying customs horror stories that they associate the rest of the world outside the U.S. with these hassles. However, that is not the case in the European Union (EU). Therefore, to clear up these misconceptions and encourage more hams to be active on the air during their trips to Europe, I wrote this article to provide you with more background and to offer some tips on traveling to Europe and some European territories throughout the world.

I have been living in Munich, Germany for over 30 years and have traveled extensively on business and pleasure throughout Europe and beyond during this period. I almost always take at least one HT with me, which has allowed me to meet many people whom I otherwise never would have met. Some QSOs have turned into eyeball QSOs, and if I was lucky, I was able to attend club meetings of local amateurs that I otherwise never would have known about.



The author at Lake Amersee near Munich. He can work the Echolink repeater on the Olympic Tower with his HT from there … and he says you can, too! (Photo courtesy of the author)

Under the European Union, Europe has become much closer to what you are used to in the United States. There are currently 27 EU member countries, of which 15 of the EU member countries plus Monaco, Vatican City, and San Marino use the same currency, the Euro.[1] The border controls between many European countries have either been torn down or there are plans to do so.[2] You can now travel by car or plane from Finland to Portugal without passing through a single passport or customs control, much like crossing state lines in the U.S. Once you enter an EU country, you have already passed pass-

*Furtweg 18d, 85716 Unterschleissheim, Germany
e-mail: <dj0qn@arrl.net<
website: <http://www.mydarc.de/DJ0QN>

port control and customs for the entire EU, similar to entry at any port within the United States.

CEPT Recommendation T/R 61-01

The magic word here for operating ham radio is the European Conference of Postal and Telecommunications Administrations (CEPT) Recommendation T/R 61-01[3], which is the basis for reciprocal licensing across the European region, as well as reciprocal acceptance by some non-CEPT member countries outside of Europe. Starting in 1985, the list of countries accepting the agreement has grown, and the recommendation has also been modified to eliminate the Morse Code requirement.

CEPT Recommendation T/R 61-02[4] defines standards and a certificate for amateur radio classes and an examination syllabus using the "Harmonised Amateur Radio Examination Certificate" (HAREC). There have been recent changes to consolidate the three previous CEPT licenses: 1 and 2 into a single CEPT license class plus Class 3 into a Novice Class. This single license class now provides all HF and VHF privileges. The new Novice Class has not been implemented in many countries yet.[5]

There is one big caveat, though. On February 4, 2008, the CEPT changed its acceptance level of U.S. licenses. Only the Extra and Advanced Class licenses are now recognized as the basic CEPT Class, with full HF and VHF privileges. The General Class is considered the equivalent of the CEPT Novice license, and you should check the link provided to determine if the country you will visit offers a Novice license. The Technician Class license no longer has any CEPT equivalency. In addition, some countries do not recognize code-free licenses for any class for HF operation. Thus, if you are a code-free Extra, you also need to check first if you plan to operate on HF.[6]

What this means for you is simple: As long as you meet the licensing requirements above, all you need to operate in any country you plan to visit that is on the list in Table I is to carry your license plus a supporting document that states your equivalent CEPT license class. You can print this document, FCC Public Notice DA 99-2344, from the ARRL website[7] and should carry this with you along with your FCC license during your travels. Although I personally have never had to show either my German or American license to anyone, I would recommend following this procedure.

Most of the CEPT member countries have signed the CEPT Recommendation T/R 61-01, allowing amateur radio to be used in their country and some territories without any further permission. Although The U.S. and Canada are not part of CEPT or HAREC, they are among the non-CEPT member countries that accept CEPT Recommendation T/R 61-01, based upon these defined license classes. *(Ed. Note: There is a separate reciprocal agreement between the U.S. and Canada; the acceptance of the CEPT Recommendation in this case applies only to permitting European amateurs to operate over here without needing a reciprocal license.)*

Getting Ready

Bringing along the rigs is not really any different than traveling within the U.S. At the point of entry into the EU, there is no reason to declare anything to customs, assuming you plan to take everything back with you. One misconception I have run across is that people seem afraid of customs, assuming that they must declare everything of value. This is not the case; customs is only inter-

Country	Prefix	EU Member	Euro Currency	Schengen (no passport control)
Within Europe				
Austria	OE/	Yes	Yes	Yes
Belgium	ON/	Yes	Yes	Yes
Bosnia and Herzegovina	T9/	No	No	No
Bulgaria	LZ/	Yes	2012*	No
Croatia	9A/	No	No	No
Cyprus	5B/	Yes	Yes	2009*
Czech Republic	OK/	Yes	2012*	Yes
Denmark	OZ/; Faroe Islands OY/; Greenland OX/	Yes	No	Yes
Estonia	ES/	Yes	2011*	Yes
Finland	OH/; Aland Islands OHØ/	Yes	Yes	Yes
France	F/	Yes	Yes	Yes
Germany	DL/	Yes	Yes	Yes
Greece	SV/, SW/ w/o morse	Yes	Yes	Yes
Hungary	HA/ or HG/	Yes	2012*	Yes
Iceland	TF/	No	No	Yes
Ireland	EI/	Yes	Yes	No
Italy	I/	Yes	Yes	Yes
Latvia	YL/	Yes	2012*	Yes
Liechtenstein	HBØ/	No	No	Dec. 2008*
Lithuania	LY/	Yes	2010*	Yes
Luxembourg	LX/	Yes	Yes	Yes
Macedonia (FYROM)	Z3/	No	No	No
Monaco	3A/	No	Yes	Yes
Netherlands	PA/	Yes	Yes	Yes
Norway	LA/; Svalbard/Spitzbergen JW/	No	No	Yes
Poland	SP/	Yes	2012*	Yes
Portugal	CT/; Azores CU/; Madeira CT3/	Yes	Yes	Yes
Romania	RO/	Yes	2014*	2011*
Slovak Republic	OM/	Yes	2009*	Yes
Slovenia	S5/	Yes	Yes	Yes
Spain	EA/ or EB/; Las Palmas, Santa Cruz de Tenerife EA8/, EB8/; Ceuta, Melilla; EA9/, EB9/	Yes	No	Yes
Sweden	SM/ or SA/	Yes	No	Yes
Switzerland	HB9/	No	No	Dec. 2008*
Turkey	TA/	No	No	No
Ukraine	UT/	No	No	No
United Kingdom	M/; Isle of Man MD/; N. Ireland MI/; Jersey MJ/; Scotland MM/; Guernsey MU/; Wales MW/	Yes	No	No
			*goal	*estimated
Outside Europe				
Australia	/VK	No	No	No
Canada	VE/; Newfoundland VO/, Nunavut, Prince Edward Island, Yukon VY/	No	No	No
French Territories remaining Territories require operation permission (FK, FO French Polynesia, FR/B, FR/E, FR/G, FR/J, FR/T, FT, FW)	Guadeloupe FG/; Mayotte FH/; St. Barthélémy FJ/; Martinique FM/; Clipperton FO/; St. Pierre & Miquelon FP/; Réunion FR/; St. Martin FS/; Guiane Française FY/		Some	No
Israel	4X/, 4Z7/ w/o Morse	No	No	No
Netherlands Antilles	Curaçao PJ2/; Bonaire PJ4/; Sint Maarten PJ7/; Sint Eustatius PJ5/; Saba PJ6/		No	No
New Zealand	ZL/	No	No	No
Peru	OA/ with number of Departamento (zone)	No	No	No
South Africa	ZS/, ZR/ w/o Morse	No	No	No
United States	W/ or K/ with prefix according to State or Territory	No	No	No

Table I– List of countries accepting CEPT Recommendation T/R 61-01 as of January 1, 2008.

8517 6990 90 0	Morse keys and accessories. Kits that can be used to build transceivers, transmitters or receivers.
8517 6200 90 0	Transceivers
8517 7090 00 0	Antennas

Table II– EU customs numbers (duty free) for amateur radio equipment.

ested in what people plan to bring into and *leave within the EU*—i.e., imports. In this case, an EU import duty (if applicable) and Value Added Tax[8] (V.A.T.) would be charged on the import upon entry. As long as you're not planning to sell your gear during your visit, you may walk through the "Green Line" without any guilty feelings. Thousands of travelers do so every day, carrying expensive computers and cell phones back and forth across borders.

I have never been asked anything about my HTs in either checked or hand luggage, even when I traveled prior to the cell-phone days. An HT does not really appear any different to customs than a cell phone, which many people carry with them during their travels.

You may wish to take your HT in your hand luggage, which will go through scanners like a cell phone. If you decide to pack it in your checked suitcase, you may wish to remove the antenna and battery to protect it from accidental transmissions or noise. Note that as of January 1, 2008, it is no longer legal in the U.S. to pack a separate lithium-ion battery in a checked suitcase. Therefore, if your HT uses this type of battery, you will need to place the battery in your hand luggage.

HF may be a different case, depending upon the size of what you are bringing along. A small rig such as the Yaesu FT-897 or ICOM IC-7000 will fit in your suitcase without a problem, and you will not have to claim it in customs if you are bringing it home with you. You may wish to have a copy of your invoice just in case there are any questions.

Again, make sure that you also bring your license and the FCC Public Notice DA 99-2344 document that I mentioned above. If you bring more expensive HF equipment along, you may wish to place a photocopy of your license in the suitcase with this equipment as well.

If you do plan to bring any amateur radio gear to be imported to the EU (e.g., sold or given away), remember to bring your invoices to be able to declare the value at the border. Amateur radio equipment is duty free in the EU (Table II); however V.A.T. will have to be paid. This can be significantly higher than the sales tax you are used to in the U.S. (our V.A.T. in Germany is 19%!).

Operating

It is very important to identify correctly and to know the band limits of the countries you visit. The prefix before home call (e.g., DL/K7DX) has become a standard. However, there may be differences in how these prefixes are used to identify the CEPT class license being used or local geographic identifiers.

Although 2 meters is consistent from 144–146 MHz across the CEPT countries[9], 70 cm is inconsistent. In several countries it runs a full 10 MHz from 430–440 MHz, but some countries limit it to 432–438 MHz or have other restrictions. There are so many variations, changes and countries that I recommend using a search engine such as Google to look up repeater details in the countries you plan to visit—e.g., type in "repeaters France." An excellent summary of repeater

internet links can also be found at DXZone.[10]

HF band plans also vary somewhat between countries, so please look these up before leaving if you plan to bring along an HF rig. Six meters in particular is not consistent across all countries. Again, if you hold a no-code license and wish to operate HF, don't forget to look at the most current table on the internet to determine if the country you plan to visit accepts your license for HF operation.

Note that most European countries do not have a third-party agreement with the U.S. This means that you may not put the XYL or other non-licensed persons on the microphone over a local RF link to say hi to the buddies back home over Echolink or IRLP. Third-party agreements apply only to non-licensed persons, so it is perfectly legal for a licensed foreign ham to use a U.S. repeater and vice-versa. I have noticed a number of repeater operators blocking non-U.S. amateurs from accessing their Echolink or IRLP enabled repeaters or links due to a lack of understanding of the Third Party agreement concept.

Using Repeaters

Operating local repeaters can be quite different between the countries, or even within a country. In some countries you will find CTCSS to be commonly used. In others, such as Germany, you will find that a 1750-Hz tone may be required to open repeaters. Many U.S.-version HTs support a 1750-Hz tone through a menu change, but it is easy to whistle if this is not available. If you plan to operate on 70 cm, make sure you know the band plan first, since smaller bands mean different repeater splits and even reversed input/outputs. As a rule, you will not find autopatch in use anywhere; however, Voice over IP (VoIP) access, such as Echolink and IRLP, is quite common. D-STAR repeaters are also becoming more common, and you can look up the current list before leaving.[11]

Your luck will also vary finding locals to come back to you when you get on their repeater. Remember to speak clearly and slowly, since some of the local hams may operate on VHF/UHF exclusively and may not have HF experience with an English-speaking ham. If no one comes back to you, do not feel bad; just move on to another repeater or monitor until it gets active and try again.

My personal experience is that the local hams are more reserved in some countries than others. For example, I have had good response using repeaters in the Nordic countries, Germany, and the United Kingdom, among others, but less so in France and Italy. Bear in mind that the locals are not being unfriendly if there is no response, but instead may not feel comfortable answering your CQ, probably due to language issues.

Using Echolink and IRLP

Echolink and IRLP are becoming more and more popular in Europe, as the local authorities allow repeaters and simplex links to operate and these are installed. Knowing the German mentality as well as I do, I was surprised at how quickly the authorities here approved this type of operation. I maintain an Echolink and IRLP simplex link on 70 cm, which is even required to have its own callsign.[12] There is still more bureaucracy compared to the U.S., but I didn't find it all that difficult.

As a general rule, IRLP is common in English-speaking countries such as the U.K., with Echolink being dominant across Europe. Use the status pages on Echolink[13] and IRLP[14] to find a list of repeaters and simplex links local to where you plan to go. In some cases, you will find the access codes listed as well. Then you can use the system to connect to your local nodes in the U.S. just as if you were still home. You may wish to send an e-mail to the system operator before you leave, just to make sure, but this usually is not necessary if the site has been updated with the access codes. Just remember the time difference and to identify correctly with the country prefix! Also remember to write down the node numbers you wish to connect to back home before leaving.

For those who want to use Echolink but cannot locate a local RF access to a node through a repeater or simplex link, theoretically you can use your notebook PC to connect to the nodes back home. The problem with doing this is that anywhere you have public internet access you will not have access to the router being used to forward the ports. In other words, it won't work at all; it will connect without any audio being sent and then time out.

The only easy way around this problem is to use an Echolink Proxy server. There is a list of public proxy servers on the Echolink site.[15] However, they have limited capacity and cannot be considered reliable. The latest version of the Echolink software also has a list of public proxy servers built-in, so I suggest you make sure that you have the newest version installed before leaving home. If you have access to a PC or server that runs 24/7 and has a fixed public IP or dynamic DNS address, you can set up everything to run the Echolink Proxy software and router port forwarding before leaving. You may wish to do this as a group project and keep access limited by using a password to keep it reliable. It is also important that you test your new proxy server thoroughly before leaving home, just in case of configuration problems in the software or router. Further information on Echolink Proxy servers can be found on the Echolink website.[16]

Note that since you are not going over an RF link outside of the U.S. when using the PC software, it is not necessary to ID using a foreign prefix before your call. The repeater or simplex link on the U.S. side doesn't know or care where you are located, thanks to the internet!

Give It a Try!

Operating during your trip to Europe is a way to have new experiences and meet new friends. It is no longer any more complicated than traveling within the U.S. Even if you do not travel often to Europe, it would be a shame not to be QRV during that rare opportunity. Also, don't forget to give me a shout on 432.850 MHz if you come through Munich!

Notes

1. <http://en.wikipedia.org/wiki/Euro>
2. <http://en.wikipedia.org/wiki/Schengen _Agreement>
3. <http://www.erodocdb.dk/Docs/doc98/ official/pdf/TR6101.PDF>
4. <http://www.ero.dk/documentation/ docs/doc98/official/pdf/TR6102.PDF>
5. <http://www.erodocdb.dk/doks/ implement_doc_adm.aspx?docid=2136>
6. <http://www.erodocdb.dk/doks/implement_doc_adm.aspx?docid=1802>
7 <http://www.arrl.org/FandES/field/regulations/io/cept-ral.pdf>
8. <http://en.wikipedia.org/wiki/Value_ added_tax>
9. Repeaters start at 145.600 out with –600 kHz split, 12.5 kHz channels through 145.7875 MHz.
10. <http://www.dxzone.com/catalog/ Operating_Modes/Repeaters/>
11. <http://www.dstarusers.org/ repeaters.php>
12. DMØQN, IRLP 5378 & Echolink 3001
13. <http://www.Echolink.org/logins.jsp>
14. <http://status.irlp.net/>
15. <http://www.Echolink.org/proxylist. jsp>
16. <http://www.Echolink.org/proxy.htm>

Results:

2008 CQ DX Marathon

BY JOHN SWEENEY,* K9EL

In spite of no (or very few) sunspots for most of 2008, the 2008 CQ DX Marathon was anything but quiet! Competition this time was very fierce, and for the first time the top two finishers had identical scores. Overall participation was up 10% over 2007, and the total number of countries available to work was up three (298/295), although the winning score was actually one point less than the 2007. A total of 191 scores were submitted, representing 39 countries, up from 2007's 34 countries. We especially thank all of our first-time participants for submitting scores.

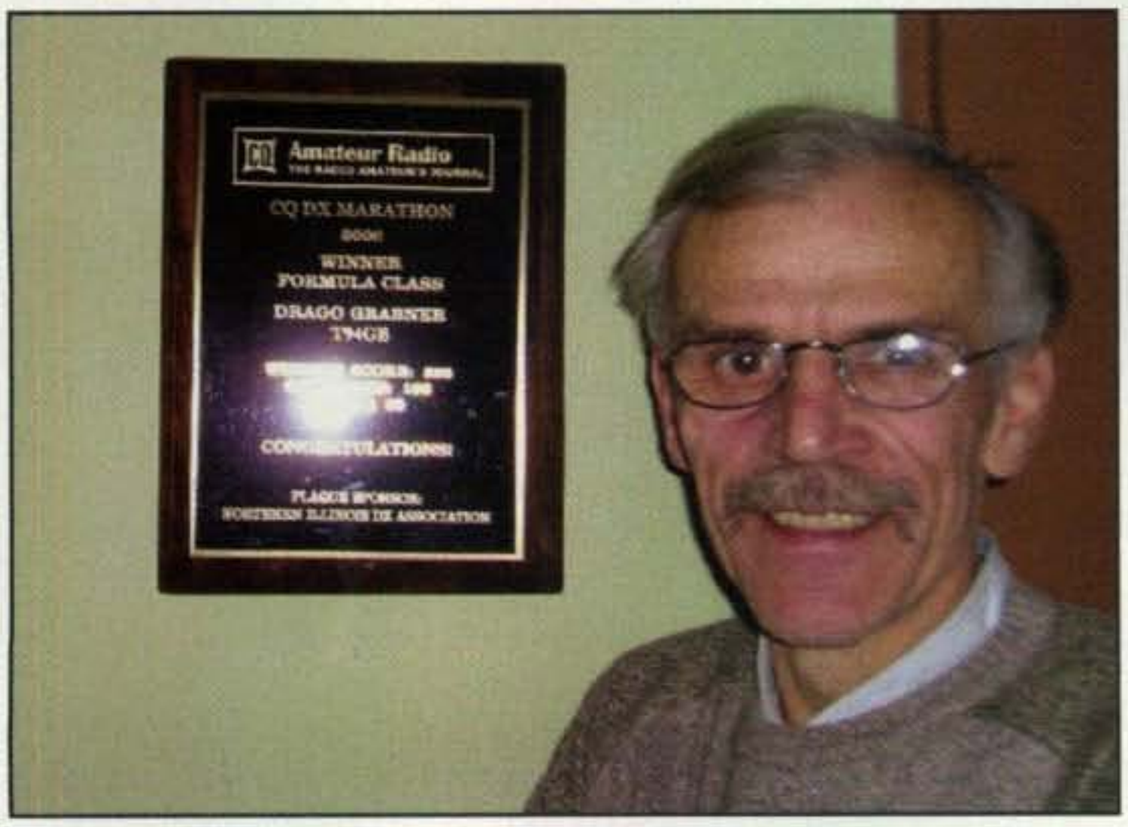
The Unlimited Class continues to be most popular, with 68% of the participants, which was up slightly from 2007. Competition in the top tier is always tough and in 2008, 27 people (14%) finished within 10% of the winning score, significantly up from 2007. The top 10% represents 11 countries on four different continents, so geographical location clearly is not a significant factor in the DX Marathon.

As the DX Marathon becomes more popular, more unique entries are submitted and 2008 was no exception. The top CW-only score was 292 and was once again submitted by W4VQ, while OZ1ADL took top SSB-only honors with a score of 281. Other interesting submissions include: top 20-meter-only score – 200 (RU3SE); top 160-meter-only score – 197 (LY5W); top mobile score – 189 (JA7OXR); top 10-watt score – 191 (W8QZA); top all-digital score – 161 (GUØSUP); top 15-meter-only score – 139 (JH7RTQ); and top 6-meter-only score – 62 (M1DUD).

Each DX Marathon score sheet must be checked for errors and use of the official electronic form speeds checking. We encourage the use of electronic tools, such as the DX4WIN DX Marathon tool by AD1C, which automatically populates the DX Marathon score sheet directly from a DX4WIN log. Use of these tools minimizes manual entry, which often causes minor errors. Each score sheet must be thoroughly checked for possible errors, and each year several participants lose points due to simple errors such as missing a let-

Anatoly Pivovarov, UYØMM, from Lisichansk, Ukraine in his shack with his Formula Class winner's plaque for the 2007 DX Marathon.

*Program Manager, CQ DX Marathon
e-mail: <k9el@dxmarathon.com>



Drago Grabner, E73F (ex-T94GB), from Jajce, Bosnia-Herzegovnia with his Formula Class winner's plaque for the 2006 DX Marathon.

Sergey Bugaev, UA3QUO
Formula Class Winner

Sergey was born in the Ukraine in 1957 and moved to Russia in 1977. He was licensed in 1983 as UA3QUO. Sergey has a son who is also licensed, RX3QVM. Sergey has worked 289 countries with 277 confirmed. He uses a Kenwood TS570 and a delta loop antenna.

Club Challenges

Are you enjoying this year's 2009 DX Marathon? Want to add some additional fun to your DXing? Start a Club DX Marathon Challenge!

As an example, the Northern Arizona DX Association has challenged the Central Arizona DX Association to a group effort working the CQ DX Marathon for 2009. They want to get their members radio active and establish a friendly competition. Bob, KF7E, is suggesting that the NADXA put its 10 best club performances for 2009 against the 10 best from CADXA. The winning club would receive a token gift or homebrew trophy (I can only imagine what it will look like!). Clubs can set their own rules, except that all scores must be official DX Marathon scores as published in *CQ* magazine.

Results 2008 DX Marathon

(Any comments appear beneath the line score of the entrant)

Call	Class	Countries	Zones	Score
OM3EY	**U**	**289**	**39**	**328**
		Winner Unlimited Class		
W9KNI	U	288	40	328
WK3N	U	287	40	327
K8NA	U	286	40	326
K8SIX	U	283	40	323
W1JR	U	283	40	323
OZ7YY	U	279	40	319
YT5Z	U	278	40	318
ON4ON	U	274	40	314
NØFW	U	272	40	312
UYØMM	U	272	40	312
PP5EG	U	268	40	308
AA4S	U	266	40	306
K6TA	U	266	40	306
SM5DJZ	U	266	40	306
WØHT	U	266	40	306
W4QN	U	265	40	305
WT8C	U	265	40	305
N8BR	U	264	40	304
K3KO	U	262	40	302
ON5SY	U	261	40	301
LX1EA	U	260	39	299
5B4AHJ	U	258	40	298
JAØDAI	U	258	40	298
K4UTE	U	258	40	298
SM6CNN	U	257	40	297
PT7VB	U	255	40	295
N1BAA	U	254	40	294
W1SKU	U	254	40	294
IWØHOU	U	253	40	293
AA4SC	U	252	40	292
KØXB	U	252	40	292
W4VQ	U	252	40	292
				All CW
IK5PWQ	U	251	40	291
OM7DX	U	251	40	291
KG8P	U	248	40	288
WX6V	U	249	39	288
N6AR	U	245	39	284
W6RLL	U	245	39	284
WB9EEE	U	244	40	284
EI9FBB	U	244	39	283
K8YTO	U	244	39	283
W2QO	U	244	39	283
N6AR	U	243	39	282
WA5VGI	U	242	40	282
OZ1ADL	U	241	40	281
				All SSB
IØMOM	U	239	40	279
VE1DX	U	239	40	279
W4VIC	U	236	40	276
WB4ROA	U	235	39	274
PY5EW	U	233	39	272
K7UA	U	230	39	269
W2TB	U	228	40	268
HA8TI	U	226	40	266
F5CQ	U	225	39	264
W8AV	U	218	40	258
S51DX	U	216	39	255
EA4KD	U	215	39	254
K8AJS	U	214	40	254
UA3QUO	**F**	**215**	**39**	**254**
		Winner Formula Class		
DJ2PJ	U	214	39	253
N6EE	U	215	38	253
W9IL	U	214	39	253
HA1CW	F	211	40	251
OK1WCF	U	212	39	251
SP3BGD	U	210	40	250
SV1DPI	U	210	39	249
K1SND	U	208	40	248
W4CU	U	210	38	248
K7ACZ	U	209	38	247
I2WIJ	U	206	40	246
LX1ER	F	209	37	246
VE1WT	U	206	39	245
W9OA	U	206	39	245
DL4CW	F	206	38	244
NØRB	U	207	37	244
E72U	F	205	38	243
WC5M	U	204	39	243
N3CU	F	204	38	242
K3MSB	U	197	40	237
DJ9ZB	F	197	39	236
W3GQ	U	199	37	236
VU2PTT	U	196	38	234
JN3SAC	U	195	38	233
K8UT	U	193	38	231
VK6ARA	U	196	35	231
ZL2IFB	U	192	39	231
WA6JRZ	U	190	39	229
VK3FM	U	191	37	228
KS1Y	U	187	40	227
K8SM	U	186	40	226
WA1Z	U	188	38	226
PY2IQ	U	187	38	225
E73F	F	183	35	218
K8CQ	F	181	35	216
LU5VV	U	177	38	215
WA2SEI	U	179	35	214
W9OA/9	U	170	40	210
OK1BA	F	172	37	209
PY2SEX	U	171	37	208
W3OA	U	173	35	208
K3XO	U	166	39	205
K9UQN	U	170	35	205
SM7BHM	U	169	35	204
K4WY	F	160	40	200
RU3SE	F	164	36	200
				All 20m
W9ILY	U	169	31	200
K3JT	U	163	35	198
K3NK	U	163	35	198
LY5W	U	157	40	197
				All 160m
K6TTT	F	159	34	193
PAØMIR	U	155	38	193
W8QZA	F	158	33	191
				10 watts
JA7OXR	F	151	38	189
				All Mobile
KS1J	U	156	33	189
YB1TJ	U	151	37	188
All SSB				
BX4AQ	F	150	35	185
PY6HD	U	148	35	183
W4DTA	U	149	34	183
N1AM	F	152	29	181
K8AO	U	147	33	180
V51YJ	U	145	35	180
NU4I	F	147	32	179
W1CDX	U	144	35	179
NU4B	F	148	29	177
				All CW
G4MUL	F	144	31	175
JA3HZT	F	142	33	175
VK6HG	F	140	33	173
KD8GOX	U	139	33	172
LY3BY	U	137	35	172
N7WO	U	137	35	172
				All CW
OK1BLU	F	141	31	172
ON6FC	F	138	32	170
WA4JUK	U	137	33	170
WØRIC	U	137	31	168
				All SSB
DK8JB	U	133	33	166
				All 20m SSB
CE3PG	U	137	28	165
BV4VR	U	133	31	164
WA2VQV	F	134	28	162
GUØSUP	U	127	34	161
				All Digital
W3ZGD	U	130	31	161
E71DX	F	131	28	159
W7ABC	U	126	33	159
NC4MI	U	128	30	158
				All SSB
KT7G	U	126	31	157
W4KS	U	128	29	157
AA5JG	F	123	32	155
K9DDO	U	127	28	155
KE4PT	F	128	26	154
				Indoor antenna
OM3TLE	F	121	33	154
AA4FU	F	124	28	152
				All CW
KC3RT	F	120	29	149
NTØF	U	121	28	149
W4PFM	F	120	28	148
DH5MM	F	116	31	147
AD1C	F	116	30	146
KD4SM	F	116	29	145
OP4A	U	116	26	142
EA8MQ	U	130	11	141
JA1NLX	F	108	33	141
				10 watts
ON6LY	F	113	28	141
JH7RTQ	F	106	33	139
				All 15m
N4QVM	U	112	26	138
EA8DD	F	111	26	137
				All SSB
PY1SX	F	112	25	137
G6OKU	F	101	25	126
YO9CWY	F	97	26	123
ON3AD	F	100	21	121
				10 watts
K2BBQ	F	93	25	118
W2GHD	F	93	24	117
				All Digital
N6DIT	F	86	27	113
VA3RNJ	F	90	23	113
EB3FLY	F	94	18	112
MØOKT	F	84	21	105
VU2LBW	U	75	24	99
ON70REDSTAR	U	75	23	98
OO9O	F	72	23	95
VE3MCF	F	70	20	90
W4DDR	F	64	19	83
W2VU	F	66	16	82
				All SSB
KWØU	F	57	23	80
				All 20m SSB
ON7SS	F	64	16	80
W9KVR	F	51	20	71
WB9TFH	U	50	20	70
KP4BT	F	50	18	68
PY5WH	F	44	19	63
M1DUD	F	55	7	62
				All 10watts & 6m
EA4BBB	F	35	10	45
				5 watts
KC9NIY	F	20	14	34
N4QX	U	17	12	29
N2TDT	F	17	8	25

Eduard Melcer, OM3EY Unlimited Class Winner

Eduard has been an active operator since 1969 when he was first licensed as OK3TCA. He later upgraded to OK3EY and then OM3EY. Eduard, 63, is a retired cargo-ship captain and made many trips up and down the Danube River visiting many countries along the way. He has many DX awards and his favorite band is 160 meters. However, he is active on all bands with an FT-1000MP and homebrew 1-kw amp. He also uses an IC-756PRO. His antenna farm includes mono band Yagis for the 28, 24, 21, and 18 MHz bands 18 meters high, and a 6-element 14 MHz Yagi 22 meters high. On 10 and 7 MHz, Eduard uses slopers. A 29-meter high vertical is used for 3.5/1.8, along with a K9AY receiving system.

Eduard Melcer, OM3EY, from the Slovak Republic in his shack.

The antenna system of Eduard Melcer, OM3EY, Unlimited Class winner of the 2008 DX Marathon.

ter in the callsign. Electronic tools virtually eliminate those errors. In addition, if your logging program has an up-to-date country and zone file, you will eliminate the majority of the country and zone errors that show up each year.

Once again, the largest single error that caused many participants to lose points was incorrect submissions for Zone 2.[1] Nearly 10% of all Zone 2 submissions contained callsigns of stations that were not in Zone 2. A list of known good Zone 2 stations will be published on the DX Marathon website for use in 2009. Check your Zone 2 submission carefully! Another significant reduction in 2008 was for stations submitting YA contacts. The majority of the stations operating in Afghanistan do not have official permission. In 2008, only contacts with YA4F and T61AA were valid for YA credit. In addition, a few stations lost points for contacts with pirate stations. There are many resources available on the internet to check out callsigns that seem suspicious.

A total of 298 countries and all 40 zones were available in 2008 for a maximum possible score of 335 points. For 2008 we had two winning entries : Both OM3EY and W9KNI finished the 2008 Marathon with the top score of 328! Since the scores were identical, we had to use one of the lesser-known DX Marathon rules to select the winner: "In case of ties, the operator whose last scoring contact was earlier chronologically will be judged the winner." W9KNI logged his last country on December 28th, while OM3EY logged his last country on December 21st , so OM3EY is our 2008 DX Marathon winner! Eduard has been runner-up the last two years, and we thank him for his strong support of the DX Marathon. Congratulations to both OM3EY and W9KNI for their top scores!

In the Formula class, UA3QUO had the top score of 254, followed by HA1CW at 251 and LX1ER at 246. The top 10% of the scores represented six countries, five of which were in Europe. The Formula class has a much higher percentage of non-USA participants. This year, the DX Marathon judges studied the antenna types of all Formula Class submissions and several entries were changed to Unlimited Class. Please read the DX Marathon rules very carefully to make sure your antenna qualifies your submission for Formula class.

The plaques for the winners in both classes for the 2006 and 2007 DX Marathons are now in the winners' hands, and we want to acknowledge the support of the Northern Illinois DX Association for sponsoring the DX Marathon plaques.

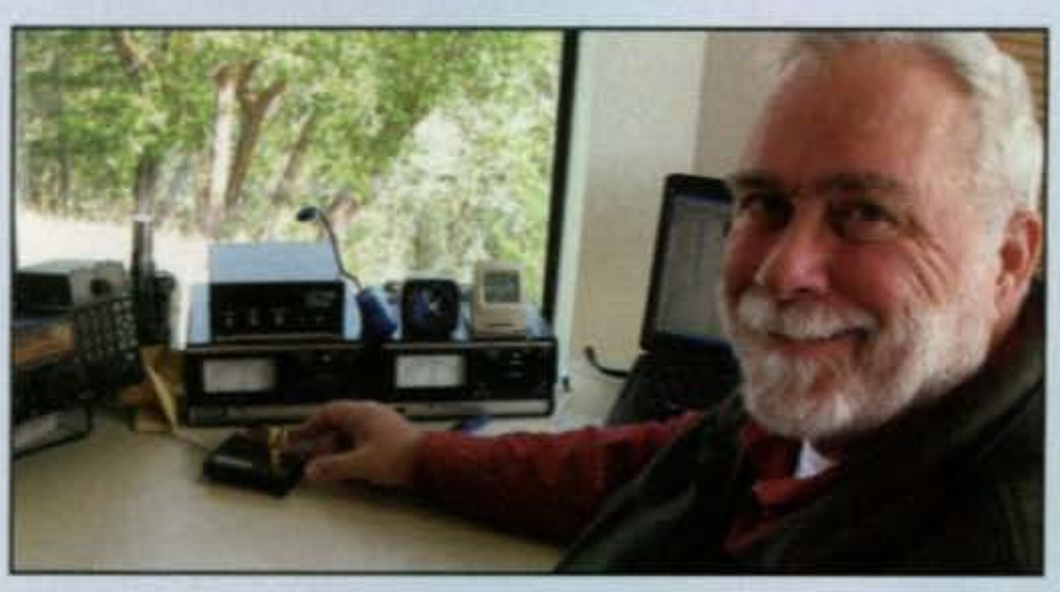
Note

1. Zone 2 includes VO2 (Labrador), the portion of VE2 Quebec north of the 50th parallel, and Nunavut Territories east of 102 degrees (includes the islands of King Christian, King William. Prince of Wales, Somerset, Bathurst, Devon, Ellesmere, Baffin, and the Melville and Boothia Peninsulas, excluding Akimiski Island, Bear Islands, and East Pen Island in Hudson Bay).

QRM

I love the contest! ... **W8QZA (QRP)**. I was not able to make my goal of 200 points this year but there is always 2009 ... **N1AM**. This is a great initiative that will keep the operators doing DX forever. I will participate every single year ... **PY2SEX**. The Marathon is gaining in popularity. Please add state winners ... **W8LU**. Suggest rules for all *CQ* contests encourage DX Marathon participation ... **DK8JB**. As a disabled amateur, the Marathon gave me something to look forward to each and every

Robert Locher, W9KNI
Unlimited Class Runner-Up



Bob Locher, W9KNI, from Grant's Pass, Oregon, USA in his shack.

Bob has been licensed since 1956 and been active ever since, mostly on CW. He has written several books on DXing, is the founder of Idiom Press, and co-founder of Bencher, Inc. Bob was raised in Iowa but soon moved to Chicago, where he lived for 30 years. He now resides in Oregon, where he cultivates antennas. Bob uses an Elecraft K3 as his main rig with multiple Yagis for antennas. Bob was also one of the "guiding lights" behind the re-establishment of the CQ DX Marathon in 2006.

The antenna system of Bob Locher, W9KNI, Unlimited Class runner-up of the 2008 DX Marathon.

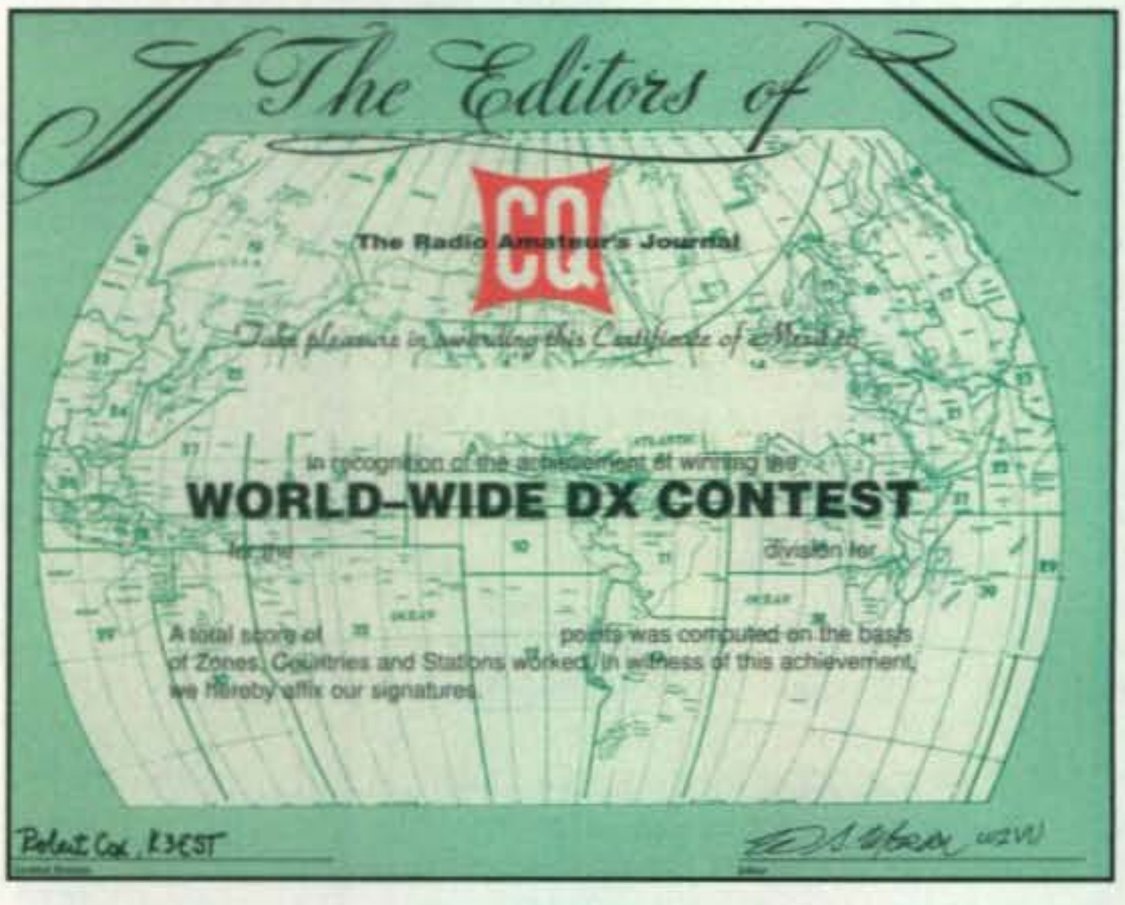
day in 2008 ... **WK3N**. My score isn't the highest, but earned entirely on an indoor antenna! You can do pretty well with modest equipment. Please keep the rules as they are now ... **KE4PT**. I am amazed what can be worked at the bottom of the cycle ... **KD8GOX**. Rough year with far fewer zones in the log than last year but pretty good performance considering no sunspots ... **K4WY**. Minimum activity this year but will be more involved next year ... **PP5EG/PY5EG**. Was a fun exercise. Thanks for the event and here's to better bands in 2009 ... **KW0U**. First time entering. Interesting to see how I did throughout the year ... **KC3RT**. CQ Marathon is wonderful competition! See you in the next Marathon ... **IK5PWQ**. It was fun and I hope to get in the top ten. Please consider an award by state ... **K8SIX**. Just started a week before Christmas. My score was better than I thought ... **DJ2PJ**. Enjoyed the Marathon and looking forward to the 2009 Marathon ... **AA5JG**. It was a lot of work and propagation did not help much ... **I0MOM**. All QSOs worked while mobile ... **JA7OXR**. My score is low but I used less than 5 watts and only on 50 MHz ... **M1DUD**. It was fun and got me back in front of the rig ... **WB9EEE**. 2007 was a far better year! Next year I will fill in the 2009 sheet as I go ... **N6AR**. It was a good year in spite of my rain gutter and flag pole antennas which continue to amaze me. Finished with 216 although I had hopes for 225 ... **K8CQ**. My score is not high but I thank those who take to the air with key, microphone, or sound card ... **N4QX**. Who says that we need sunspots to work DX? Great fun and challenging. Leave the rules as they are ... **W4QN**. Really enjoyed the Marathon this year. Thanks for providing the incentive in this time of low solar flux ... **G4MUL**. I didn't do as well this year as in the past ... **W4VQ**. Enjoyed it with the new call ... **KG8P**. A rather poor year but all QSOs were on RTTY ... **GU0SUP**. It wasn't a great year for me ... **K7UA**. Had a blast working DX ... **KD8GOX**. Congratulations on this enjoyable contest ... **LX1ER**. First year participating. Allows "newbies" to become involved without the time pressures of a weekend contest ... **W9KVR**. Thanks for keeping my interest growing ... **VE1WT**. My last three scores of 248, 240, and now 248 again convincingly argue that the bottom of the sunspot cycle was 2007 ... **W4CU**. Just started in late December. Will chase more in 2009 ... **LU5VV**. This year my Zone 2 claim is OK! ... **I2WIJ**. Most QSOs were made in contests ... **YO9CWY**. Only ran 5 watts ... **ON3AD**. I did not have as much time this year, but thank you for the trophy for 2006 Formula Class ... **E73F (ex-T94GB)**. Fantastic year for working DX in spite of a non-cooperative sun. Next year should be even better ... **N8BR**.

Announcing:

CQ World-Wide DX Contest Adds New "Xtreme" Category

A new "Xtreme" category is being added to the CQ World-Wide DX Contest to encourage the development of new technologies in amateur radio communications in general and contesting in particular. According to CQ WW Contest Director Bob Cox, K3EST, this new category has been established to allow amateurs to participate in the CQ WW Contest while experimenting creatively with Internet-linked stations and other new technologies that currently are not permitted in any of the contest categories. The rules for the new Xtreme Category, as approved by the CQ WW Contest Committee, follow, along with a more detailed explanation of how the scoring system will work. The new category is effective with the 2009 CQ WW Contest later this year.

—W2VU



Rules for CQ WW "Xtreme" Category

Overview

A wide variety of new technologies has emerged in amateur radio, including software-defined radios, remote stations, Internet-connected remote receiving sites, multi-channel CW decoders, fully-automated "robot" stations, etc. Some of these technologies currently are not permitted under the rules for existing CQ World-Wide DX Contest entry categories. For example, the CQ WW rules state that:

"All transmitters and receivers used by the entrant must be located within a single 500-meter diameter circle or within the property limits of the station licensee's address, whichever is greater. All antennas used by the entrant must be physically connected by wires to the transmitters and receivers used by the entrant."

This new category has been established to allow amateurs to participate in the CQ WW Contest while experimenting creatively with Internet-linked stations and other new technologies.

The rules of the CQ World-Wide DX Contest apply regarding contest period, exchanges, and scoring. In addition to the basic rules, the Xtreme category includes the following:

1. Entry categories: (a) Single-operator, in which one licensed radio amateur serves as the control operator, performing or supervising all operating and logging functions; and (b) Multi-operator, in which multiple operators perform or supervise all operating and logging functions. In the Multi-operator category, the operators may be located at different locations. A single operator may submit multiple entries using different remote sites in different countries. Each entry will be scored separately.

Scoring for the Xtreme Category

Entries will be evaluated on two equally-weighted dimensions, score and innovation. It is understood that many of the technologies will be experimental, and subject to possible failure or reliability issues. However, we want to recognize high degrees of risk-taking as well as the actual contest score achieved.

First, a normal CQ WW score will be computed on the basis of stations worked, and the zone and country multipliers. The log will be processed with the same software used to process all other logs to compute the final score.

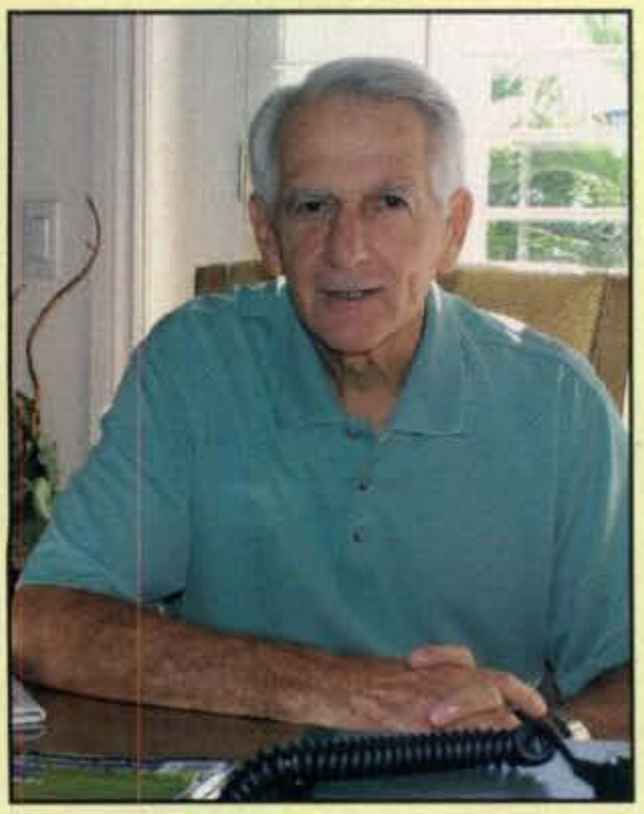
The highest score in each category (Single-operator and Multi-operator) will receive 100 "score points," and the other entrants will receive a pro-rated score, normalized to the highest score. For example, if AA1AAA scores 1,000,000 points and ZZ9ZZZ scores 500,000 points, then AA1AAA will receive 100 "score points" and ZZ9ZZZ will receive 50 "score points."

The second part of the scoring will be determined by a subjective evaluation of the technical innovation employed by the entrant. This evaluation will be conducted by a panel of judges on the CQ WW Contest Committee, scored on a 0 to 100 "innovation point" scale, and will consider the novelty, creativity, and innovation of the technologies used. For example, an entrant who uses a single remote receiving site with off-the-shelf software will score lower on innovation than an entrant who writes his own software to control homebrew hardware interfaces in an automated multi-transmitter station that searches the bands for new stations to work, searches on-line databases in real-time to verify callsigns, and reports a score with zero errors.

The total of "score points" and "innovation points" will determine the winner. In the case of a tie, the most accurate log (as determined by the lower score reduction by the log-checking process) will be declared the winner.

Doug Grant, K1DG, Member CQ WW Contest Committee

Plaques to Honor John Kanzius, K3TUP (SK)



The two plaques for the top scorers in the new CQ WW Xtreme Category will be named in memory of the late John Kanzius, K3TUP. John was a prominent contester in the 1980s and '90s and was a lifelong experimenter. His most recent experiments led to a potential breakthrough in cancer treatment, using RF energy to heat specially-tagged cancer cells in the body while leaving healthy cells unharmed. John became a silent key earlier this year, ironically a victim of the disease he sought to cure. John was profiled in the January 2009 issue of *CQ*.

Tim Duffy, K3LR, will sponsor the John Kanzius, K3TUP, Memorial Plaques for the winners of the CQ WW Xtreme Category.

2. QSO-alerting assistance: The use of QSO-alerting assistance using packet radio, the Internet, local or remote Skimmer-type devices, etc., is permitted in both the Single-operator and Multi-operator categories. Self spotting or asking to be spotted is not allowed.

3. Locations: The entrant's transmitting sites must be located in a single country, as defined by the applicable licensing authority, and a single zone. Remote receiving sites may be located anywhere.

4. Transmissions: One transmitted signal is permitted on a band at any time. Maximum signal bandwidth must not exceed the normal bandwidth of a single SSB voice (for SSB weekend) or CW (for CW weekend) signal. This prohibits multiple-carrier or time-multiplexed signals that occupy multiple channels in a single band.

5. Advance notification: Entrants must notify the CQ WW Contest Committee by e-mail at least one week in advance of the contest of their intention to enter this category. This notification should include a brief description of the technologies to be employed and callsign to be used. Entrants must also attest that their planned operation is compliant with the rules and regulations of the country in which the transmitter(s) are located. Advance notification and questions regarding these rules should be sent via e-mail to <xtreme@cqww.com>.

6. Control Operator(s): It is the responsibility of the human control operators(s) to ensure that normal precautions are taken before transmitting, such as listening to determine if a frequency is clear before calling CQ. Any station in this category found to be causing interference by not obeying this rule will be subject to disqualification.

7. Log Submission: Logs must be sent via e-mail to the normal addresses (<cw@cqww.com> or <ssb@cqww.com>). Logs must be in Cabrillo format, and include the line CATEGORY: SINGLE-OP-XTREME or CATEGORY: MULTI-OP-XTREME.

8. Scoring: Entries will be evaluated on two dimensions, score and innovation. First, a normal CQ WW score will be computed on the basis of stations worked, and the zone and country multiplier. A minimum of 100 QSOs is required. The log will be processed with the same software used to verify all other logs to compute the final score, utilizing the contest's existing penalty system. The second part of the scoring will be determined by an evaluation of the innovation employed by the entrant. This evaluation will be conducted by a panel of judges on the CQ WW Contest Committee. In the case of a tie, the log with the lowest score reduction in the log-checking process will be declared the winner.

9. Awards: The winning entry in the Single-operator and Multi-Operator categories will each receive a plaque.

10. Club Scores: Entries in this category are eligible to contribute their CQ WW scores to a club in the Club Competition, in accordance with the existing CQ WW rules. Remote stations outside the club's area may be counted as DXpeditions.

Bigger is nearly always better when it comes to antennas. However, NM7M says the influence of enhanced propagation should never be underestimated, especially for those with smaller antennas.

160 Meter Antennas: Is Bigger Always Better?

BY ROBERT R. BROWN,* NM7M

Everything considered, 160-meter DXing can be divided into three tiers or approaches. Tier One is the simplest and starts with conditions like those at solar minimum and with no simultaneous solar or geomagnetic disturbances. At this point propagation is symmetrical out to the line of sight. Except at the poles, ionospheric properties lack symmetry because of the geomagnetic field, so propagation varies with direction in going beyond the line of sight.

Tiers One and Two: Nature's Contributions

Tier One is sort of a bare-bones affair and can be pursued with full legal power and a basic antenna, such as a vertical. Ionospheric theory tells us we can expect to work out to about 10,000 kilometers (16,000 miles) by conventional *E*- and *F*-hops. That figure, or limit, was derived (Luetzelschwab, 1995)[1] from the atmospheric composition and electron-neutral collision data available at the time, as found in the PropLab Pro program.

In practice, distances beyond 10,000 km are easily reached, but theory has lagged behind. Signal ducting has been suggested as an explanation for some time, the main candidate being the electron density valley found above the *E*-region at night, as shown in fig. 1.

*1105 27th St., Anacortes, WA 98221
e-mail: <nm7m@aol.com>

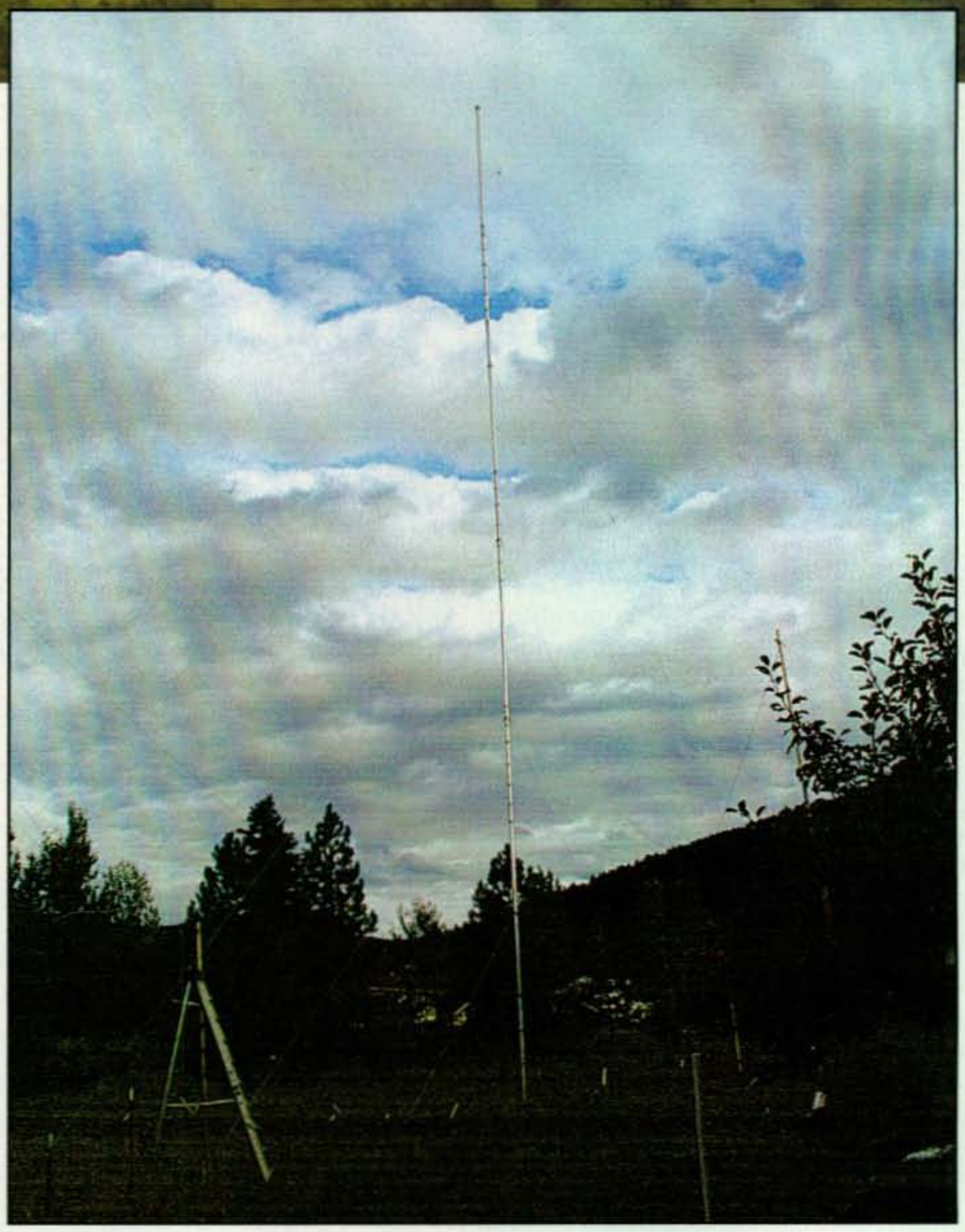


Photo A– The single vertical 160-meter antenna at W7LR. (Courtesy of Bob Leo, W7LR)

It was found (Brown, 2008)[2] that the ionization associated with the valley may be due to the influence of galactic cosmic rays (GCR) in the region. Signals can enter the ducting region if their critical frequency falls below the quiet value foE or the cosmic-ray ionization falls below the corresponding level.

Theory shows that signals may be ducted to a distance L given by

$L = 1 + 3.4 \sqrt{GCRd}$ for GCRd <9%

or

$L = 2 + GCRd$ for GCRd >9%

where GCRd is the decrease in GCR intensity (a decrease is a more negative value of the GCR value seen in neutron-monitor plots). This distance may be added to those from *E*- and *F*-refraction giving ducting-assisted distances (Brown and Luetzelschwab, 2008)[3] for Tier Two propagation that are greater than those for Tier One.

An example of this was found in the log data from W7LR for 2003 through 2007, as shown in fig. 2. As a summary figure for the five years of operation, the L-GCRd diagram has 20 GCRd bins that contain data entries for each of the QSOs, but the L-value shown for each bin is the most distant entry. About 50 DX entries are in the last 10 bins, but none of the longest entries reached the Lmax for its GCRd value. The increasing trend in the figure suggests that ducting does support DXing beyond 10,000 km. Without ducting assistance, one could expect to find the DX contacts beyond 10,000 km

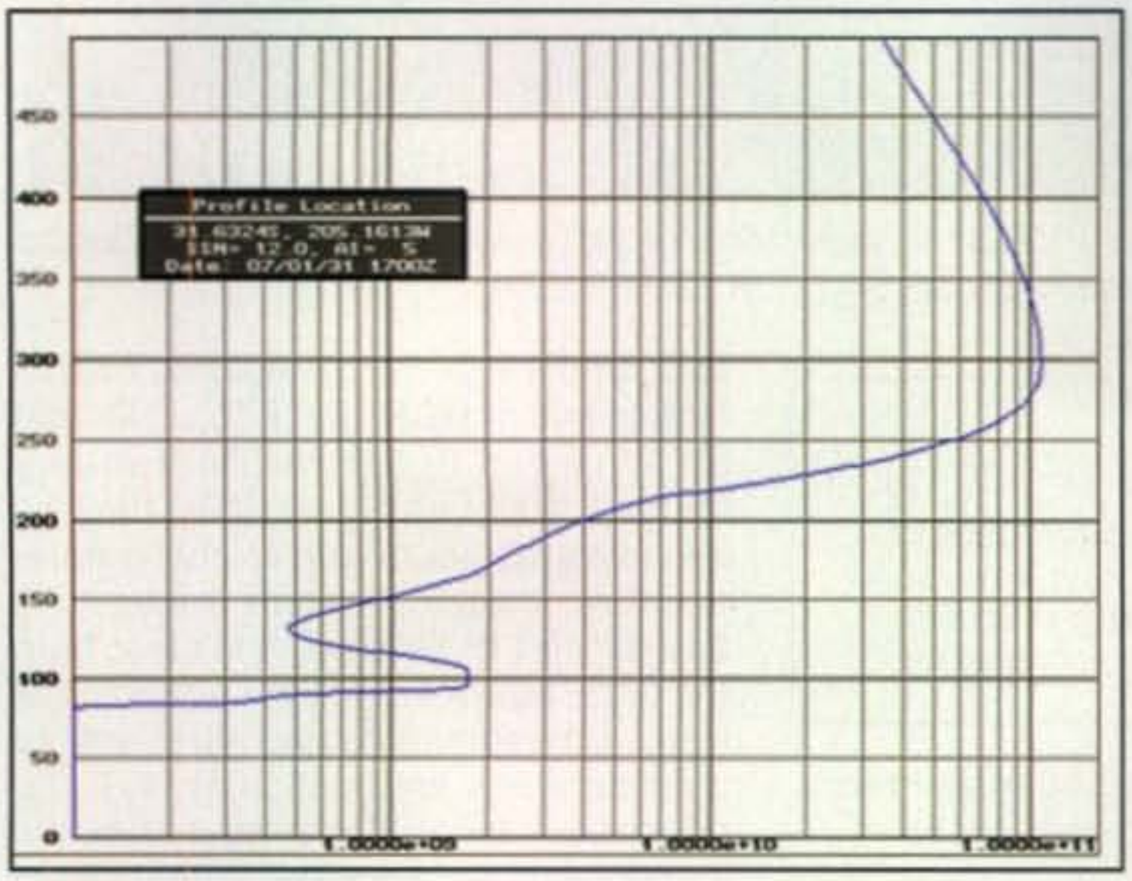


Fig. 1– The nighttime electron-density valley.

to be spread more evenly in the figure instead of being concentrated at the high GCRd end.

Tier 3: Ham Enhancement

Now we turn to Tier Three, reached by adding one or more elements to the antenna system. That results in an increase in antenna aperture or gain, but with the loss of symmetry in the pattern itself. Pattern calculations are generally based on the use of the lowest mode for an individual radiator—e.g., in broadside, end-fire or cardioid patterns of two-element beams. Higher angles or modes may be used in simple HF propagation programs, but not with multiple radiators on 160 meters.

The properties of Tier Three systems depend on the electrical length, the number and geometry of the radiators. Thus, one learns of three-element collinear arrays, such as Yagis, on the Topband Reflector, but there seems to be a greater number of four-element systems in use—e.g., 4-square

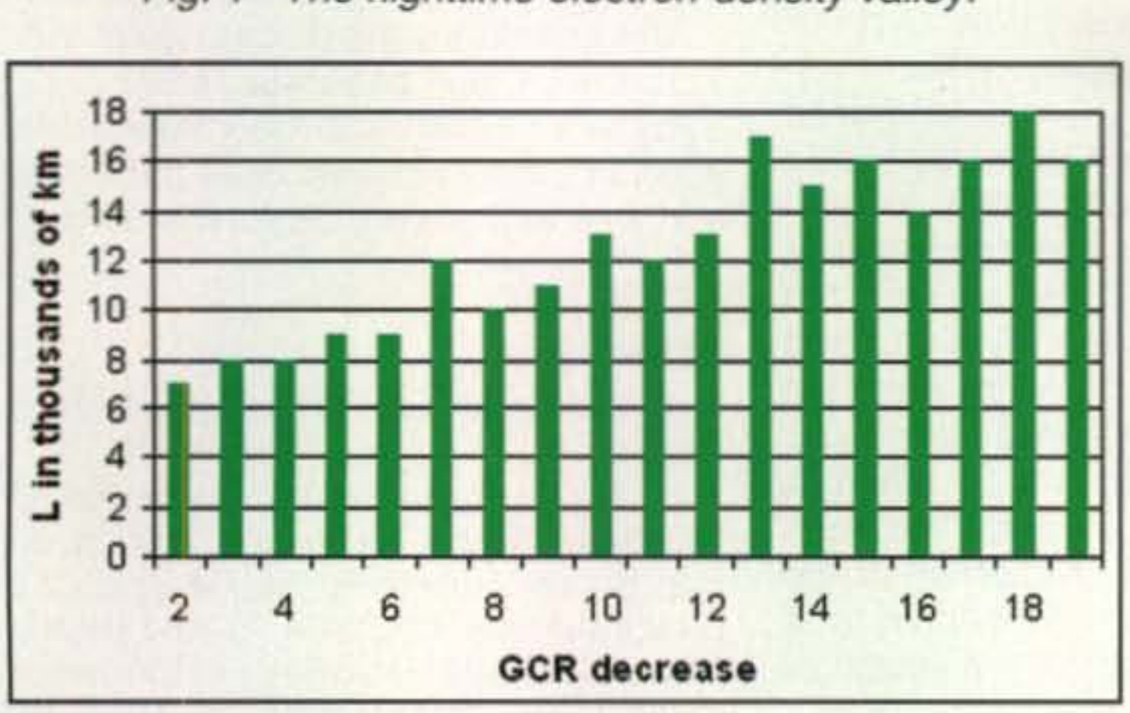


Fig. 2– W7LR log data.

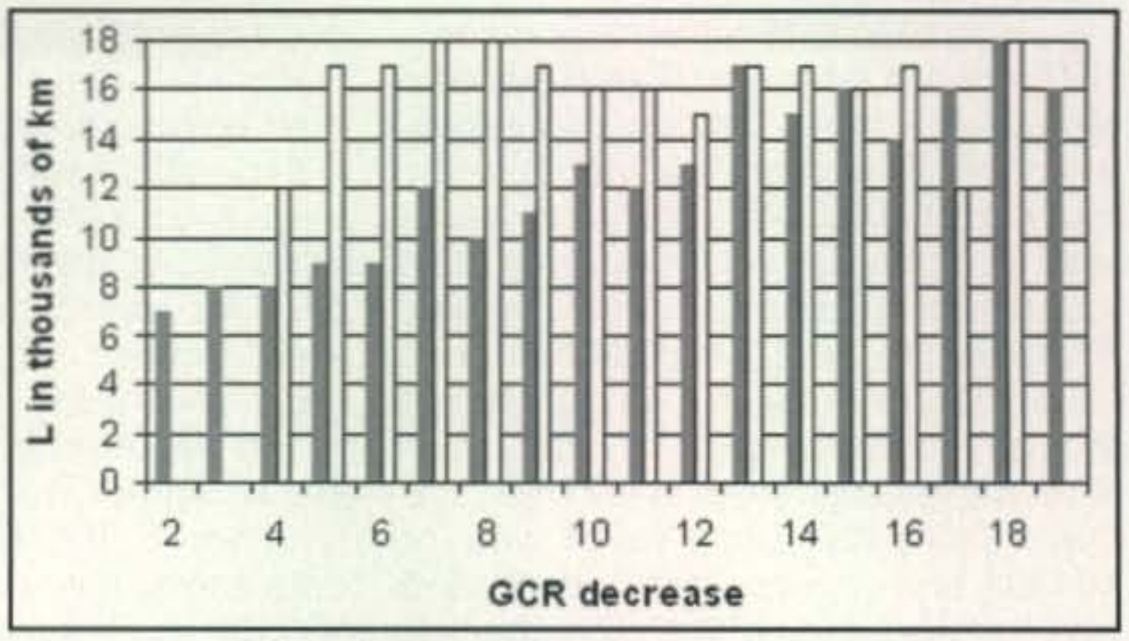


Fig. 3– VY2ZM data added to W7LR data. Dark bars show W7LR.

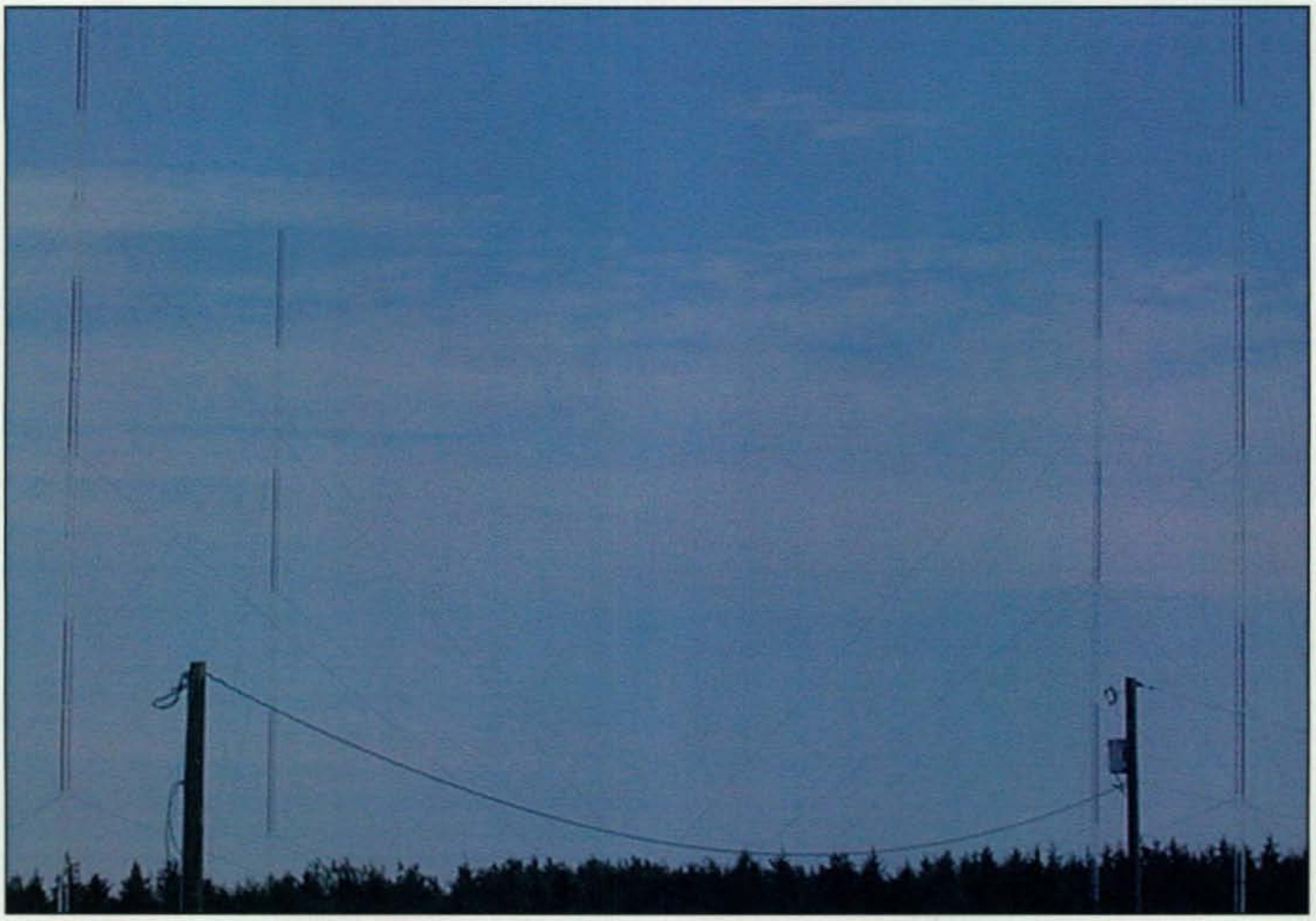


Photo B– The 2×2 steerable broadside/endfire array for 160 at VY2ZM. A wider view of Jeff's entire antenna farm can be seen in the opening photo. (Photos courtesy of Jeff Briggs, K1ZM/VY2ZM)

Condition	Gain
Unidirectional to Europe	8.25 dB
Unidirectional to VK/ZL/KH6	8.25 dB
Broadside to EU and VK/ZL/KH6	5.0 dB in each direction
North and East (at the same time)	6.0 dB in each direction
South and West (at the same time)	6.0 dB in each direction
NW (to KL7) and SE (to ZS6) at the same time	3.0 dB in each direction

Table I– Gain performance of VY2ZM's four-element 160-meter transmit array, focused in different directions from his QTH on Prince Edward Island.

arrays, probably due to the use of phasing systems to steer pattern directions.

The use of large Tier Three systems varies—for pure DXing, contesting, even QRM rejection, as was done by the VKØIR DXpedition to Heard Island with an 80-meter 4-square array. The present study uses data from the Tier Three array at VY2ZM/K1ZM on Prince Edward Island, Canada. Table I shows the gain performance of VY2ZM's four-element transmit array in different settings: The data from VY2ZM was for contest and non-contest periods and was handled exactly the same as that from W7LR, and both data sets were from the same time period, 2003–2007.

While GCRd values show a solar-cycle variation, in that period GCRd values ranged from about 5 to 20, and since both operators carried on almost daily DX operations with comparable powers, the two data sets may be compared at equal GCRd values. These are shown in fig. 3 for contacts in the Pacific Ocean area, where contacts with Australia (15,400 to 18,500 km) were numerous.

The dark bars in fig. 3 are for W7LR, shown earlier in fig. 2, while the open bars are for VY2ZM. Inspection of the data shows the augmented antenna at VY2ZM to be superior at low levels of GCRd activity, contacting VK6, VK9/C, and VQ9, but the ducting-assisted vertical antenna of W7LR held its own at high levels of GCR with FT5, ZD9, and 9V. While the superior results of an augmented system at low GCRd may be intuitively obvious, due to the greater aperture, analytical details are wanting and difficult to develop. It is clear from the data, however, that the advantages of an augmented system that are so obvious at low levels of GCRd are significantly reduced (if not negated) by the ionospheric enhancements that result from significantly higher GCRd levels.

This concludes the discussion of Tier Three with the beautiful rectangular array at VY2ZM. Other geometries and apertures may be considered but would add little to the basic understanding.

References

1. Luetzelschwab, R. C., unpublished, 1995.
2. "On Solar and Galactic Cosmic Rays," *Low Band Monitor*, September 2008, p. 5.
3. Brown, Robert R., NM7M, and Carl Luetzelschwab, K9LA, "A Theory on the Role of Galactic Cosmic Rays in 160–meter Propagation," *CQ* magazine, Vol. 64 No. 11, November 2008, p. 13.0

AMERITRON . . . 800 Watts . . . $899!

More hams use Ameritron AL-811/H amplifiers than any other amplifier in the world!

Only the Ameritron AL-811H gives you four *fully neutralized* 811A transmitting tubes. You get absolute stability and superb performance on higher bands that can't be matched by un-neutralized tubes.

AL-811H
$899
Suggested Retail
4-Tubes, 800 Watts

AL-811
$749
Suggested Retail
3-Tubes, 600 Watts

You get a quiet desktop linear that's so compact it'll slide right into your operating position -- you'll hardly know it's there . . . until QRM sets in. And you can conveniently plug it into your nearest 120 VAC outlet -- no special wiring needed.

You get all HF band coverage (with license) -- including WARC and most MARS bands at 100% rated output. Ameritron's *Adapt-A-Volt*™ hi-silicon core power transformer has a special buck-boost winding that lets you compensate for high/low power line voltages.

You also get efficient full size heavy duty tank coils, slug tuned input coils, operate/standby switch, transmit LED, ALC, dual illuminated meters, QSK with optional QSK-5, pressurized cooling that you can hardly hear, full height computer grade filter capacitors and more. 13¾Wx8Hx16D inches.

AL-811, $749. Like AL-811H, but has three 811A tubes and 600 Watts output.

AMERITRON *no tune* Solid State Amplifiers

ALS-500M 500 Watt Mobile Amp

ALS-500M
$849
Suggested Retail

500 Watts PEP/400W CW output, 1.5-22 MHz, instant bandswitching, no tuning, no warm-up. SWR, load fault, thermal overload protected. On/Off/Bypass switch. Remote on/off control. DC current meter. Extremely quiet fan. 13.8 VDC. 9Wx3½Hx15D in., 7 lbs. **ALS-500RC, $49,** Remote Head.

ALS-600 Station 600 Watt FET Amp

***No tuning**, no fuss, no worries -- just turn on and operate.* 600 Watts PEP/500W CW, 1.5-22 MHz, instant bandswitching, SWR protected, extremely quiet, SWR/Wattmeter, ALC control. 120/220 VAC. Inrush protected. 9½Wx6Hx12D in. **ALS-600S, $1599,** ALS-600 with 10 lb. switching power supply.

ALS-600
$1499
Suggested Retail

AL-80B . . . *Desktop Kilowatt* 3-500G Amp

AL-80B
$1449
Suggested Retail

AL-80B kilowatt output *desktop* linear amplifier doubles your average SSB power output with high level RF processing using our exclusive *Dynamic ALC*™!

You get cooler operation because the AL-80B's exclusive *Instantaneous RF Bias*™ completely turns off the 3-500G tube between words and dots and dashes. Saves hundreds of watts wasted as heat for cooler operation and longer component life.

You get a full kilowatt PEP output from a whisper quiet desktop linear. Compact 15½Wx8½Hx14D inches. Plugs into your nearest 120 VAC outlet. Covers 160 to 15 Meters, including WARC and MARS (user modified for 10/12 Meters w/license).

You get 850 Watts output on CW, 500 Watts output on RTTY, an extra heavy duty power supply, genuine 3-500G tube, nearly 70% efficiency, tuned input, Pi/Pi-L output, inrush current protection, multi-voltage transformer, dual Cross-Needle meters, QSK compatability, two-year warranty, plus much, much more! Made in U.S.A.

Near Legal Limit ™ Amplifier

AL-572
$1695
Suggested Retail

New class of *Near Legal Limit*™ amplifier gives you 1300 Watt PEP SSB power output for *60%* of price of a full legal limit amp! 4 rugged 572B tubes. Instant 3-second warm-up, plugs into 120 VAC. Compact 14½Wx 8½Hx15½D inches fits on desktop. 160-15 Meters. 1000 Watt CW output. Tuned input, instantaneous RF Bias, dynamic ALC, parasitic killer, inrush protection, two lighted cross-needle meters, multi-voltage transformer.

HF Amps with Eimac *3CX800A7*

These *compact* desktop amplifiers with 3CX800A7 tubes cover 160-15 Meters including WARC bands. Adjustable slug tuned input circuit, grid protection, front panel ALC control, vernier reduction drives, heavy duty 32 lb. silicone steel core transformer, high capacitance computer grade filter capacitors. Multi-voltage operation, dual lighted cross-needle meters. 14¼Wx8½Hx16½D in.

Suggested Retail

AL-800
$2045
1 *Eimac*® tube, 1250 W

AL-800H
$3045
2 *Eimac*® tubes, 1.5 kW *Plus*
With Imported Tube
AL-800F, $1875
AL-800HF, $2745

AMERITRON *full legal limit* amplifiers

AMERITRON legal limit amps use a super heavy duty Peter Dahl Hypersil® power transformer capable of 2.5 kW!

Most powerful -- *3CX1500/8877*

AL-1500
$3495
Eimac® Tube

AL-1500F
$3095
Imported tube

Suggested Retail

Ameritron's *most powerful* amplifier uses the herculean 3CX1500/8877 ceramic tube. 65 watts drive gives you full legal output -- it's just loafing with a 2500 Watts power supply.

Toughest -- *3CX1200A7*

AL-1200
$3459
Suggested Retail

Get ham radio's *toughest* tube with the Ameritron AL-1200 -- the *Eimac*® 3CX1200A7. It has a 50 Watt control grid dissipation. What makes the Ameritron AL-1200 stand out from other legal limit amplifiers? The answer: A super heavy duty power supply that loafs at full legal power -- it can deliver the power of more than 2500 Watts PEP two tone output for a half hour.

Classic -- *Dual 3-500Gs*

AL-82
$2745
Suggested Retail

This linear gives you full legal output using a *pair* of *genuine* 3-500Gs. Competing linears using 3-500Gs *can't* give you 1500 Watts because their lightweight power supplies *can't* use these tubes to their full potential.

Call your dealer for your best price!

Free Catalog: 800-713-3550

Ameritron brings you the finest high power accessories!

ARB-704 amp-to-rig interface. . . $59.95

Protects rig from damage by keying line transients and makes hook-up to your rig easy!

ADL-1500 Dummy Load with oil . . . $74.95

Oil-cooled. 50 Ohms. 1500 Watts/5 minutes. SWR< 1.2 to 30 MHz. Low SWR to 400 MHz.

ADL-2500 fan-cooled Dry Dummy Load, $209.95

Whisper quiet fan, 2.5kW/1 minute on, ten off. 300W continuous. SWR< 1.25 to 30 MHz.<1.4 to 60 MHz.

ATP-100 Tuning Pulser . . . $69.95

Safely tune up for full power, best linearity. Prevents overheating, tube damage, power supply stress, component failure.

AMERITRON®

. . . the world's high power leader!

116 Willow Road, Starkville, MS 39759
TECH (662) 323-8211 • **FAX** (662) 323-6551
8 a.m. - 4:30 p.m. CST Monday - Friday
For power amplifier components call (662) 323-8211
http://www.ameritron.com

AMERITRON . . . the world's high power leader!

GOLDEN CQ GIVEAWAY SWEEPSTAKES

PRIZE WINNERS

Here is the complete list of winners of the CQ Golden Giveaway Sweepstakes drawn on May 1, 2009 (see rules in January 2009 issue of *CQ*):

Grand Prize (1)
Winner:
David Cowart, KR4OE
Fayetteville, NC

First Prize (1)
Winner:
Elmer Kornchuk, AA1OQ
Ft. Fairfield, ME

Second Prize (2)
Winners:
Jim Perry, KJ3P
Schwenksville, PA

Ray Pillow, KK4HR
Salem, VA

Third Prize (5)
Winners:
Ted Narasaki, W6TZS
James Padgett, AJ4IM
Harold Economos, AL7GD
Kris Jones, KDØAWG
Greg LaHaie, K7YDL

Fourth Prize (10)
Winners:
Richard Statfield, KA2KDQ
Lee Trousdale, K7VL
Bradley Kerr, KD8GRG
Bevin Alexander, K4ALE
Richard Marth, Interlochen, MI
Daniel Hardy, N8VV
Jim Golden, K6LM
Larry Arave, W7LRY
Wayne Parker, Blenheim, New Zealand
Duane Hagen, KEØVF

Fifth Prize (30)
Winners:
Edward Kotz, AD7GR
Richard Montgomery, W5PRF
James Lanigan, WA3ERQ
Frank Noe, N4KKS
Don Kadron, W3WTU
Dale Holloway, K4EQ
Rob Gasparik, N8IRS
Charles L. Williams, N9VLW
Larry Jones, K5ZRK
Richard L. Deal, WB3BFC
Donald Roberts, KA4ETR
Tom Guyer, KG6AO
Thomas Allison, KJ4BK
Philip Schechter, WØOJ
James Viele, W8JV
Frank Klecic, W3CSA
Bob Wold, K6ZLY
James F. Platt, KBØVHW
Bill Salminen, N1UYU
Jack Slocum, WB2FXK
Edward Miller, AD4YB
Richard Thorn, KG8MD
Stu Mirowitz, WB2CJL
Dennis McCarthy, N4DDM
John W. Dossey, K5GD
Robert Huebotter, KF6FTA
Steven S. Fisher, KB8SCI
Jeff Walker, K4BP
Thomas Crelling, KE7SW
Donald Wilson, ADØNW

Sixth Prize (100)
Winners:
Glenn Winningham, KD8JV
Cameron C. R. Bailey, KT3A
Steve Blackstein, AD7VL
George Boulles, N9GX
William Gillette, WB8AWE
Gary Hornbuckle, K9MMS
Gary Elliott, K7OX
Ralph E. Christman, KD8JNI
Jonathan Fox, KT6LA
Stanley Egelberg, W2WQK
Louis Vescio, W8LPV
G. Ed King, K8OT
Tony Curtis Lambert, KC2PRN
Dwight Bolton, AC7VT
Roger Rippy, W7RIP
Walter LaFleur, K5LWN
Hilary McDonald
Joseph Molon, KA1PPV
Louis Visconti, KD2MU
Gary Santucci, N3LLX
Robert McLeod, K4RSP
Paul Lunn, W8CKW
Eldon C. Quick, K2AIG
Wilbert Musselman, WD4HTE
Stephen L. Lipe, KBØUJJ
Charles Mahnke, K9HXI
Timothy Sullivan, K4IIS
Kenneth Grayson, WA1CWG
William R. Cervelli, KC8VFY
Anthony Simons, W8AF
Thomas Brownlee, AF2D
William Schwanda, N2PKJ
John Brassell, AK3O
Wim DeWilder, K6TE
Steven Sewald, N7OZN
Jimmie Cates, KA5VEM
H. A. Brown, W3KHZ
Bill Hellman, NA2M
P. M. Hamilton, K7RZS
Gene Roberts, N4HFW
Jeff Kincaid, W6JK
Richard J. Winter, KG4ANT
Dale Hummel, KL2BO
Donald A. Olejnik, W6KAT
John F. Winner, Jr., N3SEO
Christopher A. Bohn, NØRZT
Jack Meador, AK7AT
Nathaniel Stein, N1FZX
Al Taillon, KD5NVE
Charles Slabe, KD8GTJ
David W. Crane, K4RU
Merrill Roland, KD4BYL
Donald Rome, AA2ZS
Dave Goggio, W4OGG
Dwight ZeBell, KC9MWV
Robert Elm, WB6FOO
Tom Schuler, NØOSG
Daniel Oaks, WA7DO
John S. Carson, KD5SRW
Louis Persons, W4EYE
Robert Norris, Jr., KA5KXT
Wilbur Ort, KB9IQW
John W. Sherman, W6KAS
Richard Porter, AA4SC
Larry Cordi, KB2DYU
Jim Cox, W7QIS
Louis Hodges, W9IL
Mike Branda, K4HN
Allan H. Kaplan, W1AEL
Patrick Boland, KE4BUO
Ronald L. Hucke, KI9B
John H. Hagens, KE4OVQ
Kevin Groce
Gary Hill, AAØCL
Dave Cameron, KC2IHG
Bruce Phegley, W4OV
Tom Verachtert, WD9IWP
J. F. Hisserich, AFØF
Ken Wicihowski, WD9ERO
Dwain Sims, AC5EH
Jim Hammock, KIØDN
W. G. Roach, VE3BNO
Sammy Earl Neal, N5AF
Jim Thibeault, KF4NBG
David T. Hill, Jr., N8RGB
John Atkinson, KB9MQL
Scott Kraemer
Ron A. McKee, AJ7T
Steve Morgan, K8FFO
David Newman, NE9H
John Low-Shang, VK3ZIS
Joe McGerald, AF6NI
Clarence F. Arhdt, W6DFG
Nathan McFerrin, KJ4FDV
William Speedie, KA6T
Tandy Martin, K5TRM
William R. Cooper, NU9DE
William Beeman, KD8DGG
Arthur C. Sandstrom, N5ATI
Paul Lux, K1PL

Congratulations to all of our Golden Giveaway Sweepstakes winners, and thank you to all who entered! We will be in touch individually with each winner to confirm details, including size and color on CQ apparel prizes.

Get ready for your next 6M DXpedition...

The 6M8GJ yagi is the culmination of many years & countless versions of the "40 Foot Trip Yagi." Inspired by W7GJ who, for years tirelessly promoted 6M EME & DXpedition activity. Computer optimized for the exact conditions we find in most DXpedition locations, a height of 20 to 30 feet. Boom sections are 2 1/2" diameter and the rest of the sections all telescope in 1/2" or 1/4" increments. The entire boom breaks down to a 2 1/2" x 5" x 45" bundle. Rugged 1/2" x 40" element center sections and 3/8" diameter tips mount to boom sections with commercial grade clamps. A new Fairite 1:1 Balun for extended service. Optional items include: Nylon carry bag & portable 20+ foot mast that telescopes as well and fits in the same carry bag with the antenna. The mast comes with Dacron guys, slip ring & anchors.

The start of our new HF Light Duty Yagi's

The 20M5LD features the same on air performance as it's very popular, heavy weight brother the 20M5, but it is much lighter. We listened to our customers and have carefully reduced it's weight significantly while reducing the wind survival rating by only 10 MPH. The 20M5LD has the same clean pattern and great gain across the band. We have also made it a "Direct Feed" yagi requiring no matching, only a 1:1 balun. It is easier and quicker to assemble as well as easier to install. Stacking a pair will cost less and put less stress on your tower ! Mechanically, a pair of machined, 3/8" x 4" aluminum boom to element plates and saddles ground each parasitic element and keep elements aligned perfectly for years to come. Elements taper in 1/4" steps from 1-1/4" to the adjustable 1/2" tips. The re-designed 44 foot x 3" boom is a full 1/8" wall in the center section but the tips are half the weight at 1/16". All critical hardware is stainless steel. The 20M5LD is available through our fine distributors worldwide.

Coming Soon →

- New Line of Baluns for our HF Antennas
- New Line of Build Your Own Antenna Parts

M2 Antenna Systems, Inc.
4402 N. Selland Ave.
Fresno, CA 93722
Tel: 559-432-8873
Fax: 559-432-3059

M2 Offers many HF Logs, Monobanders and Multiband products.
Not to mention our full line of VHF, UHF and Microwave antennas.
Were your one stop shop for all of your
High Quality Antenna needs.
Check us out on the web at www.m2inc.com

What You've Told Us...

Our March survey asked about your QSLing practices. Nearly half of you who responded to the survey (46%) say the statement that most closely reflects your approach is that you respond 100% to all QSLs you receive; another 32% say you send QSLs only to station whose cards you need or who have QSLed you; and 21% say you QSL all contacts, 100%. In addition, 6% each say you only QSL DX stations or do not QSL at all; 2% respond to QSLs only if they are accompanied by an SASE or IRCs, and 1% QSL only in response to cards accompanied by cash.

Asked your primary reason for exchanging and/or collecting QSLs, 46% of you said it's because they're exciting to receive and fun to look at; 40% for credit toward operating awards; 25% for a personal record of the people you've contacted, 7% for other reasons and 4% do not collect or exchange QSLs.

The next question asked why you think that fewer hams seem to exchange QSLs today. Close to half of you (45%) blame the cost of postage; 34% said too little interest; 7% each said cost of printing or that more people operate only on repeaters, where nobody QSLs; and 6% each said it was due to people talking only to people they already know and "other."

Asked about online/electronic QSLing, 56% of you do not participate; 28% of you use the ARRL's Logbook of the World (LoTW), 26% use eQSL.cc, 2% use single-station online QSLing, and 1% use another electronic or online QSL/logbook exchange. Nevertheless, 50% of you believe electronic/online QSLing is a reasonable alternative to the high cost of traditional QSLing, while 19% disagree, another 19% aren't sure and 10% don't care. Finally, 67% of you use the ARRL's incoming QSL bureau (or its equivalent) and 55% use the outgoing bureau.

This month's free subscription winner is Joseph Hare, KC2UDL, of Wallington, New Jersey.

Reader Survey June 2009

We'd like to know more about you—about who you are, where you live, what kind(s) of work you do, and of course, what kinds of amateur radio activities you enjoy. Why? To help us serve you better.

Each time we run one of these surveys, we'll ask a few different questions and ask you to indicate your answers by circling numbers on the Survey Card and returning it to us. As a bit of incentive, we'll pick one respondent each month and give that person a complimentary one-year subscription (or subscription extension) to *CQ*.

This month, we'd like see how high your tech is...

Please answer by circling the appropriate numbers on the reply card.

1. Do you currently use any of the following? (Circle all that apply)
- A tube radio 28
- An all solid-state radio 29
- A software-defined radio 30
- A radio that *may* be controlled by a computer 31
- A radio that *must* be controlled by a computer 32

2. Do you have a computer in your ham shack?
- Yes 33
- No 34

3. If yes, what operating system does your computer use?
- Mac OS-X 35
- Mac OS-9 or earlier 36
- Linux/Unix 37
- Windows® Vista 38
- Windows® XP 39
- Windows® 2000 or earlier 40
- Other 41

4. If you have a computer in your shack, how do you use it in conjunction with your hamming?
- Contest operating 42
- General operating (e.g., PSK31, WSJT, Echolink) 43
- Logging and award tracking 44
- In-station operating aids (e.g. Skimmer) 45
- Cooperative operating aids (e.g., DX cluster, WSPR) 46

5. Do you have a computer connected to the internet?
- Yes, via dialup 47
- Yes, via broadband 48
- No 49

3c. If yes, how do you use the internet in conjunction with your hamming?
- Blogging (e.g., eHam.net, QRZ.com) 50
- Callsign lookups (e.g., QRZ.com, hamcall.net) 51
- Code practice/license study 52
- DX spotting 53
- E-mail 54
- Getting ham radio news & information (e.g., ARRL or magazine websites, *WorldRadio Online*, eHam.net) 55
- Getting propagation information 56
- Online QSLing & operating awards (e.g., eQSL, LoTW) 57
- Remote station control 58
- Researching/purchasing new gear 59
- Other 60

Thank you for your responses. We'll be back with more questions next month.

MFJ high-accuracy *Digital* SWR/Wattmeter

MFJ-826B
$179.95

MFJ's high-accuracy digital SWR/Wattmeter gives you three 10-bit frequency compensated power ranges!

New!

An optimum power range is automatically selected. Each range has full 10-bit resolution. A low range (25 Watt full scale), a mid-range (250 Watt full scale) and a high-range (1500 Watts full scale) covers the entire amateur power spectrum with high accuracy.

A built-in frequency counter selects the appropriate frequency compensated data set to insure highest accuracy for each band. It also displays your transmitted frequency and provides digital frequency readout for older rigs and QRP rigs such as MFJ-9420/9040/9340.

True peak or average forward and reflected power, SWR and frequency are *simultaneously* displayed.

Bargraphs makes tuning antenna tuners, amplifiers and transmitters easy. You can select bargraphs to display forward and reflected power *or* forward power and SWR *or* SWR only.

MFJ's PeakHold™ freezes high-est forward power displayed (bar segment also) for 1, 2 or 3 seconds.

MFJ's *TrueActive™* peak reading circuit gives you *true* peak or average power.

When SWR is greater than 1.5 to 3 (selectable) an alarm LED lights and buzzer sounds.

Has large high-contrast *backlit* LCD display.

Use 12 VDC or 110 VAC with optional MFJ-1312D, $15.95. 6½Wx2⅝Hx6D inches.

MFJ *giant* SWR/Wattmeter

World's *largest HF SWR/Wattmeter has giant 6½ inch meter!*

This one you can SEE! Extra-long scales gives you highly accurate SWR and power measurements. Huge numbers makes reading easy across your shack.

Like your analog watch, one glance at the meter needle gives you fast and accurate readings without actually reading the scale.

MFJ's exclusive *TrueActive™* peak reading circuit captures *true* peak or average forward and reflected power readings.

Has 20/200/2000 Watt ranges for accurate QRP or QRO operation.

MFJ-868
$149.95

Exclusive MFJ Wattmeter *Power Saver™* circuit turns on meter only when RF power is being measured.

Covers 1.8-30 MHz. Use 9 volt battery or 12 VDC or 110 VAC with MFJ-1312D, $15.95. 7Wx5½Hx5D in. SO-239 connectors.

New!
Giant 144/220/440 MHz SWR/Wattmeter

MFJ-867, $159.95. Like MFJ-868 giant SWR/Wattmeter, but covers 144/220/440 MHz.

www.mfjenterprises.com . . . World's largest selection of HF/VHF/UHF SWR Wattmeters!

MFJ-822
$59.95

Lighted 3" Cross-Needle Meter, SWR/Watts, 1.8-200 MHz, Fwd/Ref pwr, 30/300W. Compact.

MFJ-862
$59.95

Lighted Cross-Needle Meter, SWR/Watts, 144/220/440 MHz, 30/300 Watts Fwd, 60/6 W Ref.

MFJ-864
$99.95

Lighted Cross-Needle,SWR/Watts, 1.8-60/144/440 MHz, 30/300W Fwd, 6/60W Ref. Hook up HF&VHF/UHF rigs.

MFJ-815C
$109.95

Lighted 3" C/N Meter, SWR/Watts, 1.8-30 MHz, 300/3000W Fwd, 60/600W Ref. True Peak.

MFJ-812B
$39.95

VHF SWR Wattmeter, 2M/220 MHz, built-in field strength meter, Fwd/Ref, Pwr in 2 30/300W ranges.

MFJ-4416 *Super* Battery Booster

Boost battery voltage as low as 9 Volts back up to 13.8 VDC! Keeps your transceiver at full power output, compensates for run down battery, wiring voltage drop, car off . . .

MFJ-4416
$139.95

Boost battery voltage as low as 9 Volts back up to 13.8 VDC! Keeps your transceiver at full power output, provides full performance/efficiency, prevents output signal distortion and transceiver shutdown. Compensates for run-down battery, wiring voltage drop or when car is off. Provides up to 25 Amps peak with 90% efficiency. Selectable 9/10/11 Volts minimum input voltage prevents battery damage from over-discharging. RF sense turns MFJ-4416 off during receive to save power and increase efficiency. Adjustable 12 to 13.8 VDC output pass-through voltage improves efficiency and lets transceiver run cooler. Has output over-voltage crowbar protection. *Anderson PowerPoles®* and high-current 5-way binding posts for DC input, regulated output. 7¾Wx4Hx2⅛D inches.

100 Watts SSB from cigarette lighter socket!

MFJ-4403
$119.95

4-Farad capacitors supply 25 Amps needed for 100 Watts SSB peaks and replenished by 10 Amps average from cigarette lighter socket. Protects against reverse/over voltage, voltage transients, short circuits. Provides super noise/ripple filtering.

MFJ AC Line RFI Filter

Eliminate obnoxious power line and computer hash and noise by 6 S-units!

Filters and reduces AC power line RFI, hash, noise, transients, surges generated by computers, motors, RF transmitters, static/lightning by 30 db and up to 60-80 dB with a good earth ground. Super fast, *nano-second* overvoltage protection. Four 3-wire 15A, 120VAC outlets.

MFJ-1164B
$79.95

Transceiver Surge Protector

MFJ-1163, $69.95. Protects your expensive transceiver from damaging power surges. Capacitive decoupling and *ultra-fast* MOVs protection. 4 AC outlets.

MFJ all-in-one *Transmit Audio Console*

MFJ-655B
$219.95

MFJ all-in-one *Transmit Audio Console* gives you an *8-Band Equalizer* for full quality ragchewing audio *or* powerful, pileup penetrating speech . . . Adjustable *Noise Gate* gives you transparent, back-ground noise reduction . . . Clean low-distortion *Compressor* gives you more powerful, richer, fuller sounding speech and higher average power SSB . . . Smooth *Limiter* keeps audio peaks from over-driving your transmitter, prevents SSB distortion and splatter. *Universal Mic-Interface* lets you use any microphone with any transceiver. Has low-noise preamp, mic voltages, PTT jack, impedance matching, level controls, RF/audio isolation, VU meter, headphone monitor, auxiliary input.

Free MFJ Catalog

Visit: http://www.mfjenterprises.com or call toll-free 800-647-1800

• 1 Year *No Matter What™* warranty • 30 day money back guarantee (less s/h) on orders direct from MFJ

MFJ ENTERPRISES, INC.
300 Industrial Pk Rd, Starkville, MS 39759 **PH:** (662) 323-5869
Tech Help: (662) 323-0549
FAX:(662)323-6551 8-4:30 CST, Mon.-Fri. ***Add shipping.***

http://www.mfjenterprises.com for instruction manuals, catalog, info

If you've ever spent much time in DX pileups, then you've probably had your own experiences with bad behavior and poor operating ... or maybe you're responsible for some of it! If you get DX QSLs from a QSL manager, you may have received an insert containing "Uncle DX's 20 Suggested Rules for Pileups." Uncle DX has been kind enough to share them here with all of us, along with some background and explanations.

Let's Improve Our DX Pileup Act

BY UNCLE DX*

We love our hobby and want it to maintain the highest standards in all respects, especially when others are listening around the world. To that end I'd like to address some of the behavior observed in DXing pileups.

For years, through his column in *CQ* and his own DX Publishing venues, Carl Smith, N4AA, has led a cause to improve this behavior. He asked me several years ago to come up with some "suggested rules for pileups." After much thought and editing by some well-known DXers who have been on both ends of the fray, they were published mainly in the form of a little green sheet for QSL managers to include with QSLs. Some 50,000 have been printed and distributed by some very well-known managers all over the world. There are only 20 suggested rules and most hams I've talked to agree with them, but there are a few who don't. This is okay and shows they are being read. Carl has been a leader in this cause for a long time, but not the only one, I might add, since Mark, ON4WW, has done a noteworthy job as well, with a broader agenda in the European community.

It is my understanding the IARU and ARRL have recently addressed this problem by the publication of a pamphlet (67 pages) authored by Mark, ON4WW, and John, ON4UN. It is offered now on the ARRL website. To

**Uncle DX is the pseudonym of a well-known DXer who would prefer to remain anonymous.*

This is the team of operators who put 5A7A on the air in November 2006, providing nearly 110,000 QSOs. They certainly experienced pileups! (Photo from the 5A7A web page)

this we say "good" and we appreciate everyone doing what they can to help. Our thanks to *CQ* also, as they too have taken a lead in this effort.

I want to discuss each of the 20 suggested rules and, hopefully, if you agree, you'll pass them along to others. Together we can bring honor to DXing within our great hobby. It's a simple effort to do nothing more than address a problem most can see needs attention… behavior in DX pileups.

Suggested rule 1. The DX station operators are in charge of any pileup.

If I need to explain why it's number one on the list of 20, then whatever I say here will mean nothing, but I don't think this is the case.

DX operators *are* the reason we are in the pileup. They are the ones who are spending the money, giving up their time, often risking their lives, suffering the cold, heat, bugs, and yes, crabs crawling up their legs. I'm soft so I would hate this, but they enjoy it, hi. However, most of the DX we work are hams sitting in their homes around the world and looking forward to a new exciting contact.

So why shouldn't the DX operators be in charge, setting their rules and expecting us to follow them? A no-brainer, but from behavior in recent years, many of us continue to feel we are in charge and ignore their suggestions and operating practices. Hence the first suggested rule and all others follow in the dust.

If we can't follow their rules, even if we disagree with them, we certainly don't need to make it miserable for others. Examples are constant calling when it's clear the operator is trying to work others, not getting into the timing of the DX and helping to keep the rate up, and U.S. stations calling when the DX is standing by for some other part of the world are only a few examples to make the point. Then there are times everyone is behaving in a super manner. Case in point is Dave, K4SV, operating TO5DX on 17 meters CW, working JAs, and for almost 2 hours I've listened closely to see if anyone I can hear other than JAs are calling. *No.* I'm proud and know I don't hear everyone, but it sounded like Dave was knocking 'em off without problems.

This comment on rule one is longer than the others, but please hang in there with me.

Suggested rule 2. The DX station should make and adhere to its operation rules quietly and respectfully.

What I'm saying here is an extension of the first suggestion. They make their

Roger, G3SXW, has operated from many places over the years and is very good at timing. He is a CW op, and here he shown "tweaking" the amplifier at HVØA in 2007, while Francesco, IKØFVC looks on. (Photo courtesy of G3SXW)

rules, and they have a responsibility to follow them. If they make a point of saying up 5 to 10, they should not go 20 or more. It happens! If they say EU only, this means *Europe,* and not NA or Asia. If they say only 3s, they should not work a 4. The point is to listen to them and follow their instructions and pattern, but expect them to also follow their rules. It speeds things along and keeps down frustration. If they break their rules, it becomes a free-for-all and indicates they need lessons in operating, albeit those crabs may be making it to a sensitive part of their anatomies. It's in everyone's interest that we all are on the same page when it comes to following the leader—the DX operator, too.

Suggested rule 3. The DX station should use, when appropriate, call areas and areas of the world for better accuracy, rate, and order.

It wouldn't be appropriate for me to make their rules for them, but it does work to split or separate the multitudes. They can hear better, use the gray line perhaps, speed things up, offer a chance for the more difficult areas of the world, and level the playing field. Some DXers don't like to do this and that is their business, but this is offered as a way to keep order and meet objectives. Funny, but I find it useful to take the time they are standing by for other parts of the planet to eat, visit studio B, and talk with the XYL! Even check e-mail, hi. But it's their call, not ours, and we at the other end should comply.

Suggested rule 4. The DX station should use split operation—transmitting and receiving on different frequencies—and spread stations out, keeping in mind others *not* in the pileup. A must.

Again, their call, but I've noticed, too, especially on the lower bands, that the DX may not be hearing some high-angle stations talking to their buddies as they listen on those frequencies. Gosh, what a mess. No clear answer here and not suggesting one, but if at all avoidable, the DX station shouldn't listen on a frequency where there are QSOs. We, too, must listen to our transmit frequency when operating split ... our responsibility. Most DXers know the advantages of operating split and we won't get into them here. The majority of DX stations use it, but some start off simplex for a few minutes and then it takes the rest of the world longer to "hear" or figure out "UP."

Spreading out doesn't mean half the band, either, which is nothing short of covering up poor operating on the part of the DX operator. There is a reasonable number of kHz in the equation. One thing I find almost amusing is some will say up 5 to 10 and never go more than 5, but most DX stations do this very well.

Suggested rule 5. The DX station should give its callsign at least every 10 minutes and maintain a pattern, especially when ending a QSO.

This is basic and followed for the most part (better on CW, I think). The pattern I'm referring to is a consistent "sign off" after a QSO. Some I like are: "up," "down," "callsign," etc. The callsign is a bit longer, and one I'm fond of since it kills two birds at once. One thing many do is trust the Cluster with the correct callsign if the DX station doesn't give it often ... a dangerous thing to do! It is our responsibility to get the call right and the best way to do that is to *hear* it ourselves when the DX station identifies.

Suggested rule 6. The DX station should create a rhythm or timing that maintains a good rate and allows the pileup to call at the right time.

This suggested rule for the DX station is coupled directly to number 5. It's separate because I'm a big believer in a musical rhythm for correct calling on our part, thereby not stepping on our buddies, reducing frustration for all and helping the DX operator have the best rate possible. One well-known DXer always wants us to wait a split second before calling after he stands by. Good idea and I liken it to something my dad told me when I was 8 years old and learning rabbit hunting. He had given me a hammerless double-barrel Steven's 410 shotgun and wouldn't let me put a shell in the right (or left?) barrel. Natural instinct was to pull that trigger first. Guess what? It made me delay my actual shot and therefore I was more accurate. I never forgot that lesson as it did work and it will work for some pileups, too. Do what we have to do to make the rate as high and smooth as possible for the DX station.

I'll digress to say there are many DX stations that are very good at timing and that musical touch. Some I know, after listening to them for years, are G3SXW, G3TXF, G3AB, K4UEE, K4SV, AA4NN, K4ZLE, K8LEE, S9SS, K4LTA, and K3ZO. There are many others, *and it's a pl*easure to listen to them master the pile.

Also, I believe QSK (break-in keying) helps this issue very much.

Suggested rule 7. The operators in the pileup, if not sure of a QSO, should dupe and the DX operator should not waste time commenting.

Many don't agree with this and I've heard from some about it. If rate and smooth operating are goals, this is the best approach. So many things could have gone wrong in defense of the calling station. QRM on the DX station comes to mind to prevent them from hearing all their callsign, etc. Computers will take care of the dupes quickly for them I suspect, so move on, and who among us will intentionally dupe a DX station?

Suggested rule 8. The DX station should work those who will create the fastest rate, at least at first, then make an effort to work the weaker stations.

I was thinking of all the little pistols or QRPers, but being a realist, I believe the rate for the DX station, at least at first, should guide their operation. At some point it's nice to know they will reach down and on the edges for the weakest of the weak, and most do. Those who do the heavy work of building tall towers and larger antennas certainly should work them

first. So this suggested rule is more personal for me and perhaps should have been left out.

Suggested rule 9. No one should lecture on the air.

In the spirit of what I feel ham radio is all about, be kind and courteous to others who share our hobby. If you are the DX station, let your operating style be known but do it in a manner that doesn't get everyone discouraged from the beginning. Lecturing just isn't necessary and turns off most of us.

Suggested rule 10. Everyone should always require and give full calls.

The benefits of this should be well understood by everyone. Picking up the "whole" callsign relative to rate, less frustration, and good operating is best. I still hear the "last two," and it makes me cringe. The best DX operators *never* want anything but the entire callsign, so please accommodate them.

Suggested rule 11. Know and practice the gray line.

For the most part I believe this is practiced; however, some of us make our own gray line when it is the dark of night or high noon. We can help the DX station work the gray line more than we do, but they, too, should play this tool, especially for 160/80 and help those areas that may not otherwise stand a chance to make it in the log. Logging programs make it easy and in color, too!

Suggested rule 12. Know your equipment, such as the split button, audio levels, keying waveform, etc.

In other words, know how to work your radios *before* getting on the air. Having a clean signal involves little more than asking a buddy to help, since admittedly the operating manual for most radios adds little to setting up the correct waveform on CW or the right processing on SSB. If you don't know about CW waveform, it changes with speed in some radios and should be addressed to make it easier for your buddy to hear that weak DX entity. Most DXers know the benefits of good audio, CW waveform, and that button called "split." VFO A or B takes a bit more attention but is necessary to learn how to use it effectively.

I'll only add that most of us are not intentionally putting out a bad signal or want our buddies to hear us calling on top of the DX. Pay attention and know your radio, and sometimes slowing down is a good thing.

Suggested rule 13. Never be a "KC Cop"... Never.

"Kilocycle" or "KC" cops are a pet peeve of Uncle DX. The DX station has nothing to do with these idiots and LIDS but I've got to mention them. Did they not hear their parents who earnestly tried to teach them not to "butt in"? I liken it to some of the TV news shows these days where everyone is talking at the same time. I hate it.

KC cops are probably more responsible for more folks *not* getting into logs than anything short of blatant QRM from sick people lacking in proper upbringing. Most can't work the DX because they are not capable or are not loud enough, so they try to interfere with what they cannot master. Pathetic!

An occasional "tuner-upper" will happen. We all have done it and felt badly afterward, but that's life. Forget it and try to do better. The "wrong VFO" is something we have done as well ... feel bad and try to do better.

Suggested rule 14. Operators giving spots on the DX Cluster should ensure their accuracy.

This is somewhat funny and one comment that many of you could write better than I. We see stuff from the alley, poor keyboard operators, gutter comments, bigots, know-it-alls, and self-professed saviors of ham radio, but *mostly* carelessness. How many times have we clicked on a spot that went into the log and it was wrong? I have, but the proper way is to hear the callsign yourself and when you spot it, make sure it's correct. After all, like it or not, your call is attached to everything sent out. Have pride in your call. How does this make for better behavior in pileups? Several ways—less calling and more listening, less QRM for others to contend with, and the rates will improve. It's important.

Suggested rule 15. Keep away from personal, political, and religious comments at all times. Keep all comments in the true spirit of ham radio whereby *all are equal.*

Rise above in the pileups and practice the golden rule.

Suggested rule 16. Don't rush when giving your call as the DX station is standing by, especially on CW. Time will be lost trying to obtain *all* of the callsign.

This suggested rule was covered above to some extent, but a well-known DXer with lots of experience in pileups urged me to address it in simple terms, hence a separate suggestion.

His point is when he would finish his "turn-over" from a previous station, others would be calling and he would just hear part of the call. We should allow the AGC/AVC to do its thing in the DX operator's radio! A split second will improve your chances of being picked up with a full callsign, which most good DX operators truly try to obtain before they come back.

Suggested rule 17. Get in the rhythm. Don't call the DX station constantly.

This is covered above, too, but many of us are guilty, for many reasons, of not getting into the DX operator's rhythm. Maybe we are not hearing, as well due to weak signals, KC cops, interference, etc., but perhaps listening more will increase our chances of getting into the log and make it easier for our buddies, to say nothing of the DX.

This may be one of the reasons for the suggested rules to start with. Many call excessively without regard to whether the DX comes back to anything resembling their call. A "6" or a "West coast only" is exactly that. N4AA is not KB4C. *Remember, your buddies are listening!*

Suggested rule 18. Let the last station complete his/her QSO.

They deserve to finish their QSO just as we would like to have our own QSO finished—solid in the log.

Suggested rule 19. Use only the power it takes and figure out what that is.

It's not difficult to figure out what that means. As I often say in QRP talks, power covers up poor operating skills and/or bad coax! I'm biased, since QRP is where it is, but my point is to reduce your power to what it takes, making it better on others and your satisfaction will be better, in my judgment. Some licensing authorities actually do address this issue, don't they?

Suggested rule 20. Figure out the DX operator's operating practice for greater success.

This is a catch-all and befitting of the last suggested rule.

We will have better success if we follow the DX operator's techniques and his/her rules. Work to find out what those are and enjoy a pileup with hopefully better behavior.

Summary

There have been some other ideas for these suggested rules for pileups, and some of you may wish that some be added to this list and others removed. This effort is a simple attempt not to tell you what is the only good way to practice pileup behavior, but rather to get you thinking and perhaps help you influence others who need help.

One of my favorite comments was that I should have listed as one suggested rule to "listen." The point was well taken, but my take was this is far more basic than chasing DX. Yes, of course listen, and listen some more, but if I need to say this to a seasoned DXer or even a novice DXer, there needs to be something far beyond "Suggested rules for DX pileups."

Enjoy DXing, be kind, learn your radios, be professional, be proud of your call and hobby, be respectful of others, and for gosh sake, be supportive of those who are perhaps not even safe. We owe DXpedition operators and DX operators in general a debt of gratitude, support, and respect. The place to start is in the pileups with behavior our mothers would smile upon.

73/DX, Uncle DX

Array Solutions

Your Source for Outstanding Radio Products

Count on us for sound, reliable, efficient and effective equipment. It's been our passion for over 18 years.
Make sure to visit our website to see all that we have to offer.

Array Solutions is pleased to announce that we now carry a selection of fine products from:

TOKYO HY-POWER

and there's MORE Good News from:

WX9B ARRAY SOLUTIONS

Sales and service from one location. Array Solutions is the factory authorized center for all Tokyo Hy-Power Amplifiers. No matter where you purchased your Tokyo Hy-Power Amplifier, contact us for your service needs.

Re-introductory pricing. Contact us for details or see the web site.

No cable? No Problem. We have RADIO cables for all Tokyo Hy-Power products.

Our pledge to you. At no additional charge, each Tokyo Hy-Power amplifier purchased from Array Solutions will be configured with the proper AC mains plug, set up for 230V or 115V and TESTED BEFORE IT'S SHIPPED TO YOU.

HL-1.1KFX
Lightweight HF Linear

This world-class compact HF amplifier has built-in switch mode power supply to save the weight. It is compatible with wide AC line of 100 to 250V, and is best suited for DX-peditioners. 22.5 lbs.

HL-1.5KFX
HF/50MHz Linear

The amp utilizes an advanced 16 bit MPU (microprocessor) to run the various high speed protection circuits such as overdrive, high antenna SWR, DC overvoltage, band miss-set etc.

HL-2.5KFX
HF Linear Amplifier

The HL-2.5KFX is the lightest and most compact self-contained 1.5kW output HF LINEAR amplifier in its class. The amplifier's decoder changes bands automatically with most modern HF transceivers.

HL-1.2KFX
750W PEP HF Desktop Linear

This Solid State, world-class compact 750W HF amplifier is the easiest to handle and operate. The amplifier's broadband characteristics require no further tuning once the operating band is selected.

Tuners from TOKYO HY-POWER

HC-1.5KAT
HF 1.5KW Auto Tuner

HC-200AT
HF/6m 200W Auto Tuner

More quality products from Array Solutions...

Low Band RX Antennas
AS-AYL-4 is used in backyards and on DX-peditions all over the world.

QSK Master
Add QSK to any amplifier quickly and without heavy technical modification. Quiet down that clunky relay with our whisper quiet QSK machine.

RatPak
The leading remote coax switch. High isolation, high power, and reliable.

PowerMaster
VSWR/Watt Meter and Station monitor can save your amp, fast bright display and laboratory accuracy. 3kW, 10kW, and 20kW

StackMatch Series
2, 3, and more antenna switching and phasing. New StackMatch Plus with built-in broad-band BIP BOP.

BandMaster
Universal band decoder, with more features than any decoder made.

Array Solutions Introduces the World's Most Accurate Precision Pendulum UTC Clocks at Dayton 2009 — Booths 613-622 —

AIM 4170
Laboratory quality impedance analyzer for antennas and networks using our patent pending technology 5 kHz to 180 MHz.

Remote Auto-Tune Antenna Tuner – 200W **NEW!**

FilterMax Series
Bandpass filters that set the benchmark for performance, mono band or auto switching.

SixPak Series
2, 6, and 10 antenna switches. Use them to do SO2R or Multi-Op.

ANNOUNCING... RigExpert AA-200/AA-500

A Powerful Handheld Antenna Analyzer designed for testing, checking, tuning or repairing antennas and antenna-feeder paths in 0.1 to 200 MHz range.

CG-3000 Remote Auto Tuner – 200 Watt Model
The CG-3000 is a further development based on the CG-2000 model. This new addition to the range has an even more professional and versatile case made from ABS and includes an "o" ring seal between the two halves of the body.

www.arraysolutions.com

WE'VE GOT YOUR STUFF
We have broadband wire antennas, portable, fixed antenna masts and MORE!

Phone 972-203-2008
sales@arraysolutions.com
Fax 972-203-8811

WX9B ARRAY SOLUTIONS

BY IRWIN MATH,* WA2NDM

Old-Time Repairs

Recently we wanted to repair an older signal generator from the vacuum-tube days that had stopped working. This was actually the first generator I ever owned, so there was a great deal of nostalgia involved with this particular unit. The problem (my luck) turned out to be an open high-voltage winding in the small power transformer that ran the whole unit. The transformer in question had a 6.3-volt filament winding (which actually was okay) and a 125-volt plate winding (which was the open winding), and powered a single 6C4 triode in the generator. A quick search of the various "standard" distributors was to no avail, as these types of transformers simply are not used much anymore. I guess I probably could have searched the various surplus houses or antique sources for something suitable, but instead I came up with what I believe was a clever solution.

As you may be aware, there are a host of transformers readily available today (at very reasonable cost) that are designed specifically for use in solid-state power supplies. The particular ones I am describing have a dual primary that is normally connected in parallel for 115-volt operation (in North America) and in series for 230-volt use (in Europe, etc.). My thought was that if I simply used one of the primary windings for the AC input and the other for the high-voltage portion, it might just do the trick. The secondary could then be wired for 6 volts or so in the normal manner. Fig. 1 shows the result.

The transformer I chose to experiment with was a Tamura 3FS-410 (Mouser 883-3FS-410). This device normally is rated to produce 5 volts at 1.2 amps with both secondaries in parallel. This, however, is also the rating when both primaries are connected to the AC line. If you were to only use one primary, the output current obviously would be half, or 600 ma. Since the 6C4 only needed 150 ma for its filament this was fine, and, in fact, the lighter load even allowed the actual secondary voltage to rise into the 6-volt region. This reduced requirement (only 150 ma) also allowed the other primary to easily produce enough high voltage to allow the rest of the power supply to produce the correct DC output required. The end result was that the generator worked as it was supposed to.

It should be noted that this technique can be used for other similar applications as well. With the scarcity of old-style plate/filament transformers, using what is commonly available today can often solve a lot of problems when one thinks "out of the box." Remember, however, that these types of dual

*c/o CQ magazine

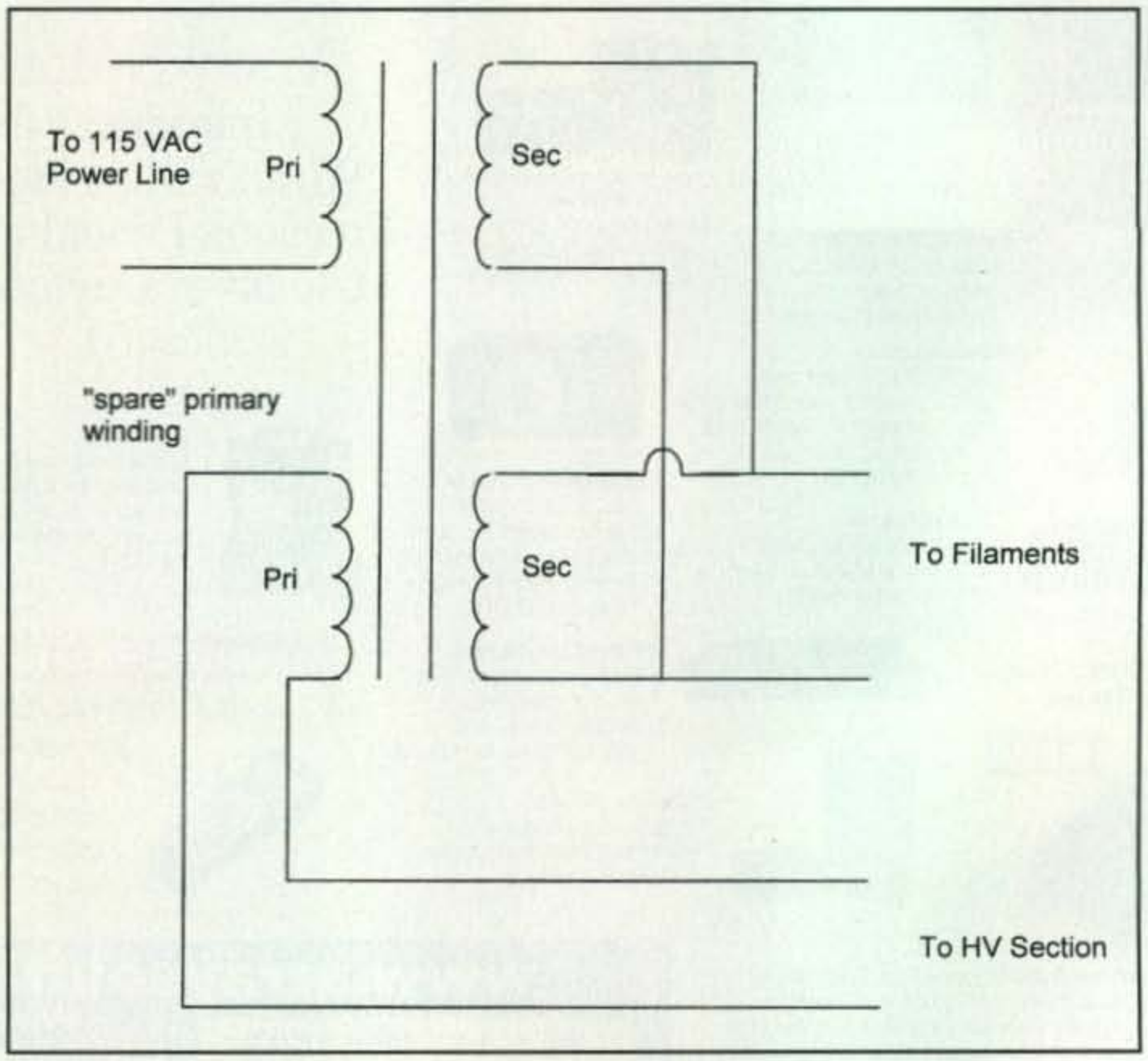


Fig. 1– Wiring of replacement transformer.

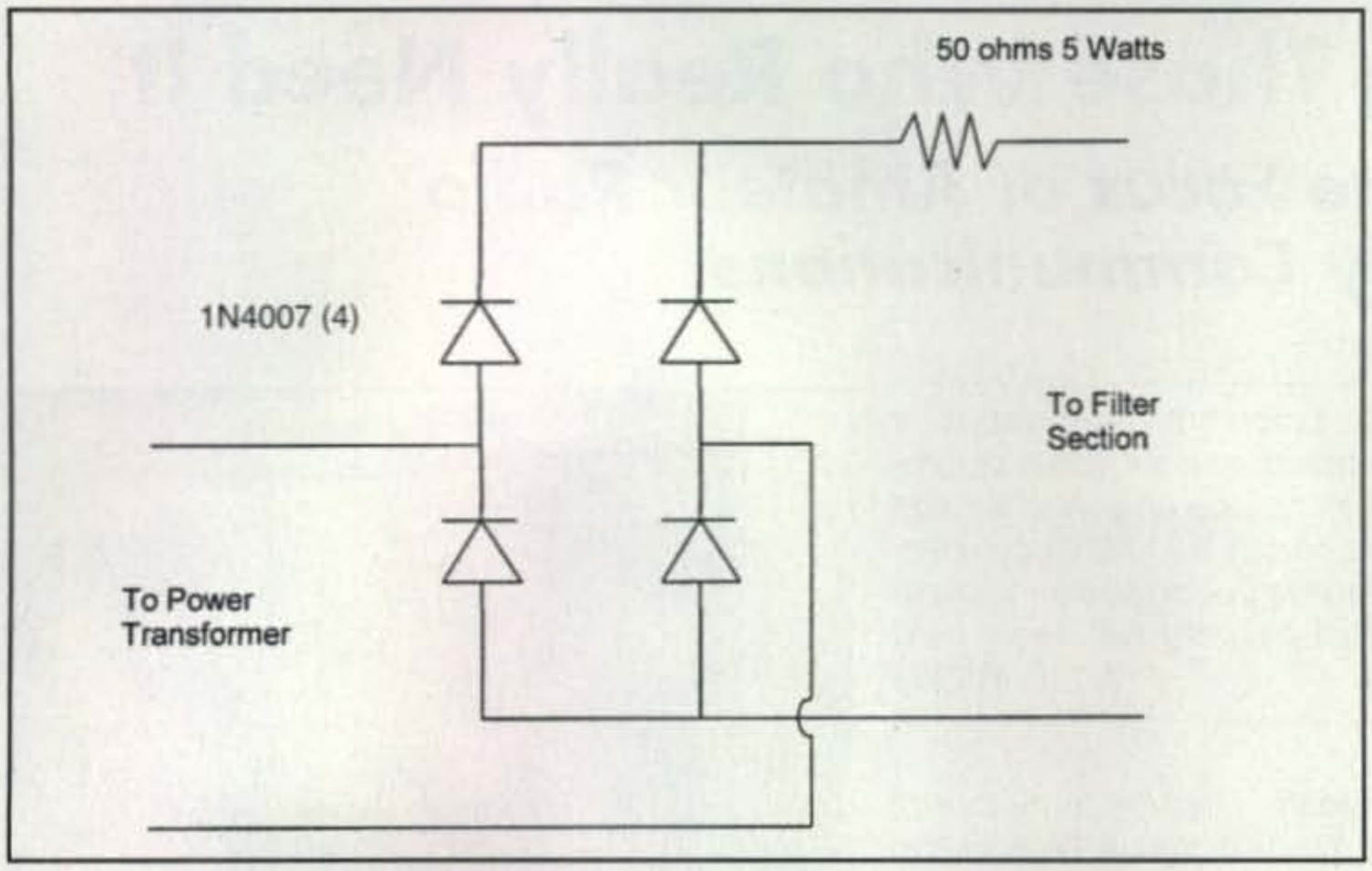


Fig. 2– Replacement of selenium rectifier with diode bridge.

primary transformers can only be used with the 115-VAC line. I am not sure of what you would do in Europe, or where the line is 220–240 volts, short of having to use two transformers!

After replacing the transformer, we also noticed that the selenium rectifier used in the power supply looked a bit "worn out" and had a slight characteristic odor that old timers would immediately recognize as the first sign of impending failure of these devices. As it turned out, the power-supply configuration was a simple full-wave rectifier, so we decided to replace it with four common 1N4007 silicon diodes. This is shown in fig. 2. Since the voltage drop through the silicon diodes was only roughly 0.7 volts per diode and the voltage drop through the selenium rectifier significantly higher, a 50-ohm resistor was added in series with the filter capacitor to drop the resulting DC voltage close to the original value. The electrolytic capacitors were also changed at this point "just in case."

While working on the above equipment, we remembered an old trick from the vacuum-tube days for keeping the tip of our soldering iron clean. This involved replacing the recommended wet sponge normally used for tip cleaning with a small piece of coarse steel wool, or better still, the material used to clean pots and pans. This "pot scrubber" consists of a sort of "copper wool." It works very well in this application, as long as you are sure to get the non-soap-loaded version. The result is far superior to the sponge, as you will quickly see if you try it.

Those of you who have a soldering iron from vacuum-tube days can use another old trick to reduce the temperature of the iron so that it is more in line with today's modern components. The method consists of simply connecting a silicon diode in series with the iron. Fig. 3 shows how to connect a switch for "high" power or "low" power. If you have a suitable soldering iron, you can even mount the switch directly on the housing of the iron. If you decide to use this technique, be sure to use a diode with a PIV (peak inverse voltage) suitable for your AC line voltage as well as one that will carry the current required by the iron. To be safe, use a 1N4007 (for a 100-watt or lower iron), as it will withstand a PIV of 1000 volts. Keep in mind, however, that this scheme will only work with soldering irons that are basically resistive. It will not work properly with a soldering "gun" or similar transformer-driven unit.

Incidentally, this same method can be used to increase the life of an ordinary incandescent lamp many times simply by wiring the diode in series with it. This is an ideal application for those lamps in locations that are hard to get to. The lower lamp voltage will reduce the amount of light produced, but you can easily compensate for this simply by using a higher wattage lamp. Be careful, though, as the 1N4007 can be used for up to a 100-watt lamp, but for higher wattages use a diode with a greater forward current capability.

73, Irwin, WA2NDM

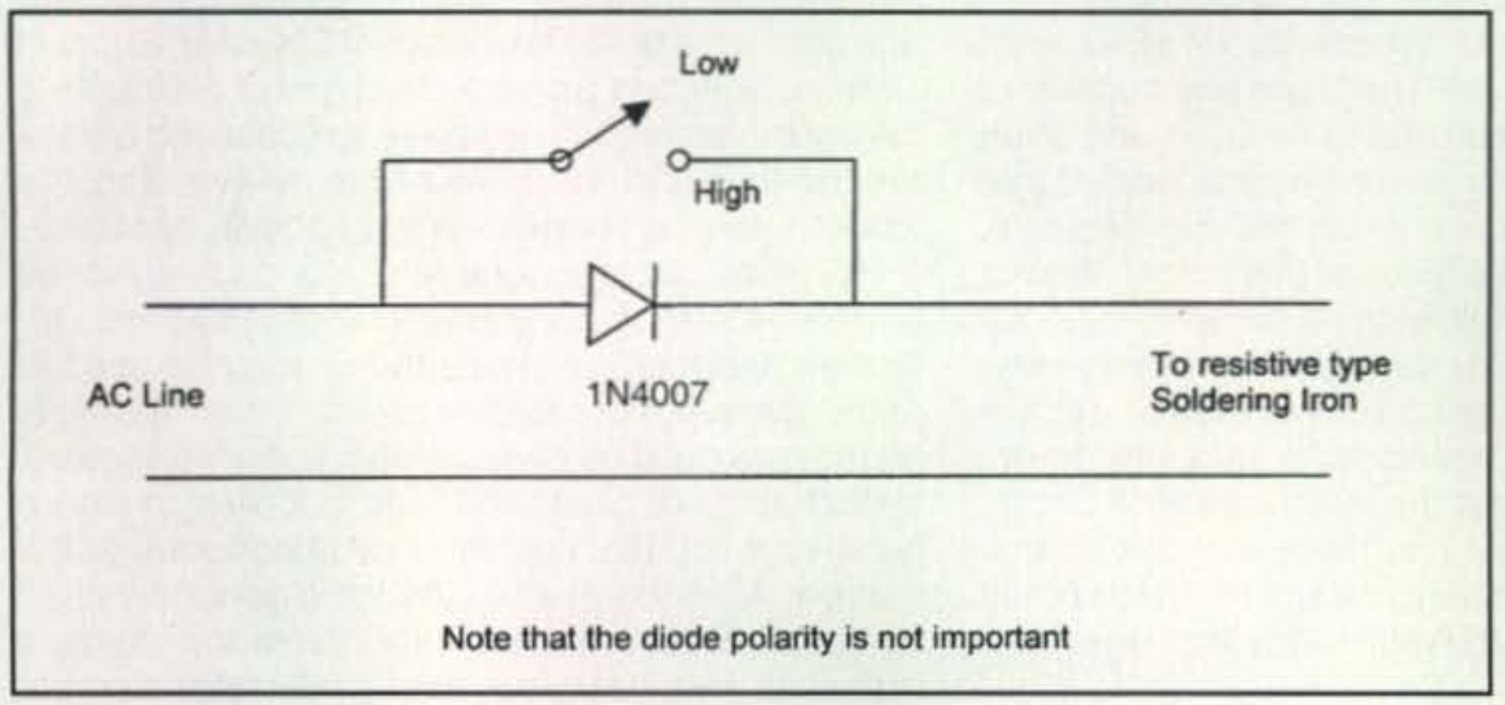


Fig. 3– High/low power switch for a resistive soldering iron.

public service

BY JERRY BOYD,* N7WR

Helping Those Who Really Need It

Shifting the Focus of Amateur Radio Emergency Communications

Former WorldRadio *Emcomm columnist Jerry Boyd, N7WR, fills in this month as guest columnist. Jerry is also a former police and fire chief and currently director of his county's 911 dispatch center. Our new Public Service Editor (see announcement elsewhere in this column) will begin next month.* —*W2VU*

For a number of years, I served as author of the "Emcomm & You" column in *WorldRadio* magazine. As *CQ* readers know, *WorldRadio* has been acquired by *CQ* and is now available as a free on-line publication at <www.cq-amateur-radio.com>. In my last *WorldRadio* column I offered the opinion that the days of amateurs providing emergency communications assistance to public-safety agencies is, in many places, drawing to a close. Reader feedback agreed with my perspective. At least a dozen writers, some public-safety professionals/hams like me, underscored my point that the need for amateur radio assistance to public safety was in many jurisdictions diminishing if not disappearing altogether. Their common question was "Where do we go next?"

Let me make it clear that in some parts of the country, for some time to come there will continue to be public-safety agencies, lacking sufficient communications resources, that will need and benefit from amateur radio assistance in times of emergency. Those agencies, for whatever reason(s)—often a lack of knowledge of funding available to them to shore up their communications systems—have not availed themselves of Public Safety Interoperability Communications grants. Those billions of dollars have been available since 2004 and still are. However, in most parts of the country, federal dollars have led to redundancy and reliability in public-safety communications such that amateur radio assistance is increasingly unnecessary.

Back to the question. Where do we (Emcomm amateurs) go from here? There are any number of non-government organizations (NGOs) and even many non-public-safety government agencies that will desperately need us when the big one hits. Helping them will be the focus of this article. We will look at the need the following continue to have for support communications during time of emergency: hospitals, schools, nursing homes, health departments, public-works agencies, community transportation providers, and the American Red Cross. In the area where you live, there may be others. However, a look at assisting those just listed should provide an approach to helping any that need us.

*e-mail: <n7wr@wrrl.org>

Ham radio volunteers with southern California's Hospital Disaster Support Communications Service (HDSCS) provided communications between critical units of Children's Hospital of Orange County during a switchover to a new phone system. In the photo, from left, are a non-ham nursing supervisor (notice she's talking on the phone, not the radio!), Dennis Kidder, W6DQ, and Cheryl Simpson, KD6MWZ. (Photo by Joe Moell, KØOV, courtesy HDSCS)

Helping Hospitals

Before discussing hospital communications, let me emphasize that there is an outstanding model for such communications assistance, and it is a model that has been in existence for many years. Should you decide that hospitals in your area could benefit from amateur radio assistance, I encourage you to look at the Hospital Disaster Support Communications Service. That group's website is <www.hdscs.org>. They have a model and a track record that can save you from reinventing the wheel if serving hospitals is your activity of choice.

Hospitals, as a general rule, rely on telephones and intercoms for internal communications, although handheld two-way radios may be used in some places. To coordinate with other hospitals on matters such as evacuations, patient transfers, and sharing of personnel and supplies in emergencies, hospitals typically use telephones or the internet. Looking at all of the tools generally used by hospitals for intra and inter communications, it is easy to see that when a major disaster disrupts "normal" communications, they quickly wind up in a world of trouble.

Schools and school buses are often pressed into service during disasters, but often have little in the way of emergency communications equipment. Hams can provide valuable help here as well. (Photo courtesy commons.wikimedia.org)

Internal communications from the emergency room to Ssurgery, as but one example, are critical. A ham at each of those two locations may well be instrumental in passing life-saving messages. When a hospital must be evacuated, amateurs at both the facility to be evacuated and at the host hospital(s) can make coordination occur, when without them it would be impossible. An amateur in each ambulance, bus, or other vehicle used to transport patients is also beneficial. Again, visit HDSCS's website for valuable information. Nursing homes, by the way, have communications needs similar to those of hospitals, yet many of them have no radios at all and many have no organized plan for evacuation and relocation of those in their care.

Bus Systems

Oftentimes in disasters, buses are used to transport evacuees, injured persons, or those needing to be relocated from one medical facility to another. Some municipal and school bus systems have reliable radio communications systems. Others do not. Frequently, buses operated by public-private partnerships ("Community Connections" type shuttle busses) have no communications at all other than cellular telephones. They certainly will be needy potential clients in time of disaster.

Schools

Schools need emergency communications for several reasons, and like hospitals, they are lucky if they have a few simplex two-way radios for daily, much less emergency, use. Schools may need to communicate with other schools if the emergency forces them to shelter students beyond school hours. They may need to communicate with their district offices to coordinate personnel and supplies if they become evacuation centers—which they often do in emergencies. School district headquarters may need to talk to the government Emergency Operations Center when landlines and cellular phones are down. This is a fruitful area for amateurs to step in to provide assistance.

Municipal and County Agencies

Health Departments (usually government entities at the county or parish level) today face increasing mandates because of the dual threat of communicable diseases, such as pandemic flu, and acts of bio-terrorism. Yet with rare exception, health departments are not able to avail themselves of grants with which to purchase communications equipment. While they may, as in cases with which I am familiar, use FRS or GMRS radios for internal communications, or in some cases VHF radios operating on the license-free "dot" (blue dot, etc.) channels, wide area coverage is unavailable to them when phones and the internet are down. Health departments also

Richard Fisher, KI6SN, Named CQ Public Service Editor

Veteran journalist and ham radio writer Richard Fisher, KI6SN, has been named *CQ*'s new Public Service Editor, succeeding Bob Josuweit, WA3PZO, who stepped down last month after reporting in *CQ* and *CQ VHF* for more than a decade on public service and emergency communications by hams. Richard's first column will appear in the July issue of *CQ*.

Fisher has had a 35-year career in newspaper journalism, in a variety of reporting, editing, and management roles. He is also currently a columnist for two of our sister publications. Richard writes the "Washington Beat" column for *Popular Communications* and "Trail-Friendly Radio" for *WorldRadio Online*. He previously wrote the QRP (low power) column for the print version of *WorldRadio*, and is a co-founder of the Adventure Radio Society.

CQ Editor Rich Moseson, W2VU, said, "I look forward to working closely with Richard in the future, just as I enjoyed working closely with Bob, WA3PZO, for the past 12 years. Richard's experience as a professional journalist should help maintain and expand on the excellence that our "Public Service" column regularly achieves."

American Red Cross Emergency Communications Response Vehicles (ECRVs) such as this one are often seen at major ham gatherings and disaster scenes, but in reality there are very few of them and the Red Cross's traditional RF communications capabilities are limited. Hams continue to provide important backup for Red Cross shelters and other locations. (Photo courtesy Wikipedia)

have the need to coordinate with hospitals and clinics in outlying areas of their jurisdictions. Again, this is fertile ground for amateurs to offer and provide their services.

Public Works agencies (such as county road departments, for example) are government entities and most do have some form of communications. Typically they operate on LG (local government) channels. However, two factors can cause their normal communications to become unusable in time of emergency. One is that they may be sent on "mutual aid" outside their home jurisdictions. In that case, their customary communications may not be interoperable, and thus will be of little or no value to them. Second, local government channels are often the "miscellaneous and other" dumping ground for all non-public-safety agencies. LG systems are generally single channel and will quickly become overloaded in an emergency. LG channels are often simplex rather than repeater-based, and therefore wide area coverage is problematic.

Red Cross

A final fertile ground for communications support is the American Red Cross (ARC). As most readers are aware, amateur radio has long provided assistance to the ARC, although in recent years required "background checks" have deterred some amateurs from affiliating with the ARC. Most of the background-check issues have been resolved. A second deterrent to amateur radio providing ARC assistance has been the mistaken impression that the ARC has become self-sufficient from a communications point of view. That misconception is likely based on the publicity given to the ARC's acquisition a number of years ago of ECRVs (Emergency Communications Response Vehicles). The truth of the matter is that such vehicles are limited in number, and depending on where the disaster occurs, may be a thousand miles from where they are needed.

The ARC's main communications resource, other than cellular and satellite telephones, is a low-band system that has some propagation issues that often hinder its effectiveness. In addition, the number of ARC low-band radios is very limited. Amateur radio assistance to the ARC in the form of shelter-to-shelter and shelter-to-chapter headquarters communications is extremely important and beneficial.

For those whose present served agencies (police, fire, and EMS) have arrived at, or are approaching, the point of communications self-sufficiency, all is not lost. If you still have the desire to serve your fellow citizens in time of emergency and fulfill one of the basic purposes of amateur radio, the entities discussed in this article are worthy of your attention. Now, not at the time a disaster strikes, is the time to develop relationships with them and work out policy and procedural matters that will be important when your services are needed. Good luck as you pursue filling one of these important needs.

73, Jerry, N7WR

MFJ Dummy Load/Wattmeter

1.5 kW Dry Dummy Load has built-in precision, true peak-reading SWR/Wattmeter switchable to external antenna!

World's most versatile 1.5 kW dummy load has a *built-in* true peak reading SWR/Wattmeter that you can switch and use independently!

MFJ-267 **$159.95**

You'll find tons of uses!

Tune up your transceiver, linear amplifier or antenna tuner into a safe 50 Ohm dummy load at *full power*. Then instantly switch to your antenna and monitor SWR, forward and reflected power.

Use for testing/tuning transmitters, transceivers, amplifiers, antenna tuners, baluns, transformers, filters, matching networks, coax, stubs, transmission lines and antennas.

The 50-Ohm dry dummy load works DC to 60 MHz. SWR is below 1.3:1 at 30 MHz. Can handle 100 Watts for ten minutes or 1500 Watts for ten seconds. Comes with power derating curve.

Extra-large three-inch lighted Cross-Needle meter reads SWR (1:1 to 8:1), forward and reflected power *simultaneously*.

Reads *true peak* PEP or average power on 300/3000 Watts forward and 60/600 Watts reflected power ranges 1.8-54 MHz.

High accuracy comes from a carefully designed directional coupler, an accurate active-peak reading circuit and a precision d'Arsonval meter movement.

RF tight perforated aluminum cabinet. 4½Wx3½Hx10½D inches. Uses 12 VDC or 120 VAC with **MFJ-1312D, $15.95.**

MFJ HF/VHF/UHF Dummy Loads

Dry 300 Watt HF/VHF Dummy Load

MFJ-260C **$39.95**

Air-cooled, non-inductive resistor in a perforated metal housing; Has SO-239 connector. Full load for 30 seconds. Silk-screened derating curve to 5 minutes. Handles 300 Watts. SWR is below 1.1:1 to 30 MHz, 1.5:1 from 30 to 650 MHz. Compact 2¼x2¼x7 inches.

MFJ-260CN, $49.95. With type "N" connector.

Dry 1.5 kW HF/VHF/UHF Dummy Load

MFJ-264 **$74.95**

Ham radio's most versatile 50 ohm *dry* dummy load. Works with all radios from 160 Meters through 650 MHz. SWR below 1.3 to 650 MHz and below 1.1 at 30 MHz. Handles 100 watts for ten minutes, 1500 Watts for 10 seconds. 3Wx3H x9D inches. Has SO-239 connector.

MFJ-264N, $84.95. With type "N" connector.

Oil-Cooled 1 KW CW, 2 KW SSB VersaLoad™

MFJ-250X **$49.95**

Run 1KW CW or 2 KW PEP for 10 minutes. Run *continuous duty* with 200 Watts CW or 400 watts PEP. Transformer oil not included. Low VSWR to 400 MHz. Under 1.2:1 to 30 MHz. SO-239 connector. Safety vent with cap, carrying handle. 7½Hx6¾D inches.

MFJ-250, $69.95. Includes transformer oil (no PCB).

3 GHz, 300 Watts Dry Dummy Load

MFJ-263 **$99.95**

New high-tech metal film resistor gives low SWR up to 3 GHz at 300 Watts!

Mounted on large heavy-duty air-cooled heatsink. SWR is less than 1.1 DC to 1 GHz, 1.2 at 1.5 GHz and 1.5 at 3 GHz. Handles 125 Watts *continuous* and 300 Watts for ten seconds. High quality *Teflon*® N connector. 10¾Wx2¼Hx5¼D in. **New!**

MFJ Frequency Counters

MFJ-886 **$129.95**

MFJ-886 covers 1 MHz to 3 GHz with 300 MHz direct count, 0.1 Hz resolution. 4 gate times. 10-digit high-contrast 3/4 inch LCD display. Lock display button. Bargraph shows RF field strength. Includes rechargeable Ni-Cad batteries, charger, telescopic antenna. Black anodized aluminum. 2¾x2¼x1¼ inches.

MFJ-888 **$199.95**

MFJ-888, like MFJ-886, but covers *10 Hz*-3 GHz. Measures frequency/ period, has 50/1M Ohm input, auto hold, LED backlight, beeper. 2¾x4¼x1¼ inches

Field Strength Meters

MFJ-802 **$49.95**

MFJ-802 shows relative antenna field strength. Use to determine radiation pattern. Has large 3 inch meter. Telescoping *dipole* reduces influence of surrounding objects and is more reliable and repeatable than monopole. Sensitivity control. Jack for remote sensor.

MFJ-802R, $34.95.

MFJ-801 **$29.95**

MFJ-801 has 1¾ inch meter, sensitivity control, 20 inch extended telescoping monopole antenna.

Find Power Line Noise fast!

MFJ-852 **$119.95** with dipole

MFJ-856 **$159.95** with 3 el.Yagi

Choose 3 element Yagi or compact telescoping dipole to quickly pinpoint noise. Walk or drive with these handheld, directional noise finders to search out leaky insulators, loose hardware and corroded ground lines quickly. Track noise directly to pole, transformer, insulator or others. Has field-strength meter, headphone jack to listen or record. Operates in optimum 135 MHz region. Sensitive .3uV receiver, 70 dB AGC.

81 dB Step Attenuator

MFJ-762 **$89.95**

81 dB Attenuator in 1 dB steps. 50 Ohms. Usable to 500 MHz. 250 milliwatt maximum input. BNC connectors. Shielded stages. Connect between receiver and antenna and use S-meter as a precision calibrated field strength meter. Prevent receiver blocking, cross-modulation. Determine gain/loss, ideal for fox hunting. Evaluate linearity. Isolate circuits. Extend range of sensitive equipment. Measure input/output level differences.

Compact Cross-Needle SWR/Wattmeters

MFJ-822 **$59.95**

MFJ-822, $59.95. Large 3-inch *lighted* Cross-Needle meter covers 1.8-200 MHz in 2 power ranges: 30/300 Watts. Read forward, reflected power, SWR *simultaneously*. Compact 3¼Wx3¼Hx3¼D inches takes little space. Perfect for home, mobile or portable use. SO-239 connectors. Use 12 VDC for lamp (cable included).

MFJ-842, $59.95. Like MFJ-822, but covers 140-525 MHz, 15/150 Watt ranges.

25-1300 MHz Discone Antenna

MFJ-1868 **$59.95**

Ultra wide-band antenna receives 25-1300 MHz. Perfect for scanners. Transmit 50-1300 MHz. Handles 200 Watts. Ideal for 6/2/1¼Meters, 70/33/23 CM ham bands. Excellent for testing various transmitters on single coax. SO-239, 50 feet coax, stainless steel elements.

Free MFJ Catalog

Visit: http://www.mfjenterprises.com or call toll-free 800-647-1800

• 1 Year *No Matter What*™ warranty • 30 day money back guarantee (less s/h) on orders direct from MFJ

MFJ ENTERPRISES, INC.
300 Industrial Pk Rd, Starkville, MS 39759 **PH:** (662) 323-5869
Tech Help: (662) 323-0549
FAX:(662)323-6551 8-4:30 CST, Mon.-Fri. ***Add shipping.***

BY FREDERICK O. MAIA,* W5YI

How to File a Petition for Rulemaking

Changing Regulations in the Amateur Radio Service

"Congress shall make no law (abridging) the right of the people ... to petition the Government for a redress of grievances." —*First Amendment, U.S. Constitution*

We recently received an inquiry from one of our readers concerning changing rules in the Amateur Radio Service. Don Lampkin, WA2HMB, of Fair Play, South Carolina, wrote that he is an active, "in the trenches" ham operator and wants to be provided "...with the nuts and bolts on how to file a petition with the FCC." He is not the first to ask about how to go about amending rules. We have, however, been sort of reluctant to cover this subject, since there is really a lot to it.

Another reason is that, as a general rule, the FCC pays more attention to suggestions from large groups rather than individual radio amateurs. Since it represents thousands of members, a Petition for Rulemaking from the American Radio Relay League naturally gets far more (and quicker) attention than one from an individual ham operator. The FCC also is somewhat lax in handling petitions from the public. They can lie around in someone's "in basket," sometimes for years, before being dismissed.

When it comes to filing petitions, several voices are always louder than one. With this in mind, the way for citizens to petition the government in an effective way is to join together for a common cause, gaining as many people and as much support as possible. Having said all of this, this month let's talk about amending the Part 97 (amateur radio) rules.

Introduction to Petitioning

The right to petition is one of the fundamental freedoms of all Americans and is documented in the First Amendment to the Constitution of the United States. The First Amendment consists of five "freedoms": religion, speech, press, assembly, and petition.

The framers of the Constitution wanted to form a government that did not allow one area or person to have too much authority or control. Our government thus consists of three separate branches: legislative, executive, and judicial. The legislative branch (Congress) has the power to make laws, the executive branch makes sure that laws are obeyed, and the judicial branch is the court system that decides disputes.

However, federal regulatory agencies are not part of any one branch. The theory is that a commission of experts on an industry being regulated is better equipped to regulate it than the legislatire or executive branches. Federal agencies operate with a minimum of executive or legislative oversight and each has its own executive, legislative, and judicial departments.

The Federal Communications Commission is one of several "independent" agencies. The nature and purpose of independent agencies vary widely. Some, including the FCC, are also "regulatory" agencies with the power to create and enforce their own rules in specific areas of public interest that affect our everyday lives. These regulations carry the full force of a law. The Commission even has its own judges.

One of the most important parts of the federal rulemaking process is the ability of the public to participate. A negative is that, because of this mandated public involvement, the regulatory process is slow—often painstakingly slow. Depending upon the Commission's workload or priorities, several months, or even years, may elapse between the submission of a Petition for Rulemaking and a final FCC decision.

The reason it takes so long is because of the procedures U.S. government agencies are required to follow in order to change laws, and Part 97 of the Commission's Rules is law. For example, the first petitions requesting the abolition of telegraphy testing in the Amateur Service were filed in 2003, right after WRC-03 made demonstrating Morse code knowledge optional. However, it wasn't until 2007 that code exams were discontinued in the United States.

Depending upon the priority assigned, getting a rule changed (that is, from petition to final rule) can take three years or more. It takes that long for the docket to wind its way through the various rulemaking stages. By FCC standards, Amateur Radio Service rulemaking is a very low priority. The Commission is necessarily more concerned with broadcasting, cell phones, and broadband.

The initiative to change FCC rules and regulations, or to adopt new ones, can originate from sources both within and outside the Commission. When submitted from outside the Commission, the interested party must file a petition requesting that the FCC undertake certain action.

A Petition for Rulemaking is thus the mechanism by which individuals, public-interest groups, and private enterprise can argue in favor of changes or new rules for ensuring the general welfare of the public. Any interested person, company, or organization may petition the Commission. New regulations or amendments to existing regulations are first known as "proposed rules."

Administrative Procedure Act

The primary law governing the federal regulatory process is contained in the Administrative

*1020 Byron Lane, Arlington, TX 76012
e-mail: <w5yi@cq-amateur-radio.com>

• **Petitions for Rulemaking:** Sets forth a general solution to a perceived problem, proposes a new regulation or amendment, or specifies a current rule which should be revoked or amended.

• **Notice of Inquiry (NOI):** The Commission releases an NOI for the purpose of gathering information about a broad subject or as a means of generating ideas on a specific issue. NOIs are initiated either by the Commission or an outside request.

• **Notice of Proposed Rulemaking (NPRM):** After reviewing comments from the public, the FCC may issue a Notice of Proposed Rulemaking. An NPRM contains proposed changes to the Commission's rules and seeks public comment on these proposals.

• **Further Notice of Proposed Rulemaking (FNPRM):** After reviewing your comments and the comments of others on the NPRM, the FCC may also choose to issue an FNPRM regarding specific issues raised in comments. The FNPRM provides an opportunity for you to comment further on a related or specific proposal.

• **Report and Order (R&O):** After considering comments to a Notice of Proposed Rulemaking (or Further Notice of Proposed Rulemaking), the FCC issues a Report and Order. The R&O may develop new rules, amend existing rules, or make a decision not to do so. Summaries of the R&O are published in the *Federal Register*. The *Federal Register* summary will tell you when a rule change will become effective.

Changes After the R&O

• **Petition for Reconsideration:** If you are not satisfied with the way an issue is resolved in the Report &Order, you can file a Petition for Reconsideration within 30 days from the date the R&O appears in the *Federal Register*. It is very difficult to reverse a Report & Order unless convincing new facts are presented. If persuaded, the FCC may issue an Order on Reconsideration amending the new rules. An Opposition to a Petition for Reconsideration must be filed within 15 days.

• **Memorandum Opinion and Order (MO&O):** Issued by the Commission to deny a petition for rulemaking, modify a decision, grant or deny a petition for reconsideration, or grant or deny an application for review of a decision.

• **Appeals:** The Administrative Procedure Act provides for the appeal of any final agency action by the U.S. Court of Appeals for the District of Columbia Circuit if it is thought to be "arbitrary and capricious, an abuse of discretion, or otherwise not in accordance with the law." The D.C. Circuit can uphold the regulation as a valid exercise of statutory authority by the agency, or it can send the action back to the agency for further consideration and information gathering. After federal court, if you are still dissatisfied, you can appeal your case to the U.S. Supreme Court.

Table I– The Commission's decision-making process involves issuing one or more documents, which include the above.

Procedure Act. Enacted by Congress in 1946, the APA standardizes the way in which administrative agencies of the U.S. government may propose and establish regulations affecting the public. The APA provides for petitions for rulemaking in order for the public to express its desire for new regulations, deregulations, or modifications to regulations already in effect.

However, the APA is vague in its description of the petition-for-rulemaking process. The APA says only this: "Each agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule." (5 USC 553(e)) Because the APA's description is limited, each federal agency has a slightly different petition process.

The APA requires publication of proposed rulemaking in the *Federal Register*: "After notice, the agency shall give interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments with or without opportunity for oral presentation." This is called "notice-and-comment" rulemaking. Prior notice need not be given, however, if the FCC finds that it is impractical, unnecessary, or contrary to the public interest.

New final rules must be published in the *Federal Register* not less than 30 days before their effective date and later printed in the Code of Federal Regulations (CFR).

The FCC's Rulemaking Process

In a nutshell, the rulemaking process works like this: (1) A petition is filed. (2) If the request has merit, the FCC publicly accepts the petition, assigns it a sequential rulemaking (RM) file number, and (3) initiates a 30-day preliminary comment period during which the public can request that the FCC proceed further (or not proceed) with the proposal.

If the proceeding goes forward, (4) a docket number is assigned. (Each docket number lists the appropriate FCC Bureau, a year, and a specific number assigned to that proceeding. For example, WT Docket No. 05-235 was the 2005 Wireless Bureau's proceeding addressing WRC-03. (5) More information can be requested from the

LDG ELECTRONICS

The #1 Line of Autotuners

NEW! YT-100

An autotuner for several popular Yaesu Radios. An included cable interfaces with your FT-857, FT-897 and FT-100 (and all D models) making it an integrated tuner, powered by the interface. Just press the tune button on the tuner, and everything else happens automatically: mode and power are set, a tune cycle runs, and the radio is returned to its original settings. It's the perfect complement to your Yaesu radio.

Suggested Price $199.99

NEW! Z-817

The ultimate autotuner for QRP radios including the Yaesu FT-817(D). Tuning is simple; one button push on the tuner is all that is needed - the Z-817 takes care of the rest. It will switch to PKT mode, transmit a carrier, tune the tuner, then restore the radio to the previous mode! 2000 memories cover 160 through 6 meters. The Z-817 will also function as a general purpose antenna tuner with other QRP radios. Just transmit a carrier and press the tune button on the tuner. Powered by four AA internal Alkaline batteries (not included), so there are no additional cables required. A coax jumper cable is also induced for fast hook up. ***Suggested Price $129.99.***

AT-200Pro

The AT-200 features LDG's new "3-D memory system" allowing up to eight antenna settings to be stored for each frequency. Handles up to 250 watts SSB or CW on 1.8 – 30 MHz, and 100 watts on 54 MHz (including 6 meters). Rugged and easy-to-read LED bar graphs show power and SWR, and a function key on the front panel allows you to access data such as mode and status. All cables included.

Suggested Price $249

NEW! KT-100

LDG's first dedicated autotuner for Kenwood Amateur transceivers. Easy to use - just right for an AT-300 compatible Kenwood transceiver. The KT-100 actually allows you to use the Tune button on the radio. The LEDs on the front panel indicate tuning status, and will show a match in seconds, or even less of you've tuned on or near that frequency before. Has 2,000 memories for instant recall of the tuning parameters for your favorite bands and frequencies. If you have an AT-300 compatible Kenwood radio, you can simply plug the KT-100 into your transceiver with the provided cable; the interface powers the tuner, and the Tune button on the radio begins a tuning cycle. The supplied interface cable makes the KT-100 a dedicated tuner for most modern Kenwood transceivers. ***Suggested Price $199.99***

See AT-1000Pro Review in Nov. '08 CQ

AT-1000Pro

Building on the success of the AT-1000, LDG Electronics has refined and expanded its 1KW tuner. The AT-1000Pro has an Automode that automatically starts a tuning cycle when the SWR exceeds a limit you set. Operates at any power level between 5 and 1,000 watts peak. RF Relay protection software prevents tuning at greater than 125 watts. Tunes from 1.8 to 54.0 MHz (inc. 6 meters), with tuning time usually under 4 seconds, transmitting near a frequency with stored tuning parameters, under 0.2 seconds. 2000 memories. 2 Antenna connections. All cables included. ***Suggested Price $599***

The #1 Line of Autotuners - Now With 2 Year Transferable Warranty!

A warranty is a promise, a promise of quality and service life. The #1 line of autotuners in the industry now comes standard with a no-questions-asked 2-Year Transferable Warranty.

When something is wrong with an autotuner, switch, or meter, LDG will fix it - period. LDG is the leader in tuner technology and now leads the industry in customer support as well.

Our customers tell us we do the right things to meet their support expectations. Customers feel good about owning LDG products because service life and support is something they can count on - even when they are ready to sell a unit to another ham.

Now With 2 Year Transferable Warranty!

AT-100Pro

This desktop tuner covers all frequencies from 1.8 – 54 MHz (including 6 meters), and will automatically match your antenna in no time. It features a two-position antenna switch, allowing you to switch instantly between two antennas. The AT-100Pro requires just 1 watt for operation, but will handle up to 125 watts. All cables included. ***Suggested Price $219***

radio not included

AT-897 for the Yaesu FT-897

If you own a Yaesu FT-897 and want a broad range automatic antenna tuner, look no further! The AT-897 Autotuner mounts on the side of your FT-897 just like the original equipment and takes power directly from the CAT port of the FT-897 and provides a second CAT port on the back of the tuner so hooking up another CAT device couldn't be easier. ***Suggested Price$199***

radio not included

FT Meter

LDG's new version of its popular FT-Meter presents a lush, highly readable 2.5" meter face with calibrated scales for signal strength and discriminator reading on receive, and power output, SWR, modulation, ALC action and supply voltage on transmit. Each function is selectable from the radio's menu. On/Off switch for the light. ***Still Only $49***

NEW! FTL Meter For Yaesu's popular FT-857(D) and FT-897(D) transceivers, our FTL-Meter presents a lush, highly readable 4.5 inch meter face with calibrated scales for signal strength and discriminator reading on receive, and power output, SWR, modulation, ALC action and supply voltage on transmit. Each function is selectable from the radio's menu. Best of all, it plugs into the meter jack on the bottom of the front panel. ***Suggested Price $79.99***

NEW! M-7700 The LDG M-7700 provides a lavish 4.5" meter for IC-7700. It will display S-meter on receive, or power out, SWR, ALC level or supply voltages, all selectable from the rig's setup menu. What's more, the M-7700 and the virtual meter on your radio can work together; for example, you can display SWR on the radio's meter and power output on the M-7700. ***Suggested Price $79.99***

Z-11Pro

Meet the Z-11Pro, everything you always wanted in a small, portable tuner. Designed from the ground up for battery operation. Only 5" x 7.7" x 1.5", and weighing only 1.5 pounds, it handles 0.1 to 125 watts, making it ideal for both QRP and standard 100 watt transceivers from 160 - 6 meters. The Z-11Pro uses LDG's state-of-the-art processor-controlled Switched-L tuning network. It will match dipoles, verticals, inverted-Vs or virtually any coax-fed antenna. With an optional LDG balun, it will also match longwires or antennas fed with ladder-line. All cables included. ***Suggested Price $179***

NEW! IT-100

Matched in size to the IC-7000 and IC-706, the new IT-100 sports a front panel push-button for either manual or automatic tunes, and status LEDs so you'll know what's going on inside. You can control the IT-100 and its 2000 memories from either its own button or the Tune button on your IC-7000 or other Icom rigs. It's the perfect complement to your Icom radio that is AH3 or AH-4 compatible. ***Suggested Price $179.99***

NEW! Z-100Plus

LDG's popular Z-100 economy tuner is now the Z-100Plus. Still small and simple to use, the Z-100Plus sports 2000 memories that store both frequency and tuning parameters. It will run on any voltage source from 7 to 18 volts; six AA batteries will run it for a year of normal use. Current draw while tuning is less than 100ma. The Z-100Plus now includes an internal frequency counter so the operating frequency is stored with tuning parameters to make memory tunes a blazingly fast 0.1 seconds; full tunes take an average of only 6 seconds. ***Suggested Price $159.99***

Call or visit your favorite dealer today!

Visit www.ldgelectronics.com for a complete dealer list.

LDG Electronics, Inc.
1445 Parran Road
St. Leonard, MD 20685
Phone 410-586-2177
Fax 410-586-8475

LDG

Before the

FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the matter of

Amendment of Part 97, Section _____ RM- ____ (rulemaking number)
(Insert rule number if an amendmentto an existing rule and/or the subject matter of your petition) in the Amateur Radio Service.

PETITION FOR RULEMAKING

Summary
Must be provided at the beginning if your petition is longer than ten pages.

Introduction
State who you are and your specific interest in the matter.

Background
State the rule or situation as it exists now.

Discussion
State why your new rule or amendment is in the public interest. Include factual supporting experiences, studies, or statistics if possible.

Conclusion
State how the new rule should read.

Sign and date the document
Ideally, your petition should be typed double spaced on 8.5" × 11" paper using 12-point type, although it may be legibly handwritten. You need to place an original signature above your typed or clearly printed name.

Table II– Suggested format for your petition.

public, or (6) the FCC may give notice that the rules are about to be changed. The proposal can also be dismissed at any point if the situation warrants.

At each step, (7) the public is given a chance to express its views by filing comments, and later, comments replying to these submitted views. After reviewing the comments, (8) the FCC might issue a Further Notice of Proposed Rule Making (FNPRM) or go right to (9.) a Report and Order (R&O) which states the new rules. (See Table I.)

When the Commission proposes new rules, a period of time is established for the public to comment on the new rules. Anyone can file comments; you don't need to be an attorney. Each of the Commission's documents containing proposed rules clearly details the specific dates, deadlines, and locations for filing comments and reply comments.

The easiest way to file comments on any rulemaking proceeding is by posting to the FCC's Electronic Comment Filing System using your personal computer over the internet. Instructions for using the ECFS can be found online at: <www.fcc.gov/cgb/ecfs/>. ECFS only accepts filings in proceedings with docket and rulemaking numbers.

What to Include

Regardless of what rules you want changed, there are certain pieces of

information you should include in your petition for rulemaking.

• Your name and mailing address and, if you wish, other contact information such as a fax number, telephone number, or e-mail address.

• An explanation of your proposed action (commencement of a rulemaking, amendment to an existing rule, or deregulation) and its purpose.

• The language you propose for a new or amended rule, or the language you would remove from a current rule.

• An explanation of why your proposed action would be in the public interest. Information and arguments that support your proposed action, including relevant technical and scientific data available to you.

• Any specific facts or circumstances that support or demonstrate the need for the action you propose.

You do not need to be a lawyer or know federal law in order to file a petition for rulemaking. However, if you are aware of a specific law relevant to your petition, it is helpful to include such information in your supporting argument.

Your petition does not need to follow any specific format. It may be of any length, but the shorter and more concise, the better. A suggested format is shown in Table II.

Generally, you must file one (1) original plus four (4) copies of comments, reply comments, or petitions. If you want all the Commissioners to receive copies, file one (1) original plus nine (9) copies. The original should always not be stapled, while the copies should be stapled. Informal Comments require only an original and one copy,

Working Together

Filing a petition for rulemaking is usually a far more complex and detailed process than commenting on rules. Therefore, it is often wise to seek help in filing a petition.

Other individuals or groups may share your feelings on the need for a rulemaking, change to an existing rule, or repeal of an existing rule. Working together on a petition for rulemaking serves two purposes: First, aggregating your interests with those of others makes your petition that much more powerful. Although agencies are in no way required to respond to public opinion, demonstrating broad support from a large and/or diverse group of people strengthens your argument.

Second, other interested parties, particularly public-interest groups or businesses, may have legal, scientific, or technical expertise that could also strengthen your argument. Furthermore, these groups and businesses may have experience in petitioning agencies for rulemakings.

Where to Send It

The proper place to send a petition for rulemaking is to the FCC in Washington, DC. You can mail your filing using U.S. Postal Service: First-Class Mail, Express Mail, or Priority Mail. If you want the FCC to acknowledge receipt of your package, include an extra copy of the first page of your filing and enclose a postage-stamped, self-addressed envelope. The Commission will then stamp the page and return it to you. Address the petition to: Marlene H. Dortch, Secretary, Federal Communications Commission, Office of the Secretary, 445 12th Street SW, Washington, DC 20554

What to Expect

All petitions sent to the FCC in Washington, DC are forwarded by the Commission's Secretary to the appropriate bureau or office for review and consideration. Amateur Radio Service petitions are usually, but not always, sent to the Wireless Telecommunications Bureau (WTB). Depending on the content, however, it could go to a specific office such as the Office of Engineering and Technology (OET) or the Enforcement Bureau.

The bureau or office could deliberate on your petition internally. Your petition will ultimately result in either acceptance or denial. If the bureau accepts your petition, it will be assigned a rulemaking (RM) number and a Public Notice will be issued. This Public Notice will kick off a 30-day preliminary comment period.

The FCC resolves a proceeding with an Order. The Commissioners consider, discuss, and vote on items at Open Commission Meetings held once a month. As the name implies, these meetings are open to the public. Rulemaking of lesser importance is acted upon by "circulation," a process in which documents are routed to each Commissioner's office for signature.

A final decision on your petition can take months and sometimes years. As you can see, FCC rulemaking is an involved, complicated, and very time-consuming process. Nonetheless, your ability to file and/or comment on a petition is one of your fundamental rights as an American. 73, Fred, W5YI

BY DAVE INGRAM,* K4TWJ

Mobiling 2009 – Part I
Bikes, Cars, Back Packs

Last year's columns highlighting bicycle mobiling (April and May 2008 "World of Ideas") were well received, and a fair number of readers asked for more views and details of "specialty mobiles." Thus, we continue along the unbeaten path both this month and next month with more bike mobiles, a look at some popular styles of bikes for mobiling, a barstool mobile, a Lear Jet mobile, a classic "Jag" mobile, and more. If hamming outdoors in any form catches your interest, you surely will find some ideas worth considering in this year's double-feature on mobiling. Give it a go, and whatever path you follow, take your CW key with you for a special treat.

Yet More Bikes!

From across the big pond come some interesting views of the big-time bicycle mobile setup put together by David Starkie, G4AKC (photos 1, 2, and 3). David works 80 through 10 meters with an Alinco DX-70 transceiver, a couple of homebrew antennas, and a pair of parallel-wired 12-volt, 7-amp/hour gel-cell batteries connected on an A/B switch. David says he averages four hours operation (per charge) from each pair of batteries. Two antennas, one center loaded and one top loaded, plus a headset with boom mic, a digital voice recorder, a laptop computer, and an occasionally included trailer with two parallel-wired 12-volt, 40-amp/hour gel cells and a 250-watt output RF amplifier round out the setup.

David says he has worked all areas of the world from his bike and also finds it an ideal way to exercise and operate at the same time. He points out that biking along flat/level terrain is much easier on his knees than negotiating hilly terrain.

When asked about his most memorable QSOs, David recalled contacting Budd, W3FF, the Buddipole antenna inventor; Ron, W9XS, the good-natured dentist (both also bicycle mobile, and both featured in last year's columns); and Keith, G7LPW/ZL, pedestrian mobile via the long path. David is now working on a phased pair of tall, center-loaded whips to boost his bike mobile setup. Listen for him on 20 and 17 meters.

Another bike mobileer with a cool-going setup is Virgil Stamps, K5OOR (photo 4). In addition to biking, Vigil also operates HF-Pack or pedestrian mobile style and produces a very popular HF Packer mini linear amplifier (see reviews at <http://www.eham.net/reviews/detail/5149>). Virgil sums up his go-anywhere arrangement as an ideal means of carrying amateur radio into emergency-stricken areas inaccessible via automobile. How true!

Continuing along the bicycle mobile trail, we next

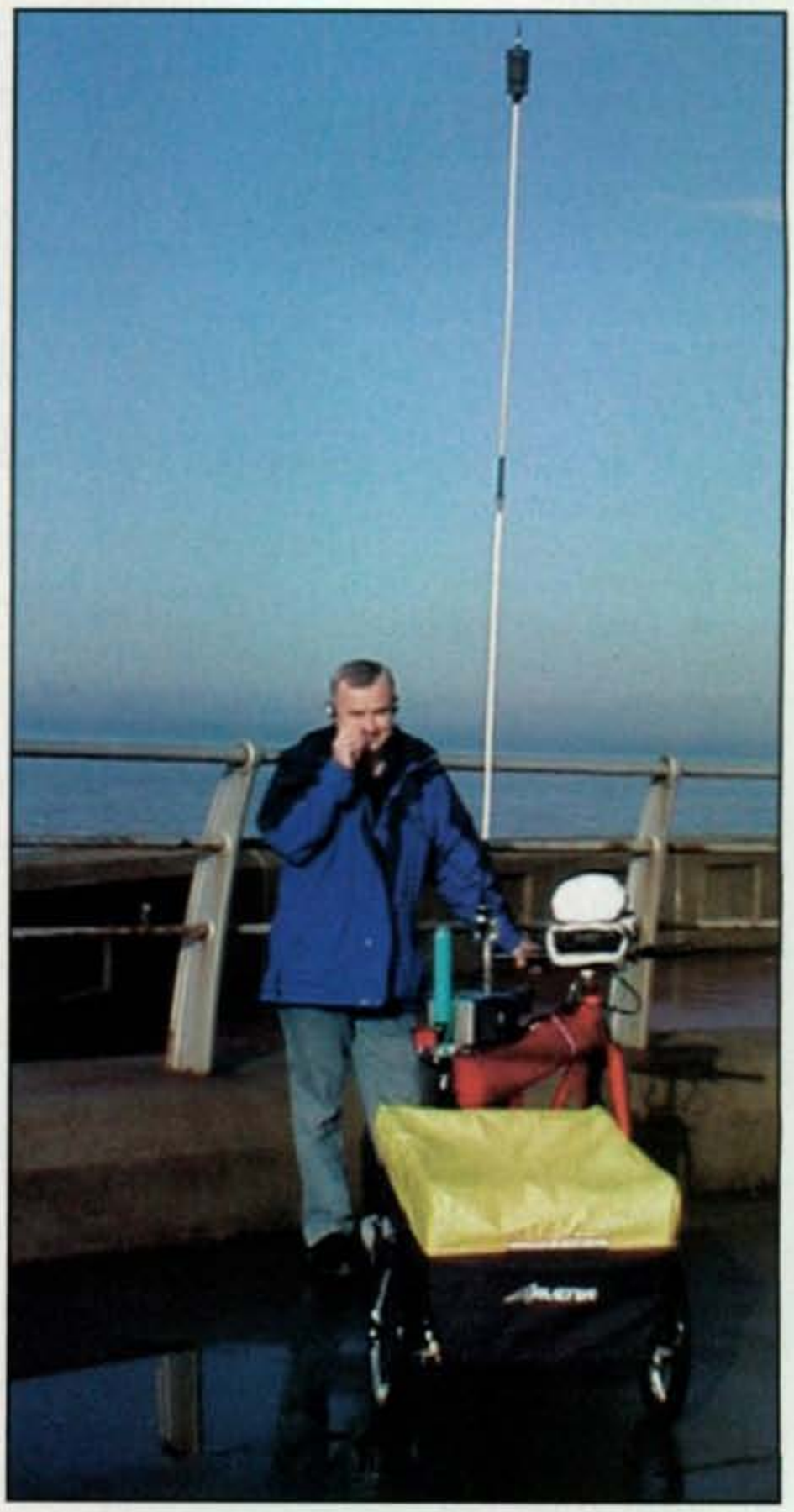


Photo 1– Here is David Starkie, G4AKC, with his bicycle mobile setup near a seacoast wall in jolly old England. David says proximity of the salt water gives him a signal boost comparable to that of running a higher power home station. David's setup consists of an Alinco DX-70, a choice of two homebrew antennas, and four gel-cell batteries. Using the setup at the 50-watt level, David has worked stations in all areas of the world. (Photos 1, 2, and 3 courtesy of G4AKC)

spotlight Ed, NN6AA, a very active 70-year-young chap running a three-wheel trike (photo 5). These styles of bicycles are called "frogs," and they are ideal for mobiling because you can stop in any safe place and ham from a comfortable seat without the distraction of keeping the bike balanced and upright at the same time. Now that's living well on a budget!

Now look back on all of our previously highlighted bicycle mobiles and visualize the relative ease of putting together your own bike setup. All

*3994 Long Leaf Drive, Gardendale, AL 35071
e-mail: <k4twj@cq-amateur-radio.com>

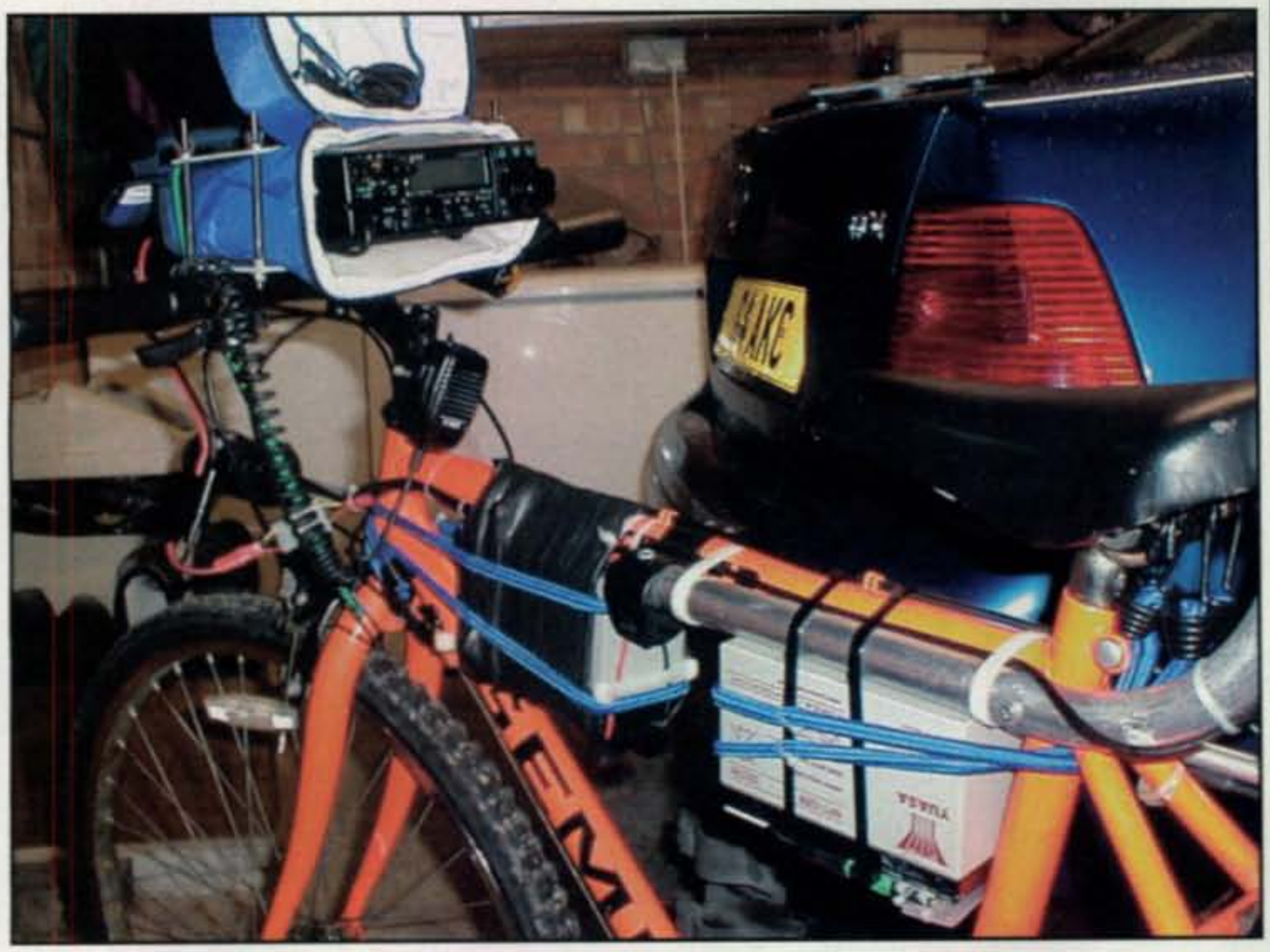


Photo 2– Garage-shot photo of G4AKC's Alinco DX-70 nestled in a handlebar bag with zip cover for protection from harsh weather and bumpy roads. Air circulation in the bag is limited, so David holds RF output to 50 watts maximum—which helps with heat, RF exposure safety, and long battery life.

you really need is a transceiver with a battery or battery pack capable of powering it for three or four hours between recharges, a mobile whip with a tube- or mirror-type mount, some cable, a mic, and a key. A Yaesu FT-817 nestled in a well-padded carrying bag strapped to your tummy (good pothole protection) or strapped to the handlebar is a good start, and the tallest whip you can safely maneuver via bike will ensure a good signal.

I have even considered rebuilding a 17-foot tall Cushcraft R5 vertical as a thin screw-together whip for mobiling. When using the bike as one counterpoise rod and extending two more 48-inch rods from the back of the bike, the

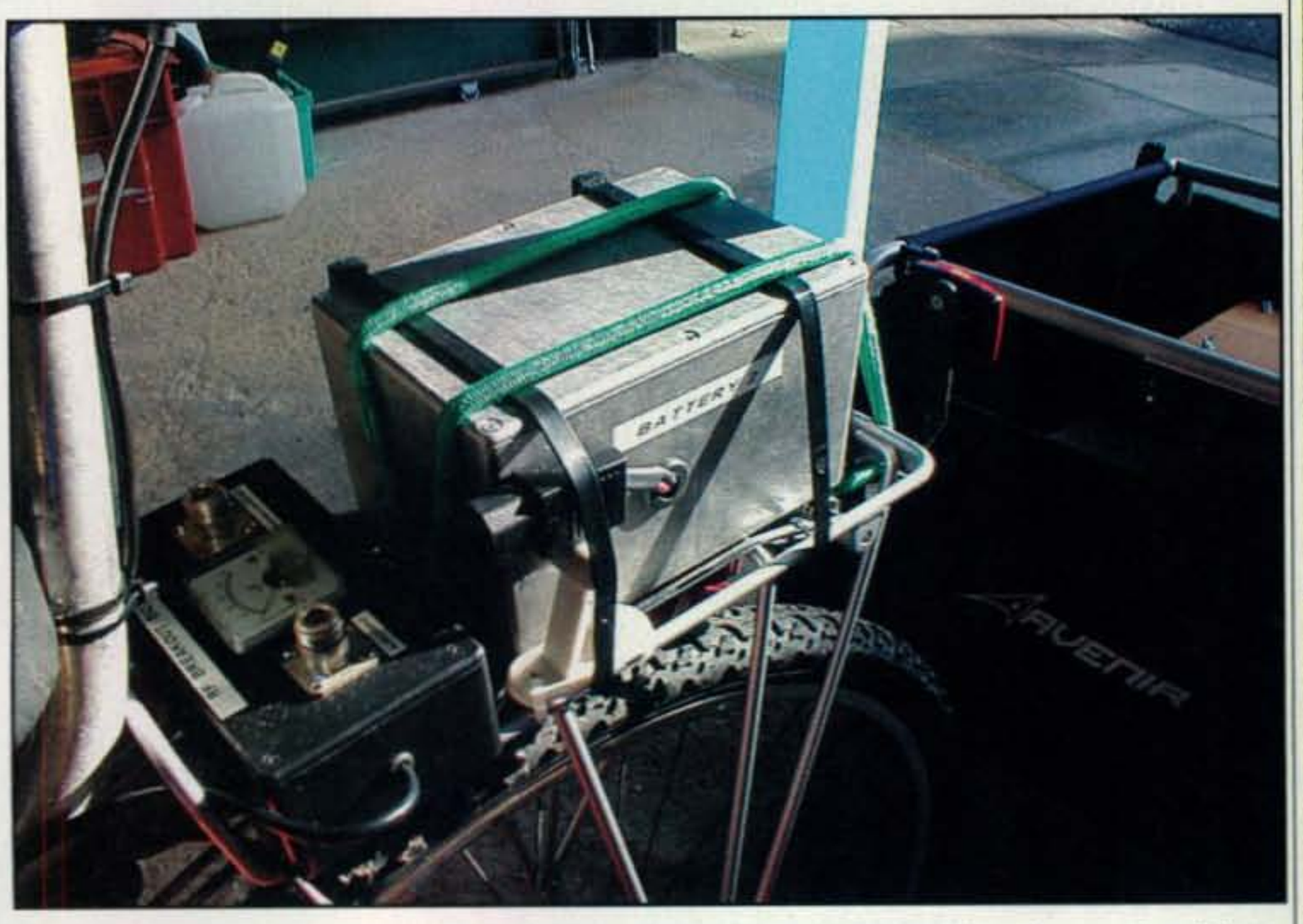


Photo 3– G4AKC shows us the protective case used for holding four gel-cell batteries on the back of the bike. It is flanked by an antenna mount (left side of photo) and removable bike trailer (right side of photo).

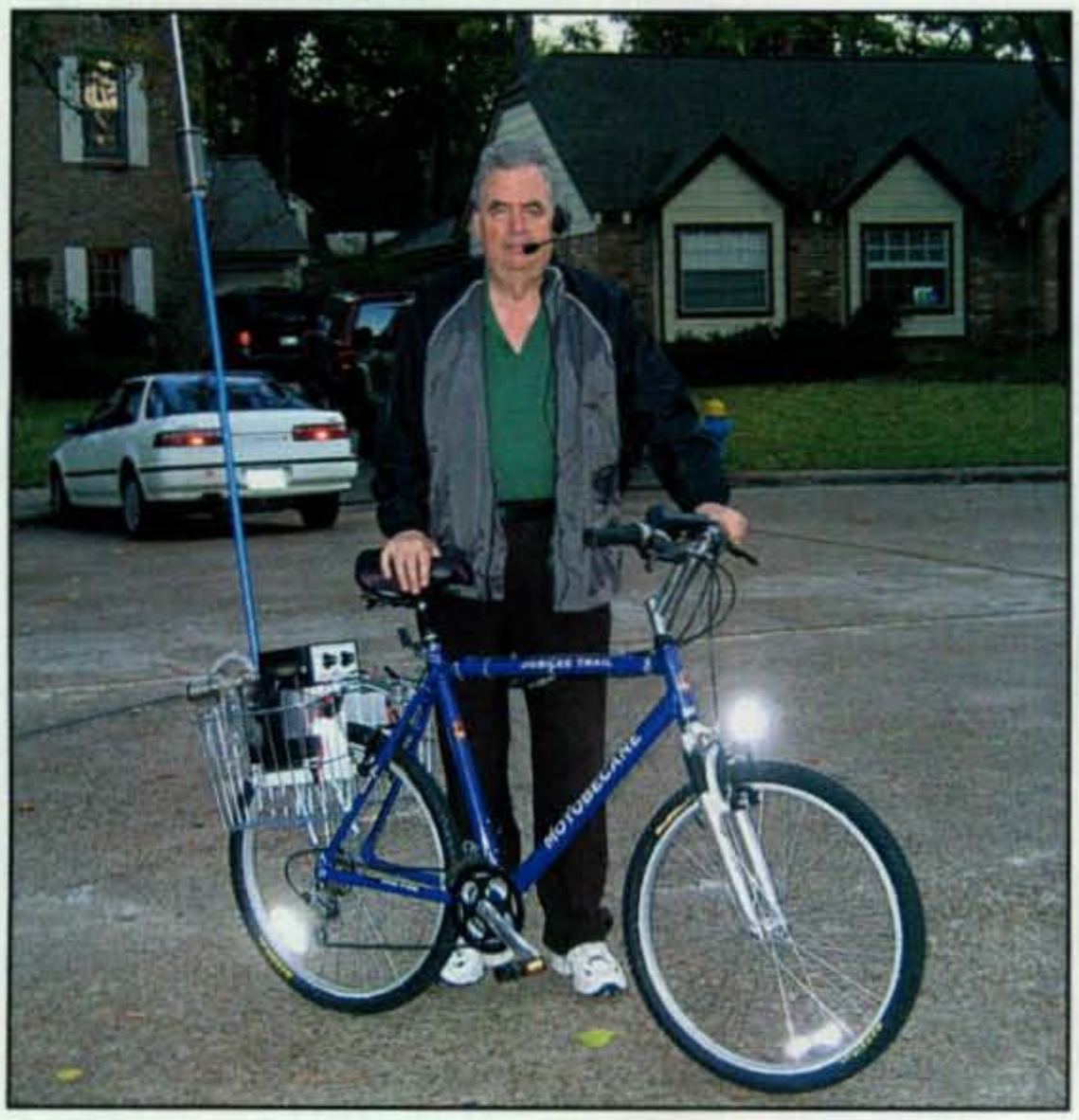


Photo 4– Virgil Stamps, K5OOR, with his color-coordinated bike and Buddistick antenna. The counterpoise whip extending from back combines with the bicycle frame to make a dual radial-type ground plane for big signal results. The ICOM IC-706 head is on handlebar, and the rig, tuner, and battery pack are in the rear basket. Impressive! (Photo courtesy of K5OOR)

Photo 5– Rounding the corner on his three-wheel bike is Ed Belluso, NN6AA. His gear consists of an ICOM IC-703 running 10 watts to Buddistick antenna (www.Buddipole.com). The 18-amp/hour battery behind the seat is used for all-day/all-weekend operation. Setups like this are a clever way to beat pesky CC&Rs in apartments and condos. (Photo courtesy of NN6AA)

FT-817 and R5 setup should be equal to or better than many home QRP rigs.

Another antenna idea with a track record of proven success is using a Buddistick available from <www.buddipole.com>. Bikers and pedestrian mobileers alike use this antenna, and its retractable element is ideal for go-anywhere portability. I understand a "mini" version that retracts short enough to fit in a (deep) coat pocket is also available. Nice!

Gear Notes

Putting together a bicycle mobile setup is relatively easy. However, a certain amount of logic and preplanning always ensures top results. The main items needed are a small and rugged transceiver, a rechargeable battery, antenna (plus mount), mic, key, and cables. The deciding factor for each of those items is your planned power level, and the 5- to 40-watt range is suggested here. Why? You will be positioned close to the antenna, so minimizing RF exposure (and RF feedback) is desirable. Also, lower power transceivers usually use less current (a smaller battery) than higher power transceivers. Running your transceiver at half of its maximum output is another good idea, as it helps the rig run cooler and gives you an in-reserve "trump card" for unexpected surprises (emergency, once-in-a-lifetime DX QSO, etc.).

One additional item worthy of consideration is the MFJ 4416 Battery Booster shown in photo 6. First you preset its minimum input at 9, 10, or 11 volts and its output anywhere between 12 and 13.8 volts. Then you can continue operating and making QSOs even when the voltage of your bike setup's battery drops below the transceiver's point of "distortion, chirp, clip, dots, and automatically switch off" point. The booster also has an RF-sensing feature that, when enabled, bypasses its circuit during receive but kicks in during transmit (when high current demands typically reduced battery voltage). MFJ also offers preassembled and ready-to-connect power cables for Kenwood, Yaesu, ICOM, and compatible transceivers, making installation a snap. Nice!

Photo 6– Thinking of trying bicycle mobile with a small 100-watt transceiver and reduced power? This new MFJ-4416 Battery Booster helps ensure the transceiver produces a clean output signal without SSB distortion, CW chirp, automatic power-down, etc., when battery voltage drops below a present level. It can even boost 9 volts to 13 volts. (Details at <www.mfjenterprises.com>)

Bicycle Mobile without a Bike

Now slightly shifting focus, Paul, WØRW, shows us the rewarding pursuit of going pedestrian mobile (photos 7, 8, 9, and 10).

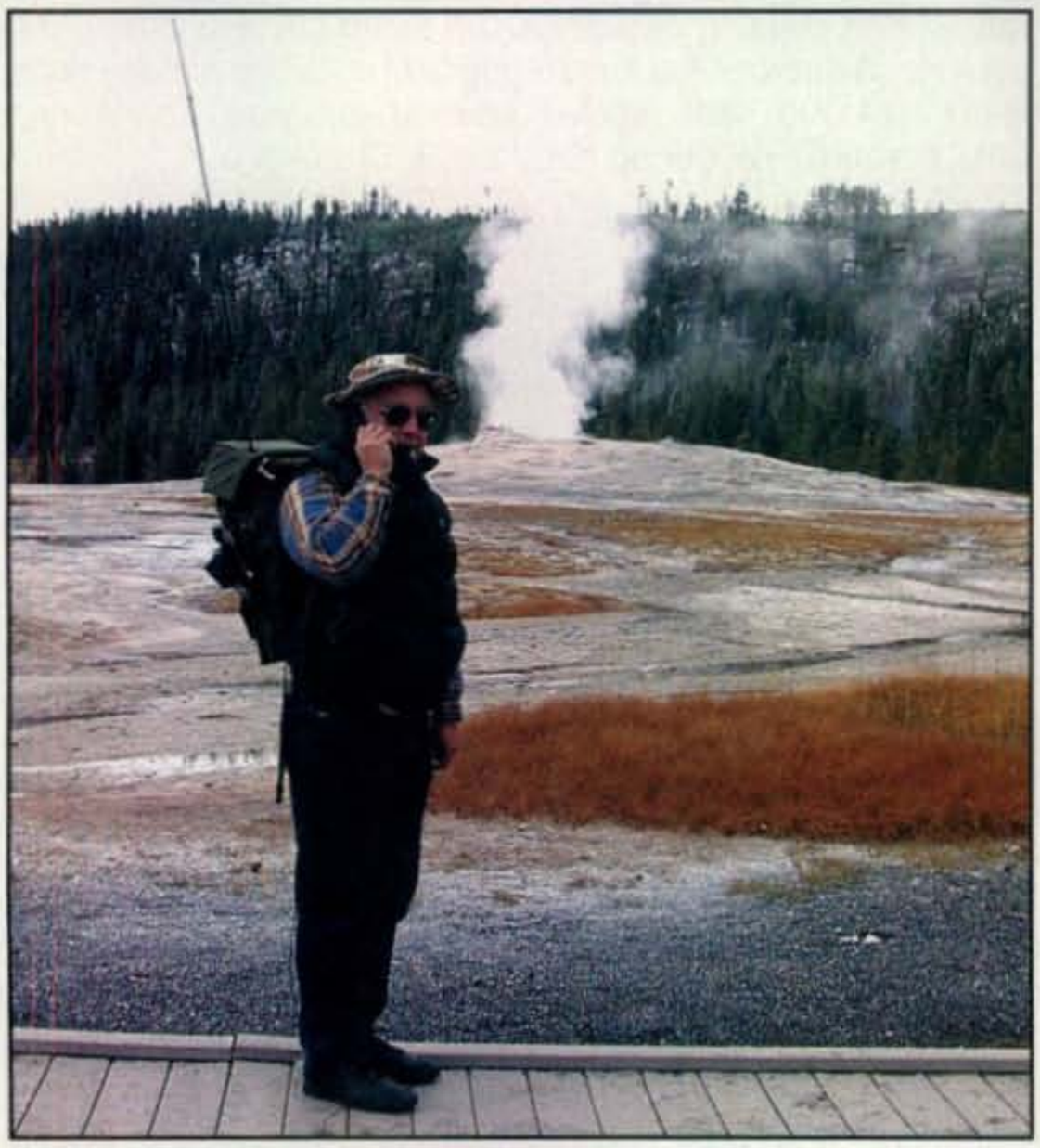


Photo 7– Paul Signorelli, WØRW, operating pedestrian mobile style at the site of Old Faithful, the famous geyser in Yellowstone National Park in Wyoming. Paul has contacted over 100 countries while using this PRC-319 backpack transceiver and 10-foot whip setup. (Photos 7 through 10 courtesy of WØRW)

Paul has an Elecraft KX-1 he occasionally uses handheld-style, but most of the time he uses a Military Comm PRC-319 or PRC-64 and a 10-foot whip antenna attached to his metal-frame hiker's backpack. Does it reach out? Yes, indeed. Paul has worked all states and more than 100 countries with it while visiting many world-famous sites.

The PRC-319, incidentally, is a 50-watt British military 1.5- to 40-MHz SSB backpack transceiver. It is powered by 20 D-size nickel-cadmium batteries and weighs 23 pounds. The

Photo 8– Close-up view of Paul's PRC-319 British military backpack transceiver. This is big-time portable, running 50 watts, covering 1.5 to 40 MHz, and weighing 23 pounds.

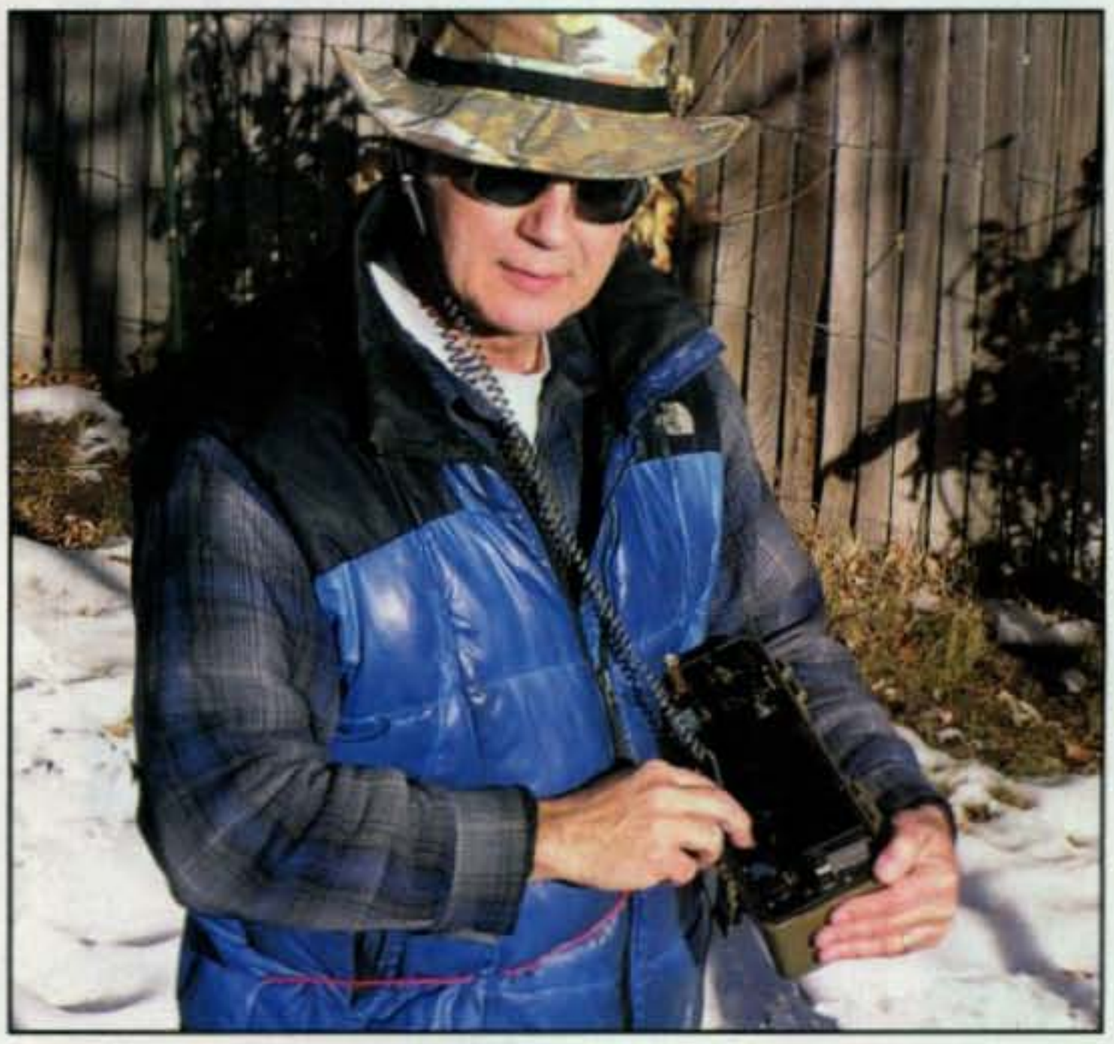


Photo 9– WØRW, pedestrian mobile, operating CW in the snow with a trim little PRC-64 transceiver. This little 5-watt transceiver is fully self-contained and an all-time favorite among QRPers keen on military surplus gear.

PRC-64 is a 5-watt Vietnam spy transceiver covering 2 to 7 MHz on CW and AM. It weighs approximately 3 pounds and is the size of a tissue box or old-style lunch box.

When asked about his operating tactics/preferences, Paul echoed my own thoughts of going for "hunt and pounce" rather than chasing packet-cluster listed DX and joining the pile-ups. A photo of Paul operating "PM style" from atop Pike's Peak (14,000 feet above sea level) was shown on QRZ.com/WØRW during early 2009. Check it out.

SUCH A HAM

All this mattress needs is a good tuner.

Bike Talk

When considering bicycle mobiling, most hams focus on the rig, battery, and antenna more than the bike. That's natural, as we are first and foremost hams at heart. Looking closer, however, we find bikes are a world of their own—and the variety of styles is amazing. There are light ones, heavy ones, recumbent, two-seaters, three-wheel frogs, tadpoles, and more. What's the difference and which style best fits your lifestyle? Maybe a brief explanation will help here.

Road bikes or street bikes are especially designed for running long distances at high speed on paved roads. They are typically equipped with multiple gears, a lightweight frame, skinny tires, and turned-down handlebars that produce a bent -forward riding position. Fenders for rain protection, a rear rack for mounting an antenna, and a front basket to hold a rig are optional. These bikes are real "speedsters," but their frame, tires, and wheels are not well-suited to riding in the rough countryside or hitting pot holes (pinch flats occur when hitting deep potholes).

Mountain bikes are more suited for slower off-road use. They have a heavier and more rugged frame, fatter tires, a straight handlebar, more upright riding position, and several low-ratio gears for ease in climbing hills.

Hybrids are a rather non-specific mix of road and mountain bikes, with medium weight and strength

Photo 10– Close-up view of the classic PRC-64 CW transceiver. Batteries install in the bottom, the roll-up antenna plus key stores in the lid, and the little rig is easily tweaked for operation on 40 meters. It is a nice gem, if you can find one. They are scarce.

frames, straight handlebars, an upright riding position, and various gear ratios. Preferences run the full range here. Whether a hybrid fits you depends on your need and lifestyle. Choose wisely.

Cruisers are the classic strong-frame, fat/wide tires, upright handlebars bikes with an upright seating and riding position that many over-40 folks grew up owning. Add a rear carrying rack, bolt on an antenna mount, and they are somewhat heavy but good bikes for mobiling.

Recumbent bikes remind us of a chaise lounge on wheels, as they have a full seat, and a laid-back riding position with forward-located pedals. Typically, you ride lower or closer to the ground on a recumbent. These also spin off into two subcategories of three-wheel recumbents:

Frogs, or "trikes," are three-wheel recumbents with two wheels in the rear. They are ideal for riding up to a nice spot, stretching out, and hamming it up while relaxing. They are not speedsters, but they are comfortable and well-suited to mobiling.

Tadpoles are three-wheel recumbents with two wheels in the front. Most tadpoles ride close to the ground, have "far front" pedals, and side/hip-positioned handlebars. Again, choice depends on personal preferences.

Accessories for bikes of all types are endless, ranging from riding wear and travel bags to trailers and moped conversions (most appreciated for easing the strain on knees while rolling along at 25 to 30 mph). Check out magazines such as *Adventure Cycle* (www.adventurecycling.org) for more details.

Photo 11– Last but not least, NFØN and AXØXP show us how bike mobiles look on the go. Watch for more unique mobiles coming in Part II next month! (Photo courtesy of NFØN and AXØXP)

Conclusion

That overflows available space for this month, friends, but watch for more views and details of some really unique plus golden oldies from yesteryear coming in next month's column. Remember, too, we want to feature you and your mobile setup in future columns, so send us your info and photos.

73, Dave, K4TWJ

BY BRYANT A. JULSTROM, KCØZNG

A Silk-Purse Utility Power Supply

The most useful piece of equipment on the experimenter and builder's bench, after a multimeter, is an adjustable, regulated, low-voltage power supply. Such a unit can conveniently and economically provide significant current at any voltage in a continuous range, and in the long run it's much cheaper than batteries. Many such supplies have been described in *CQ* and elsewhere (see "References" section). This one is distinctive not for its circuitry, which isn't original, but for where some of its important parts came from.

Back in 1977, Adrian Weiss described the "Silk-Purse In-Line Wattmeter" (Weiss, 1977). He replaced the insides of a commercial wattmeter/SWR bridge with new circuitry but reused the original switches, connectors, meter, and enclosure to produce a more effective unit, thus a "silk purse." Similarly, I replaced the (sparse) insides of a simple power supply with a new rectifier and filter, an adjustable regulator, and a voltmeter but reused the original transformer, switch, and enclosure. My own silk purse provides up to about 0.9A of current at any voltage between 2V and 26V. It should be straightforward for you to build something similar.

An Artifact Appears

About a year ago, my friend Dave, WØHE, was cleaning and organizing his shop and shack. He came across an old 12V power supply, which he was kind enough to give me. Photo A shows this modest unit, whose label assures us that its output is filtered.

*1945 30th Street S, St. Cloud, MN 56301
e-mail: <julstrom@stcloudstate.edu>

Photo A– The original power supply provided 12V at up to 1.5A but was a little the worse for wear.

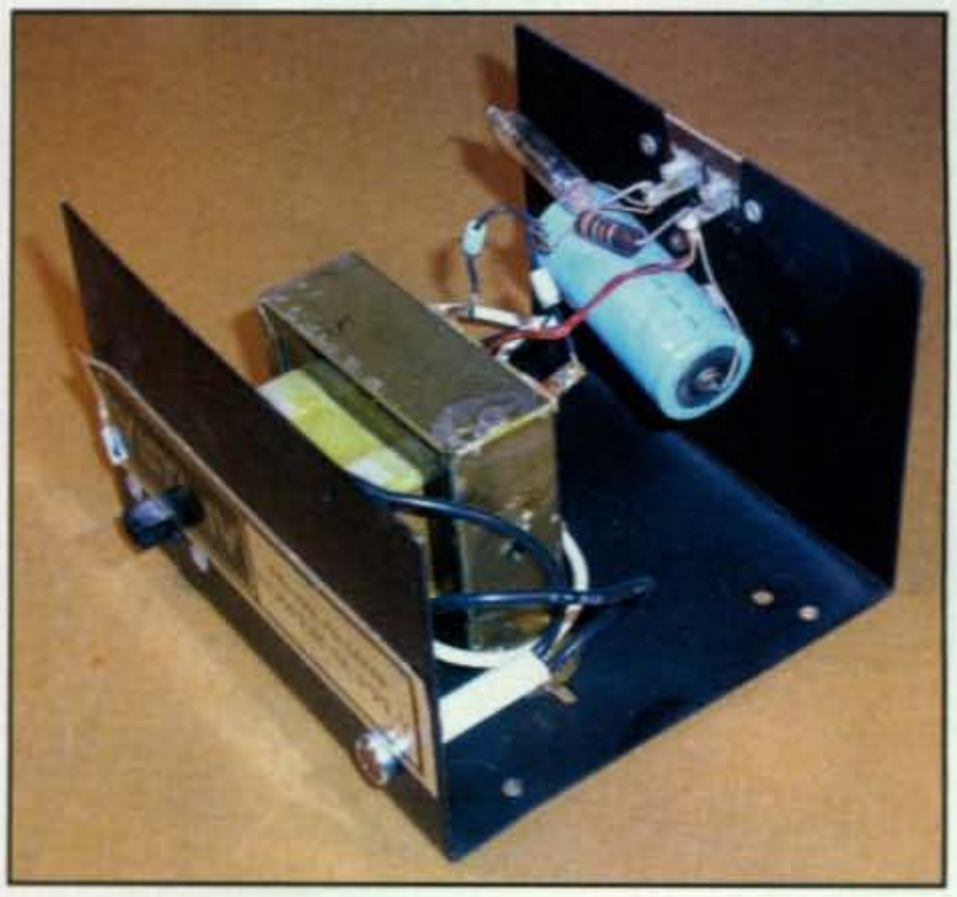


Photo B– The parts count in the supply was low. Note the two rectifiers in a full-wave configuration and the filter capacitor.

Four rivets held the enclosure's two halves together. I drilled them out and opened up the unit; photo B shows what I found. The parts count was not large. There were a transformer, a slide switch, an indicator, two diodes in a full-wave configuration, a large-value electrolytic capacitor, and not much else. The two-wire line cord was permanently connected. The output connectors were a pair of screw terminals in a rectangular notch on the back panel.

On the other hand, the label said that the unit could supply up to 1.75A of current continuously at 12V, so I had a sturdy 24V (or so) transformer and a nice steel enclosure with only a few holes in it, and one of those holes was rectangular and fitted with a perfectly useful switch. I removed everything from the enclosure and saved these parts, which became the basis of a more flexible and useful supply with these features: a full-wave bridge for a maximum voltage of at least 24V, an adjustable regulator to provide regulated output over a continuous range of voltages, and a 0–30V analog voltmeter to indicate the output voltage. Fig. 1 shows the entirely conventional design of the new supply.

The Regulator

Many adjustable regulators that can be used in a supply like this have appeared here and elsewhere over the years. The earliest of these used discrete components (for example, Burke, 1966; Olson, 1966; Baker, 1967). A well-known article in 1971 described several IC-based circuits (Blakeslee, 1971). The most frequently used devices are probably variable three-terminal regulators such as the LM317, LM338, and LM350 (for example, Weiss,

1980; Patterson, 1987; DeMaw, 1989; Carr, 2000). Irwin Math presented a discussion of linear regulators that included such a circuit in his *CQ* column last November (Math, 2008), and appropriate circuits appear in the ICs' datasheets, which are widely available on-line.

For my regulator, I chose the venerable LM723, now about 40 years old, in a 14-pin DIP package, because I had several and because they have served well in other projects. The maximum current the '723 can pass is 150mA, so I used another oldie-but-goodie, a 2N3055 in a TO-3 case, as a pass transistor. It can handle up to 5A and so is more than adequate in this application.

The standard circuits that use the '723 provide either up to 7V or more than 7V, neither of which was appropriate for this project. After a bit of breadboard fiddling, I arrived at the circuit shown in fig. 2, which puts a divider across the IC's internal voltage standard and provides a regulated output from about 2V up to a few volts less than the filtered input voltage. This circuit is similar to one presented in 1978 by Olson, who was in turn working from an application note published by Teledyne some years earlier (1971).

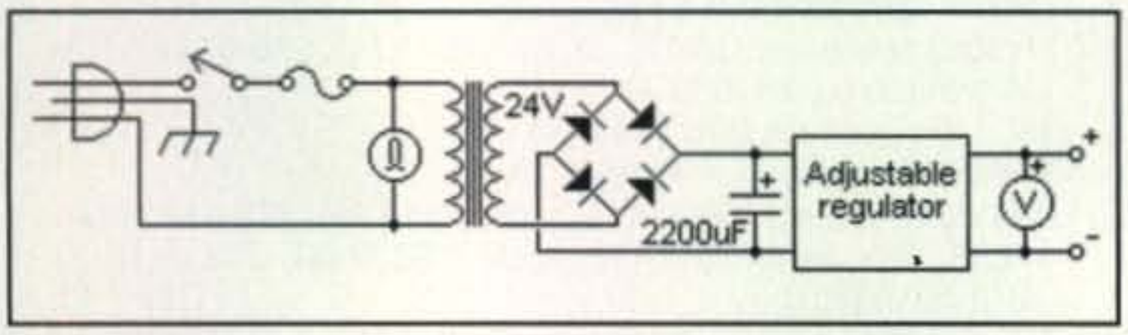


Fig. 1– The design of the revised supply is conventional: transformer, rectifier, filter capacitor, adjustable regulator, and voltmeter.

I assembled the regulator on a piece of unclad perf-board measuring about 1 by 2.5 inches (2.5 by 7 cm). Included on the board were the rectifier and filter capacitor of fig. 1. The original filter capacitor was rated at only 25V, which the output of the full-wave rectifier would exceed, so I replaced it with another, 3300µF at 50V. The small resistors were rated at 1/2W, though 1/4W would have been fine. Off the board were the regulator's pot and 2N3055 pass transistor. The pot, which sets the output voltage, was to be mounted on the front panel and the 2N3055 on the back panel, so the board included wires to connect to those parts but not the parts themselves. To reduce the chance of mistakes during final assembly, I labeled those wires and the input and output connections with small tape tabs.

What Goes Where

Every project is a puzzle in which we try to find both a good arrangement of the internal components and an effective and attractive front-panel layout. For the insides, the usual technique is to place the parts—or cardboard models of them—in various configurations and see what produces convenient wiring and easy access.

For planning the arrangement and labeling of panels, a drawing program is an excellent tool. I made a full-size drawing of the front panel in good old Microsoft Paint®, beginning with the existing holes, and on it placed several new components: a pair of binding posts for output, the potentiometer, and an analog voltmeter. I made the dimensions of the sketched objects as close as possible to the dimensions of the real ones to see how the panel would look and to be sure everything would fit. Of course, I took advantage of the exist-

On the Cover

Lee Brandt, KC2RBL, and other members of the Radio Association of Western New York (RAWNY) operate Field Day aboard the *USS Little Rock* museum ship in Buffalo, New York. The *Little Rock*, a guided missile cruiser, was in service from 1945 to 1976 and served a variety of roles, including flagship of the U.S. Sixth Fleet in the 1960s. In 1978–79, it was converted to a museum ship and has been on display since 1979 at the Buffalo and Erie County Military Park. RAWNY has been involved with the ship from the time of its arrival in Buffalo, operating demonstration stations there starting in 1980 and gaining a permanent presence in 1984. The club station is in the former "nuclear strike" room, which was the hub of all activities relating to the nuclear weapons that had been on the ship. The station is set up along the public tour route and is typically the second stop for most visitors. Club members operate the station most weekends from spring until fall, as well as special events, such as the Museum Ship Weekend (the first weekend in June each year) and ARRL Field Day, when these photos were taken.

The two operators seen in the radio room are Jim Collins, KA2IWK, and Mike Sulkowski, KA2GVY. Lee Brandt, KC2RBL, is pictured in front of the ship. She tells *CQ* that her father was in the Signal Corps during World War II and could copy code at 40 words per minute. While he was never a ham, she was interested on and off from high school onward. About three years ago, she says, she visited the *Little Rock* and saw the station on the air. A longtime member, Kevin Kedzierski, WA2FKV, put her on the radio and got her hooked. Lee got her license about a year later and is now RAWNY's public relations director. She is studying for her Extra and then wants to learn code, to honor her father's memory. *(Cover photos by Larry Mulvehill, WB2ZPI)*

Oops...

Clarification & Safety Warning

April's review of the TAK-tenna mini HF dipole antenna suggested that an attic might be a possible location to install this small antenna. Company owner Steve Tetorka, WA2TAK, says his antennas should **NOT** be used indoors under any circumstances. This is due to very high voltages that can develop on the wires, especially if the antenna is not resonated (and 75% of users do not resonate them). These high voltages, in turn, can occasionally generate sparks, which pose a fire danger if the antenna is being used indoors. So use the TAK-tenna outdoors only. This warning is included in the instruction manual, so anyone following the instructions should not have a problem.

ing holes in the enclosure. The indicator's original position was given to one of the binding posts, with the second placed exactly 3/4 inch from the first. The indicator got a new hole nearer the switch, which, with its rectangular hole (always hard to cut) and mounting screws, stayed where it was. Fig. 3 shows the front-panel design; it also specifies the centers of all the holes, including the meter and its mounting screws.

A pattern of holes in the back panel matched a TO-3 case; the manufacturer must have used the same enclosure for other products. These holes determined the location of the pass transistor. The original line-cord entry was given to the fuse holder; a three-wire line connector got a new hole.

Construction

I began construction of the revised supply by stripping the labels and paint off the lower half of the enclosure with a wire wheel. Using a printout of the front-panel design as a template, I drilled the necessary additional holes. The round hole for the meter took patience; I used a fly cutter after setting its radius by making test holes in scrap hardboard.

The 2N3055 was mounted on the back panel using the existing holes. Its case connects to its collector, which as fig.

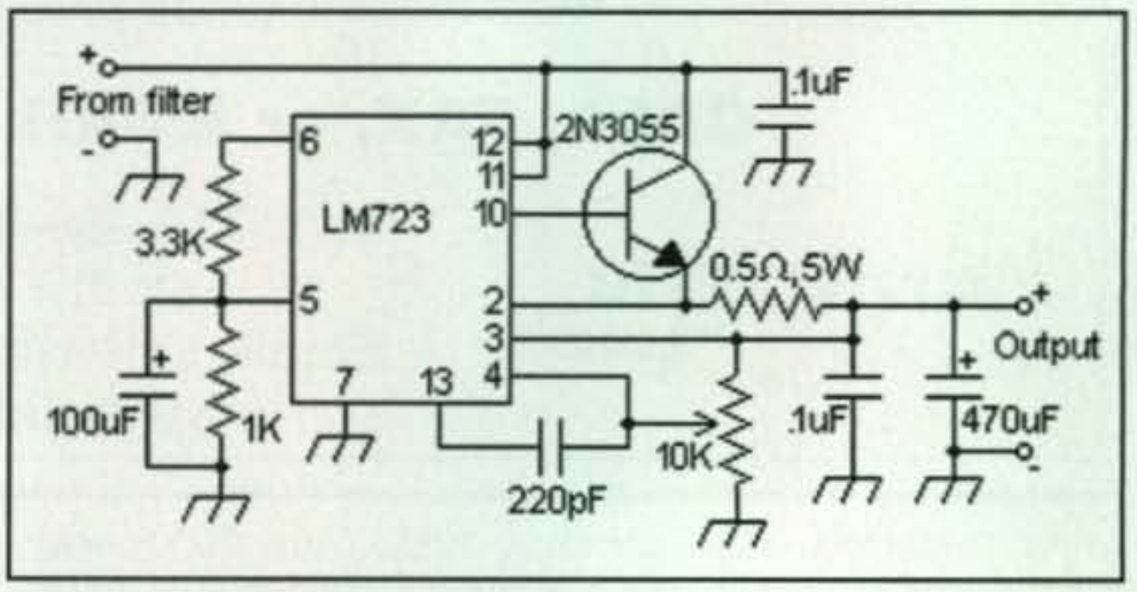


Fig. 2– The adjustable regulator is based on an LM723 with a 2N3055 pass transistor. The 10K pot controls the output voltage.

Parts List

All the parts in this or any similar supply are widely available. The following lists part numbers for most of this unit's parts from JameCo (J), Allied Electronics (A), and RadioShack (RS), but many other suppliers carry similar parts.

From the original supply
Enclosure, transformer, SPST switch, and indicator

For the new supply, exclusive of the regulator
Binding posts: 77691 (J), 885-0254 (A), 274-662 (RS)
Fuse holder: 120994 (J), 270-364 (RS)
Bridge rectifier: 279494 (J), 266-0092 (A), 276-1152 (RS)
3300µF, 50V electrolytic capacitor: 613-0131 (A), 609588 (J)
0–30V analog panel meter: 316638 (J)

For the LM723/2N3055 regulator
LM723 regulator: 24467 (J), 248-0722 (A)
2N3055 transistor: 38308 (J), 248-2042 (A), 276-2041 (RS)
TO-3 mounting kit: 839-4725 (A)
1K, 1/4W resistor: 296-4741 (A)
3.3K, 1/4W resistor: 296-6640 (A)
0.5Ω, 5W resistor: 660050 (J), 296-6714 (A), 271-130 (RS)
470µF, 35V electrolytic capacitor: 93819 (J), 613-0116 (A), 272-1018 (RS)
100µF, 16V electrolytic capacitor: 94431 (J), 613-0096 (A), 272-1016 (RS)
Two 0.1µF, 50V calacitors: 507-0837 (A)
10K potentiometer: 29082 (J), 271-1715 (RS)

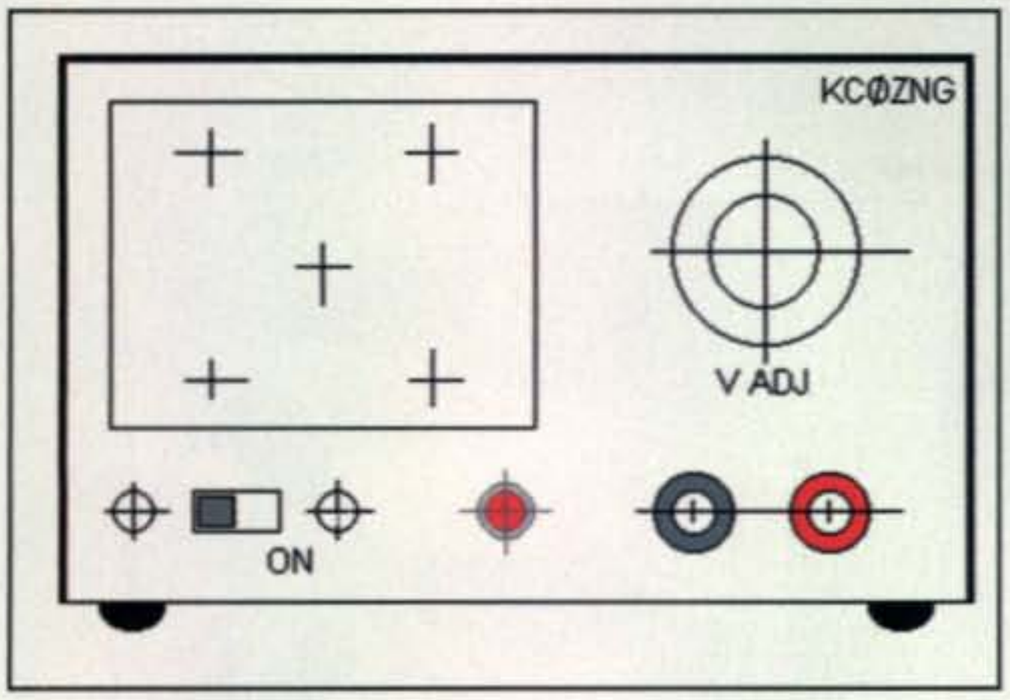


Fig. 3– The front panel of the revised supply was planned in MS Paint®. This is a good way to arrange a panel and to specify exactly where all the holes will go.

2 shows, is at the positive potential of the unregulated supply, so it was isolated from the enclosure with a mica insulator. Both sides of the insulator were smeared with silicone heat-sink compound for better heat transfer; the enclosure acts as a heat sink for the transistor. As always, the almost-rectangular hole for the three-wire line connector was a challenge—drilled holes followed by careful filing.

After drilling holes to mount the transformer and the circuit board, I cleaned and primed the bottom half of the enclosure, and then painted it with a nice Krylon beige. I bolted a small aluminum rectangle, painted with the same beige, over the notch in the back panel where the screw terminals had been.

I made the labels on ink-jet paper from DecalPaper.com. It takes a little practice to make and use these labels, but you can try as many times as necessary; be sure to make several copies of each label. Because you can make a decal of anything you can print, you can make yourself a logo, or label the unit with your call. For text, an alternative is the Brother P-Touch label-maker; trim the tape as close to the printing as you can. On the back panel, I placed a label indicating the month and year in which the project was completed.

After the labels had been applied, I sprayed the front and back panels with several coats of clear acrylic. The upper half of the enclosure, which was a dark bronze color, showed little wear. I drilled out the rivet holes in anticipation of using sheet-metal screws to hold the enclosure's halves together, and then cleaned and polished the part. Photo C shows all the parts of the supply.

Final assembly of the supply went

Photo C– The parts of the supply were laid out in preparation for final assembly. Note the parts salvaged from the original supply and the board on the left that holds the rectifier, filter capacitor, and regulator.

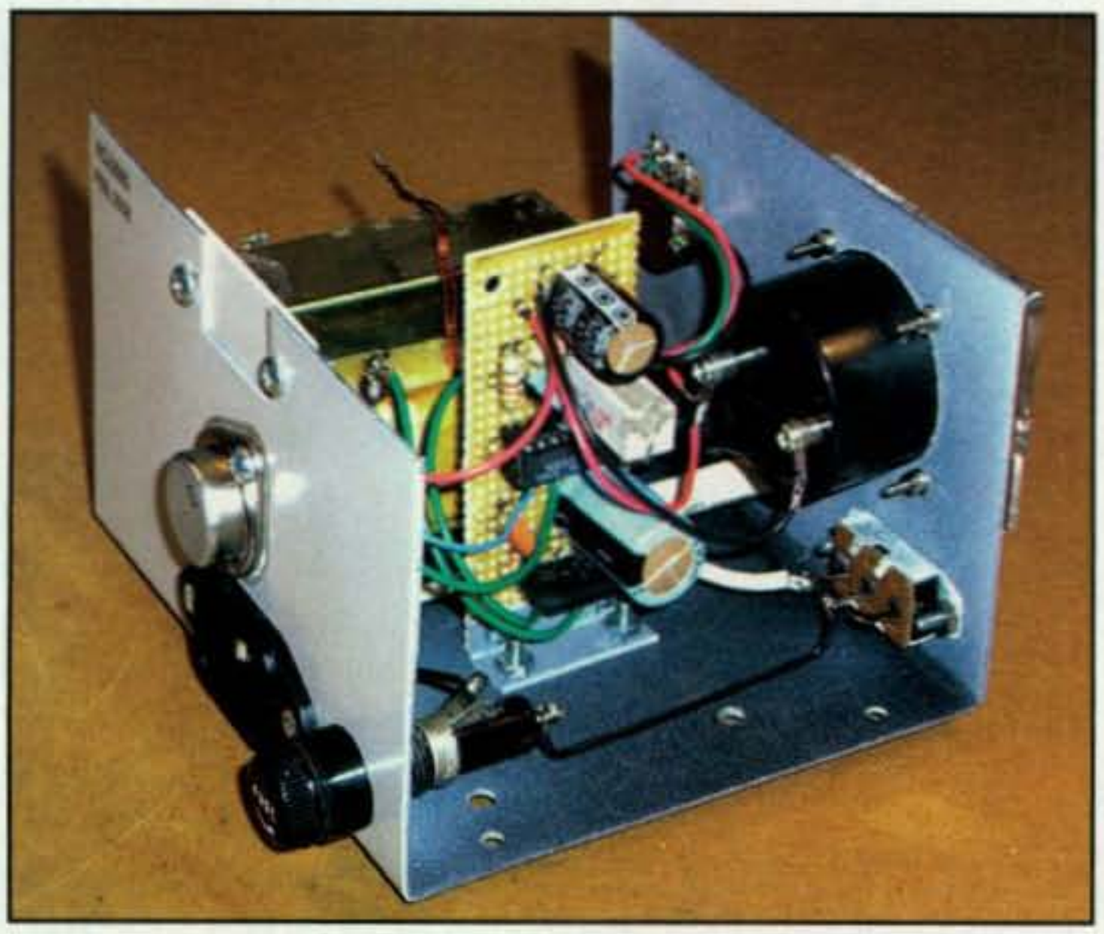


Photo D– The assembled silk-purse power supply was more crowded than the original supply, but there was still plenty of room for the transformer, regulator board, meter, and line connection. Note the pass transistor on the back panel.

Photo E– The finished silk-purse supply looked like it was always meant to be this way. It provides up to about 0.9A of current at any voltage between about 2V and 26V.

smoothly and was a pleasant, Heathkit-like experience, except that there were no directions telling me when to attach what where and how many wires there would be when I got there. I made the line and output connections first, on the front and back panels, when they were easy to get to, then installed and connected the transformer and the circuit board, being careful to follow the labels on the board's leads. Planning helps here so you don't have to maneuver the iron through a nest of wires to solder the last connection.

Photo D shows the interior of the finished unit and illustrates how and where the components were placed. I mounted the circuit board vertically using a small right-angle bracket, visible in the picture, made out of a scrap of aluminum. Note that with such a small piece, it's easier to drill the holes and then bend the piece, rather than the other way around. Photo E shows the front panel and the assembled enclosure, which I completed with four self-adhesive feet. The doorstop had become a useful tool.

One additional suggestion: The heat dissipated by the pass transistor depends on the current through it and the voltage drop across it. For example, if the input voltage to the regulator is 25V, the output voltage is 13.8V, and the current being drawn is 220mA, then the transistor dissipates about (25 – 13.8) × 0.22 = 2.46W. This power makes the transistor in my supply warm to the touch but not hot. However, this power increases with the voltage drop and the current, so an external heat sink really is required. I placed the line connector too close to the transistor to allow a heat sink, but I should have rearranged the back panel and included one.

Parts is Parts

All the parts in the finished supply came either from my junk box or from the original unit—even the meter, which I had picked up for some other project, now forgotten. The parts are common ones, however, so even if your junk box is sparse, you should have little trouble finding everything you need. You could even start from scratch with a transformer and an enclosure, although supplies like the original one here are common in closets and at hamfests. At our local event in February, sponsored by the St. Cloud Amateur Radio Club, I saw two or three units of similar age and design.

Likewise, you have options for the regulator. The LM723/2N3055 combination is one alternative, but an LM317 alone will handle up to 1.5A, and an LM350 or LM338 more (use a heat sink); a regulator based on any one of these is about as simple as it gets. There are also more recent regulator chips—see their datasheets—and kits for small regulators from outfits such as kitsrus.com (Kit 68). In the latter case, instead of attaching the pot to the board that is part of the kit, attach wires to reach the pot, which will be placed on the front panel.

However you go about building a supply like this, you will find the process straightforward and the result a useful addition to your workbench.

References

Baker, Arleigh B., KØPSG, "An Adjustable Regulated Transistor Power Supply," *QST*, May 1967, pp. 28–30.

Blakeslee, Douglas A., W1KLK, "AC-Operated Regulated DC Power Supply for Transistorized Rigs," *QST*, November 1971, pp. 11–14.

Burke, Morton H, K2ENU, "Series Type Transistorized Regulated Power Supplies," *CQ*, January 1966, pp. 43–45,102.

Carr, Paul, "A Junk-Box Power Supply for the Workbench," *CQ*, January 2000, pp. 38–39.

DeMaw, Doug, W1FB, "A 1.25- to 25-V, 2.5-A Regulated Power Supply, *QST*, September 1989, pp. 22–25.

Math, Irwin, "Simple Linear Power Supplies," *CQ*, November 2008, pp. 50–52.

Olson, Hank, W6GXN, "Some Thoughts on Transistor Power supplies," *73*, December 1966, pp. 10–15.

Olson, Hank, W6GXN, "Surprisingly Low-Cost Lab Supply," *73*, March 1978, pp. 132–133.

Patterson, Gordon W., "What! Another Power Supply?" *CQ*, February 1987, pp. 36–38.

Teledyne: "Linear Microcircuits Application Note 2: 723/823 Voltage Regulators," 1971.

Weiss, Adrian, "The Silk-Purse In-Line Wattmeter," *CQ*, May 1977, pp. 50–52, 74–75.

Weiss, Adrian, "The LM317 and LM350 in Adjustable, Regulated, High-Current D.C. Power Supplies," *CQ*, April, 1980, pp. 30–38.

ASTRON CORPORATION
9 Autry Irvine, CA 92618
(949) 458-7277 • (949) 458-0826
www.astroncorp.com

E151765 E151765

...POWER ON WITH ASTRON

SWITCHING POWER SUPPLIES...

MODEL SS-10TK

MODEL SS-12IF

SPECIAL FEATURES:

- HIGH EFFICIENCY SWITCHING TECHNOLOGY SPECIFICALLY FILTERED FOR USE WITH COMMUNICATIONS EQUIPMENT, FOR ALL FREQUENCIES INCLUDING HF
- HEAVY DUTY DESIGN
- LOW PROFILE, LIGHT WEIGHT PACKAGE
- EMI FILTER
- MEETS FCC CLASS B

PROTECTION FEATURES:

- CURRENT LIMITING
- OVERVOLTAGE PROTECTION
- FUSE PROTECTION.
- OVER TEMPERATURE SHUTDOWN

SPECIFICATIONS:

INPUT VOLTAGE: 115 VAC 50/60HZ OR 220 VAC 50/60HZ SWITCH SELECTABLE

OUTPUT VOLTAGE: 13.8VDC

AVAILABLE WITH THE FOLLOWING APPROVALS: UL, CUL, CE, TUV.

MODEL SS-18

DESKTOP SWITCHING POWER SUPPLIES

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-10	7	10	1⅛ x 6 x 9	3.2
SS-12	10	12	1⅛ x 6 x 9	3.4
SS-18	15	18	1⅛ x 6 x 9	3.6
SS-25	20	25	2⅞ x 7 x 9⅝	4.2
SS-30	25	30	3¼ x 7 x 9⅝	5.0

MODEL SS-25M

DESKTOP SWITCHING POWER SUPPLIES WITH VOLT AND AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-25M*	20	25	2⅞ x 7 x 9⅝	4.2
SS-30M*	25	30	3¼ x 7 x 9⅝	5.0

MODEL SRM-30

RACKMOUNT SWITCHING POWER SUPPLIES

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25	20	25	3½ x 19 x 9⅝	6.5
SRM-30	25	30	3½ x 19 x 9⅝	7.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M	20	25	3½ x 19 x 9⅝	6.5
SRM-30M	25	30	3½ x 19 x 9⅝	7.0

MODEL SRM-30M-2

2 ea SWITCHING POWER SUPPLIES ON ONE RACK PANEL

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25-2	20	25	3½ x 19 x 9⅝	10.5
SRM-30-2	25	30	3½ x 19 x 9⅝	11.0

WITH SEPARATE VOLT & AMP METERS

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M-2	20	25	3½ x 19 x 9⅝	10.5
SRM-30M-2	25	30	3½ x 19 x 9⅝	11.0

MODEL SS-12SM/GTX

MODEL SS-10EFJ-98

CUSTOM POWER SUPPLIES FOR RADIOS BELOW

EF JOHNSON AVENGER GX-MC41
EF JOHNSON AVENGER GX-MC42
EF JOHNSON GT-ML81
EF JOHNSON GT-ML83
EF JOHNSON 9800 SERIES
GE MARC SERIES
GE MONOGRAM SERIES & MAXON SM-4000 SERIES
ICOM IC-F11020 & IC-F2020
KENWOOD TK760, 762, 840, 860, 940, 941
KENWOOD TK760H, 762H
MOTOROLA LOW POWER SM50, SM120, & GTX
MOTOROLA HIGH POWER SM50, SM120, & GTX
MOTOROLA RADIUS & GM 300
MOTOROLA RADIUS & GM 300
MOTOROLA RADIUS & GM 300
UNIDEN SMH1525, SMU4525
VERTEX — FTL-1011, FT-1011, FT-2011, FT-7011

CIRCLE 134 ON READER SERVICE CARD

NEW SWITCHING MODELS

SS-10GX, SS-12GX
SS-18GX
SS-12EFJ
SS-18EFJ
SS-10-EFJ-98, SS-12-EFJ-98, SS-18-EFJ-98
SS-12MC
SS-10MG, SS-12MG
SS-101F, SS-121F
SS-10TK
SS-12TK OR SS-18TK
SS-10SM/GTX
SS-10SM/GTX, SS-12SM/GTX, SS-18SM/GTX
SS-10RA
SS-12RA
SS-18RA
SS-10SMU, SS-12SMU, SS-18SMU
SS-10V, SS-12V, SS-18V

*ICS – Intermittent Communication Service

BY BRITTANY DECKER,* KB1OGL

Ten Ways to Attract Youth to Amateur Radio

"Amateur radio is dying," or so we sometimes hear. Amateur radio is, in fact, aging. The solution, then, is to age it backwards. Focus all of your efforts on raising interest among young people, recruiting them into the hobby, and keeping their interest. Soon enough, it will be their turn to worry about amateur radio's aging process, and they will be the ones teaching kids. Here I have come across a survey given by Simon Boehme, KC8ZYD, to seven young amateur radio operators. After reading it, I found the facts to be what I suspected was the problem with amateur radio all along, and even some things I didn't expect to see. Below is my list of criticisms and improvements for amateur radio, from least important to most important.

10. Name Change?

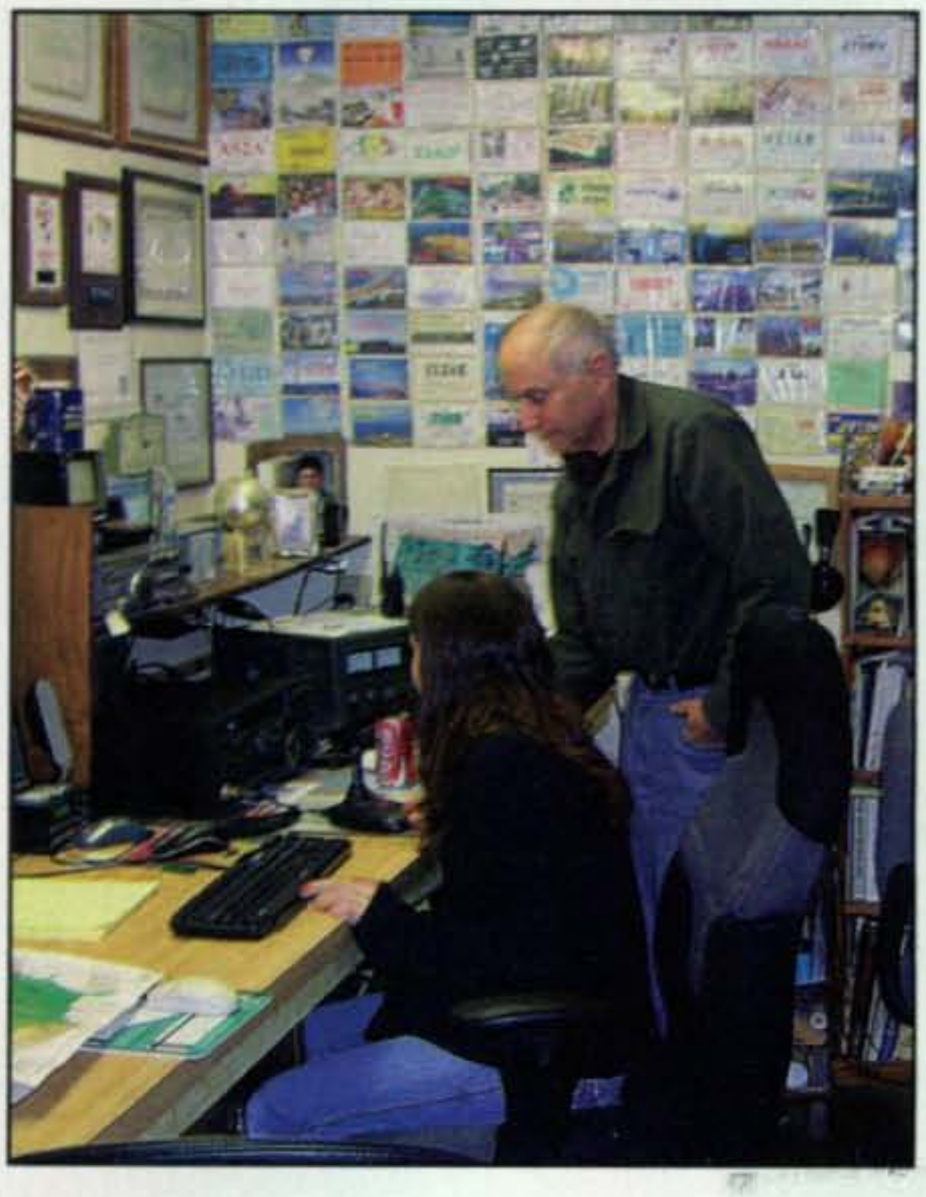
In the survey, theterm "Ham Radio" or "Amateur Radio" surfaced as a possible problem. This may be something to look into, as this is the first thing kids hear when they learn about radio. A more attractive name could help get more kids into radio, but we don't want to change everything about radio to please the eyes of its next generation of operators. So, this may be something to consider, but changing the name probably will not bring youth running to the license exams.

9. Schools Beware

Where is the one place you can count on to have the most kids concentrated in one area? Schools! There will always be youngsters in school, as long as truancy is against the law. Why not use this as an opportunity to educate them in readin', writin', 'rithmetic, and of course, radio. Lace the concepts of radio into math, science, history, and geography, and students will be able to relate to radio and refer to their studies through it. It can even be related to writing, because, for example, I am writing a story about amateur radio, aren't I?

At almost every school there is at least one teacher who is funny, respected, and never has to yell to control his or her classes. When asked what else we could do to get amateur radio into the school systems, one kid suggested getting a cool teacher to act as a sort of sponsor for it. This is a great suggestion, because not only can the teacher help students learn about radio, but he or she can make it a fun activity. With an awesome teacher, and the school's support on amateur radio's side, we can get kids involved one school at a time.

*c/o CQ magazine
e-mail: <kb1ogl@cq-amateur-radio.com>



Get young ops involved! Here, the author operates 6 meters during a contest while Bill, NE1B. provides engouragement and support.

8. World Domination (just kidding)

While schools are one of the best places to find kids, amateur radio should not be limited to them. After all, I'm sure there are more enjoyable things than school. Take the Boys and Girls Club, or Scouting, for example. Amateur radio already has taken root in Boys and Girls Clubs across America; there is one that I know of in Michigan that was mentioned in the last edition of "Kids' Korner" called the D.A.R. radio club. Even Scouting has amateur radio oriented activities, such as how to build a radio. Scouting also has orienteering and geocaching activities which can translate to foxhunting and APRS (Automatic Position Reporting System). As for churches and the Salvation Army, many emergency communications organizations work with these groups, using their buildings as places of operation during an emergency, as storage areas for emergency communications equipment, and holding ARES (Amateur Radio Emergency Service) or SKYWARN meetings and classes (The Salvation Army has its own ham radio emergency network, SATERN).

7. Dude, Let's Chill Today

Along with schools and recreational organizations, for amateur radio to really hit home with kids,

it must be pal-friendly. Help teenage kids to see that especially during the bad economy, unlimited text and talk is not as cheap as it used to be, while amateur radio is totally and completely free (after investing in a radio)! What a sick, nasty hobby to take up when parents are raggin' on them for the last phone bill. Although a radio can have a heavy price also, they shouldn't need the latest and greatest technology in the amateur radio world. An HT can do the trick if all they want to do is chat with friends.

Don't like to talk? How about text? Ham radio gives a completely free alternative to this, also. RTTY resembles Instant Messenger, but it is really a cross between IM and texting. This is a completely free alternative to texting and is just as fast. There is also another method available that is proven to be faster than texting—CW, aka Morse code. There is the problem of youngsters learning and memorizing Morse code, but it's not much different from learning all the texting abbreviations, right? LOL. TTYL :)

6. When All Else Fails

Charity work appeals to people of all sorts and ages. Kids involved in The Salvation Army may also stumble upon amateur radio though emergency communications. Organizations such as ARES and SKYWARN have roots throughout The Salvation Army and hold meetings and classes in Salvation Army buildings. They collaborate with The Salvation Army during times of emergency, and while most volunteers provide food and other items, the amateur radio operators obviously provide communication.

Many kids are also connected to the police or fire stations of their city in some way. A parent could be a police officer or firefighter. These people also need a means of communication, and especially during an emergency are responsible for maintaining communication throughout a city. Therefore, collaboration with amateur radio operators is vital if communication during an emergency has to cover an entire city. Amateur radio licensing classes often are held at police or fire stations to get as many people as possible in the area licensed and even recruit them into emergency communications. Reaching out to police officers and firefighters to get their kids involved in amateur radio can also be a big step in helping the younger generation to step up. A "bring your kid to class" day could be an effective way, with a ride in the fire truck at the end, or a tour of the police dispatcher's station.

Hospitals also must maintain communication during an emergency, especially radio communication with ambulances with incoming patients. Classes for license nurses and doctors in hospitals have started in many areas, so that if an operator is ever needed in a hospital, there are more chances of one being available. With even more adults being licensed, it can be assumed that at least some of these hospital workers/amateur radio operators have children. Another way to recruit kids into amateur radio is to persuade these adults to share this wonderful hobby and skill with their children and invite their children to study for the amateur radio exam with them—because, after all, two heads are better than one.

Finally, there are plenty of kids who are not affiliated with The Salvation Army, police or fire stations, or hospitals in any way except when they are hurt or need help. These kids should at least know about emergency communications, and the great people who put hours of hard work into honing their amateur radio operating skills, learning about how to be prepared in times of disaster and preparing their area for these dis-

asters. Then there are the countless amateurs who take the time to learn about SKYWARN, and help meteorologists give the most accurate weather report possible to the public. It takes hours of undivided attention, studying, and eye training to be able to accurately report weather. The deepest respect should be extended to these people, and their knowledge rightfully should be extended to the youth of today.

5. Hamfest It Up

In the survey, the subject of hamfests came up. I have been to a couple hamfests. During the hamfest, my dad and I walked around and looked at stuff while standing in the hot sun. At the time I probably was wishing I was in the pool, but I think my dad was enjoying it. I do have to admit that I saw some interesting things, and met a couple of people, but only four people who were near my age. To sum it up, I saw three major problems with hamfests: youth attendance, youth-oriented activities, and energy.

When a young person goes to a hamfest, it is a lot more enjoyable if there are people their age in attendance. To encourage youth attendance, I suggest that free tickets be offered to anyone under the age of 18, and there be a youth lounge or meeting area where they can get to know one another. It is always fun to meet with other rarities in amateur radio and share experiences and ideas with each other. Not only should there be a meeting place, but youth should be put to work. After all, we are the ones with youthful energy. However, the work should not dominate their stay at the hamfest; they should have time to work and time to socialize.

The other problem I saw with hamfests is the lack of youth-oriented activities, as mentioned before. No matter if the activities are work, socializing, or slip 'n slide, there should be at least one activity that appeals to young people. Personally, I would enjoy a competitive, physical activity, such as "who can climb the antenna tower faster?" (with proper climbing equipment, of course). I like doing things in addition to walking around, and especially like to see cool demonstrations. Maybe an eye-appealing Tesla coil could be presented. As an artistically inclined person, I think there could also be a free-form art aspect using the welding of metal objects. As an overall rule, I suggest that all types of people be considered, musically inclined people, artistically inclined people, athletic, young, older, men, women . . . everyone should be considered when hamfests are planned.

The last problem I saw with hamfests is the energy. Most young people are energetic, and when they go to festival-like events, they expect a certain energy level. This can be achieved through demonstrations, music, art, activities, or contests, anything that is not seen on a daily basis. Especially with activities that require people to get involved, or show their skills in competition, the energy level of the event rises. Even the non-participants in the event will most likely form a crowd, all interested in who will win or what the outcome of the activity will be.

4. Quality Time with the Family

I'm sure that although most people in amateur radio may act like family to one another, they all don't live together. It can be assumed, then, that the best people to operate with are your family members! Take family board-game night to the ham shack instead and play around on the radio. In addition to a bedtime story, ask some radio Q&A to study for the amateur radio exam. There are so many ham-related activities that a family can do together, and at the same time form stronger bonds and wonderful memories that will last a lifetime. Besides that, I know from experience that it is easier to study for your amateur radio exam if you have an older, more knowledgeable person to help you. However, I also know from experience that it is difficult to get the entire family licensed, such as the families in the December issue of "Kids' Korner." Whatever you end up doing together as a family with amateur radio, it is almost certainly going to be a fun time.

3. Scholarships!

Even if amateur radio operators succeed in educating kids in the existence of radio, we can never get all of them motivated enough to get their license with the sole argument that it is a "rewarding hobby." Instead, we should give specific examples. A major motivator for kids in their late teens who are getting ready to go off to college is the allure of scholarships, especially in this time of economic recession. College isn't getting any cheaper, and kids need all the help they can get with scholarships. In radio, there are so many scholarships that go unclaimed, all because no one knows about them. If anything, tell kids to get licensed for their future, because amateur radio can be rewarding in many, many ways.

2. Calling All Clubs

Of the topics that were brought up by the kids for discussion, one of the most prominent was ham radio clubs. Although the majority of kids attended club meetings regularly and generally liked going to them, they found some room for improvement in the favor of young amateurs. Regarding clubs, the kids surveyed agreed on three main aspects of how the clubs could improve. They agreed that clubs should have less of a "boring business meeting," try harder to recruit youth into the club, and once they succeed in getting youth involvement, give them something to do.

The "boring business meeting" aspect referred to in the survey was that of the treasurer's report and the minutes of the club board meetings. It was suggested that what happens at the board meeting stay at the board meeting, and the club meetings should proceed with whatever they had planned for that night without the minutes or treasurer's report. I will admit that this is a very boring process, and unneeded also, because this information can be looked at on the club member's own time by reading the newsletter.

The lack of effort that is put towards raising youth interest in clubs was also recognized as a problem. If older members of amateur radio are complaining that there are not enough young people in amateur radio, and they have all these organized groups at hand anyway, why not use this concentrated group force to gain the help of younger people on their side? If each club could get together to devote at least one club meeting to brainstorming and collaborating with one another on how to improve ham radio's youth involvement, it would be one big step closer to actually raising their interest in radio.

The last problem with most clubs is that when youth finally do join, there is nothing for them to do. For example, if a young person joined a club, sat through every boring business meeting and went to every function or event held by the club, then ran for a position on the board, I bet they would not be voted in. This is because many adults don't trust kids with work. What should happen is a young person should be appointed as a member in training, such as "secretary in training." Then, gradually more responsibility should be bestowed on them as they show their ability. A youngster can be quite helpful, for they have grown up in a different era and may have a different paradigm than an older person. This pro-

vides a fresh outlook on many things, such as how to rake in money for the club, or even the flaw stated above—how to recruit more youthful energy. Most often when young people join a club, they are optimistic about cracking down, getting to work, and collaborating with their fellow amateurs—no matter what age.

1. And now, the Best Way: Get them involved. Recognize their potential, inspire them, and give them stuff to do!

The final and best way to get more young people involved is to give them meaningful work. What happens many times when a young person shows interest in radio is that once they experience that first peak of interest in it, they are left idling, like a car that has been started but left in neutral. My suggestion is that the older amateurs be the drivers. Your job is to take charge and direct the youth into amateur radio

Remember that this isn't the speedway; you are not trying to scare kids away. It's more like your first trip in a brand-new car—ease out of the driveway and take it nice and easy the first few times. In other words, don't immediately rush into Q&A for the Technician exam. Get the kids some experience on the radio operating under a legal callsign, and make sure they have some kind of fundamental education based on personal experience. Then start with the intense study sessions for Technician, General, maybe even Extra at some point.

Once this has been accomplished, get them involved in a club. This is the time when it becomes the club's responsibility to drive the car. The club members need to make sure that the young members are actively participating in events. Refer to them during club meetings; ask them if they would like to help out if an extra pair of hands is needed. Basically, show them that you trust and believe in them. What I would like to see among the older generation of amateurs is a more active role in youngsters' progression through the radio world. Hopefully, I've provided some insight into what needs to be done. The rest is up to you. Drivers, start your engines!

So there you have it. Follow this guide, and I'm sure amateur radio will be teeming with new young amateurs. Remember, this information was taken directly from young amateurs, so it cannot be ignored.

73, Brittany, KB1OGL

digital connection

BY DON ROTOLO,* N2IRZ

WINMOR: How It Works and Status (plus a DTV Update)

We discussed WINMOR in the December 2008 issue, but that was more of a look at the trials and tribulations of software development. While WINMOR isn't quite out of the beta-test stage and in production, it's well enough along that we can take a closer look at what it is, what it's intended to do, and how it manages to do it.

What is WINMOR? WINlink Messaging Over Radio is a new protocol developed by Rick Muething, KN6KB, of the Winlink 2000 development team intended to provide a low-cost supplement to the use of the PACTOR protocol, which is the de-facto standard for lossless HF data communications. I can hear some of you asking the question "supplement?" Yes, WINMOR is not really fast enough to compete with PACTOR III, but it does improve upon PACTOR I performance, can be considered an effective alternative to PACTOR II, and can be useful for relatively low-volume EmComm applications. For high-volume data transfer, PACTOR III is still the winner, hands down.

WINMOR is specifically designed to be used for message transfer within the Winlink 2000 (WL2k) messaging system, and not particularly for keyboard-to-keyboard chatting or voice modes. Although there's no technical reason why it couldn't be used that way, someone will have to write a terminal program or other application for that purpose. Thankfully, the protocol specifications are published, so anyone with some programming skill should be able to talk to WINMOR without terrible difficulty. Visit <http://www.winlink.org/WINMOR> for the specs and a host of interesting info, including an MP3 Podcast from the RAIN Report of an interview with Rick from late last year.

One advantage of WINMOR is, of course, the cost: Unlike PACTOR III, which requires an external modem/controller (costing over $1000!), WINMOR is a sound-card mode. Using a reasonably modern computer you should have no problems getting it running. It is expected (and encouraged) that many others will be writing software to interface with WINMOR, so we can anticipate a few "outside" applications to be appearing in the coming years, as well as cooperative efforts to effect further improvements to the protocol. While it may be too early to start talking about WINMOR II giving PACTOR III a run for its money, I'd be very surprised if we did not see that eventually.

From the user's point of view, using WINMOR within the WL2k system will be transparent—that is, you won't really have to worry too much about how to use it once it is set up. Think of it as a virtual terminal node controller (TNC). There is a "front panel" display which shows how the system is operating, and from which you can make some adjustments, but for the most part I would expect that most users will only look at it for the fascinating receive display, as opposed to actually "operating" it (see fig. 1).

Since it's still a little bit early to get into setting it up and using it—it is still in beta test, after all— I thought it might be interesting to take a *closer look* at how it works instead. Although we might be getting a little bit technical here, don't fear, as I'll try to keep my feet planted here on Earth, although the experts out there may spot a few small liberties I'm taking with some of the explanations. (If you find one, write and tell me about it!)

To start with, WINMOR is designed specifically for fast, error-free data transmission over an HF radio channel using a single-sideband (SSB) radio and computer sound card. By fast, we mean in the 2-kb/s range, and by error-free, we mean that we expect the data at the receiving end to exactly match that from the transmitting end. This isn't always so easy in the HF radio world, what with noise, fading, distortion, frequency drift, and the like—not to mention distortion and frequency drift in the sound card as well. Therefore, the idea is that WINMOR detects the radio-path conditions and changes the data speed and modulation type, to go as fast as possible while still keeping it error-free. To do this, Reed-Solomon Forward Error Correction (FEC) is used,

*P.O. Box 114, Park Ridge, NJ 07656
e-mail: <n2irz@cq-amateur-radio.com>

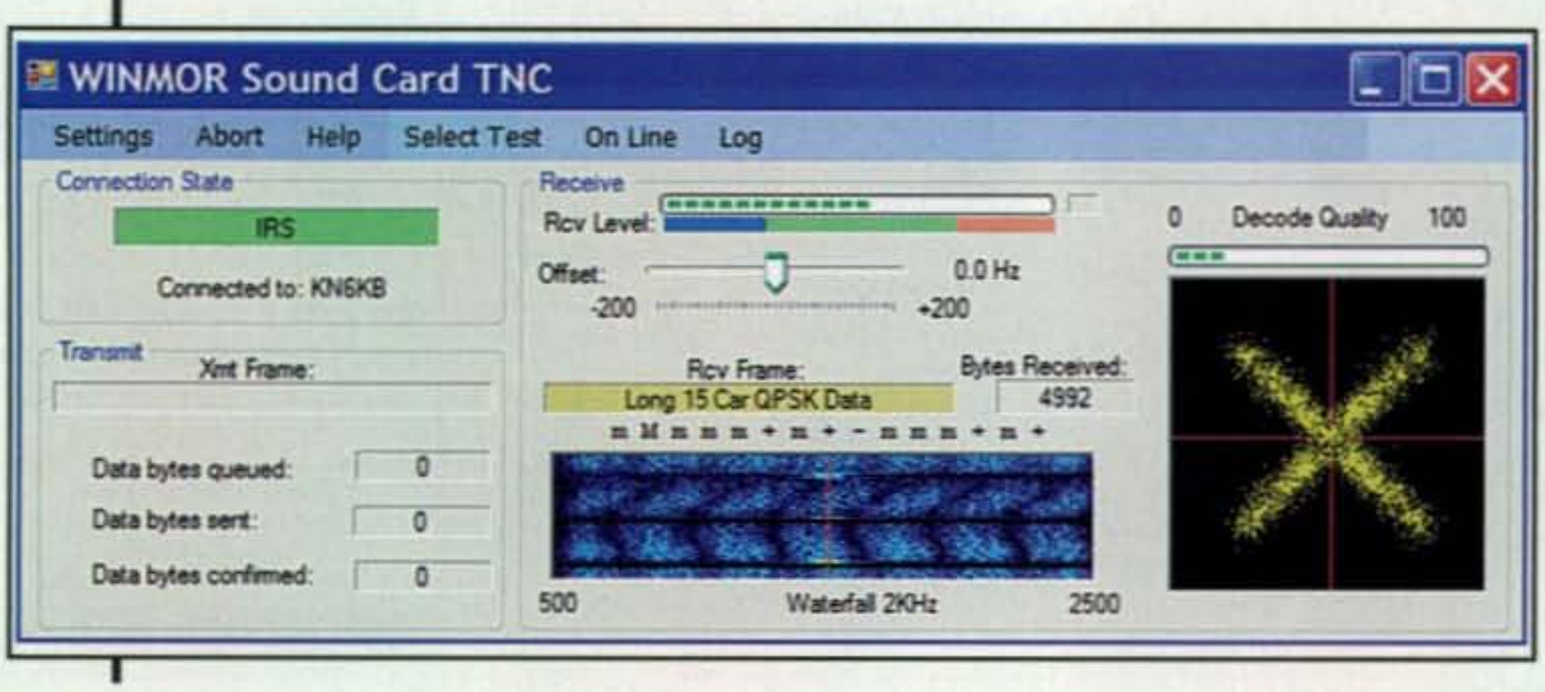


Fig. 1– A screen shot of a beta version of WINMOR. This shows a 15-carrier QPSK signal with a 5-dB S/N ratio and multipath fading (the diagonal stripes in the waterfall display). Five carriers ("+" and "M") are being correctly decoded, nine more are detected, and one is corrupted in this HF channesimulation. (Image courtesy of Rick Muething, KN6KB)

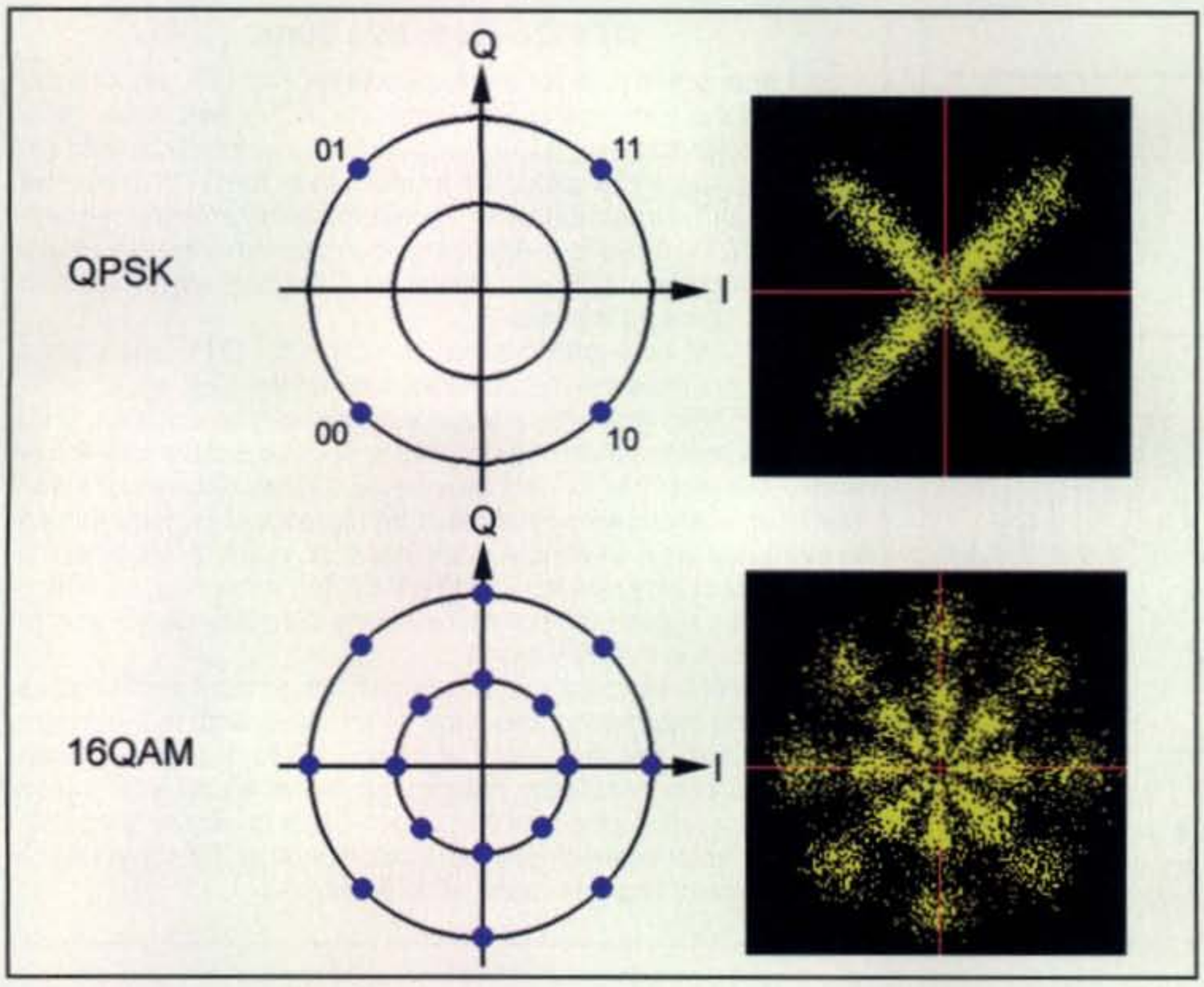


Fig. 2– QPSK and 16QAM modulation as a theoretical construction and how they might look in a real-world display. Because of noise and other distortion, the nice, clean dots of theory become broad blobs in the real world. The more the blobs start to merge, the more difficult it becomes to decode the signal. (Real-world images courtesy of KN6KB)

along with three modulation methods of varying robustness and multiple RF carriers, all of which can change on the fly in response to band conditions. In addition, like AX.25 packet, two WINMOR stations are "connected" so the receiving station can acknowledge the receipt of every valid data packet from the sending station. Changing modulation and speed on the fly isn't a new idea; PACTOR does this quite well, and even on plain old voice communications we slow things down by saying our callsigns phonetically when things are a bit dicey out there.

As you slow things down, you use less bandwidth. A smaller bandwidth means that your radio doesn't have to "hear" the noise from a wider bandwidth, and this boosts the signal-to-noise ratio (S/N). A high S/N allows for good communications—more signal, less noise! That's the theory behind Morse Code communications—small bandwidth, lots of signal.

WINMOR can use three different bandwidths: 200 Hz, 500 Hz, and 2000 Hz. It should be clear that the higher the bandwidth, the more data can be sent in a given time, but at the expense of reduced tolerance to noise and interference. Within each of these bandwidths, WINMOR can select from two levels of Reed-Solomon Forward Error Correction, along with three different modulation schemes: QPSK, 16QAM, and 4FSK. Let's take a detailed look at these modulation methods.

Modulation Methods

Phase Shift Keying (PSK) is a modulation method that uses the phase of the signal to encode information. The receiving end detects the phase of the signal (relative to a reference signal) and can convert that back into the binary "bits" (ones and zeros) that were sent. Binary PSK (BPSK) uses two phases (0 and 180 degrees) and sends one bit per time period, while Quadrature PSK (QPSK) uses four phases (45, 135, 225, and 315 degrees) to send two bits per time period. Note that QPSK can also be known as 4QAM (4 state Quadrature Amplitude Modulation), depending on the method used to generate it.

On the receiving end, the signal is almost always distorted in some way. Thus, if we're using BPSK, all we have to do is figure out whether the incoming signal is in phase (0 degrees) or out of phase (180 degrees) as compared to some reference signal. Even if the phase is distorted by as much as almost 90 degrees, we can still have a good shot at determining whether it is a binary one or a zero. With QPSK, we need to keep the distortion to less than 45 degrees, which is somewhat more difficult.

With the signal shifting by only 90 degrees instead of 180, the received signal can take any of four different phases: 45, 135, 225, and 315 degrees (in some implementations, this can be 0, 90, 180, or 270 degrees). This means we should be able to determine which of four states the signal is trying to represent. If we translate that into the binary world, it means the signal can represent binary values of 00, 01, 10, and 11, as opposed to just 0 and 1 for BPSK. If we manage to pull this off, we are rewarded with the reception of two bits with QPSK in the same time and bandwidth as a single bit in BPSK. Twice the speed at the same cost!

Or is it the same cost? Not really, because the whole transmit-receive chain—including that highly variable signal path between them—must absolutely have a lower distortion than with BPSK. We call the resistance to these distortions "robustness," and it should be plain that QPSK is only about half as robust as BPSK.

By the way, the Q in QPSK stands for Quadrature, which explains how the signal is being generated. Quadrature means "signals that are 90 degrees out of phase with each other." At the transmit end, two data streams in quadrature (the "I" or in-phase signal and the "Q" or Quadrature signal) are used to generate the QPSK signal. By varying the amplitude of the I and Q signals independently, they combine to create a carrier that varies with fractional phases—in this case, four phases. I won't get into the math of why this works, just accept that it does.

Now that we know what QPSK (aka 4QAM) is—a signal having four phases able to represent four states, represented by 2 binary bits—we should find 16QAM a little easier to grasp. The 16QAM signal looks something like the 4QAM signal, only more complex (see fig. 2). Not only do we encode information into eight (instead of four) phases, we also vary the amplitude of each phase in two levels to create a total of 16 combinations of phase and/or amplitude, representing four binary bits (from 0000, 0001, and so on up to 1111). Again, by varying the relative values of the I and Q signals, we can create a very complex signal for transmission. Whether we can receive it accurately depends on the signal path.

Finally, we have 4FSK. If you remember packet basics, you'll recall that FSK—Frequency Shift Keying—modulation is simply switching between two

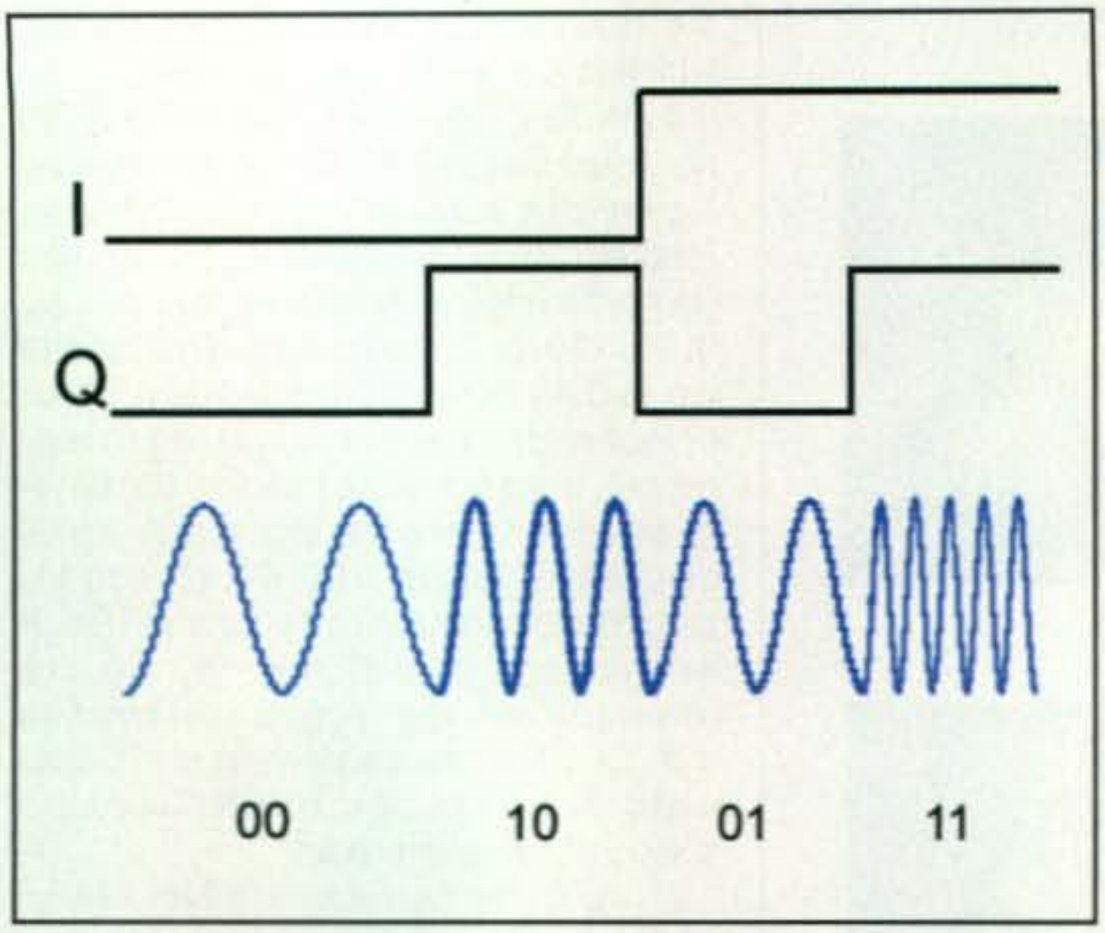


Fig. 3– An example of 4FSK showing the I and Q data, the resulting output waveform with four different frequencies, and the two data bits each frequency might represent. Similarly, AX.25 packet and RTTY use binary FSK (BFSK or 2FSK), with the difference being that only two discrete frequencies are used.

DTV Do-Over this June

Just after press time for the April column, the FCC announced a delay in the February digital television (DTV) switchover, now scheduled for June 12, 2009. Responding to complaints, the federal government has allocated more money for DTV Converter coupons, and is communicating more clearly the antenna requirements for DTV reception. Assuming the government really, really means it this time, nearly all over-the-air TV signals will switch from analog to digital on that date.

Briefly, VHF-only antennas won't cut it in the DTV world. Most broadcasters have moved up-spectrum into the UHF band, making a VHF/UHF antenna a basic requirement. In addition, DTV requires a somewhat stronger signal to decode properly, so those rabbit ears atop the TV that provided a slightly snowy but viewable image before will now have to be replaced with something a bit more powerful. In almost every case, an outdoor antenna will be the best choice. Avoid "amplified" set-top antennas, as amplifying a noisy signal just makes it a strong but noisy signal, something useless in the DTV world.

The ARRL advocates hams supporting their local communities by providing information about the switch, and lending their technical expertise, but stresses that hams should not make "house calls" or sell or install any equipment. Serve as an information resource by organizing an info session at the library or town hall, and keep your involvement as professional as possible, since you're representing ham radio at its finest.

tones to designate a binary 0 or 1. Well, 4FSK is the same thing, except that it uses four audio frequencies (in WINMOR, these are 1468.75, 1500.00, 1531.25, and 1562.50 Hz) and can therefore designate two binary bits (00, 01, 10, and 11 [see fig. 3]). The advantage of 4FSK over QPSK is that it does not require a phase reference to be created for demodulation, and thus it is somewhat more robust. To further enhance that robustness, the 4FSK signal runs at only 31.25 baud (as compared to the QPSK and 16QAM signals, which run at 62.5 baud).

Since a byte is represented by eight bits, we now see that QPSK and 4FSK require four "symbols" to represent eight bits, while 16QAM requires just two. Therefore, 16QAM can be twice as fast as QPSK and four times as fast as 4FSK (remember the reduced baud rate being used), but you need a relatively "clean" signal path.

At the lowest bandwidth of 200 Hz, WINMOR sends a single RF carrier of 16QAM, QPSK, or 4FSK data, all of which easily fit into the 200-Hz bandwidth. If conditions permit, this is expanded to three *simultaneous but independent* carriers, which triples the data rate and requires around 500 Hz of bandwidth. Finally, under even better conditions *15 carriers* can be used, bringing the bandwidth up to 2000 Hz but increasing the data throughput to around fifteen times that of a single carrier.

Not only can WINMOR adjust its data modulation scheme and bandwidth to obtain the highest possible throughput according to the measured band conditions, it also uses two data encoding methods to implement Forward Error Correction (FEC). At first, the data is sent with "weak" Reed-Solomon FEC information. If the data is decoded successfully this continues, but if unsuccessful then Extended Reed-Solomon FEC for that data is sent so that the receiving station can apply that to the (already received) data and attempt to recover any errors. In this way, if conditions are good, only the data and a small amount of FEC is sent (thus moving data faster). If conditions are poor, both the data plus weak FEC and the Extended FEC are sent, slowing things down a little but ultimately greatly increasing robustness. In the worst case (single-carrier 4FSK with Extended FSK and repeated acknowledgements), throughput might crawl to only a few tens of bits per second—but keep in mind that this would be under conditions where even CW might not get through! Once conditions improve, it works its magic and speeds up all by itself.

It takes a few minutes to make the decision to change speeds or modulation to suit band conditions. There's not much sense in making this happen faster, since HF conditions don't change that rapidly, and changing modes does cost a little in terms of data overhead; you need to send some data just to tell the receiving station to change modes, after all.

Some Final Notes

As of press time, the QPSK mode was still in there, but replacing it with Trellis Coded Modulation was being considered. I guess in the big scheme of things, *it doesn't matter* what methods the "black box" uses, but for those who care, keep an eye on the WINMOR web page for the latest.

The protocol description does mention some minimum requirements for the equipment required: You'll need a fairly stable, modern transceiver with a TX-RX and RX-TX turnaround of under 100 mSec, be able to tune within 100 Hz of the frequency, and your sound card needs to support a sampling frequency of 8000 Hz (±0.1%). WINMOR, when using SSB, is always operated on upper sideband (USB).

Judging from the updates on the WINMOR website, I don't expect a post-beta release by the time you read this (late May or early June), but I think that seeing something before the next DCC (ARRL/TAPR Digital Communications Conference) in September is a good bet. A lot of hard work has gone into testing and debugging this so far; if this is something that you'd like to and can afford to support, a small donation to the Amateur Radio Safety Foundation <http://www.arsfi.org> would be most welcome.

In closing, I again want to thank those who take the time to write to me with questions and comments about what I've written. If there's something in the digital world that you'd like me to cover, please drop me a note. I'd love to hear from you. Until next time . . .

73, Don N2IRZ

Announcing:

The 2009 CQ World-Wide VHF Contest

Starts: 1800 UTC Saturday, July 18, 2009
Ends: 2100 UTC Sunday, July 19, 2009

I. Contest Period: 27 hours for all stations, all categories. Operate any portion of the contest period you wish. (*Note:* Exception for QRP Hilltopper.)

II. Objectives: The objectives of this contest are for amateurs around the world to contact as many amateurs as possible in the contest period, to promote VHF, to allow VHF operators the opportunity to experience the enhanced propagation available at this time of year, and for interested amateurs to collect VHF Maidenhead grid locators for awards credits.

III. Bands: All authorized amateur radio frequencies on 50 MHz (6 meters) and 144 MHz (2 meters) may be used as authorized by local law and license class.

IV. Class of Competition:

For all categories: Transmitters and receivers must be located within a 500 meter diameter circle or within the property limits of the station licensee's address, whichever is greater. Only the entrant's callsign may be used to aid the entrant's score.

For the four single-op categories: A single-op receives no operating help either on or off the air.

1. Single Op—All Band. Only one signal allowed at any one time; the operator may change bands at any time.

2. Single Op—Single Band. Only one signal allowed at any one time.

3. Single-Op All-Band QRP. There are no location restrictions – home or portable – for stations running 10 watts output or less.

4. Hilltopper. This is a single-op QRP portable category for an all-band entry limited in time to a maximum of 6 continuous hours. Backpackers and portables who do not want to devote resources and time to the full contest period are encouraged to participate, especially to activate rare grids. Any power source is acceptable.

5. Rover. A Rover station is one which is manned by no more than two operators, travels to more than one grid location, and signs "Rover" or "/R" with no more than one callsign.

6. Multi-Op. A multi-op station is one with two or more operators and may operate 6 and 2 meters simultaneously with only one signal per band.

Stations in any category, except Rover and QRP Hilltopper, may operate from any single location, home or portable.

V. Exchange: Callsign and Maidenhead grid locator (4 digits, e.g., EM15). Signal reports are optional and should not be included in the log entry.

VI. Multipliers: The multiplier is the number of different grid locators worked per band. A "grid locator" is counted once per band. *Exception:* The rover who moves into a new grid locator may count the same grid locator more than once per band as long as the rover is himself or herself in a new grid locator location. Such change in location must be clearly indicated in the rover's log.

A. A rover station becomes a new QSO to the stations working him or her when that rover changes grid locator.

B. The grid locator is the Maidenhead grid locator to four digits (FM13).

VII. Scoring: One (1) point per QSO on 50 MHz and two (2) points per QSO on 144 MHz. Work stations once per band, regardless of mode. Multiply total QSO points times total number of grid locators (GL) worked.

Rovers: For each new grid locator visited, contacts and grid locators count as new. Final Rover score is the sum of contact points made from each grid locator times the sum of all grid locators worked from all grids visited.

Example 1. K1GX works stations as follows:

50 QSOs (50 × 1 = 50) and 25 GL's (25 multipliers) on 50 MHz

35 QSOs (35 × 2 = 70) and 8 GL's (8 multipliers) on 144 MHz

K1GX has 120 QSO points (50 + 70 = 120) × 33 multipliers (25 + 8 = 33) = 3,960 total points.

Example 2. W9FS/R works stations as follows:

From EN52: 50 QSOs (50 × 1 = 50) and 25 GL's (25 multipliers) on 50 MHz

From EN52: 40 QSOs (40 × 2 = 80) and 10 GL's (10 multipliers) on 144 MHz

From EN51: 60 QSOs (60 × 1 = 60) and 30 GL's (30 multipliers) on 50 MHz

From EN51: 20 QSOs (20 × 2 = 40) and 5 GL's (5 multipliers) on 144 MHz

W9FS/R has 230 QSO points (50 + 80 + 60 + 40) × 70 multipliers (25 + 10 + 30 + 5) = 16,100 total points

VIII. Awards: Certificates suitable for framing will be awarded to the top-scoring stations in each category in each country. Certificates may also be awarded to other top-scoring stations who show outstanding contest effort. Certificates will be awarded to top-scoring stations in each category in geographic areas where warranted.

Geographic areas include states (U.S.), provinces (Canada), and countries, and may also be extended to include other subdivisions as justified by competitive entries. U.S. rover certificates are issued on a regional basis.

IX. Miscellaneous: An operator may sign only one callsign during the contest. This means that an operator cannot generate QSOs by first signing his callsign, then signing his daughter's callsign, even though both callsigns are assigned to the same location.

A station located exactly on a dividing line of a grid locator must choose only one grid locator from which to operate for exchange purposes.

A different multiplier cannot be given out without moving the complete station at least 100 meters.

Making or soliciting QSOs on the national simplex frequency, 146.52 MHz, or your country's designated national simplex frequency, or immediately adjacent guard frequencies, is prohibited. Use of commonly recognized repeater frequencies is prohibited. Recognized FM simplex frequencies such as 146.49, .55, and .58, and local-option simplex channels may be used for contest purposes.

Aeronautical mobile contacts do not count.

Contestants should respect use of the DX window, 50.100–50.125 MHz, for intercontinental QSOs only.

UTC is the required logging time.

X. Log Submissions: Log entries must be submitted by September 1, 2009 to be eligible for awards. Submit your electronic log in the Cabrillo format created by all major logging programs. Send via e-mail attachment to <cqvhf@cqww-vhf.com>. Subject line: Callsign [used in the contest] only.

Entrants are reminded to be sure their log indicates their grid location. For USA/VE stations operating away from their home address, be sure to indicate the state or province location of operation.

It is strongly recommended that paper logs be entered on-line for automatic Cabrillo submission. Click on the "CQ WW VHF Web Form" link on the contest website at <http://www.cqww-vhf.com>. Computer-generated logs must be e-submitted. Callsigns of electronic logs received are posted and updated regularly on the website.

For those without web access, paper logs may be submitted to: CQ VHF Contest, 25 Newbridge Road, Hicksville, NY 11801 USA. Questions may be sent to <help@cqww-vhf.com>.

qrp

BY DAVE INGRAM,* K4TWJ

World QRP Day June 17

Dinking with QRP circuits and communicating with 5 watts or less of power is unquestionably one of amateur radio's most popular (and affordable) areas of special interest. Considering the ever-increasing entanglements with confined-area living and CC&Rs, it may also prove to be the wave of the future. Yes, friends, we are having a ball with QRP from even the most scrutinized locations, and we invite you to share our excitement.

Tony Baleno, N3ZN, is a good example of that fact. Look closely at his log of contacts while running a little Argonaut V (photo 1). He is working the world with QRP. Most QSOs were on 40 meters while using a rotary dipole. A few were on 20 meters while using a three-element beam. Tony echoes our thoughts of using a good antenna and embracing a "can do" attitude as the keys to success. In his case, however, I say much of the credit goes to his classy little QRP paddle. Tony makes these beauties in several styles (see <www.n3znkeys.com>). I have one, use it quite often, and find it a real delight.

World QRP Day

A recently received QSL from 8J1P/QRP in Japan (photo 2) alerted us to World QRP Day, which should be occurring this month (June 17). As stated on the 8J1P QSL: "It has been agreed that June 17 will be proclaimed as an annual QRP day with the goal of all radio amateurs voluntarily using low power on this date. It is also our wish that other IARU Regions will join in and make this a worldwide QRP day. Proclaimed by the JARL QRP Club and IARU Region III Conference 1985."

*3994 Long Leaf Drive, Gardendale, AL 35071
e-mail: <k4twj@cq-amateur-radio.com>

I am sure you will want to join the event, so help spread the word—at your local club meets, on internet reflectors and chat groups, and on the air. Mark your calendar for June 17, get on the air, and make at least two QRP QSOs. Let's all make this a big event. Remember to share your results and possible photos of your station on QRP Day with us, too. We will report the results in a future column.

The Four States QRP Club

A new and quite neat QRP transmitter kit is in the spotlight this month, but before delving into it, I would like to tell you about the group producing the kit: the Four States QRP Club. Most of this club's members are in the Oklahoma, Arkansas, Kansas, and Missouri areas, their philosophy is simple and informal (no dues, no rules, no officers—just a common interest in having fun with QRP), and their monthly meetings are usually held in a little restaurant near Seneca, Missouri. Typically, 30 to 35 QRPers attend the lunch meetings, which usually consist of sharing ideas, swapping parts, and a show-and-tell session of homebrew rigs (photo 3). Following the lunch, a number of members often adjourn to a nearby park for an afternoon of outdoor QRP operations.

Photo 1– Tony Baleno, N3ZN, the chap making those great-looking (and slick-operating) CW paddles, uses this simple and effective QRP setup with a rotary dipole to work DX like crazy. What's his secret for success? The QRP paddle, naturally! (Photo courtesy of N3ZN)

Photo 2– Ready for a microburst of on-the-air QRP excitement? As noted on this recently received QSL from 8J1P of the JARL QRP Club, World QRP Day will be June 17, and everyone is encouraged to get on the air with QRP that day. I will be there on 40, 30, 20, and 17 meters. Here's hoping we meet!

The club has pumped out some really nice kits in the past. I especially remember the "Tenna Dipper" designed by KD1JV—a combination signal generator, antenna bridge with LED null indicator, and Morse code frequency announcer, all on a single PC board that fits in an Altoids® tin. You connect an antenna, adjust the dipper for dimming of the LED, and then tap a "readout" button and the antenna's nearest-to-1:1 SWR frequency is announced in Morse code. It was a really neat antenna tuning aid—a poor man's antenna analyzer, so to speak.

In addition to producing kits, the Four States QRP group

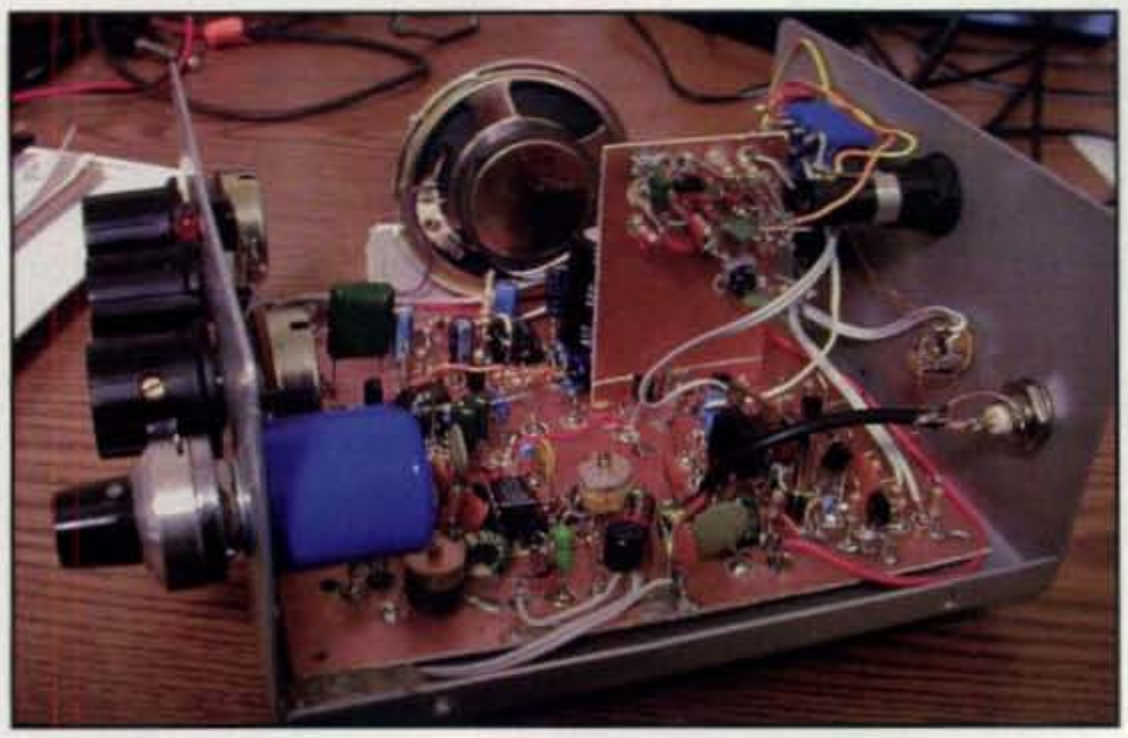


Photo 3– One of the show-and-tell photos from last year's Ozarkcon hosted by the Four State QRP Group. This one is a close-up view of a combination transmitter and receiver in a single cabinet. (Photo courtesy of Bill Linn, W7WEL)

Photo 4– The NS-40 QRP transmitter kit as received and ready for assembly. Kit consists of only 14 components, but do not be distracted by its simplicity. A large amount of high-tech engineering and complex mathematical calculations in its design result in an overall input-versus-output efficiency of nearly 90 percent. (NS-40 photos and fig. 1 courtesy of Jay Bromley, W5JAY, and XYL Kathy, WQ5T)

also organizes Ozarkcon (see photo 3), which was to be held this year on May 1–2 in Branson. As of this column's writing in mid-April, the event was shaping up nicely with a full weekend of programs covering everything from wacky keys and banjo picking to homebrewing "Manhattan-style" and peeking at new goodies heading to debuting at the Dayton Hamvention® a week or two later. Like most "Cons" (no pun intended!), all preregistered attendees will receive a free quick-build kit. Photos of Ozarcon 2009 should be available at <www.ozarkcon.com> by the time you read this.

The Four States QRP Group keeps the fun coming with two more kits that may be available soon after Ozarkcon 2009. One is a direct-conversion receiver with a unique "front-end" mixer circuit and low-noise audio amplifier for increased sensitivity. It is a single-band unit with coils chosen for operation on 80, 40, or 30 meters, and you build it Manhattan style using a pictorial guide rather than installing parts on a PC board. The second kit, also built "Manhattan style," is a high-performance audio amplifier to use with other homebrew QRP rigs needing a little more output volume. Check <www.4sqrp.com> for additional details and availability of these kits.

New NS-40 QRP Kit

Would you like to be the first kid on your block with a new high-tech goody? Take a close look at the NS-40 QRP transmitter kit designed by Dave Cripe, NMØS, and available from WAØITP of the Four States QRP Club (photos 4, 5, 6, and fig. 1).

This little gem looks rather conventional, but it is unique in several ways. It is a high-performance, 5-watt, 40-meter transmitter comprised of only 14 components, and it is contained on a PC board the size of a QSL card. There are no coils to wind; they are included as spiral traces on the PC board, and the transmitter operates Class E with up to 90-percent input/output efficiency. The resultant output signal is clean, free of clicks and chirps, harmonic rejection is down 50 dB, and its two transistors do not even get warm at 5 watts output. This is, to the best of my knowledge, the first time Class E has been used in an HF transmitter. Its previous applications have been in UHF and microwave gear. Could this be a forerunner of future evolutions? Possibly so, but in saying that, I should also point out some interesting characteristics of Class E operation.

Photo 5– This midway of assembly,10 or 15 minutes later photo of the NS-40 shows all seven capacitors and three resistors mounted with only transistors, crystal, and wires for external connections still to be installed. Notice there are no coils to wind. They are etched directly into the PC board and quite precise in inductance—an innovative and clever idea.

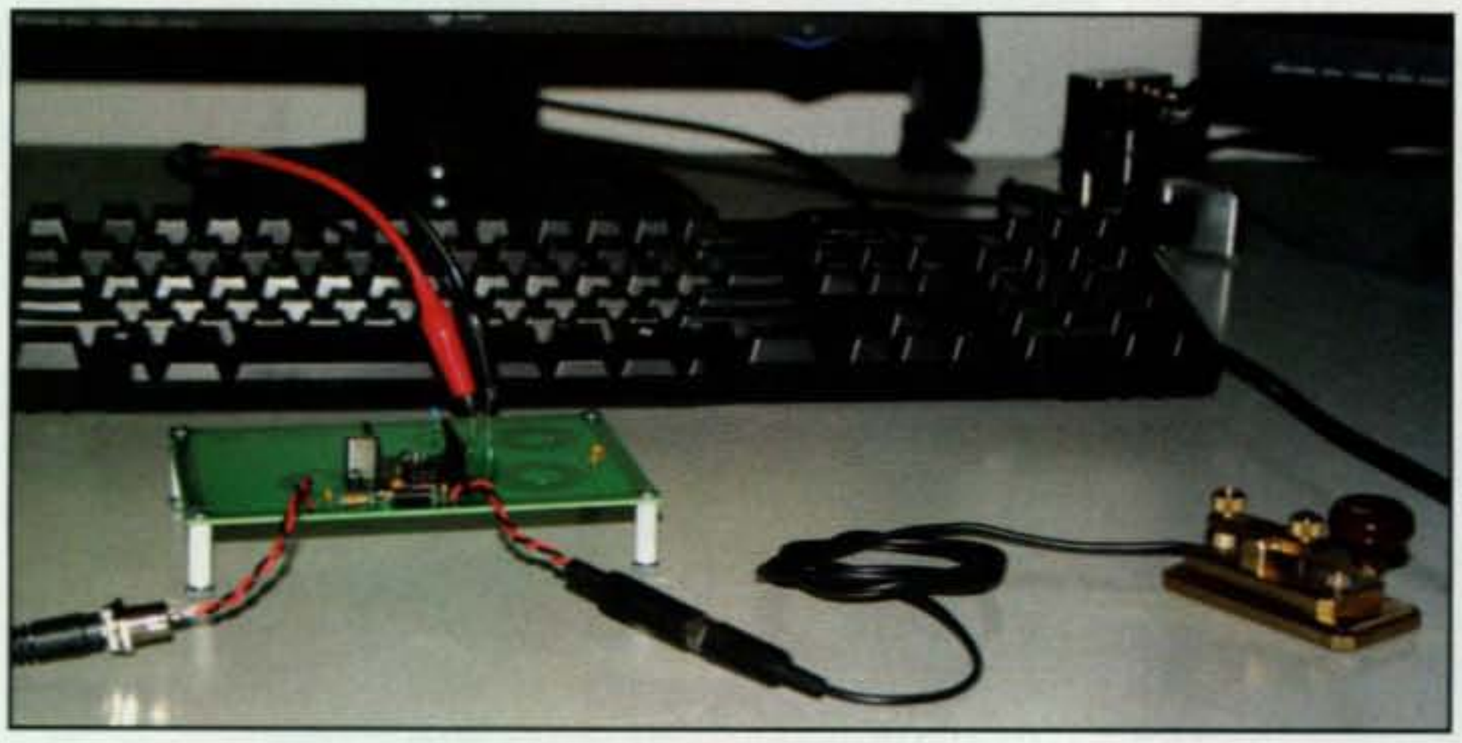


Photo 6– The fully assembled NS-40 proving its merit during a QSO immediately after completion. The resultant 7-watt signal is clean, chirp and click free, and thanks to computer calculated circuit values, the output MOSFET does not even get warm.

As you may know, a circuit or device operating Class A typically draws current during all 360 degrees of an input signal's cycle. It operates around 30-percent efficiency and outputs an accurate reproduction of its input signal (ideal for SSB). A circuit or device operating Class B draws current during only 180 degrees of the positive alternations of its input signal. It operates at around 50- or 60-percent efficiency and outputs an acceptable reproduction of its input signal (still good for SSB). A circuit or device operating Class C draws current during less than 180 degrees. It operates at around 75-percent efficiency and does not output an accurate reproduction of its input signal. It is fine for CW work, but yuck for SSB.

By comparison, an active device (transistor or MOSFET) operating Class E is driven hard, so it quickly goes straight from cutoff to saturation and acts like a high-speed on/off switch rather than fluctuating in the linear portion of its IpEg (plate current, grid voltage) curve. Precisely calculated value inductors and capacitors surrounding the active device then shape and phase-shift voltage and current waveforms so high voltage and high current do not occur at the same time in the device. This is quite different from Class A, B, or C, and it significantly reduces power dissipation, especially during switching transitions, resulting in cooler device operation and ultra-high efficiency—typically 90 percent.

The interesting point about Class E operation, in my opinion, is that its actual circuit or layout is basically fixed and all the "design work" is converted to complex mathematical calculations. Running a set of calculations, discov-

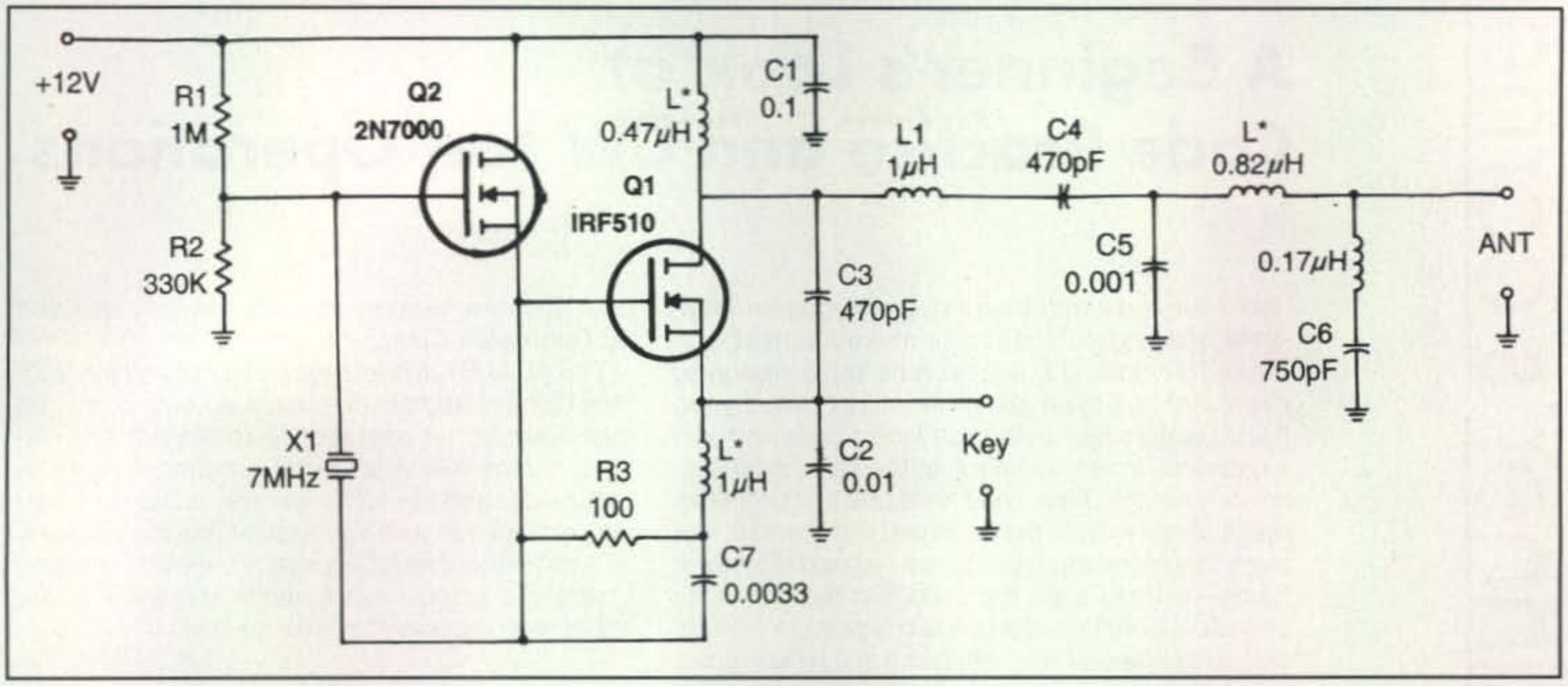


Fig. 1– Circuit diagram of the NS-40 transmitter. Precise timing of the PA driving the signal plus shaping and phasing of voltage and current waveforms so they do not occur simultaneously produce ultra-efficient Class E operation, a possible "first" for HF transmitter designs.

ering resultant L/C values do not mate with readily available components, rerunning calculations with acceptable value limits several more times (and remembering formulas alone can easily overfill a page or school blackboard) could take weeks. The bottom line here is we need only understand the mathematical formula's purpose and let a computer program "do the math," so this is basically a computer-designed circuit.

As Dave, NMØS, points out, and Jay, W5JAY, confirms in operation of his NS-40, efficiency is so high that heat is almost nonexistent. Impressive!

If you would like more information on the NS-40, Class E operation and/or wish to order an NS-40 kit, check <http://www.wa0itp.com/ns40.html>. As mentioned earlier, Terry, WAØITP, handles kit sales and shipping. You can contact him at <wa0itp@mchsi.com> or by postal mail at 1305 Casper Drive, Ottumwa, IA 52501.

Coming in August: CactusCon

From Arizona, home of the ScQRPions QRP Club, and thanks to John Stevens, K5JS, comes announcement of the first annual CactusCon scheduled to be held Thursday, August 30 through Sunday, September 2 at the Ft. Tuthill Campgrounds near Flagstaff, Arizona. Planned activities include contests, portable operations, a group dinner on Friday, a full day of forums and show-and-tell gatherings followed by an informal picnic on Saturday, and a "wrap-up" on Sunday morning. If you are in the area or considering attending the Arizona State ARRL Convention in nearby Williams, Arizona, including CactusCon in your plans seems like a good idea. More details can be found at <www.azscqrpions.org>.

Wrap-Up

If you missed seeing our first announcement in the April column, I recently completed writing a new book entitled *QRP Romps! (photo 7)* and copies are now available direct to your house from mine (Dave Ingram, K4TWJ, 3994 Long Leaf Drive, Gardendale, AL 35071). The cost is $18 plus postage.

In addition to numerous tricks and tips for successful DXing with QRP, the book covers commercial QRP gear and kits and accessories of all types. It also contains chapters on easy-brew fun projects, antennas, clubs, and on-the-air activities—an all-in-one book destined to please the multitudes. Details are at <www.k4twj.blogspot.com>.

That overflows space for this time. Watch for details on a rising, exciting, and quite affordable aspect of QRP coming in our August "QRP" column.

73, Dave, K4TWJ

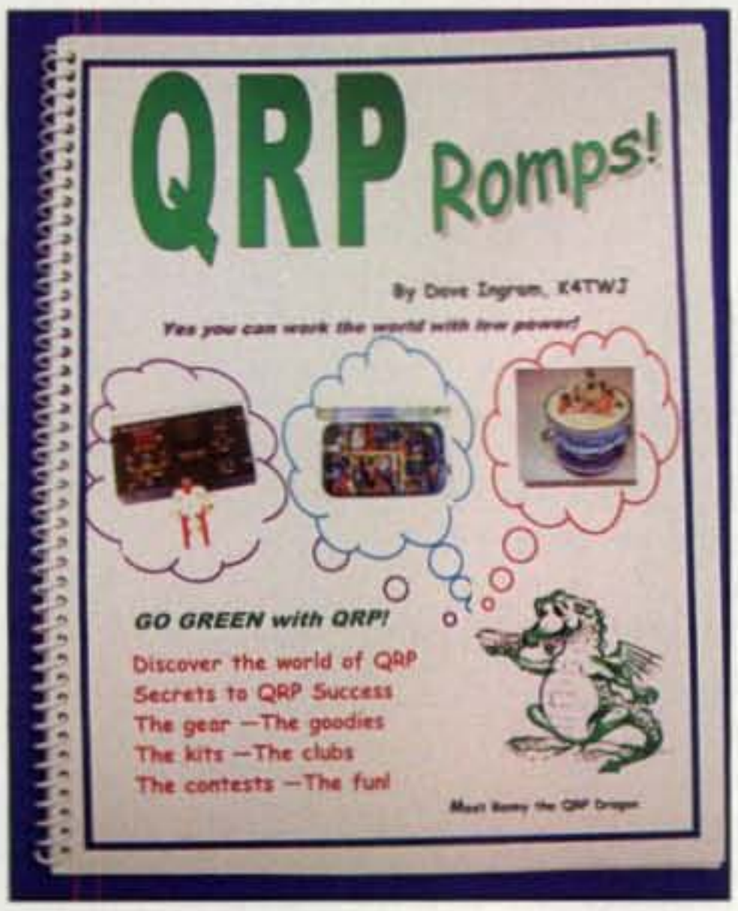


Photo 7– It is new, hot, and available direct from K4TWJ. Check <www.k4twj.blogspot.com> for details on his book QRP Romps!

beginner's corner

BY WAYNE YOSHIDA,* KH6WZ

A Beginner's Look at Code Practice and CW Net Operations

Every now and then I come across an interesting idea, and I try to share it with others. This time, it's a local ham radio operating event that has been going on for just over a year. It is an opportunity to practice Morse code and gain experience in net operation at the same time. No, nobody brought back code tests, but an interesting result of eliminating the code test requirement has been that more and more hams—especially newer hams—*want* to learn the code. On this net, code speeds are on the order of a few words per minute, and sometimes slower, since one of the main goals is to encourage the use of CW and to help participants increase CW proficiency.

Bob Grubic, NC6Q, of the Associated Radio Amateurs of Long Beach (ARALB) here in southern California, created these guidelines based on information posted on various websites (see photo). You may want to start a net similar to this and get some CW proficiency practice going in your area. The ARALB Slow Speed CW Practice Net is held each week on 10 meters (28.130 MHz), but just about any open ham frequency can be used. Ten meters was selected for its availability on many inexpensive rigs and the relatively small antennas needed. This frequency is also clear of any 10-meter beacon stations and may be used by Technician Class licensees.

The ARALB net is an organized net and the NCS (Net Control Station) directs all activity. Since the main idea of net operation is to have many stations communicate with one another, it must be organized, and the NCS is responsible for keeping participation and information flowing efficiently. A net without an NCS usually means chaos and frustration, since most stations transmitting are not able to receive at the same time.

Be a Tortoise, Not a Hare

One of the main rules on the ARALB Slow Speed Net is to emphasize accuracy rather than speed. Participants are encouraged to send the code carefully, at a speed that minimizes mistakes. Remember, net operation means many people are listening. Sending too fast, sending lots of errors, or poorly formed characters will surely make a negative impression on others on the net. Bob observes that the most common error is not allowing sufficient spacing between words. Running letters together is the single most common error heard on the CW bands. You must strive to obtain the best reputation for accuracy and style, but not for speed. Speed will come naturally after many hours of practice.

Procedures and Practices

Most net operations have their own etiquette and rules to follow when participating. Of course, all FCC rules regarding station identification and proper operation must be followed, especially the rules regarding station identification. On the ARALB Slow Speed Net a script is published on Bob's website. This script allows beginners to tune in and follow along during the net. See the References section for details. Many procedures on the ARALB net are taken from the ARRL National Traffic System (NTS).

The basic format of the net is:

1. Preamble (or opening)
2. Check in
3. Out-Stations' News/Comments
4. Announcement
5. Closing

It may be a good idea to listen to and maybe record an active net to understand what is going on. The recordings can also be a good source of free CW practice material. Take notes on what is happening so you can refer to them later when you "go live" on the radio. After you get some understanding of how things work on the net, and

*16428 Camino Canada Lane, Huntington Beach, CA 92649
e-mail: <kh6wz@cq-amateur-radio.com>

Bob Grubic, NC6Q, starting up a Friday night CW net session on 10 meters.

The ARALB CW Practice Net Script

Note: explanations are in [ ] in italics.

PREAMBLE

NCS:
QRL? QRL? *[Is this frequency in use?]*

ARALBN ARALBN DE NC6Q BT *[BT is a double-dash or pause]*

ARALB SLOW SPEED CW PRACTICE NET NOW OPEN BT

ALL STATIONS WELCOME BT

MORE INFO ABT THIS NET AT WWW.ARALB.ORG BT

QND QNN NC6Q / BOB / SIGNAL HILL CA BT *[QND = this is a directed net] [QNN = follow directions from net control station]*

QNZ V V V *[QNZ = please zero beat on my freq, or tune me in]*

CHECK IN

NCS:
ARALBN DE NC6Q QNI K *[QNI is a call for check in, K is go ahead, or over]*

KB6CWO:
C *[Out-station C, or KB6CWO, sends his one letter]*

W6LOH:
L *[Out-station W6LOH sends his one letter]*

NCS:
C *[NCS recognizes the "C" station. It is understood that the NCS expects KB6CWO to respond, so the NCS does not send "K"]*

KB6CWO:
DE KB6CWO NAME ALLAN QTH LAKEWOOD AR K *[Out-station C checks in with call, name, and QTH, or location]*

NCS:
GE ALLAN *[Good evening, Allan. The NCS acknowledges the C station.]*

(All stations are listening for the NCS to transmit the next instruction. At the moment, he is finished with the C station, and is looking at his notes, and calls the next station that checked in.)

NCS:
L *[NCS calls the second station to check in]*

W6LOH:
DE W6LOH NAME JACK QTH LONG BEACH AR K *[out-station L checks in with call, name, and QTH]*

NCS:
GE JACK QNI K *[The NCS greets Jack and sends QNI, he is looking for more stations to check in, and the process continues until all stations are checked in. This can take several minutes.]*

OUT-STATIONS' NEWS/COMMENTS
(out-stations called in order of check in)

NCS:
KB6CWO GA *[NCS calls KB6CWO and tells him to go ahead]*

KB6CWO:
DE KB6CWO BT

GE BOB AND THE NET BT

I HAVE A NEW ANT HR A G5RV UP ABT 30 FEET BT

SRY I MISSED THE MEETING FRIDAY BT

HEARD THE SPEAKER WAS GOOD BT

AM LOOKING FORWARD TO FIELD DAY IN JUNE AR K

NCS:
FB ALLAN UR NEW ANT DOING GUD JOB BT

W6LOH GA *[NCS calls W6LOH to go ahead]*

W6LOH:
DE W6LOH PASS AR K *[W6LOH has nothing to report, so he "passes." He could also send QRU, which means I have nothing]*

(This phase continues until all stations have taken a turn or passed.)

ANNOUNCEMENTS

NCS:
ARALBN DE NC6Q TONIGHT'S ANNOUNCEMENT IS . . .

CLOSING

NCS:
ARALBN DE NC6Q LAST CALL QNI K *[last call for check-ins]*

(nothing heard)

NCS:
ARALBN DE NC6Q BT

ARALB SLOW SPEED CW PRACTICE NET NOW CLOSING BT

MORE INFO ABT THIS NET AT WWW.ARALB.ORG BT

TNX EVERYONE ES GN *[ES is an abbreviation for "and" GN is good night]*

QRU QNX QNF 73 AR SK *[QRU = I have no more, QNX = all are excused from net, QNF = net frequency is clear, SK means out and clear, no replies are expected]*

you feel ready to "check in" to the net, just do it! It would be a good idea to have the written script or your notes in front of you for reference.

Generally Speaking. . .

In general terms, the ARALB net is very similar to other traffic nets on the air. Here is a summary of each portion of the net. For more details, take a look at the sidebar, "The ARALB CW Practice Net Script."

After the NCS sends:

QNI K [QNI is the call asking for stations to check-in, and K means go ahead.]

you pause for a few seconds, and if the frequency is clear, you check in by sending one letter. The preferred practice is to use the first letter of your call-sign suffix, but any letter will do as long as it is unique within the net. So, it can go like this:

W

NCS replies by sending back one of the letters he received. That station then begins checking in by sending:

DE [call sign] NAME [name] QTH [location] AR K [AR is end of message]

The NCS then sends the next letter he heard, or sends QNI K again to ask for other check-ins.

By checking in this way each time, participants (and casual listeners, too) get practice checking in with the proper response style and net operation techniques.

It's possible to break in to get the NCS's attention by sending BK while the NCS is sending. The NCS usually operates QSK (full break-in), so he will be able to hear transmissions from other stations in between his letters and words. One can also break in by "tail ending," by sending BK (or the one letter used in check-in) immediately after

another station sends AR K (without the two-second pause).

Normally, when you are not breaking into the net, always allow a two-second or so "courtesy pause" before responding to the NCS. This will allow other stations on the net to break into the net by tail-ending.

Except for (initial, single-letter) check-in or breaking in, always start your transmission with DE [your call sign] and end with AR K.

Check-ins will be taken by NCS at the beginning of the net and periodically thereafter. Do not "break in" to check in. Wait until you hear QNI from NCS. NCS may QNI periodically throughout the net.

In the "Out-Stations' News/Comments" phase, the NCS will call stations in the order of check-in and have a short exchange. That station will turn it back to the NCS and then the NCS will have a short exchange with the next station. The NCS will limit his transmissions to allow more practice time for the participants. Each out-station can basically say anything to the members of the net. Because there may be dozens of stations waiting for their turn to transmit, these transmissions must be short, no more than a minute.

During this portion of the net, a station can indicate it has nothing to say by sending "DE [call sign] PASS AR K" or "DE [call sign] QRU AR K" (QRU means "I have nothing"). The NCS will then move to the next station. This continues until all out-stations have commented or passed, or until 30 minutes of net time have passed. Because the ARALB net is on every week, most participants want to make the sessions go as quickly as possible. Then the Announcement phase begins.

In the Announcement phase, the NCS will send a brief announcement or message. This provides another way to practice copying Morse code. The Announcement is different each week and unknown to the participants, unlike the "scripted" part of the net.

Finally, during the Closing, the NCS may invite all stations to move from the 10-meter net frequency to the club repeater or a 2-meter simplex frequency by sending "QSY to 440 RPTR" or "QSY to 146.52 SIMPLEX." This immediate meeting on the air is used to talk about the experience during the net. New participants are encouraged to ask questions so they can get immediate instructions and hints for the next net the following week.

I hope this inspires other clubs or groups to do some interesting on-the-air activity like this. There's nothing better than real, on-the-air practice to hone skills and operating techniques. If your club or group decides to do something like this, send me your story and a good photo or two, and we can do a follow-up article on this concept in a future installment of the "Beginner's Corner."

73, Wayne, KH6WZ

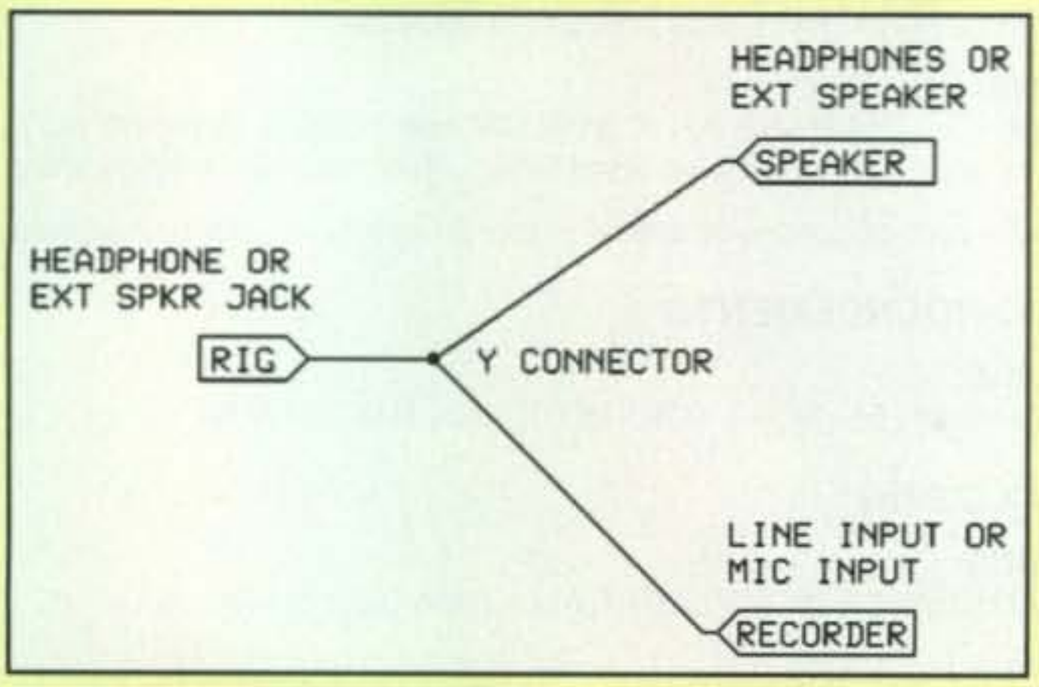
Interfacing Your Rig to a Recorder

The easiest way to record anything from your ham receiver is to place a tape recorder (or your computer's sound card) microphone next to the speaker. However, this "acoustic coupling" will also pick up any stray noises in the room, like your dog barking or the baby crying.

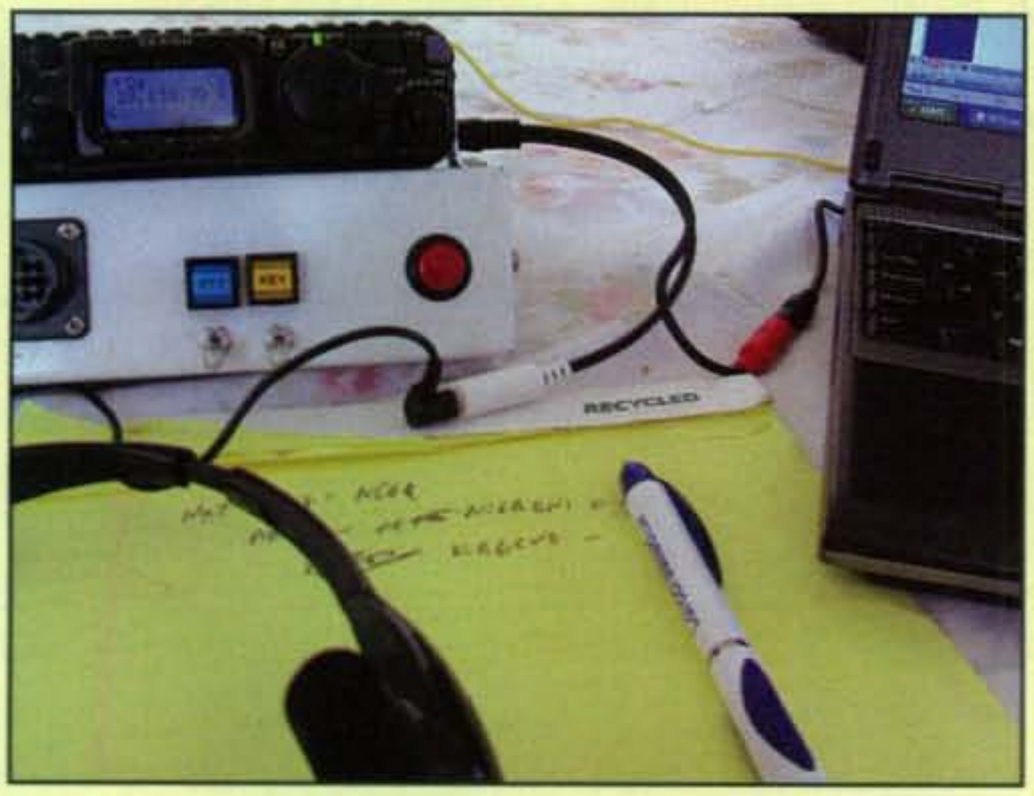
A better way to make a "clean" recording is to use a wired connection between the radio and the recording device. On the recorder, use the "Line In" jack. You may have to do some investigating for the radio-side connection.

An easy way to access audio from a ham transceiver is to use the external speaker jack, but since this will turn off the built-in speaker, you must insert a "Y" adapter so you can attach a set of headphones or an external speaker to one side of the Y and the recorder to the other side of the Y, as shown in the photos.

On some rigs, there is a "fixed-level audio output" connector, usually for connection to a packet radio terminal or other digital-mode-type accessory. If your rig has a "Line Out" jack, use that as the sound source, and connect a cable to the recorder. This eliminates the need for an external speaker or headphones.



A simple wire interface between a ham transceiver and a recorder can be made with an audio Y adapter and a set of headphones or a speaker.



An easy way to make a "clean" recording is to interface a recorder to the headphone or external speaker jack with an audio Y adapter. By using a wire connection rather than a microphone, stray background noises in your surroundings are not recorded. Microsoft® Sound Recorder is being used on the notebook computer to record .wav sound files.

References

Associated Radio Amateurs of Long Beach (ARALB): <http://www.aralb.org>

Bob Grubic, NC6Q website: <http://www.nc6q.com>

ARRL Radiogram Abbreviations and Message Information: <http://www.arrl.org/FandES/field/forms/fsd218.html>

Audio Recording Tips:
<http://homerecording.com/sound_card_basics.html>
<http://www.dxzone.com/catalog/Software/Audio_Recorders>

SDR Transceiver Kit, Vertical Antenna, Balun, and Mic Converter

BY ANTHONY A. LUSCRE,* K8ZT

This month we take a look at a Software Defined Radio transceiver kit. Next is a lightweight 40–10 meter vertical antenna and a balun to use with it. Then we explore a universal microphone converter. Finally, we visit The Amateur Radio Website of the Month.

Genesis Radio G40 SDR Transceiver Kit

Genesis Radio's new G40 (photo A) is a monoband 40-meter, all-mode, 5-watt Software Defined Radio transceiver designed by YU1LM and produced and distributed as a kit by VK1AA. This kit is a great way to get your feet wet in SDR without breaking the bank. Specifications include:

- Frequency range 7000–7095 kHz utilizing sound card with 96-kHz sampling rate. A sound card with sampling rate of 192 kHz would extend the frequency range to 6953–7140 kHz. Further, the frequency range can be extended to 5–7.7 MHz with external LO.
- Receiver sensitivity for S/N = 10 dB and bandwidth 500 Hz is between –118 to –120 dBm without RF preamplifier, or from –128 to –133 dBm with RF preamplifier. (The receiver sensitivity of the G40 is sound-card dependent; a high-quality sound card is strongly recommended!)
- Transmitting mode: SSB/CW/FM/Digital or any other modulation-generated mode with quadarture I/Q modulation signals, determined by the software.
- RF output power is 5 watts.
- Power supply requirement: +13.8V/100–250 mA on receive and 1.7A on transmit.

The Genesis G40 is tested with the following freeware transmitting software: PowerSDR SR40, PowerSDR-IQ, MØKGK, and Rocky with one or two sound cards. Minimum PC configuration required is P4 1 GHz with 128 Mb RAM and SDR-suitable sound card.

Genesis G40 kit parts are classic through-hole components (not SMT). PCB dimensions: 150 × 195 mm. Retail price is $149. For more information visit <www.genesisradio.com.au>. From this website you can also "Try before you buy. Taste the real SDR experience by listening to sound recording taken during the ARRL Contest on February 22, 2009. This two-minute recording contains the 'snapshot' of over 400 stations making two-way contacts on 40m."

S9 Antennas: Model S9v 40–10 meter Vertical

The S9v (photo B) is a tapered, ultra-lightweight, 31-foot vertical antenna designed for portable and fixed amateur radio use from 40 through 10 meters. The S9v is constructed of rugged, tapered fiberglass, weighs just 5 pounds, "and is fully insulated for the safety of your family and neighbors."

The S9v can be mounted on the ground or on the roof. Permanent ground-mount installations require a 40-inch long, 1 1/4-inch (1 5/8-inch maximum OD) galvanized steel pipe. The S9v base tube simply slips over the pipe for a simple and elegant deployment. A mechanical connection from the antenna base tube to the pipe is neither required nor desired.

Because the S9v is so light, you can roof-mount the antenna using a simple 3-foot tripod normally used for TV antennas. In this configuration, the S9v functions as a 40-meter (only) ground-plane (GP) antenna and needs only 4 radials, each 1/4 wavelength at 7 MHz (33 feet, 5 inches long).

For portable operations and DXpeditions, use the optional Portable Mount, a heavy-duty mount with an integral stake that makes mounting the S9v in temporary field locations a fast, easy process.

Since the S9v is close to a full quarter-wave vertical on 40 meters, it can be used as a "superb" 40-meter DX antenna using the antenna tuner inside your rig (or with an external antenna tuner). In this configuration, the S9v may be ground or roof mounted and fed directly with a quality 50-ohm coaxial feed line such as RG-213 or LMR400. A 1:1 choke balun is recommended at or near the antenna feed point to prevent RF from entering your shack via the coax outer shield (see item

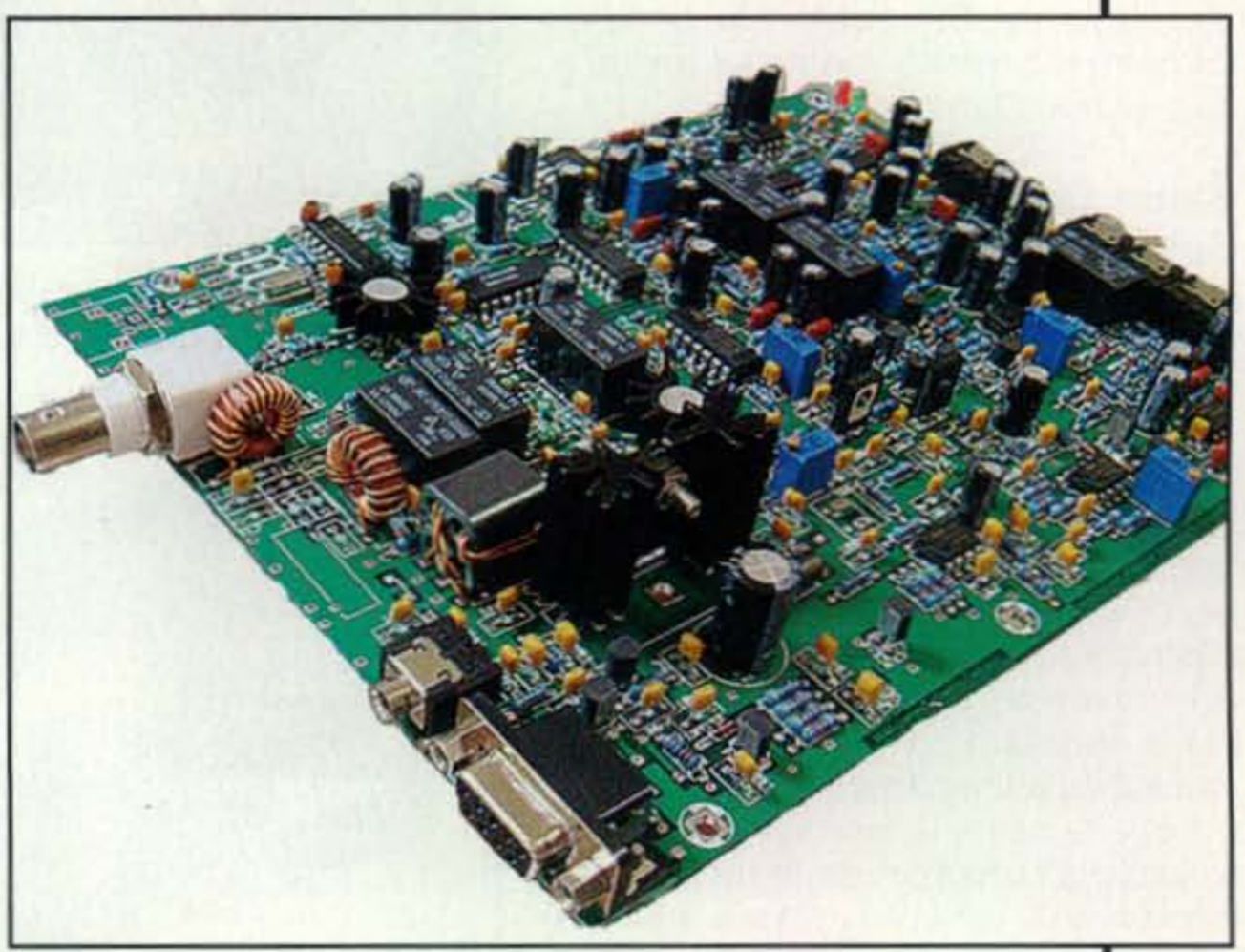


Photo A– The Genesis G40 SDR Transceiver shown assembled. Note no SMT (Surface Mount) components are used.

*5441 Park Vista Court, Stow, OH 44224-1663
e-mail: <k8zt@cq-amateur-radio.com>

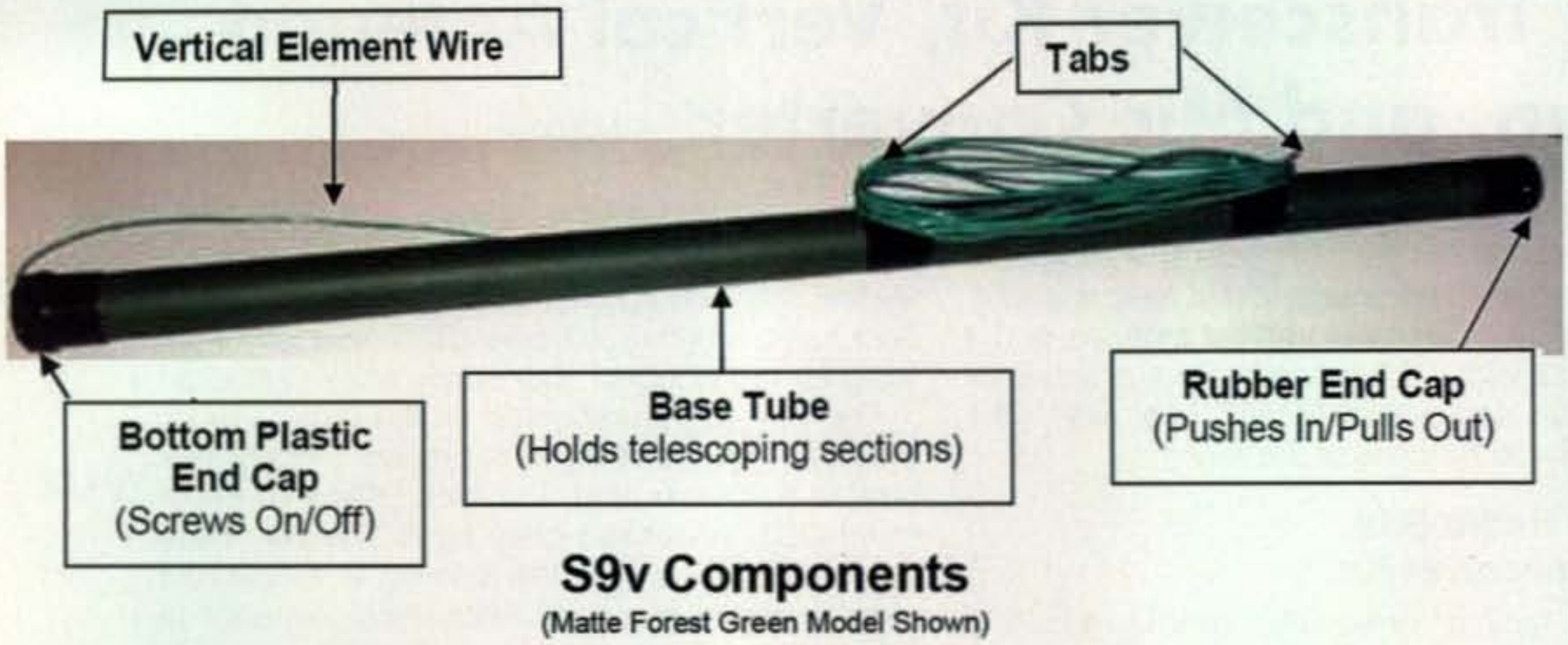


Photo B– S9 Antennas' S9v vertical collapsed for transport. When collapsed the antenna is only 31 inches long and 5 pounds.

below for an example of a companion balun, or you can also use the last 20 feet of your coax wrapped on a 4-inch coil form).

If you want to use the S9v as a multiband vertical, you should ground mount the antenna. You will need an external antenna tuner in the shack and a 4:1 unun at the S9v feed point. (Most internal rig antenna tuners do not have adequate range to match the higher impedances presented by the antenna on frequencies above 40 meters. As an alternative, you can use an antenna feedpoint-mounted antenna auto-tuner.)

S9 Antennas also has another model, the S9v Junior, a 15-foot vertical designed for use from 20 through 6 meters. Prices are $79.95 for S9v and $39.95 for the S9v Junior. To order or for more information on either antenna visit <www.s9antennas.com>.

Balun Designs LLC Baluns and Ununs

Produced by Bob Rumsey, KZ5R, the products from Balun Designs LLC are based on designs researched and tested by Dr. Jerry Sevick, W2FMI. Balun Designs LLC produces a wide variety of baluns and ununs. Each product is... "Individually hand wound with only the best available components and can be customized to fit your needs."

Here are a few examples that would make excellent companions to the S9 vertical antennas described above. The 1:1 choke balun is available in models to suit your output power. Model #1113u (see photo C; SKU 1113u) is a 1:1 ratio current balun (sometimes called a choke balun or common-mode choke) that uses a special mix toroid with low permeability that allows broad frequency coverage. This isolation balun "has significantly higher common-mode impedance and larger effective core area than other similar designs. It is much more effective than types with ferrite beads, ferrite bars, or wound air-core coax baluns." Windings are heavy-gauge Thermaleze wire with a minimum of 2000 volts breakdown voltage each. Typical insertion loss is less than 0.2 dB and power handling is 3 kw continuous, 6 kw intermittent up to 35 MHz. It may be used up to 50 MHz with lower efficiency (1–2%). SO-239 connectors are silver plated with Teflon® insulation, all hardware is stainless steel, and the balun is sealed in weatherproof 4" × 4" × 2" Nema Box, which makes an excellent outdoor enclosure. Price is $54.95.

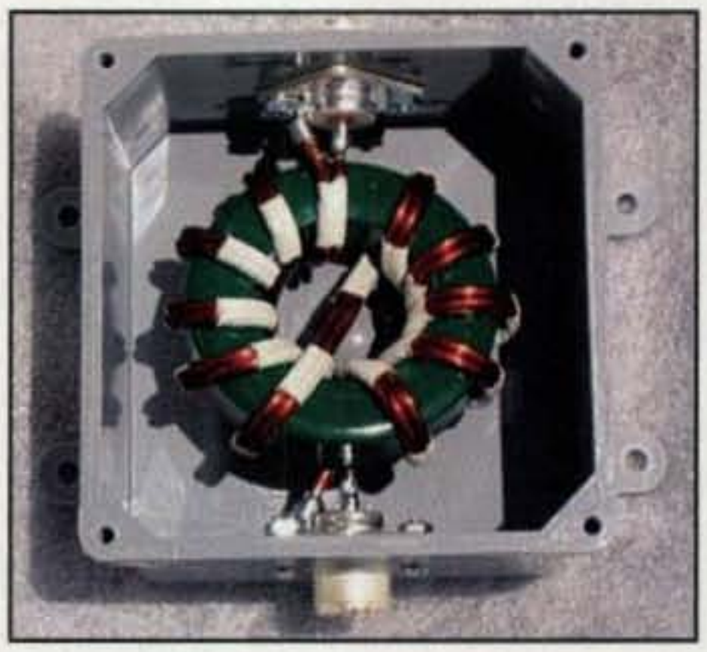


Photo C– Inside view of Balun Designs LLC Model #1113u 1:1 ratio current balun.

Photo D– Balun Designs LLC Model 4130sv unun.

The 4:1 unun for S9 Vertical #4130sv (see photo D; SKU: 4130sv) is designed to complement the newly released S9 vertical antenna. This new addition is small, compact ,and perfect for portable or even permanent installations. The 4:1 unun (200–50 ohms) will easily handle 300 watts and covers 1.5–54 MHz. Price is $45.95.

Balun Designs LLC has many additional products. For more details or to order visit <www.balundesigns.com>.

MFJ Universal Microphone Converter

The MFJ-1251 (photo E) converts any 8-pin round or modular microphone for use with any 8-pin round or modular radio. For example, if you want to use your favorite Yaesu FT-2000 8-pin

Photo E– MFJ Universal Microphone Converter converts any 8-pin round or modular microphone for use with any 8-pin round or modular radio.

round microphone with your ICOM IC-706 rig, or you bought a modular soundcard interface but now you have an 8-pin-round rig, there is no need to buy a new mic or accessory! Use your favorites and save money by using what you already have. Internal jumpers set any microphone to match any radio. The MFJ-1251 comes supplied with one 8-pin round and one 8-pin modular output cable to radio. The price is $24.95. For more information or to order, call toll-free 1-800-647-1800 or go to <www.mfjenterprises.com>.

The Amateur Radio Website of the Month

The Repeater Builder's Technical Information Page™, an informational help site by Kevin Custer, W3KKC, is this month's amateur radio website, <www.repeater-builder.com/rbtip> (fig. 1). The site's slogan is "So, you want to build a repeater?" This site provides over "six gigabytes of freely downloadable information" on all aspects of repeater building and maintenance. Topics include:

- To educate—as an example, "What's a repeater?"
- To supply quality information relating to amateur and commercial repeater stations.
- To make available technical people who can answer repeater-related questions.
- To provide availability of some parts for conversion and links to modifications for Motorola®, GE®, and Hamtronics® equipment.
- To provide links to service and equipment providers.

Wrap-up

That is all for this month's column. I will be at the Dayton Hamvention® again this year and hope to see many of you there. Remember, I welcome your feedback, questions, and/or comments. If you are a producer of a new product for amateur radio, please feel free to e-mail me or use the address on the first page of this column. Until next month . . .

73, Anthony K8ZT

Note: *Listings in "What's New" are not product reviews and do not constitute a product endorsement by CQ or the column editor. Information in this column is primarily provided by manufacturers/vendors and has not necessarily been independently verified. The purpose of this column is to inform readers about new products in the marketplace. We encourage you to do additional research on products of interest to you.*

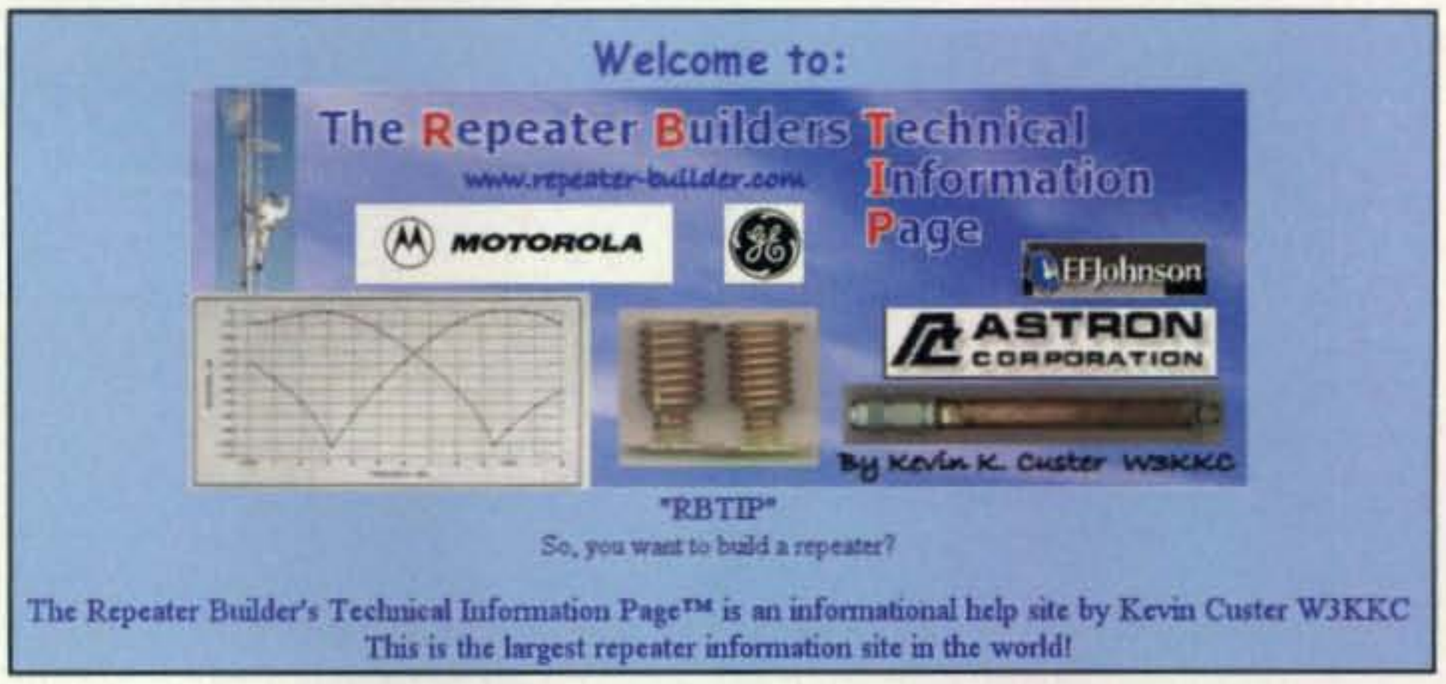


Fig. 1–Screen-shot of this month's Amateur Radio Web Site—Repeater Builder's Technical Information Page™

awards

BY TED MELINOSKY,* K1BV

Awards from Europe

We begin this month with an update on eQSLs. EA1DR and WT6X became the first stations to apply for USA-CA All Counties using 100 percent of their contacts from the data stored by eQSL. All of the contacts they used were from "fixed" stations, due to the data structure currently supported by eQSL. This column is being written in March, well before the Dayton Hamvention®, which is supposed to host a county hunters meeting devoted to finding ways for mobile stations to upload their logs reflecting contacts from different counties.

If you are planning to apply for USA-CA and use eQSL contacts for all of the counties, make sure that you carefully review the file prepared by eQSL. Note how many duplicate counties are in the file, and ensure that you have enough valid contacts to support your application. If you enter "Los Angeles" and "los angeles," the system will see two counties, although I won't. They've fixed many of these problems, but not all.

In the meantime, check out your "file" on eQSL to see if you have any new counties waiting for you. You may be pleasantly surprised.

USA-CA Special Honor Roll
William McFarlen, WA5VGI
USA-CA All Counties #1182
February 26, 2009

USA-CA Honor Roll

500

EA1DR	3460
IV3PRK	3461
W3FT	3462
WT6X	3463

The total number of counties for credit for the United States of America Counties Award is 3077. The basic award fee for subscribers is $6.00. For nonsubscribers it is $12.00. To qualify for the special subscriber rate, please send a recent CQ mailing label with your application. Initial application may be submitted in the USA-CA Record Book, which may be obtained from CQ Magazine, 25 Newbridge Road, Hicksville, NY 11801 USA for $2.50, or by a PC-printed computer listing which is in alphabetical order by state and county within the state. To be eligible for the USA-CA Award, applicants must comply with the rules of the program as set forth in the revised USA-CA Rules and Program dated June 1, 2000. A complete copy of the rules may be obtained by sending an SASE to Ted Melinosky, K1BV, 12 Wells Woods Road, Columbia, CT 06237 USA. DX stations must include extra postage for airmail reply.

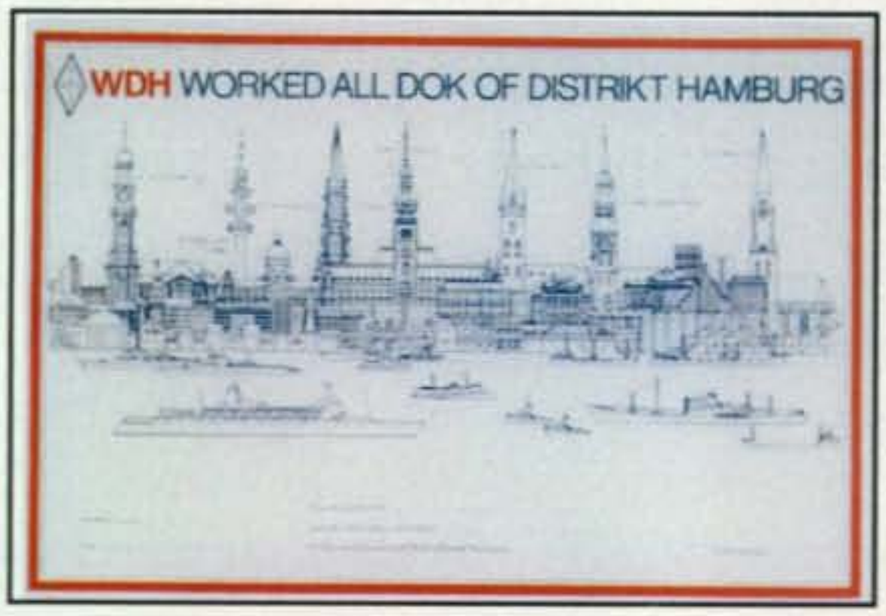
Worked District Hamburg (WDH)

Hamburg is the second largest city in Germany, an important seaport, and an industrial powerhouse. This award is a handsome and clean-cut representation showing a composite picture of some of the towers and steeples of the city as well as typical vessels on the River Elbe, which figures so prominently in commerce and trade. The city is an important deep-sea port for container ships.

Like most German awards, the rules require you to make contact with "DOKs," or different officially recognized clubs of Germany's national organization, DARC. Germans are very good about showing the DOK on their QSL cards. The first letter is the district, and the next two numbers identify the respective club in the district. For example, DL1HN uses DOK E02. E is the District of Hamburg and 02 identifies the specific radio club in Hamburg. Look at your stack of QSLs from German stations. You will see that about 99 percent of them show this indicator. This is your key to *many* German awards.

Contact stations in any "E" DOK and Z07, Z27, Z28, Z50, Z56, Z70, Z72, and Z73. SWL okay. German stations need 40 contacts with at least 20 E/Z DOKs on two bands. European stations need 30 from 15 E/Z DOKs on two bands. All others need 20 from 10 E/Z DOKs on two bands. On VHF, 30 contacts from 15 E/Z DOKs on two bands are needed. QSOs after January 1, 1966 count for the award. Send GCR list and 5 Euros or $US5 to: WDH Manager, Peter Wolff, DJ9LN, Ilkstraat 20, D-22399 Hamburg, Germany; e-mail: <dj9ln@darc.de>.

*12 Wells Woods Rd., Columbia, CT 06237
e-mail: <k1bv@cq-amateur-radio.com>

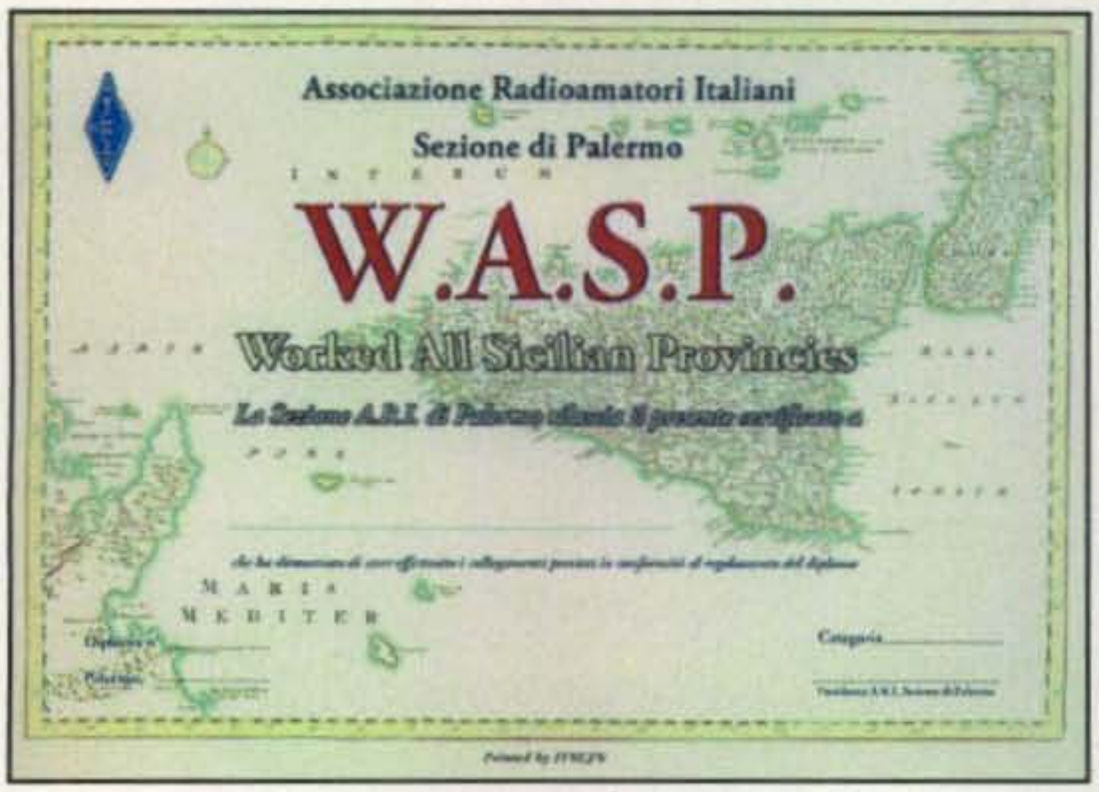


To earn the Worked District Hamburg (WDH) award make contact with "DOKs," or different officially recognized clubs of Germany's national organization, DARC.

Worked All Sicilian Provinces (WASP)

The Palermo Section of the Associazione Radioamatori Italiani (ARI) sponsors this very handsome award for contacting stations located in Sicily. If you keep your cards in alphabetical order, you'll just have to locate the "IT9" section and start reviewing them. The two-letter province abbreviation is commonly a part of the address, so you can use the list below to determine how many provinces you have confirmed. If you have eight, then you're in business.

Contact eight of the nine Sicilian provinces on HF on or after December 31, 1954. The nine provinces are as follows: Agrigento (AG), Enna (EN), Ragusa



The Palermo Section of the Associazione Radioamatori Italiani (ARI) sponsors this very handsome award for contacting eight of the nine Sicilian provinces on HF

The Kaunas Award is sponsored by the Vytautas Magnus University radio club and given for QSOs with 10 different amateur radio stations located in the city of Kaunas, Lithuania.

(RG), Caltanissetta (CL), Messina (ME), Siracusa (SR), Catania (CT), Palermo (PA), and Trapani (TP. SWLs need seven provinces. The four award classes are (a) Mixed HF, (b) Mixed VHF/UHF, (c) Mixed WARC, (d) Mixed 50 MHz. Valid modes are SSB, CW, and RTTY.

Fee for the award is 10 Euros. Send GCR list and fee to: ARI di Palermo, Maurizio Tramuto, IT9TQH, Via Noto nr34, I-90141 Palermo, Italy; e-mail: <it9tqh@hotmail.com>.

Lithuania's Kaunas Award

For many years the Kaunas Radio Club sponsored a series of awards centered around contacts with the city of Kaunas and its club members. The club disbanded, and one of its members decided to offer a replacement certificate on his own.

The city is the second largest in this small Baltic country. After WW II, it became the principal industrial city of the country, producing about a quarter of all factory output. This city's history dates back to the 11th century, and some of the old structures are shown on the certificate itself.

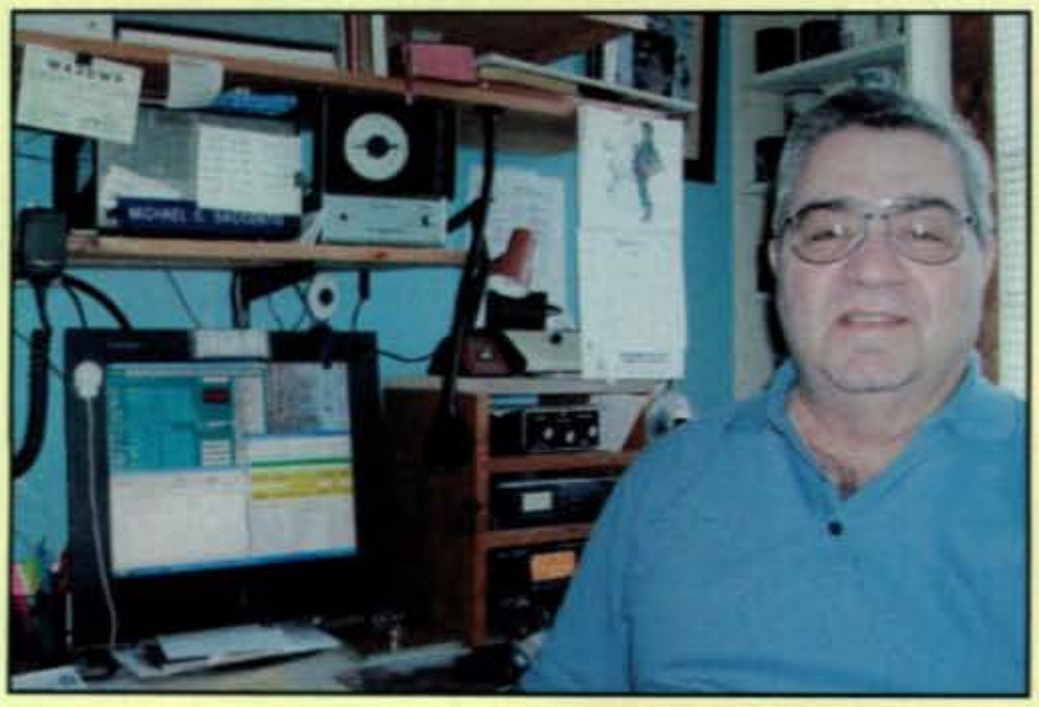
The award is sponsored by the Vytautas Magnus University radio club and given for QSOs with 10 different amateur radio stations located in the city of Kaunas, Lithuania. The same station may be worked for award credit if using any special callsign. If the station gives its QTH as "nr Kaunas" the QSO is invalid for the award. All bands and modes accepted. There are no date limitations. QSOs through repeaters do not count. QSOs with club station LY3V (ex-LY3VM, LY90E) are valid independent of the QTH from which this station was operating.

The application should be prepared on the basis of QSLs cards received, eQSL, or LoTW (Logbook of The World) data. In case of a dispute, the award manager can request a copy of any QSL card. Endorsement stickers are available for each additional 10 QSOs with Kaunas amateur radio stations. Fee for each endorsement is 1 IRC. In addition, stickers will be available for QSOs established for various occasions. Send your list of stations worked by regular mail or e-mail to: <vdurk.award@gmail.com>. After receipt of confirmation from the award manager, the first page of the application and fee of 5 Euros, $US7, or 6 valid IRCs should be sent to award manager: Petras Repcys, LY2KM, P.O. Box 1192, LT-44007 Kaunas, Lithuania.

Russia's Blockade Diploma

In September 1941, St. Petersburg, Russia was surrounded and cut off from the rest of Russia by Nazi forces. They continued to resist for 900 days, and the siege fully lifted in January 1944. Estimates of the number of Russians who died from starvation or exposure

Michael Saccento, WA2DWP
USA-CA All Counties #1179, January 8, 2009



Michael Saccento, WA2DWP, USA-CA All Counties #1179.

I started in amateur radio in December 1976. I stopped by a friend's home and he was listening to code. I had been a radioman in the Navy, so I asked for a pen and paper and copied 10 wpm solid and the pressure was on. Tom Valosin, WB2KLD, talked me into taking the test for a Technician license. He took me to the home of an Extra Class licensee and I passed.

I bought a Genave 2-meter radio for the car. Now I had company going to and from work. It was a new experience, and I loved it. Then Tom got me involved with MARS, so I purchased a used Galaxy. I enjoyed receiving messages to be delivered to the families of service men and women.

I worked a rotating shift, so finding time for radio was hard. I would work CW after my midnight shifts for an hour, maybe a total of six or seven contacts a month. But with a wife, two children, and a home to take care of, away went the radio.

In 1981 I purchased a used Heathkit monobander for 20 meters and a vertical antenna and started again. During a trip to New York City, I stopped and took the test for my General Class license, and surprisingly I passed.

While tuning around on my monobander, I stumbled upon county hunting (and anyone who has ever used a monobander would probably agree with the word "stumbled"). I listened in for a long time, afraid to jump in. Then it dawned on me that I could work counties from my car, so I bought a Kenwood TS-130SE for the car and a 20-meter resonator. I figured that I drove through three counties on my way to work everyday. I mounted the radio and antenna on a two-door Subaru; it looked like an electric bumper car you see at county fairs. I put out those three counties over and over, and I was having a ball. I purchased an 80-meter resonator and added to the fun.

There were plenty of ups and downs, or should I say ins and outs, for me in radio. I now have an ICOM 706IIG in my car to an HC-4 antenna tuner into a 20-meter Hamstick and it works great. At home I have an ICOM 718.

After 32 years I was finally down to my last county, which no one ever passed through. Right after Christmas 2008, I received a phone call telling me to call N7ID, Jack Brower, who would be going to Gem, Idaho. I called Jack and he said indeed he would be going. When the time came, Jack called me on the phone, but we couldn't hear a thing. I was really disappointed, and Jack had driven five hours to get there. However, Jack said he would try again in the morning.

So, on January 3, 2009, at 1619Z, we made our contact. I can't tell you how excited I am and how thankful I am for people like Jack and so many others who helped me: the mobiles, the net controls, and the relaying stations.

It took me 32 years for the first time around, so I had better get started right away on the second time. *—73, WA2DWP*

Russia's Blockade Diploma is given in commemoration of the siege of St. Petersburg in September 1941, which ended in January 1944, and the courage of the defenders and citizens of that city.

during this period range from 650,000 to 800,000 (suggested reading: Harrison Salisbury's *900 Days – The Siege of Leningrad*) To commemorate this unprecedented feat and the courage of the defenders and trapped city dwellers of Leningrad, the Association of Radio Amateurs of St. Petersburg (ALRS) is sponsoring the memorial diploma Blockade.

Two stark, black-and-white images are included as insets on the main award design. Many citizens of the city were transported to mass graves by children's sleds over the icy roads. Water was obtained from the sides of deep cracks in streams and canals. The central image is a grainy, somewhat out-of-focus picture of the city under attack at dawn.

To obtain the diploma amateurs from Russia, the CIS countries, and Europe must, during any calendar year, earn a number of points equal to the number of years from the date of the full lifting of the blockade. For example, in 2009 this would require earning 65 points, in 2010, 66 points, etc. For all other continents and if all contacts were made on 160 meters and VHF/VHF the points required is reduced by one half.

Points value:

1. QSOs with hams in St. Petersburg and Leningradskaya oblast who were veterans of WW II and civilian inhabitants of blockaded Leningrad = 5 points.

2. QSOs with hams in St. Petersburg and Leningradskaya oblast = 1 point.

3. Points are doubled for contacts made with stations on special days of activity on memorial dates.

4. Points for contacts with memorial special event stations, including Memorial "Victory" participants, operating from St. Petersburg and Leningradskaya oblast = 20 points.

Any mode any band accepted for the award. Every station may be worked for credit on different bands and modes. SWL okay. Fee for the diploma is 80 rubles for RA and $US3 for all others. Send GCR list and fee to: Aleksandrovich Dmitry Sokolov, RX1CQ, Sertolovo, Leningradskaya oblast, 188655, P.O. Box 13, Russia. Internet: <http://www.qrz.ru:8080/awards/image.phtml?id=2131>.

We're always interested in hearing from clubs, special interest groups, or individuals who sponsor awards. Please contact me at the e-mail address shown on the first page of this column.

73, Ted, K1BV

BY JOE LYNCH,* N6CL

Much More Space Junk

In my April column I led with the story of the collision between the Russian Kosmos 2251 nonoperational satellite and the U.S. Iridium 33 relay satellite. Commenting on the fallout of debris, I mentioned that the U.S. Space Surveillance Network tracks more than 500 pieces of debris. As it turns out, the debris problem is much bigger.

On April 7, 2009 Fox News published an article entitled "Scientists Race to Prevent 'Catastrophic Disaster' in Space," by Steven Kotler (see: <http://www.foxnews.com/story/0,2933,512766,00.html>). Concerning the true number of pieces of space junk, Kotler quotes Marshall Kaplan, a senior researcher in the space department at the Johns Hopkins University Applied Physics Laboratory: "We're currently tracking 18,000 objects floating through space. But that's only objects larger than 4 inches. At 10,000 mph, even a nut or a bolt could do serious damage."

Concerning these small pieces, it was on March 13 that the astronauts and cosmonaut onboard the International Space Station had to get into escape capsules after receiving a less than 20-minute warning of oncoming space debris. Their emergency precautions were necessary because they did not have enough time to reposition the ISS in order to avoid the debris.

As to how to get rid of the space junk, Kotler reports on a few innovative ways, including using a satellite coated with "something sticky" that would act like a giant lint roller, using a laser to singe the debris, and using water-filled rockets to spray the debris out of orbit.

Regarding future debris, Marguerite Rigoglioso, writing for Stanford University's Graduate School of Business (GSB) website, authored an article in March (see: <http://www.gsb.stanford.edu/news/research/wein_space.html>) concerning designing future satellites that would be in full compliance with rules in NASA's books that require objects to be removed from orbit within 25 years. Referring to a paper authored by Lawrence Wein, a professor at GSB, and Andrew Bradley, a doctoral student at Stanford's Institute for Computational and Mathematical Engineering, and published in *Advances in Space Research,* Rigoglioso quotes the authors:

> Spacecraft are supposed to have enough "gas" in their tanks to propel them downward toward the atmosphere when their life cycle is concluded. But international compliance, while perhaps greater than 50 percent, is not extremely high.
>
> It appears that if full compliance of the 25-year spacecraft deorbiting guidelines can be achieved within the next few decades and no ASATs [anti-satellite weapons] are used or tested in the future, then the lifetime risk from space debris ... may be sustainable at a tolerable level.

*e-mail: <n6cl@sbcglobal.net>

VHF Plus Calendar

June 7	Full Moon
June 10	Moon apogee
June 12–13	Ham-Com Hamfest
June 13–14	ARRL VHF QSO Party
June 15	Moon last quarter
June 20–21	SMIRK Contest
June 21	Summer solstice.
June 22	New Moon
June 23	Moon perigee
June 26	Echoes of Apollo World Moonbounce Day
June 27–28	ARRL Field Day
June 29	Moon first quarter

—EME conditions courtesy W5LUU

A NASA diagram of the thousands of manmade objects, 95 percent of which are junk, orbiting the Earth in both low and geosynchronous orbits. (Courtesy NASA)

A NASA artist's representation of the cloud of "space junk" in low-Earth orbit. (Courtesy NASA)

Again, referring to the Wein and Bradley paper, Rigoglioso adds:

Wein and Bradley also suggest setting fees for every launch and penalizing those who ignore their floating trash, although they warn that this will require heavy political as well as economic negotiations. "The political and economic issues associated with the establishment of such fees are fairly daunting," says Wein, "but if we could get high compliance this problem could stay under control."

My read of Kotler's and Rigoglioso's articles means that orbiting satellites—even for the amateur radio community—are going to get more complicated and more expensive, especially if Wein and Bradley's recommendations are implemented. Furthermore, the likelihood of any sort of non-traditional space object, such as a future SuitSat, seems to have become much less plausible.

I am writing this column in mid-April, knowing that the Dayton Hamvention® is next month. While I am there, I will try to ask the AMSAT leadership about these issues and report on my findings in a future column.

Echoes of Apollo Update

In last month's column I announced the Echoes of Apollo World Moonbounce Day event which will occur on June 26. Here is an update concerning that event from Pat Barthelow, AA6EG:

Dave Smith, W6TE, has suggested a tie-in with Echoes of Apollo and Field Day weekend. The Echoes of Apollo EME [Earth-Moon-Earth] event begins on June 26, in the evening, West Coast time. This is partly because that is a good window between West Coast USA and Australia, a prime destination for EME, due to the linkage with the 40th anniversary of the Apollo 11 moon landing. The beginning of the USA Field Day weekend is the next day. We may be able to schedule EME before and after the June 26 date. This possibility is not confirmed, but we are looking into it.

We have quite a few large and few *huge* dishes on board, with the 150-foot Stanford/SRI dish leading central California. We expect to have 200–300 watts at the feed of the dish, on 1296 MHz. With 50 dB of the SRI dish this means that there is a 100 multiplier, thereby giving a 25-million watt EIRP with 250 watts at the feed. That ERP can potentially bring in a new category of EMEer who may be out there for a first EME contact.

We have also the 21-meter Morehead State University Dish (Kentucky, home of Kentuckysat) on board (see: <http://ssc.moreheadstate.edu/>) as well as the 4.6-meter "Smiley" dish at PARI, and are working on some big dishes at the PARI complex in North Carolina (see: <http://www.pari.edu >). Also in Colorado, the DSES team is building the feed for their 60-foot dish and should be on the Moon (see: <http://www.deep-space.com>). The Dwingeloo Dish in Holland, an 85-foot dish (see: <http://www.camras.nl>), will also be on the air.

In Australia there are a number of 10-meter class dishes onboard, with feed powers ranging from 50 watts to 1.5 kw. There is also the University of Tasmania 26-meter dish that we recently learned will be receive only. An active dish in radio astronomy, its manager, Jim Lovell, does not want to risk the cryogenically cooled receivers by having a transmitter active on the dish.

Many of the stations listed above may be able to offer EME contacts to satellite-equipped amateur radio stations. I am pretty sure that a 1.296-GHz amateur satellite station could be able to work some of these stations off the Moon.

I would like to know from some experienced satellite ops what a typical satellite station runs in terms of power and gain on 1.296 GHz. I would guess 15–18 dB gain in the antennas, and maybe 50 watts TX power. If that is true, Dave or I can crunch the numbers and see if we can provide EME contacts to 23-cm satellite-communications-equipped Field Day stations.

With some of the EOA huge dishes in listen mode only, they can contribute to the fun by streaming their received audio, and podcasts to the web, allowing Field Day satellite stations to verify their signals off the moon, even if not two-way contacts. Also, I would like to know if the typical satellite antenna software has an EME mode to track the Moon.

For the latest information on the EOA event, please see the website: <http://www.echoesofapollo.com>.

The new 22-meter dish at the Eaglin Space Center at Morehead State University in Kentucky will be used for the EOA on-the-air event. (Photo courtesy of Morehead State University and Jeff Kruth, WA3ZKR)

AMSAT-DL's Technical First: Earth-Venus-Earth Path

The following is from the North American AMSAT website (http://www.amsat.org):

Marburg, 27 March 2009: On March 25, 2009 the AMSAT-DL team in Germany attained a major milestone in their mission to send a spacecraft to Mars. The team used their mission control station at the IUZ Sternwarte Observatory in Bochum to transmit a radio signal to Venus. After approximately 5 minutes delay and after traveling nearly 100-million kilometers the reflected signal from the surface of Venus was received. This was the first time a German station has received echoes of signals from other planets. This provided a key test of technology for the Mission to Mars project with verification of the ground station transmitter and receiver configuration.

AMSAT-DL is preparing the first privately financed flight to Mars on the next possible launch window. The spacecraft is designed as a scientific and communications platform. As AMSAT-DL has developed the technology for the Mission to Mars, they have built, tested, and flown all essential satellite components in Earth orbit over recent years. Now with the reception of their own echoes from Venus the ground command station is deemed ready for communication with their Mars-bound spacecraft.

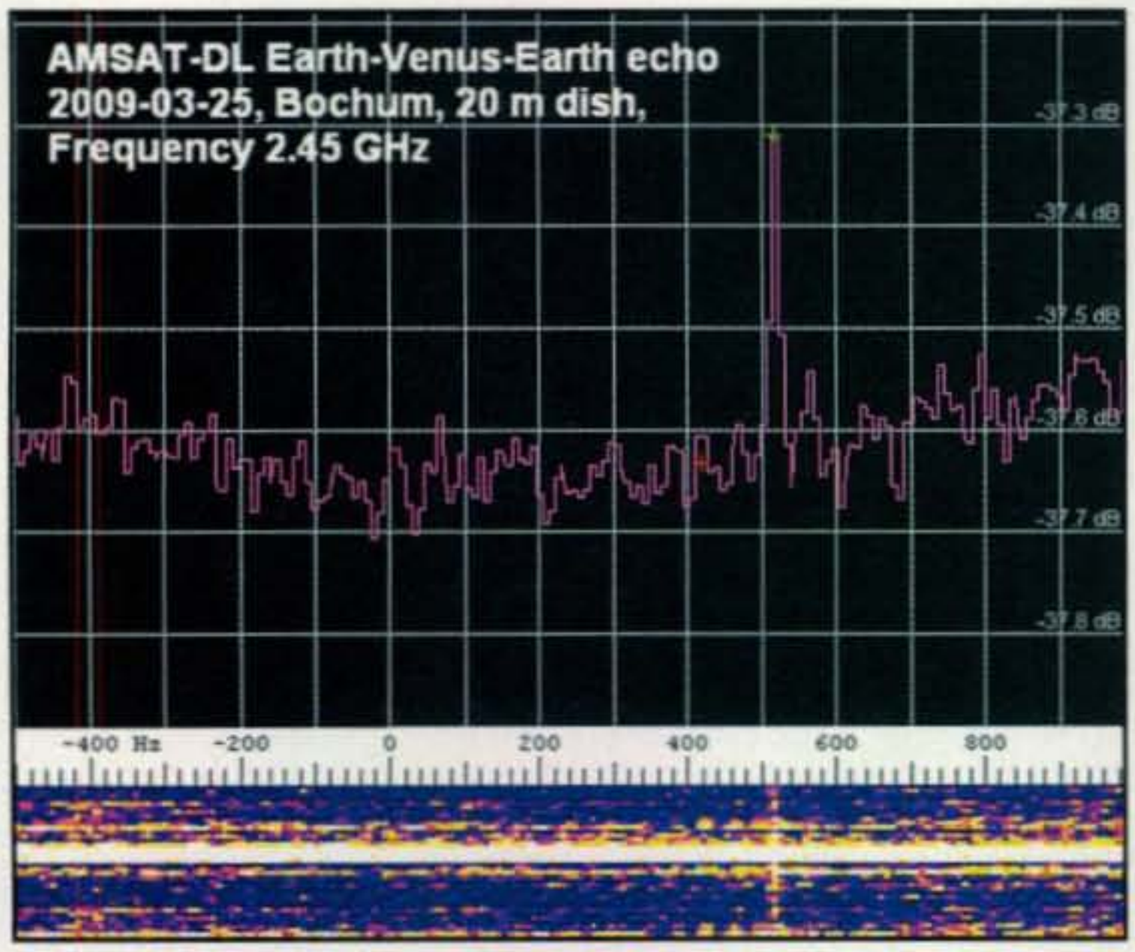
AMSAT-DL has led the design, development, and construction work and has partnered with educational and research organizations in creating this mission. To finance specific construction and launch costs estimated at 20-million Euros, AMSAT-DL is seeking

financial support from the Deutsches Zentrum für Luft-und Raumfahrt (DLR). About one-third of the project funding has been attained. Private donations are also being accepted at the AMSAT-DL Ticket to Mars website: <http://www.ticket-to-mars.org/index.pl>.

AMSAT-DL is an association of engineers, technicians, scientists, amateur radio and space enthusiasts who have over 30 years experience of satellite development, building, and operation. The Mission to Mars will follow open-source principles, allowing everyone to receive the mission live data during the flight to Mars. This will be possible by using amateur radio frequencies and equipment with a 1-meter diameter dish antenna. If such equipment is not available then it will be possible to receive a live stream via the Internet. All necessary technical information will be published before the mission.

The Big Switch: Most Everyone Will

In my April column I commented on the big switch to digital TV. I suggested the possibility of a 70-MHz band emerging from the vacating of Channel 4. Here are two correspondents who got me straightened out concerning the unlikelihood of that happening:



Screen shot of the AMSAT-DL Earth-Venus-Earth echo. (Image courtesy AMSAT-DL)

The EVE team (left to right): Hermann Hagn, DK8CI; Karl Meinzer, DJ4ZC; James Miller, G3RUH; Achim Vollhardt, DH2VA; Max Münich, DJ1CR; Freddy de Guchteneire, ON6UG; Wolfgang Büscher, DL4YHF; Michael Lengrüsser, DD5ER; and Hartmut Päsler, DL1YDD. (Photo courtesy AMSAT-DL)

Nate Bargmann, NØNB, writes:

By now you've probably received several replies about your April 2009 VHF Plus column in *CQ* magazine. I noted that in the digital switch section you seemed to be hinting that the VHF Low TV band would be fully vacated by the DTV conversion. Up until about a year ago I was under the same impression. However, that is not the case.

While the number of TV stations operating on channels 2 through 6 will be greatly reduced, there are still enough planned operations in that band to preclude any sort of amateur allocation at 70 MHz, even though that sounds like a lot of fun. According to the spreadsheet available on the <http://www.rabbitears.info> site maintained by Trip Ericson, KJ4IEA, 41 stations plan to remain operating on VHF Low after the transition is complete. Seven stations plan to operate on Channel 2 and two will continue to operate on Channel 4, including KSNB not far from here near Superior, NE, which received permission to remain on 4 in mid-December 2008. In total, VHF Low stations will account for 2.2% of all full-power TV stations in operation post transition.

Unless DTV operations prove to be completely unusable on VHF Low as some speculate, it appears that hams in some areas will still have to contend with Channel 2 operations. It's also possible that TVI could be worse, as 8VSB doesn't appear to be tolerant of noise and interference. Will the FCC permit low-power TV operations on the VHF Low band as well? I don't know, but someone probably does.

Don Murray, W4WJ, writes:

Unfortunately U.S. TV Channel 4 will not be available for "re-assignment" after the midnight, June 12th 2009 high-power analog shutdown date. After that date, by definition, the digital "core" channels will be 2–51.

Digital stations that are currently in the CH 52–69 group must move to a previously assigned "post-transition" core channel at 0000 on June 13th. Some digital stations that are currently in the "core" will be moving to a different "post-transition" channel at 0000 on June 13th. The CH 52–69 TV frequencies will be re-assigned to public-service and wireless services.

Also, low-power analog transmitters outside the core (CH 52–69) must shut down. Low-power stations, within the core, may remain on the air. Their shutdown date has yet to be determined. All of the core channels, with the exception of radio-astronomy on CH 37, will be occupied by digital transmitters, and analog low-power transmitters. For a list of the final channel assignments, go to the bottom of this FCC document: <http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-138A1.doc>.

There is a bit of a silver lining in this whole thing. There will not be as many TV transmitters on CH 4 as before, so at least there will be the possibility of cross-band QSOs. To see all the listings on CH 4 go to: <http://www.w9wi.com/newweb/channels/4.html>.

Canadian full-power analog stations are another matter. Their cut-off date is August 31, 2011. Sorry to throw water on such a good idea!

5Z4EME Report

The team of Ronald Stuy, PA3EWP, Eltje Veen, PA3CEE, and Rene Hasper, PE1L, assembled in Kenya in early April for a small EME DXpedition. What follows is a combination of two reports that appeared on the moon-net reflector:

We got a visit from the Intelligence Agency. They were very interested, but we managed to distract their attention to guide them to our neighbor who was yelling in a mic the whole time. We understand that he is operating on HF. After an hour the Intelligence Agency representative disappeared, likely under the impression of the things that were shown to him.

So, take your chance concerning our being on the air today. We hope to be there, regarding the fact that our stomachs can cope with the heavy fish soup (fish heads and heaven knows what more). Yes,

life in the jungle is hard. We are longing for a shower. We can find each other easily by the tremendous smell.

Here is another experience from the team in the jungle: As announced before, Rene had a lot of pain in his foot that had been injured this morning by stumbling over the coaxial cable. He wasn't able to walk anymore. The old witch doctor came by yesterday and with help of fresh chicken blood, secret smelly herbs, and a kind of rough massage accompanied by loud screaming she managed that Rene now was able to walk a few steps. We hope she said the right spells in order to get him cured. Today she will finish the job. We wonder what kind of rituals will follow.

In the meantime our power (head fuse) went up into smoke after Eltje managed to overload the capacity of the 240V power. We're still wondering how he did it. It's quite an achievement because not only we but the whole village in our neighborhood had no power after the explosion.

The fuses and the main switch were placed in a small box in our wall that had the name "Crabtree" on it. We already wondered what Gary Crabtree, KB8RQ, had to do with it, and we never will know because only some burnt parts could be discovered after we opened the smoky black box. However, by short-cutting all fuses we now have power again. That was important so we could be QRV with our moonrise again—and so we did in order to make happy the last few who still needed us.

Totals: 282 contacts, 47 DXCC, 45 firsts on 144 MHz, 3 firsts on 432 MHz. We're looking back on a very successful DXpedition. We had fun, those who were turning the aerials had even more fun, and we're longing after a shower.

The "Mzungu's" from The Netherlands are satisfied and already planning another travel. Where do we go next?

KD7LMO, Silent Key

Michael Gray, KD7LMO, was killed Sunday, April 12, 2009, while bicycling to visit his parents. Born in Alaska and raised in Michigan, Michael was only 43 years old when he was struck from behind by a drunk driver.

Michael was the Chief Technical Officer of Arizona Near Space Research (ANSR), a nonprofit high-altitude amateur radio balloon group that flies near-space balloon projects for schools across Arizona. He was an expert electronics and software engineer, and personally designed and built the equipment used to support the 48 ANSR balloon flights to date.

Michael was an avid bicyclist, who often participated in charity bicycle events. He is survived by his parents Gordon and Rita Gray, his brother Derrick, and his younger sister Julie. This obituary announcement was submitted by his friend, Jack Crabtree, W7JLC.

Current Contests

ARRL June VHF QSO Party: The dates for this contest are June 13–14. Complete rules are in the May issue of *QST* and can also be found on the ARRL website (http://www.arrl.org). Many are making plans to activate rare grids. For the latest information on grid expeditions, check the VHF reflector (vhf@w6yx.stanford.edu) on the internet. For weeks in the run up to the contest postings are made on the VHF reflector announcing Rover operations and grid expeditions. It is a contest that will create for you plenty of opportunities to introduce the hobby to your friends who are not presently working the VHF plus bands or are not hams.

SMIRK Contest: The SMIRK 2009 QSO Party, sponsored by the Six Meter International Radio Klub, will be held from 0000 UTC June 20 until 2400 UTC June 21. This is a 6-meter-only contest. Exchange SMIRK number and grid square. Score 2 points per QSO with SMIRK members and 1 point per QSO with nonmembers. Multiply points times grid squares for final score. Awards are given for the top scorer in each ARRL section and country. Logs and log requests should be sent to: David Craig, N3DB, 4931 Mariners Dr., Shadyside, MD 20764 USA. Logs may also be submitted electronically to <davidhcraig@verizon.net> and must be received no later than August 1, 2009. For more information go to <http://www.smirk.org> and click on the SMIRK Contest link at the top of the page.

Field Day: ARRL's classic, Field Day, will be held on June 27–28. Complete rules for this event can also be found in *QST* and at <http://www.arrl.org>. In past years tremendous European openings have occurred on 6 meters. Also, as happened in 1998, very large sporadic-*E* openings can occur. Certainly, this is one of the best events to involve new people in the hobby.

Current Convention

The annual **Ham-Com Hamfest** will be held June 12–13, 2009, in Plano, Texas. As always, the North Texas Microwave Society will present a microwave forum. For more information, see: <http://www.hamcom.org/>.

Calls for Papers

Calls for papers are issued in advance of forthcoming conferences either for presenters to be speakers, or for papers to be published in the conferences' *Proceedings*, or both. For more information, questions about format, media, hardcopy, e-mail, etc., please contact the person listed with the announcement. The following have announced a call for papers for their conferences:

Michael Gray, KD7LMO (SK), aside the ANSR-46 balloon just before launch. (Photo courtesy W7JLC)

Central States VHF Society Conference: Technical papers are solicited for the 43rd annual Central States VHF Society Conference to be held in Elk Grove, Illinois on July 23–25. Papers, presentations, and posters on all aspects of weak-signal VHF and above amateur radio are requested. You do not need to attend the conference, nor present your paper, to have it published in the *Proceedings*. Deadline for submissions: for the *Proceedings,* June 1; for presentations to be delivered at the conference, June 29; and for notifying them that you will have a poster to be displayed at the conference, June 29. For details contact Kermit Carlson, via e-mail <w9xa@ yahoo.com>, or snail mail 1150 McKee St., Batavia, IL 60510.

Technical papers are solicited for presentation at the **28th Annual ARRL and TAPR Digital Communications Conference** to be held September 25–27 in Chicago, Illinois and publication in the conference *Proceedings*. Presentation at the conference is not required for publication. Submission of papers is due by July 31 and should be submitted to: Maty Weinberg, KB1EIB, ARRL, 225 Main Street, Newington, CT 06111, or via the internet to <maty@arrl.org>. For suitable topics and submission guidelines also contact Maty via e-mail; also check <http://www.arrl.org>.

Meteor Showers

Between June 3 and 11 the *Arietids* meteor shower will once again be evident. This is a daytime shower with the peak predicted to occur on June 7 at around 1100 UTC. Activity from this shower will be evident for around eight days, centered on the peak. At its peak, you can expect around 60 meteors per hour traveling at a velocity of around 37 km/sec (23 miles per second).

On June 9 the *Zeta Perseids* is expected to peak around 1100 UTC. At its maximum, it produces around 40 meteors per hour. The *Boötids* is expected to make a showing between June 27 and July 2, with a predicted peak on June 27 at around 0830 UTC. On June 28 the *Beta Taurids* is expected to peak. Because it is a daytime shower, not much is known about the stream of activity. However, according to the book *Meteors* by Neil Bone, this and the *Arietids* are two of the more active *radio* showers of the year. Peak activity for this shower seems to favor a north-south path.

For more information on the above meteor shower predictions see Tomas Hood, NW7US's Propagation column in this issue. Also visit the International Meteor Organization's website: <http://www.imo.net/calendar/2009>.

And Finally . . .

This month there are two items that I want to cover in this section: April Fools' jokes and intoxicated drivers. Both of these items come under the broader title of responsible living.

First, April Fools' jokes: Early in April a posting was made to the VHF reflector concerning a supposed action by a county in California to ban amateur radio. Unfortunately, it received some comments as to its authenticity until someone finally posted a reply indicating that the story was a hoax. Then, someone took the initiative to cross post it onto the moon-net reflector. On that reflector it also received some comments until I cross posted the hoax posting from the VHF reflector.

Unfortunately, these urban legends do not die. They reincarnate themselves. Within days I received emails from three people in different parts of the country, all advising their recipients of the dire consequences of this county's proposed actions. Immediately, I sent each of these individuals e-mails about their e-mails promoting a hoax. For more information on the hoax, please see the ARRL posting at: <http://www.arrl.org/news/stories/2009/04/09/10763/?nc=1>.

Second, intoxicated drivers: I published an obit concerning Roger Gollub, WBØCMZ, in the Winter 2009 issue of *CQ VHF* magazine. Roger was a pediatrician caring for the children in the wilderness areas in Alaska. Tragically, he was killed by a person driving a snow mobile while intoxicated. That accident was such a terrible termination of a life of a person with so much talent and goodness to give.

You can read elsewhere in this column of another terrible loss, that of Michael Gray, KD7LMO. Here is another person who gave so much and who lost his life because of a person allegedly driving while intoxicated.

Life is so fragile. Please help protect it by looking out for one another and living responsibly. Until next month...

73 de Joe, N6CL

dx

BY CARL SMITH,* N4AA

Station HCJB Remembered

Dayton 2009 will be history by the time you read this. I'll have to comment on Dayton in a later column, but I know I'm going to enjoy it. I will be able to comment on my April experience of going on my first-ever DXpedition in the next issue, too.

I was very pleased to have my request for a special callsign approved. It will be great fun to be on the air from the Bahamas as C6AAA. I am learning what DXpeditioners all have to learn about when preparing to make a trip, whether it's 500 or 5000 miles away. One has to gather all the things you will need. Things such as passport, radio, computer, antenna, cables, and dozens of other little things that will be needed at the "other" end of the trip. In many places you can't run down to RadioShack to get a cable or a connector. Then there is the matter of weight, or pay the price for extra bags. I'm learning a lot about leaving the good ole US of A, and I'll cover all that after I get back. I'm sure there will be much more to say after I've made the trip to and from the Bahamas.

Some of my friends asked me to work RTTY and that took some doing on my part. I use RTTY, but not on an everyday basis. Most of my "spare time" in the month before the departure date was used hooking everything together and testing to be sure it did what it was supposed to do. In the next issue I'll let you know if it worked "there" like it worked "here."

DXpeditions

There were several DXpeditions in the March/April period. The team of VK9LA spent 12 days on Lord Howe working all bands/modes. It is still ongoing as I write this, so the statistics won't be available until next time. Reports from the island indicated they were having difficulty with some equipment, and atmospheric noise was a real problem for the low bands.

A multi-national team of nine ZL DXers was active from Chatham Island for five days in early March as ZL7T. They were on all HF bands using CW/SSB/RTTY/PSK and put 10,580 QSOs in their log. Their website says: "We regret the poor propagation on 15m, 12m, and 10m, as it did impede our final QSO tally. You can read all about our adventures at <www.zl7t.com> and look at some of the statistics for this short operation." Lee, ZL2AL, is the QSL Manager for ZL7T, and he says the log will be uploaded to Logbook of The World (LoTW) around September.

LoTW Update

Speaking of LoTW, have you noticed the increase in the number of individuals and DXpeditions who are uploading their logs to the LoTW? I recall seeing articles on the cost of reaching just the minimum for DXCC and also the cost of achieving the Honor Roll. If we are to get young folks involved in DXing, we have to find a way to keep the cost of getting those confirmations down to an acceptable level. Oh sure, it's nice to have those pretty QSL cards hanging on the wall … you do put them on the wall, don't you? If the cost of mailing gets any worse, we'll have to take out a separate insurance policy to cover those cards hanging on the wall. Hmm, I wonder if an insurance company would do that? I guess maybe Lloyd's of London will insure anything, but I'm not sure I want to hear the price. Anyway, with what seems to be an annual increase in rates by the US Postal Service, and many others around the world, LoTW looks better all the time.

Esmond, 8R1AK, can be heard operating from this ham shack, from his mobile, or from some of the islands in the vicinity of Guyana. This photo was sent by Terry Tull, the wife of John Tull, KDØJL (Silent Key), who was very loyal in providing pictures for many years. His contributions will be sadly missed. RIP, John.

Working 40 meters

Have you listened to the 40-meter band lately? Perhaps you were not aware that those 60 over S9 broadcast signals are not there anymore. During the CQ WPX SSB Contest the end of March it was a surprise that many European stations were operating all the way up to 7200. The old "cross-band" DXing will be a part of history now, too, just like 75 was several years ago. Now working 40 meters SSB will be just like working 20, 15, or 10 meters.

Broadcast Station HCJB

There recently was a news item about the towers at HCJB, the broadcast station in Ecuador, being

*P.O. Box DX, Leicester, NC 28748-0249
e-mail: <n4aa@cq-amateur-radio.com>

taken down to make way for airport improvements. That made me start thinking about what I remembered about HCJB.

I recalled that someone at the station had done some experimenting with something called a *cubical quad* antenna. This antenna was created to solve a problem they had with standard tubing elements being "burned up" due to the altitude, etc. I happened to mention the HCJB tower article in "QRZ DX" and I was flooded with comments from folks who also had memories about the quad antenna and its creator. I'll share just a bit of that with you here.

Rick, NE8Z, has a mountain of information on this subject and he eagerly furnished a lot of it to me. Here's one item:

The towers/antennas of HCJB which were taken down to make way for the new airport at Quito, Ecuador. (Photo courtesy of Rick, NE8Z/HC1MD)

The cubical quad was invented by Clarence Moore, W9LZX, as a result of the ends melting off a Yagi antenna. Running HCJB at a power of 10 kw at 10k feet elevation in Quito, Ecuador, the following was reported (Quoted from *All About Cubical Quad Antennas*, by Orr and Cowan): "The

5 Band WAZ

As of April 1, 2009, 773 stations have attained the 200 zone level and 1630 stations have attained the 150 zone level.

New recipients of 5 Band WAZ with all 200 zones confirmed:

W1GL F6DLM

The top contenders for 5 Band WAZ (zones needed, 80 or 40 meters):

S51U, 199 (27)
N4WW, 199 (26)
W4LI, 199 (26)
K7UR, 199 (34)
W2YY, 199 (26)
IK8BQE, 199 (31)
JA2IVK, 199 (34 on 40m)
IK1AOD, 199 (1)
WØCP, 199 (18)
GM3YOR, 199 (31)
VO1FB, 199 (19)
KZ4V, 199 (26)
W6DN, 199 (17)
W3NO, 199 (26)
RU3FM, 199 (1)
N3UN, 199 (18)
W1JZ, 199 (24)
W1FZ, 199 (26)
SM7BIP, 199 (31)
N4NX, 199 (26)
N4MM, 199 (26)
EA7GF, 199 (1)
N6HR/7, 199 (37)
JA5IU, 199 (2)
RU3DX, 199 (6)
N4XR, 199 (27)
HA5AGS, 199 (1)
VE3XN, 199 (26)
YU7GMN, 199 (10)
K7LJ, 199 (37)
RA6AX, 199 (6 on 10m)
RX4HZ, 199 (13)
KØGM, 199 (17)
S58Q, 199 (31)
KQØB, 199 (2 on 10)
K9OW, 199 (34 on 10)
N5AW, 199 (17)
EA5BCX, 198 (27, 39)
G3KDB, 198 (1, 12)
JA1DM, 198 (2, 40)
9A5I, 198 (1, 16)
K4CN, 198 (23, 26)
G3KMQ, 198 (1, 27)
N2QT, 198 (23, 24)
OK1DWC, 198 (6, 31)
W4UM, 198 (18, 23)
US7MM,198 (2, 6)
K2TK, 198 (23, 24)
K3JGJ, 198 (24, 26)
W4DC, 198 (24, 26)
F5NBU, 198 (19, 31)
OE2LCM, 198 (1, 31)
HA1RW, 198 (1, 31)
WK3N, 198 (23, 24)
W9XY, 198 (22, 26)
KZ2I, 198 (24, 26)
W7VJ, 198 (34, 37)
K9MIE, 198 (18, 21)
W9RN, 198 (26, 19 on 40)
W5CWQ,198 (17, 18)
I5KKW, 198 (31&23 on 20)
JT1BV, 198 (4, 11)
IV3MUC, 198 (1&31 on 40)

The following have qualified for the basic 5 Band WAZ Award:

OK1DT (169 zones)
DL4FAP (153 zones)

5 Band WAZ updates:

WB9EEE (200 zones)
W1KSZ (193 zones)
ON4CD (200 zones)
UY5BC (170 zones)
KC6X (186 zones)
RV1CC (200 zones)

***Please note: Cost of the 5 Band WAZ Plaque is $100 shipped within the U.S.; $120 all foreign (sent airmail).**

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and $1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, 17 Green Hollow Rd., Wiggins, MS 39577. The processing fee for the 5BWAZ award is $10.00 for subscribers (please include your most recent *CQ* mailing label or a copy) and $15.00 for nonsubscribers. An endorsement fee of $2.00 for subscribers and $5.00 for nonsubscribers is charged for each additional 10 zones confirmed. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a *CQ* checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

The WPX Program

CW

3217 ..... UR5FEO
3218 ..... W3FAF

SSB

3037 ..... AE6RR
3038 ..... UR5FEO
3039 ..... JH7HYS

Mixed

2042 ..... UR5FEO
2043 ..... N6NR
2044 ..... K5WTA
2045 ..... IW5EIJ
2046 ..... OE3FPA
2047 ..... WT6X
2048 ..... JJ1BDX

Digital

27 ..... UR5FEO

CW: 450 JH6JMM. 650 UR5FEO, HA2ESM. 1250 IV3DYS. 1300 DL5DBH. 2650 JA9CWJ.
SSB: 650 UR5FEO. 1000 AA1VX.
Mixed: 700 K7EG. 800 K4IJQ. 1050 UR5FEO. 3700 ON4CAS.
Digital: 800 UR5FEO..

160 Meters: UR5FEO
80 Meters: UR5FEO, HA2ESM
40 Meters: UR5FEO, HA2ESM
20 Meters: UR5FEO, HA2ESM
15 Meters: UR5FEO, HA2ESM
10 Meters: UR5FEO

Asia: UR5FEO, HA2ESM
Africa: UR5FEO
Europe: UR5FEO, HA2ESM
Oceania: UR5FEO
North America: UR5FEO
South America: UR5FEO

Award of Excellence: UR5FEO
160 Meter Bar: UR5FEO
30 Meter Bar: KF2O
17 Meter Bar: KF2O
12 Meter Bar: KF2O
Digital Bar: UR5FEO, KF2O

Award of Excellence Holders: N4MM, W4CRW, K5UR, K2VV, VE3XN, DL1MDD, DJ7CX, DL3RK, WB4SIJ, DL7AA, ON4QX, 9A2AA, OK3EA, OK1MP, N4NO, ZL3GO, W4BQY, IØJX, WA1JMP, KØJN, W4VQ, KF2O, WB8CNL, W1JR, F9RM, W5UR, CT1FL, WA4QMQ, W8ILC, VE7DP, K9BG, W1CU, G4BUE, N3ED, LU3YL/W4, NN4Q, KA3A, VE7WJ, VE7IG, N2AC, W9NUF, N4NX, SMØDJZ, DK5AD, WD9IIC, W3ARK, LA7JO, VK4SS, I8YRK, SMØAJU, N5TV, W6OUL, WB8ZRL, WA8YTM, SM6DHU, N4KE, I2UIY, I4EAT, VK9NS, DEØDXM, DK4SY, UR2QD, AB9O, FM5WD, I2DMK, SM6CST, VE1NG, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, HA8UB, HA8XX, K7LJ, SM3EVR, K2SHZ, UP1BZZ, EA7OH, K2POA, N6JV, W2HG, ONL-4003, W5AWT, KBØG, HB9CSA, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YBØTK, K9QFR, 9A2NA, W4UW, NXØI, WB4RUA, I6DQE, I1EEW, I8RFD, I3CRW, VE3MS, NE4F, KC8PG, F1HWB, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, KC7EM, YU1AB, IK2ILH, DEØDAQ, I1WXY, LU1DOW, N1IR, IK4GME, VE9RJ, WX3N, HB9AUT, KC6X, N6IBF, W5ODD, IØRIZ, I2MQP, F6HMJ, HB9DDZ, WØULU, K9XR, JAØSU, I5ZJK, I2EOW, IK2MRZ, KS4S, KA1CLV, WZ1R, CT4UW, KØIFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, OE1EMN, W9IL, I7PXV, S53EO, DF7GK, S57J, EA5BM, DL1EY, DJ1YH, KUØA, VE2UW, 9A9R, UAØFZ, DJ3JSW, OE6CLE, HB9BIN, N1KC, SM5DAC, RW9SG, WA3GNW, S51U, W4MS, I2EAY, RAØFU, CT4NH, EA7TV, W9IAL, LY3BA, K1NU, W1TE, UA3AP, EA5AT, OK1DWC, KX1A, IZ5BAM, K4LQ, KØKG, DL6ATM, VE9FX, DL2CHN, W2OO, AI6Z, RU3DX, WB9IHH, CT1EEN, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, KT2C, UA9CGL, AE5B, KØDEQ, DKØPM, SV1EOS, UAØFAI, N4GG, UA4RZ, 7K3QPL, EW1CQ., UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UT9FJ, UT4EK, K9UQN.

160 Meter Endorsements: N4MM, W4CRW, K5UR, VE3XN, DL3RK, OK1MP, N4NO, W4BQY, W4VQ, KF2O, W8CNL, W1JR, W5UR, W8ILC, K9BG, W1CU, G4BUE, LU3YL/W4, NN4Q, VE7WJ, VE7IG, W9NUF, N4NX, SMØDJZ, DK5AD, W3ARK, LA7JO, SMØAJU, N5TV, W6OUL, N4KE, I2UIY, I4EAT, VK9NS, DEØDXM, UR2QD, AB9O, FM5WD, SM6CST, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, K7LJ, SM3EVR, UP1BZZ, K2POF, IT9TQH, N6JV, ONL-4003, W5AWT, KBØG, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YBØTK, K9QFR, W4UW, NXØI, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, WX3N, W5ODD, IØRIZ, I2MQP, F6HMJ, HB9DDZ, K9XR, JAØSU, I5ZJK, I2EOW, KS4S, KA1CLV, KØIFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, S53EO, S57J, DL1EY, DJ1YH, KUØA, VR2UW, UAØFZ, DJ3JSW, OE6CLD, HB9BIN, N1KC, SM5DAC, S51U, RAØFU, CT4NH, EA7TV, LY3BA, K1NU, W1TE, UA3AP, OK1DWC, KX1A, IZ5BAM, DL6ATM, W2OO, RU3DX, WB9IHH, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, UA9CGL, SM6DHU, KØDEQ, DKØPM, SV1EOS, N4GG, UA4RZ, 7K3QPL, EW1CQ, UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI.

Complete rules and application forms may be obtained by sending a business-size, self-addressed, stamped envelope (foreign stations send extra postage for airmail) to "CQ WPX Awards," P.O. Box 355, New Carlisle, OH 45344 USA. Note: WPX will now accept prefixes/calls which have been confirmed by eQSL.cc. Other electronic QSL confirmation means are not accepted.

*Please Note: The price of the 160, 30, 17, 12, 6, and Digital bars for the Award of Excellence are $6.50 each.

Bill Smith, W9VA, said, "PSØF turned out to be more of a 'DX Event' than I expected. With PYØF on the 100 Most Wanted list in Europe and Asia, there was a lot of pent-up demand due to Andre's extended inactivity. This was reflected in the pile-ups, which at times were an embarrassing 10 kHz wide. Jim K9PPY and I ended up with over 11,000 Q's." This photo was taken at the PY7ZZ shack in Recife (left to right): Jim, K9PPY/PY7XC; Bill, W9VA/PSØF; and Fred, PY7ZZ. Fred is quite possibly the most active DXer in Brazil. (Photo courtesy of Bill, W9VA)

heavy industrial aluminum tubing used for the elements of the doomed (Yagi) beam flowed with the heat of the arc and turned incandescent at the tips. Large molten chunks of aluminum dropped to the ground as the inexorable fire slowly consumed the antenna. The corona discharges were so loud and so intense that they could be seen and heard singing and burning a quarter-mile away from the station."

Clarence Moore applied for a patent on the design of the cubical quad on May 8, 1947 and it was granted June 9, 1951. The antenna became very popular with hams throughout the 1950s and '60s. It was easily constructed and performed exceptionally well at low heights above ground. Initially, bamboo poles were used to support the wire elements, but in later versions fiberglass became available, making the antennas more durable. The original bamboo poles typically were treated with heavy coats of varnish to make them last in all kinds of weather conditions. The "X" supports for the bamboos poles, called "Spiders," were made from a variety of material, but usually 1-inch angle either steel or aluminum, with aluminum being preferred. Early designs consisted of only two elements, but in later years up to four or more elements were used. Multi-band designs were created with the elements for a higher frequency band being placed inside the larger one. These multi-banders were quite popular using a "compromised" spacing between the elements. The famous Bill Orr, W6SAI, had a book out on Yagi design and he came along with one for the cubical quad. Many of us had both

CQ DX Honor Roll

The CQ DX Honor Roll recognizes those DXers who have submitted proof of confirmation with 275 or more ACTIVE countries. With few exceptions, the ARRL DXCC Countries List is used as the country standard. The CQ DX Award currently recognizes 339 countries. Honor Roll listing is automatic when an application is received and approved for 275 or more active countries. Deleted countries do not count and all totals are adjusted as deletions occur. To remain on the CQ DX Honor Roll, annual updates are required. All updates must be accompanied by an SASE if confirmation of total is required. The fee for endorsement stickers is $1.00 each plus SASE. Please make checks payable to the awards manager, Billy F. Williams. All updates should be mailed to P.O. Box 9673, Jacksonville, FL 32208.

CW

NØFW 338	K4MQG 338	K4CN 337	W4MPY 336	NC9T 334	W4UW 331	F6HMJ 328	CT1YH 320	G3DPX 284
WB4UBD 338	W8XD 338	VE3XN 337	K5UO 336	W2VJN 334	W7IIT 330	W1DF 328	W9IL 319	N2VW 283
K3UA 338	K2TQC 338	K4JLD 337	K7LAY 336	G4BWP 334	N7WO 330	SM5HV/HK7 327	EA3ALV 319	XE1MD 280
K9MM 338	N7RO 338	N5ZM 337	N6AW 335	W1JR 334	K1HDO 329	W4LI 325	RA1AOB 317	4Z5SG 279
W4OEL 338	F3TH 338	N4AH 337	KA7T 336	I4LCK 334	K7JS 329	YV5ANT 324	W6YQ 316	W2JLK 277
EA2IA 338	DL3DXX 338	N4CH 337	PY2YP 335	YU1AB 334	W6OUL 329	KF8UN 323	WA4DOU 316	HA5LQ 277
OK1MP 338	K9BWQ 337	K2OWE 336	HB9DDZ 335	G3KMQ 334	KE3A 329	IKØTUG 321	ON4CAS 304	
N7FU 338	N4MM 337	N5FG 336	K3JGJ 335	K6LEB 333	K6CU 329	W3II 320	WD9DZV 304	
N4JF 338	W7OM 337	K9OW 336	K2JLA 334	K5RT 332	KA3S 328	F5OIU 320	KØKG 302	
K4IQJ 338	W7CNL 337	K8LJG 336	F3AT 334	WA8DXA 331	K1FK 328	PY4WS 320	KT2C 300	
K2FL 338	WØJLC 337	K9IW 336	PA5PQ 334	K8SIX 331	IKØADY 328	OZ5UR 320	N2LM 297	

SSB

K4JLD 339	K9MM 339	W8AXI 338	YU1AB 337	XE1VIC 335	VE4ACY 333	XE1MD 327	ON4CAS 312	W9ACE 294
EA2IA 339	OZ5EV 339	W9SS 338	K8LJG 337	IK6GPZ 335	K9PP 333	CP2DL 327	RA1AOB 312	K1RB 292
XE1AE 339	VE2PJ 339	VK4LC 338	W3AZD 337	NC9T 335	EA3EQT 333	YV4VN 326	N2LM 312	WD9DZV 292
IN3DEI 339	K3JGJ 339	K7LAY 338	KØKG 337	K1UO 335	YV1KZ 333	KD5ZD 326	KD2GC 311	W6MAC 292
NØFW 339	N5ZM 339	WS9V 338	W2FKF 337	I8LEL 335	W9IL 333	WR5Y 325	RW9SG 310	W5PVE 288
DU9RG 339	N7RO 339	W6DPD 338	W7FP 337	DU1KT 335	F6HMJ 333	PY2DBU 325	IØYKN 310	AD7J 287
K3UA 339	KE5K 339	K4CN 338	YU3AA 337	CT1EEB 335	YV1AJ 332	KE4SCY 325	KU4BP 310	HB9DQD 286
K6YRA 339	IØZV 339	VE3XN 338	W7BJN 337	W1JR 335	KSØZ 332	W4MPY 325	XE1MW 309	VE7HAM 285
IK1GPG 339	OE2EGL 339	K9HQM 338	AB4IQ 337	I4LCK 335	VE4ROY 332	W1DF 325	AA1VX 308	N8LIQ 284
DJ9ZB 339	W4ABW 339	K2FL 338	W4UNP 337	ZL1HY 335	CT1EEN 332	K6GFJ 324	4Z5FL/M 306	AE9DX 282
N7BK 339	DL3DXX 339	K4IQJ 338	W4UW 337	K5UO 335	YV1JV 331	W6OUL 322	K7SAM 305	N3RC 280
4Z4DX 339	I8KCI 339	VE2GHZ 338	K8SIX 336	JA7XBG 335	N5ORT 331	XE1RBV 321	I3ZSX 304	W5GT 276
WB4UBD 339	VE1YX 339	AA4S 338	KE3A 336	N7WR 335	CT1AHU 331	VE7SMP 320	JR4NUN 303	HSØ/EA4BKA 276
OZ3SK 339	N4CH 339	XE1L 337	K9IW 336	WØYDB 334	K1HDO 331	W5GZI 320	YV2FEQ 303	K9DXR 275
OK1MP 339	EA3BMT 339	OE3WWB 337	N2VW 336	K5RT 334	K7HG 331	WØROB 318	W4PGC 302	
K2TQC 339	IKØAZG 339	K9OW 337	W2CC 336	CT3DL 334	N5YY 331	LU3HBO 317	EA8AYV 302	
K4MZU 339	K5TVC 338	N5FG 337	K2JLA 335	VE7WJ 334	K3PT 330	N8SHZ 316	4X6DK 301	
N4JF 339	KZ2P 338	PY2YP 337	OE7SEL 335	WA4WTG 334	N1ALR 330	XE2NLD 315	N5WYR 300	
W4WX 339	W6BCQ 338	N6AW 337	ZL3NS 335	ZL1BOQ 334	EA1JG 329	W6NW 314	YC9WZJ 300	
K5OVC 339	W6EUF 338	IK8CNT 337	K7JS 335	K3LC 334	KF8UN 328	EA3ALV 313	K7ZM 300	
K4MQG 339	W7OM 338	EA4DO 337	PY4OY 335	HB9DDZ 334	K4DXA 328	W7GAX 312	XE1MEX 300	
N4MM 339	K9BWQ 338	CT3BM 337	PA5PQ 335	K8LJG 333	SV3AQR 328	KA1LMR 312	W4EJG 295	

RTTY

WB4UBD 337	K3UA 332	N5ZM 330	G4BWP 320	PA5PQ 311	K8SIX 300
NI4H 336	N5FG 331	OK1MP 328	EA5FKI 319	K4CN 303	W4EEU 297

One of the attractions at the Carolina DX Association's (CDXA) annual DX'ers Dinner after the Charlotte (NC) Hamfest is the prizes. Here Dennis, K7BV, of Yaesu presents a FT-857D, donated by Yaesu, to Nyles McKeithan, KS4S. (Photo courtesy of David, K4PZT)

books in our collection, and they were pretty dog-eared from heavy use.

I have fond memories of my friend the late Rod Fitz-Randolph, W5HVV, and myself running tests on his two-element variety in the middle of the night to try and determine if there was any interaction between the elements of a tri-band model he had on his roof. While Rod manned the radio, I climbed up and down the ladder to cut loose the wire elements. Of course, I was much younger then, but it was worth the effort, as Rod continued to experiment with quads and eventually he had an extensive article published in *QST* on his large four-element monster. It worked extremely well. Wind and weather were the "killers" for the quad antenna. Unless you took great pains to support the poles, the wind would shake the wires until they finally broke at the point where they went through the pole. The bamboo poles would only last so long in particularly harsh environments (snow and cold). Fiberglass would last longer, but even those would finally fail if the winds were severe enough. Repairing the broken wires was particularly difficult, and most quad users finally gave up in favor of the aluminum Yagi, which is less susceptible to weather conditions.

I'll venture a large number of you readers had some experience with a quad in your early years. Perhaps you would like to share those memories. Just send it along by e-mail to <N4AA@dxpub.com>. I'm planning an extensive article on the quad's beginning at HCJB and its life in the ham radio world.

I hope to have worked many of you as C6AAA from the Bahamas April 17–24, CW/RTTY and perhaps SSB.

Until next time, enjoy the chase and Have Fun!

73, Carl, N4AA

The WAZ Program

17 Meter SSB

46 .....RV1CC

20 Meter SSB

1179.....F6DLM

10 Meter CW

199 .....JE1GWO

17 Meter CW

71 .....SM3NXS

20 Meter CW

584 .....JA7CDK

30 Meter CW

88 .....SM3NXS 89 .....RV1CC

40 Meter CW

268.....JA7XBG 270.....SM3NXS
269 .....YV1DIG

160 Meters

300.....JQ2VVH (37 zones) 302 .ON4ATW (40 zones)
301 ...UA3AGW (40 zones) 303.....VE7VV (34 zones)

All Band WAZ

Mixed

8556 .....DL7FAZ 8563 .....IW9HII
8557 .....K4YMQ 8564 .....N1PD
8558.....EA1YO 8565.....K6JW
8559.....EA1DR 8566 .....SP3EPK
8560.....HB9FMN 8567 .....RA9JF
8561 .....NØSBN 8568.....SP3CGK
8562 .....SP9AUV

SSB

5099 .....NØSBN 5100.....N8CN

CW

564 .....DK3DUA 566 .....N4EX
565.....KO4PY

RTTY

197 .....K1LPS

Satellite

024 ....XE1MEX (29 zones)

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and $1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, 17 Green Hollow Rd., Wiggins, MS 39577. The processing fee for all *CQ* awards is $6.00 for subscribers (please include your most recent *CQ* mailing label or a copy) and $12.00 for nonsubscribers. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a *CQ* checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

CQ DX Awards Program

SSB

2524 .....N3RC

SSB Endorsements

330.....EA3BMT/399 310.....N2LM/312
330 .....IKØAZG/339 300.....XE1MEX/300
330 .....N4CH/339

CW Endorsements

330 .....N4CH/337 275.....N2LM/297

The basic award fee for subscribers to *CQ* is $6. For nonsubscribers, it is $12. In order to qualify for the reduced subscriber rate, please enclose your latest *CQ* mailing label with your application. Endorsement stickers are $1.00 each plus SASE. Updates not involving the issuance of a sticker are free. All updates and correspondence must include an SASE. Rules and application forms for the CQ DX Awards may be found on the <www.cq-amateur-radio.com> website, or may be obtained by sending a business-size, self-addressed, stamped envelope to CQ DX Awards Manager, Billy Williams, N4UF, Box 9673, Jacksonville, FL 32208 U.S.A. Currently we recognize 338 active countries. Please make all checks payable to the award manager.

QSL Information

3D2AD via YT1AD
3D2DW via YU1DW
3D2KC via DL1DA
3DAØOK via MØURX
3DAØSS via GI4FUM
3V8SM via F4EGS
3V8SS via IZ8CCW
4F4PA via VE7DP
4LØG via EA7FTR
4L2M via EA7FTR
4L5O via N3SL
4M5DX via IT9DAA
4M5IR via YV5KG
4V4JR via K4QD
4X6TT/HB9 via N2AU
4X6TT/I8 via N2AU
5B/US7IDX via RN3QO
5B4AII via RW3RN
5C2A via IK2AQZ
5C2A via IK7JWX
5C2B via ISØAGY
5C2B via IK7JWX
5C2C via IK6CAC
5C2C via IK7JWX
5C2F via I2FUG

(The table of QSL Managers is courtesy of John Shelton, K1XN, editor of "The Go List," 106 Dogwood Dr., Paris, TN 38242; phone 731-641-4354; e-mail: <golist@golist.net>; <http://golist.net/>.)

contesting

BY JOHN DORR,* K1AR

Remembering a Hero: John Kanzius, K3TUP

June's Contest Tip

If you haven't noticed, there are many changes taking place in frequency allocations around the world. Eighty and 40 meters, in particular, are seeing the most impact, with split operation on 40 meters SSB perhaps coming to an end (at least for the most part). Take the time to check it out. Working lots of multipliers begins by knowing where to look for them! A good starting point can be found at: <http://en.wikipedia.org/wiki/Amateur_radio_frequency_allocations>.

Calendar of Events

All year	**CQ DX Marathon**
May 16–17	King of Spain CW Contest
May 30–31	**CQ WW WPX CW Contest**
June 6–7	SEANET Contest
June 6–7	Alabama QSO Party
June 13	Portugal Day Contest
June 13	Asia-Pacific SSB Sprint
June 13–14	ANARTS RTTY Contest
June 13–14	GACW WWSA CW Contest
June 13–15	ARRL June VHF QSO Party
June 20	Kid's Day
June 20–21	All Asian CW Contest
June 20–21	West Virginia QSO Party
June 27–28	King of Spain SSB Contest
June 27–28	ARRL Field Day
June 27–28	Marconi Memorial HF Contest
July 1	RAC Canada Day Contest
July 4–5	DL-DX RTTY Contest
July 11–12	IARU HF World Championship
July 18–19	**CQ WW VHF Contest**

The contesting community recently lost one of its finest citizens, John Kanzius, K3TUP, after succumbing to a heroic battle with cancer. As with his contesting endeavors, John was also engaged in a personal mission to simultaneously discover a cure for this hideous disease while fighting his own health battle, which he ultimately lost.

This month, we are honored to read the words of Tim Duffy, K3LR, who knew K3TUP very well and is more than qualified to tell us about John Kanzius the ham, the contester, and the great humanitarian.

John Kanzius
A Friend to Many, A Treasure to All
by Tim Duffy, K3LR

John Kanzius, K3TUP, passed away earlier this year. His recent work in cancer research was well documented in a previous interview by *CQ*'s Editor, Rich, W2VU *(see the January 2009 issue of* CQ—*ed.),* so I want to focus this time on the contesting life of K3TUP and his many contributions.

John loved radio and technology, but above all he loved living. A devoted husband and father, John was one of those special guys who had it all. My commitment to him, beginning with this month's editorial contribution, is that his legacy and a part of him will always live on.

John was a competitive amateur radio operator at heart. Learning radio from his father, W3NRE, John's interest began at a young age. A natural outgrowth of his amateur radio activity was broadcast radio and station design. John soon discovered that the technical knowledge he learned from ham radio would transfer quite well to his professional career, allowing him to modify and improve broadcast transmitters. In accepting a chief engineering job with an AM, FM, and TV station in Erie, Pennsylvania kept John busy in the 1960s and '70s building his skills and reputation in the industry. During the 1980s he acquired an ownership stake in the broadcast property, becoming one of America's best known broadcast executives. He never lost his intense desire to push the envelope. It was during this busy time of professional activity, however, when he be began to gather ideas for the creation of a super K3TUP antenna farm.

With a western "east coast" QTH (almost in CQ Zone 4), John assembled three towers in the early 1980s just south of Lake Erie. One was 120 feet of Rohn 45 that rotated with guy rings. This tower held two high stacks for 20, 15, and 10 meters. The second tower was 100 feet tall with a 4-element 40-meter KLM Yagi on top. Finally, tower number three held a small tri-bander. A 4-square for 80 and a simple sloping vertical wire for 160 meters rounded out the antenna farm. John's 80-meter directional vertical antenna was the first one I ever heard. It was magic! I can still remember how proud John was of its performance. The array was a design of Fred, W1FC. John later encouraged Dana, W1CF, to bring the antenna to market, and John became the owner of one of the first "turn key" 4-squares that Dana and Fred shipped outside of New England.

*2 Mitchell Pond Road, Windham, NH 03087
e-mail: <K1AR@contesting.com>

John, K3TUP (center), surrounded by two of his young, hot-shot operators, K3LR (left), and K5ZD (right), in the 1980s. (Tnx K3LR)

With a pair of Kenwood TS-930s and later ICOM 781s driving Alpha amplifiers, the contesting hardware inside the shack was every bit as capable and impressive as the outside antenna farm. The only thing that was missing was a seasoned operator. Everything that a single-op or a multi-single would need was in place. John was committed to winning and his obsessive engineering focus was about to pay off.

I met John on the air while operating, of all places, a local 2-meter repeater network that I was building in 1983. We talked for an hour—two contest enthusiasts who lived very close to one another, very eager to meet and realizing we had so much in common.

When John and I met in person for the first time over dinner, we spent hours talking about station design and operating contests. We also talked about the operators and who were the rising stars. As a result, John invited guys such as me, K3UA, K5ZD, N3RA, N5TJ, N3BJ, KC1F, and others to operate from his western Pennsylvania super station. Ultimately, several of us had high score USA All-Band from K3TUP. K5ZD won the CQ WW DX CW Contest, and I managed back-to-back wins in ARRL DX Phone in1987 and 1988.

When computer logging was made popular by K1EA in the late 1980s, John was quick to integrate it into his station. He was an early adopter of lots of technology, always believing that we would figure it out, make it work, and then enjoy the ride. We even got a larger group together for a CQ WPX CW Contest, operating Multi-Multi from K3TUP and finished USA #1.

John had a tremendous influence on the early station building at K3LR. He was always available to answer a question or discuss new ideas. We would sit around for hours, scribbling on paper our wild ideas for antennas and equipment layouts. Some of the equipment from John's station is still in use today at K3LR.

K3TUP was one of the founding members of the North Coast Contesters. Early on, John was unanimously elected the club's "Chief Entertainment Officer" for life. John hosted many of our NCC meetings in the early years. His enthusiasm and desire for fun in ham radio was infectious. As a small group of guys, we all were swept away. At least two "TUPfest" events occurred every year—one of which was a golf outing (one of John's other interests). John was just as passionate about golf as he was about radio. He found a way to enjoy golf and his radio friends at the same time. N2AA, N2NT, N2NC, W5OV, K3EST, TG9AJR, KT3Y, N5KO, KR1R, and K8RR are just a few of John's guests who experienced the TUP magic in Erie.

Over the years, I would constantly bring contest ideas and challenges to John. The Dayton Contest Super Suite and the Dayton Contest Dinner are two great examples of ideas that John embraced early on and funded. Together, we worked on projects that have become even bigger today. He made sure that dreams became reality, with a focus on helping as many people as possible in the process. When I learned that the CQ WW log-checking committee needed computers and monitors in the early 1990s to improve log checking, John stepped in and funded several upgrades, shipping them to the West Coast to ensure the WW participants had something "better." He sent radio equipment to countless DX stations around the world, increasing contest activity from rare multipliers. He funded *CQ* magazine subscriptions for stations in Russia and other countries. The list goes on.

John wanted to spread the same love he had for contesting to others. After I alerted John that a video needed to be done for WRTC 1996 in San Francisco, he sent an entire video crew to the West Coast, and then fully edited and offered VHS copies to all who wanted them. There were even PAL versions created to accommodate DX participants. K3TUP simply got things "done"—qui-

K3LR ready to rock 'n roll at the operating position of K3TUP. (Tnx K3LR)

etly and with an unassuming approach.

John always had a special place in his heart for western Pennsylvania. He welcomed local hams, helping them build their stations, and was a proud multi-year president of the local club—the Radio Association of Erie. In addition, he was active in many local civic organizations. It was difficult for him to drive or walk in downtown Erie. People would constantly stop him and thank him for what he was doing—for dreaming big, for making things happen, especially in the town he loved so much.

After John sold his interest in the broadcast properties in the late 1990s, he retired. He bought his dream vacation home in Florida while also building another multi-single station at a new house in Erie. Without stacked Yagis, this station was not as competitive as the "old QTH." John soon scaled back his contesting efforts and started to concentrate on scientific experiments and his love of golf. He still maintained an interest in contesting, though, and we would call one another from time to time to stay in touch and catch up on his "retired" lifestyle. Sadly, cancer was beginning to take its toll on John.

In early 2009, K3TUP and I discussed the possibility of John being the guest speaker for the 17th Annual Contest Dinner at the Dayton Hamvention® this May. John really wanted to come to Dayton, see everyone and tell the amateur radio contesting community about the progress he was making with his cancer research. At the same time, John was undergoing aggressive chemo treatments for his own cancer, with each session leaving him physically weaker. As we spoke every few

The cake at K3LR celebrating the life of K3TUP after the 2009 ARRL SSB DX contest. (Tnx to K3LR and WM2H)

weeks, however, I could sense the increasing toll the treatments were taking on him. He told me that in case he could not make it to Dayton, I would have to step in for him and give the Contest Dinner speech.

With mixed emotions, I will be the guest speaker at this year's Contest Dinner. K3TUP died on February 18, 2009 just before ARRL DX CW contest. The K3LR Multi-Multi efforts in both ARRL DX contests were dedicated to K3TUP. John's love of our hobby along with his kind heart for giving will always live on. Rest in Peace, OM, and Very 73. I will never forget you!

Final Comments

There's nothing I can add to Tim's inspiring words except to say that we need to treasure our ham radio friends. Each of us is special in our own way.

See you in the next contest . . .

73, John, K1AR

Field Day

BY TOMAS HOOD,* NW7US

A Quick Look at Current Solar Cycle Conditions

(Data rounded to nearest whole number)

Sunspots
Observed Monthly, March 2009: 1
Twelve-month smoothed, September 2008: 2

10.7 cm Flux
Observed Monthly,March 2009: 69
Twelve-month smoothed, September 2008: 68

***Ap* Index**
Observed Monthly, March 2009: 4
Twelve-month smoothed, September 2008: 6

One Year Ago:

A Quick Look at Cycle 23 Conditions

(Data rounded to nearest whole number)

Sunspots
Observed Monthly, March 2008: 9
Twelve-month smoothed, September 2007: 6

10.7 cm Flux
Observed Monthly,March 2008: 73
Twelve-month smoothed, September 2007: 72

***Ap* Index**
Observed Monthly, March 2008: 10
Twelve-month smoothed, September 2007: 9

LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for June 2009

	Expected Signal Quality			
Propagation Index.....	(4)	(3)	(2)	(1)
Above Normal: 1, 8-9, 13, 23-25, 27-28	A	A	B	C
High Normal: 2, 7, 10, 12, 16-22, 26, 29	A	B	C	C-D
Low Normal: 3-6, 11, 14-15, 30	B	C-B	C-D	D-E
Below Normal: N/A	C	C-D	D-E	E
Disturbed: N/A	C-D	D	E	E

Where expected signal quality is:
A—Excellent opening, exceptionally strong, steady signals greater than S9.
B—Good opening, moderately strong signals varying between S6 and S9, with little fading or noise.
C—Fair opening, signals between moderately strong and weak, varying between S3 and S6, with some fading and noise.
D—Poor opening, with weak signals varying between S1 and S3, with considerable fading and noise.
E—No opening expected.

HOW TO USE THIS FORECAST

1. Find the *propagation index* associated with the particular path opening from the Propagation Charts appearing in *The New Shortwave Propagation Handbook* by George Jacobs, W3ASK; Theodore J. Cohen, N4XX; and Robert B. Rose, K6GKU.

2. With the *propagation index*, use the above table to find the expected signal quality associated with the path opening for any given day of the month. For example, an opening shown in the Propagation Charts with a *propagation index* of 2 will be good (B) on June 1st, fair (C) on the 2nd, but poor to fair on the 3rd through the 6th, etc.

3. As an alternative, the Last-Minute Forecast may be used as a general guide to space weather and geomagnetic conditions through the month. When conditions are Above Normal, for example, the geomagnetic field should be quiet and space weather should be mild. On the other hand, days marked as Disturbed will be riddled with geomagnetic storms. Propagation of radio signals in the HF spectrum will be affected by these conditions. In general, when conditions are High Normal to Above Normal, signals will be more reliable on a given path, when the path is ionospherically supported.

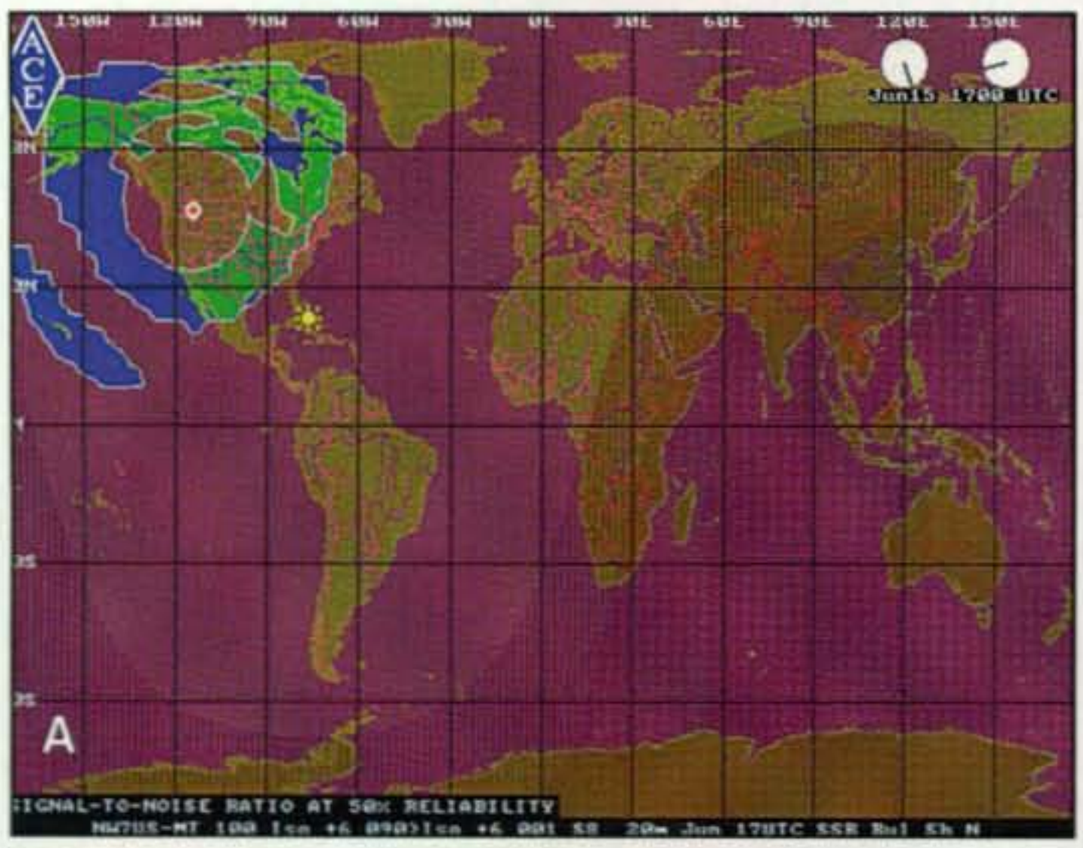
The annual ARRL Field Day is June 27 and 28. The official Field Day 2009 introduction states that the goal of this year's Field Day is "to HAVE FUN!" An emphasis is being made on getting back to one of the basic passions that all of us amateur radio operators feel, no matter the mode we operate or the activities we tend to prefer (emergency operations, contesting, kit-building). In whatever radio hobby activity we choose to do, we tend to do it because it has that "fun factor." Even now, during this seemingly endless period of quiet solar activity, radio communications are occurring worldwide on the high frequencies, with voice, CW, and digital modes. This is a time when a wealth of opportunity exists to enjoy the hobby, and this year, the ARRL Field Day is one weekend sure to be filled with fun.

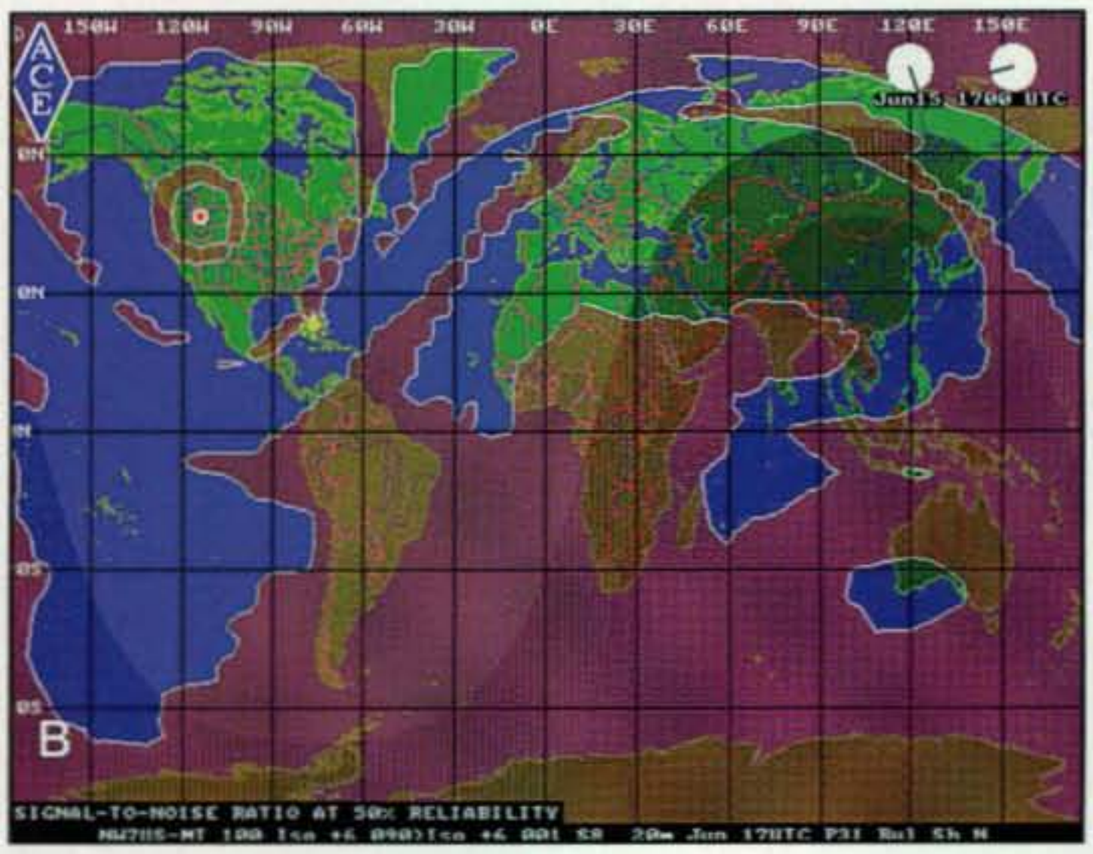
I will say it again, and not for the last time: Digital modes such as PSK-31 are very effective for getting a signal from your location to a far-distant station's location. Using the same power level as a single-sideband station, your PSK-31 signal will "make it" farther than the SSB signal.

Fig. 1 is an example consisting of three maps made with the propagation modeling software ACE-HF Pro version 2.05 (http://hfradio.org/ace-hf/) of area coverage using two modes of operation from Missoula, Montana during Field Day 2009. In the first area coverage map, a plot is made of a 100-watt SSB signal on 20 meters at 1700 UTC. The second map plots a 100-watt PSK-31 signal on 20 meters at the same time of day. The third map is of a 5-watt PSK-31 signal on the same band at the same time. Notice the incredibly extended range of coverage on the digital signal using the same power level. In addition to reaching more potential stations, the Field Day rules afford extra points to stations running digital modes. In addition, by running PSK-31 at 5 watts with alternative power, you will still have the coverage of the SSB 100-watt station, but have even more points for operating low power and with alternative power! With digital modes, you will out-perform (in terms of area coverage) an SSB station running 100 watts, and you will get all those bonus points for each contact! Any way you look at it, Field Day is about having fun, and fun can be had even during this year's expected very-low solar activity level.

Running ACE-HF models on 10 meters, the forecast is dismal. For a few short windows the forecast on 15 meters is only marginally better than the forecast for 10. Even with digital modes, the *F*-layer mode propagation models on these upper HF bands indicate limited openings, if any, from the Missoula, Montana location (see fig. 2 for the best

*P.O. Box 9, Stevensville, Montana 59870-0009
e-mail: <nw7us@arrl.net>





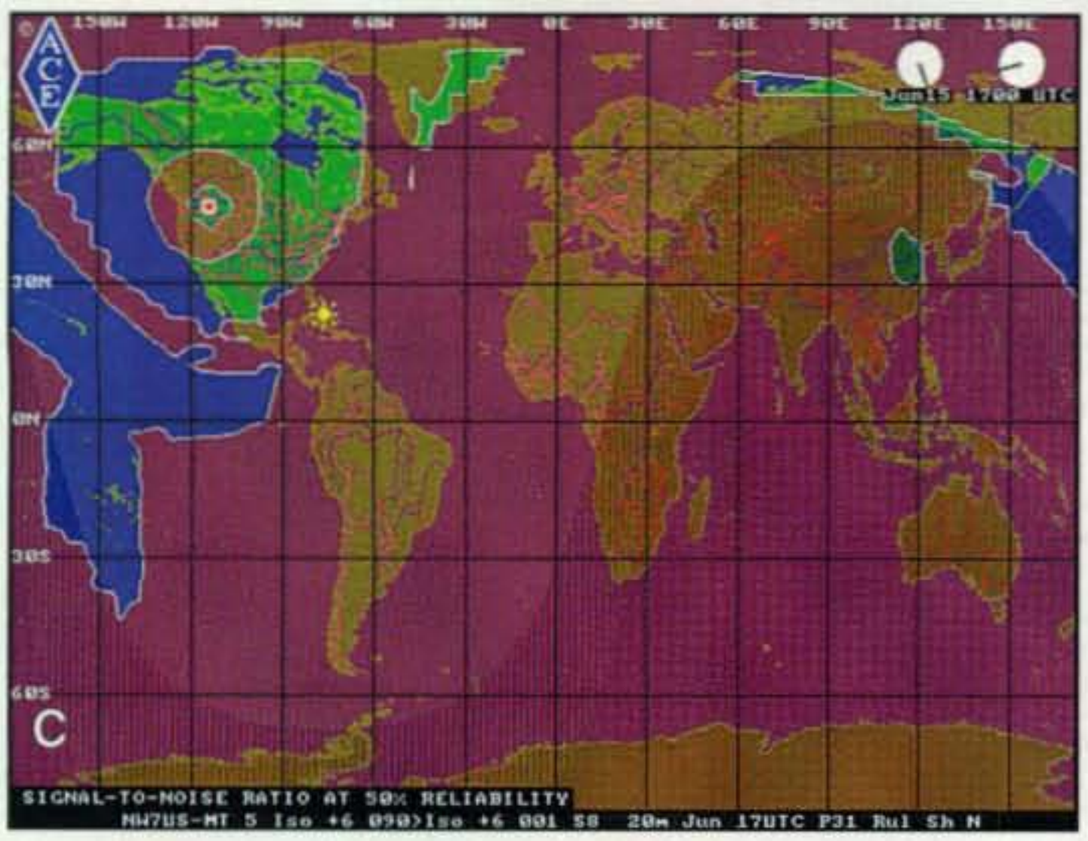


*Fig. 1– **(A)** The area coverage map created with ACE-HF Pro (http://hfradio.org/ace-hf/) showing the reach of a 100-watt SSB signal (50% reliability during Field Day 2009, from Missoula, Montana, at 1700 UTC on 20 meters. **(B)** The area coverage map created with ACE-HF Pro showing the reach of a 100-watt PSK-31 signal (50% reliability) during Field Day 2009, from Missoula, Montana, at 1700 UTC on 20 meters. Notice the much greater area of coverage compared to a 100-watt SSB signal at the same time. Digital modes give you a much greater advantage (see text). **(C)** The area coverage map created with ACE-HF Pro showing the reach of a 5-watt PSK-31 signal (50% reliability) during Field Day 2009, from Missoula, Montana, at 1700 UTC on 20 meters. Notice thjat the coverage is not much different than that of a 100-watt SSB signal at the same time. Because you get more points for running QRP (low power), running a 5-watt digital mode gives you a very great advantage (see text). (Source of maps: Tomas Hood, NW7US, using ACE-HF Pro Version 2.05)*

hour for PSK-31 on 15 meters). Of course, I am certain that this year will be like most years in which sporadic-*E* propagation will enable openings on 10 and 6 meters for short-range and North American paths.

One of the best available methods to predict HF propagation conditions in advance is the 27-day recurrence tendencies of geomagnetic, solar, and ionospheric conditions. It is not an absolute method, but it does give a very good indication of what can be expected. This column is being written in April, about three 27-day solar rotation cycles away from the start of the Field Day weekend. Based on a study of the patterns expected during the next three rotational periods of the sun, it looks as if conditions for Field Day, June 27–28, will be good with low geomagnetic activity.

Predictions for one 27-day rotational period are far more accurate than for three 27-day rotational periods. Be sure to carefully check conditions on May 31 and June 1, since this would be one rotational period before the Field Day weekend. There is better than a 90-percent chance that conditions observed on those days will recur during the event weekend. Remember, also, that short-skip propagation often by the sporadic-*E* (*Es*) mode is a big part of Field Day on-air activity, especially on the higher HF bands and even on low VHF bands.

If you wish to maximize your on-air efforts, you'll want to check out the Last-Minute Forecast on the first page of this column. Use these charts, as well as a good forecasting and analysis software tool such as ACE-HF <http://hfradio.org/ace-hf/> or WinCAP Wizard <http://www.taborsoft.com/> to help you prepare operating guides for your Field Day operations. For the very latest update on conditions, take a look online at my up-to-the-day Last-Minute Forecast chart, available at my Space Weather and Radio Propagation Center <http://hfradio.org/lastminute_propagation.html>.

June Propagation

June marks the changeover from equinoctial to summertime propagation conditions on the shortwave (HF) bands. Solar absorption is expected to be at seasonally high levels, resulting in generally weaker signals during the hours of daylight when compared to reception during the winter and spring months.

When using the Last-Minute Forecast chart, realize that the column you should use is either the (2) or (1) column, as we are in the very bottom of the solar cycle. Use the (2) column if the flux is averaging around 80 or higher for a few days or more, but to be conservative, use the (1) column for the rest of the period. Since we've not seen a flux higher than 72 for all of this year so far, the forecast in the (2) column is probably unrealistic.

Ten-meter propagation to DX locations far to the east and west is a rare event during the *peak of summer*. With the low solar activity at this stage, at the very bottom of the cycle, I don't expect to see much on 10, except via sporadic-*E* short-skip propagation. Solar activity just won't create a high-enough

MUF (maximum usable frequency) on most *F*-layer DX paths. North and south paths on 10 meters may yet present an opportunity for limited and short-lived DX, especially around sunrise and sunset.

Seventeen and 15 meters will be just a bit more reliable than 10, holding some promise. However, these will still be a challenge with the decreased solar activity.

Twenty meters is poor to fair during the hours of darkness, and is good to fair during daylight hours. The best openings on 20 will be the hours around sunrise and sunset.

Recurring coronal holes will cause occasional periods of geomagnetic storminess during June, degrading higher latitude signal paths more than middle and low latitude paths. Coronal holes and the associated high-speed solar winds containing clouds of plasma released by the coronal holes are the bane of propagation during a solar minimum. These geomagnetic storms will play rough on HF propagation. In addition, noise from electrical storms increases considerably during June and the summer months. These higher static levels will make DXing on 40, 80, and 160 more of a challenge.

The 30- and 40-meter bands should offer good DX conditions during the early morning, late evening, and night despite higher static. Look for Europe and Africa as early as sunset. After midnight, start looking south and west for the Pacific, South America, and Asia. Short-skip should be possible out to about 750 miles during the daytime.

Expect some openings on 80, similar to how 40 meters will be acting. Fairly frequent short-skip openings up to 1000 miles are possible during darkness, but expect very few daytime openings with all the static and absorption.

Sporadic-*E* propa*gation* starts to peak during June. Expect an increase in the number of short-skip openings on HF, and often on 6 and 2 meters, with paths open between 50 and 2300 miles.

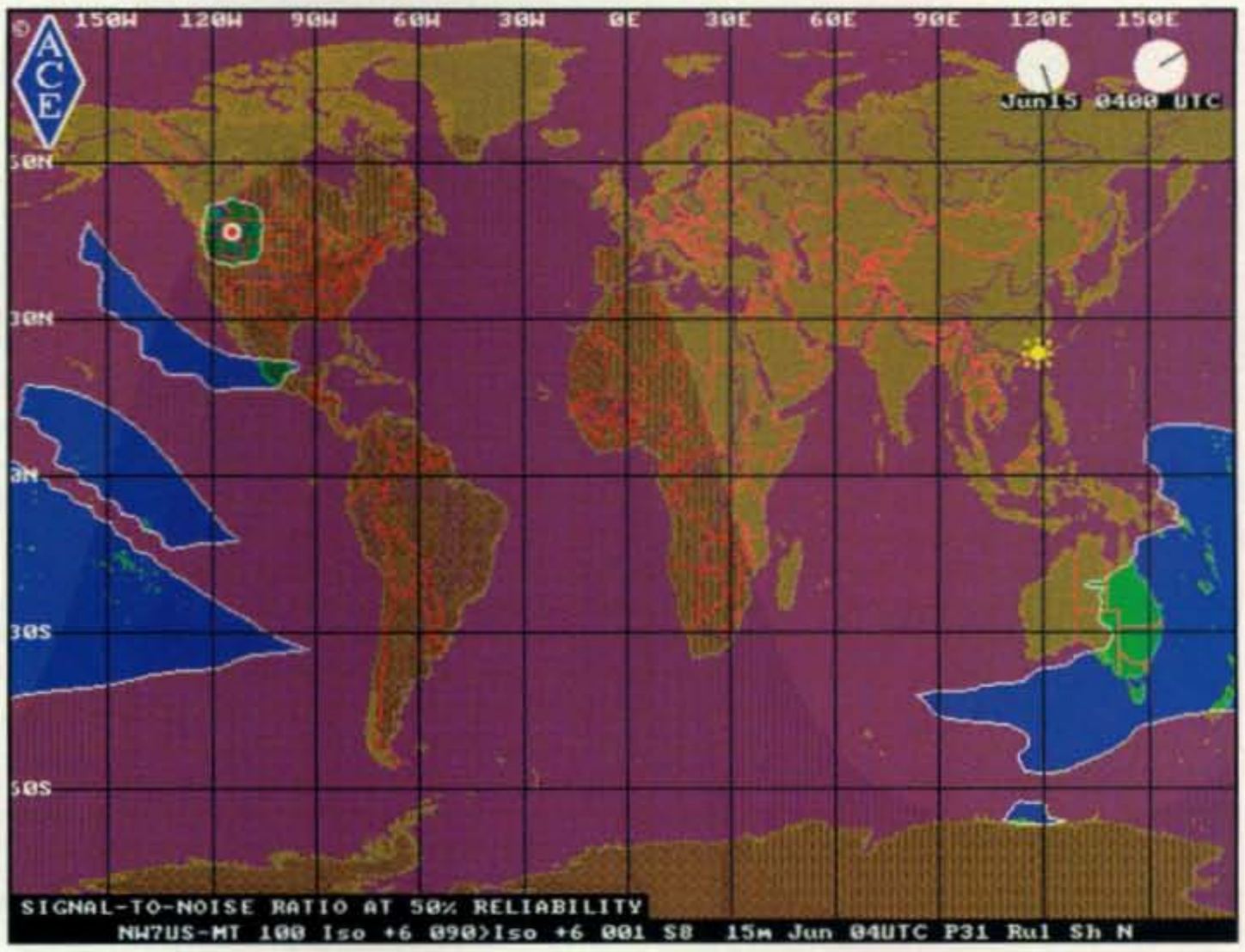


Fig. 2– The area coverage map created with ACE-HF Pro showing the reach of a 100-watt PSK-31 signal (50% reliability) during Field Day 2009, from Missoula, Montana, at 0400 UTC on 15 meters. There is some hope for a Missoula station running 15 meters during Field Day 2009, but this is the best coverage during the whole 24-hour operating period. The rest of the day shows very little worldwide coverage this year. (Source: NW7US, using ACE-HF Pro Version 2.05)

VHF Conditions

The summertime sporadic-*E* season for the Northern Hemisphere begins in force in May. By June, things could well be hot on 6 meters and there might even be openings on 2 meters. During the late spring and summer months, a sharp increase at mid-latitude of *Es* propagation occurs. Through June, you can expect to see 20 to 24 days with some *Es* activity. Usually these openings are single-hop events with paths up to 1000 miles, but June's *Es* openings are often double-hop. Europe can generally be worked from the East Coast throughout June.

During the daylight hours, monitor 6 meters for transcontinental openings, as well as between Hawaii and the western states, and the Caribbean and Central and South America. The best time to look for these is during the afternoon hours, especially when conditions are High Normal or better.

There is usually a seasonal decline in TE (transequatorial) propagation during the summer months, but some 6-meter openings may still be possible during June. The best time to catch an opening across the geomagnetic equator is between 8 and 11 PM local daylight time.

Current Solar Cycle Progress

Last month, I wrote that "The 12-month smoothed 10.7-cm flux centered on August 2008 is 6.2." That was an incorrect statement, as that was actually the *Ap* recorded for August 2008. The 12-month smoothed 10.7-cm flux centered on August 2008 is actually 68.6.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for March 2009 is 0.7. The lowest daily sunspot value of zero (0) was recorded on March 1–5, March 8–25, and March 27–31. The highest daily sunspot count was 8 on March 6 and March 7. The 12-month running smoothed sunspot number centered on September 2008 is 2.2. The forecast for June 2009 calls for a smoothed sunspot count of 10 to 13.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 69.2 for March 2009. The 12-month smoothed 10.7-cm flux centered on September 2008 is 68.4. The newly released predicted smoothed 10.7-cm solar flux for June 2009 is 70 (with a 6- point margin, higher or lower).

The observed monthly mean planetary *A*-Index (*Ap*) for March 2009 is 4. The 12-month smoothed *Ap* index centered on September 2008 is 5.8. Expect the overall geomagnetic activity to be varying greatly between quiet to minor storm levels during June.

I welcome your thoughts, questions, and experiences regarding this fascinating science of propagation. You may e-mail me, write me a letter, or catch me on the HF amateur bands. Please come and participate in my online propagation discussion forum at <http://hfradio.org/forums/>. See you on the air!

73, Tomas, NW7US

ham shop

Advertising Rates: Non-commercial ads are 20 cents per word including abbreviations and addresses. Commercial and organization ads are $1.00 per word. Boldface words are $1.50 each (specify which words). Minimum charge $2.00. No ad will be printed unless accompanied by full remittance. All ads must be typewritten double-spaced.
Closing Date: The 10th day in the third month preceding date of publication (example: Jan. 10th for the March issue). Because the advertisers and equipment contained in Ham Shop have not been investigated, the Publisher of *CQ* cannot vouch for the merchandise listed therein. The publisher reserves the right to reject any advertisement. Direct all correspondence and ad copy to: CQ Ham Shop, 25 Newbridge Road, Hicksville, NY 11801 (fax: 516-681-2926; e-mail: <hamshop @cq-amateur-radio.com>.

CB-TO-10M CONVERSIONS: Frequency modifications, FM, books, plans, kits, high-performance CB accessories. Catalog $3. CBCI, Box 30655CQ, Tucson, AZ 85751. <www.cbcintl.com>

At **www.HamRadioExpress.com** we know you can't afford to waste time looking for Ham Radio Antennas & Accessories. With **over 3,000 products in our four warehouses**, you can rely on **Ham Radio Express** to have the parts you need, in stock, especially those special, hard-to-find parts, fixed station antennas, baluns, mobile antennas, mobile antenna mounts, accessories, and RF connectors. **Custom Built Cable Assemblies** for your Packet TNC/KPC to radio interface devices. We stock interface cables for all amateur radio makes and models: AEA, Kantronics, MFJ, PacComm, and more Packet Controllers. All cables are in stock or can be built in one day. All cable assemblies are double-checked before they are shipped. Toll-Free Order Lines: M–F 9 AM to 4 PM: **1-800-726-2919** or **1-866-300-1969**; Fax **1-434-525-4919**. **Help and Tech Support:** *Not sure what model you need?* At **www.HamRadioExpress.com** our Technical Support staff (1-434-509-0617, 9 AM to 4 PM weekdays) can help you decide what you need, and all available for same-day shipment. On-line visit: **www.HamRadioExpress.com**

QSLing SUPPLIES. e-mail: <plumdx@msn.com>.

QSLs FOR DX STATIONS: Our new "International Division" was established to handle QSL needs of DX hams. We understand the problems of packaging, shipping, and dealing with the customs problems. You can trust us to deliver a quality QSL, usually much cheaper than you can find locally. Write, call, or FAX for free samples and ordering information. "The QSL Man—W4MPY," 682 Mount Pleasant Road, Monetta, SC 29105 USA. Phone or FAX 803-685-7117.

"QRZ DX"—since 1979: Available as an **Adobe PDF file** each Wednesday or by regular mail. Your best source for weekly DX information. Send #10 SASE for sample/rates. **"The DX Magazine"—since 1989:** Bimonthly – Full of DXpedition reports, QSL Information, Awards, DX news, technical articles, and more. Send $3.00 for sample/rates. DX Publishing, Inc., P.O. Box DX, Leicester, NC 28748-0249. Phone/Fax: 828-683-0709; e-mail: <DX@dxpub.com>; WEB PAGE: <http://www.dxpub.com>.

CERTIFICATE for proven contacts with all ten American districts. SASE to W6DDB, 45527 Third Street East, Lancaster, CA 93535-1802.

TRYLON SELF-SUPPORTING TOWERS: Delivered **ANYWHERE** in the US for **ONLY** $261.00. This is the **BEST** tower value around – 96 feet for only $2451.00 **DELIVERED TO YOUR QTH!** Go to <www.championradio.com> or call 888-833-3104 for more information.

MAUI, HAWAII: vacation with a ham. Since 1990. <www.seaqmaui.com>, telephone 808-572-7914, or <kh6sq@seaqmaui.com>.

CASH FOR COLLINS, HALLICRAFTERS SX-88, & DRAKE TR-6. Buy any Collins equipment. Leo, KJ6HI, phone/fax 310-670-6969, e-mail: <radioleo@earthlink.net>.

ALUMINUM CHASSIS AND CABINET KITS, UHF-VHF Antenna Parts, Catalog. E-mail: <k3iwk@flash.net> or <http://www.flash.net/~k3iwk>.

REAL HAMS DO CODE: Move up to CW with **CW Mental Block Buster III.** Succeed with hypnosis and NLP. Includes two (2) CDs and Manual. Only $29.95 plus $5.00 s/h US. FL add $2.14 tax. Success Easy, 160 West Camino Real #128, Boca Raton, FL 33432, 800-425-2552, <www.success-is-easy.com>.

NEAT STUFF! DWM Communications— <http://qth.com/dwm>

WANTED: HAM EQUIPMENT AND RELATED ITEMS. Donate your excess gear—new, old, in any condition—to the Radio Club of Junior High School 22, the Nation's only full time non-profit organization working to get Ham Radio into schools around the country as a teaching tool using our EDUCOM—Education Thru Communication—program. Send your radio to school. Your donated material will be picked up ANYWHERE or shipping arranged, and this means a tax deduction to the full extent of the law for you as we are an IRS 501(c)(3) charity in our 29th year of service. It is always easier to donate and usually more financially rewarding, BUT MOST IMPORTANT your gift will mean a whole new world of educational opportunity for children nationwide. Radios you can write off; kids you can't. Make 2009 the year to help a child and yourself. Write, phone, or FAX the WB2JKJ "22 Crew" today: The RC of JHS 22, P.O. Box 1052, New York, NY 10002. Twenty-four hours call 516-674-4072; fax 516-674-9600; or e-mail <crew@wb2jkj. org>. Join us on the WB2JKJ Classroom Net, 7.238 MHz, 1200–1330 UTC daily and 21.395 MHz from 1400 to 2000 UTC.

IMRA-International Mission Radio Assn. helps missioners—equipment loaned; weekday net, 14.280 MHz, 1:00–3:00 PM Eastern. Sr. Noreen Perelli, KE2LT, 2755 Woodhull Ave., Bronx, NY 10469.

PHASED ARRAY NETWORKS by COMTEK SYSTEMS deliver gain and front to back. Call 704-542-4808; fax 704-542-9652. COMTEK SYSTEMS, P.O. Box 470565, Charlotte, NC 28247.

HF VERTICAL COMPARISON REPORT: K7LXC and NØAX test Cushcraft, Butternut, MFJ, Force 12, Hustler, Gap, and Diamond verticals. 64-page report includes protocol, data sets, and summaries. $17 plus $4 s/h. <www.championradio.com>, 888-833-3104.

3200+ DIFFERENT AWARDS from 128 DXCC countries. Complete data online at <http://www.dxawards.com>. One year full access just $6. Ted Melinosky, K1BV, 12 Wells Wood Road, Columbia, CT 06237-1525.

WWW.QSL.NET/KM5KG

IT'S NEW AND HOT! "Keys III" features highly detailed views and photos of keys, bugs, and paddles like few people have ever seen! It's awesome and it's available on CD ($16 + $2.50 post) or as a full-size book ($18 + $4.05 Priority Mail). Also still available, "Keys II" ($16 + $2.50 post) and "QRP NOW!" ($16 + $2.50 post). Order direct from Dave Ingram, K4TWJ, 3994 Long Leaf Drive, Gardendale, AL 35071.

advertisers' index

including website addresses

PACKET RADIO AND MORE! Join TAPR, connect with the largest amateur radio digital group in the U.S. Creators of the TNC-2 standard, working on Software Defined Radio technology. Benefits: newsletter, software, discounts on kits and publications. For membership prices see the TAPR website: <http://www.tapr.org>).

TRIBANDER COMPARISON REPORT: Find out the real story on tribander performance. K7LXC and NØAX test more than a dozen antennas, including Force 12, Hy-Gain, Mosley, Bencher, and Cushcraft. 84-page report includes protocol, data sets, and summaries. $17 plus $4 s/h. <www.championradio.com> or 888-833-3104.

FOR SALE: CQ/Ham Radio/QST/73 magazines and binders. SASE brings data sheet. W6DDB, 45527 Third Street East, Lancaster, CA 93535-1802.

TOWER HARDWARE, SAFETY EQUIPMENT, weatherproofing, T-shirts, and **MORE**. Champion Radio Products, telephone 888-833-3104, or <www.championradio.com>.

WANTED: VACUUM TUBES – Commercial, industrial, amateur. Radio Daze, LLC, 7620 Omnitech Place, Victor, NY 14506 USA (phone 585-742-2020; fax 800-456-6494; e-mail: <info@radiodaze.com>).

NEAT STUFF! DWM Communications—<http://qth.com/dwm>

SMART BATTERY CHARGERS: 5A model for larger deep cycle down to 1/4A model for smaller QRP lead acid batteries. <www.a-aengineering.com>

HAWAII HAM STATION RENTAL: Beautiful Big Island location. Brochure: <KD4ML@juno.com>.

RFI Filters <www.RFchoke.com>

PROMOTIONAL VIDEO: 22-minute DVD showcases ham radio. Details: <www.neoham.org>.

SuperBertha.com ULTIMATE LONG BOOM OWA YAGIS: Designed by WA3FET and K3LR. Scott, W3TX, 814-881-9258.

CALL-MASTER CALLSIGN DATABASE $25.00 SHIPPED. Complete US/VE/DX listings. Use with our Prolog2K Logger or stand-alone. Secure order on our website at <www.prolog2k.com> or call toll free 1-800-373-6564. DataMatrix

MicroLog by WAØH
Free download . . . www.wa0h.com

OVERSEAS AIRMAIL POSTAGE plus complete line of airmail envelopes. Order directly from our web site – James E. Mackey, proprietor.
www.net1plus.com/users/ryoung/index.htm

DXPEDITION DVD VIDEOS: For full description and how to order . . . <www.k4uee.com/dvd/>.

LOOKING GREAT on the wall behind your equipment. <www.hamradioprints.com>

www.SecondHandRadio.com Advertise your used radios and surplus electronics **FREE.** Upload up to 16 photos per ad **FREE.** No commissions, no fees. Dealers are welcome.

SuperBertha.com CUSTOM ROTATING POLES: No guy wires, entire pole rotates, stack all your antennas, rotor at ground level, 50 ft to 300 ft high, EIA-TIA-222-G. Starting at $37,799.00. Scott, W3TX, 814-881-9258.

HAWAII DX Vacation Rental: 808-929-7101, <www.leilanibedandbreakfast.com>.

TOWER ACCESSORIES Gin Pole Kits – stand off brackets – antenna mounts – vehicle radio mounts – for 30 years. IIX Equipment Ltd., 708-337-8172, <http://www.w9iix.com/>.

<http://www.vintagehamshack.com>

UPGRADE TO RF NETWORK DESIGNER PRO PLUS for as little as $39. Many new features, including automatic project tracking documentation. **GrantBingeman@CS.COM**

HY POWER ANTENNA COMPANY <http://www.freewebs.com/hypower> Multiband dipoles, delta loops, half squares and QRP antennas.

HAM TRAVELERS Discount travel, tours, cruises, more. **www.GreatExpectationTravel.com**

WWW.PEIDXLODGE.COM

ARRL HANDBOOKS: 1943, 1947, 1948 Editions. Good to fair condition. Make offer. WØKHW

RIDER's MANUALS, 1–22, excellent, better viewing than DVD. Offer plus shipping. Tim Martin, WB2VVQ, 171 West Park, Lee, MA 01238; 413-243-1379 evenings.

advertiser's index

now including websites

MFJ Enterprises, Inc.	43,55	www.mfjenterprises.com
Morse Express	87	www.MorseX.com
National RF, Inc.	113	www.NationalRF.com
Nemal Electronics International, Inc.	60	www.nemal.com
Nifty! Ham Accessories	108	www.niftyaccessories.com
Penny's Stitch n' Print	107	www.pennystitch.com
PowerPort	48	www.powerportstore.com
QCWA	108	www.qcwa.org
QSLs by W4MPY	107	www.qslman.com
R.F. Connection	108	www.therfc.com
RF Parts Company	61	www.rfparts.com
RSGB	114	www.cq-amateur-radio.com
Radio Club of J.H.S. 22	67	www.wb2jkj.org
Radio Works	33	www.radioworks.com
Rig Expert Canada	112	www.rigexpert.net
Ross Distributing Company	48	rossdist.com
SteppIR Antennas Inc.	31	www.steppir.com
TAK-tenna LLC	93	www.TAK-tenna .com
Tarheel Antennas	65	www.tarheelantennas.com
TEN-TEC, Inc.	15	www.tentec.com
Ten-Ten International Net, Inc.	112	www.ten-ten.org
TENNADYNE, L.L.C.	107	www.tennadyne.com
The Xtal Set Society	113	www.midnightscience.com
Timewave Technology Inc.	5	www.timewave.com
TOKYO HY-POWER LABS, INC.–USA	3	www.thp.co.jp
Traffie Technology	113	www.hexbeam.com
TransWorld Antennas	53	www.transworldantennas.com
Universal Radio, Inc.	71	www.universal-radio.com
VIS Amateur Supply	60	www.visradio.com
Vibroplex	95	www.vibroplex.com
W2IHY Technologies	107	www.w2ihy.com
W4RT Electronics	25	www.w4rt.com
W5YI Group	77,101	www.w5yi.org
WBØW, Inc.	85	www.wbØw.com
West Mountain Radio	23	www.westmountainradio.com
Wireman, The	112	www.thewireman.com
Yaesu	6,7,Cov III	www.vxstdusa.com

It's easy to advertise in CQ. Let me know what I can do to help.
Don Allen, W9CW
(217) 344-4570 or FAX (217) 344-4575
e-mail:ads@cq-amateur-radio.com
Please direct editorial and subscription questions to (516) 681-2922

12 STORE BUYING POWER

HAM RADIO OUTLET

WORLDWIDE DISTRIBUTION

ANAHEIM, CA
(Near Disneyland)
933 N. Euclid St., 92801
(714) 533-7373
(800) 854-6046
Janet, KL7MF, Mgr.
anaheim@hamradio.com

BURBANK, CA
1525 W. Magnolia Blvd, 91506
(818) 842-1786
(800) 854-6046
Eric, K6EJC, Mgr.
Magnolia between
S. Victory & Buena Vista
burbank@hamradio.com

OAKLAND, CA
2210 Livingston St., 94606
(510) 534-5757
(800) 854-6046
Mark, WI7YN, Mgr.
I-880 at 23rd Ave. ramp
oakland@hamradio.com

SAN DIEGO, CA
5375 Kearny Villa Rd., 92123
(858) 560-4900
(800) 854-6046
Tom, KM6K, Mgr.
Hwy. 163 & Claremont Mesa
sandiego@hamradio.com

SUNNYVALE, CA
510 Lawrence Exp. #102, 94085
(408) 736-9496
(800) 854-6046
Jon, K6WV, Mgr.
So. from Hwy. 101
sunnyvale@hamradio.com

NEW CASTLE, DE
(Near Philadelphia)
1509 N. Dupont Hwy., 19720
(302) 322-7092
(800) 644-4476
Jim, KJ3N, Mgr.
RT.13 1/4 mi., So. I-295
newcastle@hamradio.com

PORTLAND, OR
11705 S.W. Pacific Hwy.
97223
(503) 598-0555
(800) 854-6046
Leon, W7AD, Mgr.
Tigard-99W exit
from Hwy. 5 & 217
portland@hamradio.com

DENVER, CO
8400 E. Iliff Ave. #9, 80231
(303) 745-7373
(800) 444-9476
John, WØIG, Mgr.
denver@hamradio.com

PHOENIX, AZ
1939 W. Dunlap Ave., 85021
(602) 242-3515
(800) 444-9476
Gary, N7GJ, Mgr.
1 mi. east of I-17
phoenix@hamradio.com

ATLANTA, GA
6071 Buford Hwy., 30340
(770) 263-0700
(800) 444-7927
Mark, KJ4VO, Mgr.
Doraville, 1 mi. no. of I-285
atlanta@hamradio.com

WOODBRIDGE, VA
(Near Washington D.C.)
14803 Build America Dr. 22191
(703) 643-1063
(800) 444-4799
Steve, W4SHG, Mgr.
Exit 161, I-95, So. to US 1
woodbridge@hamradio.com

SALEM, NH
(Near Boston)
224 N. Broadway, 03079
(603) 898-3750
(800) 444-0047
Chuck, N1UC, Mgr.
sales@hamradio.com
Exit 1, I-93;
28 mi. No. of Boston
salem@hamradio.com

Hot Summer Specials From Yaesu

Good Thru 5-31-09

YAESU

FT-897D VHF/UHF/HF Transceiver

- HF/6M/2M/70CM • DSP Built-in
- HF 100W (20W battery)
- Optional P.S. + Tuner • TCXO Built-in

Call Now For Our Low Pricing!

FT-950 HF + 6M TCVR

- 100W HF/6M
- Auto Tuner built-in
- 3 roofing filters built-in
- DMU-2000 Compatible

NEW!

Call Now For Low Pricing!

FT-8800R 2M/440 Mobile

- V+U/V+V/U+U operation
- V+U full duplex • Cross Band repeater function
- 50W 2M 35W UHF
- 1000+ Memory channels
- WIRES ready

Call Now For Low Pricing!

Competitive pricing!

VX-3R 2M/440 HT

- Ultra-Compact Dual-Band HT w/ Wide band RX
- 1.5W RF out 2m/ 1w RF out 440
- WiRES Compatible
- 1000 Memory channels
- AA Battery compatible w/Optional FBA-37

NEW!

Call For Low Intro Price!

FT-60R

- 2m/440 HT
- 5W Wide-band receive
- CTCSS/DCS Built-in
- Emergency Auto ID

Low Price!

VX-7R/VX-7R Black

50/2M/220/440 HT

- Wideband RX - 900 Memories
- 5W TX (300mw 220Mhz)
- Li-Ion Battery
- Fully Submersible to 3 ft.
- Built-in CTCSS/DCS
- Internet WIRES compatible

Now available in Black!

VX-6R

2M/220/440HT

- wideband RX – 900 memories
- 5W 2/440 , 1.5W 220 MHz TX
- Li-ION Battery - EAI system
- Fully submersible to 3 ft.
- CW trainer built-in

NEW Low Price!

VX-8R

50/144/222/440 Handheld

- 5w (1W 222)
- Bluetooth optional
- waterproof/submersible 3 ft 30 mins
- GPS/APRS operation optional
- Li-ion Hi-capacity battery
- wide band Rx

NEW!

FT-857D

Ultra compact HF, VHF, UHF

- 100w HF/6M, 50w 2M, 20w UHF
- DSP included • 32 color display
- 200 mems • Detachable front panel (YSK-857 required)

Call for Low Price!

FT-7800R 2M/440 Mobile

- 50w 2m, 40w on 440mHz
- Weather Alert
- 1000+ Mems
- WIRES Capability
- Wideband Receiver (Cell Blocked)

FREE YSK-7800

Call Now For Your Low Price!

FT-2000/FT2000D HF + 6M tcvr

- 100 W w/ auto tuner • built-in Power supply
- DSP filters / Voice memory recorder
- 200W (FT-2000D)
- 3 Band Parametric Mic EQ • 3 IF roofing filters

Call For Low Pricing!

FT-450AT HF + 6M TCVR

- 100W HF/6M • Auto Tuner built-in • DSP Built-in
- 500 Memories • DNR, IF Notch, IF Shift

Call Now For Special Pricing

AZ, CA, CO, GA, VA residents add sales tax. Prices, specifications, descriptions, subject to change without notice.

Look for the HRO Home Page on the World Wide Web
http://www.hamradio.com

#1 in Customer Service

COAST TO COAST FREE SHIPPING
UPS - Most Items Over $100
Rapid Deliveries From The Store Nearest To You!

Heavy-Duty FM Dual Band Mobile with Exceptionally Wide Receiver Coverage*

*108 to 520 MHz/ 700 to 999.99 MHz (Cellular blocked)

- Large Backlit LCD Display for easy operation
- Stable RF Power (50 Watts VHF / 45 Watts UHF)
- Reliable performance in harsh environments
- 5 ppm Frequency Stability (-4° F to +140° F)
- 1000 Memory Channels for serious users
- Yaesu Unique Power Saving Circuit Design Minimizes Vehicle Battery Drain

Actual Size

NEW 2 m/70 cm DUAL BAND FM TRANSCEIVER

FT-7900R

2 m/70 cm DUAL BAND

Size: 5.5" (W) x 1.6" (H) x 6.6" (D) / Weight: 2.2 lb

- Separation Kit for Remote Mounting (optional separation kit YSK-7800 requires)

Technical specs subject to change without notice. The FT-7900R has not been approved by the FCC. This device may not be sold or leased, or offered for sale or lease, until FCC approval has been obtained.

50 W 10 m/6 m/2 m/70 cm* Quad Band FM Mobile

FT-8900R

*70 cm 35 W

QUAD BAND DUAL RECEIVE

50 W 2 m/70 cm* Dual Band FM Mobile

FT-8800R

*70 cm 35 W

DUAL BAND DUAL RECEIVE

YAESU
Choice of the World's top DX'ers**

Vertex Standard
US Headquarters
10900 Walker Street
Cypress, CA 90630 (714)827-7600

For the latest Yaesu news, visit us on the Internet:
http://www.yaesu.com

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

D-STAR for Everyone!

Been looking for an easy way to climb aboard the D-STAR express? Let the new IC-80AD and ID-880H be your tickets to ride! With an improved user interface, smart new look, and free programming software included you can't go wrong!

Get on track and join in on the D-STAR fun today!

NEW IC-80AD 3G | D-STAR

THIRD GENERATION 2M/70CM DUAL BANDER

- 5/2.5/.5/.1 Watt 2m/70cm
- AM, FM, WFM
- RX: 0.495-999.990MHz**
- Improved User Interface
- Li-Ion Power
- **Free Programming Software!***

**www.icomamerica.com/amateur/DSTAR*
for details about free software

NEW IC-880H 3G | D-STAR

VERSATILE 2M/70CM DUAL BAND MOBILE

- 50 Watt/VHF/UHF
- AM, FM, DV
- RX: 118-999.99MHz**
- 800 Alphanumeric Memory Channels
- **Free Programming Software!***

**www.icomamerica.com/amateur/DSTAR*
for details about free software

No matter where you go.

**Frequency coverage may vary. Refer to owner's manual for exact frequency specs.

ICOM