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### DECEMBER 2008

# CQ

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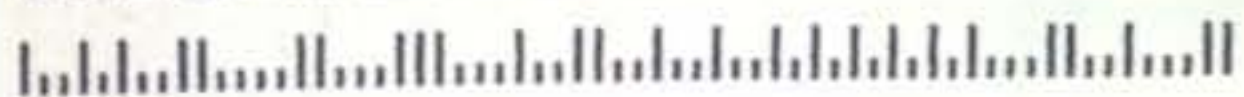
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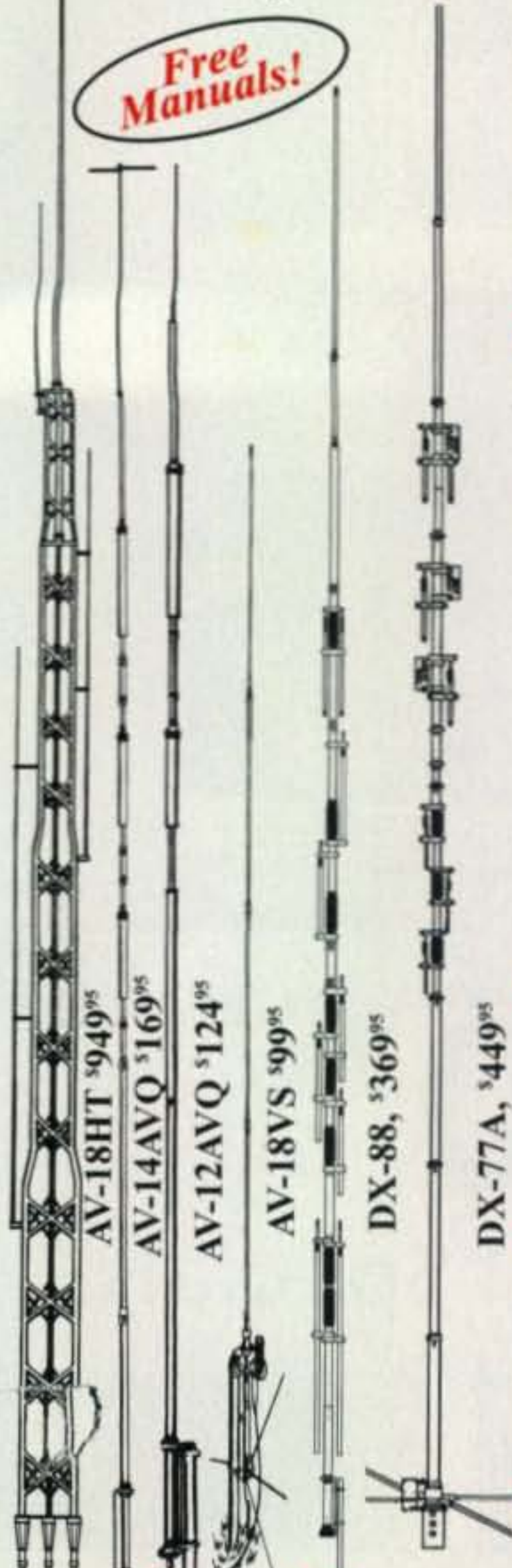
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compression clamps is used for radiators. Includes all stainless steel hardware. Recessed SO-239 prevents moisture damage. Hy-gain verticals go up easily with just hand tools and their cost is surprisingly low. Two year limited warranty.

**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 iridized for corrosion resistance. Special tilt-over hinged base for easy raising & lowering.

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**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.

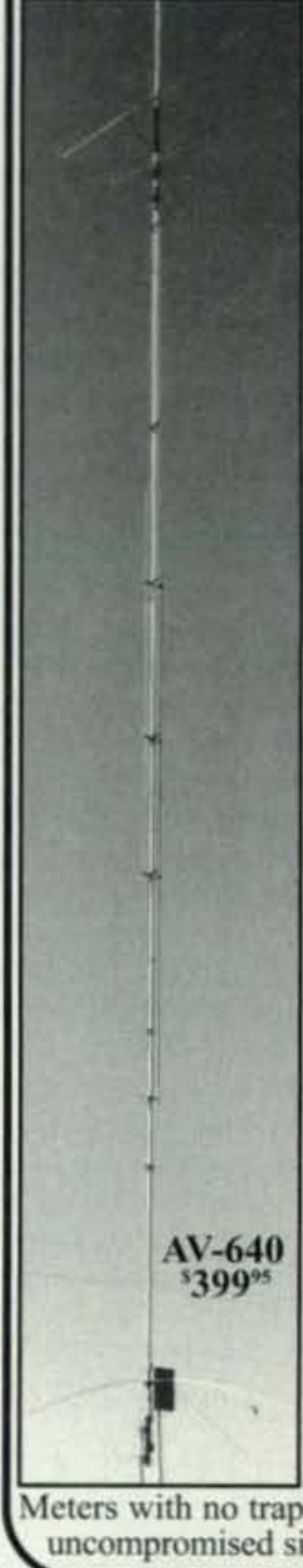
**DX-77A, \$449.95. (10, 12, 15, 17, 20, 30, 40 Meters). 29 ft., 25 lbs.**

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 <small>no guy</small>	1.5-1.625"
DX-77A	\$449.95	10 - 40 M	1500 W PEP	29 feet	25 pounds	60 mph <small>no guy</small>	1.5-1.625"

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**No ground or radials needed**  
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**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**  
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**Built-to-last**  
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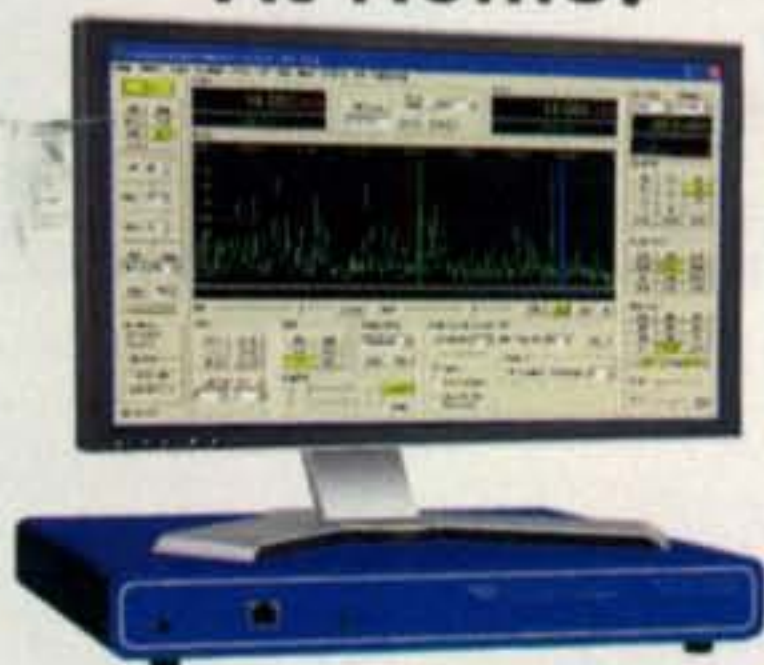


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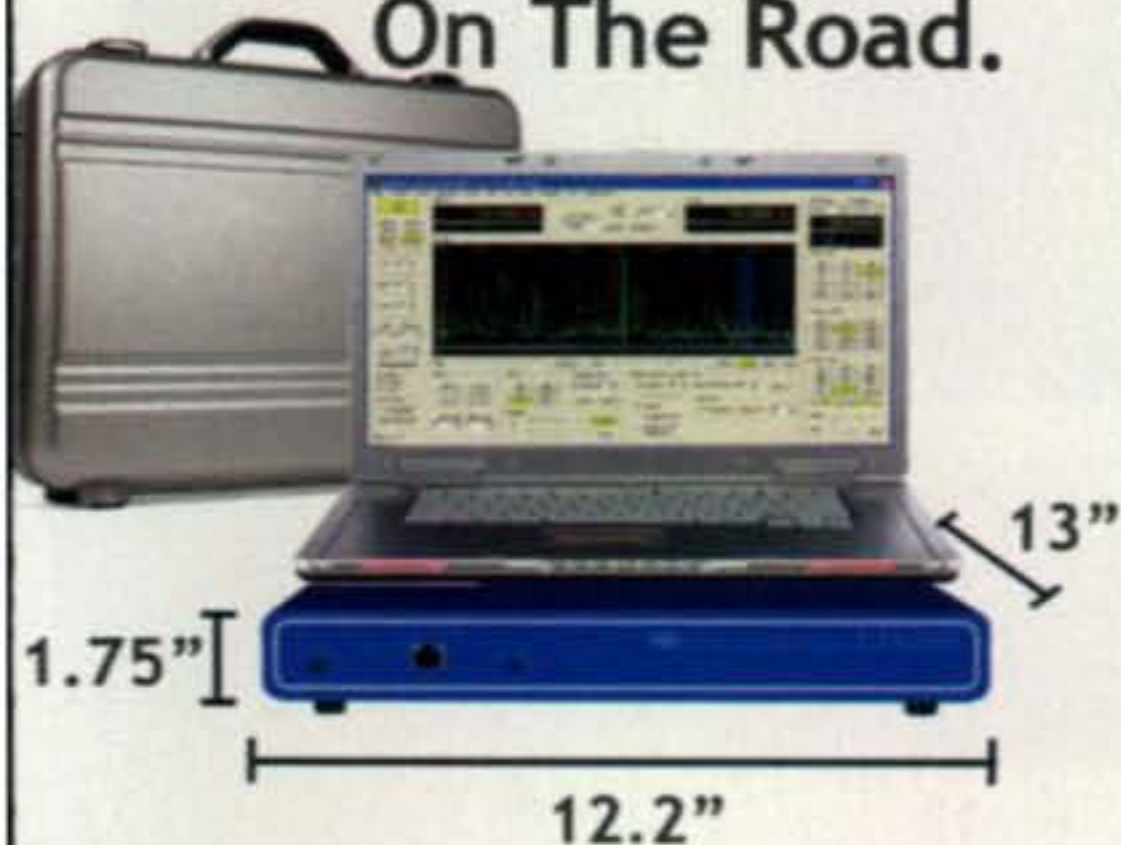
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Submersible  
3 feet for 30 min  
Body/Front panel

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DUAL RECEIVE**

10 W 2 m/70 cm\*  
Dual Band FM Mobile  
**FTM-10SR** \*70 cm 7 W

Great New Features to Support  
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Mobile Transceiver... Great Appearance ...  
Easy to Operate



**IP57**  
Submersible  
3 feet for 30 min  
Front panel

**DUAL BAND  
DUAL RECEIVE**

50 W 2 m/70 cm\*  
Dual Band FM Mobile  
**FTM-10R** \*70 cm 40 W

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1.5 W Ultra Compact  
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**VX-3R**



50 W 2 m Ultra Rugged VHF FM Mobile  
**FT-1802M** 2 m Band

**QUAD BAND  
DUAL RECEIVE**



50 W 10 m/6 m/2 m/70 cm\*  
Quad Band FM Mobile  
**FT-8900R** \*70 cm 35 W

**DUAL BAND**



50 W 2 m/70 cm\*  
Dual Band FM Mobile  
**FT-8800R** \*70 cm 35 W



50 W 2 m/70 cm\*  
Dual Band FM Mobile  
**FT-7800R** \*70 cm 35 W



**IPX7**  
Submersible  
3 feet (1m) for 30 min.

5 W Ultra-Rugged, Submersible  
6 m/2 m/70 cm Tri-Band  
FM Hand held  
**VX-7R/VX-7RB**



**IPX7**  
Submersible  
3 feet (1m) for 30 min.

5 W Heavy Duty Submersible  
2 m/70 cm Dual Band FM Hand held  
**VX-6R**



2 m / 70 cm  
Dual Band

5 W Heavy Duty  
2 m/70 cm Dual Band FM Hand held  
**FT-60R**



**IPX7**  
Submersible  
3 feet (1m) for 30 min.

2 m  
Mono Band  
70 cm  
Mono Band

5 W Heavy Duty Submersible  
2 m FM Mono Band Hand Helds  
**VX-120** (8 key Version)  
70 cm FM Mono Band Hand Helds  
**VX-170** (16 key Version)  
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(8 key)  
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# Ride Cycle24 to the Top with Yaesu

## The radio... FT DX 9000



Photograph depicts after-market keyboard, lever paddle, and monitor, not supplied with transceiver. Display image simulated and may differ in actual use.



### HF/50 MHz Transceiver FT DX 9000D 200 W Version

Large TFT, Data Management Unit and Flash Memory Slot Built In, Main/Sub Receiver VRF, plus Full Dual Receive Capability, Three  $\mu$ -Tuning Modules for 160 - 20 M, 50 V/12 A Internal Switching Regulator Power Supply



### HF/50 MHz Transceiver FT DX 9000 Contest Custom-Configurable Version

Two Pairs of Meters, plus LCD Window, VRF Input Preselector Filter, Three Key Jacks, and Dual Headphone Jacks, 50 V/12 A Internal Switching Regulator Power Supply

Display color (Umber or Light Blue) may be selected at the time of purchase. Modification from 200- to 400-Watt version not available.

### HF/50 MHz Transceiver FT DX 9000MP

Two Pairs of Meters, plus LCD Window; Data Management Unit and Flash Memory Slot Built In, Main/Sub Receiver VRF, plus Full Dual Receive Capability, External 50 V/24 A Switching Regulator Power Supply and Speaker with Audio Filters

Display color (Umber or Light Blue) may be selected at the time of purchase. Modification from 400 to 200 W not possible.

Loaded with Leading-edge Performance Capabilities...  
The First Triumph in the 2nd Generation of the FT DX 9000 Lineage:  
The Powerful FT-2000!



Shown with after-market keyboard, and monitor (not supplied).  
Optional Data Management Unit (DMU-2000)



### HF/50 MHz Transceiver FT-2000D 200 W Version (External Power Supply)



### HF/50 MHz Transceiver FT-2000 100 W Version (Internal Power Supply)

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## KP5 DXpedition Okayed for Early 2009

After eight years of sometimes contentious negotiations, the U.S. Fish and Wildlife Service has approved a ham radio DXpedition to Desecheo Island (KP5) sometime in early 2009. According to the *ARRL Letter*, the FWS chose among seven competing proposals for the operation and okayed the plan put forth by veteran DXpeditioners Bob Allphin, K4UEE, and Glenn Johnson, W0GJ. The operation is subject to several conditions relating to the island's current status as a national wildlife refuge and its former status as a U.S. Air Force bombing range. No dates had been set as of press time, but Allphin said the operation was expected to take place somewhere between January 15 and March 30, and that the team would be given at least 30 days advance notice. Keep tuned to the *CQ* e-news list and other DX news sources for updated information.

## Richard Garriott, W5KWQ, Active from Space Station

Space tourist Richard Garriott, W5KWQ, was very active on the ham bands during his visit to the International Space Station (ISS), putting a particular focus on making contacts with school groups and participants in Scouting's annual Jamboree on the Air (JOTA) event in mid-October. In addition to making voice contacts, Garriott used the ISS ham station to beam slow-scan TV pictures from space to Earth. Garriott, a millionaire video-game developer, is the son of former Astronaut Owen Garriott, W5LFL, the first ham radio operator to make contacts from space, almost exactly 25 years before his son's trip. Richard is a third-generation ham (his callsign was originally assigned to his grandfather) and he and his father are the first American father and son to fly in space.

## City of Manassas Takes Over BPL System

The Broadband over Power Lines (BPL) system in Manassas, Virginia—once the poster child for the supposed potential of the troubled system for internet access—has been taken over by the city after the private company running the system failed in a bid to sell it and pulled out, according to the *ARRL Letter*. The Manassas system has been the subject of repeated complaints to the FCC about interference to ham radio and other radio services on the high-frequency (HF) bands. It was also visited by then-FCC Chairman Michael Powell just before the Commission announced its controversial BPL rules. The citywide system had the potential to provide broadband service to some 12,000 residences and 2,500 businesses. At the time of the city takeover, it had just 675 customers. Manassas had to lay out over \$100,000 to purchase the system, in addition to some \$650,000 the city has already spent on infrastructure. Officials said they are keeping the system running both to maintain service to existing customers and because of the remote metering system it included, although the city is looking into other approaches for remote metering.

## Hams Help in Three Rescues

Ham radio was a key element in three separate rescue operations in September and October, two at sea and one on land. Sail-World.com reported that a lone sailor traveling from San Diego to Hawaii lost his steering in a storm and was in danger of capsizing. The unidentified sailor activated his emergency beacon and made a distress call on his ham radio. Hams receiving the call notified the U.S. Coast Guard, which launched a search aircraft and used the Automated Mutual Assistance Vessel Rescue (AMVER) system to locate the nearest participating ship, the container ship *Vecchio Bridge*. The ship's captain changed course and some four hours later, brought his ship alongside the nearly capsized sailboat and rescued the sailor.

A boater traveling from Hawaii to California also turned to ham radio when he ran out of fuel 100 miles off the California coast. According to the *DailyBreeze.com*, the also-unidentified sailor used his ham rig to contact an amateur in Florida, who in turn notified the Coast Guard in California. A Coast Guard cutter rescued the boater and helped tow the vessel to shore.

Back on land, Montana ham Bob Williams, N7ODM, was testing his rig in advance of a scheduled contact with his brother when he received a CW call from W7AU, Glenn Russell Ruby, Jr., of Corvallis, Oregon. According to the *ARRL Letter*, Ruby told Williams he was hiking in the Cascade Mountains and had fallen and broken his leg. An experienced backwoods hiker, Ruby had already set up his tent and gotten into warm clothes before calling for help on his portable Elecraft K1 transceiver. Ruby gave Williams his GPS coordinates and told him exactly whom to call for help. Williams contacted Snohomish County (WA) Search and Rescue, which dispatched a team that located and rescued Ruby.

(Continued on p. 114)

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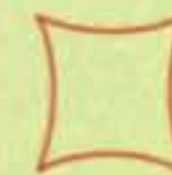
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only  
**22.5lbs.**

### HL-1.1KFX Lightweight HF Linear

This world-class compact HF amplifier has built-in switching 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.

#### 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.



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#### Specifications

##### SOLID STATE

##### Freq. Band:

1.8-28 MHz all HF amateur bands

##### Operation Mode:

SSB, CW, RTTY

##### Exciting Power (RF Drive):

100W max. (85W, typical)

##### Output Power (RF Out):

1.5kW min. SSB/CW

(1.2kW on 28MHz)

1kW RTTY (5 minutes key down)

##### Auto Band Set:

With most modern ICOM, Kenwood, Yaesu HF Transceivers

##### Antenna Tuner:

Compatible with external Tokyo Hy-Power HC-1.5KAT

##### RF Power Transistors:

ARF 1500 by Microsemi x 2

##### Antenna Relay:

QSK (Full break-in compatible)

##### Power Supply:

Built-in 220/230/240/250VAC, 3kVA max.

##### Dimension and Weight:

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Approx. 57.3lbs.

### More Fine Products from TOKYO HY-POWER



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## A New President . . . But No New Sheriff

**B**y the time you read this, we will (presumably) have elected a new President of the United States. As I write this, though, the election is still a couple of weeks away, so the outcome is unknown to me. Personal political preferences aside, our main interest from a ham radio perspective is how the attitude of the new President will trickle down to the FCC. The commissioners, of course, come from both political parties and serve for set terms. They are not subject to replacement at the beginning of a new administration, as are the heads of most other government departments. But they are subject to "peer pressure" ranging from the approaches of other regulatory agencies to the attitudes at the White House.

From that perspective, we are hopeful for some positive changes regardless of who becomes our next President. Both Senator McCain and Senator Obama have spoken frequently of the need for greater transparency and greater accountability in government decision-making. Hopefully, both are serious about it and hopefully, it will result in an FCC that is more focused on providing an even playing field for all "players" in a market than in promoting one specific approach to communications issues. I am thinking, of course, of Broadband over Power Lines, or BPL, which several FCC commissioners shamelessly promoted over and above other equally viable (often more viable) options for bringing broadband internet access to underserved areas. This rhetoric has cooled somewhat under the leadership of Chairman Kevin Martin, but the issue has not gone away and the Commission still has to come up with revised BPL rules in accordance with the appeals court ruling handed down earlier this year, agreeing with the ARRL that the FCC had acted improperly in the way it enacted the original BPL rules.

In addition, responding to the mess the economy is in right now, both candidates called for a return to tighter regulation of the financial industry, and for stricter enforcement of rules already on the books. We hope that this attitude will carry over to the FCC as well, particularly with regard to amateur radio.

Despite assurances that the Commission's dedication to enhanced enforcement in the Amateur Service remains strong even after the retirement this past July of Riley Hollingsworth, K4ZDH, as Special Counsel in charge of amateur enforcement, no successor has yet been named and not a single amateur enforcement action has been announced since "Sheriff" Riley packed up his office. This is deeply disturbing and of grave concern.

Our economy is suffering right now from the excesses of a "regulate yourselves" approach to the financial industry, but we hams learned a long time ago about the risks of that approach when it was applied to our service. For 15 years from the mid-1980s to the late 1990s, the FCC basically told hams to "regulate yourselves" and the bands got progressively worse places to be, mostly due to the actions of a very few who continually got away with bad on-air behavior. When "the new sheriff came to town" about ten years ago, we were promised that the overall attitude of the Commission on enforcement had changed, and that we would never again be left on our own to sort out problems whose solutions really required the authority of the federal government behind them. Indeed, over the past decade, with strong support from the amateur community, "Sheriff" Riley successfully cleaned up our bands. We are grateful for his work, but now worry it may all have been for naught. The ham bands are a much nicer neighborhood now than they were ten years ago, mostly

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



Spanning the world of ham radio at one table. Paolo (center) with Saul, K2XA, and Champ, E21EIC, at the Visalia banquet in 2007.

### Paolo Cortese, I2UIY, SK

We say goodbye this month—far too soon—to another member of the CQ family. Paolo Cortese, I2UIY, was co-director of the CQ RTTY DX and WPX Contests, as well as being a longtime member of the CQ World-Wide Contest Committee. He also held a variety of volunteer positions at Italy's national ham radio organization and was a good friend to all of us here at CQ and throughout the DXing and contesting communities. Paolo passed away in October at age 48 from a brain aneurysm (see K1AR's tribute to Paolo in his "Contesting" column on page 98). I first met Paolo in person at Visalia in 2007, and immediately felt like we were old friends, a feeling that was reinforced when we met again this past May in Dayton. 73, my friend. We will miss your big smile and your infectious laugh.

because the biggest bullies on the block have been silenced. But they'll stay silent only if they know they'll be accountable for their actions to more than the local Official Observer.

The FCC often points to our long tradition of self-enforcement, and we hams do indeed have an enviable record in that regard. But self-enforcement is effective only for the 98% or so of us who need only broad guidance and/or peer pressure to follow the rules. It's the other 2%, though, who can make life in the neighborhood difficult. And it is for them that we continue to need the FCC's help. It would be a tragedy, and a travesty, if the FCC were to go back on its promise to be there for us and allowed amateur enforcement to once again drop off the radar. We call on Enforcement Bureau Chief Kris Monteith to name a successor to Riley Hollingsworth, to do so promptly, and to put the FCC back in the business of enforcing Amateur Service rules. It would be a nice Christmas present for us all, or at least for 98% of us.

### 'Tis the Season

Speaking of which, we hope that the tough economy isn't putting too much of a crimp in your holiday gift budgets. Our advertisers certainly need your business to make sure their holiday seasons are happy as well. All of us here at CQ wish all of you a Merry Christmas, a Happy Hanukkah, or whatever other holiday you may observe at this time of year. May the light of your holiday observances shine brightly for the coming year.

73, W2VU

P.S. Be sure to check out our new "Kids' Korner" column, debuting this month on page 80.

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T-2X \$799<sup>95</sup>  
T-2XD \$1229<sup>95</sup>  
with DCU-1

**CD-45II**  
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  
\$449<sup>95</sup>

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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.

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.

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**  
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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.

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.

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- Auto repeater • 107 alphanumeric memories



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- Digital voice recorder
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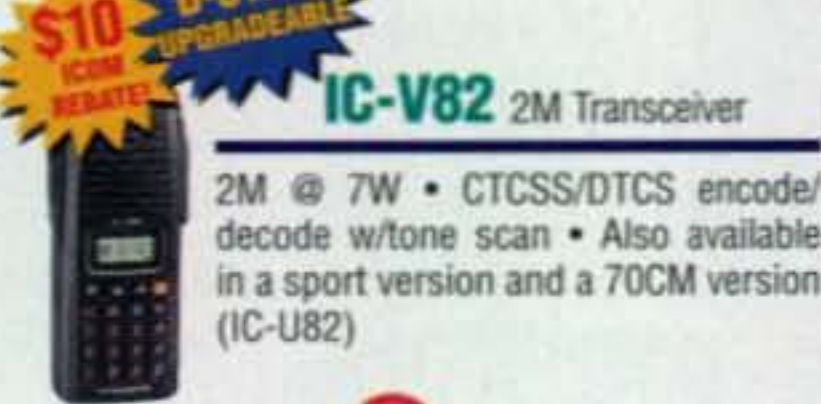
Digital Dual Band Mobile

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# Results of the 2008 CQ WW DX 160 Meter Contests

BY ANDY BLANK,\* N2NT

**T**radition is what defines the CQ WW 160 Meter Contest. This year marks the passing of the directorship from the capable hands of Dave Thompson, K4JRB, to yours truly. Dave has been directing the contest since 1992, when he took over for the late Don McClenon, N4IN, whose log-checking ideas planted the seeds for today's techniques. The CQ 160 Committee and all participants wish to thank Dave for his years of service and dedication.

Without the tireless effort of volunteers such as Dave, the contest would not be what it is today. As a participant in CQ 160 contests since 1978, it has always been one of my favorite contests. We plan on continuing to improve the contest by adopting new log-checking techniques and making some progressive rule changes for our ever-changing sport.

## The 2008 Contest Highlights

This year's contests were highlighted by some very good conditions on both modes. The SSB contest might have been renamed the "VP6DX show," as Milt, N5IA, managed to pilot the DXpedition to a score of over 1 meg, fighting the summer static on Ducie. Judging by the QRM comments from many other stations, Milt made a lot of people happy with a new country on Top band.

Another highlight was the double win on both modes USA by "newcomer" Peter, K3ZM. Peter has Top band in his blood, being the brother of famous Topbander Jeff, K1ZM. Peter's new QTH in a salt marsh in Chesapeake Bay, VA has proven to be a real winner. On CW, at his brother's not so shabby QTH in Canada, VY2ZM was piloted to #2 in the world by Bill, W4ZV. Incredibly,

\*e-mail: <director@cq160.com>

Bill's score was doubled by another fabulous effort by Jim, CN2R, with a score of 2.34 meg. Location, location, location!

## CW Results

There were no less than eight scores over 1 meg from the DX end in the CW contest!

The top score once again went to Jim, CN2R, with over 2.3 meg. The next highest score was by VY2ZM operated by W4ZV, just edging out Clive, GM3POI. These stalwart stations on the far coasts of their respective countries always prove to be the standard to beat. While not breaking records this year, the scores were huge nevertheless. CU2A, M2D, VE3EJ, and S51TA were the others with scores over 1 meg. Ted, S51TA, operated from a portable QTH on the water, proving again the value of location.

In the USA, Peter, K3ZM, used his VA beach QTH to edge out a great effort by Krassy, K1LZ, by less than 20K.

The magic of Top band shows that propagation can favor the north or the south at different times. This year it seemed not to favor a specific region for more than a short period. Proving this with an amazing effort was Dave, W5UN, who placed third, edging out N2NT and KT1V. Dave made more QSOs while still amassing a large multiplier from Texas. The East Coasters had more ten pointers "across the pond," but the extra stateside QSOs by Dave were enough to overtake them. Right behind these guys was another great effort from Texas by K5RX. N3UA, AA1K, K5GO, and WB9Z rounded out the top ten, all with scores over 500K. Great effort, guys!

On the low power end, a great score by TA2D outclassed 4L2M and VP9I by almost 100K. If you think low power is tough on Top band, try QRP! This year's winner in QRP was OK1IW, just edging out OL4W by working a few more mults in W/VE.



*So that's where the big signal from CE1/K7CA comes from!*



The fantastic antenna farm at CN2R, where Jim puts out winning scores every year.



Here is Ted, S51TA, who operated Field Day style from a water pier to the tune of over 1-million points.

## 2008 PLAQUE DONORS AND WINNERS

### SINGLE OPERATOR CW

**WORLD BY W4ZV:** Winner Jim Sullivan, CN2R (W7EJ)  
**USA BY K4TEA:** Winner Peter Briggs, K3ZM  
**CANADA BY Alabama Contest Group:** Winner Jeff Briggs, VY2ZM (Op. Bill Tippett, W4ZV)  
**ZONE 3 USA BY N5IA:** Winner Lee Finkel, KY7M (@K5RC)  
**ZONE 4 USA BY K4WA:** Winner Dave Blaschke, W5UN  
**ZONE 5 USA BY N4PN:** Winner Krassy Petkov, K1LZ  
**AFRICA BY WS9V:** Winner Frantisek Pubal, 7XØRY (Op. Valery Komarov, RD3AF)  
**ASIA BY K4SX:** Winner Valentin Benzar, C4M (5B4AGM)  
**EUROPE BY K9DX:** Winner Clive Penna, GM3POI  
**SOUTH AMERICA BY W4NU:** Winner Alan Van Buren, CE1/K7CA  
**JAPAN BY Alabama Contest Group:** Winner Masaki Okano, JH4UYB  
**NORTH AMERICA by CQ (N4IN Memorial):** Winner Herbert Schoenbohn, KV4FZ

### SSB

**WORLD BY N4NX:** Winner Milt Jensen, VP6DX (N5IA)  
**USA BY K4JRB:** Winner Peter Briggs, K3ZM  
**CANADA by Alabama Contest Group:** Winner Nikola Lekic, VE3EY  
**ZONE 3 USA BY N4TMW:** Winner Jim Stevenson, W6YI  
**ZONE 4 USA BY N4XMX:** Winner Jerry Rosalius, WB9Z  
**ZONE 5 USA BY K1PX:** Winner John Evans, N3HBX  
**AFRICA BY WB4ZNH:** Winner Pier lovino, IH9/W1NA  
**ASIA BY NT4TT:** Winner Hovik Tarzyan, EK6TA  
**EUROPE BY WS9V:** Winner Jens Rohme, OZ1DD  
**NORTH AMERICA by CQ (K2EEK Memorial):** Winner Tony Ramos, KP4KE

### MULTI-OPERATOR CW

**WORLD BY N4RJ:** Winner Madeira Group, CT9M (OM3BH, OM3GI, OM3RM Operators)  
**USA BY W8UVZ, WØCD, and K8GG:** Winner Tom Rauch, W8JI (K1ZZI, VE7ZO, W8JI, W8XR, WA2MBP, WW4LL Operators)  
**Zone 3 by 4X4NJ:** Winner Larry Pace, N7DD (W8TK, N7DD, KC7V Operators).

### SSB

**WORLD BY SOUTHEASTERN DX CLUB:** Winner CN3A Contest station, CN3A (IK2QEI, IK2SGC, CN8WW, Operators)  
**USA BY WB9Z:** Winner John Rodgers, WE3C (KQ3V, W3FV, WE3C Operators)  
**Zone 3 by 4X4NJ:** Winner BNCC, N7AP (N7RQ, K8IA Operators)

VE3FRX and WØGJ were the respective high scorers from W/VE. Having done QRP myself, I know how frustrating it can be on Top band. Congratulations to these fine ops.

On the multi-op side, another incredible effort by the gang at W8JI stood out this time. Tom's station broke its own 2006 record by more than 50K. The race for second in the USA between W2GD and WE3C was very close. GD's extra QSO total made the difference.

On the DX end, the OM gang from CT9M blew away the competition with almost 2.2 meg. It was another close race for runner up with 4O3A, OM7M, CU8A, and C4N finishing all within 100K. Again, the point advantage of being in another continent from the main activity centers proves to be the big difference.

### SSB Results

The VP6DX show ended in a score of over 1.05 meg! This is a bit short of the record set by D4B in 2005, but nevertheless a fantastic effort by N5IA. W1NA made the trek to IH9 and managed to finish second. Right behind was VE3EY, who finished third in the world from Canada, a tough thing to do.

### Corrections to the 2007 CQ WW 160 Results

**GJ2A** should have been listed as the winner for Jersey Islands.

**KQ8RP** should have been listed in the boxes as #2 Low Power USA SSB.

**XE1RCS** was listed as VE1RCS on page 25 regarding most W/VE multipliers. The call was correct elsewhere in the results.

**DJ6QT (YO3JR operator)** was a Single Operator CW entry not a Multi-Operator. This moves **DQ4W** to the Multi-Operator runner-up position and **DJ6QT** lands in the third-place Single Operator position in Germany.

**UA6LV's** name was incorrect in the plaque winner's box as Alan Biryukov. The correct name is Vlad Biryukov.

The Zone 4 Plaque Winner on SSB should have been **N8TR**, Peter Michaelis, not Don Kerouac, **K9NR**. Both are great scores, ranking #7 and #8 USA.



**“Great sounding rig! Must be a Ten-Tec.”**

All the Ten-Tec rigs that I've owned have excelled in audio. I owned a pair of (other brand) transceivers but Ten-Tec beats them in transmit audio - K4NTY

**Great audio! Full, rich, natural! - K4TEN**

*Good audio quality and it sounds like my natural voice - K6WLM*



I'm confident that I will have the best signal I can possibly produce! - W1RGO

**TEN-TEC**

Excellent audio. I was working a station in Puerto Rico and he stopped the calling stations and asked me what I was running. I told him the Jupiter and he said "I should have known it was a Ten-Tec." - WD4PG



I am amazed how clean and clear I sound - W4WUQ



*Very well balanced audio; natural sounding, pleasing to listen to. One of the best sounding rigs on the band. Well rounded with clarity. - KA4ICK*

I get great unsolicited audio reports with the Ten-Tec Orion - WA8VSJ

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## TOP 10 SCORES

### CW SINGLE OPERATOR USA

K3ZM/4.....	773,430
K1LZ.....	755,040
W5UN.....	669,476
N2NT.....	663,187
KT1V.....	638,365
K5RX.....	618,205
N3UA/4.....	573,461
AA1K/3.....	568,216
K5GO.....	525,096
WB9Z.....	500,340

### VE (TOP 5)

VY2ZM.....	1,591,564
VE3EJ.....	1,052,226
VE3EY.....	889,720
VE2TZZ.....	851,920
VE3DZ.....	838,626

### QRP (TOP 5)

OK1IW.....	121,847
OL4W.....	117,500
SP2DNI.....	87,548
VE3FRX.....	74,094
S59D.....	71,226

### DX

CN2R.....	2,348,214
VY2ZM.....	1,591,564
GM3POI.....	1,572,193
CU2A.....	1,284,324
M2D.....	1,108,256
VE3EJ.....	1,052,226
S51TA.....	1,029,120
OZ7YY.....	1,008,630
CT1JLZ.....	976,131
YU1LA.....	908,622

### LOW POWER (TOP 6)

TA3D.....	488,376
4L2M.....	389,781
VP9I.....	380,776
TA2RC.....	352,336
YT5A.....	349,654
DJ9VA.....	333,333

### LOW POWER W/VE (TOP 6)

VE3NE.....	332,948
VE3MGY.....	283,437
VE3RZ.....	237,096
W4IX.....	225,984
KG4W.....	168,101
K1EP.....	159,736

### W/VE QRP (TOP 5)

VE3FRX.....	74,094
VA3YT.....	70,200
W0GJ.....	68,747
K0PK.....	67,500
NK8Q/3.....	59,850

### MULTI-OPERATOR

CT9M.....	2,196,132
4O3A.....	1,577,610
OM7M.....	1,518,429
CU8A.....	1,476,288
C4N.....	1,461,832
9A2AA.....	1,334,704
MD4K.....	1,285,596
OM8A.....	1,175,592
HG8DX.....	1,168,497
RW2F.....	1,085,364

### MULTI-OPERATOR (TOP 3) USA

W8JI/4.....	1,039,036
W2GD.....	747,370
WE3C.....	719,420

### SSB SINGLE OPERATOR USA

K3ZM/4.....	391,160
WB9Z.....	353,760
N3HBX.....	347,886
W0EWD.....	286,832
W3BGN.....	284,130
K5RX.....	274,257
KU1CW/0.....	252,336
K2AX.....	214,414
W3TS.....	213,516
N4PN.....	209,160

### VE (TOP 5)

VE3EY.....	734,156
VE3AP.....	308,894
VE3CX.....	266,700
VA5DX.....	198,009
VO1NO/VE3.....	196,719

### QRP (TOP 5)

VA3YT.....	40,280
OK7CM.....	19,602
W4TMR.....	19,050
S59D.....	14,400
DL7UMK.....	13,104

### DX

VP6DX.....	1,054,868
IH9/W1NA.....	736,848
VE3EY.....	734,156
CT3DL.....	594,832
OZ1DD.....	489,630
RW2F.....	458,136
SP7MTF.....	391,919
K3ZM/4.....	391,160
ES5RW.....	382,670
WB9Z.....	353,760

### LOW POWER (TOP 6)

KP4KE.....	349,479
D4C.....	222,600
DO2ML.....	200,464
HI3T.....	195,888
HA8BE.....	128,797
OK1FPS.....	117,728

### LOW POWER W/VE (TOP 6)

VE3NE.....	112,057
VE3MGY.....	109,648
W0GJ.....	87,104
KD4POJ/0.....	77,340
VE3FRX.....	76,788
VE3RZ.....	74,677

### W/VE QRP (TOP 3)

VA3YT.....	40,280
W4TMR.....	19,050
N8XA.....	12,212

### MULTI-OPERATOR

CN3A.....	714,735
HG8DX.....	581,700
WE3C.....	496,431
XE1RCS.....	471,431
EI7M.....	428,546
LN9Z.....	398,664
HB10DX.....	375,487
S56P.....	366,990
ND8DX.....	354,564
C6ANM.....	337,920

50K separated the race for top single op in the USA, and again Peter, K3ZM, emerged the winner. Closely following behind were WB9Z and N3HBX. On the low power side in W/VE, a good old-fashioned dog fight between VE3NE and VE3MGY ended with Lali, 'NE on top by only 3K!

The clear winner in the multi-op category was the effort by the Italian group at CN3A. They were able to outscore the HG8DX group by over 130K.

In low power, Tony, KP4KE, with a fine 349K score was the leader, with D4C runner-up. VA3YT and OK7CM were the top two scorers QRP. QRP on Top band is hard enough on CW, but on SSB it is ridiculously hard. Congratulations to these guys for sticking it out!

## Club Competition

It is obvious that the Bavarian Contest Club takes the CQ 160 Contest very seriously! For the third straight year they won the competition with over 112 entries. There were 70 entries from the Potomac Valley Radio Club, good enough for second place. Following these great clubs were the Rhein Ruhr DX Association, Contest Club Ontario, and the Slovenian Contest Club. Remember, the club competition is for fun and bragging rights only. Please try to use the proper name of your club when filling out Cabrillo logs. There were so many different spellings of some clubs that it was sometimes hard to determine the proper entry.

## Notes on Log Checking

2008 was another record-setting year log wise. There were 1860 CW and 926 SSB logs received.

This year's logs were scored using the same software used in many other contests. There are log checking reports available to any entrant who would like to see them. Send an e-mail to <director@cq160.com> requesting the report and we will forward it to you. All logs were checked with the same software and scoring system. We hope to promote more accuracy in copying and logging. Any penalties administered are equal for all entrants.

Although it was not explicit in the rules for 2008, we checked logs for "operating time." The goal was to set a standard for off times. The good news is that most stations did not require any adjustments. There were a few logs over the time limit, but none were grossly affected. Off times are well-defined in the new rules.

Another controversial item during both the CW and SSB weekends was the use of the "Low Band Chat Channel" by some entrants. The channel provides an internet chat between stations. Again, while not expressly forbidden in the rules, it is not consistent with the intent of the contest to coordinate or check QSOs by any method other than radio.

There were a few stations with very big scores that voluntarily withdrew their entries and reclassified as check logs. There was much discussion about this after the contest, resulting in these actions. Other logs were submitted with the caveat that contacts made with chat-channel assistance would be removed. The committee checked all logs against the chat logs and made the necessary adjustments. The 2009 rules specifically disallow the use of any QSO assistance such as chat channels.

## Committee, Awards, and Expanded Results

I wish to thank the following committee members for their help with log checking and other administrative duties: N6TR, KL7RA, K1EA, K1DG, and again K4JRB for making it a smooth transition. Also thank you to K5ZD and K3BU for their help with the newly revamped <CQ160.com> website.

We hope to have all awards from previous years sent out very soon. This year's awards should go out very quickly also. A big thank you to all the trophy sponsors, whose generosity helps keep the awards program alive. For 2009, please check the <CQ160.com> for a list of trophies and sponsors.

For a list of the guest ops and members of multi-op teams, plus more QRM, see the expanded results of the contests on



No, it's not K1ZM but his brother K3ZM. Peter operated his Virginia salt-marsh QTH to take the top spot on both USA.

the CQ website: <www.cq-amateur-radio.com> and also <CQ160.com>.

### Changes for the 2009 Contest

The rules for the contest have been revamped (for the complete rules, see the November issue of CQ). Here are some of the highlights:

1. The dates for the 2009 SSB contest are a week later than usual to avoid conflict with the ARRL DX Contest. This is a calendar anomaly and the contest will return to the last full weekend in February in 2010.

2. The start and end times of the contests have been shifted two hours earlier in response to requests from the 160 contesting community.

3. The exchange for DX stations has been changed from RS(T) and country to RS(T) and CQ zone.

4. A new Single-Operator Assisted class has been added to permit the use of clusters, skimmers, etc.

5. A 40-hour maximum operating period has been added for multi-op entries.

6. Provisions have been added regarding remote operation.

Please check <CQ160.com> for the complete rules and other information.

See you in the 2009 contests!

73, Andy, N2NT

### CW QRM

Great fun! Eleven JAs and an RWØ in the log on Sunday morning ... **AA1K**. I believe this is my first ever 160m operation. Just put up a 40m wire vertical on a Jackite pole, found it would tune for VSWR on 160m, but almost no one could hear me. Lesson learned: 40m vertical is better than a dummy load on 160m, but not by much ... **AA4Q**. My first 160m contest. Very strange conditions not similar in other bands but all went OK considering that I was using 100w output. Was able to work US and Canada, never thought to work them. I am looking forward to next 160m contest, CT1DRB/OK8RB, David ... **CT1DRB**. TNX to Jose, CU2CE, for offering his fine QTH. TNX to Martti, OH2BH, for taking care of the logistics ... **CU2A**. Our first 160m contest from Flores island/Azores. Great propagation and we worked the 160m WAS during this contest ... **CU8A**. 2009 I will take part in this competition again! With so lively participation I had a lot of fun in the contest. Rig: 100 watts to

an inverted dipole ... **DF5BM**. First time on this contest, lots of fun, cu next year! ... **DJ5HD**. What a super contest! For the first time on 160m and then I got 48 DXCCs! Wow! ... **DK1AX**. Just one word "Great." Although all were problems I tried to do the best. Anyway I really enjoyed and work my last state (ND) to completed my 9BWAS, so could it be really better? hi hi. Thanks again to all ... **EA6SX**. First contest use of K3. Excellent. Antenna fell down and had to make temporary repairs in the dark! Condx variable ... **G3XGC**. Friends say, how do you hear so well on 160. I say very quiet location! So what happened on Friday!! S5 noise till 2230 on Sunday when it fell to S1! Do you say Sod's Law in USA?! Conditions variable, no JA opening, and most USA down in strength from normal. Very high level of QRM from EU for whole 48 hrs. Still my favorite test of the year ...

**GW3JXN**. It was a nice contest but local noise was not below S9+10 dB all over the time. My short antenna worked fairly well. Thanks for Qs, see you next year! Rig TS-530SP 100w into an end-fed 21m long wire above flat roof ... **HA2MN**. Unfortunately on afternoon of 28 January we got a heavy wind storm (120-150 km/h), so I must down the antenna! ... **HG8ØMRASZ**. My small contribution to a fantastic CQ WW 160. ... **IZ7AUH**. Entry on single-op low power. The condition was almost same as the last year. The first day I could QSO with W8JI (Georgia). And I QSO with 3W3W, HG8DX. But we had very heavy local power supply nose on 160m band. I was using MV (micro vert) antenna which is only 3.6m long. It was very good. This small MV antenna has same performance as a full size dipole antenna! And I used two types tranceiver, FT-1000D and Elecraft K2!

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The gang at N2CW (W2GD on CW). Left to right: W2USF, N2OO, and W2CG.

Narrow band blocking with the K2 was the excellent! I like this contest very much because I can QSO with many famous Top bander OM all over the world ... **JE1SPY**. I actually heard a European! ... **K8SRL**. After such a dearth of QSOs from DU9/N0NM, this contest has come alive in EPA. Amazing what 7 hours can produce - 100K! ... **K3QF**. I worked my first European station this year on 160m with 5 watts QRP ... **K3TW**. Lots of fun. Had to QRT each evening when the XYL hit the



Here is Bill, W4ZV, at the key of the VY2AM superstation on Price Edward Island, good enough for second place world!

sack cause I was setting off the fire alarm - hi ... **K4UEE**. Worked more than double the number of Europeans and JAs as ever before. ... **K5RX**. Good conditions both nights, lots of stations and QRM. Always a thrill to pick up new DX on 160 meter band ... **K7QBO**. Low power but my inverted L at 110 ft. seemed to work FB, made a shielded loop during daylight on Saturday. It sure made the sig to noise much better. Put it up in a light snow storm, hi. As my old Elmer used to say, "They

work better that way" ... **K8OT**. Thanks to John Evans, N3HBX, for letting me use his station. I only destroyed one amplifier. I worked not one but TWO JAs, the two first for me on 160. Thanks for the QSOs ... **KD4D**. My Gruman Canoe makes a good 160 meter antenna ... **KD7GIM**. Cold, windy, and rainy, great contesting weather by a warm radio on Top band with a hot toddy. Contesting at its best ... **KN4Y**. Many thanks to Tom, K5RC, for allowing me to pilot his superstation. It was cold and snowing outside, but the band was HOT inside the shack! Terrific openings on Saturday to Europe and Asia ... **KY7M**. My best effort EVER. Superb DX conditions to the Mid/Far West USA first night ... **M2D**. Glad to see everyone and have to say the conditions were AMAZING. EU and the West Coast at the same time. It's been a good season on the Top band! ... **N2WN**. Wow! Most DX I have ever worked on 160 in a contest! ... **N5AW**. Heard many more mults, but we are still too weak to work them all. More than 1100 QSOs were fun anyhow, but only 47 W/VE shows our weakness on 160m DX ... **OE2S**. Thanks for another contest! Our 160m setup is not match to some others but we had fun! ... **OH4A**. Good propagation for QRP stations. But neighbors' plasma TV generated very big QRM. Thank you for fantastic contest ... **OL4W**. We were using the location of our club PI4ZI, an industrial area in Hengelo in eastern part of Netherlands. There are a lot of factories very close to us so almost no space to put up 160m antennas. Just before the contest we set up a Beverage in direction off Japan. This worked very well also for UA9's. Signals from stateside could be better, but overall we had great fun and were happy with the results ... **PA1TT**. Thank you for fb contest! ...

## 2008 CLUB SCORES

(Minimum of 3 three entries required for listing)

BAVARIAN CONTEST CLUB	14,914,468	OM3KHO	650,199
POTOMAC VALLEY RADIO CLUB	9,609,774	VRHNIKA CONTESTERS	642,831
RHEIN RUHR DX ASSOCIATION	8,205,609	ORENBURG CONTEST CLUB	641,045
CONTEST CLUB ONTARIO	8,202,742	ROCHESTER DX ASSOCIATION	627,248
SLOVENIAN CONTEST CLUB	6,685,539	OL1A	561,246
YANKEE CLIPPER CONTEST CLUB	6,676,307	WESTERN NEW YORK DX ASSOCIATION	539,618
CONTEST CLUB FINLAND	5,328,006	VERON	494,150
FRANKFORD RADIO CLUB	4,947,537	PLIS PLAI CONTEST TEAM	492,950
SOCIETY OF MIDWEST CONTESTERS	3,397,088	NORTH COAST CONTESTERS	483,746
SP DX CLUB	3,037,228	BRITISH COLUMBIA DX CLUB	477,633
URAL CONTEST GROUP	2,952,294	OK2KRT	466,636
HA DX CLUB	2,846,826	SRR	409,659
LBCC	2,822,193	WESTERN WASHINGTON DX CLUB	403,641
SOUTHEASTERN DX CLUB	2,701,851	SOUTHERN CALIFORNIA CONTEST CLUB	383,829
BELOKRANJEC CONTEST CLUB	2,680,990	OMSK REGION RADIOCLUB	362,329
FLORIDA CONTEST GROUP	2,402,037	ARM	344,311
TEXAS DX SOCIETY	2,218,413	CAROLINA DX ASSOCIATION	343,959
CHILTERN DX CLUB	2,129,795	ALRS	306,222
LATVIAN CONTEST CLUB	2,089,491	WILLAMETTE VALLEY DX CLUB	296,864
KAUNAS UNIVERSITY OF TECHNOLOGY RADIO CL	2,082,614	WWYC	295,120
MAD RIVER RADIO CLUB	2,055,407	SOUTH EAST CONTEST CLUB	294,356
CROATIA CONTEST CLUB	1,968,851	AUSTRIAN CONTEST CLUB	277,412
TARTU CONTEST TEAM	1,953,761	EAST COAST CANADA CONTEST CLUB	264,447
TENNESSEE CONTEST GROUP	1,913,579	SPOKANE DX ASSOCIATION	215,090
GRAND MESA CONTESTERS OF COLORADO	1,877,561	CRK	196,554
ALABAMA CONTEST GROUP	1,742,115	TOP OF EUROPE CONTESTERS	194,975
BLACK SEA CONTEST CLUB	1,497,959	MARITIME CONTEST CLUB	192,287
RUSSIAN CONTEST CLUB	1,428,619	CENTRAL SIBERIA DX CLUB	184,563
UKRAINIAN CONTEST CLUB	1,336,493	WEST VIRGINIA DX ASSOCIATION	183,103
CENTRAL ARIZONA DX ASSOCIATION	1,293,590	SP CONTEST CLUB	171,548
MINNESOTA WIRELESS ASSN	1,260,054	WEST PARK RADIOPS	164,880
DANISH DX GROUP	1,130,436	RADIOAMATOR	154,208
OK2OMM	1,077,946	MARRAD	150,412
YUCC	1,053,544	VLADIMIR RADIO CLUB	143,518
DEUTSCH AMATEUR RADIO CLUB	1,011,769	SUCC	139,929
NORTHERN CALIFORNIA CONTEST CLUB	951,392	CTRI CONTEST GROUP	134,198
HUDSON VALLEY CONTESTERS AND DXERS	929,677	RADIOCLUBUL NOSTRU DIN CONSTANTA	115,655
KANSAS CITY DX CLUB	925,704	OKLAHOMA DX ASSOCIATION	107,267
DOZEN DASHES CONTEST CLUB	922,632	RU-QRP	99,321
CONTEST GROUP DU QUEBEC	919,495	ARGO	44,442
TOWER CONTEST GANG	884,053	BERGEN AMATEUR RADIO ASSOCIATION	37,370
OKDXF	759,944	METRO DX CLUB	21,270
LOW COUNTRY CONTEST CLUB	750,415	TEMIRTAU CONTEST CLUB	4,141
MAGNOLIA DX ASSOCIATION	670,504		

**RA3BQ.** That was a Field Day effort with portable TX antenna. Location was extremely low noise but the weather was terrible! Next year will try once more! ... **RV6LFE.** After the contest I received mail from 3A/ON5NT who tells me that he made only one contact on 160 and that was me! ... **S57DX.** The truth is: "You can't have too many antennas" ... **SP5WA.** Thanks for the great contest again! At the end of the contest was great cndx to NA, but my PA had broken in two hours before the end of the contest, so last two hours I worked only on FT-1000D. See you all! ... **UU4JMG.** Wind blew down folded inverted-L antenna a week before contest. Our best results yet for CQ contest. Seems central Canada took the weekend off. Sure missed MB & SK ... **VE2OJ.** Very odd condx the first two nights. First night Beverages worked very well. Second night not much f/b on noise. Nearly missed some mults Sunday as clock off! Low 40 ft. dipole this time as main one taken down by errant snowmobile ... **VE3PN.** 160 sounded like 20 during the CQ WW DX contest! I hope I can get more time next year ... **VE6ZC.** Propagation was great. The first European station was heard at 01:40 GMT. Hope to improve TX ant next year ... **VK2CCC.** Outdoor portable station at hilltop of Lamma Island at +8 deg C using FT-450AT, 50AH car battery and 250m long-wire antenna ... **VR2ZQZ.** Great conditions and good operators! My 55th year of contesting! ... **W6PU.** This weekend put me over the 100 country mark for DXCC. What a blast! ... **W8TN.** Webster Bandsanner mag-mounted on car, \$15. Wire to load Bandsanner on 160, \$5. Twenty contacts in four states in about an hour's operation? Priceless! ... **WA6HZT.** After 11 years of SSB participation we tried CW and love it. CU next year ... **XE1RCS.** Mni trnx for first 160m contest. Mni 73's ... **YO5CCX.**

### SSB QRM

Fun contest as usual, but the high noise level took a little edge off. Next year I am going to make an effort to work past 10:00 PM in the evening, hi ... **AC9S.** Biggest thrill was working VP6DX. I contacted 41 states & DC, 8 provinces, and 31 DXCC countries. I still have to install a real DX antenna ... **AF1T.** Multi VP6DX is the best QSO in last 5 years! ... **DG7RO.** Great fun if very slow at times. QSO numbers down from previous years but more states. Thanks to everyone who called us ... **E17M.** Very good contest. It's my first experience in CQ WW 160M. Cu next year. Tnx for the QSOs ... **F4FLQ.** 100w into 41m wire sloped from 23m. Just a few points to the big pistols. Was fun. Hope one day I get space for real 160m antennas ... **HB9TQG.** Long time since I've been on 160. Large new country lot plus Ten-Tec Omni VI+, Hercules II, inverted L antenna, and good ops made the contest fun. ... **K4AVX.** I certify that, other than caffeine, no performance enhancing drugs or steroids were used during this contest. Also, no small animals or children were harmed ... **K7ACZ.** Always enjoy the 160 tests. Still the gentleman's band! ... **K9FO.** My OM (Russ, N8MWK) wanted me to do this contest. He was right; everyone likes my YL voice even with 5 watts. I was very surprised to work 33 states, one province, Mexico, and Bahamas with my 5 watt QRP rig ... **KD8EIR.** Good conditions, but many problems with PA. So I did stop the contest. See you next year I hope ... **LX1ER.** Not easy with 10w but glad to take part and thanks to all who pulled my weak signal out of the noise. ... **M3RCV.** A car hit a power line pole just down the road but we didn't lose power! Local conditions at our site not favorable this year. Our rookie team did a great job! ... **N2CW.** Best conditions in all the years I have entered this contest! However, the QRN and QRM (some of it deliberate) was horrendous! Beat last year's score by quite a bit ... **N3HBX.** Ears shot. Storms all weekend. Sounded like summertime. Good EU opening for about 30 minutes on Saturday night. First time ever to work all 50 states in a contest on SSB. Nice to work VP6DX/ Ducie with a great signal from there ... **N4PN.** First operation on 160m. Worked over half of the states with 100w from my mobile installation ... **N8CBW.** Steve, KD5LNO, who returned to Texas last fall flew in for the weekend and was rewarded with what had to be the best propagation for this contest that I can remember ... **ND8DX.** It was refreshing to be in a contest on a band I do not usually get on a lot. Lots of things to learn and surprisingly many stations to be worked within the few hours I was on. Transmitting and receiving on a shunt-fed tower was not easy but not as hard as expected. Thanks for the QSOs! ... **OE6MBG.** The inverted L-antenna that we had created for the occasion blew down in a major storm the day before the contest, so the first night was "just" on a dipole. Lots of contacts, but no DX until Saturday, when we managed to get the original antenna back up. Lots of fun, but quite slow ... **OZ1ADL.** First time active in this contest, age 69 years and licenced in 1976 ... **PA3ASE.** I rarely operate any of the voice modes, but when it comes to operation on Top band, especially in a contest like this one, I WILL make an exception. Many thanks to all who took the time to stop at my frequency and give me a QSO ... **VE3CUI.** What a ride! I also want to thank the VP6DX team for allowing me to indulge myself a bit and operate the contest single op. It was the opportunity of a lifetime. Thanks fellows, blokes, compadres for fighting the QRN to give me a contact. 73 de Milt, N5IA op of VP6DX ... **VP6DX.** It was a great contest. Working ND on only the thirrd QSO and getting HI as the second to last, with loads of fun in between! ... **W0MR.** 90 years old, and 68 years contesting! ... **W4OGG.** First time with Beverages and I'll never be without them again! Conditions were not as good as the CW contest ... **W8GP.** Pleased to run again the SSB contest, despite my aging ears! Hard to fight the tremendous Central European QRM! hi. Mediocre condx so only few DX QSOs and no new ones ... **YO2IS.**

(Continued on page 103)

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The Z-817 is the ultimate autotuner for QRP radios including the Yaesu FT-817(D). The Z-817 interfaces to the CAT port (ACC) on the back of the FT-817 radio with the provided cable. Tuning could not be simpler; one button push on the tuner is all that is needed and 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.

Of course, 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. The Z-817 is powered by four AA internal Alkaline batteries (not included), so there are no additional cables required to use the Z-817. A coax jumper cable is also included for fast hook up. Latching relays are used so that power consumption is Zero when not tuning allowing a set of batteries to last about one year. **Suggested Price \$129.99.**

### SPECIFICATIONS

- Up to 20 watts SSB, CW and digital modes.
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- SO-239 in and out connections for dipoles, verticals, beams, G5RV, OCF, Cobra, ect.
- Dimensions: 5.2"W, 4.6"D, 1.7"H. Weight: 13 ounces.
- Includes 1 foot CAT cable and 1 foot coax jumper.



### Z-11Pro

The original portable Z-11 was one of LDG's most popular tuners, accompanying adventurous hams to their backyards, or to the ends of the earth. Now 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. It will match dipoles, verticals, inverted-Vs or virtually any coax-fed antenna. All cables included. **Suggested Price \$179**



### Z-100

Designed from the ground up to provide 100 watt power handling in a small, lightweight package. Perfect for portable as well as sitting on your desk in your shack! The Z-100 will tune with 0.1 to 125 watts (50 watts on 6 meters), making it an excellent choice for almost any radio or operating style. Backpackers and QRP operators will appreciate the latching relays. Power can be removed from the tuner once you have tuned. Additionally, when it's not tuning, it draws nearly zero amps. **Suggested Price \$149**

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**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. Other features include: • Operates at any power level between 5 and 1,000 watts peak. RF Relay protection software prevents tuning at greater than 125 watts. • 2 Antenna connections • Tunes from 1.8 to 54.0 MHz (inc. 6 meters) • Tuning time usually under 4 seconds, transmitting near a frequency with stored tuning parameters, under 0.2 seconds. • 2000 memories. • All cables included.

**Suggested Price \$599**



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. We even added the ability to mount the "feet" on the side of the tuner so when you're transporting your rig by the handle, you can safely set it down and not worry about scratching the case. The AT-897 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

## AT-7000

The AT-7000 is the ideal tuner for IC-7000 & other Icom Radios: Covers all frequencies from 1.8-54 MHz (including 6 meters), and will automatically match your antenna. Requires just 0.1W for operation, but will handle up to 125W (100 W on 6 m), making it suitable for everything from QRP (IC-703 Plus) to a typical 100 W Icom transceiver. All cables included.

**Suggested Price \$169**



## 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**



## 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**



## **NEW!** KT-100

The new KT-100 Autotuner fills a need for Kenwood transceiver owners after Kenwood discontinued the Kenwood AT-300 antenna tuner. The KT-100 is a flexible, low cost, easy to use unit just right for an AT-300 compatible Kenwood transceiver. Of course, most any LDG tuner will work just fine with a Kenwood transceiver, but wouldn't it be great if you could use that Tune button on the radio. The KT-100 allows you to do just that as LDG's first dedicated autotuner for Kenwood Amateur transceivers.

The LEDs on the front panel indicate tuning status, and will show a match in seconds, or even less if you've tuned on or near that frequency before. The KT-100 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**

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**LDG**

Begali code keys and keyer paddles have been in the U.S. amateur market for about two years now, with their quality and craftsmanship drawing quite a bit of attention. Our "keys" expert, K4TWJ, takes a closer look.

## CQ Reviews:

# The Begali Morse Paddles

BY DAVE INGRAM,\* K4TWJ

**Y**ou've likely seen the ads, heard folks using them on the air, and probably wondered if a shiny new Begali paddle would add more glitz, glamour, and enjoyment to your own amateur radio setup. Well, friends, there is no better time to answer that question than right now (holiday treats are always special!), and the good news is there are a number of paddles and keys in the Begali line—and not all of them are super-expensive. They all are Begalis, however, and attention grabbers all the way. The high-end Sculpture paddle is a real beauty, for example, but I find the more affordably priced Simplex Mono paddle serves my needs and lifestyle quite adequately. It is well-built, quite agile, and easily adjusted to fit my particular "fist." In many respects, I would describe it as a paddle for the multitudes. Why? That requires some general "paddle talk."

The Simplex Mono is a single-lever (non-iambic) paddle, and a single lever can only move in one direction at a time so it is easier to use (and less prone to making dot/dash errors) than a dual-lever paddle with two moving levers. It also uses springs rather than magnets for tensioning, and springs can be set to put everything from "feather soft" to solid "snap action" in a lever. Problems with shaky hands, an awkward operating angle (especially when mobile), or two left thumbs can be minimized by adjusting a single-lever paddle for a slightly wider than usual gap/more lever movement and cranking in slightly more than usual tension. Operation is then usually so positive you can send good



Photo 1— The Begali Simplex (dual lever, left) and Simplex Mono (single lever, right) paddles feature gold-plated upper parts mounted on either a gold-plated or a palladium-plated base. They have ball-bearing movements, fine gap/tension adjustments, corrosion-resistant contacts, and anodized aluminum-alloy fingerpieces for a quite stylish and modern look. (Photos by Bruna Begali, courtesy of Pietro Begali, I2RTF)

code while wearing gloves, or you can turn the paddle backwards and send "southpaw-style" with your left hand (ideal for passenger-side mobiling). That covers the introductory notes; now let's look closer at specifics.

### The Simplex Pair

The Simplex and Simplex Mono paddles look identical except the Simplex is a dual-lever paddle and the Simplex Mono is a single-lever paddle (look carefully at photo 1 and you can see the Mono adapter on the right paddle). The Simplexes are also the only Begalis with spring tensioning, and the Mono is the only single-lever paddle in the line. All other models use dual levers and magnets, which I would say appeal most to amateurs preferring close contact spac-



Photo 2— The Sculpture stainless-steel paddle sports a ball-bearing movement, solid-gold contacts, light and short-throw arms, plus magnetic tensioning for agile high-speed operation. It is truly a masterpiece.

\*3994 Long Leaf Drive, Gardendale, AL 35071  
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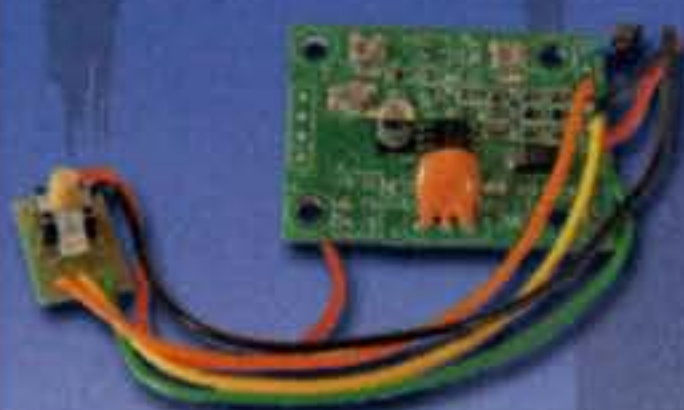


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CQ Jan 2005 review: "level 4 provided remarkable noise suppression, without making the SSB sound hollow & brassy"

**"Probably the most familiar Begali item is the stainless-steel Sculpture paddle. This work of art has short-throw arms, solid-gold contacts, palladium-plated screws, and lightweight carbon-fiber fingerpieces."**

ing and a light touch. The paddles measure 2"H x 3"W x 3"D and weigh over three pounds, so they sit solid and firm on a desk. These paddles are available with gold-plated or palladium-plated bases. Palladium is a sort of rugged, black silver-type finish that looks like it could survive some rather intense abuse.

My Simplex Mono arrived in a package that looked like it could safely emerge from anything except an airplane crash. It was supplied with a polishing cloth and a very thin metal strip for setting spacing and cleaning its contacts. After 10 minutes of clumsy practice (hitting dashes so quickly and so heavy they threw in an extra dot on the arm's return), I reset the gap much wider and added a touch more tension; the paddle and I then began sending perfect code. I still favor a dual-lever paddle for my main setup, but the Simplex Mono works great with my second rig crowd-

ed onto a corner of the main desk and with my den rig squeezed onto an end table by my easy chair. The table is on the left side of my chair, so I switch-hit sending with my left hand or my right hand stretched across my chest. Sending CW under those circumstances calls for a well-adjusted paddle.

**The Rest of the Begali Line**

Six additional paddles and three hand keys are included in the Begali line and warrant brief mention at this point.

**The Sculpture**

Probably the most familiar Begali item is the stainless-steel Sculpture paddle shown in photo 2. This work of art has short-throw arms, solid-gold contacts, palladium-plated screws, and lightweight carbon-fiber fingerpieces. As previously mentioned, it also has dual levers and magnetic tensioning. I've not

used a Sculpture, but from what I have heard it is more of a small-gap and light-tension paddle some amateurs would really love and others would consider overactive. Choices in types of paddles obviously are a matter of personal preference.

**Triplets and Cousins**

Begali also produces three lowboy and wide-stance paddles, and all three models have right-angle arms (photo 3). The Classic and Professional models have exposed top ball-bearing assemblies that are covered on the Signature model. Rather than sporting Begali's traditional gold or palladium base, the Professional model has a flat black base with khaki-color top block for a rugged military appearance.

Rounding out the line is a vertical-design Graciella paddle, the Traveler Light paddle with enclosed mechanism and swing-out fingerpiece-protecting "wings," and three unbelievably stout-hearted hand keys. The hand keys are quite heavy items with cast iron bases, gold-plated arms, and a surprisingly good feel. Going a step further, Begali also produces its own custom/optional fingerpieces (photo 4) in red, white,

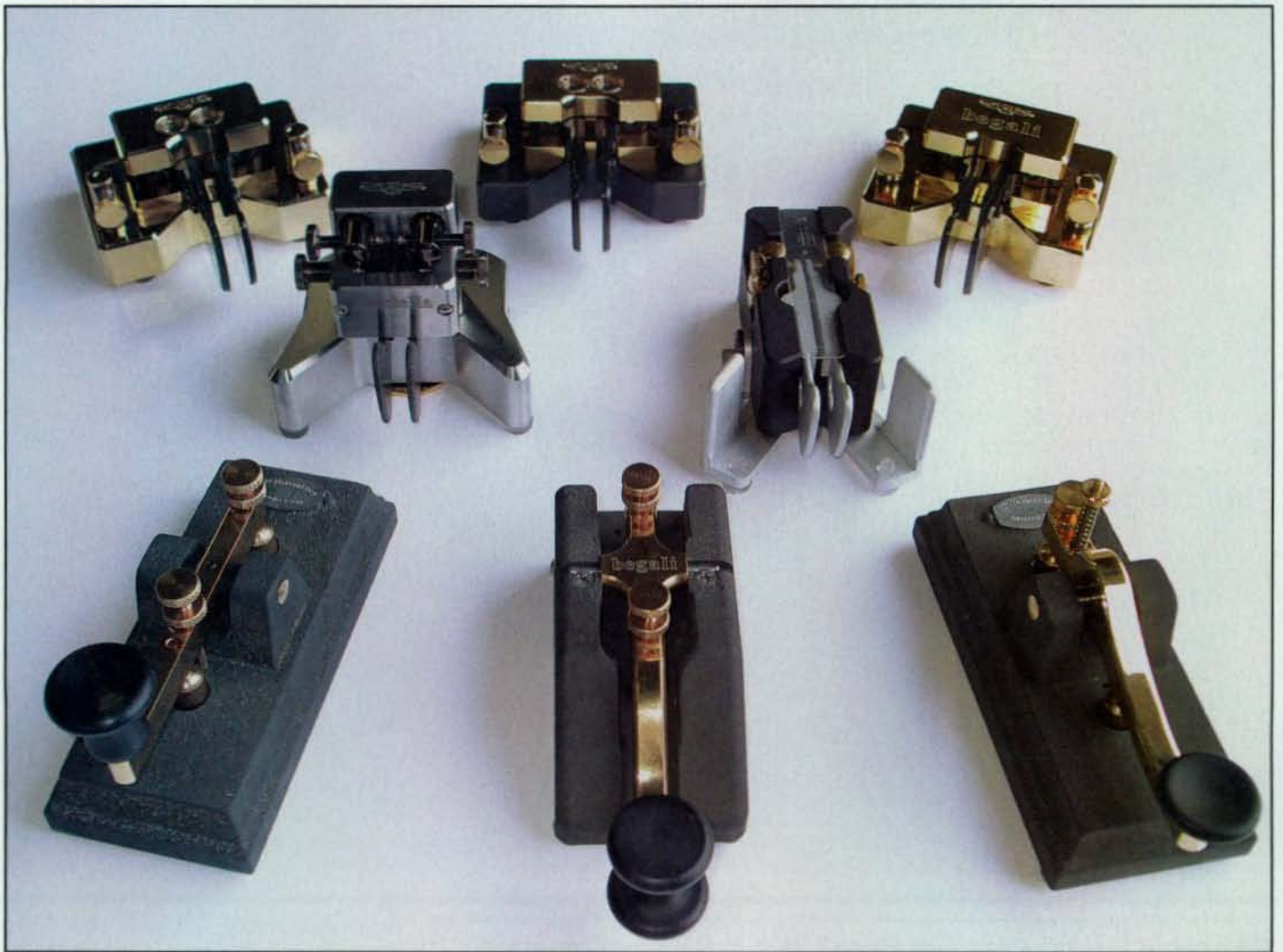


Photo 3— Five additional styles of Begali paddles, plus three hand keys, discussed in text. Back row (left to right) are the Classic, Professional, and Signature models. Middle row (left to right) are the Graciella vertical paddle and Traveler Light paddle. Front row (left to right) are the Postal, Chubbock, and Spark hand keys.

green, blue, and black, long or short lengths, with and without slots.

### Papa Gali

As I investigated the Begali paddles, I found company owner Pietro Begali, I2RTF, to be an interesting chap. He has been in business manufacturing precision electro-mechanical components for industrial knitting machines since 1960 and a dedicated CW operator since 1964. He has written a book on the history of radio Italian style, and his daughter Paola (a college language major) is translating it into English. Meanwhile, his other daughter, Bruna (who holds a college degree in communications arts), handles advertising, catalogues, and customer service (while learning about CNC machines). With such ample assistance, I envision the Begali line continuing strong for many years to come. For more information, check out <<http://www.i2rtf.com>>.

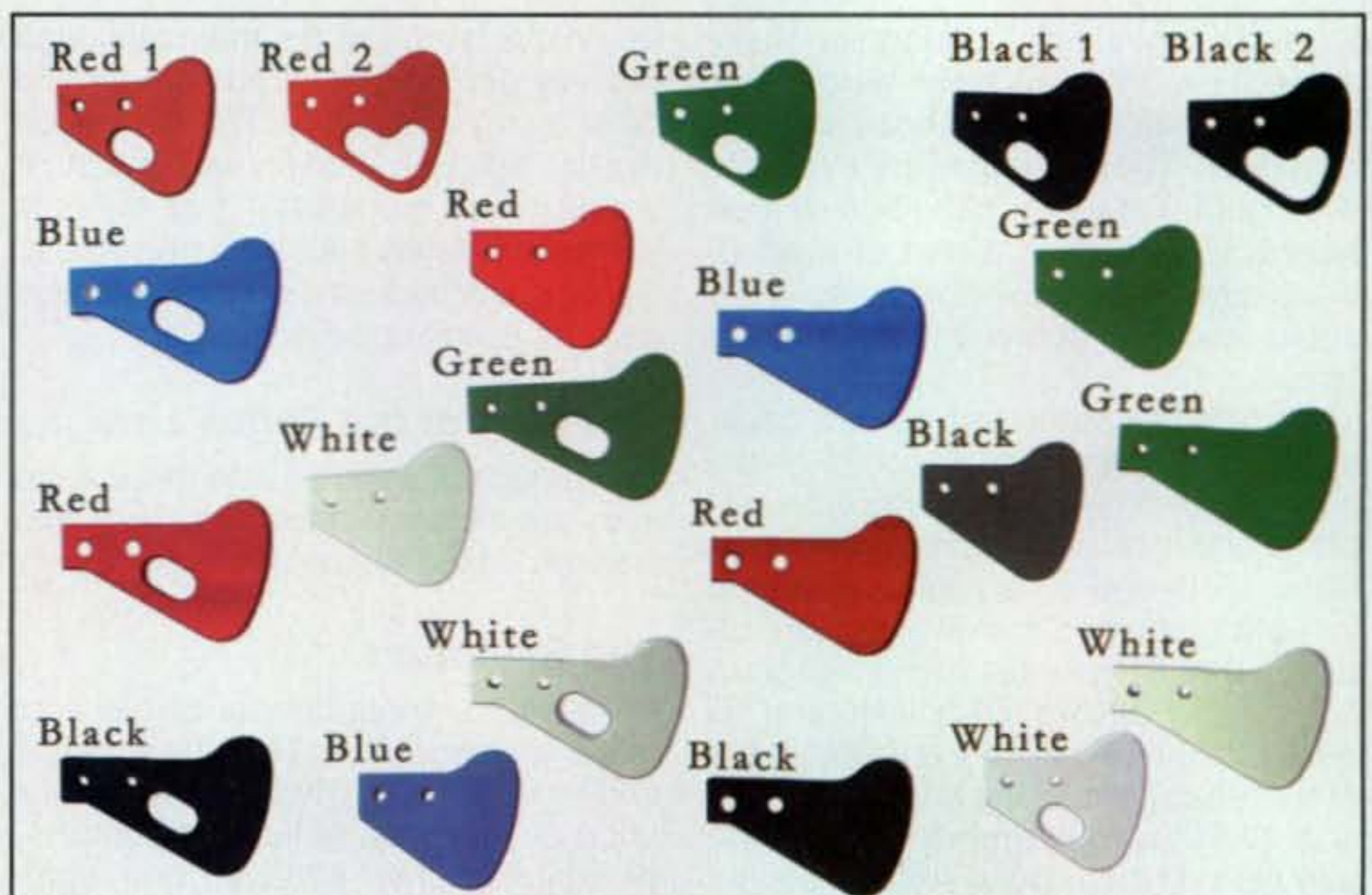


Photo 4— Some of the optional fingerpieces Begali makes for his paddles. Overall, appearance is similar to tinted chrome and very impressive.

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**Announcing:**

# The 2009 CQ DX Marathon

## 2008 Logs Due By January 31, 2009

It's time to start wrapping up your 2008 DX Marathon score. Even if you haven't been keeping track so far, you still have time to go back through your log and see what you've worked, enter it on the DX Marathon spreadsheet, and then update it with your additional contacts through the end of the year. You may have worked more countries and zones than you realize. At the very least, you will give yourself a goal to beat in 2009! See Rule 5 in main text for details on how and where to submit your log. Remember, log submission deadline for the 2008 CQ DX Marathon is **January 31, 2009**.

**T**he fourth running of the CQ DX Marathon begins at 0000 UTC on January 1, 2009, and runs through 2359 UTC on December 31, 2009. The goal, as always, is to work as many countries and CQ zones as possible at least once during the calendar year.

The only change from the 2008 rules is that the prohibition on assistance, such as lists and passes, for the Unlimited Class is deleted (the limitation remains in effect for the Formula Class). Once again we will use a downloadable Microsoft Excel® template which may be filled in and e-mailed to a special address as your log entry. Here are the 2009 rules for the CQ DX Marathon:

## Rules, 2009 CQ DX Marathon

**(1) Activity period:** The CQ DX Marathon is a year-long activity, beginning at 0000 UTC January 1 and ending at 2359 UTC December 31. Each year's event is separate.

**(2) Frequencies:** Any authorized amateur frequency may be used. Contacts through repeaters or satellites are not allowed for credit, nor are contacts with maritime or aeronautical mobile stations. All contacts must be made entirely over amateur radio frequencies—i.e., Echolink-type contacts do not count.

**(3) Categories:** All awards are for single operator only. There are two entry classes, "Formula" and "Unlimited."

**(a) Formula:** An entrant may choose one of two options in this class: (1) All contacts must be made with a maximum output power of 10 watts, regardless of band or mode; or (2) the operator may run a maximum of 100 watts output to a simple antenna, such as a vertical or dipole (see the appendix below for further rules on antennas used in either option for Formula class). An operator in Formula Class must select either QRP or 100 watts and limited antennas at the beginning of the year's DX Marathon, and may not switch between entry modes during the year. All contacts must be made without assistance of any sort, including but not limited to lists, passes, or use of higher power or prohibited antennas to initially secure the contact. Use of spotting nets such as a DX Cluster® is allowed.

**(b) Unlimited:** Any antenna may be used, along with any power level for which the operator is licensed. Use of spotting nets such as a DX Cluster® is allowed.

**(4) Scoring:** Each country worked is worth one point. Each CQ zone worked is worth one point. The total score is the sum of zones and countries worked, on any mode and any authorized band. There are no multipliers of any kind. Each

country and zone count only once. A single QSO may count for both a country and a zone. If in the course of the year you work 238 countries and 37 zones, your score is 275. If you work all 40 zones and 150 countries, your score is 190. The CQ DX Countries List and the CQ Zone List constitute the official lists. In the case of ties, the operator whose last scoring contact was earlier chronologically will be judged the winner. Decisions of the Marathon Manager are final.

**(5) Submissions:** Submissions must be made electronically, via e-mail to <scores@dxmarathon.com>. A Microsoft Excel® template into which contacts may be entered is available for download from the CQ DX Marathon website at <<http://www.dxmarathon.com>>. All scores must be received by January 31 following the close of each DX Marathon.

**(6) Verification:** QSLs are not required. The operator is expected to claim contacts only from stations the operator has every reason to believe are legitimate, and only to claim contacts in which an accurate two-way exchange was clearly accomplished (see Appendix for further explanation). Scores will be adjusted by the DX Marathon committee for claimed contacts with pirates or any station not considered legitimate. Submissions may be penalized or voided in cases of fraud or poor sportsmanship.

**(7) Clubs:** Clubs are strongly encouraged to use the framework of this contest for intramural and regional competitions.

**(8) Claimed Scores:** Competitors will be encouraged to post claimed scores to the DX Marathon Web page. These claims will be updated regularly, and may be published periodically in *CQ* magazine.

**(9) Results:** The final listing of scores will be posted each year on the CQ website as well as the DX Marathon website. In addition, *CQ* magazine will publish an annual summary of the winning scores and details.

### **(10) Awards:**

**(a) Certificates:** Certificates will be issued to the winners from each CQ zone and each CQ country. Where there is sufficient activity, additional certificates will be issued for other high scorers or for scores using a single mode. Other awards may be offered at the discretion of the DX Marathon Committee.

**(b) Plaques:** The CQ DX Marathon Committee will award plaques to the top scorer in each class. Sponsors are solicited.

**(c) Special recognition:** The CQ DX Marathon Committee is also examining the possibility of special prizes for DX stations that appear in the greatest number of submitted logs.

**(11)** In all cases, the rulings of the CQ DX Marathon Committee and the CQ DX Marathon Manager are final.

## Appendix

**(a) Formula Class antennas, option 1:** Operators selecting the 10-watt option are limited to antennas on a single tower and whose height does not exceed 65 feet above ground elevation within 330 feet or 100 meters of the tower base. Wire antennas may also be used but must meet the criteria of the 100 watt option, and may be tower-supported at only one point.

**(b) Formula Class antennas, option 2:** Antennas for operators choosing the 100-watt option must be either sim-

ple verticals or wire antennas lacking significant gain. No arrays are allowed, whether vertical or horizontal, nor are long wires exceeding 130 feet in length, except on 80 and 160 meters. Vertical antennas used must not be more than 33 feet higher than the station floor at their base, while dipoles or other wire antennas must not be more than 60 feet above ground. Yagis, quads, or tower-mounted antennas (except wire antennas meeting the height limits above) may not be used in this category.

**(c) Contacts:** The DX Marathon Committee believes that each contact for a claimed country or zone must be a solid contact. The station claiming a contact with another station is expected to have had his or her callsign fully and accurately received and transmitted by the other station, and to have copied his/her own call being correctly sent by the other station. For example, K2MGA may not claim credit for a QSO with a DX station who had his call as K3MGA, even though in many cases the DX station would QSL the contact with the correction made (after receiving a card from K2MGA, realizing the error and correcting his/her log). For a contact to count, both stations must correctly copy all of both callsigns.



### Oops...

In our 2009–2010 CQ Amateur Radio Calendar, we somehow forgot to identify the two hams pictured on the cover (as well as in August) setting up for remote operations from the Buffalo (NY) Lighthouse. They are Dick Stein, K2ZR (left, on cherry picker) and Tom Williams, N2CU (right, on ground). By the way, once the antenna assembly was finished, the cherry picker was raised to its full height for operating ... after Dick climbed off! Our apologies to Dick and Tom for the oversight.

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## From Bike Races to Hurricane Relief

**A**s a powerful storm made its way across the Atlantic Ocean and towards the Gulf of Mexico, Pennsylvania hams support a challenging bike ride. This month we'll take a look at some of the planning involved in providing communications for over 2800 riders over a 100-mile route and nearly 2000 walkers and runners over a 5-mile course, and look at the ham radio response to Hurricane Ike.

### Hams Support the Livestrong Bike Race

In late August the Lance Armstrong Livestrong Challenge made its third of four stops across the United States, in southeastern Pennsylvania. According to Steve Pearl, N3LJZ, ARRL Emergency Coordinator for Montgomery County, PA and ham radio coordinator for the event, an "ad-hoc army of amateur radio communicators provided professional-grade support for one of the largest bike-trek fund raisers the Montgomery County region has seen." He said the message they got after the event is "one of great respect for the team of communicators who came together nearly overnight to produce one of the largest outpourings of volunteer communications support to ever hit the region." He also said that 45 ham radio operators from 6 counties, 6 ARES organizations, and 11 clubs pulled together to create a "communications mesh" that covered 15 SAG (Support and Gear) Wagons, 5 Marshal Vans, 8 Rest Stops, the county Emergency Operations Center in Eagleville, PA,

\*c/o CQ magazine  
e-mail: <wa3pzo@cq-amateur-radio.com>



*Race officials were able to monitor vehicle locations across the entire route thanks to a well-planned APRS network. This is Daniel MacKelvey, KB3KBD's station along the route. His portable digipeater/APRS tracking station used a D700a with Ulview and a Dell 8100 laptop. All were running on deep-cycle batteries. The antenna is a simple J-pole attached to a 10-foot pole. (Photo courtesy of N3LJZ)*

and the campus of Montgomery County Community College in Blue Bell, PA.

After almost 12 hours from setup to tear down the last rider finished the 100-mile route to the cheers of a few hardy souls who remained. The work of coordinating communications using three repeater systems covering two counties and an APRS tracking network was one for the record books in the area. In addition to the main repeater network, a backup repeater was utilized after local interference at the County Field Command Unit made one of the repeaters unusable. Pearl said the communications support team for this year's event included an 11-year-old General class at one rest stop, a new Technician at another, and another new Technician in one of the SAG Wagons.

### Pressure On!

Pearl said the Livestrong event, which supports cancer research, saw a 30-percent overall increase in participation. Amateur radio became the sole communications link between the Incident Command post at the starting point and the SAG Wagons along the route. The pressure was on for the ham team to deliver!

Representatives from the various ham groups put in more than 40 person-hours of advance effort to map the frequency coverage along the route, test out APRS digipeater coverage, and plan out relays and mobile digipeaters to fill in dead spots along the grueling Berks County portion of the event. Over two days of testing in the weeks before the event, Pearl said the team identified most of the glitches and gotchas and came up with host of viable response options.



*Steve Pearl, N3LJZ, handles net control duty for the Livestrong cycling event. (Photo courtesy of N3LJZ)*

With 23 trackers being used for the event, it was important that each tracker was configured correctly to avoid congestion on the channel. Steve, W3AHL, Chester County RACES Officer, provided detailed instructions on APRS setup. In addition, he provided a list which included the operator's callsign, the tracker unit to use, the status text, tracker callsign, time-slot transmit offset, symbol graphic, as well as other information.

A new addition to the event was extensive use of the GPS-powered APRS system. Event coordinators at the Incident Command Post in Blue Bell, PA were able to monitor vehicle locations across the entire route, with virtually no dead zones, on a 22-inch wide-screen display brought in for the event. Nearly two thirds of the operators brought their own APRS gear, with volunteers from the CCAR team providing another six units. Saturday's wiring party to equip the vans with Anderson PowerPole feeds to van batteries also turned out to be an impromptu programming session, with Rocky, N3FKR, and Steve, W3AHL, ensuring that all glitches in APRS tracker assignments were solved.

### Track Assets They Did!

When Lance Armstrong took to the route, led by a Pennsylvania State Police cruiser along the entire 100-mile route, the team inside the county-provided Field Comm 1 van knew exactly where Armstrong was every step of the way. With digipeaters filling in gaps in coverage in the hilly terrain of Berks County, there wasn't a single stretch of the route where van tracking wasn't possible.

Even a member of the Pennsylvania State Police stationed in the mobile command center expressed surprise over the ham ability to show mobile asset deployment in real time and handle the seemingly non-stop traffic streaming in from the SAG Wagons. As he put it, "I can't believe how professional an operation you guys run! I had no idea you hams could do some of what you do!"

After-action reports came pouring in. Some included frequency coordination improvement and the positioning of additional APRS monitoring stations at the Berks County State Police liaison station, which was located away from the main command post.

According to Pearl, "The most telling confirmation of the team's success was the comments coming from the hams

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Clay Owen, AA3JY, went mobile using a Kenwood D7A (APRS) mounted on the handle bar, a Garmin ZUMO 550 (no NMEA output) mounted on the handle bar for mapping, a Garmin GPS V (NMEA for the D7A) mounted on Tank Bag, an ICOM 706MkIIIG control head, and external speaker mounted on the sidecar's windshield grab-hold bar. All were powered from a marine deepcycle 27D battery in the sidecar trunk. (Photo courtesy of N3LJZ)

themselves. "I'll definitely be back next year!" "When are we doing this again?" "We have so many great ideas for how to improve next time around!" If a yearning to improve the quality service is an indicator of the fun people had, the ham team who served the 2008 Philly Livestrong Challenge surely enjoyed their time baking in the August sun.

According to event organizer, Gary Metcalf, next time they will be coming back to the Philadelphia area with plans to make the event bigger. The lead coordinator for the event, Chuck Hodges, told Pearl that "our combined team was one of the most polished, versatile, and professional of all the ones they've worked with." Pearl said, "When you consider that our team was drawn from three EmComm organizations and four clubs, that's a pretty big endorsement for the quality of operators we have here in the Delaware Valley and beyond."

### Hurricane Ike Turns Out the Lights

Hurricane Ike knocked out power to millions of customers in Texas. Those who were without power, including many ham radio operators, will tell you that it's been difficult staying in the dark or spending lots of money on gasoline for the generator to save a few cents on the electric bill. Yet those same ham radio operators would show their volunteer

spirit and report for duty, saying that the tree and fence damage at their homes could wait. After all, they were in better shape than many other coastal residents who lost everything.

According to news reports, southeast Texas was within minutes of a complete power disaster. Officials projected the storm would leave no more than one-million people in the dark. Instead, it turned out the lights for more than two-million people. In fact, the electrical grid that serves the Houston/Galveston area was minutes from being lost. It could have taken weeks to restore power to the nation's fourth-largest city.

### Hams Respond

Brazoria County, Texas ARES members established a VHF net, a control station for VHF and HF operations, and manned the EOCs at Brazoria County Court house, City of Pearland, and City of Angleton. The county is just south of the Houston area and was on the west side of the storm when Ike hit. According to Emergency Coordinator Terry Bowersmith, W5SRG, the county was hit with 100-mph winds at 3:30 AM. The operators began taking damage reports and passed emergency messages for the emergency operations centers and Trans Star operations. The reports were also relayed to the Texas Emergency Net on 3.873 MHz, an ARES and RACES shared net.





As vital communications were handled from the Brazoria County Emergency Operations Center, Hurricane Ike's 100-mph winds battered the Texas county. (Photo courtesy of Ron Parker, KE5RON)

The city of Pearland emergency operations were set up at a local school building for safety reasons. Bowersmith said that during the hurricane the windows of the building blew out and the operation had to be moved. From that point on, the operations were mostly mobile and via battery. All of the antennas were lost at Bowersmith's home, but he was able to get a NVIS antenna up on 75 meters and operate until all commercial and battery power was lost. By the next day most ARES operations

in the county were suspended. Instead of going home, some members volunteered at various POD operations around the county. A POD, or point of distribution, is a point in areas that have been declared "disaster" areas, where food, ice, water, and other supplies are passed out.

"With a great portion of our membership under mandatory evacuation, we were down to a skeleton crew and I asked for backup from other ARES groups in Dist. 1 to be available," said



Eric Schmidt, KA5WMY, works on an antenna at the Angleton EOC. (Photo courtesy of KE5RON)

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Bowersmith. "I had many favorable responses from Waller, Harris, and others. As it turned out, we were able to accomplish our tasks without putting more stress on the other ARES groups."

Joe Gadus, KD5KTX, ARRL South Texas Section Public Information Officer, help with the POD operation in Harris County. He said 94 amateur radio operators supplied communications from the various distribution sites in the county. Gadus said there were a number of new amateurs who came forth to help during this disaster. Amateurs traveled to the area to assist. According to Gadus, this is the spirit of volunteerism that is the norm in Texas.

"I know of amateurs who had trees on and in their houses and lost power like all the rest. They helped their communities and thought of themselves afterwards," said Gadus. "We should put family first. However, after they are safe and secure, we all need to band together. We can pick up the limbs and rake the yard later."

### Food Kitchens Rely on Ham Radio

Forty-one Southern Baptist Kitchens were deployed along the Gulf Coast. Many had amateur radio communications available.

The Kentucky Baptist Convention Disaster Services, K4KBC, has been committed to disaster relief services within the Southern Baptist Convention since 1984. Besides providing feeding operations, the volunteers provide chainsaw, reconstruction, counseling and related support services. Accompanying any volunteer crew is a command and communications unit. This unit provides communication support to and between volunteer units and Kentucky Baptist Convention and Southern Baptist Convention Disaster Services leadership. The unit also provides communication services to disaster victims, volunteers, and their families.

Tom Westerfield, WA4ZVL, told CQ that their primary duty was to support the Kentucky kitchen in Thibadaux, Louisiana and then Angleton, Texas. Kentucky kitchen #1 worked with the American Red Cross. He said they provided communication links between the kitchen and the Southern Baptist Convention's North American Mission Board, which coordinated Baptist Disaster Relief from Alpharetta, Georgia. They also maintained communication with the Kentucky Baptist Convention headquarters in Louisville, Kentucky. These contacts were primarily made via Winlink on 40 meters. He



*The Kentucky Baptist Convention's Command and Communication vehicle, K4KBC, supported kitchen operations and communications with Red Cross units in the field. (Photo courtesy of WA4ZVL)*

said daily e-mails with logistical information flowed between these entities.

The kitchen provided food to 10 American Red Cross emergency response teams which served the surrounding communities delivering an average of 7000 meals per day. A radio on the Kentucky communications van enabled the Red Cross supervisor to have constant contact with the emergency response vehicles as they spread across an area 50 miles in diameter. The seven amateur radio operators also maintained other communication and coordination links among inventory personnel, food preparation, and food-serving operations. Westerfield added that casual contact was made with other food providers and communication units and local hams via a D-Star radio on board the unit.

### Florida Unit Responds

The Florida Baptist Disaster Relief team also responded to the Texas coast.

After arriving in Texas City, Brent Gay, KF4JZY, assessed the communication capabilities in the damaged area to determine if there was a communications emergency. Cellular phones were still operational even though they were "sporadic" at times, Gay said. According to Gay the Texas City Police said their radios were working okay with some intermittent problems. While communication was not optimal, there was not a communications emergency.

After assessing the communications capabilities in the affected area, Gay said the primary objective then became supporting the feeding unit that was part of the Disaster Relief team. Communications became important in the recovery process, since the feeding units were stationed at two separate staging areas and locations throughout the time he was there. A VHF link was maintained between the staging areas.

A Winlink 2000 station was set up to enable the relief team to send e-mails without internet capabilities. "After set-

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Brent Gay, KF4JZY, provided communications for the Florida Baptist Disaster Relief team. (Photo courtesy of KF4JZY)

ting up the program, I sent a test message to the North American Mission Board (NAMB) by communicating to another ham radio station in the Cayman Islands using the WL2K system," Gay said. "NAMB then responded that they received the test message. The other ham operators I was with were very happy to have that working." They also maintained a link to the internet through the cell-phone system using an aircard with a laptop computer in the communications trailer.

**With Thanks....**

This month we saw hams put their community first. Once their families were taken care of many hams responded to help with the recovery after Hurricane Ike. In many cases they let the work on their property go until their services were not needed in the field. Today's

emergency communications operator needs to know about a variety of equipment and interfaces. In addition, there is a need to understand current emergency response procedures.

We want to say thanks to those who supplied information this month, including Steve Pearl, N3LJZ, Terry Bowersmith, W5SRG, Tom Westerfield, WA4ZVL, and Brent Gay, KF4JZY.

Finally it's the end of the year. Hopefully you are preparing your emergency communications resolutions for the new year. It might be additional training in procedures or new modes of operation. It could include putting together a "go-kit" or a portable antenna. For the past nine years we have been bringing you stories of amateur radio operators serving in the public interest. We continue to look forward to telling your public service stories. Have a great holiday season. Until next month... 73, Bob, WA3PZO



The Florida Kitchen prepared about 7000 meals a day. (Photo courtesy of KF4JZY)

Would you like to be able to operate your mobile rig hands-free? Maybe with a Bluetooth™ device like you may have for your cellphone? Wait no longer...

## CQ Reviews:

# TalkSafe by RPF Communications

BY PHIL SALAS,\* AD5X

**W**hile wandering around the 2008 Dayton Hamvention®, I found myself at the RPF Communications booth. UK-based RPF Communications makes an interesting new device called TalkSafe™, which lets you wirelessly interface with virtually any ham transceiver via a Bluetooth-compatible headset. After a short discussion with Gail, 2EØXRF, the RPF Sales and Marketing Director, I left the booth with a TalkSafe unit and an IC-706MKIIG interface cable.

### Overview

TalkSafe consists of a compact 2½" × 3½" × 1" unit that you mount near your transceiver (photo A). A standard accessory power plug provides 12 VDC to the unit, and a second supplied cable provides receiver audio interfacing to your transceiver via a ⅛-inch mono plug. A transceiver-specific cable must also be purchased in order to provide the microphone input to your transceiver (see photo B). RPF Communications makes cables for virtually every ham transceiver currently on the market, as well as commercial transceiver products.

The RPF Communications folks designed TalkSafe primarily for the mobile environment. Therefore, there are sev-

eral features built into the product that optimize it for this application. As an example, no ON/OFF switch is necessary, as TalkSafe powers up as soon as DC voltage is applied. Also, while TalkSafe typically draws about 100 ma, it automatically goes into a power-saving "sleep" mode after 15 minutes if it is not paired with a headset. In the sleep mode TalkSafe draws just 10 ma. TalkSafe also includes a time-out timer so you can set a predetermined continuous talk-time, after which TalkSafe automatically unkeys your transceiver after giving a 15-second audible warning.

As you can see in photos A and B, the TalkSafe front panel includes all necessary information indicators and control inputs. When you are in the transmit mode, the red PTT LED lights up. The blue SYS LED flashes when pairing is in process and remains lit when pairing is complete. The SPK switch/LED can be pushed to disconnect the radio's speaker output from your wireless headset and re-route it to an external speaker. This is useful if other people want to hear both sides of a contact. The SPK LED glows green when the receiver audio is *not* fed to the wireless headset. Finally, the TMR switch/LED can be pushed to enable the time-out timer.

\*1517 Creekside Drive, Richardson, TX 75081  
e-mail: <ad5x@cq-amateur-radio.com>



Photo A— TalkSafe front panel.



Photo B— TalkSafe with supplied cables.



Photo C— Cable connectors (left); time out timer and mic and receive audio gain controls (right).

The time-out timer can be set for delays of from 20 seconds to 4 minutes via an internally set DIP-switch. The TMR LED glows amber when enabled.

### Preparing to Use TalkSafe

Setting up TalkSafe is extremely simple. First you must open the rear access cover and attach your two cables—the supplied speaker/power cable and the optional transceiver-specific interface cable. Photo C shows the connectors under the access cover, and photo D shows these cables plugged into the connectors. Place TalkSafe within 6 feet of your transceiver (the length of the cables), plug the 1/8-inch mono-plug into the external speaker connector on your transceiver, and connect the microphone cable to your transceiver. Finally, plug the accessory plug into an available 10–16 VDC source. For a more permanent mobile installation, TalkSafe can be hard-wired directly to the vehicle battery. In addition, RPF can supply longer cables on special order—at no extra cost(!)—if your transceiver is installed in your trunk, and you use a remote head unit on the dashboard.

Next, pair TalkSafe with your Bluetooth-compatible headset. To do this, simply enable the pairing function with the button on your headset and wait for the SYS LED to light solid. You will also hear five “beeps” in your headset when pairing is complete. Once pairing is complete, you next need to check and adjust the receiver audio gain settings. This is easily done by listening to your transceiver’s receiver audio through your headset and then adjusting the vol-



Photo D— Speaker, power, and mic cables plugged in place.

ume control on your transceiver and/or your headset volume for the desired level. If the receive audio level is too high or too low, you can adjust this level with an internal potentiometer inside the TalkSafe unit.

Finally, you need to check and adjust your microphone gain. Your headset’s Call/Call Cancel button enables PTT on your transceiver, so tap the Call/Call

Cancel button on your headset and adjust the microphone gain (ALC, compressor, etc.) on your transceiver while speaking through your headset. If you cannot properly adjust these parameters, you can readjust the microphone audio output from TalkSafe via a second internal potentiometer in TalkSafe. I don’t expect this to be necessary in most cases. I found that no internal TalkSafe



Photo E— The author using TalkSafe while working on a “Weekender” column project.

# Begali Keys

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adjustments were necessary when using TalkSafe with my IC-706MKIIG.

## Using TalkSafe

Once everything is set up, you're ready to operate your transceiver remotely over the typical 10-meter Bluetooth range. TalkSafe is advertised primarily for the mobile operator, and it really is a perfect mobile interface. While driving, you just need to tap your headset's Call/Call Cancel button to go between transmit and receive. Other than keying and unkeying your transceiver, you can keep both hands on the steering wheel. Transmit audio reports have been excellent, and I've found the receiver's headset earphone to provide clear and crisp audio, all without wires.

In my case, I really don't operate mobile much anymore. Because I'm retired, I tend to spend all my car time with my wife, and we enjoy talking and listening to music together. However, I've found TalkSafe to be extremely convenient to use in my home (see photo E). I spend quite a bit of time working on different ham projects in my lab area that is located in our family room (yes, family room). I also have my IC-706MKIIG located there, as I like to monitor various HF or 6-meter frequencies while I work. Also, since I am in the family room, I wear headphones so as not to interfere with my wife's TV or CD listening. However, 'phones are inconvenient because I am always getting up to get a book, going into the garage to do some metal work, etc. Additionally, if I want to chat with someone I pretty much have to stop what I'm doing to engage in the QSO. With TalkSafe, however, I can continue working while talking, and I can get up and move around at will. This *really* works out well for me. Of course, TalkSafe

*"While driving, you just need to tap your headset's Call/Call Cancel button to go between transmit and receive. Other than keying and unkeying your transceiver, you can keep both hands on the steering wheel."*

easily transfers between your vehicle and home transceivers to give you this extra flexibility.

## TalkSafe Ranger

RPF also makes the TalkSafe Ranger, which is designed for your talkie. The TalkSafe Ranger is similar to TalkSafe, but it doesn't include the Time Out Timer and Speaker Bypass capability. It is designed to clip to your belt and includes an internal rechargeable 9-volt battery, along with an international AC charging unit and one radio-specific mic cable. More information on the TalkSafe Ranger can be found on the RPF website.

## Conclusion

The RPF Communications TalkSafe and TalkSafe Ranger are worth looking at if you operate mobile HF or VHF/UHF, or if you want the ability to walk around your operating position at home without being tethered to your equipment. The list price for TalkSafe and TalkSafe Ranger is \$182.50, plus \$16.50 for the radio-specific cable. More information can be found at <www.rpf-comms.com>.

# Simple Switching Power Supplies

Last month we described a simple linear power supply that even a novice homebrewer could build. The one problem we indicated (with such a supply) is that at even moderate load currents the regulator chip gets quite hot and needs to be heat sunk.

This was indeed the case with linear regulators for many years until the advent of switching supplies. These circuits dissipate much less heat due to their method of operation. In a linear supply current always flows, and the dissipation of the regulating element is simply the voltage dropped across it times the load current. A 1-ampere 5-volt supply, for example (from a 7805), driven by a rectified 8-VDC source would dissipate 3 watts and get quite hot! If the input voltage is higher, the device can get so hot that it actually shuts down. This is why heat sinks are always recommended.

To begin our discussion, for reference, fig. 1 is the schematic of the simple linear adjustable power

\*c/o CQ magazine

supply we described last month. This month we will describe a switching supply that is almost as simple, but, as you will soon see, dissipates much less power.

In a linear regulator a transistor inside the device (called the pass transistor) is always in conduction (see fig. 2). If the current flowing through this transistor is 1 ampere and the voltage drop across it is 8 volts (as mentioned in the example above), then the full 3 watts is dissipated by it. In a switching regulator, however, the pass transistor is constantly switched on and off by an internal oscillator also (see fig. 2). When it is off, obviously no current flows and there is no dissipation. When it is on, the transistor is fully saturated and the drop across it is about 0.8 volts. The dissipation is now  $0.8 \times 1$ , or 0.8 watts (quite a bit less). The output voltage is the input - 0.8 volts when on and zero when off, so how do we reduce it to our desired value?

Let's now look at fig. 3. Here we have driven the pass transistor with an oscillator producing a 50% duty-cycle square wave. The resulting average

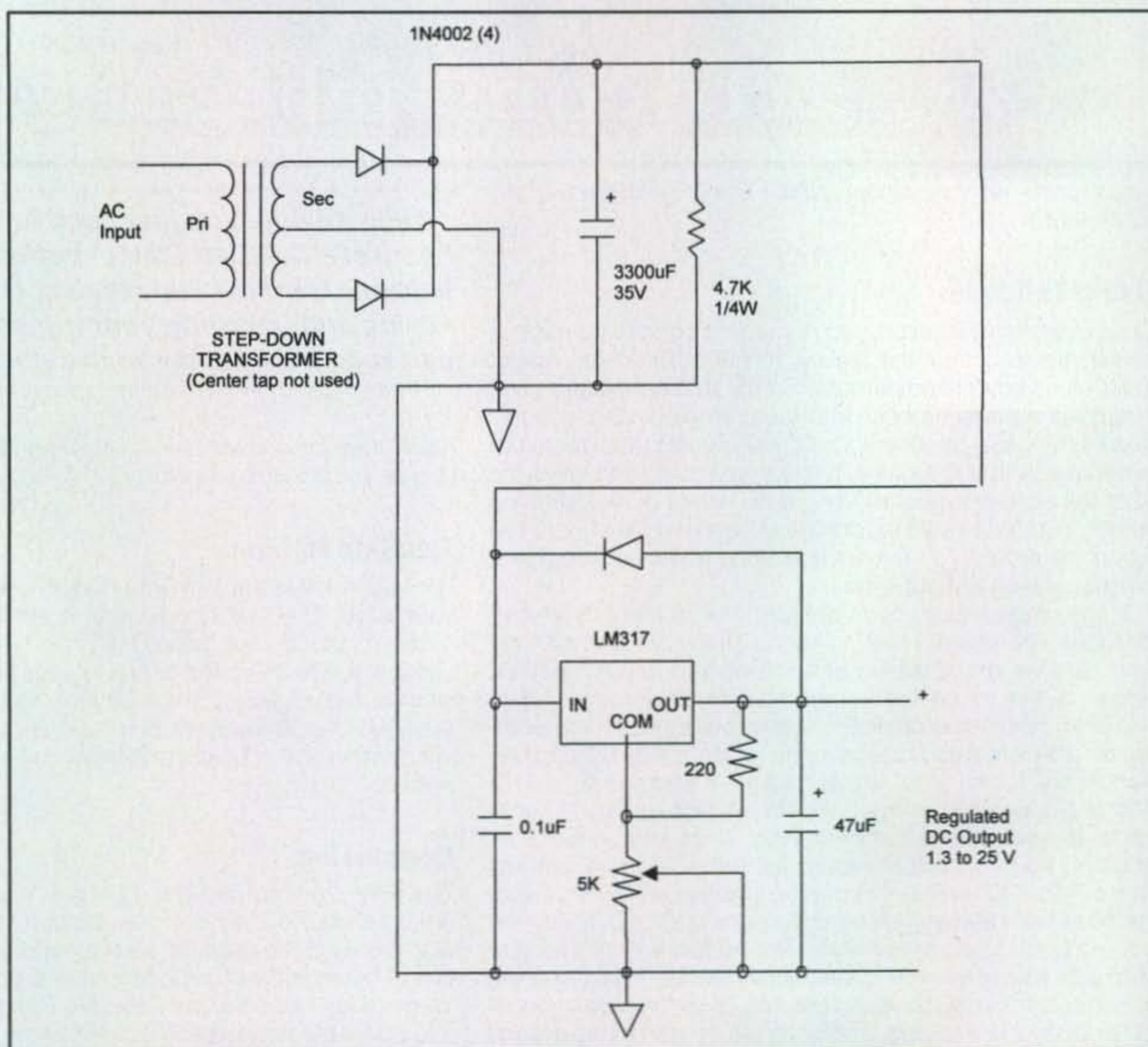


Fig. 1— The adjustable linear power supply featured last month.



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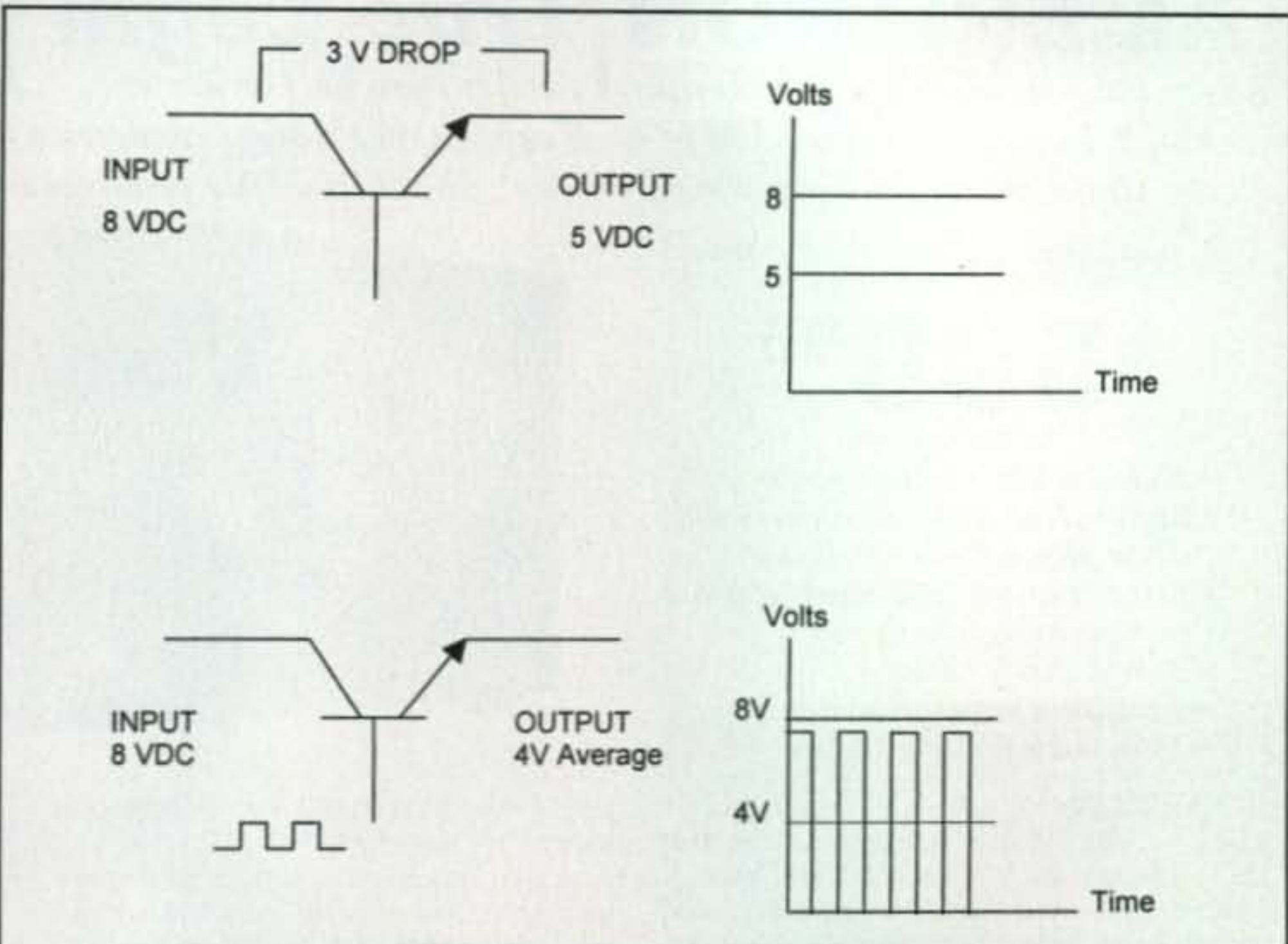


Fig. 2- Linear pass transistor versus switching pass transistor.

value of the output is therefore 50%, or half (roughly 4 volts in this case). If we then were to apply this voltage directly to a load, the output voltage would be about half but with a rather large (50%) ripple component. By the way, a filter capacitor across the load will help reduce the ripple. What is important to note here, however, is that by varying the duty cycle of a DC square wave the output can be dropped to any fraction of the input that we desire.

A switching regulator adds two more components, an inductor and a diode (sometimes called a "catch diode"). Fig. 3 shows this arrangement. Now when the pass transistor conducts, current flows through the inductor and into the load and this same current also creates

a magnetic field around the inductor. The diode at this point is reverse biased, so it is essentially out of the circuit. As soon as the pass transistor cuts off, though, the magnetic field around the inductor collapses, creating a back EMF voltage across the inductor. This voltage is now of the opposite polarity, which allows the diode to conduct and continue the current flow into the load.

In summary, therefore, when the pass transistor conducts, the output is directed to the load. When the pass transistor cuts off, the inductor continues driving the load. Now by changing the overall duty cycle, the output voltage can be varied to whatever voltage we wish.

In the linear power supply there is a voltage divider composed of two resistors

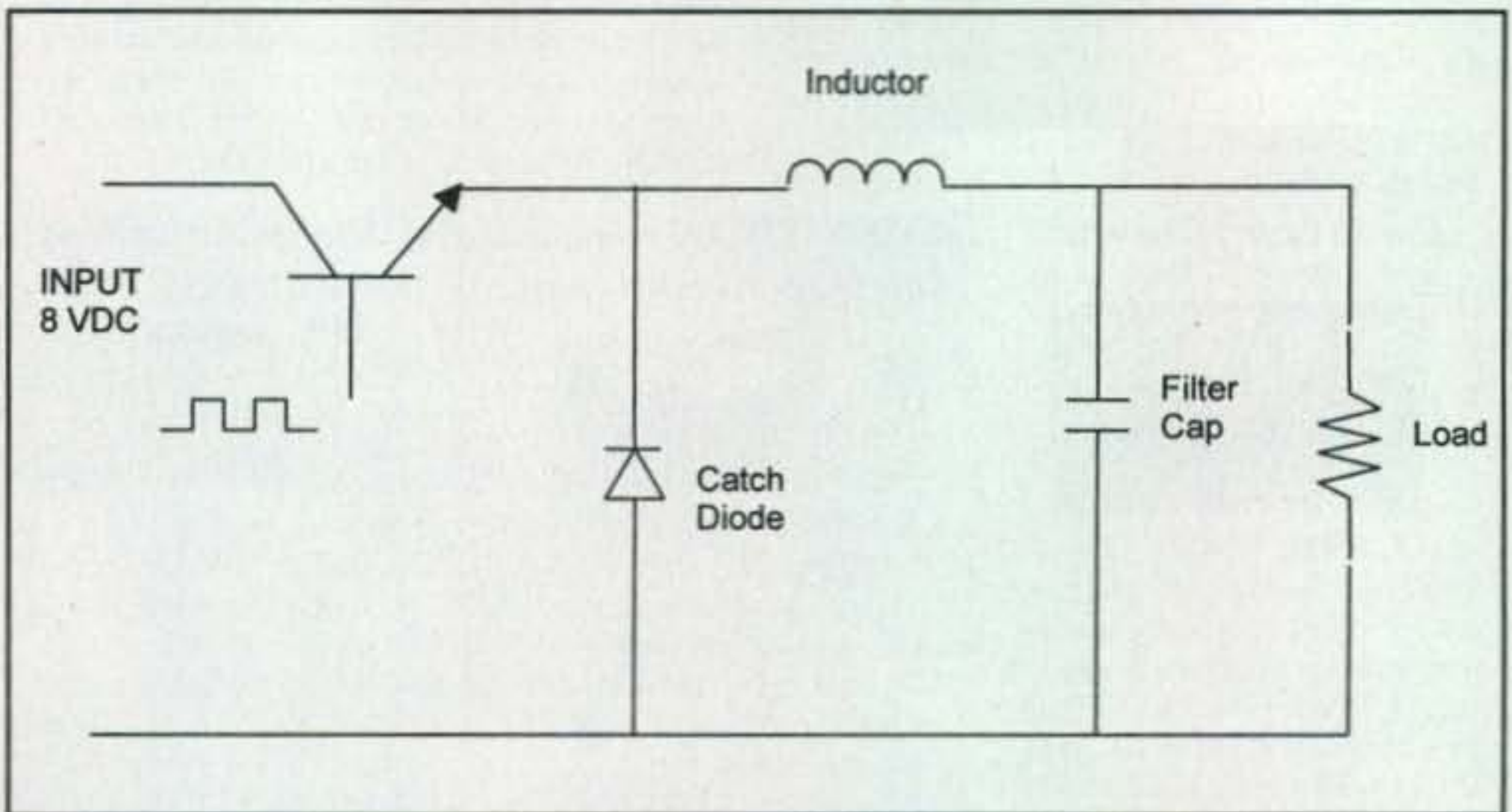


Fig. 3- Basic components of a switching regulator.

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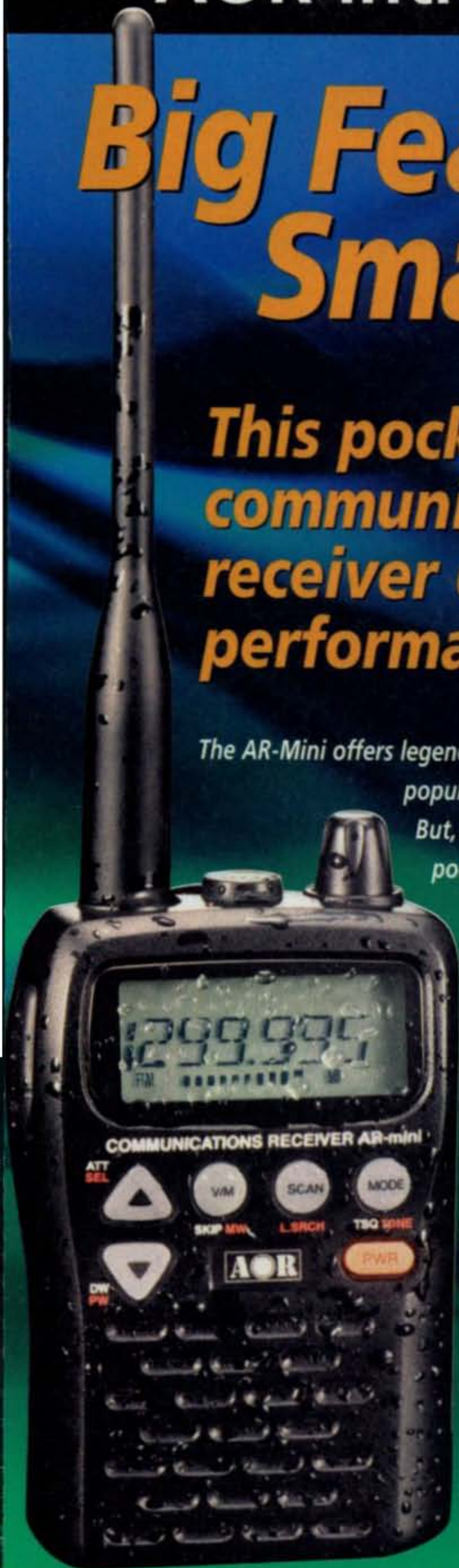
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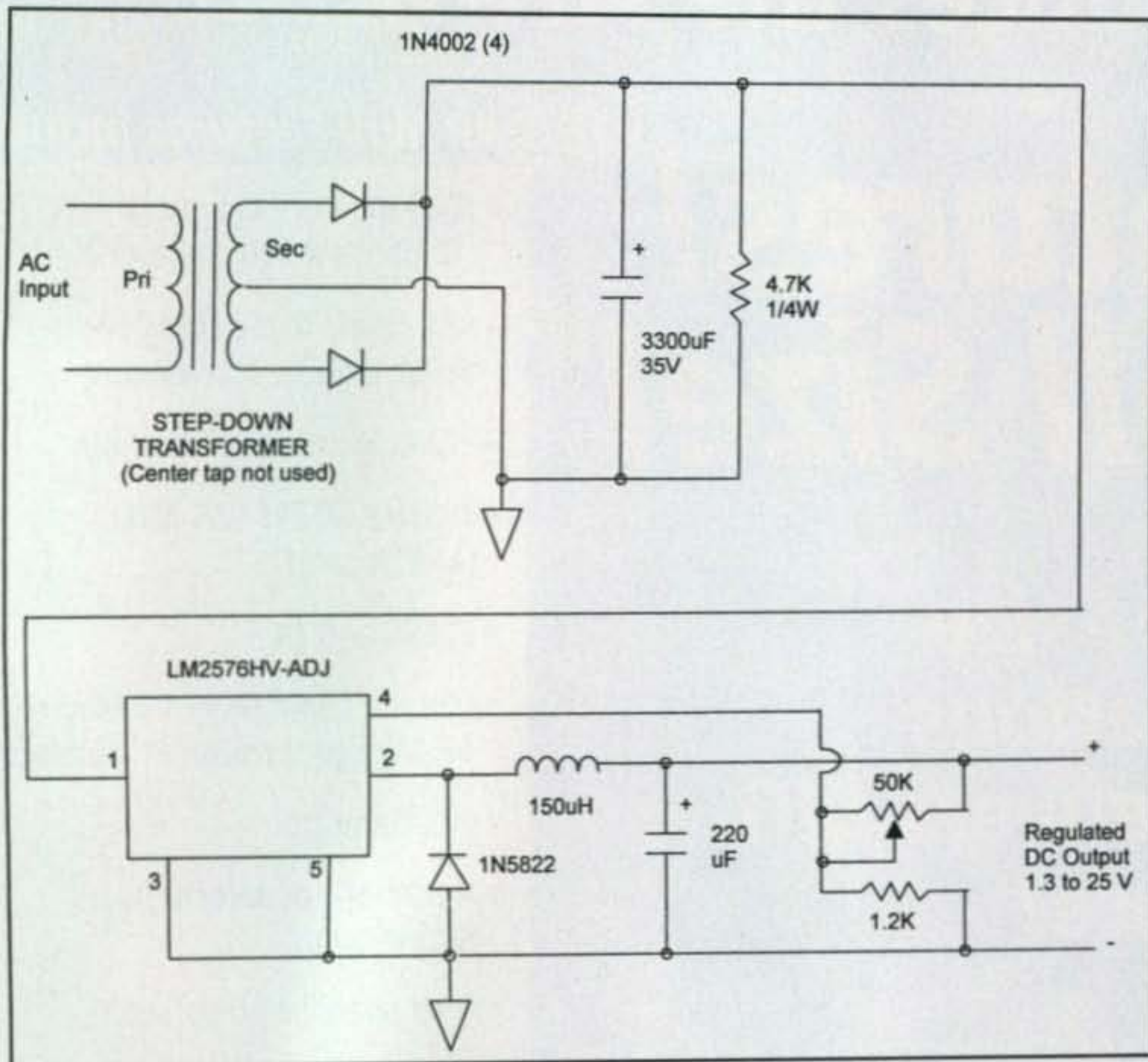


Fig. 4— Adjustable switching supply schematic.

tors that set the output voltage. The switching regulator has a similar divider except that it controls the duty cycle of the switching circuit and therefore the output voltage. The ripple component fed back via this path also helps smooth the output as well. The switching regulator we have chosen for this project is the National Semiconductor LM2576. This device switches at a fairly high frequency, about 52 kHz, so the output filter capacitor does not have to be too large in value (at higher currents) for effective ripple reduction. Because of this high frequency, however, the "catch diode" and inductor are critical. The diode must be able to operate at the high switching frequency, and a typical choice is the 1N5822. This is a Schottky switching diode and is far superior to the 1N4002 (which will not work properly, as it is designed primarily for 60 or 120 Hz).

The inductor must also be specially chosen to retain its inductance with the fast, high current pulses flowing through it. Fortunately, many manufacturers produce suitable devices and most of the large suppliers such as DigiKey, Mouser, and Jameco all offer many styles of inductors specially designed for these circuits.

The data sheet for the LM2576 has a chart that allows you to quickly determine the correct value for your particular application. Although the output capacitor can be smaller than those usually used for a linear supply, as the ripple frequency is much higher, the input capacitor must be chosen carefully, since it needs to supply a large current pulse every time the pass transistor conducts. Special low-series resistance capacitors (called low ESR capacitors) have also been specially developed for this purpose and are available from the same suppliers.

To round out our discussion, fig. 4 is the schematic of an adjustable switching version of the linear supply as compared to the linear supply we described last month (fig. 1). It will also provide 1.5 to 25 volts at 1 ampere, but in this case the regulator will only get warm at full load. You can use ordinary construction techniques, but be sure that all leads around the inductor and "catch diode" are as short as possible.

In conclusion, as I have written at this point in the year for the past 30 years, I would like to wish all of my readers a very happy and healthy holiday season and hope that all of your dreams and wishes come true.

73, Irwin, WA2NDM

## SUCH A HAM



I don't remember that J-Pole as being part of the tree ornaments, Stan.

# MFJ Pocket size Morse Code Reader™

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**MFJ-26B, \$9.95.**

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Soft leather protective pouch. Clear plastic overlay for display, push button



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**MFJ-5161, \$16.95.** MFJ-461 to computer serial port cable (DB-9).

**MFJ-5162, \$7.95.** Receiver cable connects MFJ-461 to your radio's external speaker 3.5 mm jack.

**MFJ-5163, \$10.95.** Cable lets you use external speaker when MFJ-461 is plugged into radio speaker jack. 3.5 mm.

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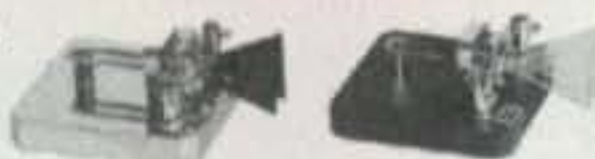
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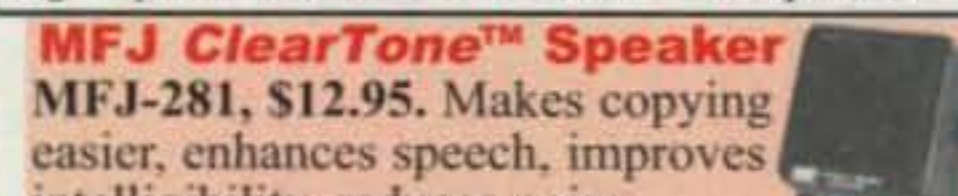
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## How to Get 1x2 or 2x1 Vanity Calls ... when none supposedly are available

**O**ur May 2008 column dealing with vanity callsigns generated a lot of letters and phone calls, and it has become obvious to us that many radio amateurs do not completely understand the rules surrounding the Vanity Call Sign System.

We got a number of inquiries from readers questioning why their request for a specific callsign was rejected, or why someone else got the callsign when they "should not have." Another popular question was "How do I obtain a short (1x2 and 2x1 format) callsign when none are available? We did not address these concerns in our previous column, so let's cover them this month.

### Why was My Vanity Callsign Application Dismissed?

There are dozens of reasons why you did not get your wanted callsign. Here is a rundown on the most prevalent

**Insufficient license class:** Vanity callsigns are only issued to radio amateurs or club trustees when their requested callsign is from an equal or lower callsign "Group." Extra Class amateurs qualify for any callsign: Group "A" (1x2, 2x1, and 2x2 formats with prefixes AA through AL), Group "B" (2x2 format), Group "C" (1x3 format), or Group "D" (2x3 format). The Advanced Class may choose Group B, C, or D callsigns. Technician, Tech Plus, and General: Group C or D. Novice Class operators may only select a Group D format.

A common error is for an applicant to apply for a new callsign right after passing an upgrade examination but before the FCC's Amateur Service database has posted the new license class. While you may operate using your new privileges immediately after passing the needed exam (by appending your callsign with "AG" or "AE"), you must wait for the FCC to show the upgrade in the Amateur Service database before applying for a vanity call available only to your new license class.

**Invalid callsign format:** U.S. amateur callsigns must begin with K, KA-KZ, N, NA-NZ, W, WA-WZ and AA-AL, but not the single letter A. (A2NYC would be a nice call for a ham in New York City except for the fact that "A2" is the country prefix ITU-assigned to the central African Republic of Botswana.) It is amazing how many amateurs select the single letter "A" as a vanity prefix.

All U.S. amateur station callsigns contain 1 or 2 prefix letters, followed by a single radio district number (0 through 9), and up to 3 suffix letters. In addition, there are no 2x3 callsigns beginning the NA-NZ or AA-AL prefix groups. One-by-one format callsigns (such as K1A) are only available for temporary assignment under the Special Event Call Sign System. There must be a prefix, district numeral, and suffix in every vanity callsign select-

ed. Needless to say, a callsign such as "KAHUNA" (like one fellow applied for) will be rejected.

**Unpaid regulatory fee:** As of September 25, 2008, the government "regulatory fee" is \$12.30 for a vanity callsign. It may be paid using the online FCC Form 159 (Remittance Advice) and a credit card, or you may mail a check along with Form 159 to: Federal Communications Commission, Regulatory Fees, P.O. Box 979097, St. Louis, MO 63197-9000. Be aware that this is a new address, since the Mellon Bank no longer processes these regulatory fees for the U.S. Treasury. A blank Form 159 can be downloaded from the FCC form site at: <<http://www.fcc.gov/formpage.html>>.

Applicants have ten days after applying for a vanity callsign in which to submit the fee. If no fee is received during the following seven days, the vanity callsign application will be dismissed. (Vanity callsigns are issued 18 days after "official receipt.") Payments that are misdirected to the FCC in Washington, DC, or Gettysburg, PA, are forwarded to the St. Louis address; however, this could result in a late filing and application dismissal. We strongly suggest that you apply for your vanity callsign and submit your \$12.30 fee online using a credit card rather than by filing documents and sending checks or money orders by mail. It's easier, faster, and has less chance of error.

Applicants who apply for a vanity callsign but do not receive one are eligible for a refund of the \$12.30 regulatory fee. Simply write a letter to: FCC, Amateur Section, 1270 Fairfield Road, Gettysburg, PA 17325-7245 asking for a refund. The FCC does not automatically refund the fee when a vanity callsign application is dismissed. Be sure to include your name, address, current station callsign, FCC Registration Number (FRN), and Taxpayer ID Number (TIN). The TIN is your Social Security Number (SSN). Refunds take about six weeks.

**Active callsign.** An amateur radio station callsign is active for 12 years—the 10-year term plus the 2-year "grace period" during which a callsign and operating privileges may be reactivated without having to retake the required examinations. The license is canceled the day after the 10-year term *and* the 2-year grace period expire. The callsign is thus immediately available for reassignment as of the cancellation date. If the cancellation date on an *expired* license is December 15, 2008, it is available on December 15, 2008 since it *includes the day after* the 2-year wait.

However, let's suppose a callsign is cancelled because the FCC has been properly notified—and accepts—that the holder died on December 15, 2006. In that case, the callsign is canceled as of the date of death. It is available for reassignment two years plus one day later: December 16, 2008.

The disparity in the way that cancellation dates are handled has caused many radio amateurs, hoping to file as early as legally possible, to file on the wrong date. Again, if the license expired two

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years earlier, it is available on the cancellation date. If the holder died, then you must add one day to two years after the cancellation date.

**Priority filing date:** You should be aware that there are cases when an applicant for a callsign you want does not have to wait out the two-year period that a callsign must be inactive before reassignment. These instances include former holders of a callsign, close family members, a club that wants a deceased member's callsign, or amateurs who have "willed" their callsign to a club. Even though you may have filed a vanity application on the first day the callsign was available, an application with a priority date could still get the callsign ahead of you.

**Reserved callsign:** The FCC has a list of amateur station callsigns that may not be issued because they are reserved for various reasons. These include callsigns with suffixes that are Q-signals or "SOS," as well as calls that are reserved for the military or FEMA (the Federal Emergency Management Agency). Certain prefixes (WC, WK, WM, WR, and WT) on 2x3 callsigns were reserved 30 years ago for "Group X" stations (RACES, club, military, repeaters, and temporary licenses). "Group X" callsigns were never implemented but the FCC had already programmed its computer not to issue them, and it still does not. A 2x3 format callsign also may not have the letter "X" as the first letter of the suffix. (These are reserved for non-amateur experimental stations.)

You will find this list on the internet by going to: <<http://wireless.fcc.gov/services/>> and clicking on "Amateur Radio Service." Once there, click on the "Vanity" link on the left side of the page under "Call Sign Systems." That will take you to a web page that lists "Call signs not available for assignment."

**Restricted region:** Certain callsign prefixes are restricted to radio amateurs with mailing addresses outside of the 48 continental U.S. If you have a mailing address in one of the 48 lower United States, your request will be dismissed if you ask for a callsign with a prefix of AL, KL, NL, or WL (reserved for Alaska); KP, NP, or WP (reserved for U.S. possessions in the Caribbean); and AH, KH, NH, or WH (reserved for Hawaii and various Pacific island possessions).

**Filed too late or early:** Multiple competing applications for the same callsign are placed in a pool and the FCC's computer randomly selects one of them. That sounds simple enough. The tricky part is determining when the callsign is available and how many applications are in

the pool. The pool consists of all applications for the same callsign filed during the first 24-hour day it is available.

As a general rule, if you apply before the callsign is available or if you apply a day late, you will not be among those in the pool. However, that is not always the case. The statement that a callsign is available after two years plus one day following cancellation by the FCC is also not totally true. The exceptions have caused a lot of radio amateurs to file on the wrong day. Some also wonder why an application filed before or

after the first day of availability got the callsign and they did not. It has to do with "Receipt Date." There can be a difference between the "Entered Date" and "Receipt Date" of an application.

Vanity callsign applications are "officially" received only on a business day, and that means Monday through Friday unless a federal holiday. All applications filed on a weekend are dated with the following Monday's date. There is a reason for that. It has to do with eliminating the advantage an online-filed application might have, since mailed in applications



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Contrary to what most amateurs believe, there are instances in which a vanity callsign application may be filed early or late and still be in the pool. Let's take the 2008 Labor Day weekend as an example.

A callsign that is canceled due to the death of the holder is available for reassignment two years later plus one day. For example, the callsign of an amateur who died Aug. 31, 2006 will show a cancel date of Aug. 31, 2008, a Sunday. It is available for reassignment on Sept. 1, 2008 (a Monday). The FCC, however, will show the "Receipt date" as Tuesday, Sept. 2, since Sept. 1 was Labor Day (a federal holiday).

Here's the tricky part. All applications entered on Aug. 30, 31, or Sept. 1 or 2 will carry a "Receipt Date" of Tuesday, Sept. 2. That means that any application filed from Aug. 30 to Sept. 2 will be in the Sept. 2 pool—even those filed early (Aug. 30) or late (Sept. 1 or 2). Thus you can see that it is sometimes possible for a vanity application to be filed before or after the availability date and still be considered for the callsign. It is the vanity callsign application "Receipt Date" and not the "Entered Date" that is of prime importance.

Admittedly, this can be very confusing. You have application "Entered" and "Received" dates and two ways of posting cancellation dates. I guess a simple rule would just be to file online and add one day to the cancellation date if the requested callsign is not from an expired license. You should be aware that there are indeed situations where an applicant may have filed a day or two early or later and still get the callsign.

**Competition for callsign:** When more than one application for a vanity callsign is received on the first full day, the callsign is awarded randomly by the FCC's computer, a lottery system. Those radio amateurs who did not win the callsign will have their request rejected (or another requested callsign will be issued). The date of dismissal will be the "Received Date."

**Duplicate Filing:** In 2000, the FCC closed the loophole that allowed applicants to file duplicate applications for the same callsign on the same day. Applicants reasoned that if they had a great many "tickets" in the lottery pool for a specific callsign, they would have a better chance of getting it than an applicant who only had one. They were right. After the callsign was awarded, these amateurs filed for a refund of the vanity callsign fee on the applications that did yield the callsign. Now the FCC computers only accept one application

per day for a callsign. Duplicates are automatically dismissed.

**Off-lined by FCC:** A few amateur radio operators have a "hold" placed on their FCC records, usually because of some ongoing enforcement activity by the Commission. No updates, renewals, or applications can be filed by the amateur involved until the hold is released. A vanity callsign application filed by the individual involved will result in dismissal.

**Failed "Red Light" check:** As part of the Debt Collection Improvement Act of 1996 (Public Law 104-134, DCIA), Congress mandated that government benefits would be denied to people who owed the United States money until payment arrangements were made. The primary purpose of DCIA is to maximize collection of the billions of dollars of non-tax delinquent debt owed to the government.

Beginning November 1, 2004, Social Security Numbers were matched with an outstanding delinquent debt database. If it is determined that you have an outstanding debt, a "red light" is triggered in the system. You then receive a notice that your application or other request for benefit will not be processed pending resolution of the delinquency. If you do not pay the delinquent debt or make satisfactory payment arrangements within 30 days, your license, renewal, vanity callsign application, or other request for benefit will be dismissed (consigned to the trash can), and collection activity on the debt will proceed.

### Obtaining a Specific Callsign Format

Most vanity callsigns are requested by Extra Class amateurs trying to get a short (1x2 or 2x1) format callsign or Technician level hams seeking a 1x3 callsign to replace their beginning 2x3. One-by-three format callsigns are relatively easy to get, since there are over 500,000 callsign combinations available (K, N, W prefix times 10 callsign districts times all of the three-letter suffix combinations.)

There are fewer than 50,000 1x2 and 2x1 callsigns and over 110,000 Extra Class amateurs eligible for them. The Extra Class is the fastest growing license class; there are 5000 more since the FCC dropped the Morse code requirement just last year.

The best way to get a specific 1x2 or 2x1 format callsign frankly is *not* to wait until that callsign becomes available. Many of the vanity callsign sites have programs online that identify when a callsign is to become available, which can generate several applications. (To find these sites, just Google "Vanity Call

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Sign Search.") We call these callsigns "naked (exposed) callsigns," since their availability and dates available are widely known.

Many amateurs think that available callsigns are assigned by the time of the day that the application for it is filed, meaning an application filed at 8 AM gets priority over an application filed later in the day. That is not the case, and there is no need to file your application online at one second past midnight to be sure your application gets first consideration.

"Time" has nothing to do with it. All applicants for a specific callsign on the callsign's first day of availability are in the running for the requested call. Callsigns are assigned in order by "Receipt Date," which must be a business day. If more than one eligible amateur selects the same callsign on the same day, then the callsign is awarded randomly among the qualified applicants.

The more applications filed for the same callsign on the first day of availability, the less your chances are of getting it. For example, there were dozens of applications filed for callsigns such as W4HF and K7DX, and it is certainly not uncommon for ten or more to be filed for a desirable upcoming callsign. When that happens, the FCC's computer

awards the callsign randomly (by lottery) among all the competing applications for the same callsign. You have a 90-percent chance of not getting a specific callsign if there are ten qualified applications for it. Not good odds at all.

Due to the popularity of vanity calls, it is frequently necessary to select a callsign from outside your radio region. While it is desirable to have a callsign numeral that matches your area, there are no FCC restrictions requiring a specific callsign numeral. For example, a District 4 (southeast USA) amateur may select a callsign from any of the ten regions, 0 through 9. With the lack of region restriction, it is getting difficult to tell which part of the U.S. a ham calls home by just seeing his/her callsign.

**Getting a Short Callsign**

The most desirable callsign for an Extra Class amateur is a Group "A" 1x2 or 2x1 format callsign. We frequently hear that there are no short (especially 1x2) callsigns that can be assigned in a particular radio district. However, in our experience, that is *never* the case. The various vanity callsign sites may show no availability, but some are still being assigned. It is simply a case of locating them. Therefore, the question be-

comes: "Where are these callsigns coming from?"

In addition to expired and canceled callsigns that normally appear available in the FCC records, there are callsigns that can be made available because the holder has been deceased for more than two years. Again, all amateur radio licenses are "active" for 12 years—the 10-year license term plus the 2-year grace period during which the license may be renewed without retaking the license examinations again. Because of this grace period, a callsign must be inactive for a minimum of two years after expiration or cancellation before it can be reassigned to another amateur. To reactivate the callsign of a "silent key," the callsign must be canceled from the FCC's database of radio amateurs. The FCC will cancel the callsign as of the date of death.

The callsign is cancelled when acceptable evidence of death is provided to the FCC. The only proof of death accepted by the FCC is (1) a copy of the original death certificate, (2) a copy of an obituary printed in a newspaper, or (3) a listing from the Social Security Death Index (SSDI).

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fit—a service of the ARRL Technical Information Service (TIS)—provides printable PDF copies of all QST articles from Dec. 1915 through Dec. 2004.

Another source of Proof of Death information is the various state records of births and deaths. Be aware that some states charge a fee for searching or providing death records. The Obituary Database at <http://www.obituarydatabase.com/> (as well as others) can also provide you with leads.

Once you have a list of potential silent key callsigns, check to see if the death can be verified by searching the RootsWeb Social Security Death Index (SSDI). Information from the SSDI database is readily accepted by the FCC as long as the information matches up with that contained in the deceased amateur's record, and use of the RootsWeb database is free.

Simply enter the name of the deceased amateur to search for any records having the same name as the callsign holder. Once you get the list back, carefully compare the last known residence with the address you already have. If they match, then check the birth date listed on QRZ.com. (While the FCC no longer releases birthdate information in its public database, it used to in the past, and many of the callsign lookup websites have retained this information and continue to post it.) If the name, address, and date of birth all match, then you have probably found a silent key. Remember, the silent key must have passed away at least two years ago for the callsign to be available. Remember also that family members and, in some cases, radio clubs to which the Silent Key belonged may have priority to apply for the call.

Mail the Proof of Death (copy of a newspaper obituary, death certificate, or SSDI page) to: Federal Communications Commission, Amateur Section, Attention: Ms. Rebecca Williams, 1270 Fairfield Road, Gettysburg, PA 17325-7245. Attach a note asking that the deceased amateur's callsign be canceled. The FCC normally cancels a deceased amateur's callsign within two weeks of receipt in Gettysburg.

Once you have sent the cancellation request to the FCC, you can apply for the call before it becomes known to the general ham community. By the time others see that it has become available, you will have already applied for it, and will be first in line to receive it. Available call signs, once cancelled, show up using the FCC's Universal Licensing System "License Search" function.

73, Fred, W5YI

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the U.S. Social Security Administration's Master Death File. Most persons who had a Social Security Number (SSN) and died since 1963 and whose death has been reported to the Social Security Administration are listed in the SSDI. It contains the records of over 82-million people and is updated about once a month. The SSDI (which also contains the retired SSN of the deceased) is located on the internet at: <http://ssdi.rootsweb.com/>.

## How Do I Find A Silent Key's Callsign?

A "silent key" is an amateur radio operator who is deceased. The term is frequently abbreviated SK. You can search for likely silent key callsign candidates by reviewing lists of upcoming 1x2 and 2x1 callsign expirations posted on the various online vanity callsign sites.

These lists show the callsigns that are (or soon will be) expired or canceled, and the date marking the beginning of the required two-year wait. These callsigns—sorted by prefix, radio district, and suffix—are in the FCC's active database and will be available for application two years after the dates shown.

Three of these sites located on the internet are at: <http://www.vanityhq.com/>, <http://www.ae7q.com/>, and <http://www.radioqth.net/>.

Another way to obtain candidates for "silent key" callsign cancellations is to use the various online search engines such as Google, Yahoo, or MSN.com. Simply enter the words "silent key" (in quotes) and see what the search sites can uncover. I have found many available 1x2 and 2x1 callsigns not generally known using this method. A little-known approach to getting the call of a silent key is to find records of a ham who has died more than two years ago but whose license has not been submitted for cancellation by his/her family (a common occurrence). If you can confirm that the amateur is deceased and has been for more than two years, and notify the FCC with acceptable proof, then the license will be cancelled and the callsign will be available *immediately*.

The American Radio Relay League has recently placed all silent key data (and the entire QST magazine archive) for 2004 and before online. ARRL members can access this information free of cost at <http://www.arrl.org/members-only/qqnsearch.html>. This new bene-

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## 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 its ergonomic "user friendly" design, alphanumeric display for easy memory management, and its 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.

### Standard Features

- TX 144-147.995 MHz RX 136-173.995 MHz
- Rugged polycarbonate body
- Highly visible 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

### 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
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## It's Goodie Time!

**H**appy Holidays, friends! We thank you for all the encouragement and support during the past year(s) and vow to bring you even more news and views of new delights, unique mobiles, amazing keys, hidden antennas, and tips for good HF'n during 2009. Stick with me, and together we will have a ball spending money and filling our shacks with heartwarming treats for blowout-good hamming. The good times start right now as we once again make our traditional December column diversion to highlight some neat and affordable rewards for surviving another year in the trenches.

Remember, too, that our featured items are available from their producers and/or dealers nationwide, not from me. I am simply your guide on this tour via printed page. Also, ordering items early is paramount to avoid shipping delays and "sold out" dilemmas. However, you are not one to procrastinate when ham goodies are available, right?

### Monitoring World Affairs

Small shortwave radios are always popular holiday gifts, especially if you enjoy listening to native music from distant lands and/or monitoring direct-from-the-source news broadcasts. Separating facts from fiction is occasionally challenging (here and abroad!), but comparing reports from various neutral and proven reliable sources such as Deutsche Welle (Germany), Radio Australia, etc., usually uncovers the facts.

Considering the volatile state of many areas in the world today, including a pocket-size shortwave

radio in your usual array of travel or emergency items is a good idea. Alinco's DJ-X7 is an excellent choice here (photo 1). It measures only 4"H x 2.3"W x 0.5"D and receives AM and narrowband or wideband FM in the range of 100 kHz to 1300 MHz (with cellular blocked out from 824–850 and 870–895 MHz). Such extensive frequency coverage allows the DJ-X7 to also serve as a pocket scanner for police, fire, NOAA weather, and other public services, plus the amateur VHF and UHF bands. The DJ-X7 also has 1000 memories, five scan modes, and super-long battery life for big-time monitoring.

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



Photo 2— In addition to selling DJ-X7s plus all makes and models of shortwave receivers and amateur gear, Universal Radio of Ohio also carries the Passport to World Band Radio book and World Radio TV Handbook, two outstanding SWLing aids for complementing Alinco's DJ-X7 (and other shortwave radios). Check them out at <www.universal-radio.com>.



Photo 1— Monitoring the International Shortwave Broadcast bands plus scanning the VHF and UHF bands is a popular interest, and it is also a familiar stepping stone into amateur radio. A neat receiver with these capabilities is Alinco's DJ-X7. It covers 100 kHz to 1300 MHz, has five scan modes, 1000 memories, and fits in a shirt pocket. (Photo courtesy of Alinco)



Photo 3— Here is one of the most dazzling miniature keys we have seen in many moons—the 2008 Morse Express Christmas Key made by JA7GHD of GHD Telegraph Keys fame. It is brilliantly chrome-plated, fitted with ball-bearing movement and silver contacts, and mounted on a 3" x 2" wood base. Nice! (Photo courtesy of Marshall Emm, N1FN)

# 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!

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

MFJ-267  
**\$159<sup>95</sup>**



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. 4 1/2"W x 3 1/2"H x 10 1/2"D 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

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 2 1/4" x 2 1/4" x 7 inches.

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



MFJ-260C  
**\$39<sup>95</sup>**

### Dry 1.5 kW HF/VHF/UHF Dummy Load

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. 3W x 3H x 9D inches. Has SO-239 connector.

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



MFJ-264  
**\$74<sup>95</sup>**

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

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. 7 1/2"H x 6 1/2"D inches. MFJ-250, \$69.95. Includes transformer oil (no PCB).



MFJ-250X  
**\$49<sup>95</sup>**

### 3 GHz, 300 Watts Dry Dummy Load



MFJ-263  
**\$99<sup>95</sup>** 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. 10 1/4"W x 2 1/4"H x 5 1/4"D in. **New!**

### MFJ Frequency Counters

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. 2 1/4" x 2 1/4" x 1 1/4" inches.

MFJ-888, like MFJ-886, but covers 10 Hz-3 GHz. Measures frequency/period, has 50/1M Ohm input, auto hold, LED backlight, beeper. 2 1/4" x 4 1/4" x 1 1/4" inches



Compact Cross-Needle SWR/Wattmeters  
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 3 1/4" W x 3 1/4" H x 3 1/4" D 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.

### Field Strength Meters

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-801 has 1 1/4 inch meter, sensitivity control, 20 inch extended telescoping monopole antenna.

MFJ-802R, \$34.95.

MFJ-801 has 1 1/4 inch meter, sensitivity control, 20 inch extended telescoping monopole antenna.



MFJ-802  
**\$49<sup>95</sup>**



MFJ-801  
**\$29<sup>95</sup>**

### Find Power Line Noise fast!

MFJ-852 with dipole  
**\$119<sup>95</sup>**

MFJ-856 with 3 el. Yagi  
**\$159<sup>95</sup>**

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 81 dB Attenuator in \$89<sup>95</sup> 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.

### 25-1300 MHz Discone Antenna

MFJ-1868 Ultra wide-band antenna \$59<sup>95</sup> receives 25-1300 MHz. Perfect for scanners. Transmit 50-1300 MHz. Handles 200 Watts. Ideal for 6/2 1/4" Meters, 70/33/23 CM ham bands. Excellent for testing various transmitters on single coax. SO-239, 50 feet coax, stainless steel elements.



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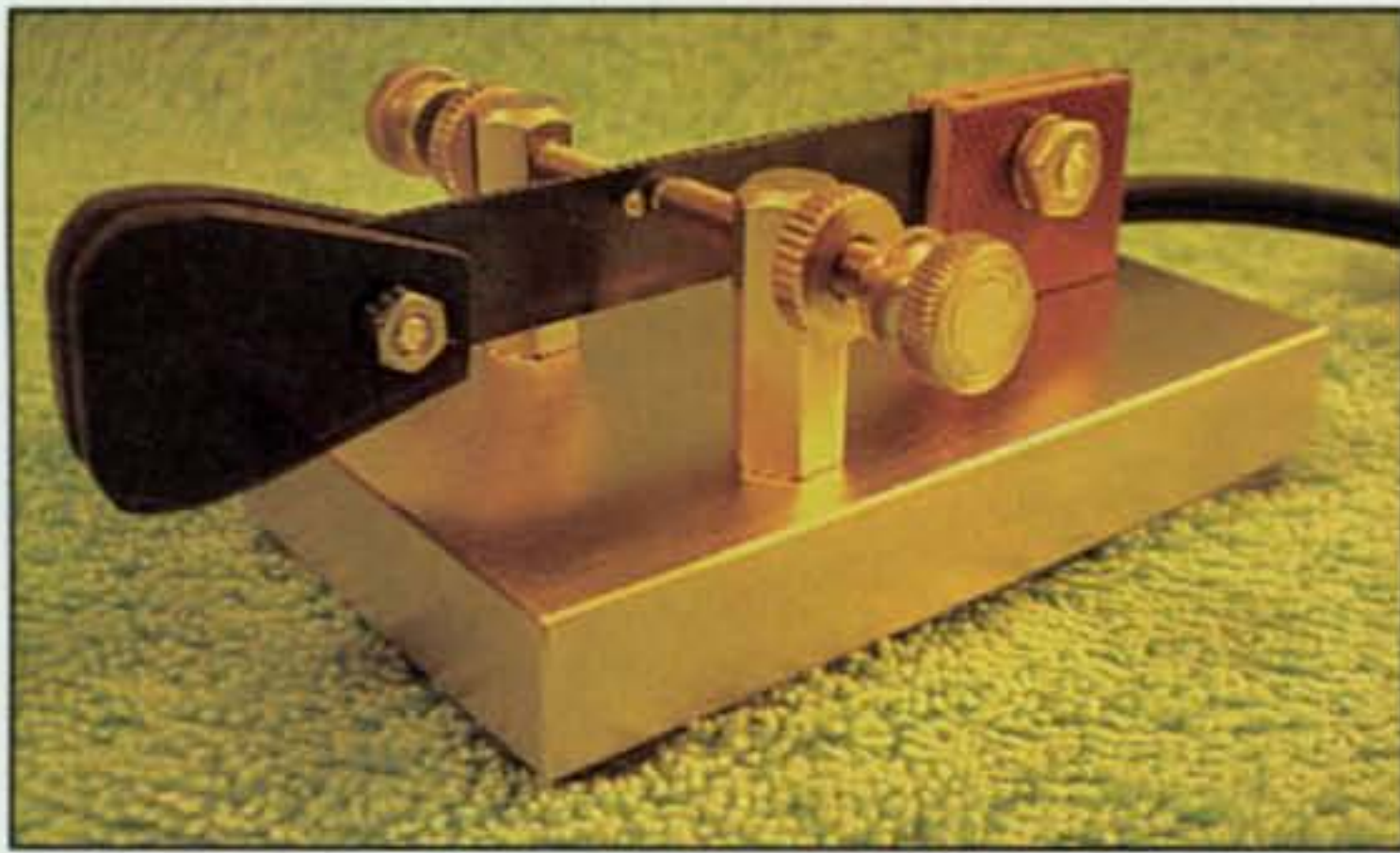


Photo 4— Sideswipers or Cootie Keys—those hacksaw-lever-equipped marvels used by hopelessly addicted CW ops of eras past—are poised to make a big comeback in 2009, and you can join the action with this all-brass version made by Tom Desaulniers, K4VIZ. Cooties can be elusive, so order quick from <[www.vizkey.com](http://www.vizkey.com)>.



Photo 7— Check out this “Busy Bee” Rex, W1REX, found at a variety store and equipped with a Maine Bug Kit. LEDs mounted atop antennas blink your call, the PC board on the back supports temperature chirping piezo, and a 3-volt coin cell is stuffed inside the bee under its wing. (Photo courtesy of W1REX)



Photo 5— Heil Sound's new PR-20/amateur version and PR-22/professional version mics stand tall and show their colors in this family group photo. The mic enhances your voice while adding the “punch” so vital for reaching out on SSB. It is akin to a small linear amplifier right in your hand. (Details at <[www.heilsound.com](http://www.heilsound.com)>)

Remember my little “Hamfest Buddy” described in the August and October 2005 columns? Place it beside a DJ-X7 (on AM mode) tuned to 7.040 MHz so it serves as a wireless BFO for the DJ-X7, and the combo also makes a unique QRPp transceiver for traveling or hamfest use. Check <[www.k4twj.blogspot.com](http://www.k4twj.blogspot.com)> for details.

Alinco's DJ-X7 is available nationwide from amateur radio dealers such as Universal Radio of Ohio, a company well known for its full line of shortwave radios, amateur radio gear, accessories, and fair-and-square deals (photo 2). You can reach Universal Radio at telephone 1-800-431-3939 or <[www.universal-radio.com](http://www.universal-radio.com)>.

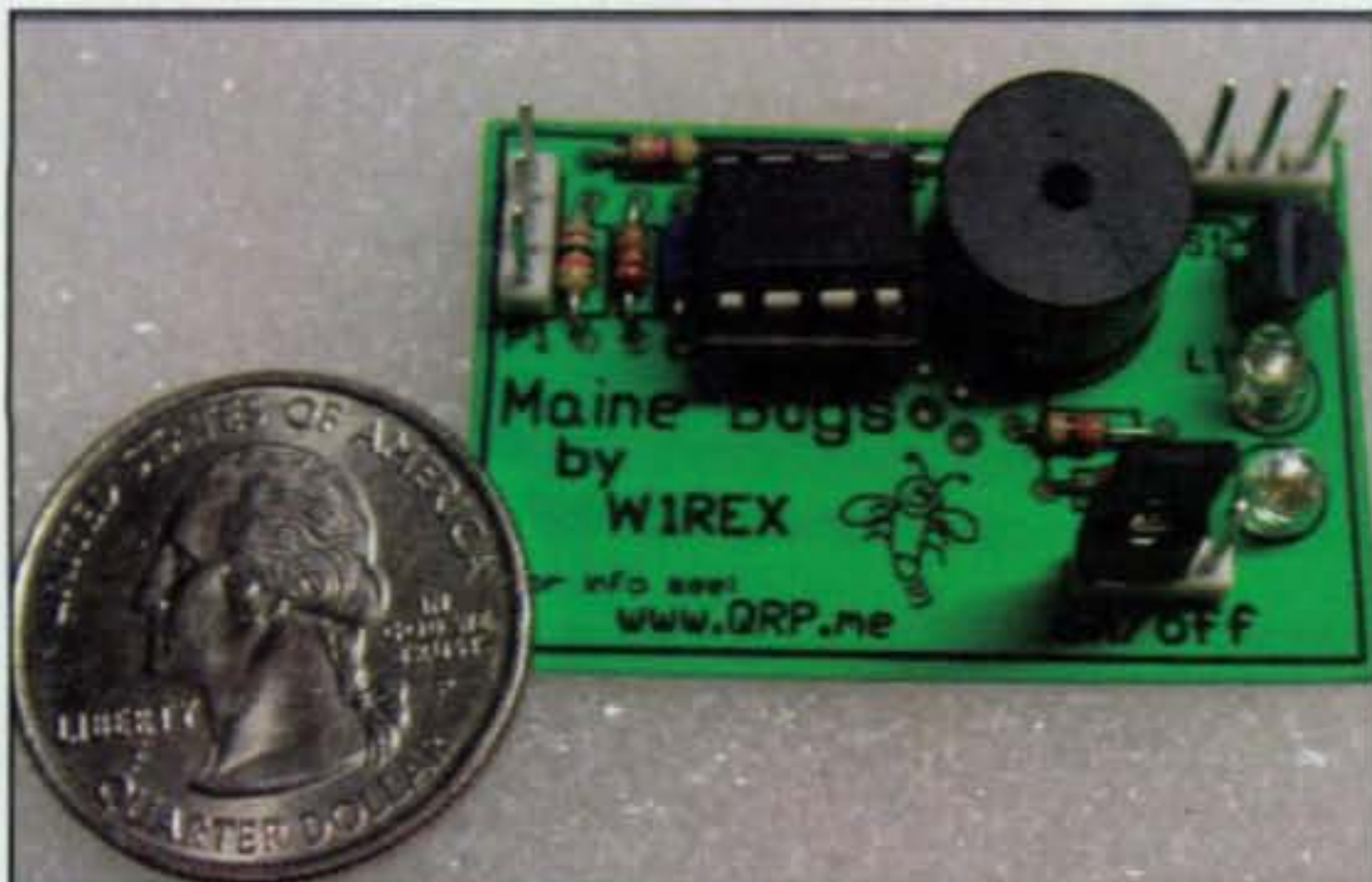


Photo 6— Every radio amateur keen on building at least one simple item in his/her career will surely relish home-assembling one of these Maine Bugs Kits from <[www.qrpme.com](http://www.qrpme.com)>. It goes together in minutes, chirps its surrounding temperature in “cricket talk,” and flashes your call letters in CW on its LED. Who could ask for more!

## Keys and Mics

As many of our readers will remember, we traditionally spotlight a special “Christmas Key” from Morse Express in this holiday column. Unfortunately, we must report that the producer of those keys, Guillermo Mestre Janer, EA6YG, recently passed away. Morse Express owner Marshall Emm, N1FN, expressed his sentiments and assumed the Christmas Keys were history, and then a prototype replacement key arrived from world-famous key maker Toshihiko Ujiie, JA7GHD, of GHD telegraph instruments (photo 3).

The 2008 key has rich chrome plating and pivots from a rear-mounted, precision ball-bearing trunion. It sports fine gap and tension adjustments, base contact set in a ceramic insulator, and has the “GHD feel” of a quality key. This little beauty is available from <[www.MorseX.com](http://www.MorseX.com)>, or telephone 1-877-368-3274.


Would you like to try something different and unique in a CW key during 2009, maybe something with a touch of rustic charm to boot? Check out the new and all-brass Sideswiper or Cootie Key made by Tom Desaulniers, K4VIZ, and shown in photo 4. Cooties look like single-lever paddles,



Photo 8— This 2.75-inch "Amateur Radio Operators Have S'more Friends" Christmas tree ornament makes a good year round wall medalion guaranteed to impress visitors of all ages. It, plus numerous other amateur radio oriented goodies, is available from <[www.technotetime.com](http://www.technotetime.com)>.


but their left and right contacts are connected together so they function like a double-contact hand key with a horizontally moving arm or lever—which is frequently a hacksaw blade. That's right, an honest-to-goodness hacksaw blade. Sending good code with a Cootie requires developing good wrist action, because you make both dots and dashes in alternating left-right motions rather than making dots on the left and dashes on the right "traditional keyer" style. It takes practice for sure, but once mastered, it is both fun and a good alternative to using a paddle and electronic keyer. If you like Cooties but can't handle 'swiping, try my method of insulating one contact and rewiring it to serve as an easy-to-use single-lever paddle. Then it is also ideal for CW mobiling. More views (and genuine brass Cooties) are available from <[www.vizkey.com](http://www.vizkey.com)>.

Sideband operators deserve an equal shot at holiday happiness, and Bob Heil, K9EID, has the perfect answer with his new PR-20 and PR-22 microphones (photo 5). This magnificent little beauty has a wide response curve with a mild rise around 4000 Hz to help you sound better on the air than you do in person! Just cable it to your rig, set the rig's transmit equalizer to boost highs and roll off lows, and discover new-found clarity and articulation for reaching out like a champ on SSB. Bob debuted this new mic at the Huntsville (Alabama) Hamfest in August, and its outstanding audio




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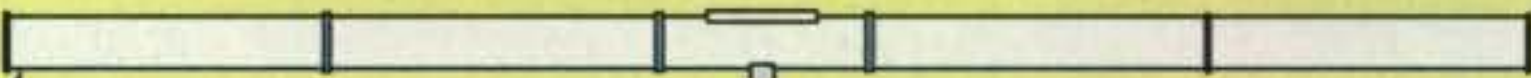
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"punch" left generic mics in the dust. There is no question about it, friends. Heil mics are changing (and improving!) the way we sound on SSB, AM, and FM. The PR-20 has a strong steel case and is supplied with a vinyl carrying case and three metal windscreens: black, gold, and stainless steel. A professional studio version, the PR-22, is also available in a wide selection of pearlized colors. Check out both versions at <www.heilsound.com> and <www.heilsound.com/pro/>.

### "Under 20 Bucks" Items

The holidays are a perfect time to add a few low-cost specialty items to your ham world, so we quickly peeked in that direction and uncovered some awesome treats.

First is a simple ten-component mini-kit produced by Rex Harper, W1REX,

and dubbed the "Maine Bug Kit" (photos 6 and 7). It has an on-board micro-processor, measures the temperature of its surroundings and announces same in simulated "cricket chirps," plus blinks your ham call in CW on its LEDs (and you thought no one would ever devise such a gem, right?). The micro-processor requires programming, so as a holiday special, Rex agreed to pre-program each kit's IC with the purchaser's call letters. The Maine Bug Kit operates on 3 to 4.5 volts, so you can power it from AAA batteries or a 3-volt coin cell with attached terminal straps. Get three or four of these little kits and you can set your whole house chirping room temperatures like a cricket quartet. Maine Bug Kits are available from W1REX at <www.qrpme.com>, a popular website for low-cost QRP items.

Looking further, we found a fascinating collection of additional treats for

radio amateurs—callsign wrist watches, clocks, ham shack signs, Christmas cards for hams, and much more at <www.technotetime.com>. Two particularly interesting items are shown in photos 8 and 9. The round medallion is basically a Christmas tree ornament, but its message ("Amateur Radio Operators have S'more Friends") plus picture of a mic, rigs, and towers holds good appeal for hanging in a shack all year long. The "Sparkin Ring" is a dandy (and safe) way to illustrate the stout-hearted era of spark-gap communications. You just wind up the small spark-producing thingie, hide it in your hand, and press its release button while tapping Morse code on a loose key.

### Travel Mobile Companion

If you spend much time traveling and visiting relatives, there is a good possibility you have an HF or dualband FM mobile rig in your vehicle. Unless you cart along a large DC power supply, there is also a high probability your after-arrival hamming ventures are rather limited. Ah, but there is an easy answer to acquiring all-day power—the new 1.5-pound 2" x 4" x 4" MFJ-4115 power supply shown in photo 10. This tiny tyke delivers 13.8 volts at 15 amps, which easily powers

**RF Amplifiers, RF Transistors, Chip Caps, Metal Clad Micas & Hard to Find Parts**



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# SPARKIN' Ring



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WARNING: CHOKING HAZARD—Small parts. Not for children.

Photo 9— Get one of these "Sparkin' Rings" from <www.technotetime.com> and recreate those gusto days of spark-gap transmitters and flaming pump keys with sparks flying from your hand while tapping out Morse code on a loose key. It is a dandy aid for demonstrating used items at hamfests!

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The miniVNA allows you to quickly analyze any antenna over a user defined frequency range between 0.1 and 180 MHz. In real-time, you can see at a glance where the antenna is resonant, and the SWR, return loss, impedance, phase, etc. as a function of frequency. The best (minimal) SWR frequency is automatically found and displayed.

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 for  
**IC-703 & IC-718**

**FT-817(ND)  
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Photo 10— Whether operating “fixed mobile” from your vehicle or “motel room portable,” a big hitch is carting along a large DC power supply. MFJ solves the dilemma with this go-anywhere 13-volt/15-amp (continuous) power supply. It is 2" x 4" x 4", highly regulated, and has a quiet coding fan. Details at <[www.mfjenterprises.com](http://www.mfjenterprises.com)>. Ham on!

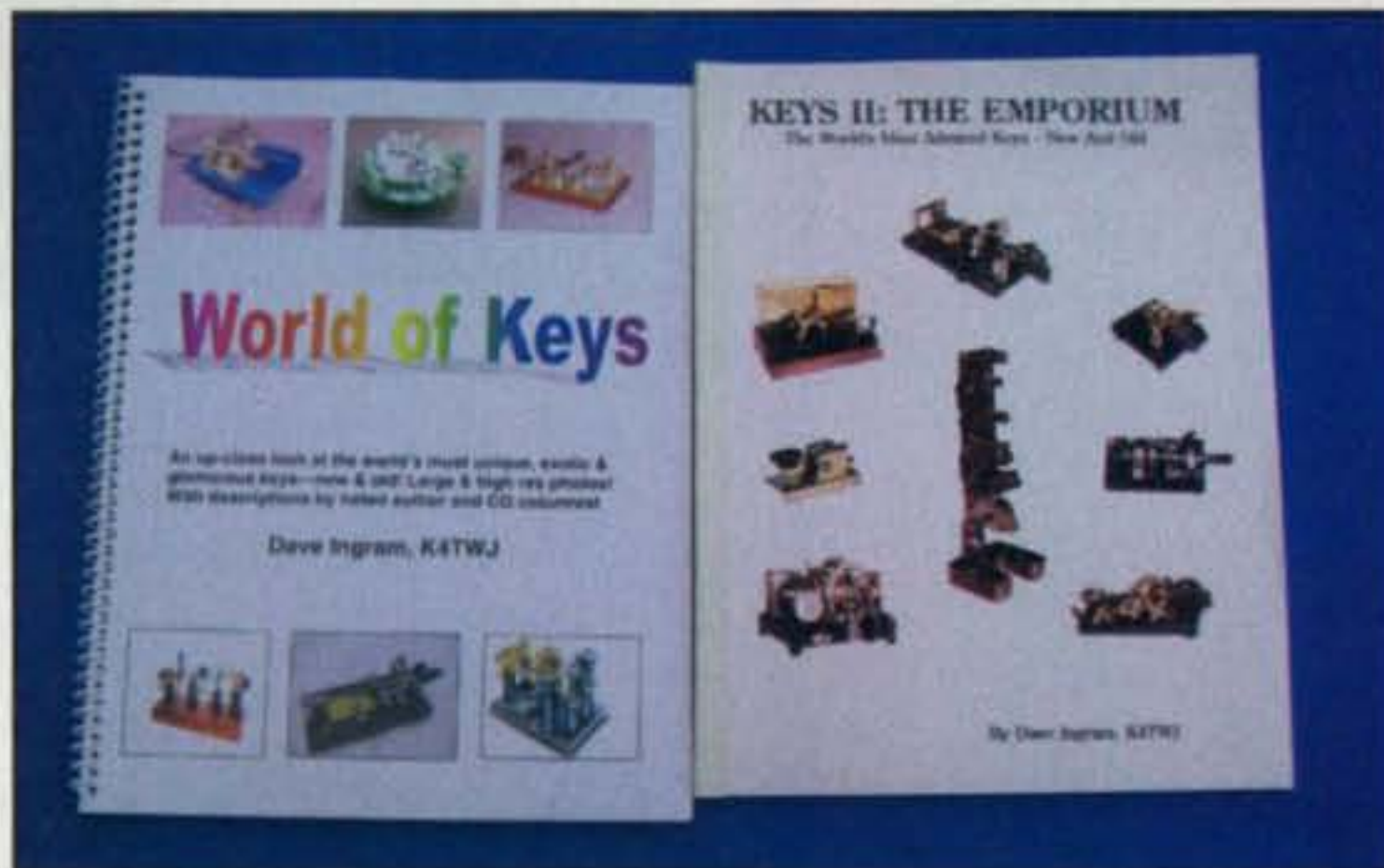


Photo 11— Like keys and CW? MyKeys II and Keys III books are filled with captivating pictures and descriptions of the world's most admired keys, bugs, and paddles. Order direct from me, Dave, K4TWJ (see text).

mobile rigs at up to 75 watts output. Carry along an easy-up antenna for out-of-vehicle use, and you are an honorable goodwill ambassador for amateur radio. The MFJ-4115 is available at amateur radio dealers nationwide (<http://www.mfjenterprises.com>).

**Always Great Reads**

We wrap up this year's holiday column with the gifts that keep on giving throughout the year: a subscription to *CQ* and/or its sister publications, *CQ VHF* and *Popular Communications*. Every issue of these magazines is filled with details

on can't-live-without items and timely information for getting maximum enjoyment from your hobby.

Also, I am offering autographed copies of my world-famous collector's pride *Keys II* and *Keys III* books (photo 11) for \$19 and \$21, respectively—postage included—direct to your house from mine (Dave Ingram, K4TWJ, 3994 Long Leaf Dr., Gardendale, AL 35071).

Gear up with some good gear and accessories, great reads, and enjoy plenty of on-the-air QSOs this winter and throughout the coming years!

73, Dave, K4TWJ

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## Moving In

**M**ost ham radio operators tend to look at certain things in a different way compared to non-hams. For example, when shopping for a new vehicle, do you consider the comfort and performance features as well as the technical specifications, and also think about where the antenna and mobile rig would go before considering the color?

In my case, I am about to move into another home, and I had to look at the property and think about where antennas would go, which room could be made into a ham shack, and how much room I need in the garage to create a nice workshop. In other words, a home or other structure is more than a place to live, it is also an element in one's ham radio system.

In this new neighborhood, a homeowners' association regulates various things homeowners can and cannot do with their property and surroundings. One of the restrictions is that antennas are not allowed. Even with this rule in place, it is possible to erect a "secret" antenna that should enable local as well as worldwide communications.

As of this writing, a lot of repair and upgrade work on the home is still needed, so everything is in "future tense" as things get repaired and changed. However, this is also a good time to sit down and plan what goes where.

### Space Planning

Let's first work on how the new living spaces can be merged with the ham radio areas. Just like everything else, a mock-up or a model would be very useful as you begin to furnish the home and arrange the ham radio station. If you also have a workshop and stationary power tools like me, this step is even more critical because of the amount of space and weight the machines occupy.

Another important thing to consider is electrical power. AC-outlet placement in the home and the garage may force you into running extension cords all over the floor, or suspended from the ceiling. If locating equipment far away from an outlet cannot be avoided, then a single but heavy-gauge extension cord can be run to the area, and a multiple-outlet power strip can be used to power the gear. Make sure that you do not exceed the rating of the fuse or circuit breaker that feeds the line you are using. A good practice is to make sure the

\*16428 Camino Canada Lane, Huntington Beach, CA 92649  
e-mail: <kh6wz@cq-amateur-radio.com>



*Photo 1—Hams tend to look at things in a different way than non-hams. For example, these trees at the rear of the house should make very sturdy supports for wire antennas.*

radio equipment does not share the same AC line as the lights. This way, if something bad happens to a radio and trips a circuit breaker, the lights will remain on.

Speaking of the "fuse box," it would be wise to check what circuit breaker is attached to what outlets and other built-in features such as ceiling lamps, outdoor lights, and big appliances such as the stove and oven. If the fuses or circuit breakers are not labeled, you should do this now, since it will avoid a lot of fumbling around later.

### Meet and Greet—Carefully

One of the first things to do is meet the neighbors to get a feeling of who they are and what they are like, for both radio- and non-radio purposes. I like to "ease into" getting to know neighbors, since first impressions are always the most critical, and the ham radio aspect can be revealed at a later time.



Photo 2— The indoor ground plane is easy to make and will extend the range of VHF and UHF communications. This antenna may look a little ugly to non-hams, so it may be best to hide an antenna like this in the attic.

It is also best to maintain a low profile in a location that might be not so friendly to antennas on one's property. Some things to look for in your neighborhood include TV antenna installations (either over-the-air or satellite), and other "non-house" structures such as flag poles, awnings, weather vanes, whirly-gigs, and other decorations. These structures may fall into the same category as a ham antenna, so if these structures appear on other homes in the neighborhood, chances are good that when a ham antenna sprouts up on your property, you will be able to defend it.

So far I have met at least a few of the neighbors, and they seem to be nice and friendly types. Some of the others seem to be private people, and that is okay, too. When making the approach to a new neighbor (or if the new neighbor is curious enough to come to you), remember that first impressions are the most important. Don't reveal too much to them because it is impossible to know what they will think about you. Be nice and friendly and "normal." Make them feel comfortable with you as you move your possessions into your new home.

On the other hand, previous "Beginner's Corner" editor Peter O'Dell, WB2D, takes an entirely different and humorous way of meeting and greeting new neighbors. His general thought is to make people think you are crazy so they will leave you alone. For example, while installing a wire antenna for his station one weekend, a few of the neighborhood kids stopped by to watch and ask what he was doing. He said something like he was putting up a net so that he can trap the aliens or something. The kids ran away and never bothered him again.

Whichever path you choose, initiating good neighbor relations is a beneficial thing to do. Who knows? One of your new neighbors might be curious enough to become a ham!

### "Sneaky" Antennas

One of the things I will install is a "low bands" antenna so I can work DX—the hams in other countries. This means operation on the frequencies 30 MHz and below. I plan on using trees as supports for wire antennas, made with



Photo 3— Take a look at this station photo for inspiration. Dennis Kidder, W6DQ, purchased these dining tables at the local IKEA store. They are robust enough to support the classic, but heavy tube radios and look nice.

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## The Ugly Ground Plane



The ugly ground plane is simple to make, but a lot of soldering heat is required (see the text for more details).

Here is an example of an inexpensive, homemade ground plane antenna you can build. The one shown in the photo is made for a single band, 440 MHz.

The ground plane antenna is a quarter-wave radiating element with quarter-wave ground radials, for a total of a half-wavelength. In small antennas like this, there are usually three or four ground-radial elements, and the elements are made of stiff wire or aluminum tubing (see photo).

Quantity	Description
A few feet*	Solid copper wire, No. 10 or 12 gauge
1	RG-8X or RG-58 50-ohm coax, length to suit, with PL-259 connector on each end
1	SO-239 chassis-mount connector
1	String to hang the antenna
1	Push pin
Glob	5-minute Epoxy glue or similar adhesive

\*See dimensions in Table II, and additional length for assembly.

Table I—Bill of materials, "ugly" ground plane.

You can use "the quarter-wave antenna formula" to calculate element lengths, but here is a quick list for the most common FM bands:

146 MHz	225 MHz	445 MHz	
Driven Element	$19\frac{5}{16}$	$12\frac{5}{8}$	$6\frac{3}{8}$
Ground Radials	$18\frac{11}{16}$	12	$5\frac{3}{4}$

Lengths in inches, the ground radials are bent to 45 degrees to the driven element.

Table II—Dimensions for ground-plane element parts.

Make the wire elements at least three or four inches longer than the required dimensions so that you will have some "wiggle room" as you build.

Next, remove about an inch of insulation from one end of each of the solid wire elements.

Solder the radiating (vertical) element onto the SO-239 connector center conductor pin. Next, solder the radial elements to the flange holes. You will have to use a lot of soldering-iron heat to make a proper solder joint. If you do not have soldering tools to do this, you can use ring terminals on the ground radials, and then use 6-32 machine screws, lock washers, and nuts to mount the radials to the SO-239 connector.

The coax cable screws onto the bottom of the antenna, and the assembly can hang from above with a piece of string or lightweight rope.

lengths of small-gauge (No. 22 or so) enameled wire (see photo 1). An external antenna tuner will be used to tune the wire (or wires) to operate on as many frequencies as the tuner can handle.

When using a random wire and antenna tuner, we must accept and understand that the antenna is a compromise and is not optimized to perform like a more complicated setup. An installation such as this "just works" and can take the RF energy from the radio and put it out into the ionosphere to make enjoyable ham radio contacts. Will it allow you to contact distant stations? Yes, it will. Will it allow you to contact all the stations you are able to hear? Maybe, but maybe not. This is part of the enjoyable challenge that a simple wire antenna can bring.

For VHF and UHF FM simplex and repeater operations, a simple way to see how successful you will be on these bands is to try communicating with someone on your portable HT. If you are able to get into your favorite repeaters this way, chances are very good that an indoor antenna of some type will work well for local VHF/UHF operations. Another simple "radio check" from your new home would be to use your mobile rig while parked in the driveway or on the street.

The indoor ground plane for 450 MHz shown in photo 2 can be used with a handie-talkie to hit the local repeaters. This is a simple-to-make station antenna for anywhere, especially in a new home. However, it may be best to install (hide) an indoor antenna like this in the attic. A similar antenna can easily be built for the other FM repeater bands. Read the sidebar for more details on an indoor ground-plane antenna.

Another idea is to use a magnet-mount mobile antenna on a metal surface (such as an air-conditioner or heater duct) in the attic. An excellent side benefit of indoor antennas is that they are protected from the weather and will last a long time.

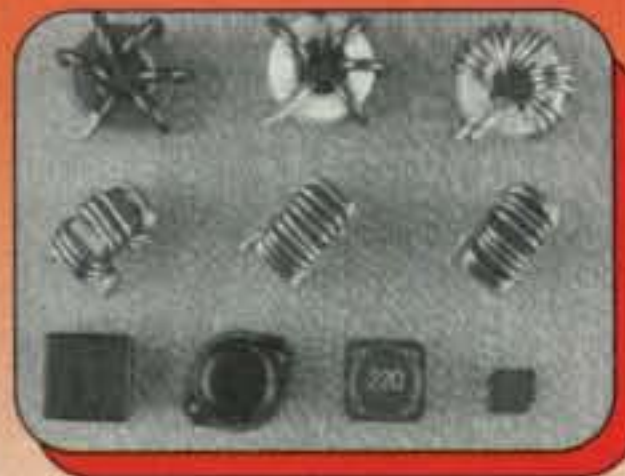
For more performance, something outside is needed. One very unique antenna is the "Ventenna," a series of VHF and UHF antennas that mount on the roof. The antennas are housed in ABS pipe and look just like plumbing vents on the roof of any house. Go to the website <<http://www.ventenna.com/>> and take a look at this interesting antenna.

## The Radio Room

I remember my days as a college student when I moved at least once a year,

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*Photo 4— Like many installations, wires on the floor are typical. In this station, these wires will be gathered and nicely bundled with split-plastic wire loom, and trays will be used to hold wires off the floor.*

since the rent always seemed to go up every year. Being nomadic made me a minimalist, and almost all of my apartments were furnished in "modern crate" and odd pieces of cast-off furniture that were either given to me or left behind

from other tenants. These days, however, I can afford and prefer furniture pieces that actually match, that are either store-bought or homemade. For the radio "shack" this is no exception, despite the name.

Take a look at photo 3 for an example of a well-equipped station. The operating desk is actually a dining table from the local IKEA store and is very sturdy. This station belongs to Dennis Kidder, W6DQ, located in Fullerton, California. Dennis is lucky enough to have an entire room dedicated for ham radio.

In a room like this, sometimes all the wires get in the way (see photo 4). Dennis plans to run the various signal and AC cables in trays running underneath each operating desk and off the floor. A long AC power strip will also help organize the power cords and will minimize the number of extension cords running to the AC outlets.

Anyone who owns and operates a ham station installed in a home should consider the house and property as a part of an overall system. In most cases, our homes and our stations must co-exist with neighbors as well as other occupants in the house. In order to keep peace in the family as well as in your new neighborhood, we should be considerate and try to get along. Sneaky antennas and indoor antennas are one way to keep this peace and yet enjoy the communications capability that our radios can bring.

73, Wayne, KH6WZ

# Building an Inexpensive 40- and 15-meter Vertical Antenna

I'm sure many of you have seen those inexpensive military-surplus 4-foot aluminum mast sections available for very little money. If you haven't, do a search on "green aluminum mast" on your favorite on-line auction site. Current prices are around \$30 for a 6-section (approximately 24-foot) mast, and \$47 for a 12-section (approximately 48-foot) mast. These are heavy-duty sections that slide into each other. While most folks use these for supporting lightweight antennas, they can also be used to make your own vertical antenna. Photo A shows a bunch of the sections that I bought.

I decided to start with a 40 meter  $1/4$ -wave vertical. Since 15 meters is the third harmonic of 40 meters, the antenna also works very well as a  $3/4$ -wave 15-meter vertical. A  $1/4$ -wave vertical for 40 meters is approximately 33 feet tall (length =  $234/\text{frequency in MHz}$ ). You can use eight sections of this military tubing, which works well enough. In my case, I decided to use just six sections (about 24 feet) and then add a 102-inch CB whip to the top. This approach has four advantages: First, you only need to buy six of the surplus tube sections, which keeps the price and shipping charges lower. Second, the CB whip reduces the wind load of the antenna. Third, the whip reduces the visibility of the antenna. Finally, the antenna becomes much lighter, so it is easier to handle and set in place.

The first thing I did was drill No. 8 clearance holes in each of the larger overlapping tube sections, and then drill and tap No. 8 screw holes in the internal mounting-tube flanges. I used an inexpensive tap-and-die set that I bought from Harbor Freight

\*1517 Creekside Drive, Richardson, TX 75081  
e-mail: <ad5x@cq-amateur-radio.com>



Photo A— The 1.8-inch diameter by 4-foot long surplus aluminum mast sections.



Photo B— No. 8 screws used to lock the aluminum sections together.



Photo C— One means of mounting a CB-type whip to the top of the mast sections.



Photo D— PVC insulator at the antenna base.





*Photo E— Two-inch PVC and fence mounting brackets support the antenna. The PVC was painted brown to match the fence color.*

pensive CB mirror-mount assembly that I attached to a 1-inch diameter short piece of tubing purchased from my local home-improvement store. Since I had additional sections of tubing, I telescoped several sections together to increase the diameter. However, the 1-inch tube can easily be bolted into the end of the military tube section by drilling No. 8 clearance holes in the military tube, and then drilling and tapping No. 8 screw holes in the 1-inch tubing. A close-up of my whip mount is shown in photo C.

Okay, now you have an assembled antenna, but how do you insulate the base and support it? For the base, I started with a 2-foot long piece of 1 1/2-inch diameter copper pipe. I buried half of the pipe in the ground. Then I used sections of PVC tubing to create an insulating section for the antenna. You can see this in photo D. I added some brass screws through the copper pipe to make it easy to add radials.

Finally, I decided to support the antenna against my cedar fence. I used sections of 2-inch PVC pipe to insulate the antenna from fence-pole brackets (available from your local home-improvement store), as you can see in photo E.

(www.harborfreight.com), but these sets are also available from many home-improvement centers. No. 8 screws and split lock-washers were then used to lock the tubing sections together, as you can see in photo B.

In order to mount the 102-inch whip to the top aluminum tube, I used an inex-



*Photo F— Distant view of the antenna.*



*Photo G— Top whip bending during high winds.*

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To install the antenna, I first placed the bottom 4-foot section through the fence-support clamps into the PVC base insulator. The rest of the antenna is pretty light, and I was able to lift it in place myself, although getting some help isn't a bad idea. Once the upper completed antenna dropped into the bottom 4-foot section, I secured these together with the No. 8 screws through the pre-drilled and tapped holes. Photo F shows the antenna from a distance, and photo G shows the top whip during a gusty wind.

A couple of other things: You do need radials, and the more the better. Strive for radial lengths at least as long as the antenna's length, although shorter radials are better than no radials. The radials can easily be attached to screws in the copper mounting pipe using crimp-on lugs. Also, **never** try to install an antenna where it may come in contact with any power lines.

Finally, this is a learning project, in that you can experiment with other ways of building a base insulator and antenna supports. You might want to spend some time in the plumbing section of your local home improvement store to see if you can come up with some better ideas.

Until next month . . . 73, Phil, AD5X

# SDRs, Jupiter Upgrades, Vertical Antenna, Christmas Key, and more

This month's items include two software defined radios and a vertical 6–160 meter antenna. Continuing with ideas for holiday gifts, we also take a look at a key that you can use with your rig and decorate a holiday tree. We also look at software for Mac users and something that can make an old rig new again. Finally, we visit The Amateur Radio Website of the Month.

## FlexRadio Systems Software Defined Radios

FlexRadio Systems® has added two new radios to its line of software defined radios (SDRs) for amateur radio use. The FLEX-3000™ and FLEX-1500™ provide an affordable mid-level and an entry-level SDR. Scheduled for delivery in early 2009, the new radios are currently available for pre-order at special discounted pricing **through November 30, 2008**. See the website <<http://www.flex-radio.com>> for further details.

The FLEX-3000 (photo A) is a scaled-down software defined radio in the lineage of the FLEX-5000™, designed for portable and fixed operation. Designed to fit in a laptop computer case, it measures only 12.25" × 12.25" × 1.75" and weighs just 7 lbs. Like the FLEX-5000, the FLEX-3000 is a 100-watt 160–6 meter all-mode transceiver that connects to your computer via a Fire Wire cable. A built-in tuner (ATU) is included at no additional cost.

The FLEX-1500 is a software defined QRP radio in a compact package that connects to your computer via a USB cable. The FLEX-1500 covers 160–

6 meters with power output between 500 mw and 1 watt. Expected delivery is April 2009 or earlier.

The FLEX-3000 and FLEX-1500 both use FlexRadio PowerSDR™ as the software component of the software defined radio systems. PowerSDR is a world-renowned, premium SDR software package developed and maintained exclusively by FlexRadio Systems. For additional information please visit <[www.flex-radio.com](http://www.flex-radio.com)>, where orders can be placed using the FlexRadio Systems On-Line Store.

## Ten-Tec Jupiter Makeover Kit

You can buy a new rig or now you can give your old rig a makeover. When Ten-Tec announced its new version of the Jupiter transceiver, new features and a blue display were added. Now you can update your vintage Jupiter with one, two, or three new features.

The first feature upgrade is a free firmware update that adds "CW personality" for the Jupiter transceiver, allowing both decoding of received CW signals on the HF ham bands on the transceiver screen and the ability to send CW characters from a standard PS/2 computer keyboard plugged into the rear panel. To take full advantage of the new CW personality of the Jupiter it will be necessary to first update your PLD (Programmable Logic Device) using the free file on Ten-Tec's website (<http://radio.tentec.com/downloads/transceivers/538>). Please see the PLD programming instructions for important details. I did this update and it was very easy and quick.

The second update is a new Flash Memory chip that can give your Jupiter the ability to be pro-

\*5441 Park Vista Court, Stow, OH 44224-1663  
e-mail: <[k8zt@cq-amateur-radio.com](mailto:k8zt@cq-amateur-radio.com)>



Photo A— The FLEX-3000 is a scaled-down software defined radio in the lineage of the FLEX-5000™ and designed for portable and fixed operation. (Photo courtesy of FlexRadio)

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Photo B— The Hy-Gain AV-6160 is a 160-6 meter self-supporting vertical antenna. It is 43 feet in height, including the supplied base mount. (Photo courtesy of Hy-Gain)

grammed with multiple "personalities." Price for this upgrade kit is \$50. If you have not updated to the newer Flash Memory chip in your Jupiter you can still use any of the personalities, one at a time. Changing between personalities will require reprogramming the radio with the appropriate firmware.

The third option replaces the green display screen with a new blue version. Price is \$179 and includes the Flash Memory chip described above.

### Hy-Gain 160-6 Meter Self-Supporting Vertical

The Hy-Gain AV-6160 (photo B) is a 160-6 meter self-supporting vertical antenna. It is 43 feet in height, including the supplied base mount. The AV-6160 operates on all bands 160-6 meters and is rated to handle 1500 watts.

The antenna assembles in less than an hour and its low profile can blend in with the sky and trees; you can barely see it (only the base is shown in photo B). The entire length radiates to provide low-angle radiation on 160-17. You can shorten it by telescoping it down for more effective low-angle radiation on the higher bands (15-6 meters).

The AV-6160 requires an automatic or manual antenna tuner. The tuner can be in your shack or mounted remotely at the antenna's base. Because of the antenna tuner, there are no physical tuning adjustments to make on the antenna. You assemble it and simply put it up!

An optimized balun design allows direct coax feed with negligible coax loss (typically less than 1/2 dB with good-quality, low-loss coax). With just 2 square feet of wind load, the AV-6160 has one of the lowest wind-loads and lowest visibility of available commercial vertical antennas. The key to this low wind load and visibility is a 9-foot top section of 1/8-inch diameter stainless-steel whip that flexes in strong wind instead of

stressing the bottom sections. Its 2-inch OD and .120-inch thick walled 6063 aircraft tubing bottom section makes for a strong but lightweight antenna at just 20 lbs. The AV-6160 includes all stainless-steel hardware.

With typical ground mounting the manufacturer says the antenna "requires at least one radial, but the more the better performance." If you are concerned about antenna visibility, its extremely low profile, ability to hide the antenna base in shrubbery or other foliage, ability to put a flag on top or even easily telescope it down during the day can help reduce the ability of neighbors to notice its presence.

The AV-6160's suggested retail price is \$399.95. To order, to get more information, or for your nearest dealer, call 1-800-973-6572 or visit <www.hy-gain.com>.

## 2008 Christmas Key from Morse Express

Morse Express has released its eighth annual Christmas Key (photo C), a precision miniature key made by GHD Keys, incorporating traditional Japanese craftsmanship along with GHD's impeccable engineering. In keeping

*Photo C- The 2008 Christmas Key from Morse Express and made by GHD Keys will look good on the holiday tree or function as unique key for Straight Key Night. (Photo courtesy of Morse Express and Marshall Emm, N1FN)*



with GHD's larger keys, the Christmas Key uses miniature ball bearings at the trunion, a machined ceramic insert under the lower contact to absorb vibration, and perfect balance. The contacts are hard silver and the mechanical parts have a deep polished chrome finish. The oval base is heavy ebony selected

for warmth and grain. The knob is hand-turned from Japanese dogwood. GHD Key's Toshihiko Ujiie, JA7GHD, combined modern and traditional techniques to produce a miniature key that will be equally at home in the radio shack, in the field, or decorating a Christmas tree.

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Spot - CC Cluster:K3NC

Solar activity: very low Solar Flux: 69 A Index: 15 K Index: 2 Disconnect

-> Announcement Spot Orig State Filter set Off  
 -> WX Cty Filter set Off  
 -> WX Orig State Filter set Off  
 -> BandMode Filter set to 1040382980/32266  
 -> DX BandMode Filter set to Reject: 6-CW,2-CW,1-CW,70-CW,6-SSB,2-SSB,1-FM,70-FM,60-SSB,6-FM,2-FM,1-S...  
 -> BandTime Filter set off

DX Spots	Users	Ann	Mail	WWV			
Callsign	Freq.	Time	Day	DX	D...	Comment	Spotter
BT1AN	14194.0	1631Z	22	BY	43	China:	YO9APK
RW6HPD	14170.2	1632Z	22	BY	42	European Russia:Serge Nevinomyssk ...	RN0SA
BG7NWF	14261.0	1632Z	22	BY	43	China:	IK8PGC
T77C	14019.0	1632Z	22	T7	58	San Marino:599 HERE	BA7IO
DK9PY	14016.0	1633Z	22	DL	20	Germany:Armin	KB8NTY
HB2008EM	14010.2	1634Z	22	HB	29	Switzerland:TNX 599!	UA0SE
IK8XVQ	7056.0	1634Z	22	I	65	Italy:4	IV3ZJU
IK8XVQ	7056.0	1634Z	22	I	65	Italy:4 diploma cota 1 p.	IV3ZJU
RV6HA	24895.6	1635Z	22	UA	42	European Russia:CQ...	UA3XAC
VR2AAW	14215.1	1635Z	22	VR	57	Hong Kong:up 5 ufb	YU5GZ
TM5B	18150.0	1635Z	22	F	8	France:FORT BRESCOU ISL EU-148 QSL	F8ATM
JA4AXM	14082.0	1635Z	22	JA	31	Japan:iota eu-158 qsl via f5xx	DJ9SO
BT1ON	14194.0	1636Z	22	BY	43	China:	LU6EDC
OE2008A	28495.0	1637Z	22	OE	48	Austria:TNX QSO	UA1AKJ
IS0GQX	14009.2	1637Z	22	IS	81	Sardinia:	EW6BN
BG7NWF	14261.0	1637Z	22	BY	43	China:5/9 op Vicky	UA9ORD
							F4FIU

All 160 80 60 40 30 20 17 15 12 10 6 2 AI

Spots User Ann WWV Bandmap Block Pref

Send

Clear All Get All

Freq Callsign Comments

Send Spot

Spot commands X

Fig. 1— Screen-shot of Spot's advanced DXCluster management for Mac OS-X amateur radio operators.

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Total Length of Antenna in 3.5 MHz — 54"	

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Tarheel Antennas Research and New Product Development Robert@Fuquay-Varina, NC

The 2008 key measures 3 1/8" x 2" at the base and weighs 4 1/4 ounces. Each key has a label with "Christmas 2008" and the key's unique serial number. The Christmas Key will add something special to straight-key operations through the holiday season and the ARRL's Straight Key Night (January 1).

The 2008 Christmas Key is a limited edition of 150 keys priced at \$89.95 each, plus s/h, and is available only from Morse Express. Additional pictures and more information are available on the Morse Express website at <[www.MorseX.com](http://www.MorseX.com)> or call 800-238-8205 to order by phone.

## DXCluster Program for OS-X

Introducing Spot (fig. 1), the intelligent DXCluster program for OS-X. Spot provides advanced DXCluster management for OS-X amateur radio operators. It allows you to chase the DX that really matters to you by putting you in charge of which DX spots you need to see and notifying you when they appear. Spot features include:

- Compatible with your favorite DXCluster: DX Spider, AR Cluster, CC Cluster, DxNet, Wincluster or AK1A.
- Easy-to-define DX spot and announce filters without knowing any of the DXCluster commands.
- Define up to 10 alarms, based on band/mode/callsign definitions and choose from a selection of alarm WAV files.
- Band-map screen allows a quick visual check on activity in your favorite band segment.
- Quickly access a callsign's page on QRZ.com with the click of your mouse.
- Up-to-date solar conditions refreshed every 3 hours.

- Automatically maintains latest list of DXCluster telnet stations as well as country definitions (cty.dat).

- Configure Spot as a server for the programs you use that use DX spots. Up to 10 programs can connect to Spot at once.

- Graphical interface for the cluster mail system.

There is a 15-day free demo so you can try before you buy. Go to <[www.abrahamnealsoftware.com](http://www.abrahamnealsoftware.com)> for more information.

## The Amateur Radio Website of the Month

This month's Amateur Radio Website is chock full of interesting reading to get you through the long winter months. W2OXY, Bill Continelli's *Outline of Amateur Radio History*, printed originally in the Schenectady Museum Amateur Radio Association newsletter, has since been reprinted numerous times with W2XOY's permission. Among many of the sites where you can find reprints are <<http://ham-shack.com/history.html>> and <[www.qsl.net/ecara/wayback/main.html](http://www.qsl.net/ecara/wayback/main.html)>. With 35 chapters of radio history, Bill's highly readable Wayback Machine is a great way to spend a few hours or savor one chapter a day.

## Wrap-up

That is all for this month's column. 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 snail-mail address on the first page of this column.

Until next month . . .

73, Anthony, K8ZT

# WINMOR and the Process of Software Development

**A**t the 2008 ARRL/TAPR Digital Communications Conference (DCC) this past September, Rick Muething, KN6KB, gave a talk on his new digital messaging software, WINMOR. This long-awaited development, seemingly rising like a phoenix from Rick's unsuccessful SCAMP project, is expected to be a real competitor to the PACTOR II/III protocol for the WinLink 2000 system.

Rather than write about software that is still a few months away from beta testing (obviously, I've never used or even seen it), I thought that I'd take a cue from Rick's presentation at the DCC (which I downloaded from the <winlink.org> website) and talk about some of the behind-the-scenes work that we PDUs (Poor Dumb Users) never get to see, or usually even think about.

Just a short blurb on WINMOR (WINlink Message Over Radio), though: It's a sound-card-based PACTOR-like protocol in that it can adjust itself to changing conditions, trading speed for robustness, while still maintaining a decent throughput. It is expected to offer at least three bandwidths (200, 500, and 2000 Hz) and a few levels of error correction, and to use well-known modulation schemes (such as OFDM PSK/QAM). Best of all, and unlike PACTOR II/III, Rick has stated that the system will be openly documented for amateur radio. While a modest licensing fee has not been ruled out (perhaps supporting Winlink) cost will be low enough so as not to be a barrier to its use. I am sure we'll learn more—and you can bet I'll write about it—once WINMOR is debugged and released.

## Developing a New Digital Mode

This month, I'd like to talk about some aspects of what it takes to bring a new digital mode "to market." Many of us download these new modes and have a lot of fun using them without knowing (or thinking of) the effort that went into them. The

\*P.O. Box 114, Park Ridge, NJ 07656  
e-mail: <n2irz@cq-amateur-radio.com>

developers are surely doing it as a labor of love. Otherwise they're going hungry, since most software we use is freeware.

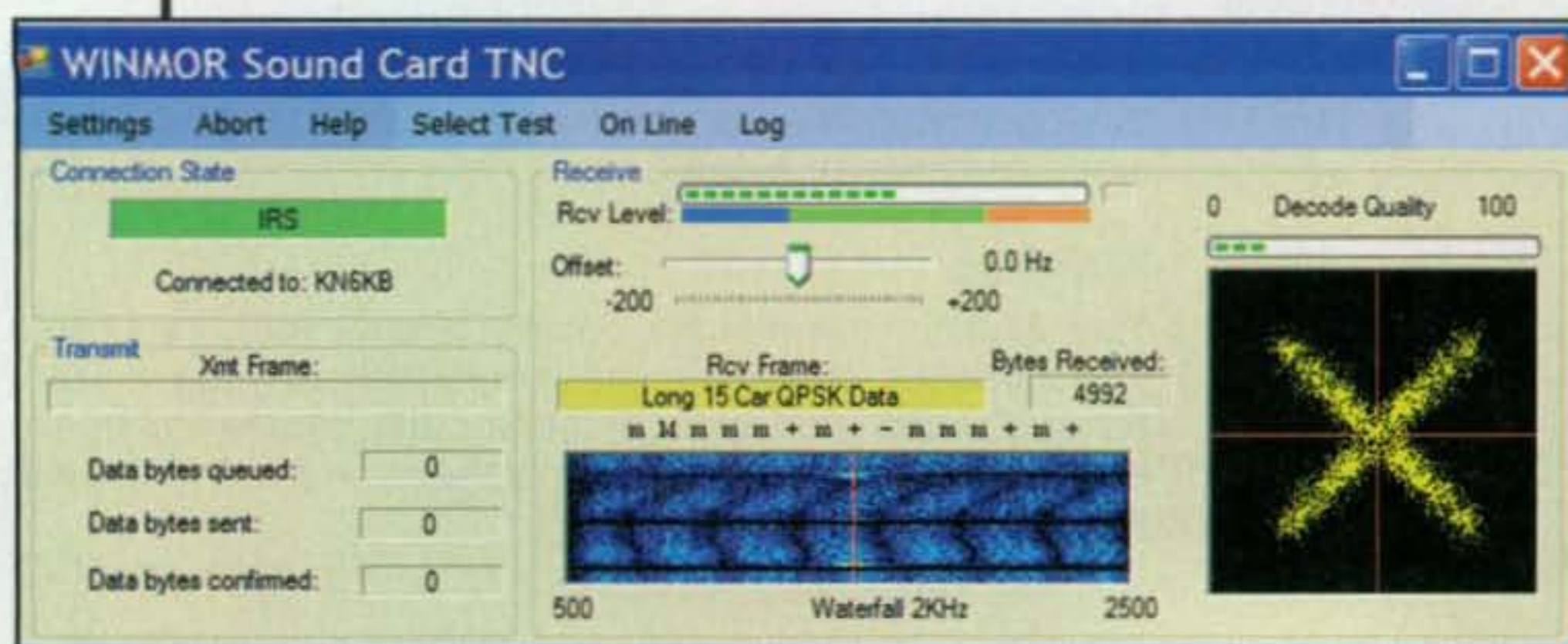
It all starts with an idea. You don't need to be any kind of expert to get an idea. Remember Hedy Lamarr (the famous actress) and her invention of spread spectrum for "secure" communications? One could argue that it was really Frequency Division Multiplexing that she patented, but nobody would argue that she was of the technical persuasion. It just goes to show you that anyone can have a good idea.

Assuming you are one of the very few with the drive and skill to turn an idea into reality, you then flesh out the idea. It certainly takes some effort, but if you really believe in your idea, you can overcome a lot of adversity. You write some requirements and goals, start on the software, and get some of the basic features working, leading to the proof-of-concept stage.

SCAMP got to this stage, but after some testing was performed, it turned out that it just wasn't that good. More specifically, it did not meet the design requirements. Rather than waste additional resources, it was eventually abandoned. That, I can tell you from experience, must have been a hard decision to make.

Some might call it a failure, but at work we call those "learning experiences." You see, learning is not just about doing things right; it's also figuring out why things went wrong and how to improve on them. Knowing what doesn't work is almost as good as knowing what does work, and sometimes it's better.

Okay, so SCAMP was a dead end, but I can imagine that Rick couldn't get out of his head the idea of an alternative to PACTOR. Rolling around ideas in his mind, and now knowing a little bit more about what wouldn't work, he went and designed WINMOR. At the DCC last September, Rick reported that he is past the proof-of-concept stage and into the Alpha-testing stage. That means it should be able to meet the design requirements, but isn't really ready for others to test yet.



A screen shot of an early version of WINMOR, which should be in the early beta-test stage by the time you read this. 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 channel simulation. (Image courtesy of Rick Muething, KN6KB)

Alpha testing is where you make all the basics functional, verify the expected performance, perform experiments (both physical and mental) to help anticipate and identify problems, and do some work on the user interface and user documentation. You gather some close friends who have some experience with the kind of things you're trying to accomplish and play in a sandbox with it.

The problem with communications software is that testing it properly involves, well, communications—especially when you're working on software such as WINMOR, where a major design requirement is automatic adaptation to HF radio channel conditions. HF propagation varies so much that how can you tell if a measured performance improvement was due to that software tweak you just made or just a better day on HF? Being absolutely certain is important if you want to wring every bit (no pun intended) of performance out of your "baby."

As Rick writes in his DCC paper, "Developing a new mode that meets the ... requirements is challenging and to truly engineer a solution we have to organize and develop a set of tools and procedures that advance the process beyond simple build-and-try experiments." This means that a rigorous (meaning "demanding strict attention to procedures"), repeatable, and thorough testing program needs to be used if excellent results from a calculated engineering approach are desired.

The tools you need are several and vary depending upon what you're trying to accomplish. Rick writes about the tools he used in the development of WINMOR in his DCC paper.

These tools include the existing body of knowledge on the subject, available from resources such as textbooks, industry data and application notes, and experts in the field (both in academia and industry). If what you need to know isn't in a book, find the experts and engage them. Many experts are happy to share their knowledge with deserving colleagues, those who have already done their homework and don't ask about things already in the book.

A thorough understanding of the hardware involved—in this case, sound cards—is important, since if there are some variables involved, it is best to know about them early in the process. I remember a talk given at the Dayton Hamvention® by Gerald Youngblood, K5SDR (ex-AC5OG), when his FlexRadio SDR-1000 was first introduced. A customer (a prominent ama-

teur who should have known better) was having problems getting good performance from his new SDR-1000, and Gerald suggested that he needed a different sound card. The ham had tried

everything, triple-checking everything over several days, but Gerald knew from his long experience in the design and debugging process with dozens of sound cards that the symptoms point-

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ed there. Eventually, his customer thought of trying a different sound card ... and you can guess the rest.

You also need tools to create, manipulate, and characterize the data you're going to use to test your software. As Rick writes, "The only way to measure the effectiveness of certain algorithms is to be able to repeat tests with *exactly* the same sound card data." For a sound-card mode such as PSK31 or WINMOR, this means .WAV files, and the ability to edit these files—to a greater extent than, say, one might find in a sound editor such as Sonic Forge—can be of significant value.

Of course, if you're working with a sound card, it almost goes without saying that you're going to harness the power of the computer to do some digital signal processing (DSP). These days it's often better/faster/cheaper to write some DSP code than to build hardware. When working in the DSP world, some calculations are easier in the time domain (as would be displayed on an oscilloscope) and other calculations are easier in the frequency domain (as would be displayed on a spectrum analyzer). Just like when experimenting on a new circuit, an oscilloscope and spectrum analyzer, or their computer-driven software equivalents, really come in handy.

Lastly, and possibly most important, is your HF channel. As mentioned before, when trying to wring another fraction of a decibel of performance out of a mode you're designing, the normal and expected variability of an HF radio path is just not acceptable. While an excellent HF channel is easy to simu-



An important part of the software development process is peer review, letting others of similar interests and skills have a look at the software to provide their insights and constructive criticism. Presenting your idea at the ARRL/TAPR Digital Communications Conference (DCC) or a similar meeting is a great way to do this. Here we see Lyle Johnson, KK7P, speaking about the High Performance Software Defined Radio project at the 2007 Dayton Hamvention®, a presentation that generated a lot of interest in the project.

late (just use wires) a moderate or poor channel isn't so easy. While these most certainly occur naturally, they aren't predictable or consistent. To gain consistency, we use a so-called *HF channel simulator*.

Such a simulator is pretty high on the list of specialized hardware, but there are (of course) software versions that will run on your computer. In the August column, you may recall that I wrote about HamSphere, an HF band in cyberspace which is a somewhat accurate representation of a real HF band, including fading, echoes, and other propagation phenomena, simulating an HF channel in software. For communications software development we use standardized, repeatable band characteristics and signal-to-noise ratios known as *models*. Several models exist, some for general use and some specialized. A Google search on "HF channel models" will yield plenty of hits.

Having all of these tools still doesn't guarantee a good product, but without them we are abandoning the scientific method of experimentally validating our theories and just "winging it" with a "build and try" method. That's no way to develop a product.

Just like the long hours breathing solder fumes that many of us older folks might remember, long hours in front of the computer seems to be the nominal

design method these days. Sure, some of us still like to build things in hardware—for me, lately, that's been FIRST robots—but the digital world is firmly embedded, and it's here to stay. I think I might have mentioned that in this column before. ...

Long hours testing both software and friendships, looking for that elusive and hard-to-replicate bug, making decisions as important as which modulation scheme and as trivial as the window's background color—that's the experimenter's world these days. Next time you're having fun working your favorite digital mode, think and imagine the effort that must have gone into making it all work, and thank the author for it. (Yep, just send an e-mail, telling the author how much you like it. Trust me, as nothing makes one's day like a message from a happy user.)

As is my custom this time of year, I wish you and your family and friends the very best for the holiday season, and hope you enjoy a happy, healthy, and prosperous New Year. This time of year seems to cause the whole world to think more about peace, and regardless of your personal, political, and religious beliefs, I think most of us can agree that living in peace and freedom is one of the best ways to live.

73, Don, N2IRZ

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# Nonstop Action, Nonstop Fun!

BY DAVE INGRAM,\* K4TWJ

**S**easons Greetings, dear friends and fans of low-power communications supreme! We trust you enjoyed 2008 to the max and you are looking forward to even more exciting times during the coming year. Hopefully our words of encouragement, tales of QRP success, and views of new equipment will help make those wishes a reality. That should be easy enough, as every day is exciting on QRP.

Bruce Hudler, WA3MKC, is a good example of that fact. I recently answered his 579 CQ on 30 meters and was favorably surprised to hear he was running an ICOM IC-703 at only 5 watts with a vertical antenna (photo 1). The QSO proved quite interesting, as Bruce has been hooked on QRP since 1980, when he purchased a Heath HW-8. He also worked for Heathkit during the 1970s repairing ham gear and is presently restoring a complete Heathkit SB line. Jolly good show, Bruce!

A few days later, Fred Saas, WA8PGE, answered my CQ on 30 meters with a reasonably good signal. I asked about his transceiver, and he replied it was a software-defined QRP rig produced by Hendricks QRP kits and called the Firefly (photos 2, 3, and 4). The Firefly is a rather fancy little monoband QRP SDR with VXO tuning, full break-in CW operation, 500-Hz filter, built-in keyer, and more. Signal conversions and RF amplification are handled by the external unit, while other signal-processing duties are handled by the connected computer. The two are interfaced through the computer's stereo sound card, and the associated Rocky software is available free on-line. There is just one hitch: <www.qrpkits.com> recently replaced the Firefly with a new stand-alone transceiver kit called the PFR-3, and to the best of my knowledge, no one nor any QRP club has stepped up to continue production of Firefly kits. Hopefully we will soon see a Firefly resurrection. What's the story on QRP kits' new "replacement" transceiver? Read on!

## Hendricks' New PFR-3

Doug Hendricks, KI6DS, continues pumping out QRP kits as fast as (or faster than) folks can build them, and his latest offering made its grand debut at Dayton's Four Days In May 2008 (photos 5 and 6). This self-contained mini-transceiver is designated the PFR-3 (Portable Field Radio; 3 bands) and looks strikingly similar to Elecraft's popular KX1—with a few exceptions. First, the case is



*Photo 2— Thoroughly modern QRP! Fred, WA8PGE, works 30 meters in high style with his tiny Firefly software defined transceiver (box with two knobs and pushbutton) and desktop computer. Mouse runs the computer, MFJ paddle runs the rig, and speaker pumps out cheerful CW notes. Classy! (Photo courtesy of WA8PGE)*

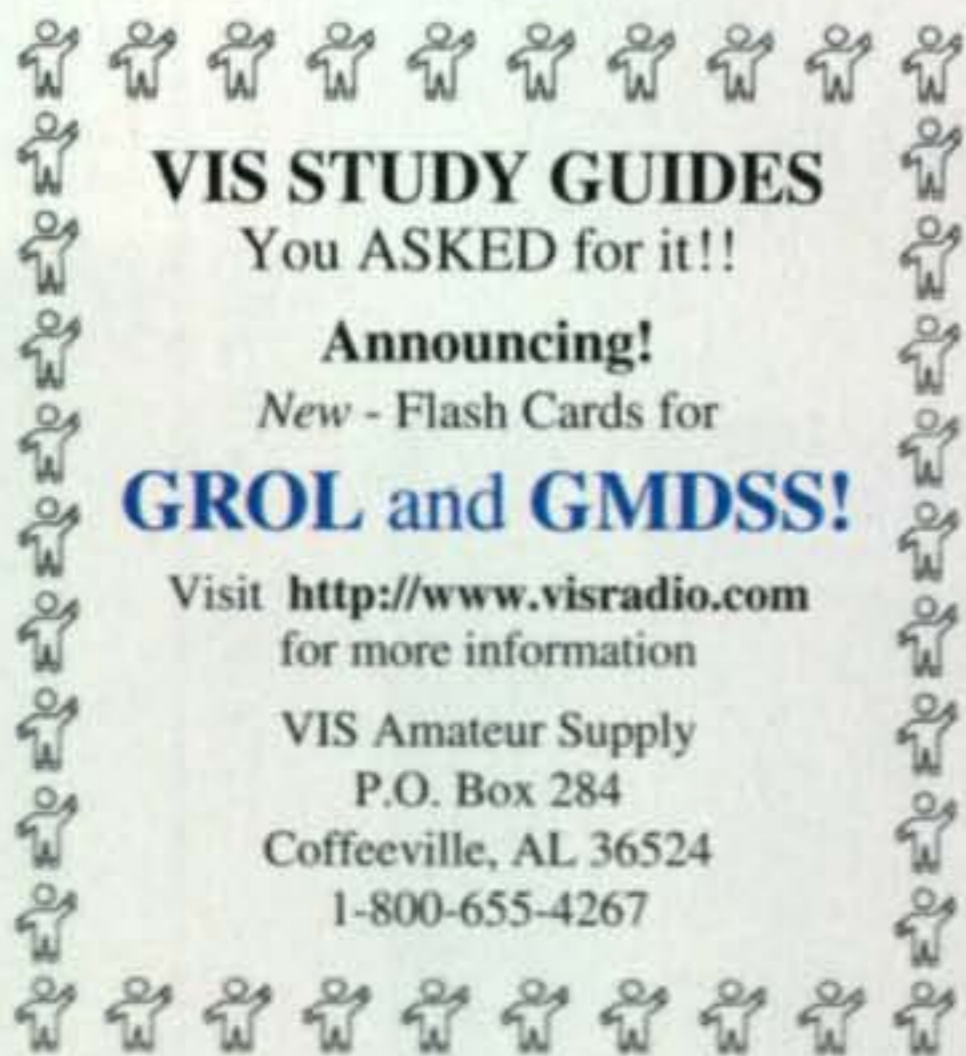
painted yellow, and second, frequency tuning is handled by pushbuttons rather than a knob. I may be moving a bit fast here, so let's restart with the pertinent details.

The PFR-3 measures 1.6" x 7.3" x 4.4"; covers 40, 30, and 20 meters; and produces a clean 5-watt output signal when powered by a 12.0-volt battery or eight internally installed AA cells. It has a built-in antenna tuner with both coax and balanced-line out-



*Photo 1— After using an HW-8 for more than 25 years, Bruce, WA3MKC, recently added an ICOM IC-703 to his setup. When asked about his DX success to date with the '703, he pondered and replied, "Sweden and Estonia with a wire antenna strung from a hotel window while traveling." Good show! (Photo courtesy of WA3MKC)*

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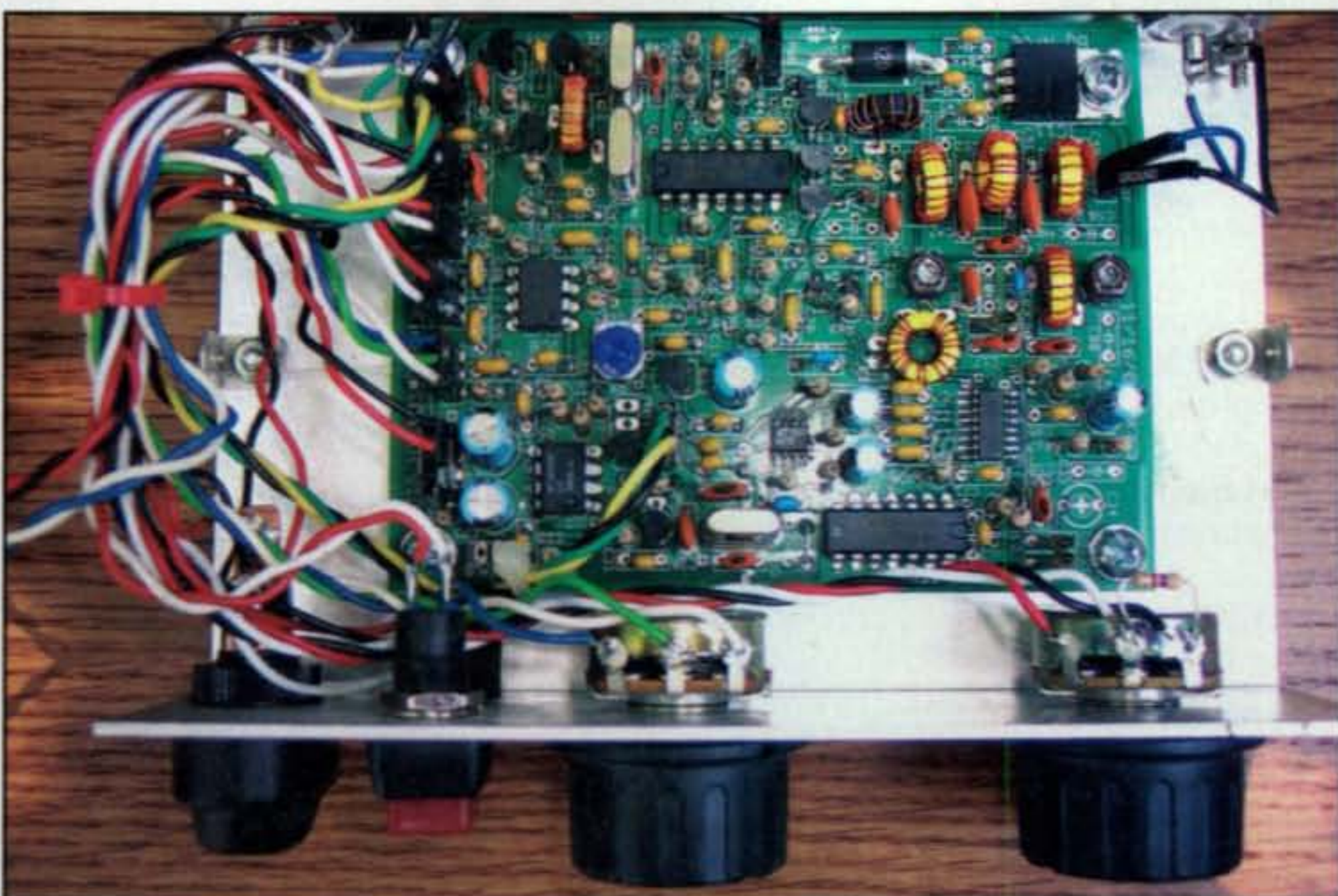


Photo 3— Interior view of the Firefly reveals a modest amount of circuitry. Quadrature signals from the Firefly are processed by a computer resulting in "big rig" performance. (Photo courtesy of WA8PGE)

puts, built-in CW keyer with two memories, and a 300-Hz CW filter. Since the PFR-3 is similar to the KX-1, some kit-building experience (or old pro guidance) is highly recommended. Patience and accuracy are definitely virtues here.

The PFR-3 sports some interesting operating features worthy of mention. First, straight taps on the up/down tuning buttons change the operating fre-

quency in 50-Hz steps. As an alternative, you can hold down an up or down button and the frequency will change at a rate of roughly 1 kHz per second (watch your clock and receiver dial, and you can visualize the sequence). You can also hold down the RIT button for one second and then directly enter a desired frequency from your CW paddle.

When loaded with fresh AA alkaline

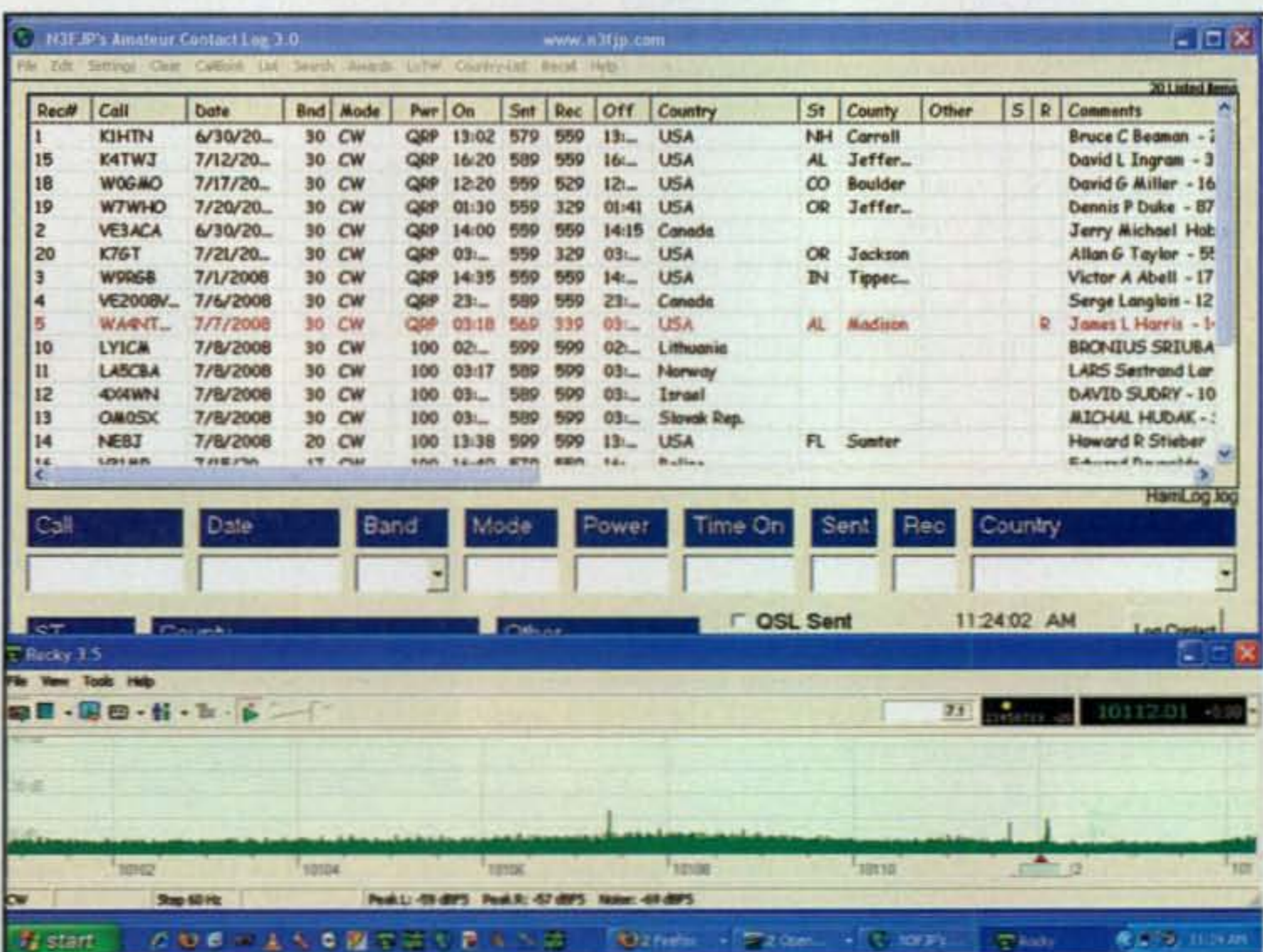


Photo 4— Computer-screen view of WA8PGE/Fred's Firefly setup showing log on top and dial on bottom. Note there are signals on 10.107 and 10.111 MHz and the dial is tuned to a station on 10.112 MHz. (Photo courtesy of WA8PGE)

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Photo 5— The new PFR-3 40/30/20-meter CW transceiver kit from <www.qrpkits.com> sports a hot receiver with 300-Hz filter, 5-watt transmitter, built-in antenna tuner, keyer with memory, and more. Install eight AA cells internally and it makes a good stand-alone transceiver for portable operations. (Photo courtesy of KI6DS)



Photo 6— Reverse view of the PFR-3 showing connections for both balanced and unbalanced antenna lines. (Photo courtesy of KI6DS)



Photo 7— Heads up, milliwatts maestros. This tin's for you! It is an easy-to-assemble 40-meter RF amplifier kit that will boost the output power of your Tuna Tin 2, DC-40, Rockmite, or similar milliwatt rig to a full 5 watts output, and it is available from W1REX at <www.qrpme.com>. (Photo courtesy of W1REX)

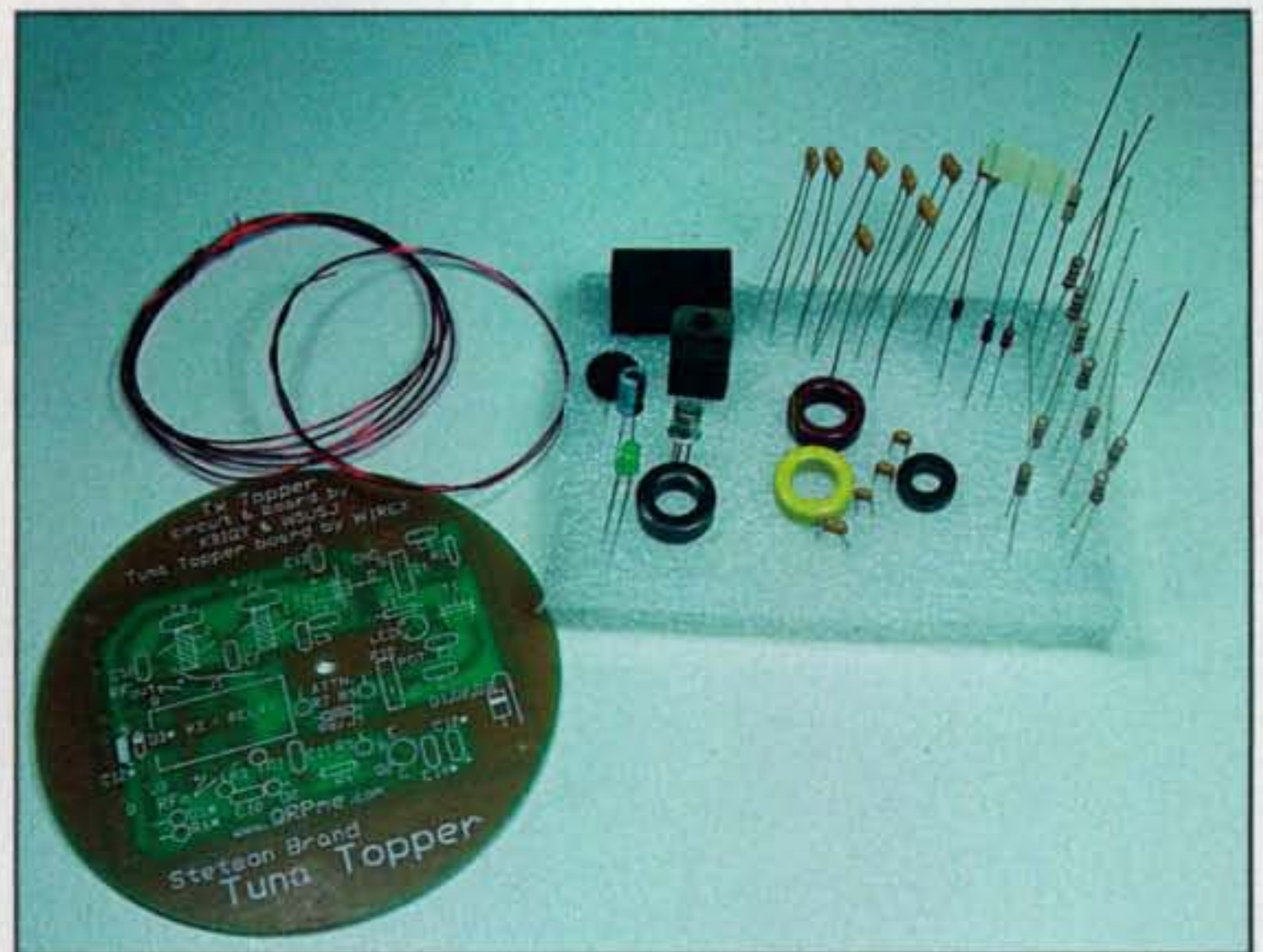


Photo 8— The Tuna Topper RF amplifier kit ready for assembly. The inexpensive kit consists of a couple dozen resistors and capacitors, MOSFET, relay, four toroids, and a round PC board plus tin "chassis." Assembly time is approximately two hours. (Photo courtesy of W1REX)

cells, equipped with earbuds, and an attached paddle (Hendricks has one as an option; WB9LPU is probably designing a fancy alternative), the PFR-3 is dandy for pedestrian mobiling. Just strap it to an arm like a giant watch, add a metal-frame backpack with a 6- or 7-amp battery for all weekend use, mount a Hamstick to the frame, pull a quarter-wave counterpoise, and you are good to go—walking, biking, or even vehicle mobile (but use the vehicle's body in lieu of the trailing counterpoise!).

Overall, I would say Doug Hendricks has another winner in the PFR-3, and I would also suggest moving quickly to get one. Things move fast in the world of QRP. More details (and kits) are available at <www.qrpkits.com>. Check them out!

## The Tuna Topper

Another new kit, and one making its grand debut in this month's QRP column, is the Tuna Topper from Rex Harper, W1REX, of QRPme (photos 7, 8, and 9). The Tuna Topper is a 5-watt RF amplifier for mini rigs such as the Tuna Tin 2, DC-40, Rockmite, etc. It employs a high-power MOSFET that loafs along at 5 or 6 watts output, has a double-section output filter, and includes an on-board RF sensor circuit activating a built-in T/R switch for easy hookup and operation. The "Topper" was field tested running as a 6-watt beacon for 8 hours straight, and its (1.5 inch) heat sink was only warm to the touch—and cooler than the DC-40 transceiver connected to it as an exciter.

This 40-meter mini-amp fills a definite niche in boosting milliwatts rigs such as the famous Tuna Tin 2 (which W1REX also produces as a kit). It is simple in circuit design, easy to assemble, and quite affordable. Yes, and in the now-familiar style of QRPme, it too is packed and shipped in a fresh new tuna can complete with a pull-top lid, custom label, and round PC board. A rectangular-board version the size of a Rockmite is also available.

You can read more details and order kits of the Tuna Topper, the Tuna Tin 2 transmitter, and/or its mating Sudden Storm Receiver at <www.qrpme.com>. Get all three kits, set up a station in a corner of your kitchen, reflect back on the

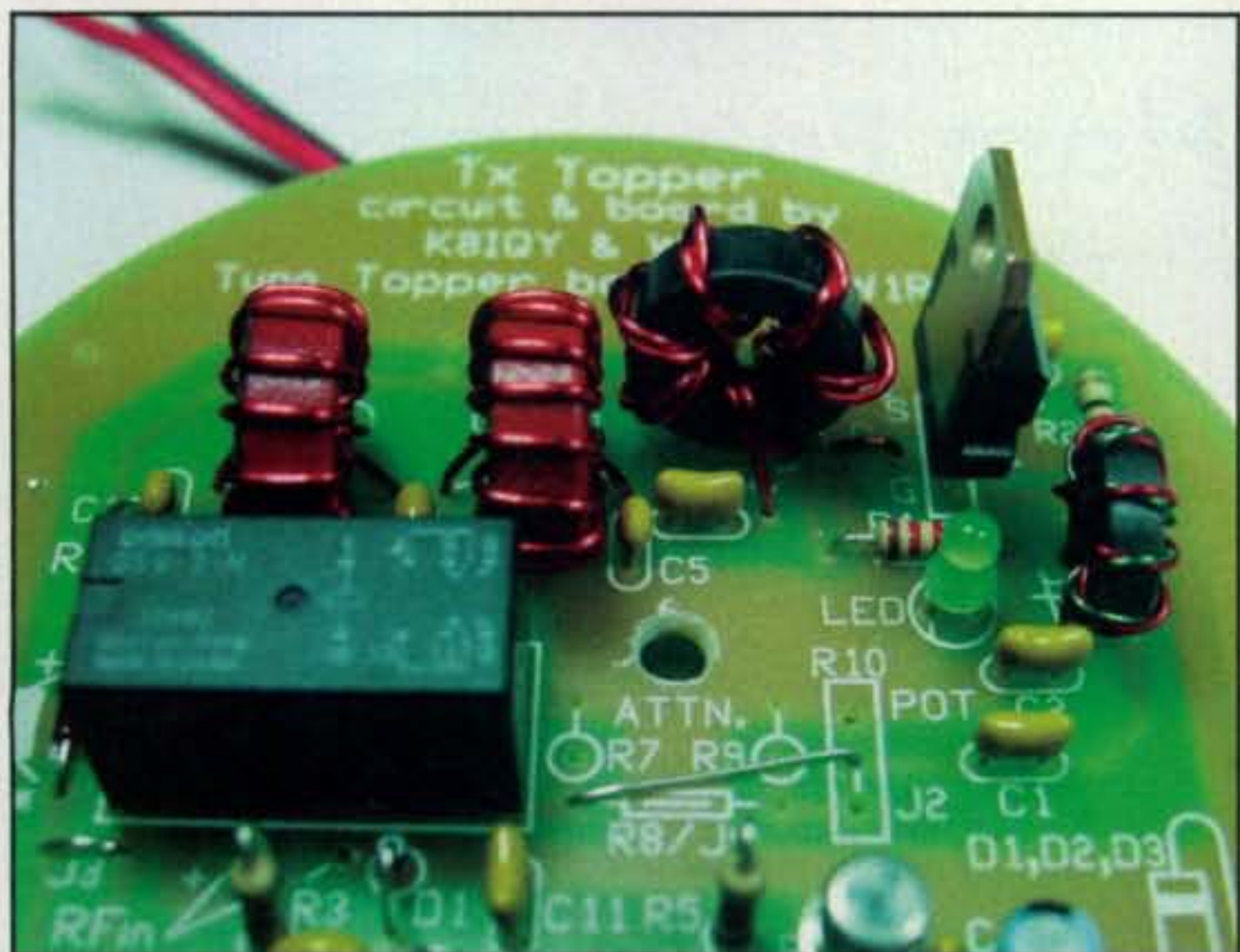


Photo 9— Close-up view of the Tuna Topper RF amplifier. The heat sink has been removed from the MOSFET to show the toroids, which are actually easy to wind. Changing coil turns and related capacitor tubes should also allow the Topper to work other bands. Dinking is the key. (Photo courtesy of W1REX)



Photo 10— The MFJ Cub is a popular and quite versatile QRP transceiver that usually produces a 2-watt output signal. A simple power transistor change as described in the text increases output to 3 or 4 watts for reaching out like a pro. (Photo courtesy of MFJ Enterprises)

classic movie *Three Coins in A Fountain*, and you have a rig named "Three Cans on a Counter." What a (QRP) hoot!

### Hopping Up a Cub

I have noted quite a few MFJ Cub kit QRP transceivers on the air during recent months (possibly a spinoff of the ARRL offering it bundled with Rich Arland, K7SZ's new *Low Power Communications* book). This "Cub uprising" inspired me to start re-using my own Cub, and I have been working amateurs coast to coast with it!

The Cub is a nice little rig at an affordable price (photo 10). It uses a pair of popular NE-602s (mixer and product detector/BFO) and LM-386 superhet receiver with three-pole, 700-Hz filter and a hearty three-transistor transmitter that normally pumps out a 2-watt signal. The good (and often overlooked) news here, too, is a simple transistor swap can boost RF output to a solid 3 or 4 watts. That's right, you can directly substitute a 2N3553 for the "stock" 2N5109 or 2N3866 and get 3 watts rather than 2 watts output, or you can step up to an MRF-237 and get 4 watts output. That's romping for such a tiny rig!

A couple of notes warrant mention here. First, notice I said a (high power) 2N3553, not a (low power and much more plentiful) 2N3550, and the (different) base pinout of an MRF-237 requires some lead position shifting. The pin closest to the tab on an MRF-237 is the collector (whereas the closest-to-tab pin on a 2N3553, 2N5109, or

2N3866 is the emitter). The "middle" pin is still the base, but you must route it under the base so it mates with the Cub's PC-board hole. Be sure the pins do not touch/short, fire up, and enjoy QRP with ... a *big* Cub!

### Conclusion

We wind down this month's column with encouragement to spend some quality

time enjoying on-the-air QRP operation during the holidays. Nighttime on 30 meters is always good (the band often seems quiet or closed due to low activity, but it's great for QRP). Also a Top band CW/SSB QRP Sprint is scheduled for 0000–0600 UTC December 4th. Check out <[www.qrparci.org](http://www.qrparci.org)> for more details on this event.

73, Dave, K4TWJ

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## A Tale of Two Ham Families

We are pleased to introduce our new youth column, "Kids' Korner," in this issue, as well as our new Youth Editor, Brittany Decker, KB1OGL. Brittany lives in Hudson, New Hampshire, with her parents and younger brother. She is 14 years old, has a General Class license, and already holds an amateur radio leadership position as Assistant Section Manager for Youth in the ARRL New Hampshire Section. She has previously written two articles for *CQ*. Welcome aboard, Brittany!

"Kids' Korner" is intended to be a column both *about* and *for* young people in amateur radio. We want to hear from any of you about what young hams in your families are doing, and we'd especially like to hear from young hams themselves—not only about what they are doing in ham radio but also about what they would like to see in this, their column. "Kids' Korner" will appear quarterly, in the March, June, September, and December issues of *CQ*. —W2VU

It seems the best way to increase the number of young people involved in amateur radio is to get their families involved. After all, no one likes to be the odd ball out. Not only that, but with the whole family involved, everyone can help each

\*e-mail: <kb1ogl@cq-amateur-radio.com>



The many hams of the Kondas and Kerwin families of New Jersey. Front row, from left, are brothers Joseph Kerwin, W2JRK; Ryan Kerwin, W2RWK; and Matthew Kerwin, W2MGK. Rear row, from left, are the boys' uncle, Andrew Kondas, WB2IYY; grandfather Bill Kondas, WA2JKY; grandmother Josephine Kondas, WB2EKV; and mom Jo Ann Kerwin, WB2IZA. (Photo courtesy of WA2JKY)

other with exams. Even my own family has a new amateur addition: My mother just recently got her Technician license. She is now KB1RGE.

To get thing started in our column, we'll look this month at "A Tale of Two Families"—two ham families, that is...

### The American Ham Family

The Kerwin family of Hawthorne, New Jersey, is a four-ham family: Mom Jo Ann, WB2IZA, and three children, Joseph, W2JRK, age 13; Matthew, W2MGK, age 12, and Ryan, W2RWK, age 10. They all agree that their favorite aspect of ham radio is talking to people all over the world, or DX. Ryan adds that he likes how there are no limits to where in the world you can contact with ham radio. The farthest place they contacted was California while participating in Kids' Day, a contest dedicated to young amateur radio operators getting on the air. Among the boys' favorite places to contact have been Florida, Ohio, Texas, Rhode Island, and New York. They especially like talking to New York, because they remember that back on September 11, 2001, ham radio emergency communicators got on the air when the planes hit the World Trade Center there.

Joseph, Matthew, and Ryan learned about ham radio mainly because of their grandfather, Bill Kondas, WA2JKY, who started doing ham radio with them a couple of years before they got their licenses. What got them hooked was how they could talk to anyone in the world, even if their favorite place to talk to was as close to New Jersey as New York. However, their grandfather was not their only amateur influence. Their grandmother, Josephine, WB2EKV, their uncle, Andrew, WB2IYY, and their mother, Jo Ann, WB2IZA, all influenced the young operators to get into amateur radio.

The grandparents first got their licenses when they were about the same age as the kids are now, and Jo Ann and Andrew also got their licenses at that same age. Their stories of when they were young amateur radio operators certainly inspired the kids to get their licenses as well. Even today, with the kids' grandparents having obtained their Extra Class licenses, and Jo Ann and Andrew having earned their General Class licenses, Joseph, Matthew, and Ryan (all Technicians) certainly have their family to look up to and get help with amateur radio.

Joseph, Matthew, and Ryan got their licenses only a couple of years ago. Joseph got his when he was 11, Matthew when he was 10, and Ryan when he was 9. They have had great success in getting into amateur radio, getting their licenses, and staying interested and involved. When asked what advice they have to tell young people their age about amateur radio, they said that with ama-



Eight-year-old Yoshiki Nakada, KH0UA, right after passing his U.S. Technician Class license exam. (Photo courtesy of Kuny Nakada, 7L1FPU)

teur radio you don't need to pay for phone bills like you have to do with cell phones. Matthew also said that they could talk to people all over the world, and with telephones you cannot dial a number and hope it is a person in a DX country that is willing to talk to you. Joseph had already made some advancement in getting other young people into amateur radio by bringing a couple of his friends to his station during Kids' Day. He said that his friends really enjoyed the experience, and especially loved the souvenirs they received for that day—QSL cards from the people they contacted.

The previous story was about a big ham family in New Jersey. However, this trend is not limited to the United States. Our next story is about an ever-expanding Japanese ham family enjoying amateur radio through contesting and frequent DXpeditions.

### The Japanese Ham Family

Only eight years old with a U.S. Technician Class license and a glowing enthusiasm for ham radio, Yoshiki Nakada, KH0UA, has just recently been welcomed into amateur radio. Yoshiki's mother and father both have their amateur radio licenses. With a father who is a very accomplished amateur radio operator—Kuniyoshi "Kuny" Nakada holds four callsigns, 7L1FPU, JG0VCM, W1FPU, and AH0BT—Yoshiki is very likely to also succeed in amateur radio.

Yoshiki was first inspired to get involved in amateur radio by his father, Kuniyoshi. Kuniyoshi has obtained his 1st Class Japan license, and his United

States Extra Class license to boot. He started amateur radio when he was in high school, and continued advancing through the Japanese license classes during college, until amateur radio led him to study antennas and radio-wave propagation. His studies then helped him to decide to become a mobile-phone system engineer.

Yoshiki grew up listening to his father's QSOs on the radio. He first showed interest at the age of three. However, when he finally got his license, he was still unable to get on the air. This is because Yoshiki was only able to study for the FCC Technician license, as the Japanese "Kanji" characters are very difficult to learn at Yoshiki's young age. According to his dad, there are more than 2000 Kanji characters in Japanese, and elementary school children have not yet learned many of the characters that are used in the Japanese amateur radio license exam. Yoshiki had another problem: Kids in Japan don't start learning English in school until middle school (age 13), according to his dad, so Yoshiki had to learn English from his parents before taking the FCC Technician exam!

He does not have to study again for the Japanese license exam, though. His dad says the Japanese government accepts U.S. licenses for similar-level Japanese licenses, so Yoshiki's U.S. Technician license will qualify him for a 4th Class Japanese license.

Yoshiki's favorite amateur radio activities are contesting and satellites. These are also his father's favorite aspects of the hobby. Yoshiki enjoys contesting because it is "very enjoyable and very cool compared to playing Nintendo DS during the family's favorite contest," the All Asian DX Contest (AADX). What he really enjoys during the AADX contest is his exchange, which is signal report and age, so Yoshiki gets to send "59-08" to the stations he contacts.

While participating in the AADX contest, Yoshiki and his family go to the Northern Marianas Islands, an American territory between Japan and Guam, which has the prefix KH0. The family travels to the Northern Marianas very frequently, more than twice a year. Yoshiki gets his motivation to study for his General Class license from contesting on Northern Marianas. One day, while on the island, he said, "I do want to (transmit) below 15 meters, I waaant my General license!!"

When asked about how to get young people into amateur radio, Yoshiki did

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*Yoshiki standing with members of the ARRL Volunteer Examiner team after the exam session at which he earned his U.S. ham license. (Photo courtesy of Kuny Nakada, 7L1FPU)*

not have any ideas. However, he does have two 5-year-old twin brothers whom he will soon have to help study with their ham radio exams. Along with his parents, he will help make his ham family even bigger.

### **Jamboree On The Air**

Attention all Scouts! What are you doing next year for the contest dedicated to *you*? No idea? Here are some!

Jamboree on the Air (JOTA) is held each October to help Scouts and Guides around the world get in contact with each other over ham radio. The 2008 JOTA, held the weekend of October 18th and 19th, was the 51st annual event. Here are some activities that a few groups were planning. You might be able to get some ideas for your own JOTA activity next year ... and it's never too early to start planning!

*From Dave Lenzi, Leader of Troop 212, Fenton, MI:* This will be our 10th consecutive JOTA. Since JOTA is so close to Halloween, we like to celebrate it in conjunction with a "Mystery Trip." It has always been our custom to keep the weekend's activities, as well as the campsite and food, a mystery. Last year the Scouts were told to meet at a local church and were given a clue that started them on a three-hour road rally which

ended at a church camp (our campsite for the weekend). Once they arrived, the Scouts found a box of miscellaneous food awaiting them from which they had to develop a menu based on what they found in the box. Participating in JOTA and pumpkin carving were other highlights of the weekend. We have a custom troop QSL card that we send to all JOTA contacts and look forward to receiving other cards from around the world... Last year we were able to make enough contacts to earn the Centenary of Scouting Award (UK sponsored JOTA award), as well as the Baden Powell Award from Brazil.

*From Charles London, KI4NCQ, Scoutmaster, Troop 575, Old North State Council, Uwharrie District:* At the Old North State Council's Uwharrie District we are making JOTA the theme of our 2008 fall camporee. The camporee is scheduled for JOTA weekend with lots of radio-related activities planned. There will be a tower-building challenge, a launch-a-wire-antenna-as-high-as-you-can challenge, a build your own backpack antenna project, and many more. We have invited local ham operators to teach Radio Merit Badge requirements and, most importantly, get as many Scouts on the air as possible.

My favorite part of JOTA is introducing amateur radio to scouts who just may become the Elmers of tomorrow.

*From Hidan O. Ricco, Tanzania, East Africa:* JOTA/JOTI activities are marvelous in Tanzania, East Africa. We have been organizing it since 1980 under the callsign of 5H0SA then 5H3TSA, coordinator being myself with two other fellows. Again this year we will be on the air usually on the 15 and 20 meter bands also in JOTI (Jamboree on the Internet). I don't know how to operate on Echolink, but I'm working on it. The number of Boy and Girl Scouts expected to participate is increasing each year. Last year it was 600, this year we expect the number to double up to 1200. Other activities include campfire, hiking, singing, sports, etc... You don't want to miss it.

### **Let's Hear From You!**

What are you and young hams you know doing? What would you like to see in future columns? We're also interested in your ideas on what we might do with a website devoted to kids and radio. Please send your stories and ideas to me at <kb1ogl@cq-amateur-radio.com>. See you in March!

73, Brittany, KB1OGL





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SRM-30M	25	30	3 1/2 x 19 x 9 1/2	7.0



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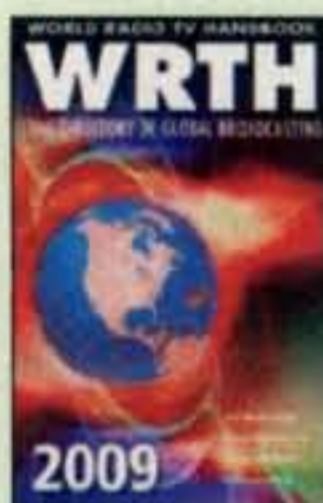
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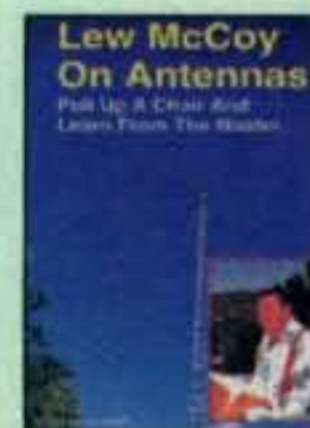


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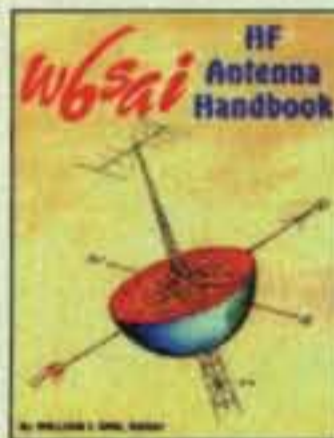


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# Involving Young Hams in DXpeditions

BY CARL SMITH, N4AA

dx

**T**his issue should arrive around our Thanksgiving holiday period, as well as the CW weekend of the CQ WW DX Contest. I'll wish all those traveling for this holiday or the contest safe travels, and best wishes for the upcoming Christmas holidays as well.

As we come to the end of another year, I tend to take a look over my shoulder at what happened during the year. We sure didn't get much in the way of help with propagation, and the short-range forecast doesn't hold much hope either. In spite of all those solar flux index numbers which held in the mid 60s for weeks (or was it months?), we still managed to find a few new ones among the noise and QRM.

## Youth and DXpeditions

This is a topic we've been talking about for a long time now, and there has been some success by folks who really believe in doing something about it. We read these stories from time to time, and here is another one. In the past few years some DXpeditions have been working to involve young people in those activities by offering free "passage" to one or two youngsters.

The organizers of the VK9DWX trip to Willis Island in October offered to take along two young amateurs. They solicited applications, receiving 16, and finally picked two applicants. Each will get one week on Willis Island, with all expenses paid after they get to Cairns, Australia. Josh Fisher, W4WJF, was honored with the first week. Josh is a senior at North Carolina State, has a 4.0 GPA, and is active in the NC State Amateur Radio Club. Josh's Dad is Bill Fisher, W4GRW. After consulting with his professors, Josh was given permission to miss classes to make the trip. I had the pleasure of meeting Josh at the SEDCO IV Conference on September 27th. Josh has promised a report on his experience upon his return. The second week was awarded to Rhyndardt (Rhy) Louw, ZS6DXB, from The Republic of South Africa, and he is 25 years old. You may recognize him as the publicity contact for Petrus, ZS6GCM, when he was on Bouvet operating as 3YØE, and also now as Petrus is on Marion Island with the call ZS8T. *(Editor's note: Where is Petrus? No one has heard him on the air as of this writing and questions continue to pour in. Unfortunately, we have no answers, and Rhyndardt has no information either.)*

The contest team at 6Y1V has been inviting a young amateur to be a part of the team for at least the last few years now. Again this year they have



*Josh, W4WJF, who was selected by the VK9DWX team to go on the Willis Island DXpedition in October. He is a 21-year-old senior at North Carolina State University. (Photo courtesy of David, K4PZT)*

solicited applications for the CQ WW contests. I won't be able to report who that is until the next issue, but I congratulate the team for providing the opportunity for some young, aspiring contester to go along with them and gain knowledge and experience from the veterans.

## Desecheo – KP5

At this writing in early October we just learned that the US Fish & Wildlife folks in Puerto Rico have finally given permission for a valid operation from



*Desecheo Island (KP5). Proposed operating sites for an upcoming DXpedition. (Photo courtesy of Bob, K4UEE)*

\*P.O. Box DX, Leicester, NC 28748-0249  
e-mail: <n4aa@cq-amateur-radio.com>

Desecheo (KP5). This one has been hovering in the highest region of the Most Wanted list for some time now. If any of you missed the announcement, here is what was said:

"The Caribbean National Wildlife Refuge Complex has selected and announced a team of operators to activate Desecheo Island (KP5) sometime between January 15, 2009 and March 30, 2009. The team will be co-lead by Dr. Glenn Johnson, W0GJ, and Bob Allphin, K4UEE.

Background: On June 30, 2008, the Caribbean National Wildlife Refuge office in Puerto Rico sent a letter to persons who had

previously made inquiries about an amateur radio operation from Desecheo. They announced their decision to allow one group to activate the island and invited proposals that must adhere to strict guidelines and criteria. Applicants had 45 days to prepare and submit their proposals.

CNWR received seven written proposals. A panel of three Fish and Wildlife Service employees, from areas within the Service outside of the Caribbean refuge, spent September 24 and 25 reviewing and evaluating the proposals. The selection criteria used were those outlined in the proposal invitation letter. Points were awarded for how well criteria were addressed for thoroughness and documentation.

The proposal with the highest ranking was submitted by team leaders Dr. Glenn Johnson, W0GJ, and Bob Allphin, K4UEE. Their plan involves a team of 15 operators for a 14-day operation. USFWS has not announced the actual dates of the operation yet, but the DXpedition is expected to take place between January 15, 2009 and March 30, 2009. A Special Use Permit (SUP) will be issued as per USFWS regulations. We expect that the DXpedition team and DXers worldwide will have a minimum of 30 days notice.

A website is being planned and will be announced in the near future.

So there you have it. Glenn, W0GJ, and Bob, K4UEE, certainly don't need

any introduction to the DX community. Both Glenn and Bob have been around the world more than once. Among others, Glenn brought us A52A and Bob led the 3Y0PI Peter I DXpedition. I have no doubt we will see a high-quality operation from this team.

## Glorioso - FR/G

There has not been any further word from Didier on the Glorioso DXpedition, so we continue to wait for the transportation plans to be finalized for this one.

## Micro-DXpeditioning Uncovered

This is a new book by Roger Western, G3SXW. Roger is a well-known DXpeditioner who has written a couple of other books, *Up Two* and *Contesting in Africa*, both published by Idiom Press <www.idiompress.com>.

In the past few years, Roger has started DXpeditioning on what he calls "Day Trips." These are short trips to places relatively close to England that are accessible by low-cost transportation and yet are still sought after by the DX community. He has taken day trips to

## 5 Band WAZ

As of October 1, 2008, 756 stations have attained the 200 zone level and 1612 stations have attained the 150 zone level.

New recipients of 5 Band WAZ with all 200 zones confirmed:  
CT1EKY

The top contenders for 5 Band WAZ (zones needed, 80 or 40 meters):

S51U, 199 (27)	K7LJ, 199 (37)
N4WW, 199 (26)	RA6AX, 199 (6 on 10m)
W4LI, 199 (26)	RX4HZ, 199 (13)
K7UR, 199 (34)	K8GM, 199 (17)
W2YY, 199 (26)	S58Q, 199 (31)
IK8BOE, 199 (31)	WB9EEE, 199 (17)
JA2IVK, 199 (34 on 40m)	EASBCX, 198 (27, 39)
IK1AOD, 199 (1)	G3KDB, 198 (1, 12)
W8CP, 199 (18)	JA1DM, 198 (2, 40)
GM3YOR, 199 (31)	9A5I, 198 (1, 16)
VO1FB, 199 (19)	K4CN, 198 (23, 26)
KZ4V, 199 (26)	G3KMQ, 198 (1, 27)
W6DN, 199 (17)	N2QT, 198 (23, 24)
W3NO, 199 (26)	OK1DWC, 198 (6, 31)
HB9DDZ, 199 (31)	W4UM, 198 (18, 23)
RU3FM, 199 (1)	US7MM, 198 (2, 6)
N3UN, 199 (18)	K2TK, 198 (23, 24)
OH2VZ, 199 (31)	K3JGJ, 198 (24, 26)
W1JZ, 199 (24)	W4DC, 198 (24, 26)
W1FZ, 199 (26)	F5NBU, 198 (19, 31)
SM7BIP, 199 (31)	OE2LCM, 198 (1, 31)
SP5DVP, 199 (31 on 40)	HA1RW, 198 (1, 31)
N4NX, 199 (26)	WK3N, 198 (23, 24)
N4MM, 199 (26)	W9XY, 198 (22, 26)
EA7GF, 199 (1)	KZ2I, 198 (24, 26)
N6HR7, 199 (37)	W7VJ, 198 (34, 37)
JA5IU, 199 (2)	K9MIE, 198 (18, 21)
RU3DX, 199 (6)	W9RN, 198 (26, 19 on 40)
N4XR, 199 (27)	W5CWQ, 198 (17, 18)
HA5AGS, 199 (1)	K9OW, 198 (34 on 10, 2 on 15)
VE3XN, 199 (26)	I5KKW, 198 (31 & 23 on 20)
YU7GMN, 199 (10)	JT1BV, 198 (4, 11)

The following have qualified for the basic 5 Band WAZ Award:

JE1LFX (150 zones) K6GXO (190 zones)

5 Band WAZ updates:

WC5N (170 zones) DK8PM (189 zones)  
WB9EEE (199 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

<b>CW</b>	
3205 .....	DF3JO
<b>SSB</b>	
3017 .....	IW3SNW
3018 .....	DF3JO
3019 .....	KA1LOR
<b>Mixed</b>	
2016 .....	DF3JO
<b>Digital</b>	
17 .....	I2MQP
18 .....	SV7CUD

**CW:** 500 DF3JO. 1300 WA2VQV. 2300 EA7AAW. 2500 IK3GER. 5600 WA2HZR.  
**SSB:** 350 IW3SNW. 400 IV3BSF, EA2ABI. 1350 DF3JO. 2000 DL8AAV.  
**Mixed:** 1450 DF3JO. 2300 K4RDU. 2500 WZ4P.  
**Digital:** 900 SV1EOS.

**160 Meters:** DF3JO  
**80 Meters:** DF3JO  
**40 Meters:** DF3JO  
**20 Meters:** DF3JO, IW3SNW  
**15 Meters:** DF3JO  
**10 Meters:** DF3JO

**Asia:** DF3JO, SV1EOS  
**Africa:** DF3JO  
**Europe:** DF3JO  
**North America:** DF3JO  
**South America:** DF3JO

**Award of Excellence:**  
**Digital Bar:** SV1EOS

**Award of Excellence Holders:** N4MM, W4CRW, K5UR, K2VV, VE3XN, DL1MD, DJ7CX, DL3RK, WB4SIJ, DL7AA, ON4QX, 9A2AA, OK3EA, DJ1MP, N4NO, ZL3GO, W4BQY, IBXJ, WA1JMP, K0JN, W4VQ, KF2O, WB8CNL, W1JR, F9RM, W5UR, CT1FL, WA4QMQ, W8ILC, VE7DP, K9BG, W1CU, G4BUE, N3ED, LU3YL/W4, NN4Q, KA3A, VE7WJ, VE7IG, N2AC, W9NUF, N4NX, SM0DJZ, DK5AD, WD9IC, W3ARK, LA7JO, VK4SS, I8YRK, SM0AJU, N5TV, W6OUL, WB8ZRL, WA8YTM, SM6DHU, N4KE, I2UIY, I4EAT, VK9NS, DE0DXM, DK4SY, UR2QD, AB9O, FM5WD, I2DMK, SM6CST, VE1NG, I1JQJ, PY2DBU, H18L, KA5W, K3UA, HA8UB, HA8XX, K7LJ, SM3EVR, K2SHZ, UP1BZZ, EA7OH, K2POA, N6JV, W2HG, ONL-4003, W5AWT,

K80G, HB9CSA, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YB8TK, K9QFR, 9A2NA, W4UW, NX0I, WB4RUA, I6DOE, I1EEW, I8RFD, I3CRW, VE3MS, NE4F, KC8PG, F1HWW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, KC7EM, YU1AB, IK2ILH, DE0DAQ, I1WXY, LU1DOW, N1IR, IK4GME, VE9RJ, WX3N, HB9AUT, KC6X, N6IBF, W5ODD, I0RIZ, I2MQP, F6HMJ, HB9DDZ, W0ULU, K9XR, JA0SU, I5ZJK, I2EOW, IK2MRZ, KS4S, KA1CLV, W21R, CT4UW, K0IFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, OE1EMN, W9IL, I7PXV, S53EO, DF7GK, S57J, EA5BM, DL1EY, DJ1YH, KU0A, VE2UW, 9A9R, UA0FZ, DJ3JSW, OE6CLE, HB9BIN, N1KC, SM5DAC, RW9SG, WA3GNW, S51U, W4MS, I2EAY, RA0FU, CT4NH, EA7TV, W9IAL, LY3BA, K1NU, W1TE, UA3AP, EA5AT, OK1DWC, KX1A, IZ5BAM, K4LQ, K0KG, DL6ATM, VE9FX, DL2CHN, W2OO, AI6Z, RU3DX, WB9IHH, CT1EEN, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, KT2C, UA9CGL, AE5B, K0DEQ, DK0PM, SV1EOS, UA0FAI, N4GG, UA4RZ, 7K3QPL, EW1CQ, UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJO, UA3BS, UA9FGR, UT3UY, WA5VGI.

**160 Meter Endorsements:** N4MM, W4CRW, K5UR, VE3XN, DL3RK, OK1MP, N4NO, W4BQY, W4VQ, KF2O, WB8CNL, W1JR, W5UR, W8ILC, K9BG, W1CU, G4BUE, LU3YL/W4, NN4Q, VE7WJ, VE7IG, W9NUF, N4NX, SM0DJZ, DK5AD, W3ARK, LA7JO, SM0AJU, N5TV, W6OUL, N4KE, I2UIY, I4EAT, VK9NS, DE0DXM, UR2QD, AB9O, FM5WD, SM6CST, I1JQJ, PY2DBU, H18L, KA5W, K3UA, K7LJ, SM3EVR, UP1BZZ, K2POF, IT9TQH, N6JV, ONL-4003, W5AWT, K80G, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YB8TK, K9QFR, W4UW, NX0I, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, WX3N, W5ODD, I0RIZ, I2MQP, F6HMJ, HB9DDZ, K9XR, JA0SU, I5ZJK, I2EOW, KS4S, KA1CLV, K0IFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, S53EO, S57J, DL1EY, DJ1YH, KU0A, VR2UW, UA0FZ, DJ3JSW, OE6CLD, HB9BIN, N1KC, SM5DAC, S51U, RA0FU, CT4NH, EA7TV, LY3BA, K1NU, W1TE, UA3AP, OK1DWC, KX1A, IZ5BAM, DL6ATM, W2OO, RU3DX, WB9IHH, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, UA9CGL, SM6DHU, K0DEQ, DK0PM, SV1EOS, N4GG, UA4RZ, 7K3QPL, EW1CQ, UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJO, 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 if airmail desired) to "CQ WPX Awards," P.O. Box 355, New Carlisle, OH 45344 USA. Note: WPX will not accept prefixes/calls which have been confirmed by computer-generated electronic means.

\*Please Note: The price of the bars for the Award of Excellence are \$6.50 each.

## The WAZ Program

### 40 Meter CW

264 .....N5FG

### 160 Meters

283 .....RA4UF (36 zones)    286 .....DK0PM (37 zones)  
284 .....RU4UR (31 zones)    287 .....EA8AK (40 zones)  
285 .....OK1RD (40 zones)

### All Band WAZ

#### Mixed

8525 .....9A6ZT

#### SSB

5085 .....JA9QOY

#### CW

546 .....RA4UJL    547 .....DS3DGA

#### RTTY

190 .....ON4QX

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

### CW

1089 .....VK6LC    1090 .....F5PBL

### SSB Endorsements

330 .....IK1GPG/339    330 .....VE3XN/338  
330 .....OZ3SK/339    330 .....N2VW/336  
330 .....OK1MP/339    300 .....I3ZSX/304  
330 .....N7RO/338

### CW Endorsements

330 .....W4OEL/338    275 .....N2VW/283  
330 .....OK1MP/338    150 .....F5PBL/150  
330 .....N7RO/337    QRPp .....F5PBL  
330 .....VE7XN/337

### RTTY Endorsements

320 .....OK1MP/328

The basic award fee for subscribers to CQ is \$6. For non-subscribers, 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.

places such as ZB2, EA9, IS0, YL, 9H, OM, SP, T7, HV, LY, C3, YO, LZ, HA, OE, 1A, TF, JW, CT3, 3A, and 4U.

The back cover of his book says: "Day-trip to Poland? Lunch in Andorra? QRV Sardinia for two hours? The days of cheap travel have arrived! Here are stories of quickie trips to 20 countries, with HF station and antenna in a carry-on bag. See new places, meet new friends, make some QSOs, have so much fun. This is a 'How To' guide for an entirely new style of DXpeditioning."

The 100+ page illustrated and signed book will provide much Micro-DXpeditioning entertainment. For a copy, send cash or a sterling cheque to: Roger Western, G3SXW, 7 Field Close, Chesington, KT9 2QD, England; or bank transfer to: sort-code 20-90-69, A/c 80953636, IBAN GB06 BARC 2090 6980 9536 36, SWIFTBIC: BARCGB22. Mention your callsign as the reference. Price: GBP £10, USD \$20, or 13 Euros. More information is available at: <g3sxw@btinternet.com>.

## 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

N0FW .....338	N4MM .....337	K9OW .....336	N6AW .....335	G4BWP .....334	W7IIT .....330	SM5HV/HK7 .....327	CT1YH .....320	KT2C .....300
WB4UBD .....338	K4MQG .....337	DL3DXX .....336	N4AH .....335	W1JR .....334	G3KMQ .....329	F6HMJ .....326	W9IL .....319	K0KG .....298
K3UA .....338	W7OM .....337	K8LJG .....336	KA7T .....335	I4LCK .....334	N5HB .....329	W4LI .....325	YT1AT .....317	WD9DZV .....295
K9MM .....338	W7CNL .....337	N4CH .....336	HB9DDZ .....335	YU1AB .....334	K1HDO .....329	N4OT .....325	RA1AOB .....317	K4IE .....291
W4OEL .....338	W8XD .....337	K4JLD .....336	K3JGJ .....335	W0HZ .....333	K7JS .....329	YV5ANT .....324	EA3ALV .....316	G3DPX .....284
EA2IA .....338	W0JLC .....337	K9IW .....336	K2JLA .....334	K6LEB .....333	W6OUL .....329	KF8UN .....323	W6YQ .....316	N2VW .....283
OK1MP .....338	K2TQC .....337	N5ZM .....336	F3AT .....334	K5RT .....332	N7WO .....329	IK0TUG .....321	WA4DOU .....315	DJ1YH .....281
K9BWQ .....337	K4CN .....337	W4MPY .....336	WA4IUM .....334	K2JF .....331	KE3A .....329	W3II .....320	UA9SG .....310	XE1MD .....280
N7FU .....337	N7RO .....337	K5UO .....336	PA5PQ .....334	WA8DXA .....331	K6CU .....329	WG5G/QRPp .....320	YU7FW .....306	W2JLK .....277
N4JF .....337	VE3XN .....337	K7LAY .....336	K2ENT .....334	K8SIX .....331	KA3S .....328	F5OIU .....320	ON4CAS .....304	
K4IQJ .....337	K2OWE .....336	F3TH .....335	NC9T .....334	W2UE .....330	K1FK .....328	PY4WS .....320	N1KC .....302	
K2FL .....337	N5FG .....336	PY2YP .....335	W2VJN .....334	W4UW .....330	IK0ADY .....328	OZ5UR .....320	VE7KDU .....300	

### SSB

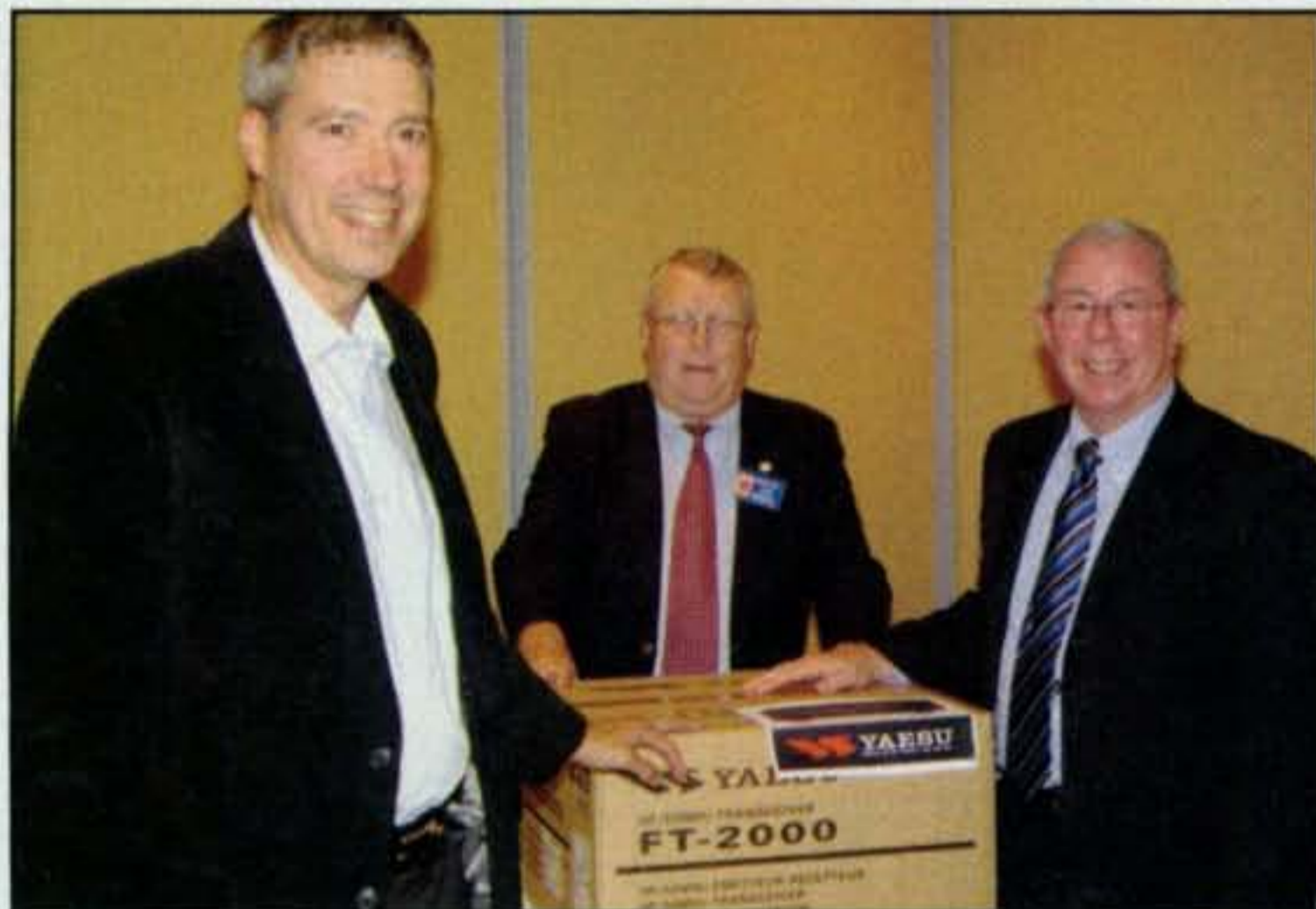
K4JLD .....339	N4CH .....338	VE3MR .....337	K2JLA .....335	W6SHY .....334	N5ORT .....331	WR5Y .....325	RA1AOB .....312	XE1MW .....293
EA2IA .....339	W7OM .....338	VE3MRS .....337	OE7SEL .....335	W5RUK .....334	CT1AHU .....331	KC4MJ .....325	KD2GC .....311	XE1MEX .....293
XE1AE .....339	K9MM .....338	AA4S .....337	ZL3NS .....335	EA3KB .....334	EA3JL .....331	PY2DBU .....325	K5CX .....310	K1RB .....292
IN3DEI .....339	K9BWQ .....338	IK8CNT .....337	K7JS .....335	CT3DL .....334	K1HDO .....331	YT1AT .....325	RW9SG .....310	W9ACE .....291
N0FW .....339	W8AXI .....338	EA4DO .....337	PY4OY .....335	VE7WJ .....334	K7HG .....331	KE4SCY .....325	XE1RBV .....310	W5PVE .....288
DU9RG .....339	W9SS .....338	CT3BM .....337	PA5PQ .....335	WA4WTG .....334	N5YY .....331	W4MPY .....325	I0YKN .....310	WD9DZV .....287
K3UA .....339	VK4LC .....338	YU1AB .....337	XE1VIC .....335	ZL1BOQ .....334	F6HMJ .....331	K6GFJ .....324	AA1VX .....308	HB9DQD .....286
K6YRA .....339	K7LAY .....338	I0ZV .....337	K2ENT .....335	N7WR .....334	K3PT .....330	W6WI .....323	WB2AQC .....305	VE7HAM .....285
IK1GPG .....339	OZ5EV .....338	K8LJG .....337	IK6GPZ .....335	K3LC .....334	N1ALR .....330	EA3CYM .....323	I3ZSX .....304	N8LIQ .....284
DJ9ZB .....339	WS9V .....338	W3AZD .....337	NC9T .....335	HB9DDZ .....334	W9OKL .....329	WN9NBT .....322	K3BYV .....303	W0IKD .....283
N7BK .....339	EA3BMT .....338	K0KG .....337	K1UO .....335	4N7ZZ .....333	W2FGY .....329	W6OUL .....322	JR4NUN .....303	KB0RNC .....282
4Z4DX .....339	W6DPD .....338	W2FKF .....337	I8KCI .....335	VE1YX .....333	CT1CFH .....329	CT1ESO .....321	YV2FEQ .....303	AE9DX .....282
WB4UBD .....339	VE2PJ .....338	W7FP .....337	I8LEL .....335	W2JZK .....333	EA1JG .....329	VE7SMP .....320	KU4BP .....303	IK8TMI .....281
OZ3SK .....339	K3JGJ .....338	VE2GHZ .....337	DU1KT .....335	K8LJG .....333	KF8UN .....328	N1KC .....320	K7SAM .....303	F5INJ .....279
OK1MP .....339	N5ZM .....338	IK0AZG .....337	CT1EEB .....335	VE4ACY .....333	W0JLU .....328	W5GZI .....320	W4PGC .....302	W5GT .....276
K5TVC .....338	K4CN .....338	K2FL .....337	W1JR .....335	VE2WY .....333	K1EY .....328	W0ROB .....318	EA8AYV .....302	HS0/EA4BKA .....276
K2TQC .....338	N7RO .....338	YU3AA .....337	I4LCK .....335	K9PP .....333	K4DXA .....328	LU3HBO .....317	N2LM .....302	K9DXR .....275
K2ZP .....338	VE3XN .....338	W7BJN .....337	ZL1HY .....335	EA3EQT .....333	LU5DV .....328	WB4GMR .....317	4X6DK .....301	AD7J .....275
K4MZU .....338	XE1L .....337	AB4IQ .....337	W2CC .....335	YV1KZ .....333	XE1MD .....327	N8SHZ .....316	4Z5FL/M .....301	
N4JF .....338	OE3WWB .....337	W4UNP .....336	K5UO .....335	W9IL .....333	DK5WQ .....327	XE2NLD .....315	N5WYR .....300	
W4WX .....338	K9OW .....337	K8SIX .....336	WD0BNC .....334	YV1AJ .....332	CP2DL .....327	I26CST .....314	YC9WZJ .....300	
K5OVC .....338	N5FG .....337	W4UW .....336	W0YDB .....334	KS0Z .....332	Ni5D .....327	W6NW .....314	K7ZM .....300	
W6BCQ .....338	PY2YP .....337	DL3DXX .....336	W4NKI .....334	LU4DXU .....332	K7TCL .....326	EA3ALV .....313	WA1ECF .....295	
W6EUF .....338	N6AW .....337	KE3A .....336	OE2EGL .....334	VE4ROY .....332	YV4VN .....326	W7GAX .....312	KW1DX .....295	
K4MQG .....338	K9HQM .....337	K9IW .....336	WA4IUM .....334	CT1EEN .....332	SV3AQR .....326	KA1LMR .....312	W4EJG .....295	
N4MM .....338	KE5K .....337	N2VW .....336	K5RT .....334	YV1JV .....331	KD5ZD .....326	ON4CAS .....312	K7ZM .....295	

### RTTY

WB4UBD .....337	K2ENT .....333	N5FG .....331	OK1MP .....328	EA5FKI .....319	K4CN .....303	W4EEU .....297
NI4H .....336	K3UA .....332	N5ZM .....330	G4BWP .....320	PA5PQ .....311	K8SIX .....300	



Here are the raffle prize winners at the SEDCO DX & Contesting Conference at Pigeon Forge, Tennessee the end of September. The photo on the left shows George, N5GH (left), accepting his prize, a Yaesu FT-2000, from Dennis, K7BV. The photo on the right shows Dave, K4SV (left), congratulating a shocked and very surprised Carl, N4AA, for winning the other raffle prize, an ICOM IC-756PROIII, that is being held by Phil, W9IXX (not shown). (Photo courtesy of David, K4PZT)



Speaking of prizes, the W9-DXCC Convention grand prize was an FT-2000. Here, Gary, K9SG (left), accepts the radio from Dennis, K7BV (right), as Jim, W9WU, looks on. (Photo courtesy of Jack, W9MU)

You will also get an introduction to "DXFC." Now what on earth does that "F" stand for?

### Operating Practices

Regular readers of this column know that I have been pleading for better operating practices for a long time. The latest ARRL Letter advised:

IARU ENDORSED BOOKLET PROMOTING ETHICS, OPERATING ISSUES NOW AVAILABLE. A 67 page booklet, "Ethics and Operating Procedures for the Radio Amateur" by John Devoldere, ON4UN, and Mark Demeuleneere, ON4WW. It is available for free download from the ARRL Web site <<http://www.arrl.org/awards/dxcc/Eth-operating-ENarrl-SITE-1jul2008.pdf>>. This is an "Americanized" version of the booklet the authors wrote for an international audience. An international version is also available: <<http://www.iaru.org/Eth-operating-EN-iaru-SITE-1july2008.pdf>>.

At its June 2008 meeting, the IARU Administrative Council endorsed and recommended the principles set out in the booklet as a means of encouraging all radio amateurs "to operate to the highest levels of proficiency, with proper consideration for others using the amateur radio bands" and as a tool "to teach newcomers and

### CQ DX Field Award Honor Roll

The CQ DX Field Award Honor Roll recognizes those DXers who have submitted proof of confirmation with 175 or more grid fields. Honor Roll listing is automatic upon approval of an application for 175 or more grid fields. To remain on the CQ DX Field Award Honor Roll, annual updates are required. Updates must be accompanied by an SASE if confirmation is desired. The fee for endorsement stickers is \$1.00 each plus SASE. Please make all checks payable to the Award Manager, Billy F. Williams. Mail all updates to P.O. Box 9673, Jacksonville, FL 32208.

#### Mixed

K2TQC.....262	F6HMJ.....201	K8OOK.....184
HA0DU.....228	VE3ZZ.....201	K2SHZ.....182
W1CU.....220	JN3SAC.....200	K2AU.....182
VE3XN.....217	W4UM.....198	K0CA.....181
N8PR.....214	W6OAT.....194	K1NU.....180
HA1RW.....213	N4NX.....192	ON4CAS.....180
K0DEQ.....210	HA9PP.....190	W5ODD.....177
HA5WA.....206	BA4DW.....188	N0FW.....176
KF8UN.....205	OK1AOV.....187	
N4MM.....201	9A5CY.....187	

#### SSB

W1CU.....207	K0DEQ.....184	N0FW.....176
W4ABW.....199	N4MM.....184	DL3DXX.....175
VE7SMP.....190	W4UM.....180	

#### CW

DL6KVA.....220	JN3SAC.....194	OK1AOV.....178
W1CU.....212	W4UM.....190	N4NX.....177
DL3DXX.....203	OK2PO.....184	K0CA.....175
K0DEQ.....201	N4MM.....179	

### QSL Information

3V8SS via RW4WM	ED5UB via EA5FL
4K9W via DL6KVA	EN600Y via US0YA
4O3/DG5NGJ via DK9NCX	GB3AU via G0RDI
5V7BR via F2VX	GB3BAA via G0RDI
5W0KY via VK2ZKY	GB7AU via G0RDI
6M0W/4 via HL5BMX	H40MY via OM2SA
BY1TX/3 via BD1NNI	HF200Q via SP2FAP
CJ3TVW via VA3TVW	HF50OLS via SP4ICP
CO2GL via EB7DX	HF60ZSE via SP4KNA
CO6RD via 8P9NX	HF63DNI via SP5PPW
CQ95F via CS3MAD	HF70PCL via SP7PKI
CU2DX via CU2AA	HZ1SM via DJ9ZB
CU5ABN via EA5FL	IL3T via IQ3SD
CY2ZT/2 via M0URX	IU7A via IK7JWX
E51KJE via JA0KJE	
E51NOU via N7OU	
EA9EU via EA5KB	
ED5GPC via EA5GPC	
ED5HAB via EA5HAB	

(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](mailto:golist@golist.net)>; <<http://golist.net/>>.)



## The CQ DX Field Award Program

### Mixed

94.....NQ7G    95.....LY5W

### SSB

61.....NQ7G    62.....XE3D

### RTTY

12.....NQ7G

### Endorsements

#### Mixed

200.....VE3ZZ/201    100.....NQ7G/102  
100.....LY5W/125    3.5/7 MHz.....JN3SAC

#### SSB

175.....W4ABW/199    50.....NQ7G

The basic award fee for subscribers to CQ is \$6. For non-subscribers, 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. Please make all checks payable to the award manager.

others correct operating behavior." The booklet mainly addresses HF operating issues, but the principles are also applicable to VHF and higher bands.

ARRL Chief Executive Officer and IARU Secretary David Sumner, K1ZZ, expressed appreciation for Devoldere's and Demeuleneere's efforts: "The authors are well-known, experienced HF operators who are concerned about on-the-air operating standards and who decided that "It's better to light a candle than curse the darkness." Anyone who reads their booklet will learn something, no matter how experienced they may be.

This "booklet" is the final product of work begun by Mark and originally published on his website. He and I had numerous discussions on the subject when we each discovered the other was on a "crusade" to clean up the bands. Mark obviously had more success with his European neighbors than I had in trying to get "official" recognition of the problem here in the USA. I congratulate Mark on achieving his objective of finally getting the subject to be officially recognized by the IARU, and the ARRL as well. Now if we can just get people to read it and practice it!

Until next time, enjoy the chase and Have Fun!

73, Carl, N4AA

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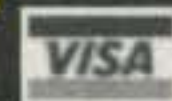
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# Record Keeping

## USA-CA Special Honor Roll

Larry Hammel, K5OT  
USA-CA All Counties #1168  
August 25, 2008

Ronald H. Clift, N5MLP  
USA-CA All Counties #1169  
August 27, 2008

Ann Heimann, KB9YVT  
USA-CA All Counties #1170  
September 3, 2008

The record keeping for most awards is pretty simple, since the majority of these require under 100 contacts. Not so to earn the USA-CA All Counties certificate. The number of counties is currently 3077. That's a lot of data to record. When the award started back in the early 1960s, it all was done by handwriting each entry in a booklet. The first county record booklet even had county outline maps for each state that could be colored in if you wanted to have a graphical representation of your progress.

The advent of inexpensive personal computers, starting in the 1980s, made it possible to let an electronic device do some of the hard work. Today, only a slim amount of the applications I review are computer printouts on paper. This probably is not a surprise, since many of the applicants started to record this data well before they bought their first computer, and the task of typing in all the data is just too daunting.

PC printouts are recommended, however. You can use your computer to add/keep track of when a card or MRC (Mobile Reply Coupon) was sent and received, and if you want to work for future mode or band endorsements, this is the only practical way to keep track of the data.

Remember that each submission requires a page stating all your personal information, a certification that you possess all the cards, etc. A separate section is needed for two witnesses to certify your statements. A copy of the certification can be found on my website, <<http://www.dxawards.com>>. Just click on the "County Hunting Information" link.

## DX Awards

**Germany's 125th Anniversary of the Orient Express Award.** Just the name "Orient Express" brings forth an aura of luxury, travel, mystery, and intrigue. In the late 1800s and early 1900s, it took daring to offer a trip all the way from London to Constantinople, and that can hardly be imagined in today's jet-age society. The Orient Express ran beginning in June 1883, survived war and peace, route changes, and turmoil in Europe, finally ceasing even limited Paris-Istanbul service in 1977.

The Railway Radio Amateurs Group (EFA) of the DARC issues this award to commemorate the

\*12 Wells Woods Rd., Columbia, CT 06237  
e-mail: <[k1bv@cq-amateur-radio.com](mailto:k1bv@cq-amateur-radio.com)>

## USA-CA Honor Roll

500		2000	
K5OT.....	3440	K5OT.....	1363
N5MLP.....	3441	N5MLP.....	1364
KB9YVT.....	3442	KB9YVT.....	1365
DEØDKR.....	3443		
1000		2500	
K5OT.....	1755	K5OT.....	1282
N5MLP.....	1756	N5MLP.....	1283
KB9YVT.....	1757	KB9YVT.....	1284
1500		3000	
K5OT.....	1471	K5OT.....	1192
N5MLP.....	1472	N5MLP.....	1193
KB9YVT.....	1473	KB9YVT.....	1194
		K4IJQ.....	1195

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.

anniversary. The award may be earned by amateurs and SWLs of all countries during the period July 1, 2008 until December 31, 2009. The certificate features a beautiful, vintage advertising poster showing a stylized image of the famed route from Paris to Constantinople.

The award requires contacts with seven of the eight countries along the route, which must be made



The Railway Radio Amateurs Group (EFA) of the DARC issues this award to commemorate the 125th anniversary of the Orient Express.

in the period stated above. The countries are Great Britain, France, Germany, Austria, Hungary, Yugoslavia (now Serbia), Bulgaria, and Turkey. None of these countries is rare, and this should be considered somewhat easy to earn and a good one for your "bragging rights."

All bands and modes may be used, but without packet or Echolink. The award can be issued for one band or mode as well. The application with a list of confirmed contacts (GCR list) must also contain the applicant's name, address, and callsign, together with a fee of 5 IRCs or \$US10. Apply to: Hans Piehler, DL8ARJ, A.-Bebel-Str. 5, D-07639 Bad Klosterlausnitz, Germany. Internet: <<http://www.efa-dl.de/EFADL/Diplom/Engl/engl.html>>

**Japan's JAMSAT Five Stars Award.** One of the really interesting niches in ham radio operating is making contacts through satellites. Those interested in this part of the hobby can add an international flavor to their shack by adding this certificate to their "wall-paper" collection.

This award is sponsored by the Japan AMSAT group to promote the activity of communicating via amateur satellites and protect the frequency allocation given to amateur satellites. Earn the award by establishing a QSO with five different stations using five different satellites, a total of 25 QSOs being needed. Contacts through a specific satellite are counted one time, even though subsequent contacts with a station are made on a different mode or band with that satellite.

Only two-way QSOs are counted. Cross-mode QSOs do not count. QSOs using digital modes and SSTV are valid. However, you are requested to have QSL cards in your possession (e-QSLs are not accepted). No specific endorsements (e.g., CW, SSB) are provided. QSOs made after the January 1, 2006 00:00 UTC are valid for the award.

Send a GCR list and fee of 10 (new) IRCs for foreign hams or 800¥ for Japanese stations (JAMSAT members send 400¥) to JAMSAT Award Office, Att: Mr. S. Murakami, P.O. Box 26, Mizushima Post Office, Kurashiki, Okayama 712-8691, Japan. (E-mail: <[madoguchi@jamsat.or.jp](mailto:madoguchi@jamsat.or.jp)>; internet: <[http://www.jamsat.or.jp/award/index\\_e.html](http://www.jamsat.or.jp/award/index_e.html)>). You are encouraged to enclose additional fees as a voluntary gift which will be donated to AMSAT in order to help fund new satellite equipment in the future.

**Japan's Special Call Award.** Japan uses the 8J through 8N block of call pre-



*This award is sponsored by the Japan AMSAT group to promote the activity of communicating via amateur satellites and protect the frequency allocation given to amateur satellites.*

fix indicators for special event stations and activities. Most of the ones I've seen are limited to 8J1 to 8J0. The DOTO Award Group in Japan sponsors this very colorful award for working at least five special callsigns. SWL okay. All contacts must have been made from the same country. Endorsements are available for each group of 10 additional special callsign stations.

Send GCR list and fee of 5 IRCs or \$US6 to: DAG Award Manager, Kiyoshi Ozaki, JH8QOX, Azabu Shibeche cho, Kawakami gun, Hokkaido, 088-2305, Japan.

**Luxembourg's European Community Award.** The European Union is an economic and political partnership among 27 democratic European countries with a combined population of over 495-million citizens. While not acting as a "super government," its members have worked towards solving issues affecting living conditions and economic factors such as frontier free travel and trade, the establishment of a common currency (the Euro), a clean environment, and better living standards.

To earn this award, work member countries of the European Union on or after their date of membership. SWL okay. A contact with LX0RL may take the place of a missing contact with any of the member countries. No repeater/satellite contacts allowed. No band or mode restrictions.

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The DOTO Award Group in Japan sponsors this award for working at least five special callsigns from the block of prefixes 8J through 8N.

Europeans: Contact each member country at least twice.  
 All others: Contact each member country at least once.  
 GCR list accepted, although the sponsor reserves the right to ask for cards. Send fee of 10 IRCs, \$8US, or 5 Euros to: Reseau Luxembourgeois des Amateurs d'Ondes Courtes, Awards Manager, P.O. Box 1352, L-1013 Luxembourg. Internet: <[http://www.rlx.lu/lx\\_awards\\_files/eu\\_com\\_award.html](http://www.rlx.lu/lx_awards_files/eu_com_award.html)>

Countries of the European Union and their date of membership:

March 25, 1957: DL – Federal Republic of Germany, F – France (including TK), I – Italy (including IS, IT), LX – Luxembourg, ON – Belgium, PA – Netherlands.

January 1, 1973: EI – Ireland, OZ – Denmark, G – United Kingdom (including GD, GI, GJ, GM, GU, GW).

January 1, 1981: SV – Greece.

January 1, 1986: EA – Spain, CT – Portugal.

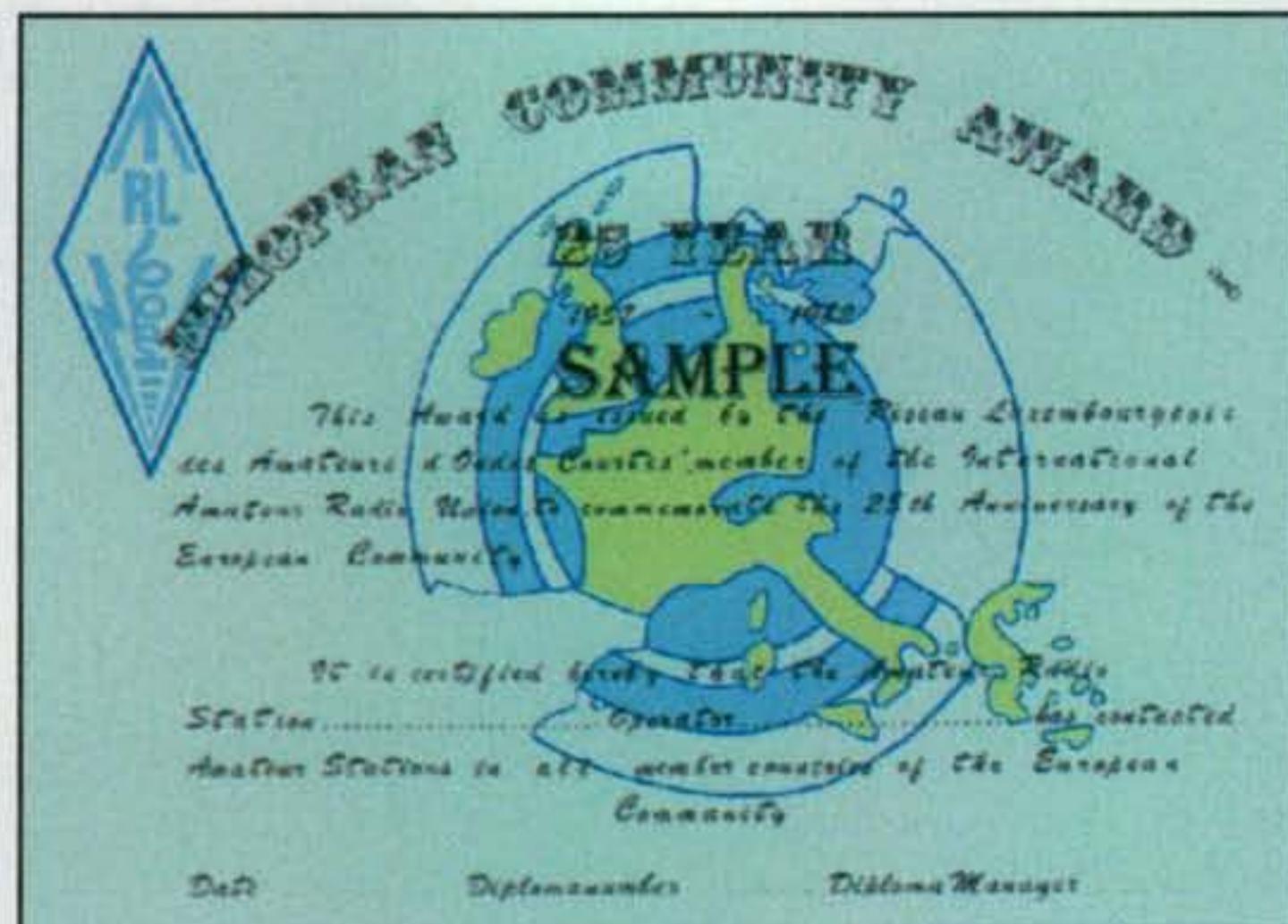
January 1, 1995: OE – Austria, OH – Finland, SM – Sweden.

May 1, 2004: 5B – Cyprus, OK – Czech Republic, ES – Estonia, HA – Hungary, YL – Latvia, LY – Lithuania, 9H – Malta, SP – Poland, OM – Slovak Republic, S5 – Slovenia.

January 1, 2007: LZ – Bulgaria, YO – Romania.

### Worked All Montana Counties Plaque

One of the recent "all county" awards received is the unique handmade plaque from Montana. Offered by Gene



To earn Luxembourg's European Community Award work member countries of the European Union on or after their date of membership.



The handmade wood plaque is issued by Gene Copeland, KC7WWY, for working and confirming all 56 Montana counties.

Copeland, KC7WWY, this is a natural-wood plaque individually burned with an outline of the state with each county identified by a number representing its name in alphabetical order. The fee Gene is charging shows that this is a labor of love. Unique is the word!

Work and confirm all 56 Montana counties. All bands 160 through 2 meters, all modes okay, except no repeater or cross-mode contacts. Send a GCR list including station worked, date, time, frequency, mode, and county. USA-CA holders may submit their award number as evidence of having worked all of the Montana counties. They do not have to fill out a formal application. Fee is \$15 for U.S. applicants. Foreign applicants should write to the sponsor for current cost. Apply to: Gene Copeland, KC7WWY, 121 Seventh Avenue N, P.O. Box 184, Malta, MT 59538. E-mail: <[debs@mtintouch.net](mailto:debs@mtintouch.net)>.

We're always interested in hearing from clubs, special-interest groups, or individuals who sponsor an award. Please contact me at the nail-mail or e-mail address shown on the first page of this column.

73, Ted, K1BV

# Pioneer ARISS Astronaut's Son Follows Father in Space



Owen Garriott, W5LFL, along with his son Richard Garriott, W5KWQ, prior to Richard's mission this past October. (ARISS photo)

**R**ichard Garriott, W5KWQ, the son of Owen Garriott, W5LFL, followed his father into space onboard the Soyuz TMA-13 on October 13, 2008. Richard, who holds his grandfather's original callsign, flew as a paying passenger, along with Commander Edward Michael "Mike" Fincke, KE5AIT, and Flight Engineer Yury Valentinovich Lonchakov of the 18th International Space Station crew. Richard is the first son of a U.S. astronaut to fly in space.

Within a couple of hours of his arrival on the ISS (International Space Station), Richard began his ARISS (Amateur Radio onboard the International Space Station) operations, using both voice and SSTV transmissions. At times he used the station callsign, NA1SS. At other times he used his callsign.

The reason for the departure from the club callsign goes back to his father's historic use of his call sign onboard the SAREX STS-9 mission. According to an ARISS blog (<http://www.ariss-sstv.blogspot.com>):

There is a long and proud history that is attached to the Garriotts. This includes ham radio in space and their personal callsigns. Twenty-five years ago, Richard's father, Owen Garriott, W5LFL, initiated the first ham radio contacts from space on the STS-9 SAREX mission. Richard, W5KWQ, is following in his father's footsteps, using the ARISS ham radio system extensively on his first flight. And Richard's callsign is actually his grandfather's original callsign. So you can see that this mission touches three generations of ham radio and two generations of ham radio in space!

e-mail: <n6cl@sbcglobal.net>

## VHF Plus Calendar

Dec. 5	First Quarter Moon.
Dec. 7	Good EME conditions.
Dec. 12	Full Moon, Moon Perigee and Full Moon.
Dec. 13	<i>Geminids</i> Meteor Shower Peak.
Dec. 14	Moderate EME conditions.
Dec. 19	Last Quarter Moon.
Dec. 21	Winter Solstice. Moderate EME conditions.
Dec. 27	New Moon.
Dec. 28	Very poor EME conditions.

—EME conditions courtesy W5LUU.

Richard was scheduled to make contacts with about a dozen schools and Challenger Learning Centers as well with Boy Scouts at the Jamboree on the Air event during his eight days in orbit. More coverage of his historic trip in space will appear in next month's column.

## Astronaut Mike Fincke, KE5AIT, the Commander of Expedition 18

In mid-October astronaut Mike Fincke, KE5AIT, became the International Space Station's commander of Expedition 18. Previously, he was onboard the ISS as part of the Expedition 9 team. Mike immensely enjoyed his ham radio activities with schools and hams during that mission. He is expected to devote some of his scheduled weekend relaxation time to school contacts. Expedition 18 will run from October 2008 to April 2009.

## Major Propagation Paper Published in CQ VHF Magazine

Among the contents of the current (Fall 2008) issue of *CQ VHF* magazine is an article entitled "Long-Range Summer 6-Meter Paths Between the U.S. and Japan." Written by Ken Neubeck, WB2AMU, he comments on the Short-path Summer Solstice Propagation (SSSP) theory put forth by Han Higasa, JE1BMU. Higasa originally published his paper "SSSP—Short-path Summer Solstice Propagation" two years ago in Japanese in *CQ-JA*. Subsequently translated into English by Chris Gare, G3WOS, and slightly updated by Higasa, it appears back-to-back with Neubeck's article.

Commenting on Neubeck's article, former *QST* "The World Above 50 MHz" columnist Bill Smith, W0W0I, wrote:

In the Fall 2008 issue of *CQ VHF* an article authored by Ken Neubeck, WB2AMU, cited 50-Hz long-range summer propagation, a phenomenon dubbed SSSP mode (Shortpath Summer Solstice Propagation) by JE1BMJ. The success of 6000- to 8000-mile 6-meter contacts during the bottom on the sunspot cycle intrigues VHF DXers. Neubeck draws several preliminary conclusions which beg further data.

Observation from the American Midwest is there may be similar propagation, not easily explained by conventional multi-hop sporadic-E theory, not only to Japan, but to Europe, the Mediterranean, and northern Africa.

For example, most generally these CW mode signals are very weak, from the noise to 6 to 10 dB above, with fading cycles and at times a demodulated tone vaguely familiar to one aurora propagated although not traveling through the auroral zone. Experienced operators note 6-meter similarities to 160-meter propagation.

The U.S. Midwest-to-transatlantic openings I estimate at but 10 percent as frequent as from the U.S. East Coast. Occasionally signal levels to the Midwest may reach 25 dB or so above noise with limited fade and without demodulation, but apparently that is far less common than for our eastern colleagues. Seldom does the Midwest hear significantly inland European or African signals. This propagation also exhibits geographically-selected spotlighting, sometimes very specifically.

While I do not believe this is a "new" propagation mode, but due to improved antenna systems, higher power, and awareness, it does warrant much greater documentation if for no other reason than entertainment value to VHF DXers. And I suspect there may be similar SSSP possibilities from VK/ZL to South America or Africa.

Achieving 50-MHz terrestrial Worked All Continents in less than 60 days at sunspot minimum is exciting, done from the U.S. Midwest in summer 2008. *WOWOI, EN22ta.*

For your copy of the two articles, please contact CQ Communications subscription department in order to start your subscription to *CQ VHF* with the Fall 2008 issue.

### WinAPRS Co-developer Injured in Balloon Crash

Keith Sproul, WU5Z, was seriously injured in what appears to have been a freak accident during the October balloon festival in New Mexico. Keith suffered a broken leg, broken hip, punctured lungs, and burns to the face when he fell out of the gondola of the Wings of Fire balloon after it hit power lines, burst into flames, and separated from the balloon. Unfortunately, Keith's co-pilot, Stephen Lachendro, lost his life in the accident.

Keith co-developed the WinAPRS program with his twin brother Mark Sproul, KB2ICI.

### PE1BTX is Most Recent to Achieve 2-Meter EME DXCC

Upon completing his October 12, 2008 two-meter EME QSO with Rolf Niefind, CT3/DK2ZF, Gerard van den Berg, PE1BTX, became the latest amateur radio operator to achieve DXCC on that band. Gerard states that he wishes to thank "all who made this achievement possible, especially those among us who take the time and effort to activate rare spots on our planet."

### Fun on 10-GHz, Gordo Style

The following, which describes his September maritime mobile activities during the September 10-GHz ARRL and up cumulative weekend contest, is from Gordon West, WB6NOA:

The 10 GHz and up cumulative weekend contests provide microwave operators a fun opportunity to find their usually silent microwave bands wall-to-wall with activity. X-band equipment on 10 GHz is plentiful, and now 24 GHz and 47 GHz are heating up with activity. Log on to the recent 10 GHz contest results at <<http://www.ARRL.org/contests/soapbox>>.

Almost all stations operate portable during these microwave contests in order to quickly relocate 10 miles and farther to repeat qualifying contacts.

On 10 GHz, it is not uncommon to hear QSO DX reports of up to 400 miles away at 100-milliwatt power output levels, and up to 1000 miles away for big stations with *big* dish antennas running 5 to 20 watts RF power into the antenna system



*Gordon West, WB6NOA, with his 10-GHz station operating maritime mobile during the ARRL September 10 GHz and up cumulative contest. (K1RDF photo)*

Almost every year I try to operate from every 10-mile ocean sub-grid, giving microwave contesters additional points from land. While operating microwave, out on the blue Pacific may seem like a dream of never having to physically relocate the actual equipment, the ocean voyage can be a nightmare! Our ocean-going equipment is a 1-meter dish featuring a Cassegrain feed. Microwave energy enters the dish and is naturally focused on the circular plate at the end of the circular feed system, with the twice-reflected signal now entering the circular waveguide which terminates into a rectangular flexible waveguide, entering the DB6NT transverter (<http://www.ssbusa.com>) The transverter outputs to a multimode Kenwood mobile SSB at 2 meters, with 10,368.1 downconverted to 144.100 MHz. Gerry, at SSB Electronic USA, has worked in a 2.5-watt solid-state amplifier, so power output is modest with capabilities for the entire system to work off a 14-amp/hour gel-cell battery replenished by a solar panel.

On the Kenwood local oscillator I had to bypass the 2-meter transceiver's power amplifier to minimize a power output spike that would quickly kill the transverter. Newer transverters from SSB Electronic USA may tolerate slightly higher input power levels, allowing the 2-meter LO to come from almost any 2-meter multimode transceiver with 1-watt output, *or less*, free of any power transient spike on key up.

A good test of our receiver sensitivity, and frequency stability of the system, involved slowly motoring out of the harbor and listening to distant X-band mountaintop beacons. When we passed a radar reflector buoy in the harbor, aiming our dish at the buoy, 180 degrees away from the transmitting beacon, traveling away from it at 4 knots, we heard a fascinating audible Doppler shift signal, in addition to the main signal. It also gave us an opportunity to sweep the buoy and get a feel for how forgiving this relatively small dish was to being aimed not quite straight on.

Well out to sea, large ground swells from a distant Pacific storm gave us another opportunity to hear low-elevation stations fading in and out as we went up and down within the swell trough, and stations that remained relatively steady, perched high atop local southern California mountains. It got to the point where we could almost tell the other stations how high off the water they were by how much fading there was in the big ground swells!

(The best boat DX was not on this trip, but a few years earlier, working 10-GHz stations well into Mexico, over 450 miles away. That was when I was only running 400 milliwatts!)

Every 10 miles we would announce our new gridsquare location, announce the frequency we were monitoring, and it would be a pile-up for about 20 minutes. George, WA6RIK, assisted with logging, and Carol and Robert, K1RDF, would keep us perfectly positioned at 10-mile intervals, constantly checking our position on GPS onboard charting software.

Although we had the tripod and dish well secured by heavy lines, big gusts of wind made pointing the dish difficult, along with the 10- to 20-degree variation from our steered course. So, beside the rolling fades, we also had dish fades, as well as our overall floating platform changing course creating even more fades!

Ten-GHz reflections off the ocean waters made up for all of the many fades we were encountering because of dish pointing, both horizontal as well as the ship's rolling creating vertical fades. Yet the ocean waters would regularly reflect signals back into the dish, so DX out to 300 miles, for reception, was relatively common.

The big mountaintop DX stations were mostly looking for long-range contacts, not necessarily maritime mobile, repeated grids, every 10 miles. Our only real disappointment was pleading on the 70-cm FM liaison frequencies for a DX contact, but likely being ignored because we were simply too close or too common.

"If you don't seem to be working anyone for a while, tune around the band, re-aim the dish, and look for an ongoing QSO," comments Mel, WA6JBD.

"Bring a compass and use it. I am careful about lining up the dish, and 99% of my contacts are aimed right where they are supposed to be," adds Mel.

"If you're operating on an assigned frequency, it is not sacred. If someone wants to tail in a contact you just made, let them do it. If you tailed someone who worked folks on an assigned frequency, make sure it's clear. Otherwise, slide down 10 kHz and finish the contact," continues Mel, talking about the great operators during the two weekends of 10-GHz activity, where everybody on the band got along just fine!

Finally, late in the afternoon, many of the contacts had a noticeable warble. At first we suspected low voltage on our equipment, but voltage was fine. We then spotted why every signal had flutter near headlands; small ocean water ripples were a terrific multipath reflector of incoming 10-GHz signals!

Next September, if you are looking for enhancement to 10-GHz propagation, consider setting up at the seashore or out on a boat and enjoy some surprising DX!

## Current Meteor Showers

Two showers occur this month. The first, the *Geminids*, is predicted to peak on December 14. The actual peak can occur 2<sup>1</sup>/<sub>2</sub> hours before or after the predicted peak. It has a broad peak and is a good north-south shower producing an average of 100–120 meteors per hour at its peak.

The second, the *Ursids*, is predicted to peak around 0730 UTC on December 23. It is an east-west shower, producing an average of no more than 10 meteors per hour, with the rare possibility of upwards of 90 meteors at its peak.

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 at: <<http://www.imo.net>>.

## And Finally . . .

I am writing this column in October the week before I leave for Atlanta for the AMSAT Symposium. While I am going to present a paper and hopefully sell some subscriptions to *CQ* and *CQ VHF* magazines, I am also going with a great deal of concern for the future of AMSAT. Here is why:

In September Rick Hambly, W2GPS, announced that he would not be a candidate for another term as president. While it is sad that Hambly will not be returning for a fifth year as president, it does present the new leadership with the opportunity to tweak the direction in which AMSAT is heading. Change in leadership always presents the opportunity for an organization to embark on a new direction. For the leadership of AMSAT, it presents an opportunity to move forward with some clear direction concerning future projects.

Here is my observation as a member of AMSAT looking into the leadership from the outside: These past two years of not producing another viable, major satellite project have left me wondering when such a project will be launched.

In 2006 it was Project Eagle that caught all of the attention. Last year it was a potential agreement to fly with Intelsat onboard one of its geostationary birds. I have wondered which project, or if either of these projects, will ever get off the ground.

In my opinion, it behooves the next president to work very hard at establishing definite short-term and long-term goals for AMSAT. From an organizational development standpoint, at least one of the short-term goals must be doable during 2009—especially so that at next year's symposium the leadership will be able to report on an accomplishment (hopefully, more than one accomplishment) and future plans, rather than only reporting on yet another set of future proposals.

One project idea that I propose is the development of a cubesat that can be launched as a balloon payload for use as an emergency communications repeater. Yet again this year our country has been hit by natural disasters. Flooding in Iowa, Illinois, and Missouri, along with Hurricanes Gustav and Ike, required emergency communications in the affected areas. If a balloon were to be launched carrying a cubesat with a broadband repeater and kept aloft for

hours at time, the footprint of such coverage would be such that large areas would have emergency communications capabilities.

AMSAT is poised to develop such a cubesat. By working with the ballooning enthusiasts around the country, such cubesats could be test launched many times over. Once fully developed, these cubesats could be placed in Salvation Army, Baptist Hams, and Red Cross (to name a few) emergency vans, where they would be ready for immediate deployment at a disaster scene.

Another idea that AMSAT can pursue has to do with education. While it is wonderful that so many students around the world have had the opportunity to speak with the astronauts via amateur radio, the follow-through after the QSO is virtually nonexistent. AMSAT's leadership could seek to work with school educators in the development of curriculum that would support such follow-through.

I know that using such curriculum in the school is another matter. While it is next to impossible to penetrate the wall of bureaucracy that surrounds school curriculum adoption, generally speaking, it is another story regarding community-developed after-school programs' curriculum. With many students returning to empty homes, after-school programs are a growing answer to providing a place for students to go until a parent comes home. It would seem a natural for AMSAT to work with the local ARISS group to establish an after-school program with the school that had previously made the ARISS QSO.

Regarding ARISS, another suggestion would be for the leadership of AMSAT to become proactive in identifying charter schools and private schools as venues where an ARISS QSO might take place. For example, an education-oriented member of AMSAT could scan the country looking for schools that have a growing or well-established math and science program and then contact AMSAT members or a local club in order to work with the local school to develop it as a venue for an ARISS QSO.

In your editor's opinion, the future of AMSAT weighs in the balance. If the leadership decides, AMSAT could play a pivotal role in the future of both emerging techniques for emergency communications and the education of our youth. I am hoping that the leadership takes the challenge, because I would love to report on increasing numbers of newly licensed amateur radio operators and their VHF-plus stories that are a direct result of AMSAT's involvement.

Until next month... 73, de Joe, N6CL

BY JOHN DORR,\* K1AR

# Farewell to Paolo Cortese, I2UIY

## December's Contest Tip

When operating as a multi-op station, it's a great idea to pre-plan your operating strategy so that it best matches operating skills with need. For example, don't randomly assign operators to an hourly schedule. Instead, consider matching your best running operators to the high rate times. Use those with DX experience to dig for multipliers on the second station. An optimized operating team can really improve your score and set "chair time" expectations up front with the group. Remember that contesting is meant to be fun and productive. It's almost always possible to do both!

**T**im Duffy, K3LR, described Paolo as an angel. Bob Naumann, W5OV, often thought of Paolo as one of his long-lost brothers. However, for all of us who knew him, Paolo was simply our friend. With a heavy heart this month and special thanks to Rusty Epps, W6OAT, for the following tribute, we bid farewell to a great contester and a wonderful man, Paolo Cortese, I2UIY.

Paolo became a Silent Key on October 12, 2008. Paolo suffered a brain aneurysm in mid-September that paralyzed the right side of his body and left him in a coma until the time of his death. With Paolo's passing, amateur radio has lost another of its great men.

As an 11-year-old boy in 1971, Paolo became an avid shortwave listener and won numerous SWL contests over the next decade. His first transmitting experience came when he was 13. He was visiting his uncle, a licensed ham radio operator, who left to run some errands. Paolo sneaked into the ham shack and, using a crystal-controlled VHF radio, logged 17 QSOs before his uncle returned and put a stop to the bootleg operation. However, Paolo was hooked and finally obtained his own amateur license and the I2UIY callsign in 1981.

Paolo's twin loves in amateur radio were DXing and contesting. He discovered very early on that by entering contests he could rack up many of the counters he needed for DXCC and other DX-related awards in a single weekend. Before his passing, Paolo had achieved DXCC #1 Honor Roll on both CW and Phone, and the coveted 5BWAZ and 5BWAS awards. All of this was accomplished from Paolo's home on a relatively small city lot in northern Italy using only a modest antenna array.

As the DX counters accumulated, Paolo discovered that he was beginning to enjoy contesting for its own sake and not just as a quick way to work DX stations. His love for contesting blossomed so much that in 1989 he eagerly accepted the offer from Associazione Radioamatori Italiani (A.R.I. is the Italian national amateur radio association) to become its HF Contest Manager. In this role, Paolo edited a monthly column about contesting in A.R.I.'s official magazine, *Radio Rivista*. To help

## Calendar of Events

<b>All year</b>	<b>CQ DX Marathon</b>
Nov. 22-23	LZ DX Contest
Nov. 22-23	ARRL Int'l EME Competition
<b>Nov. 29-30</b>	<b>CQ WW CW DX Contest</b>
Dec. 5-7	ARRL 160M Contest
Dec. 13-14	ARRL 10M Contest
Dec. 20	OK DX RTTY Contest
Dec. 20-21	Croatian DX Contest
Dec. 27	RAC Canada Winter Contest
Dec. 27-28	Stew Perry Topband Distance Challenge
Dec. 28	RAEM Contest
Jan. 1	ARRL Straight Key Night
Jan. 3-4	ARRL RTTY Roundup
Jan. 10-11	North American CW QSO Party
Jan. 17	LZ Open Contest
Jan. 17-18	Hungarian DX Contest
Jan. 17-18	North American SSB QSO Party
<b>Jan. 23-24</b>	<b>CQ WW 160M CW Contest</b>
<b>Feb. 27-Mar. 1</b>	<b>CQ WW 160M SSB Contest</b>

promote contesting in Italy, he later authored a 120-page contest manual, which sold more than 3,000 copies. Others recognized Paolo's writing talent, and in just a couple of years he became a regular contributor of contesting articles to international journals such as *CQ*, *CQ Contest*, *QST*, *NCJ*, and *Radiokit*.

A.R.I. also knew of Paolo's interest in DXing and approached him about taking on the job of managing the huge Italian QSL bureau. This would involve sorting and distributing not just DX QSLs, but all of the Italian-to-Italian cards. Paolo accepted the challenge with gusto and soon had con-



Paolo Cortese, I2UIY, displaying one of his life's dreams—his very own CQ Contest Hall of Fame plaque awarded at the 2008 Dayton Hamvention®. (Tnx to Bob Naumann, W5OV)

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 Usage 450 MHz and Higher.  
 RG8U SIZE SHOWN

**CNT240 (LMR type)**  
 Connector: N, PL259, TNC, SMA, BNC.  
 Burial: Yes, UV Resistant: Yes.  
 Shields: 2 (100% bonded foil +90% TC Braid) **VP 84%**.  
 Attenuation 3.0dB @ 150 MHz at 100ft.  
 Usage 1 MHz and Higher.  
 RG8X SIZE SHOWN

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structed a vast array of pigeonholes in his basement into which the confirmations would be sorted. The odds are very high that if you ever sent a bureau QSL to an Italian ham, your card literally passed through Paolo's hands.

The moment that Paolo later described as the most significant in his radio career came in 1990 when he, along with teammate IK2DVG, was selected to represent Italy in the first-ever World RadioSport Team Championship (WRTC) competition held that year in Seattle, Washington. It was the first time Paolo had ever traveled outside of Italy. In fact, it was even the first time he had ever boarded an airplane.

WRTC-90 was a transforming event in amateur radio contesting. Never before had world-renowned contest champions from East and West Bloc nations assembled at a single place for an on-site competition. The mood was electrifying; all this was happening amidst the Cold War. It was a magic moment when radio amateurs who never dreamed they would meet gathered together while laughing and speaking of their shared passion—radio contesting. And Paolo was right in his element! His booming voice and infectious laugh were heard every-

where. He was meeting, in person, all of his contesting heroes.

Paolo's WRTC experience had a profound impact on his life. While there, he met contesters who planted the seeds for two contests, which Paolo would later develop into major European operating events—the European Sprint Contest and the Contest delle Sezioni, a competition amongst A.R.I.'s local radio clubs. Although his Italian team did not place as high in the overall WRTC-90 standings as he had hoped (they came in 12th), Paolo nevertheless was recognized as having the most accurate SSB log among all the competitors. That led to sharply focusing his interest on accurate logging and contest judging. Before he departed Seattle, he had been invited to join the CQ WW Contest Committee. For the next 18 years Paolo proved to be a tireless advocate for the log-checking innovations that today make the CQ contests among the most rigorously and accurately judged in all the world of radiosport.

The 1990 trip to Seattle opened a whole world of new possibilities for Paolo. Many of the friends he made at WRTC soon began inviting him to join them for contest DXpeditions or just



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offered him use of their well-equipped stations if he wanted to try his hand as a single-operator entry. Before long, Paolo was making regular trips to North America, South America, and Africa to experience contesting from the "other side." He racked up an impressive list of top-ten finishes in most of the major DX contests and set several new world records in the process.

As much as Paolo loved operating contests, he equally loved spending time with other contesters. He found an abundant supply of them the first time he attended the International DX Convention in Visalia, California. Contest forums, contest dinners, hospitality suites, and hallway chat sessions all were new experiences for him. It was like heaven. Paolo became a Visalia regular, making the trip from Italy to California each spring to attend the convention. Soon he was presenting programs about his own DXing and contesting exploits, serving as a panel member in the contest forums, and he even became the main speaker at the convention's first Contest Banquet. These were among the happiest moments in his life.

In 2008, Paolo decided to do something different. Rather than returning to the Visalia convention, this year he would finally make the pilgrimage to the Dayton Hamvention®. However, Dayton would be only part of this adventure. He had never before set foot in Canada, so the trip to Dayton took a circuitous route. Paolo flew into Seattle, where he joined his friends Dick, K6KR, and Rusty, W6OAT. In Dick's car, the three of them set out for Dayton by way of Canada. They first drove north to Vancouver, then east through the Canadian Rockies, across the Great Plains, around the Great Lakes, and crossed back into the USA at Niagara Falls. All along the way they stopped to visit ham friends whom



Paolo, I2UIY, doing what he truly cherished—enjoying the company of great friends (left to right: I2UIY, K6KR, N0AX, and K5RC) (Tnx to K6KR)

they had worked in contests. Paolo gleefully ticked off the new "multipliers" as they crossed provincial borders—BC, AB, SK, MB, and ON. "Yes," he said in e-mails sent back home to his friends in Italy, "there really *are* hams living in VE4 and VE5!" Paolo considered these two particular provinces to be among the hardest contest multipliers for him to work from Europe.

Paolo had never experienced anything like the Hamvention®. He attended K3LR's famous Contest University, gaped in awe at the sheer enormity of the Hara Arena and its countless number of commercial exhibitors and flea market denizens, and stayed up late into the night hopping from one hospitality suite to the next. However, the highlight for him was undoubtedly the Saturday night Contest Banquet, where, before over 400 of his contesting peers, Paolo was formally inducted into the CQ Contest Hall of Fame.

Paolo returned to the West Coast in much the same way he had traveled to Dayton. He stopped to visit with contesting friends all across the northern tier of the United States. He saw Mount Rushmore and the Badlands of South Dakota, experienced the beauty and open spaces of Wyoming, and the deserts of Utah. He arrived at K5RC's contest superstation near Virginia City, Nevada just in time to join the big multi-op effort being made in the CQ WW WPX CW Contest.

Before returning to Italy, Paolo told his friends that his 2008 trip to the USA and Canada was the best trip he had ever taken. He had been to more places, seen and done more things, and met more new contesting friends than ever before.

"I can't think of anything more I would have wanted to do," he said.

Four months later, while working in the QSL bureau in his basement, Paolo suffered the brain aneurysm that would end his life at the young age of only 48. Those of us who knew him will always remember his boundless enthusiasm for this hobby we share. We still hear the ring of his raucous laughter and remain awed by his ability to effortlessly recall who won what category in what contest in what year. His untimely passing was a great loss, but those who were fortunate enough to have known him will forever treasure that privilege.

### Final Comments

I'd like to wrap-up this month's column with a story of my own. After all, virtually anyone who met Paolo has a tale to tell. In the 1980s, I used to talk with Paolo on nearly a daily basis over the air. We became very good friends in those days. One afternoon while sharing the good news of my son Timothy's birth, Paolo's mind was already at work. About two weeks later a soccer ball (football, if you prefer) showed up in a heavily wrapped box from Italy. Yes, Paolo was excited and sent our family the present, which remained in Tim's toy box for many years to come. It was a typical act of caring by Paolo, I2UIY, the ham and dear friend that the contesting world will miss. Rest in peace, OM. Your contributions to our hobby and definition of friendship will endure forever.

As we enjoy this holiday season in particular, cherish your friends and those you love. Merry Christmas from my family to yours! 73, John, K1AR

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# Winter Opportunities on the Bands

BY TOMAS HOOD,\* NW7US

# propagation

## Flash!

### CQ WW DX CW Contest Forecast Looks Challenging Good Conditions Now Expected

Since this issue should reach most subscribers before the CW contest begins, here's a quick update for the 2008 CQ WW DX CW Contest starting at 0000 UTC, Saturday, November 29 and continuing until 2400 UTC, Sunday, November 30. The original forecast, published in this column last month, called for poor to fair conditions during the contest period. Based on the 27-day rotation of the sun and the recent solar activity, the forecast is for good conditions on both contest days.

Daily 10.7-cm solar flux levels are expected to be 67 for both days. The geomagnetic planetary A-index is expected to be about 5 during the CW contest. As predicted last month, this translates to a contest period of quiet geomagnetic conditions. While the low solar activity leaves the ionosphere weak, the quiet conditions provide an edge when working weak signals. When paths are open, you should be able to make significant points. For an up-to-the-day Last-Minute Forecast, visit my propagation resource center at <<http://prop.hfradio.org/>>.

### A Quick Look at Current Solar Cycle Conditions

(Data rounded to nearest whole number)

#### Sunspots

Observed Monthly, September 2008: 1  
Twelve-month smoothed, March 2008: 3

#### 10.7 cm Flux

Observed Monthly, September 2008: 67  
Twelve-month smoothed, March 2008: 70

#### Ap Index

Observed Monthly, September 2008: 5  
Twelve-month smoothed, March 2008: 7

**A** moderate to low level of solar activity is expected during December, with 10.7-cm flux levels peaking around 76, dipping down to the mid 60s. That's a good start of new solar Cycle 24. Since October we've seen fewer spotless days, and the bands are starting to show signs of change. During October, for instance, with the flux at or slightly above 70, I was copying and even initiating European and Pacific/Asian QSOs on 20 meters using PSK-31.

The great thing about the winter season is that the density of ionization in the Northern Hemisphere is expected to increase more rapidly after sunrise than during other seasons. Additionally, static and atmospheric noise levels will be at seasonally low values during the month of December. Reasonably strong signal levels are expected on most of the open bands, while the higher bands will not be as hot as during the peak years.

Continue to expect fair daytime openings on 15 meters primarily on north/south paths. Openings may be slightly longer and more stable than the same time last year due to the slight increase in solar activity. There is an increase in reports of 10-meter activ-

## LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for December 2008

Propagation Index.....	Expected Signal Quality			
	(4)	(3)	(2)	(1)
Above Normal: 1-4, 8, 11-21, 26-31	A	A	B	C
High Normal: 7, 9-10, 22, 25	A	B	C	C-D
Low Normal: 6, 23-24	B	C-B	C-D	D-E
Below Normal: 5	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) from December 1st through the 4th. On December 5, if there is an opening, conditions will be poor (D), with a slight improvement on December 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.

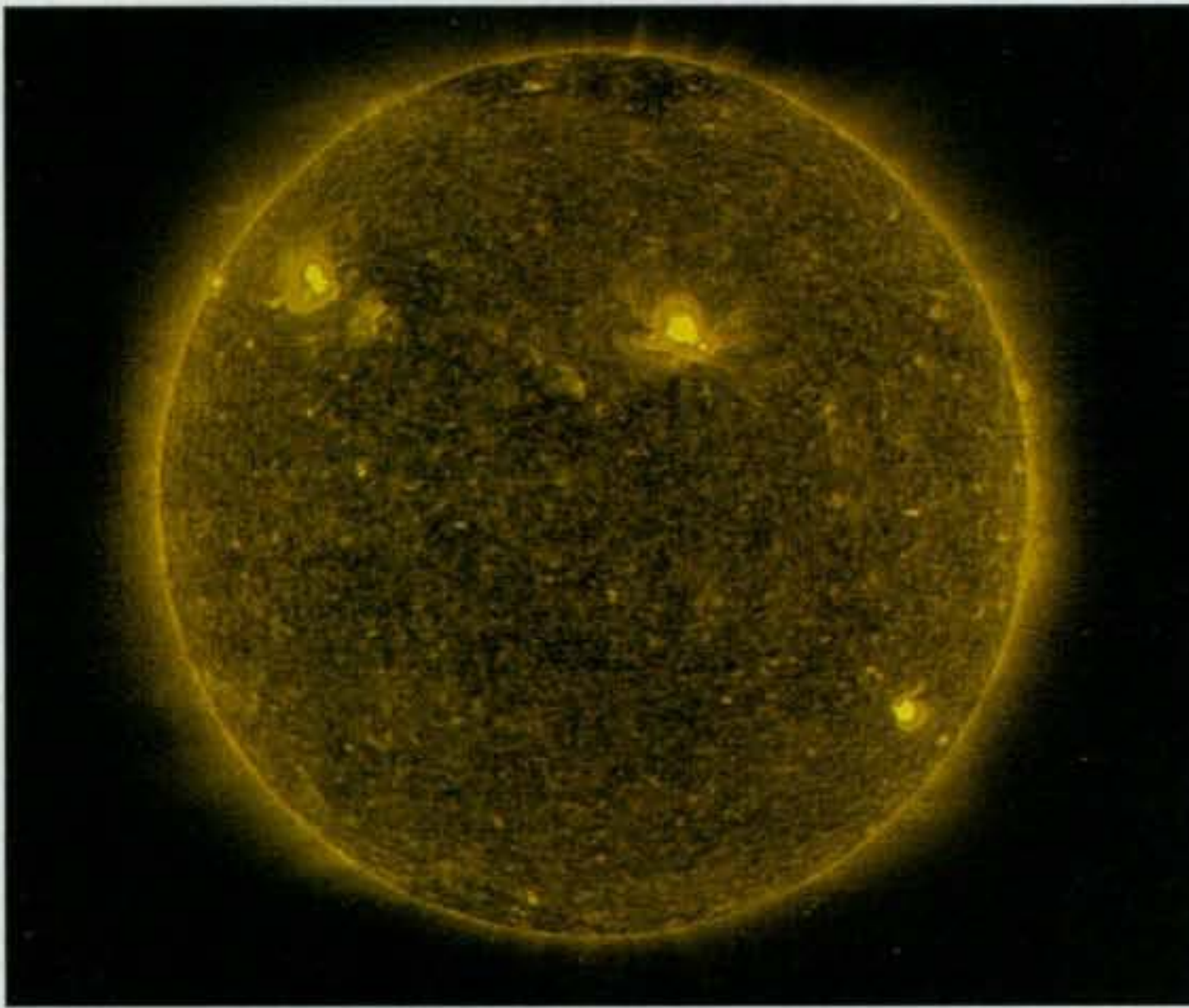
ity, too, so don't rule out working that great band.

Fairly good DX openings are also expected on 17 meters, remaining open toward the west during the early evening. However, 20 meters will be the hottest of all daytime bands, starting with early-morning openings in all directions until about an hour or two after sunrise, and then remaining open into one place or another through the day until early evening. Thirty meters will be a strong player for DX, following the pattern of 20 meters. When conditions are Above Normal 30, 20, and 17 meters are likely to remain open toward the south and west from early evening until about midnight, mostly for DXers in the lower latitudes nearer the equator.

On 40 meters, regional daytime openings will remain strong for most of the day, while great DX will open early in the afternoon. From midnight to sunrise, 40 promises some of the hottest nighttime DX during December. The first DX openings should be toward Europe and the east during the late afternoon, then move across the south through the hours of darkness, while remaining open into most parts of the world. Just after sunrise, openings will be more in a westerly direction. Low seasonal noise will make DXing a pleasurable endeavor.

DX openings on 160 and 80 meters during the hours of darkness and into the sunrise period, with considerably decreased static levels, are a sure bet during the longer hours of darkness in the northern latitudes. Look for openings toward Europe and the south from the eastern half of the United States and toward the south, the Far East, Australasia, and the

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During October 2008 the sun began to show signs of waking up. After a very quiet season with weeks of a spotless sun, activity increased with significantly shorter periods of quiet and a moderate increase in sunspot counts. This image shows multiple sunspot groups on October 16, 2008. What a welcome sight! With this increase in activity, the higher HF amateur bands are coming alive with DX activity. (Source: NASA/SOHO)

South Pacific from the western half of the country. Eighty meters becomes a reliable long-distance band throughout the entire period of darkness during December. Openings on 80 should peak toward Europe and in a generally easterly direction around midnight, and then open in a generally western direction with a peak just after sunrise. The band should remain open toward the south throughout most of the night.

For short-skip openings during December, try 80 and 40 meters during the day for paths less than 250 miles, and 80 or 160 meters at night for these distances. For openings between 250 and 750 miles, try 40 meters during the day, and both 80 and 160 at night. For distances between 750 and 1300 miles, 20 and 30 meters should provide daytime openings, while 40 and 80 meters will be open for these distances from sunset to midnight. After midnight, 80 will remain open out to 1300 miles until sunrise. Try 30 and 40 meters again for about an hour or so after sunrise. For openings between 1300 and 2300 miles, openings will occur during the daylight hours on 20, 17, and to a lesser degree on 15 meters. During sundown to midnight, check 20, 30, and 40 meters for these long-distance openings, and then check 40 and 80 meters after midnight until sunrise. Try 40 meters again for an hour or so after sunrise.

## VHF Conditions

Aurora will most likely not occur this month. However, look for some decent meteor-shower activity this month, providing conditions for meteor-scatter openings on the VHF bands for distances up to about 1000 miles.

Meteor-scatter propagation is a mode in which radio signals are refracted off the ionized plasma trails left by dust and small particles that have entered into our atmosphere at thousands of miles per hour. The ionized trail is produced by vaporization of the meteor. Meteors that are no larger than a pea can produce ionized trails up to 12 miles in length in the E-layer of the ionosphere. Because of the height of these plasma trails, the range of a meteor-scatter contact is between 500 and 1300 miles. The frequencies that are best refracted are between 30

and 100 MHz. However, with the development of new software and techniques, frequencies up to 440 MHz have been used to make successful radio contacts off these meteor trains. On the lower frequencies, like on 6 meters, contacts may last from mere seconds to well over a minute. The lower the frequency, the longer the specific opening made by a single meteor train. A meteor train that supports 60-second refractions on 6 meters might only support 1-second refractions for a 2-meter signal. Special high-speed methods are used on these higher frequencies to take advantage of the limited available time.

A great introduction by Shelby Ennis, W8WN, on working high-speed CW meteor scatter is found at [http://www.amt.org/Meteor\\_Scatter/shelbys\\_welcome.htm](http://www.amt.org/Meteor_Scatter/shelbys_welcome.htm). Links to various groups, resources, and software are found at [http://www.amt.org/Meteor\\_Scatter/default.htm](http://www.amt.org/Meteor_Scatter/default.htm).

The annual *Geminids* meteor shower from December 7 to December 17 will peak on December 13. This is one of the better showers, since as many as 120 visual meteors per hour (ZHR) may occur. This is a great shower for those trying the meteor-scatter mode of propagation, since one doesn't have to wait until after midnight to catch this one. The radiant rises early, but the best viewing and operating time will be after midnight local time. This shower also boasts a broad maximum, lasting nearly one whole day, so no matter where you live, you stand a decent chance of catching sight of some *Geminids*.

There is considerably less likelihood for 6-meter trans-equatorial (TE) openings during December, but look for a possible opening between the southern states and locations deep in South America. The best time to look for these is between about 8 and 11 PM local time.

Check out <http://www.imo.net/calendar/2009> for a complete calendar of meteor showers in 2009. If you are not yet a subscriber to *CQ VHF*, grab the Fall issue and start your subscription today. You'll find a wealth of information regarding working meteors, and other VHF activity, in each issue.

## Current Solar Cycle Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for September 2008 is 1.1, up from the low of 0.5 for July and August 2008. The lowest daily sunspot value of zero (0) was recorded for September 1-10, 12-21, 24-28, and 30. The highest daily sunspot count was 9 on September 23. The 12-month running smoothed sunspot number centered on March 2008 is 3.3. A smoothed sunspot count of 13, give or take about 3 points lower to 3 points higher, is expected for December 2008.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 67.1 for September 2008. The 12-month smoothed 10.7-cm flux centered on March 2008 is 69.5. The predicted smoothed 10.7-cm solar flux for December 2008 is 70, give or take about 6 points.

The observed monthly mean planetary A-index ( $A_p$ ) for September 2008 is 5. The 12-month smoothed  $A_p$  index centered on March 2008 is 7.4. Expect the overall geomagnetic activity to vary greatly between quiet to active during most days in December. Refer to the Last-Minute Forecast for the outlook on conditions during December.

I invite you to visit my online propagation resource at <http://propagation.hfradio.org/>, where you can get the latest space data, forecasts, and more, all in an organized manner. If you have a cell phone with internet capabilities, try <http://wap.hfradio.org/>.

Drop me an e-mail or send me a letter if you have questions or topics you would like to see me explore in this column. Als, I'd love to hear any feedback you might have on what I have written. Until next month . . .

73, de Tomas, NW7US

# Results of the 2008 CQ WW DX 160 Meter Contests (from page 19)

Number groups after calls denote score, total QSOs, W/VE multiplier, countries worked. Total multiplier is the addition of the W/VE and countries. Multi-op scores follow single-op listings. An asterisk (\*) denotes low power. /D denotes QRP. State, province, and country certificate winners are listed in bold.

2008 CW RESULTS			
SINGLE OPERATOR			
NORTH AMERICA			
UNITED STATES			
CONNECTICUT			
K1ZZ	467,058	1032	55 59
H1ZZ	256,095	720	56 49
K1KI	163,800	532	52 38
N4XR/1	101,011	392	51 32
*W1QK	81,918	391	52 22
W1WEF	66,594	391	47 19
*K1BV	25,327	237	40 3
*K1OQ	21,436	181	39 7
MAINE			
K1JB	143,190	555	54 32
*K8PO/1	127,251	490	51 30
AC1O	54,792	224	49 23
MASSACHUSETTS			
K1LZ	755,040	1339	56 65
K5ZD/1	260,916	664	57 45
*K1EP	159,736	721	55 27
W1CSM	91,134	258	47 36
*N1RL	55,440	314	49 17
W1TO	42,736	322	38 13
*N1QY	21,252	217	39 3
*K1XM	13,392	151	33 3
*W1SRB	465	14	15 0
NEW HAMPSHIRE			
KT1V	638,365	1167	56 59
W3UA/1	180,285	494	54 47
*N1IX	126,603	578	53 28
*AA1SB	10,450	118	36 2
RHODE ISLAND			
K1DFT	101,529	359	50 37
*K3IU/1	28,322	246	44 5
VERMONT			
W1SJ	119,184	562	53 25
KB1000	10,440	147	30 0
NEW JERSEY			
N2NT	663,187	1287	57 62
WA2VYA	141,570	555	54 36
N2VW	63,726	246	49 29
W2LE	54,384	311	49 17
*K1JT/2	44,148	356	44 8
K2TTT	40,721	418	42 1
*KD2MX	35,598	293	48 3
*K2MK	34,715	277	46 7
*N2WKS	31,208	287	44 3
K2PS	28,832	185	36 17
*N2MH	21,566	233	41 0
N2CG	21,369	132	34 17
*K1TN/2	14,800	157	38 2
W2NO	12,950	140	33 4
*K2YLH	10,476	126	35 1
*WA2ALY	9,321	102	37 2
*WA2RY	8,908	116	33 1
KC2NB	7,884	93	36 0
*K2RET	7,280	73	31 4
*N2JSO	1,050	35	15 0
NEW YORK			
N1EU/2	478,440	1074	58 62
WF2W	382,236	1128	57 49
N2CU	262,094	886	56 41
N2WK	222,248	594	55 49
K2FU	212,888	817	55 37
N2YB	199,468	719	54 40
K2YR	178,224	533	50 44
W2LK	133,988	423	50 36
WB2ABD	124,844	356	52 40
*KD2RD	105,850	580	52 21
*K2UF	92,053	496	50 23
KW2J	72,534	434	53 13
NA2M	70,532	298	52 25
W2TB	66,504	376	52 16
*W2LB	61,503	466	50 7
*N2LQ	58,640	221	52 28
K2ONP	55,854	335	46 12
K2KQ	54,670	198	50 27
*W2LC	48,832	316	43 13
WA3AFS/2	45,276	155	49 28
*WA2MCR	43,659	257	48 15
N2NI	39,370	194	44 18
*K2DB	27,876	270	46 0
K2WNY	27,456	262	41 3
(OP: K2DB)			
W2NRA	21,715	217	39 4
*A12N	21,660	249	38 0
WT4Q/2	20,332	145	39 13
N2BZP	14,430	150	36 3
*N2ZN	14,157	149	37 2
*WA2YSJ	13,642	151	37 1
W2RR	11,856	58	45 12
(OP: WA2AOG)			
*N2RI	8,425	146	25 0
*K2XA	7,236	67	30 6
*K2TV	6,318	105	26 0
*WB2OQD	4,644	77	26 1
WJ2O	4,048	76	23 0
*WB2TPS	1,520	40	16 0
*N2SOW	480	17	12 0
DELAWARE			
AA1K/3	568,216	1246	57 64
K3MQ	119,110	418	53 33
DISTRICT OF COLUMBIA			
W3DQ	65,520	415	50 13
MARYLAND			
KD4D/3	446,656	1167	58 54
K3ZD	281,664	801	56 48
N3UM	172,656	650	52 36
N3AM	163,215	781	55 26
K3DI	148,057	547	56 35

K3STX	109,470	464	53 29
*N1WR/3	101,536	495	49 27
NA3M	76,059	240	46 35
W3ZZ	64,988	244	44 33
W3UL	34,656	306	42 6
*K3WI	23,001	213	29 12
*NS3T	21,364	164	39 10
*W3MR	14,616	148	37 5
*N3COB	8,184	106	32 1
W3BW	3,753	40	19 8
K9ZU/3	2,354	46	22 0
PENNSYLVANIA			
W3BGN	479,906	1073	57 61
W3TS	329,497	1064	57 46
W3GH	302,257	838	56 53
W3TDF	199,143	801	54 33
W3SO	108,240	525	55 25
(OP: W3YOZ)			
K3QF	99,708	328	50 34
*N3GJ	94,350	497	54 20
*KA3QLF	92,492	453	54 22
K4JLD/3	63,680	256	51 29
*NA3F	58,311	440	50 7
*KN3A	27,600	227	43 7
W4SAA	193,545	528	51 48
N6AR/4	192,159	457	52 47
K4PB	137,837	417	52 45
W2TX/4	131,586	449	52 39
*W4AA	119,768	393	49 39
W7QF/4	86,486	252	45 38
*NS9I/4	78,736	354	49 27
(OP: NS9I)			
N4PSE	72,400	248	45 35
K1UM/4	48,090	136	34 36
*K4GKD	39,329	155	40 27
*N4TB	35,554	239	46 12
*N4EK	34,428	225	42 15
*KN4Y	17,466	193	38 3
*K4JAF	15,930	93	37 17
W4WV	15,400	91	34 16
*K4BK	6,784	103	31 1
W4OV	5,120	57	25 7
*KE4REM	2,668	55	22 1
W4DLZ	2,548	43	26 0
*W4SUL	1,870	41	21 1
*WBIM/4	1,640	34	17 3
*W6BXD/4	1,482	33	17 2
*NM1A/4	560	16	15 1
*N4WO	380	19	10 0
K4YKZ	49,724	307	45 17
*WB4MSG	44,658	354	46 8
*W4TMO	41,015	234	51 14
*K4OPL	35,224	238	44 12
*K4CZ	27,510	286	40 2
KZ2I/4	25,674	102	46 20
*N4MIO	23,760	222	45 3
*KZ1X/4	23,154	181	43 8
*K4SV	16,606	151	42 4
N4TL	11,285	125	34 3
NX9T/4	10,793	92	38 5
AE4EC	7,242	96	31 3
*W4KAZ	5,313	70	32 1
*W4WNT	240	20	10 0
SOUTH CAROLINA			
AF40X	312,394	932	55 54
W7DQ/4	95,285	337	49 36
*AA4NN	75,789	520	52 11
NZFY/4	58,800	269	49 26
*W4IT	46,976	278	47 17
NU4SC	22,672	181	45 7
(OP: W2GJ)			
N4UFP	12,420	66	33 13
*W4NE	8,865	77	40 5

N2QT/4	107,160	340	55 40
W3BP/4	97,418	519	45 22
N4DJ	73,438	368	50 23
N3JB/4	66,150	336	51 24
W2YE/4	66,000	311	49 26
*W4YE	53,105	300	48 17
W4HJ	52,762	283	41 21
K4EU	52,110	392	42 12
*K7CS/4	49,131	395	47 6
*W4AJUK	40,432	291	49 7
W4PM	39,160	303	48 7
N2FT/4	36,108	243	47 12
K4RDU	34,944	293	47 5
N4MM	34,648	206	47 14
K7CMZ/4	31,521	196	44 13
W4AU	27,589	239	41 6
*W5X/4	24,760	272	39 1
*N3BM/4	17,179	181	39 2
*W4AM	16,236	152	39 5
*K3MZ/4	15,498	168	39 2
*K4FO	15,429	183	36 1
*N4BCC	14,147	144	40 3
*K4MX	13,923	146	37 2
*K7BP/4	13,572	162	34 2
*A4MI	13,536	164	36 0
*NSIE/4	8,370	135	30 0
*AD4TJ	5,796	93	27 1
*W4VIC	5,740	92	28 0
*K3D/4	5,580	78	29 1
*W4EUL	1,377	36	17 0
*N4LXA	-32	0	2 0
ARKANSAS			
K5GO	525,096	1366	58 59
*NSDRB	26,765	219	48 5
*K5DJ	12,040	134	39 1
*K5VR	3,332	55	28 0
W5KI	3,250	55	26 0
LOUISIANA			
*K5ER	12,432	133	39 3
MISSISSIPPI			
W5XX	117,924	374	51 42
W5MPC	96,871	543	53 20
W5SL	74,232	385	52 20
N4DGVW/5	37,572	179	37 25
*W5L/5	28,188	194	47 11
*W5BJT	20,553	167	43 8
N5F	15,312	101	33 15
NEW MEXICO			
NSUL	193,800	586	54 41
W6PU/5	176,290	808	55 36
OKLAHOMA			
W5TM	211,850	738	55 40
K5CM	138,300	775	55 20
(OP: W5CW)			
K5HP	63,623	457	53 8
*K5KA	37,830	137	50 28
*AA5JG	5,814	69	37 1
TEXAS			
W5UN	669,476	1377	58 66
K5RX	618,205	1277	57 62
W5KU	204,960	509	55 57
*NSAW	95,354	203	54 44
K5NZ	60,288	340	49 15
W5CWQ	45,760	252	45 20
*K5EWJ	39,308	259	51 11
WF5W	30,290	183	52 13
*W5RYA	28,037	237	48 5
*NSWLA	25,012	221	50 2
K5MV	23,994	153	49 13
*K5GEO/5	16,500	174	42 2
*N5T	14,504	121	45 4
*K3TD/5	13,545	132	40 3
*K5UO	10,951	81	38 9
*K5LQ	1,738	38	21 1
*W5LFL	660	19	14 1
*AA5VU	406	13	14 0
CALIFORNIA			
AC6DD	238,911	669	57 40
N6RO	201,231	671	57 30
*KB7Q/6	121,618	670	56 17
*W6JTI	89,079	514	56 13
N6AA	83,694	415	57 21
K6NR	81,906	437	54 12
W7DR/6	68,575	404	52 13
N6NF	51,212	335	52 10
K6NA			



*OKSSAZ	1,221	27	0	11	*RZ3VA	2,444	42	0	13	DJ4MZ	21,386	138	0	34	LITHUANIA				ROMANIA					
*OK1ATI	110	8	0	5	*RU3WR	1,360	33	0	10	*DL3DRN	21,280	107	2	38	LY9A	455,286	1059	18	60	*Y03FRI	154,330	481	10	51
<b>DENMARK</b>					*RA3GJ	730	17	0	10	*DR8M	20,265	128	0	35	LY3BN	234,484	716	4	58	*Y03APJ	150,780	474	6	54
OZ7YY	1,008,630	1309	44	82	RX4WX	475	18	0	5	DF2IAX	20,160	126	0	36	LY2IC	220,637	693	9	52	*Y05AJR	148,542	515	5	52
OZ2TF	124,456	513	7	40	*UA3DPM	154	4	0	7	DL4R	20,017	119	1	36	LY3M	154,854	452	9	54	*Y06BHM	140,504	478	5	51
*OZ7BQ	98,700	387	6	44	<b>FINLAND</b>					*DL15AN	19,845	117	0	35	LY2VA	142,020	509	2	52	*Y02IS	124,350	490	2	48
*OZ5UR	37,440	185	1	39	OH2PM	694,406	1128	35	71	*DR0R	18,734	128	1	33	LY2MM	103,632	393	6	45	*Y09AYN	81,972	343	0	46
OZ1FAO	32,062	152	0	41	OH5Z	382,116	819	24	60	(OP: OH5TS)				LY2NK	61,503	316	0	39	Y02R	53,628	255	0	41	
*5P5CW	29,928	204	0	29	(OP: OH5TS)				*DH3FAW	18,720	93	2	38	LY5R	57,822	240	1	45	(OP: Y02RR)					
(OP: DL5SE)					OH6NIO	165,850	506	6	56	*DL7BA	18,432	106	1	35	(OP: LY38P)				Y05880	49,365	218	0	45	
*OZ7TTT	18,681	94	0	39	OH280	162,134	347	22	52	*DK0MN	17,655	118	0	33	LY1CM	46,125	203	1	44	*Y05DAS	48,951	265	0	37
(OP: OZ5WD)					OH2XX	135,594	484	7	47	(OP: DK2DQ)				LY3NX	43,624	209	1	40	*Y09IF	48,289	222	2	41	
OZ1AXG	15,873	73	0	39	OG4X	112,860	368	11	44	(OP: DK3YD)				*LY200	39,492	219	1	35	Y03BWK	42,856	185	0	44	
*OZ4RT	4,425	36	0	25	OH5NZ	40,426	191	1	40	DL1DTC	17,121	93	1	38	LY3W	39,396	153	0	49	*Y04AUL	38,610	167	1	44
<b>DODECANESE</b>					*OH6SC	31,122	165	1	37	*DL2AXM	15,420	122	0	30	*LY3ID	34,203	174	1	38	Y04KCC	37,422	172	0	42
*SV5DKL	525	12	0	7	OH60S	19,456	123	0	32	*DK8RE	15,328	109	0	32	<b>LUXEMBOURG</b>				*Y090C	36,828	199	0	36	
<b>ENGLAND</b>					*OH2FS	10,304	59	0	32	*DF7ZS	14,370	103	0	30	LX7I	896,886	1491	39	63	*Y08RFS	35,910	186	1	37
M2D	1,108,256	1490	48	70	*OH6GAW	8,160	50	0	32	*DL8NBE	13,775	106	0	29	(OP: DF1LON)				*Y02ARV	25,024	159	0	32	
(OP: G4BYG)					F5IN	339,157	650	31	60	*DL3EBX	13,299	98	0	31	*LX1ND	29,716	154	2	36	Y04MM	22,385	118	0	37
G3WPH	537,671	978	35	62	F5BBD	82,992	281	10	46	*DL1SBF	12,936	105	0	28	*LX1ER	3,562	28	0	26	Y04HTX	17,238	84	0	39
G3SJJ	157,916	374	26	48	*F8CRS	400	10	0	8	*DF2FM	11,583	97	1	26	<b>MALTA</b>				*Y05CCX	4,465	46	0	19	
G40BK	139,268	318	24	50	<b>FRANCE</b>					DL4HG	10,752	65	6	26	ML7A	65,648	282	3	41	<b>SARDINIA</b>				
G3XGC	98,604	270	18	48	DL1AUZ	812,934	1258	41	73	*DL2AA	10,071	78	1	26	<b>MOLDOVA</b>				<b>SCOTLAND</b>					
G3UFY	71,150	276	3	47	DK6WL	475,855	996	29	66	*DJ8BD	8,024	48	1	33	ER5GB	263,417	627	16	61	GM3POI	1,572,193	1817	53	80
G3UHU	50,220	222	0	45	DQ4Q	404,040	895	31	60	DL6MFK	7,888	53	0	29	*ER2RM	110,808	386	2	52	MM3T	109,984	376	12	44
G4BJM	46,230	193	11	35	(OP: DF9ZP)				*DK7GH	7,104	70	0	24	*ER5AA	46,450	173	3	47	(OP: GM0ELP)					
*G3MZV	35,518	163	3	40	DL7ON	394,626	836	28	58	DR5L	7,100	65	0	25	*ER100	21,052	106	0	38	<b>SERBIA</b>				
*G0MTN	20,910	126	0	34	DL8SCG	358,362	823	28	58	(OP: DK3QZ)				*ER3DX	13,926	78	0	33	YU1LA	908,622	1324	40	77	
*G3YBY	20,808	115	0	36	DL9VA	333,333	706	30	61	*DL2SWN	6,776	50	0	28	*ER3MM	13,392	68	1	35	YT1VP	399,080	823	23	66
*G4DBW	18,122	107	1	33	DA0J	272,076	699	24	55	DL8EAO	6,372	48	0	27	<b>NETHERLANDS</b>				YT5A	349,654	794	23	56	
*G4SGI	10,324	70	2	27	(OP: DK1II)				*DL6UOF	5,400	40	0	27	PA80	180,544	536	12	52	YT7W	296,634	688	18	60	
*G8MIA	5,675	45	0	25	DJ6TK	260,901	649	22	59	*DL1DTL	5,350	47	0	25	PABLOU	96,778	357	8	45	<b>OM7CW</b>				
M0AAA	5,106	48	0	23	DL4MCF	230,432	616	17	59	*DG7RO	5,145	80	0	15	PA7FA	93,072	175	25	59	OM7CA	223,248	667	25	54
(OP: G0VQR)					DK2FG	203,490	435	26	59	*DH7AMF	5,106	51	0	23	PA0JNH	83,277	279	9	48	OM7BT	295,588	666	8	58
<b>ESTONIA</b>					DF2UU	201,708	502	21	57	*DL2RZG	4,914	51	0	21	PA0ABM	83,056	276	8	50	OM3IAG	187,473	513	13	56
ES5QX	811,939	1360	33	68	DL6NCY	184,464	508	17	55	*DL2YED	4,851	51	0	21	PA0WRS	82,502	185	18	53	OM30M	181,374	612	5	52
*ES5NC	55,930	312	0	35	DL4ME	181,704	568	17	50	*DL80ZV	4,825	41	0	25	PA5TT	70,252	263	2	50	OM7DX	177,580	533	11	54
*ES3RF	49,726	201	1	45	DL5MEV	178,572	313	36	56	DL4CF	4,646	43	1	22	PA5A	62,744	268	0	46	OM4DN	88,967	420	0	43
*ES6KW	11,804	91	0	26	DJ6QT	174,306	547	12	54	DJ5CL	4,557	47	0	21	PA0QX	42,661	237	0	37	OM7YC	72,576	296	2	46
<b>EUROPEAN RUSSIA</b>					DK3QZ	155,244	467	17	51	DL0DYW	4,374	57	0	18	*PA7LV	41,008	182	5	39	OM38A	60,984	296	0	42
RU1A	839,952	1241	41	73	*DJ80G	148,740	525	13	47	(OP: DJ5CL)				PA3AAV	40,082	146	12	37	OM8DD	55,596	275	0	41	
(OP: UA1RX)					DL1ELY	140,224	561	11	45	DL1CW	3,816	49	0	18	PA1W	10,304	76	0	28	OM4DA	24,412	147	0	34
RW4PL	404,640	771	18	72	DL1NEO	134,650	591	2	48	*DL5KMS	3,680	35	0	23	PA0FEW	9,958	79	0	26	OM1AF	18,414	143	0	27
RZ3AZ	287,839	750	13	60	DL5MX	131,499	499	8	49	*DL5XX	3,553	40	0	19	*PA0MIR	26,825	146	0	37	<b>SLOVENIA</b>				
UA4WKW	221,130	637	0	63	*DL9CW	127,656	521	2	52	*D01YCL	3,104	46	0	16	PE2JMR	18,270	127	0	30	S51TA	1,029,120	1417	40	80
UA3SAQ	211,956	612	7	61	DJ5HD	115,412	386	11	50	*DL7FA	2,831	30	0	19	PA3HGF	10,860	73	0	30	S530	776,682	1123	45	69
RD4WA	182,520	586	0	60	DJ6OZ	114,009	350	11	50	DL0TUM	2,550	37	0	15	PA1W	10,304	76	0	28	S59A	293,248	667	25	54
*RN3GM	176,100	585	5	55	DL5JS	110,396	464	7	45	(OP: DJ4MZ)				PA0WRS	82,502	185	18	53	OM70T	225,588	666	8	58	
*UA6LFQ	172,928	526	8	56	DM3ML	107,736	308	15	52	*DL8DXL	2,130	32	0	15	*PA3HGF	10,860	73	0	30	OM3IAG	187,473	513	13	56
RV1CC	164,450	502	13	52	*DK6KZ	105,650	481	1	49	*DL7VRG	1,568	22	0	16	PA0WRS	82,502	185	18	53	OM30M	181,374	612	5	52
RA3NN	153,282	508	5	54	*DL5MO	105,325	402	7	48	*DM3PKK	1,443	24	0	13	PA0WRS	82,502	185	18	53	OM7DX	177,580	533	11	54
RN1CC	142,002	591	1	48	*DL3YM	104,436	407	7	47	*DF2PH	918	30	0	9	PA0WRS	82,502	185	18	53	OM4DN	88,967	420	0	43
RW6AN	134,505	433	8	53	*DL7UMK	104,193	442	4	47	*DF2QZ	675	18	0	9	PA1W	10,304	76	0	28	OM7YC	72,576	296	2	46
UA4FER	128,684	491	0	53	DK7ZT	96,030	280	16	50	DJ9UJ	640	17	0	10	PA0FEW	9,958	79	0	26	OM38A	60,984	296	0	42
UA1QM	123,063	490	0	51	DK3UA	95,294	296	9	53	*D09ST	427	14	0	7	*PA0FEH	5,642	43	1	25	OM8DD	55,596	275	0	41
RV3FI	122,550	499	0	50	DL5YM	87,000	373	4	46	DJ4SO	162	4	0	6	*PA7HPH	1,404	24	0	12	OM4DA	24,412	147	0	34
RZ3QZ	121,394	409	3	55	DL9GFB	84,622	302	10	48	DL2OM	100	5	10	10	LA9TJA	162	6	0	6	OM1AF	18,414	143	0	27
*RU3VD	118,944	412	4	52	*DF5BM	82,824	355	5	46	<b>GREECE</b>				LA8WG	32,508	148	1	41						
RA3CM	114,415	455	3	46	*DJ8UJ	81,648	299	7	49	SV3RF	601,188	959	34	68	LA6DW	13,400	108	1	24					
*UA4FRL	114,228	394	2	55	*DL3KUM	80,100	348	4	46	SZ6P	576,504	1009	31	71	*LA3ZA	10,092	72	0	29					
UA3AP	109,458	404	7	47	DL7JRD	79,218	301	8	46	*SX1L	296,526	751	9	64	*LA1PHA	440	11	0	8					
*RU3EJ	109,200	448	1	49	DK6CO	77,760	295	3	51	SV1GRD	52,650	199	3	47	LA9TJA	162	6	0	6					
UA4CC	101,340	279	2	58	DL1VDL	75,411	235	14	49	SV1DPI	44,512	160	5	47	<b>POLAND</b>									
UA4RZ	101,185	317	3	56	*DL2RUG																			

*SM5DXR	28,764	171	0	34	K4ORD	31,300	273	45	5	GEORGIA	1,039,036	1801	58	76	JAPAN	58,359	159	19	30	ITALY	833,840	1270	40	72
*SM5MX	26,964	147	0	36	RN3ANT	30,970	163	0	38	W8JL/4	149,682	390	51	50	JA2XYO	309,285	418	35	52	IQ2CJ	661,893	1037	38	73
*SM7EH	8,034	63	0	26	EW6CU	26,748	157	0	36	N4RJ	61,848	311	49	23	JA3YBK	89,031	187	15	44	IK1YDB	424,396	841	30	62
*SE6C	7,797	69	0	23	OK4MM	26,381	300	34	3	W5LE/4	45,084	164	38	30	JH3PRR	4,522	86	7	12	IQ1SM	232,386	577	20	57
				(OP: SM6CDN)	K3TW	26,301	163	0	33	K4DLI					JABZRY					IK2AHB	87,350	345	4	46
					LY2BBF	25,872	119	0	33						KAZAKHSTAN	410,520	688	0	66	IQ4FA	44,772	220	0	41
					RW4AA										UPBL					KALININGRAD	1,085,364	1541	41	77
															6M8V					UA2FW	985,134	1464	40	73
															3W3W					LITHUANIA	398,937	969	21	56
															9M4DXX					LY7A	172,592	593	11	45
															OHZ					LY2J	153,400	570	6	46
															OE2S					LY2XW	34,155	115	8	47
															CUBA					LY2OU				
															OR2T					MONTENEGRO	1,577,610	1889	50	85
															LZ9W					NETHERLANDS	714,420	1124	41	67
															9A2AA					PI4COM	667,337	1143	39	64
															9A7A					PC5M	551,820	894	44	58
															9A58KDE					PA1TT	311,418	733	21	52
															9A1ACD					PA5KT	193,970	394	37	54
															9A9R					NORWAY	777,840	1328	34	71
															OK5W					LN3Z	189,930	546	11	54
															OL3K					LA2AB				
															OL5Z					POLAND	694,050	1124	40	65
															OL7T					SN3R	455,685	1008	24	61
															OL8A					SN9Z	208,035	610	11	56
															OL9K					SN1I	42,804	206	0	41
															OL9M					YOSKAD	282,100	819	5	60
															OL9N					YR8D	100,224	409	4	44
															OL9P					YT6T	625,581	1088	33	66
															OL9Q					YT9X	510,150	971	27	68
															OL9R					YU1WS	30,960	129	7	38
															OL9S					SLOVAKIA	1,518,429	1616	56	85
															OL9T					OM7M	1,175,232	1150	50	72
															OL9U					OM8A	843,594	1183	41	78
															OL9V					OM5M	737,725	1073	46	69
															OL9W					OM4A	536,820	1024	31	61
															OL9X					OM3HE	391,878	920	21	60
															OL9Y					OM3RRC	198,648	623	10	52
															OL9Z					OM3KTP	4,726	63	0	17
															OL9AA					SLOVENIA	617,586	1187	31	67
															OL9AB					SS2AW	520,211	974	30	67
															OL9AC					SS2Z	514,779	951	33	64
															OL9AD					SS4D	383,514	883	24	58
															OL9AE					SS5A	180,699	529	9	58
															OL9AF					SS7AL	47,171	226	0	43
															OL9AG					SPAIN	526,109	1017	36	65
															OL9AH					EA5RS	406,176	707	36	60
															OL9AI					EA2EA	310,076	586	33	56
															OL9AJ					EA4KD	222,302	482	29	53
															OL9AK					EA1WX	191,178	446	25	53
															OL9AL					SWEDEN	1,009,962	1443	42	76
															OL9AM					SM5FUG	64,907	265	5	42
															OL9AN					SWITZERLAND	131,712	392	9	55
															OL9AO					UKRAINE	764,712	1086	38	79
															OL9AP					UR4LRG	855,760	945	36	76
															OL9AQ					UZ1H	361,784	830	17	65
															OL9AR					UX4E	75,744	311	0	48
															OL9AS					UT5A	74,088	293	1	48
															OL9AT					UW9L	46,096	239	0	39
															OL9AU					OCEANIA	663,876	827	56	25
															OL9AV					HAWAII				
															OL9AW					SA				
															OL9AX					SA				
															OL9AY					SA				
															OL9AZ					SA				
															OL9BA					SA				
															OL9BB					SA				
															OL9BC					SA				
															OL9BD					SA				
															OL9BE					SA				
															OL9BF					SA				
															OL9BG					SA				
															OL9BH					SA				
															OL9BI					SA				
															OL9BJ					SA				
															OL9BK					SA				
															OL9BL					SA				
															OL9BM					SA				
															OL9BN					SA				
															OL9BO					SA				
															OL9BP					SA				
															OL9BQ					SA				
															OL9BR					SA				
															OL9BS					SA				
															OL9BT					SA				
															OL9BU					SA				
															OL9BV					SA				
															OL9BW					SA				
															OL9BX					SA				
															OL9BY					SA				
															OL9BZ					SA				





Country	City	Frequency	Power	Mode	Notes			
ENGLAND	*G3VAO	74,458	232	12	47			
	*M3RCV	21,456	118	0	36			
	*G6SFP	10,540	65	0	31			
	*M8E2P	3,780	35	0	21			
	*G4PIQ	2,198	34	0	14			
	*M8XDF	2,175	28	0	15			
	MZ8A	385	10	0	7			
						(OP: MMBXAU)		
	*G4WGE	80	4	0	4			
ESTONIA	ESSRW	382,670	826	19	66			
	*ES6KW	12,930	85	0	30			
	EST1P	7,756	56	0	28			
EUROPEAN RUSSIA	RU6LA	79,458	258	4	53			
	RK3DK	55,920	224	0	48			
	*UA6AIW	50,355	224	0	45			
	*RN3AHL	44,704	193	0	44			
	RU1AB	44,462	184	0	47			
	*UA4FRL	37,214	154	1	45			
	*RV3LZ	23,160	112	0	40			
	*RV3LO	20,332	121	0	34			
	*RU6YJ	19,044	106	0	36			
	*UA6YIU	18,684	104	0	36			
*RD6LP	16,592	99	0	34				
RV1CC	15,097	99	0	31				
*RA6XB	14,868	60	0	42				
*RA4FUT	14,250	117	0	25				
RA1AR	13,253	93	0	29				
*UA6YI	11,067	66	0	31				
*UA1CUB	10,808	77	0	28				
*RK4PB	9,984	69	0	26				
*RU6HJ	8,996	68	0	26				
RK3AEX	7,766	70	0	22				
*RU4FA	7,700	60	0	25				
*UA3LHL	7,061	66	0	23				
RA4HBS	6,371	55	0	23				
*RU3SD	5,700	38	0	25				
RZ3DA	5,616	44	0	24				
*UA3MEJ	4,862	44	0	22				
*RU3JW	3,312	37	0	18				
*UA3QO	3,128	39	0	17				
RK6AQM	792	12	0	11				
*RA1QK	720	14	0	10				
UA4NC	174	7	0	6				
*RZ3VA	168	11	0	4				
FINLAND	OH5NE	24,624	130	0	36			
	OH6NO	20,720	114	0	35			
	OH2BO	14,880	67	1	39			
	*OHMFA	5,934	53	0	23			
*OH6GF	14	2	0	2				
FRANCE	*F4FLO	57,330	233	1	48			
	*F4DSK	42,168	197	1	41			
	*F5VLV	40,005	173	1	44			
	FSOWT	15,930	104	0	30			
*F5NCU	8,840	66	0	26				
*F1TRE	280	7	0	7				
GERMANY	DL1Z	224,124	676	17	59			
					(OP: DF3KV)			
	*D02ML	200,464	676	11	57			
	*DK8WL	178,780	566	12	58			
	DL3LAB	129,920	522	9	49			
	DJ80G	124,178	494	3	55			
	DL5JS	75,450	352	6	44			
	DL5MEV	68,800	215	10	54			
	*DJ8UJ	63,600	347	2	46			
	DL1SWB	63,403	334	3	44			
DJ1TW	53,486	271	3	44				
DL8SCG	48,488	159	9	49				
DG7RO	45,919	213	6	41				
DJ60Z	38,688	161	5	43				
DH2RTW	32,064	142	9	39				
*DK7MCX	31,996	205	1	37				
DG1EA	26,182	168	0	38				
*DK1AX	25,830	186	0	35				
DJ1AA	25,049	172	2	35				
*DL1NKS	24,609	145	0	39				
DA3X	23,870	178	2	33				
DK6CO	23,240	158	0	35				
*DG8CC	21,632	177	0	32				
*DL8NBE	20,904	126	0	39				
DD1JN	19,856	141	0	34				
DG2NMF	19,516	141	1	33				
DK1KC	19,278	138	0	34				
*DJ2YE	17,267	141	0	31				
*DL8NAL	16,416	122	0	32				
DL1ECG	16,092	97	1	35				
*DM2BPG	15,972	111	0	33				
*DL4WA	13,920	117	0	30				
*DF5BX	13,470	111	0	30				
DJ8IF	12,712	113	0	28				
*DJ5TT	12,236	105	0	28				
*DH7LF	11,788	100	0	28				
DJ5MW	11,774	108	0	29				
*DL2V5F	11,550	91	0	30				
DL5ST	10,350	81	0	30				
*D05AWE	10,192	88	0	28				
*DK7FP	10,170	79	0	30				
DP9A	10,098	62	0	34				
					(OP: DK4WA)			
*DL3MGK	9,537	57	0	33				
*DL8YR	8,730	67	0	30				
DF2IAX	8,320	75	0	26				
*DF1LON	8,060	72	1	25				
*DJ5IW	7,904	76	0	26				
*D07GG	7,452	60	1	26				
*D04DXA	6,946	72	0	23				
DJ2ST	6,800	64	1	24				
DL7BA	6,468	43	2	26				
DL5MFK	6,150	49	0	25				
*DL2ZA	5,775	71	0	21				
*DL1LQL	5,523	63	0	21				
*DL8FR	4,945	51	0	23				
					(OP: DJ5IW)			
DG8LFG	4,810	38	0	26				
*DL7UAI	4,422	47	0	22				
*DG3FK	4,202	38	3	19				
*D09PL	3,591	45	0	19				
*DL6RBH	3,536	50	0	17				
DL5SVB	3,168	51	0	16				
*DK4WF	2,704	38	0	16				
*DL1HSJ	2,312	32	0	17				
GREECE	SY2V	72,216	281	2	49			
					(OP: SV2GJV)			
	SV1GRD	32,736	142	0	44			
	*SV2KBE	15,903	105	0	31			
	*SV1EQU	8,632	77	1	25			
	SV7BOT	7,950	85	0	25			
	SV2FLO	5,773	55	0	23			
	HUNGARY	HA7PL	132,809	440	7	52		
		*HA8BE	128,797	424	4	55		
		HG7T	92,920	397	0	46		
HA3NU		90,736	333	4	49			
*HA1BC		28,305	153	0	37			
						(OP: DL1MAJ)		
*HA1CW		14,060	74	0	37			
HADHW		12,120	81	0	30			
*HA5AZZ		8,497	62	0	29			
ICELAND		TF4M	1,300	17	0	13		
	IRELAND	E1SHX	74,823	301	5	43		
		*E1QENB	13,736	82	2	32		
		ITALY	I2WUJ	87,615	324	7	48	
			IK4SPB	53,946	190	5	49	
			*I1EIS	35,696	150	1	45	
			*I2BEPX	32,040	139	1	44	
			*IK8LND	31,320	137	0	45	
			IT9ZTX	23,184	100	0	42	
			IK1BCC	22,648	117	1	37	
*IK5WVW			18,259	126	0	31		
*IK2SAU	15,366		76	0	39			
IV3BKH	14,319		74	1	36			
*I25GHD	12,992	81	1	31				
I25MOQ	7,540	61	0	26				
*I21DSH	4,000	29	0	25				
IK2IKW	1,534	25	0	13				
*I21DXS	876	14	0	12				
KALININGRAD	RW2F	458,136	1004	19	65			
					(OP: UA2FB)			
	*UA2FFX	16,994	116	0	29			
	UA2FT	8,370	57	0	27			
	LATVIA	YL2GD	16,028	81	2	34		
		*YL1ZJ	9,290	80	0	23		
		*YL2PP	2,160	26	0	16		
		LITHUANIA	LY2OU	82,839	295	4	49	
			*LY4T	15,030	100	0	30	
			LY7M	3,870	42	0	18	
*LY3BA			423	10	0	9		
*LY200			224	7	0	7		
LUXEMBOURG			LX1ER	8,908	49	1	33	
			MACEDONIA	*Z36N	93,443	361	0	49
	Z32ID			8,050	63	0	25	
	MONACO			*3A/EA1DVY	30,940	177	0	34
				NETHERLANDS	PA1TT	117,558	433	8
		PABJM			64,980	289	2	43
		*PA1CM			35,862	160	4	39
		PA9DO			30,691	115	8	39
		PABJNH			26,960	134	0	40
		PABLOU			21,606	106	2	37
*PABMIR		10,730			76	0	29	
PA3AAV		7,124	48		7	19		
*PE2JMR		5,040	51		0	20		
PA5KT	4,872	44	0		21			
*PA3ASE	4,641	46	0	21				
*PA8FEI	1,800	23	0	15				
PA1W	1,440	24	0	12				
NORTHERN IRELAND	G1BKOW	44,325	184	5	40			
	NORWAY	*LA7TN	6,734	53	0	26		
		LA9TJA	2,193	26	1	16		
		*LA6BNA	24	3	0	2		
		POLAND	SP7MTF	391,919	947	16	63	
			SP2EXN	116,361	349	9	54	
			*SP3GXH	74,863	352	1	42	
			SP6CZ	53,882	175	4	54	
			*SP9NWN	51,414	257	0	41	
			*SN5J	27,680	137	0	40	
							(OP: SP5JXX)	
*SP5CJY	27,280		119	1	43			
SP1MVG	19,720		119	0	34			
SN4L	14,100		96	0	30			
					(OP: SQ4MP)			
*SP8HXN	13,959	82	0	33				
*SP9DTE	11,136	80	0	29				
*SQ2EAN	10,504	87	0	26				
*SP4LVK	6,966	53	0	27				
*SP7TEX	6,175	50	0	25				
SP1O	5,936	42	0	28				
*SQ4DXM	5,200	58	0	20				
*SP3XR	4,914	48	0	21				
*SN1A	3,240	39	0	18				
					(OP: SP1EG)			
*SN9U	2,032	25	0	16				
					(OP: SP9UMJ)			
*SP3GTS	1,134	18	0	14				
PORTUGAL	CT1DHM	34,656	128	9	39			
	CT1EGW	682	11	0	11			
	ROMANIA	Y0ZR	46,830	220	0	42		
						(OP: Y0ZRR)		
		*Y03APJ	40,488	167	1	45		
		*Y03FRI	29,988	132	0	42		
		*Y02IS	23,688	131	0	36		
		*Y03CZW	16,920	109	0	30		
		Y05880	15,168	94	0	32		
		*Y03JW	9,386	70	0	26		
YR8D		7,550	60	0	25			
						(OP: Y08CLN)		
*Y04KCC	5,496	47	0	24				
*Y02LXW	1,000	20	0	10				
SERBIA	*Y12U	4,446	47	0	19			
	*Y18AA	120	4	1	3			
	SLOVAKIA	OM7JG	87,096	287	9	48		
		*OM4DN	29,785	171	0	35		
		*OM6AL	26,894	157	0	34		
		*OM7YC	7,848	65	0	24		
		SLOVENIA	S57DX	331,344	814	14	64	
			S530K	275,798	713	12	62	
			S50K					

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- Bluetooth® for Hands-free Operation\*<sup>1</sup>
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- Waterproof/Submersible IPX7 rated -3 feet for 30 minutes
- Dual Ham band Operation (V+V/U+U/V+U) while listening to AM/FM Broadcasts
- Wideband Receive for 500 kHz-999.99 MHz\*<sup>2</sup>
- Completely independent AM/FM receiver included!
- Internal Bar Antenna for better AM Broadcast Band reception.
- Enjoy FM broadcasts in stereo, with your stereo headset/earphone!
- Optional 1 watt operation, using three AA batteries\*<sup>1</sup>
- A large LCD backlit display in a compact case!
- Up to 9 hours\*<sup>3</sup> of Amateur Band operation with the optional FNB-102LI, high capacity Lithium-ion Battery.

\*<sup>1</sup> With optional accessories

\*<sup>2</sup> US Version - Cellular band blocked

\*<sup>3</sup> Assuming a duty cycle of 6-second transmit, 6-second receive, and 48-second standby (50 MHz 5 W)

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50/144/(222)\*430 MHz  
FM 5 W/AM 1 W(50 MHz) Triple Band Handheld

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50/144/(222)\*430 MHz  
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**VX-8R** **NEW**

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